

GRASSLAND BYPASS PROJECT

MONTHLY DATA REPORT

December 2012

May 2013

Preliminary Results

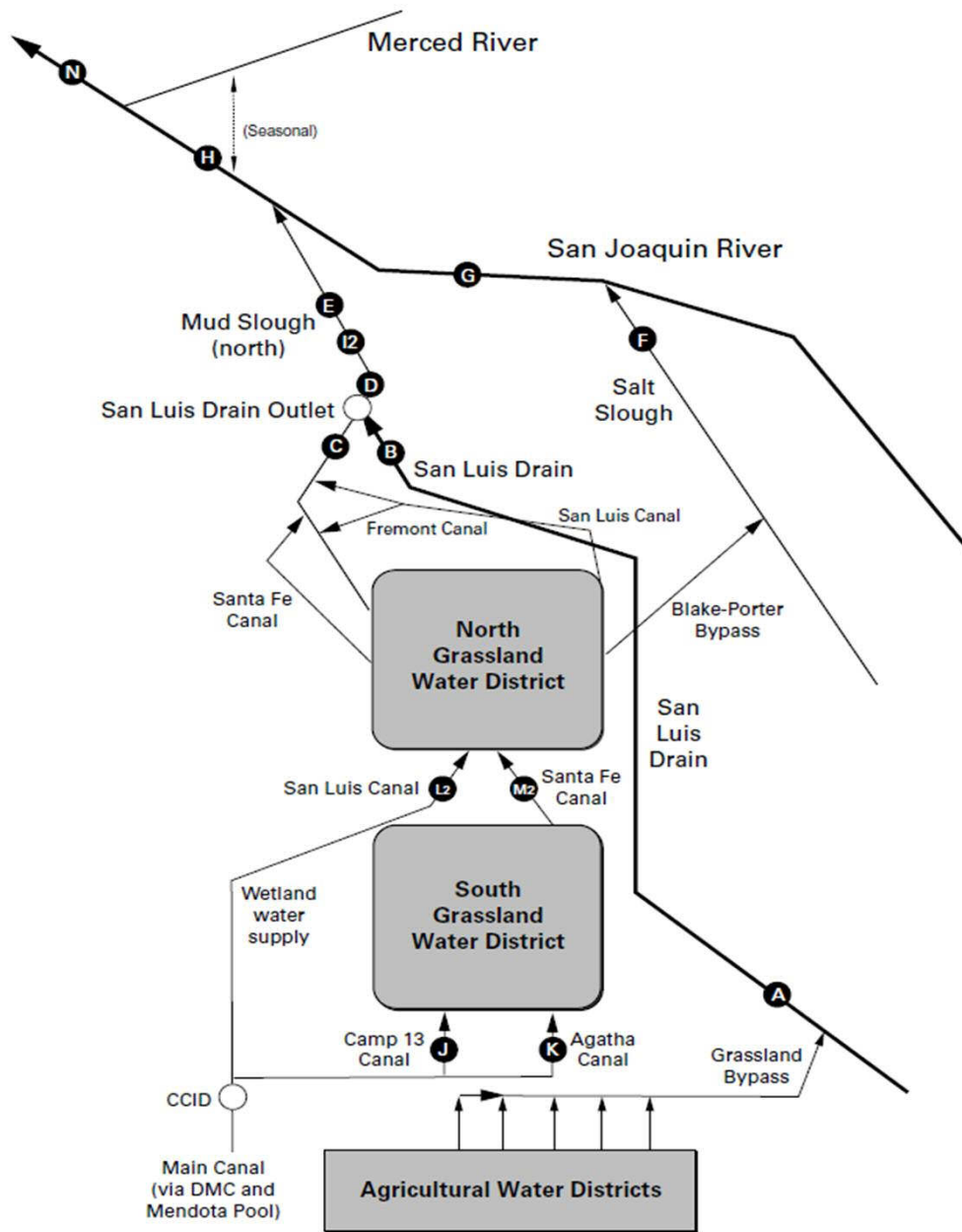
A cooperative effort of:

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

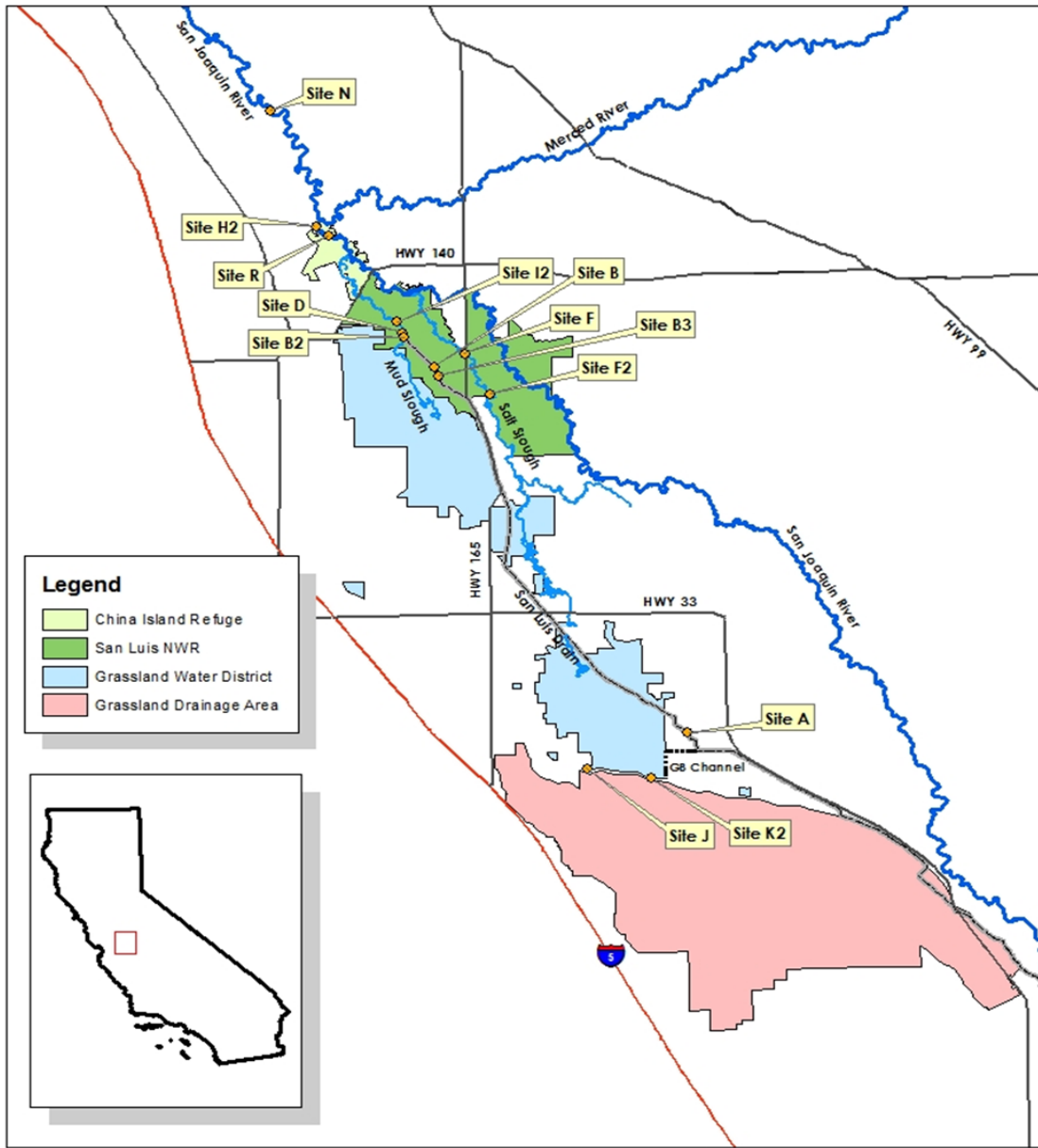
compiled by San Francisco Estuary Institute



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

0 2.5 5 10 Miles



Grasslands Bypass Project
NAID 1182 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), December 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
Dec-01-2012	17	14.8	4,790	164
Dec-02-2012	21	15.2	4,580	191
Dec-03-2012	24	14.5	4,800	227
Dec-04-2012	21	14.2	5,060	214
Dec-05-2012	18	14.1	5,040	185
Dec-06-2012	17	14.8	5,190	178
Dec-07-2012	17	14.6	5,110	172
Dec-08-2012	16	12.1	5,030	162
Dec-09-2012	14	11.4	5,220	146
Dec-10-2012	12	10.7	5,270	128
Dec-11-2012	12	10.6	4,990	123
Dec-12-2012	13	10.9	4,770	120
Dec-13-2012	12	10.1	4,880	118
Dec-14-2012	8	8.7	4,970	82
Dec-15-2012	7	8.6	5,060	70
Dec-16-2012	7	8.9	5,110	71
Dec-17-2012	10	11.0	5,120	106
Dec-18-2012	14	10.5	5,330	154
Dec-19-2012	12	7.6	5,560	138
Dec-20-2012	8	6.5	5,650	94
Dec-21-2012	7	6.4	5,490	72
Dec-22-2012	9	8.3	5,460	95
Dec-23-2012	12	8.8	5,380	126
Dec-24-2012	15	9.6	5,400	164
Dec-25-2012	16	8.7	5,470	178
Dec-26-2012	20	9.0	5,400	215
Dec-27-2012	22	9.5	5,590	246
Dec-28-2012	15	8.1	5,500	167
Dec-29-2012	13	8.2	5,520	139
Dec-30-2012	14	7.8	5,580	153
Dec-31-2012	13	7.0	5,550	145
Mean	14	10.4	5,220	4,545
Total Acre-feet	869			
Salinity Load Value (Dry Year, December)				4,253

Table 2a. Continuous water monitoring at Stations B and B2 (San Luis Drain Terminus), December 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
Dec-01-2012	13	15.1	6.8	3,830	27.0	1.9
Dec-02-2012	27	14.7	6.6	3,600	23.0	3.3
Dec-03-2012	32	13.3	5.6	3,330	17.0	3.0
Dec-04-2012	34	12.5	5.9	3,220	17.0	3.1
Dec-05-2012	29	14.4	8.6	4,330	28.0	4.4
Dec-06-2012	24	14.6	8.5	4,260	28.0	3.7
Dec-07-2012	24	12.7	8.7	4,390	26.0	3.3
Dec-08-2012	23	6.8	9.6	4,610	25.0	3.1
Dec-09-2012	22	9.9	9.5	4,530	23.0	2.8
Dec-10-2012	21	9.6	9.2	4,370	23.0	2.6
Dec-11-2012	19	8.8	9.2	4,480	23.0	2.3
Dec-12-2012	19	9.9	8.3	4,450	22.0	2.2
Dec-13-2012	18	7.4	8.1	4,260	20.0	2.0
Dec-14-2012	18	5.7	8.2	4,250	21.0	2.1
Dec-15-2012	16	6.1	8.2	4,200	20.0	1.7
Dec-16-2012	14	8.9	8.4	4,200	22.0	1.7
Dec-17-2012	14	11.9	7.7	4,120	23.0	1.8
Dec-18-2012	15	8.6	7.1	3,880	24.0	2.0
Dec-19-2012	19	5.4	7.7	3,780	23.0	2.3
Dec-20-2012	17	4.2	7.1	3,710	21.0	1.9
Dec-21-2012	14	6.9	7.2	3,560	24.0	1.8
Dec-22-2012	14	9.4	7.1	3,580	23.0	1.7
Dec-23-2012	17	9.4	7.5	3,570	25.0	2.3
Dec-24-2012	19	9.8	8.3	3,900	24.0	2.4
Dec-25-2012	22	6.4	8.6	3,960	24.0	2.8
Dec-26-2012	24	10.4	7.8	3,920	21.0	2.8
Dec-27-2012	26	8.3	7.8	3,950	27.0	3.7
Dec-28-2012	28	13.4	9.0	4,290	35.0	5.3
Dec-29-2012	23	7.1	9.2	4,550	38.0	4.6
Dec-30-2012	18	2.4	9.7	4,620	37.0	3.7
Dec-31-2012	20	4.4	9.8	4,600	36.0	3.9
Mean	21	9.3	8.1	4,070	24.8	2.8
Total Acre-feet	1,280					
Total (lbs)						86

Load Limitation for December 2012 (lbs)	319
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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.

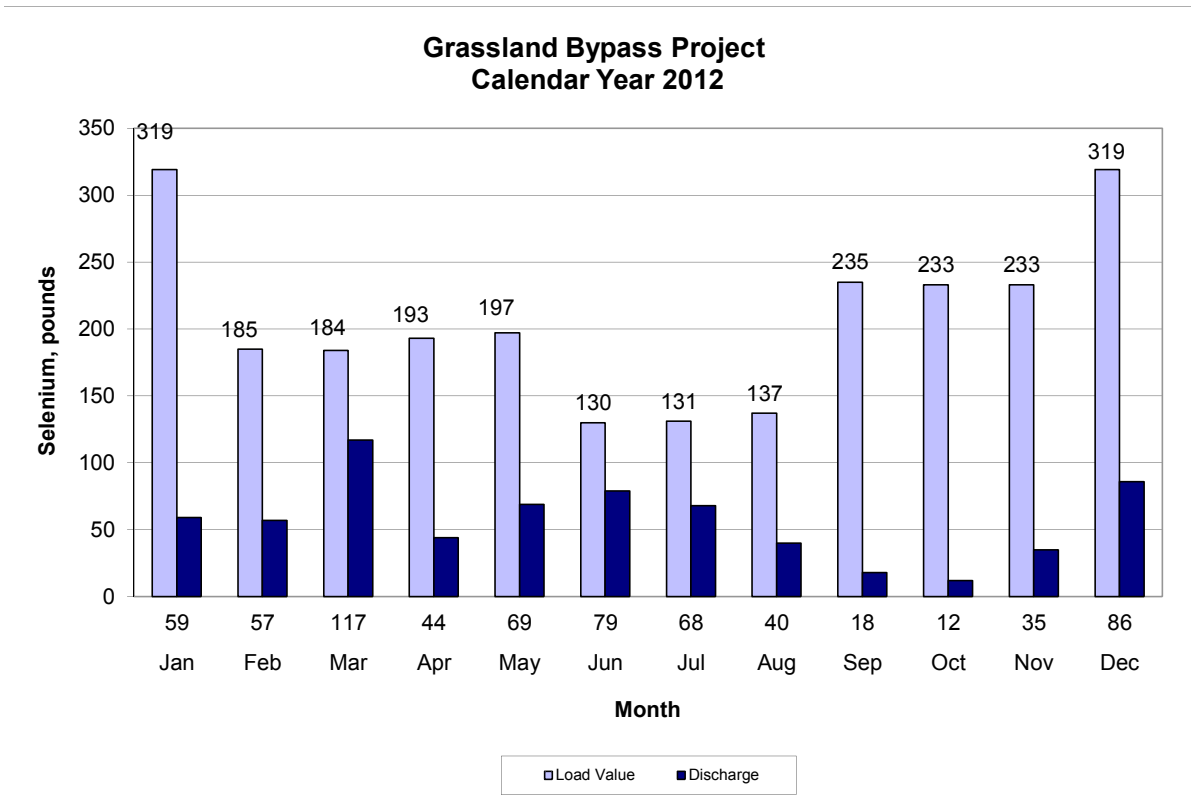


Table 3. Continuous water monitoring at Station D (Mud Slough North downstream of drainage discharges), December 2012.

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
Dec-01-2012	167	14.3	1,580
Dec-02-2012	198	14.7	1,650
Dec-03-2012	213	14.2	1,660
Dec-04-2012	230	14.1	1,660
Dec-05-2012	228	14.4	1,810
Dec-06-2012	227	14.6	1,740
Dec-07-2012	213	14.2	1,760
Dec-08-2012	199	12.6	1,840
Dec-09-2012	181	11.9	1,900
Dec-10-2012	170	11.6	1,910
Dec-11-2012	162	11.5	1,900
Dec-12-2012	164	11.6	1,870
Dec-13-2012	156	11.1	1,890
Dec-14-2012	142	9.9	1,970
Dec-15-2012	140	9.4	1,910
Dec-16-2012	137	9.6	1,930
Dec-17-2012	130	10.8	1,920
Dec-18-2012	139	10.8	1,860
Dec-19-2012	139	9.3	1,960
Dec-20-2012	130	8.2	2,010
Dec-21-2012	116	7.9	2,060
Dec-22-2012	118	8.8	2,020
Dec-23-2012	133	9.3	1,980
Dec-24-2012	175	10.0	1,900
Dec-25-2012	182	9.4	1,930
Dec-26-2012	199	9.5	1,880
Dec-27-2012	209	9.9	1,820
Dec-28-2012	207	9.1	1,960
Dec-29-2012	199	9.0	1,940
Dec-30-2012	186	8.6	1,950
Dec-31-2012	172	8.1	2,070
Mean	173	10.9	1,880

Table 4. Continuous water monitoring at Station F (Salt Slough at Highway 165), December 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
Dec-01-2012	204	14.0	1,280
Dec-02-2012	219	14.4	1,260
Dec-03-2012	245	14.0	1,230
Dec-04-2012	259	13.7	1,200
Dec-05-2012	254	14.0	1,240
Dec-06-2012	245	14.3	1,250
Dec-07-2012	234	14.0	1,280
Dec-08-2012	224	12.7	1,310
Dec-09-2012	210	12.0	1,320
Dec-10-2012	198	11.4	1,330
Dec-11-2012	192	11.1	1,340
Dec-12-2012	186	11.3	1,350
Dec-13-2012	168	11.0	1,420
Dec-14-2012	148	10.1	1,470
Dec-15-2012	137	9.5	1,500
Dec-16-2012	131	9.7	1,510
Dec-17-2012	e123	NA	NA
Dec-18-2012	e119	NA	NA
Dec-19-2012	e119	NA	NA
Dec-20-2012	e118	NA	NA
Dec-21-2012	e115	NA	NA
Dec-22-2012	e108	NA	NA
Dec-23-2012	e112	NA	NA
Dec-24-2012	e126	NA	NA
Dec-25-2012	e142	NA	NA
Dec-26-2012	e166	NA	NA
Dec-27-2012	177	9.9	1,500
Dec-28-2012	184	9.2	1,450
Dec-29-2012	191	9.0	1,470
Dec-30-2012	177	8.7	1,490
Dec-31-2012	163	8.1	1,530
Mean	197	11.5	1,370

Table 5. Continuous water monitoring at Station N (San Joaquin River at Crow's Landing), December 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
Dec-01-2012	691	14.2	0.6	922	0.8
Dec-02-2012	748	14.6	0.6	891	0.8
Dec-03-2012	807	14.1	0.6	909	1.2
Dec-04-2012	891	14.0	0.7	892	0.9
Dec-05-2012	934	14.2	0.7	896	0.9
Dec-06-2012	952	14.5	0.7	931	1.0
Dec-07-2012	935	14.2	0.7	939	1.2
Dec-08-2012	897	12.8	0.7	960	1.2
Dec-09-2012	856	12.1	0.8	992	1.2
Dec-10-2012	813	12.0	0.8	1,020	1.3
Dec-11-2012	770	11.9	0.8	1,040	1.0
Dec-12-2012	732	11.8	NA	1,060	NA
Dec-13-2012	712	11.3	NA	1,080	NA
Dec-14-2012	686	10.2	NA	1,110	NA
Dec-15-2012	654	9.7	NA	1,150	NA
Dec-16-2012	653	9.9	NA	1,180	NA
Dec-17-2012	656	10.9	NA	1,180	NA
Dec-18-2012	667	10.9	NA	1,180	NA
Dec-19-2012	656	9.5	NA	1,170	NA
Dec-20-2012	645	8.6	0.8	1,160	1.1
Dec-21-2012	635	8.2	NA	1,170	NA
Dec-22-2012	651	8.9	NA	1,180	NA
Dec-23-2012	671	9.6	NA	1,170	NA
Dec-24-2012	1,360	9.9	NA	878	NA
Dec-25-2012	1,560	9.4	NA	701	NA
Dec-26-2012	1,650	9.3	NA	587	NA
Dec-27-2012	1,740	9.5	NA	563	NA
Dec-28-2012	1,960	9.1	NA	556	NA
Dec-29-2012	1,960	8.9	NA	546	NA
Dec-30-2012	1,760	8.3	NA	663	NA
Dec-31-2012	1,500	7.9	NA	760	NA
Mean	994	11.0	0.7	950	1.1
Total Acre-feet	61,096				

Note: No samples taken mid to late December due to auto sampler 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
Oct-01-2012	8	155	4,730	10	10.0
Oct-08-2012	4	145	6,070	12	13.0
Oct-15-2012	2	80	5,660	17	13.0
Oct-22-2012	5	138	4,990	25	9.5
Oct-29-2012	3	80	4,880	20	10.0
Nov-05-2012	0	40	4,830	27	9.7
Nov-12-2012	5	42	1,980	34	9.9
Nov-17-2012	4	96	4,770	34	9.5
Nov-26-2012	11	125	5,200	33	10.0
Dec-03-2012	24	145	5,530	30	11.0
Dec-10-2012	12	59	5,360	38	9.9
Dec-17-2012	10	88	5,920	41	12.0
Dec-24-2012	15	86	6,000	43	12.0
Dec-31-2012	13	NA	5,530	40	11.0

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
Oct-02-2012	12	24	23.2	8.0	3,740	4.9	6.7
Oct-10-2012	10	25	19.4	8.5	3,600	10.0	6.6
Oct-16-2012	10	39	20.4	8.0	3,410	4.9	5.6
Oct-23-2012	12	48	16.3	8.2	3,330	4.9	6.0
Oct-30-2012	10	38	17.1	8.2	3,010	8.5	5.1
Nov-07-2012	9	34	19.6	8.2	3,760	9.6	6.9
Nov-15-2012	12	18	11.8	8.2	3,590	11.0	6.4
Nov-20-2012	15	25	14.0	7.9	3,430	11.0	6.0
Nov-26-2012	21	32	13.4	7.8	4,490	27.0	9.0
Dec-06-2012	24	87	14.4	7.6	4,560	27.0	8.8
Dec-13-2012	18	21	10.3	7.9	4,620	20.0	8.3
Dec-20-2012	17	43	8.6	7.9	4,990	22.0	7.2
Dec-27-2012	26	28	8.8	7.9	4,150	24.0	7.2

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
Oct-02-2012	31	.	21.8	7.8	1,140	<0.4	0.7
Oct-10-2012	63	.	18.2	7.8	1,110	0.5	0.6
Oct-16-2012	84	.	19.6	7.7	1,180	<0.4	0.6
Oct-23-2012	88	.	15.7	7.9	1,330	0.6	0.9
Oct-30-2012	73	.	16.9	7.9	1,480	<0.4	1.0
Nov-07-2012	86	.	18.6	7.9	1,550	<0.4	1.1
Nov-15-2012	76	.	11.5	8	1,680	<0.4	1.2
Nov-20-2012	101	.	14.2	8.0	1,510	0.7	1.1
Nov-26-2012	93	.	14.2	7.8	1,620	<0.4	1.1
Dec-06-2012	203	.	14.0	7.8	1,450	<0.4	1.1
Dec-13-2012	138	.	10.0	7.9	1,660	0.8	1.1
Dec-20-2012	113	.	8.4	8.1	1,020	<0.4	1.3
Dec-27-2012	185	.	8.7	8.0	1,440	0.4	1.1

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

Table 9. Weekly water quality monitoring at Station D (Mud Slough North downstream of drainage discharges).

See Table 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
Oct-02-2012	43	22.4	29.4	7.7	1,790	1.2	2.0
Oct-10-2012	73	18.8	19.5	7.6	1,440	1.4	1.3
Oct-16-2012	94	19.9	10.7	7.5	1,460	0.8	1.2
Oct-23-2012	100	16.2	15.5	7.6	1,590	0.9	1.5
Oct-30-2012	83	17.0	16.5	7.6	1,730	1.4	1.6
Nov-07-2012	95	18.4	16.8	7.8	1,750	1.0	1.6
Nov-15-2012	88	11.5	13.9	7.8	2,000	1.6	1.8
Nov-20-2012	116	14.5	20.0	7.8	1,440	2.2	1.7
Nov-26-2012	114	12.8	15.5	7.9	2,240	4.4	2.7
Dec-06-2012	227	13.9	19.3	7.6	1,810	3.3	1.9
Dec-13-2012	156	10.1	13.6	7.7	1,950	2.5	2.0
Dec-20-2012	130	8.4	11.0	7.7	2,070	3.2	2.0
Dec-27-2012	209	8.7	17.8	7.8	1,830	3.1	1.8

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
Oct-02-2012	.	NA	NA	NA	NA	NA	NA
Oct-10-2012	.	19.1	14	7.6	1,440	1.3	1.2
Oct-16-2012	.	20.1	26	7.6	1,490	0.8	1.2
Oct-23-2012	.	16.0	7	7.6	1,610	0.8	1.6
Oct-30-2012	.	16.5	15	7.8	1,850	1.2	1.6
Nov-07-2012	.	17.5	7	7.7	2,900	2.0	2.3
Nov-15-2012	.	11.0	11	7.8	2,110	1.4	1.9
Nov-20-2012	.	14.0	16	7.8	1,820	2.2	1.7
Nov-26-2012	.	15.9	7	7.8	4,980	2.9	3.5
Dec-06-2012		NA	NA	NA	NA	NA	NA
Dec-13-2012	No Flow in	NA	NA	NA	NA	NA	NA
Dec-20-2012	December	NA	NA	NA	NA	NA	NA
Dec-27-2012	.	NA	NA	NA	NA	NA	NA

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

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
Oct-02-2012	97	21.2	7.3	1,150	<0.4	0.5
Oct-10-2012	109	17.5	7.4	1,160	0.6	0.5
Oct-16-2012	99	18.9	7.5	1,290	<0.4	0.5
Oct-23-2012	100	15.4	7.3	1,440	<0.4	0.7
Oct-30-2012	97	16.2	7.5	1,500	0.4	0.7
Nov-07-2012	121	16.2	7.3	1,400	<0.4	0.7
Nov-15-2012	111	10.7	7.5	1,440	<0.4	0.7
Nov-20-2012	173	13.5	7.4	1,210	0.5	0.7
Nov-26-2012	148	11.8	7.6	1,310	<0.4	0.7
Dec-06-2012	245	14.6	7.3	1,340	<0.4	0.8
Dec-13-2012	168	10.0	7.3	1,500	0.5	1.0
Dec-20-2012	e118	11.5	7.2	1,580	<0.4	1.0
Dec-27-2012	177	8.9	7.3	1,550	0.5	0.8

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
Oct-02-2012	120	22.1	7.9	1,260	<0.4	0.4
Oct-10-2012	123	17.8	8.1	1,290	0.7	0.5
Oct-16-2012	115	19.8	7.9	1,440	<0.4	0.5
Oct-23-2012	129	16.4	7.9	1,550	<0.4	0.7
Oct-30-2012	114	16.6	7.9	1,740	<0.4	0.7
Nov-07-2012	162	17.5	8.0	1,510	<0.4	0.6
Nov-15-2012	129	10.7	7.9	1,570	<0.4	0.7
Nov-20-2012	205	14.0	8.0	1,170	0.8	0.6
Nov-26-2012	182	11.3	7.7	1,400	<0.4	0.7
Dec-06-2012	352	14.2	7.9	1,110	<0.4	0.7
Dec-13-2012	239	9.8	7.9	1,460	0.4	0.8
Dec-20-2012	197	8.5	7.6	1,670	<0.4	0.8
Dec-27-2012	1,070	8.6	8.3	468	<0.4	0.2

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
Oct-01-2012	105	.	.	681	0.6	0.2
Oct-08-2012	90	.	.	651	0.4	0.2
Oct-15-2012	60	.	.	577	0.6	0.2
Oct-22-2012	40	.	.	612	0.6	0.2
Oct-29-2012	40	.	.	618	0.6	0.2
Nov-05-2012	25	.	.	599	0.6	0.2
Nov-12-2012	25	.	.	634	0.9	0.3
Nov-19-2012	15	.	.	574	0.9	0.3
Nov-26-2012	10	.	.	500	0.5	0.2
Dec-03-2012	10	.	.	448	0.8	0.2
Dec-10-2012	10	.	.	612	1.3 U	0.4
Dec-17-2012	10	.	.	516	1.3	0.2
Dec-26-2012	10	.	.	354	0.6	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
Oct-01-2012	140	.	.	692	<0.4	0.2
Oct-08-2012	140	.	.	637	0.5	0.2
Oct-15-2012	110	.	.	575	0.6	0.2
Oct-22-2012	100	.	.	607	0.5	0.2
Oct-29-2012	100	.	.	659	0.5	0.3
Nov-05-2012	100	.	.	593	<0.4	0.2
Nov-12-2012	100	.	.	298	0.4	0.1
Nov-19-2012	85	.	.	538	0.8	0.3
Nov-26-2012	85	.	.	562	0.5	0.3
Dec-03-2012	85	.	.	457	0.6	0.2
Dec-10-2012	75	.	.	657	1.3	0.5 U
Dec-17-2012	75	.	.	529	1.1	0.3
Dec-26-2012	75	.	.	536	0.9	0.3

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
Oct-01-2012	NA	.	.	838	0.5	0.4
Oct-08-2012	NA	.	.	742	0.7	0.3
Oct-15-2012	NA	.	.	643	0.6	0.2
Oct-22-2012	NA	.	.	1,150	1.1	1.0
Oct-29-2012	NA	.	.	1,050	0.8	0.9
Nov-05-2012	NA	.	.	784	0.6	0.6
Nov-12-2012	NA	.	.	733	0.6	0.5
Nov-19-2012	NA	.	.	611	0.7	0.5
Nov-26-2012	NA	.	.	825	1.1	0.6
Dec-03-2012	NA	.	.	697	0.8	0.5
Dec-10-2012	NA	.	.	680	1.0	0.7
Dec-17-2012	NA	.	.	741	0.9	0.5
Dec-26-2012	NA	.	.	158	<0.4	0.2

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
Oct-01-2012	NA	.	.	849	0.8	0.4
Oct-08-2012	NA	.	.	748	0.7	0.3
Oct-15-2012	NA	.	.	678	0.6	0.3
Oct-22-2012	NA	.	.	962	0.7	0.7
Oct-29-2012	NA	.	.	972	0.6	0.8
Nov-05-2012	NA	.	.	944	<0.4	0.8
Nov-12-2012	NA	.	.	941	0.7	0.8
Nov-19-2012	NA	.	.	813	0.8	0.7
Nov-26-2012	NA	.	.	937	0.6	0.8
Dec-03-2012	NA	.	.	1,030	<0.4	1.0
Dec-10-2012	NA	.	.	1,080	0.6	1.2
Dec-17-2012	NA	.	.	1,030	0.8	1.0
Dec-26-2012	NA	.	.	1,330	0.5	1.4

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
Oct-03-2012	.	.	.	1,540	0.7	0.9
Oct-10-2012	.	.	.	1,350	1.2	0.9
Oct-17-2012	.	.	.	1,400	0.6	0.9
Oct-24-2012	.	.	.	1,600	0.5	1.0
Oct-31-2012	.	.	.	1,840	0.7	1.1
Nov-07-2012	.	.	.	1,670	0.7	1.0
Nov-14-2012	.	.	.	1,840	0.6	1.1
Nov-21-2012	.	.	.	1,810	0.5	1.1
Nov-28-2012	.	.	.	1,810	0.7	1.1
Dec-10-2012	.	.	.	1,690	1.4	1.3
Dec-19-2012	.	.	.	305	1.3	0.6
Dec-27-2012	.	.	.	60	0.5	0.1

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
Oct-03-2012	176	.	.	NA	NA	NA
Oct-10-2012	191	.	.	NA	NA	NA
Oct-17-2012	242	.	.	NA	NA	NA
Oct-24-2012	465	.	.	NA	NA	NA
Oct-31-2012	248	.	.	NA	NA	NA
Nov-07-2012	e485	.	.	NA	NA	NA
Nov-14-2012	563	.	.	NA	NA	NA
Nov-21-2012	613	.	.	NA	NA	NA
Nov-28-2012	585	.	.	NA	NA	NA
Dec-10-2012	767	.	.	NA	NA	NA
Dec-19-2012	628	.	.	NA	NA	NA
Dec-27-2012	1,870	.	.	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
Oct-02-2012	286	21.8	7.9	1,280	0.5	0.7
Oct-10-2012	339	18.3	7.9	1,220	0.7	0.6
Oct-16-2012	406	19.6	7.9	1,100	0.4	0.5
Oct-23-2012	962	15.4	8.0	556	<0.4	0.3
Oct-30-2012	564	16.4	7.9	939	0.4	0.5
Nov-07-2012	545	17.7	8.1	1,040	<0.4	0.5
Nov-15-2012	575	11.0	7.9	900	<0.4	0.5
Nov-20-2012	627	13.8	7.9	885	0.8	0.5
Nov-26-2012	607	11.6	7.5	1,070	0.7	0.7
Dec-06-2012	952	14.3	7.8	1,010	1.1	0.8
Dec-13-2012	712	10.2	7.9	1,170	0.8	0.9
Dec-20-2012	645	NA	NA	NA	1.0	0.8
Dec-27-2012	1,740	8.9	7.8	585	0.6	0.4

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
Oct-01-2012	.	.	.	719	<0.4	0.2
Oct-08-2012	.	.	.	587	0.5	0.2
Oct-15-2012	.	.	.	612	0.5	0.2
Oct-22-2012	.	.	.	606	0.5	0.2
Oct-29-2012	.	.	.	599	0.6	0.2
Nov-05-2012	.	.	.	516	<0.4	0.2
Nov-12-2012	.	.	.	300	<0.4	0.1
Nov-19-2012	.	.	.	404	0.9	0.2
Nov-26-2012	.	.	.	479	0.5	0.2
Dec-03-2012	.	.	.	469	0.7	0.3
Dec-10-2012	.	.	.	621	1.3 U	0.4 U
Dec-17-2012	.	.	.	490	1.0	0.2
Dec-26-2012	.	.	.	348	0.6	0.2

Table 21. Summary of fathead minnow (*Pimephales promelas*) larvae survival in 7-day tests using water samples collected from January 2012 to December 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	%	%	%	%	%	%
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
Oct-2012	NA	NA	NA	NA	NA	NA
Nov-2012	100	93	100	95	98	100
Dec-2012	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 January 2012 to December 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
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
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

Table 23. Summary of *Daphnia magna* survival in 7-day tests using water samples collected from January 2012 to December 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	%	%	%	%	%	%
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
Oct-2012	NA	NA	NA	NA	NA	NA
Nov-2012	80	90	100	90	90	100
Dec-2012	NA	NA	NA	NA	NA	NA

Table 24. Summary of *Daphnia magna* reproduction in 7-day tests using water samples collected from January 2012 to December 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
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-2013	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
Oct-2012	NA	NA	NA	NA	NA	NA
Nov-2012	26	21	24	22	23	23
Dec-2012	NA	NA	NA	NA	NA	NA

Table 25. Summary of *Selenastrum capricornutum* growth in 4-day tests using water samples collected from January 2012 to December 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
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
Oct-2012	NA	NA	NA	NA	NA	NA
Nov-2012	14.1*	25	24.7*	29	27	19
Dec-2012	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, October 2012 to December 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
Oct-17-2012	NA	NA	NA	NA	NA
Oct-19-2012	NA	NA	NA	NA	NA
Oct-21-2012	NA	NA	NA	NA	NA
Nov-26-2012	27	< 0.4	4.6	< 0.4	< 0.4
Nov-28-2012	30	< 0.4	3.9	< 0.4	< 0.4
Nov-30-2012	27	< 0.4	< 0.4	0.5	< 0.4
Dec-17-2012	NA	NA	NA	NA	NA
Dec-19-2012	NA	NA	NA	NA	NA
Dec-21-2012	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 October 2012 to December 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
Oct-26-2012	NA	NA	NA	NA	NA
Oct-28-2012	NA	NA	NA	NA	NA
Oct-30-2012	NA	NA	NA	NA	NA
Nov-26-2012	36	12	22	42	2
Nov-28-2012	25	17	72	44	0
Nov-30-2012	41	21	NA	63	3
Dec-26-2012	NA	NA	NA	NA	NA
Dec-28-2012	NA	NA	NA	NA	NA
Dec-30-2012	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
41,334.00	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 December 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