

GRASSLAND BYPASS PROJECT

MONTHLY DATA REPORT

December 2002

March 03, 2003

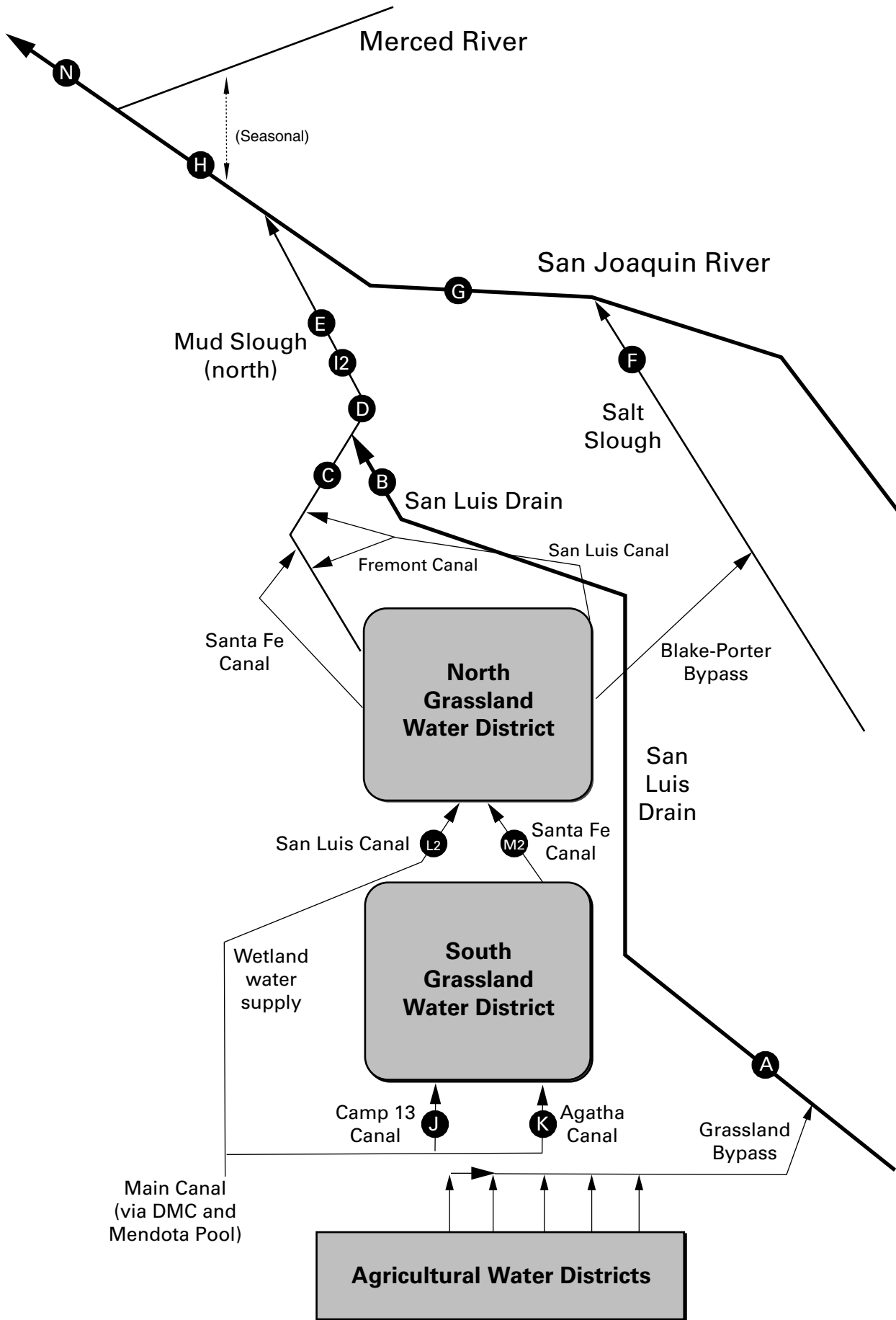
Preliminary Results

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





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

See Table 26 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow	Specific Conductance
DATA SOURCE	SLDMWA	SLDMWA
UNITS	cfs	µS/cm
Dec-01-2002	17	4,720
Dec-02-2002	18	4,820
Dec-03-2002	17	5,080
Dec-04-2002	19	5,100
Dec-05-2002	19	5,000
Dec-06-2002	21	5,000
Dec-07-2002	20	5,100
Dec-08-2002	19	5,060
Dec-09-2002	19	5,090
Dec-10-2002	19	4,850
Dec-11-2002	20	4,910
Dec-12-2002	19	5,020
Dec-13-2002	19	4,860
Dec-14-2002	21	4,770
Dec-15-2002	20	3,680
Dec-16-2002	24	4,720
Dec-17-2002	30	4,300
Dec-18-2002	23	4,640
Dec-19-2002	20	4,750
Dec-20-2002	22	4,290
Dec-21-2002	17	4,580
Dec-22-2002	15	5,180
Dec-23-2002	16	5,350
Dec-24-2002	20	5,110
Dec-25-2002	13	5,340
Dec-26-2002	12	5,290
Dec-27-2002	11	5,250
Dec-28-2002	10	5,110
Dec-29-2002	11	5,040
Dec-30-2002	12	5,220
Dec-31-2002	21	4,590
Mean	18	4,900

Table 2a. Continuous water monitoring at Station B (discharge from San Luis Drain), December 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
Dec-01-2002	21	11.8	7.5	4,410	42.7	4.8
Dec-02-2002	21	11.9	7.5	4,340	44.6	5.1
Dec-03-2002	21	11.8	6.9	4,220	39.6	4.5
Dec-04-2002	21	11.7	7.6	4,390	41.3	4.7
Dec-05-2002	22	11.4	7.9	4,790	82.2	9.8
Dec-06-2002	23	11.1	7.7	4,660	76.3	9.5
Dec-07-2002	24	11.3	7.2	4,630	75.4	9.8
Dec-08-2002	23	11.3	7.5	4,710	80.3	10.0
Dec-09-2002	23	11.3	7.9	4,610	74.0	9.2
Dec-10-2002	22	11.3	7.8	4,720	69.1	8.2
Dec-11-2002	22	11.2	7.4	4,690	64.8	7.7
Dec-12-2002	22	11.3	7.3	4,750	67.6	8.0
Dec-13-2002	21	11.0	7.4	4,790	78.6	8.9
Dec-14-2002	20	11.4	7.4	4,790	72.2	7.8
Dec-15-2002	21	11.3	7.3	4,810	81.2	9.2
Dec-16-2002	26	11.4	6.6	4,590	82.2	11.5
Dec-17-2002	31	11.3	6.8	4,470	73.1	12.2
Dec-18-2002	35	11.1	7.0	4,520	72.2	13.6
Dec-19-2002	27	9.6	7.5	4,460	68.7	10.0
Dec-20-2002	33	9.4	7.3	4,460	77.7	13.8
Dec-21-2002	30	9.9	7.1	4,370	66.0	10.7
Dec-22-2002	26	9.9	6.4	4,080	72.5	10.2
Dec-23-2002	20	9.2	6.4	4,090	66.7	7.2
Dec-24-2002	20	8.7	6.5	4,200	66.4	7.2
Dec-25-2002	18	8.2	6.4	4,110	58.2	5.7
Dec-26-2002	16	8.5	6.3	3,990	41.6	3.6
Dec-27-2002	14	9.7	5.7	3,840	35.0	2.6
Dec-28-2002	11	10.2	6.5	4,090	37.1	2.2
Dec-29-2002	15	10.2	6.7	4,350	45.5	3.7
Dec-30-2002	16	10.0	7.3	4,620	46.9	4.0
Dec-31-2002	19	9.9	7.1	4,500	59.8	6.1
Mean	22	10.6	7.1	4,450	63.2	
Total Acre-feet	1,360				Total (lbs)	241

Load Limitation for December 2002	(lbs)	334
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Figure 2b. Monthly selenium discharges from the terminus of the San Luis Drain into Mud Slough compared to load values.

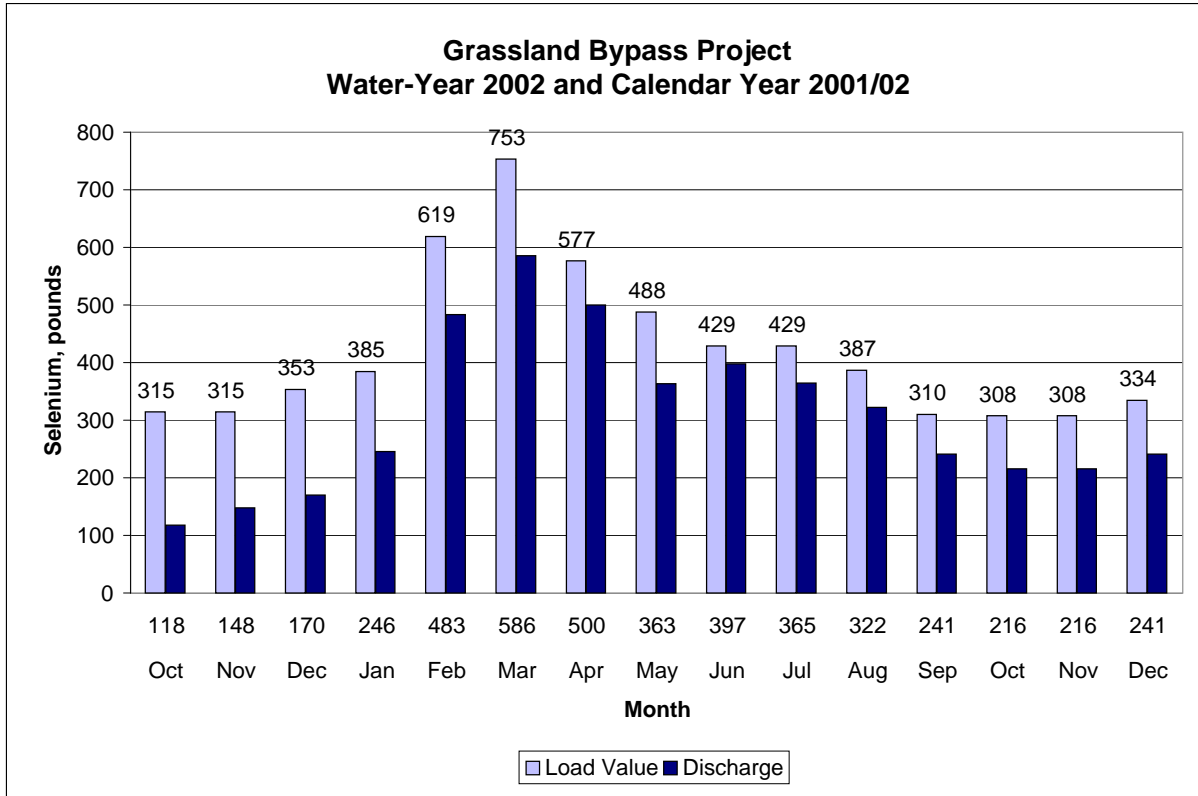


Table 2b. Monthly selenium discharges from the terminus of the San Luis Drain into Mud Slough compared to load values.

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	216	308
Nov	216	308
Dec	241	334

**Table 3. Continuous water monitoring at Station D
(Mud Slough North downstream of drainage discharges), December 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
Dec-01-2002	90	11.7	2,320
Dec-02-2002	91	11.9	2,340
Dec-03-2002	90	11.8	2,340
Dec-04-2002	90	11.8	2,370
Dec-05-2002	95	11.4	2,430
Dec-06-2002	99	11.1	2,430
Dec-07-2002	108	11.4	2,380
Dec-08-2002	113	11.3	2,330
Dec-09-2002	119	11.3	2,290
Dec-10-2002	130	11.3	2,180
Dec-11-2002	141	11.2	2,150
Dec-12-2002	144	11.4	2,160
Dec-13-2002	149	10.8	2,160
Dec-14-2002	161	11.7	2,130
Dec-15-2002	170	11.4	2,130
Dec-16-2002	212	11.7	2,130
Dec-17-2002	267	11.4	1,960
Dec-18-2002	291	10.7	1,980
Dec-19-2002	299	9.2	1,920
Dec-20-2002	366	8.9	1,840
Dec-21-2002	418	9.7	1,690
Dec-22-2002	467	9.5	1,630
Dec-23-2002	511	9.0	1,470
Dec-24-2002	496	8.5	1,500
Dec-25-2002	478	7.9	1,520
Dec-26-2002	461	8.5	1,500
Dec-27-2002	441	10.0	1,500
Dec-28-2002	399	10.6	1,630
Dec-29-2002	323	10.3	1,810
Dec-30-2002	276	10.0	1,860
Dec-31-2002	269	10.0	1,890
Mean	250	10.6	2,000

Table 4. Continuous water monitoring at Station F (Salt Slough at Highway 165), December 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
Dec-01-2002	137	11.9	1,540
Dec-02-2002	139	11.9	1,540
Dec-03-2002	146	11.7	1,490
Dec-04-2002	150	11.5	1,460
Dec-05-2002	148	11.2	1,480
Dec-06-2002	145	11.0	1,490
Dec-07-2002	146	11.4	1,490
Dec-08-2002	144	11.3	1,500
Dec-09-2002	143	11.3	1,510
Dec-10-2002	137	11.5	1,560
Dec-11-2002	134	11.5	1,580
Dec-12-2002	139	11.8	1,540
Dec-13-2002	148	11.3	1,490
Dec-14-2002	162	12.0	1,460
Dec-15-2002	180	11.7	1,420
Dec-16-2002	237	11.8	1,310
Dec-17-2002	311	11.6	1,300
Dec-18-2002	354	11.0	1,310
Dec-19-2002	369	9.6	1,350
Dec-20-2002	411	9.1	1,360
Dec-21-2002	468	9.6	1,350
Dec-22-2002	485	9.5	1,380
Dec-23-2002	466	8.9	1,420
Dec-24-2002	436	8.2	1,450
Dec-25-2002	411	7.5	1,460
Dec-26-2002	410	7.9	1,490
Dec-27-2002	403	9.2	1,500
Dec-28-2002	392	10.0	1,510
Dec-29-2002	379	10.2	1,500
Dec-30-2002	359	9.7	1,540
Dec-31-2002	348	9.9	1,560
Mean	272	10.5	1,460

Table 5. Continuous water monitoring at Station N (San Joaquin River at Crow's Landing), December 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
Dec-01-2002	649	11.4	1,330	2.0
Dec-02-2002	656	11.6	1,350	1.6
Dec-03-2002	647	11.5	1,370	1.6
Dec-04-2002	652	11.3	1,370	1.9
Dec-05-2002	663	11.1	1,340	1.5
Dec-06-2002	673	10.8	NA	NA
Dec-07-2002	673	11.2	NA	NA
Dec-08-2002	698	11.1	NA	NA
Dec-09-2002	703	10.9	NA	NA
Dec-10-2002	706	11.0	NA	NA
Dec-11-2002	712	10.9	NA	NA
Dec-12-2002	717	11.2	NA	NA
Dec-13-2002	730	11.0	1,360	2.7
Dec-14-2002	753	11.7	1,340	2.8
Dec-15-2002	780	11.8	1,320	2.7
Dec-16-2002	877	12.0	1,280	2.7
Dec-17-2002	1,230	11.6	910	2.4
Dec-18-2002	1,190	10.8	1,030	2.1
Dec-19-2002	1,320	9.8	1,110	2.5
Dec-20-2002	1,620	9.0	830	1.8
Dec-21-2002	1,740	9.6	840	1.8
Dec-22-2002	1,700	9.6	864	1.6
Dec-23-2002	1,650	8.8	891	1.5
Dec-24-2002	1,590	8.3	941	1.5
Dec-25-2002	1,510	7.8	1,040	P
Dec-26-2002	1,410	8.0	1,120	1.4
Dec-27-2002	1,330	9.2	1,150	1.3
Dec-28-2002	1,290	10.2	1,180	1.0
Dec-29-2002	1,270	10.2	1,210	0.9
Dec-30-2002	1,280	9.9	1,210	1.0
Dec-31-2002	1,220	9.9	1,270	1.0
Mean	1,050	10.4	1,150	1.8

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	.	.	.
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	.	.	.
Nov-06-2002	15	.	.	3,990	P	.	.	.
Nov-13-2002	14	.	.	5,080	86	.	.	.
Nov-20-2002	9	.	.	5,240	38	.	.	.
Nov-26-2002	8	.	.	4,990	15	.	.	.
Dec-04-2002	19	.	.	5,130	72	.	.	.
Dec-11-2002	20	.	.	5,300	65	.	.	.
Dec-18-2002	23	.	.	4,910	68	.	.	.
Dec-23-2002	16	.	.	5,630	34	.	.	.

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
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	.	108.0	.	9.4
Nov-05-2002	16	.	.	5,590	.	108.0	.	9.6
Nov-12-2002	14	.	.	4,740	.	89.1	.	7.5
Nov-19-2002	14	.	.	5,000	.	88.5	.	8.6
Nov-25-2002	8	.	.	5,210	.	62.3	.	8.5
Dec-02-2002	18	.	.	5,160	.	90.5	.	8.9
Dec-10-2002	19	.	.	5,200	.	84.2	.	8.4
Dec-17-2002	30	.	.	4,970	.	87.6	.	8.1
Dec-22-2002	15	.	.	4,950	.	69.5	.	7.2
Dec-29-2002	11	.	.	NA	.	62.9	.	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
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	79.1	.	7.0
Nov-07-2002	17	14.1	8.3	4,720	42	72.0	.	7.7
Nov-14-2002	21	14.9	8.0	4,510	35	75.2	.	7.5
Nov-21-2002	15	13.8	8.3	4,390	58	62.7	.	7.1
Nov-26-2002	12	13.3	8.3	4,240	43	63.7	.	P
Dec-05-2002	22	11.2	8.1	4,880	42	81.0	.	8.0
Dec-12-2002	22	11.5	7.7	4,830	37	68.2	.	7.4
Dec-19-2002	27	9.8	7.8	4,540	42	69.9	.	7.3
Dec-24-2002	20	8.6	7.1	4,240	33	66.0	.	5.8

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
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	0.6
Oct-31-2002	110	14.3	7.7	1,200	<0.4	0.7
Nov-07-2002	123	14.0	7.7	1,330	0.5	0.8
Nov-14-2002	203	14.2	7.7	1,300	<0.4	0.9
Nov-21-2002	128	13.4	7.6	1,510	<0.4	P
Nov-26-2002	76	12.4	7.9	1,800	<0.4	P
Dec-05-2002	73	10.9	7.8	1,830	<0.4	1.4
Dec-12-2002	122	11.2	7.7	1,640	<0.4	1.2
Dec-19-2002	272	8.8	7.8	1,560	0.5	1.2
Dec-24-2002	476	NA	NA	NA	NA	NA

++ 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
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	1.3
Oct-31-2002	132 e	14.3	7.8	1,740	9.5	1.6
Nov-07-2002	140	14.0	7.7	1,900	11.8	1.9
Nov-14-2002	224	14.3	7.8	1,680	7.7	1.6
Nov-21-2002	143	13.2	7.8	1,900	7.2	1.8
Nov-26-2002	88	12.3	8.0	2,200	8.6	P
Dec-05-2002	95	10.9	7.9	2,530	16.1	2.8
Dec-12-2002	144	11.3	7.7	2,220	10.3	2.2
Dec-19-2002	299	8.9	7.8	1,940	8.4	1.9
Dec-24-2002	496	8.3	7.6	1,500	4.5	1.3

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
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
Nov-05-2002	.	7.3	1,740	NA	13.4	2.0
Nov-13-2002	.	7.9	1,960	NA	5.9	1.4
Nov-19-2002	.	7.4	2,020	NA	8.2	2.0
Nov-26-2002	.	7.5	2,320	NA	9.2	2.2
Dec-03-2002	.	8.0	2,490	NA	8.2	2.6
Dec-10-2002	.	7.8	2,310	NA	12.5	2.6
Dec-18-2002	.	8.3	2,050	NA	10.8	2.2
Dec-24-2002	.	7.6	1,790	NA	3.7	1.3
Dec-30-2002	.	7.6	2,000	NA	3.8	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
Oct-03-2002	82	14.0	8.0	1,260	0.5	0.6
Oct-10-2002	53	20.1	7.8	1,360	<0.4	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	0.5	0.7
Nov-07-2002	160	13.3	7.9	1,260	<0.4	0.6
Nov-14-2002	237	14.2	7.5	1,300	0.5	0.8
Nov-21-2002	200	12.4	7.3	1,440	0.5	0.9
Nov-26-2002	151	12.3	7.9	1,590	0.4	P
Dec-05-2002	148	10.6	7.7	1,510	<0.4	0.9
Dec-12-2002	139	11.5	7.6	1,590	0.5	0.8
Dec-19-2002	369	9.5	7.4	1,360	<0.4	0.9
Dec-24-2002	436	8.0	7.3	1,460	0.7	1.0

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
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	0.6	0.3
Nov-06-2002	30	.	.	630	0.5	0.2
Nov-13-2002	10	.	.	665	1.3	0.3
Nov-20-2002	10	.	.	688	2.5	0.4
Nov-26-2002	10	.	.	629	0.7	0.3
Dec-04-2002	10	.	.	697	1.3	0.4
Dec-11-2002	10	.	.	780	1.8	0.5
Dec-18-2002	10	.	.	994	0.9	1.1
Dec-23-2002	10	.	.	757	1.7	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 ^{††}	.	.	CVRWQCB	CVRWQCB	CVRWQCB
UNITS	cfs	.	.	µS/cm	µg/L	mg/L
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	0.5	0.2
Nov-06-2002	70	.	.	630	0.5	0.2
Nov-13-2002	30	.	.	641	0.9	0.2
Nov-20-2002	30	.	.	614	0.7	0.3
Nov-26-2002	50	.	.	623	0.8	0.3
Dec-04-2002	50	.	.	645	0.7	0.3
Dec-11-2002	50	.	.	670	1.0	0.3
Dec-18-2002	50	.	.	627	0.8	0.3
Dec-23-2002	30	.	.	648	1.0	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 ^{††}	.	.	CVRWQCB	CVRWQCB	CVRWQCB
UNITS	cfs	.	.	µS/cm	µg/L	mg/L
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	0.6	0.2
Nov-06-2002	55	.	.	700	0.6	0.3
Nov-13-2002	42	.	.	684	0.7	0.3
Nov-20-2002	0	.	.	1,300	1.3	1.1
Nov-26-2002	0	.	.	1,620	1.0	1.6
Dec-04-2002	0	.	.	1,430	1.4	1.4
Dec-11-2002	0	.	.	1,640	1.2	1.6
Dec-18-2002	61	.	.	340	<0.4	0.3
Dec-23-2002	5	.	.	1,030	0.9	0.9

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
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	0.6	0.7
Nov-06-2002	99	.	.	1,090	0.6	0.7
Nov-13-2002	137	.	.	1,000	0.6	0.8
Nov-20-2002	128	.	.	1,160	0.5	1.0
Nov-26-2002	113	.	.	1,240	0.8	1.1
Dec-04-2002	116	.	.	1,190	0.7	1.1
Dec-11-2002	121	.	.	1,190	0.7	1.0
Dec-18-2002	125	.	.	1,320	0.8	1.3
Dec-23-2002	180	.	.	1,360	1.0	1.3

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
Oct-03-2002	93	13.6	7.8	1,550	0.4	0.8
Oct-10-2002	57	19.6	7.8	1,960	<0.4	0.8
Oct-17-2002	86	17.1	7.8	1,470	0.5	0.7
Oct-24-2002	135	15.2	7.3	1,200	0.5	0.6
Oct-31-2002	171	13.0	7.4	1,450	0.6	0.7
Nov-07-2002	173	13.3	7.6	1,400	<0.4	0.6
Nov-14-2002	265	14.2	7.5	1,210	0.5	0.7
Nov-21-2002	215	12.8	7.6	1,500	<0.4	0.8
Nov-26-2002	179	12.3	7.7	NA	<0.4	P
Dec-05-2002	180	10.3	7.7	1,650	0.4	0.9
Dec-12-2002	169	11.2	7.6	1,850	0.4	0.8
Dec-19-2002	665	9.8	7.5	713	0.4	0.4
Dec-24-2002	709	8.2	6.9	1,000	0.7	0.6

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
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
Nov-05-2002	.	.	.	1,670	4.6	1.1
Nov-12-2002	.	.	.	1,260	2.8	0.8
Nov-19-2002	.	.	.	1,560	2.5	1.0
Nov-26-2002	.	.	.	1,980	4.0	1.3
Dec-03-2002	.	.	.	1,960	2.7	1.3
Dec-10-2002	.	.	.	1,890	4.1	1.4
Dec-17-2002	.	.	.	1,450	3.5	1.2
Dec-23-2002	.	.	.	1,130	2.0	0.8

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
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	1.9	0.6
Nov-07-2002	743	13.8	7.7	1,090	2.2	0.7
Nov-14-2002	981	14.6	7.6	1,000	1.7	0.7
Nov-21-2002	822	12.9	7.7	1,160	1.7	P
Nov-26-2002	691	12.1	7.7	1,280	1.5	0.8
Dec-05-2002	663	10.8	7.9	1,330	1.3	0.9
Dec-12-2002	717	11.1	7.4	1,370	2.6	0.9
Dec-19-2002	1,320	9.7	7.8	1,130	2.2	0.7
Dec-24-2002	1,590	8.3	7.4	959	1.5	0.7

Table 19. Summary of fathead minnow (*Pimephales promelas*) larvae survival in 7-day tests using water samples collected from January 2002 to December 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	%	%	%	%	%	%
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
Nov-2002	98	55*	83	65*	100	100
Dec-2002	100	88	78*	98	98	100

Table 20. Summary of fathead minnow (*Pimephales promelas*) larvae growth in 7-day tests using water samples collected from January 2002 to December 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
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
Nov-2002	0.41	0.22*	0.41	0.27*	0.38	0.33
Dec-2002	0.55	0.48*	0.49*	0.60	0.57	0.52

Table 21. Summary of *Daphnia magna* survival in 7-day tests using water samples collected from January 2002 to December 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	%	%	%	%	%	%
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
Nov-2002	60*†† D	100	100	100	100	100
Dec-2002	100	100	100	90	100	90

Table 22. Summary of *Daphnia magna* reproduction in 7-day tests using water samples collected from January 2002 to December 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
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
Nov-2002	7.9* D	30.3	33.5	29.5	18.4	20.3
Dec-2002	22.8	26.3	36.7	29.9	26.7	21.4

(*) 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 January 2002 to December 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
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
Nov-2002	10.8*	15.7	11.9*	10.8*	15.7	14.2
Dec-2002	7.3‡	9.7	10.0	6.8‡	2.4 † ††	7.7†††

Table 24. Summary of selenium concentrations in grab water samples collected at study stations for use in laboratory toxicity tests, October 2002 to December 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
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
Nov-18-2002	55	0.5	7.6	<0.4	<0.4
Nov-20-2002	67	0.4	7.6	0.5	<0.4
Nov-22-2002	68	0.4	6.5	<0.4	<0.4
Dec-16-2002	78	0.4	12	0.8	0.6
Dec-18-2002	72	<0.4	8.0	0.8	0.6
Dec-20-2002	70	<0.4	10	0.7	1.0

Table 25. Summary of total suspended solids concentrations in grab water samples collected from October 2002 to December 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
Oct-14-2002	45	69	71	130	14
Oct-16-2002	59	93	67	197	29
Oct-18-2002	56	44	58	72	24
Nov-18-2002	55	23	35	60	12
Nov-20-2002	82	26	34	94	17
Nov-22-2002	67	43	43	119	24
Dec-16-2002	68	69	82	69	26
Dec-17-2002	63	23	24	85	54
Dec-20-2002	80	36	41	58	18

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
D	Sample was dechlorinated