

GRASSLAND BYPASS PROJECT

MONTHLY DATA REPORT

November 2010

May 18, 2011

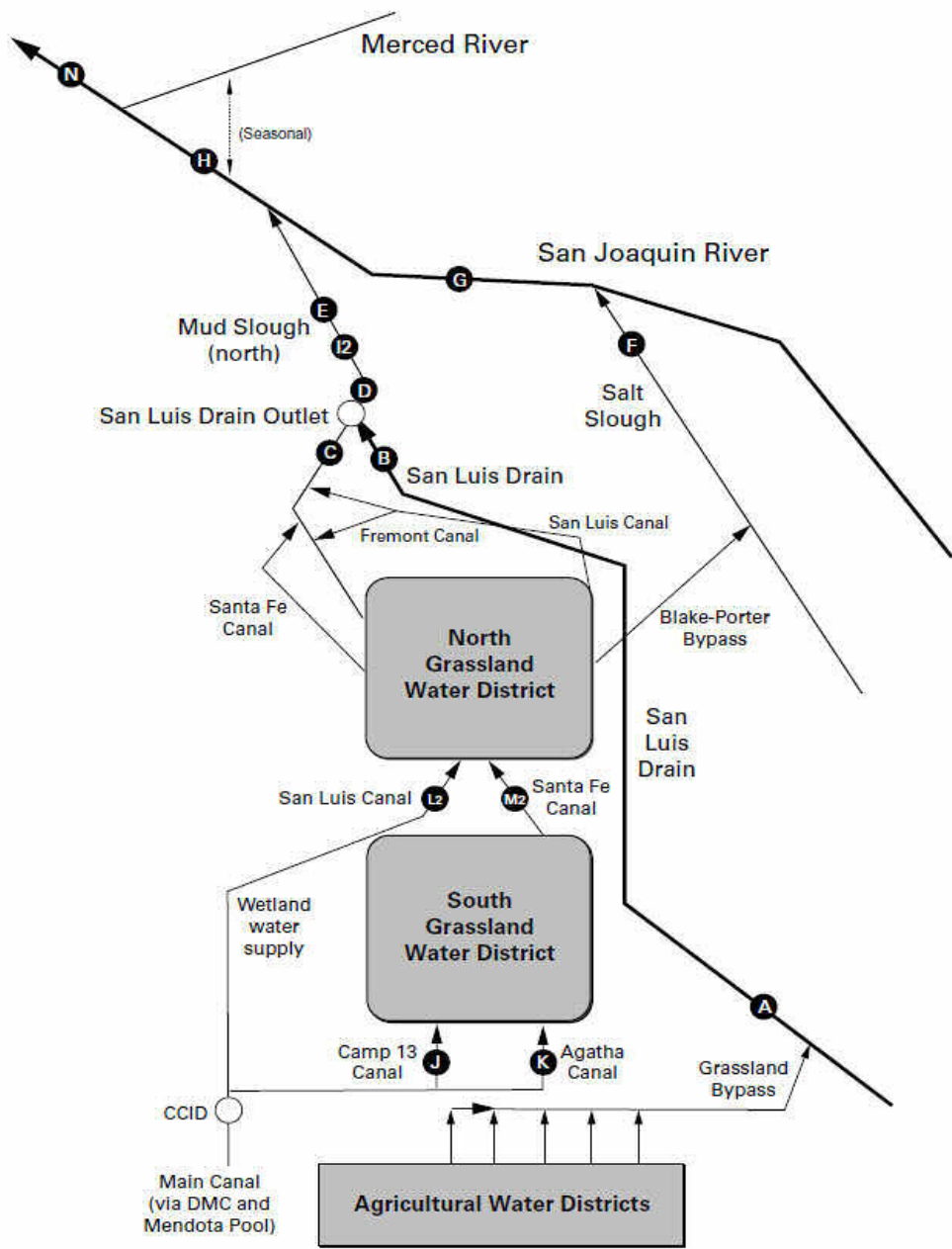
Preliminary Results

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





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

See Table 28 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow	Specific Conductance
DATA SOURCE	SLDMWA	SLDMWA
UNITS	cfs	µS/cm
Nov-01-2010	5	5,070
Nov-02-2010	5	4,890
Nov-03-2010	5	4,430
Nov-04-2010	5	4,460
Nov-05-2010	7	4,050
Nov-06-2010	6	3,870
Nov-07-2010	7	5,930
Nov-08-2010	9	5,940
Nov-09-2010	9	5,970
Nov-10-2010	8	5,950
Nov-11-2010	6	5,840
Nov-12-2010	6	5,540
Nov-13-2010	6	5,370
Nov-14-2010	9	5,360
Nov-15-2010	35	5,840
Nov-16-2010	45	5,660
Nov-17-2010	27	5,020
Nov-18-2010	25	4,900
Nov-19-2010	25	5,200
Nov-20-2010	30	4,790
Nov-21-2010	44	4,990
Nov-22-2010	35	4,980
Nov-23-2010	24	5,340
Nov-24-2010	24	5,600
Nov-25-2010	40	5,530
Nov-26-2010	40	4,420
Nov-27-2010	37	4,870
Nov-28-2010	37	4,890
Nov-29-2010	33	5,010
Nov-30-2010	21	4,410
.	.	.
Mean	20	5,140

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

See Table 28 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
Nov-01-2010	13	16.2	7.3	3,880	8.0	0.6
Nov-02-2010	13	16.4	6.6	3,650	7.6	0.5
Nov-03-2010	12	16.9	5.7	3,530	7.9	0.5
Nov-04-2010	13	17.4	4.8	3,390	6.3	0.4
Nov-05-2010	12	17.9	5.1	3,110	6.9	0.5
Nov-06-2010	13	17.9	5.6	3,250	8.3	0.6
Nov-07-2010	14	17.0	6.3	3,470	9.9	0.7
Nov-08-2010	14	15.9	6.6	3,940	9.9	0.7
Nov-09-2010	15	14.7	5.5	3,650	8.2	0.7
Nov-10-2010	15	14.9	5.3	3,440	9.3	0.8
Nov-11-2010	15	13.6	5.1	3,270	11.1	0.9
Nov-12-2010	14	13.3	4.8	3,320	11.7	0.9
Nov-13-2010	13	13.3	4.6	2,910	10.9	0.8
Nov-14-2010	14	13.3	8.0	3,670	14.0	1.0
Nov-15-2010	15	13.8	8.4	4,350	17.3	1.4
Nov-16-2010	15	14.3	8.3	4,450	21.5	1.8
Nov-17-2010	16	14.2	8.1	4,440	21.1	1.8
Nov-18-2010	14	14.0	7.3	4,220	16.1	1.2
Nov-19-2010	15	13.7	7.0	4,020	16.2	1.3
Nov-20-2010	19	13.0	7.1	3,930	16.0	1.6
Nov-21-2010	24	12.0	8.1	4,350	26.2	3.4
Nov-22-2010	32	11.8	8.1	4,310	22.6	3.9
Nov-23-2010	28	11.5	7.4	3,970	24.0	3.6
Nov-24-2010	17	9.7	7.7	4,280	22.9	2.1
Nov-25-2010	18	8.5	9.0	4,380	38.3	3.8
Nov-26-2010	28	8.4	8.4	4,630	41.2	6.3
Nov-27-2010	30	8.6	8.1	4,450	37.3	6.0
Nov-28-2010	26	8.4	8.4	4,420	30.7	4.3
Nov-29-2010	27	8.0	9.6	5,090	48.4	7.0
Nov-30-2010	24	8.0	7.9	4,580	45.6	5.9
.
Mean	18	13.2	7.0	3,950	19.2	2.2
Total Acre-feet	1,070					
Total (lbs)						65

Load Limitation for November 2010 (lbs)	260
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◆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.

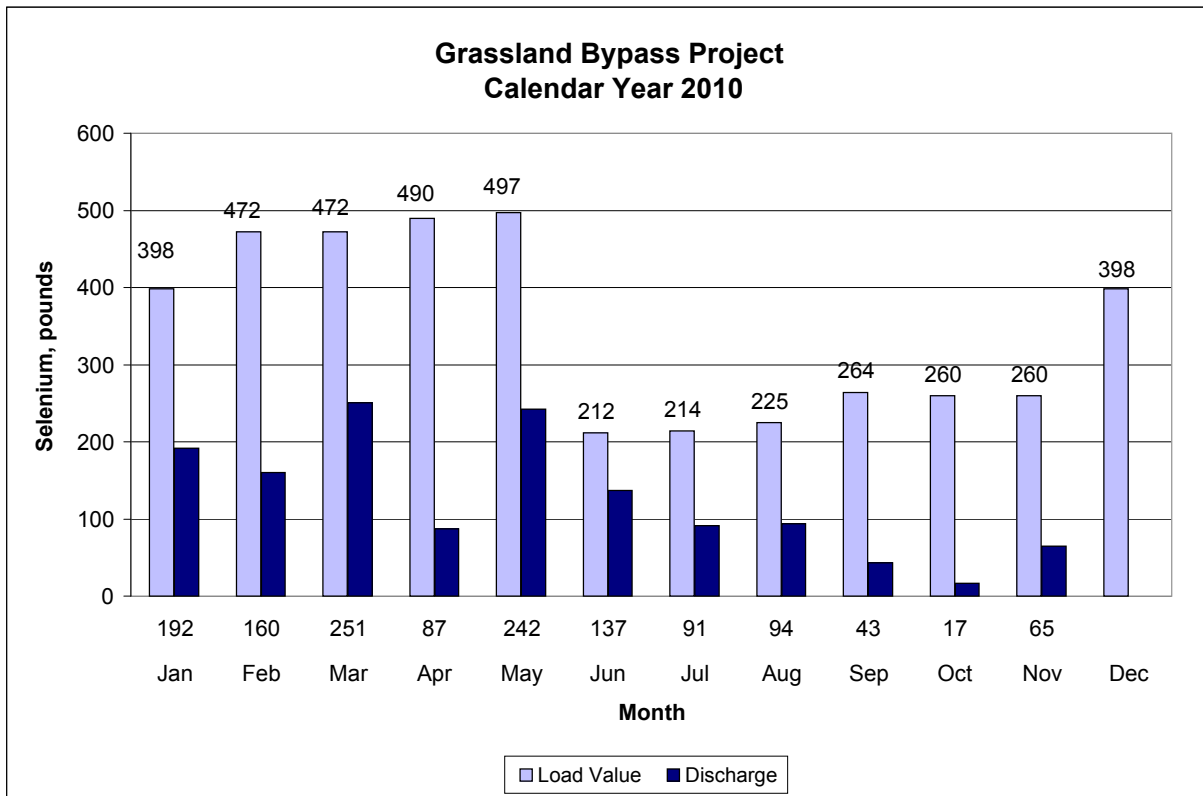


Table 3. Continuous water monitoring at Station D (Mud Slough North downstream of drainage discharges), November 2010.

See Table 28 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow	Temperature	Specific Conductance
DATA SOURCE	usgs	usgs	usgs
UNITS	cfs	°C	µS/cm
Nov-01-2010	135	16.8	1,580
Nov-02-2010	138	17.3	1,540
Nov-03-2010	137	17.7	1,530
Nov-04-2010	135	18.2	1,570
Nov-05-2010	120	18.6	1,650
Nov-06-2010	108	18.0	1,770
Nov-07-2010	111	16.7	1,820
Nov-08-2010	114	15.4	1,830
Nov-09-2010	115	14.5	1,800
Nov-10-2010	116	14.9	1,740
Nov-11-2010	110	13.6	1,730
Nov-12-2010	106	13.3	1,740
Nov-13-2010	102	13.4	1,730
Nov-14-2010	101	13.6	1,840
Nov-15-2010	101	14.3	1,990
Nov-16-2010	101	14.7	2,030
Nov-17-2010	104	14.5	2,010
Nov-18-2010	109	14.2	1,890
Nov-19-2010	110	13.6	1,900
Nov-20-2010	130	12.9	1,820
Nov-21-2010	170	12.0	1,770
Nov-22-2010	191	11.5	1,880
Nov-23-2010	201	11.4	1,690
Nov-24-2010	189	9.7	1,640
Nov-25-2010	191	8.5	1,680
Nov-26-2010	189	8.4	1,880
Nov-27-2010	167	8.7	1,970
Nov-28-2010	164	8.7	1,930
Nov-29-2010	168	8.3	2,060
Nov-30-2010	157	8.3	1,970
.	.	.	.
Mean	136	13.4	1,800

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

See Table 28 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow	Temperature	Specific Conductance
DATA SOURCE	usgs	usgs	usgs
UNITS	cfs	°C	µS/cm
Nov-01-2010	151	15.8	1,250
Nov-02-2010	153	16.1	1,270
Nov-03-2010	151	16.4	1,310
Nov-04-2010	147	16.8	1,350
Nov-05-2010	149	17.3	1,330
Nov-06-2010	152	17.1	1,310
Nov-07-2010	156	16.0	1,290
Nov-08-2010	162	14.9	1,240
Nov-09-2010	167	13.9	1,230
Nov-10-2010	164	14.1	1,270
Nov-11-2010	153	13.4	1,360
Nov-12-2010	138	13.0	1,470
Nov-13-2010	134	12.9	1,450
Nov-14-2010	130	13.1	1,480
Nov-15-2010	123	13.7	1,540
Nov-16-2010	122	14.1	1,540
Nov-17-2010	123	13.8	1,510
Nov-18-2010	122	13.4	1,500
Nov-19-2010	132	12.9	1,470
Nov-20-2010	145	12.6	1,330
Nov-21-2010	156	12.0	1,290
Nov-22-2010	177	11.5	1,190
Nov-23-2010	205	11.2	1,160
Nov-24-2010	216	9.8	1,130
Nov-25-2010	213	8.4	1,190
Nov-26-2010	198	7.9	1,270
Nov-27-2010	187	8.2	1,290
Nov-28-2010	186	8.4	1,250
Nov-29-2010	193	8.0	1,180
Nov-30-2010	196	7.8	1,180
.	.	.	.
Mean	160	12.8	1,320

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

See Table 28 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
Nov-01-2010	1,260	15.6	570	<0.4
Nov-02-2010	1,180	15.9	590	<0.4
Nov-03-2010	1,060	16.4	680	0.5
Nov-04-2010	938	16.8	780	0.5
Nov-05-2010	873	17.3	860	0.6
Nov-06-2010	840	17.2	900	0.6
Nov-07-2010	814	16.3	940	0.5
Nov-08-2010	813	15.2	960	<0.4
Nov-09-2010	795	14.5	970	0.5
Nov-10-2010	784	14.7	1,000	0.5
Nov-11-2010	779	13.4	990	0.5
Nov-12-2010	761	13.1	1,020	0.4
Nov-13-2010	754	12.9	1,020	0.6
Nov-14-2010	742	13.1	1,030	0.4
Nov-15-2010	731	13.7	1,020	<0.4
Nov-16-2010	704	14.1	1,060	0.7
Nov-17-2010	679	13.8	1,150	0.6
Nov-18-2010	669	13.5	1,140	0.7
Nov-19-2010	670	13.1	1,130	0.7
Nov-20-2010	692	12.8	1,150	0.6
Nov-21-2010	731	12.2	1,110	0.7
Nov-22-2010	774	11.9	1,080	0.5
Nov-23-2010	841	11.6	1,090	0.7
Nov-24-2010	890	10.0	1,020	0.6
Nov-25-2010	885	8.8	1,030	0.6
Nov-26-2010	888	8.5	1,030	0.5
Nov-27-2010	875	8.6	1,100	0.8
Nov-28-2010	844	8.5	1,150	1.0
Nov-29-2010	818	8.3	1,170	0.9
Nov-30-2010	812	8.2	1,170	1.0
Mean	830	13.0	1,000	0.6

Table 6a. Weekly water quality monitoring at Station A (inflow to San Luis Drain), taken from grab samples.

See Table 28 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	.	.	.
Sep-07-2010	13	.	.	5,090	70	.	.	.
Sep-13-2010	16	.	.	4,190	102	.	.	.
Sep-20-2010	11	.	.	5,030	41	.	.	.
Sep-27-2010	5	.	.	5,260	30	.	.	.
Oct-04-2010	2	.	.	4,980	26	.	.	.
Oct-11-2010	6	.	.	2,360	134	.	.	.
Oct-18-2010	12	.	.	5,490	102	.	.	.
Oct-25-2010	3	.	.	5,810	38	.	.	.
Nov-01-2010	5	.	.	4,990	42	.	.	.
Nov-08-2010	9	.	.	5,830	100	.	.	.
Nov-15-2010	35	.	.	5,750	109	.	.	.
Nov-22-2010	35	.	.	4,790	140	.	.	.
Nov-29-2010	33	.	.	4,940	74	.	.	.

Table 6b. Weekly water quality monitoring at Station A (inflow to San Luis Drain), taken from composite samples.

See Table 28 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
Sep-05-2010	12	.	.	4,820	.	34.9	.	10.0
Sep-12-2010	17	.	.	4,520	.	25.4	.	8.7
Sep-19-2010	13	.	.	5,150	.	29.6	.	8.4
Sep-26-2010	5	.	.	5,010	.	28.0	.	11.0
Oct-03-2010	3	.	.	5,290	.	20.2	.	11.0
Oct-10-2010	6	.	.	3,280	.	20.0	.	6.6
Oct-17-2010	9	.	.	4,860	.	24.2	.	9.9
Oct-24-2010	3	.	.	5,520	.	23.5	.	13.0
Nov-07-2010	7	.	.	5,950	.	27.2	.	9.8
Nov-14-2010	9	.	.	5,680	.	41.8	.	12.0
Nov-21-2010	44	.	.	4,770	.	48.9	.	10.0
Nov-28-2010	37	.	.	4,910	.	65.8	.	10.0

Table 7. Weekly water quality monitoring at Station B (discharge from San Luis Drain), taken from grab samples.

See Table 28 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
Sep-07-2010	12	23.3	8.5	4,800	36	23.3	10.0
Sep-14-2010	16	21.6	8.8	4,670	64	24.2	8.8
Sep-21-2010	13	22.2	8.6	3,770	47	16.8	6.5
Sep-28-2010	7	22.9	8.5	4,420	47	18.6	8.6
Oct-05-2010	6	20.3	7.9	4,130	13	9.8	8.0
Oct-12-2010	11	21.2	8.3	3,170	33	6.2	5.8
Oct-19-2010	17	18.2	7.4	2,670	24	6.4	4.3
Oct-26-2010	10	16.3	8.3	4,060	47	13.2	7.4
Nov-02-2010	13	16.1	7.8	3,460	51	7.4	6.8
Nov-09-2010	15	14.4	8.3	3,250	34	8.4	5.5
Nov-16-2010	15	13.9	8.1	4,180	40	18.2	8.1
Nov-23-2010	28	11.4	7.7	3,820	23	26.3	7.3
Nov-30-2010	24	7.9	7.5	4,000	21	44.0	7.9

Table 8. Weekly water quality monitoring at Station C (Mud Slough North upstream of drainage discharges).

See Table 28 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
Sep-07-2010	36	22.3	8.0	507	.	0.6	0.5
Sep-14-2010	31	20.0	8.0	917	.	0.6	0.6
Sep-21-2010	22	18.7	7.6	1,280	.	<0.4	1.0
Sep-28-2010	42	22.1	7.5	925	.	0.5	0.6
Oct-05-2010	58	18.6	7.6	1,040	.	<0.4	0.8
Oct-12-2010	73	20.1	7.6	1,130	.	0.5	0.9
Oct-19-2010	114	17.8	7.8	1,170	.	<0.4	0.8
Oct-26-2010	154	15.4	7.9	1,160	.	0.4	0.9
Nov-02-2010	125	15.7	7.6	1,310	.	0.5	1.0
Nov-09-2010	100	13.3	7.7	1,450	.	0.4	1.2
Nov-16-2010	86	13.5	7.6	1,570	.	0.4	1.2
Nov-23-2010	173	11.0	7.8	1,330	.	0.7	1.1
Nov-30-2010	133	7.3	7.8	1,500	.	0.4	1.2

** 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 28 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
Sep-07-2010	48	22.3	8.2	2,040	7.7	3.2
Sep-14-2010	47	20.4	8.2	2,560	10.4	4.0
Sep-21-2010	35	20.4	7.8	2,940	8.5	4.3
Sep-28-2010	49	22.0	7.6	1,560	3.3	1.8
Oct-05-2010	64	17.4	8.1	4,390	1.0	1.6
Oct-12-2010	84	20.2	7.6	1,590	1.7	1.8
Oct-19-2010	131	18.1	7.4	1,420	1.1	1.4
Oct-26-2010	164	15.6	7.8	1,400	1.5	1.4
Nov-02-2010	138	16.0	7.6	1,570	1.1	1.6
Nov-09-2010	115	13.5	7.7	1,810	1.7	1.9
Nov-16-2010	101	13.5	7.7	2,070	3.3	2.4
Nov-23-2010	201	11.1	7.7	1,740	3.7	2.0
Nov-30-2010	157	7.4	7.7	2,030	8.1	2.5

Table 10. Weekly water quality monitoring at Station I2 (Mud Slough backwater downstream of Station D).

See Table 28 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
Sept-01-2010	.	8.3	2,420	44	10.7	3.9
Sept-15-2010	.	8.4	2,940	37	8.4	3.6
Sept-23-2010	.	8.3	2,310	28	7.2	2.8
Sept-29-2010	.	7.9	1,990	26	3.4	2.2
Oct-04-2010	.	8.1	1,460	46	0.9	1.7
Oct-13-2010	.	9.1	1,650	NA	1.0	1.7
Oct-21-2010	.	NA	NA	NA	0.8	1.4
Oct-26-2010	.	7.3	1,380	20	1.2	1.5
Nov-09-2010	.	8.1	1,930	15	1.4	2.1
Nov-18-2010	.	7.7	2,020	NA	2.5	1.7
Nov-30-2010	.	7.6	2,070	10	8.1	2.5

Table 11. Weekly water quality monitoring at Station F (Salt Slough at Lander Avenue).

See Table 28 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
Sep-07-2010	109	21.9	7.5	1,070	0.4	0.5
Sep-14-2010	95	19.2	7.5	1,140	0.5	0.5
Sep-21-2010	114	20.1	7.5	1,130	<0.4	0.5
Sep-28-2010	84	20.8	7.6	1,200	0.4	0.6
Oct-05-2010	81	18.1	7.6	1,130	<0.4	0.7
Oct-12-2010	100	19.1	7.6	1,210	0.5	0.7
Oct-19-2010	136	16.9	7.6	1,160	<0.4	0.6
Oct-26-2010	137	15.0	7.2	1,350	0.4	0.7
Nov-02-2010	153	14.8	7.0	1,300	<0.4	0.7
Nov-09-2010	167	12.9	7.6	1,170	0.5	0.7
Nov-16-2010	122	12.8	7.4	1,560	0.4	0.9
Nov-23-2010	205	11.1	7.7	1,160	0.6	0.8
Nov-30-2010	196	7.2	7.7	1,250	<0.4	0.8

Table 12. Weekly water quality monitoring at Station J (Camp 13 Ditch).

See Table 28 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
Sep-07-2010	30	.	.	470	0.4	0.2
Sep-13-2010	75	.	.	620	0.6	0.3
Sep-21-2010	105	.	.	610	0.5	0.5
Sep-27-2010	145	.	.	600	0.6	0.2
Oct-04-2010	145	.	.	600	0.4	0.2
Oct-11-2010	115	.	.	500	0.5	0.2
Oct-18-2010	55	.	.	530	0.4	0.2
Oct-25-2010	35	.	.	590	0.6	0.3
Nov-01-2010	35	.	.	600	0.6	0.3
Nov-08-2010	10	.	.	460	0.7	0.2
Nov-15-2010	10	.	.	460	0.7	0.2
Nov-22-2010	10	.	.	450	0.9	0.2
Nov-29-2010	10	.	.	270	0.5	0.1

Table 13. Weekly water quality monitoring at Station K (Agatha Canal).

See Table 28 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
Sep-07-2010	95	.	.	470	0.4	0.2
Sep-13-2010	110	.	.	620	0.6	0.3
Sep-21-2010	130	.	.	610	0.5	0.5
Sep-27-2010	130	.	.	600	0.6	0.2
Oct-04-2010	130	.	.	590	0.5	0.2
Oct-11-2010	100	.	.	530	0.5	0.2
Oct-18-2010	90	.	.	520	0.5	0.2
Oct-25-2010	80	.	.	580	0.8	0.3
Nov-01-2010	80	.	.	560	0.6	0.3
Nov-08-2010	80	.	.	470	0.6	0.2
Nov-15-2010	80	.	.	490	0.9	0.3
Nov-22-2010	40	.	.	470	0.9	0.2
Nov-29-2010	40	.	.	300	<0.4	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 28 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
Sep-07-2010	NA	.	.	500	0.8	0.2
Sep-13-2010	NA	.	.	620	0.5	0.3
Sep-21-2010	NA	.	.	570	0.6	3.2
Sep-27-2010	NA	.	.	620	0.7	0.3
Oct-04-2010	NA	.	.	530	<0.4	0.2
Oct-11-2010	NA	.	.	580	0.8	0.2
Oct-18-2010	NA	.	.	590	<0.4	0.3
Oct-25-2010	NA	.	.	610	0.7	0.4
Nov-01-2010	NA	.	.	720	1.1	0.6
Nov-08-2010	NA	.	.	1,780	1.9	2.0
Nov-15-2010	NA	.	.	450	0.9	1.0
Nov-22-2010	NA	.	.	470	<0.4	0.4
Nov-29-2010	NA	.	.	1,670	0.4	1.5

Table 15. Weekly water quality monitoring at Station M2 (Santa Fe Canal at weir).

See Table 28 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
Sep-07-2010	NA	.	.	670	0.6	0.6
Sep-13-2010	NA	.	.	720	0.5	0.6
Sep-21-2010	NA	.	.	760	0.6	0.2
Sep-27-2010	NA	.	.	780	0.9	0.5
Oct-04-2010	NA	.	.	770	0.8	0.5
Oct-11-2010	NA	.	.	780	0.8	0.6
Oct-18-2010	NA	.	.	830	0.4	0.6
Oct-25-2010	NA	.	.	880	0.6	0.8
Nov-01-2010	NA	.	.	880	0.7	0.8
Nov-08-2010	NA	.	.	960	0.6	1.0
Nov-15-2010	NA	.	.	940	0.8	0.9
Nov-22-2010	NA	.	.	920	0.6	0.9
Nov-29-2010	NA	.	.	1,010	0.5	1.1

Table 16. Weekly water quality monitoring at Central California Irrigation District Main Canal at Russell Avenue (MER510).

See Table 28 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
Sep-07-2010	.	.	.	460	0.6	0.2
Sep-13-2010	.	.	.	520	0.8	0.2
Sep-21-2010	.	.	.	470	0.6	0.2
Sep-27-2010	.	.	.	600	0.5	0.2
Oct-04-2010	.	.	.	530	<0.4	0.2
Oct-11-2010	.	.	.	590	0.7	0.3
Oct-18-2010	.	.	.	590	0.6	0.2
Oct-25-2010	.	.	.	590	0.7	0.3
Nov-01-2010	.	.	.	590	0.6	0.2
Nov-08-2010	.	.	.	430	0.7	0.2
Nov-15-2010	.	.	.	460	1.0	0.3
Nov-22-2010	.	.	.	500	0.8	0.3
Nov-29-2010	.	.	.	410	0.9	0.2

Table 17. Weekly water quality monitoring at Station G (San Joaquin River at Fremont Ford).

See Table 28 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
Sep-07-2010	247	22.3	7.6	629	NA	0.2
Sep-14-2010	300	20.9	7.5	658	NA	0.2
Sep-21-2010	212	20.6	7.5	793	NA	0.3
Sep-28-2010	162	22.1	7.8	954	NA	0.4
Oct-05-2010	141	19.9	7.5	1,020	<0.4	0.4
Oct-12-2010	249	19.6	7.4	600	0.5	0.3
Oct-19-2010	191	17.6	7.2	1,290	<0.4	0.4
Oct-26-2010	230	15.7	7.5	1,060	0.4	0.5
Nov-02-2010	247	15.2	7.3	1,040	0.6	0.5
Nov-09-2010	227	13.4	7.5	1,230	0.4	0.6
Nov-16-2010	225	13.2	7.5	1,340	0.6	0.6
Nov-23-2010	314	11.1	7.4	1,000	0.5	0.6
Nov-30-2010	302	7.0	7.4	1,200	<0.4	0.7

Table 18. Weekly water quality monitoring at Station H1 (Above Newman WW (previously SJR at Hills Ferry)).
(Collected data intended for use with biological monitoring.)

See Table 28 for explanation of footnotes and agency abbreviations.

PARAMETER	.	.	.	Conductance	Selenium (total)	Boron
DATA SOURCE	.	.	.	SLDMWA	SLDMWA	SLDMWA
UNITS	.	.	.	µS/cm	µg/L	mg/L
Sep-01-2010	.	.	.	1,230	2.0	0.9
Sep-08-2010	.	.	.	911	1.2	0.7
Sep-15-2010	.	.	.	918	0.9	0.6
Sep-22-2010	.	.	.	1,290	0.9	0.8
Sep-29-2010	.	.	.	1,180	0.9	0.6
Oct-06-2010	.	.	.	1,170	0.6	0.6
Oct-13-2010	.	.	.	1,310	0.7	0.7
Oct-20-2010	.	.	.	1,290	0.8	0.8
Oct-27-2010	.	.	.	1,180	0.4	0.8
Nov-03-2010	.	.	.	1,190	0.5	0.7
Nov-10-2010	.	.	.	1,160	0.6	0.7
Nov-17-2010	.	.	.	1,660	0.8	1.1
Nov-24-2010	.	.	.	1,680	1.0	1.1

Table 19. Weekly water quality monitoring at Station H2 (San Joaquin River at Hills Ferry).
(Collected data intended for use with biological monitoring.)

See Table 28 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
Sep-01-2010	.	.	.	1,230	1.9	0.9
Sep-08-2010	.	.	.	949	1.1	0.7
Sep-15-2010	.	.	.	957	1.0	0.6
Sep-22-2010	.	.	.	1,340	1.0	0.8
Sep-29-2010	.	.	.	948	1.0	0.6
Oct-06-2010	.	.	.	1,310	0.6	0.7
Oct-13-2010	.	.	.	1,170	0.8	0.6
Oct-20-2010	.	.	.	1,300	0.8	0.8
Oct-27-2010	.	.	.	1,310	<0.4	0.7
Nov-03-2010	.	.	.	1,260	0.5	0.7
Nov-10-2010	.	.	.	1,500	0.7	0.9
Nov-17-2010	.	.	.	1,500	<0.4	0.9
Nov-24-2010	.	.	.	1,510	0.5	0.9

Table 20. Weekly water quality monitoring at Station N (San Joaquin River at Crow's Landing).

See Table 28 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
Sep-07-2010	588	21.5	7.8	780	0.4	0.7
Sep-14-2010	2,020	17.8	7.7	300	0.1	0.4
Sep-21-2010	813	20.6	7.5	600	0.3	0.4
Sep-28-2010	612	21.7	7.6	880	0.4	0.6
Oct-05-2010	615	20.3	7.6	830	<0.4	0.4
Oct-12-2010	716	19.6	7.7	680	0.6	0.4
Oct-19-2010	693	18.0	7.7	880	0.7	0.5
Oct-26-2010	1,210	15.2	7.7	590	<0.4	0.3
Nov-02-2010	1,180	15.0	7.5	660	0.5	0.4
Nov-09-2010	795	13.8	7.7	960	0.5	0.6
Nov-16-2010	704	13.5	7.6	1,100	0.6	0.7
Nov-23-2010	841	11.7	7.8	1,090	1.2	0.8
Nov-30-2010	812	7.7	7.7	1,210	1.4	0.9

Table 21. Summary of fathead minnow (*Pimephales promelas*) larvae survival in 7-day tests using water samples collected from December 2009 to November 2010. Each value is the mean of 4 replicates with 10 fish in each replicate.

See Table 28 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	%	%	%	%	%	%
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
Jun-2010	100	100	100	98	95	98
Jul-2010	95	98	100	100	100	93
Aug-2010	98	98	98	98	93	95
Sep-2010	95	93	100	100	100	95
Oct-2010	95	100	100	100	100	100
Nov-2010	95	100	83	98	100	100

Table 22. Summary of fathead minnow (*Pimephales promelas*) larvae growth in 7-day tests using water samples collected from December 2009 to November 2010. Each value is the mean of 4 replicates with 10 fish in each replicate.

See Table 28 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
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
Jun-2010	0.37	0.34	0.35	0.35	0.37	0.38
Jul-2010	0.35*	0.37	0.39	0.37	0.41	0.41
Aug-2010	0.32	0.28	0.33	0.33	0.26	0.35
Sep-2010	0.41	0.43	0.39	0.41	0.41	0.38
Oct-2010	0.38	0.43	0.42	0.39	0.37	0.33
Nov-2010	0.46	0.47	0.43	0.47	0.42	0.35

Table 23. Summary of *Daphnia magna* survival in 7-day tests using water samples collected from December 2009 to November 2010. Each value is the mean of 10 replicates with 1 animal in each replicate.

See Table 28 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	%	%	%	%	%	%
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
Jun-2010	100	100	100	90	90	100
Jul-2010	90	100	90	90	100	100
Aug-2010	100	100	100	100	90	50†
Sep-2010	100	100	90	100	88	90
Oct-2010	80	100	90	100	100	100
Nov-2010	90	90	100	80	100	80

Table 24. Summary of *Daphnia magna* reproduction in 7-day tests using water samples collected from December 2009 to November 2010. Each value is the mean of 10 replicates with 1 animal in each replicate.

See Table 28 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
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
Jun-2010	23.0	27.2	29.5	24.2	23.1	21.4
Jul-2010	43.6	48.8	46.3	46.6	38.7	38.6
Aug-2010	27.7	31.8	28.4	25.8	26.1	2.6†††
Sep-2010	35.5	29.8	30.0	28.1	24.3	20.0
Oct-2010	28.1	23.7	30.0	29.2	29.9	25.2
Nov-2010	40.7	27.2	36.3	30.1	31.6	28.8

Table 25. Summary of *Selenastrum capricornutum* growth in 4-day tests using water samples collected from December 2009 to November 2010. Each value is the mean of 4 replicates.

See Table 28 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
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
Jun-2010	17.7	29.6	24.8	33.0	22.7	22.0
Jul-2010	17.6	25.3	18.8	19.7	17.6	16.1
Aug-2010	19.6	25.0	21.8	28.8	21.4	22.3
Sep-2010	22.6	28.9	26.3	29.1	25.1	25.2
Oct-2010	27.6	34.4	38.0	29.0	25.6	21.2
Nov-2010	18.2*	29.0	33.4	28.3	26.5	26.7

Table 26. Summary of selenium concentrations in grab water samples collected at study stations for use in laboratory toxicity tests, September 2010 to November 2010.

See Table 28 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
Sep-20-2010	16	<0.4	5.9	0.4	<0.4
Sep-22-2010	21	0.5	5.9	<0.4	<0.4
Sep-24-2010	20	<0.4	6.9	0.4	<0.4
Oct-18-2010	7.4	<0.4	2.0	<0.4	<0.4
Oct-20-2010	5.7	<0.4	1.6	<0.4	<0.4
Oct-22-2010	11	<0.4	1.5	<0.4	<0.4
Nov-15-2010	18	<0.4	2.1	<0.4	<0.4
Nov-17-2010	20	<0.4	3.5	<0.4	<0.4
Nov-19-2010	16	<0.4	2.6	<0.4	<0.4

Table 27. Summary of total suspended solids concentrations in grab water samples collected at study stations for use in laboratory toxicity tests, September 2010 to November 2010.

See Table 28 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
Sep-20-2010	46	36	46	74	13
Sep-22-2010	67	40	53	96	11
Sep-24-2010	79	56	70	82	17
Oct-18-2010	33	38	45	72	14
Oct-20-2010	23	27	29	89	16
Oct-22-2010	50	53	44	88	16
Nov-15-2010	35	25	39	43	7
Nov-17-2010	49	34	40	54	11
Nov-19-2010	40	27	49	59	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 ⁶ cell/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