

GRASSLAND BYPASS PROJECT

MONTHLY DATA REPORT

May 2012

October 2012

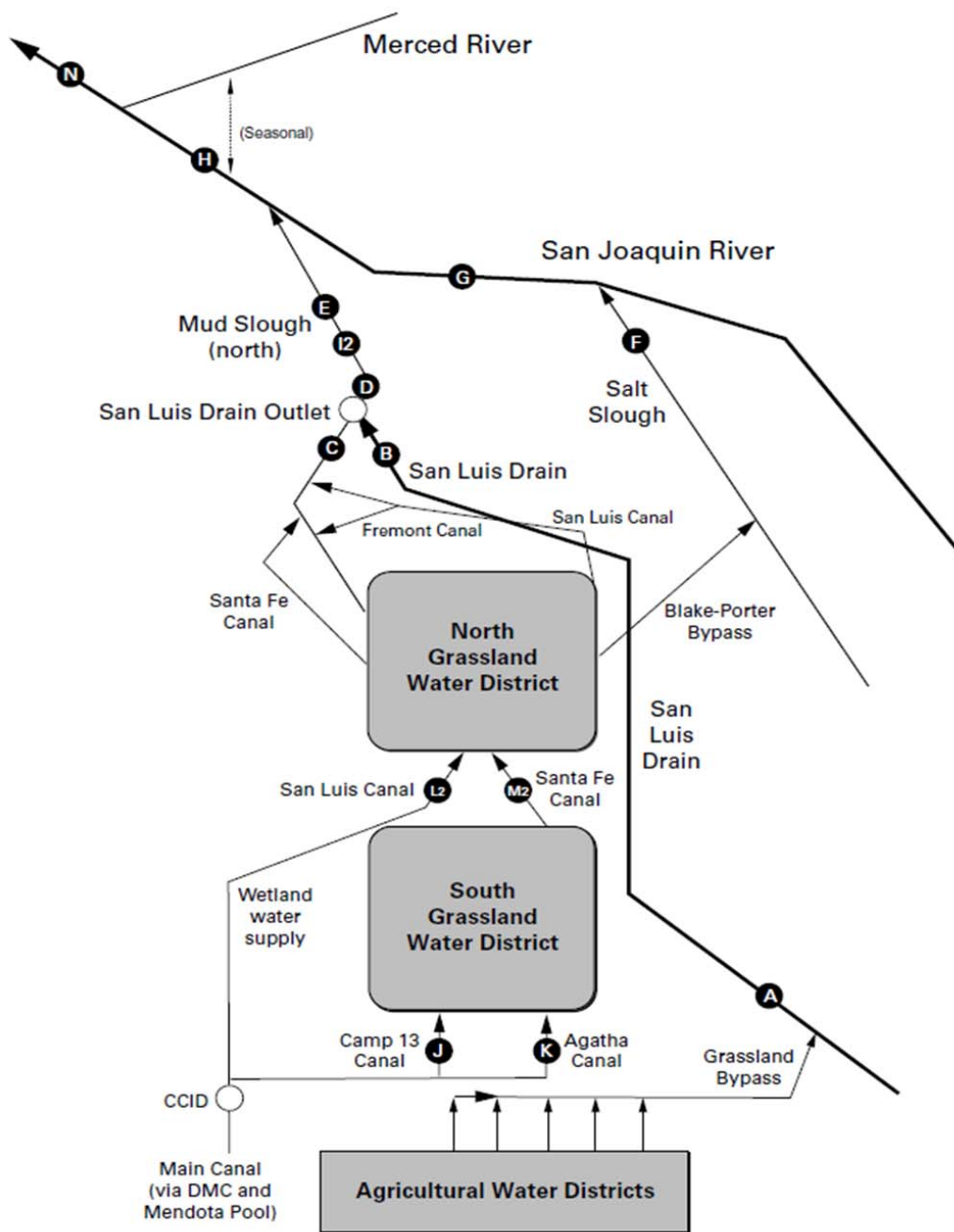
Preliminary Results

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), May 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
May-01-2012	13	21.0	5,200	136
May-02-2012	12	19.5	4,790	117
May-03-2012	8	18.8	4,940	80
May-04-2012	7	19.3	5,400	70
May-05-2012	6	18.3	5,290	66
May-06-2012	8	20.1	4,440	75
May-07-2012	9	21.6	4,840	83
May-08-2012	7	23.3	4,550	64
May-09-2012	8	24.2	4,480	73
May-10-2012	11	22.4	4,560	100
May-11-2012	11	22.9	4,900	106
May-12-2012	10	24.1	5,100	100
May-13-2012	9	22.5	5,070	89
May-14-2012	10	20.7	5,260	105
May-15-2012	14	22.0	5,400	154
May-16-2012	15	23.8	5,100	156
May-17-2012	11	21.8	4,990	108
May-18-2012	12	20.5	4,910	122
May-19-2012	12	22.8	4,910	118
May-20-2012	15	23.9	4,880	146
May-21-2012	18	23.6	4,360	155
May-22-2012	16	22.8	4,520	145
May-23-2012	12	20.5	4,520	105
May-24-2012	11	19.9	4,840	107
May-25-2012	12	17.0	4,840	120
May-26-2012	13	18.8	4,610	118
May-27-2012	11	20.7	4,160	94
May-28-2012	16	22.1	3,880	124
May-29-2012	16	22.1	3,690	116
May-30-2012	15	23.1	3,130	94
May-31-2012	12	25.4	2,880	68
Mean	12	21.6	4,660	3,316
Total Acre-feet	716			
Salinity Load Value (Dry Year, May)				9,847

Table 2a. Continuous water monitoring at Stations B and B2 (San Luis Drain Terminus), May 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
May-01-2012	12	19.1	11.0	4,660	21.0	1.4
May-02-2012	12	17.7	11.0	4,700	29.0	1.9
May-03-2012	11	18.1	11.0	4,870	29.0	1.7
May-04-2012	8	18.2	11.0	4,760	28.0	1.3
May-05-2012	6	17.9	11.0	4,710	30.0	1.0
May-06-2012	6	21.5	10.0	4,720	33.0	1.0
May-07-2012	7	21.9	10.0	4,800	37.0	1.4
May-08-2012	8	23.8	11.0	4,880	39.0	1.6
May-09-2012	7	25.6	11.0	4,970	39.0	1.5
May-10-2012	6	21.3	11.0	4,960	36.0	1.2
May-11-2012	9	23.1	12.0	4,880	37.0	1.8
May-12-2012	11	24.8	12.0	4,870	36.0	2.1
May-13-2012	9	21.9	10.0	4,770	31.0	1.6
May-14-2012	8	19.8	11.0	4,540	33.0	1.4
May-15-2012	8	21.4	12.0	4,840	36.0	1.6
May-16-2012	13	23.4	9.9	4,900	34.0	2.4
May-17-2012	14	21.9	12.0	4,760	31.0	2.4
May-18-2012	10	20.4	12.0	4,770	37.0	2.0
May-19-2012	11	22.8	13.0	4,650	40.0	2.4
May-20-2012	11	24.3	14.0	4,920	41.0	2.5
May-21-2012	13	23.2	13.0	5,040	44.0	3.0
May-22-2012	17	22.9	14.0	5,170	44.0	4.0
May-23-2012	14	21.2	13.0	5,180	45.0	3.3
May-24-2012	11	20.8	11.0	4,770	44.0	2.7
May-25-2012	10	14.9	11.0	4,650	44.0	2.3
May-26-2012	12	16.7	11.0	4,470	46.0	2.9
May-27-2012	12	19.0	11.0	4,590	43.0	2.7
May-28-2012	11	20.7	10.0	4,440	39.0	2.3
May-29-2012	14	20.5	10.0	4,360	46.0	3.4
May-30-2012	15	23.6	9.7	4,640	49.0	3.9
May-31-2012	14	26.9	10.0	4,700	51.0	4.0
Mean	11	21.3	11.3	4,770	37.8	2.2
Total Acre-feet	660					
Total (lbs)						69

Load Limitation for May 2012 (lbs)	197
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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.

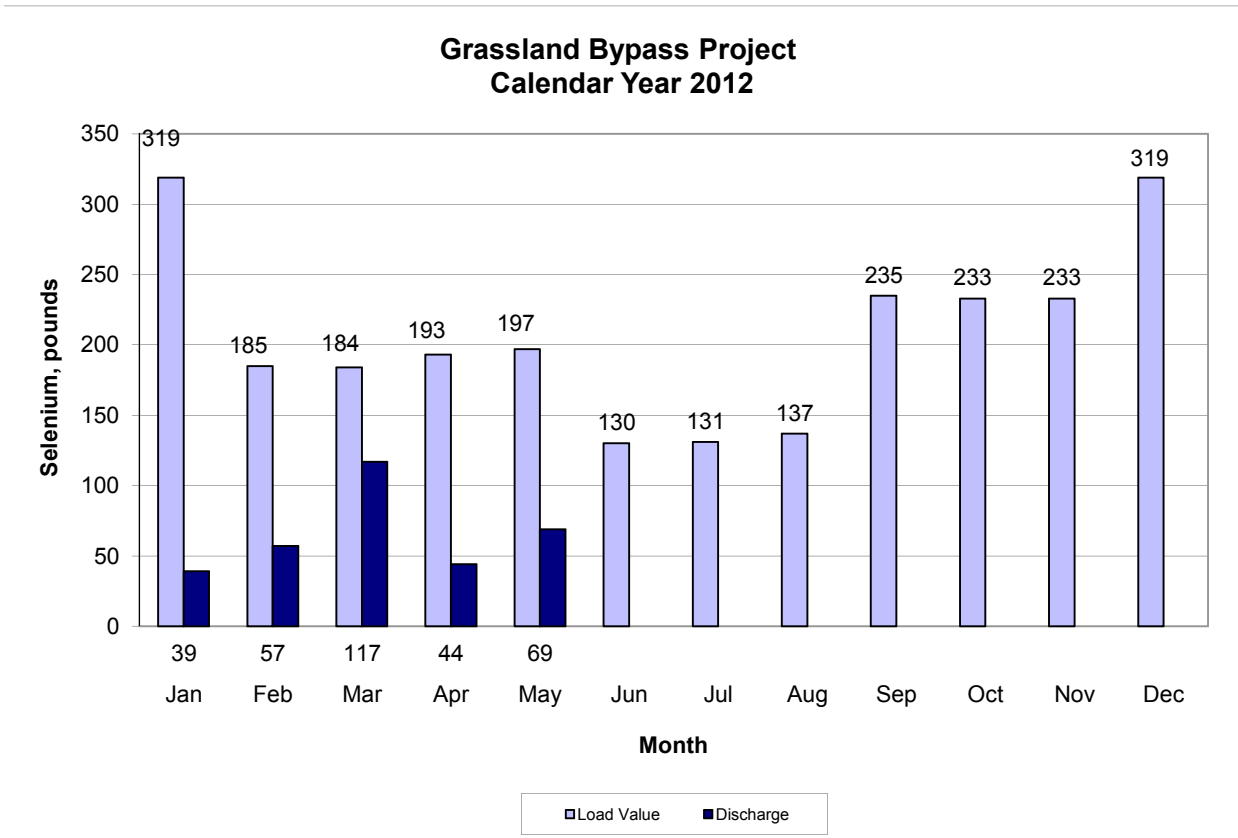


Table 3. Continuous water monitoring at Station D (Mud Slough North downstream of drainage discharges), May 2012.

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
May-01-2012	23	22.6	5,010
May-02-2012	28	21.5	4,280
May-03-2012	27	21.9	4,220
May-04-2012	23	21.5	4,300
May-05-2012	18	19.4	4,680
May-06-2012	29	19.4	3,260
May-07-2012	37	20.7	2,470
May-08-2012	48	22.0	2,000
May-09-2012	45	23.7	2,080
May-10-2012	20	22.6	3,780
May-11-2012	18	22.3	4,940
May-12-2012	19	23.6	5,050
May-13-2012	20	23.7	4,450
May-14-2012	20	22.7	4,110
May-15-2012	29	23.2	2,820
May-16-2012	36	24.0	2,790
May-17-2012	39	23.8	2,780
May-18-2012	32	22.2	2,830
May-19-2012	33	22.2	2,930
May-20-2012	41	23.5	2,660
May-21-2012	47	24.5	2,470
May-22-2012	46	24.0	2,940
May-23-2012	48	22.9	2,490
May-24-2012	45	21.7	2,330
May-25-2012	40	19.8	2,420
May-26-2012	41	19.7	2,560
May-27-2012	39	20.4	2,770
May-28-2012	38	22.0	2,750
May-29-2012	37	22.3	3,000
May-30-2012	45	23.2	2,660
May-31-2012	50	24.4	2,270
Mean	34	22.3	3,230

Table 4. Continuous water monitoring at Station F (Salt Slough at Highway 165), May 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
May-01-2012	119	22.7	1,480
May-02-2012	107	20.9	1,590
May-03-2012	101	20.4	1,610
May-04-2012	93	20.5	1,480
May-05-2012	96	19.5	1,520
May-06-2012	90	19.8	1,670
May-07-2012	102	21.0	1,600
May-08-2012	103	22.3	1,450
May-09-2012	82	24.0	1,580
May-10-2012	74	23.2	1,780
May-11-2012	77	22.5	1,730
May-12-2012	96	23.7	1,530
May-13-2012	105	23.9	1,290
May-14-2012	121	22.1	1,150
May-15-2012	151	21.8	997
May-16-2012	157	23.0	923
May-17-2012	148	23.5	946
May-18-2012	152	21.5	1,010
May-19-2012	159	21.4	884
May-20-2012	166	23.1	855
May-21-2012	162	23.9	938
May-22-2012	142	23.5	1,080
May-23-2012	97	22.5	1,220
May-24-2012	82	21.5	1,440
May-25-2012	100	19.2	1,210
May-26-2012	112	18.2	1,090
May-27-2012	133	19.2	1,010
May-28-2012	139	21.0	1,020
May-29-2012	131	22.0	1,060
May-30-2012	117	23.1	1,170
May-31-2012	97	24.6	1,320
Mean	116	21.9	1,280

Table 5. Continuous water monitoring at Station N (San Joaquin River at Crow's Landing), May 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
May-01-2012	921	21.7	0.3	729	0.4
May-02-2012	1,010	20.2	0.3	678	0.4
May-03-2012	1,060	19.5	0.4	665	0.4
May-04-2012	1,130	19.0	0.3	617	0.5
May-05-2012	1,150	18.1	0.3	588	< 0.4
May-06-2012	1,210	18.0	0.2	634	< 0.4
May-07-2012	1,250	18.9	0.3	687	0.5
May-08-2012	1,230	19.7	0.2	632	< 0.4
May-09-2012	1,250	20.7	0.2	613	< 0.4
May-10-2012	1,260	20.6	0.3	540	0.4
May-11-2012	1,140	20.3	0.2	562	< 0.4
May-12-2012	1,080	21.0	0.3	615	< 0.4
May-13-2012	974	21.6	0.4	712	0.6
May-14-2012	924	21.9	0.4	767	0.6
May-15-2012	813	22.0	0.4	771	0.6
May-16-2012	749	22.9	0.5	828	0.7
May-17-2012	720	23.3	0.6	847	0.7
May-18-2012	676	22.5	0.6	882	1.0
May-19-2012	625	22.5	0.6	922	0.8
May-20-2012	625	NA	0.5	NA	0.8
May-21-2012	664	NA	0.6	NA	1.1
May-22-2012	664	23.2	0.6	869	1.0
May-23-2012	618	22.7	0.7	936	1.4
May-24-2012	592	22.0	0.6	1,000	1.3
May-25-2012	549	20.6	0.7	1,080	1.2
May-26-2012	521	20.3	0.7	1,140	1.1
May-27-2012	559	21.1	0.7	1,100	1.1
May-28-2012	598	21.9	0.6	1,020	1.1
May-29-2012	560	22.2	0.6	1,040	1.2
May-30-2012	526	22.9	0.6	1,080	1.0
May-31-2012	513	24.2	0.7	1,180	1.5
Mean	844	21.2	0.5	820	0.9

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
Mar-05-2012	14	80	6,510	38	12.0
Mar-12-2012	13	25	5,680	37	10.0
Mar-19-2012	57	131	6,060	36	11.0
Mar-26-2012	17	97	6,400	39	11.0
Apr-02-2012	18	83	6,040	24	9.8
Apr-09-2012	7	61	6,140	28	12.0
Apr-16-2012	12	93	5,860	33	8.5
Apr-23-2012	10	93	8,690	41	9.2
Apr-30-2012	16	81	5,730	38	10.0
May-07-2012	9	86	5,910	46	10.0
May-14-2012	10	95	5,830	48	10.0
May-21-2012	18	126	5,740	50	10.0
May-28-2012	16	125	5,610	43	10.0

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
Mar-06-2012	15	23	14.3	8.2	4,740	29.0	7.2
Mar-13-2012	16	30	14.3	7.9	5,520	27.0	9.2
Mar-21-2012	40	56	15.2	7.7	5,460	34.0	10.0
Mar-28-2012	17	43	14.4	8.2	5,450	29.0	10.0
Apr-03-2012	18	79	15.3	8.2	5,460	31.0	8.9
Apr-10-2012	7	38	17.8	8.7	5,740	26.0	9.1
Apr-17-2012	13	75	22.1	8.3	5,610	23.0	11.0
Apr-24-2012	8	93	23.1	8.9	5,860	24.0	9.6
May-01-2012	12	34	22.6	8.6	5,650	20.0	9.7
May-07-2012	7	40	19.8	8.7	5,940	35.0	9.5
May-15-2012	8	47	23.1	8.8	6,090	38.0	9.2
May-22-2012	17	42	23.1	8.7	6,300	42.0	12.0
May-29-2012	14	33	20.3	8.5	5,470	47.0	9.7

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
Mar-06-2012	148		14.6	8.4	2,140	0.9	1.8
Mar-13-2012	123	.	13.9	8.2	2,410	0.6	2.0
Mar-21-2012	129	.	15.7	8.0	2,350	0.8	2.0
Mar-28-2012	82	.	14.4	8.3	2,610	0.7	2.2
Apr-03-2012	32	.	14.5	8.3	3,340	0.4	2.6
Apr-10-2012	49	.	17.0	8.6	2,570	0.7	2.0
Apr-17-2012	59	.	20.2	8.5	2,370	0.9	2.3
Apr-24-2012	23	.	20.2	8.6	2,990	0.7	2.3
May-01-2012	11	.	24.4	8.3	3,240	0.8	2.6
May-07-2012	30	.	19.7	8.8	1,430	0.8	1.0
May-15-2012	21	.	24.5	8.9	1,650	0.8	1.2
May-22-2012	29	.	22.3	8.9	1,280	0.6	1.2
May-29-2012	23	.	19.3	8.8	1,470	< 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	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
Mar-06-2012	163	14.5	59.9	8.1	2,340	2.4	2.1
Mar-13-2012	139	13.9	56.6	8.2	2,860	3.6	2.8
Mar-21-2012	169	16.0	51.7	7.9	3,110	8.0	3.8
Mar-28-2012	99	14.7	49.8	8.3	3,250	6.3	3.7
Apr-03-2012	50	15.0	27.4	8.2	4,240	11.0	4.9
Apr-10-2012	56	17.4	30.7	8.3	3,040	3.2	2.9
Apr-17-2012	72	20.2	44.4	8.5	2,850	2.9	3.3
Apr-24-2012	31	21.3	36.8	8.1	4,030	6.5	4.2
May-01-2012	23	23.6	38.8	8.2	4,870	9.9	6.2 U
May-07-2012	37	20.6	97.6	8.4	2,240	4.3	2.3
May-15-2012	29	24.3	64.3	8.4	2,330	10.0	4.1
May-22-2012	46	22.8	30.2	8.4	3,200	13.0	4.7
May-29-2012	37	20.1	38.1	8.1	3,020	14.0	4.4

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
Mar-21-2012	.	14.4	133	8.1	2,830	2.8	2.4
Mar-13-2012	.	13.9	51	8.1	2,960	3.6	2.8
Mar-21-2012	.	16.6	107	7.9	3,360	8.5	3.7
Mar-28-2012	.	14.4	35	8.2	4,020	6.2	4.1
Apr-03-2012	.	16.0	73	8.1	1,980	9.9	5.0
Apr-17-2012	.	22.8	30	8.3	5,400	4.7	4.8
Apr-24-2012	.	NA	NA	NA	NA	NA	NA
May-01-2012	.	NA	NA	NA	NA	NA	NA
May-07-2012	No Flow	NA	NA	NA	NA	NA	NA
May-15-2012	Late April and	NA	NA	NA	NA	NA	NA
May-22-2012	May	NA	NA	NA	NA	NA	NA
May-29-2012	.	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
Mar-06-2012	205	15.1	7.2	1,820	0.8	0.9
Mar-13-2012	177	14.2	6.6	1,820	0.6	0.9
Mar-21-2012	248	14.8	7.4	1,750	0.8	0.9 U
Mar-28-2012	161	14.7	7.0	1,980	0.4	0.9 U
Apr-03-2012	147	14.8	7.1	2,000	<0.4	0.9 U
Apr-10-2012	128	16.8	7.3	2,130	0.5	1.0 U
Apr-17-2012	206	19.7	7.1	1,820	0.8	1.1 U
Apr-24-2012	148	20.0	7	1,670	0.9	0.9
May-01-2012	119	22	7.6	1,550	0.7	0.7
May-07-2012	102	18.7	7.0	1,620	0.5	0.8
May-15-2012	151	21.6	7.3	1,000	0.5	0.4
May-22-2012	142	21.8	7.3	1,060	0.6	0.4
May-29-2012	131	19.2	7.7	1,010	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
Mar-06-2012	256	14.1	8.2	1,860	0.5	0.7
Mar-13-2012	228	13.7	8.2	1,980	0.4	0.8
Mar-21-2012	498	15.0	8.1	1,230	0.7	0.5
Mar-28-2012	232	14.6	8.3	2,110	0.4	0.8
Apr-03-2012	203	15.3	8.3	2,220	<0.4	0.8
Apr-10-2012	199	17.1	8.3	2,220	0.4	0.8
Apr-17-2012	NA	18.8	8.6	1,170	0.5	0.6
Apr-24-2012	207	22.1	8.2	1,760	0.7	0.7
May-01-2012	164	22.9	8.4	1,780	0.6	0.5
May-07-2012	137	20.3	8.4	2,140	< 0.4	0.8
May-15-2012	182	22.1	8.6	1,330	0.5	0.5
May-22-2012	198	22.3	8.6	1,090	< 0.4	0.3
May-29-2012	172	20.1	8.3	1,270	< 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
Mar-05-2012	0	.	.	767	1.3	0.4
Mar-12-2012	0	.	.	850	1.8	0.4
Mar-19-2012	0	.	.	930	1.9	0.5
Mar-26-2012	0	.	.	462	1.0	0.2
Apr-02-2012	0	.	.	1,420	2.5 U	0.6 U
Apr-09-2012	0	.	.	861	2.2	0.4
Apr-16-2012	0	.	.	11,200	50 U	25 U
Apr-23-2012	0	.	.	899	2.4	0.4
Apr-30-2012	0	.	.	639	1.2	0.3
May-09-2012	35	.	.	1,040	1.3	0.5
May-16-2012	35	.	.	NA	1.3	0.4
May-23-2012	40	.	.	338	0.5	0.2
May-30-2012	50	.	.	392	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
Mar-05-2012	0	.	.	1,010	1.1	0.8 U
Mar-12-2012	0	.	.	2,910	0.5	6.9 U
Mar-19-2012	0	.	.	2,100	0.8	4.3 U
Mar-26-2012	0	.	.	1,930	0.7	3.7 U
Apr-02-2012	0	.	.	2,000	0.6	3.3 U
Apr-09-2012	0	.	.	2,440	0.9	4.8 U
Apr-16-2012	0	.	.	1,030	1.9 U	1.0
Apr-23-2012	0	.	.	1,160	1.3	1.1
Apr-30-2012	0	.	.	1,330	1.3	1.0
May-09-2012	75	.	.	573	0.8	0.3
May-16-2012	75	.	.	414	0.6	0.2
May-23-2012	45	.	.	392	0.4	0.2
May-30-2012	35	.	.	376	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
Mar-05-2012	NA	.	.	2,060	2.6 U	2.1
Mar-12-2012	NA	.	.	1,930	2.2 U	2.0
Mar-19-2012	NA	.	.	2,470	2.2U	2.6
Mar-26-2012	NA	.	.	1,750	1.4	2.1
Apr-02-2012	NA	.	.	2,210	1.9	2.2
Apr-09-2012	NA	.	.	2,950	2.2	3.2
Apr-16-2012	NA	.	.	2,590	2.1	2.9
Apr-23-2012	NA	.	.	2,500	2.1	2.3
Apr-30-2012	NA	.	.	1,070	1.3	0.6
May-07-2012	NA	.	.	827	1.1	0.4
May-14-2012	NA	.	.	839	1.0	0.5
May-21-2012	NA	.	.	760	0.8	0.6
May-29-2012	NA	.	.	846	0.8	0.7

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
Mar-05-2012	NA	.	.	2,040	1.3	2.0
Mar-12-2012	NA	.	.	2,240	1.0	2.3
Mar-19-2012	NA	.	.	2,390	1.3	2.5
Mar-26-2012	NA	.	.	2,280	1.3	2.5
Apr-02-2012	NA	.	.	2,490	1.5	3.0
Apr-09-2012	NA	.	.	2,230	1.4	2.1
Apr-16-2012	NA	.	.	2,460	1.8	3.2
Apr-26-2012	NA	.	.	2,300	1.9	5.2 U
Apr-30-2012	NA	.	.	1,420	1.5	1.1
May-07-2012	NA	.	.	911	1.3	0.6
May-14-2012	NA	.	.	877	1.0	0.5
May-21-2012	NA	.	.	820	0.8	0.7
May-29-2012	NA	.	.	854	0.9	0.8

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
Mar-07-2012	.	.	.	2,280	1.6	1.5
Mar-14-2012	.	.	.	2,190	1.2	1.4
Mar-21-2012	.	.	.	1,960	2.5	1.5
Mar-28-2012	.	.	.	2,580	2.0	1.8
Apr-04-2012	.	.	.	2,870	2.1	1.8
Apr-11-2012	.	.	.	2,670	1.0	1.5
Apr-18-2012	.	.	.	1,690	1.2	1.2
Apr-25-2012	.	.	.	2,450	1.5	1.5
May-02-2012	.	.	.	2,580	1.6	1.5
May-09-2012	.	.	.	2,080	1.8	1.2
May-16-2012	.	.	.	1,750	1.9	1.1
May-23-2012	.	.	.	1,820	3.6	1.3
May-30-2012	.	.	.	1,880	3.4	1.2

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
Mar-07-2012	409	.	.	2,280	1.5	1.5
Mar-14-2012	416	.	.	1,530	0.9	0.1
Mar-21-2012	702	.	.	1,920	2.6	1.5
Mar-28-2012	415	.	.	NA	NA	NA
Apr-04-2012	387	.	.	2,870	2.1	1.8
Apr-11-2012	337	.	.	2,650	1.1	1.5
Apr-18-2012	479	.	.	1,690	1.2	1.2
Apr-25-2012	317	.	.	2,440	1.5	1.5
May-02-2012	271	.	.	2,590	1.5	1.5
May-09-2012	232	.	.	2,080	1.8	1.2
May-16-2012	241	.	.	1,760	2.0	1.1
May-23-2012	237	.	.	1,820	3.6	1.3
May-30-2012	197	.	.	1,890	3.3	1.2

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
Mar-06-2012	729	14.3	8.3	1,640	0.9	0.9
Mar-13-2012	739	13.9	8.1	1,660	0.9	1.0
Mar-21-2012	1,180	14.8	7.8	1,340	1.9 U	1.0
Mar-28-2012	722	14.9	8.1	1,680	1.2	0.9
Apr-03-2012	617	15.6	8.1	1,720	0.8	0.9
Apr-10-2012	543	16.9	8.1	1,660	0.7	0.9
Apr-17-2012	1,250	18.6	8.1	1,020	0.7	0.7
Apr-24-2012	496	21.9	7.9	1,560	0.9	0.7
May-01-2012	921	20.9	8.3	704	0.4	0.3
May-07-2012	1,250	17.8	8.6	583	< 0.4	0.3
May-15-2012	813	21.3	8.2	890	0.6	0.4
May-22-2012	664	21.7	8.2	939	1.2	0.5
May-29-2012	560	20.4	8.0	1,050	1.2	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
Mar-05-2012	.	.	.	742	1.0	0.4
Mar-12-2012	.	.	.	933	1.6	0.5
Mar-19-2012	.	.	.	947	2.0	0.6
Mar-26-2012	.	.	.	551	0.7	0.2
Apr-02-2012	.	.	.	882	1.6	0.5
Apr-09-2012	.	.	.	871	2.6	0.4
Apr-16-2012	.	.	.	831	1.5	0.4
Apr-23-2012	.	.	.	779	1.2	0.3
Apr-30-2012	.	.	.	592	1.0	0.3
May-07-2012	.	.	.	501	0.6	0.3
May-14-2012	.	.	.	374	0.5	0.2
May-21-2012	.	.	.	337	0.6	0.2
May-29-2012	.	.	.	368	0.5	0.2

Table 21. Summary of fathead minnow (*Pimephales promelas*) larvae survival in 7-day tests using water samples collected from June 2011 to May 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	%	%	%	%	%	%
Jun-2011	95	98	98	93	93	95
Jul-2011	33*	100	95	100	98	90
Aug-2011	90	88	95	93	70	90
Sep-2011	79*	88	90	95	95	95
Oct-2011	90	98	98	100	98	100
Nov-2011	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

Table 22. Summary of fathead minnow (*Pimephales promelas*) larvae growth in 7-day tests using water samples collected from June 2011 to May 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
Jun-2011	0.36	0.34	0.36	0.36	0.33	0.33
Jul-2011	0.06*	0.26	0.25	0.28	0.27	0.26
Aug-2011	0.26	0.25	0.26	0.28	0.25	0.29
Sep-2011	0.28	0.30	0.33	0.34	0.32	0.32
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

Table 23. Summary of *Daphnia magna* survival in 7-day tests using water samples collected from June 2011 to May 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	%	%	%	%	%	%
Jun-2011	100	100	100	80	90	90
Jul-2011	90	80	100	90	100	100
Aug-2011	90	90	90	100	90	90
Sep-2011	100	90	70	100	90	90
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

Table 24. Summary of *Daphnia magna* reproduction in 7-day tests using water samples collected from June 2011 to May 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
Jun-2011	66.0	58.0	62.8	38.9*	50.3	42.2
Jul-2011	31.7	43.8	40.9	21.7	30.5	25.3
Aug-2011	38.1	32.8	40.4	31.4	31.0	34.3
Sep-2011	41.3	33.1	37.2	35.0	28.4	29.6
Oct-2011	26.9	13.2*	29.9	20.8	24.2	27.1
Nov-2011	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

Table 25. Summary of *Selenastrum capricornutum* growth in 4-day tests using water samples collected from June 2011 to May 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
Jun-2011	20.4	31.2	29.1	32.4	23.8	19.9
Jul-2011	20.8	26.0	18.2	20.3	22.8	19.1
Aug-2011	20.4*	23.5	23.2	24.3	27.4	19.0
Sep-2011	7.1*	24.9	3.3*	29.2	17.8	2.0††††
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

Table 26. Summary of selenium concentrations in grab water samples collected at study stations for use in laboratory toxicity tests, March 2012 to May 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
Mar-05-2012	17	0.6	2.5	0.6	< 0.4
Mar-07-2012	28	0.8	3.4	0.5	0.6
Mar-09-2012	28	0.5	3.1	0.8	0.7
Apr-16-2012	17	0.8	5.1	1.0	< 0.4
Apr-18-2012	24	0.6	3.8	0.7	< 0.4
Apr-20-2012	30	1.0	4.2	0.8	< 0.4
May-14-2012	34	0.6	14	0.4	< 0.4
May-16-2012	33	0.9	9.1	0.5	< 0.4
May-18-2012	36	0.8	9.0	< 0.4	0.5

Table 27. Summary of total suspended solids concentrations in grab water samples collected at study stations for use in laboratory toxicity tests, March 2012 to May 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
Mar-05-2012	32	80	67	55	12
Mar-07-2012	152	75	75	50	7
Mar-09-2012	26	22	68	51	4
Apr-16-2012	67	76	83	42	6
Apr-18-2012	77	70	88	75	15
Apr-20-2012	65	37	109	84	6
May-14-2012	35	80	44	153	<1
May-16-2012	21	97	110	122	48
May-18-2012	54	77	126	246	29

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 June 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