

GRASSLAND BYPASS PROJECT

MONTHLY DATA REPORT

April 1997

June 19, 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

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MONTHLY DATA REPORT

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Table 1. Continuous water monitoring at Station A (inflow to San Luis Drain), April 1997.

See Table 26 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow
DATA SOURCE	USBR
UNITS	cfs
Apr-01-1997	77.8
Apr-02-1997	88.8
Apr-03-1997	92.5
Apr-04-1997	97.0
Apr-05-1997	87.2
Apr-06-1997	80.0
Apr-07-1997	79.4
Apr-08-1997	76.9
Apr-09-1997	76.8
Apr-10-1997	73.1
Apr-11-1997	77.2
Apr-12-1997	81.2
Apr-13-1997	80.8
Apr-14-1997	81.9
Apr-15-1997	80.7
Apr-16-1997	82.0
Apr-17-1997	74.3
Apr-18-1997	74.8
Apr-19-1997	80.7
Apr-20-1997	78.7
Apr-21-1997	79.8
Apr-22-1997	78.7
Apr-23-1997	74.8
Apr-24-1997	68.4
Apr-25-1997	77.6
Apr-26-1997	77.2
Apr-27-1997	71.9
Apr-28-1997	65.9
Apr-29-1997	48.4
Apr-30-1997	64.3

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

See Table 26 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow	Temperature	Specific Conductance	Selenium (total)	Selenium (total) Load
DATA SOURCE	USBR	USBR	USBR	CVRWQCB	Computed
UNITS	cfs	°C	µS/cm	µg/l	lbs
Apr-01-1997	75.7	15.0	4,608	85.0	34.7
Apr-02-1997	74.4	12.4	4,918	90.6	36.4
Apr-03-1997	85.3	13.3	5,189	92.6	42.6
Apr-04-1997	88.7	14.4	5,448	104.0	49.8
Apr-05-1997	92.0	15.0	5,338	108.0	53.6
Apr-06-1997	83.9	16.0	5,375	112.0	50.7
Apr-07-1997	76.7	17.0	5,349	110.0	45.5
Apr-08-1997	75.8	17.7	5,425	110.0	45.0
Apr-09-1997	72.8	16.9	5,359	106.0	41.6
Apr-10-1997	73.7	16.3	5,342	106.0	42.1
Apr-11-1997	71.7	16.0	5,648	116.0	44.9
Apr-12-1997	76.0	16.3	5,634	113.0	46.3
Apr-13-1997	76.4	17.7	5,525	114.0	47.0
Apr-14-1997	77.9	18.8	5,236	108.0	45.4
Apr-15-1997	79.0	19.9	5,275	110.0	46.9
Apr-16-1997	77.6	21.2	5,256	116.0	48.5
Apr-17-1997	78.2	21.5	4,974	115.0	48.5
Apr-18-1997	69.7	21.7	4,858	116.0	43.6
Apr-19-1997	72.7	21.7	4,725	108.0	42.3
Apr-20-1997	76.2	21.8	4,796	106.0	43.6
Apr-21-1997	75.3	22.3	4,826	113.0	45.9
Apr-22-1997	76.7	22.0	4,681	110.0	45.5
Apr-23-1997	74.3	21.2	4,590	103.0	41.3
Apr-24-1997	70.7	19.3	4,558	96.6	36.8
Apr-25-1997	69.3	18.9	4,610	97.6	36.5
Apr-26-1997	76.5	20.3	4,629	98.6	40.7
Apr-27-1997	73.3	21.2	4,779	104.0	41.1
Apr-28-1997	63.6	20.6	4,504	108.0	37.0
Apr-29-1997	60.9	20.2	4,413	91.0	29.9
Apr-30-1997	50.1	20.3	4,377	96.6	26.1
.
Mean	74.8	18.6	5,008	105.5	
Total					1,280

Load Limitation for April 1997 (lbs)	799
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**Table 3. Continuous water monitoring at Station D
(Mud Slough North downstream of drainage discharges), April 1997.**

See Table 26 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow	Temperature	Specific Conductance
DATA SOURCE	usgs	usgs	usgs
UNITS	cfs	°C	µS/cm
Apr-01-1997	107	14.2	3,960
Apr-02-1997	102	12.2	4,230
Apr-03-1997	118	12.9	4,200
Apr-04-1997	122	14.4	4,340
Apr-05-1997	124	14.8	4,330
Apr-06-1997	120	15.8	4,310
Apr-07-1997	112	16.9	4,220
Apr-08-1997	109	17.7	4,290
Apr-09-1997	114	16.6	4,000
Apr-10-1997	104	15.9	4,310
Apr-11-1997	106	15.8	4,200
Apr-12-1997	112	16.2	4,200
Apr-13-1997	106	17.9	4,430
Apr-14-1997	103	18.9	4,320
Apr-15-1997	107	20.1	4,320
Apr-16-1997	137	21.4	3,850
Apr-17-1997	143	21.6	3,590
Apr-18-1997	122	21.8	3,680
Apr-19-1997	119	21.7	3,690
Apr-20-1997	125	21.8	3,780
Apr-21-1997	125	22.2	3,760
Apr-22-1997	123	21.7	3,740
Apr-23-1997	112	20.9	3,820
Apr-24-1997	95	18.7	4,140
Apr-25-1997	91	18.5	4,250
Apr-26-1997	102	20.4	4,130
Apr-27-1997	98	21.4	4,430
Apr-28-1997	94	20.5	4,400
Apr-29-1997	80	19.9	4,330
Apr-30-1997	71	20.1	4,130

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

See Table 26 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow	Temperature	Specific Conductance
DATA SOURCE	usgs	usgs	usgs
UNITS	cfs	°C	µS/cm
Apr-01-1997	212	14.4	1,710
Apr-02-1997	169	12.6	1,970
Apr-03-1997	176	14.1	1,910
Apr-04-1997	160	15.8	1,920
Apr-05-1997	176	15.9	1,750
Apr-06-1997	155	16.3	1,890
Apr-07-1997	167	17.3	1,800
Apr-08-1997	192	18.0	1,450
Apr-09-1997	169	16.8	1,540
Apr-10-1997	143	16.2	1,730
Apr-11-1997	153	16.4	1,690
Apr-12-1997	163	16.8	1,640
Apr-13-1997	165	18.5	1,660
Apr-14-1997	199	19.7	1,450
Apr-15-1997	169	20.9	1,560
Apr-16-1997	146	21.6	1,740
Apr-17-1997	151	21.7	1,600
Apr-18-1997	140	21.6	1,710
Apr-19-1997	162	21.6	1,610
Apr-20-1997	184	21.9	1,430
Apr-21-1997	178	22.4	1,400
Apr-22-1997	152	21.6	1,520
Apr-23-1997	136	20.6	1,590
Apr-24-1997	121	18.6	1,670
Apr-25-1997	118	19.1	1,720
Apr-26-1997	95	21.4	1,870
Apr-27-1997	95	22.6	1,730
Apr-28-1997	105	20.7	1,640
Apr-29-1997	120	19.8	1,440
Apr-30-1997	125	20.2	1,420

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

See Table 26 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
Apr-01-1997	1,790	15.3	1,052	4.2
Apr-02-1997	1,720	13.6	1,036	4.0
Apr-03-1997	1,660	13.8	1,075	4.3
Apr-04-1997	1,650	14.8	1,099	5.0
Apr-05-1997	1,520	15.2	1,178	6.0
Apr-06-1997	1,390	15.6	1,321	7.2
Apr-07-1997	1,260	14.8	1,442	8.1
Apr-08-1997	1,190	13.9	1,448	7.9
Apr-09-1997	1,130	14.0	1,499	7.9
Apr-10-1997	1,080	15.3	NA	NA
Apr-11-1997	1,010	15.5	1,570	8.0
Apr-12-1997	963	15.1	1,685	8.9
Apr-13-1997	964	16.1	1,673	9.1
Apr-14-1997	985	17.5	1,701	9.6
Apr-15-1997	926	19.5	1,739	9.7
Apr-16-1997	976	19.6	1,563	9.6
Apr-17-1997	1,160	19.5	1,315	7.5
Apr-18-1997	1,440	20.6	1,212	6.2
Apr-19-1997	1,600	20.2	919	5.4
Apr-20-1997	1,830	19.6	781	4.3
Apr-21-1997	1,990	19.4	711	4.2
Apr-22-1997	1,960	19.1	746	4.4
Apr-23-1997	1,660	19.0	948	5.2
Apr-24-1997	1,450	18.4	NA	NA
Apr-25-1997	1,330	18.1	1,078	5.5
Apr-26-1997	1,190	20.9	1,156	6.0
Apr-27-1997	1,090	19.0	1,210	6.7
Apr-28-1997	1,120	17.0	1,170	6.9
Apr-29-1997	1,080	17.0	1,196	6.8
Apr-30-1997	1,050	17.6	1,168	6.0

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
DATA SOURCE	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	P
Apr-09-1997	76.8	NP	NP	5,600	130	108.0	117.0	P
Apr-16-1997	82.0	NP	NP	5,310	83	104.0	104.0	P
Apr-23-1997	74.8	NP	NP	5,290	110	101.0	97.6	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	P
Apr-10-1997	73.7	14.3	7.6	5,270	37	105.0	102.0	P
Apr-17-1997	78.2	21.6	8.2	5,460	34	107.0	NP	P
Apr-24-1997	70.7	18.2	8.0	5,020	48	95.2	93.6	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	P
Apr-10-1997	.	12.1	6.8	2,960	NP	P
Apr-17-1997	.	22.1	8.2	1,720	1.7	P
Apr-24-1997	.	16.6	8.4	2,360	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
DATA SOURCE	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	P
Apr-10-1997	104	14.3	7.3	4,770	69.1	P
Apr-17-1997	143	22.1	8.0	3,870	58.6	P
Apr-24-1997	95	17.7	8.4	4,660	79.6	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	P
Apr-10-1997	143	14.3	8.1	1,857	0.9	P
Apr-17-1997	151	21.0	8.0	1,770	1.1	P
Apr-24-1997	121	16.6	7.5	1,817	1.1	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	P
Apr-10-1997	.	14.3	7.9	1,700	0.8	P
Apr-17-1997	.	20.4	7.1	2,030	0.9	P
Apr-24-1997	.	17.7	7.9	1,972	0.8	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
DATA SOURCE	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB
UNITS	°C		µS/cm	µg/l	mg/l
Apr-03-1997	13.8	7.9	2,270	11.4	P
Apr-10-1997	14.3	7.8	2,500	15.0	P
Apr-17-1997	20.4	7.6	2,670	18.0	P
Apr-24-1997	16.6	7.5	2,590	16.0	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	P
Apr-09-1997	NP	NP	560	1.7	P
Apr-16-1997	NP	NP	1,288	2.7	P
Apr-23-1997	NP	NP	480	1.6	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	P
Apr-09-1997	NP	NP	661	2.0	P
Apr-16-1997	NP	NP	559	2.6	P
Apr-23-1997	NP	NP	481	1.5	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
DATA SOURCE	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB
UNITS	°C		µS/cm	µg/l	mg/l
Apr-02-1997	NA	NA	1,820	3.6	P
Apr-09-1997	NP	NP	1,550	NP	P
Apr-16-1997	NP	NP	1,114	3.2	P
Apr-23-1997	NP	NP	1,122	3.3	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	P
Apr-09-1997	NP	NP	1,480	2.4	P
Apr-16-1997	NP	NP	1,717	3.0	P
Apr-23-1997	NP	NP	1,128	3.2	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	P
Apr-10-1997	1,080	14.3	7.9	1,436	7.4	P
Apr-17-1997	1,160	19.9	7.5	1,390	8.2	P
Apr-24-1997	1,450	17.1	7.4	990	5.2	P

Table 18. Summary of fathead minnow (*Pimephales promelas*) larvae survival in 7-day tests using water samples collected from December 1995 to April 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	%	%	%	%	%	%
December-95	NT	83	95	93	90	93
March-96	NT	93	95	93	95	96
August-96	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

Table 19. Summary of fathead minnow (*Pimephales promelas*) larvae growth in 7-day tests using water samples collected from December 1995 to April 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

Table 20. Summary of *Daphnia magna* survival in 7-day tests using water samples collected from December 1995 to April 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 ⁽¹⁾	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

Table 21. Summary of *Daphnia magna* reproduction in 7-day tests using water samples collected from December 1995 to April 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	neonates per female	neonates per female	neonates per female	neonates per female	neonates per female	neonates per female
December-95 ⁽¹⁾	NT	21.5	18.5	18.4	19.8	15.5
March-96	NT	18.8	23.9	18.2	20.1	20.8
August-96	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

Table 22. Summary of *Selenastrum capricornutum* growth in 4-day tests using water samples collected from December 1995 to April 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 ⁵ cells/ml	10 ⁵ cells/ml	10 ⁵ cells/ml	10 ⁵ cells/ml	10 ⁵ cells/ml	10 ⁵ 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 ⁽²⁾	4.3	12.3	11.3	8.5	3.5	36.6
November-96 ⁽³⁾	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

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

See Table 26 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
Dec-11-1995	NT	1	1	12	<1
Dec-12-1995	NT	<1	<1	14	<1
Dec-15-1995	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

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

See Table 26 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
Dec-11-1995	NT	NT	NT	NT	NT
Dec-12-1995	NT	NT	NT	NT	NT
Dec-15-1995	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

Table 25. Summary of quarterly in situ bioassay results from December 1995 to February 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).

See Table 26 for explanation of footnotes and agency abbreviations.

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 ⁽⁴⁾	NT	NT	NT	NT	NT	NT
March-96 ⁽⁵⁾	80/80	NT	NT	44/44	NT	70/70
August-96 ⁽⁶⁾	NT	NT	13/19	22/29	28/40	20/49
November-1996 ⁽⁷⁾	46/62	63/68	0/2	.	16/36	.
February-1997 ⁽⁸⁾	NT	3/13	0/0	.	0/11	.

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)