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NOGAP B.2; Chemical Data from Tuktoyaktuk Harbour and Mason Bay, 1984 - 1988

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NOGAP B.2; CHEMICAL DATA FROM TUKTOYAKTUK HARBOUR AND MASON BAY, 1984 TO 1988

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PREFACE

This study was funded by the Northern Oil and Gas Action Program (NOGAP), through the Department of Fisheries and Oceans Canada, Central and Arctic Region. It is one of a series of projects being executed under NOGAP B.2, to provide background data for assessing the implications of hydrocarbon development and production on critical estuarine and marine habitats of the Canadian Arctic Coastal Shelf. This document constitutes NOGAP Report B2.45.

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The NOGAP B.2 program was established in 1984 and was designed to study the marine and estuarine habitats on the Canadian Beaufort Sea Shelf. As part of this study, we measured both biological and chemical water properties of samples collected through the ice (March) and from the *M. V. Sequel* from July to September during the open water season. In this report we present all the chemical oceanographic measurements taken in the Tuktoyaktuk Harbour and Mason Bay area. These measurements were made by the Department of Fisheries and Oceans between the years 1984 through 1988. A total of 335 water samples were collected from 69 stations and as many as 17 chemical determinations were made on each sample. The chemical measurements made on bottle samples include nitrate, nitrite, soluble reactive silicate, total dissolved nitrogen, soluble reactive phosphate, dissolved inorganic and organic carbon, particulate carbon, phosphorus and nitrogen, conductance, pH, alkalinity, chlorophyll, dissolved oxygen and total suspended solids.

Keywords: Arctic; Beaufort Sea; Tuktoyaktuk; Mason Bay; nutrients; oceanography; chloro phyll; estuarine; marine; nearshore.

RÉSUMÉ

Lawrence, M.J., M.A. Bergmann, G.E. Hopky, and D.B. Chiperzak. 1993. NOGAP B.2; Chemical data from Tuktoyaktuk Harbour and Mason Bay, 1984 to 1988. Can. Data Rep. Fish. Aquat. Sci. 859: iv + 40 p.

Le programme PIPGN B.2 a été mis sur pied en 1984 et a été conçu dans le but d'étudier les habitats marins et estuariens sur la plate-forme continentale de la partie canadienne de la mer de Beaufort. Dans le cadre de cette étude, nous avons mesuré les propriétés biologiques et chimiques de l'eau à partir d'échantillons recueillis à travers la glace (en mars) et en eau libre, à bord du navire *M. V. Sequel*, entre juillet et septembre. Le présent rapport comprend toutes les mesures océanographiques de nature chimique effectuées dans le havre de Tuktoyaktuk et la baie Mason. Ces mesures on été pris par le Ministère des Pêches et des Océans de 1984 à 1988. On a recueilli un total de 335 échantillons d'eau prélevés dans 69 stations d'échantillonnage et chaque échantillon a subi jusqu'à 17 analyses chimiques différentes. Ces analyses, réalisées sur des échantillons en bouteille, portaient sur le nitrate, le nitrite, le silicate réactif soluble, l'azote dissous total, le phosphate réactif soluble, le carbone inorganique et organique dissous, le carbone particulaire, le phosphore et l'azote, la conductance, le pH, l'alcalinité, la chlorophylle, l'oxygène dissous et les solides en suspension totaux.

Mots-clés : arctique; mer de Beaufort; Tuktoyaktuk; la baie Mason; éléments nutritifs; océanographie; chlorophylle; estuarien; marin; littoral.

INTRODUCTION

As part of a multi-disciplinary study to measure the importance of the marine and estuarine habitats on the Canadian Beaufort Sea Shelf (< 200m), physical, chemical and biological oceanographic data were collected from the shelf as well as from two coastal embayments, Tuktoyuktuk Harbour and Mason Bay (Fig. 1). This report summarizes the chemical and chlorophyll *a* data collected from Tuktoyaktuk Harbour and Mason Bay. Data were collected as part of the *Northern Oil and Gas Action Program* (NOGAP), and specifically the Critical Arctic Estuarine and Marine Habitat Project (B.2). NOGAP subproject B2.1 focused primarily on the Beaufort Shelf area, and measurements obtained from samples taken from Tuktoyuktuk Harbour during the open water seasons were to provide a comparison to samples collected from the shelf, and to continue with existing long-term monitoring programs initiated in the early 1980's. Measurements taken during the ice on season and also presented here, were collected as part of NOGAP subproject B2.3 and focused on characterization of the benthic community of coastal embayments (Hopky et al. in press).

The Beaufort Sea Shelf and environs, such as coastal embayments, are of great interest economically and biologically. They are known to be important habitat for marine and anadromous fishes (Craig 1984; Lawrence et al. 1984), as well as marine mammals including seals, beluga and bowhead whales (Würsig et al. 1985). Less is known of their food sources, life history and critical habitat requirements. The prospect of ongoing resource and industrial development in the area has increased the importance of a solid database network of biological, physical and chemical data. Tuktoyaktuk Harbour is a major Arctic harbour, and Mason Bay has the potential to be one. In addition, both are known to be areas of particularly important marine and anadromous fish habitat (Bond 1982; Lawrence et al. 1984), while Tuktoyuktuk Harbour in addition supports a valuable domestic fishery. They have restricted water exchange with the adjacent shelf waters, and consequently may be more significantly impacted by the results of industrial development.

Water samples were collected for five years (1984-1988) by staff of the Department of Fisheries and Oceans (DFO), Central and Arctic Region. In the past, most other researchers have restricted their chemical/analytical investigations to short term (up to 1 month) study periods and have been unable to clearly define the range and variance in the elements sampled. In this report we summarize analyses performed on nutrients (soluble reactive silicate, soluble reactive phosphorus, nitrate and nitrite), suspended solids, particulate carbon, nitrogen, and phosphorus, total dissolved phosphorus, dissolved inorganic carbon, dissolved organic carbon, total suspended solids, conductance, pH, alkalinity, dissolved oxygen and chlorophyll. Other chemical data collected from the shelf as part of NOGAP project B2 are reported in Lawrence et al. (1991).These data were collected in conjunction with CTD data (Hopky et al. 1986, 1987, 1988a, 1988b, 1990), plankton data (Hopky pers. comm.), benthic data (Hopky et al. in prep.), fish data (Chiperzak et al. 1990, 1991), light extinction and *in situ* chlorophyll data (Hopky pers.comm.), and primary production data (Parsons et al. 1989).

The data reported here add to the existing chemical data sets, which are useful in defining the composition and movement of the various water masses influencing the highly dynamic shallow water area of the Beaufort Sea Shelf (Macdonald et al. 1987; Fissel and Melling 1990). The chemical signal of the water masses allows predictions of algal productivity, mass balance calculations, and mixing rates for the area. In addition, this data assists in the identification of critical estuarine and marine habitat; the primary purpose of the NOGAP B.2 project.

METHODS

STUDY AREA

Tuktoyuktuk Harbour

Tuktoyaktuk Harbour, located at 132°59'W, 69°26'N, is on the eastern edge of the Mackenzie River delta (Fig. 1). The harbour is 6.5 km long and up to 1.8 km wide (Fig. 2) with a total surface area of 942 ha and has two distinct basins divided by a shallow 5 m sill (Thomas et al. 1981). Depths greater than 20 m occur in both basins, with depths in excess of 10 m accounting for 44% and 55% of the north and south basin surface area, respectively. Maximum depth is 26 m (Barber 1968). The bottom sediment is predominantly silt-clay (Thomas et al. 1981; Bond 1982).

Two narrow channels at the harbour mouth maintain a seaward connection to Kugmallit Bay. The bay is shallow, with depths of 5 m not exceeded within 10 km from the harbour mouth. Consequently, exchange of water between Kugmallit Bay and Tuktoyaktuk Harbour takes place through the upper 4-5 m of the water column (Barber 1968). The channels were deepened to a depth of 4-5 m in 1981 to allow for the entry of deeper draft vessels into the harbour.

During the ice-free period, when winds predominate from the north and west, Kugmallit Bay water column profiles exhibit low salinities which are associated with a large freshwater input from the Mackenzie River (Parsons et al. 1989; Hopky et al. 1987). When winds have south and east components, marine upwellings occur, often bringing cold saline water from the deeper Beaufort Sea basin into the nearshore areas. Thus the mouth of Tuktoyaktuk Harbour is alternately exposed to high, medium and low saline waters during the ice-free period. Three freshwater creeks also drain into the harbour on a seasonal basis.

As a result, during open water the upper water layer within the harbour becomes more mixed than during ice cover (Barber 1968). The mixed surface layer may extend as deep as 9-10 m by the end of August. Salinities of 12-15 and temperatures up to 15 C occur in the upper water layer at this time. Dissolved oxygen is usually at near saturation values. Below the pycnocline, salinities increase to 29-31 and minimum temperatures of 0°C to 1°C.

Lunar tides in the harbour fluctuatate 0.3-0.4 m. Depending upon direction, winds can increase or decrease water levels in the harbour as much as a meter for extended periods of time.

During the period of ice cover (October - late June) an upper, freshwater layer stabilizes and develops to a maximum depth of approximately 6 m by the spring (Hopky et al. 1990). The freshwater originates from

the Mackenzie River system (Barber 1968; Hopky et al. 1987).

Mason Bay

Mason Bay, located at 134°06'W, 69°33'N, is on the northeastern coast of Richards Island in the Mackenzie River delta (Fig. 1). The bay is 9 km wide (east-west) and 7.5 km long, with a total surface area of 4080 ha (Fig. 3). Reconnaissance level hydrographic surveys performed in 1964 show maximum depths of 24 m with depths in excess of 10 m accounting for approximately one-half of the bay's surface area. Wacasey et al. (1977) reported a maximum depth of 26 m and describe the bottom substrates as being predominantly silt-clay with variable amounts of sand.

Two shallow (2 m deep or less) channels, that have not been altered by industrial activity, maintain a seaward connection with Kugmallit Bay. Consequently, exchange of water during the open water season takes place through the upper few metres and during winter the exchange is minimal, or may cease as ice accretes into the sediments. An uncharted channel connects Mason Bay to an adjacent bay with similar morphometry that is also connected to Kugmallit Bay by a shallow channel.

During the open water season, satellite imagery confirms the exchange of water between Mason Bay and Kugmallit Bay, the extent of which depends upon wind speed and direction (M. Lawrence, pers. comm.). As in Tuktoyaktuk Harbour, the normal tidal range is small. Local drainage into Mason Bay is seasonal and comes predominantly from two small drainages located on the southern shore of the bay (Lawrence et al. 1984).

During the period of ice cover (October-late June), water column conditions remain stable. Measurements taken during March from 1986 to 1988 indicate a downward cooling throughout the winter season of the upper freshwater layer, which is underlain by more saline, warmer water (Hopky et al. 1990).

STATIONS

During the open water periods, survey samples were periodically collected only in Tuktoyuktuk Harbour. Stations were located at the deepest known location within each sub-basin of the harbour. During the ice on season (March), water samples were collected at each of six stations systematically located in both Tuktoyuktuk Harbour and Mason Bay. These station locations were selected on the basis of pre-determined depth strata, bottom gradient and sediment texture. The selection process is described elsewhere (Hopky et al. in prep). Station locations were designated on the basis of year and the sample station number within each year. In 1985 the Tuktoyuktuk Harbour designations "E" and "F" are synonymous with "THN" and "THS" respectively.

POSITIONING

During the open water period, station coordinates for Tuktoyuktuk Harbour stations were determined using a combination of the following methods: 1) satellite navigation - JRC Model JLE-3850 with a nominal accuracy of ± 0.1 km; 2) visual and radar (Furuno Model CR240) fixes to shore in combination with 1:250,000 bathymetric

charts. The station reference locations, for 1984 to 1987 are shown in Fig. 4.

In March 1985, the sampling stations in Tuktoyaktuk Harbour were reached by a combination of land and snow vehicles. The sampling stations were geographically located by reference to bathymetric charts and visual triangulation to known landmarks. In March of 1986, 1987 and 1988, the requirements of the sampling protocol necessitated a high degree of inter and intra-annual station site location. All stations in Tuktoyuktuk Harbour and Mason Bay were located using a detailed procedure outlined in Hopky et al. (1990). To summarize, in 1986, after locating specific semi-permanent reference points on land, an infrared rangefinder system (Sokkisha Red Model 2L) was used in combination with a theodolite (Wild TI 70 Series) to precisely position the sampling station. Repeat sampling occured at each of these stations in subsequent years. Station locations sampled in Tuktoyuktuk Harbour (March, 1985 to 1988), and Mason Bay (March, 1986 to 1988) are shown in Figures 5 and 6, respectively.

SAMPLE COLLECTION

During the open water season and aboard the *M.V.Sequel*, single depth bottle casts were made with a 5 L Van Dorn sampler, usually from the aft port chain. During periods of ice cover and for each sampling station, 25 cm diameter holes were drilled through a maximum of 2.3 m of ice. The ice was mostly freshwater as a result of the continuous input of water from the Mackenzie River. Samples from a number of water depths were obtained from casts of a 5 L Van Dorn bottle secured to the surface by a metered line. Due to the physical disturbance of the water proximal to the sampling hole and with the exception of some samples taken in 1988, the most shallow samples were taken from less than 2 m depth. Samples were collected within a heated facility to prevent freezing.

SAMPLE HANDLING AND ANALYSIS PROCEDURES

Field processing

Subsampling of water from the bottles followed normal oceanographic procedures for dissolved oxygen (DO) first, followed by nutrients (NO3, PO4, SI) and chlorophyll (CHL). Water was emptied into a twice-rinsed 2 L dark, polyethylene bottle and processed for other analyses: dissolved inorganic carbon (DIC), dissolved organic carbon (DOC), total dissolved nitrogen (TDN), particulate organic carbon, phosphorus and nitrogen (PC,PP,PN), pH, conductance (COND), alkalinity (ALK) and total suspended solids (TSS). Samples and water bottles were protected from direct sunlight whenever possible.

All sample processing was performed back at the laboratory in Tuktoyaktuk, with the exception of samples collected at Mason Bay in 1988, which were processed on site. Stations sampled for water chemistry were also sampled for salinity and temperature and the data are reported elsewhere (Hopky et al. 1990).

Laboratory processing

All DO, pH and conductivity analyses were performed either in the field or at the Tuktoyaktuk laboratory. In 1986, water

samples were sent to staff laboratory personnel in Inuvik for DIC analysis. Otherwise, all other analyses were carried out at the DFO Freshwater Institute Scientific Laboratory (FWISL), in Winnipeg.

Dissolved oxygen: Samples were "fixed" directly in the 500 mL reagent bottles within 1 hour of sampling. Oxygen determinations were made back in the Tuktoyuktuk laboratory following the Winkler technique (Carpenter 1965). Calibration of the thio-sulphate solution was carried out at least one time per season using KIO_3. Analyses were completed 6 to 8 hours following collection. The values presented in the Appendix tables can be converted from $mmol \cdot m^{-3}$ (A) to $mg \cdot L^{-1}$ by dividing A by 32.

Nutrients: Samples were collected into twice rinsed polystyrene scintillation vials. For each water sample collected, one vial was refrigerated for silicate analysis and two additional vials were filtered through Whatman GF/C, the filtrate collected, and frozen in an upright position until analyzed, usually within three weeks. For all study years, nutrient determinations were performed by FWISL staff using Technicon Autoanalyzer II equipment. Methods for soluble reactive silicate, soluble reactive phosphorous, nitrate and nitrite are described in Stainton et al. (1977).

Total suspended solids: Sub-sampled volumes for TSS were processed back in the Tuktoyaktuk laboratory with the exception of the Mason Bay, March 1988 samples. After gentle shaking of the 2 L water bottle, as much water as possible (usually 500 mL, but volumes of water ranged from 50 mL to 1000 mL) was filtered through a pre-washed and pre-weighed 47 mm, 0.4 μm Nuclopore filter using standard Millipore filtration apparatus. The maximum vacuum was < 150 mm Hg. The filter perimeter was rinsed after the castle had been removed. Blanks were prepared following the same procedure as the water samples. Filters were stored in new petri-dishes in a freezer and shipped to FWISL for dry-weight determination (Stainton et al. 1977).

Chlorophyll: Sample volumes of less than 1.00 L were filtered through 42.5 mm Whatman GF/C glass fibre filter. The filters were stored, folded in half, in petri-slides, kept frozen in a freezer and later shipped to FWISL. Chlorophyll was determined fluorometrically with a Turner Model 111 following dark extraction in 95% methanol for a minimum of 16 hours (modification of Stainton et al. 1977).

Dissolved inorganic carbon: Twice rinsed glass water bottles were filled with sample water, preserved with 100 μL $HgCl_2$ and stored at 5°C. Samples were shipped to the FWISL or to the Inuvik laboratory (1986) and were analyzed using an automated GIC model 600 inorganic carbon analyzer.

Alkalinity: Water samples were stored in plastic scintillation vials and shipped to FWISL for analysis (Stainton et al 1977).

pH: Plastic bottles were used to store water samples for pH analysis and held at 5°C for less than 24 hours prior to determination. The pH measurements were made *in situ* directly aboard the vessel and otherwise were made in the laboratory using a standard YSI meter.

Particulate carbon, nitrogen and phosphorus: Vacuum-filtered (< 150 mm Hg) water samples (< 1.00 L) were filtered through

single 47 mm diameter pre-combusted (500°C for 1 h) Whatman GF/C filters. Air-dried filters were stored inside pre-combusted glass vials for particulate phosphorus and in petri-slides for particulate carbon and nitrogen, and returned to FWISL for analysis. Blank filters were prepared in an identical manner without filtering a water sample.

Conductivity: Water samples were put in twice-rinsed glass water bottles and stored at 5°C. Prior to measurement, samples were brought to 25°C in a water bath. A YSI meter was used to measure specific conductance and was standardized against a KCl solution at the beginning of each season.

METHOD PRECISION

For many of the analyses performed by the staff of the FWISL, estimates of method precision were taken from Stainton et al. (1977 - Table 11) and are shown in Table 1. Replicate samples (n=6) of the synthetic standards were analyzed in the laboratory under routine conditions, indicating the precision limits for the pure chemical standards and instrumentation. These results do not include error estimates involved in water sampling using the collections methods outlined above or any point source variability. The actual working precision on the samples is 5% to 20%.

RESULTS AND DISCUSSION

The results in this report are given in tables in Appendix 1 and Appendix 2. Appendix 1 comprises tables generated for each year sampled, giving the station location parameters including: Station identifier, date and time, location and total station depth. Stations were repeatedly sampled to allow for within- and between-year comparisons.

In Appendix 2, values for the biological and chemical analyses are presented using the International System of Units (SI) and follows the outline of related NOGAP studies in the same area, carried out by investigators (Macdonald et al. 1988) at the Institute of Ocean Sciences (DFO). Values are expressed to the precision warranted by each analytical procedure.

The values obtained and reported in Appendix 2 were checked for consistency by comparing samples in three ways:

1. When more than five water column samples were taken from one station, a plot of the depth profile was viewed for outliers.
2. Data values generated from samples taken during the same time period, from the same depth and from adjacent stations, were checked for major discrepancies.
3. Data obtained from the same station during sequential sampling periods were checked for consistency.

In 1984, repeat sampling of both the north basin and south basin of Tuktoyaktuk Harbour was performed from July to September and results of analyses for PN, PC, CHL and TSS are shown in Appendix 2, Table 1. Logistic and sample handling difficulties prevented a more extensive sampling schedule. There was a more extensive sampling schedule in 1985 (Appendix 2, Table 2), and water samples were analyzed for the same parameters as in 1984 as well as TDN and PP.

In Table 3a and 3b of Appendix 2, 1986 station summary parameters are reported for the north and south basins of Tuktoyaktuk Harbour as well as for Mason Bay. A similar sampling format was adopted in 1987 (Appendix 2, Table 4a and 4b). As many as 17 chemical determinations were performed on each water sample. Sampling was initiated during the ice on season as early as March and open water season sampling extended to the end of August. In 1988 water samples were collected over a few days in March, and the results are given in Appendix 2, Table 5a and 5b.

The data presented in this report are available to users on electronic media by individual request only. The data reside on 7-track ANSI standard tape, 8mm tape or on IBM standard 5'¼" or 3'½" floppy diskettes both in ASCII and WordPerfect 5.0 format. Please contact author Martin Bergmann for details.

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Table 1. Method precision for analyses performed at FWISL.

Analysis	Level	Method Error (±)
Dissolved inorganic carbon	1 $mol \cdot m^{-3}$	1%
Dissolved organic carbon	1 $mol \cdot m^{-3}$	2%
Particulate carbon	20 $mmol \cdot m^{-3}$	4%
Nitrate - nitrogen	20 $mmol \cdot m^{-3}$	1%
Nitrite - nitrogen	20 $mmol \cdot m^{-3}$	1%
Ammonia - nitrogen (total dissolved nitrogen)	40 $mmol \cdot m^{-3}$	1%
Particulate nitrogen	2 $mmol \cdot m^{-3}$	5%
Soluble reactive phosphorus	8 $mmol \cdot m^{-3}$	<1%
Particulate phosphorus	5 $mmol \cdot m^{-3}$	<1%
Soluble reactive silica	40 $mmol \cdot m^{-3}$	<1%
Specific conductance	0.14 $mS \cdot cm^{-1}$	<1%
pH	8.5	<1%

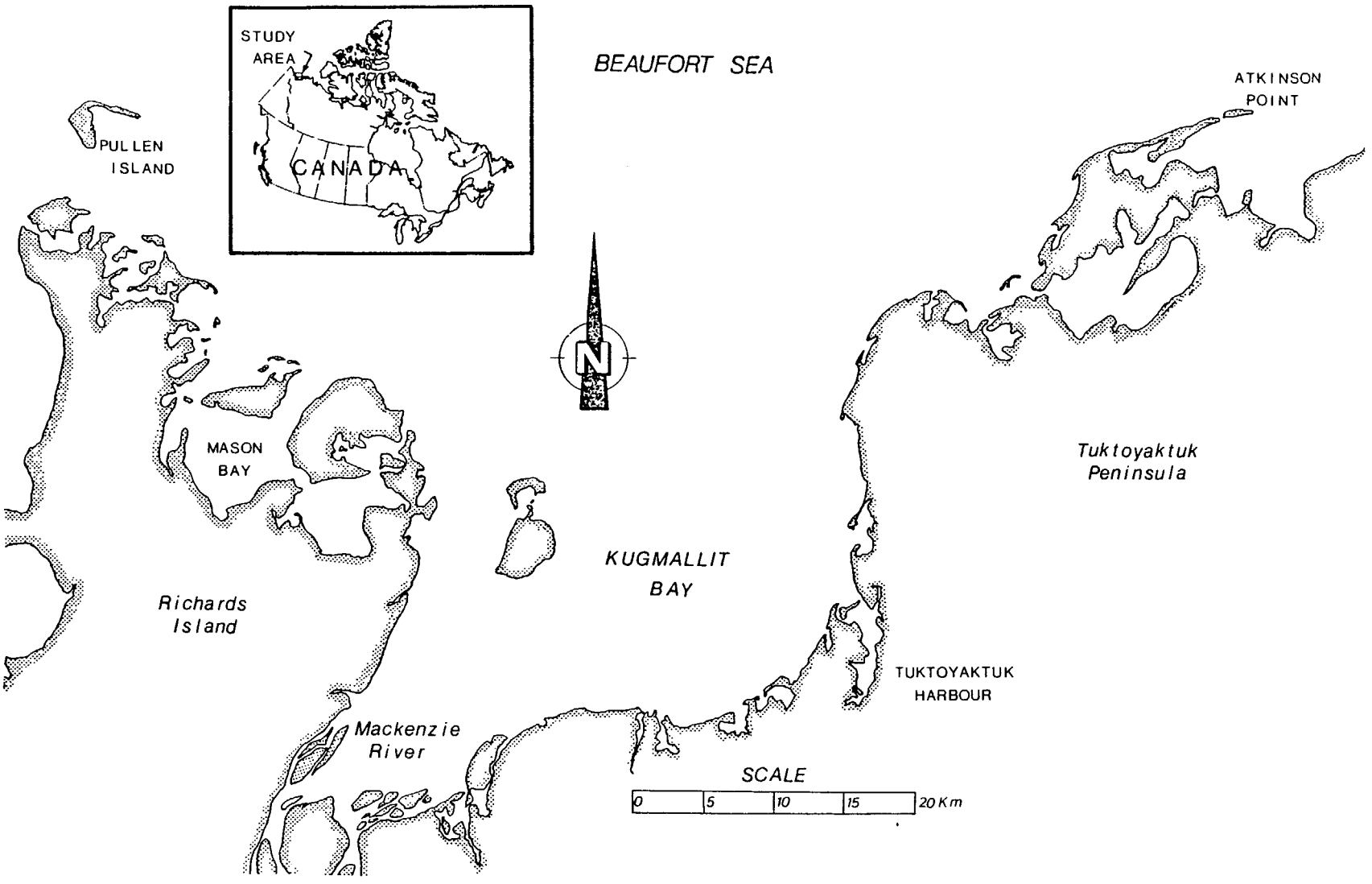

Fig. 1. Location of Tuktoyaktuk Harbour and Mason Bay in the southeastern Beaufort Sea.

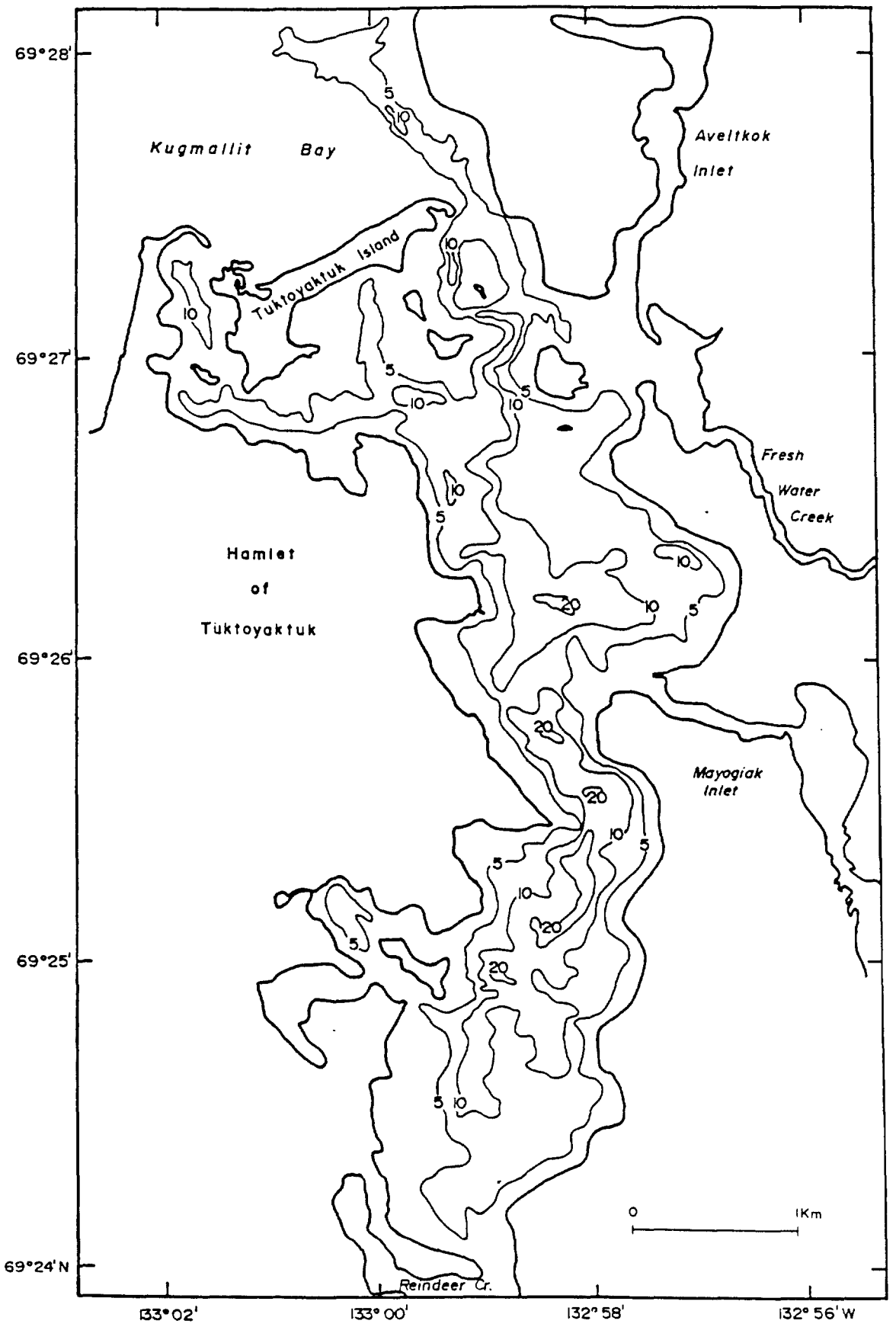

Fig. 2. Bathymetric map of Tuktoyaktuk Harbour.

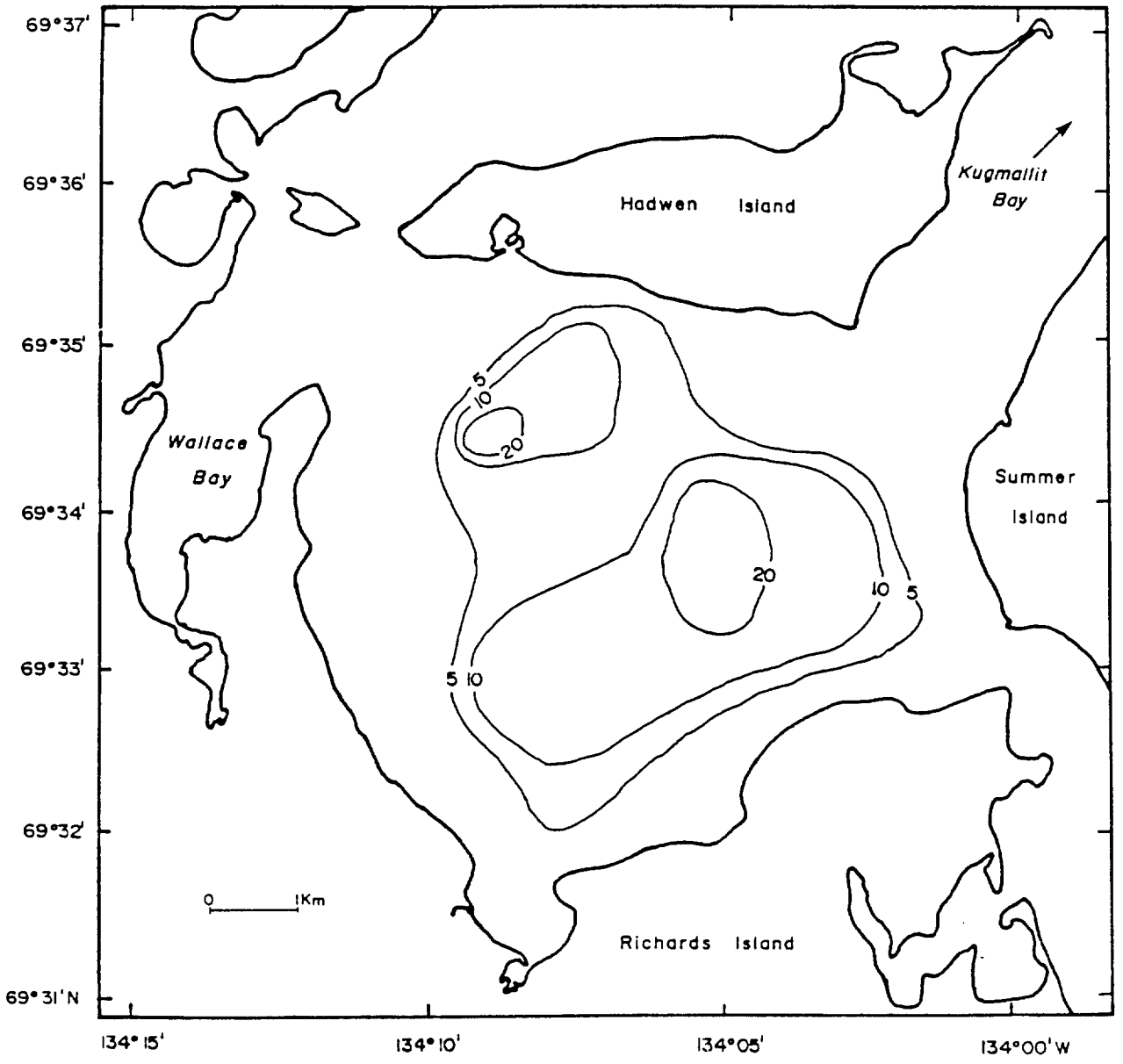

Fig. 3. Bathymetric map of Mason Bay.

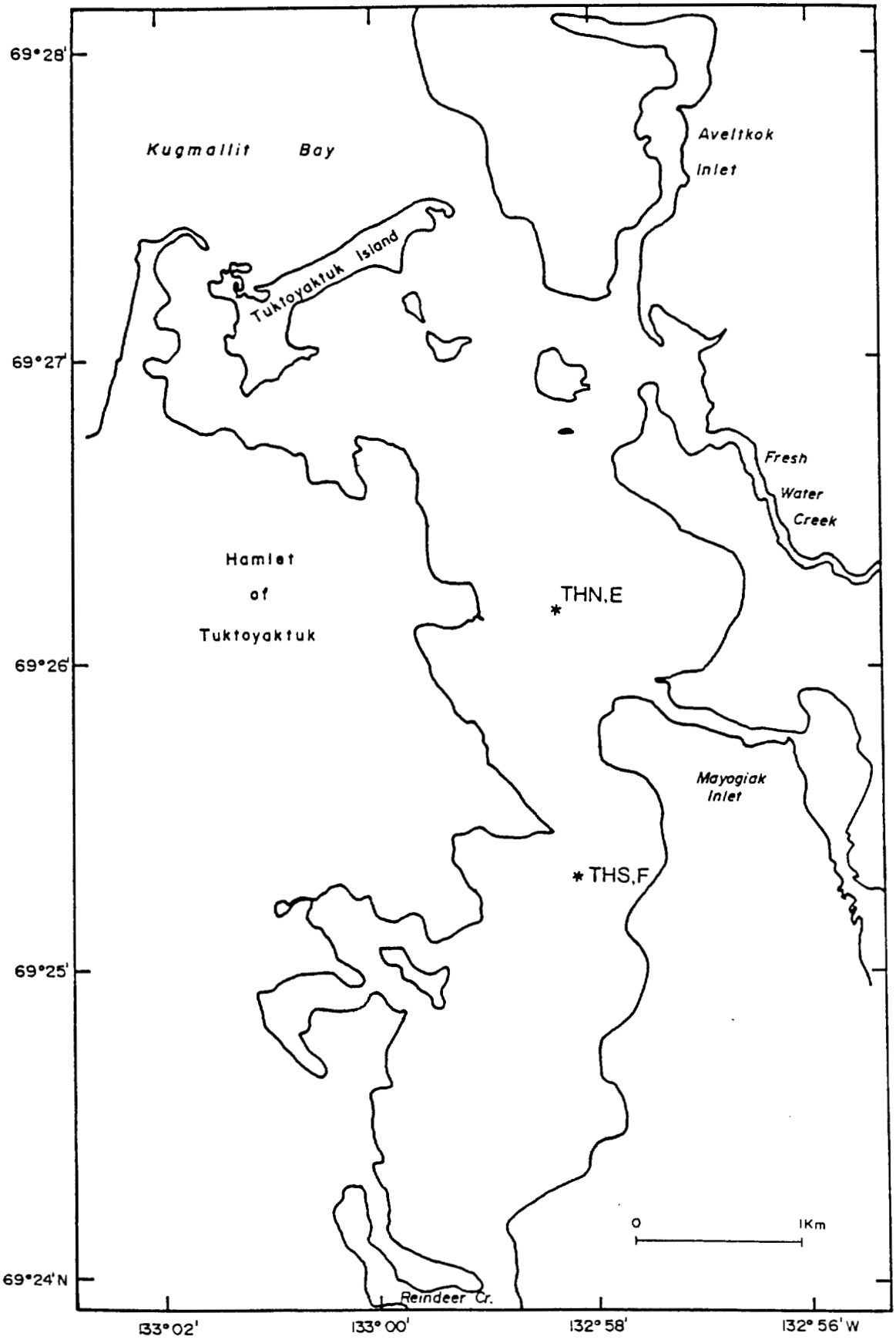

Fig. 4. Location of Tuktoyaktuk Harbour open water stations, 1984 to 1987.

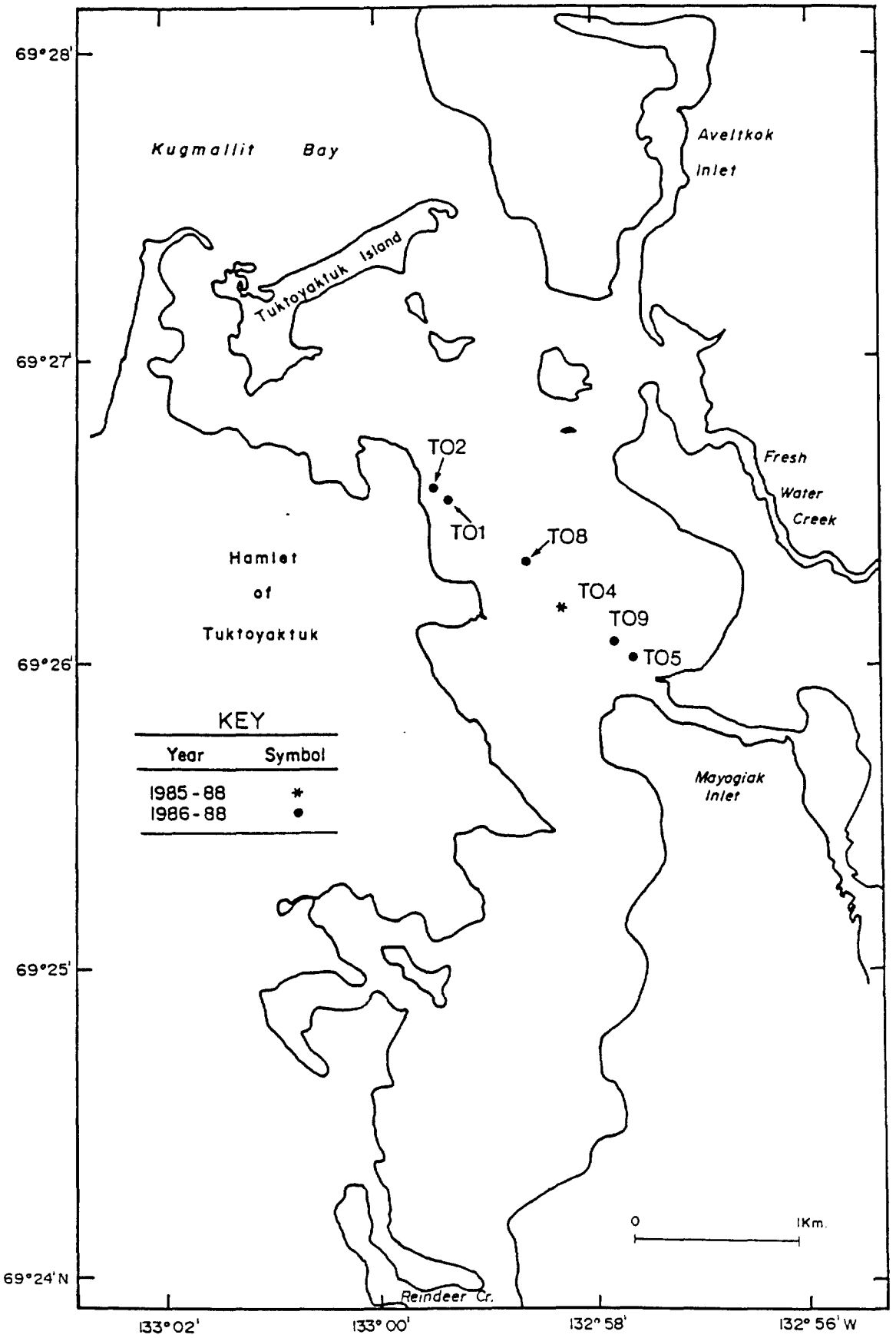

Fig. 5. Location of Tuktoyaktuk Harbour ice cover stations, 1985 to 1988.

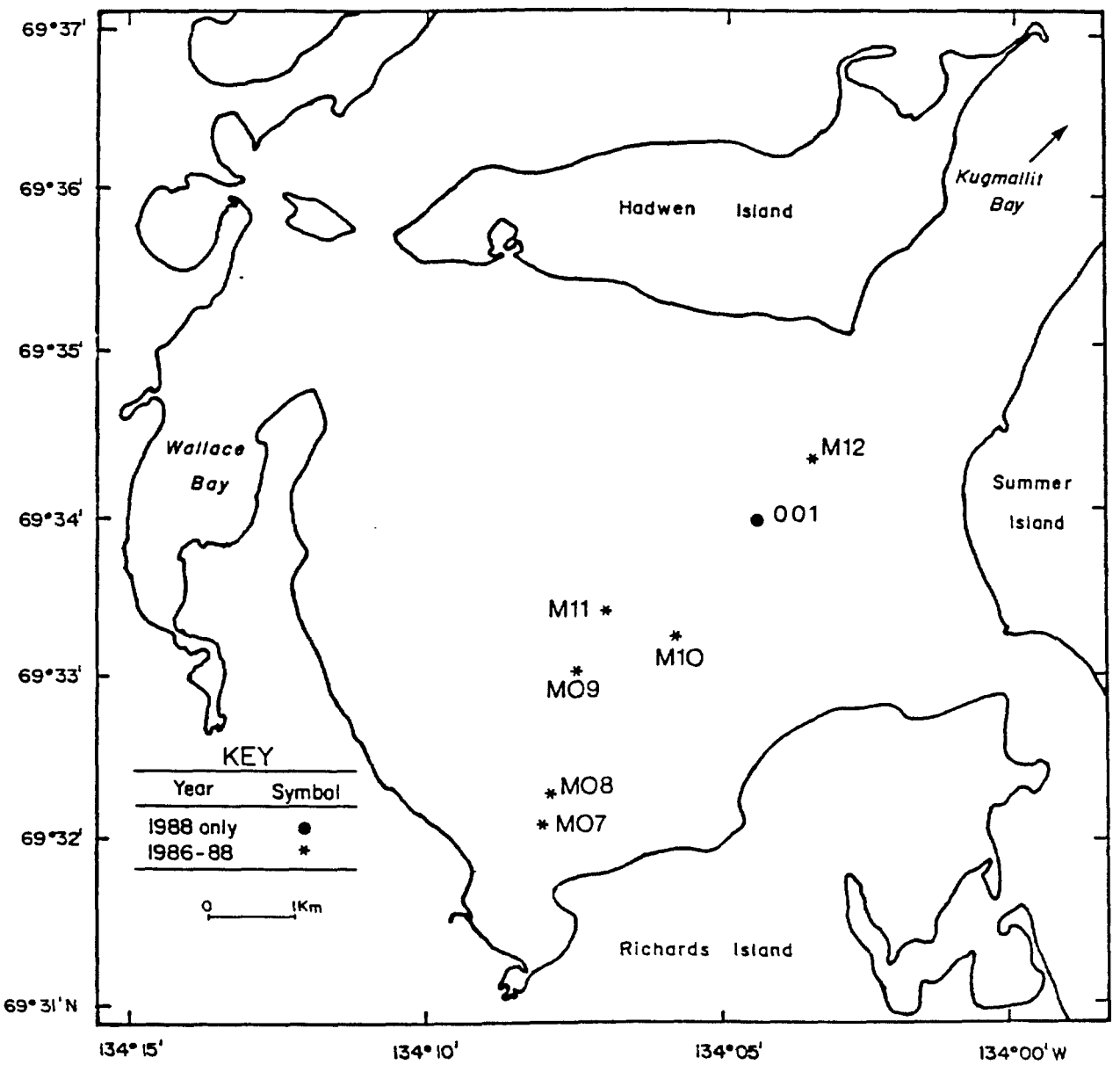

Fig. 6. Location of Mason Bay ice cover stations, 1986 to 1988.

Appendix 1: Station Parameter Tables

Table 1. Summary parameters for stations sampled in Tuktoyaktuk Harbour during 1984.

Station	Date	Station location	Latitude deg min	Longitude deg min	GMT[1]	Maximum Depth (m)
84THN	26-Jul	Tuk Harbour north basin	69 26.40	132 58.20	1430	20
84THS	26-Jul	Tuk Harbour south basin	69 25.10	132 58.25	1500	23
84THS	10-Sep	Tuk Harbour south basin	69 26.55	132 58.00	1548	25

[1]Greenwich mean time.

Table 2. Summary parameters for stations sampled in Tuktoyaktuk Harbour during 1985.

Station	Date	Station location	Latitude deg min	Longitude deg min	GMT[1]	Maximum Depth (m)
85T04	18-Mar	Tuk Harbour north basin	69 26.20	132 58.30	1700	20
85E00	11-Jul	Tuk Harbour north basin	69 26.17	132 58.28	N/A	20
85F00	12-Jul	Tuk Harbour south basin	69 25.32	132 58.15	N/A	25
85E00	15-Jul	Tuk Harbour north basin	69 26.17	132 58.28	N/A	20
85F00	15-Jul	Tuk Harbour south basin	69 25.32	132 58.15	N/A	25
85THN	20-Jul	Tuk Harbour north basin	69 26.17	132 58.28	2015	20
85E00	22-Jul	Tuk Harbour north basin	69 26.17	132 58.28	N/A	20
85F00	22-Jul	Tuk Harbour south basin	69 25.32	132 58.15	N/A	25
85E00	30-Jul	Tuk Harbour north basin	69 26.17	132 58.28	N/A	20
85F00	30-Jul	Tuk Harbour south basin	69 25.32	132 58.15	N/A	25
85E00	02-Aug	Tuk Harbour north basin	69 26.17	132 58.28	1650	20
85F00	02-Aug	Tuk Harbour south basin	69 25.32	132 58.15	1540	25
85F00	08-Aug	Tuk Harbour south basin	69 25.32	132 58.15	250	25
85E00	08-Aug	Tuk Harbour north basin	69 26.17	132 58.28	100	20
85E00	20-Aug	Tuk Harbour north basin	69 26.17	132 58.28	N/A	20
85F00	20-Aug	Tuk Harbour south basin	69 25.32	132 58.15	N/A	25
85E00	27-Aug	Tuk Harbour north basin	69 26.17	132 58.28	N/A	20
85F00	27-Aug	Tuk Harbour south basin	69 25.32	132 58.15	N/A	25
85E00	02-Sep	Tuk Harbour north basin	69 26.17	132 58.28	1545	20
85F00	02-Sep	Tuk Harbour south basin	69 25.32	132 58.15	1750	25

[1]Greenwich mean time.

Table 3. Summary parameters for stations sampled in Tuktoyaktuk Harbour and Mason Bay during 1986.

Station	Date	Station location	Latitude deg min	Longitude deg min	GMT[1]	Maximum Depth (m)
86T01	10-Mar	Tuk Harbour north basin	69 26.5	132 59.3	1630	10
86T02	11-Mar	Tuk Harbour north basin	69 26.6	132 59.5	1610	4
86T08	12-Mar	Tuk Harbour north basin	69 26.3	132 58.7	1540	15
86T04	13-Mar	Tuk Harbour north basin	69 26.2	132 58.3	2030	22
86T09	14-Mar	Tuk Harbour north basin	69 26.1	132 57.8	2000	9
86T05	15-Mar	Tuk Harbour north basin	69 26.0	132 57.7	2020	5
86M07	17-Mar	Mason Bay	69 32.0	134 08.2	1620	6
86M08	18-Mar	Mason Bay	69 32.2	134 08.3	1545	10
86M09	19-Mar	Mason Bay	69 32 9	134 07.5	1650	10
86M10	20-Mar	Mason Bay	69 33.0	134 05.7	1530	20
86M11	21-Mar	Mason Bay	69 33.2	134 06.7	1545	18
86M12	22-Mar	Mason Bay	69 34.3	134 03.4	1530	5
86THS	07-Aug	Tuk Harbour south basin	69 25.3	132 58.2	1630	23
86THN	07-Aug	Tuk Harbour north basin	69 26.2	132 58.3	2015	22
86THS	08-Sep	Tuk Harbour south basin	69 25.3	132 58.2	1455	23
86THN	08-Sep	Tuk Harbour north basin	69 26.2	132 58.3	2040	20

[1]Greenwich mean time.

Table 4. Summary parameters for stations sampled in Tuktoyaktuk Harbour and Mason Bay during 1987.

Station	Date	Station location	Latitude deg min	Longitude deg min	GMT[1]	Maximum Depth (m)
87T02	05-Mar	Tuk Harbour north basin	69 26.57	132 59.50	2130	5
87T01	06-Mar	Tuk Harbour north basin	69 26.54	132 59.34	2030	10
87T08	07-Mar	Tuk Harbour north basin	69 26.33	132 58.80	2000	15
87T04	08-Mar	Tuk Harbour north basin	69 26.17	132 58.28	2000	22
87T09	09-Mar	Tuk Harbour north basin	69 26.07	132 57.83	2030	9
87T05	10-Mar	Tuk Harbour north basin	69 26.02	132 57.70	240	5
87M07	11-Mar	Mason Bay	69 31.95	134 08.20	2330	5
87M08	12-Mar	Mason Bay	69 32.18	134 08.30	2200	10
87M12	13-Mar	Mason Bay	69 34.27	134 03.40	2140	6
87M10	15-Mar	Mason Bay	69 33.04	134 05.70	2350	20
87M11	16-Mar	Mason Bay	69 33.22	134 06.70	335	18
87M09	17-Mar	Mason Bay	69 32.90	134 07.50	2200	10
87THS	15-Jul	Tuk Harbour south basin	69 25.32	132 58.15	2425	25
87THS	16-Jul	Tuk Harbour south basin	69 25.32	132 58.15	2200	26
87THN	16-Jul	Tuk Harbour north basin	69 26.17	132 58.28	120	22
87THS	30-Aug	Tuk Harbour south basin	69 25.32	132 58.15	215	22
87THN	30-Aug	Tuk Harbour north basin	69 26.17	132 58.28	350	21

[1]Greenwich mean time.

Table 5. Summary parameters for stations sampled in Tuktoyaktuk Harbour and Mason Bay during 1988.

Station	Date	Station location	Latitude deg min	Longitude deg min	GMT[1]	Maximum Depth (m)
88T02	07-Mar	Tuk Harbour north basin	69 26.57	132 59.50	800	5
88T01	07-Mar	Tuk Harbour north basin	69 26.54	132 59.34	1000	10
88T08	08-Mar	Tuk Harbour north basin	69 26.33	132 58.69	830	17
88T04	09-Mar	Tuk Harbour north basin	69 26.17	132 58.28	850	22
88T09	10-Mar	Tuk Harbour north basin	69 26.07	132 57.83	830	9
88T05	10-Mar	Tuk Harbour north basin	69 26.02	132 57.70	1540	5
88M07	13-Mar	Mason Bay	69 31.95	134 08.20	930	6
88M10	14-Mar	Mason Bay	69 33.04	134 05.70	815	20
88M11	14-Mar	Mason Bay	69 33.22	134 06.70	1450	18
88M09	15-Mar	Mason Bay	69 32.90	134 07.50	900	10
88M08	16-Mar	Mason Bay	69 32.18	134 08.30	845	10
88M12	16-Mar	Mason Bay	69 34.27	134 03.40	1500	5
88001	17-Mar	Mason Bay	69 34.0	134 04.5		18

[1]Greenwich mean time.

Appendix 2: Data Tables

Footnotes to Appendix 2

* Samples were not taken due to sampling problems, samples lost or results of analyses are not available

** Samples were not taken for analysis

*** Results of analysis were below the detection level of the equipment

Table 1. Chemistry analysis results for the Tuktoyaktuk Harbour area - 1984

Station	Date	Depth m	PN $mmol \cdot m^{-3}$	PC $mmol \cdot m^{-3}$	CHL $mg \cdot m^{-3}$	TSS $mg \cdot L^{-1}$
84THS	26-Jul	1	3.93	47.79	3.00	16
84THS	26-Jul	20	1.21	19.82	***	13
84THN	26-Jul	1	7.14	112.65	2.40	43
84THN	26-Jul	18	1.21	28.39	0.10	16
84THS	10-Sep	1	3.29	51.62	2.20	*
84THS	10-Sep	17	2.79	66.52	0.10	*

* ; ** ; *** see footnotes on page 23.

Table 2. Chemistry analysis results for the Tuktoyaktuk Harbour - 1985

Station	Date	Depth m	TDN $mmol \cdot m^{-3}$	PN $mmol \cdot m^{-3}$	PP $mmol \cdot m^{-3}$	PC $mmol \cdot m^{-3}$	CHL $mg \cdot m^{-3}$	TSS $mg \cdot L^{-1}$
85T04	18-Mar	0	17.14	1.50	0.36	18.98	0.4	4
85T04	18-Mar	2.5	22.14	0.50	0.21	8.83	0.1	2
85T04	18-Mar	5	154.29	0.93	0.21	8.66	0.1	7
85T04	18-Mar	7	75.00	0.50	0.21	7.49	***	9
85T04	18-Mar	10	92.86	0.43	0.21	6.16	***	10
85T04	18-Mar	15	30.00	0.64	0.57	9.82	0.1	6
85T04	18-Mar	20	10.71	1.07	0.43	12.99	0.1	12
85E00	11-Jul	0.0	19.29	4.072	1.29	48.29	2.10	15
85E00	11-Jul	1.0	14.29	3.000	1.36	34.14	2.00	16
85E00	11-Jul	3.0	13.57	4.500	1.43	48.29	2.00	16
85E00	11-Jul	5.0	13.57	3.929	1.36	44.96	1.70	14
85E00	11-Jul	7.0	21.43	2.429	1.07	29.97	1.20	13
85E00	11-Jul	10.0	40.00	1.143	0.86	16.65	0.20	25
85E00	11-Jul	15.0	42.86	0.214	0.36	8.33	***	30
85E00	11-Jul	20.0	44.29	0.429	0.43	11.66	***	28
85F00	12-Jul	0.0	15.71	4.214	1.14	39.13	2.30	12
85F00	12-Jul	1.0	28.57	4.357	1.14	38.30	2.20	11
85F00	12-Jul	3.0	17.86	4.286	1.00	36.63	2.30	11
85F00	12-Jul	5.0	19.29	4.000	1.00	36.63	2.20	11
85F00	12-Jul	7.0	17.14	3.572	0.93	34.14	2.50	11
85F00	12-Jul	10.0	36.43	2.000	0.93	24.15	0.40	22
85F00	12-Jul	15.0	36.43	1.143	0.36	31.64	0.10	28
85F00	12-Jul	20.0	37.86	3.929	1.43	64.11	0.30	42
85E00	15-Jul	0.0	21.43	9.143	1.93	80.76	1.80	16
85E00	15-Jul	1.0	12.86	10.072	1.64	87.42	1.70	16
85E00	15-Jul	3.0	17.86	10.643	1.64	43.30	1.80	15
85E00	15-Jul	5.0	17.14	14.929	1.93	45.79	2.00	17
85E00	15-Jul	7.0	27.86	6.929	1.93	28.31	0.70	15
85E00	15-Jul	10.0	30.71	7.214	1.57	15.82	0.20	21
85E00	15-Jul	15.0	37.14	3.500	0.36	8.33	0.10	28
85E00	15-Jul	20.0	40.72	6.786	*	69.94	0.50	*
85F00	15-Jul	0.0	24.29	5.857	1.21	38.30	2.60	9
85F00	15-Jul	1.0	20.71	5.286	1.21	35.80	2.90	9
85F00	15-Jul	3.0	25.00	4.143	1.36	25.81	2.70	10
85F00	15-Jul	5.0	16.43	5.572	1.21	32.47	2.50	9
85F00	15-Jul	7.0	16.43	3.714	1.21	32.47	2.60	14
85F00	15-Jul	10.0	22.86	2.500	1.29	23.31	0.70	24
85F00	15-Jul	15.0	24.29	0.357	1.21	7.49	***	28
85F00	15-Jul	20.0	37.14	1.929	1.21	29.14	0.90	124
85F00	15-Jul	22.0	37.14	3.500	1.36	54.12	0.20	112
85THN	20-Jul	0.0	**	**	**	**	1.90	**
85THN	20-Jul	8.0	**	**	**	**	0.90	**
85THN	20-Jul	16.0	**	**	**	**	0.20	**

* ; ** ; *** see footnotes on page 23.

Table 2. cont'd.

Station	Date	Depth m	TDN $mmol \cdot m^{-3}$	PN $mmol \cdot m^{-3}$	PP $mmol \cdot m^{-3}$	PC $mmol \cdot m^{-3}$	CHL $mg \cdot m^{-3}$	TSS $mg \cdot L^{-1}$
85E00	22-Jul	0.0	23.57	7.357	4.50	97.41	2.10	37
85E00	22-Jul	1.0	17.86	6.214	2.79	89.92	2.00	34
85E00	22-Jul	3.0	17.14	6.214	3.14	84.09	2.60	35
85E00	22-Jul	5.0	12.14	5.714	2.43	72.44	2.60	29
85E00	22-Jul	7.0	14.29	3.500	1.79	44.13	1.80	18
85E00	22-Jul	10.0	26.43	1.857	1.50	28.31	0.60	21
85E00	22-Jul	15.0	49.29	0.286	0.57	9.99	0.10	30
85E00	22-Jul	20.0	42.86	0.143	0.50	9.99	***	28
85F00	22-Jul	0.0	14.29	5.572	2.14	61.61	3.20	29
85F00	22-Jul	1.0	14.29	6.143	2.07	66.61	3.30	26
85F00	22-Jul	3.0	17.14	5.786	1.71	58.28	4.40	20
85F00	22-Jul	5.0	15.00	5.214	1.64	52.45	4.20	20
85F00	22-Jul	7.0	15.00	4.143	1.29	40.80	3.10	14
85F00	22-Jul	10.0	35.00	1.143	0.86	18.32	0.40	24
85F00	22-Jul	15.0	40.72	***	0.43	7.49	***	29
85F00	22-Jul	20.0	40.72	0.214	0.50	9.16	***	25
85F00	22-Jul	25.0	40.72	1.143	*	14.99	0.10	35
85E00	30-Jul	0.0	16.43	7.857	2.07	83.26	3.90	29
85E00	30-Jul	1.0	12.86	7.786	2.21	84.93	4.00	29
85E00	30-Jul	3.0	13.57	6.357	2.14	72.44	3.30	31
85E00	30-Jul	5.0	14.29	5.500	1.71	59.11	2.40	23
85E00	30-Jul	7.0	11.43	4.143	1.79	45.79	2.20	21
85E00	30-Jul	10.0	28.57	1.714	1.00	22.48	0.40	22
85E00	30-Jul	15.0	50.72	0.500	0.57	9.99	0.10	25
85E00	30-Jul	20.0	43.57	0.643	0.43	13.32	0.10	31
85F00	30-Jul	0.0	13.57	6.357	1.71	63.28	3.40	23
85F00	30-Jul	1.0	13.57	7.143	1.79	68.27	4.20	23
85F00	30-Jul	3.0	17.14	6.929	1.57	59.95	4.20	20
85F00	30-Jul	5.0	14.29	5.857	1.50	53.29	3.20	17
85F00	30-Jul	7.0	15.71	4.857	1.36	43.30	2.30	14
85F00	30-Jul	10.0	41.43	0.929	0.86	13.32	0.30	26
85F00	30-Jul	15.0	36.43	0.214	0.29	7.49	0.10	27
85F00	30-Jul	20.0	34.29	0.214	0.29	8.33	0.10	28
85F00	30-Jul	25.0	37.14	0.286	0.50	10.82	0.10	28
85E00	02-Aug	0.0	15.00	8.000	1.79	64.11	3.70	22
85E00	02-Aug	1.0	13.57	5.714	1.79	51.62	3.50	24
85E00	02-Aug	3.0	13.57	5.929	1.57	53.29	5.40	22
85E00	02-Aug	5.0	12.86	5.857	1.57	57.45	3.40	21
85E00	02-Aug	7.0	12.86	8.572	1.21	87.42	2.00	16
85E00	02-Aug	10.0	21.43	4.572	1.07	54.12	0.80	21
85E00	02-Aug	15.0	37.14	1.286	0.36	29.97	0.30	27
85E00	02-Aug	20.0	48.57	1.857	0.36	31.64	0.30	27
85F00	02-Aug	0.0	19.29	6.357	1.36	54.95	4.20	16

* ; ** ; *** see footnotes on page 23.

Table 2. cont'd.

Station	Date	Depth m	TDN $mmol \cdot m^{-3}$	PN $mmol \cdot m^{-3}$	PP $mmol \cdot m^{-3}$	PC $mmol \cdot m^{-3}$	CHL $mg \cdot m^{-3}$	TSS $mg \cdot L^{-1}$
85F00	02-Aug	1.0	15.71	6.500	1.36	57.45	4.60	17
85F00	02-Aug	3.0	18.57	6.000	1.43	52.45	3.90	16
85F00	02-Aug	5.0	42.86	6.072	1.36	52.45	3.90	16
85F00	02-Aug	7.0	13.57	5.429	1.14	48.29	3.80	15
85F00	02-Aug	10.0	27.86	2.714	0.86	24.98	1.00	22
85F00	02-Aug	15.0	35.00	0.500	0.29	6.66	0.10	27
85F00	02-Aug	20.0	39.29	0.571	0.29	5.83	0.10	28
85F00	02-Aug	25.0	34.29	0.643	0.36	9.16	0.10	27
85E00	08-Aug	0.0	12.86	3.786	1.29	35.80	2.90	17
85E00	08-Aug	1.0	19.29	3.286	1.00	30.81	2.50	20
85E00	08-Aug	3.0	19.29	3.786	1.00	34.14	3.40	18
85E00	08-Aug	5.0	15.71	3.643	1.00	34.14	4.20	17
85E00	08-Aug	7.0	19.29	2.643	1.07	26.64	2.50	20
85E00	08-Aug	10.0	22.14	1.571	0.64	16.65	0.90	16
85E00	08-Aug	15.0	40.00	0.643	0.57	10.82	0.40	24
85E00	08-Aug	20.0	40.72	0.714	0.36	20.82	0.10	28
85F00	08-Aug	0.0	12.14	3.857	0.86	41.63	2.50	13
85F00	08-Aug	1.0	19.29	3.786	0.86	37.47	2.60	13
85F00	08-Aug	3.0	15.71	3.786	0.79	35.80	2.60	12
85F00	08-Aug	5.0	17.14	3.786	*	35.80	1.70	12
85F00	08-Aug	7.0	17.14	3.786	0.71	36.63	2.00	13
85F00	08-Aug	10.0	19.29	4.857	*	48.29	0.80	17
85F00	08-Aug	15.0	36.43	1.571	0.29	20.82	0.10	24
85F00	08-Aug	20.0	37.86	1.786	0.43	22.48	***	19
85F00	08-Aug	25.0	42.14	0.714	0.29	9.99	0.10	18
85E00	20-Aug	0.0	18.57	5.072	1.07	54.95	2.20	17
85E00	20-Aug	1.0	14.29	4.857	1.00	51.62	2.30	15
85E00	20-Aug	3.0	11.43	4.429	1.21	45.79	2.60	15
85E00	20-Aug	5.0	12.86	4.357	1.07	42.46	1.80	14
85E00	20-Aug	7.0	22.86	2.500	0.86	24.15	0.80	12
85E00	20-Aug	10.0	28.57	1.929	0.57	19.15	0.90	16
85E00	20-Aug	15.0	51.43	1.357	0.71	10.82	0.60	20
85E00	20-Aug	20.0	46.43	1.786	*	14.99	0.30	19
85F00	20-Aug	0.0	20.00	5.072	0.93	43.30	2.50	12
85F00	20-Aug	1.0	14.29	5.286	0.93	44.13	2.60	12
85F00	20-Aug	3.0	12.86	5.000	0.86	42.46	2.70	11
85F00	20-Aug	5.0	20.00	5.000	0.93	41.63	2.70	11
85F00	20-Aug	7.0	17.14	3.857	1.00	32.47	1.50	11
85F00	20-Aug	10.0	32.14	1.786	0.64	16.65	1.00	15
85F00	20-Aug	15.0	27.14	2.214	0.86	19.98	0.90	14
85F00	20-Aug	20.0	45.00	1.071	0.57	7.49	0.10	16
85F00	20-Aug	23.0	46.43	8.357	2.79	95.75	1.20	80
85E00	27-Aug	0.0	15.71	4.714	**	37.47	1.40	**

* ; ** ; *** see footnotes on page 23.

Table 2. cont'd.

Station	Date	Depth m	TDN $mmol \cdot m^{-3}$	PN $mmol \cdot m^{-3}$	PP $mmol \cdot m^{-3}$	PC $mmol \cdot m^{-3}$	CHL $mg \cdot m^{-3}$	TSS $mg \cdot L^{-1}$
85E00	27-Aug	1.0	12.86	4.286	**	31.64	1.10	**
85E00	27-Aug	3.0	17.14	4.357	**	32.47	1.70	**
85E00	27-Aug	5.0	26.43	3.929	0.07	30.81	2.20	**
85E00	27-Aug	7.0	29.29	3.500	**	29.14	2.10	**
85E00	27-Aug	10.0	29.29	3.643	**	33.30	2.00	**
85E00	27-Aug	15.0	29.29	3.643	**	34.14	1.50	**
85E00	27-Aug	20.0	42.14	1.857	**	19.15	0.50	**
85F00	27-Aug	0.0	14.29	3.286	**	31.64	1.40	**
85F00	27-Aug	1.0	14.29	3.214	**	30.81	1.50	**
85F00	27-Aug	3.0	18.57	0.000	**	*	1.60	**
85F00	27-Aug	5.0	21.43	2.143	**	22.48	1.40	**
85F00	27-Aug	7.0	28.57	2.857	**	30.81	1.90	**
85F00	27-Aug	10.0	27.86	2.286	**	27.48	2.00	**
85F00	27-Aug	15.0	36.43	1.143	**	14.15	0.70	**
85F00	27-Aug	20.0	40.00	0.929	**	13.32	0.30	**
85E00	02-Sep	0.0	27.86	3.500	**	33.30	2.70	**
85E00	02-Sep	1.0	25.00	4.072	**	35.80	3.50	**
85E00	02-Sep	3.0	34.29	3.214	**	29.97	2.30	**
85E00	02-Sep	5.0	35.00	3.429	**	33.30	2.80	**
85E00	02-Sep	7.0	30.71	3.643	**	37.47	3.50	**
85E00	02-Sep	10.0	32.14	2.643	**	28.31	2.30	**
85E00	02-Sep	15.0	33.57	2.500	**	27.48	1.90	**
85E00	02-Sep	19.7	37.14	3.286	**	39.96	2.70	**
85F00	02-Sep	0.0	17.14	3.071	**	29.14	2.10	**
85F00	02-Sep	1.0	19.29	3.357	**	32.47	2.10	**
85F00	02-Sep	3.0	30.00	2.214	**	20.82	2.40	**
85F00	02-Sep	5.0	30.00	3.857	**	35.80	2.00	**
85F00	02-Sep	7.0	32.86	1.929	**	18.32	1.20	**
85F00	02-Sep	10.0	29.29	1.714	**	19.98	1.30	**
85F00	02-Sep	15.0	32.14	1.643	**	17.48	2.00	**
85F00	02-Sep	20.0	29.29	1.714	**	18.32	2.80	**
85F00	02-Sep	23.0	32.86	1.857	**	19.98	2.60	**

* ; ** ; *** see footnotes on page 23.

Table 3a. Chemistry analysis results for the Tuktoyaktuk Harbour and Mason Bay area - 1986

Station	Date	Depth m	NO3-N $mmol \cdot m^{-3}$	NO2-N $mmol \cdot m^{-3}$	TDN $mmol \cdot m^{-3}$	PN $mmol \cdot m^{-3}$	PO4 $mmol \cdot m^{-3}$	TDP $mmol \cdot m^{-3}$	PP $mmol \cdot m^{-3}$	DIC $mol \cdot m^{-3}$	DOC $mol \cdot m^{-3}$	PC $mmol \cdot m^{-3}$	SI $mmol \cdot m^{-3}$
86T01	10-Mar	2.0	**	**	19.29	2.64	**	0.32	0.23	2.17	0.47	258.11	72.6
86T01	10-Mar	5.0	**	**	19.29	2.07	**	0.36	0.16	2.19	0.50	184.00	71.2
86T01	10-Mar	9.0	**	**	40.72	3.07	**	0.71	0.32	2.22	0.16	57.45	57.0
86T02	11-Mar	2.0	**	**	17.14	2.43	**	0.42	0.26	2.11	0.47	240.62	71.2
86T02	11-Mar	4.0	**	**	17.14	1.93	**	0.32	0.19	2.33	0.46	181.51	70.8
86T08	12-Mar	2.0	**	**	15.71	2.21	**	0.32	0.19	2.20	0.47	238.96	71.6
86T08	12-Mar	5.0	**	**	20.71	1.79	**	0.29	0.16	2.14	0.48	217.31	73.0
86T08	12-Mar	8.0	**	**	30.00	1.71	**	0.74	0.10	1.91	0.21	47.46	40.2
86T08	12-Mar	14.0	**	**	40.00	1.86	**	1.32	0.16	2.50	0.18	39.96	42.7
86T04	13-Mar	2.0	**	**	17.86	1.93	**	0.36	0.16	2.27	0.46	211.48	71.2
86T04	13-Mar	5.0	**	**	20.00	1.93	**	0.36	0.16	2.44	0.49	202.32	73.0
86T04	13-Mar	8.0	**	**	27.14	1.43	**	0.81	0.36	1.97	0.19	21.65	41.3
86T04	13-Mar	21.0	**	**	35.72	10.36	**	0.87	1.71	2.87	0.11	115.73	95.8
86T09	14-Mar	2.0	**	**	15.71	1.93	**	0.32	0.16	2.21	0.62	190.67	72.6
86T09	14-Mar	5.0	**	**	16.43	1.86	**	0.48	0.16	2.44	0.49	129.05	73.3
86T09	14-Mar	8.0	**	**	25.00	1.57	**	0.84	0.06	1.94	0.16	22.48	39.2
86T05	15-Mar	2.0	**	**	15.71	1.79	**	0.42	0.16	2.41	0.51	161.52	71.6
86T05	15-Mar	4.0	**	**	17.86	1.86	**	0.39	0.16	2.33	0.56	175.68	73.0
86M07	17-Mar	2.0	**	**	26.43	1.57	**	0.65	0.10	2.71	0.31	59.95	75.8
86M07	17-Mar	5.0	**	**	25.71	1.57	**	0.71	0.06	2.27	0.20	50.79	50.9
86M08	18-Mar	2.0	**	**	15.71	1.21	**	0.52	0.06	2.36	0.25	45.79	83.3
86M08	18-Mar	5.0	**	**	8.57	2.79	**	0.58	0.19	0.94	0.09	39.13	47.3
86M08	18-Mar	9.0	**	**	24.29	2.14	**	0.74	0.13	2.32	0.19	42.46	38.1
86M09	19-Mar	2.0	**	**	13.57	2.43	**	0.45	0.13	2.03	0.20	139.04	78.0
86M09	19-Mar	5.0	**	**	25.00	0.00	**	0.74	0.10	2.47	0.18	0.00	45.6
86M09	19-Mar	9.0	**	**	8.57	0.00	**	0.58	0.10	0.89	0.10	0.00	35.6
86M10	20-Mar	2.0	**	**	12.14	5.07	**	0.48	0.23	1.51	0.17	74.10	69.4
86M10	20-Mar	5.0	**	**	12.86	3.14	**	0.55	0.13	1.47	0.12	39.96	49.1
86M10	20-Mar	10.0	**	**	11.43	1.21	**	0.58	0.06	1.22	0.09	17.48	34.4
86M10	20-Mar	19.5	**	**	22.86	2.79	**	0.87	0.10	2.03	0.12	31.64	47.0
86M11	21-Mar	2.0	**	**	23.57	1.57	**	0.48	0.16	2.60	0.32	104.08	102.5
86M11	21-Mar	5.0	**	**	15.71	1.50	**	0.55	0.06	1.50	0.13	20.82	51.6
86M11	21-Mar	10.0	**	**	14.29	2.21	**	0.61	0.10	1.12	0.10	34.14	32.8
86M11	21-Mar	17.0	**	**	22.86	1.79	**	0.77	0.06	1.42	0.08	45.79	43.4
86M12	22-Mar	2.0	**	**	15.71	1.36	**	0.45	0.13	2.10	0.25	44.96	88.3
86M12	22-Mar	4.5	**	**	13.57	1.00	**	0.52	0.06	1.37	0.13	13.32	57.0
TUKHS	07-Aug	1.0	**	**	15.71	5.93	**	0.65	0.48	2.01	0.25	46.63	**
TUKHS	07-Aug	5.0	**	**	24.29	1.64	**	1.00	0.29	2.14	0.16	20.82	**
TUKHS	07-Aug	10.0	**	**	23.57	2.36	**	1.19	0.32	2.15	0.17	23.31	**

* ; ** ; *** see footnotes on page 23.

Table 3a. cont'd.

Station	Date	Depth m	NO3-N $mmol \cdot m^{-3}$	NO2-N $mmol \cdot m^{-3}$	TDN $mmol \cdot m^{-3}$	PN $mmol \cdot m^{-3}$	PO4 $mmol \cdot m^{-3}$	TDP $mmol \cdot m^{-3}$	PP $mmol \cdot m^{-3}$	DIC $mol \cdot m^{-3}$	DOC $mol \cdot m^{-3}$	PC $mmol \cdot m^{-3}$	SI $mmol \cdot m^{-3}$
TUKHS	07-Aug	20.0	**	**	25.00	2.57	**	1.36	0.29	1.98	0.11	24.98	**
TUKHN	07-Aug	1.0	**	**	15.71	6.86	**	0.65	1.19	1.93	0.23	70.77	**
TUKHN	07-Aug	5.0	**	**	22.86	2.14	**	1.03	0.29	2.08	0.19	22.48	**
TUKHN	07-Aug	10.0	**	**	21.43	2.29	**	1.13	0.29	2.39	0.20	23.31	**
TUKHN	07-Aug	20.0	**	**	55.00	3.71	**	1.29	0.39	2.40	0.31	29.97	**
TUKHS	08-Sep	1.0	0.07	***	20.00	3.64	0.23	1.13	0.29	2.07	0.25	29.97	29.1
TUKHS	08-Sep	5.0	0.64	0.07	22.14	2.43	0.36	0.97	0.32	1.99	0.19	24.15	24.4
TUKHS	08-Sep	10.0	1.43	0.36	23.57	1.64	0.55	1.13	0.23	2.09	0.17	17.48	21.2
TUKHS	08-Sep	21.0	3.07	1.07	24.29	2.64	0.55	1.81	0.32	2.19	0.18	45.79	20.5
TUKHS	08-Sep	1.0	0.50	0.07	15.00	4.07	0.45	0.81	0.42	2.00	0.25	44.13	25.9
TUKHN	08-Sep	5.0	0.50	0.07	20.00	2.50	0.55	1.00	0.36	2.07	0.20	29.97	24.0
TUKHN	08-Sep	10.0	1.29	0.21	15.00	1.43	0.52	0.61	0.19	2.11	0.19	18.32	20.8
TUKHN	08-Sep	18.0	1.36	0.93	30.00	3.79	0.81	1.68	0.29	2.30	0.18	40.80	17.3

* ; ** ; *** see footnotes on page 23.

Table 3b. Chemistry analysis results for the Tuktoyaktuk Harbour and Mason Bay area - 1986.

Station	Date	Depth m	CHL $mg \cdot m^{-1}$	TSS $mg \cdot L^{-1}$	COND $mS \cdot cm^{-1}$	pH	ALK $meq \cdot kg^{-1}$	DO $mmol \cdot m^{-3}$
86T01	10-Mar	2.0	0.02	5	**	**	**	410
86T01	10-Mar	5.0	0.02	3	**	**	**	404
86T01	10-Mar	9.0	0.02	16	**	**	**	188
86T02	11-Mar	2.0	0.02	5	**	**	**	410
86T02	11-Mar	4.0	0.02	3	**	**	**	407
86T08	12-Mar	2.0	0.02	3	**	**	**	394
86T08	12-Mar	5.0	0.02	3	**	**	**	410
86T08	12-Mar	8.0	0.01	7	**	**	**	254
86T08	12-Mar	14.0	0.01	13	**	**	**	050
86T04	13-Mar	2.0	0.02	3	**	**	**	419
86T04	13-Mar	5.0	0.02	3	**	**	**	416
86T04	13-Mar	8.0	0.01	6	**	**	**	275
86T04	13-Mar	21.0	0.01	15	**	**	**	13
86T09	14-Mar	2.0	0.01	3	**	**	**	416
86T09	14-Mar	5.0	0.02	3	**	**	**	423
86T09	14-Mar	8.0	0.01	6	**	**	**	250
86T05	15-Mar	2.0	0.02	3	**	**	**	419
86T05	15-Mar	4.0	0.02	3	**	**	**	419
86M07	17-Mar	2.0	0.01	4	**	**	**	435
86M07	17-Mar	5.0	0.01	8	**	**	**	372
86M08	18-Mar	2.0	0.01	5	**	**	**	448
86M08	18-Mar	5.0	0.01	9	**	**	**	363
86M08	18-Mar	9.0	0.02	10	**	**	**	319
86M09	19-Mar	2.0	0.01	5	**	**	**	454
86M09	19-Mar	5.0	0.03	8	**	**	**	382
86M09	19-Mar	9.0	0.01	8	**	**	**	322
86M10	20-Mar	2.0	0.01	***	**	**	**	438
86M10	20-Mar	5.0	0.01	9	**	**	**	372
86M10	20-Mar	10.0	0.02	14	**	**	**	332
86M10	20-Mar	19.5	0.01	11	**	**	**	225
86M11	21-Mar	2.0	0.01	7	**	**	**	504
86M11	21-Mar	5.0	0.01	9	**	**	**	407
86M11	21-Mar	10.0	0.01	11	**	**	**	329
86M11	21-Mar	17.0	0.01	16	**	**	**	56
86M12	22-Mar	2.0	0.01	7	**	**	**	501
86M12	22-Mar	4.5	0.01	8	**	**	**	413
TUKHS	07-Aug	1.0	0.79	15	**	**	1.84	314
TUKHS	07-Aug	5.0	0.11	23	**	**	2.08	300
TUKHS	07-Aug	10.0	0.18	22	**	**	2.13	295
TUKHS	07-Aug	20.0	0.19	22	**	**	2.17	285
TUKHN	07-Aug	1.0	0.82	35	**	**	1.86	312

* ; ** ; *** see footnotes on page 23.

Table 3b. cont'd.

Station	Date	Depth m	CHL $mg \cdot m^{-1}$	TSS $mg \cdot L^{-1}$	COND $mS \cdot cm^{-1}$	pH	ALK $meq \cdot kg^{-1}$	DO $mmol \cdot m^{-3}$
TUKHN	07-Aug	5.0	0.19	22	**	**	2.08	304
TUKHN	07-Aug	10.0	0.28	24	**	**	2.13	310
TUKHN	07-Aug	20.0	0.20	23	**	**	2.63	93
TUKHS	08-Sep	1.0	0.39	13	20.8	8.23	1.93	418
TUKHS	08-Sep	5.0	0.23	20	26.5	8.25	1.98	393
TUKHS	08-Sep	10.0	0.10	23	32.5	8.25	2.07	343
TUKHS	08-Sep	21.0	0.12	23	37.0	8.24	2.22	244
TUKHS	08-Sep	1.0	0.41	17	23.8	8.28	1.95	384
TUKHN	08-Sep	5.0	0.24	19	26.5	8.21	1.98	396
TUKHN	08-Sep	10.0	0.11	19	32.4	8.22	2.07	278
TUKHN	08-Sep	18.0	0.11	22	39.5	8.23	2.27	261

* ; ** ; *** see footnotes on page 23.

Table 4a. Chemistry analysis results for the Tuktoyaktuk Harbour and Mason Bay area - 1987.

Station	Date	Depth m	NO3-N $mmol \cdot m^{-3}$	NO2-N $mmol \cdot m^{-3}$	TDN $mmol \cdot m^{-3}$	PN $mmol \cdot m^{-3}$	PO4 $mmol \cdot m^{-3}$	TDP $mmol \cdot m^{-3}$	PP $mmol \cdot m^{-3}$	DIC $mol \cdot m^{-3}$	DOC $mol \cdot m^{-3}$	PC $mmol \cdot m^{-3}$	SI $mmol \cdot m^{-3}$
87T02	05-Mar	1.5	9.3	***	16.43	2.57	0.03	0.52	0.13	2.10	0.42	39.96	73.0
87T02	05-Mar	4.5	9.3	***	26.43	1.86	0.06	0.42	0.13	2.00	0.42	17.48	73.3
87T01	06-Mar	2.0	7.3	***	15.71	1.00	0.42	0.90	0.13	2.00	0.40	14.15	72.3
87T01	06-Mar	5.0	9.1	0.14	26.43	0.86	0.68	1.03	0.10	2.50	0.21	9.16	45.2
87T01	06-Mar	9.0	8.7	***	27.14	0.64	0.03	0.36	0.13	2.60	0.17	17.48	30.9
87T08	07-Mar	2.0	8.9	***	20.00	0.86	***	0.68	0.10	2.00	0.37	16.65	71.6
87T08	07-Mar	5.0	8.9	0.14	35.72	1.07	0.29	1.07	0.06	2.50	0.14	10.82	53.4
87T08	07-Mar	10.0	5.1	0.07	38.57	0.64	0.39	1.13	0.10	2.50	0.14	12.49	28.7
87T08	07-Mar	13.0	5.7	0.29	38.57	0.64	0.45	0.42	0.10	2.50	0.15	20.82	28.1
87T04	08-Mar	2.0	8.9	***	13.57	2.00	0.03	0.74	0.13	2.10	0.40	15.82	71.9
87T04	08-Mar	5.0	9.0	0.14	23.57	1.14	0.35	1.07	0.06	2.50	0.20	9.16	52.7
87T04	08-Mar	10.0	8.1	0.07	27.14	0.57	0.71	1.10	0.10	2.50	0.18	11.66	28.8
87T04	08-Mar	15.0	4.5	0.07	27.14	0.86	0.45	1.52	1.26	2.60	0.10	27.48	28.6
87T04	08-Mar	20.0	0.8	0.29	73.57	2.00	0.29	0.39	0.10	3.20	0.15	14.15	53.4
87T09	09-Mar	2.0	9.4	***	17.86	0.79	***	0.45	0.10	2.00	0.39	15.82	72.3
87T09	09-Mar	5.0	9.0	***	25.71	0.86	***	1.07	0.06	2.30	0.37	7.49	74.0
87T09	09-Mar	8.0	6.2	0.07	33.57	0.50	0.45	0.39	0.10	2.50	0.15	16.65	29.3
87T05	10-Mar	2.0	9.6	***	15.00	0.86	***	0.48	0.10	1.90	0.36	15.82	73.7
87T05	10-Mar	4.0	9.6	***	17.86	0.86	***	0.71	0.06	2.30	0.38	13.32	76.2
87M07	11-Mar	2.0	7.4	0.07	33.57	0.57	0.19	0.71	0.06	3.20	0.31	10.82	71.2
87M07	11-Mar	4.5	3.4	***	32.14	0.64	0.13	0.81	0.06	3.00	0.24	17.48	60.2
87M08	12-Mar	2.0	6.6	0.07	35.00	1.00	0.10	0.74	0.06	3.30	0.30	10.82	73.3
87M08	12-Mar	5.0	5.2	0.07	28.57	0.64	0.16	0.74	0.10	2.90	0.25	19.15	56.2
87M08	12-Mar	9.0	5.1	0.07	27.14	1.14	0.19	0.68	0.10	2.50	0.18	18.32	39.2
87M12	13-Mar	2.0	4.6	0.07	24.29	0.93	0.03	0.74	0.06	2.90	0.31	13.32	70.8
87M12	13-Mar	4.5	8.2	0.07	23.57	0.86	0.32	0.65	0.10	3.00	0.31	13.32	62.7
87M10	15-Mar	2.0	7.6	0.07	27.14	0.64	0.06	0.87	0.06	3.10	0.36	9.16	71.9
87M10	15-Mar	5.0	4.6	0.07	25.00	0.50	0.13	0.84	0.06	2.80	0.28	10.82	55.9
87M10	15-Mar	10.0	4.9	0.07	22.86	0.57	0.19	1.07	0.10	2.40	0.23	10.82	34.7
87M10	15-Mar	19.0	11.1	0.07	31.43	0.57	0.39	0.74	0.10	2.90	0.21	19.98	44.1
87M11	16-Mar	2.0	7.8	0.07	22.14	0.93	0.03	0.81	0.06	3.20	0.34	11.66	74.4
87M11	16-Mar	5.0	5.2	0.07	22.86	0.64	0.23	0.84	0.10	2.80	0.27	21.65	55.9
87M11	16-Mar	10.0	4.9	0.07	23.57	1.36	0.29	1.10	0.06	2.40	0.23	13.32	35.3
87M11	16-Mar	17.0	6.7	0.07	29.29	0.93	0.29	0.74	0.10	2.90	0.18	14.15	43.4
87M09	17-Mar	2.0	9.4	0.07	29.29	0.57	0.23	0.65	0.06	3.20	0.32	10.82	54.8
87M09	17-Mar	5.0	3.9	0.07	27.14	0.50	0.16	0.81	0.06	2.90	0.27	19.98	78.0
87M09	17-Mar	9.0	6.4	0.07	27.86	0.64	0.29	1.55	0.61	2.40	0.23	48.29	40.9
87THS	15-Jul	1.0	**	**	24.29	4.79	**	0.68	0.45	2.29	0.08	26.64	**
87THS	15-Jul	5.0	**	**	13.57	3.29	**	1.36	0.58	1.69	0.17	44.13	**

* ; ** ; *** see footnotes on page 23.

Table 4a. cont'd.

Station	Date	Depth m	NO3-N $mmol \cdot m^{-3}$	NO2-N $mmol \cdot m^{-3}$	TDN $mmol \cdot m^{-3}$	PN $mmol \cdot m^{-3}$	PO4 $mmol \cdot m^{-3}$	TDP $mmol \cdot m^{-3}$	PP $mmol \cdot m^{-3}$	DIC $mol \cdot m^{-3}$	DOC $mol \cdot m^{-3}$	PC $mmol \cdot m^{-3}$	SI $mmol \cdot m^{-3}$
87THS	15-Jul	10.0	**	**	25.00	6.21	**	1.45	0.65	2.25	0.07	49.96	**
87THS	15-Jul	20.0	**	**	25.00	6.57	**	1.36	0.65	2.24	0.07	45.79	**
87THS	15-Jul	24.0	**	**	25.00	5.86	**	0.45	0.52	2.30	0.04	59.95	**
87THN	16-Jul	1.0	**	**	11.43	4.29	**	1.10	0.48	2.45	0.15	39.96	**
87THN	16-Jul	5.0	**	**	24.29	3.71	**	1.32	0.42	2.78	0.17	37.47	**
87THN	16-Jul	10.0	**	**	23.57	4.71	**	1.42	0.74	2.76	0.16	53.29	**
87THN	16-Jul	20.0	**	**	23.57	7.93	**	0.52	0.65	2.44	0.05	50.79	**
87THS	16-Jul	1.0	**	**	11.43	4.86	**	5.94	0.39	2.13	0.19	28.31	**
87THS	16-Jul	5.0	**	**	55.00	3.21	**	1.23	0.48	2.26	0.08	36.63	**
87THS	16-Jul	10.0	**	**	22.14	5.21	**	1.26	0.55	2.23	0.08	59.11	**
87THS	16-Jul	20.0	**	**	21.43	5.93	**	1.39	0.52	2.64	0.04	59.95	**
87THS	16-Jul	24.5	**	**	22.14	6.21	**	0.68	1.84	2.73	0.06	124.89	**
87THN	30-Aug	1.0	**	**	20.71	9.50	**	0.52	1.91	2.09	0.27	151.53	**
87THN	30-Aug	5.0	**	**	19.29	10.29	**	1.16	0.39	1.99	0.26	44.96	**
87THN	30-Aug	10.0	**	**	24.29	2.14	**	1.65	0.61	2.68	0.09	70.77	**
87THN	30-Aug	20.0	**	**	30.00	5.14	**	0.58	1.26	3.17	0.11	95.75	**
87THS	30-Aug	1.0	**	**	15.71	7.43	**	0.61	1.32	1.90	0.25	91.59	**
87THS	30-Aug	5.0	**	**	12.86	7.79	**	1.26	0.42	1.97	0.27	35.80	**
87THS	30-Aug	10.0	**	**	20.71	2.64	**	1.45	0.36	2.61	0.11	27.48	**
87THS	30-Aug	19.5	**	**	28.57	2.79	**	0.00	0.00	2.26	0.06	0.00	**

* ; ** ; *** see footnotes on page 23.

Table 4b. Chemistry analysis results for the Tuktoyaktuk Harbour and Mason Bay area - 1987.

Station	Date	Depth m	CHL $mg \cdot m^{-3}$	TSS $mg \cdot L^{-1}$	COND $mS \cdot cm^{-1}$	pH	ALK $meq \cdot kg^{-1}$	DO $mmol \cdot m^{-3}$
87T02	05-Mar	1.5	0.09	4	*	*	2.21	394
87T02	05-Mar	4.5	0.08	4	*	*	2.24	391
87T01	06-Mar	2.0	0.10	3	*	*	2.22	394
87T01	06-Mar	5.0	0.06	11	*	*	2.27	279
87T01	06-Mar	9.0	0.03	15	*	*	2.30	210
87T08	07-Mar	2.0	0.14	3	*	*	2.16	388
87T08	07-Mar	5.0	0.08	**	*	*	2.26	282
87T08	07-Mar	10.0	0.03	**	*	*	2.23	247
87T08	07-Mar	13.0	0.03	**	*	*	2.24	241
87T04	08-Mar	2.0	0.09	4	*	*	2.17	388
87T04	08-Mar	5.0	0.08	10	*	*	2.29	288
87T04	08-Mar	10.0	0.03	17	*	*	2.24	247
87T04	08-Mar	15.0	0.05	17	*	*	2.28	219
87T04	08-Mar	20.0	0.04	25	*	*	2.72	3
87T09	09-Mar	2.0	0.10	**	1.1	8.49	2.18	391
87T09	09-Mar	5.0	0.12	**	*	*	2.27	363
87T09	09-Mar	8.0	0.04	**	30.7	8.22	2.24	247
87T05	10-Mar	2.0	0.15	3	0.8	8.52	2.21	394
87T05	10-Mar	4.0	0.11	3	1.5	8.53	2.33	404
87M07	11-Mar	2.0	0.06	8	15.9	8.40	2.92	437
87M07	11-Mar	4.5	0.04	8	17.5	8.42	2.65	398
87M08	12-Mar	2.0	0.04	8	15.5	8.46	2.95	441
87M08	12-Mar	5.0	0.04	9	18.0	8.38	2.56	391
87M08	12-Mar	9.0	0.10	11	21.9	8.29	2.21	316
87M12	13-Mar	2.0	0.06	8	12.8	8.43	2.78	423
87M12	13-Mar	4.5	0.05	9	17.1	8.42	2.75	408
87M10	15-Mar	2.0	0.04	7	14.8	8.44	2.87	435
87M10	15-Mar	5.0	0.03	7	17.8	8.36	2.60	401
87M10	15-Mar	10.0	0.10	10	22.6	8.28	2.16	326
87M10	15-Mar	19.0	0.02	14	33.3	8.27	2.54	9
87M11	16-Mar	2.0	0.07	9	12.9	8.50	2.92	429
87M11	16-Mar	5.0	0.05	9	17.5	8.42	2.58	393
87M11	16-Mar	10.0	0.11	12	22.0	8.30	2.19	318
87M11	16-Mar	17.0	0.11	16	32.5	8.28	2.52	13
87M09	17-Mar	2.0	*	9	13.1	8.44	2.98	446
87M09	17-Mar	5.0	0.05	9	18.0	8.43	2.55	391
87M09	17-Mar	9.0	0.05	12	21.6	8.35	2.22	329
87THS	15-Jul	1.0	1.70	17	**	**	2.29	276
87THS	15-Jul	5.0	3.90	16	**	**	1.84	328
87THS	15-Jul	10.0	14.10	16	**	**	2.30	419
87THS	15-Jul	20.0	7.20	15	**	**	2.33	417
87THS	15-Jul	24.0	5.60	16	**	**	2.63	418

* ; ** ; *** see footnotes on page 23.

Table 4b. cont'd.

Station	Date	Depth m	CHL $mg \cdot m^{-3}$	TSS $mg \cdot L^{-1}$	COND $mS \cdot cm^{-1}$	pH	ALK $meq \cdot kg^{-1}$	DO $mmol \cdot m^{-3}$
87THN	16-Jul	1.0	3.30	15	**	**	1.88	288
87THN	16-Jul	5.0	1.69	22	**	**	2.30	355
87THN	16-Jul	10.0	4.60	16	**	**	2.28	418
87THN	16-Jul	20.0	1.40	23	**	**	2.33	423
87THS	16-Jul	1.0	4.30	17	**	**	1.87	282
87THS	16-Jul	5.0	2.20	15	**	**	2.27	316
87THS	16-Jul	10.0	10.60	15	**	**	2.31	418
87THS	16-Jul	20.0	7.10	16	**	**	2.32	435
87THS	16-Jul	24.5	5.10	15	**	**	2.29	430
87THN	30-Aug	1.0	3.60	63	**	**	1.88	327
87THN	30-Aug	5.0	3.50	68	**	**	1.85	336
87THN	30-Aug	10.0	0.34	34	**	**	2.22	249
87THN	30-Aug	20.0	0.91	50	**	**	2.56	339
87THS	30-Aug	1.0	2.60	45	**	**	1.90	329
87THS	30-Aug	5.0	3.70	40	**	**	1.87	329
87THS	30-Aug	10.0	0.50	34	**	**	2.20	263
87THS	30-Aug	19.5	0.24	37	**	**	2.31	280

* ; ** ; *** see footnotes on page 23.

Table 5a. Chemistry analysis results for the Tuktoyaktuk Harbour and Mason Bay area - 1988

Station	Date	Depth m	NO3-N $mmol \cdot m^{-3}$	NO2-N $mmol \cdot m^{-3}$	TDN $mmol \cdot m^{-3}$	PN $mmol \cdot m^{-3}$	PO4 $mmol \cdot m^{-3}$	TDP $mmol \cdot m^{-3}$	PP $mmol \cdot m^{-3}$	DIC $mol \cdot m^{-3}$	DOC $mol \cdot m^{-3}$	PC $mmol \cdot m^{-3}$	SI $mmol \cdot m^{-3}$
88T01	07-Mar	0.0	1.57	***	25.71	3.50	0.06	0.42	0.16	2.25	0.40	59.11	70.7
88T01	07-Mar	2.0	2.79	***	28.57	1.00	0.03	1.10	0.29	2.31	0.44	17.48	70.7
88T01	07-Mar	5.0	4.00	***	48.57	1.43	0.29	1.19	0.48	2.39	0.16	14.99	38.9
88T01	07-Mar	9.1	3.43	***	60.00	1.93	0.39	0.48	0.26	2.48	0.10	25.81	27.8
88T02	07-Mar	0.0	8.21	***	25.71	1.50	0.03	0.42	0.16	2.32	0.51	45.79	70.7
88T02	07-Mar	1.5	2.93	***	35.00	1.07	***	0.39	0.19	2.38	0.43	19.15	70.3
88T02	07-Mar	4.1	1.93	***	24.29	1.07	***	0.55	0.26	2.38	0.40	21.65	70.3
88T08	08-Mar	0.0	3.64	***	35.00	3.50	0.06	0.42	0.19	2.28	0.61	42.46	69.2
88T08	08-Mar	2.0	2.64	***	25.71	1.07	***	1.00	0.36	2.39	0.58	18.32	69.2
88T08	08-Mar	5.0	6.14	0.07	50.72	1.50	0.58	1.32	0.26	2.45	0.15	15.82	41.1
88T08	08-Mar	10.0	5.14	0.07	42.86	1.36	0.84	1.26	0.29	2.49	0.08	15.82	22.2
88T08	08-Mar	15.0	5.86	0.07	43.57	1.00	0.77	1.13	0.36	2.65	0.08	12.49	27.8
88T08	08-Mar	16.5	4.86	0.07	54.29	1.21	0.52	0.52	0.39	2.69	0.08	18.32	29.2
88T04	09-Mar	0.0	3.00	0.07	34.29	2.50	0.19	0.39	0.16	2.41	0.49	40.80	71.4
88T04	09-Mar	2.0	2.36	***	27.86	*	***	1.03	0.26	2.37	0.39	20.82	69.2
88T04	09-Mar	5.0	2.14	***	44.29	*	0.16	1.32	0.26	3.30	0.12	14.15	40.7
88T04	09-Mar	10.0	4.50	0.07	43.57	*	0.55	1.19	0.36	2.44	0.07	10.82	21.7
88T04	09-Mar	15.0	3.00	0.07	41.43	1.21	0.42	1.32	0.39	2.52	0.08	14.15	27.9
88T04	09-Mar	20.0	3.71	0.07	44.29	1.57	0.52	1.32	0.61	2.90	0.08	15.82	35.8
88T04	09-Mar	21.5	5.79	0.14	43.57	2.57	0.55	0.45	0.26	2.93	0.07	29.97	36.8
88T05	10-Mar	0.0	7.43	***	35.72	3.93	0.03	0.39	0.13	2.58	0.50	43.30	71.8
88T05	10-Mar	2.0	4.14	***	23.57	0.86	***	0.42	0.13	2.38	0.40	14.99	71.4
88T05	10-Mar	4.1	4.57	***	31.43	1.00	0.03	0.45	0.29	2.53	0.65	14.99	73.6
88T09	10-Mar	0.0	3.86	***	27.86	1.43	***	0.42	0.13	2.23	0.57	24.15	72.8
88T09	10-Mar	2.0	6.79	***	25.71	0.86	***	1.07	0.26	2.44	0.40	14.15	72.1
88T09	10-Mar	5.0	5.29	***	45.72	1.00	0.36	1.39	0.23	2.53	0.11	12.49	43.3
88T09	10-Mar	8.3	5.64	0.14	44.29	0.79	0.58	0.68	0.26	2.48	0.08	9.99	23.4
88M07	13-Mar	0.0	6.14	0.07	46.43	1.29	0.26	0.61	0.19	3.61	0.27	19.98	80.1
88M07	13-Mar	2.0	8.07	0.43	45.00	0.93	0.26	0.81	0.29	3.58	0.21	15.82	78.6
88M07	13-Mar	5.0	34.00	***	40.72	1.00	0.23	0.81	0.29	2.66	0.12	14.99	33.2
88M10	14-Mar	0.0	4.93	0.21	49.29	1.93	0.19	0.77	0.19	4.20	0.50	29.97	88.0
88M10	14-Mar	2.0	3.93	***	39.29	0.86	0.03	0.94	0.26	3.92	0.26	14.15	86.5
88M10	14-Mar	5.0	8.00	0.07	52.14	0.71	0.42	0.94	0.26	2.81	0.15	9.16	43.3
88M10	14-Mar	10.0	5.50	0.07	38.57	0.64	0.42	1.00	0.29	2.67	0.10	9.99	24.3
88M10	14-Mar	15.0	3.50	0.07	33.57	1.00	0.39	0.97	0.29	2.46	0.08	12.49	25.2
88M10	14-Mar	19.8	5.57	0.07	31.43	1.86	0.45	0.65	0.26	2.48	0.09	23.31	26.4
88M11	14-Mar	0.0	5.43	0.14	45.00	1.57	0.19	0.77	0.19	3.68	0.27	24.15	84.4
88M11	14-Mar	2.0	4.86	0.14	42.14	0.93	0.13	1.00	0.29	3.75	0.25	14.15	84.4
88M11	14-Mar	5.0	2.43	***	*	0.71	0.13	1.13	0.32	2.88	0.15	10.82	45.1
88M11	14-Mar	10.0	2.64	***	48.57	0.57	0.23	1.03	0.26	2.49	0.10	9.16	25.1

* ; ** ; *** see footnotes on page 23.

Table 5a. cont'd.

Station	Date	Depth m	$NO3\text{-}N_3$ $mmol \cdot m^{-3}$	$NO2\text{-}N_3$ $mmol \cdot m^{-3}$	TDN $mmol \cdot m^{-3}$	PN $mmol \cdot m^{-3}$	PO4 $mmol \cdot m^{-3}$	TDP $mmol \cdot m^{-3}$	PP $mmol \cdot m^{-3}$	DIC $mol \cdot m^{-3}$	DOC $mol \cdot m^{-3}$	PC $mmol \cdot m^{-3}$	SI $mmol \cdot m^{-3}$
88M11	14-Mar	15.0	4.36	0.07	45.00	0.50	0.45	1.26	0.29	2.44	0.10	9.16	25.2
88M11	14-Mar	17.2	3.21	***	41.43	0.64	0.36	0.84	0.26	2.48	0.09	10.82	24.7
88M08	15-Mar	0.0	3.50	***	43.57	1.79	0.10	0.48	0.26	3.63	0.27	25.81	80.1
88M08	16-Mar	1.5	4.07	0.21	33.57	1.00	0.13	0.71	0.32	3.05	0.25	18.32	64.9
88M08	16-Mar	5.0	3.29	***	42.14	0.79	0.19	0.87	0.23	2.74	0.15	10.82	39.7
88M08	16-Mar	9.3	4.14	0.07	39.29	0.57	0.36	0.77	0.26	3.00	0.08	8.33	26.0
88M09	15-Mar	0.0	2.93	0.07	43.57	2.79	0.06	0.68	0.19	3.81	0.28	44.13	85.5
88M09	15-Mar	2.0	*	*	35.00	0.86	*	0.90	0.26	3.82	0.32	13.32	82.2
88M09	15-Mar	5.0	2.36	0.07	42.86	0.64	0.26	1.00	0.29	2.70	0.13	8.33	35.1
88M09	15-Mar	9.1	3.14	0.07	40.72	0.64	0.36	0.61	0.19	2.48	0.10	8.33	24.8
88M12	16-Mar	0.0	3.21	0.07	38.57	2.50	0.10	0.55	0.10	3.40	0.36	34.14	79.0
88M12	16-Mar	2.0	6.93	0.29	37.86	0.86	0.19	0.77	0.13	3.35	0.25	13.32	77.2
88M12	16-Mar	4.6	3.29	***	34.29	0.86	0.26	0.77	0.19	2.58	0.11	14.99	29.1
88001	18-Mar	0.0	5.43	0.14	38.57	3.93	0.16	0.58	0.16	3.85	0.31	47.46	85.8
88001	18-Mar	2.0	5.64	0.14	33.57	0.79	0.19	0.97	0.19	3.74	0.25	13.32	85.1
88001	18-Mar	5.0	9.71	0.29	35.72	0.64	0.45	1.00	0.19	2.66	0.10	10.82	29.8
88001	18-Mar	10.0	4.29	***	32.14	0.64	0.39	0.00	0.00	2.45	0.09	9.99	25.3

* ; ** ; *** see footnotes on page 23.

Table 5b. Chemistry analysis results for the Tuktoyaktuk Harbour and Mason Bay area - 1988.

Station	Date	Depth m	CHL $mg \cdot m^{-3}$	TSS $mg \cdot L^{-1}$	COND $mS \cdot cm^{-1}$	pH	ALK $meq \cdot kg^{-1}$	DO $mmol \cdot m^{-3}$
88T01	07-Mar	0.0	0.19	11	1.2	8.53	2.27	404
88T01	07-Mar	2.0	0.17	4	1.1	8.51	2.26	401
88T01	07-Mar	5.0	0.07	18	31.4	8.25	2.44	279
88T01	07-Mar	9.1	0.11	32	41.1	8.21	2.51	169
88T02	07-Mar	0.0	0.17	7	1.4	8.51	2.30	404
88T02	07-Mar	1.5	0.16	4	1.2	8.53	2.30	401
88T02	07-Mar	4.1	0.18	5	1.8	8.50	2.30	394
88T08	08-Mar	0.0	0.20	5	1.1	8.51	2.25	413
88T08	08-Mar	2.0	0.19	4	1.1	8.47	2.24	401
88T08	08-Mar	5.0	0.08	16	29.1	8.22	2.46	285
88T08	08-Mar	10.0	0.05	23	42.2	8.18	2.42	247
88T08	08-Mar	15.0	0.05	21	43.6	8.16	2.52	219
88T08	08-Mar	16.5	0.07	24	43.8	8.20	2.60	200
88T04	09-Mar	0.0	0.18	5	1.1	8.54	2.26	423
88T04	09-Mar	2.0	0.18	4	1.1	8.55	2.26	404
88T04	09-Mar	5.0	0.08	15	30.2	8.27	2.44	285
88T04	09-Mar	10.0	0.04	21	42.5	8.21	2.42	272
88T04	09-Mar	15.0	0.05	25	43.6	8.24	2.50	216
88T04	09-Mar	20.0	0.10	27	44.1	8.22	2.84	119
88T04	09-Mar	21.5	0.15	34	44.3	8.22	2.88	116
88T05	10-Mar	0.0	0.25	5	1.4	8.53	2.38	416
88T05	10-Mar	2.0	0.20	3	1.3	8.55	2.30	407
88T05	10-Mar	4.1	0.15	4	2.5	8.51	2.38	404
88T09	10-Mar	0.0	0.21	4	1.2	8.55	2.30	413
88T09	10-Mar	2.0	0.18	3	1.2	8.55	2.30	410
88T09	10-Mar	5.0	0.08	15	29.5	8.32	2.47	285
88T09	10-Mar	8.3	0.05	20	41.2	8.22	2.40	257
88M07	13-Mar	0.0	0.16	8	17.7	8.48	3.50	463
88M07	13-Mar	2.0	0.07	8	17.4	8.46	3.44	466
88M07	13-Mar	5.0	0.04	14	31.7	8.28	2.48	254
88M10	14-Mar	0.0	0.18	9	16.6	8.49	3.72	501
88M10	14-Mar	2.0	0.06	8	16.1	8.51	3.66	523
88M10	14-Mar	5.0	0.05	15	27.6	8.30	2.64	294
88M10	14-Mar	10.0	0.03	16	34.8	8.19	2.31	294
88M10	14-Mar	15.0	0.03	16	35.4	8.21	2.34	282
88M10	14-Mar	19.8	0.10	8	35.1	8.19	2.36	279
88M11	14-Mar	0.0	0.07	8	16.0	8.48	3.62	479
88M11	14-Mar	2.0	0.07	8	15.9	8.45	3.60	485
88M11	14-Mar	5.0	0.05	12	26.6	8.26	2.70	351
88M11	14-Mar	10.0	0.03	15	34.6	*	2.34	269
88M11	14-Mar	15.0	0.03	17	35.1	8.20	2.38	288

* ; ** ; *** see footnotes on page 23.

Table 5b. cont'd.

Station	Date	Depth m	CHL $mg \cdot m^{-3}$	TSS $mg \cdot L^{-1}$	COND $mS \cdot cm^{-1}$	pH	ALK $meq \cdot kg^{-1}$	DO $mmol \cdot m^{-3}$
88M11	14-Mar	17.2	0.05	17	35.5	8.18	2.33	291
88M08	15-Mar	0.0	0.09	8	*	*	3.56	479
88M08	16-Mar	1.5	0.17	8	14.9	8.41	2.90	404
88M08	16-Mar	5.0	0.04	12	27.8	8.27	2.58	329
88M08	16-Mar	9.3	0.03	15	34.5	8.22	2.34	254
88M09	15-Mar	0.0	0.08	10	17.2	8.50	3.70	488
88M09	15-Mar	2.0	0.06	8	16.5	8.46	3.58	485
88M09	15-Mar	5.0	0.03	12	30.6	8.27	2.48	279
88M09	15-Mar	9.1	0.03	15	35.1	8.22	2.34	263
88M12	16-Mar	0.0	0.24	9	16.4	8.49	3.42	476
88M12	16-Mar	2.0	0.08	7	16.5	8.46	3.34	476
88M12	16-Mar	4.6	0.05	18	33.0	8.23	2.41	260
88001	18-Mar	0.0	0.21	9	16.4	8.44	3.74	479
88001	18-Mar	2.0	0.06	7	16.3	8.42	3.64	495
88001	18-Mar	5.0	0.04	16	32.9	8.22	2.40	260
88001	18-Mar	10.0	0.03	16	34.9	8.18	2.33	282

* ; ** ; *** see footnotes on page 23.