Scientific Excellence • Resource Protection & Conservation • Benefits for Canadians
Excellence scientifique • Protection et conservation des ressources • Bénéfices aux Canadiens

NOGAP B.6, Physical and Chemical Data Collected in the Beaufort Sea and Mackenzie River Delta, April-May and September, 1992, and Ice Core Data Collected in 1991-1992

R. Pearson, M. O'Brien, D. Sieberg, F.A. McLaughlin, D.W. Paton, D. Tuele, J. Barwell-Clarke, E.C. Carmack, R.W. Macdonald and M. Galbraith

Institute of Ocean Sciences
Department of Fisheries and Oceans
Sidney, British Columbia V8L 4B2

SCOTIA-FUNDY REGIONAL LIBRARY
OCT 5 1994
FISHERIES & OCEANS CANADA

1994

Canadian Data Report of Hydrography and Ocean Sciences 129

Fisheries and Oceans Pêches et Océans

Canada

Canadian Data Report Of Hydrography and Ocean Sciences

Data reports provide a medium for the documentation and dissemination of data in a form directly useable by the scientific and engineering communities. Generally, the reports contain raw and/or analyzed data but will not contain interpretations of the data. Such compilations commonly will have been prepared in support of work related to the programs and interests of the Ocean Science and Surveys (OSS) sector of the Department of Fisheries and Oceans.

Data reports are not intended for general distribution and the contents must not be referred to in other publications without prior written authorization from the issuing establishment. The correct citation appears above the abstract of each report. Data reports are abstracted in *Aquatic Sciences and Fisheries Abstracts* and indexed in the Department's annual index to scientific and technical publications.

Data reports are produced regionally but are numbered nationally. Requests for individual reports will be filled by the issuing establishment listed on the front cover and title page. Out of stock reports will be supplied for a fee by commercial agents.

Regional and headquarters establishments of Ocean Science and Surveys ceased publication of their various report series as of December 1981. A complete listing of these publications is published in the *Canadian Journal of Fisheries and Aquatic Sciences*, Volume 39: Index to Publications 1982. The current series, which begins with report number 1, was initiated in January 1982.

Rapport statistique canadien sur l'hydrographie et les sciences océaniques

Les rapports statistiques servent de véhicule pour la compilation et la diffusion des données sous une forme directement utilisable par les scientifiques et les techniciens. En général, les rapports contiennent des données brutes ou analysées, mais ne fournissent pas d'interprétation des données. Ces compilations sont préparées le plus souvent à l'appui de travaux liés aux programmes et intérêts du service des Sciences et levés océaniques (SLO) du ministère des Pêches et des Océans.

Les rapports statistiques ne sont pas destinés à une vaste distribution et leur contenu ne doit pas être mentionné dans une publication sans une autorisation écrite préalable de l'établissement auteur. Le titre exact paraît au-dessus du résumé de chaque rapport. Les rapports statistiques sont résumés dans la revue *Résumés des sciences halieutiques et aquatiques*, et ils sont classés dans l'index annuel des publications scientifiques et techniques du Ministère.

Les rapports statistiques sont produits à l'échelon régional, mais numérotés à l'échelon national. Les demandes de rapports seront satisfaites par l'établissement auteur dont le nom figure sur la couverture et la page du titre. Les rapports épuisés sont fournis contre rétribution par des agents commerciaux.

Les établissements des Sciences et levés océaniques dans les régions et à l'administration centrale ont cessé de publier leurs diverses séries de rapports en décembre 1981. Une liste complète de ces publications figure dans le volume 39, Index des publications 1982, du *Journal canadien des sciences halieutiques et aquatiques*. La série actuelle a commencé avec la publication du rapport numéro 1 en janvier 1982.

Canadian Data Report of Hydrography and Ocean Sciences No. 129

1994

NOGAP B.6, Physical and chemical data collected in the Beaufort Sea and Mackenzie River Delta, April-May and September, 1992, and ice core data collected in 1991-1992.

by

R. Pearson, M. O'Brien, D. Sieberg, F.A. McLaughlin, D.W. Paton, D. Tuele, J. Barwell-Clarke, E.C. Carmack, R.W. Macdonald and M. Galbraith

Institute of Ocean Sciences
Department of Fisheries and Oceans
Sidney, B.C.

Copyright Minister of Supply and Services Canada - 1994
Cat. No. Fs 97 – 16/129 ISSN 0711-6721

Correct citation for this publication:

R. Pearson, M. O'Brien, D. Sieberg, F.A. McLaughlin, D.W. Paton, D. Tuele, J. Barwell-Clarke, E.C. Carmack, R.W. Macdonald and M. Galbraith 1994., NOGAP B.6, Physical and chemical data collected in the Beaufort Sea and Mackenzie River Delta, April-May and September, 1992, and ice core data collected in 1991-1992.*Can. Data Rep. Hydrogr. Ocean Sci.:* **129**, 199p.

Contents

1 INTRODUCTION 1
1.1 Overview of the Field Work . . . 1
1.1.1 Spring, 1991, Mission #9109 . . . 1
1.1.2 Spring, 1992, Mission #9207 . . . 1
1.1.3 Summer, 1992, Mission #9216 . . . 3

2 METHODS 4
2.1 CTD Data collection and treatment - Spring, 1992 Mission #9207 . . . 4
2.1.1 Sea-Bird Conductivity-Temperature-Depth System . . . 4
2.1.2 Field Sampling . . . 4
2.1.3 CTD Instrument Problems . . . 5
2.1.4 Data Processing . . . 5
2.1.5 Data Validation . . . 7
2.2 CTD Data collection and treatment - Summer, 1992 Mission #9216 . . . 8
2.2.1 CTD Systems . . . 8
2.2.2 Field Sampling . . . 8
2.2.3 Instrument Problems . . . 8
2.2.4 Data Processing . . . 9
2.2.5 Data Validation . . . 10
2.3 Chemistry . . . 11
2.3.1 Field Sampling for Spring Work (Missions #9109 and #9207 . . . 11
2.4 Field Sampling for Summer, 1992 (Mission #9216) . . . 12
2.4.1 Laboratory Methods . . . 12

3 FIGURES 17

4 TABLES 31

5 REFERENCES 49

6 APPENDICES 51
6.1 CTD Data Mission #9207; Tables and Plots . . . 52
6.2 CTD Data Mission #9216; Tables and Plots . . . 109
6.3 Water Chemistry Data Mission #9207 . . . 117
6.4 Water Chemistry Data Mission #9216 . . . 137
6.5 Ice Core Chemistry Mission #9109 . . . 159
6.6 Ice Core Chemistry Mission #9207 . . . 175
6.7 Zooplankton Identification Mission #9207 . . . 195

Abstract

R. Pearson, M. O'Brien, D. Sieberg, F.A. McLaughlin, D.W. Paton, D. Tuele, J. Barwell-Clarke, E.C. Carmack, R.W. Macdonald and M. Galbraith, 1994, NOGAP B.6, Physical and chemical data collected in the Beaufort Sea and Mackenzie River Delta, April-May and September, 1992, and ice core data collected in 1991-1992. *Can. Data Rep. Hydrogr. Ocean Sci.:* **129**, 199p.

As part of the NOGAP B.6 program, with objectives to determine hydrocarbon pathways and primary productivity of the Beaufort Sea, the work in 1992 consisted of two field programs. The ice-based spring program focused on the Husky Lakes (April 14-May 15; Institute of Ocean Sciences I.D. #9207) and a fall program (September 5-28; Institute of Ocean Sciences I.D. #9216) concentrating on a time series deep station in the Canada Basin which has been visited three times since 1987. Water column measurements reported here are physical measurements (CTD data) and chemical measurements (salinity, dissolved oxygen, orthophosphate, reactive silicate, nitrate, chlorophyll a, particulate organic nitrogen and carbon and total suspended solids). Data (salinity, orthophosphate, reactive silicate, nitrate) from ice cores collected during spring field trips in 1991 (I.D. #9109) and 1992 (I.D. #9207) are included in this report. Zooplankton identified from the Husky Lakes are also reported here.

Key words: Arctic, Beaufort Sea, carbon, chlorophyll a, coastal zone, estuary, ice cores, nitrogen, nutrients, oceanography, oxygen, salinity, temperature, total suspended solids, zooplankton.

Résumé

R. Pearson, M. O'Brien, D. Sieberg, F.A. McLaughlin, D.W. Paton, D. Tuele, J. Barwell-Clarke, E.C. Carmack, R.W. Macdonald and M. Galbraith, 1994, NOGAP B.6, Physical and chemical data collected in the Beaufort Sea and Mackenzie River Delta, April-May and September, 1992, and ice core data collected in 1991-1992. *Can. Data Rep. Hydrogr. Ocean Sci.:* **129**, 199p.

Dans le cadre du programme NOGAP B.6, dont les objectifs sont de déterminer le cheminement des hydrocarbures et la productivité primaire dans la Mer de Beaufort, des travaux de terrain ont été effectués à deux occasions en 1992. Une campagne de printemps (14 avril-15 mai, Institut des Sciences de la mer I.D. #9207) était basée sur l'étude de la glace des Lacs Husky et une campage d'automne (5-28 september, Insitut des Sciences de la mer I.D. #9216) sur celle de séries temporelles à une station profonde du Basin du Canada, laquelle a été visitée à trois reprises depuis 1987. Les données de colonne d'eau rapportées ici sont issues de mesures physique (CTD) et chimiques (salinité, oxygène dissous, orthophosphate, silicate réactif, nitrates, chlorophylle a, azote, et carbone organiques particulaires, matièr en suspension totale). Des données des carottes de glace (salinité , orhtophosphate, silicate réactif, et nitrate) prélevées au cours des printemps de 1991 (I.D. #9109) et de 1992 (I.D.#9207) sont également incluses. Les espèces zooplanctoniques identifiées pour les Lacs Husky sont aussi rapportées.

Mots-clés: Arctique, azote, carbone, carottes de glace, chlorophylles a, estuaire, Mer de Beaufort, nutriments, océanographie, oxygène, salinité, solides totaux en suspension, température, zone côtière, zooplancton.

Acknowledgements

We are very much indebted for support to our field programs from the Polar Continental Shelf Project (PCSP) for ice-based work and the officers and men of the Canadian Coast Guard Ship *Henry Larsen* for the summer work. We especially note the assistance of Barry Hough and Claude Brunet (PCSP) and Capt. S.A. Gomes (CCG) in facilitating our work. We appreciate the special efforts of Captain D. Johns and Ivan Côté (Coast Guard Northern, Ottawa) to continue their commitment to provide ship time. Jimmy and Jackie Jacobson of Tuktoyaktuk shared our work and helped with our snowmobile sampling programs. We thank pilots Ron Sprang and Pierette Paroz for safely getting us to and from the ice stations, and Gerry Lacho of DFO Winnipeg for generously sharing the laboratory at Tuk with us. S. Thomson assisted with advice on style and with final text-editing. This work, part of the NOGAP B.6 project, was jointly supported by Indian and Northern Affairs Canada, and Fisheries and Oceans Canada.

1 INTRODUCTION

The Northern Oil and Gas Action Program has as one of its sub-projects a major inter-disciplinary study of the oceanography of the Canadian Beaufort Sea (NOGAP B.6). In particular, the objectives of NOGAP B.6 are to determine the transport and fate of materials (especially hydrocarbons) over the Beaufort Shelf, and the primary productivity of these coastal waters. Field work, which started in 1986, is continuing; NOGAP reports in the NOGAP B.6 series are listed at the back of this report. During the spring of 1992 (Institute of Ocean Sciences mission #9207) our work focussed on the Husky Lakes, Liverpool Bay and the nearshore of the Tuktoyaktuk Peninsula. This spring work was followed in the summer by work carried out in the Beaufort Sea aboard the ice breaker CCGS *Henry Larsen* (IOS mission #9216). This data report includes chemical and conductivity-temperature-depth (CTD) data. In addition, we report chemical data for ice cores collected during the spring 1992 field work (mission #9707) and for ice cores collected during the previous spring (mission #9109). Also included, is zooplankton identification data from the Husky Lakes.

1.1 Overview of the Field Work

1.1.1 Spring, 1991, Mission #9109

A description of the work and summary of physical and chemical data are given in *Macdonald et al.*, [1992]. Only the nutrient and salinity data for the ice cores are included in this report (see Appendix for data tables). See Table 1 and Figure 1 for a station summary and map of ice coring locations.

1.1.2 Spring, 1992, Mission #9207

Our field work focussed on the Husky Lakes and Liverpool Bay. The program was operated out of Tuktoyaktuk, Polar Continental Shelf Project (PCSP), using Twin Otters, helicopters and skidoos (with the aid of Inuit guides) for transport. Instrumented moorings with a variety of components were deployed and recovered as part of the work: instruments included recording current meters (with conductivity and temperature sensors), tide guages, and an Acoustic Doppler Current Profiler (ADCP). Figure 2 and Table 2 summarize the mooring program. Water and ice cores were collected for chemical analyses, samples were collected for hydrocarbon and organochlorine determinations (fish, amphipods, sediments and both the dissolved and particulate fractions of the water column) and CTD profiles were collected at most stations. Station locations and sample summaries are given in Figures 3a, 3b and 4 and Tables 3, 4, 5 and 6.

The 1992 spring field work was conducted in three legs as follows:

1. April 14-20/92 - Deployment of moorings and CTD profiling working out of Polar Continental Shelf Project (PCSP) base in Tuktoyaktuk.

2. April 20-27/92 - Recovery of a deep mooring at Station A01-90 working out of Deadhorse, Alaska, in cooperation with Pacific Marine Ecology Laboratory (PMEL), Seattle.

3. April 21/92 - May 15/92 - CTD survey, water chemistry sampling, ice core sampling, hydrocarbon/organochlorine sampling and recovery of moorings. Sample analysis in the Fisheries and Oceans field laboratory at Tuktoyaktuk included salinity, dissolved oxygen, nutrients and chloro-fluoro carbons (CFCs).

The primary objectives for mission #9207 were to collect and analyze samples from the Husky Lakes, Liverpool Bay, Mason Bay, Cape Dalhousie, source water for the Husky Lakes and Kugmallit Bay as follows: (data summarized in this data report are in **bold** font)

- **Collect CTD data**
- Collect water column data for **salinity, nutrients (silicate, nitrate plus nitrite and orthophosphate), dissolved oxygen**, CFCs, oxygen isotope composition.
- Collect ice cores and analyze subsamples for **salinity, nutrients** and oxygen isotope composition.
- Collect **zooplankton and fish** samples from the Husky Lakes.
- Recover sequential sediment trap mooring from station A01-90 in cooperation with PMEL.
- Collect samples for determination of organochlorines and hydrocarbons in the particulate and dissolved phases of the water column (by large volume filtration and in-situ pumps), in surface sediments (small grab samples), in amphipods, and in fish from the Husky Lakes.
- Deploy and recover current meter and tide guage moorings in Liverpool Bay and in the Husky Lakes.
- Deploy and recover an ADCP mooring in Liverpool Bay.
- Deploy and recover current meter moorings at two stations north of Kugmallit Bay.
- Recover a current meter and sediment trap mooring at station SS-5 (not successful).

Station Nomenclature - Mission #9207 All stations have been given a 3- or 4- character designation. The majority of the stations are from the Husky Lakes and Liverpool Bay; these station names are all proceeded by an "E" followed by three digits. The "E" numbers go from E100 at the head of the Husky Lakes to E900 at the mouth of Liverpool Bay. Stations from regions outside of Husky Lakes and Liverpool Bay are designated as follows: MB92 (Mason Bay); T100 and T200 (Tuktoyaktuk Harbour); R192 and R292 (also refered to as REV1-new and REV2-new; at the Mouth of Kugmallit Bay); CM1, CM2 and CM3 (C section off Tuktoyaktuk, middle part); and CD1 (Cape Dalhousie). Source waters were collected at the following stations: KUGR (Kugatuk River); ANDR (Anderson River); SITL (Sitidgi Lake); ECHAN (East Channel, mouth of Mackenzie River) and JJ1 and JJ2 (nearshore northeast of Tuktoyaktuk, possible overflow sites where only ice cores were collected).

Station Locations and Positioning - Mission #9207 Station locations, shown in Figures 3a, 3b and 4, were determined using a number of GPS systems including a hand held Trimble Transpak II (snowmobile operations) and the GPS systems aboard the fixed and rotary-wing aircraft. The positions are expected to be within 100 m of the true position. A complete list of station and sampling information is given in Tables 3, 4, 5 and 6.

Many of the stations were visited more than once during the field trip. In most cases, the same location was used for each visit (confirmed by the hole augered during the first visit). In some cases, however, slightly different locations were used in an attempt to find deeper water.

1.1.3 Summer, 1992, Mission #9216

Mission #9216 was carried out from the icebreaker CCGS *Henry Larsen* in two legs:

1. September 5-14, 1992 - Deployment and recovery of moorings.
2. September 15-28, 1992 - CTD profiling, water sampling and sediment coring. Redeployment of mooring at deep water site (3300m) in the Canada Basin.

The sampling program for mission #9216 had the following objectives (data summarized in this report are outlined in bold font):

- Collect **CTD data** at deep time-series station in the Canada Basin.
- Collect water samples at a deep, time-series station in the Canada Basin and analyse for **nitrate plus nitrite, silicate, orthophosphate, salinity, temperature, dissolved oxygen, chlorophyll a, particulate organic carbon and nitrogen, total suspended solids**, CFCs, total CO_2, ^{13}C, oxygen isotope composition, tritium and barium.
- Recover the 2700 m mooring at station L144 (71° 22.119'N 141° 42.343'W) which was deployed from the CCGS *Henry Larsen* in the fall of 1991.
- Recover the 718 m mooring at station AM1-91 (70° 32.12'N 139° 58.30'W) which was deployed from the CCGS *Henry Larsen* in the fall of 1991.
- Recover the 700 m mooring st station SS-5 (71° 12.008'N 134° 48.389'W) which was deployed through the ice in April 1991.
- Recover the 3 acoustic listening moorings (SOFAR) from stations ALS-1, ALS-2 AND ALS-4 that were put in from the Larsen in 1991 (Mackenzie Canyon region).
- Recover and redeploy PERD moorings at stations ISC92_1A, ISC92_2A and ISC92_4A on the continental shelf off Tuktoyaktuk.
- Redeploy mooring at station A01-92 in the Canada Basin (3300 m water).
- Collect samples for organochlorine determination from particulate and dissolved phases of the water column (large volume filtration and in-situ pump sampling), zooplankton, and sediments.
- Collect sediment box cores for pore water and contaminant determinations (organochlorines, PAH, metals).

Station Nomenclature - Mission #9216 Stations A01 and E01 were the only stations at which CTD and chemistry samples were collected during this field trip. Locations of these stations are shown in Figure 5. Station locations were determined using the ship's GPS system; positions are expected to be within 100 m of the true position.

All samples have been identified with a letter followed by a number. The R-series of samples down to 1500 m were taken using a rosette loaded with 5 L Niskins. Below 1500 m the R series was taken using 5 L Niskins attatched to the hydrowire. The bottles for the R series were subsampled for dissolved oxygen, total CO_2, tritium, nutrients, oxygen isotopes, barium, salinity, carbon isotopes (^{13}C), and temperature (reversing thermometers at 80, 250, 600, 700, and 1600 m). The F-series was collected using 10 L GO-FLOS and 5 L Niskins subsampled for CFCs and salinity. The

hexachlorcyclohexane (HCH) samples were collected using 5 L Niskins which were also sampled for salinity. Samples for filtration (TSS) were collected using 30 L Niskins which were subsampled for particulate organic carbon and nitrogen, chlorophyll a, total suspended solids and salinity. Table 7 summarizes the station and sampling information.

2 METHODS

2.1 CTD Data collection and treatment - Spring, 1992 Mission #9207

2.1.1 Sea-Bird Conductivity-Temperature-Depth System

Two Sea-Bird (model SBE-19, Serial numbers 1030 and 1031) probes were used for this field program. In both probes, water was pumped through the conductivity cells and one probe had a pumped O_2 sensor. Table 8 lists the configuration of each CTD. The Sea-Bird CTDs were self-recording, logging internally during the casts at a rate of 2 samples per second, and data were transferred to a desk-top PC computer by serial cable at the end of each day.

2.1.2 Field Sampling

All stations were located on ice-covered waters. The stations were reached by fixed-wing, and rotary-wing aircraft and by snowmobile. In all cases, holes were augured or melted through the ice to take the CTD casts and water samples.

Working temperatures varied from about 0° C to -20° C. These temperatures pose a significant problem when working with the Sea-Bird SBE-19 CTDs due to susceptibility of the pump and plumbing systems to freezing. This instrument is particularly susceptible to the problem because the conductivity cell cannot be kept filled with alcohol between casts to prevent freezing (the manufacturer warns that the platinized electrodes on the conductivity cell would deteriorate if soaked in alcohol for extended periods). When working from an aircraft we were able to keep the CTDs inside and warm until just before doing the cast and so avoided most problems associated with freezing. When working from snowmobiles we kept the CTD warm by protecting it in a box mounted on a towed sled. The box contained a catalytic heater which maintained the temperature of the CTD above freezing most of the time. We did find, however, that when a number of casts were run in one day the CTD became progressively more cold-soaked and freezing became a problem.

The exact procedure for each cast varied over the course of the field trip because we adapted our methods according to our on-going experiences. By cast #8, however, we had developed a set of guidelines to be followed when taking casts.

To prevent freezing of the water in the cell when transporting the CTD to the hole, we plugged the end of the conductivity cell and filled it (and oxygen probe if present) with warm water of salinity 40 before the cast. The plug was not removed from the cell until the CTD was submerged in the water. The CTD was lowered by hand using a kevlar line marked in 1 m and 10 cm intervals. We let the CTD soak for 5 minutes before performing the cast. The CTD was programmed to turn on the pump after 4 minutes. The CTD was lowered at 0.25 m/s yielding 8 samples per metre. For each cast we ran two or three profiles of the water column to verify the repeatability of the data and to help in processing the data. When using the probe with the oxygen sensor, the last profile was done in steps to allow the oxygen sensor, which had a long time constant, to stabilize for 1 minute at a number of depths. The data from the soaking periods was used as a comparison to the continuous profile.

We often took a salinity sample for calibration in conjunction with a CTD cast. This was always done as a subsequent cast to the main multi-profile cast for the station. We hung a 1.7 L Niskin

bottle on the line two metres above the CTD and then lowered the CTD so that it profiled the water being sampled just before the bottle was tripped.

For some casts we found it necessary to operate with the pump off. In these cases we lowered the CTD at 1 m/s to allow adequate flushing of the conductivity cell. We compared the pumped versus free-flushing conductivity collection modes at at number of stations by running three profiles with the pump attached followed by one or two more with it detached. Detaching the pump was a simple matter of pulling the hose off of the top end of the conductivity cell while the CTD was momentarily pulled out of the water. The resulting data showed no changes in the conductivity readings except where the CTD passed through an abrupt halocline. In these cases the free flushing conductivity data lagged the pumped data in a manner consistent with the differences in lowering rate and the time constant of the cell.

2.1.3 CTD Instrument Problems

Freezing In spite of the steps taken to avoid freezing, for many casts the data were corrupted by the instrument freezing in one way or another. The three main problems were:

1. *Pressure Inlet Port Freezing* - The instrument came supplied from the manufacturer with an oil-filled, open-ended tube connected to the pressure inlet port. This configuration caused problems during a couple of casts because the oil would get knocked out of the end of the tube allowing water to enter and freeze. This had the effect of "damping" the pressure signal so that true depths were not recorded. This problem was solved in later casts by replacing the inlet tube with an oil-filled bladder covering the pressure inlet port.

2. *"Y" Fitting Air Hole Freezing* - Because the pump on the SBE-19 is not self-priming, it is necessary to allow the air to bleed from the plumbing before turning on the pump. This is done by allowing the air to bleed out through a small hole in the "Y" fitting at the top of the instrument. This hole is very small, however, and prone to freezing. It was necessary to poke the ice out of this hole just before the instrument went in the water or the pump would not prime. Several casts suffered from poor pumping because of ice reforming in this hole before the CTD went in the water.

3. *Pump Impeller Freezing* - If the CTD became sufficiently cold-soaked, the pump impeller had a tendency to freeze as soon as it was put in the water. In many cases it was not possible to warm the CTD sufficiently to avoid this problem. In some cases, if we were aware that the pump had frozen we disconnected it from the conductivity cell and allowed the cell to free-flush during the cast.

Battery Failure A few of the casts were corrupted because the CTD battery voltage dropped too low and the CTD automatically turned itself off in the middle of the cast. We normally caught this problem because the pump was not running when the CTD came out of the water; we would replace the batteries and redo the cast. Cast #33 at station E110 was not caught until after we left the station, however, and the data were lost.

2.1.4 Data Processing

Several steps were performed to process each CTD cast.

1. The raw values for pressure, temperature and conductivity were converted to engineering units using calibration coefficients determined in pre-trip laboratory calibrations.

2. Each cast was processed to compensate for the differences in the time responses of the temperature sensor and the conductivity cell. This was done by advancing the temperature data by two records (one second) and the conductivity by 0.5 records (0.25 seconds). These values were determined experimentally by comparing up and down casts and by minimizing spikes in the computed salinity.

3. Salinity was calculated from temperature and conductivity using the UNESCO algorithms [*Fofonoff and Millard*; 1983].

4. Each cast was examined to determine if any freezing or other problems affected the integrity of the cast. All subsequent processing was done using only casts showing no problems with the data.

5. Based on comparisons between the CTD and bottle salinities, an offset of 0.0145 was added to all 1030 salinities and an offset of 0.0124 was added to all 1031 salinities. See the section on data validation for more information.

6. For all casts using the oxygen probe, dissolved oxygen was calculated using the pre-cruise calibration coefficients and the formulas provided by the manufacturer. Part of the calculations involved advancing the oxygen channels by 12.5 seconds (25 records) to compensate for the sensor's time response. This value was determined by comparing up cast and down cast data for a number of stations.

7. All dissolved oxygen values were adjusted based on bottle oxygen values determined by Winkler titration. Table 9 lists the offsets added as a function of cast number. See the section on data validation for more information.

8. Data from all casts was processed to remove the up-cast. The pressures were adjusted at this time so that the surface would be zero.

9. The top two metres were removed from each cast based on the assumption that these data come from the ice hole and are therefore not representative of the water column.

10. The best profile was selected from those taken during each set of casts. In most cases this was the first profile.

11. A few casts were hand-edited to remove spikes.

12. 0.007 °C was added to the temperature data from all 1030 casts. See the section on data validation for more information.

13. The pressure, temperature, salinity, and oxygen data for each cast were decimated into one-metre bins using a simple averaging process.

14. Derived oceanographic quantities were calculated from the pressure, temperature, and salinity data using the algorithms given in *Fofonoff and Millard* [1983]. The decimated data, and derived quantities, were used in producing the plots and tables found in the Appendix.

2.1.5 Data Validation

Validation of the CTD readings was done in four steps listed below.

1. Each cast was plotted with all profiles overlapping and also with each channel as a function of time. From these plots we determined which casts had problems associated with freezing or the battery. Casts with problems are not included in this report. Table 11 is a complete list of the stations and casts taken with each CTD, what problems, if any, were associated with each cast, and whether the data from the cast are included in this report.

2. For each station in which bottle samples were taken for salinity and/or oxygen, comparisons were made between the CTD and bottle data. Some bottle samples were collected from bottles hung on the line above the CTD and some were taken from separate bottle casts. Figures 6 and 7 show the differences between bottle and CTD salinities as a function of depth for CTDs 1030 and 1031. We used these data to adjust the salinities from each CTD by a constant to give a mean residual of zero. Table 10 gives the offsets added to the salinities and the standard deviation of the residuals.

   Figure 8 shows the differences between the CTD and bottle dissolved oxygen values as a function of date for CTD 1030. The oxygen probe membrane was changed three times during the field trip; those three events show clearly on this figure. We have assumed that the dissolved oxygen values drifted linearly as a function of time for a given membrane, and that there is no way to interpolate from one membrane to the next. Based on these assumptions, three least squares fits were made to the data to calculate an offset as a function of date. These offsets, and the casts that they affect are listed in Table 9. Table 12 gives the standard deviation of the residuals of the corrected dissolved oxygen values. Note, however, the assumptions made in correcting the oxygen data are stictly empirical. For two membranes there was an increase in reading from one cast to the next and for a third membrane there was a decrease; we have no explanation for this behaviour.

3. Comparisons were made between the profiles recorded by CTD 1030 and CTD 1031. A select group of stations in which both CTDs were used to profile the water column within 1 hour of each other were selected (Table 13). The salinity profiles were compared after adjustment using the bottle salinities. Half-metre averaged data were calculated for both temperature and salinity. The temperature difference (1030-1031) and salinity difference (1030-1031) were calculated for each depth. The mean and standard deviations were then calculated for each temperature difference where $\Delta T/\Delta P$ (for 1030) did not exceed 0.01 °C/m and for each salinity difference where $\Delta S/\Delta P$ (for 1030) did not exceed 0.01 PSU/m. Figures 9 and 10 show plots of these temperature and salinity differences as a function of pressure. Table 14 lists the mean and standard deviations for the temperature and salinity differences. From the intercomparison of the two CTDs we can say that the two sets of CTD salinity data (adjusted to the bottle salinities) have no measurable difference between them, within a tolerance of 0.005 PSU. The two sets of CTD temperature data, however, have a measurable offset of 0.007 ± 0.002 °C.

4. To explain the difference in temperature measured between the two CTDs, it was necessary to examine temperature calibrations on the instruments before and after the trip.

   Figure 11 shows temperature residuals (CTD-Bath) for CTD 1030 based on a February 20, 1992 (pre-trip) calibration. Residuals are shown for both the pre-trip and post-trip (Feb. 19, 1993) calibration check. The two calibrations show an approximate 0.007 °C decrease in the temperature readings between the pre-trip and post-trip calibrations.

   Figure 12 shows temperature residuals (CTD-Bath) for the pre-trip calibration on CTD 1031 run on March 4, 1992. Residuals are shown for both the pre-trip and post-trip (Nov. 5, 1992) calibrations. The two calibrations show no measurable difference in the temperature.

The laboratory calibrations and the CTD intercomparisons suggest that an event occurred after the pre-trip calibration for CTD 1030 (perhaps a jolt in transporting the CTD) causing a 0.007 °C decrease in temperature reading that persisted from the start of the trip to the post-trip calibration. However, it is apparent that the temperature readings from 1031 remained stable during the field trip.

Based on these calibrations and intercomparisons a value of 0.007 °C was added to all temperature data for CTD 1030.

Table 11 lists all of the CTD casts taken during the field trip and the stations at which they were taken. From the list of validated casts, a representative set has been chosen that includes one cast from each station (Table 15).

2.2 CTD Data collection and treatment - Summer, 1992 Mission #9216

2.2.1 CTD Systems

Five CTDs were used during the summer cruise (configurations are listed in Table 16).

The two Guildline CTDs transmitted their data "real-time" *via* a 3500 m, single-conductor sea cable. For each of the Guildline CTDs data were transmitted at 25 samples per second and logged on a Toshiba T5200 portable MSDOS computer. The Guildline CTD (S/N CTD4) was used in conjunction with a 12-bottle General Oceanics rosette. The rosette bottles were always tripped on the up-cast. The rosette and CTD shared the same conductor in the sea cable requiring the CTD to be turned off briefly while each bottle was fired.

The two Sea-Bird CTDs recorded internally. They were lowered on a hydrowire logging data at 2 samples per second during the cast. The data were transferred to the T5200 computer by serial cable after the cast was completed.

The Falmouth Scientific Instruments (FSI) CTD was on loan to us for evaluation. Due to time constraints we were only able to perform one cast (cast #18) with this CTD; data from that cast have not been validated and are not included in this report.

2.2.2 Field Sampling

All CTD casts were taken from the port side of the ship's foredeck. The CTD (with or without rosette) was positioned over the side and lowered using a hydraulic winch and A-frame.

Air temperatures varied from about 5 °C to -10 °C. To avoid exposing the CTDs to freezing temperatures for extended periods, we stored them in the ship's forecastle until just before the cast. The rosette, however, was left out on deck all day sometimes resulting in the tripping mechanism freezing. When this occurred, we would thaw it using warm water. Near the end of the cruise we stored the rosette in a heated container at night so that it would not be frozen in the morning.

2.2.3 Instrument Problems

Noise Spikes The main problem encountered with the CTDs was noise spikes corrupting the data from the two Guildline probes. For some of the casts, the number of bad records was so large that the data could not be used.

The noise spikes are attributed to three problems:

1. *Bad sea-cable connector on Guildline S/N 53501.* The first cast done with 53501 (cast #3, Sept. 19) was plagued by terrible noise spikes. On inspection we found a break in the sea-cable bulkhead connector ground line. We suspect that the ground was being maintained by

conduction from the cable armour, via the mechanical connectors and shackles, to the CTD case. This allowed the CTD to remain powered but severely disrupted data communications. We replaced the connector and did not see such severe noise spikes from 53501 after that.

2. *RF Interference.* Both Guildline CTDs suffered from sporadic bursts of noise spikes. We were able to determine a correlation between these bursts and the ship's radio transmissions. The shielded deck-cable running from the winch to the CTD deck units, grounded at the deck unit end, did not prevent interference. To solve the problem, we requested the ship not to transmit radio messages during the casts (from cast #12 on).

3. *Bad transmissometer connector.* In cast #1 we observed very spiky transmissometer data. We determined the problem to be a bad connection in the transmissometer bulkhead connector. We replaced the pigtail connector but as we did not have a spare bulkhead connector, this problem persisted throughout the cruise. We were able to minimize the spiking by strapping the pigtail to a rigid post to limit its motion while moving through the water. Since we had only one transmissometer it was used both with the Guildline CTD S/N CTD4 and the Sea-Bird CTDs.

Conductivity cell drift Casts #13 and #14 taken with the Guildline CTD S/N CTD4 showed bad conductivity readings below 150 m and 300 m respectively. The problem was solved by cleaning and regreasing the EO connector for the conductivity cell. The data from casts #13 and #14 are not included in this report.

2.2.4 Data Processing

Steps performed in the processing of each CTD cast were as follows:

1. The raw values for pressure, temperature and conductivity were converted to engineering units using calibration coefficients determined in pre-trip laboratory calibrations.

2. The casts were extensively hand-edited to remove noise spikes from the sources described in the previous section. At this stage it was determined that casts 1, 3, and 4 were too spiky to be worth using especially since several other casts for the same station were usable.

3. Each cast was processed to compensate for the differences in the time responses of the temperature sensor and the conductivity cell for each particular CTD. For the Guildline CTDs this was done by digitally convoluting the temperature data with the conductivity cell's time response and the conductivity data with the temperature probe's time response. For the Sea-Bird CTDs this was done by advancing the temperature data by 2 records (1 second) and the conductivity by 0.5 records (0.25 seconds). These values were determined experimentally by comparing up and down casts and by minimizing spikes in the computed salinity.

4. Salinity was calculated from temperature and conductivity using the UNESCO algorithms [*Fofonoff and Millard*; 1983].

5. All casts were processed to remove swells and the up-casts.

6. Due to instrument problems occurring during many of the casts, we decided to do further processing only for the following casts - 8, 15, 17, 21, 22. For cast #17, only the transmissometer and fluorometer data are reported.

7. The pressure, temperature, salinity, transmissivity, and fluorometry data for each cast were decimated into one-metre bins using a simple averaging process.

8. Based on comparisons between the CTD and bottle salinities, (Table 18) offsets were added to the CTD salinities.

9. Based on the pre-cruise and post-cruise calibrations and the inter comparisons between CTDs, -0.004 C° was added to the temperatures in cast #15.

10. Derived oceanographic quantities were calculated from the pressure, temperature, and salinity data using the algorithms given in the UNESCO Report [*Fofonoff and Millard*, 1983]. The decimated data, and derived quantities, were used in producing the plots and tables reported in the Appendices.

2.2.5 Data Validation

Comparisons were made between the CTD casts and bottles taken at station A01. Cast #8 was made with the Guildline CTD S/N 53501, cast #15 was made with the Guildline CTD S/N CTD4 and cast #21 was made with the Sea-Bird CTD S/N 1031.

The CTD salinities for casts #8, #15 and #21 were compared to the bottle salinities collected at station A01. Table 18 shows the differences between CTD and bottle salinities for the three casts for depths below 300 metres.

The mean and standard deviations of the salinity differences below 400 metres are given in Table 17. These values were used to determine the salinity corrections applied to the data as outlined in the section on data processing.

Temperature validations were done by inter-comparing the CTD temperature data since only a few reversing thermometers were used on this cruise. We have compared the pre-cruise and post-cruise temperature calibrations, and the deep water temperatures with historical data.

Figure 14 shows the differences in temperature between casts 8 and 15 as a function of pressure. From this figure it is apparent that at pressures above 400 dBars the temperatures are too variable due to environmental gradients to be used for direct inter-comparison. From 400 dBars to 600 dBars the difference is almost zero or possibly slightly positive. From 700 dBars down the difference is consistently negative. We have chosen the deep water from 700 dBars down as the best region for the inter-comparison since temperature gradients are lowest there. The temperatures and their differences below 700 m for casts 8 and cast 15 are listed in Table 19.

The pre-cruise calibrations were compared with the post cruise calibrations for the two Guildline CTDs and the average difference between them is listed in Table 20.

From the inter-comparison between the two casts and the calibration results, we decided to subtract 0.004 C° from the cast 15 data (CTD4). This is valid assuming the 53501 calibration shift occurred after cast 8 and the CTD4 shift occurred before cast 15. The adjustment to the cast 15 data also brings cast 8 and cast 15 data into alignment below 700 dBars.

Figure 15 shows the differences in temperature between cast 8 (Guildline 53501) and cast 21 (Sea-Bird 1031). From this plot it appears that there is too much environmental variability in the water column to make a direct comparison between these two stations. A comparison of pre-cruise and post-cruise calibrations, however, shows no significant shift in temperature response for the instrument. Therefore, no temperature adjustment was made to the Sea-Bird temperature data.

Historical measurements in the Canada Basin have shown that the temperatures below 1500 m are very stable with time and can therefore be used to validate data. Table 21 lists the potential temperature at 2000 and 3000 dBars from a number of cruises both before and after this cruise.

The historical data suggest that the temperatures for cast 8 are as much as 0.015 °C low. Because the calibrations do not support such a shift, the data have not been adjusted to agree with the historical values.

Table 22 lists all of the CTD casts taken during the field trip and the stations at which they were taken. The table also lists which casts provided the data reported here. Table 23 lists the station locations and cast start times. The break in consecutive cast numbers is due to the fact that many physical casts were broken up into multiple cast files because of instrument problems and other operational reasons.

2.3 Chemistry

2.3.1 Field Sampling for Spring Work (Missions #9109 and #9207

Sampling equipment and personnel were flown by fixed wing aircraft (Twin Otter) or helicopter (Bell 206L Long Ranger) or travelled by snowmobile with Inuit guides from PCSP in Tuktoyaktuk to the selected site. Sampling equipment included a hand winch, 1.7 L and 5 L Niskin sampling bottles as well as a submersible pump system. The pumping system consisted of a 316 stainless steel magnetically coupled pump with Ryton gears coupled to a submersible well pump motor (Franklin Electric Co., 3450 RPM). Water was pumped through a 1.4 cm o.d. hose (Aeroquip 2807-8) constructed of smooth bore extruded teflon TFE (2.0 cm i.d.) with a reinforced cover of one-braid, high tensile stainless steel wire. The pump diverted approximately 6 L/min, and the hose length (max depth) was 50 m. See Figures 3a and 3b and Tables 3 and 4 for water chemistry station locations and station information (mission #9207). See the Appendix for the 9207 water chemistry data. Chemical data for the water sampling for mission #9109 have been previously reported [*Macdonald et al.*, 1992].

On the ice, a 10 inch hole was augered and, when required by weather, a tent was placed over the hole and a Master Heater was used to provide heat and prevent freezing. Chemistry samples were drawn from 1.7 L Niskins following standard oceanographic procedures. One depth was sampled at a time and subsampling followed the order dissolved oxygen, salinity, nutrients and oxygen isotopes. CFCs and salinities were sampled from separate casts using 5 L Niskin bottles. When the pump was used, a dilute ethanol-water mixture was kept in the hose to prevent freezing during transport and storage. Therefore, the hose was flushed at depth for six minutes before collecting the first sample at a station, and for three minutes at each specific depth after that. An amber latex hose was attached to the exit to draw dissolved oxygen samples. Other samples were collected using standard procedures. Samples were stored in an insulated, temperature controlled box to protect them from freezing until they were shipped back to the laboratory at Tuktoyaktuk on the same day (1-6 hours) when aircraft were used, and the next day when snowmobile was used.

Ice cores were taken using a Sipre ice corer. The cores were collected in sections ranging from 15 - 90 cm long, depending on the tendency of the ice to fracture. As each section of the core was removed, the depth of the hole was recorded and reconciled with the length of the core section and the number of fractures was recorded. The section was then placed on a cutting cradle and cut with a saw into 10 cm samples which were placed into wide mouthed, acid cleaned plastic jars and transported in dark plastic bags back to the laboratory in Tuktoyaktuk for melting and subsampling. Ice core chemistry data from missions #9109 and #9207 are reported in the Appendix. See Figures 1 and 4 and Tables 1 and 5 for ice coring locations and station information.

Ice Core Thawing and Subsampling - Missions #9109 and #9207 The sectioned ice cores in wide-mouthed plastic jars were returned to the laboratory in Tuktoyaktuk for thawing and subsampling. Care was taken to store the samples in the dark during transport and thawing to

prevent growth of phytoplankton. The samples were allowed to thaw slowly over periods of 18 to 55 hours before subsampling for salinity, nutrients and oxygen isotopes using sampling containers as described in the other sections. Due to the small volumes of the samples, there were no duplicate samples taken.

2.4 Field Sampling for Summer, 1992 (Mission #9216)

The CTD and bottle sampling were done from the port side of the ship's foredeck using a hydraulic winch and an A-frame. The bottles were brought inside a heated container on the foredeck for subsampling.

Water samples were taken by a variety of different sampling gear summarized in Table 24. Samples were transfered to appropriate storage locations (e.g., fridge, freezer, etc.) on the USCGS *Polar Star* for shipment south at the end of the cruise and then transported by truck from Seatle to IOS.

Table 7 contains station and sampling information. The latitude and longitude reported in the tables is the position taken at the time of the start of each cast with the following exceptions: the positions for casts TSS1, TSS2 and TSS3 are all given as the position recorded at the messenger time for cast TSS3 (no other positions were recorded and the three casts were taken in a short period of time). There were no bottom depths noted in the field notes for casts 3, 4, 5, F2, F3, F4, F6, TSS1, TSS2 and TSS3. For the purposes of the data tables, the depths are assigned to the casts as follows: all casts taken on September 20 and 21/92 have a depth of 3375 m entered as bottom depth (casts 1, 2, and F1 reported this depth and it is reasonable to assume that casts 3, 4, 5 and F2 are the same); all casts taken on September 22 and 23/92 have a depth of 3300 m (this depth was recorded for cast F5 and assigned to casts F3, F4, F6, TSS1, TSS2, and TSS3).

2.4.1 Laboratory Methods

Errors in the various methods reported here are expressed as precision and accuracy as summarized in Table 25. Pooled variance, s_p, is calculated as

$$s_p = \sqrt{\frac{\nu_1 s_1^2 + \cdots + \nu_i s_i^2}{\nu_1 + \cdots + \nu_i}}$$

where $\nu_i = n_i - 1$ degrees of freedom, and the n_i and s_i refer to the number of replicates and their standard deviation for the individual components used in the pooled standard deviation calculation.

Temperature For field mission #9207, oceanographic thermometers were not used due to the difficulty of manipulating them through an ice hole, and the rough treatment they would receive in the field. Temperatures at the bottle depths were obtained from the CTD records carried out at the same location. The shallowest CTD records are at 2 decibars and so it was not possible to get a temperature for the shallowest bottle depths. In the chemistry data tables, the CTD salinities and temperatures at the bottle depths are reported with the CTD cast numbers and the time of the cast. The CTD data more than 0.1 decibar different in depth from the bottle depth is marked with an * (this includes the tops of all the casts and some of the bottom depths as well) to indicate the depth difference.

For mission #9216, temperatures at bottle depths were taken from the CTD casts. For the samples R1 to R36, the pressure was recorded on a log just prior to tripping the bottles and this pressure was used to match to the CTD casts 8 and 15. For samples collected by hanging the sampling bottles on the hydrowire, the nominal depths were matched to the CTD records

(pressures converted to metres) of either cast 8 or 15, depending on which cast was closest in time to the time of the bottle cast. In this matching of bottle data to CTD data, there is no way to acount for wire angle. For the main chemistry casts, there was one rack of reversing thermometers per cast and this data is included in the data tables. The CTD data is consistently higher than the reversing thermometer data and the average difference is 0.06 degrees Centigrade for the 4 temperatures reported (one temperature was discarded). Difficulty using reversing thermometers in sub zero temperatures has been experienced in the past and more confidence is placed on the CTD temperatures.

Salinity Salinity samples were drawn into 200 mL glass salinity bottles, after 3 rinses, from 5 L Niskin bottles, 1.7 L Niskin bottles or from a submersible pump. The samples were then tightly capped. During the spring work, the samples were stored in an insulated, temperature-controlled box until delivered to the laboratory at Tuktoyaktuk where they were analyzed on a Guildline Autosal (Model 8410). Samples collected from the CCGS *Henry Larsen* in the fall were shipped back to IOS for analysis. Data are reported in practical salinity units (psu) [*Lewis and Perkin*, 1978]. During analysis, the instrument was standardized against Standard Sea Water of salinity 34.995 (K15 = 0.99986). The Standard Sea Water was obtained from Standard Seawater Service, Institute of Oceanography, Wormley, Godalming, Surrey, England.

For mission #9207, the overall precision of sampling and analysis was evaluated from a set of 9 duplicate (pairs collected from the same depth and bottle). The pooled standard deviation was $s_p = 0.043$; $\Sigma\nu = 8$. If the pairs at the top 3 depths at station MB92 are eliminated, then, $s_p = 0.002$; $\Sigma\nu = 5$. These precision estimates are for the water samples only as no duplicates were collected for the ice core samples. Also included in the data tables, are the CTD salinities at the bottle depths. See CTD description for a comparison of CTD and bottle salinities.

There were no duplicate salinities taken during mission #9216 but past data sets treated in the same way have pooled standard deviations ranging from 0.007 to 0.016. The data tables include CTD salinities at the bottle depths. Aggreement between the matched bottle and CTD salinities is good below 200 m but exibits more scatter above 200 m.

Dissolved Oxygen Dissolved oxygen samples were "pickled" immediately in the field, stored in the temperature controlled boxes and taken to the laboratory in Tuk (or on the ship) for determination by the Micro-Winkler technique [*Carpenter*, 1965].

Analysis were carried out within 24 hours of collection. Calibration of the thio-sulphate solution was performed daily with each titration set by using a Sagami primary standard KIO_3. The data is reported in units of mmol m^{-3} (μM). Precision of the method was monitored during calibration and with blind replicate samples from the Niskins or the pumping system.

For the spring work (mission #9207), the pooled standard deviation for all pairs was $s_p = 9.65$ mmol m^{-3}; $\Sigma\nu = 10$. It was noticed that it was very difficult to eliminate the bubbles during drawing both the CFCs and oxygen samples from station MB92 - 0 m. If this pair is not included, then, $s_p = 1.78$ mmol m^{-3}; $\Sigma\nu = 9$. Three of the pairs have differences that are significantly larger than the others (MB92-0 m, MB92-2 m, E670-5 m); if these 3 pairs are eliminated, then $s_p = 0.54$ mmol m^{-3}: $\Sigma\nu = 6$. The differences in precision between the deeper and the shallower samples is expected to be due to larger environmental gradients near the surface and the difficulty obtaining bubble free samples at the surface.

For the fall field work (mission #9216), the pooled standard deviation was as follows for 9 pairs: $s_p = 1.137$ mmol m^{-3}, $\Sigma\nu = 8$.

Nutrients Water samples for nutrient determination were collected into glass and polystyrene test tubes (2 glass and 2 polystyrene tubes per sample) after three rinses. Nutrients (silicate, nitrate plus nitrite and orthophosphate) were determined in the laboratory at Tuktoyaktuk using Technicon Autoanalyzer II components. Reactive silicate and nitrate plus nitrite were determined according to Technicon Industrial Methods No. 186-72 W and 158-71 W respectively, and soluble orthophosphate was determined using a modified Technicon method [*Brynjolfson*, 1973]. Sagami standards were used to calibrate secondary standards which were prepared daily in 30.5 g/L NaCl solutions (32 psu). The values reported for the 9207 water samples and all the ice core samples have been corrected for salinity effects as follows:

Nitrate (when salinity, S, is less than 15 psu):

$$C_{correct} = C \times ((S \times 0.00126) + 0.9795)$$

Silicate:

$$C_{correct} = C \times ((S \times 0.00152) + 0.9497)$$

Phosphate (when standards are prepared in 32 psu NaCl):

$$C_{correct} = C \times ((S \times -0.00047) + 1.0131) + ((S \times -0.00469) + 0.1641)$$

Phosphate (when standards are prepared in DMQ):

$$C_{correct} = C \times ((S \times -0.00047) + 1.0131)/1.0131 + (S \times -0.00469)$$

For mission #9207, most of the water samples were analyzed in duplicate and the average is reported. The precision of the determinations, based on these duplicates, was found to be: silicate, $s_p = 0.27$ mmol m^{-3}, $\Sigma\nu = 74$; nitrate, $s_p = 0.12$ mmol m^{-3}, $\Sigma\nu = 74$; phosphate, $s_p = 0.04$ mmol m^{-3}, $\Sigma\nu = 74$.

After thawing, ice core sections were subsampled for nutrients and run as above. Due to the low salinities for the melted ice, the effect of salt was determined and the precision can be assumed to be the same as for the 9207 water samples. For the ice cores from field trip 9109, the silicate data may be under reported by 23 % depending on the thaw time. There were 23 samples reanalyzed days later and the silicate levels ranged from -5 % to 98 % greater than the initial value.

For mission #9216, the precision of the determinations based on duplicates, was found to be: silicate, $s_p = 0.13$ mmol m^{-3}, $\Sigma\nu = 45$; nitrate, $s_p = 0.07$ mmol m^{-3}, $\Sigma\nu = 44$; phosphate, $s_p = 0.01$ mmol m^{-3}, $\Sigma\nu = 45$.

Chlorophyll a Chlorophyll samples were taken (mission #9216) down to a depth of 180 m and were first subsampled into an acid-cleaned 10 L carboy which was further subsampled into 1 L polybottles. Onboard ship, 2 L samples were filtered onto 24 mm GF/F filters using vacuum filtration. The filtration castles were rinsed down with 3.2% NaCl and about one mL of a 1% suspension of $MgCO_3$ was squirted onto the filter just before the filtration was complete. The filters were then folded in half and wrapped in a Whatman filter, labelled, placed in a dark bottle containing dry silica gel and placed in the freezer. During the filtration and storage, the samples were kept dark as much as possible. At IOS, chlorophyll a and phaeo-pigment levels were determined fluorometrically with a Turner Design fluorometer (model 10-AU-005) [*Strickland and Parsons*, 1972]. No deep samples were taken for chlorophyll. Chlorophyll a and phaeo-pigment values were corrected for filter blanks. Five filters were treated in exactly the same way as samples and the average filter blank was subtracted from each sample as an equivalent weight (μg) of chlorophyll or phaeo-pigment per filter.

Filter blanks:
$0.00027 \pm 0.00010 \mu g$ Chla per filter, $n = 5$
$0.00309 \pm 0.00131 \mu g$ Phaeo per filter, $n = 5$

There were duplicate samples filtered and analyzed at 0, 10 and 20 m. The precision, based on these three duplicates was for chlorophyll a, $s_p = 0.011$ mg m^{-3}; and for phaeo-pigment, $s_p = 0.0059$ mg m^{-3}.

Total Suspended Solids The TSS samples were first subsampled from the 30 L Niskin bottles into an acid cleaned 10 L carboy which was further subsampled into clean 2 L polybottles after gentle swirling and inversion of the larger container to ensure that particles had not settled out. Onboard ship, the samples of 2 to 6.5 L were filtered onto 47 mm, 0.4 μm polycarbonate nuclepore filters, rinsed 3 times with a 3% ammonium carbonate solution, placed on a Petri-slide and stored in a -20 °C freezer. The nuclepore filters were acid cleaned, DMQ rinsed, dried at 50 °C and preweighed on a Mettler M-3 balance to ±0.001 mg. The samples were transported frozen back to IOS. At IOS, the samples were dried overnight (12 hours) at 50 °C and weighed on a Mettler M3 balance. Results are reported in mg/m^3.

Particulate Organic Carbon and Nitrogen Samples of 4 to 10 L were collected in 4.5 L glass jugs from 30 L Niskin bottles in the top 180 m at station A01. The samples were filtered onto 47 mm, 0.8 μm silver membrane filters (precombusted at 300 °C for half an hour). After filtration, the filters were placed in clean aluminum foil pouches and stored in a -20 °C freezer until analysis. The samples were carried back to IOS in coolers lined with freezer paks. It was noticed that the aluminum foil became corroded and in some cases, the corrosion stuck to the filter. Inorganic carbon was removed by exposing the samples to concentrated HCl fumes in a covered glass dessicator for 12 hours. The samples were then placed in a 50 °C oven for 12 hours. Several of the samples had some yellow and green discoloration on them after the acid treatment. For sample A01 (150 m), part of the edge was removed before analysis due to green discoloration. The filters were then analyzed using a CE440 Elemental Analyzer standardized frequently using acetanalide. Three silver filters were run as blanks and the average was used to correct the samples (18.00 μgC $\pm$ 1.94, 0.95 μgN $\pm$0.23 for $n = 3$). Some of the samples had fibers and specks of blue paint on them. They were examined microscopically and numbers and kinds of fibers were noted but not removed as removal would have compromised the sample.

The samples were drawn from the 30 liter Niskins immediately and it is not expected that there will be problems due to settling particles and inhomogeneity. Analytical precision was determined by analyzing replicates of 3 sediments which were weighed onto filters, acidified and analyzed on the CE-440 Elemental Analyzer. One of the sediments was BCSS-1 (NRC certified reference sediment) and the other two were control sediments prepared from Beaufort Sea sediment trap collections in 1987. The pooled standard deviation determined by these analysis was 0.18 % carbon and 0.07 % nitrogen (degrees of freedom = 13).

Zooplankton Sampling - Mission #9207 Zooplankton samples were collected for identification purposes by vertical plankton hauls using two sizes of nets. A 0.5 m diameter net with a 240 μ mesh size was modified to fold in half in order to fit through a 10 inch hole. Also a smaller net (0.0113 m^2) and 150 μ mesh size was used. Samples were preserved in formalin. Some difficulty was experienced in excluding frazil ice from the samples.

Identification was done by contract and the results are reported in the Appendix. Comments on the findings are as follows:

Volume is estimated by taking the area of the mouth of each net, multiplying by the depth of the haul and multiplying the results by an efficiency quotient of 0.85. All samples were taken through a 10 inch hole bored in the ice. Ice thickness ranged from 1m at Station E100 to 2m at E800, E900 and Mason Bay.

Diaptomus sicilis is a common copepod found across Canada and United States in fresh and saline lakes. The species found in the Husky Lakes shows some minor variation from descriptions given by *Ward and Whipple* [1963] and *Pennack* [1978]. This is probably an artifact of isolated breeding populations. *Ward and Whipple* consider *D. tenuicaudatus* and *D. natriophilus* to be synonymous.

Limnocalanus macrurus is smaller than *L. grimaldi*, and considered to be a relict marine species (*Pennack*, 1978), or as *Torke* [1974] states: a glacial relict. *L. grimaldi* is described by *Brodskii* [1950], as a neritic species of freshened sea waters. Based on the scant descriptions and on dissections, there is not much difference between the two species except for size and minor variation on armature of the urosome. *Grainger* [1965] identifies *L. grimaldi* as the species captured in the Beaufort Sea area and in 1980, as *L. macrurus* from the Husky Lakes. The question is, is he seeing two different species or one species he is calling by two names. Unfortunately, *Grainger* does not give the taxonomist's name who identified this animal in both his papers.

Drepanopus bungei is a neritic species of freshened waters of salinity ranging from 10 to 31 parts per thousand [*Brodskii*, 1950]. The *Pseudocalanus* species complex includes *P. minutus* and *P. major* with *P. acuspes*. The majority were *p. minutus*.

All *Diaptomus* females were carrying eggs. *Limnocalanus* and *Drepanopus* had egg development visible through the carapace. *Daphnia* females were carrying 3 to 5 young under the carapace.

3 FIGURES

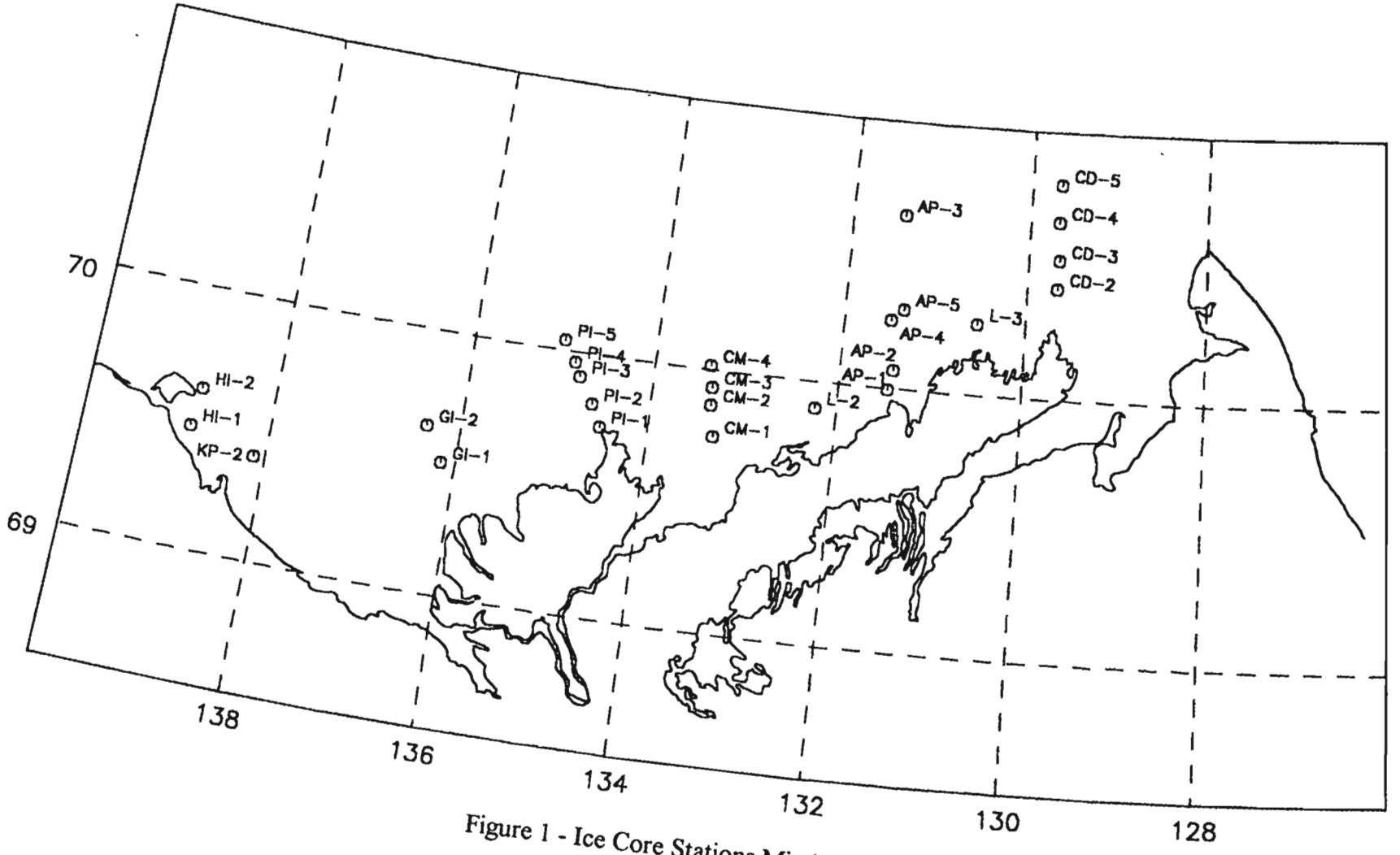


Figure 1 - Ice Core Stations Mission 9109

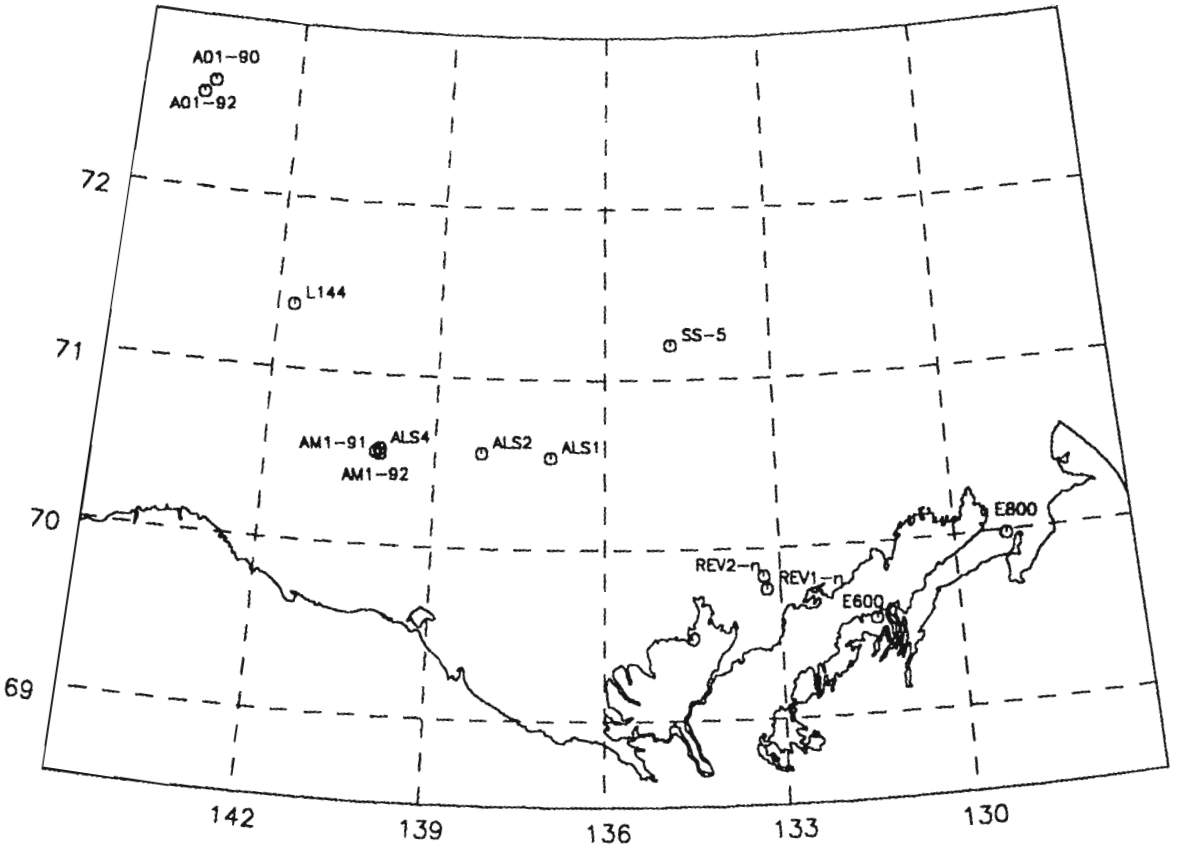


Figure 2 - Mooring Locations Missions 9207 and 9216

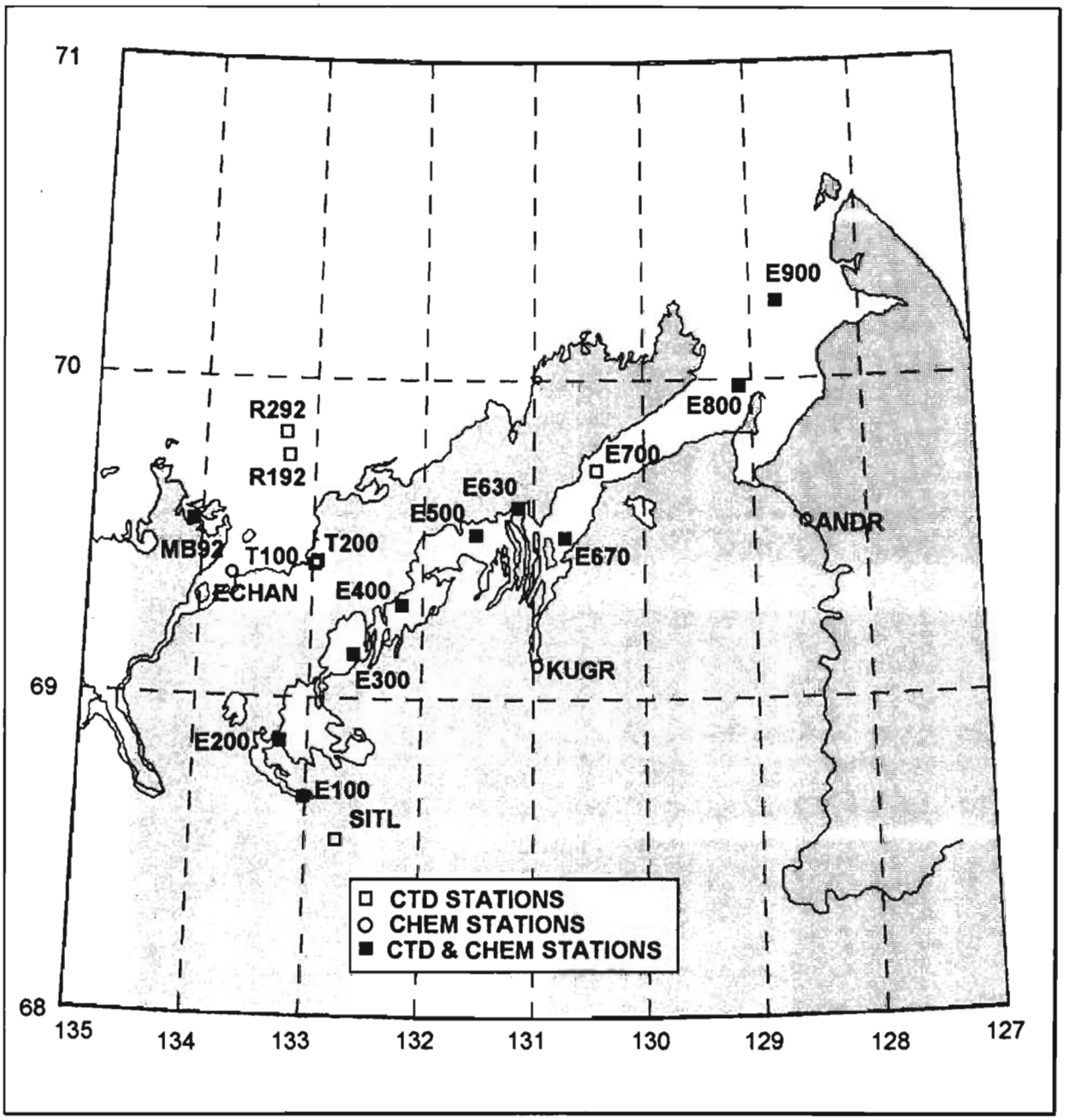


Figure 3a - Water Chemistry and CTD Stations Mission 9207

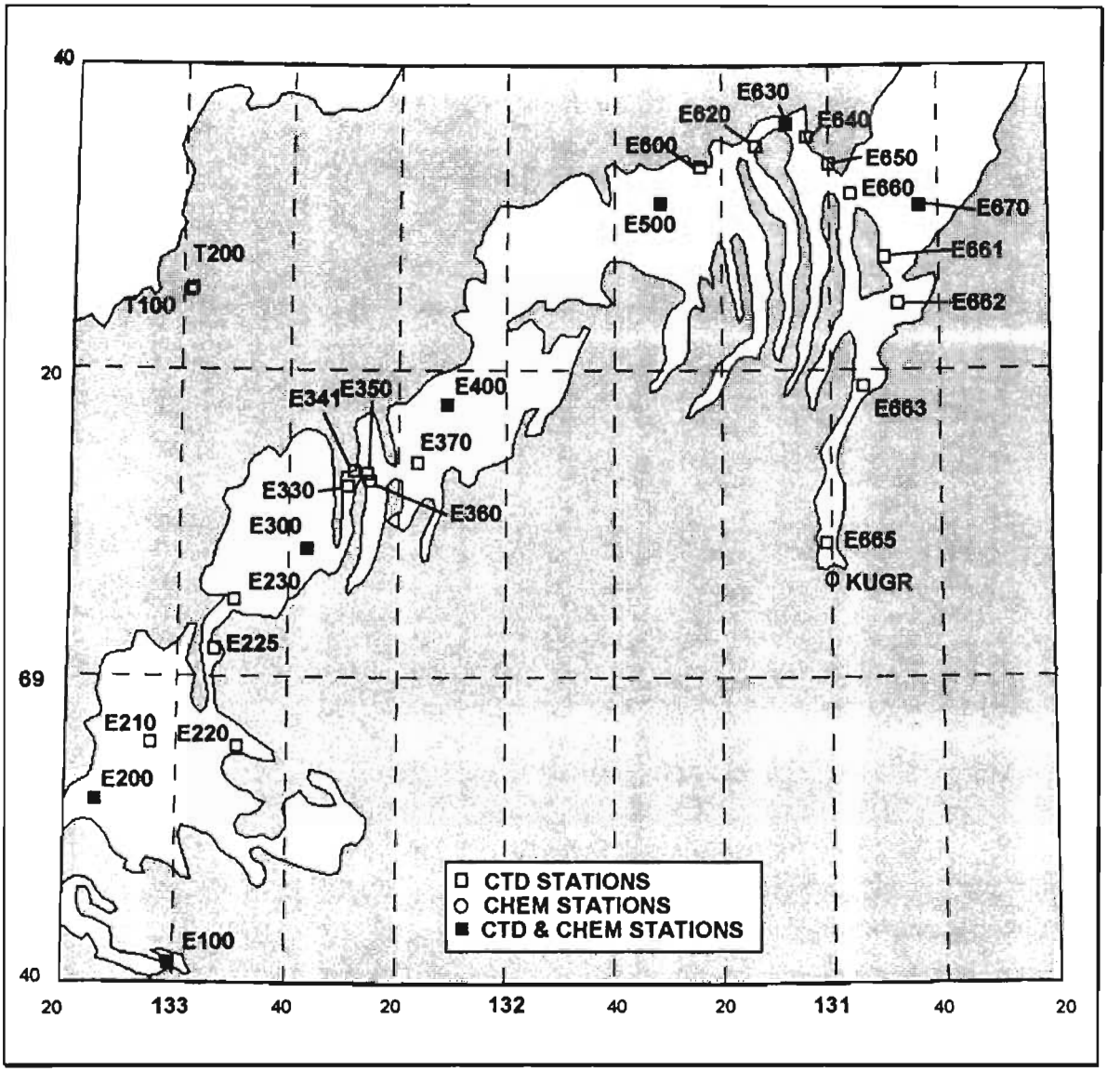


Figure 3b - Water Chemistry and CTD Stations Mission 9207

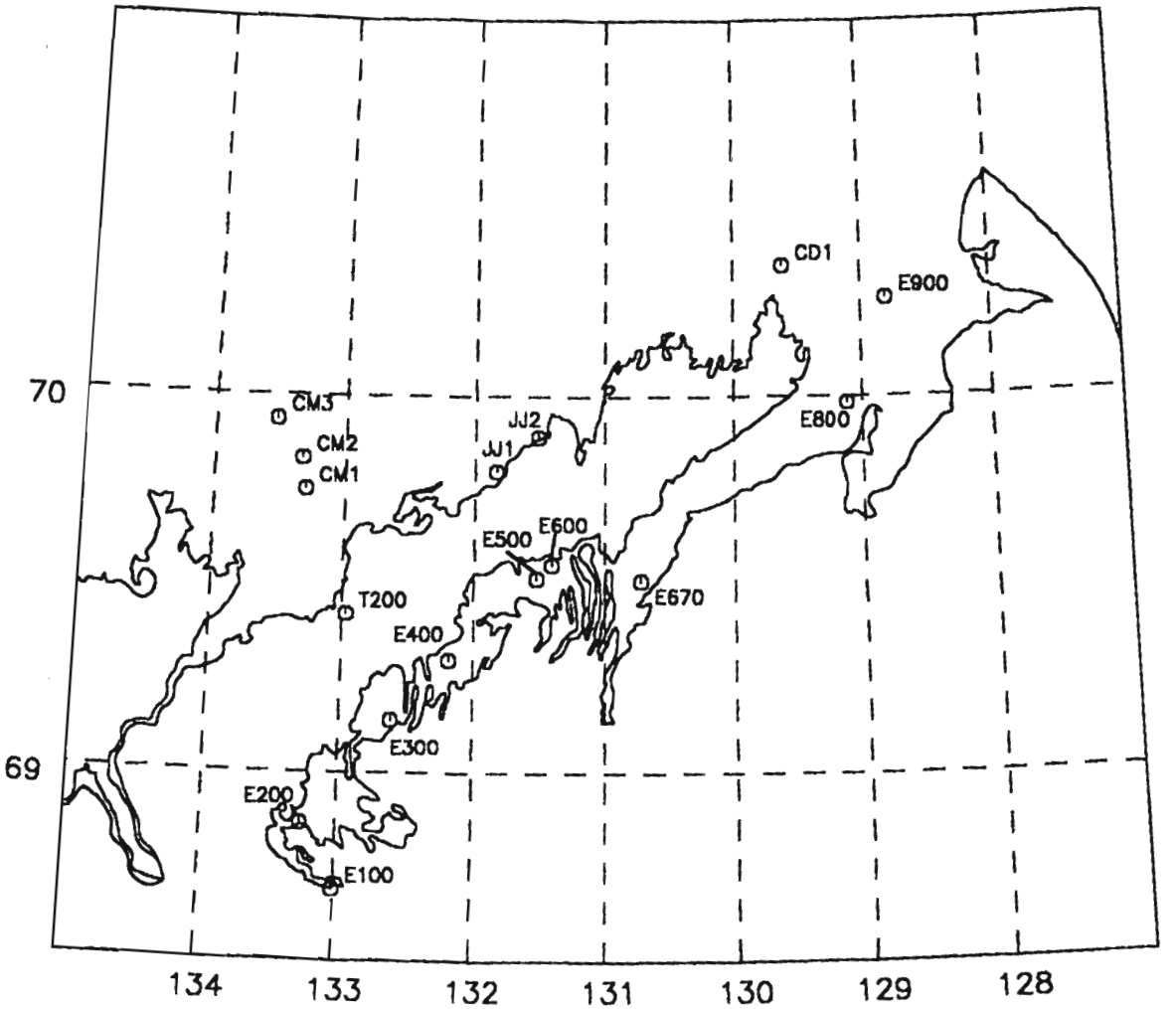


Figure 4 - Ice Core Stations Mission 9207

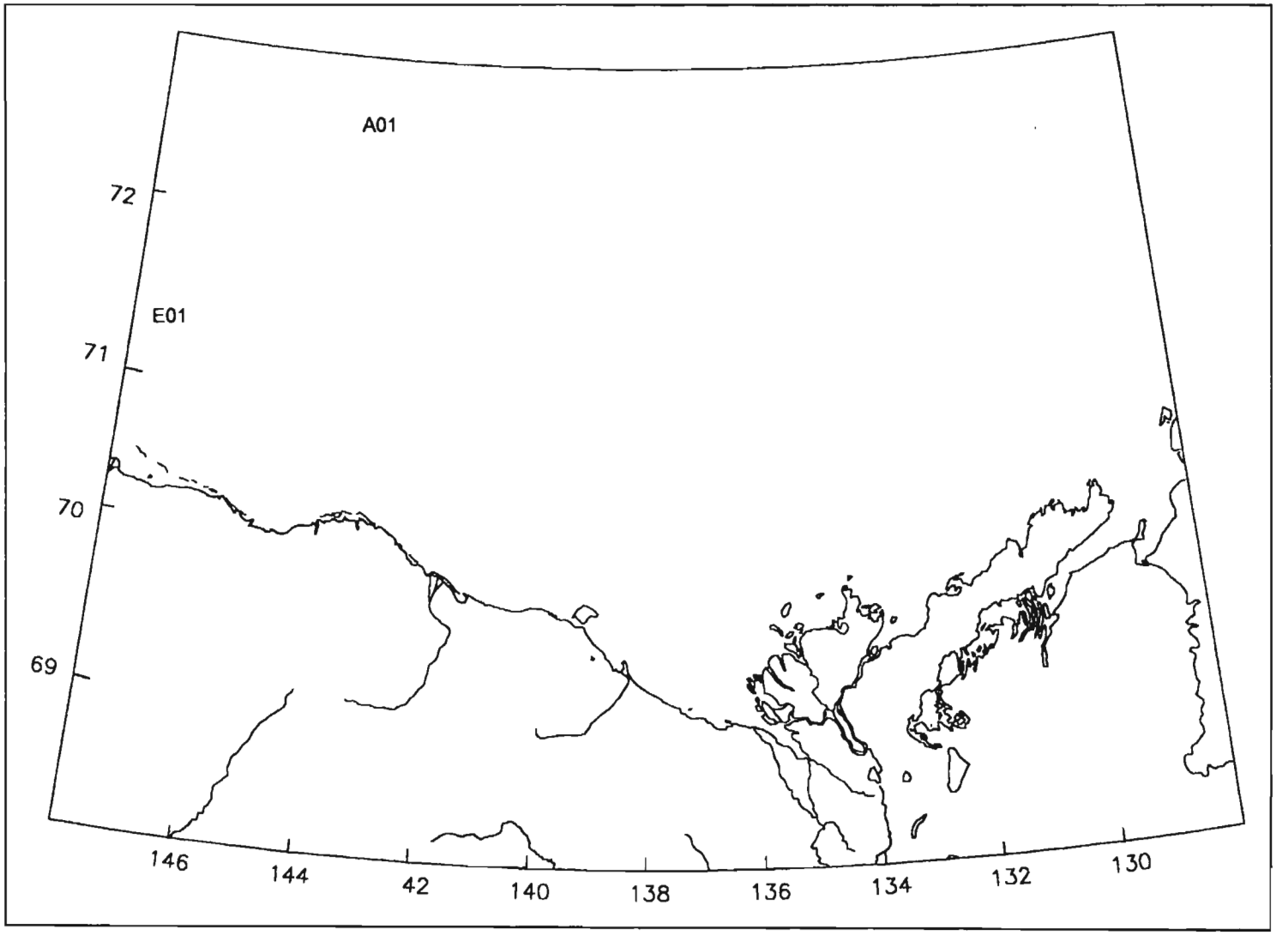


Figure 5 - Station Locations Mission 9216

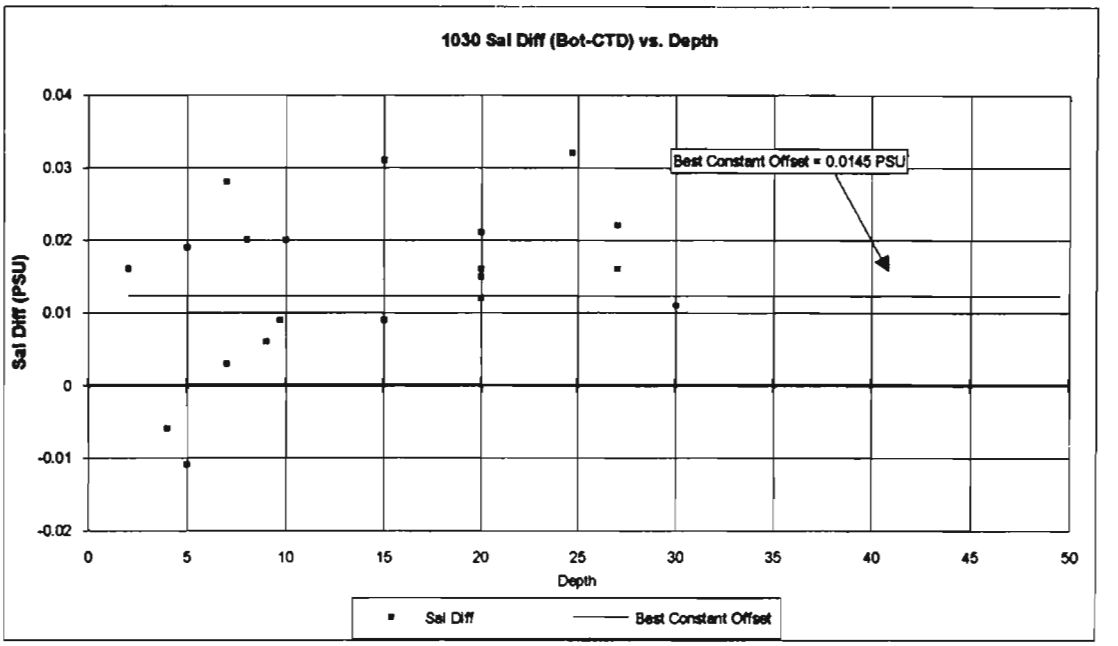


Figure 6 - CTD 1030 Bottle-CTD Salinity Residuals (9207)

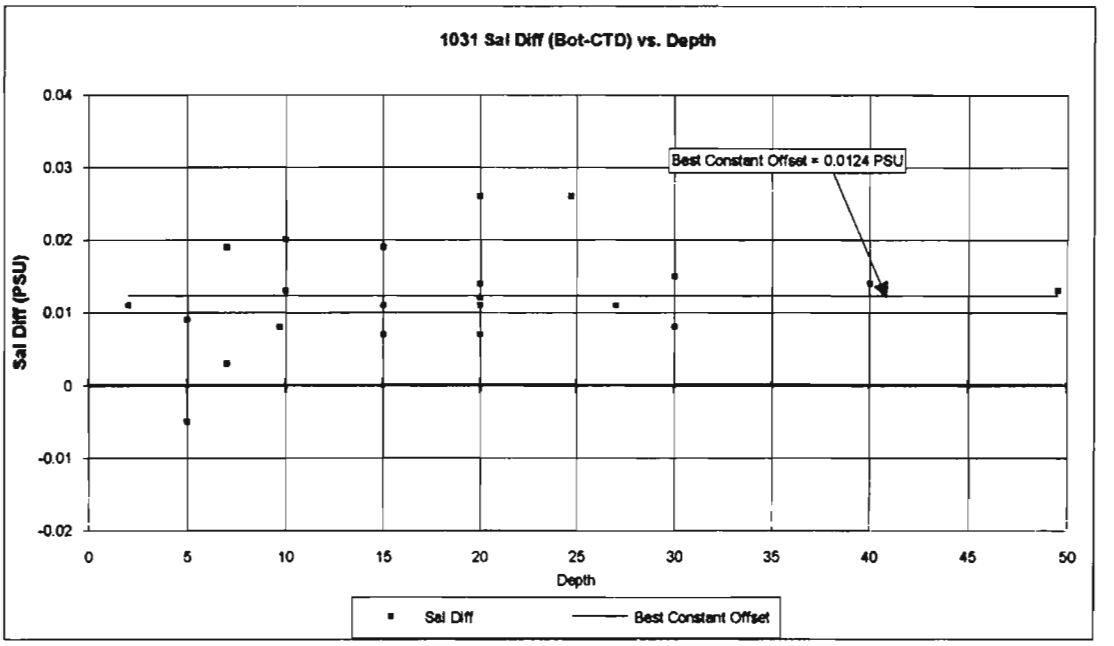


Figure 7 - CTD 1030 Bottle-CTD Salinity Residuals (9207)

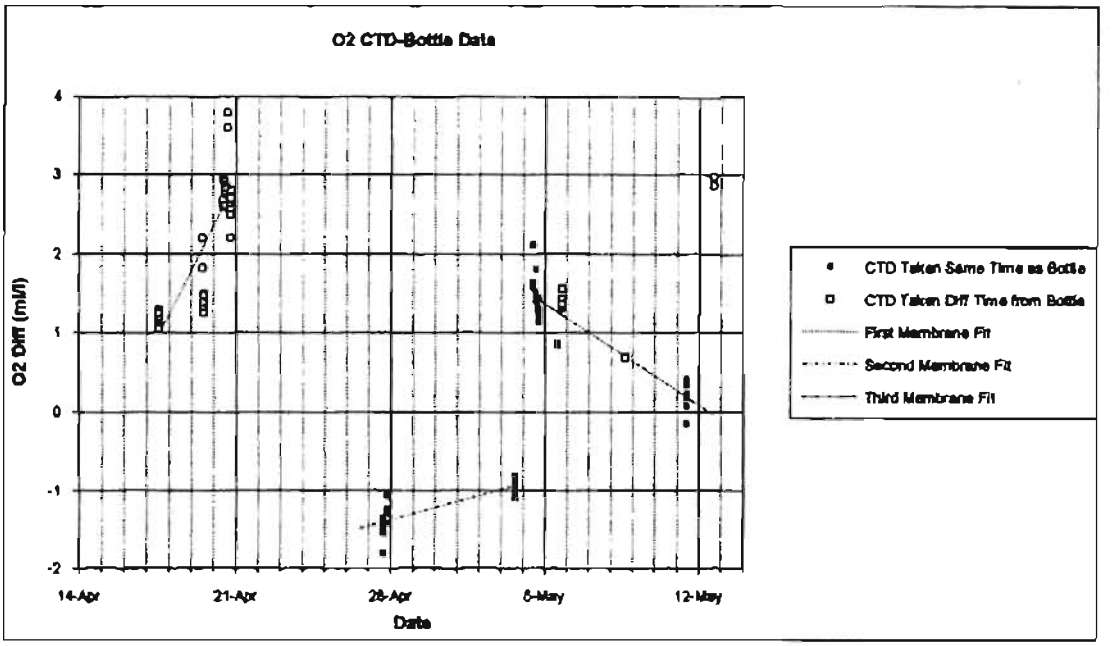


Figure 8 - Bottle-CTD Dissolved Oxygen Residuals (9207)

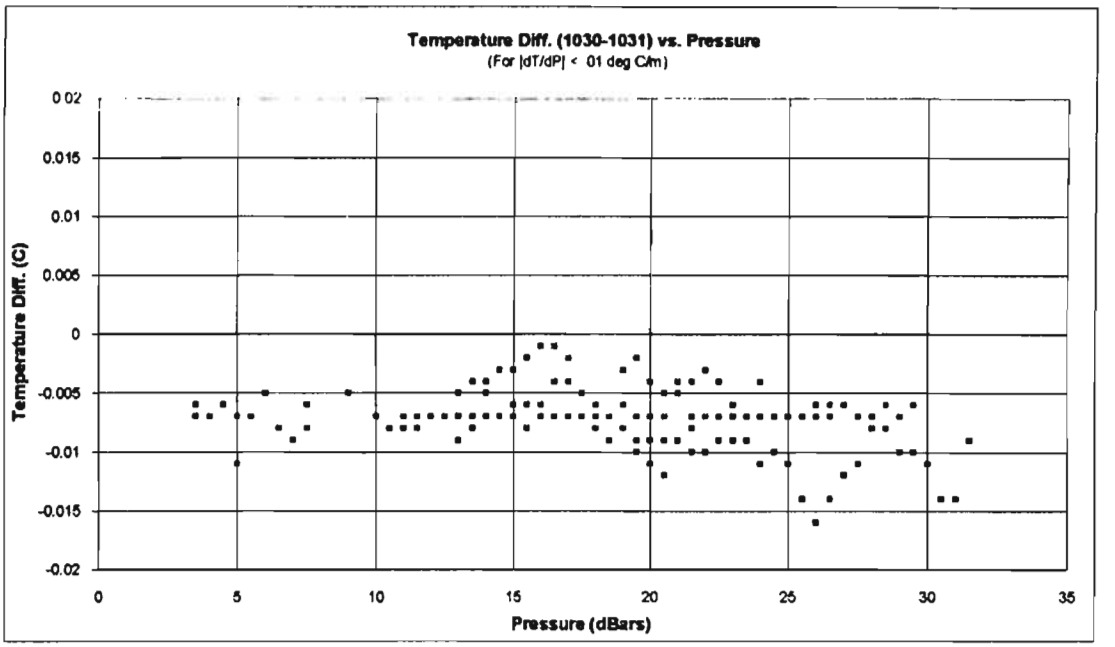


Figure 9 - Temperature Differences (1030-1031) vs. Pressure (9207)

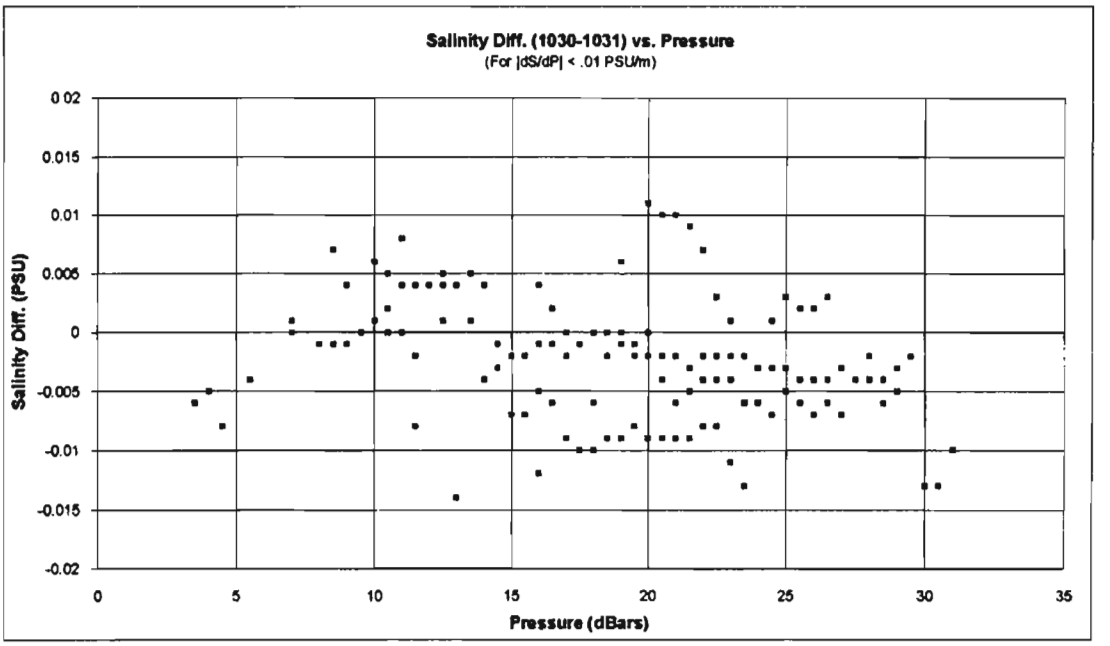


Figure 10 - Temperature Differences (1030-1031) vs. Pressure (9207)

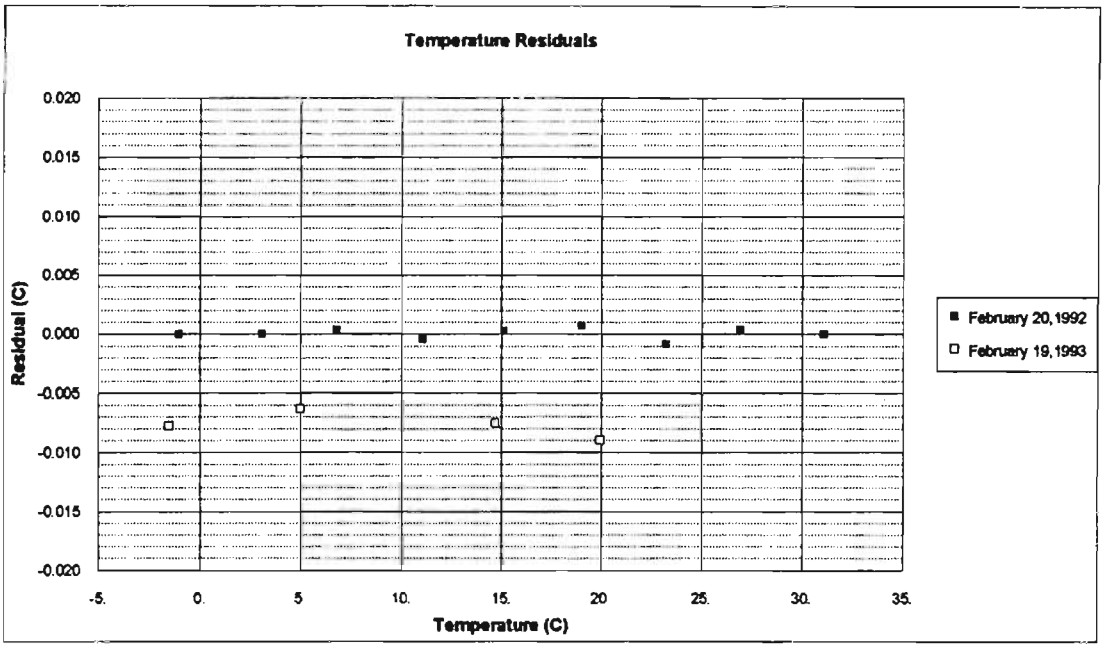


Figure 11 - 1030 Bath Calibration Temperature Residuals (CTD-Bath) for Pre-Trip and Post-Trip Calibrations (9207)

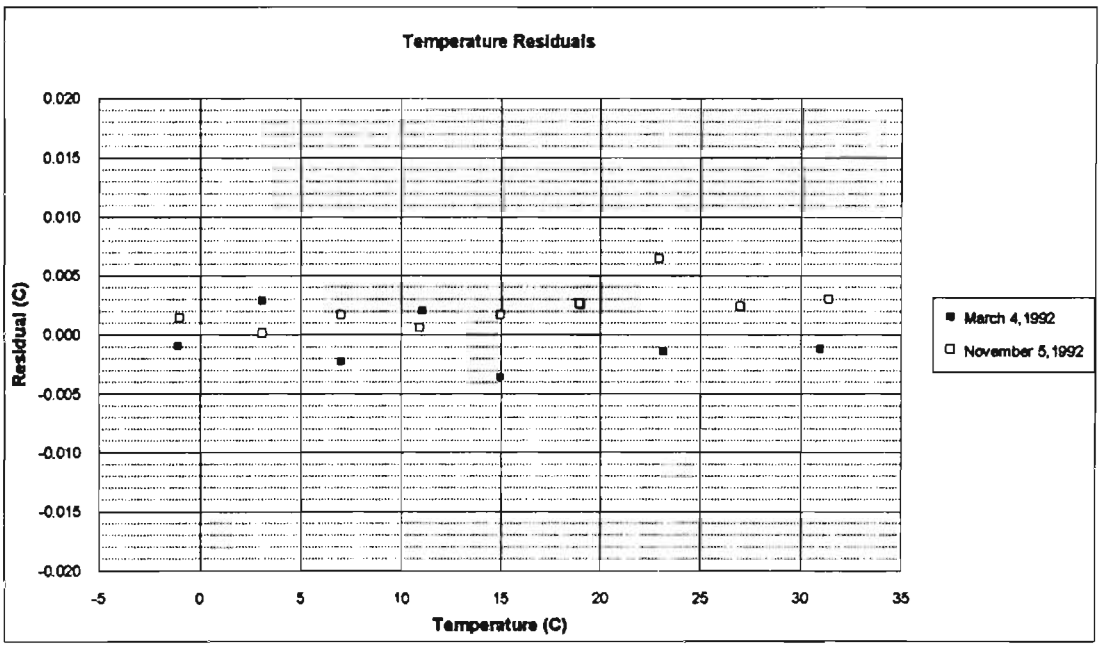


Figure 12 - 1031 Bath Calibration Temperature Residuals (CTD-Bath) for Pre-Trip and Post-Trip Calibrations

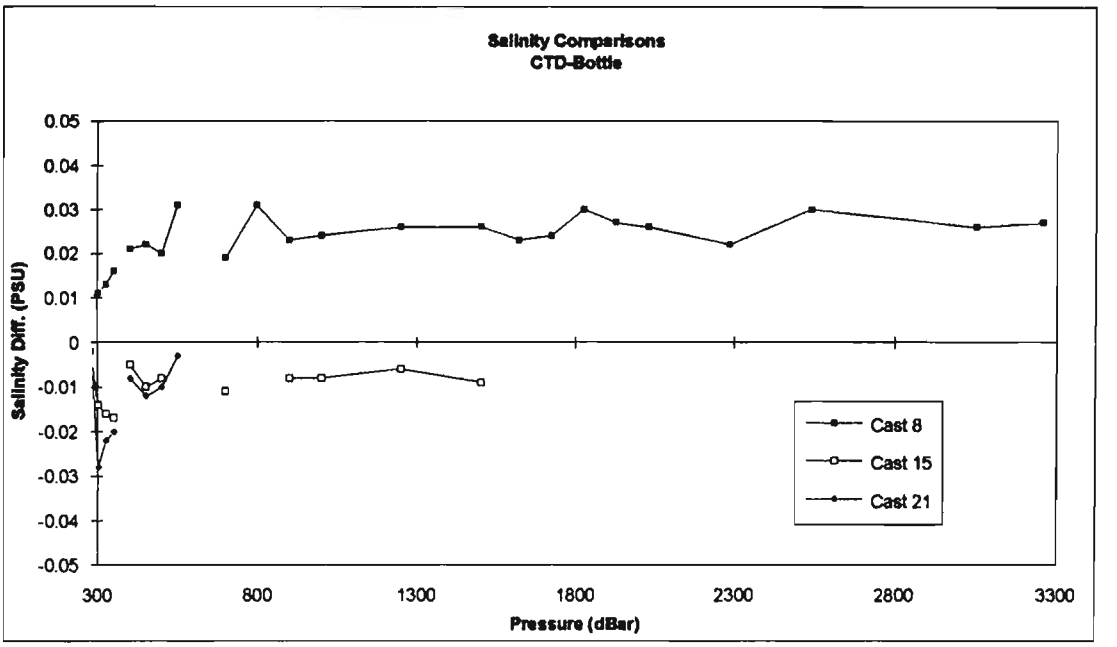


Figure 13 - CTD vs. Bottle Salinities (9216)

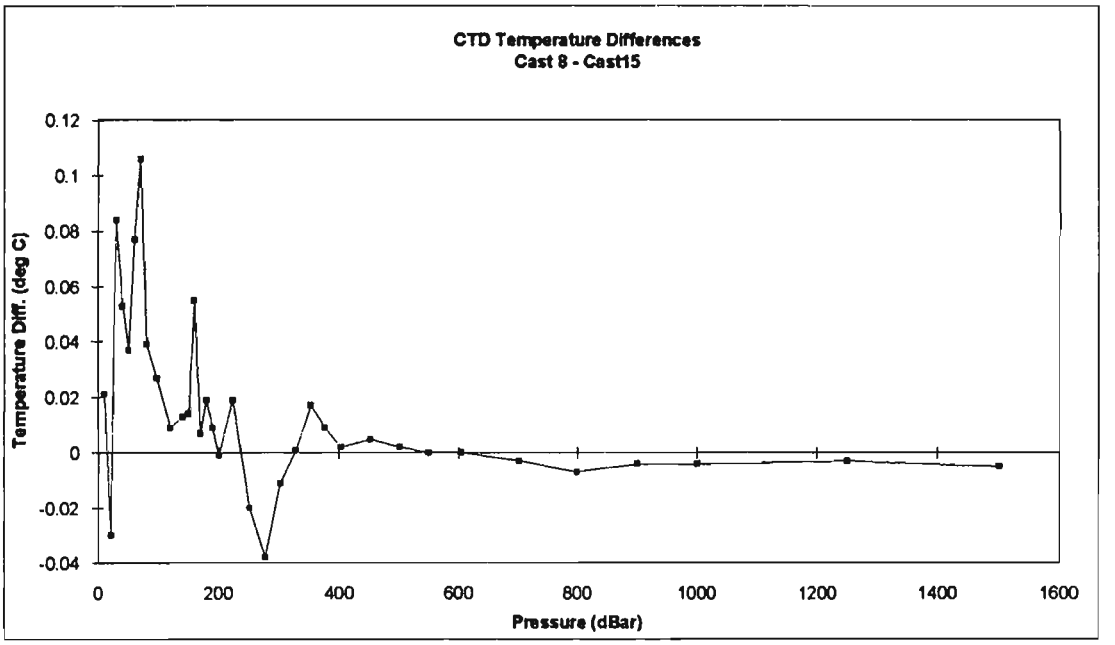


Figure 14 - Cast#8 - Cast#15 Temperature Differences (9216)

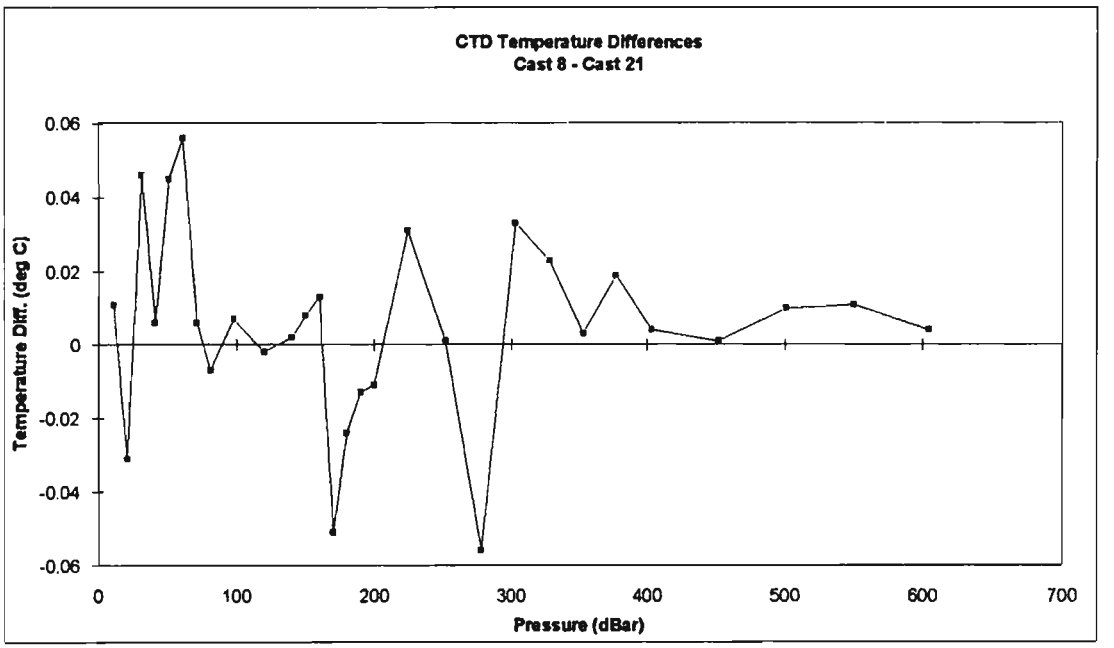


Figure 15 - CAST#8 - CAST#21 Temperature Differences (9216)

4 TABLES

ICE CORE STATION INFORMATION : CRUISE 9109

STATION	DATE DDMMYY	TIME ARRIVE HHMM	TIME DEPART HHMM	LATITUDE	LONGITUDE	HOLE DEPTH (m)	FREE-BOARD (m)	SNOW DEPTH (cm)
AP-1	1/05/91	1100	1200	69 59.74 N	131 27.97 W	1.73	0.10	0-50
AP-2	1/05/91	1500	1620	70 4.21 N	131 25.20 W	1.68	0.10	2
AP-3	1/05/91	1340	1450	70 39.10 N	131 25.16 W	1.95	0.20	0
AP-4	1/05/91	1217	1325	70 15.44 N	131 29.24 W	1.82	0.15	2
AP-5	1/05/91	1020	1200	70 18.05 N	131 21.29 W	1.53	0.15	2-4
CD-2	05/05/91	945	1045	70 25.01 N	129 39.98 W	1.82	-	3-13
CD-3	03/05/91	1425	1517	70 31.46 N	129 39.47 W	1.63	0.15	-
CD-4	03/05/91	1258	1413	70 39.95 N	129 40.83 W	2.02	0.18	4-13
CD-5	03/05/91	1138	1245	70 48.32 N	129 40.35 W	0.98	0.08	1-5
CM-1	05/05/91	1845	-	69 45.01 N	133 17.91 W	1.86	-	14-15
CM-2	05/05/91	1805	-	69 52.05 N	133 21.32 W	1.86	-	2-4
CM-3	05/05/91	1707	-	69 56.15 N	133 21.57 W	1.65	-	4-5
CM-4	05/05/91	1600	-	70 0.99 N	133 24.05 W	1.93	-	2-5
GI-1	11/05/91	1124	1218	69 30.24 N	136 9.49 W	1.95	0.13	-
GI-2	11/05/90	1744	1839	69 38.05 N	136 21.95 W	1.90	0.12	4
HI-1	11/05/91	1250	1339	69 28.00 N	138 50.58 W	1.87	0.05	-
HI-2	11/05/91	1348	1438	69 36.82 N	138 47.84 W	1.89	0.17	-
KP-2	11/05/91	1549	1637	69 23.94 N	138 7.47 W	1.87	0.13	-
L-2	05/05/91	1430	-	69 54.03 N	132 13.88 W	2.02	-	1-2
L-3	05/05/91	1100	1200	70 16.06 N	130 31.69 W	1.87	-	2-3
PI-1	26/04/91	1715	-	69 43.84 N	134 31.26 W	1.95	0.13	9
PI-2	26/04/91	1600	-	69 48.75 N	134 38.23 W	1.88	0.13	4
PI-3	26/04/91	1430	-	69 54.54 N	134 48.54 W	1.88	-	4-12
PI-4	26/04/91	1300	-	69 57.63 N	134 52.94 W	2.00	0.16	2
PI-5	26/04/91	1100	-	70 2.28 N	135 1.50 W	1.89	0.17	3

NOTE : Ice cores were thawed, subsampled, and analyzed for salinity, nutrients and oxygen isotopes.
Core sectioning was done in the field immediately after core was taken.
Transport to ice core stations was by Twin Otter or helicopter.

Table 1 - Ice Core Station Information Mission 9109.

NOGAP Moorings Deployed and Recovered in 1992

Station Name	Station Name	Latitude	Longitude	Bottom Depth (m)	Date Deployed	Date Recovered	Mooring Type
A01-90	A01-90	72 37.170 N	143 38.860 W	3300	Sept 4, 1990	Apr 22, 1992	Sub Surface
SS-5	SS-5	71 12.008 N	134 48.389 W	700	Apr 22, 1991	Sept 12 1992	Sub Surface
AM1-91	AM1-91	70 32.120 N	139 58.300 W	718	Sept 17, 1991	Sept 12, 1992	Sub Surface
L144	L144	71 22.119 N	141 42.434 W	2715	Sept 21, 1991	Sept 11, 1992	Sub Surface
ALS1	ALS1	70 32.524 N	136 57.328 W	918	Sept 24, 1991	Sept 10, 1992	Sub Surface
ALS2	ALS2	70 33.657 N	138 10.430 W	1160	Sept 25, 1991	Sept 10, 1992	Sub Surface
ALS4	ALS4	70 33.885 N	139 58.796 W	782	Sept 25, 1991	Sept 10, 1992	Sub Surface
E600	E600	69 33.330 N	131 23.960 W	33	Apr 14, 1992	May 11, 1992	Pole-RCM Bottom
E600	E600	69 33.330 N	131 23.960 W	33	Apr 14, 1992	May 11, 1992	Pole-RCM Surface
E600	E600	69 33.370 N	131 23.960 W	33	Apr 14, 1992	May 11, 1992	Pole-TG
E800	E800	69 58.980 N	129 07.317 W	30	Apr 14, 1992	May 12, 1992	Pole-RCM Bottom
E800	E800	69 58.980 N	129 07.317 W	30	Apr 14, 1992	May 12, 1992	Pole-RCM Mid
E800	E800	69 58.980 N	129 07.317 W	30	Apr 14, 1992	May 12, 1992	Pole-RCM Surface
E800	E800	69 58.980 N	129 07.317 W	30	Apr 14, 1992	May 12, 1992	Pole-TG
E800	E800	69 58.960 N	129 06.930 W	30	Apr 17, 1992	May 12, 1992	ADCP Bottom
REV2-new	REV2-new	69 50.000 N	133 16.700 W	15.5	Apr 17, 1992	May 7, 1992	Pole-RCM Bottom
REV2-new	REV2-new	69 50.000 N	133 16.700 W	15.5	Apr 17, 1992	May 7, 1992	Pole-RCM Surface
REV1-new	REV1-new	69 45.560 N	133 13.870 W	11	Apr 17, 1992	May 7, 1992	Pole-RCM Surface
AM1-92	AM1-92	70 32.851 N	140 02.727 W	710	Sept 14, 1992	Aug 26, 1993	Sub Surface
A01-92	A01-92	72 32.518 N	143 49.788 W	3400	Sept 20, 1992	Aug 29, 1993	Sub Surface

Table 2 - Moorings Deployed and Recovered in 1992 (9207 and 9216).

WATER CHEMISTRY STATION INFORMATION : CRUISE 9207

STATION	DATE MM/DD/YY	TIME ARRIVE HHMM	TIME DEPART HHMM	LATITUDE DEG	MIN	N	LONGITUDE DEG	MIN	W	ICE DEPTH (m)	FREE-BOARD (m)	WATER DEPTH (m)	AT HOLE SNOW DEPTH (cm)	AVG SNOW DEPTH (cm)
E100	05/04/92	1019	1253	68	41.280	N	133	0.700	W	1.80	0.08	10.90	43	35
E200	04/28/92	1056	1613	68	52.062	N	133	13.006	W	1.82	0.07	52.08	30	30
E300	04/26/92	1401	1645	69	8.435	N	132	36.753	W	1.80	0.08	17.30	20	-
E400	04/05/92	1320	1600	69	17.770	N	132	11.050	W	1.84	0.04	25.96	33	38
E500	05/03/92	1023	1945	69	39.114	N	131	31.266	W	1.64	0.06	84.36	-	-
E630	05/02/92	1035	1334	69	36.172	N	131	7.988	W	1.48	0.08	27.12	32	32
E670	05/05/92	0953	1440	69	30.750	N	130	43.300	W	1.80	0.10	9.70	27	-
E800	05/04/92	1638	1945	69	58.980	N	129	6.900	W	2.00	0.20	28.70	12	12.5
E900	04/27/92	1023	1945	70	15.020	N	128	45.560	W	1.98	0.15	11.22	10	-
MB92	05/11/92	0931	1330	69	33.200	N	134	4.570	W	1.95	0.08	30.55	18	20
MB92-F	05/11/92	0931	1330	69	33.200	N	134	4.570	W	1.95	0.08	30.55	18	20
E500-F	05/03/92	1023	1945	69	39.114	N	131	31.266	W	1.64	0.06	84.36	-	-
E301-F	05/11/92	1431	-	69	8.430	N	132	36.760	W	1.90	0.08	16.60	35	35
KUGR	05/09/92	1149	1238	69	6.860	N	130	57.950	W	1.50	0.05	2.50	30	30
ANDR	05/09/92	1306	1418	69	35.420	N	128	38.970	W	1.97	0.07	3.10	10	7
SITL	05/09/92	1551	1705	68	33.300	N	132	43.920	W	1.69	0.03	7.90	42	42
ECHAN	05/07/92	1416	1450	69	20.870	N	133	55.020	W	2.10	0.15	0.20	-	-

NOTES : Water sample from ECHAN was used for a silicate storage study.
Station names ending in -F refer to casts done for freons.
Water depth is measured from the bottom of the ice.

Table 3 - Water Chemistry Station Information Mission 9207.

WATER CHEMISTRY STATION SAMPLING INFORMATION : CRUISE 9207

STATION	CTD CAST#1	CTD CAST#2	SANPLES / ANALYSIS SAL	OXY	NUT	O18	FREON	VERT ZOOPL HAUL	SAMPLER
E100	44	45	x	x	x	x		x	1.7N
E200	35		x	x	x	x		x	1.7N
E300	28		x	x	x	x		x	1.7N
E400	46	47	x	x	x	x		x	1.7N
E500	43		x	x	x	x		x	PUMP
E630	40		x	x	x	x			1.7N
E670	50		x	x	x	x		x	1.7N
E800	48	49	x	x	x	x		x	1.7N
E900	30		x	x	x	x		x	PUMP
MB92	70	71	x	x	x	x		x	1.7N
MB92-F	70	71	x				x		1.7N
E500-F	43		x				x		5N
E301-F	72	73	x				x		5N
KUGR			x		x	x			1.7N
ANDR			x		x	x			1.7N
SITL	68	69	x		x	x			1.7N
ECHAN			x		x	x			1.7N

NOTES : Vertical plankton hauls were made at CTD stations E225, E600 and E662 as well.
Station names ending in -F refer to casts done for freons.
CTD casts indicated were used to assign temperatures to bottle depths.
SAMPLER : 1.7N (1.7 L Niskin bottles), 5N (5 L Niskin bottles , PUMP (submersible pump).
SAMPLES / ANALYSIS : SAL (salinity), OXY (dissolved oxygen), NUT (silicate, nitrate and phosphate), CFC (chlorofluorocarbons)
TRANSPORT : TWIN (Twin Otter aircraft), SKIDOO (snowmobile and Kaumituk)

Table 4 - Water Chemistry Sampling Information Mission 9207.

ICE CORE STATION INFORMATION : CRUISE 9207

STATION	DATE MMDDYY	TIME ARRIVE HHMM	TIME DEPART HHMM	LATITUDE	LONGITUDE	HOLE DEPTH (cm)	CORE DEPTH (cm)	FREE-BOARD (cm)	SNOW DEPTH (cm)
CD1	050392	1408	1720	70 20.987 N	129 36.701 W	216	216	19	13
CM1	050192	1109	1220	69 45.031 N	133 17.980 W	197	198	9.5	25
CM2	050192	1229	1340	69 49.967 N	133 19.807 W	189	193	11	18
CM3	050192	1347	1418	69 56.106 N	133 31.749 W	50	49	3	8
E100	042792	1450	1608	68 41.274 N	133 00.669 W	174	183	8	33
E200	042792	1624	1743	68 51.828 N	133 15.635 W	180	189	10	38
E300	042792	1812	1912	69 08.414 N	132 36.743 W	183	186	6	35
E400	042792	1932	2028	69 18.062 N	132 11.040 W	184	186	9	30
E500	043092	1212	1307	69 31.121 N	131 31.243 W	191	191	8	?
E600	043092	1321	1404	69 33.316 N	131 24.150 W	160	161	7	28
E670	050392	1131	1234	69 30.715 N	130 43.399 W	180	179	11	28
E800	050392	1309	1414	69 58.976 N	129 07.251 W	201	200	11	24
E900	050392	1454	1552	70 15.616 N	128 48.338 W	199	198	15	20
JJ1	050592	1005	1110	69 48.142 N	131 49.947 W	204	206	12	22
JJ2	050592	1124	1214	69 53.623 N	131 30.676 W	169	171	15	20
T200	042592	-	-	Tuk Harbour		190	195	12	15

NOTES : All ice cores were thawed, subsampled and analyzed for salinity, nutrients and oxygen isotopes.
Core sectioning was done in the field immediately after core taken.
Transport to all ice core stations was by helicopter.

Table 5 - Ice Core Station Information Mission 9207.

Cast #	Station	Date	Time (MDT)	Latitude	Longitude
1	E600	Apr 14,1992	14:49	69° 33.360' N	131° 24.180' W
2	E800	Apr 14,1992	19:50	69° 58.980' N	129° 07.320' W
3	E800	Apr 17,1992	13:25	69° 58.980' N	129° 06.900' W
4	E800	Apr 17,1992	13:39	69° 58.980' N	129° 06.900' W
5	R292	Apr 17,1992	14:23	69° 58.980' N	133° 16.680' W
6	R292	Apr 17,1992	14:44	69° 58.980' N	133° 16.680' W
7	R192	Apr 17,1992	18:49	69° 45.540' N	133° 13.860' W
8	E100	Apr 19,1992	12:20	68° 41.460' N	133° 00.120' W
9	E100	Apr 19,1992	12:53	68° 41.460' N	133° 00.120' W
10	E200	Apr 19,1992	13:48	68° 51.840' N	133° 14.340' W
11	E200	Apr 19,1992	14:15	68° 51.840' N	133° 14.340' W
12	E300	Apr 19,1992	15:42	69° 07.740' N	132° 37.020' W
13	E400	Apr 20,1992	10:18	69° 17.760' N	132° 11.040' W
14	E400	Apr 20,1992	11:01	69° 17.760' N	132° 11.040' W
15	E500	Apr 20,1992	12:30	69° 31.020' N	131° 31.500' W
16	E600	Apr 20,1992	13:34	69° 33.360' N	131° 24.060' W
17	E630	Apr 20,1992	14:47	69° 35.220' N	131° 07.980' W
18	E900	Apr 20,1992	17:59	70° 15.000' N	128° 48.600' W
19	E800	Apr 20,1992	18:47	69° 58.980' N	129° 06.960' W
20	E700	Apr 20,1992	20:10	69° 43.020' N	130° 25.980' W
21	T100	Apr 23,1992	15:00	69° 25.020' N	132° 58.500' W
22	T100	Apr 23,1992	16:42	69° 25.020' N	132° 58.500' W
23	T100	Apr 23,1992	15:48	69° 25.020' N	132° 58.500' W
24	T200	Apr 24,1992	20:22	69° 25.320' N	132° 58.140' W
25	T100	Apr 25,1992	19:57	69° 25.080' N	132° 58.440' W
26	T100	Apr 25,1992	20:22	69° 25.080' N	132° 58.440' W
27	ROB0	Apr 26,1992	13:07	69° 12.120' N	132° 37.980' W
28	E300	Apr 26,1992	14:30	69° 08.460' N	132° 36.780' W
29	E900	Apr 27,1992	16:20	70° 15.000' N	128° 45.540' W
30	E900	Apr 27,1992	20:33	70° 15.000' N	128° 45.540' W
31	E230	Apr 27,1992	17:13	69° 05.040' N	132° 49.860' W
32	E220	Apr 27,1992	19:39	68° 55.380' N	132° 49.080' W
33	E110	Apr 28,1992	8:40	68° 51.420' N	133° 23.580' W
35	E200	Apr 28,1992	13:05	68° 52.080' N	133° 13.020' W
36	E210	Apr 28,1992	17:16	68° 55.620' N	133° 04.620' W
37	E660	May 01,1992	19:13	69° 31.620' N	130° 55.920' W
38	E650	May 01,1992	20:20	69° 33.480' N	131° 00.060' W

Table 6 - CTD Station Information Mission 9207

Cast #	Station	Date	Time (MDT)	Latitude	Longitude
39	E640	May 01,1992	21:33	69° 35.340' N	131° 04.200' W
40	E630	May 02,1992	11:29	69° 36.180' N	131° 07.980' W
41	E620	May 02,1992	14:44	69° 34.680' N	131° 13.740' W
42	E600	May 02,1992	16:39	69° 33.300' N	131° 24.060' W
43	E500	May 03,1992	15:40	69° 39.120' N	131° 31.260' W
44	E100	May 04,1992	11:06	68° 41.280' N	133° 00.720' W
45	E100	May 04,1992	11:23	68° 41.280' N	133° 00.720' W
46	E400	May 04,1992	14:10	69° 17.760' N	132° 11.040' W
47	E400	May 04,1992	14:41	69° 17.760' N	132° 11.040' W
48	E800	May 04,1992	17:23	69° 58.980' N	129° 06.900' W
49	E800	May 04,1992	17:46	69° 58.980' N	129° 06.900' W
50	E670	May 05,1992	13:38	69° 30.720' N	130° 43.320' W
51	E200	May 05,1992	18:55	68° 51.900' N	133° 14.340' W
52	E665	May 05,1992	20:08	69° 07.020' N	131° 49.980' W
53	E663	May 05,1992	20:53	69° 19.020' N	130° 54.000' W
54	R192	May 07,1992	11:34	69° 45.600' N	133° 13.680' W
55	R292	May 07,1992	13:08	69° 49.980' N	133° 16.680' W
56	E400	May 07,1992	14:39	69° 18.420' N	132° 12.720' W
57	E370	May 07,1992	17:45	69° 13.980' N	132° 16.500' W
58	E360	May 07,1992	18:51	69° 12.840' N	132° 25.200' W
59	E350	May 07,1992	19:55	69° 13.320' N	132° 25.680' W
60	E341	May 08,1992	12:25	69° 13.440' N	132° 28.260' W
61	E330	May 08,1992	14:37	69° 12.540' N	132° 29.340' W
62	E225	May 08,1992	10:34	69° 01.920' N	132° 53.340' W
63	E300	May 08,1992	11:53	69° 08.460' N	132° 36.600' W
64	E661	May 08,1992	13:19	69° 27.540' N	130° 50.040' W
65	E662	May 08,1992	14:16	69° 24.420' N	130° 47.520' W
66	E670	May 08,1992	15:31	69° 30.720' N	130° 43.320' W
67	E300	May 09,1992	10:46	69° 08.400' N	132° 36.720' W
68	SITL	May 09,1992	15:38	68° 33.300' N	132° 43.920' W
69	SITL	May 09,1992	15:52	68° 33.300' N	132° 43.920' W
70	MB92	May 11,1992	10:37	69° 33.180' N	134° 04.560' W
71	MB92	May 11,1992	12:51	69° 33.180' N	134° 04.560' W
72	E300	May 11,1992	16:03	69° 08.400' N	132° 36.720' W
73	E300	May 11,1992	16:41	69° 08.400' N	132° 36.720' W
74	E800	May 12,1992	15:27	69° 58.980' N	129° 06.900' W

Table 6 (con't) - CTD Station Information Mission 9207

WATER SAMPLING STATION INFORMATION CRUISE 9216 - STATION A01

CAST	SMPL ID	DATE DD/MM/YY	MDT(Z-6) TIME HHMM	LATITUDE	LONGITUDE	BOT DEPTH (m)	Sample Types =====>> SAL	OXY	NUT	O18	TCO2	C13	BA	TRIT	CFC	HCH	POC PON	TSS	CHLa
1	R	20/09/92	1428	72 31.593 N	143 51.889 W	3375	X	X	X	X	X	X	X	X					
2	R	20/09/92	1814	72 31.218 N	143 50.704 W	3375	X	X	X	X	X	X	X	X					
3	R	21/09/92	0942	72 28.813 N	143 48.657 W	3375	X	X	X	X	X	X	X	X					
4	R	21/09/92	-	72 28.296 N	143 48.885 W	3375	X	X	X	X	X	X	X	X					
5	R	21/09/92	2028	72 27.386 N	143 46.633 W	3375	X	X	X	X	X	X	X	X					
F1	F	20/09/92	1132	72 31.653 N	143 51.802 W	3375	X								X				
F2	F	21/09/92	1846	72 27.603 N	143 46.883 W	3300	X								X				
F3	F	22/09/92	-	72 24.896 N	143 45.524 W	3300	X								X				
F4	F	22/09/92	-	72 24.896 N	143 45.524 W	3300	X								X				
F5	F	22/09/92	2241	72 23.828 N	143 46.268 W	3300	X								X				
F6	HCH	23/09/92	0934	72 21.575 N	143 47.104 W	3300	X								X	X			
F7	HCH	23/09/92	1209	72 20.878 N	143 47.744 W	3300	X								X	X			
TSS1	TSS	22/09/92	1015	72 24.241 N	143 45.828 W	3300	X										X	X	X
TSS2	TSS	22/09/92	1130	72 24.241 N	143 45.828 W	3300	X										X	X	X
TSS3	TSS	22/09/92	2100	72 24.241 N	143 45.828 W	3300	X										X	X	X

SAMPLE TYPES :

SAL	Salinity	TRIT	Tritium
OXY	Dissolved oxygen	CFC	Chlorofluorocarbons
NUT	Nutrients	HCH	Hexachlorocyclohexane
O18	Oxygen isotopes	POC	Particulate organic carbon
TCO2	Total carbon dioxide	PON	Particulate organic nitrogen
C13	Carbon isotopes	TSS	Total suspended solids
BA	Barium	CHLa	Chlorophyll a

Table 7 - Water Sampling Information Mission 9216.

S/N	Max Pressure (dBars)	Pumped Cond Cell	O2 Probe
1030	200	Yes	Yes
1031	600	Yes	

Table 8 - Sea-Bird CTD Configurations (9207)

CTD S/N	Constant Added to all Salinities	Standard Deviation of Residuals	Count
1030	0.0145	.011	20
1031	0.0124	.007	22

Table 9 - Salinity Corrections and Standard Deviations (9207)

Date	Cast #'s	Oxygen Offset (ml/l)
April 14	1,2	.985
April 17	3,4,6,7	-.681
April 19	8,9,10,11,12	-1.791
April 20	13,14,15,16,17,18,19,20	-2.347
April 23	21,22	1.768
April 24	24	1.690
April 25	25	1.612
April 26	27,28	1.533
April 27	29,30	1.455
May 3	43	.984
May 4	45,46,49	-1.556
May 5	50,51	-1.373
May 7	54,55	-1.006
May 8	62,63,64,65,66	-0.823
May 9	67,68,69	-0.640
May 11	70,72	-0.273
May 12	74	-2.900

Table 10 - Offset Corrections Made to Dissolved Oxygen Data (9207)

Cast #	Station	CTD S/N	Trans-port *	Bottle on line with CTD?	Chem-istry Done At Stat-ion?	Valid?	Use?	NOTES
1	E600	1030	T					Bad Pump
2	E800	1030	T					Bad Pump
3	E800	1030	T					Bad Pump
4	E800	1030	T			✓	✓	Only one profile
5	R292	1031	T					Bad Pump
6	R292	1030	T					Bad Pressure
7	R192	1030	T					Bad Pressure
8	E100	1030	H			✓	✓	
9	E100	1030	H	✓		✓		Not a complete profile, for bottle comparison only
10	E200	1030	H			✓	✓	
11	E200	1030	H	✓		✓		Not a complete profile, for bottle comparison only
12	E300	1030	H			✓	✓	Did not find 18m basin. Cast done in only 5m of water
13	E400	1030	H			✓	✓	
14	E400	1030	H	✓		✓		Not a complete profile, for bottle comparison only
15	E500	1030	H			✓	✓	
16	E600	1030	H					Poor salinity intercomparison between profiles
17	E630	1030	H			✓	✓	
18	E900	1030	H					Bad Pumping
19	E800	1030	H			✓	✓	
20	E700	1030	H	✓		✓	✓	
21	T100	1030	S					Bad Pressure

* T=Twin Otter, H=Helicopter, S=Snow Mobile

Table 11 - CTD Cast Information (9207)

Cast #	Station	CTD S/N	Trans-port *	Bottle on line with CTD?	Chem-istry Done At Stat-ion?	Valid?	Use?	NOTES
22	T100	1030	S	✓				Bad Pressure
23	T100	1031	S					Bad Pressure
24	T200	1030	S			✓	✓	
25	T100	1030	S			✓	✓	
26	T100	1031	S			✓	✓	
27	ROB0	1030	S					Bad Pumping
28	E300	1030	S		✓			Bad Pumping
29	E900	1030	T		✓			Bad Pumping
30	E900	1030	T		✓	✓	✓	
31	E230	1031	S			✓	✓	Evidence of a lot of turbulence
32	E220	1031	S			✓	✓	
33	E110	1031	S					Batt failed during profile, did not measure entire water column
34	E200	1031	S		✓			Batt Fail
35	E200	1031	S		✓	✓	✓	
36	E210	1031	S			✓	✓	
37	E660	1031	S			✓	✓	
38	E650	1031	S			✓	✓	
39	E640	1031	S			✓	✓	
40	E630	1031	S		✓	✓	✓	
41	E620	1031	S			✓	✓	
42	E600	1031	S			✓	✓	
43	E500	1030	T		✓	✓	✓	
44	E100	1031	T		✓	✓	✓	
45	E100	1030	T		✓	✓	✓	
46	E400	1030	T	✓	✓	✓	✓	
47	E400	1031	T		✓	✓	✓	
48	E800	1031	T	✓	✓	✓	✓	
49	E800	1030	T		✓	✓	✓	
50	E670	1030	T		✓	✓	✓	
51	E200	1030	T			✓	✓	
52	E665	1031	H			✓	✓	No Pump

* T=Twin Otter, H=Helicopter, S=Snow Mobile

Table 11 (con't) - CTD Cast Information (9207)

Cast #	Station	CTD S/N	Trans-port *	Bottle on line with CTD?	Chem-istry Done At Stat-ion?	Valid?	Use?	NOTES
53	E663	1031	H			✓	✓	No Pump
54	R192	1030	T			✓	✓	
55	R292	1030	T			✓	✓	
56	E400	1031	S			✓	✓	No Pump
57	E370	1031	S			✓	✓	No Pump
58	E360	1031	S			✓	✓	No Pump
59	E350	1031	S			✓	✓	No Pump
60	E341	1031	S			✓	✓	No Pump
61	E330	1031	S			✓	✓	No Pump
62	E225	1030	T			✓	✓	Second profile used
63	E300	1030	T			✓	✓	
64	E661	1030	T			✓	✓	
65	E662	1030	T			✓	✓	
66	E670	1030	T			✓	✓	
67	E300	1030	T			✓	✓	
68	SITL	1030	T			✓	✓	
69	SITL	1030	T			✓	✓	
70	MB92	1030	T		✓	✓	✓	
71	MB92	1031	T		✓	✓	✓	
72	E300	1030	T		✓	✓	✓	
73	E300	1031	T		✓	✓	✓	
74	E800	1030	T			✓	✓	

* T=Twin Otter, H=Helicopter, S=Snow Mobile

Table 11 (con't) - CTD Cast Information (9207)

Standard Deviation of Residuals (ml/l)	Count
0.35	120

Table 12 - Dissolved Oxygen Standard Deviation (9207)

Station	1030 Cast	1031 Cast
T100	25	26
E100	45	44
E400	46	47
E800	49	48
MB92	70	71
E300	72	73

Table 13 - Casts Used for CTD Intercomparisons (9207)

Quantity	Mean	Std. Dev.	Count
Temp Diff (1030-1031) deg C	-.0071	.0025	132
Sal. Diff (1030-1031) PSU	-.0024	.0054	128

Table 14 - Mean and Standard Deviations of the Temperature and Salinity Differences (1030-1031) Mission 9207

Station	Cast#	Station	Cast#	Station	Cast#
E100	45	E400	46	E700	20
E110	33	E500	15	E800	49
E200	51	E600	42	E900	30
E210	36	E620	41	MB92	70
E220	32	E630	40	R192	54
E225	62	E640	39	R292	55
E230	31	E650	38	SITL	69
E300	72	E660	37	T100	25
E330	61	E661	64	T200	24
E341	60	E662	65		
E350	59	E663	53		
E360	58	E665	52		
E370	57	E670	66		

Table 15 - Representative CTD Casts for the Survey Area (9207)

Manufact-urer	S/N	Max Pressure (dBar)	External Sensors	Notes
Guildline	CTD4	1500	2xThermistors, Transmissometer	This CTD was used in conjunction with the 12 bottle GO Rosette.
Guildline	53501	6000	none	
FSI	?	10000	none	This CTD was on loan from FSI. We did one cast with it for evaluation purposes
Sea-Bird	1030	200	Transmissometer, Fluorometer	
Sea-Bird	1031	600	Transmissometer, Fluorometer, O2 Probe	

Table 16 - CTD Configurations (9216)

	Cast #8	Cast #15	Cast #21
Mean	0.0251	-0.0081	-0.0082
Std. Deviation	0.0036	0.0019	0.0039
Count	19	8	4

Table 17 - CTD-Bottle Salinity Statistics (9216)

Cast #	CTD Type	CTD S/N	Offset
8	Guildline	53501	-0.0251
15	Guildline	CTD4	0.008
21,22	Sea-Bird	1031	0.008

Table 18 - Salinity Adjustment Offsets (9216)

Pressure	Cast8	Cast 15	cast 8-15
701	0.333	0.336	-0.0030
799	0.218	0.225	-0.0070
900	0.102	0.106	-0.0040
1001	-0.004	0	-0.0040
1250	-0.2	-0.197	-0.0030
1501	-0.329	-0.324	-0.0050
		Average	-0.0043
		Std Dev	0.0015

Table 19 - Cast#8 and Cast#15 Temperature Statistics (9216)

	53501	**CTD4**
Mean	.0051 C	.0041 C
Std. Deviation	.0011 C	.0004 C
Count	4	4

Table 20 - Difference between pre-cruise and post-cruise Temp Calibrations (9216)

Cruise Name	**Year**	**2000 dBars**	**3000 dBars**
AIWEX	1985		-.516
9070	1990	-.517	-.515
9216 (Cast #8)	1992	-.526	-.527
9350	1993		-.513

Table 21 - Canada Basin Historical Potential Temperatures

Cast #	Station	CTD Type	CTD S/N	Done with Rosette Cast?	Use?	NOTES
1	A01	Guildline	CTD4			Very spiky data
3	A01	Guildline	53501			Very spiky data
4	A01	Guildline	CTD4	✓		Bad temp. and cond. data at top of down cast
8	A01	Guildline	53501		✓	Good cast
12	A01	Guildline	CTD4	✓		Good cast
13	A01	Guildline	CTD4	✓		Cond. drifts low at 160 dBars
14	A01	Guildline	CTD4	✓		Cond. drifts low at 300 dBars
15	A01	Guildline	CTD4	✓	✓	Good cast
17	A01	Sea-Bird	1030			Good cast - only transmissometer and fluorometer data reported
18	A01	FSI				Not calibrated
21	A01	Sea-Bird	1031		✓	Good cast
22	E01	Sea-Bird	1031		✓	Good cast

Table 22 - CTD Cast Information (9216)

Cast #	Station	Date	Time (GMT)	Latitude	Longitude	Cast Depth (dBars)
1	A01	Sept. 19,1992	02:21	72° 34.408' N	143° 40.010' W	600
3	A01	Sept. 19,1992	03:41	72° 34.220' N	143° 41.403' W	3000
4	A01	Sept. 20,1992	20:17	72° 31.579' N	143° 51.925' W	100
8	A01	Sept. 20,1992	21:09	72° 31.560' N	143° 51.702' W	3300
12	A01	Sept. 21,1992	00:07	72° 31.270' N	143° 50.840' W	250
13	A01	Sept. 21,1992	00:23	72° 31.080' N	143° 50.470' W	200
14	A01	Sept. 21,1992	15:29	72° 28.975' N	143° 48.600' W	600
15	A01	Sept. 21,1992	19:12	72° 28.327' N	143° 48.836' W	1500
17	A01	Sept. 22,1992	00:36	72° 29.550' N	143° 46.748' W	200
18	A01	Sept. 22,1992	21:35	72° 25.354' N	143° 45.963' W	3300
21	A01	Sept. 23,1992	16:35	72° 25.000' N	143° 45.600' W	700
22	E01	Sept. 23,1992	23:46	71° 12.105' N	147° 26.315' W	475

Table 23 - Cast Start Times and Locations (9216)

sample	equipment	samples taken
R1-R36	12-bottle rosette 5 liter Niskins	O_2, Trit, nut, sal, TCO_2, ^{13}C ^{18}O, Ba
R37-R45	Hydrowire 5 liter Niskins	O_2, Trit, nut, sal, TCO_2, ^{13}C, ^{18}O, Ba
F01-F41	Hydrowire GO-FLO and GEO	CFCs, Salinity
HCH1-10	Hydrowire GO-FLO and GEO	HCH, salinity
TSS1-3	Hydrowire 30 liter Niskins	Chla, POC/PON, TSS, salinity

Table 24 - Summary of Water Sampling (9216).

Measurement	Units	Cruise 9207		Cruise 9216		Standard Reference Material
		Sp	vi	Sp	vi	
Salinity	psu	0.043	8	-	-	IAPSO Seawater
Silicate	mmol m^3	0.27	74	0.13	45	Sagami
Nitrate	mmol m^3	0.12	74	0.07	44	Sagami
Phosphate	mmol m^3	0.04	74	0.01	45	Sagami
Dissolved O2	mmol m^3	1.780	8	1.137	8	Sagami KIO3
Chl a	mg m^3	-	-	0.011	2	No SRM available
Phaeo	mg m^3	-	-	0.006	2	No SRM available
POC	%C	0.18	13	0.18	13	NRC certified sediment and
						control sediment
PON	%N	0.07	13	0.07	13	NRC certified sediment and
						control sediment

Table 25 - Units and Estimates of Error (9207 and 9216).

5 REFERENCES

Brodsky, K.A., 1950. Calanoid Copepods of the far eastern seas and polar basin of USSR. *Akad. Nauk. SSSR, Zool. Inst. Opred. Faune SSSR*, **35**: 1-442. (Translated from Russian by Israel Program for Scientific Translations, Jerusalem. 1967. Transl No. TT-67-51200, 440 pages).

Brynjolfson, S.J., 1973. A modification of the Technicon methodology for the determination of orthophosphate in seawater, Paper presented at Water Resources Services, Vancouver, B.C.

Carpenter, J.H., 1965. The Chesapeake Bay Institute technique for the Winkler dissolved oxygen method, *Limnol. Oceanogr.*, **10**, 141-3.

Fofonoff, N.P., and R.C. Millard, 1983. Algorithms for computation of fundamental properties of seawater, *UNESCO Technical Papers on Marine Science*, **44**, 141-3.

Grainger, E.H., 1965. Zooplankton from the Arctic Ocean and adjacent Canadian waters. *J. Fish. Res. Bd. Can.*, *22*, 543-564.

Grainger, E.H. and M.S. Evans, 1980. Zooplankton in a Canadian Arctic estuary. *Estuarine Perspectives*, 199-210.

Lewis, E.L., and R.G. Perkin, 1978. The Practical Salinity Scale 1978: conversion of existing data. *Deep Sea Res.*, **28 A**, 307-328.

Macdonald, R.W., R. Pearson, D. Sieberg, F.A. McLaughlin, M.C. O'Brien, D.W. Paton, E.C. Carmack, J.R. Forbes and J. Barwell-Clarke, NOGAP B.6, Physical and chemical data collected in the Beaufort Sea and Mackenzie River delta, April-May 1991, *Can. Data Rep. Hydrogr. Ocean Sci.*, **104**, 154 pp.

Pennak, R.W., 1978. Freshwater Invertebrates of the United States. 2nd edition, John Wiley and Sons, New York.

Strickland, J.D.H. and T.R. Parsons, 1972. A practical handbook of sea water analysis; *Bulletin 167*, Fisheries Research Board of Canada, Ottawa, 310pp.

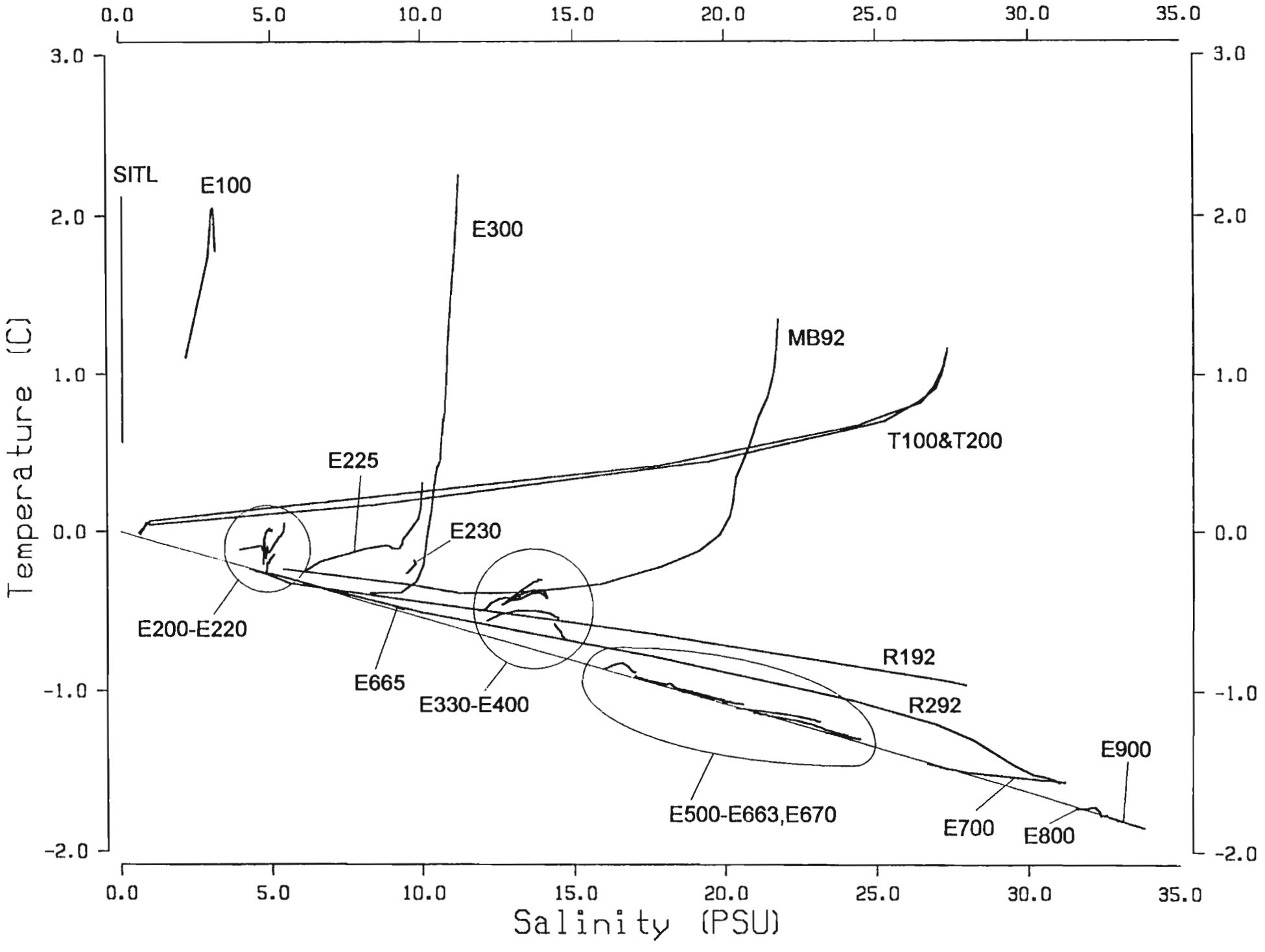
Torke, B.G. 1976. A key to the identification of cyclopoid copepods of Wisconsin, with notes on their distribution and ecology. Department of Natural Resources Research Report 88.

Torke, B.G., 1974. An illustrated guide to the identification of the planktonic crustacea of Lake Michigan, with notes on their ecology. University of Wisconsin, Center for Great Lakes Studies, Special Report no. 17.

Ward, H.B., and G.C. Whipple, 1963. *Freshwater Biology.* 2nd edition, John Wiley and Sons, New York.

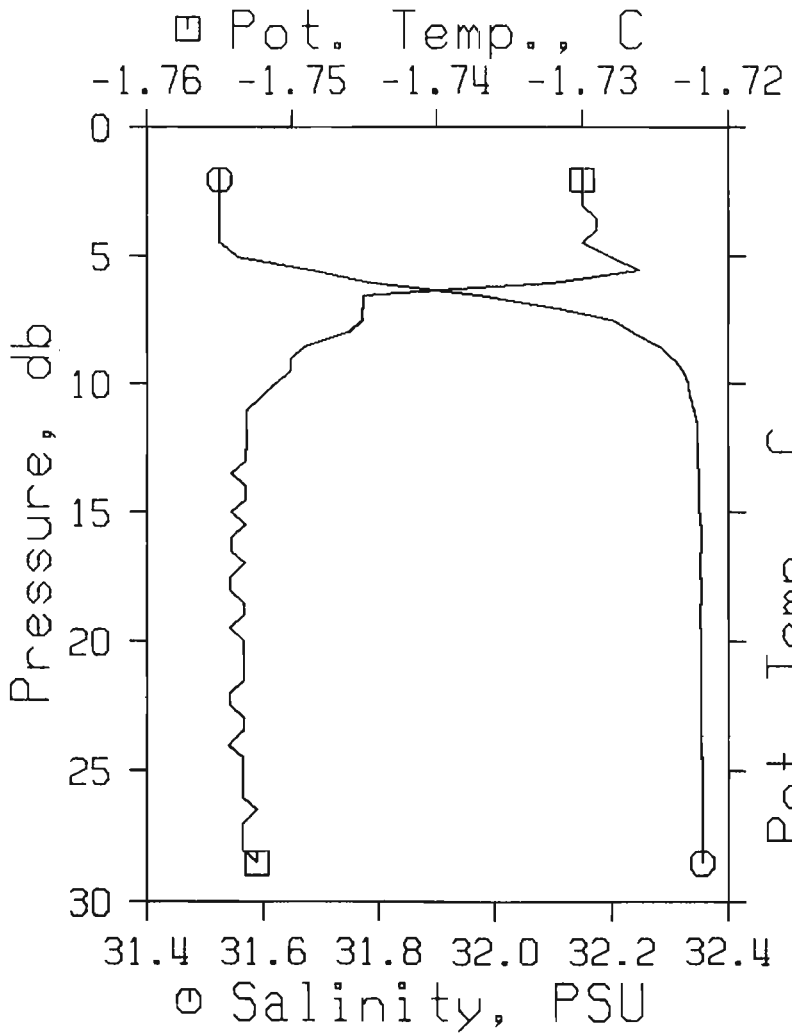
6 APPENDICES

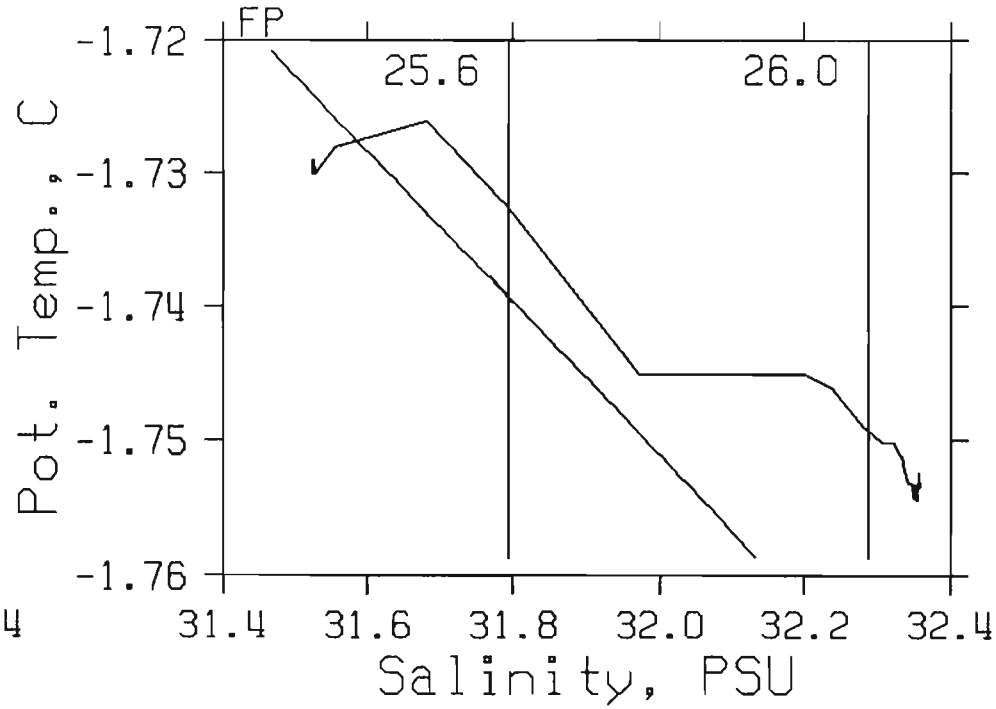
6.1 CTD Data Mission #9207; Tables and Plots


0.0
5.0
10.0
15.0
20.0
25.0
30.0
35.0
3.0
2.0
1.0
0.0
-1.0
-2.0
Temperature (C)
Salinity (PSU)
SITL
E100
E300
MB92
T100&T200
E225
E230
E200-E220
E665
E330-E400
R192
R292
E900
E500-E663,E670
E700
E800

NOGAP ICEWORK 1992
Cruise 9207
STATION : E800
REFERENCE NO.: 92-07-004
DATE/TIME : 17/04/92 13:39 MDT
POSITION : 69-59.0N 129- 6.9W

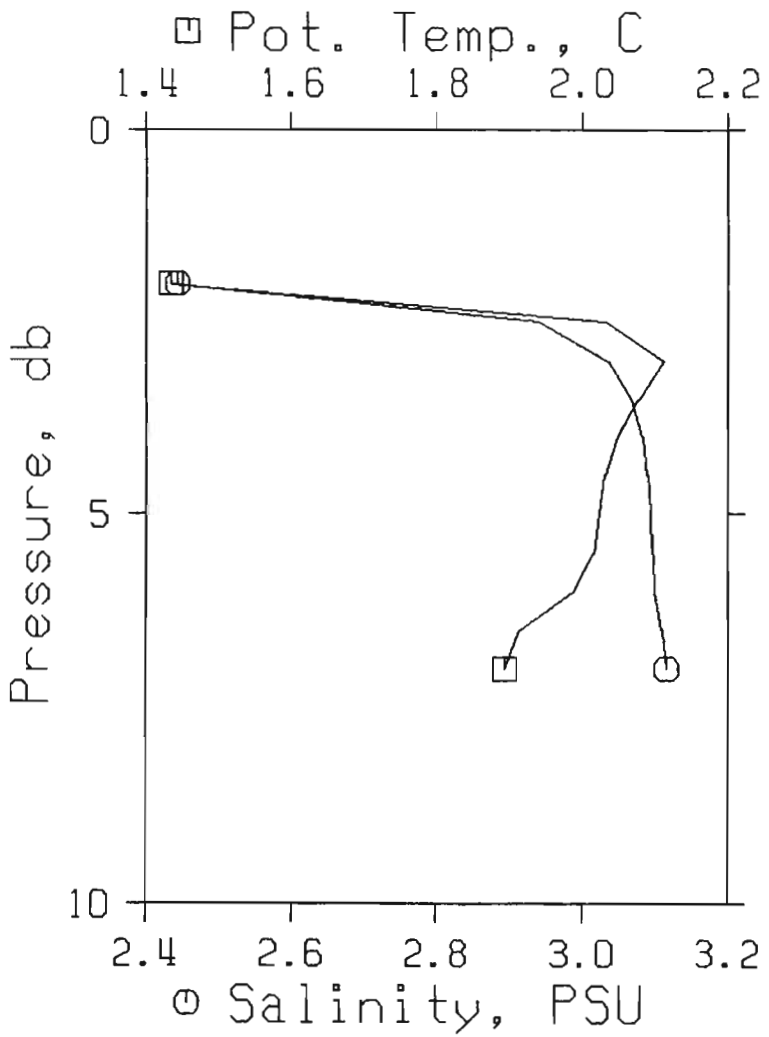
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-1.730	-1.730	31.525	25.38	261.0	.05	.00	1436
4	4	-1.729	-1.729	31.525	25.38	261.0	.10	.00	1436
6	6	-1.732	-1.732	31.786	25.59	240.9	.16	.00	1437
8	8	-1.746	-1.746	32.236	25.96	206.1	.20	.01	1437
10	10	-1.751	-1.751	32.332	26.04	198.7	.24	.01	1437
12	12	-1.753	-1.753	32.347	26.05	197.5	.28	.02	1438
15	15	-1.754	-1.754	32.352	26.05	197.1	.34	.02	1438
20	20	-1.753	-1.753	32.353	26.05	197.0	.44	.04	1438
25	25	-1.753	-1.753	32.356	26.06	196.8	.53	.06	1438
30	30	-1.752	-1.753	32.356	26.06	196.8	.63	.09	1438

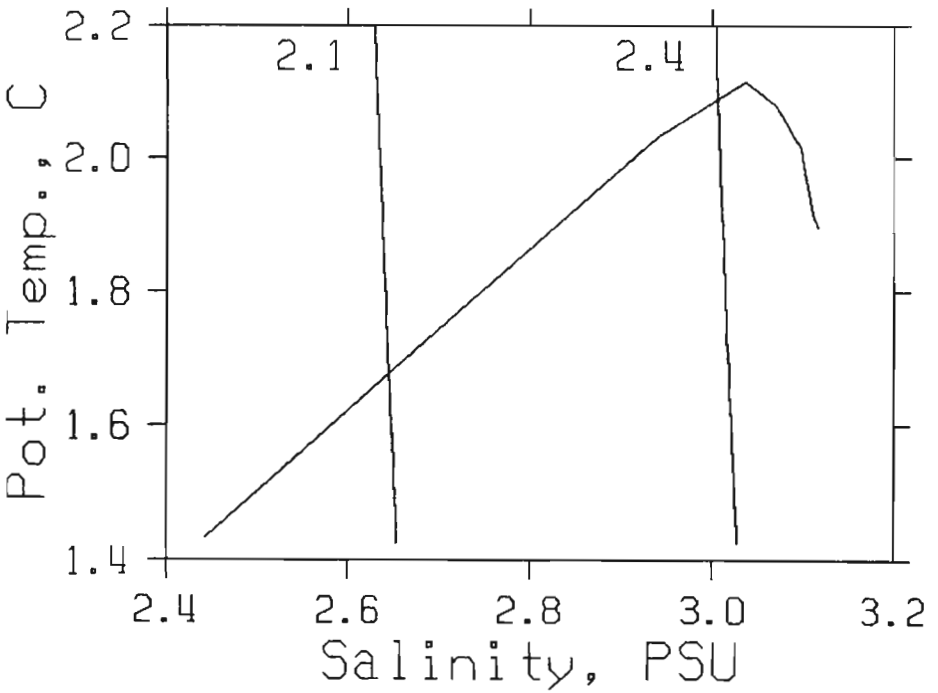




NOGAP ICEWORK 1992
Cruise 9207
STATION : E100
REFERENCE NO.: 92-07-008
DATE/TIME : 19/04/92 12:20 MDT
POSITION : 68-41.5N 133- .1W

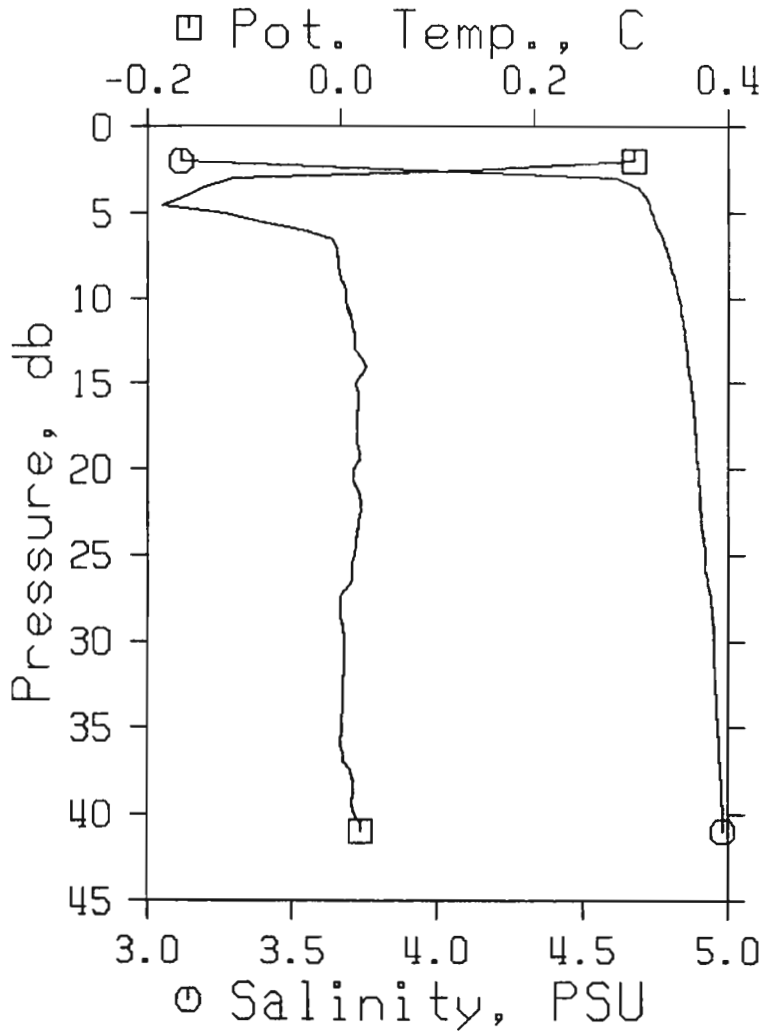
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	1.434	1.434	2.443	1.93	2543.8	.51	.01	1413
4	4	2.049	2.049	3.084	2.46	2490.7	1.01	.02	1417
6	6	1.988	1.988	3.101	2.47	2489.5	1.51	.05	1416
7	7	1.895	1.895	3.117	2.48	2488.4	1.76	.06	1416

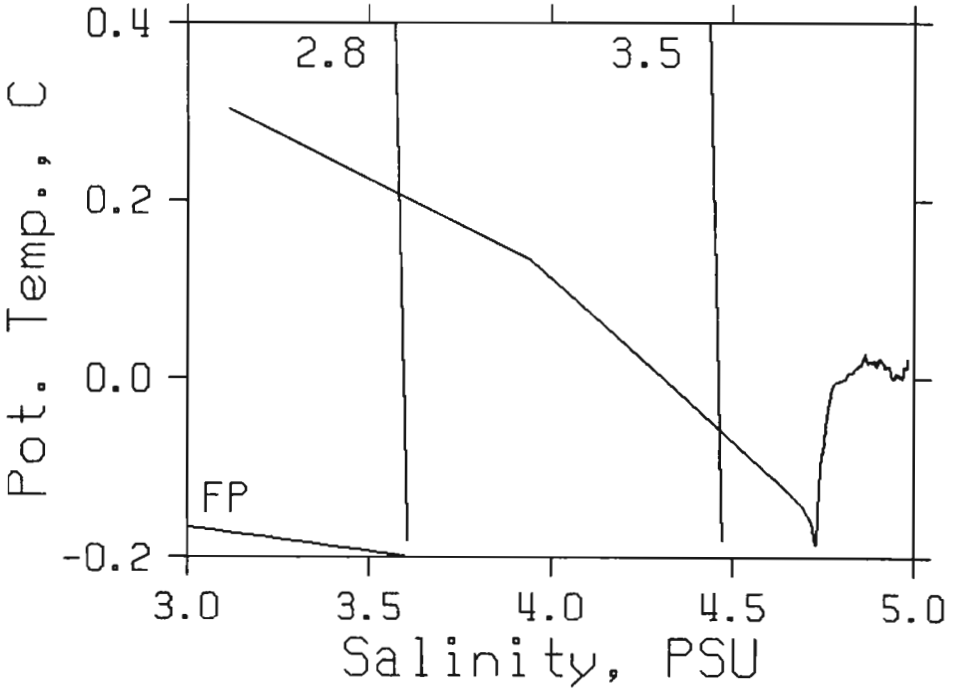




NOGAP ICEWORK 1992
Cruise 9207
STATION : E200
REFERENCE NO.: 92-07-010
DATE/TIME : 19/04/92 13:48 MDT
POSITION : 68-51.8N 133-14.3W

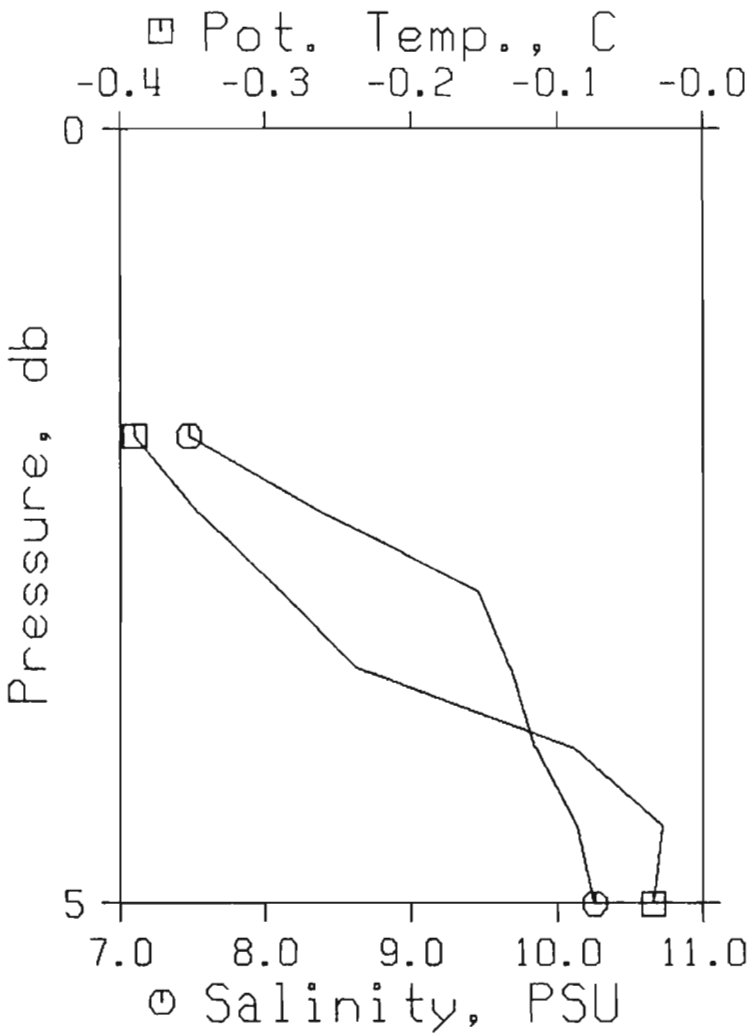
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	.302	.302	3.115	2.42	2494.4	.50	.01	1408
4	4	-.160	-.160	4.715	3.70	2367.7	.98	.02	1409
6	6	-.042	-.042	4.759	3.74	2363.6	1.45	.04	1409
8	8	-.003	-.003	4.801	3.78	2360.0	1.92	.08	1409
10	10	.005	.005	4.829	3.80	2357.7	2.40	.12	1409
12	12	.014	.014	4.849	3.82	2356.1	2.87	.17	1409
15	15	.016	.016	4.872	3.84	2354.2	3.57	.27	1409
20	20	.014	.014	4.896	3.86	2352.3	4.75	.48	1409
25	25	.014	.015	4.919	3.87	2350.4	5.92	.75	1410
30	30	.004	.005	4.951	3.90	2347.9	7.10	1.08	1410
35	35	.001	.002	4.966	3.91	2346.7	8.27	1.47	1410
40	40	.014	.015	4.981	3.92	2345.5	9.44	1.91	1410
41	41	.021	.022	4.983	3.92	2345.3	9.68	2.01	1410

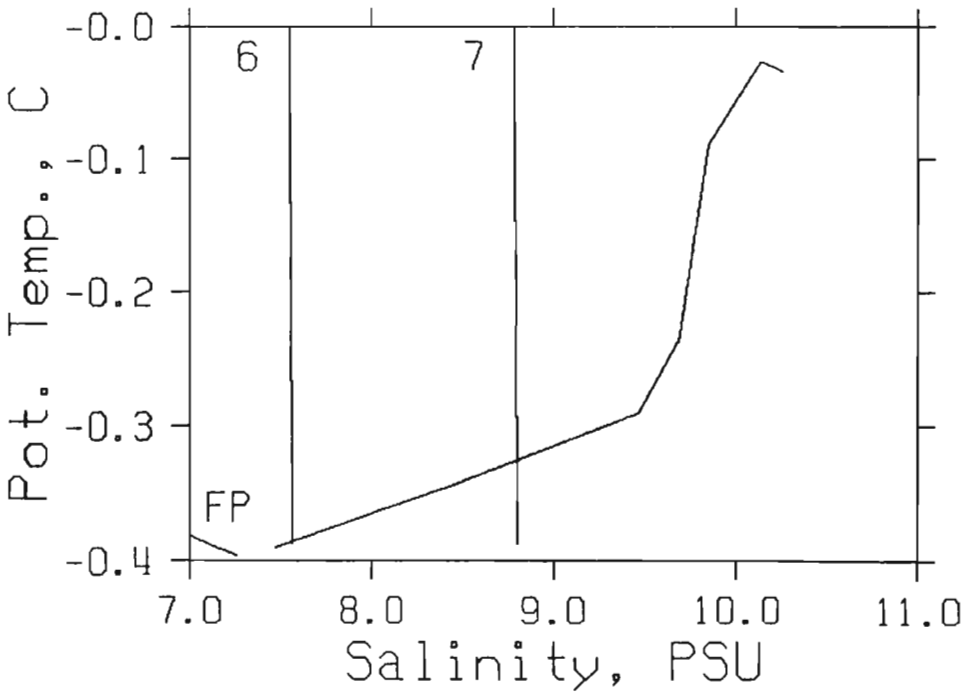




NOGAP ICEWORK 1992
Cruise 9207
STATION : E300
REFERENCE NO.: 92-07-012
DATE/TIME : 19/04/92 15:42 MDT
POSITION : 69- 7.7N 132-37.0W

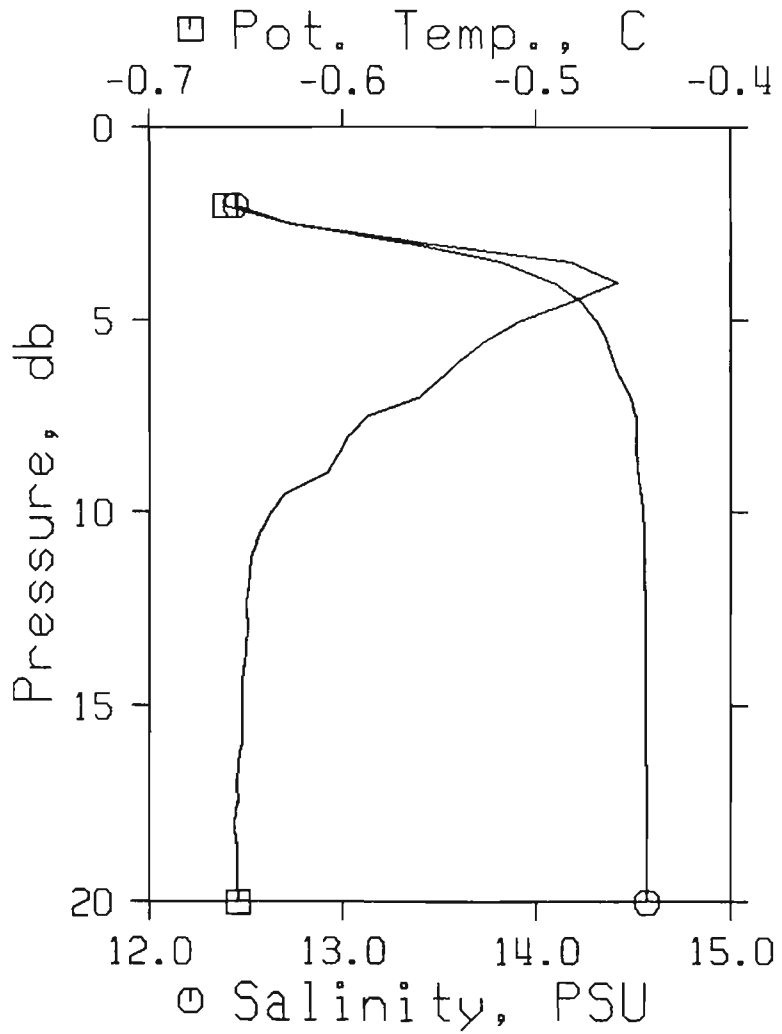
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-.390	-.390	7.472	5.92	2147.6	.43	.00	1411
4	4	-.089	-.089	9.851	7.86	1956.7	.83	.02	1415
5	5	-.034	-.034	10.259	8.19	1924.1	1.03	.03	1416

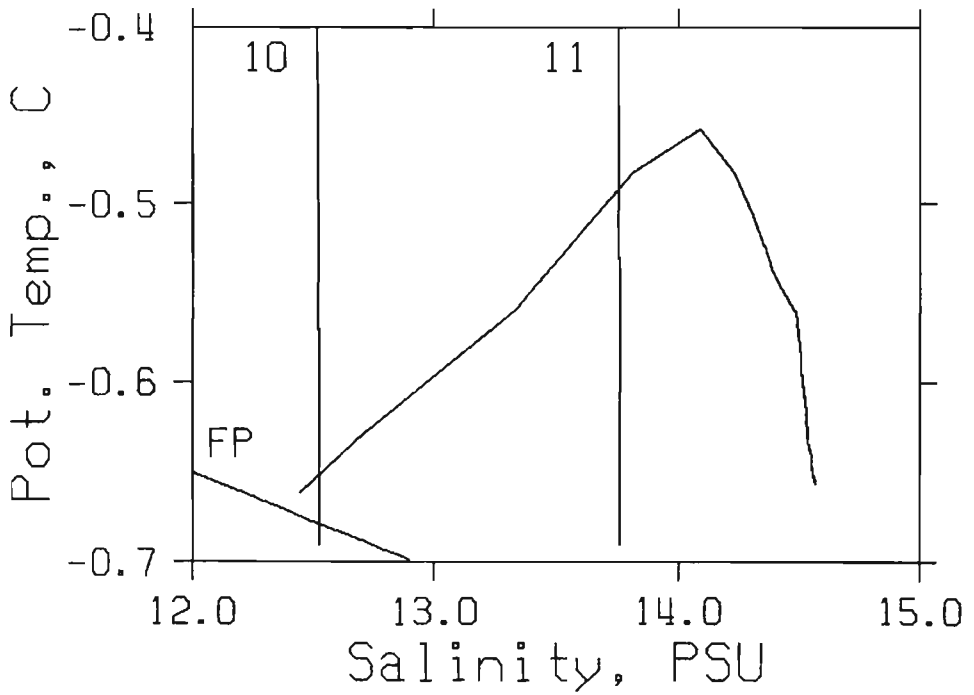




NOGAP ICEWORK 1992
Cruise 9207
STATION : E400
REFERENCE NO.: 92-07-013
DATE/TIME : 20/04/92 10:18 MDT
POSITION : 69-17.8N 132-11.0W

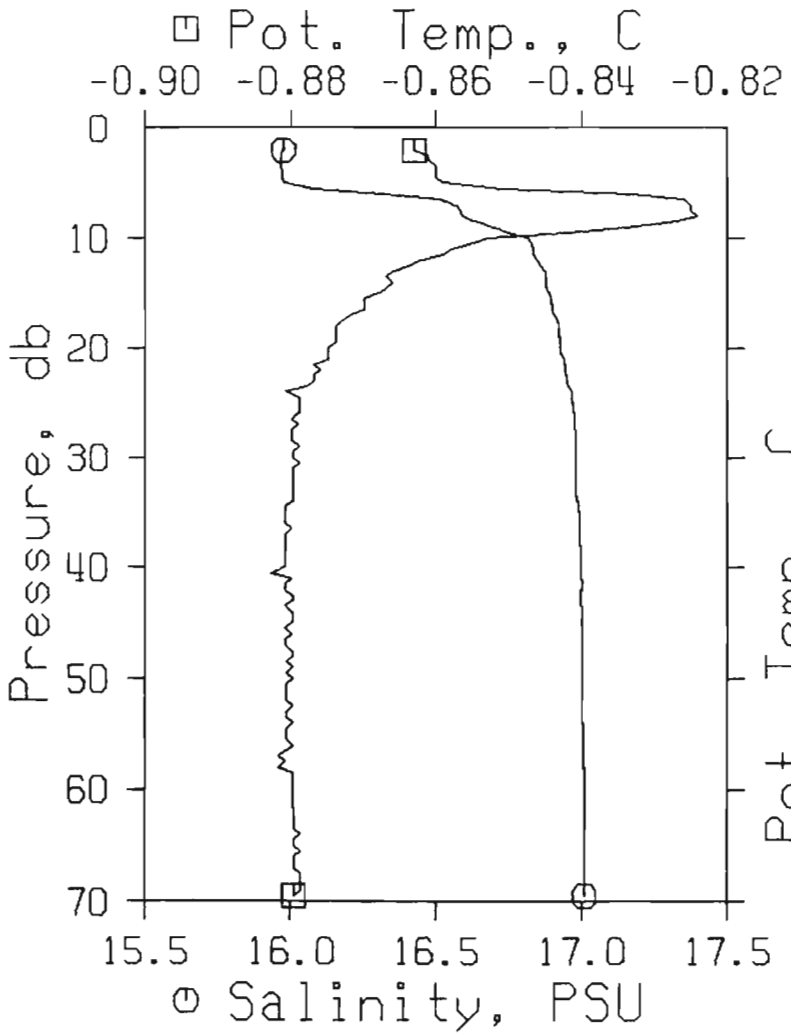
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-.661	-.661	12.445	9.93	1752.6	.35	.00	1416
4	4	-.458	-.458	14.091	11.27	1621.8	.69	.01	1419
6	6	-.538	-.538	14.392	11.51	1598.2	1.01	.03	1419
8	8	-.596	-.596	14.516	11.61	1588.6	1.33	.05	1419
10	10	-.637	-.637	14.545	11.63	1586.4	1.64	.08	1419
12	12	-.649	-.649	14.557	11.64	1585.5	1.96	.12	1419
15	15	-.652	-.652	14.560	11.64	1585.2	2.44	.18	1419
20	20	-.654	-.654	14.568	11.65	1584.6	3.23	.32	1419

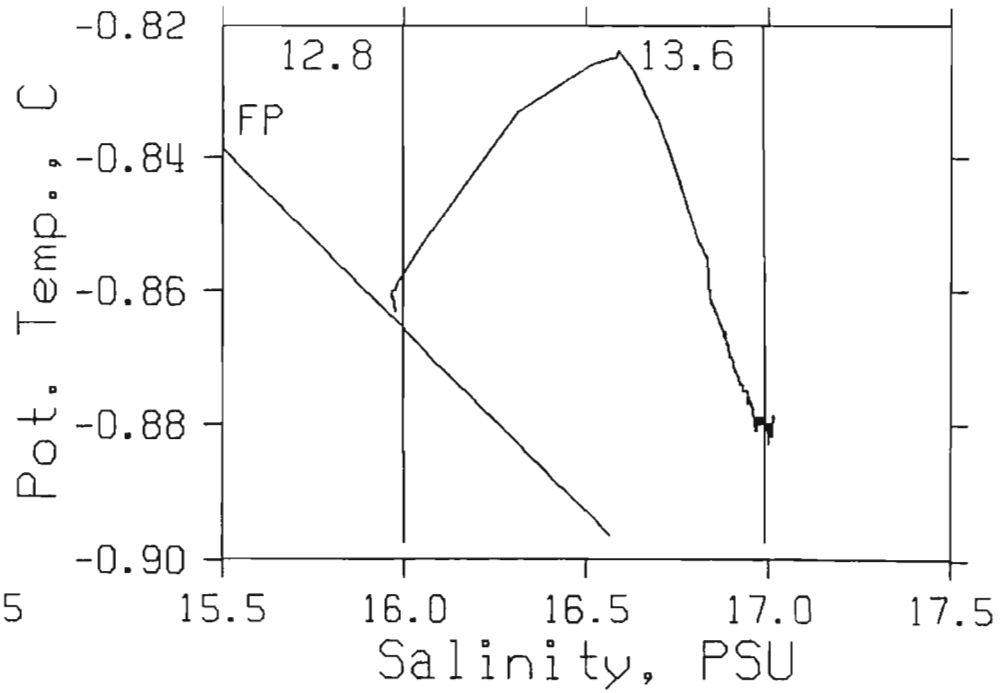




NOGAP ICEWORK 1992
Cruise 9207
STATION : E500
REFERENCE NO.: 92-07-015
DATE/TIME : 20/04/92 12:30 MDT
POSITION : 69-31.0N 131-31.5W

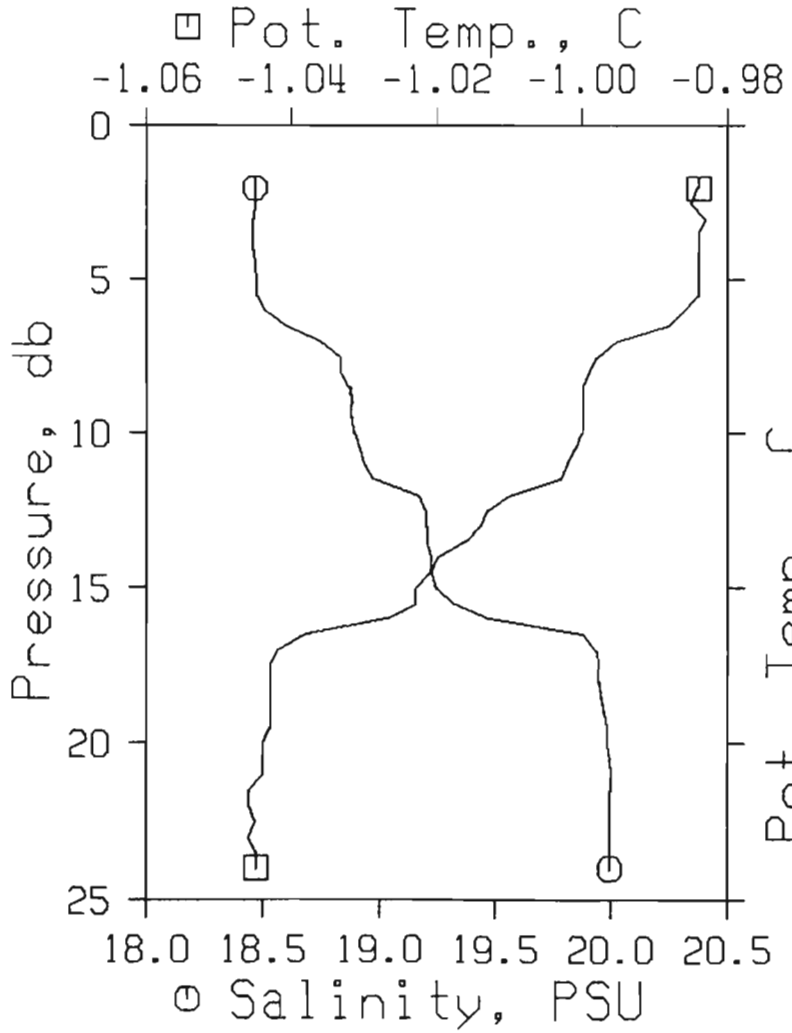
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-.863	-.863	15.975	12.78	1474.1	.29	.00	1420
4	4	-.860	-.860	15.971	12.78	1474.4	.59	.01	1420
6	6	-.833	-.833	16.318	13.06	1447.0	.86	.03	1420
8	8	-.824	-.824	16.591	13.28	1425.5	1.17	.05	1421
10	10	-.853	-.853	16.814	13.46	1408.0	1.45	.07	1421
12	12	-.862	-.862	16.845	13.49	1405.5	1.73	.10	1421
15	15	-.868	-.868	16.889	13.52	1402.1	2.15	.16	1421
20	20	-.875	-.875	16.928	13.55	1399.0	2.85	.29	1421
25	25	-.879	-.879	16.969	13.59	1395.8	3.55	.45	1421
30	30	-.880	-.880	16.980	13.60	1395.0	4.25	.64	1421
35	35	-.881	-.881	16.993	13.61	1393.9	4.95	.87	1421
40	40	-.881	-.881	16.998	13.61	1393.5	5.64	1.14	1421
45	45	-.880	-.880	17.000	13.61	1393.4	6.34	1.44	1422
50	49	-.880	-.880	17.003	13.61	1393.1	7.04	1.78	1422
60	59	-.880	-.880	17.011	13.62	1392.5	8.43	2.55	1422
70	69	-.879	-.879	17.013	13.62	1392.4	9.82	3.47	1422

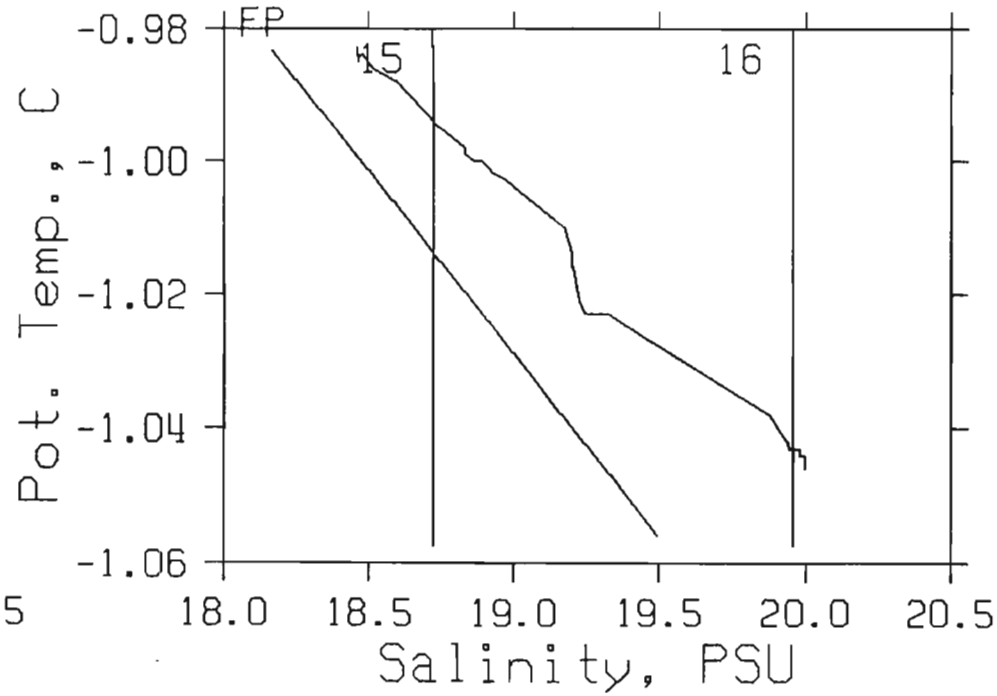




NOGAP ICEWORK 1992
Cruise 9207
STATION : E630
REFERENCE NO.: 92-07-017
DATE/TIME : 20/04/92 14:47 MDT
POSITION : 69-35.2N 131- 8.0W

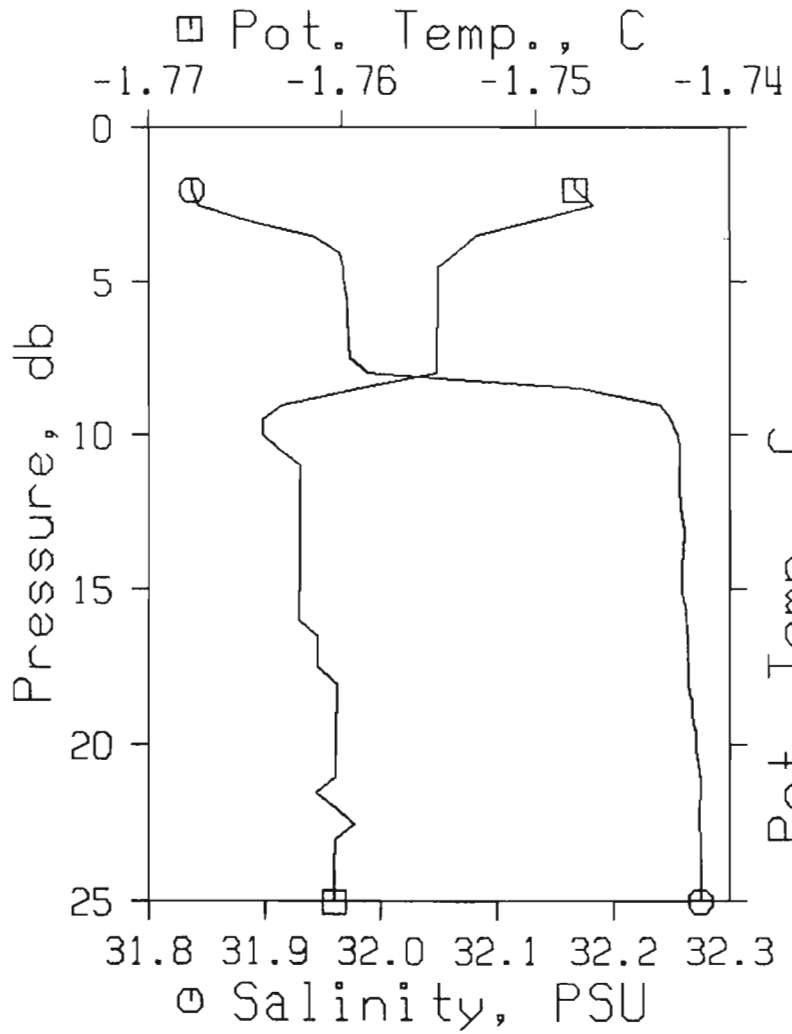
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-.984	-.984	18.464	14.79	1278.5	.26	.00	1422
4	4	-.984	-.984	18.460	14.79	1278.8	.51	.01	1422
6	6	-.986	-.986	18.515	14.84	1274.4	.77	.02	1422
8	8	-.999	-.999	18.835	15.09	1249.3	1.02	.04	1423
10	10	-1.000	-1.000	18.892	15.14	1244.9	1.27	.06	1423
12	12	-1.010	-1.010	19.174	15.37	1222.7	1.52	.09	1423
15	15	-1.023	-1.023	19.251	15.43	1216.7	1.88	.14	1423
20	20	-1.044	-1.044	19.982	16.02	1159.4	2.47	.25	1424
25	25	-1.046	-1.046	20.003	16.04	1157.8	3.05	.38	1424

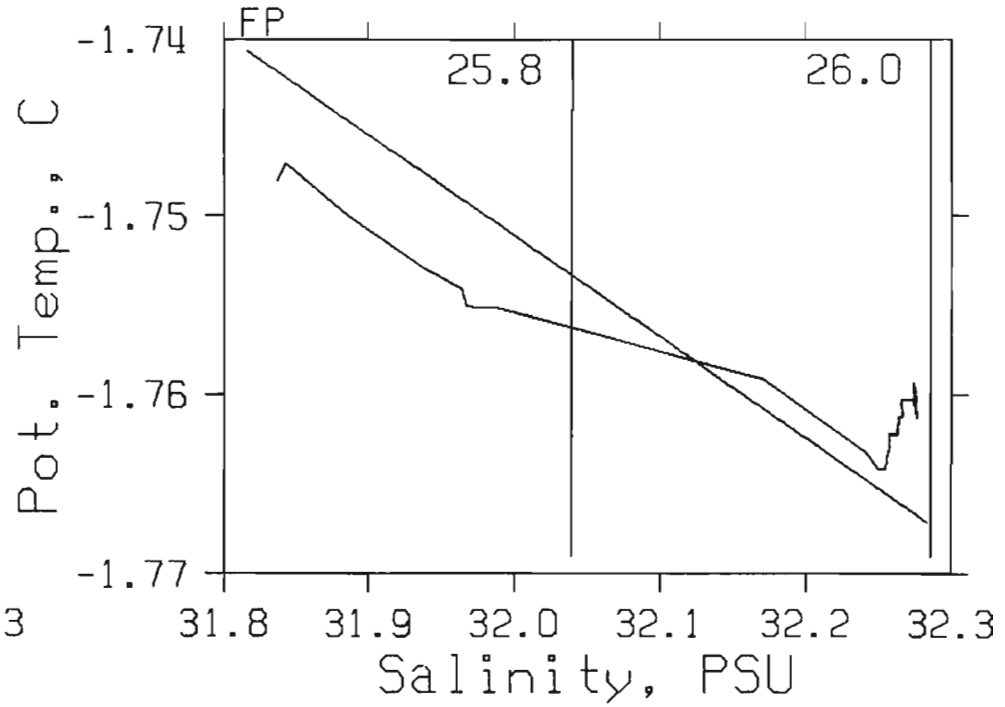




NOGAP ICEWORK 1992
Cruise 9207
STATION : E800
REFERENCE NO.: 92-07-019
DATE/TIME : 20/04/92 18:47 MDT
POSITION : 69-59.0N 129- 7.0W

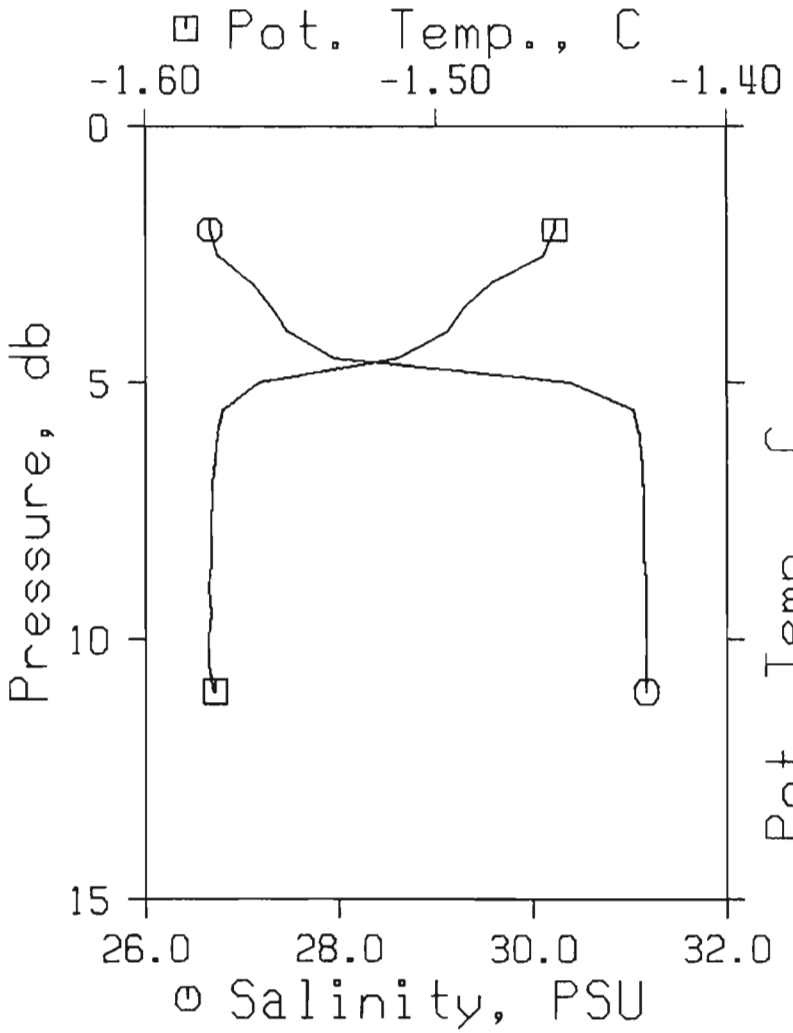
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-1.748	-1.748	31.837	25.63	236.9	.05	.00	1437
4	4	-1.754	-1.754	31.964	25.74	227.1	.09	.00	1437
6	6	-1.755	-1.755	31.971	25.74	226.5	.14	.00	1437
8	8	-1.755	-1.755	31.988	25.76	225.2	.18	.01	1437
10	10	-1.764	-1.764	32.255	25.97	204.6	.23	.01	1437
12	12	-1.762	-1.762	32.258	25.98	204.4	.27	.02	1437
15	15	-1.762	-1.762	32.259	25.98	204.3	.33	.02	1437
20	20	-1.760	-1.760	32.271	25.99	203.4	.43	.04	1438
25	25	-1.760	-1.760	32.275	25.99	203.0	.53	.07	1438
26	25	-1.760	-1.760	32.274	25.99	203.1	.54	.07	1438

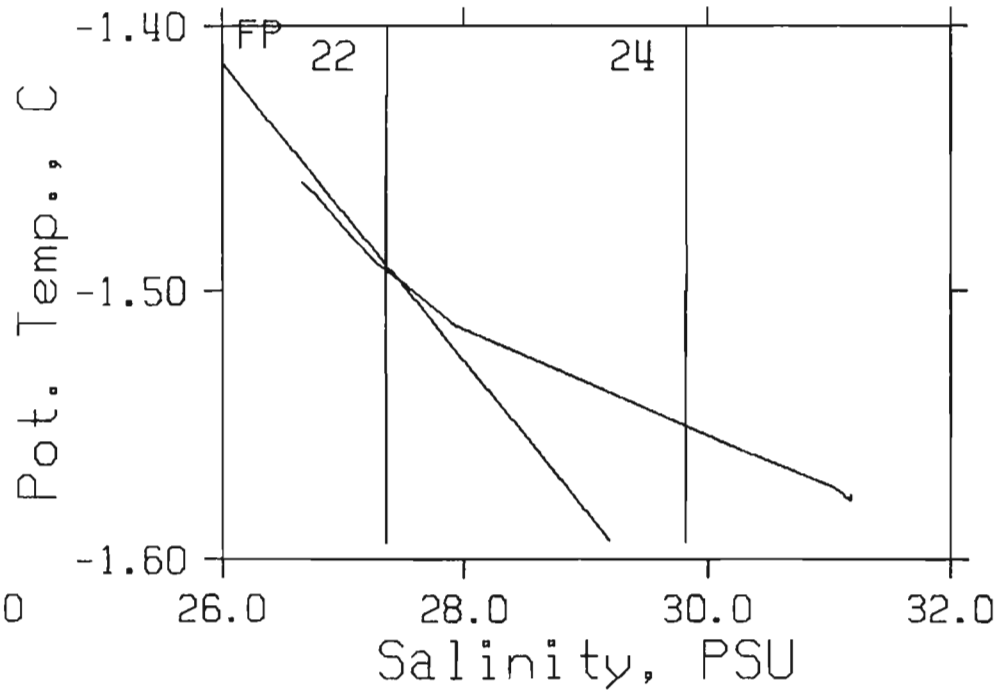




NOGAP ICEWORK 1992
Cruise 9207
STATION : E700
REFERENCE NO.: 92-07-020
DATE/TIME : 20/04/92 20:10 MDT
POSITION : 69-43.0N 130-26.0W

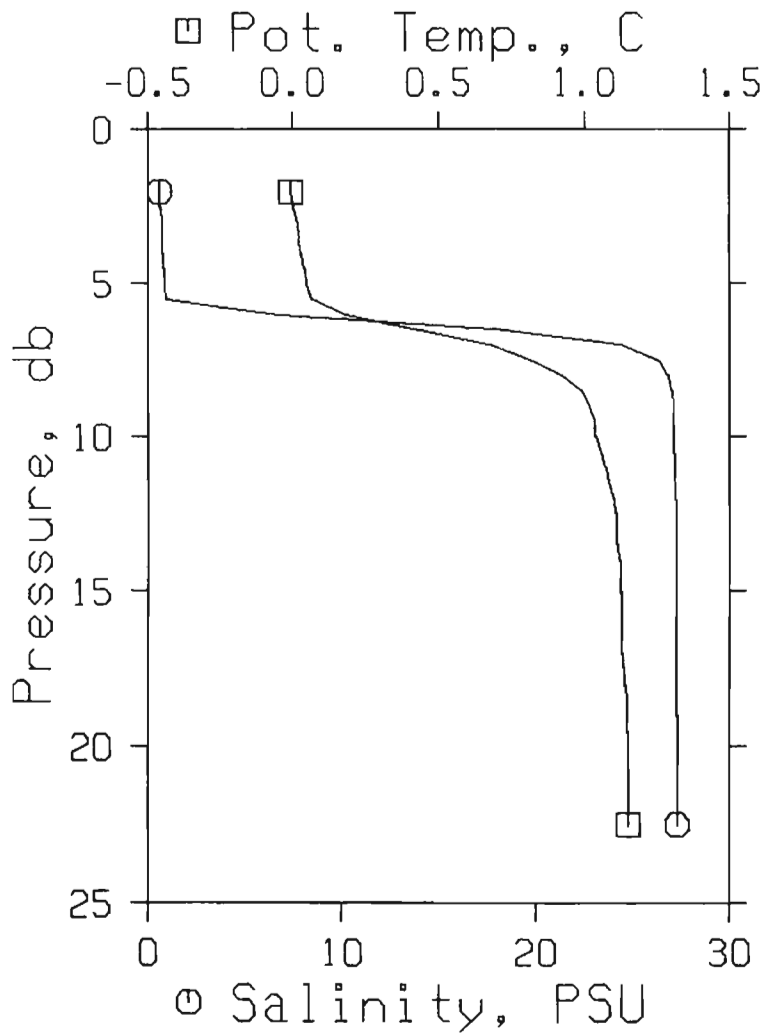
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-1.459	-1.459	26.667	21.43	637.8	.13	.00	1431
4	4	-1.496	-1.496	27.479	22.09	574.7	.25	.00	1432
6	6	-1.575	-1.575	31.102	25.03	294.0	.33	.01	1437
8	8	-1.577	-1.577	31.153	25.08	290.1	.39	.01	1437
10	10	-1.578	-1.578	31.179	25.10	288.0	.45	.02	1437
11	11	-1.576	-1.576	31.177	25.09	288.2	.47	.02	1437

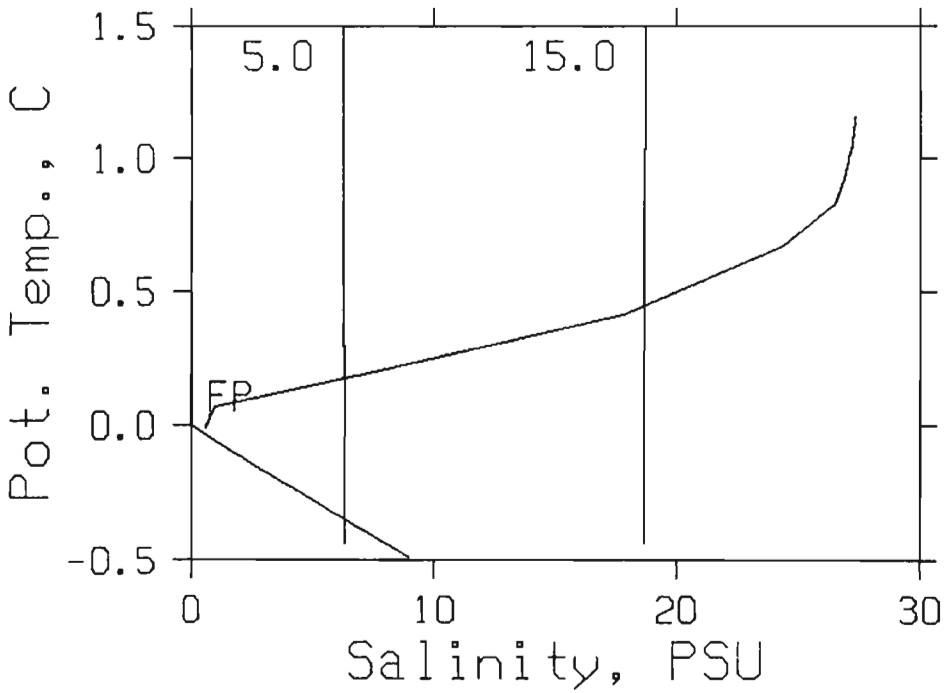




NOGAP ICEWORK 1992
Cruise 9207
STATION : T200
REFERENCE NO.: 92-07-024
DATE/TIME : 24/04/92 20:22 MDT
POSITION : 69-25.3N 132-58.2W

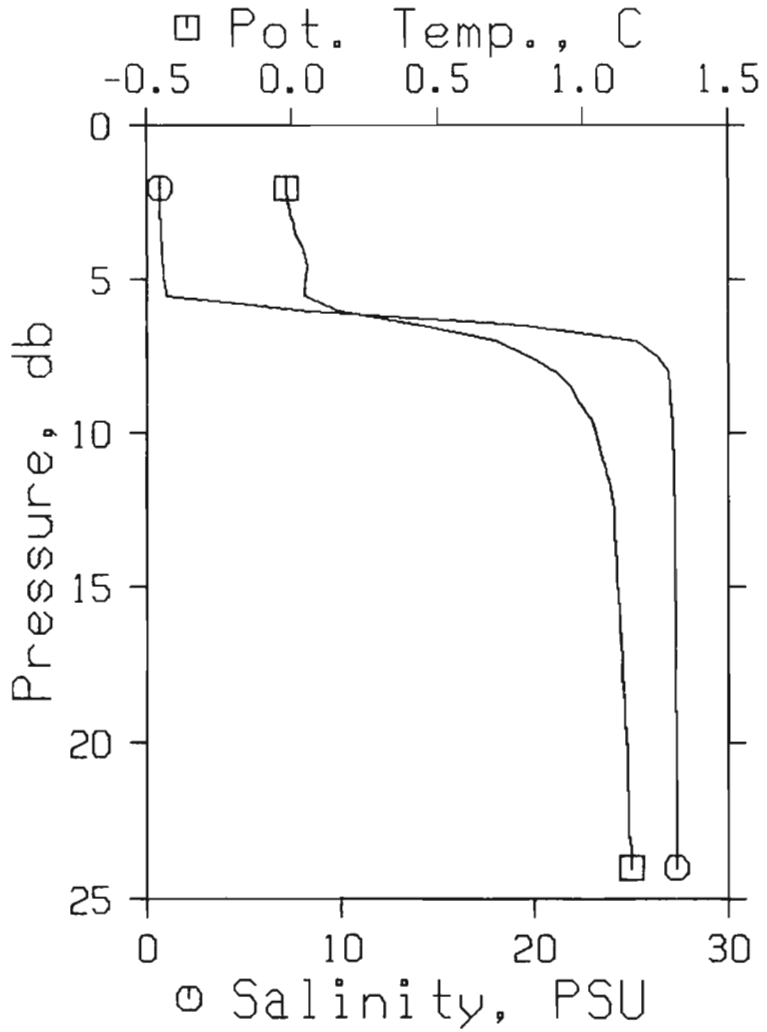
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-.008	-.008	.626	.38	2698.3	.54	.01	1403
4	4	.027	.027	.796	.52	2684.1	1.08	.02	1404
6	6	.184	.184	6.837	5.43	2196.0	1.60	.05	1413
8	8	.921	.921	26.873	21.55	627.2	1.81	.06	1443
10	10	1.042	1.042	27.156	21.77	606.0	1.93	.07	1444
12	12	1.107	1.107	27.237	21.83	600.0	2.05	.09	1444
15	15	1.130	1.130	27.276	21.86	597.1	2.23	.11	1444
20	20	1.155	1.154	27.307	21.88	594.8	2.53	.17	1445
23	22	1.156	1.155	27.310	21.89	594.6	2.68	.20	1445

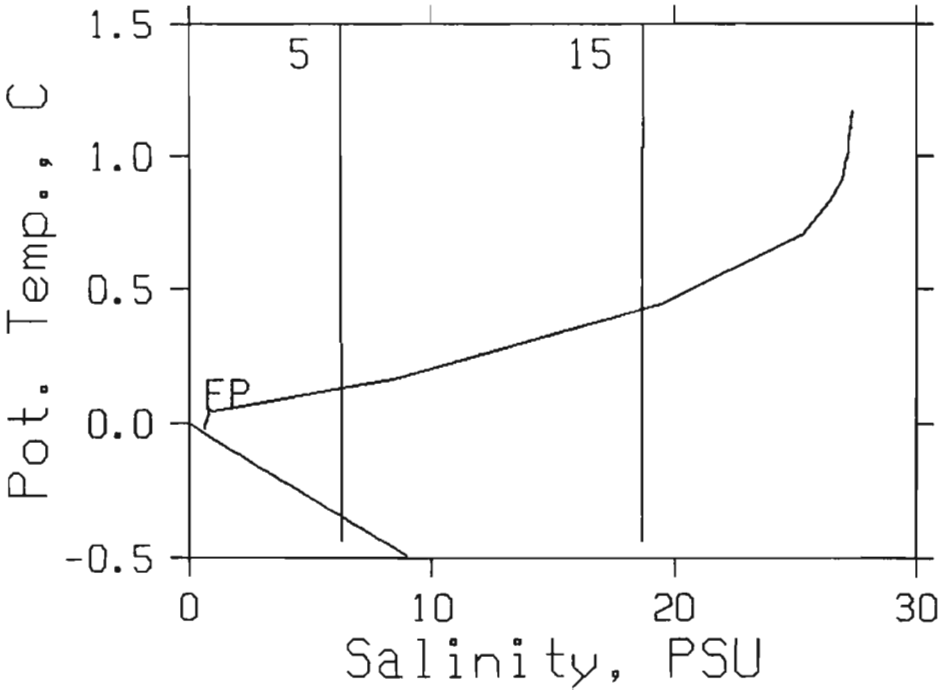




NOGAP ICEWORK 1992
Cruise 9207
STATION : T100
REFERENCE NO.: 92-07-025
DATE/TIME : 25/04/92 19:57 MDT
POSITION : 69-25.1N 132-58.4W

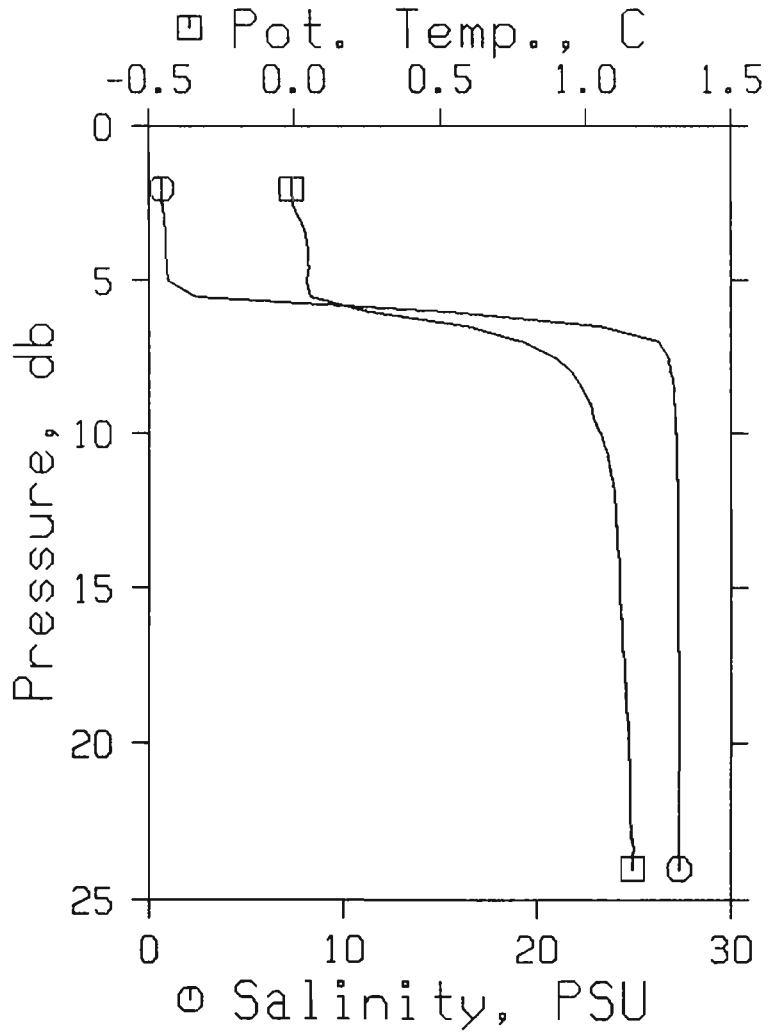
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-.018	-.018	.668	.41	2694.9	.54	.01	1403
4	4	.039	.039	.823	.55	2681.9	1.08	.02	1404
6	6	.166	.166	8.439	6.72	2068.2	1.60	.05	1415
8	8	.908	.908	26.922	21.58	623.4	1.79	.06	1443
10	10	1.047	1.047	27.165	21.77	605.3	1.92	.07	1444
12	12	1.102	1.102	27.246	21.84	599.3	2.04	.09	1444
15	15	1.123	1.123	27.277	21.86	597.0	2.22	.11	1444
20	20	1.152	1.151	27.306	21.88	594.9	2.51	.16	1445
25	25	1.172	1.172	27.316	21.89	594.2	2.81	.23	1445

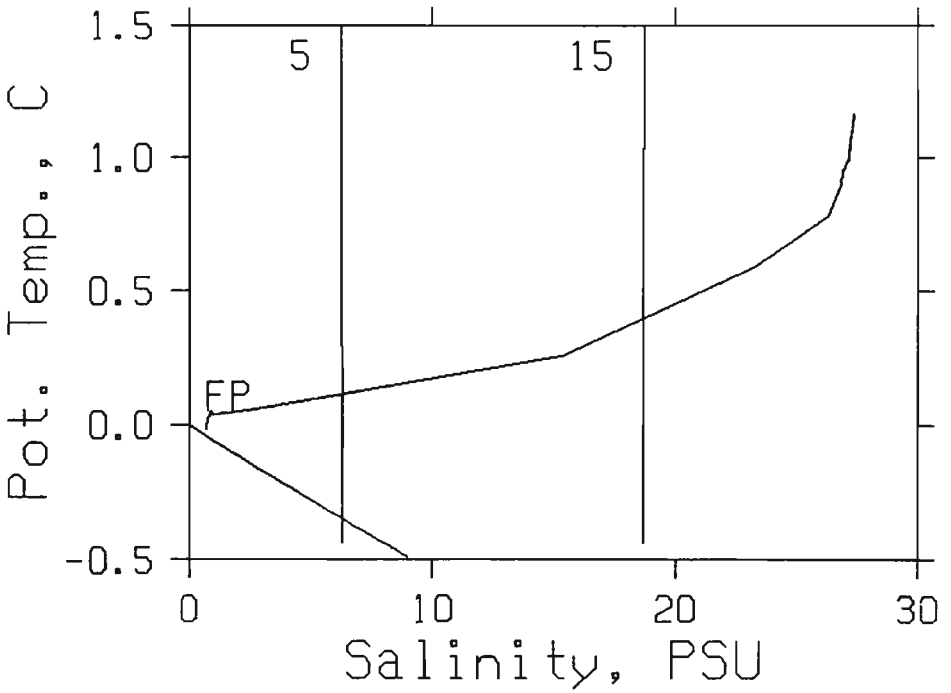




NOGAP ICEWORK 1992
Cruise 9207
STATION : T100
REFERENCE NO.: 92-07-026
DATE/TIME : 25/04/92 20:22 MDT
POSITION : 69-25.1N 132-58.4W

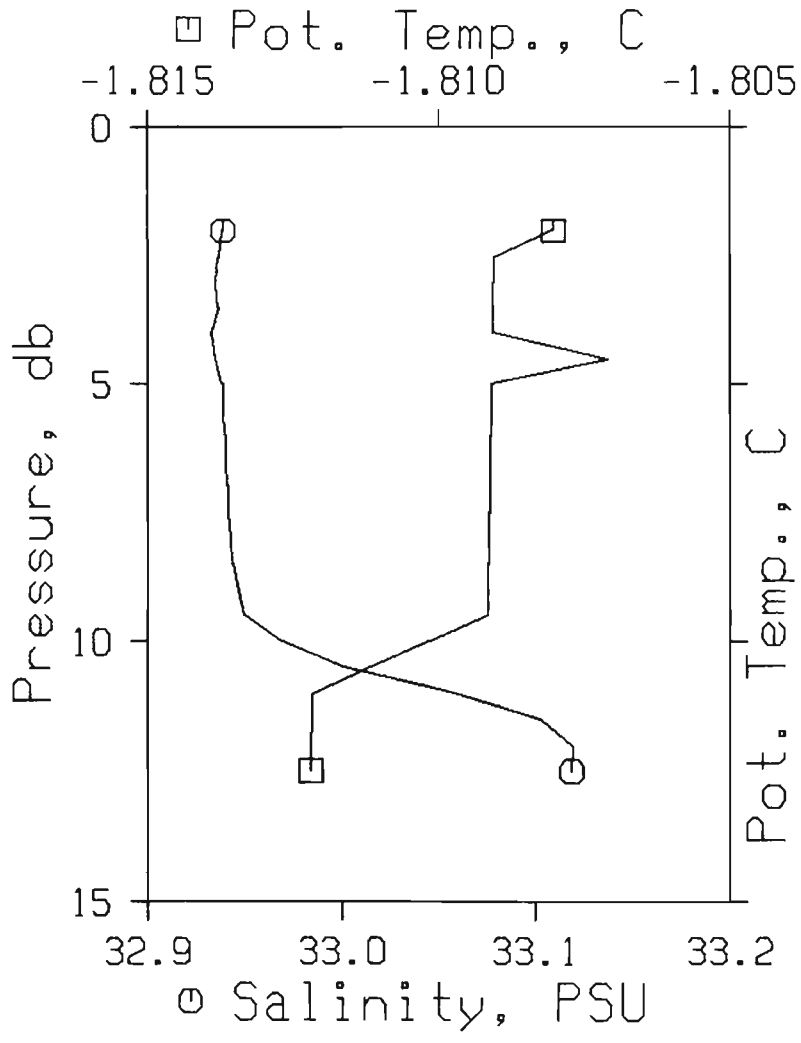
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-.011	-.011	.697	.44	2692.5	.54	.01	1403
4	4	.048	.048	.860	.58	2678.8	1.08	.02	1404
6	6	.259	.259	15.401	12.34	1517.6	1.57	.05	1424
8	8	.954	.954	26.900	21.57	625.3	1.74	.06	1443
10	10	1.056	1.056	27.194	21.80	603.1	1.86	.07	1444
12	12	1.099	1.099	27.255	21.84	598.6	1.98	.08	1444
15	15	1.118	1.118	27.285	21.87	596.4	2.16	.11	1444
20	20	1.150	1.149	27.316	21.89	594.1	2.46	.16	1445
25	25	1.169	1.169	27.327	21.90	593.3	2.75	.23	1445

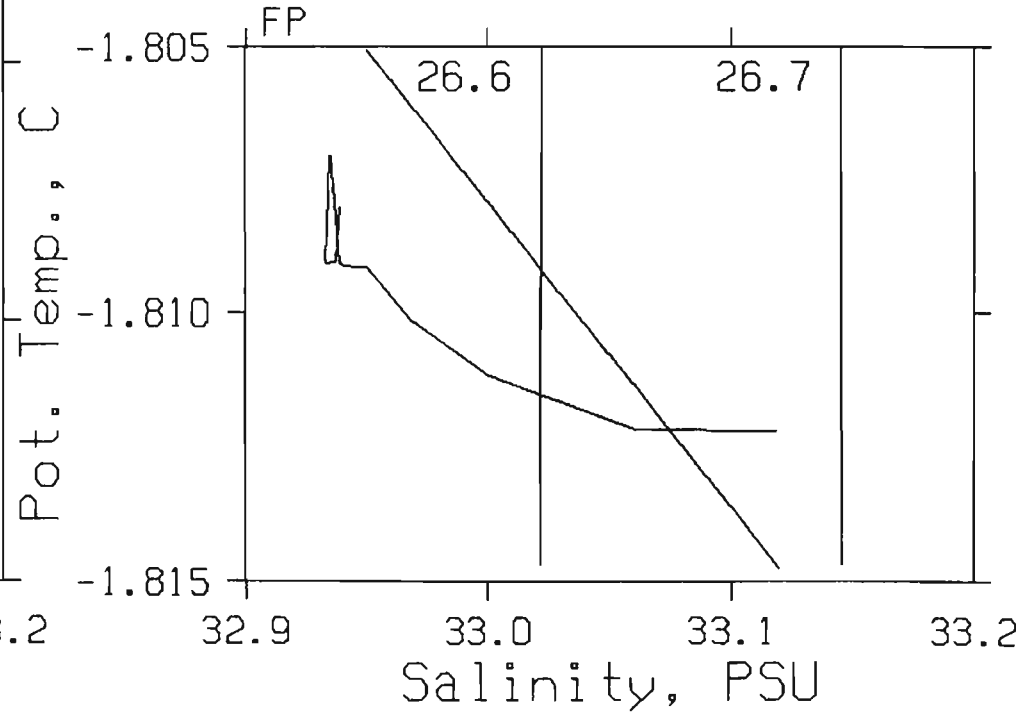




NOGAP ICEWORK 1992
Cruise 9207
STATION : E900
REFERENCE NO.: 92-07-030
DATE/TIME : 27/04/92 20:33 MDT
POSITION : 70-15.0N 128-45.6W

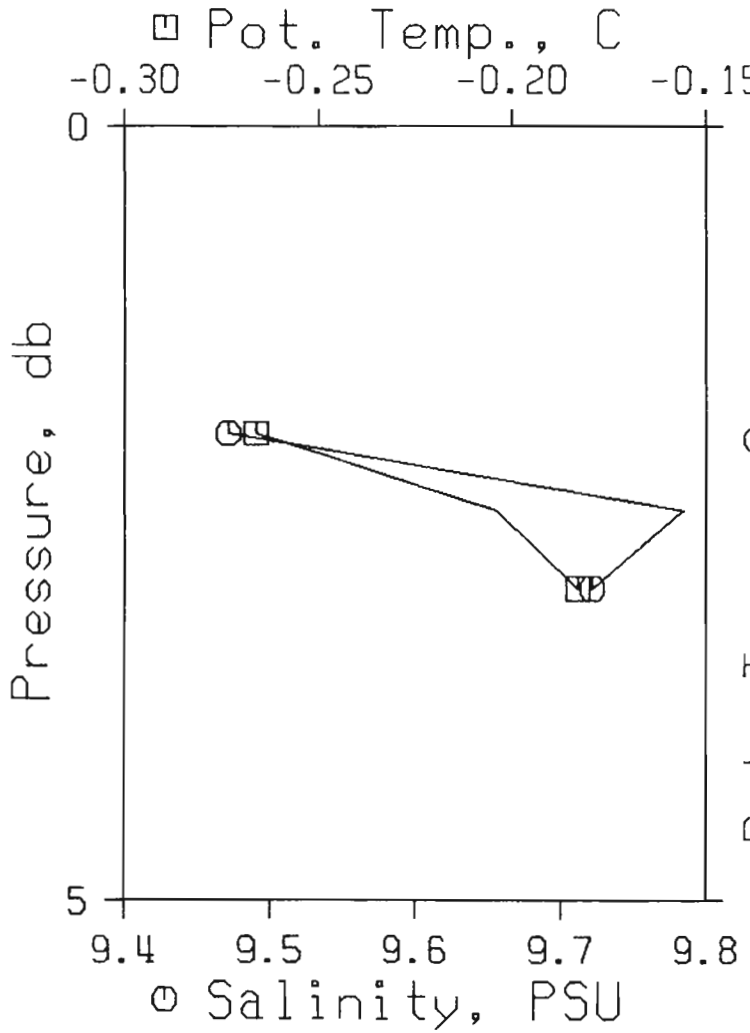
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-1.808	-1.808	32.939	26.53	151.7	.03	.00	1438
4	4	-1.809	-1.809	32.933	26.53	152.2	.06	.00	1438
6	6	-1.809	-1.809	32.940	26.53	151.6	.09	.00	1438
8	8	-1.809	-1.809	32.943	26.53	151.4	.12	.00	1438
10	10	-1.810	-1.810	32.969	26.56	149.4	.15	.01	1438
12	12	-1.815	-1.815	33.120	26.68	137.7	.18	.01	1438
13	12	-1.812	-1.812	33.119	26.68	137.8	.19	.01	1438

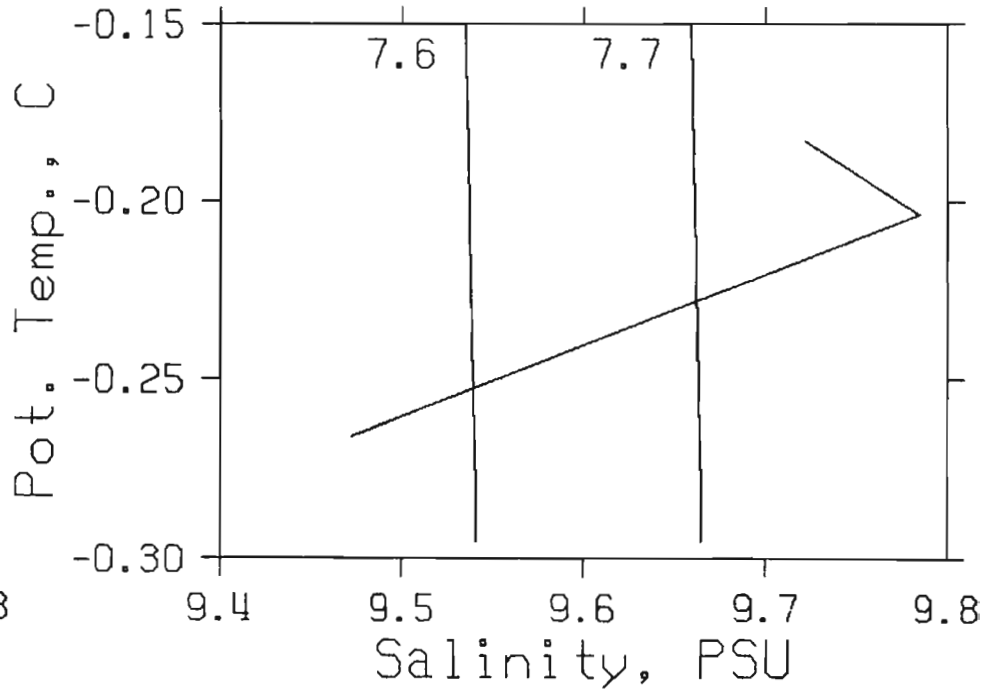




NOGAP ICEWORK 1992
Cruise 9207
STATION : E230
REFERENCE NO.: 92-07-031
DATE/TIME : 27/04/92 17:13 MDT
POSITION : 69- 5.0N 132-49.8W

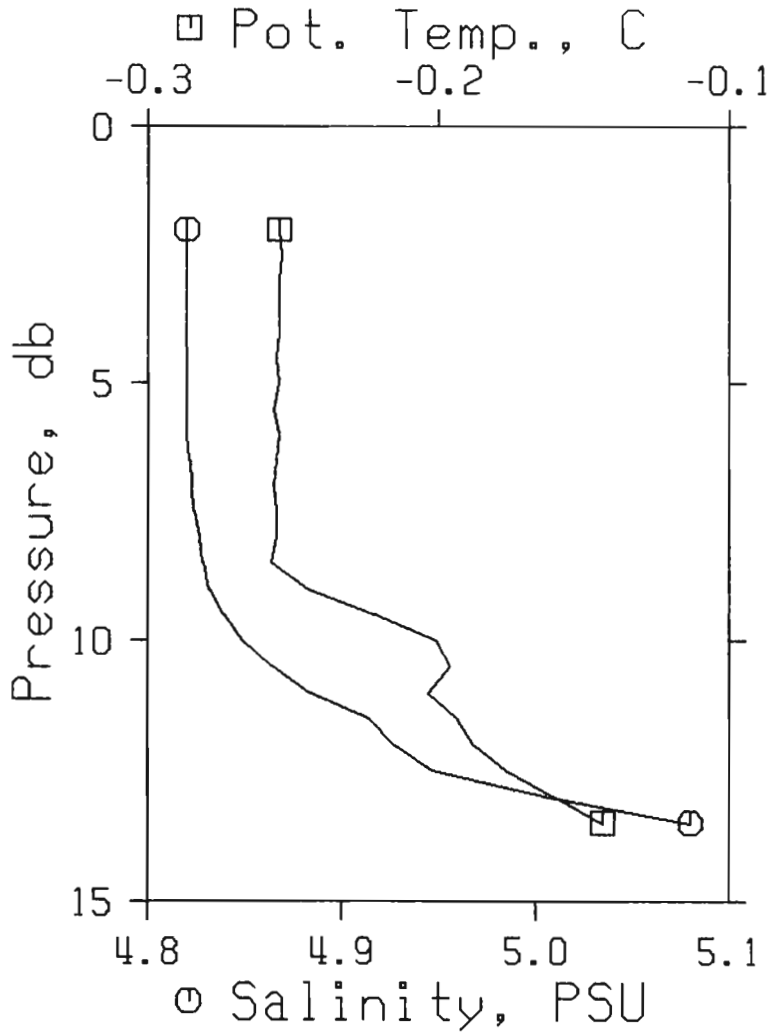
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-.266	-.266	9.472	7.55	1987.5	.40	.00	1414
3	3	-.183	-.183	9.722	7.75	1967.3	.59	.01	1415

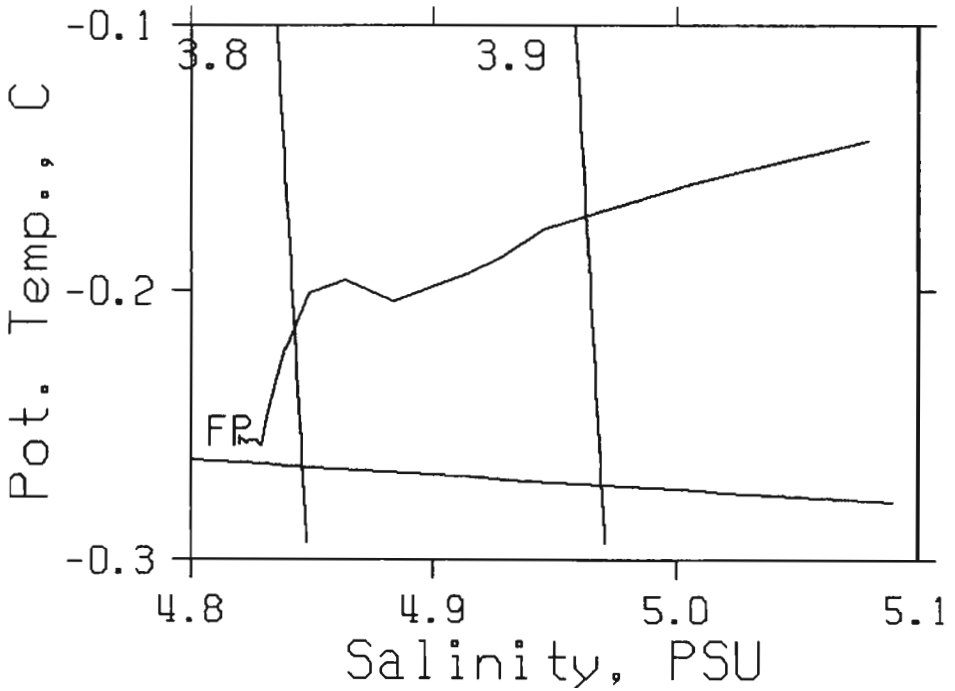




NOGAP ICEWORK 1992
Cruise 9207
STATION : E220
REFERENCE NO.: 92-07-032
DATE/TIME : 27/04/92 19:39 MDT
POSITION : 68-55.4N 132-49.0W

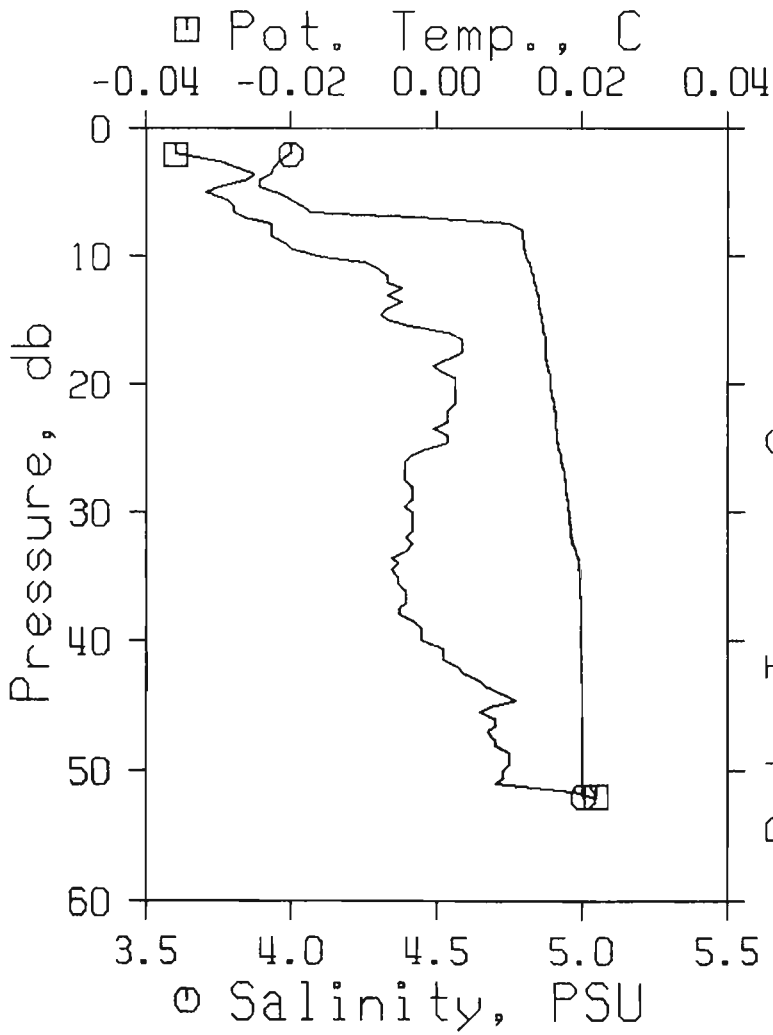
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-.255	-.255	4.820	3.78	2359.8	.47	.00	1408
4	4	-.255	-.255	4.820	3.78	2359.8	.94	.02	1408
6	6	-.255	-.255	4.820	3.78	2359.8	1.42	.04	1408
8	8	-.256	-.256	4.827	3.79	2359.2	1.89	.08	1408
10	10	-.201	-.201	4.849	3.81	2357.2	2.36	.12	1408
12	12	-.188	-.188	4.928	3.87	2350.7	2.83	.17	1408
14	13	-.144	-.144	5.080	4.00	2338.3	3.18	.22	1409

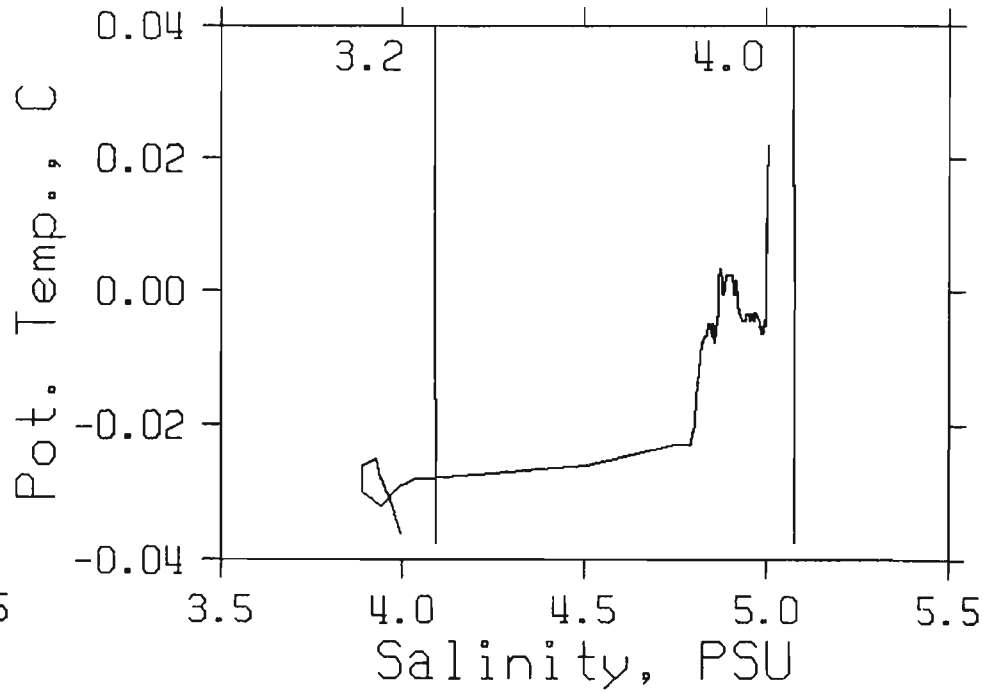




NOGAP ICEWORK 1992
Cruise 9207
STATION : E200
REFERENCE NO.: 92-07-035
DATE/TIME : 28/04/92 13:05 MDT
POSITION : 68-52.1N 133-13.0W

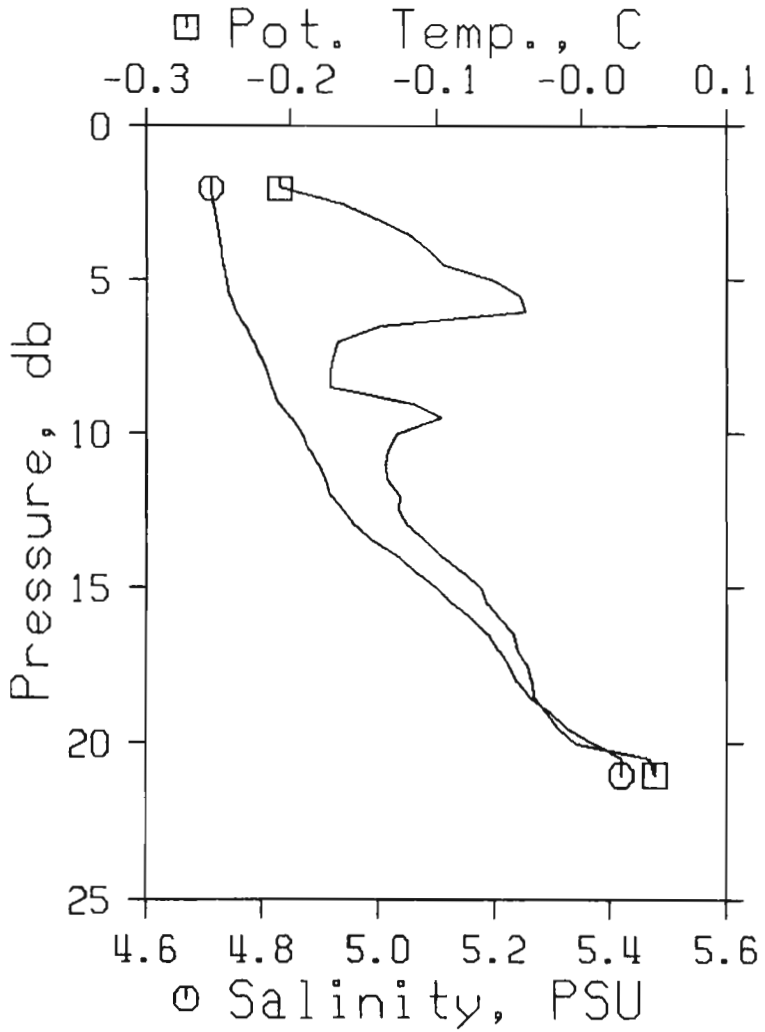
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-.036	-.036	3.997	3.12	2424.9	.48	.00	1408
4	4	-.026	-.026	3.890	3.04	2433.5	.97	.02	1408
6	6	-.028	-.028	4.038	3.16	2421.6	1.46	.04	1408
8	8	-.023	-.023	4.795	3.77	2360.6	1.93	.08	1409
10	10	-.016	-.016	4.808	3.78	2359.5	2.41	.12	1409
12	12	-.007	-.007	4.836	3.81	2357.2	2.88	.17	1409
15	15	-.007	-.007	4.861	3.83	2355.2	3.58	.27	1409
20	20	.002	.002	4.892	3.85	2352.7	4.76	.48	1409
25	25	-.002	-.001	4.922	3.88	2350.3	5.94	.75	1409
30	30	-.004	-.003	4.957	3.90	2347.5	7.11	1.08	1410
35	35	-.006	-.005	4.995	3.93	2344.4	8.28	1.47	1410
40	40	-.003	-.002	4.998	3.94	2344.2	9.45	1.91	1410
45	45	.007	.008	5.001	3.94	2343.9	10.62	2.42	1410
50	49	.008	.009	5.004	3.94	2343.6	11.79	2.99	1410
52	51	.021	.022	5.005	3.94	2343.5	12.26	3.23	1410

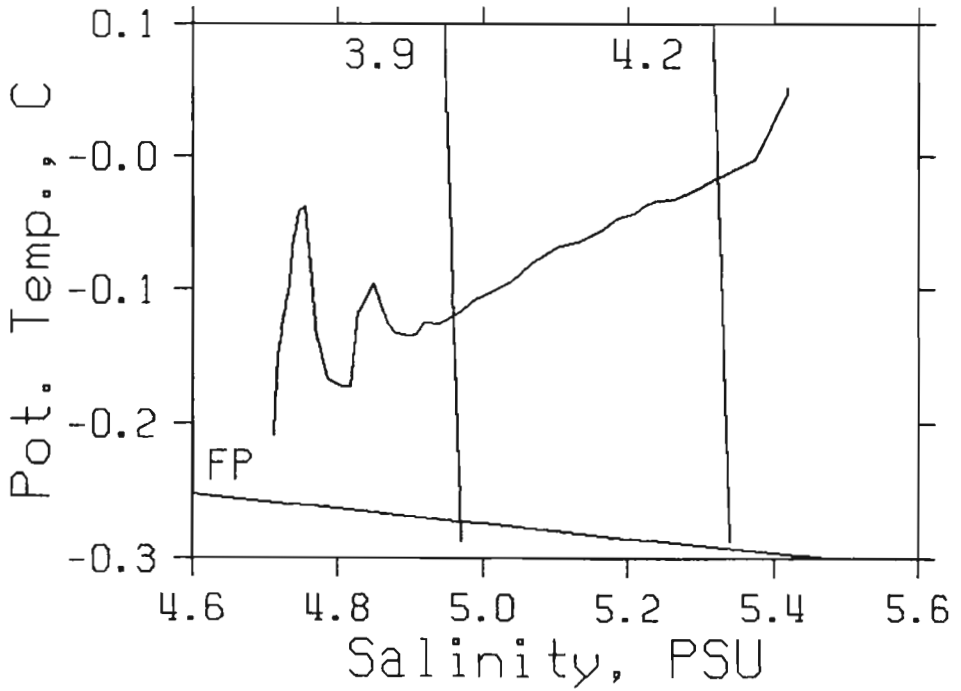




NOGAP ICEWORK 1992
Cruise 9207
STATION : E210
REFERENCE NO.: 92-07-036
DATE/TIME : 28/04/92 17:16 MDT
POSITION : 68-55.7N 133- 4.6W

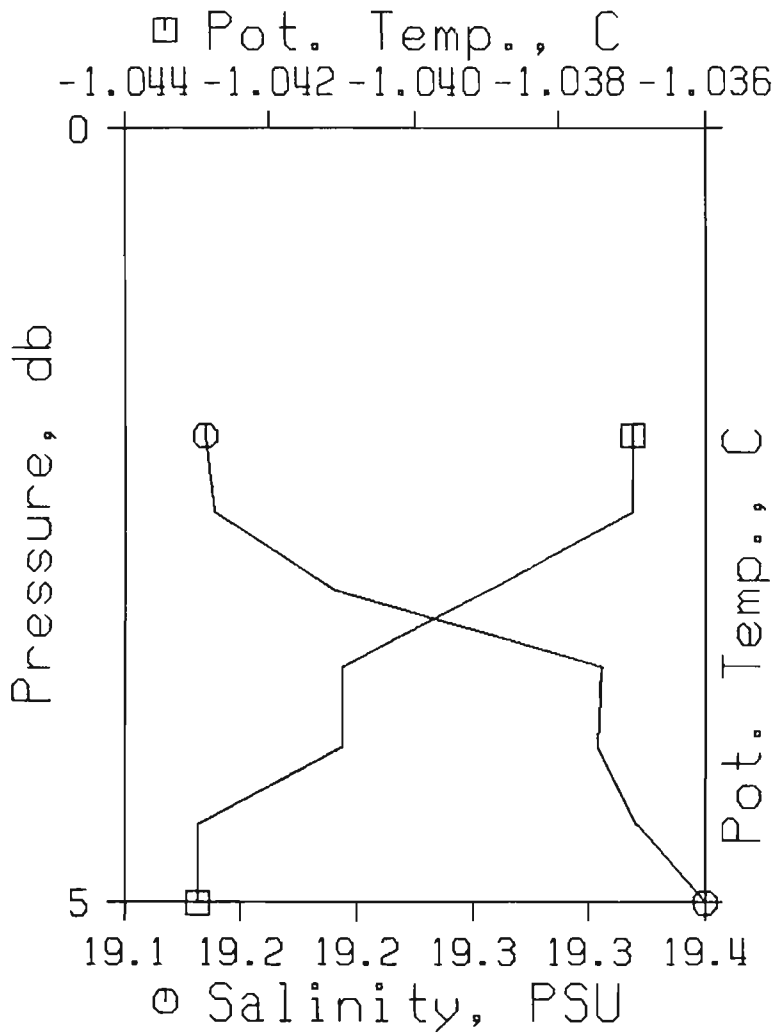
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-.208	-.208	4.713	3.69	2368.2	.47	.00	1408
4	4	-.105	-.105	4.732	3.72	2366.1	.95	.02	1408
6	6	-.038	-.038	4.756	3.74	2363.8	1.42	.04	1409
8	8	-.173	-.173	4.809	3.78	2360.2	1.89	.08	1408
10	10	-.126	-.126	4.870	3.83	2355.1	2.36	.12	1409
12	12	-.125	-.125	4.920	3.87	2351.1	2.83	.17	1409
15	15	-.069	-.069	5.103	4.02	2336.1	3.54	.27	1409
20	20	-.003	-.003	5.375	4.24	2313.9	4.70	.48	1410
21	21	.051	.051	5.419	4.28	2310.1	4.93	.52	1410

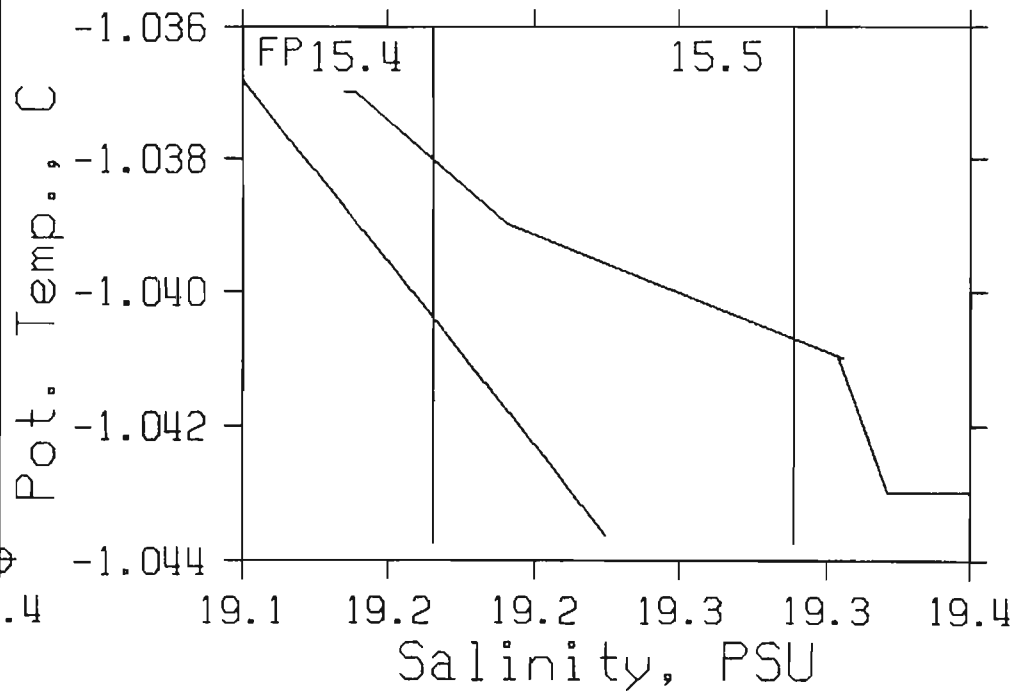




NOGAP ICEWORK 1992
Cruise 9207
STATION : E660
REFERENCE NO.: 92-07-037
DATE/TIME : 01/05/92 19:13 MDT
POSITION : 69-31.6N 130-55.9W

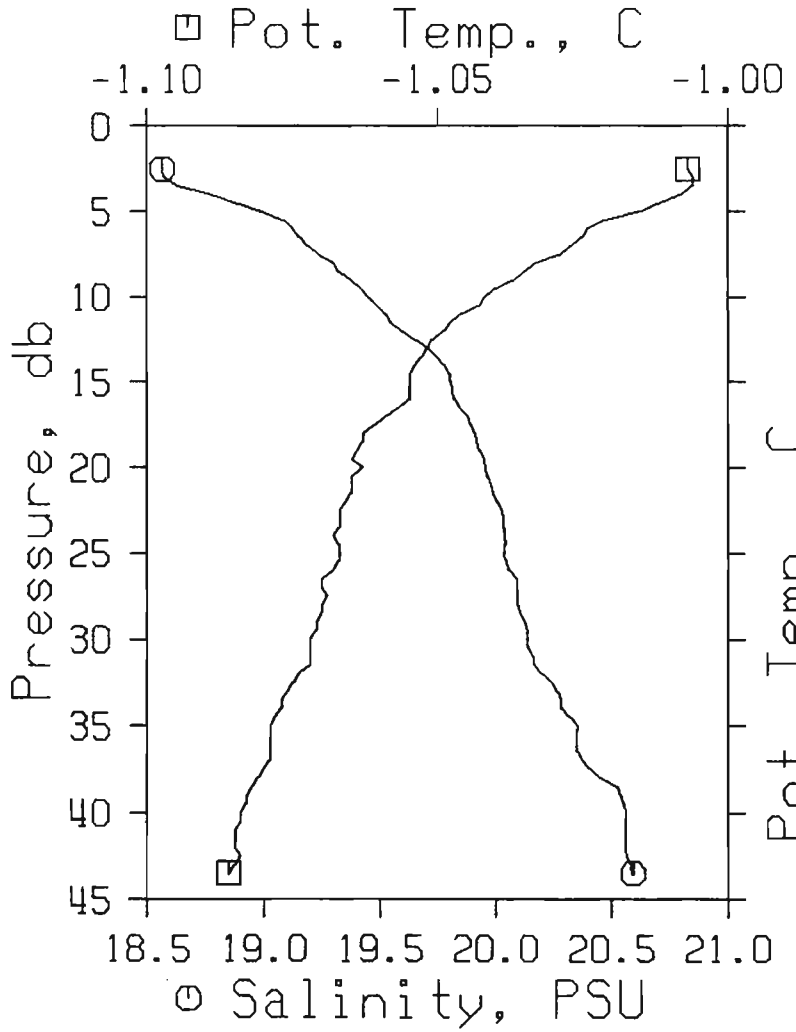
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-1.037	-1.037	19.185	15.38	1221.9	.24	.00	1423
4	4	-1.041	-1.041	19.354	15.51	1208.7	.49	.01	1423
5	5	-1.043	-1.043	19.400	15.55	1205.1	.61	.02	1423

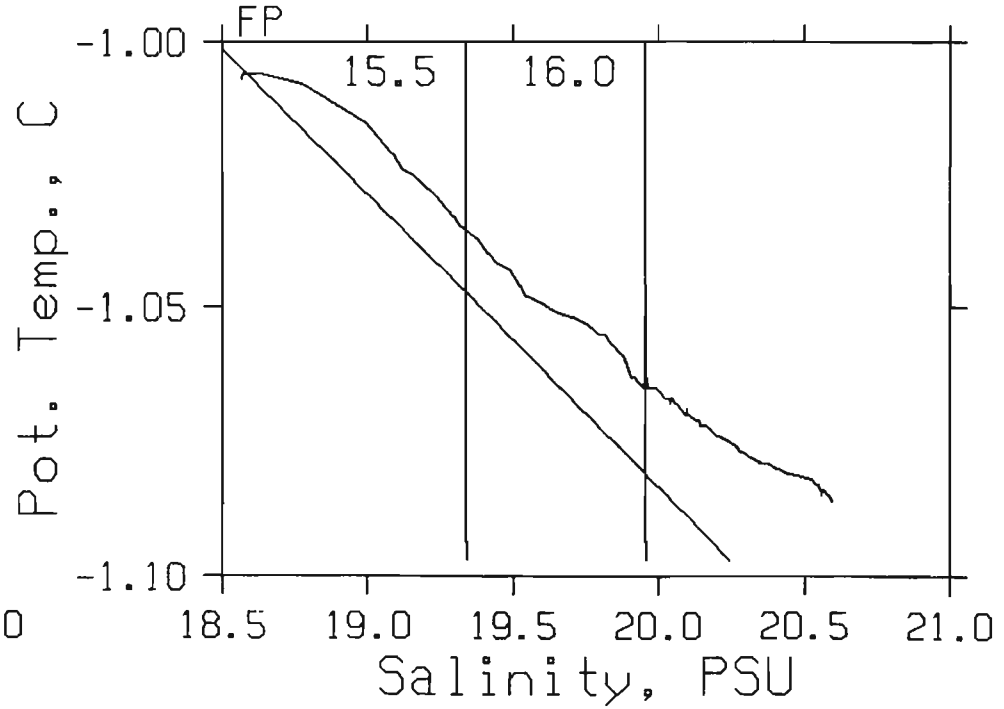




NOGAP ICEWORK 1992
Cruise 9207
STATION : E650
REFERENCE NO.: 92-07-038
DATE/TIME : 01/05/92 20:20 MDT
POSITION : 69-33.5N 131- .1W

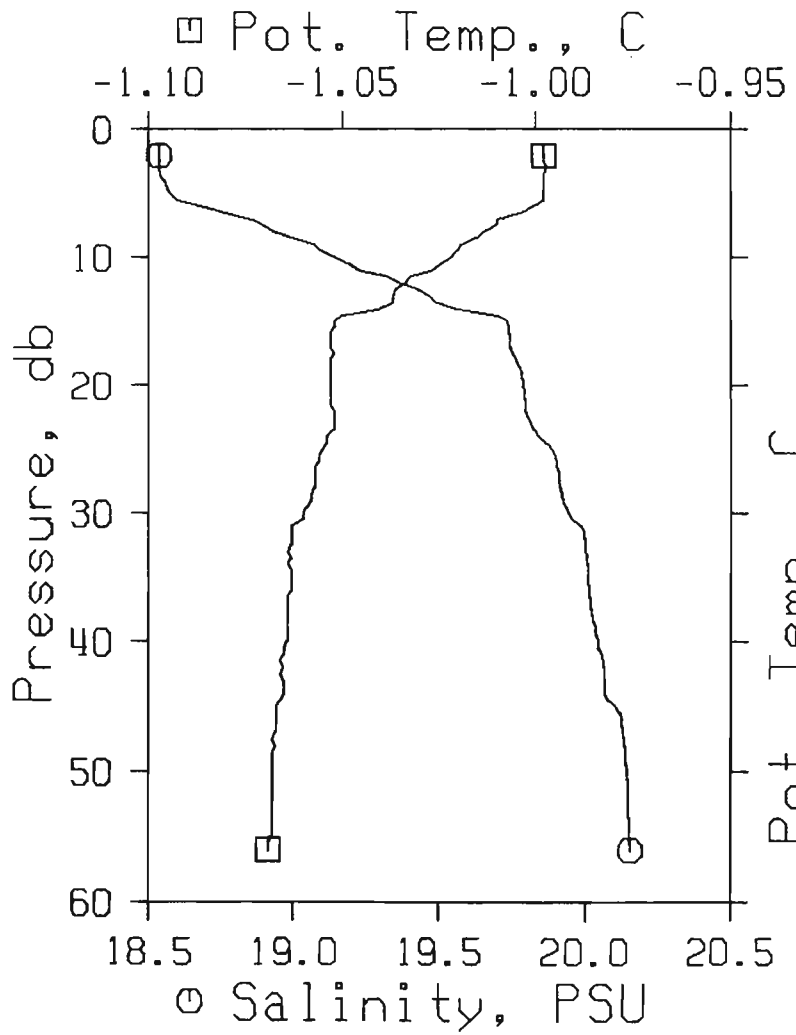
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-1.007	-1.007	18.568	14.88	1270.3	.25	.00	1422
4	4	-1.008	-1.008	18.779	15.05	1253.8	.51	.01	1423
6	6	-1.024	-1.024	19.122	15.32	1226.8	.75	.02	1423
8	8	-1.033	-1.033	19.299	15.47	1213.0	1.00	.04	1423
10	10	-1.042	-1.042	19.450	15.59	1201.1	1.24	.06	1424
12	12	-1.049	-1.049	19.590	15.70	1190.2	1.48	.09	1424
15	15	-1.055	-1.055	19.804	15.88	1173.4	1.83	.14	1424
20	20	-1.063	-1.063	19.958	16.00	1161.3	2.42	.24	1424
25	25	-1.067	-1.067	20.041	16.07	1154.8	2.99	.37	1424
30	30	-1.072	-1.072	20.141	16.15	1147.0	3.57	.53	1425
35	35	-1.079	-1.079	20.357	16.32	1130.1	4.14	.72	1425
40	40	-1.084	-1.084	20.561	16.49	1114.1	4.70	.94	1425
45	45	-1.086	-1.086	20.598	16.52	1111.2	5.26	1.18	1425

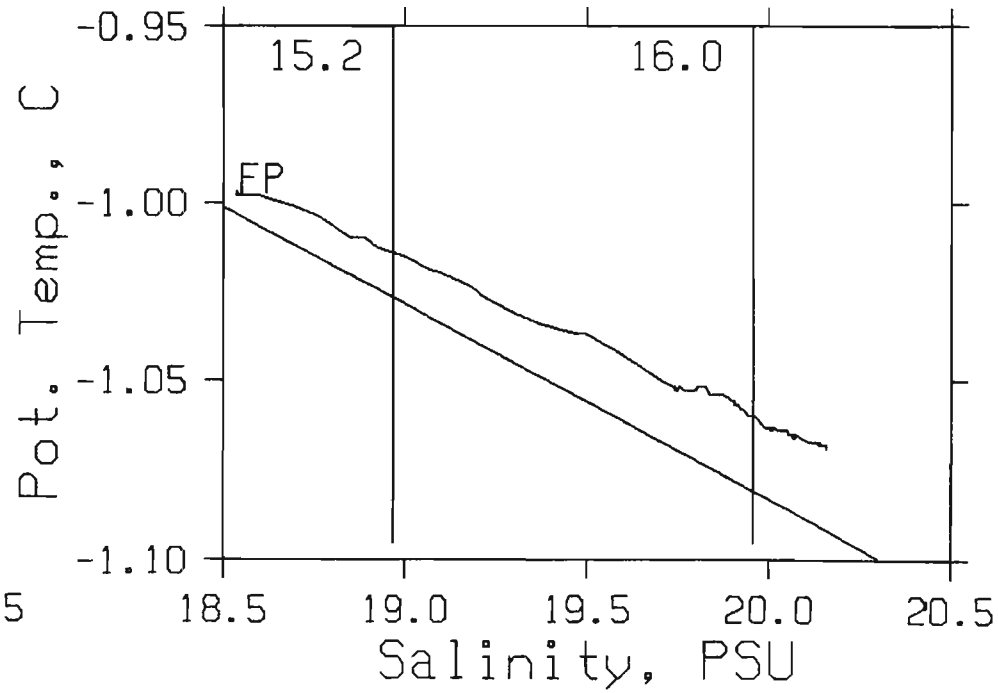




NOGAP ICEWORK 1992
Cruise 9207
STATION : E640
REFERENCE NO.: 92-07-039
DATE/TIME : 01/05/92 21:33 MDT
POSITION : 69-35.3N 131- 4.2W

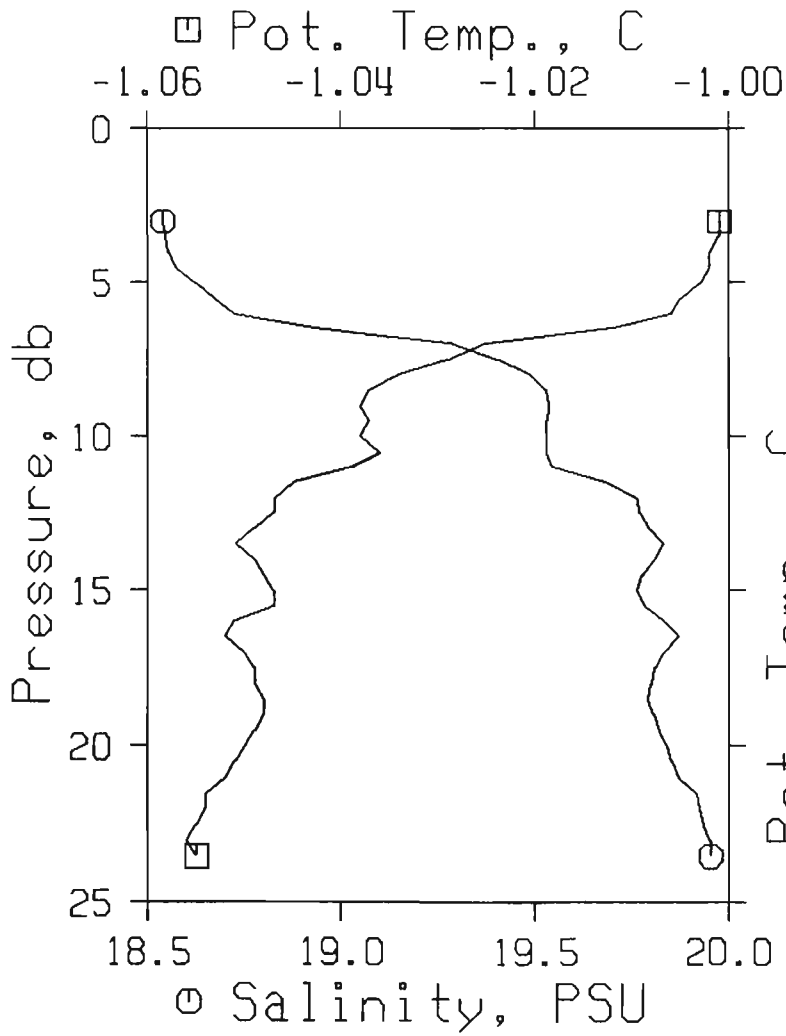
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-.998	-.998	18.536	14.85	1272.8	.25	.00	1422
4	4	-.998	-.998	18.552	14.86	1271.6	.51	.01	1422
6	6	-1.001	-1.001	18.690	14.98	1260.7	.76	.02	1423
8	8	-1.013	-1.013	18.928	15.17	1242.1	1.01	.04	1423
10	10	-1.022	-1.022	19.146	15.35	1225.0	1.26	.06	1423
12	12	-1.034	-1.034	19.369	15.52	1207.5	1.50	.09	1423
15	15	-1.052	-1.052	19.736	15.82	1178.7	1.86	.14	1424
20	20	-1.053	-1.053	19.789	15.86	1174.6	2.45	.24	1424
25	25	-1.055	-1.055	19.891	15.95	1166.6	3.03	.38	1424
30	30	-1.060	-1.060	19.943	15.99	1162.5	3.62	.54	1424
35	35	-1.063	-1.063	20.013	16.05	1157.0	4.20	.73	1425
40	40	-1.064	-1.064	20.047	16.07	1154.4	4.77	.95	1425
45	45	-1.067	-1.067	20.106	16.12	1149.7	5.35	1.20	1425
50	49	-1.068	-1.068	20.146	16.15	1146.6	5.92	1.48	1425
56	55	-1.069	-1.069	20.156	16.16	1145.8	6.61	1.85	1425

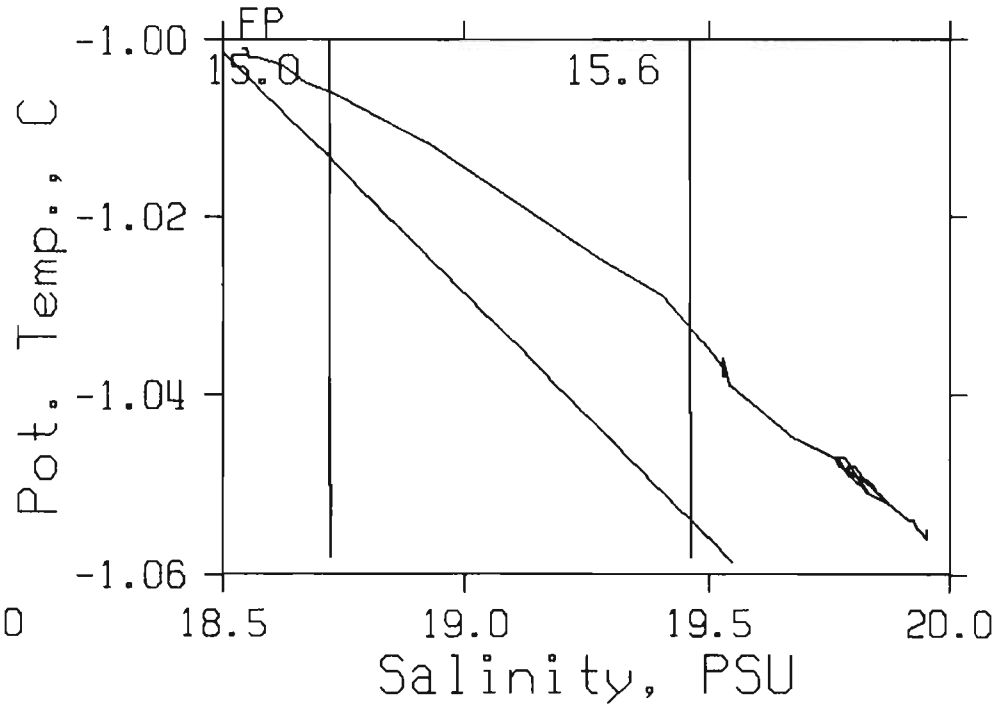




NOGAP ICEWORK 1992
Cruise 9207
STATION : E630
REFERENCE NO.: 92-07-040
DATE/TIME : 02/05/92 11:29 MDT
POSITION : 69-36.2N 131- 8.0W

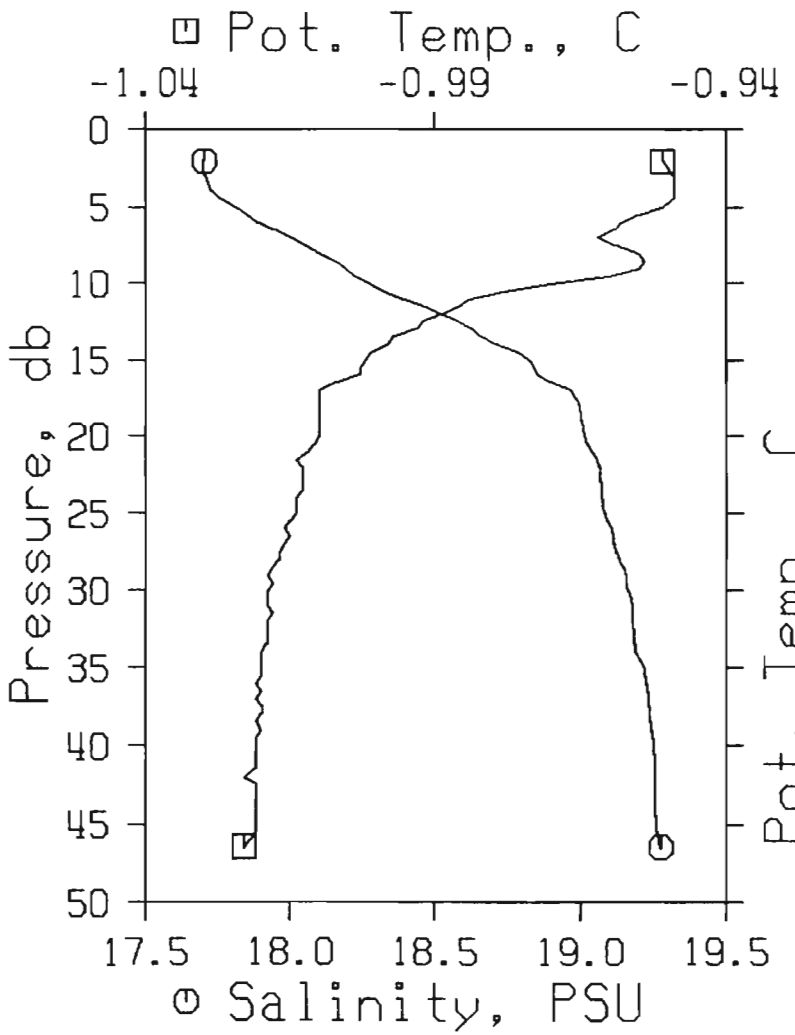
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-1.001	-1.001	18.541	14.86	1272.4	.25	.00	1422
4	4	-1.002	-1.002	18.556	14.87	1271.3	.51	.01	1422
6	6	-1.006	-1.006	18.724	15.00	1258.1	.76	.02	1423
8	8	-1.034	-1.034	19.488	15.62	1198.1	1.01	.04	1424
10	10	-1.038	-1.038	19.530	15.65	1194.9	1.25	.06	1424
12	12	-1.047	-1.047	19.764	15.85	1176.5	1.48	.09	1424
15	15	-1.047	-1.047	19.763	15.84	1176.6	1.84	.14	1424
20	20	-1.050	-1.050	19.840	15.91	1170.6	2.42	.24	1424
25	25	-1.059	-1.059	20.024	16.06	1156.2	3.00	.38	1424

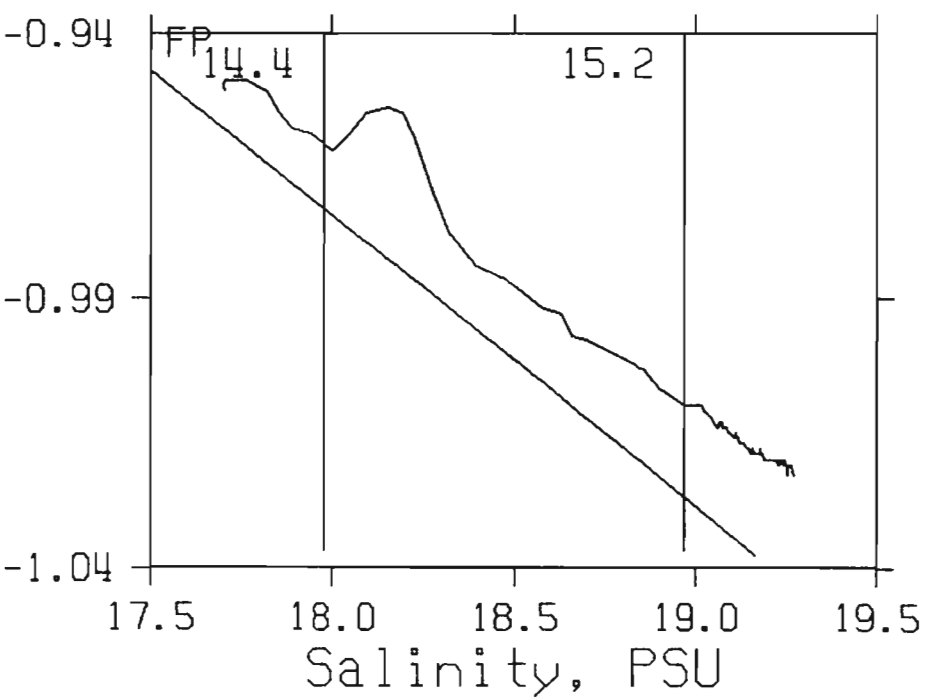




NOGAP ICEWORK 1992
Cruise 9207
STATION : E620
REFERENCE NO.: 92-07-041
DATE/TIME : 02/05/92 14:44 MDT
POSITION : 69-34.7N 131-13.8W

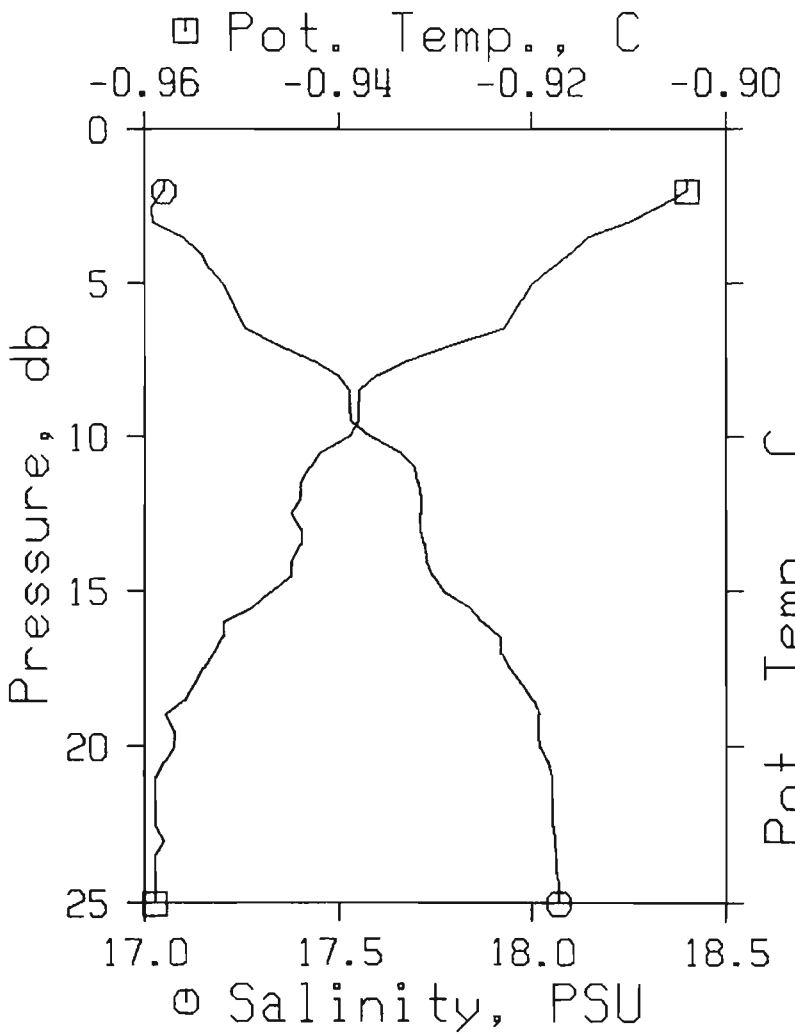
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-.951	-.951	17.705	14.18	1338.0	.27	.00	1421
4	4	-.949	-.949	17.733	14.20	1335.8	.54	.01	1422
6	6	-.958	-.958	17.891	14.33	1323.4	.80	.02	1422
8	8	-.955	-.955	18.100	14.50	1307.0	1.06	.04	1422
10	10	-.970	-.970	18.277	14.64	1293.1	1.32	.07	1422
12	12	-.989	-.989	18.526	14.84	1273.6	1.58	.10	1423
15	15	-1.002	-1.002	18.827	15.09	1250.0	1.96	.15	1423
20	20	-1.010	-1.010	19.017	15.24	1235.1	2.58	.26	1423
25	25	-1.014	-1.014	19.087	15.30	1229.6	3.19	.40	1423
30	30	-1.019	-1.019	19.166	15.36	1223.4	3.81	.57	1424
35	35	-1.020	-1.020	19.222	15.41	1219.0	4.42	.77	1424
40	40	-1.021	-1.021	19.252	15.43	1216.6	5.03	1.00	1424
45	45	-1.021	-1.021	19.262	15.44	1215.9	5.63	1.27	1424
47	46	-1.023	-1.023	19.277	15.45	1214.7	5.82	1.35	1424

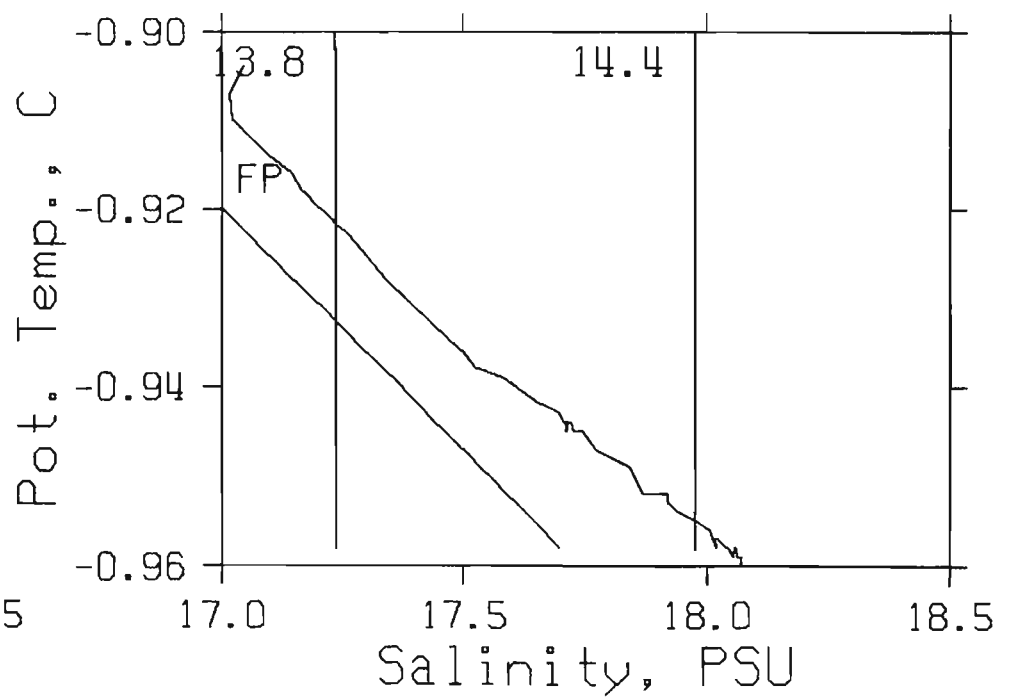




NOGAP ICEWORK 1992
Cruise 9207
STATION : E600
REFERENCE NO.: 92-07-042
DATE/TIME : 02/05/92 16:39 MDT
POSITION : 69-33.3N 131-24.0W

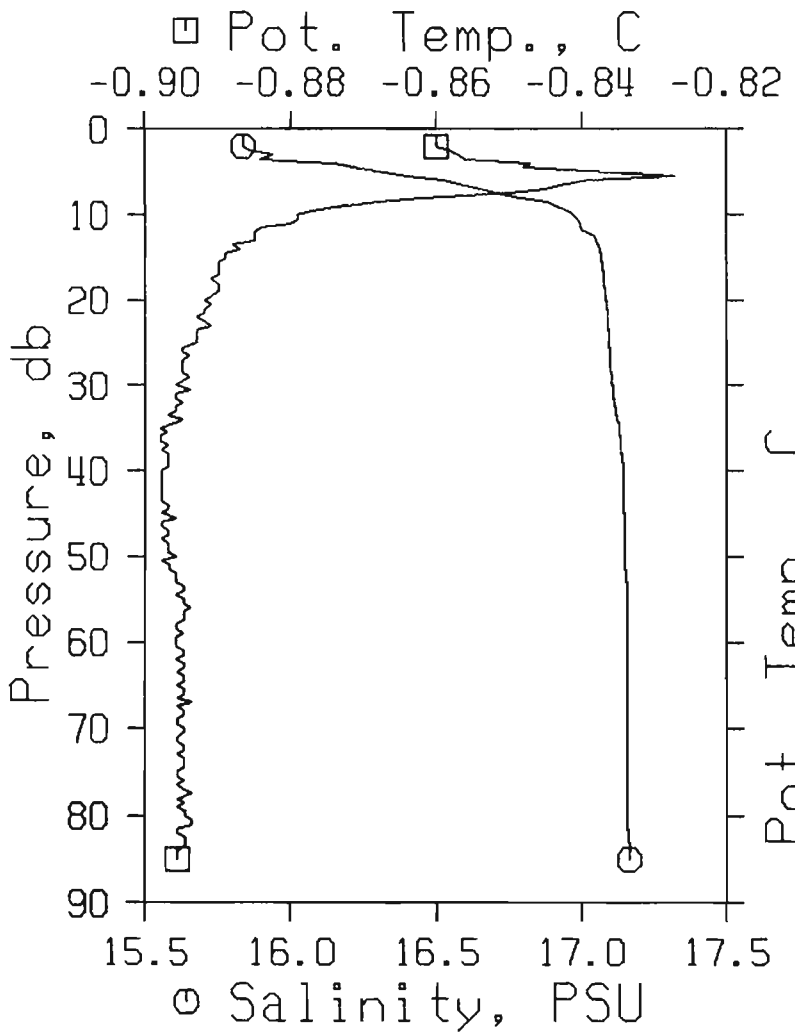
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-.904	-.904	17.049	13.65	1389.6	.28	.00	1421
4	4	-.916	-.916	17.146	13.73	1382.0	.56	.01	1421
6	6	-.922	-.922	17.241	13.81	1374.5	.83	.03	1421
8	8	-.936	-.936	17.497	14.01	1354.4	1.10	.04	1421
10	10	-.939	-.939	17.582	14.08	1347.7	1.37	.07	1422
12	12	-.944	-.944	17.714	14.19	1337.3	1.64	.10	1422
15	15	-.947	-.947	17.773	14.23	1332.7	2.04	.15	1422
20	20	-.957	-.957	18.023	14.44	1313.1	2.70	.27	1422
25	25	-.959	-.959	18.071	14.48	1309.3	3.36	.42	1422
26	25	-.960	-.960	18.072	14.48	1309.2	3.42	.44	1422

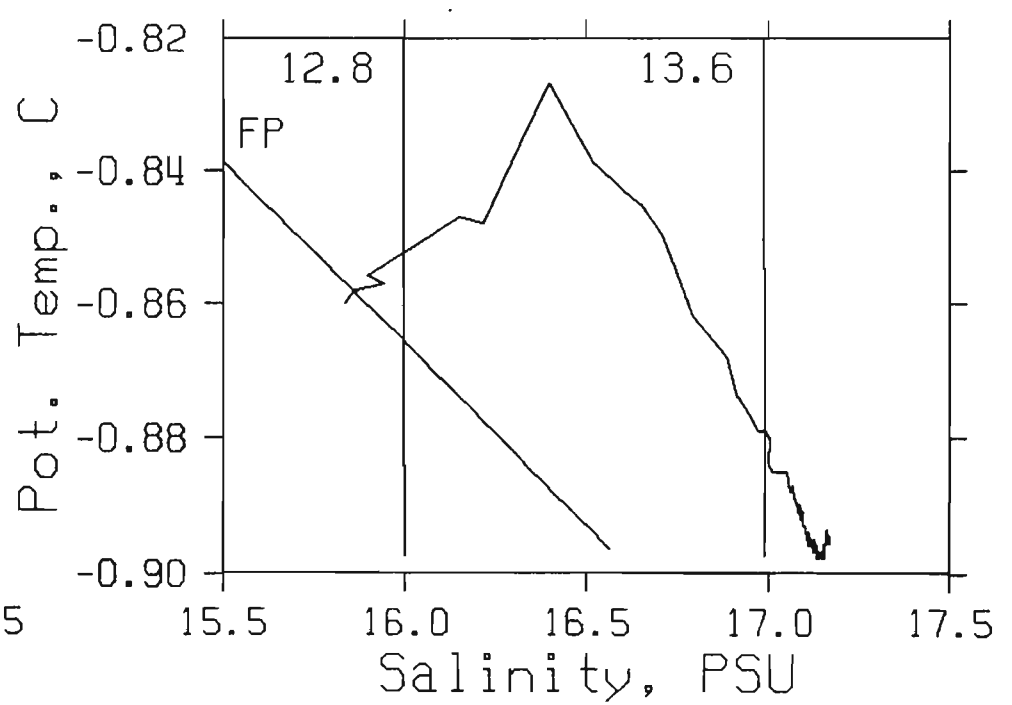




NOGAP ICEWORK 1992
Cruise 9207
STATION : E500
REFERENCE NO.: 92-07-043
DATE/TIME : 03/05/92 15:40 MDT
POSITION : 69-39.1N 131-31.3W

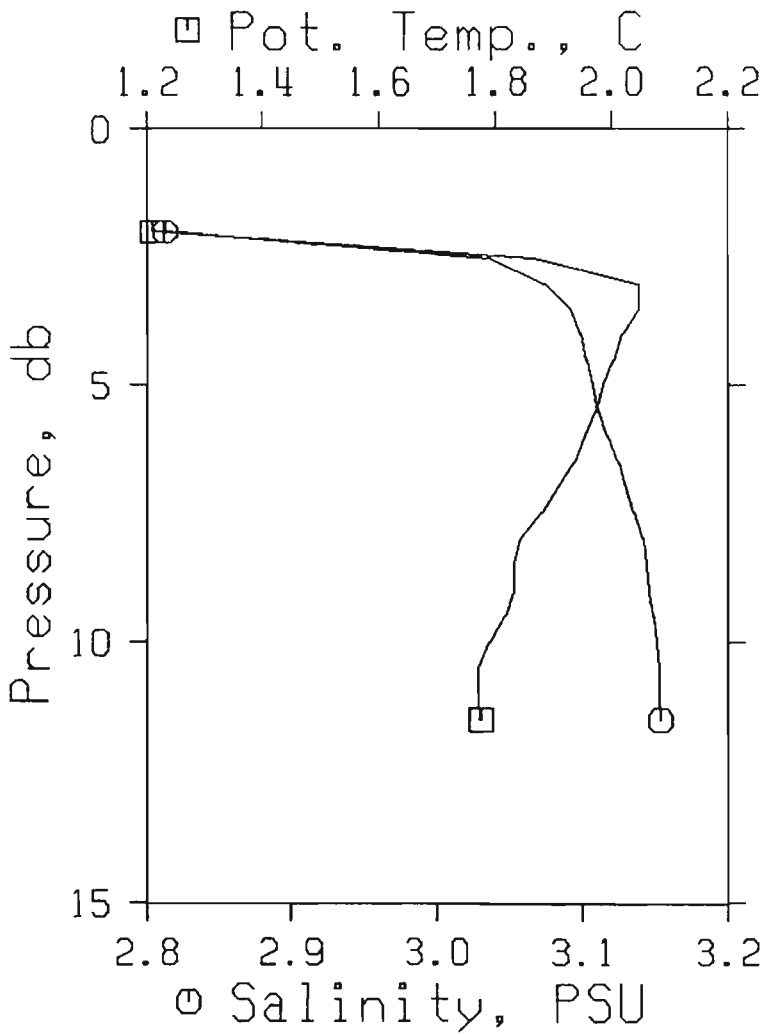
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-.860	-.860	15.837	12.67	1485.0	.30	.00	1419
4	4	-.847	-.847	16.150	12.93	1460.3	.59	.01	1420
6	6	-.839	-.839	16.524	13.23	1430.8	.88	.03	1421
8	8	-.862	-.862	16.792	13.44	1409.7	1.17	.05	1421
10	10	-.879	-.879	16.973	13.59	1395.5	1.45	.07	1421
12	12	-.885	-.885	17.009	13.62	1392.7	1.72	.10	1421
15	15	-.889	-.889	17.069	13.67	1388.0	2.14	.16	1421
20	20	-.892	-.892	17.085	13.68	1386.7	2.83	.28	1421
25	25	-.893	-.893	17.097	13.69	1385.8	3.53	.44	1421
30	30	-.896	-.896	17.108	13.70	1384.9	4.22	.64	1421
35	35	-.898	-.898	17.132	13.72	1383.0	4.91	.87	1422
40	40	-.898	-.898	17.143	13.73	1382.2	5.60	1.13	1422
45	45	-.898	-.898	17.147	13.73	1381.8	6.29	1.43	1422
50	49	-.896	-.896	17.150	13.73	1381.6	6.98	1.76	1422
60	59	-.896	-.896	17.157	13.74	1381.1	8.36	2.53	1422
70	69	-.895	-.895	17.158	13.74	1381.0	9.74	3.45	1422
80	79	-.895	-.895	17.160	13.74	1380.8	11.12	4.50	1422
85	84	-.896	-.896	17.165	13.74	1380.4	11.81	5.08	1422

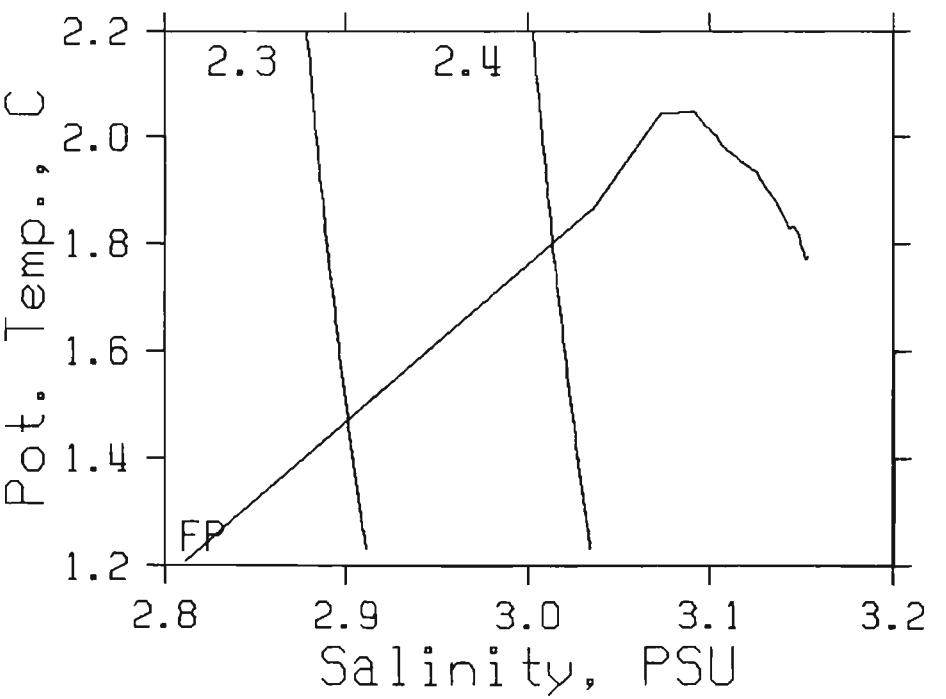




NOGAP ICEWORK 1992
Cruise 9207
STATION : E100
REFERENCE NO.: 92-07-044
DATE/TIME : 04/05/92 11:06 MDT
POSITION : 68-41.3N 133- .7W

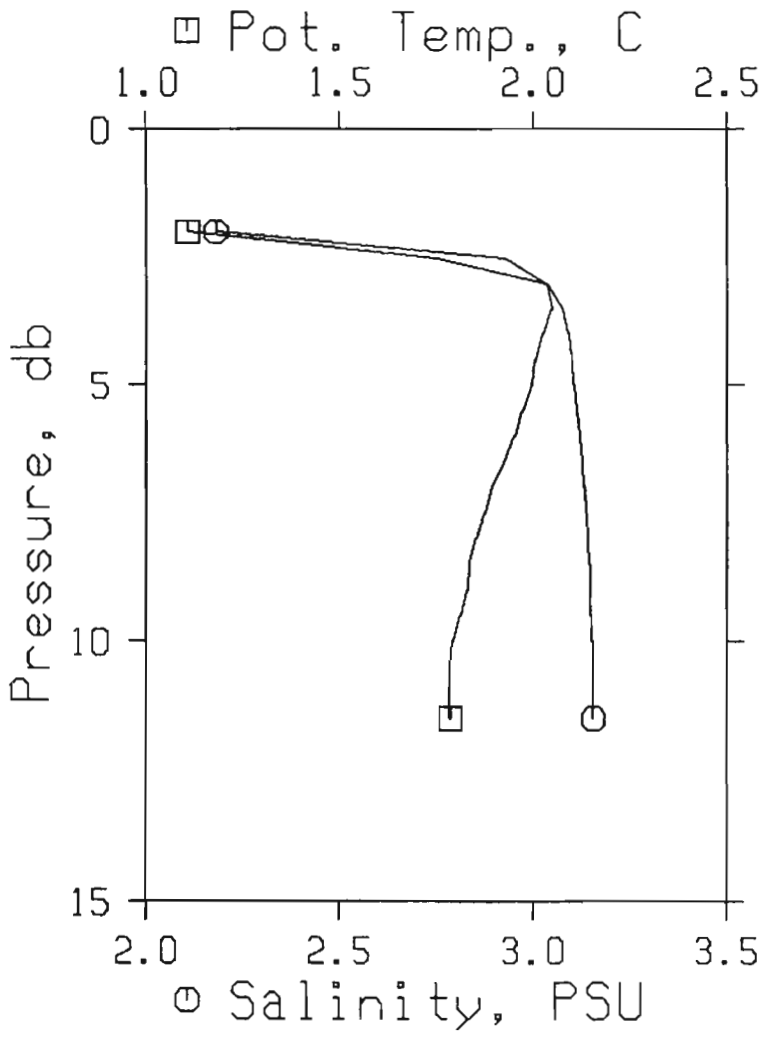
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	1.208	1.208	2.812	2.22	2514.9	.50	.01	1412
4	4	2.019	2.019	3.099	2.47	2489.5	1.00	.02	1417
6	6	1.954	1.954	3.117	2.49	2488.2	1.50	.05	1416
8	8	1.843	1.843	3.142	2.50	2486.5	2.00	.08	1416
10	10	1.791	1.791	3.151	2.51	2485.9	2.49	.13	1416
12	12	1.740	1.740	3.160	2.52	2485.3	2.99	.18	1415

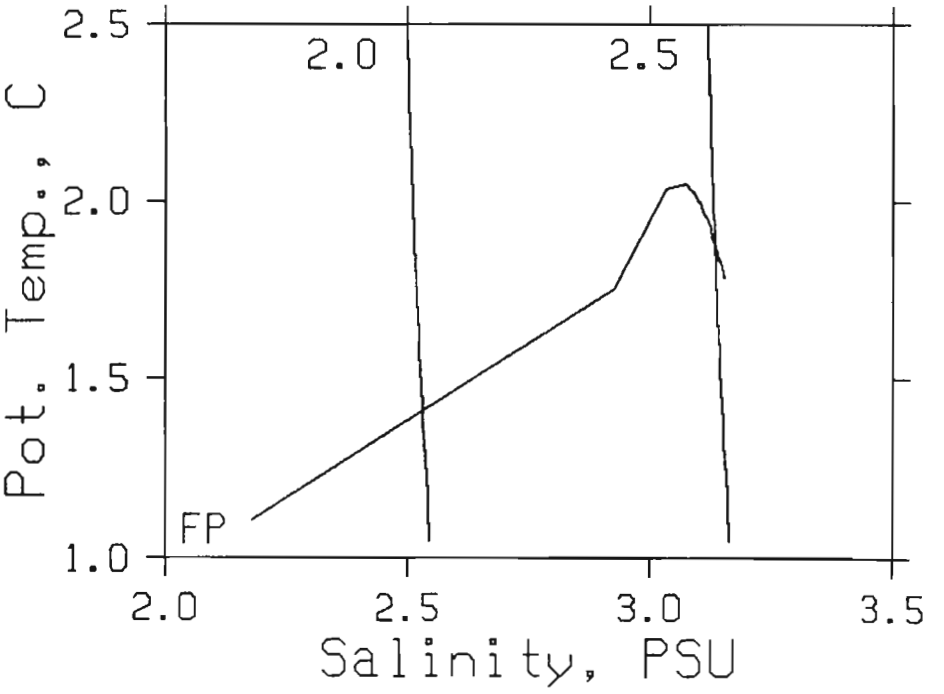




NOGAP ICEWORK 1992
Cruise 9207
STATION : E100
REFERENCE NO.: 92-07-045
DATE/TIME : 04/05/92 11:23 MDT
POSITION : 68-41.3N 133- .7W

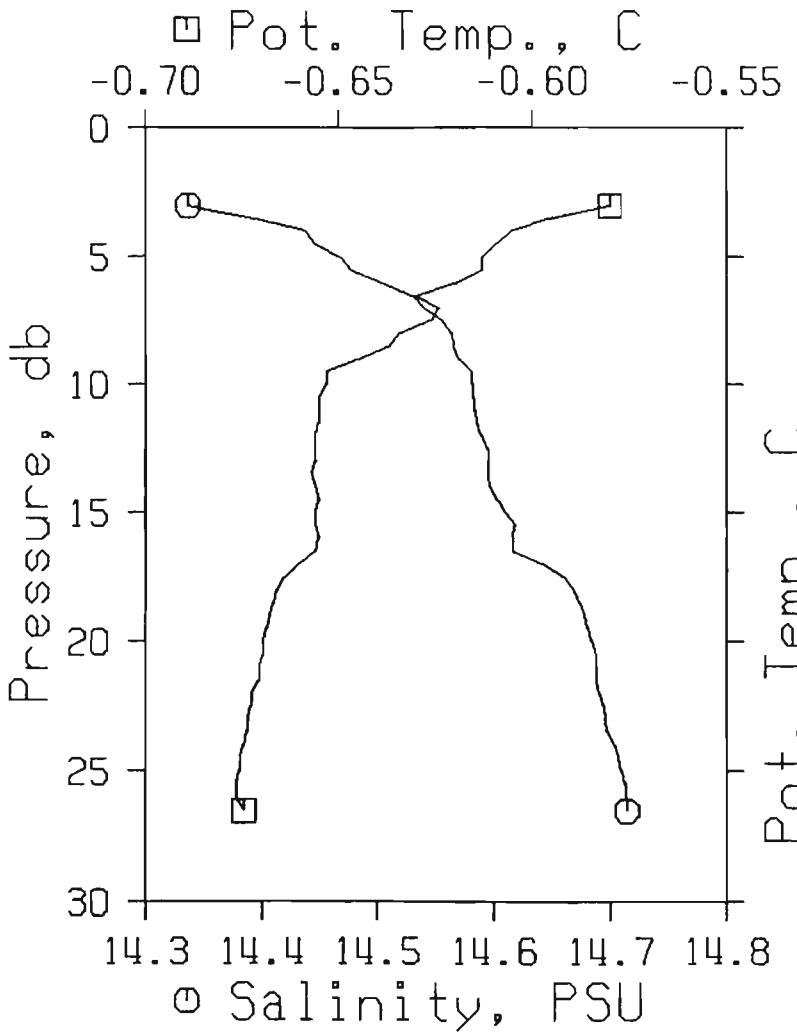
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	1.107	1.107	2.179	1.70	2566.3	.51	.01	1411
4	4	2.026	2.026	3.092	2.47	2490.1	1.01	.02	1417
6	6	1.953	1.953	3.120	2.49	2488.0	1.51	.05	1416
8	8	1.854	1.854	3.141	2.50	2486.6	2.01	.08	1416
10	10	1.793	1.793	3.153	2.51	2485.7	2.51	.13	1416
12	12	1.754	1.754	3.161	2.52	2485.2	3.00	.18	1415

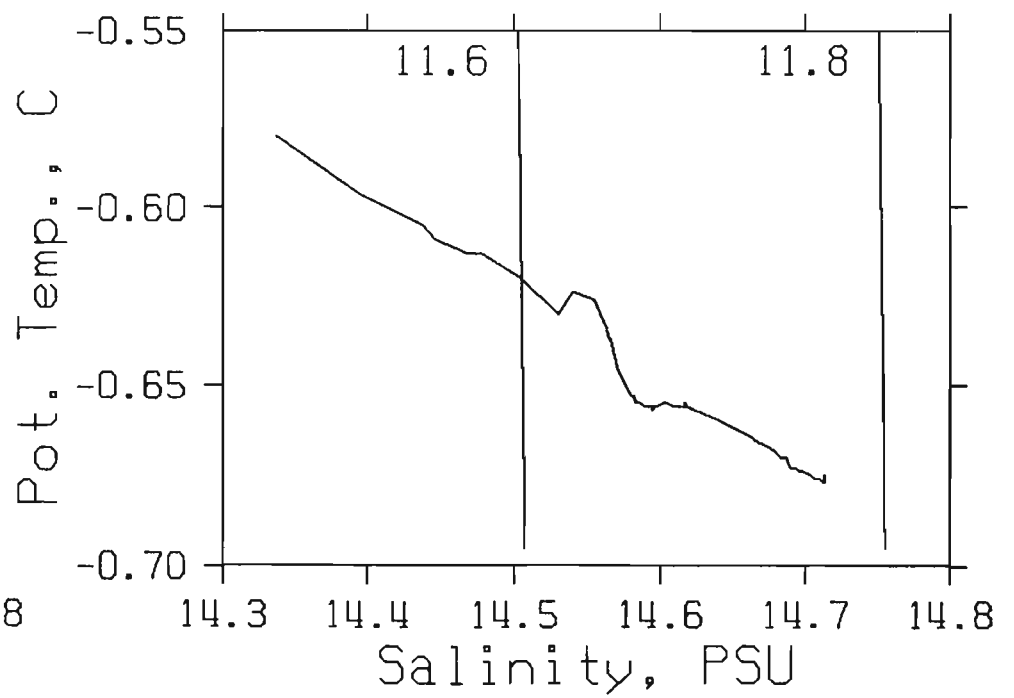




NOGAP ICEWORK 1992
Cruise 9207
STATION : E400
REFERENCE NO.: 92-07-046
DATE/TIME : 04/05/92 14:10 MDT
POSITION : 69-17.8N 132-11.1W

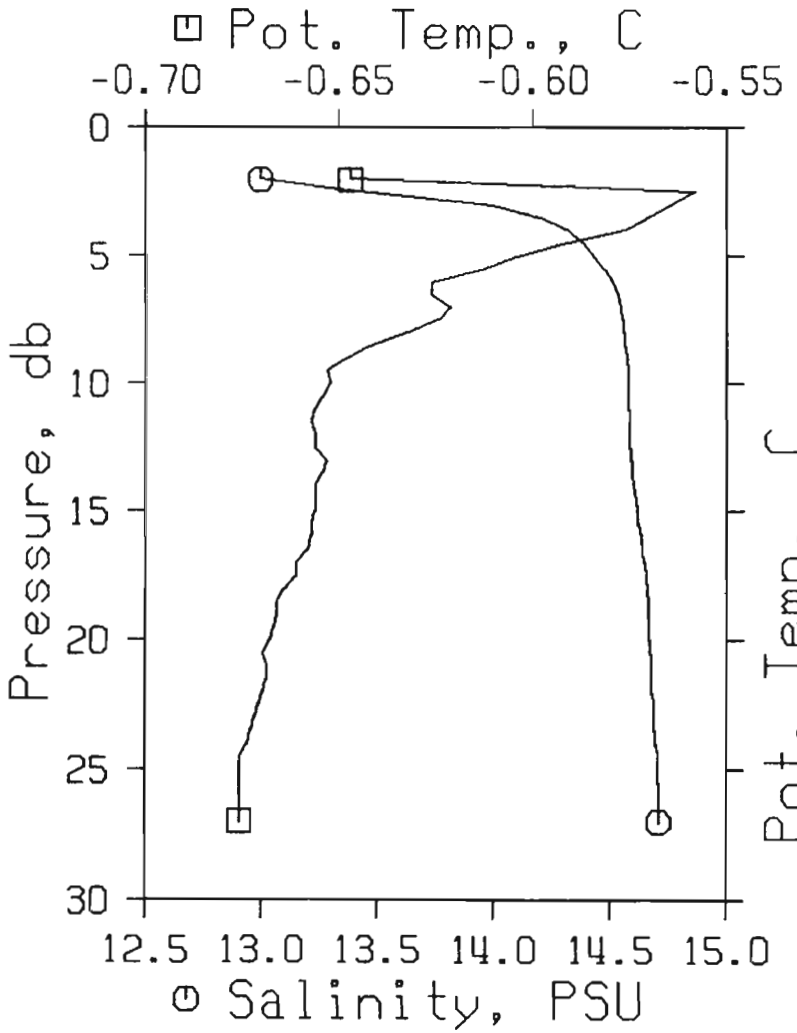
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-.580	-.580	14.337	11.47	1602.7	.32	.00	1419
4	4	-.605	-.605	14.438	11.55	1594.8	.64	.01	1419
6	6	-.620	-.620	14.505	11.60	1589.5	.96	.03	1419
8	8	-.634	-.634	14.564	11.65	1584.9	1.28	.05	1419
10	10	-.653	-.653	14.582	11.66	1583.5	1.59	.08	1419
12	12	-.656	-.656	14.590	11.67	1582.9	1.91	.12	1419
15	15	-.656	-.656	14.610	11.69	1581.3	2.38	.18	1419
20	20	-.670	-.670	14.684	11.74	1575.5	3.17	.32	1419
25	25	-.676	-.676	14.710	11.77	1573.5	3.96	.50	1419
27	26	-.675	-.675	14.714	11.77	1573.1	4.20	.56	1419

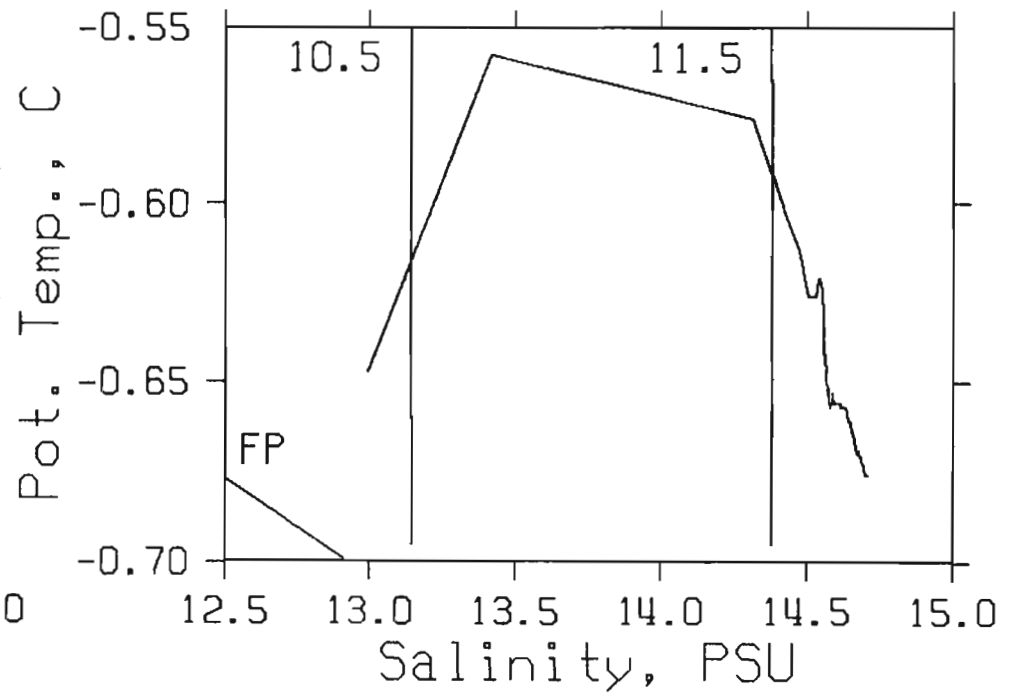




NOGAP ICEWORK 1992
Cruise 9207
STATION : E400
REFERENCE NO.: 92-07-047
DATE/TIME : 04/05/92 14:41 MDT
POSITION : 69-17.8N 132-11.1W

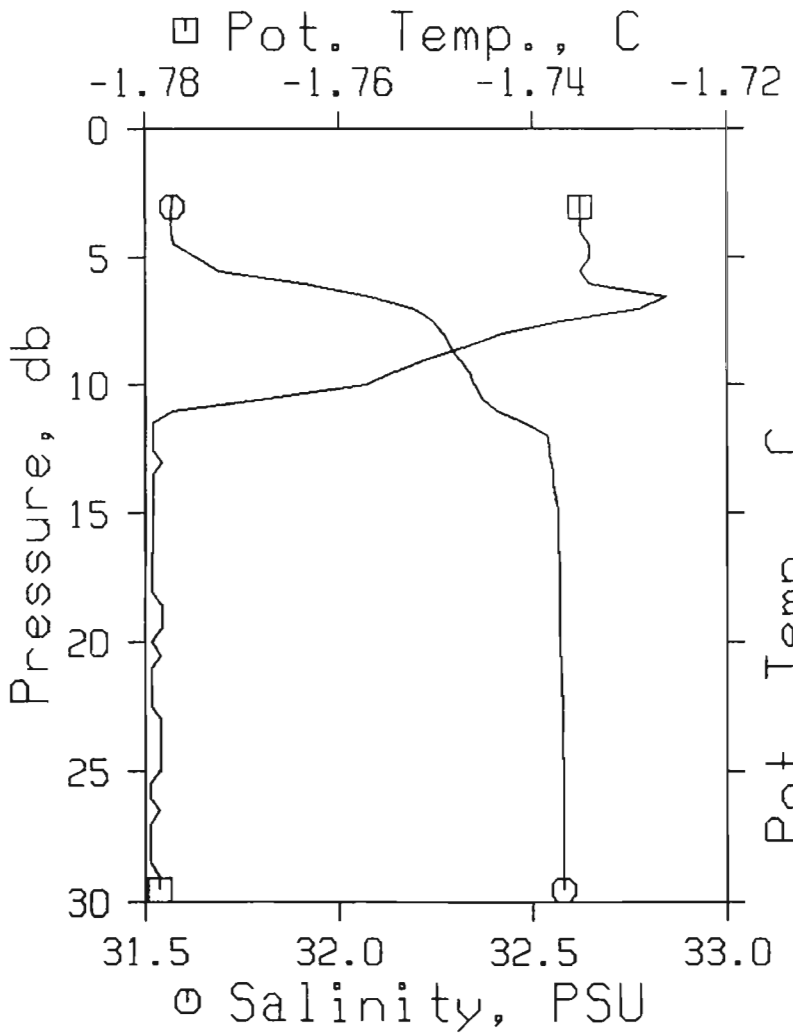
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-.647	-.647	12.997	10.38	1708.8	.34	.00	1417
4	4	-.576	-.576	14.315	11.45	1604.4	.67	.01	1419
6	6	-.626	-.626	14.510	11.60	1589.1	.99	.03	1419
8	8	-.632	-.632	14.560	11.65	1585.2	1.31	.05	1419
10	10	-.652	-.652	14.578	11.66	1583.8	1.62	.08	1419
12	12	-.656	-.656	14.585	11.66	1583.3	1.94	.12	1419
15	15	-.656	-.656	14.619	11.69	1580.6	2.41	.18	1419
20	20	-.668	-.668	14.673	11.73	1576.4	3.20	.32	1419
25	25	-.676	-.676	14.708	11.76	1573.6	3.99	.50	1419
27	27	-.676	-.676	14.710	11.77	1573.5	4.31	.59	1419

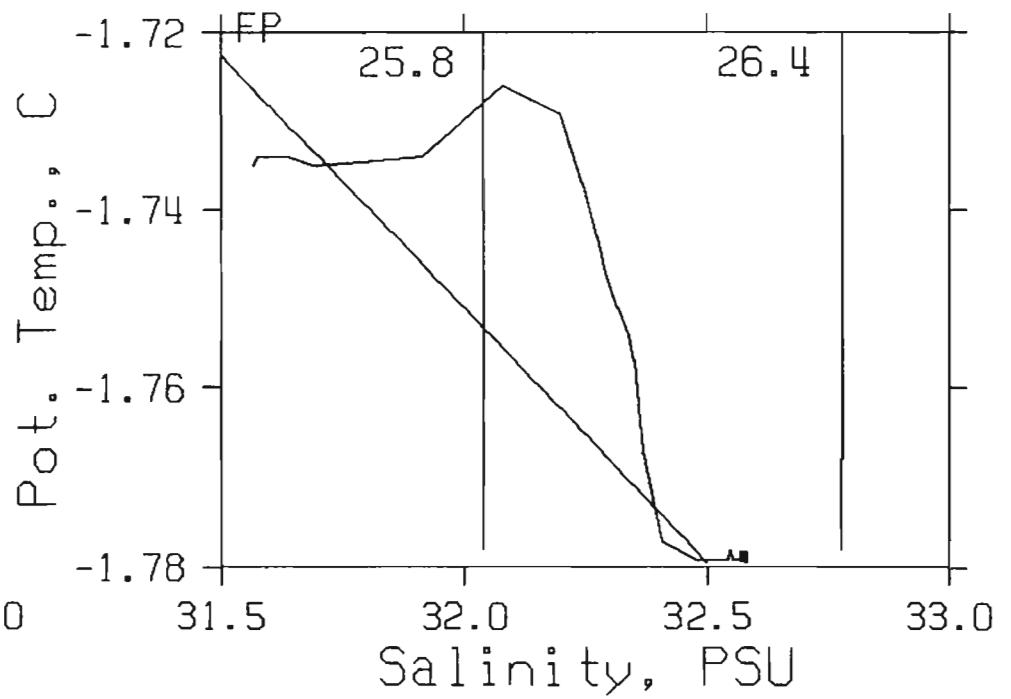




NOGAP ICEWORK 1992
Cruise 9207
STATION : E800
REFERENCE NO.: 92-07-048
DATE/TIME : 04/05/92 17:23 MDT
POSITION : 69-59.0N 129- 6.9W

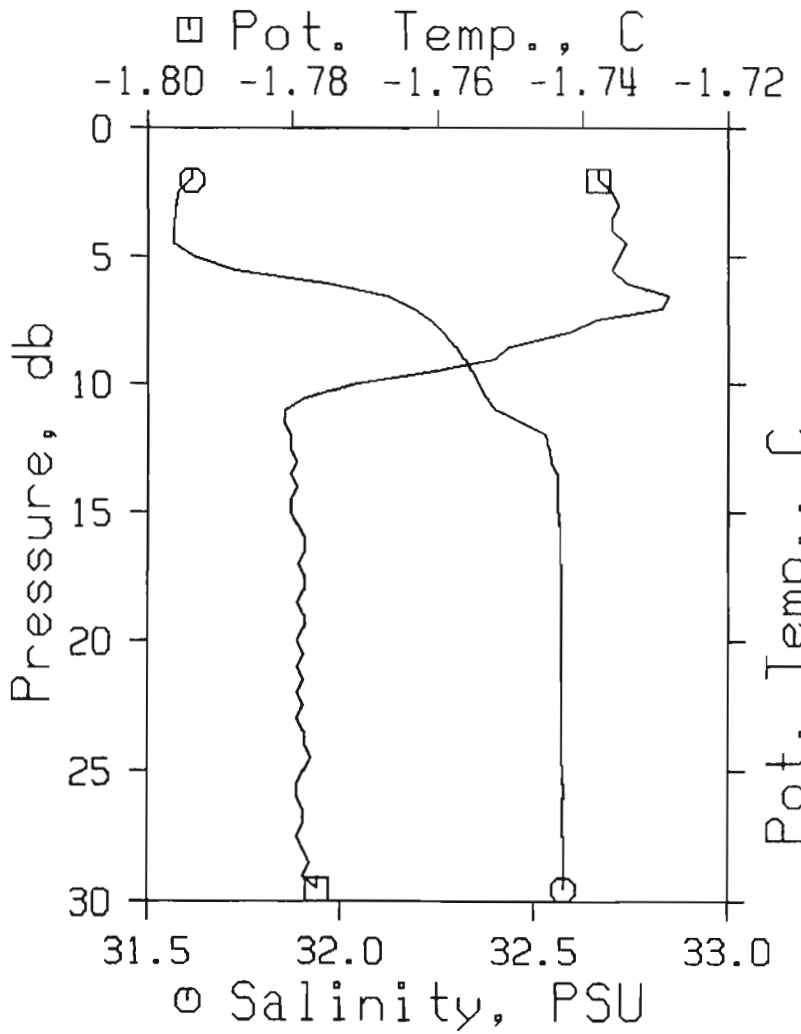
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-1.735	-1.735	31.569	25.42	257.6	.05	.00	1436
4	4	-1.735	-1.735	31.567	25.41	257.8	.10	.00	1436
6	6	-1.734	-1.734	31.913	25.70	231.1	.15	.00	1437
8	8	-1.743	-1.743	32.274	25.99	203.2	.20	.01	1437
10	10	-1.757	-1.757	32.352	26.05	197.1	.24	.01	1437
12	12	-1.779	-1.779	32.541	26.21	182.5	.27	.02	1438
15	15	-1.779	-1.779	32.566	26.23	180.5	.33	.02	1438
20	20	-1.779	-1.779	32.571	26.23	180.2	.42	.04	1438
25	25	-1.778	-1.778	32.580	26.24	179.5	.51	.06	1438
30	30	-1.778	-1.779	32.579	26.24	179.5	.60	.08	1438

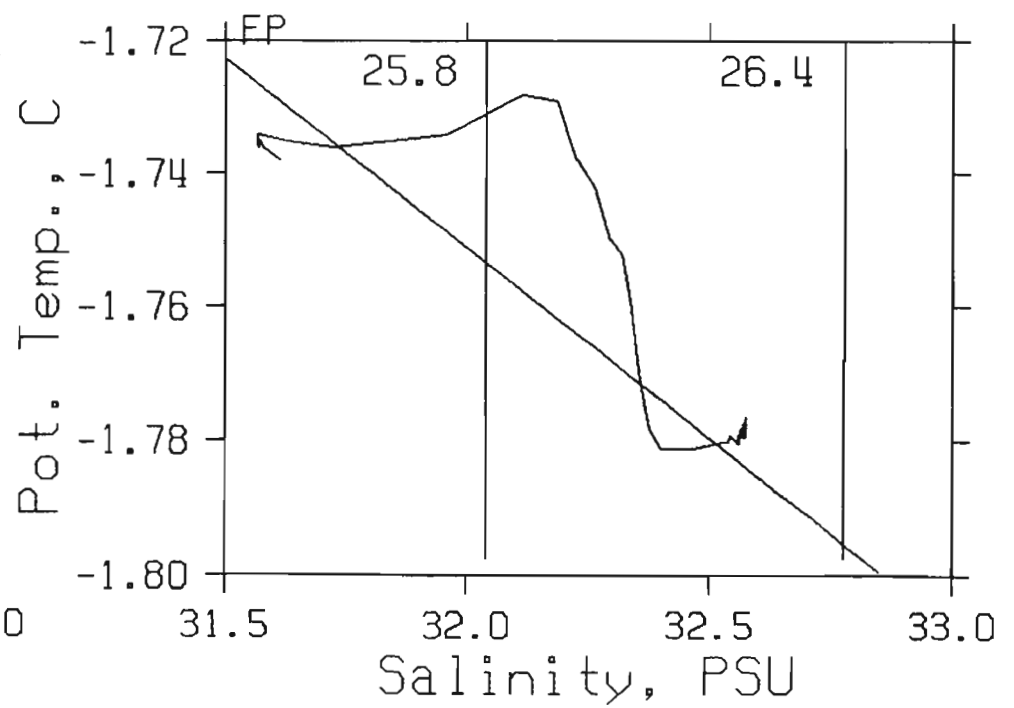




NOGAP ICEWORK 1992
Cruise 9207
STATION : E800
REFERENCE NO.: 92-07-049
DATE/TIME : 04/05/92 17:46 MDT
POSITION : 69-59.0N 129- 6.9W

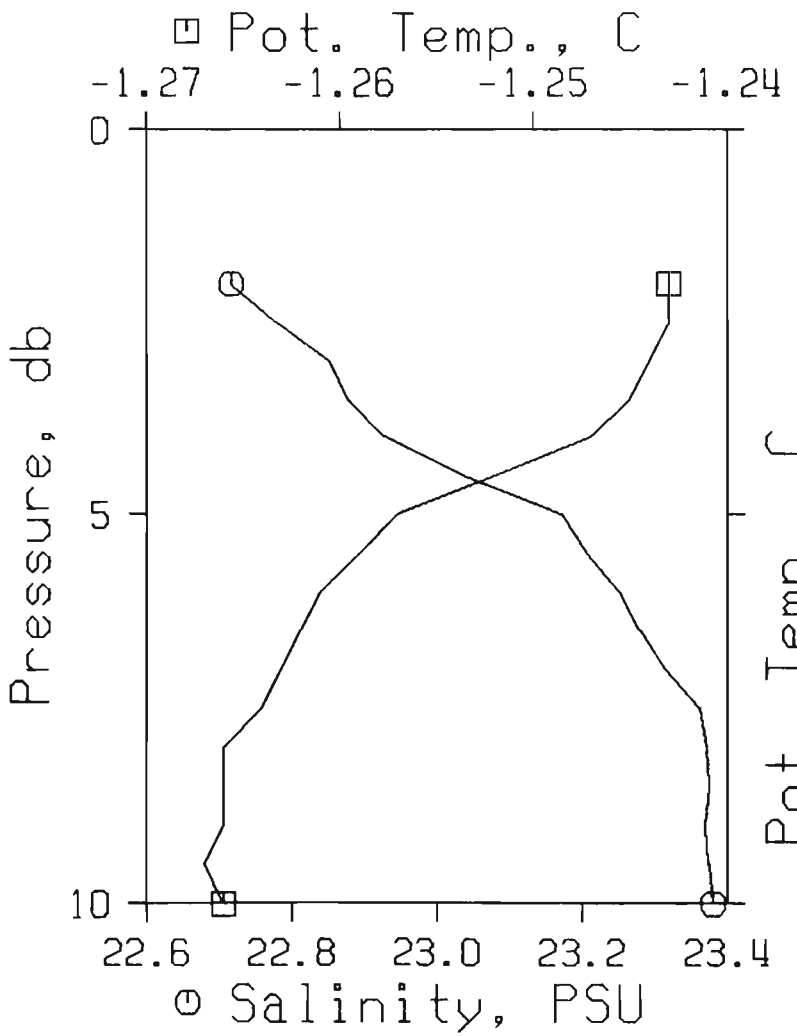
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-1.738	-1.738	31.613	25.45	254.2	.05	.00	1436
4	4	-1.736	-1.736	31.567	25.41	257.8	.10	.00	1436
6	6	-1.734	-1.734	31.961	25.74	227.3	.15	.00	1437
8	8	-1.742	-1.742	32.265	25.98	203.9	.19	.01	1437
10	10	-1.771	-1.771	32.358	26.06	196.6	.23	.01	1437
12	12	-1.780	-1.780	32.531	26.20	183.2	.27	.02	1438
15	15	-1.780	-1.780	32.564	26.23	180.7	.33	.02	1438
20	20	-1.779	-1.779	32.569	26.23	180.3	.42	.04	1438
25	25	-1.778	-1.778	32.574	26.23	179.9	.51	.06	1438
30	30	-1.777	-1.777	32.577	26.24	179.7	.60	.08	1438

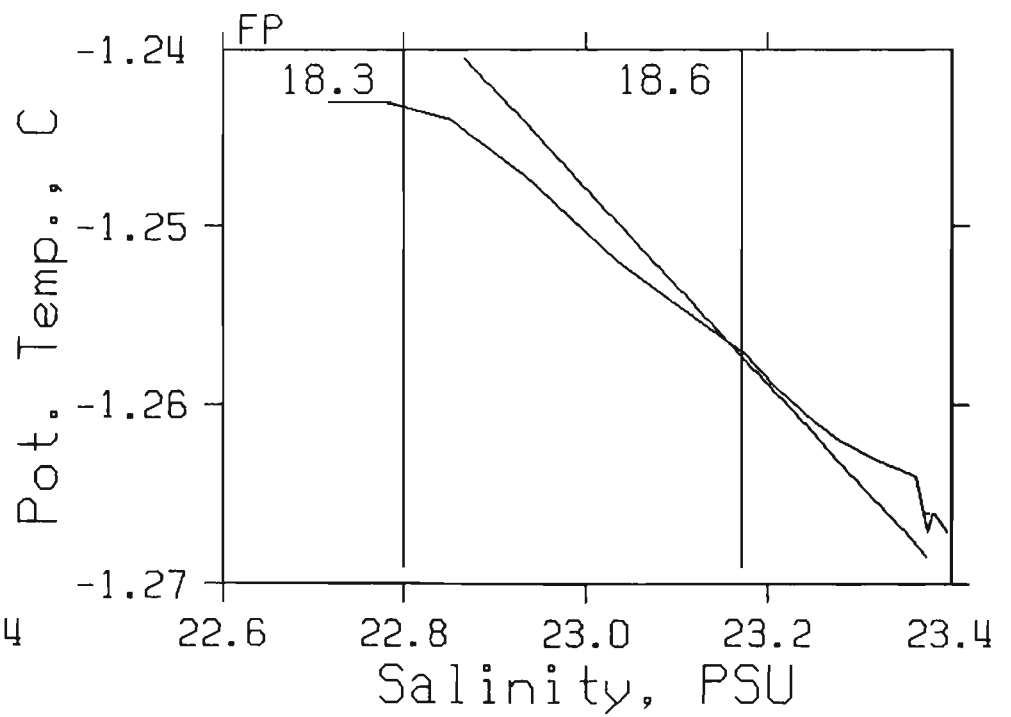




NOGAP ICEWORK 1992
Cruise 9207
STATION : E670
REFERENCE NO.: 92-07-050
DATE/TIME : 05/05/92 13:38 MDT
POSITION : 69-30.8N 130-43.3W

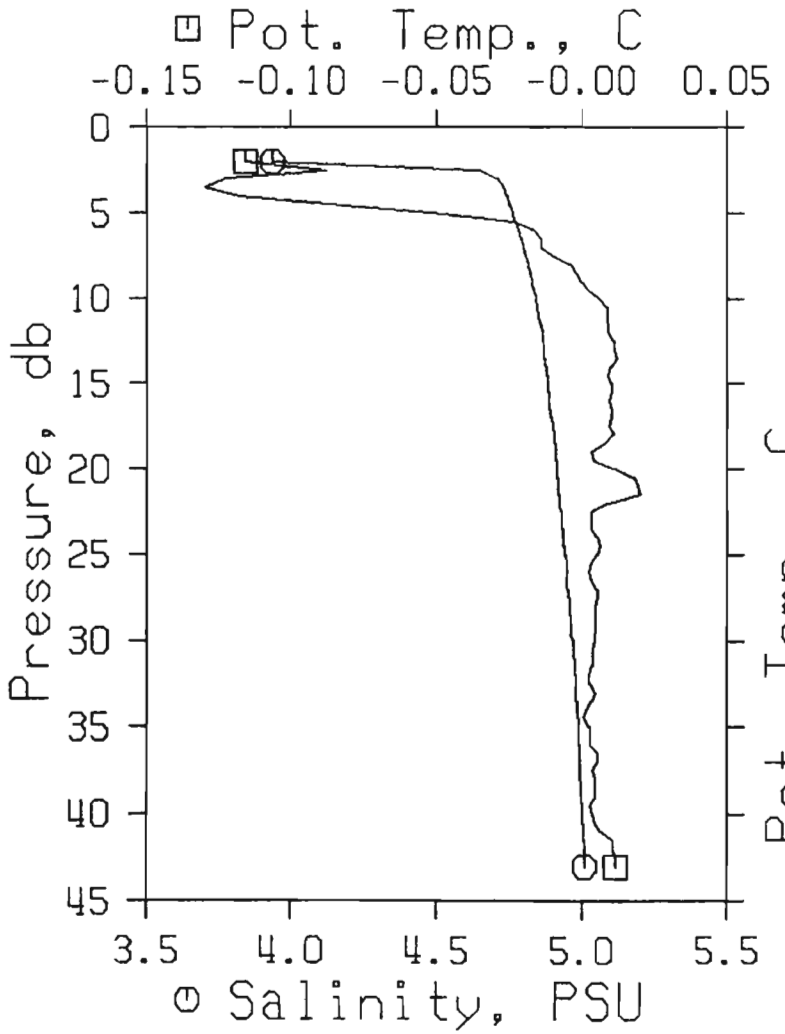
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-1.243	-1.243	22.718	18.23	945.5	.19	.00	1427
4	4	-1.247	-1.247	22.929	18.41	929.0	.38	.01	1427
6	6	-1.261	-1.261	23.253	18.67	903.8	.56	.02	1427
8	8	-1.266	-1.266	23.371	18.76	894.5	.74	.03	1428
10	10	-1.266	-1.266	23.381	18.77	893.8	.92	.05	1428
11	10	-1.267	-1.267	23.396	18.78	892.6	.96	.05	1428

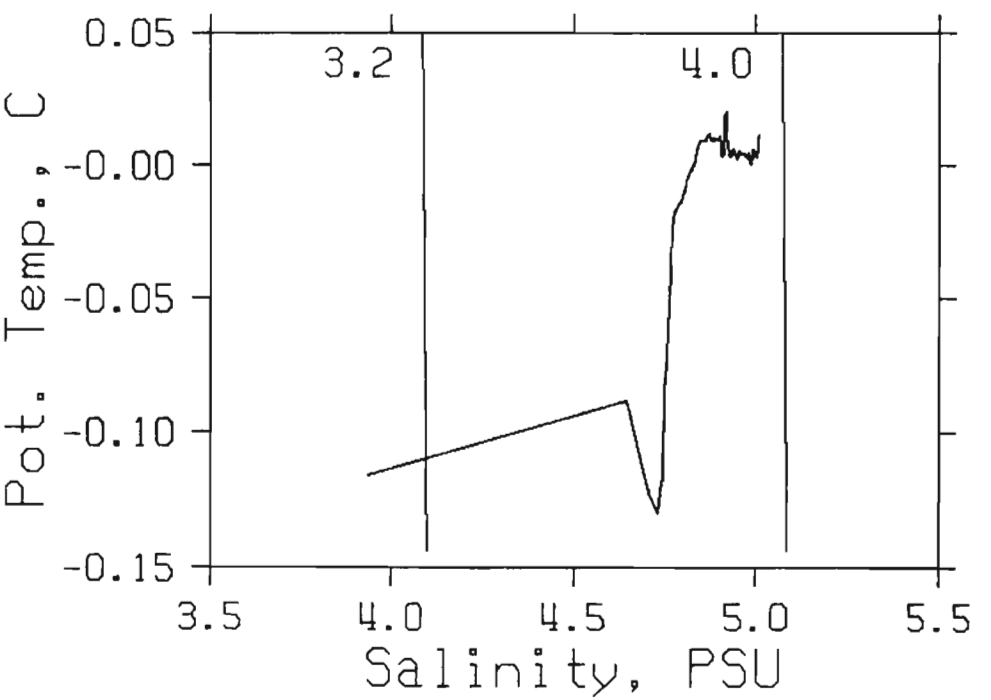




NOGAP ICEWORK 1992
Cruise 9207
STATION : E200
REFERENCE NO.: 92-07-051
DATE/TIME : 05/05/92 18:55 MDT
POSITION : 68-51.9N 133-14.3W

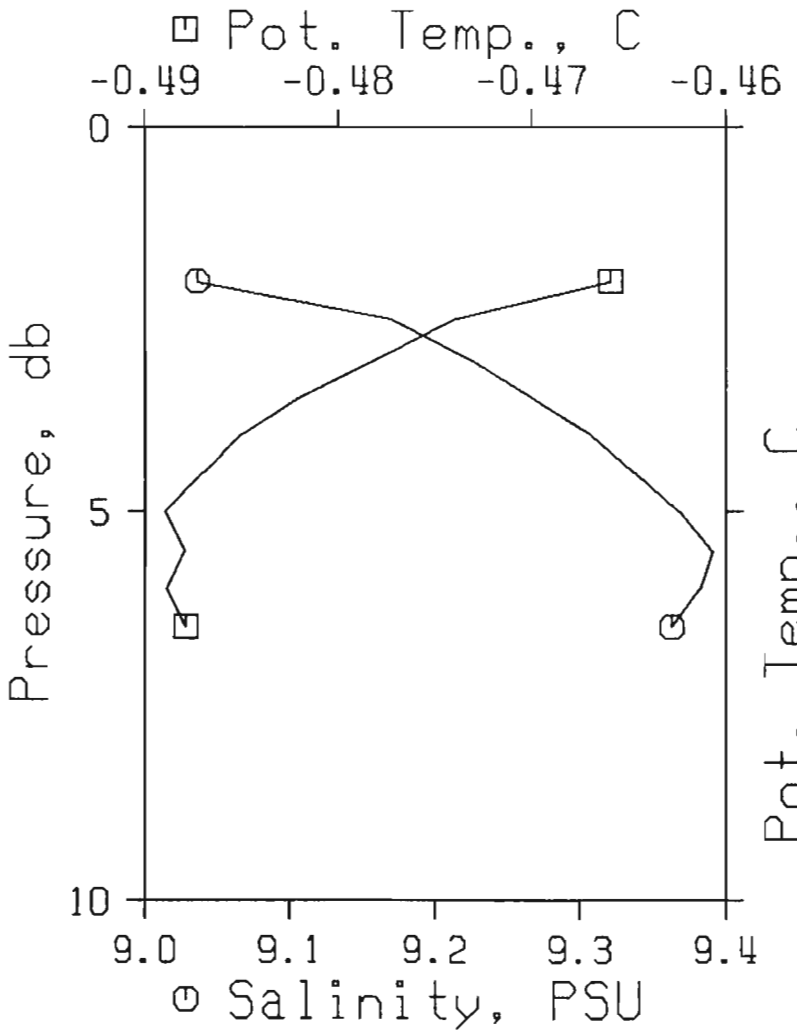
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-.116	-.116	3.934	3.07	2430.4	.49	.00	1407
4	4	-.118	-.118	4.745	3.73	2365.1	.96	.02	1408
6	6	-.017	-.017	4.781	3.76	2361.7	1.43	.04	1409
8	8	-.004	-.004	4.816	3.79	2358.8	1.91	.08	1409
10	10	.006	.006	4.841	3.81	2356.8	2.38	.12	1409
12	12	.009	.009	4.863	3.83	2355.0	2.85	.17	1409
15	15	.010	.010	4.884	3.85	2353.3	3.55	.27	1409
20	20	.011	.011	4.915	3.87	2350.8	4.73	.48	1409
25	25	.005	.006	4.943	3.89	2348.6	5.90	.75	1409
30	30	.004	.005	4.969	3.91	2346.5	7.08	1.08	1410
35	35	.002	.003	4.990	3.93	2344.8	8.25	1.46	1410
40	40	.003	.004	5.004	3.94	2343.7	9.42	1.91	1410
43	43	.011	.012	5.010	3.95	2343.1	10.12	2.21	1410

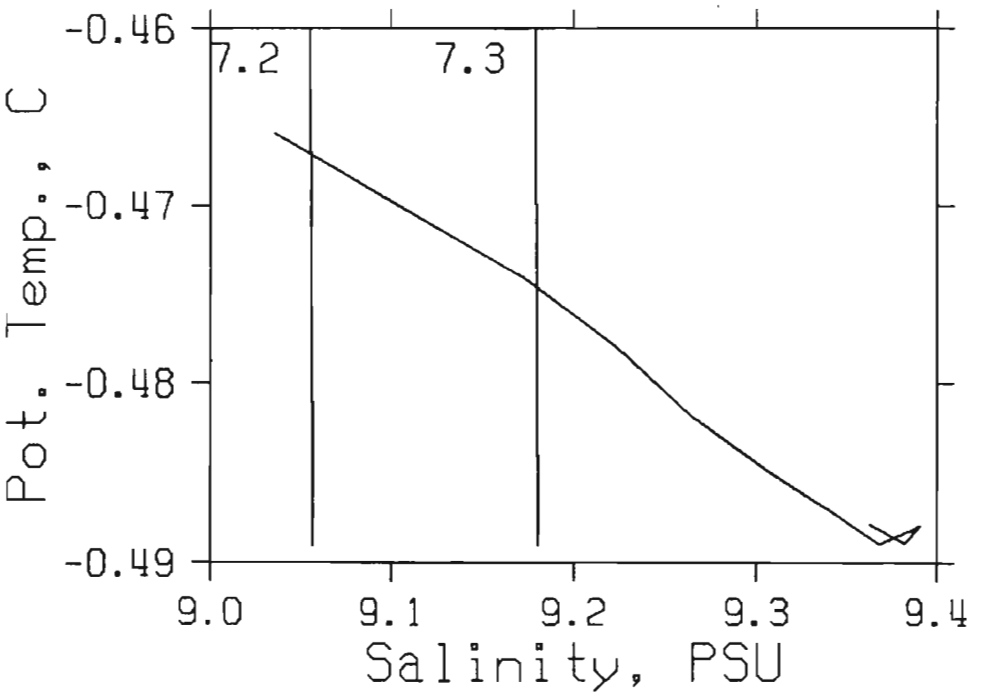




NOGAP ICEWORK 1992
Cruise 9207
STATION : E665
REFERENCE NO.: 92-07-052
DATE/TIME : 05/05/92 20:08 MDT
POSITION : 69- 7.0N 131-50.0W

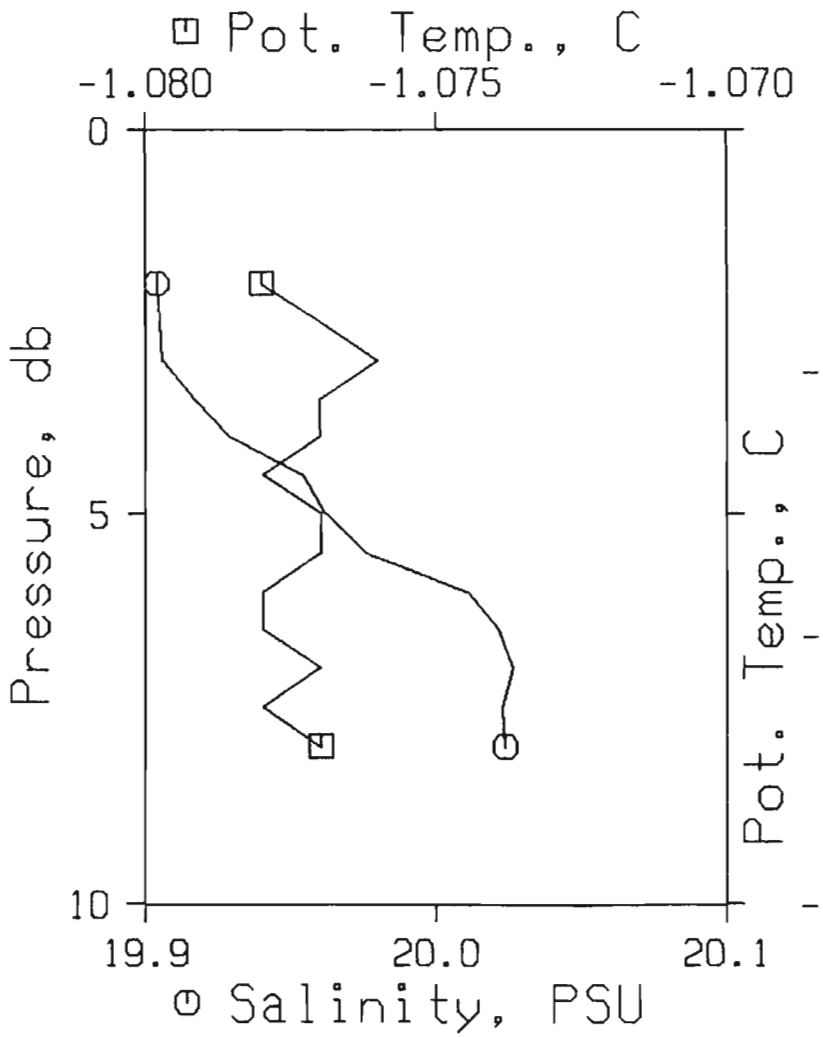
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-.466	-.466	9.036	7.18	2023.0	.40	.00	1412
4	4	-.485	-.485	9.307	7.40	2001.4	.81	.02	1413
6	6	-.489	-.489	9.382	7.46	1995.5	1.21	.04	1413
7	6	-.488	-.488	9.363	7.45	1997.0	1.31	.04	1413

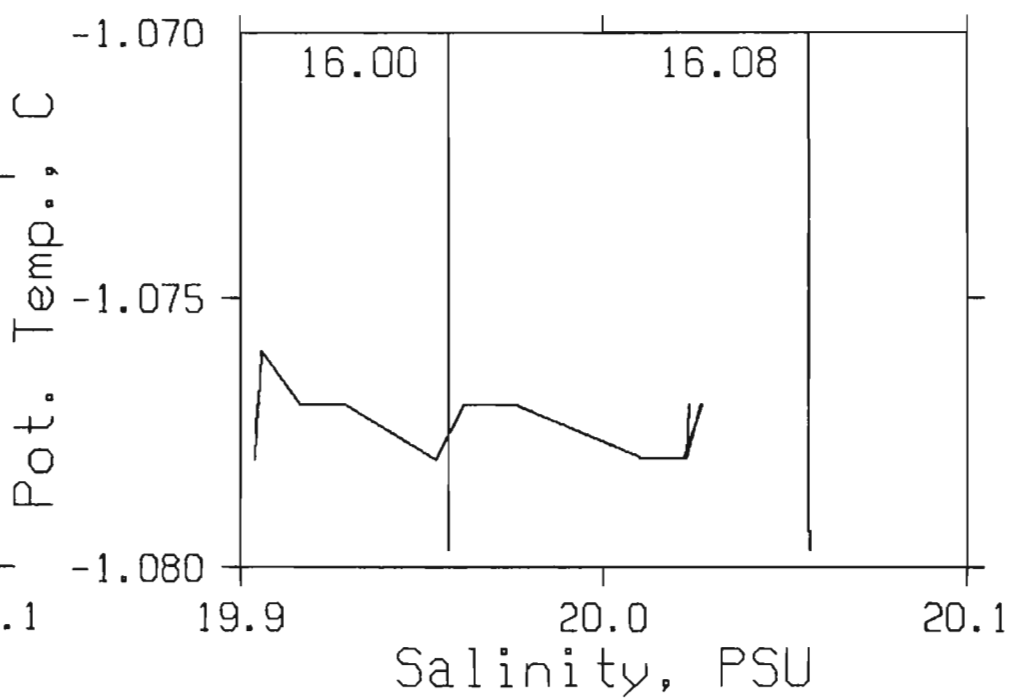




NOGAP ICEWORK 1992
Cruise 9207
STATION : E663
REFERENCE NO.: 92-07-053
DATE/TIME : 05/05/92 20:53 MDT
POSITION : 69-19.0N 130-54.0W

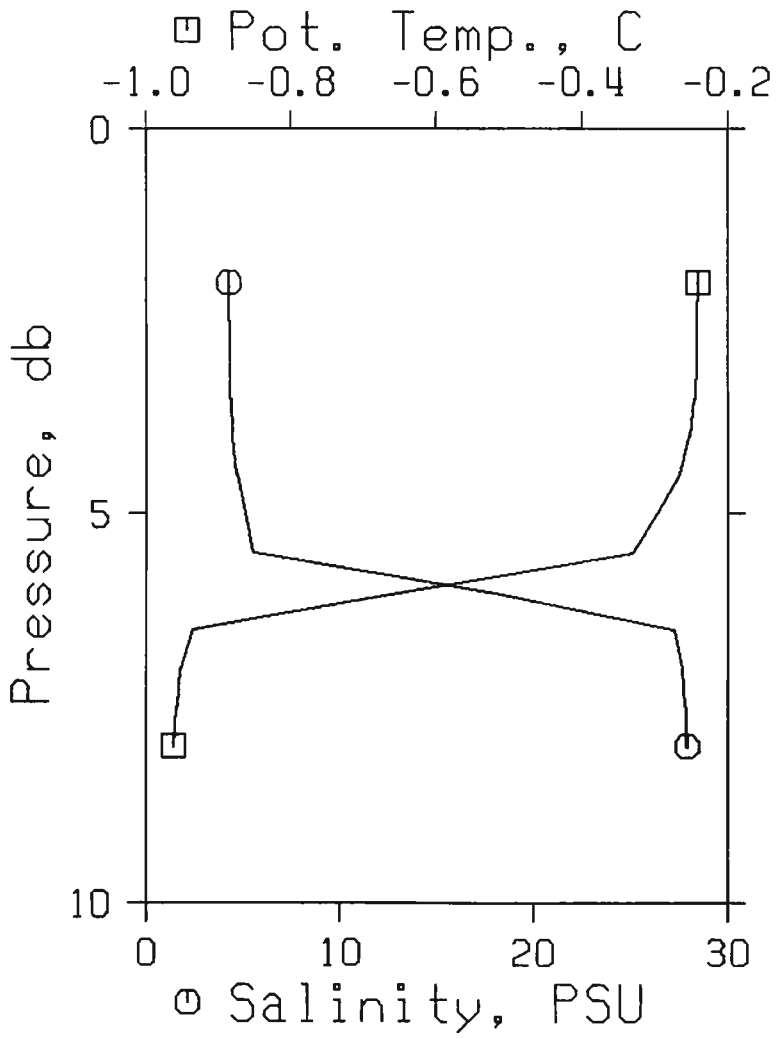
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-1.078	-1.078	19.904	15.96	1165.6	.23	.00	1424
4	4	-1.077	-1.077	19.929	15.98	1163.6	.47	.01	1424
6	6	-1.078	-1.078	20.011	16.04	1157.2	.70	.02	1424
8	8	-1.077	-1.077	20.024	16.06	1156.2	.93	.04	1424

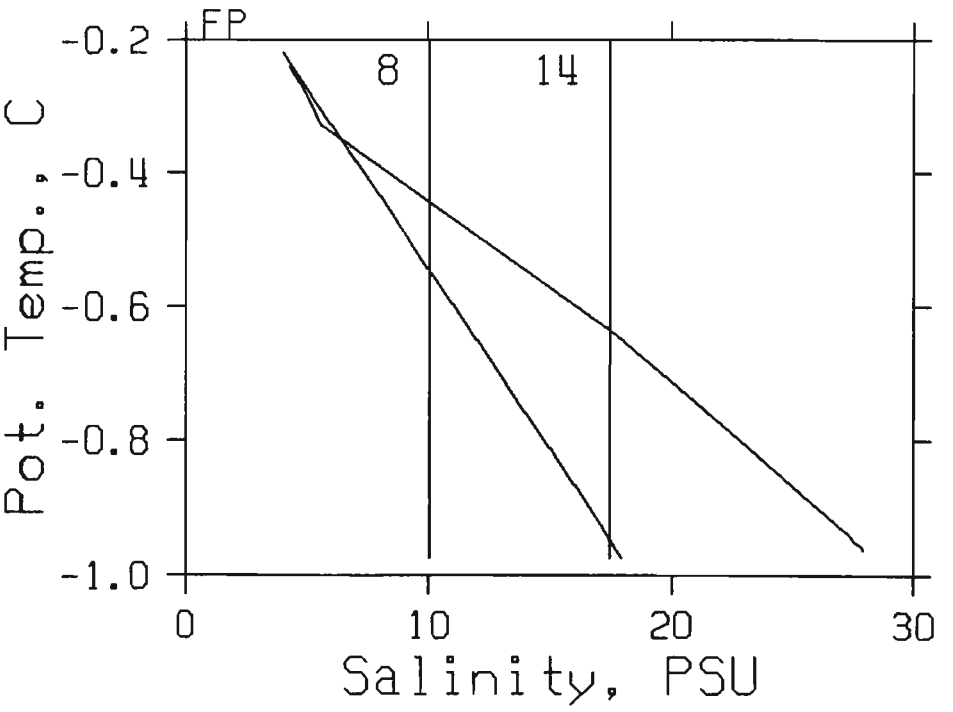




NOGAP ICEWORK 1992
Cruise 9207
STATION : R192
REFERENCE NO.: 92-07-054
DATE/TIME : 07/05/92 11:34 MDT
POSITION : 69-45.6N 133-13.7W

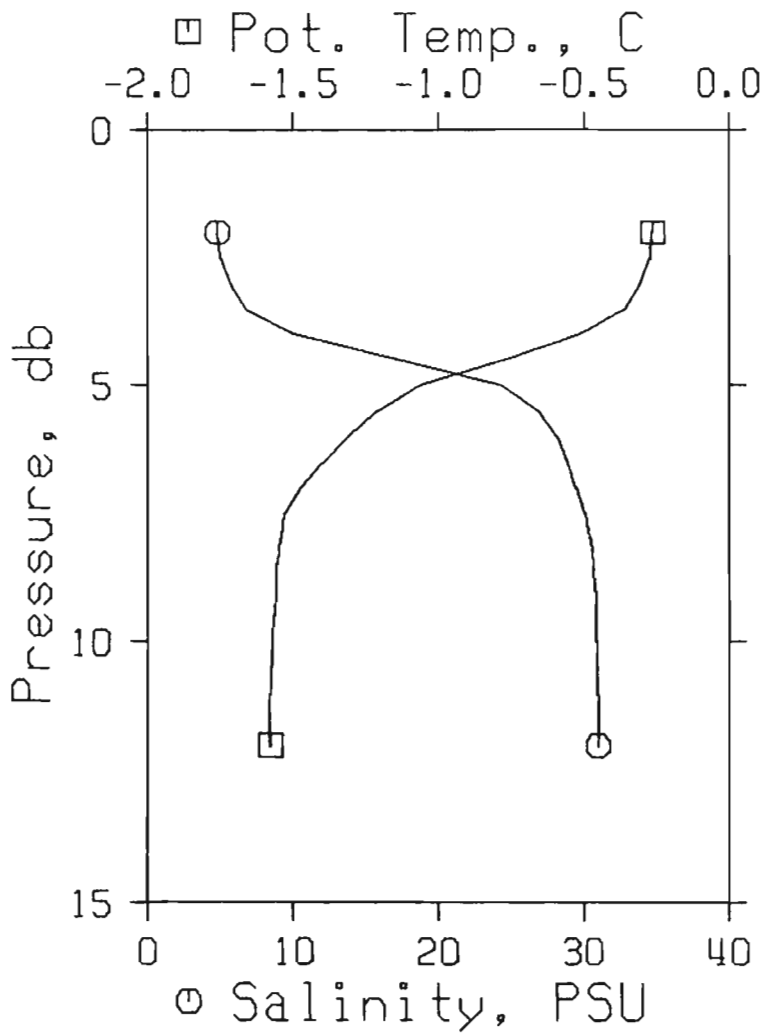
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-.241	-.241	4.286	3.35	2402.7	.48	.00	1407
4	4	-.252	-.252	4.499	3.52	2385.6	.96	.02	1407
6	6	-.643	-.643	17.749	14.22	1334.1	1.40	.04	1423
8	8	-.962	-.962	27.917	22.44	541.4	1.53	.05	1435

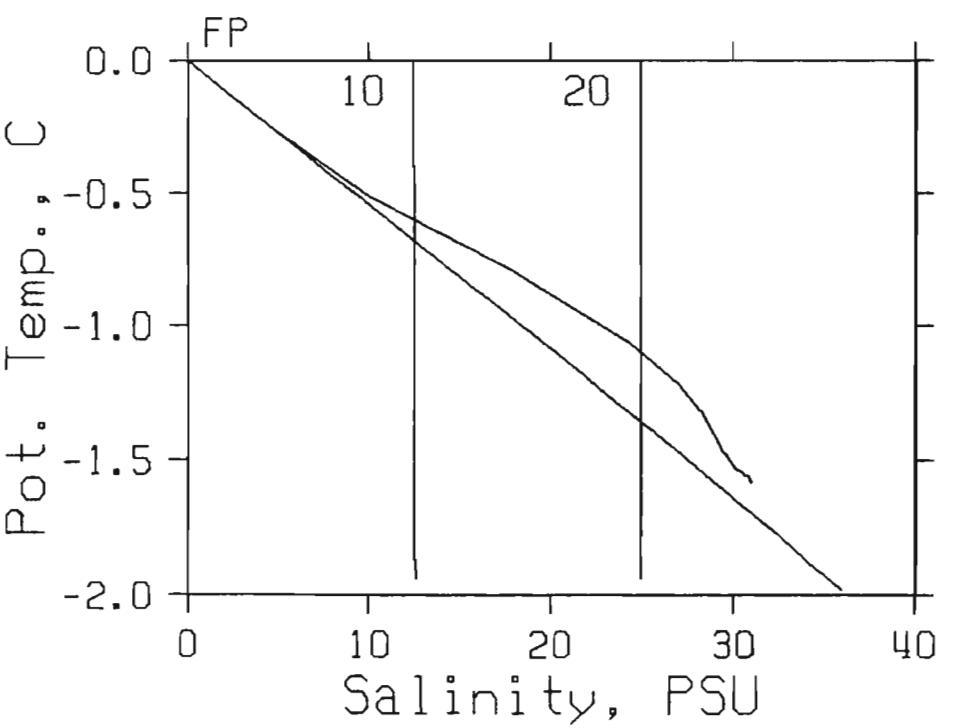




NOGAP ICEWORK 1992
Cruise 9207
STATION : R292
REFERENCE NO.: 92-07-055
DATE/TIME : 07/05/92 13:08 MDT
POSITION : 69-50.0N 133-16.7W

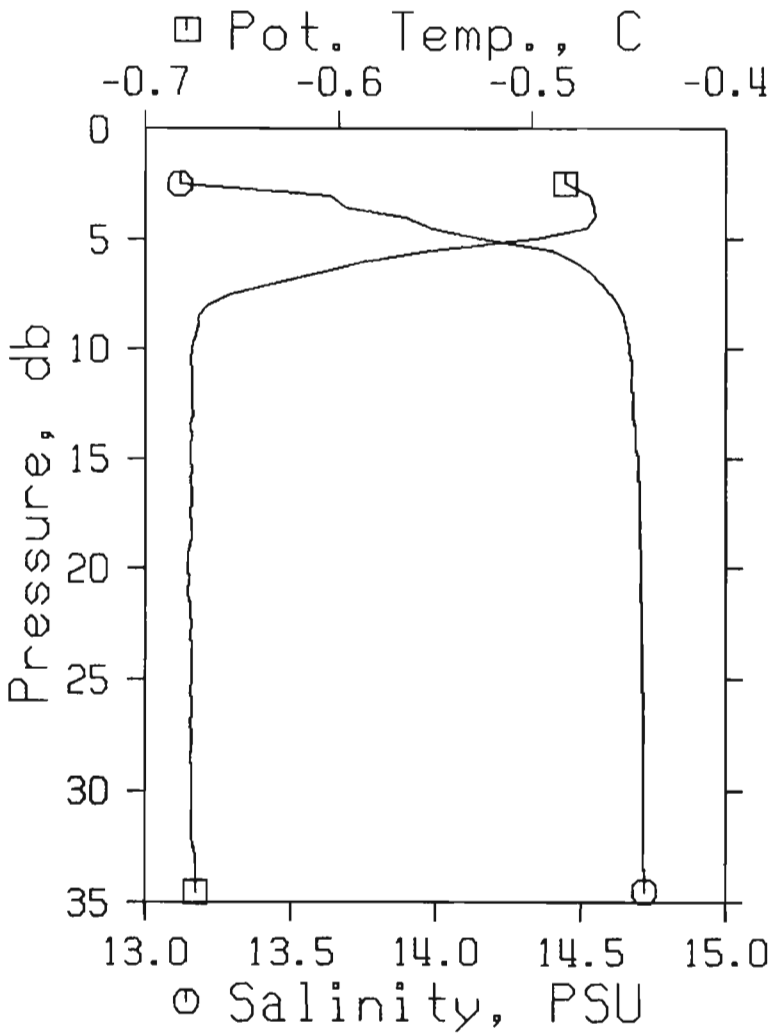
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-.264	-.264	4.818	3.78	2360.0	.47	.00	1408
4	4	-.509	-.509	9.996	7.96	1946.6	.92	.02	1413
6	6	-1.312	-1.312	28.173	22.65	521.1	1.12	.03	1434
8	8	-1.543	-1.543	30.505	24.55	340.2	1.21	.03	1436
10	10	-1.571	-1.571	30.929	24.89	307.4	1.27	.04	1436
12	12	-1.576	-1.576	31.003	24.95	301.6	1.33	.05	1437

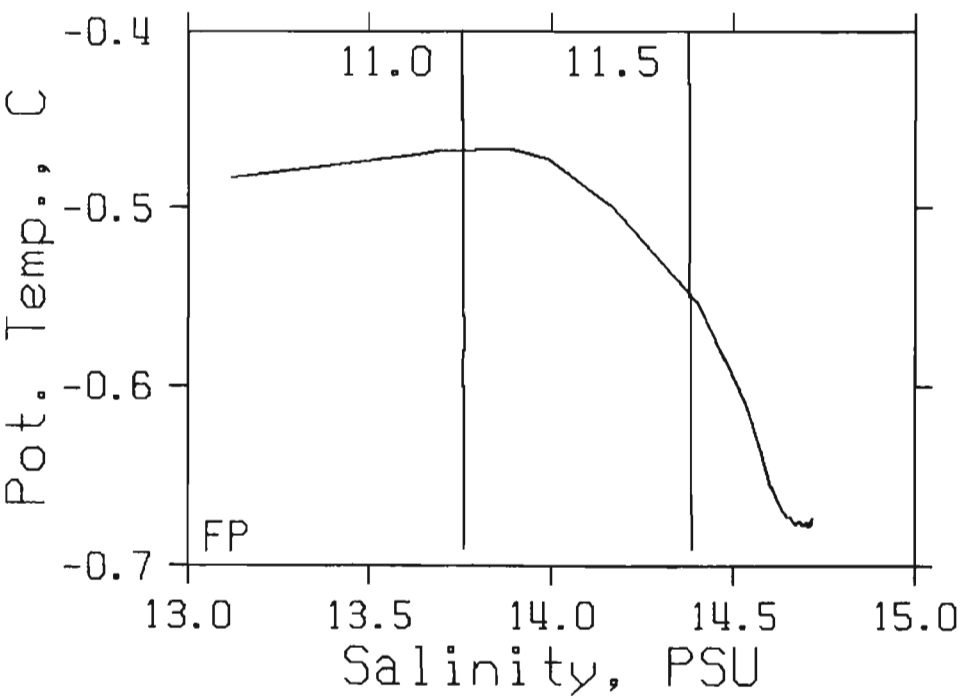




NOGAP ICEWORK 1992
Cruise 9207
STATION : E400
REFERENCE NO.: 92-07-056
DATE/TIME : 07/05/92 14:39 MDT
POSITION : 69-18.4N 132-12.7W

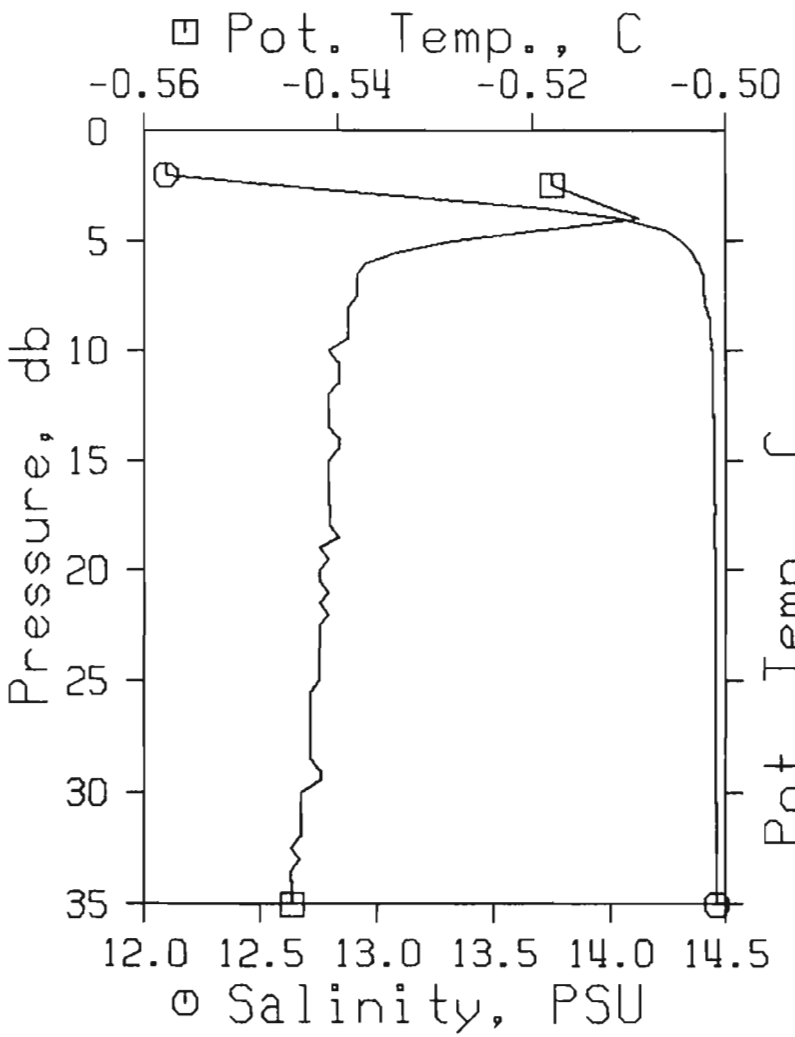
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-.483	-.483	13.119	10.48	1698.7	.34	.00	1418
4	4	-.467	-.467	13.896	11.11	1637.2	.67	.01	1419
6	6	-.585	-.585	14.476	11.58	1591.7	1.00	.03	1419
8	8	-.668	-.668	14.632	11.70	1579.6	1.31	.05	1419
10	10	-.676	-.676	14.668	11.73	1576.8	1.63	.08	1419
12	12	-.676	-.676	14.679	11.74	1575.9	1.94	.12	1419
15	15	-.677	-.677	14.697	11.75	1574.5	2.42	.18	1419
20	20	-.678	-.678	14.707	11.76	1573.7	3.20	.32	1419
25	25	-.676	-.676	14.713	11.77	1573.2	3.99	.50	1419
30	30	-.676	-.676	14.716	11.77	1573.0	4.78	.72	1419
35	35	-.673	-.673	14.719	11.77	1572.7	5.56	.98	1419

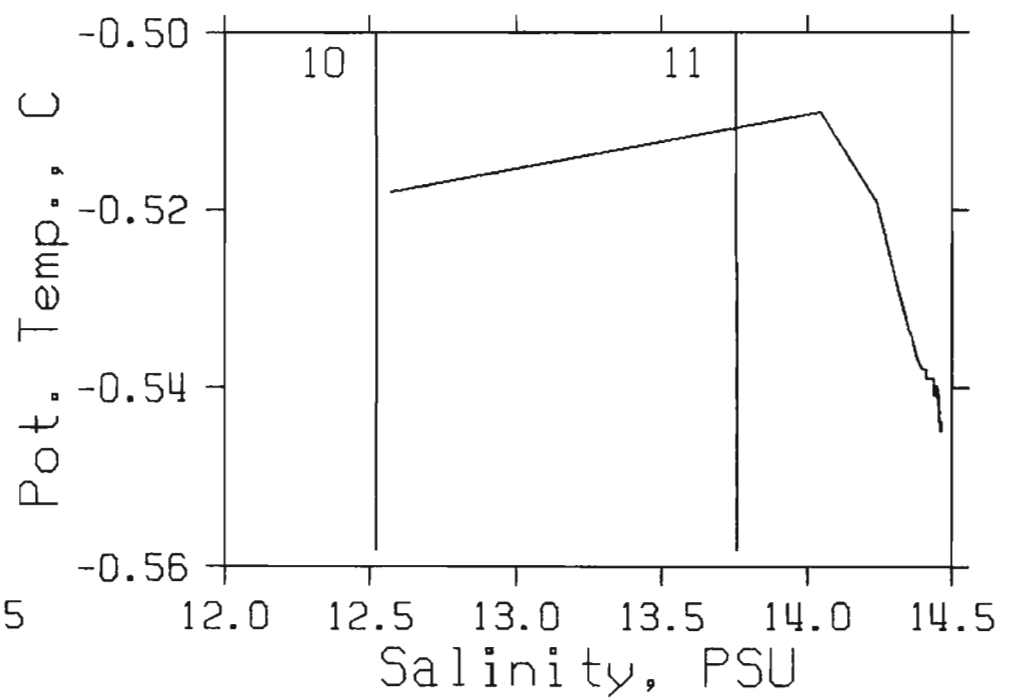




NOGAP ICEWORK 1992
Cruise 9207
STATION : E370
REFERENCE NO.: 92-07-057
DATE/TIME : 07/05/92 17:45 MDT
POSITION : 69-14.0N 132-16.5W

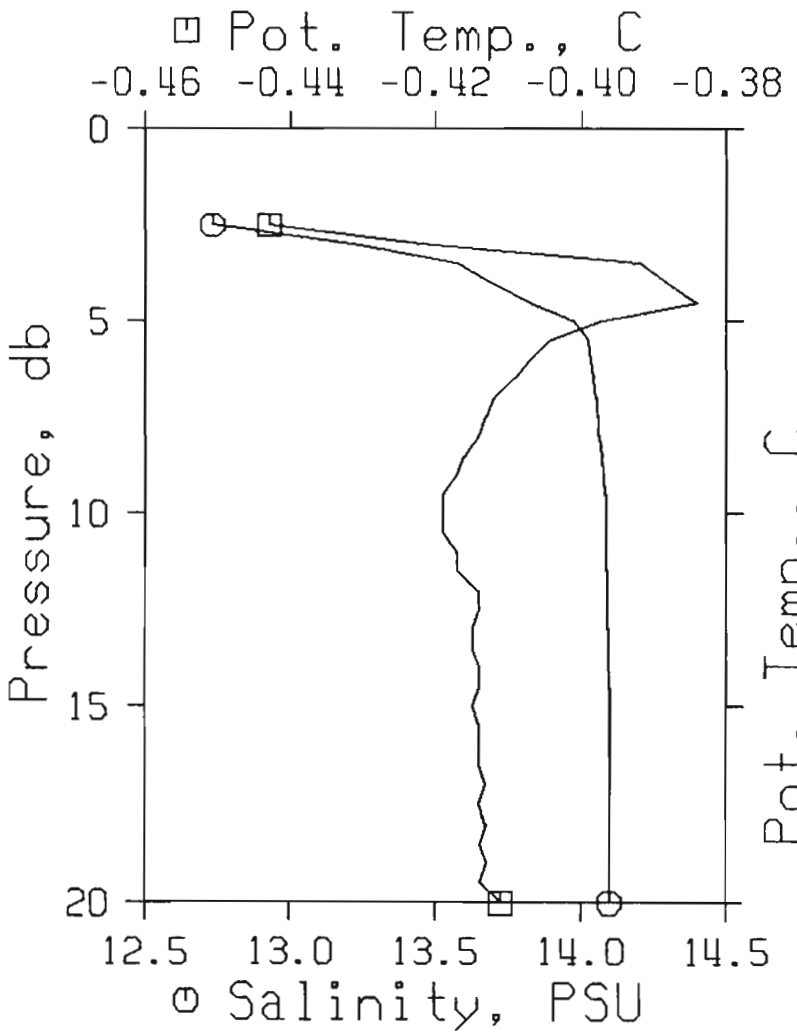
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-.561	-.561	12.094	9.65	1780.1	.36	.00	1416
4	4	-.509	-.509	14.047	11.23	1625.4	.70	.01	1419
6	6	-.537	-.537	14.381	11.50	1599.1	1.02	.03	1419
8	8	-.539	-.539	14.417	11.53	1596.3	1.34	.05	1419
10	10	-.541	-.541	14.443	11.55	1594.2	1.66	.08	1419
12	12	-.541	-.541	14.448	11.56	1593.8	1.97	.12	1419
15	15	-.541	-.541	14.452	11.56	1593.5	2.45	.18	1419
20	20	-.542	-.542	14.454	11.56	1593.4	3.25	.33	1419
25	25	-.542	-.542	14.456	11.56	1593.2	4.04	.51	1420
30	30	-.544	-.544	14.457	11.56	1593.1	4.84	.73	1420
35	35	-.545	-.545	14.463	11.57	1592.7	5.64	.99	1420
36	35	-.544	-.544	14.464	11.57	1592.6	5.72	1.02	1420

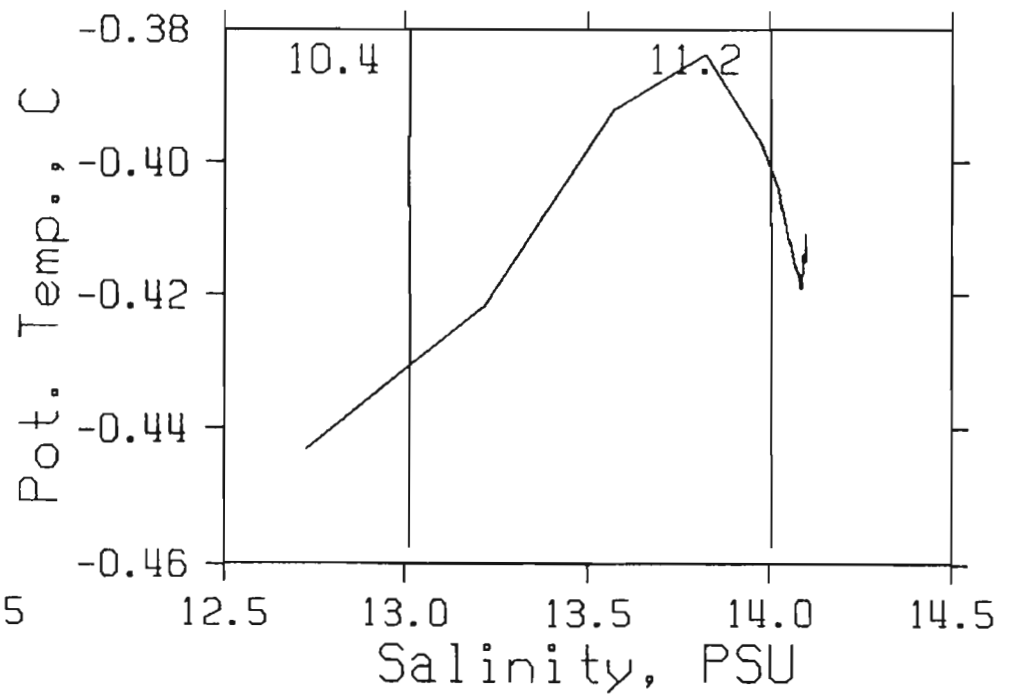




NOGAP ICEWORK 1992
Cruise 9207
STATION : E360
REFERENCE NO.: 92-07-058
DATE/TIME : 07/05/92 18:51 MDT
POSITION : 69-12.8N 132-25.2W

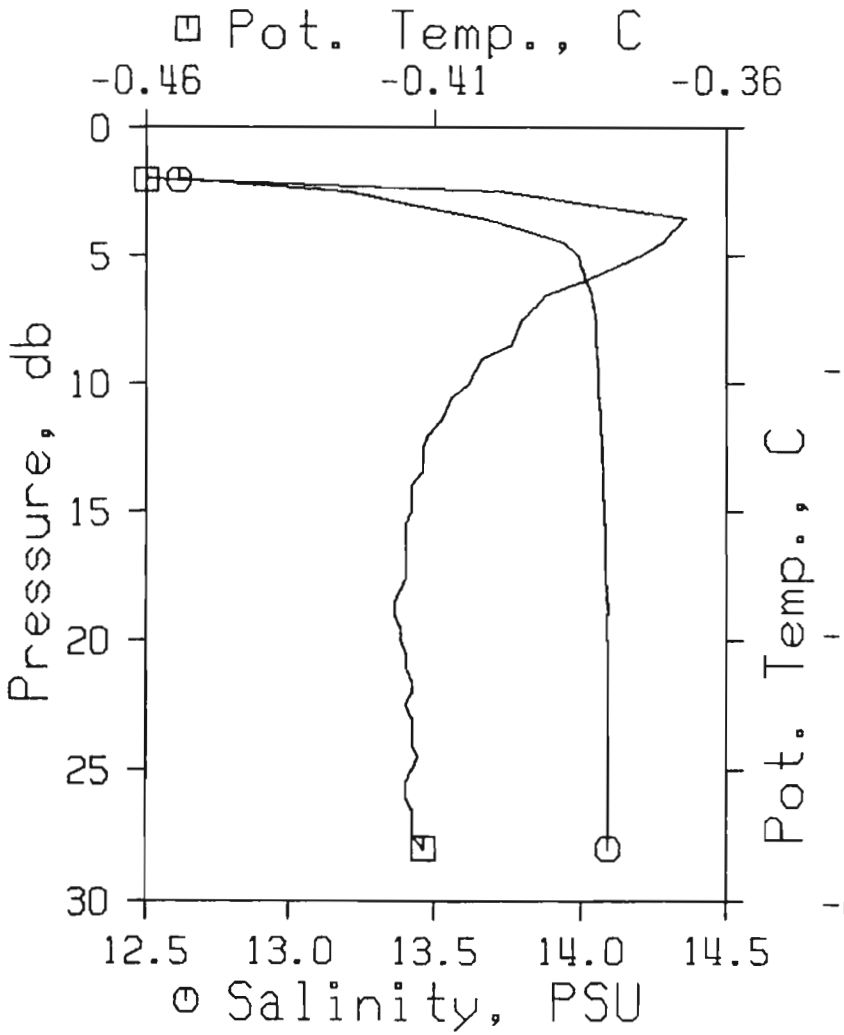
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-.443	-.443	12.731	10.17	1729.3	.35	.00	1417
4	4	-.388	-.388	13.698	10.95	1652.7	.68	.01	1419
6	6	-.407	-.407	14.034	11.23	1626.2	1.01	.03	1419
8	8	-.414	-.414	14.064	11.25	1623.9	1.34	.05	1419
10	10	-.419	-.419	14.087	11.27	1622.1	1.66	.08	1419
12	12	-.414	-.414	14.091	11.27	1621.7	1.99	.12	1419
15	15	-.415	-.415	14.099	11.28	1621.1	2.47	.19	1420
20	20	-.411	-.411	14.099	11.28	1621.1	3.28	.33	1420

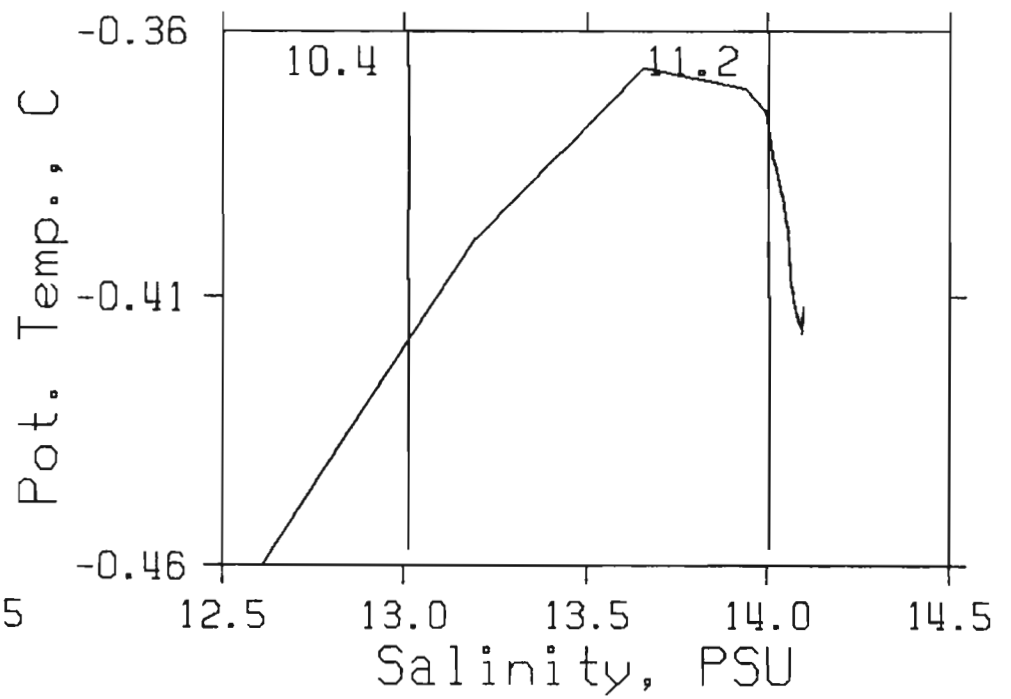




NOGAP ICEWORK 1992
Cruise 9207
STATION : E350
REFERENCE NO.: 92-07-059
DATE/TIME : 07/05/92 19:55 MDT
POSITION : 69-13.3N 132-25.7W

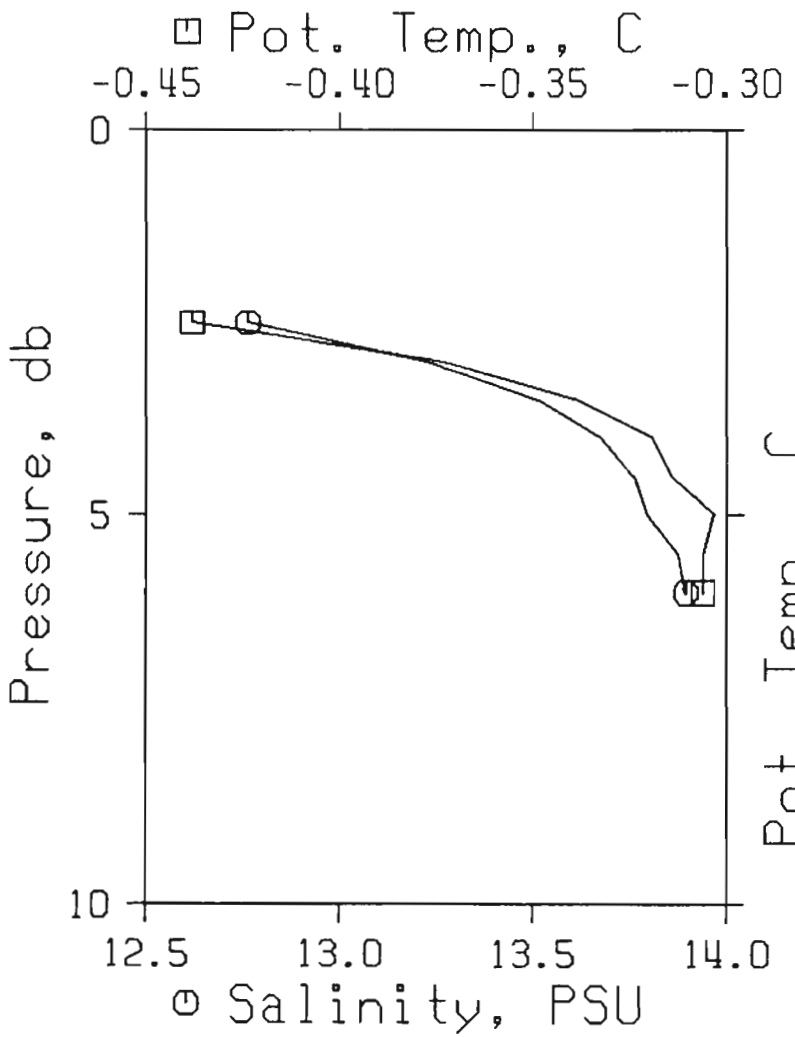
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-.460	-.460	12.613	10.08	1738.7	.35	.00	1417
4	4	-.369	-.369	13.799	11.04	1644.7	.68	.01	1419
6	6	-.385	-.385	14.020	11.21	1627.3	1.01	.03	1419
8	8	-.396	-.396	14.052	11.24	1624.8	1.33	.05	1419
10	10	-.404	-.404	14.061	11.25	1624.1	1.66	.08	1419
12	12	-.411	-.411	14.073	11.26	1623.1	1.98	.12	1419
15	15	-.414	-.414	14.084	11.27	1622.3	2.47	.19	1419
20	20	-.416	-.416	14.094	11.27	1621.5	3.28	.33	1420
25	25	-.414	-.414	14.097	11.28	1621.3	4.09	.52	1420
28	28	-.412	-.412	14.097	11.28	1621.2	4.58	.65	1420

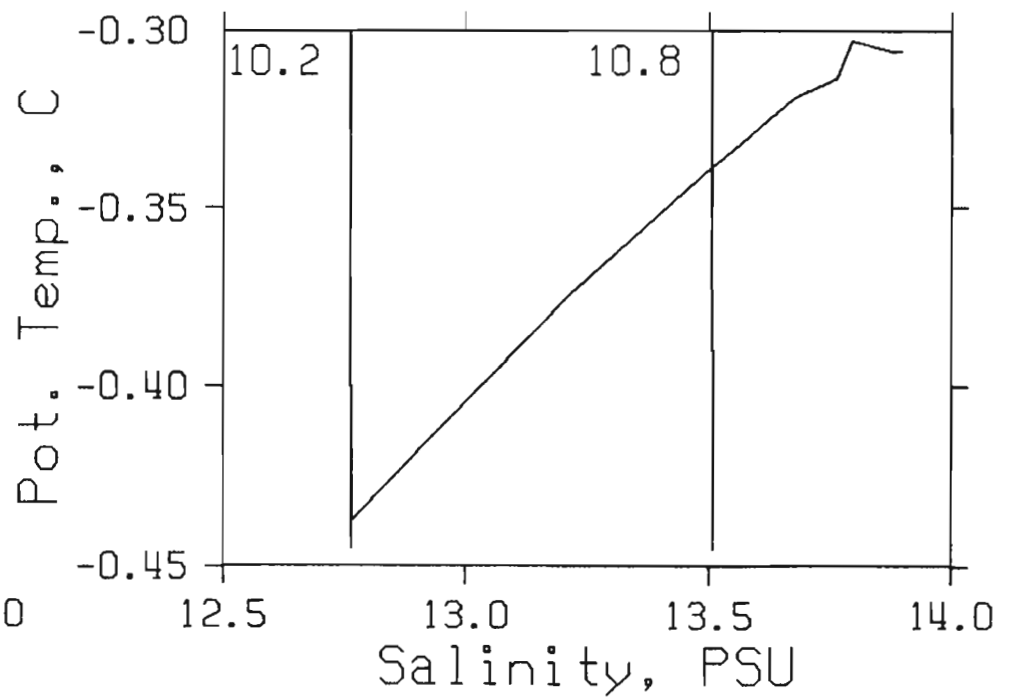




NOGAP ICEWORK 1992
Cruise 9207
STATION : E341
REFERENCE NO.: 92-07-060
DATE/TIME : 08/05/92 12:25 MDT
POSITION : 69-13.5N 132-28.3W

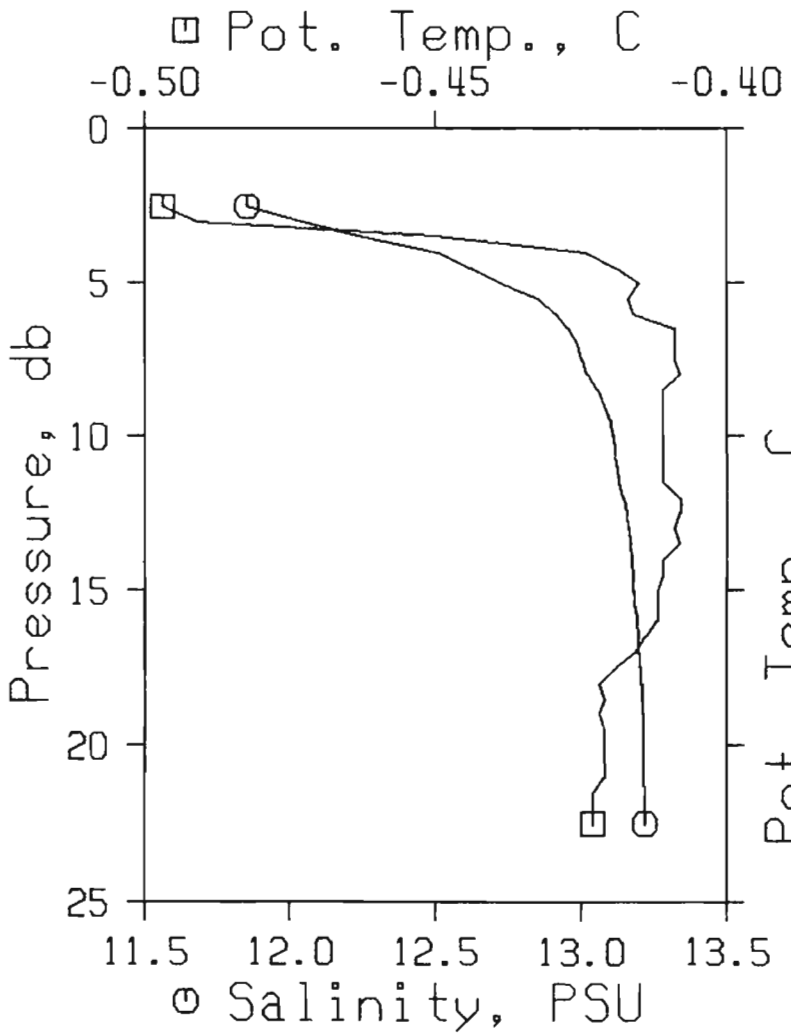
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-.438	-.438	12.764	10.20	1726.7	.35	.00	1417
4	4	-.319	-.319	13.678	10.94	1654.1	.68	.01	1419
6	6	-.306	-.306	13.896	11.12	1636.9	1.01	.03	1420

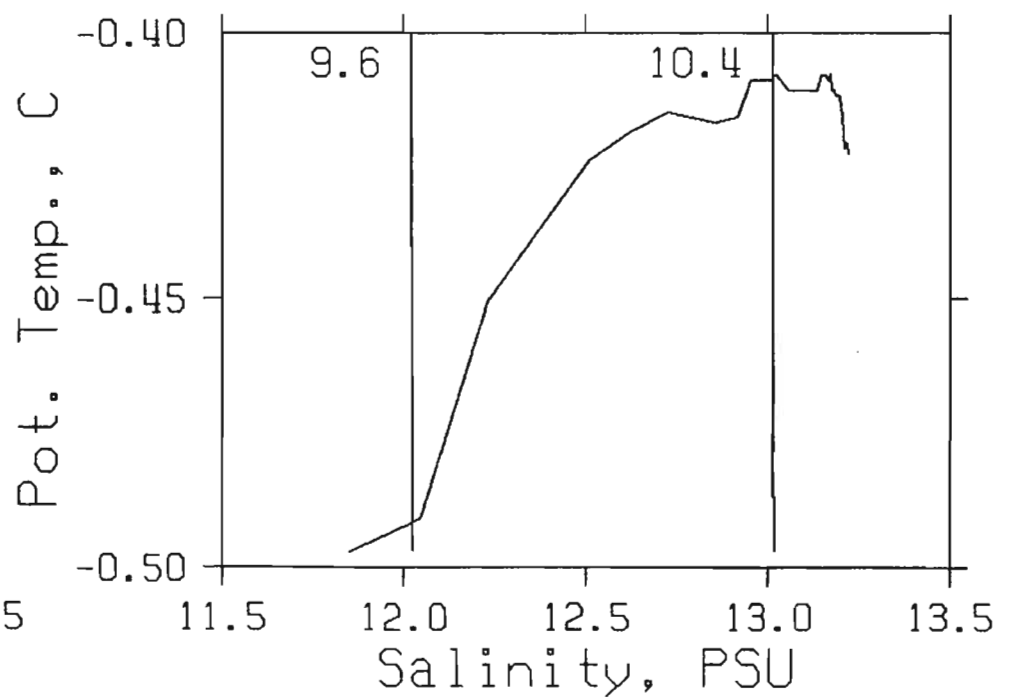




NOGAP ICEWORK 1992
Cruise 9207
STATION : E330
REFERENCE NO.: 92-07-061
DATE/TIME : 08/05/92 14:37 MDT
POSITION : 69-12.5N 132-29.3W

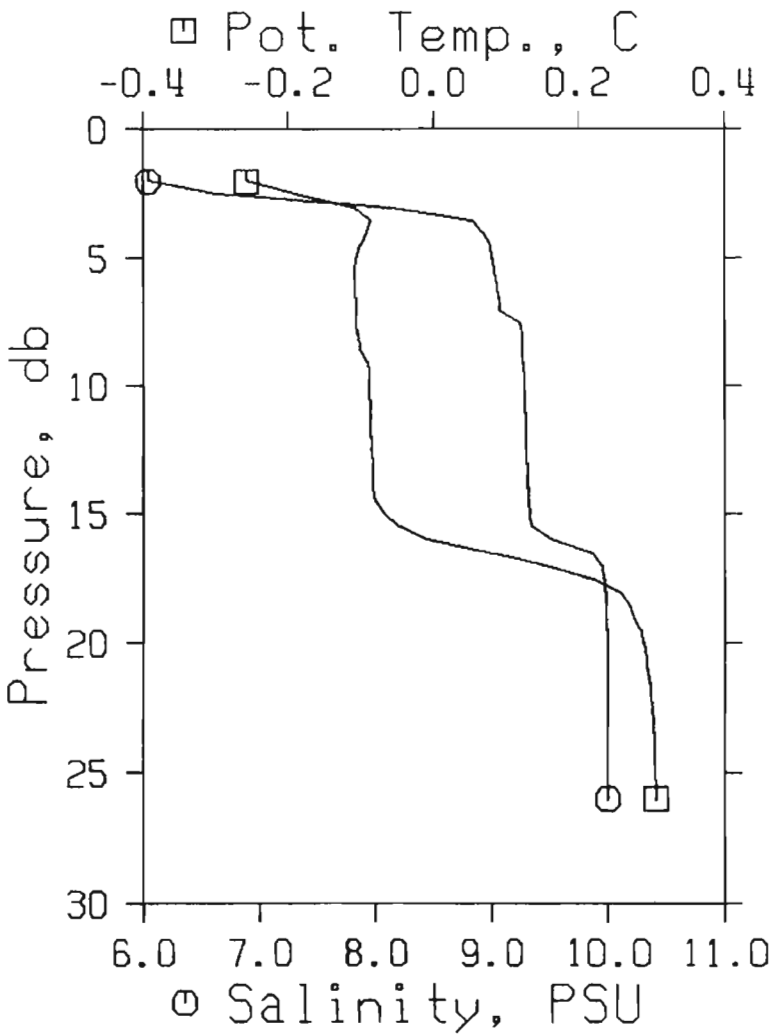
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-.497	-.497	11.853	9.46	1799.0	.36	.00	1416
4	4	-.424	-.424	12.511	9.99	1746.7	.72	.01	1417
6	6	-.416	-.416	12.917	10.32	1714.5	1.06	.03	1418
8	8	-.408	-.408	13.024	10.41	1706.0	1.40	.06	1418
10	10	-.411	-.411	13.112	10.48	1699.1	1.74	.09	1418
12	12	-.408	-.408	13.147	10.51	1696.3	2.08	.13	1418
15	15	-.412	-.412	13.184	10.54	1693.4	2.59	.20	1418
20	20	-.421	-.421	13.217	10.56	1690.8	3.44	.35	1418
23	22	-.423	-.423	13.220	10.57	1690.6	3.86	.44	1418

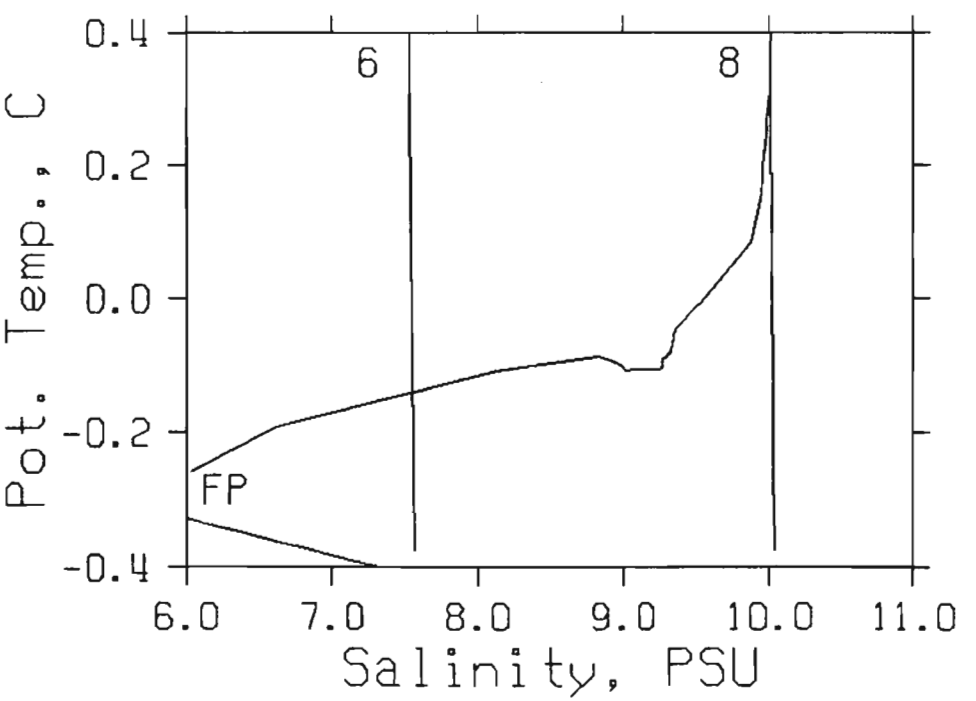




NOGAP ICEWORK 1992
Cruise 9207
STATION : E225
REFERENCE NO.: 92-07-062
DATE/TIME : 08/05/92 10:34 MDT
POSITION : 69- 1.9N 132-53.3W

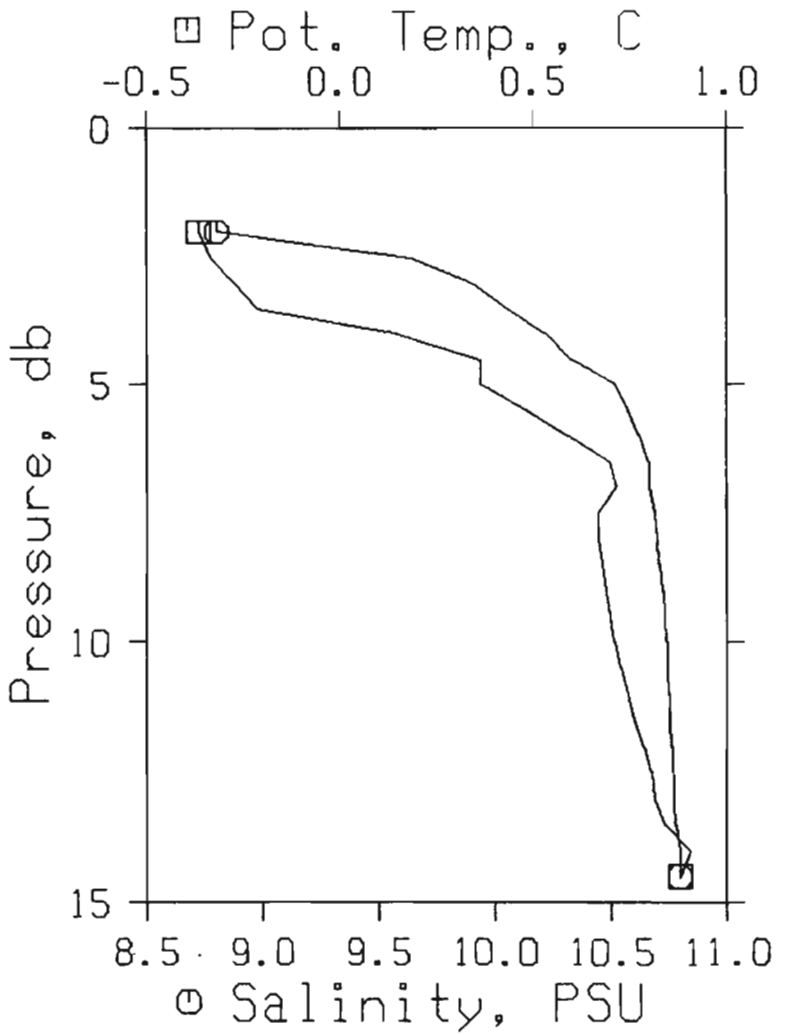
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-.258	-.258	6.043	4.77	2261.5	.45	.00	1409
4	4	-.092	-.092	8.918	7.10	2031.0	.88	.02	1414
6	6	-.108	-.108	9.047	7.21	2020.7	1.28	.04	1414
8	8	-.104	-.104	9.267	7.39	2003.2	1.68	.07	1414
10	10	-.089	-.089	9.289	7.40	2001.4	2.08	.10	1415
12	12	-.086	-.086	9.302	7.41	2000.4	2.48	.15	1415
15	15	-.068	-.068	9.337	7.44	1997.5	3.08	.23	1415
20	20	.289	.289	9.999	7.99	1943.9	4.06	.40	1418
25	25	.303	.303	10.004	7.99	1943.4	5.03	.63	1418
26	26	.305	.305	10.004	7.99	1943.4	5.23	.68	1418

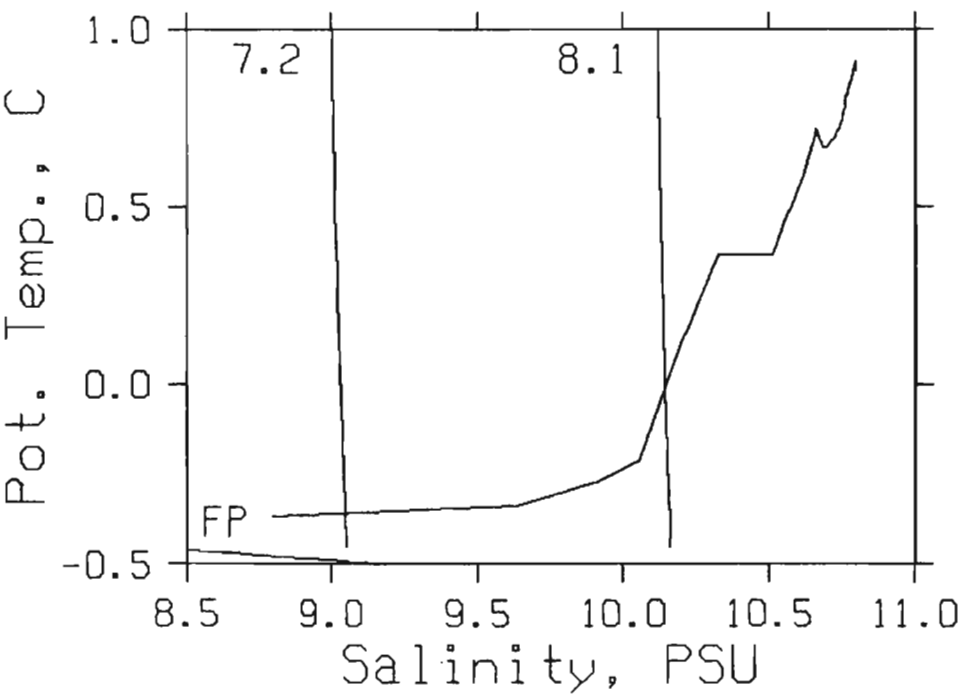




NOGAP ICEWORK 1992
Cruise 9207
STATION : E300
REFERENCE NO.: 92-07-063
DATE/TIME : 08/05/92 11:53 MDT
POSITION : 69- 8.5N 132-36.6W

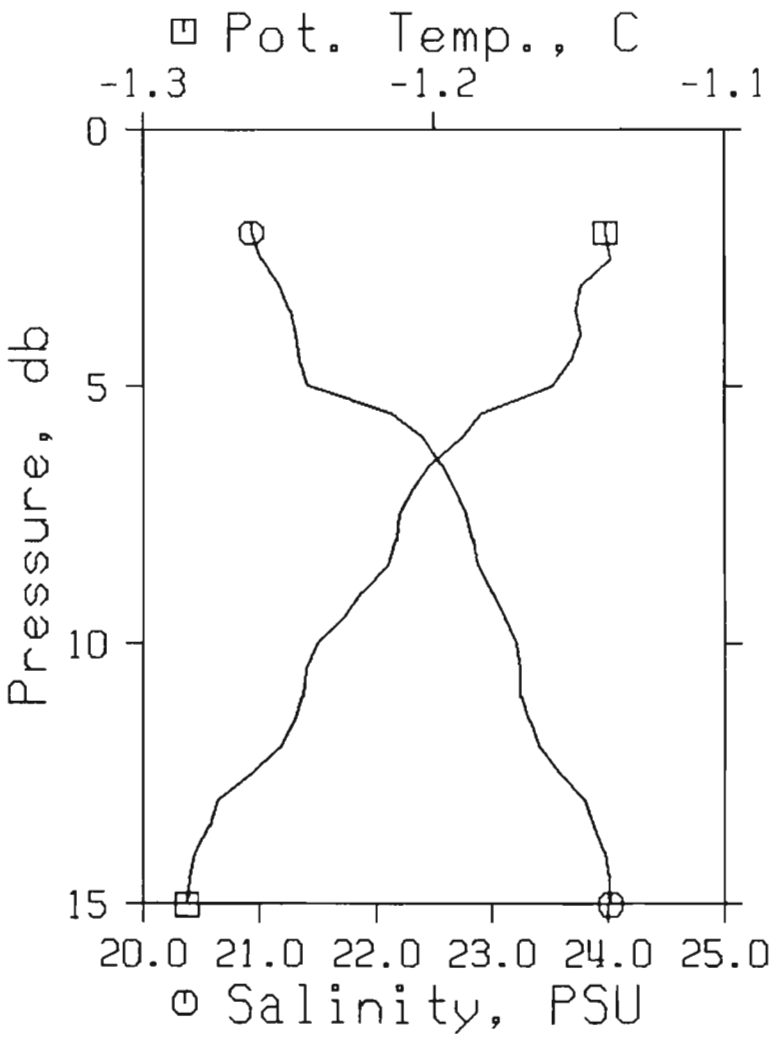
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-.368	-.368	8.799	7.00	2041.5	.41	.00	1412
4	4	.141	.141	10.216	8.16	1927.0	.80	.02	1417
6	6	.587	.587	10.623	8.50	1893.8	1.18	.04	1420
8	8	.666	.666	10.702	8.56	1887.4	1.56	.06	1420
10	10	.711	.711	10.742	8.59	1884.2	1.94	.10	1420
12	12	.787	.787	10.766	8.61	1882.2	2.31	.14	1421
15	15	.913	.913	10.805	8.65	1879.0	2.88	.22	1422

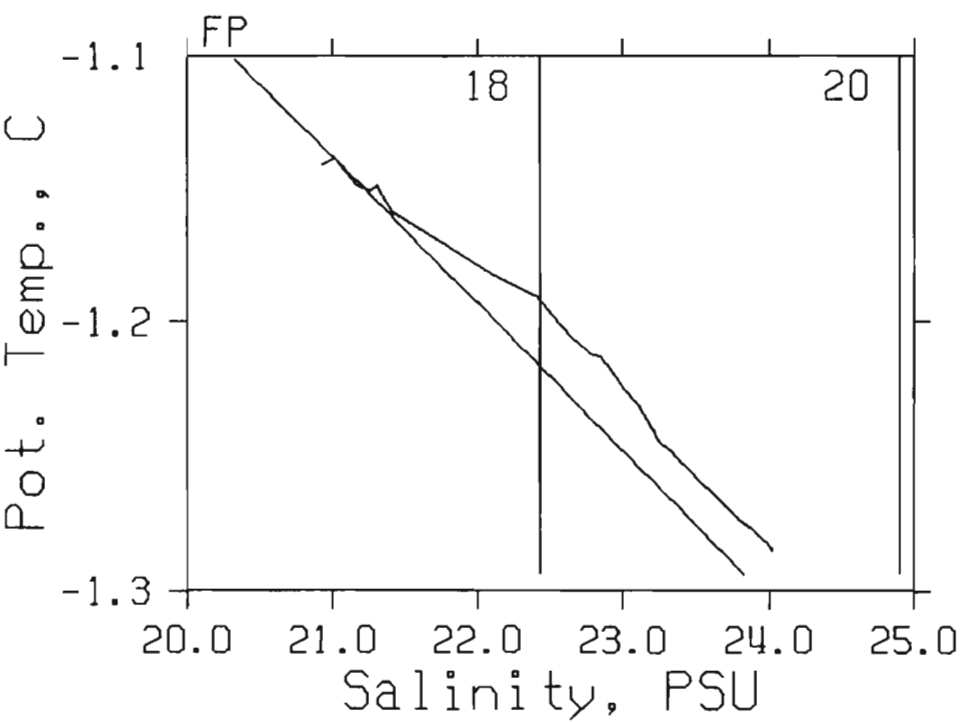




NOGAP ICEWORK 1992
Cruise 9207
STATION : E661
REFERENCE NO.: 92-07-064
DATE/TIME : 08/05/92 13:19 MDT
POSITION : 69-27.5N 130-50.0W

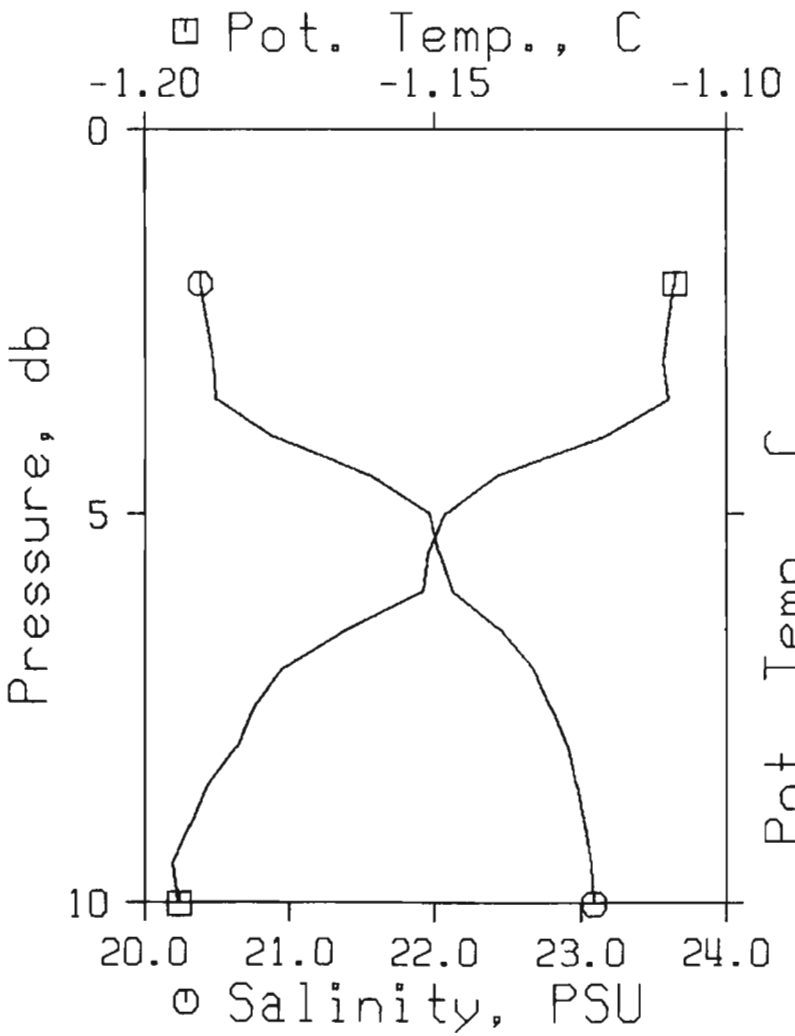
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-1.141	-1.141	20.932	16.79	1085.1	.22	.00	1425
4	4	-1.149	-1.149	21.311	17.09	1055.5	.43	.01	1425
6	6	-1.190	-1.190	22.403	17.98	970.1	.64	.02	1427
8	8	-1.213	-1.213	22.845	18.34	935.6	.83	.03	1427
10	10	-1.240	-1.240	23.214	18.64	906.8	1.01	.05	1428
12	12	-1.253	-1.253	23.418	18.80	890.9	1.19	.07	1428
15	15	-1.285	-1.285	24.024	19.29	843.6	1.45	.11	1429
16	15	-1.284	-1.284	24.026	19.29	843.5	1.49	.11	1429

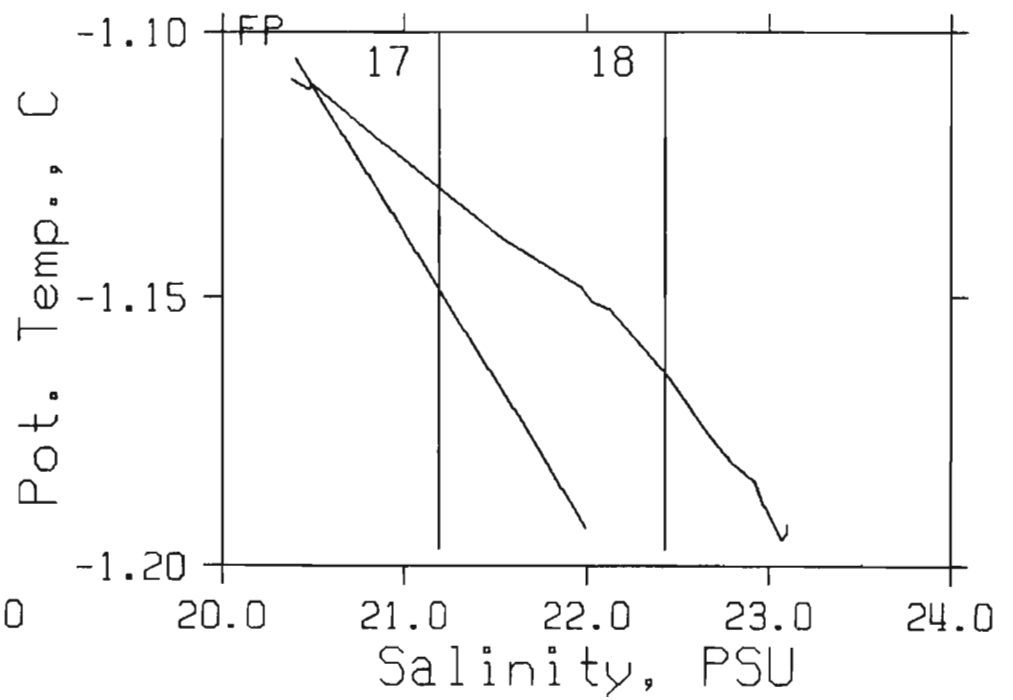




NOGAP ICEWORK 1992
Cruise 9207
STATION : E662
REFERENCE NO.: 92-07-065
DATE/TIME : 08/05/92 14:16 MDT
POSITION : 69-24.4N 130-47.5W

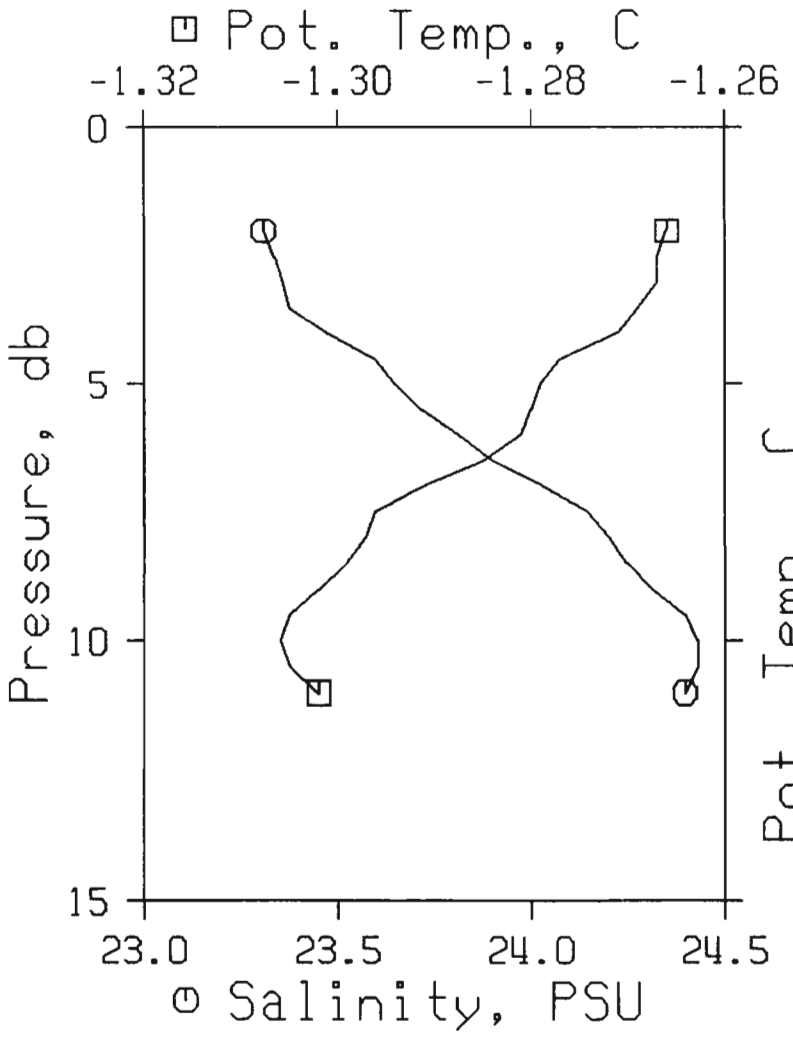
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-1.109	-1.109	20.378	16.34	1128.5	.23	.00	1424
4	4	-1.121	-1.121	20.888	16.75	1088.5	.45	.01	1425
6	6	-1.152	-1.152	22.121	17.75	992.1	.65	.02	1427
8	8	-1.184	-1.184	22.918	18.40	929.9	.84	.03	1427
10	10	-1.194	-1.194	23.095	18.54	916.1	1.03	.05	1428
11	10	-1.192	-1.192	23.099	18.54	915.8	1.07	.05	1428

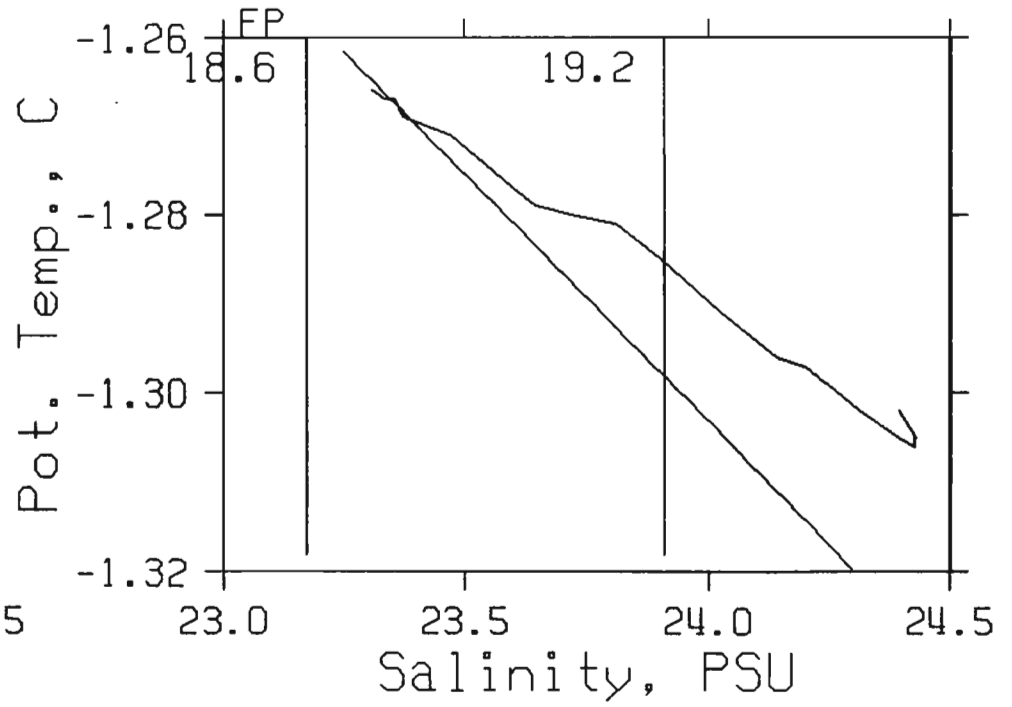




NOGAP ICEWORK 1992
Cruise 9207
STATION : E670
REFERENCE NO.: 92-07-066
DATE/TIME : 08/05/92 15:31 MDT
POSITION : 69-30.8N 130-43.3W

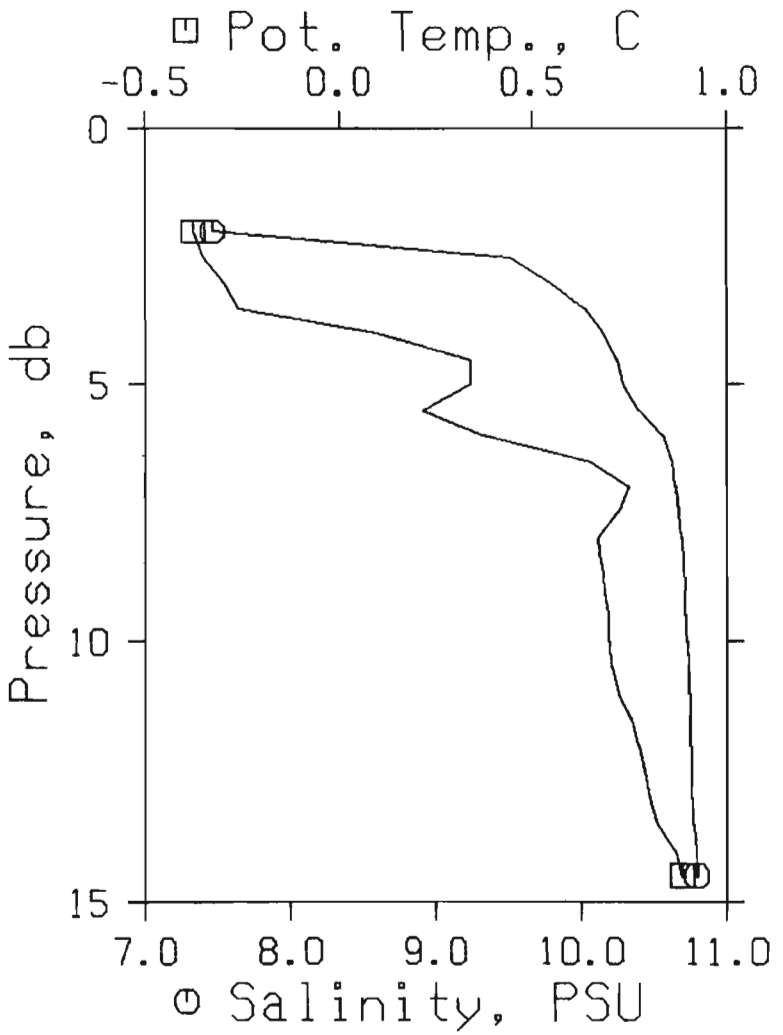
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-1.266	-1.266	23.307	18.71	899.5	.18	.00	1427
4	4	-1.271	-1.271	23.470	18.84	886.8	.36	.01	1428
6	6	-1.281	-1.281	23.811	19.12	860.2	.53	.02	1428
8	8	-1.297	-1.297	24.201	19.43	829.8	.70	.03	1429
10	10	-1.306	-1.306	24.429	19.62	812.0	.87	.04	1429
11	11	-1.302	-1.302	24.396	19.59	814.6	.95	.05	1429

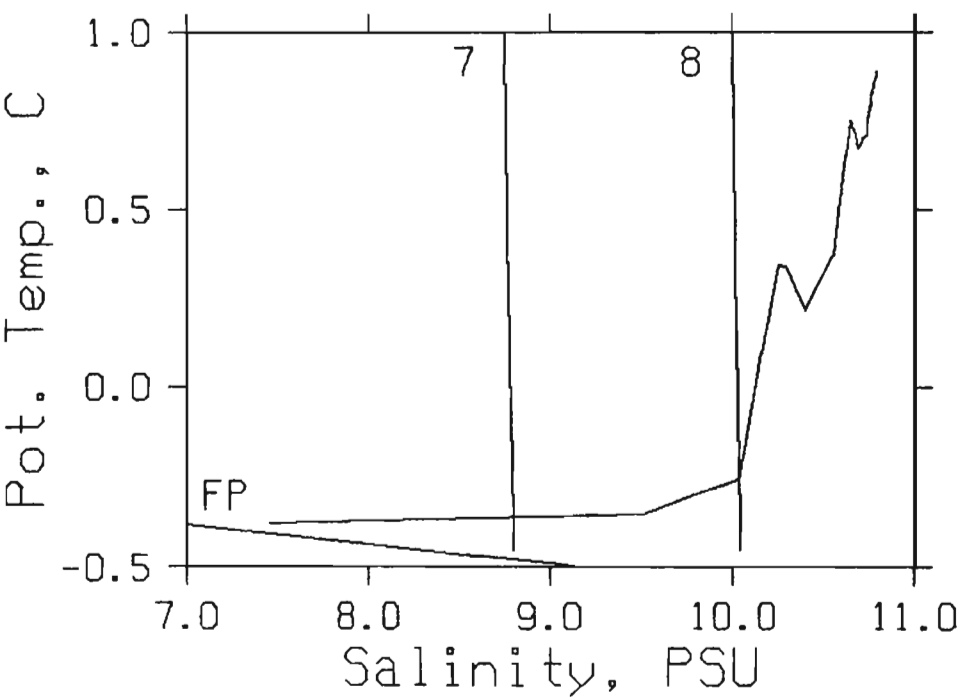




NOGAP ICEWORK 1992
Cruise 9207
STATION : E300
REFERENCE NO.: 92-07-067
DATE/TIME : 09/05/92 10:46 MDT
POSITION : 69- 8.4N 132-36.7W

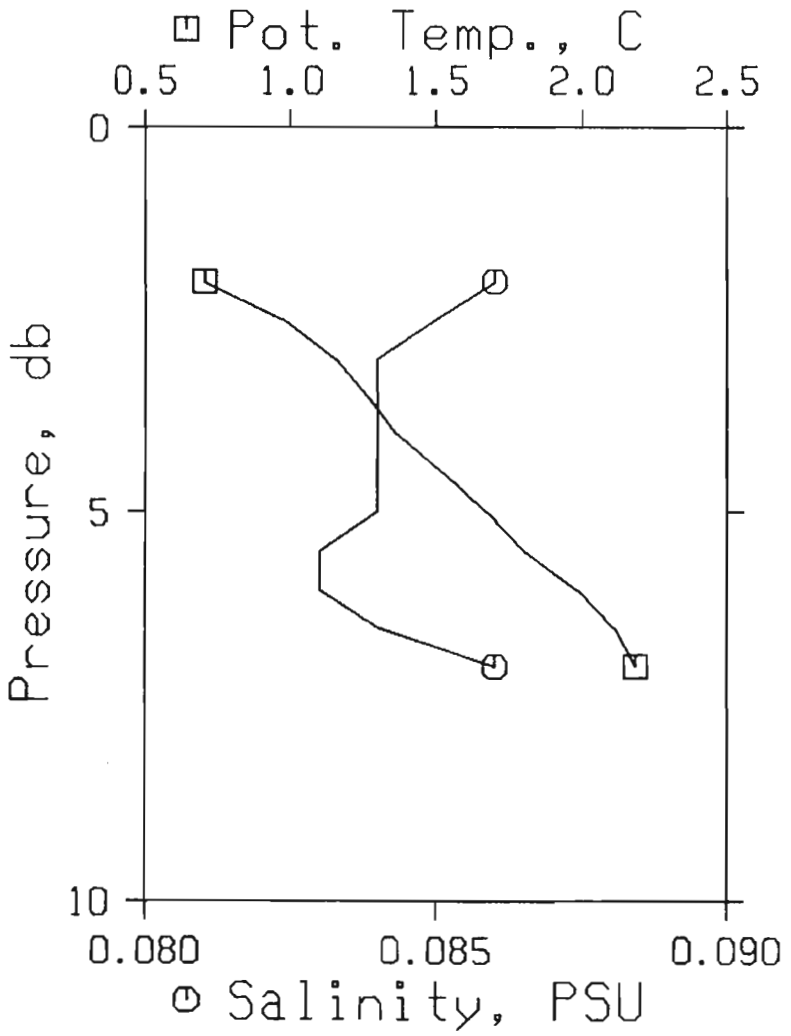
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-.378	-.378	7.459	5.91	2148.6	.43	.00	1411
4	4	.096	.096	10.159	8.11	1931.7	.83	.02	1417
6	6	.369	.369	10.562	8.44	1899.1	1.21	.04	1418
8	8	.670	.670	10.694	8.56	1888.0	1.59	.06	1420
10	10	.701	.701	10.731	8.59	1885.1	1.97	.10	1420
12	12	.775	.775	10.758	8.61	1882.8	2.34	.14	1421
15	15	.899	.899	10.802	8.65	1879.2	2.91	.22	1422

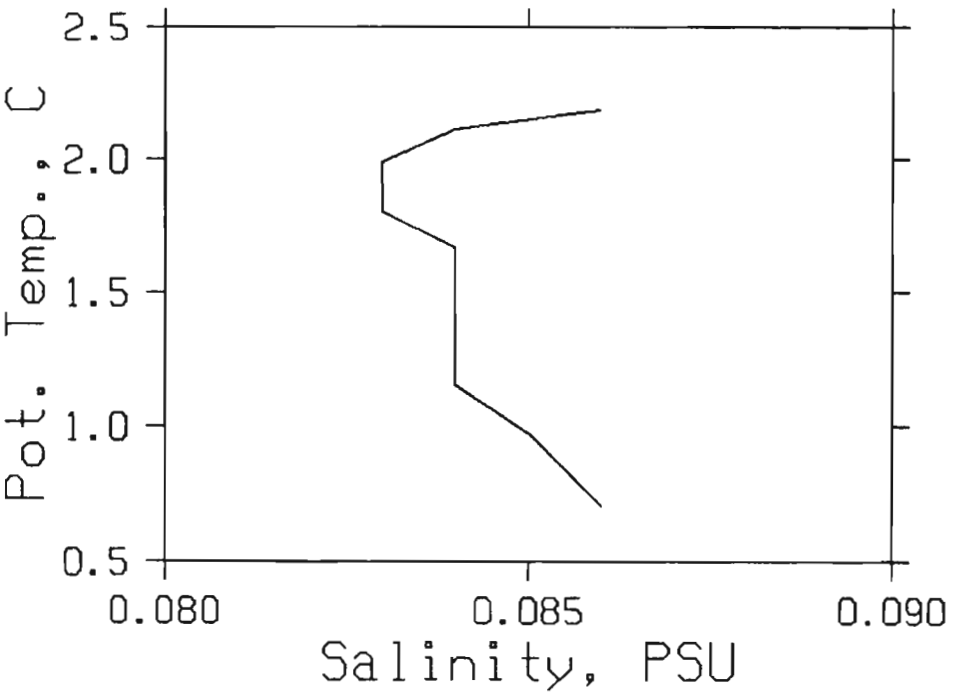




NOGAP ICEWORK 1992
Cruise 9207
STATION : S1TL
REFERENCE NO.: 92-07-068
DATE/TIME : 09/05/92 15:38 MDT
POSITION : 68-33.3N 132-43.9W

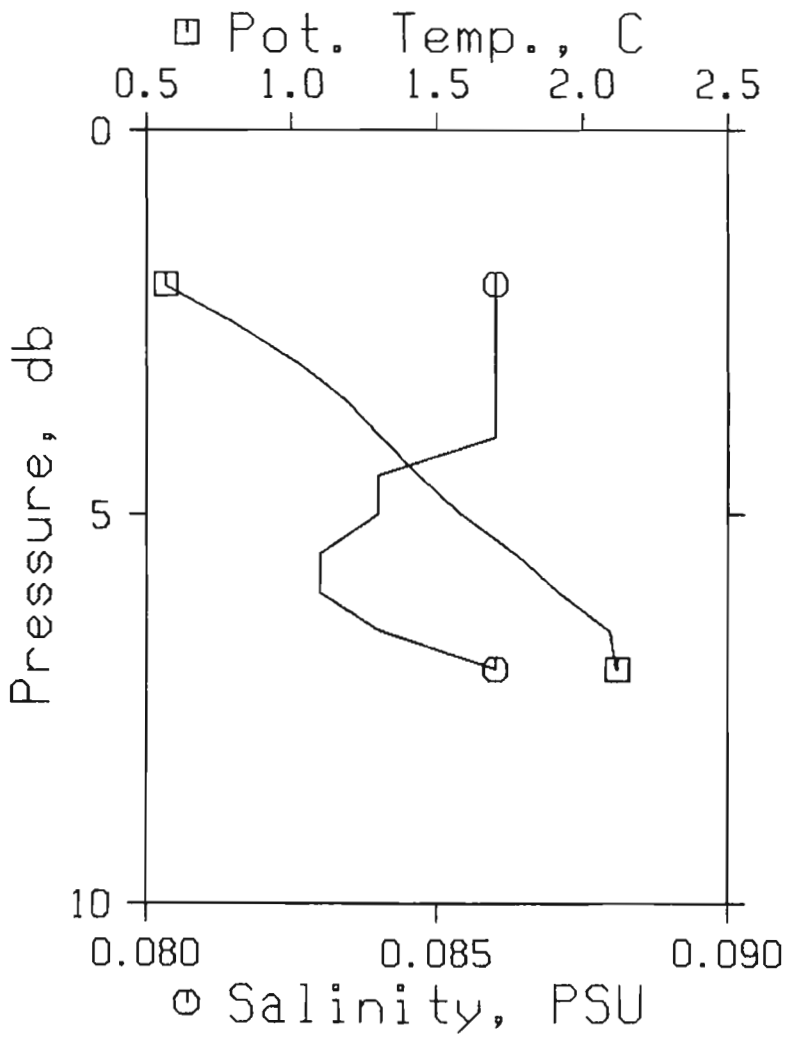
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	.706	.706	.086	-.02	2738.1	.55	.01	1406
4	4	1.372	1.372	.084	.01	2735.0	1.09	.02	1409
6	6	1.989	1.989	.083	.04	2732.8	1.64	.05	1412
7	7	2.184	2.184	.086	.04	2731.9	1.91	.07	1413

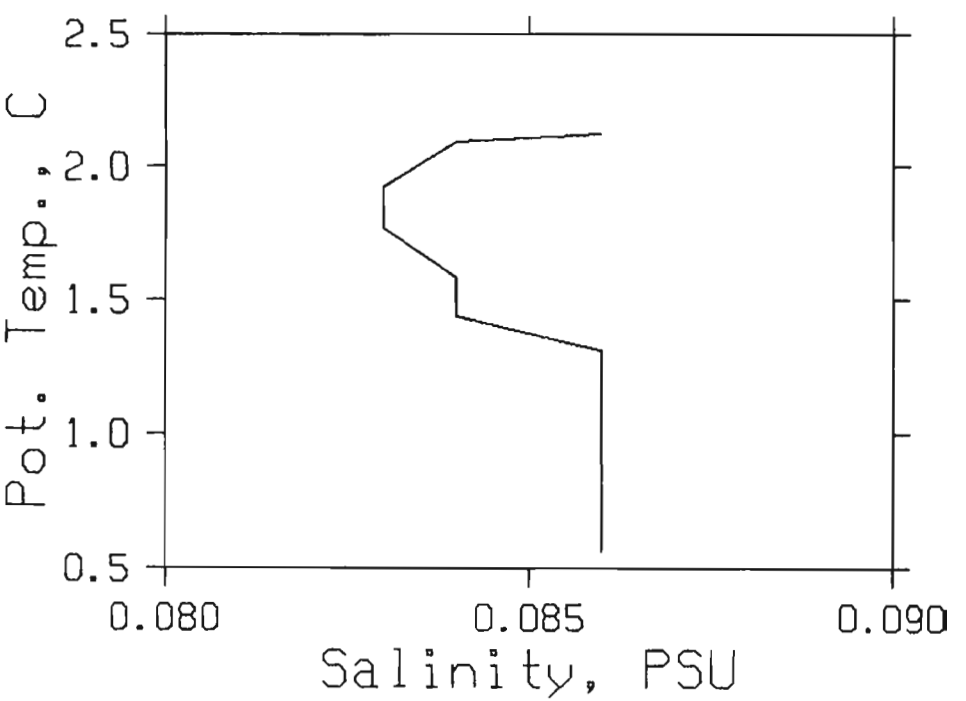




NOGAP ICEWORK 1992
Cruise 9207
STATION : SITL
REFERENCE NO.: 92-07-069
DATE/TIME : 09/05/92 15:52 MDT
POSITION : 68-33.3N 132-43.9W

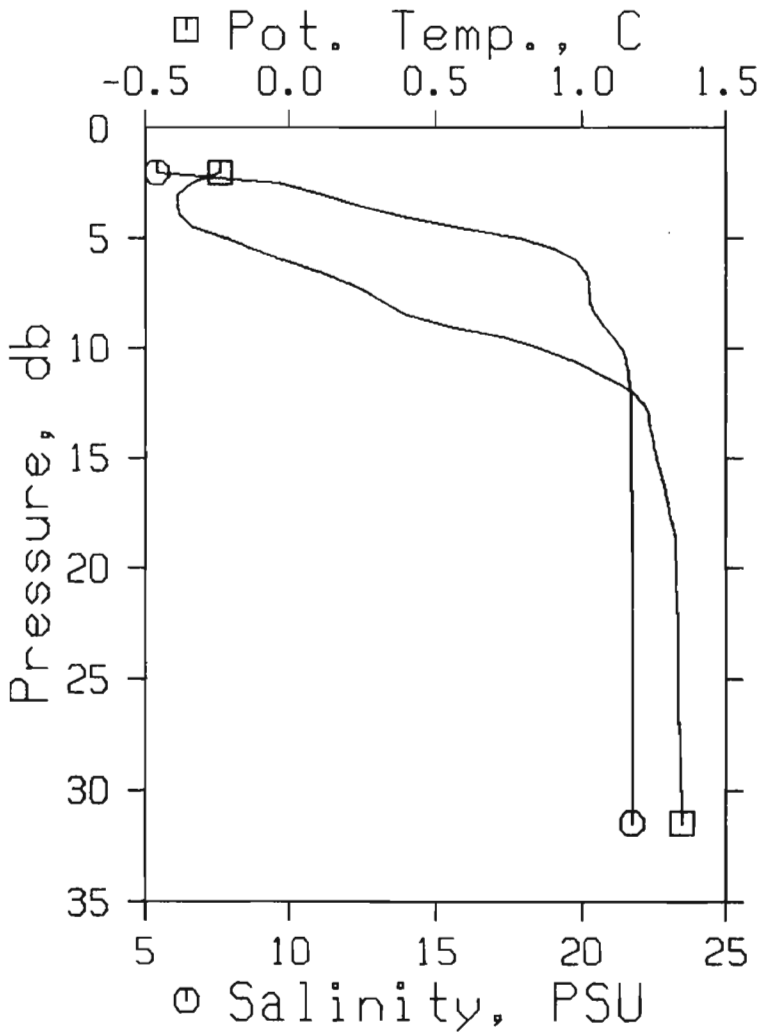
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	.567	.567	.086	-.03	2738.9	.55	.01	1405
4	4	1.310	1.310	.086	.01	2735.1	1.10	.02	1409
6	6	1.924	1.924	.083	.03	2733.0	1.64	.05	1412
7	7	2.120	2.120	.086	.04	2732.1	1.92	.07	1413

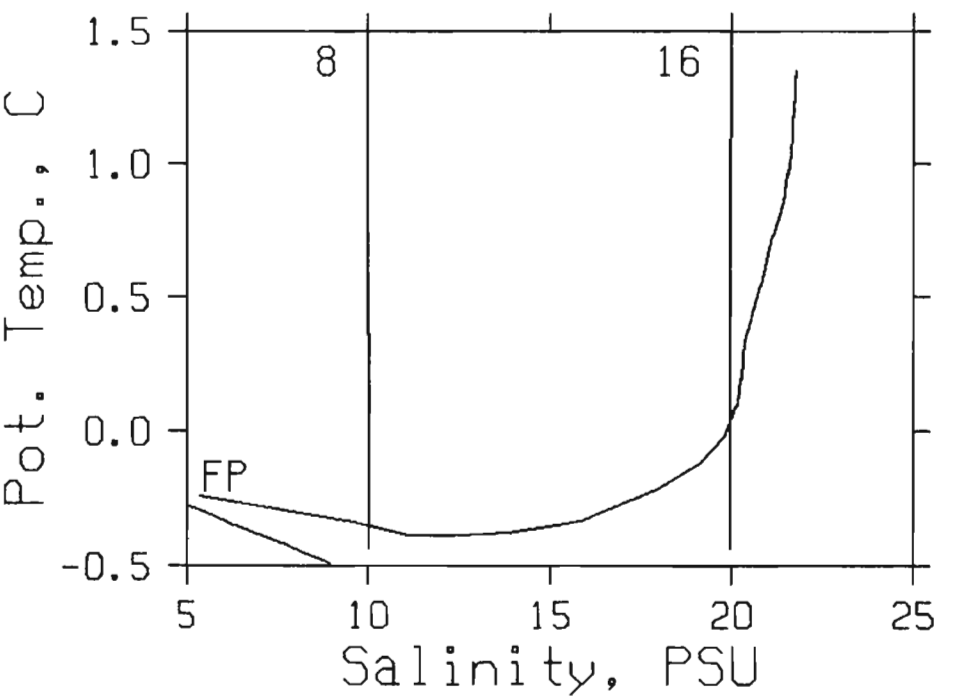




NOGAP ICEWORK 1992
Cruise 9207
STATION : MB92
REFERENCE NO.: 92-07-070
DATE/TIME : 11/05/92 10:37 MDT
POSITION : 69-33.2N 134- 4.6W

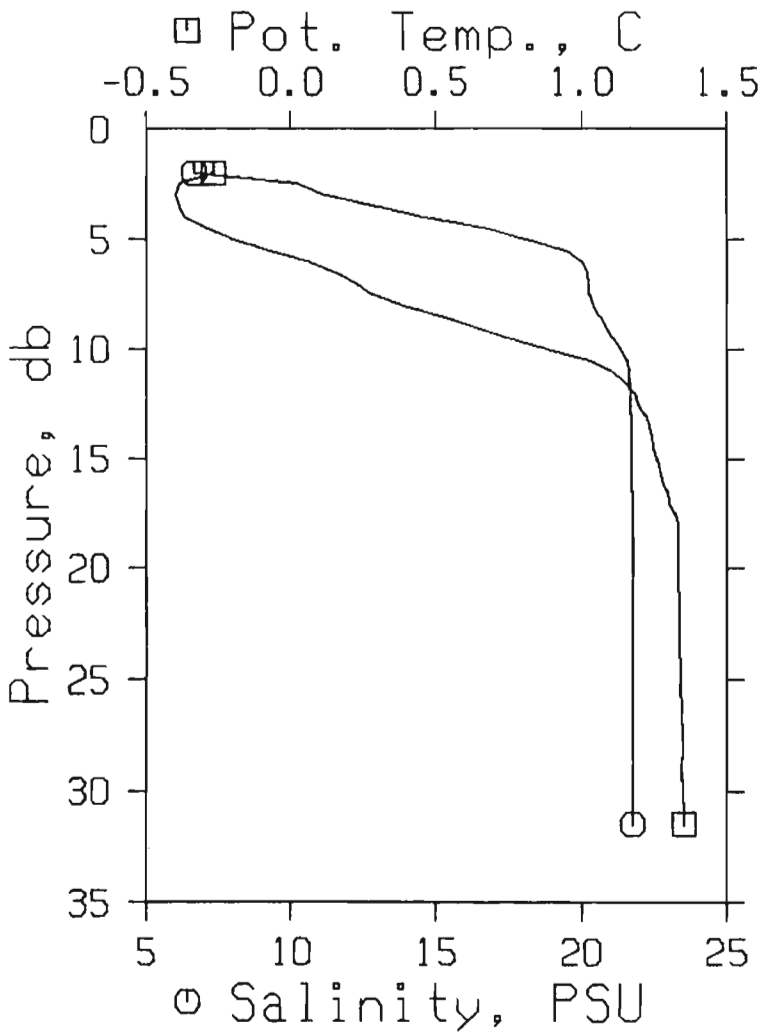
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-.241	-.241	5.382	4.24	2314.5	.46	.00	1409
4	4	-.376	-.376	13.831	11.06	1642.2	.84	.02	1419
6	6	-.018	-.018	19.820	15.89	1171.7	1.11	.03	1429
8	8	.337	.337	20.345	16.31	1131.0	1.34	.05	1431
10	10	.857	.857	21.406	17.16	1049.4	1.56	.07	1435
12	12	1.175	1.175	21.701	17.39	1027.3	1.77	.09	1437
15	15	1.262	1.262	21.727	17.41	1025.5	2.07	.13	1438
20	20	1.329	1.329	21.747	17.42	1024.2	2.59	.22	1438
25	25	1.338	1.337	21.749	17.42	1024.1	3.10	.34	1438
30	30	1.348	1.347	21.753	17.42	1023.8	3.61	.48	1438
32	31	1.351	1.350	21.754	17.42	1023.7	3.76	.53	1438

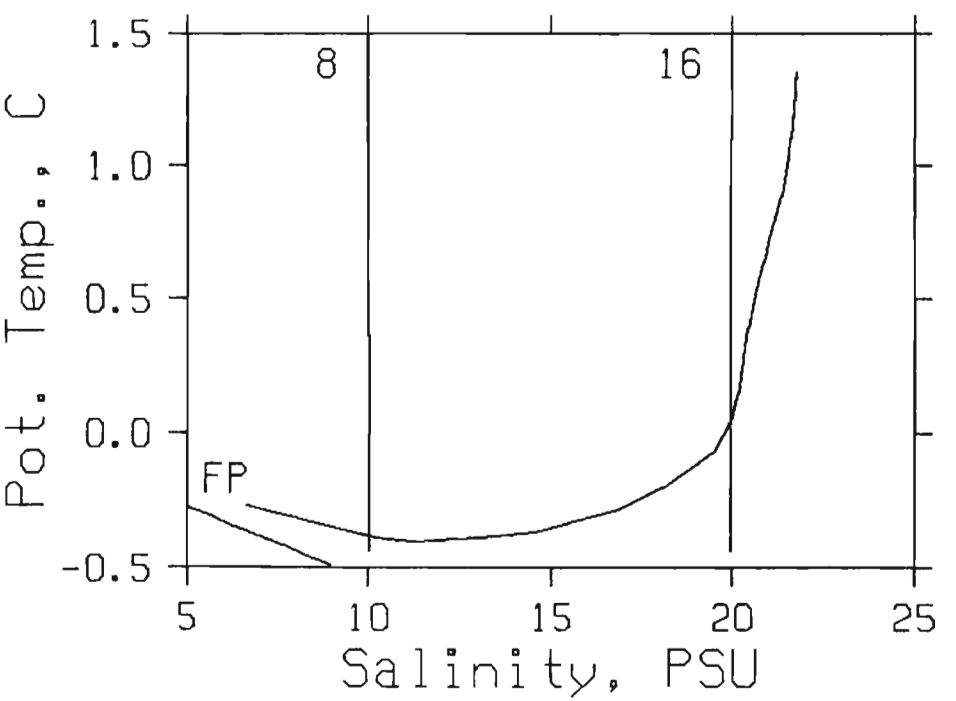




NOGAP ICEWORK 1992
Cruise 9207
STATION : MB92
REFERENCE NO.: 92-07-071
DATE/TIME : 11/05/92 12:51 MDT
POSITION : 69-33.2N 134- 4.6W

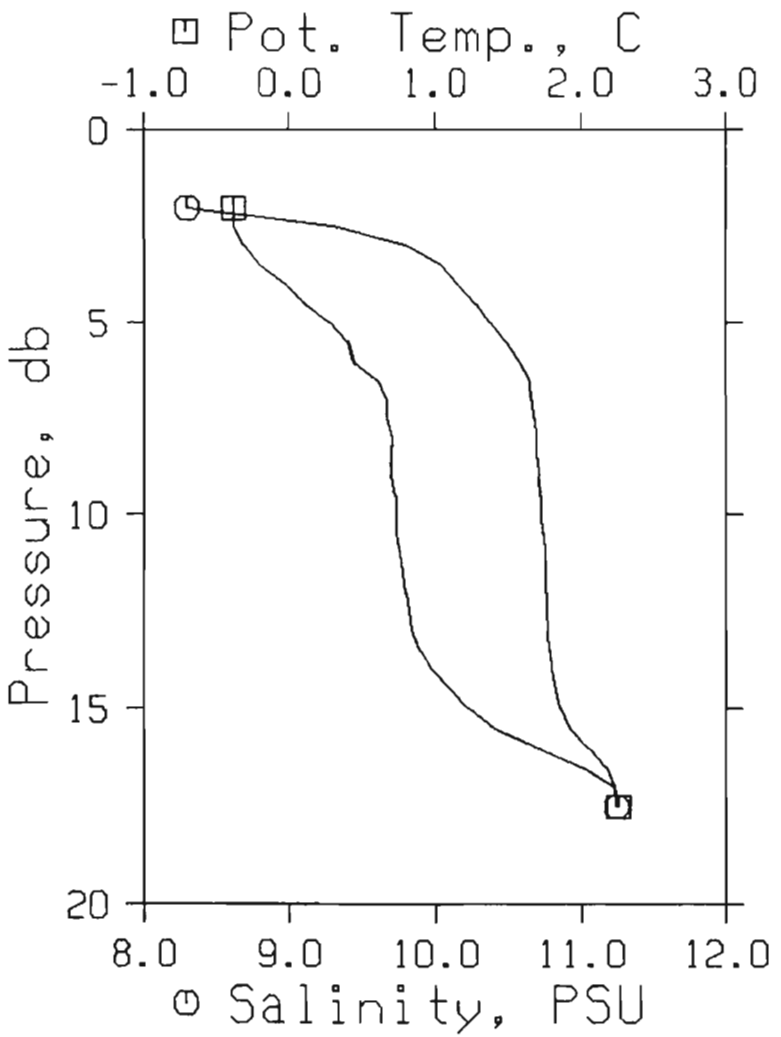
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-.269	-.269	6.652	5.26	2212.7	.44	.00	1410
4	4	-.366	-.366	14.578	11.66	1583.2	.81	.02	1420
6	6	.055	.055	20.004	16.04	1157.4	1.08	.03	1430
8	8	.391	.391	20.441	16.39	1123.6	1.30	.05	1432
10	10	.884	.884	21.372	17.13	1052.1	1.52	.06	1435
12	12	1.184	1.184	21.682	17.37	1028.8	1.73	.09	1437
15	15	1.259	1.259	21.717	17.40	1026.3	2.04	.13	1438
20	20	1.333	1.333	21.748	17.42	1024.1	2.55	.22	1438
25	25	1.340	1.339	21.751	17.42	1023.9	3.06	.34	1438
30	30	1.351	1.350	21.754	17.42	1023.7	3.57	.48	1438
32	31	1.352	1.351	21.758	17.43	1023.4	3.73	.53	1438

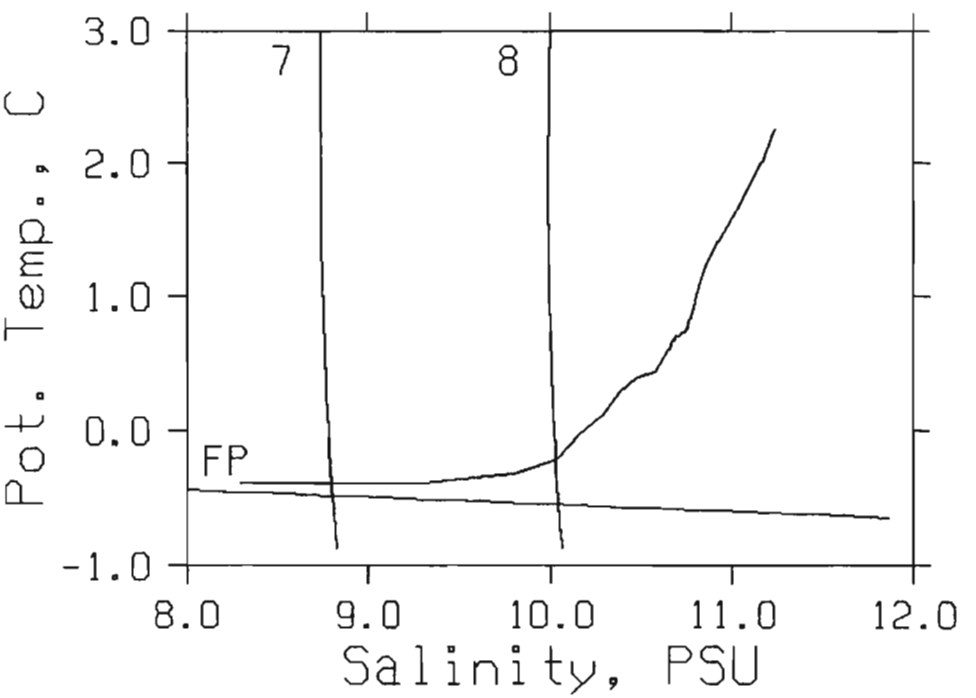




NOGAP ICEWORK 1992
Cruise 9207
STATION : E300
REFERENCE NO.: 92-07-072
DATE/TIME : 11/05/92 16:03 MDT
POSITION : 69- 8.4N 132-36.7W

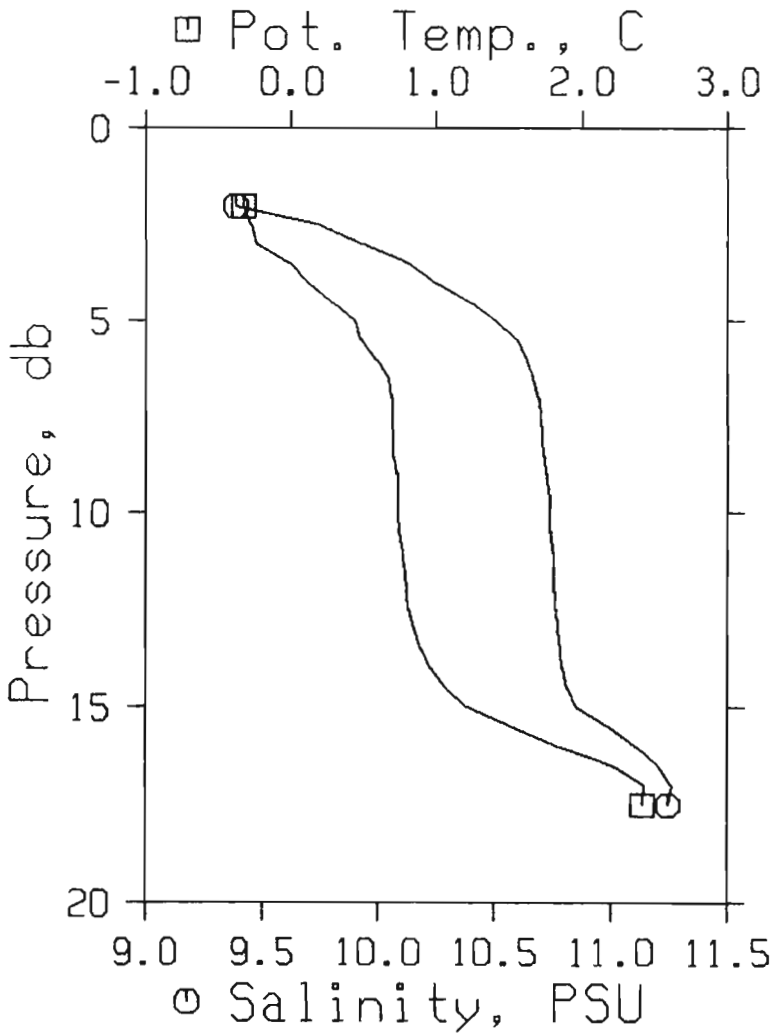
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-.389	-.389	8.295	6.59	2081.8	.42	.00	1412
4	4	-.021	-.021	10.161	8.11	1931.9	.81	.02	1416
6	6	.444	.444	10.579	8.46	1897.6	1.19	.04	1419
8	8	.711	.711	10.694	8.56	1888.0	1.57	.06	1420
10	10	.730	.730	10.729	8.58	1885.2	1.95	.10	1421
12	12	.801	.801	10.763	8.61	1882.4	2.33	.14	1421
15	15	1.230	1.230	10.858	8.69	1874.4	2.89	.22	1423
18	17	2.257	2.257	11.242	9.00	1844.4	3.35	.29	1429

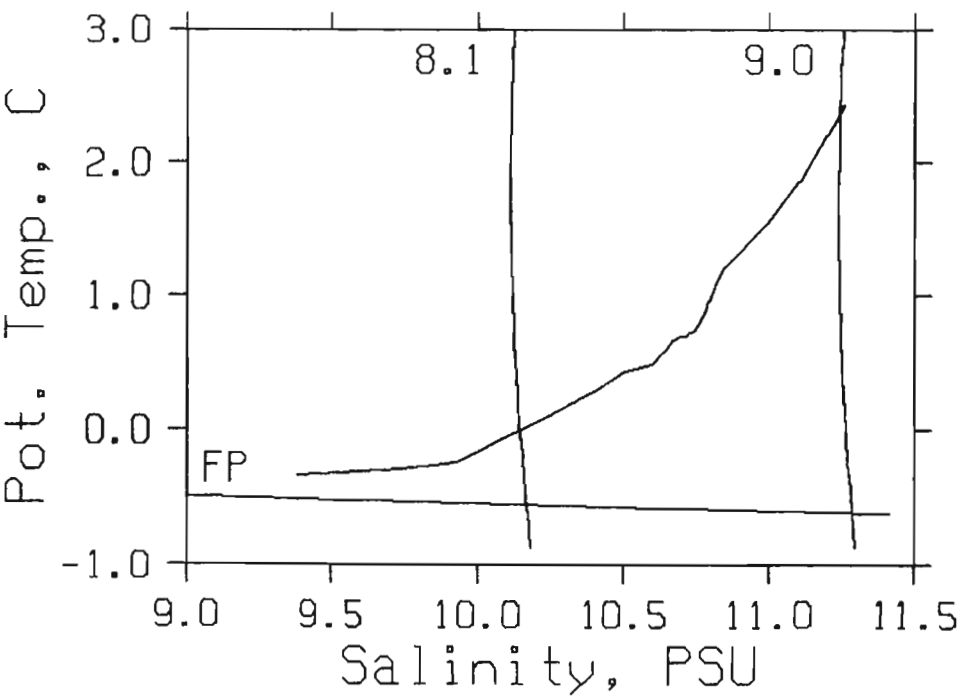




NOGAP ICEWORK 1992
Cruise 9207
STATION : E300
REFERENCE NO.: 92-07-073
DATE/TIME : 11/05/92 16:41 MDT
POSITION : 69- 8.4N 132-36.7W

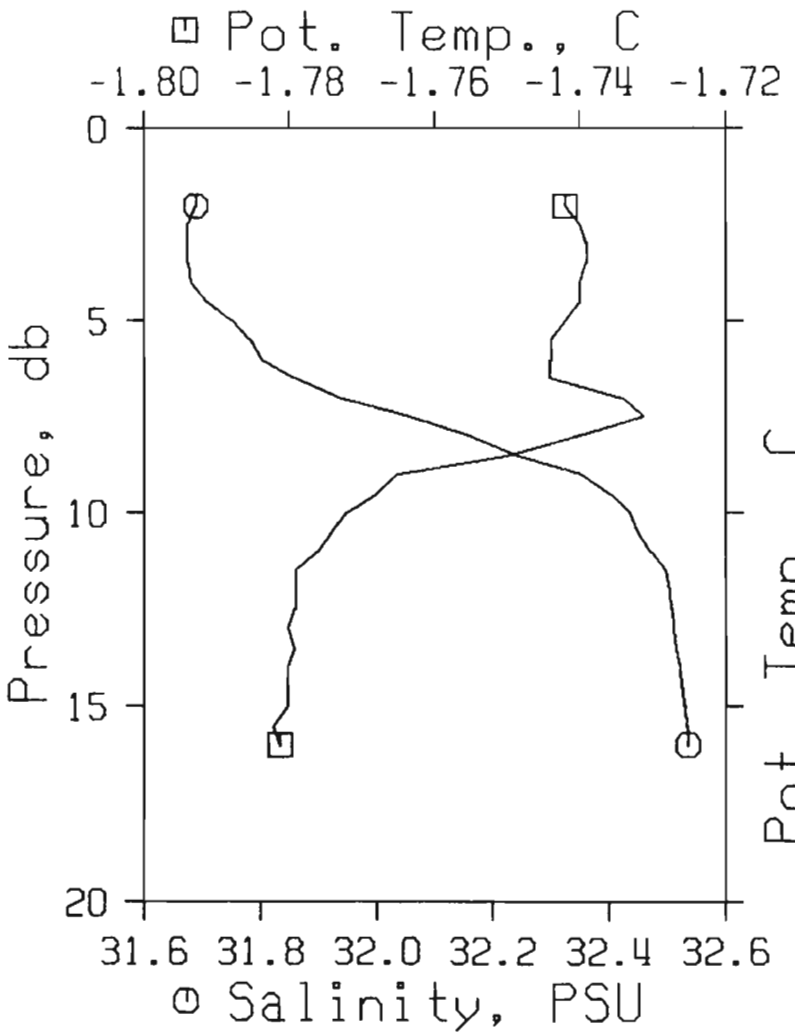
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-.331	-.331	9.383	7.47	1994.8	.40	.00	1413
4	4	.124	.124	10.257	8.19	1923.8	.79	.02	1417
6	6	.589	.589	10.640	8.51	1892.5	1.17	.04	1420
8	8	.701	.701	10.708	8.57	1886.9	1.55	.06	1420
10	10	.731	.731	10.740	8.59	1884.3	1.93	.10	1421
12	12	.795	.795	10.762	8.61	1882.5	2.30	.14	1421
15	15	1.212	1.212	10.850	8.69	1875.1	2.87	.22	1423
18	17	2.411	2.411	11.243	9.00	1844.5	3.33	.29	1429

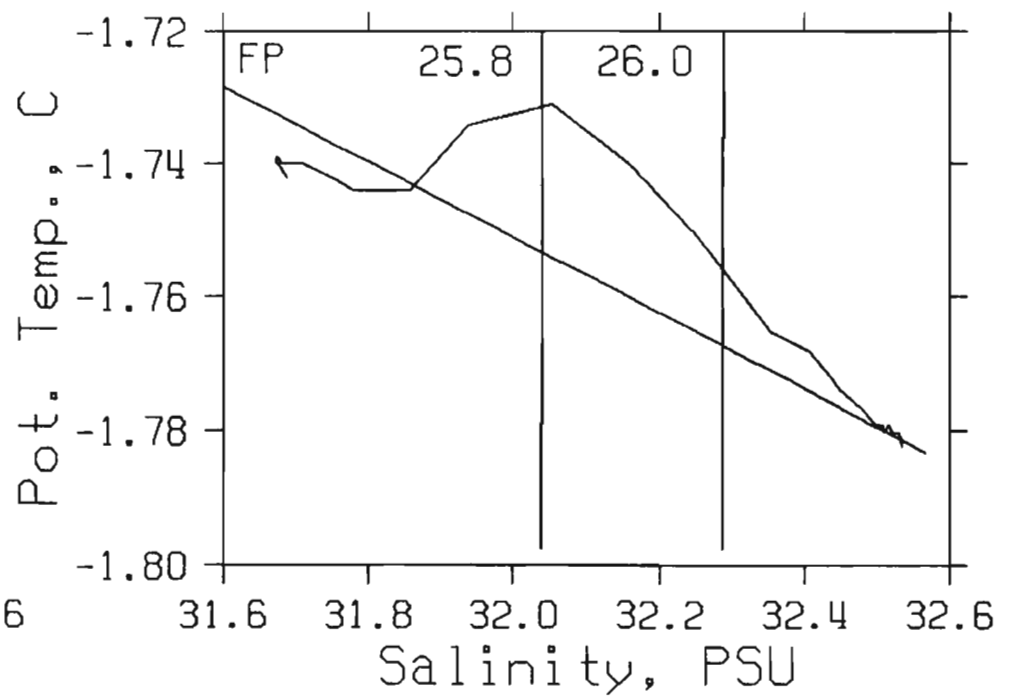




NOGAP ICEWORK 1992
Cruise 9207
STATION : E800
REFERENCE NO.: 92-07-074
DATE/TIME : 12/05/92 15:27 MDT
POSITION : 69-59.0N 129- 6.9W

PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
2	2	-1.742	-1.742	31.688	25.51	248.4	.05	.00	1437
4	4	-1.740	-1.740	31.681	25.51	249.0	.10	.00	1437
6	6	-1.744	-1.744	31.803	25.61	239.5	.15	.00	1437
8	8	-1.740	-1.740	32.160	25.90	212.0	.19	.01	1437
10	10	-1.772	-1.772	32.436	26.12	190.6	.23	.01	1438
12	12	-1.779	-1.779	32.505	26.18	185.3	.27	.02	1438
15	15	-1.780	-1.780	32.531	26.20	183.2	.33	.02	1438
16	16	-1.781	-1.781	32.536	26.20	182.9	.34	.03	1438

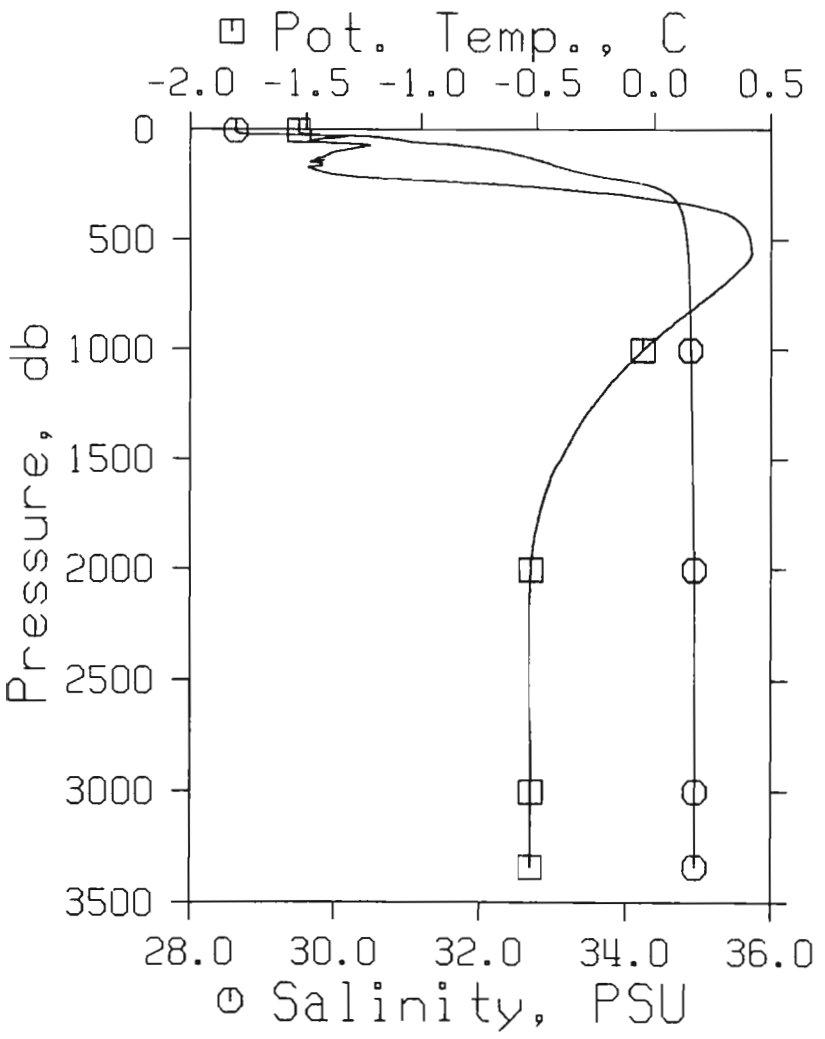


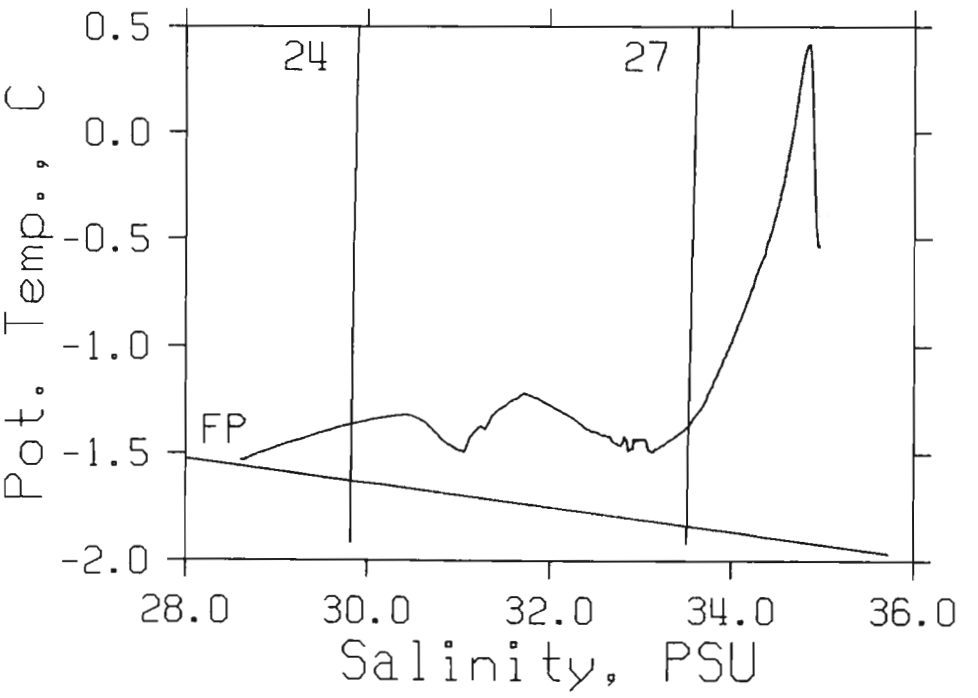


6.2 CTD Data Mission #9216; Tables and Plots

NOGAP LARSEN 1992
Cruise 9216
STATION : A01
REFERENCE NO.: 92-16-008
DATE/TIME : 20/09/92 21:09 UTC
POSITION : 72-31.6N 143-51.1W

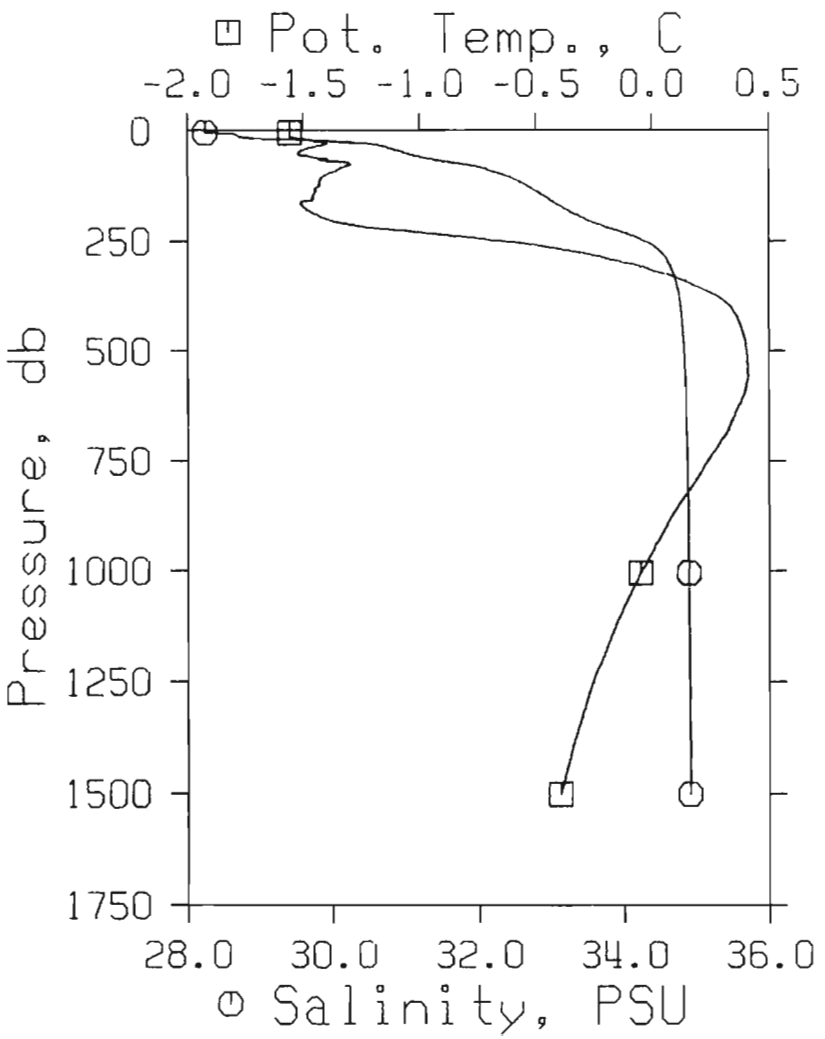
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
0	0	-1.531	-1.531	28.623	23.02	485.9	.00	.00	1433
10	10	-1.531	-1.531	28.634	23.03	485.1	.49	.02	1434
20	20	-1.517	-1.517	28.724	23.10	478.1	.97	.10	1434
50	49	-1.474	-1.475	30.972	24.93	304.2	2.03	.46	1438
75	74	-1.240	-1.241	31.855	25.64	236.6	2.71	.90	1440
100	99	-1.369	-1.371	32.363	26.05	197.1	3.25	1.37	1441
125	124	-1.417	-1.420	32.664	26.30	173.8	3.71	1.90	1441
150	148	-1.431	-1.434	32.935	26.52	152.9	4.12	2.46	1442
200	198	-1.395	-1.400	33.449	26.93	113.4	4.78	3.64	1444
250	247	-.623	-.631	34.303	27.60	50.4	5.19	4.55	1449
300	297	-.095	-.106	34.623	27.83	28.3	5.37	5.07	1453
400	396	.362	.345	34.791	27.94	17.8	5.59	5.83	1457
500	494	.434	.412	34.837	27.98	14.6	5.75	6.59	1459
600	593	.426	.399	34.863	28.00	12.6	5.90	7.38	1461
700	692	.334	.303	34.875	28.01	11.1	6.02	8.21	1462
800	790	.218	.182	34.884	28.03	9.8	6.13	9.05	1463
900	889	.102	.062	34.891	28.04	8.6	6.23	9.88	1464
1000	987	-.004	-.049	34.897	28.05	7.6	6.31	10.68	1465
1200	1184	-.166	-.220	34.908	28.07	5.9	6.44	12.15	1468
1500	1479	-.329	-.399	34.924	28.09	3.9	6.57	13.83	1472
2000	1970	-.426	-.526	34.945	28.11	1.7	6.62	14.69	1480
3000	2948	-.350	-.527	34.958	28.12	.7	6.52	11.96	1498
3342	3282	-.321	-.528	34.957	28.11	.8	6.47	10.59	1504

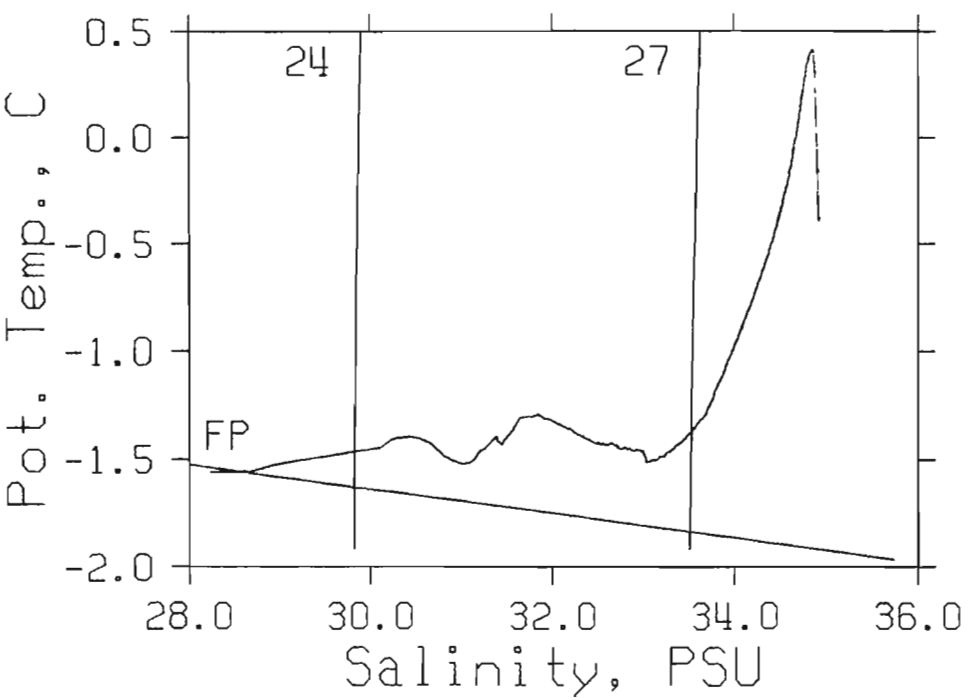




NOGAP LARSEN 1992
Cruise 9216
STATION : A01
REFERENCE NO.: 92-16-015
DATE/TIME : 21/09/92 19:12 UTC
POSITION : 72-28.3N 143-48.8W

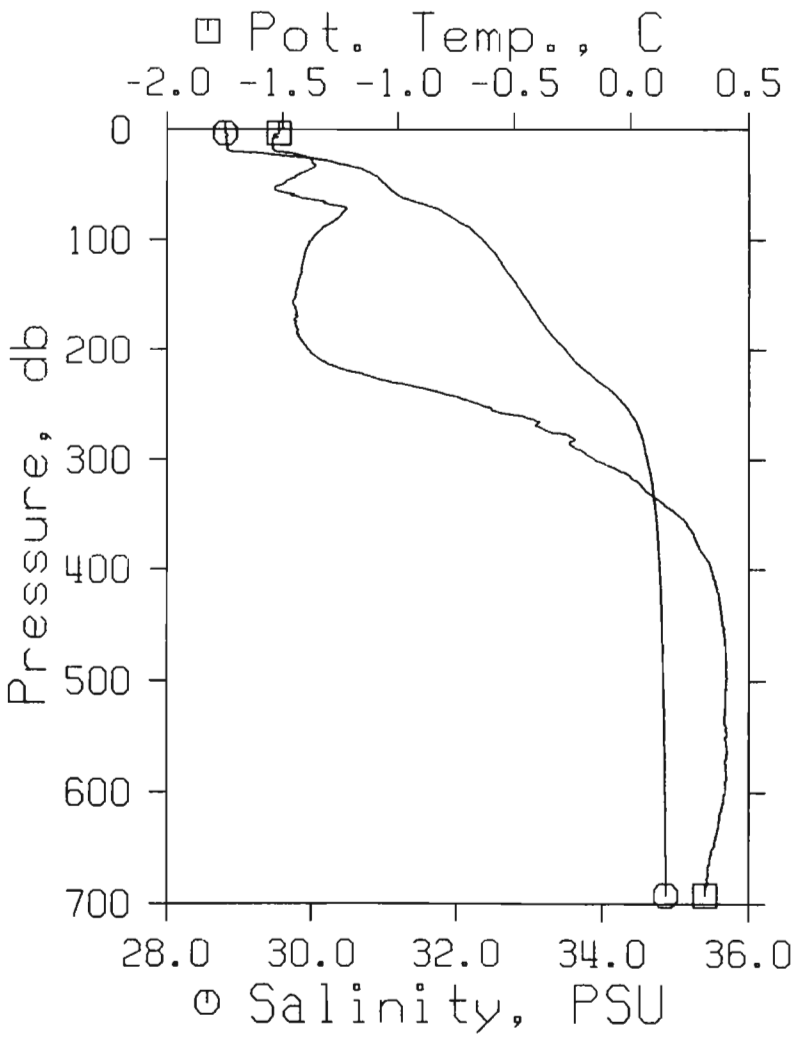
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
0	0	-1.558	-1.558	28.244	22.71	515.3	.00	.00	1433
10	10	-1.558	-1.558	28.679	23.07	481.6	.50	.03	1433
20	20	-1.495	-1.495	29.370	23.63	428.1	.97	.10	1435
50	49	-1.518	-1.519	30.992	24.94	302.6	1.98	.45	1437
75	74	-1.303	-1.304	31.764	25.57	243.5	2.67	.88	1440
100	99	-1.400	-1.402	32.352	26.05	197.9	3.21	1.36	1441
125	124	-1.430	-1.433	32.680	26.31	172.5	3.67	1.89	1441
150	148	-1.450	-1.453	32.933	26.52	153.0	4.08	2.45	1442
200	198	-1.399	-1.404	33.462	26.94	112.4	4.74	3.63	1444
250	247	-.629	-.637	34.298	27.59	50.8	5.14	4.53	1449
300	297	-.103	-.114	34.630	27.84	27.7	5.32	5.03	1453
400	396	.354	.337	34.793	27.94	17.6	5.54	5.79	1457
500	494	.428	.406	34.842	27.98	14.2	5.70	6.53	1459
600	593	.421	.394	34.866	28.00	12.3	5.84	7.30	1461
700	692	.333	.302	34.877	28.01	11.0	5.96	8.12	1462
800	790	.216	.180	34.886	28.03	9.6	6.07	8.95	1463
900	889	.101	.061	34.893	28.04	8.5	6.16	9.77	1464
1000	987	-.005	-.050	34.900	28.05	7.4	6.25	10.55	1465
1200	1184	-.164	-.218	34.909	28.07	5.9	6.38	12.00	1468
1500	1479	-.328	-.398	34.920	28.08	4.2	6.50	13.70	1472
1501	1480	-.329	-.399	34.921	28.08	4.1	6.50	13.71	1472

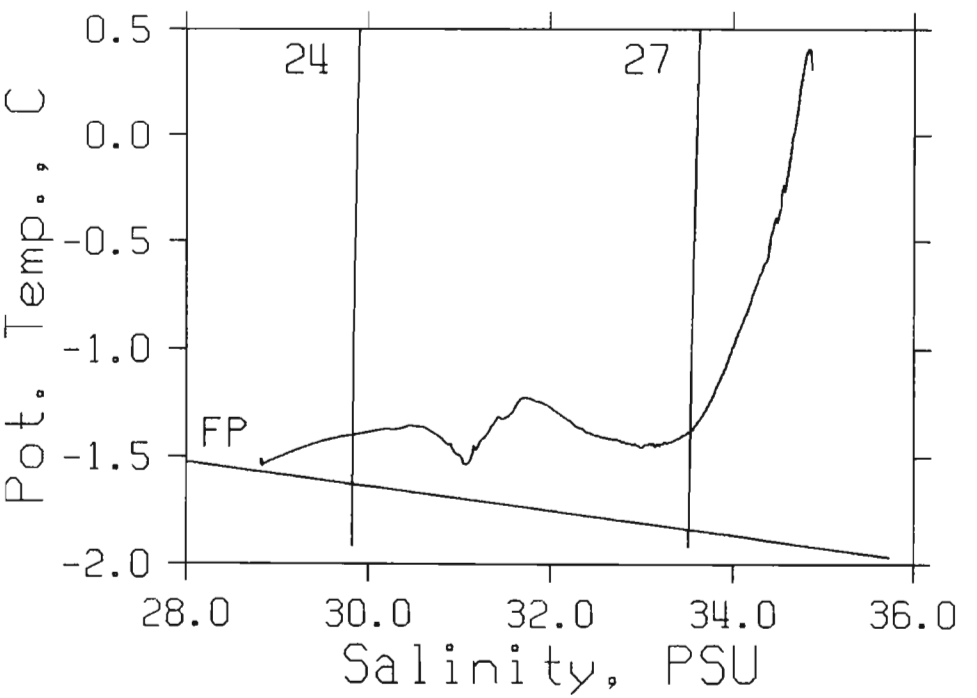




NOGAP LARSEN 1992
Cruise 9216
STATION : A01
REFERENCE NO.: 92-16-021
DATE/TIME : 23/09/92 16:35 UTC
POSITION : 72-25.0N 143-45.6W

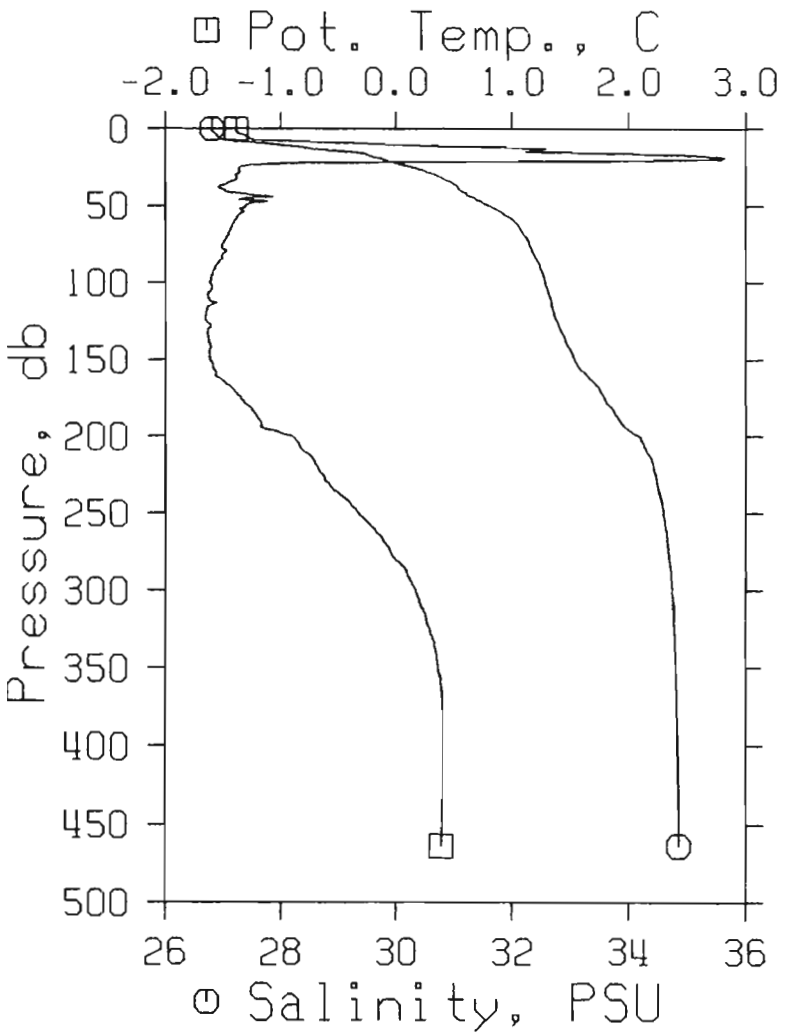
PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
0	0	-1.514	-1.514	28.811	23.17	471.4	.00	.00	1434
10	10	-1.543	-1.543	28.834	23.19	469.6	.47	.02	1434
20	20	-1.515	-1.515	28.940	23.28	461.4	.94	.10	1434
30	30	-1.372	-1.372	30.336	24.41	353.6	1.33	.20	1437
50	49	-1.505	-1.506	31.030	24.97	299.7	1.97	.45	1438
75	74	-1.239	-1.240	31.829	25.62	238.6	2.65	.88	1440
100	99	-1.375	-1.377	32.370	26.06	196.6	3.19	1.36	1441
125	124	-1.415	-1.418	32.659	26.29	174.2	3.65	1.88	1441
150	148	-1.439	-1.442	32.924	26.51	153.7	4.06	2.45	1442
175	173	-1.440	-1.444	33.175	26.71	134.4	4.41	3.04	1443
200	198	-1.384	-1.389	33.503	26.98	109.3	4.71	3.62	1444
225	223	-1.110	-1.116	33.885	27.28	80.7	4.95	4.13	1446
250	247	-.638	-.646	34.312	27.61	49.7	5.11	4.51	1449
300	297	-.144	-.155	34.620	27.83	28.3	5.29	5.00	1453
400	396	.358	.341	34.791	27.94	17.8	5.51	5.77	1457
500	494	.426	.404	34.839	27.98	14.5	5.67	6.52	1459
600	593	.424	.397	34.863	28.00	12.6	5.81	7.31	1461
700	692	.337	.306	34.877	28.01	11.0	5.94	8.13	1462

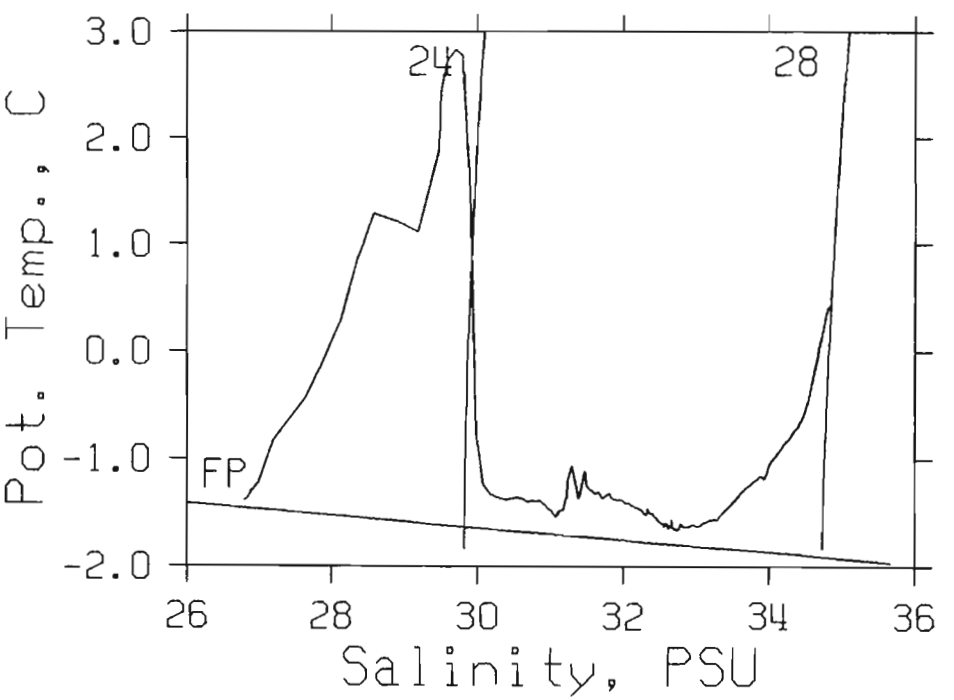


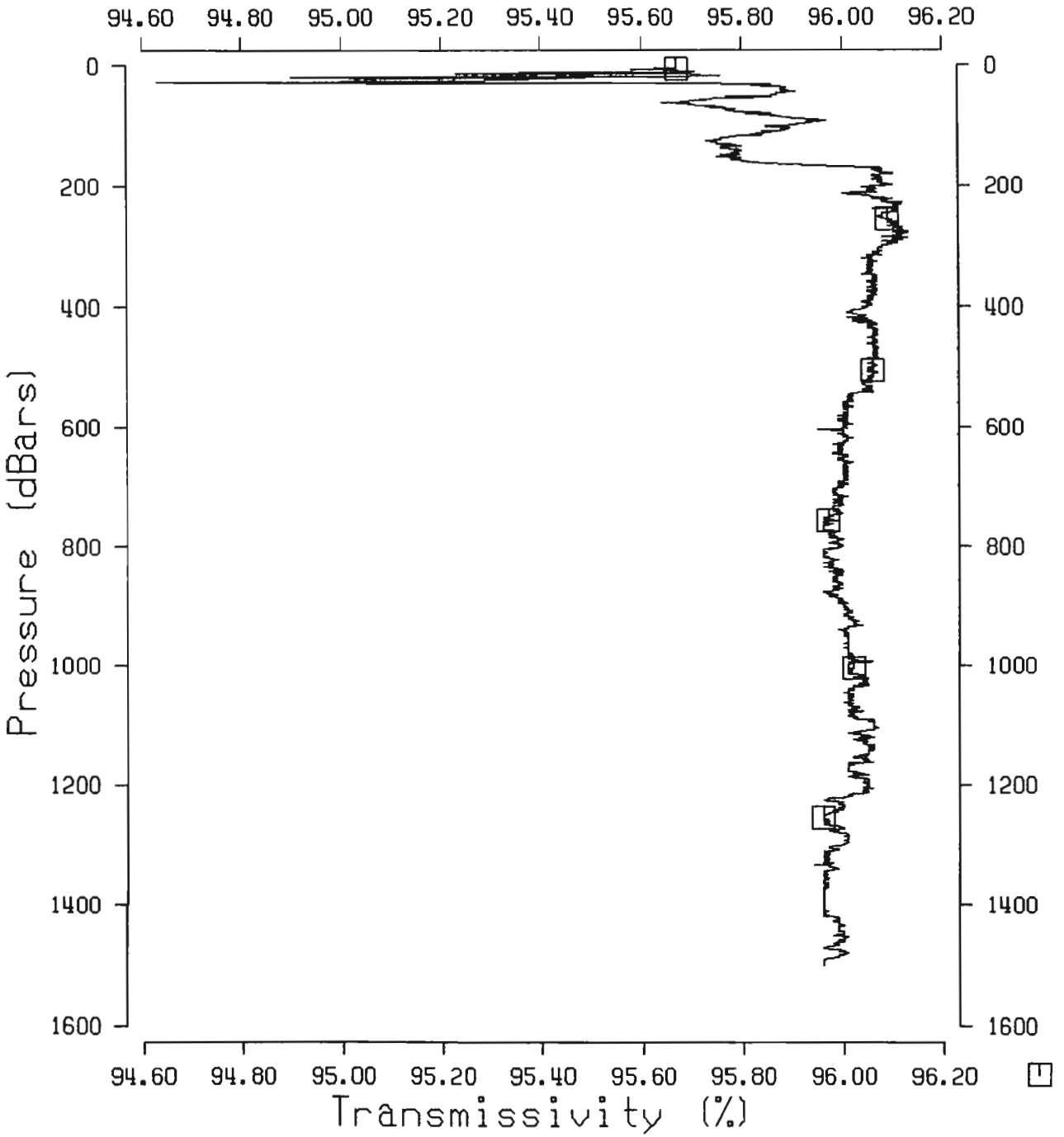


NOGAP LARSEN 1992
Cruise 9216
STATION : E01
REFERENCE NO.: 92-16-022
DATE/TIME : 25/09/92 23:39 UTC
POSITION : 71-12.1N 147-26.3W

PRESS	DEPTH	TEMP	THETA	SAL	SIGMA T	SVAN	DYN. HT.	POT. EN.	SOUND SPEED
0	0	-1.390	-1.390	26.460	21.27	654.0	.00	.00	1431
10	10	-.697	-.697	26.509	21.30	650.9	.65	.03	1435
20	20	2.888	2.887	26.983	21.52	629.1	1.31	.13	1452
30	30	-1.395	-1.395	30.704	24.71	325.1	1.69	.23	1437
50	49	-1.324	-1.325	31.614	25.44	255.0	2.27	.46	1439
75	74	-1.513	-1.514	32.308	26.01	201.0	2.82	.81	1440
100	99	-1.617	-1.619	32.577	26.23	180.0	3.29	1.23	1440
125	124	-1.647	-1.649	32.777	26.40	164.5	3.72	1.72	1440
150	148	-1.610	-1.613	33.085	26.65	140.9	4.10	2.25	1441
175	173	-1.342	-1.346	33.593	27.05	102.5	4.40	2.74	1444
200	198	-.894	-.900	34.194	27.52	57.7	4.61	3.14	1447
225	223	-.622	-.629	34.478	27.74	37.0	4.73	3.38	1449
250	247	-.315	-.324	34.608	27.83	28.4	4.81	3.58	1451
300	297	.184	.172	34.758	27.93	19.4	4.92	3.90	1455
400	396	.425	.408	34.850	27.99	13.6	5.08	4.48	1457
464	459	.414	.394	34.875	28.01	11.6	5.17	4.85	1458

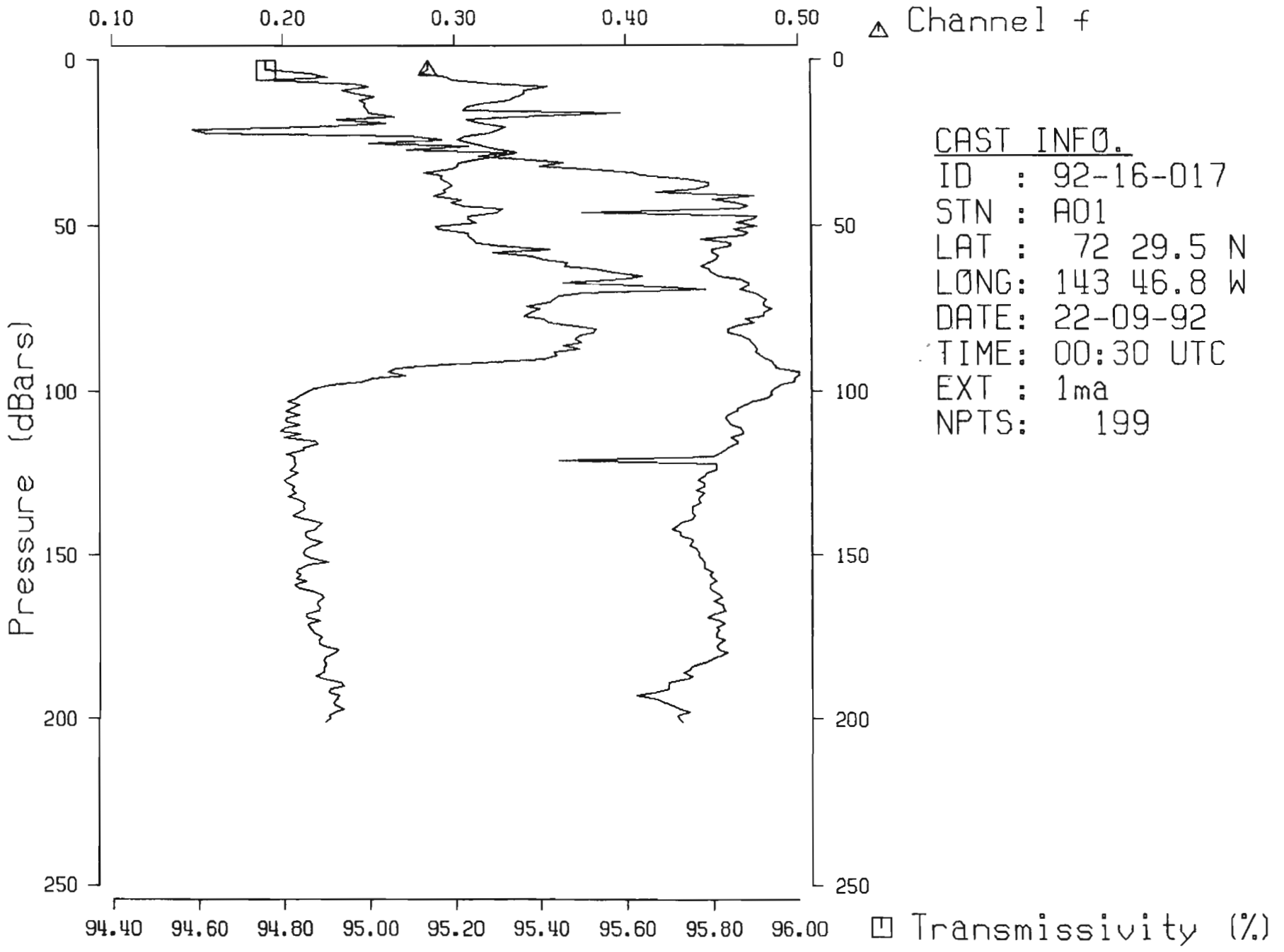


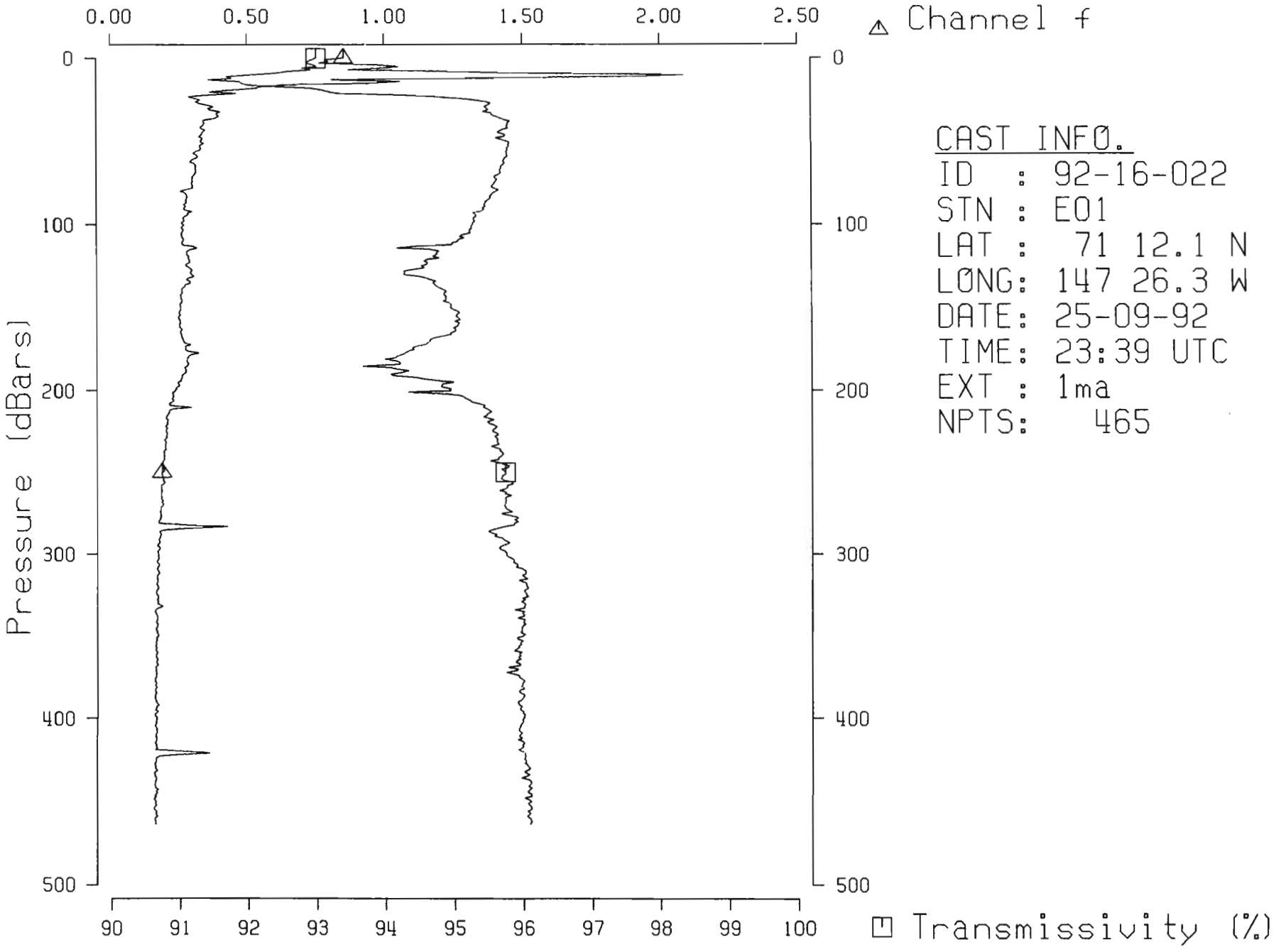




CAST INFO.

ID : 92-16-015
STN : A01
LAT : 72 28.3 N
LONG: 143 48.8 W
DATE: 21-09-92
TIME: 19:12 UTC
EXT : 1ma
NPTS: 1497


0.10
0.20
0.30
0.40
0.50
Channel f
0
50
100
150
200
250
Pressure (dBars)
94.40
94.60
94.80
95.00
95.20
95.40
95.60
95.80
96.00
Transmissivity (%)
CAST INFO.
ID : 92-16-017
STN : A01
LAT : 72 29.5 N
LONG: 143 46.8 W
DATE: 22-09-92
TIME: 00:30 UTC
EXT : 1ma
NPTS: 199


0.00
0.50
1.00
1.50
2.00
2.50
Channel f
0
100
200
300
400
500
Pressure (dBars)
90
91
92
93
94
95
96
97
98
99
100
Transmissivity (%)
CAST INFO.
ID : 92-16-022
STN : E01
LAT : 71 12.1 N
LONG: 147 26.3 W
DATE: 25-09-92
TIME: 23:39 UTC
EXT : 1ma
NPTS: 465

6.3 Water Chemistry Data Mission #9207

STATION :	E100	DATE :	05/04/92	ICE DEPTH (m) :	1.80
CRUISE :	9207	TIME (Z-6) :	1019 - 1253	FREEBOARD (m) :	0.08
		LATITUDE :	68 41.280 N	UNDER-ICE DEPTH (m) :	10.9
		LONGITUDE :	133 0.700 W	HYDROSTATIC DEPTH (m) :	12.6
		SAMPLER :	1.7 liter Niskin	SNOW DEPTH AT HOLE (cm) :	43

DEPTH (m)	HYDRO-STATIC DEPTH (m)	SAL psu	OXY uM	PO4 uM	SIO4 uM	NO3 uM	FIRST CTD CAST	CTD TIME	DECI-BARS	CTD TEMP deg C	CTD SAL psu	2ND CTD CAST	CTD TIME	DECI-BARS	CTD TEMP deg C	CTD SAL psu
0	1.72	0.079	497.9	0.04	10.2	2.6	44	11:06	2.0 *	1.005	2.625	45	11:23	2.0 *	0.857	1.674
2	3.72	3.045	339.2	0.06	12.3	3.6	44	11:06	3.7	2.026	3.097	45	11:23	3.7	2.042	3.086
5	6.72	3.108	353.1	0.07	11.8	3.3	44	11:06	6.7	1.928	3.127	45	11:23	6.7	1.898	3.133
7	8.72	3.136	350.8	0.04	12.2	3.5	44	11:06	8.8	1.831	3.146	45	11:23	8.7	1.828	3.147
9.7	11.42	3.150	352.5	0.06	12.3	3.4	44	11:06	11.4	1.775	3.153	45	11:23	11.4	1.789	3.155

STATION :	E200	DATE :	04/28/92	ICE DEPTH (m) :	1.82
CRUISE :	9207	TIME (Z-6) :	1056 - 1613	FREEBOARD (m) :	0.07
		LATITUDE :	68 52.062 N	UNDER-ICE DEPTH (m) :	52.1
		LONGITUDE :	133 13.006 W	HYDROSTATIC DEPTH (m) :	53.8
		SAMPLER :	1.7 liter Niskin	SNOW DEPTH AT HOLE (cm) :	30

DEPTH (m)	HYDRO-STATIC DEPTH (m)	SAL psu	OXY uM	PO4 uM	SIO4 uM	NO3 uM	FIRST CTD CAST	CTD TIME	DECI-BARS	CTD TEMP deg C	CTD SAL psu	2ND CTD CAST	CTD TIME	DECI-BARS	CTD TEMP deg C	CTD SAL psu
0	1.75	4.145	419.6	0.07	9.7	2.7	35	13:05	2.0 *	-0.043	4.008					
5	6.75	4.781	428.2	0.10	8.7	2.5	35	13:05	6.8	-0.027	4.264					
10	11.75	4.579	417.6	0.05	8.9	2.5	35	13:05	11.8	-0.007	4.835					
15	16.75	4.881	426.4	0.04	9.4	2.7	35	13:05	16.8	0.003	4.873					
20	21.75	4.908	424.1	0.05	9.5	2.8	35	13:05	21.8	0.002	4.905					
30	31.75	4.969	422.0	0.04	9.6	2.8	35	13:05	31.8	-0.005	4.966					
40	41.75	5.001	422.0	0.05	9.7	2.9	35	13:05	41.8	0.002	4.999					
49.5	51.25	5.006	416.7	0.08	10.3	3.0	35	13:05	51.3	0.012	5.004					

STATION :	E300	DATE :	04/26/92	ICE DEPTH (m) :	1.80
CRUISE :	9207	TIME (Z-6) :	1401 - 1645	FREEBOARD (m) :	0.08
		LATITUDE :	69 8.435 N	UNDER-ICE DEPTH (m) :	17.3
		LONGITUDE :	132 36.753 W	HYDROSTATIC DEPTH (m) :	19.0
		SAMPLER :	1.7 liter Niskin	SNOW DEPTH AT HOLE (cm) :	20

DEPTH (m)	HYDRO-STATIC DEPTH (m)	SAL psu	OXY uM	PO4 uM	SIO4 uM	NO3 uM	FIRST CTD CAST	CTD TIME	DECI-BARS	CTD TEMP deg C	CTD SAL psu	2ND CTD CAST	CTD TIME	DECI-BARS	CTD TEMP deg C	CTD SAL psu
0	1.72	9.064	466.2	0.03	8.5	2.6	28	14:31	2.0	-0.417						
3	4.72	10.342	419.5	0.06	8.1	2.8	28	14:31	4.8	-0.042						
5	6.72	10.645	276.3	0.05	11.5	4.2	28	14:31	6.7	0.680						
8	9.72	10.721	260.4	0.08	12.3	4.5	28	14:31	9.7	0.719						
14	15.72	11.059	116.8	0.08	25.8	9.0	28	14:31	15.7	2.011						

STATION :	E400	DATE :	05/04/92	ICE DEPTH (m) :	1.84
CRUISE :	9207	TIME (Z-6) :	1320 - 1600	FREEBOARD (m) :	0.04
		LATITUDE :	69 17.770 N	UNDER-ICE DEPTH (m) :	26.0
		LONGITUDE :	132 11.050 W	HYDROSTATIC DEPTH (m) :	27.8
		SAMPLER :	1.7 liter Niskin	SNOW DEPTH AT HOLE (cm) :	33

DEPTH (m)	HYDRO-STATIC DEPTH (m)	SAL psu	OXY uM	PO4 uM	SIO4 uM	NO3 uM	FIRST CTD CAST	CTD TIME	DECI-BARS	CTD TEMP deg C	CTD SAL psu	2ND CTD CAST	CTD TIME	DECI-BARS	CTD TEMP deg C	CTD SAL psu
0	1.8	12.816	442.7	0.08	6.3	2.4	46	14:10	2.8 *	-0.576	14.320	47	14:41	2.2 *	-0.647	12.997
2	3.8	14.190	366.3	0.09	6.6	3.3	46	14:10	3.7	-0.602	14.411	47	14:41	3.8	-0.567	14.282
5	6.8	14.539	362.1	0.10	6.9	3.5	46	14:10	6.9	-0.626	14.537	47	14:41	6.8	-0.622	14.541
7	8.8	14.572	362.4	0.11	7.0	3.3	46	14:10	8.9	-0.643	14.569	47	14:41	8.9	-0.646	14.567
10	11.8	14.593	347.9	0.09	6.9	3.5	46	14:10	11.8	-0.656	14.587	47	14:41	11.8	-0.656	14.584
15	16.8	14.646	357.9	0.10	7.1	3.7	46	14:10	16.9	-0.658	14.634	47	14:41	16.9	-0.661	14.647
20	21.8	14.694	356.5	0.09	7.2	3.5	46	14:10	21.9	-0.673	14.691	47	14:41	21.8	-0.670	14.680
24.7	26.5	14.726	356.5	0.09	7.2	3.7	46	14:10	26.5	-0.675	14.714	47	14:41	26.4	-0.676	14.712

STATION :	E500	DATE :	05/03/92	ICE DEPTH (m) :	1.64
CRUISE :	9207	TIME (Z-6) :	? - ?	FREEBOARD (m) :	0.06
		LATITUDE :	69 39.114 N	UNDER-ICE DEPTH (m) :	84.4
		LONGITUDE :	131 31.266 W	HYDROSTATIC DEPTH (m) :	85.9
		SAMPLER :	Pump and Niskins (1.7 and 5 liter)	SNOW DEPTH AT HOLE (cm) :	?

DEPTH (m)	HYDRO-STATIC DEPTH (m)	SAL psu	OXY uM	PO4 uM	SIO4 uM	NO3 uM	FIRST CTD CAST	CTD TIME	DECI-BARS	CTD TEMP deg C	CTD SAL psu	2ND CTD CAST	CTD TIME	DECI-BARS	CTD TEMP deg C	CTD SAL psu
0	1.58	15.818	372.2	0.05	7.2	3.6	43	15:40	2.1	* -0.861	15.844					
2	3.58	16.104	368.2	0.08	8.1	4.0	43	15:40	3.6	-0.848	15.987					
5	6.58	16.777	359.9	0.17	10.0	5.0	43	15:40	6.5	-0.843	16.604					
7	8.58	16.939	360.5	0.16	10.7	5.2	43	15:40	8.6	-0.870	16.897					
10	11.58	16.998	360.9	0.15	10.9	5.3	43	15:40	11.7	-0.884	16.979					
15	16.58	17.053	361.0	0.17	10.8	5.3	43	15:40	16.7	-0.890	17.076					
20	21.58	17.066	360.5	0.17	10.8	5.3	43	15:40	21.7	-0.892	17.090					
25	26.58	17.068	362.6	0.17	10.8	5.3	43	15:40	26.5	-0.894	17.101					
30	31.58	17.076	358.9	0.16	10.7	5.2	43	15:40	31.6	-0.896	17.114					
40	41.58	17.171	359.8	0.16	10.8	5.3	43	15:40	41.7	-0.898	17.146					
50	51.58	17.123	361.3	0.18	10.9	5.3	43	15:40	51.6	-0.897	17.153					
60	61.58		360.6	0.17	10.8	5.4	43	15:40	61.7	-0.895	17.156					
70	71.58	17.128	361.4	0.17	10.7	5.4	43	15:40	71.5	-0.896	17.160					
80	81.58	17.143	361.1	0.18	10.8	5.4	43	15:40	81.7	-0.896	17.163					

Note : Water was sampled using a submersible pump for the first 40 meters and with Niskins below 40 meters.

STATION :	E630	DATE :	05/02/92	ICE DEPTH (m) :	1.48
CRUISE :	9207	TIME (Z-6) :	1035 - 1334	FREEBOARD (m) :	0.08
		LATITUDE :	69 36.172 N	UNDER-ICE DEPTH (m) :	27.1
		LONGITUDE :	131 7.988 W	HYDROSTATIC DEPTH (m) :	28.5
		SAMPLER :	1.7 liter Niskin	SNOW DEPTH AT HOLE (cm) :	32

DEPTH (m)	HYDRO-STATIC DEPTH (m)	SAL psu	OXY uM	PO4 uM	SIO4 uM	NO3 uM	FIRST CTD CAST	CTD TIME	DECI-BARS	CTD TEMP deg C	CTD SAL psu	2ND CTD CAST	CTD TIME	DECI-BARS	CTD TEMP deg C	CTD SAL psu
0	1.4	18.269	350.9	0.42	13.7	6.7										
5	6.4	18.962	317.8	0.40	14.2	7.0	40	11:29	6.4	-1.010	18.872					
15	16.4	19.832	338.1	0.39	16.2	7.5	40	11:29	16.4	-1.052	19.877					
20	21.4	20.012	221.3	0.40	16.5	7.7	40	11:29	21.4	-1.054	19.922					
24	25.4	20.038	335.2	0.46	16.4	7.6	40	11:29	23.3 *	-1.055	19.953					

STATION :	E670	DATE :	05/05/92	ICE DEPTH (m) :	1.80
CRUISE :	9207	TIME (Z-6) :	953 - 1440	FREEBOARD (m) :	0.10
		LATITUDE :	69 30.750 N	UNDER-ICE DEPTH (m) :	9.7
		LONGITUDE :	130 43.300 W	HYDROSTATIC DEPTH (m) :	11.4
		SAMPLER :	1.7 liter Niskin	SNOW DEPTH AT HOLE (cm) :	27

DEPTH (m)	HYDRO-STATIC DEPTH (m)	SAL psu	OXY uM	PO4 uM	SIO4 uM	NO3 uM	FIRST CTD CAST	CTD TIME	DECI-BARS	CTD TEMP deg C	CTD SAL psu	2ND CTD CAST	CTD TIME	DECI-BARS	CTD TEMP deg C	CTD SAL psu
0	1.7	22.326	324.8	0.58	19.7	8.3	50	13:38	2 *	-1.242	22.698					
2	3.7	22.714	323.6	0.56	20.1	8.5	50	13:38	3.7	-1.246	22.906					
5	6.7	23.155	323.6	0.60	20.8	8.7	50	13:38	6.7	-1.261	23.288					
7	8.7	23.228	324.0	0.61	21.0	8.7	50	13:38	8.7	-1.267	23.372					
9	10.7	23.327	321.6	0.60	21.1	8.8	50	13:38	10.3 *	-1.267	23.396					

STATION :	E800	DATE :	05/04/92	ICE DEPTH (m) :	2.00
CRUISE :	9207	TIME (Z-6) :	1638 - 1945	FREEBOARD (m) :	0.20
		LATITUDE :	69 58.980 N	UNDER-ICE DEPTH (m) :	28.7
		LONGITUDE :	129 6.900 W	HYDROSTATIC DEPTH (m) :	30.5
		SAMPLER :	1.7 liter Niskin	SNOW DEPTH AT HOLE (cm) :	12

DEPTH (m)	HYDRO-STATIC DEPTH (m)	SAL psu	OXY uM	PO4 uM	SIO4 uM	NO3 uM	FIRST CTD CAST	CTD TIME	DECI-BARS	CTD TEMP deg C	CTD SAL psu	2ND CTD CAST	CTD TIME	DECI-BARS	CTD TEMP deg C	CTD SAL psu
0	1.8	31.669	361.6	1.09	28.6	9.4	48	17:23	3.2	* -1.735	31.569	49	17:46	2.0	* -1.739	31.629
2	3.8	31.566	361.1	1.21	28.7	9.4	48	17:23	3.8	-1.735	31.567	49	17:46	3.8	-1.736	31.567
5	6.8	32.109	354.6	1.20	30.3	10.5	48	17:23	6.8	-1.727	32.166	49	17:46	6.8	-1.728	32.175
7	8.8	32.286	351.5	1.21	30.4	10.5	48	17:23	8.8	-1.750	32.307	49	17:46	8.8	-1.751	32.313
10	11.8	32.539	357.0	1.22	30.2	10.2	48	17:23	11.9	-1.779	32.538	49	17:46	11.9	-1.779	32.527
15	16.8	32.564	357.1	1.21	29.8	10.0	48	17:23	16.8	-1.779	32.570	49	17:46	16.8	-1.778	32.569
20	21.8	32.569	355.3	1.24	30.0	9.9	48	17:23	21.8	-1.778	32.574	49	17:46	21.9	-1.779	32.569
27	28.8	32.579	355.8	1.19	29.7	9.9	48	17:23	28.8	-1.778	32.579	49	17:46	28.8	-1.777	32.577

STATION :	E900	DATE :	04/27/92	ICE DEPTH (m) :	1.98
CRUISE :	9207	TIME (Z-6) :	1510 - ?	FREEBOARD (m) :	0.15
		LATITUDE :	70 15.020 N	UNDER-ICE DEPTH (m) :	11.2
		LONGITUDE :	128 45.560 W	HYDROSTATIC DEPTH (m) :	13.0
		SAMPLER :	Pump	SNOW DEPTH AT HOLE (cm) :	10

DEPTH (m)	HYDRO-STATIC DEPTH (m)	SAL psu	OXY uM	PO4 uM	SIO4 uM	NO3 uM	FIRST CTD CAST	CTD TIME	DECI-BARS	CTD TEMP deg C	CTD SAL psu	2ND CTD CAST	CTD TIME	DECI-BARS	CTD TEMP deg C	CTD SAL psu
0	1.83	32.952	351.7	1.21	27.6	9.1	30	20:33	2.0	* -1.807	32.940					
2	3.83	32.945	350.1	1.22	27.6	9.4	30	20:33	3.9	-1.809	32.934					
5	6.83	32.978	352.6	1.24	27.9	9.4	30	20:33	6.8	-1.809	32.941					
7	8.83	33.078	355.5	1.27	28.5	9.7	30	20:33	8.8	-1.808	32.944					
10	11.83	33.152	367.7	1.33	28.9	9.9	30	20:33	11.8	-1.815	33.118					

STATION :	MB92	DATE :	05/11/92	ICE DEPTH (m) :	1.95
CRUISE :	9207	TIME (Z-6) :	931 - 1330	FREEBOARD (m) :	0.08
		LATITUDE :	69 33.200 N	UNDER-ICE DEPTH (m) :	30.6
		LONGITUDE :	134 4.570 W	HYDROSTATIC DEPTH (m) :	32.4
		SAMPLER :	1.7 liter Niskin	SNOW DEPTH AT HOLE (cm) :	18

DEPTH (m)	HYDRO-STATIC DEPTH (m)	SAL psu	OXY uM	PO4 uM	SIO4 uM	NO3 uM	FIRST CTD CAST	CTD TIME	DECI-BARS	CTD TEMP deg C	CTD SAL psu	2ND CTD CAST	CTD TIME	DECI-BARS	CTD TEMP deg C	CTD SAL psu
0	1.87	4.911	494.8	0.22	101.0	15.3	70	10:37	2.0 *	-0.235	4.319	71	12:51	2.0 *	-0.237	4.878
2	3.87	11.553	441.7	0.32	81.2	13.9	70	10:37	3.9	-0.379	13.662	71	12:51	3.9	-0.377	14.019
4	5.87	17.477	299.6	0.42	46.7	10.6	70	10:37	5.8	-0.078	19.608	71	12:51	5.9	0.038	19.972
7	8.87	20.195	230.7	0.61	35.7	10.8	70	10:37	8.9	0.523	20.665	71	12:51	8.8	0.591	20.820
10	11.87	21.585	178.2	0.54	34.0	11.7	70	10:37	11.9	1.168	21.698	71	12:51	11.8	1.181	21.685
15	16.87	21.695	165.0	0.52	35.1	11.7	70	10:37	16.9	1.298	21.740	71	12:51	16.9	1.298	21.739
20	21.87	21.750	152.5	0.54	36.1	11.5	70	10:37	21.9	1.334	21.750	71	12:51	21.9	1.336	21.750
30	31.87	21.751	150.3	0.63	36.4	11.5	70	10:37	31.6 *	1.352	21.754	71	12:51	31.4 *	1.352	21.758

STATION :	MB92-FREON	DATE :	05/11/92	ICE DEPTH (m) :	1.95
CRUISE :	9207	TIME (Z-6) :	931 - 1330	FREEBOARD (m) :	0.08
		LATITUDE :	69 33.200 N	UNDER-ICE DEPTH (m) :	30.6
		LONGITUDE :	134 4.570 W	HYDROSTATIC DEPTH (m) :	32.4
		SAMPLER :	1.7 liter Niskin	SNOW DEPTH AT HOLE (cm) :	18

DEPTH (m)	HYDRO-STATIC DEPTH (m)	SAL psu	OXY uM	PO4 uM	SIO4 uM	NO3 uM	FIRST CTD CAST	CTD TIME	DECI-BARS	CTD TEMP deg C	CTD SAL psu	2ND CTD CAST	CTD TIME	DECI-BARS	CTD TEMP deg C	CTD SAL psu
0	1.87	4.903					70	10:37	2.0 *	-0.235	4.319	71	12:51	2.0 *	-0.237	4.878
2	3.87	14.510					70	10:37	3.9	-0.379	13.662	71	12:51	3.9	-0.377	14.019
4	5.87	19.558					70	10:37	5.8	-0.078	19.608	71	12:51	5.9	0.038	19.972
7	8.87	20.579					70	10:37	8.9	0.523	20.665	71	12:51	8.8	0.591	20.820
10	11.87	21.410					70	10:37	11.9	1.168	21.698	71	12:51	11.8	1.181	21.685
15	16.87	21.724					70	10:37	16.9	1.298	21.740	71	12:51	16.9	1.298	21.739
20	21.87	21.749					70	10:37	21.9	1.334	21.750	71	12:51	21.9	1.336	21.750
30	31.87	21.754					70	10:37	31.6 *	1.352	21.754	71	12:51	31.4 *	1.352	21.758

STATION : E301-FREON
CRUISE : 9207

DATE : 05/11/92
TIME (Z-6) : 1431 - ?
LATITUDE : 69 8.430 N
LONGITUDE : 132 36.760 W
SAMPLER : 5 liter Niskin

ICE DEPTH (m) : 1.90
FREEBOARD (m) : 0.08
UNDER-ICE DEPTH (m) : 16.6
HYDROSTATIC DEPTH (m) : 18.4
SNOW DEPTH AT HOLE (cm) : 35

DEPTH (m)	HYDRO-STATIC DEPTH (m)	SAL psu	OXY uM	PO4 uM	SIO4 uM	NO3 uM	FIRST CTD CAST	CTD TIME	DECI-BARS	CTD TEMP deg C	CTD SAL psu	2ND CTD CAST	CTD TIME	DECI-BARS	CTD TEMP deg C	CTD SAL psu
3	4.82	10.151					72	16:03	4.8	0.235	10.341	73	16:41	4.8	0.417	10.481
5	6.82	10.680					72	16:03	6.8	0.662	10.662	73	16:41	6.9	0.687	10.684
10	11.82	10.770					72	16:03	11.8	0.792	10.760	73	16:41	11.9	0.794	10.760
13	14.82	10.798					72	16:03	14.9	1.196	10.851	73	16:41	14.8	1.157	10.835
15	16.82	11.052					72	16:03	16.8	2.149	11.202	73	16:41	16.8	2.366	11.246

STATION : E500-FREON
CRUISE : 9207

DATE : 05/03/92
TIME (Z-6) : ? - ?
LATITUDE : 69 39.114 N
LONGITUDE : 131 31.266 W
SAMPLER : 5 liter Niskin

ICE DEPTH (m) : 1.64
FREEBOARD (m) : 0.06
UNDER-ICE DEPTH (m) : 84.4
HYDROSTATIC DEPTH (m) : 85.9
SNOW DEPTH AT HOLE (cm) : ?

DEPTH (m)	HYDRO-STATIC DEPTH (m)	SAL psu	OXY uM	PO4 uM	SIO4 uM	NO3 uM	FIRST CTD CAST	CTD TIME	DECI-BARS	CTD TEMP deg C	CTD SAL psu	2ND CTD CAST	CTD TIME	DECI-BARS	CTD TEMP deg C	CTD SAL psu
3	4.58	16.053					43	15:40	3.6	-0.848	15.987					
10	11.58	16.998					43	15:40	11.7	-0.884	16.979					
15	16.58	17.078					43	15:40	16.7	-0.890	17.076					
20	21.58	17.083					43	15:40	21.7	-0.892	17.090					
30	31.58	17.115					43	15:40	31.6	-0.896	17.114					
40	41.58	17.140					43	15:40	41.7	-0.898	17.146					
50	51.58						43	15:40	51.6	-0.897	17.153					
60	61.58						43	15:40	61.7	-0.895	17.156					
70	71.58						43	15:40	71.5	-0.896	17.160					
80	81.58						43	15:40	81.7	-0.896	17.163					

STATION :	KUGR	DATE :	05/09/92	ICE DEPTH (m) :	1.50
CRUISE :	9207	TIME (Z-6) :	1149 - 1238	FREEBOARD (m) :	0.05
		LATITUDE :	69 6.860 N	UNDER-ICE DEPTH (m) :	2.5
		LONGITUDE :	130 57.950 W	HYDROSTATIC DEPTH (m) :	3.95
		SAMPLER :	1.7 liter Niskin	SNOW DEPTH AT HOLE (cm) :	30

DEPTH (m)	HYDRO-STATIC DEPTH (m)	SAL psu	OXY uM	PO4 uM	SIO4 uM	NO3 uM	FIRST CTD CAST	CTD TIME	DECI-BARS	CTD TEMP deg C	CTD SAL psu	2ND CTD CAST	CTD TIME	DECI-BARS	CTD TEMP deg C	CTD SAL psu
0	1.45	0		0.31	43.3	12.5										

STATION :	ANDR	DATE :	05/09/92	ICE DEPTH (m) :	1.97
CRUISE :	9207	TIME (Z-6) :	1306 - 1418	FREEBOARD (m) :	0.07
		LATITUDE :	69 35.420 N	UNDER-ICE DEPTH (m) :	3.1
		LONGITUDE :	128 38.970 W	HYDROSTATIC DEPTH (m) :	5.0
		SAMPLER :	1.7 liter Niskin	SNOW DEPTH AT HOLE (cm) :	10

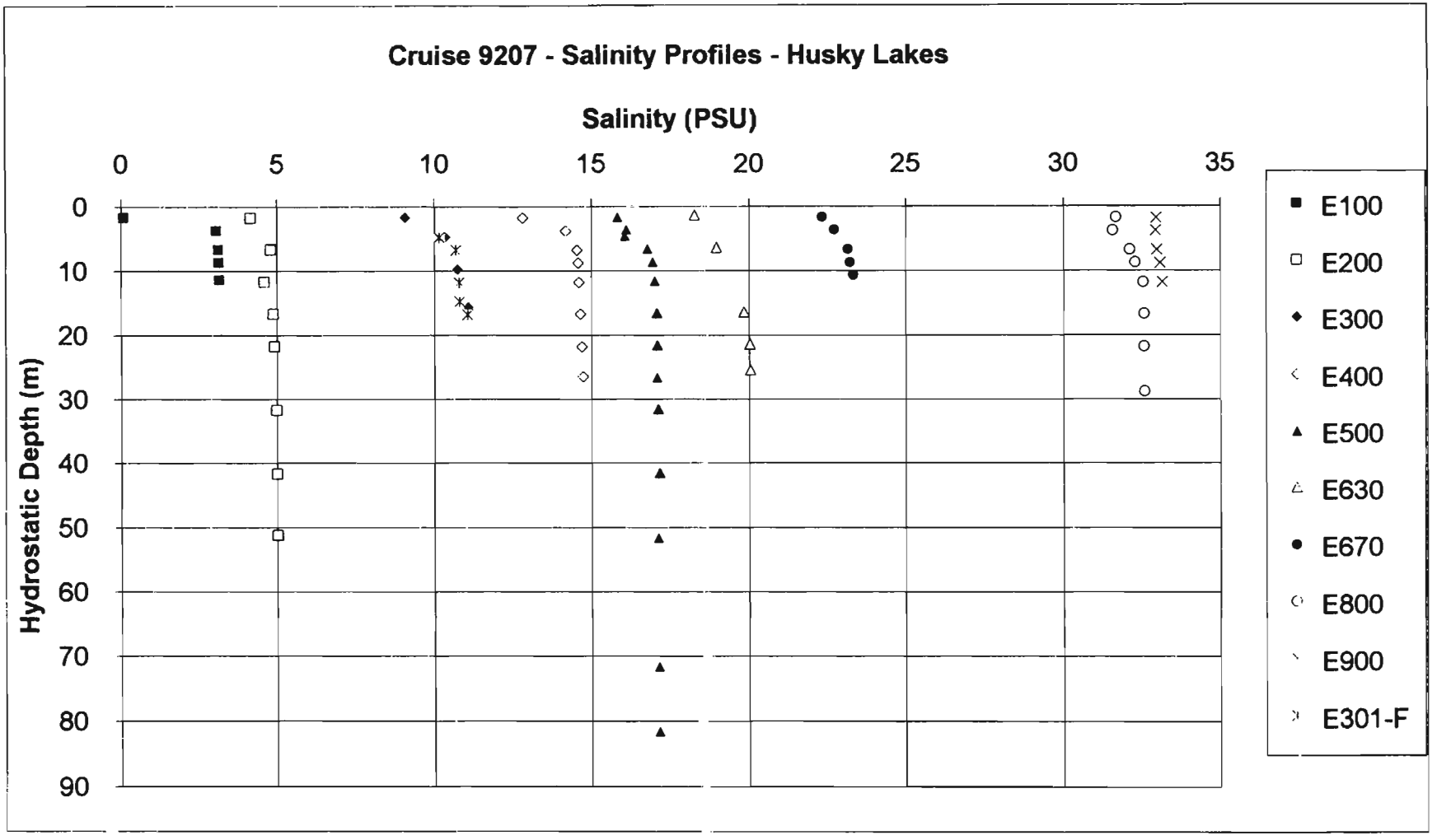
DEPTH (m)	HYDRO-STATIC DEPTH (m)	SAL psu	OXY uM	PO4 uM	SIO4 uM	NO3 uM	FIRST CTD CAST	CTD TIME	DECI-BARS	CTD TEMP deg C	CTD SAL psu	2ND CTD CAST	CTD TIME	DECI-BARS	CTD TEMP deg C	CTD SAL psu
0	1.90	0		0.21	79.8	15.7										

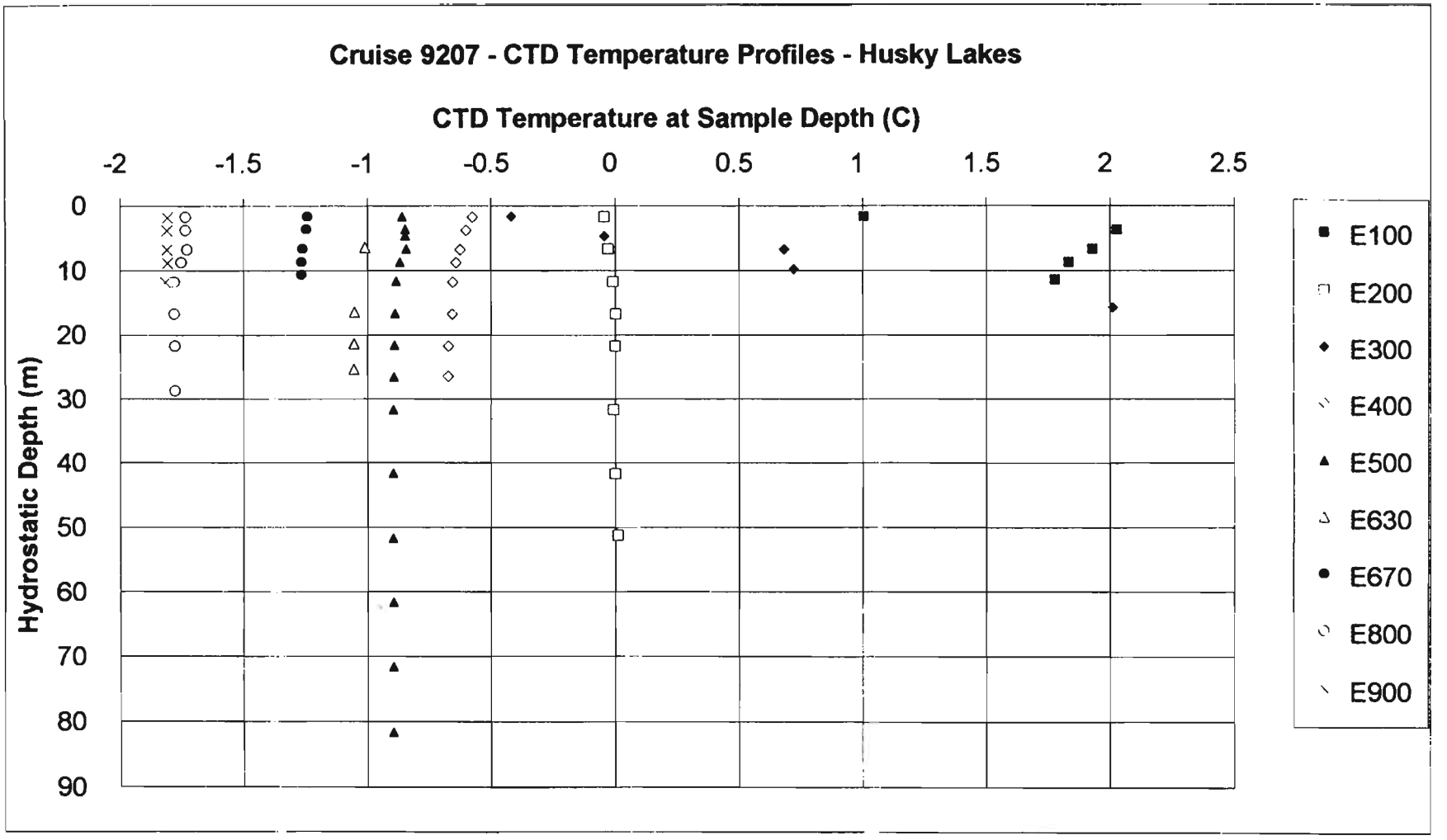
STATION :	SITL	DATE :	05/09/92	ICE DEPTH (m) :	1.69
CRUISE :	9207	TIME (Z-6) :	1551 - 1705	FREEBOARD (m) :	0.03
		LATITUDE :	68 33.300 N	UNDER-ICE DEPTH (m) :	7.9
		LONGITUDE :	132 43.920 W	HYDROSTATIC DEPTH (m) :	9.6
		SAMPLER :	1.7 liter Niskin	SNOW DEPTH AT HOLE (cm) :	42

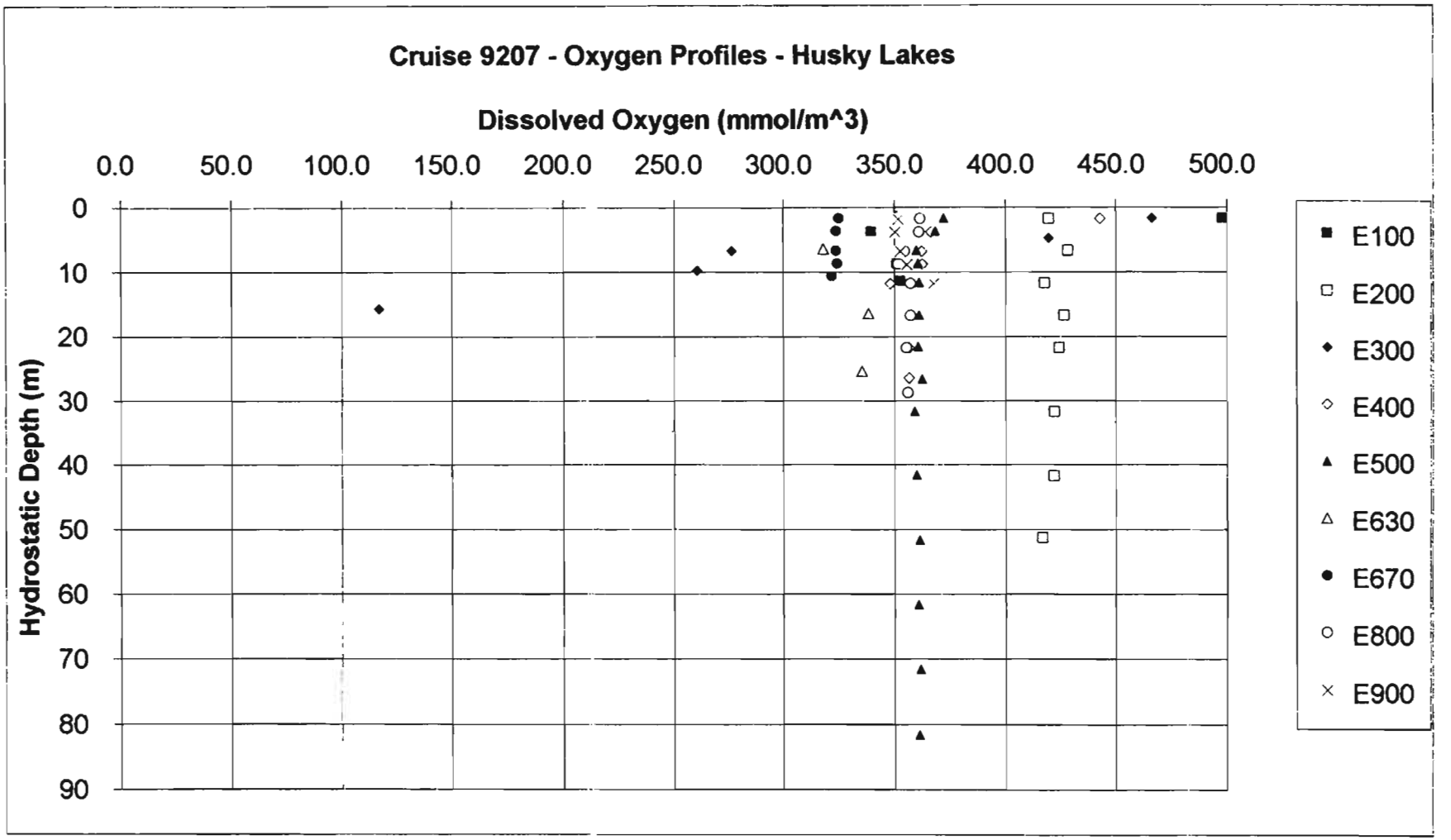
DEPTH (m)	HYDRO-STATIC DEPTH (m)	SAL psu	OXY uM	PO4 uM	SIO4 uM	NO3 uM	FIRST CTD CAST	CTD TIME	DECI-BARS	CTD TEMP deg C	CTD SAL psu	2ND CTD CAST	CTD TIME	DECI-BARS	CTD TEMP deg C	CTD SAL psu
0	1.66	0		0.20	8.5	2.5	68					69				

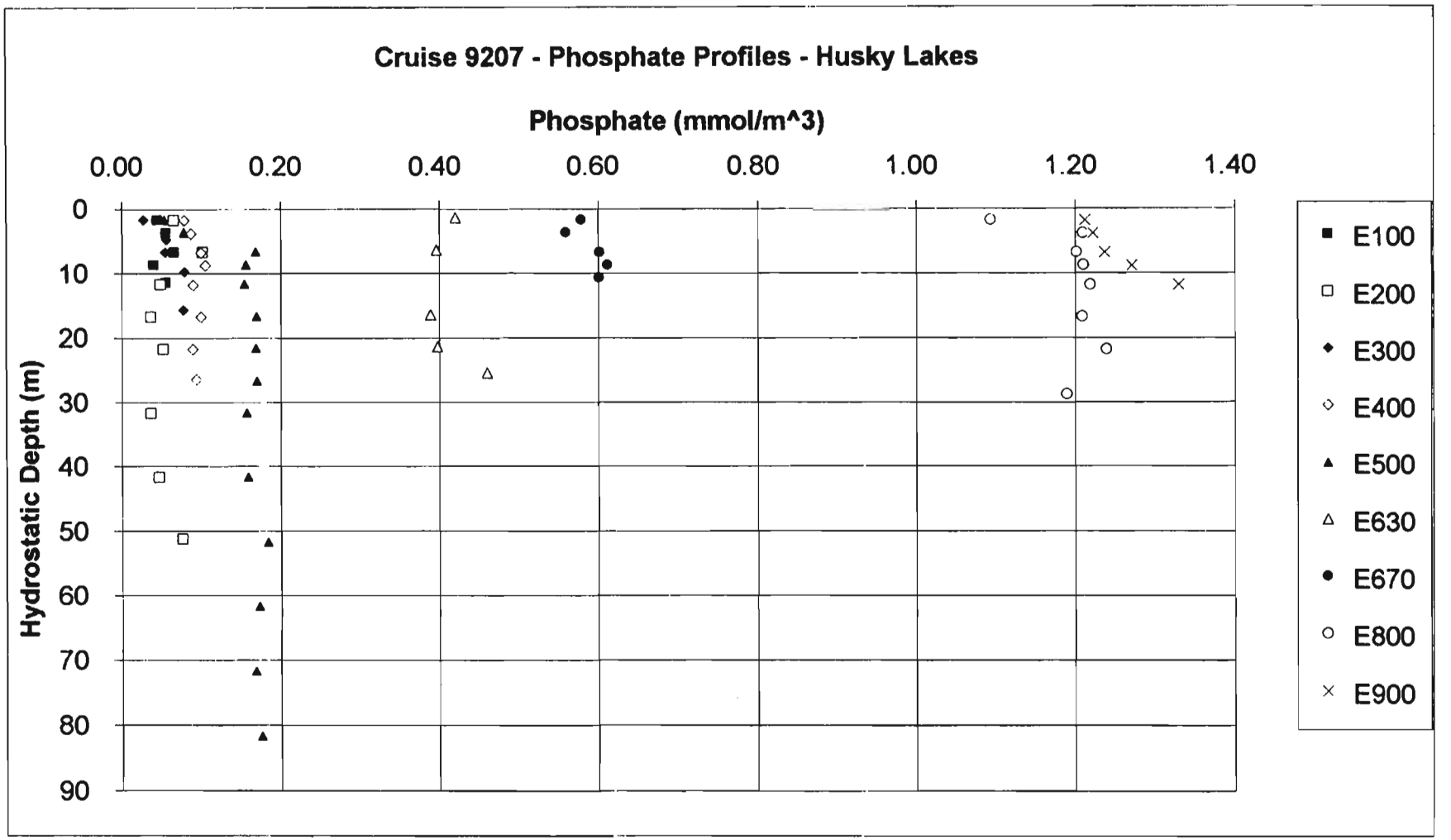
STATION :	ECHAN	DATE :	05/07/92	ICE DEPTH (m) :	2.10
CRUISE :	9207	TIME (Z-6) :	1416 - 1450	FREEBOARD (m) :	0.15
		LATITUDE :	69 20.870 N	UNDER-ICE DEPTH (m) :	0.2
		LONGITUDE :	133 55.020 W	HYDROSTATIC DEPTH (m) :	2.2
		SAMPLER :	1.7 liter Niskin	SNOW DEPTH AT HOLE (cm) :	-

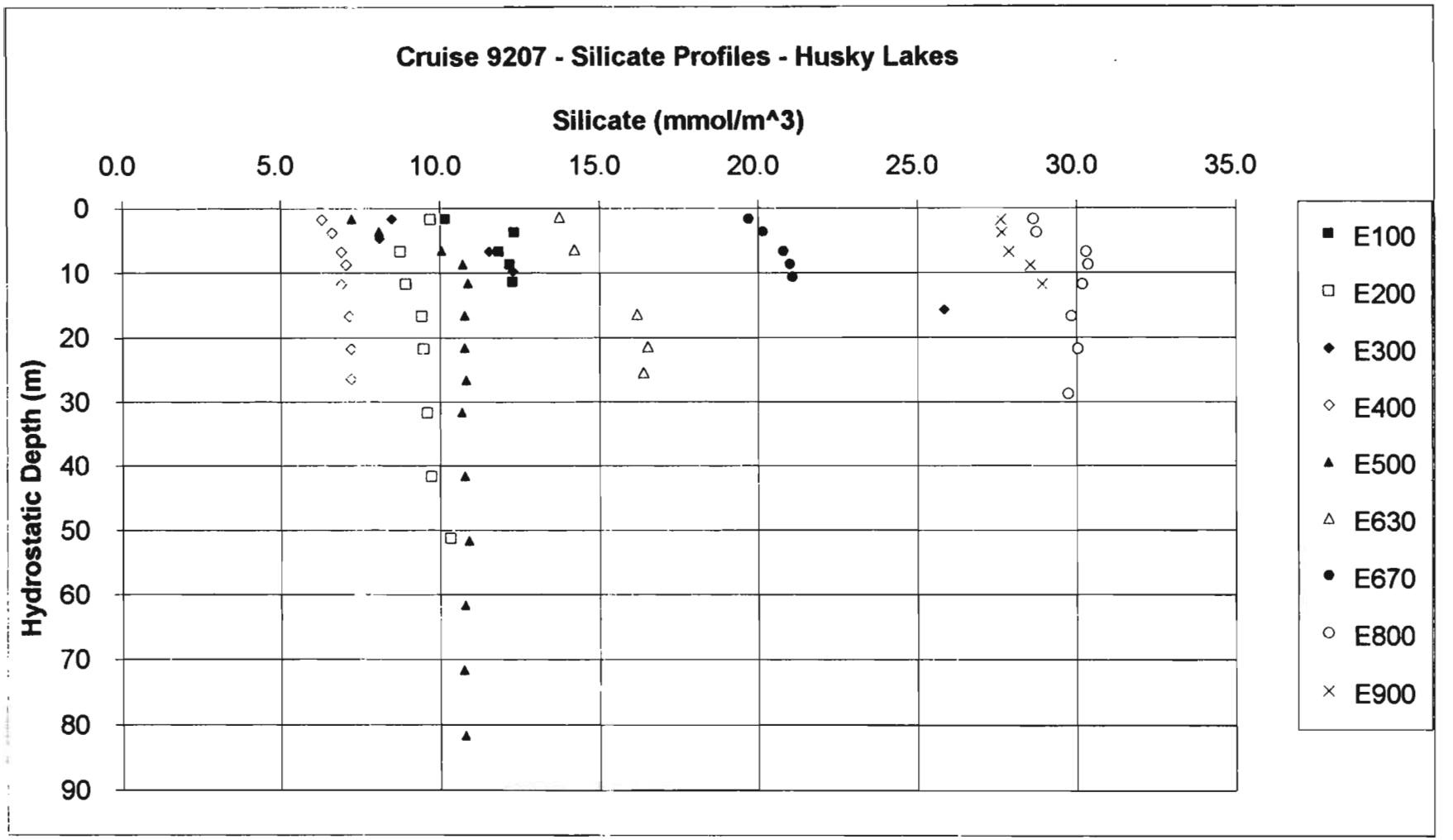
DEPTH (m)	HYDRO-STATIC DEPTH (m)	SAL psu	OXY uM	PO4 uM	SIO4 uM	NO3 uM	FIRST CTD CAST	CTD TIME	DECI-BARS	CTD TEMP deg C	CTD SAL psu	2ND CTD CAST	CTD TIME	DECI-BARS	CTD TEMP deg C	CTD SAL psu
0	1.95	0		0.25	63.5	7.5										

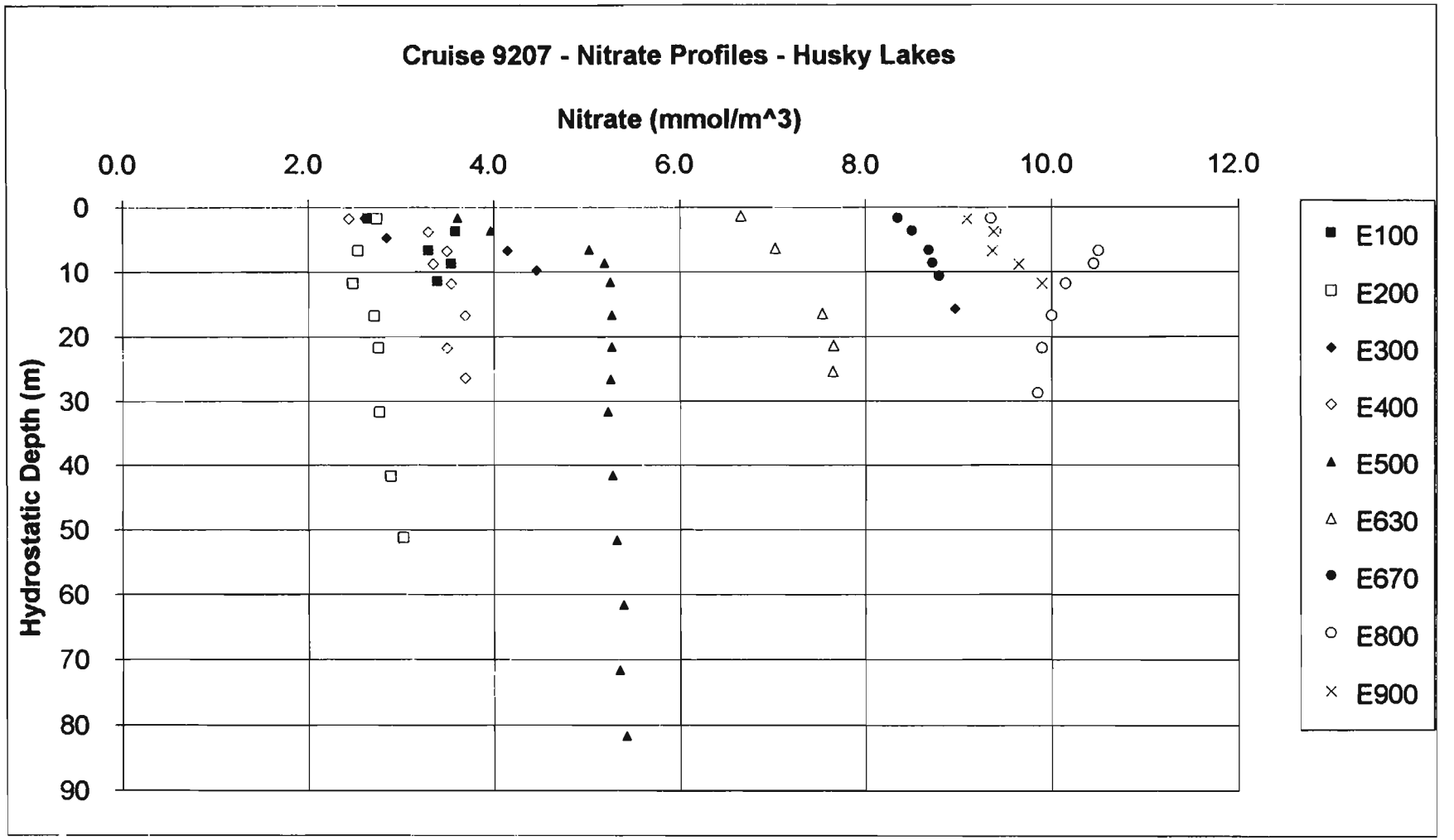

Cruise 9207 - Salinity Profiles - Husky Lakes
Salinity (PSU)
0
5
10
15
20
25
30
35
Hydrostatic Depth (m)
0
10
20
30
40
50
60
70
80
90
E100
E200
E300
E400
E500
E630
E670
E800
E900
E301-F

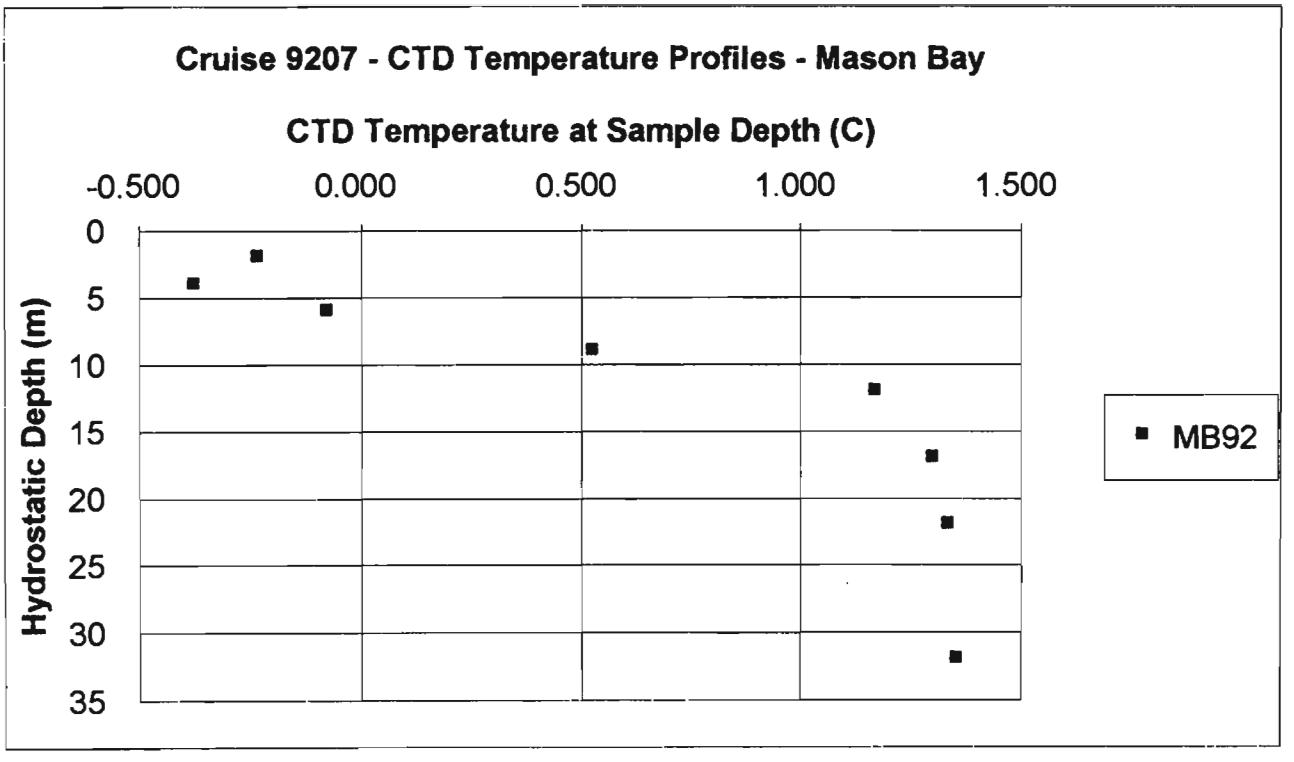

Cruise 9207 - CTD Temperature Profiles - Husky Lakes
CTD Temperature at Sample Depth (C)
-2
-1.5
-1
-0.5
0
0.5
1
1.5
2
2.5
Hydrostatic Depth (m)
0
10
20
30
40
50
60
70
80
90
E100
E200
E300
E400
E500
E630
E670
E800
E900

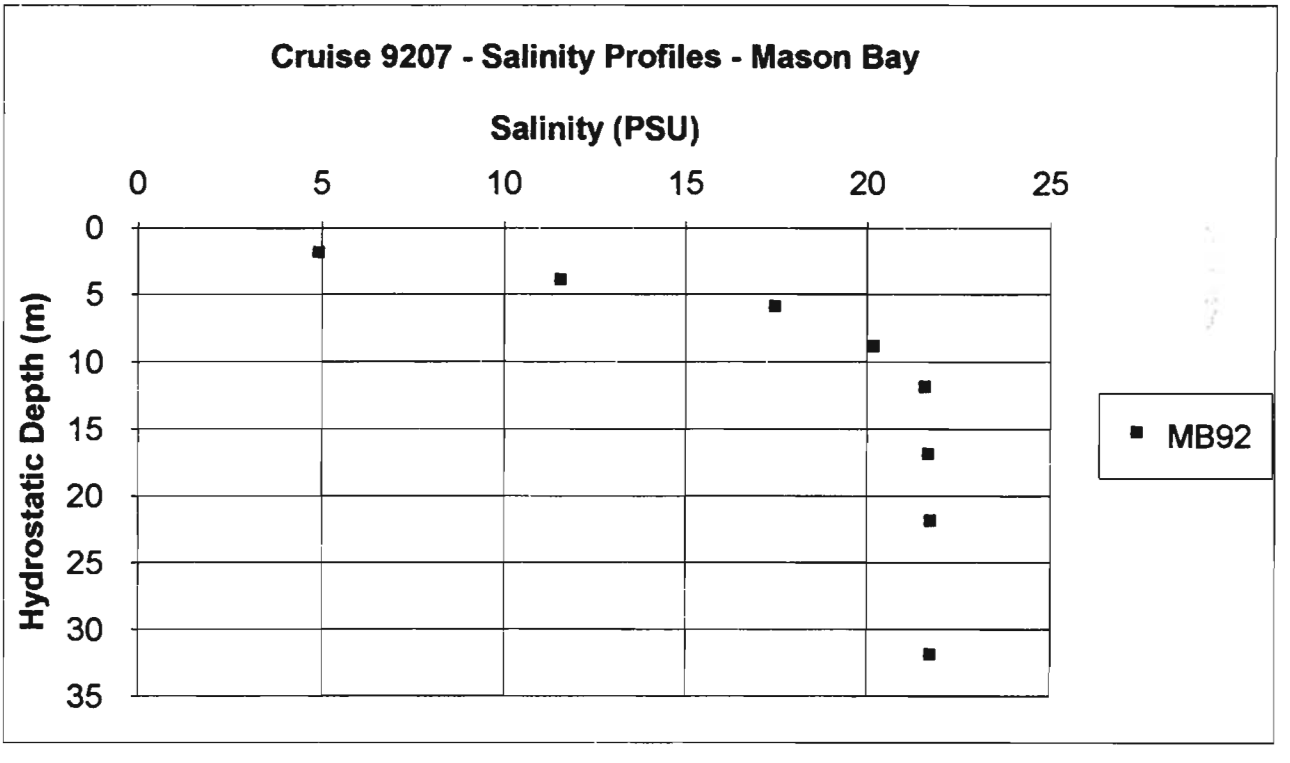

Cruise 9207 - Oxygen Profiles - Husky Lakes
Dissolved Oxygen (mmol/m^3)
0.0
50.0
100.0
150.0
200.0
250.0
300.0
350.0
400.0
450.0
500.0
Hydrostatic Depth (m)
0
10
20
30
40
50
60
70
80
90
E100
E200
E300
E400
E500
E630
E670
E800
E900

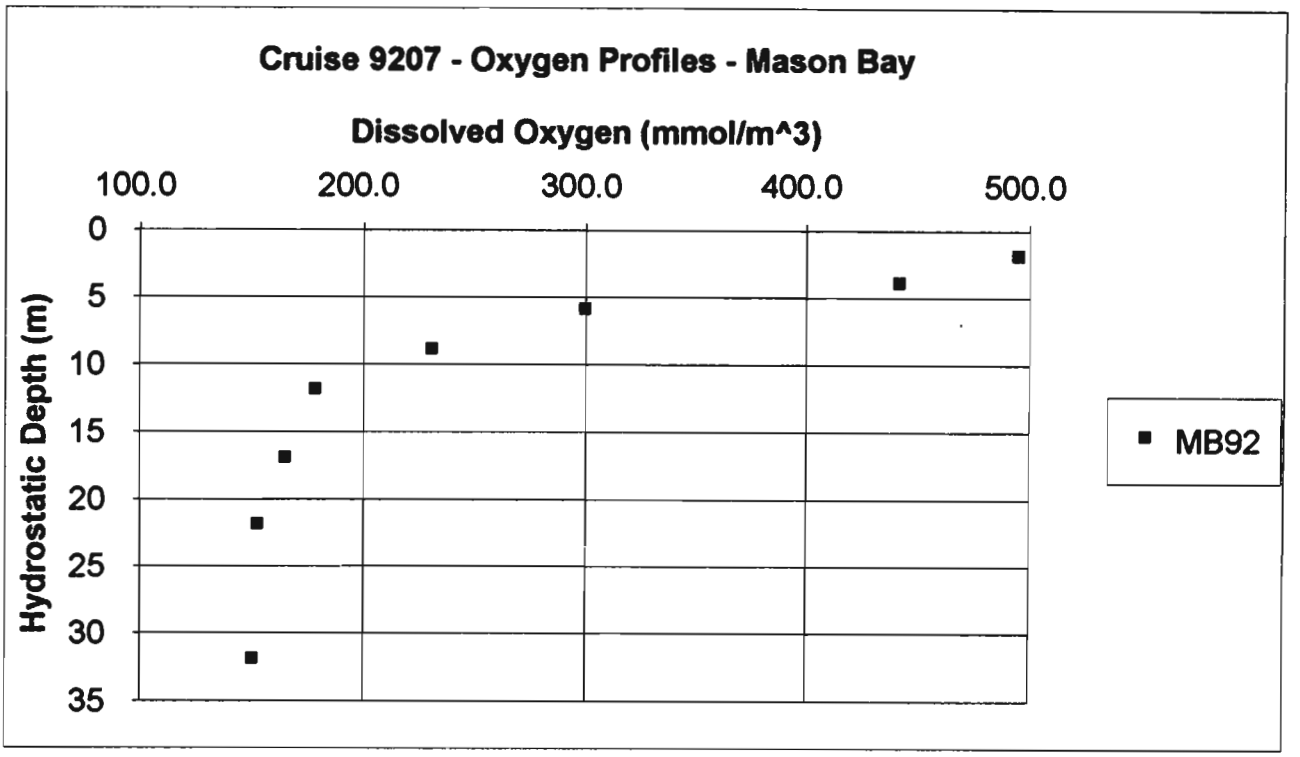

Cruise 9207 - Phosphate Profiles - Husky Lakes
Phosphate (mmol/m^3)
0.00
0.20
0.40
0.60
0.80
1.00
1.20
1.40
Hydrostatic Depth (m)
0
10
20
30
40
50
60
70
80
90
E100
E200
E300
E400
E500
E630
E670
E800
E900

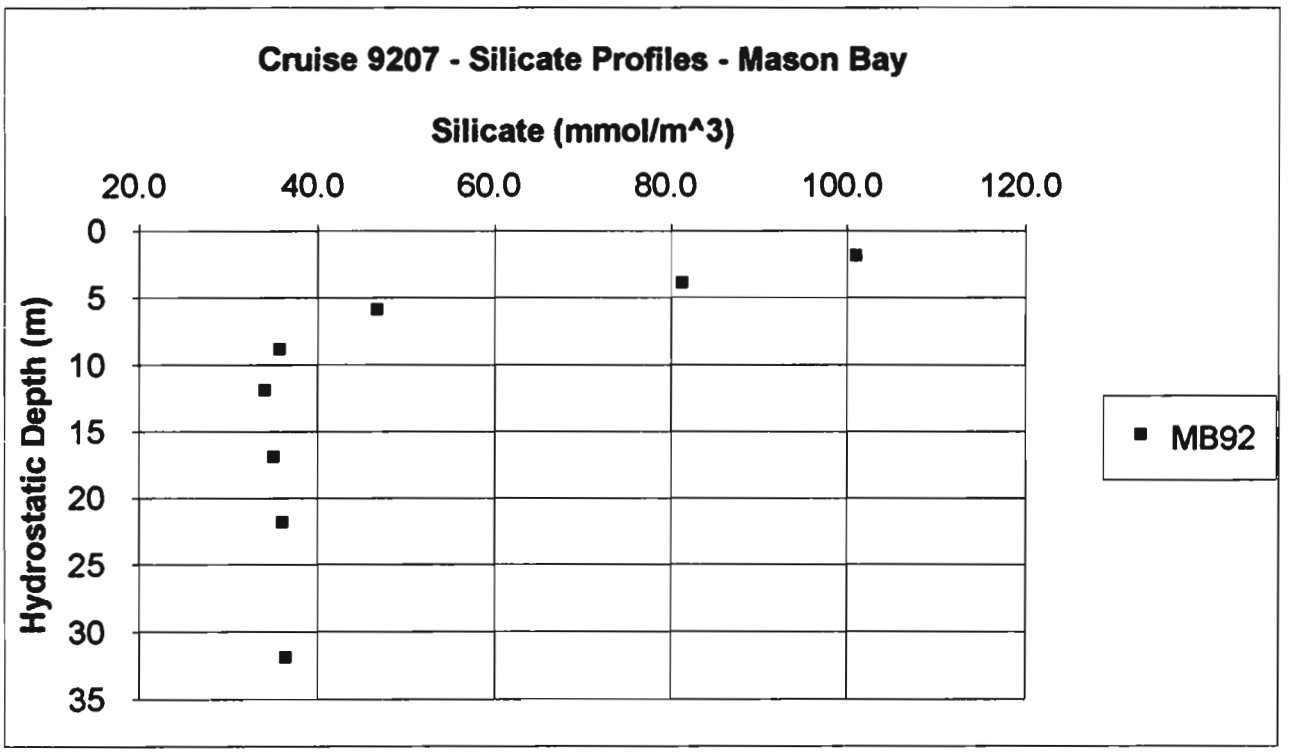

Cruise 9207 - Silicate Profiles - Husky Lakes
Silicate (mmol/m^3)
0.0
5.0
10.0
15.0
20.0
25.0
30.0
35.0
Hydrostatic Depth (m)
0
10
20
30
40
50
60
70
80
90
E100
E200
E300
E400
E500
E630
E670
E800
E900

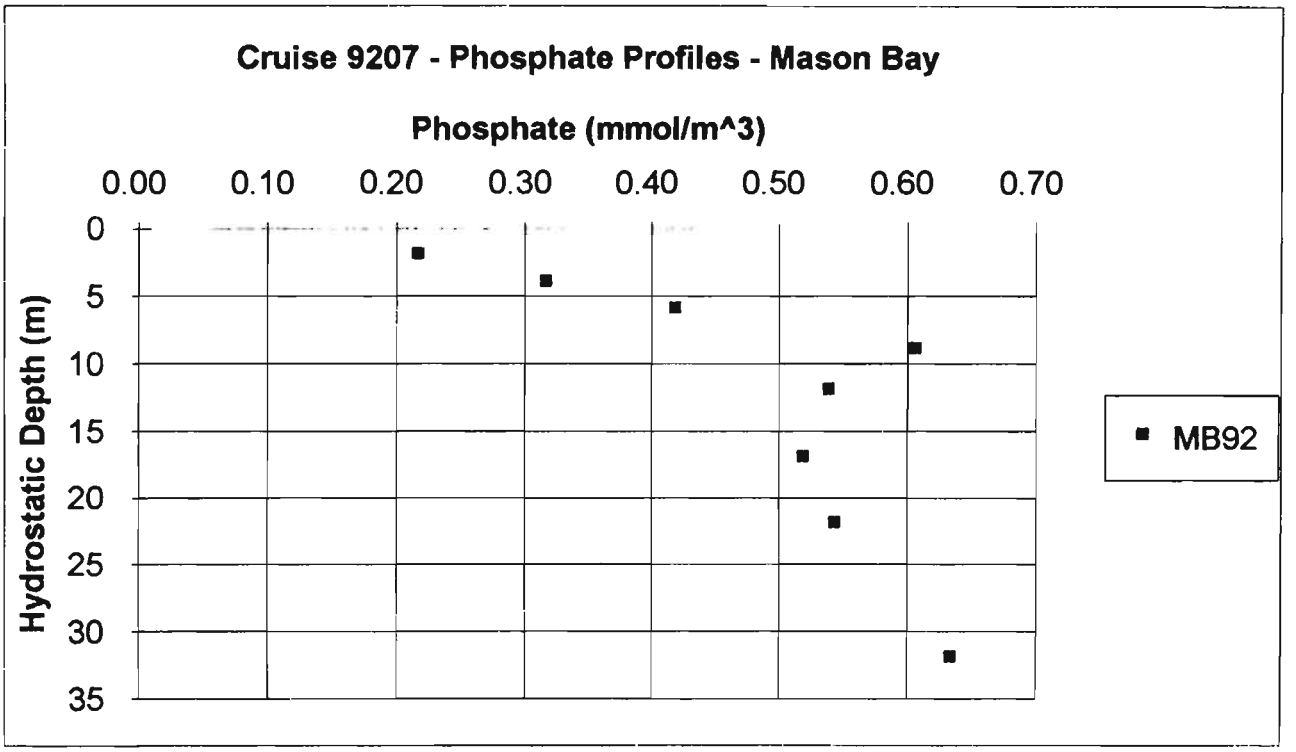

Cruise 9207 - Nitrate Profiles - Husky Lakes
Nitrate (mmol/m^3)
0.0
2.0
4.0
6.0
8.0
10.0
12.0
Hydrostatic Depth (m)
0
10
20
30
40
50
60
70
80
90
E100
E200
E300
E400
E500
E630
E670
E800
E900

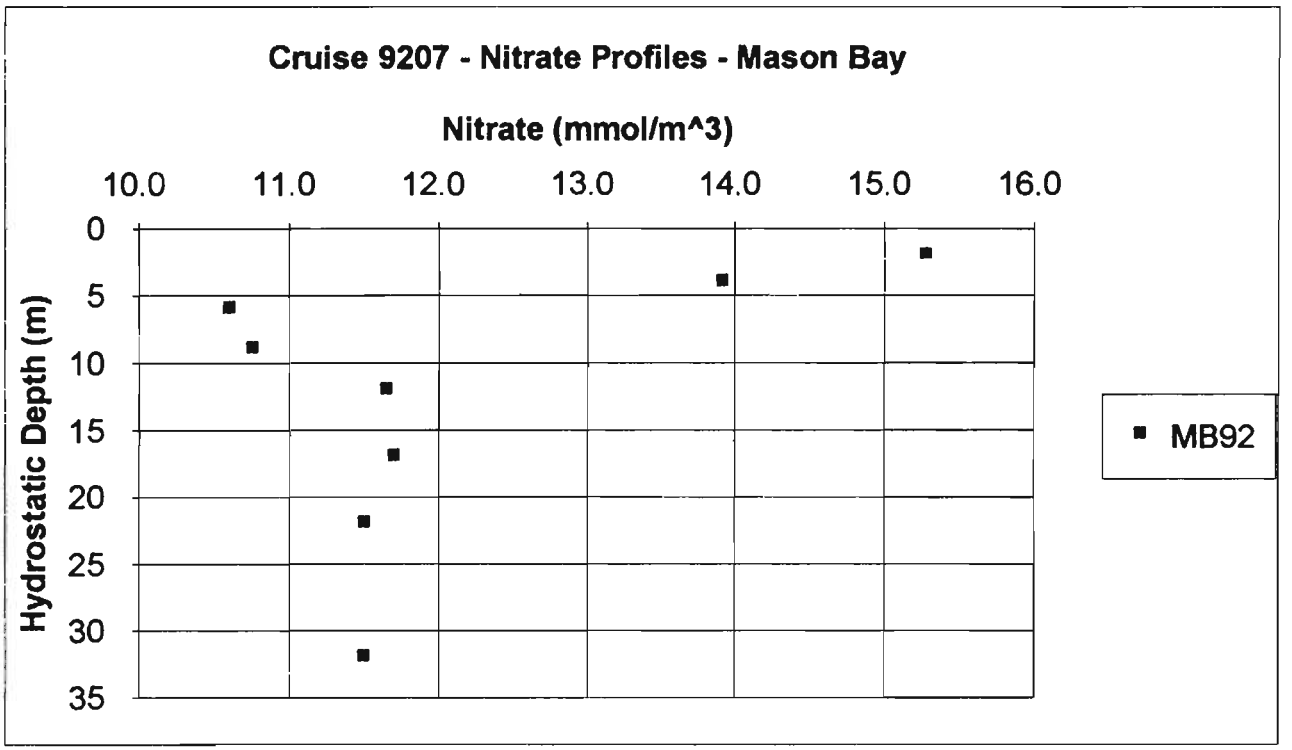

Cruise 9207 - CTD Temperature Profiles - Mason Bay
CTD Temperature at Sample Depth (C)
-0.500
0.000
0.500
1.000
1.500
Hydrostatic Depth (m)
0
5
10
15
20
25
30
35
MB92


Cruise 9207 - Salinity Profiles - Mason Bay
Salinity (PSU)
0
5
10
15
20
25
Hydrostatic Depth (m)
0
5
10
15
20
25
30
35
MB92


Cruise 9207 - Oxygen Profiles - Mason Bay
Dissolved Oxygen (mmol/m^3)
100.0
200.0
300.0
400.0
500.0
Hydrostatic Depth (m)
0
5
10
15
20
25
30
35
MB92


Cruise 9207 - Silicate Profiles - Mason Bay
Silicate (mmol/m^3)
20.0
40.0
60.0
80.0
100.0
120.0
Hydrostatic Depth (m)
0
5
10
15
20
25
30
35
MB92


Cruise 9207 - Phosphate Profiles - Mason Bay
Phosphate (mmol/m^3)
0.00
0.10
0.20
0.30
0.40
0.50
0.60
0.70
Hydrostatic Depth (m)
0
5
10
15
20
25
30
35
MB92


Cruise 9207 - Nitrate Profiles - Mason Bay
Nitrate (mmol/m^3)
10.0
11.0
12.0
13.0
14.0
15.0
16.0
Hydrostatic Depth (m)
0
5
10
15
20
25
30
35
MB92

6.4 Water Chemistry Data Mission #9216

STATION :	A01	DATE :	20/09/92	LATITUDE :	72 31.593 N
CAST :	1	TIME (Z-6) :	1428	LONGITUDE :	143 51.889 W
CRUISE :	9216	DEPTH (m) :	3375		

NOM DEPTH m	CTD DEPTH m	SAMP #	TEMP Deg C	CTD TEMP Deg C	SAL psu	CTD SAL psu	OXYGEN mmol/m^3	PHOSHATE mmol/m^3	SILICATE mmol/m^3	NITRATE mmol/m^3
0		R01			28.680		403.4	0.77	3.30	0.07
10	10.9	R02		-1.53	28.708	28.640	403.8	0.77	3.36	0.07
20	20.8	R03		-1.50	29.466	28.813	405.8	0.78	3.47	0.07
30	30.7	R04		-1.32	30.548	30.416	407.4	0.81	3.63	0.01
40	40.6	R05		-1.43	30.841	30.804	408.7	0.83	3.76	-0.00
50	50.5	R06		-1.48	31.065	30.982	405.2	0.86	4.59	0.20
60	60.4	R07		-1.37	31.146	31.257	395.6	0.89	4.85	0.47
70	70.3	R08		-1.22	31.899	31.719	367.7	1.19	10.42	4.39
80	80.2	R09	-1.33	-1.27	32.127	32.000	340.8	1.39	15.36	7.48
100	99.9	R10		-1.38	32.332	32.377	299.4	1.57	20.14	10.02

NOTE : Temperature reported at 80 meters is from one reversing thermoneter only.
Oxygen value at R10 is average of 280.7 and 318.1 mmol/m^3.

STATION :	A01	DATE :	20/09/92	LATITUDE :	72 31.218 N
CAST :	2	TIME (Z-6) :	1814	LONGITUDE :	143 50.704 W
CRUISE :	9216	DEPTH (m) :	3375		

NOM DEPTH m	CTD DEPTH m	SAMP #	TEMP Deg C	CTD TEMP Deg C	SAL psu	CTD SAL psu	OXYGEN mmol/m^3	PHOSHATE mmol/m^3	SILICATE mmol/m^3	NITRATE mmol/m^3
120	118.7	R11		-1.41	32.659	32.616	298.0	1.73	27.09	13.02
140	138.5	R12		-1.43	32.880	32.831	293.9	1.81	30.13	14.38
150	148.4	R13		-1.43	32.974	32.935	289.1	1.87	31.98	15.14
160	158.3	R14		-1.43	33.053	33.011	288.1	1.88	32.71	15.47
170	168.2	R15		-1.49	33.153	33.114	290.8	1.87	32.88	15.62
180	178.1	R16		-1.46	33.259	33.220	281.2	1.90	34.19	16.17
190	191.9	R17		-1.42		33.376				
200	197.9	R18		-1.40	33.501	33.449	277.4	1.88	33.78	16.32
225	221.6	R19		-1.09	33.864	33.875	267.6	1.70	30.32	16.33
250	249.3	R20	-0.73	-0.60	34.274	34.323	258.8	1.39	22.50	15.56

NOTE : Reversing thermoneters for 250 meters did not agree well. The reported value is an average of -0.68 and -0.79 deg C.

Bottle data for sample R17 is suspect for all parameters; data obtained is as follows :
salinity - 32.548; oxygen - 304.6 mmol/m^3; PO4 - 1.8 mmol/m^3;
SIO4 - 25.85 mmol/m^3; NO3 - 12.12 mmol/m^3 (mistripped bottle??).

STATION :	A01	DATE :	21/09/92	LATITUDE :	72 28.813 N
CAST :	3	TIME (Z-6) :	0942	LONGITUDE :	143 48.657 W
CRUISE :	9216	DEPTH (m) :	3375		

NOM DEPTH m	CTD DEPTH m	SAMP #	TEMP Deg C	CTD TEMP Deg C	SAL psu	CTD SAL psu	OXYGEN mmol/m^3	PHOSHATE mmol/m^3	SILICATE mmol/m^3	NITRATE mmol/m^3
275	275.0	R21		-0.28	34.533	34.539	260.3	1.15	16.43	14.53
300	299.7	R22		-0.07	34.648	34.642	274.9	1.06	13.16	14.10
325	324.4	R23		0.09	34.711	34.703	280.7	1.01	11.35	13.94
350	349.1	R24		0.21	34.751	34.742	285.2	0.98	10.16	13.81
375	372.8	R25		0.30	34.812	34.775	292.0	0.95	8.50	13.66
400	397.5	R26		0.36	34.794	34.796	291.9	0.95	8.56	13.61
450	446.9	R27		0.41	34.823	34.821	288.6	0.95	8.35	13.67
500	495.3	R28		0.43	34.842	34.842	293.8	0.94	7.99	13.62
550	543.6	R29		0.44	34.846	34.856	294.6	0.95	7.84	13.70
600	596.9	R30	0.38	0.42	34.831	34.866	299.9	0.95	7.69	13.62

NOTE : Reversing thermoneters for 600 meters did not agree well. The reported value is an average of 0.42 and 0.35.

STATION :	A01	DATE :	21/09/92	LATITUDE :	72 28.296 N
CAST :	4	TIME (Z-6) :	1343	LONGITUDE :	143 48.885 W
CRUISE :	9216	DEPTH (m) :	3375		

NOM DEPTH m	CTD DEPTH m	SAMP #	TEMP Deg C	CTD TEMP Deg C	SAL psu	CTD SAL psu	OXYGEN mmol/m^3	PHOSHATE mmol/m^3	SILICATE mmol/m^3	NITRATE mmol/m^3
700	692.7	R31		0.33	34.881	34.878		0.94	7.61	13.25
800	789.3	R32		0.22	34.877	34.886	300.5	0.95	7.51	13.42
900	888.9	R33		0.10	34.893	34.893	302.7	1.00	7.51	13.37
1000	988.4	R34		-0.01	34.898	34.898	303.4	1.01	7.57	13.42
1250	1233.5	R35		-0.20	34.909	34.911	304.4	1.09	8.21	13.70
1500	1480.3	R36		-0.33	34.922	34.921	303.5	1.04	9.17	14.09

NOTE : Reversing thermometer temperature at 700 meters was -0.153 deg C and is suspect.
No salinity sample for R36.
Oxygen value for R31 was 276.2 mmol/m^3; does not fit with profile.

STATION :	A01	DATE :	21/09/92	LATITUDE :	72 27.386 N
CAST :	5	TIME (Z-6) :	2028	LONGITUDE :	143 46.633 W
CRUISE :	9216	DEPTH (m) :	3375		

NOM DEPTH m	CTD DEPTH m	SAMP #	TEMP Deg C	CTD TEMP Deg C	SAL psu	CTD SAL psu	OXYGEN mmol/m^3	PHOSHATE mmol/m^3	SILICATE mmol/m^3	NITRATE mmol/m^3
1600	1600.2	R37	-0.40	-0.38	34.932	34.930	300.8	0.99	9.65	14.12
1700	1700.3	R38		-0.40	34.936	34.935	300.7	1.01	10.00	14.61
1800	1800.4	R39		-0.42	34.934	34.940	295.2	1.03	10.72	14.72
1900	1899.5	R40		-0.43	34.941	34.943	294.9	1.05	10.91	14.95
2000	1999.5	R41		-0.43	34.945	34.946	295.9	1.07	11.21	14.97
2250	2250.3	R42		-0.41	34.955	34.952	293.5	1.07	12.08	15.30
2500	2499.9	R43		-0.40	34.950	34.955	288.2	1.07	12.64	15.35
3000	3000.0	R44		-0.35	34.957	34.958	289.0	1.09	13.82	15.50
3200	3200.0	R45		-0.33	34.955	34.959	291.7	1.09	13.70	15.48

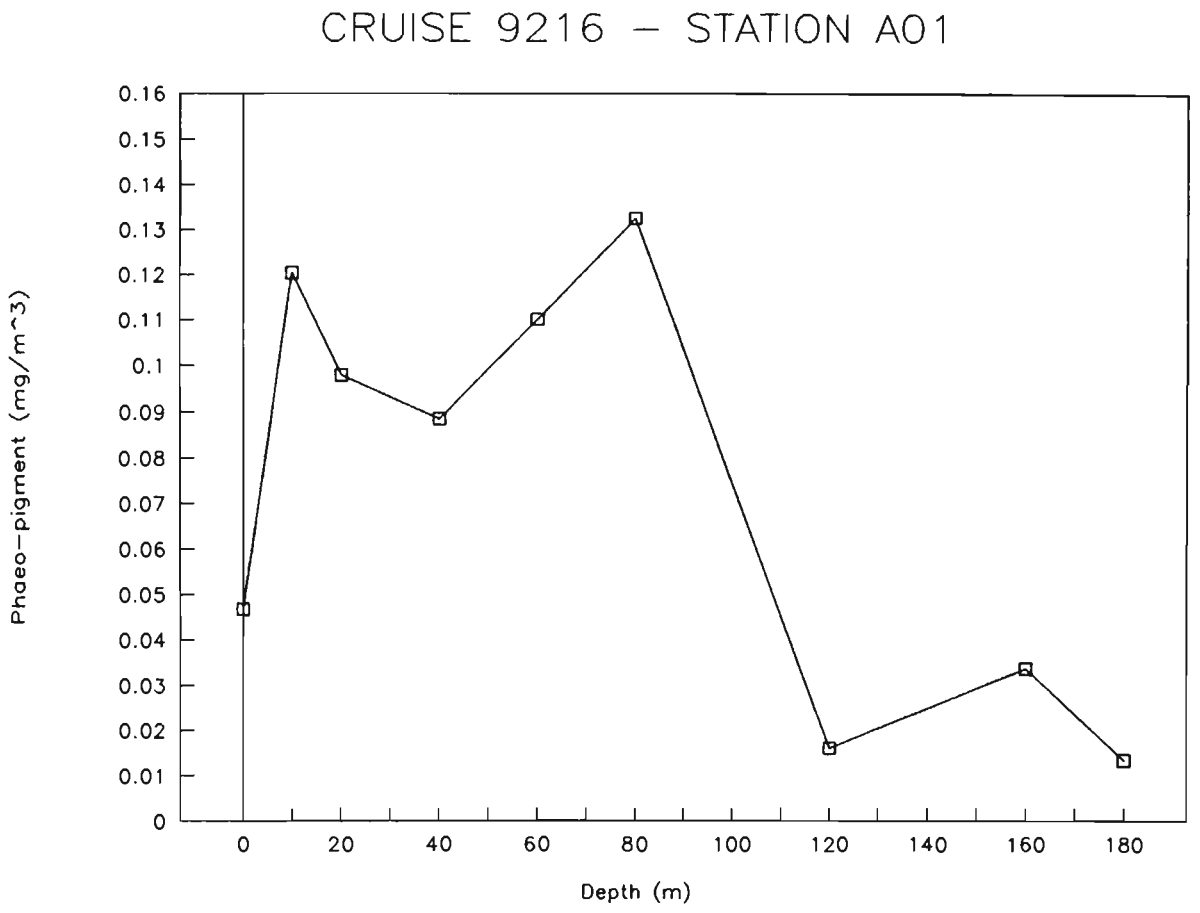
STATION : A01
CRUISE : 9216
CAST : TSS1
TSS2
TSS3

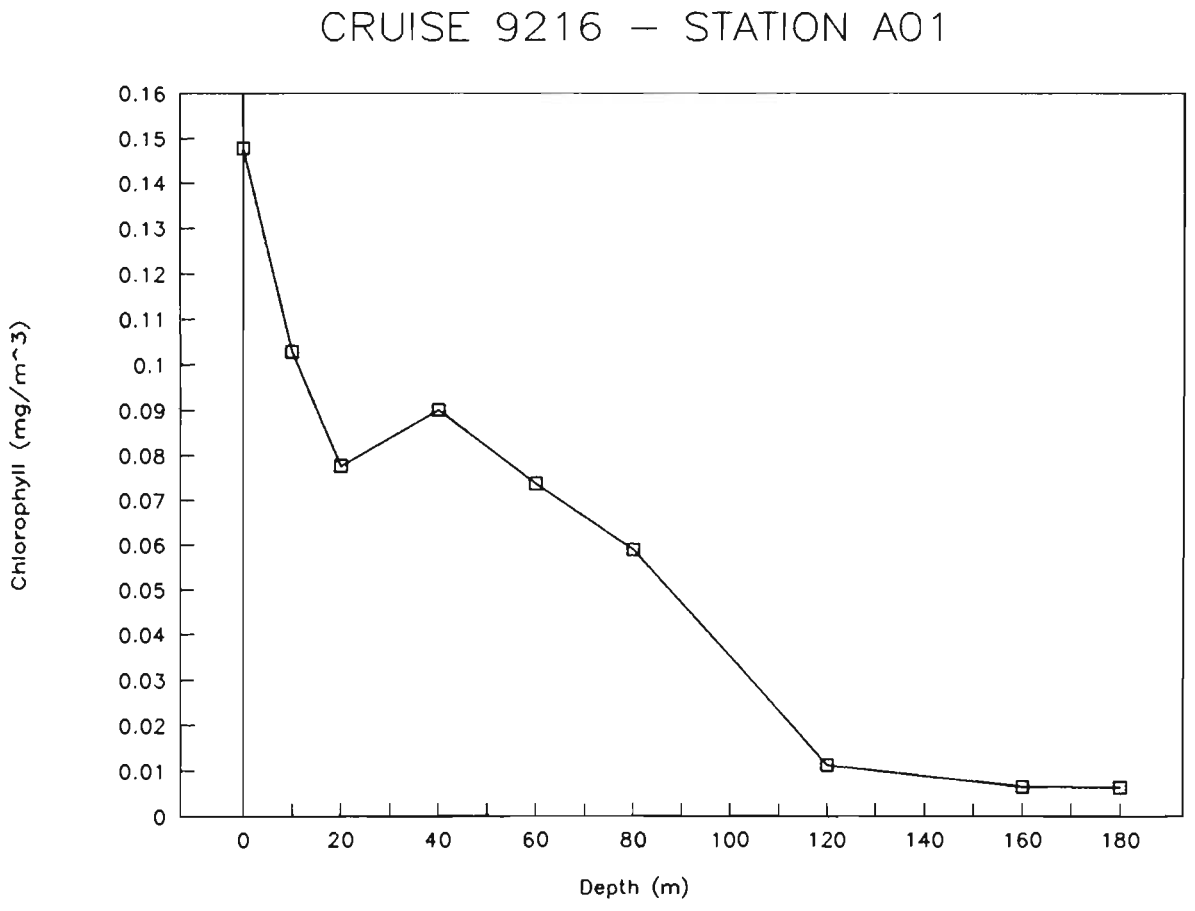
DEPTH (m) : 3300
DATE : 22/09/92
TIME (Z-6) : 1015
1130
2100

LATITUDE : 72 24.241 N
LONGITUDE : 143 45.828 W

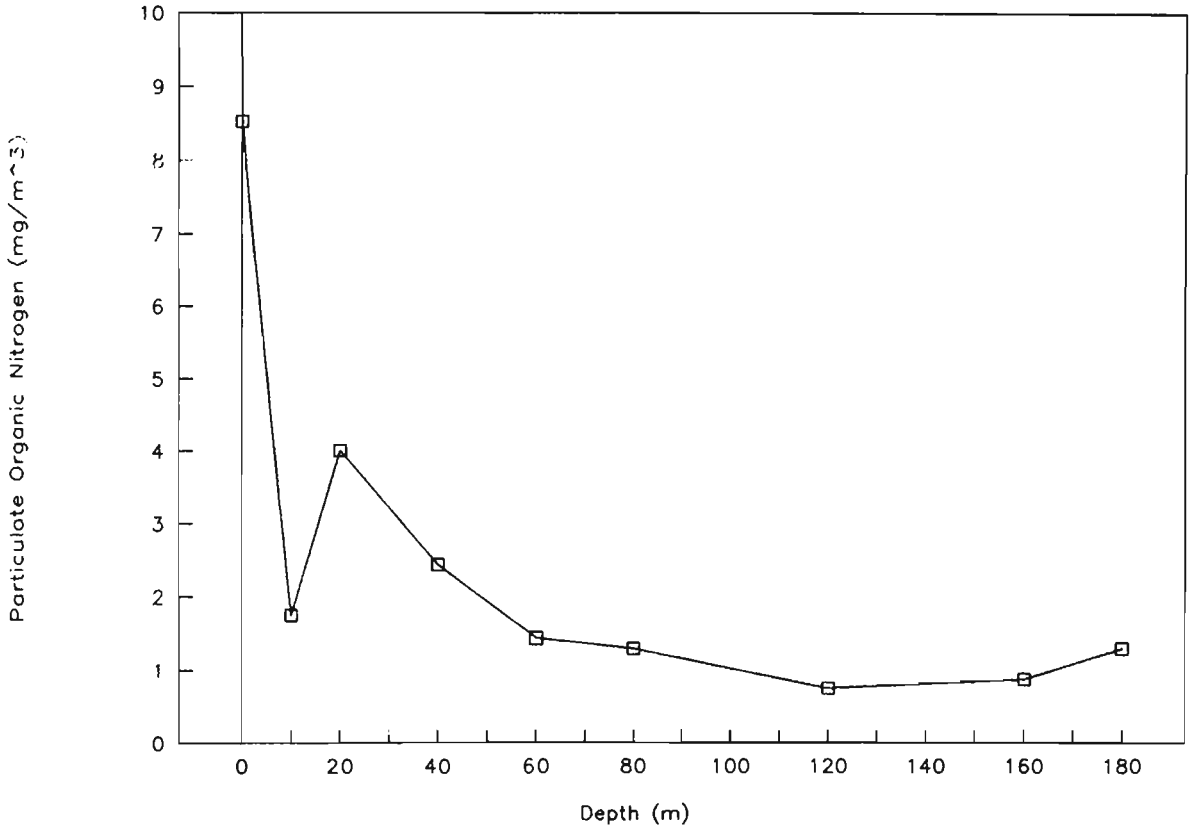
CAST	DEPTH m	SAMPLE #	SALINITY psu	CHLA mg/m^3	PHAEO mg/m^3	POC mg/m^3	PON mg/m^3	C/N RATIO	TSS mg/m^3
TSS1	0	TSS1	4.826	0.148	0.047	67.00	8.52	7.87	210.0
TSS1	10	TSS2	28.769	0.103	0.120	7.92	1.74	4.54	39.2
TSS1	20	TSS3	28.936	0.078	0.098	22.00	4.00	5.50	31.7
TSS2	40	TSS4	30.746	0.090	0.088	14.93	2.43	6.14	26.2
TSS2	60	TSS5	31.066	0.074	0.110	11.22	1.43	7.84	25.7
TSS2	80	TSS6	31.629	0.059	0.132	10.55	1.29	8.17	27.1
TSS3	120	TSS7	32.613	0.011	0.016	7.42	0.74	9.97	31.4
TSS3	160	TSS8	33.045	0.006	0.034	9.41	0.87	10.83	29.8
TSS3	180	TSS9	33.259	0.006	0.013	11.46	1.29	8.87	30.2

NOTE : From one to four fibres were noted on filters before analysis for samples at depths 0, 40, 60, 120, 160, and 180 meters. It was not possible to remove the fibres without compromising the samples.

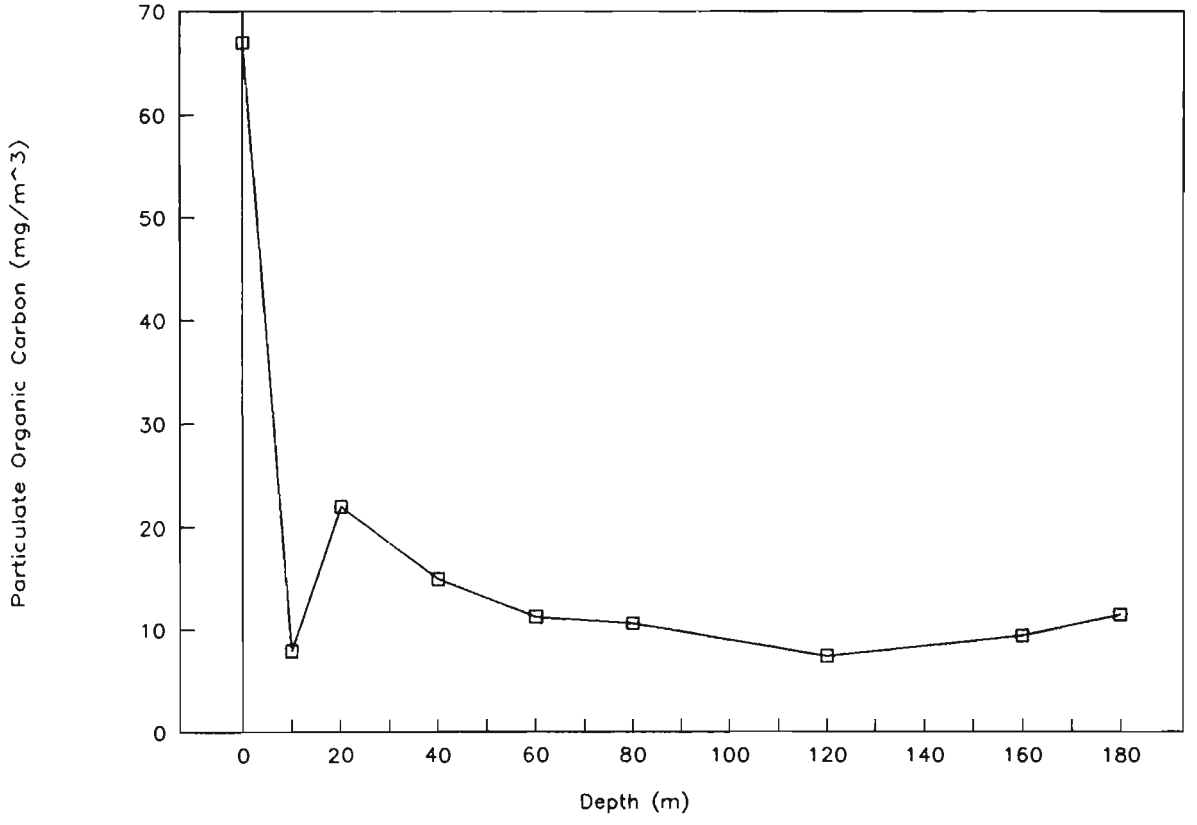

CRUISE 9216 – STATION A01
Phaeo-pigment (mg/m^3)
0.16
0.15
0.14
0.13
0.12
0.11
0.1
0.09
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0
0
20
40
60
80
100
120
140
160
180
Depth (m)

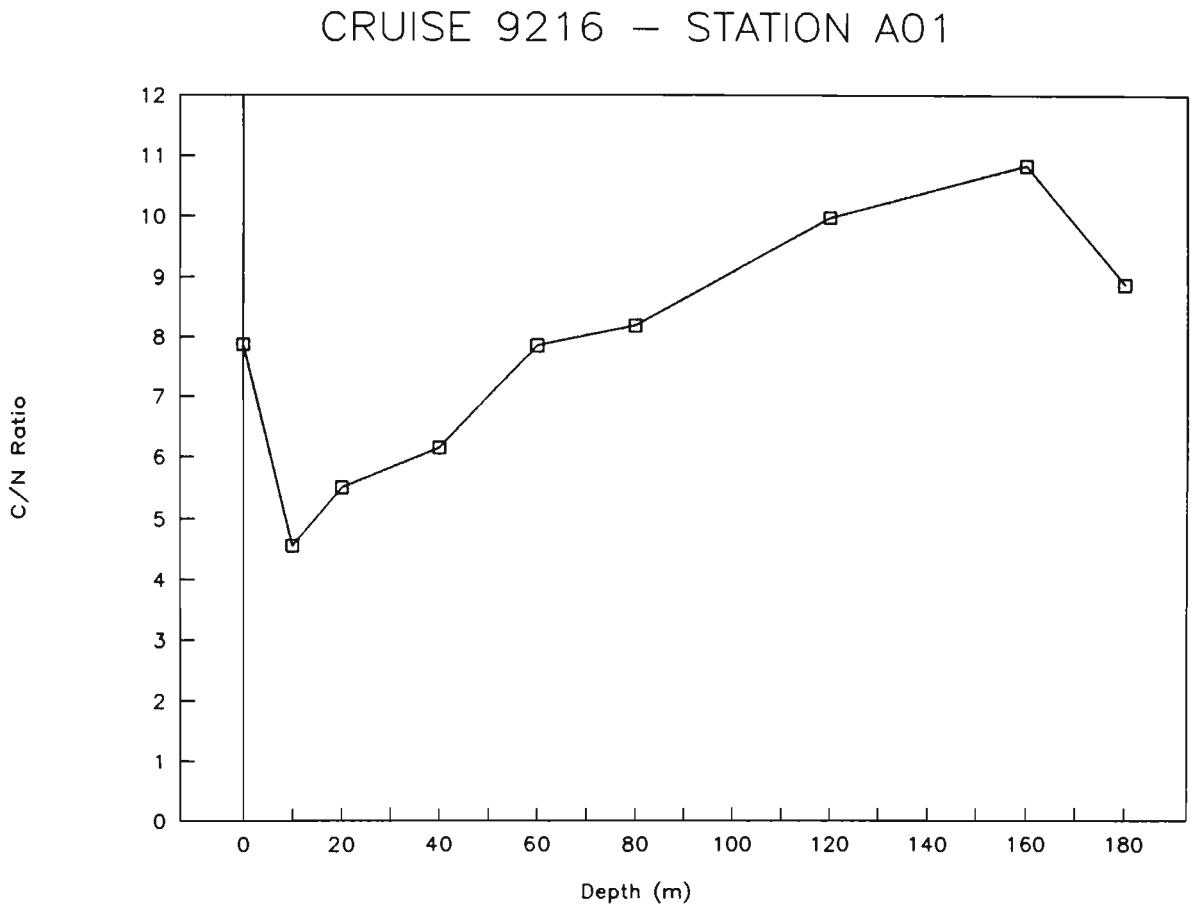

CRUISE 9216 – STATION A01
Chlorophyll (mg/m^3)
0.16
0.15
0.14
0.13
0.12
0.11
0.1
0.09
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0
0
20
40
60
80
100
120
140
160
180
Depth (m)

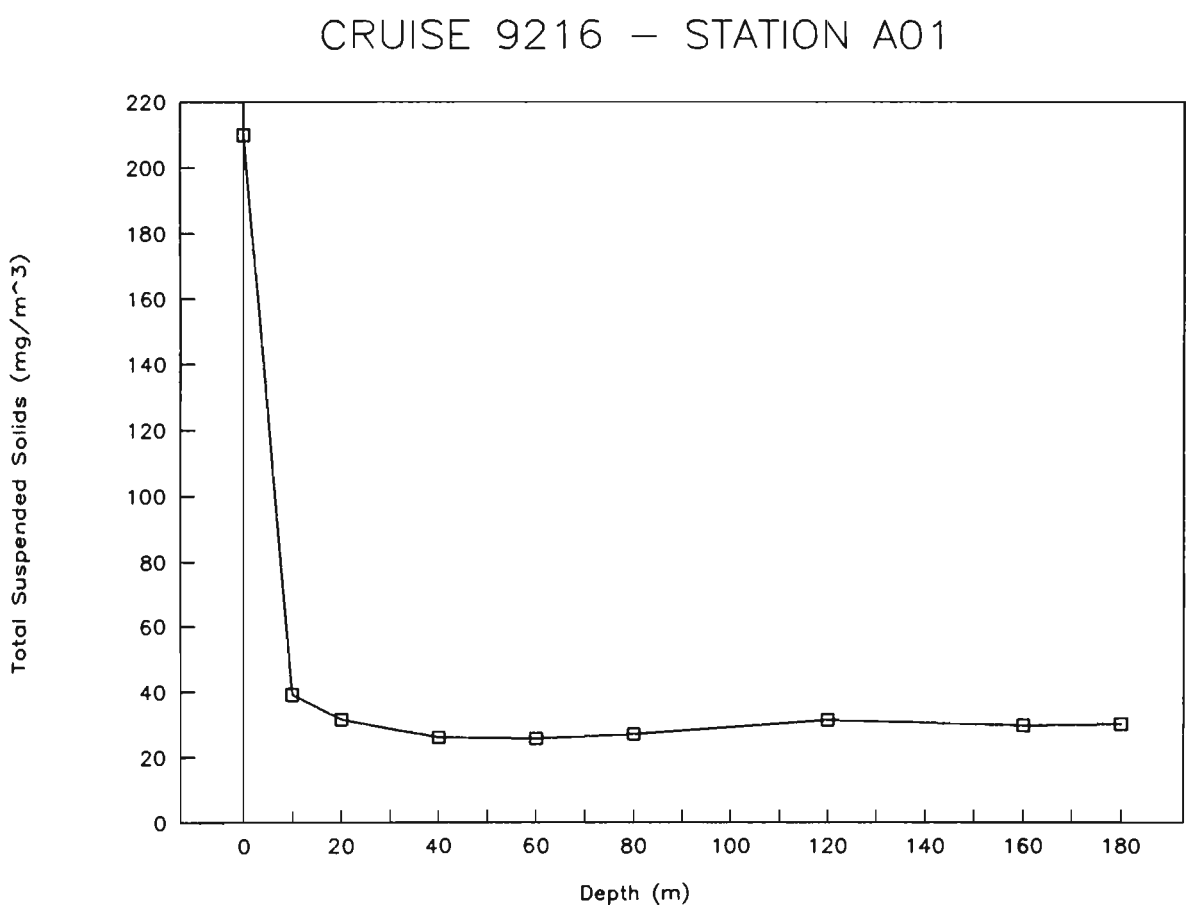
CRUISE 9216 – STATION A01



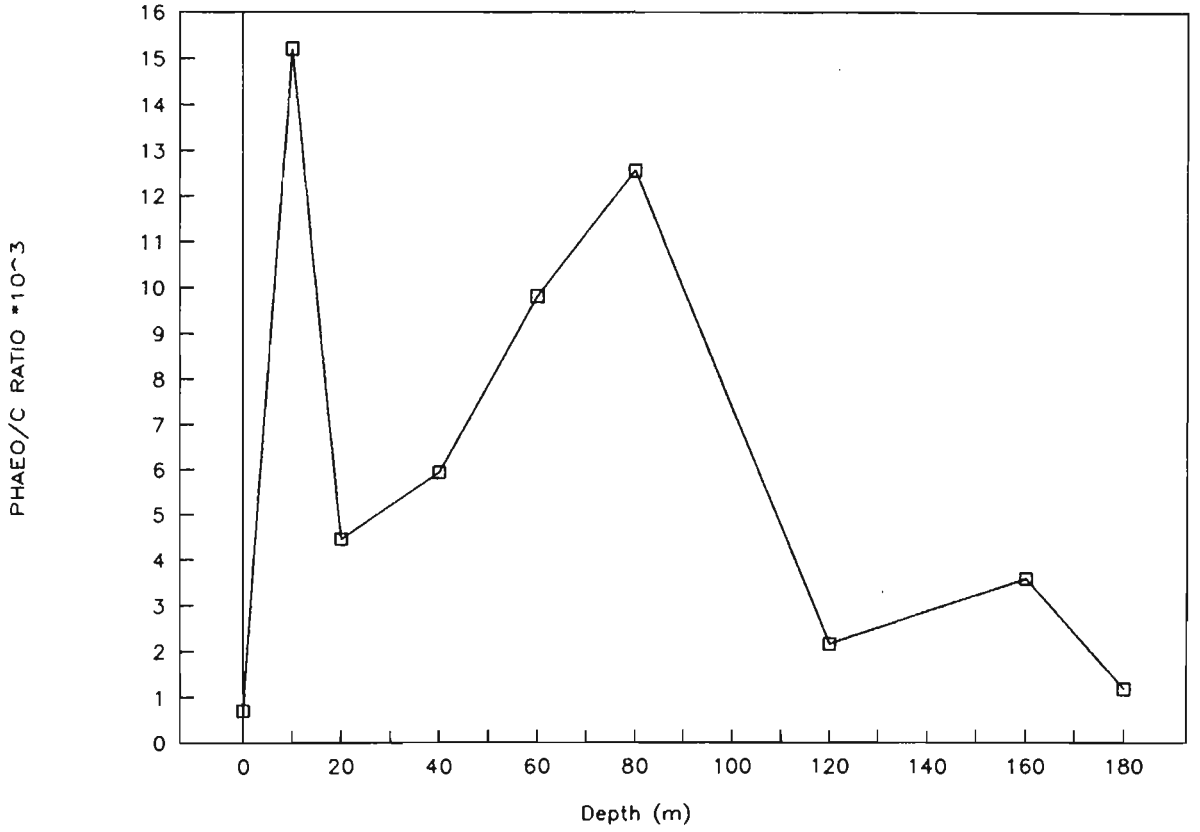
CRUISE 9216 – STATION A01



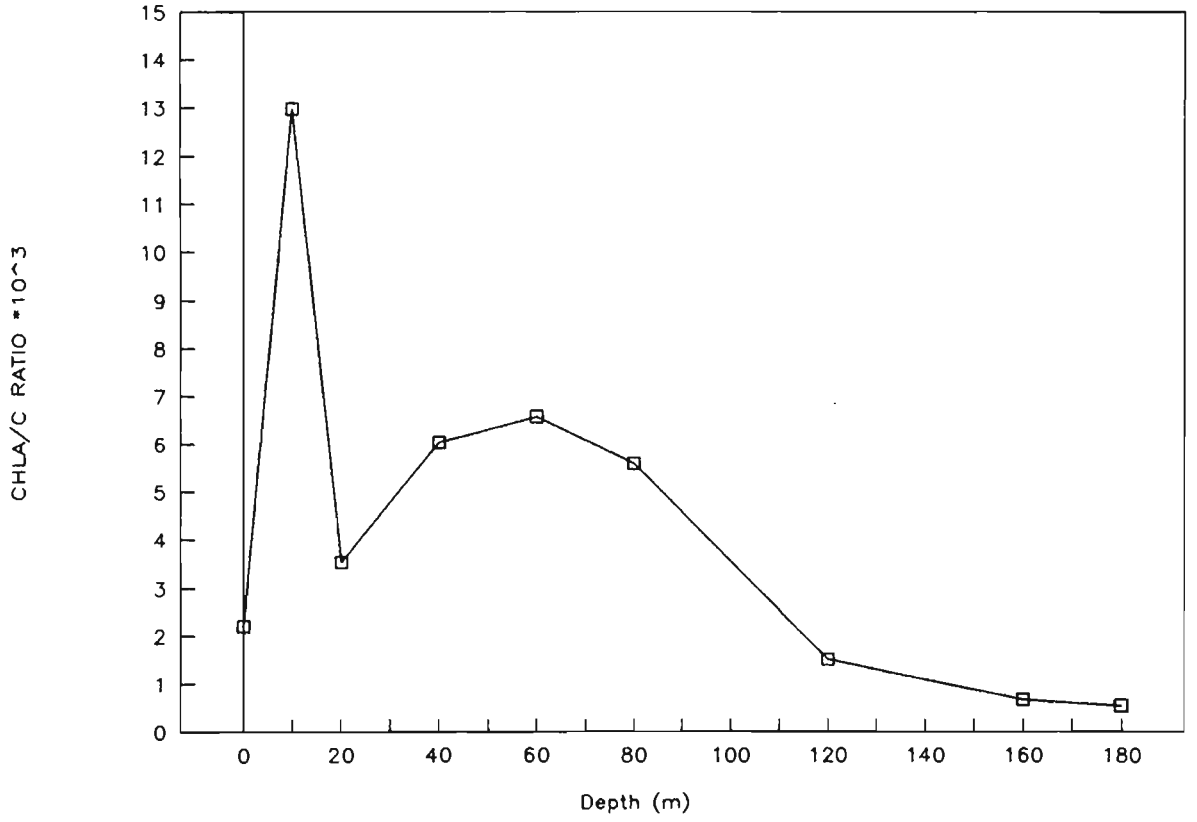

CRUISE 9216 – STATION A01
C/N Ratio
Depth (m)
0
1
2
3
4
5
6
7
8
9
10
11
12
0
20
40
60
80
100
120
140
160
180


CRUISE 9216 – STATION A01
Total Suspended Solids (mg/m^3)
Depth (m)
0
20
40
60
80
100
120
140
160
180
200
220
0
20
40
60
80
100
120
140
160
180

CRUISE 9216 – STATION A01



CRUISE 9216 – STATION A01



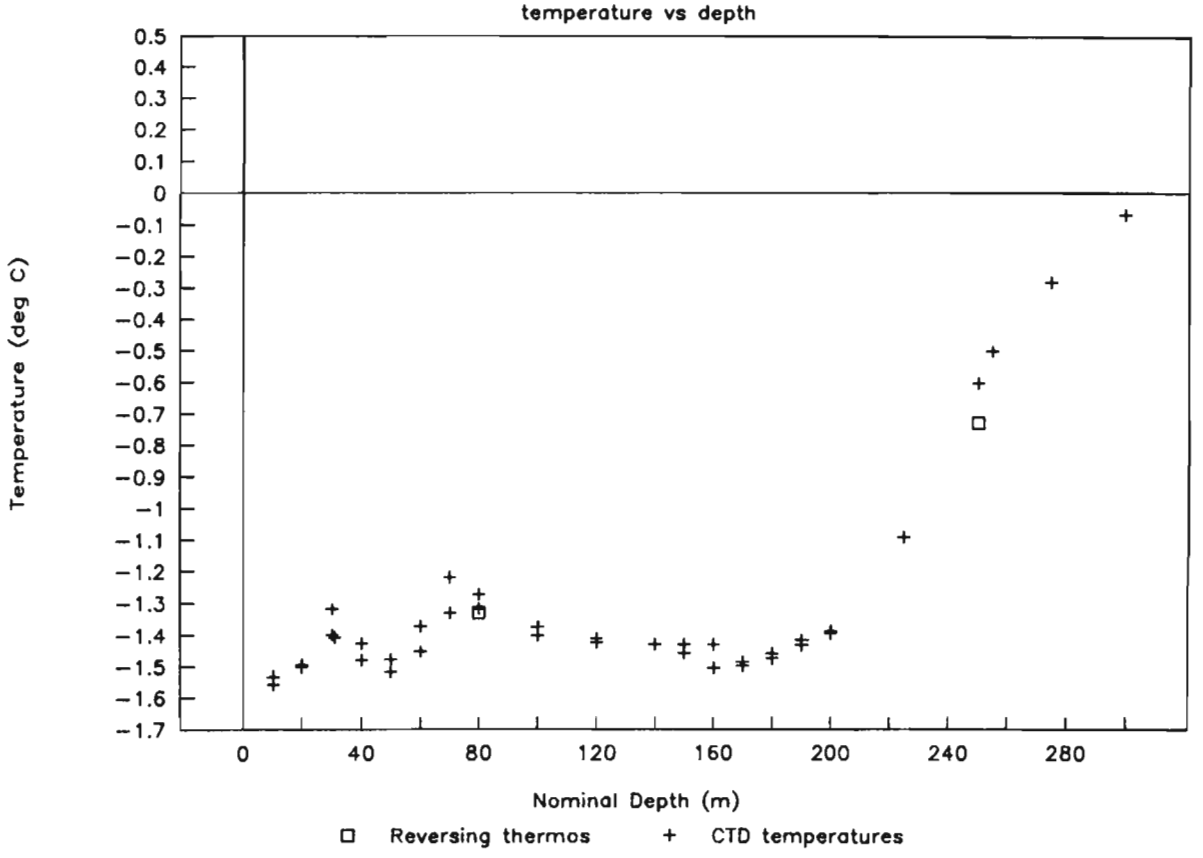
CRUISE 9216 - STATION A01
STATION INFORMATION, SALINITES AND TEMPERATURES FOR CFC, HCH AND TSS CASTS

CAST	DATE	TIME (Z-6)	LATITUDE	LONGITUDE	BOTTOM DEPTH (m)	DEPTH (m)	SAMPLE #	BOTTLE SALINITY (psu)	CTD DEPTH (m)	CTD DEPTH (db)	CTD TEMP (deg C)	CTD SAL (psu)
F1	20/09/92	1132	72 31.653 N	143 51.802 W	3375	900	F01	34.893	900	911	0.091	34.892
						902	F02	34.894	902	913	0.087	34.892
						1250	F03	34.911	1250	1267	-0.212	34.911
						1252	F04		1252	1269	-0.213	34.911
						1600	F05	34.932	1600	1623	-0.375	34.930
						1602	F06	34.927	1602	1625	-0.377	34.930
						1900	F07	34.941	1900	1928	-0.425	34.943
						1902	F08	34.940	1902	1931	-0.425	34.943
						2000	F09	34.943	2000	2030	-0.426	34.946
						2002	F10	34.943	2001	2032	-0.426	34.946
						2004	F11	34.949	2004	2035	-0.426	34.946
F2	21/09/92	1846	72 27.603 N	143 46.883 W	3375	10	F12	28.631	10	10	-1.558	28.679
						30	F13	29.971	30	30	-1.400	30.533
						31	F14	30.528	31	31	-1.407	30.574
						50	F15	30.984	49	50	-1.518	30.992
F3	22/09/92	?	72 24.896 N	143 45.524 W	3300	80	F16	31.837	80	81	-1.317	31.985
						120	F17	32.573	120	121	-1.424	32.634
						180	F18	33.246	180	182	-1.475	33.247
						300	F19	34.641	300	303	-0.069	34.642
						400	F20	34.805	399	404	0.361	34.797
						405	F21	34.803	405	410	0.368	34.800
F4	22/09/92	?	72 24.896 N	143 45.524 W	3300	150	F22	32.889	150	152	-1.457	32.954
						600	F23	34.867	600	607	0.415	34.866
						800	F24	34.888	800	810	0.204	34.886
						900	F25	34.893	900	911	0.088	34.895
						1000	F26	34.898	1000	1013	-0.014	34.899
F5	22/09/92	2241	72 23.828 N	143 46.268 W	3300	200	F27	33.410	200	202	-1.387	33.487
						500	F28	34.839	500	506	0.430	34.843
						1250	F29	34.911	1250	1267	-0.213	34.911
						1500	F30	34.924	1500	1521	-0.340	34.925

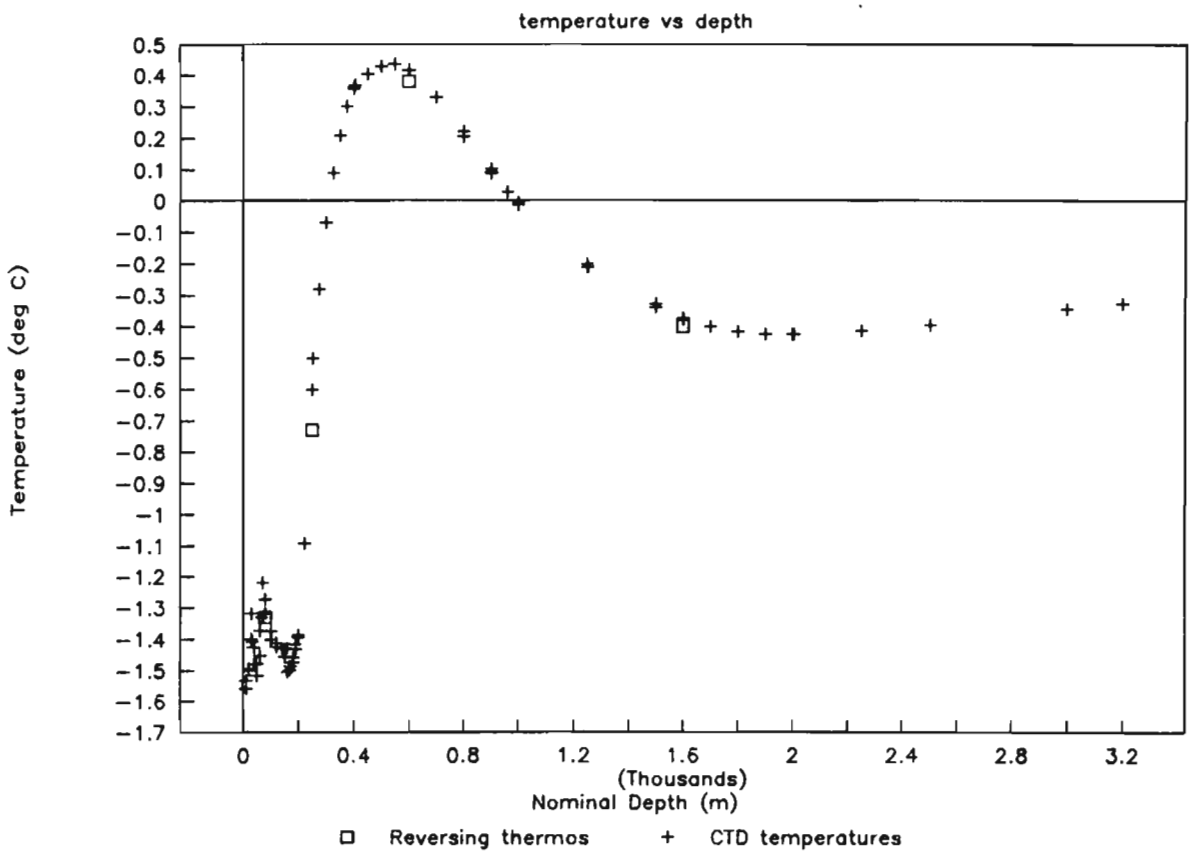
CRUISE 9216 - STATION A01
STATION INFORMATION, SALINITES AND TEMPERATURES FOR CFC, HCH AND TSS CASTS

CAST	DATE	TIME (Z-6)	LATITUDE	LONGITUDE	BOTTOM DEPTH (m)	DEPTH (m)	SAMPLE #	BOTTLE SALINITY (psu)	CTD DEPTH (m)	CTD DEPTH (db)	CTD TEMP (deg C)	CTD SAL (psu)
F6	23/09/92	0934	72 21.575 N	143 47.104 W	3300	10	HCH-1	28.811	10	10	-1.558	28.679
						40	HCH-2	30.713	40	40	-1.480	30.807
						70	HCH-3	31.433	70	71	-1.330	31.617
						255	F31	34.363	255	258	-0.501	34.398
						300	F32	34.632	300	303	-0.069	34.642
						400	HCH-9	34.793	399	404	0.361	34.797
						600	HCH-10		600	607	0.415	34.866
						1000	F33	34.898	1000	1013	-0.014	34.899
						1250	F34	34.911	1250	1267	-0.213	34.911
						1500	F35	34.925	1500	1521	-0.340	34.925
F7	23/09/92	1115	72 20.878 N	143 47.744 W	3300	100	HCH-4	32.378	100	101	-1.401	32.370
						150	HCH-5	32.957	150	152	-1.457	32.954
						170	HCH-6	33.160	170	172	-1.499	33.140
						190	HCH-7	33.374	190	192	-1.432	33.364
						960	F41	34.904	960	972	0.028	34.897
						1500	F36	34.922	1500	1521	-0.340	34.925
						2000	F37	34.943	2000	2030	-0.426	34.946
						2500	F38	34.947	2500	2541	-0.396	34.955
						3000	F39/HCH11		3000	3053	-0.346	34.958
						3200	F40	34.960	3200	3258	-0.328	34.959
TSS1	22/09/92	1015	72 24.241 N	143 45.828 W	3300	0	TSS1	4.826	0			
						10	TSS2	28.769	10	10	-1.558	28.679
						20	TSS3	28.936	20	20	-1.495	29.370
TSS2	22/09/92	1130	72 24.241 N	143 45.828 W	3300	40	TSS4	30.746	40	40	-1.480	30.807
						60	TSS5	31.066	60	61	-1.454	31.243
						80	TSS6	31.629	80	81	-1.317	31.985
TSS3	22/09/92	2100	72 24.241 N	143 45.828 W	3300	120	TSS7	32.613	120	121	-1.424	32.634
						160	TSS8	33.045	160	162	-1.505	33.027
						180	TSS9	33.259	180	182	-1.475	33.247

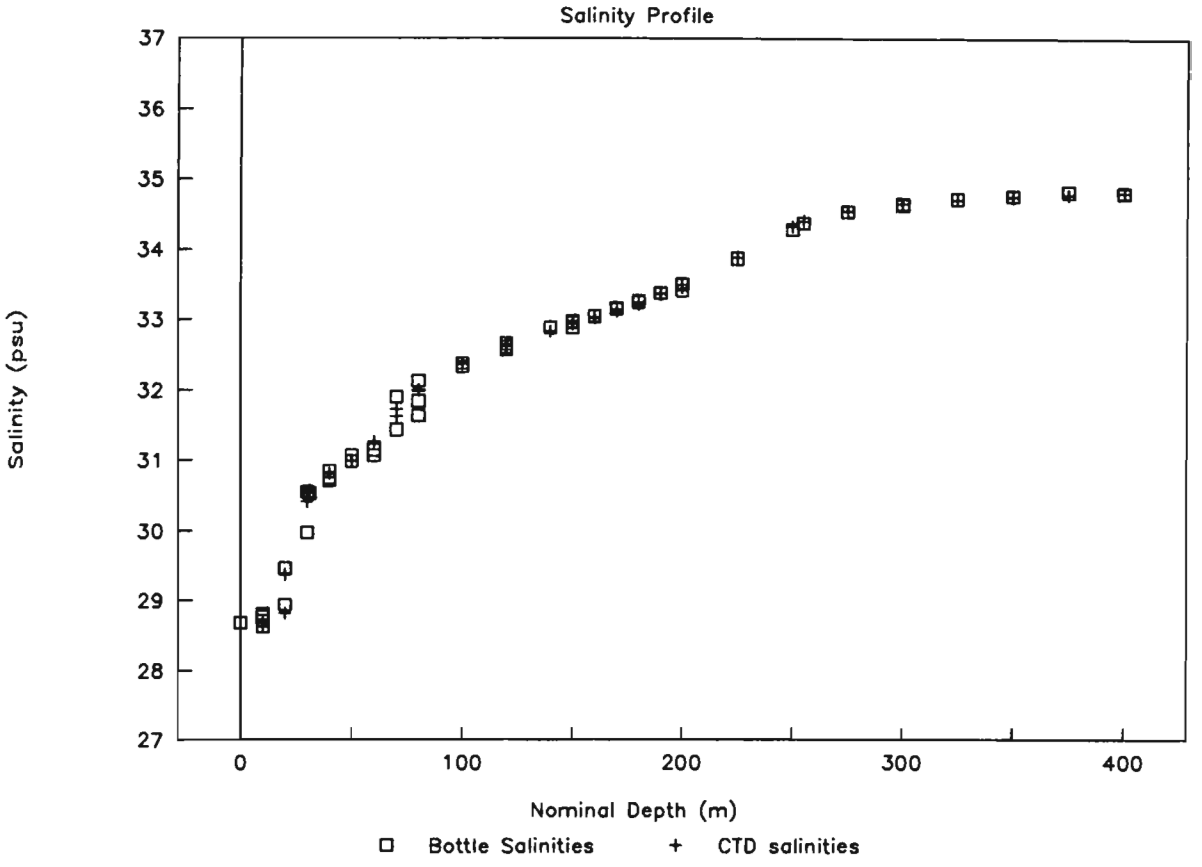
NOGAP CRUISE 9216 – STATION A01



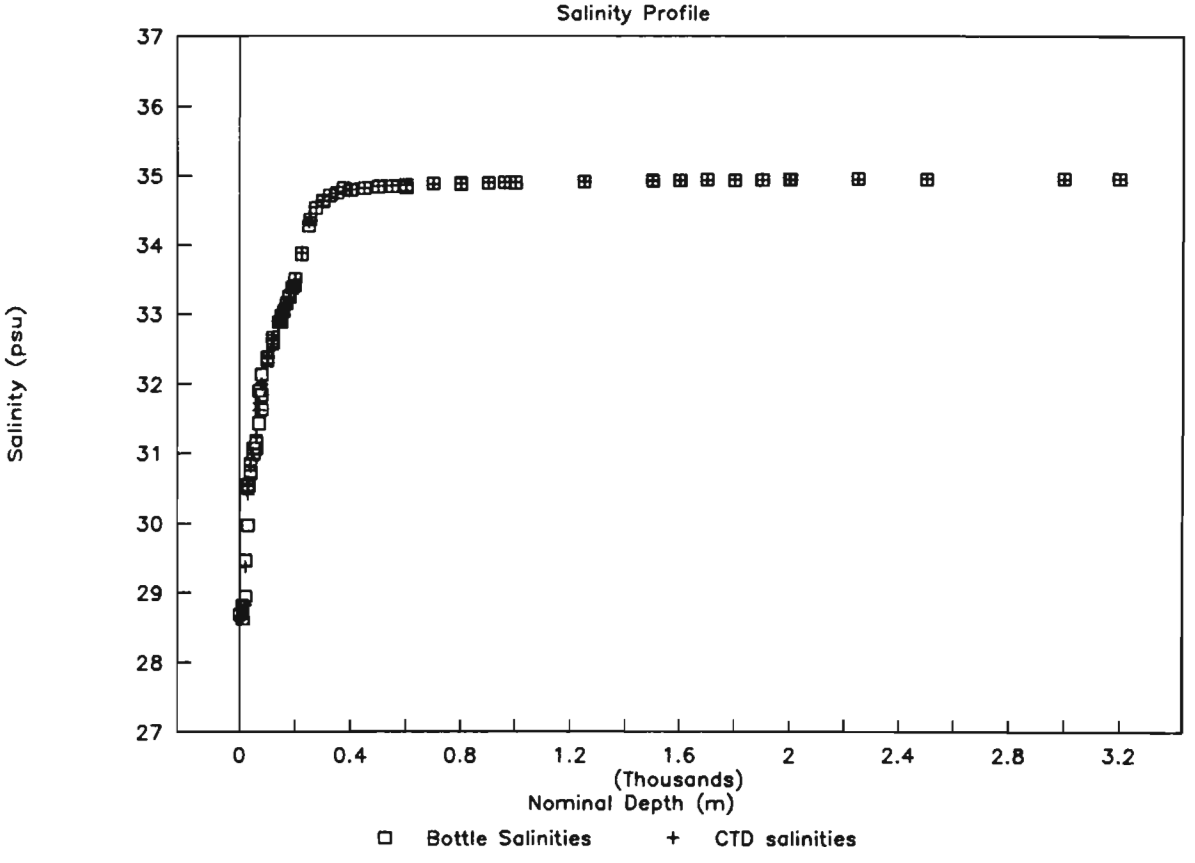
NOGAP CRUISE 9216 – STATION A01



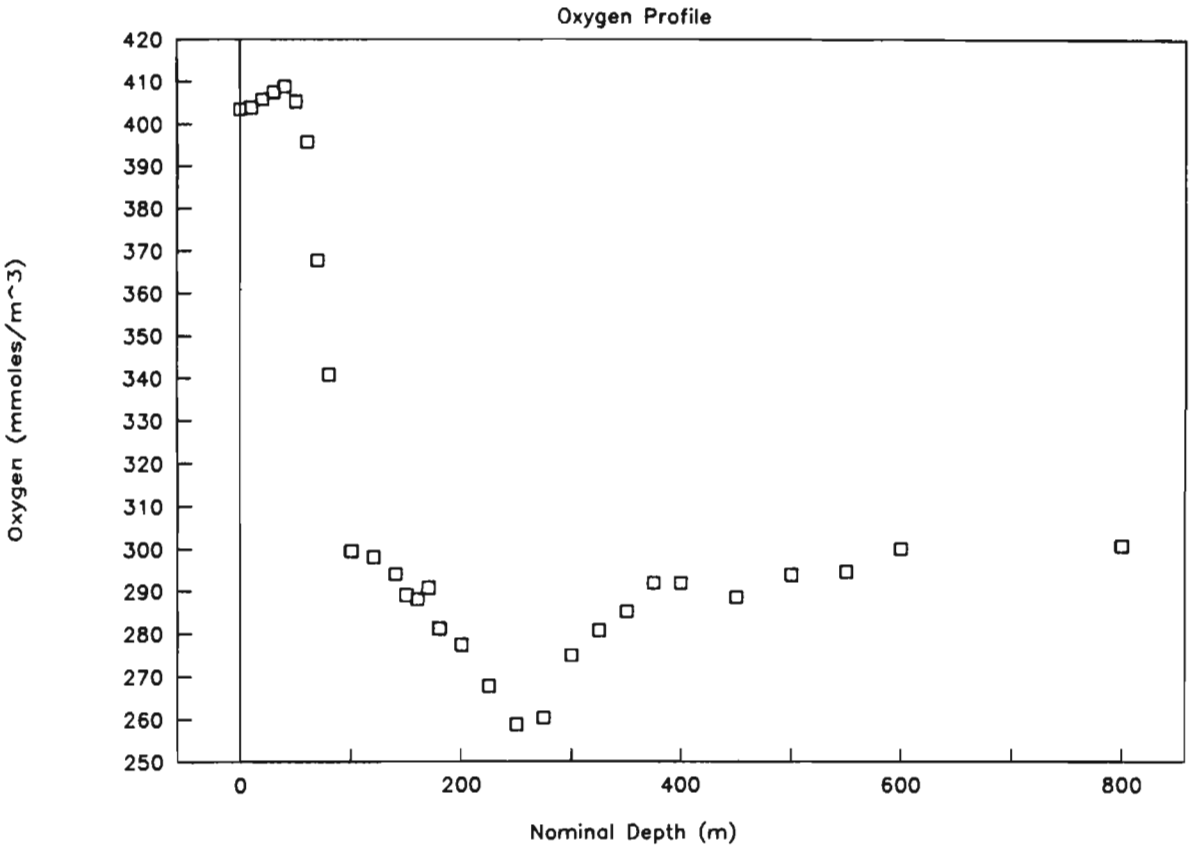
NOGAP CRUISE 9216 – STATION A01



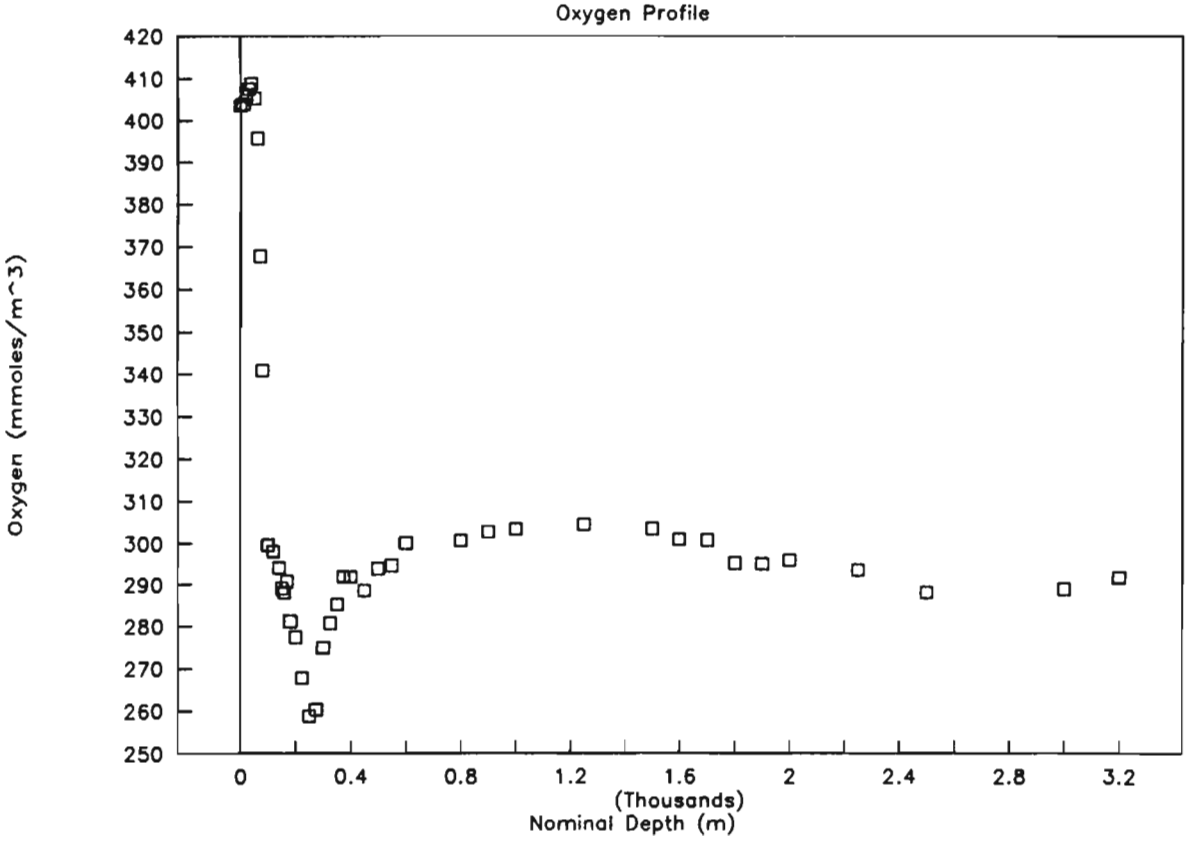
NOGAP CRUISE 9216 – STATION A01



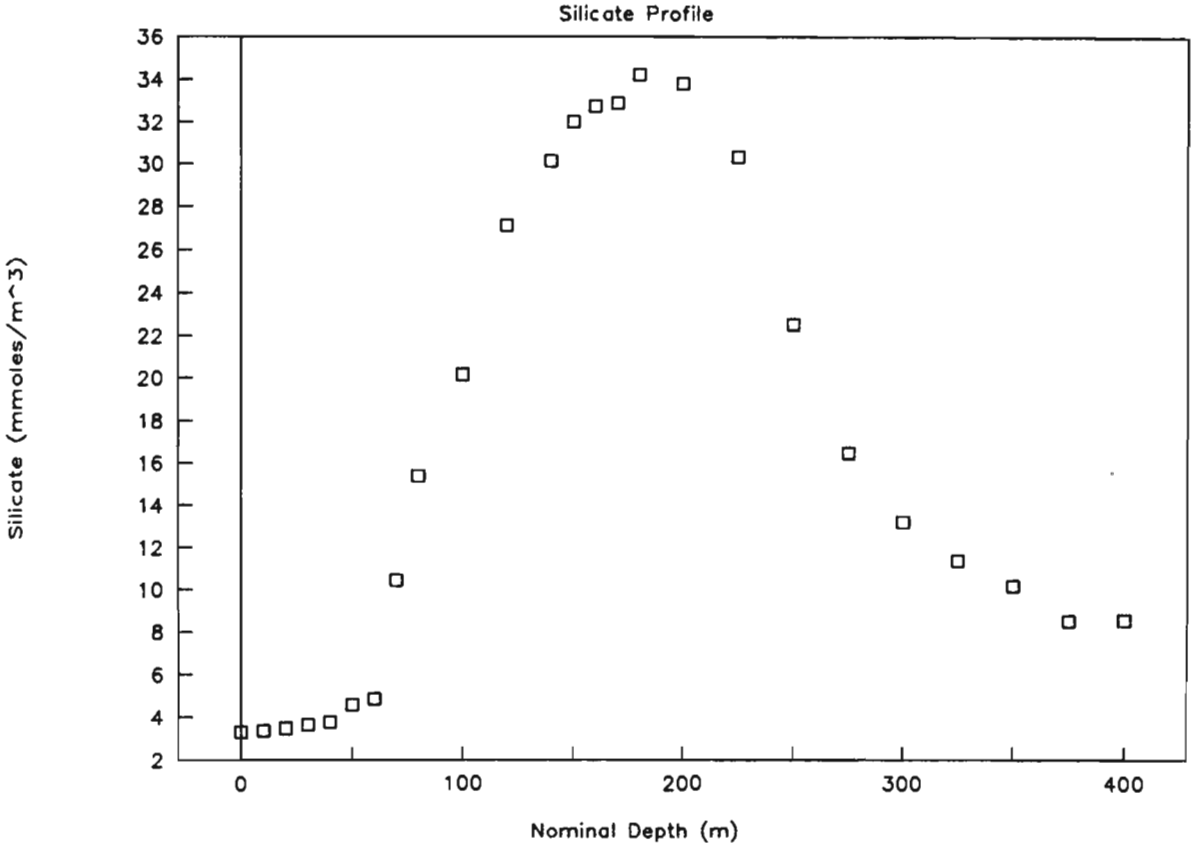
NOGAP CRUISE 9216 – STATION A01



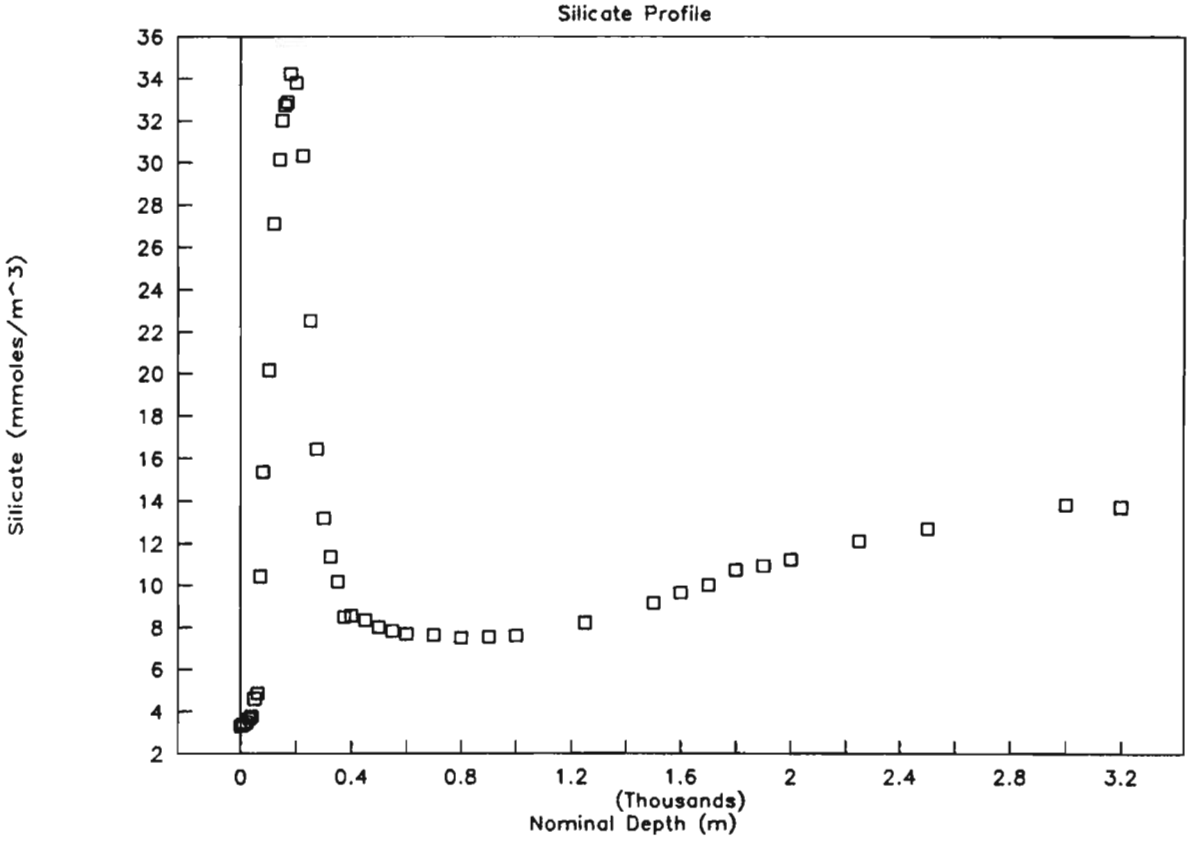
NOGAP CRUISE 9216 – STATION A01



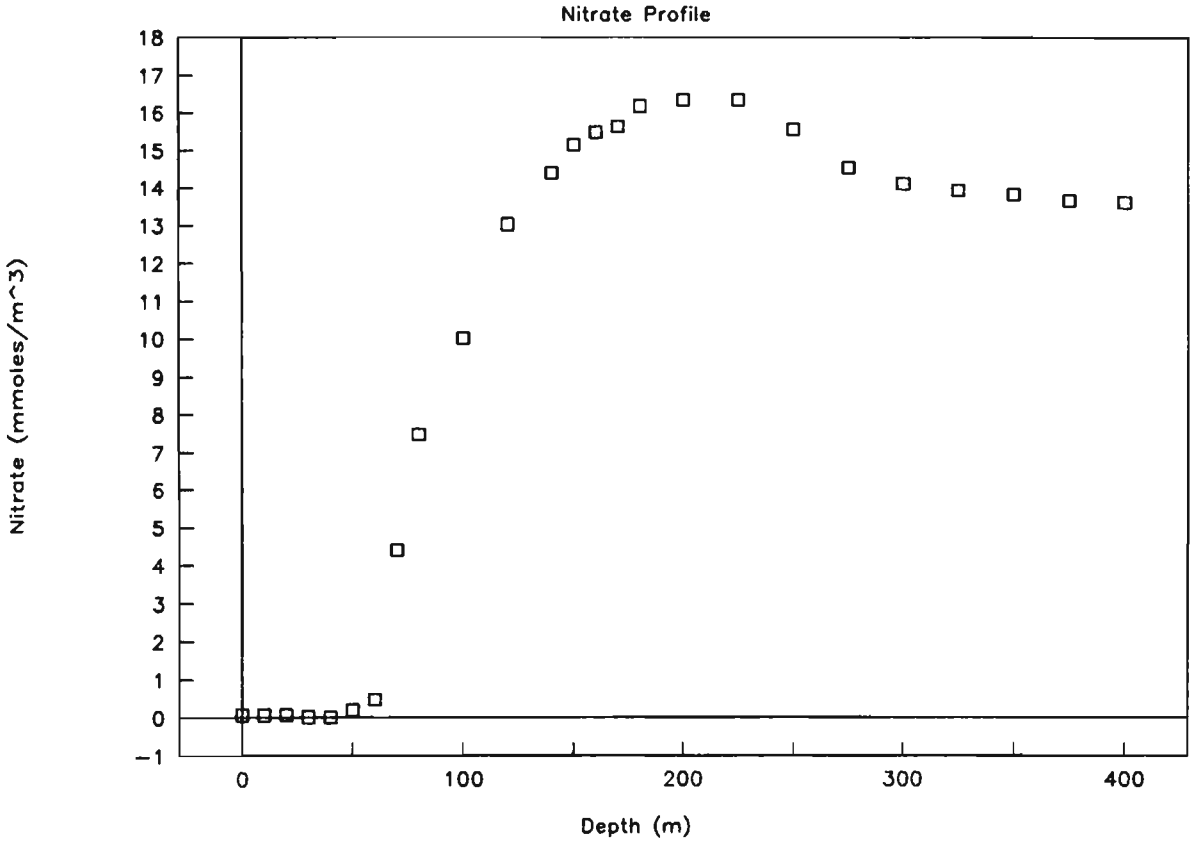
NOGAP CRUISE 9216 – STATION A01



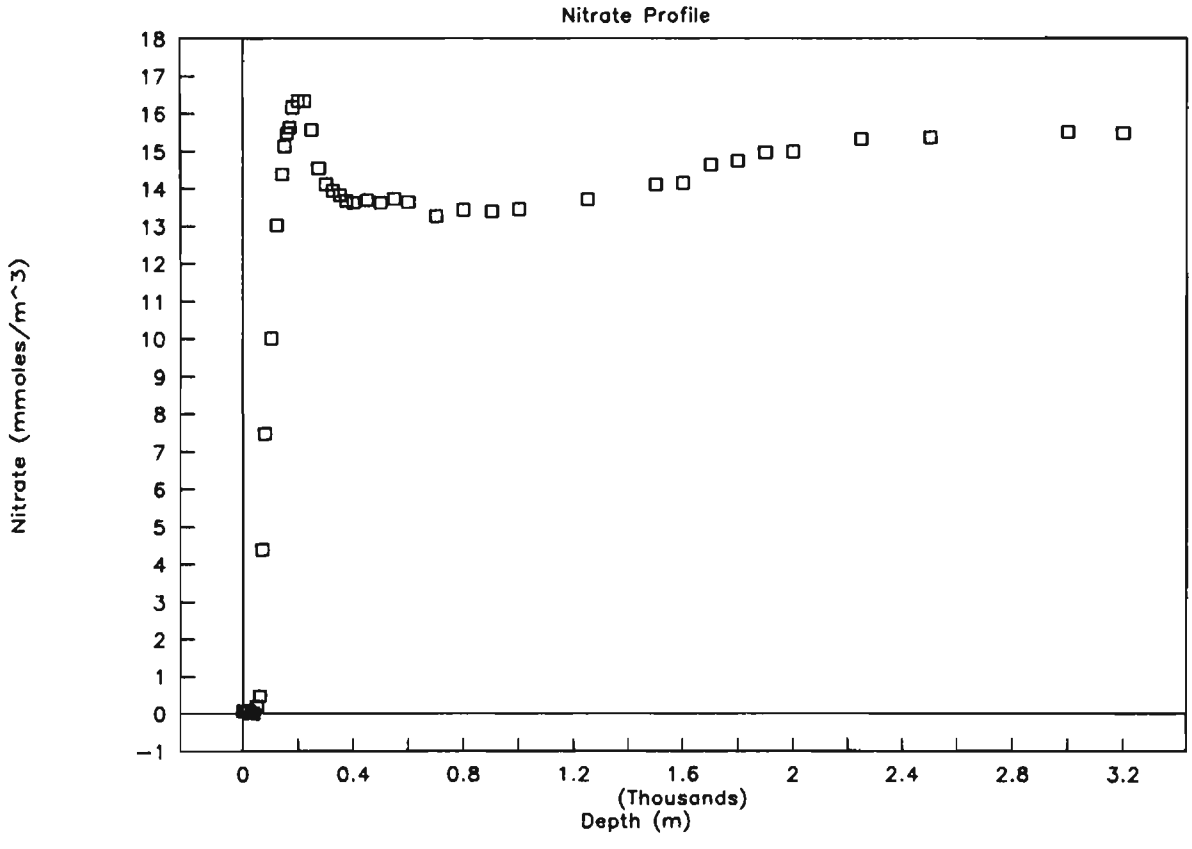
NOGAP CRUISE 9216 – STATION A01



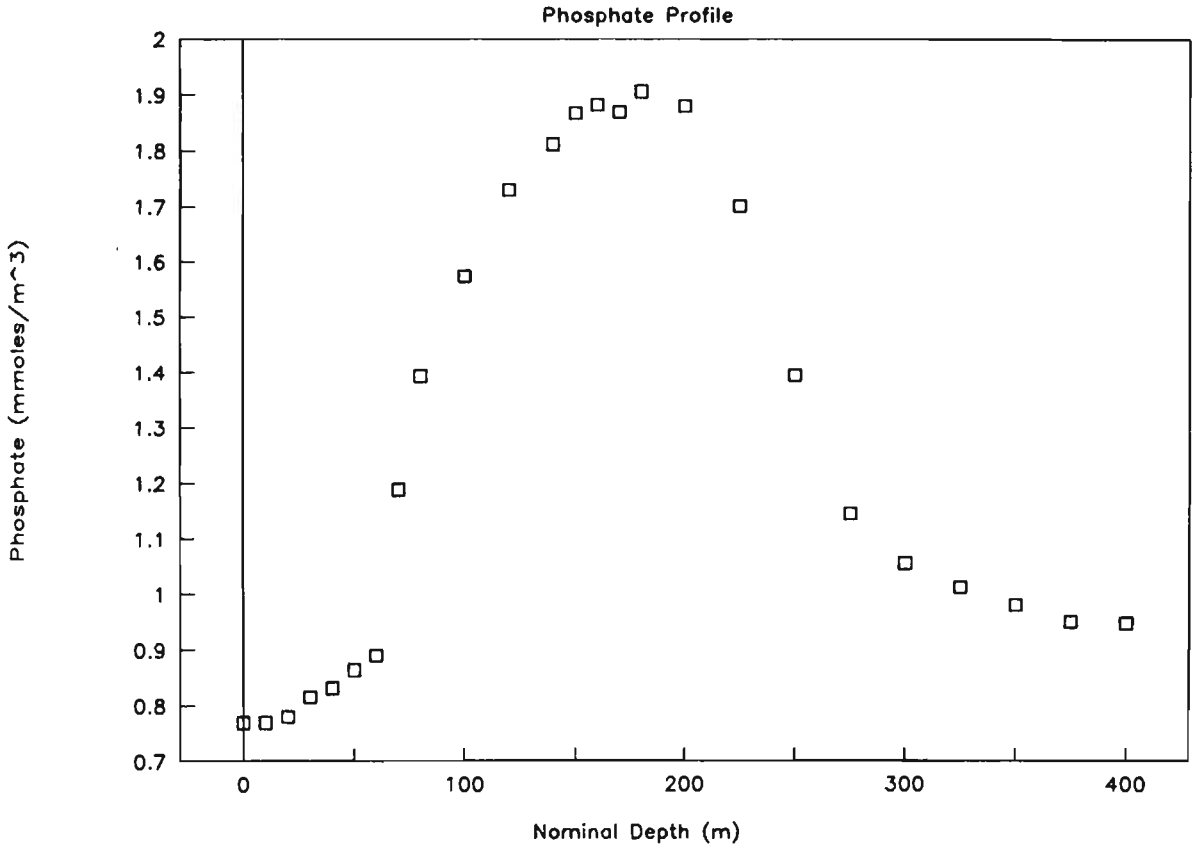
NOGAP CRUISE 9216 – STATION A01



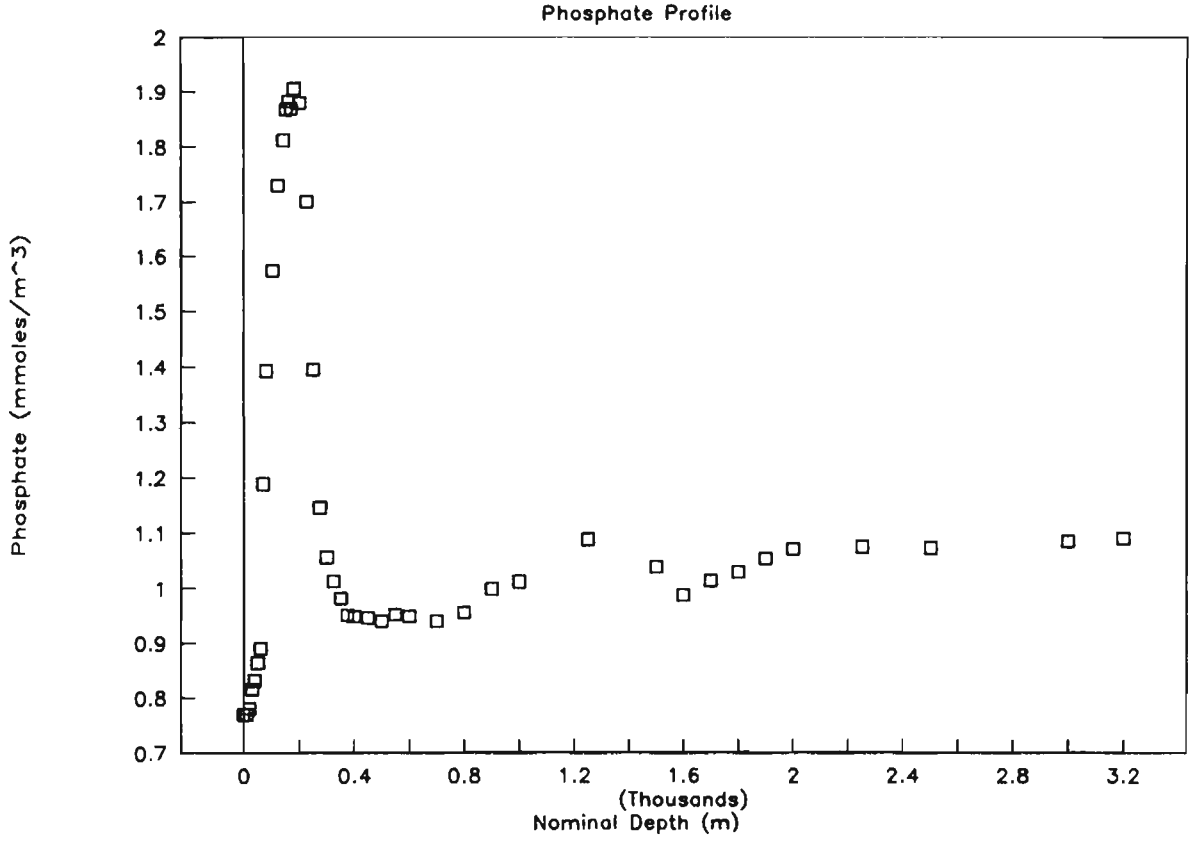
NOGAP CRUISE 9216 – STATION A01



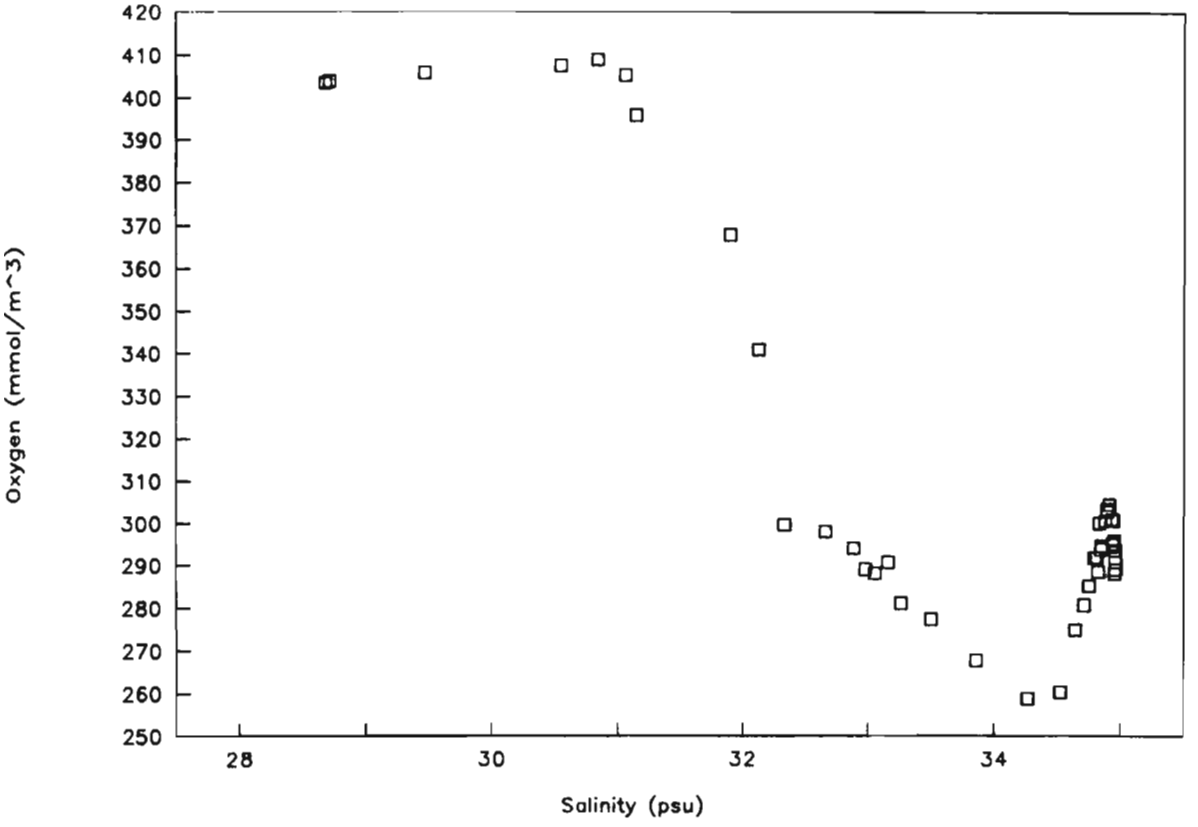
NOGAP CRUISE 9216 – STATION A01



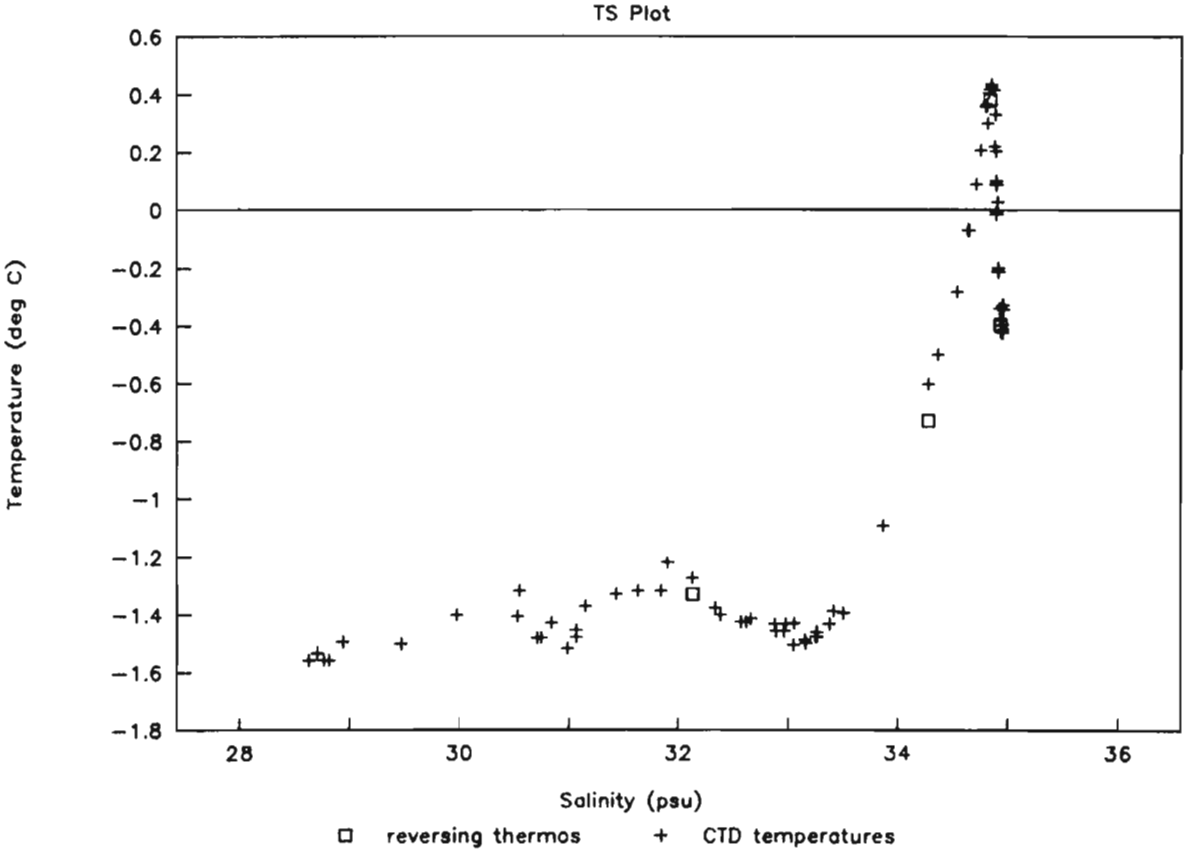
NOGAP CRUISE 9216 – STATION A01



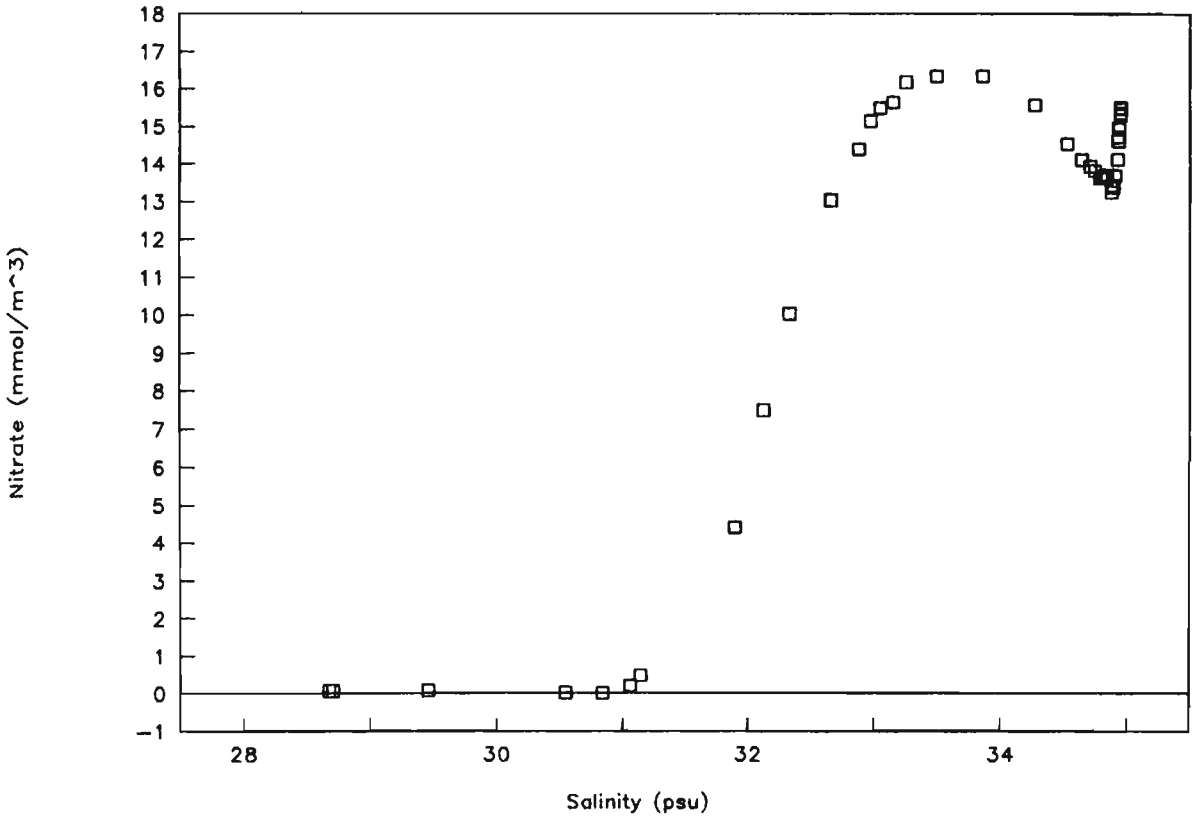
NOGAP CRUISE 9216 – STATION A01



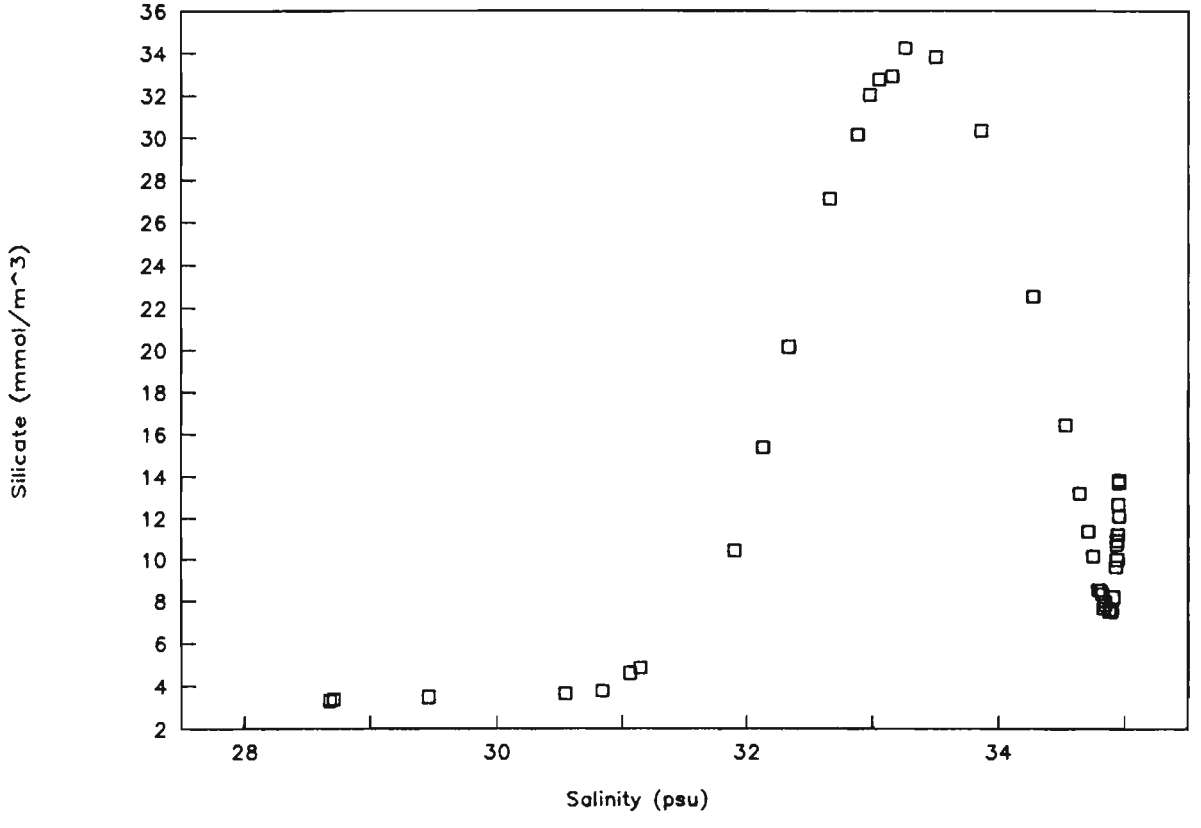
NOGAP CRUISE 9216 – STATION A01



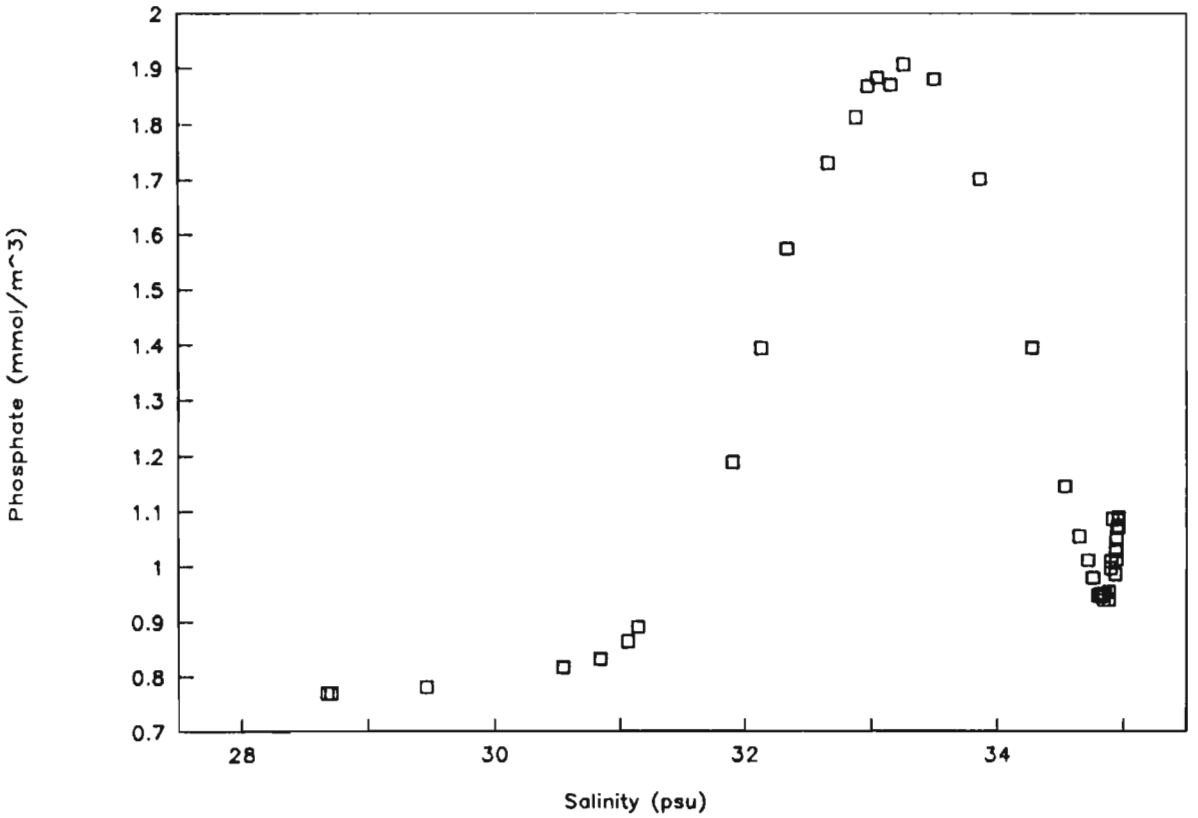
NOGAP CRUISE 9216 – STATION A01



NOGAP CRUISE 9216 – STATION A01



NOGAP CRUISE 9216 – STATION A01



6.5 Ice Core Chemistry Mission #9109

STATION : PI-1
CRUISE : 9109

DATE : 26/04/91
TIME ARRIVE (Z-6) : 1715
TIME DEPART (Z-6) : ?

LATITUDE : 69 43.84 N
LONGITUDE : 134 31.26 W

ICE DEPTH : 1.95
FREEBOARD : 0.13
SNOW DEPTH : 9

CORE INTERVAL (cm)	SAL (psu)	PO4 (uM)	SIO4 (uM)	NO3 (uM)
0-10	8.050	0.43	5.6	1.1
10-20	5.579	0.61	8.0	1.0
20-30	2.711	0.19	5.9	1.0
30-40	1.830	0.13	5.2	1.2
40-50	1.602	0.10	5.1	1.3
50-60	1.822	0.15	6.0	1.5
60-70	1.339	0.11	5.2	1.5
70-80	1.249	0.11	6.4	1.4
80-90	1.666	0.11	8.7	1.6
90-100	1.012	0.09	6.2	1.4
100-110	0.650	0.11	4.5	1.6
110-120	0.311	0.09	2.7	0.8
120-130	0.173	0.10	1.7	0.6
130-146	0.074	0.07	1.2	0.3
146-160	0.070	0.05	1.0	0.2
160-170	0.012	0.05	0.3	0.0
170-180	0.012	0.05	0.0	0.0
180-190	0.032	0.08	0.0	0.0
190-195	0.258	0.09	6.5	1.2
Surface	1.195	0.25	67.0	9.5

STATION : PI-2
CRUISE : 9109

DATE : 26/04/91
TIME ARRIVE (Z-6) : 1600
TIME DEPART (Z-6) : ?

LATITUDE : 69 48.75 N
LONGITUDE : 134 38.23 W

ICE DEPTH : 1.88
FREEBOARD : 0.13
SNOW DEPTH : 4

CORE INTERVAL (cm)	SAL (psu)	PO4 (uM)	SIO4 (uM)	NO3 (uM)
0-10	5.784	0.41	5.6	1.2
10-20	7.173	0.29	4.8	1.4
20-30	7.487	0.30	5.2	1.5
30-40	7.009	0.28	4.8	1.4
40-50	6.969	0.29	5.2	1.4
50-60	5.972	0.25	4.7	1.2
60-70	5.906	0.26	4.7	1.4
70-80	5.585	0.25	5.9	1.4
80-90	6.519	0.31	6.8	1.5
90-100	5.823	0.23	7.3	1.4
100-110	5.187	0.21	8.7	1.6
110-120	3.511	0.22	8.5	1.6
120-130	3.291	0.16	9.6	1.4
130-140	4.085	0.19	9.3	1.5
140-150	3.952	0.21	11.4	1.9
150-160	3.252	0.17	7.4	1.1
160-170	2.814	0.15	7.2	0.8
170-180	1.275	0.11	5.4	0.4
180-190	1.001	0.14	6.9	1.1
Surface	2.577	0.18	66.4	9.2

STATION : PI-3
CRUISE : 9109

DATE : 26/04/91
TIME ARRIVE (Z-6) : 1430
TIME DEPART (Z-6) : ?

LATITUDE : 69 54.54 N
LONGITUDE : 134 48.54 W

ICE DEPTH : 1.88
FREEBOARD : ?
SNOW DEPTH : 4-12

CORE INTERVAL (cm)	SAL (psu)	PO4 (uM)	SIO4 (uM)	NO3 (uM)
0-10	8.484	0.50	5.3	2.0
10-20	6.400	0.35	3.2	1.2
20-30	7.457	0.34	3.7	1.4
30-40	6.537	0.30	3.6	1.4
40-50	6.175	0.29	3.5	1.4
50-60	6.676	0.33	4.0	1.6
60-70	6.506	0.35	3.9	1.5
70-80	5.521	0.32	3.3	1.3
80-90	4.639	0.25	3.2	0.8
90-100	5.177	0.25	3.5	0.8
100-110	6.319	0.20	4.4	0.7
110-120	6.956	0.21	5.0	1.0
120-130	6.050	0.23	5.0	1.1
130-140	6.895	0.20	6.0	0.9
140-150	6.315	0.25	5.9	0.8
150-160	5.827	0.22	5.5	1.0
160-170	5.416	0.24	5.3	1.2
170-180	5.609	0.22	5.3	1.0
180-190	7.930	0.34	9.0	1.6
190-200	2.986	0.74	7.6	1.5
Surface	5.701	0.22	64.6	8.9

STATION : PI-4
CRUISE : 9109

DATE : 26/04/91
TIME ARRIVE (Z-6) : 1300
TIME DEPART (Z-6) : ?

LATITUDE : 69 57.63 N
LONGITUDE : 134 52.94 W

ICE DEPTH : 2
FREEBOARD : 0.16
SNOW DEPTH : 2

CORE INTERVAL (cm)	SAL (psu)	PO4 (uM)	SIO4 (uM)	NO3 (uM)
0-10	5.246	0.25	3.9	1.1
10-20	4.515	0.28	3.3	1.0
20-30	5.615	0.46	4.2	1.0
30-40	5.525	0.34	3.5	1.0
40-50	5.300	0.35	3.1	1.0
50-60	5.190	0.32	3.1	1.1
60-70	5.694	0.35	3.5	1.3
70-80	5.362	0.32	3.0	1.1
80-90	4.431	0.35	2.8	1.2
90-100	4.734	0.31	2.7	0.9
100-110	4.676	0.30	2.5	0.6
110-120	4.516	0.24	2.5	0.6
120-130	3.983	0.24	1.5	0.5
130-140	4.411	0.14	1.0	0.3
140-150	3.697	0.17	0.3	0.2
150-160	4.622	0.13	1.0	0.3
160-170	3.620	0.17	1.0	0.3
170-180	3.345	0.15	1.0	0.2
180-190	7.028	0.13	2.5	0.6
190-200	5.636	1.50	6.0	2.2
Surface	16.751	0.42	45.8	5.9

STATION : PI-5
CRUISE : 9109

DATE : 26/04/91
TIME ARRIVE (Z-6) : 1100
TIME DEPART (Z-6) : ?

LATITUDE : 70 02.28 N
LONGITUDE : 135 01.50 W

ICE DEPTH : 1.89
FREEBOARD : 0.17
SNOW DEPTH : 3

CORE INTERVAL (cm)	SAL (psu)	PO4 (uM)	SIO4 (uM)	NO3 (uM)
0-10	5.824	2.18	3.3	0.9
10-20	5.215	0.42	3.0	1.1
20-30	4.659	0.44	3.4	1.2
30-40	5.695	0.42	2.5	0.8
40-50	6.059	0.38	2.5	0.8
50-60	6.109	0.34	2.5	0.8
60-70	5.992	0.34	2.3	0.8
70-80	5.721	0.32	2.2	0.7
80-90	5.131	0.23	1.8	0.4
90-100	5.936	0.28	2.2	0.5
100-110	5.532	0.28	1.5	0.5
110-120	4.978	0.29	1.1	0.7
120-130	5.389	0.51	1.1	0.6
130-140	4.682	0.69	0.8	0.5
140-150	4.732	0.27	1.0	0.4
150-160	4.701	0.48	1.0	0.5
160-170	5.003	0.30	0.8	0.2
170-180	6.619	0.25	1.4	0.3
180-187	7.375	0.39	1.8	0.3
187-195	9.260	1.41	4.8	1.8
Surface	31.871	1.13	18.5	6.7

STATION : HW-13
CRUISE : 9109

DATE :
TIME ARRIVE (Z-6) :
TIME DEPART (Z-6) : x

LATITUDE :
LONGITUDE :

ICE DEPTH :
FREEBOARD : x
SNOW DEPTH :

CORE INTERVAL (cm)	SAL (psu)	PO4 (uM)	SiO4 (uM)	NO3 (uM)
0-10	0.1	0.02	13.7	3.6
10-20	0.1	0.02	0.0	0.2
20-30	0.1	0.02	0.0	0.1
30-40	0.1	0.02	0.0	0.1
40-50	0.1	0.02	0.0	0.1
50-60	0.1	0.02	0.0	0.1
60-70	0.1	0.04	0.0	0.2
70-80	0.1	0.06	0.3	0.3
Surface	0.1	0.00	60.3	8.1

STATION : HW-14
CRUISE : 9109

DATE :
TIME ARRIVE (Z-6) :
TIME DEPART (Z-6) : x

LATITUDE :
LONGITUDE :

ICE DEPTH :
FREEBOARD : x
SNOW DEPTH :

CORE INTERVAL (cm)	SAL (psu)	PO4 (uM)	SiO4 (uM)	NO3 (uM)
0-10	0.100	0.22	0.6	0.7
10-20	0.100	0.21	0.0	0.4
20-30	0.100	0.09	0.0	0.1
30-40	0.100	0.05	0.0	0.1
40-50	0.100	0.12	0.0	0.1
50-60	0.100	0.05	0.0	0.1
60-70	0.100	0.05	0.0	0.2
70-80	0.100	0.05	0.0	0.1
80-90	0.100	0.05	0.0	0.2
90-100	0.100	0.05	0.0	0.1
100-110	0.100	0.05	0.0	0.2
110-120	0.100	0.05	0.0	0.1
120-130	0.100	0.05	0.0	0.0
130-140	0.100	0.10	6.9	1.2
140-150	0.100	0.09	5.9	1.0
Surface	0.100	0.04	59.8	8.6

STATION : AP-1
CRUISE : 9109

DATE : 1/05/91
TIME ARRIVE (Z-6) : 1100
TIME DEPART (Z-6) : 1200

LATITUDE : 69 59.74 N
LONGITUDE : 131 27.97 W

ICE DEPTH : 1.73
FREEBOARD : 0.1
SNOW DEPTH : 0-50

CORE INTERVAL (cm)	SAL (psu)	PO4 (uM)	SiO4 (uM)	NO3 (uM)
0-10	7.713	0.36	5.4	1.8
10-20	7.565	0.33	5.4	1.4
20-30	8.856	0.35	6.3	1.5
30-40	8.021	0.31	5.6	1.2
40-50	6.941	0.27	4.7	1.2
50-60	4.663	0.21	3.3	0.7
60-70	4.770	0.19	3.6	0.6
70-80	4.575	0.20	3.8	1.3
80-90	5.044	0.21	4.8	1.4
90-100	5.430	0.21	5.8	1.1
100-110	6.771	0.24	8.1	1.2
110-120	6.610	0.22	8.0	1.0
120-130	5.782	0.22	8.1	1.1
130-140	6.866	0.29	8.7	1.3
140-150	7.788	0.33	9.4	1.4
150-160	8.192	0.32	9.9	1.4
160-170	6.323	0.64	7.2	1.2
Surface	12.156	0.44	65.0	10.6

STATION : AP-2
CRUISE : 9109

DATE : 1/05/91
TIME ARRIVE (Z-6) : 1500
TIME DEPART (Z-6) : 1620

LATITUDE : 70 04.21 N
LONGITUDE : 131 25.20 W

ICE DEPTH : 1.68
FREEBOARD : 0.1
SNOW DEPTH : 2

CORE INTERVAL (cm)	SAL (psu)	PO4 (uM)	SiO4 (uM)	NO3 (uM)
0-10	8.183	0.35	6.4	2.0
10-20	6.969	0.24	5.9	1.4
20-30	7.114	0.33	4.2	1.1
30-40	6.760	0.28	4.0	1.1
40-50	5.986	0.25	3.5	1.0
50-60	5.664	0.24	3.5	0.7
60-70	5.320	0.21	3.3	0.5
70-80	5.655	0.20	3.6	0.4
80-90	5.637	0.20	3.5	0.6
90-100	5.338	0.18	3.2	0.5
100-110	4.591	0.13	2.2	0.5
110-120	5.285	0.12	2.2	0.5
120-130	5.145	0.12	2.1	0.5
130-140	5.610	0.12	2.5	0.5
140-150	6.945	0.23	4.0	0.7
150-160	6.873	0.27	5.4	0.8
160-170	6.565	0.85	8.1	0.8
Surface	13.195	0.12		3.9

STATION : AP-3
CRUISE : 9109

DATE : 1/05/91
TIME ARRIVE (Z-6) : 1340
TIME DEPART (Z-6) : 1450

LATITUDE : 70 39.10 N
LONGITUDE : 131 25.16 W

ICE DEPTH : 1.95
FREEBOARD : 0.2
SNOW DEPTH : 0

CORE INTERVAL (cm)	SAL (psu)	PO4 (uM)	SiO4 (uM)	NO3 (uM)
0-10	5.758	0.28	3.5	1.3
10-20	8.833	0.34	5.4	1.4
20-30	8.681	0.33	5.2	1.3
30-40	7.066	0.31	4.5	1.1
40-50	5.549	0.24	3.8	0.9
50-60	4.969	0.21	2.6	0.7
60-70	5.009	0.21	2.7	0.7
70-80	7.030	0.28	4.0	1.2
80-90	6.706	0.27	3.7	0.8
90-100	5.756	0.22	2.9	0.4
100-110	6.136	0.20	3.2	0.7
110-120	5.860	0.20	2.7	0.6
120-130	4.797	0.15	1.8	0.4
130-140	4.665	0.16	1.3	0.2
140-150	3.987	0.21	1.1	0.4
150-160	3.463	0.11	0.7	0.2
160-170	3.735	0.10	1.2	0.1
170-180	5.281	0.18	2.1	0.2
180-190	6.077	0.48	2.7	0.6
190-194	10.040	>3.56	15.1	1.9
Surface	32.454	0.90		7.0

STATION : AP-4
CRUISE : 9109

DATE : 1/05/91
TIME ARRIVE (Z-6) : 1217
TIME DEPART (Z-6) : 1325

LATITUDE : 70 15.44 N
LONGITUDE : 131 29.24 W

ICE DEPTH : 1.82
FREEBOARD : 0.15
SNOW DEPTH : 2

CORE INTERVAL (cm)	SAL (psu)	PO4 (uM)	SiO4 (uM)	NO3 (uM)
0-10	8.314	0.46	4.7	1.3
10-20	7.374	0.36	4.4	1.1
20-30	8.305	0.37	4.2	1.0
30-40	7.480	0.31	3.8	1.0
40-50	6.258	0.27	3.6	0.8
50-60	5.960	0.25	3.2	0.7
60-70	5.037	0.21	2.2	0.5
70-80	4.883	0.22	2.4	0.6
80-90	4.882	0.22	2.5	0.5
90-100	4.684	0.14	2.1	0.4
100-110	5.818	0.23	2.3	0.6
110-120	5.772	0.20	2.3	0.5
120-130	5.737	0.19	2.2	0.3
130-140	5.632	0.15	2.1	0.3
140-150	6.493	0.16	2.3	0.3
150-161	6.936	0.17	2.3	0.2
161-170	5.005	0.15	2.3	0.7
170-180	8.970	1.29	5.1	1.7
Surface	37.117	1.30		6.2

STATION : AP-5
CRUISE : 9109

DATE : 1/05/91
TIME ARRIVE (Z-6) : 1020
TIME DEPART (Z-6) : 1200

LATITUDE : 70 18.05 N
LONGITUDE : 131 21.29 W

ICE DEPTH : 1.53
FREEBOARD : 0.15
SNOW DEPTH : 2-4

CORE INTERVAL (cm)	SAL (psu)	PO4 (uM)	SIO4 (uM)	NO3 (uM)
0-10	7.326	0.41	3.2	1.3
10-20	7.337	0.31	4.0	1.4
20-30	13.456	0.68	7.8	2.4
30-40	7.807	0.38	4.7	1.3
40-50	7.600	0.32	4.2	1.2
50-60	7.283	0.33	4.0	1.0
60-70	8.467	0.39	4.5	1.2
70-80	7.526	0.39	5.2	1.0
80-90	6.112	0.28	2.7	0.5
90-100	8.061	0.30	3.2	0.5
100-110	7.516	0.25	2.2	0.4
110-120	7.763	0.24	1.9	0.6
120-130	8.200	0.22	2.0	0.6
130-140	6.979	0.16	1.3	0.4
140-150	8.939	0.34	2.9	0.7
150-160 ?	15.219	0.09		
Surface		1.49		

STATION : CD-2
CRUISE : 9109

DATE : 05/05/91
TIME ARRIVE (Z-6) : 945
TIME DEPART (Z-6) : 1045

LATITUDE : 70 25.01 N
LONGITUDE : 129 39.98 W

ICE DEPTH : 1.82
FREEBOARD : ?
SNOW DEPTH : 3-13

CORE INTERVAL (cm)	SAL (psu)	PO4 (uM)	SiO4 (uM)	NO3 (uM)
0-10	8.259	0.51	5.1	2.1
10-20	8.075	0.45	5.3	2.3
20-30	8.973	0.31	5.3	2.1
30-40	9.249	0.34	5.3	2.3
40-50	7.360	0.22	3.9	1.4
50-60	6.743	0.26	3.5	0.9
60-70	5.078	0.30	2.5	0.5
70-80	5.035	0.25	2.1	0.2
80-90	5.768	0.16	1.8	0.7
90-100	6.612	0.12	2.1	0.9
100-110	8.103	0.26	2.8	1.0
110-120	6.130	0.15	1.6	0.6
120-130	5.134	0.11	0.7	0.4
130-140	4.528	0.04	0.5	0.1
140-150	5.513	0.07	0.7	0.1
150-161	6.588	0.19	1.6	0.6
161-170	7.141	0.23	1.8	0.4
170-182	9.400	2.13	8.8	10.9
Surface	21.137	0.00	40.8	7.8

STATION : CD-3
CRUISE : 9109

DATE : 03/05/91
TIME ARRIVE (Z-6) : 1425
TIME DEPART (Z-6) : 1517

LATITUDE : 70 31.46 N
LONGITUDE : 129 39.47 W

ICE DEPTH : 1.63
FREEBOARD : 0.15
SNOW DEPTH : ?

CORE INTERVAL (cm)	SAL (psu)	PO4 (uM)	SiO4 (uM)	NO3 (uM)
0-10	9.747	0.88	6.1	1.7
10-20	6.692	0.40	4.1	1.2
20-30	6.728	0.30	3.6	1.2
30-40	7.755	1.20	5.7	1.2
40-50	5.221	0.28	3.3	0.5
50-60	4.503	0.24	2.8	0.3
60-70	4.938	0.36	3.4	0.5
70-80	5.570	0.21	2.9	0.6
80-90	4.965	0.18	2.6	0.7
90-100	4.235	0.49	0.9	0.4
100-110	3.731	0.11	0.5	0.2
110-120	5.228	0.13	1.1	0.2
120-130	4.522	0.17	0.9	0.2
130-140	3.783	0.07	0.5	0.3
140-150	4.184	0.14	0.9	0.5
150-162	6.730	0.87	4.4	2.6
Surface	33.032	1.27	25.3	8.2

STATION : CD-4
CRUISE : 9109

DATE : 03/05/91
TIME ARRIVE (Z-6) : 1258
TIME DEPART (Z-6) : 1413

LATITUDE : 70 39.95 N
LONGITUDE : 129 40.83 W

ICE DEPTH : 2.02
FREEBOARD : 0.18
SNOW DEPTH : 4-13

CORE INTERVAL (cm)	SAL (psu)	PO4 (uM)	SiO4 (uM)	NO3 (uM)
0-10	6.109	0.69	1.4	0.6
10-20	5.776	0.66	1.1	2.8
20-30	6.248	0.60	1.1	0.3
30-40	6.179	0.57	0.9	0.9
40-50	6.145	0.75	1.1	0.4
50-60	5.698	0.31	0.9	0.3
60-70	5.725	0.30	1.1	6.2
70-80	5.205	0.25	1.3	0.6
80-90	5.121	0.22	1.7	1.2
90-100	5.300	0.28	2.0	0.7
100-110	5.502	0.38	1.7	0.7
110-120	6.263	0.23	1.5	0.5
120-130	6.527	0.28	1.1	0.5
130-140	5.034	0.10	0.5	0.2
140-150	4.491	0.13	0.5	0.1
150-160	5.024	0.10	0.7	0.2
160-170	4.422	0.05	0.5	0.5
170-180	5.259	0.09	0.7	0.3
180-188	5.714	0.17	0.7	0.2
188-196	10.372	2.41	4.8	4.2
Surface	33.177	1.44	22.5	7.5

STATION : CD-5
CRUISE : 9109

DATE : 03/05/91
TIME ARRIVE (Z-6) : 1138
TIME DEPART (Z-6) : 1245

LATITUDE : 70 48.32 N
LONGITUDE : 129 40.35 W

ICE DEPTH : 0.98
FREEBOARD : 0.08
SNOW DEPTH : 1-5

CORE INTERVAL (cm)	SAL (psu)	PO4 (uM)	SiO4 (uM)	NO3 (uM)
0-10	10.221	0.48	4.2	1.8
10-20	8.589	0.35	3.6	1.4
20-30	6.915	0.32	2.6	1.4
30-40	6.190	0.30	2.2	0.7
40-50	5.898	0.24	2.0	0.5
50-60	4.937	0.19	1.3	0.2
60-70	4.682	0.19	1.3	0.5
70-80	4.627	0.32	2.0	0.9
80-88	4.671	0.49	2.6	0.9
88-97	6.728	1.91	4.6	1.1
Surface	32.073	1.48	20.5	6.7

STATION : CM-1
CRUISE : 9109

DATE : 05/05/91
TIME ARRIVE (Z-6) : ?
TIME DEPART (Z-6) : ?

LATITUDE : 69 45.01 N
LONGITUDE : 133 17.91 W

ICE DEPTH : 1.86
FREEBOARD : ?
SNOW DEPTH : 14-15

CORE INTERVAL (cm)	SAL (psu)	PO4 (uM)	SiO4 (uM)	NO3 (uM)
0-10	5.929	0.23	4.2	0.9
10-20	6.588	0.35	4.8	1.0
20-30	5.602	0.15	4.8	0.8
30-40	4.504	0.08	4.9	0.7
40-50	4.263	0.25	6.1	0.8
50-60	3.918	0.10	7.3	0.8
60-70	3.571	0.08	8.6	0.9
70-80	2.453	0.06	8.3	0.8
80-90	3.281	0.17	9.0	1.0
90-100	3.847	0.12	10.0	1.1
100-110	3.986	0.13	12.2	1.2
110-120	2.731	0.13	12.6	1.2
120-130	2.393	0.08	13.2	1.1
130-140	1.227	0.05	11.3	0.9
140-150	2.138	0.08	9.3	1.0
150-160	2.491	0.11	9.6	1.1
160-170	2.894	0.11	11.0	1.3
170-180	2.241	0.08	9.8	1.1
180-186	1.132	0.07	6.8	0.8
Surface	2.578	0.23		9.8

STATION : CM-2
CRUISE : 9109

DATE : 05/05/91
TIME ARRIVE (Z-6) : ?
TIME DEPART (Z-6) : ?

LATITUDE : 69 52.05 N
LONGITUDE : 133 21.32 W

ICE DEPTH : 1.86
FREEBOARD : ?
SNOW DEPTH : 2-4

CORE INTERVAL (cm)	SAL (psu)	PO4 (uM)	SiO4 (uM)	NO3 (uM)
0-10	2.736	0.12	1.3	0.7
10-20	6.678	0.24	4.8	0.9
20-30	8.260	0.24	6.4	1.2
30-40	7.333	0.24	6.0	1.1
40-50	5.621	0.22	4.8	0.9
50-60	4.543	0.12	4.5	0.8
60-70	3.959	0.08	5.2	0.6
70-80	3.523	0.15	6.1	0.4
80-90	3.379	0.14	6.3	0.6
90-100	4.057	0.13	6.8	0.7
100-110	3.876	0.13	7.0	0.5
110-120	4.187	0.12	5.8	0.5
120-130	4.394	0.11	6.3	0.5
130-140	4.366	0.11	7.7	0.5
140-150	5.218	0.16	9.5	0.5
150-160	4.461	0.20	8.3	0.4
160-170	4.806	0.13	8.8	0.5
170-180	3.829	0.13	7.5	0.3
180-186	3.818	0.23	9.5	0.5
Surface	6.171	0.27		9.1

STATION : CM-3
CRUISE : 9109

DATE : 05/05/91
TIME ARRIVE (Z-6) : ?
TIME DEPART (Z-6) : ?

LATITUDE : 69 56.15 N
LONGITUDE : 133 21.57 W

ICE DEPTH : 1.65
FREEBOARD : ?
SNOW DEPTH : 4-5

CORE INTERVAL (cm)	SAL (psu)	PO4 (uM)	SIO4 (uM)	NO3 (uM)
0-10	5.368	0.29	2.7	1.0
10-20	6.694	0.22	3.0	0.9
20-30	5.166	0.14	1.8	0.9
30-40	6.683	0.19	3.2	1.0
40-50	6.365	0.14	3.0	1.0
50-60	5.711	0.17	2.7	0.8
60-70	5.804	0.19	2.5	0.5
70-80	6.198	0.18	2.7	0.7
80-90	6.268	0.61	2.3	0.7
90-100	6.379	0.24	1.8	0.5
100-110	5.226	0.14	1.3	0.4
110-120	4.432	0.09	0.9	0.2
120-130	4.348	0.15	0.9	0.2
130-140	6.878	0.17	2.3	0.5
140-150	6.269	0.29	2.3	0.5
150-160	5.396	0.22	2.0	0.3
160-165	7.700			
Surface	21.991	0.67		6.05

STATION : CM-4
CRUISE : 9109

DATE : 05/05/91
TIME ARRIVE (Z-6) : ?
TIME DEPART (Z-6) : ?

LATITUDE : 70 00.99 N
LONGITUDE : 133 24.05 W

ICE DEPTH : 1.93
FREEBOARD : ?
SNOW DEPTH : 2-5

CORE INTERVAL (cm)	SAL (psu)	PO4 (uM)	SIO4 (uM)	NO3 (uM)
0-10	5.008	0.38	3.4	1.2
10-20	5.236	0.36	3.4	0.9
20-30	5.732	0.24	4.7	1.1
30-40	6.098	0.13	3.2	0.6
40-50	6.261	0.14	3.0	0.5
50-60	5.991	0.30	2.5	0.5
60-70	5.774	0.17	3.0	0.5
70-80	5.414	0.28	2.7	0.5
80-90	4.571	0.27	1.8	0.3
90-100	6.301	0.27	2.5	0.6
100-110	6.524	0.34	2.7	0.6
110-120	6.869	0.27	2.7	0.6
120-130	6.866	0.27	2.3	0.5
130-140	6.725	0.15	2.0	0.3
140-150	3.998	0.48	3.2	0.2
150-160	4.421	0.18	1.3	0.1
160-170	4.697	0.16	1.8	0.1
170-180	6.308	0.24	1.5	0.3
180-193	7.844	0.87	4.5	1.1
Surface	32.029	1.17		6.6

STATION : L-2
CRUISE : 9109

DATE : 05/05/91
TIME ARRIVE (Z-6) : ?
TIME DEPART (Z-6) : ?

LATITUDE : 69 54.03 N
LONGITUDE : 132 13.88 W

ICE DEPTH : 2.02
FREEBOARD : ?
SNOW DEPTH : 1-2

CORE INTERVAL (cm)	SAL (psu)	PO4 (uM)	SiO4 (uM)	NO3 (uM)
0-12	2.934	0.17	1.8	1.0
12-24	8.239	0.32	5.2	1.4
24-30	10.128	0.25	7.2	1.6
30-40	8.559	0.22	5.7	1.3
40-50	7.782	0.11	5.0	1.1
50-60	6.367	0.11	4.0	0.8
60-70	5.068	0.13	3.2	0.5
70-80	4.970	0.17	3.4	0.4
80-90	5.931	0.21	4.0	0.6
90-100	5.417	0.15	4.0	0.7
100-110	4.447	0.24	3.6	0.5
110-120	5.166	0.18	4.0	0.6
120-130	5.003	0.13	3.6	0.5
130-140	3.940	0.16	2.2	0.3
140-150	5.586	0.19	3.6	0.6
150-160	5.609	0.26	3.6	0.6
160-170	5.793	0.21	3.8	0.6
170-180	5.678	0.24	4.5	0.5
180-190	5.360	0.20	5.0	0.6
190-200	7.100	1.04	7.9	0.8
Surface	4.025	0.10		7.4

STATION : L-3
CRUISE : 9109

DATE : 05/05/91
TIME ARRIVE (Z-6) : 1100
TIME DEPART (Z-6) : 1200

LATITUDE : 70 16.06 N
LONGITUDE : 130 31.69 W

ICE DEPTH : 1.87
FREEBOARD : ?
SNOW DEPTH : 2-3

CORE INTERVAL (cm)	SAL (psu)	PO4 (uM)	SiO4 (uM)	NO3 (uM)
0-10	3.686	0.23	2.1	1.6
10-20	8.236	0.38	4.3	1.4
20-30	8.315	0.28	4.6	1.1
30-40	9.118	0.32	4.6	1.7
40-50	7.387	0.19	3.9	1.0
50-60	6.148	0.16	3.2	0.8
60-70	4.864	0.14	3.0	0.5
70-80	5.126	0.20	2.8	0.4
80-90	5.507	0.13	2.8	0.3
90-100	5.426	0.12	2.5	0.6
100-110	7.419	0.23	4.1	0.5
110-120	5.340	0.11	2.8	0.5
120-130	6.256	0.15	2.8	0.3
130-140	4.588	0.89	2.0	0.1
140-150	3.339	0.29	2.3	0.1
150-160	5.171	0.12	2.3	0.2
160-170	5.338	0.16	2.7	0.4
170-180	3.846	0.37	3.2	0.5
180-187	5.250	1.65	10.4	2.3
Surface	8.263	0.31		9.2

STATION : MB
CRUISE : 9109

DATE :
TIME ARRIVE (Z-6) :
TIME DEPART (Z-6) : x

LATITUDE :
LONGITUDE :

ICE DEPTH :
FREEBOARD : x
SNOW DEPTH :

CORE INTERVAL (cm)	SAL (psu)	PO4 (uM)	SiO4 (uM)	NO3 (uM)
0-10	1.910	0.32	3.5	3.6
10-20	2.721	0.42	4.6	1.0
20-30	2.730	0.27	4.6	0.3
30-40	2.936	0.18	4.9	0.2
40-50	3.477	0.27	6.1	0.4
50-60	3.384	0.30	6.1	0.4
60-70	3.608	0.23	7.3	0.4
70-83	3.179	0.25	9.0	0.7
80-90	2.894	0.19	8.8	0.5
90-100	2.961	0.31	8.6	0.4
100-110	3.065	0.23	10.1	0.3
110-120	3.241	0.18	11.0	0.3
120-130	3.244	0.14	13.5	0.3
130-140	3.057	0.19	10.8	0.3
140-150	2.362	0.19	9.1	0.3
150-160	3.342	0.17	11.9	0.5
160-170	3.700	0.18	13.5	0.5
170-180	2.627	0.28	13.3	0.9
180-190	1.729	0.14	11.4	0.7
190-200	1.614	0.19	14.6	1.6
Surface	4.214	0.18	107.8	18.0

STATION : KP-2
CRUISE : 9109

DATE : 11/05/91
TIME ARRIVE (Z-6) : 1549
TIME DEPART (Z-6) : x

LATITUDE : 69 23.94 N
LONGITUDE : 138 07.47 W

ICE DEPTH : 1.87
FREEBOARD : 0.13
SNOW DEPTH : ?

CORE INTERVAL (cm)	SAL (psu)	PO4 (uM)	SiO4 (uM)	NO3 (uM)
0-11	2.5			
11-20	5.1			
20-30	4.9			
30-37	5.8			
37-50	6.1			
50-60	6.2			
60-70	6.0			
70-80	5.7			
80-90	5.4			
90-100	5.2			
100-110	4.9			
110-120	4.4			
120-130	4.3			
130-140	5.8			
140-150	4.1			
150-160	3.0			
160-170	3.4			
170-180	4.0			
180-188	4.1			
Surface	10.4			

STATION : HI-1
CRUISE : 9109

DATE : 11/05/91
TIME ARRIVE (Z-6) : 1250
TIME DEPART (Z-6) : x

LATITUDE : 69 28.00 N
LONGITUDE : 138 50.58 W

ICE DEPTH : 1.87
FREEBOARD : 0.05
SNOW DEPTH : ?

CORE INTERVAL (cm)	SAL (psu)	PO4 (uM)	SIO4 (uM)	NO3 (uM)
0-10	8.0			
10-20	9.6			
20-30	7.9			
30-40	5.9			
40-50	6.7			
50-60	6.7			
60-70	6.7			
70-80	5.4			
80-90	5.9			
90-100	5.0			
100-110	5.5			
110-120	5.5			
120-130	5.3			
130-140	5.6			
140-150	5.6			
150-160	4.1			
160-170	3.6			
170-180	3.3			
180-188	3.9			
Surface	10.8			

STATION : HI-2
CRUISE : 9109

DATE : 11/05/91
TIME ARRIVE (Z-6) : 1348
TIME DEPART (Z-6) : x

LATITUDE : 69 36.82 N
LONGITUDE : 138 47.84 W

ICE DEPTH : 1.89
FREEBOARD : 0.17
SNOW DEPTH : ?

CORE INTERVAL (cm)	SAL (psu)	PO4 (uM)	SIO4 (uM)	NO3 (uM)
0-10	2.2			
10-20	3.9			
20-30	5.8			
30-40	6.1			
40-50	6.1			
50-60	6.5			
60-70	6.0			
70-80	5.4			
80-90	5.1			
90-100	4.8			
100-110	4.7			
110-120	4.9			
120-130	5.4			
130-140	5.1			
140-150	4.7			
150-160	5.3			
160-170	5.1			
170-180	5.8			
180-189	9.3			
Surface	31.0			

STATION : GI-1
CRUISE : 9109

DATE : 11/05/91
TIME ARRIVE (Z-6) : 1124
TIME DEPART (Z-6) : x

LATITUDE : 69 30.24 N
LONGITUDE : 136 09.49 W

ICE DEPTH : 1.95
FREEBOARD : 0.13
SNOW DEPTH : ?

CORE INTERVAL (cm)	SAL (psu)	PO4 (uM)	SIO4 (uM)	NO3 (uM)
0-10	3.9			
10-20	2.3			
20-30	2.1			
30-40	0.4			
40-50	0.1			
50-60	0.2			
60-70	0.1			
70-80	0.0			
80-90	0.3			
90-100	0.0			
100-110	0.1			
110-120	0.2			
120-130	0.2			
130-140	0.1			
140-150	0.2			
150-160	0.1			
160-170	0.2			
170-180	0.3			
180-191	0.3			
Surface	0.5			

STATION : GI-2
CRUISE : 9109

DATE : 11/05/90
TIME ARRIVE (Z-6) : 1744
TIME DEPART (Z-6) : x

LATITUDE : 69 38.05 N
LONGITUDE : 136 21.95 W

ICE DEPTH : 1.9
FREEBOARD : 0.12
SNOW DEPTH : 4

CORE INTERVAL (cm)	SAL (psu)	PO4 (uM)	SIO4 (uM)	NO3 (uM)
0-13	1.0			
13-20	4.7			
20-30	6.0			
30-40	6.8			
40-50	6.6			
50-60	5.7			
60-70	5.2			
70-80	4.8			
80-90	5.0			
90-100	3.8			
100-110	3.2			
110-120	4.3			
120-130	4.0			
130-140	3.0			
140-150	3.1			
150-160	3.7			
160-170	3.6			
170-184	3.3			
Surface	2.1			

6.6 Ice Core Chemistry Mission #9207

STATION : T200
CRUISE : 9207

DATE : 04/25/92
TIME ARRIVE (Z-6) : ?
TIME DEPART (Z-6) : ?

LATITUDE : Tuktoyaktuk Harbour
LONGITUDE :

HOLE DEPTH : 190
CORE DEPTH : 195
FREEBOARD : 12
SNOW DEPTH : 15

SAMP #	CORE INTERVAL (cm)	(cm)	SAL (psu)	SAL notes	PO4 (uM)	SiO4 (uM)	NO3 (uM)
1	surface	0	0.822		0.68	69.4	11.9
2	0 -	10	0.911		0.48	4.7	0.8
3	10 -	20	1.436		0.17	6.0	0.3
4	20 -	30	1.837		0.20	6.2	0.3
5	30 -	40	1.780		0.32	6.2	0.5
6	40 -	50	1.037		0.13	4.2	0.7
7	50 -	60	0.925		0.24	4.1	0.9
8	60 -	70	0.531		0.25	1.9	0.3
9	70 -	80	0.189		0.17	0.9	0.4
10	80 -	90	0.012	5	0.27	0.5	0.1
11	90 -	100	0.012	5	0.09	0.4	0.1
12	100 -	110	0.012	5	0.14	0.4	0.5
13	110 -	120	0.012	5	0.14	0.4	0.1
14	120 -	130	0.012	5	0.08	0.9	0.6
15	130 -	140	0.012	5	0.30	0.7	0.1
16	140 -	150	0.012	5	0.17	0.8	0.1
17	150 -	160	0.012	5	0.12	0.6	0.0
18	160 -	170	0.012	5	0.11	1.9	0.3
19	170 -	180	0.012	5	0.16	0.7	0.0
20	180 -	190	0.028		0.14	4.5	0.7

STATION : E100
CRUISE : 9207

DATE : 04/27/92
TIME ARRIVE (Z-6) : ?
TIME DEPART (Z-6) : ?

LATITUDE : 68 41.274 N
LONGITUDE : 133 00.669 W

HOLE DEPTH : 174
CORE DEPTH : 183
FREEBOARD : 8
SNOW DEPTH : 33

SAMP #	CORE INTERVAL (cm)	(cm)	SAL (psu)	SAL notes	PO4 (uM)	SiO4 (uM)	NO3 (uM)
41	surface	0	0.173		0.44	9.4	6.2
42	0 -	10	0.012	5	0.28	0.2	0.3
43	10 -	20	0.012	5	0.17	0.2	0.2
44	20 -	30	0.012	5	0.25	0.4	0.4
45	30 -	40	0.012	5	0.34	0.4	0.3
46	40 -	50	0.012	5	0.11	0.8	0.1
47	50 -	60	0.012	5	0.22	0.8	0.1
48	60 -	70	0.012	5	0.27	0.9	0.4
49	70 -	80	0.012	5	0.10	0.9	0.1
50	80 -	90	0.012	5	0.17	0.2	0.1
51	90 -	100	0.012	5	0.08	0.1	0.1
52	100 -	110	0.012	5	0.08	0.3	0.0
53	110 -	120	0.012	5	0.04	0.9	0.1
54	120 -	130	0.012	5	0.08	0.3	0.0
55	130 -	140	0.012	5	0.08	0.7	0.1
56	140 -	150	0.012	5	0.06	0.7	0.0
57	150 -	160	0.012	5	0.12	1.0	0.0
58	160 -	170	0.012	5	0.08	0.7	0.2
59	170 -	174	0.012	5	0.43	0.6	0.4

STATION : E200
CRUISE : 9207

DATE : 04/27/92
TIME ARRIVE (Z-6) : ?
TIME DEPART (Z-6) : ?

LATITUDE : 68 51.828 N
LONGITUDE : 133 15.635 W

HOLE DEPTH : 180
CORE DEPTH : 189
FREEBOARD : 10
SNOW DEPTH : 38

SAMP #	CORE INTERVAL (cm)	(cm)	SAL (psu)	SAL notes	PO4 (uM)	SIO4 (uM)	NO3 (uM)
60	surface	0	3.229		0.10	12.5	3.4
61	0 -	10	1.121		0.19	2.8	0.3
65	10 -	20	1.208		0.28	3.5	0.3
63	20 -	30	0.808		0.16	2.8	0.2
64	30 -	41	0.734		0.14	2.8	0.2
65	41 -	50	0.809		0.37	3.1	0.5
66	50 -	60	0.895		0.40	3.3	0.4
67	60 -	70	0.796		0.29	3.0	0.4
68	70 -	80	0.718		0.21	2.8	0.3
69	80 -	90	0.685		0.29	2.9	0.4
70	90 -	100	0.699		0.17	2.8	0.3
71	100 -	110	0.650		0.15	2.5	0.2
72	110 -	120	0.591		0.11	2.3	0.1
73	120 -	130	0.435		0.20	1.9	0.2
74	130 -	140	0.408		0.10	1.8	0.1
75	140 -	150	0.394		0.14	1.5	0.3
76	150 -	160	0.417		0.12	1.7	0.3
77	160 -	170	0.394		0.19	1.9	0.4
78	170 -	180	0.287		0.07	1.7	0.3

STATION : E300
CRUISE : 9207

DATE : 04/27/92
TIME ARRIVE (Z-6) : ?
TIME DEPART (Z-6) : ?

LATITUDE : 69 08.414 N
LONGITUDE : 132 36.743 W

HOLE DEPTH : 183
CORE DEPTH : 186
FREEBOARD : 6
SNOW DEPTH : 35

SAMP #	CORE INTERVAL (cm)	(cm)	SAL (psu)	SAL notes	PO4 (uM)	SIO4 (uM)	NO3 (uM)
79	surface	0	6.529		0.08	11.2	2.0
80	0 -	10	2.032		0.20	2.2	0.1
81	10 -	20	1.430		0.14	1.8	0.1
82	20 -	30	1.630		0.16	1.9	0.1
83	30 -	40	1.131		0.13	2.1	0.2
84	40 -	50	1.270		0.16	2.7	0.1
85	50 -	60	1.498		0.12	2.9	0.1
86	60 -	70	1.574		0.05	2.7	0.0
87	70 -	80	1.986		0.15	2.2	0.1
88	80 -	90	1.647		0.13	2.1	0.0
89	90 -	100	1.354		0.13	2.4	0.0
90	100 -	110	1.278		0.13	2.0	0.0
91	110 -	120	1.395		0.07	1.8	0.0
92	120 -	130	1.203		0.10	1.8	0.0
93	130 -	140	0.867		0.10	1.9	0.1
94	140 -	150	0.937		0.07	1.9	0.0
95	150 -	160	1.108		0.11	1.9	0.1
96	160 -	170	0.879		0.10	1.5	0.1
97	170 -	177	0.465		0.07	1.2	0.1
98	177 -	180	0.984		0.08	2.2	0.5

STATION : E400
CRUISE : 9207

DATE : 04/27/92
TIME ARRIVE (Z-6) : ?
TIME DEPART (Z-6) : ?

LATITUDE : 69 18.062 N
LONGITUDE : 132 11.040 W

HOLE DEPTH : 184
CORE DEPTH : 186
FREEBOARD : 9
SNOW DEPTH : 30

SAMP #	CORE INTERVAL (cm)	(cm)	SAL (psu)	SAL notes	PO4 (uM)	SiO4 (uM)	NO3 (uM)
21	surface	0	12.111		0.09	7.1	3.1
22	0 -	10	3.073		0.08	1.3	0.3
23	10 -	20	1.963		0.10	1.3	0.0
24	20 -	30	2.064		0.10	1.4	0.0
25	30 -	40	2.019		0.12	1.6	0.0
26	40 -	50	2.419		0.10	1.6	0.2
27	50 -	60	2.607		0.13	1.6	0.1
28	60 -	70	2.310		0.06	1.4	0.0
29	70 -	80	2.210		0.22	1.7	0.1
30	80 -	90	2.142		0.24	1.7	0.2
31	90 -	100	2.129		0.17	1.6	0.2
32	100 -	110	2.227		0.09	1.6	0.1
33	110 -	120	1.817		0.12	1.6	0.2
34	120 -	130	1.750		0.11	1.8	0.0
35	130 -	140	1.715		0.10	1.6	0.0
36	140 -	150	1.990		0.08	1.6	0.0
37	150 -	160	1.838		0.07	1.6	0.0
38	160 -	170	1.170		0.13	1.4	0.1
39	170 -	180	1.355		0.06	1.5	0.1
40	180 -	184	3.179		0.11	2.1	1.0

STATION : E500
CRUISE : 9207

DATE : 04/30/92
TIME ARRIVE (Z-6) : ?
TIME DEPART (Z-6) : ?

LATITUDE : 69 31.121 N
LONGITUDE : 131 31.243 W

HOLE DEPTH : 191
CORE DEPTH : 191
FREEBOARD : 8
SNOW DEPTH : ?

SAMP #	CORE INTERVAL (cm)	(cm)	SAL (psu)	SAL notes	PO4 (uM)	SiO4 (uM)	NO3 (uM)
135	surface	0	15.424		0.19	7.0	3.8
116	0 -	10	4.019		0.23	1.5	0.7
117	10 -	20	4.052		0.25	1.5	0.5
118	20 -	30	3.226		0.24	1.2	0.4
119	30 -	40	3.177		0.16	1.1	0.4
120	40 -	50	3.380		0.21	1.4	0.6
121	50 -	60	3.213		0.23	1.2	0.7
122	60 -	70	2.846		0.21	1.1	0.6
123	70 -	80	3.110		0.21	1.2	0.6
124	80 -	90	3.091		0.24	1.2	0.7
125	90 -	100	3.158		0.20	1.1	0.6
126	100 -	110	2.798		0.22	0.9	0.6
127	110 -	120	2.156		0.21	1.1	0.5
128	120 -	130	2.379		0.16	0.9	0.6
129	130 -	140	2.332		0.15	0.5	0.4
130	140 -	150	2.160		0.21	0.5	0.4
131	150 -	160	2.592		0.16	0.5	0.3
132	160 -	170	2.221		0.07	0.1	0.2
133	170 -	180	2.164		0.11	-0.0	0.2
134	180 -	191	3.063		0.50	0.6	0.6

STATION : E600
CRUISE : 9207

DATE : 04/30/92
TIME ARRIVE (Z-6) : ?
TIME DEPART (Z-6) : ?

LATITUDE : 69 33.316 N
LONGITUDE : 131 24.150 W

HOLE DEPTH : 160
CORE DEPTH : 161
FREEBOARD : 7
SNOW DEPTH : 28

SAMP #	CORE INTERVAL (cm)	(cm)	SAL (psu)	SAL notes	PO4 (uM)	SIO4 (uM)	NO3 (uM)
115	surface	0	0.905		0.35	11.3	5.9
99	0 -	10	4.897		0.17	2.2	0.9
100	10 -	20	1.933		0.16	1.0	0.4
101	20 -	30	1.919		0.11	0.7	0.3
102	30 -	40	2.234		0.12	0.9	0.4
103	40 -	50	2.242		0.10	1.1	0.3
104	50 -	60	2.397		0.10	1.1	0.4
105	60 -	70	2.517		0.12	1.2	0.4
106	70 -	80	2.472		0.16	1.0	0.5
107	80 -	90	2.643		0.15	1.1	0.5
108	90 -	100	2.467		0.12	1.1	0.3
109	100 -	110	2.247		0.22	0.9	0.4
110	110 -	120	2.587		0.18	0.7	0.4
111	120 -	130	2.679		0.15	0.5	0.3
112	130 -	140	2.549		0.16	0.7	0.3
113	140 -	150	2.322		0.16	0.3	0.2
114	150 -	160	1.850		0.19	0.6	0.7

STATION : E670
CRUISE : 9207

DATE : 05/03/92
TIME ARRIVE (Z-6) : 1131
TIME DEPART (Z-6) : 1234

LATITUDE : 69 30.715 N
LONGITUDE : 130 43.399 W

HOLE DEPTH : 180
CORE DEPTH : 179
FREEBOARD : 11
SNOW DEPTH : 28

SAMP #	CORE INTERVAL (cm)	(cm)	SAL (psu)	SAL notes	PO4 (uM)	SIO4 (uM)	NO3 (uM)
183	surface	0	22.398		0.54	19.2	8.1
184	0 -	10	3.026		0.19	0.7	0.0
185	10 -	20	2.575	3	0.22	0.9	0.0
186	20 -	30	2.249	3	0.41	2.0	0.0
187	30 -	40	2.469		0.18	1.5	0.0
188	40 -	50	3.541		0.11	2.2	0.0
189	50 -	60	3.178		0.12	2.5	0.1
190	60 -	70	3.680		0.09	2.5	0.2
191	70 -	80	3.850		0.08	2.5	0.1
192	80 -	90	4.078		0.08	2.2	0.0
193	90 -	100	3.704		0.10	1.0	0.1
194	100 -	110	3.121		0.08	0.3	0.0
195	110 -	120	3.524		0.09	0.5	0.1
196	120 -	130	3.904		0.06	0.3	0.2
197	130 -	140	3.312		0.07	0.3	0.1
198	140 -	150	3.636		0.11	0.5	0.1
199	150 -	160	3.223		0.11	0.2	0.0
200	160 -	170	2.885		0.15	0.7	0.1
201	170 -	180	3.756		1.21	3.5	2.7

STATION : E800
CRUISE : 9207

DATE : 05/03/92
TIME ARRIVE (Z-6) : 1309
TIME DEPART (Z-6) : 1414

LATITUDE : 69 58.976 N
LONGITUDE : 129 07.251 W

HOLE DEPTH : 201
CORE DEPTH : 200
FREEBOARD : 11
SNOW DEPTH : 24

SAMP #	CORE INTERVAL (cm)	(cm)	SAL (psu)	SAL notes	PO4 (uM)	SiO4 (uM)	NO3 (uM)
246	surface	0	32.217		1.17	29.0	9.2
247	0 -	10	8.956		0.46	7.5	2.9
248	10 -	20	7.126		0.27	6.1	2.1
249	20 -	30	5.957		0.64	5.0	0.2
250	30 -	40	6.052		0.22	5.4	1.6
251	40 -	50	5.619		0.20	4.7	1.5
252	50 -	60	5.629		0.18	4.7	1.5
253	60 -	70	5.384		0.22	4.9	1.4
254	70 -	80	5.333		0.21	4.7	1.1
255	80 -	90	5.544		0.19	4.7	1.2
256	90 -	100	5.007		0.18	4.4	1.1
257	100 -	110	4.688		0.14	3.9	0.8
258	110 -	120	5.059		0.14	3.9	0.8
259	120 -	130	5.168		0.18	3.7	0.8
260	130 -	140	5.181		0.13	3.4	0.2
261	140 -	150	4.392		0.09	2.3	0.0
262	150 -	160	4.251		0.09	1.6	0.0
263	160 -	170	4.236		0.08	1.1	0.0
264	170 -	180	3.479		0.08	0.7	0.0
265	180 -	190	4.426		0.14	1.4	0.2
266	190 -	200	9.726		1.38	0.8	5.7

STATION : E900
CRUISE : 9207

DATE : 05/03/92
TIME ARRIVE (Z-6) : 1454
TIME DEPART (Z-6) : 1552

LATITUDE : 70 15.616 N
LONGITUDE : 128 48.338 W

HOLE DEPTH : 199
CORE DEPTH : 198
FREEBOARD : 15
SNOW DEPTH : 20

SAMP #	CORE INTERVAL (cm)	(cm)	SAL (psu)	SAL notes	PO4 (uM)	SiO4 (uM)	NO3 (uM)
225	surface	0	33.389		1.23	27.2	8.9
226	0 -	10	7.401		0.26	4.3	1.1
227	10 -	20	5.423	3	0.69	2.9	0.4
228	20 -	30	6.085		0.51	2.9	0.4
229	30 -	40	5.907		0.27	2.6	0.6
230	40 -	50	5.925	4	0.24	3.3	0.3
231	50 -	60	5.352		0.14	3.5	0.4
232	60 -	70	5.272		0.11	4.0	0.7
233	70 -	80	5.201		0.16	4.0	0.5
234	80 -	90	5.326		0.14	3.7	0.4
235	90 -	100	5.687		0.13	3.5	0.3
236	100 -	110	4.936		0.10	3.1	0.4
237	110 -	120	5.289		0.09	2.8	0.2
238	120 -	130	5.342		0.13	2.8	0.2
239	130 -	140	5.365		0.52	2.6	0.3
240	140 -	150	5.327		0.14	1.6	0.5
241	150 -	160	4.938		0.26	1.1	0.6
242	160 -	170	4.542		0.25	1.0	0.8
243	170 -	180	4.710		0.70	2.1	1.6
244	180 -	190	5.706		1.04	4.4	5.1
245	190 -	198	7.771		0.55	6.1	2.6

STATION : CM1
CRUISE : 9207

DATE : 05/01/92
TIME ARRIVE (Z-6) : 1109
TIME DEPART (Z-6) : 1220

LATITUDE : 69 45.031 N
LONGITUDE : 133 17.980 W

HOLE DEPTH : 197
CORE DEPTH : 198
FREEBOARD : 9.5
SNOW DEPTH : 25

SAMP #	CORE INTERVAL (cm)	(cm)	SAL (psu)	SAL notes	PO4 (uM)	SIO4 (uM)	NO3 (uM)
136	surface	0	3.199		0.20	63.3	8.9
137	0 -	10	4.615		0.27	10.4	1.7
138	10 -	20	7.021		0.52	11.5	1.6
139	20 -	30	3.950	3	1.06	6.0	0.6
140	30 -	40	4.068		0.27	5.6	1.0
141	40 -	50	4.218		0.19	5.5	0.3
142	50 -	60	4.397		0.25	5.8	0.7
143	60 -	70	4.764		0.25	6.4	0.7
144	70 -	80	4.808		0.70	7.2	0.8
145	80 -	90	4.526		0.25	6.7	0.8
146	90 -	100	4.592		0.26	7.6	0.9
147	100 -	110	3.822		0.22	7.7	0.6
148	110 -	120	3.148		0.24	8.4	0.7
149	120 -	130	1.833		0.24	8.5	0.8
150	130 -	140	1.449		0.45	9.3	0.9
151	140 -	150	1.123		0.30	11.1	1.1
152	150 -	160	1.084		0.25	12.6	1.3
153	160 -	170	0.928		0.30	12.2	1.5
154	170 -	180	0.874		0.24	12.4	1.5
155	180 -	190	0.591		0.27	10.7	1.3
156	190 -	198	0.620		0.28	10.5	1.4

STATION : CM2
CRUISE : 9207

DATE : 05/01/92
TIME ARRIVE (Z-6) : 1229
TIME DEPART (Z-6) : 1340

LATITUDE : 69 49.967 N
LONGITUDE : 133 19.807 W

HOLE DEPTH : 189
CORE DEPTH : 193
FREEBOARD : 11
SNOW DEPTH : 18

SAMP #	CORE INTERVAL (cm)	(cm)	SAL (psu)	SAL notes	PO4 (uM)	SIO4 (uM)	NO3 (uM)
157	0 -	10	6.445	3	0.53	6.1	1.2
158	10 -	20	5.388		0.38	5.5	1.1
159	20 -	30	4.818		0.28	4.6	0.9
160	30 -	40	4.473		0.16	4.6	0.8
161	40 -	50	4.884		0.34	5.3	1.2
162	50 -	60	4.469		0.25	5.5	0.8
163	60 -	70	4.661		0.22	5.8	0.8
164	70 -	80	4.110		0.21	5.9	0.8
165	80 -	90	4.076		0.23	6.4	0.6
166	90 -	100	3.828		0.21	6.8	0.9
167	100 -	110	2.021		0.38	7.3	0.7
168	110 -	120	1.506		0.18	7.9	0.4
169	120 -	130	1.203		0.22	8.6	0.3
170	130 -	140	1.107		0.25	7.8	0.3
171	140 -	150	0.990		0.23	7.7	0.4
172	150 -	160	1.396		0.21	9.2	0.6
173	160 -	170	0.789		0.17	6.2	0.3
174	170 -	180	0.815		0.19	5.8	0.6
175	180 -	190	0.303		0.94	5.3	0.3
182	190 -	193	0.421		0.19	7.6	0.2

STATION : CM3
CRUISE : 9207

DATE : 05/01/92
TIME ARRIVE (Z-6) : 1347
TIME DEPART (Z-6) : 1418

LATITUDE : 69 56.106 N
LONGITUDE : 133 31.749 W

HOLE DEPTH : 50
CORE DEPTH : 49
FREEBOARD : 3
SNOW DEPTH : 8

SAMP #	CORE INTERVAL (cm)		(cm)	SAL (psu)	SAL notes	PO4 (uM)	SIO4 (uM)	NO3 (uM)
177	surface	-	0	10.163		10.30	56.0	0.6
178	0	-	10	3.218		0.19	17.9	2.3
179	10	-	20	3.029		0.16	16.8	1.6
180	20	-	30	3.335		0.64	18.7	0.4
181	30	-	40	2.308		0.17	13.5	0.1
182	40	-	50	2.102		0.22	12.1	0.1

STATION : CD-1
CRUISE : 9207

DATE : 05/03/92
TIME ARRIVE (Z-6) : 1408
TIME DEPART (Z-6) : 1720

LATITUDE : 70 20.987 N
LONGITUDE : 129 36.701 W

HOLE DEPTH : 216
CORE DEPTH : 216
FREEBOARD : 19
SNOW DEPTH : 13

SAMP #	CORE INTERVAL (cm)		(cm)	SAL (psu)	SAL notes	PO4 (uM)	SIO4 (uM)	NO3 (uM)
202	surface		0	32.169		1.09	21.1	5.7
203	0	-	10	6.890		0.56	5.1	1.0
204	10	-	20	7.019	3	0.93	4.3	0.2
205	20	-	30	6.588	3	1.23	6.2	0.1
206	30	-	40	6.098	3	0.68	6.2	0.3
207	40	-	50	6.004	3	0.70	4.6	0.5
208	50	-	60	6.160	3	1.16	4.4	0.4
209	60	-	70	6.561	3	1.52	4.8	0.4
210	70	-	80	6.186	3	-0.10	6.1	0.9
211	80	-	90	5.049	3	0.62	3.3	0.5
212	90	-	100	5.699	4	0.21	3.3	0.5
213	100	-	110	5.524		0.19	3.4	0.5
214	110	-	120	5.091		0.14	2.5	0.5
215	120	-	130	4.997		0.19	3.3	0.5

STATION : JJ1
CRUISE : 9207

DATE : 05/05/92
TIME ARRIVE (Z-6) : ?
TIME DEPART (Z-6) : ?

LATITUDE : 69 48.142 N
LONGITUDE : 131 49.947 W

HOLE DEPTH : 204
CORE DEPTH : 206
FREEBOARD : 12
SNOW DEPTH : 22

SAMP #	CORE INTERVAL (cm)	(cm)	SAL (psu)	SAL notes	PO4 (uM)	SIO4 (uM)	NO3 (uM)
267	surface	0	8.094		0.26	75.4	11.1
268	0 -	10	3.872		0.39	8.0	0.6
269	10 -	20	3.134		0.06	4.1	0.1
270	20 -	30	3.487		0.15	4.1	0.1
271	30 -	40	3.591		0.08	3.7	0.2
272	40 -	50	3.928		0.11	3.9	0.3
273	50 -	60	4.328		0.13	4.6	0.4
274	60 -	70	4.296		0.13	4.6	0.4
275	70 -	80	4.876		0.16	4.9	0.5
276	80 -	90	5.081		0.23	5.1	0.6
277	90 -	100	5.247		0.16	4.8	0.6
278	100 -	110		1			
279	110 -	120	4.455		0.15	4.6	0.4
280	120 -	130	4.634		0.23	4.9	0.6
281	130 -	140	4.563		0.07	4.8	0.4
282	140 -	150	3.543		0.06	4.6	0.2
283	150 -	160	2.667		0.05	4.9	0.2
284	160 -	170	2.130		0.05	5.9	0.2
285	170 -	180	1.682		0.05	5.7	0.2
286	180 -	190	1.115		0.04	6.2	0.5
287	190 -	197	1.106		0.08	8.7	1.1
288	197 -	204	1.637		0.13	10.6	1.5

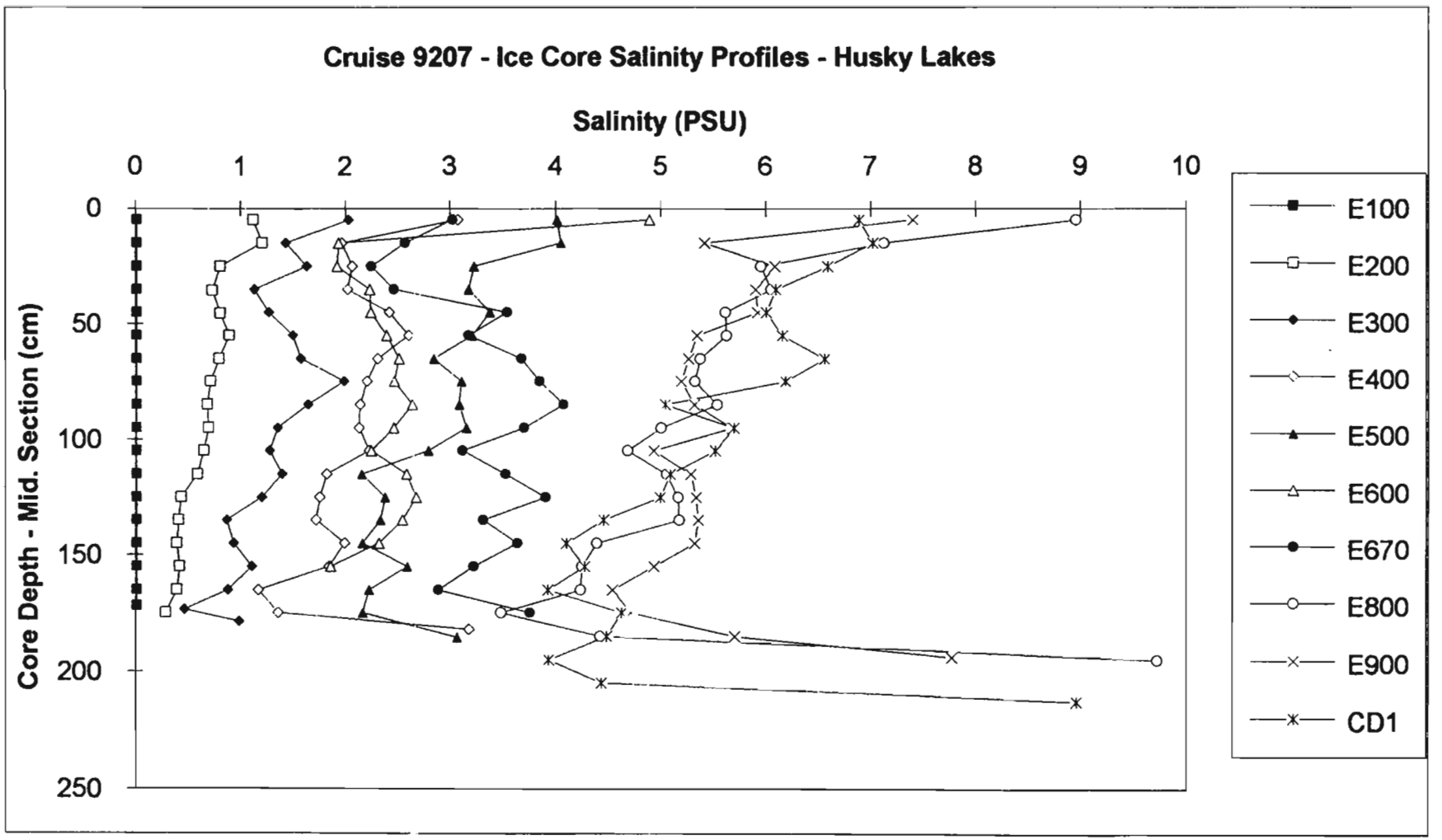
STATION : JJ2
CRUISE : 9207

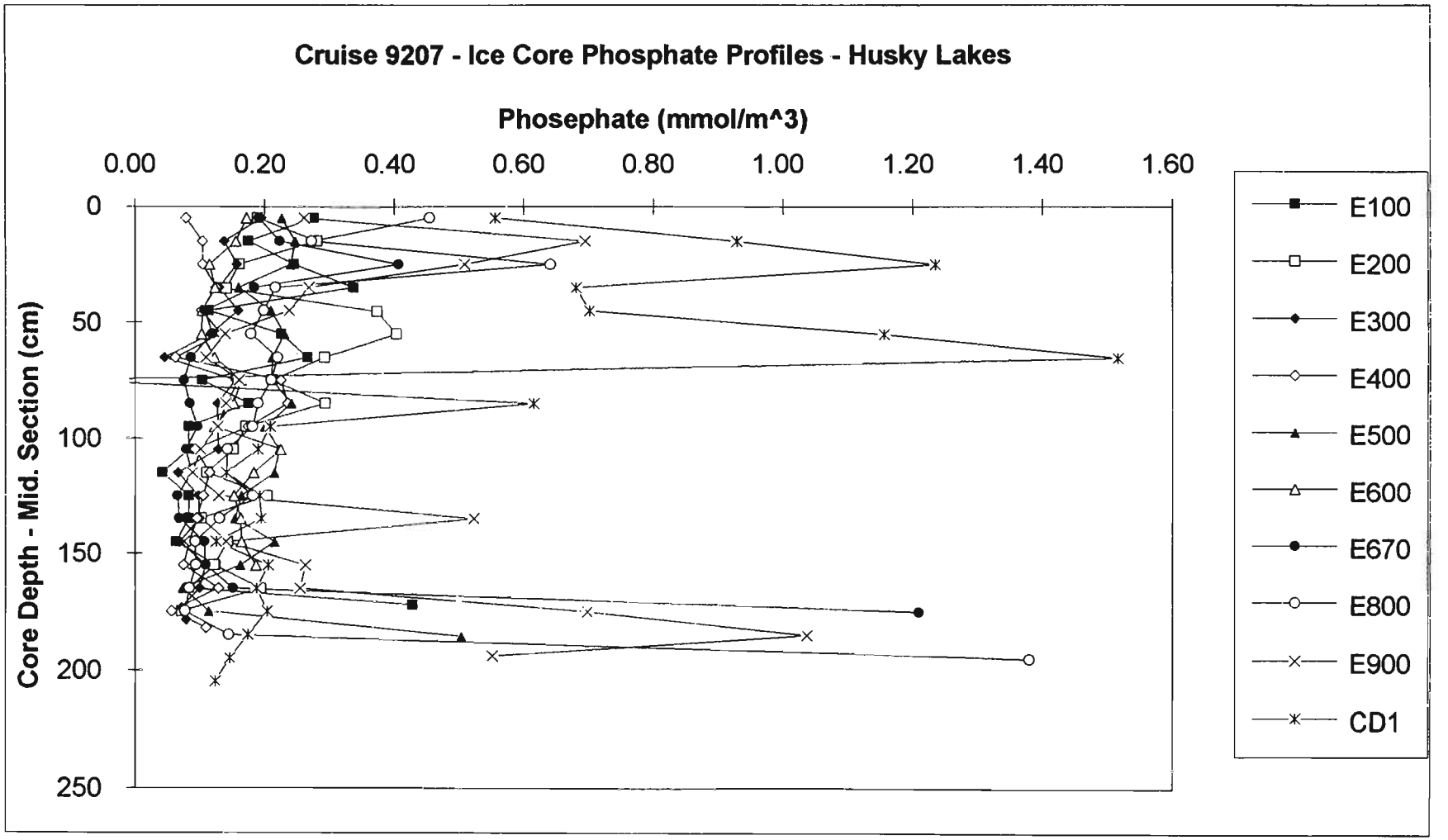
DATE : 05/05/92
TIME ARRIVE (Z-6) : ?
TIME DEPART (Z-6) : ?

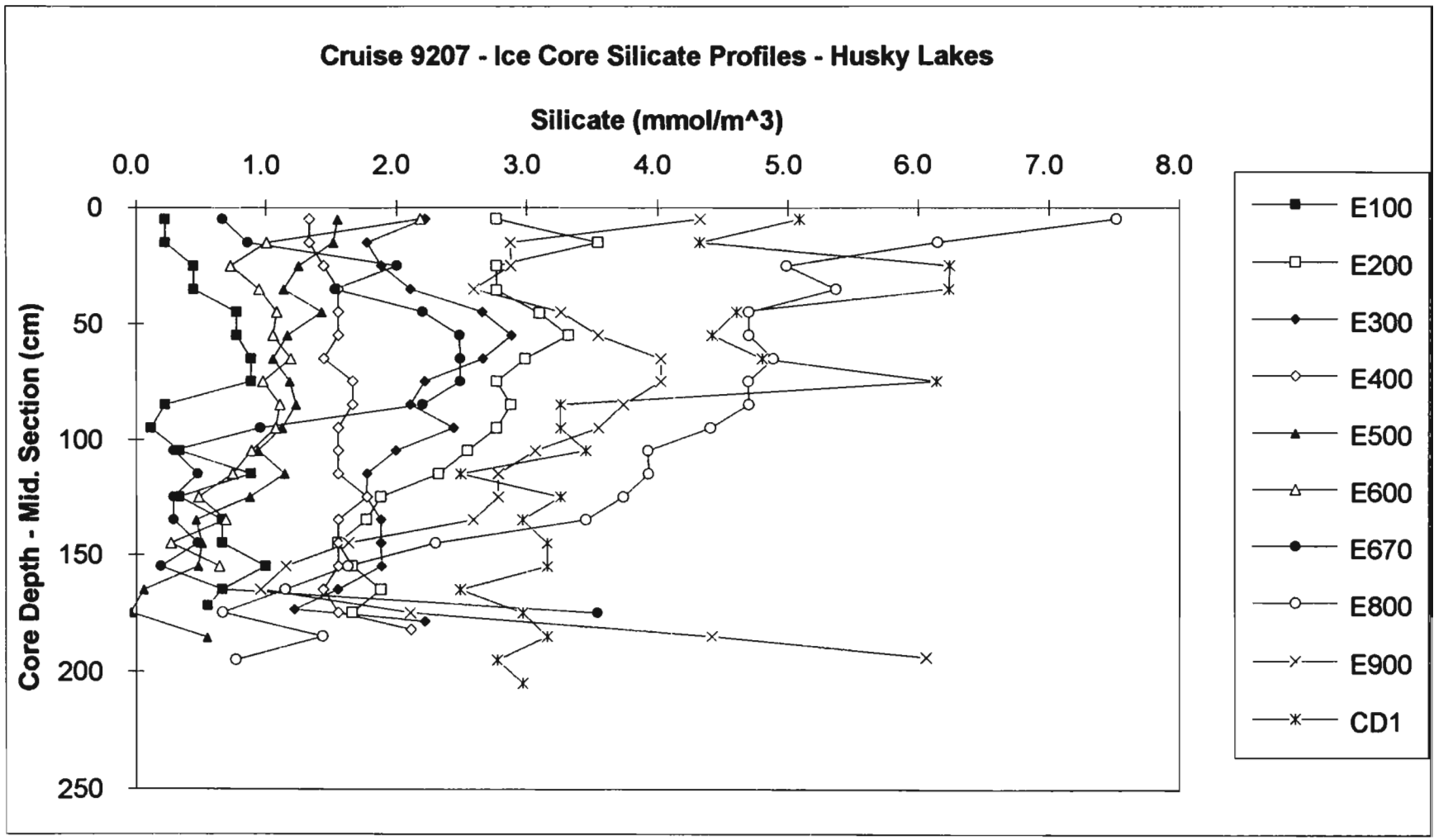
LATITUDE : 69 53.623 N
LONGITUDE : 131 30.676 W

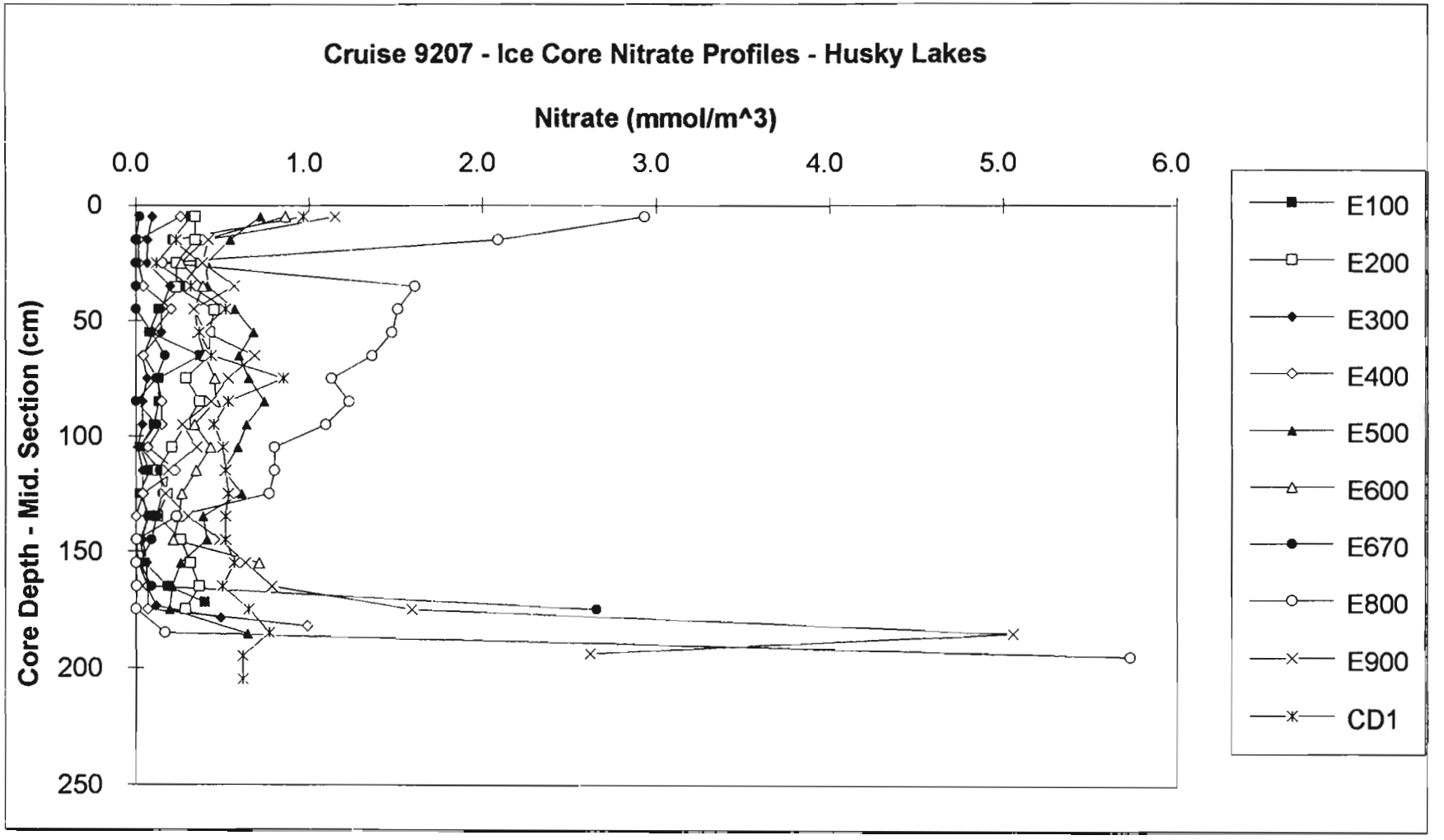
HOLE DEPTH : 169
CORE DEPTH : 171
FREEBOARD : 15
SNOW DEPTH : 20

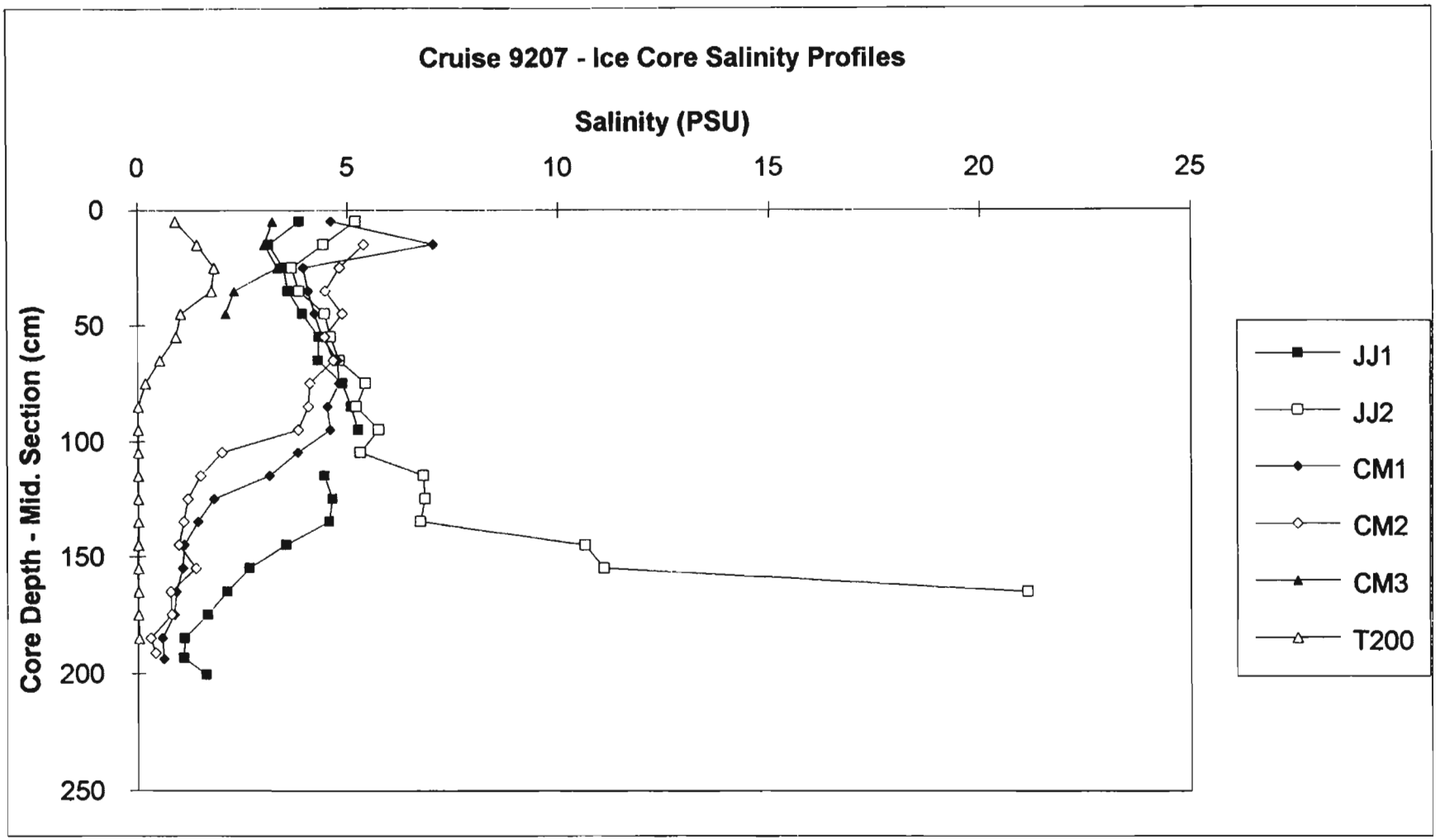
SAMP #	CORE INTERVAL (cm)	(cm)	SAL (psu)	SAL notes	PO4 (uM)	SIO4 (uM)	NO3 (uM)
289	surface	0	39.224	2,3			
290	0 -	10	5.196		1.03	7.3	0.3
291	10 -	20	4.443		0.54	3.8	0.1
292	20 -	30	3.674		0.22	3.0	0.2
293	30 -	40	3.853		0.11	3.2	0.3
294	40 -	50	4.458		0.12	3.6	0.4
295	50 -	60	4.597		0.11	3.8	0.4
296	60 -	70	4.809		0.11	3.7	0.4
297	70 -	80	5.424		0.10	3.9	0.6
298	80 -	90	5.215		0.06	3.4	0.7
299	90 -	100	5.736		0.14	4.1	1.4
300	100 -	110	5.293		0.13	4.4	2.0
301	110 -	120	6.779		0.16	6.2	1.5
302	120 -	130	6.819		0.16	6.7	1.2
303	130 -	140	6.704		0.10	7.2	0.9
304	140 -	150	10.613		0.26	12.1	0.8
305	150 -	160	11.077	3	0.33	13.4	0.1
306	160 -	170	21.134	3	0.38	25.4	0.1

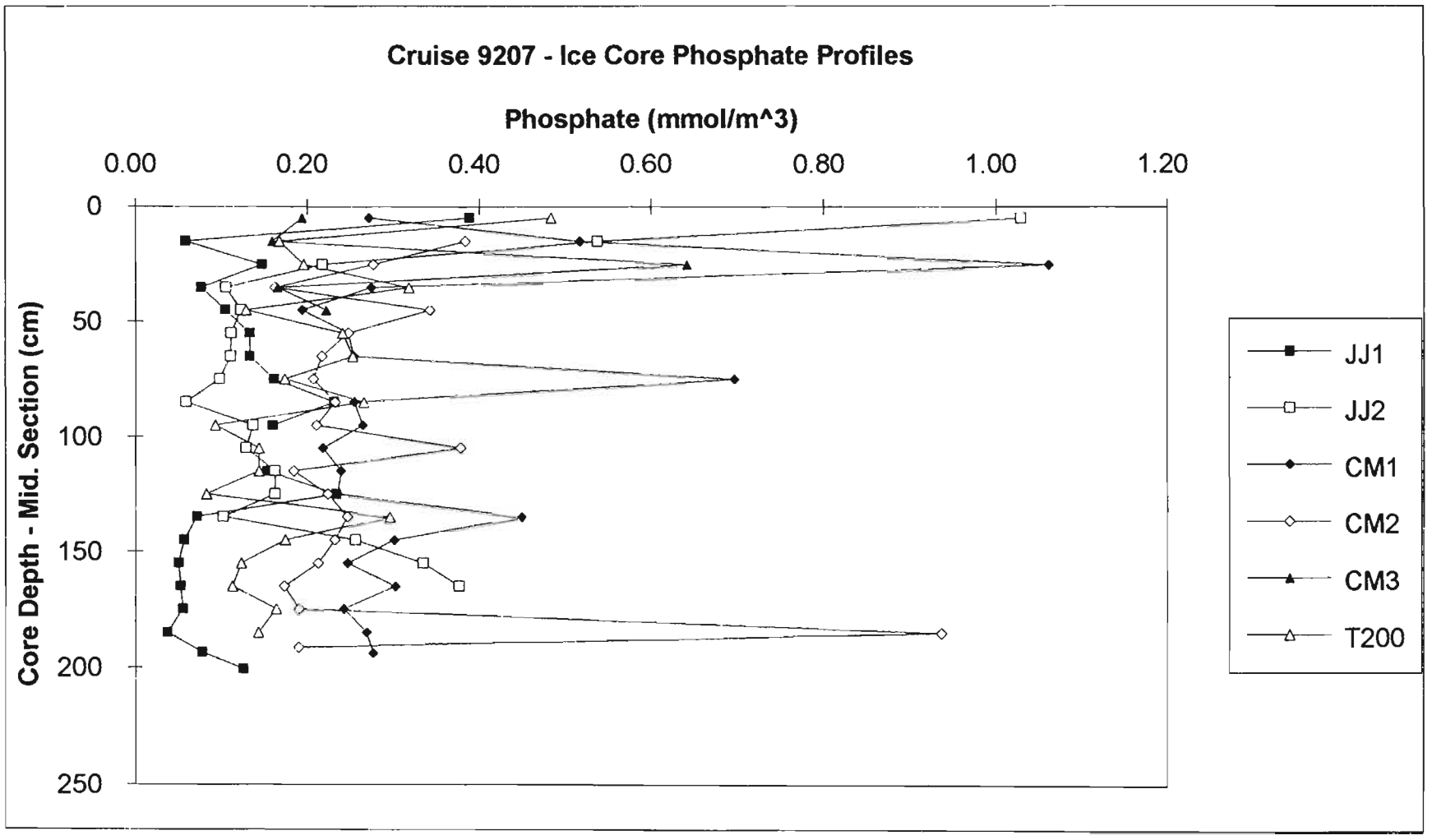

Cruise 9207 - Ice Core Salinity Profiles - Husky Lakes
Salinity (PSU)
0
1
2
3
4
5
6
7
8
9
10
Core Depth - Mid. Section (cm)
0
50
100
150
200
250
E100
E200
E300
E400
E500
E600
E670
E800
E900
CD1

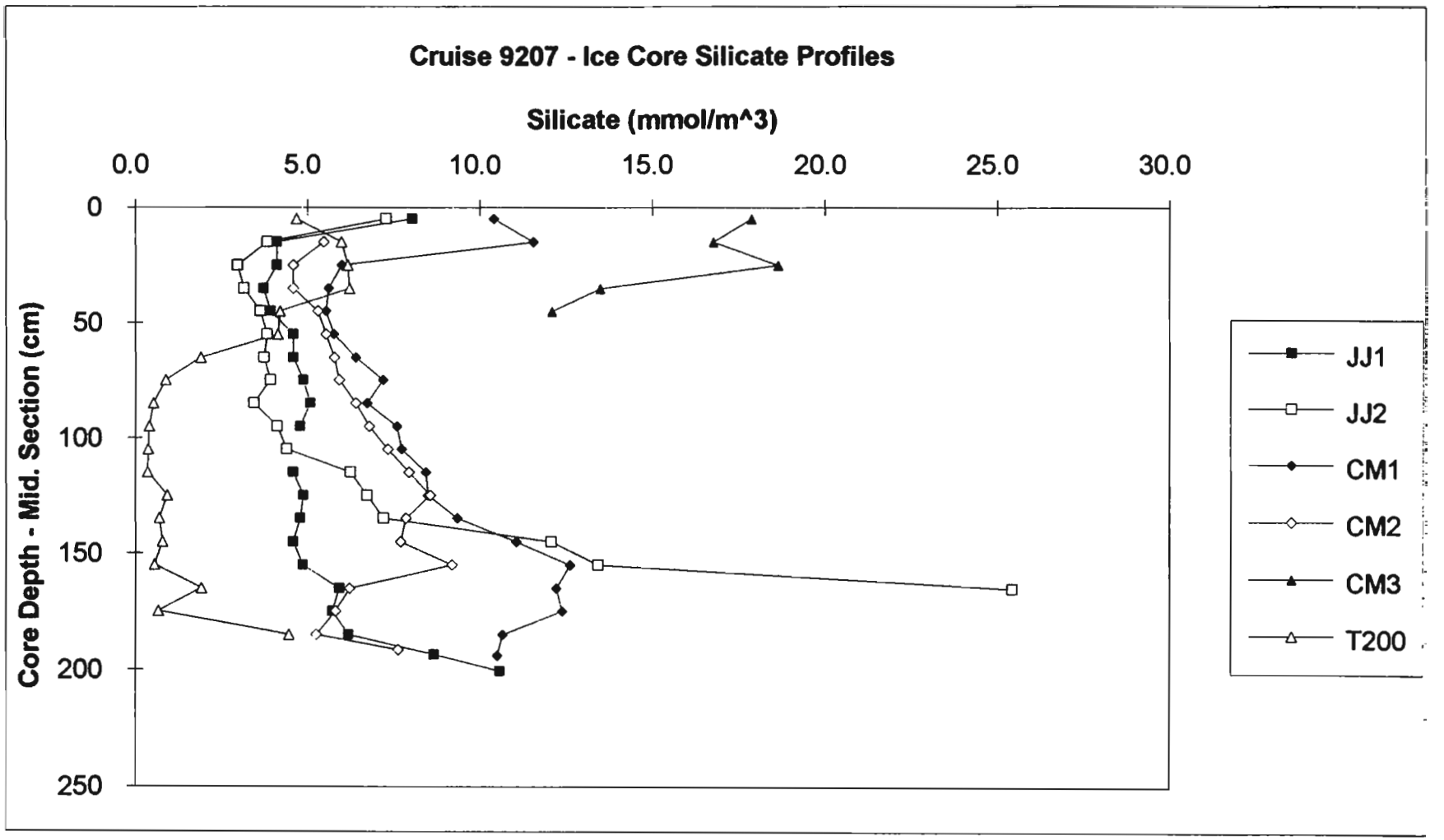

Cruise 9207 - Ice Core Phosphate Profiles - Husky Lakes
Phosephate (mmol/m^3)
0.00
0.20
0.40
0.60
0.80
1.00
1.20
1.40
1.60
Core Depth - Mid. Section (cm)
0
50
100
150
200
250
E100
E200
E300
E400
E500
E600
E670
E800
E900
CD1

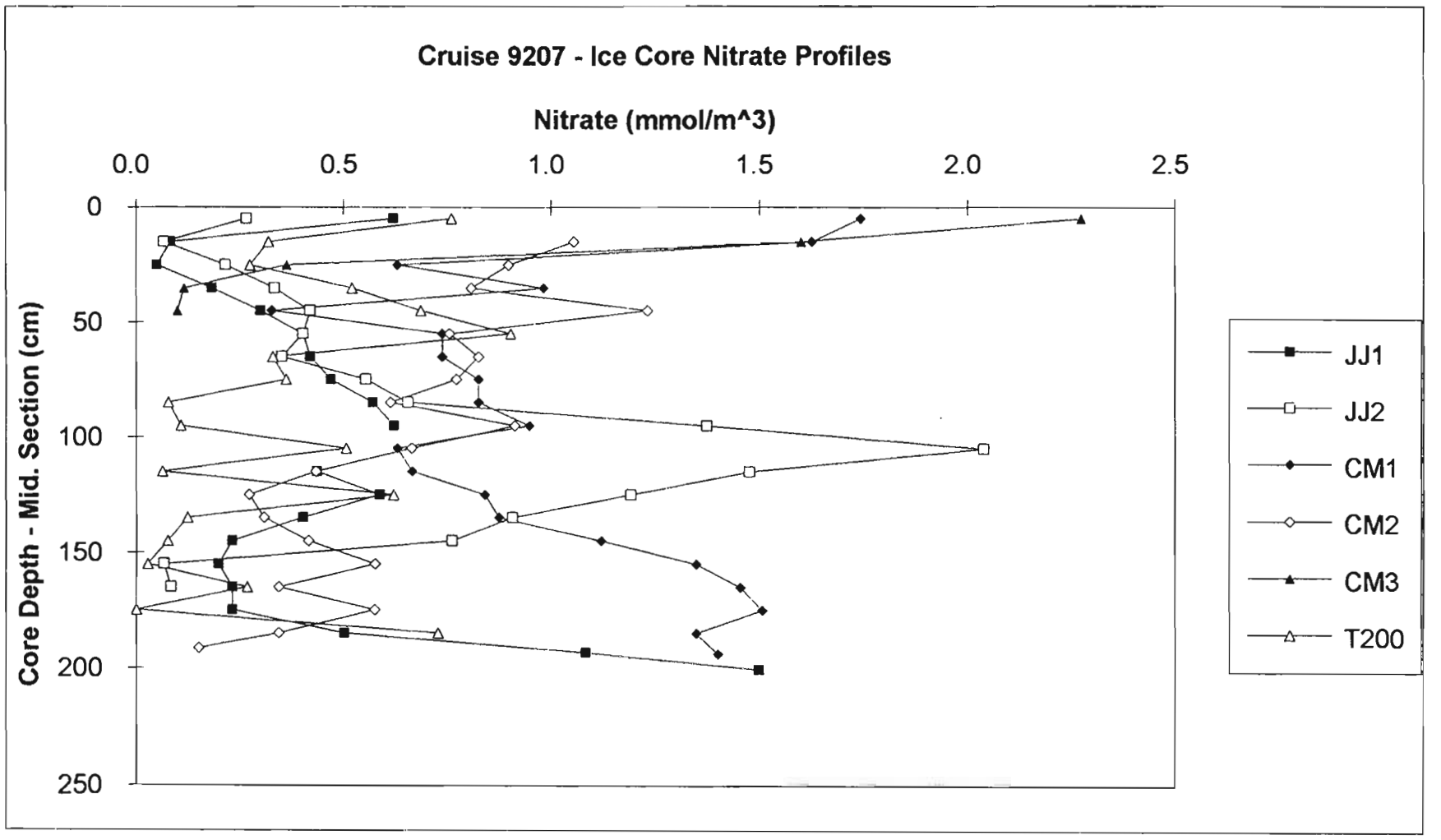

Cruise 9207 - Ice Core Silicate Profiles - Husky Lakes
Silicate (mmol/m^3)
0.0
1.0
2.0
3.0
4.0
5.0
6.0
7.0
8.0
Core Depth - Mid. Section (cm)
0
50
100
150
200
250
E100
E200
E300
E400
E500
E600
E670
E800
E900
CD1

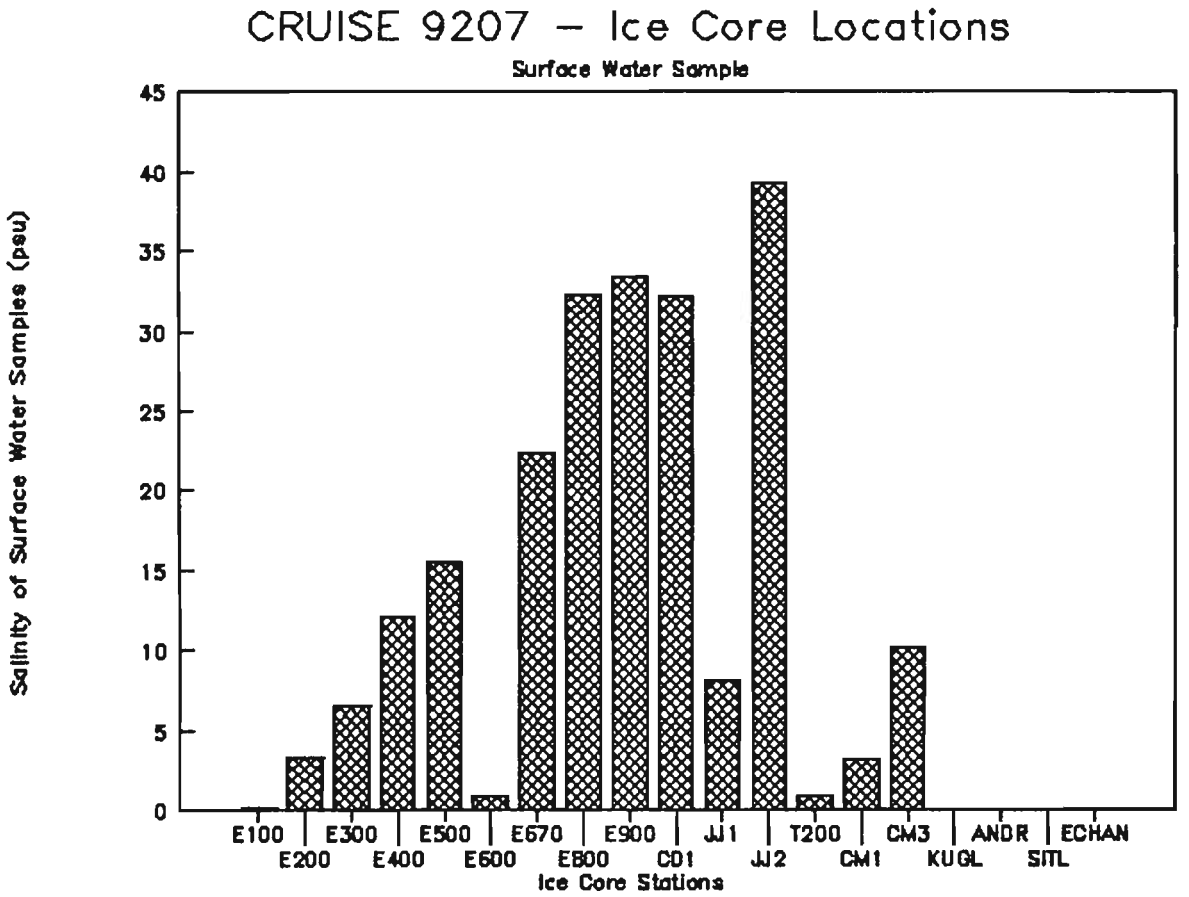

Cruise 9207 - Ice Core Nitrate Profiles - Husky Lakes
Nitrate (mmol/m^3)
0.0
1.0
2.0
3.0
4.0
5.0
6.0
Core Depth - Mid. Section (cm)
0
50
100
150
200
250
E100
E200
E300
E400
E500
E600
E670
E800
E900
CD1

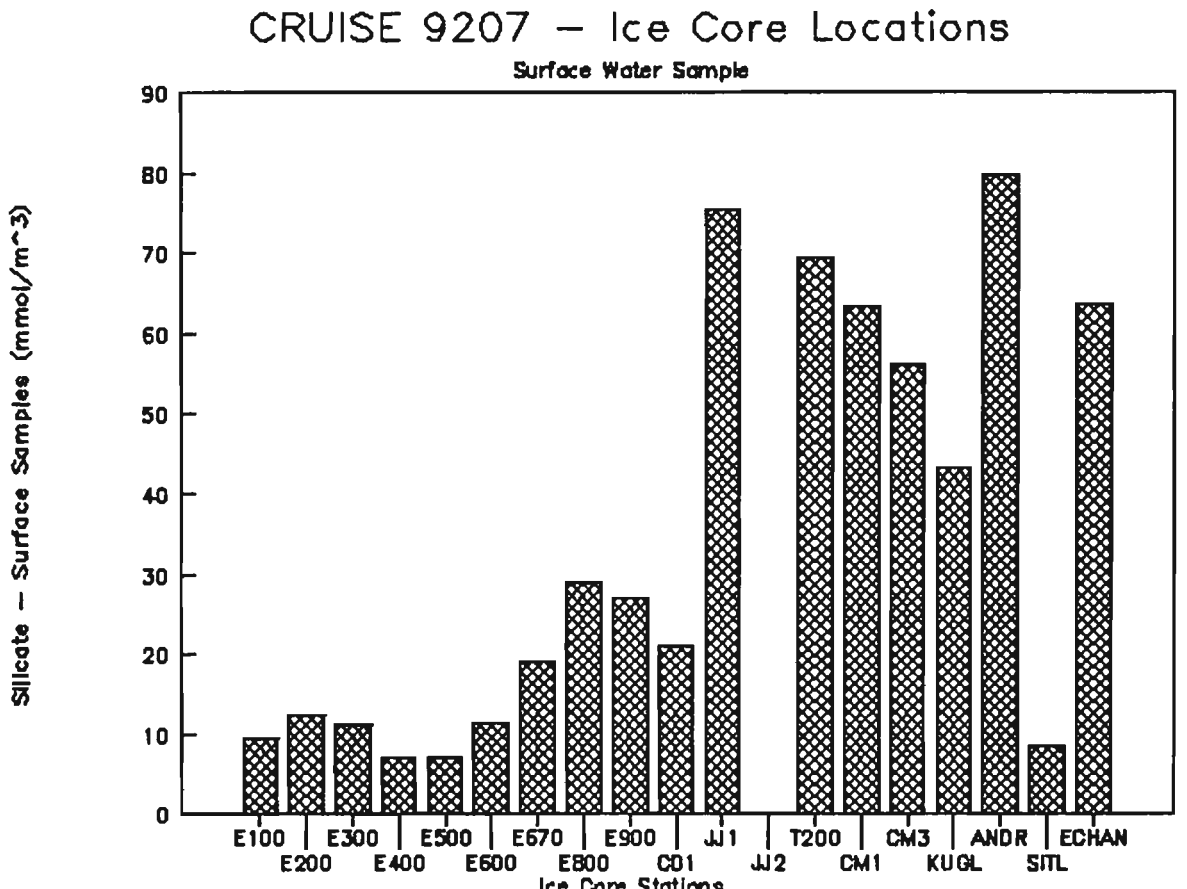

Cruise 9207 - Ice Core Salinity Profiles
Salinity (PSU)
0
5
10
15
20
25
Core Depth - Mid. Section (cm)
0
50
100
150
200
250
JJ1
JJ2
CM1
CM2
CM3
T200

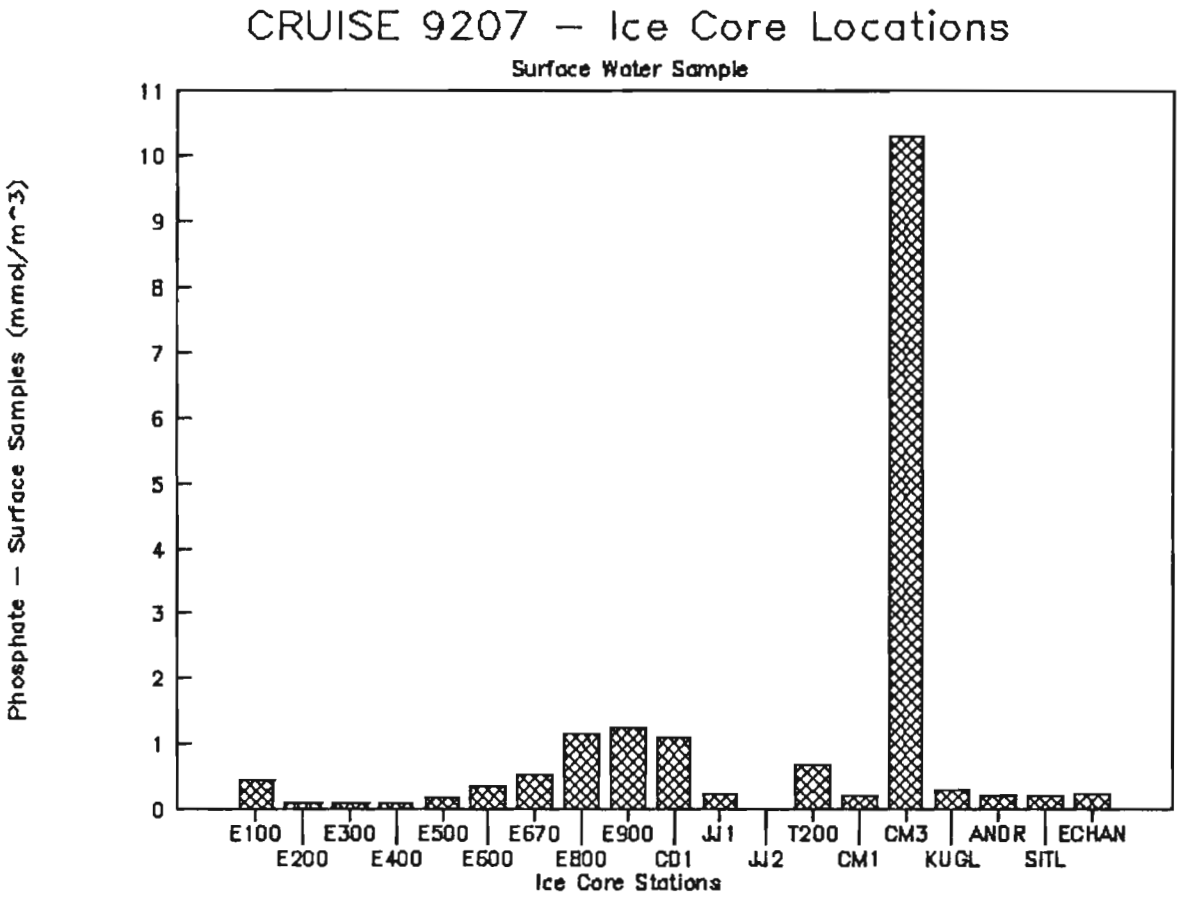

Cruise 9207 - Ice Core Phosphate Profiles
Phosphate (mmol/m^3)
0.00
0.20
0.40
0.60
0.80
1.00
1.20
Core Depth - Mid. Section (cm)
0
50
100
150
200
250
JJ1
JJ2
CM1
CM2
CM3
T200

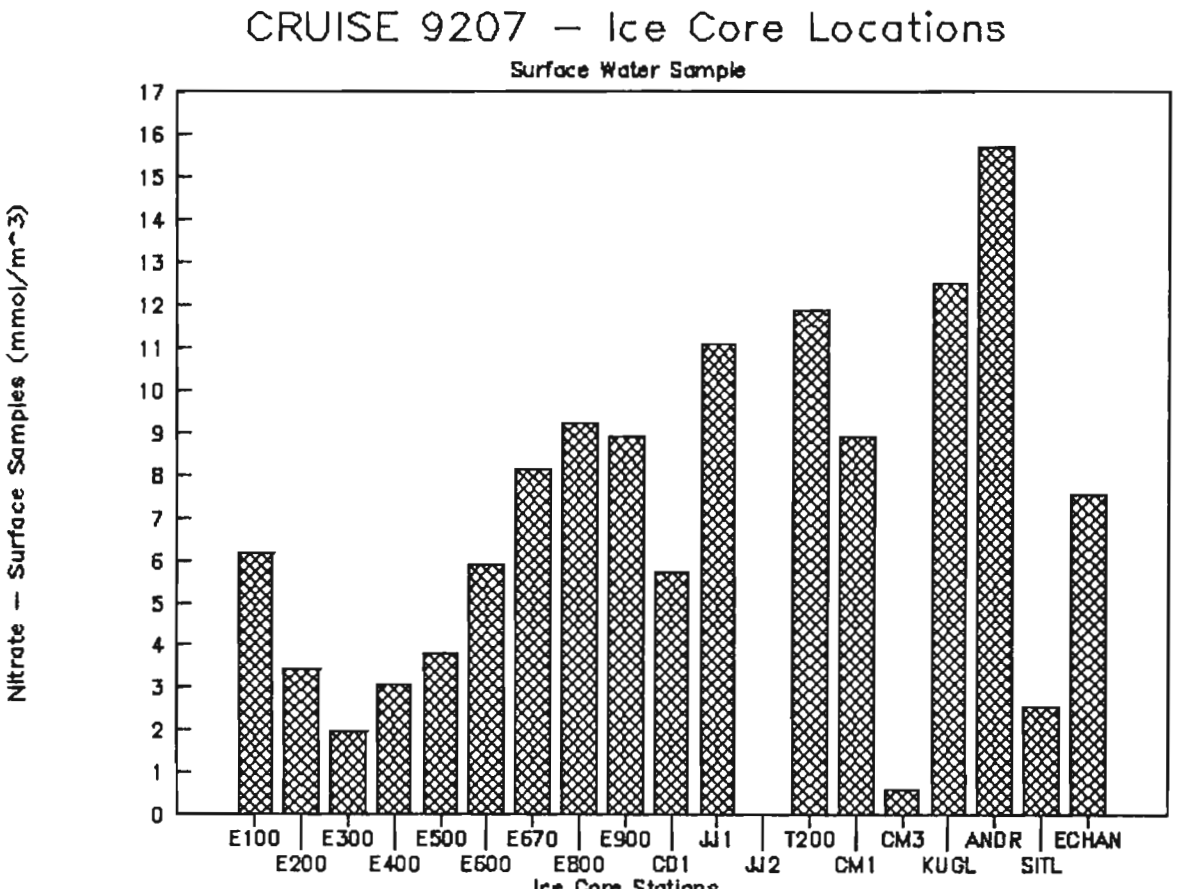

Cruise 9207 - Ice Core Silicate Profiles
Silicate (mmol/m^3)
0.0
5.0
10.0
15.0
20.0
25.0
30.0
Core Depth - Mid. Section (cm)
0
50
100
150
200
250
JJ1
JJ2
CM1
CM2
CM3
T200


Cruise 9207 - Ice Core Nitrate Profiles
Nitrate (mmol/m^3)
0.0
0.5
1.0
1.5
2.0
2.5
Core Depth - Mid. Section (cm)
0
50
100
150
200
250
JJ1
JJ2
CM1
CM2
CM3
T200


CRUISE 9207 – Ice Core Locations
Surface Water Sample
Salinity of Surface Water Samples (psu)
0
5
10
15
20
25
30
35
40
45
E100
E200
E300
E400
E500
E600
E670
E800
E900
CD1
JJ1
JJ2
T200
CM1
CM3
KUGL
ANDR
SITL
ECHAN
Ice Core Stations


CRUISE 9207 – Ice Core Locations
Surface Water Sample
Silicate – Surface Samples (mmol/m^3)
0
10
20
30
40
50
60
70
80
90
E100
E200
E300
E400
E500
E600
E670
E800
E900
CD1
JJ1
JJ2
T200
CM1
CM3
KUGL
ANDR
SITL
ECHAN


CRUISE 9207 – Ice Core Locations
Surface Water Sample
Phosphate – Surface Samples (mmol/m^3)
0
1
2
3
4
5
6
7
8
9
10
11
E100
E200
E300
E400
E500
E600
E670
E800
E900
CD1
JJ1
JJ2
T200
CM1
CM3
KUGL
ANDR
SITL
ECHAN
Ice Core Stations


CRUISE 9207 – Ice Core Locations
Surface Water Sample
Nitrate – Surface Samples (mmol/m^3)
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
E100
E200
E300
E400
E500
E600
E670
E800
E900
CD1
JJ1
JJ2
T200
CM1
CM3
KUGL
ANDR
SITL
ECHAN

6.7 Zooplankton Identification Mission #9207

TABLE : IDENTIFICATION OF ZOOPLANKTON
CRUISE : 9207

Station		E100		E200		E225		E300	
Date		920504		920505		920508		920508	
Latitude		6841.2		6851.9		6901.9		6908.5	
Longitude		13300.7		13314.3		13253.3		13236.6	
Depth (m)		11.0		43.5		26.0		14.0	
Volume (m*3)		1.93		7.62		4.55		2.45	
Split		0.5000		1.0000		1.0000		1.0000	
Species		#	#/m3	#	#/m3	#	#/m3	#	#/m3
Limnocalanus grimaldi (Guerne)	F	5	5.18						
	M	1	1.04	5	0.66				
	V								
Limnocalanus macrurus Sars	F	2	2.07	39	5.12	25	5.49	9	3.67
	M			43	5.64	16	3.52	9	3.67
	V					5	1.10	3	1.22
Drepanopus bungei Sars	F	10	10.36	19	2.49	50	10.99	4	1.63
	M	2	2.07	8	1.05	25	5.49	2	0.82
	V	2	2.07					1	0.41
Pseudocalanus complex	F								
	M								
	V	5	5.18						
Diaptomus sicilis Forbes	F	126	130.57						
	M	101	104.66						
	V								
Eurytemora herdmani Thompson et Scott	F								
	M								
	V								
Chirideus sp.	F								
Calanus hyperboreus Kroyer	IV								
Calanus glacialis Jaschnov	F								
Acartia clausii Giesbrech	F								
Oithona sp.	F								
	M								
	V								
Cyclops sp.	F								
	V	4	4.15			4	0.88		
	IV	6	6.22	1	0.13				
Harpacticoid	F								
	V								
Copepodites	IV	5	5.18	1	0.13	3	0.66		
	III	2	2.07	2	0.26	1	0.22		
	II			4	0.52				
	I								
Copepod nauplii									
Daphnia (longiremis) Sars	F	1	1.04						
Poden									
Gammarid									
Polychaete larvae		1	1.04			3	0.66	2	0.82
Nematode									
Halitholus (cirratus ?) Hartlaub						1	0.22	5	2.04
Aglantha									
Ephyra of Aurelia									
Sagitta elegans Verrill									
TOTALS		273	282.90	122	16.01	133	29.23	35	14.29

TABLE : IDENTIFICATION OF ZOOPLANKTON
CRUISE : 9207

Station		E400		E500		E600		E662	
Date		920504		920503		920511		920508	
Latitude		6917.8		6939.1		6933.4		6924.4	
Longitude		13211.1		13131.3		13124.1		13047.6	
Depth (m)		26.0		68.0		31.0		8.0	
Volume (m^3)		4.55		11.91		5.43		1.40	
Split		1.0000		0.5000		0.1250		1.0000	
Species		#	#/m3	#	#/m3	#	#/m3	#	#/m3
Limnocalanus grimaldi (Guerne)	F			9	1.51	23	33.89	1	0.71
	M			8	1.34	40	58.93		
	V								
Limnocalanus macrurus Sars	F	1	0.22						
	M								
	V								
Drepanopus bungei Sars	F	3	0.66	24	4.03	1	1.47	4	2.86
	M	1	0.22	8	1.34	3	4.42	3	2.14
	V	4	0.88	45	7.56			2	1.43
Pseudocalanus complex	F			13	2.18	31	45.67	2	1.43
	M			10	1.68	2	2.95	1	0.71
	V			96	16.12	106	156.17	15	10.71
Diaptomus sicilis Forbes	F	17	3.74						
	M	6	1.32						
	V	7	1.54						
Eurytemora herdmani Thompson et Scott	F							1	0.71
	M								
	V							3	2.14
Chirideus sp.	F			1	0.17				
Calanus hyperboreus Kroyer	IV								
Calanus glacialis Jaschnov	F								
Acartia clausii Giesbrech	F					2	2.95		
Oithona sp.	F								
	M								
	V								
Cyclops sp.	F								
	V	3	0.66						
	IV								
Harpacticoid	F					1	1.47		
	V								
Copepodites	IV	4	0.88	20	3.36	33	48.62		
	III					13	19.15	4	2.86
	II							11	7.86
	I								
Copepod nauplii									
Daphnia (longiremis) Sars	F	1	0.22						
Poden						1	1.47		
Gammarid									
Polychaete larvae		4	0.88	4	0.67	1	1.47	5	3.57
Nematode						1	1.47		
Halitholus (cirratus ?) Hartlaub		8	1.76	2	0.34	11	16.21	5	3.57
Aglantha									
Ephyra of Aurelia						1	1.47		
Sagitta elegans Verrill									
TOTALS		59	12.97	240	40.30	270	397.79	57	40.71

TABLE : IDENTIFICATION OF ZOOPLANKTON
CRUISE : 9207

Station		E670		E800		E900		MB92	
Date		920505		920427		920427		920511	
Latitude		6930.8		6959.0		7015.0		6933.2	
Longitude		13043.3		12906.9		12845.6		13404.6	
Depth (m)		10.0		29.0		11.5		31.0	
Volume (m^3)		1.75		5.08		2.01		5.43	
Split		1.0000		0.0625		0.2500		0.2500	
Species		#	#/m3	#	#/m3	#	#/m3	#	#/m3
Limnocalanus grimaldi (Guerne)	F								
	M								
	V								
Limnocalanus macrurus Sars	F								
	M								
	V								
Drepanopus bungei Sars	F	11	6.29					20	14.73
	M	1	0.57					8	5.89
	V	1	0.57					3	2.21
Pseudocalanus complex	F	14	8.00	34	107.09	2	3.98	1	0.74
	M	5	2.86	53	166.93	8	15.92	5	3.68
	V	56	32.00	73	229.92	218	433.83	47	34.62
Diaptomus sicilis Forbes	F								
	M								
	V								
Eurytemora herdmani Thompson et Scott	F	2	1.14						
	M								
	V	1	0.57			9	17.91		
Chirideus sp.	F			1	3.15				
Calanus hyperboreus Kroyer	IV			1	3.15				
Calanus glacialis Jaschnov	F			1	3.15				
Acartia clausii Giesbrech	F								
Oithona sp.	F							13	9.58
	M							2	1.47
	V					2	3.98	5	3.68
Cyclops sp.	F							1	0.74
	V								
	IV								
Harpacticoid	F	1	0.57			3	5.97		
	V								
Copepodites	IV	25	14.29			17	33.83	15	11.05
	III	4	2.29	13	40.94	9	17.91	36	26.52
	II	23	13.14	25	78.74	25	49.75	57	41.99
	I					1	1.99		
Copepod nauplii		1	0.57			7	13.93	1	0.74
Daphnia (longiremis) Sars	F								
Poden									
Gammarid									
Polychaete larvae		1	0.57					2	1.47
Nematode						1	1.99		
Hailtholus (cirratus ?) Hartlaub		3	1.71	5	15.75				
Aglantha				1	3.15				
Ephyra of Aurelia									
Sagitta elegans Verrill				1	3.15				
TOTALS		149	85.14	208	655.12	302	601.00	216	159.12

NOGAP B.6 Data Reports in the Canadian Data Report of Hydrography and Ocean Sciences Series

Macdonald, R.W., K. Iseki, E.C. Carmack, D.M. Macdonald, M.C. O'Brien, and F.A. McLaughlin, 1988. Data Report: NOGAP B.6; Beaufort Sea Oceanography, September, 1986. *Can. Data Rep. Hydrogr. Ocean Sci.:* **58**, 68pp.

Cuypers, L.E., A.W. Blaskovich, E.C. Carmack, and R.W. Macdonald, 1988. NOGAP B.6; Physical data collected in the Beaufort Sea, September, 1986. *Can. Data Rep. Hydrogr. Ocean Sci.:* **59**, 149pp.

McCullough, D., R.W. Macdonald, K. Iseki, and E.C. Carmack, 1988. NOGAP B.6; Volume 1: Beaufort Sea current measurements, March-August 1987. *Can. Data Rep. Hydrogr. Ocean Sci.:* **60 (1)**, 42pp.

Macdonald, D.M., L.E. Cuypers, D. McCullough, E. Carmack, and R.W. Macdonald, 1988, NOGAP B.6: Volume 2: Physical data collected in the Beaufort Sea, March-June 1987. *Can. Data Rep. Hydrogr. Ocean Sci.:* **60(2)**, 157 pp.

McCullough, D., R.W. Macdonald, K. Iseki, and E.C. Carmack, 1988. NOGAP B.6; Volume 3: Beaufort Sea current measurements, September, 1987 - March, 1988. *Can. Data Rep. Hydrogr. Ocean Sci.:* **60 (3)**, 37pp.

Macdonald, R.W., K. Iseki, M.C. O'Brien, F.A. McLaughlin, D. McCullough, D.M. Macdonald, E.C. Carmack, H. Adams, M. Yunker, G. Miskulin and S. Buckingham, 1988. NOGAP B.6; Volume 4: Chemical data collected in the Beaufort Sea, Summer 1987. *Can. Data Rep. Hydrogr. Ocean Sci*: **60(4)**, 103pp.

Macdonald, R.W., K. Iseki, M.C. O'Brien, F.A. McLaughlin, D. McCullough, D.M. Macdonald, E.C. Carmack, M. Yunker, S. Buckingham, and G. Miskulin, 1988. NOGAP B.6; Volume 5: Chemical data collected in the Beaufort Sea, Summer 1987. *Can. Data Rep. Hydrogr. Ocean Sci*: **60(5)**, 55 pp.

Carmack, E.C. et al., 1989. NOGAP B.6: Volume 6: Physical data collected in the Beaufort Sea, Summer 1987. *Can. Data Rep. Hydrogr. Ocean Sci.* **60(6)**, 219pp.

Yunker, M.C., F.A. McLaughlin, F.R. Fowler, T.A. Smyth, W.J. Cretney, R.W. Macdonald and D. McCullough 1990. NOGAP B.6: Volume 7 Hydrocarbon determinations; Mackenzie River and Beaufort Sea shoreline peat samples. *Can. Data Rep. Hydrogr. Ocean Sci.:* **60(7)**, 81pp.

O'Brien, M.C., R.W. Macdonald, K. Iseki, R. Forbes, Yang Liangfeng, D. McCullough, 1991, *Can. Data Rep. Hydrogr. Ocean Sci.:* **60(8)**, 238 pp

Macdonald, R.W., E.C. Carmack, M.C. O'Brien, F.A. McLaughlin, B.G. Minkley, and K. Berger-North, 1990. Oceanographic Data Collected from the *Sir John Franklin* in the Beaufort Sea, September 1989. *Can. Data Rep. Hydrogr. Ocean Sci.:* **80**, 100pp.

Macdonald, R.W., E.C. Carmack, F. A. McLaughlin, D. Sieberg, M. C. O'Brien, D. Paton, R. Pearson, Yang Liangfeng, C.Gobeil, 1991, Oceanographic Data Collected from the *Henry Larsen* in the Beaufort Sea, August-September 1990. *Can. Data Rep. Hydrogr. Ocean Sci.:* **97**, 142 pp.

Gobeil, C., D. Paton, F.A. McLaughlin, R.W. Macdonald, G. Paquette, Y. Clermont, et M. Lebeuf, 1991, Données géochimiques sur les eaux interstitielles et les sédiments de la mer de Beaufort, *Rapp. Stat. Can. Hydrogr. Sci. Océan.:* **101**, 92pp.

Macdonald, R.W., R. Pearson, D. Sieberg, F.A. McLaughlin, M.C. O'Brien, D.W. Paton, E.C. Carmack, J.R. Forbes, J. Barwell- Clarke, 1992, Physical and Chemical Data Collected in the Beaufort Sea and Mackenzie River Delta, April - May 1991. *Can. Data Rep. Hydrogr. Ocean Sci.:* **104**, 155pp.

Macdonald, R.W., D. Sieberg, R. Pearson, D. Paton, M. C. O'Brien, F.A. McLaughlin, and E.C. Carmack, 1992, Oceanographic Data Collected from the *Henry Larsen* in the Beaufort Sea, September 1991. *Can. Data Rep. Hydrogr. Ocean Sci.:* **112**, 108 pp.