GRASSLAND BYPASS PROJECT

MONTHLY DATA REPORT

March 2004

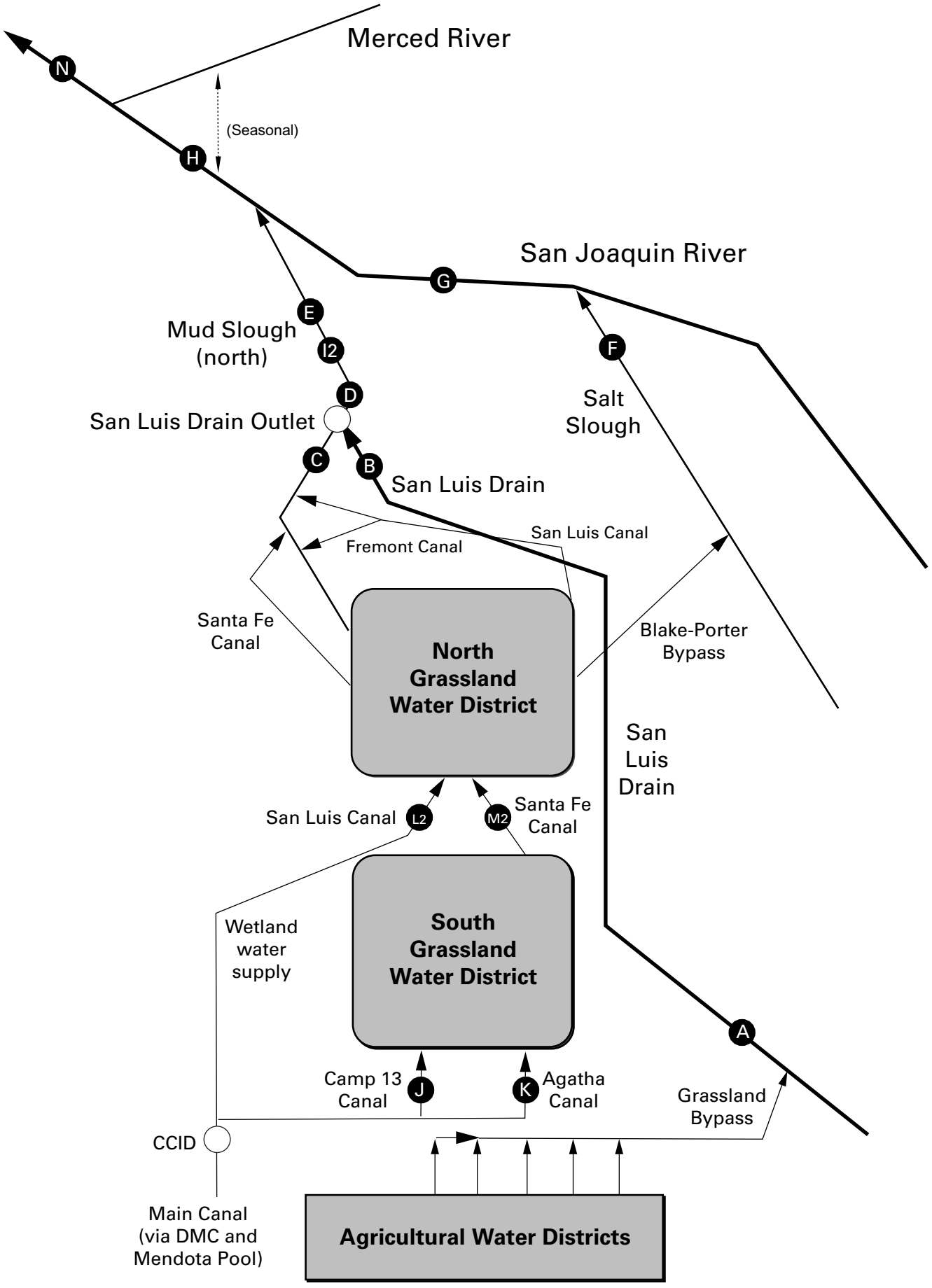
June 2, 2004

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
San Luis Drain Outlet
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
CCID
Main Canal
(via DMC and
Mendota Pool)
Agricultural Water Districts

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MONTHLY DATA REPORT

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Table 1. Continuous water monitoring at Station A (inflow to San Luis Drain), March 2004.

See Table 27 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow	Specific Conductance
DATA SOURCE	SLDMWA	SLDMWA
UNITS	cfs	µS/cm
Mar-01-2004	70	5,010
Mar-02-2004	79	4,400
Mar-03-2004	80	4,540
Mar-04-2004	72	5,040
Mar-05-2004	65	5,230
Mar-06-2004	48	5,290
Mar-07-2004	47	5,120
Mar-08-2004	44	5,280
Mar-09-2004	44	5,290
Mar-10-2004	45	5,420
Mar-11-2004	46	5,470
Mar-12-2004	44	5,510
Mar-13-2004	58	5,180
Mar-14-2004	58	5,150
Mar-15-2004	56	5,150
Mar-16-2004	52	5,340
Mar-17-2004	53	5,300
Mar-18-2004	50	5,240
Mar-19-2004	44	5,300
Mar-20-2004	40	5,380
Mar-21-2004	40	5,360
Mar-22-2004	43	5,230
Mar-23-2004	44	5,100
Mar-24-2004	37	5,130
Mar-25-2004	35	4,940
Mar-26-2004	41	4,790
Mar-27-2004	44	4,770
Mar-28-2004	46	4,480
Mar-29-2004	44	4,560
Mar-30-2004	46	4,860
Mar-31-2004	39	5,060
Mean	50	5,090

Table 2a. Continuous water monitoring at Station B (discharge from San Luis Drain), March 2004.

See Table 27 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
Mar-01-2004	69	13.5	7.1	4,930	68.0	25.3
Mar-02-2004	73	13.6	7.2	4,920	74.4	29.3
Mar-03-2004	78	13.8	7.4	5,020	75.4	31.7
Mar-04-2004	78	13.8	6.8	4,650	72.0	30.3
Mar-05-2004	71	14.8	6.1	4,360	68.6	26.3
Mar-06-2004	63	15.6	7.2	4,860	71.4	24.3
Mar-07-2004	50	16.7	6.9	5,090	71.8	19.4
Mar-08-2004	49	18.0	7.5	5,190	77.3	20.4
Mar-09-2004	47	18.9	7.3	5,280	64.4	16.3
Mar-10-2004	49	19.0	7.6	5,180	58.9	15.6
Mar-11-2004	45	19.2	7.6	5,140	58.8	14.3
Mar-12-2004	45	19.6	8.4	5,430	66.1	16.0
Mar-13-2004	47	19.7	7.7	5,480	65.8	16.7
Mar-14-2004	57	20.2	8.1	5,550	68.2	21.0
Mar-15-2004	58	20.4	8.4	5,560	73.2	22.9
Mar-16-2004	56	20.3	8.5	5,370	85.4	25.8
Mar-17-2004	55	20.7	8.4	5,350	84.8	25.2
Mar-18-2004	54	21.3	8.2	5,300	79.3	23.1
Mar-19-2004	52 e	21.4	8.3	5,450	84.4	23.7
Mar-20-2004	47 e	21.2	9.2	5,480	89.8	22.8
Mar-21-2004	43 e	21.4	8.5	5,350	83.4	19.3
Mar-22-2004	44 e	21.6	8.8	5,340	80.7	19.2
Mar-23-2004	45 e	21.2	8.8	5,390	78.2	19.0
Mar-24-2004	46 e	20.3	9.2	5,400	72.0	17.9
Mar-25-2004	40 e	19.2	8.6	5,440	72.1	15.6
Mar-26-2004	38 e	18.1	8.6	5,350	68.6	14.1
Mar-27-2004	43 e	17.8	7.8	5,230	64.4	14.9
Mar-28-2004	48 e	18.2	8.5	5,180	55.3	14.3
Mar-29-2004	49 e	19.3	7.7	4,970	51.7	13.7
Mar-30-2004	46 e	18.8	7.0	4,920	57.9	14.4
Mar-31-2004	47 e	18.1	6.7	4,810	57.2	14.5
Mean	53	18.6	7.9	5,190	71.0	20.2
Total Acre-feet	**3,240**					
Total (lbs)						**627**

Load Limitation for March 2004 (lbs)	**618**

Table 2b. Continuous water monitoring at San Luis Drain Outlet, March 2004.
Note: This is unofficial data reported for comparison with Station B.

See Table 27 for explanation of footnotes and agency abbreviations.

PARAMETER	San Luis Drain Outlet Flow	Selenium (total) *	Selenium (total) Load
DATA SOURCE	USGS	CVRWQCB	Computed
UNITS	cfs	µg/L	lbs
Mar-01-2004	74	68.0	27.1
Mar-02-2004	75	74.4	30.1
Mar-03-2004	83	75.4	33.8
Mar-04-2004	82	72.0	31.8
Mar-05-2004	76	68.6	28.1
Mar-06-2004	67	71.4	25.8
Mar-07-2004	53	71.8	20.5
Mar-08-2004	51	77.3	21.3
Mar-09-2004	48	64.4	16.7
Mar-10-2004	47	58.9	14.9
Mar-11-2004	46	58.8	14.6
Mar-12-2004	45	66.1	16.0
Mar-13-2004	48	65.8	17.0
Mar-14-2004	59	68.2	21.7
Mar-15-2004	59	73.2	23.3
Mar-16-2004	57	85.4	26.3
Mar-17-2004	54	84.8	24.7
Mar-18-2004	54	79.3	23.1
Mar-19-2004	51	84.4	23.2
Mar-20-2004	46	89.8	22.3
Mar-21-2004	42	83.4	18.9
Mar-22-2004	43	80.7	18.7
Mar-23-2004	44	78.2	18.6
Mar-24-2004	45	72.0	17.5
Mar-25-2004	39	72.1	15.2
Mar-26-2004	37	68.6	13.7
Mar-27-2004	42	64.4	14.6
Mar-28-2004	47	55.3	14.0
Mar-29-2004	48	51.7	13.4
Mar-30-2004	45	57.9	14.1
Mar-31-2004	46	57.2	14.2
Mean	53	71.0	20.5
Total Acre-feet	**3,280**		
Total (lbs)			**635**

*Selenium (total) concentrations from Site B (San Luis Drain)

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, are measuring 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 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.

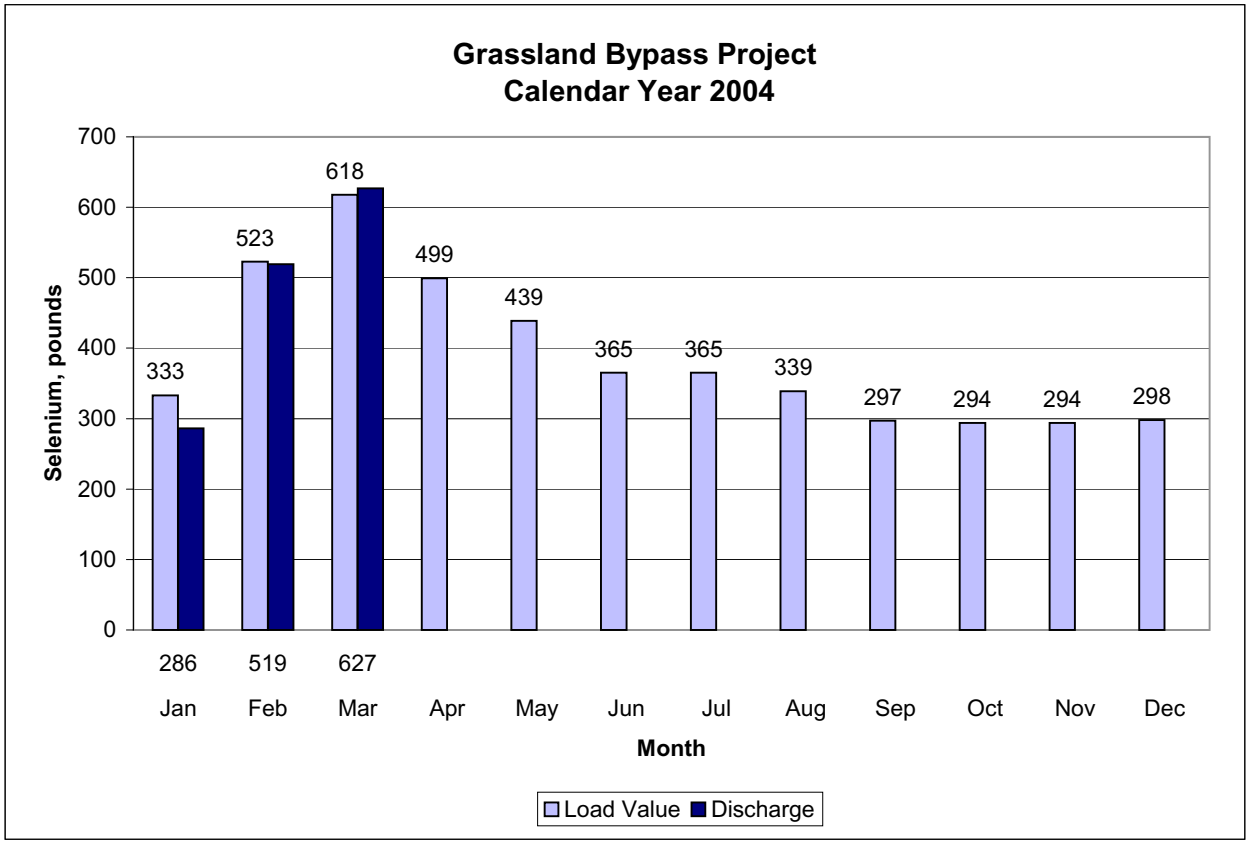

Table 3. Continuous water monitoring at Station D (Mud Slough North downstream of drainage discharges), March 2004.

See Table 27 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow	Temperature	Specific Conductance
DATA SOURCE	USGS	USGS	USGS
UNITS	cfs	°C	µS/cm
Mar-01-2004	504	12.9	2,010
Mar-02-2004	519	12.8	2,030
Mar-03-2004	510	13.0	2,220
Mar-04-2004	471	13.4	2,310
Mar-05-2004	446	14.6	2,310
Mar-06-2004	445	15.8	2,400
Mar-07-2004	400	16.9	2,400
Mar-08-2004	357	18.1	2,470
Mar-09-2004	337	19.1	2,530
Mar-10-2004	314	18.9	2,570
Mar-11-2004	302	18.9	2,600
Mar-12-2004	277	19.1	2,690
Mar-13-2004	276	19.4	2,660
Mar-14-2004	275	20.0	2,810
Mar-15-2004	256	20.4	2,920
Mar-16-2004	232	20.2	2,920
Mar-17-2004	211	20.5	2,990
Mar-18-2004	191	21.3	3,080
Mar-19-2004	170	21.7	3,180
Mar-20-2004	176	21.1	3,090
Mar-21-2004	163	21.2	3,080
Mar-22-2004	182	21.4	2,880
Mar-23-2004	176	20.9	3,040
Mar-24-2004	137	19.9	3,300
Mar-25-2004	117	18.5	3,380
Mar-26-2004	103	17.3	3,500
Mar-27-2004	112	17.5	3,440
Mar-28-2004	112	18.3	3,540
Mar-29-2004	105	19.7	3,580
Mar-30-2004	87	18.7	3,760
Mar-31-2004	91	17.9	3,650
Mean	260	18.4	2,880

Table 4. Continuous water monitoring at Station F (Salt Slough at Highway 165), February 2004.

See Table 27 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow	Temperature	Specific Conductance
DATA SOURCE	USGS	USGS	USGS
UNITS	cfs	°C	µS/cm
Mar-01-2004	494	12.8	1,540
Mar-02-2004	455	12.9	1,520
Mar-03-2004	449	13.1	1,450
Mar-04-2004	453	13.3	1,410
Mar-05-2004	453	14.0	1,380
Mar-06-2004	438	14.9	1,410
Mar-07-2004	431	16.0	1,390
Mar-08-2004	430	17.0	1,370
Mar-09-2004	422	18.0	1,410
Mar-10-2004	401	18.4	1,460
Mar-11-2004	357	18.3	1,590
Mar-12-2004	328	18.4	1,620
Mar-13-2004	324	18.6	1,550
Mar-14-2004	317	19.1	1,620
Mar-15-2004	314	19.6	1,650
Mar-16-2004	299	19.6	1,710
Mar-17-2004	269	19.8	1,770
Mar-18-2004	266	20.3	1,690
Mar-19-2004	275	20.6	1,580
Mar-20-2004	284	20.3	1,550
Mar-21-2004	291	20.3	1,520
Mar-22-2004	297	20.5	1,490
Mar-23-2004	298	19.9	1,470
Mar-24-2004	287	19.0	1,480
Mar-25-2004	270	18.0	1,480
Mar-26-2004	277	17.0	1,450
Mar-27-2004	287	16.8	1,430
Mar-28-2004	288	17.6	1,490
Mar-29-2004	275	18.8	1,540
Mar-30-2004	257	18.4	1,560
Mar-31-2004	225	17.4	1,650
Mean	339	17.7	1,520

Table 5. Continuous water monitoring at Station N (San Joaquin River at Crow's Landing), March 2004.

See Table 27 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
Mar-01-2004	2,650	12.6	807	1.9
Mar-02-2004	2,440	12.9	1,020	2.3
Mar-03-2004	2,200	13.0	1,130	2.6
Mar-04-2004	2,130	13.2	1,160	3.2
Mar-05-2004	2,020	14.0	1,250	3.4
Mar-06-2004	1,880	14.9	1,270	3.4
Mar-07-2004	1,760	15.8	1,350	3.3
Mar-08-2004	1,650	16.9	1,420	3.0
Mar-09-2004	1,560	17.9	1,450	3.0
Mar-10-2004	1,500	18.1	1,480	2.9
Mar-11-2004	1,440	18.1	1,530	2.5
Mar-12-2004	1,400	18.5	1,550	2.4
Mar-13-2004	1,280	18.6	1,660	2.6
Mar-14-2004	1,230	19.1	1,680	2.8
Mar-15-2004	1,220	19.4	1,650	3.3
Mar-16-2004	1,130	19.5	1,750	3.9
Mar-17-2004	1,100	19.6	1,780	4.2
Mar-18-2004	1,040	20.1	1,860	4.7
Mar-19-2004	996	20.6	1,960	4.9
Mar-20-2004	988	20.5	1,940	4.7
Mar-21-2004	1,030	20.5	1,890	4.5
Mar-22-2004	1,050	20.6	1,780	4.1
Mar-23-2004	1,040	20.4	1,700	3.8
Mar-24-2004	1,030	19.7	1,650	3.7
Mar-25-2004	973	18.4	1,740	3.9
Mar-26-2004	975	17.1	1,740	3.5
Mar-27-2004	984	17.2	1,640	3.2
Mar-28-2004	982 e	NA	1,550	3.1
Mar-29-2004	972 e	NA	1,600	3.4
Mar-30-2004	899	18.7	1,690	3.2
Mar-31-2004	875	17.6	1,660	3.0
Mean	1,370	17.7	1,560	3.4

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

See Table 27 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	.	.	.
Jan-07-2004	18	.	.	5,020	45	.	.	.
Jan-14-2004	18	.	.	4,760	120	.	.	.
Jan-21-2004	20	.	.	4,480	87	.	.	.
Jan-28-2004	16	.	.	5,170	34	.	.	.
Feb-04-2004	37	.	.	4,400	200	.	.	.
Feb-10-2004	54	.	.	4,530	210	.	.	.
Feb-18-2004	75	.	.	3,660	720	.	.	.
Feb-25-2004	71	.	.	4,800	270	.	.	.
Mar-03-2004	80	.	.	4,360	240	.	.	.
Mar-10-2004	45	.	.	5,680	250	.	.	.
Mar-17-2004	53	.	.	5,470	NA	.	.	.
Mar-24-2004	37	.	.	5,170	62	.	.	.
Mar-31-2004	39	.	.	5,360	95	.	.	.

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

See Table 27 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
Jan-06-2004	17	.	.	5,110	.	91.5	.	NA
Jan-13-2004	18	.	.	5,150	.	100	.	7.6
Jan-20-2004	21	.	.	4,730	.	82.5	.	7.5
Jan-27-2004	16	.	.	4,740	.	80.2	.	6.9
Feb-03-2004	34	.	.	4,720	.	67.7	.	7.1
Feb-09-2004	48	.	.	4,320	.	55.2	.	6.5
Feb-16-2004	58	.	.	4,020	.	51.7	.	6.0
Feb-24-2004	64	.	.	4,000	.	54.6	.	5.8
Mar-02-2004	79	.	.	4,740	.	71.6	.	6.9
Mar-09-2004	44	.	.	5,310	.	69.8	.	7.8
Mar-16-2004	52	.	.	5,530	.	81.6	.	9.1
Mar-23-2004	44	.	.	5,420	.	77.0	.	8.9
Mar-30-2004	46	.	.	4,940	.	57.9	.	7.6

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

See Table 27 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
Jan-08-2004	23	9.0	7.9	4,450	27	70.6	NA
Jan-15-2004	23	10.1	8.0	4,560	24	79.9	6.6
Jan-22-2004	25	9.5	8.0	4,410	24	68.2	6.7
Jan-29-2004	23	10.2	7.9	4,550	NA	93.1	6.7
Feb-05-2004	43 e	10.2	8.1	4,550	24	74.5	6.6
Feb-12-2004	54	11.1	8.2	4,290	26	56.4	6.9
Feb-19-2004	78	13.0	7.9	3,660	36	41.2	5.5
Feb-26-2004	70	12.5	8.0	4,580	45	59.3	6.5
Mar-04-2004	78	12.7	8.2	4,810	45	74.9	6.8
Mar-11-2004	45	18.2	8.3	5,150	49	60.2	7.4
Mar-18-2004	54	20.2	8.0	5,190	50	86.0	7.7
Mar-25-2004	40 e	18.8	8.5	5,480	40	73.6	8.7

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

See Table 27 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
Jan-08-2004	151	8.9	7.8	1,740	.	<0.4	NA
Jan-15-2004	106	9.6	7.8	1,980	.	<0.4	1.6
Jan-22-2004	105	8.6	7.8	2,010	.	<0.4	1.7
Jan-29-2004	109	10.5	7.9	2,140	.	<0.4	1.7
Feb-05-2004	107 e	9.6	8.0	2,150	.	0.5	1.8
Feb-12-2004	92	10.5	8.0	2,350	.	<0.4	2.1
Feb-19-2004	139	12.0	7.9	2,230	.	0.7	2.0
Feb-26-2004	249	11.2	7.9	1,970	.	0.8	1.9
Mar-04-2004	393	11.8	8.1	1,780	.	0.6	1.6
Mar-11-2004	257	17.1	7.9	2,180	.	0.8	2.4
Mar-18-2004	137	19.2	8.0	2,370	.	0.9	2.5
Mar-25-2004	77 e	18.1	8.1	2,390	.	0.7	2.2

++ 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 27 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
Jan-08-2004	174	8.9	7.7	2,140	8.4	NA
Jan-15-2004	129	9.6	7.9	2,470	12.8	2.5
Jan-22-2004	130	8.7	7.8	2,490	11.5	2.6
Jan-29-2004	132	10.5	7.9	2,460	8.4	2.4
Feb-05-2004	150	9.8	8.0	2,780	18.7	3.1
Feb-12-2004	146	10.7	8.1	3,070	19.4	3.7
Feb-19-2004	217	12.3	7.9	2,750	14.8	3.2
Feb-26-2004	320	11.5	7.9	2,143	14.3	3.1
Mar-04-2004	471	12.0	8.0	2,420	14.0	2.7
Mar-11-2004	302	17.2	7.8	2,720	10.4	3.2
Mar-18-2004	191	19.5	8.0	3,260	23.2	4.0
Mar-25-2004	117	18.1	8.2	3,460	22.8	4.4

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

See Table 27 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
Jan-06-2004	.	7.9	1,870	6	5.5	2.0
Jan-13-2004	.	7.6	2,310	6	9.8	2.4
Jan-22-2004	.	7.8	2,550	12	11.6	2.8
Jan-30-2004	.	7.8	2,750	8	10.7	2.8
Feb-03-2004	.	7.9	3,120	8	16.4	3.5
Feb-10-2004	.	8.0	3,100	8	16.7	3.5
Feb-18-2004	.	NA	NA	NA	13.8	3.3
Feb-27-2004	.	7.9	2,740	22	14.0	3.2
Mar-03-2004	.	8.0	2,380	21	13.7	2.8
Mar-09-2004	.	8.3	2,580	30	10.2	3.2
Mar-16-2004	.	8.2	3,270	49	20.9	4.1
Mar-24-2004	.	8.2	3,660	34	23.3	4.7

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

See Table 27 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
Jan-08-2004	254	8.5	7.7	1,560	0.6	NA
Jan-15-2004	216	9.8	7.7	1,690	0.7	1.1
Jan-22-2004	183	9.4	7.7	1,680	0.7	1.0
Jan-29-2004	196	10.3	7.6	1,630	<0.4	NA
Feb-05-2004	251	10.1	7.7	1,510	1.0	1.0
Feb-12-2004	182	10.6	7.4	1,860	0.7	1.1
Feb-19-2004	329	12.1	7.5	1,400	1.1	0.9
Feb-26-2004	458	11.9	7.5	1,500	1.1	NA
Mar-04-2004	453	12.2	7.6	1,420	0.9	1.0
Mar-11-2004	357	17.1	7.6	1,720	0.8	1.2
Mar-18-2004	266	19.0	7.9	1,950	0.8	1.5
Mar-25-2004	270	17.4	7.7	1,670	1.0	1.0

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

See Table 27 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
Jan-07-2004	10	.	.	752	0.8	NA
Jan-14-2004	10	.	.	600	0.7	0.3
Jan-21-2004	10	.	.	645	0.9	0.3
Jan-28-2004	10	.	.	868	1.6	0.5
Feb-04-2004	10	.	.	685	1.5	0.4
Feb-10-2004	10	.	.	665	1.3	0.4
Feb-18-2004	10	.	.	726	2.1	0.5
Feb-25-2004	10	.	.	795	2.0	0.6
Mar-03-2004	5	.	.	687	1.5	0.7
Mar-10-2004	5	.	.	842	1.9	0.8
Mar-17-2004	5	.	.	777	2.0	0.6
Mar-24-2004	5	.	.	1,020	1.8	1.5
Mar-31-2004	5	.	.	805	1.8	0.8

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

See Table 27 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
Jan-07-2004	50	.	.	670	0.7	NA
Jan-14-2004	50	.	.	565	0.8	0.3
Jan-21-2004	50	.	.	635	0.8	0.3
Jan-28-2004	50	.	.	669	1.4	0.3
Feb-04-2004	50	.	.	534	1.3	0.3
Feb-10-2004	10	.	.	2,280	1.2	4.0
Feb-18-2004	10	.	.	853	1.7	0.8
Feb-25-2004	10	.	.	1,000	2.1	1.1
Mar-03-2004	5	.	.	1,380	1.1	2.0
Mar-10-2004	5	.	.	848	1.2	0.9
Mar-17-2004	5	.	.	1,050	1.7	1.0
Mar-24-2004	5	.	.	1,010	1.3	1.4
Mar-31-2004	5	.	.	1,050	1.3	1.5

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

See Table 27 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
Jan-07-2004	0	.	.	895	0.9	NA
Jan-14-2004	0	.	.	1,290	1.7	1.3
Jan-21-2004	0	.	.	1,430	1.9	1.5
Jan-28-2004	0	.	.	855	1.1	0.6
Feb-04-2004	8	.	.	470	0.8	0.4
Feb-10-2004	0	.	.	971	1.4	0.7
Feb-18-2004	12	.	.	324	0.7	0.3
Feb-25-2004	0	.	.	1,400	2.9	1.2
Mar-03-2004	4	.	.	1,660	3.0	1.9
Mar-10-2004	0	.	.	2,220	3.1	2.7
Mar-17-2004	0	.	.	2,030	3.3	2.7
Mar-24-2004	0	.	.	963	1.6	0.9
Mar-31-2004	0	.	.	783	1.9	0.5

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

See Table 27 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
Jan-07-2004	119	.	.	1,270	0.5	NA
Jan-14-2004	125	.	.	1,310	0.9	1.4
Jan-21-2004	160	.	.	1,210	0.9	1.2
Jan-28-2004	145	.	.	1,460	1.0	1.4
Feb-04-2004	127	.	.	1,550	1.9	1.8
Feb-10-2004	116	.	.	1,710	1.4	1.9
Feb-18-2004	99	.	.	2,020	2.3	2.6
Feb-25-2004	162	.	.	1,850	1.6	2.3
Mar-03-2004	137	.	.	2,280	1.4	3.0
Mar-10-2004	160	.	.	2,010	0.9	2.6
Mar-17-2004	145	.	.	2,650	0.9	3.6
Mar-24-2004	120	.	.	2,190	1.3	3.0
Mar-31-2004	82	.	.	2,190	1.4	2.5

Table 16. Weekly water quality monitoring at Central California Irrigation District Main Canal at Russell Avenue (MER510).

See Table 27 for explanation of footnotes and agency abbreviations.

PARAMETER	.	.	.	Specific Conductance	Selenium (total)	Boron
DATA SOURCE	.	.	.	CVRWQCB	CVRWQCB	CVRWQCB
UNITS	.	.	.	µS/cm	µg/L	mg/L
Jan-07-2004	.	.	.	656	0.8	NA
Jan-14-2004	.	.	.	655	1.1	0.3
Jan-21-2004	.	.	.	660	1.0	0.3
Jan-28-2004	.	.	.	754	1.5	0.4
Feb-04-2004	.	.	.	468	1.2	0.2
Feb-10-2004	.	.	.	549	1.4	0.3
Feb-18-2004	.	.	.	430	1.5	0.2
Feb-25-2004	.	.	.	467	1.3	0.3
Mar-03-2004	.	.	.	800	2.2	0.6
Mar-10-2004	.	.	.	626	1.8	0.3
Mar-17-2004	.	.	.	631	1.9	0.4
Mar-24-2004	.	.	.	353	1.4	0.2
Mar-31-2004	.	.	.	632	2.0	0.4

Table 17. Weekly water quality monitoring at Station G (San Joaquin River at Fremont Ford).

See Table 27 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
Jan-08-2004	341	8.4	7.4	1,370	0.4	NA
Jan-15-2004	243	9.8	7.8	1,730	0.5	1.0
Jan-22-2004	205	9.3	7.9	1,890	0.7	1.0
Jan-29-2004	207	10.8	7.8	1,880	0.4	1.0
Feb-05-2004	313	9.9	7.4	1,510	0.9	0.9
Feb-12-2004	232	10.6	7.5	1,900	0.5	1.0
Feb-19-2004	342	12.4	7.6	1,610	1.0	1.0
Feb-26-2004	662	12.4	7.5	1,300	0.9	0.8
Mar-04-2004	1,090	12.5	8.1	1,010	0.7	0.5
Mar-11-2004	591	17.6	7.9	1,490	0.7	0.8
Mar-18-2004	385	19.1	7.7	1,960	0.8	1.0
Mar-25-2004	346	18.3	8.0	1,910	0.8	1.0

Table 18. Weekly water quality monitoring at Station H (San Joaquin River at Hills Ferry).

(Collected data intended for use with biological monitoring.)

See Table 27 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
Jan-06-2004	.	.	.	1,520	2.3	1.2
Jan-13-2004	.	.	.	2,000	3.5	1.5
Jan-20-2004	.	.	.	2,220	4.3	1.6
Feb-03-2004	.	.	.	2,220	5.2	1.5
Feb-11-2004	.	.	.	2,280	5.6	1.9
Feb-17-2004	.	.	.	2,420	6.7	2.0
Feb-24-2004	.	.	.	1,890	6.1	1.7
Mar-02-2004	.	.	.	1,290	3.1	1.0
Mar-09-2004	.	.	.	1,780	4.0	1.4
Mar-16-2004	.	.	.	2,310	5.7	2.1
Mar-23-2004	.	.	.	2,320	5.7	2.0
Mar-30-2004	.	.	.	2,480	5.3	2.1

Table 19. Weekly water quality monitoring at Station N (San Joaquin River at Crow's Landing).

See Table 27 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
Jan-08-2004	1,040	9.0	7.8	1,240	1.3	NA
Jan-15-2004	845	10.0	7.8	1,440	2.4	1.1
Jan-22-2004	767	9.4	7.9	1,540	2.3	1.0
Jan-29-2004	770	11.3	7.9	1,550	2.4	1.0
Feb-05-2004	913	10.4	7.7	1,310	2.5	0.9
Feb-12-2004	821	10.8	7.9	1,640	3.5	1.2
Feb-19-2004	948	12.9	7.9	1,480	3.4	1.2
Feb-26-2004	1,890	12.0	7.8	1,110	3.0	0.9
Mar-04-2004	2,130	12.4	7.9	1,160	3.2	0.9
Mar-11-2004	1,440	17.7	7.9	1,520	2.5	1.2
Mar-18-2004	1,040	19.4	7.9	1,840	4.8	1.4
Mar-25-2004	973	18.5	8.0	1,710	3.5	1.2

Table 20. Summary of fathead minnow (*Pimephales promelas*) larvae survival in 7-day tests using water samples collected from April 2003 to March 2004. Each value is the mean of 4 replicates with 10 fish in each replicate.

See Table 27 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	%	%	%	%	%	%
Apr-2003	90	100	100	75*	88	100
May-2003	98	100	100	95	100	100
Jun-2003	95	93	98	93	65†	100
Jul-2003	95	100	93	98	93	100
Aug-2003	95	98	95	93	95	98
Sep-2003	100	100	95	93	98	100
Oct-2003	100	100	93	100	100	100
Nov-2003	100	93	40*	100	75	100
Dec-2003	95	40*	53*	83	88	100
Jan-2004	95	58*	75	93	98	100
Feb-2004	98	93	100	98	100	100
Mar-2004	100	90	53*	85	100	100

Table 21. Summary of fathead minnow (*Pimephales promelas*) larvae growth in 7-day tests using water samples collected from April 2003 to March 2004. Each value is the mean of 4 replicates with 10 fish in each replicate.

See Table 27 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
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
Jun-2003	0.47	0.43	0.40	0.40	0.47	0.37
Jul-2003	0.58*	0.61*	0.73	0.65	0.71	0.65
Aug-2003	0.39	0.38	0.33	0.33	0.33	0.33
Sep-2003	0.46	0.37	0.45	0.38	0.31	0.38
Oct-2003	0.32	0.38	0.32	0.37	0.31	0.29
Nov-2003	0.45	0.43	0.16*	0.45	0.34	0.45
Dec-2003	0.50	0.29*	0.34	0.39	0.43	0.48
Jan-2004	0.60	0.37	0.49	0.58	0.55	0.58
Feb-2004	0.57	0.55	0.56	0.60	0.63	0.63
Mar-2004	0.44	0.39*	0.32*	0.42	0.48	0.46

Table 22. Summary of *Daphnia magna* survival in 7-day tests using water samples collected from April 2003 to March 2004. Each value is the mean of 10 replicates with 1 animal in each replicate.

See Table 27 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	%	%	%	%	%	%
Apr-2003	90	100	100	100	80	100
May-2003	100	100	100	80	100	100
Jun-2003	90	100	90	100	80	90
Jul-2003	100	90	100	90	80	100
Aug-2003	90	100	90	90	90	100
Sep-2003	60*	100	100	90	100	90
Oct-2003	60*	100	100	100	100	100
Nov-2003	90	100	89	100	100	90
Dec-2003	90	90	100	100	90	100
Jan-2004	95	58*	75	93	98	100
Feb-2004	98	93	100	98	100	100
Mar-2004	100	100	90	100	100	100

Table 23. Summary of *Daphnia magna* reproduction in 7-day tests using water samples collected from April 2003 to March 2004. Each value is the mean of 10 replicates with 1 animal in each replicate.

See Table 27 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
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
Jun-2003	28.5	23.0	24.3	29.7	19.5	27.4
Jul-2003	39.9	28.8	46.9	28.2	25.0	26.0
Aug-2003	30.1	33.5	29.0	24.4	33.5	26.7
Sep-2003	25.1	30.1	36.1	31.2	33.0	25.6
Oct-2003	23.3	48.1	52.8	41.5	33.8	23.0
Nov-2003	54.8	40.7	44.3	54.7	45.3	38.1
Dec-2003	59.0	58.7	64.9	73.6	64.2	68.7
Jan-2004	46.8	45.0	40.7	44.5	54.1	41.5
Feb-2004	59.4	59.0	60.7	54.3	60.0	59.0
Mar-2004	59.7	55.3	58.8	58.6	58.4	51.6

Table 24. Summary of *Selenastrum capricornutum* growth in 4-day tests using water samples collected from April 2003 to March 2004. Each value is the mean of 4 replicates.

See Table 27 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
Apr-2003	11.1*	15.4	13.3	8.9*	15.7	27.6
May-2003	8.4*	12.9	10.4	10.9	12.1	13.2
Jun-2003	16.2*	15.8*	13.2*	22.8*	31.6	35.2
Jul-2003	15.9*	22.7	12.1*	8.7*	19.5	16.6
Aug-2003	11.9*	13.6	11.7*	13.9	14.5	10.9
Sep-2003	11.8*	15.5	14.5*	13.9*	15.9	12.2
Oct-2003	10.0	12.6	12.2	8.6*	9.9††††	8.7††††
Nov-2003	12.3	22.5	21.2	18.9	14.8	15.3
Dec-2003	0.7*	26.6	34.4	21.1*	25.0	18.5
Jan-2004	9.7*	21.1	5.9*	8.8	18.4	20.9
Feb-2004	0.5*	32.5	21.9	0.4*	25.0	23.1
Mar-2004	24.0*	39.2	27.5	33.1	29.9	29.3

Table 25. Summary of selenium concentrations in grab water samples collected at study stations for use in laboratory toxicity tests, January 2004 to March 2004.

See Table 27 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
Jan-05-2004	56	<0.4	8.0	0.5	<0.4
Jan-07-2004	62	<0.4	6.0	0.4	<0.4
Jan-09-2004	78	<0.4	10	<0.4	<0.4
Feb-02-2004	70	0.5	18	0.9	1.3
Feb-04-2004	48	0.5	11	1.0	<0.4
Feb-06-2004	71	0.5	19	1.1	<0.4
Mar-01-2004	65	0.8	11	1.0	1.3
Mar-03-2004	77	0.8	14	1.0	1.4
Mar-05-2004	70	0.8	14	1.0	1.4

Table 26. Summary of total suspended solids concentrations in grab water samples collected from January 2004 to March 2004.

See Table 27 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
Jan-05-2004	25	7	13	44	16
Jan-07-2004	34	7	10	45	11
Jan-09-2004	39	24	29	70	11
Feb-02-2004	35	42	106	82	21
Feb-04-2004	47	56	42	82	19
Feb-06-2004	45	42	47	76	31
Mar-02-2004	52	39	113	49	62
Mar-04-2004	61	38	148	36	32
Mar-06-2004	61	22	80	36	48

Table 27. 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