

VIRGINIA INSTITUTE OF MARINE SCIENCE

GLOUCESTER POINT, VIRGINIA

THE NET PHYTOPLANKTON TAKEN IN VIRGINIA TIDAL WATERS

JANUARY - DECEMBER 1962

Richard A. Mulford

SPECIAL SCIENTIFIC REPORT NO. 43

October 1963

VIRGINIA INSTITUTE OF MARINE SCIENCE

GLOUCESTER POINT, VIRGINIA

THE NET PHYTOPLANKTON TAKEN IN VIRGINIA TIDAL WATERS
January - December 1962

Richard A. Mulford

SPECIAL SCIENTIFIC REPORT NO. 43

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

W. J. Hargis
Director

October 1963

THE NET PHYTOPLANKTON TAKEN IN VIRGINIA TIDAL WATERS
January - December 1962

In January 1962 the Planktology Department joined the Ichthyology Department in their already existing program (Massmann, VIMS Spec. Sci. Rept. No. 27, 1962), in order to obtain monthly phytoplankton samples from a large portion of the lower Chesapeake estuary. Our purpose was to determine the cycle and distribution of the preservable floristic population over a wide salinity gradient.

Data contained herein were obtained from 7 sampling stations located at intervals of approximately 10 miles, from the mouth of Chesapeake Bay to fresh water on the Pamunkey River. Plankton samples were obtained throughout by pump from a one-meter depth. The pump was calibrated for volume and the water strained through a No. 20 plankton net for a known period of time. Temperatures and salinities which were obtained by using an induction conductivity temperature indicator (I.C.T.I.) are listed by station and month in the tables (1-12). Station locations (Fig. 1) and mean low water depths were:

- 1) CB-0, mouth of Chesapeake Bay ($37^{\circ}04'$ - $76^{\circ}06'$) 45'
- 2) CB-10, 10 miles from the bay mouth ($37^{\circ}08'$ - $76^{\circ}11'$) 40'
- 3) Y-0, York River mouth ($37^{\circ}15'$ - $76^{\circ}22'$) 60'
- 4) Y-10, Pages rock lighthouse ($37^{\circ}19'$ - $76^{\circ}36'$) 60'
- 5) Y-20, Poropotank ($37^{\circ}26'$ - $76^{\circ}42'$) 25'

6) P-30, West Point (37°32' - 76°50') 25'

7) P-40, White Oak landing (37°33' - 76°53') 30'

Diatoms, dinoflagellates and silicoflagellates have been listed by station and month for the 12-month period (Tables 1 through 12). It is realized that net samples do not reflect true quantitative populations; however, they do represent the relative abundance of captured organisms in a given sample. For each station the three most abundant organisms are designated by A, most abundant; B, secondary; and C, tertiary. For ease in handling, species have been listed in alphabetical order by genera.

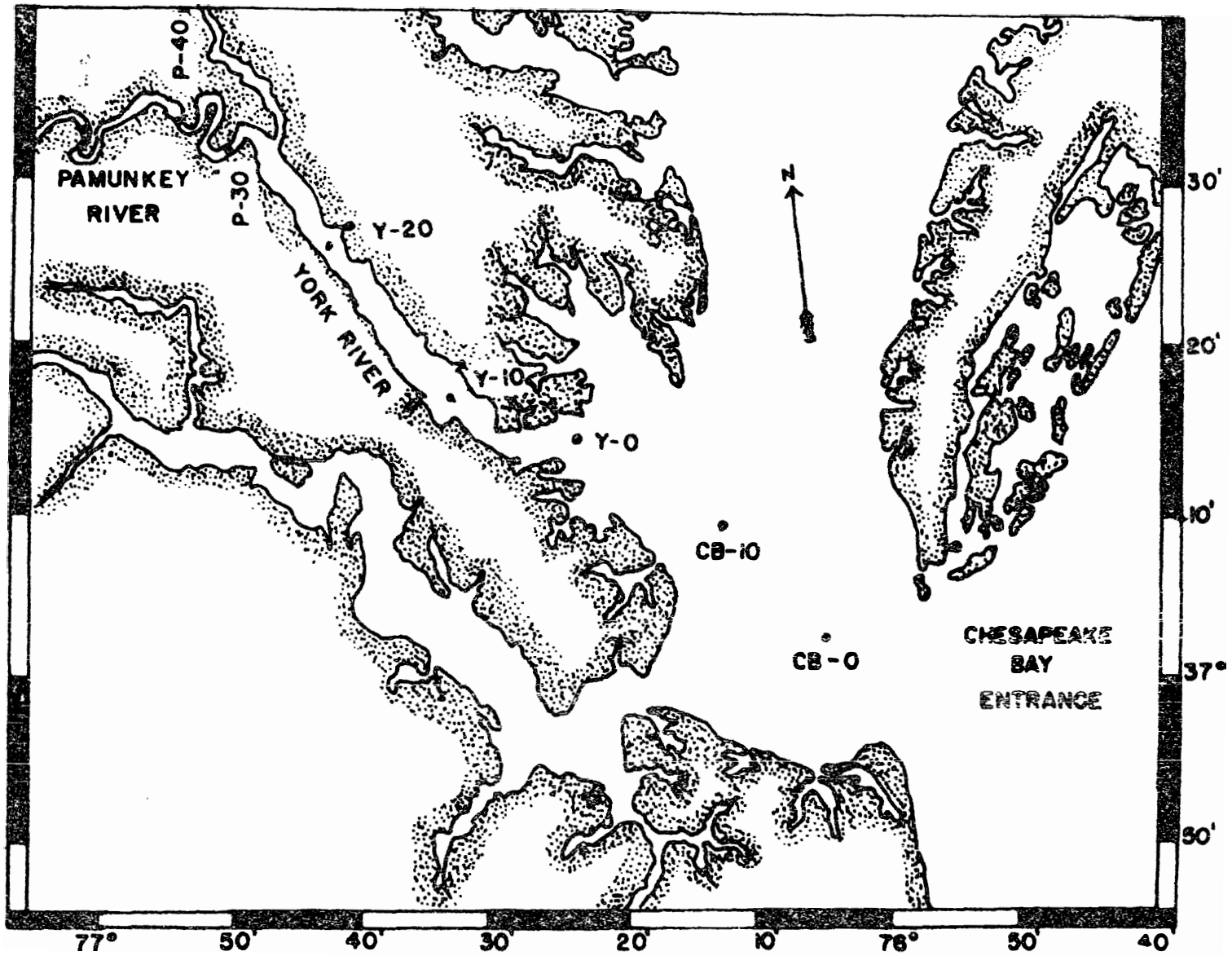


Figure 1. Station locations .

Table 2. Net phytoplankton for February 1962. (Figures below station designation show temperature in °C and salinity in ‰.)

Amphiprora gigantea
 var. sulcata (O'M.) Cl.
 Amphiprora similis? Hust.
 Actinocyclus ehrenbergii Ralfs
 Actinoptychus undulatus (Bail.) Ralfs
 Asterionella formosa Hass.
 Asterionella japonica Cl. and Moll.
 Biddulphia rhombus (Ehr.) W.Sm.
 Campylodiscus echeneis Ehr.
 Ceratium furca (Ehr.) Clapp.
 Ceratium fusus (Ehr.) Dujardin
 Ceratium tripos (O.F.Müller) Nitz.
 Chaetoceros danicus Cl.
 Chaetoceros didymus Ehr.
 Chaetoceros peruvianus Brightw.
 Chaetoceros pseudocurvisetus Mangin
 Chaetoceros sp.
 Coscinodiscus asteromphalus Ehr.
 Coscinodiscus sp.
 Cyclotella sp.
 Dinophysis sp.
 Diploneis sp.
 Ditylum brightwellii (West) Grun.
 Gyrosigma balticum (Ehr.) Cl.
 Gyrosigma fasciola (Ehr.) Cl.
 Hantzschia amphioxys (Ehr.) Grun.
 Lauderia borealis Gran
 Licmophora abbreviata Ag.
 Melosira sulcata (Ehr.) Kutz.
 Melosira sp.
 Navicula sp.
 Nitzschia linearis? (Ag.) W.Sm.
 Nitzschia longissima (Bréb.) Ralfs
 Nitzschia pungens atlantica Cl.
 Nitzschia reversa? W.Sm.
 Nitzschia spectabilis
 var. americana Grun.
 Nitzschia sp.
 Peridinium triquetrum Stein

	CB-0	CB-10	Y-0	Y-10	Y-20	P-30	P-40
	2.8	2.1	2.1	2.5	3.0	3.3	3.3
	25.91	22.68	19.18	14.89	10.70	3.04	0.17
					x	x	
				x	x		
			x				
		x	x			x	
						x	
	x	B	x	x	x		
		x					
						x	x
	x	x		x			
	x	x					
	x			x			
	x						
	x	x	x			C	
			x		x		
	C	x	B	x	x	x	
				x			
				x	x	x	
						x	x
		x					
							x
	x	x					
	x	x					
							x
							x
						x	
							A
	A	A	A	B	A	x	
							x
						x	
							x
				x	x		

Table 2. (Continued)

Pleurosigma angulatum W.Sm.
 Pleurosigma formosum W.Sm.
 Prorocentrum micans Ehr.
 Rhaphoneis amphiceros Ehr.
 Rhizosolenia alata Brightw.
 Rhizosolenia calcar avis Schultze
 Rhizosolenia setigera Brightw.
 Skeletonema costatum (Grev.) Cl.
 Surirella elegans Ehr.
 Surirella guatimalensis Ehr.
 Surirella inducta A.S.
 Surirella ovalis Bréb.
 Surirella robusta Ehr.
 Thalassionema nitzschioides Grun.
 Thalassiosira nordenskioldii Cl.
 Thalassiosira rotula Muenier

CB-0	CB-10	Y-0	Y-10	Y-20	P-30	P-40
2.8	2.1	2.1	2.5	3.0	3.3	3.3
25.91	22.68	19.18	14.89	10.70	3.04	0.17
	x	x				
				x	x	
x	x	x	x			
	x					
x	x					
x	x	x	x		x	
x	x	C	C	B	A	
x	C	x	A	C	B	
					x	x
					x	x
				x	x	
					x	
x	x	x	x	x	x	
		x				
x	x	x		x		

A = most abundant; B = secondary; C = tertiary; x = present

Table 3. Net phytoplankton for March 1962. (Figures below station designation show temperature in °C and salinity in ‰.)

	CB-0	CB-10	Y-0	Y-10	Y-20	P-30	P-40
	5.5	5.0	6.0	7.0	7.0	6.8	7.0
	24.78	21.78	18.51	14.78	9.36	3.55	0.0
<i>Actinoptychus undulatus</i> (Bail.) Ralfs					x		
<i>Asterionella japonica</i> Cl. and Moll.		x	x				
<i>Campylodiscus echeneis</i> Ehr.						x	
<i>Cerataulina bergonii</i> Perag.		x	x				
<i>Ceratium furca</i> (Ehr.) Clapp.	x	x	x				
<i>Ceratium fusus</i> (Ehr.) Dujardin			x				
<i>Chaetoceros affinis</i> Laud.	x	x					
<i>Chaetoceros danicus</i> Cl.	x	x	x				
<i>Chaetoceros decipiens</i> Cl.	x						
<i>Chaetoceros didymus</i> Ehr.	x	x	x				
<i>Chaetoceros peruvianus</i> Brightw.		x	x				
<i>Chaetoceros pseudocurvisetus</i> Mangin		x	x	x			
<i>Cocconeis scutellum</i> Ehr.		x					
<i>Coscinodiscus asteromphalus</i> Ehr.						x	
<i>Coscinodiscus perforatus</i> Ehr.					x		
<i>Coscinodiscus</i> sp.							x
<i>Ditylum brightwellii</i> (West) Grun.		x	x	x			
<i>Eucampia zodiacus</i> Ehr.	x	x					
<i>Gyrosigma fasciola</i> (Ehr.) Cl.				x			
<i>Melosira islandica</i> O. Müll.					x	x	
<i>Melosira sulcata</i> (Ehr.) Kutz.	x		x				
<i>Melosira</i> sp.							x
<i>Navicula</i> sp.						x	x
<i>Nitzschia circumscuta</i> (Bail.) Grun.						x	
<i>Nitzschia paradoxa</i> Gmel.			x		x		
<i>Nitzschia pungens atlantica</i> Cl.	A	A	A	A	A	x	
<i>Peridinium triquetrum</i> Stein				x			
<i>Pleurosigma angulatum</i> W.Sm.			x				
<i>Pleurosigma formosum</i> W.Sm.				x	x		x
<i>Prorocentrum micans</i> Ehr.			x	x			
<i>Rhizosolenia alata</i> Brightw.	C	x	x	x	C		
<i>Rhizosolenia calcar avis</i> Schultze	x						
<i>Rhizosolenia fragilissima</i> Bergon		x	x				
<i>Rhizosolenia imbricata</i> Brightw.	x	x	x		x		
<i>Rhizosolenia setigera</i> Brightw.	B	C	C	C	B	x	
<i>Skeletonema costatum</i> (Grev.) Cl.	x	B	B	B	x	x	
<i>Surirella elegans</i> Ehr.						x	
<i>Surirella</i> sp.							x
<i>Thalassionema nitzschioides</i> Grun.	x	x	x	x			
<i>Thalassiosira nordenskioldii</i> Cl.	x	x	x				
<i>Thalassiothrix frauenfeldii</i> (Grun.) Cl.		x					
<i>Tropidoneis lepidoptera</i> (Greg.) Cl.					x		

A = most abundant; B = secondary; C = tertiary; x = present

Table 4. Net phytoplankton for April 1962. (Figures below station designation show temperature in °C and salinity in ‰.)

Actinocyclus ehrenbergii Ralfs
 Asterionella japonica Cl. and Moll.
 Ceratium tripos (O.F.Müller) Nitz.
 Chaetoceros compressus Laud.
 Chaetoceros decipiens Cl.
 Chaetoceros didymus Ehr.
 Chaetoceros similis Cl.
 Cocconeis disculoides Hust.
 Coscinodiscus subtilis Ehr.
 Coscinodiscus sp.
 Diploneis puella (Schum.) Cl.
 Guinardia flaccida (Cast.) Perag.
 Melosira islandica O. Müll.
 Navicula sp.
 Nitzschia pungens atlantica Cl.
 Peridinium triquetrum Stein
 Pleurosigma formosum W. Sm.
 Rhizosolenia calcar avis Schultze
 Rhizosolenia imbricata Brightw.
 Rhizosolenia setigera Brightw.
 Surirella sp.
 Thalassionema nitzschioides Grun.

CB-0	CB-10	Y-0	Y-10	Y-20	P-30	P-40
			10.4	11.8	13.4	12.2
			13.86	9.58	2.50	0.0
			x			
				x		
			x			
				x		
			B	C	x	
				x		
			x			
				x		
			x	x		
					x	x
					x	x
			x			
					x	x
			A	A	A	
			x	x		
				x		
				x		
			x	x		
			C	B	B	
				x		
				x		

A = most abundant; B = secondary; C = tertiary; x = present

Table 5. Net phytoplankton for May 1962. (Figures below station designation show temperature in °C and salinity in ‰)

	CB-0	CB-10	Y-0	Y-10	Y-20	P-30	P-40
	25.2	26.1	25.6	25.0	25.5	26.4	25.8
	18.95	18.17	18.19	13.59	8.3	0.07	0.10
<i>Achnanthes clevei</i> Grun.							x
<i>Achnanthes danica?</i> (Floegel) Grun.						x	
<i>Actinoptychus undulatus</i> (Bail.) Ralfs						x	
<i>Amphiprora alata</i> (Ehr.) Kutz.						x	
<i>Amphiprora</i> sp.					x		
<i>Asterionella japonica</i> Cl. and Moll.	x		x				
<i>Auliscus caelatus</i> Bail.			x				
<i>Biddulphia alternans</i> (Bail.) V.H.	x						
<i>Biddulphia mobiliensis</i> (Bail.) Grun.					x		
<i>Biddulphia rhombus</i> (Ehr.) W.Sm.						x	
<i>Campylodiscus echeneis</i> Ehr.					x		
<i>Cerataulina bergonii</i> Ferag.		C	x				
<i>Ceratium furca</i> (Ehr.) Clapp.		x	x				
<i>Ceratium fusus</i> (Ehr.) Dujardin			x				
<i>Ceratium tripos</i> (O.F.Müller) Nitz.	x				x		
<i>Chaetoceros affinis</i> Laud.		x	x				
<i>Chaetoceros compressus</i> Laud.		x	x				
<i>Chaetoceros danicus</i> Cl.			x	x		x	
<i>Chaetoceros peruvianus</i> Brightw.		x	x				
<i>Chaetoceros subtilis</i> Cl.			x	x	B	B	
<i>Cocconeis scutellum</i> Ehr.			x				
<i>Coscinodiscus asteromphalus</i> Ehr.					x		
<i>Coscinodiscus granii</i> Gough				B	C	x	
<i>Coscinodiscus lineatus</i> Ehr.		x					
<i>Coscinodiscus oculus iridis</i> Ehr.	x						
<i>Coscinodiscus radiatus</i> Ehr.		x					
<i>Coscinodiscus subtilis</i> Ehr.			x			x	
<i>Coscinodiscus</i> sp.			x				
<i>Dinophysis acuta</i> Ehr.			x				
<i>Diploneis puella</i> (Schum.) Cl.					x		
<i>Ditylum brightwellii</i> (West) Grun.						x	
<i>Guinardia flaccida</i> (Cast.) Perag.		x					
<i>Gyrosigma</i> sp.			x				
<i>Melosira islandica</i> O.Müll.						x	x
<i>Melosira sulcata</i> (Ehr.) Kutz.			x	x	x		
<i>Navicula</i> sp.					x		
<i>Nitzschia closterium</i> (Ehr.) W.Sm.		x	x				
<i>Nitzschia longissima</i> (Bréb.) Ralfs						x	
<i>Nitzschia pungens atlantica</i> Cl.	B	x	C				
<i>Nitzschia</i> sp.						x	

Table 5. (Continued)

Peridinium sp.
 Pleurosigma angulatum W.Sm.
 Prorocentrum dentatum? Stein.
 Prorocentrum micans Ehr.
 Rhizosolenia calcar avis Schultze
 Rhizosolenia fragilissima Bergon.
 Rhizosolenia setigera Brightw.
 Skeletonema costatum (Grev.) Cl.
 Surirella elegans Ehr.
 Surirella sp.
 Thalassionema nitzschioides Grun.

CB-0	CB-10	Y-0	Y-10	Y-20	P-30	P-40
25.2	26.1	25.6	25.0	25.5	26.4	25.8
18.95	18.17	18.19	13.59	8.3	0.07	0.10
	x					
		x			x	
	x	x				
	x	x				
		x				
	B	B				
A	x	x	C	x		
C	A	A	A	A	A	
					x	
				x		
		x				

A = most abundant; B = secondary; C = tertiary; x = present

Table 6. Net phytoplankton for June 1962. (Figures below station designation show temperature in °C and salinity in ‰.)

Achnanthes sp.
 Actinoptychus undulatus (Bail.) Ralfs
 Asterionella formosa Hass.
 Ceratium furca (Ehr.) Clapp.
 Chaetoceros compressus Laud.
 Chaetoceros constrictus Grun.
 Chaetoceros curvisetus Cl.
 Chaetoceros danicus Cl.
 Chaetoceros laciniosus Schutt
 Chaetoceros lorenzianus Grun.
 Chaetoceros peruvianus Brightw.
 Chaetoceros subsecundus (Grun.) Hust.
 Chaetoceros subtilis Cl.
 Cocconeis disculoides? Hust.
 Coscinodiscus decrescens? Grun.
 Coscinodiscus marginatus Ehr.
 Coscinodiscus perforatus? Ehr.
 Coscinodiscus radiatus Ehr.
 Coscinodiscus subtilis Ehr.
 Coscinodiscus sp.
 Cyclotella kützingiana Chauvin.
 Cyclotella stelligera Cl. and Grun.
 Cyclotella sp.
 Diploneis puella? (Schum.) Cl.
 Ditylum brightwellii (West) Grun.
 Exuviella sp.
 Gonyaulax spinifera Clapp. and Lach.
 Melosira granulata? (Ehr.) Ralfs
 Melosira sp.
 Navicula sp.
 Nitzschia closterium (Ehr.) W. Sm.
 Nitzschia longissima (Bréb.) Ralfs
 Nitzschia pungens atlantica Cl.
 Nitzschia sp.
 Peridinium triquetrum Stein
 Peridinium sp.
 Pleurosigma formosum W. Sm.
 Prorocentrum micans Ehr.
 Rhizosolenia fragilissima Bergon
 Rhizosolenia setigera Brightw.

CB-0	CB-10	Y-0	Y-10	Y-20	P-30	F-40
25.2	26.1	25.6	25.0	25.5	26.4	26.0
18.95	18.17	18.19	13.59	8.30	0.07	0.10
					x	x
					x	
						x
x	x		x			
x	x	x				
x			x			
x						
x	x					
B	C					
	x					
x	x					
	x		x			
			A	A	x	
x						
x						
		x	x	x	x	
			x			
			x	x		
		x			x	
					x	
x						
					x	
					x	x
					x	x
	x					
			x	x		
					A	A
			x			
					x	x
					x	
			x			
					x	
x						
A	A					
		x	x			

Table 6. (Continued)

	CB-0	CB-10	Y-0	Y-10	Y-20	P-30	P-40
	2.52	26.1	25.6	25.0	25.5	26.4	26.0
	18.95	18.17	18.19	13.59	8.30	0.07	0.10
<i>Skeletonema costatum</i> (Grev.) Cl.		B	A	B	x	x	
<i>Surirella elegans</i> Ehr.						B	B
<i>Surirella ovalis</i> Bréb.						x	x
<i>Surirella</i> sp.						x	
<i>Tabellaria fenestrata</i> (Lyng.) Kutz.							x
<i>Thalassionema nitzschioides</i> Grun.	x	x		x			

A = most abundant; B = secondary; C = tertiary; x = present

Table 7. (Continued)

	CB-0	CB-10	Y-0	Y-10	Y-20	P-30	P-40
	24.8	25.0	26.0	26.0	25.9	27.5	27.0
	23.66	20.32	20.08	16.74	12.77	3.18	0.06
<i>Rhizosolenia calcar avis</i> Schultze	B	B	x				
<i>Rhizosolenia setigera</i> Brightw.			x	x	x	x	
<i>Skeletonema costatum</i> (Grev.) Cl.			x	A	A	x	
<i>Surirella elegans</i> Ehr.						x	x
<i>Surirella ovalis</i> Bréb.						x	x
<i>Surirella</i> sp.						x	

A = most abundant; B = secondary; C = tertiary; x = present

Table 8. Net phytoplankton for August 1962. (Figures below station designation show temperature in °C and salinity in ‰.)

	CB-0	CB-10	Y-0	Y-10	Y-20	F-30	P-40
	24.2	24.9	26.0	25.8	25.7	27.6	26.6
	24.51	21.82	20.46	15.84	15.97	8.39	4.02
<i>Cerataulina bergonii</i> Perag.			x				
<i>Ceratium lineatum</i> (Ehr.) Cl.			x				
<i>Chaetoceros affinis</i> Laud.		x					
<i>Chaetoceros compressus</i> Laud.		x	x				
<i>Chaetoceros decipiens</i> Cl.				x	x		
<i>Chaetoceros lorenzianus</i> Grun.			x				
<i>Coscinodiscus asteromphalus</i> Ehr.					x		
<i>Coscinodiscus centralis</i> Ehr.					B	x	
<i>Coscinodiscus perforatus</i> Ehr.	x		x	x	x		
<i>Cyclotella</i> sp.						x	
<i>Ditylum brightwellii</i> (West) Grun.			B	B	x		
<i>Eunotia</i> sp.						x	
<i>Gyrosigma fasciola</i> (Ehr.) Cl.						x	
<i>Gyrosigma</i> sp.					x		
<i>Melosira granulata</i> (Ehr.) Ralfs							x
<i>Melosira islandica</i> C.Müll.			x			x	x
<i>Melosira sulcata</i> (Ehr.) Kutz.						x	
<i>Nitzschia litoralis</i> ? (Grun.) Perag.						x	
<i>Nitzschia paxillifera</i> ? (C.Müller)Heib.							x
<i>Finnularia</i> sp.						x	
<i>Pleurosigma formosum</i> W.Sm.					x		
<i>Prorocentrum micans</i> Ehr.			C				
<i>Rhizosolenia calcar avis</i> Schultze	A	A	A		x	x	
<i>Rhizosolenia setigera</i> Brightw.		x			x		
<i>Skeletonema costatum</i> (Grev.) Cl.				A	A	x	
<i>Surirella</i> sp.						x	x
<i>Triceratium favus</i> Ehr.						x	

A = most abundant; B = secondary; C = tertiary; x = present

Table 9. Net phytoplankton for September 1962. (Figures below station designation show temperature in °C and salinity in ‰.)

	CB-0	CB-10	Y-0	Y-10	Y-20	P-30	P-40
	21.0	20.9	21.0	24.1	24.0	25.0	24.8
	24.04	22.77	21.53	17.57	14.99	9.33	0.57
<i>Actinoptychus undulatus</i> (Bail.) Ralfs			x		x		
<i>Biddulphia alternans</i> (Bail.) V.H.		x					
<i>Biddulphia mobiliensis</i> (Bail.) Grun.	x	x	x		x		
<i>Biddulphia sinensis</i> Grev.	x	x	x				
<i>Campylodiscus echeneis</i> Ehr.						x	
<i>Cerataulina bergonii</i> Perag.	x		x				
<i>Ceratium macroceros</i> (Ehr.) Vanhöf.		x	x				
<i>Chaetoceros affinis</i> Laud.	x		x				
<i>Chaetoceros compressus</i> Laud.	x	x	C				
<i>Chaetoceros danicus</i> Cl.				x	x	x	
<i>Chaetoceros decipiens</i> Cl.	x			C	x		
<i>Chaetoceros lorenzianus</i> Grun.			x		x		
<i>Chaetoceros peruvianus</i> Brightw.			x	x			
<i>Chaetoceros subsecundus?</i> (Grun.) Hust.	x						
<i>Chaetoceros subtilis</i> Cl.						x	
<i>Cocconeis scutellum</i> Ehr.			x				
<i>Cocconeis</i> sp.						x	
<i>Coscinodiscus centralis</i> Ehr.	x	x	x	x	C	x	
<i>Coscinodiscus perforatus</i> Ehr.			x				
<i>Coscinodiscus</i> sp.					x		
<i>Cyclotella striata</i> (Kutz.) Grun.	x						
<i>Cyclotella</i> sp.						x	x
<i>Diploneis puella?</i> (Schum.) Cl.			x				
<i>Ditylum brightwellii</i> (West) Grun.			x	A	B	x	
<i>Melosira islandica</i> O. Müll.							x
<i>Melosira sulcata</i> (Ehr.) Kutz.	x		x	x	x		
<i>Melosira</i> sp.					x		
<i>Navicula</i> sp.							x
<i>Nitzschia closterium</i> (Ehr.) W.Sm.						x	
<i>Nitzschia longissima</i> (Bréb.) Ralfs							x
<i>Nitzschia pungens atlantica</i> Cl.	x	x	x	x			
<i>Nitzschia</i> sp.				x		x	
<i>Peridinium</i> sp.		x					
<i>Finnularia</i> sp.						x	
<i>Pleurosigma angulatum</i> W.Sm.	x		x	x			
<i>Pleurosigma formosum</i> W.Sm.						x	
<i>Pseudonitzschia seriata</i> Cl.	B	B	B				
<i>Rhabdonema adriaticum</i> Kutz.			x				

Table 9. (Continued).

	CB-0	CB-10	Y-0	Y-10	Y-20	P-30	P-40
	21.0	20.9	21.0	24.1	24.0	25.0	24.8
	24.04	22.77	21.53	17.57	14.99	9.33	0.57
<i>Rhizosolenia alata</i> Brightw.	A	A	A				
<i>Rhizosolenia calcar avis</i> Schultze	x	C	x	x			
<i>Rhizosolenia imbricata</i> Brightw.	C	x	x				
<i>Rhizosolenia setigera</i> Brightw.	x	x	x	x	x	x	
<i>Schröderella delicatula</i> Perag.	x	x					
<i>Skeletonema costatum</i> (Grev.) Cl.	x	x	x	B	A	x	
<i>Surirella guatemalensis</i> Ehr.						x	
<i>Thalassionema nitzschioides</i> Grun.	x	x	x				
<i>Thalassiosira rotula?</i> Muenier		x					
<i>Triceratium favus</i> Ehr.						x	

A = most abundant; B = secondary; C = tertiary; x = present

Table 10. Net phytoplankton for October 1962. (Figures below station designation show temperature in °C and salinity in ‰.)

Achnanthes sp.
Amphiprora alata (Ehr.) Kutz.
Asterionella japonica Cl. and Moll.
Bacteriastrum hyalinum Laud.
Biddulphia granulata Roper
Biddulphia mobiliensis (Bail.) Grun.
Biddulphia sinensis Grev.
Ceratium arcticum (Ehr.) Cl.
Ceratium furca (Ehr.) Clapp.
Ceratium macroceros (Ehr.) Vanhöf.
Chaetoceros affinis Laud.
Chaetoceros compressus Laud.
Chaetoceros danicus Cl.
Chaetoceros didymus Ehr.
Chaetoceros lorenzianus Grun.
Chaetoceros peruvianus Brightw.
Chaetoceros pseudocurvisetus Mangin
Chaetoceros subtilis Cl.
Cocconeis scutellum Ehr.
Cocconeis sp.
Coscinodiscus asteromphalus Ehr.
Coscinodiscus centralis Ehr.
Coscinodiscus sp.
Cyclotella comta? (Ehr.) Kutz.
Cyclotella meneghiniana Kutz.
Cymbella sp.
Dinophysis sp.
Diploneis sp.
Ditylum brightwellii (West) Grun.
Eucampia zodiacus Ehr.
Guinardia flaccida (Cast.) Perag.
Gyrosigma fasciola (Ehr.) Cl.
Hantzschia amphioxys (Ehr.) Grun.
Hemiaulus hauckii Grun.
Lauderia borealis Gran
Lithodesmium undulatum Ehr.
Melosira islandica G. Müll.
Melosira sulcata (Ehr.) Kutz.
Melosira sp.

CB-0	CB-10	Y-0	Y-10	Y-20	P-30	P-40
		18.3	19.7	19.6	21.0	22.5
		24.00	19.08	16.12	13.28	0.19
						x
					x	
		x	x			
		x				
			x			
		x	x	x		
		x	x	x		
		x	x			
		x				
						x
		x	x	x	x	
		x	x	x	x	
		x				
						x
			x			
						x
			x	x		
			B	B		
		x	C		x	x
						x
					x	x
						x
		x	x			
		x				
		x	x	A	x	
		x	x			
		x				
						x
					x	x
		x				
		x	x			
			x			
						x
			x			
		x	x			

Table 11. (Continued)

Prorocentrum micans Ehr.
Rhizosolenia alata Brightw.
Rhizosolenia calcar avis Schultze
Rhizosolenia imbricata Brightw.
Rhizosolenia setigera Brightw.
Rhizosolenia stolterfothii Perag.
Schröderella delicatula Ferag.
Skeletonema costatum (Grev.) Cl.
Stephanopyxis turris (Grev. & Arn.) Ralfs
Surirella guatimalensis Ehr.
Surirella ovalis ? Bréb.
Thalassionema nitzschioides Grun.

CB-0	CB-10	Y-0	Y-10	Y-20	P-30	P-40
12.0	12.7	10.8	12.1	10.1	10.6	9.3
24.20	24.12	21.64	18.20	13.36	0.84	0.03
		x				
		x				
A	A	A	B	A		
x	x	x	C	x		
x	x	x	x	x		
x		x	x			
x	x	x	x	x		
x	x	x	x	x	x	x
x						
			x	x	x	x
					x	x
x	x	x	x			

A = most abundant; B = secondary; C = tertiary; x = present

