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Oceanographic data from Frobisher Bay in the Eastern Canadian Arctic for the year 1981

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July 1982

**Canadian Data Report of
Fisheries and Aquatic Sciences
No. 343**

QH
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No 343



Government of Canada
Fisheries and Oceans

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Pêches et Océans

Canadian Data Report of Fisheries and Aquatic Sciences

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EASTERN CANADIAN ARCTIC FOR THE YEAR 1981

by

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QH
98.5
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No 343

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Cat. No. Fs97-13/0343 ISSN 0706-6465

Correct citation for this publication:

Lovrity, J. E. 1982. Oceanographic data from Frobisher Bay in the Eastern Canadian Arctic for the year 1981. Can. Data Rep. Fish. Aquat. Sci. 343: v + 45 p.

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ABSTRACT

Lovrity, J. E. 1982. Oceanographic data from Frobisher Bay in the Eastern Canadian Arctic for the year 1981. Can. Data Rep. Fish. Aquat. Sci. 343: v + 45 p.

Tables of oceanographic data from 24 station occupations in Frobisher Bay include information on temperature, salinity, nitrite, nitrate, phosphate, silicate, ammonia and chlorophyll a, b, and c.

Key words: Arctic waters, Canada coast, sea ice, temperature, salinity, nutrients, chlorophyll.

RESUME

Lovrity, J. E. 1982. Oceanographic data from Frobisher Bay in the Eastern Canadian Arctic for the year 1981. Can. Data Rep. Fish. Aquat. Sci. 343: v + 45 p.

Tables des données physiques et chimique de 24 stations occupées dans la Baie Frobisher en 1981 incluant des renseignements sur les température, salinité, nitrites, nitrates, phosphates, silicates, ammoniac, et les chlorophylles a, b, et c.

ACKNOWLEDGEMENTS

Most of the logistical and field operations were led by Douglas Hope who also participated in sample analyses. Collecting in the summer was carried out by G. Atkinson, L. Bertrand, J. Fife, C. Miguez, F. Paton and M. Wyszkowski. Assistance in laboratory analyses was provided by D. Harbour, L. Houle, and A. Mohammed. Partial financial assistance for the ice period of the program was supplied by Esso Resources Canada Limited and Canterra Energy Limited (formerly Aquitaine Company of Canada Limited). A. Thériault and P. Bannon extended their support at the Ikaluit Research Laboratory in Frobisher Bay. I thank Lois McMullon for her help in the preparation of the typescript and the production of the final report.

INTRODUCTION

The collections of data included in this report were made to support ongoing marine research by the Arctic Biological Station. Samplings were carried out in upper Frobisher Bay from February to September, 1981. On the sea ice, snowmobiles were used; otherwise collecting was done with the longliner M.V. Nanook or a 6.7-metre freighter canoe specially equipped for oceanographic work.

The sea ice was sampled from late winter to early summer and the data obtained are placed at the beginning of the data tables. Additionally a single tidal cycle was sampled nine times at Station 81-1 on August 16 and 17.

METHODS

Ice core samples for analyses were collected with a 7.6-cm SIPRE (CRREL) corer. The cores were cut with a teflon coated saw, thawed in stainless steel trays, and subsampled for analytical work. Under-ice water sampling depths were measured from the under-surface of the sea ice. Total Station depths from the surface of the water in the ice hole.

When collecting from boats, standard collecting procedures were followed. Water temperatures were measured using an immersion thermometer in the water bottle immediately after collecting the sample.

Salinity values were determined by using a Bissett Berman Model 6230 laboratory salinometer.

Phosphate-phosphorus, nitrite-nitrogen, nitrate-nitrogen, and silicate-silicon were analysed following Strickland and Parsons (Bull. Fish. Res. Board Can. 167, 2nd ed. 1972). Chlorophyll a, b, and c, were determined following Strickland and Parsons and the values were corrected by using the equations of Jeffrey and Humphrey (Biochem. Physiol. Pflanz. 167, 175). For ammonia-nitrogen the method of G. Dal Pont et al. (Rep. Div. Fish. Oceanogr. CSIRO, Cronulla, 55, 1974) was used.

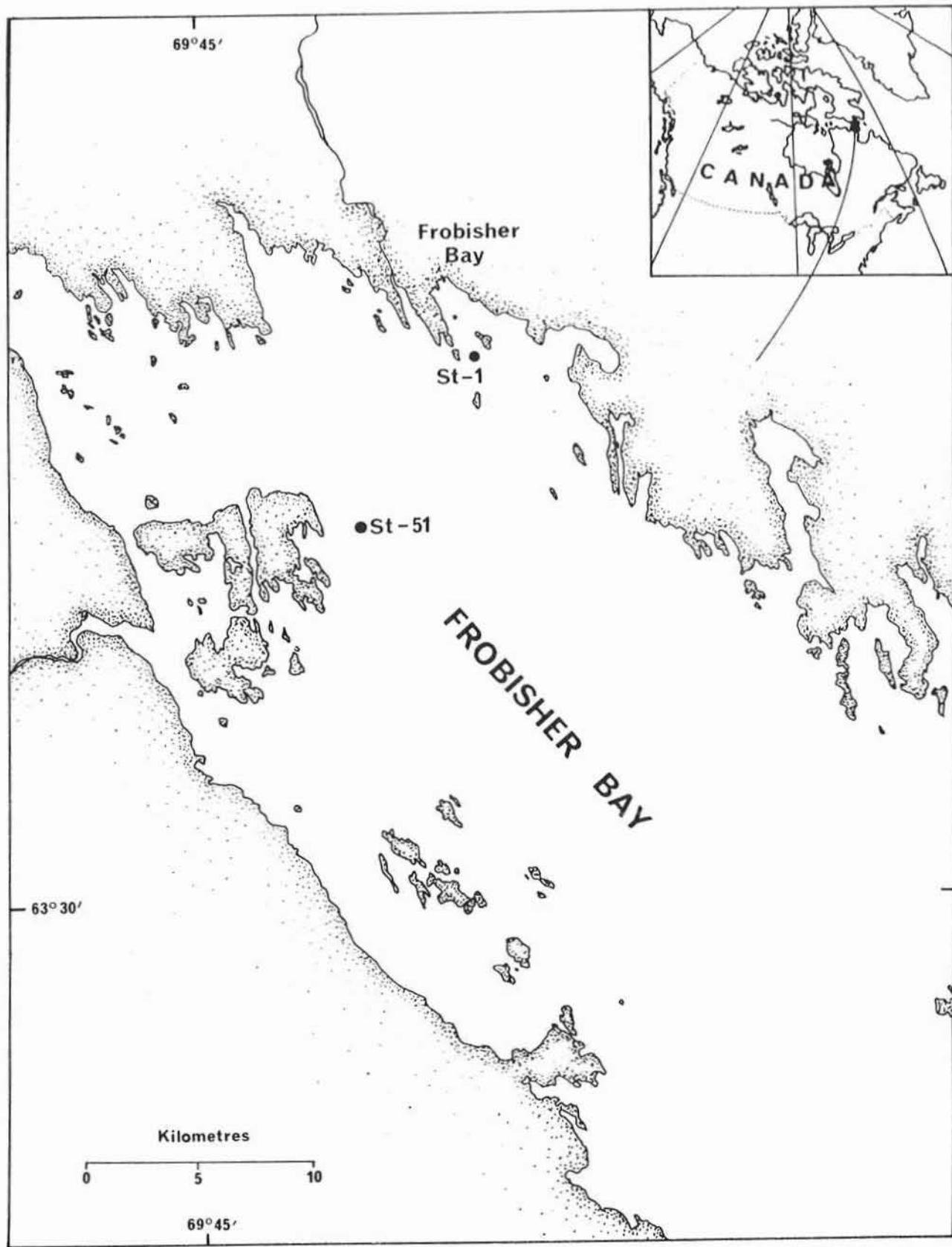


Table 1. Station locations.

<u>Station</u>	<u>N. Latitude</u>	<u>W. Longitude</u>
81-1	63°42.8'	68°30.8'
81-51	63°38.8'	68°35.6'

Table 2. Explanations of data headings.

Table headings

Time:	Local, in hours
Station depth:	Depth to bottom, in metres
Air temp.:	Air temperature, in degrees Celsius
Cloud:	Cover, in eighths
Wind:	Direction, in compass points; speed, in km per hour
Ice cover:	Thickness of sea ice, in centimetres
Snow cover:	Thickness of snow, in centimetres
Secchi:	Secchi disc depth, in metres

Water properties

Depth (water):	Depth of sample, in metres
Depth (ice):	Thickness and location of sample, in centimetres
Temp.:	Water temperature, in degrees Celsius
Salinity:	As parts per thousand
NO ₂ -N:	Nitrite, as microgram-atoms per litre
NO ₃ -N:	Nitrate, as microgram-atoms per litre
PO ₄ -P:	Phosphate, as microgram-atoms per litre
SiO ₃ -Si:	Silicate, as microgram-atoms per litre
NH ₃ -N:	Ammonia, as microgram-atoms per litre
Ch.a:	Chlorophyll a, as milligrams per cubic metre
Ch.b:	Chlorophyll b, as milligrams per cubic metre
Ch.c:	Chlorophyll c, as milligrams per cubic metre

Table 3. Frobisher Bay Ice data.

Station 81-1	Date 14 Feb 81	Time 1230	Sta. depth 43	Air temp. -27
Cloud 2	Wind 20	Ice cover 123	Snow cover 8	Secchi 4.5

Depth	Temp.	Salinity	NO ₂ -N	NO ₃ -N	PO ₄ -P
0- 41	-	7.663	0.15	1.17	0.06
41- 82	-	6.977	0.12	0.49	0.11
82-123	-	7.339	0.10	0.53	0.70

Depth	SiO ₃ -Si	NH ₃ -N	Ch.a	Ch.b	Ch.c
0- 41	5.08	4.00	0.34	0.34	0.76
41- 82	3.20	4.63	0.23	0.23	0.48
82-123	4.19	4.91	5.53	0.75	3.01

Station	Date	Time	Sta. depth	Air temp.
81-1	24 Mar 81	1500	42.5	-10.5
Cloud	Wind	Ice cover	Snow cover	Secchi
7	0	142	15	7

Depth	Temp.	Salinity	NO ₂ -N	NO ₃ -N	PO ₄ -P
0- 47	-	-	0.03	0.40	0.06
47- 94	-	-	0.03	0.10	0.11
94-142	-	-	0.01	0.28	0.15

Depth	SiO ₃ -Si	NH ₃ -N	Ch.a	Ch.b	Ch.c
0- 47	3.06	3.05	0.48	0.56	2.26
47- 94	3.16	2.93	0.42	0.30	1.76
94-142	0.55	4.12	3.88	0.12	2.98

Station	Date	Time	Sta. depth	Air temp.
81-1	1 May 81	1045	44.5	2
Cloud 8	Wind WNW 14	Ice cover 142	Snow cover 34	Secchi --

Depth	Temp.	Salinity	NO ₂ -N	NO ₃ -N	PO ₄ -P
0- 47	-	-	0.04	0.31	0.41
47- 94	-	5.074	0.06	0.31	0.12
94-142	-	3.965	0.08	0.76	0.19

Depth	SiO ₃ -Si	NH ₃ -N	Ch.a	Ch.b	Ch.c
0- 47	0.70	2.25	0.51	0.37	0.64
47- 94	0.00	1.27	0.73	0.35	0.69
94-142	0.25	1.95	2.94	0.16	0.88

Station	Date	Time	Sta. depth	Air temp.
81-1	27 May 81	1300	47	-2
Cloud	Wind	Ice cover	Snow cover	Secchi
4	WNW 20	148	39	--

Depth	Temp.	Salinity	NO ₂ -N	NO ₃ -N	PO ₄ -P
0- 49	-	5.906	0.10	0.30	0.08
49- 98	-	4.723	0.09	0.00	0.08
98-148	-	4.536	0.07	0.19	0.11
143-148	-	-	0.07	10.50	2.35

Depth	SiO ₃ -Si	NH ₃ -N	Ch.a	Ch.b	Ch.c
0- 49	0.57	3.13	1.30	0.40	0.90
49- 98	0.00	2.50	2.09	0.57	2.64
98-148	0.28	2.42	4.80	0.37	1.62
143-148	3.72	3.68	391.79	12.12	114.38

Last values are for bottom 5 cm of ice.

Station	Date	Time	Sta. depth	Air temp.
81-1	19 Jun 81	1630	41	4
Cloud	Wind	Ice cover	Snow cover	Secchi
6	S 10	137	--	--

Depth	Temp.	Salinity	NO ₂ -N	NO ₃ -N	PO ₄ -P
0- 46	-	<2.8	0.03	0.33	0.15
46- 92	-	<2.8	0.05	0.29	0.07
92-132	-	<2.8	0.05	0.06	0.19
132-137	-	-	0.01	0.15	0.27

Depth	SiO ₃ -Si	NH ₃ -N	Ch.a	Ch.b	Ch.c
0- 46	1.95	5.12	0.51	0.60	1.19
46- 92	0.00	1.68	1.14	0.28	0.94
92-137	0.00	1.32	1.94	0.61	1.15
132-137	0.00	2.32	21.34	0.50	6.18

Last values are for bottom 5 cm of ice.

Table 4. Frobisher Bay Oceanographic data.

Station	Date	Time	Sta. depth	Air temp.
81-1	14 Feb 81	1315	43	-27
Cloud	Wind	Ice cover	Snow cover	Secchi
2	20	123	8	4.5

Depth	Temp.	Salinity	NO ₂ -N	NO ₃ -N	PO ₄ -P
0	-1.8	33.548	0.09	4.07	0.77
10	-1.8	32.275	0.11	4.07	0.87
42	-1.8	33.385	0.10	4.15	0.94

Depth	SiO ₃ -Si	NH ₃ -N	Ch.a	Ch.b	Ch.c
0	11.54	2.50	0.19	0.12	0.31
10	13.05	1.94	0.17	0.10	0.21
42	16.78	2.26	0.19	0.14	0.19

Station	Date	Time	Sta. depth	Air temp.
81-1	24 Mar 81	1225	42.5	-10.5
Cloud	Wind	Ice cover	Snow cover	Secchi
7	0	142	15	7

Depth	Temp.	Salinity	NO ₂ -N	NO ₃ -N	PO ₄ -P
0	-1.8	-	0.05	5.24	0.82
1	-1.8	-	0.05	4.90	0.87
3	-1.8	-	0.04	4.05	0.77
5	-1.8	-	0.08	4.92	0.75
7	-1.8	-	0.07	4.74	0.73
10	-1.8	-	0.05	5.06	0.86
20	-1.8	-	0.04	4.39	0.82
30	-1.8	-	0.05	4.79	0.88
40	-1.8	-	0.07	4.65	0.80

Depth	SiO ₃ -Si	NH ₃ -N	Ch.a	Ch.b	Ch.c
0	13.05	1.62	0.13	0.16	0.29
1	11.19	1.43	0.11	0.03	0.28
3	8.51	1.27	0.16	0.11	0.18
5	11.77	1.35	0.10	0.12	0.34
7	10.02	1.27	0.08	0.06	0.02
10	11.77	1.27	0.16	0.03	0.50
20	13.75	1.39	0.16	0.08	0.59
30	10.02	1.39	0.13	0.06	0.37
40	9.21	1.62	0.13	0.06	0.37

Station	Date	Time	Sta. depth	Air temp.
81-1	1 May 81	1550	44.5	-1
Cloud	Wind	Ice cover	Snow cover	Secchi
8	NNW 14	142	34	--

Depth	Temp.	Salinity	NO ₂ -N	NO ₃ -N	PO ₄ -P
0	-1.7	32.884	0.10	7.15	1.03
1	-1.7	-	0.06	5.78	0.91
3	-1.7	33.260	0.07	7.20	1.08
5	-1.7	33.290	0.05	6.80	1.08
7	-1.7	33.336	0.09	7.08	1.06
10	-1.7	33.344	0.07	6.63	1.03
20	-1.7	33.354	0.09	6.72	1.08
30	-1.7	33.352	0.08	7.00	1.01
40	-1.7	33.366	0.09	7.08	1.03

Depth	SiO ₃ -Si	NH ₃ -N	Ch.a	Ch.b	Ch.c
0	14.64	0.26	0.20	0.25	0.37
1	13.79	0.04	0.22	0.36	0.61
3	13.69	0.04	0.00	0.00	0.09
5	13.90	0.08	0.23	0.32	0.57
7	14.53	0.23	0.07	0.18	0.26
10	12.90	0.60	0.28	0.34	0.54
20	13.79	1.05	0.15	0.23	0.39
30	13.79	1.01	0.20	0.29	0.47
40	11.26	0.79	0.12	0.19	0.36

Station	Date	Time	Sta. depth	Air temp.
81-1	27 May 81	1553	47	-2
Cloud	Wind	Ice cover	Snow cover	Secchi
4	WNW 20	148	39	--

Depth	Temp.	Salinity	NO ₂ -N	NO ₃ -N	PO ₄ -P
0	-1.7	32.285	0.09	6.90	1.00
1	-1.7	32.677	0.08	6.98	0.78
3	-1.7	32.863	0.08	7.09	1.02
5	-1.7	33.207	0.08	7.09	1.00
7	-1.7	33.264	0.10	7.32	1.05
10	-1.7	33.287	0.09	7.42	1.00
20	-1.7	33.229	0.09	7.42	1.02
30	-1.7	33.315	0.09	7.42	1.05
40	-1.7	33.341	0.10	7.48	1.05

Depth	SiO ₃ -Si	NH ₃ -N	Ch.a	Ch.b	Ch.c
0	13.77	0.32	0.48	0.29	0.56
1	14.07	0.20	0.33	0.40	0.68
3	14.87	0.28	0.33	0.40	0.68
5	13.07	0.51	0.23	0.24	0.36
7	14.98	0.20	0.28	0.35	0.48
10	11.66	0.55	0.24	0.93	0.27
20	12.97	0.32	0.30	0.41	0.68
30	11.96	0.20	0.28	0.34	0.54
40	11.96	0.28	0.50	0.76	1.13

Station	Date	Time	Sta. depth	Air temp.
81-1	17 Jun 81	2315	47	3
Cloud	Wind	Ice cover	Snow cover	Secchi
8	E 13	137	7	--

Depth	Temp.	Salinity	NO ₂ -N	NO ₃ -N	PO ₄ -P
0	-0.1	7.521	0.03	1.53	0.31
1	-0.5	28.843	0.10	6.33	0.90
3	-0.1	30.243	0.11	6.70	0.94
5	-0.5	31.429	0.10	7.14	0.99
7	-0.5	32.741	0.11	7.44	1.04
10	-0.5	33.152	0.10	7.60	1.04
20	-0.6	33.261	0.10	7.63	1.09
30	-0.6	33.226	0.12	7.70	0.97
40	-0.4	33.291	0.11	7.69	1.11

Depth	SiO ₃ -Si	NH ₃ -N	Ch.a	Ch.b	Ch.c
0	3.87	1.10	5.43	0.83	0.64
1	11.03	0.14	0.91	0.40	0.44
3	10.97	0.10	0.77	0.36	0.50
5	12.26	0.00	0.77	0.38	0.38
7	12.36	0.00	0.40	0.30	0.47
10	13.66	0.14	0.09	0.01	0.03
20	12.86	0.17	0.34	0.33	0.41
30	9.97	0.61	0.44	0.54	0.77
40	12.56	2.38	0.29	0.21	0.42

Station	Date	Time	Sta. depth	Air temp.
81-1	27 Jul 81	1610	44	11
Cloud	Wind	Ice cover	Snow cover	Secchi
8	S 3	--	--	9

Depth	Temp.	Salinity	NO ₂ -N	NO ₃ -N	PO ₄ -P
0	7.5	24.694	0.01	0.18	0.22
1	3.3	26.770	0.00	0.08	0.24
3	2.1	30.433	0.00	0.00	0.34
5	0.8	31.604	0.00	0.06	0.39
7	-0.1	32.099	0.00	0.10	0.36
10	-0.7	32.343	0.00	0.42	0.51
20	-0.9	32.433	0.02	2.80	0.51
30	-0.9	32.465	0.04	3.95	0.73
40	-1.0	32.517	0.03	4.69	0.65

Depth	SiO ₃ -Si	NH ₃ -N	Ch.a	Ch.b	Ch.c
0	8.55	0.00	1.79	0.90	1.78
1	4.69	0.12	1.58	0.73	1.56
3	1.93	0.00	2.70	0.91	2.20
5	0.83	0.00	4.35	0.89	2.39
7	2.02	0.16	5.97	0.64	2.08
10	2.11	0.00	7.56	0.65	3.10
20	9.83	0.00	6.24	0.83	2.75
30	9.56	0.62	5.23	0.68	2.31
40	18.20	2.69	3.50	0.94	2.05

Station	Date	Time	Sta. depth	Air temp.
81-1	3 Aug 81	0932	46	7.5
Cloud	Wind	Ice cover	Snow cover	Secchi
8	NW 10	--	--	--

Depth	Temp.	Salinity	NO ₂ -N	NO ₃ -N	PO ₄ -P
0	1.2	31.667	0.00	0.13	0.36
1	1.4	31.633	0.00	0.10	0.26
3	1.0	31.765	0.00	0.10	0.26
5	0.3	32.090	0.00	0.81	0.41
7	0.0	32.192	0.00	0.90	0.36
10	-0.1	32.230	0.00	1.31	0.46
20	-0.6	32.396	0.02	3.05	0.56
30	-0.7	32.412	0.02	3.40	0.43
40	-0.8	32.452	0.03	4.03	0.63

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Depth	SiO ₃ -Si	NH ₃ -N	Ch.a	Ch.b	Ch.c
0	1.96	0.00	4.40	0.95	2.46
1	1.37	0.00	4.12	0.90	2.33
3	1.56	0.00	4.48	0.75	2.16
5	1.86	0.00	5.63	0.56	2.46
7	1.27	0.00	6.36	0.68	2.65
10	2.64	0.00	5.68	0.75	2.37
20	2.44	0.09	4.76	0.80	2.29
30	2.93	0.12	4.49	0.68	1.95
40	5.28	0.45	3.79	0.82	1.84

Station	Date	Time	Sta. depth	Air temp.
81-1	4 Aug 81	1010	47	10
Cloud	Wind	Ice cover	Snow cover	Secchi
1	N 4	--	--	--

Depth	Temp.	Salinity	NO ₂ -N	NO ₃ -N	PO ₄ -P
0	2.9	-	-	-	-
1	0.6	-	-	-	-
3	0.4	-	-	-	-
5	0.0	-	-	-	-
7	-0.2	-	-	-	-
10	-0.5	-	-	-	-
20	-0.6	-	-	-	-
30	-0.7	-	-	-	-
40	-0.8	-	-	-	-

Depth	SiO ₃ -Si	NH ₃ -N	Ch.a	Ch.b	Ch.c
0	-	-	-	-	-
1	-	-	-	-	-
3	-	-	-	-	-
5	-	-	-	-	-
7	-	-	-	-	-
10	-	-	-	-	-
20	-	-	-	-	-
30	-	-	-	-	-
40	-	-	-	-	-

Station	Date	Time	Sta. depth	Air temp.
81-1	8 Aug 81	1115	44	7
Cloud 8	Wind NW 5	Ice cover --	Snow cover --	Secchi --

Depth	Temp.	Salinity	NO ₂ -N	NO ₃ -N	PO ₄ -P
0	1.5	-	-	-	-
5	0.4	-	-	-	-
10	-0.6	-	-	-	-
15	-0.8	-	-	-	-
20	-0.8	-	-	-	-
25	-0.9	-	-	-	-
30	-0.9	-	-	-	-
35	-1.0	-	-	-	-
40	-1.0	-	-	-	-

Depth	SiO ₃ -Si	NH ₃ -N	Ch.a	Ch.b	Ch.c
0	-	-	-	-	-
5	-	-	-	-	-
10	-	-	-	-	-
15	-	-	-	-	-
20	-	-	-	-	-
25	-	-	-	-	-
30	-	-	-	-	-
35	-	-	-	-	-
40	-	-	-	-	-

Station	Date	Time	Sta. depth	Air temp.
81-1	10 Aug 81	1055	42	12
Cloud	Wind	Ice cover	Snow cover	Secchi
8	0	--	--	7.5

Depth	Temp.	Salinity	NO ₂ -N	NO ₃ -N	PO ₄ -P
0	5.4	30.597	0.00	0.00	0.22
1	2.4	31.681	0.00	0.00	0.36
3	2.2	31.575	0.00	0.00	0.34
5	1.3	32.156	0.00	0.00	0.31
7	0.5	32.384	0.01	0.18	0.38
10	-0.2	32.458	0.00	1.02	0.48
20	-0.7	32.530	0.01	4.02	0.53
30	-0.8	32.586	0.03	4.85	0.74
40	-0.8	32.604	0.00	5.24	0.79

Depth	SiO ₃ -Si	NH ₃ -N	Ch.a	Ch.b	Ch.c
0	13.80	1.67	3.49	0.44	1.31
1	12.75	2.45	4.41	0.91	1.89
3	1.66	0.00	3.88	0.54	1.38
5	0.70	0.00	4.96	0.50	1.52
7	1.92	0.00	5.36	0.47	1.88
10	3.23	0.00	5.30	0.51	1.76
20	14.23	0.35	3.07	0.65	1.24
30	15.37	0.93	1.83	0.60	0.83
40	7.95	0.74	1.89	0.48	0.74

Station	Date	Time	Sta. depth	Air temp.
81-1	16 Aug 81	1526	47	10
Cloud	Wind	Ice cover	Snow cover	Secchi
1	SE 9	--	--	9

Depth	Temp.	Salinity	NO ₂ -N	NO ₃ -N	PO ₄ -P
0	3.5	18.283	0.00	2.80	0.34
1	0.8	31.532	0.03	2.47	0.58
3	0.3	32.504	0.06	1.44	0.46
5	0.2	32.580	0.05	3.57	0.74
7	0.0	32.615	0.01	3.53	0.74
10	0.0	32.608	0.00	2.55	0.58
20	-0.2	32.613	0.01	3.70	0.67
27*	-0.2	32.613	0.00	3.78	0.70
30	-0.3	32.618	0.01	3.89	0.70
40	-	-	-	-	-

Depth	SiO ₃ -Si	NH ₃ -N	Ch.a	Ch.b	Ch.c
0	15.20	9.78	0.95	0.77	1.28
1	9.43	0.65	1.38	0.42	0.81
3	13.62	0.38	1.59	0.52	1.64
5	5.68	0.52	1.60	0.58	1.15
7	5.94	0.35	1.70	0.71	1.30
10	15.11	0.35	1.81	0.73	1.49
20	16.68	0.61	1.66	0.55	1.14
27*	5.68	0.65	2.01	1.08	1.88
30	5.94	0.78	1.88	0.55	1.07
40	-	-	-	-	-

*Three times secchi disc reading

Station	Date	Time	Sta. depth	Air temp.
81-1	16 Aug 81	1728	39	4.5
Cloud	Wind	Ice cover	Snow cover	Secchi
2	SE 8	--	--	--

Depth	Temp.	Salinity	NO ₂ -N	NO ₃ -N	PO ₄ -P
0	0.2	32.259	0.09	3.45	0.60
1	0.2	32.281	0.00	3.64	0.70
3	0.0	32.519	0.01	3.94	0.53
5	0.2	32.169	0.09	3.34	0.51
7	-0.3	32.584	0.06	3.37	0.65
10	-0.3	32.590	0.07	3.38	0.58
20	-0.5	32.590	0.10	3.42	0.48
27*	-0.6	32.596	0.00	3.64	0.88
30	-0.6	32.592	0.02	2.73	0.90
38	-0.6	32.599	0.00	4.44	0.88

Depth	SiO ₃ -Si	NH ₃ -N	Ch.a	Ch.b	Ch.c
0	9.10	0.49	2.00	0.49	1.05
1	2.73	0.91	1.77	0.51	1.00
3	9.28	0.78	1.77	0.61	0.96
5	15.72	0.88	1.56	0.34	0.78
7	7.35	1.01	1.80	0.84	1.45
10	9.93	1.04	1.49	0.47	0.75
20	20.75	0.95	1.55	0.43	0.87
27*	2.16	1.47	1.67	0.37	0.97
30	2.92	0.78	1.66	0.56	1.02
38	2.06	0.95	1.75	0.75	1.50

*Three times secchi disc reading, 1526 hrs, 16 Aug. 1981.

Station	Date	Time	Sta. depth	Air temp.
81-1	16 Aug 81	2043	42	--
Cloud		Wind	Ice cover	Snow cover
7		SE 8	--	--
				Secchi
				--

Depth	Temp.	Salinity	NO ₂ -N	NO ₃ -N	PO ₄ -P
0	0.7	32.086	0.05	2.24	0.75
1	0.5	32.149	0.05	2.40	0.70
3	0.2	32.266	0.03	2.81	0.75
5	0.0	32.366	0.04	2.98	0.75
7	-0.2	32.556	0.05	2.70	0.73
10	-0.2	32.595	0.04	3.11	0.80
20	-0.6	32.590	0.03	3.21	0.78
27*	-0.6	32.614	0.04	3.65	0.85
30	-0.6	32.598	0.05	3.49	0.83
40	-0.6	32.623	0.05	3.71	0.83

Depth	SiO ₃ -Si	NH ₃ -N	Ch.a	Ch.b	Ch.c
0	10.56	0.12	2.59	0.93	1.64
1	12.41	0.65	1.88	0.64	1.15
3	9.07	0.65	2.28	0.63	1.27
5	8.33	0.58	1.73	0.35	0.84
7	7.47	0.38	2.31	0.87	1.63
10	9.44	0.58	1.97	0.85	1.51
20	10.19	0.45	2.17	1.18	2.03
27*	8.83	0.58	1.80	0.82	1.58
30	10.43	0.55	1.45	0.30	0.71
40	11.30	0.81	1.58	0.77	1.20

*Three times secchi disc reading, 1526 hrs, 16 Aug. 1981.

Station	Date	Time	Sta. depth	Air temp.
81-1	17 Aug 81	0018	35	4
Cloud	Wind	Ice cover	Snow cover	Secchi
3	SE 15	--	--	--

Depth	Temp.	Salinity	NO ₂ -N	NO ₃ -N	PO ₄ -P
0	1.0	30.395	0.06	3.40	0.63
1	0.5	31.878	0.02	2.50	0.80
3	0.2	32.466	0.05	1.99	0.83
5	-0.2	32.580	0.03	3.33	0.65
7	-0.2	32.560	0.03	3.22	0.75
10	-0.2	32.580	0.03	3.56	0.83
20	-0.3	32.614	0.02	3.18	0.73
27*	-0.3	32.621	0.00	3.19	0.85
30	-0.5	32.622	0.02	2.62	0.85
40	-	-	-	-	-

Depth	SiO ₃ -Si	NH ₃ -N	Ch.a	Ch.b	Ch.c
0	9.01	1.27	1.49	0.46	0.87
1	7.17	1.21	1.66	0.55	1.14
3	5.22	0.81	1.94	0.60	1.27
5	9.28	1.11	1.73	0.34	0.96
7	6.07	1.47	1.86	0.82	1.32
10	2.44	0.91	2.10	0.71	1.29
20	10.85	1.37	2.28	0.76	-
27*	5.97	1.11	2.31	0.85	1.76
30	6.43	1.37	2.27	0.71	1.47
40	-	-	-	-	-

*Three times secchi disc reading, 1526 hrs, 16 Aug. 1981.

Station	Date	Time	Sta. depth	Air temp.
81-1	17 Aug 81	0308	32	4
Cloud 2	Wind E 15	Ice cover --	Snow cover --	Secchi --

Depth	Temp.	Salinity	NO ₂ -N	NO ₃ -N	PO ₄ -P
0	1.8	28.650	0.07	2.85	0.53
1	1.8	29.209	0.00	1.59	0.73
3	0.8	31.949	0.07	1.52	0.53
5	0.5	32.281	0.00	1.44	0.75
7	0.3	32.427	0.00	2.06	0.88
10	0.3	32.420	0.01	3.46	1.08
20	-0.2	32.618	0.01	2.18	0.88
27*	-0.2	32.621	0.00	2.54	0.65
30	-0.3	32.615	0.00	2.79	0.78
40	-	-	-	-	-

Depth	SiO ₃ -Si	NH ₃ -N	Ch.a	Ch.b	Ch.c
0	12.13	2.16	1.19	0.69	1.00
1	2.35	4.99	1.26	0.57	0.91
3	5.79	7.82	1.70	0.72	1.18
5	2.64	4.30	1.51	0.28	0.71
7	1.87	3.25	1.72	0.55	0.89
10	2.64	2.79	1.83	0.59	0.96
20	1.77	0.65	2.05	0.66	1.09
27*	4.23	0.62	1.78	0.40	1.04
30	1.29	0.95	1.83	0.57	1.08
40	-	-	-	-	-

*Three times secchi disc reading, 1526 hrs, 16 Aug. 1981.

Station	Date	Time	Sta. depth	Air temp.
81-1	17 Aug 81	0600	38	4
Cloud	Wind	Ice cover	Snow cover	Secchi
3	SE 17	--	--	--

Depth	Temp.	Salinity	NO ₂ -N	NO ₃ -N	PO ₄ -P
0	1.0	30.741	0.07	2.43	0.63
1	1.0	31.578	0.11	2.73	0.63
3	1.0	32.107	0.06	2.35	0.51
5	0.5	32.315	0.06	2.33	0.60
7	0.5	32.074	0.04	2.83	0.38
10	0.4	32.385	0.09	2.98	0.65
20	-0.2	32.584	0.08	3.46	0.70
27*	-0.3	32.575	0.05	3.25	0.73
30	-0.3	32.597	0.08	3.39	0.63
40	-	-	-	-	-

Depth	SiO ₃ -Si	NH ₃ -N	Ch.a	Ch.b	Ch.c
0	22.78	1.77	1.66	0.55	1.14
1	16.72	0.49	1.87	0.69	1.61
3	9.97	0.58	2.05	0.62	1.46
5	6.16	0.95	2.07	0.37	0.96
7	9.48	1.41	1.98	0.73	1.67
10	9.09	1.37	2.05	0.54	1.25
20	8.70	0.98	2.23	0.45	1.35
27*	12.51	1.41	2.10	0.69	1.54
30	8.60	1.08	2.17	0.48	1.36
40	-	-	-	-	-

*Three times secchi disc reading, 1526 hrs, 16 Aug. 1981.

Station	Date	Time	Sta. depth	Air temp.
81-1	17 Aug 81	0833	--	--
Cloud	Wind	Ice cover	Snow cover	Secchi
6	NW 17	--	--	--

Depth	Temp.	Salinity	NO ₂ -N	NO ₃ -N	PO ₄ -P
0	0.1	32.319	0.01	2.40	0.38
1	0.2	32.323	0.01	2.24	0.51
3	0.1	32.331	0.00	2.16	0.46
5	0.0	32.352	0.00	2.25	0.41
7	0.0	32.376	0.00	2.50	0.41
10	0.0	32.458	0.00	2.57	0.46
20	-0.3	32.588	0.01	3.45	0.46
27*	-0.4	32.596	0.00	3.60	0.51
30	-0.4	32.602	0.00	3.26	0.46
40	-0.5	32.631	0.01	3.82	0.60

Depth	SiO ₃ -Si	NH ₃ -N	Ch.a	Ch.b	Ch.c
0	2.54	0.06	2.84	0.71	1.64
1	3.91	0.45	2.73	0.59	1.49
3	2.74	0.19	2.72	0.65	1.82
5	2.74	0.58	2.80	0.47	1.40
7	2.44	1.37	2.72	0.76	1.78
10	3.71	0.78	2.44	0.62	1.57
20	3.71	0.75	2.20	0.83	1.57
27*	3.23	1.34	2.24	0.38	1.02
30	2.44	1.11	2.11	0.52	1.24
40	5.87	1.18	2.12	1.03	1.87

*Three times secchi disc reading, 1526 hrs, 16 Aug. 1981.

Station	Date	Time	Sta. depth	Air temp.
81-1	17 Aug 81	1200	25	--
Cloud	Wind	Ice cover	Snow cover	Secchi
8	NW 18	--	--	--

Depth	Temp.	Salinity	NO ₂ -N	NO ₃ -N	PO ₄ -P
0	1.4	31.306	0.11	2.92	0.56
1	0.9	31.917	0.08	2.55	0.53
3	0.7	31.998	0.10	2.70	0.53
5	0.3	32.142	0.06	2.44	0.65
7	0.3	32.261	0.08	2.61	0.65
10	0.2	32.461	0.06	3.17	0.53
20	-0.1	32.541	0.06	3.16	0.53
27*	-	-	-	-	-
30	-	-	-	-	-
40	-	-	-	-	-

Depth	SiO ₃ -Si	NH ₃ -N	Ch.a	Ch.b	Ch.c
0	7.43	0.45	1.91	0.86	1.64
1	9.19	0.98	1.79	0.33	0.83
3	9.87	0.52	2.22	0.65	1.40
5	8.02	0.49	2.48	0.89	1.57
7	10.65	0.75	2.76	0.93	1.82
10	8.11	0.52	2.39	0.67	1.33
20	6.94	1.31	2.47	0.97	1.78
27*	-	-	-	-	-
30	-	-	-	-	-
40	-	-	-	-	-

*Three times secchi disc reading, 1526 hrs, 16 Aug. 1981.

Station	Date	Time	Sta. depth	Air temp.
81-1	17 Aug 81	1435	38	5
Cloud 8	Wind S 3	Ice cover --	Snow cover --	Secchi --

Depth	Temp.	Salinity	NO ₂ -N	NO ₃ -N	PO ₄ -P
0	2.0	30.974	0.00	2.71	0.31
1	1.7	31.380	0.04	2.69	0.53
3	0.9	32.008	0.04	2.76	0.36
5	0.9	32.129	0.04	2.74	0.43
7	0.9	32.124	0.04	2.37	0.48
10	0.2	32.369	0.01	2.67	0.43
20	0.1	32.493	0.02	3.14	0.53
27*	-0.1	32.590	0.03	3.59	0.48
30	-0.2	32.601	0.03	3.66	0.63
40	-	-	-	-	-

Depth	SiO ₃ -Si	NH ₃ -N	Ch.a	Ch.b	Ch.c
0	3.03	0.06	1.90	1.08	1.45
1	5.46	0.06	1.77	0.61	0.96
3	2.35	0.12	2.26	0.83	1.31
5	2.93	0.19	2.22	0.58	1.07
7	2.93	0.25	2.35	1.05	1.55
10	3.42	0.22	3.00	0.84	1.54
20	3.13	0.72	2.38	0.77	1.29
27*	3.52	0.49	2.28	0.55	1.06
30	3.13	0.45	2.11	0.54	1.00
40	-	-	-	-	-

*Three times secchi disc reading, 1526 hrs, 16 Aug. 1981.

Station	Date	Time	Sta. depth	Air temp.
81-1	22 Aug 81	1040	46	8
Cloud	Wind	Ice cover	Snow cover	Secchi
0	S 5	--	--	10.5

Depth	Temp.	Salinity	NO ₂ -N	NO ₃ -N	PO ₄ -P
0	1.0	-	-	-	-
5	0.0	-	-	-	-
10	0.0	-	-	-	-
15	-0.1	-	-	-	-
20	-0.2	-	-	-	-
25	-0.2	-	-	-	-
30	-0.2	-	-	-	-
35	-0.2	-	-	-	-
40	-0.2	-	-	-	-

Depth	SiO ₃ -Si	NH ₃ -N	Ch.a	Ch.b	Ch.c
0	-	-	-	-	-
5	-	-	-	-	-
10	-	-	-	-	-
15	-	-	-	-	-
20	-	-	-	-	-
25	-	-	-	-	-
30	-	-	-	-	-
35	-	-	-	-	-
40	-	-	-	-	-

Station	Date	Time	Sta. depth	Air temp.
81-1	24 Aug 81	1055	44	5.5
Cloud	Wind	Ice cover	Snow cover	Secchi
6	S 5	--	--	9.5

Depth	Temp.	Salinity	NO ₂ -N	NO ₃ -N	PO ₄ -P
0	1.1	31.070	0.01	1.83	0.33
1	0.2	32.461	0.03	1.79	0.38
3	0.2	32.444	0.02	1.87	0.41
5	0.1	32.564	0.05	2.43	0.31
7	0.1	32.574	0.01	2.15	0.43
10	0.0	32.622	0.04	2.53	0.58
20	-0.2	32.670	0.02	3.03	0.60
30	-0.2	32.677	0.02	3.19	0.63
40	-0.2	32.712	0.02	3.44	0.70

Depth	SiO ₃ -Si	NH ₃ -N	Ch.a	Ch.b	Ch.c
0	2.44	0.06	2.58	0.40	1.14
1	2.44	0.00	3.27	0.37	1.17
3	1.47	0.00	3.27	0.37	1.17
5	2.25	0.02	2.52	0.43	1.15
7	3.03	0.00	3.15	0.42	1.19
10	3.03	0.51	2.58	0.42	1.02
20	-	0.54	1.73	0.35	0.84
30	3.42	0.61	1.51	0.28	0.71
40	4.30	0.74	1.16	0.45	0.63

Station	Date	Time	Sta. depth	Air temp.
81-1	31 Aug 81	0805	47	1.5
Cloud	Wind	Ice cover	Snow cover	Secchi
8	E 5	--	--	10.5

Depth	Temp.	Salinity	NO ₂ -N	NO ₃ -N	PO ₄ -P
0	0.2	32.148	0.03	2.18	0.63
1	0.2	32.197	0.03	2.18	0.58
3	0.1	32.436	0.01	2.35	0.51
5	0.0	32.573	0.01	2.81	0.51
7	0.0	32.626	0.00	2.62	0.51
10	0.0	32.655	0.02	2.78	0.43
20	0.0	32.698	0.01	3.02	0.65
30	0.0	32.703	0.01	3.25	0.75
40	-0.1	32.721	0.02	3.24	0.70

Depth	SiO ₃ -Si	NH ₃ -N	Ch.a	Ch.b	Ch.c
0	7.04	0.13	1.98	0.13	0.79
1	3.91	0.12	2.20	0.21	0.98
3	5.18	0.15	2.19	0.32	0.94
5	4.79	0.37	2.07	0.39	0.84
7	3.32	0.34	1.96	0.35	0.77
10	4.59	0.31	1.90	0.36	0.90
20	4.89	0.41	1.56	0.34	0.78
30	8.21	0.73	1.52	0.16	0.87
40	7.62	0.79	1.39	0.33	0.72

Ice beginning to form near shore.

Station 81-1	Date 7 Sep 81	Time 0913	Sta. depth 42.5	Air temp. 4
Cloud 8	Wind SW 3	Ice cover 1	Snow cover --	Secchi 8

Depth	Temp.	Salinity	NO ₂ -N	NO ₃ -N	PO ₄ -P
0	1.1	30.358	0.05	1.30	0.58
1	1.0	31.708	0.03	1.32	0.53
3	0.9	31.690	0.03	1.32	0.43
5	0.8	32.167	0.03	1.30	0.38
7	0.7	32.392	0.03	1.43	0.33
10	0.5	32.605	0.04	1.55	0.48
20	0.3	32.724	0.04	2.39	0.53
30	0.2	32.738	0.05	2.55	0.63
40	-0.2	32.763	0.04	3.09	0.73

Depth	SiO ₃ -Si	NH ₃ -N	Ch.a	Ch.b	Ch.c
0	7.23	3.16	1.53	0.11	0.41
1	7.82	1.43	-	-	-
3	4.50	1.53	2.49	0.09	0.82
5	2.15	0.68	-	-	-
7	1.96	1.92	-	-	-
10	3.13	1.66	2.49	0.08	0.94
20	3.62	2.02	2.05	0.76	0.23
30	9.48	2.44	1.63	0.24	0.57
40	5.96	0.98	1.34	0.28	0.52

Thin ice cover on station.

Table 4 (continued). Frobisher Bay Oceanographic data

Station	Date	Time	Sta. depth	Air temp.
81-51	26 Aug 81	1210	225	7
Cloud	Wind	Ice cover	Snow cover	Secchi
4	--	--	--	9

Depth	Temp.	Salinity	NO ₂ -N	NO ₃ -N	PO ₄ -P
0	1.7	32.542	0.00	0.51	0.44
9	0.7	32.562	0.00	0.47	0.39
18	0.0	32.605	0.01	2.54	0.41
22.5	-0.1	32.611	0.02	2.67	0.41
27	-0.1	32.610	0.01	2.77	0.63
36	-0.2	32.618	0.01	2.88	0.77
45	-0.3	32.653	0.01	3.31	0.70
54	-0.3	32.662	0.03	3.39	0.63
72	-0.2	32.716	0.03	3.32	0.58
90	-0.2	32.743	0.03	3.27	0.73

Depth	SiO ₃ -Si	NH ₃ -N	Ch.a	Ch.b	Ch.c
0	2.76	0.00	3.60	0.48	1.37
9	7.63	0.00	4.68	0.42	1.64
18	4.32	0.44	1.84	0.39	0.91
22.5	7.08	0.47	2.45	0.56	1.12
27	6.43	0.47	1.88	0.65	1.03
36	5.06	0.69	1.40	0.24	0.64
45	8.09	0.66	1.10	0.38	0.68
54	4.14	0.89	0.93	0.37	0.62
72	6.62	0.92	1.04	0.40	0.69
90	7.08	0.89	0.87	0.48	0.71

Collection depths are multiples of secchi disc readings.

