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Arctic Marine Phytoplankton Contributed to the Sediments in Frobisher Bay

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THE SEDIMENTS IN FROBISHER BAY



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CONTENTS

<i>Abstract/Résumé</i>	iv
Acknowledgements	v
Introduction	1
Materials and Methods	2
References	5
Tables	6

ABSTRACT

Hsiao, Stephen I.C. and Nadia Pinkewycz. 1985. Arctic marine phytoplankton contributed to the sediments in Frobisher Bay. Can. Data Rep. Fish. Aquat. Sci. 539: v + 106 p.

The sedimentation rates and species composition of phytoplankton contributed to the sediments were determined over a period of 4 years in Frobisher Bay. The minimum rate of deposition occurred during the early part of the ice season, increased as the ice thickened and reached a maximum after the bloom at the beginning of the open water season in the first two weeks of August. Two hundred and eleven (211) species of phytoplankton were identified during the study period. The diatoms were represented by 174 species (31 centric and 143 pennate), the dinoflagellates by 12 species, the green algae by 10 species, the golden-yellow algae by 9 species, the euglenoids by 3 species, the blue-green algae by 2 species and cryptomonads by a single species.

Key words: sedimentation rates, species composition, sediments, arctic, phytoplankton.

RESUME

Hsiao, Stephen I.C. and Nadia Pinkewycz. 1985. Arctic marine phytoplankton contributed to the sediments in Frobisher Bay. Can. Data Rep. Fish. Aquat. Sci. 539: v + 106 p.

Les vitesses de sédimentation et la composition spécifique du phytoplancton relevé dans les sédiments ont été étudiées pendant quatre ans dans la baie de Frobisher. La vitesse de sédimentation était minimale au début de la saison des glaces, puis augmentait au fur et à mesure que la glace épaisseissait et atteignait un maximum après la période de prolifération, au commencement de la saison des eaux libres, soit durant les deux premières semaines d'août. Deux cent onze espèces de phytoplancton ont été dénombrées pendant la durée de l'étude, dont 174 espèces de diatomées (31 espèces de diatomées centriques et 143 espèces de diatomées pennées), 12 espèces de dinoflagellés, 10 espèces d'algues vertes, 9 espèces d'algues chrysophytes, 3 espèces d'euglénidés, 2 espèces d'algues bleues et une seule espèce de cryptomonades.

ACKNOWLEDGEMENTS

Special thanks are extended to E.G. Atkinson for collecting the sediment samples for this study. The illustration of the sediment trap is used with the consent of J.W. Wacasey.

INTRODUCTION

Marine phytoplankton are the most important primary producers at the base of the marine food chain. They are the most abundant and widely distributed form of plant life on earth (Ryther, 1959). The sinking of phytoplankton to the bottom in coastal waters provides an important source of organic matter for zoobenthos (Stephens et al., 1967). The quantity and species composition of the phytoplankton are of great importance to the herbivorous benthic fauna (Hargrave, 1970; Jonasson, 1972; Nicotri, 1977). Different phytoplankton species show different seasonal timing of their maximal populations. This may subsequently affect the distribution, abundance and composition of the secondary producers. These in turn are eaten by many carnivores and are an important food source for fish.

The data presented in this report deal primarily with species composition, and quantify the natural rate of phytoplankton input as a source of food for zoobenthos in the arctic coastal waters of Frobisher Bay.

MATERIALS AND METHODS

The study was conducted in upper Frobisher Bay which is separated from the lower Bay by a series of islands. The oceanography is dominated by semidiurnal tides with a maximal range of 12 m (Dunbar, 1958). Station depths ranged from 25 to 44 m during the study period. Sediment traps (Fig. 1) designed by J.W. Wacasey and E.G. Atkinson, were deployed on the bottom at station 41 (Fig. 2) to measure rate of fallout and amount of detritus reaching the bottom community. Subsamples from the detrital collections were used to identify and measure the sedimenting phytoplankton during ice and open water seasons from 1982 to 1985. Samples of phytoplankton were also obtained from intertidal trap collections (1982) and from suspended traps at a depth of 20 m (1984). The traps were retrieved after various time intervals ranging from 11 to 600 h. Subsamples of 50 ml were immediately preserved with neutral formalin at a final concentration of 2% in Boston round polyethylene bottles. They were quantitatively analysed for species composition and abundance by the method of Hsiao (1979). The sedimentation rates were then calculated and expressed as number of cells per square metre per day.

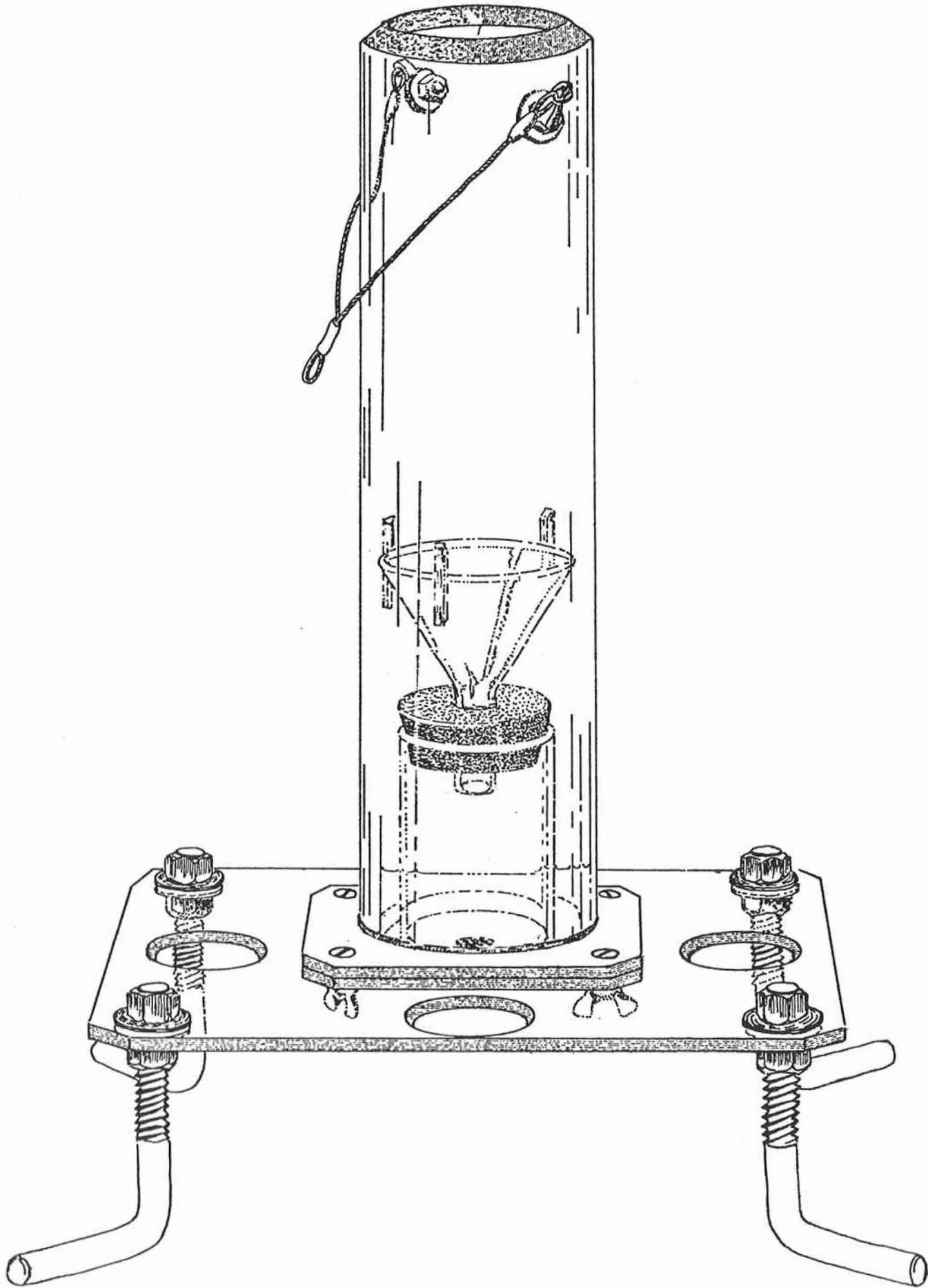


Fig.1. Structure of the sediment trap.

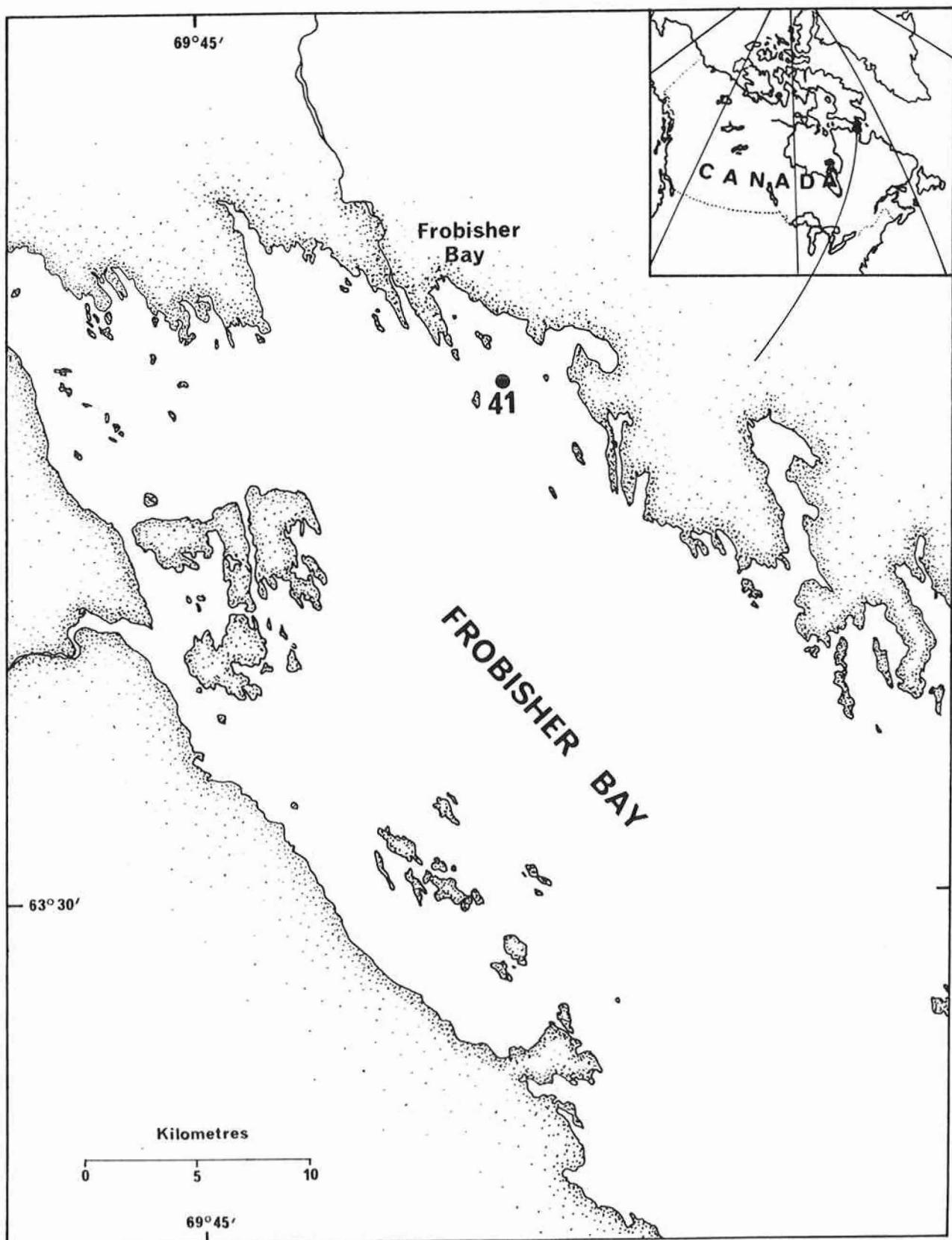


Fig.2. Map showing station location in Frobisher Bay.

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Table 1. Phytoplankton taxa found in the sediment trap samples from Frobisher Bay 1982-1985.

	Ice Season Bottom	Open water Season Intertidal	20m	Bottom
Bacillariophyta (diatoms)				
Centrales				
<u>Biddulphia aurita</u> (Lyngbye) Brébisson et Godey	X		X	X
<u>Chaetoceros affinis</u> Lauder		X	X	X
<u>C. borealis</u> J.W. Bailey	X			X
<u>C. brevis</u> Schütt	X			X
<u>C. decipiens</u> Cleve	X	X	X	X
<u>C. fragilis</u> Meunier		X		
<u>C. furcellatus</u> J.W. Bailey	X	X	X	X
<u>C. holsaticus</u> Schütt	X	X		X
<u>C. lauderi</u> Ralfs		X		X
<u>C. septentrionalis</u> Oestrup	X	X	X	X
<u>C. teres</u> Cleve				X
<u>C. wighamii</u> Brightwell			X	X
<u>Coscinodiscus angustelineatus</u> Schmidt				X
<u>C. apiculatus</u> Ehrenberg	X			
<u>C. furcatus</u> Karsten				X
<u>C. lacustris</u> var. <u>septentrionalis</u> (Grunow) Rattray	X		X	X
<u>Cyclotella striata</u> (Kützing) Grunow	X	X		X
<u>Ditylum brightwellii</u> (T. West) Grunow				X
<u>Leptocylindrus danicus</u> Cleve				X
<u>Melosira arctica</u> (Ehrenberg) Dickie				X
<u>M. islandica</u> O. Muller	X	X		X

Table 1. (cont'd.)

	Ice Season Bottom	Open water Season		
		Intertidal	20m	Bottom
<u>M. italica</u> (Ehrenberg) Kützing	X			
<u>Rhizosolenia</u> Ehrenberg				X
<u>Thalassiosira antarctica</u> Comber		X		X
<u>T. decipiens</u> (Grunow) E. Jorgensen	X	X	X	X
<u>T. eccentrica</u> (Ehrenberg) Cleve	X			
<u>T. hyalina</u> (Grunow) Gran		X		X
<u>T. nordenskioeldii</u> Cleve		X		X
<u>T. oestrupii</u> (Ostenfeld) Proschkina-Lavrenko				X
<u>Triceratium arcticum</u> Brightwell				X
<u>T. montereyii</u> Brightwell	X			
Pennales				
<u>Achnanthes groenlandica</u> (Cleve) Grunow	X			X
<u>A. taeniata</u> Grunow	X	X	X	X
<u>Amphiprora alata</u> (Ehrenberg) Kützing	X			
<u>A. concilians</u> Cleve	X			X
<u>A. kjellmanii</u> Cleve	X	X		X
<u>A. kjellmanii</u> var. <u>kariana</u> (Grunow) Cleve	X			
<u>Amphora angusta</u> Gregory				X
<u>A. binodis</u> Gregory	X			
<u>A. inelegans</u> Cleve et Grove	X	X		X
<u>A. inelegans</u> var. <u>politae</u> (Cleve) Peragallo et Peragallo	X			X
<u>A. laevis</u> var. <u>laevissima</u> (Gregory) Cleve	X			X

Table 1. (cont'd.)

	Ice Season Bottom	Open water Season		
		Intertidal	20m	Bottom
<u>A. laevis</u> var. <u>minuta</u> Cleve				X
<u>A. macilenta</u> Gregory		X		X
<u>A. terroris</u> Ehrenberg	X		X	X
<u>Asterionella formosa</u> Hassall				X
<u>A. gracillima</u> (Hantzsch) Heiberg		X		X
<u>Caloneis semiinflata</u> (Oestrup) Boyer	X			
<u>C. subsalina</u> (Donkin) Hendey			X	
<u>Campylodiscus angularis</u> Gregory	X			
<u>Ceratoneis arcus</u> (Ehrenbrg) Kützing				X
<u>Cocconeis californica</u> (Grunow) Grunow	X			X
<u>C. dirupta</u> Gregory				X
<u>C. pseudomarginata</u> Gregory	X		X	X
<u>C. scutellum</u> Ehrenberg	X	X	X	X
<u>C. scutellum</u> var. <u>parva</u> (Grunow) Cleve	X		X	X
<u>C. scutellum</u> var. <u>stauroneiformis</u> Rabenhorst		X		X
<u>C. thumensis</u> Mayer	X			X
<u>Cylindrotheca closterium</u> (Ehrenberg) Reimann et Lewin	X	X	X	X
<u>Cymbella affinis</u> Kützing	X	X		X
<u>C. cistula</u> (Hemprich) Kirchner				X
<u>Diploneis bomboides</u> (Schmidt) Cleve				X
<u>D. bombus</u> (Ehrenberg) Ehrenberg	X		X	X
<u>D. borealis</u> (Grunow) Cleve	X			

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Table 1. (cont'd.)

	Ice Season Bottom	Open water Season		
		Intertidal	20m	Bottom
<u>D. didyma</u> (Ehrenberg) Ehrenberg	X			X
<u>D. interrupta</u> (Kützing) Cleve	X			
<u>D. litoralis</u> (Donkin) Cleve	X	X		X
<u>D. smithii</u> (Brébisson) Cleve	X	X		X
<u>Eunotia arcus</u> Ehrenberg	X			X
<u>E. parallela</u> Ehrenberg				X
<u>E. rhyncocephala</u> Hustedt	X			
<u>Fragilaria bicapitata</u> Mayer	X	X	X	X
<u>F. intermedia</u> (Grunow) Grunow				X
<u>F. islandica</u> Grunow		X		X
<u>F. pinnata</u> Ehrenberg	X	X	X	X
<u>F. striatula</u> Lyngbye		X	X	X
<u>Fragilariopsis nana</u> (Steemann-Nielsen) Paasche		X		X
<u>Gomphonema augur</u> Ehrenberg	X			X
<u>G. exiguum</u> Kützing				X
<u>G. exiguum</u> var. <u>pachycladum</u> (Brébisson) Cleve	X	X		X
<u>G. gracile</u> Ehrenberg	X	X		X
<u>Grammatophora angulosa</u> Ehrenberg	X			X
<u>G. arctica</u> Cleve	X	X	X	X
<u>G. hamulifera</u> Kützing	X			X
<u>Gyrosigma balticum</u> (Ehrenberg) Rabenhorst	X			X
<u>G. distortum</u> (Wm. Smith) Griffith et Henfrey				X

Table 1. (cont'd.)

	Ice Season Bottom	Open water Season		
		Intertidal	20m	Bottom
<u>N. cylindrus</u> (Grunow) Hasle	X	X	X	X
<u>N. delicatissima</u> Cleve	X		X	X
<u>N. distans</u> Gregory				X
<u>N. frigida</u> Grunow	X		X	X
<u>N. frustulum</u> (Kützing) Grunow	X			X
<u>N. frustulum</u> var. <u>perpusilla</u> (Rabenhorst) Grunow				X
<u>N. gelida</u> Cleve et Grunow	X		X	X
<u>N. grunowii</u> Hasle	X	X	X	X
<u>N. linearis</u> (Agardh) Wm. Smith	X	X	X	X
<u>N. lineata</u> Hasle		X		X
<u>N. longissima</u> (Brébisson) Grunow				X
<u>N. marginulata</u> Grunow	X			
<u>N. seriata</u> Cleve	X		X	X
<u>N. sigma</u> (Kützing) Wm. Smith				X
<u>N. tergestina</u> (Kützing) Ralfs	X			X
<u>Opephora martyi</u> Héribaud	X			
<u>Pinnularia interrupta</u> Wm. Smith	X			
<u>P. quadratarea</u> (Schmidt) Cleve	X		X	X
<u>P. quadratarea</u> var. <u>bicontracta</u> (Östrup) Heiden	X		X	X
<u>P. quadratarea</u> var. <u>bicuneata</u> Heiden et Kolbe	X			X
<u>P. quadratarea</u> var. <u>capitata</u> Heiden	X			
<u>P. quadratarea</u> var. <u>gibbosa</u> (Östrup) Heiden	X			

Table 1. (cont'd.)

	Ice Season Bottom	Open water Season		
		Intertidal	20m	Bottom
<u>P. quadratarea</u> var. <u>densestriata</u> Cleve	X			
<u>P. quadratarea</u> var. <u>stuxbergii</u> (Cleve) Cleve	X			X
<u>Plagiogramma staurophorum</u> (Gregory) Heiberg	X			X
<u>Pleurosigma angulatum</u> (Quekett) Wm. Smith	X			
<u>P. elongatum</u> Wm. Smith	X			X
<u>P. elongatum</u> var. <u>kariana</u> (Grunow) Cleve		X		X
<u>P. latiusculum</u> H. Peragallo	X			
<u>P. longum</u> Cleve	X			X
<u>P. marinum</u> Donkin	X		X	X
<u>Pseudonitzschia delicatissima</u> (Cleve) Heiden	X			
<u>Rhabdonema arcuatum</u> (Lyngbye) Kützing	X	X		X
<u>R. minutum</u> Kützing	X			X
<u>Stauroneis quadripedis</u> (Cleve-Euler) Hendey	X			
<u>S. smithii</u> var. <u>sagitta</u> (Cleve) Hustedt			X	
<u>Stenoneis inconspicua</u> var. <u>baculus</u> (Cleve) Cleve	X			X
<u>Synedra parasitica</u> (Wm. Smith) Hustedt		X		X
<u>S. pulchella</u> (Ralfs) Kützing	X			X
<u>S. tabulata</u> (Agardh) Kützing	X			X
<u>Tabellaria fenestrata</u> (Lyngbye) Kützing	X	X	X	X
<u>T. flocculosa</u> (Roth) Kützing	X			X
<u>Thalassionema nitzschiooides</u> (Grunow) van Heurck	X			
<u>Trachyneis aspera</u> (Ehrenberg) Cleve	X			X

Table 1. (cont'd.)

	Ice Season Bottom	Open water Season		
		Intertidal	20m	Bottom
Chlorophyta (green algae)				
<u>Ankistrodesmus falcatus</u> (Corda) Ralfs	X		X	X
<u>Carteria vectensis</u> Conrad et Kufferath	X			
<u>Chlamydomonas ballenyana</u> Kol et Flint	X		X	X
<u>C. pulsatilla</u> Wohlenweber	X			X
<u>C. tetraolaris</u> Wohlenweber			X	X
<u>Dunaliella parva</u> Lerche			X	X
<u>Micrasterias</u> Agardh				X
<u>Staurastrum megacanthum</u> Lundell	X			
<u>Thalassomonas</u> Butcher				X
<u>Trochiscia multispinosa</u> (Moebius) Lemmermann				X
Chrysophyta (golden-yellow algae)				
<u>Calyptrrosphaera oblonga</u> Lohmann				X
<u>Dictyocha</u> Ehrenberg	X			
<u>Dinobryon balticum</u> (Schütt) Lemmermann	X			
<u>D. cylindricum</u> Imhof				X
<u>Distephanus</u> Haeckel				X
<u>Mallomonas</u> Perty				X
<u>Phaeocystis globosa</u> Scherffel	X		X	X
<u>P. pouchetii</u> (Hariot) Lagerheim			X	
<u>Salpingoeca natans</u> Grontved	X			

Table 1. (cont'd.)

	Ice Season Bottom	Open water Season Intertidal	20m	Bottom
Cryptophyta (cryptomonads)				
<u>Chroomonas placoidea</u> Butcher				X
Cyanophyta (blue-green algae)				
<u>Lyngbya</u> Agardh	X			
<u>Spirulina</u> Turpin	X			
Euglenophyta (euglenoids)				
<u>Euglena proxima</u> Dangeard	X			X
<u>E. schmitzii</u> Gojdics	X	X		X
<u>E. viridis</u> Ehrenberg		X		X
Pyrrrophyta (dinoflagellates)				
<u>Dinophysis acuminata</u> Claparède et Lachmann				X
<u>D. arctica</u> Mereščkowsky				X
<u>Glenodinium</u> Ehrenberg				X
<u>Goniaulax catenata</u> Kofoid	X			
<u>G. monilata</u> Howell				X
<u>G. Scrippsae</u> Kofoid		X		X
<u>Gymnodinium</u> Stein	X			
<u>Gyrodinium spirale</u> (Bergh) Kofoid et Swezy				X
<u>Oxytoxum</u> Stein				X

Table 1. (cont'd.)

	Ice Season Bottom	Open water Season		
		Intertidal	20m	Bottom
<u>Peridinium</u> Ehrenberg			X	X
<u>Prorocentrum ovalis</u> Rampi				X
<u>P. rampii</u> Sournia	X			X

Table 2. Sedimentation rates and species composition of phytoplankton contributed to the sediments in Frobisher Bay, 27 July - 2 August 1982.

Sample No.	82-17	82-18	82-19	82-22 28 July- 1 Aug	82-23 28 July- 1 Aug	82-24 1-2 Aug	82-25 1-2 Aug
Date	27-28 July	27-28 July	27-28 July				
Station depth (m)	27-34	29-36	25-31	31-36	32-37	32-38	28-33
Ice cover (cm)	0	0	0	0	0	0	0
Sedimentation rate (cells.m ⁻² .day ⁻¹)	20,315,031	20,197,005	26,936,100	85,469,355	61,423,297	190,317,921	213,271,436
Bacillariophyta	20,009,016	20,095,455	26,693,069	82,324,657	59,854,044	181,193,088	210,584,551
Centrales	6,744,382	5,503,972	7,311,166	26,533,378	11,867,482	52,793,669	50,043,217
<i>Biddulphia aurita</i>	-	-	-	589,631	-	-	-
<i>Chaetoceros affinis</i>	448,267	284,338	1,964,496	2,751,610	1,176,940	8,473,058	671,721
<i>C. decipiens</i>	2,424,717	426,507	283,535	1,572,348	1,078,862	4,562,416	6,717,210
<i>C. furcellatus</i>	40,752	81,239	-	786,174	1,275,019	2,281,208	3,358,605
<i>C. holsaticus</i>	489,019	507,747	546,818	2,555,066	1,078,862	3,258,868	3,358,605
<i>C. lauderi</i>	-	-	141,768	-	588,470	-	1,343,442
<i>C. septentrionalis</i>	81,503	-	-	196,544	98,078	325,887	-
<i>Cyclotella striata</i>	-	81,239	-	-	98,078	325,887	335,861
<i>Ditylum brightwellii</i>	-	-	20,253	-	196,157	-	-
<i>Melosira arctica</i>	-	182,789	182,273	1,572,348	-	-	-
<i>M. islandica</i>	-	223,408	-	-	-	-	-
<i>Thalassiosira antarctica</i>	1,813,444	2,112,226	2,268,284	9,237,546	3,236,586	14,339,021	13,098,560
<i>T. decipiens</i>	-	304,648	-	786,174	2,157,724	5,540,076	15,113,723
<i>T. hyalina</i>	1,426,304	1,299,831	1,883,486	6,485,937	686,549	13,687,248	5,709,629
<i>T. nordenskioeldii</i>	20,376	-	20,253	-	196,157	-	335,861
Pennales	13,264,634	14,591,483	19,381,903	55,791,279	47,986,562	128,399,419	160,541,334
<i>Achnanthes taeniatata</i>	1,365,177	2,396,564	2,187,496	3,537,784	1,176,940	26,070,948	16,457,166

Table 2. (cont'd.)

Sample No.	82-17	82-18	82-19	82-22	82-23	82-24	82-25
<u>Amphora inelegans</u>	-	-	81,010	-	196,157	1,629,434	-
<u>A. laevis</u> var. <u>laevissima</u>	-	-	-	393,087	98,078	651,774	-
<u>A. laevis</u> var. <u>minuta</u>	-	-	-	393,087	-	-	-
<u>A. macilenta</u>	-	81,239	60,758	-	-	-	-
<u>Asterionella formosa</u>	20,376	-	-	-	-	-	-
<u>Cocconeis pseudomarginata</u>	-	-	20,253	589,631	-	-	335,861
<u>C. scutellum</u>	81,503	20,310	141,768	786,174	196,157	1,303,547	671,721
<u>C. scutellum</u> var. <u>parva</u>	-	40,620	40,505	-	-	-	-
<u>C. scutellum</u> var. <u>stauroneiformis</u>	81,503	20,310	-	-	-	651,774	335,861
<u>Cylindrotheca closterium</u>	1,344,801	1,563,859	1,296,162	3,537,784	2,746,194	4,236,529	4,366,187
<u>Cymbella affinis</u>	-	-	-	-	98,078	-	-
<u>Diploneis didyma</u>	20,376	20,310	-	-	-	-	-
<u>D. litoralis</u>	40,752	81,239	20,253	589,631	294,235	325,887	-
<u>D. smithii</u>	-	-	-	-	98,078	-	-
<u>Fragilaria bicapitata</u>	-	121,859	162,020	-	98,078	-	-
<u>F. islandica</u>	326,012	406,197	2,329,042	3,537,784	2,255,802	10,102,492	4,702,047
<u>F. pinnata</u>	61,127	284,338	607,576	1,572,348	588,470	977,661	2,015,163
<u>F. striatula</u>	774,279	81,239	243,030	2,555,066	-	-	7,053,071
<u>Fragilariopsis nana</u>	448,267	60,930	222,778	6,289,393	882,705	1,955,321	31,570,889
<u>Gomphonema augur</u>	-	20,310	20,253	-	-	-	1,007,582
<u>G. exiguum</u> var. <u>pachycladum</u>	203,760	20,310	40,505	-	-	-	335,861
<u>G. gracile</u>	-	-	-	589,631	196,157	-	335,861
<u>Grammatophora arctica</u>	-	20,310	60,758	196,544	98,078	-	-
<u>Navicula algida</u>	-	-	20,253	-	-	-	-

Table 2. (cont'd.)

Sample No.	82-17	82-18	82-19	82-22	82-23	82-24	82-25
<u>N. ammophila</u>	61,127	142,169	81,010	786,174	196,157	325,887	-
<u>N. directa</u>	40,752	60,930	60,758	-	294,235	651,774	-
<u>N. directa</u> var. <u>subtilis</u>	-	40,620	40,505	-	294,235	-	335,861
<u>N. gastrum</u>	-	60,930	60,758	196,544	196,157	-	671,721
<u>N. granii</u>	1,181,795	2,010,676	2,531,567	1,768,892	2,844,272	13,035,474	-
<u>N. grevillei</u>	-	-	-	-	-	651,774	-
<u>N. lineola</u>	346,388	2,051,296	2,329,042	5,699,763	2,844,272	14,013,134	16,457,166
<u>N. peregrina</u>	-	20,310	-	1,152,170	196,157	5,540,076	5,373,768
<u>N. pygmaea</u>	-	-	-	-	-	325,887	335,861
<u>N. transitans</u>	40,752	81,239	-	-	-	651,774	-
<u>N. transitans</u> var. <u>derasa</u>	101,879	-	263,283	589,631	196,157	-	-
<u>N. valida</u>	-	20,310	-	196,544	-	-	-
<u>N. vanhoeffenii</u>	122,255	-	-	-	98,078	2,281,208	671,721
<u>Nitzschia acicularis</u>	224,134	528,056	627,829	1,572,348	980,784	-	2,686,884
<u>N. angularis</u> var. <u>kariana</u>	81,503	20,310	-	-	-	-	-
<u>N. cylindrus</u>	1,793,068	954,564	789,849	4,323,958	1,471,175	3,910,642	13,098,560
<u>N. delicatissima</u>	-	264,028	202,525	196,544	-	-	2,351,024
<u>N. distans</u>	-	-	-	196,544	-	-	-
<u>N. frigida</u>	224,134	182,789	182,273	589,631	392,313	6,843,624	6,717,210
<u>N. frustulum</u> var. <u>perpusilla</u>	-	20,310	-	-	98,078	-	-
<u>N. grunowii</u>	163,006	2,680,901	2,086,011	2,555,066	6,080,858	27,048,608	17,128,887
<u>N. linearis</u>	40,752	20,310	20,253	-	-	325,887	335,861
<u>N. lineata</u>	3,851,022	20,310	2,450,557	10,220,264	22,486,192	-	24,181,958
<u>N. seriata</u>	-	20,310	20,253	786,174	196,157	2,607,095	671,721

Table 2. (cont'd.)

Sample No.	82-17	82-18	82-19	82-22	82-23	82-24	82-25
<u>Pinnularia</u> sp.	-	40,620	-	-	98,078	325,887	335,861
<u>P.</u> <u>quadratarea</u>	-	20,310	40,505	196,544	-	325,887	-
<u>P.</u> <u>quadratarea</u> var. <u>bicuneata</u>	-	20,310	-	-	-	-	-
<u>Pleurosigma</u> <u>elongatum</u> var. <u>kariana</u>	-	-	-	-	-	325,887	-
<u>P.</u> <u>marinum</u>	20,376	20,310	-	-	-	-	-
<u>Rhabdonema</u> <u>arcuatum</u>	163,006	40,620	40,505	-	-	1,303,547	-
<u>Synedra</u> <u>parasitica</u>	40,752	-	-	-	-	-	-
<u>S.</u> <u>pulchella</u>	-	-	-	196,544	-	-	-
 Chlorophyta	 81,504	 81,240	 141,768	 1,965,436	 1,373,097	 8,473,059	 2,686,885
<u>Chlamydomonas</u> <u>ballenyana</u>	20,376	-	-	786,174	392,313	-	-
<u>C.</u> <u>cysts</u>	-	-	-	-	-	651,774	335,861
<u>C.</u> <u>tetraolaris</u>	40,752	60,930	141,768	982,718	980,784	6,843,624	2,015,163
<u>Dunaliella</u> <u>parva</u>	20,376	20,310	-	196,544	-	977,661	335,861
 Chrysophyta	 20,376	 20,310	 40,505	 982,718	 -	 325,887	 -
<u>Phaeocystis</u> <u>pouchetii</u>	-	-	-	786,174	-	325,887	-
Unidentified	20,376	20,310	40,505	196,544	-	-	-
 Euglenophyta	 40,752	 -	 20,253	 196,544	 -	 -	 -
<u>E.</u> <u>schmitzii</u>	40,752	-	-	196,544	-	-	-
<u>E.</u> <u>viridis</u>	-	-	20,253	-	-	-	-

Table 2. (cont'd.)

Sample No.	82-17	82-18	82-19	82-22	82-23	82-24	82-25
Pyrrophyta							
<i>Dinophysis acuminata</i>	102,256	-	40,505	-	196,156	325,887	-
<i>Goniaulax scrippsae</i>	20,376	-	-	-	-	-	-
<i>Gyrodinium spirale</i>	-	-	40,505	-	-	-	-
<i>Oxytoxum</i> sp.	20,376	-	-	-	-	-	-
<i>Peridinium</i> sp.	40,752	-	-	-	-	325,887	-
<i>Prorocentrum ovalis</i>	20,752	-	-	-	98,078	-	-
Unidentified cysts	61,127	-	-	-	196,157	-	-

Table 3. Sedimentation rates and species composition of phytoplankton contributed to the sediments in Frobisher Bay, 2 - 7 August 1982.

Sample No.	82-29	82-30	82-31	82-35	82-36	82-37
Date	2-3 Aug	2-3 Aug	2-3 Aug	3-7 Aug	3-7 Aug	3-7 Aug
Station depth (m)	25-32	26-32	27-33	24-32	23-32	25-33
Ice cover (cm)	0	0	0	0	0	0
Sedimentation rate ($\text{cells} \cdot \text{m}^{-2} \cdot \text{day}^{-1}$)	423,964,669	407,088,471	378,207,513	489,542,721	418,466,289	195,950,434
Bacillariophyta	406,719,438	392,395,256	373,026,589	481,833,386	401,229,692	187,389,493
Centrales	212,116,336	185,825,948	193,421,196	270,790,362	254,718,610	73,814,340
<u>C. affinis</u>	66,394,137	54,451,324	81,167,824	77,093,341	83,310,222	16,551,154
<u>C. decipiens</u>	47,424,384	38,029,496	35,402,987	79,020,674	87,140,577	10,463,373
<u>C. furcellatus</u>	9,484,877	8,643,067	6,907,900	5,782,001	2,872,766	2,473,161
<u>C. holsaticus</u>	6,035,831	5,185,840	5,180,925	8,673,001	6,703,121	5,707,294
<u>C. lauderi</u>	6,035,831	6,050,147	1,726,975	1,927,334	957,589	1,331,702
<u>C. septentrionalis</u>	5,173,569	864,307	863,487	1,927,334	3,830,355	190,243
<u>C. spores</u>	-	864,307	-	1,927,334	5,745,533	1,331,702
<u>C. teres</u>	-	-	-	-	-	190,243
<u>C. wighamii</u>	9,484,877	-	-	-	-	-
<u>Coscinodiscus sp.</u>	-	864,307	-	-	957,589	1,902,431
<u>Cyclotella striata</u>	-	-	-	-	957,589	190,243
<u>Melosira arctica</u>	-	-	-	4,818,334	-	-
<u>Thalassiosira sp.</u>	-	3,457,227	-	-	-	-
<u>T. antarctica</u>	21,556,538	27,657,816	19,860,212	41,437,671	28,727,663	14,077,993
<u>T. decipiens</u>	22,418,800	22,471,975	25,041,137	24,091,669	14,363,831	10,843,859
<u>T. hyalina</u>	10,347,138	17,286,135	16,406,262	24,091,669	18,194,186	7,229,240
<u>T. nordenskioeldii</u>	7,760,354	-	863,487	-	957,589	1,331,702

Table 3. (cont'd.)

Sample No.	82-29	82-30	82-31	82-35	82-36	82-37
Pennales						
<i>Achnanthes taeniatata</i>	194,603,102	206,569,308	179,605,393	211,043,024	146,511,082	113,575,153
<i>Amphiprora kjellmanii</i>	27,592,369	22,471,975	25,041,137	3,854,667	27,770,074	10,653,616
<i>Amphora inelegans</i>	-	-	-	963,667	-	-
<i>Asterionella gracillima</i>	862,262	-	-	-	-	-
<i>Cocconeis scutellum</i>	2,586,785	2,592,920	863,487	963,667	1,915,178	2,092,675
<i>C. scutellum</i> var. <i>parva</i>	862,262	-	-	-	-	-
<i>Cylindrotheca closterium</i>	17,245,230	18,150,441	10,361,850	11,564,001	11,491,065	7,990,212
<i>Cymbella affinis</i>	862,262	-	-	-	-	-
<i>Diploneis litoralis</i>	-	1,728,613	-	3,854,667	-	-
<i>Fragilaria bicapitata</i>	862,262	-	-	963,667	-	190,243
<i>F. intermedia</i>	862,262	-	-	963,667	-	380,486
<i>F. islandica</i>	12,071,661	5,185,840	-	24,091,669	-	8,370,698
<i>F. pinnata</i>	-	864,307	-	1,927,334	-	4,565,835
<i>F. striatula</i>	6,898,092	-	5,180,925	-	-	1,521,945
<i>Fragilariopsis nana</i>	8,622,615	-	-	39,510,337	-	1,902,431
<i>Gomphonema</i> sp.	-	-	-	-	-	570,729
<i>G. gracile</i>	-	-	-	963,667	957,589	380,486
<i>Navicula ammophila</i>	2,586,785	-	-	-	957,589	-
<i>N. crucigeroides</i>	862,262	-	-	-	-	-
<i>N. debilissima</i>	-	-	-	-	2,872,766	1,141,459
<i>N. directa</i>	862,262	-	863,487	963,667	-	570,729
<i>N. gastrum</i>	862,262	-	-	-	-	-
<i>N. granii</i>	-	19,879,055	45,764,837	18,309,668	2,872,766	1,902,431

Table 3. (cont'd.)

Sample No.	82-29	82-30	82-31	82-35	82-36	82-37
<u>N. grevillei</u>	862,262	864,307	-	-	-	-
<u>N. lineola</u>	8,622,615	22,471,975	14,679,287	12,527,668	12,448,654	8,941,428
<u>N. peregrina</u>	10,347,138	5,185,840	6,044,412	7,709,334	4,787,944	4,185,349
<u>N. transitans</u>	-	-	863,487	-	-	-
<u>N. transitans</u> var. <u>derasa</u>	-	-	2,590,462	1,927,334	957,589	-
<u>N. valida</u>	-	-	-	-	-	570,729
<u>N. vanhoeffenii</u>	-	2,592,920	-	-	-	-
<u>Nitzschia acicularis</u>	5,173,569	9,507,374	18,133,237	10,600,334	6,703,121	7,990,212
<u>N. angularis</u> var. <u>kariana</u>	-	-	-	963,667	-	-
<u>N. cylindrus</u>	28,454,630	21,607,668	9,498,362	26,982,669	17,236,598	4,946,322
<u>N. delicatissima</u>	8,622,615	-	863,487	1,927,334	-	-
<u>N. frigida</u>	4,311,308	5,185,840	-	8,673,001	7,660,710	9,321,914
<u>N. frustulum</u>	862,262	-	-	-	-	-
<u>N. frustulum</u> var. <u>perpusilla</u>	-	-	-	-	957,589	-
<u>N. grunowii</u>	12,933,923	33,707,963	-	20,237,002	27,770,074	15,029,208
<u>N. linearis</u>	-	-	-	5,782,001	-	190,243
<u>N. lineata</u>	24,737,576	32,843,656	30,222,062	-	14,363,831	17,121,883
<u>N. seriata</u>	862,262	864,307	1,726,975	-	957,589	1,141,459
<u>N. sigma</u>	-	864,307	-	-	-	-
<u>Pinnularia</u> sp.	1,724,523	-	-	963,667	1,915,178	-
<u>P. quadratarea</u>	-	-	863,487	-	-	380,486
<u>P. quadratarea</u> var. <u>bicontracta</u>	-	-	863,487	-	-	-
<u>P. quadratarea</u> var. <u>bicuneata</u>	-	-	-	-	-	380,486
<u>Plagiogramma staurophorum</u>	862,262	-	-	-	-	-

Table 3. (cont'd.)

Sample No.	82-29	82-30	82-31	82-35	82-36	82-37
<u>Pleurosigma elongatum</u>	-	-	-	963,667	-	-
<u>P. marinum</u>	862,262	-	-	-	-	-
<u>Rhabdonema arcuatum</u>	862,262	-	-	963,667	-	-
<u>Tabellaria flocculosa</u>	-	-	1,726,975	-	-	-
Chlorophyta	12,933,923	12,100,295	4,317,437	6,745,668	17,236,597	7,229,240
<u>Chlamydomonas ballenyana</u>	1,724,523	4,321,534	-	1,927,334	-	2,663,404
<u>C. tetraolaris</u>	11,209,400	6,050,147	4,317,437	4,818,334	14,363,831	3,424,377
<u>Dunaliella parva</u>	-	864,307	-	-	2,872,766	190,243
<u>Trochiscia multispinosa</u>	-	864,307	-	-	-	951,216
Chrysophyta	1,724,523	864,307	-	-	-	-
<u>Phaeocystis pouchetii</u>	1,724,523	864,307	-	-	-	-
Cryptophyta	-	-	-	-	-	380,486
<u>Chroomonas placoidea</u>	-	-	-	-	-	380,486
Euglenophyta	-	1,728,613	863,487	-	-	-
<u>Euglena schmitzii</u>	-	1,728,613	863,487	-	-	-
Pyrrophyta	2,586,785	-	-	963,667	-	951,215
<u>Gonioaulax monilata</u>	-	-	-	-	-	570,729
<u>G. scrippsae</u>	862,262	-	-	-	-	-
<u>Prorocentrum sp.</u>	-	-	-	963,667	-	190,243
<u>P. ovalis</u>	1,724,523	-	-	-	-	190,243

Table 4. Sedimentation rates and species composition of phytoplankton contributed to the sediments in Frobisher Bay, 1 - 6 September 1982.

Sample No.	82-45	82-46	82-47	82-48	82-50	82-52
Date	1-2 Sept	1-2 Sept	2-4 Sept	2-4 Sept	4-6 Sept	4-6 Sept
Station depth (m)	24-32	24-32	27-35	26-35	22-32	25-35
Ice cover (cm)	0	0	0	0	0	0
Sedimentation rate (cells.m ⁻² .day ⁻¹)	921,907	1,616,922	3,528,897	8,277,315	7,214,171	14,073,486
Bacillariophyta	800,145	1,527,800	3,402,489	6,950,822	6,775,472	13,099,543
Centrales	360,934	802,093	2,106,806	4,510,073	5,410,632	10,713,383
<u>Chaetoceros affinis</u>	-	59,414	94,806	689,776	536,189	827,852
<u>C. decipiens</u>	17,394	21,219	136,942	212,239	146,233	194,789
<u>C. furcellatus</u>	126,109	458,339	653,110	1,963,208	1,803,545	2,970,529
<u>C. holsaticus</u>	8,697	-	31,602	53,060	-	-
<u>C. lauderi</u>	-	-	-	-	48,744	-
<u>C. septentrionalis</u>	-	33,951	126,408	265,298	536,189	925,247
<u>C. spores</u>	13,046	-	-	-	48,744	48,697
<u>Cyclotella striata</u>	-	-	10,534	-	-	-
<u>Melosira arctica</u>	4,349	-	-	-	-	-
<u>Thalassiosira antarctica</u>	100,018	33,951	-	53,060	146,233	-
<u>T. decipiens</u>	86,972	186,731	1,000,734	1,008,134	2,047,267	5,307,994
<u>T. hyalina</u>	-	4,244	-	-	48,744	292,183
<u>T. nordenskioeldii</u>	4,349	4,244	52,670	265,298	48,744	146,092
Pennales	439,211	725,707	1,295,683	2,440,749	1,364,840	2,386,160
<u>Achnanthes taeniata</u>	26,092	29,707	52,670	-	97,489	48,697
<u>Amphirora kjellmanii</u>	4,349	-	-	-	-	-
<u>Amphora inelegans</u>	-	8,488	-	53,060	-	-
<u>Cocconeis dirupta</u>	4,349	-	-	-	-	-

Table 4. (cont'd.)

Sample No.	82-45	82-46	82-47	82-48	82-50	82-52
<u>C. pseudomarginata</u>	-	16,976	-	-	-	146,092
<u>C. scutellum</u>	17,394	12,732	105,340	53,060	48,744	48,697
<u>C. scutellum</u> var. <u>parva</u>	13,046	4,244	-	53,060	-	48,697
<u>C. scutellum</u> var. <u>stauroneiformis</u>	13,046	-	-	-	-	-
<u>Cylindrotheca closterium</u>	4,349	12,732	105,340	795,895	-	97,394
<u>Cymbella affinis</u>	-	-	-	-	48,744	243,486
<u>C. cistula</u>	-	-	-	-	-	48,697
<u>Diploneis litoralis</u>	8,697	-	-	-	-	-
<u>Eunotia parallelia</u>	4,349	-	-	-	-	-
<u>Fragilaria bicapitata</u>	-	-	105,340	106,119	48,744	-
<u>F. intermedia</u>	-	16,976	105,340	-	-	48,697
<u>F. pinnata</u>	39,137	12,732	-	-	-	48,697
<u>F. striatula</u>	-	-	52,670	-	-	194,789
<u>Gomphonema</u> sp.	-	-	-	-	48,744	97,394
<u>G. augur</u>	-	-	-	53,060	-	-
<u>G. gracile</u>	17,394	4,244	10,534	-	-	-
<u>Grammatophora arctica</u>	-	-	-	-	97,489	-
<u>Licmophora</u> sp.	-	-	-	-	48,744	-
<u>Navicula algida</u>	-	-	10,534	-	-	-
<u>N. ammophila</u>	4,349	25,463	52,670	53,060	-	-
<u>N. cancellata</u>	13,046	-	-	-	-	48,697
<u>N. crassirostris</u>	-	-	10,534	-	-	-
<u>N. cryptocephala</u>	-	8,488	-	159,179	48,744	-
<u>N. debilissima</u>	-	-	73,738	-	146,233	97,394

Table 4. (cont'd.)

Sample No.	82-45	82-46	82-47	82-48	82-50	82-52
<u>N. directa</u>	-	4,244	-	-	48,744	-
<u>N. directa</u> var. <u>subtilis</u>	-	4,244	-	-	-	-
<u>N. forcipata</u> var. <u>densestriata</u>	-	-	-	-	-	48,697
<u>N. granii</u>	4,349	33,951	-	53,060	-	779,155
<u>N. grevillei</u>	4,349	-	-	-	-	-
<u>N. lineola</u>	30,440	84,878	42,136	53,060	-	-
<u>N. peregrina</u>	43,486	33,951	52,670	-	48,744	243,486
<u>N. pygmaea</u>	8,697	-	-	-	-	-
<u>N. transitans</u> var. <u>derasa</u>	13,046	4,244	21,068	53,060	-	-
<u>N. trigocephala</u>	-	-	10,534	-	-	-
<u>Nitzschia acicularis</u>	21,743	72,146	31,602	53,060	146,233	48,697
<u>N. angularis</u> var. <u>kariana</u>	-	-	-	53,060	-	-
<u>N. cylindrus</u>	13,046	8,488	94,806	-	194,978	-
<u>N. distans</u>	-	-	-	53,060	-	-
<u>N. frigida</u>	13,046	59,414	10,534	-	-	-
<u>N. grunowii</u>	82,623	127,316	42,136	689,776	194,978	-
<u>N. lineata</u>	8,697	110,341	305,487	-	-	48,697
<u>N. seriata</u>	4,349	12,732	-	-	48,744	-
<u>Pinnularia</u> sp.	-	8,488	-	-	48,744	-
<u>Pleurosigma elongatum</u>	8,697	8,488	-	53,060	-	-
<u>Rhabdonema arcuatum</u>	4,349	-	-	53,060	-	-
<u>Tabellaria fenestrata</u>	8,697	-	-	-	-	-

Table 4. (cont'd.)

Sample No.	82-45	82-46	82-47	82-48	82-50	82-52
Chlorophyta	73,926	76,390	73,738	1,114,254	341,211	876,549
<u><i>Chlamydomonas ballenyana</i></u>	21,743	16,976	-	53,060	-	-
<u><i>C. cysts</i></u>	-	25,463	10,534	53,060	-	-
<u><i>C. tetraolaris</i></u>	21,743	25,463	63,204	955,074	341,211	730,458
<u><i>Dunaliella parva</i></u>	30,440	8,488	-	-	-	97,394
Unidentified	-	-	-	53,060	-	48,697
Chrysophyta	8,698	-	-	106,119	-	-
<u><i>Phaeocystis pouchetii</i></u>	4,349	-	-	106,119	-	-
Unidentified	4,349	-	-	-	-	-
Euglenophyta	8,697	4,244	10,534	53,060	-	-
<u><i>Euglena proxima</i></u>	-	-	-	53,060	-	-
<u><i>E. schmitzii</i></u>	8,697	4,244	10,534	-	-	-
Pyrrophyta	8,698	8,488	10,534	53,060	97,488	48,697
<u><i>Dinophysis arctica</i></u>	4,349	-	-	-	48,744	-
<u><i>Glenodinium sp.</i></u>	-	4,244	-	-	-	-
<u><i>Goniaulax sp.</i></u>	-	-	10,534	53,060	-	-
<u><i>Prorocentrum sp.</i></u>	4,349	-	-	-	-	-
<u><i>P. ovalis</i></u>	-	4,244	-	-	48,744	48,697
Unidentified spores	21,743	-	31,602	-	-	48,697

Table 5. Sedimentation rates and species composition of phytoplankton contributed to the sediments in the intertidal zone of Frobisher Bay, July - August 1982.

Sample No.	82-20	82-21	82-27
Date	28 July	28 July	3 August
Station depth (m)	-	-	-
Ice cover (cm)	0	0	0
Sedimentation rate (cells.m ⁻² .day ⁻¹)	103,258,264	99,578,679	310,268,535
Bacillariophyta	97,968,865	95,209,176	282,352,704
Centrales	24,147,255	6,439,268	161,912,829
<u>Chaetoceros affinis</u>	2,759,686	2,299,738	48,653,308
<u>C. decipiens</u>	4,139,529	229,974	36,689,380
<u>C. fragilis</u>	229,974	-	-
<u>C. furcellatus</u>	7,589,137	459,948	23,130,261
<u>C. holsaticus</u>	1,609,817	1,149,869	7,178,357
<u>C. lauderi</u>	689,922	-	3,987,976
<u>C. septentrionalis</u>	459,948	459,948	797,595
<u>C. spores</u>	-	-	797,595
<u>Cyclotella striata</u>	229,974	-	-
<u>Melosira islandica</u>	459,948	1,839,791	-
<u>Thalassiosira antarctica</u>	4,829,451	-	9,571,143
<u>T. decipiens</u>	919,895	-	25,523,047
<u>T. hyalina</u>	-	-	3,190,381
<u>T. nordenskioeldii</u>	-	-	2,393,786
<u>T. oestrupii</u>	229,974	-	-
Pennales	73,821,610	88,769,908	120,439,875
<u>Achnanthes taeniata</u>	919,895	1,609,817	21,535,071
<u>Amphiprora kjellmanii</u>	229,974	1,149,869	-
<u>Amphora inelegans</u>	689,922	3,219,634	-

Table 5. (cont'd.)

Sample No.	82-20	82-21	82-27
<u>A. macilenta</u>	459,948	-	-
<u>Asterionella gracillima</u>	459,948	-	2,393,786
<u>Caloneis subsalina</u>	229,974	-	-
<u>Cocconeis scutellum</u>	2,069,765	919,895	-
<u>C. scutellum</u> var. <u>stauroneiformis</u>	229,974	-	797,595
<u>Cylindrotheca closterium</u>	6,899,215	6,209,294	5,583,166
<u>Cymbella affinis</u>	-	229,974	-
<u>Diploneis bombus</u>	-	689,922	-
<u>D. litoralis</u>	1,379,843	229,974	797,595
<u>D. smithii</u>	229,974	229,974	-
<u>Fragilaria bicapitata</u>	-	-	797,595
<u>F. islandica</u>	3,909,555	919,895	14,356,714
<u>F. pinnata</u>	1,379,843	689,922	1,595,190
<u>F. striatula</u>	-	-	3,190,381
<u>Fragilariopsis nana</u>	5,979,320	4,599,477	-
<u>Gomphonema exiguum</u> var. <u>pachycladum</u>	229,974	459,948	-
<u>G. gracile</u>	1,609,817	1,149,869	-
<u>Grammatophora arctica</u>	-	459,948	797,595
<u>Licmophora</u> sp.	229,974	-	-
<u>Navicula algida</u>	-	459,948	-
<u>N. ammophila</u>	11,268,718	13,338,483	-
<u>N. cancellata</u>	229,974	919,895	797,595
<u>N. crassirostris</u>	-	229,974	-

Table 5. (cont'd.)

Sample No.	82-20	82-21	82-27
<u>N. crucigeroides</u>	229,974	-	-
<u>N. cryptocephala</u>	229,974	459,948	797,595
<u>N. delicatissima</u>	-	4,139,529	-
<u>N. directa</u>	229,974	-	-
<u>N. directa</u> var. <u>subtilis</u>	229,974	-	-
<u>N. distans</u>	-	229,974	-
<u>N. gastrum</u>	459,948	1,149,869	-
<u>N. granii</u>	459,948	-	1,595,190
<u>N. lineola</u>	1,379,843	3,219,634	2,393,786
<u>N. peregrina</u>	689,922	1,609,817	4,785,571
<u>N. perlucens</u>	2,529,712	5,289,398	-
<u>N. transitans</u>	229,974	-	2,393,786
<u>N. transitans</u> var. <u>derasa</u>	2,069,765	229,974	797,595
<u>N. trigocephala</u> var. <u>depressa</u>	459,948	229,974	-
<u>N. vanhoeffenii</u>	229,974	229,974	7,975,952
<u>Nitzschia acicularis</u>	229,974	689,922	-
<u>N. angularis</u> var. <u>kariana</u>	459,948	-	-
<u>N. cylindrus</u>	919,895	1,149,869	10,368,738
<u>N. delicatissima</u>	459,948	3,679,582	8,773,547
<u>N. frigida</u>	2,069,765	2,759,686	-
<u>N. grunowii</u>	8,049,085	15,638,222	17,547,095
<u>N. linearis</u>	229,974	229,974	1,595,190
<u>N. lineaata</u>	8,509,032	5,519,372	6,380,762
<u>N. seriata</u>	229,974	229,974	797,595

Table 5. (cont'd.)

Sample No.	82-20	82-21	82-27
<u>Pinnularia</u> sp.	-	2,069,765	-
<u>P.</u> <u>quadratarea</u>	1,149,869	689,922	-
<u>P.</u> <u>quadratarea</u> var. <u>bicontracta</u>	689,922	-	-
<u>Pleurosigma</u> <u>elongatum</u> var. <u>kariana</u>	459,948	229,974	-
<u>Rhabdonema</u> <u>arcuatum</u>	229,974	229,974	-
<u>Synedra</u> <u>parasitica</u>	2,069,765	1,149,869	-
<u>Tabellaria</u> <u>fenestrata</u>	-	-	1,595,190
 Chlorophyta			
<u>Ankistrodesmus</u> <u>falcatus</u>	2,989,660	3,679,581	23,927,856
<u>C.</u> <u>ballenyana</u>	-	919,895	-
<u>C.</u> <u>cysts</u>	1,609,817	1,149,869	797,595
<u>C.</u> <u>tetraolaris</u>	459,948	229,974	-
<u>Dunaliella</u> <u>parva</u>	-	919,895	10,368,738
Unidentified	919,895	459,948	12,761,523
 Chrysophyta			
<u>Phaeocystis</u> <u>pouchetii</u>	1,379,843	-	2,392,785
Unidentified	1,149,869	-	1,595,190
	229,974	-	797,595
 Euglenophyta			
<u>Euglena</u> <u>schmitzii</u>	-	229,974	1,595,190
<u>E.</u> <u>viridis</u>	-	1,595,190	-
	229,974	-	-

Table 5. (cont'd.)

Sample No.	82-20	82-21	82-27
Pyrrophyta			-
<u>Goniaulax</u> <u>scrippsae</u>	919,896	459,948	-
<u>Peridinium</u> sp.	459,948	229,974	-
<u>Prorocentrum</u> sp.	229,974	229,974	-

Table 6. Sedimentation rates and species composition of phytoplankton contributed to the sediments in Frobisher Bay, 14 - 22 March 1983.

Sample No.	83-2	83-3	83-5	83-6
Date	14-18 Mar	14-18 Mar	18-22 Mar	18-22 Mar
Station depth (m)	33-42	32-42	34-42	33-42
Ice cover (cm)	142	142	144	144
Sedimentation rate (cells.m ⁻² .day ⁻¹)	272,062	1,565,792	197,221	242,909
Bacillariophyta	196,199	1,453,773	178,237	223,980
Centrales	94,175	143,280	73,825	69,401
<u>Biddulphia aurita</u>	2,616	-	-	-
<u>Chaetoceros brevis</u>	-	-	1,055	-
<u>C. furcellatus</u>	65,399	83,363	45,349	42,061
<u>C. holsaticus</u>	-	2,605	2,109	1,052
<u>C. septentrionalis</u>	-	2,605	-	-
<u>C. spores</u>	-	-	-	1,052
<u>Coscinodiscus sp.</u>	-	-	1,055	-
<u>C. lacustris</u> var. <u>septentrionalis</u>	-	-	1,055	4,206
<u>Cyclotella striata</u>	2,616	2,605	-	-
<u>Melosira islandica</u>	-	5,210	-	-
<u>Thalassiosira sp.</u>	13,080	31,261	8,437	14,721
<u>T. decipiens</u>	10,464	15,631	13,710	6,309
<u>T. eccentrica</u>	-	-	1,055	-
Pennales	102,024	1,310,493	104,412	154,579
<u>Amphora inelegans</u> var. <u>polita</u>	-	2,605	2,109	10,515
<u>A. laevis</u> var. <u>laevissima</u>	-	-	1,055	1,052
<u>A. terroris</u>	2,616	-	7,382	8,412
<u>Cocconeis sp.</u>	-	7,815	-	-

Table 6. (cont'd.).

Sample No.	83-2	83-3	83-5	83-6
<u>C. californica</u>	-	5,210	-	2,103
<u>C. pseudomarginata</u>	-	2,605	2,109	4,206
<u>C. scutellum</u>	18,312	15,631	13,710	19,979
<u>C. scutellum</u> var. <u>parva</u>	-	-	-	1,052
<u>C. thumensis</u>	-	2,605	1,055	2,103
<u>Cylindrotheca closterium</u>	-	5,210	-	-
<u>Cymbella</u> sp.	2,616	-	-	-
<u>Diploneis</u> sp.	-	5,210	-	-
<u>D. interrupta</u>	2,616	-	-	1,052
<u>D. litoralis</u>	2,616	-	1,055	2,103
<u>D. smithii</u>	-	-	1,055	3,155
<u>Eunotia</u> sp.	5,232	2,605	-	-
<u>E. arcus</u>	-	-	1,055	-
<u>Fragilaria bicapitata</u>	-	2,605	-	-
<u>F. pinnata</u>	18,312	44,287	16,874	22,082
<u>Gomphonema</u> sp.	-	-	1,055	4,206
<u>G. exiguum</u> var. <u>pachycladum</u>	-	-	1,055	-
<u>G. gracile</u>	-	-	1,055	-
<u>Grammatophora angulosa</u>	2,616	10,420	-	3,155
<u>G. arctica</u>	-	13,025	2,109	5,258
<u>G. hamulifera</u>	5,232	10,420	-	-
<u>Licmophora</u> sp.	-	2,605	-	-
<u>L. dalmatica</u>	-	-	3,164	-
<u>Navicula</u> sp.	7,848	20,841	7,382	11,567

Table 6. (cont'd.)

Sample No.	83-2	83-3	83-5	83-6
<u>N. ammophila</u>	5,232	-	-	-
<u>N. cancellata</u>	-	5,210	3,164	2,103
<u>N. crassirostris</u>	-	-	-	1,052
<u>N. digitoradiata</u>	2,616	5,210	-	-
<u>N. directa</u>	-	2,605	1,055	1,052
<u>N. directa</u> var. <u>subtilis</u>	2,616	-	-	-
<u>N. gastrum</u>	-	5,210	-	-
<u>N. gelida</u>	-	-	-	2,103
<u>N. imperfecta</u>	-	-	1,055	-
<u>N. peregrina</u>	-	-	2,109	-
<u>N. pygmaea</u>	-	-	1,055	-
<u>N. salinarum</u>	-	2,605	-	-
<u>N. sigma</u>	-	-	-	1,052
<u>N. transitans</u>	-	-	-	4,206
<u>N. transitans</u> var. <u>derasa</u>	-	5,210	3,164	-
<u>Nitzschia</u> sp.	5,232	-	-	-
<u>N. acicularis</u>	-	-	-	2,103
<u>N. actinastroides</u>	10,464	-	-	7,361
<u>N. cylindrus</u>	2,616	2,605	5,273	4,206
<u>N. frigida</u>	-	255,300	-	-
<u>N. frustulum</u>	-	-	3,164	12,618
<u>N. grunowii</u>	-	54,707	1,055	-
<u>N. linearis</u>	-	638,429	5,273	5,258
<u>N. seriata</u>	-	169,463	-	-

Table 6. (cont'd.)

Sample No.	83-2	83-3	83-5	83-6
<u>Opephora martyi</u>	-	2,605	-	-
<u>Pinnularia interrupta</u>	-	-	-	1,052
<u>P. quadratarea</u>	-	-	2,109	-
<u>P. quadratarea</u> var. <u>bicontracta</u>	-	-	1,055	-
<u>P. quadratarea</u> var. <u>bicuneata</u>	-	-	1,055	-
<u>Plagiogramma staurophorum</u>	-	5,210	3,164	-
<u>Pleurosigma elongatum</u>	-	-	-	1,052
<u>Rhabdonema arcuatum</u>	-	2,605	1,055	1,052
<u>Stenoneis inconspicua</u> var. <u>baculus</u>	-	-	-	4,206
<u>Synedra</u> sp.	5,232	-	-	-
<u>S. pulchella</u>	-	-	3,164	2,103
<u>Thalassionema nitzschiooides</u>	-	-	1,055	-
<u>Trachyneis aspersa</u>	-	-	2,109	-
<u>Chlorophyta</u>	65,399	98,994	14,765	15,774
<u>Chlamydomonas</u> sp.	49,703	72,943	12,655	5,258
<u>C. ballenyana</u>	7,848	2,605	1,055	-
<u>C. pulsatilla</u>	7,848	23,446	-	7,361
<u>Staurastrum megacanthum</u>	-	-	1,055	-
<u>Unidentified</u>	-	-	-	3,155
<u>Chrysophyta</u>	-	10,420	2,109	3,155
<u>Phaeocystis pouchetii</u>	-	5,210	2,109	2,103
<u>Salpingoeca natans</u>	-	5,210	-	-
<u>Unidentified</u>	-	-	-	1,052

Table 6. (cont'd.)

Sample No.	83-2	83-3	83-5	83-6
Euglenophyta	2,616	-	-	-
<u>E. schmitzii</u>	2,616	-	-	-
Pyrrophyta	7,848	2,605	2,110	-
<u>Dinophysis</u> sp.	2,616	-	-	-
<u>Goniaulax</u> sp.	-	-	1,055	-
<u>G. catenata</u>	-	-	1,055	-
<u>Gymnodinium</u> cysts	2,616	-	-	-
<u>Prorocentrum</u> sp.	2,616	2,605	-	-

Table 7. Sedimentation rates and species composition of phytoplankton contributed to the sediments in Frobisher Bay, 1 - 5 August 1983.

Sample No.	83-7	83-8	83-9	83-10	83-11	83-12	83-13
Date	1-2 Aug	1-2 Aug	1-2 Aug	2-5 Aug	2-5 Aug	2-5 Aug	2-5 Aug
Station depth (m)	26-31	25-31	26-32	31-36	30-36	31-36	30-35
Ice cover (cm)	0	0	0	0	0	0	0
Sedimentation rate (cells.m ⁻² .day ⁻¹)	2,240,073,282	1,859,396,203	2,022,296,194	1,022,143,446	814,775,752	635,375,587	679,351,436
Bacillariophyta	2,225,188,410	1,829,405,941	2,000,194,596	1,012,171,315	806,054,912	627,900,581	673,118,854
Centrales	2,035,506,289	1,671,957,066	1,775,495,018	887,519,679	651,571,441	514,529,645	585,862,708
<i>Chaetoceros affinis</i>	26,048,527	-	-	-	-	2,491,669	-
<i>C. borealis</i>	3,721,218	-	-	-	-	-	-
<i>C. brevis</i>	331,188,409	277,409,917	349,941,964	245,563,731	153,237,643	184,383,506	145,842,419
<i>C. decipiens</i>	614,000,983	453,602,701	313,105,968	251,796,313	169,433,492	104,650,098	159,554,099
<i>C. furcellatus</i>	346,073,281	168,695,220	320,473,167	191,963,526	64,783,394	13,704,179	14,958,197
<i>C. holsaticus</i>	14,884,872	86,222,001	99,457,190	29,916,394	18,687,517	41,112,538	41,135,041
<i>C. septentrionalis</i>	576,788,802	539,824,703	534,121,945	89,749,181	156,975,147	99,666,760	152,075,001
<i>C. spores</i>	3,721,218	-	-	2,493,033	13,704,179	2,491,669	3,739,549
<i>C. wighamii</i>	78,145,580	56,231,740	84,722,791	39,888,525	42,358,373	36,129,200	41,135,041
<i>Coscinodiscus sp.</i>	-	-	3,683,600	-	-	2,491,669	-
<i>C. lacustris</i> var. <i>septentrionalis</i>	-	-	3,683,600	-	-	1,245,834	-
<i>Ditylum brightwellii</i>	-	-	-	-	-	1,245,834	-
<i>Leptocylindrus danicus</i>	-	-	7,367,199	-	-	-	-
<i>Rhizosolenia sp.</i>	-	-	-	-	-	-	1,246,516
<i>Thalassiosira sp.</i>	3,721,218	26,241,479	18,417,998	2,493,033	6,229,172	11,212,510	11,218,648
<i>T. decipiens</i>	33,490,963	63,729,305	40,519,596	33,655,943	26,162,524	13,704,179	14,958,197

Table 7. (cont'd.)

Sample No.	83-7	83-8	83-9	83-10	83-11	83-12	83-13
<i>T. nordenskioeldii</i>	3,721,218	-	-	-	-	-	-
Pennales	189,682,121	157,448,875	224,699,578	124,651,636	154,483,471	113,370,936	87,256,146
<i>Achnanthes taeniata</i>	37,212,181	3,748,783	25,785,197	18,697,746	14,950,014	23,670,855	16,204,713
<i>Amphiprora</i> sp.	-	-	-	1,246,516	-	-	-
<i>Amphora inelegans</i>							
var. <i>polita</i>	7,442,436	-	-	-	-	-	-
<i>A. terroris</i>	7,442,436	-	7,367,199	1,246,516	-	-	-
<i>Cocconeis</i> sp.	-	-	-	-	1,245,834	-	-
<i>C. pseudomarginata</i>	-	-	-	-	-	-	1,246,516
<i>C. scutellum</i>	-	-	-	1,246,516	-	1,245,834	-
<i>Cylindrotheca closterium</i>	11,163,654	14,995,131	-	9,972,131	6,229,172	11,212,510	4,986,066
<i>Diploneis didyma</i>	-	-	-	1,246,516	-	-	-
<i>Eunotia arcus</i>	-	-	-	1,246,516	-	-	-
<i>Fragilaria islandica</i>	-	-	-	-	46,095,876	-	-
<i>F. pinnata</i>	-	14,995,131	25,785,197	4,986,066	3,737,503	7,475,007	7,479,098
<i>Fragilariopsis nana</i>	-	-	-	-	-	-	2,493,033
<i>Gomphonema</i> sp.	-	-	-	-	-	-	2,493,033
<i>G. augur</i>	-	-	-	1,246,516	-	-	-
<i>G. exiguum</i> var. <i>pachycladum</i>	-	-	-	-	-	-	1,246,516
<i>Grammatophora angulosa</i>	-	-	-	-	1,245,834	-	-
<i>G. hamulifera</i>	-	-	-	1,246,516	-	-	-
<i>Navicula</i> sp.	14,884,872	18,743,913	7,367,199	4,986,066	6,229,172	-	-
<i>N. apiculata</i>	-	-	-	-	1,245,834	-	-
<i>N. cancellata</i>	-	-	-	1,246,516	-	1,245,834	-

Table 7. (cont'd.)

Sample No.	83-7	83-8	83-9	83-10	83-11	83-12	83-13
<u>N. crassirostris</u>	-	3,748,783	-	-	-	-	-
<u>N. directa</u>	3,721,218	-	-	-	-	-	-
<u>N. directa</u> var. <u>subtilis</u>	-	-	-	-	-	1,245,834	1,245,516
<u>N. grevillei</u>	3,721,218	7,497,565	-	-	-	-	-
<u>N. peregrina</u>	3,721,218	-	-	-	1,245,834	2,491,669	-
<u>N. transitans</u>	3,721,218	3,748,783	-	-	2,491,669	2,491,669	1,246,516
<u>N. transitans</u> var. <u>derasa</u>	-	3,748,783	3,683,600	1,246,516	-	2,491,669	1,246,516
<u>N. vanhoeffenii</u>	-	-	-	1,246,516	1,245,834	-	-
<u>Nitzschia</u> sp.	-	-	-	-	-	1,245,834	-
<u>N. acicularis</u>	18,606,090	11,246,348	7,367,199	19,944,262	8,720,841	12,458,345	-
<u>N. actinastroides</u>	33,490,963	3,748,783	3,683,600	4,986,066	-	2,491,669	2,493,033
<u>N. acuminata</u>	3,721,218	-	-	-	-	-	-
<u>N. cylindrus</u>	29,669,745	44,985,392	40,519,596	43,628,074	49,833,380	29,900,028	39,888,525
<u>N. delicatissima</u>	-	-	3,683,600	1,246,516	3,737,503	-	-
<u>N. frustulum</u>	-	3,748,783	-	-	-	-	-
<u>N. grunowii</u>	-	-	88,406,391	-	-	-	-
<u>N. linearis</u>	3,721,218	14,995,131	3,683,600	2,493,033	1,245,834	6,229,172	2,493,033
<u>N. seriata</u>	-	-	-	-	3,737,503	7,475,007	-
<u>Pleurosigma elongatum</u>	-	-	3,683,600	-	-	-	-
<u>P. longum</u>	-	-	-	1,246,516	-	-	-
<u>Rhabdonema minutum</u>	-	-	-	-	-	-	1,246,516
<u>Stenoneis inconspicua</u> var. <u>baculus</u>	7,442,436	3,748,783	-	-	-	-	1,246,516
<u>Synedra tabulata</u>	-	3,748,783	-	-	-	-	-

Table 7. (cont'd.)

Sample No.	83-7	83-8	83-9	83-10	83-11	83-12	83-13
<u>Tabellaria flocculosa</u>	-	-	3,683,600	-	-	-	-
<u>Trachyneis aspera</u>	-	-	-	-	1,245,834	-	-
Chlorophyta	11,163,654	26,241,479	22,101,598	9,972,131	7,475,006	7,475,006	6,232,582
<u>Chlamydomonas sp.</u>	3,721,218	22,492,696	18,417,998	6,232,582	3,737,503	4,983,337	1,246,516
<u>C. pulsatilla</u>	3,721,218	3,748,783	3,683,600	3,739,549	3,737,503	2,491,669	4,986,066
<u>Thalassomonas sp.</u>	3,721,218	-	-	-	-	-	-
Chrysophyta	3,721,218	-	-	-	-	-	-
Unidentified	3,721,218	-	-	-	-	-	-
Euglenophyta	-	3,748,783	-	-	1,245,834	-	-
<u>Euglena sp.</u>	-	3,748,783	-	-	-	-	-
<u>E. schmitzii</u>	-	-	-	-	1,245,834	-	-

Table 8. Sedimentation rates and species composition of phytoplankton contributed to the sediments in Frobisher Bay, 5 - 8 August 1983.

Sample No.	83-14	83-15	83-16	83-17	83-18	83-19
Date	5-6 Aug	5-6 Aug	5-6 Aug	6-8 Aug	6-8 Aug	6-8 Aug
Station depth (m)	27-33	27-33	29-35	27-35	26-34	25-33
Ice cover (cm)	0	0	0	0	0	0
Sedimentation rate (cells.m ⁻² .day ⁻¹)	98,412,367	85,589,882	60,866,519	64,191,591	248,719,912	16,433,704
Bacillariophyta	97,747,419	84,295,867	59,588,961	63,552,579	245,738,680	16,329,619
Centrales	65,962,881	61,280,878	47,999,686	55,419,707	195,483,629	10,292,747
<u>Chaetoceros affinis</u>	-	-	-	-	-	80,954
<u>C. brevis</u>	7,846,391	7,394,374	8,212,874	14,406,800	72,401,347	1,110,229
<u>C. decipiens</u>	18,618,555	18,393,506	10,676,736	10,572,732	20,868,623	2,775,572
<u>C. furcellatus</u>	8,378,350	12,755,296	12,958,090	12,664,042	29,812,312	1,619,084
<u>C. holsaticus</u>	1,994,845	1,478,875	1,733,829	1,858,942	7,240,135	416,336
<u>C. lauderi</u>	-	-	-	-	425,890	-
<u>C. septentrionalis</u>	12,368,040	10,629,413	7,482,841	6,622,481	14,054,379	855,801
<u>C. spores</u>	1,329,897	647,008	547,525	813,287	2,981,232	208,168
<u>C. wighamii</u>	6,117,525	3,512,328	3,467,658	3,834,068	19,590,953	1,237,443
<u>Coscinodiscus sp.</u>	132,990	-	-	-	-	-
<u>C. angustelineatus</u>	-	-	-	-	425,890	-
<u>Cyclotella striata</u>	132,990	92,430	-	58,092	-	34,695
<u>Leptocylindrus danicus</u>	265,979	92,430	-	58,092	-	127,214
<u>Melosira arctica</u>	531,959	-	-	-	-	-
<u>Rhizosolenia sp.</u>	-	92,430	-	-	-	-
<u>Thalassiosira sp.</u>	1,462,886	2,033,453	1,003,796	406,644	-	-
<u>T. decipiens</u>	6,782,474	3,974,476	1,916,337	4,124,527	27,682,868	1,746,297
<u>T. nordenskioeldii</u>	-	184,859	-	-	-	57,824

Table 8. (cont'd.)

Sample No.	83-14	83-15	83-16	83-17	83-18	83-19
<i>T. oestrupii</i>	-	-	-	-	-	23,130
Pennales	31,784,538	23,014,989	11,589,275	8,132,872	50,255,051	6,036,872
<i>Achnanthes taeniata</i>	6,383,505	3,327,468	3,102,641	1,045,655	8,943,696	855,801
<i>Amphora inelegans</i> var. <i>polita</i>	664,948	462,148	182,508	-	851,781	11,565
<i>A. terroris</i>	265,979	369,719	91,254	-	-	23,130
<i>Cocconeis</i> sp.	132,990	-	-	-	-	11,565
<i>C. californica</i>	-	-	91,254	-	-	-
<i>C. scutellum</i>	132,990	462,148	91,254	116,184	425,890	92,519
<i>C. thumensis</i>	-	-	-	-	-	11,565
<i>Cylindrotheca closterium</i>	930,928	462,148	638,779	580,919	1,277,671	335,382
<i>Cymbella</i> sp.	132,990	-	-	-	-	-
<i>Diploneis didyma</i>	-	184,859	-	-	-	-
<i>D. smithii</i>	-	-	-	-	-	11,565
<i>Fragilaria bicapitata</i>	-	92,430	-	-	-	-
<i>F. islandica</i>	3,723,711	369,719	730,033	-	-	-
<i>F. pinnata</i>	-	2,033,453	365,017	232,368	3,407,122	265,992
<i>F. striatula</i>	-	-	-	-	-	127,214
<i>Fragilariopsis nana</i>	-	-	-	-	-	208,168
<i>Gomphonema exiguum</i> var. <i>pachycladum</i>	-	-	-	-	-	23,130
<i>Grammatophora arctica</i>	-	92,430	-	-	-	-
<i>G. hamulifera</i>	-	-	91,254	-	-	-
<i>Licmophora</i> sp.	-	92,430	-	-	425,890	-
<i>Navicula</i> sp.	1,861,856	647,008	465,271	406,644	851,781	11,565
<i>N. algida</i>	-	-	-	-	-	11,565

Table 8. (cont'd.)

Sample No.	83-14	83-15	83-16	83-17	83-18	83-19
<u>N. cancellata</u>	132,990	-	91,254	-	-	92,519
<u>N. debilissima</u>	398,969	277,289	-	58,092	425,890	23,130
<u>N. directa</u>	-	184,859	-	-	425,890	
<u>N. directa</u> var. <u>subtilis</u>	132,990	184,859	91,254	-	-	-
<u>N. forcipata</u>	-	277,289	-	-	-	-
<u>N. granii</u>	-	1,016,726	-	-	-	11,565
<u>N. grevillei</u>	-	-	-	-	-	11,565
<u>N. peregrina</u>	531,959	184,859	-	-	425,890	69,389
<u>N. salinarum</u>	-	277,289	-	-	-	-
<u>N. transitans</u>	132,990	92,430	273,762	-	-	69,389
<u>N. transitans</u> var. <u>derasa</u>	398,969	184,859	-	58,092	1,277,671	11,565
<u>N. trigonocephala</u>	132,990	-	-	-	-	-
<u>N. vanhoeffenii</u>	132,990	-	91,254	58,092	-	-
<u>Nitzschia</u> sp.	-	92,430	-	232,368		
<u>N. acicularis</u>	3,457,732	2,310,742	1,277,558	1,684,666	6,388,354	936,756
<u>N. actinastroides</u>	265,979	277,289	91,254	-	-	-
<u>N. cylindrus</u>	9,841,236	6,470,078	3,285,150	2,323,677	15,757,940	1,561,259
<u>N. delicatissima</u>	132,990	-	91,254	232,368	-	-
<u>N. frigida</u>	132,990	369,719	-	-	1,277,671	104,084
<u>N. frustulum</u>	-	184,859	91,254	-	-	-
<u>N. grunowii</u>	-	92,430	-	871,379	6,388,354	728,588
<u>N. linearis</u>	1,063,917	554,578	91,254	-	425,890	46,260
<u>N. seriata</u>	-	831,867	91,254	58,092	425,890	323,817
<u>Pinnularia</u> sp.	-	-	-	-	425,890	-

Table 8. (cont'd.)

Sample No.	83-14	83-15	83-16	83-17	83-18	83-19
<u>P. quadratarea var. bicontracta</u>	-	-	91,254	-	-	-
<u>Plagiogramma staurophorum</u>	-	-	-	58,092	-	-
<u>Pleurosigma elongatum</u>	132,990	-	-	-	-	-
<u>P. longum</u>	132,990	462,148	-	58,092	-	11,565
<u>Rhabdonema minutum</u>	132,990	-	-	-	-	-
<u>Stenoneis inconspicua var. baculus</u>	132,990	-	91,254	58,092	425,890	23,130
<u>Synedra pulchella</u>	132,990	-	-	-	-	-
<u>Trachyneis aspera</u>	-	92,430	-	-	-	11,565
 Chlorophyta	 398,969	 1,016,726	 1,277,558	 406,644	 2,981,232	 57,825
<u>Chlamydomonas sp.</u>	398,969	831,867	1,186,304	174,276	1,703,561	11,565
<u>C. pulsatilla</u>	-	184,859	91,254	174,276	1,277,671	46,260
<u>Thalassomonas sp.</u>	-	-	-	58,092	-	-
 Chrysophyta	 265,979	 277,289	 -	 116,184	 -	 -
<u>Phaeocystis pouchetii</u>	265,979	277,289	-	116,184	-	-
 Pyrrophyta	 -	 -	 -	 116,184	 -	 46,260
<u>Prorocentrum sp.</u>	-	-	-	58,092	-	-
<u>P. rampii</u>	-	-	-	-	-	11,565
Unidentified	-	-	-	58,092	-	34,695

Table 9. Sedimentation rates and species composition of phytoplankton contributed to the sediments in Frobisher Bay, 8 - 12 August 1983.

Sample No.	83-20	83-21	83-22	83-23	83-24	83-25	83-26
Date	8-10 Aug	8-10 Aug	8-10 Aug	8-10 Aug	10-12 Aug	10-12 Aug	10-12 Aug
Station depth (m)	26-36	24-34	23-34	24-34	27-39	24-36	24-36
Ice cover (cm)	0	0	0	0	0	0	0
Sedimentation rate (cells.m ⁻² .day ⁻¹)	134,518,638	272,497,415	212,122,086	195,644,226	109,736,992	950,296,463	1,323,304,516
Bacillariophyta	128,985,739	265,226,201	211,774,914	192,864,202	109,390,800	935,091,719	1,304,318,393
Centrales	77,633,509	204,632,749	145,117,892	119,888,559	84,655,769	826,757,920	1,078,383,527
<i>Biddulphia aurita</i>	172,903	-	-	-	-	-	-
<i>Chaetoceros brevis</i>	4,841,288	19,389,905	6,943,440	12,857,614	4,726,439	81,725,495	89,234,779
<i>C. decipiens</i>	13,313,542	38,433,562	23,954,867	16,680,147	15,072,088	182,456,920	225,934,865
<i>C. furcellatus</i>	4,495,482	21,813,643	11,456,676	8,340,074	1,995,607	76,023,717	136,700,086
<i>C. holsaticus</i>	2,420,644	2,769,986	6,249,096	1,390,012	1,312,900	34,210,673	34,146,757
<i>C. septentrionalis</i>	4,322,578	11,426,194	4,513,236	9,382,583	2,730,831	32,310,080	53,161,145
<i>C. spores</i>	2,593,547	4,154,980	1,735,860	1,390,012	1,312,900	19,005,929	11,391,674
<i>C. wighamii</i>	26,627,083	81,714,601	71,864,602	45,522,902	46,844,259	332,603,761	391,114,135
<i>Coscinodiscus furcatus</i>	172,903	-	-	-	-	-	-
<i>Cyclotella striata</i>	172,903	-	-	-	262,580	-	1,898,612
<i>Leptocylindrus danicus</i>	172,903	-	1,041,516	-	105,032	-	11,391,674
<i>Melosira sp.</i>	-	-	-	-	-	-	5,695,837
<i>Thalassiosira decipiens</i>	18,327,733	24,929,878	17,358,599	23,630,209	10,293,133	68,421,345	117,713,963
<i>T. nordenskioeldii</i>	-	-	-	695,006	-	-	-
Pennales	51,352,230	60,593,452	66,657,022	72,975,643	24,735,031	108,333,799	225,934,866
<i>Achnanthes taeniata</i>	12,276,123	5,193,725	10,415,160	9,382,583	5,934,306	5,701,779	66,451,431
<i>Amphora inelegans</i> var. <i>polita</i>	345,806	-	694,344	695,006	-	-	-

Table 9. (cont'd.)

Sample No.	83-20	83-21	83-22	83-23	83-24	83-25	83-26
<u>A. terroris</u>	172,903	-	-	-	52,516	-	-
<u>Cocconeis californica</u>	172,903	-	347,172	-	-	-	-
<u>C. scutellum</u>	345,806	346,248	1,735,860	-	105,032	-	5,695,837
<u>C. scutellum</u> var. <u>parva</u>	-	-	-	-	-	1,900,593	-
<u>C. thunensis</u>	-	-	-	347,503	52,516	-	-
<u>Cylindrotheca closterium</u>	2,420,644	5,193,725	3,471,720	5,907,552	1,417,932	5,701,779	9,493,062
<u>Cymbella affinis</u>	-	-	-	347,503	-	-	-
<u>Diploneis litoralis</u>	172,903	-	-	-	52,516	-	-
<u>Fragilaria islandica</u>	1,210,322	-	-	-	1,050,320	-	3,797,225
<u>F. pinnata</u>	1,901,935	2,423,738	1,388,688	2,085,018	472,644	9,502,965	5,695,837
<u>F. striatula</u>	1,037,419	692,497	347,172	-	105,032	-	-
<u>Gomphonema</u> sp.	172,903	-	-	-	-	-	-
<u>G. augur</u>	-	-	-	347,503	-	-	1,898,612
<u>G. exiguum</u> var. <u>pachycladum</u>	-	346,248	-	-	-	-	-
<u>Grammatophora hamulifera</u>	-	-	-	-	52,516	-	-
<u>Licmophora</u> sp.	-	-	-	347,503	-	-	-
<u>Navicula</u> sp.	172,903	346,248	-	-	52,516	-	-
<u>N. ammophila</u>	-	1,038,745	347,172	-	-	1,900,593	3,797,225
<u>N. cancellata</u>	345,806	-	-	-	52,516	5,701,779	-
<u>N. crassirostris</u>	-	346,248	-	-	-	-	-
<u>N. debilissima</u>	-	-	347,172	-	-	-	-
<u>N. directa</u>	172,903	-	-	-	52,516	-	-
<u>N. directa</u> var. <u>subtilis</u>	172,903	-	-	1,042,509	-	-	1,898,612
<u>N. granii</u>	-	346,248	-	-	-	-	-

Table 10. Sedimentation rates and species composition of phytoplankton contributed to the sediments in Frobisher Bay, 10 - 17 August 1983.

Sample No.	83-27	83-28	83-29	83-30	83-31	83-32
Date	10-12 Aug	12-15 Aug	12-15 Aug	12-15 Aug	15-17 Aug	15-17 Aug
Station depth (m)	23-34	28-39	23-34	25-35	27-35	25-32
Ice cover (cm)	0	0	0	0	0	0
Sedimentation rate (cells.m ⁻² .day ⁻¹)	1,137,268,768	1,033,600,911	834,565,605	865,114,025	681,511,769	809,617,907
Bacillariophyta	1,133,471,543	1,011,869,486	811,458,741	846,070,635	645,703,822	772,085,951
Centrales	930,320,030	901,854,149	732,623,555	760,375,377	588,411,108	707,745,455
<u>Chaetoceros brevis</u>	140,497,311	184,717,115	86,990,552	58,490,414	123,537,419	50,042,608
<u>C. decipiens</u>	225,934,865	226,821,752	138,641,192	156,427,850	118,166,227	66,127,732
<u>C. furcellatus</u>	87,336,166	120,881,053	144,078,102	176,831,483	222,009,275	337,787,603
<u>C. holsaticus</u>	36,073,634	14,940,355	17,669,956	12,242,180	16,113,576	16,085,124
<u>C. septentrionalis</u>	51,262,532	54,328,563	46,213,731	48,968,718	42,969,537	26,808,540
<u>C. spores</u>	13,290,286	8,149,284	6,796,137	13,602,422	-	7,148,944
<u>C. wighamii</u>	277,197,397	228,179,966	207,961,788	221,719,475	1,160,768	130,468,228
<u>Coscinodiscus sp.</u>	1,898,612	-	-	1,360,242	-	-
<u>C. angustelineatus</u>	-	-	1,359,227	-	-	-
<u>C. lacustris</u> var. <u>septentrionalis</u>	5,695,836	-	-	-	-	-
<u>Cyclotella striata</u>	1,898,612	1,358,214	-	-	-	1,787,236
<u>Leptocylindrus danicus</u>	-	-	2,718,455	-	-	-
<u>Melosira</u> sp.	-	5,432,856	-	-	-	-
<u>Thalassiosira</u> sp.	-	1,358,214	1,359,227	-	-	-
<u>T. decipiens</u>	89,234,779	55,686,777	78,835,188	69,372,351	64,454,306	69,702,204
<u>T. oestrupii</u>	-	-	-	-	-	1,787,236
<u>Triceratium arcticum</u>	-	-	-	1,360,242	-	-

Table 10. (cont'd.)

Sample No.	83-27	83-28	83-29	83-30	83-31	83-32
Pennales	189,861,227	110,015,337	78,835,186	85,695,258	57,292,714	64,340,496
<u>Achnanthes taeniata</u>	28,479,185	17,656,783	14,951,501	14,962,664	7,161,590	5,361,708
<u>Amphora terroris</u>	1,898,612	1,358,214	-	4,080,727	-	-
<u>Cocconeis californica</u>	1,898,612	-	-	-	-	-
<u>C. scutellum</u>	1,898,612	4,074,642	4,077,682	4,080,727	-	3,574,472
<u>C. thumensis</u>	3,797,225	-	-	-	1,790,397	1,787,236
<u>Cylindrotheca closterium</u>	5,695,836	8,149,284	12,233,046	1,360,242	1,790,397	1,787,236
<u>Diploneis litoralis</u>	-	-	-	1,360,242	-	-
<u>Fragilaria</u> sp.	-	-	-	-	1,790,397	1,787,236
<u>F. bicapitata</u>	-	1,358,214	1,359,227	-	-	-
<u>F. pinnata</u>	11,391,674	8,149,284	1,359,227	4,080,727	3,580,795	1,787,236
<u>F. striatula</u>	26,580,572	-	1,359,227	-	8,951,987	-
<u>Gomphonema</u> sp.	-	-	-	-	-	1,787,236
<u>G. augur</u>	-	-	-	-	1,790,397	-
<u>Grammatophora hamulifera</u>	-	-	-	-	-	1,787,236
<u>Licmophora</u> sp.	-	1,358,214	-	-	-	1,787,236
<u>Navicula</u> sp.	-	2,716,428	-	1,360,242	-	-
<u>N. ammophila</u>	5,695,836	1,358,214	-	-	-	-
<u>N. cancellata</u>	-	-	-	-	-	1,787,236
<u>N. directa</u> var. <u>subtilis</u>	-	-	1,359,227	-	-	-
<u>N. granii</u>	-	-	-	1,360,242	-	-
<u>N. grevillei</u>	-	-	-	4,080,727	-	-
<u>N. peregrina</u>	-	1,358,214	-	-	-	-
<u>N. transitans</u>	7,594,449	-	2,718,455	8,161,453	1,790,397	1,787,236

Table 10. (cont'd.)

Sample No.	83-27	83-28	83-29	83-30	83-31	83-32
<u>N. transitans</u> var. <u>derasa</u>	-	2,716,428	-	-	-	1,787,236
<u>N. vanhoeffenii</u>	-	4,074,642	-	2,720,484	-	8,936,180
<u>Nitzschia acicularis</u>	17,087,511	23,089,639	6,796,137	12,242,180	3,580,795	17,872,360
<u>N. cylindrus</u>	68,350,043	16,298,569	16,310,728	20,403,633	16,113,576	5,361,708
<u>N. delicatissima</u>	-	4,074,642	-	-	-	-
<u>N. frigida</u>	-	-	4,077,682	1,360,242	5,371,192	1,787,236
<u>N. grunowii</u>	-	2,716,428	2,718,455	-	1,790,397	-
<u>N. seriata</u>	5,695,836	6,791,070	9,514,592	2,720,484	1,790,397	3,574,472
<u>Stenoneis inconspicua</u> var. <u>baculus</u>	1,898,612	1,358,214	-	1,360,242	-	-
<u>Synedra tabulata</u>	1,898,612	1,358,214	-	-	-	-
 Chlorophyta	 13,290,286	 21,731,425	 21,747,637	 14,962,664	 35,807,947	 33,957,484
<u>Chlamydomonas</u> sp.	7,594,449	8,149,284	19,029,183	12,242,180	34,017,550	28,595,776
<u>C. ballenyana</u>	-	-	1,359,227	-	-	-
<u>C. cysts</u>	1,898,612	-	-	-	-	-
<u>C. pulsatilla</u>	3,797,225	13,582,141	1,359,227	2,720,484	1,790,397	-
<u>Thalassomonas</u> sp.	-	-	-	-	-	5,361,708
 Chrysophyta	 -	 -	 -	 1,360,242	 -	 3,574,472
<u>Distephanus</u> sp.	-	-	-	-	-	1,787,236
<u>Phaeocystis</u> pouchetii	-	-	-	1,360,242	-	1,787,236

Table 10. (cont'd.)

Sample No.	83-27	83-28	83-29	83-30	83-31	83-32
Pyrrophyta						
<u>Goniaulax cysts</u>	3,797,225	-	1,359,227	2,720,484	-	-
<u>Prorocentrum</u> sp.	-	-	1,359,227	1,360,242	-	-
	3,797,225	-	-	1,360,242	-	-

Table 11. Sedimentation rates and species composition of phytoplankton contributed to the sediments in Frobisher Bay, 17 - 20 August 1983.
17 - 20 August 1983

Sample No.	83-33	83-34	83-35	83-36	83-37	83-38
Date	17-18 Aug	17-18 Aug	18-20 Aug	18-20 Aug	18-20 Aug	18-20 Aug
Station depth (m)	29-35	26-31	31-36	30-35	30-35	29-35
Ice cover (cm)	0	0	0	0	0	0
Sedimentation rate (cells.m ⁻² .day ⁻¹)	90,232,377	73,428,896	40,290,969	32,579,213	43,788,862	53,063,833
Bacillariophyta						
Centrales	84,707,947	65,487,527	36,713,006	28,559,021	38,860,690	42,922,327
<i>Chaetoceros brevis</i>	79,183,516	57,776,344	31,786,821	26,575,032	34,240,530	38,978,388
<i>C. decipiens</i>	8,747,016	3,682,954	3,111,271	2,610,514	4,774,167	6,095,175
<i>C. furcellatus</i>	11,624,324	6,905,539	2,229,744	1,931,780	3,850,135	5,070,776
<i>C. holsaticus</i>	32,225,849	23,593,925	14,882,247	11,225,210	10,831,712	11,524,490
<i>C. septentrionalis</i>	2,416,939	2,186,754	1,348,218	261,051	770,027	870,739
<i>C. spores</i>	5,294,247	2,762,216	1,970,472	1,357,467	2,926,102	2,458,558
<i>C. wighamii</i>	345,277	230,185	362,982	156,631	564,686	307,320
<i>Coscinodiscus sp.</i>	10,358,309	11,394,140	4,926,179	5,586,500	5,133,513	8,451,293
<i>C. lacustris</i> var.	230,185	-	-	-	-	-
<i>septentrionalis</i>	-	-	-	-	102,670	204,880
<i>Cyclotella striata</i>	-	-	-	-	51,335	102,440
<i>Leptocylindrus danicus</i>	-	-	-	-	51,335	-
<i>Thalassiosira sp.</i>	115,092	-	-	104,421	308,011	-
<i>T. decipiens</i>	7,826,278	7,020,631	2,955,708	3,341,458	4,876,837	3,892,717
Pennales	5,524,431	7,711,183	4,926,185	1,983,989	4,620,160	3,943,939
<i>Achnanthes taeniata</i>	575,462	1,496,200	674,109	261,051	975,367	819,519
<i>A. inelegans</i> var. <i>polita</i>	-	-	-	-	-	102,440
<i>Cocconeis dirupta</i>	-	-	-	52,210	-	-

Table 11. (cont'd.)

Sample No.	83-33	83-34	83-35	83-36	83-37	83-38
<u>C. scutellum</u>	-	115,092	51,855	-	102,670	-
<u>C. scutellum</u> var. <u>parva</u>	-	-	-	-	51,335	51,220
<u>C. thunensis</u>	347,277	-	-	-	-	-
<u>Cylindrotheca closterium</u>	230,185	115,092	155,564	-	205,341	153,660
<u>Diploneis litoralis</u>	-	-	103,709	52,210	102,670	-
<u>Fragilaria</u> sp.	115,092	-	-	-	-	-
<u>F. islandica</u>	805,646	-	-	-	-	-
<u>F. pinnata</u>	345,277	230,185	362,982	208,841	513,351	256,100
<u>F. striatula</u>	-	115,092	-	-	51,335	102,440
<u>Fragilariopsis nana</u>	-	-	51,855	-	-	-
<u>Gomphonema exiguum</u> var. <u>pachycladum</u>	-	-	51,855	-	-	-
<u>Grammatophora angulosa</u>	-	-	-	52,210	51,335	51,220
<u>G. hamulifera</u>	-	-	-	-	-	51,220
<u>Gyrosigma distortum</u>	-	-	-	52,210	-	-
<u>Navicula</u> sp.	-	115,092	-	-	-	204,880
<u>N. ammophila</u>	-	-	-	-	-	51,220
<u>N. cancellata</u>	-	115,092	-	-	-	-
<u>N. directa</u>	-	115,092	-	-	51,335	-
<u>N. granii</u>	-	-	933,381	-	-	-
<u>N. grevillei</u>	-	-	-	52,210	-	-
<u>N. peregrina</u>	-	-	51,855	-	51,335	51,220
<u>N. transitans</u>	-	345,277	51,855	-	205,341	102,440
<u>N. transitans</u> var. <u>derasa</u>	115,092	-	-	-	-	-
<u>N. vanhoeffenii</u>	-	-	674,109	208,841	-	102,440

Table 11. (cont'd.)

Sample No.	83-33	83-34	83-35	83-36	83-37	83-38
<u>Nitzschia acicularis</u>	920,739	690,554	881,527	574,313	359,346	512,200
<u>N. cylindrus</u>	690,554	1,381,108	259,273	156,631	564,686	563,420
<u>N. delicatissima</u>	-	-	-	-	-	51,220
<u>N. frigida</u>	345,277	115,092	103,709	52,210	205,341	307,320
<u>N. grunowii</u>	115,092	1,266,015	103,709	104,421	462,016	204,880
<u>N. linearis</u>	230,185	115,092	155,564	156,631	51,335	-
<u>N. seriata</u>	460,369	1,266,016	155,564	-	410,681	153,660
<u>Pinnularia</u> sp.	-	-	-	-	102,670	-
<u>P. quadratarea</u> var. <u>bicuneata</u>	115,092	-	-	-	-	-
<u>Stenoneis</u> <u>inconspicua</u> var. <u>baculus</u>	115,092	115,092	-	-	-	-
<u>Synedra</u> sp.	-	-	-	-	51,335	51,220
<u>S. tabulata</u>	-	-	51,855	-	-	-
<u>Tabellaria</u> <u>flocculosa</u>	-	-	-	-	51,335	-
<u>Trachyneis</u> <u>aspera</u>	-	-	51,855	-	-	-
 Chlorophyta	 5,179,154	 7,596,093	 3,526,108	 3,550,299	 4,004,140	 1,075,619
<u>Chlamydomonas</u> sp.	5,064,062	7,365,908	2,644,581	3,341,458	3,644,794	-
<u>C. ballenyana</u>	-	-	-	52,210	-	-
<u>C. pulsatilla</u>	115,092	230,185	207,418	156,631	359,346	1,075,619
<u>C. tetraolaris</u>	-	-	622,254	-	-	-
<u>Thalassomonas</u> sp.	-	-	51,855	-	-	-

Table 11. (cont'd.)

Sample No.	83-33	83-34	83-35	83-36	83-37	83-38
Chrysophyta	-	115,092	-	-	51,335	153,660
<u>Distephanus sp.</u>	-	-	-	-	51,335	-
<u>Phaeocystis pouchetii</u>	-	115,092	-	-	-	153,660
Euglenophyta	115,092	115,092	-	-	-	-
<u>Euglena schmitzii</u>	115,092	115,092	-	-	-	-
Pyrrophyta	230,184	115,092	-	-	51,335	-
<u>Goniaulax cysts</u>	-	115,092	-	-	-	-
<u>Oxytoxum sp.</u>	115,092	-	-	-	-	-
<u>Prorocentrum sp.</u>	115,092	-	-	-	51,335	-
Unidentified cysts	-	-	51,855	469,893	821,362	8,912,227

Table 12. Sedimentation rates and species composition of phytoplankton contributed to the sediments in Frobisher Bay, 20 -26 August 1983.

Sample No.	83-39	83-40	83-41	83-42	83-43	83-44
Date	20-22 Aug	20-22 Aug	20-22 Aug	20-22 Aug	22-26 Aug	22-26 Aug
Station depth (m)	29-35	29-36	28-34	30-37	25-34	27-35
Ice cover (cm)	0	0	0	0	0	0
Sedimentation rate (cells.m ⁻² .day ⁻¹)	31,011,778	23,793,076	22,059,925	25,470,156	14,946,140	288,401,503
Bacillariophyta	26,589,136	21,184,887	18,596,411	19,768,679	13,935,915	267,734,295
Centrales	24,404,456	18,576,701	13,800,774	15,505,889	11,967,273	234,854,642
<u>Chaetoceros brevis</u>	2,131,394	1,330,709	745,988	1,758,400	569,870	6,575,930
<u>C. decipiens</u>	1,225,551	958,111	959,127	1,012,412	595,773	21,606,627
<u>C. furcellatus</u>	11,882,519	7,984,255	6,447,465	6,181,041	2,771,641	77,971,741
<u>C. holsaticus</u>	106,570	159,685	159,855	319,709	103,613	-
<u>C. septentrionalis</u>	1,545,260	1,383,938	1,278,836	586,133	466,257	26,303,720
<u>C. spores</u>	266,424	53,228	53,285	53,285	129,516	939,419
<u>C. wighamii</u>	1,491,975	2,821,104	1,438,691	1,118,982	2,201,771	21,606,627
<u>Coscinodiscus sp.</u>	53,285	-	53,285	-	-	-
<u>C. angustelineatus</u>	-	-	106,570	53,285	25,903	-
<u>C. lacustris</u> var. <u>septentrionalis</u>	159,855	53,228	-	106,570	77,710	-
<u>Cyclotella striata</u>	-	-	-	-	25,903	-
<u>Leptocylindrus danicus</u>	-	-	-	-	-	1,878,837
<u>Thalassiosira sp.</u>	-	106,457	-	-	-	-
<u>T. decipiens</u>	5,541,623	3,725,986	2,504,387	4,316,072	4,973,413	77,971,741
<u>T. nordenskioeldii</u>	-	-	53,285	-	25,903	-
Pennales	2,184,680	2,608,186	4,795,637	4,262,790	1,968,642	32,879,653
<u>Achnanthes taeniata</u>	266,424	479,055	266,424	1,118,982	284,935	9,394,186

Table 12. (cont'd.)

Sample No.	83-39	83-40	83-41	83-42	83-43	83-44
<u><i>Amphora inelegans</i> var. <i>polita</i></u>	-	106,457	-	-	103,613	-
<u><i>Cocconeis scutellum</i></u>	-	-	53,285	159,855	-	939,419
<u><i>Cylindrotheca closterium</i></u>	-	106,457	-	159,855	103,613	-
<u><i>Cymbella affinis</i></u>	-	-	53,285	-	-	-
<u><i>Diploneis bomboides</i></u>	-	-	-	53,285	25,903	-
<u><i>Fragilaria bicapitata</i></u>	53,285	53,228	-	-	-	-
<u><i>F. pinnata</i></u>	319,709	159,685	106,570	266,424	233,129	1,878,837
<u><i>F. striatula</i></u>	-	106,457	-	319,709	-	2,818,256
<u><i>Gomphonema</i> sp.</u>	-	53,228	-	53,285	-	-
<u><i>Grammatophora angulosa</i></u>	-	53,228	-	-	25,903	-
<u><i>G. arctica</i></u>	-	-	-	-	25,903	-
<u><i>Licmophora</i> sp.</u>	-	-	-	53,285	-	939,419
<u><i>Navicula</i> sp.</u>	-	159,685	53,285	106,570	-	-
<u><i>N. ammophila</i></u>	-	53,228	53,285	53,285	-	-
<u><i>N. crassirostris</i></u>	-	-	-	-	-	939,419
<u><i>N. cryptocephala</i></u>	-	-	-	53,285	-	-
<u><i>N. digitoradiata</i></u>	-	53,228	-	-	-	-
<u><i>N. directa</i></u>	-	-	-	106,570	51,806	939,419
<u><i>N. directa</i> var. <i>subtilis</i></u>	-	-	159,855	106,570	-	-
<u><i>N. granii</i></u>	-	-	3,143,805	-	-	-
<u><i>N. peregrina</i></u>	-	53,228	-	-	25,903	-
<u><i>N. transitans</i></u>	-	53,228	-	-	-	-
<u><i>N. transitans</i> var. <i>derasa</i></u>	53,285	-	-	-	-	-
<u><i>N. vanhoeffenii</i></u>	159,855	-	53,285	-	25,903	1,878,837

Table 12. (cont'd.)

Sample No.	83-39	83-40	83-41	83-42	83-43	83-44
<u>Nitzschia acicularis</u>	213,139	372,599	213,139	213,139	259,032	4,697,093
<u>N. cylindrus</u>	479,564	212,913	319,709	532,848	155,419	1,878,837
<u>N. delicatissima</u>	213,139	-	-	-	51,806	939,419
<u>N. frigida</u>	-	106,457	53,285	106,570	362,645	4,697,093
<u>N. grunowii</u>	106,570	53,228	-	586,133	-	-
<u>N. linearis</u>	53,285	-	-	53,285	25,903	-
<u>N. longissima</u>	53,285	-	-	-	-	-
<u>N. seriata</u>	159,855	212,913	159,855	106,570	25,903	939,419
<u>Pinnularia quadratarea</u>	-	-	-	-	25,903	-
<u>Pleurosigma longum</u>	53,285	53,228	53,285	53,285	-	-
<u>Stenoneis inconspicua</u> var. <u>baculus</u>	-	-	-	-	-	939,419
<u>Synedra</u> sp.	-	53,228	-	-	77,710	-
<u>Tabellaria flocculosa</u>	-	-	-	-	77,710	-
<u>Trachyneis aspera</u>	-	53,228	53,285	-	-	-
 Chlorophyta	 426,279	 319,370	 426,278	 1,971,539	 259,032	 1,878,837
<u>Chlamydomonas</u> sp.	-	-	213,139	532,848	103,613	-
<u>C. pulsatilla</u>	426,279	319,370	213,139	1,385,406	155,419	1,878,837
<u>Thalassomonas</u> sp.	-	-	-	53,285	-	-
 Chrysophyta	 -	 212,913	 799,273	 213,139	 77,710	 -
<u>Phaeocystis</u> pouchetii	-	212,913	799,273	213,139	77,710	-

Table 12. (cont'd.)

Sample No.	83-39	83-40	83-41	83-42	83-43	83-44
Pyrrophyta	53,285	-	213,139	1,971,539	-	-
<u>Prorocentrum</u> sp.	53,285	-	213,139	1,971,539	-	-
Unidentified cysts	3,943,078	2,075,906	2,024,824	1,545,260	673,483	18,788,371

Table 13. Sedimentation rates and species composition of phytoplankton contributed to the sediments in Frobisher Bay, 22 - 29 August 1983.

Sample No.	83-45	83-46	83-47	83-48	83-49	83-50
Date	22-26 Aug	22-26 Aug	26-29 Aug	26-29 Aug	26-29 Aug	26-29 Aug
Station depth (m)	25-34	25-34	25-34	25-34	27-35	26-35
Ice cover (cm)	0	0	0	0	0	0
Sedimentation rate (cells.m ⁻² .day ⁻¹)	408,436,476	19,841,168	577,110,180	31,065,604	31,337,833	465,659,336
Bacillariophyta	373,695,902	18,754,675	514,999,667	29,530,178	29,336,786	399,507,174
Centrales	353,039,347	16,555,845	487,826,318	26,744,981	27,014,141	374,862,251
<u>Chaetoceros brevis</u>	18,778,689	620,844	16,821,597	178,538	393,063	12,971,012
<u>C. decipiens</u>	21,595,492	1,112,346	31,055,256	2,428,116	1,286,388	14,268,113
<u>C. furcellatus</u>	162,435,657	3,802,670	161,746,127	7,641,423	9,969,504	143,978,235
<u>C. holsaticus</u>	5,633,607	336,291	6,469,845	107,123	214,398	1,297,101
<u>C. septentrionalis</u>	21,595,492	957,135	25,879,380	999,812	821,859	10,376,810
<u>C. spores</u>	-	77,606	-	178,538	107,199	-
<u>C. wighamii</u>	30,045,902	2,354,034	91,871,800	7,248,640	6,682,069	83,014,478
<u>Coscinodiscus sp.</u>	-	-	-	107,123	71,466	1,297,101
<u>C. angustelineatus</u>	938,934	-	-	-	-	-
<u>C. lacustris</u> var. <u>septentrionalis</u>	-	77,606	-	-	-	-
<u>Cyclotella striata</u>	-	103,474	-	71,415	35,733	-
<u>Leptocylindrus danicus</u>	-	-	-	-	-	1,297,101
<u>Melosira arctica</u>	-	51,737	-	-	-	-
<u>Thalassiosira decipiens</u>	92,015,574	7,036,233	153,982,313	7,784,253	7,432,462	106,362,300
<u>T. nordenskioeldii</u>	-	25,869	-	-	-	-
Pennales	20,656,555	2,198,830	27,173,349	2,785,197	2,322,645	24,644,923
<u>Achnanthes groenlandica</u>	-	25,869	-	-	-	-

Table 13. (cont'd.)

Sample No.	83-45	83-46	83-47	83-48	83-49	83-50
<u>A. taeniata</u>	938,934	362,159	-	392,783	357,330	2,594,202
<u>Amphora inelegans</u> var. <u>polita</u>	-	-	-	-	-	1,297,101
<u>A. terroris</u>	-	-	-	-	71,466	-
<u>Cocconeis californica</u>	-	25,869	-	107,123	-	-
<u>C. pseudomarginata</u>	-	-	-	-	35,733	1,297,101
<u>C. scutellum</u>	-	310,422	-	178,538	107,199	-
<u>Cylindrotheca closterium</u>	1,877,869	77,606	-	107,123	-	-
<u>Diploneis smithii</u>	-	-	-	35,708	-	-
<u>Fragilaria pinnata</u>	938,934	51,737	6,469,845	249,953	178,665	3,891,304
<u>F. striatula</u>	-	77,606	-	35,708	-	-
<u>Gomphonema</u> sp.	938,934	103,474	-	-	-	-
<u>G. exiguum</u> var. <u>pachycladum</u>	938,934	-	-	-	-	-
<u>Grammatophora hamulifera</u>	938,934	-	-	-	-	-
<u>Navicula</u> sp.	-	25,869	-	35,708	-	-
<u>N. ammophila</u>	938,934	25,869	-	35,708	-	-
<u>N. directa</u> var. <u>subtilis</u>	-	25,869	3,881,907	35,708	71,466	-
<u>N. grevillei</u>	-	-	1,293,969	35,708	-	-
<u>N. peregrina</u>	-	-	-	35,708	35,733	-
<u>N. pygmaea</u>	-	25,869	-	-	-	-
<u>N. transitans</u>	-	103,474	-	142,830	142,932	1,297,101
<u>N. transitans</u> var. <u>derasa</u>	-	-	-	35,708	-	-
<u>N. trigocephala</u>	-	-	-	-	35,733	-
<u>N. vanhoeffenii</u>	-	51,737	-	-	250,131	-
<u>Nitzschia acicularis</u>	3,755,738	336,291	2,587,938	357,076	321,597	3,891,304

Table 13. (cont'd.)

Sample No.	83-45	83-46	83-47	83-48	83-49	83-50
<u>N. cylindrus</u>	2,816,803	181,080	6,469,845	357,076	250,131	5,188,405
<u>N. delicatissima</u>	-	-	-	107,123	-	-
<u>N. frigida</u>	2,816,803	51,737	-	107,123	250,131	1,297,101
<u>N. grunowii</u>	3,755,738	25,869	3,881,907	107,123	142,932	3,891,304
<u>N. linearis</u>	-	-	-	-	35,733	-
<u>N. seriata</u>	-	181,080	2,587,938	107,123	-	-
<u>Pinnularia</u> sp.	-	-	-	71,415	35,733	-
<u>Pleurosigma longum</u>	-	25,869	-	-	-	-
<u>Stenoneis inconspicua</u> var. <u>baculus</u>	-	25,869	-	-	-	-
<u>Synedra</u> sp.	-	77,606	-	35,708	-	-
<u>S. tabulata</u>	-	-	-	35,708	-	-
<u>Tabellaria flocculosa</u>	-	-	-	35,708	-	-
Chlorophyta	-	77,606	3,881,907	71,415	-	6,485,506
<u>Chlamydomonas</u> sp.	-	51,737	-	-	-	1,297,101
<u>C. pulsatilla</u>	-	25,869	3,881,907	71,415	-	5,188,405
Chrysophyta	1,877,869	232,817	5,175,876	178,538	321,597	2,594,202
<u>Phaeocystis pouchetii</u>	1,877,869	232,817	5,175,876	178,538	321,597	2,594,202
Pyrrophyta	-	25,869	-	35,708	-	-
<u>Gonyaulax</u> sp.	-	25,869	-	-	-	-
<u>Prorocentrum</u> sp.	-	-	-	35,708	-	-

Table 13. (cont'd.)

Sample No.	83-45	83-46	83-47	83-48	83-49	83-50
Unidentified cysts	32,862,705	750,201	53,052,730	1,249,765	1,679,450	57,072,454

Table 14. Sedimentation rates and species composition of phytoplankton contributed to the sediments in Frobisher Bay, 9 - 21 March 1984.

Sample No.	84-2	84-3	84-4	84-5	84-6	84-7
Date	9-14 March	9-14 March	14-17 March	14-17 March	17-21 March	17-21 March
Station depth (m)	32-39	31-38	29-40	29-40	29-41	29-41
Ice cover (cm)	157	157	157	157	157	157
Sedimentation rate (cells.m ⁻² .day ⁻¹)	2,089,315	2,511,960	2,775,020	3,076,991	3,182,852	9,276,988
Bacillariophyta	1,644,409	2,013,037	2,156,993	2,262,691	2,472,538	7,052,665
Centrales	854,917	984,829	881,072	961,141	607,291	3,078,718
<u>Chaetoceros borealis</u>	-	-	-	13,349	-	-
<u>C. brevis</u>	17,447	8,677	26,582	66,746	70,489	94,941
<u>C. decipiens</u>	21,809	13,015	37,100	66,746	92,178	189,811
<u>C. furcellatus</u>	662,996	616,061	671,190	567,340	103,023	2,115,819
<u>C. holsaticus</u>	-	-	-	-	5,422	-
<u>C. septentrionalis</u>	-	4,338	-	6,675	43,378	40,689
<u>Coscinodiscus sp.</u>	-	-	-	6,675	5,422	-
<u>C. apiculatus</u>	8,724	-	-	-	-	-
<u>Cyclotella sp.</u>	-	4,338	-	-	16,267	-
<u>Melosira italica</u>	8,724	-	-	-	-	-
<u>Thalassiosira spp.</u>	100,322	255,969	106,327	206,912	222,312	434,014
<u>T. decipiens</u>	34,895	82,431	39,873	26,698	48,800	203,444
Pennales	789,492	1,028,208	1,275,921	1,301,550	1,865,247	3,973,947
<u>Achnanthes sp.</u>	4,362	-	-	-	-	-
<u>A. taeniata</u>	69,789	104,123	86,391	180,214	124,712	705,273
<u>Amphirora kjellmanii</u>	8,724	-	-	-	-	-
<u>A. kjellmanii var. kariana</u>	4,362	8,677	-	-	-	-
<u>Amphora binodis</u>	-	8,677	-	13,349	-	-

Table 14. (cont'd.)

Sample No.	84-2	84-3	84-4	84-5	84-6	84-7
<u>A. inelegans</u>	17,447	43,385	13,291	-	54,222	54,252
<u>A. laevis</u> var. <u>laevissima</u>	-	-	-	-	-	27,126
<u>A. terroris</u>	-	30,369	33,227	6,675	43,378	67,815
<u>Campylodiscus angularis</u>	-	4,338	-	-	-	-
<u>Cocconeis</u> sp.	4,362	4,338	-	-	10,844	27,126
<u>C. californica</u>	-	-	-	-	-	40,689
<u>C. pseudomarginata</u>	-	13,015	-	-	27,111	13,563
<u>C. scutellum</u>	21,809	8,677	13,291	6,675	27,111	40,689
<u>C. scutellum</u> var. <u>parva</u>	8,724	-	6,645	20,024	16,267	54,252
<u>C. thunensis</u>	4,362	-	19,936	6,675	5,422	13,563
<u>Cylindrotheca closterium</u>	-	-	13,291	6,675	-	-
<u>Cymbella</u> sp.	-	-	-	-	5,422	-
<u>Diploneis bombus</u>	4,362	-	-	6,675	16,267	-
<u>D. borealis</u>	-	-	-	-	5,422	-
<u>D. didyma</u>	-	-	-	-	5,422	-
<u>D. litoralis</u>	8,724	21,692	-	13,349	10,844	-
<u>D. smithii</u>	-	4,338	-	6,675	16,267	27,126
<u>Eunotia</u> sp.	-	4,338	-	-	-	-
<u>Fragilaria</u> sp.	-	-	-	-	16,267	40,689
<u>F. bicapitata</u>	4,362	-	-	6,675	5,422	-
<u>F. pinnata</u>	-	177,877	152,845	120,143	211,468	474,703
<u>Gomphonema</u> sp.	47,980	34,708	39,873	26,698	37,956	54,252
<u>G. augur</u>	17,447	-	13,291	-	-	13,563
<u>G. exiguum</u> var. <u>pachycladum</u>	8,724	8,677	6,645	-	-	-

Table 14. (cont'd.)

Sample No.	84-2	84-3	84-4	84-5	84-6	84-7
<u>G. gracile</u>	-	-	-	20,024	16,267	27,126
<u>Grammatophora sp.</u>	4,362	-	-	-	-	-
<u>G. arctica</u>	8,724	8,677	13,291	6,675	10,844	13,563
<u>Gyrosigma balticum</u>	-	4,338	-	-	-	-
<u>Licmophora sp.</u>	8,724	-	-	-	-	-
<u>Navicula sp.</u>	17,447	13,015	13,291	20,024	65,067	40,689
<u>N. algida</u>	-	-	-	13,349	5,422	-
<u>N. ammophila</u>	30,533	17,354	13,291	53,397	32,533	94,491
<u>N. crassirostris</u>	-	-	-	13,349	-	-
<u>N. crucigeroides</u>	-	-	-	-	5,422	-
<u>N. cryptocephala</u>	-	-	13,291	-	5,422	-
<u>N. debilissima</u>	13,085	-	19,936	6,675	43,378	40,689
<u>N. directa</u>	4,362	13,015	13,291	6,675	27,111	-
<u>N. directa</u> var. <u>subtilis</u>	-	-	26,582	-	48,800	13,563
<u>N. forcipata</u>	-	-	-	6,675	-	-
<u>N. grevillei</u>	-	13,015	-	-	5,422	27,126
<u>N. imperfecta</u>	4,362	4,338	6,645	-	5,422	-
<u>N. kariana</u>	-	-	-	-	5,422	-
<u>N. latissima</u>	-	-	-	-	16,267	13,563
<u>N. peregrina</u>	-	4,338	6,645	-	21,689	-
<u>N. pygmaea</u>	-	-	-	-	-	40,689
<u>N. solitaria</u>	-	17,354	6,645	13,349	10,844	94,941
<u>N. transitans</u>	8,724	17,354	13,291	40,048	5,422	54,252
<u>N. transitans</u> var. <u>derasa</u>	13,085	17,354	19,936	20,024	43,378	54,252

Table 14. (cont'd.)

Sample No.	84-2	84-3	84-4	84-5	84-6	84-7
<u>N. trigonocephala</u>	-	8,677	6,645	-	-	-
<u>N. vanhoeffenii</u>	-	-	6,645	-	21,689	-
<u>Nitzschia</u> sp.	13,085	13,015	6,645	-	-	-
<u>N. acicularis</u>	30,533	69,415	112,973	113,468	65,067	406,888
<u>N. cylindrus</u>	74,151	95,446	206,009	140,166	157,245	596,769
<u>N. frigida</u>	4,362	39,046	13,291	26,698	124,712	13,563
<u>N. frustulum</u>	69,789	30,369	93,036	66,746	65,067	108,504
<u>N. gelida</u>	17,447	4,338	39,873	-	37,956	81,378
<u>N. grunowii</u>	78,513	78,092	79,745	120,143	59,645	189,881
<u>N. linearis</u>	95,960	26,031	86,391	146,841	244,001	325,511
<u>N. marginulata</u>	-	-	-	-	5,422	13,563
<u>N. seriata</u>	-	13,015	6,645	-	-	-
<u>N. tergestina</u>	30,533	13,015	26,582	-	-	-
<u>Pinnularia quadratarea</u>	-	-	-	-	10,844	13,563
<u>P. quadratarea</u> var. <u>bicontracta</u>	4,362	4,338	-	-	-	-
<u>P. quadratarea</u> var. <u>stuxbergii</u>	-	-	-	-	5,422	-
<u>Pleurosigma</u> sp.	-	-	-	-	5,422	13,563
<u>P. angulatum</u>	4,362	-	-	-	-	-
<u>P. latiusculum</u>	-	4,338	-	-	5,422	-
<u>P. longum</u>	-	-	-	-	16,267	-
<u>P. marinum</u>	-	-	-	-	-	13,563
<u>Pseudonitzschia delicatissima</u>	-	-	-	20,024	-	-
<u>Rhabdonema arcuatum</u>	4,362	-	-	-	-	-
<u>R. minutum</u>	-	-	6,645	-	-	-

Table 14. (cont'd.)

Sample No.	84-2	84-3	84-4	84-5	84-6	84-7
<u>Stenoneis inconspicua</u> var. <u>baculus</u>	-	-	6,645	-	5,422	-
<u>Synedra</u> sp.	-	8,677	6,645	13,349	5,422	-
<u>S. tabulata</u>	-	-	6,645	-	5,422	27,126
<u>Tabellaria flocculosa</u>	13,085	8,677	-	13,349	10,844	-
<u>Trachyneis aspera</u>	-	4,338	-	-	-	-
 Chlorophyta	 431,820	 498,923	 618,027	 807,625	 688,626	 2,210,760
<u>Chlamydomonas</u> sp.	392,563	464,215	591,445	774,252	628,981	2,088,693
<u>C. ballenyana</u>	30,533	17,354	13,291	26,698	59,645	40,689
<u>C. pulsatilla</u>	8,724	17,354	13,291	6,675	-	54,252
<u>C. cysts</u>	-	-	-	-	-	27,126
 Chrysophyta	 4,362	 -	 -	 -	 16,266	 13,563
<u>Dinobryon</u> sp.	-	-	-	-	5,422	-
<u>Phaeocystis pouchetii</u>	4,362	-	-	-	10,844	13,563
 Euglenophyta	 -	 -	 -	 6,675	 -	 -
<u>Euglena proxima</u>	-	-	-	6,675	-	-
 Pyrrophyta	 8,724	 -	 -	 -	 5,422	 -
<u>Goniaulax</u> cysts	4,362	-	-	-	-	-
<u>Gymnodinium</u> cysts	4,362	-	-	-	-	-
<u>Prorocentrum</u> <u>rampii</u>	-	-	-	-	5,422	-

Table 15. Sedimentation rates and species composition of phytoplankton contributed to the sediments in Frobisher Bay, 25 May - 4 June 1984

Sample No.	84-9	84-10	84-15	84-16
Date	25-29 May	25-29 May	29 May-4 June	29 May-4 June
Station depth (m)	29-37	30-37	29-38	29-38
Ice cover (cm)	168	168	168	168
Sedimentation rate ($\text{cells} \cdot \text{m}^{-2} \cdot \text{day}^{-1}$)	17,465,157	11,876,189	75,495,334	67,206,152
Bacillariophyta	16,823,888	11,461,466	73,327,393	66,185,945
Centrales	11,391,961	7,238,821	63,890,476	53,305,825
<u>Chaetoceros decipiens</u>	-	-	127,526	-
<u>C. furcellatus</u>	10,524,357	6,635,586	61,850,061	51,775,515
<u>Coscinodiscus lacustris</u> var. <u>septentrionalis</u>	339,495	226,213	127,526	255,052
<u>Cyclotella</u> sp.	75,443	-	127,526	-
<u>C. striata</u>	-	113,107	-	-
<u>Thalassiosira</u> sp.	37,722	75,404	127,526	637,629
<u>T. decipiens</u>	377,222	188,511	1,402,785	637,629
<u>Triceratium montereyii</u>	37,722	-	127,526	-
Pennales	5,431,927	4,222,645	9,436,917	12,880,120
<u>Achnanthes groenlandica</u>	37,722	-	-	255,052
<u>A. taeniata</u>	264,052	-	637,629	1,785,363
<u>Amphiprora kjellmanii</u>	-	37,702	-	-
<u>Amphora inelegans</u>	-	-	510,104	-
<u>A. laevis</u> var. <u>laevissima</u>	37,722	113,107	-	-
<u>A. terroris</u>	264,052	188,511	382,578	382,578
<u>Campylodiscus</u> sp.	-	-	-	127,526
<u>Cocconeis</u> sp.	150,887	-	-	-

Table 15. (cont'd.).

Sample No.	84-9	84-10	84-15	84-16
<u>C. pseudomarginata</u>	-	113,107	-	127,526
<u>C. scutellum</u>	113,165	-	-	382,578
<u>C. scutellum</u> var. <u>parva</u>	-	75,404	-	255,052
<u>C. thumensis</u>	-	75,404	-	510,104
<u>Cylindrotheca closterium</u>	-	-	127,526	-
<u>Cymbella</u> sp.	37,722	-	-	255,052
<u>C. affinis</u>	37,722	-	-	-
<u>Diploneis bombus</u>	150,887	-	-	-
<u>D. litoralis</u>	37,722	37,702	-	127,526
<u>D. smithii</u>	37,722	37,702	-	127,526
<u>Eunotia rhyncocephala</u>	-	-	-	127,526
<u>Fragilaria</u> sp.	75,443	113,107	127,526	-
<u>F. pinnata</u>	754,434	490,129	2,295,466	1,275,259
<u>Gomphonema</u> sp.	113,165	150,809	127,526	-
<u>G. augur</u>	37,722	-	-	127,526
<u>G. exiguum</u> var. <u>pachycladum</u>	37,722	37,702	255,052	1,275,259
<u>Grammatophora arctica</u>	-	-	255,052	255,052
<u>Gyrosigma balticum</u>	37,722	-	-	-
<u>G. fasciola</u>	-	-	-	127,526
<u>Licmophora</u> sp.	-	-	-	127,526
<u>Navicula</u> sp.	37,722	113,107	127,526	127,526
<u>N. debilissima</u>	75,443	-	-	510,104
<u>N. directa</u>	113,165	37,702	127,526	-
<u>N. directa</u> var. <u>subtilis</u>	-	37,702	127,526	-

Table 15. (cont'd.)

Sample No.	84-9	84-10	84-15	84-16
<u>N. <i>grevillei</i></u>	-	75,404	-	255,052
<u>N. <i>peregrina</i></u>	113,165	-	-	-
<u>N. <i>rhynchocephala</i></u>	-	-	127,526	-
<u>N. <i>transitans</i></u>	75,443	150,809	-	-
<u>N. <i>transitans</i> var. <i>derasa</i></u>	75,443	-	255,052	127,526
<u>N. <i>trigonocephala</i> var. <i>depressa</i></u>	-	37,702	-	-
<u>N. <i>valida</i></u>	37,722	37,702	-	-
<u>Nitzschia <i>acicularis</i></u>	113,165	226,213	-	127,526
<u>N. <i>cylindrus</i></u>	980,764	565,533	1,912,888	1,657,837
<u>N. <i>frigida</i></u>	264,052	188,511	-	-
<u>N. <i>grunowii</i></u>	264,052	113,107	765,155	892,681
<u>N. <i>linearis</i></u>	943,043	942,555	1,275,259	892,681
<u>N. <i>tergestina</i></u>	-	37,702	-	-
<u>Pinnularia <i>quadratarea</i> var. <i>gibbosa</i></u>	-	37,702	-	-
<u>Plagiogramma <i>staurophorum</i></u>	-	-	-	127,526
<u>Pleurosigma <i>marinum</i></u>	-	37,702	-	-
<u>Rhabdonema <i>arcuatum</i></u>	37,722	37,702	-	-
<u>Synedra sp.</u>	75,443	37,702	-	-
<u>S. <i>tabulata</i></u>	-	-	-	382,578
<u>Tabellaria <i>flocculosa</i></u>	-	-	-	127,526
<u>Trachyneis <i>aspera</i></u>	-	37,702	-	-

Table 16. (cont'd.)

Sample No.	84-20	84-21	84-22	84-24	84-25	84-26	84-27
<u>Cocconeis</u> sp.	-	-	10,530	-	-	-	-
<u>C. californica</u>	76,714	76,714	21,059	-	-	253,790	-
<u>C. pseudomarginata</u>	306,856	-	-	254,428	-	-	-
<u>C. scutellum</u>	76,714	153,428	21,059	254,428	6,988	-	-
<u>C. scutellum</u> var. <u>parva</u>	230,142	230,142	-	-	-	253,790	-
<u>C. thumensis</u>	153,428	-	-	254,428	-	-	17,773
<u>Cylindrotheca closterium</u>	-	76,714	-	-	20,965	253,790	-
<u>Cymbella</u> sp.	76,714	-	-	-	-	-	-
<u>C. affinis</u>	-	76,714	-	-	-	-	-
<u>Diploneis bombus</u>	153,428	-	-	-	-	-	-
<u>D. smithii</u>	76,714	-	-	-	-	-	-
<u>Eunotia</u> sp.	76,714	-	-	-	-	-	-
<u>Fragilaria</u> sp.	153,428	306,856	-	508,857	27,954	-	-
<u>F. bicapitata</u>	76,714	153,428	-	508,857	-	-	17,773
<u>F. pinnata</u>	1,073,997	1,380,853	94,767	2,289,856	55,908	761,371	35,546
<u>F. striatula</u>	-	1,610,995	31,589	-	-	-	-
<u>Gomphonema</u> sp.	76,714	-	-	-	-	-	-
<u>G. augur</u>	-	76,714	-	254,428	-	-	-
<u>G. exiguum</u> var. <u>pachycladum</u>	76,714	-	-	254,428	-	-	-
<u>Grammatophora arctica</u>	-	-	21,059	-	6,988	253,790	-
<u>Gyrosigma balticum</u>	153,428	-	-	-	-	-	-
<u>Licmophora</u> sp.	76,714	-	-	-	-	-	-
<u>Navicula</u> sp.	460,284	-	31,589	-	27,954	253,790	17,773
<u>N. algida</u>	-	-	-	-	-	253,790	-

Table 16. (cont'd.)

Sample No.	84-20	84-21	84-22	84-24	84-25	84-26	84-27
<u>N. debilissima</u>	153,428	230,142	-	254,428	27,954	253,790	35,546
<u>N. directa</u>	153,428	-	-	508,857	-	-	-
<u>N. lyra</u>	-	-	10,530	-	-	-	-
<u>N. peregrina</u>	-	153,428	-	-	6,988	-	-
<u>N. rhynchocephala</u>	76,714	-	-	-	-	-	-
<u>N. transitans</u>	153,428	-	-	-	-	-	-
<u>N. transitans</u> var. <u>derasa</u>	383,570	306,856	31,589	254,428	27,954	253,790	-
<u>N. valida</u>	76,714	76,714	10,530	-	6,988	-	-
<u>Nitzschia</u> sp.	-	-	-	-	-	-	35,546
<u>N. acicularis</u>	460,284	306,856	21,059	508,857	41,931	253,790	-
<u>N. cylindrus</u>	3,221,990	4,372,701	421,185	6,615,139	405,333	8,121,293	231,048
<u>N. frigida</u>	-	76,714	42,118	254,428	41,931	507,581	-
<u>N. gelida</u>	-	76,714	21,059	-	-	253,790	-
<u>N. grunowii</u>	10,970,109	1,150,711	157,944	2,544,284	412,321	1,268,952	-
<u>N. linearis</u>	230,142	-	21,059	508,857	27,954	761,371	-
<u>Pinnularia quadratarea</u>	153,428	76,714	-	254,428	13,977	507,581	17,773
<u>Pleurosigma longum</u>	153,428	-	-	-	-	-	-
<u>Rhabdonema arcuatum</u>	76,714	-	-	-	-	253,790	-
<u>Synedra tabulata</u>	306,856	76,714	10,530	-	13,977	253,790	-
<u>Tabellaria flocculosa</u>	-	76,714	-	-	-	-	-
 Chlorophyta	 306,856	 306,856	 21,059	 763,285	 27,954	 761,371	 71,092
<u>Chlamydomonas ballenyana</u>	153,428	-	-	-	-	-	17,773
<u>C. pulsatilla</u>	153,428	230,142	21,059	763,285	27,954	761,371	53,319
<u>Micrasterias</u> sp.	-	76,714	-	-	-	-	-

Table 16. (cont'd.)

Sample No.	84-20	84-21	84-22	84-24	84-25	84-26	84-27
Chrysophyta	76,714	-	42,118	254,428	-	-	17,773
<u>Mallomonas</u> sp.	-	-	-	-	-	-	17,773
<u>Phaeocystis</u> <u>pouchetii</u>	76,714	-	42,118	254,428	-	-	-
Euglenophyta	-	-	10,530	-	-	-	-
<u>Euglena</u> <u>schmitzii</u>	-	-	10,530	-	-	-	-
Pyrrophyta	-	-	21,059	254,428	-	-	-
<u>Goniaulax</u> <u>cysts</u>	-	-	21,059	254,428	-	-	-

Table 17. Sedimentation rates and species composition of phytoplankton contributed to the sediments in Frobisher Bay, 2 - 7 August 1984.

Sample No.	84-29	84-30	84-31	84-32	84-35	84-36	84-37
Date	2-4 Aug.	2-4 Aug.	2-4 Aug.	2-4 Aug.	4-7 Aug.	4-7 Aug.	4-7 Aug.
Station depth (m)	30-39	31-40	30-40	32-42	33-40	31-38	31-38
Ice cover (cm)	0	0	0	0	0	0	0
Sedimentation rate (cells.m ⁻² .day ⁻¹)	9,915,005	302,037,478	414,072,312	271,596,170	564,406,127	366,351,800	519,951,592
Bacillariophyta	9,885,843	300,632,653	413,369,900	270,813,446	563,617,850	366,351,800	517,640,696
Centrales	9,506,737	274,643,384	378,951,677	260,294,378	546,538,520	347,835,823	495,456,097
<u>Chaetoceros affinis</u>	29,162	351,206	1,053,619	706,362	262,759	793,542	462,179
<u>C. decipiens</u>	388,824	11,238,604	17,209,112	9,535,886	34,158,657	17,722,434	10,167,942
<u>C. furcellatus</u>	8,787,413	254,273,415	351,557,581	243,694,872	494,512,253	320,590,888	473,271,497
<u>C. holsaticus</u>	-	-	351,206	-	-	-	-
<u>C. lauderi</u>	-	-	-	-	788,277	-	-
<u>C. septentrionalis</u>	-	351,206	1,756,032	1,765,905	4,992,419	2,380,625	3,235,254
<u>C. spores</u>	-	-	-	353,181	-	-	-
<u>C. wighamii</u>	-	-	351,206	-	525,518	-	-
<u>Coscinodiscus sp.</u>	-	-	-	-	-	-	1,848,717
<u>C. lacustris</u> var. <u>septentrionalis</u>	-	351,206	-	-	-	-	462,179
<u>Thalassiosira sp.</u>	-	-	-	353,181	-	-	462,179
<u>T. decipiens</u>	301,338	8,077,747	6,672,921	3,884,991	11,035,878	6,348,334	5,546,150
<u>T. nordenskioeldii</u>	-	-	-	-	262,759	-	-
Pennales	379,106	25,989,269	34,418,223	9,889,068	17,079,330	18,515,977	22,184,599
<u>Achnanthes taeniata</u>	9,721	702,413	1,404,825	706,362	3,153,107	793,542	462,179
<u>Amphora inelegans</u>	-	-	702,413	-	-	264,514	-

Table 17. (cont'd.)

Sample No.	84-29	84-30	84-31	84-32	84-35	84-36	84-37
<u>A. laevis var. laevissima</u>	-	-	-	-	262,759	-	-
<u>A. terroris</u>	-	-	702,413	-	-	-	-
<u>Ceratoneis arcus</u>	-	-	-	706,362	-	-	-
<u>Cocconeis pseudomarginata</u>	9,721	-	-	-	-	-	-
<u>C. scutellum</u>	-	702,413	-	706,362	-	264,514	-
<u>C. scutellum</u> var. <u>parva</u>	-	-	-	-	-	264,514	-
<u>Cylindrotheca closterium</u>	-	351,206	702,413	-	-	-	-
<u>Fragilaria</u> sp.	19,441	-	351,206	-	-	529,028	2,773,075
<u>F. bicapitata</u>	-	-	-	-	262,759	-	-
<u>F. islandica</u>	9,721	-	-	-	-	-	-
<u>F. pinnata</u>	19,441	1,053,619	1,756,032	353,181	1,839,312	2,380,625	1,386,538
<u>F. striatula</u>	-	702,413	-	-	-	-	-
<u>Gomphonema</u> sp.	-	-	-	706,362	-	-	-
<u>G. augur</u>	-	-	-	-	-	-	924,358
<u>G. exiguum</u>	-	-	351,206	-	-	-	-
<u>G. exiguum</u> var. <u>pachycladum</u>	-	-	351,206	-	-	-	-
<u>Grammatophora arctica</u>	-	351,206	-	-	-	264,514	-
<u>G. hamulifera</u>	-	351,206	-	-	-	-	462,179
<u>Gyrosigma fasciola</u>	-	-	-	-	262,759	-	-
<u>Navicula</u> sp.	9,721	351,206	702,413	1,059,543	525,518	264,514	-
<u>N. debilissima</u>	-	-	-	-	525,518	-	-
<u>N. directa</u>	9,721	-	351,206	-	-	-	-
<u>N. directa</u> var. <u>subtilis</u>	-	-	-	353,181	262,759	-	-
<u>N. granii</u>	9,721	-	11,238,604	-	1,051,036	529,028	-
		-					

Table 17. (cont'd.)

Sample No.	84-29	84-30	84-31	84-32	84-35	84-36	84-37
<u>N. peregrina</u>	-	-	-	353,181	525,518	-	462,179
<u>N. rhynchocephala</u>	-	1,404,825	1,053,619	353,181	-	-	-
<u>N. transitans</u>	-	-	-	-	-	264,514	462,179
<u>N. transitans</u> var. <u>derasa</u>	9,721	351,206	-	353,181	262,759	-	462,179
<u>N. valida</u>	-	-	351,206	-	-	-	-
<u>Nitzschia acicularis</u>	-	351,206	702,413	-	-	529,028	924,358
<u>N. cylindrus</u>	243,015	16,155,493	13,345,842	3,531,810	6,831,731	8,199,932	11,554,480
<u>N. frigida</u>	-	-	-	-	-	1,058,056	-
<u>N. grunowii</u>	19,441	2,458,445	351,206	353,181	1,313,795	1,851,598	924,358
<u>N. linearis</u>	9,721	351,206	-	353,181	-	-	462,179
<u>N. tergestina</u>	-	-	-	-	-	264,514	-
<u>Pinnularia quadratarea</u>	-	-	-	-	-	264,514	-
<u>Pleurosigma marinum</u>	-	351,206	-	-	-	-	-
<u>Rhabdonema arcuatum</u>	-	-	-	-	-	-	462,179
<u>Tabellaria fenestrata</u>	-	-	-	-	-	264,514	-
<u>T. flocculosa</u>	-	-	-	-	-	-	462,179
<u>Trachyneis aspera</u>	-	-	-	-	-	264,514	-
 Chlorophyta	 29,162	 1,053,619	 351,206	 1,412,724	 -	 -	 2,310,896
<u>Chlamydomonas ballenyana</u>	9,721	351,206	-	-	-	-	-
<u>C. pulsatilla</u>	19,441	702,413	351,206	1,412,724	-	-	2,310,896
 Chrysophyta	 -	 351,206	 351,206	 -	 525,518	 -	 -
<u>Dinobryon cylindricum</u>	-	351,206	-	-	-	-	-

Table 17. (cont'd.)

Sample No.	84-29	84-30	84-31	84-32	84-35	84-36	84-37
<u>Phaeocystis globosa</u>	-	-	351,206	-	-	-	-
<u>P. pouchetii</u>	-	-	-	-	525,518	-	-
Pyrrophyta	-	-	-	-	262,759	-	-
<u>Goniaulax cysts</u>	-	-	-	-	262,759	-	-

Table 18. Sedimentation rates and species composition of phytoplankton contributed to the sediments in Frobisher Bay, 7 - 13 August 1984.

Sample No.	84-38	84-39	84-40	84-42	84-43	84-44
Date	7-9 Aug	7-9 Aug	7-9 Aug	9-13 Aug	9-13 Aug	9-13 Aug
Station depth (m)	32-39	30-37	31-37	31-40	31-39	28-37
Ice cover (cm)	0	0	0	0	0	0
Sedimentation rate ($\text{cells.m}^{-2}.\text{day}^{-1}$)	550,757,820	569,538,925	462,538,344	290,220,504	348,198,375	243,275,641
Bacillariophyta	550,368,317	564,682,930	460,979,664	287,505,184	346,827,515	242,703,676
Centrales	526,998,118	544,565,233	441,496,162	277,662,148	337,916,925	234,696,169
<u>Chaetoceros affinis</u>	-	-	389,670	-	685,430	571,965
<u>C. decipiens</u>	21,422,688	26,361,120	8,572,741	8,845,378	5,140,724	5,719,647
<u>C. furcellatus</u>	493,500,825	503,636,126	422,792,000	263,386,129	327,635,477	220,015,742
<u>C. septentrionalis</u>	389,503	-	389,670	339,415	1,028,145	1,525,239
<u>C. spores</u>	389,503	693,714	-	339,415	-	1,334,584
<u>Coscinodiscus</u> sp.	-	-	-	-	-	381,310
<u>C. lacustris</u> var. <u>septentrionalis</u>	389,503	-	-	-	-	381,310
<u>Thalassiosira</u> sp.	-	-	-	339,415	-	-
<u>T. decipiens</u>	10,906,096	13,874,273	9,352,081	4,412,396	3,427,149	4,766,372
Pennales	23,370,399	20,117,697	19,483,502	9,843,036	8,910,590	8,007,507
<u>Achnanthes taeniata</u>	779,007	-	779,340	1,018,245	2,056,290	571,965
<u>Amphiprora concilians</u>	-	693,714	-	-	-	-
<u>Amphora</u> sp.	-	-	-	339,415	-	-
<u>Cocconeis californica</u>	-	-	-	-	-	190,655
<u>C. scutellum</u>	389,503	-	-	-	-	190,655
<u>C. scutellum</u> var. <u>parva</u>	-	-	-	-	-	190,655
<u>Cylindrotheca closterium</u>	389,503	-	389,670	-	-	-
<u>Cymbella</u> sp.	-	-	389,670	-	-	-

Table 18. (cont'd.)

Sample No.	84-38	84-39	84-40	84-42	84-43	84-44
<u>Diploneis smithii</u>	389,503	-	-	-	-	-
<u>Eunotia</u> sp.	-	-	-	-	-	190,655
<u>Fragilaria</u> sp.	3,116,027	-	-	339,415	-	-
<u>F. bicapitata</u>	389,503	-	779,340	-	-	-
<u>F. pinnata</u>	1,558,014	2,774,855	1,558,680	2,375,906	1,028,145	1,334,584
<u>Gomphonema</u> sp.	389,503	-	-	-	-	-
<u>G. augur</u>	389,503	-	-	-	-	190,655
<u>G. exiguum</u> var. <u>pachycladum</u>	389,503	-	-	-	-	-
<u>Grammatophora arctica</u>	389,503	-	389,670	-	342,715	-
<u>G. hamulifera</u>	-	-	779,340	-	-	-
<u>Gyrosigma balticum</u>	-	-	-	-	-	381,310
<u>Navicula</u> sp.	389,503	-	389,670	678,830	342,715	-
<u>N. debilissima</u>	389,503	-	-	339,415	685,430	-
<u>N. directa</u>	-	4,162,282	-	-	-	-
<u>N. directa</u> var. <u>subtilis</u>	-	-	389,670	-	-	-
<u>N. grani</u>	-	-	5,455,381	-	-	-
<u>N. peregrina</u>	-	-	389,670	678,830	-	-
<u>N. rhynchocephala</u>	389,503	1,387,427	-	-	-	-
<u>N. transitans</u>	389,503	-	-	339,415	-	571,965
<u>N. transitans</u> var. <u>derasa</u>	389,503	-	-	678,830	-	381,310
<u>N. valida</u>	-	-	389,670	-	-	-
<u>Nitzschia acicularis</u>	-	-	-	339,415	2,056,290	190,655
<u>N. cylindrus</u>	8,569,075	7,630,850	4,676,041	1,018,245	1,713,575	2,097,204
<u>N. gelida</u>	-	693,714	-	-	-	-

Table 18. (cont'd.)

Sample No.	84-38	84-39	84-40	84-42	84-43	84-44	
<u>N. grunowii</u>	3,505,531	-	1,948,350	1,357,660	685,430	953,274	
<u>N. linearis</u>	-	-	-	339,415	-	190,655	
<u>N. tergestina</u>	-	2,081,141	-	-	-	-	
<u>Pinnularia quadratarea</u>	389,503	-	389,670	-	-	190,655	
<u>Pleurosigma sp.</u>	-	-	389,670	-	-	190,655	
<u>Rhabdonema arcuatum</u>	-	-	-	-	-	190,655	
<u>R. minutum</u>	-	693,714	-	-	-	-	
<u>Trachyneis aspera</u>	389,503	-	-	-	-	-	
Chlorophyta	-	3,468,568	1,558,680	2,036,490	1,028,145	571,965	78
<u>Chlamydomonas sp.</u>	-	-	-	678,830	342,715	-	
<u>C. ballenyana</u>	-	-	-	-	-	190,655	
<u>C. pulsatilla</u>	-	3,468,568	1,558,680	1,357,660	685,430	381,310	
Chrysophyta	389,503	1,387,427	-	678,830	-	-	
<u>Phaeocystis pouchetii</u>	389,503	1,387,427	-	678,830	-	-	
Euglenophyta	-	-	-	-	342,715	-	
<u>Euglena schmitzii</u>	-	-	-	-	342,715	-	

Table 19. Sedimentation rates and species composition of phytoplankton contributed to the sediments in Frobisher Bay,
13 - 20 August 1984

Sample No.	84-47	84-48	84-51	84-52	84-54
Date	13-17 Aug	13-17 Aug	17-18 Aug	17-18 Aug	18-20 Aug
Station depth (m)	31-40	31-39	31-38	31-38	34-40
Ice cover (cm)	0	0	0	0	0
Sedimentation rate ($\text{cells} \cdot \text{m}^{-2} \cdot \text{day}^{-1}$)	538,403,186	791,163,630	1,219,541,357	1,025,378,224	970,530,357
Bacillariophyta	534,631,535	790,319,272	1,218,367,592	1,024,202,332	967,389,482
Centrales	516,244,739	770,054,676	1,180,807,124	990,101,455	934,933,774
<u>C. affinis</u>	1,414,369	1,688,716	4,695,058	7,055,355	30,361,791
<u>C. decipiens</u>	18,386,799	24,486,388	93,901,163	61,146,408	-
<u>C. furcellatus</u>	483,242,793	716,015,751	1,029,391,499	901,909,520	879,444,984
<u>C. septentrionalis</u>	1,414,369	2,533,075	32,865,407	5,879,462	1,046,958
<u>C. spores</u>	5,186,020	11,821,015	4,695,058	2,351,785	12,563,500
<u>T. sp.</u>	-	-	8,216,352	-	1,046,958
<u>T. decipiens</u>	6,600,389	13,509,731	7,042,587	11,758,925	10,469,583
Pennales	18,386,796	20,264,596	37,560,468	34,100,877	32,455,708
<u>Achnanthes taeniata</u>	1,885,826	-	-	2,351,785	-
<u>Amphora laevis</u> var. <u>laevissima</u>	-	-	2,347,529	1,175,892	-
<u>A. terroris</u>	471,456	-	2,347,529	-	-
<u>Campylodiscus</u> sp.	471,456	-	-	-	-
<u>Cocconeis californica</u>	-	-	-	-	1,046,958
<u>C. scutellum</u>	-	844,358	2,347,529	-	-
<u>C. scutellum</u> var. <u>parva</u>	471,456	-	-	-	-
<u>C. thumensis</u>	471,456	-	-	-	-
<u>Cylindrotheca closterium</u>	-	844,358	1,173,765	1,175,892	-
<u>Cymbella</u> sp.	-	-	-	1,175,892	-

Table 19. (cont'd.)

Sample No.	84-47	84-48	84-51	84-52	84-54
<u>Diploneis</u> sp.	-	-	1,173,765	-	-
<u>D. smithii</u>	-	-	1,173,765	-	-
<u>Fragilaria</u> sp.	1,414,369	-	-	1,175,892	2,093,917
<u>F. bicapitata</u>	-	-	-	1,175,892	-
<u>F. pinnata</u>	2,357,282	3,377,433	1,173,765	1,175,892	7,328,708
<u>Gomphonema</u> sp.	471,456	-	-	-	-
<u>Licmophora</u> sp.	471,456	-	-	-	-
<u>Navicula</u> sp.	471,456	2,533,075	1,173,765	3,527,677	-
<u>N. directa</u>	-	-	-	1,175,892	-
<u>N. directa</u> var. <u>subtilis</u>	1,414,369	-	-	-	-
<u>N. peregrina</u>	471,456	-	1,173,765	2,351,785	-
<u>N. transitans</u>	-	844,358	-	-	2,093,917
<u>N. transitans</u> var. <u>derasa</u>	1,414,369	844,358	-	1,175,892	-
<u>Nitzschia</u> <u>acicularis</u>	471,456	-	-	-	1,046,958
<u>N. cylindrus</u>	3,771,651	9,287,940	17,606,468	12,934,817	8,375,667
<u>N. grunowii</u>	1,885,826	844,358	2,347,529	3,527,677	10,469,583
<u>N. linearis</u>	-	-	1,173,765	-	-
<u>Plagiogramma</u> <u>staurophorum</u>	-	844,358	-	-	-
 Chlorophyta	 3,771,651	 844,358	 1,173,765	 1,175,892	 3,140,875
<u>Chlamydomonas</u> sp.	942,913	-	-	-	-
<u>C. ballenyana</u>	1,414,369	-	-	-	2,093,917
<u>C. pulsatilla</u>	1,414,369	844,358	1,173,765	1,175,892	1,046,958

Table 20. Sedimentation rates and species composition of phytoplankton contributed to the sediments in Frobisher Bay, 18 - 24 August 1984.

Sample No.	84-55	84-56	84-58	84-61	84-62	84-63
Date	18-20 Aug	18-20 Aug	20-23 Aug	23-24 Aug	23-24 Aug	23-24 Aug
Station depth (m)	34-40	33-40	32-37	30-35	31-36	31-36
Ice cover (cm)	0	0	0	0	0	0
Sedimentation rate (cells.m ⁻² .day ⁻¹)	704,196,875	598,681,231	14,328,276	22,396,603	4,532,961	12,769,798
Bacillariophyta	704,196,875	595,736,208	14,311,826	22,230,527	4,461,651	12,698,723
Centrales	686,172,418	573,438,170	13,999,269	21,542,499	3,391,997	12,295,964
<u>Chaetoceros affinis</u>	-	2,254,306	16,450	166,077	47,540	23,692
<u>C. decipiens</u>	21,753,655	13,042,247	1,447,633	1,020,184	618,023	450,141
<u>C. furcellatus</u>	656,338,834	545,670,805	12,173,278	19,691,932	2,155,951	11,324,606
<u>C. septentrionalis</u>	-	-	65,802	166,077	71,310	47,383
<u>C. spores</u>	4,350,731	5,048,612	49,351	213,527	142,621	71,075
<u>Coscinodiscus</u> sp.	-	841,435	-	-	-	-
<u>C. lacustris</u> var. <u>septentrionalis</u>	-	420,718	-	-	23,770	23,692
<u>Thalassiosira</u> sp.	-	-	16,450	23,725	-	23,692
<u>T. decipiens</u>	3,729,198	5,890,047	230,305	260,977	332,782	331,683
Pennales	18,024,457	22,298,038	312,557	688,028	1,069,654	402,759
<u>Achnanthes taeniatata</u>	-	-	16,450	47,450	-	23,692
<u>Amphora</u> sp.	-	-	-	23,725	-	-
<u>A. angusta</u>	-	-	-	47,450	-	-
<u>A. inelegans</u>	-	-	-	-	47,540	-
<u>A. terroris</u>	-	841,435	-	-	-	-
<u>Cocconeis</u> sp.	-	-	-	-	23,770	-
<u>C. pseudomarginata</u>	621,533	-	-	-	-	-
<u>C. scutellum</u>	-	-	-	-	-	23,692

Table 20. (cont'd.)

Sample No.	84-55	84-56	84-58	84-61	84-62	84-63
<u>C. scutellum</u> var. <u>parva</u>	-	-	-	-	23,770	-
<u>C. thunensis</u>	621,533	-	-	-	-	-
<u>Cylindrotheca closterium</u>	-	420,718	32,901	23,725	-	-
<u>Cymbella</u> sp.	-	-	-	47,450	-	-
<u>Diploneis smithii</u>	-	-	-	-	-	23,692
<u>F. pinnata</u>	7,458,396	2,945,024	32,901	47,450	166,391	47,383
<u>F. striatula</u>	621,533	-	-	-	-	-
<u>Gomphonema</u> sp.	-	1,262,153	16,450	23,725	-	-
<u>Navicula</u> sp.	621,533	1,262,153	32,901	47,450	166,391	23,692
<u>N. debilissima</u>	-	420,718	16,450	-	-	-
<u>N. directa</u>	-	420,718	-	23,725	-	-
<u>N. directa</u> var. <u>subtilis</u>	-	-	-	-	71,310	-
<u>N. granii</u>	-	1,262,153	-	-	-	-
<u>N. peregrina</u>	621,533	-	-	-	-	-
<u>N. transitans</u>	1,243,066	-	-	23,725	-	-
<u>N. transitans</u> var. <u>derasa</u>	-	420,718	-	71,176	-	-
<u>Nitzschia</u> sp.	-	-	-	23,725	-	-
<u>N. acicularis</u>	-	1,262,153	32,901	23,725	23,770	-
<u>N. cylindrus</u>	4,350,731	4,207,177	-	213,527	261,471	47,383
<u>N. frigida</u>	-	841,435	-	-	-	-
<u>N. gelida</u>	-	420,718	-	-	-	-
<u>N. grunowii</u>	1,864,599	5,469,330	98,702	-	261,471	189,533
<u>N. linearis</u>	-	-	32,901	-	-	23,692
<u>N. tergestina</u>	-	841,435	-	-	-	-
<u>Rhabdonema minutum</u>	-	-	-	-	23,770	-

Table 20. (cont'd.)

Sample No.	84-55	84-56	84-58	84-61	84-62	84-63
Chlorophyta						
<u><i>Chlamydomonas</i> sp.</u>	-	2,945,023	16,450	118,626	47,540	47,383
<u><i>C. ballenyana</i></u>	-	841,435	-	-	-	-
<u><i>C. pulsatilla</i></u>	-	841,435	-	71,176	-	47,383
<u><i>C. pulsatilla</i></u>	-	1,262,153	16,450	47,450	47,540	-
Chrysophyta						
<u><i>Phaeocystis pouchetii</i></u>	-	-	16,450	23,725	-	-
<u><i>Phaeocystis pouchetii</i></u>	-	-	16,450	23,725	-	-
Pyrrophyta						
<u><i>Gonyaulax</i> sp.</u>	-	-	-	23,725	23,770	23,692
<u><i>Gonyaulax</i> sp.</u>	-	-	-	23,725	23,770	23,692

Table 21. Sedimentation rates and species composition of phytoplankton contributed to the sediments in Frobisher Bay, 2 -24 August 1984.

Sample No.	84-33	84-41	84-53	84-57	84-59	84-64
Date	2-4 Aug	7-9 Aug	17-18 Aug	18-20 Aug	20-23 Aug	23-24 Aug
Station depth (m)	20	20	20	20	20	20
Ice cover (cm)	0	0	0	0	0	0
Sedimentation rate ($\text{cells.m}^{-2}.\text{day}^{-1}$)	21,446,892	79,512,820	15,447,322	16,399,717	4,638,242	3,595,208
Bacillariophyta	20,910,184	79,316,250	15,175,043	16,388,176	4,619,023	3,530,056
Centrales	19,278,590	72,927,704	14,902,764	16,041,946	4,484,490	3,304,984
<u>Biddulphia aurita</u>	-	-	-	11,541	-	-
<u>Chaetoceros affinis</u>	42,937	196,571	36,304	103,869	-	17,769
<u>C. decipiens</u>	558,177	4,029,698	1,016,506	1,546,490	243,444	23,692
<u>C. furcellatus</u>	18,011,957	65,654,590	13,087,515	14,045,357	4,125,731	3,115,451
<u>C. septentrionalis</u>	-	884,568	272,278	80,787	6,406	-
<u>C. spores</u>	21,468	98,285	181,519	103,869	12,813	47,383
<u>C. wighamii</u>	-	196,571	-	-	-	-
<u>Coscinodiscus lacustris</u> var.						
<u>septentrionalis</u>	-	-	-	23,082	-	-
<u>Thalassiosira</u> sp.	-	-	90,759	-	6,406	-
<u>T. decipiens</u>	644,051	1,867,421	217,823	126,951	89,690	100,689
Pennales	1,631,594	6,388,546	272,279	346,230	134,533	225,072
<u>Achnanthes taeniata</u>	64,405	-	-	46,164	-	5,923
<u>Amphora terroris</u>	-	-	-	46,164	-	11,846
<u>Cocconeis pseudomarginata</u>	-	98,285	-	-	-	-
<u>C. scutellum</u>	-	-	-	-	12,813	-
<u>C. scutellum</u> var. <u>parva</u>	64,405	-	-	-	-	-
<u>Cylindrotheca closterium</u>	21,468	-	18,152	11,541	19,219	11,846

Table 21. (cont'd.)

Sample No.	84-33	84-41	84-53	84-57	84-59	84-64
<u>Fragilaria</u> sp.	-	393,141	18,152	-	-	11,846
<u>F. bicapitata</u>	64,405	196,571	-	-	-	-
<u>F. pinnata</u>	128,810	589,712	-	23,082	12,813	35,537
<u>F. striatula</u>	64,405	-	-	-	-	-
<u>Gomphonema</u> sp.	-	196,571	-	23,082	-	-
<u>Grammatophora arctica</u>	-	-	-	11,541	-	5,923
<u>Navicula</u> sp.	42,937	98,285	18,152	-	6,406	-
<u>N. cancellata</u>	-	-	-	-	6,406	-
<u>N. debilissima</u>	42,937	-	18,152	-	12,813	-
<u>N. directa</u>	-	-	-	11,541	-	-
<u>N. granii</u>	-	-	36,304	11,541	-	11,846
<u>N. transitans</u>	-	196,571	18,152	-	6,406	5,923
<u>N. transitans</u> var. <u>derasa</u>	85,873	-	-	-	-	5,923
<u>Nitzschia acicularis</u>	42,937	196,571	18,152	-	6,406	5,923
<u>N. cylindrus</u>	880,203	4,029,698	90,759	69,246	6,406	29,615
<u>N. gelida</u>	-	-	-	11,541	-	-
<u>N. grunowii</u>	64,405	294,856	36,304	80,787	44,845	76,998
<u>N. linearis</u>	21,468	-	-	-	-	-
<u>N. tergestina</u>	-	98,285	-	-	-	-
<u>Pleurosigma marinum</u>	-	-	-	-	-	5,923
<u>Stauroneis smithii</u> var. <u>sagitta</u>	21,468	-	-	-	-	-
<u>Tabellaria fenestrata</u>	21,468	-	-	-	-	-

Table 21. (cont'd.)

Sample No.	84-33	84-41	84-53	84-57	84-59	84-64
Chlorophyta						
<u>Ankistrodesmus</u> sp.	515,240	98,285	235,975	11,541	19,219	53,306
<u>Chlamydomonas ballenyana</u>	407,899	-	145,215	-	-	-
<u>C. pulsatilla</u>	21,468	-	36,304	11,541	6,406	17,769
	85,873	98,285	54,456	-	12,813	35,537
Chrysophyta						
<u>Phaeocystis pouchetii</u>	-	-	18,152	-	-	5,923
	-	-	18,152	-	-	5,923
Pyrrrophyta						
<u>Dinophysis</u> sp.	21,468	-	18,152	-	-	5,923
<u>Goniaulax</u> sp.	21,468	-	-	-	-	-
	-	-	18,152	-	-	5,923
Unidentified	-	98,285	-	-	-	-

Table 22. Sedimentation rates and species composition of phytoplankton contributed to the sediments in Frobisher Bay, 31 January - 11 February 1985

Sample No.	85-5	85-6	85-8	85-9
Date	31 Jan-3 Feb	31 Jan-3 Feb	3-11 Feb	3-11 Feb
Station depth (m)	34-41	35-41	32-43	32-43
Ice cover (cm)	115	115	115	115
Sedimentation rate ($\text{cells} \cdot \text{m}^{-2} \cdot \text{day}^{-1}$)	490,558	769,716	386,858	183,631
Bacillariophyta	480,919	764,159	373,745	178,384
Centrales	402,086	608,551	167,858	116,732
<u>C. decipiens</u>	12,393	13,894	1,311	-
<u>C. furcellatus</u>	363,530	555,754	154,744	100,993
<u>C. septentrionalis</u>	2,754	6,947	-	3,935
<u>T. laevis</u> sp.	23,409	18,062	11,803	9,181
<u>T. decipiens</u>	-	13,894	-	2,623
Pennales	78,833	155,608	205,887	61,652
<u>Achnanthes taeniata</u>	2,754	11,115	3,934	-
<u>Amphirora</u> sp.	-	-	1,311	3,935
<u>Amphora laevis</u> var. <u>laevissima</u>	1,377	2,779	3,934	-
<u>A. terroris</u>	4,131	2,779	3,934	-
<u>Campylodiscus</u> sp.	-	1,389	-	-
<u>Cocconeis</u> sp.	-	2,779	1,311	-
<u>C. pseudomarginata</u>	-	-	1,311	-
<u>C. scutellum</u>	-	-	-	1,312
<u>C. scutellum</u> var. <u>parva</u>	-	1,389	3,934	-
<u>C. thumensis</u>	-	1,389	-	-
<u>Cylindrotheca closterium</u>	1,377	-	-	-
<u>Cymbella</u> sp.	-	-	1,311	2,623

Table 22. (cont'd.)

Sample No.	85-5	85-6	85-8	85-9
<u>C. affinis</u>	1,377	-	5,246	6,558
<u>Diploneis bombus</u>	-	-	1,311	-
<u>D. didyma</u>	-	-	-	1,312
<u>D. litoralis</u>	-	-	-	1,312
<u>D. smithii</u>	1,377	1,389	1,311	1,312
<u>Fragilaria sp.</u>	-	1,389	-	-
<u>F. bicapitata</u>	-	1,389	-	-
<u>F. pinnata</u>	16,524	22,230	13,114	3,935
<u>Gomphonema sp.</u>	4,131	4,168	-	1,312
<u>G. gracile</u>	-	-	1,311	-
<u>Grammatophora arctica</u>	1,377	4,168	2,623	-
<u>Gyrosigma fasciola</u>	-	4,168	-	-
<u>Licmophora sp.</u>	-	-	1,311	-
<u>Navicula sp.</u>	2,754	18,062	11,803	9,181
<u>N. algida</u>	-	-	1,311	-
<u>N. debilissima</u>	-	2,779	3,934	-
<u>N. directa</u>	-	-	-	1,312
<u>N. directa</u> var. <u>subtilis</u>	2,754	-	-	-
<u>N. grevillei</u>	-	1,389	-	2,623
<u>N. lineola</u>	-	-	1,311	-
<u>N. peregrina</u>	-	-	2,623	-
<u>N. transitans</u>	-	1,389	-	-
<u>N. transitans</u> var. <u>derasa</u>	2,754	2,779	5,246	-
<u>N. trigonocephala</u>	1,377	-	-	-

Table 22. (cont'd.)

Sample No.	85-5	85-6	85-8	85-9
<u>Nitzschia acicularis</u>	2,754	4,168	-	-
<u>N. cylindrus</u>	7,229	11,115	5,246	11,808
<u>N. frigida</u>	1,377	6,947	-	3,935
<u>N. grunowii</u>	20,655	37,513	118,025	7,870
<u>N. linearis</u>	2,754	6,947	5,246	1,312
<u>Rhabdonema arcuatum</u>	-	-	5,246	-
 Chlorophyta	 9,639	 4,168	 10,491	 3,935
<u>Chlamydomonas ballenyana</u>	9,639	-	6,557	3,935
<u>C. pulsatilla</u>	-	4,168	3,934	-
 Chrysophyta	 -	 -	 1,311	 -
<u>Dinobryon balticum</u>	-	-	1,311	-
 Cyanophyta	 -	 -	 1,311	 -
<u>Lyngbya</u> sp.	-	-	1,311	-
 Euglenophyta	 -	 1,389	 -	 1,312
<u>Euglena</u> sp.	-	1,389	-	-
<u>E. schmitzii</u>	-	-	-	1,312

Table 23. Sedimentation rates and species composition of phytoplankton contributed to the sediments in Frobisher Bay, 13 - 21 March 1985

Sample No.	85-14	85-15	85-17	85-20
Date	13-18 Mar	13-18 Mar	18-21 Mar	18-21 Mar
Station depth (m)	36-42	37-43	35-43	36-44
Ice cover (cm)	147	147	147	147
Sedimentation rate ($\text{cells} \cdot \text{m}^{-2} \cdot \text{day}^{-1}$)	20,808,467	13,021,052	851,771	848,893
Bacillariophyta	20,576,402	12,478,508	837,692	509,335
Centrales	10,210,845	9,843,297	703,942	353,706
<u><i>Chaetoceros affinis</i></u>	-	-	14,079	-
<u><i>C. decipiens</i></u>	77,355	-	7,039	7,074
<u><i>C. furcellatus</i></u>	9,824,070	8,990,728	665,226	336,021
<u><i>C. septentrionalis</i></u>	77,355	77,506	3,520	-
<u><i>Thalassiosira sp.</i></u>	232,065	542,544	7,039	7,074
<u><i>T. decipiens</i></u>	-	232,519	7,039	3,537
Pennales	10,365,557	2,635,211	133,750	155,629
<u><i>Achnanthes taeniata</i></u>	618,839	232,519	3,520	-
<u><i>Amphiprora sp.</i></u>	77,355	-	-	-
<u><i>A. kjellmanii</i></u>	77,355	-	-	3,537
<u><i>Amphora sp.</i></u>	-	77,506	-	-
<u><i>A. laevis</i> var. <i>laevissima</i></u>	696,194	77,506	-	-
<u><i>A. terroris</i></u>	-	-	-	7,074
<u><i>Caloneis semiinflata</i></u>	-	-	-	3,537
<u><i>Coccconeis californica</i></u>	-	-	3,520	3,537
<u><i>C. pseudomarginata</i></u>	77,355	77,506	-	3,537
<u><i>C. scutellum</i></u>	-	310,025	7,039	7,074
<u><i>C. scutellum</i> var. <i>parva</i></u>	77,355	-	3,520	-

Table 23. (cont'd.)

Sample No.	85-14	85-15	85-17	85-20
<u>Cylindrotheca closterium</u>	-	-	-	3,537
<u>Diploneis sp.</u>	77,355	-	-	-
<u>D. litoralis</u>	232,065	-	-	3,537
<u>Fragilaria sp.</u>	232,065	-	-	3,537
<u>F. pinnata</u>	232,065	465,038	52,796	28,297
<u>Gomphonema sp.</u>	77,355	77,506	-	3,537
<u>G. augur</u>	154,710	155,013	-	-
<u>G. exiguum var. pachycladum</u>	-	77,506	-	-
<u>Gyrosigma fasciola</u>	77,355	-	3,520	-
<u>Licmophora sp.</u>	-	155,013	-	-
<u>Navicula sp.</u>	154,710	155,013	3,520	3,537
<u>N. crucigeroides</u>	154,710	-	-	-
<u>N. cryptocephala</u>	77,355	77,506	-	-
<u>N. debilissima</u>	77,355	-	3,520	3,537
<u>N. directa</u>	464,129	77,506	3,520	-
<u>N. directa var. subtilis</u>	309,420	-	-	7,074
<u>N. gastrum</u>	-	-	10,559	3,537
<u>N. grevillei</u>	154,710	-	-	-
<u>N. latissima</u>	154,710	-	-	-
<u>N. peregrina</u>	154,710	-	-	-
<u>N. rhynchocephala</u>	77,355	-	-	-
<u>N. transitans</u>	464,129	-	-	3,537
<u>N. transitans var. derasa</u>	-	-	-	3,537
<u>Nedium affinis</u>	154,710	-	-	-

Table 23. (cont'd.)

Sample No.	85-14	85-15	85-17	85-20
<u>Nitzschia acicularis</u>	-	-	7,039	7,074
<u>N. cylindrus</u>	464,129	-	7,039	14,148
<u>N. delicatissima</u>	154,710	77,506	-	-
<u>N. frigida</u>	1,082,967	-	10,559	14,148
<u>N. grunowii</u>	-	77,506	10,559	14,148
<u>N. linearis</u>	3,403,615	77,506	-	3,537
<u>Pinnularia quadratarea</u>	77,355	77,506	-	-
<u>Plagiogramma staurophorum</u>	-	77,506	-	-
<u>Pleurosigma longum</u>	77,355	-	-	-
<u>P. marinum</u>	-	77,506	-	-
<u>Stenoneis inconspicua</u> var. <u>baculus</u>	-	-	-	3,537
<u>Tabellaria fenestrata</u>	-	77,506	-	-
<u>T. flocculosa</u>	-	77,506	3,520	-
<u>Trachyneis aspera</u>	-	-	-	3,537
 Chlorophyta	 154,710	 465,038	 14,079	 290,039
<u>Carteria vectensis</u>	-	-	-	3,537
<u>Chlamydomonas</u> sp.	-	77,506	7,039	-
<u>C. ballenyana</u>	77,355	232,519	3,520	130,871
<u>C. pulsatilla</u>	77,355	155,013	3,520	155,631
 Chrysophyta	 -	 -	 -	 3,537
<u>Phaeocystis pouchetii</u>	-	-	-	3,537

Table 24. (cont'd.)

Sample No.	85-25	85-26	85-29	85-30
<u>Stauroneis quadripedis</u>	-	1,740,427	2,309,908	660,377
<u>Stenoneis inconspicua</u> var. <u>baculus</u>	-	174,043	-	330,188
<u>Synedra</u> sp.	-	-	-	165,094
Chlorophyta	435,695	348,085	164,993	825,471
<u>Chlamydomonas</u> sp.	87,139	-	-	825,471
<u>C. ballenyana</u>	174,278	348,085	-	-
<u>C. pulsatilla</u>	174,278	-	164,993	-
Pyrrophyta	174,278	174,043	-	330,188
<u>Dinophysis</u> sp.	87,139	-	-	-
<u>Gymnodinium</u> sp.	87,139	-	-	165,094
<u>Prorocentrum</u> sp.		174,043	-	165,094