

GRASSLAND BYPASS PROJECT

MONTHLY DATA REPORT

September 2002

December 02, 2002

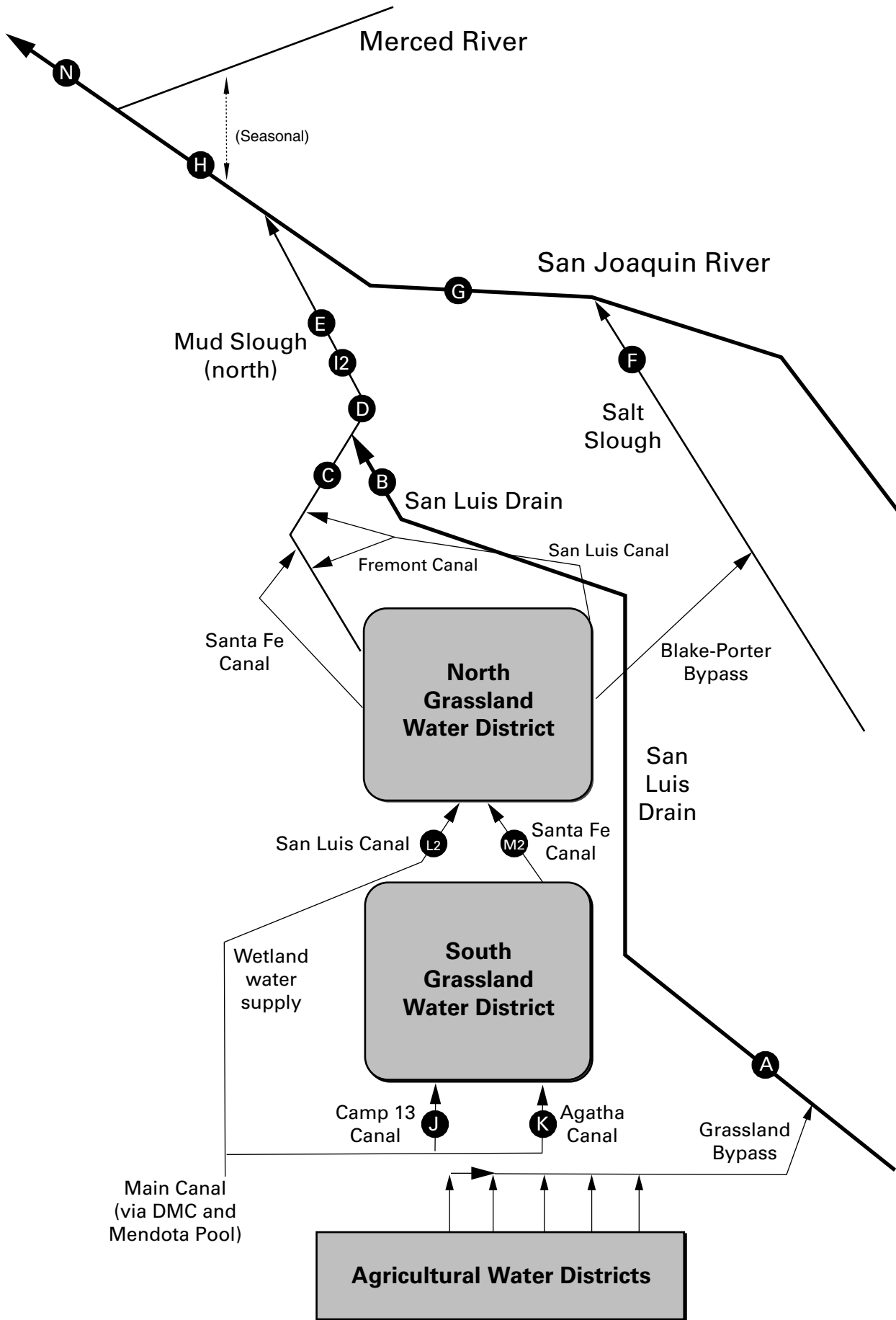
Preliminary Results

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), September 2002.

See Table 26 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow	Specific Conductance
DATA SOURCE	SLDMWA	SLDMWA
UNITS	cfs	µS/cm
Sep-01-2002	48	3,350
Sep-02-2002	42	3,710
Sep-03-2002	40	3,970
Sep-04-2002	48	3,700
Sep-05-2002	40	3,860
Sep-06-2002	39	3,800
Sep-07-2002	36	4,000
Sep-08-2002	37	3,950
Sep-09-2002	31	4,620
Sep-10-2002	41	3,610
Sep-11-2002	36	3,760
Sep-12-2002	26	4,250
Sep-13-2002	24	4,730
Sep-14-2002	26	4,700
Sep-15-2002	28	4,290
Sep-16-2002	29	4,070
Sep-17-2002	32	3,550
Sep-18-2002	25	4,140
Sep-19-2002	22	4,320
Sep-20-2002	20	4,740
Sep-21-2002	22	4,680
Sep-22-2002	19	4,710
Sep-23-2002	18	4,940
Sep-24-2002	17	4,920
Sep-25-2002	16	5,140
Sep-26-2002	17	5,040
Sep-27-2002	18	4,890
Sep-28-2002	14	4,450
Sep-29-2002	14	5,170
Sep-30-2002	13	5,320
.	.	.
Mean	28	4,350

Table 2a. Continuous water monitoring at Station B (discharge from San Luis Drain), September 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
Sep-01-2002	48	25.9	6.2	3,690	32.2	8.3
Sep-02-2002	49	26.5	5.8	3,790	32.2	8.5
Sep-03-2002	44	27.0	6.3	3,740	32.4	7.7
Sep-04-2002	43	26.2	6.5	3,820	34.8	8.1
Sep-05-2002	49	24.5	6.0	3,570	30.8	8.1
Sep-06-2002	44	23.7	6.9	4,000	40.3	9.6
Sep-07-2002	42	23.1	7.0	4,210	47.1	10.7
Sep-08-2002	41	22.5	6.1	3,880	44.9	9.9
Sep-09-2002	40	22.5	6.6	3,990	47.6	10.3
Sep-10-2002	36	23.2	5.9	3,930	43.4	8.4
Sep-11-2002	43	23.8	6.6	4,210	51.9	12.0
Sep-12-2002	39	24.2	5.6	3,970	43.6	9.2
Sep-13-2002	30	24.3	7.6	4,760	69.6	11.3
Sep-14-2002	27	24.4	8.1	4,840	66.4	9.7
Sep-15-2002	29	24.4	6.6	3,930	44.1	6.9
Sep-16-2002	31	23.9	5.9	3,620	41.6	7.0
Sep-17-2002	32	23.9	7.1	4,160	50.8	8.8
Sep-18-2002	34	23.7	8.3	4,690	53.9	9.9
Sep-19-2002	28	23.9	9.0	4,990	61.7	9.3
Sep-20-2002	25	24.4	8.3	4,670	64.4	8.7
Sep-21-2002	23	24.7	7.9	4,500	61.1	7.6
Sep-22-2002	25	24.9	7.5	4,250	55.8	7.5
Sep-23-2002	23	25.0	6.8	3,870	47.1	5.8
Sep-24-2002	22	25.0	6.5	3,720	35.2	4.2
Sep-25-2002	21	24.8	7.8	4,290	44.2	5.0
Sep-26-2002	18	24.3	8.0	4,430	44.8	4.3
Sep-27-2002	19	23.3	8.6	4,750	49.5	5.1
Sep-28-2002	22	22.1	8.9	4,840	54.0	6.4
Sep-29-2002	19	21.5	8.8	4,840	67.5	6.9
Sep-30-2002	16	21.6	8.4	4,880	63.6	5.5
Mean	32	24.1	7.2	4,230	48.6	
Total Acre-feet	1,910				Total (lbs)	241

Load Limitation for September 2002	(lbs)	310
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Figure 2b. Monthly selenium discharges from the terminus of the San Luis Drain into Mud Slough compared to load values.

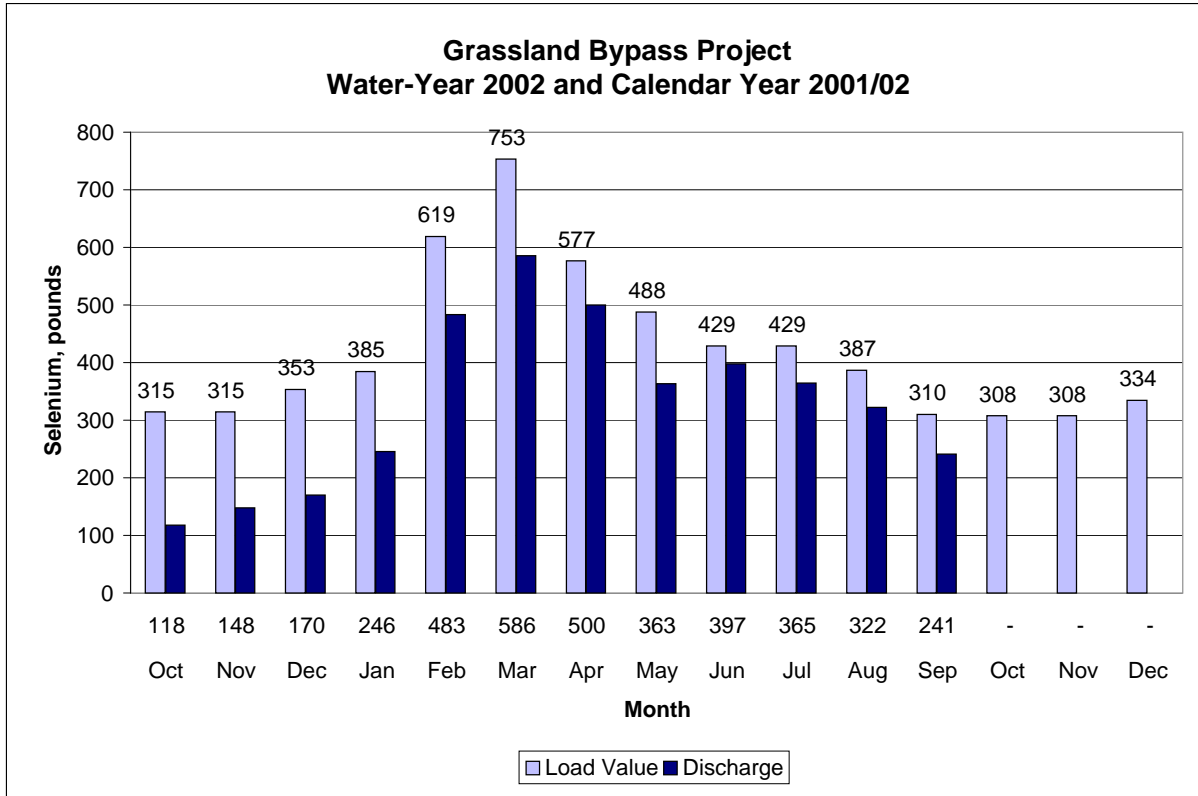


Table 2b. Monthly selenium discharges from the terminus of the San Luis Drain into Mud Slough compared to load values.

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	-	308
Nov	-	308
Dec	-	334

**Table 3. Continuous water monitoring at Station D
(Mud Slough North downstream of drainage discharges), September 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
Sep-01-2002	59	24.8	4,170
Sep-02-2002	60	25.4	3,880
Sep-03-2002	48	25.8	3,590
Sep-04-2002	43	26.0	3,420
Sep-05-2002	43	25.9	3,260
Sep-06-2002	50	24.3	3,050
Sep-07-2002	56	23.7	3,060
Sep-08-2002	71	23.8	2,620
Sep-09-2002	73	23.8	2,820
Sep-10-2002	73	23.4	2,490
Sep-11-2002	70	23.4	2,380
Sep-12-2002	62	23.8	2,600
Sep-13-2002	50	23.8	2,850
Sep-14-2002	49	24.1	2,600
Sep-15-2002	45	24.5	2,440
Sep-16-2002	42	24.2	2,470
Sep-17-2002	44	23.9	2,650
Sep-18-2002	47	NA	NA
Sep-19-2002	49	NA	NA
Sep-20-2002	50	NA	NA
Sep-21-2002	53	NA	NA
Sep-22-2002	63	NA	NA
Sep-23-2002	61	NA	NA
Sep-24-2002	60	NA	NA
Sep-25-2002	72	NA	NA
Sep-26-2002	72	NA	NA
Sep-27-2002	69	NA	NA
Sep-28-2002	71	NA	NA
Sep-29-2002	81	NA	NA
Sep-30-2002	87	NA	NA
.	.	.	.
Mean	59	24.4	2,960

Table 4. Continuous water monitoring at Station F (Salt Slough at Highway 165), September 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
Sep-01-2002	87	24.4	1,420
Sep-02-2002	86	25.7	1,330
Sep-03-2002	70	25.7	1,430
Sep-04-2002	57	25.9	1,500
Sep-05-2002	50	25.5	1,620
Sep-06-2002	56	23.5	1,540
Sep-07-2002	56	23.1	1,560
Sep-08-2002	57	23.6	1,540
Sep-09-2002	64	23.1	1,450
Sep-10-2002	66	22.8	1,320
Sep-11-2002	62	23.2	1,390
Sep-12-2002	55	23.5	1,460
Sep-13-2002	63	23.2	1,520
Sep-14-2002	68	23.8	1,440
Sep-15-2002	54	24.5	1,500
Sep-16-2002	48	24.0	1,580
Sep-17-2002	49	23.6	1,590
Sep-18-2002	50	24.0	1,630
Sep-19-2002	52	24.1	1,630
Sep-20-2002	51	23.8	1,660
Sep-21-2002	51	23.4	1,670
Sep-22-2002	42	23.2	1,800
Sep-23-2002	44	22.9	1,850
Sep-24-2002	55	22.0	1,540
Sep-25-2002	76	21.9	1,330
Sep-26-2002	72	22.0	1,360
Sep-27-2002	61	22.4	1,470
Sep-28-2002	71	21.2	1,460
Sep-29-2002	66	20.9	1,480
Sep-30-2002	58	21.8	1,570
.	.	.	.
Mean	60	23.4	1,520

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

See Table 26 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow	Temperature	Specific Conductance	Selenium (total)
DATA SOURCE	USGS	USGS	CVRWOCB	CVRWOCB
UNITS	cfs	°C	µS/cm	µg/L
Sep-01-2002	399	24.9	1,540	3.4
Sep-02-2002	435	25.4	1,440	3.2
Sep-03-2002	448	25.2	1,480	4.0
Sep-04-2002	404	25.2	1,540	3.6
Sep-05-2002	345	24.5	1,470	3.2
Sep-06-2002	318	23.1	1,540	3.8
Sep-07-2002	350	22.6	1,440	3.5
Sep-08-2002	350	23.1	1,390	3.7
Sep-09-2002	380	23.0	1,510	4.4
Sep-10-2002	422	22.9	1,360	3.9
Sep-11-2002	365	23.1	1,330	3.9
Sep-12-2002	333	23.2	1,310	3.6
Sep-13-2002	309	23.3	1,450	5.0
Sep-14-2002	370	23.7	1,450	4.0
Sep-15-2002	390	24.0	1,340	3.8
Sep-16-2002	390	23.4	1,310	3.9
Sep-17-2002	415	22.9	1,330	3.0
Sep-18-2002	421	23.3	1,370	3.2
Sep-19-2002	367	23.6	1,350	3.3
Sep-20-2002	357	23.5	1,420	3.6
Sep-21-2002	348	22.9	1,540	3.9
Sep-22-2002	324	22.8	1,460	4.2
Sep-23-2002	332	22.6	1,290	3.3
Sep-24-2002	345	21.8	1,290	3.3
Sep-25-2002	380	21.5	1,300	2.8
Sep-26-2002	386	21.8	1,280	2.1
Sep-27-2002	370	22.1	1,370	2.2
Sep-28-2002	373	21.0	1,410	2.2
Sep-29-2002	392	20.6	1,350	2.6
Sep-30-2002	400	21.5	1,290	2.7
.
Mean	374	23.1	1,400	3.4

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	.	.	.
Jul-03-2002	59	.	.	4,030	240	.	.	.
Jul-10-2002	58	.	.	4,220	120	.	.	.
Jul-17-2002	54	.	.	4,080	100	.	.	.
Jul-24-2002	46	.	.	3,730	130	.	.	.
Jul-31-2002	46	.	.	3,920	100	.	.	.
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	.	.	.

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
Jul-08-2002	58	.	.	4,240	.	43.8	.	P
Jul-10-2002	58	.	.	4,370	.	44.4	.	7.0
Jul-16-2002	53	.	.	4,300	.	42.4	.	7.1
Jul-23-2002	49	.	.	3,980	.	33.2	.	7.1
Jul-30-2002	42	.	.	3,830	.	28.0	.	7.0
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

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
Jul-03-2002	63	26.7	8.1	4,310	53	45.0	.	7.5
Jul-11-2002	58	27.3	8.7	4,370	P	54.3	.	7.2
Jul-18-2002	54	24.9	8.6	4,260	49	41.9	.	7.3
Jul-25-2002	47	24.3	8.4	3,730	P	30.6	.	6.6
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

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
Jul-03-2002	2	26.4	8.6	2,440	0.7	2.1
Jul-11-2002	7	29.8	8.3	1,620	0.7	1.5
Jul-18-2002	4	25.3	8.3	1,710	0.9	1.5
Jul-25-2002	36	24.0	7.9	853	1.0	0.8
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

** 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
Jul-03-2002	65	26.8	8.6	4,220	42.9	7.0
Jul-11-2002	65	27.5	8.6	3,840	42.6	6.0
Jul-18-2002	58	25.0	8.6	3,920	41.1	6.2
Jul-25-2002	83	24.2	8.3	2,540	16.6	4.3
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

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
Jul-02-2002	.	8.7	2,840	21.3	29.2	6.1
Jul-10-2002	.	9.0	1,930	23.3	24.0	6.0
Jul-16-2002	.	8.8	4,200	18.0	39.6	6.7
Jul-22-2002	.	9.1	3,500	32.5	21.4	5.0
Jul-30-2002	.	8.4	2,910	26.3	15.0	4.4
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

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
Jul-03-2002	137	24.9	8.2	1,110	0.7	0.6
Jul-11-2002	122	27.4	7.7	1,340	0.6	0.8
Jul-18-2002	135	23.8	7.6	1,100	0.7	0.7
Jul-25-2002	152	23.4	7.6	960	0.5	0.4
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

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 ¹¹	.	.	CVRWQCB	CVRWQCB	CVRWQCB
UNITS	cfs	.	.	µS/cm	µg/L	mg/L
Jul-03-2002	5	.	.	428	1.3	0.3
Jul-10-2002	5	.	.	384	1.1	0.3
Jul-17-2002	5	.	.	435	1.1	0.3
Jul-24-2002	5	.	.	442	0.9	0.3
Jul-31-2002	10	.	.	505	1.0	0.3
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

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 ¹¹	.	.	CVRWQCB	CVRWQCB	CVRWQCB
UNITS	cfs	.	.	µS/cm	µg/L	mg/L
Jul-03-2002	20	.	.	362	1.0	0.2
Jul-10-2002	0	.	.	415	0.9	0.2
Jul-17-2002	10	.	.	486	1.0	0.4
Jul-24-2002	20	.	.	397	0.6	0.2
Jul-31-2002	10	.	.	487	1.1	0.2
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

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 ¹¹	.	.	CVRWQCB	CVRWQCB	CVRWQCB
UNITS	cfs	.	.	µS/cm	µg/L	mg/L
Jul-03-2002	50	.	.	619	1.2	0.5
Jul-10-2002	0	.	.	844	1.3	0.7
Jul-17-2002	60	.	.	577	1.0	0.5
Jul-24-2002	0	.	.	892	1.3	0.9
Jul-31-2002	0	.	.	1,330	2.0	1.2
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

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 ¹¹	.	.	CVRWQCB	CVRWQCB	CVRWQCB
UNITS	cfs	.	.	µS/cm	µg/L	mg/L
Jul-03-2002	41	.	.	930	1.5	1.3
Jul-10-2002	56	.	.	1,300	1.5	2.3
Jul-17-2002	21	.	.	1,340	1.8	2.3
Jul-24-2002	86	.	.	917	1.1	1.2
Jul-31-2002	53	.	.	1,140	1.2	1.7
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

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
Jul-03-2002	156	25.1	7.9	1,150	0.7	0.5
Jul-11-2002	140	27.2	7.9	1,300	0.6	0.6
Jul-18-2002	143	23.5	7.8	1,260	0.7	0.7
Jul-25-2002	186	23.9	7.8	1,100	0.5	0.4
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

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
Jul-01-2002	.	.	.	1,800	8.1	1.5
Jul-09-2002	.	.	.	2,000	10.3	1.7
Jul-16-2002	.	.	.	2,040	9.4	1.9
Jul-23-2002	.	.	.	1,610	6.1	1.5
Jul-30-2002	.	.	.	1,340	1.2	3.8
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

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
Jul-03-2002	428	24.7	8.1	1,430	4.1	1.2
Jul-11-2002	372	26.7	8.1	1,550	5.7	1.3
Jul-18-2002	349	23.9	8.2	1,440	4.6	1.2
Jul-25-2002	430	23.8	8.0	1,220	3.5	1.0
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

Table 19. Summary of fathead minnow (*Pimephales promelas*) larvae survival in 7-day tests using water samples collected from October 2001 to September 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	%	%	%	%	%	%
Oct-2001	100	98	100	100	100	100
Nov-2001	98	83e	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

Table 20. Summary of fathead minnow (*Pimephales promelas*) larvae growth in 7-day tests using water samples collected from October 2001 to September 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
Oct-2001	0.63	0.71	0.78	0.65	0.66	0.58
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

Table 21. Summary of *Daphnia magna* survival in 7-day tests using water samples collected from October 2001 to September 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	%	%	%	%	%	%
Oct-2001	90	100	90	90	70*†	90
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

Table 22. Summary of *Daphnia magna* reproduction in 7-day tests using water samples collected from October 2001 to September 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
Oct-2001	39.5	39.1	29.8	35.3	21.1	31.7
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

(*) 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 Station B.

Table 23. Summary of *Selenastrum capricornutum* growth in 4-day tests using water samples collected from October 2001 to September 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
Oct-2001	9.1	10.7	11.3	11.4	10.3	9.3
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

Table 24. Summary of selenium concentrations in grab water samples collected at study stations for use in laboratory toxicity tests, July 2002 to September 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
Jul-22-2002	30	0.5	22	0.5	0.5
Jul-24-2002	32	0.8	17	0.4	<0.4
Jul-26-2002	32	0.9	20	<0.4	<0.4
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

Table 25. Summary of total suspended solids concentrations in grab water samples collected from July 2002 to September 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
Jul-22-2002	44	172	139	181	37
Jul-24-2002	55	167	147	210	39
Jul-26-2002	91	254	NA	153	58
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

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