

# GRASSLAND BYPASS PROJECT

## MONTHLY DATA REPORT

August 2013

March, 2014

### Preliminary Results

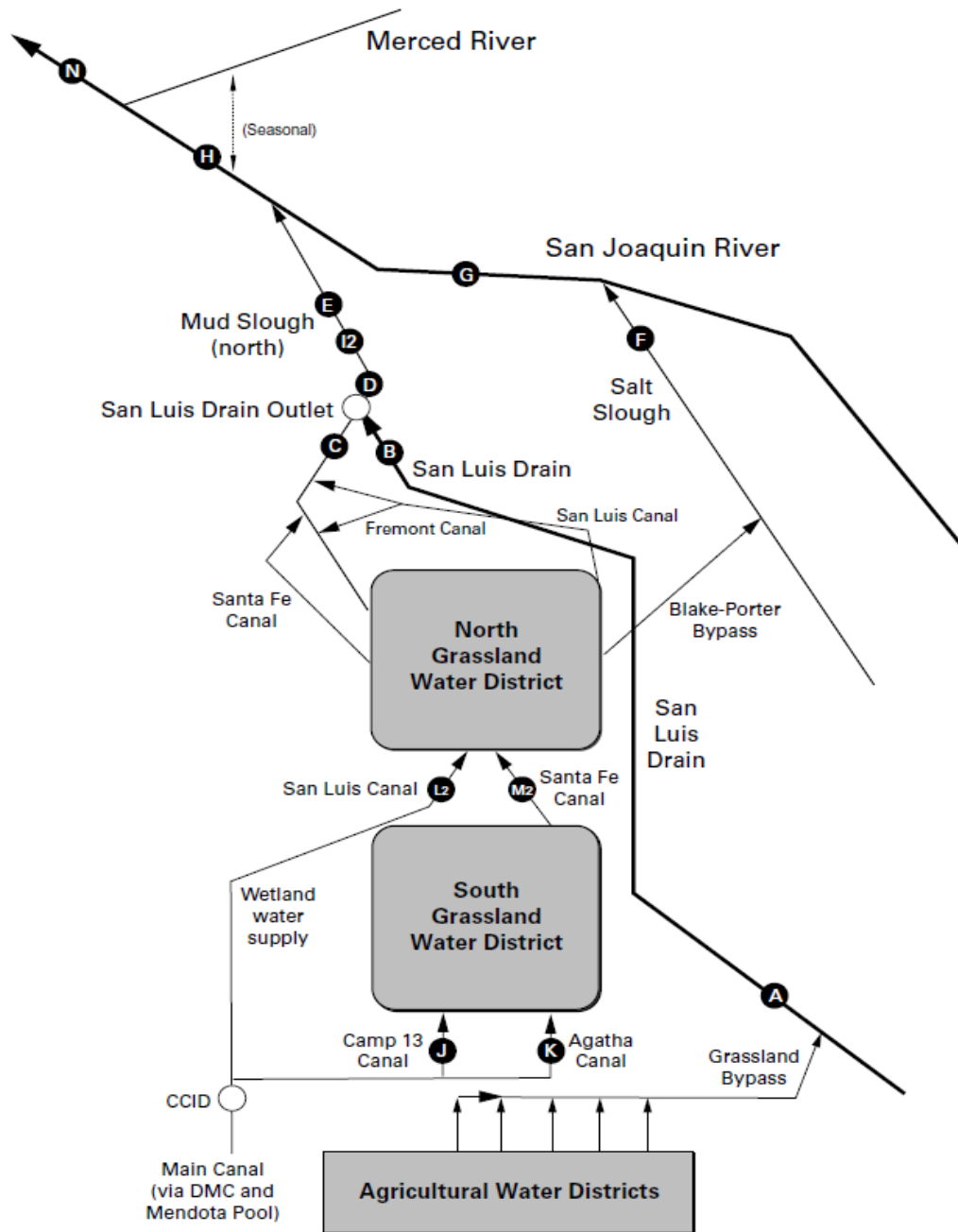
A cooperative effort of:

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

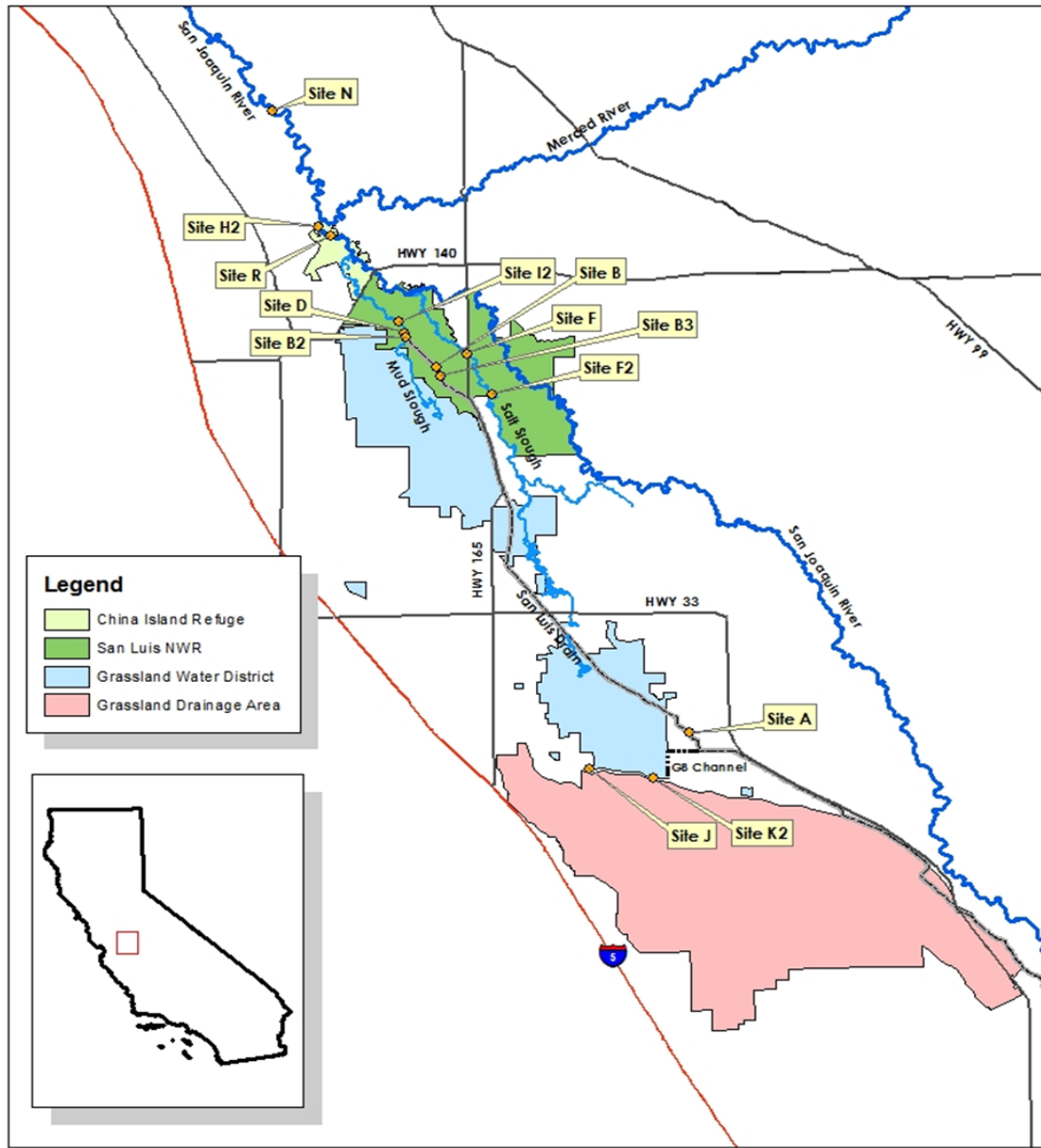
compiled by San Francisco Estuary Institute



Map 1: Current Monitoring Plan for the Grasslands Bypass Project

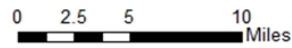


Map 2: Proposed 2013 Monitoring Plan for the Grasslands Bypass Project



## Grasslands Bypass Project

2013 Monitoring Plan Sites



Grasslands Bypass Project  
NAD 1983 California Zone 10  
U.S. Bureau of Reclamation

## GRASSLAND BYPASS PROJECT

## MONTHLY DATA REPORT

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**Monthly Monitoring**

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Table 1. Continuous water monitoring at Station A (inflow to San Luis Drain), August 2013.

See Table 28 for explanation of footnotes and agency abbreviations.

<b>PARAMETER</b>	<b>Flow</b>	<b>Temperature</b>	<b>Specific Conductance</b>	<b>Salt Load</b>
<b>DATA SOURCE</b>	<b>SLDMWA</b>	<b>SLDMWA</b>	<b>SLDMWA</b>	<b>Computed</b>
<b>UNITS</b>	<b>cfs</b>	<b>°C</b>	<b>µS/cm</b>	<b>tons</b>
Aug-01-2013	11	24.2	7,190	157
Aug-02-2013	10	24.7	7,940	158
Aug-03-2013	11	25.3	7,440	156
Aug-04-2013	10	25.0	7,710	152
Aug-05-2013	11	25.0	8,050	177
Aug-06-2013	16	24.6	7,390	242
Aug-07-2013	15	23.4	7,270	217
Aug-08-2013	20	24.0	6,540	256
Aug-09-2013	14	24.0	6,570	185
Aug-10-2013	13	24.3	6,780	177
Aug-11-2013	11	25.0	6,920	157
Aug-12-2013	9	25.5	7,090	134
Aug-13-2013	10	25.9	7,130	143
Aug-14-2013	14	26.2	6,600	182
Aug-15-2013	15	26.3	6,200	180
Aug-16-2013	15	26.7	6,010	181
Aug-17-2013	14	26.4	5,990	163
Aug-18-2013	12	26.3	6,210	146
Aug-19-2013	13	27.6	6,480	173
Aug-20-2013	15	27.2	6,200	189
Aug-21-2013	13	25.8	6,310	165
Aug-22-2013	13	25.1	6,660	176
Aug-23-2013	13	24.5	6,470	166
Aug-24-2013	12	25.0	6,430	160
Aug-25-2013	10	25.2	7,380	151
Aug-26-2013	11	25.0	6,430	139
Aug-27-2013	10	25.8	6,170	129
Aug-28-2013	13	26.0	6,380	164
Aug-29-2013	12	26.0	6,380	153
Aug-30-2013	12	26.2	6,620	163
Aug-31-2013	7	27.4	7,820	105
Mean	12	25.5	6,800	168
Total Acre-feet	766			
Total salt Load (tons)				5,197
Salinity Load Value (Critical Year, August)				5,373

Table 2a. Continuous water monitoring at Stations B and B2 (San Luis Drain Terminus), August 2013.

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
Aug-01-2013	16	23.6	16.0	6,130	14.0	1.2
Aug-02-2013	12	23.7	19.0	6,000	11.0	0.7
Aug-03-2013	10	24.9	19.0	NA	11.0	0.6
Aug-04-2013	10	24.4	19.0	NA	16.0	0.8
Aug-05-2013	10	23.9	19.0	7,390	20.0	1.0
Aug-06-2013	10	23.1	18.0	NA	19.0	1.0
Aug-07-2013	15	22.6	20.0	5,990	19.7	1.6
Aug-08-2013	16	22.8	18.0	6,000	15.4	1.3
Aug-09-2013	19	23.9	22.0	7,060	20.4	2.1
Aug-10-2013	15	23.3	22.0	NA	17.1	1.4
Aug-11-2013	13	24.1	24.0	NA	16.4	1.2
Aug-12-2013	13	23.5	24.0	NA	18.2	1.2
Aug-13-2013	10	25.5	22.0	8,460	16.1	0.9
Aug-14-2013	10	25.9	22.0	9,390	17.5	1.0
Aug-15-2013	13	26.4	21.0	8,290	16.7	1.2
Aug-16-2013	15	27.5	19.0	7,400	14.4	1.2
Aug-17-2013	15	26.5	20.0	NA	14.6	1.2
Aug-18-2013	15	28.0	21.0	NA	12.1	1.0
Aug-19-2013	13	30.4	21.0	7,400	22.8	1.6
Aug-20-2013	13	29.5	23.0	7,420	22.6	1.6
Aug-21-2013	16	26.6	18.0	7,400	20.0	1.7
Aug-22-2013	14	24.7	18.0	NA	17.0	1.3
Aug-23-2013	14	23.5	18.0	6,890	14.0	1.0
Aug-24-2013	14	25.2	17.0	NA	16.0	1.2
Aug-25-2013	14	26.0	17.0	NA	15.0	1.1
Aug-26-2013	11	24.6	19.0	6,800	11.0	0.6
Aug-27-2013	11	25.5	18.0	7,990	8.8	0.5
Aug-28-2013	11	26.0	19.0	8,050	8.3	0.5
Aug-29-2013	13	25.3	18.0	8,690	8.1	0.5
Aug-30-2013	13	26.6	20.0	9,390	7.8	0.6
Aug-31-2013	14	28.4	19.0	9,480	6.9	0.5
Mean	13	25.3	19.7	7,580	15.1	1.1
Total Acre-feet	810					
Total (lbs)						33

<b>Load Limitation for August 2013 (lbs)</b>	<b>75</b>
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Note: EC failure on 8/1/13 to 8/26/13. Field data entered if available.

♦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.

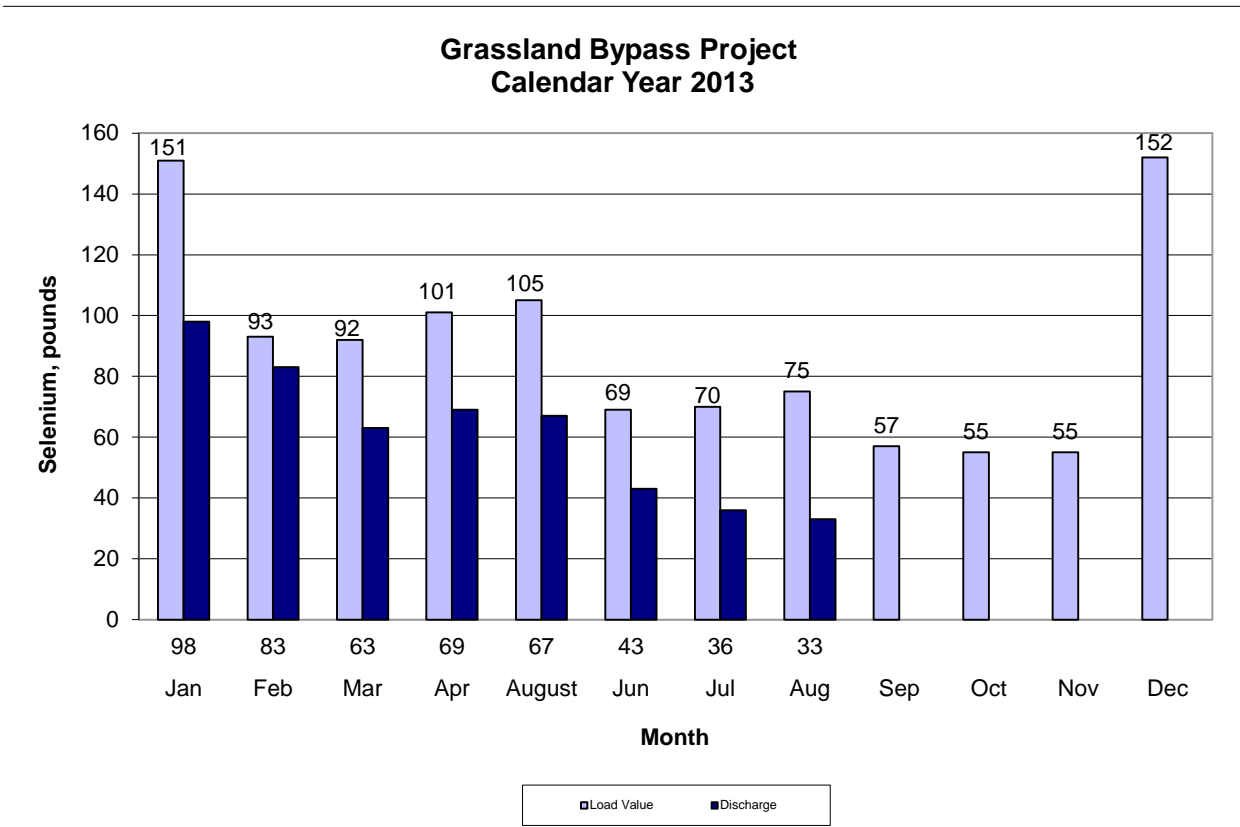


Table 3. Continuous water monitoring at Station D (Mud Slough North downstream of drainage discharges), August 2013.

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
Aug-01-2013	22	25.4	4,470
Aug-02-2013	20	25.1	4,710
Aug-03-2013	17	25.4	4,680
Aug-04-2013	14	25.2	5,590
Aug-05-2013	9	25.1	7,400
Aug-06-2013	NA	25.1	7,630
Aug-07-2013	19	24.9	5,550
Aug-08-2013	23	24.9	4,710
Aug-09-2013	22	25.1	5,480
Aug-10-2013	17	25.1	6,860
Aug-11-2013	12	25.1	8,200
Aug-12-2013	11	25.2	8,720
Aug-13-2013	13	25.5	5,950
Aug-14-2013	13	25.5	5,690
Aug-15-2013	14	25.6	6,650
Aug-16-2013	13	26.3	7,430
Aug-17-2013	16	26.6	6,400
Aug-18-2013	21	26.7	4,600
Aug-19-2013	13	27.1	6,120
Aug-20-2013	14	27.4	6,160
Aug-21-2013	18	27.0	5,740
Aug-22-2013	15	26.4	5,880
Aug-23-2013	17	25.7	5,160
Aug-24-2013	23	25.6	3,820
Aug-25-2013	18	25.9	4,710
Aug-26-2013	11	25.1	6,260
Aug-27-2013	15	25.5	5,350
Aug-28-2013	14	25.7	5,190
Aug-29-2013	14	25.9	6,070
Aug-30-2013	14	26.0	6,650
Aug-31-2013	18	26.5	5,360
Mean	16	25.7	5,910



Table 4. Continuous water monitoring at Station F (Salt Slough at Highway 165), August 2013.

See Table 28 for explanation of footnotes and agency abbreviations.

<b>PARAMETER</b>	<b>Flow</b>	<b>Temperature</b>	<b>Specific Conductance</b>
<b>DATA SOURCE</b>	<b>usgs</b>	<b>usgs</b>	<b>usgs</b>
<b>UNITS</b>	<b>cfs</b>	<b>°C</b>	<b>µS/cm</b>
Aug-01-2013	118	25.2	944
Aug-02-2013	120	24.5	904
Aug-03-2013	113	25.2	931
Aug-04-2013	112	25.2	954
Aug-05-2013	106	25.1	1,030
Aug-06-2013	112	25.0	1,020
Aug-07-2013	122	24.5	998
Aug-08-2013	130	24.1	989
Aug-09-2013	124	24.5	1,040
Aug-10-2013	117	24.5	1,100
Aug-11-2013	115	24.8	1,090
Aug-12-2013	114	25.1	1,060
Aug-13-2013	104	25.3	1,100
Aug-14-2013	95	25.9	1,110
Aug-15-2013	106	25.9	1,130
Aug-16-2013	118	26.4	1,060
Aug-17-2013	122	26.4	1,040
Aug-18-2013	114	26.0	1,060
Aug-19-2013	119	26.8	1,040
Aug-20-2013	108	27.6	1,010
Aug-21-2013	94	26.8	1,090
Aug-22-2013	89	26.0	1,090
Aug-23-2013	76	25.3	1,170
Aug-24-2013	80	25.1	1,190
Aug-25-2013	79	25.0	1,160
Aug-26-2013	93	25.3	1,160
Aug-27-2013	91	25.0	1,090
Aug-28-2013	77	25.8	1,150
Aug-29-2013	73	26.0	1,140
Aug-30-2013	72	25.7	1,160
Aug-31-2013	76	26.6	1,100
Mean	103	25.5	1,070

Table 5. Continuous water monitoring at Station N (San Joaquin River at Crow's Landing), August 2013.

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
Aug-01-2013	254	24.3	NA	1,410	NA
Aug-02-2013	250	24.0	1.1	1,410	1.0
Aug-03-2013	260	24.3	1.1	1,390	0.9
Aug-04-2013	257	24.8	1.1	1,350	0.8
Aug-05-2013	251	24.4	1.0	1,260	< 0.8
Aug-06-2013	237	24.0	NA	1,290	NA
Aug-07-2013	235	23.9	NA	1,320	NA
Aug-08-2013	248	24.0	NA	1,420	NA
Aug-09-2013	272	24.0	NA	1,400	NA
Aug-10-2013	254	24.0	NA	1,400	NA
Aug-11-2013	257	24.4	NA	1,550	NA
Aug-12-2013	256	24.6	NA	1,440	NA
Aug-13-2013	272	24.4	NA	1,360	NA
Aug-14-2013	263	24.4	NA	1,370	NA
Aug-15-2013	234	24.8	NA	1,390	NA
Aug-16-2013	217	25.4	NA	1,500	NA
Aug-17-2013	226	25.2	NA	1,580	NA
Aug-18-2013	250	25.2	NA	1,550	NA
Aug-19-2013	244	26.4	NA	1,600	NA
Aug-20-2013	232	27.1	NA	1,450	NA
Aug-21-2013	227	26.3	1.2	1,470	0.8
Aug-22-2013	234	25.0	1.4	1,530	1.1
Aug-23-2013	233	24.2	1.5	1,510	1.3
Aug-24-2013	235	24.0	1.4	1,510	1.1
Aug-25-2013	253	24.2	1.5	1,580	1.1
Aug-26-2013	247	24.7	1.2	1,500	0.9
Aug-27-2013	262	24.3	1.1	1,320	0.8
Aug-28-2013	259	24.6	1.0	1,300	0.8
Aug-29-2013	231	24.8	1.2	1,380	0.7
Aug-30-2013	238	24.5	1.1	1,290	0.6
Aug-31-2013	224	25.1	1.4	1,440	0.7
Mean	246	24.7	1.2	1,430	0.9
Total Acre-feet	15,098				

Note: No samples collected 8/1 and 8/6 - 8/20 due to autosampler malfunction

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
Jun-03-2013	12	105	5,550	33	12.0
Jun-10-2013	16	145	5,430	24	12.0
Jun-17-2013	5	126	6,260	21	14.0
Jun-24-2013	9	158	6,410	30	14.0
Jul-01-2013	16	122	6,230	29	13.0
Jul-08-2013	17	153	9,020	24	20 H,U
Jul-15-2013	11	132	9,910	18	24.0
Jul-22-2013	20	156	7,640	22	17.0
Jul-29-2013	16	145	9,230	26	21.0
Aug-05-2013	11	104	8,480	30	18.0
Aug-12-2013	9	118	8,060	23	19 U
Aug-19-2013	13	62	8,290	12	19.0
Aug-26-2013	11	128	8,630	16	19.0

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
Jun-04-2013	11	105	24.2	8.5	5,810	40.0	9.8
Jun-10-2013	12	32	24.5	8.5	5,970	40.0	12.0
Jun-18-2013	6	<10	23.9	8.2	5,810	20.0	13.0
Jun-26-2013	9	44	26.3	9.1	6,110	12.0	13.0
Jul-02-2013	15	88	30.7	8.9	6,330	19.0	14.0
Jul-09-2013	17	49	26.0	8.5	6,870	17.0	17 U
Jul-17-2013	9	31	23.3	8.7	6,210	20.0	13.0
Jul-25-2013	17	73	26.7	8.6	9,050	15.0	23.0
Jul-29-2013	13	38	25.3	8.3	7,110	15.0	16.0
Aug-07-2013	15	66	23.4	8.6	8,450	20.0	19.0
Aug-15-2013	13	116	26.0	8.7	9,150	16.0	20.0
Aug-23-2013	14	<10	24.3	8.4	7,880	14.0	17.0
Aug-28-2013	11	60	25.3	7.9	8,450	7.8	19.0

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
Jun-04-2013	57	.	23.0	8.0	1,380	1.1 U	1.2
Jun-10-2013	23	.	23.3	8.0	1,930	1.1	1.8
Jun-18-2013	15	.	23.2	8.1	2,190	0.9	2.1
Jun-26-2013	25	.	24.8	8.1	1,580	1.6 U	1.6
Jul-02-2013	24	.	30.3	8.1	1,400	1.6 U	1.6
Jul-09-2013	15	.	26.7	8.4	1,730	1.9 U	2.6
Jul-17-2013	20	.	23.2	8.5	1,440	1.2	1.5
Jul-25-2013	19	.	28.5	8.5	1,270	1.5	1.6
Jul-29-2013	27	.	25.4	8.5	1,440	1.1	1.6
Aug-07-2013	4	.	23.1	8.5	1,340	0.8	1.2
Aug-15-2013	1	.	26.5	8.8	1,320	0.7	0.9
Aug-23-2013	3	.	23.9	8.5	1,120	0.6	0.7
Aug-28-2013	3	.	25.8	8.7	1,080	0.8	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
Jun-04-2013	68	23	29.5	8.0	1,970	4.9	2.3
Jun-10-2013	35	23	31.6	8.2	3,320	14 U	4.7
Jun-18-2013	21	24	12.0	8.2	3,420	5.9	4.8
Jun-26-2013	34	25	27.0	8.4	2,760	4.5	4.0
Jul-02-2013	39	31	30.2	8.4	2,950	5.6	5.1
Jul-09-2013	32	26	20.0	8.6	4,020	8.6	8.4 U
Jul-17-2013	29	23	29.7	8.5	2,790	4.7	4.4
Jul-25-2013	36	28	19.4	8.6	5,170	7.8	11.0
Jul-29-2013	40	25	30.8	8.4	2,900	5.2	5.0
Aug-07-2013	19	23	17.8	8.4	5,650	11.0	12.0
Aug-15-2013	14	26	17.6	8.6	6,470	11.0	13.0
Aug-23-2013	17	24	15.0	8.2	5,410	8.5	11 U
Aug-28-2013	14	25	11.8	8.3	5,040	4.7	11.0

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
Jun-04-2013	.	NA	NA	NA	NA	NA	NA
Jun-10-2013	.	NA	NA	NA	NA	NA	NA
Jun-18-2013	.	NA	NA	NA	NA	NA	NA
Jun-26-2013	.	NA	NA	NA	NA	NA	NA
Jul-02-2013	.	NA	NA	NA	NA	NA	NA
Jul-09-2013	.	NA	NA	NA	NA	NA	NA
Jul-17-2013	No Flow June	NA	NA	NA	NA	NA	NA
Jul-25-2013	Through August	NA	NA	NA	NA	NA	NA
Jul-29-2013	.	NA	NA	NA	NA	NA	NA
Aug-07-2013	.	NA	NA	NA	NA	NA	NA
Aug-15-2013	.	NA	NA	NA	NA	NA	NA
Aug-23-2013	.	NA	NA	NA	NA	NA	NA
Aug-28-2013	.	NA	NA	NA	NA	NA	NA

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
Jun-04-2013	154	21.8	7.5	1,250	0.5	0.5
Jun-10-2013	100	21.8	7.8	1,490	0.9	0.6
Jun-18-2013	137	22.2	7.4	1,080	0.7	0.4
Jun-26-2013	146	22.9	7.6	1,120	0.5	0.4
Jul-02-2013	121	26.8	7.6	1,080	0.8	0.4
Jul-09-2013	121	23.9	7.7	981	0.5	0.4
Jul-17-2013	107	21.5	7.3	1,050	< 0.4	0.4
Jul-25-2013	111	25.9	7.8	988	0.5	0.3
Jul-29-2013	122	22.9	7.6	899	0.8	0.3
Aug-07-2013	122	21.1	7.6	1,040	0.5	0.4
Aug-15-2013	106	24.7	7.6	1,170	0.4	0.4
Aug-23-2013	76	21.8	7.6	1,180	< 0.4	0.4
Aug-28-2013	77	24.1	7.7	1,210	< 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
Jun-04-2013	179	23.7	7.9	1,380	0.5	0.5
Jun-10-2013	135	22.8	7.9	1,600	0.7	0.6
Jun-18-2013	155	23.4	8.1	1,310	0.5	0.4
Jun-26-2013	166	24.4	8.1	1,260	<0.4	0.4
Jul-02-2013	151	29.0	8.2	1,220	0.4	0.4
Jul-09-2013	133	25.2	7.7	1,190	0.5	0.5
Jul-17-2013	124	22.9	8.1	1,230	< 0.4	0.4
Jul-25-2013	115	25.8	8.1	1,160	0.7	0.3
Jul-29-2013	134	24.3	8.1	1,060	1.0 U	0.3
Aug-07-2013	120	22.3	8.1	1,180	0.4	0.4
Aug-15-2013	104	25.9	8.3	1,350	0.5	0.5
Aug-23-2013	94	22.7	8.0	1,450	< 0.4	0.5
Aug-28-2013	95	25.1	8.1	1,370	< 0.4	0.5

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 <sup>††</sup>	.	.	Panoche DD	Panoche DD	Panoche DD
UNITS	cfs	.	.	µS/cm	µg/L	mg/L
Jun-03-2013	5	.	.	658	2.1	0.3
Jun-10-2013	5	.	.	681	2.0	0.4
Jun-17-2013	5	.	.	880	1.3	0.5
Jun-24-2013	15	.	.	635	1.2	0.3
Jul-01-2013	5	.	.	571	1.0	0.3
Jul-08-2013	0	.	.	430	1.1	0.2
Jul-15-2013	0	.	.	3,370	3.8 U	1.3 H, U
Jul-22-2013	0	.	.	NA	NA	NA
Jul-29-2013	0	.	.	NA	NA	NA
Aug-05-2013	75	.	.	623	0.8	0.2
Aug-12-2013	65	.	.	629	0.7	0.2
Aug-19-2013	75	.	.	745	0.8	0.3
Aug-26-2013	80	.	.	587	0.5	0.2

Note: No flow at Site J July 15th and 22nd (No Sample Taken)

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 <sup>††</sup>	.	.	Panoche DD	Panoche DD	Panoche DD
UNITS	cfs	.	.	µS/cm	µg/L	mg/L
Jun-03-2013	35	.	.	667	1.6	0.4
Jun-10-2013	25	.	.	680	1.5	0.4
Jun-17-2013	30	.	.	767	1.8	0.4
Jun-24-2013	30	.	.	633	1.2	0.3
Jul-01-2013	20	.	.	632	1.0	0.3
Jul-08-2013	20	.	.	455	0.8	0.2
Jul-15-2013	0	.	.	456	0.7	0.2 H
Jul-22-2013	0	.	.	519	1.2	1.0
Jul-29-2013	0	.	.	840	1.3	1.0 U
Aug-05-2013	0	.	.	824	1.7	0.6
Aug-12-2013	25	.	.	1,600	1.3	3.0 U
Aug-19-2013	85	.	.	582	0.6	0.2
Aug-26-2013	105	.	.	561	< 0.4	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 <sup>††</sup>	.	.	Panoche DD	Panoche DD	Panoche DD
UNITS	cfs	.	.	µS/cm	µg/L	mg/L
Jun-03-2013	NA	.	.	2,800	2.3 U	2.4 U
Jun-10-2013	NA	.	.	2,660	2.4	3.2 U
Jun-17-2013	NA	.	.	1,790	3.2	1.7
Jun-24-2013	NA	.	.	3,030	2.4	3.0 U
Jul-01-2013	NA	.	.	2,070	2.2	2.5 U
Jul-08-2013	NA	.	.	2,820	3.2	3.2 U
Jul-15-2013	NA	.	.	1,970	2.0	1.7 U
Jul-22-2013	NA	.	.	1,520	1.7	2.1
Jul-29-2013	NA	.	.	1,790	1.6	2.1
Aug-05-2013	NA	.	.	1,390	1.6	1.5
Aug-12-2013	NA	.	.	1,320	1.0	1.1
Aug-19-2013	NA	.	.	783	0.8	0.4
Aug-26-2013	NA	.	.	1,620	1.3	1.6

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 <sup>††</sup>	.	.	Panoche DD	Panoche DD	Panoche DD
UNITS	cfs	.	.	µS/cm	µg/L	mg/L
May-06-2013	NA	.	.	789	1.2	0.5
May-14-2013	NA	.	.	706	1.2	0.5
May-20-2013	NA	.	.	928	1.4	0.8
May-28-2013	NA	.	.	842	1.5	0.6
Jun-03-2013	NA	.	.	1,050	1.4	1.0
Jun-10-2013	NA	.	.	1,260	2.6 U	1.5
Jun-17-2013	NA	.	.	1,520	1.8	1.7
Jun-24-2013	NA	.	.	1,200	1.7	1.4
Jul-01-2013	NA	.	.	1,290	1.6	1.6
Aug-05-2013	NA	.	.	830	0.8	0.7
Aug-12-2013	NA	.	.	871	0.9	0.6
Aug-19-2013	NA	.	.	758	0.7	0.4
Aug-26-2013	NA	.	.	673	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
Jun-05-2013	.	.	.	1,850	2.4	1.3
Jun-12-2013	.	.	.	1,840	2.0	1.2
Jun-19-2013	.	.	.	1,670	0.9	1.0
Jul-03-2013	.	.	.	1,660	1.0	1.0
Jul-08-2013	.	.	.	1,950	2.2	1.8
Jul-17-2013	.	.	.	1,910	2.1	1.9
Jul-24-2013	.	.	.	1,950	2.1	2.0
Jul-31-2013	.	.	.	1,650	1.6	1.6
Aug-07-2013	.	.	.	1,660	1.4	1.7
Aug-14-2013	.	.	.	2,050	1.5	1.8
Aug-21-2013	.	.	.	2,090	1.6	1.9
Aug-28-2013	.	.	.	1,970	2.2	1.9

Note: In October of 2012 samples were collected upstream of Station H1. Site name will be changed to Site R (SJR at China Island) under the 2013 Monitoring Plan.

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
Jun-05-2013	225	.	.	NA	NA	NA
Jun-12-2013	171	.	.	NA	NA	NA
Jun-19-2013	160	.	.	NA	NA	NA
Jul-01-2013	188	.	.	NA	NA	NA
Jul-08-2013	174	.	.	NA	NA	NA
Jul-15-2013	146	.	.	NA	NA	NA
Jul-22-2013	163	.	.	NA	NA	NA
Jul-29-2013	179	.	.	NA	NA	NA
Aug-07-2013	149	.	.	NA	NA	NA
Aug-14-2013	146	.	.	NA	NA	NA
Aug-21-2013	120	.	.	NA	NA	NA
Aug-28-2013	117	.	.	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
Jun-04-2013	440	24.1	8.0	1,260	1.3	0.7
Jun-10-2013	361	22.5	8.0	1,420	1.6	0.9
Jun-18-2013	305	23.1	8.2	1,310	0.8	0.6
Jun-26-2013	319	23.6	8.2	1,330	0.7	0.7
Jul-02-2013	310	27.9	8.5	1,510	1.1	1.2
Jul-09-2013	250	24.7	8.6	1,480	1.1	1.2
Jul-17-2013	241	22.1	8.4	1,540	1.1	1.0
Jul-25-2013	251	24.2	7.9	1,780	1.4	2.0
Jul-29-2013	279	23.8	8.1	1,600	1.6	1.2
Aug-07-2013	235	21.6	7.9	1,580	1.0	1.1
Aug-15-2013	234	24.7	8.4	1,670	1.0	1.0
Aug-23-2013	233	22.5	8.3	1,780	1.3	1.5
Aug-28-2013	259	24.6	8.0	1,500	1.0	1.1

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
Jun-03-2013	.	.	.	653	1.8	0.3
Jun-10-2013	.	.	.	717	2.3	0.5
Jun-17-2013	.	.	.	680	1.8	0.4
Jun-26-2013	.	.	.	612	1.3	0.3
Jul-01-2013	.	.	.	554	1.1	0.3
Jul-08-2013	.	.	.	508	0.9	0.2
Jul-15-2013	.	.	.	506	1.3	0.3 H
Jul-22-2013	.	.	.	491	1.1	0.3
Jul-29-2013	.	.	.	577	0.8	0.3
Aug-05-2013	.	.	.	652	0.7	0.3
Aug-12-2013	.	.	.	606	0.6	0.2
Aug-19-2013	.	.	.	663	0.8	0.3
Aug-26-2013	.	.	.	605	0.4	0.2

**Table 21. Summary of fathead minnow (*Pimephales promelas*) larvae survival in 7-day tests using water samples September 2012 to August 2013. 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	%	%	%	%	%	%
Sep-2012	98	100	100	95	98	93
Oct-2012	NA	NA	NA	NA	NA	NA
Nov-2012	100	93	100	95	98	100
Dec-2012	NA	NA	NA	NA	NA	NA
Jan-2013	NA	NA	NA	NA	NA	NA
Feb-2013	NA	NA	NA	NA	NA	NA
Mar-2013	98	98	98	93	95	88
Apr-2013	NA	NA	NA	NA	NA	NA
May-2013	NA	NA	NA	NA	NA	NA
Jun-2013	95	95	88*	93	100	83
Jul-2013	NA	NA	NA	NA	NA	NA
Aug-2013	NA	NA	NA	NA	NA	NA

**Table 22. Summary of fathead minnow (*Pimephales promelas*) larvae growth in 7-day tests using water samples collected from September 2012 to August 2013. 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
Sep-2012	0.33	0.27	0.31	0.32	0.32	0.34
Oct-2012	NA	NA	NA	NA	NA	NA
Nov-2012	0.29	0.33	0.34	0.33	0.28	0.35
Dec-2012	NA	NA	NA	NA	NA	NA
Jan-2013	NA	NA	NA	NA	NA	NA
Feb-2013	NA	NA	NA	NA	NA	NA
Mar-2013	0.39	0.37	0.37	0.38	0.32	0.33
Apr-2013	NA	NA	NA	NA	NA	NA
May-2013	NA	NA	NA	NA	NA	NA
Jun-2013	0.22	0.21	0.22	0.20	0.19***	0.22***
Jul-2013	NA	NA	NA	NA	NA	NA
Aug-2013	NA	NA	NA	NA	NA	NA

**Table 23. Summary of *Daphnia magna* survival in 7-day tests using water samples collected from September 2012 to August 2013. 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	%	%	%	%	%	%
Sep-2012	90	100	90	80	90	100
Oct-2012	NA	NA	NA	NA	NA	NA
Nov-2012	80	90	100	90	90	100
Dec-2012	NA	NA	NA	NA	NA	NA
Jan-2013	NA	NA	NA	NA	NA	NA
Feb-2013	NA	NA	NA	NA	NA	NA
Mar-2013	90	100	90	100	100	100
Apr-2013	NA	NA	NA	NA	NA	NA
May-2013	NA	NA	NA	NA	NA	NA
Jun-2013	100	80	100	70	100	80
Jul-2013	NA	NA	NA	NA	NA	NA
Aug-2013	NA	NA	NA	NA	NA	NA

**Table 24. Summary of *Daphnia magna* reproduction in 7-day tests using water samples collected from September 2012 to August 2013. 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
Sep-2012	28.2	26.2	34.6	18.2*	29.7	24.2
Oct-2012	NA	NA	NA	NA	NA	NA
Nov-2012	25.7	21.1	23.8	21.6	22.6	22.8
Dec-2012	NA	NA	NA	NA	NA	NA
Jan-2013	NA	NA	NA	NA	NA	NA
Feb-2013	NA	NA	NA	NA	NA	NA
Mar-2013	32.9	28.9	32.7	36.2	34.8	31.7
Apr-2013	NA	NA	NA	NA	NA	NA
May-2013	NA	NA	NA	NA	NA	NA
Jun-2013	39.9	22.8	28.0	30.0	23.7	30.4
Jul-2013	NA	NA	NA	NA	NA	NA
Aug-2013	NA	NA	NA	NA	NA	NA

**Table 25. Summary of *Selenastrum capricornutum* growth in 4-day tests using water samples collected from September 2012 to August 2013. 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 <sup>5</sup> cells/mL	10 <sup>5</sup> cells/mL	10 <sup>5</sup> cells/mL	10 <sup>5</sup> cells/mL	10 <sup>5</sup> cells/mL	10 <sup>5</sup> cells/mL
Sep-2012	13.7*	19.0	17.4	20.2	14.4	16.8
Oct-2012	NA	NA	NA	NA	NA	NA
Nov-2012	14.1*	25.4	24.7*	29.3	26.7	19.4
Dec-2012	NA	NA	NA	NA	NA	NA
Jan-2013	NA	NA	NA	NA	NA	NA
Feb-2013	NA	NA	NA	NA	NA	NA
Mar-2013	19.1*	22.8	22.7	19.2*	24.8	20.2
Apr-2013	NA	NA	NA	NA	NA	NA
May-2013	NA	NA	NA	NA	NA	NA
Jun-2013	23.7	26.8	28.9	25.1	23.4	20.1
Jul-2013	NA	NA	NA	NA	NA	NA
Aug-2013	NA	NA	NA	NA	NA	NA

**Table 26. Summary of selenium concentrations in grab water samples collected at study stations for use in laboratory toxicity tests, June 2013 to August 2013.**

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
Jun-10-2013	40	1.2	13	0.5	< 0.4
Jun-12-2013	34	1.5	12	0.5	< 0.4
Jun-14-2013	19	1.4	5.7	0.5	< 0.4
Jun-17-2013	20	1.1	4.9	0.5	< 0.4
Jul-14-2013	NA	NA	NA	NA	NA
Jul-16-2013	NA	NA	NA	NA	NA
Jul-18-2013	NA	NA	NA	NA	NA
Aug-16-2013	NA	NA	NA	NA	NA
Aug-18-2013	NA	NA	NA	NA	NA

**Table 27. Summary of total suspended solids concentrations in grab water samples collected at study stations for use in laboratory toxicity June 2013 to August 2013.**

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
Jun-10-2013	20	30	50	108	3
Jun-12-2013	13	36	41	89	5
Jun-14-2013	32	30	38	134	3
Jun-17-2013	39	3	7	87	2
Jul-14-2013	NA	NA	NA	NA	NA
Jul-16-2013	NA	NA	NA	NA	NA
Jul-18-2013	NA	NA	NA	NA	NA
Aug-16-2013	NA	NA	NA	NA	NA
Aug-18-2013	NA	NA	NA	NA	NA

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 August 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 August 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 <sup>6</sup> cell/mL) acceptability criteria.
***	DMC/Lab CI water failed to meet the growth ( $\geq$ 0.25 mg) 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 December 1998.
❖	Based on definitive bioassay, NOEC is 50 percent
D	Sample was dechlorinated
PPD	Panoche Drainage Distract
U	Results are determined to be an outlier at the time of data validation
V	Result may vary excessively from the true value
H	Result may have high bias
L	Result may have low bias,
T	Result obtained past the holding time
U	Result determined to be an outlier at the time of data validation
J	Result is between the MDL and RL