

SELECTED WATER-QUALITY DATA FOR THE SAN JOAQUIN RIVER AND
ITS TRIBUTARIES, CALIFORNIA, JUNE TO SEPTEMBER 1985

By Robert J. Gilliom

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DONALD PAUL HODEL, Secretary

GEOLOGICAL SURVEY

Dallas L. Peck, Director

For additional information
write to:
District Chief
U.S. Geological Survey
Federal Building, Room W-2234
2800 Cottage Way
Sacramento, CA 95825

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CONVERSION FACTORS

For this report, the inch-pound system of units was used. For those readers who may prefer metric units rather than inch-pound units, the conversion factors for the terms used in this report are listed below:

<u>Multiply</u>	<u>By</u>	<u>To obtain</u>
ft (feet)	0.3048	meters
ft ³ /s (cubic feet per second)	0.0283	cubic meters per second
mi (miles)	1.609	kilometers

Chemical concentrations are given in milligrams per liter (mg/L) or micrograms per liter ($\mu\text{g/L}$). Milligrams per liter is a unit expressing the solute per unit volume (liter) of water. One thousand micrograms per liter is equivalent to 1 milligram per liter. For concentrations less than about 7,000 mg/L, milligrams per liter is equivalent to "parts per million" and micrograms per liter is equivalent to "parts per billion."

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ABSTRACT

Streamflow, specific conductance, and concentrations of dissolved solids, boron, molybdenum, and selenium were measured at 11 sites on the San Joaquin River and its tributaries approximately twice per month during June to September 1985. Streamflows were lowest in the San Joaquin River near Stevinson (median 43 ft³/s [cubic feet per second]) and in Mud Slough (median 74.7 ft³/s). The flow of the San Joaquin River increased downstream to Vernalis (median 2,460 ft³/s); most flows are from the Merced (median 221.5 ft³/s), Tuolumne (median 201 ft³/s), and Stanislaus (median 1,390 ft³/s) Rivers, which enter the San Joaquin River from the east. The Stanislaus River had the lowest median concentrations of dissolved solids (59 milligrams per liter), dissolved boron (10 micrograms per liter), and dissolved molybdenum (less than 1 microgram per liter). Dissolved selenium was lowest in the Stanislaus, Tuolumne, and Merced Rivers, and the San Joaquin River near Stevinson, all of which had concentrations that were not detectable at the level of 1 microgram per liter, except for one detection of dissolved selenium of 1 microgram per liter in the Tuolumne River. Mud Slough had the highest median concentrations of dissolved solids (1,425 milligrams per liter), dissolved boron (2,850 micrograms per liter), and dissolved selenium (21 micrograms per liter). The highest dissolved molybdenum concentrations were in Mud Slough (8 micrograms per liter) and the San Joaquin River at Freemont Ford (8 micrograms per liter).

INTRODUCTION

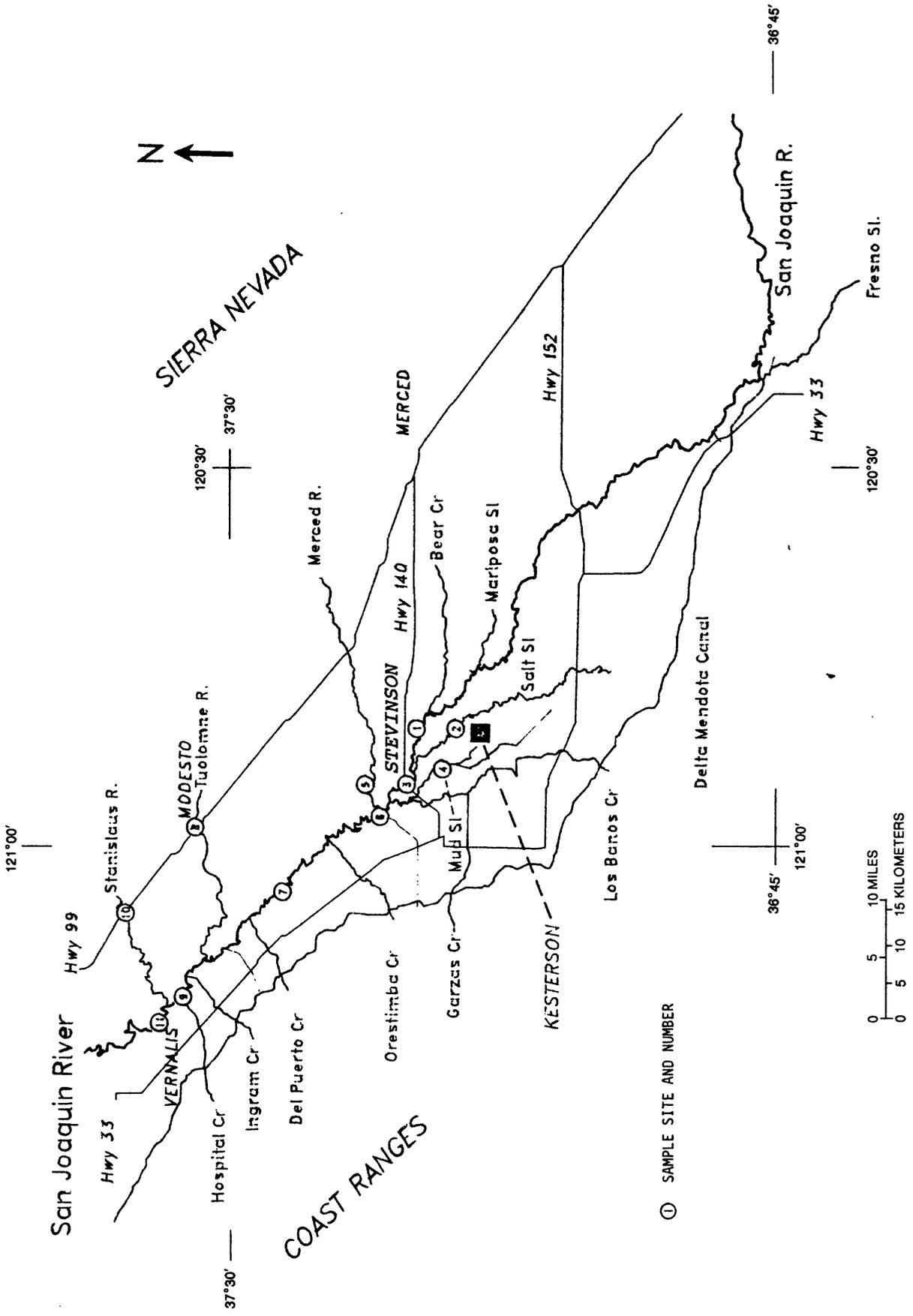
The U.S. Geological Survey, in cooperation with the U.S. Bureau of Reclamation began a water-quality study of the San Joaquin River and its tributaries in June 1985 with the purpose of assessing the effects of agricultural drainage water on the quality of the San Joaquin River and on loading of contaminants to the delta and San Francisco Bay. The objectives of the San Joaquin River study are (1) to delineate occurrence and distribution of dissolved solids and trace elements in the San Joaquin River, (2) to describe seasonal loading and mass transport of these constituents by the river to the Sacramento-San Joaquin Delta, and (3) to investigate the sources to the river of ground or surface water with high concentrations of dissolved solids or trace elements.

This report presents selected data collected as part of the San Joaquin River study so that the public, and State and Federal agencies have access to the most up-to-date information possible.

DESCRIPTION OF DATA

The data in this report are from monitoring conducted as part of the San Joaquin River study at 11 sites on the San Joaquin River and its tributaries (fig. 1). The data are for samples collected approximately twice per month during June to September 1985. The properties and selected constituents reported for each station are streamflow, specific conductance (an indirect measure of dissolved solids), dissolved solids, and total and dissolved concentrations of the trace elements--boron, molybdenum, and selenium (table 1). Streamflow data include direct measurements of flow, values computed from the stage (gage height) record at stations with well-defined stage-discharge relation, and estimated values. Stations are identified in figure 1 and table 1 by river-study site nos. 1 to 11. U.S. Geological Survey station identification nos. and location descriptions are given in table 1.

Additional data are included for the San Joaquin River near Vernalis for November 16, 1984, and February 25 and May 14, 1985. These additional data were collected as part of the U.S. Geological Survey National Stream Quality Accounting Network (NASQAN), an ongoing National program.



① SAMPLE SITE AND NUMBER

FIGURE 1. - Location of sampling sites,

METHODS

Where new stations were established, or historical stations upgraded, streamflow data were initially estimated from field observations, the measured stage, and measured flow records from nearby stations. Estimated streamflow data will be revised when the stage-discharge relation are firmly established at these stations. For water-quality data, specific conductance was measured in the field, and dissolved solids, boron, molybdenum, and selenium concentrations were analyzed by the U.S. Geological Survey Laboratory in Denver, Colorado. Standard U.S. Geological Survey methods were used for sample collection (U.S. Geological Survey, 1977) and chemical analyses (Skougstad and others, 1979; Fishman and Bradford, 1982).

RESULTS

Results of the data collection are given in table 1 and summarized by range and median values in table 2. The median value is the middle value, with half the values being lower and half higher. Streamflows were lowest in the San Joaquin River near Stevinson (site 1, median of 43 ft³/s), and in Mud Slough (site 4, 74.7 ft³/s). The median flow of the San Joaquin River increased downstream to Vernalis (site 11, 2,460 ft³/s) with most flow coming from the Merced (site 5, 221.5 ft³/s), Tuolumne (site 8, 201 ft³/s), and Stanislaus (site 10, 1,390 ft³/s) Rivers, which enter from the east.

The Stanislaus River had the lowest median concentration of dissolved solids (59 mg/L), dissolved boron (10 µg/L), and dissolved molybdenum (<1 µg/L). Dissolved selenium was lowest in the Stanislaus, Tuolumne, and Merced Rivers, and the San Joaquin River near Stevinson, all of which had concentrations that were not detectable at the 1-µg/L level, except for one detection of dissolved selenium of 1 µg/L in the Tuolumne River.

Mud Slough had the highest median concentration of dissolved solids (1,425 mg/L), dissolved boron (2,850 µg/L), and dissolved selenium (21 µg/L). The highest median dissolved molybdenum concentrations were in Mud Slough (8 µg/L) and the San Joaquin River at Freemont Ford (site 3, 8 µg/L).

REFERENCES CITED

- Fishman, M.J., and Bradford, W.L., 1982, A supplement to methods for the determination of inorganic substances in water and fluvial sediments: U.S. Geological Survey Open-File Report 82-272, 136 p.
- Skougstad, M.W., Fishman, M.J., Friedman, L.C., Erdman, D.E., and Duncan, S.S., eds., 1979, Methods for determination of inorganic substances in water and fluvial sediments: U.S. Geological Survey Techniques of Water-Resources Investigations, Book 5, Chapter A1, 626 p.
- U.S. Geological Survey, 1977, National handbook of recommended methods for water-data acquisition: U.S. Geological Survey, Office of Water Data Coordination, various pagination.

Table 1.--Selected water-quality data

[Site nos. are shown in figure 1. E, estimated value. Apparent discrepancies between total and dissolved values are within limits of analytical and sampling errors and are not significant]

SITE 1.--11260815 SAN JOAQUIN RIVER NEAR STEVINSON, CA

LOCATION.--Lat 37°17'42", long 120°51'00", in sec.26, T.7 S., R.10 E., Merced Co., HU 18040001, on Highway 165 (Lander Ave) 2.5 miles south of Stevinson.

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (FT ³ /S)	SPECIFIC CONDUCTANCE (UMHO)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	BORON, DIS-SOLVED (UG/L AS B)	BORON, TOTAL RECOVERABLE (UG/L AS B)	MOLYBDENUM, DIS-SOLVED (UG/L AS MO)	MOLYBDENUM, TOTAL RECOVERABLE (UG/L AS MO)	SELENIUM, DIS-SOLVED (UG/L AS SE)	SELENIUM, TOTAL (UG/L AS SE)
JUN , 1985										
24...	1430	E15	1,250	617	170	200	16	19	<1	<1
JUL										
18...	1345	E12	1,430	799	300	350	24	24	<1	<1
AUG										
01...	1050	16	1,150	652	220	250	11	12	<1	<1
14...	1100	43	747	419	140	160	7	4	<1	<1
28...	1030	E75	653	365	100	110	4	4	<1	<1
SEP										
12...	1415	E240	253	148	30	40	<1	2	<1	<1
26...	1200	E280	193	103	20	30	<1	2	<1	<1

SITE 2.--11261100 SALT SLOUGH NEAR STEVINSON, CA

LOCATION.--Lat 37°14'52", long 120°51'04", in SE $\frac{1}{4}$ SE $\frac{1}{4}$ sec.10, T.8 S., R.10 E., Merced Co., HU 18040001, on Highway 165 (Lander Ave), 5.8 miles south of Stevinson.

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (FT ³ /S)	SPECIFIC CONDUCTANCE (UMHO)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	BORON, DIS-SOLVED (UG/L AS B)	BORON, TOTAL RECOVERABLE (UG/L AS B)	MOLYBDENUM, DIS-SOLVED (UG/L AS MO)	MOLYBDENUM, TOTAL RECOVERABLE (UG/L AS MO)	SELENIUM, DIS-SOLVED (UG/L AS SE)	SELENIUM, TOTAL (UG/L AS SE)
JUN , 1985										
12...	0830	E190	1,620	982	1,100	1,100	6	8	6	6
25...	0830	E180	1,170	911	1,200	1,300	6	9	6	6
JUL										
18...	1130	E180	1,750	1,100	1,600	1,600	11	10	7	6
AUG										
01...	1515	E340	1,260	757	980	1,100	8	7	6	6
14...	1400	E210	1,020	803	990	1,100	9	5	5	5
28...	0900	E165	1,190	689	780	830	5	5	4	5
SEP										
12...	1100	E130	1,340	842	620	610	3	6	<1	<1
27...	0745	E130	1,300	768	520	540	6	8	<1	<1

Table 1.--Selected water-quality data--Continued

SITE 3.--11261500 SAN JOAQUIN RIVER AT FREEMONT FORD, NEAR STEVINSON, CA

LOCATION.--Lat 37°18'36", long 120°55'42", in SE¼ sec.24, T.7 S., R.9 E., Merced Co., HU 18040001, on Highway 140, 2.1 miles downstream from Salt Slough, 4.5 miles west of Stevinson, and 6.7 miles upstream from Merced River.

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (FT ³ /S)	SPECIFIC CONDUCTANCE (UMHO)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	BORON, DIS-SOLVED (UG/L AS B)	BORON, TOTAL RECOVERABLE (UG/L AS B)	MOLYBDENUM, DIS-SOLVED (UG/L AS MO)	MOLYBDENUM, TOTAL RECOVERABLE (UG/L AS MO)	SELENIUM, DIS-SOLVED (UG/L AS SE)	SELENIUM, TOTAL (UG/L AS SE)
JUN , 1985										
12...	1500	E210	1,720	1,040	1,100	1,100	9	--	6	6
25...	1430	E200	1,230	956	1,200	1,200	8	12	6	6
JUL										
17...	1630	E200	1,660	1,030	750	870	11	12	<8	8
AUG										
01...	0830	E380	1,280	795	1,100	1,200	8	5	5	6
15...	1330	E260	1,170	702	810	790	12	4	<1	<1
28...	1330	E450	1,070	597	610	630	5	3	3	3
SEP										
11...	1530	E370	915	537	560	690	1	5	3	3
26...	0845	E420	588	328	200	220	1	3	<1	<1

SITE 4.--11262900 MUD SLOUGH NEAR GUSTINE, CA

LOCATION.--Lat 37°15'45", long 120°54'20", in SE¼SE¼ sec.6, T.8 S., R.10 E., Merced Co., HU 18040001, 5.0 miles east of Gustine and 3.0 miles southeast of Highway 140.

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (FT ³ /S)	SPECIFIC CONDUCTANCE (UMHO)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	BORON, DIS-SOLVED (UG/L AS B)	BORON, TOTAL RECOVERABLE (UG/L AS B)	MOLYBDENUM, DIS-SOLVED (UG/L AS MO)	MOLYBDENUM, TOTAL RECOVERABLE (UG/L AS MO)	SELENIUM, DIS-SOLVED (UG/L AS SE)	SELENIUM, TOTAL (UG/L AS SE)
JUN , 1985										
11...	1000	E60	2,980	2,100	4,100	4,100	14	10	28	30
25...	1130	E70	1,910	1,620	3,200	3,400	8	10	24	24
JUL										
18...	0830	E80	2,200	1,530	3,500	3,400	10	10	21	19
AUG										
02...	0835	75	2,050	1,420	2,900	2,900	9	7	21	21
15...	0900	75	2,050	1,410	2,800	2,900	--	5	18	21
28...	0730	E50	2,010	1,360	2,600	2,600	7	6	16	16
SEP										
12...	0800	E80	1,870	1,340	2,800	2,700	5	8	26	26
26...	1530	E80	2,180	1,430	1,800	1,900	8	9	2	2

Table 1.--Selected water-quality data--Continued

SITE 5.--11272500 MERCED RIVER NEAR STEVINSON, CA

LOCATION.--Lat 37°22'15", long 120°55'46", in SW $\frac{1}{4}$ NE $\frac{1}{4}$ sec.36, T.6 S., R.9 E., Merced Co., HU 18040002, 4.4 miles upstream from mouth, and 5.3 miles northwest of Stevinson.

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (FT ³ /S)	SPECIFIC CONDUCTANCE (UMHO)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	BORON, DIS-SOLVED (UG/L AS B)	BORON, TOTAL RECOVERABLE (UG/L AS B)	MOLYBDENUM, DIS-SOLVED (UG/L AS MO)	MOLYBDENUM, TOTAL RECOVERABLE (UG/L AS MO)	SELENIUM, DIS-SOLVED (UG/L AS SE)	SELENIUM, TOTAL (UG/L AS SE)
JUN , 1985										
13...	1100	213	288	167	40	40	3	1	<1	<1
27...	1330	313	159	130	30	70	<2	1	<1	<1
JUL										
16...	0800	224	253	156	30	30	2	2	<1	<1
30...	0800	219	193	122	20	20	2	2	<1	<1
AUG										
12...	1500	214	180	104	20	50	2	<1	<1	<1
27...	1500	216	200	113	20	40	1	<1	<1	<1
SEP										
10...	0830	229	171	106	30	40	<1	1	<1	<1
24...	0830	252	207	126	30	30	1	4	<1	<1

SITE 6.--11274000 SAN JOAQUIN RIVER NEAR NEWMAN, CA

LOCATION.--Lat 37°21'02", long 120°58'34", in NW $\frac{1}{4}$ SW $\frac{1}{4}$ sec.3, T.7 S., R.9 E., Stanislaus Co., HU 18040002, at Hills Ferry Bridge, 650 feet downstream from Merced River, and 3.5 miles northeast of Newman.

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (FT ³ /S)	SPECIFIC CONDUCTANCE (UMHO)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	BORON, DIS-SOLVED (UG/L AS B)	BORON, TOTAL RECOVERABLE (UG/L AS B)	MOLYBDENUM, DIS-SOLVED (UG/L AS MO)	MOLYBDENUM, TOTAL RECOVERABLE (UG/L AS MO)	SELENIUM, DIS-SOLVED (UG/L AS SE)	SELENIUM, TOTAL (UG/L AS SE)
JUN , 1985										
13...	0930	510	1,100	849	1,100	1,200	8	13	8	8
27...	0830	586	1,030	691	890	930	6	5	E6	E5
JUL										
17...	1200	518	1,190	744	590	630	7	7	<1	6
31...	1430	686	1,190	740	1,100	1,100	10	8	6	7
AUG										
14...	0800	553	1,090	654	770	800	6	4	3	4
27...	1230	722	860	542	650	660	4	3	4	4
SEP										
11...	1215	680	885	520	620	590	<1	4	4	4
25...	1530	713	519	295	190	190	2	5	<1	<1

Table 1.--Selected water-quality data--Continued

SITE 7.--11274570 SAN JOAQUIN RIVER NEAR PATTERSON, CA

LOCATION.--Lat 37°29'54", long 121°04'54", in sec.15, T.5 S., R.8 E., Stanislaus Co., HU 18040002, at Los Palmas Bridge, 3.3 miles northeast of Patterson and 7.2 miles north of Crows Landing.

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (FT ³ /S)	SPECIFIC CONDUCTANCE (UMHO)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	BORON, DIS-SOLVED (UG/L AS B)	BORON, TOTAL RECOVERABLE (UG/L AS B)	MOLYBDENUM, DIS-SOLVED (UG/L AS MO)	MOLYBDENUM, TOTAL RECOVERABLE (UG/L AS MO)	SELENIUM, DIS-SOLVED (UG/L AS SE)	SELENIUM, TOTAL (UG/L AS SE)
JUL , 1985										
17...	0900	E1,020	1,210	728	860	960	6	7	<4	4
31...	1130	E850	1,160	707	520	520	5	7	5	4
AUG										
13...	1500	E750	1,050	621	660	700	6	2	3	3
SEP										
11...	0830	E1,140	955	492	490	520	<1	3	3	3
25...	1315	E1,000	566	324	180	190	2	3	<1	<1

SITE 8.--11290000 TUOLUMNE RIVER AT MODESTO, CA

LOCATION.--Lat 37°37'38", long 120°59'11", in SE $\frac{1}{4}$ SW $\frac{1}{4}$ sec.33, T.3 S., R.9 E., Stanislaus Co., HU 18040002, at Ninth Street in Modesto, and 0.2 mile downstream from Dry Creek.

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (FT ³ /S)	SPECIFIC CONDUCTANCE (UMHO)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	BORON, DIS-SOLVED (UG/L AS B)	BORON, TOTAL RECOVERABLE (UG/L AS B)	MOLYBDENUM, DIS-SOLVED (UG/L AS MO)	MOLYBDENUM, TOTAL RECOVERABLE (UG/L AS MO)	SELENIUM, DIS-SOLVED (UG/L AS SE)	SELENIUM, TOTAL (UG/L AS SE)
JUL , 1985										
15...	1430	177	218	140	20	30	<1	2	1	<1
30...	1030	205	205	129	20	20	1	<1	<1	<1
AUG										
12...	1230	201	212	139	30	50	1	<1	<1	<1
SEP										
09...	1400	251	210	124	30	40	<1	1	<1	<1
24...	1315	181	299	186	40	50	1	3	<1	<1

Table 1.--Selected water-quality data--Continued

SITE 9.--11290500 SAN JOAQUIN RIVER AT MAZE ROAD, NEAR MODESTO, CA

LOCATION.--Lat 37°38'24", long 121°13'36", in sec.29, T.3 S., R.7 E., Stanislaus Co., HU 18040002, on Highway 132 (Maze Road), 2.7 miles upstream from Stanislaus River, and 12 miles west of Modesto.

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS)	SPECIFIC CONDUCTANCE (UMHOS)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	BORON, DIS-SOLVED (UG/L AS B)	BORON, TOTAL RECOVERABLE (UG/L AS B)	MOLYBDENUM, DIS-SOLVED (UG/L AS MO)	MOLYBDENUM, TOTAL RECOVERABLE (UG/L AS MO)	SELENIUM, DIS-SOLVED (UG/L AS SE)	SELENIUM, TOTAL (UG/L AS SE)
JUL , 1985										
16...	1300	E1,200	936	551	320	320	4	4	--	2
31...	0900	E1,060	934	547	330	310	5	3	2	2
AUG										
13...	1100	E1,000	902	532	440	490	2	<1	2	2
26...	1430	E1,100	808	462	430	480	3	4	2	2
SEP										
10...	1530	E1,400	901	491	430	430	1	3	2	2
25...	1030	E1,200	671	390	210	220	2	4	<1	<1

SITE 10.--11303000 STANISLAUS RIVER AT RIPON, CA

LOCATION.--Lat 37°43'47", long 121°06'34", in NW¼SE¼ sec.29, T.2 S., R.8. E., Stanislaus Co., HU 18040002, at railroad bridge, 1.1 miles southeast of Ripon, and 15 miles upstream from mouth.

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (FT ³ /S)	SPECIFIC CONDUCTANCE (UMHO)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	BORON, DIS-SOLVED (UG/L AS B)	BORON, TOTAL RECOVERABLE (UG/L AS B)	MOLYBDENUM, DIS-SOLVED (UG/L AS MO)	MOLYBDENUM, TOTAL RECOVERABLE (UG/L AS MO)	SELENIUM, DIS-SOLVED (UG/L AS SE)	SELENIUM, TOTAL (UG/L AS SE)
JUL , 1985										
15...	1030	1,500	105	54	10	10	1	<1	<1	<1
29...	1330	1,430	81	59	<10	<10	<1	<1	<1	<1
AUG										
12...	0930	1,390	84	53	<10	30	1	<1	<1	<1
SEP										
09...	1030	483	147	79	10	30	<1	1	<1	<1
23...	0900	414	140	79	20	50	<1	1	<1	<1

SITE 11.--11303500 SAN JOAQUIN RIVER NEAR VERNALIS, CA

LOCATION.--Lat 37°40'34", Long 121°15'55", in sec.13, T.3 S., R.6 E., San Joaquin Co., HU 18040003, at Durham Ferry Bridge, 2.6 miles downstream from Stanislaus River, and 3.2 miles northeast of Vernalis.

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (FT ³ /S)	SPECIFIC CONDUCTANCE (UMHO)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	BORON, DIS-SOLVED (UG/L AS B)	BORON, TOTAL RECOVERABLE (UG/L AS B)	MOLYBDENUM, DIS-SOLVED (UG/L AS MO)	MOLYBDENUM, TOTAL RECOVERABLE (UG/L AS MO)	SELENIUM, DIS-SOLVED (UG/L AS SE)	SELENIUM, TOTAL (UG/L AS SE)
NOV , 1984										
16...	1100	2,570	490	314	--	--	<10	--	<1	--
FEB , 1985										
25...	1315	2,700	645	403	--	--	<10	--	2	--
MAY										
14...	1130	2,420	658	407	--	--	<10	--	1	--
JUN										
28...	0930	1,070	652	455	390	430	2	2	1	1
JUL										
16...	1250	2,700	514	293	--	150	--	<5	<1	<1
30...	1430	2,490	531	313	170	170	2	<2	<1	<1
AUG										
13...	0900	2,460	484	271	220	280	3	<1	1	1
26...	1000	2,610	532	280	230	310	2	2	<1	<1
SEP										
10...	1210	2,210	609	373	--	380	<10	3	1	--
25...	0830	1,620	560	322	170	200	2	3	<1	<1

Table 2.--Summary of selected water-quality data

[Data from U.S. Geological Survey]

Site No.	Site name		Stream-flow (ft ³ /s)	Specific conduc- tance (uS/cm)	Dis- solved solids (mg/L)	Dis- solved boron (ug/L)	Dis- solved molyb- denum (ug/L)	Dis- solved sele- nium (ug/L)
1	San Joaquin River near Stevinson	Minimum	12	193	103	20	<1	<1
		Median	43	747	419	140	7	<1
		Maximum	280	1,430	799	300	24	<1
2	Salt Slough near Stevinson	Minimum	130	1,020	689	520	3	<1
		Median	180	1,280	822	985	6	5.5
		Maximum	340	1,750	1,100	1,600	11	7
3	San Joaquin River at Freemont Ford, near Stevinson	Minimum	200	565	328	200	1	<1
		Median	359	1,170	748	750	8	3
		Maximum	450	1,720	1,040	1,200	12	6
4	Mud Slough near Gustine	Minimum	50	595	1,340	1,800	5	2
		Median	74.7	2,050	1,425	2,850	8	21
		Maximum	80	2,980	2,100	4,100	14	28
5	Merced River near Stevinson	Minimum	213	159	104	20	<1	<1
		Median	221.5	196.5	124	30	1.5	<1
		Maximum	313	288	167	40	3	<1
6	San Joaquin River near Newman	Minimum	510	519	295	190	<1	<1
		Median	622	1,030	672	650	6	4
		Maximum	722	1,190	849	1,100	10	8
7	San Joaquin River near Patterson	Minimum	750	566	324	180	<1	<1
		Median	925	1,050	621	520	5	3
		Maximum	1,140	1,210	728	860	6	5
8	Tuolumne River at Modesto	Minimum	177	205	124	20	<1	<1
		Median	201	212	139	30	1	<1
		Maximum	251	299	186	40	1	1
9	San Joaquin River at Maze Road, near Modesto	Minimum	1,000	671	390	210	1	<1
		Median	1,150	901	511.5	380	2.5	2
		Maximum	1,400	936	551	440	5	2
10	Stanislaus River at Ripon	Minimum	414	81	53	<10	<1	<1
		Median	1,390	105	59	10	<1	<1
		Maximum	1,500	147	79	20	1	<1
11	San Joaquin River near Vernalis	Minimum	1,070	484	271	170	2	<1
		Median	2,460	531	313	220	2	<1
		Maximum	2,700	652	455	390	3	1