GRASSLAND BYPASS PROJECT

MONTHLY DATA REPORT

May 2010

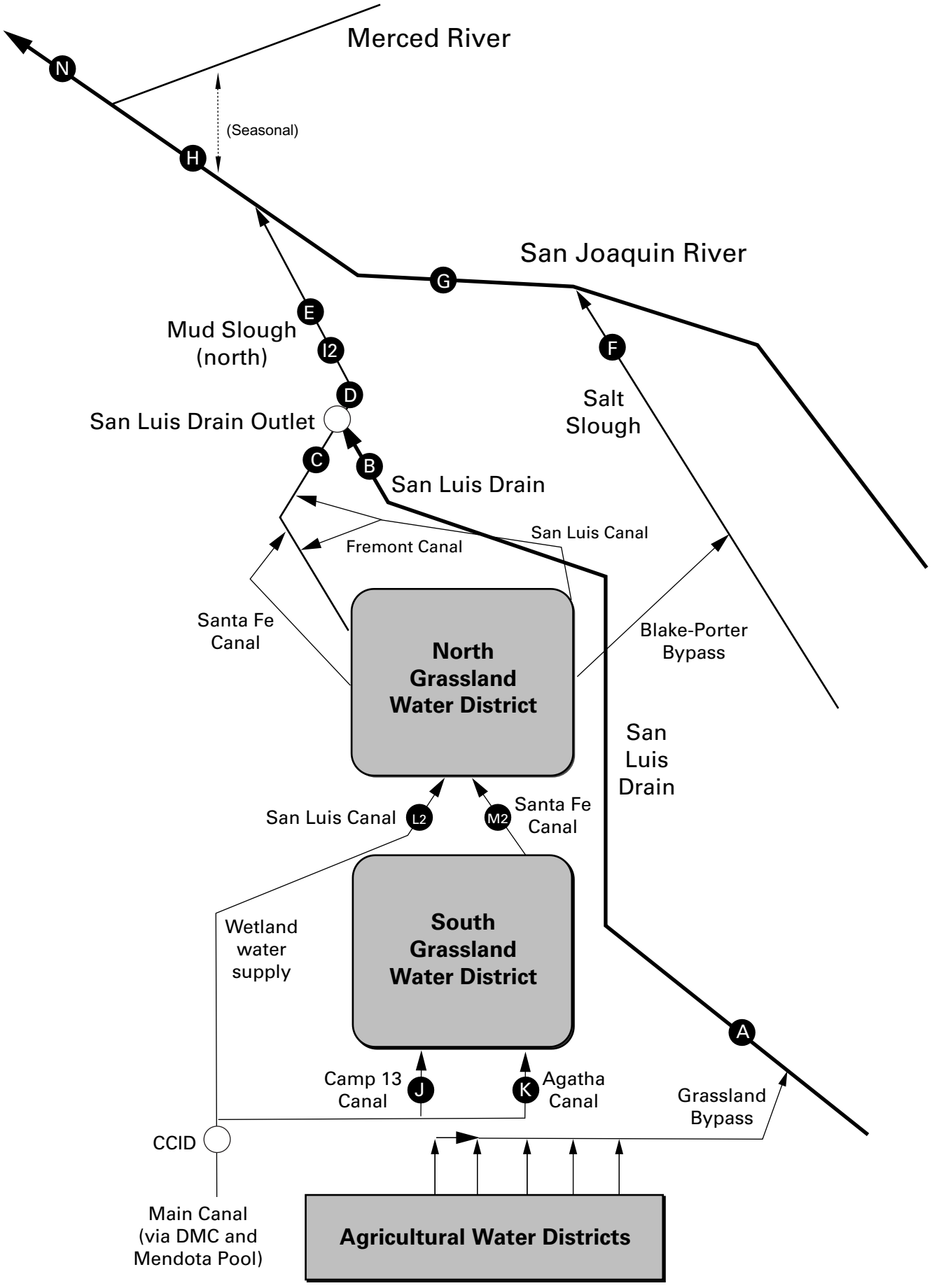
October 4, 2010

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
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L2
M2
Santa Fe
Canal
Wetland
water
supply
South
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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

LIST OF TABLES FOR MONTHLY REPORT

Table 1. Continuous water monitoring at Station A (inflow to San Luis Drain), May 2010.

See Table 27 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow	Specific Conductance
DATA SOURCE	SLDMWA	SLDMWA
UNITS	cfs	µS/cm
May-01-2010	16	4,560
May-02-2010	14	4,290
May-03-2010	21	4,250
May-04-2010	20	4,610
May-05-2010	23	4,470
May-06-2010	22	4,480
May-07-2010	21	4,390
May-08-2010	25	4,270
May-09-2010	24	4,700
May-10-2010	25	4,890
May-11-2010	25	4,800
May-12-2010	27	4,870
May-13-2010	30	4,440
May-14-2010	38	4,070
May-15-2010	39	3,710
May-16-2010	40	3,510
May-17-2010	38	3,830
May-18-2010	38	4,120
May-19-2010	36	3,820
May-20-2010	28	4,050
May-21-2010	29	4,310
May-22-2010	39	4,240
May-23-2010	35	3,960
May-24-2010	30	4,270
May-25-2010	27	4,290
May-26-2010	33	4,130
May-27-2010	30	4,090
May-28-2010	29	4,290
May-29-2010	30	4,080
May-30-2010	25	4,220
May-31-2010	29	4,020
Mean	29	4,270

Table 2a. Continuous water monitoring at Stations B and B2 (San Luis Drain Terminus), May 2010.

See Table 27 for explanation of footnotes and agency abbreviations.

PARAMETER	San Luis Drain Outlet Flow	Temperature	Boron	Specific Conductance	Selenium (total)	Selenium (total) Load
DATA SOURCE	SLDMWA♦	SLDMWA	CVRWQCB	SLDMWA	CVRWQCB	Computed
UNITS	cfs	°C	mg/L	µS/cm	µg/L	lbs
May-01-2010	20	18.0	12.0	5,950	49.7	5.3
May-02-2010	13	18.7	8.7	5,210	47.1	3.3
May-03-2010	13	18.6	8.4	4,390	57.3	4.0
May-04-2010	16	20.5	8.2	4,560	52.3	4.6
May-05-2010	18	20.2	8.6	4,820	57.5	5.5
May-06-2010	19	18.1	8.5	4,990	60.1	6.2
May-07-2010	21	18.4	8.4	4,840	40.1	4.6
May-08-2010	19	19.9	8.6	4,610	40.2	4.1
May-09-2010	22	20.4	8.8	4,760	52.1	6.2
May-10-2010	22	19.1	8.2	4,810	53.6	6.4
May-11-2010	22	18.1	8.3	4,800	58.9	7.0
May-12-2010	24	18.7	8.3	4,690	57.3	7.4
May-13-2010	25	20.2	8.2	4,700	66.3	9.1
May-14-2010	28	21.9	8.8	5,160	71.7	10.9
May-15-2010	36	22.9	9.1	5,120	65.6	12.7
May-16-2010	38	23.8	8.7	5,070	65.0	13.3
May-17-2010	37	22.8	7.6	4,520	55.7	11.3
May-18-2010	37	21.6	7.1	4,250	52.9	10.5
May-19-2010	36	21.9	6.8	4,090	48.6	9.5
May-20-2010	33	20.8	6.9	4,020	51.7	9.3
May-21-2010	28	20.2	7.4	4,210	54.7	8.1
May-22-2010	28	19.5	7.3	4,370	55.2	8.3
May-23-2010	36	18.7	7.0	4,080	46.6	9.1
May-24-2010	35	18.7	7.9	4,410	47.3	8.9
May-25-2010	29	19.0	9.6	4,810	55.2	8.7
May-26-2010	27	19.2	8.6	4,400	55.1	8.0
May-27-2010	31	20.1	8.3	4,210	48.2	8.1
May-28-2010	28	19.9	8.2	4,430	55.0	8.3
May-29-2010	27	20.3	8.4	4,490	56.6	8.4
May-30-2010	29	21.6	8.1	4,370	54.5	8.5
May-31-2010	25	23.4	7.8	4,320	49.4	6.5
Mean	27	20.2	8.3	4,630	54.2	7.8
Total Acre-feet	**1,630**					
Total (lbs)						**242**

Load Limitation for May 2010 (lbs)	**497**

♦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 is 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. Water quality data are still collected at the old Site B.

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

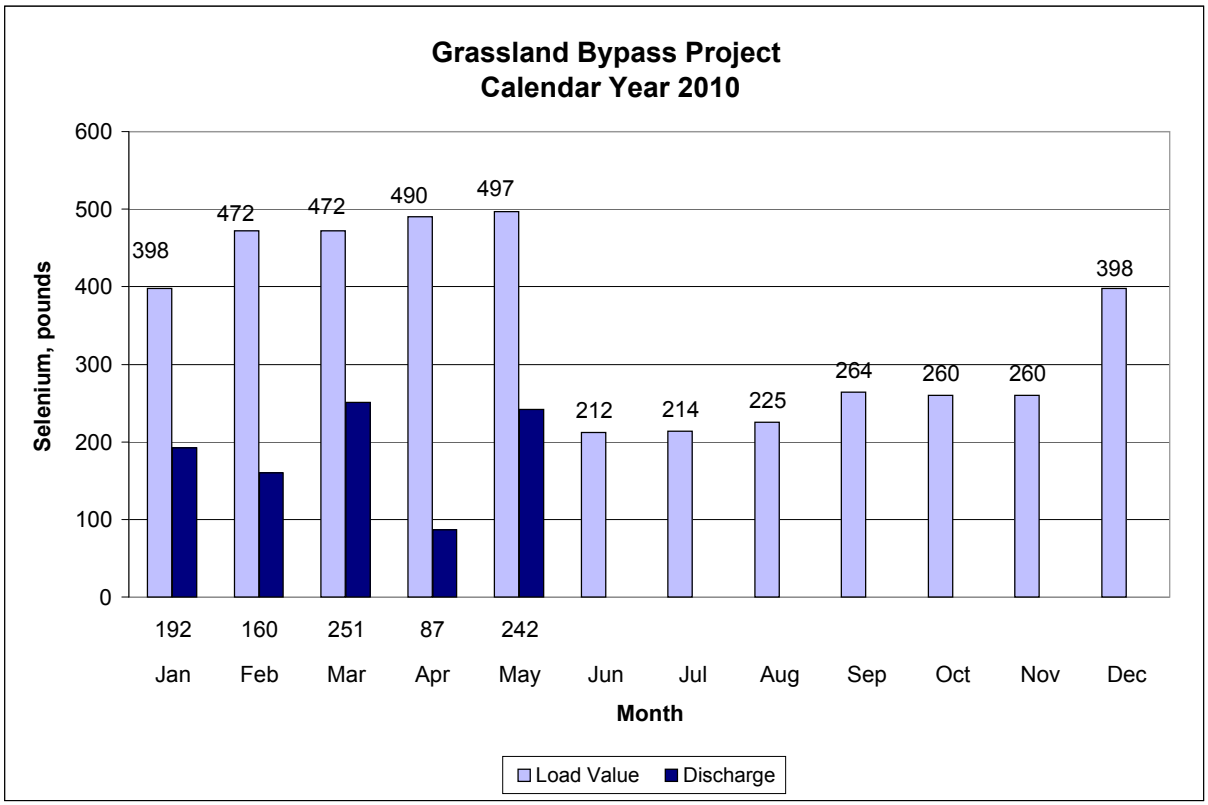

Table 3. Continuous water monitoring at Station D (Mud Slough North downstream of drainage discharges), May 2010.

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-01-2010	41	18.1	4,460
May-02-2010	34	18.5	4,310
May-03-2010	35	19.9	3,610
May-04-2010	36	20.2	3,830
May-05-2010	35	19.4	4,100
May-06-2010	36	17.5	4,430
May-07-2010	36	18.6	4,380
May-08-2010	34	20.1	4,360
May-09-2010	40	19.5	4,120
May-10-2010	42	18.3	3,790
May-11-2010	40	17.7	3,580
May-12-2010	39	18.7	3,480
May-13-2010	39	20.3	3,520
May-14-2010	43	21.8	3,450
May-15-2010	45	22.5	3,870
May-16-2010	47	23.1	4,000
May-17-2010	46	21.8	3,830
May-18-2010	51	21.2	3,280
May-19-2010	49	21.3	3,180
May-20-2010	47	20.2	3,150
May-21-2010	45	19.5	3,220
May-22-2010	47	18.6	3,050
May-23-2010	50	18.0	2,970
May-24-2010	52	18.5	2,880
May-25-2010	44	18.5	3,320
May-26-2010	47	19.4	3,000
May-27-2010	63	19.5	2,440
May-28-2010	59	19.3	2,570
May-29-2010	58	19.9	2,620
May-30-2010	60	21.6	2,600
May-31-2010	63	23.0	2,350
Mean	44	19.6	3,580

Table 4. Continuous water monitoring at Station F (Salt Slough at Highway 165), May 2010.

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-01-2010	139	17.5	1,470
May-02-2010	144	18.3	1,390
May-03-2010	144	19.4	1,350
May-04-2010	134	20.1	1,410
May-05-2010	125	19.1	1,440
May-06-2010	127	17.5	1,390
May-07-2010	137	18.2	1,300
May-08-2010	132	19.6	1,370
May-09-2010	134	18.9	1,310
May-10-2010	136	16.9	1,270
May-11-2010	144	16.6	1,090
May-12-2010	142	17.9	1,080
May-13-2010	145	19.6	984
May-14-2010	143	21.2	1,010
May-15-2010	148	22.0	956
May-16-2010	148	22.4	932
May-17-2010	139	20.6	1,020
May-18-2010	142	19.6	986
May-19-2010	140	20.4	1,020
May-20-2010	136	19.9	1,030
May-21-2010	134	19.3	1,150
May-22-2010	125	18.0	1,190
May-23-2010	109	17.4	1,400
May-24-2010	120	18.0	1,260
May-25-2010	129	17.9	1,100
May-26-2010	126	18.7	1,220
May-27-2010	120	18.8	1,380
May-28-2010	127	18.4	1,270
May-29-2010	134	19.2	1,180
May-30-2010	141	20.9	1,100
May-31-2010	143	22.3	1,100
Mean	135	19.0	1,210

Table 5. Continuous water monitoring at Station N (San Joaquin River at Crow's Landing), May 2010.

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-01-2010	1,840	17.1	610	0.8
May-02-2010	1,650	18.0	670	0.9
May-03-2010	1,550	19.0	660	1.2
May-04-2010	1,550	19.9	640	0.8
May-05-2010	1,630	19.5	580	1.0
May-06-2010	1,780	18.3	530	1.0
May-07-2010	1,850	18.1	490	0.9
May-08-2010	1,820	18.4	520	1.9
May-09-2010	1,850	18.2	480	0.9
May-10-2010	1,790	17.6	480	0.7
May-11-2010	1,610	17.4	550	1.3
May-12-2010	1,460	18.1	600	1.2
May-13-2010	1,310	19.2	660	1.3
May-14-2010	1,190	20.5	740	1.9
May-15-2010	1,150	21.3	800	1.9
May-16-2010	1,200	21.6	780	2.8
May-17-2010	1,280	20.1	720	2.7
May-18-2010	1,260	19.7	690	2.1
May-19-2010	1,270	19.7	NA	NA
May-20-2010	1,350	19.0	NA	NA
May-21-2010	1,370	18.9	NA	NA
May-22-2010	1,340	18.1	NA	NA
May-23-2010	1,330	17.5	NA	NA
May-24-2010	1,270	18.0	NA	NA
May-25-2010	1,180	18.5	NA	NA
May-26-2010	1,210	18.7	NA	NA
May-27-2010	1,190	19.0	NA	NA
May-28-2010	1,280	19.1	NA	NA
May-29-2010	1,360	19.4	NA	NA
May-30-2010	1,410	20.7	NA	NA
May-31-2010	1,490	21.7	NA	NA
Mean	1,449	18.9	620	1.4

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	.	.	.
Mar-01-2010	38	.	.	5,200	278	.	.	.
Mar-08-2010	37	.	.	5,030	162	.	.	.
Mar-15-2010	24	.	.	4,880	99	.	.	.
Mar-22-2010	16	.	.	5,690	36	.	.	.
Mar-29-2010	7	.	.	4,240	17	.	.	.
Apr-05-2010	16	.	.	5,360	17	.	.	.
Apr-12-2010	9	.	.	5,140	14	.	.	.
Apr-19-2010	13	.	.	5,240	44	.	.	.
Apr-26-2010	34	.	.	4,630	62	.	.	.
May-02-2010	14	.	.	4,600	170	.	.	.
May-09-2010	24	.	.	4,590	149	.	.	.
May-16-2010	40	.	.	4,420	163	.	.	.
May-23-2010	35	.	.	4,150	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
Mar-07-2010	41	.	.	4,880	.	59.8	.	8.6
Mar-14-2010	26	.	.	5,080	.	61.2	.	8.8
Mar-21-2010	14	.	.	5,270	.	59.9	.	9.9
Mar-28-2010	8	.	.	5,570	.	46.3	.	10.7
Apr-05-2010	16	.	.	5,200	.	50.7	.	9.2
Apr-12-2010	9	.	.	5,150	.	40.1	.	8.4
Apr-19-2010	13	.	.	5,350	.	37.2	.	9.3
Apr-26-2010	34	.	.	4,900	.	38.8	.	8.8
May-02-2010	14	.	.	4,300	.	47.3	.	8.9
May-09-2010	24	.	.	4,940	.	54.2	.	8.2
May-16-2010	40	.	.	3,800	.	57.1	.	7.7
May-23-2010	35	.	.	4,110	.	51.9	.	7.5

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	SLDMWA	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB
UNITS	cfs	°C	.	µS/cm	mg/L	µg/L	mg/L
Mar-02-2010	43	14.7	8.2	4,740	69	41.3	8.7
Mar-09-2010	41	12.6	7.8	4,980	56	57.9	8.2
Mar-16-2010	28	14.5	8.4	4,930	60	55.2	8.9
Mar-23-2010	18	16.6	8.2	5,080	59	56.1	8.8
Mar-30-2010	10	17.3	8.2	5,050	41	36.1	9.3
Apr-06-2010	16	13.7	7.8	3,750	47	17.0	6.6
Apr-13-2010	10	13.7	7.8	4,540	48	34.0	7.3
Apr-20-2010	13	19.4	8.0	4,670	72	25.0	7.9
Apr-27-2010	31	20.7	8.2	4,270	55	34.4	7.3
May-04-2010	16	19.2	7.6	4,260	45	52.2	7.8
May-11-2010	22	16.3	8.0	4,620	70	58.5	8.2
May-18-2010	37	19.7	8.6	4,100	45	55.0	7.2
May-25-2010	29	17.5	8.5	4,950	47	57.0	9.8

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-02-2010	208	15.1	8.0	1,860	.	0.9	1.8
Mar-09-2010	175	11.5	8.1	1,730	.	1.2	1.6
Mar-16-2010	116	14.2	8.1	2,290	.	0.8	2.0
Mar-23-2010	143	15.2	8.1	2,060	.	0.7	2.0
Mar-30-2010	96	16.7	7.9	2,570	.	0.5	2.3
Apr-06-2010	96	13.2	8.1	2,240	.	0.6	2.0
Apr-13-2010	66	13.8	8.1	2,460	.	<0.4	2.2
Apr-20-2010	30	15.4	8.0	3,280	.	0.5	2.8
Apr-27-2010	24	18.1	7.9	2,920	.	0.6	2.5
May-04-2010	20	17.7	7.6	3,500	.	0.4	3.5
May-11-2010	18	17.0	7.9	2,730	.	0.7	2.9
May-18-2010	14	17.9	7.9	2,410	.	0.5	3.4
May-25-2010	15	18.2	8.0	2,350	.	<0.4	2.3

++ 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-02-2010	251	14.9	8.0	2,440	8.4	3.0
Mar-09-2010	216	12.0	8.0	2,390	11.8	2.9
Mar-16-2010	144	14.3	8.1	3,020	11.8	3.6
Mar-23-2010	161	15.5	8.1	2,450	6.3	2.8
Mar-30-2010	106	16.9	8.0	2,850	3.7	3.0
Apr-06-2010	112	13.3	8.0	2,590	3.7	2.8
Apr-13-2010	76	13.7	8.0	3,110	6.5	3.1
Apr-20-2010	43	17.6	7.7	4,320	10.4	5.1
Apr-27-2010	55	19.2	7.9	3,940	19.9	5.3
May-04-2010	36	18.1	7.6	4,220	32.4	6.5
May-11-2010	40	16.2	8.2	2,250	34.9	6.3
May-18-2010	51	19.5	8.3	4,160	45.3	6.7
May-25-2010	44	17.8	8.3	4,260	44.5	6.6

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-02-2010	.	8.1	2,720	39	9.6	3.3
Mar-10-2010	.	7.9	2,570	45	11.9	3.0
Mar-16-2010	.	7.3	3,130	73	11.8	3.9
Mar-24-2010	.	8.4	2,840	46	8.3	3.4
Mar-31-2010	.	8.3	3,070	45	4.3	3.4
Apr-06-2010	.	8.4	2,860	53	3.7	3.1
Apr-13-2010	.	7.9	2,880	42	6.4	3.6
Apr-28-2010	.	8.4	3,870	37	19.8	6.3
May-07-2010	.	8.4	5,050	43	36.4	7.0
May-11-2010	.	8.3	4,200	44	31.2	5.9
May-18-2010	.	8.4	4,240	38	37.3	5.8

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-02-2010	401	13.9	7.4	1,550	0.8	0.9
Mar-09-2010	319	12.2	7.9	1,560	1.1	0.9
Mar-16-2010	268	13.0	7.6	1,660	0.6	1.0
Mar-23-2010	361	15.9	7.4	1,550	0.6	1.3
Mar-30-2010	233	16.6	7.3	1,580	0.5	1.0
Apr-06-2010	214	12.6	6.8	1,470	0.6	0.7
Apr-13-2010	198	13.2	7.5	1,570	<0.4	0.7
Apr-20-2010	176	17.9	6.9	1,530	0.4	0.7
Apr-27-2010	NA	19.4	6.6	1,680	0.8	0.8
May-04-2010	134	18.6	7.5	1,480	0.5	0.8
May-11-2010	144	14.8	7.9	1,120	<0.4	0.6
May-18-2010	142	18.0	8.0	1,080	0.9	0.5
May-25-2010	129	16.6	7.5	1,160	0.4	0.6

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-01-2010	10	.	.	970	1.9	0.6
Mar-08-2010	5	.	.	720	2.5	0.5
Mar-15-2010	5	.	.	620	1.4	0.4
Mar-22-2010	5	.	.	570	1.3	0.3
Mar-29-2010	5	.	.	630	1.0	0.4
Apr-05-2010	5	.	.	530	1.0	0.3
Apr-12-2010	0	.	.	660	1.0	0.4
Apr-19-2010	10	.	.	560	0.6	0.3
Apr-26-2010	0	.	.	340	0.9	0.2
May-03-2010	25	.	.	330	0.8	0.2
May-10-2010	40	.	.	310	0.5	0.2
May-17-2010	60	.	.	720	1.6	0.4
May-24-2010	25	.	.	260	0.5	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-01-2010	0	.	.	820	2.5	0.6
Mar-08-2010	0	.	.	1,590	0.7	2.8
Mar-15-2010	0	.	.	1,460	0.8	3.1
Mar-22-2010	0	.	.	1,690	0.8	2.5
Mar-29-2010	0	.	.	1,820	0.7	2.4
Apr-05-2010	0	.	.	2,160	1.7	4.5
Apr-12-2010	20	.	.	650	1.0	0.6
Apr-19-2010	0	.	.	880	1.0	0.9
Apr-26-2010	0	.	.	1,920	3.3	2.6
May-03-2010	15	.	.	2,010	1.9	3.2
May-10-2010	55	.	.	290	1.0	0.3
May-17-2010	55	.	.	380	1.8	0.3
May-24-2010	75	.	.	260	0.8	0.2

Note: The peak in selenium is caused by no flow conditions at this site.

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-01-2010	NA	.	.	980	1.8	0.7
Mar-08-2010	NA	.	.	1,170	3.3	1.0
Mar-15-2010	NA	.	.	1,210	2.2	1.0
Mar-22-2010	NA	.	.	1,840	1.9	2.1
Mar-29-2010	NA	.	.	2,490	2.2	2.9
Apr-05-2010	NA	.	.	300	0.4	0.3
Apr-12-2010	NA	.	.	440	<0.4	0.4
Apr-19-2010	NA	.	.	2,030	1.8	2.6
Apr-26-2010	NA	.	.	2,170	1.9	2.7
May-03-2010	NA	.	.	2,670	3.2	4.0
May-10-2010	NA	.	.	1,310	2.2	1.6
May-17-2010	NA	.	.	850	1.2	0.7
May-24-2010	NA	.	.	620	0.9	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
Mar-01-2010	NA	.	.	1,560	1.3	1.7
Mar-08-2010	NA	.	.	NA	1.5	1.9
Mar-15-2010	NA	.	.	1,880	1.0	2.1
Mar-22-2010	NA	.	.	1,940	0.8	2.7
Mar-29-2010	NA	.	.	1,970	0.8	2.2
Apr-05-2010	NA	.	.	810	0.6	0.9
Apr-12-2010	NA	.	.	1,460	1.1	1.5
Apr-19-2010	NA	.	.	1,740	0.8	2.0
Apr-26-2010	NA	.	.	1,570	0.8	1.9
May-03-2010	NA	.	.	1,630	0.9	2.4
May-10-2010	NA	.	.	810	1.2	1.2
May-17-2010	NA	.	.	550	1.2	0.5
May-24-2010	NA	.	.	640	0.7	0.8

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-01-2010	.	.	.	940	1.8	0.6
Mar-08-2010	.	.	.	620	2.4	0.4
Mar-15-2010	.	.	.	630	1.8	0.4
Mar-22-2010	.	.	.	550	0.8	0.3
Mar-29-2010	.	.	.	600	0.7	0.4
Apr-05-2010	.	.	.	710	1.0	0.4
Apr-12-2010	.	.	.	610	1.0	0.4
Apr-19-2010	.	.	.	530	0.5	0.3
Apr-26-2010	.	.	.	160	<0.4	<0.1
May-03-2010	.	.	.	940	2.6	0.8
May-10-2010	.	.	.	320	0.4	0.2
May-17-2010	.	.	.	280	0.9	0.2
May-24-2010	.	.	.	200	0.7	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-02-2010	1,600	14.0	7.4	590	<0.4	0.3
Mar-09-2010	1,250	13.2	7.4	870	0.6	0.4
Mar-16-2010	860	13.5	7.1	1,020	0.7	0.5
Mar-23-2010	847	16.5	8.2	1,240	0.8	0.8
Mar-30-2010	771	17.5	8.0	1,090	0.6	0.6
Apr-06-2010	884	13.6	7.3	810	0.6	0.4
Apr-13-2010	1,040	14.2	7.4	650	0.5	0.3
Apr-20-2010	1,030	19.2	7.9	620	<0.4	0.3
Apr-27-2010	1,110	20.5	7.3	580	0.4	0.3
May-04-2010	926	19.2	7.4	560	1.4	0.3
May-11-2010	842	17.4	7.3	530	0.7	0.3
May-18-2010	468	20.2	7.9	570	<0.4	0.3
May-25-2010	464	18.7	7.7	770	<0.4	0.3

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-03-2010	.	.	.	1,480	0.44	1.5
Mar-17-2010	.	.	.	1,510	2.1	1.1
Mar-24-2010	.	.	.	1,610	1.64	1.3
Mar-31-2010	.	.	.	1,500	1.0	1.0
Apr-14-2010	.	.	.	916	0.8	0.5
Apr-21-2010	.	.	.	927	0.7	0.5
Apr-24-2010	.	.	.	1,040	1.92	0.6
May-05-2010	.	.	.	1,030	1.7	0.6
May-12-2010	.	.	.	863	1.9	0.5
May-19-2010	.	.	.	1,370	0.9	2.7
May-26-2010	.	.	.	1,050	1.9	0.7

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-02-2010	2,140	14.1	7.5	670	1.2	0.4
Mar-09-2010	2110	12.9	7.6	1,000	1.9	0.7
Mar-16-2010	1,480	13.8	7.6	1,150	1.7	0.8
Mar-23-2010	1,430	16.3	8.1	1,350	1.4	1.0
Mar-30-2010	1,260	17.6	7.9	1,180	0.7	0.8
Apr-06-2010	1,380	14.0	7.4	980	0.9	0.6
Apr-13-2010	1,520	14.8	7.6	840	0.8	0.5
Apr-20-2010	1,600	19.1	7.8	760	0.6	0.4
Apr-27-2010	2,440	19.0	7.5	500	0.6	0.3
May-04-2010	1,550	19.2	7.3	610	0.9	0.4
May-11-2010	1,610	16.7	7.4	540	1.0	0.4
May-18-2010	1,260	18.8	7.8	700	2.0	0.5
May-25-2010	1,180	18.1	7.8	750	1.6	0.5

Table 20. Summary of fathead minnow (*Pimephales promelas*) larvae survival in 7-day tests using water samples collected from June 2009 to May 2010. 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-2009	95	95	95	93	93	95
Jul-2009	95	98	93	98	98	100
Aug-2009	98	98	88	93	100	100
Sep-2009	100	98	98	100	100	98
Oct-2009	100	100	95	95	95	100
Nov-2009	100	93	90	83	95	100
Dec-2009	98	88	93	98	100	98
Jan-2010	98	95	98	100	98	100
Feb-2010	98	100	95	95	100	90
Mar-2010	98	95	95	100	98	100
Apr-2010	95	98	100	100	100	98
May-2010	95	93	98	85	90	95

Table 21. Summary of fathead minnow (*Pimephales promelas*) larvae growth in 7-day tests using water samples collected from June 2009 to May 2010. 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-2009	0.42	0.40	0.46	0.44	0.43	0.45
Jul-2009	0.46	0.49	0.50	0.52	0.44	0.47
Aug-2009	0.42	0.40	0.41	0.38	0.43	0.52
Sep-2009	0.43	0.41	0.42	0.45	0.39	0.43
Oct-2009	0.51	0.52	0.49	0.50	0.41	0.44
Nov-2009	0.38	0.40	0.37	0.38	0.36	0.43
Dec-2009	0.50	0.48	0.52	0.49	0.46	0.47
Jan-2010	0.43	0.49	0.50	0.48	0.49	0.41
Feb-2010	0.47	0.53	0.49	0.52	0.49	0.51
Mar-2010	0.41	0.48	0.48	0.46	0.40	0.45
Apr-2010	0.53	0.48	0.53	0.50	0.43	0.48
May-2010	0.35	0.34	0.36	0.39	0.37	0.37

Table 22. Summary of *Daphnia magna* survival in 7-day tests using water samples collected from June 2009 to May 2010. 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-2009	100	0*	30*	90	100	100
Jul-2009	90	70	100	100	90	90
Aug-2009	100	100	100	100	100	100
Sep-2009	100	100	80	90	100	100
Oct-2009	80	90	100	90	90	100
Nov-2009	90	80	90	90	70†	70†
Dec-2009	90	90	90	100	100	80
Jan-2010	100	90	90	100	90	100
Feb-2010	90	90	90	100	100	90
Mar-2010	90	100	90	80	90	90
Apr-2010	70	90	90	80	40†	80
May-2010	80	70	100	100	90	80

Table 23. Summary of *Daphnia magna* reproduction in 7-day tests using water samples collected from June 2009 to May 2010. 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-2009	42.9	4.8*	13.6*	35.9	28.2	28.6
Jul-2009	34.2	21.6	38.5	32.1	26.4	22.4
Aug-2009	42.6	40.9	38.5	37.8	30.6	24.7
Sep-2009	34.8	43.3	26.8	25.1	28.7	22.7
Oct-2009	36.7	32.8	42.2	33.5	31.1	28.8
Nov-2009	38.5	21.3	29.1	21.8	16.4	18.6
Dec-2009	30.2	30.7	35.4	35.2	39.7	30.9
Jan-2010	39.7	32.3	44.1	30.7	34.4	33.8
Feb-2010	22.9	22.1	26.2	25.7	23.1	25.4
Mar-2010	23.6	28.4	23.3	19.5	25.0	16.6
Apr-2010	34.8	41.4	39.2	24.1	20.1	28.5
May-2010	30.6	45.4	39.3	42.9	33.8	19.4

Table 24. Summary of *Selenastrum capricornutum* growth in 4-day tests using water samples collected from June 2009 to May 2010. 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-2009	19.8	20.2	24.4	21.7	20.1	17.0
Jul-2009	22.5	28.4	28.2	26.8	22.9	19.7
Aug-2009	21.7	26.4	24.6	26.6	22.0	23.0
Sep-2009	31.6	32.6	25.6	28.9	27.6	22.3
Oct-2009	35.3	30.5	32.2	26.8	20.4	19.2
Nov-2009	20.6*	39.0	35.8	33.5	26.2	28.1
Dec-2009	6.8*	28.5	21.7	26.7	20.9	24.1
Jan-2010	0.2*	27.5	1.4*	28.9	20.8	19.8
Feb-2010	19.1*	36.0	31.7	29.9	28.7	23.1
Mar-2010	17.6	28.4	27.8	27.4	19.5	15.5
Apr-2010	5.2*	22.2	25.1	33.2	26.3	24.7
May-2010	12.8	23.5	23.2	26.4	15.0	11.3

Table 25. Summary of selenium concentrations in grab water samples collected at study stations for use in laboratory toxicity tests, March 2010 to May 2010.

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-08-2010	61	0.7	15	0.9	0.6
Mar-10-2010	63	0.8	12	0.8	0.8
Mar-12-2010	53	0.8	11	0.5	0.6
Apr-05-2010	20	0.5	4.7	0.5	0.7
Apr-07-2010	35	0.4	3.9	0.5	0.4
Apr-09-2010	43	0.4	10	0.4	0.6
May-03-2010	52	0.4	26	0.4	0.4
May-05-2010	57	0.4	33	0.4	0.4
May-07-2010	40	0.4	38	0.4	0.6

Table 26. Summary of total suspended solids concentrations in grab water samples collected at study stations for use in laboratory toxicity tests, March 2010 to May 2010.

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-08-2010	66	82	86	9	18
Mar-10-2010	59	137	128	57	17
Mar-12-2010	67	194	168	15	21
Apr-05-2010	39	64	83	20	8
Apr-07-2010	77	82	60	20	10
Apr-09-2010	105	155	119	25	21
May-03-2010	50	59	77	50	16
May-05-2010	47	37	87	65	13
May-07-2010	52	24	60	48	9

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.
L	Result may be biased low. Sample was not preserved in the field
†	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.
❖	Based on definitive bioassay, NOEC is 50 percent
D	Sample was dechlorinated