GRASSLAND BYPASS PROJECT

MONTHLY DATA REPORT

July 2012

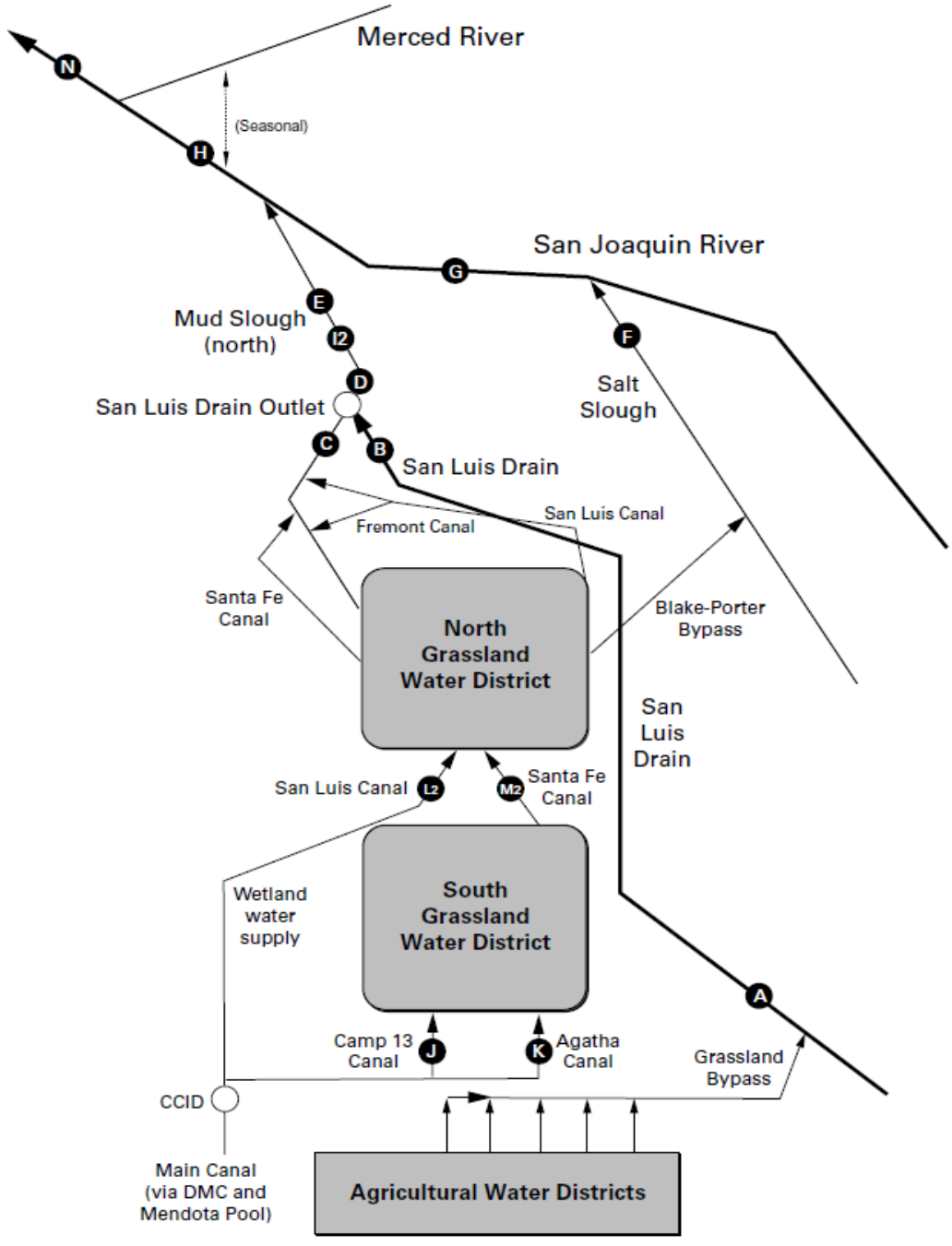
January 2013

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


Merced River
(Seasonal)
San Joaquin River
Mud Slough
(north)
San Luis Drain Outlet
Salt
Slough
San Luis Drain
Fremont Canal
San Luis Canal
Santa Fe
Canal
North
Grassland
Water District
Blake-Porter
Bypass
San
Luis
Drain
San Luis Canal
Santa Fe
Canal
Wetland
water
supply
South
Grassland
Water District
Camp 13
Canal
Agatha
Canal
Grassland
Bypass
CCID
Main Canal
(via DMC and
Mendota Pool)
Agricultural Water Districts

GRASSLAND BYPASS PROJECT

MONTHLY DATA REPORT

LIST OF TABLES FOR MONTHLY REPORT

Table 1. Continuous water monitoring at Station A (inflow to San Luis Drain), July 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
Jul-01-2012	19	25.7	4,270	160
Jul-02-2012	16	25.9	5,210	171
Jul-03-2012	15	25.5	6,020	185
Jul-04-2012	21	26.0	5,740	244
Jul-05-2012	18	24.6	5,560	205
Jul-06-2012	14	25.1	5,710	163
Jul-07-2012	17	26.1	5,470	182
Jul-08-2012	20	26.4	5,220	211
Jul-09-2012	14	26.3	5,480	157
Jul-10-2012	14	26.8	5,670	158
Jul-11-2012	16	28.2	5,230	172
Jul-12-2012	17	28.4	5,210	178
Jul-13-2012	17	26.6	5,230	174
Jul-14-2012	17	24.7	4,970	169
Jul-15-2012	20	25.6	4,720	187
Jul-16-2012	16	24.3	5,200	168
Jul-17-2012	14	22.7	5,400	152
Jul-18-2012	12	24.4	5,250	127
Jul-19-2012	12	25.8	5,190	121
Jul-20-2012	14	25.2	5,220	142
Jul-21-2012	14	26.6	5,310	152
Jul-22-2012	13	27.5	5,330	134
Jul-23-2012	10	26.5	4,870	93
Jul-24-2012	8	25.3	4,650	77
Jul-25-2012	7	25.5	4,370	60
Jul-26-2012	8	24.6	4,230	68
Jul-27-2012	9	24.3	4,800	90
Jul-28-2012	7	24.9	4,990	67
Jul-29-2012	10	25.2	5,610	114
Jul-30-2012	13	26.2	5,630	143
Jul-31-2012	11	27.0	5,300	113
Mean	14	25.7	5,200	4,536
Total Acre-feet	861			
Salinity Load Value (Dry Year, July)				10,293

Table 2a. Continuous water monitoring at Stations B and B2 (San Luis Drain Terminus), July 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
Jul-01-2012	11	24.4	10.0	4,700	22.0	1.2
Jul-02-2012	18	26.1	9.6	4,520	23.0	2.2
Jul-03-2012	15	25.2	9.1	4,460	27.0	2.2
Jul-04-2012	15	26.4	9.4	4,570	27.0	2.1
Jul-05-2012	20	25.1	9.7	4,790	31.0	3.3
Jul-06-2012	18	24.1	9.7	4,840	32.0	3.1
Jul-07-2012	13	27.2	10.0	4,590	36.0	2.5
Jul-08-2012	14	27.6	11.0	4,930	32.0	2.4
Jul-09-2012	18	26.0	11.0	5,260	32.0	3.1
Jul-10-2012	14	27.4	11.0	5,260	31.0	2.3
Jul-11-2012	12	29.8	10.0	5,050	32.0	2.2
Jul-12-2012	15	31.3	9.8	5,130	37.0	3.0
Jul-13-2012	15	28.4	9.7	5,290	39.0	3.2
Jul-14-2012	14	24.1	9.0	4,950	34.0	2.6
Jul-15-2012	16	26.7	8.9	4,880	37.0	3.1
Jul-16-2012	18	23.4	8.4	5,070	38.0	3.7
Jul-17-2012	15	21.4	8.5	4,850	32.0	2.7
Jul-18-2012	14	23.4	10.0	4,880	34.0	2.5
Jul-19-2012	12	25.7	11.0	4,960	37.0	2.4
Jul-20-2012	10	25.8	10.0	5,050	37.0	2.0
Jul-21-2012	12	28.2	11.0	5,040	33.0	2.1
Jul-22-2012	13	29.0	12.0	5,050	28.0	2.0
Jul-23-2012	11	28.9	12.0	5,190	29.0	1.7
Jul-24-2012	9	25.8	10.0	5,180	31.0	1.5
Jul-25-2012	7	25.2	10.0	5,130	33.0	1.3
Jul-26-2012	6	24.1	9.4	5,040	31.0	1.1
Jul-27-2012	7	23.9	10.0	4,910	30.0	1.1
Jul-28-2012	8	24.3	9.7	4,940	29.0	1.3
Jul-29-2012	7	24.4	11.0	4,900	28.0	1.1
Jul-30-2012	8	25.9	10.0	4,910	28.0	1.2
Jul-31-2012	12	28.7	9.6	5,040	31.0	2.0
Mean	13	26.1	10.0	4,950	31.6	2.2
Total Acre-feet	790					
Total (lbs)						68

Load Limitation for July 2012 (lbs)	131

♦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.

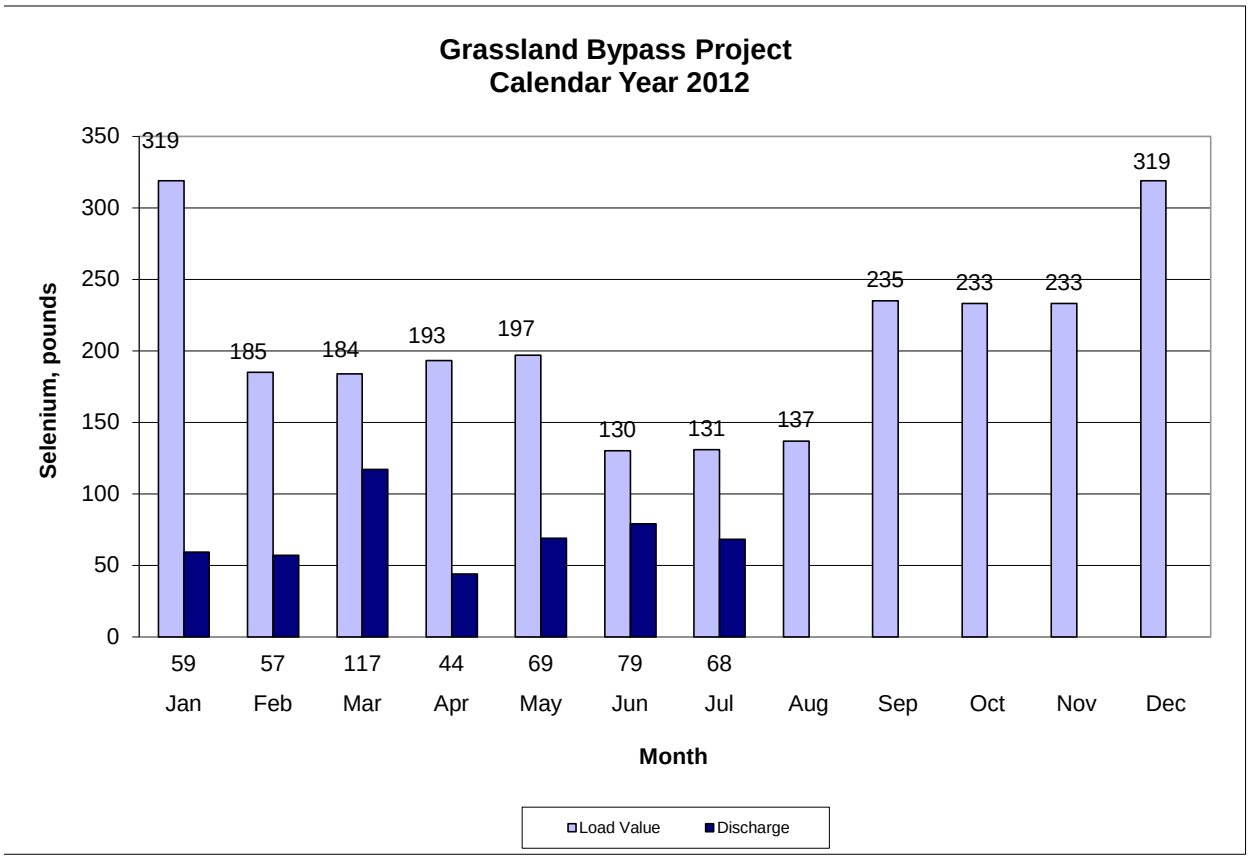


Table 3. Continuous water monitoring at Station D (Mud Slough North downstream of drainage discharges), July 2012.

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
Jul-01-2012	28	26.0	4,290
Jul-02-2012	31	26.6	4,620
Jul-03-2012	29	26.7	4,300
Jul-04-2012	28	26.4	4,580
Jul-05-2012	32	25.7	4,760
Jul-06-2012	32	25.2	4,550
Jul-07-2012	28	25.6	4,240
Jul-08-2012	28	26.3	4,640
Jul-09-2012	30	26.4	5,270
Jul-10-2012	33	26.5	3,550
Jul-11-2012	40	27.8	2,770
Jul-12-2012	48	28.3	2,680
Jul-13-2012	50	28.0	2,610
Jul-14-2012	42	27.0	2,770
Jul-15-2012	34	26.7	3,630
Jul-16-2012	42	25.8	3,330
Jul-17-2012	50	24.6	2,560
Jul-18-2012	52	24.7	2,390
Jul-19-2012	54	25.0	2,280
Jul-20-2012	54	25.0	2,130
Jul-21-2012	53	26.2	2,340
Jul-22-2012	60	26.7	2,240
Jul-23-2012	58	26.6	2,200
Jul-24-2012	48	25.9	2,110
Jul-25-2012	41	26.1	2,460
Jul-26-2012	46	25.6	2,110
Jul-27-2012	38	25.2	2,380
Jul-28-2012	28	25.8	3,330
Jul-29-2012	21	26.0	4,700
Jul-30-2012	21	26.4	5,090
Jul-31-2012	30	26.4	4,220
Mean	39	26.2	3,390

Table 4. Continuous water monitoring at Station F (Salt Slough at Highway 165), July 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
Jul-01-2012	139	25.6	1,000
Jul-02-2012	130	25.8	1,060
Jul-03-2012	121	25.9	1,060
Jul-04-2012	120	25.5	1,020
Jul-05-2012	121	24.6	952
Jul-06-2012	128	24.2	959
Jul-07-2012	139	24.8	942
Jul-08-2012	136	25.8	982
Jul-09-2012	121	26.1	1,000
Jul-10-2012	125	26.1	983
Jul-11-2012	131	27.0	949
Jul-12-2012	133	27.8	930
Jul-13-2012	132	27.9	944
Jul-14-2012	127	26.0	956
Jul-15-2012	134	25.5	951
Jul-16-2012	141	24.9	912
Jul-17-2012	136	23.1	949
Jul-18-2012	143	23.1	910
Jul-19-2012	147	24.3	898
Jul-20-2012	155	24.9	862
Jul-21-2012	152	25.6	881
Jul-22-2012	153	26.7	855
Jul-23-2012	157	26.2	829
Jul-24-2012	155	25.0	852
Jul-25-2012	155	24.9	845
Jul-26-2012	141	25.0	848
Jul-27-2012	137	24.7	837
Jul-28-2012	143	24.5	824
Jul-29-2012	136	24.6	858
Jul-30-2012	147	25.0	832
Jul-31-2012	157	25.8	805
Mean	138	25.4	920

Table 5. Continuous water monitoring at Station N (San Joaquin River at Crow's Landing), July 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
Jul-01-2012	427	25.2	0.6	1,150	0.8
Jul-02-2012	442	25.6	0.5	1,090	0.7
Jul-03-2012	416	25.9	0.6	1,200	0.9
Jul-04-2012	365	26.3	0.8	1,360	1.1
Jul-05-2012	354	26.1	0.7	1,370	1.0
Jul-06-2012	351	25.0	0.8	1,390	1.3
Jul-07-2012	338	25.5	0.9	1,400	1.6
Jul-08-2012	374	26.1	0.8	1,270	1.6
Jul-09-2012	393	25.9	0.6	1,150	1.2
Jul-10-2012	344	26.0	0.7	1,300	1.4
Jul-11-2012	331	27.1	0.8	1,420	1.7
Jul-12-2012	380	27.5	0.7	1,280	1.4
Jul-13-2012	363	27.6	0.7	1,310	1.3
Jul-14-2012	344	26.5	0.8	1,420	1.6
Jul-15-2012	351	26.6	0.7	1,350	1.7
Jul-16-2012	372	26.5	0.7	1,230	1.4
Jul-17-2012	377	24.7	0.7	1,250	1.5
Jul-18-2012	386	24.3	0.8	1,320	1.5
Jul-19-2012	378	25.0	0.7	1,260	1.2
Jul-20-2012	340	25	0.7	1,280	1.3
Jul-21-2012	364	26	0.7	1,240	1.2
Jul-22-2012	383	26.9	0.7	1,170	1.0
Jul-23-2012	384	27.7	0.7	1,180	1.1
Jul-24-2012	347	27.3	0.8	1,200	0.9
Jul-25-2012	337	26.3	0.8	1,210	1.0
Jul-26-2012	332	25.7	0.7	1,230	0.8
Jul-27-2012	360	25.1	0.6	1,150	0.8
Jul-28-2012	337	25.3	0.6	1,170	0.7
Jul-29-2012	380	25.5	0.5	1,080	0.6
Jul-30-2012	388	25.6	0.5	1,010	0.6
Jul-31-2012	377	26.2	0.5	1,040	0.5
Mean	368	26.0	0.7	1,240	1.1

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
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
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

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
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
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	5,722	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

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
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
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

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

PRELIMINARY RESULTS

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
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
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	23U	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

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
May-07-2012	.	NA	NA	NA	NA	NA	NA
May-15-2012	.	NA	NA	NA	NA	NA	NA
May-22-2012	.	NA	NA	NA	NA	NA	NA
May-29-2012	.	NA	NA	NA	NA	NA	NA
Jun-05-2012	.	19.8	42	8.1	1,730	5.1	2.1
Jun-13-2012	No Flow	NA	NA	NA	NA	NA	NA
Jun-19-2012	May-July	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	.	NA	NA	NA	NA	NA	NA
Jul-18-2012	.	NA	NA	NA	NA	NA	NA
Jul-24-2012	.	NA	NA	NA	NA	NA	NA

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

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
May-01-2012	119	22.0	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
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

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
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
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	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

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
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
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

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
May-07-2012	75	.	.	573	0.8	0.3
May-14-2012	75	.	.	414	0.6	0.2
May-21-2012	45	.	.	392	0.4	0.2
May-29-2012	35	.	.	376	0.5	0.2
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

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
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
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

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
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
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

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
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
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

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
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
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

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
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
Jun-05-2012	606	19.2	8.0	1,030	1	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

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
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
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

Table 21. Summary of fathead minnow (*Pimephales promelas*) larvae survival in 7-day tests using water samples collected from August 2011 to July 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	%	%	%	%	%	%
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
Jun-2012	95	100	100	98	100	98
Jul-2012	68	90	98	98	95	98

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

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

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

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

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

Table 27. Summary of total suspended solids concentrations in grab water samples collected at study stations for use in laboratory toxicity tests, May 2012 to July 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
May-14-2012	35	80	44	153	<1
May-16-2012	21	97	110	122	48
May-18-2012	54	77	126	246	29
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

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 (10^6cell/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 July 1998.
❖	Based on definitive bioassay, NOEC is 50 percent
D	Sample was dechlorinated
PPD	Panoche Drainage Distraict
U	results are determined to be an outlier at the time of data validation