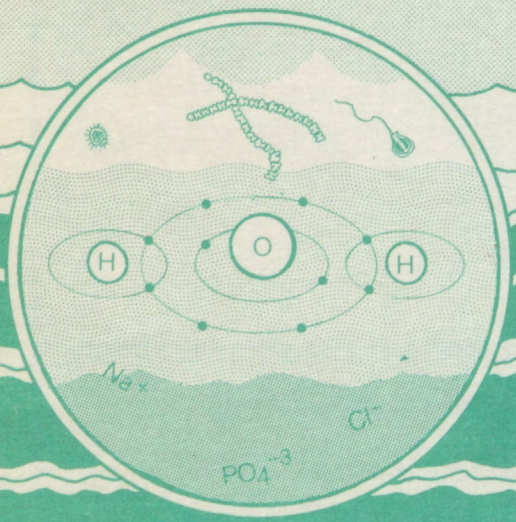
WATER-QUALITY INVESTIGATION SALINAS RIVER CALIFORNIA

U.S. GEOLOGICAL SURVEY
WATER-RESOURCES INVESTIGATIONS 76-110



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George A. Irwin

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The concentrations of dissolved solids in the Salinas River are variable and range from 164 to 494 milligrams per liter near Bradley and from 170 to 1,090 milligrams per liter near Spreckels. The higher concentrations near Spreckels are caused mainly by sewage inflow about 150 feet (50 meters) upstream. Concentrations of nitrogen, phosphorus, total organic carbon, selected trace elements, and pesticides also generally increase downstream from Pozo to Spreckels and are related to sewage effluent; however, high concentrations occur elsewhere in the river. / Specific conductance and water discharge regression results indicate that relations were all significant at the 1-percent probability level at Paso Robles, Bradley, and Spreckels, with the explained variance ranging from 66 to 74 percent. The concentrations of nitrogen, phosphorus, total organic carbon, and trace elements are only infrequently related to water discharge.

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Thomas S. Kleppe, Secretary

GEOLOGICAL SURVEY

V. E. McKelvey, Director

For additional information write to:

District Chief
Water Resources Division
U.S. Geological Survey
345 Middlefield Rd.
Menlo Park, Calif. 94025

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CONVERSION FACTORS

Factors for converting English units to metric units are shown to four significant figures; however, in the text the metric equivalents are shown only to the number of significant figures consistent with the values for the English units.

English	*Multiply by*	*Metric*
acres	4.047×10^{-3}	km^2 (square kilometers)
acre-ft (acre-feet)	1.233×10^{-3}	hm^3 (cubic hectometers)
ft (feet)	3.048×10^{-1}	m (meters)
ft^3/s (cubic feet per second)	2.832×10^{-2}	m^3/s (cubic meters per second)
mi (miles)	1.609	km (kilometers)
mi^2 (square miles)	2.590	km^2 (square kilometers)

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ABSTRACT

Concentrations of dissolved solids in the Salinas River are variable and range from 164 to 494 milligrams per liter near Bradley and from 170 to 1,090 milligrams per liter near Spreckels. Higher concentrations near Spreckels are caused mainly by sewage inflow about 150 feet (50 meters) upstream. Concentrations of nitrogen, phosphorus, total organic carbon, selected trace elements, and pesticides also generally increase downstream from Pozo to Spreckels and are related to sewage effluent; however, high concentrations occur elsewhere in the river.

Specific conductance and water discharge regression results indicate that relations were all significant at the 1-percent probability level at Paso Robles, Bradley, and Spreckels, with the explained variance ranging from 66 to 74 percent. Concentrations of nitrogen, phosphorus, total organic carbon, and trace elements are only infrequently related to water discharge.

INTRODUCTION

From November 1971 through March 1975, the U.S. Geological Survey made a water-quality reconnaissance of the Salinas River, Calif. (fig. 1). This study is one of several water-quality investigations of rivers that are being made by the Geological Survey in cooperation with the California Department of Water Resources. The purpose of the investigations is to document water-quality conditions in major streams as a basis for efforts to abate existing water-quality problems and prevent new ones.

The scope of this study involved determining the concentration and distribution of nitrogen, phosphorus, total organic carbon, trace elements, and pesticide compounds in the Salinas River. These variables were selected because they are important indexes of water quality and few data existed on their relative concentrations in the Salinas River.

Sites selected for this reconnaissance are: near Pozo, at Paso Robles, near Bradley, at Soledad, and near Spreckels. Additionally, this report includes a statistical summary of selected major inorganic chemical data that were collected at four sites in the Salinas River--at Paso Robles, near Bradley, near Gonzales, and near Spreckels. Selected chemical data used in this report were collected as part of a separate cooperative program that has been maintained between the California Department of Water Resources and the Geological Survey since the early 1950's.

DESCRIPTION OF THE AREA AND THE SAMPLING SITES

The Salinas River basin is in the intermontane valley of the central Coast Ranges of California (fig. 1). The drainage area of 4,401 mi^2 (11,400 km^2) is bounded on the east by the Gabilan and Diablo Ranges and on the west by the Santa Lucia Range. From its headwaters the river flows northwesterly 93 mi (150 km) to its mouth in Monterey Bay.

The population center of the Salinas River basin is Salinas, with a population of 58,365 (California Department of Finance, 1970, p. 16). Other cities in the basin having populations exceeding 2,500 persons are Soledad, King City, Greenfield, Gonzales, and Paso Robles. None of these cities has a population exceeding 8,000.

Primary economy of the area is agriculture, most of which is on the valley floor from Monterey Bay to San Ardo. In 1963 about 162,000 acres (656 km^2) of irrigated crops and about 64,200 acres (260 km^2) of dry farm were cultivated (California Department of Water Resources, 1969, p. 12). In 1975, more than 200,000 acres (809 km^2) were irrigated and about 50,000 acres (200 km^2) were dry farmed (F. E. Stumpf, California Department of Water Resources, oral commun., July 1976).

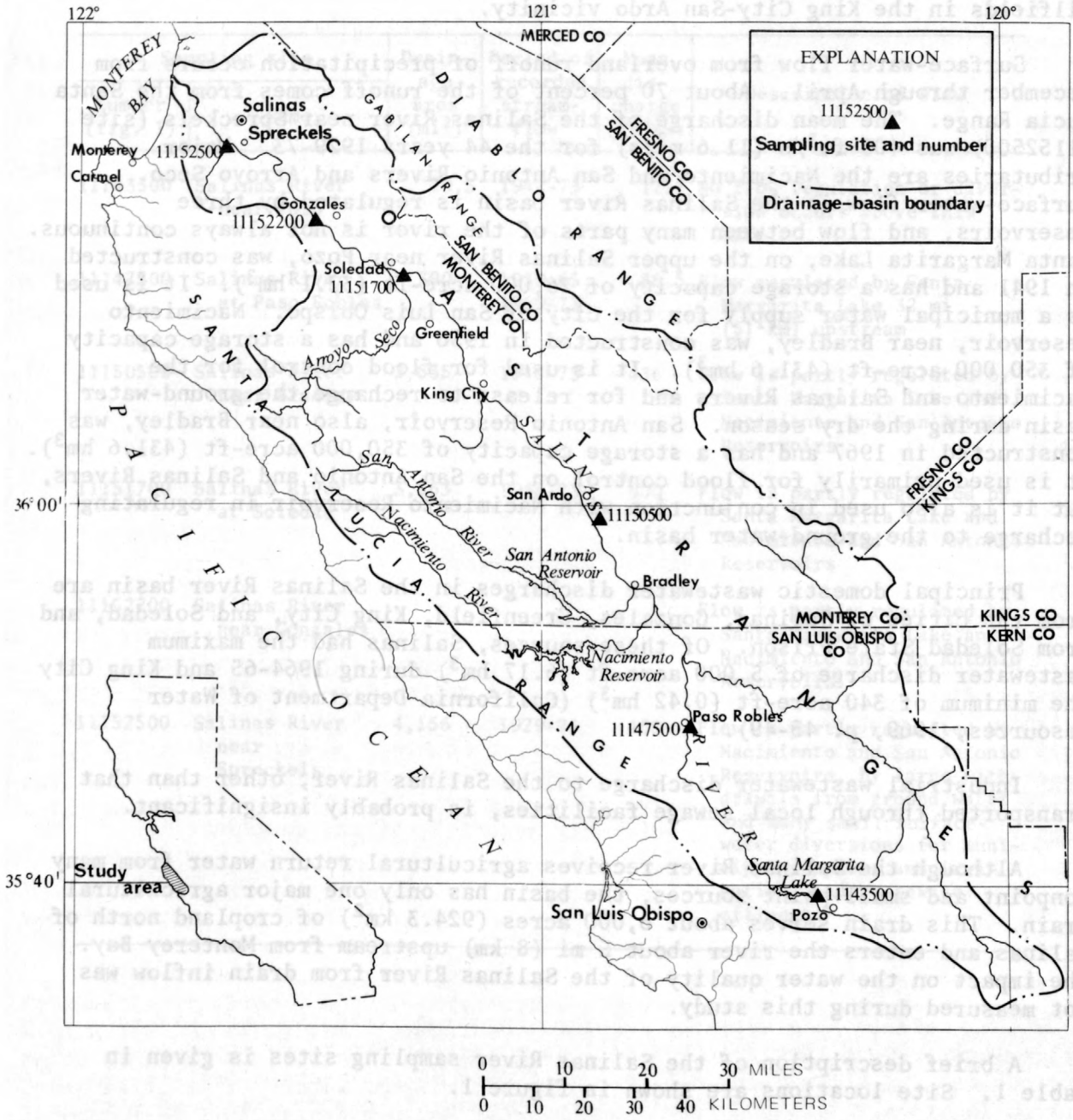

FIGURE 1.--Sampling sites in the Salinas River basin.

Industrial development in the Salinas Valley is principally the processing of agricultural products in the Salinas area. The southern part of the valley is almost exclusively agricultural; however, there are several oilfields in the King City-San Ardo vicinity.

Surface-water flow from overland runoff of precipitation occurs from December through April. About 70 percent of the runoff comes from the Santa Lucia Range. The mean discharge of the Salinas River near Spreckels (site 11152500) was 408 ft^3/s (11.6 m^3/s) for the 44 years 1929-73. Major tributaries are the Nacimiento and San Antonio Rivers and Arroyo Seco. Surface-water flow in the Salinas River basin is regulated by three reservoirs, and flow between many parts of the river is not always continuous. Santa Margarita Lake, on the upper Salinas River near Pozo, was constructed in 1941 and has a storage capacity of 26,000 acre-ft (32.1 hm^3). It is used as a municipal water supply for the city of San Luis Obispo. Nacimiento Reservoir, near Bradley, was constructed in 1956 and has a storage capacity of 350,000 acre-ft (431.6 hm^3). It is used for flood control for the Nacimiento and Salinas Rivers and for release to recharge the ground-water basin during the dry season. San Antonio Reservoir, also near Bradley, was constructed in 1967 and has a storage capacity of 350,000 acre-ft (431.6 hm^3). It is used primarily for flood control on the San Antonio and Salinas Rivers, but it is also used in conjunction with Nacimiento Reservoir in regulating recharge to the ground-water basin.

Principal domestic wastewater discharges in the Salinas River basin are from the cities of Salinas, Gonzales, Greenfield, King City, and Soledad, and from Soledad State Prison. Of these sources, Salinas had the maximum wastewater discharge of 5,000 acre-ft (6.17 hm^3) during 1964-65 and King City the minimum of 340 acre-ft (0.42 hm^3) (California Department of Water Resources, 1969, p. 45-49).

Industrial wastewater discharge to the Salinas River, other than that transported through local sewage facilities, is probably insignificant.

Although the Salinas River receives agricultural return water from many nonpoint and small-point sources, the basin has only one major agricultural drain. This drain serves about 6,000 acres (924.3 km^2) of cropland north of Salinas and enters the river about 5 mi (8 km) upstream from Monterey Bay. The impact on the water quality of the Salinas River from drain inflow was not measured during this study.

A brief description of the Salinas River sampling sites is given in table 1. Site locations are shown in figure 1.

TABLE 1.--*Description of the Salinas River water-quality sampling sites*

Sampling site		Drainage area (mi^2)	Period of recorded streamflow	Mean discharge (ft^3/s)	Description of flow
Number (fig. 1)	Name				
11143500	Salinas River near Pozo	70.3	1942-73	17.7	No flow regulation or diversion occurs above this site
11147500	Salinas River at Paso Robles	390	1939-65, 1969-73	86.5	Flow regulated by Santa Margarita Lake 32 mi (51 km) upstream
11150500	Salinas River near Bradley	2,535	1948-73	436	Flow is partly regulated by Santa Margarita Lake and Nacimiento and San Antonio Reservoirs
11151700	Salinas River at Soledad	3,563	1968-73	600	Flow is partly regulated by Santa Margarita Lake and Nacimiento and San Antonio Reservoirs
11152200	Salinas River near Gonzales				Flow is partly regulated by Santa Margarita Lake and Nacimiento and San Antonio Reservoirs
11152500	Salinas River near Spreckels	4,156	1929-73	408	Flow is partly regulated by Nacimiento and San Antonio Reservoirs, by large withdrawals from ground water and many small surface-water diversions for municipal supplies and irrigation, and by sewage effluent

DESCRIPTION OF VARIABLES

Major Inorganic Chemical Constituents

In this report the term "major inorganic chemical constituents" refers to calcium, magnesium, sodium, potassium, bicarbonate, sulfate, chloride, and nitrate. Consideration of these constituents is usually important in a water supply to be used for domestic or agricultural purposes.

Nitrogen and Phosphorus

Water samples were analyzed for ammonia, nitrite, nitrate, organic nitrogen, orthophosphate, and total phosphorus. Nitrogen and phosphorus are among the essential nutrients for plant production.

Total Organic Carbon

Total organic carbon is an index to the concentration of dissolved and suspended carbonaceous matter. High concentrations of organic matter in an aquatic environment can be a prime factor in controlling the dissolved-oxygen balance. In most aquatic systems the bacterial oxidation of organic matter does not greatly alter the oxygen balance, because of photosynthesis and reaeration. If decomposable organic matter occurs in sufficient concentrations, however, intensive bacterial oxidation can result in significant oxygen depletion, which may adversely affect aquatic life.

Trace Elements

Concentrations of arsenic, cadmium, chromium, lead, and mercury were determined because they are considered a potential hazard to an aquatic environment and because few data are available on their concentrations in most California rivers. Determinations for cobalt, copper, and zinc were also made.

Pesticide Compounds

Samples were analyzed for insecticide and herbicide compounds from both the chlorinated hydrocarbon and organic phosphorus groups. The chlorinated hydrocarbons included aldrin, chlordane, DDD, DDE, DDT, dieldrin, endrin, ethion, heptachlor, heptachlor epoxide, lindane, 2,4-D, 2,4,5-T, silvex, and toxaphene. The organic phosphorus compounds included diazinon, malathion, methyl parathion, and parathion.

As their names imply, insecticides and herbicides are used for insect and plant control, but many of these compounds are also lethal to higher organisms. Even very low concentrations of pesticides in the aquatic environment are hazardous because of their sorptive properties. Because they have an affinity for particulate material, they may be concentrated within food chains as the materials to which they are sorbed or the tissues in which they have accumulated are consumed by other organisms.

METHODS AND PROCEDURES

Analytical Methods

Water samples collected at Paso Robles, near Bradley, and near Spreckels for the determination of major inorganic dissolved chemical constituents were analyzed by the Geological Survey laboratories located in Davis and later in Sacramento from 1951 to about 1966. After 1966, the samples collected at the above sites and near Gonzales were analyzed by the California Department of Water Resources laboratory located in Bryte, Calif.

The analytical methods used by the California Department of Water Resources were from the appropriate publication of the American Public Health Association and others (1955-71).

Water samples collected for the determination of nitrogen, phosphorus, total organic carbon, and selected trace elements were analyzed by the Geological Survey central laboratory in Salt Lake City, Utah, using the methods described in Brown, Skougstad, and Fishman (1970) and Goerlitz and Brown (1972). Pesticide samples were analyzed by the Geological Survey laboratories in Austin Tex., and Denver, Colo., using the methods described by Goerlitz and Brown (1972).

Procedures for Sample Collection and Preservation

Methods of sample collection for most of the historical data are not precisely known; however, probably few samples were depth integrated using the methods suggested in Guy and Norman (1970).

Sample preservation, as described by Brown, Skougstad, and Fishman (1970) or by similar procedures, was not standard practice during the period that the samples for major chemical constituents were collected. Water samples were usually transported untreated to the laboratory.

Water samples collected during the period November 1971 through January 1975 for nitrogen, phosphorus, total organic carbon, and trace-element determination were processed in the field as prescribed in Brown, Skougstad, and Fishman (1970) and Goerlitz and Brown (1972). Initially, the samples that were collected for the determination of nitrite, nitrate, and orthophosphate were filtered in the field through a 0.45-µm (micrometer) filter, with 1.0 mℓ (milliliter) of mercuric chloride (10 mg Hg^{++}) added per 250 mℓ of sample. The samples were then chilled to about 4°C (degrees Celsius). Water samples collected for the determination of ammonia nitrogen, organic nitrogen, total phosphorus, and total organic carbon were not filtered but were preserved with mercuric chloride and chilled. The use of mercuric chloride as a preservative in that type of sample was discontinued about January 1972, and subsequent samples were filtered and chilled only.

Water samples that were collected for the determination of dissolved arsenic, cadmium, hexavalent chromium, cobalt, copper, lead, mercury, and zinc were filtered in the field through a 0.45-µm filter and preserved with 3 mℓ of concentrated nitric acid per 1,000 mℓ of water sample. Samples collected for the total concentrations of these trace elements were not filtered and were preserved with 3 mℓ of concentrated nitric acid per 1,000 mℓ of sample. Bottom-material samples were not treated with preservatives.

Water and bottom-material samples for pesticide analysis were collected in pretreated glass bottles and shipped airmail without preservation to the laboratory within 24 hours after collection.

Samples collected for the determination of nitrogen, phosphorus, total organic carbon, trace elements, and pesticides were obtained at a point near the center of flow of the stream. Results from samples collected during periods of high discharge are biased because the sampling was restricted to the area near the streambank in which a person could wade.

Frequency of Sample Collection

Historically, water samples were collected during May and September for determination of silica, calcium, magnesium, sodium, potassium, bicarbonate, sulfate, chloride, nitrate, boron, dissolved-solids residue, hardness, and specific conductance. This was commonly called a "complete analysis." During other months, samples were collected and analyzed for sodium, bicarbonate, chloride, boron, hardness, and specific conductance. This was referred to as a "partial analysis."

From November 1971 through March 1975, sampling frequency for nitrogen, phosphorus, total organic carbon, trace elements, and pesticides was based on discharge and not directly on time. Sampling was designed so that samples collected at each site would represent a large range in discharge.

RESULTS

Major Inorganic Chemical Constituents

A summary of the inorganic chemical data for selected sites in the Salinas River is given in tables 2, 3, 4, and 5. Data indicate that the major chemical composition of the river is variable both with regard to its ionic composition and its concentration of dissolved solids.

The mean cation composition is mixed (calcium, magnesium, and sodium) with the calcium percentages being slightly higher, ranging from 42 to 47 percent at Paso Robles, near Bradley, and near Gonzales. Near Spreckels, the sodium percentage is slightly higher (37 percent) than calcium (34 percent). Bicarbonate is the principal anion, ranging from 52 to 57 percent at Paso Robles, near Bradley, and near Spreckels; whereas, near Gonzales, the sulfate (45 percent) is slightly higher than bicarbonate (40 percent).

Concentrations of dissolved solids ranged from 164 to 494 mg/ℓ (milligrams per liter) near Bradley and from 170 to 1,090 mg/ℓ near Spreckels. The lower concentrations of dissolved solids near Bradley are the result of release water from Nacimiento and San Antonio Reservoirs. At Spreckels, the higher concentrations of dissolved solids are caused most commonly by sewage released to the river about 150 ft (50 m) upstream; high concentrations of dissolved solids occur occasionally as a result of irrigation-return water or storm runoff from urban areas. The combination of sewage effluent and irrigation return at times constitutes the entire flow at Spreckels.

TABLE 2.--*Summary of dissolved major inorganic chemical constituent data for the Salinas River at Paso Robles (11147500), May 1954 through March 1971*

Specific conductance [SC] (micromhos at 25°C)			Number of samples	Dissolved chemical constituents				Regression summary		
					Concentration (mg/ℓ)					
Mean	Standard deviation	Range		Constituent	Mean	Standard deviation	Range	Simple regression equation	Correlation coefficient	Standard error of estimate (mg/ℓ)
758	185	421-1,070	14	Calcium (Ca)	78	13	45-93	Ca=37.39+0.054SC	0.80	7.8
758	185	421-1,070	14	Magnesium (Mg)	29	5.0	17-38	Mg=10.89+0.024SC	.89	2.3
756	172	421-1,070	31	Sodium (Na)	45	22	20-97	Na=-46.94+0.121SC	.94	8.0
758	185	421-1,070	14	Potassium (K)	2.1	.9	0.0-4.0	K=-1.318+0.004SC	.88	.5
756	172	421-1,070	31	Bicarbonate (HCO_3)	270	41	180-362	HCO_3=109.8+0.212SC	.90	18
753	192	421-1,070	13	Sulfate (SO_4)	122	38	49-204	SO_4=-22.21+0.192SC	.96	11
756	172	421-1,070	31	Chloride (Cl)	42	20	18-84	Cl=-38.40+0.107SC	.94	6.8
753	192	421-1,070	13	Nitrate (NO_3)	3.1	3.9	0.0-15	NO_3=6.899+(-0.005)SC	-.25	3.9
746	174	421-1,070	17	Dissolved solids Calculated (sum of determined constituents)	466	111	243-682	DS=2.911+0.621SC	.98	22
756	172	421-1,070	31	Hardness as $CaCO_3$ (Ca, Mg)	315	50	183-384	H=116.1+0.263SC	.91	21

TABLE 3.--*Summary of dissolved major inorganic chemical constituent data for the Salinas River near Bradley (11151500), October 1958 through July 1973*

Specific conductance [SC] (micromhos at 25°C)			Number of samples	Dissolved chemical constituents				Regression summary		
					Concentration (mg/ℓ)					
Mean	Standard deviation	Range		Constituent	Mean	Standard deviation	Range	Simple regression equation	Correlation coefficient	Standard error of estimate (mg/ℓ)
470	182	294-804	23	Calcium (Ca)	44	15	26-74	Ca=6.327+0.079SC	0.97	3.7
470	182	294-804	23	Magnesium (Mg)	19	6.6	11-30	Mg=2.670+0.034SC	.95	2.2
500	192	278-930	64	Sodium (Na)	32	19	10-66	Na=-16.72+0.096SC	.98	4.1
470	182	294-804	23	Potassium (K)	2.1	.7	1.0-3.1	K=1.084+0.002SC	.60	.6
493	191	278-930	67	Bicarbonate (HCO_3)	182	47	118-307	HCO_3=68.32+0.230SC	.94	16
478	183	294-804	22	Sulfate (SO_4)	75	46	24-158	SO_4=-42.82+0.246SC	.98	8.5
493	191	278-930	67	Chloride (Cl)	22	14	6.0-51	Cl=-13.68+0.071SC	.98	2.9
470	182	294-804	23	Nitrate (NO_3)	1.5	2.2	0.0-4.3	NO_3=0.436+0.002SC	.19	2.2
470	182	294-804	23	Dissolved solids Calculated (sum of determined constituents)	282	117	164-494	DS=-9.460+0.619SC	.96	33
470	182	294-804	23	Hardness as $CaCO_3$ (Ca, Mg)	186	62	118-310	H=26.46+0.339SC	.99	8

TABLE 4.--*Summary of dissolved major inorganic chemical constituent data for the Salinas River near Gonzales (11152200), May 1969 through July 1973*

Specific conductance [SC] (micromhos at 25°C)			Number of samples	Dissolved chemical constituents				Regression summary		
					Concentration (mg/ℓ)					
Mean	Standard deviation	Range		Constituent	Mean	Standard deviation	Range	Simple regression equation	Correlation coefficient	Standard error of estimate (mg/ℓ)
693	349	399-1,190	7	Calcium (Ca)	65	30	38-114	Ca=6.728+0.084SC	0.99	5.2
693	349	399-1,190	7	Magnesium (Mg)	24	13	14-44	Mg=-0.532+0.036SC	.98	2.5
661	293	399-1,190	13	Sodium (Na)	46	29	20-102	Na=-18.67+0.098SC	.99	4.6
735	413	399-1,190	5	Potassium (K)	3.0	1.4	1.4-3.5	K=0.937+0.003SC	.87	.8
647	287	399-1,190	14	Bicarbonate (HCO_3)	184	47	123-270	HCO_3=89.98+0.145SC	.89	22
735	413	399-1,190	5	Sulfate (SO_4)	166	131	58-301	SO_4=-66.36+0.317SC	.99	8.7
686	298	399-1,190	14	Chloride (Cl)	39	25	14-85	Cl=-18.50+0.084SC	.99	3.3
643	319	399-1,190	9	Nitrate (NO_3)	3.2	3.7	0.0-5.7	NO_3=-3.300+0.010SC	.86	2.0
735	413	399-1,190	5	Dissolved solids Calculated (sum of determined constituents)	474	283	224-783	DS=-29.32+0.686SC	.99	16
672	293	399-1,190	15	Hardness as $CaCO_3$ (Ca, Mg)	255	104	131-428	H=17.82+0.353SC	.99	10

TABLE 5.--*Summary of dissolved major inorganic chemical constituent data for the Salinas River near Spreckels (11152500), October 1951 through May 1954, and February 1958 through December 1970*

Specific conductance [SC] (micromhos at 25°C)			Number of samples	Dissolved chemical constituents				Regression summary		
					Concentration (mg/ℓ)					
Mean	Standard deviation	Range		Constituent	Mean	Standard deviation	Range	Simple regression equation	Correlation coefficient	Standard error of estimate (mg/ℓ)
1,050	372	278-1,650	37	Calcium (Ca)	75	32	30-152	Ca=18.87+0.053SC	0.62	25
1,050	378	278-1,650	35	Magnesium (Mg)	36	14	7.8-64	Mg=1.808+0.033SC	.90	6.0
1,060	412	255-1,860	135	Sodium (Na)	94	47	13-173	Na=-14.44+0.102SC	.89	22
1,050	378	278-1,650	35	Potassium (K)	13	12	1.8-41	K=11.02+0.023SC	.75	7.9
1,060	412	255-1,860	135	Bicarbonate (HCO_3)	359	206	91-910	HCO_3=-79.91+0.413SC	.83	116
1,070	388	278-1,650	26	Sulfate (SO_4)	114	50	40-207	SO_4=69.83+0.041SC	.32	49
1,060	412	255-1,860	135	Chloride (Cl)	96	53	7.8-190	Cl=-19.55+0.109SC	.84	29
1,040	402	278-1,650	29	Nitrate (NO_3)	17	19	0.2-83	NO_3=-4.749+0.021SC	.44	17
1,100	418	278-1,650	18	Dissolved solids Calculated (sum of determined constituents)	687	263	170-1,090	DS=-6.572+0.628SC	.99	24
1,060	412	255-1,860	135	Hardness as $CaCO_3$ (Ca, Mg)	333	137	102-650	H=27.12+0.288SC	.87	68

Results of regression analysis between the concentration of individual constituents and specific conductance are also given in tables 2-5. At all four sites the principal cation and anion concentrations had significant relations with specific conductance; however, at Paso Robles and near Gonzales the relations for some constituents are based on a small number of samples.

The regression slopes of dissolved solids on specific conductance are similar (about 0.62) for Paso Robles, Bradley, and Spreckels. The slope near Gonzales is 0.69 and probably is due to the sulfate increase, but this relation is based on only five samples.

Specific Conductance-Water Discharge Relations

Table 6 gives the results of regression analysis of specific conductance with water discharge. The relations were all significant at the 1-percent probability level, with the explained variance ranging from 66 to 74 percent. The standard errors of estimate for these three relations ranged from 19 to 30 percent, however. Scatter diagrams showed that while an overall linearity existed between specific conductance and discharge at the three sites, a considerable variation in specific conductance occurred at both low and high flows. Discharge data used for these relations were probably responsible in part for the unexplained variance, because the records for these sites were usually rated poor to fair.

Duration Estimates of Daily Specific Conductance

Estimates of daily specific conductance at Paso Robles, near Bradley, and near Spreckels are given in table 7. The calculations for Bradley and Spreckels were made using the specific conductance-discharge relations given in table 6 and the duration of daily mean discharge. The calculations for Paso Robles were made using the specific conductance-discharge relation given in table 6; however, the duration estimates for Paso Robles are based on periods of flow only, which is about 44 percent of the time. If the actual duration of daily mean discharge were used in the calculation, a specific conductance exceedance value would be implied for periods of no flow.

Results of the estimates indicate that about 80 percent of the time the specific conductance ranges from 320 to 980 µmho (micromhos) and from 500 to 1,500 µmho near Bradley and Spreckels. During periods of flow, the specific conductance at Paso Robles ranges from 460 to 1,000 µmho about 80 percent of the time.

TABLE 6.--*Results of regression analysis relating specific conductance to water discharge for selected sites in the Salinas River*

Discharge [Q] (ft^3/s)		Number of samples	Specific conductance [SC] (micromhos at 25°C)			Regression summary			
								Standard error of estimate	
Mean	Range		Mean	Standard deviation	Range	Regression equation	Correlation coefficient	Log units	Percent
11147500 Salinas River at Paso Robles, partial record May 1954 through March 1975									
246	2.1-3,200	38	690	201	271-1,070	$SC=1,210/Q^{0.161}$	-0.82	0.084	19
11151500 Salinas River near Bradley, October 1958 through March 1975									
319	2.0-3,420	75	488	199	220-930	$SC=1,250/Q^{0.209}$	-.86	.090	21
11152500 Salinas River near Spreckels, partial record October 1951 through March 1975									
287	.6-8,950	146	1,040	417	215-1,860	$SC=1,460/Q^{0.165}$	-.81	.127	30

TABLE 7.--*Duration estimates of daily specific conductance based on the specific conductance-discharge relation and the duration of daily mean discharge for selected sites in the Salinas River*

Specific conductance (micromhos at 25°C)	Time exceeded (percent)
11147500 Salinas River at Paso Robles	
Specific conductance, May 1954-March 1975; Discharge, September 1941-October 1965[1]	
[3]1,070	
1,000	[2]10
820	[2]25
690	[2]50
560	[2]75
460	[2]90
[4]271	
11150500 Salinas River near Bradley	
Specific conductance, October 1958-March 1975; Discharge, October 1949-September 1973	
[3]930	
980	10
680	25
420	50
350	75
320	90
[4]220	
11152500 Salinas River near Spreckels	
Specific conductance, October 1951-March 1975; Discharge, October 1930-September 1973	
[3]1,860	
1,500	10
1,350	25
1,150	50
790	75
500	90
[4]215	

[1]No flow 56.1 percent of the time.
[2]Percentage when flowing.
[3]Maximum specific conductance of record.
[4]Minimum specific conductance of record.

Nitrogen, Phosphorus, and Total Organic Carbon

A summary of the nitrogen, phosphorus, and total organic carbon data collected at selected sites in the Salinas River from November 1971 through March 1975 is given in table 8.

Mean concentrations of nitrate were variable among the sites, with higher concentrations occurring downstream at Soledad (1.1 mg/ℓ) and near Spreckels (3.0 mg/ℓ). Mean concentrations of ammonia nitrogen were of the same magnitude, other than at Spreckels, ranging from 0.07 mg/ℓ near Pozo to 0.14 mg/ℓ near Paso Robles. Concentrations of ammonia nitrogen increased significantly between Soledad (0.08 mg/ℓ) and Spreckels (1.6 mg/ℓ), and this increase is mainly caused by sewage inflow about 150 ft (50 m) upstream from the Spreckels site. Mean concentrations of organic nitrogen increased downstream, except for a slight decrease between Bradley (1.0 mg/ℓ) and Soledad (0.80 mg/ℓ).

Mean concentrations of total phosphorus increased downstream, ranging from 0.06 mg/ℓ at Pozo to 2.4 mg/ℓ near Spreckels. A slight decrease in the mean concentration of total phosphorus occurred between Bradley (1.0 mg/ℓ) and Soledad (0.81 mg/ℓ).

Total organic carbon was highly variable both within and among the sites. The greatest variability occurred near Spreckels, which had a measured concentration range of 0.5 to 320 mg/ℓ. Total organic carbon results for other sites also indicated that periodically the river contained very high concentrations of organic material.

Regression analyses were made in the attempt to evaluate how much of the concentration variance for each constituent could be explained as a function of discharge. The regression analyses were of course limited by a rather small number of samples. Only near Spreckels were significant inverse relations between constituent concentration and water discharge indicated; the explained variances of ammonia, nitrate, and orthophosphate phosphorus were 53, 64, and 64 percent. Results of regression analysis for other sites did not indicate high statistical significance.

Selected Trace Elements

A summary of selected trace-element data collected at sites in the Salinas River from November 1971 through March 1975 is given in table 9. For some total trace elements, a mean and standard deviation are not given because some of the concentrations reported within the data set were below the analytical detection limit.

TABLE 8.--*Summary of nitrogen, phosphorus, and total organic carbon data for selected sites in the Salinas River, November 1971 through March 1975*

Constituents	Number of samples	Concentrations, in milligrams per liter			
		Mean	Standard deviation	Range	Median
11143500 Salinas River near Pozo					
Nitrate, dissolved as N	12	0.55	0.37	0.03-1.3	0.48
Nitrite, dissolved as N	12	.00			.00
Nitrogen, ammonia, total as N	12	.07	.06	0.01-0.22	.05
Nitrogen, total organic as N	12	.21	.10	0.07-0.46	.21
Phosphorus, total as P	12	.06	.06	0.01-0.19	.04
Phosphorus, dissolved orthophosphate as P	12	.02	.01	0.0-0.05	.02
Carbon, total organic	12	2.7	2.7	0.0-8.0	1.7
11147500 Salinas River at Paso Robles					
Nitrate, dissolved as N	12	.43	.31	0.00-1.2	.32
Nitrite, dissolved as N	12	.00	.01	0.00-0.02	.00
Nitrogen, ammonia, total as N	12	.14	.13	0.02-0.43	.12
Nitrogen, total organic as N	12	.58	.54	0.00-2.0	.21
Phosphorus, total as P	12	.39	.33	0.06-1.2	.15
Phosphorus, dissolved orthophosphate as P	12	.09	.03	0.05-0.17	.09
Carbon, total organic	12	8.9	5.9	2.5-23	6.7
11150500 Salinas River near Bradley					
Nitrate, dissolved as N	19	.24	.18	0.03-0.55	.16
Nitrite, dissolved as N	18	.00	.01	0.00-0.03	.00
Nitrogen, ammonia, total as N	19	.08	.07	0.01-0.23	.06
Nitrogen, total organic as N	19	1.3	3.6	0.04-16	.25
Phosphorus, total as P	19	1.0	2.6	0.06-11	.14
Phosphorus, dissolved orthophosphate as P	19	.09	.05	0.01-0.26	.08
Carbon, total organic	19	11	21	0.5-91	3.8
11151700 Salinas River at Soledad					
Nitrate, dissolved as N	18	1.1	1.7	0.06-6.2	.42
Nitrite, dissolved as N	18	.01	.02	0.00-0.10	.00
Nitrogen, ammonia, total as N	18	.08	.05	0.01-0.19	.08
Nitrogen, total organic as N	18	.80	.83	0.05-2.8	.40
Phosphorus, total as P	17	.81	1.2	0.05-4.3	.24
Phosphorus, dissolved orthophosphate as P	18	.08	.04	0.03-0.17	.08
Carbon, total organic	18	10	11	1.0-37	5.1
11152500 Salinas River near Spreckels					
Nitrate, dissolved as N	18	3.0	4.3	0.07-16	1.2
Nitrite, dissolved as N	17	.08	.18	0.00-0.79	.02
Nitrogen, ammonia, total as N	17	1.6	2.9	0.01-9.6	.29
Nitrogen, total organic as N	17	1.4	2.3	0.09-9.8	.62
Phosphorus, total as P	18	2.4	4.1	0.16-13	.41
Phosphorus, dissolved orthophosphate as P	17	1.2	2.9	0.03-12	.17
Carbon, total organic	18	29	74	0.5-320	8.0

TABLE 9.--*Summary of trace-element data for selected sites in the Salinas River, November 1971 through March 1975*

Constituents	Number of samples	Concentrations, in micrograms per liter			
		Mean	Standard deviation	Range	Median
11143500 Salinas River near Pozo					
Total arsenic (As)	7	3	4	0-10	1
Dissolved arsenic (As)	12	1	1	0-3	1
Total cadmium (Cd)	7	(1)	-	0-30	<10
Dissolved cadmium (Cd)	12	1	1	0-2	0
Total chromium (Cr)	7			0	0
Chromium, hexavalent (Cr)	12			0	0
Total cobalt (Co)	7	(1)		<10-70	<20
Dissolved cobalt (Co)	12	1	1	0-3	0
Total copper (Cu)	7	(1)	-	<10-130	20
Dissolved copper (Cu)	12	4	4	0-13	2
Total lead (Pb)	7	(1)	-	<50-200	<100
Dissolved lead (Pb)	12	2	3	0-9	1
Total mercury (Hg)	11	.2	.4	0.0-1.2	.1
Dissolved mercury (Hg)	7	.2	.4	0.0-1.1	.0
Total zinc (Zn)	7	50	50	10-160	30
Dissolved zinc (Zn)	12	10	10	0-20	10
11147500 Salinas River at Paso Robles					
Total arsenic (As)	10	6	8	0-20	3
Dissolved arsenic (As)	12	3	6	0-19	0
Total cadmium (Cd)	10	(1)	-	0-10	<10
Dissolved cadmium (Cd)	12	1	1	0-2	1
Total chromium (Cr)	10	10	20	0-70	0
Chromium, hexavalent (Cr)	12			0	0
Total cobalt (Co)	10	(1)	-	<20-80	<50
Dissolved cobalt (Co)	12	1	1	0-2	0
Total copper (Cu)	10	(1)	-	<10-120	10
Dissolved copper (Cu)	12	9	8	2-30	5
Total lead (Pb)	10	(1)	-	<100-300	<100
Dissolved lead (Pb)	12	3	2	0-9	3
Total mercury (Hg)	12	.3	.3	0.0-0.8	.0
Dissolved mercury (Hg)	10	.2	.2	0.0-0.8	.1
Total zinc (Zn)	10	40	30	20-120	30
Dissolved zinc (Zn)	12	20	20	0-60	20
11150500 Salinas River near Bradley					
Total arsenic (As)	13	10	22	0-80	2
Dissolved arsenic (As)	19	2	3	0-10	1
Total cadmium (Cd)	13	(1)	-	0-50	<10
Dissolved cadmium (Cd)	18	1	2	0-7	1
Total chromium (Cr)	13	100	270	0-940	0
Chromium, hexavalent (Cr)	18			0	0
Total cobalt (Co)	13	(1)	-	<10-240	<50
Dissolved cobalt (Co)	18	0	0	0-1	0

See footnote at end of table.

TABLE 9.--*Summary of trace-element data for selected sites in the Salinas River, November 1971 through March 1975*--Continued

Constituents	Number of samples	Concentrations, in micrograms per liter			
		Mean	Standard deviation	Range	Median
11150500 Salinas River near Bradley--Continued					
Total copper (Cu)	13	(1)	-	0-680	20
Dissolved copper (Cu)	18	23	60	1-260	5
Total lead (Pb)	13	(1)	-	<50-500	<100
Dissolved lead (Pb)	18	5	5	0-16	2
Total mercury (Hg)	18	.2	.4	0-1.5	.1
Dissolved mercury (Hg)	13	.1	.2	0.0-0.6	.0
Total zinc (Zn)	13	160	280	10-1,000	30
Dissolved zinc (Zn)	18	20	20	0-60	20
11151700 Salinas River at Soledad					
Total arsenic (As)	13	10	9	0-30	6
Dissolved arsenic (As)	18	3	3	0-10	1
Total cadmium (Cd)	13	(1)	-	0-30	<10
Dissolved cadmium (Cd)	18	1	1	0-4	0
Total chromium (Cr)	13	70	120	0-340	0
Chromium, hexavalent (Cr)	18			0	0
Total cobalt (Co)	13	(1)	-	<10-90	<50
Dissolved cobalt (Co)	18	0	0	0-1	0
Total copper (Cu)	13	(1)	-	<10-1,700	20
Dissolved copper (Cu)	18	10	11	1-40	3
Total lead (Pb)	13	(1)	-	<50-200	<100
Dissolved lead (Pb)	18	5	5	0-22	3
Total mercury (Hg)	17	.7	1.4	0.0-6.0	.2
Dissolved mercury (Hg)	13	.5	1.1	0.0-4.0	.0
Total zinc (Zn)	12	110	110	10-360	60
Dissolved zinc (Zn)	18	20	20	0-70	10
11152500 Salinas River near Spreckels					
Total arsenic (As)	13	26	59	0-220	4
Dissolved arsenic (As)	18	3	3	0-10	3
Total cadmium (Cd)	12	(1)	-	0-20	10
Dissolved cadmium (Cd)	18	1	1	0-4	1
Total chromium (Cr)	13	160	330	0-1,100	0
Chromium, hexavalent (Cr)	18			0	0
Total cobalt (Co)	13	(1)	-	<10-450	<50
Dissolved cobalt (Co)	18	1	1	0-3	1
Total copper (Cu)	13	(1)	-	0-820	20
Dissolved copper (Cu)	18	17	19	1-80	13
Total lead (Pb)	13	(1)	-	50-300	<100
Dissolved lead (Pb)	18	4	3	0-10	3
Total mercury (Hg)	17	.7	1.5	0-6.4	.3
Dissolved mercury (Hg)	13	.4	.9	0.0-3.5	.1
Total zinc (Zn)	13	240	430	30-1,600	80
Dissolved zinc (Zn)	18	20	20	0-70	20

[1]Some concentrations were below the analytical detection limit.

The maximum concentration range for most of the total trace elements occurred at Spreckels: arsenic, from 0 to 220 µg/ℓ (micrograms per liter); chromium, 0 to 1,100 µg/ℓ; cobalt, 10 to 450 µg/ℓ; mercury, 0.0 to 6.4 µg/ℓ; and zinc, 30 to 1,600 µg/ℓ; however, the maximum range in copper (10 to 1,700 µg/ℓ) occurred at Soledad.

At medium and high flows the concentration of the total trace elements, other than cadmium and mercury, indicated at least a partial direct relation with water discharge, but these relations were defined using a rather small number of samples. At low and medium discharges the concentrations for all the constituents were quite variable.

The concentrations of the dissolved trace elements, particularly copper, also varied both within and among the sites. Dissolved copper ranged in concentration from 0 to 13 µg/ℓ near Pozo and from 1 to 260 µg/ℓ near Bradley, although its median concentration ranged from only 2 µg/ℓ (Pozo) to 13 µg/ℓ (Spreckels). In general, the dissolved trace elements indicated a considerable concentration scatter as a function of discharge.

During the periods of low flow in September 1973 and October 1974, bottom-material samples were collected for selected trace-element analysis (table 10). Based on this small number of samples, only slight differences in bottom-material concentrations of trace elements existed among the sites, except perhaps for chromium and zinc. Concentrations of chromium and zinc averaged 6 and 5 µg/g (micrograms per gram) near Bradley, increasing to an average of 11 and 7 µg/g at Soledad and 10 and 16 µg/g near Spreckels.

Pesticide Compounds

A summary of pesticide data collected at selected sites in the Salinas River is given in table 11.

The distribution of pesticide compounds in the river varied, but trace concentrations were detected at all sampling sites. The number of samples that contained detectable concentrations of chlorinated hydrocarbon compounds increased downstream ranging from 1 sample in 10 at Pozo to 13 samples in 17 at Spreckels. Organic phosphorus compounds were not as frequently detected, with an occurrence maximum of 6 samples in 17 at Spreckels.

Of the 72 samples collected in the river, the most frequently occurring chlorinated hydrocarbon compounds were: 2,4-D in 14 samples (19 percent), dieldrin in 13 samples (18 percent), and DDT in 12 samples (17 percent); the most frequently occurring organic phosphorus compound was diazinon in 12 samples (17 percent).

Samples of bottom sediments were collected periodically at four sites and were analyzed for chlorinated hydrocarbons and polychlorinated biphenyls (table 12). Near Spreckels, chlordane was the principal compound detected in the 1972 and 1973 samples; whereas, the sample collected in 1974 contained mainly DDD, DDE, and DDT. The 1974 sample at Soledad contained mainly DDD, DDE, and DDT.

TABLE 10.--*Summary of trace-element data in bottom material at selected sites in the Salinas River, September 1973 and October 1974*

Constituents	Concentration, in micrograms per gram	
	September 1973	October 1974
11143500 Salinas River near Pozo		
Arsenic (As)	-	-
Cadmium (Cd)	0	-
Chromium (Cr)	0	-
Cobalt (Co)	<2	-
Copper (Cu)	2	-
Lead (Pb)	<5	-
Mercury (Hg)	.02	-
Zinc (Zn)	6	-
11150500 Salinas River near Bradley		
Arsenic (As)	-	1
Cadmium (Cd)	0	<1
Chromium (Cr)	3	7
Cobalt (Co)	<2	<5
Copper (Cu)	1	1
Lead (Pb)	<5	<10
Mercury (Hg)	.01	.06
Zinc (Zn)	5	5
11151700 Salinas River at Soledad		
Arsenic (As)	-	3
Cadmium (Cd)	0	1
Chromium (Cr)	11	11
Cobalt (Co)	<2	<5
Copper (Cu)	2	1
Lead (Pb)	<5	<10
Mercury (Hg)	.01	.00
Zinc (Zn)	7	7
11152500 Salinas River near Spreckels		
Arsenic (As)	-	1
Cadmium (Cd)	0	1
Chromium (Cr)	9	10
Cobalt (Co)	2	5
Copper (Cu)	4	2
Lead (Pb)	<5	<10
Mercury (Hg)	.05	.00
Zinc (Zn)	21	12

TABLE 11.--*Summary of pesticide data for selected sites in the Salinas River, November 1971 through March 1975*

Sampling site	Total number of samples	Chlorinated hydrocarbon compounds		Organic phosphorus compounds	
		Number of samples in which detected	Range in concentration (µg/ℓ)	Number of samples in which detected	Range in concentration (µg/ℓ)
11143500 Salinas River near Pozo	10	1	[1]0.02	0	
11147500 Salinas River at Paso Robles	12	1	[1]0.35	2	[2]0.01
11150500 Salinas River near Bradley	17	3	0.02-0.48	2	[2]0.01
11152200 Salinas River at Soledad	16	5	0.01-0.15	2	[2]0.01
11152500 Salinas River near Spreckels	17	13	0.01-1.4	6	0.01-0.07

[1]Chlorinated hydrocarbon compound detected in only one sample
[2]Both samples in which organic phosphorus compounds were detected had a concentration of 0.01 µg/ℓ

TABLE 12.--*Summary of pesticide and polychlorinated biphenyl data in bottom sediments at selected sites in the Salinas River*

Sampling site	Date	Concentration (µg/kg)	
		Chlorinated hydrocarbons	Polychlorinated biphenyls (PCB)
11143500 Salinas River near Pozo	09-05-73	0	0
11150500 Salinas River near Bradley	09-05-73	0	0
	10-03-74	0	0
11151700 Salinas River at Soledad	09-06-73	0	0
	10-03-74	1.5	0
11152500 Salinas River near Spreckels	04-12-72	31	20
	09-06-73	75	0
	10-02-74	5.0	2

SUMMARY AND CONCLUSIONS

The major inorganic chemical composition of the Salinas River is principally cation mixed (calcium, magnesium, and sodium) bicarbonate. Concentrations of dissolved solids are usually lowest near Bradley (164 to 494 mg/ℓ) because of release water from Nacimiento and San Antonio Reservoirs. Near Spreckels, the concentrations of dissolved solids ranges from 170 to 1,090 mg/ℓ. The higher concentrations near Spreckels are caused largely by sewage inflow about 150 ft (50 m) upstream. The lower concentrations are the result of storm runoff or reservoir water which reaches Spreckels periodically after sustained releases.

At all four sites--at Paso Robles, near Bradley, near Gonzales, and near Spreckels--the principal ions had significant relations with specific conductance; however, some of the relations were based on a very small number of samples. This was particularly true for Paso Robles and Gonzales, and additional sampling at these sites would be desirable.

Results of specific conductance-water discharge regression analysis indicated that significant inverse relations at the 1-percent probability level existed at Paso Robles, Bradley, and Spreckels, but the explained variance ranged only from 66 to 74 percent. The discharge data may have been partly responsible for the unexplained variance, because records were mostly rated fair to poor. Although some error obviously was involved, the relations were used to estimate specific-conductance durations at three sites. Near Bradley and Spreckels it was estimated that the specific conductance ranged from 320 to 980 µmho and from 500 to 1,500 µmho about 80 percent of the time. During periods of flow the specific conductance at Paso Robles probably ranges from 460 to 1,000 µmho about 80 percent of the time.

Concentrations of nitrogen, phosphorus, and total organic carbon generally increased downstream from Pozo to Spreckels. The most apparent increase of many of the constituents occurred between the sites at Soledad and near Spreckels. Higher concentrations of most constituents near Spreckels, particularly ammonia, were mainly caused by sewage effluent. At Spreckels, concentrations of ammonia, nitrate, and orthophosphate phosphorus also had a significant inverse relation with water discharge, indicating the diluting-flushing effect of storm runoff and reservior release water. Highly significant constituent-discharge relations were not indicated at the other sites.

Concentrations of dissolved and total trace elements varied both within and among sites. Of the dissolved trace elements, copper was the most variable ranging from 0 to 13 µg/ℓ near Pozo and from 1 to 260 µg/ℓ near Bradley. Concentrations of the total trace elements were occasionally higher at Soledad and Spreckels, with the concentrations of copper, chromium, and zinc exceeding 1,000 µg/ℓ in some high-flow samples. Most of the total trace elements indicated an overall direct relation with discharge, but at low flow a considerable concentration scatter was common.

Chlorinated hydrocarbon pesticide compounds were detected in 13 of the 17 water samples collected near Spreckels, ranging in concentration from 0.01 to 1.4 µg/ℓ. Organic phosphorus pesticide compounds were detected in 6 of the 17 samples, ranging from 0.01 to 0.07 µg/ℓ. Pesticide compounds from both groups were occasionally detected at the upstream site but the concentrations were somewhat lower. At Spreckels, all three of the bottom-material samples contained detectable chlorinated hydrocarbons.

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Nitrogen, phosphorus, and total organic carbon data

Date	Instantaneous discharge (ft^3/s)	Dissolved nitrate (N) (mg/ℓ)	Dissolved nitrite (N) (mg/ℓ)	Total ammonia nitrogen (N) (mg/ℓ)	Total organic nitrogen (N) (mg/ℓ)	Total phosphorus (P) (mg/ℓ)	Dissolved orthophosphate phosphorus (P) (mg/ℓ)	Total organic carbon (C) (mg/ℓ)
11143500 Salinas River near Pozo								
1971								
Oct. 27	0.97	0.40	0.00	0.13	0.28	0.06	0.02	1.0
Dec. 29	5.4	.94	.00	.04	.29	.05	.03	2.0
1972								
Mar. 07	2.0	.61	.00	.04	.18	.02	.00	.5
Apr. 13	1.8	.33	.00	.07	.07	.01	.01	.0
June 29	.46	.03	.00	.08	.23	.04	.02	1.0
Nov. 22	1.8	.15	.00	.07	.09	.12	.01	2.0
1973								
Feb. 13	403	.48	.00	.22	.21	.19	.03	8.0
Mar. 20	430	.17	.00	.14	.46	.18	.04	8.0
Apr. 19	9.6	.86	.00	.03	.24	.04	.03	1.5
Sept. 05	1.1	.69	.00	.05	.15	.08	.09	29
Dec. 11	16	1.3	.00	.02	.16	.03	.05	1.7
1974								
Jan. 21	27	.71	.00	.01	.27	.03	.01	3.3
11147500 Salinas River at Paso Robles								
1971								
Dec. 29	23	1.2	.00	.12	.70	.28	.11	6.0
1972								
Mar. 07	.80	.02	.00	.09	.50	.13	.09	12
1973								
Jan. 11	43	.49	.00	.17	.00	.17	.17	8.0
Feb. 13	3,200	.65	.00	.43	.67	1.1	.09	15
Mar. 20	2,860	.27	.00	.38	2.0	1.2	.11	23
May 17	6.4	.12	.00	.13	.27	.08	.06	2.5
1974								
Jan. 21	371	.56	.00	.05	.32	.15	.05	5.3
Mar. 04	1,070	.23	.00	.15	.95	.32	.14	10
Apr. 15	111	.50	.00	.12	.14	.06	.07	3.2
May 10	40	.24	.00	.04	.26	.08	.06	3.5
1975								
Feb. 03	302	.62	.01	.04	.96	.35	.13	11
Mar. 04	36	.32	.02	.02	.27	.09	.07	6.7

Nitrogen, phosphorus, and total organic carbon data--Continued

Date	Instantaneous discharge (ft^3/s)	Dissolved nitrate (N) (mg/ℓ)	Dissolved nitrite (N) (mg/ℓ)	Total ammonia nitrogen (N) (mg/ℓ)	Total organic nitrogen (N) (mg/ℓ)	Total phosphorus (P) (mg/ℓ)	Dissolved orthophosphate phosphorus (P) (mg/ℓ)	Total organic carbon (C) (mg/ℓ)
			11150500 Salinas River near Bradley					
1971								
Oct. 28	132	0.18	0.00	0.21	0.20	0.09	0.03	3.0
Nov. 29	135	.49	.00	.20	.19	.34	.26	7.5
Dec. 28	61	.55	.00	.06	.67	.57	.10	5.5
1972								
Mar. 07	78	.14	.00	.06	.38	.14	.06	3.5
Apr. 12	450	.18	.00	.10	.26	.17	.09	.5
June 28	540	.09	.01	.05	.38	.22	.15	3.0
Nov. 27	37	.10	.00	.06	.18	.25	.09	3.0
1973								
Feb. 07	2,000	.46	.01	.20	16	11	.16	91
Mar. 21	3,000	.45	.00	.12	3.5	4.9	.11	41
May 17	17	.03	.00	.02	.22	.06	.07	2.0
Sept. 05	402	.54	.00	.01	.22	.12	.05	4.5
Dec. 11	816	.04	.01	.03	.47	.07	.06	4.1
1974								
Jan. 22	2,680	.12	.00	.01	.18	.13	.03	4.7
Mar. 04	1,140	.38	.00	.23	.73	.54	.15	12
Apr. 15	154	.44	.00	.15	.04	.14	.12	3.3
May 10	61	.10	.03	.04	.24	.12	.09	2.8
Oct. 03	435	.05		.05	.28	.18	.01	4.5
1975								
Feb. 04	3,420	.18	.00	.01	.45	.14	.04	7.1
Mar. 04	627	.11	.00	.01	.16	.08	.07	3.1
			11151700 Salinas River at Soledad					
1971								
Oct. 28	89	0.10	0.00	0.07	0.22	0.12	0.05	3.0
Dec. 28	115	.52	.00	.05	.72	.36	.10	3.0
1972								
Mar. 08	7.4	6.2	.04	.11	.21	.05	.05	9.5
Apr. 12	229	.06	.00	.09	.31	.25	.08	1.0
June 28	140	.15	.00	.12	.47	.26	.17	3.0
Nov. 27	44	.45	.00	.10	.78	.70	.15	8.0
1973								
Feb. 09	1,750	.26	.00	.16	1.9	4.3	.12	37
Mar. 23	2,410	.49	.00	.16	2.8	2.9	.11	28
May 18	57	3.0	.10	.03	.21	.08	.06	1.5
Sept. 06	153	.20	.01	.01	.65	.15	.06	5.5
Dec. 10	304	.15	.00	.08	.37	.17	.08	5.3

Nitrogen, phosphorus, and total organic carbon data--Continued

Date	Instantaneous discharge (ft^3/s)	Dissolved nitrate (N) (mg/ℓ)	Dissolved nitrite (N) (mg/ℓ)	Total ammonia nitrogen (N) (mg/ℓ)	Total organic nitrogen (N) (mg/ℓ)	Total phosphorus (P) (mg/ℓ)	Dissolved orthophosphate phosphorus (P) (mg/ℓ)	Total organic carbon (C) (mg/ℓ)
		11151700	Salinas River at Soledad--Continued					
1974								
Jan. 23	2,570	.13	.00	.02	.40	.24	.03	5.1
Mar. 04	627	.42	.00	.11	2.2	1.8	.15	27
Apr. 16	268	1.6	.00	.19	.05	.18	.11	3.2
May 13	100	4.3	.05	.06	.37		.05	3.1
Oct. 03	505	.07	.00	.14	.49	1.4	.03	7.3
1975								
Feb. 05	2,330	.44	.00	.05	2.1	.81	.03	19
Mar. 05	259	1.5	.02	.01	.26	.14	.09	2.6
		11152500	Salinas River near Spreckels					
1971								
Oct. 28	1.0	8.6	0.07	7.4	1.4	0.39	0.27	9.0
Dec. 27	1,510	.45	.00	.32	.68	.43	.30	5.5
1972								
Mar. 08	2.7	8.7	.09	9.6	.10	1.5	1.2	8.0
Apr. 12	54	.68	.03	.36	.55	.57	.19	.5
June 28	1.0	7.4	.79	5.0	.20	13	12	17
Nov. 27	17	2.4	.10	1.5	.70	2.3	1.8	8.0
1973								
Feb. 08	2,230	1.6	.00	.22	2.9	4.9	.16	45
Mar. 23	1,800	.41	.00	.19	2.2	.20	.08	34
May 18	30	1.6	.09	.01	.27	.16	.16	3.0
Sept. 06	1.4	16	.10	2.1	1.5	13	3.0	28
Dec. 12	179	.07	.01	.26	.74	.52	.03	9.2
1974								
Jan. 23	3,330	.16	.00	.04	.36	.33	.04	5.8
Mar. 02	2,910	.24	.01	.26	1.1	.59	.18	16
Apr. 16	404	1.2	.00	.18	.09	.20	.09	3.4
May 13	55	2.9	.06	.35	.45	.22	.18	2.4
Oct. 02	199	2.7				.24		6.5
1975								
Feb. 03	3,680	.46	.01	.23	9.8	4.0	.04	320
Mar. 05	259	.02	.02	.01	.26	.28	.09	2.6

Trace-element

Date	Instantaneous discharge (ft^3/s)	Total arsenic (As) (µg/ℓ)	Dissolved arsenic (As) (µg/ℓ)	Total cadmium (Cd) (µg/ℓ)	Dissolved cadmium (Cd) (µg/ℓ)	Total chromium (Cr) (µg/ℓ)	Hexavalent chromium (Cr^{+6}) (µg/ℓ)	Total cobalt (Co) (µg/ℓ)	Dissolved cobalt (Co) (µg/ℓ)
				11143500 Salinas River near Pozo					
1971									
Oct. 27	0.97		0		0		0		0
Dec. 29	5.4		1		0		0		0
1972									
Mar. 07	2.0		3		0		0		1
Apr. 13	1.8		0		0		0		0
June 29	.46		0		2		0		0
Nov. 22	1.8	10	0	0	1	0	0	1	1
1973									
Feb. 13	403	0	1	30	2	0	0	70	1
Mar. 20	430	0	1	10	2	0	0	<20	0
Apr. 19	9.6	3	3	0	0	0	0	<20	1
Sept. 05	1.1	33	1	10	0	0	0	<25	0
Dec. 11	16	6	0	<10	0	0	0	<10	3
1974									
Jan. 21	27	1	1	<10	0	0	0	<50	0
				11147500 Salinas River at Paso Robles					
1971									
Dec. 29	23		10		0		0		0
1972									
Mar. 07	.80		0		0		0		2
1973									
Jan. 11	43	20	2	0	1	20	0	80	1
Feb. 13	3,200	3	0	30	1	0	0	70	2
Mar. 20	2,860	0	19	10	1	70	0	20	0
May 17	6.4	6	1	0	1	0	0	<20	0
1974									
Jan. 21	371	0	0	<10	1	0	0	<50	0
Mar. 04	1,070	0	0	<10	2	0	0	<50	0
Apr. 15	111	3	2	10	0	0	0	<50	0
May 10	40	0	0	<10	0	20	0	<50	0
1975									
Feb. 03	302	7	6	<10	1	20	0	<50	1
Mar. 04	36	0	0	<10	1	0	0	<50	1

data

Total copper (Cu) (µg/ℓ)	Dissolved copper (Cu) (µg/ℓ)	Total lead (Pb) (µg/ℓ)	Dissolved lead (Pb) (µg/ℓ)	Total mercury (Hg) (µg/ℓ)	Dissolved mercury (Hg) (µg/ℓ)	Total zinc (Zn) (µg/ℓ)	Dissolved zinc (Zn) (µg/ℓ)
			11143500 Salinas River near Pozo--Continued				
	1		0	0.1			0
	0		2	.0			10
	3		2	.8		--	20
	1		0	.4		--	20
	2		7			--	0
16	13	1	0	.0	.0	30	20
60	4	200	3	.3	.1	60	0
120	10	<100	0	.2	.2	160	20
130	5	<100	2	1.1	1.2	10	10
<10	4	<50	3	.0	.0	20	20
20	2	<100	9	.0	.0	10	0
<10	3	<100	0	.0	.0	30	20
			11147500 Salinas River at Paso Robles--Continued				
	7		2	.1			10
	3		1	.8			20
70	10	8	3	.3	.1	60	20
80	11	300	3	.4	.2	120	0
120	20	<100	0	.2	.1	90	60
10	10	<100	3	.8	.8	20	20
<10	5	<100	2	.0	.0	30	20
120	30	<100	6	.1	.0	30	40
10	3	<100	3	.0	.0	20	20
<10	3	<100	3	.0	.0	20	10
30	5	<100	2	.3	.2	40	50
<10	2	<100	9	.4	.4	20	20

Trace-element

Date	Instantaneous discharge (ft^3/s)	Total arsenic (As) (µg/ℓ)	Dissolved arsenic (As) (µg/ℓ)	Total cadmium (Cd) (µg/ℓ)	Dissolved cadmium (Cd) (µg/ℓ)	Total chromium (Cr) (µg/ℓ)	Hexavalent chromium (Cr^{+6}) (µg/ℓ)	Total cobalt (Co) (µg/ℓ)	Dissolved cobalt (Co) (µg/ℓ)
11150500 Salinas River near Bradley									
1971									
Oct. 28	132		0		0		0		0
Nov. 29	135		1		0		0		1
Dec. 28	61		3		0		0		0
1972									
Mar. 07	78		0		1		0		1
Apr. 12	450		0		0		0		0
June 28	540		5		2		0		0
Nov. 27	37	0	0	0	1	0	0	1	1
1973									
Feb. 07	2,000	80	3	50	1	940	0	240	1
Mar. 21	3,000	20	2	20	7	320	0	70	0
May 17	17	3	0	0	1	0	0	<20	0
Sept. 05	402	0	3	<10	0	10	0	<25	1
Dec. 11	816	6	0	<10		0		<10	
1974									
Jan. 22	2,680	2	0	<10	1	0	0	<50	0
Mar. 04	1,140	10	10	<10	2	0	0	<50	0
Apr. 15	154	3	3	10	1	0	0	<50	0
May 10	61	1	0	<10	0	30	0	<50	0
Oct. 03	435	1	1	10	0	0	0	<50	0
1975									
Feb. 04	3,420	3	1	<10	1	0	0	50	1
Mar. 04	627	0	1	<10	3	0	0	<50	1
11151700 Salinas River at Soledad									
1971									
Oct. 28	89		2		0		0		0
Dec. 28	115		1		0		0		0
1972									
Mar. 08	7.4		9		1		0		1
Apr. 12	229		0		0		0		0
June 28	140		10		2		0		0
Nov. 27	44	1	0	1	1	0	0	8	1

data--Continued

Total copper (Cu) (µg/ℓ)	Dissolved copper (Cu) (µg/ℓ)	Total lead (Pb) (µg/ℓ)	Dissolved lead (Pb) (µg/ℓ)	Total mercury (Hg) (µg/ℓ)	Dissolved mercury (Pb) (µg/ℓ)	Total zinc (Zn) (µg/ℓ)	Dissolved zinc (Zn) (µg/ℓ)
			11150500 Salinas River near Bradley--Continued				
	1		0	.1			10
	2		2	.0			20
	5		2	.3			10
	3		3	.8			20
	2		0	.3			8
	2		3				0
22	12	1	0	.1	.4	30	20
410	11	500	2	1.5	.1	1,000	20
320	30	100	16	.5	.2	460	40
0	10	<100	2	.6	.6	10	10
20	6	<50	5	.0	.0	50	0
10		<100		.0	.0	30	0
10	8	<100	7	.0	.0	30	20
40	30	<100	9	.1	.0		
20	3	<100	7	.0	.0	200	20
10	3	<100	2	.0	.0	30	30
<10	1	<100	1	.0	.0	10	0
680	260	100	10	.0	.0	60	60
<10	30	<100	11	.1	.1	20	30
			11151700 Salinas River at Soledad--Continued				
	1		3	.1			10
	3		1	.3			10
	2		4	1.0			20
	1		0	.3			8
	3		3				10
50	22	5	1	.1	.1	70	20

Trace-element

Date	Instantaneous discharge (ft^3/s)	Total arsenic (As) (µg/ℓ)	Dissolved arsenic (As) (µg/ℓ)	Total cadmium (Cd) (µg/ℓ)	Dissolved cadmium (Cd) (µg/ℓ)	Total chromium (Cr) (µg/ℓ)	Hexavalent chromium (Cr^{+6}) (µg/ℓ)	Total cobalt (Co) (µg/ℓ)	Dissolved cobalt (Co) (µg/ℓ)
				11151700 Salinas River at Soledad--Continued					
1973									
Feb. 09	1,750	30	4	30	0	340	0	90	0
Mar. 23	2,410	20	3	20	1	220	0	50	0
May 18	57	6	6	0	0		0	<25	0
Sept. 06	153	10	2	10	0	10	0	<25	1
Dec. 10	304	6	1	<10	1	0	0	<10	1
1974									
Jan. 23	2,570	11	0	<10	4	0	0	<50	0
Mar. 04	627	14	7	<10	3	210	0	<50	0
Apr. 16	268	5	3	10	0	0	0	<50	0
May 13	100	0	1	<10	0	0	0	<50	0
Oct. 03	505	1	1	<10	<1	0	0	<50	0
1975									
Feb. 05	2,330	22	1	<10	1	170	0	50	0
Mar. 05	259	1	0	10	0	0	0	<50	1
				11152500 Salinas River near Spreckels					
1971									
Oct. 28	1.0		2		0		0		1
Dec. 27	1,510		2		2		0		0
1972									
Mar. 08	2.7		10		0		0		2
Apr. 12	54		4		0		0		1
June 28	1.0		8		2		0		0
Nov. 27	17	0	0	0	1	0	0	2	1
1973									
Feb. 08	2,230	30	3	20	0	590	0	140	0
Mar. 23	1,800	30	3	20	2	330	0	90	0
May 18	30	4	4	10	0		0	<25	1
Sept. 06	1.4	4	4	10	0	0	0	<25	1
Dec. 12	179	10	1	<10	1	70	0	<10	2
1974									
Jan. 23	3,330	4	0	<10	1	10	0	<50	3
Mar. 02	2,910	25	3	<10	3	20	0	<50	0
Apr. 16	404	2	3	10	4	0	0	<50	1
May 13	55	1	1	20	0	0	0	<50	0
Oct. 02	199	2	2		<1	0		<50	0
1975									
Feb. 03	3,680	220	3	20	1	1,100	0	450	0
Mar. 05	259	3	2	<10	0	0		<50	0

data--Continued

Total copper (Cu) (µg/ℓ)	Dissolved copper (Cu) (µg/ℓ)	Total lead (Pb) (µg/ℓ)	Dissolved lead (Pb) (µg/ℓ)	Total mercury (Hg) (µg/ℓ)	Dissolved mercury (Hg) (µg/ℓ)	Total zinc (Zn) (µg/ℓ)	Dissolved zinc (Zn) (µg/ℓ)
		11151700 Salinas River at Soledad--Continued					
150	11	200	3	6.0	4.0	360	20
170	10	100	0	1.5	1.4	220	30
10	10	<100	0	.8	.8	40	20
20	20	<50	5	.2	.2	30	0
30	4	<100	9	.0	.0	10	0
20	29	<100	22	.0	.0		70
100	40	<100	9	.4	.0	200	40
20	3	<100	2	.0	.0	30	10
10	7	<100	10	.0	.0	130	20
<10	2	<100	6	.0	.0	10	0
1,700	3	200	4	.3	.0	220	20
30	1	<100	0	.3	.1	50	10
		11152500 Salinas River near Spreckels--Continued					
	1		1	.1			10
	20		6	.3			20
	4		4	.5			20
	3		0	.4			20
	39		3	.4			70
40	32	4	1	.1	.1	50	20
260	5	300	1	6.4	3.5	530	0
230	20	100	3	2.0	.4	310	30
0	13	<100	0	.5	.5	40	10
40	30	50	6	.4	.4	90	70
60	13	<100	8	.0	.0	80	10
20	14	<100	10			100	30
20	14	<100	10	.1	.0	180	20
10	2	<100	7	.0	.0	40	20
10	9	<100	6	.0	.0	90	20
<10	2	<100	0	.1	.1	30	10
820	80	300	2	1.0	.1	1,600	40
30	2	<100	2	.2	.0	40	0

Pesticide

Date	Instantaneous discharge (ft^3/s)	Aldrin (µg/ℓ)	Lindane (µg/ℓ)	Chlordane (µg/ℓ)	DDD (µg/ℓ)	DDE (µg/ℓ)	DDT (µg/ℓ)	Dieldrin (µg/ℓ)	Endrin (µg/ℓ)	Ethion (µg/ℓ)
11143500 Salinas River near Pozo										
1971										
Oct. 27	0.97	0.00	0.00	0.0	0.00	0.00	0.00	0.00	0.00	
Dec. 29	5.4	.00	.00	.0	.00	.00	.00	.00	.00	
1972										
Mar. 07	2.0	.00	.00	.0	.00	.00	.01	.01	.00	
Nov. 22	1.8	.00	.00	.0	.00	.00	.00	.00	.00	
1973										
Feb. 13	403	.00	.00	.0	.00	.00	.00	.00	.00	
Mar. 20	430	.00	.00	.0	.00	.00	.00	.00	.00	
Apr. 19	9.6	.00	.00	.0	.00	.00	.00	.00	.00	
Sept. 05	1.1	.00	.00	.0	.00	.00	.00	.00	.00	
Dec. 11	16	.00	.00	.0	.00	.00	.00	.00	.00	
1974										
Jan. 21	27	.00	.00	.0	.00	.00	.00	.00	.00	
11147500 Salinas River at Paso Robles										
1971										
Dec. 29	23	.00	.00	.0	.00	.00	.00	.00	.00	
1972										
Mar. 07	.80	.00	.00	.0	.00	.00	.00	.00	.00	
1973										
Jan. 11	43	.00	.00	.0	.00	.00	.00	.00	.00	
Feb. 13	3,200	.00	.00	.0	.00	.00	.00	.00	.00	
Mar. 20	2,860	.00	.00	.0	.00	.00	.00	.00	.00	
May 17	6.4	.00	.00	.0	.00	.00	.00	.00	.00	
1974										
Jan. 21	371	.00	.00	.0	.00	.00	.00	.00	.00	
Mar. 04	1,070	.00	.00	.0	.00	.00	.00	.00	.00	
Apr. 15	111	.00	.00	.0	.00	.00	.00	.00	.00	0.00
May 10	40	.00	.00	.0	.00	.00	.00	.00	.00	.00
1975										
Feb. 03	302	.00	.00	.0	.00	.00	.00	.00	.00	.00
Mar. 04	36	.00	.00	.00	.00	.00	.00	.00	.00	.00

data

Toxaphene (µg/ℓ)	Heptachlor (µg/ℓ)	Heptachlor epoxide (µg/ℓ)	Malathion (µg/ℓ)	Parathion (µg/ℓ)	Diazinon (µg/ℓ)	Methyl parathion (µg/ℓ)	2,4-D (µg/ℓ)	2,4,5-T (µg/ℓ)	Silvex (µg/ℓ)	PCB (µg/ℓ)
				11143500 Salinas River near Pozo--Continued						
	0.00	0.00					0.00	0.00	0.00	
	.00	.00	0.00	0.00	0.00	0.00	.00	.00	.00	
	.00	.00	.00	.00	.00	.00	.00	.00	.00	
	.00	.00	.00	.00	.00	.00	.00	.00	.00	0.0
	.00	.00	.00	.00	.00	.00	.00	.00	.00	.0
	.00	.00	.00	.00	.00	.00	.00	.00	.00	.0
	.00	.00	.00	.00	.00	.00	.00	.00	.00	.0
	.00	.00	.00	.00	.00	.00	.00	.00	.00	.0
	.00	.00	.00	.00	.00	.00	.00	.00	.00	.0
	.00	.00	.00	.00	.00	.00	.00	.00	.00	.0
				11147500 Salinas River at Paso Robles--Continued						
	.00	.00	.00	.00	.00	.00	.00	.00	.00	
	.00	.00	.00	.00	.01	.00	.00	.00	.00	
	.00	.00	.00	.00	.00	.00	.00	.00	.00	.0
	.00	.00	.00	.00	.00	.00	.00	.00	.00	.0
	.00	.00	.00	.00	.01	.00	.35	.00	.00	.0
	.00	.00	.00	.00	.00	.00	.00	.00	.00	.0
	.00	.00	.00	.00	.00	.00	.00	.00	.00	.0
	.00	.00	.00	.00	.00	.00	.00	.00	.00	.0
0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.0
0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.0
0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.0
0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.0

Pesticide

Date	Instantaneous discharge (ft^3/s)	Aldrin (µg/ℓ)	Lindane (µg/ℓ)	Chlordane (µg/ℓ)	DDD (µg/ℓ)	DDE (µg/ℓ)	DDT (µg/ℓ)	Dieldrin (µg/ℓ)	Endrin (µg/ℓ)	Ethion (µg/ℓ)
11150300 Salinas River near Bradley										
1971										
Oct. 28	132	0.00	0.00	0.0	0.00	0.00	0.00	0.00	0.00	
Nov. 29	135	.00	.00	.0	.00	.00	.00	.00	.00	
Dec. 28	61	.00	.00	.0	.00	.00	.00	.00	.00	
1972										
Mar. 07	78	.00	.00	.0	.00	.00	.00	.00	.00	
Nov. 27	37	.00	.00	.0	.00	.00	.00	.00	.00	
1973										
Feb. 07	2,000	.00	.00	.0	.00	.00	.00	.00	.00	
Mar. 21	3,000	.00	.00	.0	.02	.01	.02	.01	.00	
May 17	17	.00	.00	.0	.00	.00	.00	.00	.00	
Sept. 05	402	.00	.00	.0	.00	.00	.00	.00	.00	
Dec. 11	816	.00	.00	.0	.00	.00	.00	.00	.00	
1974										
Jan. 22	2,680	.00	.00	.0	.00	.00	.00	.00	.00	
Mar. 04	1,140	.00	.00	.0	.00	.00	.00	.00	.00	
Apr. 15	154	.00	.00	.0	.00	.00	.00	.00	.00	0.00
May 10	61	.00	.00	.0	.00	.00	.00	.00	.00	.00
Oct. 03	435	.00	.00	.0	.00	.00	.00	.00	.00	.00
1975										
Feb. 04	3,420	.00	.00	.0	.00	.00	.00	.00	.00	.00
Mar. 04	627	.00	.00	.0	.00	.00	.00	.00	.00	.00
11151700 Salinas River at Soledad										
1971										
Oct. 28	89	.00	.00	.0	.00	.00	.00	.00	.00	
Dec. 28	115	.00	.00	.0	.00	.01	.02	.01	.00	
1972										
Mar. 08	7.4	.00	.00	.0	.00	.00	.00	.00	.00	
Nov. 27	44	.00	.00	.0	.00	.00	.00	.00	.00	
1973										
Feb. 09	1,750	.00	.00	.0	.00	.00	.00	.00	.00	
Mar. 23	2,410	.00	.00	.0	.00	.00	.01	.01	.00	
May 18	57	.00	.00	.0	.00	.00	.00	.00	.00	
Sept. 06	153	.00	.00	.0	.00	.00	.00	.00	.00	
Dec. 10	304	.00	.00	.0	.00	.00	.00	.00	.00	
1974										
Jan. 23	2,570	.00	.00	.0	.00	.00	.00	.00	.00	
Mar. 04	627	.00	.00	.0	.00	.00	.00	.00	.00	
Apr. 16	268	.00	.00	.0	.00	.00	.00	.00	.00	.00
May 13	100	.00	.00	.0	.00	.00	.00	.00	.00	.00
Oct. 03	505	.00	.00	.0	.00	.00	.00	.00	.00	.00

data--Continued

Toxaphene (µg/ℓ)	Heptachlor (µg/ℓ)	Heptachlor epoxide (µg/ℓ)	Malathion (µg/ℓ)	Parathion (µg/ℓ)	Diazinon (µg/ℓ)	Methyl parathion (µg/ℓ)	2,4-D (µg/ℓ)	2,4,5-T (µg/ℓ)	Silvex (µg/ℓ)	PCB (µg/ℓ)
				11150500 Salinas River near Bradley--Continued						
	0.00	0.00					0.00	0.00	0.00	
	.00	.00					.00	.00	.00	
	.00	.00	0.00	0.00	0.00	0.00	.00	.00	.02	
	.00	.00	.00	.00	.00	.00	.00	.00	.00	
	.00	.00	.00	.00	.00	.00	.00	.00	.00	0.0
	.00	.00	.00	.00	.00	.00	.14	.01	.00	.0
	.00	.00	.00	.00	.01	.00	.42	.00	.00	.0
	.00	.00	.00	.00	.00	.00	.00	.00	.00	.0
	.00	.00	.00	.00	.01	.00	.00	.00	.00	.0
	.00	.00	.00	.00	.00	.00	.00	.00	.00	.0
	.00	.00	.00	.00	.00	.00	.00	.00	.00	.0
	.00	.00	.00	.00	.00	.00	.00	.00	.00	.0
0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.0
0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.0
0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.0
0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.0
0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.0
				11151700 Salinas River at Soledad--Continued						
	.00	.00					.00	.00	.00	
	.00	.00	.00	.00	.00	.00	.00	.00	.00	
							.00			
	.00	.00	.00	.00	.01	.00	.00	.00	.00	
	.00	.00	.00	.00	.00	.00	.00	.00	.00	.0
	.00	.00	.00	.00	.00	.00	.04	.00	.00	.0
	.00	.00	.00	.00	.01	.00	.13	.00	.00	.0
	.00	.00	.00	.00	.00	.00	.00	.00	.00	.0
	.00	.00	.00	.00	.00	.00	.00	.00	.00	.0
	.00	.00	.00	.00	.00	.00	.00	.00	.00	.0
	.00	.00	.00	.00	.00	.00	.00	.00	.00	.0
	.00	.00	.00	.00	.00	.00	.02	.00	.00	.0
0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.0
0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.0
0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.0

Pesticide

Date	Instantaneous discharge	Aldrin (µg/ℓ)	Lindane (µg/ℓ)	Chlordane (µg/ℓ)	DDD (µg/ℓ)	DDE (µg/ℓ)	DDT (µg/ℓ)	Dieldrin (µg/ℓ)	Endrin (µg/ℓ)	Ethion (µg/ℓ)
11151700 Salinas River at Soledad--Continued										
1975										
Feb. 05	2,330	0.00	0.00	0.0	0.00	0.01	0.00	0.00	0.00	0.00
Mar. 05	259	.00	.00	.0	.00	.00	.00	.00	.00	.00
11152500 Salinas River near Spreckels										
1971										
Oct. 28	1.0	.00	.00	.0	.00	.00	.00	.00	.00	
Dec. 27	1,510	.00	.00	.0	.00	.02	.12	.01	.00	
1972										
Mar. 08	2.7	.00	.02	.0	.00	.00	.00	.01	.00	
Apr. 12	54	.00	.00	.0	.00	.00	.00	.01	.00	
June 28	1.0	.00	.00	.1	.00	.02	.06	.03	.00	
1973										
Feb. 08	2,230	.00	.00	.0	.00	.01	.01	.00	.00	
Mar. 23	1,800	.00	.00	.0	.00	.00	.01	.01	.00	
May 18	30	.00	.00	.0	.00	.00	.01	.01	.00	
Sept. 06	1.4	.00	.00	.3	.00	.04	.08	.06	.00	
Dec. 12	179	.00	.00	.0	.00	.00	.00	.00	.00	
1974										
Jan. 23	3,330	.00	.00	.0	.00	.00	.00	.00	.00	
Mar. 02	2,910	.00	.00	.0	.00	.00	.00	.00	.00	
Apr. 16	404	.00	.00	.0	.00	.00	.00	.00	.00	.00
May 13	55	.00	.00	.0	.00	.00	.00	.01	.00	.00
Oct. 02	2.7	.00	.00	.0	.00	.00	.01	.00	.01	.00
1975										
Feb. 03	3,680	.00	.00	.0	.01	.01	.01	.02	.00	.00
Mar. 05	259	.00	.00	.0	.00	.00	.00	.00	.00	.00

data--Continued

Toxaphene (µg/ℓ)	Heptachlor (µg/ℓ)	Heptachlor epoxide (µg/ℓ)	Malathion (µg/ℓ)	Parathion (µg/ℓ)	Diazinon (µg/ℓ)	Methyl parathion (µg/ℓ)	2,4-D (µg/ℓ)	2,4,5-T (µg/ℓ)	Silvex (µg/ℓ)	PCB (µg/ℓ)
				11151700 Salinas River at Soledad--Continued						
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0
0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.0
				11152500 Salinas River near Spreckels--Continued						
	.00	.00					.89	.00	.00	
	.00	.00	.00	.00	.01	.00	.18	.00	.00	
	.00	.00	.00	.00	.02	.00	.03	.00	.01	
	.00	.00	.00	.00	.00	.00	.04	.00	.00	
	.00	.00	.00	.00	.07	.00	.00	.00	.00	
	.00	.00	.00	.00	.00	.00	.03	.00	.03	.0
	.00	.00	.00	.00	.00	.00	.30	.00	.00	.0
	.00	.00	.00	.00	.01	.00	.00	.00	.00	.0
.80	.00	.00	.02	.01	.03	.00	.17	.00	.00	.0
	.00	.00	.00	.00	.00	.00	.00	.00	.00	.0
	.00	.00	.00	.00	.00	.00	.00	.00	.00	.0
	.00	.00	.00	.00	.00	.00	.02	.00	.00	.0
0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.0
0	.00	.00	.00	.00	.03	.00	.00	.00	.00	.0
0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.0
0	.00	.00	.00	.00	.00	.00	.00	.00	.01	.0
0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.0

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