GRASSLAND BYPASS PROJECT
Interim Baseline Monitoring Program

Quarterly Data Report
January, February, and March 2014

A Cooperative Effort of:

U.S. Bureau of Reclamation

Central Valley Regional Water Quality Control Board

U.S. Fish and Wildlife Service

National Marine Fisheries Service

California Department of Fish and Wildlife

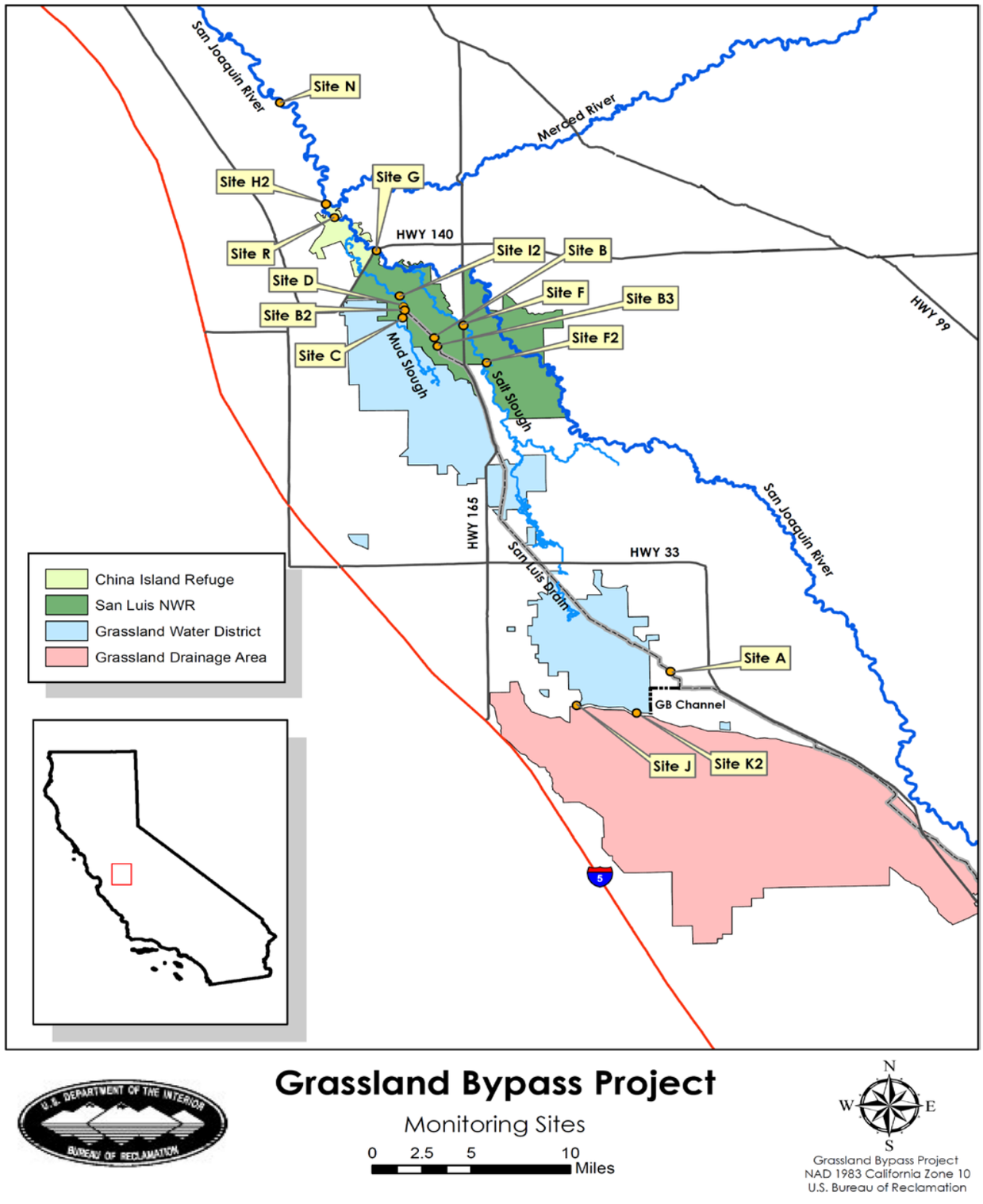
San Luis & Delta-Mendota Water Authority

U.S. Environmental Protection Agency

U.S. Geological Survey

Compiled by San Francisco Estuary Institute

Figure 1. Map of the Grassland Bypass Project area



GRASSLAND BYPASS PROJECT

QUARTERLY DATA REPORT

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Monthly Monitoring

Quarterly Monitoring

Table 1a. Water monitoring of inflow to the San Luis Drain (Station A)

PARAMETER	Flow	Temperature	Specific Conductance	Total Dissolved Solids	Total Suspended Solids	Total Selenium	Daily Salt Load
DATA SOURCE	SLDMWA	SLDMWA	SLDMWA	Calculated	SLDMWA	SLDMWA/USBR	Calculated
UNITS	cfs	°C	µS/cm	mg/L	mg/L	µg/L	tons
Jan-01-2014	3	7.9	8,360	6,186			57
Jan-02-2014	4	7.8	8,220	6,086		27	61
Jan-03-2014	4	7.8	8,040	5,953		26	61
Jan-04-2014	4	8.1	7,940	5,879		29	63
Jan-05-2014	4	8.2	8,010	5,930		29	61
Jan-06-2014	5	7.6	7,920	5,864		33	84
Jan-07-2014	5	8.8	7,950	5,886		29	79
Jan-08-2014	8	8.7	8,770	6,488		27	137
Jan-09-2014	6	9.8	8,050	5,961		26	100
Jan-10-2014	6	10.0	7,310	5,410		24	93
Jan-11-2014	6	9.6	7,050	5,220		29	79
Jan-12-2014	8	9.3	6,980	5,164		25	113
Jan-13-2014	9	8.9	6,800	5,033	46	21	126
Jan-14-2014	11	8.9	6,770	5,007		22	153
Jan-15-2014	11	9.0	6,680	4,942		23	145
Jan-16-2014	9	9.2	6,600	4,884		23	120
Jan-17-2014	11	9.6	6,430	4,756		23	139
Jan-18-2014	13	9.5	6,760	5,003		21	173
Jan-19-2014	12	9.4	7,570	5,601		21	187
Jan-20-2014	11	9.5	8,140	6,023		27	180
Jan-21-2014	12	9.6	8,080	5,977		26	189
Jan-22-2014	12	9.6	7,820	5,788		25	194
Jan-23-2014	13	9.8	7,210	5,338		26	184
Jan-24-2014	13	10.3	6,910	5,112		28	185
Jan-25-2014	19	11.2	6,590	4,874		25	245
Jan-26-2014	20	11.2	6,170	4,569		26	251
Jan-27-2014	21	10.9	6,590	4,874		27	277
Jan-28-2014	18	12.4	6,510	4,815		29	231
Jan-29-2014	17	14.0	6,970	5,157		29	230
Jan-30-2014	15	14.7	6,890	5,096		26	199
Jan-31-2014	16	13.2	6,890	5,099		26	220

Notes:
See Table 25 for explanation of footnotes and agency abbreviations.
Preliminary Results
Site A Selenium data are not collected by Reclamation and have been deemed unreliable by Reclamation Staff.

Table 1a. Water monitoring of inflow to the San Luis Drain (Station A)

PARAMETER	Flow	Temperature	Specific Conductance	Total Dissolved Solids	Total Suspended Solids	Total Selenium	Daily Salt Load
DATA SOURCE	SLDMWA	SLDMWA	SLDMWA	Calculated	SLDMWA	SLDMWA/USBR	Calculated
UNITS	cfs	°C	µS/cm	mg/L	mg/L	µg/L	tons
Feb-01-2014	10	10.9	7,310	5,411		26	144
Feb-02-2014	9	9.1	7,400	5,477		25	137
Feb-03-2014	19	10.1	6,800	5,035		28	251
Feb-04-2014	21	10.7	6,010	4,449		28	252
Feb-05-2014	15	11.0	6,390	4,729		29	188
Feb-06-2014	17	11.1	6,820	5,050		29	237
Feb-07-2014	32	10.8	6,550	4,844		29	417
Feb-08-2014	35	11.7	6,400	4,734		29	448
Feb-09-2014	36	13.3	6,360	4,703		31	454
Feb-10-2014	22	15.0	6,880	5,091	136	34	299
Feb-11-2014	20	15.2	6,940	5,139		34	276
Feb-12-2014	17	15.1	7,180	5,313		34	241
Feb-13-2014	18	15.4	7,020	5,194		30	255
Feb-14-2014	19	15.7	6,710	4,968		30	252
Feb-15-2014	19	15.2	6,630	4,906		30	254
Feb-16-2014	20	15.2	6,750	4,992		30	267
Feb-17-2014	19	14.5	6,940	5,137		32	266
Feb-18-2014	28	13.4	6,530	4,831		32	365
Feb-19-2014	23	13.6	5,850	4,331		32	265
Feb-20-2014	13	13.2	6,760	4,999		34	169
Feb-21-2014	9	13.8	7,230	5,352		32	134
Feb-22-2014	6	14.9	7,230	5,350		28	82
Feb-23-2014	5	15.3	7,800	5,774		29	72
Feb-24-2014	6	16.1	8,000	5,920		32	94
Feb-25-2014	7	16.4	7,590	5,615		30	111
Feb-26-2014	9	15.6	7,600	5,621		30	135
Feb-27-2014	28	15.3	6,590	4,875		35	371
Feb-28-2014	44	14.5	5,700	4,220		33	495

Notes:
See Table 25 for explanation of footnotes and agency abbreviations.
Preliminary Results
Site A Selenium data are not collected by Reclamation and have been deemed unreliable by Reclamation Staff.

Table 1a. Water monitoring of inflow to the San Luis Drain (Station A)

PARAMETER	Flow	Temperature	Specific Conductance	Total Dissolved Solids	Total Suspended Solids	Total Selenium	Daily Salt Load
DATA SOURCE	SLDMWA	SLDMWA	SLDMWA	Calculated	SLDMWA	LDMWA/USBI	Calculated
UNITS	cfs	°C	µS/cm	mg/L	mg/L	µg/L	tons
Mar-01-2014	44	14.2	6,010	4,447		31	533
Mar-02-2014	29	14.4	6,280	4,647		33	367
Mar-03-2014	29	14.8	6,380	4,725		31	373
Mar-04-2014	30	16.6	5,980	4,425	106	31	359
Mar-05-2014	25	18.0	6,040	4,469		31	300
Mar-06-2014	15	18.8	6,160	4,556		31	189
Mar-07-2014	11	17.1	6,110	4,524		27	133
Mar-08-2014	10	17.2	6,230	4,609		26	121
Mar-09-2014	10	17.9	7,150	5,294		27	139
Mar-10-2014	10	17.6	7,250	5,362	101	23	150
Mar-11-2014	8	15.9	7,050	5,213		23	117
Mar-12-2014	7	16.4	7,190	5,318		22	103
Mar-13-2014	6	16.8	7,560	5,594		23	95
Mar-14-2014	5	16.7	7,610	5,633		23	70
Mar-15-2014	2	17.3	7,320	5,414		23	29
Mar-16-2014	3	19.1	7,290	5,396		23	45
Mar-17-2014	3	17.4	7,410	5,480	84	24	40
Mar-18-2014	4	15.8	7,560	5,594		29	53
Mar-19-2014	3	17.4	7,510	5,554		31	45
Mar-20-2014	2	18.4	7,610	5,629		29	36
Mar-21-2014	2	18.7	7,770	5,750		27	28
Mar-22-2014	2	18.1	7,890	5,841		28	28
Mar-23-2014	2	18.8	8,000	5,923		29	37
Mar-24-2014	3	19.3	7,930	5,868	77	30	41
Mar-25-2014	3	18.2	7,840	5,801		28	50
Mar-26-2014	2	16.5	7,720	5,712		25	29
Mar-27-2014	2	17.2	7,540	5,580		26	33
Mar-28-2014	4	18.1	7,720	5,715		28	65
Mar-29-2014	6	17.8	8,020	5,931		28	101
Mar-30-2014	10	17.7	7,620	5,636		28	149
Mar-31-2014	9	16.5	7,270	5,377	111	29	135

Notes:
See Table 25 for explanation of footnotes and agency abbreviations.
Preliminary Results
Site A Selenium data are not collected by Reclamation and have been deemed unreliable by Reclamation Staff.

Table 1b. Monthly Averages and Totals

	Average Flow (A)	Average Temperature	Average Specific Conducantce	Average Total Dissolved Solids	Average Total Suspended Solids	Average Selenium	Salt Load	Salt Load Objective
	Calculated	Calculated	Calculated	Calculated	Calculated	Calculated	Calculated	UA3
	cfs	°C	µS/cm	mg/L	mg/L	µg/L	tons	tons
Jan-2014	11	9.8	7,320	5,418	46	26	4,615	4,283
Feb-2014	19	13.6	6,860	5,074	136	31	6,930	6,779
Mar-2014	10	17.3	7,190	5,323	96	27	4,600	8,031
Cumulative Total							16,150	19,090

Notes:
Salt load objective based on 2014 critical year type

Table 2a. Water monitoring of San Luis Drain Discharge into Mud Slough (north)
Station B2 (Terminus at Mud Slough) and Station B3 (Gun Club Road)

PARAMETER	Flow (B2)	Temperature (B2)	Specific Conductance (B2)	Total Suspended Solids (B2)	Boron (B3)	Total Selenium (B3)	Daily Selenium Load
DATA SOURCE	SLDMWA♦	SLDMWA	SLDMWA	SLDMWA/USBR	USBR	USBR	Calculated
UNITS	cfs	°C	µS/cm	mg/L	mg/L	µg/L	lbs
Jan-01-2014	10	8.1	5,170		9.3	15.0	0.8
Jan-02-2014	10	8.7	4,960		9.8	16.0	0.9
Jan-03-2014	10	8.4	4,840		8.9	13.0	0.7
Jan-04-2014	10	8.6	4,620		9.0	12.0	0.6
Jan-05-2014	10	8.0	4,460		8.6	10.0	0.5
Jan-06-2014	10	7.8	4,550		9.0	10.0	0.5
Jan-07-2014	11	9.8	4,710		10.0	11.0	0.6
Jan-08-2014	11	8.6	5,120		9.8	11.0	0.7
Jan-09-2014	13	10.4	4,810		9.3	11.0	0.8
Jan-10-2014	13	10.7	4,740		9.4	9.2	0.6
Jan-11-2014	13	8.0	4,740		8.5	9.9	0.7
Jan-12-2014	11	8.3	4,840		8.9	11.0	0.6
Jan-13-2014	14	7.4	5,000	13	8.8	11.0	0.8
Jan-14-2014	15	9.3	5,060		8.9	11.0	0.9
Jan-15-2014	17	9.4	5,370		11.0	17.0	1.5
Jan-16-2014	17	10.1	5,630		9.8	14.0	1.3
Jan-17-2014	15	9.7	5,300		8.6	13.0	1.0
Jan-18-2014	16	9.7	5,060		9.9	14.0	1.2
Jan-19-2014	18	9.6	5,370		10.0	14.0	1.4
Jan-20-2014	17	9.6	5,390		9.9	14.0	1.3
Jan-21-2014	17	8.3	5,470		9.8	14.0	1.2
Jan-22-2014	17	9.7	5,260		9.2	15.0	1.4
Jan-23-2014	18	9.8	5,160		11.0	14.0	1.3
Jan-24-2014	18	12.6	5,870		12.0	15.0	1.5
Jan-25-2014	19	13.3	6,290		14.0	16.0	1.6
Jan-26-2014	22	10.5	6,780		14.0	16.0	1.9
Jan-27-2014	25	10.9	6,500		13.0	17.0	2.3
Jan-28-2014	28	14.8	6,110		12.0	19.0	2.8
Jan-29-2014	24	16.9	5,920		12.0	18.0	2.4
Jan-30-2014	24	14.0	5,460		10.0	20.0	2.5
Jan-31-2014	20	11.6	5,590		12.0	22.0	2.4

Notes:
See Table 25 for explanation of footnotes and agency abbreviations.
Preliminary Data

**Table 2a. Water monitoring of San Luis Drain Discharge into Mud Slough (north)
Station B2 (Terminus at Mud Slough) and Station B3 (Gun Club Road)**

PARAMETER	Flow (B2)	Temperature (B2)	Specific Conductance (B2)	Total Suspended Solids (B2)	Boron (B3)	Total Selenium (B3)	Daily Selenium Load
DATA SOURCE	SLDMWA♦	SLDMWA	SLDMWA	SLDMWA/USBR	USBR	USBR	Calculated
UNITS	cfs	°C	µS/cm	mg/L	mg/L	µg/L	lbs
Feb-01-2014	22	8.2	5,940		12.0	20.0	2.3
Feb-02-2014	17	5.7	5,780		12.0	24.0	2.2
Feb-03-2014	13	8.4	5,960		12.0	22.0	1.6
Feb-04-2014	22	8.0	6,060		12.0	23.0	2.8
Feb-05-2014	27	9.8	5,840		12.0	22.0	3.1
Feb-06-2014	22	9.2	6,350		13.0	21.0	2.5
Feb-07-2014	23	10.1	6,040		13.0	20.0	2.5
Feb-08-2014	39	12.8	5,640		11.0	20.0	4.2
Feb-09-2014	42	15.2	5,950		13.0	22.0	4.9
Feb-10-2014	40	14.7	6,200	139	13.0	25.0	5.4
Feb-11-2014	28	13.3	6,220		13.0	32.0	4.9
Feb-12-2014	25	13.8	6,050		12.0	31.0	4.1
Feb-13-2014	22	16.3	6,180		13.0	30.0	3.5
Feb-14-2014	23	14.9	6,310		13.0	28.0	3.4
Feb-15-2014	24	13.2	6,550		14.0	25.0	3.2
Feb-16-2014	23	15.1	6,520		14.0	24.0	3.0
Feb-17-2014	24	11.6	6,680		15.0	26.0	3.4
Feb-18-2014	24	11.4	6,590		14.0	27.0	3.5
Feb-19-2014	32	13.3	6,420		14.0	30.0	5.1
Feb-20-2014	28	12.3	6,610		14.0	32.0	4.9
Feb-21-2014	18	12.8	6,390		13.0	33.0	3.1
Feb-22-2014	13	13.9	6,360		12.0	30.0	2.0
Feb-23-2014	10	14.8	6,090		12.0	29.0	1.6
Feb-24-2014	9	15.8	5,860		12.0	29.0	1.4
Feb-25-2014	9	15.9	5,770		12.0	28.0	1.3
Feb-26-2014	11	13.7	5,660		11.0	27.0	1.6
Feb-27-2014	14	15.1	5,300		9.9	24.0	1.7
Feb-28-2014	39	13.6	5,340		12.0	23.0	4.8

Notes:
See Table 25 for explanation of footnotes and agency abbreviations.
Preliminary Data

Table 2a. Water monitoring of San Luis Drain Discharge into Mud Slough (north)
Station B2 (Terminus at Mud Slough) and Station B3 (Gun Club Road)

PARAMETER	Flow (B2)	Temperature (B2)	Specific Conductance (B2)	Total Suspended Solids (B2)	Boron (B3)	Total Selenium (B3)	Daily Selenium Load
DATA SOURCE	SLDMWA♦	SLDMWA	SLDMWA	SLDMWA/USBR	USBR	USBR	Calculated
UNITS	cfs	°C	µS/cm	mg/L	mg/L	µg/L	lbs
Mar-01-2014	51	10.1	6,240		14.0	24.0	6.6
Mar-02-2014	48	10.1	6,210		12.0	34.0	8.8
Mar-03-2014	35	10.1	5,660		12.0	33.0	6.2
Mar-04-2014	34	10.1	5,920	104	12.0	31.0	5.6
Mar-05-2014	35	10.1	5,800		12.0	31.0	5.9
Mar-06-2014	29	14.2	6,160		12.0	32.1	5.0
Mar-07-2014	20	13.0	6,160		12.0	31.9	3.5
Mar-08-2014	16	12.9	5,990		12.0	29.1	2.4
Mar-09-2014	14	16.6	5,790		12.0	28.2	2.1
Mar-10-2014	12	17.3	5,670	36	11.0	29.9	2.0
Mar-11-2014	13	17.9	5,560		11.0	27.3	1.9
Mar-12-2014	13	14.2	5,710		12.0	25.6	1.8
Mar-13-2014	11	15.6	5,830		12.0	24.9	1.5
Mar-14-2014	10	17.4	5,840		12.0	21.8	1.2
Mar-15-2014	9	15.7	5,910		12.0	20.4	0.9
Mar-16-2014	7	14.6	6,010		13.0	19.3	0.8
Mar-17-2014	6	15.2	6,100	42	14.0	19.5	0.7
Mar-18-2014	6	15.6	6,160		14.0	19.3	0.6
Mar-19-2014	6	14.6	6,380		14.0	18.9	0.7
Mar-20-2014	6	16.7	6,470		13.0	17.8	0.6
Mar-21-2014	6	18.9	6,400		13.0	16.7	0.5
Mar-22-2014	6	15.1	6,300		12.0	14.0	0.4
Mar-23-2014	6	15.3	6,190		12.0	14.7	0.4
Mar-24-2014	6	15.9	6,060	42	12.0	13.4	0.4
Mar-25-2014	6	18.1	5,940		12.0	11.8	0.4
Mar-26-2014	6	17.4	5,850		12.0	7.2	0.2
Mar-27-2014	6	16.3	5,890		12.0	12.2	0.4
Mar-28-2014	6	16.8	6,000		11.0	10.0	0.3
Mar-29-2014	6	18.3	6,000		11.0	8.6	0.3
Mar-30-2014	8	16.4	5,750		10.0	8.4	0.4
Mar-31-2014	11	13.4	5,440	27	11.0	8.4	0.5

Notes:
See Table 25 for explanation of footnotes and agency abbreviations.
Preliminary Data

Table 2b. Monthly Averages and Totals

	Flow (B2)	Average Temperature (B2)	Average Specific Conducantce (B2)	Average Total Supspended Solids	Average Boron (B3)	Average Selenium	Selenium Load	Selenium Load Objective
	Calculated	Calculated	Calculated	Calculated	Calculated	Calculated	Calculated	UA3
	acre-feet	°C	µS/cm	mg/L	mg/L	µg/L	lbs	lbs
Jan-2014	970	10.1	5,290	13	10.2	14.0	39	151
Feb-2014	1,270	12.6	6,100	139	12.6	26.0	88	93
Mar-2014	900	15.0	5,980	50	11.8	20.8	63	92
Cumulative Load Totals	3,140						190	336

Notes:
Selenium load objective based on 2014 critical year type

Table 2c. Water quality monitoring at Station B3 (discharge from San Luis Drain)

	Physicals					Total Selenium	Total Boron	Total Molybdenum
PARAMETER	Dissolved Oxygen	pH	Specific Conductance	Temperature	Turbidity			
DATA SOURCE	USBR	USBR	USBR	USBR	USBR	USBR	USBR	USBR
UNITS	mg/L	units	µS/cm	°C	NTU	ug/L	mg/L	ug/L
Jan-03-2014	14.5	7.5	4,390	8.1	13.4	12		
Jan-09-2014	14.4	7.6	4,630	10.0	13.7	10		
Jan-14-2014	18.5	7.8	4,860	8.3	12.9	11		
Jan-23-2014	15.8	7.9	5,700	9.0	14.8	16		
Feb-07-2014	10.0	8.0	5,820	10.1	12.8	19		
Feb-14-2014	9.1	7.9	6,340	15.9	19.5	27		
Feb-21-2014	12.7	8.3	6,350	13.5	21.6	33		
Feb-27-2014	11.1	8.4	5,140	16.3	17.6	26		
Mar-06-2014	12.0	8.6	6,050	19.6	21.9	33	11	
Mar-14-2014	19.8	8.8	5,970	17.2	24.9	21	12	26
Mar-21-2014	12.9	8.4	5,950	16.9		17	12	
Mar-26-2014	12.7	8.8	5,950	20.0		15	12	

Notes:

	Nutrients				
	Nitrates as N (Dissolved)	Ammonia as N	Total Kjeldahl Nitrogen	Total Phosphorous as P	Ortho-phosphate as P
	USBR	USBR	USBR	USBR	USBR
	mg/L	mg/L	mg/L	mg/L	mg/L
Jan-09-2014	0.5	0.1	1.4	0.094 V	0.015 T
Feb-27-2014	3.7 T	0.2 L	1.7	0.095 T	<0.010
Mar-26-2014	<0.02	0.1	2.6	0.190 T	<0.010

Notes:

Results of the Interim Monitoring Program Oct 2013 - Feb 2014

	General Minerals						
	Calcium	Magnesium	Potassium	Sodium	Chloride (Dissolved)	Sulfate (Dissolved)	Total Organic Carbon
	USBR	USBR	USBR	USBR	USBR	USBR	USBR
	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Jan-09-2014	270	110	6.8	620	670	1,400	NA
Feb-27-2014	220	100	4.0	880	750	1,500	8.5

Notes:

	Total Metals								
	Arsenic	Boron	Cadmium	Copper	Lead	Mercury	Molybdenum	Nickel	Zinc
	USBR	USBR	USBR	USBR	USBR	USBR	USBR	USBR	USBR
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Jan-09-2014	5.5	9,000	<1.0	41	<2.5	100	31.0	17.0	<5.0
Feb-27-2014	<10		<1.0	<50	<2.5	<100	24.0	23.0	<10

Notes:

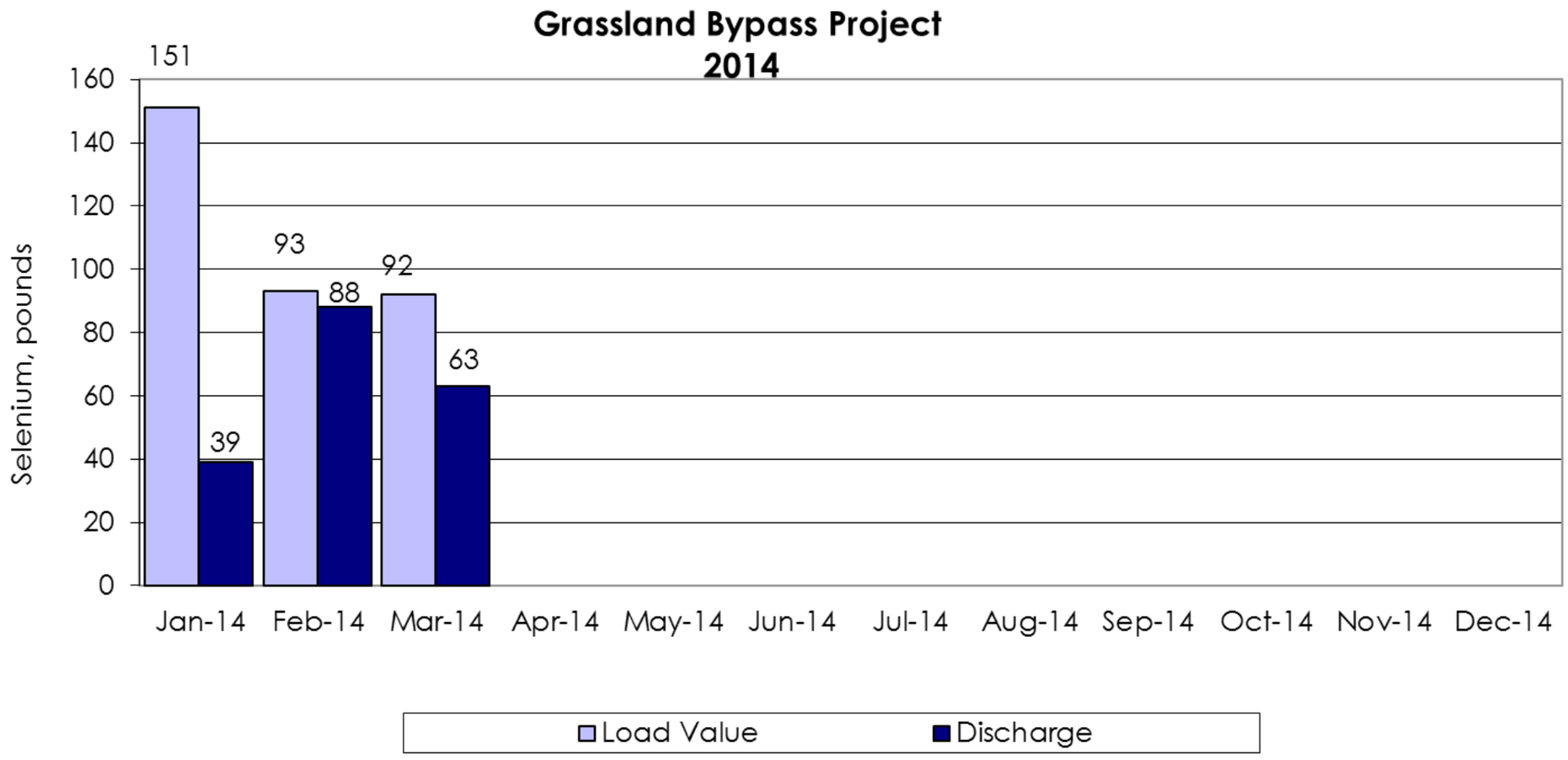
Grassland Bypass Project
2014
Selenium, pounds
160
140
120
100
80
60
40
20
0
151
39
93
88
92
63
Jan-14
Feb-14
Mar-14
Apr-14
May-14
Jun-14
Jul-14
Aug-14
Sep-14
Oct-14
Nov-14
Dec-14
Load Value
Discharge

Table 3a. Water monitoring in Mud Slough (north) below San Luis Drain Discharge Station D

PARAMETER	Flow	Temperature	Specific Conductance
DATA SOURCE	USGS	USGS	USGS
UNITS	cfs	°C	µS/cm
Jan-01-2014	52	9.4	2,800
Jan-02-2014	50	9.6	2,880
Jan-03-2014	45	9.9	3,010
Jan-04-2014	46	10.1	3,030
Jan-05-2014	46	9.9	2,940
Jan-06-2014	46	9.9	2,790
Jan-07-2014	54	10.4	2,530
Jan-08-2014	56	10.4	2,480
Jan-09-2014	55	10.9	2,640
Jan-10-2014	56	11.1	2,530
Jan-11-2014	52	10.9	2,680
Jan-12-2014	49	10.6	2,790
Jan-13-2014	54	10.1	2,830
Jan-14-2014	55	10.2	2,720
Jan-15-2014	55	10.3	2,920
Jan-16-2014	53	10.6	3,070
Jan-17-2014	50	10.7	3,010
Jan-18-2014	52	10.7	3,020
Jan-19-2014	56	10.6	3,140
Jan-20-2014	59	10.7	3,130
Jan-21-2014	60	10.6	3,040
Jan-22-2014	58	10.6	3,120
Jan-23-2014	56	10.8	3,330
Jan-24-2014	54	11.7	3,610
Jan-25-2014	54	12.0	3,780
Jan-26-2014	57	11.8	4,090
Jan-27-2014	60	11.8	4,040
Jan-28-2014	64	13.0	3,920
Jan-29-2014	61	14.4	3,880
Jan-30-2014	65	14.5	3,630
Jan-31-2014	66	13.5	3,450

Notes:
See Table 25 for explanation of footnotes and agency abbreviations.
Preliminary Data

Table 3a. Water monitoring in Mud Slough (north) below San Luis Drain Discharge Station D

PARAMETER	Flow	Temperature	Specific Conductance
DATA SOURCE	USGS	USGS	USGS
UNITS	cfs	°C	µS/cm
Feb-01-2014	68	12.1	3,570
Feb-02-2014	72	10.4	3,250
Feb-03-2014	67	10.3	3,260
Feb-04-2014	70	10.8	3,700
Feb-05-2014	70	11.3	3,860
Feb-06-2014	68	11.6	3,810
Feb-07-2014	75	11.3	3,650
Feb-08-2014	95	11.9	3,720
Feb-09-2014	114	13.0	3,630
Feb-10-2014	114	14.3	3,720
Feb-11-2014	98	14.8	3,420
Feb-12-2014	90	15.3	3,380
Feb-13-2014	83	15.8	3,410
Feb-14-2014	81	16.2	3,510
Feb-15-2014	80	15.5	3,690
Feb-16-2014	74	15.6	3,830
Feb-17-2014	73	14.7	3,960
Feb-18-2014	72	14.0	3,970
Feb-19-2014	84	14.3	4,090
Feb-20-2014	83	13.5	3,970
Feb-21-2014	71	13.7	3,580
Feb-22-2014	64	14.6	3,430
Feb-23-2014	62	15.2	3,230
Feb-24-2014	54	15.7	3,270
Feb-25-2014	51	16.3	3,350
Feb-26-2014	51	15.7	3,430
Feb-27-2014	62	15.4	3,340
Feb-28-2014	95	14.7	3,720

Notes:
See Table 25 for explanation of footnotes and agency abbreviations.
Preliminary Data

Table 3a. Water monitoring in Mud Slough (north) below San Luis Drain Discharge Station D

PARAMETER	Flow	Temperature	Specific Conductance
DATA SOURCE	USGS	USGS	USGS
UNITS	cfs	°C	µS/cm
Mar-01-2014	131	14.5	4,110
Mar-02-2014	128	14.5	4,100
Mar-03-2014	113	14.0	3,680
Mar-04-2014	115	15.8	3,610
Mar-05-2014	120	17.1	3,630
Mar-06-2014	105	17.8	3,740
Mar-07-2014	95	16.6	3,480
Mar-08-2014	93	17.1	3,240
Mar-09-2014	91	17.9	3,150
Mar-10-2014	87	18.0	3,090
Mar-11-2014	86	15.7	3,030
Mar-12-2014	104	16.0	2,900
Mar-13-2014	123	16.5	2,760
Mar-14-2014	126	16.7	2,800
Mar-15-2014	119	17.6	2,790
Mar-16-2014	114	18.6	2,890
Mar-17-2014	107	18.6	2,930
Mar-18-2014	93	16.4	2,950
Mar-19-2014	87	16.7	2,990
Mar-20-2014	84	18.1	2,900
Mar-21-2014	74	18.9	3,010
Mar-22-2014	65	18.8	3,100
Mar-23-2014	57	18.9	3,100
Mar-24-2014	48	19.2	3,230
Mar-25-2014	41	18.4	3,480
Mar-26-2014	40	17.3	3,500
Mar-27-2014	49	17.0	3,230
Mar-28-2014	58	18.1	2,970
Mar-29-2014	55	18.0	2,970
Mar-30-2014	55	17.2	3,340
Mar-31-2014	56	16.4	3,490

Notes:
See Table 25 for explanation of footnotes and agency abbreviations.
Preliminary Data

Table 3b. Monthly Averages

PARAMETER	Average Flow (D)	Temperature	Specific Conductance
DATA SOURCE	USGS	USGS	USGS
UNITS	cfs	°C	µS/cm
January	55	11	3,120
February	76	14	3,600
March	88	17	3,230

Table 3c. Water quality monitoring in Mud Slough (north) below San Luis Drain discharge (Station D)

	Physicals					Total Selenium	Total Boron	Total Molybdenum
PARAMETER	Dissolved Oxygen	pH	Specific Conductance	Temperature	Turbidity			
DATA SOURCE	USBR	USBR	USBR	USBR	USBR	USBR	USBR	USBR
UNITS	mg/L	units	µS/cm	°C	NTU	ug/L	mg/L	ug/L
Jan-03-2014	12.1	7.8	3,180	9.0	10.7	3.2		
Jan-09-2014	11.2	7.8	3,080	9.5	12.9	2.4	3.4 H	16
Jan-14-2014	15.2	7.8	3,180	8.2	10.7	2.7		
Jan-23-2014	12.4	7.8	3,460	9.2	16.1	4.4		
Feb-07-2014	8.7	7.9	3,710	10.7	22.3	5.4		16
Feb-14-2014	9.3	7.8	3,570	14.8	33.5	8.0		16
Feb-21-2014	9.8	8.0	3,680	13.4	26.8	7.9		15
Feb-27-2014	9.9	7.4	3,320	16.4	35.9	5.2		16
Mar-06-2014	9.1	8.0	3,860	18.5	33.5	9.6	4.9	
Mar-14-2014	10.2	8.1	2,940	17.3	42.1	2.4	3.3	11
Mar-21-2014	9.2	8.1	3,100	17.3		1.5	3.4	
Mar-26-2014	10.9	8.1	3,630	19.4		1.4	3.9	

Notes:

	Nutrients				
	Nitrates as N (dissolved)	Ammonia as N	Total Kjeldahl Nitrogen	Total phosphorous as P	Ortho-phosphate as P
	USBR	USBR	USBR	USBR	USBR
	mg/L	mg/L	mg/L	mg/L	mg/L
Jan-09-2014	0.2	0.2	<5.0	0.12 V	0.046 T
Feb-27-2014	1.0 T	0.2 L	1.5	0.33 T	0.026
Mar-26-2014	0.02	0.2	2.5	0.62 T, U	0.220

Notes:

Results of the Interim Monitoring Program Oct 2013 - Feb 2014

	General Minerals						
	Calcium	Magnesium	Potassium	Sodium	Chloride (dissolved)	Sulfate (dissolved)	Total Organic Carbon
	USBR	USBR	USBR	USBR	USBR	USBR	USBR
	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Jan-09-2014	120	76	6.5	400	470	650	NA
Feb-27-2014	110	75	6.0	480	480	670	11.0

Notes:

	Total Metals						
	Arsenic	Cadmium	Copper	Lead	Mercury	Nickel	Zinc
	USBR	USBR	USBR	USBR	USBR	USBR	USBR
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Jan-09-2014	5.3	<1.0	29 L	<2.5	110	10.0	<5.0
Feb-27-2014	<5.0	<1.0	<50	<2.5	<100	16.0	<10

Notes:

Table 4. Water quality monitoring in Mud Slough (north) above the San Luis Drain (Station C)

	Physicals					
PARAMETER	Dissolved Oxygen	Specific Conductance	Turbidity	pH	Boron	Total Selenium
DATA SOURCE	WSJRWC	WSJRWC	WSJRWC	USBR	WSJRWC	WSJRWC
UNITS	mg/L	µS/cm	NTU	units	mg/L	µg/L
Jan-14-2014	10.2*	2,480	7.6			
Feb-10-2014	5.2*	2,870	65		2.0*	0.3*
Mar-06-2014	9.1	2,800	34	8.0	2.2	0.2
Mar-14-2014	10.2	2,660	42	8.1	2.5	0.5
Mar-21-2014	9.2	2,670		8.1	2.5	0.5
Mar-26-2014	10.9	3,090		8.1	2.7	0.2

Notes:

Table 5. Water quality monitoring in Mud Slough (north) backwater below San Luis Drain discharge (Station I2)

	Physicals					
PARAMETER	Dissolved Oxygen	pH	Specific Conductance	Temperature	Turbidity	Total Selenium
DATA SOURCE	USBR	USBR	USBR	USBR	USBR	USBR
UNITS	mg/L	units	µS/cm	°C	NTU	µg/L
Jan-03-2014						
Jan-09-2014						
Jan-14-2014						
Jan-23-2014						
Feb-07-2014						
Feb-14-2014						
Feb-21-2014						
Feb-27-2014						
Mar-06-2014						
Mar-14-2014						
Mar-21-2014						
Mar-26-2014						

Notes:
Samples collected only when site is flooded
Site was dry during January, February, and March (no sample collected)

Table 6a. Water monitoring in Salt Slough at Highway 165
Station F

PARAMETER	Flow	Temperature	Specific Conductance
DATA SOURCE	USGS	USGS	USGS
UNITS	cfs	°C	µS/cm
Jan-01-2014	92	9.4	1,680
Jan-02-2014	95	9.4	1,650
Jan-03-2014	93	9.5	1,630
Jan-04-2014	92	9.8	1,660
Jan-05-2014	90	9.6	1,670
Jan-06-2014	90	9.5	1,670
Jan-07-2014	82	10.2	1,680
Jan-08-2014	83	10.3	1,710
Jan-09-2014	83	10.9	1,720
Jan-10-2014	88	11.0	1,610
Jan-11-2014	82	10.7	1,670
Jan-12-2014	85	10.3	1,660
Jan-13-2014	84	9.9	1,680
Jan-14-2014	75	10.0	1,720
Jan-15-2014	79	10.3	1,750
Jan-16-2014	71	10.5	1,800
Jan-17-2014	76	10.6	1,800
Jan-18-2014	63	10.7	1,850
Jan-19-2014	65	10.6	1,850
Jan-20-2014	67	10.7	1,830
Jan-21-2014	73	10.4	1,880
Jan-22-2014	69	10.5	1,880
Jan-23-2014	78	10.7	1,850
Jan-24-2014	64	11.5	1,810
Jan-25-2014	61	12.1	1,880
Jan-26-2014	56	12.0	1,910
Jan-27-2014	69	12.0	1,870
Jan-28-2014	79	12.9	1,820
Jan-29-2014	80	14.6	1,800
Jan-30-2014	83	14.8	1,750
Jan-31-2014	82	13.5	1,720

Notes:
See Table 25 for explanation of footnotes and agency abbreviations.
Preliminary Data

Table 6a. Water monitoring in Salt Slough at Highway 165
Station F

PARAMETER	Flow	Temperature	Specific Conductance
DATA SOURCE	USGS	USGS	USGS
UNITS	cfs	°C	µS/cm
Feb-01-2014	71	11.8	1,730
Feb-02-2014	64	10.2	1,810
Feb-03-2014	66	10.5	1,790
Feb-04-2014	66	11.1	1,810
Feb-05-2014	54	11.8	1,970
Feb-06-2014	59	12.1	1,860
Feb-07-2014	69	11.6	1,790
Feb-08-2014	85	12.2	1,700
Feb-09-2014	79	13.6	1,840
Feb-10-2014	86	15.1	1,820
Feb-11-2014	74	15.2	1,840
Feb-12-2014	71	15.2	1,900
Feb-13-2014	62	15.8	2,020
Feb-14-2014	66	16.2	2,110
Feb-15-2014	65	15.1	2,100
Feb-16-2014	69	15.4	2,080
Feb-17-2014	68	14.5	2,070
Feb-18-2014	67	13.7	2,020
Feb-19-2014	65	14.1	1,990
Feb-20-2014	58	13.4	2,030
Feb-21-2014	64	13.8	2,080
Feb-22-2014	58	14.9	2,110
Feb-23-2014	71	15.3	2,090
Feb-24-2014	64	15.8	2,120
Feb-25-2014	73	16.2	2,110
Feb-26-2014	64	15.6	2,020
Feb-27-2014	75	15.5	2,100
Feb-28-2014	85	14.7	2,020

Notes:
See Table 25 for explanation of footnotes and agency abbreviations.
Preliminary Data

Table 6a. Water monitoring in Salt Slough at Highway 165
Station F

PARAMETER	Flow	Temperature	Specific Conductance
DATA SOURCE	USGS	USGS	USGS
UNITS	cfs	°C	µS/cm
Mar-01-2014	107	14.6	1,910
Mar-02-2014	112	14.4	1,900
Mar-03-2014	84	14.5	2,140
Mar-04-2014	82	16.3	2,230
Mar-05-2014	80	17.4	2,260
Mar-06-2014	71	18.1	2,210
Mar-07-2014	79	16.6	2,120
Mar-08-2014	66	17.0	2,140
Mar-09-2014	66	17.8	2,200
Mar-10-2014	71	17.6	2,120
Mar-11-2014	63	15.5	2,130
Mar-12-2014	66	16.2	2,160
Mar-13-2014	68	16.4	2,180
Mar-14-2014	71	16.6	2,140
Mar-15-2014	75	17.4	2,160
Mar-16-2014	59	18.6	2,280
Mar-17-2014	74	18.2	2,190
Mar-18-2014	68	16.2	2,120
Mar-19-2014	66	16.9	2,180
Mar-20-2014	57	18.3	2,220
Mar-21-2014	62	19.1	2,240
Mar-22-2014	66	18.5	2,360
Mar-23-2014	60	18.6	2,380
Mar-24-2014	63	19.0	2,310
Mar-25-2014	66	18.5	2,190
Mar-26-2014	69	17.2	2,180
Mar-27-2014	69	16.3	2,270
Mar-28-2014	81	17.9	2,240
Mar-29-2014	88	17.9	2,060
Mar-30-2014	99	17.3	1,990
Mar-31-2014	112	16.6	1,950

Notes:
See Table 25 for explanation of footnotes and agency abbreviations.
Preliminary Data

Table 6b. Monthly Averages

PARAMETER	Average Flow (G)	Temperature	Specific Conductance
DATA SOURCE	USGS	USGS	USGS
UNITS	cfs	°C	µS/cm
January	72	17	1,760
February	69	14	1,960
March	75	17	2,170

Table 6c. Water quality monitoring in Salt Slough at Highway 165 (Station F)

	Physicals					Total Selenium	Total Boron	Total Molybdenum
PARAMETER	Dissolved Oxygen	pH	Specific Conductance	Temperature	Turbidity			
DATA SOURCE	USBR	USBR	USBR	USBR	USBR	USBR	USBR	USBR
UNITS	mg/L	units	µS/cm	°C	NTU	ug/L	mg/L	ug/L
Jan-03-2014	11.4	7.1	1,660	7.9	22.1	<0.4		
Jan-09-2014	10.8	6.9	1,690	10.4	25.0	<0.4	1.0	
Jan-14-2014	14.4	6.6	1,710	7.6	17.2	<0.4		
Jan-23-2014	12.8	7.3	1,770	8.9	21.8	<0.4		
Feb-07-2014	8.4	7.3	1,940	10.5	23.3	<0.4		10
Feb-14-2014	8.7	8.0	2,140	15.1	41.4	<0.4		13
Feb-21-2014	9.8	7.7	1,380	12.2	35.7	<0.4		13
Feb-27-2014	9.9	7.7	2,070	15.3	47.5	<0.4		12
Mar-06-2014	8.5	7.6	2,160	18.5	68.9	<0.4	0.9	
Mar-14-2014	9.3	7.6	2,150	16.5	72.2	<0.4	1.2	10
Mar-21-2014	10.1	6.8	2,180	16.6		<0.4	1.1	
Mar-26-2014	10.2	7.6	2,170	19.2		<0.4	1.0	

Notes:

	Nutrients				
	Nitrates as N (dissolved)	Ammonia as N	Total Kjeldahl Nitrogen	Total phosphorous	Ortho-phosphate as P
	USBR	USBR	USBR	USBR	USBR
	mg/L	mg/L	mg/L	mg/L	mg/L
Jan-09-2014	<10	0.3	0.8	0.095 L,V	0.050 T
Feb-27-2014	1.3 T	0.3 L	1.0	0.320 T	<0.010
Mar-26-2014	0.8	0.1	1.0	0.290 T	0.057

Notes:

Results of the Interim Monitoring Program Oct 2013 - Feb 2014

	General Minerals						
	Calcium	Magnesium	Potassium	Sodium	Chloride (dissolved)	Sulfate (dissolved)	Total Organic Carbon
	USBR	USBR	USBR	USBR	USBR	USBR	USBR
	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Jan-09-2014	68	40	4.2	220	290	230	NA
Feb-27-2014	85	53	4.6	310	360	280	5.4

Notes:

	Total Metals							
	Arsenic	Cadmium	Copper	Lead	Mercury	Molybdenum	Nickel	Zinc
	USBR	USBR	USBR	USBR	USBR	USBR	USBR	USBR
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Jan-09-2014	<5.0	<1.0	18	<2.5	110	9.4	<10	5.3
Feb-27-2014	<5.0	<1.0	<50	<2.5	<100	12.0	11	<10

Notes:

Table 7a. Water quality monitoring in Grasslands Wetlands Water Supply Channels
Station J Camp 13 Ditch headworks

PARAMETER	Flow	Specific Conductance	Temperature	Total Selenium
DATA SOURCE	GWD	USBR	GWD	USBR
UNITS	cfs	µS/cm	°C	µg/L
Jan-06-2014	17	504	8.4	0.8
Jan-13-2014	14	467	9.1	1.0
Jan-21-2014	39	510	9.6	1.0
Jan-27-2014	23	434	10.5	1.0
Feb-03-2014	32	533	10.4	1.0
Feb-10-2014	32	790	12.8	1.4
Feb-18-2014	34	1,010	14.3	1.2
Feb-24-2014	24	1,140	15.3	1.0
Mar-06-2014	<20			
Mar-14-2014	<20			
Mar-21-2014	<20			
Mar-26-2014	<20			

Notes:
Samples only collected when flow is passing site. Flow of less than 20 cfs does not reach Site C.
March: Flow <20 cfs (no sample collected)

Table 7b. Water quality monitoring in Grasslands Wetlands Water Supply Channels
Station K2 Agatha Canal headworks

PARAMETER	Flow	Specific Conductance	Temperature	Total Selenium
DATA SOURCE	GWD	USBR	GWD	USBR
UNITS	cfs	µS/cm	°C	µg/L
Jan-06-2014	53	496	8.3	0.8
Jan-13-2014	42	467	9.0	0.9
Jan-21-2014	41	514	9.6	0.9
Jan-27-2014	40	463	10.5	1.0
Feb-03-2014	<20			
Feb-10-2014	<20			
Feb-18-2014	<20			
Feb-24-2014	<20			
Mar-06-2014	<20			
Mar-14-2014	<20			
Mar-21-2014	<20			
Mar-26-2014	<20			

Notes:
Samples only collected when flow is passing site. Flow of less than 20 cfs does not reach Site C.
February and March: Flow <20 cfs (no sample collected)

Table 8a. Water monitoring in the San Joaquin River above Merced River Station H2

PARAMETER	Flow	Temperature	Specific Conductance
DATA SOURCE	USGS	USGS	USGS
UNITS	cfs	°C	µS/cm
Jan-01-2014	210	8.6	2,420
Jan-02-2014	211	8.9	2,390
Jan-03-2014	206	9.2	2,370
Jan-04-2014	201	9.2	2,390
Jan-05-2014	202	9.2	2,360
Jan-06-2014	202	9.1	2,370
Jan-07-2014	194	9.7	2,530
Jan-08-2014	194	9.8	2,480
Jan-09-2014	191	10.8	2,470
Jan-10-2014	188	10.8	2,530
Jan-11-2014	193	10.5	2,450
Jan-12-2014	190	9.9	2,530
Jan-13-2014	191	9.6	2,480
Jan-14-2014	195	9.7	2,480
Jan-15-2014	193	9.9	2,580
Jan-16-2014	191	10.0	2,590
Jan-17-2014	180	10.1	2,760
Jan-18-2014	176	10.1	2,700
Jan-19-2014	173	10.1	2,890
Jan-20-2014	175	10.1	2,940
Jan-21-2014	178	9.9	2,700
Jan-22-2014	179	10.0	2,580
Jan-23-2014	182	10.1	2,600
Jan-24-2014	186	10.8	2,670
Jan-25-2014	186	11.6	2,830
Jan-26-2014	189	11.3	2,950
Jan-27-2014	190	11.0	3,120
Jan-28-2014	189	12.8	3,070
Jan-29-2014	191	14.4	2,920
Jan-30-2014	197	15.0	2,580
Jan-31-2014	217	13.8	2,360

Notes:
See Table 25 for explanation of footnotes and agency abbreviations.
Preliminary Data

Table 8a. Water monitoring in the San Joaquin River above Merced River Station H2

PARAMETER	Flow	Temperature	Specific Conductance
DATA SOURCE	USGS	USGS	USGS
UNITS	cfs	°C	µS/cm
Feb-01-2014	220	11.8	2,350
Feb-02-2014	223	10.4	2,420
Feb-03-2014	222	10.2	2,420
Feb-04-2014	214	11.0	2,680
Feb-05-2014	213	11.1	2,670
Feb-06-2014	211	11.7	2,700
Feb-07-2014	221	11.5	2,680
Feb-08-2014	238	12.1	2,480
Feb-09-2014	257	13.0	2,390
Feb-10-2014	266	14.3	2,470
Feb-11-2014	269	14.6	2,490
Feb-12-2014	254	15.1	2,430
Feb-13-2014	239	15.5	2,500
Feb-14-2014	225	16.0	2,610
Feb-15-2014	218	15.3	2,640
Feb-16-2014	215	15.2	2,690
Feb-17-2014	205	14.5	2,680
Feb-18-2014	201	13.9	2,710
Feb-19-2014	205	14.0	2,690
Feb-20-2014	209	13.5	2,790
Feb-21-2014	201	13.7	2,840
Feb-22-2014	198	14.5	2,680
Feb-23-2014	192	15.0	2,590
Feb-24-2014	195	15.6	2,450
Feb-25-2014	178	16.1	2,670
Feb-26-2014	182	15.6	2,550
Feb-27-2014	199	15.4	2,500
Feb-28-2014	231	14.8	2,490

Notes:
See Table 25 for explanation of footnotes and agency abbreviations.
Preliminary Data

Table 8a. Water monitoring in the San Joaquin River above Merced River Station H2

PARAMETER	Flow	Temperature	Specific Conductance
DATA SOURCE	USGS	USGS	USGS
UNITS	cfs	°C	µS/cm
Mar-01-2014	257	14.4	2,550
Mar-02-2014	270	14.7	2,680
Mar-03-2014	268	14.3	2,620
Mar-04-2014	251		
Mar-05-2014	243	16.5	2,700
Mar-06-2014	240	17.5	2,810
Mar-07-2014	229	16.7	2,860
Mar-08-2014	226	17.3	2,740
Mar-09-2014	221	17.2	2,750
Mar-10-2014	216	17.6	2,770
Mar-11-2014	214	16.1	2,770
Mar-12-2014	211	15.7	2,710
Mar-13-2014	215	16.6	2,560
Mar-14-2014	229	16.5	2,360
Mar-15-2014	235	17.7	2,380
Mar-16-2014	231	18.6	2,440
Mar-17-2014	219	18.3	2,600
Mar-18-2014	219	16.5	2,580
Mar-19-2014	206	16.9	2,500
Mar-20-2014	189	17.4	2,550
Mar-21-2014	185	18.6	2,730
Mar-22-2014	180	18.8	2,730
Mar-23-2014	173	18.8	2,850
Mar-24-2014	168	19.4	
Mar-25-2014	162	18.8	3,000
Mar-26-2014	164	17.8	2,910
Mar-27-2014	163	16.9	2,760
Mar-28-2014	180	16.6	2,760
Mar-29-2014	191	17.9	2,730
Mar-30-2014	206		
Mar-31-2014	215	16.5	2,760

Notes:
See Table 25 for explanation of footnotes and agency abbreviations.
Preliminary Data

Table 8b. Monthly Averages

PARAMETER	Average Flow (H2)	Temperature	Specific Conductance
DATA SOURCE	USGS	USGS	USGS
UNITS	cfs	°C	µS/cm
January	209	13	2,600
February	218	14	2,580
March	212	17	2,680

Table 9. Water quality monitoring in the San Joaquin River above Merced River at China Island Refuge Station R

	Physicals					Total Selenium	Total Boron	Total Molybdenum
PARAMETER	Dissolved Oxygen	pH	Specific Conductance	Temperature	Turbidity			
DATA SOURCE	USBR	USBR	USBR	USBR	USBR	USBR	USBR	USBR
UNITS	mg/L	units	µS/cm	°C	NTU	ug/L	mg/L	ug/L
Jan-03-2014	12.2	8.0	2,340	8.3	17.0	0.9	1.8	
Jan-09-2014	14.0	7.9	2,510	9.8	17.7	0.8		
Jan-14-2014	16.0	7.9	2,500	8.5	15.5	0.9		
Jan-23-2014	13.0	8.0	2,870	8.7	19.9	1.4		
Feb-07-2014	8.4	7.6	3,030	10.7	34.5	2.1 U		13
Feb-14-2014	8.6	7.7	2,950	14.3	50.9	2.8 U		14
Feb-21-2014	9.5	7.9	3,250	13.2	26.8	4.0 U		15
Mar-21-2014	10.9	8.1	3,070	17.6		0.8	2.3	
Mar-26-2014	11.9	8.2	3,060	19.3		0.6	2.2	

Notes: No nutrients, general minerals or total minerals collected at Site R in February due to unsafe site conditions

	Nutrients				
	Nitrates as N (Dissolved)	Total ammonia	Total Kjeldahl Nitrogen	Total phosphorous	Ortho-phosphate as P
	USBR	USBR	USBR	USBR	USBR
	mg/L	mg/L	mg/L	mg/L	mg/L
Jan-09-2014	0.16	0.098	0.85	0.16V	0.054 T
Feb-27-2014					
Mar-26-2014	0.05	0.110	2.00	0.53 T	0.150

Notes: No nutrients, general minerals or total minerals collected at Site R in February due to unsafe site conditions

Results of the Interim Monitoring Program Oct 2013 - Feb 2014

	General Minerals							
	Calcium	Magnesium	Potassium	Sodium	Chloride (Dissolved)	Sulfate (Dissolved)	Total Organic Carbon	Total Dissolved Solids
	USBR	USBR	USBR	USBR	USBR	USBR	USBR	USBR
	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	Units	mg/L
Jan-09-2014	91	59	5.1	310	430	430	NA	NA
Feb-27-2014								

Notes: No nutrients, general ginerals or total minerals collected at Site R in February due to unsafe site conditions

	Total Metals								
	Arsenic	Boron	Cadmium	Copper	Lead	Mercury	Molybdenum	Nickel	Zinc
	USBR	USBR	USBR	USBR	USBR	USBR	USBR	USBR	USBR
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Jan-09-2014	<5.0	1,800	<1.0	23	<2.5	<100	12	<10	<5.0
Feb-27-2014									

Notes: No nutrients, general minerals or total minerals collected at Site R in February due to unsafe site conditions

Table 10a. Water monitoring in the San Joaquin River at Fremont Ford (Station G)

PARAMETER	Flow	Temperature	Specific Conductance
DATA SOURCE	USGS	USGS	USGS
UNITS	cfs	°C	µS/cm
Jan-01-2014	112	8.3	1,870
Jan-02-2014	118	8.6	1,860
Jan-03-2014	120	8.8	1,820
Jan-04-2014	119	8.9	1,840
Jan-05-2014	117	8.8	1,860
Jan-06-2014	115	8.7	1,880
Jan-07-2014	110	9.5	1,990
Jan-08-2014	107	9.4	2,000
Jan-09-2014	111	10.1	1,960
Jan-10-2014	103	10.5	2,070
Jan-11-2014	105	10.2	1,980
Jan-12-2014	105	9.6	2,010
Jan-13-2014	109	9.2	1,930
Jan-14-2014	113	9.3	1,890
Jan-15-2014	107	9.5	1,980
Jan-16-2014	105	9.6	2,030
Jan-17-2014	100	9.8	2,060
Jan-18-2014	93	9.7	2,110
Jan-19-2014	85	9.7	2,210
Jan-20-2014	87	9.8	2,170
Jan-21-2014	98	9.6	1,980
Jan-22-2014	95	9.6	2,040
Jan-23-2014	99	9.9	1,990
Jan-24-2014	106	10.9	1,950
Jan-25-2014	103	11.2	1,950
Jan-26-2014	97	10.8	2,110
Jan-27-2014	101	10.8	2,030
Jan-28-2014	99	12.4	2,070
Jan-29-2014	107	14.2	1,980
Jan-30-2014	107	14.6	1,980
Jan-31-2014	114	13.4	1,920

Notes:
See Table 25 for explanation of footnotes and agency abbreviations.
Preliminary Data

Table 10a. Water monitoring in the San Joaquin River at Fremont Ford (Station G)

PARAMETER	Flow	Temperature	Specific Conductance
DATA SOURCE	USGS	USGS	USGS
UNITS	cfs	°C	µS/cm
Feb-01-2014	114	11.5	1,950
Feb-02-2014	105	10.1	2,060
Feb-03-2014	107	10.0	2,020
Feb-04-2014	103	10.5	2,060
Feb-05-2014	102	11.0	2,070
Feb-06-2014	93	11.6	2,270
Feb-07-2014	103	11.3	2,090
Feb-08-2014	114	12.0	1,940
Feb-09-2014	121	13.2	1,940
Feb-10-2014	121	14.3	2,030
Feb-11-2014	121	14.6	2,030
Feb-12-2014	113	15.0	2,090
Feb-13-2014	106	15.4	2,190
Feb-14-2014	106	16.0	2,230
Feb-15-2014	105	15.0	2,300
Feb-16-2014	110	15.3	2,190
Feb-17-2014	109	14.3	2,210
Feb-18-2014	114	13.6	2,140
Feb-19-2014	107	14.1	2,220
Feb-20-2014	107	13.4	2,220
Feb-21-2014	100	13.6	2,330
Feb-22-2014	105	14.4	2,280
Feb-23-2014	104	14.9	2,300
Feb-24-2014	108	15.4	2,190
Feb-25-2014	104	15.9	2,290
Feb-26-2014	111	15.6	2,230
Feb-27-2014	112	15.3	2,210
Feb-28-2014	125	14.7	2,150

Notes:
See Table 25 for explanation of footnotes and agency abbreviations.
Preliminary Data

Table 10a. Water monitoring in the San Joaquin River at Fremont Ford (Station G)

PARAMETER	Flow	Temperature	Specific Conductance
DATA SOURCE	USGS	USGS	USGS
UNITS	cfs	°C	µS/cm
Mar-01-2014	140	14.7	2,010
Mar-02-2014	155	14.6	1,890
Mar-03-2014	152	14.1	1,960
Mar-04-2014	144	15.8	2,100
Mar-05-2014	135	17.0	2,220
Mar-06-2014	132	17.9	2,250
Mar-07-2014	125	16.6	2,220
Mar-08-2014	121	16.9	2,150
Mar-09-2014	117	17.8	2,200
Mar-10-2014	114	17.8	2,300
Mar-11-2014	114	15.9	2,310
Mar-12-2014	112	16.1	2,300
Mar-13-2014	107	16.6	2,350
Mar-14-2014	112	16.5	2,200
Mar-15-2014	113	17.4	2,210
Mar-16-2014	109	18.4	2,260
Mar-17-2014	105	18.3	2,340
Mar-18-2014	106	16.3	2,250
Mar-19-2014	106	16.8	2,280
Mar-20-2014	91	18.3	2,490
Mar-21-2014	93	18.8	2,430
Mar-22-2014	85	18.7	2,430
Mar-23-2014	80	18.7	2,470
Mar-24-2014	79	18.9	2,490
Mar-25-2014	80	18.6	2,490
Mar-26-2014	85	17.8	2,330
Mar-27-2014	85	16.6	2,390
Mar-28-2014	93	17.6	2,330
Mar-29-2014	100	18.1	2,240
Mar-30-2014	121	17.4	2,110
Mar-31-2014	127	16.7	2,140

Notes:
See Table 25 for explanation of footnotes and agency abbreviations.
Preliminary Data

Table 10b. Monthly Averages

PARAMETER	Average Flow (G)	Temperature	Specific Conductance
DATA SOURCE	USGS	USGS	USGS
UNITS	cfs	°C	µS/cm
January	105	10	1,990
February	109	14	2,150
March	111	17	2,270

Table 11a. Water monitoring in the San Joaquin River at Crows Landing (Station N)

PARAMETER	Flow	Temperature	Specific Conductance	Total Selenium
DATA SOURCE	USGS	USGS	USGS	USBR
UNITS	cfs	°C	µS/cm	µg/L
Jan-01-2014	398	8.1	1,430	0.6
Jan-02-2014	405	8.4	1,450	0.6
Jan-03-2014	403	8.6	1,440	0.6
Jan-04-2014	395	8.7	1,450	0.6
Jan-05-2014	393	8.8	1,470	0.6
Jan-06-2014	389	8.7	1,460	0.5
Jan-07-2014	378	9.3	1,460	0.5
Jan-08-2014	365	9.4	1,480	0.4
Jan-09-2014	362	9.7	1,480	0.5
Jan-10-2014	366	10.1	1,520	0.6
Jan-11-2014	367	10.3	1,540	
Jan-12-2014	365	9.8	1,540	
Jan-13-2014	354	9.5	1,550	
Jan-14-2014	350	9.3	1,580	
Jan-15-2014	351	9.4	1,590	
Jan-16-2014	343	9.7	1,600	
Jan-17-2014	332	9.9	1,620	
Jan-18-2014	327	9.9	1,660	
Jan-19-2014	332	9.9	1,690	
Jan-20-2014	336	9.9	1,700	
Jan-21-2014	333	9.8	1,720	
Jan-22-2014	335	9.7	1,750	
Jan-23-2014	342	9.7	1,750	0.7
Jan-24-2014	346	10.4	1,740	0.7
Jan-25-2014	347	11.1	1,730	0.8
Jan-26-2014	350	11.2	1,740	0.8
Jan-27-2014	360	10.9	1,750	0.8
Jan-28-2014	353	11.8	1,770	1.0
Jan-29-2014	354	13.7	1,810	1.2
Jan-30-2014	369	14.6	1,840	1.3
Jan-31-2014	394	13.8	1,780	1.3

Notes:

Autosampler malfunction January 11-22 (no samples collected)

See Table 25 for explanation of footnotes and agency abbreviations.

Preliminary Data

Table 11a. Water monitoring in the San Joaquin River at Crows Landing (Station N)

PARAMETER	Flow	Temperature	Specific Conductance	Total Selenium
DATA SOURCE	USGS	USGS	USGS	USBR
UNITS	cfs	°C	µS/cm	µg/L
Feb-01-2014	406	11.9	1,600	1.0
Feb-02-2014	415	10.4	1,580	1.0
Feb-03-2014	422	9.9	1,550	1.0
Feb-04-2014	415	10.4		0.8
Feb-05-2014	403	10.7	1,530	0.7
Feb-06-2014	408	11.2	1,600	1.2
Feb-07-2014	414	10.9	1,650	1.1
Feb-08-2014	432	11.4	1,630	0.9
Feb-09-2014	455	12.5	1,660	1.1
Feb-10-2014	474	13.7	1,680	1.7
Feb-11-2014	482	14.0	1,700	1.8
Feb-12-2014	475	14.2	1,660	1.8
Feb-13-2014	459	14.6	1,660	1.6
Feb-14-2014	438	15.5	1,660	1.5
Feb-15-2014	426	15.1	1,710	1.4
Feb-16-2014	417	14.9	1,740	1.4
Feb-17-2014	400	14.5	1,800	1.3
Feb-18-2014	382	13.9	1,830	1.4
Feb-19-2014	377	14.0	1,940	1.5
Feb-20-2014	370	13.6	1,980	1.7
Feb-21-2014	366	13.4	2,060	2.3
Feb-22-2014	357	14.2	2,060	2.2
Feb-23-2014	349	14.7	1,960	1.6
Feb-24-2014	348	15.3	1,950	1.3
Feb-25-2014	341	15.8	1,880	1.1
Feb-26-2014	339	15.8	1,910	0.9
Feb-27-2014	357	15.3	1,840	0.8
Feb-28-2014	392	15.2	1,830	1.0

Notes:
See Table 25 for explanation of footnotes and agency abbreviations.
Preliminary Data

Table 11a. Water monitoring in the San Joaquin River at Crows Landing (Station N)

PARAMETER	Flow	Temperature	Specific Conductance	Total Selenium
DATA SOURCE	USGS	USGS	USGS	USBR
UNITS	cfs	°C	µS/cm	µg/L
Mar-01-2014	423	14.9	1,940	1.2
Mar-02-2014	451	15.1	2,030	1.8
Mar-03-2014	460	14.5	2,120	2.4
Mar-04-2014	454	15.5	2,100	3.0
Mar-05-2014	434	17.0	2,130	2.5
Mar-06-2014	429	18.1	2,170	
Mar-07-2014	417	17.0	2,230	
Mar-08-2014	408	16.9	2,250	
Mar-09-2014	403	17.7	2,150	
Mar-10-2014	399	18.0	2,130	
Mar-11-2014	389	16.1	2,140	
Mar-12-2014	382	16.2	2,120	
Mar-13-2014	382	16.7	2,140	
Mar-14-2014	390	16.8	2,160	
Mar-15-2014	401	17.5	2,180	
Mar-16-2014	400	18.4	2,210	
Mar-17-2014	380	18.5	2,220	
Mar-18-2014	361	16.5	2,260	
Mar-19-2014	349	16.9	2,270	
Mar-20-2014	324	18.2	2,320	
Mar-21-2014	304	18.9	2,540	
Mar-22-2014	298	18.7	2,540	0.7
Mar-23-2014	293	18.6	2,420	0.7
Mar-24-2014	286	19.1	2,300	0.6
Mar-25-2014	278	18.3	2,200	0.6
Mar-26-2014	267	17.8	2,210	0.5
Mar-27-2014	260	17.4	2,160	0.5
Mar-28-2014	272	18.0	2,160	0.5
Mar-29-2014	314	18.0	2,040	0.5
Mar-30-2014	351	17.5	1,910	0.5
Mar-31-2014	373	16.7	1,870	0.5

Notes:
Preliminary Data
March 6 -21 Autosampler Malfunction (no samples collected)
Preliminary Data

11b. Monthly Averages

PARAMETER	Average Flow (N)	Temperature	Specific Conductance	Selenium
DATA SOURCE	Calculated	Calculated	Calculated	Calculated
UNITS	cfs	°C	µS/cm	µg/L
January	361	10	1,620	0.7
February	404	13	1,760	1.3
March	412	17	2,180	1.1

Table 11c. Water quality monitoring in the San Joaquin River at Crows Landing (Station N)

	Physicals						
PARAMETER	Dissolved Oxygen	pH	Specific Conductance	Temperature	Turbidity	Selenium	Boron
DATA SOURCE	USBR	USBR	USBR	USBR	USBR	USBR	USBR
UNITS	mg/L	units	µS/cm	°C	NTU	µg/L	mg/L
Jan-03-2014	12.7	8.1	1,500	7.6	11.3	0.6	
Jan-09-2014	12.1	8.0	1,610	9.4	11.9	0.5	
Jan-14-2014	15.9	8.0	1,640	7.8	9.0	0.4	
Jan-23-2014	13.4	8.0	1,840	8.5	12.1	0.8	
Feb-07-2014	9.2	7.5	1,180	10.0	19.3	1.1	1.3
Feb-14-2014	9.1	8.0	1,730	14.0	27.8	1.5	1.3
Feb-21-2014	10.2	7.9	2,210	13.0	18.5	2.4 U	1.8
Feb-27-2014	10.0	7.9	1,900	15.3	21.3	1.0	1.1
Mar-06-2014	9.5	8.0	2,200	18.2	33.7	2.3 U	1.7
Mar-14-2014	10.5	8.1	2,160	16.2	33.0	0.9	1.5
Mar-21-2014	11.6	8.2	2,480	17.9		0.7	1.7

Notes:

PRELIMINARY RESULTS

Table 12. Summary of fathead minnow (Pimephales promelas) larvae survival in 7-day tests using water samples collected from March 2014 to March 2016. Each value is the mean of 4 replicates with 10 fish in each replicate.

See Table 25 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	%	%	%	%	%	%
Mar-2014	90	93	98	93	73[a]	95
Jun-2014						
Sep-2014						
Nov-2014						
Mar-2015						
Jun-2015						
Sep-2015						
Mar-2016						

Table 13. Summary of fathead minnow (Pimephales promelas) larvae growth in 7-day tests using water samples collected from March 2014 to March 2016. Each value is the mean of 4 replicates with 10 fish in each replicate.

See Table 25 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
Mar-2014	0.84	0.70	0.78	0.68	0.74	0.74
Jun-2014						
Sep-2014						
Nov-2014						
Mar-2015						
Jun-2015						
Sep-2015						
Mar-2016						

Table 14. Summary of Daphnia magna survival in 7-day tests using water samples collected from March 2014 to March 2016. Each value is the mean of 10 replicates with 1 animal in each replicate.

See Table 25 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	%	%	%	%	%	%
Mar-2014	100	90	100	100	100	100
Jun-2014						
Sep-2014						
Nov-2014						
Mar-2015						
Jun-2015						
Sep-2015						
Mar-2016						

Notes: Toxicity data not available through February 2014. Data are only available staring March 2014.

March 2014 to March 2016. Each value is the mean of 10 replicates with 1 animal in each replicate.

See Table 25 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
Mar-2014	67.4*	72.3	86.9	88.8	85.0	82.9
Jun-2014						
Sep-2014						
Nov-2014						
Mar-2015						
Jun-2015						
Sep-2015						
Mar-2016						

Table 16. Summary of *Selenastrum capricornutum* growth in 4-day tests using water samples collected from March 2014 to March 2016. Each value is the mean of 4 replicates.

See Table 25 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
Mar-2014	4.2*	7.2	7.9	7.7[a]	7.3	4.1
Jun-2014						
Sep-2014						
Nov-2014						
Mar-2015						
Jun-2015						
Sep-2015						
Mar-2016						

Notes: Toxicity data not available through February 2014. Data are only available staring March 2014.

PRELIMINARY RESULTS

Table 17. Summary of selenium concentrations in grab water samples collected at study stations for use in laboratory toxicity tests

See Table 25 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
17-Mar-14	18	< 0.8	1.3	0.5	< 0.4
19-Mar-14	18	< 0.8	1.5	0.5	< 0.4
21-Mar-14	18	< 0.8	1.7	0.4	< 0.4

Table 18. Summary of total suspended solids concentrations in grab water samples collected at study stations for use in laboratory toxicity tests

See Table 25 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
17-Mar-14	87 **	61	79	60	6.0
19-Mar-14	< 5.0 T,V **	69 T,V	62 T,V	62 T,V	5.8 T,V
21-Mar-14	46	64	59	58	6.0

Notes: Toxicity data not available through February 2014. Data are only available staring March 2014.

PRELIMINARY RESULTS

Table 19. Monthly Flow and Salinity of Water at San Luis Drain, Station B.

See Table 25 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow at Station B		Salinity at Station B		
	Mean daily	Total	FW EC	TDS	Salt load
UNITS	cfs	acre-feet	µS/cm	mg/L	tons
Oct-2012	11	660	3,422	2,532	2,270
Nov-2012	15	890	3,454	2,556	3,090
Dec-2012	21	1,280	4,061	3,005	5,230
Jan-2013	19	1,150	4,575	3,386	5,300
Feb-2013	19	1,060	4,719	3,492	5,030
Mar-2013	16	970	4,846	3,586	4,730
Apr-2013	14	810	5,985	4,429	4,880
May-2013	12	710	5,964	4,413	4,260
Jun-2013	9	560	6,445	4,769	3,630
Jul-2013	13	790	6,614	4,895	5,260
Aug-2013	13	810	7,500	5,550	6,110
Sep-2013	10	580	8,772	6,491	5,120
Oct-2013	13	780	6,335	4,688	4,970
Nov-2013	12	740	5,078	3,758	3,780
Dec-2013	12	750	5,501	4,071	4,150
Jan-2014	16	970	5,442	4,030	5,320
Feb-2014	23	1,270	6,105	4,520	7,810
Mar-2014	15	900	5,978	4,420	5,410

Note: EC to TDS conversion = 0.74

Water Year Averages and Totals

PARAMETER	Mean daily flow	Total flow	FW EC	TDS	Salt load
UNITS	cfs	acre-feet	µS/cm	mg/L	tons
WY 1997	52	37,560	4,257	3,150	160,910
WY 1998	64	45,950	4,438	3,280	204,970
WY 1999	45	32,310	4,650	3,440	151,160
WY 2000	43	31,260	4,301	3,180	135,190
WY 2001	39	28,250	4,191	3,100	119,100
WY 2002	39	28,400	4,069	3,010	116,260
WY 2003	38	27,270	4,319	3,200	118,680
WY 2004	38	27,700	4,173	3,090	116,410
WY 2005	42	30,160	4,315	3,190	130,850
WY 2006	36	25,970	4,605	3,410	120,440
WY 2007	26	18,540	4,235	3,130	78,920
WY 2008	22	15,670	4,153	3,070	65,430
WY 2009	18	13,160	4,254	3,060	54,770
WY 2010	20	14,520	4,618	3,420	67,540
WY 2011	26	18,510	4,497	3,330	83,830
WY 2012	14	10,490	3,847	2,847	38,410
WY 2013	14	10,270	5,530	4,092	57,150
WY 2014 to date	15	5,410	5,740	4,248	31,250

Calendar Year Totals

PARAMETER	Mean daily flow	Total flow	FW EC	TDS	Salt load
UNITS	cfs	acre-feet	µS/cm	mg/L	tons
CY 1997	52	37,490	4,354	3,220	164,180
CY 1998	64	46,240	4,563	3,380	212,560
CY 1999	45	32,250	4,532	3,360	147,370
CY 2000	42	30,210	4,189	3,100	127,370
CY 2001	39	28,010	4,200	3,110	118,470
CY 2002	39	28,460	4,155	3,070	118,830
CY 2003	38	27,550	4,282	3,170	118,770
CY 2004	39	28,290	4,129	3,060	117,730
CY 2005	41	29,610	4,420	3,270	131,680
CY 2006	36	25,890	4,589	3,395	119,540
CY 2007	25	17,990	4,129	3,056	74,770
CY 2008	22	15,860	4,096	3,030	65,360
CY 2009	18	12,920	4,367	3,115	54,730
CY 2010	20	14,710	4,580	3,390	67,820
CY 2011	25	18,020	4,200	3,110	76,220
CY 2012	14	10,250	4,050	2,997	40,240
CY 2013	13	9,710	6,028	4,461	58,910
CY 2014 to date	18	3,140	5,842	4,323	18,460

Note: All totals and averages calculated from USGS preliminary data.

PRELIMINARY RESULTS

Table 20. Monthly Flow and Salinity of Water at Mud Slough, Station D.

See Table 25 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow at Station D		Salinity at Station D		
	Mean daily	Total	FW EC	TDS	Salt load
UNITS	cfs	acre-feet	µS/cm	mg/L	tons
Oct-2012	81	4,980	1,562	1,078	7,300
Nov-2012	106	6,290	1,841	1,270	10,870
Dec-2012	173	10,630	1,862	1,285	18,570
Jan-2013	127	7,790	2,350	1,621	17,180
Feb-2013	101	5,590	2,702	1,864	14,170
Mar-2013	147	9,050	2,518	1,738	21,390
Apr-2013	50	3,000	3,711	2,561	10,450
May-2013	44	2,680	2,856	1,970	7,180
Jun-2013	38	2,260	2,558	1,765	5,420
Jul-2013	32	1,850	3,348	2,310	5,810
Aug-2013	16	950	5,659	3,905	5,040
Sep-2013	25	1,500	3,513	2,424	4,940
Oct-2013	88	5,410	1,927	1,330	9,780
Nov-2013	89	5,290	2,118	1,461	10,510
Dec-2013	79	4,870	2,491	1,719	11,380
Jan-2014	55	3,360	3,145	2,170	9,920
Feb-2014	76	4,250	3,615	2,490	14,390
Mar-2014	88	5,400	3,248	2,240	16,450

Note: EC to TDS conversion = 0.69

Water Year Averages and Totals

PARAMETER	Mean daily flow	Total flow	FW EC	TDS	Salt load
UNITS	cfs	acre-feet	µS/cm	mg/L	tons
WY 1997	181	130,930	2,390	1,650	293,810
WY 1998	257	182,580	2,600	1,790	444,470
WY 1999	141	101,360	2,582	1,780	245,370
WY 2000	131	94,440	2,496	1,720	220,910
WY 2001	129	92,870	2,737	1,890	238,710
WY 2002	104	75,280	2,809	1,940	198,620
WY 2003	122	88,200	2,688	1,860	223,110
WY 2004	120	87,190	2,704	1,870	221,740
WY 2005	154	110,600	2,535	1,750	263,230
WY 2006	160	116,100	2,273	1,570	247,900
WY 2007	100	72,130	2,541	1,750	171,670
WY 2008	85	61,630	2,767	1,910	160,090
WY 2009	71	51,240	2,640	1,820	126,830
WY 2010	90	64,840	2,726	1,880	165,780
WY 2011	135	97,580	2,338	1,610	213,660
WY2012	84	60,920	2,447	1,689	126,850
WY 2013	78	56,570	2,873	1,983	152,530
WY 2014 to date	79	28,580	2,757	1,902	73,940

Calendar Year Totals

PARAMETER	Mean daily flow	Total flow	FW EC	TDS	Salt load
UNITS	cfs	acre-feet	µS/cm	mg/L	tons
CY 1997	174	125,450	2,471	1,700	290,040
CY 1998	258	183,320	2,559	1,770	441,290
CY 1999	137	98,740	2,588	1,790	240,370
CY 2000	133	96,070	2,467	1,700	222,110
CY 2001	123	88,890	2,768	1,910	230,900
CY 2002	111	80,260	2,827	1,950	212,850
CY 2003	119	85,750	2,621	1,810	211,080
CY 2004	121	87,960	2,738	1,890	226,090
CY 2005	160	115,030	2,513	1,730	270,640
CY 2006	160	115,820	2,241	1,546	243,490
CY 2007	86	61,940	2,611	1,801	151,730
CY 2008	80	58,150	1,999	1,380	109,140
CY 2009	75	54,260	2,760	1,775	130,990
CY 2010	90	64,740	2,665	1,840	162,010
CY 2011	139	100,510	2,291	1,580	215,980
CY 2012	80	57,980	1,251	863	68,040
CY 2013	70	50,240	2,980	2,056	140,500
CY 2014 to date	73	13,010	3,336	2,302	40,720

Note: All totals and averages calculated from USGS preliminary data.

PRELIMINARY RESULTS

Table 21. Monthly Flow and Salinity of Water at Salt Slough, Station F.

See Table 25 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow at Station F		Salinity at Station F		
	Mean daily	Total	FW EC	TDS	Salt load
UNITS	cfs	acre-feet	µS/cm	mg/L	tons
Oct-2012	100	6,150	1,275	867	7,250
Nov-2012	134	7,970	1,328	903	9,790
Dec-2012	174	10,700	1,037	705	10,260
Jan-2013	128	7,850	1,577	1,072	11,450
Feb-2013	166	9,230	1,416	963	12,090
Mar-2013	212	13,050	1,555	1,057	18,770
Apr-2013	157	9,330	1,483	1,008	12,790
May-2013	150	9,220	1,190	809	10,140
Jun-2013	133	7,900	1,209	822	8,840
Jul-2013	112	6,870	984	669	6,250
Aug-2013	103	6,320	1,059	720	6,190
Sep-2013	72	4,290	1,169	795	4,640
Oct-2013	87	5,320	1,323	900	6,510
Nov-2013	112	6,680	1,340	911	8,280
Dec-2013	109	6,250	1,530	1,040	8,840
Jan-2014	74	4,540	1,746	1,187	7,330
Feb-2014	69	3,810	1,957	1,331	6,900
Mar-2014	75	4,600	2,149	1,461	9,140

Note: EC to TDS conversion = 0.68

Water Year Averages and Totals

PARAMETER	Mean daily flow	Total flow	FW EC	TDS	Salt load
UNITS	cfs	acre-feet	µS/cm	mg/L	tons
WY 1997	216	156,080	1,294	880	186,800
WY 1998	273	196,090	1,387	940	250,680
WY 1999	210	151,770	1,192	810	167,190
WY 2000	195	141,050	1,314	890	170,730
WY 2001	185	133,880	1,340	910	165,690
WY 2002	145	104,880	1,445	980	139,780
WY 2003	177	127,940	1,334	910	158,340
WY 2004	170	123,330	1,296	880	147,600
WY 2005	215	155,280	1,267	860	181,620
WY 2006	234	168,800	1,189	810	185,950
WY 2007	154	111,370	1,272	870	131,770
WY 2008	125	90,930	1,099	750	92,750
WY 2009	94	67,440	1,441	980	89,880
WY 2010	146	105,310	1,365	930	133,200
WY 2011	197	142,210	1,149	780	150,860
WY 2012	137	99,070	1,327	902	119,120
WY 2013	137	98,880	1,300	884	118,850
WY 2014 to date	88	31,200	1,674	1,138	48,310

Calendar Year Totals

PARAMETER	Mean daily flow	Total flow	FW EC	TDS	Salt load
UNITS	cfs	acre-feet	µS/cm	mg/L	tons
CY 1997	205	147,940	1,355	920	185,100
CY 1998	281	201,370	1,292	880	241,000
CY 1999	204	147,380	1,255	850	170,370
CY 2000	194	140,370	1,284	870	166,090
CY 2001	181	131,100	1,399	950	169,380
CY 2002	161	116,600	1,403	950	150,650
CY 2003	163	117,730	1,342	910	145,700
CY 2004	170	123,500	1,285	870	146,130
CY 2005	224	161,730	1,261	860	189,160
CY 2006	232	167,460	1,163	793	180,680
CY 2007	142	102,810	1,336	909	127,130
CY 2008	120	86,890	1,046	710	83,900
CY 2009	100	72,120	1,468	893	87,580
CY 2010	150	108,300	1,362	930	136,980
CY 2011	205	148,080	1,094	740	149,030
CY 2012	135	97,540	1,313	893	120,080
CY 2013	127	90,530	1,322	899	110,640
CY 2014 to date	72	12,950	1,951	1,327	23,360

Note: All totals and averages calculated from USGS preliminary data.

PRELIMINARY RESULTS

Table 22. Monthly Flow and Salinity of Water at San Joaquin River at Fremont Ford, Station G.

See Table 25 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow at Station N		Salinity at Station N		
	Mean daily	Total	FW EC	TDS	Salt load
UNITS	cfs	acre-feet	µS/cm	mg/L	tons
Oct-2012	115	7,090	1,443	981	9,460
Nov-2012	163	9,720	1,404	955	12,620
Dec-2012	407	25,010	889	605	20,560
Jan-2013	315	19,340	1,170	795	20,920
Feb-2013	220	12,200	1,700	1,156	19,180
Mar-2013	271	16,680	1,709	1,162	26,360
Apr-2013	198	11,770	1,735	1,180	18,880
May-2013	173	10,670	1,362	926	13,440
Jun-2013	157	9,360	1,373	934	11,890
Jul-2013	125	7,680	1,188	808	8,440
Aug-2013	115	7,070	1,180	802	7,720
Sep-2013	88	5,240	1,374	934	6,660
Oct-2013	92	5,660	1,502	1,021	7,860
Nov-2013	131	7,800	1,473	1,002	10,630
Dec-2013	130	7,960	1,640	1,115	12,070
Jan-2014	106	6,510	1,976	1,340	11,860
Feb-2014	109	6,050	2,147	1,460	12,010
Mar-2014	128	7,860	2,242	1,520	16,250

Note: EC to TDS conversion = 0.68

Water Year Averages and Totals

PARAMETER	Mean daily flow	Total flow	FW EC	TDS	Salt load
UNITS	cfs	acre-feet	µS/cm	mg/L	tons
WY 1997	NA	NA	1,387	940	NA
WY 1998	NA	NA	1,281	870	NA
WY 1999	NA	NA	1,433	980	NA
WY 2000	NA	NA	1,525	1,040	NA
WY 2001	NA	NA	1,761	1,200	NA
WY 2002	NA	NA	1,546	970	NA
WY 2003	215	156,100	1,542	1,010	214,420
WY 2004	223	161,760	1,554	1,020	224,390
WY 2005	889	642,060	1,034	610	532,650
WY 2006	2,670	1,931,210	863	530	1,392,020
WY 2007	217	156,740	1,382	890	189,720
WY 2008	206	148,330	1,611	1,100	221,900
WY 2009	129	92,850	1,727	1,170	147,740
WY 2010	395	286,220	1,003	680	264,700
WY 2011	2,449	1,775,650	501	340	821,060
WY 2012	196	141,950	1,449	986	183,740
WY 2013	193	139,580	1,383	940	178,510
WY 2014 to date	116	41,840	1,830	1,244	70,810

Calendar Year Totals

PARAMETER	Mean daily flow	Total flow	FW EC	TDS	Salt load
UNITS	cfs	acre-feet	µS/cm	mg/L	tons
CY 1997	NA	NA	1,466	1,000	NA
CY 1998	NA	NA	1,221	830	NA
CY 1999	NA	NA	1,463	1,000	NA
CY 2000	NA	NA	1,517	1,030	NA
CY 2001	NA	NA	1,857	1,230	NA
CY 2002	225	163,110	1,531	980	217,390
CY 2003	194	140,470	1,572	1,040	198,680
CY 2004	238	172,020	1,513	980	229,270
CY 2005	897	647,690	992	590	519,710
CY 2006	2,671	1,931,950	838	518	1,361,900
CY 2007	193	139,080	1,523	993	187,760
CY 2008	197	141,790	1,649	1,120	215,970
CY 2009	142	102,020	1,651	986	136,870
CY 2010	409	296,060	942	640	257,690
CY 2011	2,464	1,786,170	463	320	777,340
CY 2012	188	136,280	1,459	992	180,150
CY 2013	150	108,560	1,519	1,033	152,480
CY 2014 to date	114	20,420	2,121	1,443	40,060

Note: All totals and averages calculated from USGS preliminary data.

PRELIMINARY RESULTS

Table 32. Monthly Flow and Salinity of Water at San Joaquin River at Crow's Landing, Station N.

See Table 25 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow at Station N		Salinity at Station N		
	Mean daily	Total	FW EC	TDS	Salt load
UNITS	cfs	acre-feet	µS/cm	mg/L	tons
Oct-2012	530	32,700	798	495	22,000
Nov-2012	580	34,330	931	577	26,950
Dec-2012	990	61,100	866	537	44,620
Jan-2013	880	54,290	1,130	701	51,740
Feb-2013	610	34,080	1,490	924	42,830
Mar-2013	680	41,820	1,594	988	56,220
Apr-2013	570	34,020	1,333	827	38,250
May-2013	450	27,370	1,191	739	27,490
Jun-2013	350	20,690	1,376	853	24,010
Jul-2013	260	16,240	1,507	935	20,640
Aug-2013	260	15,890	1,427	884	19,110
Sep-2013	510	30,560	755	468	19,450
Oct-2013	490	30,090	939	582	23,820
Nov-2013	480	28,350	1,076	667	25,720
Dec-2013	450	27,930	1,726	1,070	40,650
Jan-2014	360	22,200	1,611	999	30,160
Feb-2014	400	22,450	1,761	1,092	33,330
Mar-2014	370	22,480	2,103	1,304	39,870

Note: EC to TDS conversion = 0.62

Water Year Averages and Totals

PARAMETER	Mean daily flow	Total flow	FW EC	TDS	Salt load
UNITS	cfs	acre-feet	µS/cm	mg/L	tons
WY 1997	5,407	3,844,610	820	510	2,666,620
WY 1998	6,869	4,904,910	601	370	2,468,150
WY 1999	1,412	1,015,480	902	560	773,390
WY 2000	1,423	1,027,440	976	610	852,360
WY 2001	903	653,430	1,162	720	639,840
WY 2002	738	533,960	1,202	750	544,640
WY 2003	753	546,130	1,244	770	571,910
WY 2004	764	554,550	1,226	760	573,180
WY 2005	2,381	1,721,000	722	450	1,053,250
WY 2006	4,748	3,437,650	569	350	1,636,320
WY 2007	838	607,180	1,103	680	561,520
WY 2008	802	580,500	1,059	660	521,060
WY 2009	468	336,670	1,273	790	361,720
WY 2010	981	709,070	939	580	559,310
WY 2011	4,428	3,192,490	463	290	1,259,120
WY 2012	703	511,530	1,171	726	455,870
WY 2013	552	399,340	1,205	747	405,780
WY 2014 to date	425	153,500	1,536	952	198,810

Calendar Year Totals

PARAMETER	Mean daily flow	Total flow	FW EC	TDS	Salt load
UNITS	cfs	acre-feet	µS/cm	mg/L	tons
CY 1997	5,063	3,590,680	975	600	2,929,990
CY 1998	7,086	5,064,330	453	280	1,928,500
CY 1999	1,207	864,600	1,017	630	740,790
CY 2000	1,466	1,059,180	905	560	806,670
CY 2001	882	638,210	1,174	730	633,610
CY 2002	723	523,240	1,235	770	547,940
CY 2003	718	521,480	1,258	780	553,190
CY 2004	790	573,270	1,213	750	584,740
CY 2005	2,428	1,755,440	697	430	1,026,580
CY 2006	4,798	3,473,920	567	352	1,661,630
CY 2007	740	535,270	1,099	682	496,160
CY 2008	753	545,170	1,088	670	496,760
CY 2009	490	353,040	1,270	660	316,760
CY 2010	1,017	735,030	919	570	569,800
CY 2011	4,519	3,259,660	421	260	1,152,620
CY 2012	593	431,300	1,179	731	424,470
CY 2013	493	355,620	1,266	785	379,660
CY 2014 to date	377	67,130	1,825	1,131	103,300

Note: All totals and averages calculated from USGS preliminary data.

PRELIMINARY RESULTS

Table 24. Summary of sediment monitoring results from June 2011 to March 2014. Concentrations in µg/g dry weight.

See Table 25 for explanation of footnotes and agency abbreviations.

Station Code	PARAMETER	Selenium			Organic Carbon			Percent Moisture		
Station Name	DEPTH	0-3 cm	3-8 cm	Whole Core	0-3 cm	3-8 cm	Whole Core	0-3 cm	3-8 cm	Whole Core
	SOURCE	USBR	USBR	USBR	USBR	USBR	USBR	USBR	USBR	USBR
	UNITS	µg/g (dry)	µg/g (dry)	µg/g (dry)	%	%	%	%	%	%
Station C:	Jun-01-2011	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mud Slough North	Sep-01-2011	NA	NA	NA	NA	NA	NA	NA	NA	NA
upstream of	Nov-08-2011	NA	NA	<0.13	NA	NA	0.38	NA	NA	27.5
drainage discharges	Mar-28-2012	NA	NA	<0.15	NA	NA	0.26	NA	NA	29.1
	Jun-06-2012	NA	NA	<0.15	NA	NA	0.13	NA	NA	34.9
	Sep-01-2012	NA	NA	<0.15	NA	NA	<0.70	NA	NA	29.2
	Nov-01-2012	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Mar-01-2013	NA	NA	<0.14	NA	NA	0.23	NA	NA	24.0
	Jun-01-2013	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Sep-25-2013	NA	NA	P	NA	NA	0.37	NA	NA	27.6 T
	Dec-01-2013	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Mar-13-2014	NA	NA	<0.71	NA	NA	0.41	NA	NA	35.0
Station D:	Dec-07-2010	0.28	0.30	0.32	0.06	0.11	0.08	19.10	18.90	26.9
Mud Slough North	Mar-08-2011	0.30	0.23	0.23	0.01	0.02	0.05	26.40	23.90	20.0
downstream of	Jun-01-2011	NA	NA	NA	NA	NA	NA	NA	NA	NA
drainage discharges	Sep-01-2011	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nov-08-2011	NA	NA	0.30	NA	NA	0.07	NA	NA	27.0
	Sep-01-2012	NA	NA	0.42	NA	NA	<0.68	NA	NA	25.9
	Nov-01-2012	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Mar-01-2013	NA	NA	<0.14	NA	NA	0.12	NA	NA	24.2
	Jun-01-2013	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Sep-25-2013	NA	NA	P	NA	NA	0.21	NA	NA	27.3T
	Dec-01-2013	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Mar-13-2014	NA	NA	< 0.67	NA	NA	0.23	N	N	25.7 T
Station E:	Jun-01-2011	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mud Slough at Highway 140	Sep-01-2011	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nov-08-2011	NA	NA	0.30	NA	NA	0.55	NA	NA	28.6
	Mar-28-2012	NA	NA	0.24	NA	NA	0.06	NA	NA	21.8
	Jun-06-2012	NA	NA	0.44	NA	NA	0.60	NA	NA	26.0
	Sep-01-2012	NA	NA	0.83	NA	NA	<0.71	NA	NA	32.9
	Nov-01-2012	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Mar-01-2013	NA	NA	1.10	NA	NA	0.51	NA	NA	31.3
	Jun-01-2013	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Sep-25-2013	NA	NA	P	NA	NA	0.12	NA	NA	27.6T
	Dec-01-2013	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Mar-13-2014	NA	NA	<0.66	NA	NA	0.50	NA	NA	26.7 T
Station F:	Jun-01-2011	NA	NA	NA	NA	NA	NA	NA	NA	NA
Salt Slough at Highway 165	Sep-01-2011	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nov-08-2011	NA	NA	<0.14	NA	NA	0.10	NA	NA	28.6
	Mar-28-2012	NA	NA	<0.15	NA	NA	0.06	NA	NA	33.2
	Jun-06-2012	NA	NA	0.26	NA	NA	0.78	NA	NA	36.7
	Sep-01-2012	NA	NA	0.29	NA	NA	1.20	NA	NA	39.8
	Nov-01-2012	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Mar-01-2013	NA	NA	<0.14	NA	NA	0.35	NA	NA	27.5
	Jun-01-2013	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Sep-25-2013	NA	NA	P	NA	NA	0.28	NA	NA	27.4T
	Dec-01-2013	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Mar-13-2014	NA	NA	<0.61	NA	NA	0.08	NA	NA	28.3 T
Station I2:	Jun-01-2011	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mud Slough:	Sep-01-2011	NA	NA	NA	NA	NA	NA	NA	NA	NA
Seasonal backwater tributary	Nov-08-2011	NA	NA	6.90	NA	NA	3.00	NA	NA	53.9
	Mar-28-2012	NA	NA	0.98	NA	NA	0.51	NA	NA	37.0
	Jun-06-2012	NA	NA	0.40	NA	NA	0.35	NA	NA	29.6
	Sep-01-2012	NA	NA	0.56	NA	NA	<0.68	NA	NA	26.2
	Nov-01-2012	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Mar-01-2013	NA	NA	0.42	NA	NA	<0.68	NA	NA	26.2
	Jun-01-2013	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Sep-25-2013	NA	NA	P	NA	NA	0.28	NA	NA	27.5T
	Dec-01-2013	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Mar-13-2014	NA	NA	<0.68	NA	NA	0.23	NA	NA	26.50

Notes:

No sediment data collected in June 2013 due to sampler error.

No sediment data collected in December 2013.

**Sample was reanalyzed and the result was confirmed.

Table 25. Explanations of footnotes and agency abbreviations.

Agency	
CVRWQCB	California Regional Water Quality Control Board, Central Valley Region
GWD	Grasslands Water District
SLDMWA	San Luis & Delta-Mendota Water Authority
USBR	U.S. Bureau of Reclamation
USGS	U.S. Geological Survey
WSJRWC	Westside San Joaquin River Watershed Coalition (WSJRWC)

Water Quality Monitoring	
e	Estimated value
.	Not applicable
<	Less than MDL
D	Sample was dechlorinated
G	Data from records of the Grassland Water District.
H	Result may have high bias
J	Result is between the MDL and RL
L	Result may have low bias,
MDL	Minimum detection level
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
RL	Reporting level
T	Result obtained past the holding time
U	Result determined to be an outlier at the time of data validation
V	Result may vary excessively from the true value

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