

# GRASSLAND BYPASS PROJECT

## MONTHLY DATA REPORT

**September 2009**

April 12, 2010

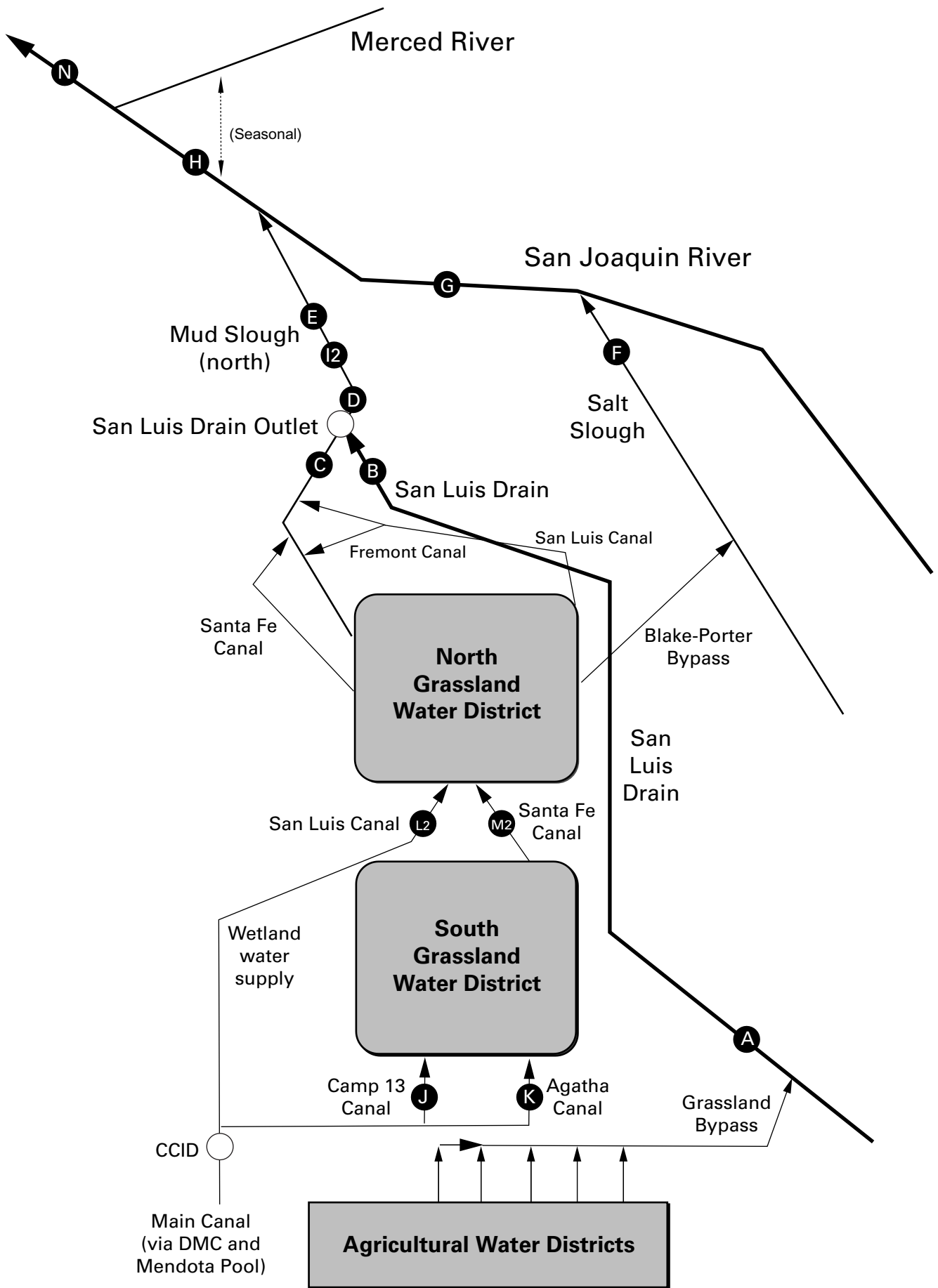
### **Preliminary Results**

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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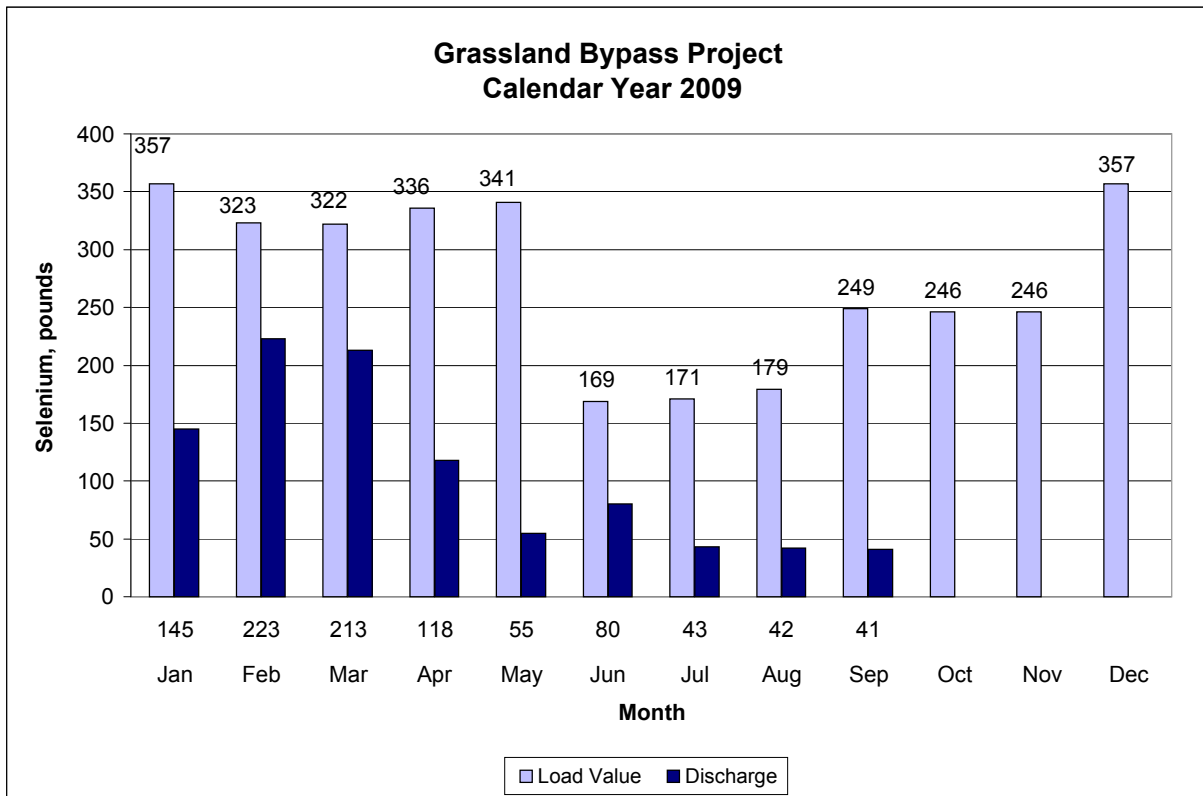
**Table 1. Continuous water monitoring at Station A (inflow to San Luis Drain), September 2009.**

See Table 27 for explanation of footnotes and agency abbreviations.

<b>PARAMETER</b>	<b>Flow</b>	<b>Specific Conductance</b>
<b>DATA SOURCE</b>	<b>SLDMWA</b>	<b>SLDMWA</b>
<b>UNITS</b>	<b>cfs</b>	<b>µS/cm</b>
Sep-01-2009	5	3,770
Sep-02-2009	6	3,190
Sep-03-2009	7	3,920
Sep-04-2009	7	4,440
Sep-05-2009	8	4,270
Sep-06-2009	8	4,740
Sep-07-2009	10	4,760
Sep-08-2009	16	3,570
Sep-09-2009	16	3,390
Sep-10-2009	17	3,860
Sep-11-2009	12	4,160
Sep-12-2009	13	4,060
Sep-13-2009	10	3,830
Sep-14-2009	11	3,650
Sep-15-2009	12	3,200
Sep-16-2009	18	3,680
Sep-17-2009	15	3,830
Sep-18-2009	12	3,710
Sep-19-2009	13	3,140
Sep-20-2009	14	3,740
Sep-21-2009	12	3,680
Sep-22-2009	10	3,390
Sep-23-2009	9	3,240
Sep-24-2009	5	3,460
Sep-25-2009	3	3,690
Sep-26-2009	6	3,540
Sep-27-2009	11	3,250
Sep-28-2009	10	3,300
Sep-29-2009	10	3,200
Sep-30-2009	10	3,390
.	.	.
Mean	10	3,700



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), September 2009.**

See Table 27 for explanation of footnotes and agency abbreviations.

<b>PARAMETER</b>	<b>Flow</b>	<b>Temperature</b>	<b>Specific Conductance</b>
<b>DATA SOURCE</b>	<b>usgs</b>	<b>usgs</b>	<b>usgs</b>
<b>UNITS</b>	<b>cfs</b>	<b>°C</b>	<b>µS/cm</b>
Sep-01-2009	16	25.5	2,510
Sep-02-2009	11	25.4	NA
Sep-03-2009	15	25.4	NA
Sep-04-2009	e18	24.8	NA
Sep-05-2009	e11	23.6	NA
Sep-06-2009	e11	23.9	NA
Sep-07-2009	e15	23.4	NA
Sep-08-2009	e19	23.5	NA
Sep-09-2009	e17	23.8	NA
Sep-10-2009	e22	NA	NA
Sep-11-2009	26	NA	NA
Sep-12-2009	24	24.9	3,120
Sep-13-2009	25	23.8	3,360
Sep-14-2009	33	23.3	2,950
Sep-15-2009	34	23.3	2,890
Sep-16-2009	27	23.9	3,000
Sep-17-2009	27	24.0	3,250
Sep-18-2009	33	24.9	3,050
Sep-19-2009	30	25.2	2,870
Sep-20-2009	28	24.4	2,980
Sep-21-2009	29	24.7	3,020
Sep-22-2009	25	25.0	2,940
Sep-23-2009	28	24.9	2,480
Sep-24-2009	32	25.0	2,100
Sep-25-2009	38	24.3	1,900
Sep-26-2009	41	24.3	1,730
Sep-27-2009	48	24.6	1,640
Sep-28-2009	59	24.5	1,770
Sep-29-2009	51	22.0	1,710
Sep-30-2009	42	19.0	2,030
Mean	31	24.1	2,570

**Table 4. Continuous water monitoring at Station F (Salt Slough at Highway 165), September 2009.**

See Table 27 for explanation of footnotes and agency abbreviations.

<b>PARAMETER</b>	<b>Flow</b>	<b>Temperature</b>	<b>Specific Conductance</b>
<b>DATA SOURCE</b>	<b>usgs</b>	<b>usgs</b>	<b>usgs</b>
<b>UNITS</b>	<b>cfs</b>	<b>°C</b>	<b>µS/cm</b>
Sep-01-2009	117	25.1	1,030
Sep-02-2009	87	25.2	1,180
Sep-03-2009	66	25.3	1,310
Sep-04-2009	58	24.5	1,340
Sep-05-2009	60	23.3	1,230
Sep-06-2009	71	23.4	1,120
Sep-07-2009	82	22.7	1,050
Sep-08-2009	86	22.9	1,010
Sep-09-2009	65	23.4	1,100
Sep-10-2009	54	23.9	1,300
Sep-11-2009	75	24.3	1,180
Sep-12-2009	89	24.6	1,070
Sep-13-2009	84	23.2	1,090
Sep-14-2009	81	22.5	1,110
Sep-15-2009	82	22.4	1,080
Sep-16-2009	62	23.3	1,210
Sep-17-2009	50	23.6	1,340
Sep-18-2009	50	24.5	1,430
Sep-19-2009	58	24.7	1,300
Sep-20-2009	56	23.7	1,260
Sep-21-2009	61	24.0	1,240
Sep-22-2009	61	24.4	1,200
Sep-23-2009	52	24.6	1,300
Sep-24-2009	47	24.4	1,390
Sep-25-2009	48	23.7	1,460
Sep-26-2009	61	23.8	1,330
Sep-27-2009	58	24.2	1,260
Sep-28-2009	48	23.9	1,320
Sep-29-2009	48	20.9	1,410
Sep-30-2009	49	17.7	1,430
.	.	.	.
Mean	66	23.6	1,240



Table 5. Continuous water monitoring at Station N (San Joaquin River at Crow's Landing), September 2009.

See Table 27 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow	Temperature	Specific Conductance	Selenium (total)
DATA SOURCE	usgs	usgs	cvrwqcb	cvrwqcb
UNITS	cfs	°C	µS/cm	µg/L
Sep-01-2009	247	24.7	1,170	0.8
Sep-02-2009	240	25.1	1,170	0.9
Sep-03-2009	238	24.8	1,110	0.7
Sep-04-2009	215	24.5	1,290	0.9
Sep-05-2009	212	22.9	1,340	0.9
Sep-06-2009	213	23.0	1,410	1.0
Sep-07-2009	212	22.7	1,310	0.8
Sep-08-2009	218	23.0	1,250	0.7
Sep-09-2009	228	23.4	1,190	0.7
Sep-10-2009	228	23.6	1,170	0.8
Sep-11-2009	204	24.0	1,290	0.8
Sep-12-2009	225	24.3	1,510	1.1
Sep-13-2009	268	23.3	1,310	1.2
Sep-14-2009	277	23.2	1,030	0.9
Sep-15-2009	280	22.8	1,090	1.1
Sep-16-2009	260	23.2	1,160	1.1
Sep-17-2009	250	23.3	1,170	1.1
Sep-18-2009	261	24.1	1,190	0.9
Sep-19-2009	242	24.8	1,260	1.1
Sep-20-2009	258	24.0	1,390	1.8
Sep-21-2009	267	24.0	1,200	1.5
Sep-22-2009	240	24.2	1,250	1.2
Sep-23-2009	219	24.1	1,430	1.7
Sep-24-2009	220	24.0	1,480	1.6
Sep-25-2009	251	23.3	1,370	1.5
Sep-26-2009	258	23.5	1,370	1.0
Sep-27-2009	279	24.1	1,350	0.9
Sep-28-2009	273	24.0	1,270	0.9
Sep-29-2009	275	21.5	1,150	1.0
Sep-30-2009	300	18.7	1,120	0.9
Mean	245	23.5	1,260	1.1

Table 6a. Weekly water quality monitoring at Station A (inflow to San Luis Drain), taken from grab samples.

See Table 27 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow	.	.	Specific Conductance	Total Suspended Solids	.	.	.
DATA SOURCE	SLDMWA	.	.	CVRWQCB	CVRWQCB	.	.	.
UNITS	cfs	.	.	µS/cm	mg/L	.	.	.
Jul-06-2009	14	.	.	4,650	46	.	.	.
Jul-13-2009	7	.	.	5,050	19	.	.	.
Jul-20-2009	9	.	.	3,470	133	.	.	.
Jul-27-2009	14	.	.	4,060	150	.	.	.
Aug-03-2009	17	.	.	4,250	119	.	.	.
Aug-10-2009	14	.	.	4,930	123	.	.	.
Aug-17-2009	9	.	.	4,730	40	.	.	.
Aug-24-2009	22	.	.	3,760	277	.	.	.
Aug-17-2009	9	.	.	4,760	124	.	.	.
Sep-08-2009	16	.	.	4,800	120	.	.	.
Sep-14-2009	11	.	.	4,190	108	.	.	.
Sep-21-2009	12	.	.	4,510	111	.	.	.
Sep-28-2009	10	.	.	3,890	53	.	.	.

Table 6b. Weekly water quality monitoring at Station A (inflow to San Luis Drain), taken from composite samples.

See Table 27 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow	.	.	Specific Conductance	.	Selenium (total)	.	Boron
DATA SOURCE	SLDMWA	.	.	CVRWQCB	.	CVRWQCB	.	CVRWQCB
UNITS	cfs	.	.	µS/cm	.	µg/L	.	mg/L
Jul-05-2009	16	.	.	4,230	.	26.1	.	7.5
Jul-12-2009	10	.	.	5,170	.	30.6	.	8.8
Jul-19-2009	11	.	.	4,570	.	28.3	.	7.8
Jul-26-2009	14	.	.	3,260	.	21.2	.	4.7
Aug-02-2009	12	.	.	4,430	.	33.5	.	7.1
Aug-09-2009	12	.	.	5,460	.	40.2	.	8.4
Aug-16-2009	6	.	.	4,730	.	33.8	.	8.5
Aug-23-2009	21	.	.	3,260	.	21.2	.	5.6
Aug-30-2009	9	.	.	4,850	.	32.3	.	6.9
Sep-06-2009	8	.	.	5,820	.	39.3	.	9.1
Sep-13-2009	10	.	.	4,500	.	38.1	.	6.9
Sep-20-2009	14	.	.	4,240	.	30.8	.	7.0
Sep-27-2009	11	.	.	3,700	.	22.0	.	7.3

Table 7. Weekly water quality monitoring at Station B (discharge from San Luis Drain), taken from grab samples.

See Table 27 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow	Temperature	pH	Specific Conductance	Total Suspended Solids	Selenium (total)	Boron
DATA SOURCE	USGS	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB
UNITS	cfs	°C	.	µS/cm	mg/L	µg/L	mg/L
Jul-01-2009	16	26.4	8.0	4,080	69	22.1	6.5
Jul-07-2009	13	24.3	9.0	3,810	71	25.0	6.2
Jul-14-2009	7	23.5	8.4	4,430	39	26.0	7.6
Jul-21-2009	7	26.5	8.3	4,560	34	21.5	8.1
Jul-28-2009	11	26.4	7.3	3,230	40	19.8	5.2
Aug-04-2009	14	25.4	8.8	3,770	32	18.0	6.4
Aug-11-2009	11	25.4	8.0	4,050	36	32.7	6.2
Aug-18-2009	6	24.5	8.6	5,360	35	36.5	9.5
Aug-25-2009	20	23.5	8.3	3,650	36	19.6	6.7
Sep-01-2009	7	24.1	8.6	3,700	38	17.6	6.3
Sep-08-2009	8	22.9	7.9	4,240	12	14.8	7.3
Sep-15-2009	11	22.4	8.7	5,010	32	25.6	9.6
Sep-22-2009	12	23.8	8.5	3,420	31	19.7	5.4
Sep-29-2009	10	23.2	8.4	3,930	43	16.8	6.7

Table 8. Weekly water quality monitoring at Station C (Mud Slough North upstream of drainage discharges).

See Table 27 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow	Temperature	pH	Specific Conductance	.	Selenium (total)	Boron
DATA SOURCE	calculated **	CVRWQCB	CVRWQCB	CVRWQCB	.	CVRWQCB	CVRWQCB
UNITS	cfs	°C	.	µS/cm	.	µg/L	mg/L
Jul-01-2009	13	23.5	8.3	2,410	.	0.6	2.0
Jul-07-2009	10	24.0	8.3	1,970	.	0.5	1.9
Jul-14-2009	18	23.7	8.2	1,740	.	0.5	1.7
Jul-21-2009	5	23.3	8.3	2,450	.	0.5	2.2
Jul-28-2009	4	22.1	7.4	3,540	.	0.4	3.0
Aug-04-2009	10	25.2	8.6	1,500	.	0.5	1.3
Aug-11-2009	15	24.3	8.0	1,210	.	0.8	1.0
Aug-18-2009	4	23.3	8.1	2,220	.	0.6	1.8
Aug-25-2009	5	19.9	8.2	1,130	.	0.7	0.8
Sep-01-2009	9	26.0	8.4	1,100	.	0.8	0.7
Sep-08-2009	11	22.1	8.0	640	.	1.0	0.4
Sep-15-2009	23	20.5	7.9	860	.	0.4	0.4
Sep-22-2009	13	21.0	7.8	1,280	.	0.4	0.8
Sep-29-2009	41	20.9	7.6	980	.	<0.4	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 27 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow	Temperature	pH	Specific Conductance	Selenium (total)	Boron
DATA SOURCE	USGS	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB
UNITS	cfs	°C	.	µS/cm	µg/L	mg/L
Jul-07-2009	23	23.4	8.4	2,990	12.8	4.1
Jul-14-2009	25	23.0	8.2	2,750	7.6	3.5
Jul-21-2009	12	25.8	8.6	4,690	19.0	8.2
Jul-28-2009	15	25.4	7.5	3,550	16.9	5.9
Aug-04-2009	24	24.5	8.6	3,040	11.2	4.6
Aug-11-2009	26	24.2	8.0	2,430	12.5	3.2
Aug-18-2009	10	24.1	8.5	4,890	24.6	7.9
Aug-25-2009	25	22.2	8.5	3,170	17.8	6.7
Sep-01-2009	16	24.3	8.4	2,100	8.3	2.9
Sep-08-2009	e19	21.9	7.8	2,010	5.4	3.0
Sep-15-2009	34	21.1	8.3	2,670	11.8	4.2
Sep-22-2009	25	22.5	8.0	2,910	13.0	4.2
Sep-29-2009	51	21.3	7.6	1,660	4.6	1.8

**Table 10. Weekly water quality monitoring at Station I2 (Mud Slough backwater downstream of Station D).**

See Table 27 for explanation of footnotes and agency abbreviations.

PARAMETER		pH	Specific Conductance	Turbidity	Selenium	Boron
DATA SOURCE		USBR	USBR	USBR	USBR	USBR
UNITS		.	µS/cm	NTU	µg/L	mg/L
Jul-7-2009	.	8.5	3,210	24	10.8	4.1
Jul-15-2009	.	8.7	2,840	28	6.8	3.4
Jul-21-2009	.	8.6	4,860	29	17.5	7.5
Jul-29-2009	.	8.6	3,530	24	14.0	4.6
Aug-5-2009	.	8.8	3,090	12	11.8	4.6
Aug-11-2009	.	8.1	2,360	15	12.4	3.4
Aug-18-2009	.	8.6	5,090	37	22.7	8.3
Aug-25-2009	.	8.6	3,730	12	18.2	6.6
Sep-03-2009	.	8.6	2,520	35	7.7	3.5
Sep-10-2009	.	8.7	3,770	29	18.2	6.6
Sep-15-2009	.	8.6	2,790	18	12.4	4.7
Sep-22-2009	.	8.8	2,300	29	13.0	4.4
Sep-29-2009	.	8.2	3,150	26	4.5	1.9

Table 11. Weekly water quality monitoring at Station F (Salt Slough at Lander Avenue).

See Table 27 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow	Temperature	pH	Specific Conductance	Selenium (total)	Boron
DATA SOURCE	USGS	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB
UNITS	cfs	°C	.	µS/cm	µg/L	mg/L
Jul-01-2009	92	23.7	7.2	1,270	<0.4	0.5
Jul-07-2009	140	21.6	7.9	1,110	0.5	0.4
Jul-14-2009	151	22.6	7.5	968	0.8	0.4
Jul-21-2009	125	24.7	7.8	1,020	<0.4	0.4
Jul-28-2009	130	24.9	7.1	899	<0.4	0.4
Aug-04-2009	122	23.3	7.8	900	0.4	0.3
Aug-11-2009	123	23.7	7.1	950	<0.4	0.3
Aug-18-2009	92	22.6	7.8	820	<0.4	0.4
Aug-25-2009	NA	20.9	7.6	1,100	<0.4	0.4
Sep-01-2009	117	22.3	7.8	970	<0.4	0.3
Sep-08-2009	86	21.8	7.8	940	0.6	0.4
Sep-15-2009	82	20.0	7.7	1,060	<0.4	0.5
Sep-22-2009	61	21.8	7.7	1,200	<0.4	0.5
Sep-29-2009	48	20.1	7.9	860	0.5	0.8

Table 12. Weekly water quality monitoring at Station J (Camp 13 Ditch).

See Table 27 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow	.	.	Specific Conductance	Selenium (total)	Boron
DATA SOURCE	SLDMWA <sup>††</sup>	.	.	CVRWQCB	CVRWQCB	CVRWQCB
UNITS	cfs	.	.	µS/cm	µg/L	mg/L
Jul-06-2009	10	.	.	476	0.7	0.3
Jul-13-2009	0	.	.	432	0.9	0.3
Jul-20-2009	0	.	.	930	1.4	0.9
Jul-27-2009	0	.	.	2,770	1.0	4.2
Aug-03-2009	10	.	.	2,220	0.8	3.3
Aug-10-2009	30	.	.	500	0.6	0.2
Aug-17-2009	35	.	.	550	0.7	0.2
Aug-24-2009	45	.	.	1,240	0.8	1.6
Aug-31-2009	85	.	.	640	<0.4	0.2
Sep-08-2009	125	.	.	570	0.4	0.2
Sep-14-2009	125	.	.	610	<0.4	0.2
Sep-21-2009	170	.	.	620	0.7	0.2
Sep-28-2009	210	.	.	590	<0.4	0.2

Table 13. Weekly water quality monitoring at Station K (Agatha Canal).

See Table 27 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow	.	.	Specific Conductance	Selenium (total)	Boron
DATA SOURCE	SLDMWA <sup>††</sup>	.	.	CVRWQCB	CVRWQCB	CVRWQCB
UNITS	cfs	.	.	µS/cm	µg/L	mg/L
Jul-06-2009	15	.	.	716	1.9	0.7
Jul-13-2009	0	.	.	528	1.1	0.4
Jul-20-2009	0	.	.	621	1.1	0.5
Jul-27-2009	0	.	.	1,030	1.9	1.1
Aug-03-2009	0	.	.	2,480	4.8	3.8
Aug-10-2009	0	.	.	4,150	26.4	6.7
Aug-17-2009	0	.	.	1,560	2.7	2.7
Aug-24-2009	0	.	.	1,080	1.5	1.6
Aug-31-2009	80	.	.	970	2.3	0.9
Sep-08-2009	125	.	.	570	0.6	0.2
Sep-14-2009	165	.	.	570	<0.4	0.2
Sep-21-2009	175	.	.	610	0.6	0.2
Sep-28-2009	175	.	.	580	0.5	0.2

Note: The peak in selenium is caused by no flow conditions at this site.

Table 14. Weekly water quality monitoring at Station L2 (San Luis Canal at splits).

See Table 27 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow	.	.	Specific Conductance	Selenium (total)	Boron
DATA SOURCE	SLDMWA <sup>††</sup>	.	.	CVRWQCB	CVRWQCB	CVRWQCB
UNITS	cfs	.	.	µS/cm	µg/L	mg/L
Jul-06-2009	NA	.	.	1,430	1.4	1.4
Jul-13-2009	NA	.	.	1,590	1.7	1.9
Jul-20-2009	NA	.	.	2,240	3.4	2.2
Jul-27-2009	NA	.	.	1,370	1.5	1.3
Aug-03-2009	NA	.	.	780	0.6	0.5
Aug-10-2009	NA	.	.	880	1.0	0.6
Aug-17-2009	NA	.	.	900	1.2	0.7
Aug-24-2009	NA	.	.	690	0.6	0.4
Aug-31-2009	NA	.	.	1,440	1.7	1.2
Sep-08-2009	NA	.	.	630	0.7	0.3
Sep-14-2009	NA	.	.	610	0.5	0.2
Sep-21-2009	NA	.	.	780	0.9	0.4
Sep-28-2009	NA	.	.	640	0.5	0.2

Table 15. Weekly water quality monitoring at Station M2 (Santa Fe Canal at weir).

See Table 27 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow	.	.	Specific Conductance	Selenium (total)	Boron
DATA SOURCE	SLDMWA <sup>††</sup>	.	.	CVRWQCB	CVRWQCB	CVRWQCB
UNITS	cfs	.	.	µS/cm	µg/L	mg/L
Jul-06-2009	NA	.	.	1,200	1.3	1.7
Jul-13-2009	NA	.	.	1,010	1.0	1.3
Jul-20-2009	NA	.	.	1,020	0.7	1.1
Jul-27-2009	NA	.	.	884	1.1	1.2
Aug-03-2009	NA	.	.	860	0.6	0.7
Aug-10-2009	NA	.	.	750	0.9	0.8
Aug-17-2009	NA	.	.	770	0.8	0.6
Aug-24-2009	NA	.	.	720	0.5	0.4
Aug-31-2009	NA	.	.	660	<0.4	0.3
Sep-08-2009	NA	.	.	640	0.7	0.3
Sep-14-2009	NA	.	.	670	<0.4	0.3
Sep-21-2009	NA	.	.	670	0.5	0.3
Sep-28-2009	NA	.	.	740	0.6	0.3

Table 16. Weekly water quality monitoring at Central California Irrigation District Main Canal at Russell Avenue (MER510).

See Table 27 for explanation of footnotes and agency abbreviations.

PARAMETER	.	.	.	Specific Conductance	Selenium (total)	Boron
DATA SOURCE	.	.	.	CVRWQCB	CVRWQCB	CVRWQCB
UNITS	.	.	.	µS/cm	µg/L	mg/L
Jul-06-2009	.	.	.	462	0.7	0.3
Jul-13-2009	.	.	.	373	0.6	0.2
Jul-20-2009	.	.	.	454	0.4	0.2
Jul-27-2009	.	.	.	391	0.4	0.2
Aug-03-2009	.	.	.	440	0.6	0.2
Aug-10-2009	.	.	.	580	0.5	0.3
Aug-17-2009	.	.	.	550	0.4	0.2
Aug-24-2009	.	.	.	560	0.4	0.2
Aug-31-2009	.	.	.	600	0.4	0.2
Sep-08-2009	.	.	.	550	0.6	0.2
Sep-14-2009	.	.	.	570	0.6	0.2
Sep-21-2009	.	.	.	550	0.5	0.2
Sep-28-2009	.	.	.	580	0.7	0.2

Table 17. Weekly water quality monitoring at Station G (San Joaquin River at Fremont Ford).

See Table 27 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow	Temperature	pH	Specific Conductance	Selenium (total)	Boron
DATA SOURCE	USGS	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB
UNITS	cfs	°C	.	µS/cm	µg/L	mg/L
Jul-01-2009	111	24.6	6.9	1,460	<0.4	0.5
Jul-07-2009	128	22.7	7.5	1,240	0.5	0.5
Jul-14-2009	152	23.6	7.6	1,020	0.5	0.4
Jul-21-2009	122	25.6	7.4	1,130	<0.4	0.4
Jul-28-2009	116	25.2	7.1	1,110	<0.4	0.4
Aug-04-2009	134	24.7	8.0	920	<0.4	0.3
Aug-11-2009	124	24.6	7.2	1,070	<0.4	0.4
Aug-18-2009	90	24.0	7.8	670	0.4	0.5
Aug-25-2009	108	21.6	7.3	1,270	<0.4	0.5
Sep-01-2009	126	24.4	7.8	1,010	<0.4	0.4
Sep-08-2009	95	20.5	7.9	1,260	0.4	0.4
Sep-15-2009	91	20.6	7.4	890	<0.4	0.5
Sep-22-2009	66	22.3	7.7	1,620	<0.4	0.7
Sep-29-2009	47	20.5	7.7	2,120	<0.4	0.8

Table 18. Weekly water quality monitoring at Station H (San Joaquin River at Hills Ferry).

(Collected data intended for use with biological monitoring.)

See Table 27 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
Jul-07-2009	.	.	.	1,720	1.9	1.1
Jul-14-2009	.	.	.	1,180	1.7	1.5
Jul-21-2009	.	.	.	1,550	2.1	0.8
Jul-29-2009	.	.	.	2,420	3.7	3.2
Aug-04-2009	.	.	.	1,280	1.0	0.7
Aug-11-2009	.	.	.	2,420	20.3	2.8
Aug-18-2009	.	.	.	1,270	10.5	1.0
Aug-25-2009	.	.	.	1,840	2.7	1.5
Sep-01-2009	.	.	.	1,380	1.7	0.8
Sep-08-2009	.	.	.	1,730	13.6	1.7
Sep-15-2009	.	.	.	2,910	29.0	3.0
Sep-22-2009	.	.	.	1,960	8.3	2.4
Sep-29-2009	.	.	.	1,970	2.6	1.4

Outside of normal range.



**Table 19. Weekly water quality monitoring at Station N (San Joaquin River at Crow's Landing).**

See Table 27 for explanation of footnotes and agency abbreviations.

<b>PARAMETER</b>	<b>Flow</b>	<b>Temperature</b>	<b>pH</b>	<b>Specific Conductance</b>	<b>Selenium (total)</b>	<b>Boron</b>
<b>DATA SOURCE</b>	<b>usgs</b>	<b>CVRWQCB</b>	<b>CVRWQCB</b>	<b>CVRWQCB</b>	<b>CVRWQCB</b>	<b>CVRWQCB</b>
<b>UNITS</b>	<b>cfs</b>	<b>°C</b>	<b>.</b>	<b>µS/cm</b>	<b>µg/L</b>	<b>mg/L</b>
Jul-01-2009	276	25.0	7.9	1,370	1.4	0.8
Jul-07-2009	296	22.5	8.0	1,290	1.5	0.7
Jul-14-2009	273	22.9	7.7	1,310	1.3	0.8
Jul-21-2009	201	24.6	7.8	1,550	1.2	0.9
Jul-28-2009	188	24.7	7.4	1,590	1.6	1.1
Aug-04-2009	232	23.7	7.4	1,180	0.8	0.6
Aug-11-2009	220	24.3	7.6	1,320	1.6	0.8
Aug-18-2009	210	22.9	7.8	1,230	0.8	0.6
Aug-25-2009	240	21.7	7.7	1,330	1.3	0.9
Sep-01-2009	247	23.9	7.8	1,150	0.8	0.5
Sep-08-2009	218	20.6	7.8	1,230	0.8	0.5
Sep-15-2009	280	21.2	7.8	1,070	1.2	0.6
Sep-22-2009	240	22.5	7.8	1,310	1.5	0.8
Sep-29-2009	275	21.1	7.8	1,170	0.6	0.6

**Table 20. Summary of fathead minnow (*Pimephales promelas*) larvae survival in 7-day tests using water samples collected from October 2008 to September 2009. Each value is the mean of 4 replicates with 10 fish in each replicate.**

See Table 27 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	%	%	%	%	%	%
Oct-2008	100	98	95	100	93	98
Nov-2008	93	95	98	100	95	98
Dec-2008	100	100	100	95	100	100
Jan-2009	95	95	93	93	93	95
Feb-2009	98	95	100	98	100	95
Mar-2009	98	100	100	100	98	95
Apr-2009	100	93	95	95	73	98
May-2009	98	98	98	100	93	95
Jun-2009	95	95	95	93	93	95
Jul-2009	95	98	93	98	98	100
Aug-2010	98	98	88	93	100	100
Sep-2010	100	98	98	100	100	98

**Table 21. Summary of fathead minnow (*Pimephales promelas*) larvae growth in 7-day tests using water samples collected from October 2008 to September 2009. Each value is the mean of 4 replicates with 10 fish in each replicate.**

See Table 27 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
Oct-2008	0.43	0.44	0.38	0.41	0.37	0.38
Nov-2008	0.32*	0.35	0.31	0.32*	0.38	0.35
Dec-2008	0.34	0.35	0.35	0.34	0.34	0.32
Jan-2009	0.35	0.37	0.36	0.33	0.30	0.36
Feb-2009	0.51	0.53	0.49	0.46	0.50	0.35
Mar-2009	0.50	0.50	0.45	0.50	0.44	0.44
Apr-2009	0.33	0.43	0.35	0.40	0.30	0.38
May-2009	0.48	0.41	0.41	0.42	0.42	0.42
Jun-2009	0.42	0.40	0.46	0.44	0.43	0.45
Jul-2009	0.46	0.49	0.50	0.52	0.44	0.47
Aug-2010	0.42	0.40	0.41	0.38	0.43	0.52
Sep-2010	0.43	0.41	0.42	0.45	0.39	0.43

**Table 22. Summary of *Daphnia magna* survival in 7-day tests using water samples collected from October 2008 to September 2009. Each value is the mean of 10 replicates with 1 animal in each replicate.**

See Table 27 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	%	%	%	%	%	%
Oct-2008	90	100	90	90	100	100
Nov-2008	100	100	100	100	90	90
Dec-2008	100	100	100	100	100	90
Dec-2009	90	100	100	100	100	100
Feb-2009	100	80	90	70	90	80
Mar-2009	100	100	100	100	90	90
Apr-2009	100	100	80	90	90	100
May-2009	80	100	90	100	100	100
Jun-2009	100	0*	30*	90	100	100
Jul-2009	90	70	100	100	90	90
Aug-2010	100	100	100	100	100	100
Sep-2010	100	100	80	90	100	100

**Table 23. Summary of *Daphnia magna* reproduction in 7-day tests using water samples collected from October 2008 to September 2009. Each value is the mean of 10 replicates with 1 animal in each replicate.**

See Table 27 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
Oct-2008	24.4	28.2	25.6	22.3	24.9	26.3
Nov-2008	57.7	43.0	50.1	41.2	46.6	30.1
Dec-2008	32.6	26.0	26.3	22.6	30.3	21.2
Jan-2009	19.7	22.4	21.0	24.1	19.0	19.3
Feb-2009	24.0	19.1	23.9	19.0	21.9	18.9
Mar-2009	43.9	34.5	41.2	35.6	37.5	27.2
Apr-2009	45.4	52.3	23.1	30.2	30.2	31.6
May-2009	22.1	31.8	36.3	29.3	29.9	23.6
Jun-2009	42.9	4.8*	13.6*	35.9	28.2	28.6
Jul-2009	34.2	21.6	38.5	32.1	26.4	22.4
Aug-2010	42.6	40.9	38.5	37.8	30.6	24.7
Sep-2010	34.8	43.3	26.8	25.1	28.7	22.7

**Table 24. Summary of *Selenastrum capricornutum* growth in 4-day tests using water samples collected from October 2008 to September 2009. Each value is the mean of 4 replicates.**

See Table 27 for explanation of footnotes and agency abbreviations.

LOCATION	Station B	Station C	Station D	Station F	Delta Mendota Canal	Laboratory Control
DATA SOURCE	SLDMWA	SLDMWA	SLDMWA	SLDMWA	SLDMWA	SLDMWA
UNITS	10 <sup>5</sup> cells/mL	10 <sup>5</sup> cells/mL	10 <sup>5</sup> cells/mL	10 <sup>5</sup> cells/mL	10 <sup>5</sup> cells/mL	10 <sup>5</sup> cells/mL
Oct-2008	25.8	33.9	30.6	30.7	24.3	22.5
Nov-2008	15.8*	23.7	25.3	24.0	20.5	21.6
Dec-2008	17.5	23.9	21.0	20.0	20.3	18.4
Jan-2009	2.5*	27.9	20.2	25.1	3.2††††	22.6
Feb-2009	14.4*	36.5	42.9	33.8	34.9	29.4
Mar-2009	12.9*	32.9	31.3	34.0	27.4	29.9
Apr-2009	20.9*	22.2	27.0	24.3	25.0	19.3
May-2009	21.6	33.2	25.2	11.4*	21.4	22.8
Jun-2009	19.8	20.2	24.4	21.7	20.1	17.0
Jul-2009	22.5	28.4	28.2	26.8	22.9	19.7
Aug-2010	21.7	26.4	24.6	26.6	22.0	23.0
Sep-2010	31.6	32.6	25.6	28.9	27.6	22.3

**Table 25. Summary of selenium concentrations in grab water samples collected at study stations for use in laboratory toxicity tests, July 2009 to September 2009.**

See Table 27 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
Jul-13-2009	22	<0.4	15	<0.4	<0.4
Jul-15-2009	27	0.4	7.0	<0.4	<0.4
Jul-17-2009	23	0.5	13	<0.4	<0.4
Aug-10-2009	31	0.6	13	<0.4	<0.4
Aug-12-2009	27	0.6	15	<0.4	<0.4
Aug-14-2009	27	0.4	14	<0.4	<0.4
Sep-21-2009	24	<0.4	14	<0.4	<0.4
Sep-23-2009	24	<0.4	9.3	<0.4	<0.4
Sep-25-2009	23	<0.4	5.1	<0.4	<0.4

**Table 26. Summary of total suspended solids concentrations in grab water samples collected at study stations for use in laboratory toxicity tests, July 2009 to September 2009.**

See Table 27 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
Jul-13-2009	33	19	19	51	25
Jul-15-2009	31	19	22	50	24
Jul-17-2009	34	37	39	48	24
Aug-10-2009	21	12	30	62	5
Aug-12-2009	28	10	21	67	4
Aug-14-2009	30	20	38	70	16
Sep-21-2009	13	62	65	40	17
Sep-23-2009	17	28	38	22	20
Sep-25-2009	42	18	21	23	11

Table 27. 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 <sup>6</sup> 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