GRASSLAND BYPASS PROJECT

MONTHLY DATA REPORT

May 2005

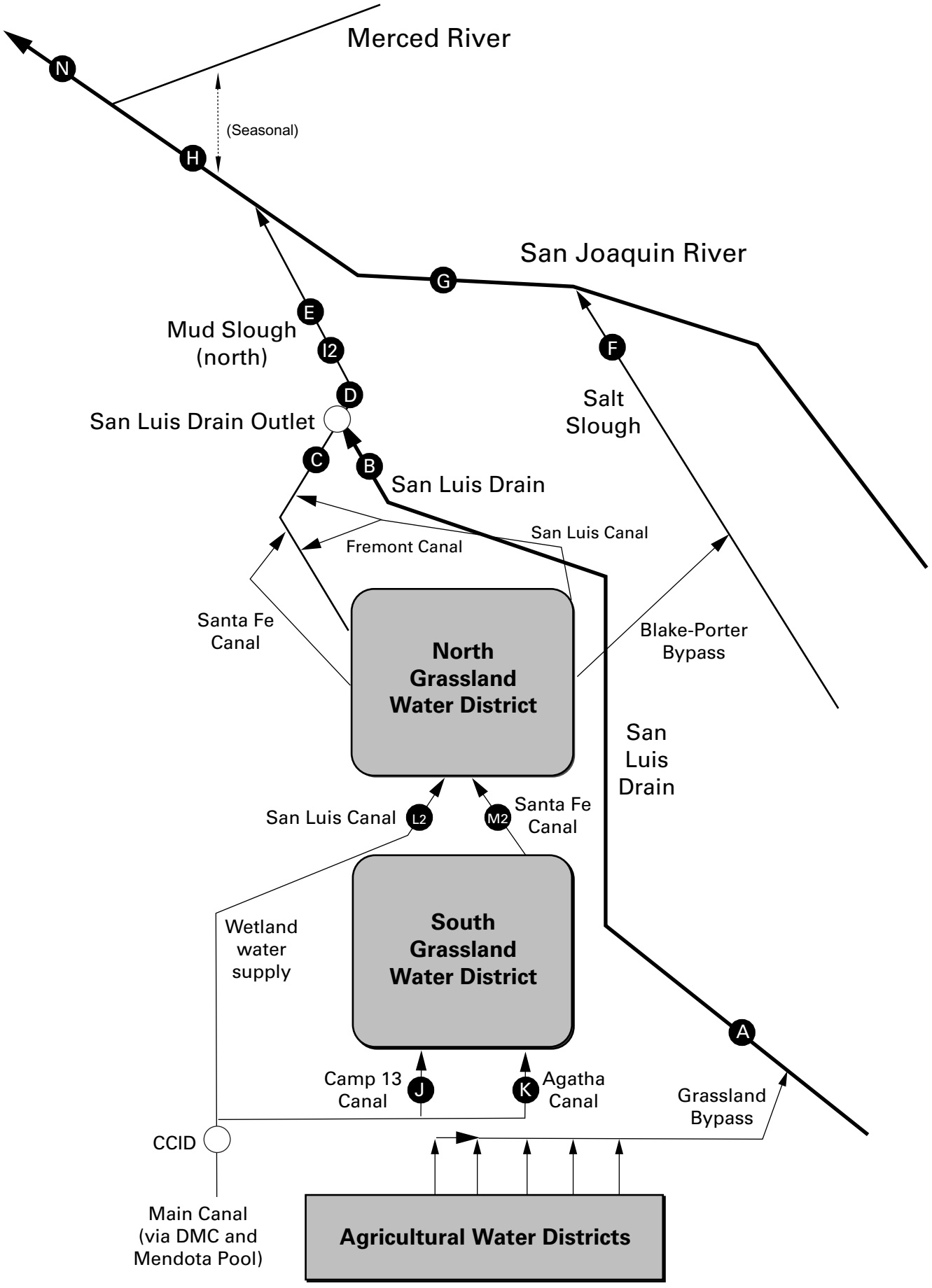
August 15, 2005

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

GRASSLAND BYPASS PROJECT

MONTHLY DATA REPORT

LIST OF TABLES FOR MONTHLY REPORT

Table 1. Continuous water monitoring at Station A (inflow to San Luis Drain), May 2005.

See Table 27 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow	Specific Conductance
DATA SOURCE	SLDMWA	SLDMWA
UNITS	cfs	µS/cm
May-01-2005	50	4,440
May-02-2005	51	4,400
May-03-2005	40	4,640
May-04-2005	37	4,850
May-05-2005	43	4,730
May-06-2005	50	4,880
May-07-2005	46	4,870
May-08-2005	42	4,940
May-09-2005	46	5,170
May-10-2005	44	5,160
May-11-2005	37	5,140
May-12-2005	35	5,110
May-13-2005	34	5,020
May-14-2005	33	5,190
May-15-2005	35	5,180
May-16-2005	35	5,180
May-17-2005	39	4,940
May-18-2005	38	4,660
May-19-2005	35	4,670
May-20-2005	35	4,790
May-21-2005	37	4,570
May-22-2005	40	4,180
May-23-2005	42	4,000
May-24-2005	46	3,990
May-25-2005	42	4,350
May-26-2005	42	4,340
May-27-2005	44	4,190
May-28-2005	45	4,170
May-29-2005	44	4,150
May-30-2005	45	4,260
May-31-2005	48	4,350
Mean	41	4,660

Table 2a. Continuous water monitoring at Station B (discharge from San Luis Drain), May 2005.

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
May-01-2005	48	21.0	P	4,460	45.2	11.7
May-02-2005	48	21.9	P	4,380	47.2	12.2
May-03-2005	48	22.1	P	4,440	52.2	13.5
May-04-2005	40	21.7	P	4,580	57.0	12.3
May-05-2005	38	21.0	P	4,530	56.2	11.5
May-06-2005	43	20.2	P	4,600	56.4	13.1
May-07-2005	48	20.5	P	4,900	54.6	14.1
May-08-2005	45	20.6	P	4,920	58.0	14.1
May-09-2005	43	20.1	P	5,000	69.4	16.1
May-10-2005	46	20.0	P	5,050	68.4	17.0
May-11-2005	45	20.4	P	5,120	66.8	16.2
May-12-2005	39	21.2	P	5,310	71.5	15.0
May-13-2005	36	22.2	P	5,340	75.2	14.6
May-14-2005	35	23.5	P	5,270	70.9	13.4
May-15-2005	34	24.5	P	5,240	67.9	12.5
May-16-2005	36	24.4	P	5,260	64.8	12.6
May-17-2005	39	23.1	P	5,160	62.2	13.1
May-18-2005	39	22.1	P	5,310	63.4	13.3
May-19-2005	39	22.6	P	5,320	69.9	14.7
May-20-2005	36	22.6	9.1	5,120	67.5	13.1
May-21-2005	37	22.5	8.7	4,840	62.5	12.5
May-22-2005	39	23.0	9.0	4,770	57.6	12.1
May-23-2005	41	23.5	9.1	4,750	53.2	11.8
May-24-2005	43	24.1	9.2	4,800	57.7	13.4
May-25-2005	45	25.3	8.7	4,550	55.2	13.4
May-26-2005	42	26.1	8.0	4,120	46.6	10.6
May-27-2005	42	26.2	7.5	4,060	45.8	10.4
May-28-2005	45	25.2	8.3	4,250	47.2	11.5
May-29-2005	46	23.4	9.3	4,620	53.0	13.1
May-30-2005	46	23.7	8.8	4,490	50.2	12.5
May-31-2005	46	24.4	9.0	4,460	52.6	13.0
Mean	42	22.7	8.7	4,810	58.9	13.2
Total Acre-feet	**2,570**					
Total (lbs)						**408**

Load Limitation for May 2005 (lbs)	**512**

Table 2b. Continuous water monitoring at San Luis Drain Outlet, May 2005.
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
May-01-2005	50	45.2	12.3
May-02-2005	51	47.2	12.9
May-03-2005	51	52.2	14.4
May-04-2005	42	57.0	12.8
May-05-2005	39	56.2	11.9
May-06-2005	45	56.4	13.8
May-07-2005	51	54.6	14.9
May-08-2005	47	58.0	14.8
May-09-2005	43	69.4	16.3
May-10-2005	46	68.4	16.9
May-11-2005	44	66.8	16.0
May-12-2005	38	71.5	14.8
May-13-2005	36	75.2	14.6
May-14-2005	34	70.9	13.2
May-15-2005	33	67.9	12.3
May-16-2005	35	64.8	12.3
May-17-2005	38	62.2	12.9
May-18-2005	39	63.4	13.5
May-19-2005	38	69.9	14.2
May-20-2005	35	67.5	12.8
May-21-2005	35	62.5	11.7
May-22-2005	37	57.6	11.5
May-23-2005	40	53.2	11.4
May-24-2005	43	57.7	13.4
May-25-2005	46	55.2	13.7
May-26-2005	42	46.6	10.6
May-27-2005	42	45.8	10.4
May-28-2005	44	47.2	11.3
May-29-2005	46	53.0	13.0
May-30-2005	46	50.2	12.3
May-31-2005	47	52.6	13.3
Mean	42	58.9	13.2
Total Acre-feet	**2,590**		
Total (lbs)			**410**

*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.

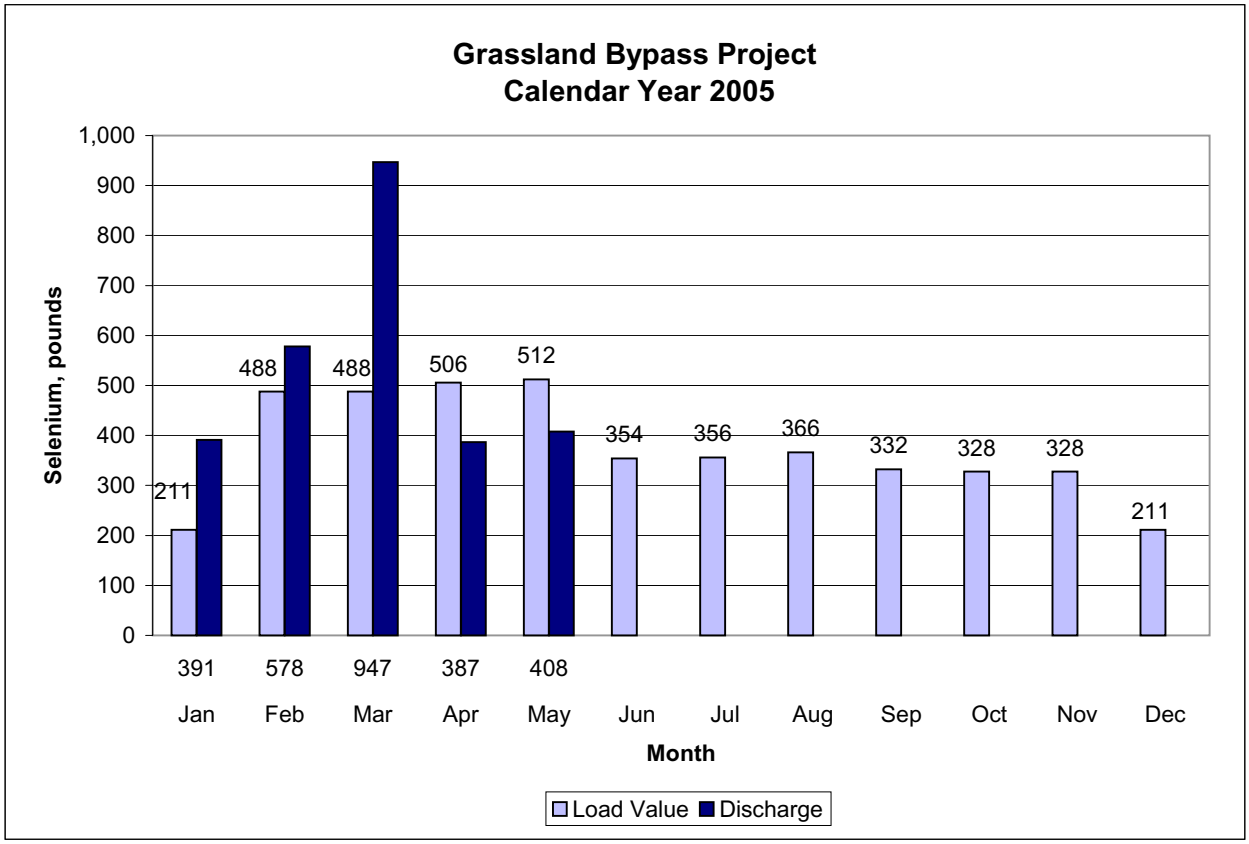


Table 3. Continuous water monitoring at Station D (Mud Slough North downstream of drainage discharges), May 2005.

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
May-01-2005	77	21.0	3,020
May-02-2005	79	21.8	3,020
May-03-2005	83	22.1	2,760
May-04-2005	77	21.6	2,830
May-05-2005	75	20.4	2,910
May-06-2005	94	19.9	2,640
May-07-2005	93	20.4	2,990
May-08-2005	84	20.6	3,160
May-09-2005	79	19.9	3,390
May-10-2005	80	19.5	3,490
May-11-2005	74	20.2	3,770
May-12-2005	67	21.2	3,860
May-13-2005	63	22.6	3,890
May-14-2005	97	23.7	2,430
May-15-2005	78	24.2	2,770
May-16-2005	69	24.1	3,400
May-17-2005	60	22.4	4,040
May-18-2005	63	21.7	4,030
May-19-2005	66	22.8	3,950
May-20-2005	66	22.6	3,440
May-21-2005	66	22.1	3,310
May-22-2005	60	22.8	3,270
May-23-2005	55	23.2	2,900
May-24-2005	72	24.0	2,770
May-25-2005	105	25.3	2,630
May-26-2005	133	26.1	2,650
May-27-2005	140	26.1	3,190
May-28-2005	138	25.2	3,400
May-29-2005	126	23.3	3,970
May-30-2005	108	23.7	4,050
May-31-2005	94	24.8	4,060
Mean	85	22.6	3,290

Table 4. Continuous water monitoring at Station F (Salt Slough at Highway 165), May 2005.

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
May-01-2005	227	20.5	1,220
May-02-2005	234	21.0	1,200
May-03-2005	231	21.3	1,200
May-04-2005	216	21.0	1,260
May-05-2005	189	19.7	1,350
May-06-2005	196	18.7	1,360
May-07-2005	218	19.6	1,310
May-08-2005	224	20.1	1,300
May-09-2005	232	19.7	1,280
May-10-2005	236	19.3	1,250
May-11-2005	231	19.6	1,260
May-12-2005	220	20.8	1,330
May-13-2005	196	22.3	1,320
May-14-2005	156	23.4	1,430
May-15-2005	115	24.0	1,730
May-16-2005	112	23.6	1,610
May-17-2005	117	21.3	1,590
May-18-2005	128	20.5	1,490
May-19-2005	139	22.3	1,560
May-20-2005	148	22.4	1,520
May-21-2005	160	22.0	1,240
May-22-2005	176	22.6	1,280
May-23-2005	187	23.0	1,250
May-24-2005	193	23.6	1,140
May-25-2005	201	24.8	1,130
May-26-2005	210	25.7	1,170
May-27-2005	215	25.5	1,080
May-28-2005	210	24.2	1,010
May-29-2005	199	21.8	1,050
May-30-2005	193	22.4	1,040
May-31-2005	183	23.9	977
Mean	190	22.0	1,290

Table 5. Continuous water monitoring at Station N (San Joaquin River at Crow's Landing), May 2005.

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
May-01-2005	2,660	16.7	NA	NA
May-02-2005	2,790	17.0	NA	NA
May-03-2005	2,750	17.3	NA	NA
May-04-2005	2,450	17.7	NA	NA
May-05-2005	2,340	17.0	NA	NA
May-06-2005	2,590	15.9	NA	NA
May-07-2005	2,790	15.9	NA	NA
May-08-2005	2,890	16.7	NA	NA
May-09-2005	2,990	16.3	NA	NA
May-10-2005	3,010	15.9	NA	NA
May-11-2005	3,080	16.5	NA	NA
May-12-2005	3,150	17.3	382	<0.4
May-13-2005	3,140	18.2	392	1.0
May-14-2005	3,070	18.9	390	0.8
May-15-2005	3,010	19.4	402	1.0
May-16-2005	2,960	19.4	405	1.0
May-17-2005	2,920	18.3	402	0.9
May-18-2005	3,340	17.5	282	0.8
May-19-2005	3,770	17.9	218	0.7
May-20-2005	4,120	18.6	200	0.6
May-21-2005	4,370	18.9	197	0.6
May-22-2005	4,670	18.9	236	0.7
May-23-2005	5,070	19.3	247	0.5
May-24-2005	5,400	19.7	162	<0.4
May-25-2005	5,830	20.1	140	<0.4
May-26-2005	6,320	20.8	150	<0.4
May-27-2005	6,910	21.5	163	<0.4
May-28-2005	7,520	21.1	150	<0.4
May-29-2005	8,310	19.7	136	<0.4
May-30-2005	9,040	19.5	135	<0.4
May-31-2005	9,530	20.3	133	<0.4
Mean	4,280	18.3	250	0.8

PRELIMINARY RESULTS

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	.	.	.
Mar-02-2005	75	.	.	5,030	NA	.	.	.
Mar-09-2005	59	.	.	5,360	150	.	.	.
Mar-16-2005	59	.	.	5,620	110	.	.	.
Mar-23-2005	67	.	.	4,970	110	.	.	.
Mar-30-2005	45	.	.	5,650	NA	.	.	.
Apr-06-2005	34	.	.	5,580	130	.	.	.
Apr-13-2005	28	.	.	5,830	65	.	.	.
Apr-20-2005	32	.	.	5,170	87	.	.	.
Apr-27-2005	38	.	.	4,710	200	.	.	.
May-04-2005	37	.	.	4,830	280	.	.	.
May-11-2005	37	.	.	5,210	180	.	.	.
May-18-2005	38	.	.	4,650	150	.	.	.
May-25-2005	42	.	.	4,210	110	.	.	.

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
Mar-01-2005	74	.	.	5,120	.	80.3	.	8.7
Mar-08-2005	61	.	.	5,350	.	89.2	.	9.2
Mar-15-2005	59	.	.	5,780	.	100.0	.	9.0
Mar-22-2005	63	.	.	5,340	.	89.6	.	9.0
Mar-29-2005	44	.	.	5,400	.	P	.	8.3
Apr-05-2005	35	.	.	5,680	.	78.1	.	P
Apr-12-2005	29	.	.	5,810	.	76.6	.	9.3
Apr-19-2005	34	.	.	5,590	.	60.8	.	P
Apr-26-2005	35	.	.	4,670	.	53.9	.	P
May-03-2005	40	.	.	4,530	.	53.4	.	8.1
May-10-2005	44	.	.	5,220	.	70.6	.	8.8
May-17-2005	39	.	.	5,100	.	64.0	.	P
May-24-2005	46	.	.	4,520	.	48.6	.	8.4
May-31-2005	48			4,390		48.5	.	P

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
Mar-03-2005	76	15.9	7.8	5,230	64	82.8	9.1
Mar-10-2005	62	18.9	8.0	5,540	48	91.2	9.7
Mar-17-2005	59	16.9	7.8	5,960	46	109	10.0
Mar-24-2005	68	14.8	7.8	5,060	39	78.4	8.0
Mar-31-2005	47	14.5	7.9	5,570	38	86.4	8.3
Apr-07-2005	36	18.1	8.4	5,720	70	70.6	P
Apr-14-2005	31	15.2	8.3	5,770	41	72.6	P
Apr-21-2005	32	18.2	8.3	5,610	40	55.8	10.0
Apr-28-2005	38	18.6	7.7	4,730	54	57.4	P
May-05-2005	38	20.8	7.5	4,620	62	58.2	7.6
May-12-2005	39	20.1	7.9	5,350	58	71.8	P
May-19-2005	39	21.7	8.0	5,410	54	70.2	P
May-26-2005	42	25.1	8.2	4,080	34	40.8	P

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
Mar-03-2005	315	14.7	7.9	1,660	.	0.8	1.7
Mar-10-2005	249	19.2	8.0	1,740	.	0.8	1.9
Mar-17-2005	75	16.2	7.9	2,250	.	0.9	2.3
Mar-24-2005	244	14.4	8.0	1,870	.	1.0	1.8
Mar-31-2005	93	14.2	8.1	2,270	.	0.8	2.0
Apr-07-2005	67	17.5	8.3	1,410	.	0.9	P
Apr-14-2005	49	14.0	8.5	2,500	.	0.9	P
Apr-21-2005	38	17.6	8.2	2,540	.	0.7	2.2.
Apr-28-2005	40	18.2	8.0	1,490	.	0.8	P
May-05-2005	37	20.2	8.1	1,070	.	1.0	1.3
May-12-2005	28	19.2	8.5	1,690	.	0.7	P
May-19-2005	27	21.6	8.1	2,590	.	0.6	P
May-26-2005	91	24.2	7.9	981	.	0.6	P

++ Calculated flow value. Flow at Station C = flow at Station D - flow at Station B.

Table 9. Weekly water quality monitoring at Station D (Mud Slough North downstream of drainage discharges).

See Table 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
Mar-03-2005	391	15.1	7.9	2,490	18.3	3.4
Mar-10-2005	311	19.2	7.9	2,550	18.0	3.4
Mar-17-2005	135	16.5	7.9	3,560	35.6	5.1
Mar-24-2005	312	14.5	7.9	2,710	19.6	3.2
Mar-31-2005	140	14.2	8.2	3,510	28.8	4.1
Apr-07-2005	103	17.7	8.3	3,550	20.2	P
Apr-14-2005	80	14.3	8.4	3,720	23.2	P
Apr-21-2005	70	17.6	8.3	4,180	26.8	5.2
Apr-28-2005	78	18.3	8.1	3,000	24.7	P
May-05-2005	75	20.5	8.1	3,280	29.8	4.4
May-12-2005	67	19.2	8.2	3,930	36.6	P
May-19-2005	66	21.5	8.2	4,240	35.4	P
May-26-2005	133	24.7	8.2	2,880	20.6	P

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
Mar-01-2005	.	8.0	1,880	37	15.4	2.7
Mar-08-2005	.	8.0	2,450	38	17.0	2.9
Mar-14-2008	.	8.2	3,440	37	28.4	4.4
Mar-25-2005	.	8.1	2,690	26	16.0	2.9
Mar-29-2005	.	8.2	2,300	21	12.0	2.9
Apr-05-2005	.	8.3	4,200	37	25.9	5.0
Apr-12-2005	.	8.8	4,990	47	14.7	5.0
Apr-20-2005	.	8.5	3,980	32	19.7	5.4
Apr-26-2005	.	8.6	3,890	34	22.8	5.4
May-02-2005	.	8.5	3,710	28	29.0	5.6
May-11-2005	.	8.4	4,080	43	35.4	6.0
May-19-2005	.	8.5	4,140	25	NA	NA
May-24-2005	.	8.3	2,870	36	20.9	4.1

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
Mar-03-2005	435	15.0	7.6	1,550	1.2	1.1
Mar-10-2005	389	18.2	7.6	1,690	1.1	1.3
Mar-17-2005	316	16.1	7.8	1,860	1.1	1.6
Mar-24-2005	468	14.3	7.4	1,500	1.1	1.1
Mar-31-2005	400	14.3	7.6	1,840	1.0	1.2
Apr-07-2005	241	17.5	7.6	200	1.1	P
Apr-14-2005	243	14.7	7.8	1,580	0.9	P
Apr-21-2005	223	16.8	7.9	1,430	0.5	0.8
Apr-28-2005	217	17.6	7.8	1,220	0.7	P
May-05-2005	189	19.6	7.5	1,400	0.4	0.7
May-12-2005	220	18.8	7.5	1,400	0.4	P
May-19-2005	139	20.0	7.4	1,610	0.6	P
May-26-2005	210	24.5	7.1	1,180	0.4	P

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
Mar-02-2005	0	.	.	826	2.1	0.8
Mar-09-2005	0	.	.	1,770	1.3	2.7
Mar-16-2005	0	.	.	1,470	1.6	1.8
Mar-23-2005	0	.	.	1,420	1.6	1.4
Mar-30-2005	0	.	.	1,570	P	1.7
Apr-06-2005	0	.	.	1,190	1.8	P
Apr-13-2005	15	.	.	1,080	1.9	1.2
Apr-20-2005	15	.	.	135	0.4	P
Apr-27-2005	15	.	.	217	<0.4	P
May-04-2005	15	.	.	240	<0.4	0.2
May-11-2005	25	.	.	272	<0.4	0.3
May-18-2005	30	.	.	153	<0.4	P
May-25-2005	30	.	.	140	0.6	0.1

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
Mar-02-2005	0	.	.	2,010	3.0	3.6
Mar-09-2005	0	.	.	2,000	1.5	3.9
Mar-16-2005	0	.	.	2,190	1.1	3.9
Mar-23-2005	0	.	.	1,570	0.8	3.2
Mar-30-2005	0	.	.	2,160	P	3.6
Apr-06-2005	0	.	.	2,760	1.9	P
Apr-13-2005	15	.	.	199	0.5	0.2
Apr-20-2005	15	.	.	171	<0.4	P
Apr-27-2005	25	.	.	168	0.5	P
May-04-2005	15	.	.	200	<0.4	0.2
May-11-2005	25	.	.	257	0.4	0.2
May-18-2005	25	.	.	173	<0.4	P
May-25-2005	25	.	.	121	0.5	0.1

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
Mar-02-2005	35	.	.	1,620	3.8	1.8
Mar-09-2005	30	.	.	2,420	5.3	3.3
Mar-16-2005	80	.	.	1,160	3.3	1.1
Mar-23-2005	125	.	.	879	2.8	0.7
Mar-30-2005	90	.	.	1,030	P	0.9
Apr-06-2005	50	.	.	867	3.0	P
Apr-13-2005	50	.	.	440	1.6	0.3
Apr-20-2005	50	.	.	322	0.9	P
Apr-27-2005	50	.	.	610	0.9	P
May-04-2005	50	.	.	456	0.7	0.4
May-11-2005	50	.	.	367	0.8	0.3
May-18-2005	50	.	.	516	1.4	P
May-25-2005	50	.	.	292	0.7	0.3

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
Mar-02-2005	91	.	.	2,250	1.7	3.0
Mar-09-2005	111	.	.	2,110	1.2	2.8
Mar-16-2005	64	.	.	2,210	1.0	2.7
Mar-23-2005	21	.	.	1,910	1.1	2.6
Mar-30-2005	39	.	.	2,130	P	2.4
Apr-06-2005	51	.	.	2,450	2.1	P
Apr-13-2005	45	.	.	1,750	1.1	1.9
Apr-20-2005	57	.	.	1,480	0.7	P
Apr-27-2005	51	.	.	717	0.6	P
May-04-2005	61	.	.	954	0.8	1.1
May-11-2005	29	.	.	970	0.4	1.2
May-18-2005	74	.	.	569	0.6	P
May-25-2005	64	.	.	523	0.9	0.7

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
Mar-02-2005	.	.	.	562	1.3	0.4
Mar-09-2005	.	.	.	692	2.1	0.5
Mar-16-2005	.	.	.	624	2.4	0.4
Mar-23-2005	.	.	.	626	2.0	0.4
Mar-30-2005	.	.	.	683	P	0.4
Apr-06-2005	.	.	.	702	2.7	P
Apr-13-2005	.	.	.	91	<0.4	<0.1
Apr-20-2005	.	.	.	64	<0.4	P
Apr-27-2005	.	.	.	126	<0.4	P
May-04-2005	.	.	.	183	<0.4	0.1
May-11-2005	.	.	.	248	0.5	0.2
May-18-2005	.	.	.	162	<0.4	P
May-25-2005	.	.	.	121	0.6	0.1

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
Mar-03-2005	1,570	15.4	7.2	866	0.8	0.4
Mar-10-2005	975	18.9	7.9	1,350	0.8	0.8
Mar-17-2005	676	16.5	7.3	1,670	0.7	1.0
Mar-24-2005	2,120	14.7	7.2	350	<0.4	0.1
Mar-31-2005	2,350	14.7	7.2	564	0.4	0.3
Apr-07-2005	988	18.0	7.0	1,170	0.6	P
Apr-14-2005	782	15.6	7.2	1,160	0.4	P
Apr-21-2005	475	17.8	7.3	1,580	0.6	0.7
Apr-28-2005	442	18.4	7.0	1,500	0.5	P
May-05-2005	445	20.6	7.2	1,350	<0.4	0.5
May-12-2005	899	19.9	7.2	551	<0.4	P
May-19-2005	1,620	20.9	7.0	171	0.5	P
May-26-2005	3,580	NA	NA	NA	NA	NA

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
Mar-01-2005	.	.	.	NA	<0.4	0.1
Mar-08-2005	.	.	.	NA	<0.4	0.1
Mar-23-2005	.	.	.	NA	<0.4	0.1
Mar-29-2005	.	.	.	NA	0.5	0.0
Apr-05-2005	.	.	.	NA	0.0	<0.4
Apr-19-2005	.	.	.	NA	3.3	1.5
Apr-26-2005	.	.	.	NA	3.2	1.3
May-03-2005	.	.	.	NA	4.5	1.4
May-10-2005	.	.	.	NA	3.8	0.9
May-17-2005	.	.	.	NA	2.5	0.6
May-24-2005	.	.	.	NA	0.8	0.2

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
Mar-03-2005	2,710	15.2	7.7	1,040	2.8	0.8
Mar-10-2005	2000	18.7	7.8	1,430	3.5	1.2
Mar-17-2005	1,480	16.8	7.7	1,800	5.6	1.5
Mar-24-2005	3,130	14.5	7.7	741	1.9	0.5
Mar-31-2005	7,370	13.1	7.5	393	0.8	0.3
Apr-07-2005	4,600	14.8	7.7	531	1.0	P
Apr-14-2005	3,610	13.7	7.7	553	0.9	P
Apr-21-2005	3,020	15.0	7.9	561	1.0	0.4
Apr-28-2005	2,520	15.7	7.5	579	1.2	P
May-05-2005	2,340	17.2	7.6	601	1.5	0.4
May-12-2005	3,150	16.8	7.5	378	1.3	P
May-19-2005	3,770	17.7	7.4	205	0.6	P
May-26-2005	6,320	20.6	7.8	100	<0.4	P

Table 20. Summary of fathead minnow (*Pimephales promelas*) larvae survival in 7-day tests using water samples collected from June 2004 to May 2005. 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	%	%	%	%	%	%
Jun-2004	98	93	98	100	88	95
Jul-2004	100	90	93	88	98	98
Aug-2004	98	98	100	95	85	100
Sep-2004	98	93	95	100	93	95
Oct-2004	100	95	98	95	98	98
Nov-2004	95	98	58*	88	98	98
Dec-2004	100	68*	75*	98	98	100
Jan-2005	98	85	80	100	100	98
Feb-2005	95	88	98	80	90	98
Mar-2005	88	73	93	83	85	73†
Apr-2005	95	100	95	93	100	90
May-2005	100	98	93	100	83	98

Table 21. Summary of fathead minnow (*Pimephales promelas*) larvae growth in 7-day tests using water samples collected from June 2004 to May 2005. 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
Jun-2004	0.42	0.42	0.40	0.45	0.36	0.40
Jul-2004	0.55	0.50	0.51	0.54	0.51	0.48
Aug-2004	0.60	0.62	0.62	0.64	0.55	0.59
Sep-2004	0.71	0.60	0.75	0.74	0.62	0.51
Oct-2004	0.69	0.67	0.71	0.71	0.66	0.58
Nov-2004	0.58	0.62	0.41*	0.62	0.62	0.71
Dec-2004	0.58	0.47	0.53	0.66	0.54	0.48
Jan-2005	0.62	0.57	0.51	0.61	0.54	0.46
Feb-2005	0.76	0.62	0.69	0.63	0.62	0.54
Mar-2005	0.41	0.38	0.49	0.44	0.46	0.35
Apr-2005	0.42	0.40	0.44	0.42	0.38	0.29
May-2005	0.40	0.46	0.39	0.43	0.29	0.42

Table 22. Summary of *Daphnia magna* survival in 7-day tests using water samples collected from June 2004 to May 2005. 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	%	%	%	%	%	%
Jun-2004	90	100	100	90	90	100
Jul-2004	100	100	80	90	90	90
Aug-2004	100	88	88	100	90	100
Sep-2004	80	100	90	100	100	90
Oct-2004	100	100	80	100	100	100
Nov-2004	80	70	90	80	100	80
Dec-2004	100	100	90	90	80	100
Jan-2005	100	90	80	100	100	90
Feb-2005	80	100	100	90	100	30†
Mar-2005	80	100	90	100	100	90
Apr-2005	90	90	100	90	90	100
May-2005	90	90	100	100	90	90

Table 23. Summary of *Daphnia magna* reproduction in 7-day tests using water samples collected from June 2004 to May 2005. 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
Jun-2004	25.8	29.8	25.6	16.7	19.0	30.0
Jul-2004	51.3	32.4	48.5	36.2	38.8	34.9
Aug-2004	41.9	41.8	46.1	37.4	32.0	33.9
Sep-2004	49.8	48.0	40.4	38.7	41.8	44.3
Oct-2004	48.1	39.8	29.2*	36.6	47.0	32.1
Nov-2004	37.0	28.3	44.6	41.8	35.9	27.0
Dec-2004	30.8	30.8	32.8	34.4	26.6	31.1
Jan-2005	41.7	38.8	40.2	45.9	47.6	34.7
Feb-2005	15.2	13.6	17.3	8.5	12.2	4.0
Mar-2005	37.4	38.9	42.4	38.8	31.6	44.0
Apr-2005	26.4	35.9	42.3	37.1	30.4	27.0
May-2005	39.8	38.6	45.5	36.1	34.1	40.9

Table 24. Summary of *Selenastrum capricornutum* growth in 4-day tests using water samples collected from June 2004 to May 2005. 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
Jun-2004	12.1	25.2	18.1	21.5	15.4	22.4
Jul-2004	3.6*	13.1	16.3	17.5	12.5	10.1
Aug-2004	14.8	17.7	14.2	16.9	12.2	17.6
Sep-2004	12.4*	13.4*	15.6	16.3	16.2	14.6
Oct-2004	14.5	22.1	17.7	5.9*	16.6	16.8
Nov-2004	18.5	21.1	20.4	22.0	16.5	17.6
Dec-2004	0.9*	10.4	12.2	23.4	3.5	15.6
Jan-2005	1.3*	12.7	10.6*	18.0	13.7	16.2
Feb-2005	13.7	17.7	19.5	10.7*	13.1	22.4
Mar-2005	14.9	20.1	19.7	20.7	11.5	16.0
Apr-2005	17.4	25.6	21.1	19.6	19.2	24.5
May-2005	24.0	23.5	24.5	19.7	16.1	30.4

Table 25. Summary of selenium concentrations in grab water samples collected at study stations for use in laboratory toxicity tests, March 2005 to May 2005.

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
Mar-14-2005	100	0.9	30	1.0	0.8
Mar-16-2005	109	0.9	38	1.1	1.1
Mar-18-2005	99	0.9	31	1.2	1.2
Apr-11-2005	77	1.1	16	1.0	0.5
Apr-13-2005	69	0.8	25	0.8	0.5
Apr-15-2005	75	1.1	25	0.7	0.5
May-09-2005	69	0.5	31	<0.4	<0.4
May-11-2005	65	0.5	36	<0.4	<0.4
May-13-2005	73	0.5	41	<0.4	<0.4

Table 26. Summary of total suspended solids concentrations in grab water samples collected at study stations for use in laboratory toxicity tests, March 2005 to May 2005.

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
Mar-14-2005	64	63	73	43	22
Mar-16-2005	70	75	68	50	41
Mar-18-2005	78	78	64	58	24
Apr-11-2005	61	94	91	44	11
Apr-13-2005	77	199	97	100	10
Apr-15-2005	40	71	59	69	1
May-09-2005	58	135	117	158	125
May-11-2005	76	96	100	100	90
May-13-2005	104	646	141	153	17

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