GRASSLAND BYPASS PROJECT

MONTHLY DATA REPORT

January 2010

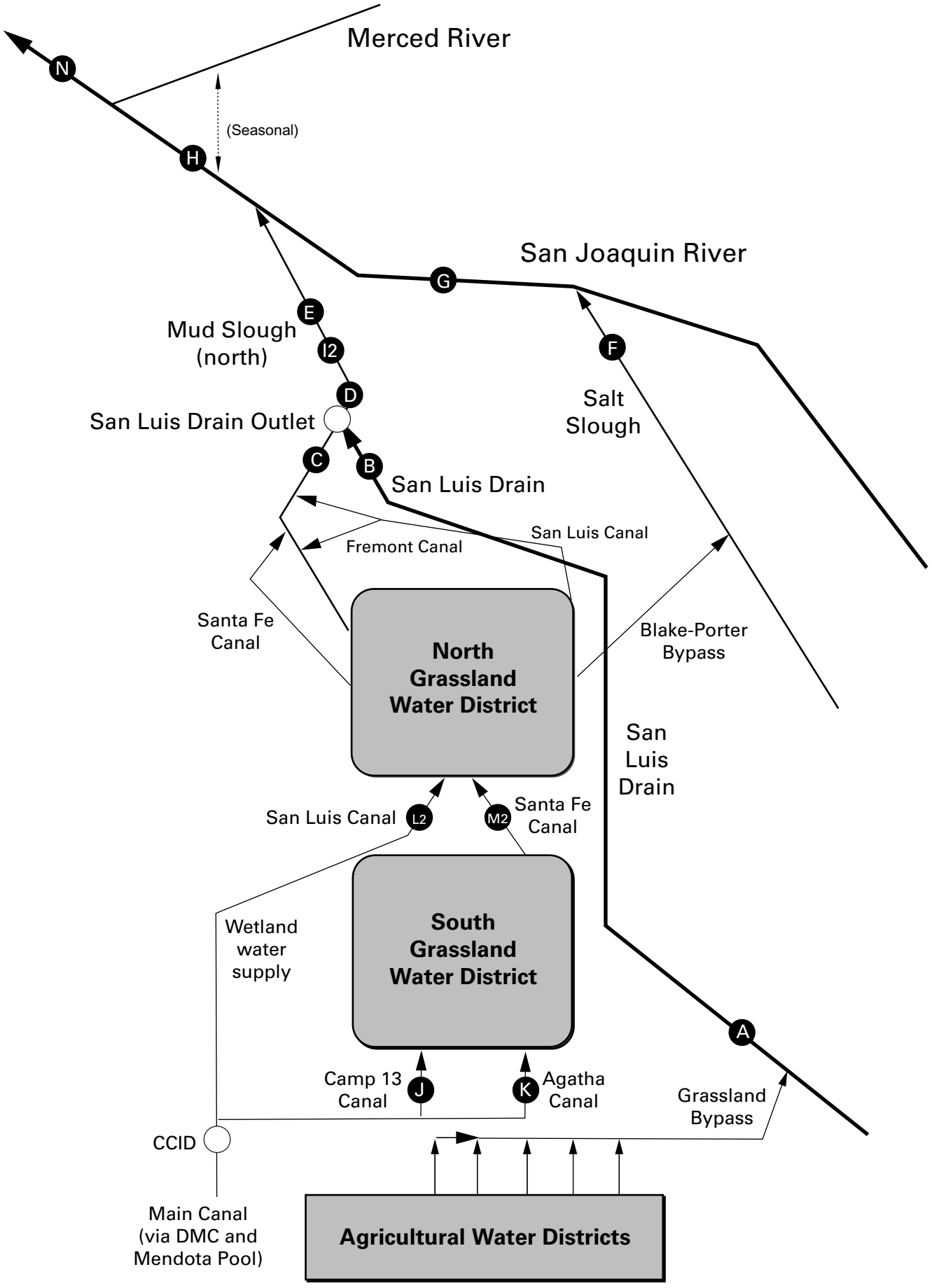
July 19, 2010

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
San Luis Canal
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

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), January 2010.

See Table 27 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow	Specific Conductance
DATA SOURCE	SLDMWA	SLDMWA
UNITS	cfs	µS/cm
Jan-01-2010	16	4,180
Jan-02-2010	15	4,180
Jan-03-2010	16	4,310
Jan-04-2010	16	4,300
Jan-05-2010	16	4,280
Jan-06-2010	17	4,280
Jan-07-2010	16	4,280
Jan-08-2010	16	4,290
Jan-09-2010	16	4,230
Jan-10-2010	16	4,100
Jan-11-2010	15	4,290
Jan-12-2010	17	4,430
Jan-13-2010	19	4,320
Jan-14-2010	19	4,090
Jan-15-2010	18	3,980
Jan-16-2010	18	4,150
Jan-17-2010	19	4,120
Jan-18-2010	23	4,120
Jan-19-2010	26	4,240
Jan-20-2010	26	4,300
Jan-21-2010	27	4,250
Jan-22-2010	22	4,400
Jan-23-2010	21	4,380
Jan-24-2010	15	4,190
Jan-25-2010	13	3,960
Jan-26-2010	13	3,780
Jan-27-2010	17	3,750
Jan-28-2010	16	3,680
Jan-29-2010	17	4,130
Jan-30-2010	17	4,540
Jan-31-2010	16	4,340
Mean	18	4,190

Table 2a. Continuous water monitoring at Stations B and B2 (San Luis Drain Terminus), January 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
Jan-01-2010	19	10.5	8.3	4,880	50.6	5.1
Jan-02-2010	20	10.5	8.8	5,020	53.7	5.8
Jan-03-2010	19	10.8	8.6	5,130	55.1	5.7
Jan-04-2010	20	10.9	8.0	4,840	37.6	4.1
Jan-05-2010	21	10.7	7.3	4,650	37.0	4.1
Jan-06-2010	21	10.5	7.4	4,710	51.0	5.8
Jan-07-2010	21	10.0	7.2	4,610	49.9	5.7
Jan-08-2010	20	9.9	7.5	4,680	50.2	5.5
Jan-09-2010	21	9.9	7.4	4,820	52.2	5.8
Jan-10-2010	21	9.8	7.5	4,750	51.3	5.9
Jan-11-2010	21	9.6	7.5	4,730	51.1	5.8
Jan-12-2010	21	10.0	7.5	4,780	56.0	6.2
Jan-13-2010	23	11.2	7.4	4,700	51.3	6.3
Jan-14-2010	24	11.7	7.4	4,760	54.4	7.0
Jan-15-2010	24	11.6	7.2	4,590	47.9	6.2
Jan-16-2010	23	11.8	7.4	4,620	47.4	6.0
Jan-17-2010	24	11.6	7.9	4,760	53.8	7.0
Jan-18-2010	27	11.3	7.2	4,790	51.9	7.5
Jan-19-2010	32	10.5	6.8	4,490	49.9	8.6
Jan-20-2010	35	10.2	7.0	4,470	53.8	10.0
Jan-21-2010	31	9.8	7.0	4,500	56.3	9.5
Jan-22-2010	33	9.5	7.2	4,550	55.8	9.9
Jan-23-2010	28	9.6	8.2	4,790	56.3	8.6
Jan-24-2010	26	9.6	7.9	4,900	54.9	7.7
Jan-25-2010	22	10.0	8.1	4,820	53.2	6.2
Jan-26-2010	20	10.2	8.7	4,870	55.0	5.8
Jan-27-2010	20	10.8	8.4	5,000	42.7	4.5
Jan-28-2010	23	11.3	8.7	4,740	46.6	5.7
Jan-29-2010	22	12.2	8.1	4,720	41.0	4.8
Jan-30-2010	19	12.8	7.7	4,460	25.6	2.7
Jan-31-2010	22	12.7	7.3	4,150	22.9	2.7
Mean	23	10.7	7.7	4,720	48.9	6.2
Total Acre-feet	**1,430**					
Total (lbs)						**192**

Load Limitation for January 2010 (lbs)	**398**

♦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.

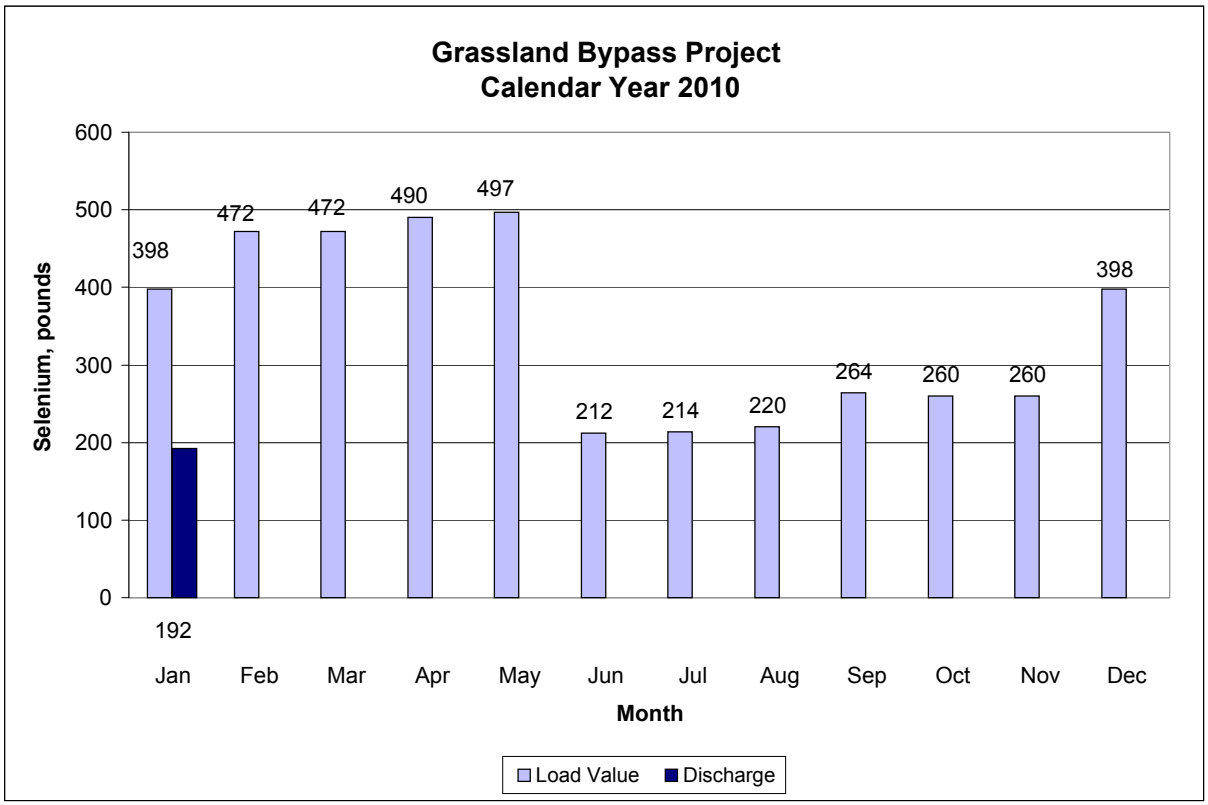

Table 3. Continuous water monitoring at Station D (Mud Slough North downstream of drainage discharges), January 2010.

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
Jan-01-2010	97	10.7	2,640
Jan-02-2010	96	10.5	2,720
Jan-03-2010	90	11.0	2,820
Jan-04-2010	91	11.1	2,780
Jan-05-2010	87	10.6	2,800
Jan-06-2010	83	10.4	2,870
Jan-07-2010	81	9.9	2,940
Jan-08-2010	81	9.9	2,940
Jan-09-2010	83	9.9	2,920
Jan-10-2010	82	9.9	2,940
Jan-11-2010	83	9.8	2,930
Jan-12-2010	84	10.5	2,860
Jan-13-2010	93	12.2	2,750
Jan-14-2010	98	12.3	2,720
Jan-15-2010	103	11.7	2,640
Jan-16-2010	132	11.8	2,310
Jan-17-2010	138	11.3	2,400
Jan-18-2010	182	11.0	2,240
Jan-19-2010	227	10.3	2,050
Jan-20-2010	290	10.0	1,980
Jan-21-2010	331	9.4	1,970
Jan-22-2010	364	9.1	1,950
Jan-23-2010	345	9.4	2,010
Jan-24-2010	302	9.5	2,060
Jan-25-2010	259	9.8	2,110
Jan-26-2010	230	10.0	2,200
Jan-27-2010	206	10.8	2,240
Jan-28-2010	195	11.4	2,300
Jan-29-2010	179	12.3	2,360
Jan-30-2010	152	13.1	2,410
Jan-31-2010	143	12.7	2,470
Mean	162	10.7	2,490

Table 4. Continuous water monitoring at Station F (Salt Slough at Highway 165), January 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
Jan-01-2010	54	11.5	2,290
Jan-02-2010	54	11.3	2,290
Jan-03-2010	56	11.9	2,290
Jan-04-2010	55	12.0	2,280
Jan-05-2010	51	11.3	2,270
Jan-06-2010	56	11.0	1,800
Jan-07-2010	57	10.5	1,920
Jan-08-2010	62	10.5	1,970
Jan-09-2010	64	10.5	1,930
Jan-10-2010	65	10.4	1,990
Jan-11-2010	61	10.6	2,120
Jan-12-2010	62	11.5	2,060
Jan-13-2010	72	12.9	1,930
Jan-14-2010	71	12.6	1,960
Jan-15-2010	70	11.8	2,070
Jan-16-2010	64	12.3	2,170
Jan-17-2010	64	11.8	2,160
Jan-18-2010	82	11.4	2,030
Jan-19-2010	114	10.6	1,740
Jan-20-2010	159	10.2	1,550
Jan-21-2010	195	9.6	1,550
Jan-22-2010	227	9.3	1,580
Jan-23-2010	247	9.3	1,660
Jan-24-2010	257	9.2	1,700
Jan-25-2010	246	9.6	1,760
Jan-26-2010	216	10.0	1,880
Jan-27-2010	187	10.8	1,980
Jan-28-2010	166	11.1	2,080
Jan-29-2010	150	11.8	2,090
Jan-30-2010	137	12.6	2,050
Jan-31-2010	121	12.2	2,230
Mean	114	11.0	1,980

Table 5. Continuous water monitoring at Station N (San Joaquin River at Crow's Landing), January 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
Jan-01-2010	470	10.7	1,500	2.2
Jan-02-2010	470	10.5	1,540	2.0
Jan-03-2010	467	11.1	1,590	2.3
Jan-04-2010	459	11.3	1,600	2.3
Jan-05-2010	449	10.8	1,610	2.2
Jan-06-2010	442	10.6	1,610	1.8
Jan-07-2010	434	10.3	1,640	1.8
Jan-08-2010	434	10.0	1,620	2.4
Jan-09-2010	433	10.0	1,630	2.2
Jan-10-2010	450	10.0	1,610	2.2
Jan-11-2010	446	9.9	1,580	2.4
Jan-12-2010	444	10.5	1,610	2.5
Jan-13-2010	459	12.2	1,600	2.3
Jan-14-2010	463	12.1	1,560	2.6
Jan-15-2010	483	11.4	1,500	2.5
Jan-16-2010	492	11.4	1,520	2.6
Jan-17-2010	506	11.4	1,530	2.3
Jan-18-2010	534	11.3	1,520	2.0
Jan-19-2010	668	10.7	1,520	2.4
Jan-20-2010	1,440	10.1	1,040	1.6
Jan-21-2010	2,210	9.7	720	1.0
Jan-22-2010	2,510	9.1	750	1.2
Jan-23-2010	2,560	8.9	660	1.1
Jan-24-2010	2540	8.8	630	1.0
Jan-25-2010	2,500	9.0	650	1.2
Jan-26-2010	2,280	9.2	770	1.3
Jan-27-2010	1,890	9.7	890	0.9
Jan-28-2010	1,550	10.3	1,000	1.1
Jan-29-2010	1,300	10.9	1,110	1.0
Jan-30-2010	1,130	11.9	1,210	1.2
Jan-31-2010	1,000	11.7	1,280	1.1
Mean	1,029	10.5	1,310	1.1

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	.	.	.
Nov-02-2009	20	.	.	4,830	188	.	.	.
Nov-09-2009	17	.	.	4,240	62	.	.	.
Nov-16-2009	17	.	.	4,420	NA	.	.	.
Nov-23-2009	16	.	.	4,410	110	.	.	.
Nov-30-2009	16	.	.	4,190	43	.	.	.
Dec-07-2009	17	.	.	4,990	117	.	.	.
Dec-14-2009	23	.	.	4,660	210	.	.	.
Dec-21-2009	16	.	.	5,030	73			
Dec-28-2009	18	.	.	5,490	162	.	.	.
Jan-04-2010	16	.	.	5,110	165	.	.	.
Jan-11-2010	15	.	.	5,060	84	.	.	.
Jan-19-2010	26	.	.	4,930	290	.	.	.
Jan-25-2010	13	.	.	4,720	40			

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
Nov-01-2009	14	.	.	4,530	.	38.9	.	8.4
Nov-08-2009	17	.	.	4,250	.	37.6	.	7.4
Nov-15-2009	18	.	.	4,030	.	41.4	.	6.9
Nov-22-2009	14	.	.	4,430	.	41.9	.	7.1
Nov-29-2009	15	.	.	4,610	.	51.5	.	7.2
Dec-06-2009	12	.	.	4,920	.	48.1	.	8.2
Dec-13-2009	26	.	.	4,940	.	50.0	.	8.6
Dec-20-2009	16	.	.	5,010	.	45.8	.	9.0
Dec-27-2009	19	.	.	5,140	.	60.8	.	9.0
Jan-03-2010	16	.	.	5,130	.	68.7	.	9.2
Jan-10-2010	16	.	.	5,040	.	65.3	.	8.4
Jan-17-2010	19	.	.	4,980	.	66.0	.	8.4
Jan-24-2010	15	.	.	4,830	.	43.0	.	9.7
Jan-31-2010	16	.	.	4,810	.	28.2	.	9.9

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
Nov-03-2009	22	15.9	8.2	4,270	42	29.6	6.8
Nov-10-2009	20	13.8	8.1	3,870	48	29.0	6.0
Nov-17-2009	20	11.5	8.0	3,750	30	30.4	5.9
Nov-24-2009	19	10.6	7.8	3,900	NA	30.5	6.2
Dec-01-2009	19	9.6	7.7	3,840	24	26.7	5.5
Dec-08-2009	21	6.2	7.5	4,210	20	33.6	7.1
Dec-15-2009	27	10.6	7.3	4,370	37	38.2	7.1
Dec-22-2009	18	10.3	7.7	4,400	31	37.4	7.3
Dec-29-2009	22	8.6	6.6	4,580	35	58.2	7.5
Jan-05-2010	21	10.5	7.3	4,310	32	37.1	7.4
Jan-12-2010	21	9.1	7.1	4,560	31	29.5	7.3
Jan-19-2010	32	9.9	7.2	4,120	59	48.3	6.5
Jan-26-2010	20	9.8	7.6	4,700	35	50.6	8.6

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
Nov-03-2009	70	16.0	7.9	1,660	.	0.4	1.3
Nov-10-2009	55	13.2	7.9	1,830	.	0.6	1.4
Nov-17-2009	55	10.8	7.7	1,890	.	<0.4	1.4
Nov-24-2009	49	10.2	7.9	2,110	.	<0.4	1.7
Dec-01-2009	50	9.0	7.9	1,630	.	<0.4	1.6
Dec-08-2009	71	5.8	7.9	2,020	.	<0.4	1.5
Dec-15-2009	163	10.5	7.8	1,770	.	<0.4	1.3
Dec-22-2009	98	9.7	7.8	1,890	.	0.5	1.5
Dec-29-2009	73	9.2	7.0	2,160	.	<0.4	1.6
Jan-05-2010	66	10.2	7.6	2,420	.	0.5	1.8
Jan-12-2010	63	9.7	7.4	2,380	.	<0.4	1.7
Jan-19-2010	195	9.9	7.0	1,740	.	<0.4	1.4
Jan-26-2010	210	10.1	7.9	1,890	.	0.5	1.6

++ 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
Nov-03-2009	92	15.7	7.8	2,490	9.1	2.8
Nov-10-2009	75	13.3	7.9	2,520	8.0	2.8
Nov-17-2009	75	11.0	7.8	2,470	8.6	2.6
Nov-24-2009	68	10.3	7.9	2,560	7.9	2.9
Dec-01-2009	69	9.4	7.8	2,800	8.6	2.7
Dec-08-2009	92	5.9	7.8	2,460	6.9	2.5
Dec-15-2009	190	10.5	7.8	2,110	5.8	2.1
Dec-22-2009	116	9.9	7.8	2,420	6.7	2.6
Dec-29-2009	95	9.1	6.7	2,950	12.9	3.2
Jan-05-2010	87	10.4	7.5	2,900	9.0	3.3
Jan-12-2010	84	9.5	7.2	2,960	6.2	3.1
Jan-19-2010	227	9.9	7.2	2,160	8.2	2.3
Jan-26-2010	230	9.9	7.8	2,150	5.8	2.2

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
Nov-03-2009	.	8.4	2,540	25	8.2	3.0
Nov-12-2009	.	6.5	2,690	24	9.3	3.4
Nov-24-2009	.	8.3	2,670	11	7.4	2.9
Dec-01-2009	.	8.4	2,880	16	7.8	3.1
Dec-08-2009	.	NA	2,490	14	7.7	2.7
Dec-15-2009	.	8.4	2,160	13	6.6	2.4
Dec-21-2009	.	7.8	2,420	NA	6.4	2.5
Jan-05-2010	.	7.9	3,050	17	8.9	3.3
Jan-12-2010	.	8.1	3,070	12	12.7	3.3
Jan-28-2010	.	7.4	2,390	27	5.2	2.6

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
Nov-03-2009	117	14.5	6.9	1,340	<0.4	0.7
Nov-10-2009	124	12.4	7.6	1,270	0.4	0.6
Nov-17-2009	143	10.1	7.8	1,200	<0.4	0.6
Nov-24-2009	131	10.0	7.7	1,380	<0.4	0.7
Dec-01-2009	110	8.8	7.6	1,660	<0.4	0.8
Dec-08-2009	71	6.1	7.2	1,840	<0.4	0.9
Dec-15-2009	122	10.4	7.4	1,520	<0.4	1.0
Dec-22-2009	85	10.2	7.5	1,880	0.6	1.2
Dec-29-2009	55	10.0	6.8	2,170	<0.4	1.1
Jan-05-2010	51	10.9	7.7	2,340	<0.4	1.2
Jan-12-2010	62	10.3	7.4	2,020	0.6	1.1
Jan-19-2010	114	8.7	6.8	1,740	0.5	1.0
Jan-26-2010	216	9.8	7.2	1,790	0.5	1.3

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
Nov-02-2009	85	.	.	510	0.4	0.2
Nov-09-2009	85	.	.	520	0.8	0.3
Nov-16-2009	30	.	.	630	0.5	0.3
Nov-23-2009	10	.	.	560	0.5	0.3
Nov-30-2009	10	.	.	710	0.4	0.3
Dec-07-2009	5	.	.	660	0.7	0.3
Dec-14-2009	5	.	.	600	0.6	0.3
Dec-21-2009	5	.	.	620	<0.4	0.2
Dec-28-2009	5	.	.	730	2.2	0.4
Jan-04-2010	5	.	.	910	0.5	0.5
Jan-11-2010	5	.	.	810	0.4	0.3
Jan-19-2010	5	.	.	960	0.9	0.5
Jan-25-2010	5	.	.	1,010	3.2	0.7

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
Nov-02-2009	70	.	.	510	0.6	0.3
Nov-09-2009	70	.	.	510	0.8	0.3
Nov-16-2009	60	.	.	510	<0.4	0.3
Nov-23-2009	50	.	.	530	<0.4	0.3
Nov-30-2009	50	.	.	510	<0.4	0.2
Dec-07-2009	30	.	.	620	1.3	0.4
Dec-14-2009	30	.	.	730	0.4	0.5
Dec-21-2009	30	.	.	740	0.6	0.5
Dec-28-2009	30	.	.	700	0.5	0.3
Jan-04-2010	50	.	.	720	0.7	0.4
Jan-11-2010	50	.	.	840	0.5	0.4
Jan-19-2010	18	.	.	780	1.8	0.6
Jan-25-2010	18	.	.	940	2.1	0.8

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
Nov-02-2009	NA	.	.	890	0.6	0.7
Nov-09-2009	NA	.	.	560	0.7	0.3
Nov-16-2009	NA	.	.	640	0.6	0.4
Nov-23-2009	NA	.	.	1,440	0.8	1.5
Nov-30-2009	NA	.	.	730	0.8	0.8
Dec-07-2009	NA	.	.	1,550	1.1	2.2
Dec-14-2009	NA	.	.	560	<0.4	0.3
Dec-21-2009	NA	.	.	1,260	0.6	1.2
Dec-28-2009	NA	.	.	670	0.6	0.6
Jan-04-2010	NA	.	.	790	0.5	0.5
Jan-11-2010	NA	.	.	760	<0.4	0.3
Jan-19-2010	NA	.	.	900	0.7	0.5
Jan-25-2010	NA	.	.	670	<0.4	0.8

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
Nov-02-2009	NA	.	.	860	0.5	0.7
Nov-09-2009	NA	.	.	910	0.6	0.7
Nov-16-2009	NA	.	.	830	0.4	0.7
Nov-23-2009	NA	.	.	1,070	<0.4	1.0
Nov-30-2009	NA	.	.	1,250	<0.4	1.2
Dec-07-2009	NA	.	.	1,300	0.7	1.5
Dec-14-2009	NA	.	.	1,030	0.5	0.7
Dec-21-2009	NA	.	.	1,400	0.5	1.5
Dec-28-2009	NA	.	.	1,540	0.5	1.5
Jan-04-2010	Na	.	.	1,470	0.7	1.6
Jan-11-2010	NA	.	.	1,500	0.4	1.3
Jan-19-2010	NA	.	.	1,230	0.7	1.0
Jan-25-2010	NA	.	.	1,620	0.7	1.9

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
Nov-02-2009	.	.	.	500	0.4	0.2
Nov-09-2009	.	.	.	480	0.7	0.2
Nov-16-2009	.	.	.	660	1.0	0.4
Nov-23-2009	.	.	.	600	0.7	0.3
Nov-30-2009	.	.	.	680	<0.4	0.3
Dec-07-2009				660	0.5	0.3
Dec-14-2009	.	.	.	720	<0.4	0.3
Dec-21-2009	.	.	.	680	0.8	0.4
Dec-28-2009	.	.	.	630	0.4	0.4
Jan-04-2010	.	.	.	700	1.4	0.4
Jan-11-2010	.	.	.	740	1.8	0.4
Jan-19-2010	.	.	.	790	1.5	0.5
Jan-25-2010	.	.	.	780	1.4	0.6

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
Nov-03-2009	166	15.4	7.9	1,340	<0.4	0.6
Nov-10-2009	143	12.8	7.5	1,330	0.7	0.6
Nov-17-2009	153	10.3	7.8	1,090	<0.4	0.6
Nov-24-2009	144	9.9	7.7	1,490	<0.4	0.8
Dec-01-2009	210	8.9	7.4	1,460	<0.4	0.6
Dec-08-2009	115	5.9	7.9	2,040	<0.4	0.9
Dec-15-2009	185	10.0	7.3	1,490	<0.4	0.8
Dec-22-2009	133	9.9	7.1	1,960	<0.4	1.0
Dec-29-2009	81	9.5	6.9	2,390	<0.4	0.8
Jan-05-2010	84	10.4	6.9	2,400	<0.4	1.0
Jan-12-2010	87	9.9	7.6	2,410	0.4	1.0
Jan-19-2010	132	10.1	7.8	2,120	<0.4	1.1
Jan-26-2010	1,250	9.1	7.8	640	0.7	0.4

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
Nov-04-2009	.	.	.	1,720	9.7	2.0
Nov-10-2009	.	.	.	2,200	16.8	2.6
Nov-18-2009	.	.	.	2,020	23.0	1.5
Nov-25-2009	.	.	.	1,420	11.4	1.2
Dec-02-2009	.	.	.	1,640	10.2	1.9
Dec-09-2009	.	.	.	1,630	16.6	1.4
Dec-22-2009	.	.	.	1,740	17.5	1.5
Jan-12-2010	.	.	.	2,230	14.0	2.7
Jan-20-2010	.	.	.	2,230	52.0	2.5

Outside of normal range.

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
Nov-03-2009	766	15.0	7.8	790	1.1	0.5
Nov-10-2009	563	13.1	7.7	1,050	1.6	0.7
Nov-17-2009	533	10.9	7.8	1,180	1.4	0.8
Nov-24-2009	524	10.4	7.9	1,210	1.2	0.8
Dec-01-2009	517	9.4	7.7	1,280	1.2	0.8
Dec-08-2009	489	6.5	8.0	1,360	1.8	0.8
Dec-15-2009	664	10.1	7.8	1,300	2.0	1.0
Dec-22-2009	576	10.0	7.8	1,420	1.8	1.0
Dec-29-2009	477	9.4	7.2	1,570	2.0	1.0
Jan-05-2010	449	10.3	7.2	1,620	2.5	1.1
Jan-12-2010	444	9.8	7.5	1,600	2.8	1.0
Jan-19-2010	668	10.5	7.8	1,550	2.6	1.1
Jan-26-2010	2,280	9.4	7.7	790	0.9	0.6

Table 20. Summary of fathead minnow (*Pimephales promelas*) larvae survival in 7-day tests using water samples collected from February 2009 to January 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	%	%	%	%	%	%
Feb-2009	98	95	100	98	100	95
Mar-2009	98	100	100	100	98	95
Apr-2009	100	93	95	95	73	98
May-2009	98	98	98	100	93	95
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

Table 21. Summary of fathead minnow (*Pimephales promelas*) larvae growth in 7-day tests using water samples collected from February 2009 to January 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
Feb-2009	0.51	0.53	0.49	0.46	0.50	0.35
Mar-2009	0.50	0.50	0.45	0.50	0.44	0.44
Apr-2009	0.33	0.43	0.35	0.40	0.30	0.38
May-2009	0.48	0.41	0.41	0.42	0.42	0.42
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

Table 22. Summary of *Daphnia magna* survival in 7-day tests using water samples collected from February 2009 to January 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	%	%	%	%	%	%
Feb-2009	100	80	90	70	90	80
Mar-2009	100	100	100	100	90	90
Apr-2009	100	100	80	90	90	100
May-2009	80	100	90	100	100	100
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

Table 23. Summary of *Daphnia magna* reproduction in 7-day tests using water samples collected from February 2009 to January 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
Feb-2009	24.0	19.1	23.9	19.0	21.9	18.9
Mar-2009	43.9	34.5	41.2	35.6	37.5	27.2
Apr-2009	45.4	52.3	23.1	30.2	30.2	31.6
May-2009	22.1	31.8	36.3	29.3	29.9	23.6
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

Table 24. Summary of *Selenastrum capricornutum* growth in 4-day tests using water samples collected from February 2009 to January 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
Feb-2009	14.4*	36.5	42.9	33.8	34.9	29.4
Mar-2009	12.9*	32.9	31.3	34.0	27.4	29.9
Apr-2009	20.9*	22.2	27.0	24.3	25.0	19.3
May-2009	21.6	33.2	25.2	11.4*	21.4	22.8
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

Table 25. Summary of selenium concentrations in grab water samples collected at study stations for use in laboratory toxicity tests, November 2009 to January 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
Nov-02-2009	32	<0.4	7.8	<0.4	<0.4
Nov-04-2009	26	<0.4	11	<0.4	<0.4
Nov-06-2009	28	<0.4	8.0	<0.4	<0.4
Dec-14-2009	42	<0.4	6.4	<0.4	<0.4
Dec-16-2009	42	<0.4	7.0	<0.4	<0.4
Dec-18-2009	38	<0.4	6.4	<0.4	<0.4
Jan-11-2010	54	<0.4	13	0.8	0.5
Jan-13-2010	52	<0.4	13	0.8	0.8
Jan-15-2010	51	<0.4	12	0.6	0.8

Table 26. Summary of total suspended solids concentrations in grab water samples collected at study stations for use in laboratory toxicity tests, November 2009 to January 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
Nov-02-2009	42	18	42	45	4
Nov-04-2009	35	38	53	43	9
Nov-06-2009	34	44	63	59	13
Dec-14-2009	29	32	43	28	1
Dec-16-2009	29	28	36	37	2
Dec-18-2009	26	22	34	3	<1
Jan-11-2010	31	11	21	15	3
Jan-13-2010	26	45	48	50	4
Jan-15-2010	33	22	38	27	3

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