

Grassland Bypass Project

Data Collection and Review Team

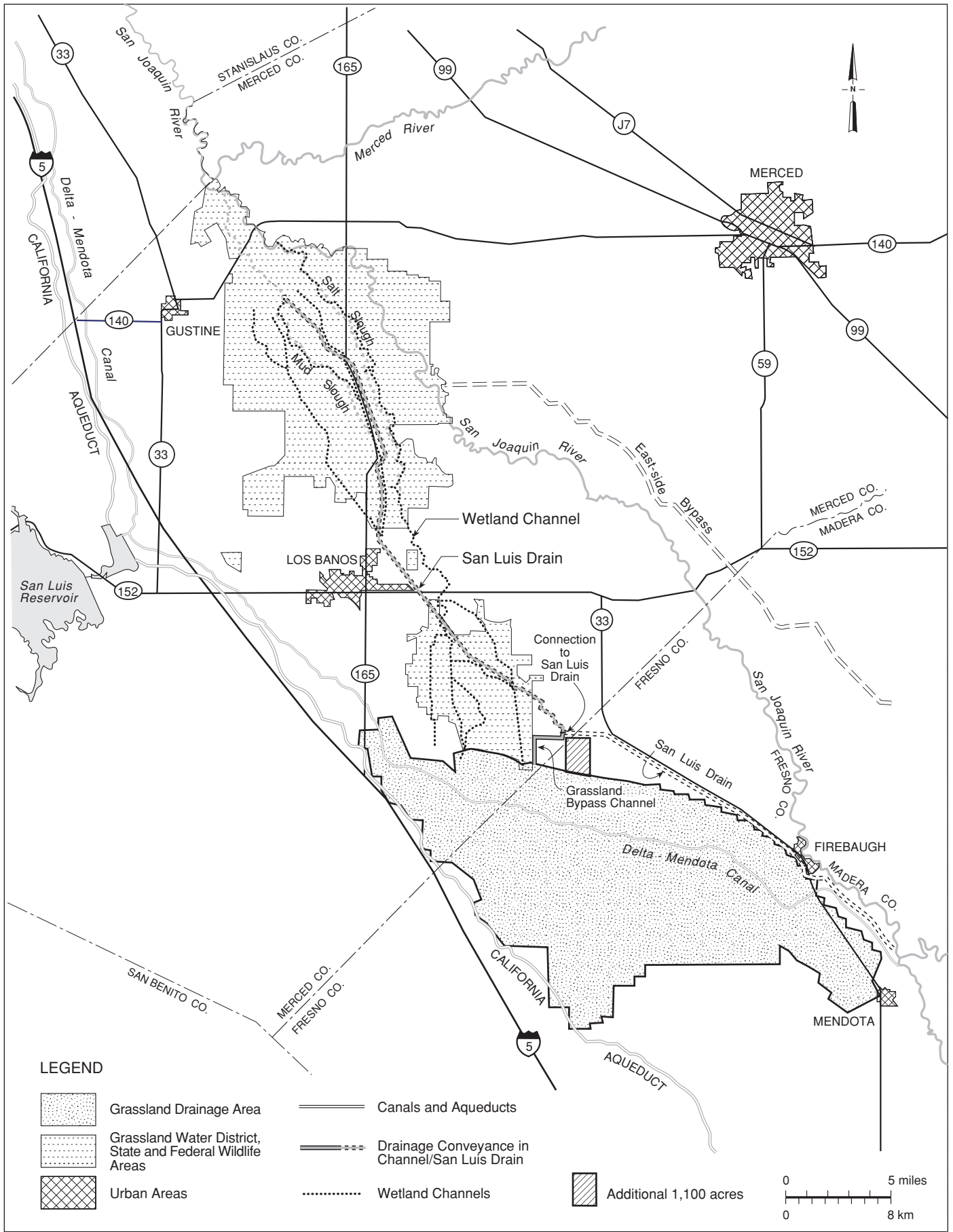
Date: Thursday, November 17, 2011

Agenda for Public Meeting

- 8:00 Registration
- 8:30 Introductions, Meeting objectives (Eugenia McNaughton, USEPA)
- 8:45 Grassland Drainage Area (Joe McGahan, GBP Drainage Coordinator)
- 9:15 Grassland wetlands (Rick Ortega, Grasslands Water District)
- 9:45 San Joaquin River (Michelle Banonis, SJR Restoration Program)
- 10:30 Break
- 10:45 Water quality (Rudy Schnagl, Regional Water Quality Control Board)
- 11:15 Biological Conditions (Tom Maurer, USFWS, Andy Gordus, Cal Dept Fish & Game)
- 12:00 Toxicity Studies (David Block, Block Environmental Services)

- 12:30 Lunch on your own

- 13:30 DCRT Meeting (closed)
- 15:00 Adjourn



Project No.
51-09967052.01

Grassland Bypass Project
EIS/EIR

**PROJECT FEATURES MAP
INCLUDING WETLAND CHANNELS**

**Figure
ES-2**

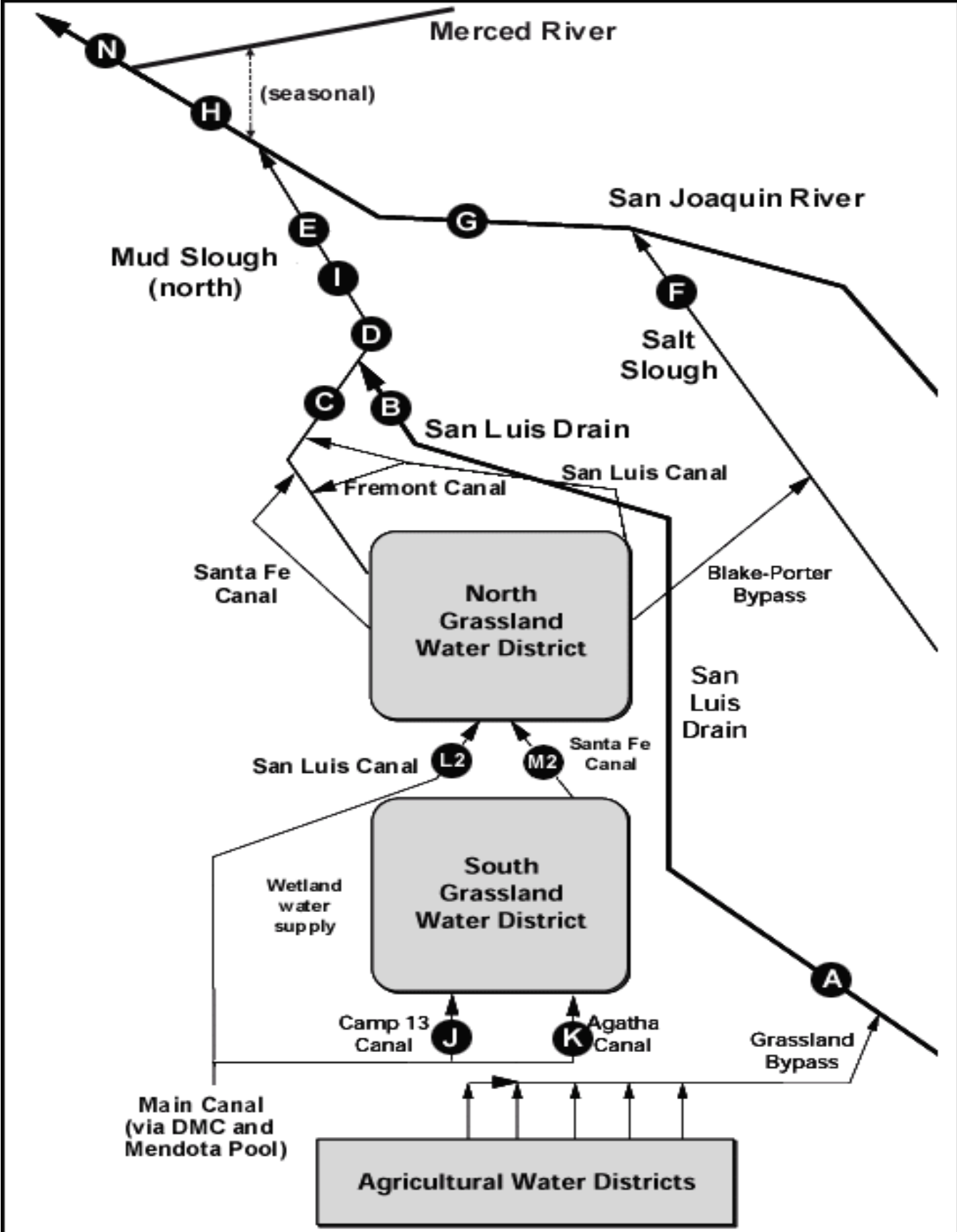


Figure 1a. San Luis Drain (Site A) - Mean Daily Flow (cfs)

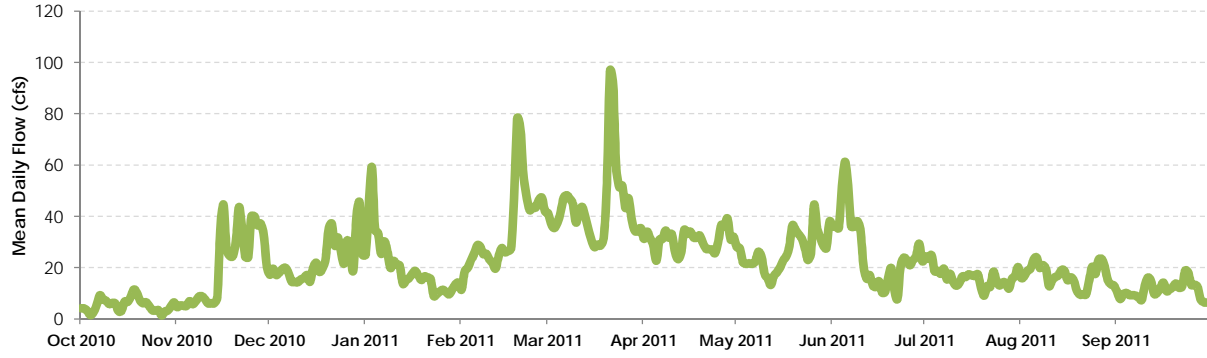


Figure 1b. San Luis Drain (Site A) - Mean Daily Salinity

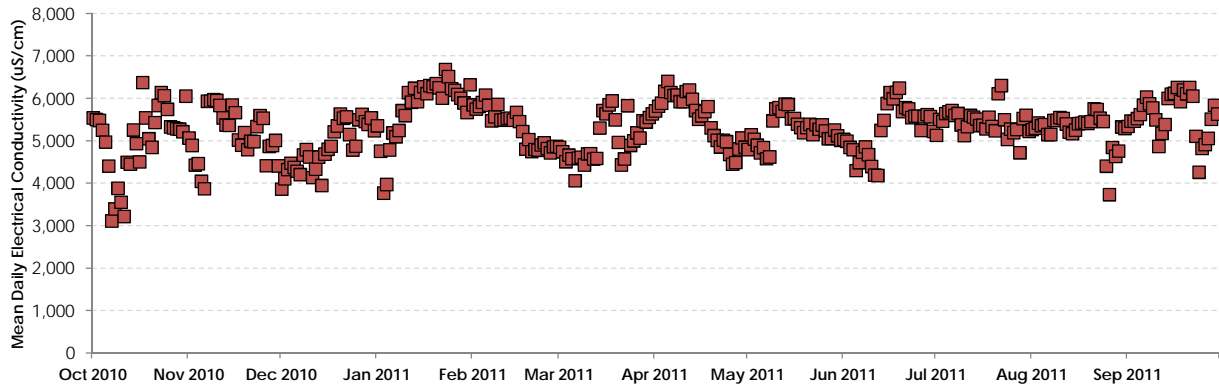


Figure 1c. San Luis Drain (Site A) - Selenium Weekly Grab Samples

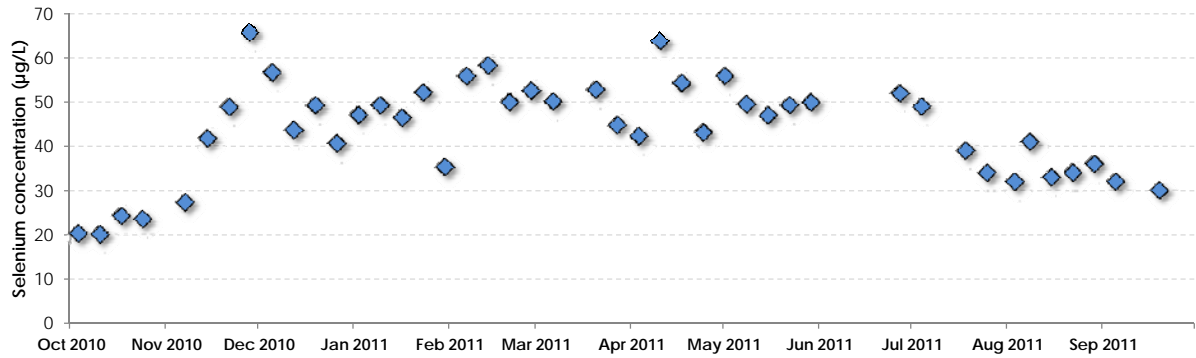


Figure 1d. San Luis Drain (Site A) - Monthly Average Selenium Concentration

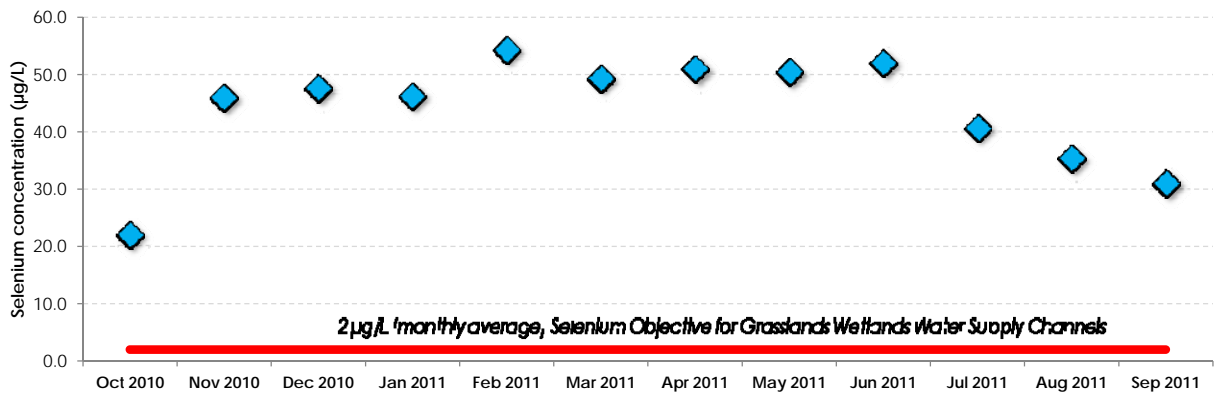


Figure 2a. San Luis Drain (Site B) - Mean Daily Flow (cfs)

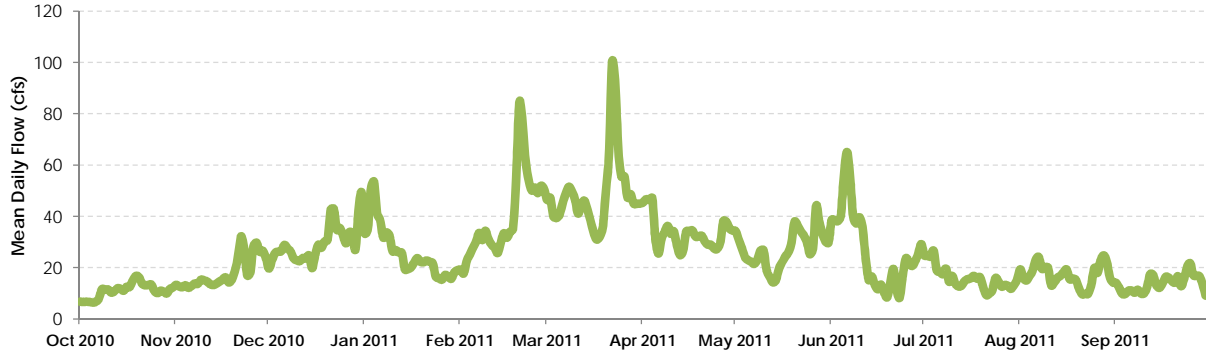


Figure 2b. San Luis Drain (Site B) - Mean Daily Salinity

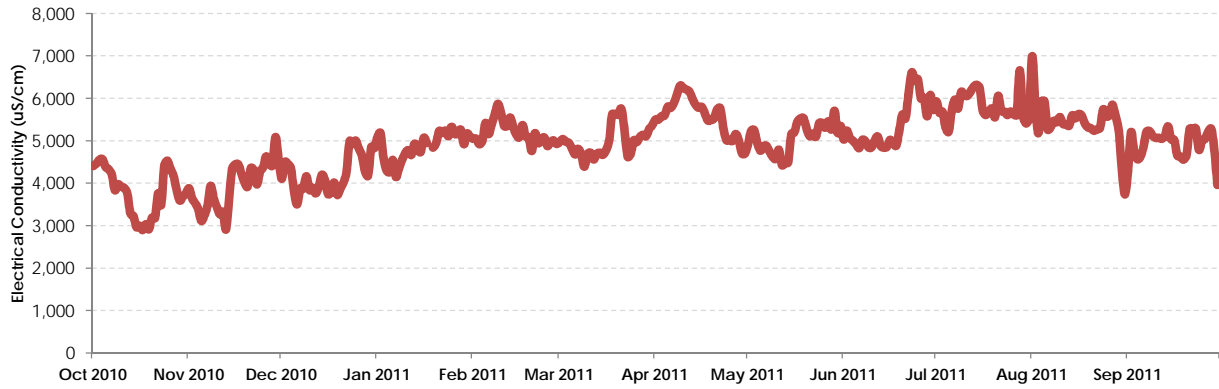


Figure 2c. San Luis Drain (Site B) - Mean Daily Selenium

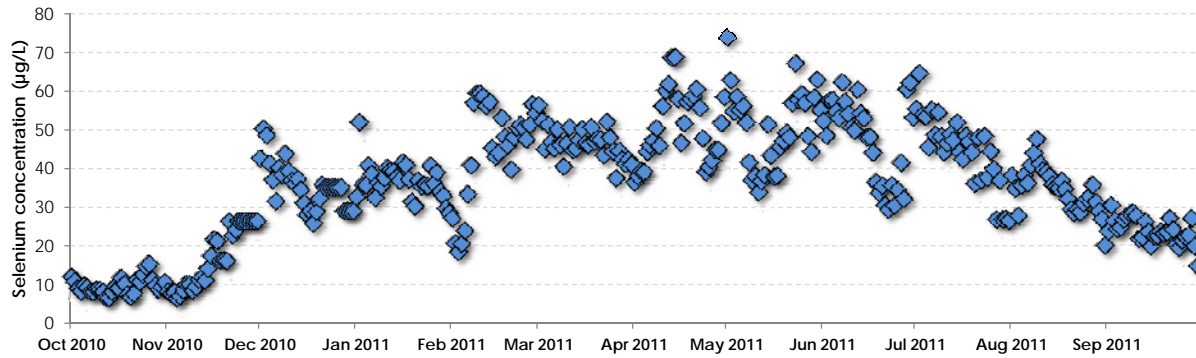


Figure 2d. San Luis Drain (Site B) - Monthly Average Selenium Concentration

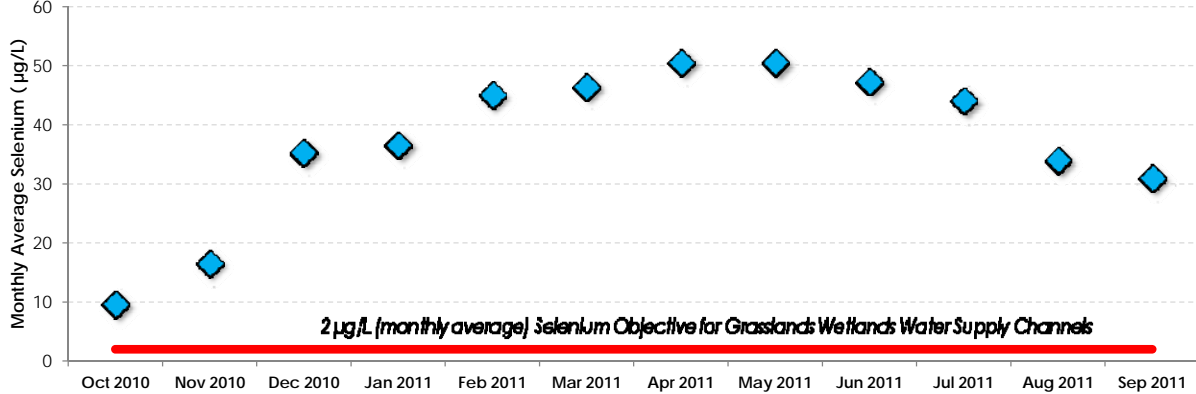


Figure 3a. Mud Slough above SLD Discharge (Site C) - Mean Daily Flow (cfs)

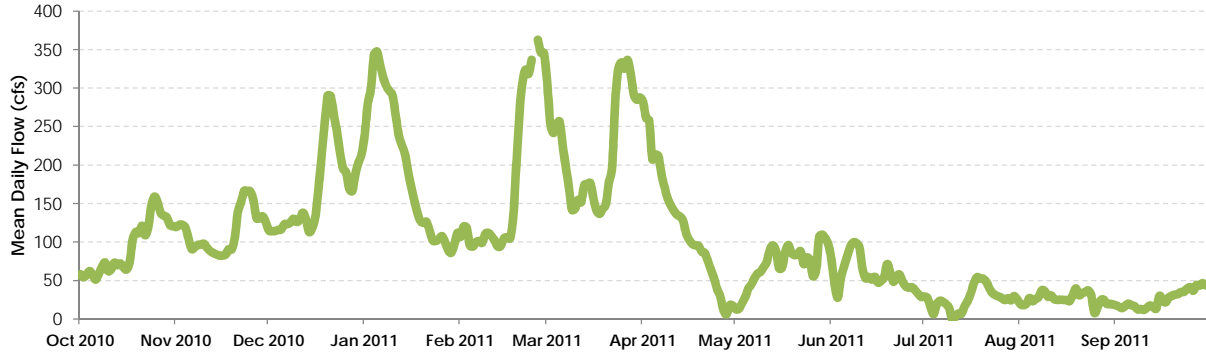


Figure 3b. Mud Slough above SLD Discharge (Site C) - Salinity

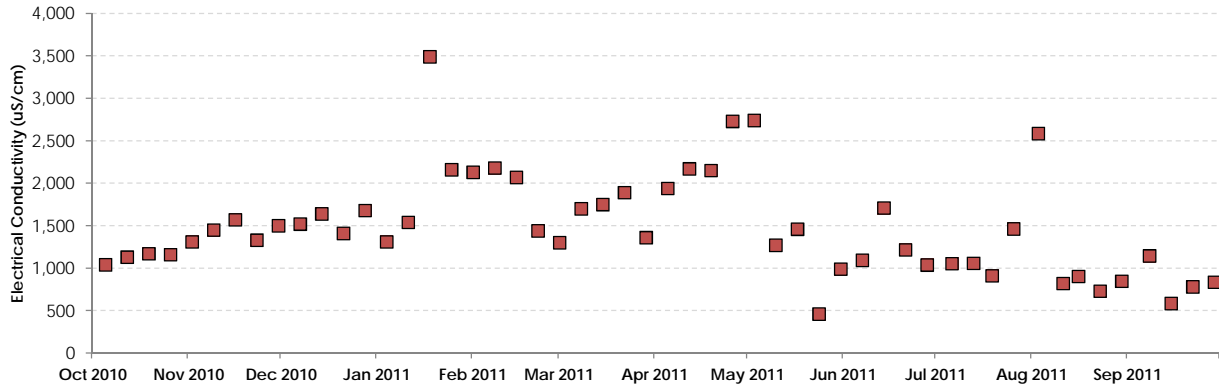


Figure 3c. Mud Slough above SLD Discharge (Site C) Selenium Weekly Grab Samples

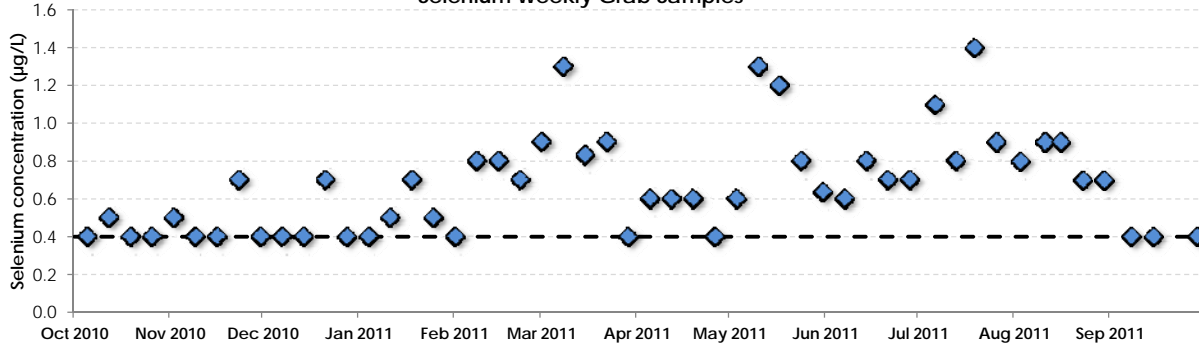


Figure 3d. Mud Slough above SLD Discharge (Site C) Monthly Average Selenium Concentration

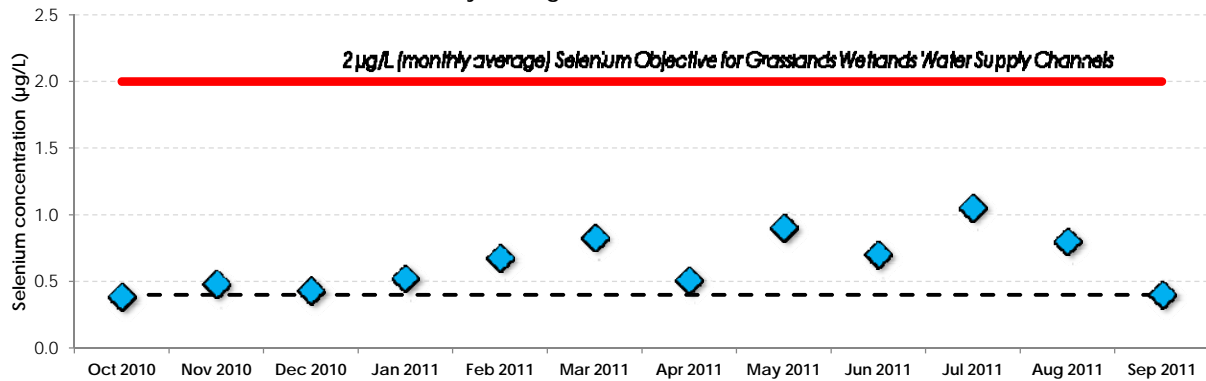


Figure 4a. Mud Slough below SLD Discharge (Site D) - Mean Daily Flow

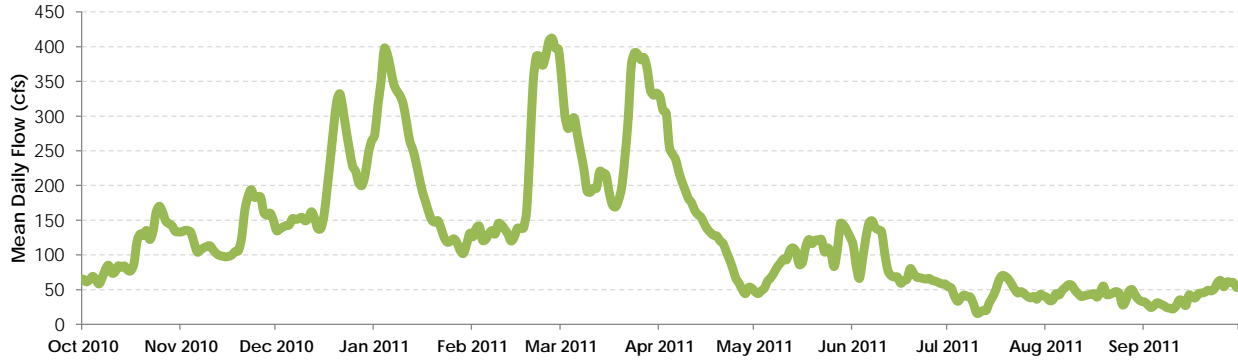


Figure 4b. Mud Slough below SLD Discharge (Site D) - Mean Daily Salinity

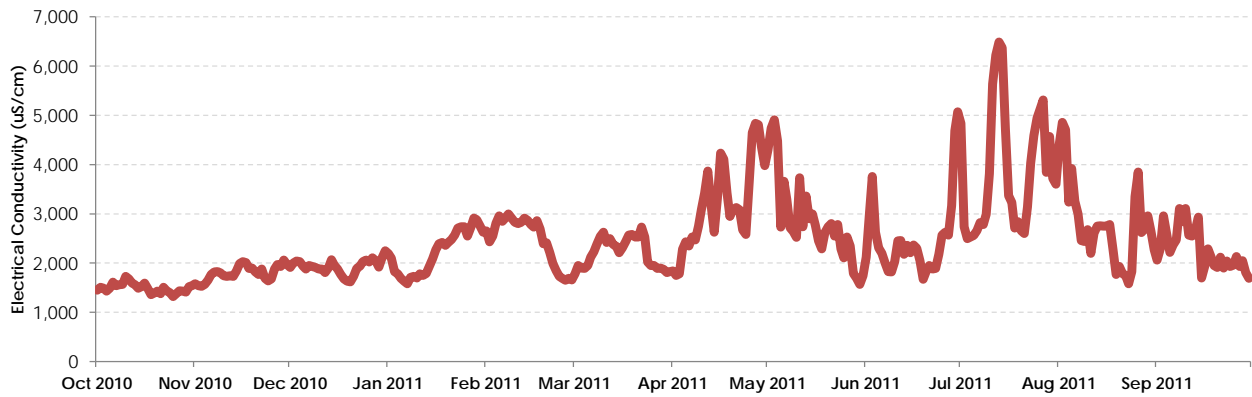


Figure 4c. Mud Slough below SLD Discharge (Site D)
Selenium Weekly Grab Samples

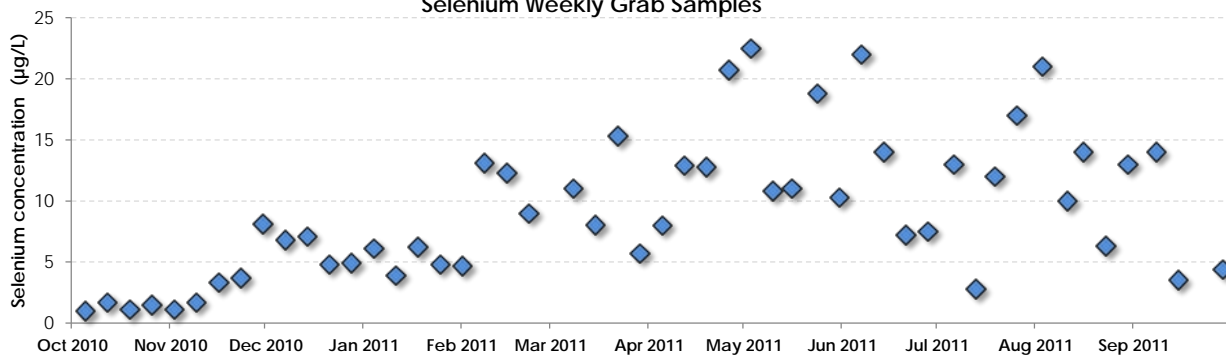


Figure 4d. Mud Slough below SLD Discharge (Site D)
Monthly Average Selenium Concentration

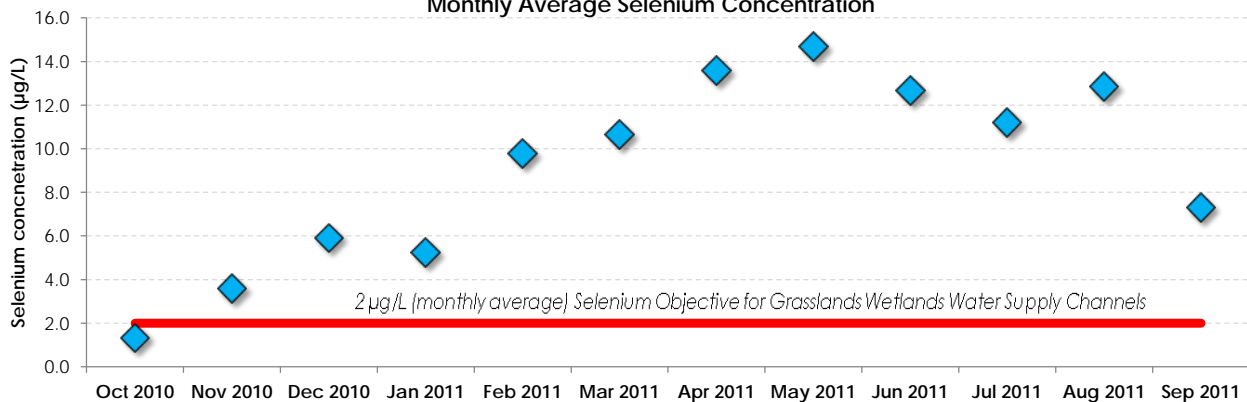


Figure 5a. Salt Slough at HWY 165 (Site F) - Mean Daily Flow

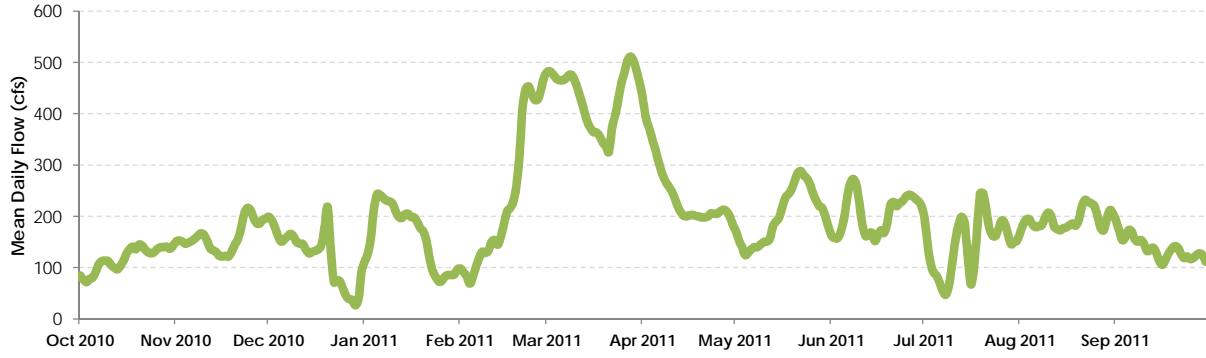


Figure 5b. Salt Slough at HWY 165 (Site F) - Mean Daily Salinity

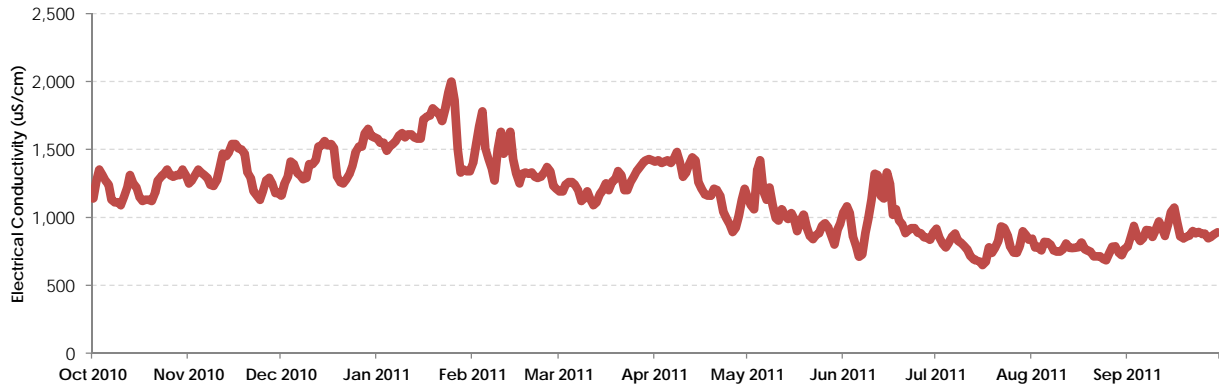


Figure 5c. Salt Slough at HWY 165 (Site F)
Selenium Weekly Grab Samples

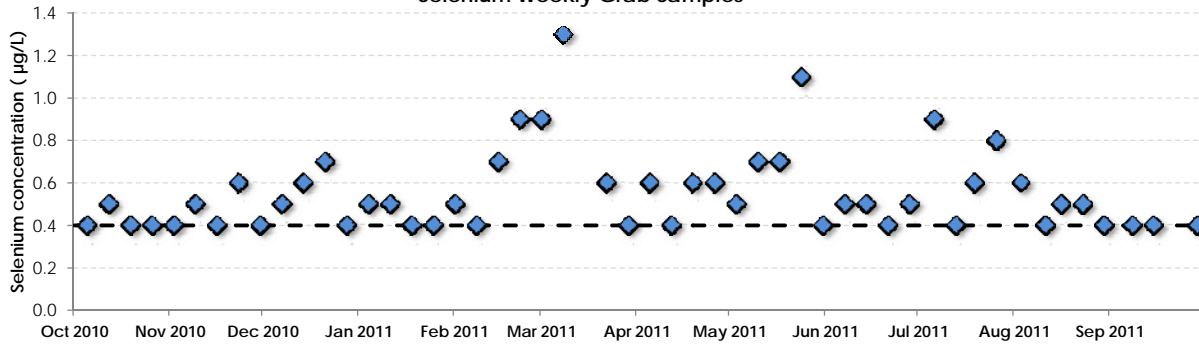


Figure 5d. Salt Slough at HWY 165 (Site F)
Monthly Average Selenium Concentration

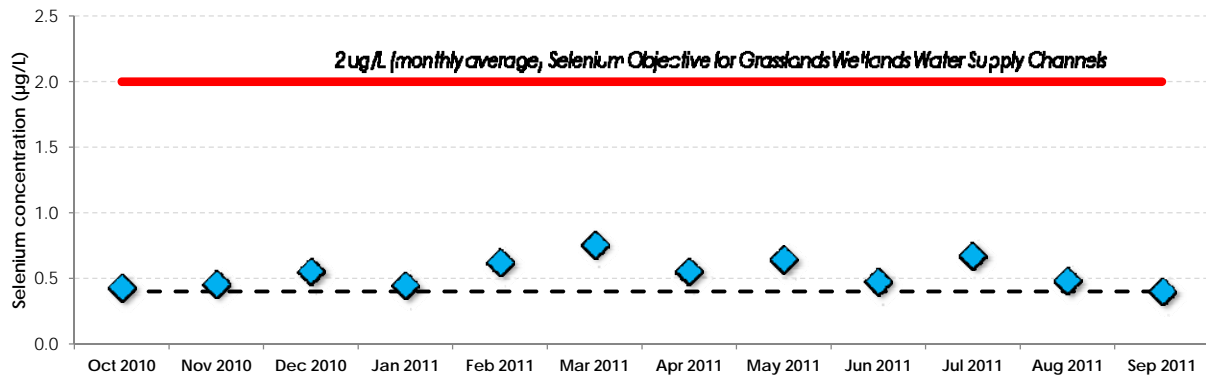


Figure 6a. San Joaquin River at Fremont Ford (Site G) - Mean Daily Flow (cfs)

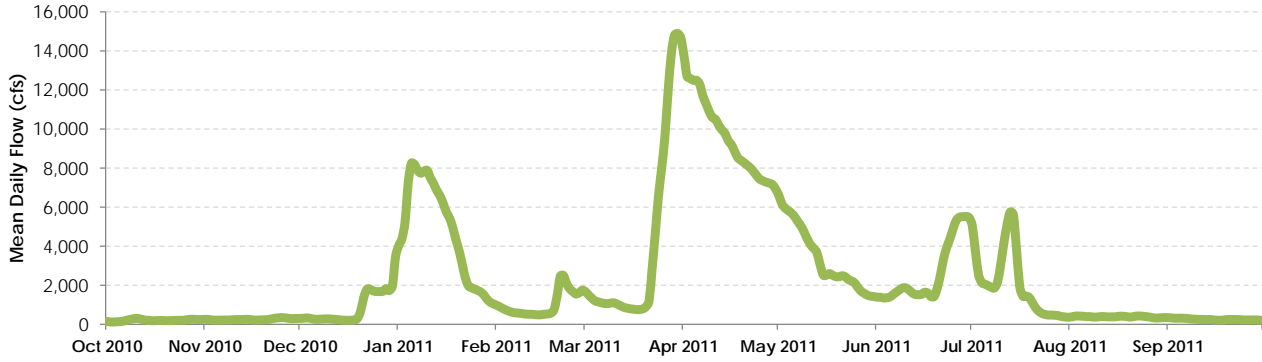


Figure 6b. San Joaquin River at Fremont Ford (Site G) - Mean Daily Salinity

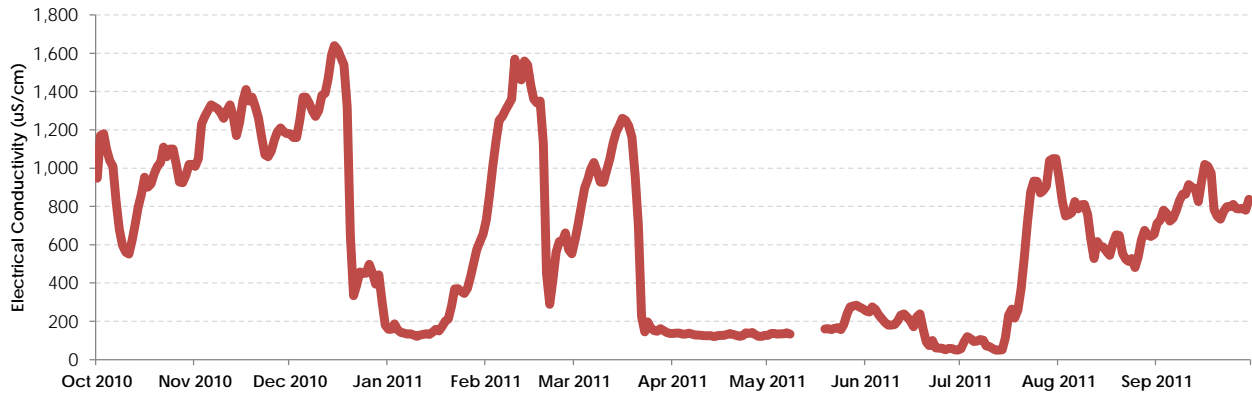


Figure 6c. San Joaquin River at Fremont Ford (Site G) Selenium Weekly Grab Samples

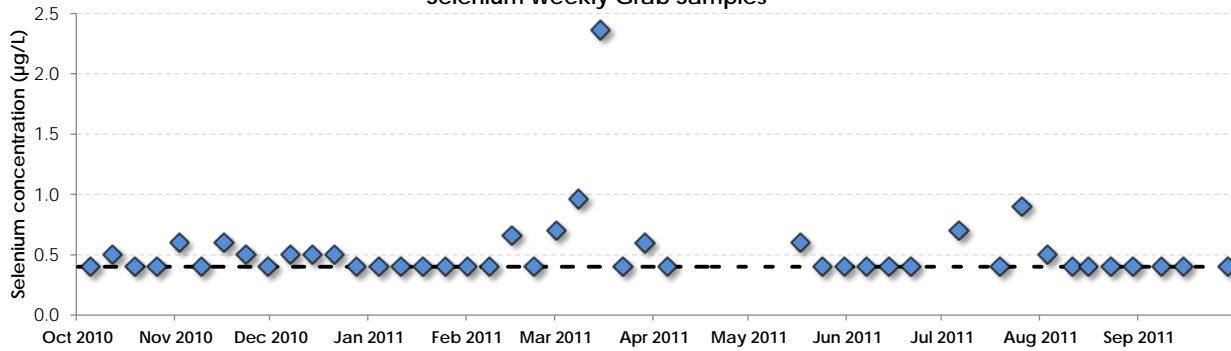


Figure 6d. San Joaquin River at Fremont Ford (Site G) Monthly Average Selenium Concentration

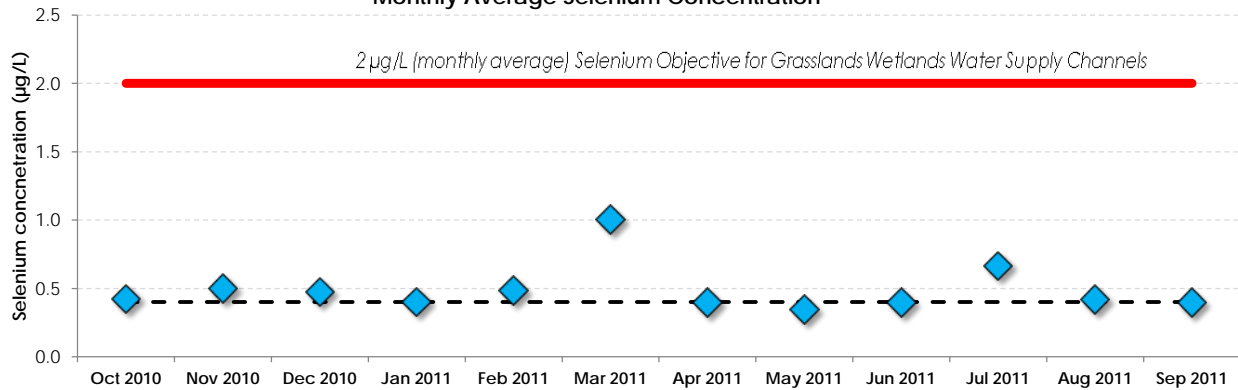


Figure 7a. San Joaquin River above Merced River, Hills Ferry (Site H) - Mean Daily Flow (cfs)

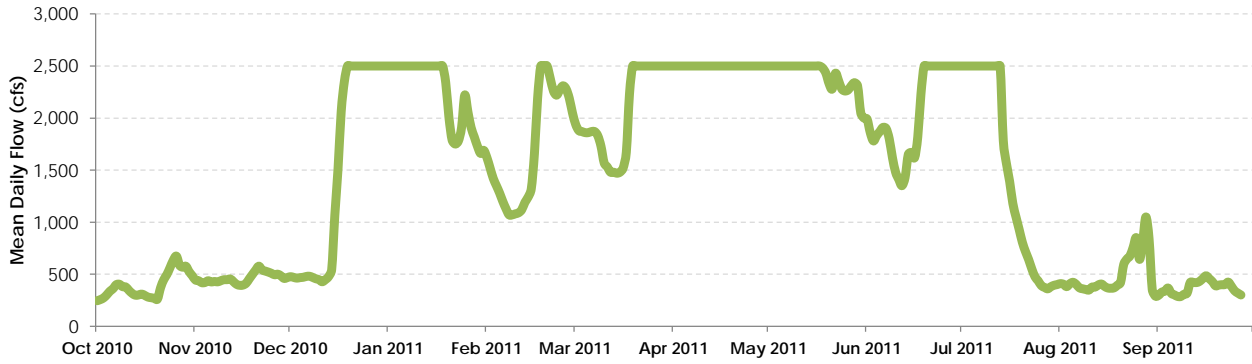


Figure 7b. San Joaquin River above Merced River, Hills Ferry (Site H) - Mean Daily Salinity

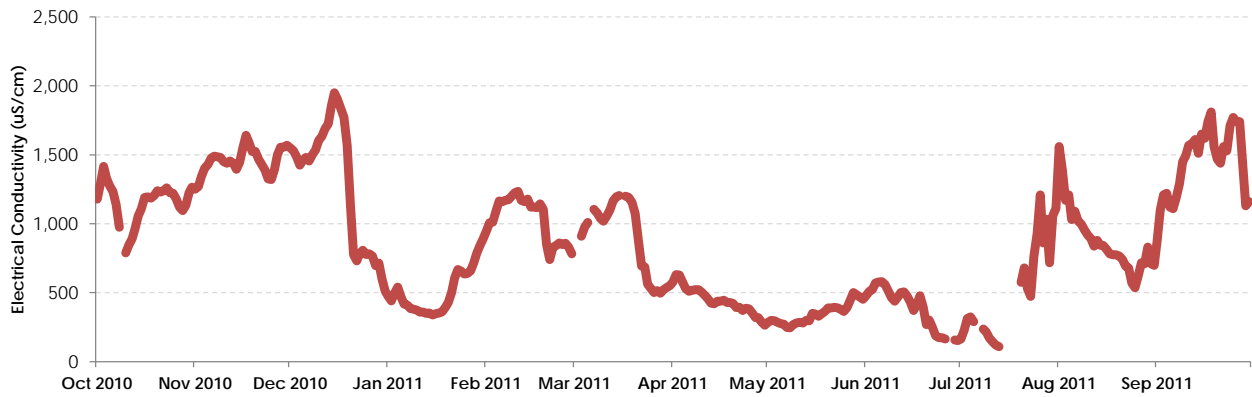


Figure 7c. San Joaquin River above Merced River, Hills Ferry (Site H) Selenium Weekly Grab Samples

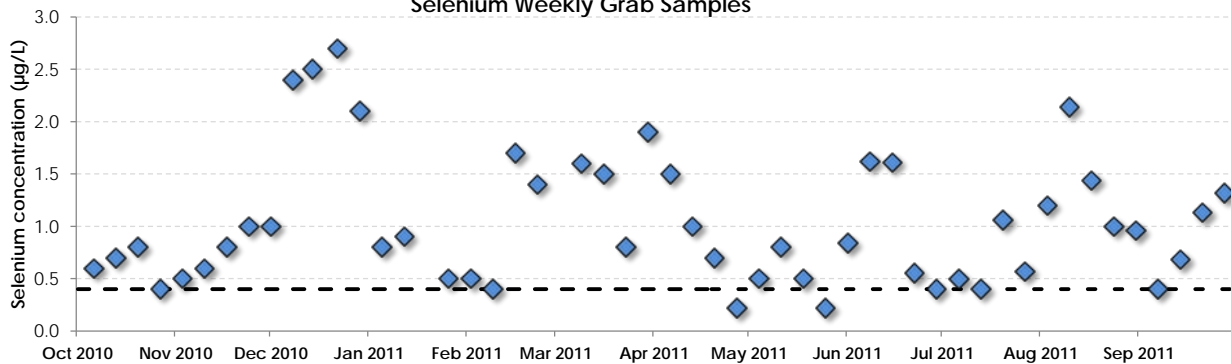


Figure 7d. San Joaquin River above Merced River, Hills Ferry (Site H) Monthly Average Selenium Concentration

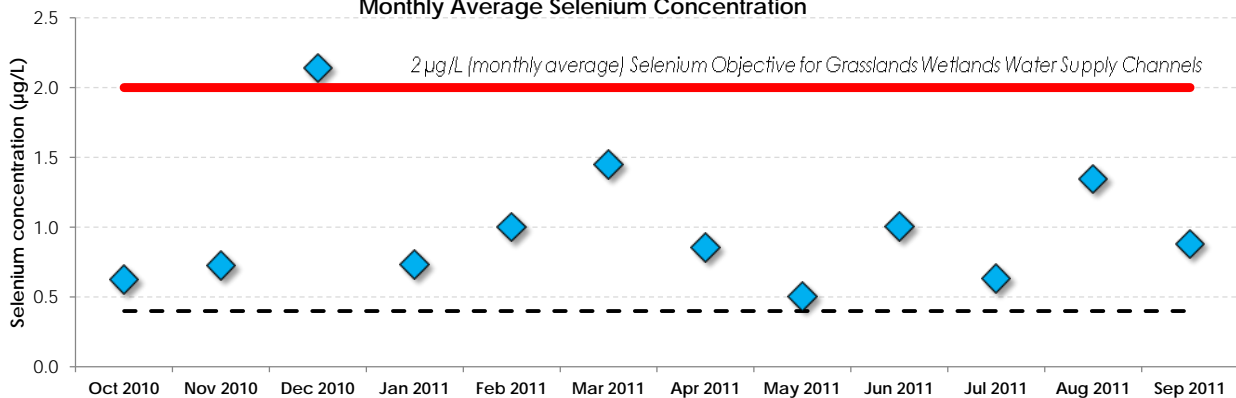


Figure 8a. San Joaquin River at Crows Landing (Site N) - Mean Daily Flow (cfs)

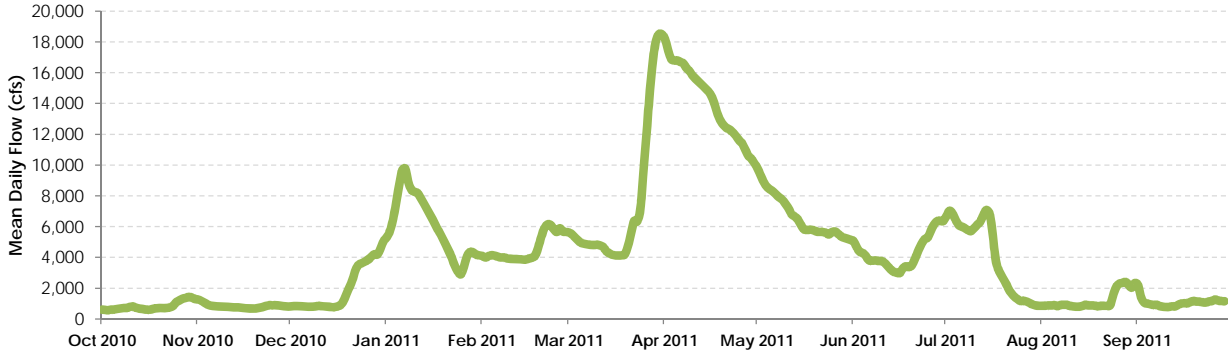


Figure 8b. San Joaquin River at Crows Landing (Site N) - Mean Daily Salinity

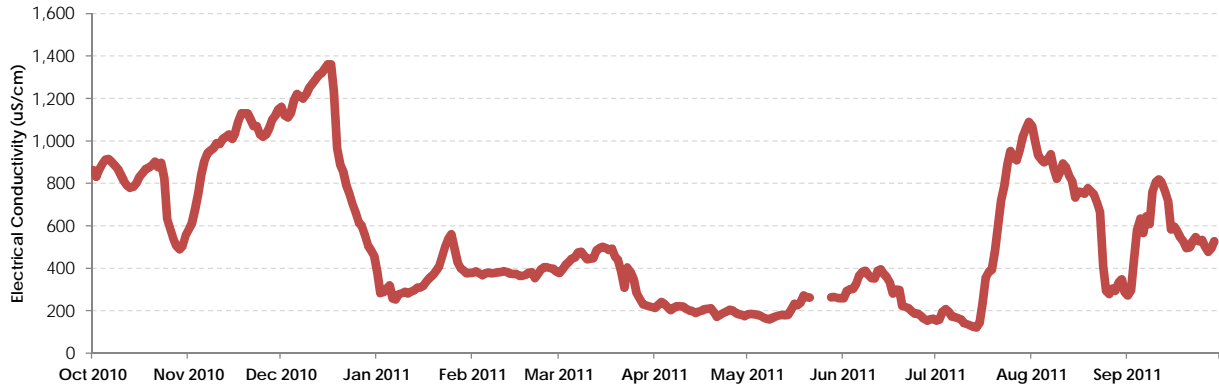


Figure 8c. San Joaquin River at Crows Landing (Site N)
Mean Daily Selenium

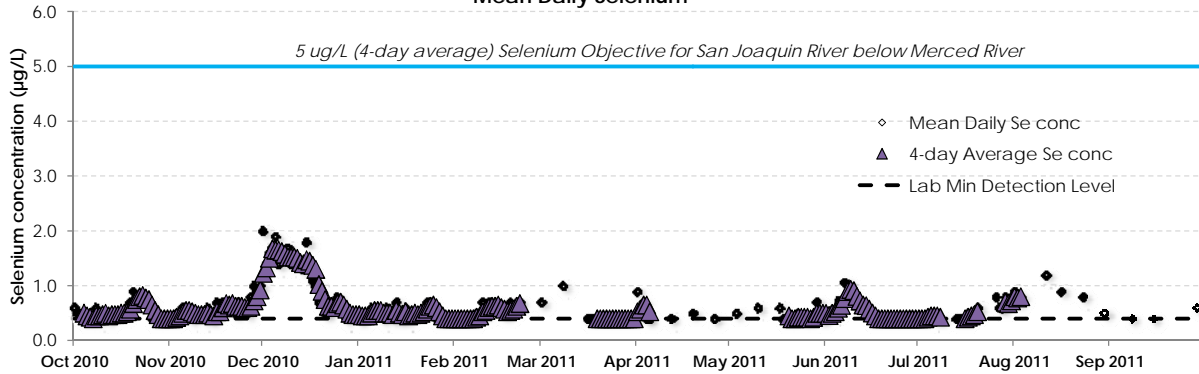


Figure 8d. San Joaquin River at Crows Landing (Site N)
Monthly Average Selenium Concentration

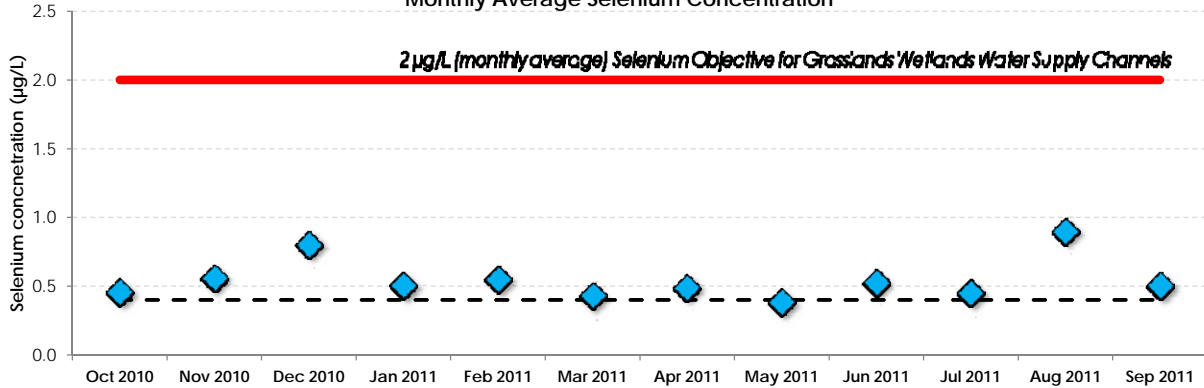


Figure 9a. Grasslands Wetlands Water Supply Channels
Selenium (weekly grab samples)

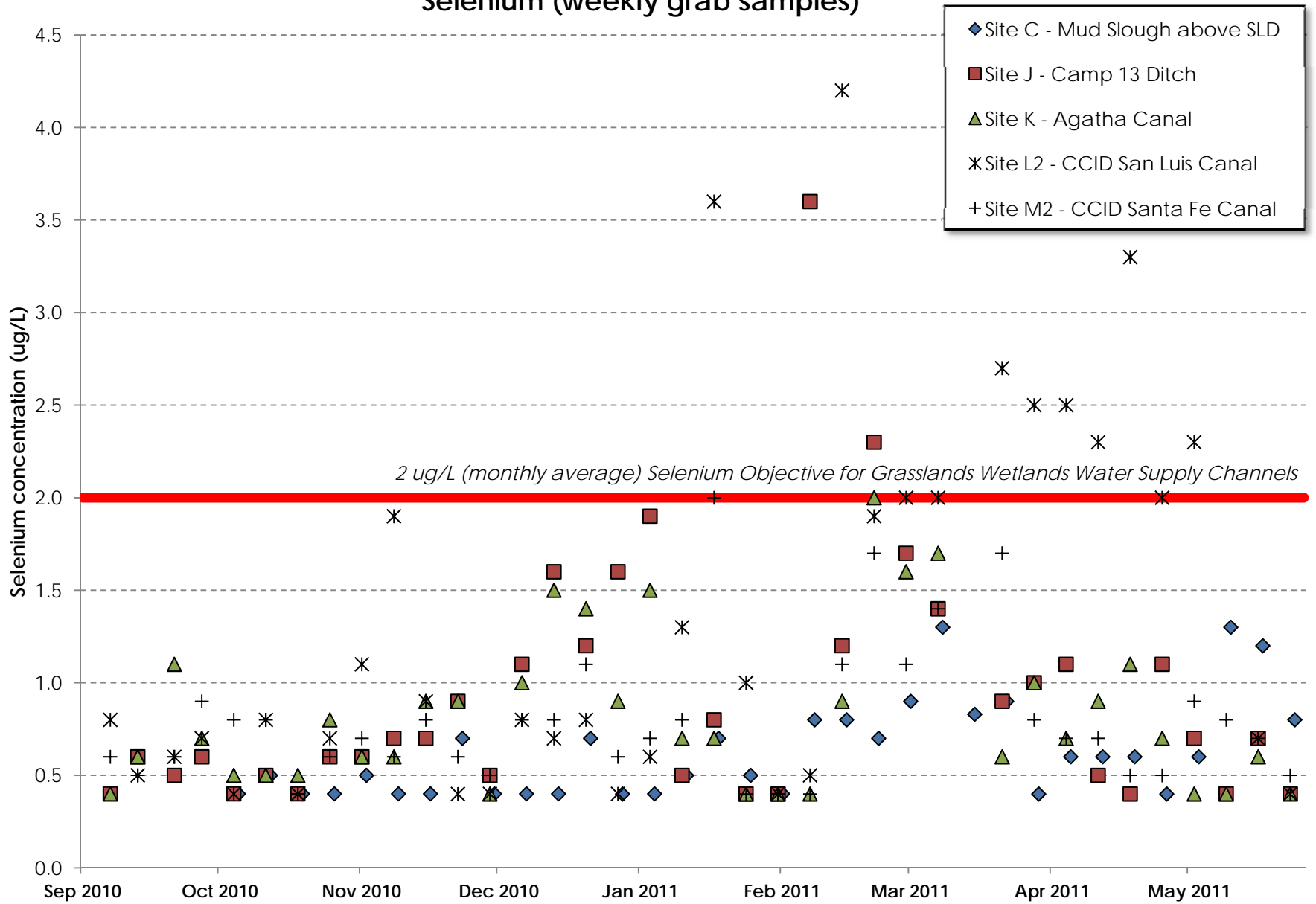


Figure 9b. Grasslands Wetlands Water Supply Channels
Selenium (monthly average)

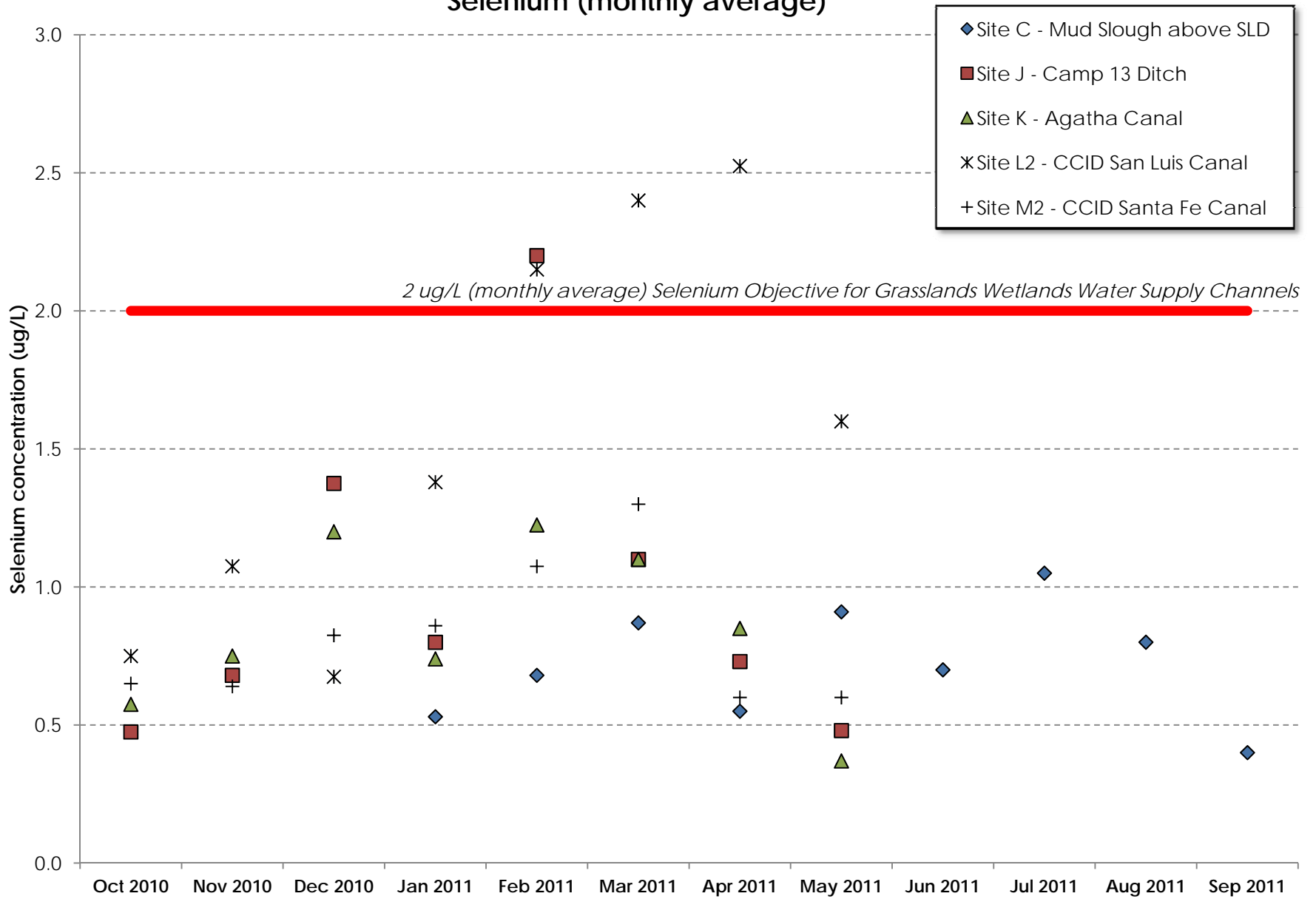


Table 1. Grassland Drainage Area - Water Years 1986 - 2011

Water Year (1)	Flow acre-feet	Flow Weighted Loads			Flow Weighted Concentration				Reference
		Selenium pounds	Boron 1000 pounds	TDS tons	Selenium µg/L	Boron mg/L	EC µS/cm	TDS mg/L	
WY 1986	67,006	9,524	787	214,250	52.3	4.3		2,351	(2)
WY 1987	74,902	10,959	889	241,526	53.8	4.4		2,371	(2)
WY 1988	65,327	10,097	821	236,301	56.8	4.6		2,660	(2)
WY 1989	54,186	8,718	743	202,420	59.2	5.0		2,747	(2)
WY 1990	41,662	7,393	672	171,265	65.2	5.9		3,023	(2)
WY 1991	29,290	5,858	544	129,899	73.5	6.8		3,261	(2)
WY 1992	24,533	5,083	435	110,327	76.2	6.5		3,307	(2)
WY 1993	41,197	8,856	730	183,021	79.0	6.5		3,267	(2)
WY 1994	38,670	8,468	645	171,495	80.5	6.1		3,261	(2)
WY 1995	57,574	11,875	868	237,530	75.8	5.6		3,034	(2)
WY 1996	52,978	10,034	723	197,526	69.6	5.0		2,742	(3)
Pre-Project Averages	49,760	8,806	714	190,510	67.4	5.5		2,910	
WY 1997	37,800	7,418	772	176,750	67.5	7.3	4,480	3,315	(4)
WY 1998	43,570	8,436	868	211,340	70.6	7.7	4,838	3,580	(4)
WY 1999	30,510	5,178	620	143,910	65.3	7.7	4,820	3,567	(4)
WY 2000	29,330	4,685	583	135,250	61.3	7.4	4,614	3,414	(4)
WY 2001	27,050	4,509	538	125,080	62.8	7.4	4,605	3,408	(4)
WY 2002	25,820	3,815	509	111,220	58.3	7.4	4,397	3,254	(4)
WY 2003	25,250	3,865	543	113,600	61.6	8.1	4,552	3,368	(4)
WY 2004	25,370	3,813	513	110,700	60.9	7.6	4,445	3,290	(4)
WY 2005	27,540	3,701	613	126,990	49.0	8.2	4,584	3,392	(4)
WY 2006	23,080	3,612	508	111,070	58.2	8.1	4,782	3,538	(4)
WY 2007	16,480	2,581	309	77,120	57.3	7.0	4,660	3,449	(4)
WY 2008	13,230	1,743	281	55,280	46.6	7.7	4,151	3,072	(4)
WY 2009	12,340	1,350	244	47,840	38.3	7.1	3,826	2,832	(4)
WY 2010	13,640	1,686	326	59,290	43.7	8.8	4,335	3,208	(4)
WY 2011 (estimate)	16,540	2,140	P	86,450	44.4	P	5,211	3,856	(4)
Project Averages	24,500	3,902	516	112,790	56.4	7.7	4,553	3,370	

References:

(1) Water Year: October - September

(2) CVRWQCB, February 1998. Loads of Salt, Boron, and Selenium in the Grassland Watershed and Lower San Joaquin River, October 1985 to September 1995; Volume I: Load Calculations. Table 16.

(3) CVRWQCB, December 1998. Agricultural Drainage Contribution to Water Quality in the Grassland Watershed of Western Merced County, California: October 1995 - September 1997 (Water Years 1996 and 1997). Table 20

(4) Concentrations and loads calculated from data for GBP Site A

Table 2. San Joaquin River at Patterson and Crows Landing - Water Years 1986 - 2011

Water Year (1)	Flow acre-feet	Flow Weighted Loads			Flow Weighted Concentration				Reference
		Selenium pounds	Boron 1000 pounds	TDS tons	Selenium µg/L	Boron mg/L	EC µS/cm	TDS mg/L	
WY 1986	2,676,764	10,568	2,563	991,086	1.5	0.4		272	(2)
WY 1987	662,135	8,857	1,681	715,301	4.9	0.9		794	(2)
WY 1988	549,412	9,330	1,854	731,877	6.2	1.2		980	(2)
WY 1989	438,398	7,473	1,305	543,916	6.3	1.1		912	(2)
WY 1990	404,163	6,125	1,142	537,896	5.6	1.0		979	(2)
WY 1991	291,223	3,548	760	419,457	4.5	1.0		1,059	(2)
WY 1992	304,151	3,064	740	391,336	3.7	0.9		946	(2)
WY 1993	891,230	8,209	1,588	686,212	3.4	0.7		566	(2)
WY 1994	562,301	7,270	1,260	584,834	4.8	0.8		765	(2)
WY 1995	3,504,034	14,291	2,296	1,236,981	1.6	0.2		260	(2)
WY 1996	1,445,730	10,686	1,765	805,600	2.7	0.5		410	(3)
Pre-Project Averages	1,066,320	8,129	1,541	694,950	4.1	0.8		720	
WY 1997	3,782,320	12,329	2,706	928,880	3.2	0.6	820	508	(4)
WY 1998	4,904,910	15,821	3,072	1,511,480	1.4	0.4	601	373	(4)
WY 1999	1,015,480	6,708	1,591	680,120	2.7	0.7	902	559	(4)
WY 2000	1,027,440	6,353	1,630	703,910	2.5	0.7	976	605	(4)
WY 2001	653,430	5,595	1,396	623,560	3.2	0.8	1,162	720	(4)
WY 2002	533,960	4,056	1,227	517,360	3.1	0.9	1,202	745	(4)
WY 2003	546,130	4,149	4,666	576,340	2.9	3.0	1,244	771	(4)
WY 2004	554,550	4,078	1,341	564,500	2.8	0.9	1,226	760	(4)
WY 2005	1,721,000	5,297	1,895	881,460	1.3	0.5	722	448	(4)
WY 2006	3,437,650	5,652	1,862	947,330	1.0	0.4	569	353	(4)
WY 2007	607,180	2,997	1,064	538,700	1.8	0.7	1,103	684	(4)
WY 2008	580,500	2,233	1,036	493,120	1.4	0.7	766	475	(4)
WY 2009	336,670	1,526	738	361,510	1.6	0.8	1,165	722	(4)
WY 2010	822,650	2,280	1,150	108,042	1.2	0.6	938	582	(4)
WY 2011 (estimate)	2,936,190	4,102	P	702,004	0.5	P	467	290	
Project Averages	1,564,000	5,545	1,812	675,890	2.0	0.8	924	573	

References:

- (1) Water Year - October - September
- (2) CVRWQCB, February 1998. Loads of Salt, Boron, and Selenium in the Grassland Watershed and Lower San Joaquin River, October 1985 to September 1995; Volume I: Load Calculations. Table 18.
- (3) CVRWQCB, December 1998. Water Quality of the Lower San Joaquin River: Lander Avenue to Vernalis, October 1995 - September 1997 (Water Years 1996 and 1997) Table 12.
- (4) Concentrations and loads calculated from data for GBP Site N