Zoobenthos Data from James Bay, 1959, 1974

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Service des Pêches et des Sciences de la mer
Direction de la Recherche et Développment

RAPPORT TECHNIQUE No. 661

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

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ABSTRACT

Wacasey, J. W., E. G. Atkinson, and L. Kinlough. 1976. Zoobenthos data from James Bay, 1959, 1974. Fish. Mar. Serv. Res. Dev. Tech. Rep. 661: 62 p.

Data on marine and estuarine zoobenthic invertebrates, collected at 41 stations in James Bay in 1959 and 1974, are presented in tabular form. Methods of collecting and processing samples, and directions for presentation of data are related.

The data consist of lists of species for the 1959 stations; lists of species, their density and biomass for the 1974 stations; and results of mechanical and chemical analyses of substrate samples collected in 1974. Associated collection data for all stations are included.

RESUME

Wacasey, J. W., E. G. Atkinson, and L. Kinlough. 1976. Zoobenthos data from James Bay, 1959, 1974. Fish. Mar. Serv. Res. Dev. Tech. Rep. 661: 62 p.

Cet ouvrage présente sous forme de tableaux des données sur des invertébrés zoobenthiques marins et estuariens recueillis dans 41 stations de la baie James en 1959 et 1974. Il décrit les méthodes de prélèvement et de traitement des échantillons et donne des indications sur la présentation des données.

Les données comprennent des listes des espèces pour les stations 1959; des listes des espèces, leur densité et leur biomasse pour les stations de 1974; et les résultats des analyses mécaniques et chimiques des échantillons de substrats recueillis en 1974. Les données connexes sur la collecte sont fournies pour toutes les stations.

INTRODUCTION

The included data on the zoobenthos of James Bay were derived from three collections made by or for the Arctic Biological Station, and are based on a total of 41 stations (Figs. 1 and 2) that were occupied in 1959 and 1974. The material from 18 stations (59-1 to 59-63) was obtained from the M.V. *Calanus* cruise of 1959 in Hudson Bay and James Bay. In 1974 material from 17 stations (74-735 to 74-751) was collected by the Institut National de la Recherche Scientifique (INRS) of the Université du Québec at Rimouski under contract to the Arctic Biological Station. Material from the remaining six stations (1-12) was obtained from the 1974 hydrographic cruise of the C.C.G.S. *Narwhal*, Canada Centre for Inland Waters at Burlington, Ontario.

The report pertains to the benthic marine and estuarine invertebrates exclusive of the protozoa. Data, presented in tabular form, include, in addition to associated data, lists of species for the 1959 stations, estimates of density and biomass for the 1974 stations, and results of mechanical and chemical analysis of substrate samples taken in 1974 near the mouths of La Grande River and Eastmain River.

The data are intended as a contribution to the establishment of baseline information that is necessary for understanding the role of zoobenthos in the arctic ecosystem.

Interpretive results of some of the data were presented orally at the James Bay Environment Symposium held in Montreal, 19-20 May 1976.

METHODS

Zoobenthos

In 1959 stations were sampled using a variety of collecting gear (Table 2). Selected specimens from some of these samples have been used in various taxonomic studies that have been published. These reports are referred below:

Squires, 1967 ..... Decapoda
Hedgpeth, 1963 ..... Pycnogonida
Trason, 1964 ..... Ascidiacea
Grainger, 1966 ..... Asteroidea
Powell, 1968 ..... Bryozoa
Macpherson, 1971 ..... Gastropoda
Lubinsky, 1972 ..... Pelecypoda

Most of the polychaetes from the 1959 collections are in the National Museum at Washington, D. C. and information on this taxon is not available for most of the stations. To compile a list of representative invertebrates for each of the 1959 stations, information, where applicable, has been taken from the published reports and from remaining specimens, which have been identified and counted at the Arctic Biological Station. The lists are not necessarily complete. Associated data for the 1959 stations are presented in Table 2. Hydrographic information was obtained from a manuscript report by Grainger, 1960.

The 1974 samples were collected and processed for their quantitative significance. Each of the 17 samples taken by INRS (Koutitonsky and

Morissette, 1974), consisted of 4 grabs, using a "Petterson" grab (Foerst, Chicago) which samples an area of 0.065 m^2. One grab was taken at each station occupied by the *Narwhal* in 1974, using a Wildco Petersen grab which samples an area of 0.09 m^2.

The 1974 samples were washed through a 0.5 mm screen at the time of collection and retained invertebrates were preserved in formalin (1 part formaldehyde with 9 parts water) for transportation to the Arctic Biological Station where they were processed.

Invertebrates were sorted, identified, counted, and dried. Each sample was sorted by hand using a Wild M5 dissecting microscope and specimens were counted and identified to species, where possible. Specific distinction was not attempted in some groups (nematodes and nemerteans) and these specimens were dealt with by taxon. Similarly, individual counts were not attempted with the colonial forms, (bryozoans and sponges), but their presence is indicated by an "X" in the stations' list.

Dry meat weight was determined for combined individuals of each species for each sample. The dry weight excludes shells and tubes of invertebrates, but the skeletons of echinoderms and sponges are included in the dry weights of these specimens because of difficulty in separating meat from skeleton.

Number of individuals and dry weight of each species in each sample were multiplied by an appropriate factor to convert to square meter equivalents. The resulting values, as listed for each station, are expressed as density and biomass on a m^2 basis. The conversion factors can be determined from information given in Table 3, which includes other associated data for the 1974 stations.

Temperature and salinity of water were measured with an Inter Ocean CSTB system at depths ranging from 1 to 8 m above the bottom, depending on depth.

Invertebrates from all stations are listed in Table 4. Number of species, density, and biomass for each station are presented in Table 5.

Sediment Analysis

During the 1974 collecting period, carried out by INRS (stations 74-735 to 74-751), sediment samples were taken at the time zoobenthic samples were taken. Approximately one liter of sediment from each station was frozen for transportation to and storage at the Arctic Biological Station pending analysis. Mechanical and chemical analyses of sediments were made by the Macdonald College Soil Testing Laboratory under the supervision of A. F. MacKenzie. Synoptic procedures, provided by Dr. MacKenzie, are presented below. Where applicable, values are related to 1 g of oven-dried sediment. In most cases the values of the determined substances are presented as levels of the substances in forms that are available to zoobenthos and phytobenthos; however, the significance and relationship of the substances to the biota remained to be evaluated.

Synoptic Procedures for Sediment Analysis

1. Particle size analysis was made by the hydrometer method described by Day (1). Three fractions were recognized; particles of 0.05-2.00 mm, particles of 0.002-0.05 mm, and particles less than 0.002 mm effective diameter.

   For this report values were transformed to the Wentworth Scale, with three fractions of particle size from 0.063-2.00 mm, 0.004-0.063 mm, and less than 0.004 mm.

2. pH was determined with a glass calomel electrode combination on a suspension of sample/0.01M $CaCl_2$ in a 1:3 ratio.

3. Nitrogen was determined for total and inorganic forms of nitrogen.

   Total nitrogen was determined by the semi-micro Kjeldahl procedure described by Bremner (2).

   Inorganic forms of nitrogen were extracted with 1N KCl from freshly thawed samples by modification of the method described by Bremner (3). Nitrate and ammonia levels in the extracts were determined colorimetrically by the methods currently in use at the Macdonald College Soil Testing Laboratory.

4. Organic carbon was determined by the Walkley-Black procedure as described by Allison (4).

   Organic matter was calculated from the organic carbon value.

5. Potassium, calcium and magnesium were extracted by the procedure described by Jackson (5) with a sample/extractant ratio of 1:10 and an extraction time of 15 minutes. Potassium was determined by flame photometry and calcium and magnesium were determined by atomic absorption spectrophotometry.

6. Phosphorus was extracted using a modification of the procedure for available P (phosphorus soluble in dilute acid-fluoride) as described by Jackson (6). The sample/extractant ratio was 1:10 with an extraction time of 1 minute. Determination was made by the chlorostannous-reduced molybdophosphoric blue color method (7) adapted to automated analysis.

7. Total phosphorus was obtained from dried ground samples digested with 60% perchloric acid ($HClO_4$) by the method described in Black (9). Total P was determined colorimetrically according to Jackson (8) by the vanadomolybdophosphoric yellow color method at 470 mμ.

8. Iron, manganese, and zinc were extracted from samples using 1N HCl with a sample/extractant ratio of 1:10 and an extraction time of 30 minutes. Concentrations in the extracts were determined by atomic absorption spectrophotometry (10).

9. Copper was obtained by the EDTA extraction method as modified by Makhan (11). Sample/extractant ratio was 1:10 with an extraction time of 30 minutes. Extracted copper concentrations were determined by atomic absorption spectrophotometry.

10. Silicon was extracted by the method described by McKeague and Cline (12). Dried ground sediments were shaken in a 1:1 ratio with 0.01 M $CaCl_2$ for 24 hours and centrifuged. Supernatant was diluted and silicon content was determined colorimetrically at 830 mμ after reduction of the yellow silicomolybdate complex according to the method of Voinovitch *et al.* (13).

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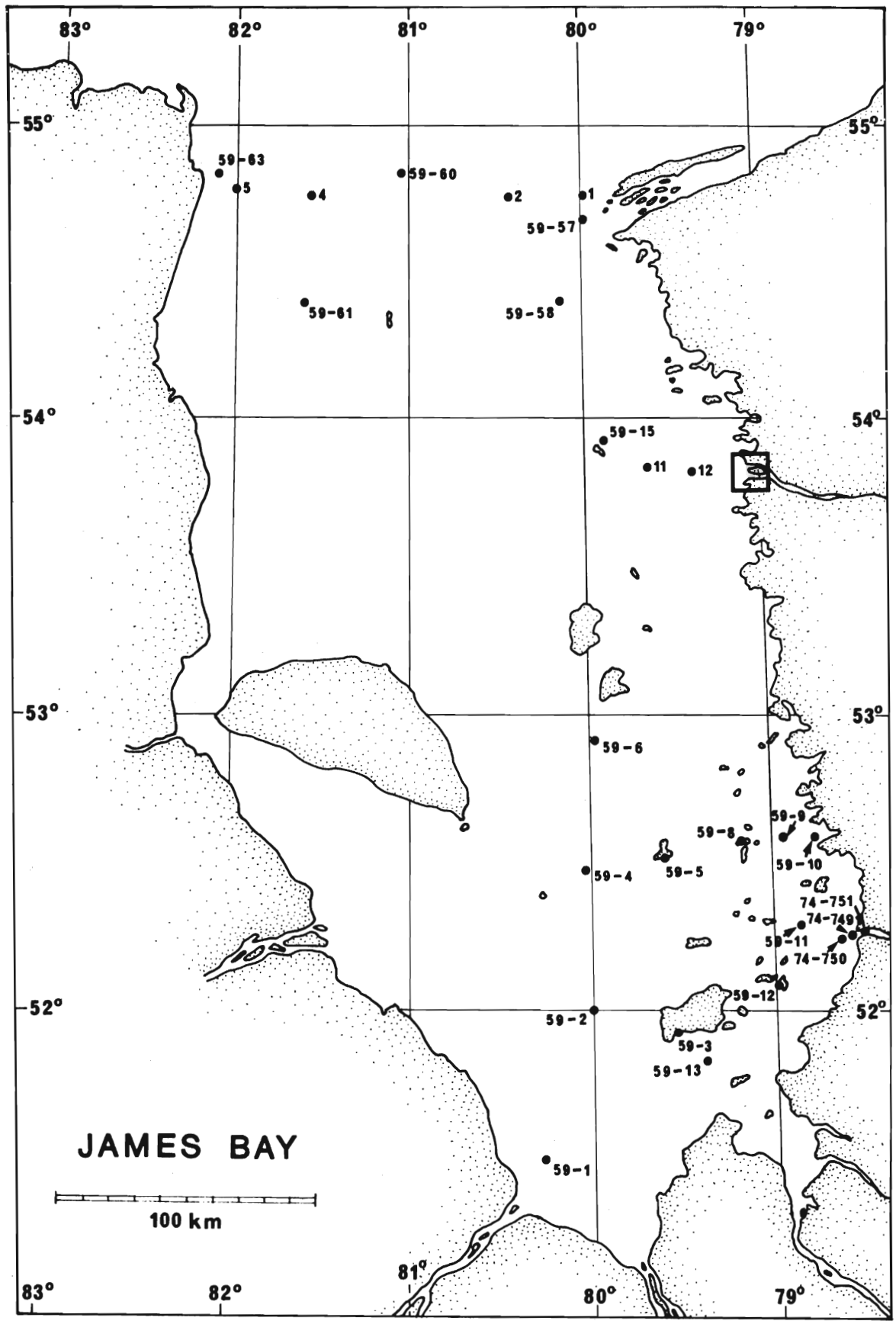

Fig. 1. Stations sampled in James Bay, 1959, 1974.

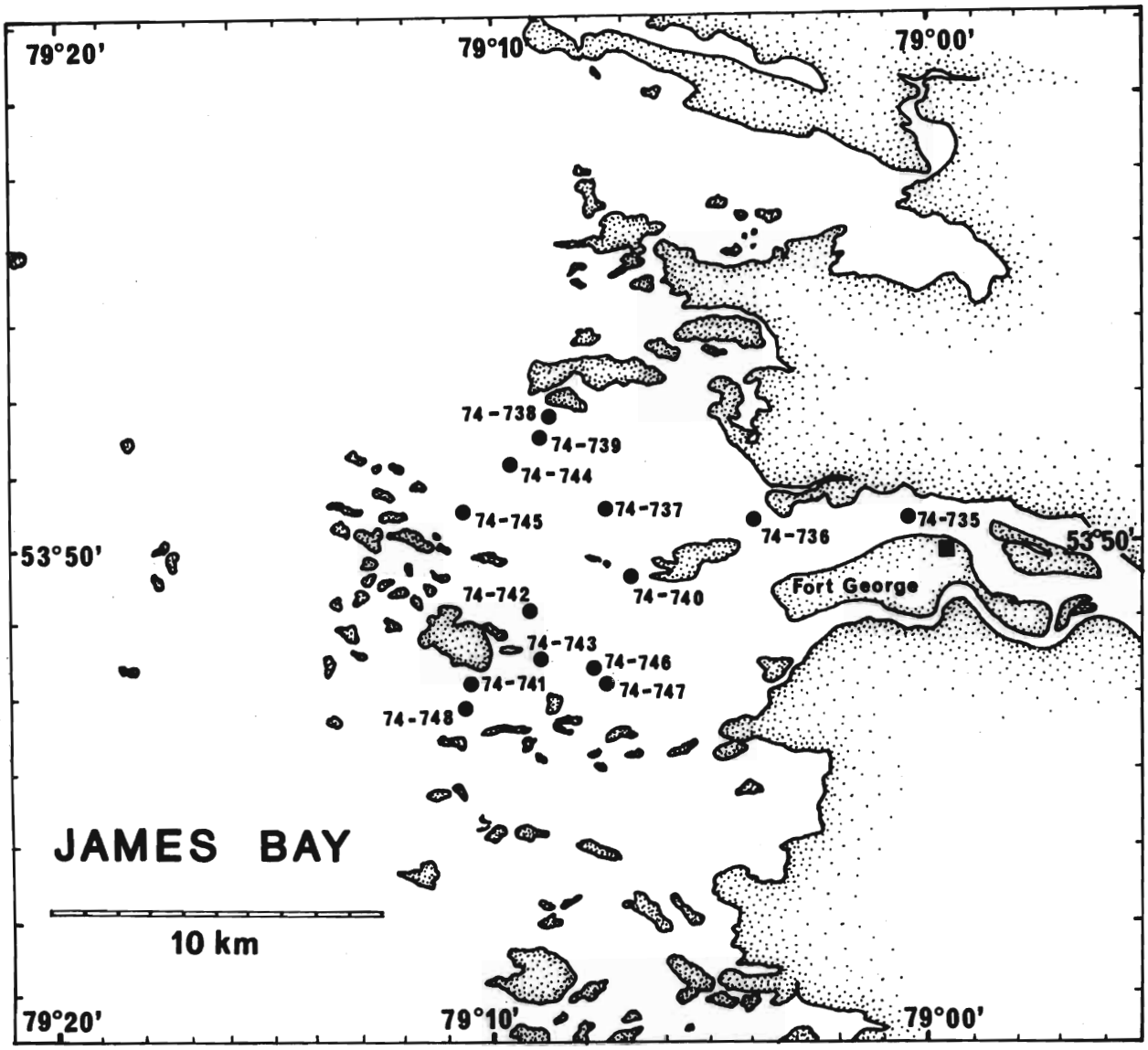

Fig. 2. Stations sampled off mouth of La Grande River, 1974 (area indicated by rectangle in Fig. 1).

Table 1. Coordinates of stations sampled in James Bay, 1959, 1974.

Station	North Latitude	West Longitude
59-1	51°30'	80°16'
59-2	52°00'	80°00'
59-3	51°55'	79°32'
59-4	52°28'	80°02'
59-5	52°32'	79°36'
59-6	52°55'	79°58'
59-8	52°34'	79°08'
59-9	52°35'	78°56'
59-10	52°35'	78°45'
59-11	52°17'	78°50'
59-12	52°06'	79°00'
59-13	51°49'	79°24'
59-15	53°56'	79°52'
59-57	54°42'	79°59'
59-58	54°24'	80°08'
59-60	54°50'	81°02'
59-61	54°24'	81°35'
59-63	54°50'	83°06'
74-735	53°50.3'	79°00.5'
74-736	53°50.3'	79°04.0'
74-737	53°50.5'	79°07.4'
74-738	53°51.7'	79°08.6'
74-739	53°51.5'	79°08.9'
74-740	53°49.6'	79°06.8'
74-741	53°48.2'	79°10.5'
74-742	53°49.1'	79°08.8'
74-743	53°48.5'	79°08.8'
74-744	53°51.1'	79°09.5'
74-745	53°50.5'	79°10.7'

Table 1. (Cont'd.)

Station	North Latitude	West Longitude
74-746	53°48.4'	79°07.7'
74-747	53°48.2'	79°07.4'
74-748	53°47.9'	79°10.6'
74-749	52°14.8'	78°34.4'
74-750	52°14.5'	78°37.4'
74-751	52°14.9'	78°32.7'
1	54°46'	79°59'
2	54°45.5'	80°24.2'
4	54°45.5'	81°32.5'
5	54°47'	82°00'
11	53°50'	79°37'
12	53°49.7'	79°22.4'

Table 2. Associated data for stations sampled in James Bay, 1959.

Station	Date	Time (EST)	Time (GMT)	Collecting Gear	Depth (m)	Temp. (°C)	Sal. (‰)
59-1	20 Jun 59	1610	2110	dredge	9	8.11	10.50
59-2	21 Jun 59	1230	1730	dredge & trawl	23	0.41	20.14
59-3	21 Jun 59	1730	2230	hand	shore	-	-
59-4	22 Jun 59	1800	2300	dredge	60	-1.32	26.82
59-5	22 Jun 59	1900	2400	hand	shore	-	-
59-6	23 Jun 59	1600	2100	dredge & trawl	65	-1.33	26.18
59-8	26 Jun 59	0930	1430	Van Veen grab	17	2.42	19.52
59-9	27 Jun 59	1230	1730	trawl	24	3.28	18.66
59-10	29 Jun 59	-	-	gill net	3	-	-
59-11	30 Jun 59	1600	2100	dredge & trawl	22	1.70	22.32
59-12	30 Jun 59	1900	2400	hand	shore	-	-
59-13	1 Jul 59	1300	1800	trawl	12	4.26	16.80
59-15	10 Jul 59	1230	1730	dredge	60	-1.23	29.74
59-57	26 Aug 59	1550	2050	dredge	32	1.93	27.18
59-58	26 Aug 59	2216	0316	dredge	65	-1.04	31.17
59-60	29 Aug 59	1650	2150	dredge	73	-1.32	31.60
59-61	30 Aug 59	1328	1828	dredge	51	-1.27	30.28
59-63	30 Aug 59	2159	0259	dredge	17	6.79	24.99

Table 3. Associated data for stations sampled by grab in James Bay, 1974.

Station	Date	Time (EST)	Time (GMT)	No. of Grabs	Sampled Area (m^2)	Water Depth (m)	Temp. (°C)	Sal. (‰)
74-735	2 Sep 74	1415	1915	4	0.25	4	12.38	0.01
74-736	2 Sep 74	1215	1715	4	0.25	6	12.19	1.35
74-737	2 Sep 74	1040	1540	4	0.25	2	10.96	8.63
74-738	4 Sep 74	0900	1400	4	0.25	6	8.57	21.13
74-739	4 Sep 74	1015	1515	4	0.25	12	8.31	22.15
74-740	4 Sep 74	1320	1820	4	0.25	1	10.20	16.54
74-741	8 Sep 74	1000	1500	4	0.25	10	9.04	22.14
74-742	10 Sep 74	1435	1935	4	0.25	16	8.28	21.99
74-743	10 Sep 74	1650	2150	4	0.25	10	8.65	20.75
74-744	11 Sep 74	1250	1750	4	0.25	25	7.89	22.67
74-745	11 Sep 74	1645	2145	4	0.25	8	8.61	20.17
74-746	12 Sep 74	1130	1630	4	0.25	5	8.73	18.63
74-747	12 Sep 74	1345	1845	4	0.25	3	9.51	13.97
74-748	12 Sep 74	1500	2000	4	0.25	14	8.47	20.81
74-749	21 Sep 74	0930	1430	4	0.25	4	8.45	0.03
74-750	21 Sep 74	1150	1650	4	0.25	5	8.31	10.67
74-751	23 Sep 74	0710	1210	4	0.25	5	7.12	-
1	4 Oct 74	1130	1630	1	0.09	81	0.14	30.33
2	4 Oct 74	1340	1840	1	0.09	112	1.43	30.12
4	4 Oct 74	1730	2230	1	0.09	52	3.77	28.63
5	4 Oct 74	1940	0040	1	0.09	34	4.47	27.22
11	5 Oct 74	1910	0010	1	0.09	45	-	25.96
12	5 Oct 74	2030	0130	1	0.09	40	5.31	24.21

Table 4. Species of invertebrates collected from stations in James Bay, 1959, 1974.

Species	No.	Species	No.
ANNELIDA:Polychaeta	53	*Prionospio steenstrupi*	
Ampharete acutifrons		*Rhodine gracilior*	
Amphicteis sundevalli		*Sabella crassicornis*	
Antinoella badia		Sabellid	
Antinoella sarsi		*Sabellides borealis*	
Aricidea suecica		*Sabellides octocirrata*	
Artacama proboscidea		*Scalibregma inflatum*	
Asabellides sibirica		*Scoloplos armiger*	
Autolytus prismaticus		*Spio filicornis*	
Capitella capitata		*Terebellides stroemi*	
Chaetozone setosa		*Tharyx acutus*	
Chaetozone sp.			
Chone sp.		ARTHROPODA:Amphipoda	41
Cossura longocirrata		*Acanthostepheia malmgreni*	
Diplocirrus glaucus		*Aceroides l. latipes*	
Ephesiella peripatus		*Ampelisca eschrichti*	
Eteone longa		*Anonyx sarsi*	
Euchone papillosa		*Arrhis phyllonyx*	
Exogone verugera ?		*Atylus carinatus*	
Harmothoe imbricata		*Boeckosimus affinis*	
Heteromastus sp.		*Boeckosimus edwardsi*	
Lanassa venusta		*Byblis gaimardi*	
Laonome kroyeri		*Dulichia arctica*	
Leiochone polaris		*Dulichia porrecta*	
Lumbrineris fragilis		*Dulichia spinosissima*	
Lumbrineris minuta		*Ericthonius tolli*	
Maldane sarsi		*Eusirus cuspidatus*	
Melinna cristata		*Gammaracanthus loricatus*	
Micronephthys minuta		*Gammarus oceanicus*	
Myriochele oculata		*Halirages fulvocinctus*	
Mystides borealis		*Haliragoides inermis*	
Nephtys ciliata		*Haploops laevis*	
Nereimyra aphroditoides		*Haploops setosa*	
Nicolea zostericola		*Hippomedon propinquus*	
Notomastus latericeus		*Ischyrocerus anguipes*	
Paraonis sp. a		*Ischyrocerus megalops*	
Paraonis sp. b		*Melphidippa* sp.	
Pectinaria granulata		*Metopa bruzelii*	
Pectinaria hyperborea		*Monoculodes* sp.	
Pholoe minuta		*Monoculopsis longicornis*	
Pista maculata		*Neohela maxima*	
Polydora caeca		*Onisimus litoralis*	
Praxillella praetermissa		*Parathemisto abyssorum*	
		Parathemisto libellula	

Table 4. (Cont'd.)

Species	No.
ARTHROPODA:Amphipoda	
Paronesimus barentsi	
Pleustes panopla	
Pontoporeia femorata	
Rhachotropis aculeata	
Rozinante fragilis	
Stenopleustes pulchellus	
Syrrhoe crenulata	
Tmetonyx cicada	
Unciola leucopis	
Westwoodilla megalops	
ARTHROPODA:Cirripedia	1
Balanus crenatus	
ARTHROPODA:Cumacea	6
Brachydiastylis resima	
Diastylis rathkei	
Diastylis scorpioides	
Diastylis sulcata	
Eudorella emarginata	
Leucon nasica	
ARTHROPODA:Decapoda	7
Argis dentata	
Eualus fabricii	
Eualus gaimardi	
Eualus macilentus	
Hyas coarctatus	
Pandalus montagui	
Sabinea septemcarinata	
ARTHROPODA:Isopoda	2
Mesidotea sabini	
Synidotea nodulosa	
ARTHROPODA:Mysidacea	1
Mysis litoralis	
ARTHROPODA:Ostracoda	3
Cyprideis sorbyana	
Cythereis dunelmensis	
Cythereis sp. a	
ARTHROPODA:Pycnogonida	3
Nymphon glaciale	
Nymphon hirtipes	
Nymphon serratum	
ARTHROPODA:Tanaidacea	3
Leptognathia longiremis	
Sphyrapus anomalus	
Typhlotanais finmarchicus	
ASCHELMINTHES:Nematoda	1
Nematode	
BRACHIOPODA	2
Atretia gnomon	
Hemithyris psittacea	
CHORDATA:Ascidiacea	9
Boltenia echinata	
Molgula griffithsi	
Molgula sp.	
Pelonaia corrugata	
Styela coriacea	
Styela rustica	
Ascidian	
Ascidian	
Ascidian	
COELENTERATA:Anthozoa	5
Actinostola spetsbergensis	
Bunodactis stella	
Gersemia rubiformis	
Tealia felina	
Anemone	
ECHINODERMATA: Asteroidea	6
Ctenodiscus crispatus	
Henricia eschrichti	
Leptasterias groenlandica	
Leptasterias polaris	
Pteraster militaris	
Urasterias lincki	
ECHINODERMATA: Crinoidea	1
Heliometra glacialis	
ECHINODERMATA: Echinoidea	1
Strongylocentrotus droebachiensis	

Table 4. (Cont'd.)

Species	No.
ECHINODERMATA:Holothuroidea	3
Myriotrochus rinki	
Thyonidium sp.	
Holothuroid	
ECHINODERMATA:Ophiuroidea	7
Ophiacantha bidentata	
Ophiocten sericeum	
Ophiopholis aculeatus	
Ophiopus arcticus	
Ophiura robusta	
Ophiura sarsi	
Stegophiura nodosa	
ECTOPROCTA	5
Alcyonidium gelatinosum	
Cystisella saccata	
Kinetoskias arborescens	
Porella smitti	
Bryozoan	
MOLLUSCA:Gastropoda	11
Admete couthouyi	
Buccinum tenue	
Cylichna alba	
Cylichna occulta	
Littorina saxatilis	
Lunatia pallida	
Margarites costalis	
Margarites olivaceus	
Nudibranch	
Philine finmarchia	
Retusa obtusa	
MOLLUSCA:Pelecypoda	21
Astarte borealis	
Astarte crenata	
Astarte montagui	
Clinocardium ciliatum	
Crenella faba	
Hiatella arctica	
Lyonsia arenosa	
Macoma balthica	
Macoma calcarea	
Musculus corrugatus	
Musculus discors	
Mya pseudoarenaria	
Mytilus edulis	
Nucula belloti	
Nuculana pernula	
Pandora glacialis	
Pecten groenlandicus	
Portlandia arctica	
Thyasira gouldi	
Yoldia h. hyperborea	
Yoldiella lenticula	
NEMERTINA	3
Nemertean	
Nemertean	
Nemertean	
PORIFERA	7
Biemna or *Tylodesma*	
Halichondria panicea	
Phakettia bowerbanki	
Phakettia ventilabrum	
Suberites domocula ficus	
Tetilla polyura	
Tetilla sibirica	
PRIAPULIDA	1
Priapulus caudatus	
SIPUNCULIDA	1
Sipunculid	
TOTAL	204

Table 5. Number of species collected from stations in James Bay, 1959. Totals are incomplete because specimens are missing from samples.

Station	Date	Number of Species
59-1	20 Jun 59	6
59-2	21 Jun 59	15
59-3	21 Jun 59	1
59-4	22 Jun 59	25
59-5	22 Jun 59	1
59-6	23 Jun 59	27
59-8	26 Jun 59	6
59-9	27 Jun 59	12
59-10	29 Jun 59	2
59-11	30 Jun 59	31
59-12	30 Jun 59	3
59-13	1 Jul 59	8
59-15	10 Jul 59	23
59-57	26 Aug 59	18
59-58	26 Aug 59	18
59-60	29 Aug 59	17
59-61	30 Aug 59	17
59-63	30 Aug 59	3

Table 6. Number of species, density, and biomass of invertebrates collected by grab from stations in James Bay, 1974.

Station	Date	Number of Species	Density (no. m^{-2})	Biomass (g m^{-2})
74-735	2 Sep 74	0	0	0.00
74-736	2 Sep 74	0	0	0.00
74-737	2 Sep 74	0	0	0.00
74-738	4 Sep 74	0	0	0.00
74-739	4 Sep 74	15	1348	3.41
74-740	4 Sep 74	6	68	0.70
74-741	8 Sep 74	34	540	7.68
74-742	10 Sep 74	35	2725	12.68
74-743	10 Sep 74	25	4492	9.63
74-744	11 Sep 74	25	3828	12.17
74-745	11 Sep 74	21	245	5.88
74-746	12 Sep 74	3	16	0.91
74-747	12 Sep 74	1	104	6.07
74-748	12 Sep 74	8	92	3.20
74-749	21 Sep 74	0	0	0.00
74-750	21 Sep 74	9	1044	4.43
74-751	23 Sep 74	0	0	0.00
1	4 Oct 74	11	352	0.89
2	4 Oct 74	24	748	1.42
4	4 Oct 74	20	693	1.51
5	4 Oct 74	23	473	3.52
11	5 Oct 74	2	22	0.01
12	5 Oct 74	5	77	0.06

Table 7. Invertebrates collected by dredge from station 59-1.

Species	No.	Species	No.
ARTHROPODA:Amphipoda			
Gammarus oceanicus	1		
Onisimus litoralis	4		
ARTHROPODA:Isopoda			
Synidotea nodulosa	1		
ARTHROPODA:Mysidacea			
Mysis litoralis	1		
ECHINODERMATA:Asteroidea			
Ctenodiscus crispatus	1		
MOLLUSCA:Pelecypoda			
Macoma balthica	40		

Table 8. Invertebrates collected by dredge and trawl from station 59-2.

Species	No.	Species	No.
ARTHROPODA:Amphipoda			
Anonyx sarsi	1		
Atylus carinatus	5		
Ischyrocerus megalops	1		
ARTHROPODA:Cumacea			
Cumacean	1		
ARTHROPODA:Pycnogonida			
Nymphon glaciale	1		
ASCHELMINTHES:Nematoda			
Nematode	4		
CHORDATA:Ascidiacea			
Ascidian	2		
ECHINODERMATA:Asteroidea			
Leptasterias groenlandica	X		
Leptasterias polaris	X		
ECHINODERMATA:Echinoidea			
Strongylocentrotus droebachiensis	4		
ECTOPROCTA			
Porella smitti	X		
MOLLUSCA:Pelecypoda			
Crenella faba	2		
Musculus discors	1		
Mytilus edulis	5		
PORIFERA			
Phakettia bowerbanki	X		

Table 9. Invertebrates collected by hand from station 59-3.

Species	No.	Species	No.
MOLLUSCA:Pelecypoda			
Mytilus edulis	5		

Table 10. Invertebrates collected by dredge from station 59-4. Value in brackets represents shell only.

Species	No.	Species	No.
ARTHROPODA:Amphipoda			
Acanthostepheia malmgreni	1		
Ericthonius tolli	1		
Halirages fulvocinctus	7		
Haliragoides inermis	3		
Haploops laevis	1		
Melphidippa sp.	1		
Neohela maxima	1		
Pleustes panopla	3		
Rozinante fragilis	6		
Unciola leucopis	2		
ARTHROPODA:Cumacea			
Cumacean	6		
COELENTERATA:Anthozoa			
Actinostola spetsbergensis	1		
Gersemia rubiformis	1		
ECHINODERMATA:Asteroidea			
Leptasterias groenlandica	X		
Urasterias lincki	X		
ECTOPROCTA			
Alcyonidium gelatinosum	5		
MOLLUSCA:Gastropoda			
Margarites costalis	(1)		
Margarites olivaceus	2		
MOLLUSCA:Pelecypoda			
Astarte crenata	20		
Hiatella arctica	2		
Macoma balthica	1		
Musculus discors	4		
Pecten groenlandicus	1		
PORIFERA			
Phakettia bowerbanki	X		
Tetilla sibirica	X		

Table 11. Invertebrates collected by hand from station 59-5. Value in brackets represents shell only.

Species	No.	Species	No.
MOLLUSCA:Pelecypoda			
Mytilus edulis	(X)		

Table 12. Invertebrates collected by dredge and trawl from station 59-6. Value in brackets represents shell only

Species	No.	Species	No.
ARTHROPODA:Amphipoda			
Acanthostepheia malmgreni	9		
Arrhis phyllonyx	1		
Byblis gaimardi	10		
Dulichia arctica	2		
Dulichia porrecta	2		
Haploops laevis	3		
Hippomedon propinquus	1		
Ischyrocerus megalops	2		
Neohela maxima	2		
ARTHROPODA:Cumacea			
Cumacean	X		
ARTHROPODA:Decapoda			
Argis dentata	5		
Eualus gaimardi	1		
Eualus macilentus	1		
Pandalus montagui	1		
Sabinea septemcarinata	1		
ARTHROPODA:Isopoda			
Mesidotea sabini	1		
ECHINODERMATA:Asteroidea			
Urasterias lincki	X		
ECHINODERMATA:Holothuroidea			
Myriotrochus rinki	1		
ECTOPROCTA			
Kinetoskias arborescens	X		
MOLLUSCA:Gastropoda			
Admete couthouyi	2		
MOLLUSCA:Pelecypoda			
Astarte crenata	1		
Macoma balthica	(X)		
Macoma calcarea	2		
Musculus corrugatus	3		
Mytilus edulis	(1)		
Nuculana pernula	4		
Yoldia h. hyperborea	1		

Table 13. Invertebrates collected by grab from station 59-8. Value in brackets represents shell only.

Species	No.	Species	No.
ANNELIDA:Polychaeta			
Antinoella badia	1		
Leiochone polaris	1		
Nephtys ciliata	1		
Pectinaria granulata	4		
Scoloplos armiger	1		
MOLLUSCA:Pelecypoda			
Mytilus edulis	(2)		

Table 14. Invertebrates collected by trawl from station 59-9. Value in brackets represents shell only.

Species	No.	Species	No.
ANNELIDA:Polychaeta			
Pista maculata	1		
Sabellides borealis	1		
ARTHROPODA:Decapoda			
Argis dentata	1		
Eualus fabricii	1		
Hyas coarctatus	1		
COELENTERATA:Anthozoa			
Tealia felina	2		
MOLLUSCA:Gastropoda			
Nudibranch	1		
MOLLUSCA:Pelecypoda			
Clinocardium ciliatum	(X)		
Hiatella arctica	1		
Musculus discors	2		
NEMERTINA			
Nemertean	1		
PORIFERA			
Tetilla polyura	X		

Table 15. Invertebrates collected by gill net from station 59-10.

Species	No.	Species	No.
ARTHROPODA:Amphipoda			
Gammaracanthus loricatus	5		
MOLLUSCA:Pelecypoda			
Mytilus edulis	15		

Table 16. Invertebrates collected by dredge and trawl from station 59-11.

Species	No.	Species	No.
ANNELIDA:Polychaeta		NEMERTINA	
Ampharete acutifrons	1	Nemertean	2
Euchone papillosa	7		
Melinna cristata	1	PORIFERA	
Mystides borealis	1	*Suberites domocula ficus*	13
Pista maculata	3	*Tetilla sibirica*	X
Sabellides borealis	1		
		PRIAPULIDA	
ARTHROPODA:Cumacea		*Priapulus caudatus*	2
Cumacean	1		
ARTHROPODA:Amphipoda			
Atylus carinatus	1		
Dulichia spinosissima	3		
Haploops laevis	1		
ASCHELMINTHES:Nematoda			
Nematode	6		
CHORDATA:Ascidiacea			
Molgula griffithsi	11		
Molgula sp.	3		
Ascidian	8		
Ascidian	1		
ECHINODERMATA:Asteroidea			
Urasterias lincki	1		
ECHINODERMATA:Holothuroidea			
Holothuroid	4		
ECTOPROCTA			
Bryozoan	2		
MOLLUSCA:Gastropoda			
Admete couthouyi	1		
Lunatia pallida	1		
MOLLUSCA:Pelecypoda			
Astarte borealis	16		
Astarte crenata	16		
Crenella faba	29		
Hiatella arctica	1		
Musculus discors	30		
Portlandia arctica	34		
Thyasira gouldi	7		

Table 17. Invertebrates collected by hand from station 59-12.

Species	No.	Species	No.
ARTHROPODA:Amphipoda			
Gammaracanthus loricatus	1		
MOLLUSCA:Gastropoda			
Littorina saxatalis	30		
MOLLUSCA:Pelecypoda			
Mytilus edulis	X		

Table 18. Invertebrates collected by trawl from station 59-13.

Species	No.	Species	No.
ARTHROPODA:Amphipoda			
Atylus carinatus	1		
Gammaracanthus loricatus	4		
ARTHROPODA:Cumacea			
Cumacean	2		
COELENTERATA:Anthozoa			
Tealia felina	21		
MOLLUSCA:Pelecypoda			
Hiatella arctica	1		
Macoma balthica	3		
Portlandia arctica	5		
NEMERTINA			
Nemertean	4		

Table 19. Invertebrates collected by dredge from station 59-15. Value in brackets represents shell only.

Species	No.	Species	No.
ARTHROPODA:Amphipoda			
Haploops laevis	2		
Haploops setosa	9		
Paronesimus barentsi	1		
Unciola leucopis	1		
ARTHROPODA:Cumacea			
Cumacean	3		
ARTHROPODA:Pycnogonida			
Nymphon hirtipes	1		
Nymphon serratum	1		
BRACHIOPODA			
Atretia gnomon	4		
CHORDATA:Ascidiacea			
Boltenia echinata	1		
ECHINODERMATA:Asteroidea			
Henricia eschrichti	X		
Pteraster militaris	1		
Urasterias lincki	1		
ECHINODERMATA:Holothuroidea			
Myriotrochus rinki	2		
ECHINODERMATA:Ophiuroidea			
Ophiacantha bidentata	36		
Ophiocten sericeum	14		
MOLLUSCA:Gastropoda			
Buccinum tenue	(4)		
MOLLUSCA:Pelecypoda			
Astarte crenata	37		
Musculus discors	2		
Mytilus edulis	(2)		
Nuculana pernula	1		
Pecten groenlandicus	1		
Yoldia h. hyperborea	1		
PORIFERA			
Biemna or *Tylodesma*	X		

Table 20. Invertebrates collected by dredge from station 59-57. Value in brackets represents shell only.

Species	No.	Species	No.
ARTHROPODA:Amphipoda			
Anonyx sarsi	3		
Boeckosimus edwardsi	1		
Eusirus cuspidatus	1		
Rhachotropis aculeata	20		
Syrrhoe crenulata	4		
Tmetonyx cicada	2		
Westwoodilla meglops	1		
ARTHROPODA:Cumacea			
Cumacean	1		
ARTHROPODA:Decapoda			
Hyas coarctatus	1		
Pandalus montagui	1		
COELENTERATA:Anthozoa			
Tealia felina	1		
ECHINODERMATA:Asteroidea			
Leptasterias polaris	X		
ECHINODERPATA:Echinoidea			
Strongylocentrotus droebachiensis	1		
ECHINODERMATA:Ophiuroidea			
Ophiopholis aculeatus	1		
Ophiura robusta	13		
MOLLUSCA:Gastropoda			
Margarites costalis	6		
Margarites olivaceus	7		
MOLLUSCA:Pelecypoda			
Macoma calcarea	(X)		

Table 21. Invertebrates collected by dredge from station 59-58. Value in brackets represents shell only.

Species	No.	Species	No.
ARTHROPODA:Amphipoda			
Acanthostepheia malmgreni	7		
Ampelisca eschrichti	1		
Haploops laevis	1		
Parathemisto abyssorum	1		
Parathemisto libellula	11		
Rozinante fragilis	1		
BRACHIOPODA			
Atretia gnomon	1		
Hemithyris psittacea	(1)		
COELENTERATA:Anthozoa			
Tealia felina	1		
ECHINODERMATA:Crinoidea			
Heliometra glacialis	1		
ECHINODERMATA:Echinoidea			
Strongylocentrotus droebachiensis	2		
ECHINODERMATA:Ophiuroidea			
Ophiacantha bidentata	2		
Ophiura sarsi	2		
ECTOPROCTA			
Cystisella saccata	X		
MOLLUSCA:Gastropoda			
Admete couthouyi	(1)		
MOLLUSCA:Pelecypoda			
Astarte crenata	1		
Nucula belloti	1		
NEMERTINA			
Nemertean	1		

Table 22. Invertebrates collected by dredge from station 59-60.

Species	No.	Species	No.
ANNELIDA:Polychaeta			
Lumbrineris minuta	1		
Sabella crassicornis	1		
ARTHROPODA:Amphipoda			
Haploops laevis	4		
ARTHROPODA:Cumacea			
Diastylis rathkei	1		
Cumacean	6		
ARTHROPODA:Decapoda			
Hyas coarctatus	4		
ECHINODERMATA:Crinoidea			
Heliometra glacialis	16		
ECHINODERMATA:Holothuroidea			
Myriotrochus rinki	1		
ECHINODERMATA:Ophiuroidea			
Ophiacantha bidentata	11		
Ophiocten sericeum	19		
Ophiura sarsi	3		
Stegophiura nodosa	3		
MOLLUSCA:Gastropoda			
Buccinum tenue	1		
MOLLUSCA:Pelecypoda			
Pecten groenlandicus	1		
NEMERTINA			
Nemertean	1		
PORIFERA			
Phakettia ventilabrum	1		
MISCELLANEOUS			
Unidentified invertebrate	1		

Table 23. Invertebrates collected by dredge from station 59-61. Value in brackets represents shell only.

Species	No.	Species	No.
ARTHROPODA:Amphipoda			
Byblis gaimardi	11		
Haploops laevis	5		
Paronesimus barentsi	2		
ARTHROPODA:Cumacea			
Diastylis sulcata	16		
Eudorella emarginata	1		
Leucon nasica	1		
ECHINODERMATA:Ophiuroidea			
Ophiura sarsi	4		
MOLLUSCA:Gastropoda			
Buccinum tenue	3		
MOLLUSCA:Pelecypoda			
Clinocardium ciliatum	3		
Lyonsia arenosa	(1)		
Macoma balthica	1		
Nucula belloti	3		
Nuculana pernula	11		
Pandora glacialis	3		
Pecten groenlandicus	(X)		
Portlandia arctica	45		
Yoldiella lenticula	52		

Table 24. Invertebrates collected by dredge from station 59-63.

Species	No.	Species	No.
ARTHROPODA:Cirripedia			
Balanus crenatus	3		
ARTHROPODA:Decapoda			
Hyas coarctatus	4		
COELENTERATA:Anthozoa			
Bunodactis stella	1		

Table 25. Density and biomass of invertebrates collected by grab from station 74-739.

Species	Density (no. m^{-2})	Biomass (g m^{-2})
ANNELIDA: Polychaeta		
Antinoella sarsi	8	0.0116
Aricidea suecica	340	0.2104
Eteone longa	8	0.0008
Heteromastus sp.	28	0.0020
Micronephthys minuta	660	0.0884
Nephtys ciliata	4	0.0640
Pectinaria granulata	76	2.1056
Prionospio steenstrupi	12	0.0088
Scoloplos armiger	4	0.0008
Spio filicornis	12	0.0008
ARTHROPODA: Amphipoda		
Monoculodes sp.	8	0.0008
Monoculopsis longicornis	12	0.0004
ARTHROPODA: Ostracoda		
Cythereis sp. a	96	0.0100
MOLLUSCA: Pelecypoda		
Macoma balthica	8	0.0180
Portlandia arctica	72	0.8920
TOTAL	1348	3.4144

Table 26. Density and biomass of invertebrates collected by grab from station 74-740.

Species	Density (no. m^{-2})	Biomass (g m^{-2})
ANNELIDA:Polychaeta		
Eteone longa	4	0.0001
Micronephthys minuta	4	0.0008
ARTHROPODA:Amphipoda		
Monoculodes sp.	16	0.0028
Onisimus litoralis	24	0.0176
ASCHELMINTHES:Nematoda		
Nematode	4	0.0004
MOLLUSCA:Pelecypoda		
Macoma balthica	16	0.6736
TOTAL	68	0.6953

Table 27. Density and biomass of invertebrates collected by grab from station 74-741.

Species	Density (no. m^{-2})	Biomass (g m^{-2})
ANNELIDA:Polychaeta		
Diplocirrus glaucus	4	0.0016
Euchone papillosa	4	0.0032
Laonome kroyeri	4	0.0064
Leiochone polaris	4	0.0040
Melinna cristata	4	0.0068
Micronephthys minuta	24	0.0028
Nephtys ciliata	8	1.4020
Notomastus latericeus	4	0.0684
Paraonis sp. a	4	0.0001
Pectinaria granulata	108	1.3320
Pholoe minuta	12	0.0024
Pista maculata	8	0.4828
Sabella crassicornis	4	0.0384
Scoloplos armiger	4	0.0204
Terebellides stroemi	8	0.0204
Tharyx acutus	4	0.0004
Pieces of polychaetes	X	0.0104
ARTHROPODA:Amphipoda		
Haploops laevis	4	0.0180
ARTHROPODA:Cumacea		
Diastylis rathkei	24	0.0956
ASCHELMINTHES:Nematoda		
Nematode	72	0.0016
CHORDATA:Ascidiacea		
Styela rustica	4	0.1100
COELENTERATA:Anthozoa		
Gersemia rubiformis	8	0.2936
Anemone	8	0.0120
ECHINODERMATA:Holothuroidea		
Myriotrochus rinki	28	0.3608
Thyonidium sp.	4	1.5900
MOLLUSCA:Gastropoda		
Cylichna occulta	4	0.0228

Table 27. (Cont'd.)

Species	Density (no. m^{-2})	Biomass (g m^{-2})
MOLLUSCA:Pelecypoda		
Astarte montagui	40	0.1892
Macoma balthica	4	0.0244
Macoma calcarea	8	0.0440
Mya pseudoarenaria	16	0.1564
Nuculana pernula	4	0.0480
Portlandia arctica	88	1.0876
Thyasira gouldi	4	0.0012
NEMERTINA		
Nemertean	12	0.0280
MISCELLANEOUS		
Unidentified invertebrates	X	0.1932
TOTAL	540	7.6789

Table 28. Density and biomass of invertebrates collected by grab from station 74-742.

Station	Density (no. m^{-2})	Biomass (g m^{-2})
ANNELIDA:Polychaeta		
Antinoella sarsi	8	0.0004
Aricidea suecica	324	0.1536
Artacama proboscidea	4	0.1904
Asabellides sibirica	4	0.0044
Chone sp.	8	0.0001
Cossura longocirrata	36	0.0004
Eteone longa	20	0.0040
Heteromastus sp.	16	0.0012
Laonome kroyeri	4	0.0036
Micronephthys minuta	356	0.0240
Nephtys ciliata	4	0.3440
Pectinaria hyperborea	8	0.1840
Praxillella praetermissa	8	0.1228
Prionospio steenstrupi	4	0.0001
Rhodine gracilior	4	0.0020
Scoloplos armiger	12	0.0012
Terebellides stroemi	28	0.0180
Tharyx acutus	28	0.0076
ARTHROPODA:Tanaidacea		
Typhlotanais finmarchicus	4	0.0001
ASCHELMINTHES:Nematoda		
Nematode	824	0.0080
COELENTERATA:Anthozoa		
Anemone	4	0.0028
ECHINODERMATA:Echinoidea		
Strongylocentrotus droebachiensis	1*	7.7693*
ECHINODERMATA:Holothuroidea		
Myriotrochus rinki	4	0.1676
Holothuroid	4	0.0028
MOLLUSCA:Gastropoda		
Cylichna occulta	4	0.0024
Philine finmarchia	8	0.0012
Retusa obtusa	4	0.0008

Table 28. (Cont'd.)

Species	Density (no. m^{-2})	Biomass (g m^{-2})
MOLLUSCA:Pelecypoda		
Lyonsia arenosa	8	0.0304
Macoma calcarea	4	0.0280
Mya pseudoarenaria	4	0.6136
Nucula belloti	28	0.0236
Pandora glacialis	8	0.0220
Portlandia arctica	268	2.8416
Thyasira gouldi	672	0.0920
MISCELLANEOUS		
Unidentified invertebrates	X	0.0144
TOTAL	2725	12.6824

*Sample values used for density and biomass values because of disproportionate representation.

Table 29. Density and biomass of invertebrates collected by grab from station 74-743.

Species	Density (no. m^{-2})	Biomass (g m^{-2})
ANNELIDA:Polychaeta		
Aricidea suecica	1384	0.4724
Eteone longa	8	0.0088
Heteromastus sp.	4	0.0004
Leiochone polaris	4	0.0152
Micronephthys minuta	1252	0.1148
Pectinaria granulata	32	0.8376
Pectinaria hyperborea	8	0.5740
Pholoe minuta	44	0.0024
Scoloplos armiger	4	0.0016
Terebellides stroemi	8	0.0268
Tharyx acutus	24	0.0024
ARTHROPODA:Amphipoda		
Aceroides l. latipes	4	0.0004
Haploops laevis	4	0.0100
ARTHROPODA:Ostracoda		
Cythereis sp. a	28	0.0112
ASCHELMINTHES:Nematoda		
Nematode	208	0.0048
MOLLUSCA:Gastropoda		
Retusa obtusa	4	0.0008
MOLLUSCA:Pelecypoda		
Astarte montagui	48	0.4744
Hiatella arctica	40	2.0716
Lyonsia arenosa	4	0.0296
Mya pseudoarenaria	16	0.9328
Nucula belloti	4	0.0012
Portlandia arctica	188	3.0776
Thyasira gouldi	1168	0.3208
NEMERTINA		
Nemertean	4	0.6316
MISCELLANEOUS		
Unidentified invertebrates	X	0.0064
TOTAL	4492	9.6296

Table 30. Density and biomass of invertebrates collected by grab from station 74-744.

Species	Density (no. m^{-2})	Biomass (g m^{-2})
ANNELIDA:Polychaeta		
Ampharete acutifrons	16	0.0032
Aricidea suecica	724	0.3324
Capitella capitata	4	0.0004
Cossura longocirrata	156	0.0016
Eteone longa	4	0.0004
Heteromastus sp.	4	0.0001
Leiochone polaris	4	0.0020
Lumbrineris minuta	4	0.0004
Micronephthys minuta	296	0.0284
Nephtys ciliata	24	0.6004
Pectinaria hyperborea	8	0.5520
Praxillella praetermissa	8	0.1500
Tharyx acutus	72	0.0160
ARTHROPODA:Amphipoda		
Haploops laevis	4	0.0001
ASCHELMINTHES:Nematoda		
Nematode	128	0.0020
ECHINODERMATA:Holothuroidea		
Myriotrochus rinki	16	0.3040
Holothuroid	112	0.3264
MOLLUSCA:Gastropoda		
Cylichna alba	12	0.0344
Philine finmarchia	20	0.0032
MOLLUSCA:Pelecypoda		
Lyonsia arenosa	8	0.0140
Nucula belloti	20	0.0156
Portlandia arctica	1220	9.3340
Thyasira gouldi	960	0.4392
NEMERTINA		
Nemertean	4	0.0032
MISCELLANEOUS		
Unidentified invertebrates	X	0.0108
TOTAL	3828	12.1742

Table 31. Density and biomass of invertebrates collected by grab from station 74-745.

Species	Density (no. m^{-2})	Biomass (g m^{-2})
ANNELIDA:Polychaeta		
Ampharete acutifrons	8	0.0004
Amphicteis sundevalli	4	0.0868
Aricidea suecica	12	0.0016
Eteone longa	4	0.0004
Lumbrineris fragilis	12	0.0792
Micronephthys minuta	12	0.0008
Nephtys ciliata	8	0.1724
Pholoe minuta	8	0.0008
Rhodine gracilior	4	0.0012
Sabellides octocirrata	4	0.0008
Terebellides stroemi	4	0.0008
ARTHROPODA:Ostracoda		
Cyprideis sorbyana	4	0.0001
Cythereis sp. a	12	0.0012
ASCHELMINTHES:Nematoda		
Nematode	36	0.0001
CHORDATA:Ascidiacea		
Pelonaia corrugata	44	1.4916
ECHINODERMATA:Echinoidea		
Strongylocentrotus droebachiensis	1*	2.6785*
MOLLUSCA:Pelecypoda		
Astarte borealis	4	0.1112
Astarte montagui	16	0.0408
Lyonsia arenosa	4	0.0152
Mya pseudoarenaria	8	0.1184
Portlandia arctica	36	1.0776
TOTAL	245	5.8799

*Sample values used for density and biomass values because of disproportionate representation.

Table 32. Density and biomass of invertebrates collected by grab from station 74-746.

Species	Density (no. m^{-2})	Biomass (g m^{-2})
ANNELIDA: Polychaeta		
Aricidea suecica	4	0.0004
Nephtys ciliata	4	0.9004
MOLLUSCA: Pelecypoda		
Macoma balthica	8	0.0052
TOTAL	16	0.9060

Table 33. Density and biomass of invertebrates collected by grab from station 74-747.

Species	Density (no. m^{-2})	Biomass (g m^{-2})
MOLLUSCA:Pelecypoda		
Macoma balthica	104	6.0720
TOTAL	104	6.0720

Table 34. Density and biomass of invertebrates collected by grab from station 74-748.

Species	Density (no. m^{-2})	Biomass (g m^{-2})
ANNELIDA:Polychaeta		
Autolytus prismaticus	20	0.0228
Pectinaria granulata	8	0.1756
COELENTERATA:Anthozoa		
Gersemia rubiformis	32	1.4080
ECHINODERMATA:Holothuroidea		
Myriotrochus rinki	12	0.3756
Thyonidium sp.	4	0.3188
MOLLUSCA:Pelecypoda		
Astarte montagui	4	0.0552
Hiatella arctica	12	0.5768
PORIFERA		
Halichondria panicea	X	0.2684
TOTAL	92	3.2012

Table 35. Density and biomass of invertebrates collected by grab from station 74-750.

Species	Density (no. m^{-2})	Biomass (g m^{-2})
ANNELIDA:Polychaeta		
Leiochone polaris	8	0.0216
Micronephthys minuta	216	0.0500
Terebellides stroemi	12	0.0828
ARTHROPODA:Amphipoda		
Pontoporeia femorata	4	0.0008
ARTHROPODA:Cumacea		
Diastylis rathkei	8	0.0076
ARTHROPODA:Ostracoda		
Cythereis sp. a	156	0.0172
MOLLUSCA:Gastropoda		
Cylichna alba	4	0.0108
MOLLUSCA:Pelecypoda		
Macoma balthica	628	4.2396
Mytilus edulis	8	0.0001
TOTAL	1044	4.4305

Table 36. Density and biomass of invertebrates collected by grab from station 1.

Species	Density (no. m^{-2})	Biomass (g m^{-2})
ANNELIDA: Polychaeta		
Aricidea suecica	55	0.0088
Capitella capitata	11	0.0044
Heteromastus sp.	11	0.0011
Lumbrineris minuta	33	0.0330
Maldane sarsi	22	0.0770
Prionospio steenstrupi	22	0.0022
Scoloplos armiger	11	0.0220
Tharyx acutus	154	0.0781
Pieces of polychaetes	X	0.0330
MOLLUSCA: Pelecypoda		
Thyasira gouldi	11	0.0005
Yoldia h. hyperborea	11	0.5929
Yoldiella lenticula	11	0.0330
TOTAL	352	0.8860

Table 37. Density and biomass of invertebrates collected by grab from station 2.

Species	Density (no. m^{-2})	Biomass (g m^{-2})
ANNELIDA:Polychaeta		
Aricidea suecica	22	0.0154
Chaetozone setosa	11	0.0275
Chaetozone sp.	11	0.0198
Cossura longocirrata	11	0.0005
Ephesiella peripatus	11	0.0011
Lumbrineris minuta	22	0.0176
Maldane sarsi	187	0.5104
Micronephthys minuta	55	0.0044
Paraonis sp. b	11	0.0022
Pholoe minuta	11	0.0011
Prionospio steenstrupi	11	0.0220
Rhodine gracilior	11	0.0099
Sabellides borealis	11	0.1111
Scoloplos armiger	11	0.0836
Tharyx acutus	99	0.0968
Pieces of polychaetes	X	0.0671
ARTHROPODA:Amphipoda		
Dulichia porrecta	55	0.0033
Ischyrocerus anguipes	110	0.0220
Metopa bruzelii	11	0.0011
Stenopleustes pulchellus	11	0.0022
ARTHROPODA:Tanaidacea		
Leptognathia longiremis	11	0.0011
ECHINODERMATA:Ophiuroidea		
Ophiopus arcticus	11	0.0154
MOLLUSCA:Pelecypoda		
Thyasira gouldi	11	0.0022
Yoldia h. hyperborea	11	0.3256
Yoldiella lenticula	22	0.0583
TOTAL	748	1.4217

Table 38. Density and biomass of invertebrates collected by grab from station 4.

Species	Density (no. m^{-2})	Biomass (g m^{-2})
ANNELIDA:Polychaeta		
Ampharete acutifrons	11	0.0055
Aricidea suecica	165	0.0451
Artacama proboscidea	11	0.9108
Leiochone polaris	22	0.0187
Lumbrineris minuta	11	0.0011
Maldane sarsi	55	0.1364
Micronephthys minuta	22	0.0022
Myriochele oculata	110	0.1254
Nereimyra aphroditoides	11	0.0022
Prionospio steenstrupi	22	0.0022
Sabellid	11	0.0011
Scalibregma inflatum	22	0.1408
Scoloplos armiger	11	0.0088
Tharyx acutus	121	0.0759
Pieces of polychaetes	X	0.0176
ARTHROPODA:Amphipoda		
Boeckosimus affinis	11	0.0044
Haploops laevis	11	0.0005
ARTHROPODA:Cumacea		
Brachydiastylis resima	11	0.0011
ARTHROPODA:Ostracoda		
Cythereis dunelmensis	33	0.0077
ARTHROPODA:Tanaidacea		
Sphyrapus anomalus	11	0.0033
MOLLUSCA:Pelecypoda		
Thyasira gouldi	11	0.0011
TOTAL	693	1.5119

Table 39. Density and biomass of invertebrates collected by grab from station 5.

Species	Density (no. m^{-2})	Biomass (g m^{-2})
ANNELIDA:Polychaeta		
Aricidea suecica	11	0.0275
Eteone longa	11	0.0033
Exogone verugera	11	0.0011
Harmothoe imbricata	11	0.2651
Lanassa venusta	22	0.0143
Leiochone polaris	11	0.0132
Maldane sarsi	22	0.0341
Melinna cristata	11	0.1584
Micronephthys minuta	88	0.0231
Nereimyra aphroditoides	11	0.0077
Nicolea zostericola	11	0.0011
Pholoe minuta	11	0.0011
Polydora caeca	11	0.0011
Terebellides stroemi	11	0.8404
Tharyx acutus	33	0.0121
Pieces of polychaetes	X	0.0132
ARTHROPODA:Cumacea		
Brachydiastylis resima	66	0.0253
Diastylis rathkei	11	0.0044
Diastylis scorpioides	11	0.0066
ARTHROPODA:Tanaidacea		
Leptognathia longiremis	11	0.0011
ASCHELMINTHES:Nematoda		
Nematode	55	0.0011
CHORDATA:Ascidiacea		
Styela coriacea	22	1.2848
ECTOPROCTA		
Bryozoan	X	0.7524
MOLLUSCA:Pelecypoda		
Nucula belloti	11	0.0231
TOTAL	473	3.5156

Table 40. Density and biomass of invertebrates collected by grab from station 11.

Species	Density (no. m^{-2})	Biomass (g m^{-2})
ANNELIDA: Polychaeta		
Aricidea suecica	11	0.0077
Heteromastus sp.	11	0.0011
TOTAL	22	0.0088

Table 41. Density and biomass of invertebrates collected by grab from station 12.

Species	Density (no. m^{-2})	Biomass (g m^{-2})
ANNELIDA:Polychaeta		
Aricidea suecica	22	0.0275
Cossura longocirrata	11	0.0011
Maldane sarsi	11	0.0110
Tharyx acutus	22	0.0088
SIPUNCULIDA		
Sipunculid	11	0.0110
TOTAL	77	0.0594

Table 42. Biomass of organic debris (terrestrial) collected by grab from stations in James Bay, 1974.

Station	Water Depth (m)	Biomass ($g\ m^{-2}$)
74-735	4	0.0000
74-736	6	0.0000
74-737	2	0.0000
74-738	6	0.0000
74-739	12	1.4324
74-740	1	4.0752
74-741	10	1.4540
74-742	16	4.0900
74-743	10	33.5716
74-744	25	2.1700
74-745	8	0.4552
74-746	5	33.1700
74-747	3	0.0000
74-748	14	0.0780
74-749	4	0.0000
74-750	5	7.5088
74-751	5	2.9520

Table 43. Particle-size distribution (Wentworth Scale) and pH of sediments collected by grab from stations in James Bay, 1974.

Station	Date	Water Depth (m)	Sand % (.063-2.0 mm)	Silt % (.004-.063 mm)	Clay % (<.004 mm)	pH 0.01 M $CaCl_2$
74-735	2 Sep 74	4	94	5	1	5.8
74-736	2 Sep 74	6	94	5	1	6.4
74-737	2 Sep 74	2	93	6	1	6.5
74-738	4 Sep 74	6	-	-	-	-
74-739	4 Sep 74	12	33	46	21	6.7
74-740	4 Sep 74	1	94	5	1	6.4
74-741	8 Sep 74	10	50	20	30	7.2
74-742	10 Sep 74	16	10	47	43	7.2
74-743	10 Sep 74	10	10	51	39	7.1
74-744	11 Sep 74	25	15	52	33	7.1
74-745	11 Sep 74	8	16	45	39	7.2
74-746	12 Sep 74	5	79	13	8	6.8
74-747	12 Sep 74	3	95	3	2	7.0
74-748	12 Sep 74	14	30	33	37	7.5
74-749	21 Sep 74	4	96	3	1	6.7
74-750	21 Sep 74	5	23	39	38	7.5
74-751	23 Sep 74	5	92	5	3	7.0

Table 44. Levels of nitrate-nitrogen, ammonia-nitrogen, total nitrogen, organic carbon, carbon-nitrogen ratio, and organic matter of sediments collected by grab from stations in James Bay, 1974.

Station	NO_3-N (ug/g)	NH_4-N (ug/g)	Total N (mg/g)	Organic C (%)	C/N Ratio	Organic M (%)
74-735	0.92	2.44	0.01	-	-	0.1
74-736	1.04	2.40	0.03	-	-	0.1
74-737	1.00	2.29	0.03	-	-	0.1
74-738	-	-	-	-	-	-
74-739	0.53	7.78	0.32	0.63	19.7	1.1
74-740	0.94	3.58	0.01	0.34	340.0	0.6
74-741	0.49	4.78	0.29	0.40	13.8	0.7
74-742	0.00	17.58	0.65	1.10	16.9	1.9
74-743	0.97	3.31	0.71	0.98	13.8	1.7
74-744	0.41	19.23	0.53	-	-	0.1
74-745	0.00	19.49	0.49	0.75	15.3	1.3
74-746	0.00	6.16	0.17	0.53	31.2	0.9
74-747	0.30	4.60	0.08	0.23	28.8	0.4
74-748	0.36	4.70	0.52	0.69	13.3	1.2
74-749	0.00	7.08	0.05	0.17	34.0	0.3
74-750	0.71	3.36	0.56	0.98	17.5	1.7
74-751	0.30	11.24	0.05	0.23	46.0	0.4

Table 45. Levels of potassium, calcium, magnesium, and phosphorus in sediments collected by grab from stations in James Bay, 1974.

Station	Ammonium Acetate Extractable			Extractable	Total
	K (ug/g)	Ca (ug/g)	Mg (ug/g)	P (ug/g)	P (mg/g)
74-735	20	50	0	6	0.20
74-736	30	100	50	6	0.18
74-737	30	50	50	12	0.50
74-738	-	-	-	-	-
74-739	270	500	480	102	0.76
74-740	50	100	90	22	0.48
74-741	480	1700	130	90	0.66
74-742	720	1600	860	150	0.90
74-743	40	1100	600	148	0.84
74-744	40	1000	660	156	0.69
74-745	50	950	800	182	0.83
74-746	125	400	420	54	0.66
74-747	140	300	340	24	0.53
74-748	460	850	510	150	0.78
74-749	25	150	40	11	0.14
74-750	410	2200	440	70	0.67
74-751	25	200	30	17	0.31

Table 46. Levels of iron, manganese, zinc, copper, and silicon in sediments collected by grab from stations in James Bay, 1974.

Station	HCl Extractable			EDTA Extractable	Extractable
	Fe (ug/g)	Mn (ug/g)	Zn (ug/g)	Cu (ug/g)	Si (ug/g)
74-735	340	10	4	0.0	8.23
74-736	224	10	4	0.0	5.98
74-737	320	18	4	0.0	6.45
74-738	-	-	-	-	-
74-739	2600	48	15	8.0	8.32
74-740	282	6	4	0.0	4.86
74-741	1600	44	14	3.5	14.58
74-742	4600	104	22	8.5	13.84
74-743	4150	90	18	5.5	18.14
74-744	3500	104	17	5.5	16.17
74-745	4250	77	17	5.0	16.78
74-746	1250	21	8	1.0	14.72
74-747	340	6	3	0.0	8.88
74-748	4450	100	17	3.5	15.15
74-749	650	90	12	0.0	4.95
74-750	2550	103	23	7.5	18.04
74-751	400	80	10	1.0	13.65