

GRASSLAND BYPASS PROJECT

MONTHLY DATA REPORT

September 2012

March 2013

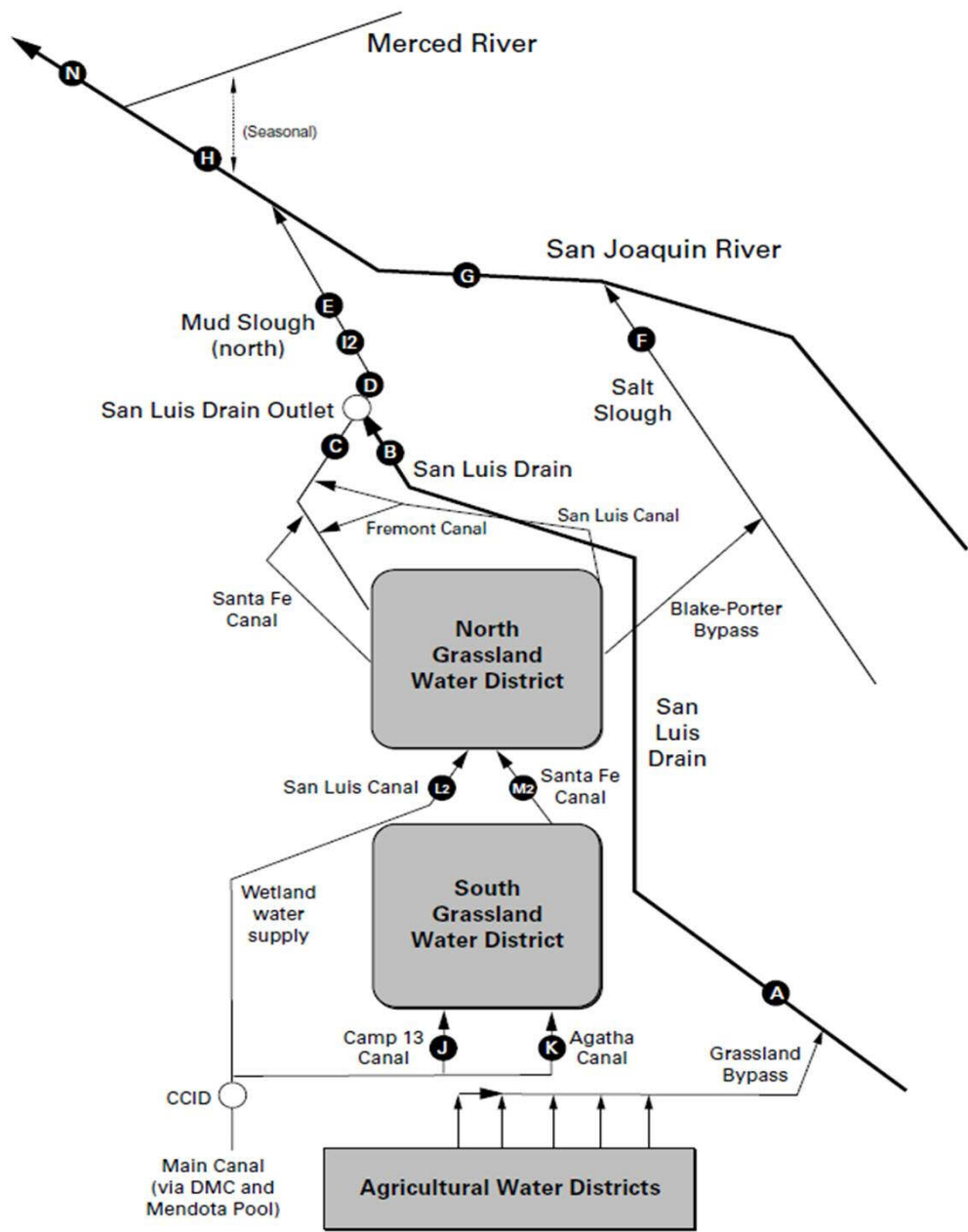
Preliminary Results

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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MONTHLY DATA REPORT

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Table 1. Continuous water monitoring at Station A (inflow to San Luis Drain), September 2012.

See Table 28 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow	Temperature	Specific Conductance	Salt Load
DATA SOURCE	SLDMWA	SLDMWA	SLDMWA	Computed
UNITS	cfs	°C	µS/cm	tons
Sep-01-2012	6	21.6	5,050	64
Sep-02-2012	9	24.0	4,900	84
Sep-03-2012	7	25.4	4,860	66
Sep-04-2012	4	25.4	4,840	36
Sep-05-2012	3	25.3	5,270	34
Sep-06-2012	2	23.8	5,430	23
Sep-07-2012	3	24.1	5,380	28
Sep-08-2012	7	24.6	5,060	66
Sep-09-2012	9	24.1	4,490	77
Sep-10-2012	5	23.6	4,770	44
Sep-11-2012	2	23.9	5,310	19
Sep-12-2012	0	24.4	5,340	3
Sep-13-2012	0	25.9	5,060	0
Sep-14-2012	0	26.7	5,300	0
Sep-15-2012	3	25.7	5,580	35
Sep-16-2012	6	25.0	4,810	60
Sep-17-2012	6	23.7	4,680	56
Sep-18-2012	1	22.5	5,050	14
Sep-19-2012	2	22.4	5,530	19
Sep-20-2012	0	22.3	5,420	5
Sep-21-2012	0	23.2	5,750	5
Sep-22-2012	4	24.1	5,070	45
Sep-23-2012	1	24.5	4,830	11
Sep-24-2012	1	21.7	5,190	14
Sep-25-2012	2	22.4	5,030	23
Sep-26-2012	1	23.8	4,960	11
Sep-27-2012	7	23.5	4,670	66
Sep-28-2012	8	23.6	3,810	64
Sep-29-2012	7	23.3	3,990	53
Sep-30-2012	9	23.7	3,830	67
.
Mean	4	23.9	4,980	1,092
Total Acre-feet	230			
Salinity Load Value (Dry Year, September)				4,825

Table 2a. Continuous water monitoring at Stations B and B2 (San Luis Drain Terminus), September 2012.

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	USBR	SLDMWA	USBR	Computed
UNITS	cfs	°C	mg/L	µS/cm	µg/L	lbs
Sep-01-2012	5	19.8	8.0	4,950	25.0	0.7
Sep-02-2012	6	23.5	7.7	4,710	24.0	0.8
Sep-03-2012	9	26.2	7.8	4,410	26.0	1.2
Sep-04-2012	8	25.5	7.9	4,530	27.0	1.2
Sep-05-2012	7	25.0	8.2	4,570	23.0	0.8
Sep-06-2012	6	25.0	8.2	4,540	21.0	0.6
Sep-07-2012	6	24.5	9.0	4,540	21.0	0.6
Sep-08-2012	5	25.6	9.2	4,590	20.0	0.6
Sep-09-2012	6	24.5	9.2	4,690	20.0	0.7
Sep-10-2012	9	22.7	9.0	4,870	17.0	0.8
Sep-11-2012	8	24.0	9.2	4,820	15.0	0.6
Sep-12-2012	6	24.4	9.5	4,830	14.0	0.5
Sep-13-2012	6	26.6	9.5	4,920	17.0	0.5
Sep-14-2012	5	26.6	9.8	5,000	19.0	0.6
Sep-15-2012	6	25.6	10.0	5,090	19.0	0.6
Sep-16-2012	6	25.1	10.0	5,150	18.0	0.6
Sep-17-2012	8	22.9	10.0	5,170	17.0	0.8
Sep-18-2012	9	21.6	10.0	5,090	16.0	0.8
Sep-19-2012	7	21.5	9.2	4,950	16.0	0.6
Sep-20-2012	6	21.5	9.1	4,970	17.0	0.6
Sep-21-2012	6	23.1	10.0	5,030	16.0	0.5
Sep-22-2012	6	24.9	12.0	5,090	14.0	0.4
Sep-23-2012	6	25.3	10.0	4,980	13.0	0.4
Sep-24-2012	7	21.9	8.4	4,650	12.0	0.4
Sep-25-2012	6	22.8	6.8	4,430	8.8	0.3
Sep-26-2012	6	23.3	6.2	4,080	5.8	0.2
Sep-27-2012	6	24.0	7.2	3,550	6.7	0.2
Sep-28-2012	8	24.4	8.6	3,830	7.8	0.3
Sep-29-2012	11	24.0	8.8	4,300	8.1	0.5
Sep-30-2012	10	25.0	7.6	4,060	6.5	0.4
.
Mean	7	24.0	8.9	4,680	16.4	0.6
Total Acre-feet	410					
Total (lbs)						18

Load Limitation for September 2012 (lbs)	235
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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.

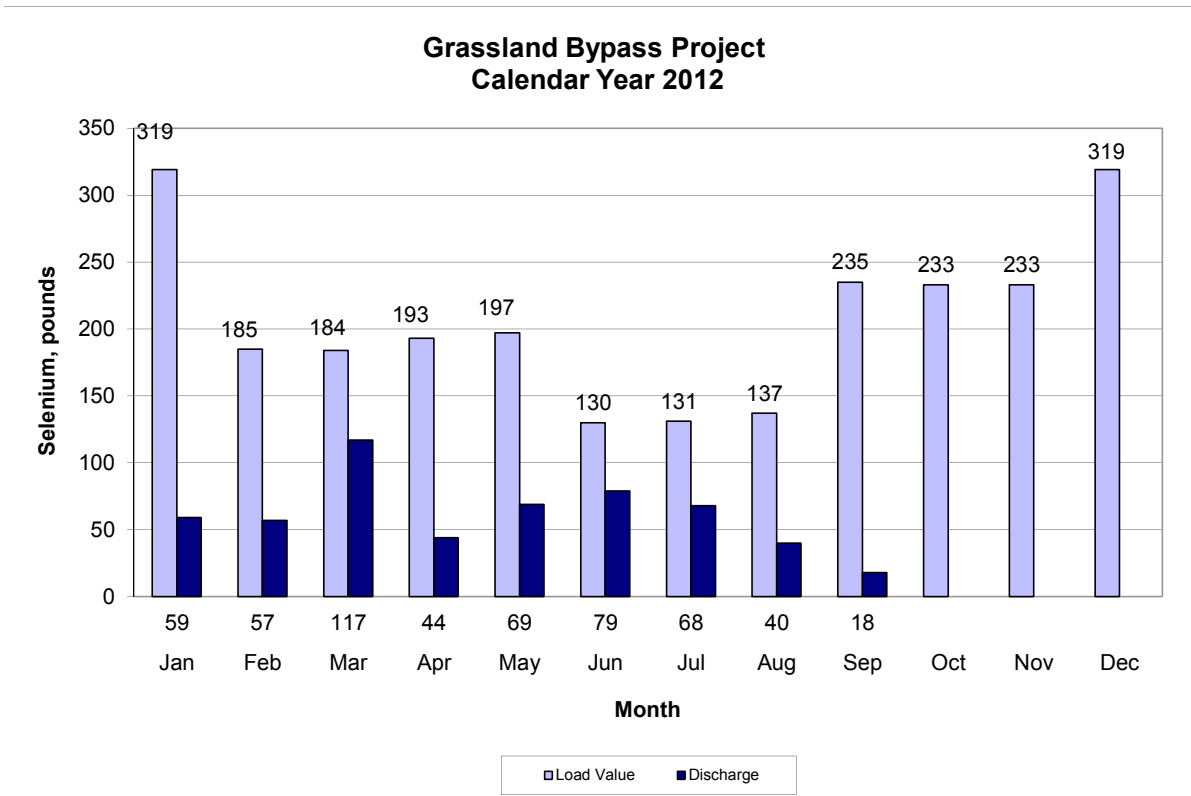


Table 3. Continuous water monitoring at Station D (Mud Slough North downstream of drainage discharges), September 2012.

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
Sep-01-2012	31	23.0	1,330
Sep-02-2012	19	23.9	3,120
Sep-03-2012	22	24.4	3,760
Sep-04-2012	22	24.4	3,640
Sep-05-2012	22	24.1	3,500
Sep-06-2012	23	23.7	2,550
Sep-07-2012	23	23.7	2,530
Sep-08-2012	19	23.4	3,060
Sep-09-2012	20	23.0	3,280
Sep-10-2012	24	22.8	3,850
Sep-11-2012	23	23.3	3,760
Sep-12-2012	20	23.1	3,780
Sep-13-2012	19	24.1	3,770
Sep-14-2012	19	24.1	3,620
Sep-15-2012	21	23.9	3,020
Sep-16-2012	27	23.6	2,440
Sep-17-2012	29	23.3	3,010
Sep-18-2012	31	22.7	3,510
Sep-19-2012	33	22.1	2,640
Sep-20-2012	36	21.8	2,150
Sep-21-2012	34	22.3	2,150
Sep-22-2012	29	22.2	2,450
Sep-23-2012	28	23.0	2,730
Sep-24-2012	30	22.0	2,710
Sep-25-2012	33	21.9	2,160
Sep-26-2012	32	22.4	2,250
Sep-27-2012	33	22.8	2,100
Sep-28-2012	39	23.1	1,920
Sep-29-2012	41	23.2	2,430
Sep-30-2012	39	23.2	2,390
.	.	.	.
Mean	27	23.2	2,850

Table 4. Continuous water monitoring at Station F (Salt Slough at Highway 165), September 2012.

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
Sep-01-2012	103	22.2	974
Sep-02-2012	106	22.2	961
Sep-03-2012	106	23.3	990
Sep-04-2012	92	23.9	990
Sep-05-2012	91	24.0	1,010
Sep-06-2012	79	23.9	1,020
Sep-07-2012	69	23.8	1,120
Sep-08-2012	65	23.8	1,120
Sep-09-2012	61	23.4	1,150
Sep-10-2012	62	22.9	1,230
Sep-11-2012	68	22.8	1,170
Sep-12-2012	66	22.9	1,100
Sep-13-2012	64	23.4	1,110
Sep-14-2012	66	24.1	1,110
Sep-15-2012	71	24.2	1,070
Sep-16-2012	71	23.8	1,030
Sep-17-2012	71	23.2	999
Sep-18-2012	76	22.4	961
Sep-19-2012	78	21.6	957
Sep-20-2012	81	21.3	985
Sep-21-2012	84	21.6	1,000
Sep-22-2012	81	21.7	1,000
Sep-23-2012	83	22.6	1,080
Sep-24-2012	91	22.1	1,040
Sep-25-2012	91	21.4	1,060
Sep-26-2012	95	21.5	1,070
Sep-27-2012	86	21.9	1,120
Sep-28-2012	77	22.3	1,210
Sep-29-2012	84	22.3	1,160
Sep-30-2012	96	22.3	1,070
.	.	.	.
Mean	80	22.8	1,060

Table 5. Continuous water monitoring at Station N (San Joaquin River at Crow's Landing), September 2012.

See Table 28 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow	Temperature	Boron	Specific Conductance	Selenium (total)
DATA SOURCE	USGS	USGS	USBR	USGS	USBR
UNITS	cfs	°C	mg/L	µS/cm	µg/L
Sep-01-2012	286	22.8	0.6	1,290	1.1
Sep-02-2012	319	23.1	0.6	1,150	0.8
Sep-03-2012	343	24.0	0.4	978	0.5
Sep-04-2012	341	24.5	0.4	989	0.4
Sep-05-2012	308	24.2	0.5	1,110	0.7
Sep-06-2012	320	23.4	0.5	1,130	0.7
Sep-07-2012	313	23.0	0.5	1,100	0.8
Sep-08-2012	278	23.5	0.5	1,180	0.6
Sep-09-2012	282	23.1	0.5	1,180	0.6
Sep-10-2012	306	22.4	0.5	1,160	0.6
Sep-11-2012	307	22.7	0.5	1,120	0.8
Sep-12-2012	297	23.2	0.6	1,170	1.0
Sep-13-2012	310	23.4	0.5	1,110	0.7
Sep-14-2012	269	24.1	0.5	1,190	0.5
Sep-15-2012	270	23.9	0.5	1,200	0.5
Sep-16-2012	256	23.5	0.6	1,260	0.5
Sep-17-2012	285	23.1	0.5	1,140	0.5
Sep-18-2012	290	22.5	0.5	1,050	0.5
Sep-19-2012	285	22.0	0.5	1,140	0.6
Sep-20-2012	320	21.8	0.6	1,080	0.4
Sep-21-2012	322	21.6	0.5	1,050	0.5
Sep-22-2012	325	22.4	0.5	1,010	0.6
Sep-23-2012	309	23.0	0.5	1,040	0.5
Sep-24-2012	323	22.2	0.5	1,040	0.5
Sep-25-2012	294	21.5	0.5	1,140	0.5
Sep-26-2012	277	22.0	0.5	1,180	0.5
Sep-27-2012	271	22.2	0.5	1,190	0.5
Sep-28-2012	275	22.9	0.5	1,150	0.5
Sep-29-2012	273	22.8	0.5	1,190	0.5
Sep-30-2012	267	23.1	0.6	1,230	0.5
.
Mean	297	22.9	0.5	1,130	0.6
Total Acre-feet	17,695				

Table 6. Weekly water quality monitoring at Station A (inflow to San Luis Drain).

See Table 28 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow	Total Suspended Solids	Specific Conductance	Selenium (total)	Boron
DATA SOURCE	SLDMWA	Panoche DD	USBR	USBR	USBR
		Grab sample	Composite	Composite	Composite
UNITS	cfs	mg/L	µS/cm	µg/L	mg/L
Jul-02-2012	16	123	5,710	40	9.7
Jul-09-2012	14	122	5,590	38	10.0
Jul-16-2012	16	138	5,220	35	8.4
Jul-23-2012	10	47	5,150	29	9.2
Jul-30-2012	13	85	5,420	32	9.9
Aug-06-2012	10	126	5,480	29	9.8
Aug-13-2012	10	150	5,130	35	9.4
Aug-20-2012	13	98	4,870	30	8.8
Aug-27-2012	3	30	5,350	25	9.3
Sep-03-2012	7	101	5,310	31	9.6
Sep-10-2012	5	125	5,690	22	10.0
Sep-17-2012	6	206	5,660	12	12.0
Sep-24-2012	1	86	4,350	19	7.7

Note: Weekly results for specific conductance, selenium, and boron from composite of seven daily samples.

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	Total Suspended Solids	Temperature	pH	Specific Conductance	Selenium (total)	Boron
DATA SOURCE	SLDMWA	Panoche DD	USBR	USBR	USBR	USBR	USBR
UNITS	cfs	mg/L	°C	.	µS/cm	µg/L	mg/L
Jul-02-2012	18	19	26.1	8.5	5,130	22.0	9.8
Jul-10-2012	14	50	25.5	7.7	5,720	30.0	11.0
Jul-18-2012	14	29	23.4	8.3	5,540	33.0	10.0
Jul-24-2012	9	19	24.0	8.0	5,700	32.0	9.5
Aug-01-2012	10	36	25.5	8.5	5,670	34.0	11.0
Aug-09-2012	12	27	25.8	8.5	6,050	21.0	12.0
Aug-14-2012	8	31	28.5	8.6	5,380	26.0	9.8
Aug-21-2012	10	20	25.7	8.3	5,120	27.0	8.5
Aug-28-2012	6	40	24.6	8.6	5,250	35.0	8.4
Sep-06-2012	6	38	23.4	8.9	4,860	21.0	8.0
Sep-13-2012	6	44	25.2	8.9	5,270	18.0	9.0
Sep-18-2012	9	18	22.5	9.0	5,190	16.0	10.0
Sep-26-2012	6	23	22.7	8.5	3,570	6.3	6.4

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 **		USBR	USBR	USBR	USBR	USBR
UNITS	cfs		°C	.	µS/cm	µg/L	mg/L
Jul-02-2012	13	.	27.0	8.7	2,480	0.8	2.3
Jul-10-2012	19	.	24.8	8.2	1,440	1.3	1.4
Jul-18-2012	38	.	22.4	8.7	1,230	1.0	1.2
Jul-24-2012	39	.	23.9	8.4	1,280	1.5	1.3
Aug-01-2012	22	.	24.6	9.1	1,390	1.4	1.6
Aug-09-2012	22	.	24.9	8.8	1,250	1.2	1.4
Aug-14-2012	28	.	28.8	9.0	1,250	1.4	1.4
Aug-21-2012	35	.	25.2	8.9	797	0.7	0.6
Aug-28-2012	19	.	24.2	9.1	931	0.8	0.6
Sep-06-2012	17	.	21.8	8.3	957	0.8	0.7
Sep-13-2012	13	.	25.9	8.8	1,350	0.4	0.9
Sep-18-2012	22	.	20.8	7.8	1,190	<0.4	0.7
Sep-26-2012	26	.	21.7	7.8	1,220	<0.4	0.7

** 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	Turbidity	pH	Specific Conductance	Selenium (total)	Boron
DATA SOURCE	USGS	USBR	USBR	USBR	USBR	USBR	USBR
UNITS	cfs	°C	NTU	.	µS/cm	µg/L	mg/L
Jul-02-2012	31	25.8	27.1	8.3	4,700	15.0	8.5 U
Jul-10-2012	33	24.4	44.4	8.0	3,520	13.0	5.6
Jul-18-2012	52	22.5	88.7	8.1	2,490	9.7	3.7
Jul-24-2012	48	24.6	63.4	8.2	2,210	5.9	3.0
Aug-01-2012	32	25.1	52.6	8.6	3,040	11.0	5.0
Aug-09-2012	34	25.6	50.8	8.4	3,080	7.4	4.9
Aug-14-2012	36	28.8	57.5	8.6	3,270	6.5	3.5
Aug-21-2012	45	25.5	65.1	8.4	1,710	6.1	2.1
Aug-28-2012	25	24.0	27.6	8.5	2,600	10.0	3.6
Sep-06-2012	23	21.5	40.4	8.5	2,280	7.2	2.8
Sep-13-2012	19	24.9	16.8	8.5	3,170	5.8	4.3
Sep-18-2012	31	21.3	26.4	8.2	3,090	6.7	5.0
Sep-26-2012	32	21.6	23.0	7.8	2,000	2.3	2.3

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		Temperature	Turbidity	pH	Specific Conductance	Selenium	Boron
DATA SOURCE		USBR	USBR	USBR	USBR	USBR	USBR
UNITS		°C	NTU	.	µS/cm	µg/L	mg/L
Jul-02-2012	.	NA	NA	NA	NA	NA	NA
Jul-10-2012	.	NA	NA	NA	NA	NA	NA
Jul-18-2012	.	NA	NA	NA	NA	NA	NA
Jul-24-2012	.	NA	NA	NA	NA	NA	NA
Aug-01-2012	.	NA	NA	NA	NA	NA	NA
Aug-09-2012	No Flow	NA	NA	NA	NA	NA	NA
Aug-14-2012	July-September	NA	NA	NA	NA	NA	NA
Aug-28-2012	.	NA	NA	NA	NA	NA	NA
Sep-06-2012	.	NA	NA	NA	NA	NA	NA
Sep-13-2012	.	NA	NA	NA	NA	NA	NA
Sep-18-2012	.	NA	NA	NA	NA	NA	NA
Sep-26-2012	.	NA	NA	NA	NA	NA	NA

No samples were collected because this site had no flow through September.

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	USBR	USBR	USBR	USBR	USBR
UNITS	cfs	°C	.	µS/cm	µg/L	mg/L
Jul-02-2012	143	24.6	7.8	1,150	0.5	0.5
Jul-10-2012	134	23.7	7.6	1,030	0.5	0.4
Jul-18-2012	124	21.0	8.0	953	< 0.4	0.3
Jul-24-2012	123	22.3	8.1	892	0.6	0.3
Aug-01-2012	166	24.2	7.7	831	< 0.4	0.3
Aug-09-2012	125	24.1	7.9	934	< 0.4	0.3
Aug-14-2012	136	26.5	8.7	903	0.5	0.3
Aug-21-2012	145	23.7	9.0	849	< 0.4	0.4
Aug-28-2012	109	22.1	8.6	1,030	0.4	0.4
Sep-06-2012	79	22.2	7.6	1,090	< 0.4	0.4
Sep-13-2012	64	22.9	7.7	1,180	< 0.4	0.5
Sep-18-2012	76	20.6	7.5	1,010	<0.4	0.4
Sep-26-2012	95	20.7	7.4	1,130	<0.4	0.4

Table 12. 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	USBR	USBR	USBR	USBR	USBR
UNITS	cfs	°C	.	µS/cm	µg/L	mg/L
Jul-02-2012	140	25.0	8.5	1,340	0.5	0.5
Jul-10-2012	122	24.5	8.3	1,260	0.4	0.4
Jul-18-2012	136	22.6	8.4	1,110	< 0.4	0.4
Jul-24-2012	158	24.3	8.4	951	0.5	0.3
Aug-01-2012	162	25.5	8.8	900	< 0.4	0.3
Aug-09-2012	129	24.7	8.7	1,040	< 0.4	0.3
Aug-14-2012	129	27.5	8.7	1,020	< 0.4	0.4
Aug-21-2012	144	24.1	8.5	886	< 0.4	0.4
Aug-28-2012	94	23.1	8.6	1,280	0.4	0.4
Sep-06-2012	92	22.4	8	1,330	0.4	0.4
Sep-13-2012	56	23.6	8.1	1,680	< 0.4	0.5
Sep-18-2012	78	21.6	8.0	1,370	0.4	0.5
Sep-26-2012	99	21.5	7.8	1,300	<0.4	0.4

Table 13. 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 ^{††}	.	.	Panoche DD	Panoche DD	Panoche DD
UNITS	cfs	.	.	µS/cm	µg/L	mg/L
Jul-02-2012	30	.	.	581	0.8	0.3
Jul-09-2012	30	.	.	470	0.7	0.2
Jul-16-2012	20	.	.	364	0.5	0.2
Jul-23-2012	20	.	.	515	0.7	0.2
Jul-30-2012	20	.	.	421	0.5	0.2
Aug-06-2012	20	.	.	481	< 0.4	0.2
Aug-13-2012	20	.	.	454	0.5	0.2
Aug-20-2012	20	.	.	484	< 0.4	0.2
Aug-27-2012	45	.	.	491	0.7	0.2
Sep-04-2012	45	.	.	533	0.5	0.2
Sep-10-2012	45	.	.	566	0.4	0.2
Sep-17-2012	105	.	.	637	0.6	0.2
Sep-24-2012	105	.	.	732	0.5	0.2

Table 14. 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 ^{††}	.	.	Panoche DD	Panoche DD	Panoche DD
UNITS	cfs	.	.	µS/cm	µg/L	mg/L
Jul-02-2012	20	.	.	515	0.6	0.3
Jul-09-2012	20	.	.	484	0.6	0.3
Jul-16-2012	0	.	.	603	0.6	0.6
Jul-23-2012	0	.	.	1,040	1.2	1.6
Jul-30-2012	0	.	.	576	0.8	0.4
Aug-06-2012	0	.	.	705	0.9	0.6
Aug-13-2012	0	.	.	616	1.0	0.3
Aug-20-2012	25	.	.	428	< 0.4	0.2
Aug-27-2012	50	.	.	473	0.5	0.2
Sep-04-2012	80	.	.	532	0.6	0.2
Sep-10-2012	120	.	.	555	0.4	0.2
Sep-17-2012	140	.	.	629	0.4	0.2
Sep-24-2012	140	.	.	716	0.5	0.2

Table 15. 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 ^{††}	.	.	Panoche DD	Panoche DD	Panoche DD
UNITS	cfs	.	.	µS/cm	µg/L	mg/L
Jul-02-2012	NA	.	.	1,590	1.4	1.4
Jul-09-2012	NA	.	.	1,830	1.6	1.7
Jul-16-2012	NA	.	.	2,130	2.0	2.2
Jul-23-2012	NA	.	.	1,620	2.0	1.3
Jul-30-2012	NA	.	.	1,210	1.0	1.0
Aug-06-2012	NA	.	.	1,100	0.8	0.8
Aug-13-2012	NA	.	.	2,110	2.4	1.9
Aug-20-2012	NA	.	.	628	0.5	0.4
Aug-27-2012	NA	.	.	568	0.7	0.3
Sep-04-2012	NA	.	.	605	0.6	0.3
Sep-10-2012	NA	.	.	582	0.4	0.2
Sep-17-2012	NA	.	.	648	0.5	0.3
Sep-24-2012	NA	.	.	728	0.7	0.3

Table 16. 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 ^{††}	.	.	Panoche DD	Panoche DD	Panoche DD
UNITS	cfs	.	.	µS/cm	µg/L	mg/L
Jul-02-2012	NA	.	.	1,180	1.5	1.3
Jul-09-2012	NA	.	.	1,070	1.6	1.3
Jul-16-2012	NA	.	.	1,170	1.2	1.5
Jul-23-2012	NA	.	.	1,220	1.6	1.4
Jul-30-2012	NA	.	.	1,020	1.1	1.3
Aug-06-2012	NA	.	.	1,150	1.0	1.3
Aug-13-2012	NA	.	.	1,270	1.5	1.4
Aug-20-2012	NA	.	.	770	0.7	0.7
Aug-27-2012	NA	.	.	622	0.8	0.4
Sep-04-2012	NA	.	.	638	0.6	0.3
Sep-10-2012	NA	.	.	632	0.5	0.3
Sep-17-2012	NA	.	.	766	0.5	0.5
Sep-24-2012	NA	.	.	756	0.6	0.3

Table 17. 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	.	.	.	Specific Conductance	Selenium (total)	Boron
DATA SOURCE	.	.	.	SLDMWA	SLDMWA	SLDMWA
UNITS	.	.	.	µS/cm	µg/L	mg/L
Jul-05-2012	.	.	.	2,040	2.5	1.4
Jul-11-2012	.	.	.	1,940	2.6	1.4
Jul-18-2012	.	.	.	1,690	2.7	1.2
Jul-25-2012	.	.	.	1,480	1.5	1.0
Aug-01-2012	.	.	.	1,670	2.4	1.1
Aug-08-2012	.	.	.	1,550	1.8	1.0
Aug-15-2012	.	.	.	1,550	1.3	1.0
Aug-22-2012	.	.	.	1,220	1.9	0.8
Aug-29-2012	.	.	.	1,340	1.4	0.9
Sep-05-2012	.	.	.	1,690	1.9	1.0
Sep-12-2012	.	.	.	1,680	1.2	1.0
Sep-19-2012	.	.	.	1,810	2.1	1.5
Sep-26-2012	.	.	.	1,540	0.7	0.8

Table 18. 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	Flow	.	.	Specific Conductance	Selenium (total)	Boron
DATA SOURCE	usgs	.	.	SLDMWA	SLDMWA	SLDMWA
UNITS	cfs	.	.	µS/cm	µg/L	mg/L
Jul-05-2012	294	.	.	2,000	2.6	1.4
Jul-11-2012	310	.	.	1,910	2.6	1.4
Jul-18-2012	325	.	.	NA	NA	NA
Jul-25-2012	300	.	.	1,470	1.6	1.0
Aug-01-2012	300	.	.	NA	NA	NA
Aug-08-2012	310	.	.	NA	NA	NA
Aug-15-2012	271	.	.	NA	NA	NA
Aug-22-2012	341	.	.	NA	NA	NA
Aug-29-2012	261	.	.	NA	NA	NA
Sep-05-2012	274	.	.	NA	NA	NA
Sep-12-2012	221	.	.	NA	NA	NA
Sep-19-2012	244	.	.	NA	NA	NA
Sep-26-2012	218	.	.	NA	NA	NA

Table 19. 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	USBR	USBR	USBR	USBR	USBR
UNITS	cfs	°C	°C	°C	µg/L	mg/L
Jul-02-2012	442	24.5	8.2	1,060	0.7	0.6
Jul-10-2012	344	23.9	8.0	1,300	1.6	0.7
Jul-18-2012	386	22.2	8.1	1,290	1.8	0.8
Jul-24-2012	347	24.3	8.0	1,220	1.4	0.7
Aug-01-2012	335	25.0	8.1	1,130	0.8	0.6
Aug-09-2012	355	24.9	8.2	1,180	0.7	0.6
Aug-14-2012	299	26.9	8.3	1,160	1.2	0.7
Aug-21-2012	357	25.6	8.9	1,100	1.0	0.6
Aug-28-2012	316	22.5	8.2	1,160	0.9	0.5
Sep-06-2012	320	21.8	7.9	1,120	0.8	0.5
Sep-13-2012	310	23.1	8.0	1,070	0.5	0.4
Sep-18-2012	290	20.6	7.9	1,040	0.6	0.4
Sep-26-2012	277	21.1	7.9	1,210	0.7	0.6

Table 20. 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	.	.	.	USBR	USBR	USBR
UNITS	.	.	.	µS/cm	µg/L	mg/L
Jul-02-2012	.	.	.	471	0.7	0.2
Jul-09-2012	.	.	.	396	0.6	0.2
Jul-16-2012	.	.	.	377	0.5	0.2
Jul-23-2012	.	.	.	411	0.7	0.2
Jul-30-2012	.	.	.	434	3.0	0.2
Aug-06-2012	.	.	.	442	< 0.4	0.2
Aug-13-2012	.	.	.	430	0.6	0.2
Aug-20-2012	.	.	.	434	<0.4	0.2
Aug-27-2012	.	.	.	475	0.6	0.2
Sep-04-2012	.	.	.	514	0.5	0.2
Sep-10-2012	.	.	.	562	0.4	0.2
Sep-17-2012	.	.	.	628	0.5	0.2
Sep-24-2012	.	.	.	717	0.4	0.2

Table 21. Summary of fathead minnow (*Pimephales promelas*) larvae survival in 7-day tests using water samples collected from October 2011 to September 2012. 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	%	%	%	%	%	%
Oct-2011	90	98	98	100	98	100
Nov-2012	100	93	98	93	100	100
Dec-2011	100	98	98	95	95	98
Jan-2012	85	75	78	80	78	85
Feb-2012	98	90	100	100	98	98
Mar-2012	98	98	100	98	95	95
Apr-2012	98	100	98	95	93	93
May-2012	98	88	98	88	90	95
Jun-2012	95	100	100	98	100	98
Jul-2012	68	90	98	98	95	98
Aug-2012	65	93	100	100	93	93
Sep-2012	98	100	100	95	98	93

Table 22. Summary of fathead minnow (*Pimephales promelas*) larvae growth in 7-day tests using water samples collected from October 2011 to September 2012. 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
Oct-2011	0.45	0.34	0.41	0.42	0.37	0.38
Nov-2011	0.50	0.47	0.47	0.46	0.48	0.44
Dec-2011	0.42	0.38	0.44	0.39	0.37	0.36
Jan-2012	0.37	0.33	0.33	0.33	0.34	0.35
Feb-2012	0.38	0.33	0.36	0.38	0.35	0.39
Mar-2012	0.56	0.46	0.45	0.44	0.41	0.49
Apr-2012	0.39	0.35	0.34	0.40	0.34	0.34
May-2012	0.32	0.32	0.36	0.34	0.30	0.31
Jun-2012	0.34	0.37	0.39	0.38	0.38	0.36
Jul-2012	0.27	0.33	0.39	0.37	0.34	0.36
Aug-2012	0.22	0.33	0.31	0.30	0.33	0.30
Sep-2012	0.33	0.27	0.31	0.32	0.32	0.34

Table 23. Summary of *Daphnia magna* survival in 7-day tests using water samples collected from October 2011 to September 2012. 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	%	%	%	%	%	%
Oct-2011	90	60	100	90	100	100
Nov-2011	100	100	100	100	100	100
Dec-2011	90	80	80	70	80	90
Jan-2012	90	100	100	90	100	100
Feb-2012	100	90	100	90	100	100
Mar-2012	100	100	80	80	90	90
Apr-2012	100	80	90	100	100	90
May-2012	90	90	80	90	100	100
Jun-2012	90	80	90	90	100	100
Jul-2012	90	20*	40*	100	100	100
Aug-2012	40*	100	100	100	100	100
Sep-2012	90	100	90	80	90	100

Table 24. Summary of *Daphnia magna* reproduction in 7-day tests using water samples collected from October 2011 to September 2012. 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
Oct-2011	26.9	13.2*	29.9	20.8	24.2	27.1
Nov-2012	51.9	46.8	48.1	39.3	44.6	27.0
Dec-2011	24.3	32.1	36.7	24.0	28.0	34.1
Jan-2012	34.1	41.4	35.7	29.2	33.9	28.5
Feb-2012	58.0	48.9	63.8	54.9	58.6	52.0
Mar-2012	58.3	49.7	41.8	40.8	45.1	31.5
Apr-2012	35.4	30.0	33.7	27.7	31.4	25.4
May-2012	33.0*	39.7	40.2	42.2	47.2	38.9
Jun-2012	41.9	37.7	33.1	29.8	35.7	28.3
Jul-2012	56.3	24.1*	36.4	54.3	46.8	55.8
Aug-2012	10.2*	25.0	26.2	27.3	29.3	24.5
Sep-2012	28.2	26.2	34.6	18.2*	29.7	24.2

Table 25. Summary of *Selenastrum capricornutum* growth in 4-day tests using water samples collected from October 2011 to September 2012. 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
Oct-2011	20.1	26.6	33.3	25.9	22.9	18.8
Nov-2011	14.7*	32.5	30.7	26.7	22.2	26.3
Dec-2011	17.4	36.6	36.0	35.6	25.1	2.9††††
Jan-2012	25.1	33.6	37.5	32.9	27.8	28.5
Feb-2012	25.0	36.4	34.9	4.9*	29.8	23.5
Mar-2012	17.9*	27.6	17.8*	26.7	25.6	24.0
Apr-2012	22.2	30.9	27.5	24.4	23.4	23.5
May-2012	18.1	8.3*	20.2	21.1	19.5	16.7
Jun-2012	21.8	27.7	27.1	34.3	23.1	16.3‡
Jul-2012	23.8	22.8	23.3	26.2	25.8	27.2
Aug-2012	24.3	29.5	27.8	32.3	27.5	23.1
Sep-2012	13.7*	19.0	17.4	20.2	14.4	16.8

Table 26. Summary of selenium concentrations in grab water samples collected at study stations for use in laboratory toxicity tests, July 2012 to September 2012.

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
Jul-09-2012	31	1.2	24 U	0.5	< 0.4
Jul-11-2012	31	1.4	10	0.5	< 0.4
Jul-13-2012	38	1.3	11	0.5	< 0.4
Aug-06-2012	19	1.2	5.5	< 0.4	< 0.4
Aug-08-2012	19	1.3	6.0	< 0.4	< 0.4
Aug-10-2012	21	1.3	12	< 0.4	< 0.4
Aug-13-2012	24	1.4	11	< 0.4	< 0.4
Sep-17-2012	17	< 0.4	6.0	< 0.4	< 0.4
Sep-19-2012	16	< 0.4	4.1	< 0.4	< 0.4
Sep-21-2012	15	< 0.4	2.7	< 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, July 2012 to September 2012.

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
Jul-09-2012	31	10	25	132	20
Jul-11-2012	23	57	39	173	9
Jul-13-2012	53	102	42	108	19
Aug-06-2012	15	59	60	109	19
Aug-08-2012	20	83	84	105	19
Aug-10-2012	33	90	76	135	25
Aug-13-2012	36	55	64	88	14
Sep-17-2012	32	25	37	52	0
Sep-19-2012	33	29	79	48	8
Sep-21-2012	39	35	97	56	8

Table 28. 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 September 1998.
❖	Based on definitive bioassay, NOEC is 50 percent
D	Sample was dechlorinated
PPD	Panoche Drainage District
U	results are determined to be an outlier at the time of data validation