GRASSLAND BYPASS PROJECT

MONTHLY DATA REPORT

September 2007

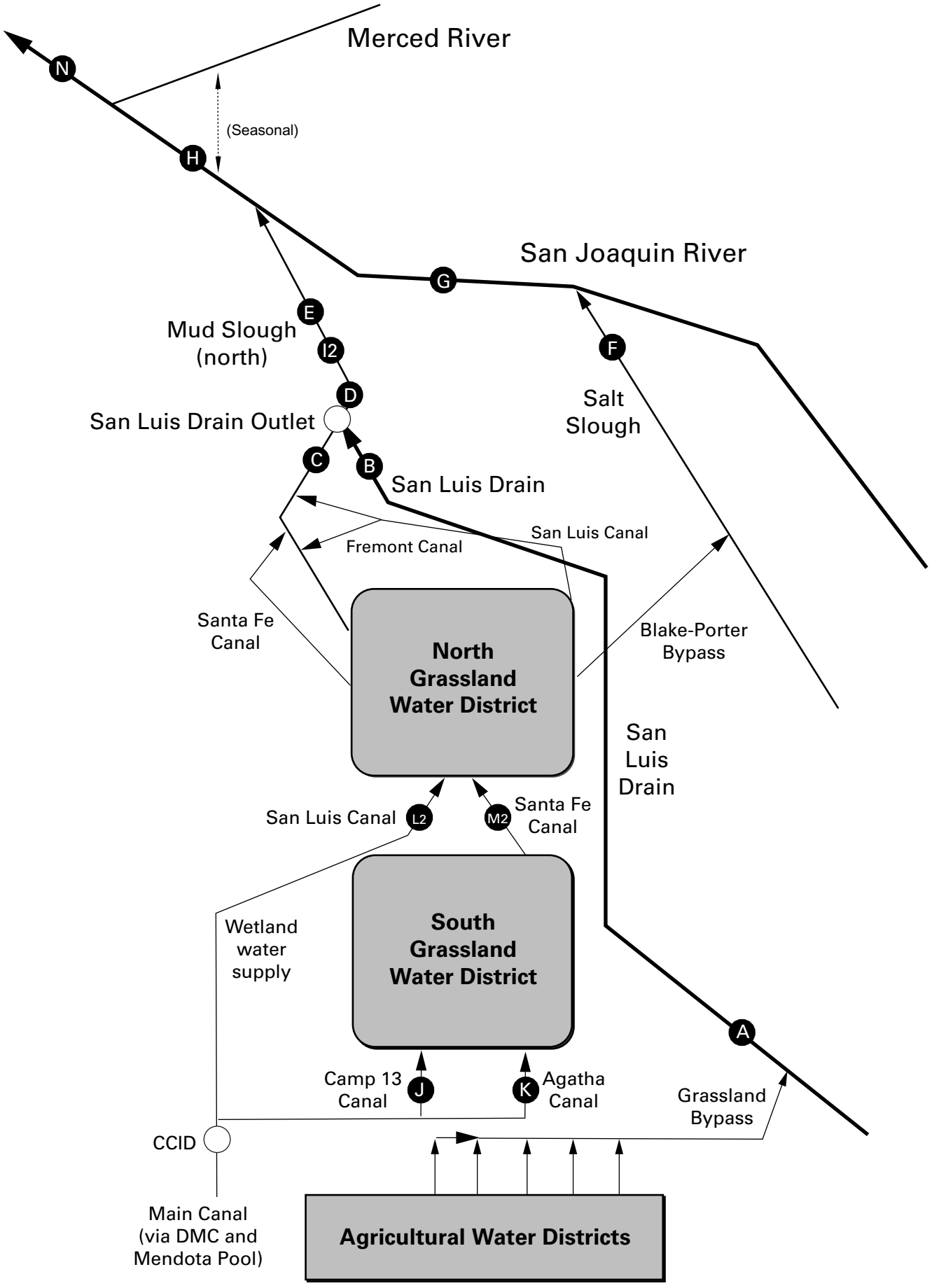
January 8, 2008

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), September 2007.

See Table 27 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow	Specific Conductance
DATA SOURCE	SLDMWA	SLDMWA
UNITS	cfs	µS/cm
Sep-01-2007	12	3,930
Sep-02-2007	13	3,800
Sep-03-2007	10	3,770
Sep-04-2007	10	4,110
Sep-05-2007	12	4,330
Sep-06-2007	13	3,740
Sep-07-2007	11	4,080
Sep-08-2007	10	4,250
Sep-09-2007	10	4,250
Sep-10-2007	10	4,270
Sep-11-2007	10	4,320
Sep-12-2007	9	4,350
Sep-13-2007	10	4,430
Sep-14-2007	11	4,010
Sep-15-2007	12	3,950
Sep-16-2007	12	4,610
Sep-17-2007	15	5,100
Sep-18-2007	14	5,290
Sep-19-2007	13	4,750
Sep-20-2007	11	4,250
Sep-21-2007	10	4,310
Sep-22-2007	11	4,250
Sep-23-2007	9	3,980
Sep-24-2007	7	4,740
Sep-25-2007	7	5,020
Sep-26-2007	7	5,140
Sep-27-2007	7	5,240
Sep-28-2007	7	5,200
Sep-29-2007	6	5,240
Sep-30-2007	6	5,310
.	.	.
Mean	10.2	4,470

Table 2a. Continuous water monitoring at Stations B and B2 (San Luis Drain Terminus), September 2007.

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
Sep-01-2007	12	28.7	P	4,260	25.6	1.6
Sep-02-2007	12	27.8	P	4,090	21.7	1.4
Sep-03-2007	13	27.3	P	4,620	25.3	1.7
Sep-04-2007	11	26.7	P	4,580	26.5	1.6
Sep-05-2007	10	25.4	P	4,430	24.1	1.3
Sep-06-2007	12	24.4	P	4,290	21.6	1.4
Sep-07-2007	13	24.6	P	4,550	22.6	1.6
Sep-08-2007	14	24.7	P	4,390	20.6	1.5
Sep-09-2007	12	25.2	P	4,150	20.6	1.4
Sep-10-2007	12	25.2	P	4,060	19.8	1.3
Sep-11-2007	13	25.6	P	3,840	17.3	1.2
Sep-12-2007	14	25.3	P	3,830	16.8	1.2
Sep-13-2007	13	24.4	P	4,120	18.0	1.3
Sep-14-2007	13	23.9	P	3,880	16.8	1.2
Sep-15-2007	14	23.7	P	3,600	13.9	1.0
Sep-16-2007	14	23.6	P	3,770	14.5	1.1
Sep-17-2007	14	23.2	P	3,820	14.2	1.1
Sep-18-2007	17	23.3	P	3,800	14.0	1.3
Sep-19-2007	17	21.0	P	3,910	15.2	1.4
Sep-20-2007	17	19.1	P	3,890	14.8	1.4
Sep-21-2007	16	19.1	P	NA	14.4	1.2
Sep-22-2007	16	19.3	P	3,670	16.8	1.4
Sep-23-2007	16	19.7	P	3,940	43.4	3.8
Sep-24-2007	14	19.9	P	4,300	43.9	3.4
Sep-25-2007	13	20.3	P	4,600	53.4	3.7
Sep-26-2007	12	21.0	P	4,480	50.6	3.3
Sep-27-2007	12	21.3	P	4,060	42.4	2.7
Sep-28-2007	11	21.3	P	3,750	25.2	1.5
Sep-29-2007	11	20.0	P	3,560	18.6	1.1
Sep-30-2007	13	19.5	P	3,540	21.0	1.5
.	.	.	.	.	.	.
Mean	13	23.1	P	4,060	23.8	1.7
Total Acre-feet	790					
Total (lbs)						51

Load Limitation for September 2007 (lbs)	223

Se concentrations for Sep 21-30, 2007 were used from Summers Engeneering, Inc.

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

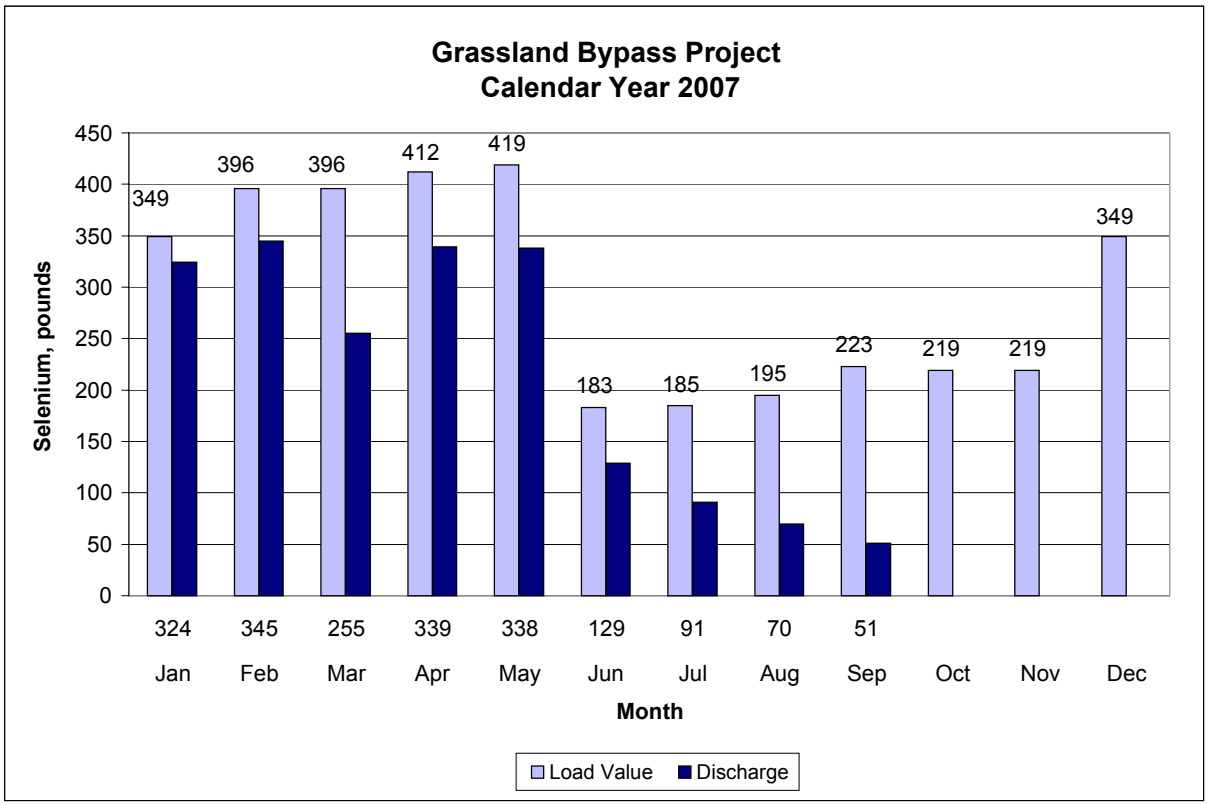


Table 3. Continuous water monitoring at Station D (Mud Slough North downstream of drainage discharges), September 2007.

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
Sep-01-2007	14	27.9	4,520
Sep-02-2007	14	27.0	4,310
Sep-03-2007	18	26.6	3,690
Sep-04-2007	32	25.2	2,110
Sep-05-2007	25	23.5	2,120
Sep-06-2007	33	23.5	1,860
Sep-07-2007	39	23.6	1,770
Sep-08-2007	29	23.8	2,150
Sep-09-2007	19	24.2	2,540
Sep-10-2007	19	24.4	2,540
Sep-11-2007	22	24.5	2,290
Sep-12-2007	27	24.1	1,960
Sep-13-2007	29	22.9	1,820
Sep-14-2007	26	22.7	2,030
Sep-15-2007	28	22.9	1,920
Sep-16-2007	27	22.5	1,940
Sep-17-2007	26	22.4	2,070
Sep-18-2007	28	22.2	2,290
Sep-19-2007	36	19.4	1,830
Sep-20-2007	24	18.4	2,330
Sep-21-2007	20	18.9	2,810
Sep-22-2007	31	18.7	2,480
Sep-23-2007	39	19.4	2,130
Sep-24-2007	45	19.9	1,950
Sep-25-2007	48	20.6	1,830
Sep-26-2007	56	21.4	1,720
Sep-27-2007	65	21.7	1,530
Sep-28-2007	64	20.8	1,430
Sep-29-2007	71	18.7	1,280
Sep-30-2007	84	18.5	1,210
.	.	.	.
Mean	35	22.3	2,220

Table 4. Continuous water monitoring at Station F (Salt Slough at Highway 165), September 2007.

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
Sep-01-2007	45	27.7	1,570
Sep-02-2007	59	26.3	1,440
Sep-03-2007	68	26.2	1,300
Sep-04-2007	55	25.3	1,300
Sep-05-2007	55	23.4	1,330
Sep-06-2007	49	23.9	1,370
Sep-07-2007	45	23.5	1,490
Sep-08-2007	42	23.7	1,560
Sep-09-2007	51	24.1	1,530
Sep-10-2007	52	24.3	1,430
Sep-11-2007	41	24.7	1,520
Sep-12-2007	42	23.9	1,680
Sep-13-2007	39	22.5	1,690
Sep-14-2007	42	22.5	1,750
Sep-15-2007	46	22.7	1,740
Sep-16-2007	70	22.1	1,510
Sep-17-2007	84	21.8	1,300
Sep-18-2007	83	21.8	1,200
Sep-19-2007	71	18.3	1,250
Sep-20-2007	75	17.5	1,330
Sep-21-2007	76	18.6	1,300
Sep-22-2007	76	18.6	1,370
Sep-23-2007	90	18.9	1,370
Sep-24-2007	101	19.8	1,300
Sep-25-2007	92	20.6	1,330
Sep-26-2007	90	21.3	1,320
Sep-27-2007	99	21.7	1,280
Sep-28-2007	81	20.1	1,380
Sep-29-2007	92	18.2	1,450
Sep-30-2007	102	18.2	1,490
.	.	.	.
Mean	67	22.1	1,430

Table 5. Continuous water monitoring at Station N (San Joaquin River at Crow's Landing), September 2007.

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
Sep-01-2007	251	27.0	1,270	0.9
Sep-02-2007	266	25.8	1,230	0.9
Sep-03-2007	271	25.7	1,190	1.7
Sep-04-2007	288	25.0	1,140	1.1
Sep-05-2007	356	23.6	1,150	1.2
Sep-06-2007	340	23.5	929	0.8
Sep-07-2007	295	23.8	1,060	1.0
Sep-08-2007	278	23.6	1,050	1.0
Sep-09-2007	275	24.0	1,100	1.0
Sep-10-2007	278	24.0	1,060	1.0
Sep-11-2007	274	24.0	1,130	0.9
Sep-12-2007	267	23.7	1,150	0.9
Sep-13-2007	269	22.7	1,130	1.0
Sep-14-2007	233	22.3	1,230	1.0
Sep-15-2007	229	22.3	1,230	1.0
Sep-16-2007	253	21.8	1,240	1.0
Sep-17-2007	266	21.8	1,290	1.0
Sep-18-2007	269	22.1	1,230	1.0
Sep-19-2007	275	21.1	1,160	1.0
Sep-20-2007	305	19.3	1,080	1.0
Sep-21-2007	270	19.7	1,120	1.0
Sep-22-2007	276	19.3	1,160	0.9
Sep-23-2007	296	20.0	1,180	0.8
Sep-24-2007	298	20.3	1,120	0.9
Sep-25-2007	295	20.7	1,060	1.1
Sep-26-2007	281	21.2	1,120	1.6
Sep-27-2007	285	21.6	1,160	1.9
Sep-28-2007	295	21.1	1,130	1.9
Sep-29-2007	280	19.6	1,180	1.6
Sep-30-2007	339	18.5	1,120	1.2
.	.	.	.	.
Mean	280	22.3	1,150	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	.	.	.
Jul-03-2007	26	.	.	3,770	45	.	.	.
Jul-11-2007	21	.	.	3,810	19	.	.	.
Jul-18-2007	27	.	.	3,150	14	.	.	.
Jul-25-2007	*	.	.	3,720	11	.	.	.
Aug-01-2007	21	.	.	3,680	34	.	.	.
Aug-08-2007	15	.	.	4,030	9	.	.	.
Aug-15-2007	20	.	.	3,740	11	.	.	.
Aug-22-2007	13	.	.	4,730	18	.	.	.
Aug-29-2007	12	.	.	4,290	10	.	.	.
Sep-05-2007	12	.	.	4,280	13	.	.	.
Sep-12-2007	9	.	.	4,210	NA	.	.	.
Sep-19-2007	13	.	.	4,390	17	.	.	.
Sep-26-2007	7	.	.	4,940	NA	.	.	.

* Submerged Weir Conditions from SLD shutoff study.

The discharge from San Luis Drain was reduced to as close to 0 cfs as possible for the period of July 23 through July 27 to attempt to monitor the impact of San Luis Drain Discharge on the San Joaquin River System. During this period, discharge into the San Luis Drain was stored between the checks within the drain and the water surface was allowed to rise. This resulted in a submerged weir at Site A, and flow data for this period is unavailable. This study was performed by the Dissolved Oxygen Upstream Study Program.

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
Jul-02-2007	22	.	.	3,890	.	30.2	.	6.3
Jul-09-2007	22	.	.	3,900	.	31.2	.	6.4
Jul-17-2007	27	.	.	3,340	.	22.7	.	5.3
Jul-24-2007	*	.	.	3,550	.	24.6	.	6.2
Jul-31-2007	16	.	.	3,940	.	28.8	.	5.9
Aug-07-2007	15	.	.	3,800	.	26.0	.	5.5
Aug-14-2007	18	.	.	4,040	.	28.2	.	6.7
Aug-21-2007	13	.	.	3,710	.	26.4	.	5.5
Aug-28-2007	10	.	.	4,350	.	28.4	.	7.3
Sep-04-2007	10	.	.	4,120	.	23.6	.	P
Sep-11-2007	10	.	.	4,040	.	19.8	.	P
Sep-18-2007	14	.	.	4,540	.	38.7	.	P
Sep-25-2007	7	.	.	4,370	.	38.9	.	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
Jul-05-2007	27	28.0	9.1	4,100	31	31.4	6.3
Jul-12-2007	22	24.1	9.0	3,370	35	24.6	5.3
Jul-19-2007	25	24.6	8.1	3,210	36	22.3	5.2
Jul-26-2007	2	25.7	8.4	3,180	22	19.4	5.7
Aug-02-2007	17	26.6	7.7	3,770	14	26.1	5.9
Aug-09-2007	15	24.2	8.2	3,470	27	21.9	5.1
Aug-16-2007	20	25.6	8.9	4,190	19	29.4	7.0
Aug-23-2007	12	27.0	8.4	3,820	18	21.5	6.6
Aug-30-2007	11	27.5	7.8	3,760	15	24.8	5.8
Sep-06-2007	12	23.5	7.7	4,440	30	20.9	P
Sep-13-2007	13	22.1	7.6	4,040	22	18.3	P
Sep-20-2007	17	17.5	7.7	4,040	29	14.3	P
Sep-27-2007	12	21.2	8.4	4,120	59	34.2	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
Jul-05-2007	-5	26.7	7.4	3,440	.	<0.4	2.7
Jul-12-2007	6	25.1	8.2	1,350	.	0.8	1.2
Jul-19-2007	26	24.3	8.6	1,110	.	1.0	1.1
Jul-26-2007	16	26.2	8.4	1,490	.	0.9	1.6
Aug-02-2007	4	24.8	7.9	1,210	.	1.3	1.3
Aug-09-2007	1	25.5	8.3	1,110	.	0.9	1.5
Aug-16-2007	0	24.7	7.2	2,260	.	0.7	2.1
Aug-23-2007	1	27.2	8.5	1,350	.	0.8	1.0
Aug-30-2007	5	25.9	8.8	1,210	.	0.9	0.9
Sep-06-2007	21	21.4	8.3	799	.	0.6	P
Sep-13-2007	16	20.7	8.1	714	.	0.4	P
Sep-20-2007	7	16.1	8.4	844	.	NA	P
Sep-27-2007	53	20.3	7.7	939	.	0.5	P

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

PRELIMINARY RESULTS

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
Jul-05-2007	22	28.1	8.6	3,550	24.1	5.5
Jul-12-2007	28	24.1	8.5	2,750	16.0	3.8
Jul-19-2007	51	23.9	8.4	2,330	11.8	3.4
Jul-26-2007	18	23.6	8.2	2,270	2.4	2.2
Aug-02-2007	21	25.4	7.8	2,720	14.2	4.0
Aug-09-2007	16	24.3	8.2	3,590	17.7	5.2
Aug-16-2007	20	25.1	8.7	3,850	24.0	6.5
Aug-23-2007	13	26.0	8.1	2,780	12.1	4.0
Aug-30-2007	16	26.6	8.2	2,900	17.7	4.3
Sep-06-2007	33	21.6	8.2	1,900	6.5	P
Sep-13-2007	29	21.2	8.2	1,810	5.3	P
Sep-20-2007	24	16.7	8.4	2,240	6.5	P
Sep-27-2007	65	20.2	6.4	1,540	8.4	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
Jul-03-2007	.	8.9	4,440	31	29.6	8.0
Jul-10-2007	.	8.3	2,650	44	13.5	4.4
Jul-17-2007	.	8.8	2,140	46	10.0	3.5
Jul-24-2007	.	8.5	1,660	73	2.6	1.9
Aug-03-2007	.	8.1	3,120	30	16.3	5.0
Aug-07-2007	.	8.2	4,040	13	20.9	6.8
Aug-14-2007	.	8.7	4,100	26	23.7	7.5
Aug-22-2007	.	8.6	2,600	30	11.6	3.9
Aug-28-2007	.	8.6	2,270	35	9.1	3.1
Sep-06-2007	.	8.4	1,930	57	6.3	2.6
Sep-11-2007	.	8.7	2,370	31	8.3	3.5
Sep-18-2007	.	8.6	2,090	45	4.9	3.4
Sep-26-2007	.	7.9	1,810	33	9.8	2.2

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
Jul-05-2007	151	28.4	7.3	956	0.6	0.3
Jul-12-2007	157	22.7	7.8	673	0.6	0.4
Jul-19-2007	120	22.6	7.5	1,170	0.5	0.5
Jul-26-2007	111	23.8	7.8	1,150	0.6	0.5
Aug-02-2007	70	24.8	7.7	1,220	0.6	0.5
Aug-09-2007	123	21.8	7.9	914	0.6	0.3
Aug-16-2007	98	24.8	7.2	898	0.4	0.4
Aug-23-2007	78	24.7	7.4	1,170	0.5	0.4
Aug-30-2007	49	25.9	7.9	1,270	<0.4	0.5
Sep-06-2007	49	20.7	8.0	1,360	0.5	P
Sep-13-2007	39	19.4	8.0	1,620	<0.4	P
Sep-20-2007	75	14.9	7.9	1,320	0.5	P
Sep-27-2007	99	19.9	7.6	1,250	0.5	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
Jul-03-2007	15	.	.	474	1.0	0.3
Jul-11-2007	15	.	.	523	0.9	0.4
Jul-18-2007	15	.	.	501	0.8	0.4
Jul-25-2007	15	.	.	402	0.5	0.2
Aug-01-2007	NA	.	.	408	0.8	0.2
Aug-08-2007	15	.	.	482	0.9	0.3
Aug-15-2007	45	.	.	537	0.7	0.3
Aug-22-2007	45	.	.	560	0.7	0.2
Aug-29-2007	45	.	.	566	0.8	0.3
Sep-05-2007	70	.	.	754	0.9	P
Sep-12-2007	80	.	.	704	0.5	P
Sep-19-2007	140	.	.	715	0.6	P
Sep-26-2007	150	.	.	531	0.8	P

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
Jul-03-2007	20	.	.	453	1.3	0.3
Jul-11-2007	20	.	.	473	0.8	0.2
Jul-18-2007	10	.	.	355	0.8	0.2
Jul-25-2007	10	.	.	529	0.8	0.3
Aug-01-2007	NA	.	.	433	1.3	0.2
Aug-08-2007	10	.	.	502	0.8	0.2
Aug-15-2007	10	.	.	539	0.7	0.2
Aug-22-2007	20	.	.	586	0.8	0.2
Aug-29-2007	30	.	.	546	0.9	0.3
Sep-05-2007	60	.	.	711	1.1	P
Sep-12-2007	100	.	.	661	0.5	P
Sep-19-2007	125	.	.	625	0.7	P
Sep-26-2007	155	.	.	546	0.7	P

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
Jul-03-2007	NA	.	.	1,020	1.3	1.4
Jul-11-2007	NA	.	.	958	1.2	1.2
Jul-18-2007	NA	.	.	941	1.1	1.2
Jul-25-2007	NA	.	.	725	0.8	0.6
Aug-01-2007	NA	.	.	1,010	1.6	1.1
Aug-08-2007	NA	.	.	1,000	1.1	1.0
Aug-15-2007	NA	.	.	1,190	1.2	1.2
Aug-22-2007	NA	.	.	660	0.9	0.3
Aug-29-2007	NA	.	.	984	1.4	0.7
Sep-05-2007	50	.	.	895	1.1	P
Sep-12-2007	105	.	.	815	0.6	P
Sep-19-2007	160	.	.	768	0.8	P
Sep-26-2007	140	.	.	667	0.7	P

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
Jul-03-2007	38	.	.	1,000	1.3	1.5
Jul-11-2007	45	.	.	799	1.0	1.0
Jul-18-2007	48	.	.	952	1.0	1.3
Jul-25-2007	43	.	.	954	1.1	1.6
Aug-01-2007	NA	.	.	857	1.4	1.0
Aug-08-2007	55	.	.	965	1.3	1.1
Aug-15-2007	55	.	.	832	0.8	0.9
Aug-22-2007	73	.	.	725	1.0	0.5
Aug-29-2007	65	.	.	679	0.8	0.3
Sep-05-2007	NA	.	.	811	1.1	P
Sep-12-2007	NA	.	.	877	0.6	P
Sep-19-2007	NA	.	.	919	0.7	P
Sep-26-2007	NA	.	.	838	0.7	P

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
Jul-03-2007	.	.	.	480	1.1	0.3
Jul-11-2007	.	.	.	395	0.8	0.2
Jul-18-2007	.	.	.	655	1.0	0.4
Jul-25-2007	.	.	.	442	0.7	0.2
Aug-01-2007	.	.	.	517	0.9	0.2
Aug-08-2007	.	.	.	483	0.9	0.2
Aug-15-2007	.	.	.	517	0.8	0.3
Aug-22-2007	.	.	.	569	0.7	0.2
Aug-29-2007	.	.	.	603	0.9	0.2
Sep-05-2007	.	.	.	682	0.9	P
Sep-12-2007	.	.	.	659	0.4	P
Sep-19-2007	.	.	.	681	0.9	P
Sep-26-2007	.	.	.	562	0.6	P

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
Jul-05-2007	168	27.2	8.2	1,060	0.6	0.4
Jul-12-2007	167	24.0	7.8	1,060	0.6	0.4
Jul-19-2007	139	23.1	7.4	1,220	0.5	0.4
Jul-26-2007	132	25.9	7.9	1,200	0.6	0.5
Aug-02-2007	110	24.9	8.2	1,010	0.5	0.4
Aug-09-2007	154	24.3	7.6	746	0.6	0.3
Aug-16-2007	117	23.4	8.3	1,190	<0.4	0.5
Aug-23-2007	103	26.7	7.4	1,320	0.5	0.5
Aug-30-2007	86	27.3	7.0	1,290	<0.4	0.4
Sep-06-2007	66	21.8	6.8	1,430	0.4	P
Sep-13-2007	52	21.7	7.8	2,180	0.4	P
Sep-20-2007	79	16.1	9.7	1,460	<0.4	P
Sep-27-2007	111	20.4	8.2	1,190	<0.4	P

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
Jul-10-2007	.	.	.	NA	3.0	1.1
Jul-17-2007	.	.	.	NA	4.1	1.3
Aug-07-2007	.	.	.	NA	2.3	1.2
Aug-14-2007	.	.	.	NA	2.8	1.4
Aug-21-2007	.	.	.	NA	2.6	1.3
Aug-28-2007	.	.	.	NA	1.6	1.1
Sep-18-2007	.	.	.	NA	1.3	1.1
Sep-26-2007	.	.	.	NA	3.6	1.3

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
Jul-05-2007	445	26.1	8.4	1,370	1.9	0.8
Jul-12-2007	474	23.9	8.1	1,090	1.6	0.6
Jul-19-2007	499	23.6	8.1	1,110	1.7	0.8
Jul-26-2007	432	25.3	8.3	1,090	0.6	0.5
Aug-02-2007	387	25.0	8.0	1,230	1.9	0.8
Aug-09-2007	438	24.4	7.8	1,060	1.6	0.7
Aug-16-2007	352	22.7	8.1	1,220	1.4	0.8
Aug-23-2007	428	26.4	7.6	1,040	1.1	0.5
Aug-30-2007	383	26.5	7.6	1,030	0.8	0.5
Sep-06-2007	340	22.0	7.6	935	0.6	P
Sep-13-2007	269	21.5	7.8	1,130	0.7	P
Sep-20-2007	305	18.2	7.9	1,070	0.9	P
Sep-27-2007	285	20.6	7.7	1,180	1.9	P

Table 20. Summary of fathead minnow (*Pimephales promelas*) larvae survival in 7-day tests using water samples collected from October 2006 to September 2007. 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	%	%	%	%	%	%
Oct-2006	95	85	85	90	98	100
Nov-2007	95	98	85	100	100	98
Dec-2007	98	100	85*	93	98	98
Jan-2007	100	100	90	93	98	100
Feb-2007	98	90	95	88	98	100
Mar-2007	98	80*	95	93	98	98
Apr-2007	100	98	100	95	95	100
May-2007	95	95	98	95	100	95
Jun-2007	98	93	90	90	93	90
Jul-2007	100	98	98	100	100	100
Aug-2007	93	100	100	95	93	100
Sep-2007	93	90	88	93	93	100

Table 21. Summary of fathead minnow (*Pimephales promelas*) larvae growth in 7-day tests using water samples collected from October 2006 to September 2007. 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
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
Jan-2007	0.30	0.35	0.37	0.34	0.31	0.31
Feb-2007	0.45	0.41	0.43	0.33	0.37	0.38
Mar-2007	0.36	0.26*	0.36	0.33	0.32	0.31
Apr-2007	0.38	0.33	0.31	0.32	0.34	0.33
May-2007	0.41	0.43	0.40	0.36	0.45	0.41
Jun-2007	0.36	0.33	0.33	0.31	0.31	0.33
Jul-2007	0.36	0.32	0.26*	0.36	0.36	0.33
Aug-2007	0.30	0.29	0.32	0.33	0.27	0.26
Sep-2007	0.26	0.24	0.25	0.26	0.27	0.25

Table 22. Summary of *Daphnia magna* survival in 7-day tests using water samples collected from October 2006 to September 2007. 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	%	%	%	%	%	%
Oct-2006	70	80	100	80	90	80
Nov-2007	90	100	100	90	90	100
Dec-2007	90	70	100	90	100	90
Jan-2007	90	90	80	90	90	80
Feb-2007	100	80	90	90	100	90
Mar-2007	100	80	90	100	80	100
Apr-2007	100	90	90	100	90	100
May-2007	90	0*	90	90	100	100
Jun-2007	60*	100	80	100	100	100
Jul-2007	80	80	80	90	80	100
Aug-2007	100	70	90	90	80	100
Sep-2007	100	100	100	100	100	80

Table 23. Summary of *Daphnia magna* reproduction in 7-day tests using water samples collected from October 2006 to September 2007. 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
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
Jan-2007	20.5	27.3	23.2	26.0	28.5	21.4
Feb-2007	31.7	32.9	39.4	31.6	28.6	30.5
Mar-2007	35.2	27.1	32.9	28.2*	36.8	30.2
Apr-2007	22.7	21.1	29.0	21.2	21.1	26.2
May-2007	38.4	16.0*	33.0	33.3	36.5	30.0
Jun-2007	18.3*	34.9	34.9	32.6	28.2	27.2
Jul-2007	43.1	32.5	34.6	20.9	20.8	36.3
Aug-2007	29.8	26.3	40.7	33.9	25.9	26.3
Sep-2007	19.2*	32.0	31.0	23.8	29.3	19.6

Table 24. Summary of *Selenastrum capricornutum* growth in 4-day tests using water samples collected from October 2006 to September 2007. 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
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
Jan-2007	8.9	20.3	18.5	21.0	11.4	16.9
Feb-2007	7.9*	22.9	17.9	31.8	13.4	15.7
Mar-2007	12.0	11.0	8.8*	9.2*	12.4	14.3
Apr-2007	4.7*	19.0	8.8	5.2*	10.0	14.9
May-2007	12.2	15.8	2.8*	10.0*	14.2	14.9
Jun-2007	12.3	15.3	13.6	14.5	11.2	16.0
Jul-2007	10.4	15.4	11.2	15.5	9.4	13.4
Aug-2007	12.0	15.9	12.6	13.7	9.9	13.7
Sep-2007	11.8	8.9	11.5	13.5	9.2††††	3.8†††† ‡

Table 25. Summary of selenium concentrations in grab water samples collected at study stations for use in laboratory toxicity tests, July 2007 to September 2007.

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
Jul-16-2007	29	0.8	16	0.4	<0.4
Jul-18-2007	24	0.8	10	<0.4	<0.4
Jul-20-2007	23	0.8	12	<0.4	<0.4
Aug-13-2007	27	<0.4	21	<0.4	<0.4
Aug-15-2007	27	0.5	23	<0.4	<0.4
Aug-17-2007	24	0.6	25	<0.4	<0.4
Sep-10-2007	19	<0.4	8.7	<0.4	<0.4
Sep-12-2007	16	<0.4	5.7	<0.4	<0.4
Sep-14-2007	16	<0.4	6.4	<0.4	<0.4
Sep-17-2007	13	<0.4	4.8	<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, July 2007 to September 2007.

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
Jul-16-2007	26	114	98	205	37
Jul-18-2007	38	93	98	148	33
Jul-20-2007	40	157	88	212	30
Aug-16-2007	7	8	27	94	18
Aug-18-2007	21	5	23	76	24
Aug-20-2007	19	17	32	115	18
Sep-10-2007	40	21	29	74	7
Sep-12-2007	12	78	46	54	10
Sep-14-2007	18	39	38	55	9
Sep-17-2007	19	41	41	120	8

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