GRASSLAND BYPASS PROJECT

MONTHLY DATA REPORT

October 2002

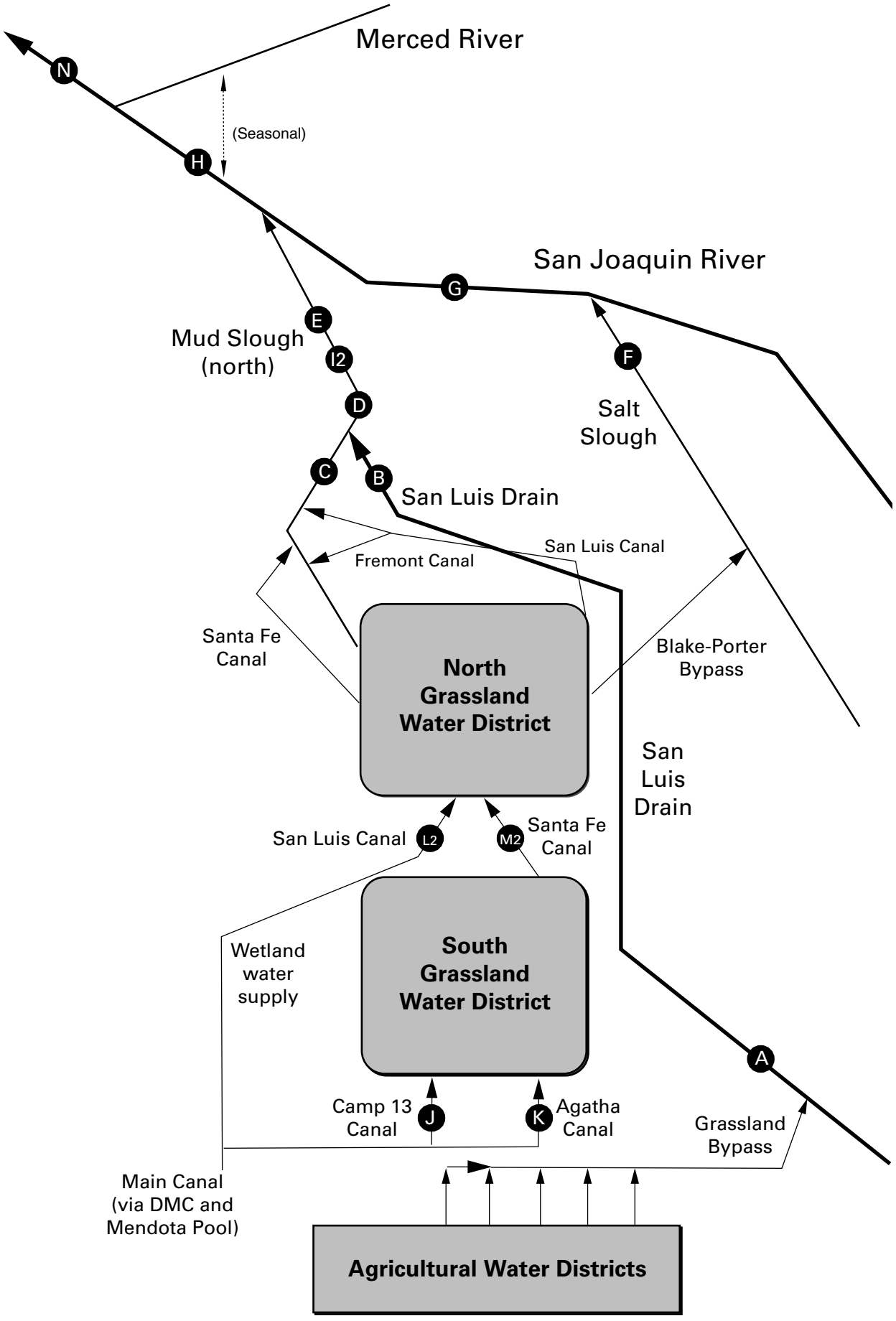
January 27, 2003

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


Merced River
N
(Seasonal)
H
San Joaquin River
G
E
Mud Slough
(north)
I2
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

LIST OF TABLES FOR MONTHLY REPORT

Table 1. Continuous water monitoring at Station A (inflow to San Luis Drain), October 2002.

See Table 26 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow	Specific Conductance
DATA SOURCE	SLDMWA	SLDMWA
UNITS	cfs	µS/cm
Oct-01-2002	12	5,850
Oct-02-2002	11	6,110
Oct-03-2002	10	6,250
Oct-04-2002	10	6,100
Oct-05-2002	12	5,910
Oct-06-2002	14	5,900
Oct-07-2002	14	4,830
Oct-08-2002	16	4,660
Oct-09-2002	18	3,980
Oct-10-2002	18	4,000
Oct-11-2002	17	4,030
Oct-12-2002	14	4,300
Oct-13-2002	13	4,550
Oct-14-2002	12	4,590
Oct-15-2002	13	4,530
Oct-16-2002	17	4,560
Oct-17-2002	22	4,210
Oct-18-2002	20	3,920
Oct-19-2002	15	4,620
Oct-20-2002	15	4,880
Oct-21-2002	15	4,990
Oct-22-2002	16	5,210
Oct-23-2002	15	5,370
Oct-24-2002	15	5,450
Oct-25-2002	15	5,350
Oct-26-2002	15	5,320
Oct-27-2002	15	5,350
Oct-28-2002	14	5,340
Oct-29-2002	14	5,340
Oct-30-2002	14	5,260
Oct-31-2002	13	5,460
Mean	15	5,040

PRELIMINARY RESULTS

Table 2a. Continuous water monitoring at Station B (discharge from San Luis Drain), October 2002.

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-01-2002	19	19.7	8.9	5,000	64.4	6.6
Oct-02-2002	17	16.6	8.7	4,860	57.2	5.2
Oct-03-2002	16	16.5	9.0	4,990	67.0	5.8
Oct-04-2002	13	17.8	9.4	5,180	69.8	4.9
Oct-05-2002	13	19.0	8.7	4,980	74.1	5.2
Oct-06-2002	14	20.2	8.2	4,820	85.4	6.4
Oct-07-2002	16	21.0	7.8	4,530	66.8	5.8
Oct-08-2002	17	21.7	8.0	4,520	50.6	4.6
Oct-09-2002	19	22.0	8.5	4,850	57.7	5.9
Oct-10-2002	22	21.7	8.2	4,840	57.2	6.8
Oct-11-2002	18	20.7	8.6	5,310	67.9	6.6
Oct-12-2002	22	20.3	9.1	5,460	67.5	8.0
Oct-13-2002	19	20.3	9.2	5,470	68.2	7.0
Oct-14-2002	20	20.7	9.2	5,360	81.9	8.8
Oct-15-2002	18	20.4	8.1	4,680	62.1	6.0
Oct-16-2002	20	19.8	7.2	4,320	51.8	5.6
Oct-17-2002	22	19.0	6.4	3,910	45.0	5.3
Oct-18-2002	28	18.5	5.9	3,850	56.9	8.6
Oct-19-2002	27	18.2	6.1	3,890	51.6	7.5
Oct-20-2002	23	18.4	6.6	4,130	52.4	6.5
Oct-21-2002	22	18.8	6.3	4,170	46.4	5.5
Oct-22-2002	22	18.7	6.6	4,290	54.2	6.4
Oct-23-2002	23	18.4	6.5	4,200	67.6	8.4
Oct-24-2002	23	17.2	6.3	4,120	77.5	9.6
Oct-25-2002	22	17.1	5.9	3,790	60.0	7.1
Oct-26-2002	22	17.1	6.6	4,130	70.0	8.3
Oct-27-2002	22	17.0	7.1	4,390	71.2	8.4
Oct-28-2002	22	16.9	7.2	4,470	74.4	8.8
Oct-29-2002	21	17.0	7.6	4,570	70.8	8.0
Oct-30-2002	21	16.7	7.5	4,580	74.6	8.4
Oct-31-2002	22	15.7	8.1	4,690	79.0	9.4
Mean	20	18.8	7.7	4,590	64.6	
Total Acre-feet	**1,240**				**Total (lbs)**	**216**

Load Limitation for October 2002	**(lbs)**	**308**

Figure 2b. Monthly selenium discharges from the terminus of the San Luis Drain into Mud Slough compared to load values.

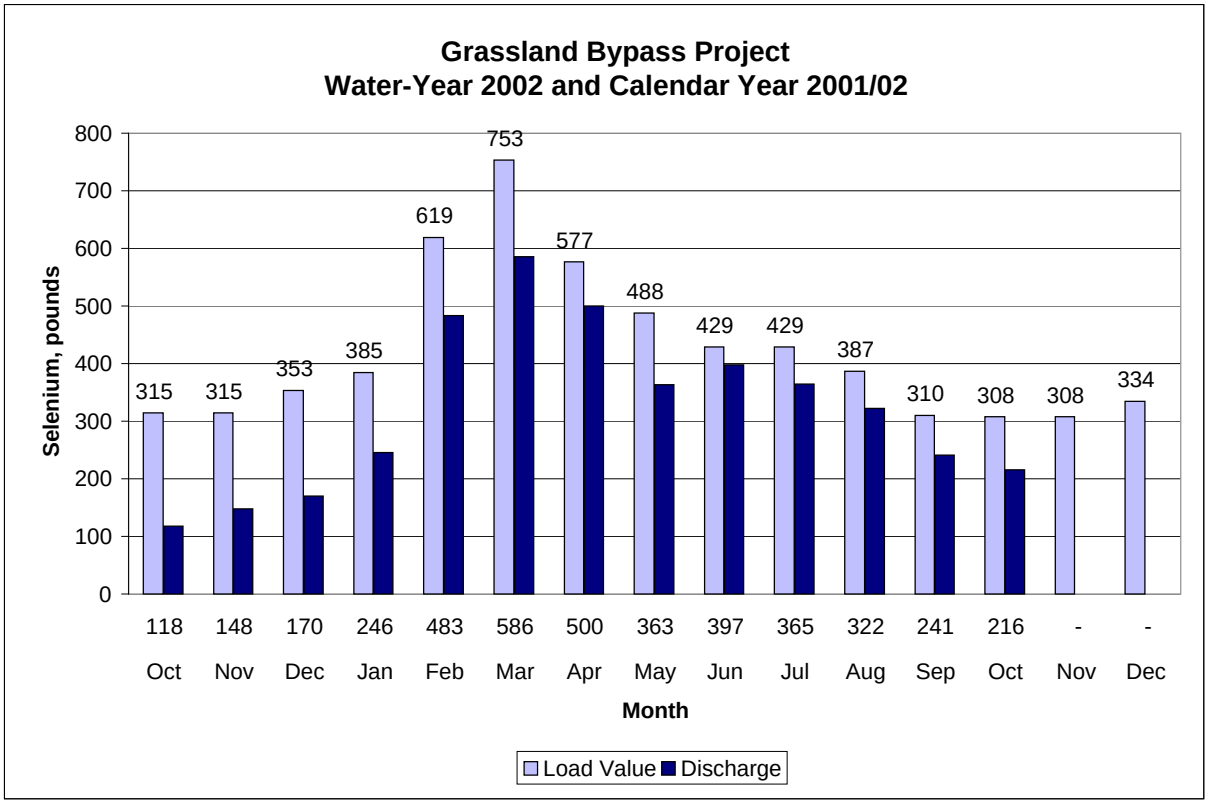


Table 2b. Monthly selenium discharges from the terminus of the San Luis Drain into Mud Slough compared to load values.

PARAMETER	Discharge	Load Value
UNITS	lbs	lbs
Oct	118	315
Nov	148	315
Dec	170	353
Jan	246	385
Feb	483	619
Mar	586	753
Apr	500	577
May	363	488
Jun	397	429
Jul	365	429
Aug	322	387
Sep	241	310
Oct	216	308
Nov	-	308
Dec	-	334

Table 3. Continuous water monitoring at Station D (Mud Slough North downstream of drainage discharges), October 2002.

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-01-2002	39	18.8	2,750
Oct-02-2002	38	16.0	2,740
Oct-03-2002	41	16.4	2,700
Oct-04-2002	40	18.0	2,530
Oct-05-2002	39	19.1	2,590
Oct-06-2002	40	20.2	2,620
Oct-07-2002	39	21.1	2,770
Oct-08-2002	39	21.7	2,760
Oct-09-2002	40	21.7	2,850
Oct-10-2002	41	21.2	3,010
Oct-11-2002	45	19.8	2,590
Oct-12-2002	54	19.2	2,750
Oct-13-2002	56	19.4	2,520
Oct-14-2002	72	19.7	2,240
Oct-15-2002	99	19.5	1,750
Oct-16-2002	137	18.8	1,480
Oct-17-2002	139	18.2	1,470
Oct-18-2002	120	17.9	1,730
Oct-19-2002	119	17.9	1,750
Oct-20-2002	109	18.2	1,780
Oct-21-2002	124	18.4	1,690
Oct-22-2002	150	18.4	1,590
Oct-23-2002	186	17.7	1,490
Oct-24-2002	195	16.6	1,460
Oct-25-2002	163	16.5	1,530
Oct-26-2002	163	16.6	1,550
Oct-27-2002	163	16.6	1,630
Oct-28-2002	154 e	NA	NA
Oct-29-2002	145 e	NA	NA
Oct-30-2002	138 e	NA	NA
Oct-31-2002	132 e	NA	NA
Mean	99	18.7	2,160

Table 4. Continuous water monitoring at Station F (Salt Slough at Highway 165), October 2002.

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-01-2002	81	18.3	1,270
Oct-02-2002	72	15.8	1,350
Oct-03-2002	82	16.5	1,270
Oct-04-2002	79	18.2	1,230
Oct-05-2002	68	19.4	1,320
Oct-06-2002	64	20.5	1,340
Oct-07-2002	69	21.3	1,320
Oct-08-2002	66	21.8	1,250
Oct-09-2002	50	21.9	1,350
Oct-10-2002	53	21.1	1,400
Oct-11-2002	61	19.3	1,350
Oct-12-2002	66	18.9	1,300
Oct-13-2002	78	19.1	1,290
Oct-14-2002	80	19.4	1,300
Oct-15-2002	78	19.0	1,370
Oct-16-2002	86	18.1	1,390
Oct-17-2002	88	17.6	1,250
Oct-18-2002	85	17.4	1,300
Oct-19-2002	82	17.6	1,380
Oct-20-2002	85	18.0	1,390
Oct-21-2002	99	18.1	1,360
Oct-22-2002	104	18.0	1,340
Oct-23-2002	110	17.1	1,310
Oct-24-2002	138	16.0	1,210
Oct-25-2002	160	16.0	1,220
Oct-26-2002	158	16.0	1,260
Oct-27-2002	164	16.1	1,240
Oct-28-2002	176	16.1	1,220
Oct-29-2002	182	16.0	1,220
Oct-30-2002	170	15.5	1,280
Oct-31-2002	149	14.6	1,350
Mean	99	18.0	1,300

Table 5. Continuous water monitoring at Station N (San Joaquin River at Crow's Landing), October 2002.

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-01-2002	366	18.9	1,240	2.9
Oct-02-2002	373	16.4	1,280	2.7
Oct-03-2002	344	16.9	1,190	2.2
Oct-04-2002	387	18.3	1,320	2.6
Oct-05-2002	382	19.2	1,290	3.0
Oct-06-2002	361	20.1	1,270	2.5
Oct-07-2002	372	20.9	1,260	2.5
Oct-08-2002	361	21.3	1,290	3.1
Oct-09-2002	343	21.5	1,280	3.2
Oct-10-2002	296	20.7	1,350	2.6
Oct-11-2002	297	19.4	1,460	3.0
Oct-12-2002	312	18.9	1,500	3.7
Oct-13-2002	373	18.8	1,440	3.2
Oct-14-2002	407	19.1	NA	NA
Oct-15-2002	409	18.9	1,240	2.8
Oct-16-2002	414	18.3	NA	NA
Oct-17-2002	572	18.0	NA	NA
Oct-18-2002	746	17.5	730	P
Oct-19-2002	895	17.0	598	P
Oct-20-2002	956	17.1	580	P
Oct-21-2002	1,010	17.1	553	P
Oct-22-2002	1,050	17.0	539	P
Oct-23-2002	1,090	16.6	540	P
Oct-24-2002	1,100	15.9	560	P
Oct-25-2002	1,080	15.8	590	P
Oct-26-2002	1,020	15.8	630	P
Oct-27-2002	928	15.9	713	P
Oct-28-2002	872	16.0	800	P
Oct-29-2002	830	15.9	852	P
Oct-30-2002	808	15.4	870	P
Oct-31-2002	782	14.5	907	P
Mean	630	17.8	995	2.9

PRELIMINARY RESULTS

Table 6a. Weekly water quality monitoring at Station A (inflow to San Luis Drain), taken from grab samples.

See Table 26 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow	.	.	Specific Conductance	Total Suspended Solids	.	.	.
DATA SOURCE	SLDMWA	.	.	CVRWQCB	CVRWQCB	.	.	.
UNITS	cfs	.	.	µS/cm	mg/L	.	.	.
Aug-07-2002	55	.	.	3,860	140	.	.	.
Aug-14-2002	58	.	.	3,470	110	.	.	.
Aug-21-2002	55	.	.	3,560	140	.	.	.
Aug-28-2002	45	.	.	3,670	76	.	.	.
Sep-04-2002	48	.	.	3,890	91	.	.	.
Sep-11-2002	36	.	.	3,960	110	.	.	.
Sep-18-2002	25	.	.	4,650	P	.	.	.
Sep-25-2002	16	.	.	5,070	88	.	.	.
Oct-02-2002	11	.	.	6,170	57	.	.	.
Oct-09-2002	18	.	.	4,470	110	.	.	.
Oct-16-2002	17	.	.	5,010	65	.	.	.
Oct-23-2002	15	.	.	5,210	59	.	.	.
Oct-30-2002	14	.	.	5,480	P	.	.	.

Table 6b. Weekly water quality monitoring at Station A (inflow to San Luis Drain), taken from composite samples.

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-06-2002	53	.	.	4,110	.	39.2	.	6.9
Aug-13-2002	61	.	.	3,890	.	35.6	.	7.0
Aug-20-2002	57	.	.	3,620	.	31.6	.	6.0
Aug-27-2002	46	.	.	3,600	.	29.8	.	5.8
Sep-06-2002	39	.	.	3,890	.	37.1	.	6.4
Sep-10-2002	41	.	.	4,140	.	51.4	.	6.0
Sep-17-2002	32	.	.	4,480	.	56.8	.	7.9
Sep-24-2002	17	.	.	5,030	.	66.0	.	8.7
Oct-01-2002	12	.	.	5,650	.	89.5	.	10.0
Oct-08-2002	16	.	.	5,860	.	83.7	.	11.0
Oct-15-2002	13	.	.	4,530	.	68.0	.	8.1
Oct-22-2002	16	.	.	4,950	.	95.5	.	8.4
Oct-29-2002	14	.	.	5,550	.	P	.	9.4

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

See Table 26 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow	Temperature	pH	Specific Conductance	Total Suspended Solids	Selenium (total)	.	Boron
DATA SOURCE	USGS	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB	.	CVRWQCB
UNITS	cfs	°C		µS/cm	mg/L	µg/L	.	mg/L
Aug-01-2002	49	25.1	8.6	3,610	59	24.4	.	6.8
Aug-08-2002	57	23.2	8.4	3,960	44	39.2	.	6.7
Aug-15-2002	60	25.3	8.3	3,600	42	35.3	.	6.5
Aug-22-2002	56	22.3	8.3	3,660	P	36.8	.	6.0
Aug-29-2002	47	22.4	7.3	3,420	P	33.7	.	5.5
Sep-05-2002	49	23.6	8.3	3,570	50	29.6	.	5.2
Sep-12-2002	39	23.0	8.1	3,620	P	42.1	.	5.8
Sep-19-2002	28	22.4	8.5	4,940	P	60.3	.	9.0
Sep-26-2002	18	23.4	7.8	4,460	21	99.0	.	8.5
Oct-03-2002	16	15.5	8.4	4,970	40	70.0	.	8.8
Oct-10-2002	22	21.2	8.4	5,010	59	62.6	.	9.1
Oct-17-2002	22	17.7	8.3	3,860	47	45.4	.	7.1
Oct-24-2002	23	16.5	8.1	3,990	P	65.7	.	6.2
Oct-31-2002	22	15.0	8.1	4,820	P	P	.	P

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

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-01-2002	10	26.3	8.3	1,150	0.9	1.3
Aug-08-2002	12	23.8	8.7	1,250	1.2	1.2
Aug-15-2002	1	23.3	8.1	1,350	0.7	1.2
Aug-22-2002	42	21.9	7.8	785	0.7	0.7
Aug-29-2002	6	21.4	8.3	1,310	<0.4	1.2
Sep-05-2002	-6	21.2	8.0	1,270	<0.4	1.0
Sep-12-2002	23	21.8	8.0	1,290	<0.4	1.0
Sep-19-2002	21	21.7	8.1	1,120	0.4	0.8
Sep-26-2002	54	25.0	7.8	972	<0.4	0.5
Oct-03-2002	25	15.1	7.9	1,190	<0.4	0.7
Oct-10-2002	19	23.4	8.3	1,360	<0.4	0.9
Oct-17-2002	117	16.6	8.1	937	0.4	0.5
Oct-24-2002	172	15.9	7.7	989	0.4	P
Oct-31-2002	110	14.3	7.7	1,200	P	P

++ 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).

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-01-2002	59	25.4	8.5	2,840	17.2	5.1
Aug-08-2002	69	22.3	8.6	3,290	29.7	5.4
Aug-15-2002	61	25.1	8.3	3,330	29.0	5.8
Aug-22-2002	98	22.2	8.2	2,460	20.3	3.8
Aug-29-2002	53	22.3	8.3	3,140	28.2	5.2
Sep-05-2002	43	22.9	8.3	3,130	24.3	4.4
Sep-12-2002	62	22.4	8.1	3,400	33.9	5.7
Sep-19-2002	49	21.6	8.2	3,210	30.4	5.2
Sep-26-2002	72	23.6	7.7	2,180	13.1	3.0
Oct-03-2002	41	14.4	8.0	2,510	19.7	3.4
Oct-10-2002	41	22.0	8.2	3,040	26.4	4.6
Oct-17-2002	139	16.7	8.1	1,430	6.4	1.6
Oct-24-2002	195	16.0	7.7	1,420	9.7	P
Oct-31-2002	132 e	14.3	7.8	1,740	P	P

Table 10. Weekly water quality monitoring at Station I2 (Mud Slough backwater downstream of Station D).

See Table 26 for explanation of footnotes and agency abbreviations.

PARAMETER		pH	Specific Conductance	Turbidity	Selenium	Boron
DATA SOURCE		USBR	USBR	USBR	USBR	USBR
UNITS			µS/cm	NTU	µg/L	mg/L
Aug-06-2002	.	8.5	3,590	20.1	29.0	5.8
Aug-13-2002	.	8.6	3,310	20.9	25.2	5.9
Aug-20-2002	.	8.4	2,570	27.5	22.7	4.4
Aug-30-2002	.	8.7	2,880	12.2	24.2	4.6
Sep-04-2002	.	7.9	2,960	13.8	24.3	5.0
Sep-10-2002	.	7.9	3,270	22.5	34.3	5.6
Sep-17-2002	.	7.9	2,530	29.4	22.8	3.6
Sep-24-2002	.	7.5	1,860	21.8	10.1	1.9
Oct-01-2002	.	7.5	2,900	NA	19.5	3.2
Oct-08-2002	.	7.7	2,710	NA	23.8	3.3
Oct-14-2002	.	8.2	2,720	NA	7.3	1.5
Oct-22-2002	.	7.5	1,480	NA	7.8	1.7
Oct-28-2002	.	7.6	1,720	NA	9.0	1.7

Table 11. Weekly water quality monitoring at Station F (Salt Slough at Lander Avenue).

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-01-2002	149	24.1	7.8	923	0.6	0.5
Aug-08-2002	142	22.3	7.8	896	0.5	0.5
Aug-15-2002	131	24.1	7.7	948	0.5	0.4
Aug-22-2002	131	21.1	7.7	1,110	0.6	0.6
Aug-29-2002	104	23.2	7.7	1,270	<0.4	0.6
Sep-05-2002	50	21.5	7.8	1,110	0.5	0.4
Sep-12-2002	55	21.4	7.9	1,280	0.4	0.5
Sep-19-2002	52	20.5	7.6	1,320	0.4	0.6
Sep-26-2002	72	22.4	8.0	1,260	<0.4	0.6
Oct-03-2002	82	14.0	8.0	1,260	0.5	0.6
Oct-10-2002	53	20.1	7.8	1,360	P	0.7
Oct-17-2002	88	16.8	7.8	958	0.5	0.6
Oct-24-2002	138	14.7	7.9	1,110	0.6	0.6
Oct-31-2002	149	14.5	7.7	1,390	P	0.7

Table 12. Weekly water quality monitoring at Station J (Camp 13 Ditch).

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-07-2002	10	.	.	694	0.8	0.5
Aug-14-2002	5	.	.	774	0.8	0.7
Aug-21-2002	5	.	.	570	1.0	0.3
Aug-28-2002	15	.	.	598	0.8	0.3
Sep-04-2002	15	.	.	748	1.1	0.6
Sep-11-2002	15	.	.	702	0.9	0.3
Sep-18-2002	45	.	.	675	0.9	0.3
Sep-25-2002	60	.	.	763	0.9	0.4
Oct-02-2002	135	.	.	745	0.9	0.3
Oct-09-2002	185	.	.	770	1.9	0.4
Oct-16-2002	185	.	.	722	1.1	0.3
Oct-23-2002	40	.	.	735	2.1	0.4
Oct-30-2002	30	.	.	687	P	0.3

Table 13. Weekly water quality monitoring at Station K (Agatha Canal).

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-07-2002	10	.	.	514	0.7	0.2
Aug-14-2002	10	.	.	558	0.8	0.2
Aug-21-2002	10	.	.	580	1.0	0.3
Aug-28-2002	20	.	.	570	0.6	0.2
Sep-04-2002	55	.	.	608	0.9	0.3
Sep-11-2002	95	.	.	615	0.7	0.2
Sep-18-2002	95	.	.	615	0.7	0.2
Sep-25-2002	115	.	.	694	0.8	0.3
Oct-02-2002	165	.	.	705	0.6	0.2
Oct-09-2002	165	.	.	650	0.6	0.2
Oct-16-2002	165	.	.	664	0.6	0.2
Oct-23-2002	70	.	.	605	0.5	0.2
Oct-30-2002	70	.	.	619	P	0.2

Table 14. Weekly water quality monitoring at Station L2 (San Luis Canal at splits).

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-07-2002	0	.	.	1,470	2.2	1.3
Aug-14-2002	10	.	.	1,110	1.3	0.8
Aug-21-2002	10	.	.	1,100	1.5	1.0
Aug-28-2002	10	.	.	1,160	1.2	1.2
Sep-04-2002	45	.	.	820	0.9	0.4
Sep-11-2002	120	.	.	793	1.8	0.3
Sep-18-2002	155	.	.	862	0.8	0.4
Sep-25-2002	155	.	.	802	0.7	0.3
Oct-02-2002	155	.	.	765	0.8	0.3
Oct-09-2002	155	.	.	715	0.6	0.2
Oct-16-2002	135	.	.	672	0.5	0.2
Oct-23-2002	95	.	.	640	0.5	0.2
Oct-30-2002	55	.	.	682	P	0.2

Table 15. Weekly water quality monitoring at Station M2 (Santa Fe Canal at weir).

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-07-2002	62	.	.	1,350	1.4	2.1
Aug-14-2002	59	.	.	1,240	1.3	1.6
Aug-21-2002	88	.	.	1,240	1.4	1.8
Aug-28-2002	78	.	.	1,210	0.9	1.5
Sep-04-2002	4	.	.	1,250	1.2	1.4
Sep-11-2002	8	.	.	1,110	1.2	0.7
Sep-18-2002	39	.	.	950	0.8	0.6
Sep-25-2002	27	.	.	985	0.7	0.6
Oct-02-2002	38	.	.	900	0.7	0.5
Oct-09-2002	44	.	.	880	0.7	0.4
Oct-16-2002	64	.	.	804	0.7	0.4
Oct-23-2002	105	.	.	852	0.6	0.5
Oct-30-2002	87	.	.	996	P	0.7

Table 16. Weekly water quality monitoring at Station G (San Joaquin River at Fremont Ford).

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-01-2002	187	24.8	7.8	980	0.6	0.5
Aug-08-2002	167	21.9	7.8	1,160	0.8	0.5
Aug-15-2002	132	24.4	7.9	1,160	0.6	0.5
Aug-22-2002	168	21.9	7.8	1,200	0.6	0.5
Aug-29-2002	129	24.3	8.0	1,460	<0.4	0.7
Sep-05-2002	120	21.2	7.8	1,250	0.4	0.5
Sep-12-2002	103	21.8	7.5	1,490	<0.4	0.5
Sep-19-2002	83	20.7	7.8	1,820	0.4	0.7
Sep-26-2002	89	21.9	8.0	1,490	<0.4	P
Oct-03-2002	P	13.6	7.8	1,550	0.4	0.8
Oct-10-2002	P	19.6	7.8	1,960	<0.4	0.8
Oct-17-2002	P	17.1	7.8	1,470	0.5	0.7
Oct-24-2002	P	15.2	7.3	1,200	0.5	0.6
Oct-31-2002	P	13.0	7.4	1,450	P	0.7

Table 17. Weekly water quality monitoring at Station H (San Joaquin River at Hills Ferry).
(Collected data intended for use with biological monitoring.)

See Table 26 for explanation of footnotes and agency abbreviations.

PARAMETER	.	.	.	Specific Conductance	Selenium (total)	Boron
DATA SOURCE	.	.	.	SLDMWA	SLDMWA	SLDMWA
UNITS	.	.	.	µS/cm	µg/L	mg/L
Aug-06-2002	.	.	.	1,930	9.0	1.9
Aug-13-2002	.	.	.	1,950	7.7	1.9
Aug-20-2002	.	.	.	1,740	6.0	1.5
Aug-27-2002	.	.	.	1,830	6.0	1.8
Sep-03-2002	.	.	.	1,930	6.5	1.6
Sep-10-2002	.	.	.	1,710	6.7	1.3
Sep-17-2002	.	.	.	1,820	5.9	1.2
Sep-24-2002	.	.	.	1,660	5.4	1.2
Oct-01-2002	.	.	.	1,730	5.6	1.4
Oct-08-2002	.	.	.	1,980	7.7	1.2
Oct-22-2002	.	.	.	1,640	3.3	1.0
Oct-29-2002	.	.	.	1,440	3.8	1.0

Table 18. Weekly water quality monitoring at Station N (San Joaquin River at Crow's Landing).

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-01-2002	436	24.7	8.0	1,240	2.4	1.0
Aug-08-2002	429	22.8	8.1	1,400	4.1	1.2
Aug-15-2002	342	24.4	8.1	1,630	5.4	1.7
Aug-22-2002	454	22.3	7.9	1,270	3.7	1.1
Aug-29-2002	394	22.5	8.0	1,370	3.9	1.1
Sep-05-2002	345	21.7	7.8	1,530	2.9	1.1
Sep-12-2002	333	22.1	7.8	1,300	3.6	1.0
Sep-19-2002	367	21.5	7.8	1,390	4.0	1.0
Sep-26-2002	386	21.1	7.7	1,260	1.9	0.7
Oct-03-2002	344	15.2	7.8	1,260	2.6	0.8
Oct-10-2002	296	20.0	7.8	1,320	2.5	0.8
Oct-17-2002	572	16.8	7.9	890	2.0	0.6
Oct-24-2002	1,100	15.0	7.5	563	1.2	0.4
Oct-31-2002	782	14.1	7.8	911	P	0.6

Table 19. Summary of fathead minnow (*Pimephales promelas*) larvae survival in 7-day tests using water samples collected from November 2001 to October 2002. 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	%	%	%	%	%	%
Nov-2001	98	83ε	60*	88	100	100
Dec-2001	98	55*	68*	90	98	100
Jan-2002	83	95	98	100	100	98
Feb-2002	93	90	93	95	93	100
Mar-2002	98	90	98	80	88	98
Apr-2002	93	93	85	95	95	98
May-2002	98	95	95	90	85	88
Jun-2002	98	100	100	95	95	100
Jul-2002	100	95	98	93	90	100
Aug-2002	85	88	95	90	95	98
Sep-2002	100	98	98	95	95	93
Oct-2002	93	98	100	93	98	100

Table 20. Summary of fathead minnow (*Pimephales promelas*) larvae growth in 7-day tests using water samples collected from November 2001 to October 2002. 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
Nov-2001	0.70	0.49	0.49	0.59	0.67	0.52
Dec-2001	0.48	0.34*	0.41	0.55	0.47	0.50
Jan-2002	0.39	0.41	0.44	0.51	0.44	0.40
Feb-2002	0.55	0.47	0.58	0.55	0.52	0.42
Mar-2002	0.40	0.47	0.50	0.41	0.43	0.48
Apr-2002	0.64	0.63	0.50	0.63	0.55	0.58
May-2002	0.63	0.70	0.62	0.65	0.61	0.56
Jun-2002	0.38	0.43	0.41	0.42	0.31	0.50
Jul-2002	0.31	0.33	0.34	0.35	0.31	0.34
Aug-2002	0.49*	0.49	0.49	0.58	0.57	0.55
Sep-2002	0.38	0.38	0.29	0.33	0.31	0.30
Oct-2002	0.66	0.66	0.71	0.62	0.67	0.61

Table 21. Summary of *Daphnia magna* survival in 7-day tests using water samples collected from November 2001 to October 2002. 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	%	%	%	%	%	%
Nov-2001	100	89	90	100	80	90
Dec-2001	90	100	90	90	100	100
Jan-2002	100	90	80	100	100	67†
Feb-2002	100	80	90	90	100	100
Mar-2002	90	100	100	100	90	100
Apr-2002	100	90	100	90	100	100
May-2002	80	100	80	100	89	30†
Jun-2002	100	90	90	90	100	90
Jul-2002	90	100	100	100	100	100
Aug-2002	100	90	100	60*	100	90
Sep-2002	90	100	90	100	90	90
Oct-2002	100	89	90	100	100	89

Table 22. Summary of *Daphnia magna* reproduction in 7-day tests using water samples collected from November 2001 to October 2002. 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
Nov-2001	27.4	28.2	34.2	33.4	25.4	29.6
Dec-2001	41.3	45.9	43.3	42.4	45.1	36.7
Jan-2002	29.4	29.3	23.6	30.5	30.1	11.9
Feb-2002	42.8(*)	37.7	42.0	40.6	47.4	32.4
Mar-2002	47.2	47.7	49.8	45.8	54.5	50.2
Apr-2002	56.2	43.4	59.8	49.3	49.5	47.3
May-2002	26.4	36.5	30.7	37.2	27.9	2.9†
Jun-2002	40.0	36.1	43.1	24.3*	45.3	28.6
Jul-2002	28.3	29.7	34.6	29.6	33.1	29.1
Aug-2002	40.8	26.6	34.1	20.4	25.6	22.9
Sep-2002	24.4	28.0	28.7	31.1	23.7	16.6
Oct-2002	70.4	30.2	29.6	27.9	29.9	21.1

(*) Although reproduction values were less at Stations C, D, and F, they were not statistically different from the DMC water. This was due to the increased survival rate at Sation B.

Table 23. Summary of *Selenastrum capricornutum* growth in 4-day tests using water samples collected from November 2001 to October 2002. 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
Nov-2001	6.0*	11.1	11.0	10.0	9.2 ‡‡‡	6.4 ‡‡‡
Dec-2001	7.5*	9.4	9.6	9.3	8.9 ‡‡‡	9.1 ‡‡‡
Jan-2002	6.3*‡‡‡	19.2	17.4	24.7	15.1	10.1
Feb-2002	8.7*	17.3	14.9*	12.7*	18.2	12.6
Mar-2002	8.7*	14.2*	12.9*	18.3	17.8	13.5
Apr-2002	1.44*	7.0	4.4*	6.6	5.8	33.0
May-2002	4.8 ‡	7.9	6.1	6.3	7.1 ‡‡‡	3.8 ‡
Jun-2002	3.7*	9.5	7.7*	6.8*	11.7	10.2
Jul-2002	6.0	10.2	10.3	10.5	6.8	8.7
Aug-2002	NA	NA	NA	NA	NA	NA
Sep-2002	10.9	8.2	7.4	7.6	11.9	12.0
Oct-2002	8.9	5.9*	6.4*	6.4*	7.8	9.5

Table 24. Summary of selenium concentrations in grab water samples collected at study stations for use in laboratory toxicity tests, August 2002 to October 2002.

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-19-2002	28	0.7	21	0.5	<0.4
Aug-21-2002	34	0.7	26	0.6	<0.4
Aug-23-2002	45	0.7	26	0.5	<0.4
Sep-23-2002	48	0.5	15	0.5	<0.4
Sep-25-2002	44	0.5	11	<0.4	<0.4
Sep-27-2002	48	<0.4	18	0.4	<0.4
Oct-14-2002	75	0.4	15	<0.4	<0.4
Oct-16-2002	52	<0.4	7.0	<0.4	<0.4
Oct-18-2002	57	<0.4	10	<0.4	<0.4

Table 25. Summary of total suspended solids concentrations in grab water samples collected from August 2002 to October 2002.

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-19-2002	NA	NA	NA	NA	NA
Aug-21-2002	58	135	86	146	30
Aug-23-2002	61	79	71	155	36
Sep-23-2002	55	76	72	38	41
Sep-25-2002	66	52	69	168	21
Sep-27-2002	70	111	69	148	146
Oct-14-2002	45	69	71	130	14
Oct-16-2002	59	93	67	197	29
Oct-18-2002	56	44	58	72	24

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
e	Estimated value
.	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
*	Significantly reduced from Delta Mendota Canal ($p<0.05$)
**	Sample re-analyzed and result confirmed.
†	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.
†††	DMC water failed to meet the reproduction (>10 neonates/adult) acceptability criteria.
††††	DMC water failed to meet minimum growth (10^6 cell/mL) acceptability criteria.
‡	Control value exceeds suggested maximum variance (20%) acceptability criteria.
‡‡	Fungal growth observed on test organisms.
‡‡‡	Failed cell density requirement of 1E6 cells.
#	New testing laboratory with reporting limit of 0.4 µg/L as of June 1998.
❖	Based on definitive bioassay, NOEC is 50 percent

ε EPA Station C split sample results significantly different. See Table 19.

LOCATION	Station B	Station C	Station D	Station F	Delta Mendota Canal	Laboratory Control
DATA SOURCE	EPA	EPA	EPA	EPA	EPA	EPA
UNITS	%	%	%	%	%	%
Nov-2001	100	**58**	64	90	100	100