GRASSLAND BYPASS PROJECT

MONTHLY DATA REPORT

May 2003

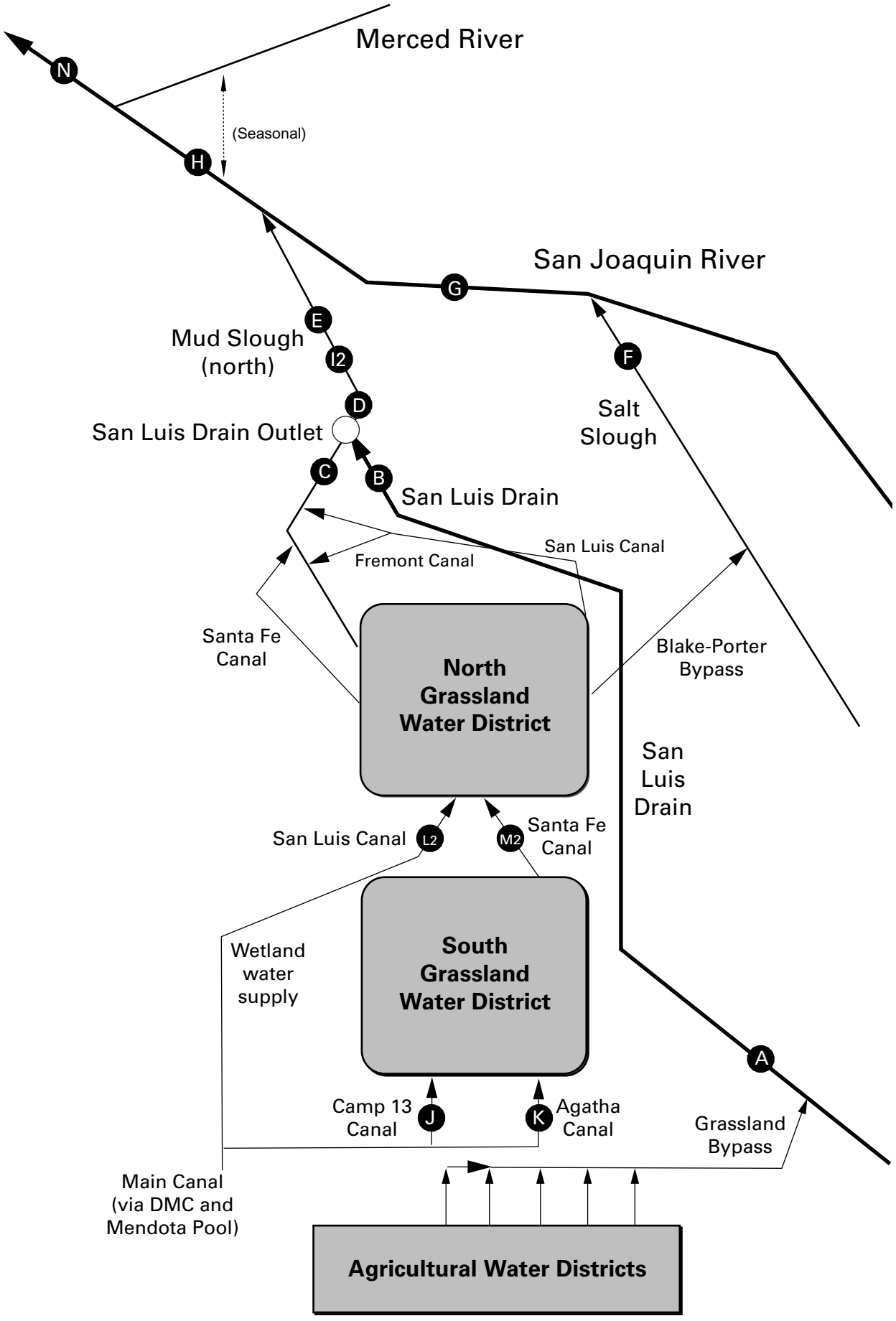
July 29, 2003

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
San Luis Drain Outlet
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

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MONTHLY DATA REPORT

LIST OF TABLES FOR MONTHLY REPORT

Table 1. Continuous water monitoring at Station A (inflow to San Luis Drain), May 2003.

See Table 26 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow	Specific Conductance
DATA SOURCE	SLDMWA	SLDMWA
UNITS	cfs	µS/cm
May-01-2003	48	4,860
May-02-2003	45	4,860
May-03-2003	38	4,500
May-04-2003	41	3,950
May-05-2003	44	3,870
May-06-2003	48	4,160
May-07-2003	44	4,320
May-08-2003	40	4,380
May-09-2003	36	4,680
May-10-2003	36	4,810
May-11-2003	35	4,890
May-12-2003	32	5,270
May-13-2003	32	5,190
May-14-2003	34	5,180
May-15-2003	39	4,880
May-16-2003	40	4,820
May-17-2003	42	4,650
May-18-2003	40	4,640
May-19-2003	38	5,130
May-20-2003	36	5,140
May-21-2003	39	5,060
May-22-2003	44	4,890
May-23-2003	44	4,700
May-24-2003	39	4,490
May-25-2003	38	4,340
May-26-2003	41	4,190
May-27-2003	46	4,030
May-28-2003	48	3,880
May-29-2003	47	3,990
May-30-2003	43	4,200
May-31-2003	41	4,300
Mean	41	4,590

Table 2a. Continuous water monitoring at Station B (discharge from San Luis Drain), May 2003.

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
May-01-2003	47	19.9	8.6	5,150	72.1	18.3
May-02-2003	48	18.9	9.0	5,070	67.0	17.3
May-03-2003	46	17.5	8.8	5,130	67.3	16.7
May-04-2003	39	18.1	9.8	5,150	70.8	14.9
May-05-2003	42	18.6	9.8	5,120	74.7	16.9
May-06-2003	45	19.4	8.7	5,150	67.4	16.4
May-07-2003	48	19.4	8.3	4,810	50.6	13.1
May-08-2003	41	18.1	7.9	4,360	45.7	10.1
May-09-2003	38	18.0	7.2	4,360	44.6	9.1
May-10-2003	35	18.9	7.8	4,320	50.0	9.4
May-11-2003	35	19.9	8.1	4,750	53.1	10.0
May-12-2003	34	20.8	8.2	4,710	51.9	9.5
May-13-2003	30	21.9	8.7	4,970	56.3	9.1
May-14-2003	29	21.9	9.0	5,190	60.8	9.5
May-15-2003	32	21.2	9.2	5,220	63.9	11.0
May-16-2003	39	21.0	9.3	5,440	65.4	13.8
May-17-2003	42	20.8	9.5	5,560	70.2	15.9
May-18-2003	47	19.3	9.4	5,510	70.7	17.9
May-19-2003	42	19.6	9.3	5,270	58.0	13.1
May-20-2003	39	21.1	9.1	5,200	58.2	12.2
May-21-2003	38	22.6	8.6	4,970	60.8	12.5
May-22-2003	41	24.1	8.5	5,040	60.4	13.4
May-23-2003	46	25.6	P	5,530	69.5	17.2
May-24-2003	45	25.8	P	5,430	70.5	17.1
May-25-2003	42	24.9	P	5,350	71.4	16.2
May-26-2003	41	24.0	P	5,310	74.5	16.5
May-27-2003	43	24.0	P	5,070	63.7	14.8
May-28-2003	51	25.4	P	4,900	55.2	15.2
May-29-2003	52	26.0	P	4,640	48.3	13.5
May-30-2003	49	25.0	P	4,500	42.6	11.3
May-31-2003	47	24.8	P	4,200	36.9	9.4
Mean	42	21.5	8.8	5,010	60.4	13.6
Total Acre-feet	**2,560**					
Total (lbs)						**421**

Load Limitation for May 2003 (lbs)	**464**

Table 2b. Continuous water monitoring at San Luis Drain Outlet, May 2003.
Note: This is unofficial data reported for comparison with Station B.

See Table 26 for explanation of footnotes and agency abbreviations.

PARAMETER	San Luis Drain Outlet Flow	Selenium (total) *	Selenium (total) Load
DATA SOURCE	SLDMWA	CVRWQCB	Computed
UNITS	cfs	µg/L	lbs
May-01-2003	48	72.1	18.6
May-02-2003	51	67.0	18.3
May-03-2003	47	67.3	17.1
May-04-2003	40	70.8	15.2
May-05-2003	41	74.7	16.6
May-06-2003	44	67.4	16.2
May-07-2003	44	50.6	12.0
May-08-2003	44	45.7	10.8
May-09-2003	40	44.6	9.6
May-10-2003	36	50.0	9.8
May-11-2003	36	53.1	10.3
May-12-2003	35	51.9	9.7
May-13-2003	32	56.3	9.6
May-14-2003	31	60.8	10.3
May-15-2003	35	63.9	11.9
May-16-2003	39	65.4	13.9
May-17-2003	40	70.2	15.2
May-18-2003	41	70.7	15.8
May-19-2003	42	58.0	13.1
May-20-2003	39	58.2	12.2
May-21-2003	39	60.8	12.6
May-22-2003	41	60.4	13.4
May-23-2003	46	69.5	17.2
May-24-2003	45	70.5	17.0
May-25-2003	41	71.4	15.8
May-26-2003	40	74.5	16.2
May-27-2003	43	63.7	14.6
May-28-2003	50	55.2	14.9
May-29-2003	51	48.3	13.2
May-30-2003	47	42.6	10.9
May-31-2003	46	36.9	9.1
Mean	42	60.4	13.6
Total Acre-feet	**2,560**		
Total (lbs)			**421**

*Selenium (total) concentrations from Site B (San Luis Drain)
Note: SLD Terminus weir under construction, flows are estimated.

The US Geological Survey determines flow at Station B through continuous measurements of stage that is rated for a known cross-section. These flow data, listed in Table 2a, are verified with frequent current meter measurements.

Monitoring and Reporting Program No. 5-101-234 states:

"Samples representative of the discharge shall be collected from the San Luis Drain at the footbridge between Gun Club Road and the terminus (Site B)."

Accurate flow measurements are necessary to determine compliance with selenium load limits specified in Waste Discharge Requirement Order No. 5-101-234.

The accumulation of sediments, as documented in the 2001 Annual Report, have caused irregularities in flow measurements at Station B, resulting in "shifts" in the relationship between stage and discharge.

To improve the accuracy of flow measurements, Reclamation and the San Luis & Delta-Mendota Water Authority, with technical assistance from the USGS, propose to measure flow at the San Luis Drain Outlet. The Outlet is located two miles from Station B. Discharge will be measured as stage over a sharp-crested weir, identical to Station A. This is a simpler and more accurate method that will not be altered by sediment accumulation.

This change is subject to approval by the California Regional Water Quality Board and modification of the Waste Discharge Requirement Order and Monitoring and Reporting Program. It is anticipated that as of October 1, 2003, flow will be measured solely at the Outlet works for determination of GBP flow discharge.

Unofficial flow data for the Outlet works are presented in Table 2b for comparison and are not used to determine compliance with the Waste Discharge Requirement Order.

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

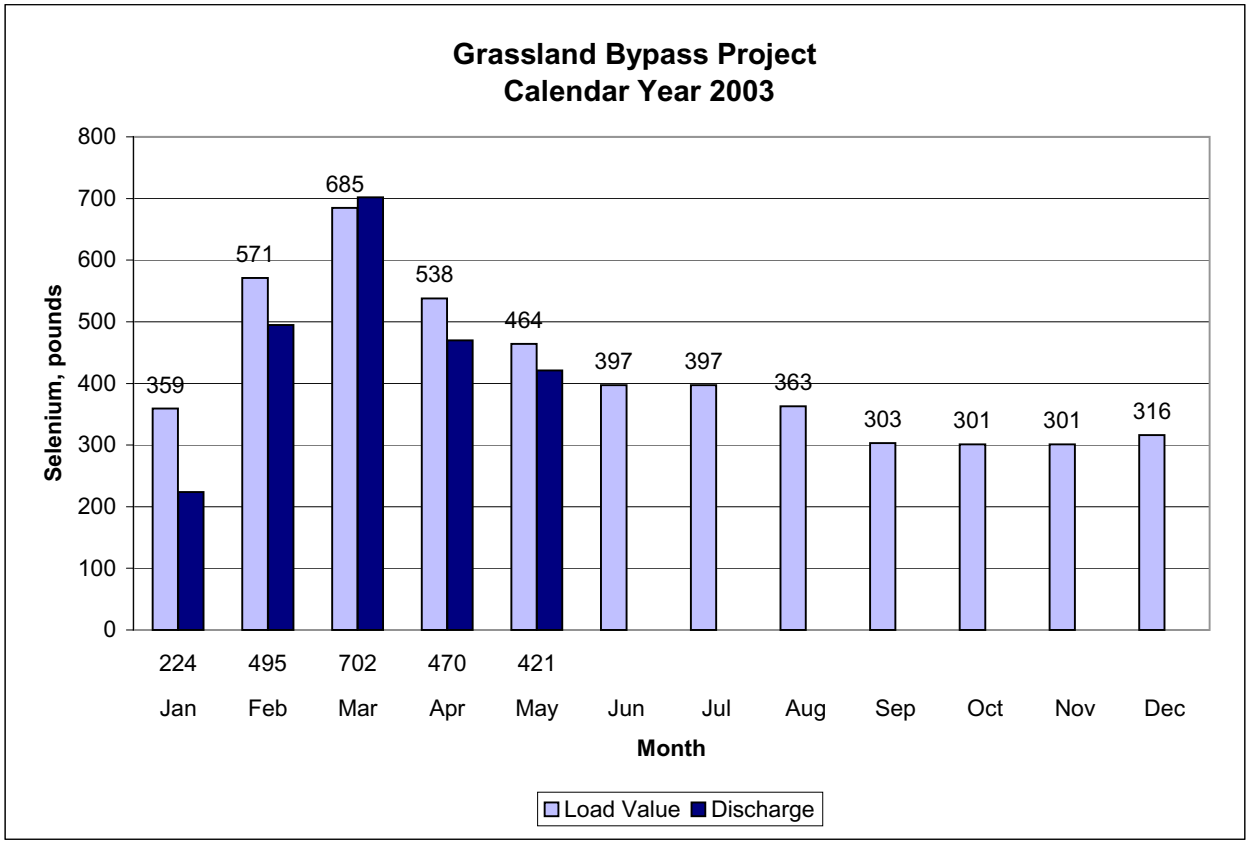

Table 3. Continuous water monitoring at Station D (Mud Slough North downstream of drainage discharges), May 2003.

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
May-01-2003	76 e	19.5	3,570
May-02-2003	76 e	18.5	3,480
May-03-2003	76 e	17.5	3,300
May-04-2003	75 e	18.3	2,940
May-05-2003	75 e	18.6	2,960
May-06-2003	75 e	19.6	3,180
May-07-2003	75 e	19.6	3,640
May-08-2003	74 e	18.2	3,840
May-09-2003	74 e	18.3	3,570
May-10-2003	74 e	19.3	3,570
May-11-2003	73 e	20.4	3,700
May-12-2003	72 e	21.4	3,200
May-13-2003	61	22.3	3,490
May-14-2003	48	21.9	4,010
May-15-2003	48	21.2	4,120
May-16-2003	52	20.9	4,090
May-17-2003	51	20.4	4,540
May-18-2003	61	18.9	4,040
May-19-2003	62	19.5	3,640
May-20-2003	58	21.2	3,550
May-21-2003	58	22.9	3,380
May-22-2003	53	24.4	3,900
May-23-2003	66	25.9	3,580
May-24-2003	71	25.9	3,470
May-25-2003	65	24.9	3,580
May-26-2003	67	24.0	3,440
May-27-2003	74	24.1	3,140
May-28-2003	78	25.6	3,250
May-29-2003	72	26.0	3,290
May-30-2003	70	24.7	3,200
May-31-2003	70	24.9	3,030
Mean	67	21.6	3,540

Table 4. Continuous water monitoring at Station F (Salt Slough at Highway 165), May 2003.

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
May-01-2003	130	19.3	1,690
May-02-2003	132	18.4	1,590
May-03-2003	132	17.3	1,530
May-04-2003	159	17.5	1,440
May-05-2003	173	18.3	1,340
May-06-2003	161	19.5	1,400
May-07-2003	130	19.3	1,610
May-08-2003	116	17.4	1,750
May-09-2003	136	17.4	1,530
May-10-2003	146	18.4	1,430
May-11-2003	132	20.2	1,500
May-12-2003	130	21.3	1,510
May-13-2003	121	22.4	1,550
May-14-2003	101	21.5	1,770
May-15-2003	101	19.9	1,800
May-16-2003	110	20.1	1,600
May-17-2003	124	20.4	1,400
May-18-2003	142	19.3	1,280
May-19-2003	168	19.6	1,140
May-20-2003	175	21.2	1,110
May-21-2003	157	23.2	1,150
May-22-2003	119	25.0	1,310
May-23-2003	87	26.0	1,650
May-24-2003	97	25.0	1,530
May-25-2003	106	23.6	1,460
May-26-2003	117	23.1	1,340
May-27-2003	135	23.7	1,250
May-28-2003	141	25.9	1,140
May-29-2003	119	26.1	1,160
May-30-2003	100	23.9	1,250
May-31-2003	101	24.4	1,270
Mean	129	21.2	1,430

Table 5. Continuous water monitoring at Station N (San Joaquin River at Crow's Landing), May 2003.

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
May-01-2003	962	18.5	1,080	3.6
May-02-2003	994	18.4	1,110	3.4
May-03-2003	1,130	17.1	972	3.2
May-04-2003	1,350	17.1	811	2.7
May-05-2003	1,570	16.8	635	1.9
May-06-2003	1,630	17.2	579	1.9
May-07-2003	1,660	17.3	592	2.0
May-08-2003	1,660	16.6	596	1.7
May-09-2003	1,670	16.1	595	1.3
May-10-2003	1,700	16.5	580	1.3
May-11-2003	1,710	17.5	535	1.1
May-12-2003	1,680	18.0	539	1.1
May-13-2003	1,380	19.4	657	1.5
May-14-2003	1,090	20.2	809	1.7
May-15-2003	943	20.4	961	2.1
May-16-2003	815	20.3	1,210	2.4
May-17-2003	755	20.2	1,310	3.1
May-18-2003	729	19.1	1,370	3.5
May-19-2003	741	19.5	1,370	4.3
May-20-2003	693	21.3	1,330	4.3
May-21-2003	673	22.8	1,280	3.2
May-22-2003	613	24.3	1,350	3.3
May-23-2003	591	25.4	1,350	3.4
May-24-2003	558	25.2	1,520	4.3
May-25-2003	548	24.1	1,700	5.4
May-26-2003	556	23.4	1,590	4.8
May-27-2003	556	23.8	1,500	4.4
May-28-2003	561	25.7	1,420	4.7
May-29-2003	556	26.3	1,390	4.1
May-30-2003	530	24.6	1,410	4.5
May-31-2003	491	24.5	1,570	3.9
Mean	1,000	20.6	1,090	3.0

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	.	.	.
Mar-05-2003	65	.	.	4,970	140	.	.	.
Mar-12-2003	58	.	.	5,510	NA	.	.	.
Mar-19-2003	40	.	.	5,940	40	.	.	.
Mar-26-2003	36	.	.	5,420	46	.	.	.
Apr-02-2003	43	.	.	5,770	50		.	
Apr-09-2003	45	.	.	5,160	NA		.	
Apr-16-2003	41	.	.	4,850	86		.	
Apr-23-2003	42	.	.	5,570	110		.	
Apr-30-2003	46	.	.	5,110	NA		.	
May-07-2003	44	.	.	4,680	130		.	
May-14-2003	34	.	.	5,380	P		.	
May-21-2003	39	.	.	5,270	140		.	
May-28-2003	48	.	.	4,360	130		.	

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
Mar-04-2003	63	.	.	4,820	.	70.6	.	7.8
Mar-11-2003	58	.	.	5,490	.	87.1	.	8.5
Mar-18-2003	42	.	.	5,620	.	84.4	.	8.9
Mar-25-2003	31	.	.	5,740	.	72.1	.	8.9
Apr-01-2003	36	.	.	5,590	.	62.9	.	9.1
Apr-08-2003	44	.	.	5,400	.	73.6	.	8.7
Apr-15-2003	44	.	.	5,220	.	64.5	.	8.3
Apr-22-2003	44	.	.	5,300	.	74.6	.	8.5
Apr-29-2003	45	.	.	5,230	.	68.1	.	8.8
May-06-2003	48	.	.	4,720	.	54.9	.	8.3
May-13-2003	32	.	.	5,270	.	56.5	.	8.7
May-20-2003	36	.	.	5,200	.	61.9	.	8.8
May-27-2003	46	.	.	4,650	.	50.5	.	P

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
Mar-06-2003	69	15.0	7.7	5,080	39	73.5	8.4
Mar-13-2003	63	18.1	8.3	5,520	30	80.3	8.6
Mar-20-2003	46	14.9	8.1	5,580	NA	88.1	8.4
Mar-27-2003	46	16.6	8.4	5,590	54	66.6	8.1
Apr-03-2003	45	16.6	8.3	5,430	41	54.2	8.8
Apr-10-2003	47	18.7	8.2	5,190	28	67.0	8.2
Apr-17-2003	43	16.4	8.1	5,250	53	52.6	8.3
Apr-24-2003	40	17.1	8.3	5,130	60	66.9	8.1
May-01-2003	47	18.5	8.1	5,110	53	70.7	8.6
May-08-2003	41	17.5	8.3	4,300	64	46.2	7.1
May-15-2003	32	19.8	8.7	5,190	46	60.9	9.3
May-22-2003	41	22.8	8.2	4,810	37	58.8	8.2
May-29-2003	52	25.3	8.2	4,740	40	45.8	7.7

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
Mar-06-2003	149	14.9	7.8	2,150	.	1.0	2.0
Mar-13-2003	144	18.2	8.1	1,970	.	1.1	1.9
Mar-20-2003	133	14.7	8.0	2,180	.	0.9	2.1
Mar-27-2003	125	15.7	8.3	1,940	.	1.1	1.7
Apr-03-2003	49	17.5	7.7	2,180	.	0.7	2.1
Apr-10-2003	5	19.7	8.2	2,790	.	0.9	2.6
Apr-17-2003	15	16.5	8.0	3,300	.	0.6	2.9
Apr-24-2003	32	16.5	8.4	1,880	.	1.0	1.6
May-01-2003	29	17.4	8.2	2,020	.	1.1	1.9
May-08-2003	33	16.0	7.9	2,820	.	0.5	3.1
May-15-2003	16	18.3	7.9	2,220	.	0.8	1.8
May-22-2003	12	23.9	8.1	2,190	.	0.8	1.9
May-29-2003	20	25.4	7.9	1,650	.	1.2	1.4

++ 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
Mar-06-2003	218	14.8	7.8	3,070	21.1	3.9
Mar-13-2003	207	18.4	8.0	3,030	20.2	3.7
Mar-20-2003	179	14.9	8.0	2,980	18.6	3.5
Mar-27-2003	171	15.8	8.3	2,270	13.6	3.0
Apr-03-2003	94	17.2	7.8	3,640	22.4	4.9
Apr-10-2003	52	18.9	8.2	4,510	45.9	6.1
Apr-17-2003	58	16.6	8.2	4,830	38.9	6.8
Apr-24-2003	72	17.7	8.3	3,680	34.0	4.9
May-01-2003	76 e	17.8	8.2	3,930	41.7	5.8
May-08-2003	74 e	17.4	8.1	4,350	35.1	6.6
May-15-2003	48	18.9	8.5	4,430	39.9	7.1
May-22-2003	53	22.9	8.2	4,300	41.6	6.7
May-29-2003	72	25.0	8.1	3,360	24.6	4.8

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
Mar-04-2003	.	6.7	2,760	27	17.8	3.3
Mar-10-2003	.	7.6	2,910	39	20.2	3.5
Mar-17-2003	.	7.5	3,100	65	19.1	3.9
Mar-25-2003	.	8.1	2,850	55	15.4	3.6
Apr-02-2003	.	8.0	3,080	40	15.0	3.6
Apr-08-2003	.	7.8	5,200	26	36.1	5.7
Apr-14-2003	.	7.9	4,050	25	39.6	6.4
Apr-21-2003	.	8.3	4,650	19	44.8	6.1
Apr-28-2003	.	8.5	4,200	21	41.7	5.8
May-06-2003	.	8.3	3,060	46	32.9	4.8
May-14-2003	.	9.4	1,680	24	14.4	6.3
May-22-2003	.	8.6	5,870	15	37.8	6.7
May-27-2003	.	8.7	4,950	13	26.6	5.3

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
Mar-06-2003	404	13.4	7.9	1,590	1.2	1.1
Mar-13-2003	436	17.4	7.7	1,620	1.1	1.2
Mar-20-2003	324	14.6	7.7	1,820	0.9	1.3
Mar-27-2003	284	17.5	7.9	1,540	1.1	1.0
Feb-27-2003	406	12.6	7.6	1,440	1.3	0.9
Apr-03-2003	211	18.7	7.3	1,780	0.7	1.2
Apr-10-2003	156	18.2	7.8	1,840	0.9	1.0
Apr-17-2003	175	16.0	7.7	1,590	0.8	0.7
Apr-24-2003	116	16.5	7.6	1,850	0.4	0.8
May-01-2003	130	17.2	7.7	1,650	<0.4	0.7
May-08-2003	116	15.8	7.7	1,770	0.5	0.9
May-15-2003	101	17.1	7.7	1,820	0.5	0.9
May-22-2003	119	22.6	7.7	1,270	0.7	0.6
May-29-2003	119	24.8	7.6	1,250	0.7	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††	.	.	CVRWQCB	CVRWQCB	CVRWQCB
UNITS	cfs	.	.	µS/cm	µg/L	mg/L
Mar-05-2003	5	.	.	1,050	3.3	1.1
Mar-12-2003	5	.	.	832	2.5	0.6
Mar-19-2003	50	.	.	656	1.7	0.4
Mar-26-2003	50	.	.	442	1.3	0.3
Apr-02-2003	0	.	.	692	<0.4	0.6
Apr-09-2003	0	.	.	740	1.8	0.5
Apr-16-2003	10	.	.	727	1.2	0.4
Apr-23-2003	0	.	.	1,640	1.4	2.3
Apr-30-2003	10	.	.	847	1.8	0.8
May-07-2003	10	.	.	2,910	1.2	4.7
May-14-2003	20	.	.	1,110	1.7	1.3
May-21-2003	10	.	.	1,030	1.6	1.1
May-28-2003	35	.	.	693	1.9	P

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
Mar-05-2003	10	.	.	1,250	3.3	1.1
Mar-12-2003	10	.	.	1,150	1.6	1.4
Mar-19-2003	80	.	.	676	1.8	0.4
Mar-26-2003	80	.	.	483	1.2	0.3
Apr-02-2003	0	.	.	1,220	2.1	1.1
Apr-09-2003	0	.	.	1,790	1.3	2.1
Apr-16-2003	20	.	.	765	1.2	0.6
Apr-23-2003	30	.	.	605	1.4	0.4
Apr-30-2003	30	.	.	594	1.1	0.3
May-07-2003	45	.	.	589	1.2	0.3
May-14-2003	65	.	.	607	1.4	0.3
May-21-2003	80	.	.	590	1.0	0.3
May-28-2003	80	.	.	588	1.0	P

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
Mar-05-2003	25	.	.	873	2.0	0.7
Mar-12-2003	25	.	.	1,230	1.8	1.1
Mar-19-2003	25	.	.	808	1.6	0.6
Mar-26-2003	25	.	.	1,250	2.1	1.2
Apr-02-2003	50	.	.	1,100	1.9	1.1
Apr-09-2003	25	.	.	1,260	2.1	1.2
Apr-16-2003	40	.	.	905	1.6	0.6
Apr-23-2003	40	.	.	1,050	2.0	0.8
Apr-30-2003	40	.	.	1,010	1.6	1.0
May-07-2003	40	.	.	575	1.1	0.4
May-14-2003	80	.	.	616	1.5	0.4
May-21-2003	120	.	.	765	1.3	0.4
May-28-2003	150	.	.	616	1.2	P

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
Mar-05-2003	118	.	.	2,370	3.8	2.6
Mar-12-2003	122	.	.	1,980	1.4	2.6
Mar-19-2003	117	.	.	1,910	2.1	2.1
Mar-26-2003	91	.	.	1,520	2.0	1.6
Apr-02-2003	66	.		2,060	1.8	2.3
Apr-09-2003	40	.	.	2,310	2.4	2.5
Apr-16-2003	30	.	.	2,080	1.5	2.0
Apr-23-2003	14	.	.	2,150	1.5	2.3
Apr-30-2003	40	.		1,600	1.5	2.0
May-07-2003	55	.	.	1,620	1.4	2.0
May-14-2003	60	.	.	1,150	1.5	1.3
May-21-2003	71	.	.	1,380	1.7	1.4
May-28-2003	43	.		1,140	1.4	P

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
Mar-06-2003	451	14.5	7.9	1,680	1.0	1.0
Mar-13-2003	503	17.5	7.6	1,650	1.2	1.1
Mar-20-2003	437	15.1	7.5	1,780	0.8	1.3
Mar-27-2003	360	17.6	7.9	1,890	1.0	0.9
Apr-03-2003	267	16.0	7.3	2,020	0.7	1.1
Apr-10-2003	220	19.2	7.7	2,170	0.8	0.9
Apr-17-2003	212	16.7	7.5	1,780	0.5	0.8
Apr-24-2003	154	17.3	7.8	2,090	0.4	0.8
May-01-2003	162	17.9	7.6	1,910	<0.4	0.7
May-08-2003	146	16.8	7.2	1,920	0.5	0.9
May-15-2003	121	19.4	7.7	2,460	<0.4	0.9
May-22-2003	151	23.6	7.7	1,520	0.6	0.6
May-29-2003	142	24.9	7.7	1,440	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
Mar-04-2003	.	.	.	2,070	5.9	1.6
Mar-11-2003	.	.	.	2,070	6.3	1.7
Mar-18-2003	.	.	.	2,230	6.1	1.9
Mar-25-2003	.	.	.	2,370	5.1	1.7
Apr-01-2003	.	.	.	2,210	3.5	1.5
Apr-08-2003	.	.	.	2,580	7.6	2.1
Apr-15-2003	.	.	.	2,700	6.1	1.9
Apr-22-2003	.	.	.	2,290	8.3	1.9
Apr-29-2003	.	.	.	2,680	11.3	2.3
May-06-2003	.	.	.	2,000	8.1	1.7
May-13-2003	.	.	.	2,300	5.5	1.8
May-20-2003	.	.	.	2,100	7.4	P
May-28-2003	.	.	.	2,560	10.8	2.3

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
Mar-06-2003	1,120	15.4	7.8	1,700	5.0	1.5
Mar-13-2003	1140	18.1	8.0	1,710	4.9	1.4
Mar-20-2003	1,120	15.9	8.0	1,860	4.0	1.5
Mar-27-2003	945	16.4	7.9	1,640	3.2	1.1
Apr-03-2003	817	15.6	7.4	1,730	3.0	1.3
Apr-10-2003	744	19.3	8.0	1,770	4.7	1.2
Apr-17-2003	1,050	16.2	7.8	1,050	2.9	0.7
Apr-24-2003	991	16.7	7.9	1,080	3.5	0.7
May-01-2003	962	17.7	7.9	1,070	2.8	0.8
May-08-2003	1,660	15.9	7.5	580	1.6	0.4
May-15-2003	943	19.3	7.8	1,000	2.0	0.7
May-22-2003	613	23.7	7.9	1,340	3.9	1.0
May-29-2003	556	25.7	7.8	1,350	4.5	1.1

Table 19. Summary of fathead minnow (*Pimephales promelas*) larvae survival in 7-day tests using water samples collected from June 2002 to May 2003. 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	%	%	%	%	%	%
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
Jan-2003	98	65*	80	95	88	80
Feb-2003	98	78	73	88	98	100
Mar-2003	93	85*	100	95	100	100
Apr-2003	90	100	100	75*	88	100
May-2003	98	100	100	95	100	100

Table 20. Summary of fathead minnow (*Pimephales promelas*) larvae growth in 7-day tests using water samples collected from June 2002 to May 2003. 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
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
Jan-2003	0.37	0.32	0.33	0.32	0.40	0.35
Feb-2003	0.27	0.24	0.22	0.25	0.26	0.30
Mar-2003	0.33	0.36	0.34	0.28	0.30	0.35
Apr-2003	0.34	0.50	0.47	0.31	0.30	0.24
May-2003	0.37*	0.46*	0.40*	0.46	0.50	0.30

Table 21. Summary of *Daphnia magna* survival in 7-day tests using water samples collected from June 2002 to May 2003. 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	%	%	%	%	%	%
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
Jan-2003	90	90	100	90	100	100
Feb-2003	100	100	100	100	100	100
Mar-2003	100	100	90	90	100	90
Apr-2003	90	100	100	100	80	100
May-2003	100	100	100	80	100	100

Table 22. Summary of *Daphnia magna* reproduction in 7-day tests using water samples collected from June 2002 to May 2003. 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
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
Jan-2003	30.1	37.0	38.8	26.3*	38.6	43.0
Feb-2003	36.1	38.0	32.9	37.0	35.0	28.7
Mar-2003	50.9	43.2	46.6	44.4	44.0	41.5
Apr-2003	38.5	42.0	43.3	34.6	31.1	35.1
May-2003	31.7	29.2	34.6	19.0*	30.4	23.7

Table 23. Summary of *Selenastrum capricornutum* growth in 4-day tests using water samples collected from June 2002 to May 2003. 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
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‡‡‡
Jan-2003	3.9*	11.7	10.2	5.7*	7.7‡	7.7‡
Feb-2003	0.6*	2.0*‡	1.0*‡	1.5*	3.0††††	1.2††††
Mar-2003	12.4*	18.4	14.6	20.3	17.4	22.2
Apr-2003	11.1*	15.4	13.3	8.9*	15.7	27.6
May-2003	8.44*	12.9	10.4	10.9	12.1	13.2

Table 24. Summary of selenium concentrations in grab water samples collected at study stations for use in laboratory toxicity tests, March 2003 to May 2003.

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
Mar-17-2003	74	0.7	20	1.3	0.9
Mar-19-2003	84	0.7	20	1.2	<0.4
Mar-21-2003	86	1.1	19	0.9	<0.4
Apr-14-2003	45	1.4	22	0.7	<0.4
Apr-16-2003	57	1.0	34	1.1	<0.4
Apr-18-2003	58	1.1	35	0.7	0.5
May-12-2003	75	1.2	35	1.2	<0.4
May-14-2003	62	0.8	47	0.6	<0.4
May-16-2003	62	0.9	35	0.8	<0.4

Table 25. Summary of total suspended solids concentrations in grab water samples collected from March 2003 to May 2003.

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
Mar-17-2003	74	123	131	36	35
Mar-19-2003	44	110	100	37	27
Mar-21-2003	57	207	169	103	36
Apr-14-2003	60	155	84	110	24
Apr-16-2003	76	145	115	97	9
Apr-18-2003	97	334	112	205	14
May-12-2003	108	61	100	101	31
May-14-2003	52	62	84	71	22
May-16-2003	88	177	162	105	19

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 (10^6cell/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.
v	Based on definitive bioassay, NOEC is 50 percent
D	Sample was dechlorinated