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DATA COMPILATION OF PERIPHYTON COLONIZED ON ARTIFICIAL SUBSTRATES  
PLACED IN THE SACRAMENTO AND FEATHER RIVERS, CALIFORNIA, 1975

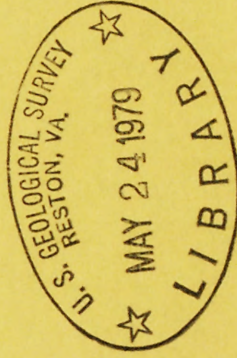
✓ U.S. GEOLOGICAL SURVEY  
Open-File Report 79-696

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1949- 1949-  
By Linda J. Britton and Rodger F. Ferreira

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## CONVERSION FACTORS

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The inch-pound system of units is used in this report. For readers who prefer the International System of units (metric), the conversion factors for the terms used in this report are listed below.

<u>Multiply inch-pound unit</u>	<u>By</u>	<u>To obtain SI (metric) unit</u>
ft (foot)	0.3048	m (meter)
ft/s (foot per second)	.3048	m/s (meter per second)
ft <sup>3</sup> /s (cubic foot per second)	.02832	m <sup>3</sup> /s (cubic meter per second)
inch	2.54	cm (centimeter)
inch	25.4	mm (millimeter)
mi (mile, statute)	1.609	km (kilometer)
mi <sup>2</sup> (square mile)	2.590	km <sup>2</sup> (square kilometer)

Abbreviations used:

°C (degree Celsius)

cm<sup>2</sup> (square centimeter)

mg/cm<sup>2</sup> (milligram per square centimeter)

mg/L (milligram per liter)

μmho/cm at 25°C (micromho per centimeter at 25° Celsius)



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ABSTRACT

Periphyton was collected from artificial substrates placed in the Sacramento and Feather Rivers, California, and analyzed to determine the rate of colonization and succession of periphyton types with time. Samples for determination of water-quality characteristics, especially suspended-sediment concentrations, that might have a direct effect on the growth of periphyton were collected during each station visit. This paper describes the methods of data collection and presents qualitative and quantitative findings of periphyton collected during two colonization periods (August 5-September 5, 1975, and November 28-December 29, 1975) and associated water-quality data.

## INTRODUCTION

Periphyton is being collected routinely in the Geological Survey's National Stream Quality Accounting Network. To standardize periphyton sample collection, many programs are utilizing artificial substrates placed in lakes and rivers for a length of time considered sufficient for periphyton colonization. There is, however, some indication that qualitative changes (species succession) occur in the periphyton community during the colonization period (Hynes, 1970). The length of time the periphyton is exposed to artificial substrates may affect not only the amount of periphyton production but also the species composition. In selected reaches of the Sacramento River, earlier studies (Britton and Averett, 1974, and Britton, 1977) found lower periphyton biomass (production) to be associated with higher sediment deposition rates.

In late summer and early winter 1975, floats containing artificial substrates for periphyton colonization were placed in the Sacramento River and the Feather River (a tributary to the Sacramento River). Substrates with the attached periphyton were randomly removed from the float approximately every 2 or 3 days, and the attached periphyton was analyzed for species composition and biomass. During each retrieval, physical and chemical data were collected that could possibly be related to periphyton growth. These data will be used in a later report to determine rates of periphyton colonization on artificial substrates, the succession of periphyton types with time, and the influence of sediment on the primary productivity of periphyton.

This paper describes the methods of data collection and presents qualitative and quantitative findings of periphyton with associated water-quality data. Two colonization periods were established for the study: August 5-September 5, 1975, and November 28-December 29, 1975.

## SITE SELECTION AND LOCATION

The Sacramento River flows more than 400 mi from its headwaters near Mount Shasta to its mouth at Suisun Bay (fig. 1). The river drains about 26,000 mi<sup>2</sup> of principally agricultural land in the northern third of the Central Valley of California and is controlled by an extensive levee system as the river meanders through a deep and wide alluvial valley. The Feather River originates on the western slope of the Sierra Nevada and flows southward more than 100 mi to the Central Valley, where it joins the Sacramento River approximately 15 mi upstream from Sacramento. The natural flow of both streams is affected by storage and flood-control reservoirs, irrigation ditches, and return flows.

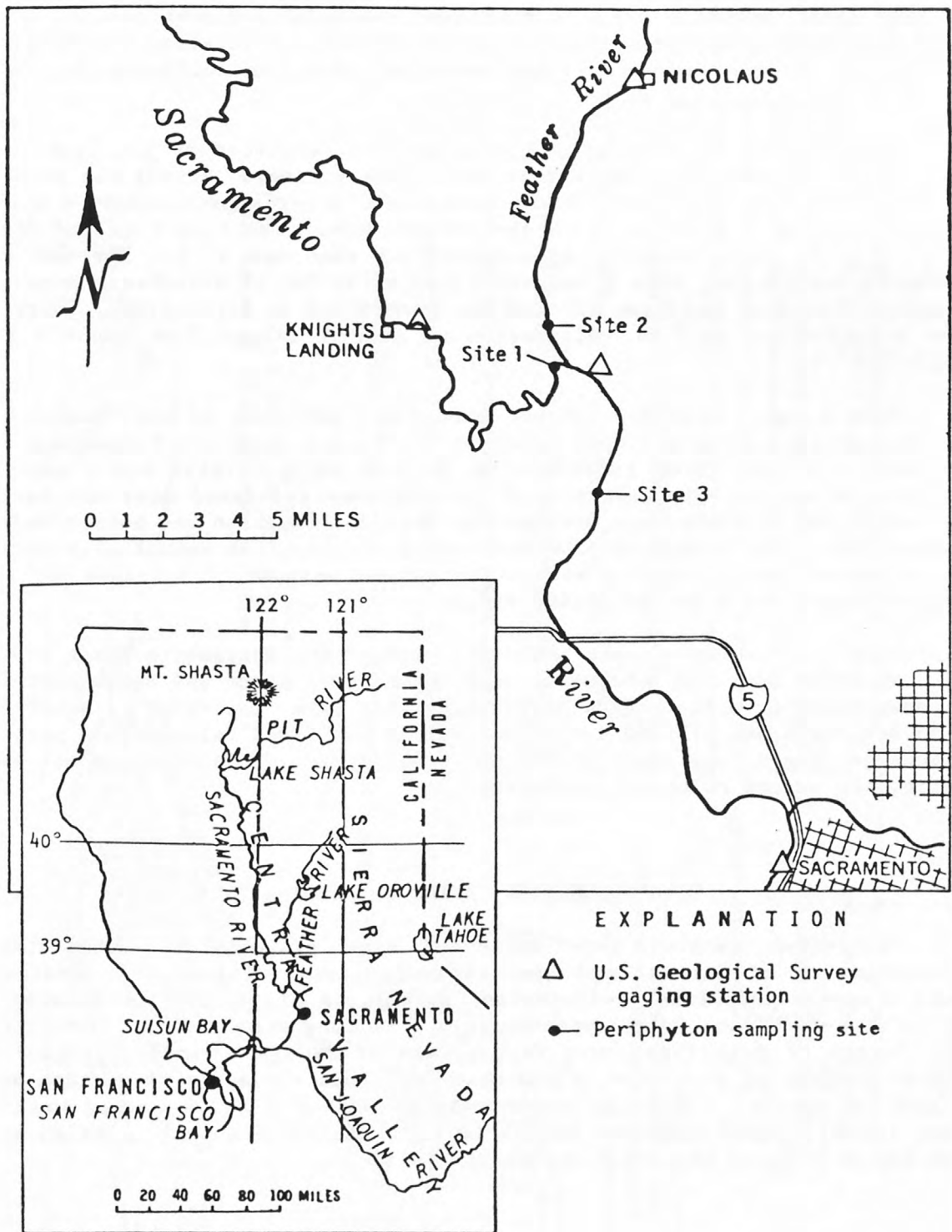


FIGURE 1.--Location of study area.



From a previous study (Ferreira and Hoffman, 1978), it was noted that the Feather River generally has a much smaller suspended-sediment concentration at its mouth than does the Sacramento River at the same location. Consequently, sites were selected on both rivers to investigate the influence of suspended sediment on the biomass of periphyton (fig. 1).

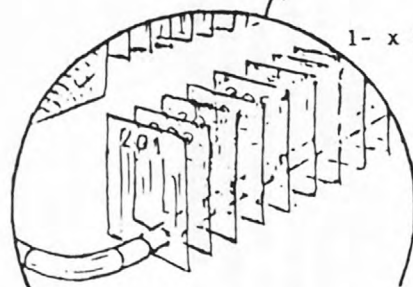
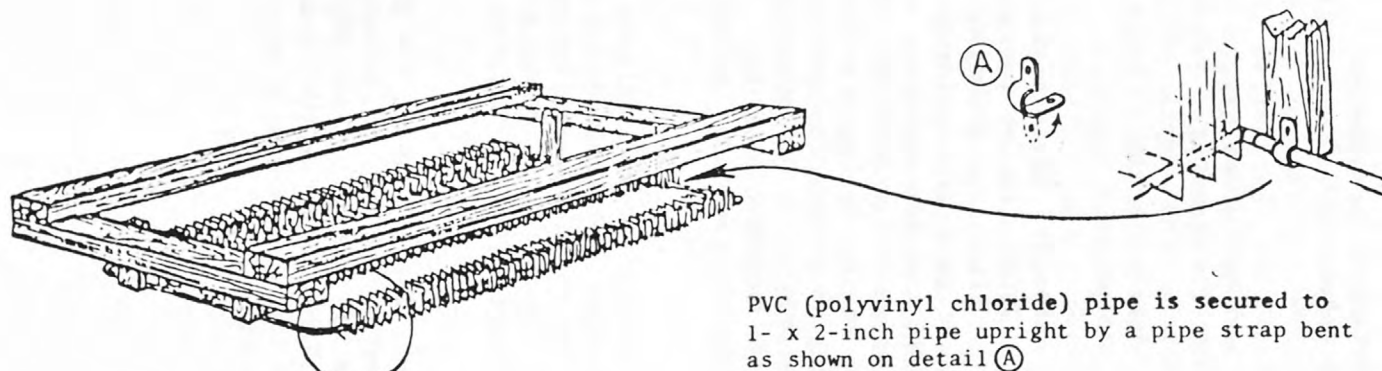
Floats containing artificial substrates were placed at two sites in the Sacramento River and at one site in the Feather River. Site 1 was originally located near the left bank of the Sacramento River approximately 0.5 mi upstream from the confluence with the Feather River. At this site the river is about 250 ft wide, with a bed composed of sand and silt. For the second colonization period, site 1 was relocated about 200 ft downstream because the original location had been flooded and washed out in late autumn. During the two colonization periods, discharges at site 1 ranged from about 8,300 to 15,300 ft<sup>3</sup>/s.

Site 2 was originally located near the right bank of the Feather River, approximately 0.6 mi upstream from the confluence with the Sacramento River. At this site the river is about 500 ft wide and generally has a sandy bed. For the second colonization period the site was relocated near the left bank and about 200 ft downstream because the original location had been flooded and washed out. The relocated site received about the same amount of sunlight as the original site. During both colonization periods, discharges at site 2 ranged from about 6,600 to 12,400 ft<sup>3</sup>/s.

Site 3 was located near the right bank of the Sacramento River about 3.5 mi downstream from the confluence with the Feather River and approximately 300 ft downstream from Rio Ramaza Marina. At this site the river is about 400 ft wide and has a bed of sand and silt. During the first colonization period the discharge ranged from about 15,800 to 20,400 ft<sup>3</sup>/s. This site was not sampled during the second colonization period.

#### DATA COLLECTION, METHODS, AND ANALYSES

Periphyton samples were collected from polyethylene substrates for determination of biomass and species composition. Floats were designed to hold numerous individual polyethylene substrates (fig. 2). The floats, built of 2- by 4-inch pine, were approximately 4 ft long and 2 ft wide. Attached to the length of each float were five pieces of PVC (polyvinyl chloride) pipe. Across the top of each pipe, slits were cut about a quarter of an inch deep at 1-inch intervals. Polyethylene strips measuring 3 by 2½ inches were glued into the slits and numbered from 1 to 250. The floats were oriented so that the strips offered the least resistance to flow.



1- x 2-inch pine upright

250 (numbered) 3- x 2.5- x 0.005-inch clear polyethylene strips are spot glued to 5 evenly spaced  $\frac{1}{2}$ -inch interior diameter PVC pipes

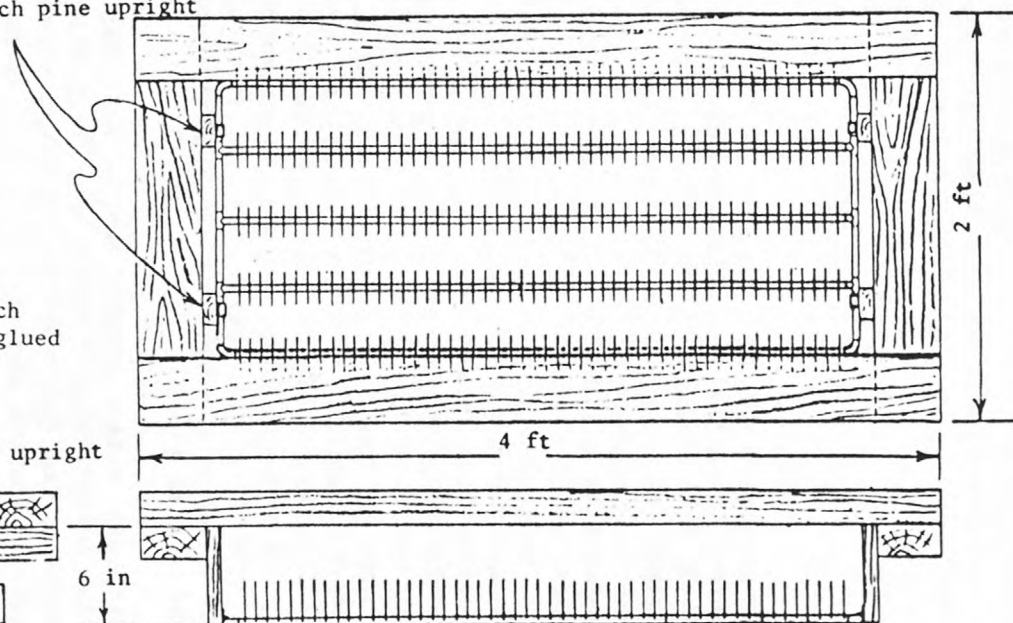
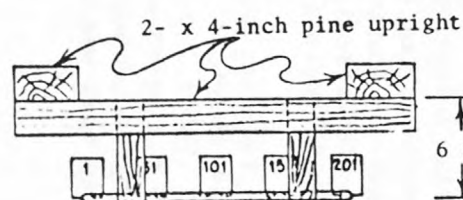


FIGURE 2.--Float unit with attached artificial substrates.

Thirteen substrates were randomly selected and removed from each float, approximately every 2 or 3 days. Ten of the substrates with attached periphyton were air-dried for biomass determinations. In the laboratory, a measured area of periphyton was removed from the substrate, and the dry weight, ash weight, and organic weight of the periphyton were determined for each sample according to the procedures described by Greeson and others (1977). Three of the substrates were preserved in Lugol's solution and sent to a commercial laboratory for species identification of the attached periphyton. The inverted microscope method described by Greeson and others (1977) was used to make the identifications.

Water temperature, specific conductance, pH, and dissolved oxygen were measured at each sampling site with a multiparameter field meter. Velocity was measured with a current meter at approximately the depth of the substrates. This information will be analyzed to determine the effects of chemical and physical characteristics on periphyton production.

Water samples were analyzed for dissolved and suspended organic carbon, dissolved and total phosphorus, and dissolved silica. The samples for phosphorus and silica analysis were collected and retained in polyethylene bottles; the samples for dissolved organic carbon analysis were retained in glass bottles; and the samples for suspended organic carbon analysis were retained on prerinsed silver filters of 0.45-micrometer pore size. The samples were chilled to 4°C or lower and analyzed at the Geological Survey Central Laboratory in Salt Lake City, Utah, according to procedures described by Brown and others (1970). Water samples for determination of suspended-sediment concentration were collected with a DH-48 handheld sampler. All water samples near the floats were collected according to procedures described by Guy and Norman (1970).

Additional water samples were collected for phytoplankton analysis to assess the relationship between the free-floating algae (phytoplankton) and the attached algae (periphyton) in large streams. The samples were preserved with Lugol's solution and analyzed at a commercial laboratory for counts and species identification, using the inverted microscope method described by Greeson and others (1977).

The findings are shown in the following tables. Table 1 shows the physical and chemical data collected at each site during the two colonization periods. Table 2 lists the taxa and concentrations of periphyton and phytoplankton collected at each site during the study. Table 3 shows the results of periphyton biomass measurements for each site and the corresponding area of each strip that was scraped for the biomass determinations.

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- Hynes, H. B. N., 1970, The ecology of running waters: Toronto, University of Toronto Press, 555 p.

TABLE 1.- Physical and chemical water-quality data

## SITE 1 - SACRAMENTO RIVER UPSTREAM FROM FEATHER RIVER

Date of sampling	Time	Velocity (ft/s)	Specific conductance ( $\mu$ mho/cm at 25°C)	pH (units)	Temperature (°C)	Dissolved oxygen (mg/L)	Dissolved silica (mg/L)	Total phosphorus (mg/L)	Dissolved phosphorus (mg/L)	Dissolved organic carbon (mg/L)	Suspended organic carbon (mg/L)	Suspended sediment (mg/L)
8-11-75	1345	0.44	270	7.8	22.5	8.1	25	0.11	0.05	2.7	0.5	67
8-15-75	1130	.37	347	7.8	21.0	7.9	26	.15	.09	3.0	.4	55
8-18-75	1100	.57	355	7.7	20.5	7.5	25	.15	.09	4.8	.3	57
8-22-75	1045	.32	319	7.7	21.0	7.5	25	.13	.08	3.0	.6	72
8-26-75	1130	.57	351	7.7	22.5	7.8	24	--	.03	2.7	.8	91
8-29-75	1200	.42	350	7.6	20.5	7.4	24	.13	.08	3.5	.8	67
9-02-75	1300	.38	345	--	20.5	7.5	24	.15	.08	3.3	.7	75
9-05-75	1100	.45	325	7.4	21.0	7.4	23	.09	.08	3.9	.8	72
11-25-75	1455	--	189	8.0	10.0	10.6	--	.06	.04	3.6	.7	32
11-28-75	1000	.42	203	7.9	10.0	10.2	22	.07	.04	10.0	.4	42
12-01-75	1030	.38	194	7.7	9.0	10.6	22	.08	.04	4.1	.4	33
12-05-75	1030	.47	227	7.7	11.0	9.4	24	.06	.04	3.5	.4	36
12-08-75	1100	.54	218	6.4	11.0	10.1	23	.09	.03	4.1	.4	89
12-12-75	1120	.23	189	7.9	10.0	10.4	22	.08	.04	5.9	.4	37
12-15-75	1125	.22	196	8.0	8.5	10.7	23	.07	.04	8.4	.4	32
12-19-75	1110	.33	161	8.0	--	10.9	23	.07	.03	3.0	.2	45
12-22-75	1045	.37	264	8.0	8.5	10.9	23	.07	.04	4.2	.4	43
12-26-75	1200	.55	245	7.9	8.0	10.9	24	.08	.04	3.1	.4	32
12-29-75	1120	.40	235	8.1	9.5	10.8	23	.07	.03	3.4	.3	27



TABLE 1.- Physical and chemical water-quality data--Continued

## SITE 2 - FEATHER RIVER UPSTREAM FROM SACRAMENTO RIVER

Date of sampling	Time	Velocity (ft/s)	Specific conductance ( $\mu$ mho/cm at 25°C)	pH (units)	Temperature (°C)	Dissolved oxygen (mg/L)	Dissolved silica (mg/L)	Total phosphorus (mg/L)	Dissolved phosphorus (mg/L)	Dissolved organic carbon (mg/L)	Suspended organic carbon (mg/L)	Suspended sediment (mg/L)
8-11-75	1300	1.96	57	7.5	23.0	9.8	13	0.02	0.02	1.3	0.2	23
8-15-75	1000	.77	73	7.6	20.0	8.9	13	.03	.02	2.8	.2	19
8-18-75	1230	1.17	77	7.6	20.0	8.8	13	.04	.04	3.8	.2	17
8-22-75	1000	.54	73	7.6	20.0	8.9	13	.01	.01	1.2	.3	14
8-26-75	1030	.56	73	7.7	21.0	9.2	13	.03	.02	1.8	.3	19
8-29-75	1100	.32	81	7.7	19.5	8.8	13	.05	.05	7.3	--	19
9-02-75	1130	.30	75	--	20.0	8.9	12	.05	.05	2.0	.3	26
9-05-75	1000	.64	81	7.4	20.0	8.9	12	.03	.02	2.9	.4	21
11-25-75	1255	1.20	80	7.8	10.0	10.6	--	.03	.00	3.5	.4	71
11-28-75	0845	1.38	73	7.7	9.5	10.0	11	.05	.00	14	.5	51
12-01-75	0930	1.23	81	7.3	9.0	9.7	11	.01	.00	6.6	.3	44
12-05-75	0930	1.51	80	7.3	10.0	11.1	12	.02	.00	2.3	.6	45
12-08-75	0930	.67	81	7.6	9.5	11.1	12	.02	.00	3.2	.2	24
12-12-75	1015	.82	83	7.4	8.5	10.2	12	.00	.00	5.7	.5	23
12-15-75	1000	.65	81	7.8	7.5	11.2	12	.02	.00	5.3	.3	20
12-19-75	0945	.44	84	7.8	7.5	11.5	11	.03	.00	6.8	.4	28
12-22-75	0945	.27	84	7.6	8.0	11.4	11	.00	.00	--	.2	23
12-26-75	1100	.47	84	7.4	8.0	11.4	11	.02	.00	3.4	.3	19
12-29-75	1015	.70	91	7.8	8.5	11.3	11	.04	.00	7.0	--	19

TABLE 1.- Physical and chemical water-quality data--Continued

## SITE 3 - SACRAMENTO RIVER DOWNSTREAM FROM FEATHER RIVER

Date of sampling	Time	Velocity (ft/s)	Specific conductance ( $\mu\text{mho}/\text{cm}$ at 25°C)	pH (units)	Temperature (°C)	Dissolved oxygen (mg/L)	Dissolved silica (mg/L)	Total phosphorus (mg/L)	Dissolved phosphorus (mg/L)	Dissolved organic carbon (mg/L)	Suspended organic carbon (mg/L)	Suspended sediment (mg/L)
8-11-75	1000	0.95	172	7.7	20.5	--	22	0.10	0.01	2.0	0.4	45
8-15-75	1245	.76	199	7.8	20.0	8.8	22	.08	.05	1.7	--	38
8-18-75	1400	.78	200	7.7	19.5	8.7	21	.09	.04	2.6	.2	47
8-22-75	0900	.65	209	7.7	19.5	8.6	21	.06	.04	4.9	.7	60
8-26-75	0930	.48	220	7.7	20.5	9.2	21	.03	.02	2.4	.5	55
8-29-75	0930	.57	224	7.8	19.0	8.5	20	.13	.04	2.1	.5	59
9-02-75	1030	.57	224	8.5	19.0	8.5	20	.14	.04	3.5	.7	69
9-05-75	0900	.52	230	8.3	19.0	8.5	20	.09	.05	5.6	1.0	77

TABLE 2. - Taxa and numbers of periphyton, and phytoplankton, 1975

[Results are rounded to significant figures (Greeson and others, 1977)]

Taxa	Periphyton (cells per square centimeter)							
	Date: 8-11 Time: 1345	8-15 1130	8-18 1100	8-22 1045	8-26 1130	8-29 1200	9-02 1300	9-05 1100
Sacramento River upstream from Feather River (Site 1)								
CHLOROPHYTA								
Chlorophyceae (green algae)								
<i>Ankistrodesmus falcatus</i>	-	-	-	68	-	-	-	-
<i>Closterium</i> sp.	-	-	220	-	-	-	130	140
<i>Coemarium</i> sp.	-	230	-	-	-	-	-	-
<i>Moigeotia</i> sp.	1,700	8,200	-	1,600	-	-	-	880
<i>Scenedesmus denticulatus</i>	-	-	-	560	-	-	-	-
<i>Spirogyra</i> sp.	-	5,100	2,000	2,900	3,300	6,500	810	2,500
<i>Stigeoclonium</i> sp.	-	-	-	-	-	68	110	-
CHRYSTOPHYTA								
Bacillariophyceae (diatoms)								
<i>Achnanthes lanceolata</i>	-	-	60	-	-	-	-	-
<i>Amphora</i> sp.	-	-	-	68	-	-	-	-
<i>Bacillaria paradoxa</i>	-	16,000	4,500	6,000	36,000	48,000	91,000	29,000
<i>Biddulphia</i> sp.	-	-	-	-	670	-	640	-
<i>Cocconeis placentula</i>	-	-	-	-	-	87	-	-
<i>Cyclotella</i> spp.	-	-	70	-	-	-	-	-
<i>Cymatopleura solea</i>	-	-	60	57	190	-	-	-
<i>Cymbella cistula</i>	-	110	-	-	-	-	-	-
<i>C. tumida</i>	2,800	9,500	3,100	2,000	5,100	950	2,000	590
<i>Diatoma vulgare</i>	480	3,100	780	710	-	160	-	1,000
<i>Diploneis subovalis</i>	-	-	500	590	1,200	870	2,200	130
<i>Epithemia sorex</i>	-	-	-	95	-	-	-	-
<i>Fragilaria construens</i>	-	8,800	650	2,800	15,000	-	12,000	-
<i>Gomphonema angustatum</i>	-	-	-	57	-	-	1,600	-
<i>G. gracile</i>	-	-	120	-	-	-	-	-
<i>G. lanceolatum</i>	360	1,700	390	200	1,500	360	1,100	230
<i>G. sphaerophorum</i>	1,200	1,600	1,300	2,900	3,900	-	2,800	-
<i>G. sp.</i>	-	-	-	-	-	-	1,600	-
<i>Gyrosigma</i> sp.	590	1,600	470	430	2,900	1,600	2,000	1,000
<i>Melosira varians</i>	12,000	170,000	42,000	36,000	120,000	39,000	78,000	73,000
<i>Navicula graciloides</i>	5,100	62,000	39,000	45,000	110,000	36,000	71,000	85,000
<i>N. salinarum</i>	360	3,100	960	310	340	-	160	510
<i>N. spp.</i>	-	-	120	95	-	68	160	-
<i>Nitzschia acicularis</i>	2,500	790	620	230	650	710	850	900
<i>N. dissipata</i>	120	4,200	2,200	3,300	6,400	4,200	9,000	7,300
<i>N. filiformis</i>	-	680	530	1,600	4,500	1,300	2,000	1,200
<i>N. flexa</i>	-	-	-	-	-	170	1,000	-
<i>N. fonticola</i>	590	1,400	-	280	-	-	-	-
<i>N. gracilis</i>	710	10,000	3,700	1,600	-	260	-	-
<i>N. holsatica</i>	-	7,000	-	4,700	1,700	790	-	-
<i>N. palea</i>	19,000	14,000	11,000	5,700	1,300	1,500	1,900	2,600
<i>N. panduriformis</i>	-	-	-	-	150	-	-	-
<i>N. parvulum</i>	-	-	-	140	-	-	-	-
<i>N. romana</i>	-	2,800	3,700	1,700	500	810	1,500	1,500
<i>N. sigmoidea</i>	-	-	310	110	960	560	1,100	780
<i>N. sublinearis</i>	710	3,400	540	530	-	140	-	130
<i>N. tryblionella</i>	-	1,600	1,000	1,100	1,200	560	650	140
<i>N. spp.</i>	120	470	-	-	-	-	-	-
<i>Rhoicosphenia curvata</i>	-	-	-	57	-	79	230	-
<i>Rhopalodia gibba</i>	-	230	-	110	-	-	230	-
<i>Surirella linearis</i>	840	-	-	-	-	-	-	-
<i>S. ovalis</i>	-	680	71	57	-	-	130	-
<i>S. robusta</i>	-	680	480	400	850	1,400	480	110
<i>S. sp.</i>	-	-	-	-	-	-	390	-
<i>Synedra minuscula</i>	120	950	120	-	-	-	-	-
<i>S. rumpens</i>	-	470	-	-	-	-	-	-
<i>S. ulna</i>	28,000	64,000	6,200	9,100	22,000	6,500	14,000	7,900
CYANOPHYTA								
Myxophyceae (blue-green algae)								
<i>Lyngbya</i> sp.	-	-	-	-	170	-	-	430
<i>Oscillatoria</i> sp.	-	5,900	7,800	10,000	28,000	34,000	190,000	120,000
EUGLENOPHYTA								
Euglenophyceae (euglenoids)								
<i>Euglena</i> sp.	-	-	-	-	150	-	-	-
TOTALS	77,000	400,000	130,000	140,000	370,000	190,000	490,000	340,000
NUMBER OF SPECIES	19	32	32	38	27	27	32	24

TABLE 2. - Taxa and numbers of periphyton and phytoplankton, 1975--Continued

Taxa	Phytoplankton (cells per milliliter)							
	Date:	8-11	8-15	8-18	8-22	8-26	8-29	9-02
	Time:	1345	1130	1100	1045	1130	1200	1300
Sacramento River upstream from Feather River (Site 1)								
CHLOROPHYTA								
Chlorophyceae (green algae)								
<i>Actinastrum hantzschii</i>		36	36	-	-	-	-	24
<i>Ankistrodesmus falcatus</i>		38	42	31	44	16	43	64
<i>Chlamydomonas</i> sp.		-	42	11	6	-	-	-
<i>Chodatella quadriseta</i>		-	-	3	6	3	-	2
<i>Closterium</i> sp.		-	-	-	-	-	-	2
<i>Coelastrum microporum</i>		1	-	-	-	6	-	-
<i>Crucigenia crucifera</i>		3	-	-	-	-	-	-
<i>C. tetrapedia</i>		7	-	3	-	9	-	-
<i>C. quadrata</i>		-	-	-	-	-	-	20
<i>Dimorphococcus</i> sp.		-	-	-	-	-	32	-
<i>Elaktothrix gelatinosa</i>		-	-	-	-	3	-	-
<i>Eudorina elegans</i>		-	-	3	-	-	-	-
<i>Golenkinia radiata</i>		1	-	-	-	-	-	-
<i>Kirchneriella</i> sp.		-	18	-	-	-	-	-
<i>Mougeotia</i> sp.		7	-	-	21	-	-	-
<i>Oocystis</i> sp.		-	-	-	-	3	-	-
<i>Pediastrum duplex</i>		-	-	-	-	3	-	-
<i>P. tetras</i>		12	-	-	36	-	60	24
<i>Scenedesmus abundans</i>		32	-	-	-	12	28	20
<i>S. bijuga</i>		-	-	-	-	-	40	-
<i>S. denticulatus</i>		120	120	56	100	52	48	48
<i>S. dimorphus</i>		-	-	-	-	-	20	-
<i>S. opoliensis</i>		-	-	12	-	-	-	-
<i>S. protuberans</i>		-	-	-	-	24	-	-
<i>S. spp.</i>		-	-	-	-	-	-	8
<i>Selenastrum minutum</i>		32	30	3	13	-	-	-
<i>Tetraedron minimum</i>		1	-	-	3	-	-	-
<i>Tetrastrum heteracanthum</i>		1	-	-	-	-	-	-
<i>T. staurogeniaeform</i>		-	-	-	-	-	-	5
<i>Treubaria setigarum</i>		-	-	-	-	-	2	2
CHRYSTOPHYTA								
Bacillariophyceae (diatoms)								
<i>Achnanthes arcuata</i>		1	-	-	-	-	-	2
<i>A. lanceolata</i>		-	-	9	3	-	-	-
<i>Asterionella formosa</i>		21	-	-	-	-	-	-
<i>Attheya zachariasii</i>		3	-	-	3	3	-	-
<i>Cocconeis placentula</i>		-	-	17	-	-	-	-
<i>Cyclotella striata</i>		11	140	40	25	31	-	-
<i>C. spp.</i>		51	190	140	72	34	24	2
<i>Cymatopleura solea</i>		-	-	-	-	-	2	-
<i>C. ventricosa</i>		3	-	-	-	-	-	-
<i>C. sp.</i>		-	-	-	-	-	-	2
<i>Diploneis subovalis</i>		-	6	-	-	-	-	-
<i>Epithemia sorex</i>		-	-	-	-	-	2	-
<i>Fragilaria construens</i>		-	-	170	-	140	29	-
<i>Gomphonema</i> sp.		-	-	9	-	-	-	-
<i>Gyrosigma</i> sp.		-	-	3	-	-	2	-
<i>Melosira granulata</i>		51	110	34	22	6	60	21
<i>M. italica</i>		16	33	12	22	9	5	14
<i>M. varians</i>		-	-	-	6	-	-	-
<i>Navicula</i> sp.		3	-	-	-	-	7	2
<i>Nitzschia acicularis</i>		8	9	37	28	22	7	29
<i>N. dissipata</i>		-	-	-	-	-	17	24
<i>N. filiformis</i>		-	3	-	-	-	-	2
<i>N. fonticola</i>		-	-	3	-	9	-	-
<i>N. frustulum</i>		-	-	-	-	-	2	-
<i>N. gracilis</i>		-	3	9	6	-	-	-
<i>N. palea</i>		38	76	20	9	17	17	24
<i>N. paradoxa</i>		-	-	-	-	-	5	-
<i>N. romana</i>		18	24	17	31	31	-	-
<i>N. sublinearis</i>		-	3	-	3	-	-	-
<i>N. tryblionella</i>		1	-	-	-	3	2	5
<i>N. spp.</i>		16	18	34	31	21	29	27

TABLE 2.- Taxa and numbers of periphyton and phytoplankton, 1975--Continued

Taxa	Phytoplankton (cells per milliliter)							
	Date: 8-11	8-15	8-18	8-22	8-26	8-29	9-02	9-05
	Time: 1345	1130	1100	1045	1130	1200	1300	1100
Sacramento River upstream from Feather River (Site 1)--Continued								
CHRYSTOPHYTA--Continued								
Bacillariophyceae--Continued								
<i>Rhizosolenia longiseta</i>	8	-	6	6	-	-	5	-
<i>Rhoicosphenia curvata</i>	1	-	-	-	-	-	-	-
<i>Skeletonema</i> sp.	21	36	93	190	75	33	17	32
<i>Stephanodiscus</i> sp.	76	30	57	110	120	250	190	110
<i>Surirella ovata</i>	-	-	-	-	-	2	-	2
<i>S.</i> sp.	-	-	-	-	3	-	-	4
<i>Synedra delicatissima</i>	-	-	-	-	-	-	-	2
<i>S. radians</i>	-	-	-	-	3	-	-	-
<i>S. rumpens</i>	-	-	-	-	-	-	-	2
<i>S. ulna</i>	5	-	-	-	3	-	-	-
Chrysophyceae (yellow-brown algae)								
<i>Dinobryon bavaricum</i>	-	24	-	-	-	-	5	15
<i>D. elegantissima</i>	-	-	-	-	-	-	5	2
<i>Mallomonas</i> sp.	1	-	-	-	9	-	-	-
<i>Synura uvella</i>	-	-	-	-	860	-	-	-
CRYPTOPHYTA								
Cryptophyceae (flagellates)								
<i>Chroomonas</i> sp.	47	150	110	130	56	98	100	120
<i>Cryptomonas</i> sp.	4	85	46	25	25	31	26	34
CYANOPHYTA								
Myxophyceae (blue-green algae)								
<i>Anabaena</i> sp.	170	200	-	-	99	67	-	-
<i>Merismopedia</i> sp.	4	3	-	-	6	-	-	-
<i>Raphidiopsis</i> sp.	-	6	3	3	3	-	-	-
EUGLENOPHYTA								
Euglenophyceae (euglenoids)								
<i>Euglena</i> sp.	4	6	9	3	-	-	-	4
<i>Strombomonas</i> sp.	-	-	-	3	3	-	-	2
<i>Trachelomonas</i> sp.	-	1	-	-	-	-	-	2
PYRRHOPHYTA								
Dinophyceae (dinoflagellates)								
<i>Peridinium</i> sp.	-	3	-	-	-	-	2	-
TOTALS	870	1,500	1,000	960	1,700	960	690	630
NUMBER OF SPECIES	38	29	30	29	35	29	29	29



TABLE 2. - Taxa and numbers of periphyton and phytoplankton, 1975--Continued

		Periphyton (cells per square centimeter)									
	Date:	11-28	12-01	12-05	12-08	12-12	12-15	12-19	19-22	12-26	12-29
Taxa	Time:	1000	1030	1030	1100	1120	1125	1110	1045	1200	1120
Sacramento River upstream from Feather River (site 1)--Continued											
CHLOROPHYTA											
Chlorophyceae (green algae)											
<i>Closterium</i> sp.	-	-	-	-	-	17	-	-	-	-	-
<i>Crucigenia quadrata</i>	2	-	-	-	-	-	-	-	-	-	-
CHRYSTOPHYTA											
Bacillariophyceae (diatoms)											
<i>Achnanthes arcuata</i>	-	-	23	-	-	-	-	-	-	-	-
<i>Amphora</i> sp.	1	-	-	-	-	-	-	-	-	-	-
<i>Bacillaria paradoxa</i>	-	48	-	-	-	-	-	-	-	-	-
<i>Cymbella cistula</i>	-	29	68	68	330	84	280	1,700	430	910	-
<i>C. ventricosa</i>	7	13	280	330	34	-	-	-	-	-	-
<i>C. sp.</i>	-	-	23	-	-	-	-	-	-	-	-
<i>Diatoma vulgare</i>	110	480	1,400	3,900	20,000	12,000	19,000	34,000	29,000	6,800	-
<i>Epithemia sorex</i>	-	-	-	-	370	-	-	-	-	-	-
<i>Fragilaria construens</i>	34	510	-	330	960	-	-	6,800	-	2,300	-
<i>Gomphonema</i> sp.	-	24	23	-	2,200	120	560	290	2,200	7,800	-
<i>Hannea arcus</i>	-	-	23	23	-	200	280	-	-	-	-
<i>Melosira italica</i>	-	36	-	-	-	-	-	-	-	-	-
<i>M. varians</i>	990	4,700	15,000	14,000	50,000	34,000	48,000	120,000	130,000	53,000	-
<i>Meridion circulare</i>	-	-	23	-	-	-	-	-	-	-	-
<i>Navicula graciloides</i>	-	100	230	670	2,900	4,800	4,300	17,000	9,900	-	-
<i>N. salinarum</i>	9	140	140	230	1,200	250	420	4,200	1,700	3,700	-
<i>N. viridula</i>	-	-	-	-	-	-	-	-	-	22,000	-
<i>N. spp.</i>	-	-	-	-	-	250	-	-	-	-	-
<i>Nitzschia acicularis</i>	3	4	23	91	310	480	420	2,900	-	450	-
<i>N. dissipata</i>	7	-	200	530	9,500	4,200	7,400	19,000	11,000	15,000	-
<i>N. filiformis</i>	-	6	-	-	-	-	-	1,500	-	-	-
<i>N. gracilis</i>	-	-	-	-	290	1,700	700	4,200	4,300	5,400	-
<i>N. palea</i>	1	48	110	450	13,000	3,100	16,000	98,000	25,000	19,000	-
<i>N. sublinearis</i>	2	17	140	68	34	170	420	290	2,200	2,300	-
<i>Rhoicosphenia curvata</i>	1	-	-	-	-	84	-	-	-	-	-
<i>Surirella ovata</i>	-	-	-	91	76	330	1,400	5,300	2,600	-	-
<i>Synedra actinastroides</i>	4	190	530	870	3,600	1,100	2,800	1,100	2,900	-	-
<i>S. delicatissima</i>	-	-	23	200	-	-	-	-	-	-	-
<i>S. rumpens</i>	-	-	23	250	-	-	-	-	-	-	-
<i>S. ulna</i>	150	530	1,400	2,300	7,300	5,600	7,000	16,000	10,000	8,200	-
<i>S. sp.</i>	-	-	-	-	67	-	-	-	-	-	-
PYRRHOPHYTA											
Dinophyceae (dinoflagellates)											
<i>Peridinium</i> sp.	-	8	-	-	-	-	-	-	-	-	-
TOTALS	1,300	6,900	20,000	24,000	110,000	68,000	110,000	330,000	230,000	150,000	-
NUMBER OF SPECIES	14	17	19	17	19	17	15	16	13	13	-

TABLE 2.- Taxa and numbers of periphyton and phytoplankton, 1975--Continued

	Phytoplankton (cells per milliliter)										
	Date:	11-28	12-01	12-05	12-08	12-12	12-15	12-19	12-22	12-26	12-29
Taxa	Time:	1000	1030	1030	1100	1120	1725	1110	1045	1200	1120
Sacramento River upstream from Feather River (Site 1)--Continued											
CHLOROPHYTA											
Chlorophyceae (green algae)											
<i>Ankistrodesmus falcatus</i>		120	130	67	78	83	88	150	120	130	80
<i>Chlamydomonas</i> sp.		3	-	-	-	-	-	2	14	4	-
<i>Chodatella quadriseta</i>		-	-	4	-	-	-	-	-	-	1
<i>Crucigenia quadrata</i>		-	16	4	-	-	-	-	-	8	4
<i>Scenedesmus abundans</i>		8	8	12	-	-	-	-	-	-	-
<i>S. acuminatus</i>		-	-	-	-	4	-	-	44	-	-
<i>S. bijuga</i>		60	60	110	68	100	94	200	390	310	8
<i>S. denticulatus</i>		20	28	160	72	76	44	52	220	88	250
<i>S. dimorphus</i>		-	-	-	-	-	-	8	-	8	120
<i>S. opoliensis</i>		-	-	-	4	-	-	8	-	-	-
<i>S. quadricauda</i>		-	-	4	-	-	-	-	-	-	-
<i>S. spp.</i>		-	16	12	4	4	20	-	-	8	-
<i>Tetrastrum staurogeniaeform</i>		2	-	-	-	-	-	-	-	-	-
<i>Treubaria setigarum</i>		5	5	1	6	3	5	8	8	2	3
CHRYSOPHYTA											
Bacillariophyceae (diatoms)											
<i>Achnanthes arcuata</i>		2	-	3	2	1	5	4	-	2	-
<i>A. lanceolata</i>		2	-	-	-	-	2	-	-	-	-
<i>Asterionella formosa</i>		27	7	3	9	3	-	-	-	2	2
<i>Attheya zachariasi</i>		8	5	4	-	4	3	2	5	2	2
<i>Cocconeis</i> sp.		-	-	-	-	-	-	-	-	2	-
<i>Cyclotella bodanica</i>		7	5	1	2	-	2	-	3	-	-
<i>C. spp.</i>		7	6	15	5	1	2	2	2	3	2
<i>Cymbella sinuata</i>		2	-	-	-	-	-	-	-	-	-
<i>C. ventricosa</i>		2	-	-	2	-	-	-	-	2	-
<i>C. sp.</i>		-	2	-	-	-	2	-	-	-	-
<i>Diatoma vulgare</i>		-	-	1	-	1	-	2	-	-	-
<i>Fragilaria construens</i>		4	20	8	-	-	-	-	11	-	-
<i>Melosira granulata</i>		5	-	37	37	21	89	89	38	61	12
<i>M. italica</i>		15	-	11	52	8	160	110	200	140	61
<i>M. varians</i>		3	4	-	-	2	-	-	5	-	-
<i>Navicula salinarum</i>		-	-	-	-	-	-	-	-	-	-
<i>N. spp.</i>		6	4	4	4	2	2	-	3	2	1
<i>Nitzschia acicularis</i>		15	16	13	11	9	8	15	16	20	10
<i>N. dissipata</i>		12	4	12	29	13	8	11	8	7	5
<i>N. filiformis</i>		-	-	1	1	-	-	-	3	-	-
<i>N. frustulum</i>		2	4	-	-	1	-	-	-	-	1
<i>N. gracilis</i>		3	-	3	1	-	3	2	3	2	1
<i>N. holsatica</i>		12	11	-	3	-	-	-	-	-	-
<i>N. linearis</i>		-	2	-	-	2	2	2	-	-	-
<i>N. palea</i>		12	11	8	17	1	1	8	3	4	4
<i>N. sigmoidea</i>		-	-	-	-	-	-	-	3	-	-
<i>N. sublinearis</i>		-	-	-	1	-	-	-	-	2	-
<i>N. tryblionella</i>		-	2	-	-	-	-	-	-	-	-
<i>N. spp.</i>		58	81	74	55	61	85	150	190	150	160
<i>Rhizosolenia longiseta</i>		24	40	51	12	33	25	47	49	35	38
<i>Rhoicosphenia curvata</i>		-	-	-	-	1	2	-	3	2	-
<i>Skeletonema</i> sp.		12	7	8	-	1	3	-	-	2	-
<i>Stephanodiscus</i> sp.		120	120	190	64	47	60	100	77	84	70
<i>Surirella ovata</i>		2	2	-	1	-	-	2	-	-	-
<i>Synedra delicatissima</i>		2	-	-	1	-	2	-	-	-	1
<i>S. rumpens</i>		-	-	4	-	1	2	-	-	-	1
<i>S. ulna</i>		-	-	-	-	1	-	-	-	-	-
<i>S. sp.</i>		-	-	-	1	1	-	-	-	-	-
Chrysophyceae (yellow-brown algae)											
<i>Dinobryon bavaricum</i>		5	-	-	2	-	-	-	16	-	-
<i>D. sp.</i>		-	4	-	-	-	-	-	-	-	-
<i>Mallomonas</i> sp.		2	-	3	11	1	2	6	-	4	1
<i>Pseudokephyrion</i> sp.		-	-	-	-	-	8	-	3	-	-
<i>Synura uvella</i>		-	190	96	-	-	-	-	-	-	-

TABLE 2. - Taxa and numbers of periphyton and phytoplankton, 1975--Continued

		Phytoplankton (cells per milliliter)									
	Date:	11-28	12-01	12-05	12-08	12-12	12-15	12-19	12-22	12-26	12-29
Taxa	Time:	1000	1030	1030	1100	1120	1725	1110	1045	1200	1120
<u>Sacramento River upstream from Feather River (Site 1)</u> --Continued											
CHRYPTOPHYTA											
Cryptophyceae (flagellates)											
	<i>Chroomonas</i> sp.	97	160	81	43	54	82	74	190	140	110
	<i>Cryptomonas</i> sp.	41	40	15	19	8	37	28	46	26	4
CYANOPHYTA											
Myxophyceae (blue-green algae)											
	<i>Anabaena</i> sp.	-	-	34	-	-	-	-	-	-	-
	<i>Oscillatoria</i> sp.	-	-	-	-	-	-	-	170	-	-
EUGLENOPHYTA											
Euglenophyceae (euglenoids)											
	<i>Euglena</i> sp.	-	-	-	-	-	5	-	5	-	-
PYRRHOPHYTA											
Dinophyceae (dinoflagellates)											
	<i>Gymnodinium</i> sp.	-	-	-	1	-	5	-	-	-	-
	<i>Peridinium</i> sp.	-	2	-	-	-	-	-	-	-	-
	TOTALS	730	1,000	1,100	620	550	860	1,100	1,800	1,300	950
	NUMBER OF SPECIES	36	32	34	32	31	32	25	30	30	26

TABLE 2. - Taxa and numbers of periphyton and phytoplankton, 1975--Continued

Taxa	Date:	Periphyton (cells per square centimeter)							
	Time:	8-11 1300	8-15 1000	8-18 1230	8-22 1000	8-26 1030	8-29 1100	9-02 1130	9-05 1000
Feather River (Site 2)									
CHLOROPHYTA									
Chlorophyceae (green algae)									
Ankistrodesmus falcatus	78	260	510	1,200	790	790	160	560	
Closterium sp.	16	56	22	34	200	170	-	54	
Cosmarium sp.	78	200	370	340	170	280	150	74	
Mougeotia sp.	-	640	850	1,200	3,700	-	900	780	
Roya obtusa	-	-	-	-	-	980	470	1,300	
Scenedesmus denticulatus	-	-	-	-	310	-	-	-	
S. quadricauda	-	-	-	-	82	-	-	-	
Spirogyra sp.	-	-	-	990	-	-	110	1,900	
Staurastrum sp.	-	-	-	-	-	-	31	-	
Stigeoclonium sp.	-	-	-	-	-	-	230	-	
CHRYSTOPHYTA									
Bacillariophyceae (diatoms)									
Achnanthes lanceolata	16	-	-	-	-	110	-	-	
A. minutissima	-	-	-	160	-	-	-	-	
Biddulphia sp.	-	-	-	-	-	-	-	260	
Cocconeis placentula	-	43	-	-	-	-	-	-	
Cyclotella spp.	16	-	-	-	-	-	-	-	
Cymbella cistula	250	1,300	5,600	17,000	7,300	9,000	4,700	4,800	
C. turida	-	-	-	-	-	-	-	910	
C. ventricosa	120	1,700	1,400	4,500	790	1,600	370	560	
Diatoma vulgare	600	1,700	3,600	2,000	900	3,600	2,000	6,700	
Diploneis subovalis	-	-	-	34	56	-	-	-	
Epithemia sorex	-	-	-	-	-	74	230	160	
Fragilaria construens	3,700	20,000	25,000	96,000	130,000	370,000	170,000	280,000	
F. crotonensis	-	130	-	1,900	540	420	870	900	
Gomphonema angustatum	-	-	-	230	310	-	680	1,300	
G. lanceolatum	-	-	29	-	-	-	-	-	
G. sphaerophorum	-	-	120	-	710	-	190	150	
G. sp.	140	1,700	700	120	360	-	190	-	
Gyrosigma sp.	-	34	-	-	56	150	56	54	
Melosira italica	-	56	-	400	-	-	-	-	
M. varians	160	510	2,800	19,000	16,000	15,000	7,300	1,700	
Navicula salinarum	-	260	93	220	400	-	220	330	
N. spp.	-	-	-	68	780	56	47	-	
Nitzschia acicularis	280	730	340	670	110	200	62	220	
N. dissipata	-	23	-	3,100	4,500	6,000	11,000	11,000	
N. filiformis	-	11	-	68	340	-	47	54	
N. flexa	-	-	-	-	-	-	56	-	
N. fonticola	-	90	310	-	100	-	200	-	
N. gracilis	78	990	2,600	6,500	4,200	2,500	2,000	2,800	
N. holSATICA	160	-	1,600	820	-	2,200	-	-	
N. palea	250	5,700	3,100	10,000	3,400	1,900	330	4,800	
N. romana	-	-	400	1,600	1,700	500	370	1,300	
N. sigmoidea	-	-	-	-	-	-	-	37	
N. sublinearis	-	56	29	46	130	-	220	110	
N. tryblionella	-	-	-	-	53	-	-	-	
N. spp.	16	2,500	-	170	-	-	390	-	
Pleurosigma sp.	-	-	-	-	20	-	-	-	
Rhizosolenia longiseta	-	23	-	-	-	-	-	-	
Rhoicosphenia curvata	-	-	-	-	56	-	-	-	
Rhopalodia gibba	-	-	22	170	260	280	200	510	
R. gibberula	-	-	-	-	-	74	-	-	
Surirella ovalis	-	11	-	-	20	-	-	-	
Synedra minuscula	1,000	640	880	-	-	160	95	780	
S. rumpens	140	680	250	-	-	-	-	170	
S. ulna	3,300	14,000	16,000	8,800	9,000	7,000	3,100	4,700	
Chrysophyceae (yellow-brown algae)									
Dinobryon bavaricum	16	-	-	-	-	-	-	-	
CYANOPHYTA									
Myxophyceae (blue-green algae)									
Lyngbya sp.	-	-	-	34	-	-	-	160	
Oscillatoria sp.	-	-	-	4,500	5,300	22,000	10,000	34,000	
PYRRHOPHYTA									
Dinophyceae (dinoflagellates)									
Gymnodinium sp.	-	-	-	-	-	-	1	-	
TOTALS	10,000	54,000	67,000	180,000	190,000	450,000	220,000	360,000	
NUMBER OF SPECIES	20	28	24	31	34	25	35	33	

TABLE 2. - Taxa and numbers of periphyton and phytoplankton, 1975--Continued

Taxa	Phytoplankton (cells per milliliter)							
	Date:	8-11	8-15	8-18	8-22	8-26	8-29	9-02
	Time:	1300	1000	1230	1000	1030	1100	1130
Feather River (Site 2)								
CHLOROPHYTA								
Chlorophyceae (green algae)								
<i>Ankistrodesmus falcatus</i>		19	4	16	13	10	34	33
<i>Closterium</i> sp.		1	-	-	-	-	-	-
<i>Crucigenia crucifera</i>		1	-	-	2	-	-	-
<i>C. tetrapedia</i>		1	1	-	-	-	-	-
<i>C. quadrata</i>		-	-	-	-	-	-	12
<i>Elaktothrix gelatinosa</i>		-	-	4	-	-	-	-
<i>Oocystis</i> sp.		1	-	-	2	1	-	-
<i>Pediastrum duplex</i>		-	-	-	2	1	-	-
<i>P. tetras</i>		-	-	12	-	12	-	-
<i>Scenedesmus abundans</i>		-	-	8	-	-	4	4
<i>S. denticulatus</i>		4	4	-	16	-	-	-
<i>S. dimorphus</i>		-	-	-	-	-	4	-
<i>S. quadricauda</i>		-	4	-	16	4	-	4
<i>S. spp.</i>		-	-	-	-	-	4	4
<i>Selenastrum minutum</i>		3	2	2	4	-	-	-
<i>Tetraedron minimum</i>		1	1	-	-	-	-	-
<i>Treubaria setigarum</i>		2	-	5	-	-	2	1
<i>Ulothrix</i> sp.		-	1	2	-	-	-	-
CHRYSOPHYTA								
Bacillariophyceae (diatoms)								
<i>Achnanthes arcuata</i>		8	-	19	21	23	16	10
<i>Asterionella formosa</i>		3	-	14	-	-	5	2
<i>Attheya zachariasii</i>		-	1	-	-	-	-	-
<i>Cocconeis placentula</i>		-	-	-	-	1	-	-
<i>Cyclotella striata</i>		2	-	8	-	7	-	-
<i>C. spp.</i>		14	3	23	55	35	7	-
<i>Cymatopleura solea</i>		1	-	-	-	-	-	-
<i>Cymbella sinuata</i>		3	-	5	-	-	1	3
<i>C. ventricosa</i>		-	-	-	-	-	1	1
<i>Diploneis subovalis</i>		-	1	-	-	-	-	-
<i>Fragilaria construens</i>		200	66	260	110	140	81	57
<i>F. crotonensis</i>		17	36	-	140	4	-	26
<i>Gomphonema</i> sp.		1	1	-	1	-	2	1
<i>Melosira granulata</i>		2	-	-	-	-	8	31
<i>M. italica</i>		28	44	48	130	37	8	5
<i>M. varians</i>		-	-	3	-	-	-	-
<i>Navicula</i> sp.		2	-	1	-	1	-	2
<i>Nitzschia acicularis</i>		1	5	1	8	2	5	2
<i>N. dissipata</i>		1	-	-	-	-	2	3
<i>N. filiformis</i>		-	1	-	-	-	-	-
<i>N. frustulum</i>		-	-	-	-	-	1	-
<i>N. gracilis</i>		1	-	1	-	-	8	1
<i>N. holsatica</i>		-	-	-	-	10	-	-
<i>N. palea</i>		1	5	9	6	4	-	3
<i>N. romana</i>		8	3	5	6	1	-	-
<i>N. spp.</i>		6	6	10	4	6	18	28
<i>Pinnularia</i> sp.		-	-	1	-	-	-	-
<i>Rhizosolenia longiseta</i>		1	3	4	6	1	3	2
<i>Rhizosolenia curvata</i>		-	-	-	-	-	-	1
<i>Skeletonema</i> sp.		1	-	-	-	-	-	-
<i>Stephanodiscus</i> sp.		3	-	13	8	-	35	31
<i>Surirella</i> sp.		-	1	-	-	-	-	-
<i>Synedra radians</i>		-	-	-	4	6	-	-
<i>S. rumpens</i>		-	-	-	-	-	-	2
<i>S. ulna</i>		1	1	2	-	-	-	-
Chrysophyceae (yellow-brown algae)								
<i>Bitrichia chodati</i>		-	-	-	-	-	1	-
<i>Dinobryon bavaricum</i>		6	43	10	-	27	-	-
<i>D. elegantissima</i>		-	-	-	-	-	12	14
<i>D. sp.</i>		-	-	-	-	-	3	5
<i>Mallomonas</i> sp.		-	-	5	-	-	-	-
<i>Pseudokephyrion</i> sp.		-	-	-	-	-	20	21



TABLE 2.- Taxa and numbers of periphyton and phytoplankton, 1975--Continued

		Phytoplankton (cells per milliliter)							
	Date:	8-11	8-15	8-18	8-22	8-26	8-29	9-02	9-05
Taxa	Time:	1300	1000	1230	1000	1030	1100	1130	1000
Feather River (Site 2)--Continued									
CHRYPTOPHYTA									
Cryptophyceae (flagellates)									
<i>Chroomonas</i> sp.		110	290	320	560	240	230	190	280
<i>Cryptomonas</i> sp.		3	3	15	23	7	2	1	2
CYANOPHYTA									
Myxophyceae (blue-green algae)									
<i>Anabaena</i> sp.		-	-	33	-	33	-	-	-
EUGLENOPHYTA									
Euglenophyceae (euglenoids)									
<i>Euglena</i> sp.		1	-	-	-	-	-	-	-
PYRRHOPHYTA									
Dinophyceae (dinoflagellates)									
<i>Gymnodinium</i> sp.		4	-	56	32	63	5	-	4
<i>Peridinium</i> sp.		1	-	1	-	1	2	-	-
TOTALS		460	530	900	1,200	680	520	500	530
NUMBER OF SPECIES		37	25	32	23	26	29	29	25

TABLE 2. - Taxa and numbers of periphyton and phytoplankton, 1975--Continued

Taxa	Periphyton (cells per square centimeter)									
	Date: 11-28 Time: 0847	12-01 0930	12-05 0930	12-08 0930	12-12 1015	12-15 1000	12-19 0945	12-22 0945	12-26 1100	12-29 1015
Feather River (Site 2)--Continued										
CHLOROPHYTA										
Chlorophyceae (green algae)										
<i>Ankistrodesmus falcatus</i>	-	-	-	-	-	-	-	-	-	<1
<i>Cosmarium</i> sp.	-	-	7	22	-	-	25	-	100	-
<i>Penium margaritaceum</i>	<1	-	-	-	-	-	-	-	-	-
<i>Spirogyra</i> sp.	-	-	-	-	-	-	-	650	-	-
<i>Ulothrix</i> sp.	-	-	-	-	-	-	47	-	-	-
CHRYSOPHYTA										
Bacillariophyceae (diatoms)										
<i>Achnanthes arcuata</i>	-	8	-	65	-	-	47	-	-	-
<i>Cymbella cistula</i>	2	17	260	620	110	990	5,300	3,400	5,900	5,100
<i>C. ventricosa</i>	17	71	1,000	2,300	1,700	3,400	5,000	12,000	9,800	5,300
<i>Diatoma vulgare</i>	84	290	1,900	5,300	6,000	12,000	29,000	37,000	40,000	37,000
<i>Eunotia</i> sp.	-	-	-	-	-	-	230	-	-	-
<i>Fragilaria construens</i>	120	290	1,900	780	1,100	910	250	3,400	2,000	6,700
<i>F. crotonensis</i>	-	-	-	-	-	88	-	-	-	-
<i>Gomphoneis herculeana</i>	<1	1	34	330	150	250	900	2,300	3,700	1,700
<i>Gomphonema</i> sp.	-	-	28	-	23	-	-	-	78	1,100
<i>Gyrosigma</i> sp.	-	-	-	-	-	-	-	-	100	-
<i>Hannea arcus</i>	<1	2	-	130	-	90	900	340	810	280
<i>Melosira italica</i>	-	29	-	-	-	-	-	-	620	-
<i>M. varians</i>	37	190	2,300	1,700	1,300	1,500	7,100	1,900	14,000	23,000
<i>Navicula salinarum</i>	-	-	-	-	10	-	-	-	500	-
<i>N.</i> spp.	1	-	28	-	-	-	-	-	-	-
<i>Nitzschia acicularis</i>	-	-	7	22	99	62	500	730	280	330
<i>N. dissipata</i>	6	5	96	230	190	470	5,000	7,300	12,000	13,000
<i>N. gracilis</i>	-	-	-	-	-	140	140	-	-	-
<i>N. palea</i>	<1	3	7	65	170	420	3,300	7,000	6,200	9,600
<i>N. sigmoidea</i>	<1	-	-	-	-	-	-	-	-	-
<i>N. sublinearis</i>	<1	-	-	-	-	-	25	-	-	220
<i>Rhopalodia gibba</i>	<1	-	-	-	-	-	-	-	-	-
<i>Synedra actinastroides</i>	20	78	1,300	3,700	4,300	6,400	12,000	10,000	16,000	19,000
<i>S. delicatissima</i>	-	<1	-	220	-	-	-	-	-	-
<i>S. rumpens</i>	-	-	-	22	95	95	330	190	100	110
<i>S. ulna</i>	11	40	480	870	910	1,500	3,900	3,600	2,600	3,600
TOTALS	300	1,000	9,300	16,000	16,000	29,000	74,000	90,000	110,000	130,000
NUMBER OF SPECIES	16	14	14	16	14	15	19	14	18	16

TABLE 2. - Taxa and numbers of periphyton and phytoplankton, 1975--Continued

		Phytoplankton (cells per milliliter)									
	Date:	11-28	12-01	12-05	12-08	12-12	12-15	12-19	12-22	12-26	12-29
Taxa	Time:	0845	0930	0930	0930	1015	1000	0945	0945	1100	1015
Feather River (Site 2)--Continued											
CHLOROPHYTA											
Chlorophyceae (green algae)											
<i>Ankistrodesmus falcatus</i>	19	17	8	12	17	12	12	24	26	23	
<i>Chlamydomonas dinobryoni</i>	-	-	-	-	-	-	-	-	2	-	
<i>Chodatella quadriseta</i>	-	-	1	2	2	3	-	3	-	1	
<i>Crucigenia quadrata</i>	4	8	8	-	4	4	-	-	-	20	
<i>Scenedesmus abundans</i>	-	-	4	-	-	-	-	-	-	-	
<i>S. acuminatus</i>	-	4	-	-	-	-	-	-	-	-	
<i>S. bijuga</i>	24	-	8	-	-	8	8	8	8	4	
<i>S. quadricauda</i>	-	4	-	-	-	-	-	-	-	-	
<i>S. spp.</i>	-	-	4	8	8	8	-	-	-	-	
<i>Spirogyra</i> sp.	8	-	-	-	-	-	-	-	-	-	
<i>Tetrastrum staurogeniaeform</i>	-	-	-	-	-	-	-	-	-	5	
<i>Treubaria setigarum</i>	1	3	7	5	2	3	-	-	4	-	
CHRYSOPHYTA											
Bacillariophyceae (diatoms)											
<i>Achnanthes arcuata</i>	9	6	9	5	2	14	10	16	7	12	
<i>A. minutissima</i>	-	-	-	4	3	2	2	1	-	1	
<i>Asterionella formosa</i>	-	5	2	13	-	-	-	3	-	-	
<i>Cocconeis</i> sp.	1	-	1	-	-	-	-	1	-	-	
<i>Cyclotella</i> spp.	-	-	8	-	-	8	-	-	-	-	
<i>Cymbella cistula</i>	-	-	1	1	1	1	3	1	2	2	
<i>C. sinuata</i>	1	-	-	-	1	-	-	-	-	-	
<i>C. ventricosa</i>	3	1	3	5	-	1	1	2	2	-	
<i>Diatoma vulgare</i>	-	-	-	-	2	2	3	5	4	10	
<i>Fragilaria construens</i>	23	180	32	82	3	56	7	15	-	22	
<i>F. crotonensis</i>	-	-	3	8	4	-	7	2	-	-	
<i>Gomphonema</i> sp.	1	-	-	-	-	-	-	-	-	1	
<i>Melosira granulata</i>	7	36	5	2	25	11	38	18	20	-	
<i>M. italica</i>	27	21	18	5	17	14	15	13	8	41	
<i>Navicula</i> spp.	1	2	-	1	-	-	2	-	2	-	
<i>Nitzschia acicularis</i>	8	6	6	3	3	5	7	12	8	17	
<i>N. dissipata</i>	7	5	3	1	1	-	1	4	1	4	
<i>N. filiformis</i>	-	-	-	-	-	-	2	2	-	-	
<i>N. gracilis</i>	-	1	1	1	1	-	-	1	-	2	
<i>N. linearis</i>	1	-	-	-	-	-	-	-	-	-	
<i>N. palea</i>	6	2	-	1	2	1	3	2	2	1	
<i>N. tryblionella</i>	-	-	-	-	-	-	-	1	-	-	
<i>N. spp.</i>	8	7	16	6	11	12	9	7	13	15	
<i>Rhizosolenia longiseta</i>	19	12	6	12	12	1	12	9	10	11	
<i>Stephanodiscus</i> sp.	35	26	45	52	53	120	150	130	180	190	
<i>Synedra delicatissima</i>	-	-	-	1	-	-	1	-	1	-	
<i>S. rumpens</i>	-	-	-	-	-	-	-	1	1	-	
<i>S. ulna</i>	-	1	-	-	-	-	-	-	-	-	
<i>S. sp.</i>	1	-	-	-	-	1	-	-	-	-	
Chrysophyceae (yellow-brown algae)											
<i>Dinobryon bavaricum</i>	-	8	2	2	-	-	-	-	2	10	
<i>D. elegantissima</i>	-	3	2	4	-	4	1	-	-	2	
<i>D. sp.</i>	2	-	3	2	3	3	-	-	2	1	
<i>Mallomonas</i> sp.	3	-	-	1	1	-	1	2	-	-	
<i>Pseudokephyrion</i> sp.	19	6	8	13	13	10	14	6	6	9	
CHRYPTOPHYTA											
Cryptophyceae (flagellates)											
<i>Chroomonas</i> sp.	120	180	140	140	150	160	11	130	160	96	
<i>Cryptomonas</i> sp.	8	15	9	16	12	6	170	16	8	23	
CYANOPHYTA											
Myxophyceae (blue-green algae)											
<i>Oscillatoria</i> sp.	55	-	-	-	-	-	-	-	-	-	
PYRRHOPHYTA											
Dinophyceae (dinoflagellates)											
<i>Gymnodinium</i> sp.	1	3	-	4	-	5	4	3	4	9	
<i>Peridinium</i> sp.	-	-	-	-	1	-	2	-	-	-	
TOTALS	420	560	360	410	350	480	500	440	480	530	
NUMBER OF SPECIES	29	26	29	30	27	27	27	29	25	26	

TABLE 2. - Taxa and numbers of periphyton and phytoplankton, 1975--Continued

Taxa	Date:	Periphyton (cells per square centimeter)							
	Time:	8-11	8-15	8-18	8-22	8-26	8-29	9-02	9-05
		1000	1245	1400	0900	0930	0930	1030	0900
Sacramento River downstream from Feather River (Site 3)									
CHLOROPHYTA									
Chlorophyceae (green algae)									
<i>Ankistrodesmus falcatus</i>	-		130	-	290	-	-	-	-
<i>Closterium</i> sp.	45	-	-	-	-	200	-	110	-
<i>Cosmarium</i> sp.	-		260	170	310	-	-	110	-
<i>Mougeotia</i> sp.	310		1,000	-	-	1,400	-	-	-
<i>Scenedesmus denticulatus</i>	180		-	-	-	-	-	-	-
<i>S. dimorphus</i>	-		-	-	-	200	-	-	-
<i>Spirogyra</i> sp.	-		-	-	-	1,400	-	3,100	1,100
<i>Stigeoclonium</i> sp.	-		-	-	-	-	-	-	400
CHRYSTOPHYTA									
Bacillariophyceae (diatoms)									
<i>Achnanthes lanceolata</i>	-		140	-	-	-	-	-	310
<i>A. minutissima</i>	-		-	-	-	-	160	-	-
<i>Bacillaria paradoxa</i>	-		2,300	950	-	3,100	10,000	-	11,000
<i>Biddulphia</i> sp.	-		-	-	-	-	470	340	230
<i>Cyclotella</i> spp.	45		-	-	-	-	-	-	-
<i>Cymatopleura solea</i>	-		-	-	-	-	-	250	-
<i>Cymbella tumida</i>	88		4,200	10,000	6,800	9,300	10,000	8,200	4,700
<i>C. ventricosa</i>	-		290	190	98	200	-	-	430
<i>Diatoma vulgare</i>	-		9,300	2,000	880	3,600	4,300	4,500	2,000
<i>Diploneis subovalis</i>	-		130	-	310	200	450	110	160
<i>Epithemia sorex</i>	-		-	-	-	-	-	250	-
<i>Fragilaria construens</i>	2,500		8,000	39,000	7,600	20,000	39,000	-	4,300
<i>Gomphonema angustatum</i>	-		-	-	-	650	4,000	-	2,300
<i>G. lanceolatum</i>	-		670	1,200	2,900	200	1,900	4,700	390
<i>G. sphaerophorum</i>	45		4,000	4,000	6,400	15,000	3,900	7,800	6,800
<i>G. sp.</i>	-		-	-	-	260	-	1,000	-
<i>Gyrosigma</i> sp.	45		810	290	290	370	160	230	590
<i>Melosira italica</i>	11,000		-	-	-	-	-	-	-
<i>M. varians</i>	-		95,000	110,000	90,000	90,000	220,000	150,000	150,000
<i>Navicula graciloides</i>	4,500		19,000	34,000	73,000	150,000	220,000	88,000	51,000
<i>N. salinarum</i>	530		2,900	620	1,600	530	430	560	430
<i>N. viridula</i>	-		-	250	-	-	160	700	-
<i>N. spp.</i>	-		-	1,300	-	1,100	-	540	79
<i>Nitzschia ocicularis</i>	260		2,000	76	390	310	-	230	-
<i>N. dissipata</i>	-		870	990	7,000	9,000	23,000	40,000	23,000
<i>N. filiformis</i>	-		130	360	510	570	2,300	5,300	25,000
<i>N. fonticola</i>	-		-	230	-	680	-	-	-
<i>N. gracilis</i>	480		7,000	2,900	3,700	2,600	1,200	340	-
<i>N. holsatica</i>	-		25,000	1,900	-	-	-	-	-
<i>N. linearis</i>	-		-	700	-	-	-	-	-
<i>N. palea</i>	4,700		100,000	17,000	19,000	15,000	4,000	1,300	470
<i>N. parvulum</i>	-		-	-	-	-	310	-	-
<i>N. romana</i>	170		3,600	2,300	3,400	9,600	-	-	2,500
<i>N. sigmoidea</i>	-		-	100	98	-	620	110	-
<i>N. sublinearis</i>	130		700	230	310	360	-	-	-
<i>N. tryblionella</i>	-		130	150	98	-	620	330	79
<i>N. spp.</i>	570		7,800	-	-	-	-	-	-
<i>Rhoicosphenia curvata</i>	-		-	-	-	-	620	1,400	880
<i>Rhopalodia gibba</i>	-		-	88	-	-	310	-	170
<i>Surirella ovalis</i>	-		-	-	98	98	-	-	-
<i>S. robusta</i>	45		-	-	-	-	-	-	-
<i>Synedra minuscula</i>	-		2,300	1,100	-	-	-	-	-
<i>S. radians</i>	45		-	-	-	-	-	-	-
<i>S. ulna</i>	5,100		26,000	13,000	7,000	2,300	11,000	5,300	160
CYANOPHYTA									
Myxophyceae (blue-green algae)									
<i>Oscillatoria</i> sp.	-		-	-	-	-	-	25,000	8,700
TOTALS		31,000	320,000	250,000	230,000	340,000	560,000	350,000	300,000
NUMBER OF SPECIES		20	28	29	24	29	25	28	27

TABLE 2.- Taxa and numbers of periphyton and phytoplankton, 1975--Continued

Taxa	Phytoplankton (cells per milliliter)							
	Date:	8-11	8-15	8-18	8-22	8-26	8-29	9-02
	Time:	1000	1245	1400	0900	0930	0930	1030
Sacramento River downstream from Feather River (Site 3)								
CHLOROPHYTA								
Chlorophyceae (green algae)								
<i>Actinastrum hantzschii</i>	-	-	-	-	-	-	-	24
<i>Ankistrodesmus falcatus</i>	35	10	17	19	25	27	28	18
<i>Chlamydomonas dinobryoni</i>	-	-	-	-	5	-	-	-
<i>C. sp.</i>	63	-	36	14	27	-	2	-
<i>Chodatella quadriseta</i>	-	-	5	5	-	-	-	-
<i>Closteriopsis sp.</i>	-	-	-	2	-	-	-	-
<i>Cosmarium sp.</i>	-	-	-	-	1	-	-	-
<i>Crucigenia crucifera</i>	1	-	-	-	-	-	-	-
<i>C. tetrapedia</i>	-	1	10	2	-	-	-	-
<i>C. quadrata</i>	-	-	-	-	-	20	16	-
<i>Eudorina elegans</i>	-	-	2	-	-	-	-	-
<i>Micractinium pusillum</i>	-	-	-	-	2	-	-	-
<i>Mougeotia sp.</i>	-	-	-	-	7	-	-	-
<i>Pandorina morum</i>	1	-	-	-	-	-	-	-
<i>Pediastrum tetras</i>	-	-	-	-	-	-	24	-
<i>Quadrigula chodatii</i>	-	-	-	-	2	-	-	-
<i>Scenedesmus abundans</i>	-	-	-	32	-	40	-	-
<i>S. bijuga</i>	-	-	-	-	-	72	-	-
<i>S. denticulatus</i>	88	150	100	68	80	32	36	48
<i>S. dimorphus</i>	-	4	-	-	-	-	-	-
<i>S. protuberans</i>	-	-	-	8	-	-	-	-
<i>S. quadricauda</i>	20	-	-	-	20	-	-	-
<i>S. spp.</i>	-	-	-	-	-	-	8	12
<i>Selenastrum minutum</i>	20	-	2	3	2	-	-	-
<i>Tetraedron minimum</i>	3	-	-	3	2	-	-	-
<i>Tetrastrum staurogeniaeform</i>	-	-	-	2	-	-	-	-
<i>Treubaria setigarum</i>	-	-	2	-	1	-	-	-
<i>Ulothrix sp.</i>	-	-	2	1	-	-	-	-
CHRYSOPHYTA								
Bacillariophyceae (diatoms)								
<i>Achnanthes arcuata</i>	-	-	-	-	-	-	2	-
<i>A. lanceolata</i>	1	-	-	-	-	-	-	-
<i>A. sp.</i>	-	-	-	2	3	-	-	-
<i>Attheya zachariasii</i>	-	-	2	-	-	-	-	3
<i>Cyclotella striata</i>	44	39	37	44	130	-	-	-
<i>C. spp.</i>	94	33	74	27	100	-	-	-
<i>Cymatopleura solea</i>	-	-	-	-	2	-	-	-
<i>Cymbella sinuata</i>	-	-	-	-	2	-	-	-
<i>C. ventricosa</i>	1	-	-	-	-	-	-	-
<i>Diatoma vulgare</i>	-	-	-	-	2	-	-	-
<i>Epithemia sorex</i>	-	-	2	-	-	-	-	-
<i>Fragilaria construens</i>	-	29	-	39	19	-	-	-
<i>Gomphonema sp.</i>	-	-	-	3	-	-	-	-
<i>Gyrosigma sp.</i>	-	3	2	4	2	-	-	-
<i>Melosira granulata</i>	6	6	-	-	10	14	-	-
<i>M. italica</i>	-	3	-	14	5	-	-	-
<i>M. varians</i>	-	-	-	7	-	-	-	-
<i>Navicula spp.</i>	1	-	7	6	1	-	4	3
<i>Nitzschia acicularis</i>	11	13	10	12	12	14	18	6
<i>N. dissipata</i>	4	-	-	-	-	23	9	15
<i>N. filiformis</i>	-	1	-	2	-	2	4	-
<i>N. fonticola</i>	-	-	-	2	3	-	-	-
<i>N. frustulum</i>	-	-	-	-	-	2	4	-
<i>N. gracilis</i>	6	-	-	8	4	2	5	6
<i>N. holsatica</i>	-	-	-	-	-	30	-	-
<i>N. palea</i>	77	42	50	17	41	17	35	27
<i>N. romana</i>	10	13	17	42	10	-	-	-
<i>N. sigmoidea</i>	-	-	10	-	-	-	-	-
<i>N. sublinearis</i>	-	3	-	-	-	2	-	-
<i>N. spp.</i>	32	-	24	18	15	31	27	12
<i>Rhizosolenia longiseta</i>	4	-	2	2	-	-	4	-



TABLE 2. - Taxa and numbers of periphyton and phytoplankton, 1975--Continued

Taxa	Phytoplankton (cells per milliliter)							
	Date:	8-11	8-15	8-18	8-22	8-26	8-29	9-02
	Time:	1000	1245	1400	0900	0930	0930	1030
Sacramento River downstream from Feather River (Site 3)--Continued								
CHRYSOPHYTA--Continued								
Bacillariophyceae--Continued								
<i>Skeletonema</i> sp.		57	18	6	12	51	14	9
<i>Stephanodiscus</i> sp.		12	20	89	67	28	96	78
<i>Surirella ovata</i>		-	-	-	-	-	2	-
<i>S. robusta</i>		-	1	-	-	-	-	-
<i>S. sp.</i>		-	-	5	3	2	-	-
<i>Synedra rumpens</i>		-	-	-	3	-	-	-
<i>S. ulna</i>		1	6	2	3	-	2	2
Chrysophyceae (yellow-brown algae)								
<i>Dinobryon bavaricum</i>		-	3	-	3	2	-	6
<i>D. elegantissima</i>		-	-	-	-	-	5	3
<i>Synura uvella</i>		96	-	-	-	-	-	-
CHRYPTOPHYTA								
Cryptophyceae (flagellates)								
<i>Chroomonas</i> sp.		56	66	71	90	170	92	79
<i>Cryptomonas</i> sp.		5	13	5	24	27	12	11
CYANOPHYTA								
Myxophyceae (blue-green algae)								
<i>Anabaena</i> sp.		-	-	-	-	66	-	-
<i>Oscillatoria</i> sp.		-	55	-	110	110	170	-
<i>Raphidiopsis</i> sp.		-	16	5	15	14	-	-
EUGLENOPHYTA								
Euglenophyceae (euglenoids)								
<i>Euglena</i> sp.		-	-	2	3	-	3	-
PYRRHOPHYTA								
Dinophyceae (dinoflagellates)								
<i>Gymnodinium</i> sp.		-	-	-	2	-	-	-
<i>Peridinium</i> sp.		3	-	-	-	-	3	-
TOTALS		750	550	600	740	1,000	730	440
NUMBER OF SPECIES		28	24	29	41	38	25	22

TABLE 3.- Periphyton biomass measurements

[Periphyton organic weights rounded to three significant figures according to Greeson and others (1977)]

Date in	Date out	SITE 1		SITE 2		SITE 3	
		Area scraped (cm <sup>2</sup> )	Organic weight (mg/cm <sup>2</sup> )	Area scraped (cm <sup>2</sup> )	Organic weight (mg/cm <sup>2</sup> )	Area scraped (cm <sup>2</sup> )	Organic weight (mg/cm <sup>2</sup> )
8-05-75	8-11-75	65.3	0.374	55.1	0.007	56.0	0.048
		56.0	.488	53.0	.017	52.0	.008
		51.0	.351	49.9	.010	22.0	.023
		57.1	.303	44.8	.009	61.0	.031
		48.0	.238	40.8	.015	51.0	.057
		46.0	.383	41.0	.002	62.2	.013
		56.0	.311	46.0	.002	49.9	.006
		54.0	.409	47.0	.004	55.0	.011
		53.7	.326	51.0	.006		
		53.0	.328	46.0	.007		
		Mean,	0.351	Mean,	0.008	Mean,	0.025
8-05-75	8-15-75	59.0	1.05	45.0	0.136	43.0	0.465
		65.0	1.35	41.0	.073	43.0	.447
		44.8	.998	39.0	.174	42.8	.409
		52.0	.892	38.0	.158	42.8	.551
		47.0	.964	34.7	.052	47.0	.387
		69.0	1.07	30.0	.093	35.7	1.06
		70.4	1.13	39.0	.133	35.7	1.13
		70.0	.966	39.8	.158	35.7	1.28
		70.0	1.15	61.0	.080	37.0	.539
		45.9	.906	44.0	.021	11.5	.484
		Mean,	1.05	Mean,	0.108	Mean,	0.675

TABLE 3.- Periphyton biomass measurements--Continued

Date in	Date out	SITE 1		SITE 2		SITE 3	
		Area scraped (cm <sup>2</sup> )	Organic weight (mg/cm <sup>2</sup> )	Area scraped (cm <sup>2</sup> )	Organic weight (mg/cm <sup>2</sup> )	Area scraped (cm <sup>2</sup> )	Organic weight (mg/cm <sup>2</sup> )
8-05-75	8-18-75	54.1	0.714	38.0	0.521	53.0	0.736
		64.0	1.34	47.0	.200	50.0	.466
		48.0	1.07	33.0	.239	44.0	.257
		61.0	1.06	30.0	.203	48.6	.428
		63.2	1.04	43.3	.275	43.8	.645
		51.0	.886	42.8	.282	44.8	.753
		55.0	1.28	40.8	.358	53.0	1.04
		48.9	.970	33.7	.297	58.0	1.29
		53.0	.750				
		54.1	.681				
		Mean,	0.979	Mean,	0.297	Mean,	0.702
8-05-75	8-22-75	66.3	1.54	49.9	0.730	34.7	0.608
		57.1	1.47	40.0	.705	60.0	.902
		58.1	1.24	37.0	.622	61.2	.940
		58.1	1.48	35.0	1.16	33.0	.264
		61.0	1.55	33.7	.772	63.2	.539
		55.1	1.34	44.9	.807	61.0	.508
		57.1	1.53	40.0	.393	62.0	.582
		63.2	1.81	44.0	.800	65.0	.846
		59.2	1.13	34.0	.306	41.8	.753
				44.0	.282		
		Mean,	1.45	Mean,	0.658	Mean,	0.660

TABLE 3.- Periphyton biomass measurements--Continued

Date in	Date out	SITE 1		SITE 2		SITE 3	
		Area scraped (cm <sup>2</sup> )	Organic weight (mg/cm <sup>2</sup> )	Area scraped (cm <sup>2</sup> )	Organic weight (mg/cm <sup>2</sup> )	Area scraped (cm <sup>2</sup> )	Organic weight (mg/cm <sup>2</sup> )
8-05-75	8-26-75	63.0	1.64	38.0	0.642	53.0	0.694
		29.6	1.63	58.1	1.28	62.2	.638
		61.0	1.56	41.0	.751	59.0	.524
		57.1	2.17	60.2	1.20	59.2	.896
		60.8	2.00	41.8	.493	48.9	.760
		57.1	1.34	60.2	1.01	40.8	.326
		63.2	4.55	47.9	1.11	54.0	.774
		57.1	.597	42.0	1.67	42.1	.857
		61.0	2.27	52.0	.977	58.0	.569
				43.9	1.08	45.0	.456
		Mean,	1.97	Mean,	1.02	Mean,	0.649
8-05-75	8-29-75			35.7	0.798		
				45.9	.693		
				40.0	1.77		
				48.9	1.50		
				40.8	1.73		
				54.0	1.28		
				46.9	1.30		
				40.0	1.05		
				Mean,	1.27		

TABLE 3.- Periphyton biomass measurements--Continued

Date in	Date out	SITE 1		SITE 2		SITE 3	
		Area scraped (cm <sup>2</sup> )	Organic weight (mg/cm <sup>2</sup> )	Area scraped (cm <sup>2</sup> )	Organic weight (mg/cm <sup>2</sup> )	Area scraped (cm <sup>2</sup> )	Organic weight (mg/cm <sup>2</sup> )
8-05-75	9-02-75	58.0	4.53	58.0	1.30	62.2	1.47
		38.4	3.08	61.2	1.39	61.0	1.15
		54.0	1.07	59.0	.610	62.2	1.44
		60.0	1.50	44.0	.586	63.2	2.03
		59.0	3.37	60.0	.523	59.0	1.28
		60.0	2.41	53.0	.589	60.0	1.86
		60.0	3.34	38.8	.805	60.2	1.21
		62.2	1.22	43.9	.363	62.2	2.03
		57.0	2.48	58.1	.635	64.3	.898
		60.0	1.38	37.0	.573	62.0	1.42
		Mean,	2.44	Mean,	0.737	Mean,	1.48
8-05-75	9-05-75	63.2	2.14	56.1	0.768	63.2	2.40
		65.3	3.28	62.4	.529	62.2	1.26
		63.0	3.25	59.0	.775	66.3	1.62
		69.0	2.52	62.2	.662	59.0	1.25
		62.0	1.83	57.0	.812	64.0	1.72
		59.0	1.13	53.0	.721	62.2	1.18
		65.3	2.04	56.1	.736	60.0	1.34
		55.1	3.21	56.1	.726	63.2	.786
		53.0	2.76	54.1	.906	61.0	2.07
		63.0	1.12				
		Mean,	2.33	Mean,	0.737	Mean,	1.51

TABLE 3.- Periphyton biomass measurements--Continued

Date in	Date out	SITE 1		SITE 2		SITE 3	
		Area scraped (cm <sup>2</sup> )	Organic weight (mg/cm <sup>2</sup> )	Area scraped (cm <sup>2</sup> )	Organic weight (mg/cm <sup>2</sup> )	Area scraped (cm <sup>2</sup> )	Organic weight (mg/cm <sup>2</sup> )
11-25-75	11-28-75	48.9	0.000	55.0	0.000		
		59.0	.000	58.1	.000		
		55.9	.000	61.2	.000		
		56.1	.002	58.1	.000		
		58.1	.007	57.0	.000		
		53.0	.002	55.1	.000		
		59.2	.041	59.2	.044		
		55.0	.044	57.0	.049		
		58.0	.024	61.2	.059		
		53.0	.019	60.2	.000		
		Mean,	0.014	Mean,	0.015		
11-25-75	12-01-75	59.3	0.000	58.0	0.000		
		55.1	.000	58.1	.000		
		56.0	.000	59.2	.000		
		59.2	.000	60.2	.000		
		57.0	.012	58.1	.000		
		48.9	.008	58.1	.000		
		59.3	.076	59.2	.059		
		56.1	.005	55.0	.049		
		59.3	.008	54.0	.004		
				56.1	.037		
		Mean,	0.012	Mean,	0.015		



TABLE 3.- Periphyton biomass measurements--Continued

Date in	Date out	SITE 1		SITE 2		SITE 3	
		Area scraped (cm <sup>2</sup> )	Organic weight (mg/cm <sup>2</sup> )	Area scraped (cm <sup>2</sup> )	Organic weight (mg/cm <sup>2</sup> )	Area scraped (cm <sup>2</sup> )	Organic weight (mg/cm <sup>2</sup> )
11-25-75	12-05-75	58.1	0.000	60.3	0.000		
		59.3	.000	58.1	.000		
		57.1	.000	55.0	.000		
		55.1	.004	57.2	.000		
		55.0	.000	57.1	.000		
		57.1	.053	58.2	.010		
		59.2	.056	61.2	.052		
		57.1	.026	57.1	.000		
		58.0	.010	58.2	.026		
		Mean,	0.017	Mean,	0.010		
11-25-75	12-08-75	57.0	0.000	60.3	0.000		
		53.9	.000	57.2	.000		
		60.2	.000	57.1	.000		
		55.0	.004	58.0	.002		
		58.1	.000	56.1	.013		
		58.1	.000	56.1	.021		
		51.0	.102	60.3	.053		
		56.0	.107	56.1	.043		
		56.1	.011	53.0	.015		
				56.1	.000		
		Mean,	0.025	Mean,	0.015		

TABLE 3.- Periphyton biomass measurements--Continued

Date in	Date out	SITE 1		SITE 2		SITE 3	
		Area scraped (cm <sup>2</sup> )	Organic weight (mg/cm <sup>2</sup> )	Area scraped (cm <sup>2</sup> )	Organic weight (mg/cm <sup>2</sup> )	Area scraped (cm <sup>2</sup> )	Organic weight (mg/cm <sup>2</sup> )
11-25-75	12-12-75	61.4	0.038	58.1	0.000		
		58.1	.019	58.1	.005		
		59.2	.015	59.2	.015		
		52.0	.000	52.0	.000		
		56.1	.021	56.1	.021		
		54.0	.000	54.0	.000		
		54.0	.061	59.2	.061		
		55.1	.085	56.0	.077		
		54.1	.011	56.0	.055		
				57.1	.023		
		Mean,	0.028	Mean,	0.026		
11-25-75	12-15-75	53.0	0.089	58.2	0.024		
		58.1	.108	59.2	.022		
		56.1	.152	56.1	.050		
		53.9	.195	57.1	.005		
		57.1	.103	57.0	.054		
		58.1	.289	54.0	.024		
		58.1	.129	59.2	.076		
		57.1	.172	58.0	.122		
		58.1	.119	55.0	.084		
				54.1	.089		
		Mean,	0.150	Mean,	0.055		

TABLE 3.- Periphyton biomass measurements--Continued

Date in	Date out	SITE 1		SITE 2		SITE 3	
		Area scraped (cm <sup>2</sup> )	Organic weight (mg/cm <sup>2</sup> )	Area scraped (cm <sup>2</sup> )	Organic weight (mg/cm <sup>2</sup> )	Area scraped (cm <sup>2</sup> )	Organic weight (mg/cm <sup>2</sup> )
11-25-75	12-19-75	59.2	0.385	61.0	0.193		
		59.2	.428	60.2	.133		
		57.1	.758	59.0	.088		
		57.1	.278	59.3	.086		
		57.1	.341	56.0	.277		
		56.0	.384	55.1	.220		
		60.4	.166	58.1	.253		
		55.1	.547	56.1	.068		
		56.0	.662	53.0	.189		
				55.0	.247		
		Mean,	0.436	Mean,	0.175		
11-25-75	12-22-75	56.1	0.783	55.1	0.218		
		57.1	.664	58.1	.231		
		60.3	1.04	58.0	.324		
		58.1	.915	58.0	.248		
		55.1	.467	57.1	.538		
		55.0	.455	58.0	.372		
		59.3	.663	59.2	.426		
		57.1	.373	58.2	.448		
		57.1	.573	56.1	.419		
				55.0	.320		
		Mean,	0.658	Mean,	0.354		

TABLE 3.- Periphyton biomass measurements--Continued

Date in	Date out	SITE 1		SITE 2		SITE 3	
		Area scraped (cm <sup>2</sup> )	Organic weight (mg/cm <sup>2</sup> )	Area scraped (cm <sup>2</sup> )	Organic weight (mg/cm <sup>2</sup> )	Area scraped (cm <sup>2</sup> )	Organic weight (mg/cm <sup>2</sup> )
11-25-75	12-26-75	59.2	1.44	57.1	0.999		
		59.2	.735	59.0	.456		
		56.1	.955	54.0	.539		
		55.0	1.52	57.1	.597		
		57.1	.658	58.1	.791		
		56.1	.866	59.3	.950		
		55.0	1.81	57.1	1.10		
		55.0	1.66	59.2	.752		
				56.1	.758		
				54.0	.632		
		Mean,	1.20	Mean,	0.757		
11-25-75	12-29-75	58.1	0.618	58.0	0.531		
		59.2	1.10	56.1	.239		
		56.1	1.74	59.2	.507		
		59.2	.830	53.0	.879		
		57.1	1.22	56.2	.653		
		55.1	1.23	57.1	.941		
				58.0	.797		
				55.1	.623		
		Mean,	1.12	Mean,	0.646		

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