Water-Data Report 2013

11303500 San Joaquin River near Vernalis, CA

San Joaquin River Basin

LOCATION.--Lat 37°40′34″, long 121°15′55″ referenced to North American Datum of 1927, San Joaquin County, CA, Hydrologic Unit 18040002, in El Pescadero Grant, on left bank, 12 ft downstream from Airport Way bridge, 2.6 mi downstream from Stanislaus River, and 3.2 mi northeast of Vernalis.

DRAINAGE AREA.--13,539 mi^2, includes about 2,100 mi^2 in James Bypass.

SURFACE-WATER RECORDS

PERIOD OF RECORD.--July 1922 to current year (1922-23 and 1925-29, low-flow records only).

REVISED RECORDS.--WSP 831: 1936. WSP 931: 1940. WSP 1930: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is NGVD of 1929. See WSP 2130 for history of changes prior to Nov. 30, 1967.

REMARKS.--Records good. Natural flow of stream affected by storage reservoirs, power developments, ground-water withdrawals, and diversions for irrigation; low flows consist mainly of return flow from irrigated areas. See schematic diagram of Sacramento-San Joaquin Delta available from the California Water Science Center.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge recorded, 79,000 ft^3/s, Dec. 9, 1950, elevation, 32.81 ft, present datum, including flow through breaks in levee, maximum elevation, 34.88 ft, Jan. 5, 1997; minimum daily discharge, 30 ft^3/s, Aug. 10, 1961.

11303500 San Joaquin River near Vernalis, CA—Continued

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2012 TO SEPTEMBER 2013
DAILY MEAN VALUES

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	1,070	1,400	1,570	2,480	1,750	1,980	1,540	3,950	847	711	481	598
2	975	1,360	1,610	2,260	1,850	1,870	1,520	3,950	883	646	498	598
3	1,020	1,340	1,790	2,090	1,890	1,870	1,420	4,040	945	619	525	593
4	993	1,330	1,800	2,000	1,900	1,870	1,430	4,180	883	639	538	529
5	1,070	1,320	1,770	1,940	1,920	1,760	1,550	4,110	831	665	524	501
6	1,120	1,300	1,830	1,990	1,910	1,850	1,530	3,970	800	656	512	557
7	1,170	1,260	1,790	2,110	2,020	1,720	1,490	3,840	798	716	482	594
8	1,270	1,250	1,720	2,300	2,270	1,680	1,450	3,680	794	654	485	699
9	1,250	1,240	1,670	2,400	2,330	1,680	1,400	3,570	815	618	523	737
10	1,280	1,260	1,610	2,330	2,360	1,780	1,360	3,540	837	562	534	646
11	1,440	1,250	1,570	2,200	2,350	1,770	1,290	3,500	788	509	611	577
12	1,520	1,270	1,530	2,070	2,330	1,500	1,310	3,430	772	540	601	621
13	1,480	1,250	1,490	1,960	2,300	1,430	1,250	3,370	723	576	546	623
14	1,570	1,240	1,460	1,880	2,280	1,360	1,300	2,830	695	555	500	638
15	1,840	1,260	1,430	1,830	2,300	1,420	1,340	2,100	740	562	467	675
16	2,100	1,260	1,420	1,790	2,330	1,440	1,380	1,680	769	552	480	703
17	2,170	1,260	1,410	1,740	2,340	1,470	1,610	1,510	784	510	499	658
18	2,170	1,310	1,420	1,700	2,340	1,480	1,720	1,420	698	499	523	646
19	2,170	1,330	1,420	1,650	2,340	1,360	2,000	1,300	625	527	591	638
20	2,220	1,300	1,410	1,620	2,380	1,410	2,320	1,270	586	531	573	647
21	2,430	1,300	1,380	1,590	2,390	1,410	2,540	1,160	586	552	505	729
22	2,790	1,310	1,410	1,580	2,390	1,440	2,670	1,050	607	564	480	955
23	2,730	1,310	1,570	1,560	2,410	1,450	2,930	999	656	494	463	1,170
24	2,610	1,310	2,050	1,540	2,440	1,390	3,410	940	733	508	468	1,320
25	2,810	1,320	3,530	1,530	2,430	1,360	3,580	951	693	528	481	1,430
26	2,680	1,300	3,520	1,510	2,370	1,300	3,670	946	669	548	578	1,460
27	2,430	1,270	3,110	1,490	2,330	1,150	3,760	985	630	527	587	1,510
28	2,140	1,260	3,430	1,450	2,200	1,100	3,890	966	621	583	536	1,600
29	1,860	1,300	3,300	1,460	---	1,110	4,130	895	629	628	556	1,520
30	1,610	1,370	3,020	1,460	---	1,100	4,070	892	685	550	545	1,300
31	1,480	---	2,740	1,490	---	1,290	---	849	---	528	591	---
Total	55,468	38,840	60,780	57,000	62,450	46,800	64,860	71,873	22,122	17,857	16,283	25,472
Mean	1,789	1,295	1,961	1,839	2,230	1,510	2,162	2,318	737	576	525	849
Max	2,810	1,400	3,530	2,480	2,440	1,980	4,130	4,180	945	716	611	1,600
Min	975	1,240	1,380	1,450	1,750	1,100	1,250	849	586	494	463	501
Ac-ft	110,000	77,040	120,600	113,100	123,900	92,830	128,600	142,600	43,880	35,420	32,300	50,520

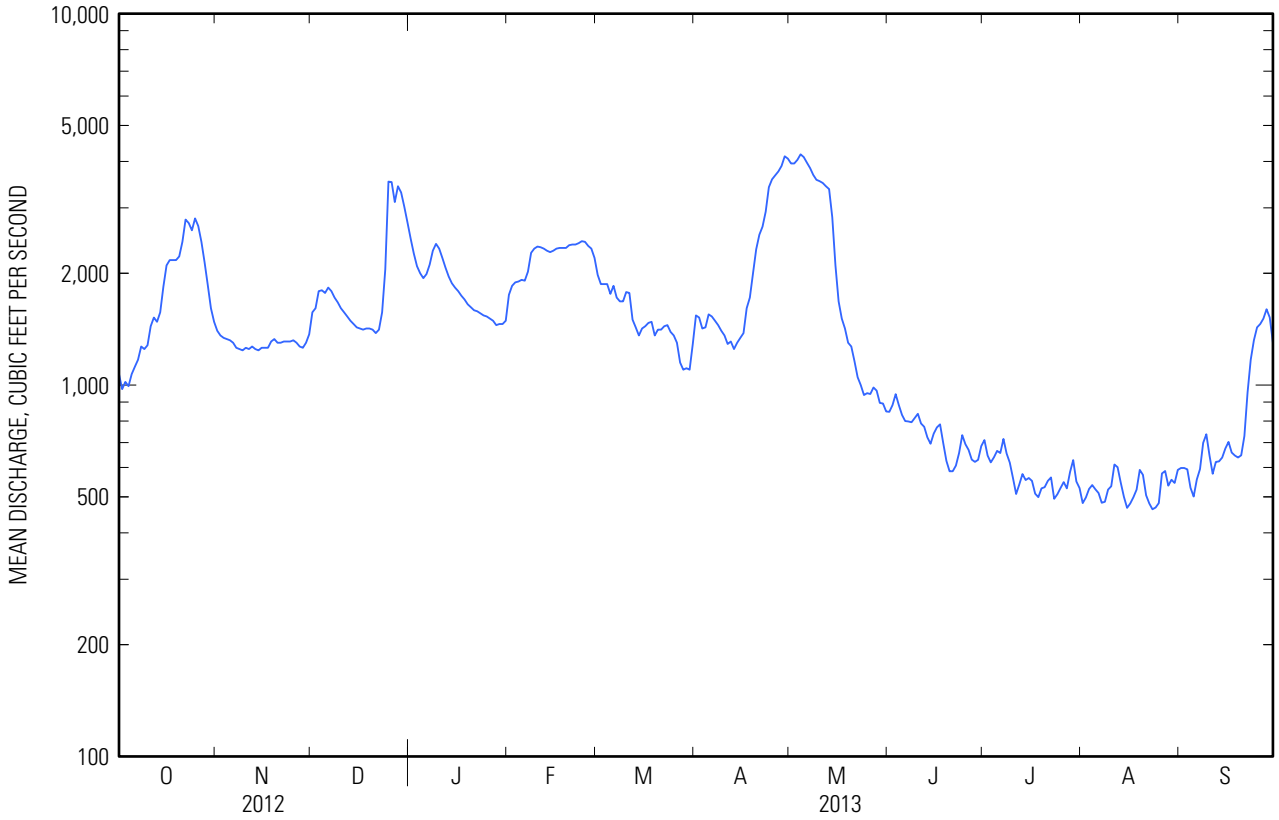
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1924 - 2013, BY WATER YEAR (WY)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	2,306	2,252	3,438	5,018	6,757	7,158	7,217	7,504	6,212	2,598	1,478	1,771
Max	13,320	10,680	25,130	30,380	35,060	40,040	36,450	31,770	36,650	19,230	9,035	11,310
(WY)	(1984)	(1984)	(1951)	(1997)	(1997)	(1983)	(1983)	(1983)	(1938)	(1983)	(1983)	(1983)
Min	246	430	506	804	758	444	200	380	118	92.8	124	179
(WY)	(1978)	(1978)	(1978)	(1962)	(1991)	(1961)	(1961)	(1961)	(1977)	(1977)	(1977)	(1977)

11303500 San Joaquin River near Vernalis, CA—Continued

SUMMARY STATISTICS

	Calendar Year 2012		Water Year 2013		Water Years 1924 - 2013	
Annual total	605,379		539,805			
Annual mean	1,654		1,479		4,460	
Highest annual mean					21,280	1983
Lowest annual mean					575	1977
Highest daily mean	4,440	May 14	4,180	May 4	70,000	Dec 9, 1950
Lowest daily mean	665	Aug 2	463	Aug 23	30	Aug 10, 1961
Annual seven-day minimum	738	Jul 31	507	Aug 20	59	Jul 19, 1961
Maximum peak flow			4,210	May 4	79,000	Dec 9, 1950
Maximum peak stage			12.37	May 4	34.88	Jan 5, 1997
Annual runoff (ac-ft)	1,201,000		1,071,000		3,231,000	
10 percent exceeds	2,710		2,500		11,700	
50 percent exceeds	1,560		1,360		2,080	
90 percent exceeds	834		547		722	



11303500 San Joaquin River near Vernalis, CA—Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1951 to current year.
CHEMICAL DATA: Water years 1951 to 1999, 2001 to current year.
BIOLOGICAL DATA: Water years 1974-81.
TURBIDITY: Water years 1972-84.
SEDIMENT DATA: Water years 1957 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: March 1951 to May 1963, January 1973 to October 1981, June 1985 to September 2005.
WATER TEMPERATURE: March 1951 to current year.
SUSPENDED-SEDIMENT DISCHARGE: November 1956 to current year.

INSTRUMENTATION.--Conductivity recorder, January 1973 to October 1981, June 1985 to September 2005. Water-temperature recorder, October 1961 to September 1963, December 1972 to September 1985, October 2005 to current year. Water-quality monitor, October 1985 to September 2005.

REMARKS.--Mean daily specific-conductance records, January 1973 to October 1981, provided by U.S. Bureau of Reclamation. Maximum and minimum specific-conductance values, June 1985 to September 1988, are available in files of the U.S. Geological Survey. Chemical concentration data collected by the U.S. Geological Survey National Water Quality Assessment Program (NAWQA).
Water-temperature records rated excellent except for Oct. 1-7, Nov. 16 to Dec. 5, Mar. 6-21, Apr. 29 to May 8, which are rated good; Mar. 22 to Apr. 6, Apr. 14-28, May 9-27, which are rated fair; and Apr. 7-13, which are rated poor.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 2,350 microsiemens, Aug. 11, 1961; minimum daily, 60 microsiemens, June 21, 1953.
WATER TEMPERATURE: Maximum recorded, 35.5°C, Aug. 9, 1990; minimum recorded, 2.0°C, Dec. 26, 1987.
SEDIMENT CONCENTRATION: Maximum daily mean, 1,590 mg/L, Dec. 25, 1964; minimum daily mean, 6 mg/L, Jan. 1, 1991.
SEDIMENT LOAD: Maximum daily, 54,100 tons, Dec. 25, 1964; minimum daily, 2 tons, Aug. 10, 1961.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURE: Maximum recorded, 30.7°C, July 3; minimum recorded, 7.6°C, Jan. 1, 2, 15.
SEDIMENT CONCENTRATION: Maximum daily mean, 378 mg/L, Dec. 25; minimum daily mean, 21 mg/L, Aug. 22.
SEDIMENT LOAD: Maximum daily, 3,630 tons, Dec. 25; minimum daily, 27 tons, Aug. 22.

11303500 San Joaquin River near Vernalis, CA—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2012 TO SEPTEMBER 2013

Part 1 of 5

[%, percent; $CaCO_3$, calcium carbonate; N, nitrogen; NTRU, nephelometric turbidity ratio unit; P, phosphorus; SiO_2, silicon dioxide; cm, centimeter; ft^3/s, cubic feet per second; mg/L, milligrams per liter; mm Hg, millimeters of mercury; nm, nanometers; °C, degrees Celsius; µS/cm, microsiemens per centimeter; µg/L, micrograms per liter; --, no data; <, less than; E, estimated]

Sample start time	Date	Barometric pressure, mm Hg (00025)	Absorbance, UV, 254 nm, 1 cm path length, water, filtered, units per cm (50624)	Absorbance, UV, organic constituents, 280 nm, 1 cm path length, water, filtered, units per cm (61726)	Discharge, instanta-neous, ft^3/s (00061)	Dissolved oxygen, water, unfiltered, mg/L (00300)	Dissolved oxygen, water, unfiltered, % saturation (00301)	pH, water, unfiltered, field, standard units (00400)	Specific conduc-tance, water, unfiltered, µS/cm at 25°C (00095)
1140	10-17-2012	758	0.070	0.054	2,190	9.5	99	7.8	402
1110	11-14-2012	764	.095	.073	1,240	10.3	95	7.9	712
1540	12-05-2012	763	.143	.109	1,770	--	--	7.7	674
1130	12-18-2012	763	.113	.088	1,420	9.9	89	7.8	840
1100	01-10-2013	765	.208	.159	2,330	12.9	109	7.7	652
1100	01-24-2013	766	.099	.075	1,530	9.9	87	7.8	969
1010	02-07-2013	765	.082	.061	1,970	10.2	93	7.9	767
1120	02-27-2013	759	.081	.062	2,340	9.5	99	7.8	402
1200	03-21-2013	763	.118	.088	1,410	10.6	108	7.8	590
1240	04-23-2013	760	.059	.044	2,900	8.6	90	7.9	276
1030	05-09-2013	764	--	--	3,580	9.0	89	7.5	220
1230	05-29-2013	758	.080	.061	891	150	1,730	8.8	567
1130	06-11-2013	761	--	--	800	12.2	145	8.8	340
1200	06-27-2013	761	.067	.049	631	11.4	139	8.5	281
0900	07-19-2013	758	.082	.064	516	10.3	121	8.8	563
0830	07-26-2013	762	.087	.068	554	8.7	103	8.4	531
1230	08-07-2013	764	.076	.058	488	8.9	106	8.2	520
1030	09-06-2013	760	.073	.057	552	8.3	95	7.8	394

11303500 San Joaquin River near Vernalis, CA—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2012 TO SEPTEMBER 2013

Part 2 of 5

[%, percent; $CaCO_3$, calcium carbonate; N, nitrogen; NTRU, nephelometric turbidity ratio unit; P, phosphorus; SiO_2, silicon dioxide; cm, centimeter; ft^3/s, cubic feet per second; mg/L, milligrams per liter; mm Hg, millimeters of mercury; nm, nanometers; °C, degrees Celsius; µS/cm, microsiemens per centimeter; µg/L, micrograms per liter; --, no data; <, less than; E, estimated]

Sample start time	Temperature, water, °C (00010)	Turbidity, water, unfiltered, broad band light source (400-680 nm), detectors at multiple angles including 90 +/- 30 degrees, ratiometric correction, NTRU (63676)	Dissolved solids dried at 180°C, water, filtered, mg/L (70300)	Calcium, water, filtered, mg/L (00915)	Magnesium, water, filtered, mg/L (00925)	Potassium, water, filtered, mg/L (00935)	Sodium, water, filtered, mg/L (00930)	Alkalinity, water, filtered, fixed endpoint (pH 4.5) titration, laboratory, mg/L as $CaCO_3$ (29801)	Alkalinity, water, filtered, Gran titration, field, milligrams per liter as calcium carbonate (29802)
1140	17.3	--	231	21.7	10.8	2.04	43.3	78.4	72.4
1110	12.0	E 9.1	422	35.3	19.2	2.55	86.9	121	113
1540	14.0	27	398	31.8	17.4	3.60	79.6	109	--
1130	10.7	E 14	518	40.5	22.6	2.82	108	130	121
1100	8.2	31	419	31.8	17.1	4.96	79.1	105	98.3
1100	9.9	E 16	587	43.3	25.8	3.25	121	140	131
1010	11.3	E 11	436	32.3	20.0	2.31	86.3	107	100
1120	17.3	E 11	348	28.5	15.6	2.26	65.6	89.7	83.3
1200	16.4	E 16	526	38.0	22.8	3.12	103	127	--
1240	17.5	E 14	169	13.9	6.63	1.38	29.8	48.9	44.1
1030	15.4	E 17	134	12.9	5.89	1.15	19.8	46.0	42.1
1230	22.3	E 18	334	30.0	15.9	2.11	62.0	98.3	89.2
1130	23.9	E 14	330	27.9	16.1	2.14	61.4	99.5	88.1
1200	25.5	E 12	315	30.2	16.0	2.16	62.4	102	99.5
0900	22.7	E 18	337	26.5	16.2	2.16	61.4	100	86.3
0830	24.1	E 19	310	27.5	15.2	2.17	56.8	101	93.2
1230	24.1	E 9.4	306	28.2	15.2	2.31	54.3	99.4	92.0
1030	22.1	E 10	392	21.8	10.4	2.08	35.2	80.3	75.2

11303500 San Joaquin River near Vernalis, CA—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2012 TO SEPTEMBER 2013

Part 3 of 5

[%, percent; $CaCO_3$, calcium carbonate; N, nitrogen; NTRU, nephelometric turbidity ratio unit; P, phosphorus; SiO_2, silicon dioxide; cm, centimeter; ft^3/s, cubic feet per second; mg/L, milligrams per liter; mm Hg, millimeters of mercury; nm, nanometers; °C, degrees Celsius; µS/cm, microsiemens per centimeter; µg/L, micrograms per liter; --, no data; <, less than; E, estimated]

Sample start time	Carbon (inorganic plus organic), suspended sediment, total, mg/L (00694)	Chloride, water, filtered, mg/L (00940)	Fluoride, water, filtered, mg/L (00950)	Inorganic carbon, suspended sediment, total, mg/L (00688)	Silica, water, filtered, mg/L as SiO_2 (00955)	Sulfate, water, filtered, mg/L (00945)	Ammonia plus organic nitrogen, water, filtered, mg/L as N (00623)	Ammonia plus organic nitrogen, water, unfiltered, mg/L as N (00625)	Ammonia, water, filtered, mg/L as N (00608)	Nitrate plus nitrite, water, filtered, mg/L as N (00631)
1140	1.85	49.8	0.05	< .03	14.0	38.9	0.20	0.34	< .010	1.62
1110	1.11	100	.11	< .03	14.9	83.8	.22	.34	< .010	1.94
1540	.46	89.5	.10	< .03	13.8	84.0	.41	.68	.034	1.42
1130	.78	122	.11	< .03	14.8	116	.33	.48	.025	1.57
1100	1.66	83.5	.10	< .03	13.3	90.4	.78	1.0	.152	2.01
1100	1.51	142	.11	< .03	14.1	134	.37	.60	.036	2.03
1010	.93	109	.09	< .03	12.5	115	.24	.53	.014	1.32
1120	.87	81.8	.07	< .03	11.9	84.5	.27	.45	.037	1.65
1200	1.93	120	--	< .03	12.5	125	.35	.80	< .010	1.46
1240	1.48	31.3	E .06	< .03	10.2	33.6	.18	.40	< .010	.600
1030	1.02	22.9	.04	< .03	11.7	22.1	.11	.28	< .010	.450
1230	3.93	77.3	.10	< .03	10.8	66.5	.22	.80	< .010	1.16
1130	--	75.6	.08	--	10.8	67.9	.20	.72	< .010	.988
1200	2.97	76.8	.08	< .03	11.5	59.8	.23	1.2	< .010	1.36
0900	3.39	77.6	.07	< .03	9.36	60.8	.20	1.0	< .010	.724
0830	2.91	71.7	.08	< .03	10.4	56.0	.23	.97	< .010	.994
1230	1.95	64.9	.08	.08	13.4	49.8	.19	.55	< .010	1.42
1030	.85	46.8	.06	< .03	14.0	28.2	.19	.43	.014	1.06

11303500 San Joaquin River near Vernalis, CA—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2012 TO SEPTEMBER 2013

Part 4 of 5

[%, percent; $CaCO_3$, calcium carbonate; N, nitrogen; NTRU, nephelometric turbidity ratio unit; P, phosphorus; SiO_2, silicon dioxide; cm, centimeter; ft^3/s, cubic feet per second; mg/L, milligrams per liter; mm Hg, millimeters of mercury; nm, nanometers; °C, degrees Celsius; µS/cm, microsiemens per centimeter; µg/L, micrograms per liter; --, no data; <, less than; E, estimated]

Sample start time	Nitrite, water, filtered, mg/L as N (00613)	Orthophosphate, water, filtered, mg/L as P (00671)	Particulate nitrogen, suspended in water, mg/L (49570)	Phosphorus, water, filtered, mg/L as P (00666)	Phosphorus, water, unfiltered, mg/L as P (00665)	Iron, water, filtered, µg/L (01046)	Lithium, water, filtered, µg/L (01130)	Strontium, water, filtered, µg/L (01080)	Vanadium, water, filtered, µg/L (01085)
1140	0.012	0.080	0.289	0.09	0.14	33.4	3.44	263	2.7
1110	.008	.123	.102	.12	.18	22.4	6.72	435	2.3
1540	.012	.148	.078	.15	.24	43.7	8.27	426	2.6
1130	.007	.116	.125	.11	.18	22.4	10.4	503	2.1
1100	.019	.195	.303	.19	.30	84.0	7.51	376	2.9
1100	.011	.112	.238	.11	.20	15.8	8.35	582	2.4
1010	.009	.082	.112	.08	.15	20.6	7.56	426	1.9
1120	.016	.080	.118	.08	.14	18.7	6.29	362	1.9
1200	.012	.111	.246	.11	.21	24.4	9.59	551	3.3
1240	.006	.059	.194	.05	.13	38.5	2.95	169	2.1
1030	.005	.036	.104	.03	.09	28.8	2.45	141	1.5
1230	.017	.050	.662	.06	.17	28.1	5.72	352	3.6
1130	.022	.066	--	.06	.17	25.5	5.77	350	4.1
1200	.028	.047	.446	.05	.13	24.3	6.15	365	3.6
0900	.025	.023	.657	.03	.16	36.4	5.78	349	3.9
0830	.039	.051	.527	.05	.17	33.4	6.11	344	4.3
1230	.034	.063	.304	.07	.13	25.2	5.07	335	3.6
1030	.015	.071	.123	.07	.12	32.6	3.03	252	3.0

11303500 San Joaquin River near Vernalis, CA—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2012 TO SEPTEMBER 2013

Part 5 of 5

[%, percent; $CaCO_3$, calcium carbonate; N, nitrogen; NTRU, nephelometric turbidity ratio unit; P, phosphorus; SiO_2, silicon dioxide; cm, centimeter; ft^3/s, cubic feet per second; mg/L, milligrams per liter; mm Hg, millimeters of mercury; nm, nanometers; °C, degrees Celsius; µS/cm, microsiemens per centimeter; µg/L, micrograms per liter; --, no data; <, less than; E, estimated]

Sample start time	Arsenic, water, filtered, µg/L (01000)	Boron, water, filtered, µg/L (01020)	Selenium, water, filtered, µg/L (01145)	Organic carbon, suspended sediment, total, mg/L (00689)	Organic carbon, water, filtered, mg/L (00681)
1140	1.2	136	0.20	1.84	2.52
1110	1.6	349	.36	1.08	3.03
1540	1.8	415	.61	.46	5.28
1130	1.4	501	.54	.78	3.57
1100	1.6	405	.82	1.65	5.63
1100	1.4	470	.73	1.51	5.47
1010	1.1	391	.47	.93	3.07
1120	1.2	293	.39	.86	3.01
1200	2.0	510	.52	1.93	4.19
1240	.90	106	.19	1.47	2.14
1030	.70	75	.16	1.02	2.36
1230	1.8	213	.50	3.90	2.42
1130	2.0	200	.44	--	--
1200	1.7	222	.37	2.97	2.57
0900	1.7	218	.37	3.39	2.26
0830	2.0	226	.36	2.91	2.66
1230	1.6	203	.30	1.86	2.19
1030	1.3	122	.21	.85	2.26

11303500 San Joaquin River near Vernalis, CA—Continued

TEMPERATURE, WATER, DEGREES CELSIUS
WATER YEAR OCTOBER 2012 TO SEPTEMBER 2013

Day	Max	Min	Median	Max	Min	Median	Max	Min	Median	Max	Min	Median
		October			November			December			January	
1	23.4	21.7	22.4	16.8	16.4	16.5	14.2	13.6	13.7	8.1	7.6	7.9
2	23.7	21.7	22.5	16.9	16.1	16.5	14.5	14.0	14.2	8.2	7.6	7.9
3	23.5	21.7	22.6	16.9	16.1	16.5	14.0	13.3	13.6	8.3	7.7	8.0
4	22.9	21.6	22.2	16.9	16.1	16.5	13.6	13.3	13.5	8.6	7.9	8.2
5	22.0	20.9	21.3	17.0	16.1	16.5	14.0	13.5	13.7	8.8	8.3	8.4
6	21.3	20.1	20.6	17.1	16.2	16.6	14.2	13.9	14.0	9.2	8.8	9.0
7	20.5	19.4	19.9	17.2	16.3	16.7	14.0	13.5	13.8	9.2	8.7	9.0
8	19.9	19.0	19.4	16.7	15.6	16.2	13.5	12.5	12.9	9.2	8.8	9.1
9	19.6	18.4	19.0	15.6	14.8	15.2	12.5	12.0	12.3	9.0	8.8	9.0
10	19.3	18.2	18.8	14.8	13.9	14.4	12.2	11.6	12.0	8.9	8.5	8.8
11	18.8	17.3	17.8	13.9	13.2	13.5	12.3	11.7	11.9	8.8	8.4	8.7
12	17.3	16.8	17.1	13.2	12.5	12.9	12.4	12.0	12.2	8.7	8.3	8.6
13	17.7	16.4	16.9	13.0	12.2	12.6	12.2	11.2	11.7	8.5	8.1	8.3
14	18.2	16.9	17.3	13.2	12.4	12.7	11.2	10.6	10.9	8.1	7.7	8.0
15	18.0	17.0	17.5	12.9	12.2	12.7	10.6	10.2	10.4	8.3	7.6	7.9
16	18.2	17.0	17.4	13.0	12.6	12.7	10.7	10.0	10.3	8.7	7.9	8.2
17	17.9	17.2	17.6	13.9	13.0	13.3	11.4	10.7	11.1	9.2	8.4	8.6
18	17.7	16.8	17.2	14.7	13.8	14.2	11.3	10.8	11.1	9.6	8.8	9.1
19	18.1	17.0	17.3	14.9	14.2	14.4	10.8	10.1	10.5	10.0	9.2	9.5
20	18.1	17.5	17.7	14.9	14.2	14.5	10.1	9.4	9.7	10.3	9.6	9.9
21	17.6	17.0	17.3	15.2	14.7	14.8	9.5	9.0	9.2	10.4	9.7	10.1
22	17.2	16.3	16.5	14.8	14.0	14.4	10.0	9.3	9.5	10.6	9.9	10.3
23	16.3	15.6	16.0	14.0	13.3	13.7	10.2	10.0	10.0	10.8	10.5	10.6
24	15.6	15.1	15.3	13.6	13.0	13.4	10.2	9.8	10.0	11.4	10.7	11.0
25	15.2	14.8	15.0	13.3	12.6	13.0	9.8	8.8	9.1	12.3	11.3	11.7
26	14.9	14.4	14.7	13.0	12.2	12.7	9.1	8.8	8.9	13.1	12.2	12.6
27	15.1	14.2	14.6	12.7	12.3	12.6	9.2	8.8	9.1	12.7	12.2	12.5
28	15.7	14.6	14.9	12.9	12.4	12.5	9.2	8.6	8.7	12.4	11.8	12.2
29	16.4	15.3	15.5	13.1	12.7	12.8	8.9	8.6	8.6	12.2	11.7	12.0
30	16.9	15.9	16.2	13.8	13.1	13.4	8.8	8.3	8.5	12.3	11.4	11.9
31	16.8	16.4	16.7	---	---	---	8.4	7.8	8.0	12.4	11.6	12.0
Max	23.7	21.7	22.6	17.2	16.4	16.7	14.5	14.0	14.2	13.1	12.2	12.6
Min	14.9	14.2	14.6	12.7	12.2	12.5	8.4	7.8	8.0	8.1	7.6	7.9

11303500 San Joaquin River near Vernalis, CA—Continued

TEMPERATURE, WATER, DEGREES CELSIUS
WATER YEAR OCTOBER 2012 TO SEPTEMBER 2013

Day	Max	Min	Median	Max	Min	Median	Max	Min	Median	Max	Min	Median
		February			March			April			May	
1	12.1	11.4	11.8	14.4	13.1	13.5	20.6	19.7	20.1	17.4	16.5	17.0
2	11.9	11.5	11.7	14.9	14.0	14.3	20.6	19.2	20.0	17.5	16.5	16.9
3	12.0	11.4	11.6	15.6	14.7	14.9	21.3	19.5	20.2	17.9	16.8	17.1
4	12.2	11.3	11.7	15.4	14.6	15.0	21.0	20.3	20.7	17.8	17.0	17.5
5	12.3	11.8	11.9	15.4	14.5	14.9	21.0	19.8	20.3	17.5	16.8	17.2
6	12.3	11.6	12.0	14.9	14.5	14.6	20.8	19.7	20.3	17.1	16.7	17.0
7	12.2	11.7	12.0	14.8	14.0	14.4	20.8	19.5	20.2	16.7	16.3	16.6
8	11.7	10.8	11.2	15.1	14.2	14.6	20.1	18.6	19.1	16.8	15.9	16.2
9	10.8	10.2	10.5	15.1	14.1	14.5	18.6	17.2	18.0	17.2	15.8	16.3
10	10.6	9.9	10.3	15.3	14.1	14.6	19.5	17.3	17.9	17.6	16.2	16.8
11	10.8	10.0	10.3	15.8	14.4	14.8	20.4	19.0	19.3	18.1	16.6	17.1
12	11.1	10.3	10.5	16.8	15.2	15.6	20.8	19.1	19.8	18.3	17.0	17.4
13	11.4	10.6	10.8	17.6	16.1	16.5	20.8	19.3	20.1	18.6	17.2	17.7
14	11.8	11.0	11.2	18.1	17.0	17.4	20.4	19.0	19.7	19.3	17.6	18.2
15	12.3	11.4	11.6	17.9	17.2	17.6	19.5	18.3	18.9	19.8	18.2	19.1
16	12.5	11.8	12.0	18.1	16.9	17.4	18.3	16.9	17.5	19.7	18.5	18.9
17	12.6	11.8	12.2	18.0	17.1	17.6	17.4	15.9	16.7	20.0	18.0	18.7
18	12.5	11.8	12.1	17.8	16.9	17.4	17.7	16.1	16.7	20.7	17.4	19.2
19	12.1	11.3	11.8	18.0	16.9	17.4	17.9	16.2	16.8	21.3	18.4	20.0
20	11.3	10.6	11.1	18.3	17.3	17.6	18.8	17.3	17.6	22.4	19.1	20.9
21	11.5	10.7	11.0	17.8	16.9	17.5	19.2	17.9	18.4	22.4	20.0	20.9
22	11.8	10.9	11.2	17.4	16.0	16.5	19.7	18.3	18.7	20.9	18.2	19.6
23	12.2	11.6	11.8	16.2	15.0	15.8	19.3	18.0	18.6	21.1	17.5	19.4
24	11.8	11.1	11.6	17.0	15.3	15.8	18.4	17.3	17.9	22.2	18.0	20.1
25	12.0	11.1	11.5	17.8	16.4	16.8	18.2	17.2	17.8	22.1	18.5	20.3
26	12.2	11.3	11.7	18.5	16.9	17.3	18.3	17.3	17.7	22.5	18.9	20.5
27	12.4	11.4	11.8	19.0	17.5	18.0	18.5	17.3	17.8	21.4	19.0	20.2
28	13.3	11.9	12.3	19.8	18.3	18.6	18.7	17.3	17.9	22.8	19.6	21.1
29	---	---	---	20.5	18.7	19.3	18.7	17.7	18.1	23.6	20.1	21.8
30	---	---	---	20.4	19.5	19.9	18.3	17.4	17.9	23.9	20.4	22.1
31	---	---	---	20.7	19.6	19.9	---	---	---	24.2	20.6	22.7
Max	13.3	11.9	12.3	20.7	19.6	19.9	21.3	20.3	20.7	24.2	20.6	22.7
Min	10.6	9.9	10.3	14.4	13.1	13.5	17.4	15.9	16.7	16.7	15.8	16.2

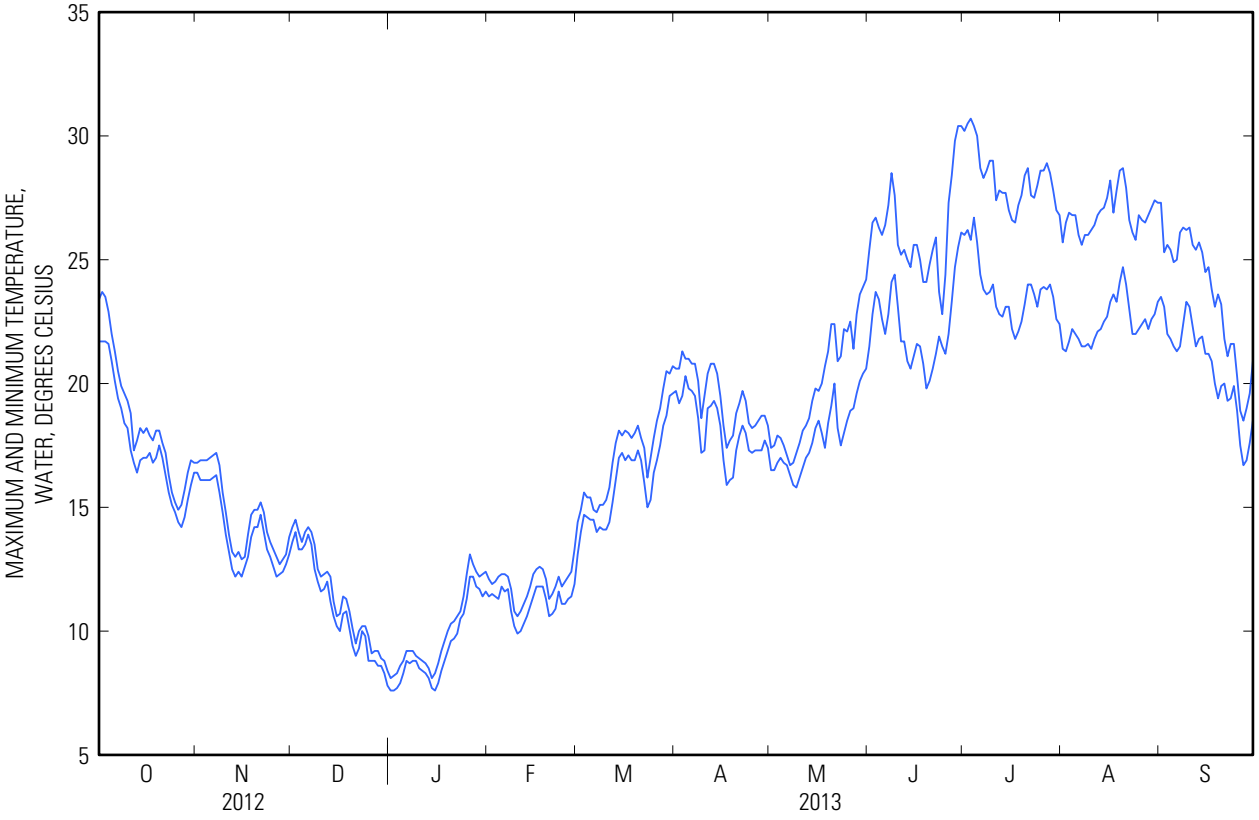
11303500 San Joaquin River near Vernalis, CA—Continued

TEMPERATURE, WATER, DEGREES CELSIUS
WATER YEAR OCTOBER 2012 TO SEPTEMBER 2013

Day	Max	Min	Median	Max	Min	Median	Max	Min	Median	Max	Min	Median
		June			July			August			September	
1	25.4	21.5	23.6	30.2	26.0	28.1	25.7	21.4	23.6	27.3	23.5	24.9
2	26.5	22.8	24.8	30.5	26.2	28.1	26.5	21.3	23.7	25.3	23.1	24.1
3	26.7	23.7	24.9	30.7	25.8	28.3	26.9	21.7	24.1	25.6	22.0	23.4
4	26.3	23.4	24.5	30.4	26.7	28.2	26.8	22.2	24.2	25.4	21.8	23.2
5	26.0	22.6	24.0	30.0	25.7	27.5	26.8	22.0	24.0	24.9	21.5	23.0
6	26.4	22.0	24.3	28.7	24.4	26.5	26.0	21.8	23.7	25.0	21.3	22.8
7	27.2	22.8	25.0	28.3	23.8	25.8	25.6	21.5	23.2	26.1	21.5	23.4
8	28.5	24.1	26.5	28.6	23.6	25.8	26.0	21.5	23.3	26.3	22.4	24.3
9	27.6	24.4	25.8	29.0	23.7	26.2	26.0	21.6	23.4	26.2	23.3	24.6
10	25.6	23.1	23.9	29.0	24.0	26.1	26.2	21.4	23.4	26.3	23.1	24.4
11	25.2	21.7	23.5	27.4	23.1	25.3	26.4	21.8	24.0	25.6	22.3	23.6
12	25.4	21.7	23.2	27.8	22.8	24.8	26.8	22.1	24.3	25.4	21.5	23.4
13	25.0	20.9	22.7	27.7	22.7	25.1	27.0	22.2	24.4	25.7	21.8	23.7
14	24.7	20.6	22.7	27.7	23.1	25.4	27.1	22.5	24.6	25.3	21.9	23.4
15	25.6	21.1	23.3	27.0	23.1	24.8	27.5	22.7	24.9	24.5	21.2	22.8
16	25.6	21.6	23.2	26.6	22.2	24.1	28.2	23.3	25.3	24.7	21.2	22.7
17	25.0	21.5	22.7	26.5	21.8	24.4	26.9	23.6	25.1	23.8	20.9	22.3
18	24.1	20.8	22.0	27.2	22.1	24.7	27.8	23.3	25.1	23.1	20.0	21.6
19	24.1	19.8	21.7	27.6	22.5	25.2	28.6	24.1	26.5	23.6	19.4	21.4
20	24.8	20.1	22.2	28.4	23.2	25.8	28.7	24.7	26.5	23.2	19.9	21.6
21	25.4	20.6	22.7	28.7	24.0	26.3	27.9	24.0	25.5	21.8	20.0	21.0
22	25.9	21.2	23.2	27.6	24.0	25.9	26.6	23.0	24.5	21.1	19.3	20.0
23	23.7	21.9	22.7	27.5	23.6	25.3	26.1	22.0	23.8	21.6	19.4	20.4
24	22.8	21.5	21.9	28.0	23.1	25.7	25.8	22.0	23.7	21.6	19.9	20.5
25	24.4	21.2	22.3	28.6	23.8	26.2	26.8	22.2	23.9	20.3	18.9	19.6
26	27.3	22.0	24.6	28.6	23.9	25.9	26.6	22.4	24.1	18.9	17.5	18.3
27	28.4	23.3	25.9	28.9	23.8	26.1	26.5	22.6	24.1	18.5	16.7	17.7
28	29.8	24.7	27.4	28.5	24.0	26.1	26.8	22.2	24.3	19.0	16.9	17.8
29	30.4	25.5	27.9	27.8	23.5	25.4	27.1	22.6	24.8	19.6	17.6	18.3
30	30.4	26.1	28.1	27.0	22.6	24.5	27.4	22.8	25.0	20.9	18.5	19.5
31	---	---	---	26.8	22.4	24.1	27.3	23.3	25.2	---	---	---
Max	30.4	26.1	28.1	30.7	26.7	28.3	28.7	24.7	26.5	27.3	23.5	24.9
Min	22.8	19.8	21.7	26.5	21.8	24.1	25.6	21.3	23.2	18.5	16.7	17.7

	Max	Min	Median
Year Maximum	30.7	26.7	28.3
Year Minimum	8.1	7.6	7.9

11303500 San Joaquin River near Vernalis, CA—Continued



11303500 San Joaquin River near Vernalis, CA—Continued

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT
WATER YEAR OCTOBER 2012 TO SEPTEMBER 2013

Part 1 of 4

[ft³/s, cubic feet per second; mg/L, milligrams per liter; mm, millimeters; °C, degrees Celsius; A, average]

Sample date-time	Discharge, instantaneous, ft³/s (00061)	Temperature, water, °C (00010)	Suspended sediment, sieve diameter, percent smaller than 0.0625 mm (70331)	Suspended sediment concentration, mg/L (80154)	Suspended sediment discharge, tons per day (80155)
10-03-2012 1414	1,050	23.0	72	23	65
10-03-2012 1415	1,050	23.0	73	27	77
10-03-2012 1417	1,050	23.0	66	30	85
10-03-2012 1424	1,050	23.0	A 75	A 28	A 79
10-03-2012 1425	1,050	23.0	82	29	82
10-03-2012 1426	1,050	23.0	A 74	A 28	A 79
10-03-2012 1427	1,050	23.0	81	32	91
10-03-2012 1428	1,050	23.0	A 72	A 29	A 82
10-03-2012 1430	1,050	23.0	71	33	94
10-03-2012 1433	1,050	23.0	65	33	94
10-03-2012 1436	1,050	23.0	88	24	68
10-03-2012 1439	1,050	23.0	83	23	65
10-17-2012 1140 SS	2,190	17.3	68	32	189
11-14-2012 1110 SS	1,240	12.0	90	21	70
11-28-2012 1331	1,300	12.7	86	22	77
11-28-2012 1332	1,300	12.7	87	24	84
11-28-2012 1339	1,300	12.7	68	27	95
11-28-2012 1342	1,300	12.7	71	26	91
11-28-2012 1343	1,300	12.7	A 70	A 28	A 98
11-28-2012 1345	1,300	12.7	63	32	112
11-28-2012 1346	1,300	12.7	A 72	A 27	A 95
11-28-2012 1347	1,300	12.7	58	34	119
11-28-2012 1348	1,300	12.7	A 71	A 27	A 95
11-28-2012 1349	1,300	12.7	59	35	123
11-28-2012 1352	1,300	12.7	66	29	102
11-28-2012 1355	1,300	12.7	82	23	81
11-28-2012 1358	1,300	12.7	87	21	74
12-05-2012 1540 SS	1,770	14.0	94	48	230
12-18-2012 1130 SS	1,420	10.7	85	33	127
01-08-2013 1250	2,320	9.2	65	78	489
01-08-2013 1252	2,320	9.2	80	60	376
01-08-2013 1255	2,320	9.2	88	57	357
01-08-2013 1257	2,320	9.2	90	54	338
01-08-2013 1300	2,320	9.2	86	57	357
01-08-2013 1301	2,320	9.2	A 78	A 64	A 401
01-08-2013 1302	2,320	9.2	86	58	363
01-08-2013 1303	2,320	9.2	A 84	A 58	A 363
01-08-2013 1304	2,320	9.2	A 81	A 61	A 382
01-08-2013 1305	2,320	9.2	89	55	345
01-08-2013 1308	2,320	9.2	86	58	363

SS Suspended sediment data determined from a sample collected and processed according to National Water-Quality Assessment (NAWQA) Program protocol.

11303500 San Joaquin River near Vernalis, CA—Continued

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT
WATER YEAR OCTOBER 2012 TO SEPTEMBER 2013

Part 2 of 4

[ft³/s, cubic feet per second; mg/L, milligrams per liter; mm, millimeters; °C, degrees Celsius; A, average]

Sample date-time	Discharge, instantaneous, ft³/s (00061)	Temperature, water, °C (00010)	Suspended sediment, sieve diameter, percent smaller than 0.0625 mm (70331)	Suspended sediment concentration, mg/L (80154)	Suspended sediment discharge, tons per day (80155)
01-08-2013 1311	2,320	9.2	71	71	445
01-08-2013 1315	2,320	9.2	80	61	382
01-10-2013 1100 SS	2,330	8.2	89	63	397
01-24-2013 1100 SS	1,530	9.9	84	42	174
02-07-2013 1010 SS	1,970	11.3	82	28	149
02-20-2013 1211	2,450	10.8	68	32	212
02-20-2013 1214	2,450	10.8	72	37	245
02-20-2013 1217	2,450	10.8	66	29	192
02-20-2013 1220	2,450	10.8	60	30	198
02-20-2013 1222	2,450	10.8	62	29	192
02-20-2013 1223	2,450	10.8	A 62	A 30	A 198
02-20-2013 1224	2,450	10.8	A 62	A 31	A 205
02-20-2013 1225	2,450	10.8	53	35	232
02-20-2013 1226	2,450	10.8	A 63	A 32	A 212
02-20-2013 1229	2,450	10.8	67	27	179
02-20-2013 1231	2,450	10.8	67	26	172
02-20-2013 1234	2,450	10.8	50	35	232
02-20-2013 1237	2,450	10.8	61	33	218
02-27-2013 1120 SS	2,340	17.3	77	27	170
03-21-2013 1200 SS	1,410	16.4	97	10	38
04-10-2013 1223	1,400	18.5	63	58	219
04-10-2013 1228	1,400	18.5	76	48	181
04-10-2013 1230	1,400	18.5	80	50	189
04-10-2013 1232	1,400	18.5	85	45	170
04-10-2013 1233	1,400	18.5	A 76	A 50	A 189
04-10-2013 1234	1,400	18.5	A 78	A 48	A 181
04-10-2013 1235	1,400	18.5	84	46	174
04-10-2013 1236	1,400	18.5	A 80	A 47	A 178
04-10-2013 1239	1,400	18.5	65	57	215
04-10-2013 1241	1,400	18.5	78	49	185
04-10-2013 1244	1,400	18.5	99	39	147
04-10-2013 1247	1,400	18.5	78	43	163
04-23-2013 1240 SS	2,900	17.5	74	46	360
05-01-2013 1341	3,960	16.8	76	46	492
05-01-2013 1344	3,960	16.8	79	42	449
05-01-2013 1346	3,960	16.8	66	52	556
05-01-2013 1353	3,960	16.8	61	57	609
05-01-2013 1355	3,960	16.8	A 66	A 52	A 556
05-01-2013 1357	3,960	16.8	A 64	A 53	A 567
05-01-2013 1359	3,960	16.8	A 63	A 54	A 577

SS Suspended sediment data determined from a sample collected and processed according to National Water-Quality Assessment (NAWQA) Program protocol.

11303500 San Joaquin River near Vernalis, CA—Continued

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT
WATER YEAR OCTOBER 2012 TO SEPTEMBER 2013

Part 3 of 4

[ft³/s, cubic feet per second; mg/L, milligrams per liter; mm, millimeters; °C, degrees Celsius; A, average]

Sample date-time	Discharge, instantaneous, ft³/s (00061)	Temperature, water, °C (00010)	Suspended sediment, sieve diameter, percent smaller than 0.0625 mm (70331)	Suspended sediment concentration, mg/L (80154)	Suspended sediment discharge, tons per day (80155)
05-01-2013 1400	3,960	16.8	60	59	631
05-01-2013 1404	3,960	16.8	61	57	609
05-01-2013 1406	3,960	16.8	55	63	674
05-01-2013 1409	3,960	16.8	64	55	588
05-01-2013 1411	3,960	16.8	66	49	524
05-09-2013 1030 SS	3,580	15.4	70	46	445
05-29-2013 1230 SS	891	22.3	87	40	96
06-11-2013 1130 SS	800	23.9	67	38	82
06-25-2013 1236	697	23.0	82	26	49
06-25-2013 1238	697	23.0	83	24	45
06-25-2013 1240	697	23.0	69	34	64
06-25-2013 1241	697	23.0	76	29	55
06-25-2013 1244	697	23.0	79	31	58
06-25-2013 1245	697	23.0	A 81	A 29	A 55
06-25-2013 1246	697	23.0	73	35	66
06-25-2013 1247	697	23.0	A 80	A 29	A 55
06-25-2013 1248	697	23.0	87	30	56
06-25-2013 1249	697	23.0	A 81	A 29	A 55
06-25-2013 1250	697	23.0	89	30	56
06-25-2013 1253	697	23.0	92	26	49
06-25-2013 1255	697	23.0	83	30	56
07-19-2013 0900 SS	516	22.7	92	30	42
07-26-2013 0830 SS	554	24.1	94	32	48
08-02-2013 1328	511	24.9	88	25	34
08-02-2013 1330	511	24.9	95	22	30
08-02-2013 1334	511	24.9	86	31	43
08-02-2013 1336	511	24.9	84	27	37
08-02-2013 1339	511	24.9	A 87	A 29	A 40
08-02-2013 1340	511	24.9	86	33	46
08-02-2013 1341	511	24.9	90	29	40
08-02-2013 1342	511	24.9	A 88	A 28	A 39
08-02-2013 1343	511	24.9	A 88	A 28	A 39
08-02-2013 1345	511	24.9	89	26	36
08-02-2013 1346	511	24.9	91	27	37
08-02-2013 1350	511	24.9	87	31	43
08-02-2013 1352	511	24.9	82	34	47
08-07-2013 1230 SS	488	24.1	90	21	28
08-29-2013 1309	570	25.9	88	29	45
08-29-2013 1315	570	25.9	69	45	69
08-29-2013 1316	570	25.9	A 82	A 33	A 51

SS Suspended sediment data determined from a sample collected and processed according to National Water-Quality Assessment (NAWQA) Program protocol.

11303500 San Joaquin River near Vernalis, CA—Continued

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT
WATER YEAR OCTOBER 2012 TO SEPTEMBER 2013

Part 4 of 4

[ft³/s, cubic feet per second; mg/L, milligrams per liter; mm, millimeters; °C, degrees Celsius; A, average]

Sample date-time	Discharge, instanta-neous, ft³/s (00061)	Tempera-ture, water, °C (00010)	Suspended sediment, sieve diameter, percent smaller than 0.0625 mm (70331)	Suspended sediment concen-tration, mg/L (80154)	Suspended sediment discharge, tons per day (80155)
08-29-2013 1318	570	25.9	A 92	A 27	A 42
08-29-2013 1319	570	25.9	A 87	A 31	A 48
08-29-2013 1320	570	25.9	88	26	40
08-29-2013 1321	570	25.9	93	27	42
08-29-2013 1325	570	25.9	89	28	43
08-29-2013 1326	570	25.9	96	26	40
09-06-2013 1030 SS	552	22.1	89	24	36

SS Suspended sediment data determined from a sample collected and processed according to National Water-Quality Assessment (NAWQA) Program protocol.

PARTICLE-SIZE DISTRIBUTION OF SURFACE BED MATERIAL
WATER YEAR OCTOBER 2012 TO SEPTEMBER 2013

[ft³/s, cubic feet per second; mm, millimeters; °C, degrees Celsius; --, no data; <, less than]

Sample date-time	Number of sampling points, count (00063)	Discharge, instanta-neous, ft³/s (00061)	Tempera-ture, water, °C (00010)	Bed sediment, dry sieved, sieve diameter, percent smaller than 0.0625 mm (80164)	Bed sediment, dry sieved, sieve diameter, percent smaller than 0.125 mm (80165)	Bed sediment, dry sieved, sieve diameter, percent smaller than 0.25 mm (80166)	Bed sediment, dry sieved, sieve diameter, percent smaller than 0.5 mm (80167)	Bed sediment, dry sieved, sieve diameter, percent smaller than 1 mm (80168)	Bed sediment, dry sieved, sieve diameter, percent smaller than 2 mm (80169)	Bed sediment, dry sieved, sieve diameter, percent smaller than 4 mm (80170)
11-28-2012 1412	1	1,300	12.7	1	4	22	75	99	100	--
11-28-2012 1415	1	1,300	12.7	< 1	< 1	10	55	85	92	100
11-28-2012 1419	1	1,300	12.7	< 1	< 1	8	81	100	--	--
11-28-2012 1422	1	1,300	12.7	< 1	< 1	3	58	97	100	--
11-28-2012 1426	1	1,300	12.7	< 1	< 1	9	70	96	99	100
04-10-2013 1312	1	1,400	18.5	< 1	< 1	1	37	87	98	100
04-10-2013 1316	1	1,400	18.5	< 1	< 1	9	75	98	100	--
04-10-2013 1321	1	1,400	18.5	< 1	< 1	8	65	95	100	--
04-10-2013 1325	1	1,400	18.5	< 1	< 1	7	55	91	99	100
04-10-2013 1330	1	1,400	18.5	< 1	< 1	14	72	97	100	--

11303500 San Joaquin River near Vernalis, CA—Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY)
WATER YEAR OCTOBER 2012 TO SEPTEMBER 2013

Day	Mean discharge (ft³/s)	Mean concen-tration (mg/L)	Sediment discharge (tons/day)	Mean discharge (ft³/s)	Mean concen-tration (mg/L)	Sediment discharge (tons/day)	Mean discharge (ft³/s)	Mean concen-tration (mg/L)	Sediment discharge (tons/day)
		October			November			December	
1	1,070	34	99	1,400	40	149	1,570	50	211
2	975	30	79	1,360	33	120	1,610	56	241
3	1,020	30	82	1,340	39	140	1,790	67	325
4	993	32	85	1,330	43	153	1,800	61	296
5	1,070	34	99	1,320	44	157	1,770	60	286
6	1,120	33	101	1,300	37	131	1,830	63	309
7	1,170	34	108	1,260	36	123	1,790	59	286
8	1,270	37	126	1,250	37	124	1,720	55	257
9	1,250	37	125	1,240	36	120	1,670	46	205
10	1,280	40	137	1,260	34	114	1,610	46	198
11	1,440	49	189	1,250	29	97	1,570	45	189
12	1,520	43	178	1,270	28	98	1,530	46	189
13	1,480	35	139	1,250	27	92	1,490	62	251
14	1,570	34	146	1,240	30	101	1,460	35	136
15	1,840	37	182	1,260	25	84	1,430	29	113
16	2,100	35	199	1,260	30	103	1,420	32	123
17	2,170	32	186	1,260	39	132	1,410	42	158
18	2,170	35	202	1,310	42	147	1,420	36	139
19	2,170	41	242	1,330	37	134	1,420	31	118
20	2,220	36	217	1,300	34	120	1,410	25	97
21	2,430	39	256	1,300	39	138	1,380	24	91
22	2,790	51	385	1,310	43	151	1,410	28	105
23	2,730	51	380	1,310	40	140	1,570	43	184
24	2,610	49	344	1,310	35	125	2,050	135	798
25	2,810	45	344	1,320	30	108	3,530	378	3,630
26	2,680	37	267	1,300	31	110	3,520	187	1,800
27	2,430	34	223	1,270	34	116	3,110	120	1,010
28	2,140	36	210	1,260	34	115	3,430	125	1,160
29	1,860	34	170	1,300	36	126	3,300	106	950
30	1,610	30	128	1,370	40	149	3,020	90	736
31	1,480	38	153	---	---	---	2,740	73	545
Total	55,468	---	5,781	38,840	---	3,717	60,780	---	15,136

11303500 San Joaquin River near Vernalis, CA—Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY)
WATER YEAR OCTOBER 2012 TO SEPTEMBER 2013

Day	Mean discharge (ft³/s)	Mean concen-tration (mg/L)	Sediment discharge (tons/day)	Mean discharge (ft³/s)	Mean concen-tration (mg/L)	Sediment discharge (tons/day)	Mean discharge (ft³/s)	Mean concen-tration (mg/L)	Sediment discharge (tons/day)
		January			February			March	
1	2,480	58	386	1,750	38	181	1,980	28	148
2	2,260	57	346	1,850	42	208	1,870	29	146
3	2,090	42	235	1,890	37	187	1,870	29	149
4	2,000	35	191	1,900	33	171	1,870	32	163
5	1,940	33	171	1,920	33	171	1,760	32	153
6	1,990	43	232	1,910	34	174	1,850	38	188
7	2,110	51	294	2,020	38	207	1,720	38	177
8	2,300	60	373	2,270	39	239	1,680	43	193
9	2,400	63	410	2,330	36	226	1,680	48	217
10	2,330	67	419	2,360	38	245	1,780	53	255
11	2,200	61	363	2,350	46	295	1,770	48	231
12	2,070	52	290	2,330	37	231	1,500	51	207
13	1,960	49	258	2,300	35	219	1,430	59	230
14	1,880	47	240	2,280	33	203	1,360	51	187
15	1,830	31	155	2,300	38	238	1,420	51	196
16	1,790	32	155	2,330	52	326	1,440	48	186
17	1,740	26	123	2,340	38	242	1,470	45	179
18	1,700	27	122	2,340	34	215	1,480	48	193
19	1,650	28	124	2,340	36	231	1,360	49	180
20	1,620	32	140	2,380	32	204	1,410	54	204
21	1,590	28	119	2,390	31	200	1,410	53	200
22	1,580	31	133	2,390	31	202	1,440	62	240
23	1,560	29	121	2,410	33	217	1,450	50	195
24	1,540	33	139	2,440	32	213	1,390	46	174
25	1,530	41	170	2,430	33	214	1,360	51	189
26	1,510	47	192	2,370	31	200	1,300	48	168
27	1,490	38	153	2,330	31	195	1,150	46	143
28	1,450	41	162	2,200	35	211	1,100	49	146
29	1,460	33	128	---	---	---	1,110	46	139
30	1,460	30	118	---	---	---	1,100	47	139
31	1,490	34	136	---	---	---	1,290	52	181
Total	57,000	---	6,598	62,450	---	6,065	46,800	---	5,696

11303500 San Joaquin River near Vernalis, CA—Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY)
WATER YEAR OCTOBER 2012 TO SEPTEMBER 2013

Day	Mean discharge (ft³/s)	Mean concen-tration (mg/L)	Sediment discharge (tons/day)	Mean discharge (ft³/s)	Mean concen-tration (mg/L)	Sediment discharge (tons/day)	Mean discharge (ft³/s)	Mean concen-tration (mg/L)	Sediment discharge (tons/day)
		April			May			June	
1	1,540	56	232	3,950	53	563	847	56	128
2	1,520	48	196	3,950	53	561	883	49	117
3	1,420	49	187	4,040	54	586	945	53	134
4	1,430	49	190	4,180	47	530	883	58	137
5	1,550	59	248	4,110	49	546	831	53	119
6	1,530	56	231	3,970	58	622	800	47	101
7	1,490	62	251	3,840	53	555	798	42	90
8	1,450	65	254	3,680	46	461	794	39	84
9	1,400	54	203	3,570	51	496	815	55	121
10	1,360	51	188	3,540	52	501	837	70	158
11	1,290	57	197	3,500	52	487	788	59	126
12	1,310	50	176	3,430	57	531	772	46	96
13	1,250	55	187	3,370	54	494	723	38	75
14	1,300	50	175	2,830	49	378	695	34	63
15	1,340	56	202	2,100	47	266	740	38	76
16	1,380	53	197	1,680	53	239	769	46	96
17	1,610	55	240	1,510	43	178	784	62	132
18	1,720	58	271	1,420	42	162	698	43	82
19	2,000	53	283	1,300	43	152	625	36	60
20	2,320	51	317	1,270	44	152	586	35	55
21	2,540	47	320	1,160	42	132	586	32	50
22	2,670	49	353	1,050	42	119	607	52	86
23	2,930	51	405	999	41	110	656	49	87
24	3,410	68	627	940	43	108	733	68	136
25	3,580	63	613	951	50	128	693	45	85
26	3,670	66	653	946	50	127	669	47	85
27	3,760	67	681	985	66	175	630	40	69
28	3,890	58	613	966	55	143	621	44	74
29	4,130	51	571	895	51	123	629	44	76
30	4,070	48	526	892	54	129	685	48	89
31	---	---	---	849	49	113	---	---	---
Total	64,860	---	9,787	71,873	---	9,867	22,122	---	2,887

11303500 San Joaquin River near Vernalis, CA—Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY)
WATER YEAR OCTOBER 2012 TO SEPTEMBER 2013

Day	Mean discharge (ft³/s)	Mean concen-tration (mg/L)	Sediment discharge (tons/day)	Mean discharge (ft³/s)	Mean concen-tration (mg/L)	Sediment discharge (tons/day)	Mean discharge (ft³/s)	Mean concen-tration (mg/L)	Sediment discharge (tons/day)
		July			August			September	
1	711	70	135	481	31	41	598	42	68
2	646	57	99	498	28	38	598	40	65
3	619	53	88	525	29	41	593	37	59
4	639	51	89	538	38	56	529	30	42
5	665	51	91	524	38	54	501	26	36
6	656	56	99	512	32	44	557	27	40
7	716	58	111	482	28	37	594	43	70
8	654	59	105	485	29	38	699	69	131
9	618	54	90	523	27	38	737	51	102
10	562	54	82	534	29	42	646	33	58
11	509	62	86	611	38	63	577	25	38
12	540	52	76	601	41	66	621	31	53
13	576	48	75	546	35	51	623	45	75
14	555	50	74	500	34	46	638	66	114
15	562	50	75	467	30	38	675	44	80
16	552	50	74	480	34	45	703	34	65
17	510	46	63	499	43	57	658	39	70
18	499	43	58	523	45	64	646	42	73
19	527	39	56	591	38	61	638	34	59
20	531	37	53	573	37	58	647	48	84
21	552	62	94	505	25	35	729	47	93
22	564	54	83	480	21	27	955	48	124
23	494	41	54	463	31	38	1,170	57	181
24	508	38	52	468	47	60	1,320	64	228
25	528	44	62	481	35	46	1,430	63	242
26	548	48	71	578	59	92	1,460	63	249
27	527	51	72	587	48	76	1,510	60	245
28	583	54	84	536	39	57	1,600	53	230
29	628	49	83	556	36	53	1,520	47	191
30	550	45	68	545	47	69	1,300	53	184
31	528	40	58	591	41	65	---	---	---
Total	17,857	---	2,460	16,283	---	1,596	25,472	---	3,349

	Total discharge (ft³/s)	Total suspended sediment discharge (tons)
Year	539,805	72,939

11303500 San Joaquin River near Vernalis, CA—Continued

CROSS SECTION ANALYSES
WATER YEAR OCTOBER 2012 TO SEPTEMBER 2013

[ft, feet; mg/L, milligrams per liter; °C, degrees Celsius; µS/cm, microsiemens per centimeter; --, no data]

Sample date-time	Dissolved oxygen, water, unfiltered, mg/L (00300)	pH, water, unfiltered, field, standard units (00400)	Specific conduc-tance, water, unfiltered, µS/cm at 25°C (00095)	Tempera-ture, water, °C (00010)	Depth to bottom at sample location, ft (81903)	Sampling depth, ft (00003)	Stream width, ft (00004)	Location in cross section, distance from left bank looking down-stream, ft (00009)
10-30-2012 1048	--	--	--	--	--	--	--	--
12-05-2012 1543	--	--	--	--	--	--	--	--
12-18-2012 1133	--	--	--	--	--	--	--	--
04-11-2013 1023	--	--	--	--	--	--	--	--
05-29-2013 1231	--	--	--	--	--	--	--	--
06-25-2013 1142	--	--	--	22.1	2.80	.60	272	29.0
06-25-2013 1143	--	--	--	22.1	2.80	2.20	272	29.0
06-25-2013 1145	--	--	--	22.1	1.60	1.00	272	114
06-25-2013 1147	--	--	--	22.1	1.50	.90	272	162
06-25-2013 1149	--	--	--	22.1	.90	.50	272	212
06-25-2013 1151	--	--	--	22.2	1.80	1.10	272	250
08-02-2013 1408	--	--	--	25.3	2.30	1.40	152	25.0
08-02-2013 1410	--	--	--	25.3	2.40	1.40	152	52.0
08-02-2013 1412	--	--	--	25.3	2.90	.60	152	74.0
08-02-2013 1413	--	--	--	25.4	2.90	2.30	152	74.0
08-02-2013 1415	--	--	--	25.4	3.10	.60	152	92.0
08-02-2013 1416	--	--	--	25.4	3.10	2.50	152	92.0
08-02-2013 1418	--	--	--	25.4	2.10	1.30	152	111
08-07-2013 1233	8.9	8.2	520	24.1	--	--	--	--
09-06-2013 0925	--	7.0	1	--	--	--	--	--

Note: Instantaneous discharge at mean time of cross-sectional measurements: June 25, 692 ft^3/s; Aug. 2, 536 ft^3/s.