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HYDROGRAPHIC, NUTRIENT, CHLOROPHYLL, SESTON AND CELL-COUNT DATA

FROM CHESAPEAKE BAY PLANKTON CRUISES

OF R/V PATHFINDER AND R/V OBSERVER

JANUARY 1960 -- JANUARY 1961



VIRGINIA FISHERIES LABORATORY

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HYDROGRAPHIC, NUTRIENT, CHLOROPHYLL, SESTON AND CELL-COUNT DATA
FROM CHESAPEAKE BAY PLANKTON CRUISES
OF R/V PATHFINDER AND R/V OBSERVER

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The data reported herein were obtained on 24 cruises in the lower Chesapeake Bay in connection with a 12-month survey of net phytoplankton, net zooplankton and nanoplankton conducted by the Planktology Research Section.

Five stations along the salinity gradient were occupied at approximately biweekly intervals. Station locations (Fig. 1) and mean low water depths were:

- 1) York River, opposite VFL ($37^{\circ}14'$, $76^{\circ}30'$); 30 ft.
- 2) York River, mouth ($37^{\circ}15'$, $76^{\circ}21'$); 30 ft.
- 3) Chesapeake Bay, York Spit Light ($37^{\circ}13'$, $76^{\circ}16'$); 12 ft.
- 4) Chesapeake Bay, off York Spit Channel ($37^{\circ}10'$, $79^{\circ}09'$); 25 ft.
- 5) Chesapeake Bay, north of Inner Middle Ground ($37^{\circ}08'$, $76^{\circ}02'$); 20 ft.

Data reported include surface and bottom temperature, surface and bottom chlorinity, surface and bottom dissolved oxygen, surface and bottom extinction coefficients, surface nitrate nitrogen, surface phosphorus fractions (dissolved and adsorbed orthophosphate, and dissolved and particulate organic phosphorus), surface total chlorophyll, surface organic and inorganic seston, and surface total cell counts and numbers of taxa in the nanoplankton.

Temperatures (Table 1) were measured with a thermistor unit. Chlorinities (Table 2) were titrated with silver nitrate. Dissolved oxygen (Table 3) was determined by the (unmodified) Winkler method. Extinction coefficients (Table 4) were determined for "white" light (GE incandescent lamp CDJ-100W) from optical densities obtained colorimetrically with a neutral filter. Nitrate nitrogen (Table 5) was determined by the strychnidine method. Phosphorus was fractionated by millipore filtration (type HA). Total phosphorus was assayed by digesting samples for 12 hours at 20 psi, and then estimating orthophosphate by the molybdate method, corrected for salt interference. Inorganic (Table 6) and organic (Table 7) fractions are reported. Total chlorophyll (Table 8) was assayed by extracting millipore (HA)-filtered samples in 90% acetone saturated with magnesium carbonate, then measuring absorbancies colorimetrically at (broad band) 660 m μ . Conversion to pigment concentration was made by comparison with a standard curve prepared from pure chlorophyll a. Inorganic and ash-free suspended solids (Table 9) were determined by filtering water through tared millipore (HA) filters, desiccating filters plus residues, weighing for total seston, then ashing at 600°C, rehydrating the ash, desiccating, and weighing again to obtain ash weight. Cell counts (Table 10) were made from Sedgwick-Rafter mounts of refrigerated samples on day of collection, and number of taxa observed were recorded (Table 11).

Distribution of this report does not constitute publication, and the data are subject to correction and/or revision.

Bernard C. Patten
J. Ernest Warinner
6 April 1961

CRUISE DATES

<u>Cruise No.</u>	<u>Date</u>
1	4 January 1960
2	26 January 1960
3	8 February 1960
4	23 February 1960
5	7 March 1960
6	21 March 1960
7	4 April 1960
8	19 April 1960
9	2 May 1960
10	23 May 1960
11	3 June 1960
12	17 June 1960
13	5 July 1960
14	18 July 1960
15	1 August 1960
16	11 August 1960
17	26 August 1960
18	19 September 1960
19	3 October 1960
20	21 October 1960
21	14 November 1960
22	28 November 1960
23	19 December 1960
24	11 January 1961

Figure 1. Diagram of the lower Chesapeake Bay, showing locations of stations 1-5.

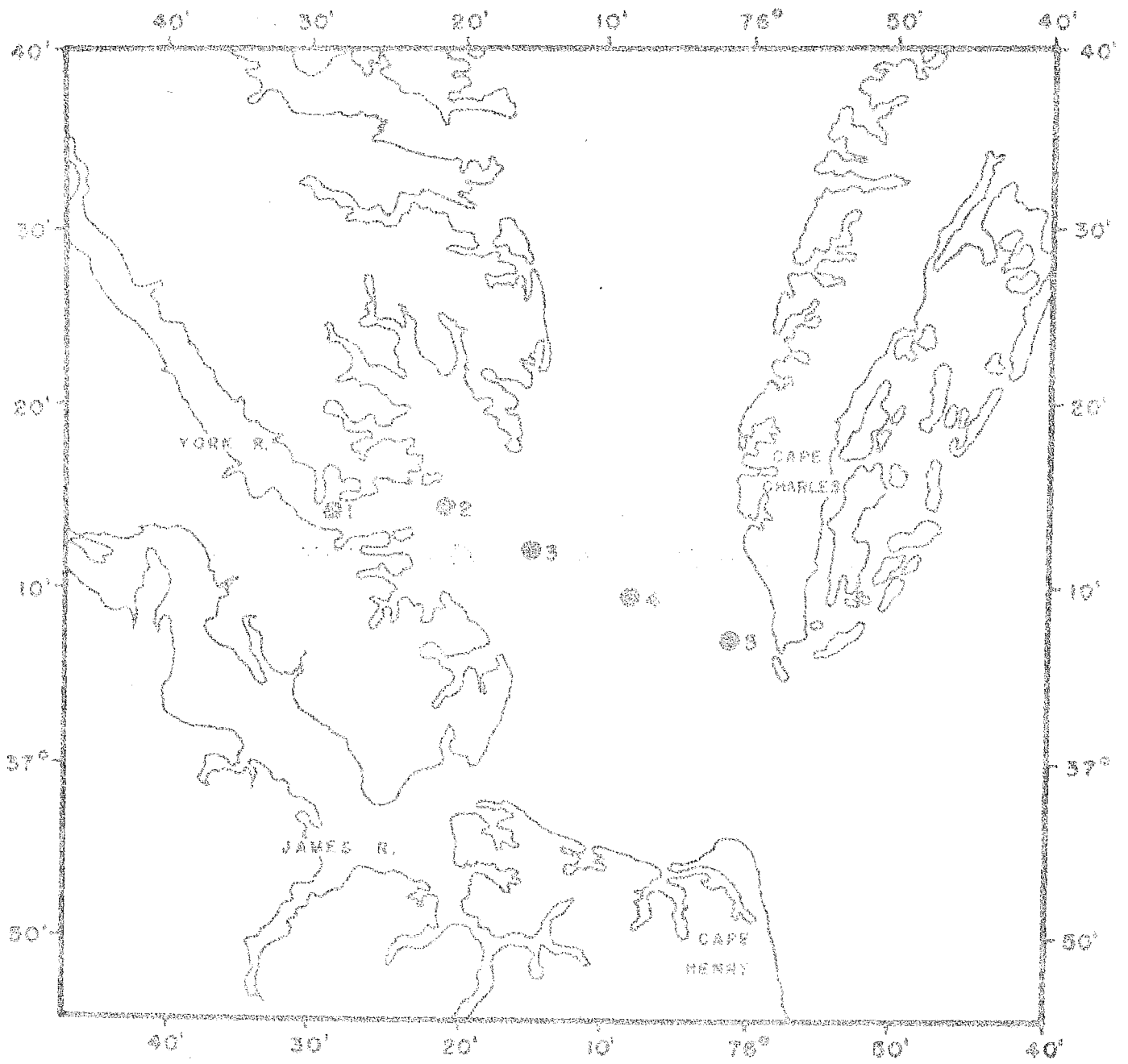


Table 1. Surface (S) and bottom (B) temperature, °C.

TABLE 1

Cruise No.	Station 1		Station 2		Station 3		Station 4		Station 5	
	S	B	S	B	S	B	S	B	S	B
1	6.37	6.37	6.23	5.92	5.73	5.73	6.04	5.93	-	-
2	3.74	3.76	3.46	4.29	3.78	4.21	4.23	4.35	4.61	3.92
3	5.57	4.97	5.46	4.71	4.54	4.58	4.68	4.64	4.49	-
4	3.86	4.05	3.83	4.13	4.10	4.08	4.50	4.75	4.31	4.29
5	1.71	2.50	2.00	3.17	2.22	2.17	2.40	3.02	2.53	2.61
6	3.98	3.49	3.60	3.02	3.12	3.13	2.70	2.81	3.26	3.02
7	10.76	7.26	9.82	6.10	7.81	6.68	7.57	6.65	6.95	7.03
8	14.45	13.07	13.46	12.21	11.98	11.91	10.65	11.49	11.38	11.35
9	15.57	13.65	15.62	12.22	14.85	14.35	14.62	12.89	14.14	14.09
10	21.02	20.67	20.91	19.67	21.21	18.79	21.02	17.07	21.22	18.60
11	23.02	20.76	23.61	19.43	23.00	20.01	23.09	18.56	22.87	21.69
12	24.56	22.77	24.68	22.60	23.96	22.35	24.21	22.84	24.52	23.86
13	25.75	23.90	25.81	22.51	25.31	24.94	24.85	21.95	23.91	23.81
14	26.12	25.44	26.22	23.06	25.62	25.06	25.78	21.12	25.32	22.99
15	25.95	25.78	26.51	25.17	26.31	25.29	26.43	24.32	26.21	25.03
16	27.43	27.25	27.32	26.41	27.29	26.63	27.25	25.59	26.50	26.40
17	24.90	25.18	24.48	25.29	24.75	24.75	24.45	23.86	23.78	23.53
18	24.38	24.51	23.83	25.36	24.17	26.18	23.70	25.12	23.66	26.41
19	21.54	21.81	21.43	21.36	21.97	21.91	21.94	21.73	21.39	21.32
20	19.06	19.60	18.89	19.31	25.47	26.29	19.75	19.77	19.73	19.54
21	12.34	12.22	12.45	12.50	12.74	12.04	12.78	12.75	12.76	12.25
22	-	-	13.2-	13.8-	13.2-	13.8-	13.0-	13.8-	13.2-	13.5-
23	-	-	-	-	-	-	-	-	-	-
24	3.48	3.47	3.49	4.42	3.30	3.72	3.27	5.16	3.69	4.23
\bar{x}	15.71	15.11	15.49	14.64	15.50	15.16	15.17	14.36	15.47	15.69

Table 2. Surface (S) and bottom (B) chlorinity, ‰.

TABLE 2

Cruise No.	Station 1		Station 2		Station 3		Station 4		Station 5	
	S	B	S	B	S	B	S	B	S	B
1	10.65	11.60	11.70	11.90	10.90	12.15	12.39	12.60	-	-
2	10.65	10.90	10.90	11.70	11.90	11.45	12.10	12.88	14.30	14.89
3	11.27	13.05	11.05	11.51	10.01	11.12	10.38	15.58	12.33	13.55
4	9.20	10.10	10.64	10.65	11.26	11.30	12.45	12.58	12.51	12.48
5	8.38	11.03	9.00	13.35	10.91	10.88	11.00	14.40	12.28	14.10
6	10.60	11.03	10.00	10.15	9.90	9.94	9.42	10.07	11.70	12.18
7	9.20	10.34	10.07	10.20	10.00	10.78	12.20	12.51	13.00	13.33
8	7.80	8.75	10.05	10.30	10.45	10.50	11.60	14.00	11.80	13.15
9	9.62	10.31	9.50	15.00	9.10	9.85	10.60	12.40	12.90	13.00
10	8.52	8.52	8.75	9.20	8.80	11.53	9.55	15.10	10.20	15.00
11	7.70	9.50	8.00	11.15	8.70	12.00	8.90	15.00	8.95	12.35
12	8.85	9.68	9.05	10.53	10.50	11.48	10.52	12.70	12.26	12.64
13	9.70	12.00	10.40	13.00	10.40	10.30	11.55	13.70	13.80	13.90
14	10.45	11.01	10.71	14.12	11.15	11.59	10.99	16.24	13.22	15.10
15	10.16	11.32	10.84	11.96	11.32	11.75	11.78	14.07	12.69	13.62
16	9.03	10.40	10.40	11.18	10.48	12.04	11.49	15.10	15.52	15.58
17	11.42	11.52	11.14	11.48	11.32	11.37	13.08	16.10	16.33	17.12
18	9.84	10.38	10.50	11.12	11.31	11.68	11.68	13.49	13.36	14.58
19	8.8-	10.0-	10.2-	9.1-	10.8-	11.6-	11.6-	14.0-	12.8-	12.9-
20	16.1-	16.6-	17.7-	18.6-	18.5-	18.6-	19.3-	19.2-	19.5-	23.3-
21	10.0-	11.3-	10.1-	13.1-	11.2-	11.6-	11.9-	15.7-	12.0-	15.1-
22	10.9-	11.3-	11.0-	11.8-	11.6-	11.9-	11.1-	14.2-	13.7-	14.8-
23	11.6-	12.0-	12.4-	12.3-	12.4-	12.5-	14.1-	14.3-	14.5-	17.5-
24	9.4-	11.5-	10.1-	14.0-	11.0-	12.8-	12.1-	16.4-	13.3-	16.6-
\bar{x}	9.99	11.01	10.60	11.98	11.00	11.61	11.74	14.26	13.17	14.64

Table 3. Surface (S) and bottom (B) dissolved oxygen, mg liter⁻¹.

TABLE 3

Cruise No.	Station 1		Station 2		Station 3		Station 4		Station 5	
	S	B	S	B	S	B	S	B	S	B
1	9.27	9.68	10.29	10.16	10.18	10.33	9.93	10.19	-	-
2	12.51	12.03	11.40	10.22	10.83	10.92	10.75	10.79	10.60	10.52
3	10.16	9.25	10.11	10.02	10.79	10.56	10.77	9.19	10.92	9.93
4	10.49	11.07	11.10	10.20	10.65	3.29	10.90	10.42	10.79	10.62
5	12.24	11.22	12.13	10.82	-	11.68	11.65	10.72	11.60	11.50
6	10.87	10.57	11.21	11.21	11.30	11.35	11.53	11.43	11.17	11.06
7	10.30	10.09	10.72	10.48	10.78	10.93	10.75	10.62	10.71	10.56
8	10.38	9.65	10.00	10.12	10.24	10.74	10.24	9.58	9.97	10.22
9	7.36	6.88	8.25	6.85	8.97	8.89	8.47	7.92	7.58	8.20
10	6.98	6.80	8.10	6.71	8.22	7.15	8.68	7.30	8.26	7.74
11	7.07	3.17	7.59	3.73	7.37	4.33	7.98	5.40	7.82	5.96
12	3.39	2.11	7.18	5.37	3.36	2.19	3.42	2.81	2.38	3.05
13	5.35	1.73	6.61	1.03	5.86	5.79	6.55	5.41	5.86	6.34
14	5.81	4.12	7.38	4.02	6.66	6.27	7.64	5.86	7.37	6.29
15	6.20	4.74	8.00	4.79	7.85	6.35	7.67	5.20	7.22	5.85
16	5.05	3.86	6.07	5.71	7.43	5.24	7.57	5.52	6.89	6.73
17	5.36	4.94	6.45	6.08	6.53	6.53	7.06	6.28	7.00	6.54
18	6.89	7.75	8.46	6.54	8.16	7.23	8.26	7.08	9.00	7.23
19	6.00	5.01	6.62	6.00	6.87	5.96	6.99	5.92	6.87	6.99
20	6.42	5.65	6.88	6.42	6.33	6.33	6.81	6.81	7.02	6.85
21	8.96	6.61	9.26	7.44	9.76	9.42	9.33	7.60	9.34	8.39
22	9.11	8.12	8.92	8.21	8.57	8.44	9.21	7.89	8.44	8.34
23	9.05	9.00	9.84	9.75	10.03	9.98	10.12	9.98	10.12	9.66
24	11.05	10.41	10.93	9.74	10.93	10.37	10.73	9.58	10.49	9.74
\bar{x}	8.18	7.19	8.90	7.57	8.59	7.93	8.88	7.90	8.58	8.19

Table 4. Extinction coefficients for white light, surface (S)
and bottom (B).

TABLE 4

Cruise No.	Station 1		Station 2		Station 3		Station 4		Station 5	
	S	B	S	B	S	B	S	B	S	B
1	-	-	-	-	-	-	-	-	-	-
2	-	-	-	-	-	-	-	-	-	-
3	-	-	-	-	-	-	-	-	-	-
4	-	-	-	-	-	-	-	-	-	-
5	-	-	-	-	-	-	-	-	-	-
6	1.61	1.61	1.27	0.92	0.92	1.15	0.69	0.92	1.04	0.92
7	0.92	1.90	0.23	1.38	1.15	1.67	0.58	1.78	1.38	0.52
8	1.04	5.18	0.35	0.46	0.58	0.81	0.46	0.81	0.40	0.81
9	0.40	2.36	0.29	0.46	0.40	0.35	0.17	0.40	0.35	0.46
10	0.23	0.75	0.12	0.12	0.12	0.17	0.17	0.12	0.17	0.23
11	0.35	0.58	0.29	0.12	0.23	0.17	0.23	0.52	0.23	0.58
12	0.92	0.92	0.52	0.46	0.35	0.35	0.17	0.17	0.12	0.12
13	0.69	1.96	0.75	0.23	0.75	0.69	0.46	0.29	0.35	0.69
14	0.86	6.33	0.58	1.38	0.81	0.69	0.52	0.46	0.35	0.92
15	0.86	2.30	0.46	1.92	0.75	0.83	0.63	0.71	0.55	0.86
16	1.04	1.61	0.58	0.58	0.17	0.00	0.06	0.00	0.00	0.12
17	0.75	4.83	0.75	0.81	0.53	0.58	0.40	1.04	0.92	2.53
18	0.75	3.04	0.69	0.58	0.40	0.40	0.23	0.92	0.23	1.84
19	0.58	1.61	0.46	0.23	0.23	0.23	0.23	0.23	0.23	0.69
20	0.61	0.61	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35
21	0.46	6.90	0.46	0.35	0.35	0.35	0.35	0.69	0.35	0.58
22	0.42	0.69	0.29	0.29	0.29	0.17	0.29	0.12	0.23	0.29
23	0.75	1.38	0.69	0.69	0.69	1.04	0.46	0.69	0.35	2.76
24	0.92	1.27	0.58	1.78	0.40	0.40	0.46	0.81	0.40	0.46
...										
\bar{x}	0.75	2.41	0.51	0.69	0.50	0.53	0.36	0.58	0.42	0.83

Table 5. Surface nitrogen as nitrate, $\mu\text{g atoms liter}^{-1}$.

TABLE 5

Cruise No.	Station 1	Station 2	Station 3	Station 4	Station 5
1	-	-	-	-	-
2	-	-	-	-	-
3	-	-	-	-	-
4	-	-	-	-	-
5	-	-	-	-	-
6	-	-	-	-	-
7	-	-	-	-	-
8	-	-	-	-	-
9	-	-	-	-	-
10	-	-	-	-	-
11	-	-	-	-	-
12	-	-	-	-	-
13	1.03	3.03	1.03	2.00	2.50
14	4.00	4.00	4.00	4.00	4.00
15	4.87	0.00	0.00	0.00	0.00
16	0.00	0.00	0.00	0.00	0.00
17	1.70	0.00	0.00	0.00	0.00
18	0.00	0.00	0.00	0.00	0.00
19	3.40	0.90	0.90	1.12	2.90
20	-	-	-	-	-
21	6.72	2.70	0.00	0.00	0.00
22	0.92	1.12	0.90	0.00	1.12
23	-	-	-	-	-
24	0.00	0.00	0.00	0.00	0.00
\bar{x}	2.21	1.18	0.68	0.71	1.05

Table 6. Surface dissolved (D) and adsorbed (A) orthophosphate,
 $\mu\text{g atoms liter}^{-1}$.

TABLE 6

Cruise No.	Station 1		Station 2		Station 3		Station 4		Station 5	
	D	A	D	A	D	A	D	A	D	A
1	0.12	0.11	0.04	0.00	0.04	0.04	-	-	-	-
2	0.08	0.07	0.04	0.04	0.02	0.02	0.02	0.02	0.03	0.08
3	0.02	0.15	0.07	0.10	0.04	0.08	0.04	0.04	0.04	0.04
4	0.10	0.05	0.11	0.10	0.10	0.13	0.11	0.05	0.13	0.08
5	0.07	0.30	0.04	0.22	0.06	0.09	0.04	0.11	0.03	0.08
6	0.29	0.00	0.11	0.00	0.29	0.18	0.24	0.00	0.24	0.20
7	0.08	0.00	0.02	0.00	0.08	0.17	0.12	0.10	0.02	0.16
8	0.11	0.00	0.11	0.06	0.11	0.03	0.07	0.04	0.07	0.04
9	0.07	0.00	0.08	0.07	0.07	0.00	0.07	0.04	0.12	0.11
10	0.08	0.00	0.04	0.00	0.08	0.00	0.06	0.00	0.06	0.02
11	0.09	0.05	0.09	0.05	0.05	0.00	0.09	0.00	0.05	0.00
12	0.27	0.00	0.11	0.00	0.15	0.00	0.15	0.00	0.18	0.00
13	0.26	0.07	0.11	0.02	0.07	0.06	0.10	0.22	0.36	0.00
14	0.34	0.00	0.10	0.09	0.07	0.04	0.08	0.00	0.08	0.00
15	0.62	0.04	0.46	0.06	0.12	0.02	0.08	0.00	0.23	0.00
16	0.87	0.11	0.54	0.00	0.11	0.06	0.15	0.00	0.27	0.03
17	1.07	0.08	0.52	0.00	0.52	0.04	0.32	0.00	0.57	0.08
18	0.66	0.04	0.34	0.00	0.43	0.00	0.41	0.00	0.35	0.14
19	2.26	0.00	1.76	0.00	1.61	0.00	1.62	0.00	1.75	0.06
20	0.89	0.00	0.46	0.00	0.55	0.04	0.44	0.04	0.33	0.02
21	0.46	0.07	0.53	0.00	0.17	0.02	0.17	0.00	0.17	0.02
22	0.26	0.04	0.26	0.04	0.09	0.05	0.05	0.00	0.19	0.00
23	0.28	0.34	0.21	0.31	0.24	0.23	0.35	0.34	0.47	0.35
24	0.15	0.02	0.16	0.00	0.14	0.02	0.14	0.00	0.20	0.02
\bar{x}	0.40	0.06	0.26	0.07	0.22	0.05	0.21	0.04	0.26	0.07

Table 7. Surface dissolved (D) and particulate (P) organic phosphorus, $\mu\text{g atoms liter}^{-1}$.

TABLE 7

Cruise No.	Station 1		Station 2		Station 3		Station 4		Station 5	
	D	P	D	P	D	P	D	P	D	P
1	0.04	0.11	0.04	0.19	0.04	0.07	-	-	-	-
2	0.03	0.08	0.11	0.08	0.06	0.17	0.09	0.10	0.07	0.04
3	0.06	0.25	0.02	0.16	0.05	0.09	0.05	0.13	0.14	0.13
4	0.08	0.61	0.07	0.48	0.08	0.07	0.08	0.44	0.05	0.60
5	0.04	0.11	0.09	0.10	0.02	0.26	0.04	0.26	0.11	0.19
6	0.00	0.68	0.00	0.29	0.00	0.00	0.00	0.09	0.00	0.00
7	0.18	0.32	0.18	0.28	0.14	0.00	0.11	0.05	0.25	0.14
8	0.04	0.66	0.06	0.37	0.02	0.34	0.05	0.36	0.10	0.43
9	0.12	0.46	0.18	0.23	0.04	0.37	0.12	0.24	0.11	0.36
10	0.20	0.50	0.03	0.47	0.04	0.27	0.05	0.16	0.09	0.14
11	0.20	0.45	0.15	0.33	0.07	0.34	0.16	0.29	0.07	0.34
12	0.20	0.77	0.14	0.55	0.06	0.44	0.06	0.48	0.12	0.35
13	0.25	0.57	0.61	0.95	0.13	0.30	0.12	0.60	0.44	0.15
14	0.02	0.21	0.13	0.18	0.12	0.31	0.12	0.27	0.10	0.29
15	0.17	0.43	0.19	0.36	0.15	0.58	0.10	0.74	0.13	0.36
16	0.06	0.43	0.11	0.40	0.28	0.60	0.25	0.59	0.26	0.12
17	0.00	0.00	0.00	0.32	0.00	0.28	0.00	0.33	0.00	0.09
18	0.00	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00
19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
20	0.00	0.00	0.00	0.00	0.00	0.12	0.06	-	0.00	0.14
21	0.01	0.14	0.16	-	0.09	0.37	0.08	0.14	0.02	0.22
22	-	-	-	-	-	-	-	-	-	-
23	0.48	0.29	0.41	0.33	0.45	0.26	0.43	0.56	0.49	0.79
24	0.56	0.43	0.50	0.45	0.47	0.45	0.57	0.35	0.45	0.50
\bar{x}	0.12	0.33	0.14	0.30	0.10	0.25	0.12	0.29	0.14	0.24

Table 8. Total chlorophyll at the surface, $\mu\text{g liter}^{-1}$.

TABLE 8

Cruise No.	Station 1	Station 2	Station 3	Station 4	Station 5
1	8.88	6.94	7.72	8.86	-
2	11.72	7.81	7.03	6.25	5.47
3	6.25	10.16	7.03	6.25	6.25
4	2.74	4.69	4.69	3.91	6.25
5	6.25	3.91	4.17	6.25	3.13
6	11.73	5.48	3.13	2.35	3.13
7	6.25	6.77	4.69	4.69	5.47
8	22.27	11.98	12.50	10.94	11.20
9	4.46	5.14	9.90	5.99	3.65
10	8.33	8.33	10.07	10.32	6.25
11	13.54	11.46	3.91	4.94	3.90
12	9.90	8.04	7.59	8.48	2.89
13	11.72	8.59	6.60	3.75	4.07
14	3.91	4.17	2.61	1.56	0.94
15	5.81	4.56	4.69	4.13	3.93
16	7.14	5.75	4.99	3.87	2.70
17	6.56	9.07	6.56	6.56	7.81
18	6.25	9.36	4.17	9.89	10.94
19	7.55	5.73	7.50	7.19	5.38
20	5.47	3.91	3.64	3.91	3.12
21	4.46	3.12	5.36	6.03	6.68
22	2.60	3.12	4.43	3.64	4.17
23	7.29	6.25	7.50	7.50	6.88
24	1.04	1.04	1.56	1.56	0.52
\bar{x}	7.59	6.47	5.92	5.78	4.99

Table 9. Surface organic (O) and inorganic (I) seston, mg liter⁻¹.

TABLE 9

Cruise No.	Station 1		Station 2		Station 3		Station 4		Station 5	
	O	I	O	I	O	I	O	I	O	I
1	-	-	-	-	-	-	-	-	-	-
2	-	-	-	-	-	-	-	-	-	-
3	-	-	-	-	-	-	-	-	-	-
4	4.77	8.38	5.50	10.50	5.90	13.25	3.65	8.50	6.00	21.15
5	3.58	8.50	4.38	7.12	5.00	9.12	2.00	8.87	3.62	5.75
6	2.40	10.38	2.34	1.54	2.12	2.50	1.62	1.88	1.37	1.75
7	-	7.38	-	7.63	-	6.50	-	5.00	-	6.00
8	3.60	7.60	16.38	5.37	5.66	5.67	5.83	6.67	6.14	8.02
9	2.75	5.50	3.50	3.75	2.88	2.37	3.12	1.50	1.50	6.50
10	0.25	2.50	1.63	1.75	0.88	0.88	3.62	2.50	1.00	1.13
11	3.00	4.28	4.00	3.28	3.28	2.43	3.28	2.29	4.43	1.86
12	3.58	5.43	2.43	1.43	4.00	1.86	2.43	0.43	2.72	1.72
13	0.20	5.00	1.80	2.40	4.60	8.20	1.60	2.00	2.20	6.40
14	-	6.18	0.17	3.84	1.00	3.80	1.60	1.80	0.17	1.84
15	6.60	3.60	-	3.20	3.00	8.50	2.25	5.25	6.80	6.00
16	1.11	7.99	3.55	7.77	4.00	6.88	0.44	3.77	0.61	5.20
17	8.00	9.20	9.40	9.40	8.20	9.00	3.80	2.80	2.80	11.00
18	0.34	3.83	0.67	3.00	1.50	3.00	-	2.67	0.16	4.17
19	1.83	4.50	4.00	2.50	1.00	2.83	2.66	2.17	4.80	14.20
20	-	-	-	-	-	-	-	-	-	-
21	0.72	2.14	1.86	2.71	3.80	2.00	4.00	3.20	2.72	1.14
22	0.67	7.33	1.17	6.00	2.80	8.60	1.67	5.33	2.80	8.60
23	1.80	21.20	4.40	23.80	3.80	15.80	4.20	32.80	16.20	48.20
24	2.72	7.28	2.43	6.14	3.43	7.14	3.43	7.43	2.15	4.14
\bar{x}	2.66	6.91	3.87	5.66	3.52	6.02	2.84	5.34	3.59	8.24

Table 10. Cell counts at the surface, in units (cells, chains or colonies) per ml.

TABLE 10

Cruise No.	Station 1	Station 2	Station 3	Station 4	Station 5
1	3154	4524	3284	3828	
2	3001	2737	5026	2374	2026
3	2305	3507	6380	2001	4358
4	1812	3447	2769	2220	2283
5	1025	1427	2155	1387	823
6	2996	1530	1198	1209	1043
7	1512	2128	1141	1197	1287
8	2461	3741	3585	3246	1948
9	509	4519	5336	3267	1669
10	1656	2050	2168	3003	4518
11	3812	3750	986	1251	640
12	363	1809	2502	711	1394
13	2384	2454	1765	655	1043
14	3434	720	1837	244	412
15	1968	273	1210	910	565
16	723	677	828	572	680
17	161	808	1008	1026	446
18	926	2254	1213	1218	1907
19	-	-	-	-	-
20	375	488	231	300	399
21	802	982	2233	2277	1309
22	1345	1643	2760	5700	3503
23	787	1839	1231	1058	168
24	1293	946	1294	1627	1308
\bar{x}	1687	2098	2267	1795	1534

Table 11. Number of nanoplankton taxa recorded at the surface,
exclusive of ciliates.

TABLE 11

Cruise No.	Station 1	Station 2	Station 3	Station 4	Station 5
1	7	4	6	3	-
2	6	9	9	5	6
3	11	12	5	6	6
4	15	14	16	10	14
5	16	14	24	20	14
6	14	9	11	11	6
7	20	15	10	10	13
8	14	11	10	11	7
9	7	10	7	8	8
10	16	8	7	10	7
11	13	11	3	5	7
12	6	10	7	8	11
13	13	13	10	10	5
14	14	11	15	5	3
15	7	8	11	6	7
16	9	13	13	8	14
17	5	12	11	18	8
18	10	17	16	15	15
19	-	-	-	-	-
20	5	5	6	6	12
21	11	9	17	20	17
22	11	15	14	17	17
23	11	13	13	10	6
24	11	12	14	13	16
\bar{x}	11.0	11.1	11.1	10.2	9.5