

# **GRASSLAND BYPASS PROJECT**

## **MONTHLY DATA REPORT**

**May 1997**

July 24, 1997

### **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**

## GRASSLAND BYPASS PROJECT

## MONTHLY DATA REPORT

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See Table 26 for explanation of footnotes and agency abbreviations.

<b>PARAMETER</b>	<b>Flow</b>
<b>5/1/97</b>	USBR
<b>UNITS</b>	cfs
May-01-1997	62.6
May-02-1997	62.9
May-03-1997	45.2
Jul-24-1997	43.6
May-05-1997	41.5
May-06-1997	42.1
May-07-1997	52.7
May-08-1997	67.3
May-09-1997	67.4
May-10-1997	72.6
May-11-1997	73.6
May-12-1997	74.6
May-13-1997	62.1
May-14-1997	67.1
May-15-1997	67.2
May-16-1997	63.9
May-17-1997	75.7
May-18-1997	75.4
May-19-1997	81.9
May-20-1997	72.4
May-21-1997	69.3
May-22-1997	70.6
May-23-1997	71.2
May-24-1997	79.0
May-25-1997	82.9
May-26-1997	84.3
May-27-1997	86.1
May-28-1997	88.7
May-29-1997	92.0
May-30-1997	88.4
May-31-1997	84.1

**Table 2. Continuous water monitoring at Station B (discharge from San Luis Drain), May 1997.**

See Table 26 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow	Temperature	Specific Conductance	Selenium (total)	Selenium (total) Load
5/1/97	USBR	USBR	CVRWQCB	CVRWQCB	Computed
UNITS	cfs	°C	µS/cm	µg/l	lbs
May-01-1997	62.0	19.6	4,950	88.8	29.7
May-02-1997	61.4	19.3	5,170	88.4	29.3
May-03-1997	59.4	20.5	5,370	91.1	29.2
Jul-24-1997	44.6	21.0	5,520	96.6	23.2
May-05-1997	42.8	21.6	5,550	92.6	21.4
May-06-1997	41.2	22.2	5,530	102.0	22.7
May-07-1997	42.4	22.6	5,510	84.0	19.2
May-08-1997	52.1	23.2	5,490	85.7	24.1
May-09-1997	62.8	23.5	5,300	76.3	25.8
May-10-1997	67.0	23.5	5,050	79.1	28.6
May-11-1997	71.6	23.7	4,690	77.4	29.9
May-12-1997	73.2	24.1	4,760	77.9	30.8
May-13-1997	72.9	24.7	4,860	82.7	32.5
May-14-1997	62.2	24.7	4,660	77.5	26.0
May-15-1997	68.4	25.0	4,570	72.4	26.7
May-16-1997	67.4	25.3	4,450	60.7	22.1
May-17-1997	67.6	25.8	4,550	65.8	24.0
May-18-1997	75.7	26.3	4,750	67.8	27.7
May-19-1997	77.1	26.4	4,690	68.4	28.4
May-20-1997	80.5	25.3	4,440	67.6	29.3
May-21-1997	71.9	24.4	4,420	71.4	27.7
May-22-1997	68.5	24.2	4,030	63.8	23.6
May-23-1997	69.8	22.9	4,230	64.4	24.2
May-24-1997	71.2	22.3	4,270	65.0	25.0
May-25-1997	77.4	22.0	4,720	72.0	30.1
May-26-1997	80.4	21.6	4,580	63.9	27.7
May-27-1997	83.6	22.5	4,570	66.6	30.0
May-28-1997	84.7	23.6	4,560	68.2	31.2
May-29-1997	87.3	24.7	4,460	66.5	31.3
May-30-1997	91.0	25.8	4,400	70.0	34.4
May-31-1997	87.0	26.0	4,520	72.0	33.8
Mean	68.6	23.5	4,794	75.7	
<b>Total</b>					<b>849</b>
<b>Load Limitation for May 1997 (lbs)</b>					<b>666</b>

**Table 3. Continuous water monitoring at Station D  
(Mud Slough North downstream of drainage discharges), May 1997.**

See Table 26 for explanation of footnotes and agency abbreviations.

5/1/97	Flow	Temperature	Specific Conductance
DATA SOURCE	USGS	USGS	USGS
UNITS	cfs	°C	µS/cm
May-01-1997	94	19.1	3,890
May-02-1997	90	19.0	4,030
Jul-24-1997	94	20.4	3,830
May-04-1997	69	21.0	3,900
May-05-1997	59	21.4	3,970
May-06-1997	57	21.8	3,800
May-07-1997	53	22.2	4,280
May-08-1997	68	22.8	4,220
May-09-1997	78	23.4	4,090
May-10-1997	77	23.5	4,300
May-11-1997	84	23.6	4,210
May-12-1997	88	24.0	4,190
May-13-1997	89	24.5	4,210
May-14-1997	83	24.6	3,840
May-15-1997	95	24.7	3,640
May-16-1997	96	25.2	3,360
May-17-1997	93	25.8	3,470
May-18-1997	105	26.1	3,560
May-19-1997	124	26.2	3,040
May-20-1997	151	25.0	2,530
May-21-1997	153	23.9	2,300
May-22-1997	158	23.6	2,010
May-23-1997	173	22.2	1,910
May-24-1997	163	22.1	1,870
May-25-1997	150	22.0	2,160
May-26-1997	161	21.9	2,070
May-27-1997	170	22.7	2,010
May-28-1997	182	23.8	1,950
May-29-1997	180	24.9	1,990
May-30-1997	178	25.9	2,170
May-31-1997	146	26.0	2,510

**Table 4. Continuous water monitoring at Station F (Salt Slough at Highway 165), May 1997.**

See Table 26 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow	Temperature	Specific Conductance
5/1/97	usgs	usgs	usgs
UNITS	cfs	°C	µS/cm
May-01-1997	112	19.5	1,480
May-02-1997	106	19.5	1,570
May-03-1997	136	21.0	1,570
Jul-24-1997	140	21.7	1,440
May-05-1997	131	21.9	1,520
May-06-1997	158	22.2	1,370
May-07-1997	134	22.3	1,470
May-08-1997	121	23.1	1,530
May-09-1997	122	23.5	1,460
May-10-1997	139	24.0	1,410
May-11-1997	140	24.1	1,410
May-12-1997	165	24.5	1,300
May-13-1997	130	25.0	1,390
May-14-1997	123	24.9	1,530
May-15-1997	125	24.9	1,560
May-16-1997	122	25.4	1,490
May-17-1997	113	26.2	1,540
May-18-1997	128	26.6	1,470
May-19-1997	134	26.6	1,410
May-20-1997	129	25.2	1,370
May-21-1997	134	24.3	1,300
May-22-1997	133	23.8	1,320
May-23-1997	128	22.2	1,330
May-24-1997	158	21.9	1,340
May-25-1997	184	22.1	1,190
May-26-1997	190	22.1	1,180
May-27-1997	201	23.3	1,120
May-28-1997	197	24.6	1,090
May-29-1997	213	25.4	1,120
May-30-1997	203	26.3	1,190
May-31-1997	183	26.4	1,290

**Table 5. Continuous water monitoring at Station N (San Joaquin River at Crow's Landing), May 1997.**

See Table 26 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow	Temperature	Specific Conductance	Selenium (total)
5/1/97	USGS	USGS	CVRWQCB	CVRWQCB
UNITS	cfs	°C	µS/cm	µg/l
May-01-1997	1,330	17.6	764	3.6
May-02-1997	1,550	17.8	690	3.4
May-03-1997	1,710	17.9	631	3.0
Jul-24-1997	1,750	18.4	658	3.1
May-05-1997	1,660	19.0	657	2.7
May-06-1997	1,550	19.5	679	3.0
May-07-1997	1,570	19.7	681	2.4
May-08-1997	1,560	20.1	NA	NA
May-09-1997	1,540	20.5	757	3.0
May-10-1997	1,820	20.9	679	2.8
May-11-1997	2,060	21.3	641	2.8
May-12-1997	2,140	21.6	620	2.8
May-13-1997	1,890	22.4	732	3.3
May-14-1997	1,280	25.3	975	5.0
May-15-1997	1,090	23.8	1,104	4.9
May-16-1997	1,020	21.7	1,186	5.3
May-17-1997	961	24.4	1,192	4.5
May-18-1997	896	25.1	1,220	4.5
May-19-1997	879	25.1	1,268	5.8
May-20-1997	841	24.9	1,257	5.8
May-21-1997	810	24.3	1,334	6.7
May-22-1997	792	23.3	1,342	6.9
May-23-1997	808	22.0	NA	NA
May-24-1997	881	21.7	1,200	5.2
May-25-1997	885	22.0	1,257	5.4
May-26-1997	895	22.2	1,249	6.5
May-27-1997	848	23.1	1,285	6.3
May-28-1997	800	24.1	1,315	6.5
May-29-1997	839	24.7	1,300	6.5
May-30-1997	820	25.3	1,339	7.0
May-31-1997	741	25.6	1,434	7.6

Table 6. Weekly water quality monitoring at Station A (inflow to San Luis Drain), 1997.

See Table 26 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow	Temperature	pH	Specific Conductance	Total Suspended Solids	Selenium (total)	Selenium (dissolved)	Boron
5/1/97	USBR	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB
UNITS	cfs	°C		µS/cm	mg/l	µg/l	µg/l	mg/l
Apr-02-1997	88.8	NA	NA	5,370	120	93.0	95.8	8.1
Apr-09-1997	76.8	NP	NP	5,600	130	108.0	117.0	7.6
Apr-16-1997	82.0	NP	NP	5,310	83	104.0	104.0	7.1
Jul-24-1997	74.8	NP	NP	5,290	110	101.0	97.6	8.0
May-01-1997	62.6	NP	NP	5,480	110	96.8	96.6	P
May-07-1997	52.7	NP	NP	4,930	62	73.6	73.0	7.3
May-14-1997	67.1	NP	NP	4,380	130	61.6	57.6	P
May-21-1997	69.3	NP	NP	4,380	160	65.0	63.6	P
May-28-1997	88.7	NP	NP	4,330	45	58.5	60.6	P

Table 7. Weekly water quality monitoring at Station B (discharge from San Luis Drain), 1997.

See Table 26 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow	Temperature	pH	Specific Conductance	Total Suspended Solids	Selenium (total)	Selenium (dissolved)	Boron
DATA SOURCE	USBR	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB
UNITS	cfs	°C		µS/cm	mg/l	µg/l	µg/l	mg/l
Apr-03-1997	85.3	14.9	8.1	5,130	33	96.2	93.7	7.4
Apr-10-1997	73.7	14.3	7.6	5,270	37	105.0	102.0	7.2
Apr-17-1997	78.2	21.6	8.2	5,460	34	107.0	110.0	7.8
Apr-24-1997	70.7	18.2	8.0	5,020	48	95.2	93.6	7.3
May-02-1997	61.4	17.1	8.4	5,080	39	72.6	73.7	P
May-08-1997	52.1	19.3	8.3	5,270	29	80.3	78.3	7.7
May-15-1997	68.4	24.3	8.5	4,670	28	75.2	75.7	6.6
May-23-1997	69.8	23.2	8.2	4,200	46	64.2	64.6	P
May-29-1997	87.3	25.4	8.2	4,350	140	62.3	60.9	P

Table 8. Weekly water quality monitoring at Station C (Mud Slough North upstream of drainage discharges), 1997.

See Table 26 for explanation of footnotes and agency abbreviations.

PARAMETER		Temperature	pH	Specific Conductance	Selenium (total)	Boron
DATA SOURCE	.	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB
UNITS	.	°C		µS/cm	µg/l	mg/l
Apr-03-1997	.	18.8	8.2	2,350	1.1	2.6
Apr-10-1997	.	12.1	6.8	2,960	1.3	2.9
Apr-17-1997	.	22.1	8.2	1,720	1.7	1.5
Apr-24-1997	.	16.6	8.4	2,360	1.2	2.1
May-02-1997	.	17.1	8.2	2,430	0.9	P
May-08-1997	.	17.1	8.3	2,470	0.8	2.1
May-15-1997	.	28.8	8.5	1,430	1.4	1.1
May-23-1997	.	21.0	7.9	1,083	0.7	P
May-29-1997	.	24.3	8.3	1,134	1.2	P



Table 9. Weekly water quality monitoring at Station D (Mud Slough North downstream of drainage discharges), 1997.

See Table 26 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow	Temperature	pH	Specific Conductance	Selenium (total)	Boron
5/1/97	USBR	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB
UNITS	cfs	°C		µS/cm	µg/l	mg/l
Apr-03-1997	118	15.4	8.1	4,420	61.9	6.1
Apr-10-1997	104	14.3	7.3	4,770	69.1	6.2
Apr-17-1997	143	22.1	8.0	3,870	58.6	4.9
Jul-24-1997	95	17.7	8.4	4,660	79.6	6.5
May-02-1997	90	17.7	8.4	4,280	52.0	P
May-08-1997	68	19.3	8.1	4,930	63.1	6.8
May-15-1997	95	28.2	8.6	3,920	58.7	5.3
May-23-1997	173	22.1	7.9	2,730	33.4	P
May-29-1997	180	24.3	8.5	2,890	32.3	P

Table 10. Weekly water quality monitoring at Station F (Salt Slough at Highway 165), 1997.

See Table 26 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow	Temperature	pH	Specific Conductance	Selenium (total)	Boron
DATA SOURCE	USBR	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB
UNITS	cfs	°C		µS/cm	µg/l	mg/l
Apr-03-1997	176	15.4	7.7	1,996	1.0	1.1
Apr-10-1997	143	14.3	8.1	1,857	0.9	0.8
Apr-17-1997	151	21.0	8.0	1,770	1.1	0.8
Apr-24-1997	121	16.6	7.5	1,817	1.1	0.8
May-02-1997	106	16.0	8.2	1,670	1.1	P
May-08-1997	121	20.4	7.9	1,705	1.1	0.8
May-15-1997	125	23.8	7.9	1,670	1.1	0.7
May-23-1997	128	22.1	8.2	1,358	0.9	P
May-29-1997	213	25.4	8.4	1,201	1.3	P

Table 11. Weekly water quality monitoring at Station G (San Joaquin River at Fremont Ford), 1997.

See Table 26 for explanation of footnotes and agency abbreviations.

PARAMETER		Temperature	pH	Specific Conductance	Selenium (total)	Boron
DATA SOURCE	.	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB
UNITS	.	°C		µS/cm	µg/l	mg/l
Apr-03-1997	.	14.9	8.1	1,650	0.6	0.6
Apr-10-1997	.	14.3	7.9	1,700	0.8	2.0
Apr-17-1997	.	20.4	7.1	2,030	0.9	0.8
Apr-24-1997	.	17.7	7.9	1,972	0.8	0.7
May-02-1997	.	17.7	8.1	1,840	0.8	P
May-08-1997	.	19.3	8.0	1,900	1.0	0.7
May-15-1997	.	23.2	7.8	2,110	0.9	0.7
May-23-1997	.	21.0	6.8	1,626	0.8	P
May-29-1997	.	24.3	8.2	1,348	1.1	P

**Table 12. Weekly water quality monitoring at Station H (San Joaquin River at Hills Ferry), 1997.**

See Table 26 for explanation of footnotes and agency abbreviations.

PARAMETER	Temperature	pH	Specific Conductance	Selenium (total)	Boron
5/1/97	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB
UNITS	°C		µS/cm	µg/l	mg/l
Apr-03-1997	13.8	7.9	2,270	11.4	1.7
Apr-10-1997	14.3	7.8	2,500	15.0	2.0
Apr-17-1997	20.4	7.6	2,670	18.0	2.1
Jul-24-1997	16.6	7.5	2,590	16.0	2.1
May-02-1997	18.8	8.2	2,340	15.8	P
May-08-1997	20.4	6.5	2,240	9.7	1.6
May-15-1997	27.1	8.2	2,700	15.3	2.1
May-23-1997	21.0	7.6	2,040	10.2	P
May-29-1997	26.6	8.1	1,984	13.0	P

**Table 13. Weekly water quality monitoring at Station J (Camp 13 Ditch), 1997.**

See Table 26 for explanation of footnotes and agency abbreviations.

PARAMETER	Temperature	pH	Specific Conductance	Selenium (total)	Boron
DATA SOURCE	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB
UNITS	°C		µS/cm	µg/l	mg/l
Apr-02-1997	NA	NA	3,750	4.7	6.5
Apr-09-1997	NA	NA	560	1.7	0.3
Apr-16-1997	NA	NA	1,288	2.7	1.6
Apr-23-1997	NA	NA	480	1.6	0.3
May-01-1997	NA	NA	955	2.6	P
May-07-1997	NA	NA	1,207	13.5	P
May-14-1997	NA	NA	520	1.0	P
May-21-1997	NA	NA	496	1.0	P
May-28-1997	NA	NA	715	2.5	P

**Table 14. Weekly water quality monitoring at Station K (Agatha Canal), 1997.**

See Table 26 for explanation of footnotes and agency abbreviations.

PARAMETER	Temperature	pH	Specific Conductance	Selenium (total)	Boron
DATA SOURCE	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB
UNITS	°C		µS/cm	µg/l	mg/l
Apr-02-1997	NA	NA	457	3.0	0.3
Apr-09-1997	NA	NA	661	2.0	0.4
Apr-16-1997	NA	NA	559	2.6	0.3
Apr-23-1997	NA	NA	481	1.5	0.3
May-01-1997	NA	NA	520	1.5	P
May-07-1997	NA	NA	547	1.1	P
May-14-1997	NA	NA	497	1.3	0.3
May-21-1997	NA	NA	486	1.0	P
May-28-1997	NA	NA	504	1.1	P

**Table 15. Weekly water quality monitoring at Station L (San Luis Canal at Henry Miller Road), 1997.**

See Table 26 for explanation of footnotes and agency abbreviations.

PARAMETER	Temperature	pH	Specific Conductance	Selenium (total)	Boron
5/1/97	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB
UNITS	°C		µS/cm	µg/l	mg/l
Apr-02-1997	NA	NA	1,820	3.6	2.3
Apr-09-1997	NA	NA	1,550	2.7	1.8
Apr-16-1997	NA	NA	1,114	3.2	0.9
Jul-24-1997	NA	NA	1,122	3.3	1.1
May-01-1997	NA	NA	860	3.0	P
May-07-1997	NA	NA	775	2.3	0.6
May-14-1997	NA	NA	803	1.6	P
May-21-1997	NA	NA	908	1.9	P
May-28-1997	NA	NA	848	1.9	P

**Table 16. Weekly water quality monitoring at Station M (Santa Fe Canal at Henry Miller Road), 1997.**

See Table 26 for explanation of footnotes and agency abbreviations.

PARAMETER	Temperature	pH	Specific Conductance	Selenium (total)	Boron
DATA SOURCE	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB
UNITS	°C		µS/cm	µg/l	mg/l
Apr-02-1997	NA	NA	1,570	1.8	2.6
Apr-09-1997	NA	NA	1,480	2.4	1.8
Apr-16-1997	NA	NA	1,717	3.0	1.7
Apr-23-1997	NA	NA	1,128	3.2	1.1
May-01-1997	NA	NA	870	2.6	P
May-07-1997	NA	NA	825	2.9	0.7
May-14-1997	NA	NA	861	1.9	P
May-21-1997	NA	NA	746	1.6	P
May-28-1997	NA	NA	892	2.1	P

**Table 17. Weekly water quality monitoring at Station N (San Joaquin River at Crow's Landing), 1997.**

See Table 26 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
Apr-03-1997	1,660	12.1	7.9	1,039	3.9	0.7
Apr-10-1997	1,080	14.3	7.9	1,436	7.4	1.0
Apr-17-1997	1,160	19.9	7.5	1,390	8.2	1.0
Apr-24-1997	1,450	17.1	7.4	990	5.2	0.7
May-02-1997	1,550	16.6	8.1	695	3.3	P
May-08-1997	1,560	18.8	7.8	691	2.9	0.4
May-15-1997	1,090	24.9	7.9	1,091	4.8	0.7
May-23-1997	808	21.0	7.7	1,310	6.1	P
May-29-1997	839	25.4	8.2	1,274	6.5	P

Table 18. Summary of fathead minnow (*Pimephales promelas*) larvae survival in 7-day tests using water samples collected from December 1995 to May 1997. Each value is the mean of 4 replicates with 10 fish in each replicate.

See Table 26 for explanation of footnotes and agency abbreviations.

5/1/97	Station B	Station C	Station D	Station F	Delta Mendota Canal	Laboratory Control
DATA SOURCE	SLDMWA	SLDMWA	SLDMWA	SLDMWA	SLDMWA	SLDMWA
UNITS	%	%	%	%	%	%
December-95	NT	83	95	93	90	93
March-96	NT	93	95	93	95	96
July-97	NT	98	93	96	90	100
October-96	68	83	88	88	93	98
November-96	98	98	95	85	95	93
December-96	98	50*	78*	93	98	100
January-97	95	92	83	90	88	95
February-97	95	90*	95	90	100	48
March-97	95	98	98	93	98	95
April-97	95	100	95	98	88	83
May-97	95	100	95	100	93	100

Table 19. Summary of fathead minnow (*Pimephales promelas*) larvae growth in 7-day tests using water samples collected from December 1995 to May 1997. Each value is the mean of 4 replicates with 10 fish in each replicate.

See Table 26 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
December-95	NT	0.32	0.27	0.32	0.32	0.32
March-96	NT	0.43	0.44	0.44	0.47	0.48
August-96	NT	0.56	0.45	0.44	0.50	0.47
October-96	0.56	0.56	0.53*	0.59	0.60	0.59
November-96	0.53	0.57	0.63	0.53	0.55	0.59
December-96	0.71	0.71	0.83	0.65	0.68	0.58
January-97	0.74	0.80	0.80	0.83	0.65	0.71
February-97	0.69*	0.79	0.77	0.92	0.76	0.31
March-97	0.99	0.96	1.01	0.90	0.81	0.81
April-97	1.11	1.02	1.06	1.15	1.05	0.83
May-97	0.85	0.91	0.95	0.89	0.88	0.80

Table 20. Summary of *Daphnia magna* survival in 7-day tests using water samples collected from December 1995 to May 1997. Each value is the mean of 10 replicates with 1 animal in each replicate.

See Table 26 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	%	%	%	%	%	%
December-95 <sup>(1)</sup>	NT	100	100	100	100	100
March-96	NT	90	90	100	100	100
August-96	NT	100	100	100	100	100
October-96	90	100	100	100	100	70
November-96	100	90	90	100	100	100
December-96	100	80	80	100	100	100
January-97	100	90	100	100	100	100
February-97	100	100	100	100	100	100
March-97	100	90	90	80	100	50
April-97	80	90	100	90	90	50
May-97	90	90	90	80	90	30

Table 21. Summary of *Daphnia magna* reproduction in 7-day tests using water samples collected from December 1995 to May 1997. Each value is the mean of 10 replicates with 1 animal in each replicate.

See Table 26 for explanation of footnotes and agency abbreviations.

5/1/97	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
December-95 <sup>(1)</sup>	NT	21.5	18.5	18.4	19.8	15.5
March-96	NT	18.8	23.9	18.2	20.1	20.8
July-97	NT	27.0	32.8	27.4	27.8	26.4
October-96	16.8	20.2	17.9	13.1	12.9	16.0
November-96	30.6	21.8	21.9	22.4	21.5	15.9
December-96	23.2	14.0	17.2	17.8	16.8	14.8
January-97	15.2	15.4	15.3	15.6	13.6	10.9
February-97	25.1	23.0	22.8	20.1	18.0	22.7
March-97	22.8	16.6	15.3	9.7	8.9	5.5
April-97	23.6	24.4	24.6	16.3	12.9	10.0
May-97	30.6	33.8	34.0	21.6	17.2	20.0

Table 22. Summary of *Selenastrum capricornutum* growth in 4-day tests using water samples collected from December 1995 to May 1997. Each value is the mean of 4 replicates.

See Table 26 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
December-95	NT	22.0	12.0	11.0	12.0	11.0
March-96	NT	9.4*	11.3	14.7	11.9	10.7
August-96	NT	6.2*	5.6*	13.8	16.8	14.7
October-96 <sup>(2)</sup>	4.3	12.3	11.3	8.5	3.5	36.6
November-96 <sup>(3)</sup>	16.6	56.1	48.9	33.5	39.7	91.1
December-96	0.5*	5.9	0.5*	4.2	3.4	18.9
January-97	11.0	9.3	12.5	11.6	8.0	8.2
February-97	10.6	5.5*	8.2*	13.7	19.8	22.2
March-97	11.0 *	13.8	11.7 *	6.0 *	20.0	21.6
April-97	19.7*	35.4*	46.5	30.8*	78.5	62.9
May-97	22.4	12.6*	18.6*	16.8*	26.3	17.2

**Table 23. Summary of selenium concentrations in grab water samples collected at study sites for use in laboratory toxicity tests, December 1995 to May 1997.**

See Table 26 for explanation of footnotes and agency abbreviations.

5/1/97	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
Dec-11-1995	NT	1	1	12	<1
Dec-12-1995	NT	<1	<1	14	<1
Jul-24-1997	NT	<1	<1	12	<1
Mar-18-1996	NT	<1	<1	17	<1
Mar-21-1996	NT	<1	<1	16	<1
Mar-23-1996	NT	<1	<1	18	<1
Mar-27-1996	NT	1	<1	19	<1
Aug-06-1996	NT	3	2	13	<1
Aug-08-1996	NT	<1	1	13	<1
Aug-10-1996	NT	2	2	11	<1
Aug-13-1996	NT	NT	NT	NT	NT
Oct-08-1996	65	<1	20	1	<1
Oct-10-1996	62	<1	16	1	<1
Oct-12-1996	72	<1	19	<1	<1
Nov-12-1996	59	<1	7	<1	<1
Nov-14-1996	75	<1	9	<1	<1
Nov-16-1996	69	<1	11	<1	<1
Nov-19-1996	94	<1	12	<1	<1
Dec-10-1996	36	<1	5	<1	<1
Dec-12-1996	54	<1	8	<1	<1
Dec-14-1996	51	<1	5	2	<1
Jan-07-1997	37	<2	3	<2	<2
Jan-09-1997	45	<2	4	<2	<2
Jan-11-1997	48	<2	5	<2	<2
Feb-04-1997	58	<2	6	5	<2
Feb-06-1997	66	<2	8	6	<2
Feb-08-1997	89	<2	15	<2	<2
Mar-11-1997	100	<2	50	<2	<2
Mar-13-1997	99	<2	49	<2	<2
Mar-15-1997	95	<2	33	<2	<2
Apr-15-1997	130	2.7	100	<2	<2
Apr-17-1997	130	<2	67	<2	<2
Apr-19-1997	120	<2	69	<2	<2
May-13-1997	84	<2	64	<2	<2
May-15-1997	79	<2	58	<2	<2
May-17-1997	64	<2	47	<2	<2
May-20-1997	64	<2	34	<2	<2

Table 24. Summary of sulfate concentrations in grab water samples collected at study sites for use in laboratory toxicity tests, December 1995 to May 1997.

See Table 26 for explanation of footnotes and agency abbreviations.

5/1/97	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
Dec-11-1995	NT	NT	NT	NT	NT
Dec-12-1995	NT	NT	NT	NT	NT
Jul-24-1997	NT	NT	NT	NT	NT
Mar-18-1996	NT	320	320	520	55
Mar-21-1996	NT	330	360	490	52
Mar-23-1996	NT	350	370	530	52
Mar-27-1996	NT	350	330	550	51
Aug-06-1996	NT	220	270	410	55
Aug-08-1996	NT	680	450	390	20
Aug-10-1996	NT	260	370	370	48
Aug-13-1996	NT	NT	NT	NT	NT
Oct-08-1996	1,400	89	480	140	32
Oct-10-1996	1,400	89	480	140	31
Oct-12-1996	1,600	85	540	150	26
Nov-12-1996	1,200	124	311	227	66
Nov-14-1996	1,380	120	336	231	26
Nov-18-1996	1,420	138	465	214	25
Dec-10-1996	1,590	138	330	284	33
Dec-12-1996	1,540	124	351	255	33
Dec-14-1996	1,330	133	269	288	33
Jan-07-1997	766	105	170	347	29
Jan-09-1997	1,210	107	229	172	27
Jan-11-1997	1,210	115	224	199	20
Feb-04-1997	1,310	104	241	389	49
Feb-06-1997	1,420	135	315	410	50
Feb-08-1997	1,660	200	450	351	59
Mar-11-1997	1,600	391	1,010	147	34
Mar-12-1997	1,500	361	953	156	39
Mar-13-1997	1,440	429	845	175	43
Apr-15-1997	1,800	402	1,440	248	36
Apr-17-1997	1,750	340	1,080	259	38
Apr-19-1997	1,680	378	1,120	251	37
May-13-1997	1,520	348	1,270	197	37
May-15-1997	1,450	117	683	111	13
May-17-1997	1,320	253	1,070	209	23
May-20-1997	1,300	102	688	181	36

Table 25. Summary of quarterly in situ bioassay results from December 1995 to May 1997.

Results are the number of live fathead minnows (*Pimephales promelas*) per number of fish recovered at the end of the 7 day deployment at each station (initial count of 80 used at each station).

5/1/97						
LOCATION	Windmill (4 day old larvae)	Station B (4 day old larvae)	Station D (4 day old larvae)	Station D (14 day old larvae)	Station F (4 day old larvae)	Station F (14 day old larvae)
DATA SOURCE	SLDMWA	SLDMWA	SLDMWA	SLDMWA	SLDMWA	SLDMWA
UNITS	# alive/total count	# alive/total count	# alive/total count	# alive/total count	# alive/total count	# alive/total count
December-95 <sup>(4)</sup>	NT	NT	NT	NT	NT	NT
July-97	80/80	NT	NT	44/44	NT	70/70
August-96 <sup>(6)</sup>	NT	NT	13/19	22/29	28/40	20/49
November-1996 <sup>(7)</sup>	46/62	63/68	0/2	.	16/36	.
February-1997 <sup>(8)</sup>	NT	3/13	0/0	.	0/11	.
May-1997	64/66	0/0	0/24	.	5/9	.

Table 26. 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
.	Not applicable
<	less than
P	pending, data not available at this time but will be available in the future
NA	not analyzed - operator error, data will not be available in the future
NP	data not provided - future unknown
NT	not tested
(1)	This test used <i>Ceriodaphnia dubia</i> in water with high hardness. Results were compared to hard water and moderately hard water for definitive bioassays. All treatment means were significantly different from the laboratory control (hard water) for definitive tests.
(2)	Selenate added
(3)	Lab Control was significantly different from DMC, Site B, and Site F samples. (There was no significant difference for site samples versus DMC water.)
(4)	In situ cages could not be deployed due to wet weather conditions.
(5)	Baseline results for 3/96 are for 14-day old larvae. There was no survival for the 24-hour old larvae.
(6)	Windmill station was dry due to water drainage. Use of plastic screened beakers for Station F during 8/96 with use of 4-day old larvae resulted in 0/39. Apparent cause of mortality was elevated temperature and sediment which was found in all cages and beakers.
(7)	Heavy silt accumulation was noted in Sites D and F cages and light silt accumulation was observed in both the Windmill site and Site B.
(8)	Moderate silt accumulation was noted in Sites B and F cages and light silt accumulation was observed in Site D.
*	Significantly reduced from Delta Mendota Canal (p<0.05)