

GRASSLAND BYPASS PROJECT

MONTHLY DATA REPORT

January 2002

April 04, 2002

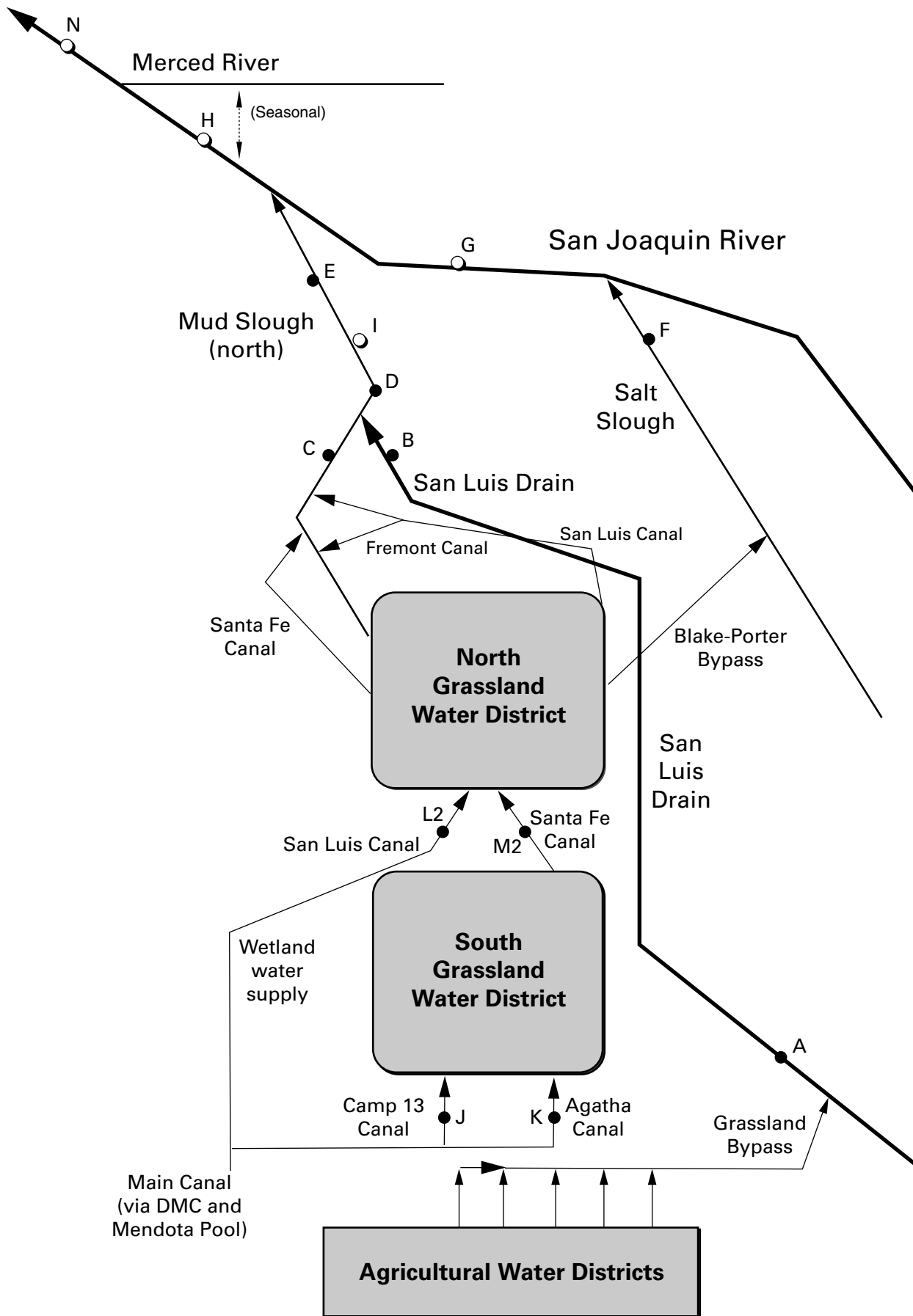
Preliminary Results

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

LIST OF TABLES FOR MONTHLY REPORT**Continuous Monitoring**

1. Continuous water monitoring at Station A (inflow to San Luis Drain), January 2002.
2. Continuous water monitoring at Station B (discharge from San Luis Drain), January 2002.
3. Continuous water monitoring at Station D (Mud Slough North downstream of drainage discharges), January 2002.
4. Continuous water monitoring at Station F (Salt Slough at Highway 165), January 2002.
5. Continuous water monitoring at Station N (San Joaquin River at Crow's Landing), January 2002.

Weekly Monitoring

- 6a. Weekly water quality monitoring at Station A (inflow to San Luis Drain), taken from grab samples.
- 6b. Weekly water quality monitoring at Station A (inflow to San Luis Drain), taken from composite samples.
7. Weekly water quality monitoring at Station B (discharge from San Luis Drain).
8. Weekly water quality monitoring at Station C (Mud Slough North upstream of drainage discharge).
9. Weekly water quality monitoring at Station D (Mud Slough North downstream of drainage discharge).
10. Weekly water quality monitoring at Station I2.
11. Weekly water quality monitoring at Station F (Salt Slough at Lander Avenue).
12. Weekly water quality monitoring at Station J (Camp 13 Ditch).
13. Weekly water quality monitoring at Station K (Agatha Canal).
14. Weekly water quality monitoring at Station L2 (San Luis Canal at splits).
15. Weekly water quality monitoring at Station M2 (Santa Fe Canal at weir).
16. Weekly water quality monitoring at Station G (San Joaquin River at Fremont Ford).
17. Weekly water quality monitoring at Station H (San Joaquin River at Hills Ferry).
18. Weekly water quality monitoring at Station N (San Joaquin River at Crow's Landing).

Monthly Monitoring

19. Summary of fathead minnow (*Pimephales promelas*) larvae survival in 7-day tests using water samples collected from February 2001 to January 2002.
20. Summary of fathead minnow (*Pimephales promelas*) larvae growth in 7-day tests using water samples collected from February 2001 to January 2002.
21. Summary of *Daphnia magna* survival in 7-day tests using water samples collected from February 2001 to January 2002.
22. Summary of *Daphnia magna* reproduction in 7-day tests using water samples collected from February 2001 to January 2002.
23. Summary of *Selenastrum capricornutum* growth in 4-day tests using water samples collected from February 2001 to January 2002.
24. Summary of selenium concentrations in grab water samples collected at study stations for use in laboratory toxicity tests, November 2001 to January 2002.
25. Summary of total suspended solids concentrations in grab water samples collected from November 2001 to January 2002.
26. Explanations of footnotes and agency abbreviations.

Table 1. Continuous water monitoring at Station A (inflow to San Luis Drain), January 2002.

See Table 26 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow	Specific Conductance
DATA SOURCE	SLDMWA	SLDMWA
UNITS	cfs	µS/cm
Jan-01-2002	16	4,290
Jan-02-2002	18	4,170
Jan-03-2002	34	2,890
Jan-04-2002	23	4,310
Jan-05-2002	20	4,610
Jan-06-2002	18	4,660
Jan-07-2002	18	4,770
Jan-08-2002	18	4,800
Jan-09-2002	20	4,840
Jan-10-2002	19	4,730
Jan-11-2002	18	4,670
Jan-12-2002	19	4,830
Jan-13-2002	19	4,700
Jan-14-2002	20	4,840
Jan-15-2002	22	5,060
Jan-16-2002	23	5,160
Jan-17-2002	23	5,150
Jan-18-2002	24	5,060
Jan-19-2002	24	5,050
Jan-20-2002	22	4,970
Jan-21-2002	22	5,030
Jan-22-2002	21	5,020
Jan-23-2002	20	5,120
Jan-24-2002	20	5,080
Jan-25-2002	21	5,110
Jan-26-2002	22	5,090
Jan-27-2002	23	5,230
Jan-28-2002	22	5,330
Jan-29-2002	27	5,060
Jan-30-2002	23	5,010
Jan-31-2002	29	4,830
Mean	22	4,820

Table 2. Continuous water monitoring at Station B (discharge from San Luis Drain), January 2002.

See Table 26 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow	Temperature	Boron	Specific Conductance	Selenium (total)	Selenium (total) Load
DATA SOURCE	uscs	USGS	CVRWQCB	CVRWQCB	CVRWQCB	Computed
UNITS	cfs	°C	mg/L	µS/cm	µg/L	lbs
Jan-01-2002	25	13.0	P	4,200	49.9	6.7
Jan-02-2002	25	13.1	P	4,190	48.6	6.6
Jan-03-2002	29	13.3	P	4,130	48.2	7.5
Jan-04-2002	39	12.8	P	4,230	55.8	11.7
Jan-05-2002	31	12.3	P	3,960	46.3	7.7
Jan-06-2002	27	11.9	P	4,160	43.8	6.4
Jan-07-2002	26	11.7	P	4,170	46.5	6.5
Jan-08-2002	25	11.8	P	4,370	50.8	6.8
Jan-09-2002	25	12.4	P	4,200	46.2	6.2
Jan-10-2002	26	12.3	P	4,200	41.3	5.8
Jan-11-2002	24	12.0	P	4,400	41.9	5.4
Jan-12-2002	24	11.6	P	4,500	45.5	5.9
Jan-13-2002	24	11.4	P	4,550	49.0	6.3
Jan-14-2002	24	10.6	P	4,560	49.3	6.4
Jan-15-2002	25	9.9	P	4,590	49.0	6.6
Jan-16-2002	27	9.5	P	4,560	51.5	7.5
Jan-17-2002	29	8.9	P	4,450	51.2	8.0
Jan-18-2002	28	8.5	P	4,630	55.0	8.3
Jan-19-2002	30	8.4	P	4,690	57.5	9.3
Jan-20-2002	29	8.1	P	4,770	63.4	9.9
Jan-21-2002	27	8.6	P	4,890	69.6	10.1
Jan-22-2002	27	8.9	P	4,930	63.0	9.2
Jan-23-2002	25	8.3	P	4,920	63.0	8.5
Jan-24-2002	25	8.2	P	4,890	62.2	8.4
Jan-25-2002	25	8.5	P	4,870	64.6	8.7
Jan-26-2002	25	8.8	P	4,790	62.4	8.4
Jan-27-2002	28	9.2	P	4,820	61.6	9.3
Jan-28-2002	27	9.0	P	4,790	62.0	9.0
Jan-29-2002	28	8.6	P	4,850	65.3	9.9
Jan-30-2002	31	7.9	P	4,820	59.0	9.9
Jan-31-2002	28	8.0	P	4,770	61.2	9.2
Mean	27	10.2	P	4,540	54.3	
Total						246

Load Limitation for January 2002	(lbs)	385
---	--------------	------------

**Table 3. Continuous water monitoring at Station D
(Mud Slough North downstream of drainage discharges), January 2002.**

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
Jan-01-2002	171	13.1	2,140
Jan-02-2002	186	13.2	2,090
Jan-03-2002	218	13.2	1,990
Jan-04-2002	231	12.2	2,050
Jan-05-2002	231	11.4	2,010
Jan-06-2002	223	11.1	2,010
Jan-07-2002	210	11.0	2,060
Jan-08-2002	201	11.1	2,100
Jan-09-2002	192	12.2	2,150
Jan-10-2002	181	12.1	2,160
Jan-11-2002	174	11.6	2,200
Jan-12-2002	166	11.0	2,250
Jan-13-2002	154	10.8	2,340
Jan-14-2002	151	9.8	2,360
Jan-15-2002	139	8.7	2,400
Jan-16-2002	132	8.3	2,470
Jan-17-2002	132	7.8	2,460
Jan-18-2002	126	7.6	2,530
Jan-19-2002	120	7.7	2,630
Jan-20-2002	112	7.7	2,720
Jan-21-2002	113	8.3	2,710
Jan-22-2002	112	8.5	2,680
Jan-23-2002	102	7.8	2,800
Jan-24-2002	100	7.7	2,800
Jan-25-2002	103	8.1	2,760
Jan-26-2002	106	8.7	2,750
Jan-27-2002	109	9.2	2,750
Jan-28-2002	110	8.5	2,760
Jan-29-2002	116	8.1	2,710
Jan-30-2002	121	7.2	2,750
Jan-31-2002	126	7.2	2,690

Table 4. Continuous water monitoring at Station F (Salt Slough at Highway 165), January 2002.

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
Jan-01-2002	107	13.9	2,090
Jan-02-2002	123	13.6	2,060
Jan-03-2002	142	13.4	1,990
Jan-04-2002	179	12.4	1,920
Jan-05-2002	213	11.7	1,960
Jan-06-2002	180	11.3	2,000
Jan-07-2002	153	11.3	1,980
Jan-08-2002	138	11.8	2,030
Jan-09-2002	133	12.7	2,080
Jan-10-2002	135	12.3	2,010
Jan-11-2002	132	12.0	2,020
Jan-12-2002	127	11.5	2,040
Jan-13-2002	122	11.3	2,060
Jan-14-2002	120	10.3	2,080
Jan-15-2002	120	9.5	2,100
Jan-16-2002	118	9.1	2,130
Jan-17-2002	110	8.6	2,160
Jan-18-2002	93	8.5	2,220
Jan-19-2002	96	8.3	2,190
Jan-20-2002	99	8.3	2,080
Jan-21-2002	111	9.0	2,030
Jan-22-2002	111	9.1	2,010
Jan-23-2002	110	8.3	1,970
Jan-24-2002	112	8.3	1,960
Jan-25-2002	107	8.7	1,940
Jan-26-2002	109	9.4	1,970
Jan-27-2002	106	9.9	2,000
Jan-28-2002	102	9.5	2,120
Jan-29-2002	106	9.0	2,050
Jan-30-2002	116	8.2	2,080
Jan-31-2002	130	7.9	1,870

Table 5. Continuous water monitoring at Station N (San Joaquin River at Crow's Landing), January 2002.

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
Jan-01-2002	2,030	12.5	NA	NA
Jan-02-2002	2,040	12.8	NA	NA
Jan-03-2002	2,020	12.9	NA	NA
Jan-04-2002	2,250	12.2	NA	NA
Jan-05-2002	2,280	11.6	NA	NA
Jan-06-2002	2,290	11.3	NA	NA
Jan-07-2002	1,980	10.9	NA	NA
Jan-08-2002	1,660	11.0	NA	NA
Jan-09-2002	1,470	12.0	NA	NA
Jan-10-2002	1,340	11.9	NA	NA
Jan-11-2002	1,250	11.7	NA	NA
Jan-12-2002	1,160	11.3	NA	NA
Jan-13-2002	1,090	11.3	NA	NA
Jan-14-2002	1,030	NA	NA	NA
Jan-15-2002	982	NA	NA	NA
Jan-16-2002	922	NA	NA	NA
Jan-17-2002	878	8.8	NA	NA
Jan-18-2002	835	8.6	NA	NA
Jan-19-2002	803	8.6	NA	NA
Jan-20-2002	768	8.4	NA	NA
Jan-21-2002	767	8.7	NA	NA
Jan-22-2002	776	8.9	NA	NA
Jan-23-2002	752	NA	NA	NA
Jan-24-2002	727	NA	NA	NA
Jan-25-2002	717	NA	NA	NA
Jan-26-2002	703	NA	1,590	2.8
Jan-27-2002	695	NA	1,600	2.8
Jan-28-2002	691	NA	1,600	2.6
Jan-29-2002	701	NA	1,610	2.8
Jan-30-2002	720	NA	1,590	2.6
Jan-31-2002	732	NA	1,570	2.8

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

See Table 26 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow	.	.	Specific Conductance	Total Suspended Solids	Selenium (total)	Selenium (dissolved)	Boron
DATA SOURCE	SLDMWA	.	.	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB
UNITS	cfs	.	.	µS/cm	mg/L	µg/L	µg/L	mg/L
Nov-07-2001	11	.	.	4,180	49	Selenium and boron analyses		
Nov-14-2001	16	.	.	3,740	140	from weekly grab		
Nov-20-2001	10	.	.	5,000	92	discontinued 2/1/00.		
Nov-28-2001	13	.	.	4,920	20	.	.	.
Dec-05-2001	12	.	.	4,960	23	.	.	.
Dec-12-2001	12	.	.	5,410	24	.	.	.
Dec-19-2001	11	.	.	4,880	49	.	.	.
Dec-27-2001	10	.	.	5,050	33	.	.	.
Jan-02-2002	18	.	.	4,760	P	.	.	.
Jan-09-2002	20	.	.	5,190	P	.	.	.
Jan-16-2002	23	.	.	5,260	P	.	.	.
Jan-23-2002	20	.	.	5,430	P	.	.	.
Jan-30-2002	23	.	.	5,010	P	.	.	.

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

See Table 26 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
Nov-06-2001	11	.	.	4,850	.	84.1	.	7.4
Nov-13-2001	29	.	.	4,460	.	57.6	.	7.2
Nov-19-2001	12	.	.	NA	.	73.3	.	7.2
Nov-26-2001	12	.	.	5,180	.	74.5	.	8.6
Dec-04-2001	14	.	.	4,990	.	71.3	.	P
Dec-11-2001	12	.	.	5,160	.	72.6	.	P
Dec-18-2001	11	.	.	5,080	.	NA	.	P
Dec-25-2001	10	.	.	5,060	.	78.9	.	P
Jan-01-2002	16	.	.	4,800	.	72.0	.	P
Jan-08-2002	18	.	.	4,870	.	57.0	.	P
Jan-15-2002	22	.	.	5,140	.	76.2	.	P
Jan-22-2002	21	.	.	5,360	.	80.0	.	P
Jan-29-2002	27	.	.	5,440	.	80.8	.	P

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

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	USGS	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB
UNITS	cfs	°C		µS/cm	mg/L	µg/L	µg/L	mg/L
Nov-01-2001	20	17.6	8.2	4,000	41	33.1	Selenium	6.2
Nov-08-2001	20	15.7	8.8	4,090	35	52.3	(dissolved)	6.0
Nov-15-2001	28	16.0	7.9	3,610	38	26.6	analyses	4.9
Nov-20-2001	21	14.9	7.5	3,510	33	33.7	discontinued	5.3
Nov-29-2001	21	9.3	NA	4,350	39	43.4	1/15/2000.	6.7
Dec-06-2001	20	10.2	7.8	4,320	37	52.0	.	P
Dec-13-2001	19	9.3	8.1	4,710	50	46.0	.	P
Dec-20-2001	16	9.1	8.1	4,590	43	60.7	.	P
Dec-27-2001	15	10.1	7.9	4,170	36	NA	.	P
Jan-03-2002	29	12.9	7.9	4,210	P	50.2	.	P
Jan-10-2002	26	12.0	7.7	4,260	P	39.6	.	P
Jan-17-2002	29	8.3	8.0	4,550	P	50.8	.	P
Jan-24-2002	25	8.2	8.1	4,970	P	64.2	.	P
Jan-31-2002	28	7.7	8.1	4,680	P	60.8	.	P

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

See Table 26 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
Nov-01-2001	113	17.1	7.8	1,330	<0.4	0.9
Nov-08-2001	120	15.4	8.1	1,450	<0.4	1.0
Nov-15-2001	215	15.5	7.8	1,250	<0.4	0.8
Nov-20-2001	174	15.0	7.9	1,420	<0.4	1.0
Nov-29-2001	126	10.9	NA	1,540	<0.4	1.1
Dec-06-2001	146	9.9	7.9	1,590	<0.4	P
Dec-13-2001	82	8.8	8.0	2,110	<0.4	P
Dec-20-2001	94	9.7	8.1	1,960	<0.4	P
Dec-27-2001	107	10.3	7.9	1,920	<0.4	P
Jan-03-2002	189	12.9	7.7	1,700	0.6	P
Jan-10-2002	155	11.7	7.9	1,880	<0.4	P
Jan-17-2002	103	6.6	7.9	2,090	0.5	P
Jan-24-2002	75	8.2	7.9	2,300	<0.4	P
Jan-31-2002	98	7.0	8.2	2,240	<0.4	P

++ 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 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
Nov-01-2001	133	17.0	7.8	1,800	5.0	1.7
Nov-08-2001	140	15.4	8.1	1,850	4.2	1.6
Nov-15-2001	243	15.5	7.8	1,540	3.2	1.3
Nov-20-2001	195	14.9	7.8	1,720	4.4	1.6
Nov-29-2001	147	10.9	NA	2,040	6.7	2.0
Dec-06-2001	166	9.8	7.8	1,920	6.3	P
Dec-13-2001	101	8.9	8.0	2,740	8.9	P
Dec-20-2001	110	9.4	8.0	2,520	10	P
Dec-27-2001	122	10.3	7.9	2,270	6.7	P
Jan-03-2002	218	12.8	7.8	2,080	6.0	P
Jan-10-2002	181	11.7	7.8	2,260	5.8	P
Jan-17-2002	132	6.9	7.9	2,650	10	P
Jan-24-2002	100	8.2	8.0	3,030	14	P
Jan-31-2002	126	6.9	8.0	2,870	12	P

Table 10. Weekly water quality monitoring at Station I2 .

See Table 26 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
Nov-08-2001	.	7.5	1,800	14.7	4.1	1.5
Nov-14-2001	.	7.2	680	21.0	6.2	1.5
Nov-19-2001	.	7.5	1,900	14.8	6.0	1.6
Nov-27-2001	.	7.7	2,010	24.4	5.5	1.9
Dec-04-2001	.	7.8	2,060	15.8	7.2	1.9
Dec-10-2001	.	7.9	2,790	18.0	6.7	2.3
Dec-18-2001	.	7.9	2,960	15.0	9.3	2.7
Dec-21-2001	.	8.0	2,940	20.5	8.9	2.5
Jan-03-2002	.	7.7	2,100	27.6	6.4	1.9
Jan-09-2002	.	7.8	2,350	14.4	7.2	2.1
Jan-16-2002	.	7.6	3,080	13.3	6.9	2.5
Jan-23-2002	.	8.1	3,670	14.1	13.2	2.9
Jan-29-2002	.	7.9	3,270	14.1	13.2	2.9

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

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
Nov-01-2001	104	16.0	7.7	1,680	0.4	0.9
Nov-08-2001	144	14.6	8.6	1,440	0.5	0.7
Nov-15-2001	202	18.3	7.7	1,280	0.5	0.7
Nov-20-2001	136	14.4	7.6	1,570	<0.4	0.9
Nov-29-2001	152	9.9	7.7	1,710	<0.4	0.9
Dec-06-2001	224	9.9	7.7	1,480	0.5	P
Dec-13-2001	131	9.4	7.7	2,020	0.5	P
Dec-20-2001	73	10.8	7.8	2,420	<0.4	P
Dec-27-2001	66	10.7	7.7	2,470	<0.4	P
Jan-03-2002	142	12.9	7.6	2,020	0.5	P
Jan-10-2002	135	12.2	7.5	2,010	<0.4	P
Jan-17-2002	110	7.8	7.6	2,200	0.7	P
Jan-24-2002	112	8.8	7.5	2,010	1.1	P
Jan-31-2002	130	8.2	7.8	1,870	<0.4	P

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

See Table 26 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
Nov-07-2001	20	.	.	682	0.8	0.3
Nov-14-2001	20	.	.	585	0.6	0.2
Nov-20-2001	10	.	.	583	0.8	0.3
Nov-28-2001	10	.	.	551	0.9	0.2
Dec-05-2001	10	.	.	641	0.6	P
Dec-12-2001	10	.	.	685	0.7	P
Dec-19-2001	10	.	.	757	0.8	P
Dec-27-2001	10	.	.	629	0.8	P
Jan-02-2002	10	.	.	607	0.9	P
Jan-09-2002	10	.	.	532	<0.4	P
Jan-16-2002	10	.	.	648	1.5	P
Jan-23-2002	10	.	.	782	3.6	P
Jan-30-2002	10	.	.	711	2.5	P

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

See Table 26 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
Nov-07-2001	65	.	.	680	0.7	0.3
Nov-14-2001	65	.	.	606	0.5	0.2
Nov-20-2001	50	.	.	569	0.5	0.2
Nov-28-2001	50	.	.	632	0.8	0.3
Dec-05-2001	35	.	.	788	0.6	P
Dec-12-2001	35	.	.	843	0.5	P
Dec-19-2001	35	.	.	711	<0.4	P
Dec-27-2001	35	.	.	988	0.4	P
Jan-02-2002	35	.	.	884	1.4	P
Jan-09-2002	35	.	.	632	<0.4	P
Jan-16-2002	35	.	.	586	0.8	P
Jan-23-2002	35	.	.	820	3.2	P
Jan-30-2002	35	.	.	615	1.2	P

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

See Table 26 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
Nov-07-2001	0	.	.	1,490	1.8	1.4
Nov-14-2001	30	.	.	638	0.7	0.7
Nov-20-2001	0	.	.	1,660	2.1	1.8
Nov-28-2001	0	.	.	1,240	0.7	1.2
Dec-05-2001	6	.	.	782	0.7	P
Dec-12-2001	0	.	.	1,560	1.5	P
Dec-19-2001	0	.	.	2,040	2.5	P
Dec-27-2001	22	.	.	1,650	1.7	P
Jan-02-2002	35	.	.	291	<0.4	P
Jan-09-2002	6	.	.	2,020	2.1	P
Jan-16-2002	0	.	.	1,750	2.4	P
Jan-23-2002	0	.	.	1,780	2.2	P
Jan-30-2002	0	.	.	2,240	3.0	P

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

See Table 26 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
Nov-07-2001	137	.	.	1,000	0.5	0.7
Nov-14-2001	139	.	.	1,020	0.8	0.8
Nov-20-2001	132	.	.	1,050	0.5	0.9
Nov-28-2001	131	.	.	1,080	0.5	0.9
Dec-05-2001	171	.	.	1,320	0.5	P
Dec-12-2001	108	.	.	1,410	0.4	P
Dec-19-2001	94	.	.	1,500	<0.4	P
Dec-27-2001	79	.	.	1,420	0.5	P
Jan-02-2002	128	.	.	1,470	0.7	P
Jan-09-2002	123	.	.	1,510	0.9	P
Jan-16-2002	101	.	.	1,590	1.4	P
Jan-23-2002	96	.	.	1,620	2.6	P
Jan-30-2002	102	.	.	1,570	2.3	P

Table 16. Weekly water quality monitoring at Station G (San Joaquin River at Fremont Ford).

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
Nov-01-2001	.	15.7	7.8	1,760	<0.4	0.8
Nov-08-2001	.	13.7	7.7	1,440	0.5	0.7
Nov-15-2001	.	15.4	8.1	1,240	0.4	0.6
Nov-20-2001	.	13.6	7.7	1,640	<0.4	0.8
Nov-29-2001	.	9.6	7.6	1,790	<0.4	0.9
Dec-06-2001	.	10.2	7.4	1,320	<0.4	P
Dec-13-2001	.	8.6	7.7	2,110	0.5	P
Dec-20-2001	.	9.7	7.8	2,690	<0.4	P
Dec-27-2001	.	10.6	7.7	2,430	<0.4	P
Jan-03-2002	.	12.7	7.6	583	0.5	P
Jan-10-2002	.	11.7	8.0	1,000	<0.4	P
Jan-17-2002	.	8.0	7.6	1,540	0.5	P
Jan-24-2002	.	7.7	7.3	1,890	0.8	P
Jan-31-2002	.	7.0	7.7	1,760	<0.4	P

Table 17. Weekly water quality monitoring at Station H (San Joaquin River at Hills Ferry).

(Collected data intended for use with biological monitoring.)

See Table 26 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
Nov-06-2001	.	.	.	1,680	2.5	0.9
Nov-15-2001	.	.	.	1,350	2.2	0.9
Nov-20-2001	.	.	.	1,650	2.8	1.1
Nov-27-2001	.	.	.	1,760	2.3	1.1
Dec-04-2001	.	.	.	1,740	2.7	1.2
Dec-11-2001	.	.	.	1,880	2.7	1.3
Dec-18-2001	.	.	.	2,640	3.7	1.7
Dec-28-2001	.	.	.	2,350	2.6	1.5
Jan-03-2002	.	.	.	950	2.0	0.6
Jan-08-2002	.	.	.	1,140	2.7	0.8
Jan-15-2001	.	.	.	1,890	2.6	1.3
Jan-22-2002	.	.	.	2,440	4.7	1.6
Jan-29-2002	.	.	.	2,660	4.5	1.6

Table 18. Weekly water quality monitoring at Station N (San Joaquin River at Crow's Landing).

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
Nov-01-2001	1,130	15.8	8.0	594	0.8	0.3
Nov-08-2001	937	15.0	8.3	742	0.8	0.4
Nov-15-2001	1,100	15.8	7.8	855	1.3	0.5
Nov-20-2001	1,000	14.2	7.8	965	1.4	0.6
Nov-29-2001	963	12.7	7.4	960	1.0	0.6
Dec-06-2001	1170	10.5	7.8	1,010	1.2	P
Dec-13-2001	918	9.7	7.6	1,170	1.2	P
Dec-20-2001	745	9.7	7.9	1,240	1.6	P
Dec-27-2001	783	10.5	7.8	1,180	1.2	P
Jan-03-2002	2,020	13.0	7.7	650	1.0	P
Jan-10-2002	1,340	12.5	8.0	1,020	1.1	P
Jan-17-2002	878	8.7	7.8	1,420	1.8	P
Jan-24-2002	727	7.6	7.8	1,640	P	P
Jan-31-2002	732	7.2	8.4	1,560	2.6	P

Table 19. Summary of fathead minnow (*Pimephales promelas*) larvae survival in 7-day tests using water samples collected from February 2001 to January 2002. 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	%	%	%	%	%	%
Feb-2001	100	90	93	78	78	100
Mar-2001	100	93	93	90	95	100
Apr-2001	100	100	95	93	95	100
May-2001	88	97	90	90	90	100
Jun-2001	88	98	98	98	98	100
Jul-2001	90	93	98	100	93	98
Aug-2001	95	95	98	95	98	98
Sep-2001	98	100	90	100	100	98
Oct-2001	100	98	100	100	100	100
Nov-2001	98	83e	60*	88	100	100
Dec-2001	98	55*	68*	90	98	100
Jan-2002	83	95	98	100	100	98

Table 20. Summary of fathead minnow (*Pimephales promelas*) larvae growth in 7-day tests using water samples collected from February 2001 to January 2002. 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
Feb-2001	0.54*	0.53*	0.64	0.61	0.68	0.65
Mar-2001	0.61	0.66	0.67	0.63	0.64	0.60
Apr-2001	0.64	0.72	0.71	0.73	0.67	0.57
May-2001	0.45	0.45	0.46	0.43	0.45	0.46
Jun-2001	0.61*	0.83	0.85	0.85	0.74	0.65
Jul-2001	0.42	0.39	0.48	0.47	0.45	0.44
Aug-2001	0.43	0.44	0.35	0.38	0.36	0.36
Sep-2001	0.43	0.43	0.44	0.42	0.34	0.36
Oct-2001	0.63	0.71	0.78	0.65	0.66	0.58
Nov-2001	0.70	0.49	0.49	0.59	0.67	0.52
Dec-2001	0.48	0.34*	0.41	0.55	0.47	0.50
Jan-2002	0.39	0.41	0.44	0.51	0.44	0.40

Table 21. Summary of *Daphnia magna* survival in 7-day tests using water samples collected from February 2001 to January 2002. 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	%	%	%	%	%	%
Feb-2001	100	100	90	100	90	100
Mar-2001	100	100	90	90	90	90
Apr-2001	100	100	100	100	89	89
May-2001	0i†	100	100	100	70	100
Jun-2001	50*	70*	70*	90	100	100
Jul-2001	100	100	60*	80	90	90
Aug-2001	50*	100	30*	100	90	90
Sep-2001	80	100	90	100	90	80
Oct-2001	90	100	90	90	70†	90
Nov-2001	100	89	90	100	80	90
Dec-2001	90	100	90	90	100	100
Jan-2002	100	90	80	100	100	67†

Table 22. Summary of *Daphnia magna* reproduction in 7-day tests using water samples collected from February 2001 to January 2002. 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
Feb-2001	31.2	25.7	25.1	29.9	27.2	27.5
Mar-2001	11.7	21.9	19.3	15.6	13.4	17.8
Apr-2001	30.7	28.6	36.5	26.2	24.9	24.8
May-2001	0††	25.0	27.5	23.3	13.1	25.2
Jun-2001	18.9*	28.3*	27.6*	47.9	44.5	36.4
Jul-2001	25.3	28.5	16.8	17.7	26.2	15.9
Aug-2001	11.7*	42.9	15.5*	52.5	27.1	36.3
Sep-2001	27.7	31.5	32.5	31.5	25.6	20.7
Oct-2001	39.5	39.1	29.8	35.3	21.1	31.7
Nov-2001	27.4	28.2	34.2	33.4	25.4	29.6
Dec-2001	41.3	45.9	43.3	42.4	45.1	36.7
Jan-2002	29.4	29.3	23.6	30.5	30.1	11.9

Table 23. Summary of *Selenastrum capricornutum* growth in 4-day tests using water samples collected from February 2001 to January 2002. 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
Feb-2001	11.3 †	23.8	21.5	16.7 †	22.5	17.6
Mar-2001	18.9	24.6	20.0	21.7	18.4	23.5
Apr-2001	9.9	10.5	10.2	5.8*	10.7	20.2
May-2001	10.1*❖	18.4	13.1	19.6	15.5	14.5
Jun-2001	4.2*	12.9*	10.3*	14.7*	21.8	16.4
Jul-2001	8.3	8.5	8.5	9.4	8.0	9.1
Aug-2001	10.4*	12.4	3.0*	15.6	13.8	10.0
Sep-2001	6.5*	13.0	11.3	12.3	10.8	9.6
Oct-2001	9.1	10.7	11.3	11.4	10.3	9.3
Nov-2001	6.0*	11.1	11.0	10.0	9.2 †††	6.4 †††
Dec-2001	7.5*	9.4	9.6	9.3	8.9 †††	9.1 †††
Jan-2002	6.32*†††	19.2	17.4	24.7	15.1	10.1

Table 24. Summary of selenium concentrations in grab water samples collected at study stations for use in laboratory toxicity tests, November 2001 to January 2002.

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
Nov-26-2001	44	<0.4	6.0	<0.4	<0.4
Nov-28-2001	47	<0.4	5.2	<0.4	<0.4
Nov-30-2001	49	<0.4	6.2	<0.4	0.5
Dec-10-2001	55	<0.4	8.2	<0.4	<0.4
Dec-12-2001	45	<0.4	7.4	<0.4	<0.4
Dec-14-2001	47	<0.4	8.4	<0.4	<0.4
Jan-28-2002	61	<0.4	13	<0.4	<0.4
Jan-30-2002	56	<0.4	14	0.8	<0.4
Feb-01-2002	66	<0.4	13	0.5	<0.4

Table 25. Summary of total suspended solids concentrations in grab water samples collected from November 2001 to January 2002.

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	SLDMWA	SLDMWA	SLDMWA	SLDMWA
UNITS	mg/L	mg/L	mg/L	mg/L	mg/L
Nov-26-2001	45	39	20	57	11
Nov-28-2001	62	21	28	NA	16
Nov-30-2001	57	29	53	101	23
Dec-10-2001	32	18	15	49	74
Dec-12-2001	40	8	13	48	25
Dec-14-2001	58	23	43	57	12
Jan-28-2002	55	23	26	74	52
Jan-30-2002	58	22	26	43	40
Feb-01-2002	74	19	28	101	29

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
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.
†	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 (1997 draft).
†††	DMC water failed to meet the reproduction (>10 neonates/adult) acceptability criteria.
††††	DMC water failed to meet minimum growth (10 ⁶ cell/mL) acceptability criteria.
‡	Control value exceeds suggested maximum variance (20%) acceptability criteria.
‡‡	Fungal growth observed on test organisms.
‡‡‡	Failed cell density requirement of 1E6 cells.
#	New testing laboratory with reporting limit of 0.4 µg/L as of June 1998.
❖	Based on definitive bioassay, NOEC is 50 percent

ε EPA Station C split sample results significantly different. See Table 19.

LOCATION	Station B	Station C	Station D	Station F	Delta Mendota Canal	Laboratory Control
DATA SOURCE	EPA	EPA	EPA	EPA	EPA	EPA
UNITS	%	%	%	%	%	%
Nov-2001	100	58	64	90	100	100