GRASSLAND BYPASS PROJECT

MONTHLY DATA REPORT

December 2006

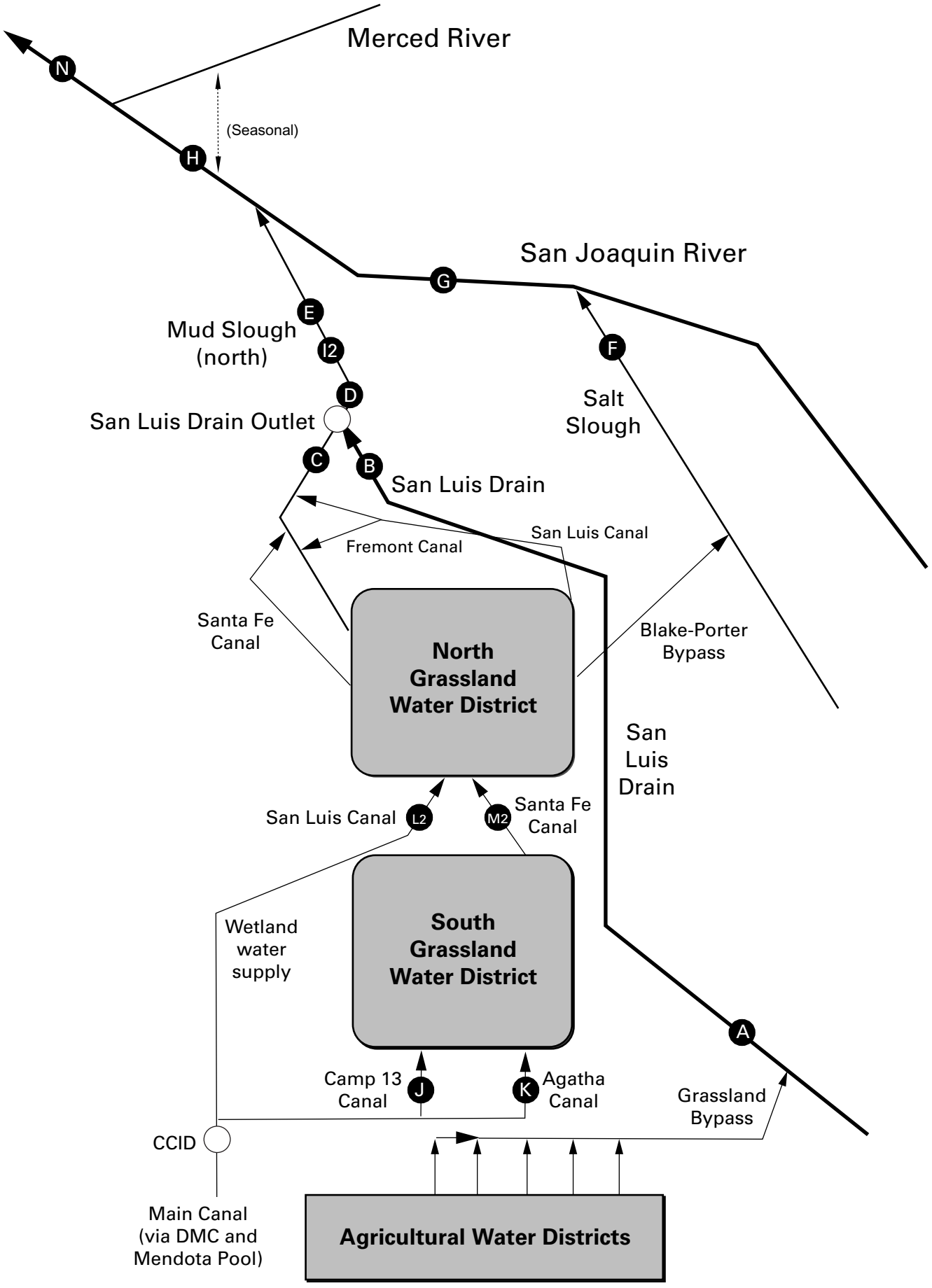
April 5, 2007

Preliminary Results

A cooperative effort of:

U.S. Bureau of Reclamation
Central Valley Regional Water Quality Control Board
U.S. Fish and Wildlife Service
California Department of Fish and Game
San Luis & Delta-Mendota Water Authority
U.S. Environmental Protection Agency
U.S. Geological Survey

compiled by San Francisco Estuary Institute


Merced River
N
(Seasonal)
H
San Joaquin River
G
E
Mud Slough
(north)
I2
F
D
Salt
Slough
San Luis Drain Outlet
C
B
San Luis Drain
San Luis Canal
Fremont Canal
Santa Fe
Canal
North
Grassland
Water District
Blake-Porter
Bypass
San
Luis
Drain
San Luis Canal
L2
M2
Santa Fe
Canal
Wetland
water
supply
South
Grassland
Water District
A
Camp 13
Canal
J
K
Agatha
Canal
Grassland
Bypass
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), December 2006.

See Table 27 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow	Specific Conductance
DATA SOURCE	SLDMWA	SLDMWA
UNITS	cfs	µS/cm
Dec-01-2006	14	5,310
Dec-02-2006	13	5,260
Dec-03-2006	13	5,180
Dec-04-2006	12	5,280
Dec-05-2006	14	5,350
Dec-06-2006	13	5,310
Dec-07-2006	14	5,220
Dec-08-2006	16	5,160
Dec-09-2006	16	4,940
Dec-10-2006	16	4,980
Dec-11-2006	14	5,280
Dec-12-2006	16	5,090
Dec-13-2006	17	4,810
Dec-14-2006	16	5,040
Dec-15-2006	12	4,910
Dec-16-2006	9	5,100
Dec-17-2006	8	5,140
Dec-18-2006	8	5,200
Dec-19-2006	9	5,470
Dec-20-2006	8	5,260
Dec-21-2006	8	5,190
Dec-22-2006	10	5,110
Dec-23-2006	8	5,230
Dec-24-2006	9	5,300
Dec-25-2006	13	5,350
Dec-26-2006	15	4,010
Dec-27-2006	22	4,270
Dec-28-2006	23	4,630
Dec-29-2006	24	4,580
Dec-30-2006	25	4,200
Dec-31-2006	22	4,390
Mean	14	5,020

Table 2a. Continuous water monitoring at Stations B and B2 (San Luis Drain Terminus), December 2006.

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
Dec-01-2006	21	9.3	5.0	3,660	50.2	5.7
Dec-02-2006	21	9.6	5.4	3,800	53.5	6.0
Dec-03-2006	21	9.7	5.8	4,060	58.4	6.5
Dec-04-2006	21	9.8	5.9	4,060	59.0	6.5
Dec-05-2006	20	9.8	6.0	4,100	58.6	6.5
Dec-06-2006	21	10.0	5.7	4,060	57.9	6.4
Dec-07-2006	21	9.9	5.9	4,170	61.1	6.8
Dec-08-2006	21	10.0	6.0	4,080	59.5	6.7
Dec-09-2006	22	11.4	5.8	3,990	55.6	6.6
Dec-10-2006	23	11.8	5.8	4,000	58.5	7.2
Dec-11-2006	22	11.1	6.2	4,130	56.6	6.7
Dec-12-2006	21	10.8	5.8	4,140	61.7	7.0
Dec-13-2006	22	11.5	5.7	4,030	60.2	7.1
Dec-14-2006	23	12.3	6.0	4,210	67.2	8.4
Dec-15-2006	22	12.8	5.9	4,080	59.6	7.1
Dec-16-2006	20	11.1	6.3	4,150	59.0	6.3
Dec-17-2006	18	9.9	6.4	4,220	62.2	6.1
Dec-18-2006	17	8.9	6.3	4,230	58.2	5.2
Dec-19-2006	17	8.3	6.0	4,030	53.6	4.9
Dec-20-2006	17	8.2	5.9	4,060	56.0	5.1
Dec-21-2006	17	7.8	5.9	4,130	54.8	5.1
Dec-22-2006	17	8.2	5.7	3,860	39.8	3.6
Dec-23-2006	18	8.2	5.3	3,750	28.6	2.8
Dec-24-2006	17	8.0	5.3	3,720	24.8	2.3
Dec-25-2006	17	8.2	5.5	3,660	23.6	2.2
Dec-26-2006	20	8.7	5.7	3,840	25.2	2.7
Dec-27-2006	19	9.0	5.6	3,750	23.0	2.4
Dec-28-2006	25	6.9	5.5	3,680	22.5	3.1
Dec-29-2006	32	7.0	5.5	3,830	26.4	4.5
Dec-30-2006	31	7.4	6.2	4,100	34.4	5.7
Dec-31-2006	31	7.9	4.9	3,550	34.0	5.7
Mean	21	9.5	5.8	3,970	48.5	5.4
Total Acre-feet	**1,300**					
Total (lbs)						**169**

Load Limitation for December 2006 (lbs)	**211**

?To improve the accuracy of flow measurements, Reclamation and the San Luis & Delta-Mendota Water Authority, with technica 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.

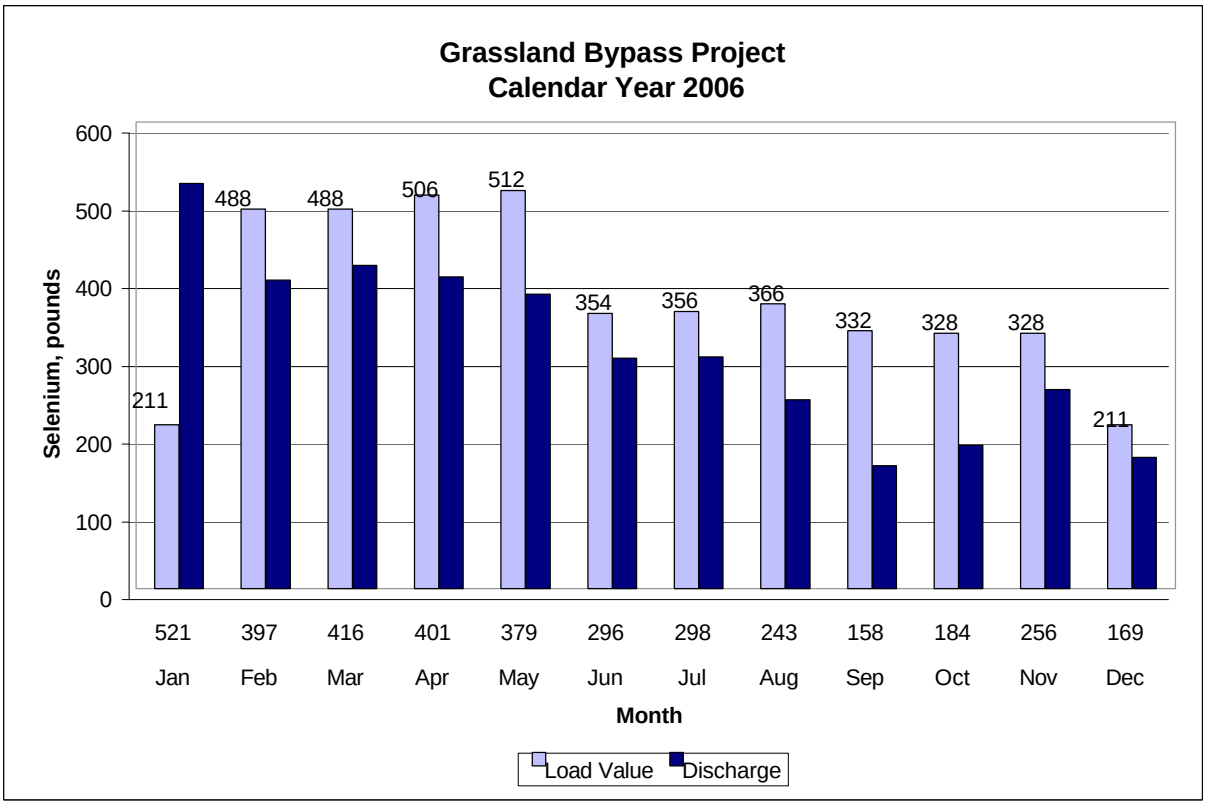


Table 3. Continuous water monitoring at Station D (Mud Slough North downstream of drainage discharges), December 2006.

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
Dec-01-2006	171	8.8	1,620
Dec-02-2006	187	9.0	1,480
Dec-03-2006	187	9.3	1,530
Dec-04-2006	168	9.6	1,710
Dec-05-2006	153	9.7	1,830
Dec-06-2006	146	9.7	1,890
Dec-07-2006	141	9.7	1,950
Dec-08-2006	140	9.7	1,960
Dec-09-2006	139	11.7	1,980
Dec-10-2006	145	11.8	1,950
Dec-11-2006	145	10.6	1,980
Dec-12-2006	147	10.4	1,950
Dec-13-2006	154	11.2	1,870
Dec-14-2006	157	12.4	1,880
Dec-15-2006	154	12.8	1,860
Dec-16-2006	152	10.4	1,840
Dec-17-2006	160	8.9	1,770
Dec-18-2006	171	8.1	1,650
Dec-19-2006	174	7.4	1,620
Dec-20-2006	172	7.4	1,660
Dec-21-2006	168	7.1	1,720
Dec-22-2006	172	7.8	1,690
Dec-23-2006	176	7.7	1,650
Dec-24-2006	176	7.6	1,670
Dec-25-2006	173	7.9	1,680
Dec-26-2006	175	8.3	1,700
Dec-27-2006	186	8.8	1,660
Dec-28-2006	210	6.6	1,610
Dec-29-2006	204	6.5	1,750
Dec-30-2006	200	6.8	1,780
Dec-31-2006	207	7.4	1,680
Mean	168	9.1	1,760

Table 4. Continuous water monitoring at Station F (Salt Slough at Highway 165), December 2006.

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
Dec-01-2006	111	9.5	1,730
Dec-02-2006	116	9.4	1,700
Dec-03-2006	114	9.4	1,750
Dec-04-2006	109	9.6	1,800
Dec-05-2006	109	9.6	1,820
Dec-06-2006	106	9.6	1,890
Dec-07-2006	100	9.7	1,980
Dec-08-2006	88	9.8	1,990
Dec-09-2006	84	12.2	2,010
Dec-10-2006	80	12.3	2,110
Dec-11-2006	77	11.1	2,150
Dec-12-2006	77	11.1	2,160
Dec-13-2006	77	12.3	2,170
Dec-14-2006	76	13.4	2,120
Dec-15-2006	75	13.1	2,070
Dec-16-2006	78	10.4	2,090
Dec-17-2006	95	9.3	1,960
Dec-18-2006	122	8.4	1,740
Dec-19-2006	139	7.6	1,520
Dec-20-2006	138	7.4	1,500
Dec-21-2006	151	7.2	1,510
Dec-22-2006	165	8.0	1,380
Dec-23-2006	175	7.8	1,270
Dec-24-2006	181	7.8	1,210
Dec-25-2006	180	8.1	1,190
Dec-26-2006	178	8.5	1,150
Dec-27-2006	186	9.1	1,140
Dec-28-2006	198	7.0	1,120
Dec-29-2006	209	6.8	1,120
Dec-30-2006	197	6.9	1,160
Dec-31-2006	180	7.6	1,180
Mean	128	9.4	1,670

Table 5. Continuous water monitoring at Station N (San Joaquin River at Crow's Landing), December 2006.

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
Dec-01-2006	936	9.2	1,060	1.3
Dec-02-2006	908	9.3	1,090	1.3
Dec-03-2006	903	9.2	1,090	1.3
Dec-04-2006	893	9.3	1,100	1.6
Dec-05-2006	855	9.4	1,180	1.5
Dec-06-2006	822	9.5	1,260	1.6
Dec-07-2006	798	9.6	1,290	1.5
Dec-08-2006	767	9.6	1,320	1.8
Dec-09-2006	752	11.1	1,370	1.9
Dec-10-2006	776	12.1	1,350	1.6
Dec-11-2006	803	11.2	1,340	1.7
Dec-12-2006	812	10.8	1,250	1.9
Dec-13-2006	797	11.4	1,310	1.8
Dec-14-2006	802	12.5	1,280	1.9
Dec-15-2006	816	13.0	1,270	1.9
Dec-16-2006	817	11.3	1,280	2.0
Dec-17-2006	812	9.8	1,250	1.7
Dec-18-2006	821	8.9	1,230	1.7
Dec-19-2006	838	8.1	1,180	1.4
Dec-20-2006	853	7.7	1,160	1.3
Dec-21-2006	873	7.5	1,130	1.3
Dec-22-2006	879	8.0	1,140	1.3
Dec-23-2006	900	8.2	1,150	1.2
Dec-24-2006	911	8.1	1,120	1.1
Dec-25-2006	908	8.2	1,210	0.8
Dec-26-2006	903	8.7	1,150	0.7
Dec-27-2006	917	9.2	1,170	0.7
Dec-28-2006	897	7.7	1,170	0.8
Dec-29-2006	922	7.2	1,160	0.8
Dec-30-2006	957	7.2	1,150	1.0
Dec-31-2006	937	7.7	1,150	1.0
Mean	860	9.4	1,210	1.4

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	.	.	.
Oct-04-2006	11	.	.	4,660	23	.	.	.
Oct-11-2006	17	.	.	5,250	66	.	.	.
Oct-18-2006	15	.	.	5,410	46	.	.	.
Oct-25-2006	16	.	.	6,600	130	.	.	.
Nov-01-2006	15	.	.	5,810	62	.	.	.
Nov-08-2006	16	.	.	5,610	100	.	.	.
Nov-15-2006	17	.	.	5,120	34	.	.	.
Nov-21-2006	20	.	.	4,370	61	.	.	.
Nov-29-2006	14	.	.	5,050	47	.	.	.
Dec-06-2006	13	.	.	4,980	17	.	.	.
Dec-13-2006	17	.	.	4,130	64	.	.	.
Dec-20-2006	8	.	.	4,820	13	.	.	.

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
Oct-03-2006	13	.	.	4,390	.	57.0	.	7.4
Oct-10-2006	11	.	.	4,570	.	50.0	.	7.1
Oct-17-2006	16	.	.	5,380	.	104	.	8.8
Oct-24-2006	15	.	.	5,740	.	119	.	9.8
Oct-31-2006	14			6,080		118		10.0
Nov-07-2006	15	.	.	5,770	.	120	.	9.4
Nov-14-2006	17	.	.	5,070	.	98.8	.	7.7
Nov-20-2006	20	.	.	4,750	.	84.2	.	7.1
Nov-27-2006	17	.	.	4,370	.	72.6	.	6.7
Dec-05-2006	14	.	.	4,870	.	87.6	.	8.0
Dec-12-2006	16	.	.	4,780	.	88.5	.	7.0
Dec-19-2006	9	.	.	4,850	.	54.9	.	7.5
Dec-26-2006	15	.	.	4,760	.	58.2	.	7.8

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
Oct-05-2006	19	18.9	8.3	3,150	33	23.2	4.9
Oct-12-2006	20	18.4	8.4	4,010	46	33.0	6.0
Oct-19-2006	21	15.9	8.3	4,710	46	82.8	7.8
Oct-26-2006	22	14.2	8.4	4,500	47	65.2	6.8
Nov-02-2006	21	15.8	8.4	5,240	35	75.3	8.0
Nov-09-2006	22	16.0	8.3	4,640	30	76.2	7.0
Nov-16-2006	24	14.2	8.1	4,180	9	72.8	5.6
Nov-21-2006	26	15.3	8.4	4,270	25	58.0	6.4
Nov-30-2006	22	8.1	8.2	3,740	12	43.4	5.5
Dec-07-2006	21	8.8	7.9	4,200	22	57.0	5.8
Dec-14-2006	23	11.4	7.8	4,300	15	70.5	6.1
Dec-21-2006	17	7.3	8.1	4,180	15	59.2	6.1
Dec-28-2006	25	5.8	8.2	3,690	54	23.1	5.2

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
Oct-05-2006	74	18.1	7.8	851	.	<0.4	0.6
Oct-12-2006	126	18.1	7.5	759	.	<0.4	0.6
Oct-19-2006	203	15.8	7.6	725	.	0.4	0.6
Oct-26-2006	201	13.8	7.7	773	.	<0.4	0.6
Nov-02-2006	172	16.3	7.6	866	.	<0.4	0.7
Nov-09-2006	158	15.4	7.6	954	.	<0.4	0.8
Nov-16-2006	201	14.4	7.7	994	.	<0.4	0.7
Nov-21-2006	170	15.0	7.6	1,190	.	<0.4	1.0
Nov-30-2006	148	7.7	7.9	1,260	.	<0.4	1.0
Dec-07-2006	120	8.4	7.9	1,550	.	<0.4	1.2
Dec-14-2006	134	11.9	7.8	1,490	.	<0.4	1.1
Dec-21-2006	151	6.7	8.0	1,440	.	<0.4	1.1
Dec-28-2006	185	5.6	8.1	1,370	.	<0.4	1.1

++ 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
Oct-05-2006	93	18.2	7.8	1,360	4.4	1.6
Oct-12-2006	146	18.1	7.6	1,160	3.9	1.2
Oct-19-2006	224	15.9	7.7	1,120	7.1	1.3
Oct-26-2006	223	13.8	7.7	1,130	6.0	1.1
Nov-02-2006	193	16.2	7.7	1,380	8.2	1.5
Nov-09-2006	180	15.3	7.9	1,430	8.3	1.5
Nov-16-2006	225	14.3	7.7	1,400	7.8	1.3
Nov-21-2006	196	15.0	7.7	1,640	7.8	1.7
Nov-30-2006	170	7.7	7.9	1,630	5.8	1.7
Dec-07-2006	141	8.5	7.9	2,030	8.6	1.9
Dec-14-2006	157	11.7	7.8	1,950	8.9	1.8
Dec-21-2006	168	6.7	8.0	1,770	6.0	1.6
Dec-28-2006	210	5.6	8.1	1,680	3.0	1.6

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
Oct-11-2006	.	7.6	1,280	19	3.7	1.4
Oct-16-2006	.	8.0	1,120	17	3.3	1.3
Oct-24-2006	.	7.4	1,150	11	6.3	1.3
Nov-02-2006	.	8.1	1,750	51	6.4	1.9
Nov-07-2006	.	7.5	1,540	24	8.5	1.9
Nov-14-2006	.	7.8	1,510	15	8.5	1.8
Nov-20-2006	.	7.8	1,620	19	6.7	1.9
Nov-28-2006	.	8.0	1,670	11	5.9	1.8
Dec-05-2006	.	8.2	1,920	12	7.0	2.0
Dec-21-2006	.	8.9	1,770	10	5.7	1.8
Dec-28-2006	.	8.1	1,830	11	3.0	1.8

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
Oct-05-2006	124	18.2	7.6	963	<0.4	0.5
Oct-12-2006	119	17.4	7.7	1,040	0.7	0.6
Oct-19-2006	203	15.3	7.7	867	0.5	0.5
Oct-26-2006	177	13.6	7.7	1,030	0.4	0.6
Nov-02-2006	182	15.1	7.7	1,080	<0.4	0.6
Nov-09-2006	204	14.9	7.7	1,120	<0.4	0.7
Nov-16-2006	224	13.7	7.7	1,110	0.5	0.6
Nov-21-2006	229	14.9	7.6	1,170	0.4	0.7
Nov-30-2006	119	8.0	7.7	1,630	<0.4	0.9
Dec-07-2006	100	8.5	7.7	1,850	<0.4	1.0
Dec-14-2006	76	12.5	7.7	707	0.4	1.1
Dec-21-2006	151	6.9	7.8	1,590	0.4	1.0
Dec-28-2006	198	6.2	8.0	1,350	0.4	0.9

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
Oct-04-2006	190	.	.	294	<0.4	0.1
Oct-11-2006	115	.	.	326	0.6	0.1
Oct-18-2006	65	.	.	321	0.6	0.1
Oct-25-2006	30	.	.	325	0.6	0.2
Nov-01-2006	30	.	.	353	0.4	0.2
Nov-08-2006	30	.	.	359	0.7	0.2
Nov-15-2006	30	.	.	502	0.8	0.3
Nov-21-2006	30	.	.	410	0.8	0.2
Nov-29-2006	0	.	.	847	0.8	0.8
Dec-06-2006	0	.	.	1,170	0.9	1.3
Dec-13-2006	25	.	.	584	0.5	0.3
Dec-20-2006	40	.	.	724	0.7	0.3

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
Oct-04-2006	160	.	.	388	<0.4	0.2
Oct-11-2006	85	.	.	296	0.7	0.1
Oct-18-2006	65	.	.	307	0.5	0.2
Oct-25-2006	65	.	.	320	0.6	0.2
Nov-01-2006	65	.	.	324	0.4	0.2
Nov-08-2006	65	.	.	365	0.6	0.2
Nov-15-2006	65	.	.	468	0.6	0.2
Nov-21-2006	65	.	.	404	0.5	0.2
Nov-29-2006	0	.	.	460	0.5	0.3
Dec-06-2006	0	.	.	662	0.6	0.6
Dec-13-2006	50	.	.	539	0.5	0.2
Dec-20-2006	50	.	.	646	0.8	0.3

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
Oct-04-2006	125	.	.	371	<0.4	0.2
Oct-11-2006	100	.	.	372	0.6	0.2
Oct-18-2006	70	.	.	326	0.6	0.2
Oct-25-2006	50			371	0.6	0.2
Nov-01-2006	30			399	0.5	0.3
Nov-08-2006	30	.	.	468	0.6	0.3
Nov-15-2006	15	.	.	527	0.7	0.3
Nov-21-2006	0	.	.	909	0.6	0.9
Nov-29-2006	0			1,070	0.6	1.1
Dec-06-2006	0	.	.	1,370	0.8	1.5
Dec-13-2006	25	.	.	563	1.1	0.3
Dec-20-2006	25	.	.	590	0.6	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
Oct-04-2006	NA	.	.	560	0.5	0.5
Oct-11-2006	NA	.	.	550	0.7	0.4
Oct-18-2006	NA	.	.	522	0.6	0.5
Oct-25-2006	NA	.	.	643	0.7	0.6
Nov-01-2006	NA	.	.	723	0.4	0.8
Nov-08-2006	NA	.	.	741	0.5	0.8
Nov-15-2006	NA	.	.	764	0.5	0.7
Nov-21-2006	NA	.	.	824	0.5	0.9
Nov-29-2006	NA	.	.	989	0.4	1.1
Dec-06-2006	NA	.	.	1,250	<0.4	1.5
Dec-13-2006	NA	.	.	1,290	0.7	1.4
Dec-20-2006	NA	.	.	1,090	0.6	1.0

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
Oct-04-2006	.	.	.	318	<0.4	0.1
Oct-11-2006	.	.	.	360	0.7	0.2
Oct-18-2006	.	.	.	300	0.7	0.1
Oct-25-2006	.	.	.	327	0.6	0.2
Nov-01-2006	.	.	.	358	<0.4	0.2
Nov-08-2006	.	.	.	338	0.6	0.1
Nov-15-2006	.	.	.	401	0.7	0.2
Nov-21-2006	.	.	.	409	0.4	0.2
Nov-29-2006	.	.	.	397	0.5	0.2
Dec-06-2006	.	.	.	352	0.6	0.2
Dec-13-2006	.	.	.	715	0.7	0.3
Dec-20-2006	.	.	.	750	0.8	0.3

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
Oct-05-2006	229	18.6	7.4	707	<0.4	0.3
Oct-12-2006	230	18.0	7.6	743	<0.4	0.4
Oct-19-2006	267	15.7	7.7	775	0.5	0.4
Oct-26-2006	248	13.8	7.9	913	0.4	0.4
Nov-02-2006	322	15.1	7.8	820	<0.4	0.4
Nov-09-2006	223	14.9	7.8	1,130	<0.4	0.6
Nov-16-2006	244	14.1	7.5	1,220	<0.4	0.6
Nov-21-2006	252	14.7	7.8	1,210	0.4	0.6
Nov-30-2006	284	8.6	7.6	1,150	<0.4	0.5
Dec-07-2006	178	8.1	7.8	1,650	<0.4	0.8
Dec-14-2006	153	12.3	7.8	1,780	<0.4	0.7
Dec-21-2006	201	6.6	7.9	1,470	<0.4	0.8
Dec-28-2006	227	6.2	7.8	1,450	<0.4	0.9

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
Oct-10-2006	.	.	.	NA	2.5	0.7
Oct-17-2006	.	.	.	NA	1.8	0.7
Oct-24-2006	.	.	.	NA	2.6	0.9
Oct-31-2006	.	.	.	NA	2.8	0.8
Nov-08-2006	.	.	.	NA	<0.4	0.2
Nov-14-2006	.	.	.	NA	ND	0.3
Nov-28-2006	.	.	.	NA	2.4	1.0
Dec-05-2006	.	.	.	NA	3.2	1.3
Dec-12-2006	.	.	.	NA	<0.4	0.2
Dec-19-2006	.	.	.	NA	2.1	1.2

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
Oct-05-2006	1,080	18.1	7.5	591	0.6	0.3
Oct-12-2006	1440	17.1	7.6	404	0.6	0.2
Oct-19-2006	1,620	15.3	7.7	456	1.2	0.3
Oct-26-2006	1,660	14.1	7.7	414	0.8	0.3
Nov-02-2006	1,380	15.2	7.7	696	1.4	0.4
Nov-09-2006	1,050	15.5	7.8	955	1.7	0.6
Nov-16-2006	1,060	14.3	7.7	993	2.1	0.6
Nov-21-2006	1,040	14.8	7.8	1,080	1.8	0.7
Nov-30-2006	959	8.9	7.8	1,080	1.2	0.6
Dec-07-2006	798	9.2	7.8	1,300	1.6	0.8
Dec-14-2006	802	12.5	7.8	1,260	2.1	0.8
Dec-21-2006	873	7.3	7.9	1,120	1.4	0.7
Dec-28-2006	897	7.3	8.0	1,180	0.8	0.8

Table 20. Summary of fathead minnow (*Pimephales promelas*) larvae survival in 7-day tests using water samples collected from January 2006 to December 2006. 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	%	%	%	%	%	%
Jan-2006	100	95	95	100	73	100
Feb-2006	98	95	98	100	100	100
Mar-2006	93	95	98	90	98	95
Apr-2006	90	95	98	100	95	100
May-2006	95	100	98	100	88	100
Jun-2006	93	100	98	98	98	100
Jul-2006	83	98	100	100	95	95
Aug-2006	98	98	95	98	98	90
Sep-2006	98	95	98	98	100	98
Oct-2006	95	85	85	90	98	100
Nov-2007	95	98	85	100	100	98
Dec-2007	98	100	85*	93	98	98

Table 21. Summary of fathead minnow (*Pimephales promelas*) larvae growth in 7-day tests using water samples collected from January 2006 to December 2006. 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
Jan-2006	0.47	0.43	0.46	0.43	0.35	0.36
Feb-2006	0.39	0.39	0.42	0.42	0.31	0.28
Mar-2006	0.49	0.45	0.45	0.45	0.46	0.40
Apr-2006	0.31	0.38	0.36	0.36	0.29	0.28
May-2006	0.38	0.43	0.39	0.58	0.34	0.33
Jun-2006	0.45*	0.41*	0.46*	0.49	0.54	0.41
Jul-2006	0.34	0.36	0.38	0.56	0.36	0.35
Aug-2006	0.36	0.33	0.38	0.37	0.39	0.33
Sep-2006	0.31	0.39	0.41	0.35	0.33	0.34
Oct-2006	0.39	0.36	0.36	0.35	0.40	0.40
Nov-2007	0.30	0.28*	0.30	0.33	0.33	0.32
Dec-2007	0.35	0.40	0.41	0.45	0.32	0.31

Table 22. Summary of *Daphnia magna* survival in 7-day tests using water samples collected from January 2006 to December 2006. 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	%	%	%	%	%	%
Jan-2006	90	90	80	80	80	100
Feb-2006	100	100	100	100	100	50†
Mar-2006	100	90	80	80	80	100
Apr-2006	80	90	100	90	100	100
May-2006	100	90	100	100	100	100
Jun-2006	90	90	100	90	90	80
Jul-2006	80	100	80	90	80	100
Aug-2006	100	100	90	100	100	100
Sep-2006	100	80	100	100	100	90
Oct-2006	70	80	100	80	90	80
Nov-2007	90	100	100	90	90	100
Dec-2007	90	70	100	90	100	90

Table 23. Summary of *Daphnia magna* reproduction in 7-day tests using water samples collected from January 2006 to December 2006. 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
Jan-2006	32.2	29.6	33.1	24.7	25.3	26.6
Feb-2006	30.7	34.8	34.9	30.8	32.0	13.2
Mar-2006	39.0	33.0	28.2	28.8	31.5	33.9
Apr-2006	43.6	42.7	43.5	39.9	32.7	37.4
May-2006	49.2	28.1	27.3	26.4	22.9	18.2
Jun-2006	26.2	25.9	29.9	26.7	20.9	19.1
Jul-2006	35.8	42.3	42.1	35.4	32.7	29.3
Aug-2006	34.7	33.3	23.9*	31.4	36.2	30.8
Sep-2006	25.9	20.1	23.8	26.9	27.6	23.6
Oct-2006	25.9	27.4	30.1	26.3	26.9	19.6
Nov-2007	36.6	49.6	47.0	47.9	38.3	46.2
Dec-2007	28.4	22.5	29.6	31.5	27.8	22.3

Table 24. Summary of *Selenastrum capricornutum* growth in 4-day tests using water samples collected from January 2006 to December 2006. 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
Jan-2006	8.9*	27.5	29.5	24.3	22.5	25.5
Feb-2006	8.3*	12.6	5.9*	1.7*	12.8	23.8
Mar-2006	17.4	24.2	25.0	24.0	15.4	23.9
Apr-2006	9.9	21.5	18.8	18.6	12.7	19.7
May-2006	20.6	11.5*	15.9	13.6	15.4	16.4
Jun-2006	12.0	9.7	10.0	10.2	11.3	16.0
Jul-2006	19.0	14.4	22.5	17.9	9.5	14.0
Aug-2006	16.4	17.8	17.3	21.4	16.8	13.5
Sep-2006	4.1*	20.7	21.7	22.6	17.7	12.9
Oct-2006	21.4	27.8	30.4	23.4	12.5	20.3
Nov-2007	17.6	26.2	23.3	24.7	17.7	17.5
Dec-2007	13.4	13.9	12.8	5.4*	7.5	17.2

Table 25. Summary of selenium concentrations in grab water samples collected at study stations for use in laboratory toxicity tests, October 2006 to December 2006.

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
Oct-23-2006	76	0.4	5.9	0.4	<0.4
Oct-25-2006	68	<0.4	4.4	0.5	0.5
Oct-27-2006	69	<0.4	5.9	0.5	<0.4
Nov-13-2006	69	<0.4	7.9	0.5	<0.4
Nov-15-2006	66	0.7	8.1	<0.4	0.6
Nov-17-2006	65	0.5	6.3	0.4	0.6
Dec-04-2006	63	<0.4	6.8	<0.4	0.4
Dec-06-2006	58	<0.4	8.0	<0.4	<0.4
Dec-08-2006	58	<0.4	9.8	<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, October 2006 to December 2006.

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
Oct-23-2006	45	43	53	66	9
Oct-25-2006	89	43	52	142	20
Oct-27-2006	70	48	67	117	17
Nov-13-2006	41	39	29	87	10
Nov-15-2006	17	30	44	95	23
Nov-17-2006	31	38	52	111	20
Dec-04-2006	9	21	16	35	10
Dec-06-2006	13	14	18	32	5
Dec-08-2006	18	16	19	36	10

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.
❖	Based on definitive bioassay, NOEC is 50 percent
D	Sample was dechlorinated