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Plankton Community Structure and Productivity in the Kouchibouguac National Park Estuaries

Part I, Preliminary results from the ice-free season, 1997

R. Bernier, S. Désormeaux, E. Tremblay, A. Locke, I. Kaczmarska, G. Klassen and P. Strain

December 1998
Report 004

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Parks Canada - Ecosystem Monitoring and Data Report No. 004

Plankton Community Structure and Productivity in the Kouchibouguac National Park Estuaries.

Part I. Preliminary results from the ice-free season, 1997.

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Canadian Cataloguing in Publication Data

Bernier, R.

Plankton Community Structure and Productivity in the Kouchibouguac National Park Estuaries. Part I. Preliminary results from the ice-free season, 1997.
(Parks Canada - Ecosystem monitoring and data report,
ISSN 1200-331X; no. 004)

Includes an abstract in French.
Includes bibliographical references.

ISBN 0-662-27398-2
Cat. No. R61-2/20-4-1998E

1. Marine plankton — New Brunswick — Kouchibouguac National Park.
2. Primary productivity (Biology) — Kouchibouguac National Park.
I. Bernier, R.
II. Parks Canada, Atlantic Region.
III. Title.
IV. Series: Parks Canada - Ecosystem monitoring and data report; no. 004

QH106.2N4P54 1998 578.77'6'0971522 C98-980383-X

Published by authority of the Minister of Canadian Hetritage

ABSTRACT

Bernier, R., S. Désormeaux, E. Tremblay, A. Locke, I. Kaczmarska, G. Klassen and P. Strain. 1997. Plankton Community Structure and Productivity in the Kouchibouguac National Park Estuaries. Part I. Preliminary results from the ice-free season, 1997. Parks Canada- Eco. Monit. Data Rep.

Preliminary data on physico-chemical characteristics, phytoplankton and zooplankton composition of the Kouchibouguac and St. Louis estuaries, Kouchibouguac National Park, in the ice-free season of 1997 are summarized. Fourteen stations representing estuarine habitats in the tidal rivers, lagoons, and outside the barrier islands were sampled from May to November 1997. A diverse biota of phytoplankton and zooplankton included new records for the Park, region and Canada. There are virtually no published reports of estuarine phytoplankton in this region, thus almost all smaller diatoms and all microflagellates are new records. One phytoplankton species, the diatom *Chaetoceros salsugineus*, might have invaded the east coast of Canada from the Sea of Japan, presumably in ballast water. The diverse and abundant flora of microflagellates is very different from the phytoplankton composition of the Baie des Chaleurs which appears to be dominated by large planktonic diatoms. Of the 47 zooplankton taxa identified to date, 25 are new records for the Park, and one species is a new record for the region. The zooplankton of the Kouchibouguac and St. Louis systems include many of the species recorded in the Miramichi estuary, the only local estuary previously studied. However, there are differences in species distribution, abundance and dominance patterns which may influence the suitability of the Park estuaries as nursery areas for early development of larval fish and habitats of other species. Further research will ascertain whether these differences result from estuary size.

RÉSUMÉ

Bernier, R., S. Désormeaux, E. Tremblay, A. Locke, I. Kaczmarska, G. Klassen and P. Strain. 1997. Plankton Community Structure and Productivity in the Kouchibouguac National Park Estuaries. Part I. Preliminary results from the ice-free season, 1997. Parks Canada- Eco. Monit. Data Rep.

Les données préliminaires des charactéristiques physico-chimiques, de la composition du phytoplancton et du zooplancton dans les estuaires de Kouchibouguac et St. Louis, situés dans le Parc National de Kouchibouguac, sont résumées pour la période sans glace de 1997. Quatorze stations, représentant les habitats riverains, lagunaires et les régions à l'extérieur des dunes de sable furent échantillonnées à partir du mois de mai jusqu'à novembre 1997. Divers espèces de phytoplancton et de zooplancton identifiées sont de nouvelles espèces dans le Parc, la région environnante et au Canada. La présence de petits diatomés ainsi que les espèces de phytoflagellés sont de nouveaux ajouts dans la flore de cette région. L'invasion du diatomé, *Chaetoceros salsugineus*, provient probablement des eaux ballastes de navires étrangés car cette espèce est seulement connue dans la mer du Japon. Parmi les 47 taxons de zooplancton identifiés, 25 sont des nouveaux records pour le Parc et une espèce est un record pour la région. Le zooplancton des estuaires de Kouchibouguac et St. Louis sont similaires aux espèces retrouvées dans l'estuaires de la Miramichi. Cependant, il y a des différences concernant la distribution, l'abondance et la dominance des espèces. Ceci pourrait réduire la commodité des estuaires du Parc comme régions nourricières pour les stades lavaires des poissons et, conséquement, l'habitat pour d'autres espèces. Des recherches plus approfondies vont permettre de déterminer si ces différences sont une conséquence de la grandeur des estuaires.

1.0 INTRODUCTION

Microscopic phytoplankton and zooplankton form the base of most pelagic aquatic food webs. Thus, a healthy plankton community is essential for sustenance of aquatic organisms at higher trophic levels, including all recreationally and commercially important fish and shellfish. In Kouchibouguac National Park (KNP), organisms at higher trophic levels (invertebrates, fish, insects) have been intensively studied (DesLoges, 1980; Beach, 1988), but knowledge of the plankton community structure and production is very limited. In general, only a few studies on phytoplankton communities have been conducted in the Canadian Maritimes region, for example, in Passamaquoddy Bay (Bailey, 1912, 1917; Davidson, 1932; Lakshiminarayana, 1983), Baie des Chaleurs (Brunel, 1962; Legendre, 1971) and Bay of Fundy (Bailey, 1915; Martin et al., 1995). Zooplankton are well known from the Bay of Fundy (e.g., Corey, 1983a,b; Newman and Corey, 1984; Locke and Corey, 1988, 1989) and Scotian Shelf (e.g., Markle et al., 1980; Tremblay and Roff, 1983a,b) but have rarely been studied in the southern Gulf of St. Lawrence. To date, the only studies of estuarine zooplankton in the southern Gulf have been in the Baie des Chaleurs (Lacroix and Legendre 1964), Miramichi estuary (Bousfield 1955, Locke and Courtenay 1995a,b) and Shediac Bay (Citarella 1982). Since information on phytoplankton and zooplankton species has never been documented for Kouchibouguac National Park, the data provided in this study will serve as baseline data for long-term monitoring and impact studies as well as adding to the biodiversity inventory of the Park.

The research described in this report is laying a foundation for the understanding of the structure and productivity of the phytoplankton and zooplankton communities, as well as their spatial and temporal distribution in major estuaries of Kouchibouguac National Park over a period of 18 months. Water physico-chemistry (temperature, salinity, dissolved oxygen, light penetration and nutrient concentration) recorded concurrently will allow us to relate observed biological phenomena to environmental conditions in the estuaries. The data analysed thus far and presented here include field records of temperature, salinity, and dissolved oxygen at near-surface and near-bottom depths, vertical profiles of temperature and salinity, Secchi depth, chlorophyll a concentrations at near-surface and near-bottom, and preliminary laboratory analyses of phytoplankton and zooplankton samples. Sampling and analyses will continue through the winter of 1997-98. We also examined floating mats of macroscopic algae and their epiphytes which often contribute considerably to the phytoplankton of shallow water bodies. This latter work is the subject of an Honours Thesis at Mount Allison University and will be published separately.

2.0 MATERIAL AND METHODS

Fourteen sampling stations were chosen throughout the St. Louis and Kouchibouguac estuaries in order to adequately sample the full range of physico-chemical environments (Fig. 1). It is expected that these stations represent the full range of zooplankton communities present in the estuary. Due to increased difficulty in sampling stations 1and 3, they were omitted from the sampling scheme. However, physical and chemical data were collected at these stations on the first few sampling trips. Samples were collected every two weeks from May to mid-August 1997 and monthly from September to November 1997. Vertical profiles of temperature, salinity and photosynthetically active radiation were obtained in mid-channel at each station using a SBE-19 Seabird Profiler (Seabird Electronics Inc., Belle, WA). Data were recorded at 0.5 sec intervals

while the profiler was slowly lowered from an anchored boat. For the vertical profiles, data were averaged over 0.1 m depth.

Additional samples of surface (approximately 0.25-0.5 m depth) and bottom (within 1 m of the bottom) waters were obtained in mid-channel using a Niskin bottle modified to sample in the horizontal position. Temperature and salinity were measured using a thermometer (VWR No. C1067-855, VWR/Canlab, Halifax, NS) and refractometer (No. A366ATC, Ben Meadows Co., Atlanta, GA). Duplicate water samples for nutrient (silica, nitrogen, phosphorus) analysis were placed in 30 mL pre-washed Nalgene bottles, held in a cooler on ice and frozen the same day. Frozen samples will be analysed using colorimetric techniques on a Technicon AutoAnalyzer II (Strain and Clement, 1996).

Samples for determination of chlorophyll a concentration and phytoplankton community composition were collected at near-surface and near-bottom in the same manner as the physico-chemical samples. For chlorophyll samples, 1 L of seawater was filtered through Whatman glass fibre filters (GF/C, pore size 1.2 μm) using a hand vacuum pump. Filters were wrapped in aluminum foil and frozen. Chlorophyll a extractions were performed within two month of sampling. Chlorophyll was extracted in 10 mL of 90% acetone overnight in the freezer (Strickland and Parson, 1968). Chlorophyll a was measured in a Turner Design M-10-005 R Fluorometer at an excitation wavelength of 430 nm. Conversion of fluorescence to chlorophyll a followed Waite et al. (1997).

For phytoplankton, 1L of water was preserved with Lugol's solution. Samples were settled at least 24 hours in Utermohl settling chambers and then concentrated to 100 ml. Phytoplankton were routinely identified and enumerated using the inverted microscope method (Sournia, 1978). A Zeiss light transmitted inverted microscope was used for counting and identification of phytoplankton. Four hundred cells (size ≥ 3μm) were counted per sample. Scanning electron microscopy (SEM) and light microscopy (DIC) were used for difficult taxonomic identifications as required.

Vertical and oblique zooplankton samples were collected using conical tow-nets of 50 cm mouth openings with 64 and 500μm Nitex mesh respectively. Both nets were fitted with a General Oceanics flowmeter to quantify the volume of water filtered. The 64μm net was lowered from the anchored boat to the bottom and pulled up in order to sample the entire water column. The 500 μm net was towed behind the boat at approximately 1-2 knots for 5 minutes. All samples were preserved in 5-10% formalin solution with ambient estuarine water. All 64 μm tow-net samples were mixed with a Fisher Thermix Stirrer (Model 120 M) and sub-samples were extracted with a volumetric pipette until a total of 300 specimens was counted under a dissecting microscope. The 500 μm tow-net samples were fractionned to equal beaker splits using the Huntsman Marine Laboratory (HML) beaker technique (Van Guelpen et al., 1982). Specimens were counted in entire splits (sub-sample) until counts reached a total of 300. If a sample contained less than 300 specimens in total, the whole sample was counted. Both invertebrate zooplankton and ichthyoplankton specimens were identified to lowest practical taxonomic level under a dissecting microscope using the following references:

Cnidaria and Ctenophora: Gosner (1978), Shih (1977), Smith (1977), Todd and Laverack (1991)
Rotifera: Ruttner-Kolisko (1974), Thane-Fenchel (1968)
Mollusca: Gosner (1978)

Arachnida: Barnes (1987)
Cladocera: Della Croce (1974), Todd and Laverack (1991)
Ostracoda: Poulsen (1969)
Copepoda: Farran (1948a, b), Roff (1978), Todd and Laverack (1991), Wilson (1932)
Branchiura: Wilson (1932)
Cirripedia: Lang (1980)
Mysidacea: Brunel (1960)
Amphipoda: Bousfield (1973), Gosner (1978)
Isopoda: Schultz (1970)
Decapoda: Needler (1941), Williamson (1957)
Osteichthyes: Booth (1967), Cooper (1978), Fahay (1983), Hardy (1978), Little and Messieh (1981)
Insecta: Borror et al. (1981)

3.0 RESULTS AND DISCUSSION

3.1 Physico-chemical characteristics

Temperatures, salinities and Secchi depths varied within and among river systems as well as seasonally (Table 1, Appendices 1 and 2).

3.1.1. Kouchibouguac River and Lagoon

For purposes of this discussion, the Kouchibouguac river-lagoon system is defined as stations 4-9. In order of increasing distance from the sea, the sequence of stations is: 5 (lagoon mouth), 4 (lagoon), 6, 7, 8, and 9 (river).

Early May temperatures in the Kouchibouguac river and lagoon ranged from 7-8°C (surface) and 4-9°C (bottom). Salinities from station 6 (Loggiecroft) to station 9 (highway 117 bridge) were fresh to at least 2 m depth. Station 7, with a maximum depth of 4.6 m, had bottom salinities in excess of 23 PSU, but this station is situated at a deep "sinkhole" in the river which typically traps high-salinity water. By May 20 a salt wedge had penetrated upstream at least to station 8, although station 9 was wholly freshwater. Temperatures had only warmed by 1-2°C. A well-defined pycnocline occurred at a depth of 1 m.

Temperatures in June warmed to a maximum of 15°C. Lagoon stations were vertically well-mixed but a well-developed halocline was present at approximately 1.5 m depth in the river stations. The salt wedge extended above station 9 (highway 117 bridge) with bottom salinities of 17-24 PSU although surface salinities were fresh. Secchi depths within the river and lagoon ranged from 1.25 to 2.5 m, and increased to 4-4.5 m at the lagoon mouth (station 5).

July and August temperatures peaked at 24°C. As in June, lagoon stations were usually well-mixed, but both temperature and salinity were stratified in the river stations. The salt wedge receded below the highway 117 bridge in early July but extended above the bridge in late July and August. The lowest Secchi depths of the season (0.5 m) were observed in early July. Water clarity at station 5 was close to twice that observed elsewhere in the system on most dates.

By late September, temperature had cooled to 11°C and by mid-November it was in the range of 6-7.5°C. Vertical stratification was much weaker in autumn. The salt wedge continued to extend

upstream of the highway 117 bridge. Water clarity in the lagoon and lower river stations increased to its highest values of the season (e.g., Secchi depths of 3-5 m).

3.1.2. Black River system

The Black River system is defined here as stations 1-3. For the most part, this discussion will be confined to station 2, since stations 1 and 3 were sampled only a few times early in the season. Due to the difficulty of accessing these two stations in low water conditions, routine sampling was discontinued in June.

On May 20, temperatures at the three Black River stations were similar to those in the Kouchibouguac system and ranged from 9-10°C. The salt wedge extended to station 1, just below the highway 117 bridge. Vertical stratification was weak except at station 1.

The salt wedge was located in a similar position in early June, and temperatures had increased to 14-15°C. We have no data to infer the position of the salt wedge in this system on subsequent dates.

Trends in temperature and Secchi depth at station 2 were similar to those observed for the Kouchibouguac system. Temperatures continued to rise to a maximum of 24°C in mid-August, then declined to 6°C by mid-November. Salinity at station 2 was never measured at less than 14 PSU (surface). Secchi depth increased from 1.1 m in early June to 2.5 m in November.

3.1.3. St. Louis River and Lagoon

The St. Louis system includes station 12 (at the mouth of the lagoon), stations 11 and 13 (both located in the lagoon), and river stations 14 through 17. Station 17 is the furthest upstream, near the highway 132 bridge. An additional station, labelled in Table 1 as "sea", located in 13 m of water outside the lagoon mouth, was sampled on July 3 in exceptionally calm weather. A station located in the channel midway between stations 11 and 13 (labelled as station 11/13) was sampled on November 12 when low water conditions prevented access to the two lagoon stations.

Temperatures rose from 7-9°C in late May to a maximum of 23°C in July and August, then declined to 5°C in November (from the CTD readings; which are considered more reliable than the thermometer readings of 1-4.5°C for this date). With the exception of the initial sampling on May 21, when a freshwater or near-freshwater surface layer was present in the first metre of depth just below the highway 132 bridge (station 17), all samples from the St. Louis River had detectable levels of salinity. On all dates, the salt wedge extended at least to the highway 132 bridge. As in the Kouchibouguac system, the river stratified vertically during the summer months (with pycnocline depth usually between 1 and 2 m) but wind mixing prevented much stratification in the lagoon. Interestingly, there was more evidence of stratification at station 12 in the lagoon mouth than at the two lagoon stations, but this may be a consequence of the greater depth at station 12.

Trends in Secchi depth were similar to those observed in the Kouchibouguac system. Station 12, at the mouth of the St. Louis lagoon, had Secchi depths comparable to those at station 5, at the mouth of the Kouchibouguac lagoon. These Secchi depths were almost always greater than

elsewhere in the system. The "sea" station sampled on July 3 had a Secchi depth more than double that of station 12 on that date. This is consistent with observations of increased water clarity in the Northumberland Strait just outside other barrier-island lagoons, such as the Miramichi estuary (e.g., Bousfield 1955a; Locke and Courtenay 1996). In general, Secchi depth decreased with increasing distance upstream during spring and summer, although this was less evident in autumn.

3.2 Phytoplankton

Chlorophyll a analysis showed that the St-Louis River had consistently higher chlorophyll a concentrations (mean of 0.294 µg/L) than the Kouchibougac River (0.185 µg/L) (see ranges of values in Table 2). In lagoons, the opposite was found; mean chlorophyll a concentrations were 0.406 µg/L and 0.217 µg/L respectively. A spring peak of chlorophyll a concentrations was present in the Kouchibouguac lagoon stations (maximum 1.1 µg/L) but absent in the river (Appendix 3.1 and 3.2). In contrast, the spring peak in the St-Louis waters was lower in the lagoon (maximum of 0.217 µg/L) than in the river (maximum of 0.945 µg/L). Seasonal changes were small in both the Kouchibouguac and St. Louis, although peaks occurred at different stations at different times (Appendix 3.1 and 3.2). In October 1997, although chlorophyll a concentrations were similar in both the St. Louis and Kouchibouguac system, these concentrations were consistently higher than earlier in the season with a few exceptional peaks (Table 2).

Phytoplankton taxa found to date in the Kouchibouguac River and Lagoon re listed in Table 3. The most common species found in late winter/early spring in the Kouchibouguac lagoon were: *Thalassiosira nordenskioeldii, Th. rotula, Chaetoceros debilis, Ch. diadema,* and *Melosira arctica* (Table 4). Flagellates such as *Cryptomonas appendiculata, Eutreptiella marina,* other euglenophytes, dinoflagellates, and phytoflagellates were common later in the season (Table 4). These species continued to dominate the phytoplankton community increasing by an order of magnitude up the Kouchibouguac River (Table 2, Table 4 and Appendix 4). Phytoplankton of the St. Louis estuarine system will be identified during the remainder of this grant tenure.

Macroscopic algae, such as *Capsosiphon fulvescens, Enteromorpha intestinalis,* and *E. clathrata* were found during late July and August 1997. These algae carried a diverse and abundant community of epiphytic diatoms such as *Ctenophora pulchella, Cocconeis scutellum, C. pediculus* and *Melosira jurgensii.*

The local bogs contributed numerous acidophilic species such as *Cymbella sp.*, and *Ankistrosdesmus falcatus.* Although these species are not planktonic, they were often found suspended in the water column. In addition to the native phytoplankton, we also encountered *Chaetoceros salsugineus*, an exotic diatom known from the Sea of Japan.

Total cell concentrations in the Kouchibouguac estuarine system appear high (Appendix 4). The numbers were generally higher in the lagoon and the river mouth than further up river. However, most of the Kouchibouguac phytoplankton community consists of microflagellates which contribute little to primary biomass compared to the Miramichi River estuary and the Baie des Chaleurs which are dominated by large planktonic diatoms. Kouchibouguac estuary phytoplankton suggest a low nutrient environment for the organisms at the higher trophic levels.

3.3 Zooplankton

Vertical and oblique zooplankton samples from May 6 to July 3, 1997 have been processed. Remaining samples (July 15, 1997 to April 1998) will be analyzed before May 1998. To date, 48 taxa of invertebrate zooplankton and ichthyoplankton have been identified in the estuaries of Kouchibouguac National Park (Table 5). Of these 48 taxa, 26 are new records for the Park. Other species identified have previously been catalogued in the resource description compiled by Beach (1998) for Kouchibouguac National Park.

Invertebrate zooplankton (number per m^3) caught in the vertical hauls of the 64 µm mesh net consisted mostly of copepod nauplius and copepodid stages, rotifers (*Ascomorpha* sp., *Notholca* sp.) and oligochaetes (Table 6).

Jellyfish (*Obelia* sp., *Sarsia* sp.), cladocerans (*Evadne nordmanni, Evadne tergestina, Podon leuckarti*), adult copepods (*Acartia* sp., *Calanus finmarchicus, Centropages hamatus, Eurytemora* sp., *Labidocera aestiva, Pseudocalanus minutus, Temora longicornis, Tortanus discaudatus*) and decapod larvae (*Crangon septemspinosa* larvae and crab zoeae) were the dominant invertebrate zooplankton (number per 1000 m^3) sampled in the oblique hauls of the 500 µm mesh net (Table 7).

Ichthyoplankton were most abundant in June and July. Dominant taxa in the oblique 500 µm mesh net hauls were gaspereau (*Alosa pseudoharengus* and *Alosa aestivalis)*, rainbow smelt (*Osmerus mordax)*, Atlantic tomcod (*Microgadus tomcod*), sand lance (*Ammodytes* sp.), and unidentified flounders (*Pleuronectes* sp.). Juvenile fish identified were fourspine and threespine sticklebacks (*Apeltes quadracus* and *Gasterosteus aculeatus).*

Species diversity was higher at stations situated in the Kouchibouguac and St. Louis lagoons and just outside the barrier islands compared to stations further up river. Invertebrate zooplankton and ichthyoplankton abundances were higher in the St. Louis than in the Kouchibouguac estuary (Table 6 and 7).

Calanoid copepods were the most abundant of all groups of invertebrate zooplankton sampled. *Acartia* sp., *Centropages hamatus* and *Tortanus discaudatus* were the most common and abundant species found throughout the Kouchibouguac and St. Louis estuaries. The brackish-water calanoid *Acartia* sp. was found at all stations whereas the marine calanoids *C. hamatus* and *T. discaudatus* were most abundant in the lagoons and stations outside the barrier islands. Substantial numbers of these calanoids were also found in the Miramichi estuary (Bousfield, 1955b; Locke and Courtenay, 1995a) and Shediac Bay (Citarella, 1982). However, *Eurytemora,* an abundant calanoid in both the Miramichi estuary and Shediac Bay, was relatively scarce in the Kouchibouguac and St. Louis estuaries from late May to early July. The deficiency of this particular copepod species may very well explain the low abundances of fish in these estuaries compared to the Miramichi estuary for it is an important component of the diet of gaspereau, smelt, and tomcod (Locke and Courtenay, 1995a).

Ichthyoplankton diversity in the Kouchibouguac and St. Louis estuaries (7 taxa representing 6 families) was lower than diversity in the Miramichi estuary (18 taxa representing 13 families) from late May to early July. Lower abundance and taxonomic diversity in the Kouchibouguac Park's estuaries compared to the Miramichi estuary may be due to spatial scale (estuary size). The Kouchibouguac estuaries are shallower and have much less freshwater outflow and

consequently more marine influence. Alternatively, differences may be the result of annual variability; a modified sampling scheme with occasional collections from the Miramichi and Richibucto estuaries has been proposed for 1998 to allow for comparison of estuaries of a range of sizes.

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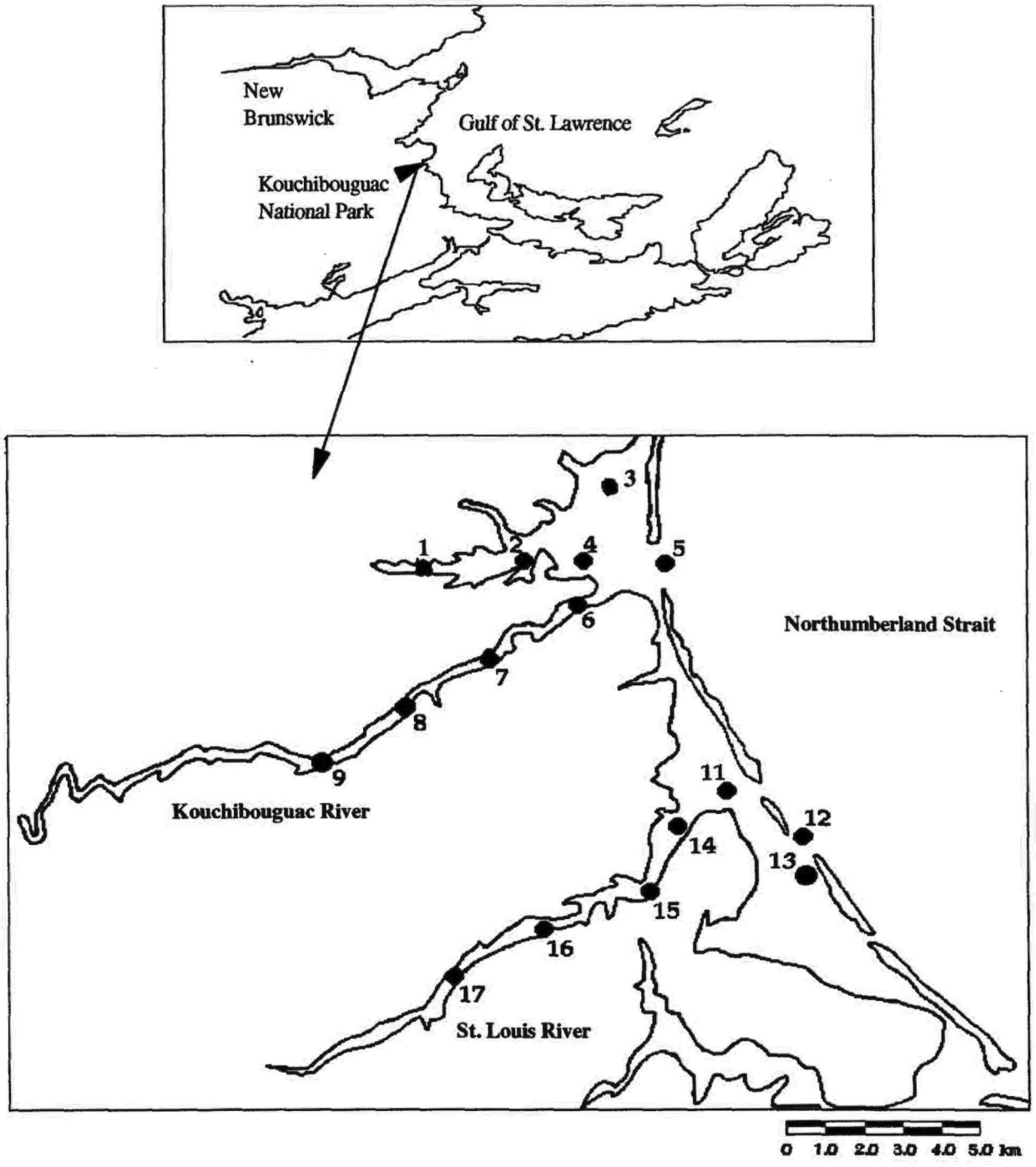


Fig. 1. Location of sampling stations in the Kouchibouguac and St. Louis estuaries situated in the Kouchibouguac National Park, New Brunswick, Canada.

Table 1. Physical and chemical data collected in the Kouchibouguac and St. Louis estuaries from May 6 to November 12, 1997. Temperature and salinity were measured using a thermometer and hand refractometer respectively.

Date	Station	Tide	Maximum depth (m)	Surface temperature (°C)	Bottom temperature (°C)	Surface salinity (PSU)	Bottom salinity (PSU)	Secchi depth (m)
970506	6	ebb	1.25	8.0	7.0	0	0	N/A
970506	7	ebb	4.5	8.0	4.0	0	20	N/A
970506	9	ebb	2.5	7.0	9.0	0	0	N/A
970520	1	flood	2.1	9.0	10.0	0	4	N/A
970520	2	flood	3.0	10.0	9.5	18	21	N/A
970520	3	flood	0.9	9.5	10.0	19	20	N/A
970520	4	flood	2.7	9.0	9.0	16	25	N/A
970520	5	flood	5.5	8.0	8.0	24	25	N/A
970520	6	flood	4.9	10.0	8.0	2	25	N/A
970520	7	flood	5.2	10.0	6.5	0	25	N/A
970520	8	low/flood	3.9	9.0	8.5	0	7	N/A
970520	9	high	2.4	9.0	9.0	0	0	N/A
970521	11	flood	3.4	10.5	10.0	15	16	1.25
970521	12	flood	7.6	9.5	7.0	20	29	2.75
970521	13	low	2.4	11.0	11.0	24	22	2.25
970521	14	ebb/low	2.4	11.0	10.0	11	20	1.00
970521	15	ebb/low	5.2	10.0	9.0	4	19	0.75
970521	16	ebb/low	4.3	10.0	9.5	1	15	0.75
970521	17	ebb/low	3.9	10.0	9.0	0	18	0.50
970603	1	flood	2.1	15.0	15.0	0	6	0.50
970603	2	ebb	2.4	14.0	14.0	15	15	1.10
970603	4	ebb	1.5	14.0	13.0	20	20	1.70
970603	5	ebb	1.8	13.0	13.0	21	23	4.00
970603	6	ebb	4.9	13.0	10.0	6	24	1.30
970603	7	slight flood	5.2	13.0	11.0	1	20	1.50
970603	8	flood	3.4	12.0	11.0	1	12	1.70
970603	9	flood	2.1	10.0	11.0	0	17	1.70
970604	11	ebb	3.9	12.5	11.0	24	24	N/A
970604	12	ebb	3.4	12.0	11.5	24	24	N/A

Table 1. Continued.

Date	Station	Tide	Maximum depth (m)	Surface temperature (°C)	Bottom temperature (°C)	Surface salinity (PSU)	Bottom salinity (PSU)	Secchi depth (m)
970604	13	ebb	2.4	12.0	8.0	27	27	2.50
970604	14	ebb	2.4	13.0	11.5	15	23	1.00
970604	15	ebb	5.9	14.0	13.0	10	18	1.25
970604	16	ebb	4.3	14.0	13.0	5	15	0.75
970604	17	high	3.9	13.0	13.0	3	9	1.00
970617	2	flood	3.0	14.0	14.0	21	24	1.50
970617	4	low	4.5	12.5	10.0	29	30	1.75
970617	5	low	5.2	8.5	9.0	30	32	4.50
970617	6	flood	5.2	14.0	11.0	16	26	1.50
970617	7	low	5.2	15.0	12.0	15	26	1.25
970617	8	low	3.7	13.5	13.5	5	26	1.75
970617	9	low	2.1	14.0	14.0	0	24	2.50
970618	11	ebb/low	3.9	14.0	14.0	27	27	2.75
970618	12	ebb	7.3	13.0	8.0	27	30	3.50
970618	13	ebb	2.1	15.0	15.0	29	29	2.50
970618	14	ebb	1.8	14.5	14.0	24	24	1.25
970618	15	ebb	4.6	16.5	13.5	19	25	1.50
970618	16	flood	3.7	16.0	14.5	17	21	1.25
970618	17	flood	2.4	16.0	15.0	15	20	1.25
970702	4	low	3.0	24.0	21.0	15	21	0.75
970702	5	low	5.5	21.5	16.0	18	27	1.25
970702	6	ebb	5.5	21.5	21.5	4	14	0.50
970702	7	ebb	5.2	21.0	21.0	0	1	0.50
970702	8	ebb	4.3	20.0	20.0	0	0	0.50
970702	9	ebb	3	17.5	18.5	0	1	0.50
970703	sea	ebb	13.1	16.0	16.0	15	25	5.50
970703	11	ebb/low	3.4	21.0	19.0	19	12	1.00
970703	12	ebb	7.6	17.0	13.0	25	25	2.00
970703	13	ebb/low	2.4	21.0	21.0	22	22	2.00

Table 1. Continued.

Date	Station	Tide	Maximum depth (m)	Surface temperature (°C)	Bottom temperature (°C)	Surface salinity (PSU)	Bottom salinity (PSU)	Secchi depth (m)
970703	14	ebb/low	1.8	21.0	20.0	4	5	0.75
970703	15	low	5.2	23.0	20.0	7	11	1.00
970703	16	low	4.0	23.0	22.0	5	14	0.50
970703	17	low	4.0	23.0	21.0	5	10	0.50
970715	2	high	3.0	23.0	20.5	14	21	N/A
970715	4	high	3.0	21.5	20.0	21	23	1.25
970715	5	high	4.6	17.0	17.0	28	28	N/A
970715	6	flood	4.9	21.0	19.0	2	14	0.75
970715	7	flood	5.5	20.5	17.0	0	24	0.75
970715	8	flood	4.0	19.0	17.0	0	20	1.00
970715	9	flood	2.7	17.0	17.0	0	0	1.00
970716	11	ebb	2.4	18.5	18.0	20	23	N/A
970716	12	flood	7.9	17.0	16.0	26	25	1.50
970716	13	high	2.1	18.0	17.0	25	15	2.00
970716	14	flood	2.4	20.0	18.9	20	28	1.00
970716	15	flood	4.3	20.5	19.0	10	22	0.75
970716	16	flood	4.3	21.0	19.0	7	17	0.75
970716	17	flood	3 7	21.0	19.0	5	16	0.75
970729	2	high	N/A	N/A	N/A	N/A	N/A	N/A
970729	4	flood	2.4	21.0	20.5	30	25	1.25
970729	5	flood	5.2	15.0	14.0	29	30	4.50
970729	6	low	5.8	20.0	20.0	15	24	2.25
970729	7	low	5.2	22.0	21.5	10	20	1.75
970729	8	low	4.0	20.5	21.0	5	15	2.00
970729	9	ebb	2.1	21.0	21.0	3	16	2.00
970730	11	low	1.8	21.0	21.0	17	20	2.00
970730	12	low	5.2	20.0	19.0	20	20	4.50
970730	13	low	2.4	20.0	21.0	25	25	2.25
970730	14	ebb	1.8	21.0	20.5	10	20	1.50

Table 1. Continued.

Date	Station	Tide	Maximum depth (m)	Surface temperature (°C)	Bottom temperature (°C)	Surface salinity (PSU)	Bottom salinity (PSU)	Secchi depth (m)
970730	15	ebb	5.2	21.5	22.0	10.5	21	1.50
970730	16	ebb	5.2	21.0	20.0	10	20	1.25
970730	17	high	4.0	21.5	22.0	15	19	1.50
970812	2	flood	3.4	24.0	24.0	N/A	N/A	1.60
970812	4	flood	1.8	23.0	24.0	N/A	N/A	1.50
970812	5	flood	6.7	20.0	19.0	N/A	N/A	N/A
970812	6	low	3.7	23.0	23.0	N/A	N/A	1.80
970812	7	low	5.2	24.0	22.5	N/A	N/A	2.30
970812	8	low	2.4	23.0	22.0	N/A	N/A	2.50
970812	9	low	2.7	21.0	21.0	N/A	N/A	2.70
970813	11	flood	2.7	21.1	21.0	28	29	2.70
970813	12	flood	7.5	20.0	20.0	30	30	3.50
970813	13	flood	2.4	21.0	21.0	28	29	2.40
970813	14	low/flood	2.1	22.0	22.0	25	22	2.50
970813	15	low	4.9	22.8	23.0	21	19	1.75
970813	16	low	4.3	22.0	22.0	20	17	1.80
970813	17	low	4.0	21.5	22.0	15	20	2.00
970926	6	flood	1.5	11.0	11.0	21	21	5.00
970926	8	flood	1.8	11.0	N/A	6	N/A	3.50
970927	12	high	7.9	12.0	12.0	30	30	4.00
970927	13	ebb	1.2	12.0	12.0	28	30	1.25
970927	15	high	5.5	11.0	11.0	20	25	2.50
970927	17	high	3.4	10.0	10.0	15	20	2.00
971014	2	high	3.4	9.0	8.0	30	30	2.00
971014	4	high	3.4	9.0	9.0	31	31	2.00
971014	5	high	4.0	9.0	8.0	30	31	1.90
971014	6	flood	3.4	9.0	9.0	25	27	3.40
971014	7	flood	4.3	10.0	10.0	22	25	3.00
971014	8	flood	3.7	9.0	10.0	10	21	2.25

Table 1. Continued.

Date	Station	Tide	Maximum depth (m)	Surface temperature (°C)	Bottom temperature (°C)	Surface salinity (PSU)	Bottom salinity (PSU)	Secchi depth (m)
971014	9	flood	1.8	8.0	10.0	3	13	1.50
971015	11	ebb	2.4	9.0	9.0	31	31	2.40
971015	12	ebb	3.0	8.0	8.0	31	31	2.50
971015	13	ebb	3.0	9.0	9.0	31	31	2.40
971015	14	ebb	2.1	9.0	9.0	29	30	1.90
971015	15	ebb	5.8	10.0	9.0	25	30	2.00
971015	16	ebb	3.7	11.0	10.0	22	24	2.00
971015	17	ebb	3.0	11.0	10.0	21	25	1.80
971111	2	ebb	5.2	6.0	6.0	22	25	2.50
971111	4	ebb	2.1	6.0	6.0	28	30	1.20
971111	5	flood	4.6	6.0	N/A	30	N/A	N/A
971111	6	flood	4.9	7.0	7.0	18	20	2.00
971111	7	flood	5.8	7.0	7.0	8	25	2.50
971111	8	flood	4.3	7.0	7.5	4	23	2.20
971111	9	flood	2.1	6.5	7.5	0	20	2.00
971112	11, 12, 13	low	3.7	1.0	2.0	30	30	0.75
971112	14	flood	1.8	3.0	3.0	18	20	1.25
971112	15	flood	3.0	4.0	3.0	15	18	1.25
971112	16	flood	1.8	3.0	4.0	10	18	0.75
971112	17	flood	1.8	4.5	4.5	13	20	1.25

Table 2. Uncorrected Chlorophyll a Concentration in the Kouchibouguac and St-Louis Estuaries at near surface (s) and near bottom (b) depths

(a) Chlorophyll concentration in the Kouchibouguac Lagoon

Date	Sample	Station	chla µg\10ml	chla µg\L
970603	B	2	10.257	1.084
970617	S	2	2.975	0.315
970617	B	2	1.644	0.174
970702	S	2	0.802	0.085
970715	S	2	3.400	0.359
970715	B	2	2.692	0.285
970812	S	2	1.403	0.148
970812	B	2	1.283	0.136
971014	S	2	4.179	0.442
971014	B	2	3.967	0.419
970520	S	4	1.042	0.110
970520	B	4	3.117	0.329
970603	S	4	3.131	0.331
970603	B	4	4.179	0.442
970702	S	4	2.285	0.242
970702	B	4	3.117	0.329
970715	S	4	5.667	0.599
970715	B	4	20.514	2.168
970729	S	4	2.085	0.220
970729	B	4	3.967	0.419
970812	S	4	1.563	0.165
970812	B	4	2.004	0.212
971014	S	4	3.329	0.352
971014	B	4	3.542	0.374

Table 2. Continued

(b) Chlorophyll concentration in the Kouchibouguac River

Date	Sample	Station	chla µg/10 ml	chla µg/L
970520	S	5	4.959	0.524
970520	B	5	4.109	0.434
970603	S	5	3.967	0.419
970603	B	5	0.561	0.059
970617	S	5	0.962	0.102
970617	B	5	1.443	0.153
970702	S	5	2.165	0.229
970702	B	5	0.882	0.093
970715	S	5	1.684	0.178
970715	B	5	1.604	0.170
970729	S	5	1.644	0.174
970729	B	5	1.924	0.203
970812	S	5	2.165	0.229
970812	B	5	2.245	0.237
971014	S	5	2.834	0.300
970520	S	6	0.802	0.085
970520	B	6	0.802	0.085
970603	S	6	0.702	0.074
970603	B	6	0.569	0.060
970702	S	6	1.363	0.144
970702	B	6	1.042	0.110
970715	S	6	1.323	0.140
970715	B	6	1.122	0.119
970729	S	6	2.325	0.246
970729	B	6	5.100	0.539
970812	S	6	0.922	0.097
970812	B	6	1.363	0.144
970926	S	6	1.122	0.119
970926	B	6	1.122	0.119
971014	S	6	3.117	0.329
971014	B	6	1.203	0.127
970520	S	7	0.641	0.068
970520	B	7	0.722	0.076
970603	S	7	0.802	0.085
970603	B	7	1.343	0.142

Table 2. Continued

(b) Chlorophyll concentration in the Kouchibouguac River

Date	Depth	Station	chla µg/10 ml	chla µg/L
970617	S	7	5.384	0.569
970617	B	7	1.684	0.178
970702	S	7	1.403	0.148
970702	B	7	1.042	0.110
970715	S	7	0.922	0.097
970715	B	7	0.962	0.102
970729	S	7	1.604	0.170
970729	B	7	2.004	0.212
970812	S	7	0.922	0.097
970812	B	7	1.684	0.178
971014	S	7	2.285	0.242
971014	B	7	4.534	0.479
970520	S	8	2.267	0.240
970520	B	8	2.345	0.248
970603	S	8	2.267	0.240
970603	B	8	0.641	0.068
970702	S	8	0.653	0.069
970702	B	8	0.678	0.072
970729	S	8	1.363	0.144
970729	B	8	4.534	0.479
970812	S	8	0.715	0.076
970812	B	8	1.122	0.119
970926	S	8	0.882	0.093
970926	B	8	1.684	0.178
971014	S	8	1.042	0.110
971014	B	8	4.958	0.524
970520	S	9	6.375	0.674
970520	B	9	0.264	0.028
970603	S	9	0.561	0.059
970603	B	9	1.558	0.165
970617	S	9	0.602	0.064
970617	B	9	1.523	0.161
970702	S	9	0.602	0.064
970702	B	9	0.502	0.053
970715	S	9	1.042	0.110
970715	B	9	0.593	0.063

Table 2. Continued

(b) Chlorophyll concentration in the Kouchibouguac River

Date	Sample	Station	chla µg/10 ml	chla µg/L
970729	S	9	1.323	0.140
970729	B	9	2.004	0.212
970812	S	9	0.802	0.085
970812	B	9	1.724	0.182
971014	S	9	1.523	0.161
971014	B	9	3.542	0.374

Table 2. Continued

(c) Chlorophyll concentration in St-Louis Lagoon

Date	Sample	Station	chla ug/10 ml	chla µg/L
970521	S	11	1.122	0.119
970521	B	11	4.109	0.434
970604	S	11	1.463	0.155
970604	B	11	1.684	0.178
970618	S	11	1.724	0.182
970618	B	11	1.644	0.174
970703	S	11	1.842	0.195
970703	B	11	2.409	0.255
970716	S	11	3.400	0.359
970716	B	11	1.523	0.161
970730	S	11	1.203	0.127
970730	B	11	1.343	0.142
970813	S	11	1.764	0.186
970813	B	11	1.924	0.203
971015	S	11	3.967	0.419
971015	S	11	3.542	0.374
970521	S	13	1.503	0.159
970521	B	13	1.203	0.127
970604	S	13	1.319	0.139
970604	B	13	1.223	0.129
970618	S	13	1.523	0.161
970618	B	13	1.523	0.161
970703	S	13	1.842	0.195
970703	B	13	1.439	0.152
970716	S	13	2.975	0.315
970716	B	13	2.550	0.270
970730	S	13	0.862	0.091
970730	B	13	1.243	0.131
970813	S	13	2.165	0.229
970813	B	13	3.400	0.359
970927	S	13	1.042	0.110
970927	B	13	1.203	0.127
971015	S	13	4.179	0.442
971015	B	13	3.967	0.419

Table 2. Continued

(d) Chlorophyll concentration in the St-Louis River

Date	Sample	Station	chla µg/10 ml	chla µg/L
970521	S	12	1.163	0.123
970521	B	12	1.884	0.199
970604	S	12	1.363	0.144
970604	B	12	1.439	0.152
970618	S	12	1.118	0.118
970618	B	12	1.038	0.110
970703	S	12	1.864	0.197
970703	B	12	1.022	0.108
970716	S	12	8.942	0.945
970716	B	12	8.722	0.922
970730	S	12	1.163	0.123
970730	B	12	0.882	0.093
970813	B	12	1.804	0.191
970813	B	12	2.085	0.220
970927	S	12	2.004	0.212
970927	B	12	1.684	0.178
971015	S	12	3.967	0.419
971015	B	12	0.238	0.025
970521	S	14	1.042	0.110
970521	B	14	1.563	0.165
970604	S	14	2.834	0.300
970604	B	14	4.959	0.524
970618	S	14	2.975	0.315
970618	B	14	3.684	0.389
970703	S	14	2.267	0.240
970703	B	14	2.550	0.270
970716	S	14	3.117	0.329
970716	B	14	2.409	0.255
970730	S	14	1.363	0.144
970730	B	14	1.804	0.191
970813	S	14	2.325	0.246
970813	B	14	2.245	0.237
971015	S	14	3.329	0.352
971015	B	14	4.817	0.509
970521	S	15	1.639	0.173

Table 2. Continued

(d) Chlorophyll concentration in the St. Louis River

Date	Depth	Station	chla µg/10 ml	chla µg/L
970521	B	15	1.082	0.114
970604	S	15	3.684	0.389
970604	B	15	1.596	0.169
970618	S	15	3.825	0.404
970618	B	15	4.250	0.449
970703	S	15	2.267	0.240
970703	B	15	1.684	0.178
970716	S	15	8.219	0.869
970716	B	15	2.834	0.300
970730	S	15	1.363	0.144
970730	B	15	2.165	0.229
970813	S	15	1.523	0.161
970813	B	15	1.924	0.203
970927	S	15	1.884	0.199
970927	B	15	2.205	0.233
971015	S	15	4.675	0.494
971015	B	15	5.384	0.569
970521	S	16	0.339	0.036
970521	B	16	6.092	0.644
970604	S	16	3.655	0.386
970604	B	16	2.125	0.225
970618	S	16	4.675	0.494
970618	B	16	3.712	0.392
970703	S	16	2.267	0.240
970703	B	16	2.834	0.300
970716	S	16	3.754	0.397
970716	B	16	0.922	0.097
970730	S	16	1.082	0.114
970730	B	16	2.165	0.229
970813	S	16	2.004	0.212
970813	B	16	2.165	0.229
971015	S	16	3.542	0.374
971015	B	16	5.100	0.539
970521	S	17	0.878	0.093
970521	B	17	6.375	0.674

Table 2. Continued

(d) Chlorophyll concentration in the St. Louis River

Date	Sample	Station	chla µg/10 ml	chla µg/L
970604	S	17	3.400	0.359
970604	B	17	4.959	0.524
970618	S	17	3.117	0.329
970618	B	17	3.953	0.418
970703	S	17	3.927	0.415
970703	B	17	2.267	0.240
970716	S	17	1.884	0.199
970716	B	17	2.125	0.225
970730	S	17	1.483	0.157
970730	B	17	3.259	0.344
970813	S	17	1.764	0.186
970813	B	17	1.844	0.195
970927	S	17	1.122	0.119
971015	S	17	4.250	0.449
971015	B	17	5.667	0.599

Table 3. List of phytoplankton taxa present in the Kouchibouguac estuary

Prokaryotic Taxa

Cyanophyta

Spirulina major
Cyanophyte sp.

Eukaryotic Taxa

Bacillariophyta

Centric

Achanthoceras sp.
Centric diatom 1
Centric diatoms
Chaetoceros debilis
Chaetoceros diadema
Chaetoceros sp.
Cyclotella sp.
Hemiaulus groenlandica
Melosira artica
Melosira jurgensii
Melosira sp.
Rhizosolenia fragilissima
Rhizosolenia hebata
Skeletonema costatum
Thalassiosira nordenskioeldii
Thalassiosira rotula

Pennate

Achnanthes lanceolata
Achnanthes delicatula
Achnanthes sp.
Amphiphora sp.
Cocconeis disculus
Cocconeis sp.
Cymbella sp.
Diatoma hiemle
Eunotia pectinalis
Fragilaria sp.
Gomphonema sp.
Gyrosigma sp.
Navicula sp.
Navicula transitans var. derosa
Nitzschia closterium
Nitzschia sp.
Opephora sp.
Pennate diatoms
Stauroneis sp.
Surirella ovata
Synedra pulchella

Synedra sp.

Table 3. Continued

Tabularia sp.
Thalassionema nitzschioides

Chlorophyta

Ankistrodesmus falcatus
Chlamydomonas sp.*1*
Chloroglea sp.
Chlorophyte sp.
Chlorophyte sp.1
Chlorophyte sp.2
Chlorophyte sp.3
Chlorophyte sp.4
Cosmarium sp.
Cryptomonas appendiculata
Desmidaceae sp.
Dunaliella sp.
Eremosphaera sp.
Euglena sp.
Euglenales spp.
Eutreptiella marina
Eutreptia sp.
Prasinophyte spp.
Pyramimona sp.
Rapidophyceae spp.
Scendesmus sp.
Tetraselmis sp.
Trachelomonas sp.
Volvocales sp.
Volvocales sp.1

Chrysophyta

Chrysochromulina sp.
Chrysophyte spp.
Coccolithophorid sp.
Coccolithophorid sp.1
Dictyophyceae sp.
Dinobryon sp.
Mallomonas sp.
Pseudopedinella sp.

Dinophyta

Armored dinoflagellates
Unarmored dinoflagellates

Incerte sedis

Photoautotrophic microflagellates (3 - 5 µm)
Photoautotrophic microflagellates (5 - 10 µm)

Table 4. Phytoplankton taxa frequency (cells/L) in the Kouchibouguac estuary

Collection date: 970506	Kouchibouguac Stations			
	5	6	8	9
Taxa				
Cryptophyceae				
Cryptomonas appendiculata		64235		0
Diatom - centric				
Melorsia artica		0		22482
Centric diatom 1		9635		0
Cyclotella sp.		3212		0
Centric diatoms		0		3212
Diatom - pennate				
Achnanthes sp.		12847		0
Navicula transistans var. derosa		6424		0
Synedra sp.		3212		0
Pennate diatoms		0		3212
Dinophyceae				
Unarmored dinoflagellates		35329		32118
Armored dinoflagellates		6424		6424
Euglenophyceae				
Euglenales spp.		0		3212
Trachelomonas sp.		22482		0
Chlorophyceae				
Dunaliella sp.		12847		12847
Oocystaceae				
Ankistrodesmus falcatus		6424		0
Photoautotrophic microflagellates				
µm 5 -10		507457		346869
µm 3 - 5		228035		0
Incerte sedis		298693		157376
Total cells/liter		1217255		587751

Table 4. Continued

Collection date:	970520	Kouchibouguac Stations			
		5	6	8	9
Taxa					
Cryptophyceae					
Cryptomonas appendiculata		333177		15531	
Diatom - centric					
Cheatoceros debilis		143768		0	
Chaetoceros sp.		125512		0	
Skeletonema costatum		70743		0	
Cheatoceros diadema		43359		0	
Thalassiosira rotula		34231		0	
Thalassiosira nordenskioeldii		27384		0	
Melorsia artica		22820		0	
Hemiaulus groenlandica		9128		0	
Rhizoslenia hebata		9128		0	
Melosira jurgensii					
Melosira sp.		2282		7766	
Rhizosolenia fragilissima		2282		0	
Centric diatoms		0		3883	
Diatom - pennate					
Pennate diatoms		15974		34946	
Achnanthes sp.		6846		0	
Cymbella sp.		2282		0	
Cocconeis disculus		2282		0	
Tabularia sp.		2282		0	
Nitzschia sp.		2282		0	
Opephora sp.		2282		0	
Dinophyceae					
Armored dinoflagellates		22820		15531	
Unarmored dinoflagellates		0		7766	
Euglenophyceae					
Euglenales spp.		0		42712	
Trachelomonas sp.		0		11649	
Chlorophyceae					
Dunaliella sp.		0		0	
Chlorophyte sp. 2		0		19414	
Chlorophyte sp.		0		11649	
Chlorophyte sp.1		0		11649	
Chrysophyceae					
Bodo sp.		0		3883	
Oocystaceae					
Ankistrodesmus falcatus		0		0	
Rapidophyceae sp.		13692		0	

Table. 4 Continued

Photoautotrophic microflagellates		
µm 3 - 5	0	128135
µm 5 -10	25102	73774
Incerte sedis	0	128135
Total cells/liter	919661	516421

Table 4. Continued

Collection date:	970603	Kouchibouguac Stations			
		5	6	8	9
Taxa					
Cryptophyceae					
Cryptomonas appendiculata		400775	459602	12388	18582
Diatom - centric					
Melosira sp.		35156	66483	9291	0
Skeletonema costatum		42187	0	0	0
Cyclotella sp.		0	0	3097	0
Centric diatom 1		2344	0	6194	0
Centric diatoms		0	0	3097	1549
Diatom - pennate					
Pennate diatoms		14062	63593	281831	144013
Nitzschia closterium		2344	0	3097	0
Achnanthes sp.		2344	0	0	0
Cocconeis sp.		0	8672	0	0
Synedra pulchella		0	5781	9291	0
Nitzschia sp.		0	5781	6194	6194
Navicula transitans var. derosa		0	2891	3097	0
Stauroneis sp.		0	0	6194	0
Surirella ovata		0	0	3097	0
Opephora sp.		0	0	3097	0
Gomphonema sp.		0	0	0	3097
Eunotia pectinalis		0	0	0	1549
Diatoma hiemale		0	0	0	1549
Gyrosigma sp.		0	0	0	1549
Dinophyceae					
Armored dinoflagellates		82030	37578	12388	1549
Euglenophyceae					
Eutrieptiella marina		103123	11562	0	0
Euglenales spp.		0	0	12388	9291
Euglena sp.		0	0	3097	0
Chlorophyceae					
Chlorophyte sp.		2344	0	3097	40262
Dunaliella sp.		0	0	37165	30970
Volvocales sp.1		0	0	30970	18582
Volvocales sp.2		0	0	24776	3097
Chlorophyte sp.3		0	0	15485	4646
Volvocales sp.		0	0	9291	4646
Oocystaceae					
Ankistrodesmus falcatus		0	0	3097	6194
Desmisdaceae sp.		0	2891	3097	1549
Rapidophyceae sp.		0	0	0	10840
Prasinophyceae					
Pyramimonas sp.		65624	37578	24776	0
Pterosperma sp.		0	0	3097	0
Prasinophyte sp.		0	0	0	10840

Table 4. Continued

Chrysophyceae				
Chrysochromulinas sp.	9375	5781	0	0
Mallomonas sp.	0	0	37165	12388
Bodo sp.	0	0	24776	4646
Chrysophyte sp.	0	0	9291	0
Pseudoapediella sp.	0	0	0	1549
Photoautotrophic microflagellates				
µm 3 - 5	74999	69374	83620	0
µm 5 - 10	21093	144529	235376	178080
Incerte sedis	89061	164763	266346	97557
Total cells/liter	946860	1086858	1189267	614764

Table 4. Continued

Collection date: 970617	Kouchibouguac Stations			
	5	6	8	9
Taxa				
Cryptophyceae				
Cryptomonas appendiculata	304074	311832	110565	
Diatom - centric				
Chaetoceros debilis	40543	0	0	
Chaetoceros sp.	47300	0	0	
Chaetoceros diadema	20272	0	0	
Centric diatom 1	4505	0	0	
Centric diatoms	2252	0	8672	
Diatom - pennate				
Pennate diatoms	18019	5256	88885	
Cocconeis sp.	0	1752	2168	
Nitzschia sp.	0	0	8672	
Achnanthes sp.	0	0	4336	
Cymbella sp.	0	0	4336	
Dinophyceae				
Armored dinoflagellates	20272	29782	6504	
Euglenophyceae				
Eutreptiella marina	9010	1752	0	
Trachelomonas sp.	2252	21022	2168	
Euglenales spp.	2252	1752	2168	
Eutreptia sp.	2252	0	0	
Chlorophyceae				
Chlorophyte sp.	15767	0	0	
Dunaliella sp.	2252	0	4336	
Volvocales sp.	0	31534	28183	
Cosmarium sp.	0	0	2168	
Prasinophyceae				
Pyramimona sp.	18019	22774	0	
Prasinophyte sp.	18019	0	6504	
Cyanophyceae	0	0	0	
Cyanophyte sp.	0	0	2168	
Spirulina major	0	0	2168	
Chrysophyceae				
Chrysophyte sp.	9010	0	8672	
Chrysochromulina sp.	4505	0	0	
Photoautotrophic microflagellates				
µm 5 -10	231997	166427	101893	
µm 3 - 5	0	0	32519	
Incerte sedis	130639	70075	60702	
Total Cells/liter	903212	663957	487785	

Table 4. Continued

Collection date: 970702	Kouchibouguac Stations			
	5	6	8	9
Taxa				
Cryptophyceae				
Cryptomonas appendiculata	957103	184552	8984	2748
Diatom - centric	0	0	0	0
Melosira sp.	0	13341	749	0
Chaetoceros sp.	19271	2224	0	0
Centric diatoms	32118	0	749	916
Centric diatom 1	77082	0	0	1832
Achanthoceras sp.	6424	0	0	0
Diatom - pennate				
Thalassionema nitzschioides	38541	0	0	0
Pennate diatoms	64235	48917	24705	44885
Nitzschia sp.	0	2224	1497	916
Cocconeis sp.	6424	0	8235	7328
Navicula sp.	0	0	749	0
Cymbella sp.	0	0	0	10992
Navicula transitans var. derosa	0	0	0	3664
Achanthes lanceolata	0	0	0	916
Fragilaria sp.	12847	0	0	0
Achnanthes sp.	12847	0	0	0
Achnanthes delicatula	12847	0	0	0
Nitzschia closterium	6424	0	0	0
Gyrosigma sp.	6424	0	0	0
Amphiphora sp.	6424	0	0	0
Dinophyceae				
Armored dinoflagellates	89929	37800	10481	4580
Unarmored dinoflagellates	0	0	4492	7328
Euglenophyceae				
Euglenales spp.	0	2224	1497	4580
Eutreptiella marina	44965	0	1497	0
Trachelomonas sp.	0	0	0	5496
Eutreptia sp.	70659	0	0	0
Chlorophyceae				
Chlamydomonas sp.1	0	20012	11230	4580
Chlorophyte sp. 3	0	24459	10481	8244
Chlorophyte sp. 4	57812	11118	5240	0
Dunaliella sp.	6424	4447	11978	15572
Cosmarium sp.	0	2224	0	0
Volvocales sp.1	0	0	8235	0
Volvocales sp.	0	0	749	916
Chlorophyte sp.	0	0	0	10076
Chloroglea sp.	0	0	0	6412
Oocstaceae				
Eremosphaera sp.	0	2224	0	916
Ankistrodesmus falcatus	0	2224	749	0

Table 4. Continued

Desmidaceae sp.	0	0	0	2748
Prasinophyceae				
Pyramimona sp.	154164	42247	4492	1832
Tetraselmis sp.	346869	0	0	0
Scenesdesmaceae				
Scendesmus sp.	0	17788	2246	5496
Cyanophyceae				
Cyanophyte sp.	0	4447	5989	16489
Spirulina major	0	0	0	916
Chrysophyceae				
Bodo sp.	51388	13341	11230	10076
Chrysophyte sp.	0	0	2995	11908
Dinobryon sp.	0	0	749	0
Pseudopedinella sp.	38541	0	0	0
Mallomonas sp.	0	0	2995	916
Dictyophyceae sp.	0	0	0	916
Coccolithophorid				
Coccolithophorid sp. 1	77082	60035	28448	0
Coccolithophorid sp.	51388	37800	14973	5496
Photoautotrophic microflagellates				
µm 5-10	0	102282	46416	53130
µm 3-5	0	44470	29946	47633
Incerte sedis	19271	142305	44170	72366
Total cells/liter	2267499	822703	306942	372824

Table 5. List of invertebrate zooplankton and ichthyoplankton identified in the Kouchibouguac and St. Louis estuaries. Note: *New records for Kouchibouguac Park* *

Cnidaria

Aurelia aurita
Cyanea sp.
Obelia sp. *
Sarsia sp. *

Ctenophora

Pleurobrachia pileus *

Nematoda (Unidentified spp.)

Rotifera

Ascomorpha sp. *
Brachionus sp. *
Keratella sp. *
Notholca sp. *

Mollusca

Littorina sp.
Mytilus edulis

Annelida

Polychaeta (unidentified spp.)
Oligochaeta (unidentified spp.)

Arachnida

Acari (unidentified spp.) *

Cladocera

Evadne nordmanni *
Evadne tergestina *
Podon leuckarti *

Ostracoda (unidentified spp.) *

Copepoda

Calanoida

Acartia sp. *
Calanus finmarchicus *
Calanus sp. *
Centropages hamatus *
Eurytemora sp. *
Labidocera aestiva *
Pseudocalanus minutus *
Temora longicornis *
Tortanus discaudatus *

Cyclopoida

Oithona sp. *

Table 5. Continued.

Harpacticoida (unidentified spp.) *

Branchiura
Argulus sp. *

Cirripedia
Balanus sp. (nauplius and cypris)

Mysidacea (unidentified spp.)

Amphipoda
Gammaridea
Gammarus mucronatus *

Isopoda
Idotea baltica
Jaera marina *

Decapoda
Cancer sp. (zoea)
Crangon septemspinosa

Osteichthyes
Alosa spp. (*A. pseudoharengus* and *A. aestivalis*)
Apeltes quadracus
Ammodytes sp.
Gasterosteus aculeatus
Microgadus tomcod
Osmerus mordax
Pleuronectes sp.

Insecta
Diptera (Chironimidae)
Ephemeroptera

Table 6. Abundances of zooplankton (# sp./1m^3) sampled in the Kouchibouguac and St. Louis estuaries with a 64 µm mesh conical net.

Date	Station	*Obelia* sp.	*Sarsia* sp.	Unknown jellyfish	*Ascomorpha* sp.	*Brachionus* sp.	*Keratella* sp.	*Notholca* sp.	Unknown illoricate	Nematoda
970506	6	0	0	0	0	0	0	36	0	17
970506	9	0	0	0	2	0	0	0	0	3
970520	2	0	0	0	0	0	0	1888	0	360
970520	4	0	0	0	5759	0	0	346	0	976
970520	5	0	0	0	3824	0	0	0	0	0
970520	6	0	0	0	1983	0	0	755	0	94
970520	7	0	0	0	531	0	0	106	212	0
970520	8	0	0	0	105	0	0	35	12	23
970520	9	0	0	0	28	0	14	0	24	24
970521	11	0	0	0	238	0	0	17	0	40
970521	12	102	0	0	91	0	0	23	0	45
970521	13	53	0	0	204	0	0	98	0	30
970521	14	85	0	0	8044	0	0	1359	0	28
970521	15	0	0	0	7613	0	0	1314	0	91
970521	16	0	0	0	2643	0	0	378	0	76
970521	17	0	0	0	5608	0	0	1869	0	57
970603	2	0	0	0	7536	0	0	287	0	0
970603	4	0	0	0	31651	203	0	0	0	609
970603	5	0	0	0	15268	0	0	343	0	0
970603	6	0	0	0	3710	0	0	348	0	0
970603	7	0	0	0	10861	0	0	1614	0	41
970603	8	0	0	0	420	0	0	1050	420	0
970603	9	0	0	0	393	0	7	36	0	15
970604	11	12	0	0	141	0	0	0	0	8
970604	12	36	0	0	15191	0	0	0	0	0
970604	13	183	0	0	8807	0	0	0	0	0
970604	14	0	0	0	88604	0	0	89	0	0
970604	15	0	0	0	10160	782	0	1563	0	0
970604	16	0	0	0	3365	182	0	546	0	0
970604	17	0	0	0	6827	931	0	621	0	0
970617	2	0	0	0	15166	0	0	659	0	0
970617	4	0	91	0	8549	0	0	0	0	91
970617	5	0	0	0	5032	0	0	162	0	0
970617	6	0	0	0	46329	0	0	1376	0	0
970617	9	0	0	0	9284	0	0	3376	2532	0
970618	12	143	0	143	855	0	0	0	0	0
970618	13	289	0	0	3463	0	0	0	0	577
970618	15	0	0	0	74172	0	0	0	0	0
970618	17	0	0	0	23583	0	0	310	0	0
970702	4	0	0	0	0	0	0	0	0	325
970702	5	76	0	0	76	0	0	0	0	0
970702	6	0	0	0	659	0	0	0	0	0
970702	9	0	0	0	0	0	4	0	14	14
970703	12	0	0	0	0	0	0	0	0	139
970703	13	0	0	0	265	0	0	0	0	265
970703	15	0	0	0	0	0	0	195	0	0
970703	17	0	0	0	0	0	0	840	0	0

Table 6. Continued.

Date	Station	Oligochaeta	Polychaeta	Trocophore	Unknown cladocera	*Evadne nordmanni*	*Evadne tergestina*	Barnacle nauplii	Copepod nauplii
970506	6	0	0	0	0	0	0	0	482
970506	9	1	0	0	0	0	0	0	5
970520	2	0	0	0	0	0	0	0	10070
970520	4	0	0	0	0	0	0	31	3587
970520	5	2549	0	0	0	0	0	0	11825
970520	6	94	0	0	0	0	0	0	10810
970520	7	106	0	0	0	0	0	0	25915
970520	8	0	0	0	0	0	0	0	3393
970520	9	0	0	0	5	0	0	0	33
970521	11	23	0	0	0	0	0	0	595
970521	12	363	0	0	0	0	0	23	2447
970521	13	45	0	0	0	0	0	0	1201
970521	14	1190	0	0	0	0	0	0	7449
970521	15	770	0	0	0	0	0	0	12326
970521	16	453	0	0	0	0	0	0	12160
970521	17	170	0	0	0	0	0	0	13991
970603	2	502	0	0	0	0	0	0	12345
970603	4	609	0	0	0	0	0	0	21709
970603	5	515	0	0	0	0	0	0	8320
970603	6	927	116	0	0	0	0	0	46954
970603	7	3600	0	0	0	0	0	0	76252
970603	8	0	0	0	0	0	0	0	41256
970603	9	0	0	0	0	0	0	0	793
970604	11	232	4	0	0	0	0	8	459
970604	12	2284	0	0	0	0	0	109	10768
970604	13	24220	0	0	0	0	0	183	20734
970604	14	13501	0	0	0	0	0	358	24587
970604	15	3908	0	0	0	0	0	0	232887
970604	16	1819	0	0	0	0	0	0	80673
970604	17	1241	0	0	0	0	0	0	150496
970617	2	99568	0	0	0	0	0	2638	186608
970617	4	6457	182	0	0	0	0	182	10550
970617	5	1785	487	2597	0	0	0	162	27593
970617	6	3670	0	0	0	0	0	0	94952
970617	9	61614	0	0	0	0	0	0	467588
970618	12	1141	285	0	0	0	0	285	22669
970618	13	12119	289	1443	0	0	0	1154	34338
970618	15	38684	0	0	0	0	0	639	113176
970618	17	16446	0	0	0	0	0	0	24824
970702	4	11200	0	0	0	0	0	0	13147
970702	5	686	0	0	0	229	0	76	7160
970702	6	659	0	0	0	0	220	0	45278
970702	9	0	0	0	0	0	0	0	4
970703	12	555	0	0	0	1111	0	0	48031
970703	13	1460	0	0	0	265	0	0	22693
970703	15	1563	0	0	0	0	0	195	28525
970703	17	210	0	0	0	0	0	0	21415

Table 6. Continued.

Date	Station	Copepodite	*Acartia* sp.	*Centropages hamatus*	*Eurytemora* sp.	*Temora longicornis*	*Tortanus discaudatus*	Unknown calanoid
970506	6	25	0	0	0	0	0	0
970506	9	1	0	0	0	0	0	0
970520	2	1618	225	0	0	0	0	450
970520	4	504	31	0	0	0	0	0
970520	5	2266	2478	0	0	0	0	0
970520	6	1275	94	0	0	0	0	0
970520	7	2443	0	0	0	0	0	0
970520	8	93	0	0	0	0	0	0
970520	9	5	0	0	0	0	0	0
970521	11	612	170	0	0	0	0	6
970521	12	4101	193	0	0	57	0	0
970521	13	710	302	0	0	15	0	0
970521	14	8780	340	0	0	0	0	0
970521	15	4713	45	0	0	0	0	0
970521	16	4834	0	0	0	0	0	0
970521	17	4192	57	0	0	0	0	0
970603	2	2512	144	0	0	0	0	0
970603	4	5275	0	0	0	0	0	0
970603	5	1887	343	0	0	0	0	0
970603	6	5101	0	0	0	0	0	0
970603	7	8854	41	0	0	0	0	0
970603	8	4724	0	0	0	0	0	0
970603	9	393	0	0	0	0	0	0
970604	11	178	4	0	0	4	0	0
970604	12	3118	399	0	0	363	0	0
970604	13	4954	1284	0	0	550	183	0
970604	14	7868	0	0	0	0	0	0
970604	15	34386	782	0	0	0	0	0
970604	16	3547	182	0	0	0	0	0
970604	17	8999	0	0	0	0	0	0
970617	2	85721	17144	0	0	659	0	0
970617	4	3456	819	0	0	0	0	0
970617	5	13472	10875	0	0	1948	0	325
970617	6	17890	2294	0	0	0	0	0
970617	9	52329	0	0	0	0	0	0
970618	12	22384	1283	0	0	1853	0	0
970618	13	26547	6925	0	0	1443	0	0
970618	15	70655	4476	0	0	639	320	0
970618	17	20170	3724	0	0	0	0	0
970702	4	25483	325	0	0	162	0	0
970702	5	9293	1371	381	381	2285	0	0
970702	6	25716	220	0	0	0	0	0
970702	9	4	0	0	0	0	0	0
970703	12	21101	416	0	0	3054	0	0
970703	13	21499	2123	0	0	398	0	0
970703	15	53631	2149	0	1368	2149	0	0
970703	17	62777	10498	0	1260	1260	0	0

Table 6. Continued.

Date	Station	Cyclopoida	Harpacticoida	Mysidacae	*Crangon septemspinosa*	Ostracoda	Insecta
970506	6	0	70	0	0	4	0
970506	9	1	10	0	0	0	21
970520	2	0	584	0	0	0	0
970520	4	0	378	31	0	0	0
970520	5	0	566	0	0	0	0
970520	6	0	330	0	0	0	0
970520	7	0	1806	0	0	0	0
970520	8	0	151	0	0	0	0
970520	9	0	33	0	0	0	71
970521	11	0	79	0	0	0	0
970521	12	0	11	0	0	0	0
970521	13	0	38	0	8	0	0
970521	14	0	453	0	0	0	0
970521	15	0	725	0	0	0	0
970521	16	0	982	0	0	0	0
970521	17	0	227	0	0	0	0
970603	2	0	502	0	0	0	0
970603	4	203	1217	0	0	0	0
970603	5	0	86	0	0	0	0
970603	6	116	1391	0	0	0	0
970603	7	331	455	0	0	0	0
970603	8	0	630	0	0	0	0
970603	9	0	487	0	0	0	87
970604	11	4	12	0	0	0	0
970604	12	109	0	0	0	0	0
970604	13	550	0	0	0	0	0
970604	14	358	983	0	0	0	0
970604	15	0	7815	0	0	0	0
970604	16	0	4275	0	0	0	0
970604	17	0	6516	0	0	0	0
970617	2	2638	3297	0	0	0	0
970617	4	364	0	0	0	0	0
970617	5	2759	649	0	0	0	0
970617	6	0	4587	0	0	0	0
970617	9	0	16036	0	0	0	0
970618	12	5560	855	0	0	0	0
970618	13	4617	289	0	0	0	0
970618	15	320	959	0	0	0	0
970618	17	310	3724	0	0	0	0
970702	4	0	649	0	162	0	0
970702	5	1752	457	0	0	0	0
970702	6	879	440	0	0	0	0
970702	9	7	341	0	0	21	14
970703	12	15409	0	0	139	0	0
970703	13	1460	0	0	0	0	0
970703	15	2735	0	0	0	0	0
970703	17	2939	0	0	0	0	0

Table 7. Abundances of zooplankton and ichthyoplankton (# sp./1000 m^3) sampled in the Kouchibouguac and St. Louis estuaries with a 500 µm mesh conical net.

Date	Station	*Globigerina sp.*	*Ascomorpha* sp.	*Aurelia aurita*	*Cyanea* sp.	*Obelia* sp.	*Sarsia* sp.	Unknown jellyfish	Ctenophora	Nematoda
970520	7	0	0	0	0	0	0	0	0	0
970520	8	0	0	0	0	0	0	0	0	0
970520	9	0	0	0	0	0	0	0	0	0
970603	2	0	0	0	24	12	2022	0	0	0
970603	4	0	62	0	10	0	637	0	0	0
970603	5	0	0	0	6	0	11	0	0	0
970603	6	0	0	0	0	0	34	0	0	11
970603	7	0	0	0	0	0	0	0	0	0
970603	8	0	0	0	0	0	0	0	0	0
970603	9	0	0	0	0	0	0	0	0	0
970604	12	13	0	0	0	6	478	0	0	6
970604	13	25	0	0	0	584	533	0	0	25
970604	14	0	0	0	0	6	35	0	0	0
970604	15	0	0	20	0	20	257	0	0	0
970604	16	0	0	0	0	10	0	0	0	0
970604	17	0	0	0	0	0	0	0	0	0
970617	2	0	0	0	0	0	145	0	0	0
970617	4	0	0	0	11	356	322	0	0	0
970617	5	0	0	0	0	48	2868	0	0	0
970617	6	0	0	0	0	0	470	0	0	0
970617	9	0	0	0	0	301	237	0	0	0
970618	12	0	0	0	0	137	1141	14	0	0
970618	13	0	0	16	0	968	1729	0	16	0
970618	15	0	0	0	0	619	301	0	0	0
970618	17	0	0	0	0	27	66	0	0	0
970702	4	0	0	0	0	0	0	0	0	508
970702	5	0	0	0	0	15	134	0	0	0
970702	6	0	0	0	0	0	0	0	0	0
970702	9	0	0	0	0	0	0	0	0	0
970703	12	0	0	0	0	14	318	0	0	0
970703	13	0	0	0	0	31	368	0	0	0
970703	15	0	0	0	0	0	0	0	0	0
970703	17	0	0	0	0	0	0	0	0	0

Table 7. Continued.

Date	Station	Oligochaeta	Polychaeta	Gastropoda	*Evadne nordmanni*	*Evadne tergestina*	*Podon leuckarti*	Ostracoda	Barnacle nauplius
970520	7	0	0	685	0	0	0	0	0
970520	8	0	0	0	0	0	0	0	0
970520	9	0	0	0	0	0	0	0	0
970603	2	0	0	0	0	0	0	0	0
970603	4	0	0	0	0	0	0	0	0
970603	5	6	0	0	0	0	0	0	0
970603	6	0	0	0	0	0	0	0	0
970603	7	0	0	0	0	0	0	0	0
970603	8	0	0	0	0	0	0	0	0
970603	9	0	0	0	0	0	0	0	0
970604	12	13	13	6	6	0	0	0	0
970604	13	0	25	152	0	0	0	0	0
970604	14	6	0	0	6	0	6	0	0
970604	15	0	0	0	0	0	0	0	0
970604	16	0	0	19	0	0	0	0	0
970604	17	0	0	43	0	0	0	0	0
970617	2	16	0	0	0	0	0	0	64
970617	4	23	0	0	0	34	0	0	0
970617	5	0	0	0	72	651	48	0	0
970617	6	0	0	0	0	28	0	0	0
970617	9	0	0	0	0	0	0	0	0
970618	12	0	0	0	0	96	0	0	14
970618	13	0	0	254	0	0	0	0	0
970618	15	50	0	0	0	33	17	0	0
970618	17	13	0	0	0	0	0	0	0
970702	4	20	81	142	0	0	0	20	0
970702	5	0	0	0	15	0	0	0	0
970702	6	0	0	63	0	0	0	0	0
970702	9	0	0	0	0	0	0	0	0
970703	12	0	0	0	28	41	14	0	0
970703	13	0	0	0	61	31	138	0	15
970703	15	0	0	0	23	34	0	0	0
970703	17	0	0	0	0	43	14	0	0

Table 7. Continued.

Date	Station	Barnacle cypris	*Mytilus edulis*	Acari	Copepod nauplius	Copepodid	*Acartia* sp.	*Calanus* sp.	*Calanus finmarchicus*	*Centropages hamatus*
970520	7	0	0	0	0	0	0	0	0	0
970520	8	0	0	119	0	0	0	0	0	0
970520	9	0	0	0	0	0	0	0	0	0
970603	2	0	47	0	0	12	0	0	0	0
970603	4	10	10	0	113	51	0	0	0	0
970603	5	11	0	0	6	6	0	0	0	0
970603	6	0	0	0	11	23	0	0	0	0
970603	7	0	0	0	0	26	0	0	0	0
970603	8	0	0	0	0	0	0	0	0	0
970603	9	0	0	0	0	0	0	0	0	0
970604	12	0	491	52	0	6	1298	0	0	0
970604	13	0	228	76	0	0	51	0	0	0
970604	14	0	0	12	6	6	6	0	6	0
970604	15	0	0	0	0	0	20	0	0	0
970604	16	0	0	10	10	0	0	0	0	0
970604	17	0	0	0	0	0	0	0	0	0
970617	2	0	0	0	597	48	16	0	0	32
970617	4	0	0	0	529	34	23	0	103	126
970617	5	72	0	24	0	24	2651	0	241	5013
970617	6	0	0	0	0	28	43	14	0	0
970617	9	0	0	0	0	0	174	127	0	16
970618	12	0	27	0	0	55	247	0	261	151
970618	13	0	63	0	0	48	634	0	222	79
970618	15	0	0	0	84	167	535	0	535	0
970618	17	0	0	0	106	0	53	0	66	13
970702	4	0	0	0	0	20	285	0	0	0
970702	5	0	0	0	0	0	731	0	30	75
970702	6	0	0	0	0	0	47	0	0	47
970702	9	0	0	0	0	0	0	0	0	0
970703	12	0	0	0	0	41	83	0	138	871
970703	13	0	0	0	0	46	1441	0	0	337
970703	15	0	0	0	0	34	68	0	0	0
970703	17	0	0	0	0	114	1927	0	0	14

Table 7. Continued.

Date	Station	*Eurytemora* sp.	*Labidocera aestiva*	*Pseudocalanus minutus*	*Temora longicornis*	*Tortanus discaudatus*	*Argulus* sp.	Harpacticoida	Cyclopoida
970520	7	37	0	0	0	0	0	0	0
970520	8	0	0	0	0	0	0	0	0
970520	9	0	0	0	0	0	0	0	0
970603	2	0	0	0	0	0	0	24	0
970603	4	0	0	0	0	0	0	0	0
970603	5	0	0	0	0	11	0	0	0
970603	6	0	0	0	0	0	0	0	0
970603	7	9	0	0	0	0	0	0	0
970603	8	0	0	0	0	0	0	0	0
970603	9	0	0	0	0	0	0	0	0
970604	12	6	0	6	0	994	0	6	0
970604	13	0	0	0	0	305	0	76	0
970604	14	0	0	0	0	310	0	0	0
970604	15	0	0	0	0	553	0	0	0
970604	16	0	0	0	0	29	0	0	0
970604	17	0	0	0	0	0	0	0	0
970617	2	0	0	0	0	0	0	48	0
970617	4	0	0	0	0	172	0	0	0
970617	5	48	0	0	96	1446	0	0	0
970617	6	0	0	0	0	0	0	28	0
970617	9	0	0	0	0	63	0	0	0
970618	12	0	0	0	27	880	0	0	0
970618	13	0	0	0	16	682	0	16	0
970618	15	0	0	0	0	585	0	284	0
970618	17	0	0	0	0	146	0	53	0
970702	4	41	0	0	0	0	0	203	0
970702	5	0	60	0	45	15	0	15	15
970702	6	0	31	0	16	0	0	0	0
970702	9	0	0	0	0	0	0	0	15
970703	12	0	0	14	235	401	0	0	0
970703	13	15	61	0	46	445	0	0	0
970703	15	0	0	0	0	0	23	0	0
970703	17	143	0	0	43	29	0	0	0

Table 7. Continued.

Date	Station	Mysidacae	*Crangon septemspinosa*	Crab zoea	Unknown amphipod	Gammaridea	*Gammarus mucronatus*	*Idotea baltica*	*Jeara marina*	*Unknown isopod*
970520	7	12	0	0	0	196	86	12	0	0
970520	8	0	0	0	0	0	0	0	0	0
970520	9	0	0	0	0	0	0	0	0	0
970603	2	24	59	0	0	411	12	59	24	0
970603	4	0	31	0	0	0	0	51	0	0
970603	5	0	0	0	0	0	0	6	0	0
970603	6	0	11	0	0	23	0	0	0	0
970603	7	0	0	0	0	0	0	0	0	0
970603	8	0	0	0	0	0	0	0	0	0
970603	9	0	0	0	0	0	0	0	0	0
970604	12	97	936	0	19	13	0	32	0	0
970604	13	0	0	0	0	76	0	330	0	0
970604	14	0	567	0	0	0	0	29	0	0
970604	15	20	1680	0	0	0	0	0	0	0
970604	16	0	67	0	0	0	0	10	0	0
970604	17	6	0	0	0	0	0	0	0	0
970617	2	0	32	0	0	0	0	16	0	0
970617	4	0	0	0	0	0	0	11	0	0
970617	5	24	217	1518	0	0	0	0	0	0
970617	6	0	0	114	0	43	0	0	71	0
970617	9	0	0	0	0	0	0	0	0	0
970618	12	0	357	1664	0	0	0	41	0	0
970618	13	0	0	508	0	32	0	32	0	16
970618	15	0	1104	33	0	17	0	100	0	0
970618	17	0	53	0	0	0	0	0	0	0
970702	4	0	183	0	203	41	0	0	41	0
970702	5	15	104	1223	0	30	0	75	0	15
970702	6	16	1071	94	0	16	0	16	0	0
970702	9	0	0	0	0	0	0	0	0	0
970703	12	0	124	1106	0	0	0	0	0	0
970703	13	31	153	429	0	46	0	138	0	0
970703	15	11	1287	0	0	0	0	0	0	0
970703	17	443	186	0	0	0	0	0	0	0

Table 7. Continued.

Date	Station	Fish eggs	*Alosa* spp.	*Apeltes quadracus*	*Ammodytes* sp.	*Gasterosteus aculeatus*	*Microgadus tomcod*	*Osmerus mordax*	*Pleuronectes* sp.	Unknown fish	Insecta
970520	7	0	0	12	0	0	0	0	0	0	0
970520	8	0	0	0	0	0	0	0	0	0	0
970520	9	0	0	0	0	0	0	0	0	0	0
970603	2	0	0	0	0	0	12	0	0	12	0
970603	4	10	0	0	0	0	0	0	10	21	0
970603	5	0	0	0	6	0	0	0	0	0	0
970603	6	0	0	0	0	0	0	23	0	0	0
970603	7	0	0	0	0	0	0	17	0	0	9
970603	8	0	0	0	0	11	0	64	0	0	2
970603	9	0	0	0	0	0	0	0	0	0	0
970604	12	174	0	0	0	0	0	6	6	0	0
970604	13	279	0	0	0	0	25	0	0	25	0
970604	14	35	0	0	0	0	0	6	0	6	0
970604	15	0	0	0	0	0	0	316	0	0	0
970604	16	10	0	0	0	0	0	181	0	0	0
970604	17	81	0	0	0	0	6	273	6	0	0
970617	2	0	0	0	0	0	0	16	0	0	0
970617	4	0	0	0	0	0	0	46	0	0	0
970617	5	0	0	0	0	0	0	48	24	0	0
970617	6	214	0	0	0	0	0	0	0	28	0
970617	9	0	0	0	0	0	0	0	0	0	16
970618	12	3726	0	0	0	0	0	0	0	0	0
970618	13	174	0	0	0	0	0	0	0	0	0
970618	15	33	0	0	0	0	0	0	0	0	0
970618	17	0	0	0	0	0	0	0	0	13	0
970702	4	0	0	0	0	0	0	0	0	0	0
970702	5	149	15	0	0	0	0	0	0	15	0
970702	6	0	79	0	0	0	0	0	0	16	0
970702	9	15	15	0	0	0	0	0	0	15	90
970703	12	138	0	0	0	0	0	0	0	0	0
970703	13	77	0	0	0	0	0	0	0	0	0
970703	15	0	46	0	0	23	0	0	0	23	0
970703	17	0	828	0	0	14	0	0	0	14	29

Appendix 1.1. Temperature and salinity data obtained from CTD casts in the Kouchibouguac and St. Louis estuaries on May 6,1997. Data are plotted in Appendix 2.1.

STATION 6		
Depth (m)	Temperature (°C)	Salinity (PSU)
0.2	8.31	1.23
0.3	8.16	1.22
0.4	8.04	1.20
0.5	8.11	1.22
0.6	8.05	1.20
0.7	8.07	1.20
0.9	8.02	1.21
1.0	8.06	1.20
1.1	8.09	1.21

STATION 9		
Depth (m)	Temperature (°C)	Salinity (PSU)
0.2	7.53	0.04
0.3	7.49	0.03
0.4	7.46	0.03
0.5	7.43	0.04
0.6	7.39	0.04
0.7	7.42	0.03
0.8	7.42	0.03
0.9	7.42	0.02
1.0	7.43	0.02
1.1	7.45	0.02
1.2	7.46	0.02
1.3	7.45	0.02
1.4	7.44	0.02
1.5	7.46	0.02
1.8	7.43	0.02

STATION 7		
Depth (m)	Temperature (°C)	Salinity (PSU)
0.2	7.81	0.51
0.4	7.75	0.51
0.5	7.60	0.49
0.6	7.49	0.48
0.7	7.52	0.49
0.8	7.51	0.50
0.9	7.50	0.50
1.0	7.49	0.50
1.1	7.50	0.50
1.3	7.50	0.50
1.4	7.48	0.53
1.5	7.40	0.57
1.7	7.39	0.58
1.8	7.39	0.60
1.9	7.38	0.62
2.0	7.36	0.63
2.1	7.36	0.70
2.2	7.33	0.84
2.3	7.30	1.01
2.4	7.25	1.43
2.5	7.14	5.78
2.7	6.33	10.76
2.8	5.55	18.43
2.9	5.12	19.13
3.0	4.70	20.86
3.1	4.34	21.44
3.2	4.14	22.11
3.3	4.07	22.19
3.4	4.06	22.73
3.5	3.92	23.14
3.6	3.99	22.76
3.7	3.85	23.39
3.8	3.84	23.29
3.9	3.81	23.42
4.0	3.78	23.59
4.1	3.77	23.62
4.2	3.75	23.69
4.3	3.71	23.75
4.5	3.72	23.76
4.6	3.72	23.75

Appendix 1.2. Temperature and salinity data obtained from CTD casts in the Kouchibouguac and St. Louis estuaries on May 20-21, 1997. Data are plotted in Appendix 2.2.

STATION 1		
Depth (m)	Temperature (°C)	Salinity (PSU)
0.1	10.79	3.99
0.2	11.13	4.34
0.3	11.16	4.48
0.4	11.14	4.78
0.6	11.32	5.08
0.7	11.39	5.35
0.8	11.37	5.63
0.9	11.40	5.78

STATION 2		
Depth (m)	Temperature (°C)	Salinity (PSU)
0.1	10.77	16.53
0.2	10.77	16.39
0.3	10.66	16.25
0.4	10.77	16.15
0.5	10.56	16.44
0.7	10.48	16.38
0.8	10.41	16.54
0.9	10.33	16.60
1.0	10.41	16.60
1.1	10.34	16.80
1.2	1030	17.42
1.3	10.33	17.43
1.5	10.20	17.84
1.6	9.83	18.71
1.9	9.41	20.16
2.0	9.32	20.96
2.1	9.31	21.16
2.2	9.04	21.69

STATION 3		
Depth (m)	Temperature (°C)	Salinity (PSU)
0.1	10.76	4.79
0.2	10.37	5.59
0.4	10.19	5.69
0.6	9.97	5.81
0.7	9.86	6.07
0.8	9.76	7.29
0.9	9.73	9.29
1.0	9.57	11.45
1.1	9.66	13.12
1.2	9.44	14.69
1.3	9.52	15.78
1.4	9.24	17.45
1.5	9.22	17.68
1.6	9.14	18.52
1.8	8.99	19.25
1.9	9.05	19.78
2.1	8.92	19.97
2.2	8.99	20.32
2.4	8.92	21.16
2.5	8.78	21.74
2.7	8.72	21.86
2.8	8.64	22.30
2.9	8.56	22.14
3.0	8.61	22.36
3.1	8.56	22.52
3.3	8.65	22.52
3.4	8.51	22.87
3.5	8.53	22.98
3.6	8.48	23.10
3.7	8.21	23.88
3.8	8.10	23.83
3.9	7.96	23.92
4.0	7.95	24.03
4.1	7.81	24.17
4.2	7.88	24.08
4.3	7.73	24.23
4.4	7.65	24.49
4.5	7.68	24.36
4.6	7.64	24.34
4.7	7.61	24.44
4.8	7.66	24.44

Appendix 1.2. Continued.

STATION 4		
Depth (m)	Temperature (°C)	Salinity (PSU)
0.1	10.26	15.44
0.2	10.25	15.78
0.3	10.22	16.44
0.5	10.16	16.87
0.6	10.30	17.06
0.7	10.12	18.61
0.8	9.98	21.06
1.0	9.36	23.22
1.1	9.29	23.91
1.2	9.07	24.14
1.3	9.28	23.95
1.4	9.05	24.65
1.5	9.12	24.70
1.6	8.99	24.73

STATION 5		
Depth (m)	Temperature (°C)	Salinity (PSU)
0.1	8.42	22.48
0.2	8.48	22.49
0.3	8.44	22.71
0.4	8.46	22.52
0.5	8.45	22.82
0.6	8.40	22.56
0.7	8.43	22.70
0.8	8.48	22.67
0.9	8.47	22.61
1.1	8.42	22.68
1.3	8.55	22.46
1.4	8.45	22.67
1.5	8.45	22.72
1.6	8.45	22.83
1.7	8.40	22.77
1.8	8.47	22.84
2.0	8.37	22.78
2.2	8.48	22.71
2.3	8.45	22.78
2.4	8.51	22.64
2.6	8.44	22.87
2.7	8.50	22.63
2.8	8.42	22.88
3.0	8.42	22.88
3.1	8.47	22.86
3.2	8.41	22.84
3.3	8.46	22.79
3.4	8.55	22.62
3.6	8.43	22.87
3.7	8.57	22.52
3.8	8.46	22.84
4.0	8.39	22.81
4.2	8.43	22.85
4.3	8.56	22.63

Appendix 1.2. Continued.

STATION 7		
Depth (m)	Temperature (°C)	Salinity (PSU)
0.1	10.55	1.56
0.2	10.51	1.66
0.3	10.42	2.31
0.5	10.58	3.25
0.6	10.58	4.09
0.7	10.69	4.10
0.8	10.67	4.43
0.9	10.57	5.89
1.0	10.60	7.41
1.1	10.49	15.48
1.2	9.97	18.49
1.3	9.33	19.51
1.5	8.53	20.70
1.6	7.92	21.62
1.9	7.38	22.60
2.0	7.37	22.58
2.1	7.11	23.33
2.2	7.05	23.38
2.3	6.92	23.52
2.4	6.86	23.79
2.5	6.76	23.93
2.6	6.79	23.90
2.7	6.61	24.10
2.8	6.75	23.88
2.9	6.54	24.39
3.0	6.59	24.36
3.1	6.52	24.39
3.2	6.46	24.64
3.3	6.39	24.63
3.4	6.42	24.81
3.5	6.29	24.80
3.6	6.46	24.92
3.7	6.26	24.97
3.8	6.48	24.71

STATION 8		
Depth (m)	Temperature (°C)	Salinity (PSU)
0.1	9.92	0.32
0.2	9.84	0.32
0.3	9.90	0.32
0.4	9.82	0.33
0.5	9.93	0.33
0.7	9.88	0.33
0.8	9.87	0.34
0.9	9.89	0.34
1.0	9.88	0.35
1.1	9.88	0.34
1.2	9.86	0.35
1.3	9.89	0.36
1.4	9.69	0.72
1.5	9.58	1.59
1.6	9.07	8.82
1.9	7.47	18.37
2.1	6.80	21.13
2.2	6.59	22.14
2.4	6.33	23.09
2.5	6.33	23.40
2.6	6.24	23.53
2.7	6.30	23.77
2.8	6.10	23.90
2.9	6.18	24.02
3.0	6.23	23.87

STATION 9		
Depth (m)	Temperature (°C)	Salinity (PSU)
0.1	9.23	0.03
0.2	9.24	0.03
0.3	9.24	0.03
0.4	9.24	0.03
0.5	9.24	0.03
0.6	9.25	0.03
0.7	9.22	0.03
0.8	9.21	0.03
0.9	9.19	0.03
1.1	9.14	0.03
1.2	9.12	0.03
1.3	9.08	0.03
1.4	9.03	0.03
1.5	9.06	0.03
1.6	9.05	0.03

Appendix 1.2. Continued.

STATION 11		
Depth (m)	Temperature (°C)	Salinity (PSU)
0.1	10.99	14.67
0.2	11.08	14.81
0.3	11.16	14.83
0.5	11.19	14.83
0.6	11.12	14.99
0.7	11.23	15.05
0.8	11.19	15.18
0.9	11.25	15.44
1.0	11.18	15.44
1.1	11.30	15.39
1.2	11.16	15.71
1.3	11.29	15.61
1.4	11.14	16.06
1.5	11.17	16.19
1.6	11.14	16.61
1.7	10.99	17.39
1.9	10.91	17.14
2.0	10.84	16.72
2.1	11.13	16.79
2.2	10.84	17.28
2.3	10.95	16.89

STATION 13		
Depth (m)	Temperature (°C)	Salinity (PSU)
0.1	11.06	21.55
0.2	11.14	21.45
0.3	11.08	21.64
0.4	11.06	21.53
0.5	11.22	21.36
0.6	11.08	21.71
0.7	11.01	21.69
0.8	11.13	21.59
1.0	11.09	21.73
1.1	11.02	21.74
1.3	11.06	21.70
1.4	10.89	22.08
1.5	10.96	21.76

STATION 12		
Depth (m)	Temperature (°C)	Salinity (PSU)
0.1	9.02	22.17
0.2	8.90	22.34
0.3	8.76	22.80
0.5	8.74	24.28
0.7	8.05	25.07
0.8	7.78	26.04
1.0	6.96	26.94
1.2	6.82	27.32
1.5	6.48	27.76
1.6	6.43	27.67
1.8	6.18	28.16
2.0	6.05	28.13
2.1	6.19	27.77
2.2	5.96	28.19
2.3	5.99	27.99
2.5	5.81	28.41
2.6	5.71	28.42
2.7	5.83	28.16
2.8	5.80	28.26
2.9	5.51	28.67
3.0	5.57	28.42
3.1	5.42	28.61
3.2	5.33	28.73
3.4	5.31	28.68
3.6	5.10	29.00
3.7	5.06	28.82
3.8	5.09	28.67
4.0	4.81	29.09
4.1	4.76	29.04
4.2	4.69	29.02
4.4	4.58	29.06
4.5	4.39	29.34
4.7	4.49	28.97
4.8	4.41	29.29
4.9	4.41	29.09
5.0	4.35	29.45
5.1	4.31	29.32
5.2	4.29	29.29
5.4	4.24	29.31
5.7	4.34	29.12
5.8	4.21	29.41
6.0	4.29	29.09
6.1	4.22	29.45
6.3	4.24	29.38
6.4	4.24	29.28
6.7	4.29	29.06
6.8	4.18	29.53
6.9	4.28	29.25

Appendix 1.2. Continued.

STATION 14		
Depth (m)	Temperature (°C)	Salinity (PSU)
0.1	10.40	11.03
0.2	10.21	11.34
0.3	9.97	12.67
0.4	9.64	14.80
0.6	9.60	15.84
0.7	9.35	17.69
0.8	9.34	18.29
0.9	9.22	19.02
1.0	9.08	19.62
1.1	9.01	19.86
1.2	9.13	19.85
1.4	8.99	20.29
1.5	8.99	20.43

STATION 15		
Depth (m)	Temperature (°C)	Salinity (PSU)
0.1	10.37	4.04
0.2	10.29	4.08
0.4	10.31	4.04
0.5	10.32	4.05
0.6	10.15	4.12
0.7	9.85	4.11
0.8	9.57	4.18
1.0	9.25	4.35
1.2	9.01	4.65
1.3	8.81	6.77
1.4	8.75	9.13
1.5	8.83	13.75
1.7	8.79	16.22
1.9	8.89	17.11
2.0	8.77	17.61
2.1	8.88	18.16
2.2	8.78	18.58
2.4	8.84	18.81
2.6	8.76	19.21
2.7	8.88	19.16
2.9	8.76	19.54
3.0	8.85	19.48
3.1	8.81	19.67
3.2	8.75	19.75
3.3	8.83	19.66
3.4	8.89	19.64
3.5	8.78	19.92
3.6	8.77	19.78
3.7	8.93	19.72
3.8	8.81	20.04

STATION 16		
Depth (m)	Temperature (°C)	Salinity (PSU)
0.1	10.33	1.73
0.2	10.36	1.65
0.3	10.26	1.66
0.4	10.19	1.65
0.5	10.29	1.64
0.6	10.27	1.65
0.7	10.23	1.67
0.8	10.20	1.69
0.9	10.18	1.71
1.0	10.17	1.73
1.1	9.99	1.87
1.2	9.85	2.03
1.3	9.88	2.17
1.5	9.79	2.71
1.6	9.57	4.21
1.9	9.03	6.72
2.0	8.71	10.04
2.1	8.69	11.07
2.2	8.50	13.41
2.3	8.41	14.56
2.5	8.33	16.54
2.6	8.21	16.95
2.7	8.29	17.05
2.8	8.35	17.67
2.9	8.19	18.17
3.0	8.24	18.27
3.2	8.19	18.58
3.3	8.15	18.76
3.4	8.23	18.09

Appendix 1.2. Continued.

STATION 17		
Depth (m)	**Temperature (°C)**	**Salinity (PSU)**
0.1	10.19	1.17
0.2	10.04	1.24
0.4	9.94	1.26
0.5	9.93	1.26
0.6	9.98	1.36
0.7	9.75	1.49
0.8	9.66	1.76
0.9	9.62	2.32
1.0	9.44	2.92
1.1	9.25	3.64
1.3	9.21	4.49
1.4	9.00	7.85
1.5	8.90	7.63
1.6	8.88	8.14
1.7	8.76	9.30
1.9	8.63	10.89
2.0	8.66	12.24
2.1	8.53	13.31
2.2	8.46	13.36
2.3	8.54	14.49
2.4	8.48	14.99
2.5	8.38	14.99
2.6	8.45	15.33
2.7	8.45	16.11
2.9	8.18	16.51
3.0	8.19	15.38

Appendix 1.3. Temperature and salinity data obtained from CTD casts in the Kouchibouguac and St. Louis estuaries on June 3-4, 1997. Data plotted in Appendix 2.3.

STATION 1		
Depth (m)	Temperature (°C)	Salinity (PSU)
0.1	15.23	2.77
0.2	15.39	2.99
0.3	15.38	3.22
0.4	15.19	4.05
0.5	15.06	5.22
0.6	14.94	5.31
0.7	14.89	5.47
0.8	14.86	5.58
1.0	14.86	5.70
1.1	14.92	5.73
1.2	15.03	5.74
1.3	15.10	5.89
1.4	15.17	6.44
1.5	15.18	6.58
1.6	15.18	6.76

STATION 2		
Depth (m)	Temperature (°C)	Salinity (PSU)
0.1	15.2622	14.4727
0.2	15.2496	14.4786
0.3	15.2497	14.4352
0.4	15.2236	14.4378
0.5	15.2419	14.5847
0.6	15.1196	14.6103
0.7	15.2314	14.6431
0.8	15.2281	14.5982
0.9	15.2065	14.7087
1.0	15.0983	14.7033
1.1	15.1563	14.7789
1.2	15.0592	14.8093
1.3	15.142	15.0145
1.4	14.8458	15.1338
1.5	14.8755	15.2026
1.6	14.7833	15.3287
1.7	14.8236	15.2331

STATION 4		
Depth (m)	Temperature (°C)	Salinity (PSU)
0.1	13.90	18.95
0.2	13.85	18.94
0.3	13.84	18.88
0.4	13.71	18.94
0.5	13.72	18.81
0.6	13.69	18.93
0.7	13.66	18.92
0.8	13.63	18.95

STATION 5		
Depth (m)	Temperature (°C)	Salinity (PSU)
0.1	12.66	20.91
0.2	12.63	21.36
0.3	12.59	21.45
0.4	12.59	21.61
0.5	12.59	21.78
0.6	12.59	21.83
0.7	12.57	22.03
0.8	12.49	22.16

Appendix 1.3. Continued.

STATION 6		
Depth (m)	Temperature (°C)	Salinity (PSU)
0.1	14.02	4.25
0.2	14.04	4.27
0.3	14.05	4.29
0.4	13.99	4.28
0.5	13.58	4.36
0.7	13.13	4.52
0.8	12.55	4.69
0.9	12.02	4.99
1.0	11.88	5.72
1.1	11.56	6.00
1.2	11.37	6.89
1.3	11.28	8.76
1.4	11.29	9.89
1.5	11.15	14.37
1.8	11.04	18.22
1.9	10.88	19.37
2.0	10.84	20.07
2.1	10.89	20.42
2.2	10.77	21.04
2.3	10.84	21.32
2.4	10.76	21.74
2.5	10.71	21.88
2.6	10.82	21.97
2.7	10.69	22.49
2.8	10.66	22.63
3.0	10.57	23.15
3.1	10.60	23.16
3.3	10.55	23.38
3.4	10.47	23.81
3.5	10.44	23.92
3.6	10.48	23.97
3.7	10.14	24.94
3.8	10.16	24.79
3.9	10.09	25.06
4.0	10.01	25.31
4.1	10.01	25.42

STATION 7		
Depth (m)	Temperature (°C)	Salinity (PSU)
0.1	13.64	1.90
0.2	13.66	1.98
0.3	13.68	2.01
0.5	13.68	2.01
0.6	13.53	1.99
0.7	13.66	2.03
0.8	13.58	2.07
0.9	13.54	2.15
1.0	13.49	2.39
1.1	13.29	2.72
1.2	13.34	3.14
1.3	13.04	3.93
1.4	12.93	5.29
1.5	12.62	8.37
1.6	12.04	12.55
1.7	11.56	15.83
1.9	11.15	17.72
2.0	10.82	19.01
2.1	10.81	19.73
2.2	10.56	20.44
2.3	10.48	20.74
2.4	10.52	20.89
2.5	10.41	21.26
2.6	10.33	21.45
2.7	10.39	21.53
2.8	10.29	21.95
2.9	10.19	22.19
3.0	10.24	22.11
3.1	10.18	22.29
3.2	10.18	22.33
3.3	10.28	22.29
3.4	10.19	22.69
3.5	10.14	22.85
3.6	10.28	22.96
3.7	10.39	23.73
3.8	10.34	24.27
3.9	10.42	24.24
4.0	10.44	24.33
4.1	10.38	24.59
4.2	10.41	24.39
4.3	10.36	24.56

Appendix 1.3. *Continued.*

STATION 8		
Depth (m)	Temperature (°C)	Salinity (PSU)
0.1	12.07	0.56
0.2	12.06	0.54
0.3	12.06	0.53
0.4	12.08	0.52
0.5	12.15	0.52
0.6	12.09	0.54
0.7	12.05	0.53
0.8	12.08	0.52
0.9	12.03	0.54
1.0	11.97	0.54
1.1	12.04	0.55
1.2	12.00	0.59
1.3	11.88	0.69
1.4	11.86	0.87
1.5	11.88	1.01
1.6	11.89	1.16
1.8	11.79	2.26
1.9	11.62	3.89
2.0	11.59	7.05
2.1	11.09	14.37
2.2	11.17	14.24

STATION 9		
Depth (m)	Temperature (°C)	Salinity (PSU)
0.1	11.06	0.04
0.2	11.06	0.04
0.3	11.04	0.06
0.5	10.94	0.08
0.6	10.99	0.08
0.7	10.98	0.08
0.8	10.94	0.08
0.9	10.96	0.09
1.0	10.95	0.11
1.1	10.98	0.11
1.2	10.98	0.12

STATION 11		
Depth (m)	Temperature (°C)	Salinity (PSU)
0.1	13.95	21.20
0.2	13.84	21.45
0.4	13.60	21.72
0.5	13.85	21.61
0.6	13.79	21.36
0.7	13.83	21.53
0.9	13.77	21.53
1.0	13.72	21.67
1.1	13.82	21.47
1.2	13.76	21.73
1.3	13.73	21.65
1.4	13.82	21.52
1.5	13.76	21.70
1.6	13.78	21.68
1.7	13.69	21.94
1.9	13.61	21.91
2.0	13.73	21.73
2.1	13.62	21.98
2.2	13.51	22.20
2.3	13.54	22.07
2.4	13.46	22.18
2.5	13.47	22.12
2.6	13.48	22.17
2.8	13.49	22.07
2.9	13.47	22.19
3.0	13.41	22.24
3.2	13.39	22.29
3.3	13.33	22.28
3.4	13.39	22.34

STATION 12		
Depth (m)	Temperature (°C)	Salinity (PSU)
0.1	12.78	21.77
0.2	12.79	21.91
0.3	12.84	21.86
0.4	12.78	22.07
0.5	12.79	21.78
0.6	12.84	21.94
0.7	12.81	21.88
0.8	12.89	21.82
1.0	12.81	22.02
1.1	12.84	21.93
1.2	12.84	22.06
1.4	12.94	21.96
1.5	12.82	22.21
1.6	12.84	22.18
1.9	12.82	22.18
2.0	12.89	22.13
2.1	12.76	22.30
2.2	12.87	22.19

Appendix 1.3. Continued.

STATION 13		
Depth (m)	Temperature (°C)	Salinity (PSU)
0.1	13.52	24.21
0.2	13.49	24.36
0.4	13.49	24.28
0.5	13.41	24.08
0.6	13.46	24.15
0.7	13.39	24.35
0.8	13.45	24.28
0.9	13.45	24.47
1.0	13.39	24.55
1.1	13.50	24.38
1.2	13.44	24.59
1.3	13.38	24.85
1.4	13.37	24.59
1.5	13.44	24.59
1.6	13.46	24.59

STATION 14		
Depth (m)	Temperature (°C)	Salinity (PSU)
0.1	14.37	13.94
0.2	14.21	14.41
0.3	13.64	16.23
0.5	13.11	18.61
0.6	12.59	20.76
0.7	12.49	21.16
0.8	12.39	21.75
1.0	11.67	23.74
1.1	11.35	24.28
1.2	11.27	24.27

STATION 15		
Depth (m)	Temperature (°C)	Salinity (PSU)
0.1	14.37	10.86
0.3	14.08	12.57
0.4	14.10	12.82
0.5	13.99	13.33
0.6	13.89	13.64
0.7	13.89	14.19
0.8	13.77	14.63
0.9	13.69	15.17
1.0	13.66	15.97
1.1	13.69	16.29
1.2	13.55	16.92
1.3	13.46	17.02
1.4	13.56	16.99
1.5	13.51	17.19
1.6	13.52	17.41
1.7	13.52	17.63
1.8	13.44	17.45

STATION 16		
Depth (m)	Temperature (°C)	Salinity (PSU)
0.1	14.45	4.56
0.2	14.46	4.54
0.3	14.42	4.59
0.4	14.37	5.21
0.5	14.29	5.99
0.6	14.24	6.09
0.7	14.16	6.49
0.8	14.07	7.59
0.9	13.94	9.05
1.0	13.93	9.89
1.1	13.94	10.82
1.2	13.74	11.83
1.3	13.84	11.89
1.4	13.58	12.51
1.5	13.71	13.37
1.6	13.47	15.06
1.8	13.20	16.18
1.9	13.16	16.29
2.0	13.23	16.31
2.1	13.06	16.69
2.2	13.08	16.60
2.3	13.09	16.71
2.4	13.06	16.89
2.5	13.07	16.88
2.6	13.08	16.91
2.7	13.03	17.03

Appendix 1.3. Continued.

STATION 17		
Depth (m)	Temperature (°C)	Salinity (PSU)
0.1	14.03	3.03
0.2	14.03	3.77
0.3	14.03	4.30
0.5	13.91	6.61
0.6	13.86	7.36
0.7	13.78	8.85
0.8	13.57	9.75
0.9	13.52	10.32
1.0	13.44	10.73
1.1	13.37	10.72
1.2	13.51	10.64
1.3	13.37	10.78
1.4	13.31	11.38
1.5	13.29	12.79
1.6	13.25	13.00
1.8	13.19	13.14
2.0	13.25	13.38
2.1	13.27	14.37
2.2	13.21	14.42
2.3	13.17	14.49
2.4	13.07	14.63
2.5	13.01	14.67
2.6	13.01	14.73
2.7	12.89	14.97
2.8	12.89	15.06
2.9	13.02	15.06
3.0	12.89	15.21
3.1	12.87	15.27
3.2	12.93	15.18

Appendix 1. 4. Temperature and salinity data obtained from CTD casts in the Kouchibouguac and St. Louis estuaries on June 17-18, 1997. Data plotted in Appendix 2.4.

STATION 2		
Depth (m)	Temperature (°C)	Salinity (PSU)
0.1	16.89	20.80
0.2	16.68	20.96
0.3	16.55	21.05
0.4	16.49	21.07
0.5	16.54	21.03
0.6	16.29	21.43
0.7	16.36	21.19
0.8	16.47	21.07
0.9	16.43	21.19
1.0	16.35	21.26
1.1	16.37	21.19
1.2	16.42	21.21
1.3	16.22	21.76
1.4	16.15	21.69
1.5	15.89	22.05
1.6	15.66	22.35
1.8	15.48	22.68
1.9	15.16	23.34
2.0	14.82	23.58
2.1	14.67	23.67
2.2	14.55	23.91
2.3	14.46	24.04
2.4	14.54	24.21

STATION 4		
Depth (m)	Temperature (°C)	Salinity (PSU)
0.1	14.40	24.91
0.2	14.39	24.89
0.3	14.39	24.85
0.4	14.31	24.91
0.5	14.09	25.05
0.6	12.64	25.68
0.7	12.66	25.99
0.8	11.68	26.57
0.9	10.68	27.27
1.0	10.26	27.68

STATION 5		
Depth (m)	Temperature (°C)	Salinity (PSU)
0.1	10.61	27.16
0.3	10.62	27.17
0.4	10.61	27.18
0.5	10.57	27.24
0.6	10.18	27.06
0.7	10.08	27.27
0.9	10.01	27.26
1.0	9.85	27.38
1.1	9.82	27.42
1.2	9.71	27.44
1.4	9.83	27.28
1.5	9.73	27.52
1.7	9.71	27.56
1.8	9.66	27.45
1.9	9.81	27.31
2.1	9.69	27.31
2.2	9.65	27.41
2.5	9.58	27.58
2.6	9.58	27.29
2.7	9.56	27.45
2.9	9.50	27.22
3.0	9.35	27.49
3.1	9.24	27.59
3.2	9.23	27.65
3.4	9.17	27.47
3.5	9.18	27.49
3.6	9.27	27.25
3.7	9.16	27.55
3.8	9.18	27.46
4.0	9.07	27.70
4.1	9.00	27.58
4.2	9.08	27.41
4.3	8.98	27.46
4.5	8.95	27.36

Appendix 1.4. Continued.

STATION 6		
Depth (m)	Temperature (°C)	Salinity (PSU)
0.1	17.18	15.60
0.2	16.52	18.37
0.3	15.50	20.62
0.4	15.94	17.15
0.5	15.24	18.34
0.6	14.76	20.24
0.7	14.16	21.54
0.8	13.67	22.98
0.9	13.31	23.76
1.0	13.18	24.19
1.2	12.94	24.60
1.3	12.79	24.89
1.4	12.64	25.15
1.5	12.56	25.22
1.7	12.59	25.19
1.8	12.44	25.49
2.0	12.37	25.43
2.1	12.17	25.72
2.2	12.20	25.68
2.3	12.07	25.83
2.4	12.04	25.77
2.5	11.96	25.96
2.6	11.81	26.13
2.7	11.66	26.16
2.8	11.61	26.23
2.9	11.28	26.58
3.0	11.07	26.75
3.1	10.92	26.73
3.2	10.78	26.84
3.4	10.61	27.16
3.5	10.49	27.01
3.6	10.32	27.24
3.8	10.38	27.17
3.9	10.36	27.04
4.1	10.32	27.18
4.2	10.28	27.17
4.3	10.30	27.05
4.5	10.21	27.28
4.6	10.21	27.21

STATION 7		
Depth (m)	Temperature (°C)	Salinity (PSU)
0.1	16.91	14.38
0.2	16.74	14.71
0.3	16.45	15.17
0.4	16.27	15.19
0.5	16.18	15.13
0.6	16.09	15.15
0.7	15.82	15.30
0.8	15.58	15.49
0.9	15.36	15.63
1.0	15.03	16.14
1.2	14.59	17.76
1.3	14.23	20.78
1.5	13.79	22.32
1.7	13.36	23.53
1.9	13.17	23.91
2.0	13.09	24.10
2.1	12.82	24.56
2.2	12.45	25.09
2.3	12.53	24.98
2.5	12.51	25.06
2.6	12.39	25.09
2.7	12.46	25.27
2.8	12.36	25.05
2.9	12.39	25.2
3.0	12.35	25.27
3.1	12.34	25.41
3.2	12.33	25.29
3.3	12.31	25.48
3.4	12.32	25.41
3.5	12.28	25.39
3.6	12.34	25.59
3.7	12.30	25.44
3.8	12.23	25.58
3.9	12.25	25.68
4.0	12.19	25.64
4.2	12.16	25.88
4.3	12.06	25.81

Appendix 1.4. Continued.

STATION 8		
Depth (m)	Temperature (°C)	Salinity (PSU)
0.1	15.79	11.34
0.2	15.93	11.34
0.3	15.89	11.39
0.4	16.09	11.46
0.5	16.00	11.68
0.6	16.22	12.01
0.7	16.12	14.96
0.8	16.00	16.55
0.9	15.94	18.09
1.0	15.81	19.27
1.1	15.66	20.25
1.2	15.63	21.11
1.3	15.48	21.64
1.4	15.17	22.85
1.5	15.16	22.61
1.6	15.03	22.81
1.8	15.02	22.88
2.0	15.02	22.79
2.1	14.95	23.15
2.2	14.92	23.00
2.4	14.74	23.48
2.5	14.38	23.71
2.6	13.99	23.92
2.8	13.61	24.25
2.9	13.48	24.13
3.0	13.46	24.39

STATION 9		
Depth (m)	Temperature (°C)	Salinity (PSU)
0.1	15.35	18.08
0.2	15.29	21.35
0.4	15.19	22.09
0.6	15.14	22.17
0.7	14.89	22.44
0.9	14.83	22.59
1.0	14.83	22.58
1.1	14.89	22.37
1.2	14.82	22.58
1.3	14.77	22.58
1.4	14.87	22.39
1.5	14.87	22.42
1.6	14.78	22.5
1.7	14.85	22.43
1.8	14.90	22.39

STATION 11		
Depth (m)	Temperature (°C)	Salinity (PSU)
0.1	16.32	23.87
0.2	16.28	23.94
0.3	16.26	23.96
0.4	16.26	23.97
0.5	16.31	23.92
0.6	16.49	23.75
0.7	16.35	23.96
0.8	16.32	24.09
0.9	16.32	23.95
1.0	16.26	24.16
1.1	16.21	24.08
1.2	16.33	24.03
1.3	16.14	24.37
1.5	16.15	24.20
1.6	16.21	24.09
1.8	16.12	24.28
1.9	16.03	24.48
2.0	15.98	24.34
2.1	16.11	24.29
2.2	15.95	24.44
2.3	16.04	24.27
2.4	16.00	24.41
2.5	15.91	24.49
2.6	15.98	24.32
2.8	15.98	24.46
3.0	15.99	24.37
3.1	15.91	24.47
3.2	15.94	24.38
3.3	15.99	24.33
3.4	15.84	24.59

Appendix 1.4. Continued.

STATION 12		
Depth (m)	Temperature (°C)	Salinity (PSU)
0.2	15.13	24.61
0.3	15.12	24.65
0.4	15.06	24.74
0.5	14.93	24.84
0.6	14.60	25.08
0.7	14.71	24.91
0.8	14.51	25.29
0.9	14.28	25.51
1.1	13.84	25.89
1.2	13.42	26.37
1.3	13.03	26.39
1.4	12.84	26.54
1.5	12.71	26.64
1.7	12.41	26.87
1.8	12.38	26.77
2.0	12.30	26.72
2.1	12.17	27.03
2.2	12.15	26.76
2.3	12.07	26.69
2.5	11.17	26.41
2.6	10.98	26.67
2.7	10.72	26.54
2.9	9.37	27.25
3.0	8.99	27.39
3.1	8.71	27.62
3.2	8.43	27.63
3.3	8.36	27.75
3.4	8.27	27.68
3.5	8.17	27.58
3.6	7.89	27.83
3.7	7.67	28.23
3.8	7.75	27.82
3.9	7.75	28.02
4.1	7.69	27.94
4.2	7.69	28.11
4.3	7.64	27.83
4.5	7.67	27.91
4.6	7.61	27.98
4.7	7.58	28.03
4.8	7.59	28.00
4.9	7.54	27.85
5.0	7.49	27.95
5.1	7.39	27.95
5.2	7.57	27.67
5.3	7.40	27.99
5.4	7.47	27.85
5.6	7.39	28.00

cast 11	STATION 12 CONT'D	
Depth (m)	Temperature (°C)	Salinity (PSU)
5.7	7.49	27.74
5.9	7.38	28.05
6.0	7.37	27.86
6.1	7.48	27.87
6.2	7.38	27.99
6.3	7.44	27.78
6.4	7.36	27.99
6.5	7.41	27.81

STATION 13		
Depth (m)	Temperature (°C)	Salinity (PSU)
0.1	17.29	25.87
0.2	17.33	25.93
0.3	17.33	25.94
0.4	17.30	25.97
0.5	17.28	26.01
0.6	17.25	25.92
0.7	17.17	25.86
0.8	17.06	26.09
0.9	17.02	26.03
1.0	17.00	26.06
1.2	16.91	26.12
1.3	17.02	25.92
1.4	16.87	26.40
1.5	16.98	25.99
1.6	16.98	26.17
1.7	17.05	26.03

STATION 14		
Depth (m)	Temperature (°C)	Salinity (PSU)
0.1	16.9597	20.4241
0.3	16.9134	20.5522
0.4	16.7176	21.0342
0.5	16.0575	21.4717
0.6	15.4415	21.8361
0.7	15.1521	22.1512
0.9	14.3744	22.876
1.0	13.7861	23.8757
1.1	13.6928	24.3487

Appendix 1.4. Continued.

STATION 15		
Depth (m)	Temperature (°C)	Salinity (PSU)
0.1	18.76	17.69
0.3	18.69	17.82
0.4	18.58	18.19
0.5	18.49	18.39
0.6	17.99	18.41
0.7	17.92	18.55
0.8	17.69	18.69
0.9	17.21	18.96
1.0	16.72	19.23
1.2	16.38	19.56
1.4	16.16	19.98
1.5	16.08	20.42
1.7	15.81	20.80
1.8	15.62	21.09
1.9	15.43	21.53
2.0	15.19	21.79
2.1	15.06	21.91
2.2	14.98	22.12
2.3	14.90	22.28
2.5	14.74	22.51
2.6	14.72	22.55
2.7	14.67	22.66
2.8	14.65	22.73
2.9	14.46	23.44
3.0	14.14	23.76
3.1	14.16	23.67
3.2	14.11	23.74
3.3	14.07	23.80
3.4	14.03	23.87
3.5	14.02	23.86
3.6	14.01	23.84
3.7	13.89	24.19
3.8	13.96	24.13

STATION 17		
Depth (m)	Temperature (°C)	Salinity (PSU)
0.2	17.99	15.43
0.3	17.81	15.89
0.4	17.52	16.55
0.5	17.30	16.87
0.6	17.29	17.02
0.7	17.07	17.58
0.9	16.88	17.94
1.0	16.81	17.99
1.1	16.73	18.12
1.3	16.69	18.17

Appendix 1.5. Temperature and salinity data obtained from CTD casts in the Kouchibouguac and St. Louis estuaries on July 2-3, 1997. Data are plotted in Appendix 2.5.

STATION 4		
Depth (m)	Temperature (°C)	Salinity (PSU)
0.1	25.14	0.69
0.2	24.95	12.19
0.3	24.88	13.81
0.5	24.86	14.17
0.6	24.56	15.79
0.7	23.47	19.47
0.8	22.76	19.36
0.9	22.32	17.93
1.0	21.68	17.83
1.1	21.23	17.93
1.2	20.92	18.05
1.3	20.78	19.31
1.4	20.42	22.19
1.6	20.31	22.37
1.7	20.22	22.60
1.8	20.09	22.78
1.9	19.99	22.93
2.0	19.96	23.02
2.1	19.84	23.06
2.2	19.63	23.09
2.3	19.31	23.18
2.4	18.85	23.38
2.5	18.52	23.52
2.6	18.39	23.57
2.7	18.24	23.62
2.8	18.10	23.70

STATION 5		
Depth (m)	Temperature (°C)	Salinity (PSU)
0.1	23.61	8.89
0.2	23.65	16.06
0.3	23.67	17.30
0.4	23.68	17.47
0.5	23.69	17.64
0.6	23.69	17.77
0.7	23.66	17.92
0.8	23.39	18.36
0.9	23.10	18.87
1.0	22.66	19.45
1.1	22.15	20.12
1.2	22.09	20.21
1.3	21.36	21.13
1.4	17.51	25.29
1.6	17.76	25.08
1.8	17.62	25.27
2.0	16.94	25.69
2.1	16.62	25.91
2.2	16.53	25.56
2.3	16.19	25.83
2.4	16.14	25.82
2.6	15.86	25.78
2.7	15.64	25.99
2.8	15.58	25.86
3.0	15.42	25.94
3.2	15.16	26.02
3.3	15.20	25.95
3.5	15.00	26.06
3.6	15.01	25.92
3.8	14.85	26.05
3.9	14.86	26.00
4.1	14.79	26.02
4.2	14.69	26.04
4.5	14.58	26.05
4.8	14.59	26.01
4.9	14.58	26.06
5.0	14.63	25.96
5.2	14.56	25.92
5.3	14.49	26.09

Appendix 1.5. Continued.

STATION 6		
Depth (m)	Temperature (°C)	Salinity (PSU)
0.1	27.36	0.50
0.2	24.97	1.78
0.3	23.67	4.19
0.4	23.56	4.09
0.5	23.53	4.15
0.6	23.54	4.21
0.7	23.57	4.26
0.8	23.51	4.43
0.9	23.44	4.57
1.0	23.29	4.92
1.1	23.16	5.29
1.2	22.97	5.67
1.3	22.75	5.94
1.4	22.57	6.10
1.5	22.51	6.43
1.6	22.46	7.53
1.7	22.28	8.49
1.8	22.02	9.07
1.9	21.84	10.19
2.0	21.77	12.24
2.1	21.45	14.44
2.2	21.15	15.87
2.3	20.99	16.36
2.4	20.85	16.81
2.5	20.79	17.03
2.6	20.78	17.11
2.7	20.77	17.28
2.8	20.76	17.66
2.9	20.78	18.19
3.0	20.85	18.51
3.1	20.86	18.49
3.2	20.87	18.65
3.3	20.88	18.80
3.4	20.89	18.89
3.5	20.92	19.03
3.6	20.94	19.32
3.7	20.97	19.61
3.8	21.02	19.79
3.9	21.05	19.81
4.0	21.08	19.81
4.1	21.09	19.85
4.2	21.10	19.94
4.4	21.14	20.06
4.5	21.15	20.06

STATION 7		
Depth (m)	Temperature (°C)	Salinity (PSU)
0.1	25.81	1.07
0.2	23.74	1.53
0.3	22.68	1.50
0.4	22.59	1.42
0.5	22.57	1.37
0.6	22.54	1.38
0.7	22.49	1.35
0.8	22.34	1.44
0.9	22.31	1.50
1.0	22.28	1.55
1.1	22.26	1.59
1.2	22.29	1.61
1.3	22.15	1.67
1.4	22.10	1.68
1.5	22.15	1.67
1.6	22.20	2.21
1.7	22.01	2.82
1.8	21.75	4.35
2.0	21.17	9.15
2.1	19.95	14.39
2.2	19.92	14.65
2.3	19.74	15.60
2.4	19.59	16.30
2.5	19.72	16.43
2.6	19.67	16.64
2.7	19.67	16.81
2.8	19.79	16.89
2.9	19.71	17.05
3.0	19.83	17.12
3.1	19.77	17.37
3.2	19.88	17.32
3.3	19.84	17.52
3.4	19.78	17.81
3.5	19.95	18.12
3.6	19.89	18.65
3.7	20.06	18.93
3.8	20.07	19.19
3.9	20.22	19.38
4.0	20.21	19.64
4.1	20.31	19.57
4.2	20.18	19.89
4.4	20.24	19.74
4.5	20.17	20.02

Appendix 1.5. Continued.

STATION 8		
Depth (m)	Temperature (°C)	Salinity (PSU)
0.1	22.24	0.20
0.2	22.19	0.20
0.3	22.16	0.21
0.4	22.13	0.21
0.5	22.08	0.22
0.6	22.11	0.21
0.7	22.12	0.21
0.8	21.87	0.21
0.9	21.62	0.21
1.0	21.42	0.22
1.1	21.33	0.22
1.2	21.28	0.22
1.3	21.19	0.23
1.4	21.04	0.25
1.6	20.74	0.27
1.7	20.69	0.29
1.8	20.54	0.32
1.9	20.48	0.36
2.0	20.36	0.47
2.1	20.15	0.57
2.2	20.08	0.80
2.3	19.97	1.10
2.4	19.83	1.80
2.5	19.66	3.49
2.6	19.42	5.08
2.7	19.18	7.70
2.8	18.78	12.88
2.9	18.48	13.78
3.0	18.52	13.49
3.1	18.46	13.83
3.2	18.40	14.27
3.3	18.37	14.54
3.4	18.34	14.67

STATION 9		
Depth (m)	Temperature (°C)	Salinity (PSU)
0.1	19.29	0.04
0.2	19.28	0.04
0.3	19.25	0.04
0.4	19.28	0.04
0.5	19.23	0.04
0.6	19.19	0.04
0.7	19.19	0.04
0.8	19.20	0.04
0.9	19.20	0.04
1.0	19.21	0.04
1.1	19.19	0.04
1.2	19.19	0.04
1.3	19.20	0.04
1.4	19.20	0.04

Appendix 1.5. Continued.

STATION 11		
Depth (m)	Temperature (°C)	Salinity (PSU)
0.1	21.77	13.49
0.3	21.69	17.58
0.4	21.64	17.84
0.5	21.63	17.86
0.6	21.39	18.75
0.7	21.26	18.94
0.9	21.18	19.32
1.1	21.01	19.58
1.2	21.04	19.76
1.3	20.79	19.98
1.4	20.83	20.17
1.5	20.59	20.66
1.7	20.32	21.26
1.8	20.21	21.16
1.9	20.14	21.47
2.0	20.08	21.54
2.1	19.99	21.50
2.2	19.88	21.70
2.4	19.79	21.79
2.5	19.71	21.76
2.6	19.68	21.88
2.7	19.59	21.98
2.8	19.74	21.75
2.9	19.53	22.08
3.0	19.63	21.96

STATON 12		
Depth (m)	Temperature (°C)	Salinity (PSU)
0.1	19.58	23.95
0.2	19.57	23.66
0.3	19.48	23.72
0.4	19.39	23.79
0.6	19.39	23.69
0.7	19.23	23.78
0.9	19.23	23.76
1.0	19.11	23.99
1.1	19.14	24.02
1.3	18.99	24.09
1.4	18.79	24.52
1.5	18.55	24.56
1.6	18.49	24.54
1.7	18.40	24.59
1.9	18.36	24.62

STATON 12 CONT'D		
Depth (m)	Temperature (°C)	Salinity (PSU)
2.0	18.25	24.83
2.1	18.42	24.38
2.2	18.31	24.69
2.4	18.35	24.71
2.6	18.24	24.65
2.8	18.18	24.77
2.9	18.18	24.69
3.0	17.96	24.93
3.2	17.72	24.99
3.5	17.69	24.94
3.6	17.63	24.82
3.7	17.05	25.58
3.8	16.80	25.46
3.9	15.94	25.82
4.1	14.90	26.24
4.2	14.46	26.59
4.3	14.26	26.44
4.4	13.86	26.75
4.5	14.03	26.62
4.7	13.86	26.64
4.9	13.69	26.64
5.0	13.57	26.69
5.1	13.66	26.49
5.2	13.46	26.89
5.3	13.55	26.62
5.4	13.46	26.80
5.5	13.53	26.57
5.6	13.47	26.69
5.7	13.43	26.66
5.9	13.38	26.84
6.0	13.28	26.71
6.1	13.26	26.68
6.3	13.22	26.46
6.4	13.01	26.79
6.5	12.91	26.91
6.6	13.09	26.47
6.7	12.86	26.90
6.8	13.10	26.39
6.9	12.83	26.86
7.0	12.87	26.73
7.1	12.81	26.81
7.4	12.79	26.96
7.5	12.75	26.82
7.6	12.72	26.89

Appendix 1.5. Continued.

STATON 13		
Depth (m)	Temperature (°C)	Salinity (PSU)
0.4	21.63	23.96
0.5	21.63	23.96
0.7	21.63	23.94
0.8	21.69	23.79
0.9	21.64	23.94
1.0	21.69	23.77
1.1	21.57	24.01
1.3	21.73	23.71
1.4	21.55	24.09
1.5	21.62	23.96
1.7	21.73	23.75
1.8	21.62	23.95
1.9	21.73	23.69
2.0	21.59	24.09

STATION 14		
Depth (m)	Temperature (°C)	Salinity (PSU)
0.1	22.55	9.99
0.2	22.53	12.66
0.3	22.56	12.95
0.4	22.54	12.93
0.5	22.54	13.13
0.6	22.43	13.29
0.7	22.36	13.53
0.8	22.32	13.72
1.0	22.28	13.88
1.1	22.19	14.65
1.2	21.97	15.17
1.3	21.92	15.79

STATION 16		
Depth (m)	Temperature (°C)	Salinity (PSU)
0.1	24.02	4.15
0.2	23.65	5.17
0.3	23.54	5.13
0.5	23.43	5.08
0.6	23.24	5.02
0.7	23.17	5.05
0.8	23.14	5.06
0.9	23.07	5.07
1.0	22.97	5.09
1.1	22.91	5.09
1.2	22.87	5.10
1.3	22.85	5.14
1.4	22.68	5.86
1.6	22.49	7.30
1.7	22.19	10.23
1.8	21.67	12.22
1.9	21.24	13.37
2.0	20.96	14.73
2.1	20.82	16.60
2.2	20.69	16.75
2.3	20.529	17.26
2.4	20.39	17.50
2.5	20.34	17.62
2.6	20.31	17.73
2.7	20.29	17.99
2.8	20.27	18.20
2.9	20.25	18.39
3.0	20.26	18.45
3.1	20.27	18.58
3.2	20.26	18.68
3.3	20.25	18.94
3.4	20.21	19.21

Appendix 1.5. Continued.

STATION 17		
Depth (m)	Temperature (°C)	Salinity (PSU)
0.1	23.34	4.44
0.2	23.23	4.34
0.3	23.19	4.29
0.4	23.19	4.26
0.5	23.18	4.28
0.6	23.19	4.28
0.7	23.07	4.03
0.8	23.09	4.07
0.9	23.08	4.09
1.0	23.10	4.19
1.2	23.13	4.42
1.3	23.16	5.61
1.4	22.55	8.93
1.5	22.06	8.78
1.6	21.60	9.59
1.7	21.26	10.82
1.8	20.89	12.31
1.9	20.64	13.43
2.0	20.46	14.25
2.1	20.16	15.38
2.2	20.00	15.65
2.3	19.93	15.92
2.4	19.89	16.21
2.5	19.87	16.51
2.6	19.87	16.71
2.7	19.87	16.96
2.8	19.89	17.36
3.0	19.96	17.73
3.1	19.99	18.09
3.2	20.00	18.48
3.3	19.98	18.83
3.4	19.92	18.84
3.5	19.61	17.67
3.6	19.27	19.51

Appendix 1.6. *Temperature and salinity data obtained from CTD casts in the Kouchibouguac and St. Louis estuaries on July 15-16, 1997.* Data are plotted in Appendix 2.6.

STATION 2		
Depth (m)	Temperature (°C)	Salinity (PSU)
0.1	23.18	11.75
0.2	23.25	11.73
0.3	23.27	11.74
0.4	23.25	11.73
0.5	23.26	11.78
0.6	23.19	11.64
0.7	23.04	11.69
0.8	22.38	11.96
0.9	22.01	12.12
1.0	21.78	12.46
1.1	21.55	12.85
1.2	21.32	13.26
1.3	20.33	14.63
1.4	19.18	17.88
1.5	19.19	20.35
1.6	19.17	20.06
1.7	18.99	20.97
1.8	18.83	21.56
2.0	18.56	22.81
2.1	17.98	23.58
2.2	17.89	23.82
2.3	17.84	23.93
2.4	17.79	23.95
2.5	17.71	24.25

STATION 4		
Depth (m)	Temperature (°C)	Salinity (PSU)
0.2	21.03	17.82
0.3	21.06	17.78
0.4	21.07	17.73
0.5	21.06	17.69
0.6	21.11	17.66
0.7	21.01	17.57
0.8	21.08	17.56
1.0	21.06	17.53
1.1	20.79	17.67
1.3	20.50	18.01
1.4	19.96	18.65
1.5	19.36	20.23
1.7	19.08	21.25
1.8	18.99	22.01

STATION 5		
Depth (m)	Temperature (°C)	Salinity (PSU)
0.1	16.61	10.78
0.2	16.62	23.34
0.3	16.62	25.28
0.4	16.62	25.38
0.5	16.62	25.46
0.6	16.63	25.50
0.7	16.63	25.64
0.9	16.64	25.55
1.0	16.63	25.71
1.1	16.56	25.58
1.3	16.69	25.48
1.4	16.63	25.54
1.5	16.63	25.64
1.7	16.61	25.54
2.1	16.71	25.32
2.2	16.58	25.57
2.4	16.63	25.65
2.5	16.60	25.54
2.6	16.58	25.63
3.0	16.58	25.58
3.3	16.66	25.45
3.4	16.61	25.46
3.5	16.56	25.67
3.6	16.63	25.33
3.8	16.53	25.65
4.0	16.58	25.53
4.1	16.56	25.57
4.2	16.63	25.44

Appendix 1.6. Continued.

STATION 6		
Depth (m)	Temperature (°C)	Salinity (PSU)
0.1	21.28	2.39
0.2	21.31	2.34
0.3	21.32	2.32
0.4	21.28	2.36
0.5	21.11	2.74
0.6	20.26	2.88
0.7	20.36	2.86
0.8	20.29	2.89
0.9	20.26	2.89
1.0	20.32	2.90
1.2	19.93	2.95
1.3	18.94	3.17
1.4	18.74	5.06
1.5	18.29	10.18
1.7	18.23	14.85
1.8	17.99	15.33
1.9	17.75	16.83
2.0	17.80	17.52
2.1	17.54	18.90
2.2	17.41	19.01
2.3	17.34	19.43
2.4	17.28	19.86
2.5	17.13	20.47
2.6	16.99	20.88
2.7	17.00	20.79
2.8	16.90	21.69
2.9	16.86	21.82
3.0	16.88	21.97
3.1	16.82	22.48
3.2	16.94	22.62
3.3	16.94	22.91
3.4	17.02	23.22
3.5	16.95	23.16
3.6	17.13	23.34
3.8	17.02	24.18
3.9	16.89	24.69
4.0	16.76	24.80
4.1	16.69	25.02
4.2	16.54	24.98
4.3	16.43	25.08

STATION 7		
Depth (m)	Temperature (°C)	Salinity (PSU)
0.1	20.41	0.92
0.2	20.39	0.91
0.3	20.39	0.89
0.4	20.37	0.88
0.5	20.37	0.87
0.6	20.22	0.89
0.7	20.17	0.88
0.8	20.08	0.89
0.9	19.97	0.88
1.0	19.92	0.86
1.2	19.71	0.95
1.3	18.54	4.60
1.5	17.57	13.67
1.7	16.65	18.61
1.8	16.35	19.60
1.9	16.16	20.13
2.0	15.96	20.64
2.2	15.73	21.09
2.4	15.67	21.31
2.5	15.69	21.28
2.6	15.57	21.63
2.7	15.51	21.52
2.8	15.60	21.54
2.9	15.61	21.59
3.0	15.55	21.61
3.1	15.52	21.70
3.2	15.53	21.80
3.3	15.47	21.74
3.4	15.59	21.66
3.5	15.57	21.72
3.6	15.53	21.95
3.7	15.51	21.75
3.8	15.51	21.89
3.9	15.56	21.77
4.0	15.61	21.69
4.1	15.51	21.94
4.2	15.59	21.82
4.3	15.41	22.27
4.5	15.46	22.21

Appendix 1.6. Continued.

STATION 8		
Depth (m)	Temperature (°C)	Salinity (PSU)
0.1	19.06	0.28
0.2	18.99	0.28
0.3	18.89	0.28
0.4	18.85	0.28
0.6	18.77	0.28
0.7	18.68	0.28
0.8	18.56	0.28
0.9	18.43	0.28
1.0	18.36	0.28
1.1	18.35	0.29
1.2	18.18	0.28
1.3	17.98	0.29
1.4	17.79	0.36
1.5	17.11	0.53
1.6	17.27	0.74
1.8	16.76	11.97
1.9	16.09	16.71
2.0	16.01	18.37
2.1	15.64	19.86
2.2	15.39	20.52
2.3	15.32	20.75
2.5	15.25	21.05
2.6	15.21	21.07
2.7	15.11	21.40
2.8	15.06	21.26
2.9	15.05	21.46
3.0	15.12	21.33

STATION 9		
Depth (m)	Temperature (°C)	Salinity (PSU)
0.1	16.73	0.05
0.2	16.66	0.05
0.3	16.66	0.05
0.4	16.67	0.05
0.5	16.68	0.05
0.6	16.70	0.05
0.7	16.68	0.05
0.8	16.67	0.05
0.9	16.66	0.05
1.0	16.65	0.05
1.1	16.65	0.05
1.2	16.65	0.05
1.3	16.64	0.05
1.4	16.64	0.05

STATION 11		
Depth (m)	Temperature (°C)	Salinity (PSU)
0.1	18.37	18.61
0.2	18.41	18.67
0.3	18.43	18.77
0.4	18.44	18.79
0.5	18.46	18.79
0.6	18.44	19.15
0.7	18.47	19.14
0.8	18.50	19.28
0.9	18.53	19.38
1.0	18.55	19.50
1.2	18.56	19.56
1.3	18.57	19.61
1.4	18.57	19.74
1.5	18.57	19.79
1.7	18.58	19.92
1.8	18.59	19.95
1.9	18.58	19.91

Appendix 1.6. Continued.

STATION 12		
Depth (m)	Temperature (°C)	Salinity (PSU)
0.1	16.59	20.54
0.2	16.58	23.56
0.3	16.53	24.11
0.4	16.52	24.27
0.5	16.49	24.47
0.6	16.46	24.43
0.7	16.41	24.91
0.8	16.28	25.32
1.0	16.09	25.75
1.2	15.95	25.93
1.4	15.90	25.96
1.5	15.84	25.99
1.8	15.80	26.03
1.9	15.79	26.03
2.0	15.78	26.04
2.1	15.78	26.05
2.2	15.79	26.05
2.3	15.79	26.05
2.4	15.79	26.05
2.5	15.79	26.05
2.7	15.76	26.07
2.8	15.75	26.09
2.9	15.73	26.10
3.0	15.69	26.11
3.2	15.65	26.11
3.3	15.62	26.12
3.5	15.59	26.13
3.6	15.57	26.14
3.7	15.56	26.14
3.8	15.56	26.15
3.9	15.56	26.15
4.0	15.56	26.15
4.1	15.56	26.15
4.2	15.56	26.12
4.3	15.53	26.10
4.4	15.47	26.11
4.5	15.40	26.16
4.6	15.39	26.16
4.7	15.37	26.18
4.9	15.35	26.18
5.0	15.35	26.15
5.1	15.29	26.18
5.2	15.29	26.19
5.3	15.27	26.19
5.4	15.25	26.19
5.5	15.24	26.20
5.6	15.25	26.19
5.7	15.24	26.20

STATION 12 CONT'D		
Depth (m)	Temperature (°C)	Salinity (PSU)
5.8	15.24	26.20
5.9	15.23	26.20
6.0	15.22	26.21
6.1	15.22	26.21
6.2	15.22	26.21
6.3	15.22	26.21
6.5	15.22	26.20
6.6	15.22	26.21
6.7	15.22	26.21
6.8	15.22	26.21
6.9	15.22	26.21
7.0	15.22	26.21
7.1	15.22	26.21
7.2	15.22	26.21

STATION 13		
Depth (m)	Temperature (°C)	Salinity (PSU)
0.1	17.63	23.43
0.2	17.67	23.57
0.3	17.69	23.59
0.4	17.71	23.59
0.5	17.68	23.67
0.6	17.74	23.83
0.7	17.74	23.79
0.8	17.74	23.79
1.0	17.734	23.79
1.1	17.73	23.79
1.2	17.74	23.91
1.3	17.76	23.99
1.4	17.77	23.99

Appendix 1.6. *Continued.*

STATION 14		
Depth (m)	Temperature (°C)	Salinity (PSU)
0.1	19.31	14.35
0.2	19.33	14.40
0.3	19.32	14.45
0.5	19.35	14.49
0.6	19.27	14.45
0.7	19.49	14.48
0.8	19.39	14.48
1.0	19.35	14.58
1.1	19.46	14.47
1.2	19.33	14.74
1.3	19.35	14.65
1.4	19.37	14.99
1.5	19.01	17.56
1.6	18.36	20.25
1.8	17.91	22.12
1.9	17.85	21.85

STATION 15		
Depth (m)	Temperature (°C)	Salinity (PSU)
0.1	20.19	8.03
0.3	20.19	8.05
0.4	20.16	8.23
0.5	20.36	8.32
0.6	20.15	8.44
0.7	20.21	8.66
0.8	20.17	12.31
0.9	19.88	15.53
1.1	19.62	17.47
1.2	19.38	19.01
1.3	19.17	19.40
1.4	18.69	20.59
1.5	18.51	20.73
1.6	18.53	20.72
1.7	18.59	20.59
1.8	18.51	20.85
1.9	18.51	20.72
2.0	18.51	21.09
2.1	18.39	21.06
2.2	18.47	21.24
2.3	18.50	21.19
2.4	18.41	21.38
2.5	18.44	21.27
2.6	18.38	21.53
2.7	18.31	21.39
2.8	18.39	21.54
2.9	18.33	21.36
3.0	18.35	21.37
3.1	18.33	21.47
3.2	18.33	21.39
3.3	18.32	21.54
3.4	18.31	21.45
3.5	18.24	21.51
3.6	18.46	21.29

Appendix 1.6. Continued.

STATION 16		
Depth (m)	Temperature (°C)	Salinity (PSU)
0.1	20.19	4.27
0.3	20.19	4.28
0.4	20.18	4.26
0.5	20.27	4.21
0.7	20.19	4.23
0.8	20.25	4.33
0.9	20.19	4.37
1.0	20.37	4.48
1.1	20.26	5.46
1.2	20.36	8.81
1.3	19.94	13.07
1.4	19.73	14.59
1.5	19.36	16.52
1.6	18.93	18.13
1.8	18.52	19.42
1.9	18.27	19.74
2.0	17.79	20.46
2.1	17.72	20.38
2.2	17.56	20.85
2.3	17.51	21.03
2.4	17.43	21.07
2.5	17.35	21.24
2.6	17.30	21.39
2.7	17.16	21.49
2.8	17.08	21.72
2.9	17.16	21.65
3.0	17.08	21.62
3.1	17.10	21.63
3.2	17.06	21.64
3.3	17.04	21.83
3.5	16.93	21.76

STATION 17		
Depth (m)	Temperature (°C)	Salinity (PSU)
0.1	20.09	3.43
0.2	20.09	3.44
0.3	20.09	3.63
0.4	20.13	4.37
0.5	20.09	4.50
0.6	20.07	4.90
0.7	20.03	6.85
0.8	19.93	10.57
0.9	19.77	12.13
1.0	19.63	14.05
1.1	19.39	16.69
1.2	19.02	17.42
1.3	18.78	18.11
1.5	18.53	18.67
1.6	18.33	19.36
1.8	18.12	19.79
1.9	17.97	19.90
2.0	17.87	20.12
2.1	17.79	20.16
2.2	17.72	20.26
2.4	17.64	20.57
2.5	17.59	20.83
2.6	17.42	19.16

Appendix 1.7. Temperature and salinity data obtained from CTD casts in the Kouchibouguac and St. Louis estuaries on July 29-30, 1997. Data are plotted in Appendix 2.7.

STATION 4		
Depth (m)	Temperature (°C)	Salinity (PSU)
0.2	20.49	24.13
0.4	20.498	24.28
0.5	20.49	24.33
0.7	20.49	24.29
0.8	20.49	24.26
0.9	20.50	24.25
1.1	20.50	24.24
1.2	20.49	24.29
1.4	20.50	24.26
1.5	20.51	24.33
1.7	20.49	24.34
1.8	20.50	24.35
1.9	20.50	24.35
2.0	20.51	24.36
2.1	20.50	24.37
2.2	20.51	24.37
2.3	20.50	24.37

STATION 5		
Depth (m)	Temperature (°C)	Salinity (PSU)
0.1	12.63	27.33
0.2	12.64	27.29
0.4	12.62	27.32
0.5	12.61	27.27
0.7	12.59	27.29
0.8	12.59	27.40
0.9	12.59	27.44
1.0	12.58	27.52
1.1	12.55	27.59
1.2	12.57	27.59
1.3	12.55	27.12
1.4	12.49	27.49
1.5	12.42	27.45
1.6	12.38	27.53
1.8	12.47	27.39
2.0	12.38	27.52
2.2	12.37	27.45
2.3	12.42	27.27
2.4	12.35	27.53
2.5	12.34	27.48
2.7	12.25	27.63
2.8	12.16	27.57
2.9	12.29	27.59
3.0	12.21	27.47
3.1	12.12	27.69
3.2	12.12	27.57
3.3	12.02	27.74
3.4	12.05	27.87
3.5	11.97	27.79
3.6	12.05	27.65
3.7	11.85	27.94
3.8	11.89	27.74
4.0	11.82	27.85
4.1	11.89	27.67
4.2	11.79	27.63
4.3	11.89	27.46
4.5	11.87	27.37
4.6	11.84	27.55

Appendix 1.7. Continued.

STATION 6		
Depth (m)	Temperature (°C)	Salinity (PSU)
0.1	21.15	13.28
0.2	21.16	13.29
0.3	21.16	13.31
0.4	21.16	13.30
0.5	21.16	13.32
0.6	21.27	13.12
0.7	21.16	13.29
0.9	21.20	13.24
1.0	21.25	13.18
1.1	21.15	13.37
1.2	21.17	13.26
1.3	21.13	13.39
1.4	21.17	13.34
1.5	21.02	13.63
1.6	21.08	14.05
1.7	20.95	14.85
1.9	20.99	15.73
2.0	20.82	16.65
2.1	20.78	17.33
2.2	20.69	17.89
2.3	20.70	18.21
2.4	20.61	19.43
2.5	20.62	20.10
2.6	20.46	20.99
2.7	20.46	20.99
2.8	20.39	21.49
2.9	20.35	21.75
3.0	20.47	21.85
3.1	20.50	22.34
3.2	20.46	23.08
3.3	20.42	23.36
3.4	20.19	23.95
3.5	19.70	24.34
3.6	19.36	24.75
3.8	19.07	25.06

STATION 7		
Depth (m)	Temperature (°C)	Salinity (PSU)
0.1	20.98	10.57
0.3	20.97	10.59
0.4	20.96	10.55
0.5	20.97	10.51
0.6	20.96	10.52
0.7	20.96	10.55
0.8	20.99	10.58
0.9	21.05	10.68
1.0	21.12	10.98
1.1	21.13	13.84
1.2	21.10	16.49
1.3	21.08	17.04
1.4	21.02	17.95
1.5	20.97	19.98
1.6	20.94	20.02
1.7	20.89	20.81
1.8	20.84	21.34
1.9	20.81	21.64
2.0	20.77	21.85
2.1	20.75	21.98
2.2	20.70	22.12
2.3	20.68	22.15
2.4	20.66	22.23
2.5	20.63	22.28
2.6	20.61	22.37
2.7	20.59	22.41
2.8	20.58	22.49
2.9	20.55	22.59
3.0	20.53	22.64
3.1	20.51	22.67
3.2	20.49	22.74
3.3	20.47	22.87
3.4	20.41	22.93
3.5	20.38	22.97
3.6	20.37	22.98
3.8	20.31	23.13
3.9	20.25	23.21

Appendix 1.7. Continued.

STATION 8		
Depth (m)	Temperature (°C)	Salinity (PSU)
0.1	20.28	7.91
0.3	20.29	7.99
0.4	20.28	8.45
0.5	20.24	8.49
0.6	20.44	8.39
0.7	20.28	9.15
0.8	20.29	13.83
0.9	20.45	17.32
1.0	20.69	18.70
1.1	20.65	19.57
1.3	20.48	20.01
1.4	20.11	20.89
1.5	19.92	21.12
1.7	19.96	21.08
1.8	19.80	21.24
1.9	19.83	21.21
2.0	19.78	21.19
2.1	19.71	21.55
2.2	19.69	21.39
2.3	19.71	21.41
2.5	19.71	21.49
2.6	19.66	21.49
2.7	19.56	21.73
2.8	19.61	21.77
2.9	19.50	21.67
3.0	19.53	21.69
3.2	19.49	21.66

STATION 9		
Depth (m)	Temperature (°C)	Salinity (PSU)
0.1	19.69	12.20
0.2	20.01	15.99
0.3	20.24	17.98
0.4	20.13	20.47
0.5	20.11	20.34
0.6	19.89	20.71
0.7	19.98	20.62
0.8	19.89	20.78
0.9	19.78	20.86
1.0	19.83	20.93
1.1	19.71	20.93
1.2	19.89	20.77
1.3	19.75	20.97
1.4	19.86	20.92

Appendix 1.7. Continued.

STATION 12		
Depth (m)	Temperature (°C)	Salinity (PSU)
0.2	18.91	23.96
0.3	18.86	24.32
0.4	18.78	24.41
0.6	18.53	24.58
0.7	18.25	24.83
0.8	18.14	24.86
1.0	18.16	24.94
1.1	17.89	25.04
1.2	17.92	24.99
1.3	17.94	24.82
1.4	17.59	25.48
1.5	17.59	25.32
1.6	17.51	25.45
1.7	17.52	25.66
1.8	17.48	25.85
1.9	17.29	26.33
2.1	17.30	26.31
2.2	17.28	26.44
2.3	17.24	26.39
2.4	17.31	26.39
2.5	17.36	26.42
2.7	17.40	26.37
2.8	17.48	26.62
2.9	17.45	26.61
3.0	17.57	26.49
3.1	17.64	26.36
3.2	17.59	26.59
3.3	17.55	26.45
3.4	17.52	26.49
3.5	17.36	26.54
3.6	17.37	26.42
3.7	17.28	26.39
3.8	17.23	26.62
3.9	17.18	26.58
4.1	17.22	26.51
4.3	17.11	26.53

STATION 14		
Depth (m)	Temperature (°C)	Salinity (PSU)
0.2	20.11	20.44
0.3	19.98	20.65
0.4	19.93	20.65
0.5	19.74	21.27
0.6	19.42	21.51
0.7	19.34	21.64
0.9	19.25	21.85
1.0	19.10	22.52
1.1	19.02	22.58

Appendix 1.7. Continued.

STATION 15		
Depth (m)	Temperature (°C)	Salinity (PSU)
0.1	20.35	17.50
0.3	20.42	17.71
0.4	20.43	17.76
0.5	20.45	17.80
0.6	20.48	18.08
0.7	20.48	18.05
0.8	20.49	18.13
0.9	20.50	18.24
1.0	20.51	19.30
1.1	20.48	19.49
1.2	20.43	19.56
1.3	20.41	19.59
1.4	20.39	19.64
1.5	20.35	20.12
1.6	20.34	20.84
1.8	20.29	21.19
2.0	20.23	21.48
2.1	20.22	21.69
2.2	20.24	21.67
2.4	20.22	22.05
2.5	20.16	22.12
2.6	20.09	22.32
2.7	20.03	22.46
2.8	19.95	22.90
2.9	19.79	23.09
3.0	19.51	23.39
3.1	19.37	23.51
3.2	19.27	23.59
3.3	19.22	23.62
3.4	19.18	23.64
3.5	19.16	23.67
3.6	19.06	23.74
3.7	18.98	23.83
3.8	18.87	23.93
3.9	18.76	24.03
4.0	18.67	24.10
4.1	18.57	24.18
4.2	18.53	24.18

STATION 16		
Depth (m)	Temperature (°C)	Salinity (PSU)
0.2	20.44	15.57
0.3	20.42	15.62
0.4	20.39	15.64
0.5	20.42	15.58
0.6	20.37	15.68
0.7	20.34	15.58
0.8	20.29	15.59
0.9	20.40	15.49
1.0	20.33	15.65
1.1	20.39	15.69
1.3	20.39	15.93
1.5	20.57	16.79
1.7	20.67	18.05
1.8	20.72	18.32
1.9	20.83	19.06
2	20.79	19.59
2.1	21.08	20.06
2.2	21.00	20.36
2.3	20.98	20.61
2.5	20.87	21.08
2.6	20.90	21.20
2.8	20.84	21.21
2.9	20.83	21.32
3.0	20.79	21.48
3.1	20.75	21.48
3.2	20.78	21.54
3.3	20.68	21.55
3.4	20.77	21.52
3.5	20.84	21.35
3.6	20.68	21.81
3.7	20.71	21.51
3.8	20.67	21.69
3.9	20.73	21.65
4.0	20.67	21.71
4.1	20.76	21.53
4.2	20.65	21.79
4.3	20.57	21.97
4.4	20.68	21.93

Appendix 1.7. Continued.

STATION 17		
Depth (m)	Temperature (°C)	Salinity (PSU)
0.1	20.34	14.41
0.2	20.36	14.53
0.3	20.36	14.67
0.4	20.37	14.66
0.5	20.36	14.69
0.6	20.47	14.65
0.7	20.57	14.69
0.9	20.74	14.87
1.1	20.81	15.49
1.2	20.89	16.33
1.4	21.01	16.88
1.5	21.09	17.59
1.6	21.07	17.57
1.7	21.08	17.60
1.8	21.08	17.63
1.9	21.09	17.74
2.0	21.10	17.88
2.1	21.09	17.93
2.2	21.19	18.38
2.3	21.19	18.42
2.4	21.26	18.69
2.5	21.29	18.81
2.6	21.30	18.79
2.7	21.31	19.05
2.9	21.26	20.04
3.0	21.17	20.28
3.1	21.11	20.44
3.2	21.05	20.45

Appendix 1.8. *Temperature and salinity data obtained from CTD casts in the Kouchibouguac and St. Louis estuaries on August 12-13, 1997.* Data are plotted in Appendix 2.8.

STATION 2		
Depth (m)	Temperature (°C)	Salinity (PSU)
0.2	23.83	20.82
0.4	23.85	20.92
0.6	23.85	20.96
0.7	23.85	20.89
0.8	23.88	20.89
0.9	23.90	20.89
1.0	23.89	20.92
1.1	23.86	20.98
1.2	23.85	21.03
1.3	23.86	21.04
1.4	23.86	21.06
1.5	23.76	21.08
1.6	23.68	21.15
1.7	23.58	21.25
1.9	23.44	21.40
2.0	23.39	21.47
2.1	23.39	21.51
2.2	23.27	21.75
2.3	22.81	22.16
2.5	22.39	22.52
2.6	22.32	22.59
2.7	22.28	22.66
2.8	22.24	22.78
2.9	22.20	22.94
3.0	22.17	23.14
3.1	22.14	23.17
3.2	22.15	23.18

STATION 4		
Depth (m)	Temperature (°C)	Salinity (PSU)
0.1	22.29	24.26
0.2	22.34	24.36
0.4	22.37	24.38
0.5	22.37	24.42
0.6	22.37	24.45
0.7	22.38	24.52
0.8	22.39	24.53
0.9	22.40	24.53
1.0	22.40	24.54

Appendix 1.8. Continued.

STATION 5		
Depth (m)	Temperature (°C)	Salinity (PSU)
0.2	19.55	16.60
0.4	19.62	26.14
0.5	19.62	26.32
0.6	19.62	26.37
0.7	19.63	26.40
0.8	19.63	26.43
0.9	19.63	26.43
1.0	19.63	26.43
1.2	19.63	26.43
1.3	19.62	26.43
1.4	19.61	26.44
1.5	19.61	26.40
1.6	19.61	26.44
1.7	19.62	26.44
1.8	19.62	26.44
2.0	19.61	26.44
2.1	19.60	26.45
2.2	19.58	26.45
2.3	19.56	26.46
2.4	19.52	26.46
2.6	19.48	26.48
2.7	19.45	26.44
2.9	19.27	26.50
3.0	19.14	26.53
3.1	19.09	26.55
3.3	19.01	26.52
3.4	18.91	26.56
3.5	18.86	26.54
3.7	18.77	26.57
3.8	18.73	26.60
4.0	18.67	26.59
4.1	18.66	26.59
4.2	18.64	26.61
4.4	18.64	26.57
4.5	18.60	26.58
4.6	18.57	26.57
4.8	18.47	26.59
5.0	18.43	26.52
5.1	18.26	26.57
5.2	18.34	26.59
5.3	18.17	26.38

STATION 5 CONT'D		
Depth (m)	Temperature (°C)	Salinity (PSU)
5.4	17.97	26.5769
5.6	17.86	26.6103
5.7	17.71	26.5904
5.8	17.76	26.6119
5.9	17.48	26.3973

cast 3	station 6	
Depth (m)	Temperature (°C)	Salinity (PSU)
0.1	22.94	10.75
0.2	22.94	11.13
0.4	22.91	11.44
0.6	22.87	12.54
0.7	22.83	13.08
0.8	22.81	12.54
0.9	22.87	12.45
1.0	22.73	12.68
1.1	22.64	13.28
1.2	22.42	16.87
1.4	22.24	19.29
1.5	22.09	22.57
1.6	22.06	21.94
1.7	22.01	22.21
1.8	22.02	22.29
1.9	22.01	22.40
2.0	21.96	22.53
2.1	21.96	22.59
2.2	21.95	22.76
2.3	21.92	22.87
2.4	21.91	23.03
2.5	21.85	23.24
2.6	21.76	23.34
2.7	21.75	23.15

Appendix 1.8. Continued.

STATION 7		
Depth (m)	Temperature (°C)	Salinity (PSU)
0.1	22.51	7.36
0.2	22.54	7.39
0.3	22.56	7.41
0.4	22.59	7.52
0.6	22.64	10.20
0.7	23.09	20.95
0.8	23.09	13.29
0.9	22.55	13.12
1.1	21.78	16.21
1.2	21.59	17.78
1.3	21.52	19.76
1.4	21.45	21.56
1.5	21.43	21.80
1.6	21.43	21.73
1.8	21.38	21.88
1.9	21.30	22.14
2.1	21.13	22.36
2.2	21.05	22.50
2.3	21.01	22.56
2.4	20.97	22.60
2.5	20.96	22.67
2.6	20.94	22.75
2.7	20.94	22.79
2.8	20.95	22.78
2.9	20.96	22.83
3.0	20.97	22.84
3.1	20.96	22.87
3.2	20.97	22.87
3.3	20.96	22.88
3.4	20.96	22.88
3.5	20.94	22.89
3.6	20.94	22.89
3.7	20.92	22.92
3.8	20.91	22.90
3.9	20.89	22.88
4.0	20.86	22.88
4.1	20.82	22.89
4.2	20.79	22.89
4.3	20.73	22.98
4.4	20.67	23.07
4.5	20.68	23.03

STATION 8		
Depth (m)	Temperature (°C)	Salinity (PSU)
0.1	21.76	1.63
0.2	21.84	3.57
0.3	21.86	3.83
0.4	21.90	3.97
0.6	21.94	5.29
0.7	22.80	11.64
0.8	22.84	16.01
0.9	22.84	18.02
1.0	22.69	18.91
1.1	22.51	19.76
1.2	22.33	20.39
1.3	22.23	20.69
1.4	21.95	20.91
1.5	21.63	21.36
1.7	21.46	21.51
1.8	21.34	21.60
1.9	21.23	21.68
2.0	21.15	21.74
2.1	21.09	21.79
2.2	21.07	21.82

Appendix 1.8. Continued.

STATION 9		
Depth (m)	Temperature (°C)	Salinity (PSU)
0.1	20.18	1.18
0.2	20.21	1.19
0.3	20.22	1.23
0.4	20.24	1.99
0.5	20.47	10.55
0.6	21.10	16.44
0.7	22.00	16.95
0.8	22.24	17.51
0.9	22.11	18.66
1.1	21.98	20.24
1.2	21.66	20.79
1.3	21.49	21.12
1.4	21.52	21.23
1.5	21.25	21.57
1.6	21.31	21.53

STATION 11		
Depth (m)	Temperature (°C)	Salinity (PSU)
0.1	21.51	23.42
0.2	21.51	23.78
0.3	21.50	24.03
0.4	21.51	24.15
0.5	21.51	24.24
0.6	21.49	24.54
0.7	21.38	24.46
0.8	21.40	24.45
1.0	21.41	24.49
1.1	21.41	24.52
1.2	21.42	24.59
1.3	21.42	24.63
1.4	21.42	24.66
1.5	21.42	24.79
1.7	21.42	24.86
1.8	21.42	24.87
1.9	21.42	24.88
2.0	21.41	24.91
2.1	21.42	24.93
2.2	21.41	24.93

Appendix 1.8. Continued.

STATION 12		
Depth (m)	Temperature (°C)	Salinity (PSU)
0.1	19.29	1.41
0.4	19.30	1.30
0.6	19.31	2.77
0.7	19.29	3.89
0.8	19.29	4.57
0.9	19.29	5.59
1.1	19.30	6.62
1.2	19.29	8.28
1.3	19.29	9.48
1.4	19.29	13.84
1.5	19.28	15.01
1.8	19.28	16.61
2.0	19.29	17.14
2.2	19.29	17.50
2.3	19.29	17.56
2.5	19.29	18.02
2.6	19.29	18.11
2.8	19.29	18.37
2.9	19.28	18.48
3.0	19.28	18.49
3.1	19.27	18.61
3.2	19.27	18.59
3.3	19.27	18.49
3.4	19.27	18.41
3.5	19.27	18.37
3.6	19.27	18.45
3.7	19.27	18.24
3.8	19.27	17.98
4.1	19.26	18.15
4.2	19.26	18.21
4.3	19.26	18.19
4.6	19.26	18.23
4.7	19.25	18.40
4.8	19.25	18.31
5.0	19.24	18.49
5.2	19.23	18.43
5.3	19.23	18.57
5.4	19.22	18.45
5.5	19.21	18.33
5.6	19.21	18.20

STATION 12 CONT'D		
Depth (m)	Temperature (°C)	Salinity (PSU)
5.7	19.19	18.19
6.1	19.18	17.82
6.2	19.17	18.35
6.4	19.17	17.94
6.6	19.16	18.88
6.7	19.17	18.00
6.9	19.16	18.39
7.0	19.15	18.27

cast 13	station 13	
Depth (m)	Temperature (°C)	Salinity (PSU)
0.2	21.19	23.87
0.3	21.22	24.03
0.4	21.22	24.13
0.5	21.23	24.17
0.6	21.19	24.17
0.7	21.06	24.15
0.8	20.99	24.15
0.9	20.93	24.17
1.1	20.87	24.19
1.2	20.87	24.28
1.3	20.84	24.31
1.4	20.77	24.37
1.5	20.69	24.62
1.7	20.58	25.18
1.8	20.56	25.43
1.9	20.58	25.65
2.0	20.54	25.74
2.2	20.42	25.89
2.3	20.45	25.87

Appendix 1.8. Continued.

STATION 15		
Depth (m)	Temperature (°C)	Salinity (PSU)
0.1	21.81	17.65
0.2	21.83	17.69
0.4	21.85	17.74
0.5	22.04	18.44
0.6	22.13	18.47
0.7	22.26	19.02
0.8	22.33	19.84
0.9	22.39	20.37
1.0	22.44	20.73
1.1	22.46	21.01
1.3	22.46	21.28
1.4	22.42	21.47
1.5	22.38	22.03
1.7	22.38	22.08
1.8	22.39	22.14
1.9	22.39	22.20
2.0	22.39	22.26
2.1	22.39	22.36
2.2	22.37	22.59
2.3	22.34	22.81
2.4	22.30	22.93
2.5	22.28	22.99
2.6	22.26	23.01
2.7	22.26	23.03
2.8	22.25	23.06
2.9	22.24	23.08
3.0	22.24	23.10
3.1	22.23	23.14
3.2	22.22	23.20
3.3	22.21	23.24
3.4	22.19	23.26
3.5	22.16	23.29
3.6	22.14	23.39
3.8	22.11	23.51
3.9	22.04	23.65
4.1	21.97	23.74

STATION 16		
Depth (m)	Temperature (°C)	Salinity (PSU)
0.1	21.12	15.13
0.2	21.19	15.27
0.3	21.22	15.29
0.4	21.21	15.49
0.5	21.19	15.41
0.6	21.41	15.36
0.7	21.49	15.36
0.8	21.71	15.32
0.9	22.09	15.17
1.0	22.37	15.09
1.1	22.49	15.23
1.2	22.56	15.19
1.3	22.51	15.32
1.4	22.48	16.25
1.5	22.33	18.52
1.6	22.18	18.97
1.7	22.13	19.68
1.8	22.13	20.22
1.9	22.07	20.48
2.0	22.03	21.00
2.1	21.99	21.34
2.2	21.92	21.59
2.3	21.91	21.69
2.4	21.89	21.77
2.5	21.89	21.83
2.6	21.88	21.87
2.7	21.87	21.95
2.8	21.86	21.99
2.9	21.85	22.02
3.0	21.85	22.06
3.1	21.84	22.09
3.2	21.82	22.11
3.3	21.82	22.12
3.4	21.80	22.13

Appendix 1.8. Continued.

STATION 17		
Depth (m)	**Temperature (°C)**	**Salinity (PSU)**
0.1	21.11	13.43
0.3	21.27	14.66
0.4	21.48	15.84
0.5	21.77	17.13
0.6	22.24	17.32
0.7	22.29	16.62
0.9	22.31	16.58
1.0	22.29	16.60
1.2	22.29	16.71
1.3	22.27	16.82
1.4	22.22	17.24
1.5	22.12	18.64
1.6	22.11	18.81
1.7	22.08	19.32
1.8	22.05	19.67
1.9	22.03	19.87
2.0	21.98	20.07
2.1	21.94	20.28
2.2	21.94	20.37
2.3	21.91	20.46
2.4	21.89	20.58
2.5	21.87	20.85
2.7	21.77	21.37
2.8	21.69	21.88
2.9	21.63	21.98
3.0	21.60	21.99
3.1	21.56	22.03
3.2	21.49	22.05

Appendix 1.9. Temperature and salinity data obtained from CTD casts in the Kouchibouguac and St. Louis estuaries on September 26-27, 1997. Data are plotted in Appendix 2.9.

STATION 6		
Depth (m)	Temperature (°C)	Salinity (PSU)
0.1	11.35	18.21
0.2	11.40	20.32
0.4	11.44	21.88
0.5	11.44	21.64
0.6	11.44	21.69
0.7	11.44	22.01
0.8	11.45	22.07
0.9	11.45	22.03
1.0	11.46	21.77

STATION 8		
Depth (m)	Temperature (°C)	Salinity (PSU)
0.1	12.50	13.70
0.2	12.53	14.95
0.3	12.59	14.92
0.4	12.63	14.79
0.5	12.74	15.08
0.6	12.92	15.44
0.7	12.97	15.62
0.8	13.09	15.95
0.9	13.23	16.30
1.0	13.31	17.89
1.1	13.33	17.79
1.2	13.32	17.35
1.3	13.30	20.38
1.4	13.33	20.85

STATION 12		
Depth (m)	Temperature (°C)	Salinity (PSU)
0.1	11.65	26.95
0.2	11.68	26.97
0.3	11.69	26.96
0.4	11.69	26.98
0.5	11.68	26.97
0.6	11.69	26.97
0.7	11.69	26.97
1.0	11.67	26.98
1.1	11.67	26.98
1.2	11.67	26.97
1.4	11.63	26.98
1.5	11.61	27.01
1.6	11.61	26.99
1.9	11.61	26.99
2.0	11.59	27.03
2.1	11.60	27.01
2.2	11.61	27.00
2.4	11.69	26.94
2.5	11.70	26.95
2.7	11.75	27.05
2.8	11.86	26.85
2.9	11.86	26.93
3.0	11.86	26.98
3.2	11.89	26.97
3.4	11.89	27.14
3.6	12.11	26.92
3.8	12.29	26.95
3.9	12.31	27.04
4.1	12.37	27.22
4.3	12.45	26.97
4.4	12.45	27.06
4.5	12.46	26.98
4.6	12.46	27.09
4.7	12.47	27.03
4.8	12.48	26.97
4.9	12.46	27.09
5.0	12.46	27.16
5.1	12.46	27.08
5.2	12.46	27.09
5.3	12.46	27.19
5.4	12.46	27.19
5.5	12.46	27.20
5.6	12.46	27.23
5.7	12.45	27.26
5.9	12.46	27.26
6.0	12.45	27.27
6.1	12.45	27.25

Appendix 1.9. Continued.

STATION 13		
Depth (m)	Temperature (°C)	Salinity (PSU)
0.1	11.78	25.27
0.2	11.79	25.28
0.3	11.89	25.28
0.4	12.00	25.27
0.5	12.17	25.15
0.6	12.44	25.01
0.7	12.46	24.96

STATION 15		
Depth (m)	Temperature (°C)	Salinity (PSU)
0.1	10.86	18.64
0.2	10.84	18.75
0.3	10.84	18.97
0.4	10.83	18.95
0.6	10.82	18.98
0.7	10.79	18.99
0.8	10.79	19.03
0.9	10.78	19.06
1.0	10.78	19.07
1.1	10.78	19.08
1.2	10.82	19.14
1.3	10.84	19.25
1.4	10.86	19.41
1.5	10.88	19.33
1.6	10.90	19.72
1.7	10.99	20.32
1.9	11.07	20.43
2.0	11.12	20.59
2.1	11.14	20.63
2.2	11.13	20.32
2.3	11.12	20.77
2.4	11.12	21.31
2.5	11.12	21.26
2.6	11.10	21.63
2.7	11.09	21.04
2.8	11.08	21.47
2.9	11.07	21.23
3.0	11.04	21.64
3.1	11.02	22.50
3.2	11.01	22.70
3.3	11.01	22.49
3.4	11.01	22.27
3.5	11.03	23.33
3.6	11.05	23.44
3.8	11.06	23.21
3.9	11.07	23.13

STATION 17		
Depth (m)	Temperature (°C)	Salinity (PSU)
0.1	10.61	13.04
0.2	10.61	12.34
0.3	10.69	13.07
0.4	10.79	15.76
0.5	10.79	15.40
0.6	10.91	15.67
0.7	11.10	15.49
0.8	11.18	15.58
0.9	11.24	15.51
1.0	11.28	15.54
1.1	11.29	15.69
1.2	11.38	15.39
1.4	11.49	14.87
1.5	11.46	15.86
1.6	11.69	16.07
1.7	11.79	15.92
1.9	11.81	16.56
2.0	11.84	16.66
2.1	11.84	19.13
2.2	11.91	17.46

Appendix 1.10. Temperature and salinity data obtained from CTD casts in the Kouchibouguac and St. Louis estuaries on October 14-15, 1997. Data are plotted in Appendix 2.10.

STATION 2		
Depth (m)	Temperature (°C)	Salinity (PSU)
0.1	9.01	25.35
0.2	9.01	25.35
0.3	9.01	25.36
0.4	9.01	25.35
0.5	9.01	25.35
0.6	9.01	25.35
0.7	9.01	25.34
0.8	9.02	25.33
0.9	9.02	25.33
1.0	9.02	25.33
1.1	9.02	25.32
1.2	9.02	25.33
1.3	9.02	25.34
1.4	9.02	25.34
1.5	9.01	25.36
1.8	8.99	25.39
1.9	8.99	25.39
2.0	8.98	25.41
2.1	8.99	25.40
2.2	8.98	25.41
2.3	8.98	25.41
2.4	8.98	25.41
2.5	8.97	25.42
2.6	8.97	25.42
2.7	8.97	25.42
2.8	8.97	25.42

STATION 4		
Depth (m)	Temperature (°C)	Salinity (PSU)
0.1	9.66	27.64
0.2	9.65	27.66
0.3	9.65	27.68
0.4	9.65	27.69
0.5	9.66	27.65
0.6	9.66	27.61
0.7	9.67	27.63
0.8	9.67	27.62
0.9	9.68	27.61
1.0	9.67	27.63
1.2	9.64	27.67
1.4	9.62	27.70
1.5	9.61	27.71
1.8	9.61	27.72
1.9	9.61	27.72
2.0	9.60	27.73
2.1	9.60	27.72
2.2	9.60	27.72
2.3	9.60	27.71
2.4	9.59	27.73
2.5	9.59	27.72
2.6	9.60	27.73
2.7	9.59	27.73

Appendix 1.10. Continued.

STATION 5		
Depth (m)	Temperature (°C)	Salinity (PSU)
0.1	9.34	27.43
0.2	9.31	27.48
0.3	9.29	27.52
0.4	9.24	27.56
0.5	9.08	27.67
0.6	9.00	27.74
0.7	8.97	27.76
0.8	8.97	27.77
0.9	8.95	27.78
1.0	8.95	27.76
1.2	8.93	27.76
1.3	8.93	27.73
1.5	8.97	27.73
1.7	8.98	27.73
1.9	8.98	27.75
2.0	8.95	27.74
2.1	8.94	27.75
2.2	8.95	27.72
2.3	8.92	27.74
2.5	8.89	27.74
2.6	8.89	27.73
2.7	8.89	27.72
2.8	8.88	27.74
2.9	8.88	27.72
3.0	8.87	27.73
3.1	8.86	27.74
3.2	8.85	27.74

STATION 6		
Depth (m)	Temperature (°C)	Salinity (PSU)
0.1	9.29	24.15
0.2	9.29	24.17
0.3	9.29	24.19
0.5	9.26	24.20
0.6	9.25	24.21
0.7	9.25	24.22
0.8	9.24	24.23
1.0	9.23	24.26
1.1	9.22	24.29
1.2	9.22	24.35
1.3	9.22	24.43
1.4	9.22	24.51
1.5	9.21	24.58
1.7	9.20	24.67
1.9	9.21	24.70
2.1	9.19	24.74
2.2	9.19	24.78
2.4	9.18	24.84
2.5	9.18	24.86
2.6	9.18	24.87
2.8	9.00	24.87
2.9	9.19	24.86

Appendix 1.10. Continued.

STATION 7		
Depth (m)	Temperature (°C)	Salinity (PSU)
0.1	9.27	20.64
0.2	9.33	21.18
0.3	9.48	21.59
0.4	9.58	21.89
0.5	9.72	21.72
0.6	9.79	21.70
0.7	9.81	21.76
0.8	9.81	21.89
0.9	9.82	22.16
1.1	9.84	22.52
1.2	9.86	22.77
1.3	9.89	23.12
1.4	9.88	23.25
1.5	9.91	23.47
1.6	9.92	23.62
1.8	9.93	23.73
2.0	9.96	23.77
2.2	9.96	23.85
2.3	9.94	23.92
2.4	9.92	23.97
2.5	9.92	24.01
2.6	9.92	24.16
2.7	9.91	24.22
2.9	9.92	24.24
3.0	9.92	24.29
3.1	9.92	24.32
3.2	9.91	24.33
3.3	9.91	24.34

STATION 8		
Depth (m)	Temperature (°C)	Salinity (PSU)
0.1	10.35	16.96
0.2	10.85	18.37
0.3	11.05	18.65
0.4	11.19	18.55
0.5	11.42	18.46
0.6	11.51	18.39
0.7	11.59	18.41
0.8	11.63	18.41
0.9	11.68	18.40
1.0	11.72	18.69
1.1	11.75	18.65
1.2	11.76	18.96
1.3	11.75	19.13
1.4	11.72	19.52
1.5	11.69	20.73
1.6	11.71	21.56
1.8	11.69	22.24
2.0	11.63	22.57
2.1	11.63	22.83
2.2	11.56	22.90
2.3	11.52	22.99
2.4	11.49	23.09
2.5	11.45	23.17
2.6	11.45	23.17
2.7	11.42	23.26

STATION 9		
Depth (m)	Temperature (°C)	Salinity (PSU)
0.1	12.28	19.67
0.2	12.32	20.54
0.3	12.35	20.84
0.4	12.34	20.73
0.5	12.36	20.63
0.6	12.38	20.51
0.7	12.36	20.70
0.8	12.35	20.66
0.9	12.34	20.74
1.0	12.32	20.75
1.1	12.33	20.95

Appendix 1.10. Continued.

STATION 11		
Depth (m)	Temperature (°C)	Salinity (PSU)
0.1	9.20	27.57
0.2	9.21	27.54
0.4	9.21	27.54
0.6	9.22	27.54
0.7	9.22	27.57
0.8	9.22	27.58
0.9	9.23	27.60
1.0	9.23	27.62
1.1	9.23	27.63
1.2	9.24	27.64
1.3	9.24	27.65
1.4	9.25	27.66

STATION 12		
Depth (m)	Temperature (°C)	Salinity (PSU)
0.1	9.46	27.90
0.2	9.47	27.95
0.3	9.48	27.99
0.4	9.48	27.95
0.5	9.48	27.98
0.6	9.48	28.03
0.7	9.48	27.97
0.9	9.48	27.89
1.0	9.48	27.88
1.1	9.48	27.93
1.2	9.48	27.93
1.4	9.48	27.88
1.5	9.47	27.91
1.6	9.48	27.89
1.8	9.48	27.86
2.0	9.47	27.92
2.2	9.48	27.91
2.3	9.47	27.90

STATION 13		
Depth (m)	Temperature (°C)	Salinity (PSU)
0.1	9.35	27.72
0.2	9.34	27.70
0.3	9.35	27.65
0.5	9.35	27.65
0.6	9.36	27.68
0.7	9.35	27.71
0.8	9.35	27.73
0.9	9.35	27.75
1.1	9.36	27.76
1.2	9.36	27.77
1.3	9.36	27.77
1.4	9.36	27.77
1.5	9.60	27.77
1.6	9.36	27.78
1.7	9.36	27.79
1.8	9.36	27.79
1.9	9.36	27.79
2.0	9.36	27.79
2.1	9.35	27.79

STATION 14		
Depth (m)	Temperature (°C)	Salinity (PSU)
0.1	9.22	24.97
0.2	9.21	25.08
0.5	9.24	25.05
0.6	9.26	25.05
0.7	9.27	25.09
0.8	9.27	25.12
0.9	9.27	25.19
1.0	9.27	25.22
1.1	9.27	25.26
1.2	9.26	25.36
1.3	9.27	25.49
1.4	9.27	25.60
1.5	9.27	25.82

Appendix 1.10. Continued.

STATION 15		
Depth (m)	Temperature (°C)	Salinity (PSU)
0.1	9.57	22.37
0.2	9.57	22.38
0.3	9.58	22.36
0.4	9.58	22.37
0.5	9.62	22.35
0.6	9.71	22.29
0.7	9.70	22.31
0.8	9.65	22.36
0.9	9.57	22.48
1.0	9.52	22.55
1.1	9.46	22.69
1.2	9.39	22.89
1.3	9.32	23.08
1.4	9.28	23.10
1.5	9.27	23.26
1.6	9.25	23.41
1.9	9.24	23.68
2.0	9.22	24.01
2.2	9.22	24.19
2.3	9.22	24.36
2.4	9.22	24.49
2.5	9.22	24.55
2.6	9.22	24.59
2.7	9.22	24.61
2.8	9.22	24.65
3.0	9.22	24.73
3.2	9.24	24.86
3.3	9.25	25.02
3.5	9.25	25.12
3.6	9.25	25.26
3.8	9.27	25.39
3.9	9.28	25.44
4.0	9.28	25.47
4.1	9.29	25.49
4.2	9.29	25.51
4.3	9.29	25.52
4.4	9.29	25.53
4.5	9.29	25.54
4.6	9.29	25.54
4.7	9.30	25.55
4.8	9.30	25.56
4.9	9.29	25.55
5.0	9.29	25.52

STATION 16		
Depth (m)	Temperature (°C)	Salinity (PSU)
0.1	10.00	20.04
0.2	9.91	20.26
0.3	9.88	20.29
0.4	9.81	20.35
0.5	9.81	20.36
0.6	9.79	20.37
0.7	9.79	20.40
0.8	9.79	20.46
0.9	9.77	20.55
1.1	9.72	20.79
1.2	9.69	21.05
1.3	9.66	21.28
1.4	9.61	21.80
1.5	9.57	22.01
1.6	9.54	22.33
1.8	9.49	22.69
1.9	9.49	22.90
2.0	9.45	23.10
2.1	9.42	23.24
2.2	9.40	23.35
2.3	9.39	23.44
2.4	9.38	23.50
2.5	9.37	23.57
2.6	9.37	23.59

STATION 17		
Depth (m)	Temperature (°C)	Salinity (PSU)
0.1	10.38	19.15
0.2	10.27	19.65
0.3	10.22	19.80
0.4	10.20	19.89
0.5	10.14	19.98
0.6	10.14	19.97
0.7	10.10	20.09
0.8	10.06	20.29
0.9	10.03	20.49
1.0	10.00	20.65
1.1	9.99	20.71
1.2	9.96	20.77
1.3	9.94	20.90
1.5	9.86	21.26
1.6	9.79	21.42
1.7	9.74	21.53
1.9	9.72	21.58
2.0	9.71	22.16
2.1	9.63	22.58
2.2	9.59	22.85
2.3	9.59	22.85

Appendix 1.11. Temperature and salinity data obtained from CTD casts in the Kouchibouguac and St. Louis on November 11-12, 1997. Data are plotted in Appendix 2.11.

STATION 2		
Depth (m)	Temperature (°C)	Salinity (PSU)
0.1	6.55	21.40
0.2	6.56	21.42
0.3	6.56	21.43
0.5	6.56	21.45
0.6	6.55	21.46
0.7	6.53	21.65
0.8	6.53	22.28
1.0	6.54	23.11
1.1	6.58	23.47
1.2	6.63	24.85
1.3	6.73	24.77
1.4	6.74	23.99
1.5	6.79	24.52
1.6	6.85	24.86
1.8	6.89	24.95
2.0	6.90	25.17
2.1	6.91	25.29
2.2	6.92	25.38
2.3	6.92	25.61
2.4	6.93	25.87
2.5	6.95	25.82
2.6	6.94	25.80

STATION 4		
Depth (m)	Temperature (°C)	Salinity (PSU)
0.2	6.58	26.21
0.4	6.58	26.29
0.5	6.57	26.29
0.6	6.56	26.32
0.7	6.56	26.33
0.8	6.57	26.33
0.9	6.56	26.33
1.0	6.56	26.33
1.1	6.57	26.34

STATION 5		
Depth (m)	Temperature (°C)	Salinity (PSU)
0.1	7.40	27.81
0.2	7.42	27.81
0.3	7.42	27.81
0.4	7.42	27.81
0.5	7.42	27.76
0.6	7.43	27.69
0.7	7.43	27.75
0.8	7.43	27.81
1.0	7.43	27.83
1.1	7.43	27.90
1.2	7.43	27.91
1.3	7.43	27.86
1.4	7.43	27.78
1.5	7.43	27.82
1.6	7.43	27.81
2.0	7.42	27.87
2.2	7.41	27.88
2.5	7.42	27.89
2.7	7.42	27.89
2.8	7.41	27.91
2.9	7.41	27.88
3.0	7.42	27.90
3.1	7.42	27.92
3.2	7.42	27.92
3.3	7.41	27.89

Appendix 1.11. Continued.

STATION 6		
Depth (m)	Temperature (°C)	Salinity (PSU)
0.1	6.99	18.06
0.2	7.02	20.25
0.4	7.02	21.28
0.5	7.02	21.57
0.7	7.01	21.33
0.8	7.01	21.69
0.9	7.01	21.58
1.0	7.01	21.75
1.2	7.01	21.94
1.5	7.00	22.34
1.6	6.99	22.74
1.8	6.98	22.67
1.9	6.98	22.59
2.0	6.98	22.81
2.1	6.97	22.67
2.2	6.97	22.76
2.3	6.96	22.96
2.5	6.96	23.02
2.6	6.95	23.04
2.9	6.95	23.01
3.0	6.95	23.00
3.3	6.95	22.98
3.5	6.95	22.98
3.6	6.95	22.99

STATION 7		
Depth (m)	Temperature (°C)	Salinity (PSU)
0.1	7.18	21.88
0.2	7.21	21.93
0.4	7.23	22.28
0.5	7.24	22.15
0.6	7.24	22.26
0.7	7.25	23.43
0.9	7.27	23.93
1.0	7.28	24.09
1.2	7.28	24.33
1.3	7.28	24.73
1.5	7.27	24.73
1.6	7.26	24.83
1.7	7.26	24.88
1.9	7.26	24.94
2.1	7.25	24.98
2.2	7.25	24.95
2.3	7.25	24.93
2.4	7.25	24.95
2.5	7.25	24.97
2.7	7.25	24.97
2.9	7.25	24.95
3.0	7.25	24.97
3.1	7.25	24.94
3.3	7.25	24.96
3.5	7.25	24.94
3.6	7.25	24.89
3.7	7.25	24.89
3.8	7.25	24.91
4.2	7.25	24.96
4.5	7.25	24.97
4.6	7.25	24.94

Appendix 1.11. Continued.

STATION 8		
Depth (m)	Temperature (°C)	Salinity (PSU)
0.1	6.89	17.35
0.2	7.25	19.09
0.4	7.42	21.41
0.6	7.47	21.46
0.7	7.50	22.15
0.8	7.54	22.51
0.9	7.58	22.54
1.0	7.60	22.77
1.1	7.62	22.87
1.2	7.63	22.87
1.3	7.64	22.94
1.5	7.65	23.21
1.6	7.66	23.45
1.9	7.67	23.46
2.0	7.66	23.49
2.1	7.66	23.57
2.2	7.67	23.59
2.4	7.67	23.61
2.5	7.67	23.59
2.6	7.67	23.62
2.7	7.67	23.61
2.8	7.67	23.65
2.9	7.68	23.66
3.0	7.68	23.64
3.1	7.68	23.63

STATION 11,12,13		
Depth (m)	Temperature (°C)	Salinity (PSU)
0.1	4.94	24.79
0.2	4.93	24.92
0.3	4.93	25.04
0.4	4.93	24.85
0.6	4.93	24.89
0.7	4.93	25.03
0.8	4.93	25.05
0.9	4.93	25.16
1.0	4.93	25.36
1.1	4.93	25.45
1.2	4.93	25.41
1.3	4.93	25.56
1.4	4.93	25.58
1.5	4.94	25.53
1.6	4.94	25.58
1.7	4.94	25.62
1.9	4.94	25.63
2.0	4.94	25.64
2.1	4.94	25.64
2.2	4.95	25.66
2.3	4.94	25.67

STATION 9		
Depth (m)	Temperature (°C)	Salinity (PSU)
0.1	6.54	13.48
0.2	7.24	15.87
0.4	7.56	16.88
0.6	7.67	18.34
0.7	7.70	19.36
1.0	7.75	20.39
1.2	7.76	21.03
1.3	7.73	21.52

STATION 14		
Depth (m)	Temperature (°C)	Salinity (PSU)
0.1	5.67	16.58
0.2	5.66	16.59
0.3	5.66	16.65
0.4	5.66	16.66
0.5	5.66	16.69
0.6	5.66	17.99
0.7	5.69	18.16

Appendix 1.11. Continued.

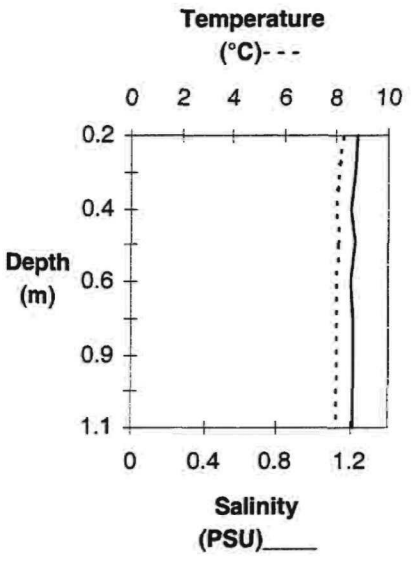
STATION 15		
Depth (m)	Temperature (°C)	Salinity (PSU)
0.1	5.43	12.91
0.2	5.42	12.97
0.3	5.41	13.09
0.5	5.51	14.27
0.6	6.05	18.25
0.7	6.06	18.38
0.8	6.29	19.79
1.0	6.50	21.21
1.1	6.64	21.91
1.3	6.73	22.81
1.5	6.79	23.85
1.7	6.89	24.22
1.9	6.92	24.38
2.0	6.99	24.39
2.1	6.97	24.31

STATION 16		
Depth (m)	Temperature (°C)	Salinity (PSU)
0.1	5.40	10.38
0.2	5.39	10.43
0.3	5.53	15.38
0.5	5.85	16.02
0.6	6.11	20.21
0.7	6.45	19.69
0.8	6.77	19.99

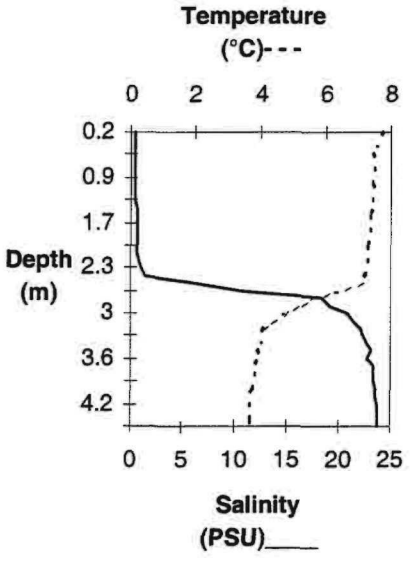
STATION 17		
Depth (m)	Temperature (°C)	Salinity (PSU)
0.1	7.15	21.69
0.2	7.21	22.13
0.3	7.24	22.53
0.4	7.23	22.73
0.6	7.25	22.89
0.7	7.26	22.99
0.8	7.27	23.11

Appenidx 2.1. CTD profiles of temperature and salinity at sampling stations on May 6, 1997.

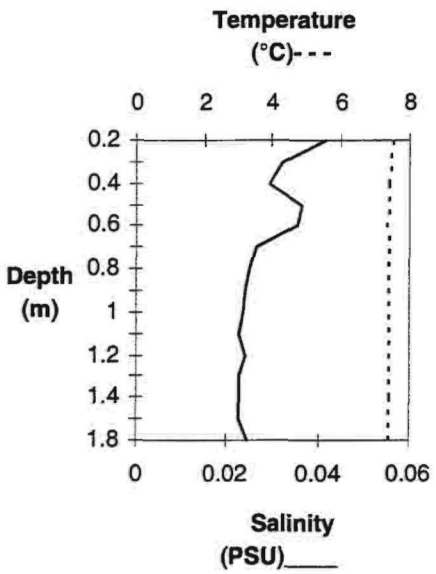
station 6



station 7

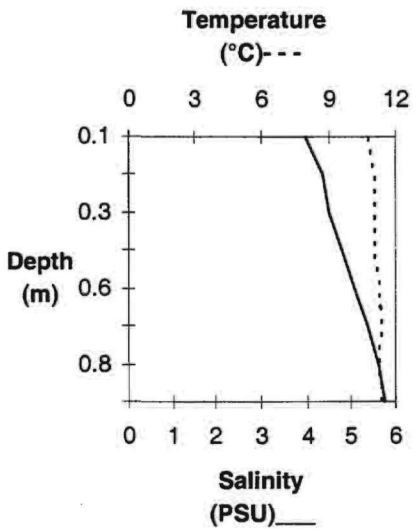


station 9

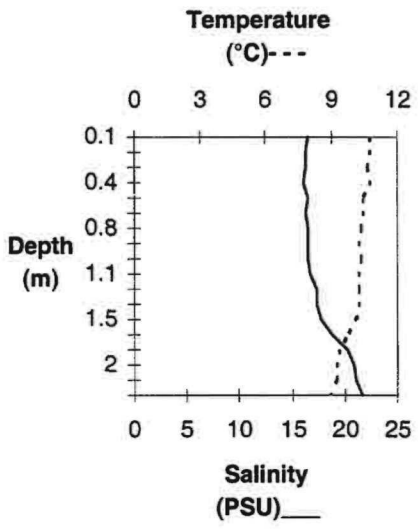


Appendix 2.2. Ctd profiles of temperature and salinity at sampling stations on May 20-21, 1997.

station 1

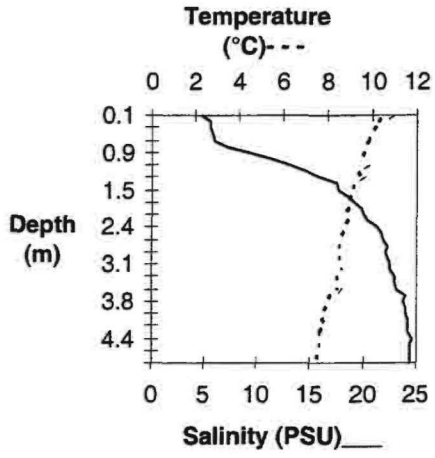


station 2

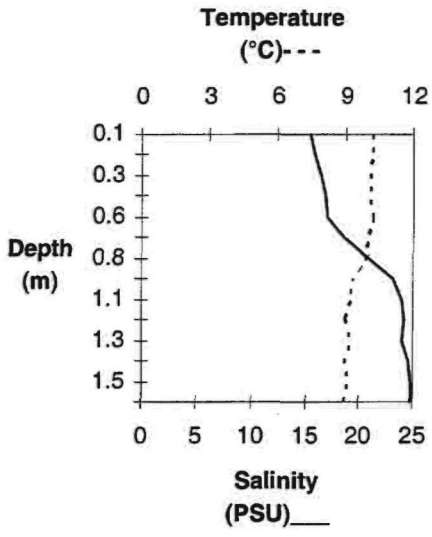


Appendix 2.2. Continued.

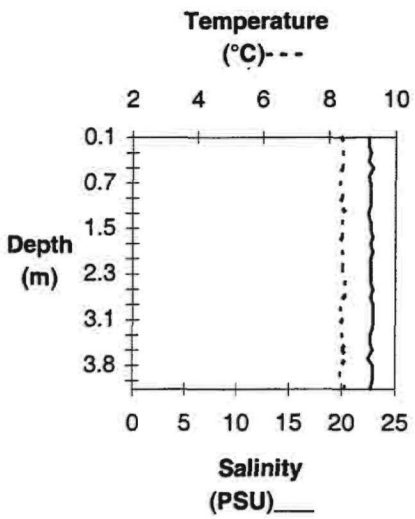
station 3



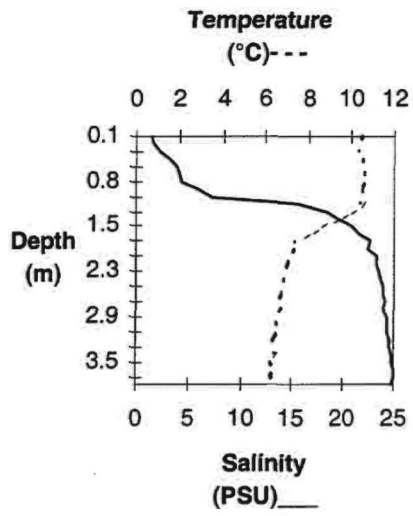
station 4



station 5

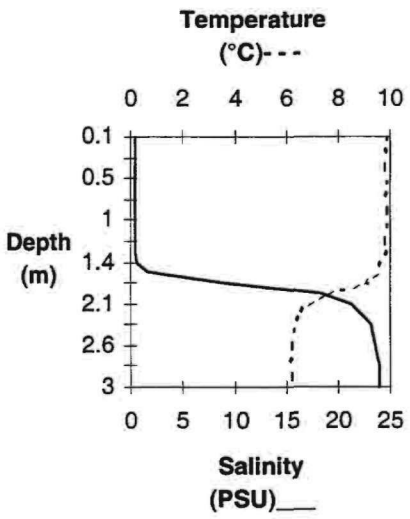


station 7

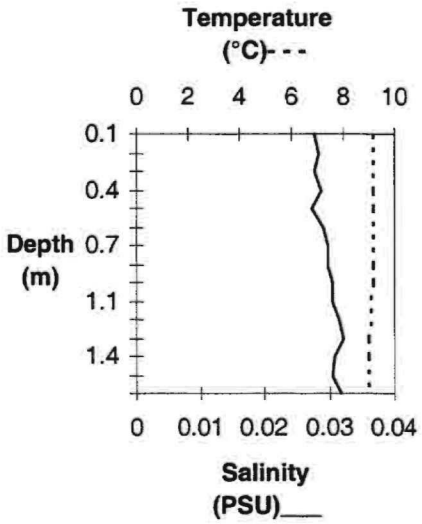


Appendix 2.2. Continued.

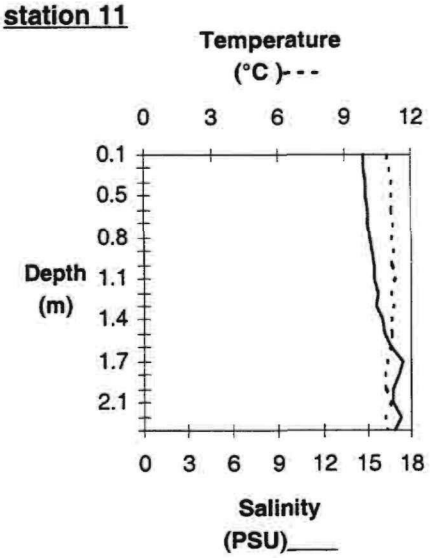
station 8



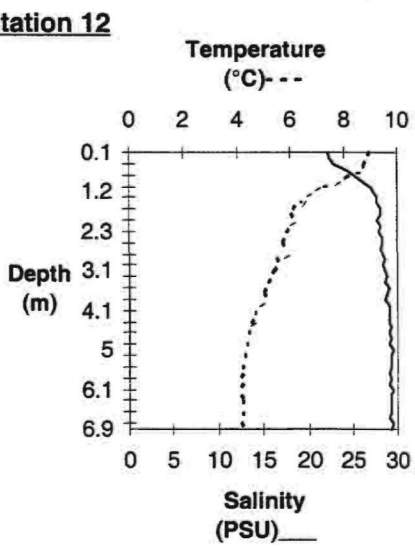
station 9



station 11

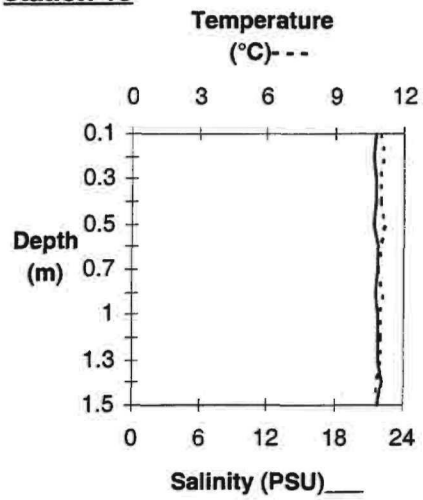


station 12

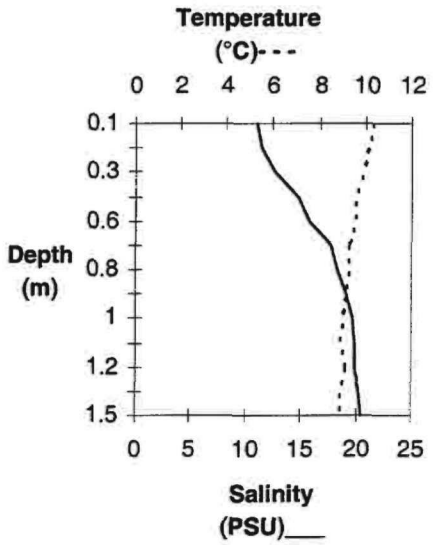


Appenidix 2.2. Continued.

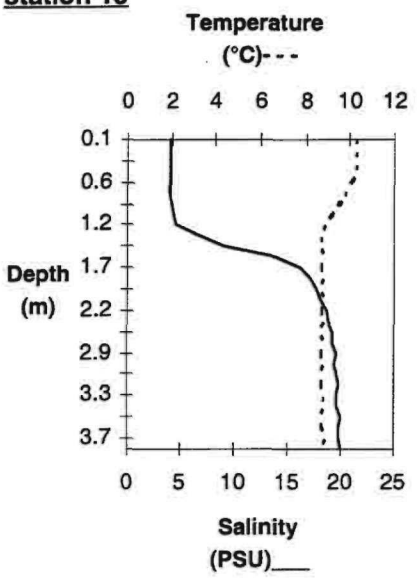
station 13



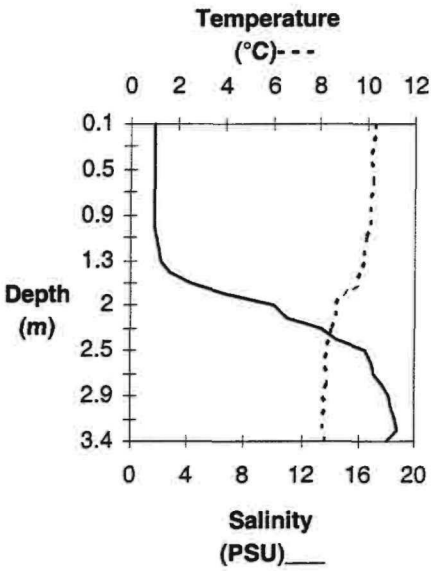
station 14



station 15

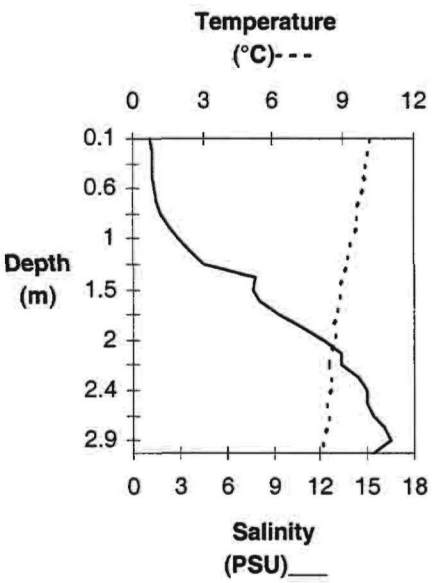


station 16



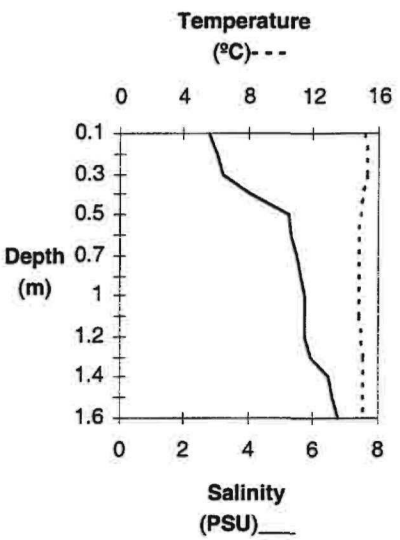
Appendix 2.2. Continued.

station 17

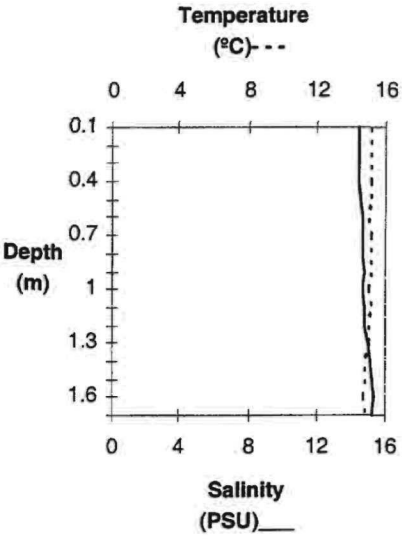


Appendix 2.3. CTD profiles of temperature and salinity at sampling stations on June 3-4, 1997

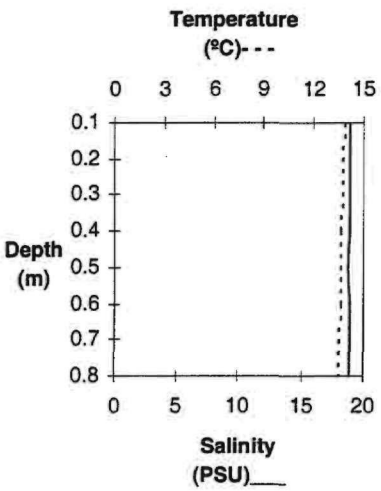
station 1



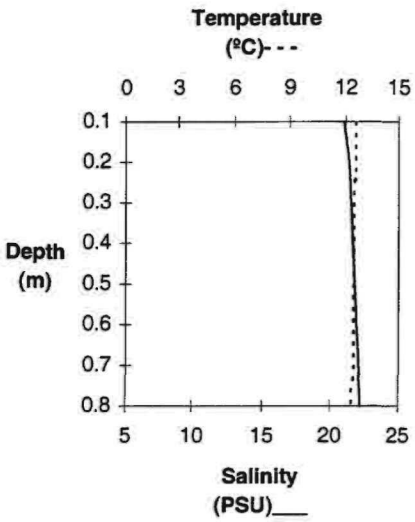
station 2



station 4

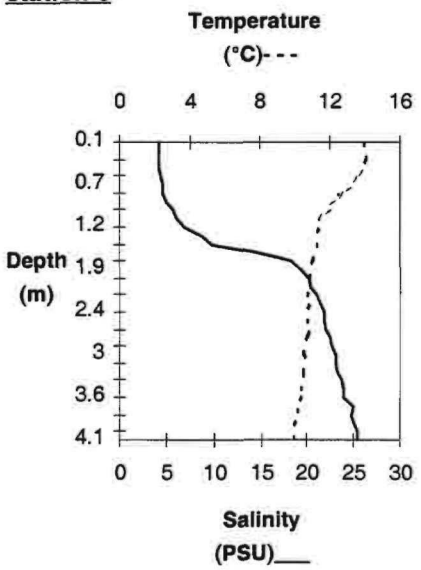


station 5

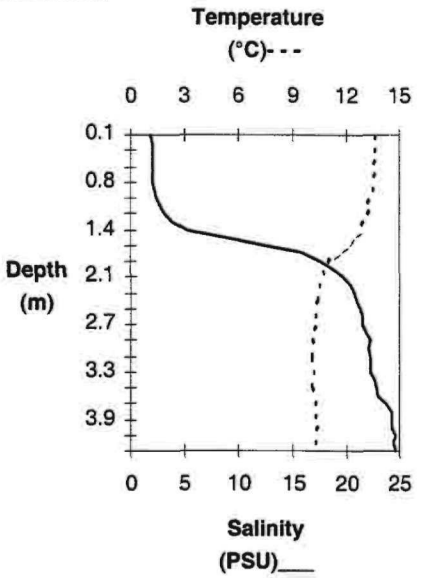


Appendix 2.3 Continued.

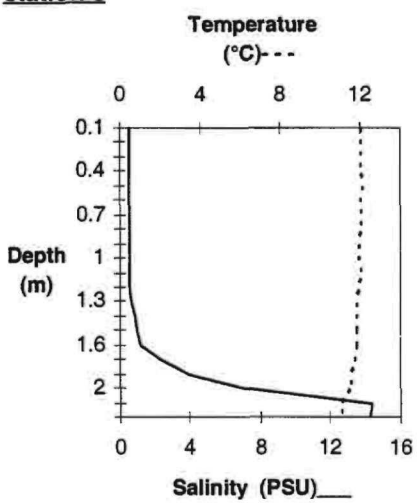
station 6



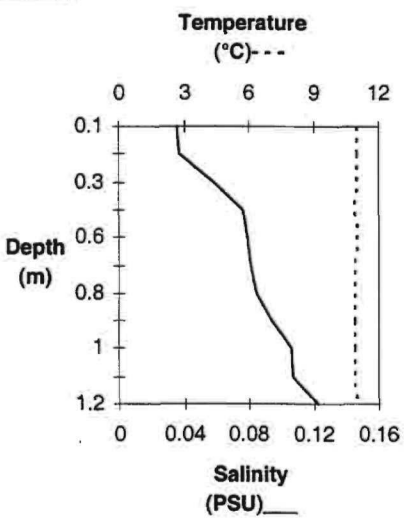
station 7



station 8

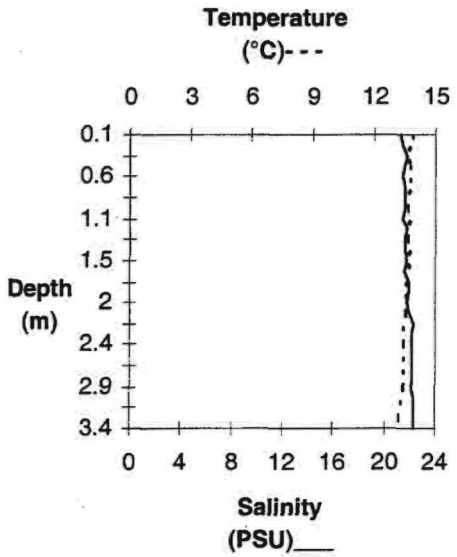


station 9

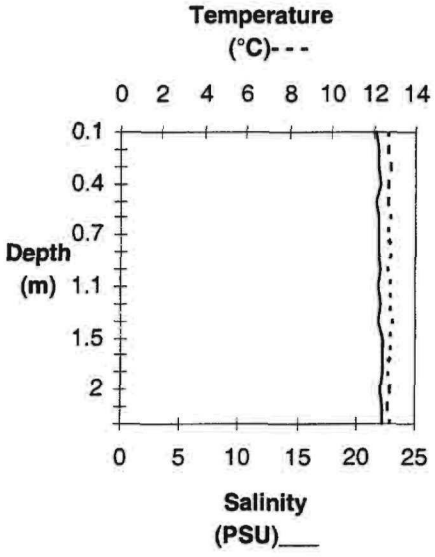


Appendix 2.3. Continued.

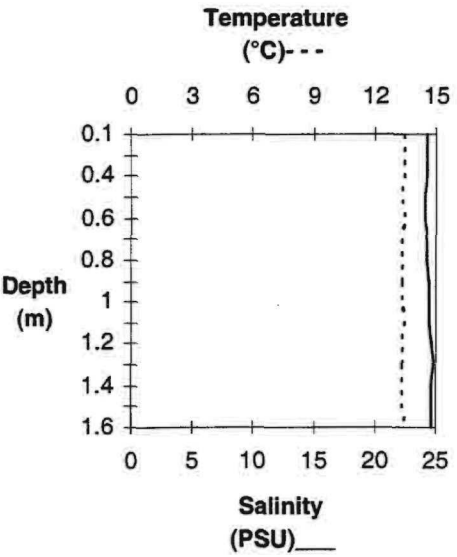
station 11



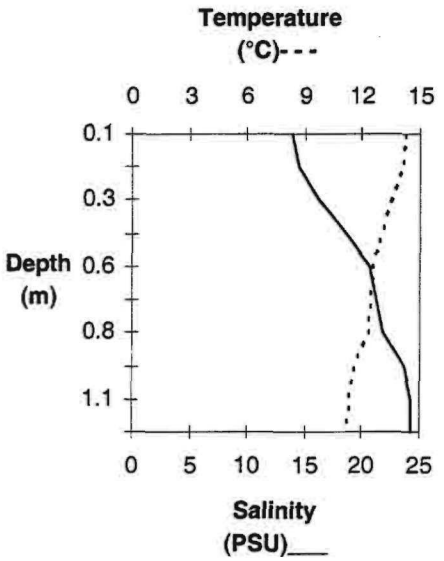
station 12



station 13

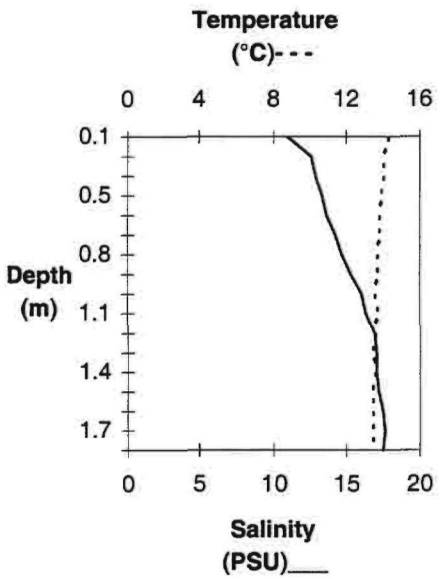


station 14

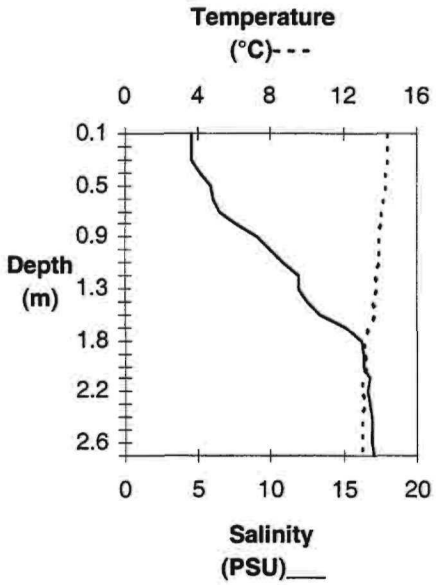


Appendix 2.3. Continued.

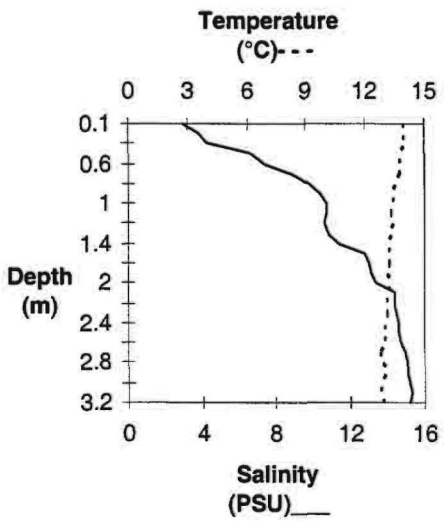
station 15



station 16

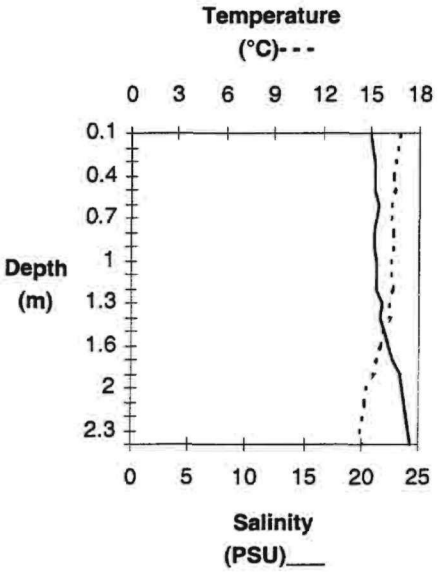


station 17

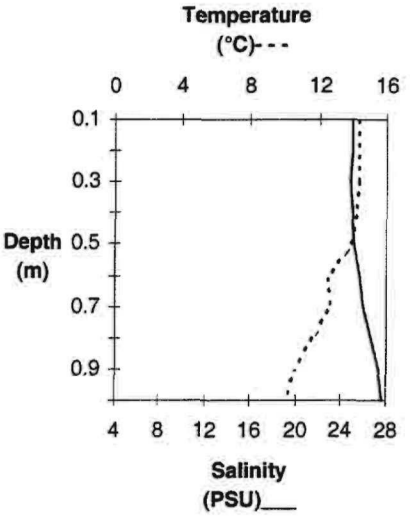


Appendix 2.4. CTD profiles of temperature and salinity at sampling stations on June 17-18, 1997.

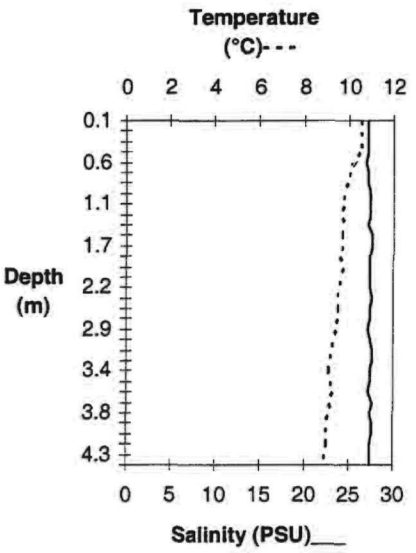
station 2



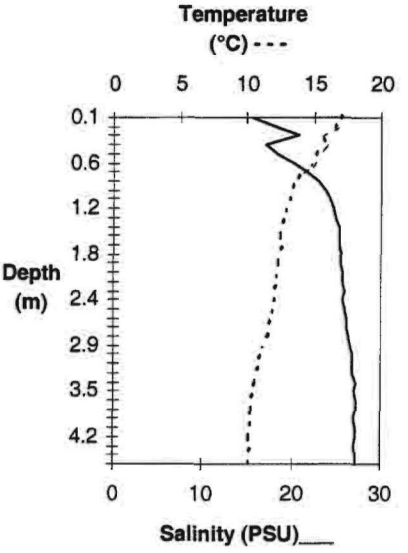
station 4



station 5

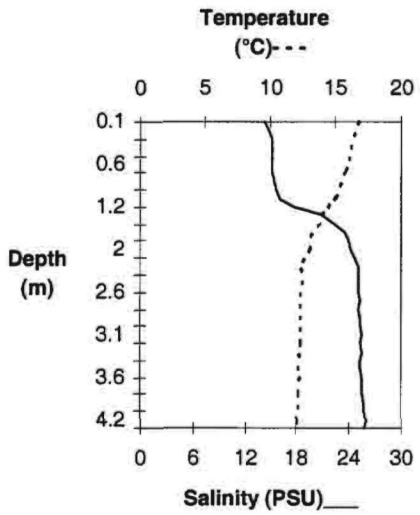


station 6

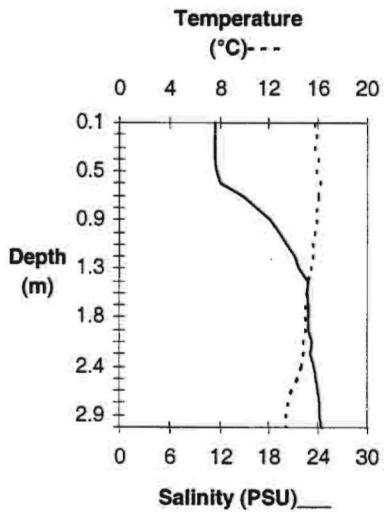


Appendix 2.4. Continued.

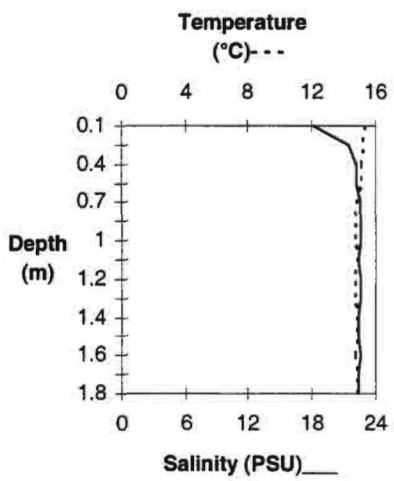
station 7



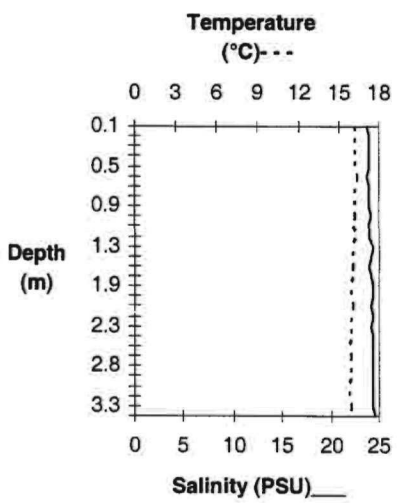
station 8



station 9

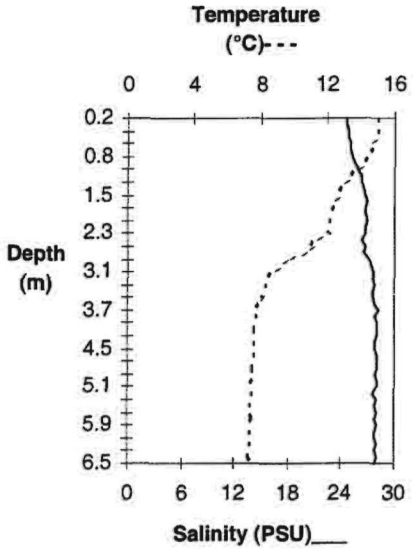


station 11

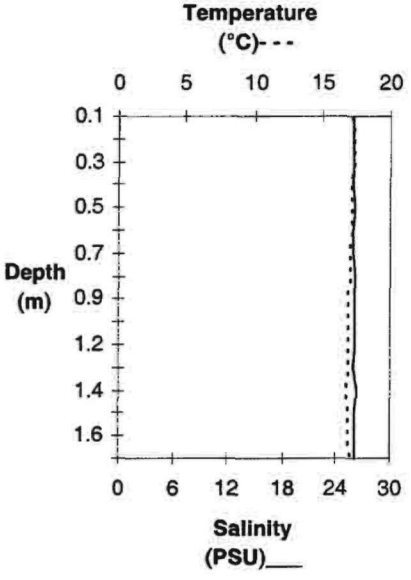


Appendix 2.4. Continued.

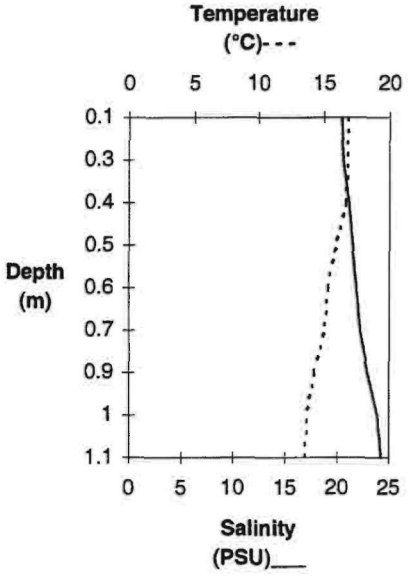
station 12



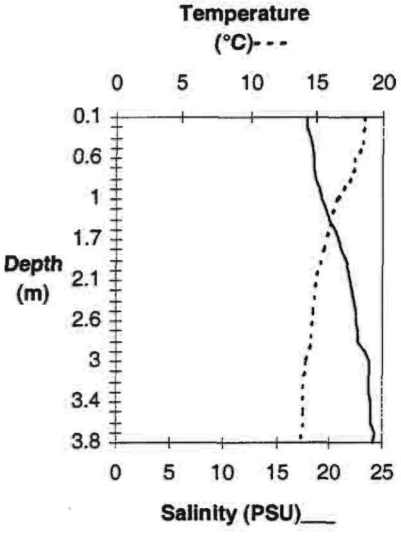
station 13



station 14

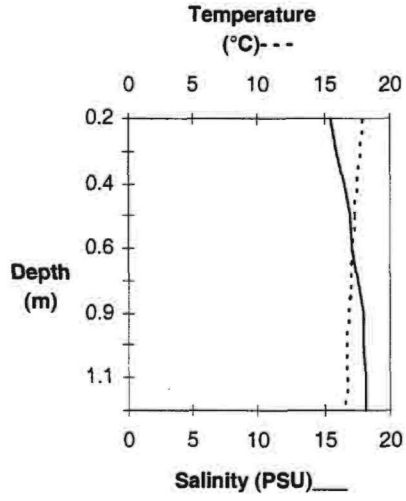


station 15



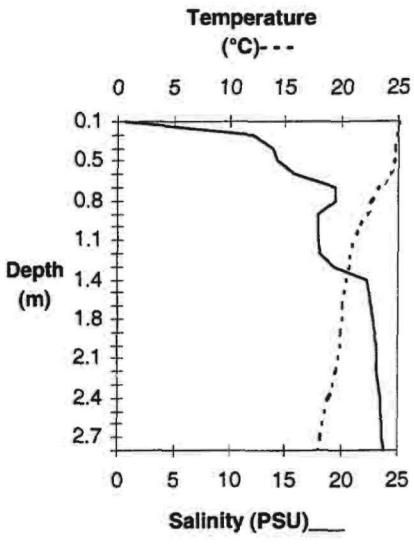
Appendix 2.4. Continued.

station 17

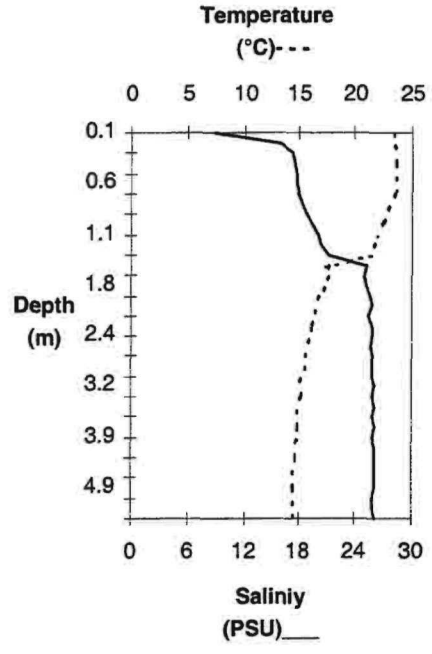


Appendix 2.5. CTD profiles of temperature and salinity at sampling stations on July 2-3, 1997.

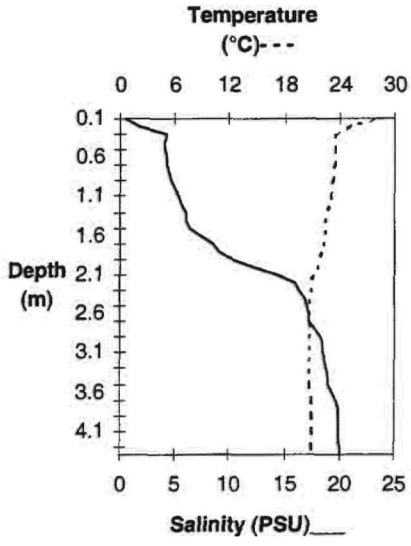
station 4



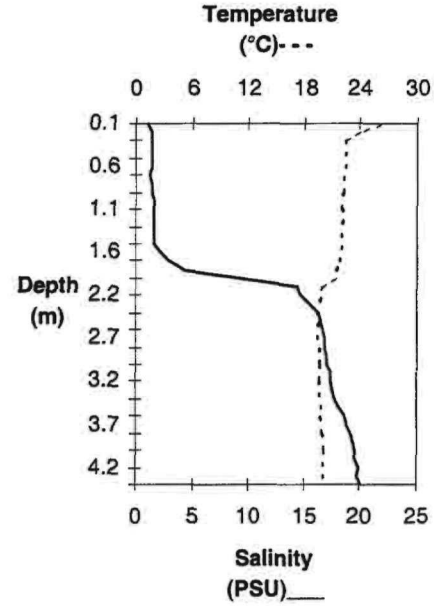
station 5



station 6

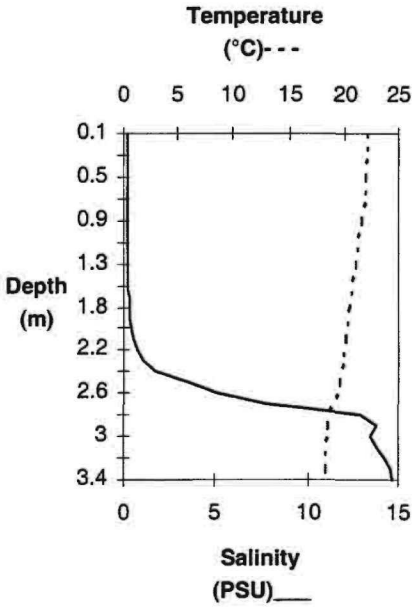


station 7

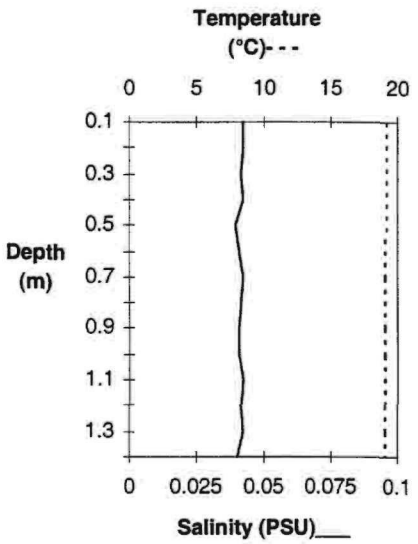


Appendix 2.5. Continued.

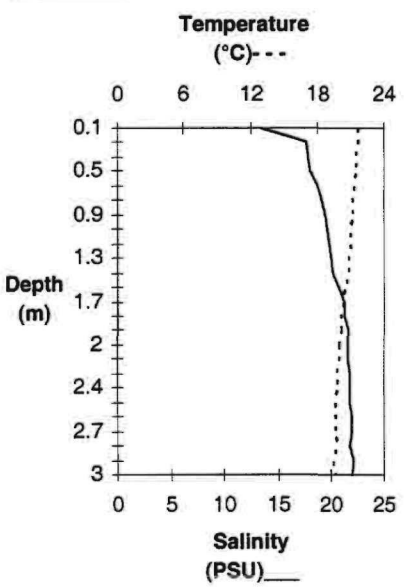
station 8



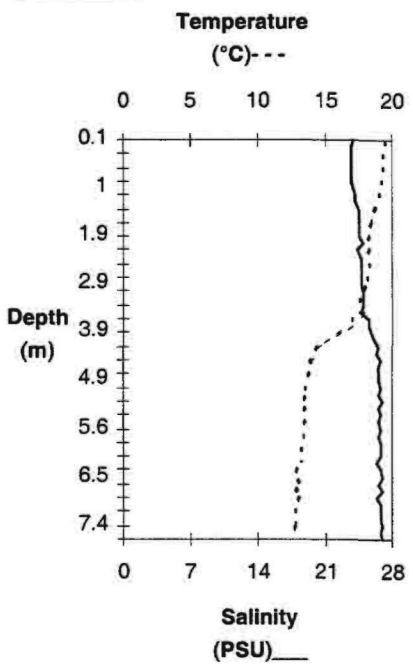
station 9



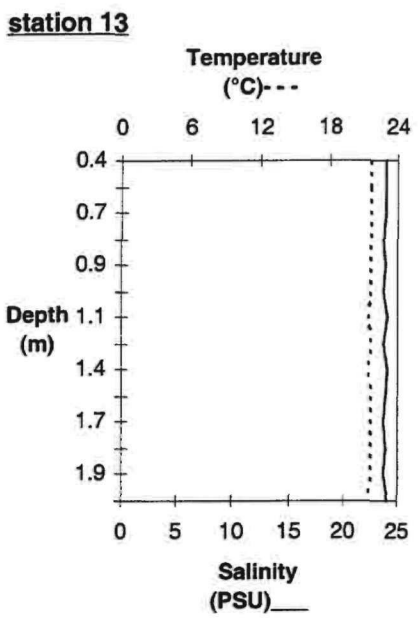
station 11

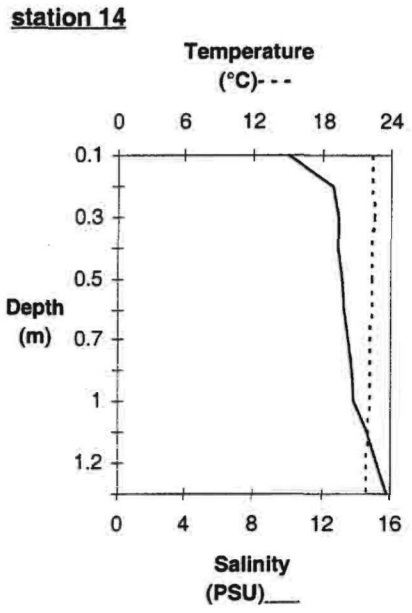


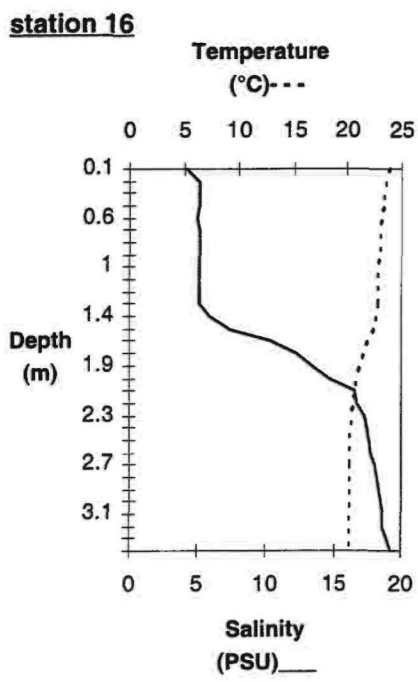
station 12

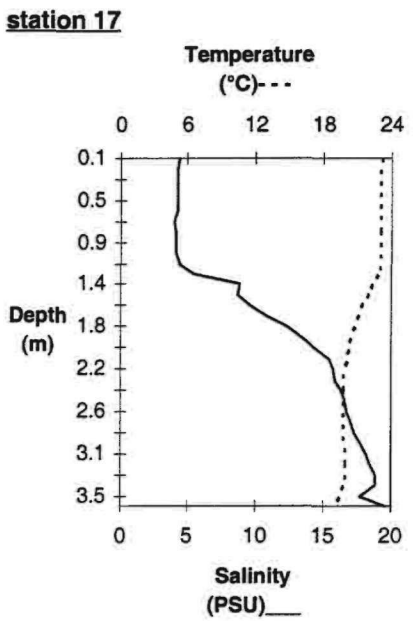


Appendix 2.5. Continued.



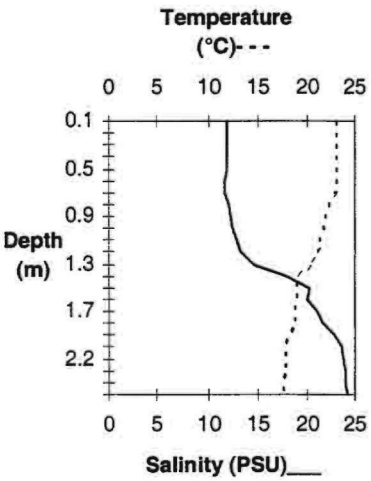




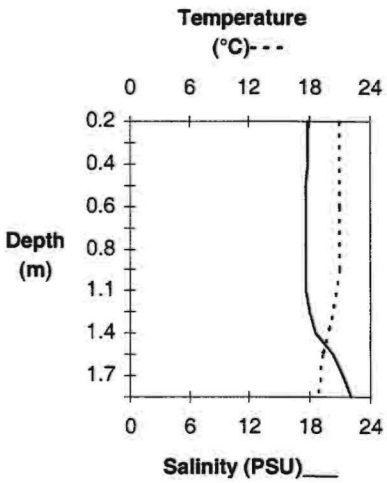


Appendix 2.6. CTD profiles of temperature and salinity at sampling stations on July 15-16, 1997.

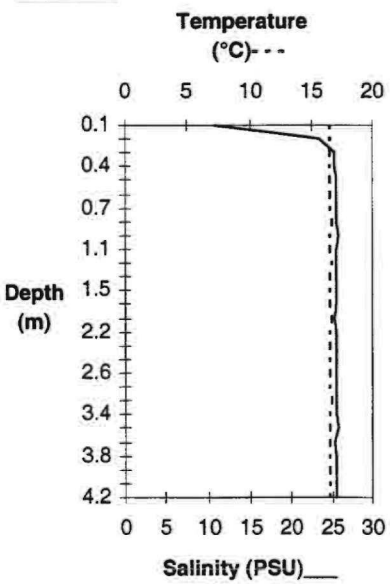
station 2



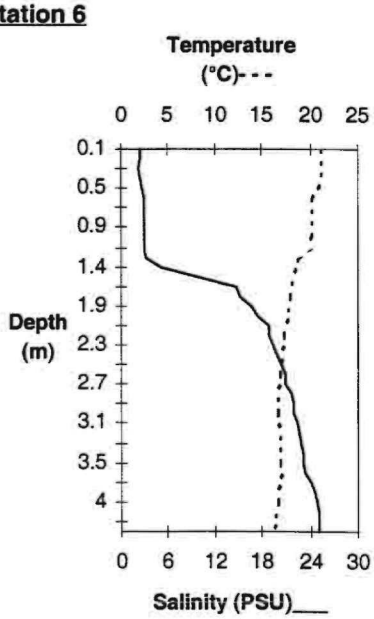
station 4



station 5

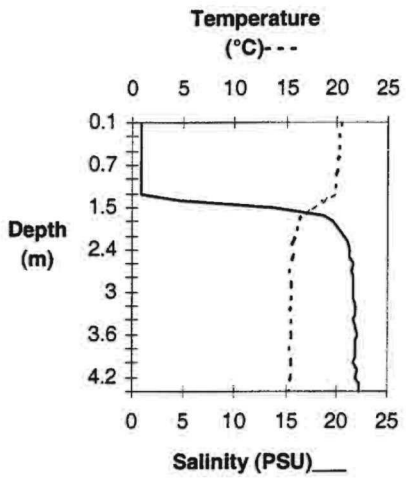


station 6

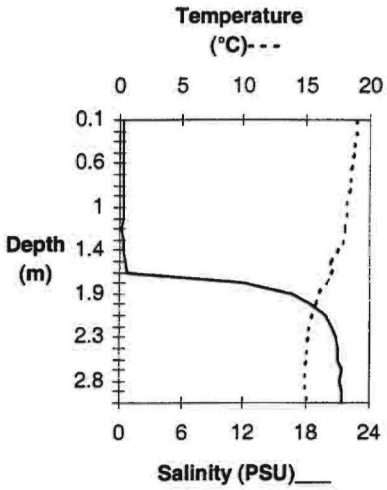


Appendix 2.6. Continued.

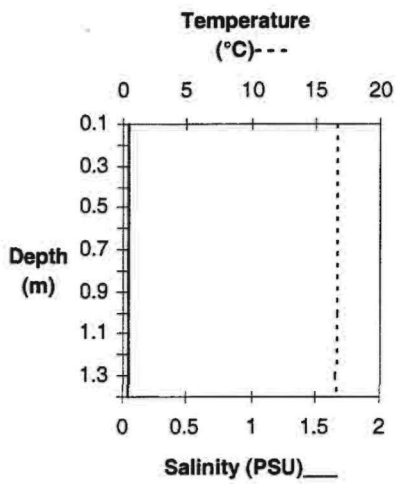
station 7



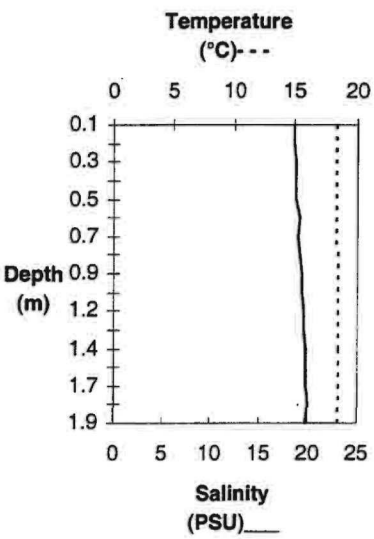
station 8



station 9

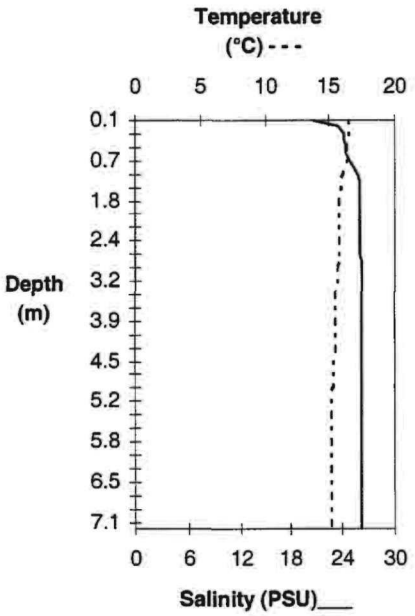


station 11

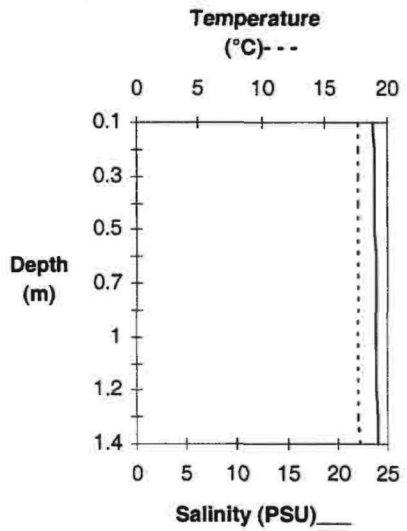


Appendix 2.6. Continued.

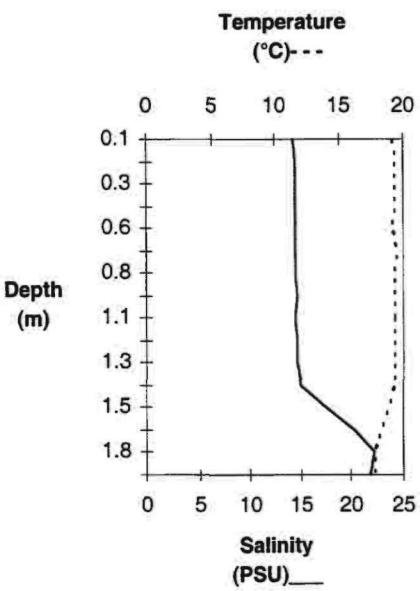
station 12



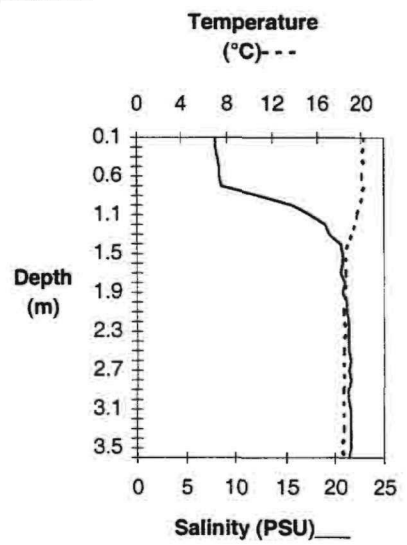
station 13



station 14

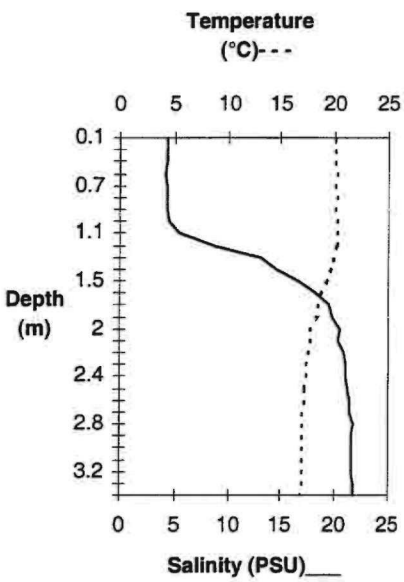


station 15

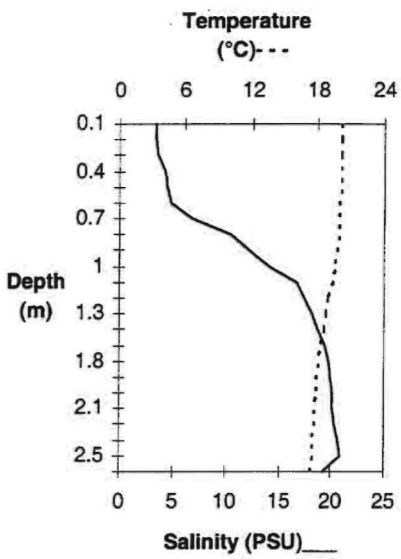


Appendix 2.6. Continued

station 16

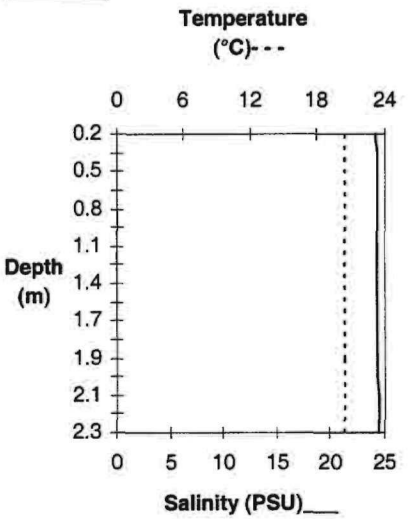


station 17

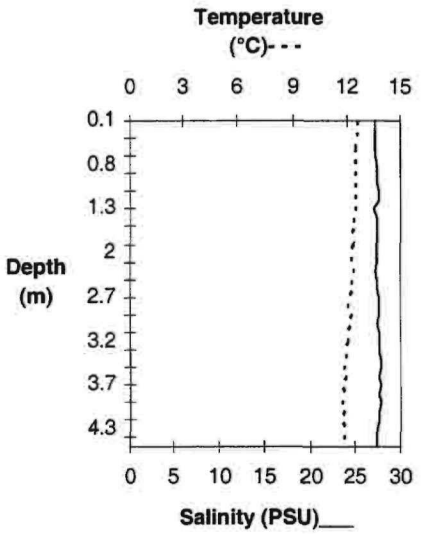


Appendix 2.7. CTD profiles of temperature and salinity at sampling stations on July 29-30, 1997.

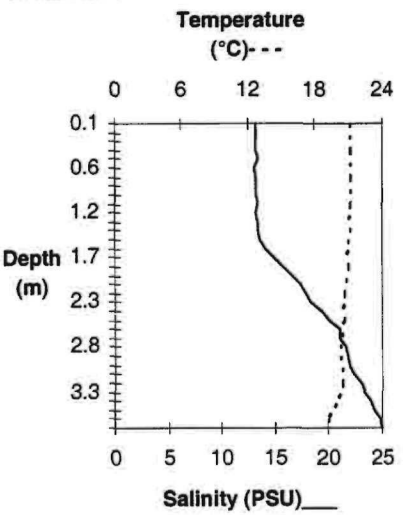
station 4



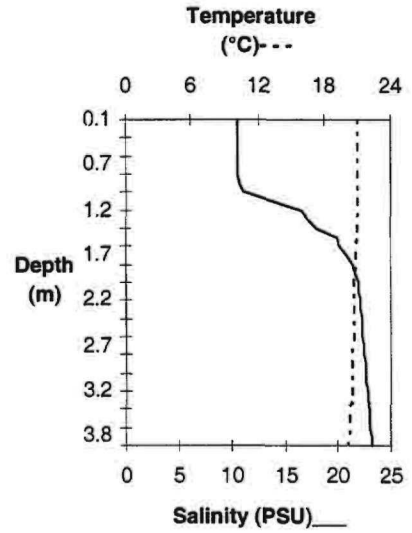
station 5



station 6

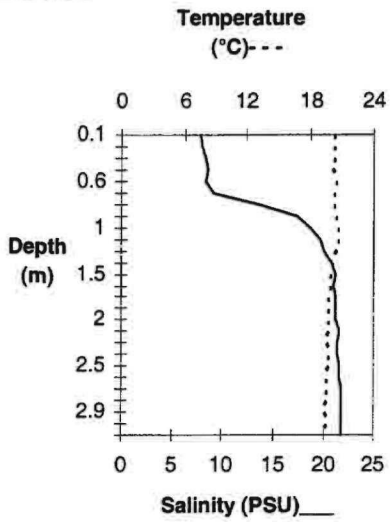


station 7

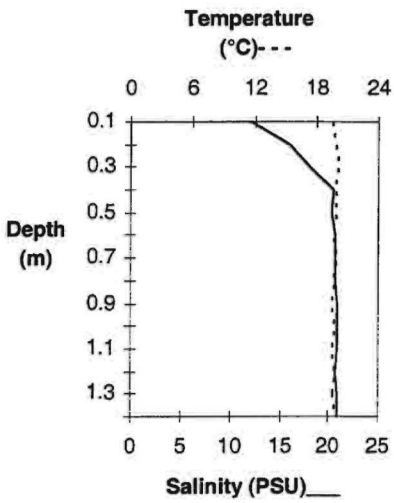


Appendix 2.7. Continued.

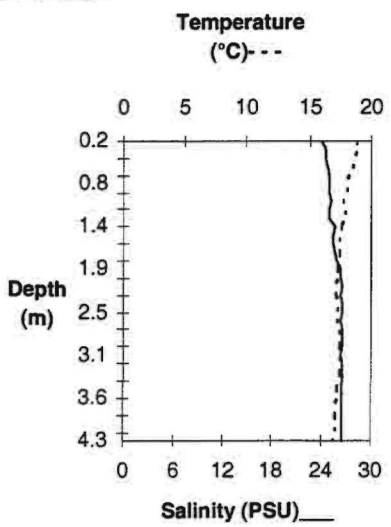
station 8



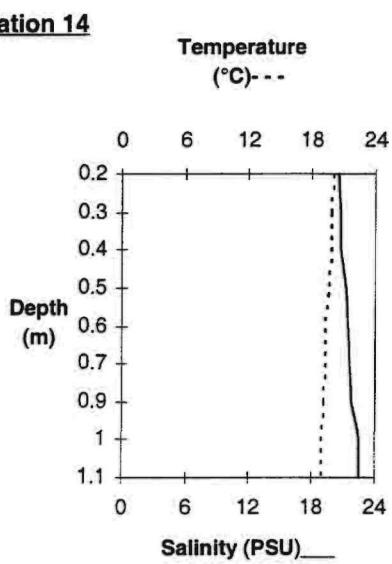
station 9



station 12

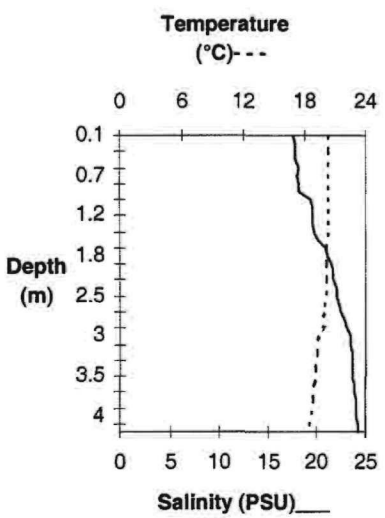


station 14

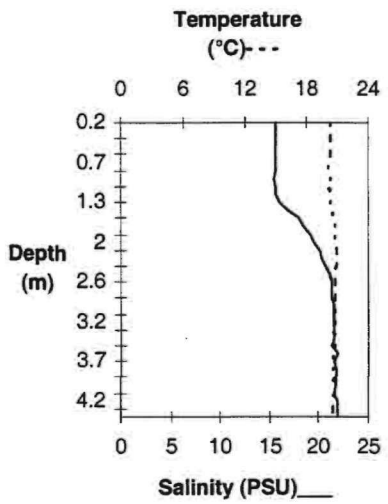


Appendix 2.7. Continued.

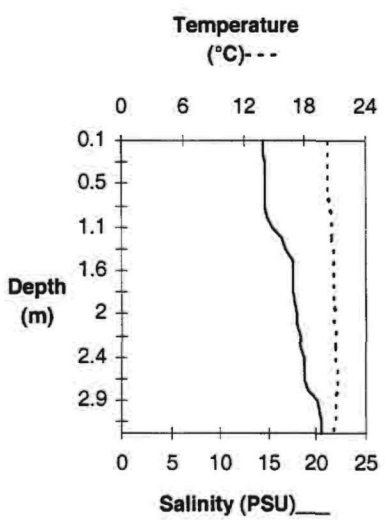
station 15



station 16

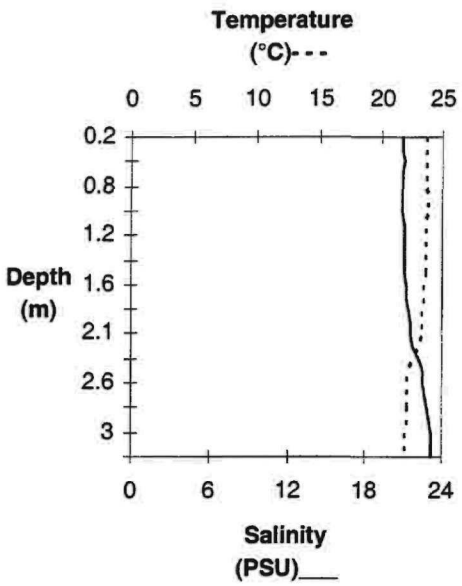


station 17

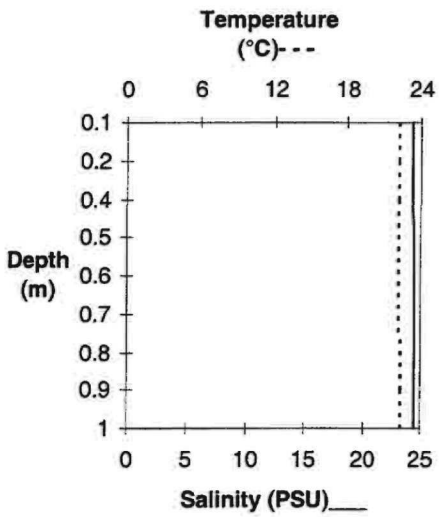


Appendix 2.8. CTD profiles of temperature and salinity at sampling stations on August 12-13, 1997.

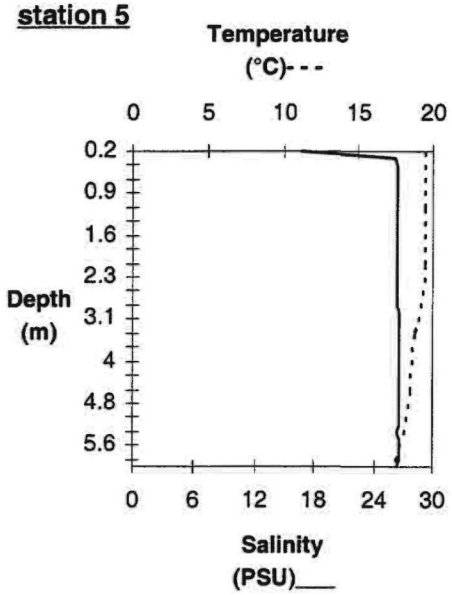
station 2



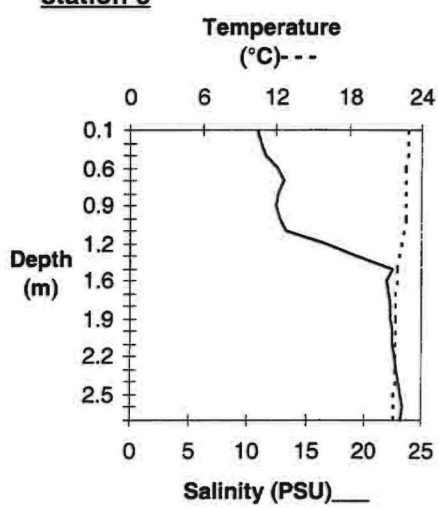
station 4



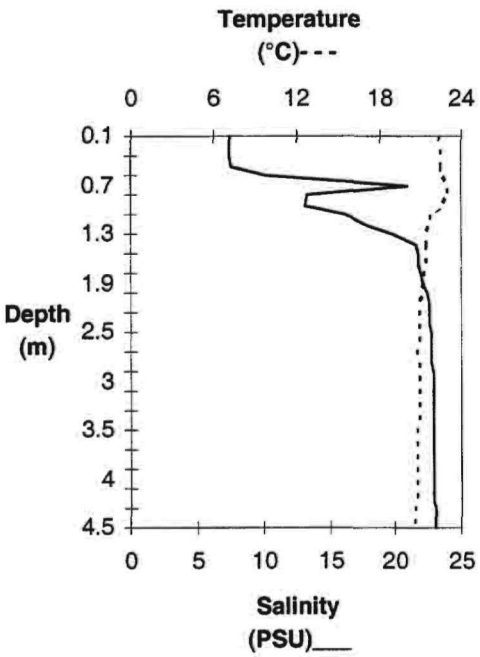
station 5



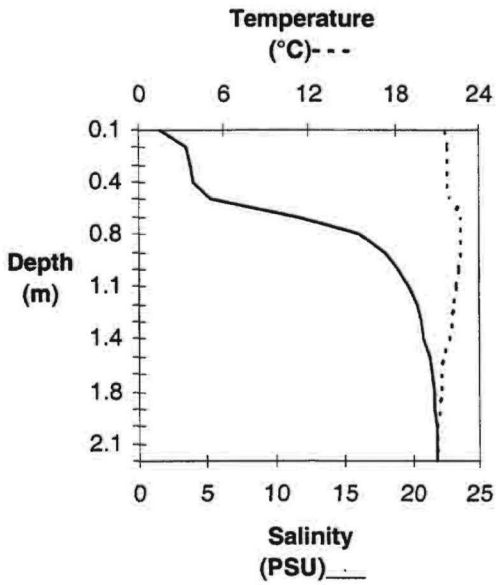
station 6



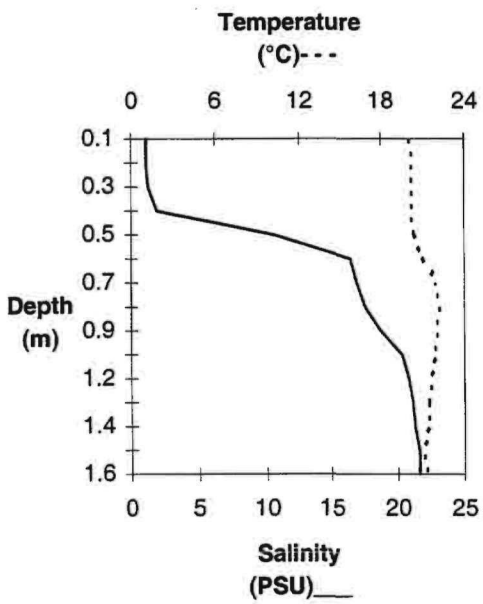
station 7



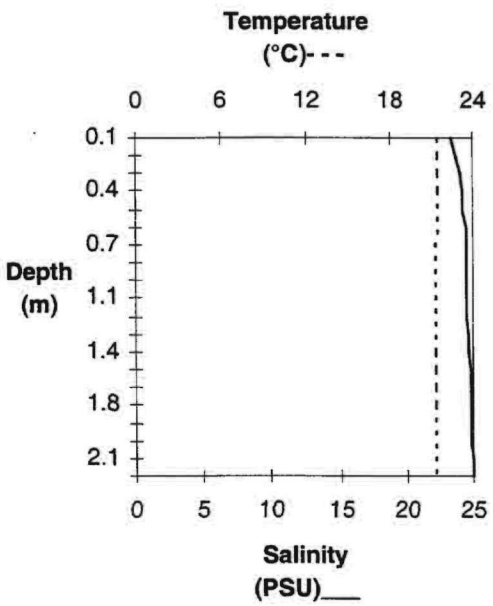
station 8



station 9

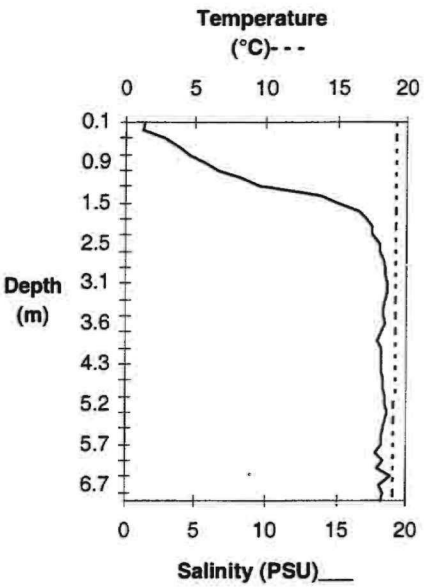


station 11

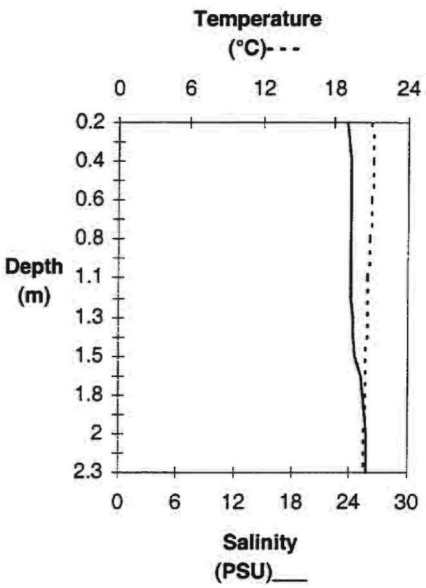


Appendix 2.9 Continued.

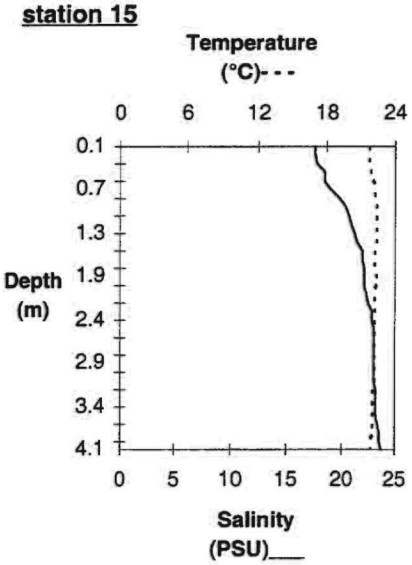
station 12



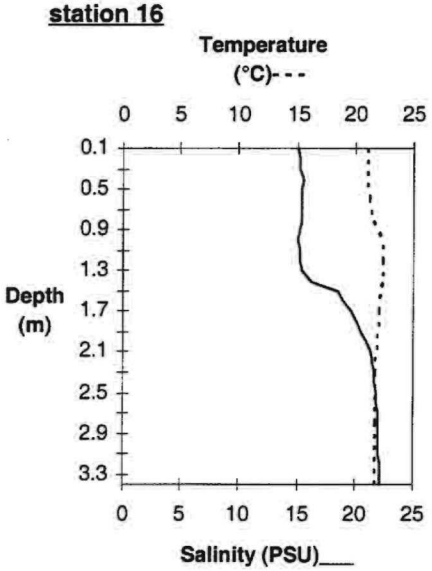
station 13



station 15

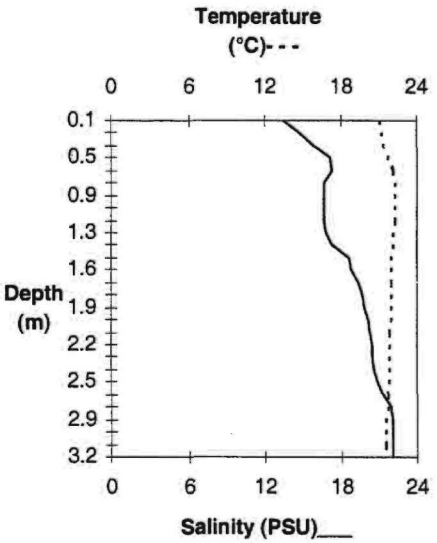


station 16



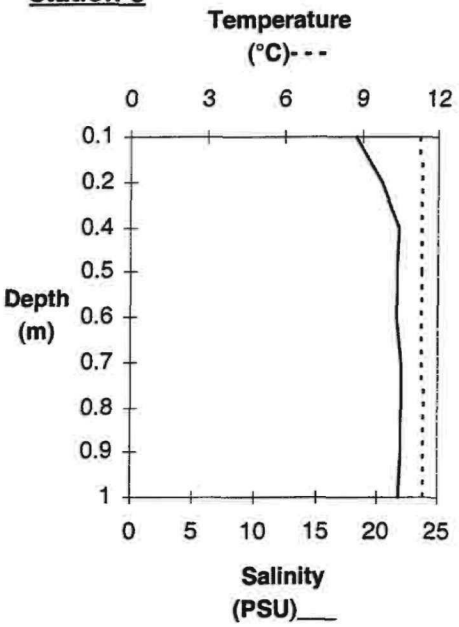
Appendix 2.8. Continued.

station 17

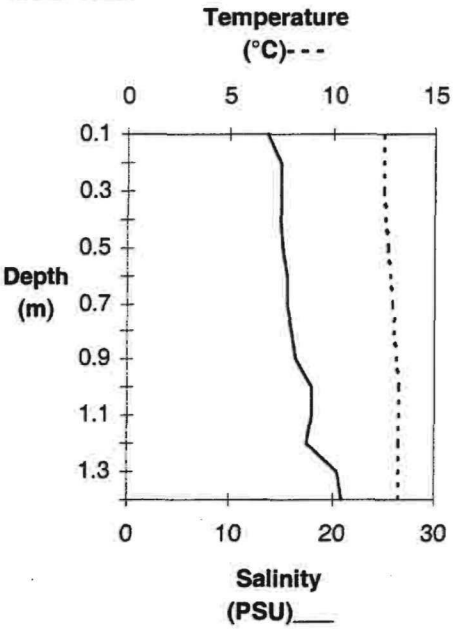


Appendix 2.9. CTD profiles of temperature and salinity at sampling stations on September 26-27, 1997.

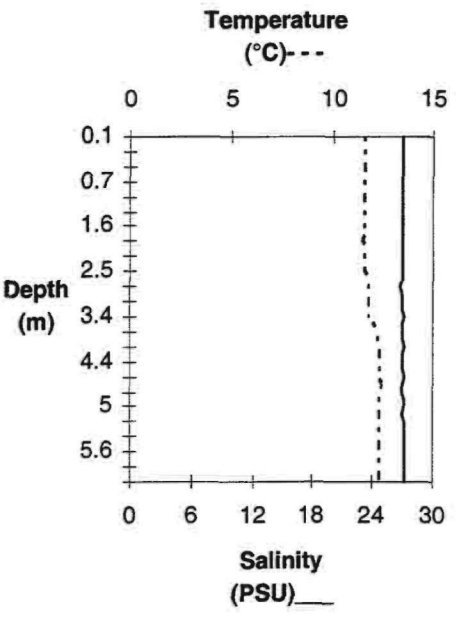
station 6



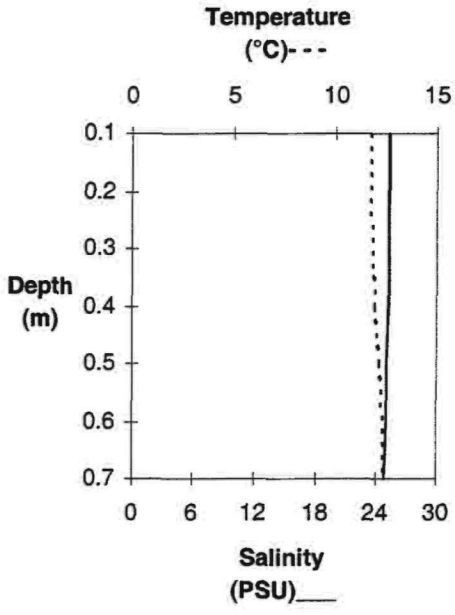
station 8



station 12

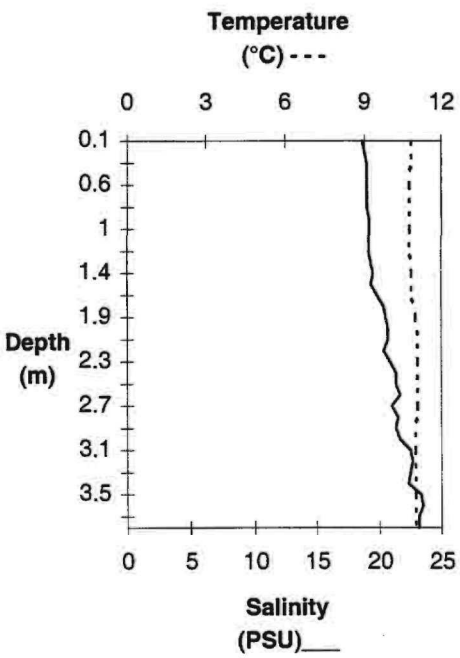


station 13

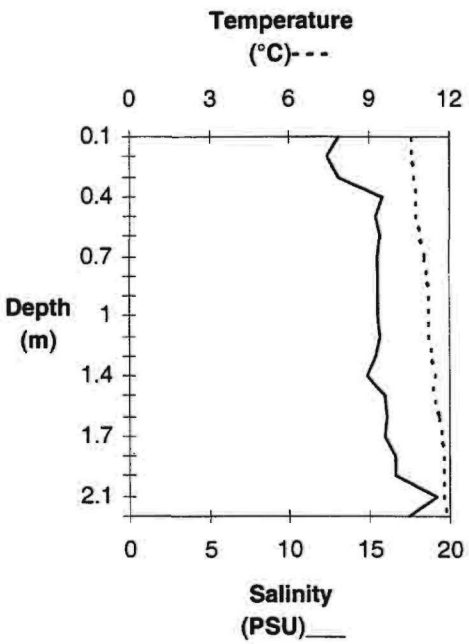


Appendix 2.9. Continued.

station 15

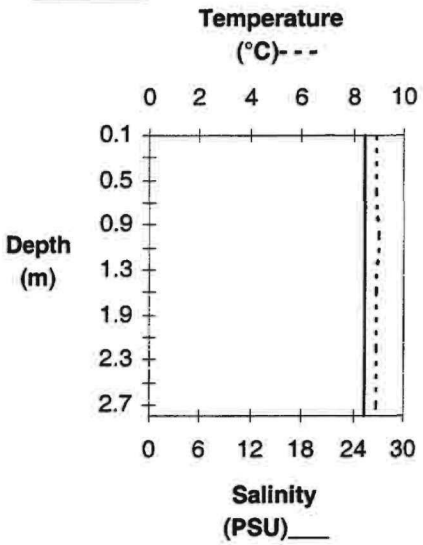


station 17

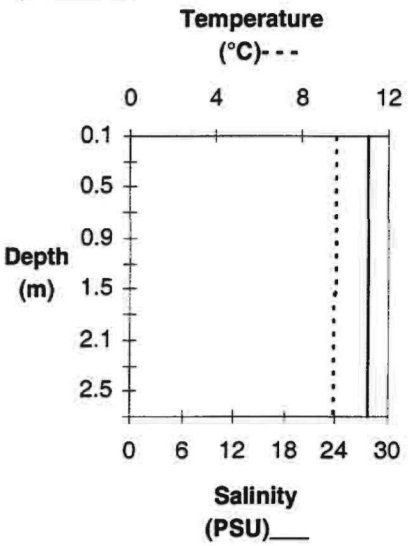


Appendix 2.10. CTD profiles of temperature and salinity at sampling stations on October 14-15, 1997.

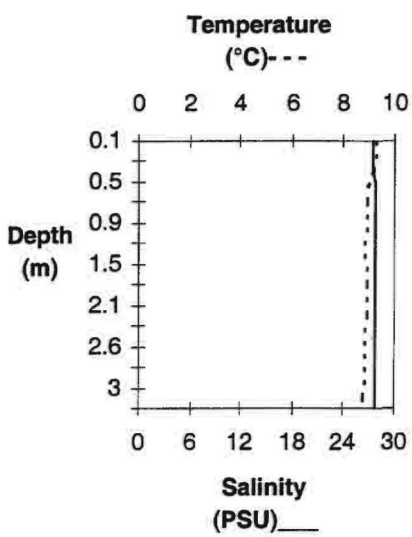
station 2



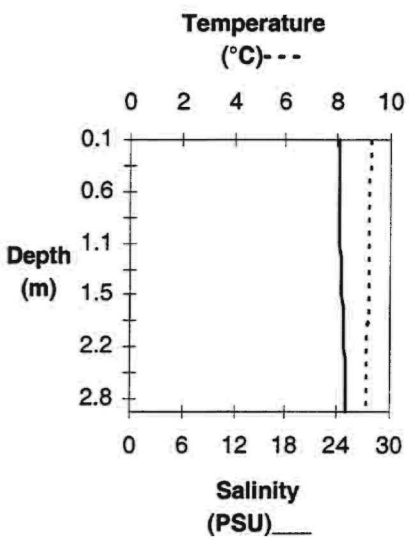
station 4



station 5

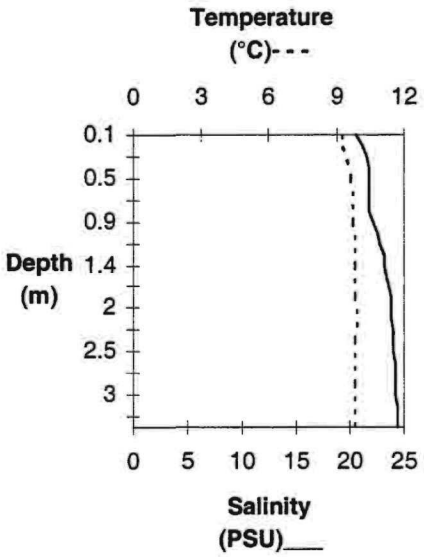


station 6

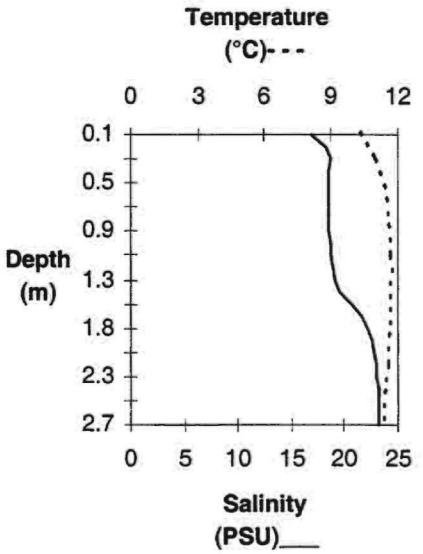


Appendix 2.10. Continued.

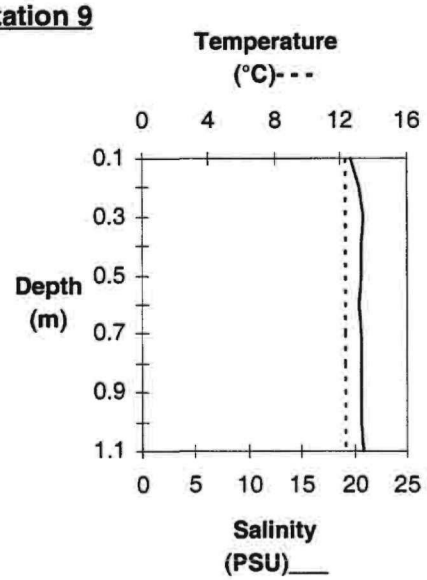
station 7



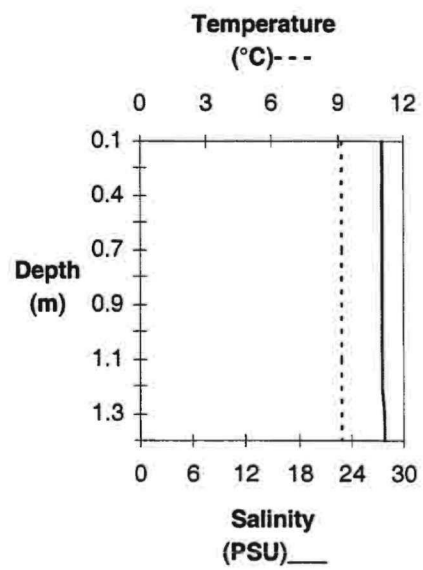
station 8



station 9

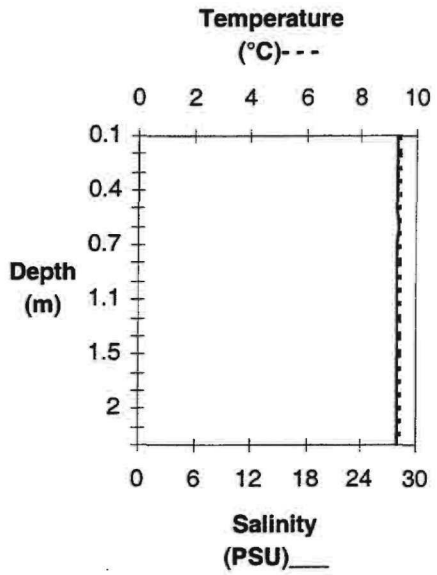


station 11

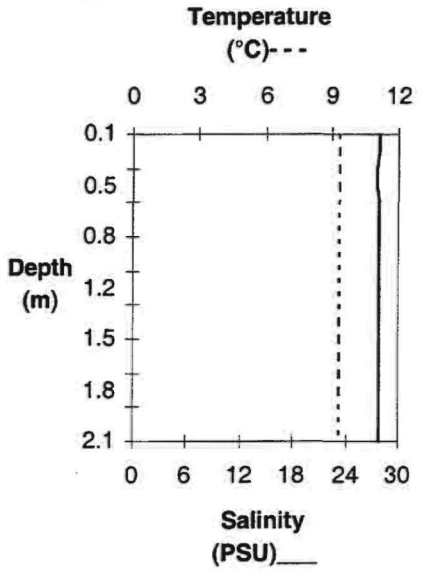


Appendix 2.10. Continued.

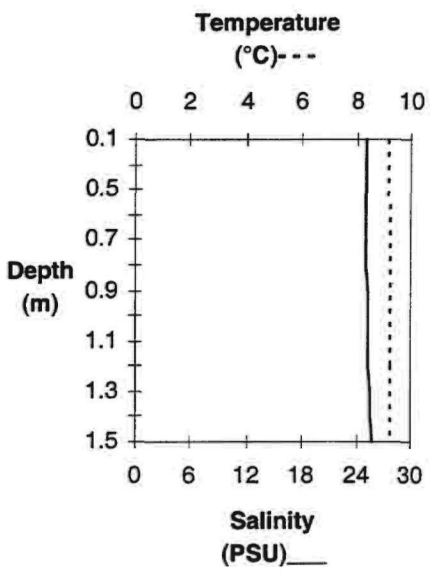
station 12



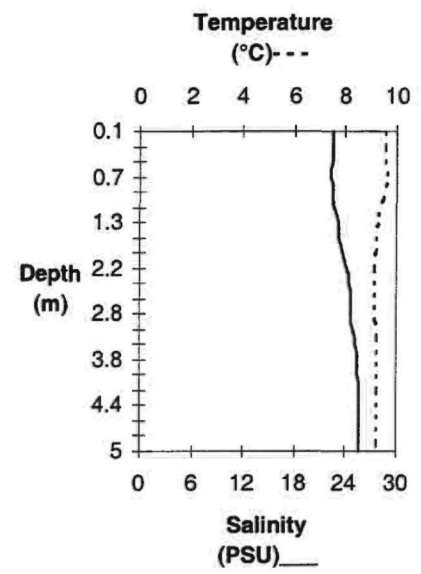
station 13



station 14

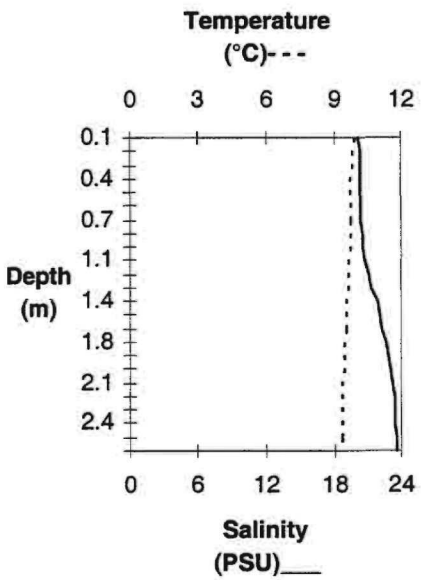


station 15

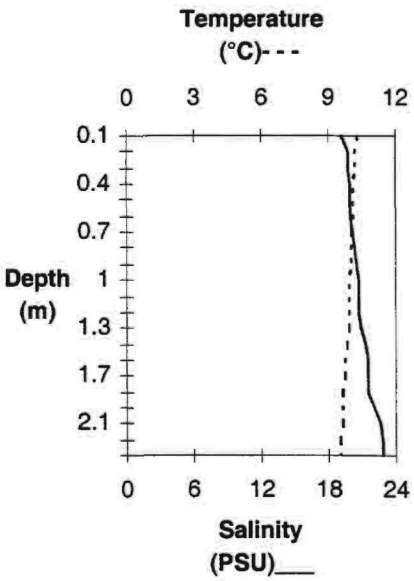


Appendix 2.10. Continued.

station 16

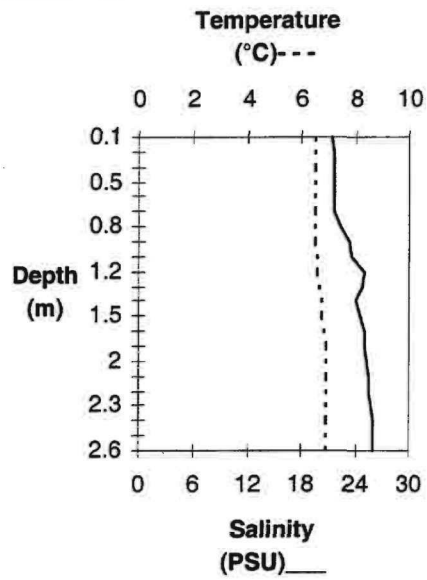


station 17

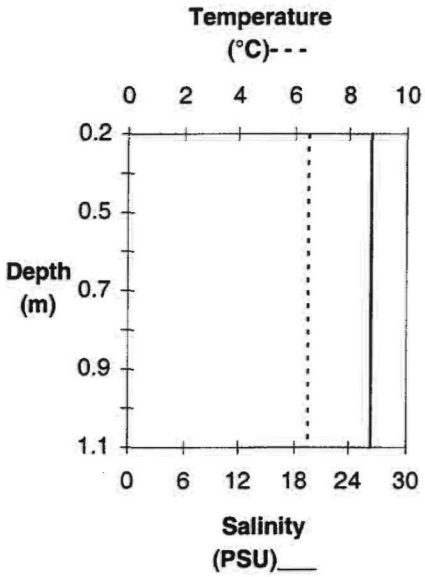


Appendix 2.11. CTD profiles of temperature and salinity at sampling stations on November 11-12, 1997.

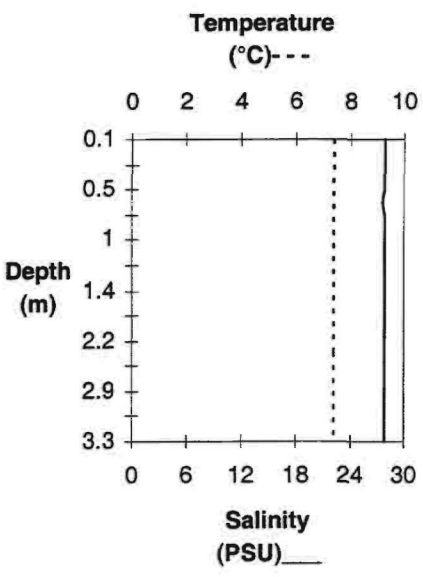
station 2



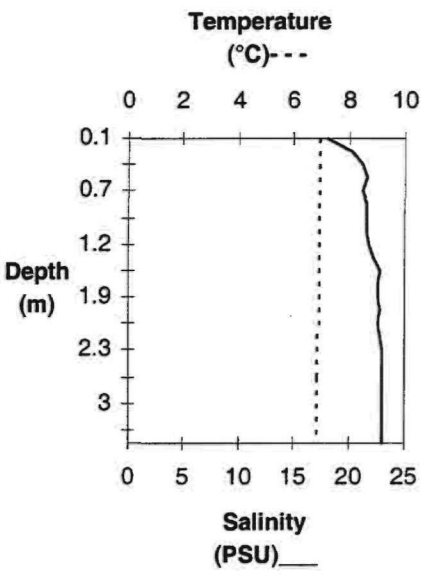
station 4



station 5

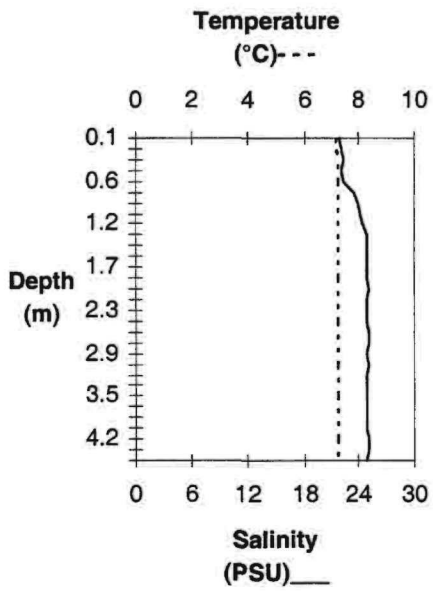


station 6

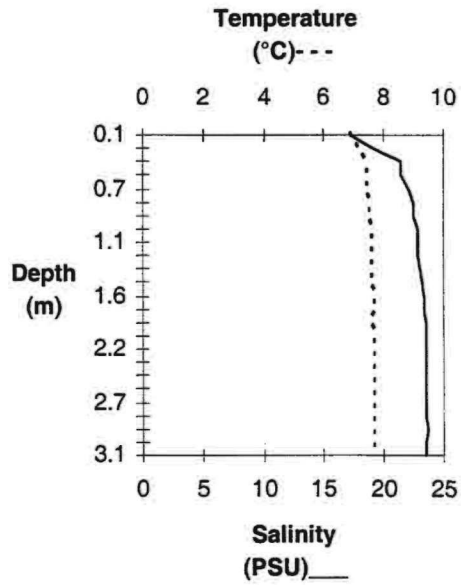


Appendix 2.11. Continued.

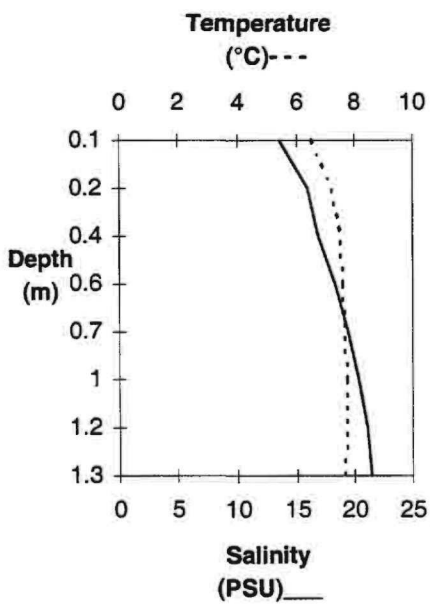
station 7



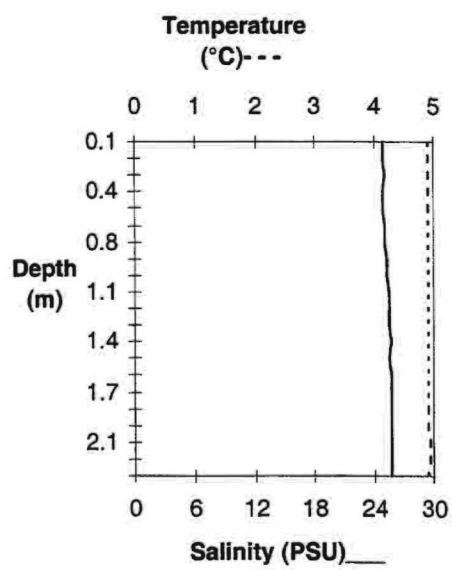
station 8



station 9

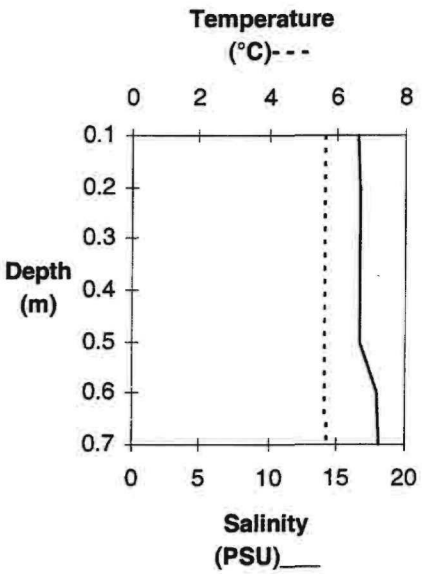


station 11,12,13

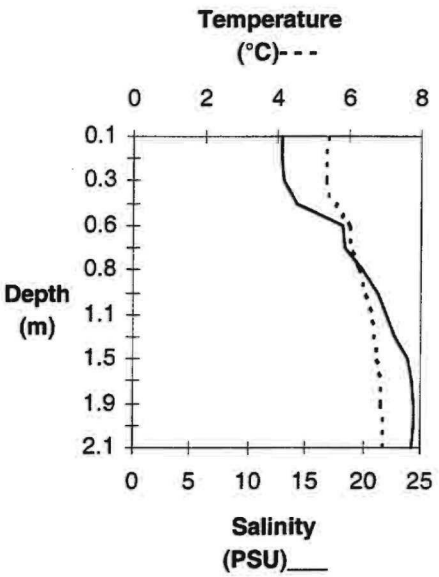


Appendix 2.11. Continued.

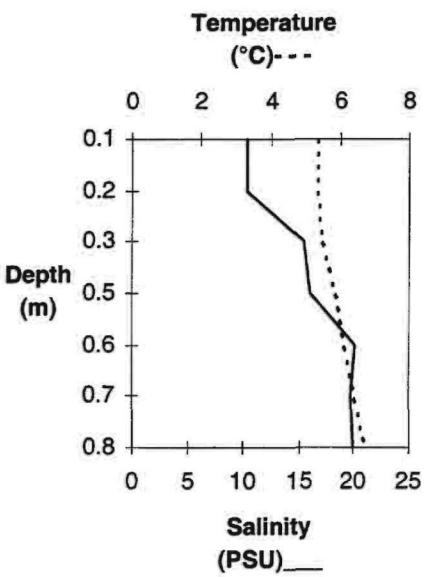
station 14



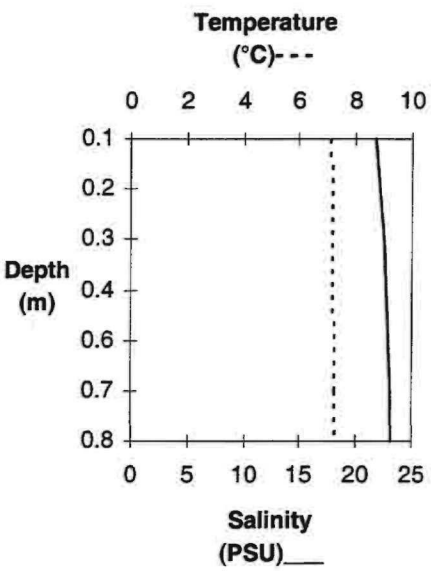
station 15



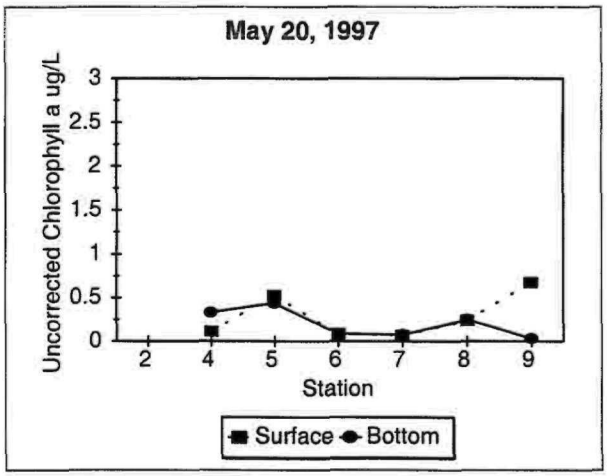
station 16

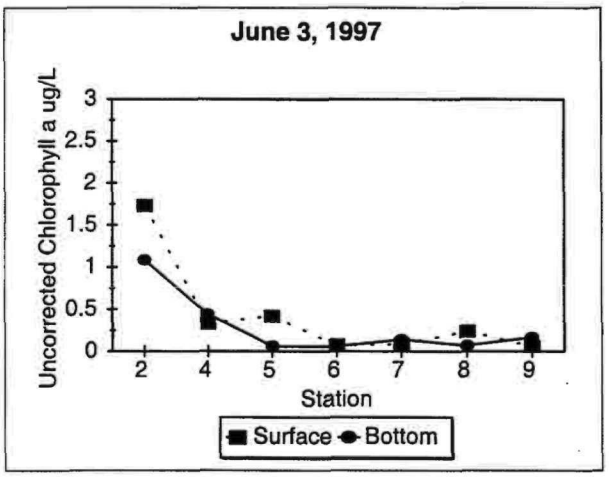


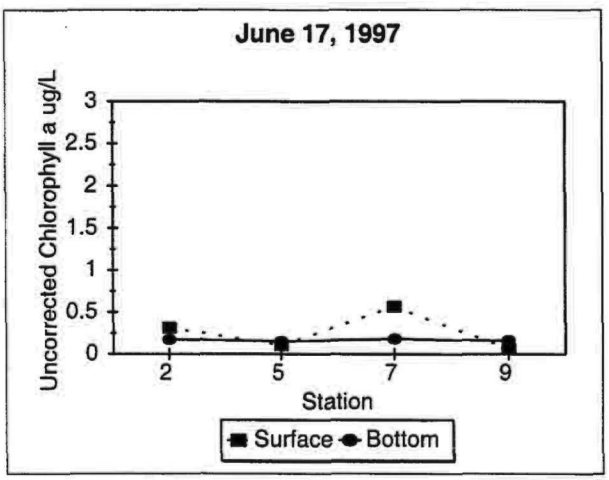
station 17



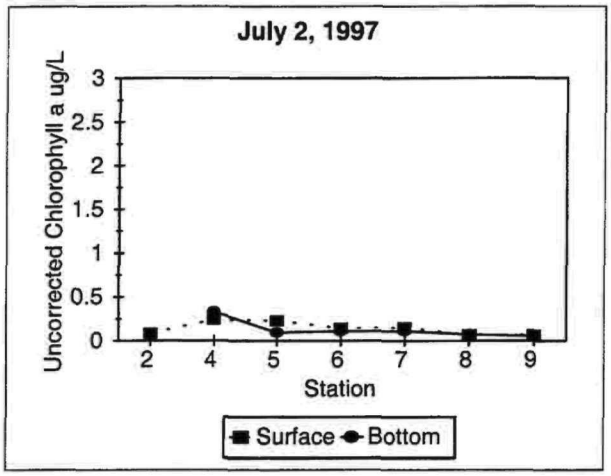
Appendix 3.1. Chlorophyll a Concentration (µg/liter) in the Kouchibouguac River (stations 5 - 9) and Lagoon (stations 2,4)

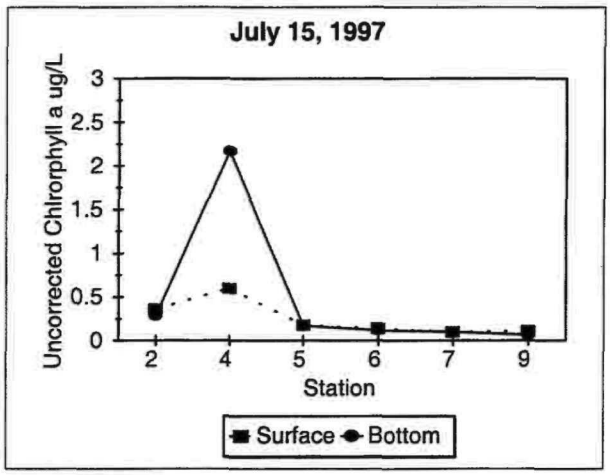


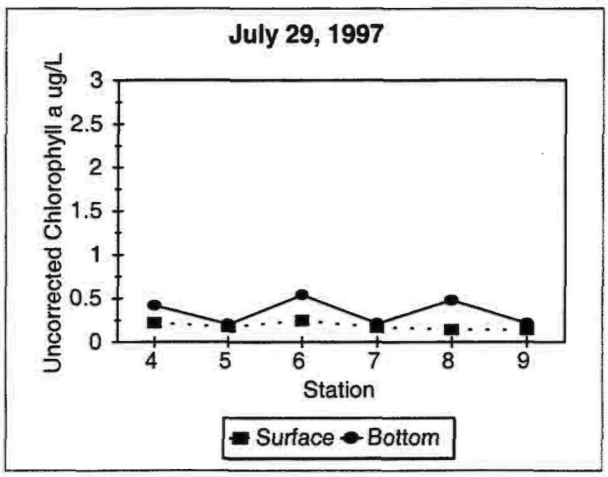




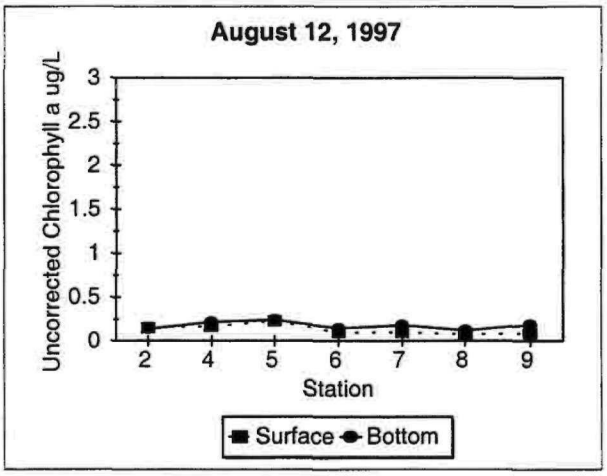
Appendix 3.1. Continued

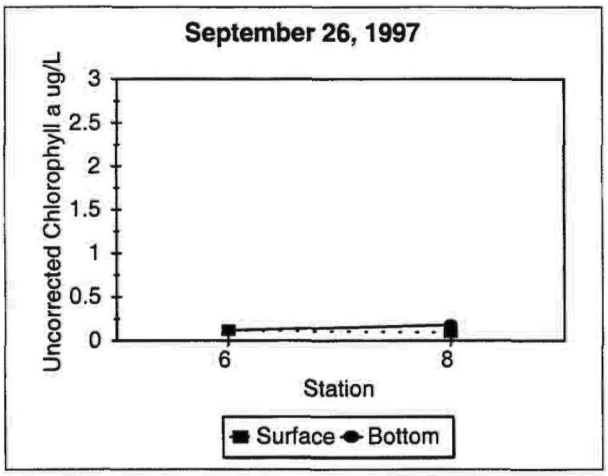


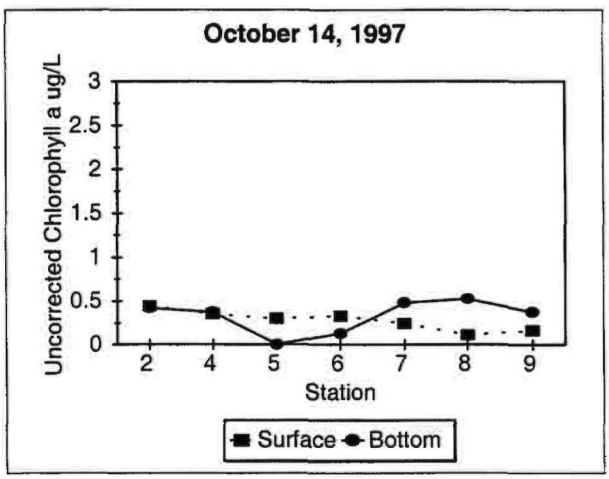




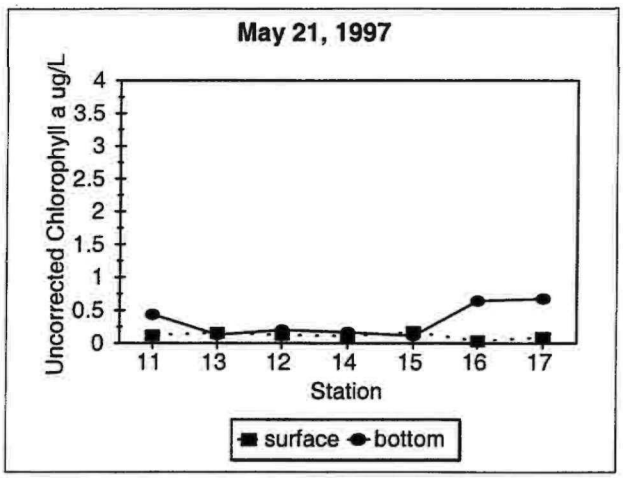
Appendix 3.1. Continued

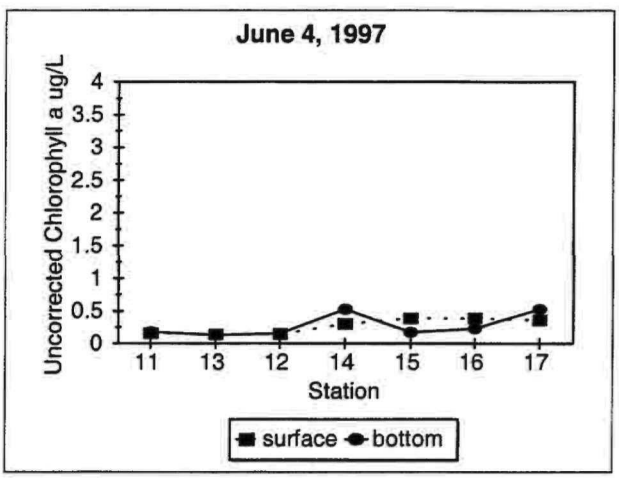


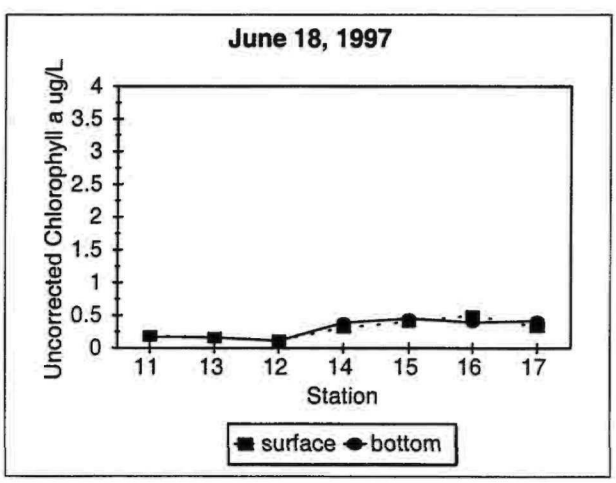




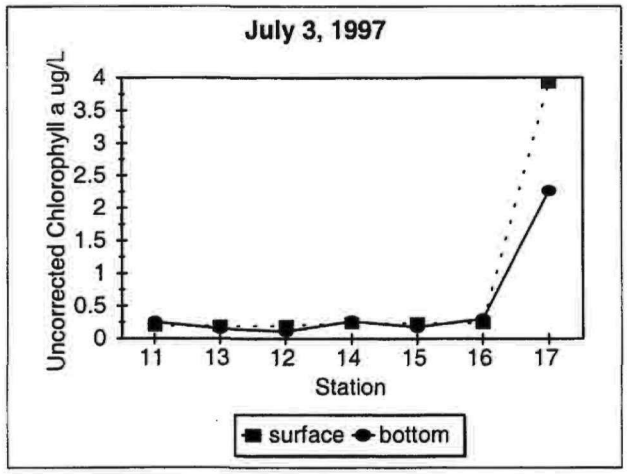
Appendix 3.2. Chlorophyll a concentration (µg/liter) in the St. Louis River (stations12,14 -17) and Lagoon (stations 11, 13).

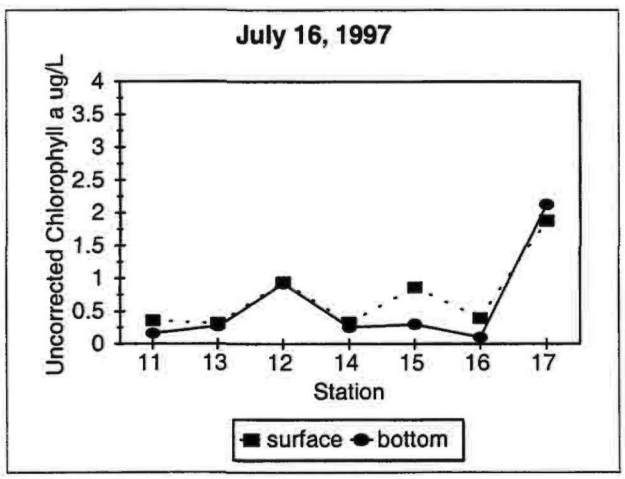


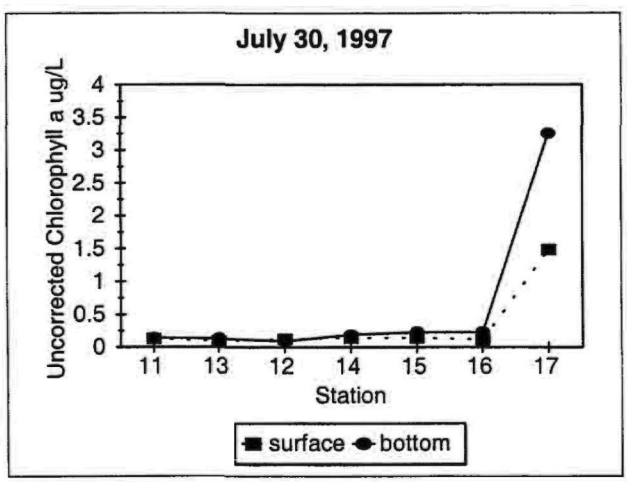




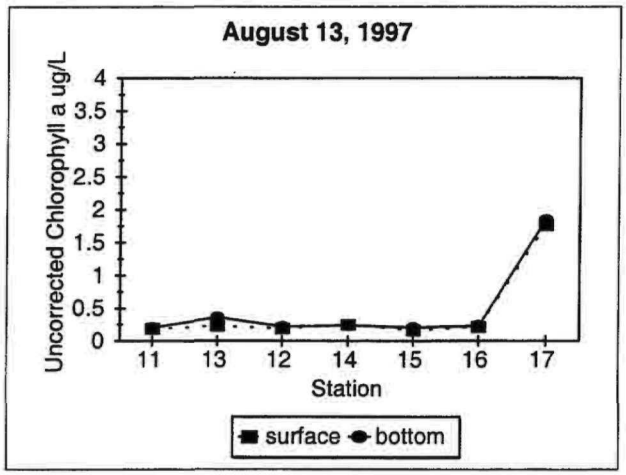
Appendix 3.2 Continued.

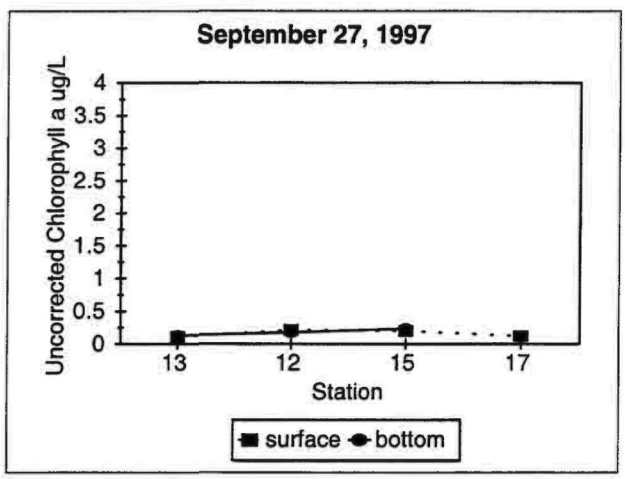


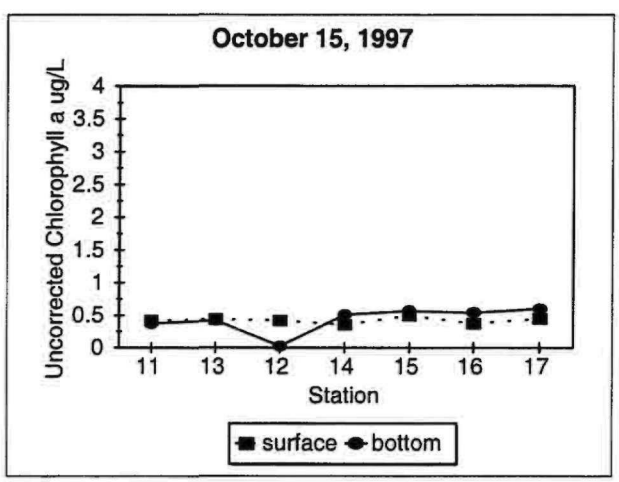




Appendix 3.2 Continued.

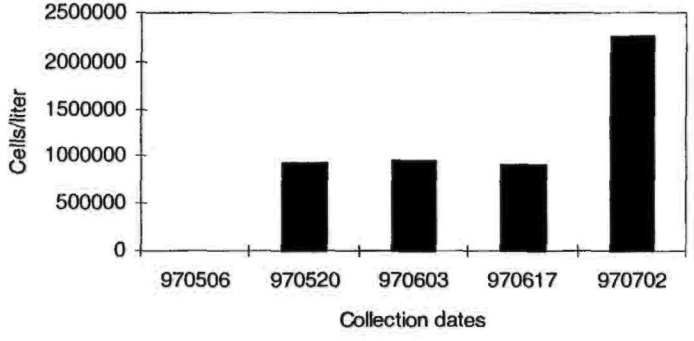




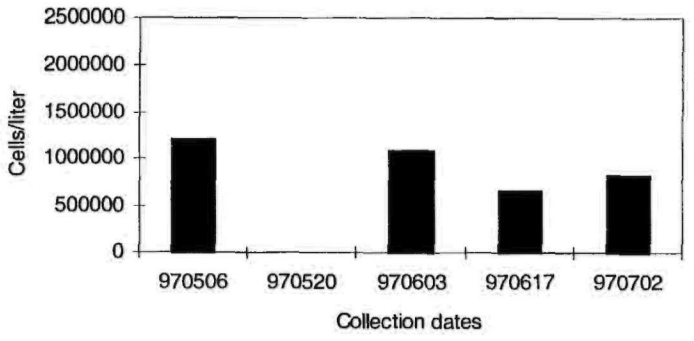


Appendix 4. *Total cell concentration in the Kouchibouguac River.*

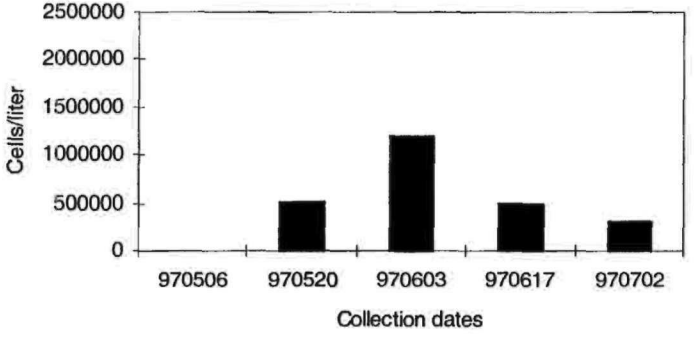
Station 5



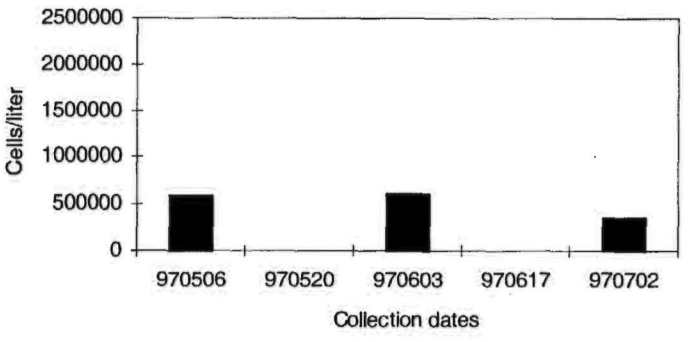
Station 6



Station 8



Station 9



Appendix 5. Descriptions of selected taxa

The following publications were used to identify these organisms:

Butcher, R.W. 1967. An Introductory Account of the Smaller Algae of British Coastal Waters. Part IV: Cryptophyceae. Ministry of Agriculture, Fisheries and Food. London, England.

Cleve-Euler, A. 1968. Die Diatomeen Von Schweden und Finnland. Wheldon and Wesley Ltd. New York, N.Y.

Cupp, E. 1977. Marine Plankton Diatoms of the West Coast of North America. Otto Koeltz Science Publishers, Germany.

Tomas, R.C. 1997. Identifying Marine Phytoplankton. Academic Press, Harbourt Brace & Company, U.S.A.

Species descriptions:

Division: Cyanophyta
Class: Cyanophyceae
Order: Oscillatoriales
Family: Oscillatoriaceae
Genus: *Spirulina*
Species: *major*

Cells are long in spiral shaped filament. The coils of the spirals are open and regular. Length of the cells found range from 7 to 15 µm and trichomes are 1 - 2 µm wide. This species can be found among filamentous algae and in brackish water environment.

Division: Pyrrophyta
Class: Dinophyceae
Order: Gonyaulacales

At least three different species were found based on their morphology. Two species belong to the armored dinoflagellates, one of these species was identified to be a *Protoperidinium* sp., and one species belong the unarmoured dinoflagellates. *Protoperidinium* sp. has symmetrical rouded pentagonal shape with short antapical spines. The cingulum is equatorial. This species range in size from 10 - 20 µm in length and 5 - 10 µm in width. The other unidentified armored species has asymmetrical pentagonal shape and its cingulum is also equatorial. The range size is the same as the *Protoperidinium* sp., 10 - 20 µm in length and 5 - 10 µm in width. The unarmoured species is spherical to oval with a flattened anterior, its cingulum is displaced.This species is samller in size than the other two and range from 5 to 10 µm in diameter.

Division: Chlorophyta
Class: Prasinophyceae
Order: Chlorodendraceae
Family: Halosphaeraceae
Genus: *Pyramimonas sp.*

Cells are pyramoidal in shape and have a distinct crown on the apical side where flagella are located. This species range from 5 - 10 µm in length and 3 - 6 µm in width. Morphological features of this species include: 4 flagella, chloroplast, pyrenoid, and one eyespot. Positive identification at the species level require the observation for the presence of ejectosomes.

Division: Chlorophyta
Class: Chlorophyceae
Order: Chloroccocales
Family: Oocystaceae
Genus: *Ankistrodesmus*
Species: *falcatus*

Cells are lunate in shape, 15 - 30 µm long. This species is frequently solitary but once two cells were found together. The difference between solitary and colonial cells along with the type of habitat are the distinguishing factors between the species A. *falcatus* and its variety *var. maribilis*. A. *falcatus* are found in coastal aera and A. *falcatus var. maribilis* are found in bog aera. In Kouchibouguac Estuaries both systems are found, therefore both the species and the variety may be present.

Division: Chlorophyta
Class: Cryptophyceae
Order: Cryptomonadales
Family: Cryptomonodaceae
Genus: *Cryptomonas*
Species: *appendiculata*

Cells are lacrymoidal in shape in its lateral view and bean-like shape in all other positions. The cells size range from 5 - 20 µm in lentgh and 2 - 9 µm in width. On the anterior side, 2 equal flagella about 1/2 to 1 time the length of the cells can be found emerging from a well-developed furrow and a funnel like opening. Ejectosomes are located about 1/4 cell length below the anterior part of the cell to the center, 4 rows are present. The cells have two chloroplasts and one pyrenoid.

Division: Chlorophyta
Class: Euglenophyceae
Order: Euglenales
Family: Eutreptiaceae
Genus: *Eutreptiella*
Specie: *marina*

Cells are long and cylindrical in shape. Cells size range from 23 - 50 µm in length and 4 - 11 µm in width. Two flagella of unequal length are present, one about 1 time cell length and short one is about 1/3 cell length. These flagella are emerging form the cells apex. This species have a distinct pellicle striation pattern. Many discoid chloroplast and paramylon center are present. This species is mostly marine and planktonic.

Division: Bacillariophyta
Class: Coscinodiscophyceae
Subclass: Thalassiosirophycidae
Order: Thalassiosirales
Family: Thalassiosiraceae
Genus: *Thalassiosira*
Species: *nordenskioeldii*

Th. rotula

Both species form filamentous colonies, individual cells attached too one another by means of connecting threads. *Th. nordenskioeldii* is octogonal in shape with a convex center. *Th. rotula* is discoid and flattened in the girdle view, it also has radial ribs and distinct aerolae in the valve center. In both species, individual cells size range from 10 - 30 μm in diameter. Both species were found in the Kouchibouguac lagoon and river in the late winter and early spring. Cells lentgh is between 10 - 30 μm in diameter. These speceis are mainly marine and planktonic althougth *Th. rotula* is more cosmoplitan and *Th. nordenskioldii* is a cold water species.

Family: Skeletonemataceae
Genus: *Skeletonema*
Species: *costatum*

This species is colonial. Individual cells are long, elliptical to cylindrical. They are joint together by a ring of specialized processes. Cell diameter vary from 5 - 15 μm. Species is cosmoplitan.

Subclass: Coscinodiscophycidae
Order: Melosirales
Family: Melosiraceae
Genus: *Melosira*
Species: *artica*

M. jurgensii

M. nummuloides

These species form long filamentous colonies. They differ in cell shape: *M.* artica has short oval cells, *M.* jurgensii has elongated oval cells with a very distinct pseudosuclus, *M.* nummuloides cells are round and carry distinct process at the end cells. The cells size ranges from 10 - 30 μm in diameter. Long filaments of these mainly epiphytic diatoms often break free of their hosts and can be found among phytoplankton. *M. arctica is* found mainly in cold water, *M. jurgensii* and *M. nummuloides* are found in fresh and brackish water.

Order: Rhizosoleniales
Family: Rhizosoleniaceae
Genus: *Rhizosolenia*
Species: *fragilissima*

Rh. hebata form *semispina*

Both species are colonial and usually colonies consist of at least 2 - 3 cells. *Rh. fragilissima* is cylindrical with rounded valves. Cells are 35 - 50 μm length and 20 - 25 μm wide. Chloroplasts are numerous. *Rh. hebata* f. *semispina* is very long and thin with drawn out ends. Cells diameter ranges from 5 - 15 μm. The valves have hollow processes at the base of ends. There are seasonal morphological changes in this diatom: *semispina* is the summer form with long valve processes, f. *hiemalis* is the winter form with short processes.

Order: Chaetocerales
Family: Chaetoceroceae
Genus: *Chaetoceros*
Species: *debilis*

Ch. diadema

Both species form filamentous colonies and cells size range from 10 - 20 μm in diameter. *Ch. debilis* forms long spiral chains with setae extending outward the spiral. Terminal setae are absent and each cell contains one chloroplast. This is mostly a winter or late spring species. *Ch. diadema* has setae arising inside the valve at the margin and crossing at the chain edge, distinct terminal setae are present in this species. One chloroplast per cell is present and has a characteristic crown shape. Each cells shows a central constriction.

Class: Bacillariophyceae
Subclass: Bacillariophycidae
Order: Achnanthales
Family: Cocconeidaceae
Genus: *Cocconeis*
Species: *disculus*

C. pediculus

Both species have an oval shape with hypovalve and epivalve that are different in ornamentation. *C. pediculus* cells are 10 - 20 μm in length and width. Striation is fine compared to *C. disculus*. *C.* disculus is smaller, size ranging from 10 - 25 μm length and 8 -12 μm width, and valve striation is coarse in this diatom. Although both species are epiphytic, they are found suspended in water columns in fresh to brackish waters.

Order: Bacillariales
Family: Bacillariophyceae
Genus: *Nitzschia*
Species: *closterium*

Cells are fusiform to lunate in shape. Cells size are 30 - 50 μm long. Distinct features of the genus are the two chlorophlasts found in the central region of the cell. Fibulae and striae are not resolvablee using light optics.

Incerte Sedis
Photoautotrophs microflagellates

Most of the species are spherical to subspherical. These species are divided into two categories based on the cell size; one is 3 - 5 μm and the other is 5 - 10 μm in diameter. In these species, chloroplast and at least one flagella are present. The identification of these species are based on the presence of absence of specific organelles such: pigments, and number of flagella, haptonemata.These features are often not visible using light optics and preserved material. Due to the minute size of these cells further identification is not possible at this time. We plan to use scanning electron microscopy and observation of live specimens to elucidate taxanomic affiliation of this group of species.