

GRASSLAND BYPASS PROJECT

MONTHLY DATA REPORT

August 2012

January 2013

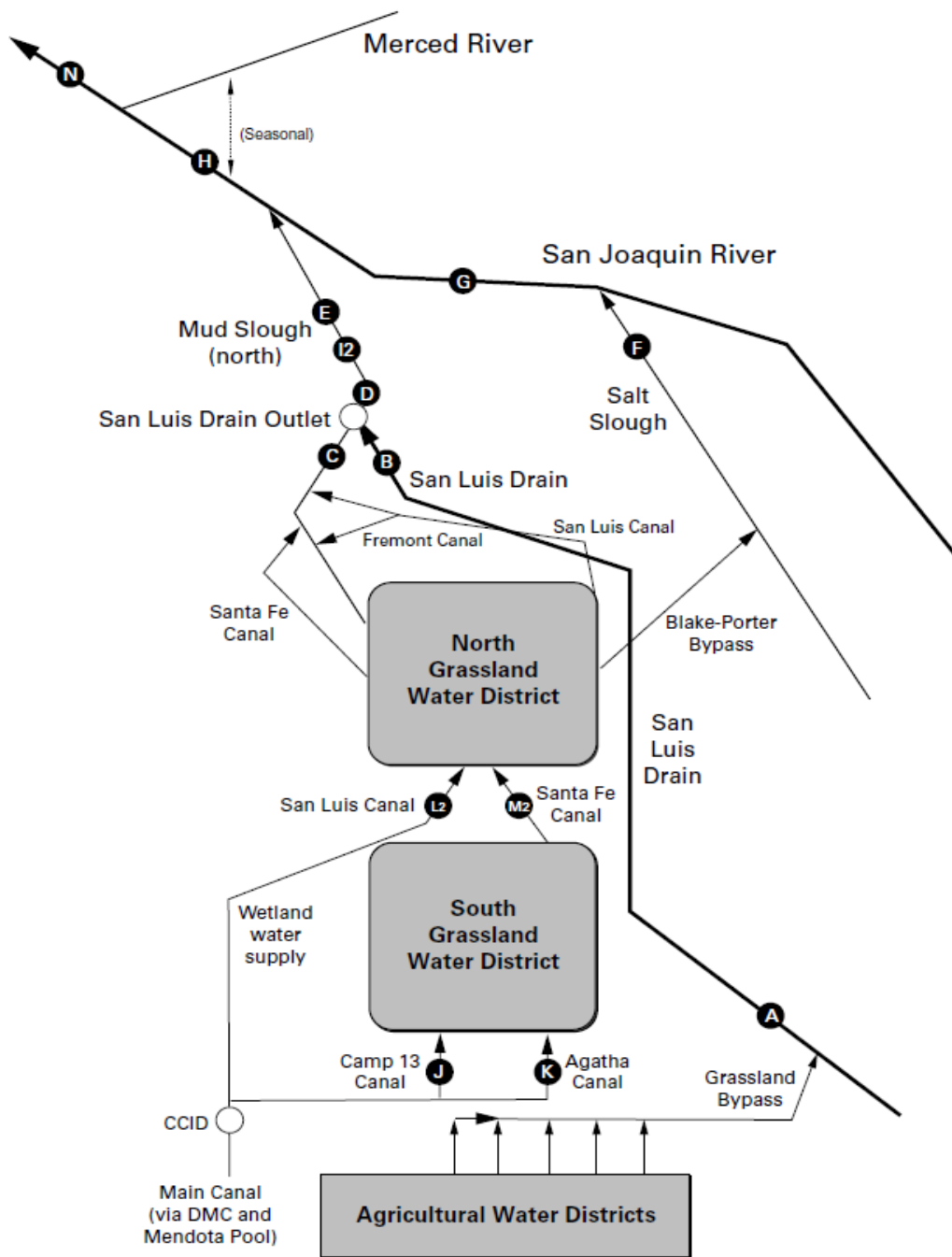
Preliminary Results

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), August 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
Aug-01-2012	9	26.7	5,370	99
Aug-02-2012	6	26.4	5,470	71
Aug-03-2012	4	25.7	5,230	47
Aug-04-2012	6	25.2	5,280	65
Aug-05-2012	12	25.1	5,360	125
Aug-06-2012	10	26.1	5,110	101
Aug-07-2012	10	25.9	5,140	102
Aug-08-2012	14	25.8	4,980	143
Aug-09-2012	19	26.8	4,580	173
Aug-10-2012	13	28.0	4,490	118
Aug-11-2012	11	28.4	4,700	107
Aug-12-2012	9	28.1	5,040	87
Aug-13-2012	10	28.7	5,150	101
Aug-14-2012	9	28.8	5,320	97
Aug-15-2012	11	27.1	5,240	118
Aug-16-2012	10	26.6	4,510	91
Aug-17-2012	11	26.8	4,600	99
Aug-18-2012	11	25.9	4,750	101
Aug-19-2012	9	26.2	4,970	91
Aug-20-2012	13	25.8	4,690	120
Aug-21-2012	12	25.9	4,310	106
Aug-22-2012	10	25.6	4,510	89
Aug-23-2012	9	25.9	4,450	79
Aug-24-2012	9	25.6	4,560	82
Aug-25-2012	7	24.0	4,850	70
Aug-26-2012	5	22.1	4,600	42
Aug-27-2012	3	23.3	4,450	29
Aug-28-2012	4	25.0	4,520	32
Aug-29-2012	5	25.0	4,900	50
Aug-30-2012	3	25.0	5,060	31
Aug-31-2012	3	21.7	5,200	27
Mean	9	25.9	4,880	2,690
Total Acre-feet	550			
Salinity Load Value (Dry Year, August)				9,134

Table 2a. Continuous water monitoring at Stations B and B2 (San Luis Drain Terminus), August 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
Aug-01-2012	10	27.1	9.9	5,050	32.0	1.8
Aug-02-2012	9	27.4	9.0	5,060	29.0	1.4
Aug-03-2012	7	26.9	7.3	4,820	28.0	1.1
Aug-04-2012	6	24.7	9.1	4,610	24.0	0.8
Aug-05-2012	6	24.7	9.1	4,370	21.0	0.7
Aug-06-2012	9	25.4	9.6	4,180	20.0	0.9
Aug-07-2012	10	26.2	11.0	4,500	21.0	1.1
Aug-08-2012	9	26.4	14.0	5,010	21.0	1.0
Aug-09-2012	12	28.9	14.0	5,410	21.0	1.4
Aug-10-2012	17	29.6	13.0	5,290	22.0	2.0
Aug-11-2012	12	29.8	12.0	5,310	31.0	2.1
Aug-12-2012	10	30.7	9.1	5,310	39.0	2.2
Aug-13-2012	8	31.0	10.0	5,310	27.0	1.2
Aug-14-2012	8	31.4	9.7	5,380	27.0	1.2
Aug-15-2012	8	29.1	9.5	5,120	28.0	1.2
Aug-16-2012	8	27.4	8.6	5,130	29.0	1.3
Aug-17-2012	9	27.5	9.3	5,020	31.0	1.6
Aug-18-2012	9	27.1	8.9	4,760	28.0	1.4
Aug-19-2012	10	27.1	8.6	4,530	29.0	1.6
Aug-20-2012	9	25.6	8.4	4,480	31.0	1.5
Aug-21-2012	10	26.2	9.4	4,600	29.0	1.6
Aug-22-2012	12	25.4	10.0	5,020	24.0	1.6
Aug-23-2012	10	26.0	11.0	5,300	21.0	1.1
Aug-24-2012	8	25.4	10.0	5,590	22.0	1.0
Aug-25-2012	9	24.8	8.4	5,110	26.0	1.2
Aug-26-2012	7	22.1	8.7	4,640	30.0	1.2
Aug-27-2012	7	22.0	8.7	4,640	33.0	1.2
Aug-28-2012	6	25.1	8.5	4,760	36.0	1.1
Aug-29-2012	6	24.5	8.3	4,840	37.0	1.1
Aug-30-2012	6	26.5	8.7	4,940	35.0	1.1
Aug-31-2012	6	21.5	8.7	5,020	30.0	0.9
Mean	9	26.6	9.7	4,940	27.8	1.3
Total Acre-feet	540					
Total (lbs)						40

Load Limitation for August 2012 (lbs)

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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.

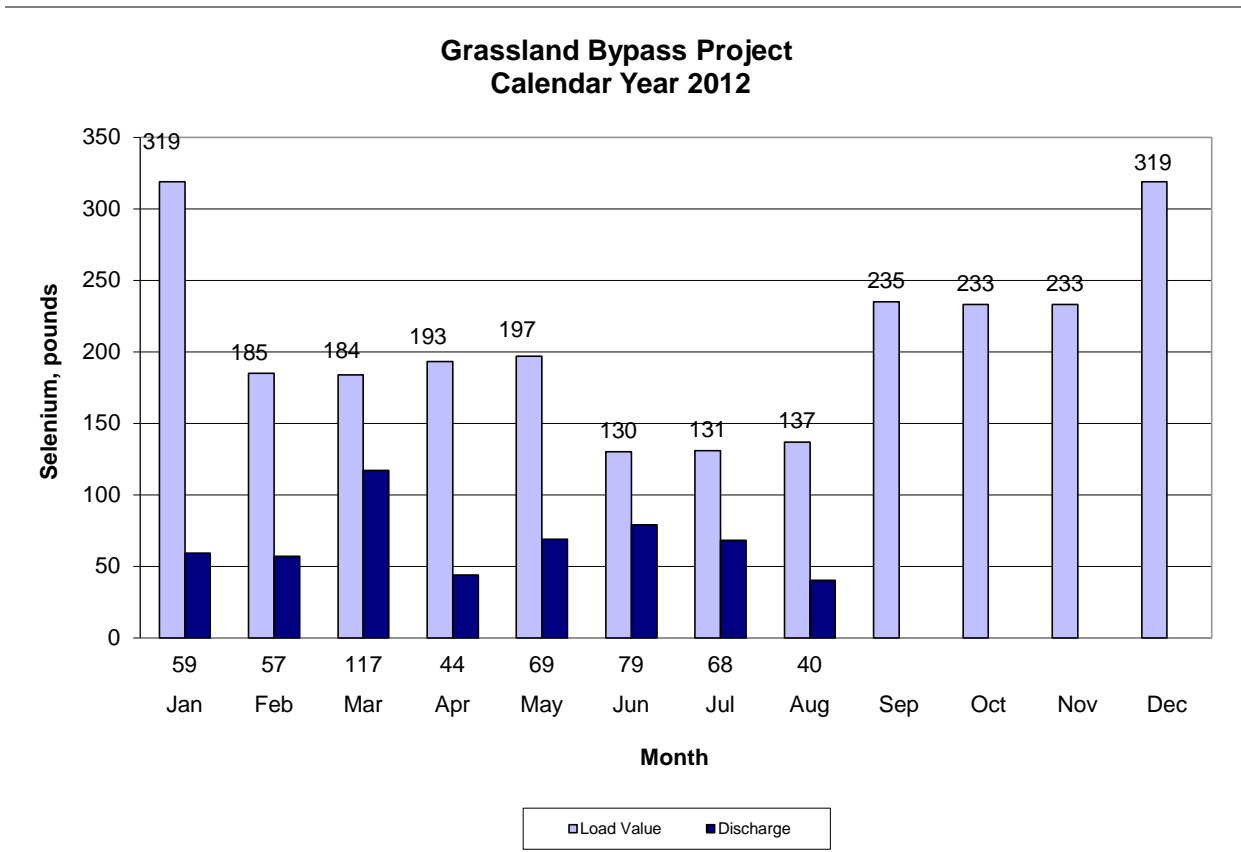


Table 3. Continuous water monitoring at Station D (Mud Slough North downstream of drainage discharges), August 2012.

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
Aug-01-2012	32	26.4	2,860
Aug-02-2012	36	26.9	2,580
Aug-03-2012	29	26.4	2,540
Aug-04-2012	31	25.8	1,910
Aug-05-2012	31	25.8	1,900
Aug-06-2012	36	26.1	1,970
Aug-07-2012	39	25.8	2,020
Aug-08-2012	35	25.9	2,200
Aug-09-2012	34	26.8	2,690
Aug-10-2012	36	27.3	3,260
Aug-11-2012	30	27.6	3,120
Aug-12-2012	32	28.0	2,590
Aug-13-2012	36	28.2	2,130
Aug-14-2012	36	28.6	1,970
Aug-15-2012	33	27.5	2,410
Aug-16-2012	32	27.1	2,570
Aug-17-2012	37	26.7	2,220
Aug-18-2012	40	26.2	2,350
Aug-19-2012	47	26.1	2,110
Aug-20-2012	48	26.1	1,890
Aug-21-2012	45	26.0	2,070
Aug-22-2012	42	25.6	2,450
Aug-23-2012	34	26.0	2,820
Aug-24-2012	28	25.5	2,140
Aug-25-2012	44	25.2	1,400
Aug-26-2012	34	24.1	1,370
Aug-27-2012	29	23.2	1,310
Aug-28-2012	25	23.8	1,420
Aug-29-2012	19	24.3	1,710
Aug-30-2012	21	24.3	2,250
Aug-31-2012	23	23.5	2,140
Mean	34	26.0	2,210

Table 4. Continuous water monitoring at Station F (Salt Slough at Highway 165), August 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
Aug-01-2012	166	26.4	795
Aug-02-2012	143	26.5	836
Aug-03-2012	110	26.4	958
Aug-04-2012	112	25.3	947
Aug-05-2012	120	24.8	951
Aug-06-2012	129	25.1	965
Aug-07-2012	142	25.1	902
Aug-08-2012	136	25.0	892
Aug-09-2012	125	25.8	905
Aug-10-2012	134	26.6	907
Aug-11-2012	136	27.0	878
Aug-12-2012	125	27.6	937
Aug-13-2012	137	27.8	940
Aug-14-2012	136	28.3	909
Aug-15-2012	112	27.8	996
Aug-16-2012	106	26.6	1,040
Aug-17-2012	108	26.0	1,040
Aug-18-2012	124	25.5	950
Aug-19-2012	137	24.9	902
Aug-20-2012	147	25.0	842
Aug-21-2012	145	25.0	835
Aug-22-2012	127	25.0	854
Aug-23-2012	120	25.2	890
Aug-24-2012	123	25.0	969
Aug-25-2012	135	24.5	961
Aug-26-2012	127	23.4	939
Aug-27-2012	105	22.5	999
Aug-28-2012	109	23.4	980
Aug-29-2012	92	23.8	991
Aug-30-2012	80	24.3	1,060
Aug-31-2012	95	23.5	1,070
Mean	124	25.5	940

Table 5. Continuous water monitoring at Station N (San Joaquin River at Crow's Landing), August 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
Aug-01-2012	335	26.9	0.6	1,130	0.7
Aug-02-2012	354	26.5	0.6	1,130	0.8
Aug-03-2012	345	26.4	0.6	1,140	0.8
Aug-04-2012	303	25.8	0.6	1,190	0.7
Aug-05-2012	309	25.0	0.6	1,280	0.8
Aug-06-2012	363	25.0	0.5	1,100	0.6
Aug-07-2012	359	25.4	0.5	1,080	0.6
Aug-08-2012	361	25.3	0.5	1,090	< 0.4
Aug-09-2012	355	25.9	0.6	1,130	0.7
Aug-10-2012	359	26.9	0.6	1,140	0.7
Aug-11-2012	342	27.2	0.7	1,230	0.8
Aug-12-2012	331	27.4	0.7	1,250	0.9
Aug-13-2012	339	27.9	0.6	1,210	< 0.4
Aug-14-2012	299	28.4	0.6	1,170	1.0
Aug-15-2012	327	27.3	0.5	1,110	0.7
Aug-16-2012	295	26.4	0.6	1,180	0.7
Aug-17-2012	292	25.9	0.6	1,180	1.0
Aug-18-2012	278	25.7	0.7	1,280	1.1
Aug-19-2012	320	25.3	0.6	1,240	1.1
Aug-20-2012	350	25.3	0.6	1,110	1.1
Aug-21-2012	357	25.6	0.5	1,040	1.1
Aug-22-2012	388	25.5	0.4	917	0.9
Aug-23-2012	341	25.8	0.5	1,060	1.0
Aug-24-2012	346	25.4	0.5	1,060	1.2
Aug-25-2012	337	25.0	0.5	1,070	0.9
Aug-26-2012	351	24.4	0.6	1,100	0.7
Aug-27-2012	351	23.4	0.5	1,050	0.7
Aug-28-2012	316	24.0	0.5	1,100	0.7
Aug-29-2012	324	24.1	0.5	1,100	0.7
Aug-30-2012	303	24.5	0.5	1,130	0.8
Aug-31-2012	290	23.9	0.4	1,150	0.6
Mean	333	25.7	0.6	1,130	0.8

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-04-2012	12	135	5,490	38	9.1
Jun-11-2012	16	123	5,480	42	9.3
Jun-18-2012	20	184	5,230	33	8.5
Jun-25-2012	14	134	5,730	37	10.0
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

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-05-2012	11	34	21.3	8.1	5,830	41.0	11.0
Jun-06-2012	11	NA	20.6	8.2	5,680	43.0	10.0
Jun-13-2012	14	28	23.7	8.1	5,640	35.0	10.0
Jun-19-2012	18	20	23.9	8.3	5,900	42.0	10.0
Jun-25-2012	19	134	22.3	8.6	5,240	32.0	8.4
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

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-05-2012	64	.	19.2	8.6	1,050	0.4	0.9
Jun-13-2012	33	.	23.6	8.2	1,440	0.9	1.3
Jun-19-2012	21	.	22.7	8.5	2,040	0.8	1.8
Jun-25-2012	31	.	22.6	9.2	1,630	1.2	1.6
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

** 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-05-2012	75	19.7	93.3	8.1	1,690	4.9	2.0
Jun-06-2012	70	20.0	NA	8.0	1,940	6.7	2.4
Jun-13-2012	47	23.3	39.7	7.7	2,850	11.0	3.8
Jun-19-2012	39	23.7	24.8	8.1	4,410	23.0 U	6.0
Jun-25-2012	50	23.1	NA	8.6	3,070	12.0	4.2
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

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-05-2012	.	19.8	42	8.1	1,730	5.1	2.1
Jun-13-2012	.	NA	NA	NA	NA	NA	NA
Jun-19-2012	.	NA	NA	NA	NA	NA	NA
Jun-25-2012	.	NA	NA	NA	NA	NA	NA
Jul-02-2012	.	NA	NA	NA	NA	NA	NA
Jul-10-2012	No Flow	NA	NA	NA	NA	NA	NA
Jul-18-2012	June-August	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	.	NA	NA	NA	NA	NA	NA
Aug-14-2012	.	NA	NA	NA	NA	NA	NA
Aug-28-2012	.	NA	NA	NA	NA	NA	NA

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

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-05-2012	128	18.7	7.6	1,190	0.4	0.5
Jun-13-2012	148	13.3	8.7	1,200	0.6	0.5
Jun-19-2012	135	21.7	7.9	1,140	0.6	0.4
Jun-25-2012	121	21.3	7.9	1,170	0.5	0.4
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

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-05-2012	154	19.6	8.0	1,490	< 0.4	0.5
Jun-13-2012	183	23.0	7.5	1,300	0.5	0.4
Jun-19-2012	163	23.6	8.4	1,290	0.6	0.4
Jun-25-2012	128	21.8	8.9	1,390	0.4	0.4
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

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
Jun-04-2012	50	.	.	529	0.7	0.3
Jun-11-2012	50	.	.	433	0.8	0.3
Jun-18-2012	30	.	.	540	0.6	0.3
Jun-25-2012	30	.	.	566	0.8	0.2
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

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
Jun-04-2012	35	.	.	524	0.7	0.3
Jun-11-2012	35	.	.	512	0.7	0.3
Jun-18-2012	20	.	.	512	0.6	0.3
Jun-25-2012	20	.	.	557	1.1	0.3
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

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
Jun-04-2012	NA	.	.	824	0.8	0.5
Jun-11-2012	NA	.	.	1,570	1.6	1.3
Jun-18-2012	NA	.	.	1,810	1.6	1.7
Jun-25-2012	NA	.	.	2,260	1.7	1.8
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

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
Jun-04-2012	NA	.	.	1,040	1.1	1.2
Jun-11-2012	NA	.	.	1,030	1.1	1.1
Jun-18-2012	NA	.	.	1,120	1.5	1.2
Jun-25-2012	NA	.	.	1,170	1.4	1.2
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

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-06-2012	.	.	.	1,540	2.0	1.0
Jun-13-2012	.	.	.	1,660	2.3	1.0
Jun-20-2012	.	.	.	2,030	4.4	1.5
Jun-27-2012	.	.	.	1,920	2.5	1.2
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

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-06-2012	257	.	.	1,540	2.0	1.0
Jun-13-2012	222	.	.	1,670	2.1	1.0
Jun-20-2012	180	.	.	2,030	4.5	1.5
Jun-27-2012	177	.	.	1,910	2.6	1.3
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

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-05-2012	606	19.2	8.0	1,030	1.0	0.6
Jun-13-2012	499	23.0	8.0	1,200	1.4	0.6
Jun-19-2012	456	24.8	8.0	1,240	1.9	0.7
Jun-25-2012	451	21.6	8.3	1,150	1.3	0.6
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

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-04-2012	.	.	.	556	0.7	0.3
Jun-11-2012	.	.	.	535	0.9	0.3
Jun-18-2012	.	.	.	541	0.7	0.3
Jun-25-2012	.	.	.	546	0.9	0.3
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

Table 21. Summary of fathead minnow (*Pimephales promelas*) larvae survival in 7-day tests using water samples collected from September 2011 to August 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	%	%	%	%	%	%
Sep-2011	79*	88	90	95	95	95
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

Table 22. Summary of fathead minnow (*Pimephales promelas*) larvae growth in 7-day tests using water samples collected from September 2011 to August 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
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
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

Table 23. Summary of *Daphnia magna* survival in 7-day tests using water samples collected from September 2011 to August 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	%	%	%	%	%	%
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
Jun-2012	90	80	90	90	100	100
Jul-2012	90	20*	40*	100	100	100
Aug-2012	40*	100	100	100	100	100

Table 24. Summary of *Daphnia magna* reproduction in 7-day tests using water samples collected from September 2011 to August 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
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-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

Table 25. Summary of *Selenastrum capricornutum* growth in 4-day tests using water samples collected from September 2011 to August 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
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
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

Table 26. Summary of selenium concentrations in grab water samples collected at study stations for use in laboratory toxicity tests, June 2012 to August 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
Jun-11-2012	37	0.9	8.0	0.5	< 0.4
Jun-13-2012	35	0.8	11	0.5	< 0.4
Jun-15-2012	33	0.6	13	0.5	< 0.4
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

Table 27. Summary of total suspended solids concentrations in grab water samples collected at study stations for use in laboratory toxicity tests, June 2012 to August 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
Jun-11-2011	28	49	90	106	14
Jun-13-2011	33	33	60	153	16
Jun-15-2011	62	48	52	221	6
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

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 $0.4 \mu\text{g/L}$ as of August 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