

D

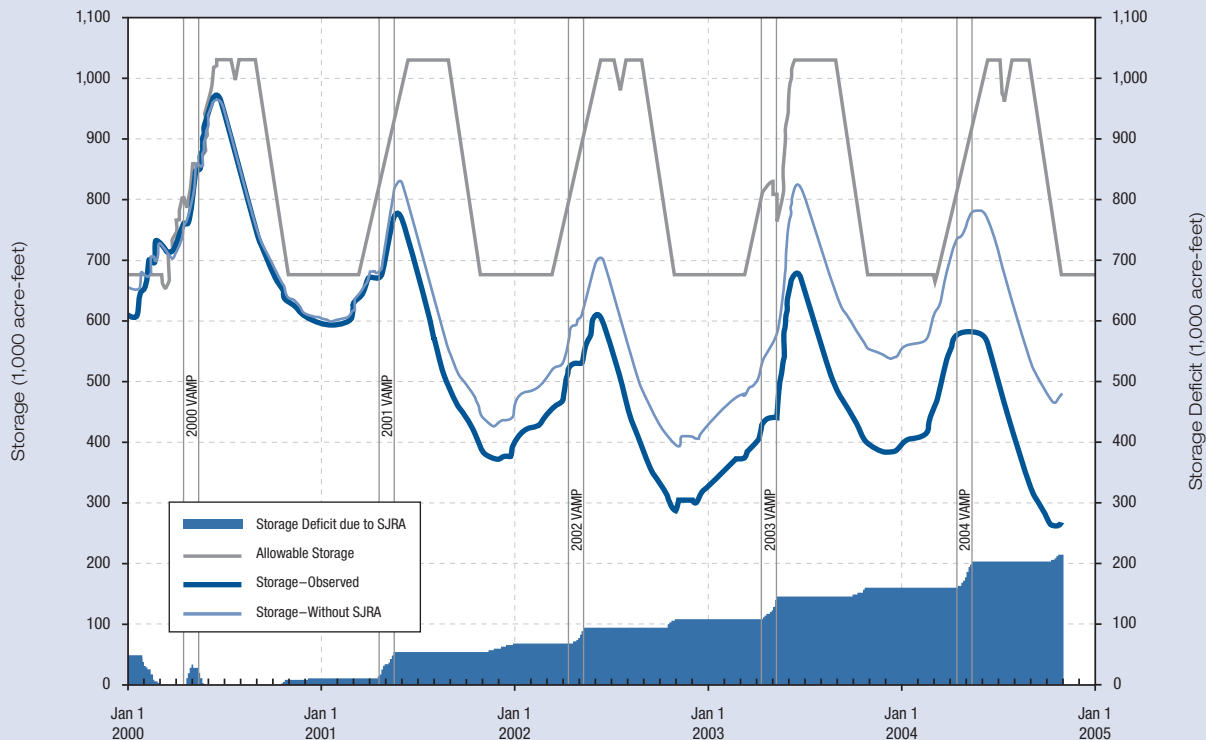
APPENDIX D

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Historic Data

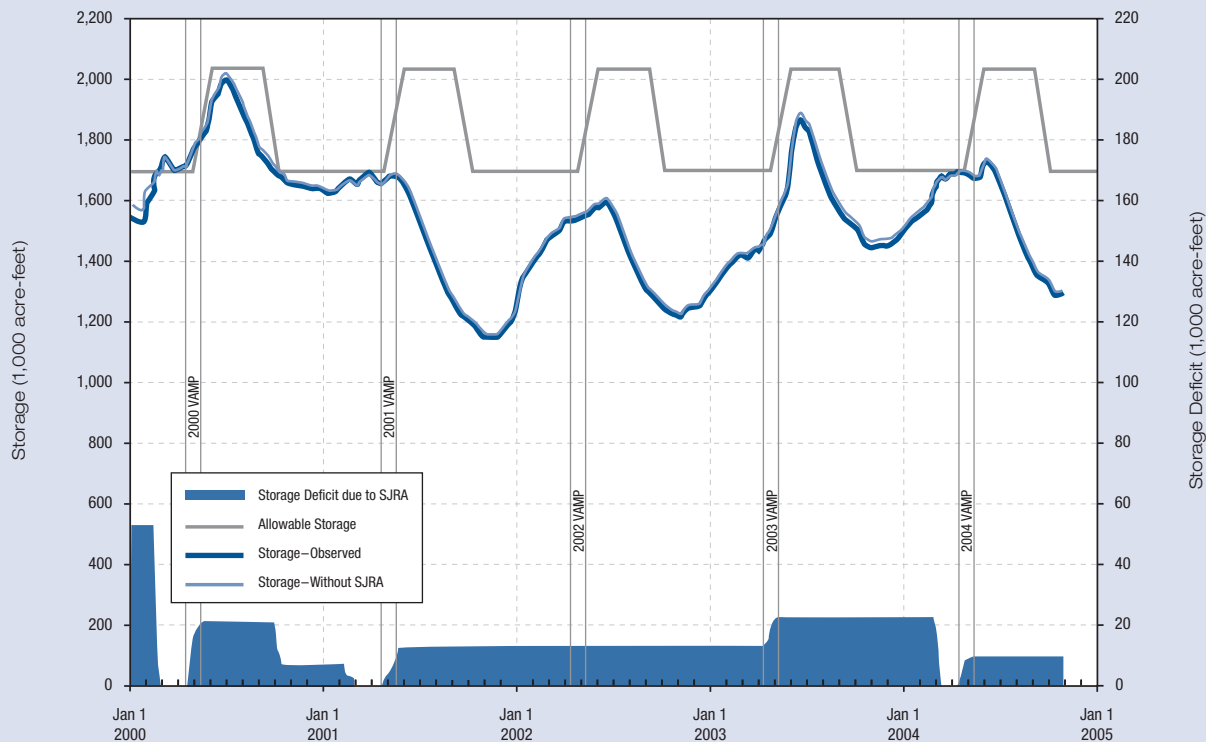
D-1. SJRA Storage Impacts, 2000-2004

Lake McClure (Merced River)

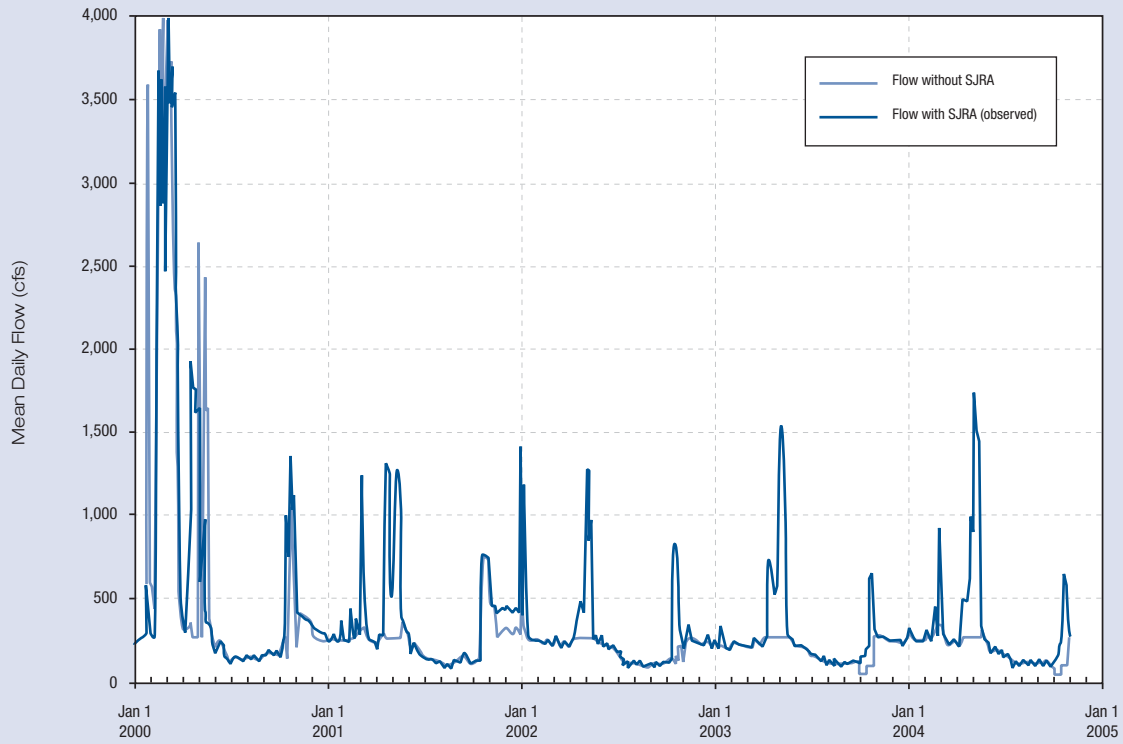


D-2. SJRA Storage Impacts, 2000-2004

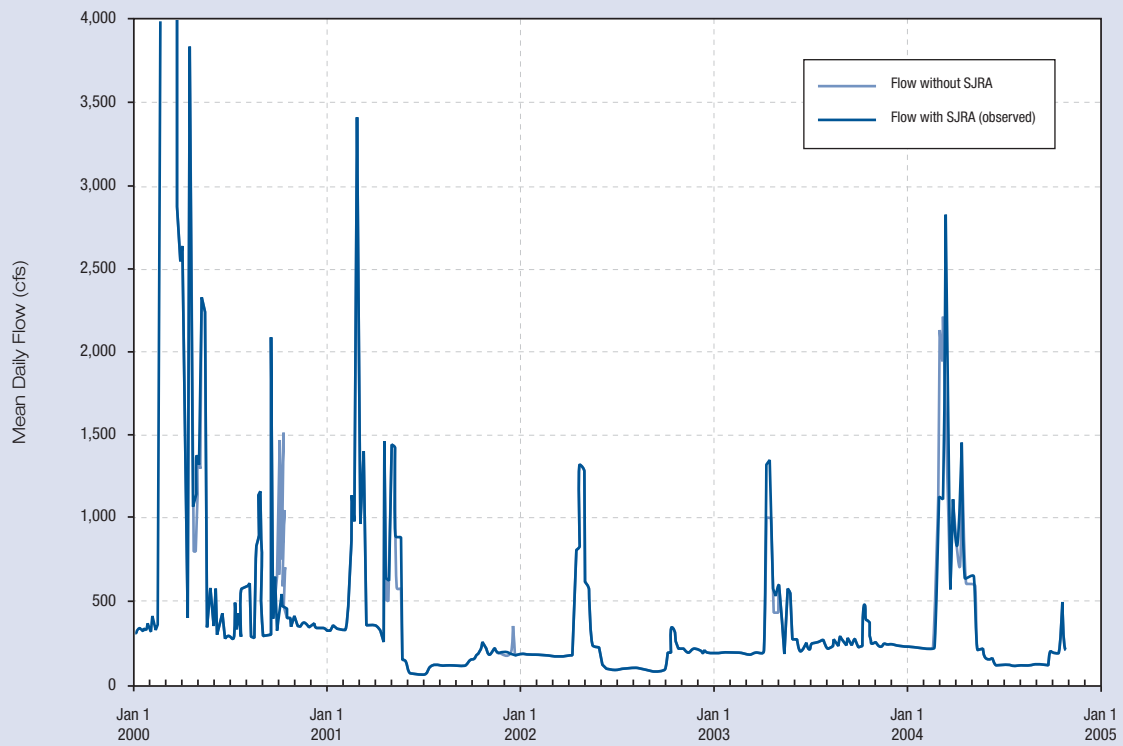
New Don Pedro Reservoir (Tuolumne River)



D-3. Merced River at Cressey, 2000-2004



D-4. Tuolumne River below LaGrange Dam, 2000-2004



APPENDIX D-5
2004 Vernalis Adaptive Management Plan (VAMP)
Comparison of Supplemental Water Contributions • Forecasted vs. Actual

A = Low Target B = High Target

Year	Operation Plan Date	Merced River	EXISTING FLOW					VERNALIS					DIFFERENCE	
			Tuolumne River	Stanislaus River	SJR up-stream of Merced R	Ungaged Flow at Vernalis	SJR at Vernalis	VAMP Target Flow	VAMP Forecast Flow	Observed Flow	VAMP Suppl. Flow	VAMP Suppl. Water Vol.	Suppl. Water Deviation: Decision Forecast to Actual	
		(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	TAF	TAF	
2004	Mar 17	A	250	694	681	255	300	2,185	3,200	3,200		1,015	62,400	
		B	250	1,000	1,191	538	800	3,779	4,450	4,450		671	41,280	
	Mar 30	A	250	650	681	255	300	2,135	3,200	3,200		1,065	65,460	
		B	250	1,000	1,191	538	800	3,778	4,450	4,450		671	41,280	
	Apr 9		250	702	647	254	500	2,352	3,200	3,200		847	52,070	
	Apr 13	1/	250	700	647	254	500	2,352	3,200	3,199		847	52,170	
	Apr 20		250	700	647	252	365	2,213	3,200	3,186		972	59,780	
May 3		250	700	647	260	281	2,137	3,200	3,172		1,035	63,620		
Final Acct.	Real-time	250	702	647	283	174	2,048	3,200		3,155	1,108	68,120		
	Provisional 2/	250	702	647	362	127	2,088	3,200		3,155	1,067	65,591	13,421	
2003	Mar 12	A	250	467	750	304	300	2,071	3,200	3,201		1,130	69,480	
		B	250	732	924	472	600	2,978	3,200	3,200		222	13,670	
	Mar 26	A	250	730	750	248	300	2,278	3,200	3,200		922	56,710	
		B	250	730	924	435	500	2,839	3,200	3,200		361	22,210	
	Apr 4		250	730	750	435	400	2,565	3,200	3,200		635	39,060	
	Apr 9	1/	250	652	750	388	300	2,340	3,200	3,200		860	52,900	
	Apr 22		250	652	750	360	319	2,331	3,200	3,199		868	53,340	
Apr 30		250	652	750	339	331	2,322	3,200	3,189		884	54,350		
Final Acct.	Real-time	250	652	750	283	370	2,304	3,200		3,235	930	57,200		
	Provisional 2/	250	652	750	276	362	2,290	3,200		3,235	945	58,065	5,165	
2002	Mar 13	A	250	650	654	201	400	2,154	3,200	3,200		1,046	64,300	
		B	250	851	798	435	800	3,133	3,200	3,200		67	4,120	
	Mar 22	A	250	945	654	201	400	2,449	3,200	3,200		751	46,160	
		B	250	945	654	435	600	2,883	3,200	3,200		317	19,470	
	Mar 28	A	250	945	735	201	400	2,531	3,200	3,200		669	41,160	
		B	250	945	1,295	435	600	3,525	4,450	4,450		925	56,910	
	Apr 8		250	945	999	248	400	2,842	3,200	3,200		358	22,040	
	Apr 9	1/	250	845	999	248	400	2,742	3,200	3,200		459	28,190	
	Apr 16		250	845	999	247	294	2,645	3,200	3,199		554	34,060	
	Apr 19		250	845	1,000	245	283	2,623	3,200	3,200		577	35,470	
	Apr 25		250	845	1,000	246	292	2,636	3,200	3,199		563	34,640	
May 9		250	845	1,002	201	446	2,747	3,200	3,295		548	33,700		
Final Acct.	Real-time	250	848	1,002	210	434	2,744	3,200		3,298	555	34,100		
	Provisional 2/	250	852	1,002	230	424	2,757	3,200		3,301	544	33,430	5,240	
2001	Mar 14	A	250	1,145	1,500	348	700	3,943	4,450	4,450		507	31,170	
		B	250	1,148	1,500	348	1,000	4,246	4,450	4,450		204	12,520	
	Mar 20	A	250	769	766	348	700	2,833	3,200	3,200		367	22,570	
		B	250	769	766	348	1,000	3,133	3,200	3,200		67	4,130	
	Mar 23		250	769	766	348	500	2,633	3,200	3,200		567	34,870	
	Apr 3	A	250	769	769	348	500	2,636	3,200	3,200		564	34,660	
	Apr 3	B	250	769	769	348	1,000	3,136	3,200	3,200		64	3,910	
	Apr 10	A	250	735	1,103	332	500	2,920	3,200	3,200		280	17,190	
	Apr 10	B	250	736	1,103	332	800	3,221	4,450	4,450		1,229	75,550	
	Apr 12		250	736	1,205	375	650	3,216	4,450	4,450		939	57,720	
	Apr 16	1/	250	736	1,205	375	650	3,216	4,450	4,450		1,189	73,090	
	Apr 23		250	736	1,205	353	686	3,230	4,450	4,441		1,173	72,150	
	May 2		250	736	1,205	357	664	3,211	4,450	4,450		1,203	73,980	
	May 4		250	736	1,205	353	483	3,026	4,450	4,317		1,276	78,440	
May 7		250	736	1,205	345	469	3,004	4,450	4,291		1,249	76,800		
May 14		250	736	1,205	309	450	2,950	4,450	4,247		1,261	77,510		
Final Acct.	Real-time	250	736	1,205	311	417	2,918	4,450		4,224	1,276	78,470		
	Provisional 2/	250	736	1,205	350	368	2,909	4,450		4,224	1,308	78,650	5,560	
2000	Mar 15		250	1,760	1,500	1,937	1,000	6,447	7,000	7,015		567	34,890	
	Mar 23		250	1,719	1,500	465	1,000	4,934	7,000	7,000		2,066	127,030	
	Mar 29		250	1,719	1,500	465	1,000	4,934	7,000	7,002		2,068	127,140	
	Apr 5		250	1,694	1,500	506	1,000	4,949	7,000	7,044		2,095	128,830	
	Apr 11	1/	250	1,763	1,500	506	1,000	5,018	7,000	7,048		2,029	124,770	
	Apr 13		250	1,763	1,439	395	565	4,412	5,700	5,813		1,400	86,100	
	Apr 14		250	1,761	1,441	363	500	4,320	5,700	5,776		1,456	89,530	
Apr 17		250	1,761	1,439	364	437	4,265	5,700	5,721		1,456	89,500		
Final Acct.	Real-time	264	1,706	1,506	375	902	4,754	5,700		5,940	1,279	78,660		
	Provisional 2/	299	1,706	1,515	496	784	4,800	5,700		5,869	1,263	77,680	-8,420	

1/ Operation plan forecast prepared prior to start of VAMP approved by SJRA Management Committee.
2/ Final accounting of supplemental water contributions.

APPENDIX D-6
Summary of VAMP Flows 2000–2004

Year	VAMP Pulse Period	Target Vernalis/Export Flows	Observed Vernalis/Export Flows	VAMP Supplemental Water	Test Fish Released	Combined Differential Recovery Rate
		(cfs)	(cfs)	(acre-feet)	(effective number)	
2000	April 15–May 15	5,700/2,250	5,869/2,155	77,680	294,388	0.187
2001	April 20–May 20	4,450/1,500	4,224/1,420	78,650	336,085	0.191
2002	April 15–May 15	3,200/1,500	3,301/1,430	33,430	392,186	0.151
2003	April 15–May 15	3,200/1,500	3,235/1,446	58,065	297,266	0.019
2004	April 15–May 15	3,200/1,500	3,155/1,331	65,591	188,884	0.026

APPENDIX D-7
Head of Old River Barrier

Year	INSTALLATION			REMOVAL		
	Started	Closed	Completed	Started	Breached	Completed
1992	April 15–boat port on		April 23@4 ft April 26@6 ft May 1	Jun 2		Jun 8
1993						
1994	April 21–boat port on		April 23@10 ft May 1	May 18		May 20
1995			(a)			
1996	May 6		May 11	May 16		Sept 3 (b)
1997	April 9		April 16	May 15		May 19
1998	(a)					
1999	(a)					
2000	April 5		April 16	May 19		Jun 2
2001	April 17		April 26	May 23		May 30
2002	April 2		April 18	May 22	May 24	Jun 7
2003	April 1	April 15	April 21	May 16	May 18	Jun 3
2004	April 1	April 15	April 21			

(a) Not installed due to high San Joaquin River flows.

(b) Barrier was breached on 5/16 on an emergency basis, but complete removal wasn't done until 9/3, after Corps demanded permit compliance of complete removal.

APPENDIX D-8

2004 Vernalis Adaptive Management Plan (VAMP)

Comparison of Water Temperatures (°C) Measured During the VAMP Sampling Period • April 16–May 16*

Year	Durham Ferry	Mossdale	Dos Reyes	DWR Monitoring Station	Confluence Top	Confluence bottom	Dwnstrm of Channel Mkr. 30	Dwnstrm of Channel Mkr. 13	Dwnstrm of Channel Mkr. 36	Jersey Point	Chipps Island	Mokelumne River	Average All Sites
2000*													
Lowest	13.07	13.32	logger	13.48	logger	13.97	14.65	15.22	15.97	logger	15.19	14.83	14.41
Highest	18.92	19.03	lost	19.04	dewatered	19.06	20.43	19.37	18.69	dewatered	18.54	18.82	19.10
Average	16.29	16.55		16.63		16.73	17.27	17.36	17.25		16.66	16.57	16.81
2001**													
Lowest	13.07	13.66	14.44	14.32	14.62	14.71	15.07	12.45	14.83	14.45	logger	no logger	14.16
Highest	21.87	22.32	21.85	22.04	22.52	21.63	23.33	22.91	21.93	21.34	lost	placed	22.17
Average	18.11	18.55	18.66	18.75	18.91	18.77	18.95	18.97	18.28	18.17			18.61
2002													
Lowest	13.08	13.33	14.21	14.21	14.39	14.79	15.22	16.18	15.70	15.35	14.41	15.35	14.69
Highest	20.05	20.15	19.79	20.27	20.33	19.91	20.99	20.52	19.38	18.70	19.03	19.84	19.91
Average	16.69	16.98	17.17	17.25	17.41	17.42	17.52	17.77	17.06	16.80	16.39	17.06	17.13
2003													
Lowest	14.31	14.67	15.43	15.07	logger	15.07	15.38	15.38	14.67	logger	13.81	13.20	14.70
Highest	21.03	20.93	20.73	21.02	dewatered	20.03	20.18	20.04	17.85	lost	17.43	17.93	19.72
Average	16.64	16.83	16.98	16.88		16.86	17.06	16.83	15.71		15.22	14.98	16.40
2004													
Lowest	14.60	14.83	15.59	15.52	logger	15.85	16.48	16.48	15.49	14.90	14.55	logger	15.43
Highest	22.01	22.09	21.89	22.32	dewatered	22.49	23.34	22.49	21.61	20.50	20.31	malfuction	21.91
Average	18.65	18.93	19.15	19.13		19.41	19.83	19.67	18.47	18.12	17.74		18.91

* 2000 Chipps Island temperature data begins April 17

** 2001 all temperature data begins April 20

D-8a. Comparison of Average Temperatures at All Sites during VAMP
April 16-May 16, 2000-2004

