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ECOLOGICAL BASELINE AND MONITORING PROJECT

FINAL REPORT

PART 3: DISTRIBUTION AND ABUNDANCE OF BENTHIC MACROFAUNA ADJACENT TO A SULFITE PULP MILL DISCHARGE PIPELINE IN PORT GARDNER, WASHINGTON, 1974 THROUGH 1976

by

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PREFACE

The Ecological Baseline and Monitoring (ECOBAM) project was conducted in the Everett/Port Gardner area from 1972 through 1981. Most of the earlier work was published in the ECOBAM Summary Report (November 1976). Draft reports of the later work were prepared several years ago, but never finalized. Recent interest in the Port Gardner area has prompted finalization of this historical information.

Completion of the reports was not possible in all cases. Some of the researchers originally involved were no longer available and questions concerning methods, station locations, etc. could not be answered. However, four reports were completed and together they constitute the final report for the ECOBAM project. The four parts of the final report are:

Part 1: Livebox Bioassay Studies in Port Gardner, Washington by D. Clark.

Part 2: Routine Water Quality Sampling and Intensive Surveys Data from Port Gardner, Washington by T. Determan, W. Kendra, and D. Clark.

Part 3: Distribution and Abundance of Benthic Macrofauna Adjacent to a Sulfite Pulp Mill Discharge Pipeline in Port Gardner, Washington, 1974 through 1976 by D. Kisker.

Part 4: The Effects of Pulp Mill Load Reductions on Water Quality in Port Gardner, Washington by T. Determan.

DISCLAIMER

This document is the final report for data collected and processed by the University of Washington (UW) under contract to the Washington State Department of Ecology ([Ecology] #81-037) and the United States Environmental Protection Agency ([EPA] #68-01-3109). The report is a summary of benthic macroinvertebrate data collected in Port Gardner, Washington, from 1974 through 1976 as part of the Ecological Baseline and Monitoring Study (ECOBAM).

The report was completed to "pre-final" form in 1981 by Dale S. Kisker of the UW Department of Oceanography. In 1986, the Water Quality Investigations Section of Ecology edited the text of Mr. Kisker's draft to produce the present "final" copy. The findings and conclusions reported herein do not necessarily represent the views of Ecology or EPA.

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ABSTRACT

A benthic biological baseline is described for an area of Puget Sound adjacent to the Scott and Weyerhaeuser pulp mill discharge pipeline. The baseline is the result of routinely sampling benthic infauna and measuring environmental parameters at 39 locations. Over the two-year survey period, pulp mill discharge decreased and changes in the benthos were observed. These changes may represent the initial step in a series of steps ultimately resulting in a benthic population adjacent to the pipeline similar to that which presently exists in areas of similar sediments and depth at some distance from the discharge. The appearance of the bivalve mollusc Nucula bellotii, a significant increase in the abundance of Macoma carlottensis and Macoma elimata, and a significant decrease in gammarid amphipod abundance at locations close to the discharge were the most notable changes. Continued monitoring may show, however, that these changes were within the long-term norm for the community in the area. The pattern of highest abundance of gammarids, tanaids, and leptostracans and lowest abundance of molluscs and echinoderms in the area adjacent to the pipeline did not change over the two-year period.

INTRODUCTION

The benthic infauna surveys discussed herein are part of the ECOBAM study begun in 1972 to assess the effects on the biological community of reductions in pulp mill discharge at Port Gardner. Since 1951, industrial wastes from Scott and Weyerhaeuser sulfite pulp mills have been discharged into Port Gardner through a common diffuser pipeline. In response to effluent limitations imposed on the mills by Ecology and EPA, the two mills began stepwise reductions in wastewater discharge. From 1966 through 1973, waste load discharge through the pipeline often exceeded 2.5 million pounds of total solids per day (Figure 1). In 1974, Scott began operating their Stage 1 recovery system which reduced the sulfite waste liquor discharge through the pipeline to less than 2 million pounds per day. Further reductions occurred in May 1975 when Weyerhaeuser shut down its sulfite pulping operation, reducing pipeline discharge of total solids to less than 1 million pounds per day.

The effects of wastewater discharge from the pulp mills on the benthic infauna were first studied in 1962 as part of the Washington State Enforcement Project, a joint program of the Washington State Pollution Control Commission and the Federal Water Pollution Control Administration (U.S. Department of Interior and Washington State, 1967). The results of this survey were inadequate in providing a biological baseline for Port Gardner against which changes in the benthic community could be measured.

Consequently, in 1973 investigations were undertaken to quantitatively sample the benthos and describe the distribution, abundance, and species composition of benthic macroinvertebrates in the area. These investigations included surveys in Everett Harbor and the southeast shore of Port Gardner adjacent to the pipeline by EPA (Malkoff, 1974) and the University of Washington (Student Report, 1974; Malkoff, 1976). Although the surveys were quantitative, they were not designed for continued routine monitoring and resulting species lists were incomplete. As an outgrowth of the two surveys conducted by the University of Washington, the present study was started in August 1974 and continued through June 1976. This investigation was designed to provide a biological baseline, to monitor changes in the benthic community, and to assess the effects, if any, of reductions in effluent discharge through the diffuser pipeline. To achieve these objectives, a sampling program was established to characterize the distribution, abundance, and species composition of the benthos over space and time.

The present report is the final report on material collected and processed under contract with EPA (#68-01-3109; fiscal years 1975, 1976) and Ecology (#81-037; fiscal year 1981). It is a summary of benthic data collected during the two-year period including the first year's data reported in Kisker (1976). Where possible, comparisons were made with results obtained in earlier surveys.

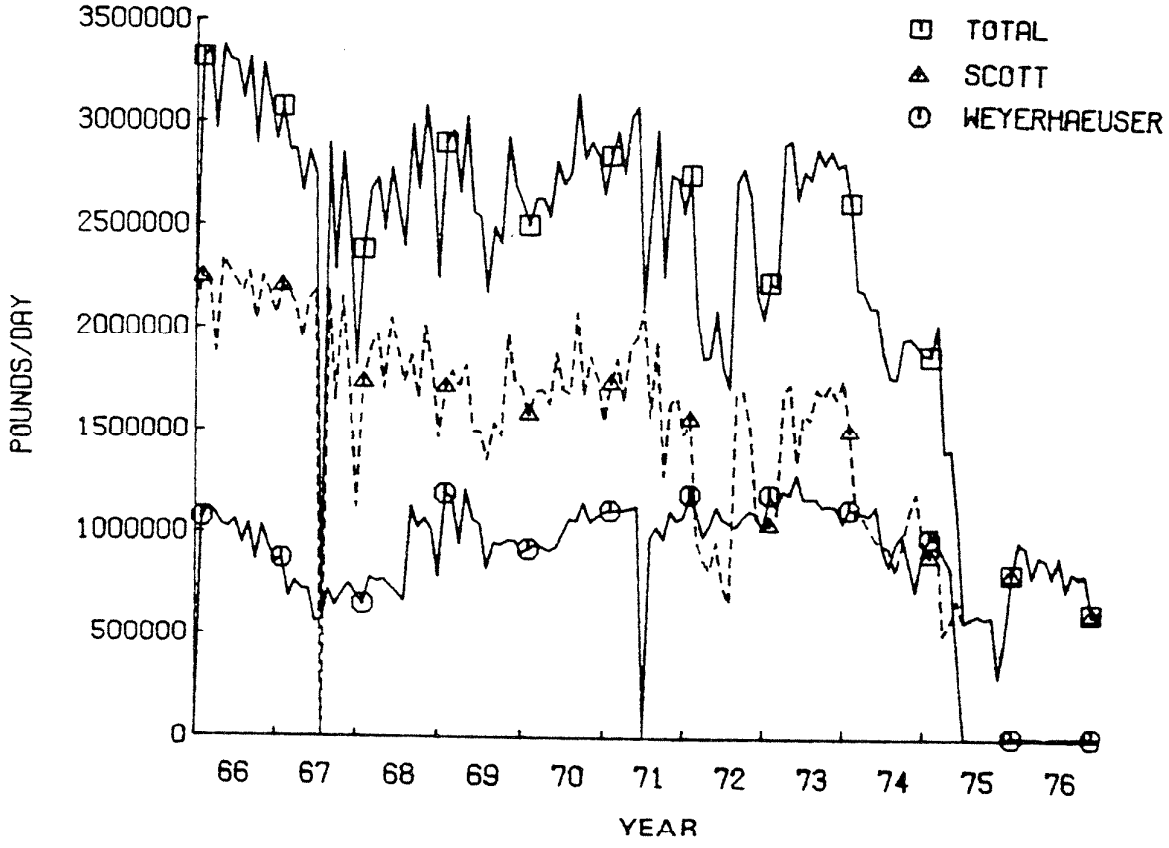

Fig. 1. Total solids discharged through the deepwater diffuser from Scott and Weyerhaeuser pulp mills 1966 through 1976 (after English 1976).

STUDY AREA

Port Gardner, located off Everett, Washington, is a portion of the Whidbey Island Basin bounded on the west by Possession Sound and to the north by Port Susan (Figures 2 and 3). In the eastern portion of Port Gardner lies Everett Harbor, a semi-enclosed basin ranging in depth from 3 to 68 m. Depth rapidly increases west of the harbor where a range of 100 to 140 m occurs throughout a major portion of the port. A 100-m sill separates Port Susan from Port Gardner, but no sill is present between Port Gardner and Possession Sound. Silt constitutes the major sediment type for most of Port Gardner, with fine and medium sands occurring near shore to the south and on the sill to the north (Student Report, 1974). Water circulation is principally controlled by tidal exchange and discharge from the Snohomish River (Lincoln and Lam, 1975). The 918-m diffuser pipeline is located southwest of and adjacent to Everett Harbor. The diffuser discharges effluent into Port Gardner in 90 to 100 m of water through a series of nozzles located along the last 308 m.

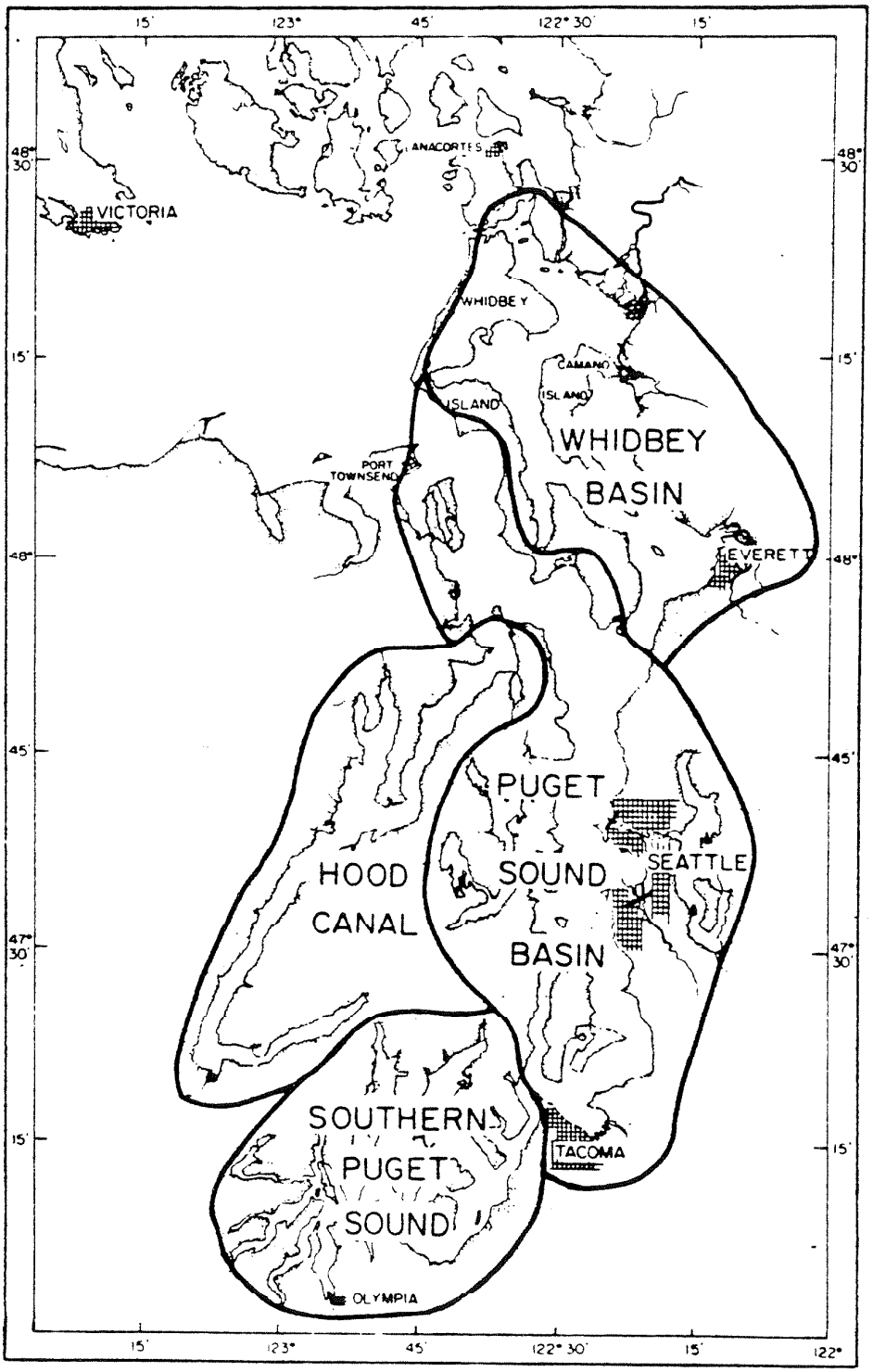

Fig. 2. Subregions of Puget Sound (from Friebertshauser and Duxbury 1972).

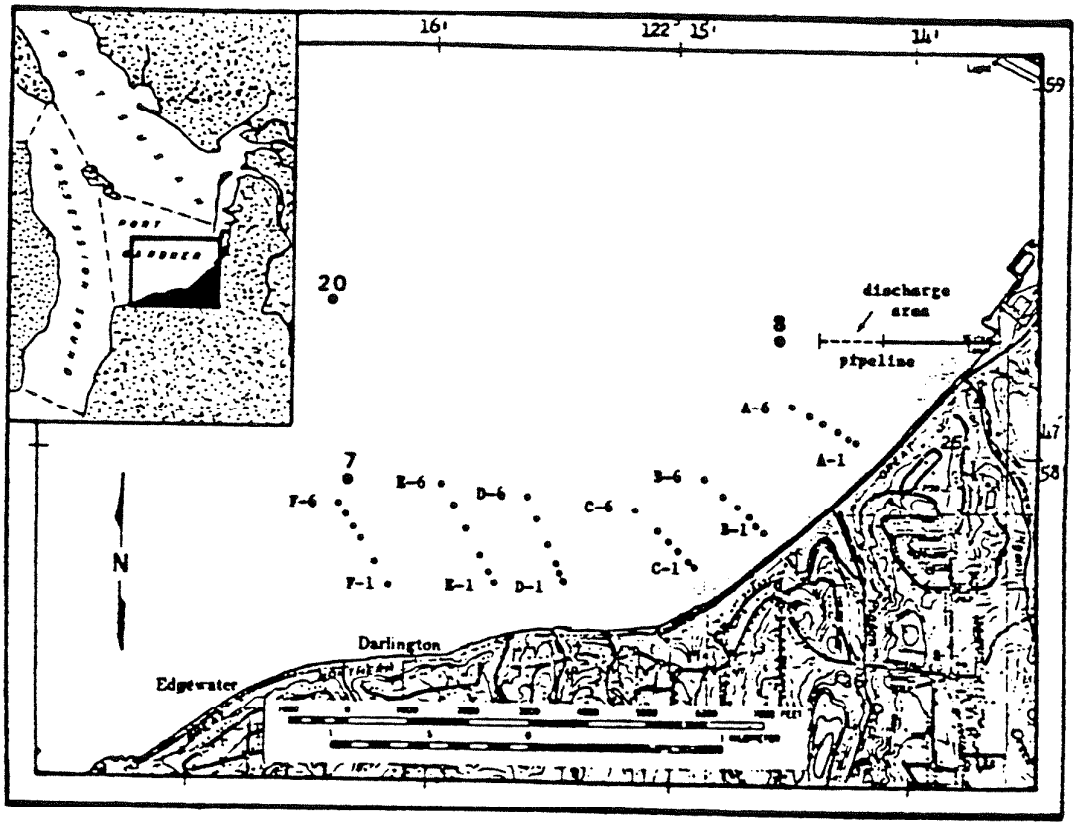

Fig. 3. Station locations (after U.S.G.S. 1973, Mukilteo and Everett Quadrangles, 7.5 minute series).

MATERIAL AND METHODS

Stations Sampled

Between July 1974 and July 1977, benthic infauna was collected at 39 stations located within 1.4 nautical miles of the diffuser pipeline (Figure 3; Table 1). Time series stations 7, 8, and 20 were sampled for benthos twice monthly, when possible, through December 1976 and once monthly through June 1977 (Table 2). Stations 7 and 20, sampled at water depths of 100 and 133 m (MLLW), were located with the ship's radar and fathometer. Station 8 (100 m MLLW) was located with the fathometer and sightings on pipeline range markers. When necessary, the ship was repositioned between replicate samples to obtain the desired depth and location.

Six transects (A through F), each containing six stations (1 through 6), were sampled on October 8 through 11, 1974, and November 11 through 13, 1975, and are referred to as intensive series stations. Transects A through F were located approximately 0.2, 0.5, 0.7, 0.9, 1.1, and 1.4 nautical miles, respectively, from the discharge, and stations 1 through 6 on each transect were located at depths of 15, 30, 45, 60, 75, and 90 m (MLLW), in that order. One sample was taken at all stations along a transect prior to taking the next, replicate, sample. Stations were located with the ship's radar and fathometer during the 1974 survey and with fathometer and range markers during the 1975 survey.

Sampling Technique

At time series stations 7, 8, and 20, two replicate 0.1 m^2 van Veen grab samples (van Veen, 1933; Thorson, 1957) were taken for biological and sediment analyses on each sampling date except September 10, when one 0.2 m^2 van Veen grab sample was taken. For percent volatile solids and particle-size analyses of sediments, a subsample was taken from each grab sample by inserting a 46-mm diameter polyethylene tube to a depth of 5 cm in the sediment through a door on top of the grab.

For samples taken through June 1975, the remaining grab contents were sieved through a set of two nested stainless steel screens of 2 mm and 1 mm mesh, and the retained material on each screen was bottled separately. This method was used to see if the 2-mm screen would retain a sample adequate for use in describing the distribution and abundance of the benthos. Analysis of data showed that a representative sample was not retained; consequently samples taken after June 1975 were sieved through a 1-mm mesh screen only and bottled (Kisker, 1976). Screened biological samples were fixed by adding formaldehyde saturated with sodium borate ($Na_2B_4O_7 \cdot 10H_2O$) at a 1:9 ratio of 40 percent formaldehyde with seawater.

At intensive series stations, two or three replicate 0.03 m^2 van Veen grab samples were taken for biological and sediment analyses. Each grab sample was subsampled for a sediment sample. In 1974, a separate 0.1 m^2 van Veen grab sample was taken at each station and subsampled for volatile solids. Volatile solids samples from the 1975 survey were subsamples of the sediment samples. The method of subsampling the grab for sediment was the same as

Table 1. Station locations and distance from discharge.

Transect - Station	Depth[2]	Distance from Discharge[1]			Location	
		Nautical Miles	Meters	Yards	Latitude (N)	Longitude (W)
7	100	1.35	2,500	2,734	47° 57.9'	122° 16.3'
8	100	0.11	200	219	47° 58.3'	122° 14.6'
20	133	1.35	2,500	2,734	47° 58.4'	122° 16.4'
A-1	15	0.28	510	558	47° 58.0'	122° 14.2'
A-2	30	0.26	490	536	47° 58.0'	122° 14.3'
A-3	45	0.25	470	514	47° 58.1'	122° 14.3'
A-4	60	0.23	425	465	47° 58.1'	122° 14.4'
A-5	75	0.22	400	437	47° 58.1'	122° 14.4'
A-6	90	0.20	365	399	47° 58.1'	122° 14.5'
B-1	15	0.54	995	1,088	47° 57.8'	122° 14.6'
B-2	30	0.53	990	1,083	47° 57.8'	122° 14.6'
B-3	45	0.52	965	1,055	47° 57.8'	122° 14.7'
B-4	60	0.51	940	1,028	47° 57.9'	122° 14.7'
B-5	75	0.50	930	1,017	47° 57.9'	122° 14.8'
B-6	90	0.50	930	1.017	47° 57.9'	122° 14.9'
C-1	15	0.70	1,305	1,427	47° 57.7'	122° 14.9'
C-2	30	0.70	1,295	1,416	47° 57.7'	122° 14.9'
C-3	45	0.70	1,295	1,416	47° 57.7'	122° 15.0'
C-4	60	0.69	1,280	1,400	47° 57.8'	122° 15.0'
C-5	75	0.69	1,280	1,400	47° 57.8'	122° 15.1'
C-6	90	0.69	1,280	1,400	47° 57.9'	122° 15.2'
D-1	15	0.97	1,790	1,958	47° 57.7'	122° 15.5'
D-2	30	0.96	1,780	1,947	47° 57.7'	122° 15.5'
D-3	45	0.96	1,770	1,936	47° 57.7'	122° 15.5'
D-4	60	0.94	1,740	1,903	47° 57.8'	122° 15.5'
D-5	75	0.92	1,710	1,870	47° 57.8'	122° 15.6'
D-6	90	0.92	1,710	1,870	47° 57.9'	122° 15.6'
E-1	15	1.13	2,095	2,291	47° 57.7'	122° 15.7'
E-2	30	1.12	2,085	2,280	47° 57.7'	122° 15.8'
E-3	45	1.12	2,075	2,269	47° 57.7'	122° 15.8'
E-4	60	1.12	2,080	2,275	47° 57.8'	122° 15.8'
E-5	75	1.12	2,085	2,280	47° 57.9'	122° 15.9'
E-6	90	1.13	2,090	2,285	47° 57.9'	122° 15.9'
F-1	15	1.37	2,535	2,772	47° 57.6'	122° 16.2'
F-2	30	1.37	2,540	2,778	47° 57.7'	122° 16.2'
F-3	45	1.38	2,565	2,805	47° 57.8'	122° 16.3'
F-4	60	1.39	2,575	2,816	47° 57.8'	122° 16.3'
F-5	75	1.39	2,580	2,821	47° 57.8'	122° 16.3'
F-6	90	1.41	2,605	2,849	47° 57.9'	122° 16.4'

[1]Measured as the shortest straight line distance between the station and the area of discharge. Navigational error in locating stations is approximately ±0.05 nautical mile.

[2]Desired depth in meters (MLLW)

Table 2. Benthic samples collected and processed.

Date of Sample	Replicates per station	Replicate area (m^2)	Sorted, major taxa counted	Clams identified to species
Time Series: Stations 7, 8, 20 (total of 3 stations)				
Aug 22 1974	2	0.10	X[1]	X
Sep 10	1	0.20	X	X
Oct 4	2	0.10	X	X
Nov 12	"	"	X	X
Dec 3	"	"	X	X
Jan 31 1975	"	"	X	X
Feb 18-19	"	"	X	X
Mar 3	"	"	X	X
Mar 31	"	"	X	X
Apr 16	"	"	X	X
May 1	"	"	X	X
May 15	"	"	X	X
May 27	"	"	X	X
Jun 11	"	"	X	X
Jul 9	"	"	X	X
Jul 16	"	"	X	X
Aug 4	"	"	X	X
Aug 19	"	"	X	X
Sep 3	"	"	X	X
Sep 25	"	"	X	X
Oct 3	"	"	X	X
Oct 14	"	"	X	X
Oct 30	"	"	X	X
Nov 10	"	"	X	X
Nov 19-21	"	"	X	X
Dec 18	"	"	X	X
Jan 6 1976	"	"	X	X
Jan 20	"	"	X	X
Feb 11	"	"	X	X
Feb 18-19	"	"	X	X
Mar 9	"	"	X	X
Mar 17	"	"	X	X
Apr 6-7	"	"	X	X
Arp 21-22	"	"	X	X
May 4	"	"	X	X
May 20	"	"	X	X
Jun 1	"	"	X	X
Jun 16	"	"	X	X
Jul 7, 8	"	"		
Aug 2-3	"	"		
Aug 17-18	"	"		
Sep 9	"	"		
Sep 23-24	"	"		

[1]X indicates those samples which have been processed

Table 2. (continued)

Date of Sample	Replicates per station	Replicate area (m^2)	Sorted, major taxa counted	Clams identified to species
Oct 5 1976	2	0.10		
Oct 20	"	"		
Nov 2	"	"		
Nov 17	"	"		
Dec 1, 2	"	"		
Dec 14, 15	"	"		
Jan 18 1977	"	"		
Feb 9	"	"		
Mar 16	"	"		
Apr 29	"	"		
May 20	"	"		
Jun 24	"	"		
Intensive Series: Stations 1-6 on transects A-F (total of 36 stations)				
Oct 8-11 1974	2	0.03	X	X
Nov 11-13 1975	2-3	0.03	X	X

described for the time series samples; however, due to the smaller door on the 0.03 m^2 grab, a 30-mm diameter coring tube was used. Remaining grab contents were sieved through a 1-mm mesh stainless steel screen and retained material bottled and fixed for biological analysis.

Volume of sediment in each grab sample was estimated in the field. Because the highest abundance of benthic macrofauna is found in the upper 4 to 5 cm (Sanders, 1960; Jones, 1961; Lie and Pamatmat, 1965), only those samples which had sediment volumes great enough to indicate a penetration of at least 4 cm were saved for biological and sediment analyses.

Laboratory Procedures

Sediment samples were homogenized and subsampled for granulometric and percent volatile solids analyses. Granulometric subsamples were subjected to routine particle-size analyses as described by Krumbein and Pettijohn (1938). Percentage by weight for every full phi-size of the gravel and sand fractions was determined by dry sieving. Silt and clay fractions in August 1974 samples from stations 7, 8, and 20 were determined by pipette analysis. For all other granulometric subsamples, the percentage by weight of silt-plus-clay fractions was determined by wet sieving through a 0.06-mm screen, evaporating the fluid from an aliquot, and weighing the residue. Weights of the various size classes were subjected to statistical analyses and for those samples not analyzed by the complete pipette method, the percentages of silt and clay fractions were estimated (Creager, et al., 1962). Particles greater than 2.0 mm were considered gravel, 0.062 to 2.0 mm sand, 0.004 to 0.062 mm silt, and less than 0.004 mm clay.

All samples subjected to granulometric analysis were stored wet, in capped bottles, at room temperature, until analyzed. Sediment samples from time series stations taken for volatile solids determination were stored at room temperature or frozen until analyzed. August 19, 1975, samples were stored at room temperature; September 10, 1974, and September 3, 1975, samples were stored at room temperature until April 27, 1976, then frozen; and April 21 and 22, 1976, samples were frozen until analyzed. Volatile solids analysis of samples collected March 31 and August 19, 1975, was conducted by the University of Washington in September 1975. Samples collected September 10, 1974, September 3, 1975, and April 21 and 22, 1976, were analyzed by EPA in May 1976. In October 1974, EPA analyzed samples from the 1974 survey of intensive series stations; 1975 samples were analyzed in May 1976. The 1974 samples remained at room temperature until analyzed, and 1975 samples were frozen. The method used for volatile solids determination is described in USDI (1969) and essentially involves measuring weight loss after ignition at 600°C.

Biological samples were stored in the laboratory for up to six months. Periodically during storage, pH was checked and additional sodium borate was added when it fell below 7. To avoid the acidic effects of formaldehyde, samples taken after May 1975 were fixed in the field with formaldehyde as described above; upon return to the laboratory, the formaldehyde was replaced with 70 percent ethyl alcohol buffered with sodium acetate $NaC_2H_3O_2$ (50 g $NaC_2H_3O_2$ per 1,000 mL 70 percent alcohol). Dolomite lime (Magnolia dolomite, Magnolia Fertilizer Company, Seattle, Washington) at the rate of 100 g per 32-ounce sample jar was added to each sample at that time, and the sample-to-preservative ratio was adjusted to approximately 1:1 by volume.

Wood chip volume was estimated for each intensive series biological sample prior to sorting. Sorting of samples consisted of placing small portions of sample in white photographic trays with freshwater, picking specimens out with forceps, and separating them into Crustacea, Polychaeta, Echinodermata, Mollusca, and miscellaneous groups. Counts were recorded for major taxa and for dominant groups within Crustacea and Mollusca. Pelecypods (clams) were identified to species and enumerated. Taxonomic publications used in species identification included Oldroyd (1924), Keen (1954), Quayle (1960), Habe and Ito (1965), MacNeil (1965), Dunnill and Coan (1968), Coan (1971), and Keen and Coan (1974).

To test for presence of cycles and unidirectional trends, the runs up and down test (Sokal and Rohlf, 1969) and Kendall's tau (Tate and Clelland, 1957) were used on each taxonomic group at each of the time series stations. Two-tailed P's ≤ 0.05 were considered significant.

RESULTS

Time Series Stations

Substrate Characteristics

Stations 8 and 20 were similar in having high percentages of silt-plus-clay and a lower percent sand (Table 3). Station 7 differs from these stations in having gravel, a high percent of sand, and a lower percent of silt-plus-clay. Station 7 also had a lower amount of volatile solids than either 8 or 20. Averaged over sample dates, station 7 had 4.5 percent volatile solids compared with 6.3 percent at station 20 and 8.2 percent at station 8. Black, H_2S-smelling sediments were characteristic of station 8 but not of stations 7 or 20.

Benthic Macrofauna

Over the two-year period, 18 major taxa and 22 pelecypod species were identified and enumerated (Appendix I). Time series plots of abundance of macrofaunal groups at stations 7, 8, and 20 are presented in Figures 5 through 19 to illustrate cyclic and unidirectional trends and to aid in visualizing similarities and differences among stations. Time in weeks was plotted along the X-axis, and abundance per 0.1 m^2 along the Y-axis. A vertical line joins the abundance of two replicate samples on each sampling date, with the symbol locating the mean. A symbol without vertical lines indicates abundance in the two replicates was identical. Data from September 10, 1974, samples were not included since only one sample was taken. In the following discussion of faunal groups, stations were compared on the basis of trends in abundance values over the sampling period and on the basis of total abundance (the total number of a particular taxon summed over all samples and sampling dates).

Ostracoda (Figure 4) - Ostracods were most numerous at Station 7 and approximately equal in abundance at Stations 8 and 20. Trend analysis showed the presence of a short period cycle with decreasing abundance over the sampling period at Station 8 and no cyclic trends at Stations 7 and 20. Decreasing abundance was indicated at Station 7 while at Station 20 abundance values were random over the sampling period.

Leptostraca (Figure 5) - Leptostracans were most numerous at Station 8 and occurred only once at Stations 7 and 20.

Amphipoda - Gammaridae (Figure 6) - Gammarids were most numerous at Station 8, less at Station 20, and least at Station 7. Trend analysis showed no cycles at any station, but indicated that abundance of gammarids was decreasing at all stations over the sampling period.

Table 3. Sample date, depth (meters), sediment particle size and percent volatile solids as percent weight of sediment.

Station-Sample	Date	Depth	Gravel	Sand	Silt	Clay	Volatile Solids
7-1	22 Aug 74	109	6.46	57.90	24.32	11.32	
7-1	10 Sep 74	100					3.8
7-1	19 Aug 75	103	1.19	69.34	29.47	0.00	4.5
7-2	19 Aug 75	103	9.14	66.09	24.58	0.19	3.2
7-1	3 Sep 75	104					3.5
7-2	3 Sep 75	104					5.7
7-1	22 Apr 76	100					4.0
7-2	22 Apr 76	98					7.1
8-1	22 Aug 74	100	0.00	20.32	59.79	19.89	
8-1	10 Sep 74	102					8.0
8-1	19 Aug 75	102	0.40	42.73	54.91	1.96	7.9
8-2	19 Aug 75	102	0.00	31.26	67.43	1.31	8.0
8-1	3 Sep 75	104					7.9
8-2	3 Sep 75	103					7.6
8-1	22 Apr 76	97					9.1
8-2	22 Apr 76	97					8.9
20-1	22 Aug 74	121	0.00	25.71	52.85	21.44	
20-1	10 Sep 74	132					6.0
20-1	31 Mar 75	131	0.13	29.64	62.37	7.85	6.3
20-2	31 Mar 75	131	0.00	31.82	62.81	5.37	5.7
20-1	19 Aug 75	134	0.00	29.17	64.68	6.15	6.0
20-2	19 Aug 75	134	0.00	22.95	70.62	6.43	6.2
20-1	3 Sep 75	132					5.8
20-2	3 Sep 75	134					7.0
20-1	21 Apr 76	129					7.0
20-2	21 Apr 76	129					6.6

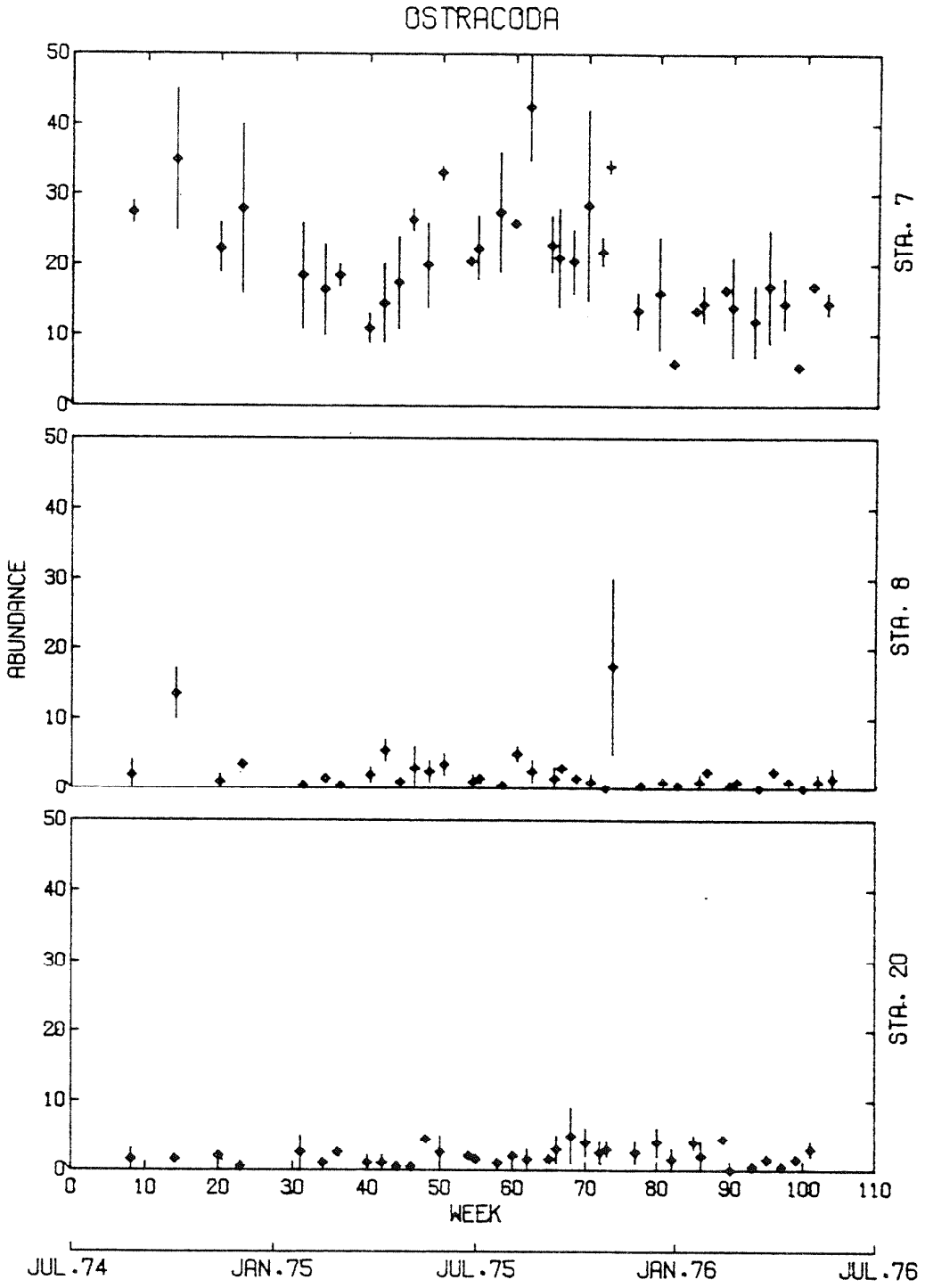

Fig. 4. The abundance of ostracods per 0.1 m^2 at stations 7, 8, and 20 plotted against time. Vertical lines connect the abundance of the two replicate samples on each sampling date.

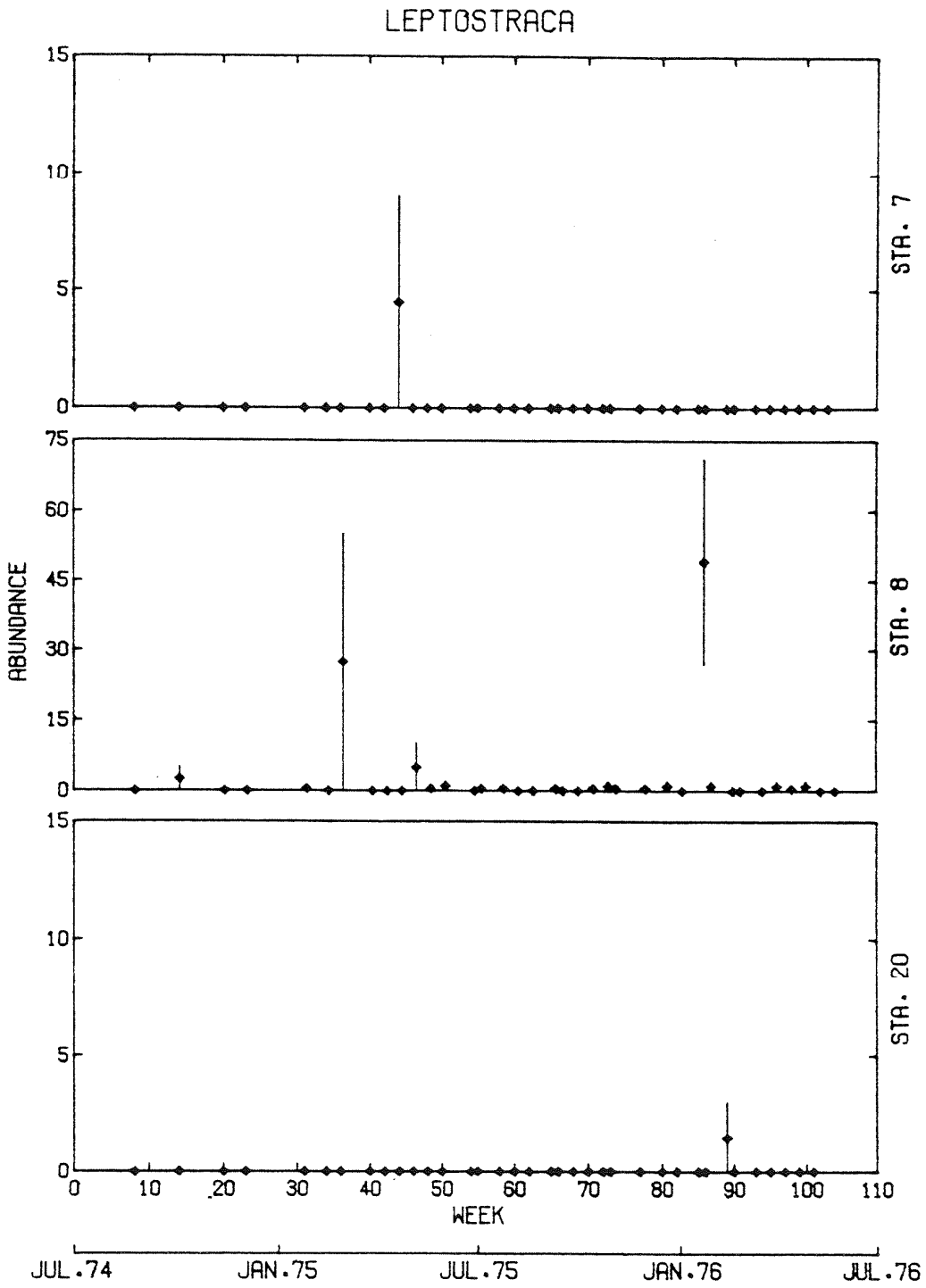

Fig. 5. The abundance of leptostracans per 0.1 m^2 at stations 7, 8, and 20 plotted against time. Vertical lines connect the abundance of the two replicate samples on each sampling date.

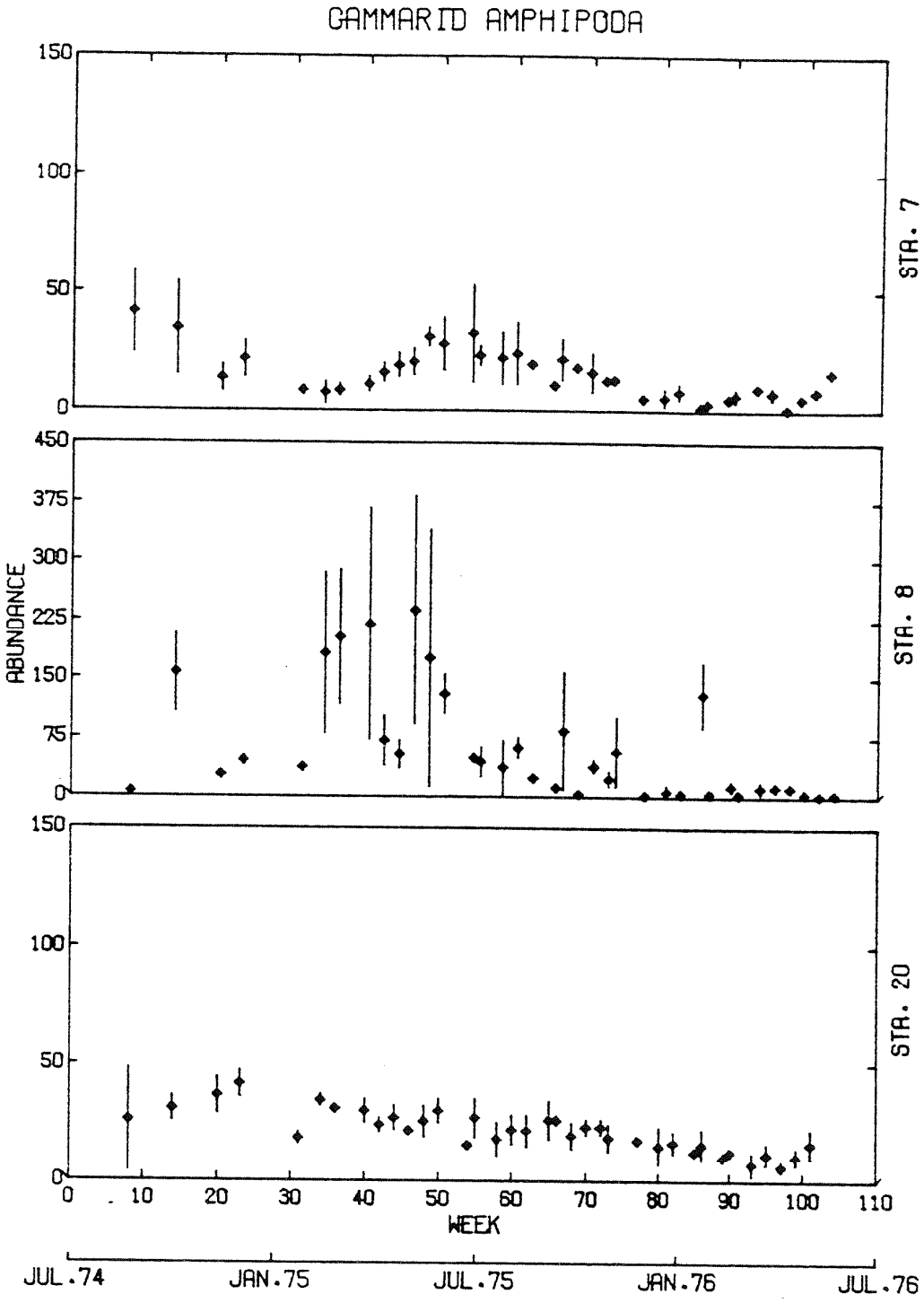

Fig. 6. The abundance of gammarid amphipods per 0.1 m^2 at stations 7, 8, and 20 plotted against time. Vertical lines connect the abundance of the two replicate samples on each sampling date.

Cumacea (Figure 7) - Cumaceans were most numerous at Station 7 and least at Station 8. Trend analysis showed no cycles at any station, but indicated that cumacean abundance decreased at Stations 7 and 20 and was random over the sampling period at Station 8.

Decapoda - Astacura (Figure 8) - Astacurans were never found at Station 8 and occurred only four times at Stations 7 and 20.

Polychaeta (Figure 9) - Polychaetes were present in every sample from all stations and were most numerous at Station 7, somewhat less at Station 8, and least at Station 20. Trend analysis showed that abundance values were random at each station over the sampling period, indicating that no cycles or unidirectional trends were present. Gross examination of the polychaetes indicated that the population at Station 8 was composed primarily of one or a few species of the Capitella capitata group (Grassle and Grassle, 1976). At Stations 7 and 20, large numbers of non-Capitella species were present.

Ophiuroidea (Figure 10) - Ophiuroids (brittle stars) were most numerous at Station 20, less at Station 7, and rare at Station 8. Trend analysis of data from Stations 7 and 20 showed no trends at Station 7, but indicated the presence of a short period cycle at Station 20.

Holothuroidea (Figure 11) - Holothurians (sea cucumbers) were most numerous at Station 20, less at Station 7, and absent from Station 8.

Pelecypoda - Acila castrensis (Figure 12) - Acila was irregularly present in low abundance at Stations 7 and 20 and absent from Station 8.

Pelecypoda - Axinopsida serricata (Figure 13) - Axinopsida was most numerous at Station 20, less at Station 7, and rare at Station 8. It was present in all samples from Station 20, 97 percent of samples from Station 7, and only 8 percent of those from Station 8. Trend analysis of data from Stations 7 and 20 showed no cycles but indicated that abundance was increasing at these stations over the sampling period.

Pelecypoda - Macoma carlottensis (Figure 14) - This species was most numerous at Station 7, less at Station 20, and least at Station 8. Trend analysis showed no cycles at any station but indicated that abundance of M. carlottensis was decreasing at Station 7, increasing at Station 8, and random at Station 20 over the sampling period.

Pelecypoda - Macoma elimata (Figure 15) - This species was most numerous at Station 7 and approximately equal in abundance at Stations 8 and 20. Trend analysis showed no unidirectional trends at Stations 7 or 20 but indicated a short period cycle plus an increasing unidirectional trend at Station 8.

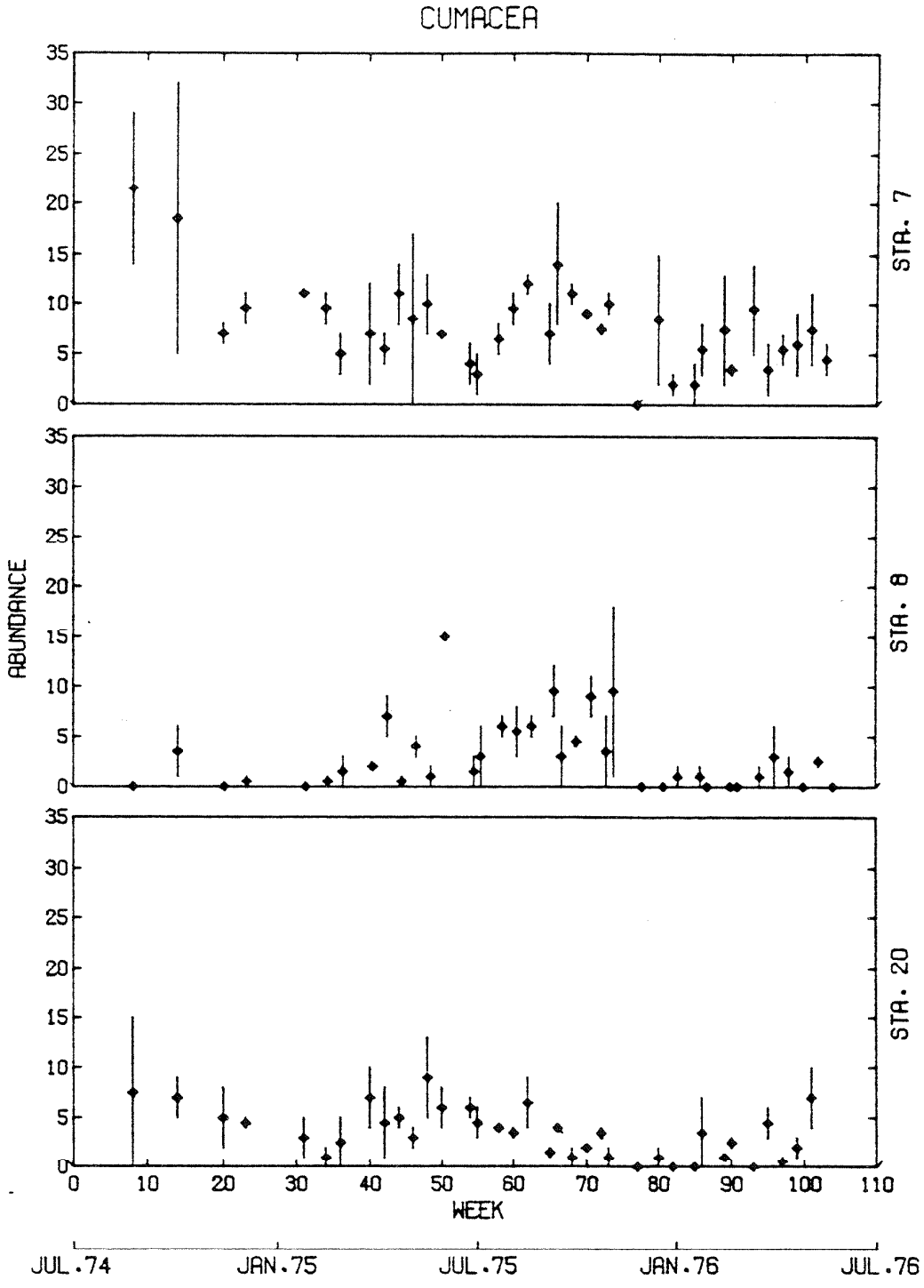

Fig. 7. The abundance of cumaceans per 0.1 m^2 at stations 7, 8, and 20 plotted against time. Vertical lines connect the abundance of the two replicate samples on each sampling date.

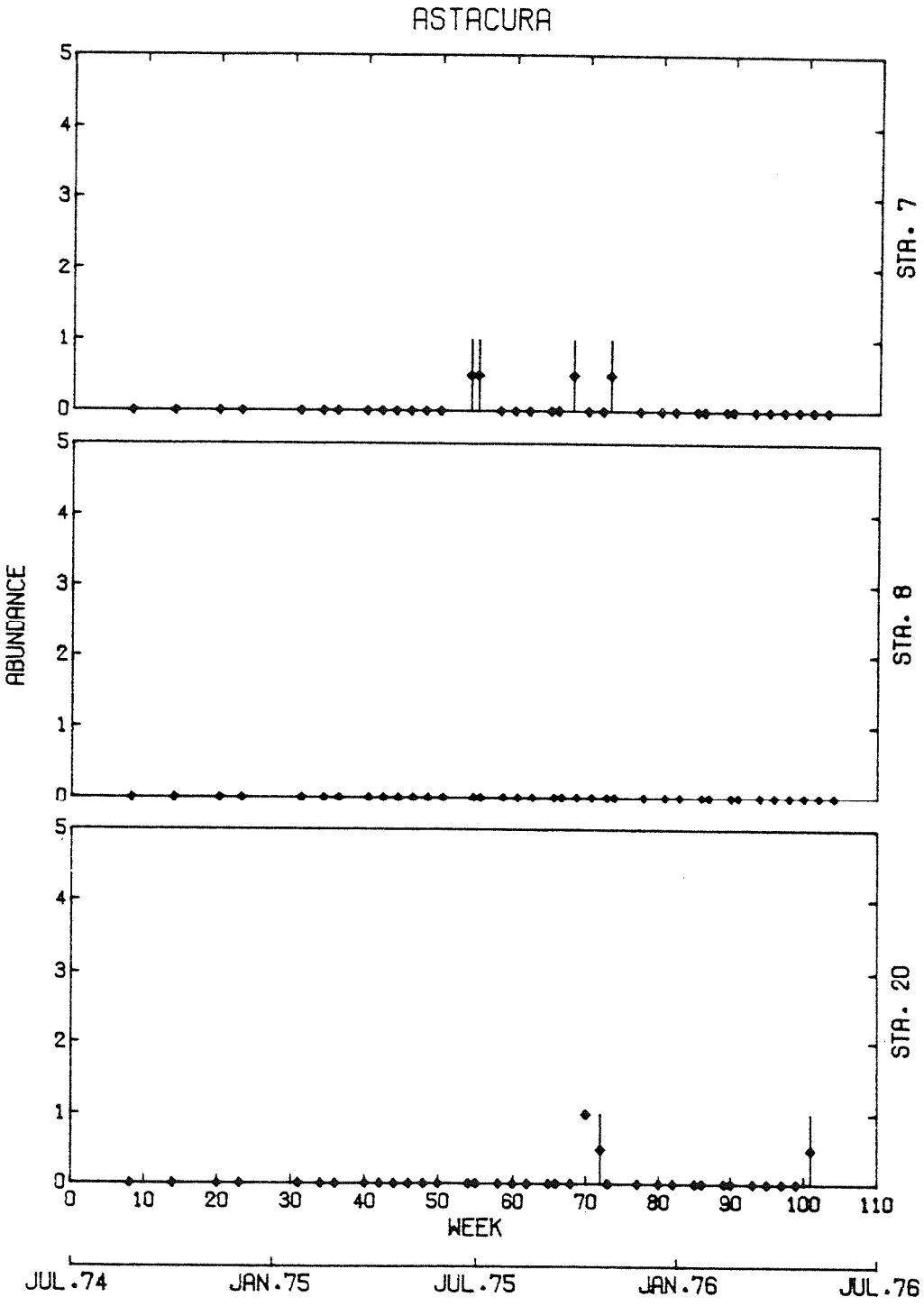

Fig. 8. The abundance of astacurans per 0.1 m^2 at stations 7, 8, and 20 plotted against time. Vertical lines connect the abundance of the two replicate samples on each sampling date.

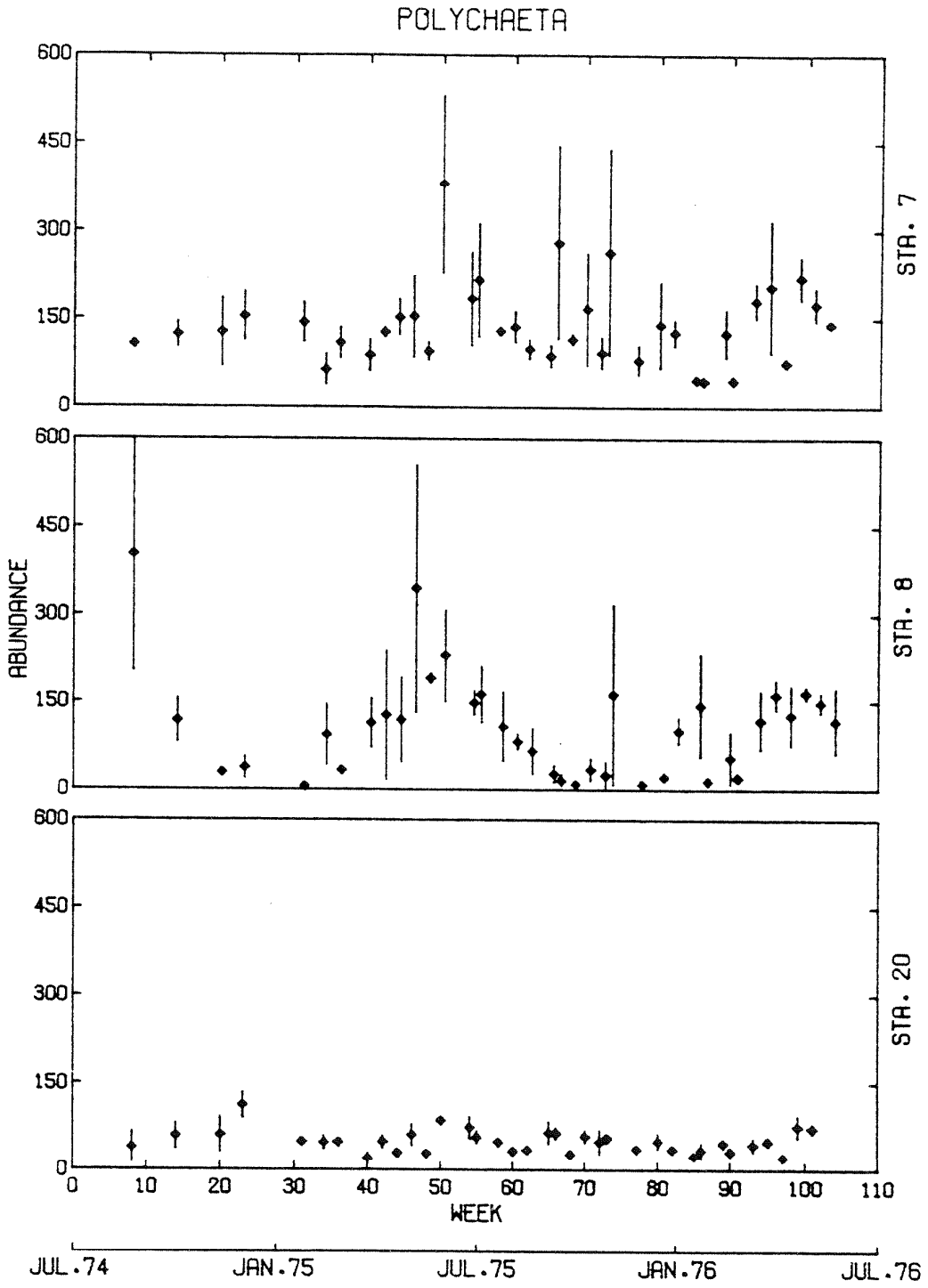

Fig. 9. The abundance of polychaetes per 0.1 m^2 at stations 7, 8, and 20 plotted against time. Vertical lines connect the abundance of the two replicate samples on each sampling date.

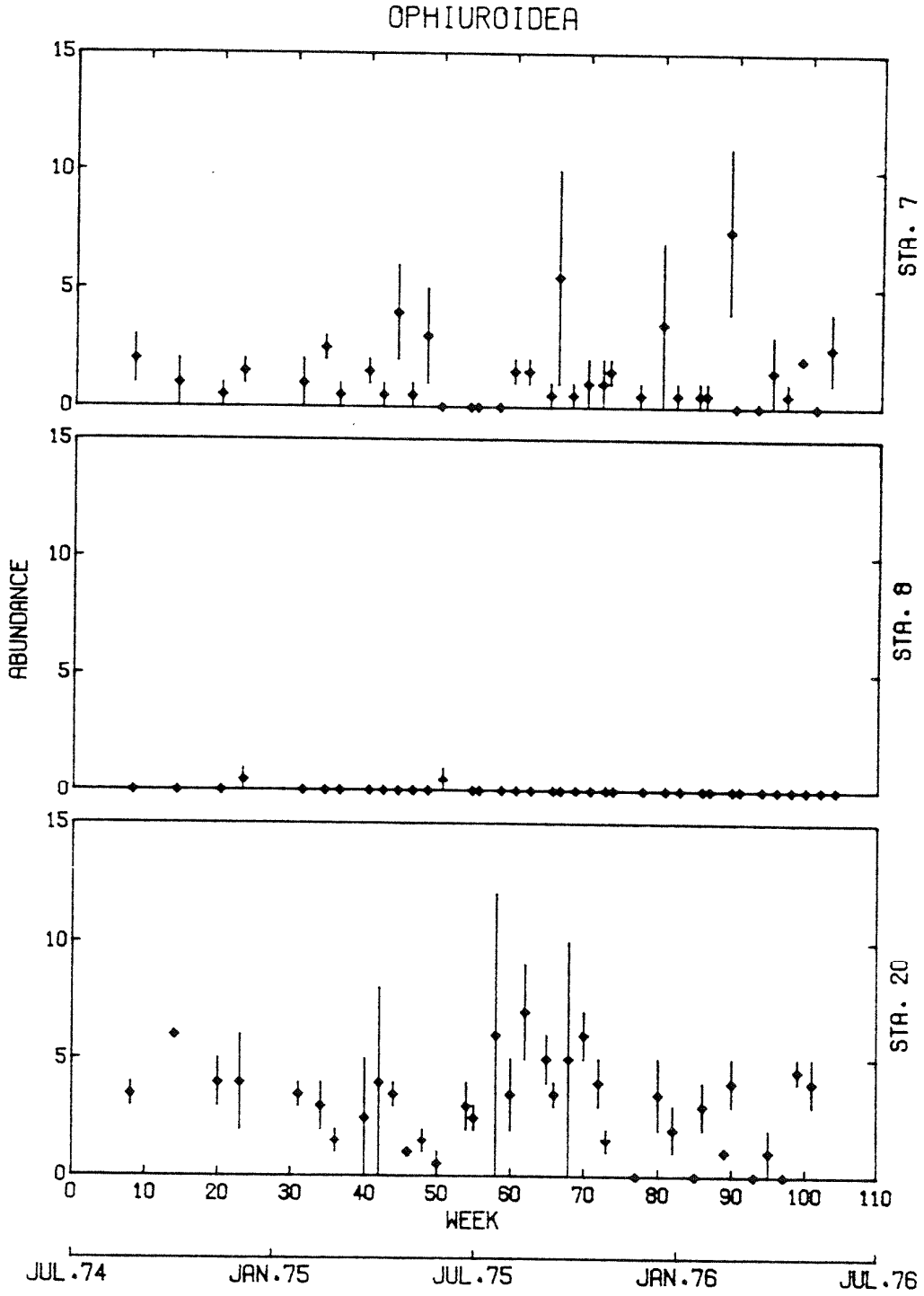

Fig. 10. The abundance of ophiuroids per 0.1 m^2 at stations 7, 8, and 20 plotted against time. Vertical lines connect the abundance of the two replicate samples on each sampling date.

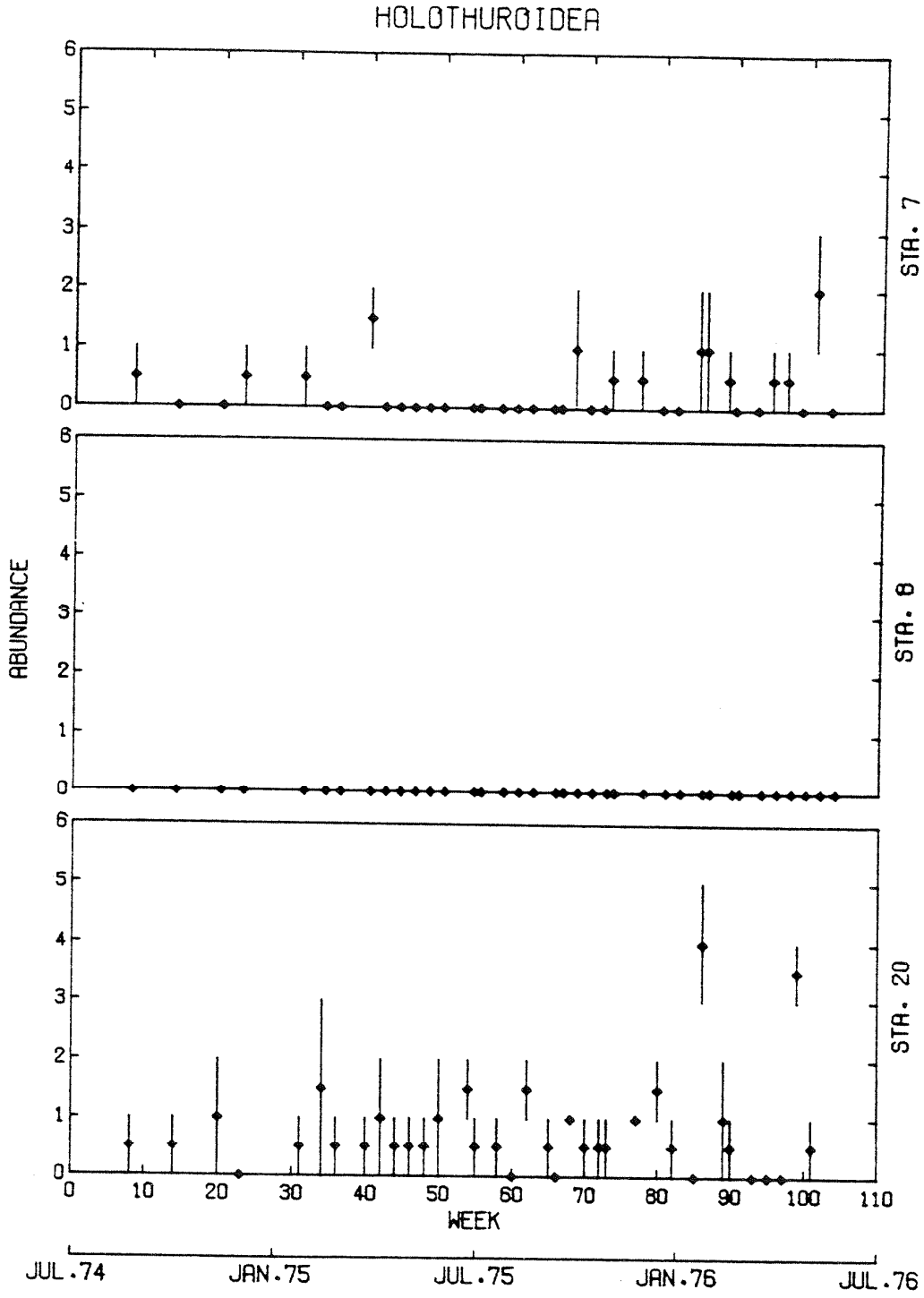

Fig. 11. The abundance of holothurians per 0.1 m^2 at stations 7, 8, and 20 plotted against time. Vertical lines connect the abundance of the two replicate samples on each sampling date.

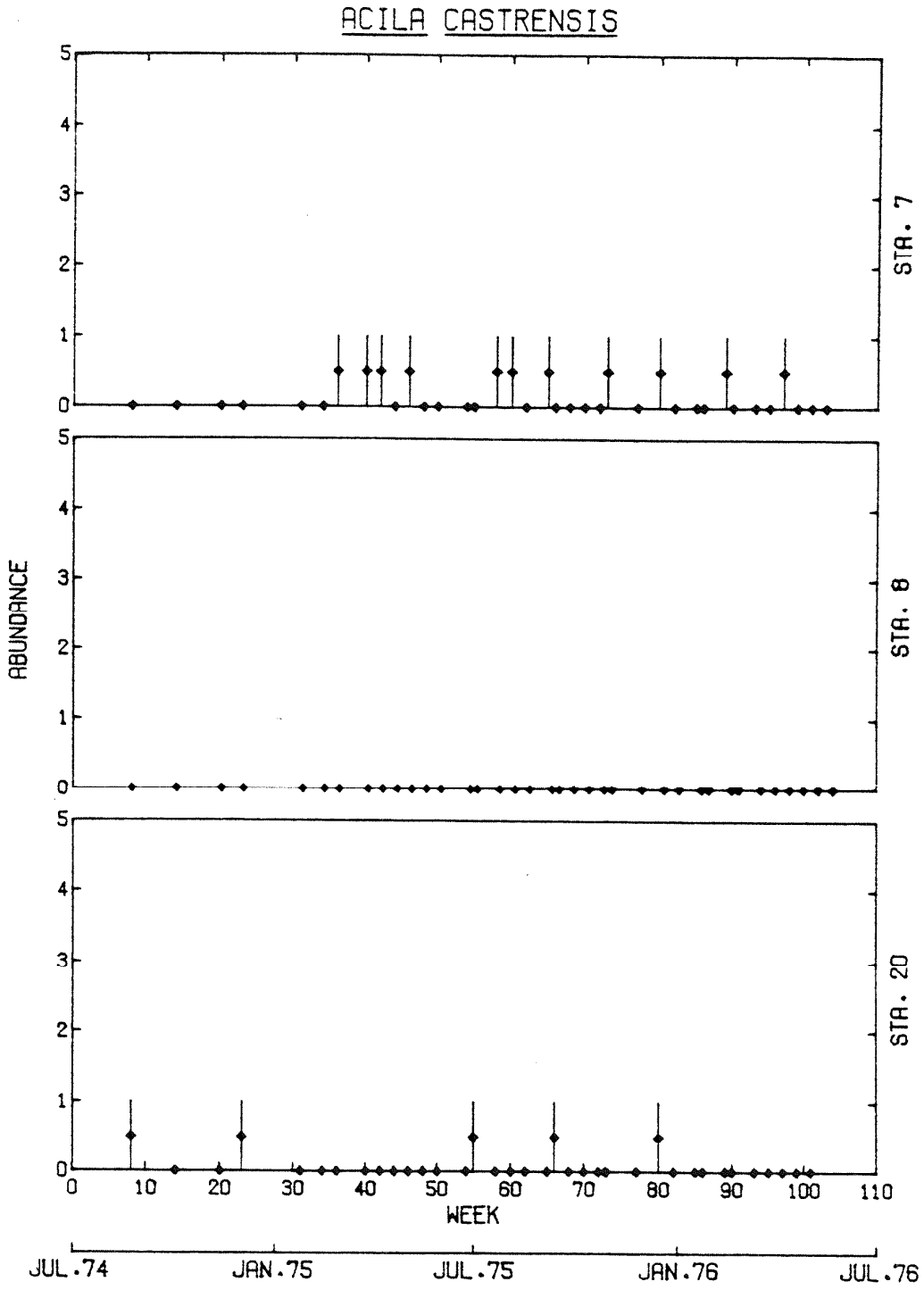

Fig. 12. The abundance of *Acila castrensis* per 0.1 m^2 at stations 7, 8, and 20 plotted against time. Vertical lines connect the abundance of the two replicate samples on each sampling date.

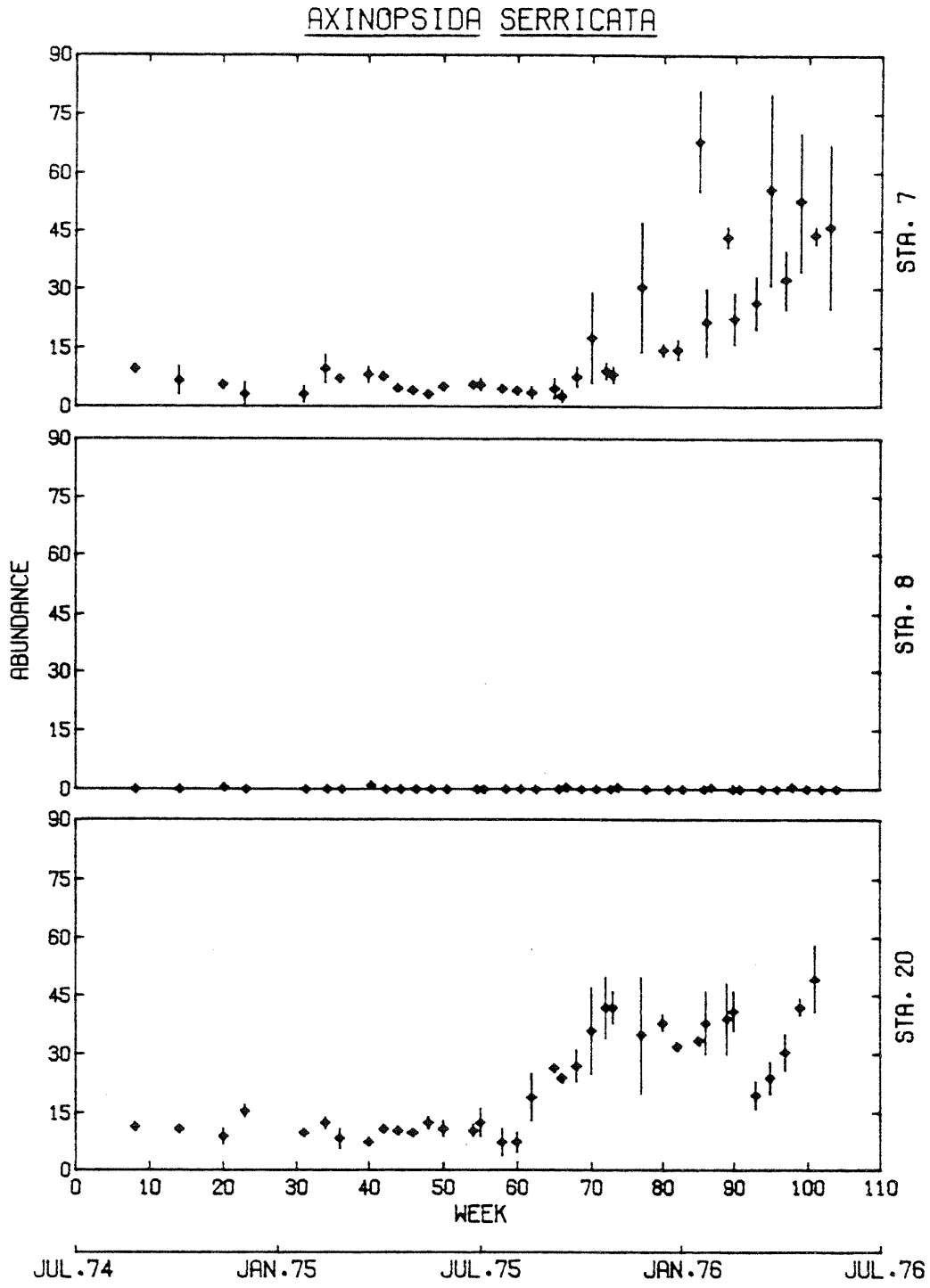

Fig. 13. The abundance of *Axinopsida serricata* per 0.1 m^2 at stations 7, 8, and 20 plotted against time. Vertical lines connect the abundance of the two replicate samples on each sampling date.

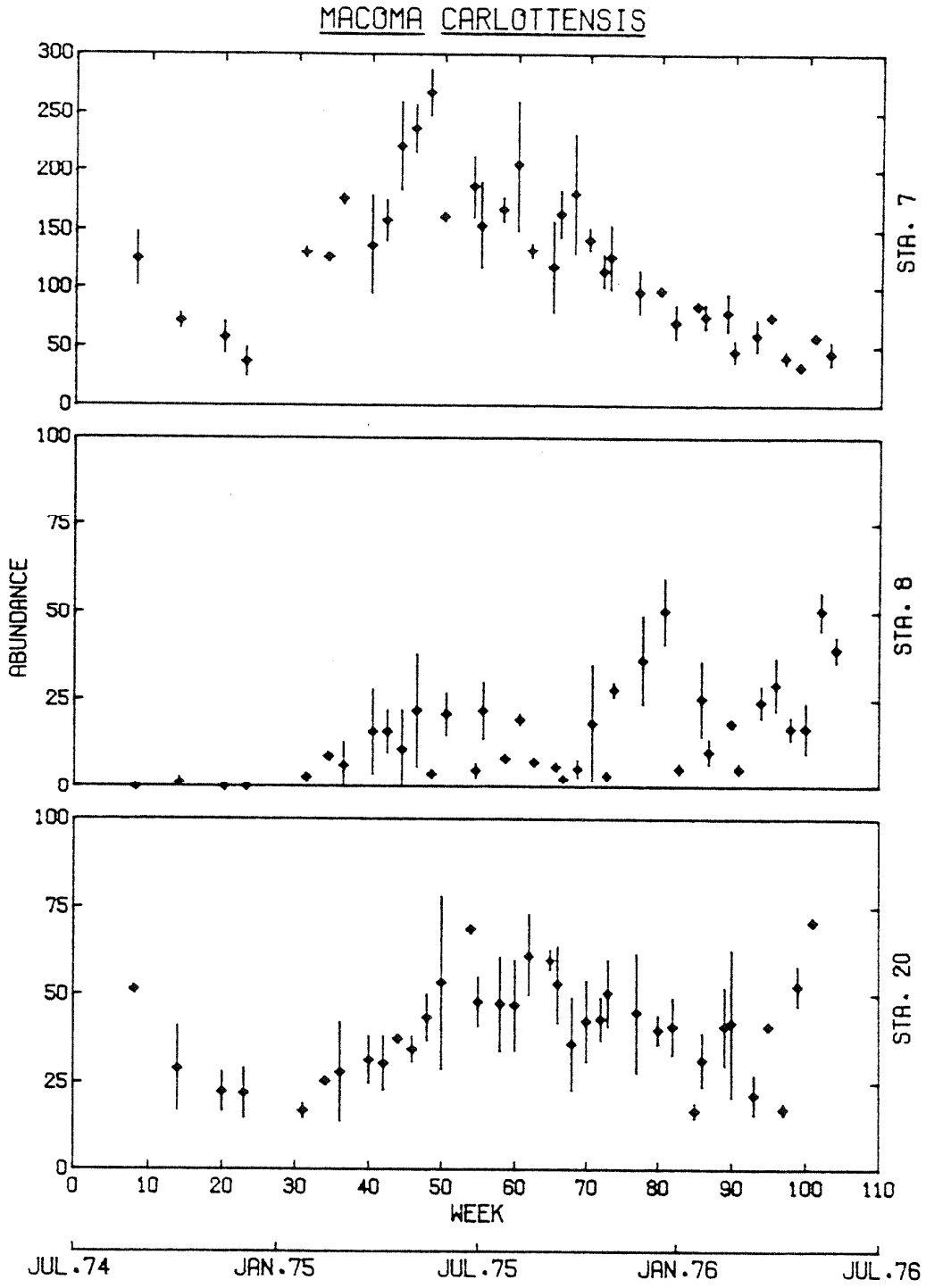

Fig. 14. The abundance of *Macoma carlottensis* per 0.1 m^2 at stations 7, 8, and 20 plotted against time. Vertical lines connect the abundance of the two replicate samples on each sampling date.

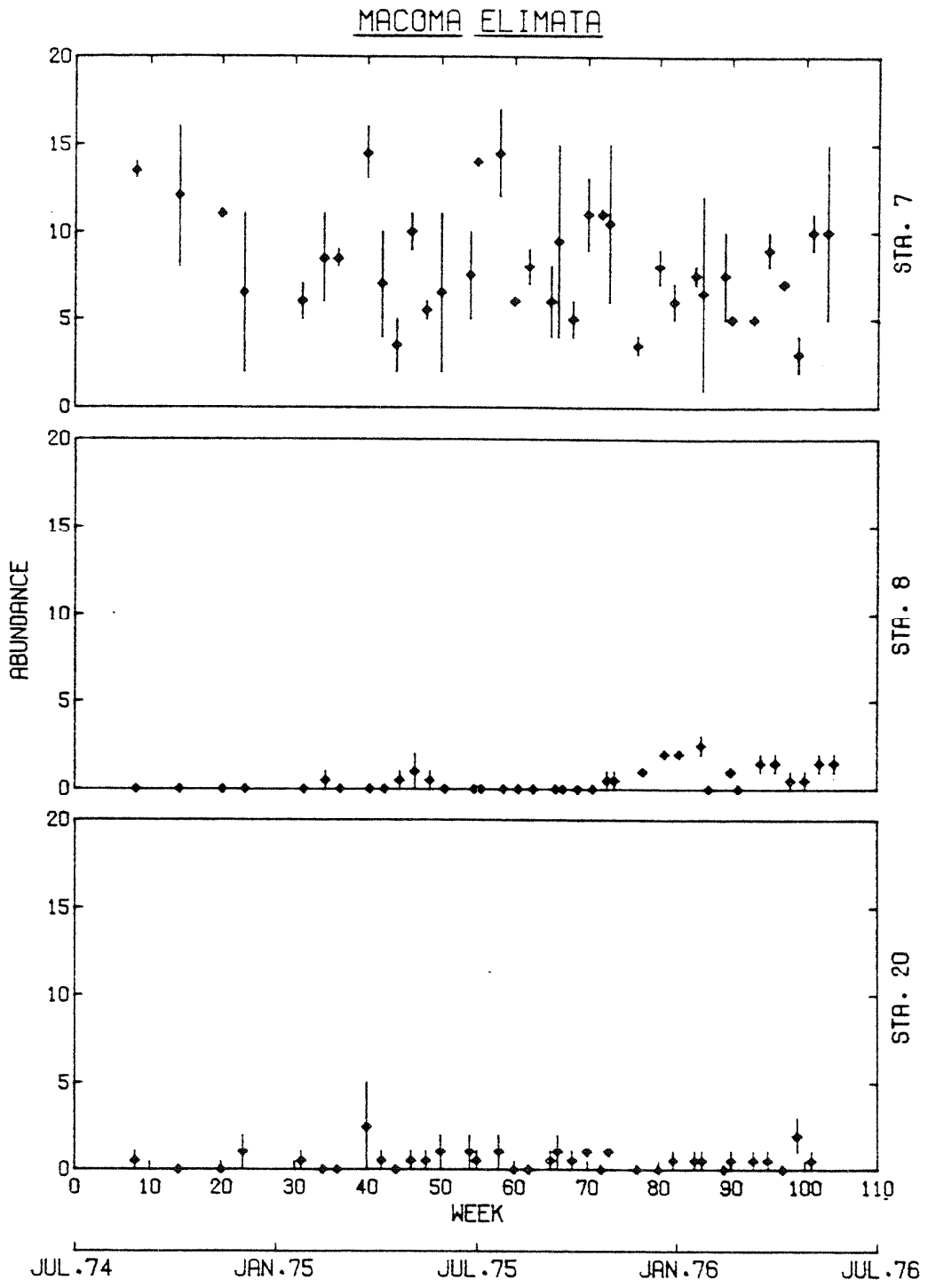

Fig. 15. The abundance of *Macoma elimata* per 0.1 m^2 at stations 7, 8, and 20 plotted against time. Vertical lines connect the abundance of the two replicate samples on each sampling date.

Pelecypoda - Mysella tumida (Figure 16) - Mysella was present in low abundance at Stations 7 and 20 and was present only once at Station 8.

Pelecypoda - Nucula bellotii (Figure 17) - Nucula was approximately equal in abundance at Stations 7 and 20 and appeared at Station 8 in more recent samples only. Trend analysis showed no unidirectional trend at any station.

Pelecypoda - Psephidia lordi (Figure 18) - Psephidia was most numerous at Station 7 and was irregularly present at Stations 8 and 20 in low abundance. Trend analysis of Station 7 data indicated a decreasing abundance over the sampling period.

Intensive Series Stations

Substrate Characteristics

Granulometric analysis of sediments revealed a typical beach profile with decreasing gravel and sand content and increasing silt and clay content with increasing depth. The relatively small difference in percent silt-plus-clay between stations at the same depth indicated that sediments along depth contours were rather homogeneous (Figure 19; Table 4). Stations C-5 (75 m) and C-6 (90 m) departed somewhat from this pattern.

Highest percentages of volatile solids occurred in deep water adjacent to the pipeline discharge area and decreased toward shore and away from the pipeline along depth contours (Figure 20). Percent volatile solids in 1975 on transects A, B, and C in deep water were approximately twice those found in 1974 (Table 5). In both 1974 and 1975, black sediments and the smell of H_2S were observed at transect A and deep stations on B.

Benthic Macrofauna

In the two surveys of intensive series stations, 18 major taxa and 20 pelecypod species were identified and enumerated (Appendix II). Contour plots of the mean abundance of five taxa are presented in Figures 21 through 25. Mean abundance of these taxa per 0.03 m^2 at Stations 7, 8, and 20 on October 4, 1974, and November 10, 1975, was incorporated in the 1974 and 1975 plots. Statistical tests to determine type of distribution pattern for each taxon were not undertaken. Consequently, the plots should be viewed only as pictorial representations of the data.

Ostracoda. In both 1974 and 1975, high ostracod abundance occurred at shallow stations and decreased toward deeper stations. Abundance in 1975 was less than 1974. Greatest abundance in 1974 was 64/0.03 m^2 at 15 m on transect B, and in 1975, 59/0.03 m^2 at 30 m on C.

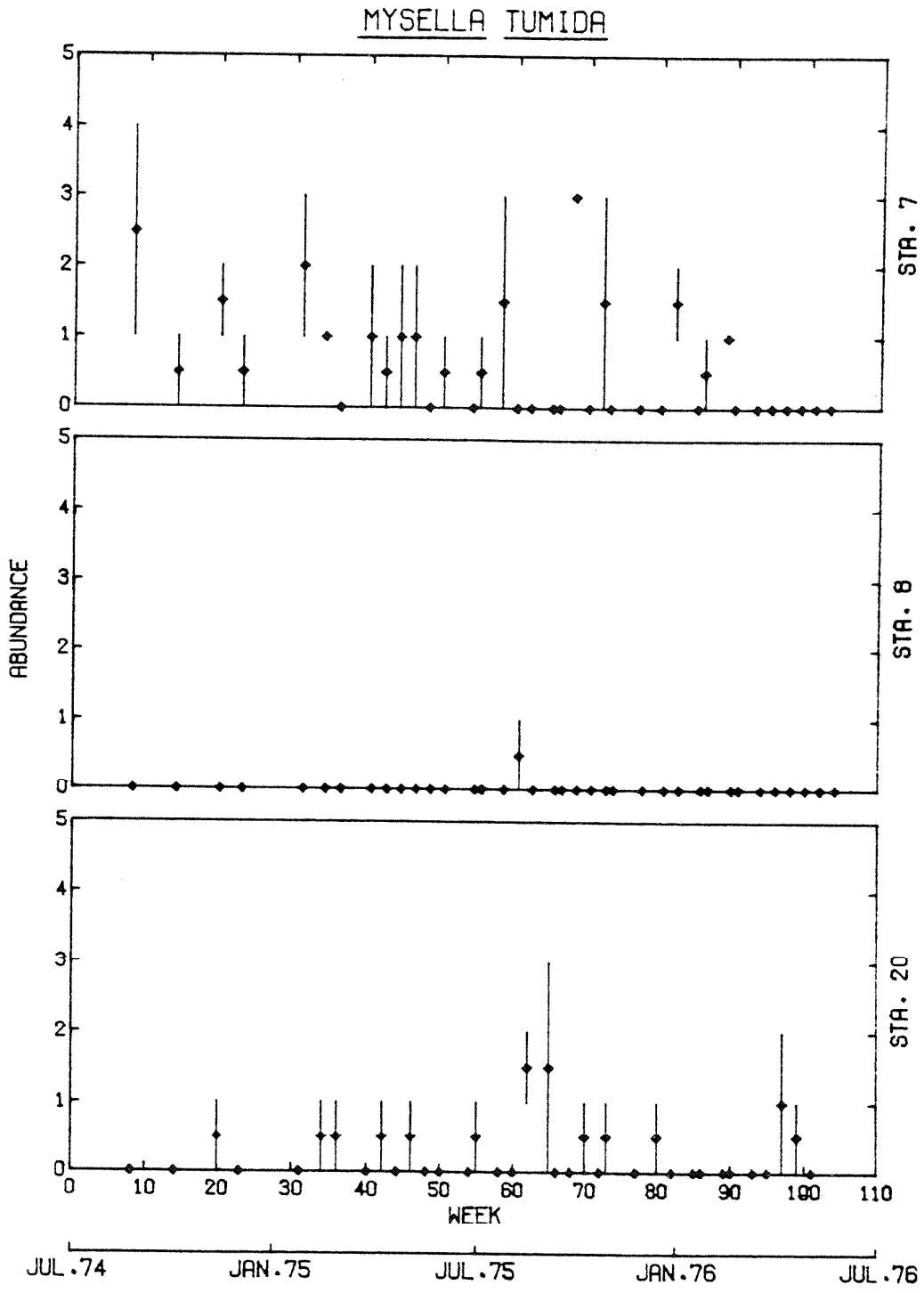

Fig. 16. The abundance of *Mysella tumida* per 0.1 m^2 at stations 7, 8, and 20 plotted against time. Vertical lines connect the abundance of the two replicate samples on each sampling date.

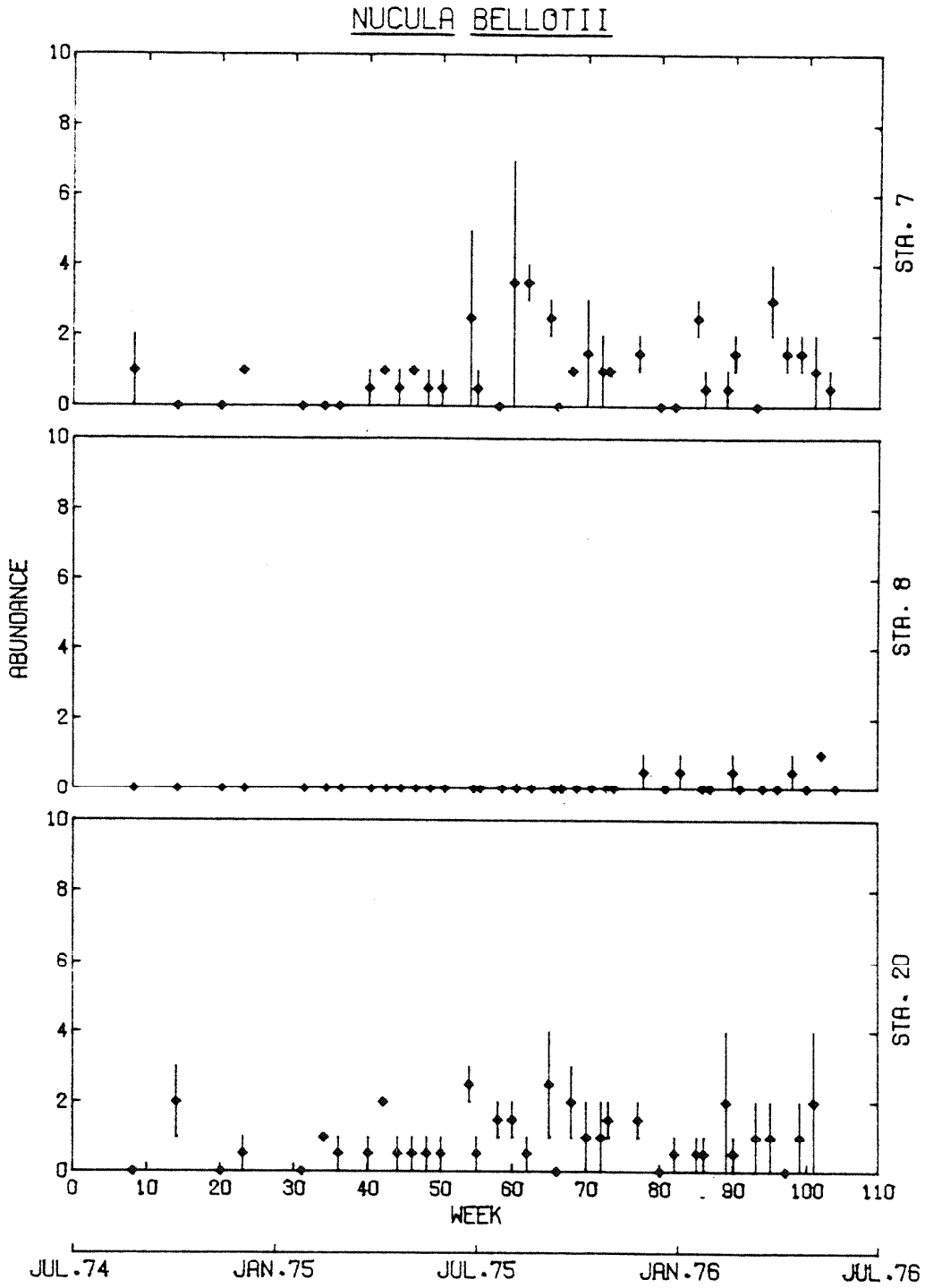

Fig. 17. The abundance of *Nucula bellotii* per 0.1 m^2 at stations 7, 8, and 20 plotted against time. Vertical lines connect the abundance of the two replicate samples on each sampling date.

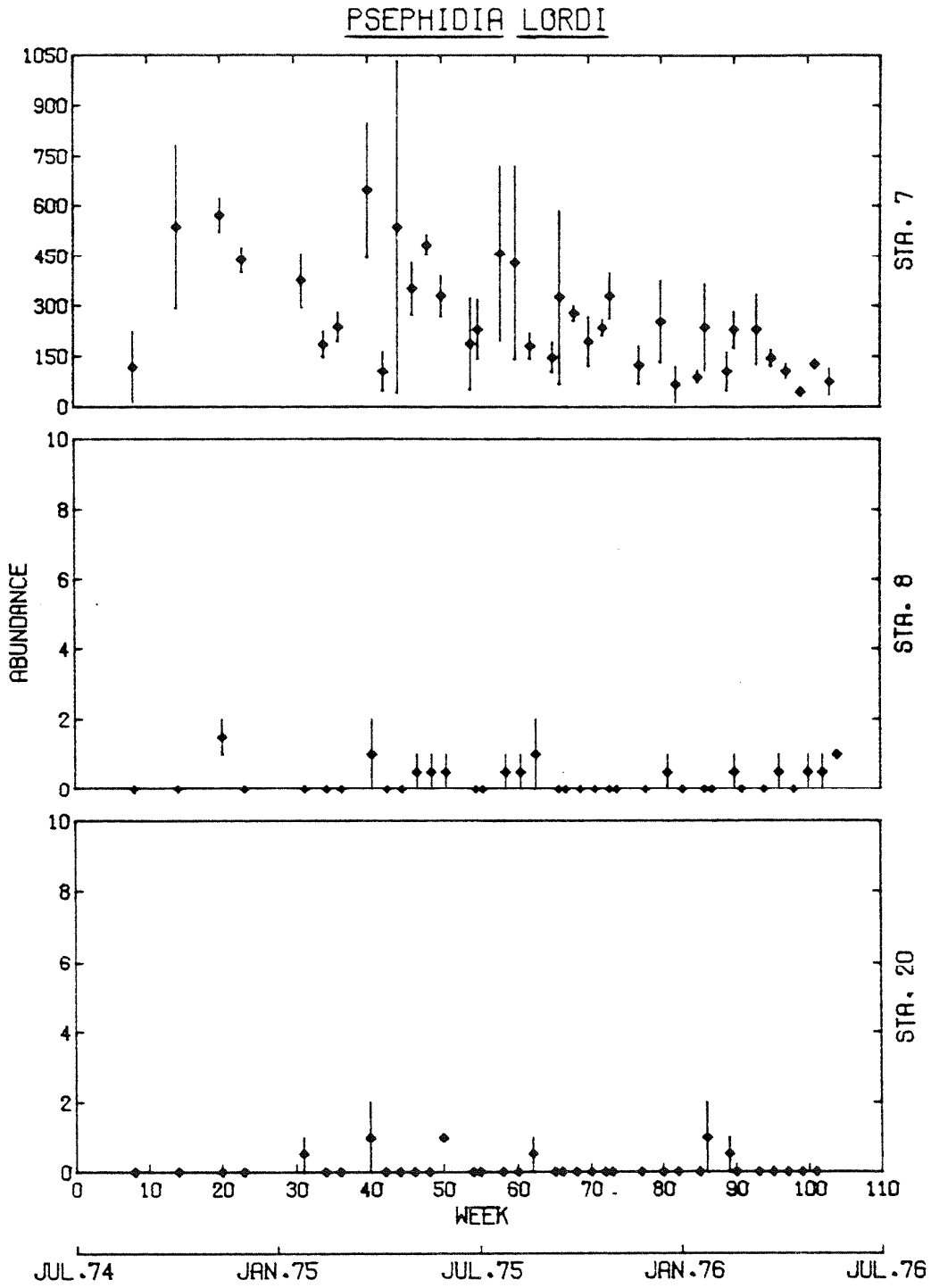

Fig. 18. The abundance of *Psephidia lordi* per 0.1 m^2 at stations 7, 8, and 20 plotted against time. Vertical lines connect the abundance of the two replicate samples on each sampling date.

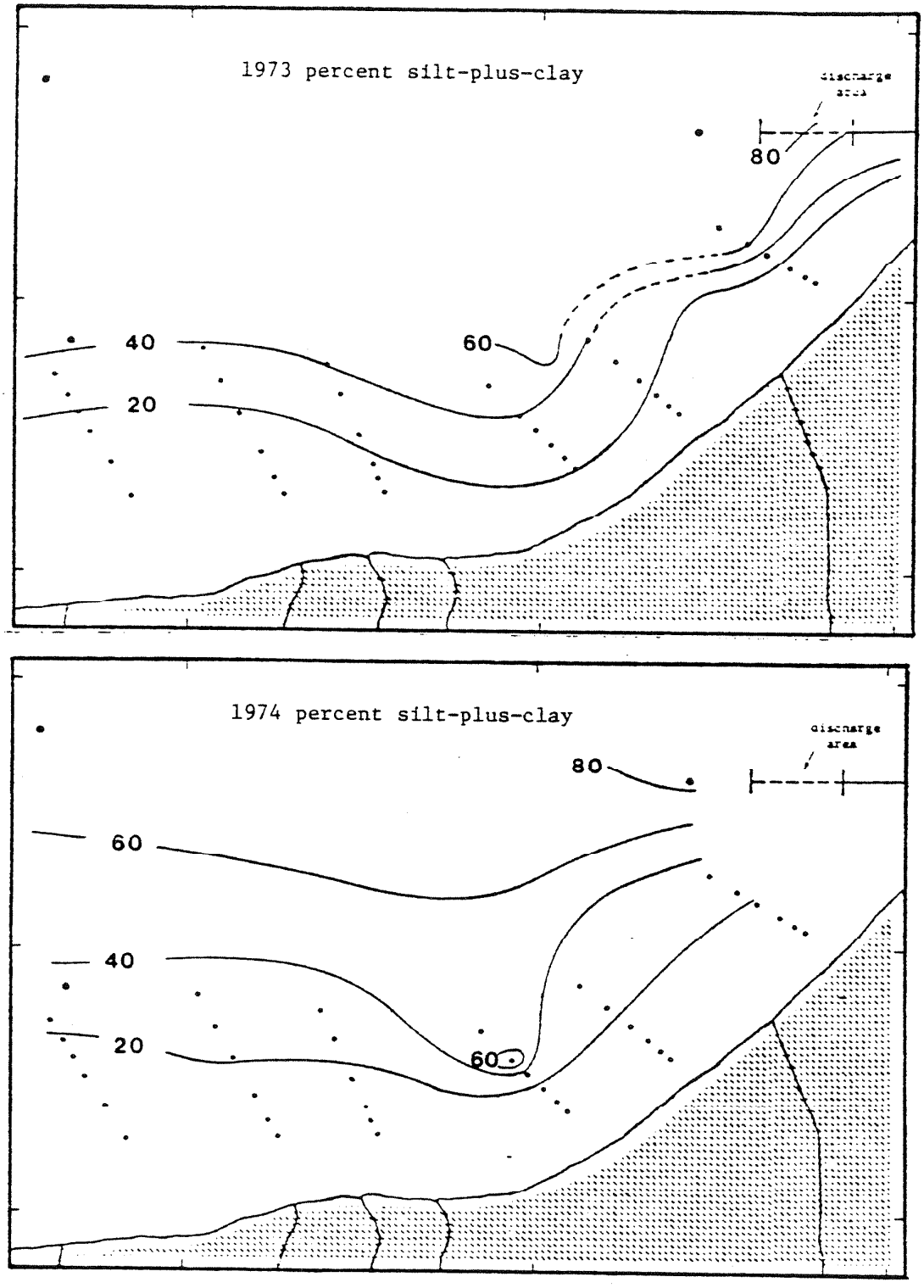

Fig. 19. Mean percent silt-plus-clay in August-October 1973 (Malkoff 1976) and October 1974. Location of stations surveyed in 1973 are not shown. Results have been superimposed on the 1974-75 station grid (Fig. 3).

Table 4. Granulometric analysis of 1974 intensive series samples. Depth (meters) and sediment particle size as percent weight of sediments.

Transect-Station	Sample	Depth	Gravel	Sand	Silt	Clay
A-1	2	16	0.00	88.27	11.71	0.02
A-2	2	33	0.00	92.37	7.62	0.01
A-3	2	46	1.12	80.74	18.14	0.00
A-4	2	61	0.59	80.24	19.17	0.00
A-5	2	79	0.51	73.93	25.47	0.09
A-6	2	95	1.00	72.04	26.83	0.13
B-1	1	13	0.00	94.19	5.81	0.00
B-2	1	30	0.00	93.33	6.67	0.00
B-3	2	44	0.05	87.88	12.07	0.00
B-4	2	59	0.77	79.85	19.38	0.00
B-5	2	77	2.30	73.85	23.84	0.01
B-6	2	96	1.23	71.02	27.51	0.23
C-1	1	15	0.00	87.96	12.04	0.00
C-2	1	28	0.00	83.55	16.45	0.00
C-3	1	47	1.80	81.75	16.45	0.00
C-4	1	62	0.00	72.27	27.73	0.00
C-5	1	77	1.95	31.60	65.90	0.55
C-6	2	96	0.20	55.42	44.37	0.01
D-1	1	17	0.39	95.13	4.47	0.00
D-2	2	31	0.14	85.55	14.31	0.00
D-3	1	48	2.04	89.16	8.78	0.02
D-4	1	65	8.86	75.63	15.51	0.00
D-5	1	77	1.34	77.37	21.27	0.02
D-6	2	95	0.23	83.47	15.00	1.31
E-1	2	15	0.00	96.94	3.06	0.00
E-2	2	29	0.24	91.83	7.93	0.00
E-3	1	45	3.98	83.66	12.37	0.00
E-4	2	61	2.54	69.95	27.50	0.01
E-5	1	78	0.00	76.42	23.58	0.00
E-6	2	93	0.43	68.05	31.52	0.00
F-1	2	16	0.23	93.98	5.79	0.00
F-2	2	32	0.87	95.52	3.61	0.00
F-3	2	45	0.11	87.86	12.03	0.00
F-4	2	62	1.91	88.68	9.41	0.00
F-5	2	79	4.02	81.25	14.73	0.00
F-6	2	93	3.42	68.03	28.54	0.01

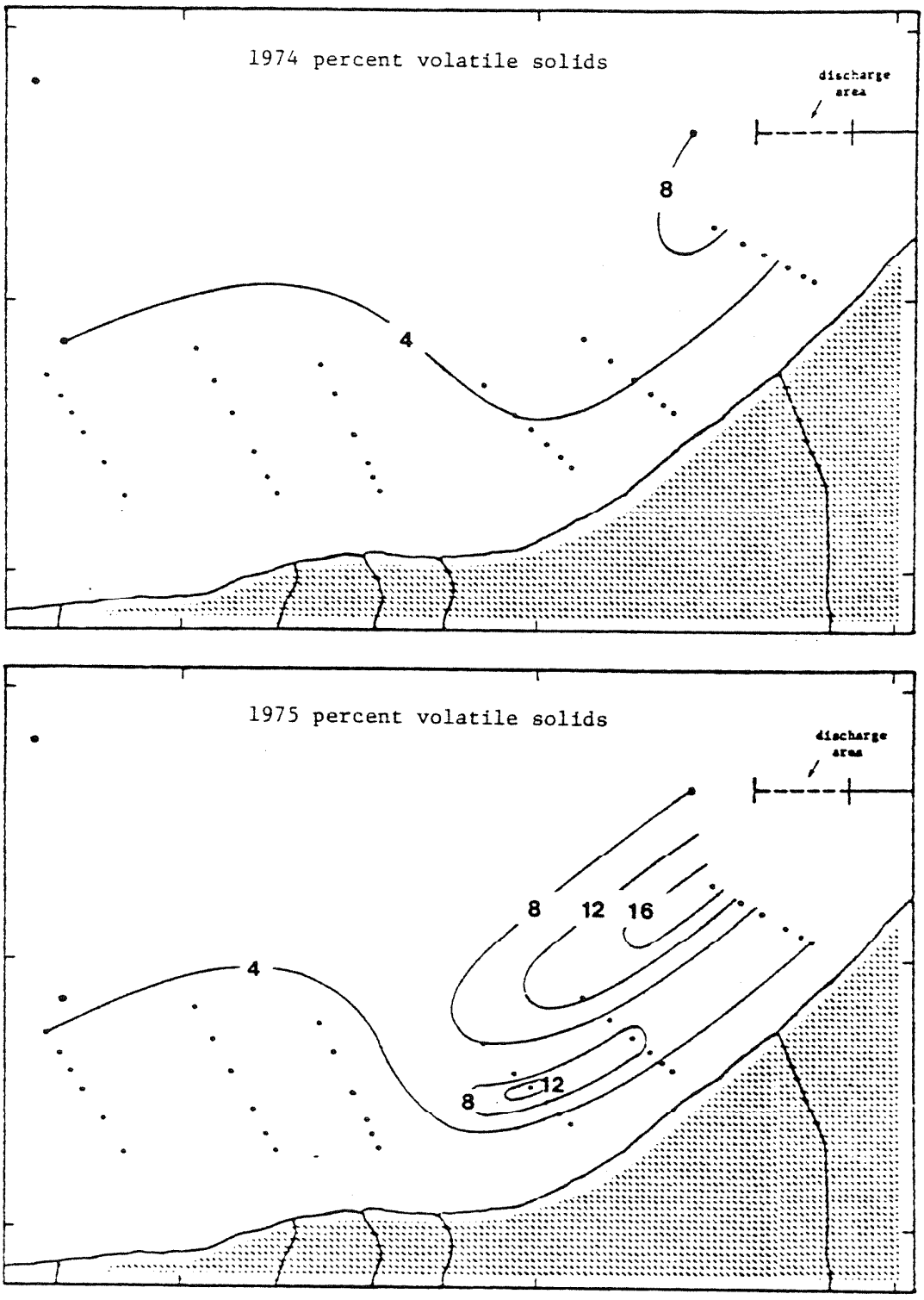

Fig. 20. Mean percent volatile solids in October 1974 and November 1975. Stations as in Fig. 3.

Table 5. Volatile solids analysis of 1974 and 1975 intensive series samples. Depth (meters) and percent volatile solids as percent weight of sediments.

Transect-Station	1974 Sample	1974 Depth	Volatile Solids 1974	Volatile Solids 1975	1975 Sample	1975 Depth
A-1	2	16	2.1	7.1	1	15
	3	13	2.1	1.9	2	13
				3.1	3	14
A-2	2	33	1.7	2.9	1	29
	3	31	1.8	3.4	2	32
				4.4	3	29
A-3	2	46	4.7	4.2	1	44
	3	46	1.9	5.1	2	45
				4.3	3	42
A-4	2	61	6.3	6.3	1	61
	3	61	5.0	4.4	2	64
				8.5	3	60
A-5	2	79	7.3	12.3	1	76
	4	76	4.2	13.7	2	79
				11.0	3	77
A-6	2	95	9.7	18.6	1	97
	4	94	7.3	17.6	2	95
				19.8	3	94
B-1	1	13	1.4	5.8	1	14
	3	14	1.6	1.8	2	14
B-2	1	30	1.6	1.4	1	26
	3	32	1.6	1.6	2	29
				2.1	3	28
B-3	2	44	2.2	3.0	1	46
	3	45	2.9	5.5	2	45
B-4	2	59	4.3	9.2	1	66
	3	64	4.1	7.5	2	61
B-5	2	77	7.9	7.1	1	74
	3	74	5.3	5.8	2	75
				6.0	3	75
B-6	2	96	5.0	14.8	2	95
	3	94	6.1	10.9	3	91
C-1	1	15	1.4	1.5	1	11
	3	12	2.7	1.7	2	14
C-2	1	28	1.8	3.1	1	31
	3	30	2.7	5.1	2	31
C-3	1	47	2.3	6.8	1	44
	3	45	2.2	7.4	2	46
C-4	1	62	2.5	14.5	1	60
	3	61	2.8	9.1	2	62
C-5	1	77	3.8	5.2	1	73
	3	77	3.6	6.6	2	77

Table 5 (continued)

Transect-Station	1974 Sample	1974 Depth	Volatile Solids 1974	Volatile Solids 1975	1975 Sample	1975 Depth
C-6	2	96	3.5	12.0	1	90
	3	92	5.1	4.6	2	90
D-1	1	17	0.9	1.2	1	17
	3	14	0.8	3.4	2	13
D-2	2	31	1.2	2.1	1	31
	3	28	1.1	2.2	2	28
D-3	1	48	1.5	2.4	1	50
	3	48	2.9	2.1	2	48
D-4	1	65	1.3	1.8	1	61
	3	62	1.9	1.8	2	65
D-5	1	77	2.5	2.9	1	79
	3	78	1.9	1.8	2	74
D-6	2	95	1.6	1.6	1	89
	3	94	2.1	2.2	2	92
E-1	2	15	0.7	1.3	1	17
	3	15	1.0	1.7	2	16
E-2	2	29	1.2	1.3	1	32
	3	30	1.3	3.5	2	29
E-3	1	45	2.0	1.5	1	47
	3	47	1.9	2.0	2	42
E-4	2	61	1.7	2.8	1	63
	4	60	2.2	2.8	2	58
E-5	1	78	2.0	3.3	1	77
	3	76	3.2	3.1	2	75
E-6	2	93	2.4	3.7	1	89
	4	94	2.9	3.1	2	90
F-1	2	16	0.8	1.3	1	13
	4	15	1.4	1.4	2	14
F-2	2	32	0.9	2.7	1	31
	4	27	1.4	2.0	2	30
F-3	2	45	1.2	2.6	1	46
	4	48	1.8	2.4	2	45
F-4	2	62	1.8	2.6	1	65
	3	66	1.9	3.0	2	63
F-5	2	79	1.7	4.1	1	78
	3	78	2.5	2.8	2	74
F-6	2	93	2.4	4.2	1	90
	3	93	2.7	4.4	2	91

Leptostraca (Figure 21) - In both 1974 and 1975, leptostracans were concentrated at deep stations on transect A. The greatest abundance in both years occurred at 75 m on transect A, and was 6/0.03 m^2 in 1974 and 4/0.03 m^2 in 1975.

Tanaidacea (Figure 22) - Tanaids were most numerous at 75 and 90 m on transects A and B in both years. Greatest abundance in 1974 was 36/0.03 m^2 at 75 m on transect B, and in 1975, 47/0.03 m^2 at 90 m on A.

Amphipoda - Gammaridae (Figure 23) - Gammarids had a distribution pattern similar to that of leptostracans and tanaids, with highest densities in both years occurring at deep stations adjacent to the pipeline. Abundance was less in 1975 than in 1974. Greatest abundance in both years occurred at 90 m on transect A and was 122/0.03 m^2 in 1974 and 42/0.03 m^2 in 1975.

Pelecypoda - M. carlottensis (Figure 24) - This species was more abundant and present at more stations in 1975 than in 1974. Highest densities occurred at deep stations. Greatest abundance in both years occurred at 90 m and was 24/0.03 m^2 on transect C in 1974 and 39/0.03 m^2 on E in 1975.

Pelecypoda - P. lordi (Figure 25) - Psephidia was more abundant in 1974 than in 1975 and was lowest in abundance at deep stations adjacent to the pipeline. Greatest abundance in both years occurred in transect F and was 348/0.03 m^2 at 75 m in 1974 and 188/0.03 m^2 at 90 m in 1975.

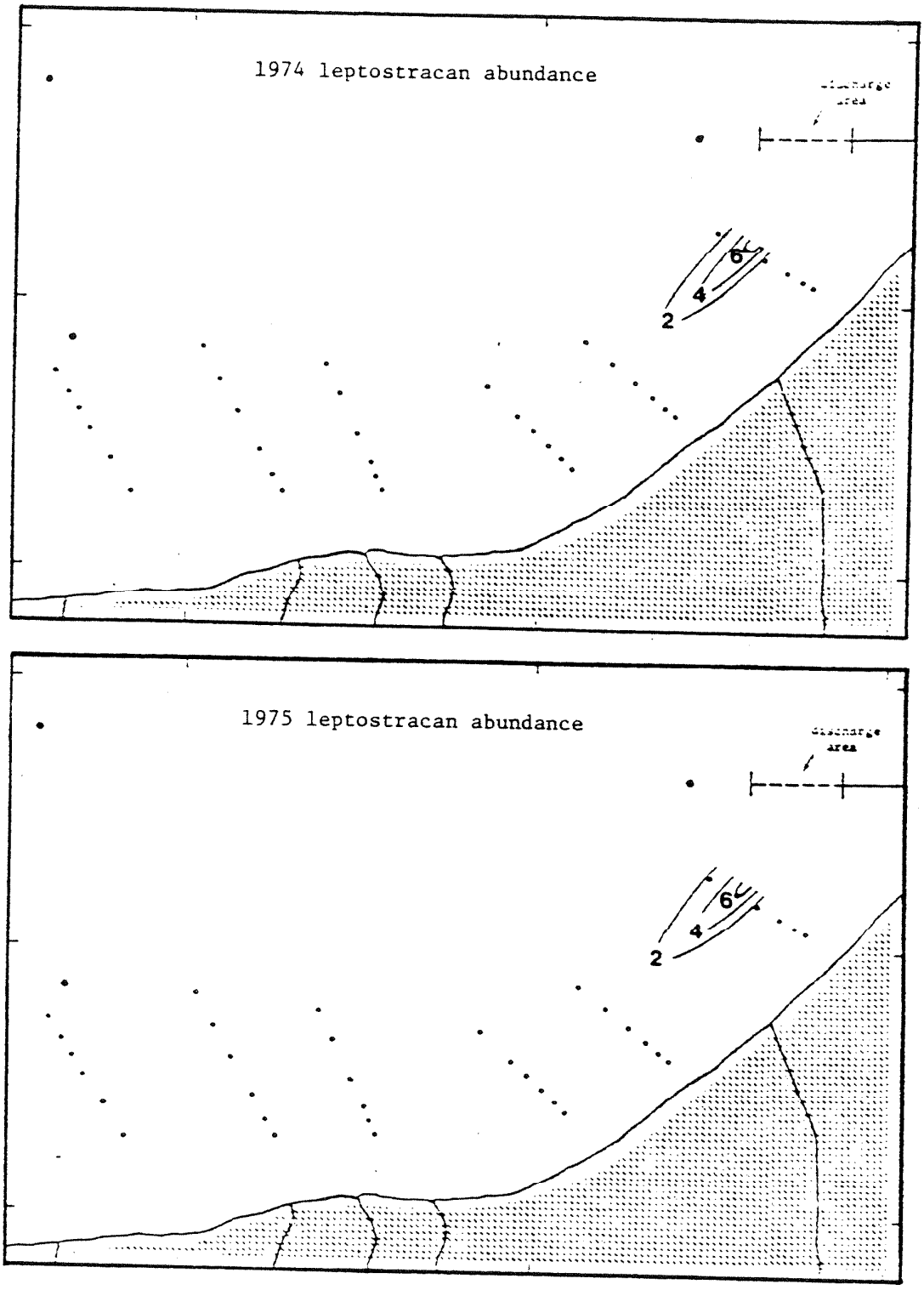

Fig. 21. Mean abundance of leptostracans per 0.03 m^2 in 1974 and 1975. Stations as in Fig. 3.

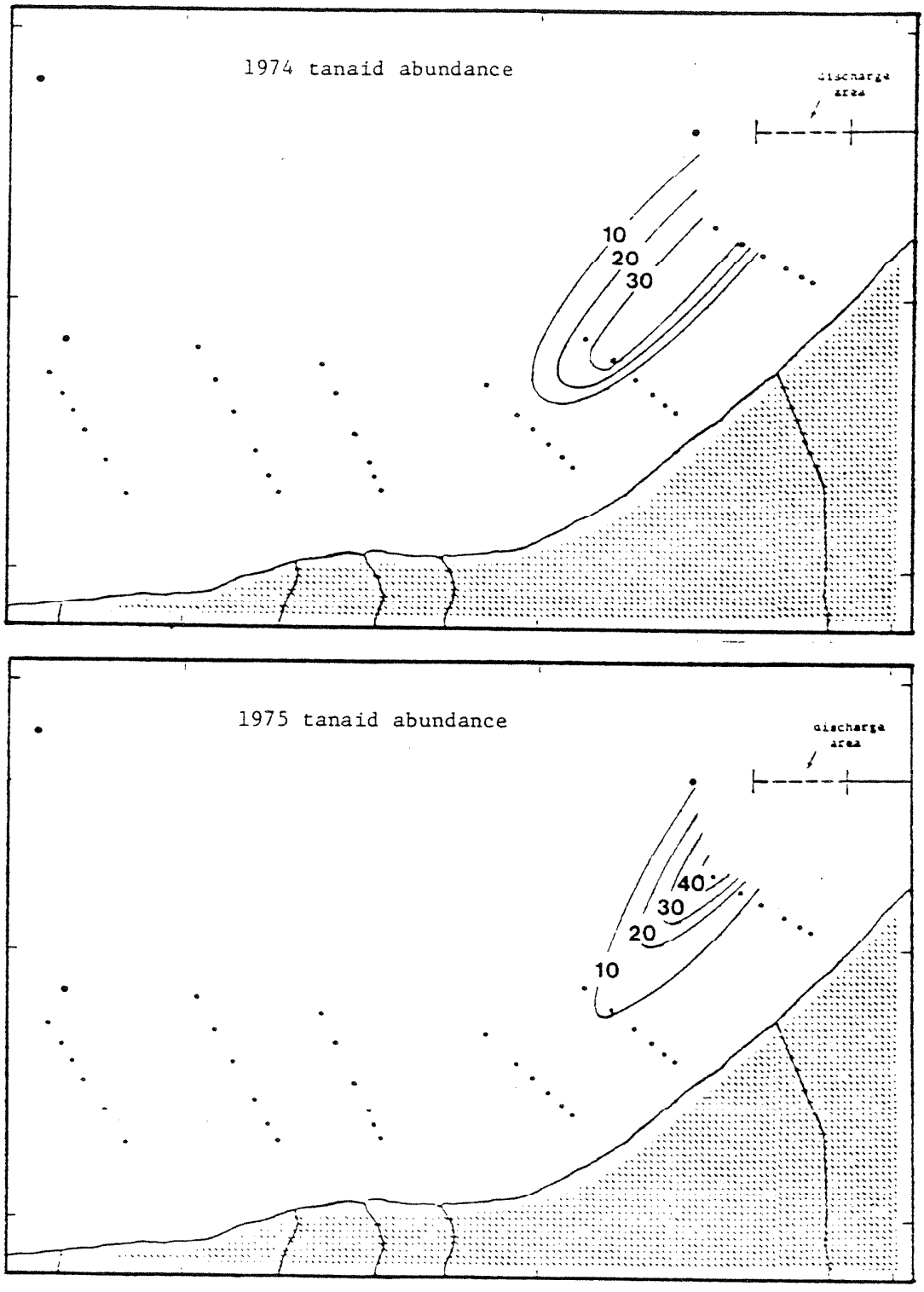

Fig. 22. Mean abundance of tanaids per 0.03 m^2 in 1974 and 1975. Stations as in Fig. 3.

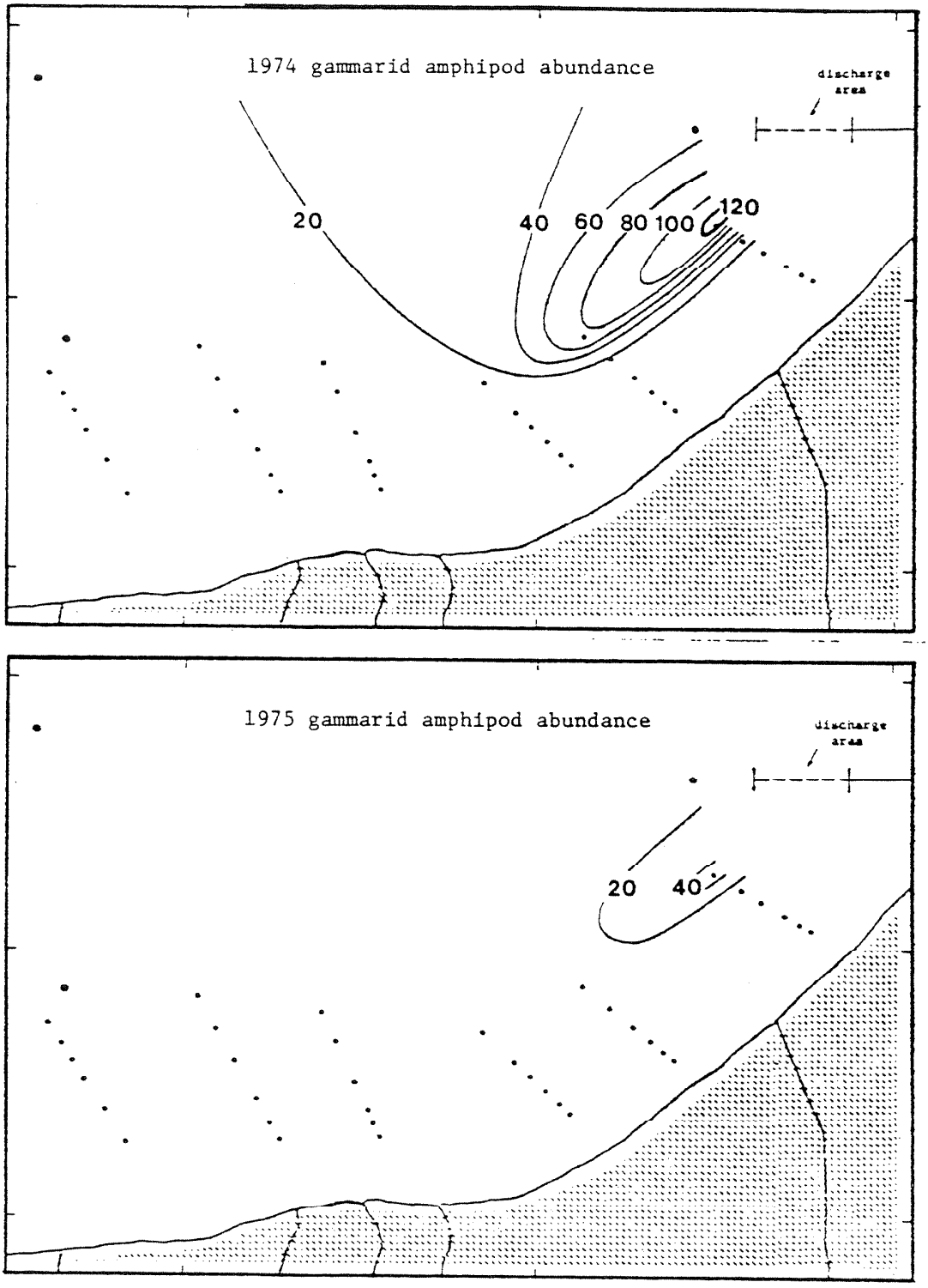

Fig. 23. Mean abundance of gammarid amphipods per 0.03 m^2 in 1974 and 1975. Stations as in Fig. 3.

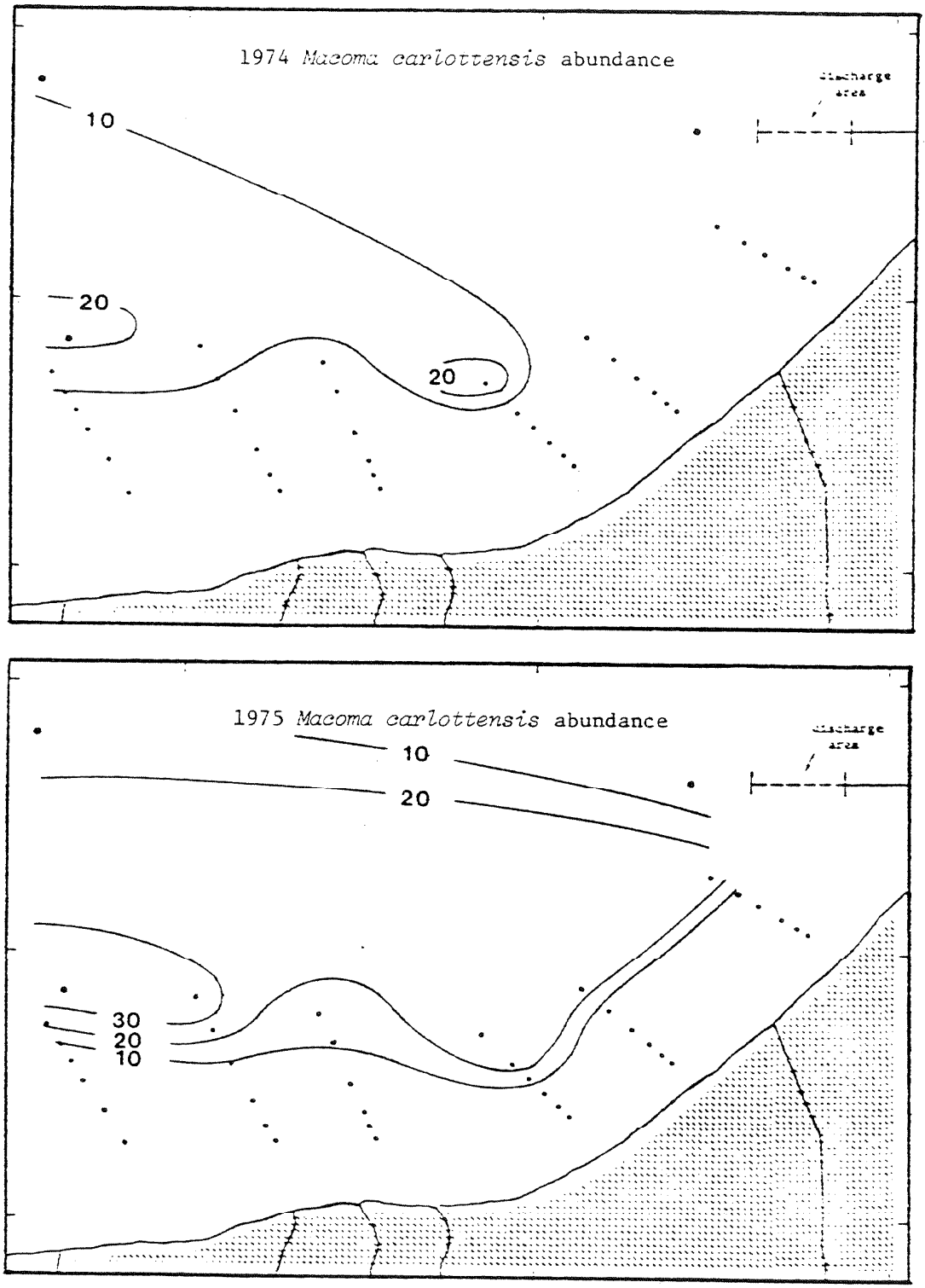

Fig. 24. Mean abundance of *Macoma carlottensis* per 0.03 m^2 in 1974 and 1975. Stations as in Fig. 3.

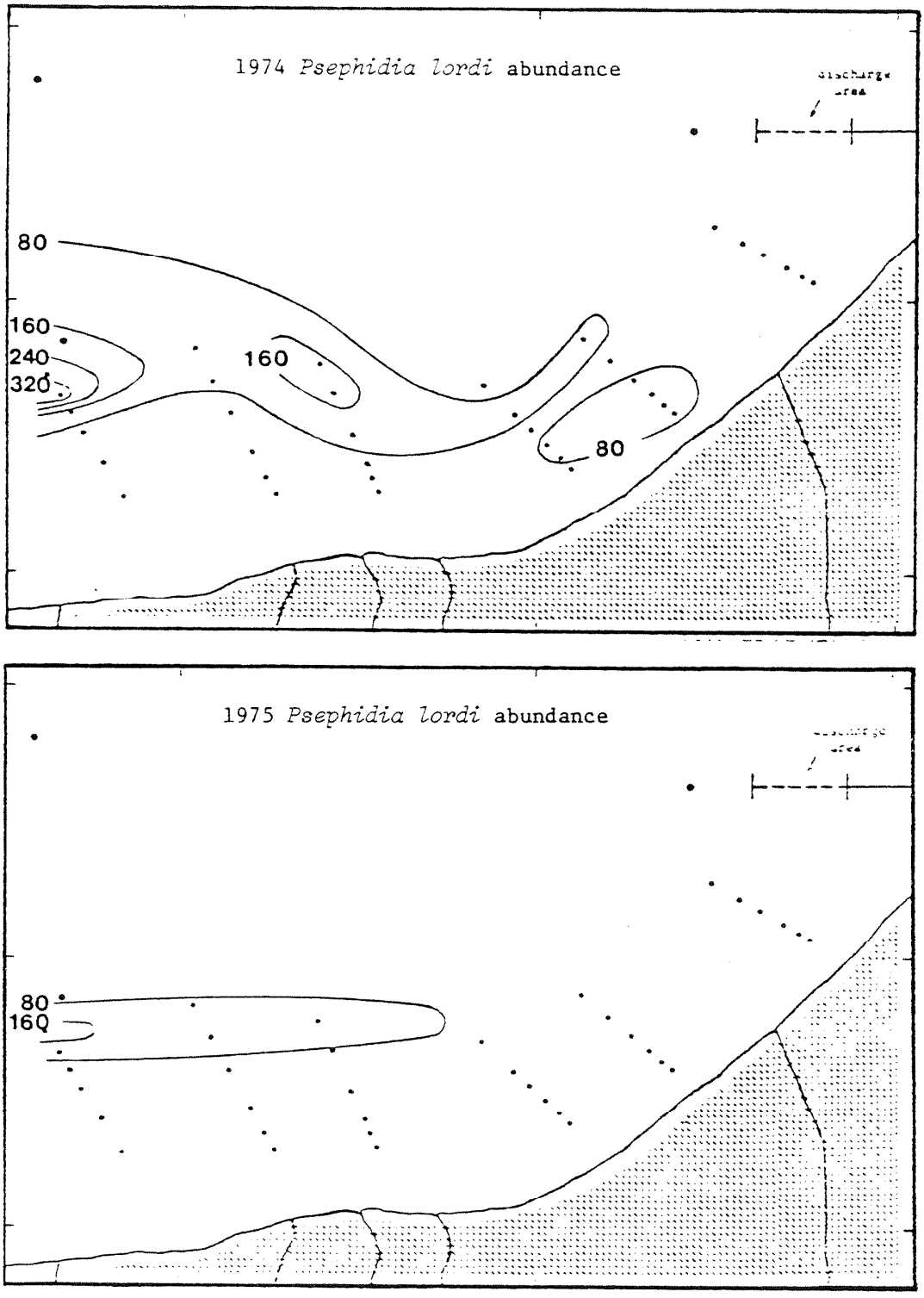

Fig. 25. Mean abundance of *Psephidia lordi* per 0.03 m^2 in 1974 and 1975. Stations as in Fig. 3.

DISCUSSION

Methods

Early attempts at using sodium borate-buffered formaldehyde as a preservative for stored unsorted samples resulted in rapidly declining pH even when additional sodium borate was routinely added. Steedman (1974) reported that when using formaldehyde as a preservative for zooplankton, a specimen-to-preservative ratio of 1:9 by volume was necessary to prevent the preservative from becoming acidic. Due to the large size of most benthic samples, a ratio of 1:9 was not practical and only a 1:1 ratio could be achieved. This proved inadequate, so other preservative solutions were tried. The most satisfactory method was replacement of formaldehyde with sodium acetate-buffered 70 percent ethyl alcohol and the addition of lime to each sample. The pH of samples stored in this solution remained neutral for over a year.

Substrate

Sediment particle size distribution in the survey area did not change over the sampling period, nor was it substantially different from distributions observed in the 1973 surveys (Figure 19). High percentages of fine sediments (silt and clay) were characteristic of deep stations; shallow stations were characterized by high percentages of sand and gravel (Tables 3 and 4).

Clay fraction estimates derived from incomplete pipette analysis of March and August 1975 samples from Stations 7, 8, and 20 were low compared to clay fractions of August 1974 samples which were subjected to complete analysis. Incomplete pipette analysis of intensive series samples also resulted in lower-than-expected clay estimates. This suggests there may have been an error in the method used to estimate the percentages of silt and clay. However, the total silt-plus-clay percent and the percentages of gravel and sand were not affected.

The major source of fine sediments in the Port Gardner Basin was most likely the Snohomish River. Coarse sediments (sand and gravel) characteristic of shallow water intensive series stations were probably stream-carried degradation products of the surrounding terrain (the coarse material being deposited in shallow water and fine material in the central basin). The higher silt-plus-clay content at stations on transect C may reflect material dumped at the disposal site located in this area and/or less influence from streams discharging along the shoreline.

Volatile solids results obtained in 1974 were similar to those observed in 1962 and 1973 (Student Report, 1974), higher than those observed in 1973 (Malkoff, 1976), and lower than those observed in 1975. Comparing observations from deep stations (approximately 100 m) in 1962, volatile solids content of sediments near the pipeline and Station 8 ranged from 8 to 10 percent, and at deep stations from transect D to F, 2 to 3 percent. Similarly, observations made in 1973 (Student Report, 1974) showed volatile solids content in the vicinity of the pipeline and transect A to be 6 to 9 percent; around B and C, 6 percent; and D through F, 2 to 4 percent. With the exception of samples taken within the disposal area, Malkoff's survey in 1973 yielded values of

only 1 to 4 percent for the pipeline and deep stations from transect A to F (Figure 26). Reasons for these low values were not apparent. Highest values were observed in 1975 at transect A (18 to 20 percent) and at B and C where values ranged from 5 to 15 percent (Figure 20; Table 5). These higher values may have been the result of increased quantities of wood chips. Wood volume as a percent of sample volume in the screened biological samples was two to three times higher in this area in 1975 than it was in 1974.

Macrofauna

Studies by Lie (1968; 1974), Driscoll and Brandon (1973), and others have shown that sediment particle size is important in determining distributions of benthic macrofauna. Depth and sediments were similar at Stations 8 and 20. Consequently, if these were the major environmental parameters determing benthic population distributions in this area, one would expect faunal composition at Stations 8 and 20 to be similar. Presence of brittle stars (ophiuroids), sea cucumbers (holothurians), heart urchins (echinoids), and the pelecypod species M. carlottensis, A. serricata, and N. bellotii characterized Station 20 as a typical deep-water, soft-bottom station in Puget Sound (Lie, 1974). Absence or low abundance of these groups at Station 8 suggests that this station was not typical of areas in Puget Sound which had similar depth and sediment characteristics. Compared with Station 20, Station 8 was characterized by a higher abundance of leptostracans (Figure 5); initially higher abundance of gammarid amphipods (Figure 6) and polychaetes (Figure 9); lower abundance of M. tumida (Figure 16) and A. serricata (Figure 13); an initial absence or low abundance of M. carlottensis (Figure 14), M. elimata (Figure 15), and N. bellotii (Figure 17); and the absence of sea cucumbers (Figure 11), heart urchins, and A. castrensis (Figure 12).

The significant increase in abundance of M. carlottensis and M. elimata, the appearance of N. bellotii, and the significant decline in gammarid abundance over the sampling period at Station 8 may signal the beginning of a change toward a faunal composition similar to that present at Station 20. A decline in gammarids was also observed at Station 20; however, the magnitude was considerably less. The resulting abundance of gammarids and M. carlottensis at the two stations was roughly similar. Further changes which could occur at Station 8 to make it more similar to Station 20 include an increase in the abundance of brittle stars and the pelecypods A. serricata and M. tumida; the appearance of sea cucumbers, heart urchins, and A. castrensis; and a decrease in leptostracans.

With relatively homogeneous sediments along depth contours in the intensive series survey area, one would expect the benthos at stations on transects A and B to be similar to that at corresponding depths on other transects. Stations adjacent to the pipeline, however, appeared different from those at some distance. Deep stations on transect A and B characteristically had the highest abundance of leptostracans, tanaids, and gammarids and the lowest abundance of P. lordi. As with Station 8, abundance of M. carlottensis increased and gammarids decreased from 1974 to 1975. These changes were not confined to transects A and B, but occurred throughout the survey area. Other groups showed little change in their abundance and distribution pattern

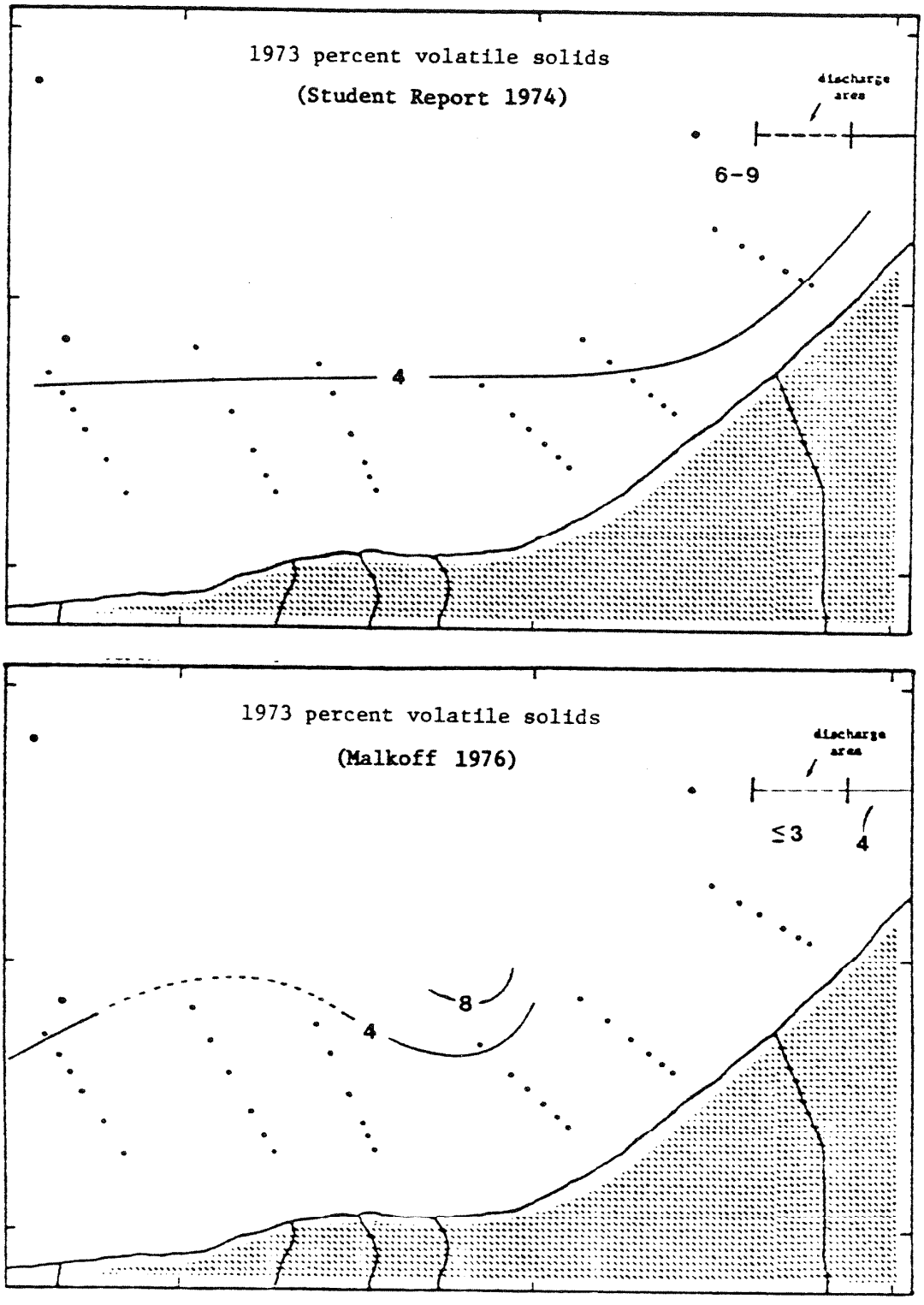

Fig. 26. Percent volatile solids in June-September 1973 (Student Report 1974) and mean percent volatile solids in August-October 1973 (Malkoff 1976). Locations of stations surveyed in 1973 are not shown. Results have been superimposed on the 1974-75 station grid (Fig. 3).

over the same period. Ophiuroids and holothurians were rare and cumaceans low in abundance. M. elimata occurred most frequently at deep stations and Macoma obliqua at shallow stations. Maximum abundance of P. lordi continued to occur at stations on transect F even though their abundance declined throughout the area from 1974 to 1975.

Comparison of present results with earlier faunal surveys adjacent to the pipeline was difficult since the same stations were not occupied, a sampling device of undescribed size was used in 1962, and the fauna in earlier investigations were incompletely identified. Therefore, only gross comparisons can be made between stations in the present study and earlier surveys of stations within a 0.2 nautical mile radius of these. Such comparisons show that polychaete abundance at Station 8 in 1975-76 was similar to that found in both the 1973 surveys. In 1974-75, polychaete abundance was somewhat higher. Gammarids, not present in the 1962 survey, were similar in abundance in the two 1973 surveys and in the 1974-75 part of the present survey. In 1975-76 their abundance declined. Molluscs, also not present in 1962, were similar in abundance in the 1973 surveys. Though initially rare in the present survey, they increased during the sampling period.

Comparisons of 1974 and 1975 results with earlier surveys in the area of intensive series stations showed little change for most groups. Leptostracans, tanaids, and gammarids occurred in greatest abundance at deep stations adjacent to the pipeline in 1973 (Figures 27 and 28), 1974, and 1975 (Figures 21 through 23) while ostracods were most numerous at shallow stations on all transects.

Molluscs in 1962, 1973, 1974, and 1975 increased in abundance away from the pipeline, with Macoma sp. and P. lordi being the numerically dominant species in 1973, 1974, and 1975. In 1962, crustaceans were absent from stations adjacent to the pipeline and occurred in low abundance in the area of transects D through F. In 1973 (Student Report, 1974), 1974, and 1975, highest densities occurred near the pipeline. In 1973, Malkoff (1976) found crustaceans were numerous near the pipeline, but no trend toward decreasing abundance with increasing distance from the pipeline was observed.

Recovery of the benthic macrofauna in a Swedish fjord following reduced wastewater discharge from a sulfite pulp mill was studied by Rosenberg (1972). Within four years following the termination of discharge, abundance and number of echinoderm and non-Capitella polychaete species increased. If discharge from sulfite pulp mills in Everett was the environmental factor influencing the distribution of fauna, changes in macrofaunal distribution and abundance patterns in the vicinity of the discharge would be expected if the discharge was reduced. Specifically, Station 8 would become similar to Station 20, and stations along transects A and B would become similar to stations along transects C through F.

The most significant change observed at locations adjacent to the pipeline since the 1962 survey has been the appearance of crustaceans and molluscs. Since 1973 there has been a significant rise in the abundance of M. carlottensis, a significant decline in the abundance of gammarids, and the appearance of N. bellotii. Similar changes have been observed at locations in the intensive series survey area. These changes may mark the beginning of a shift

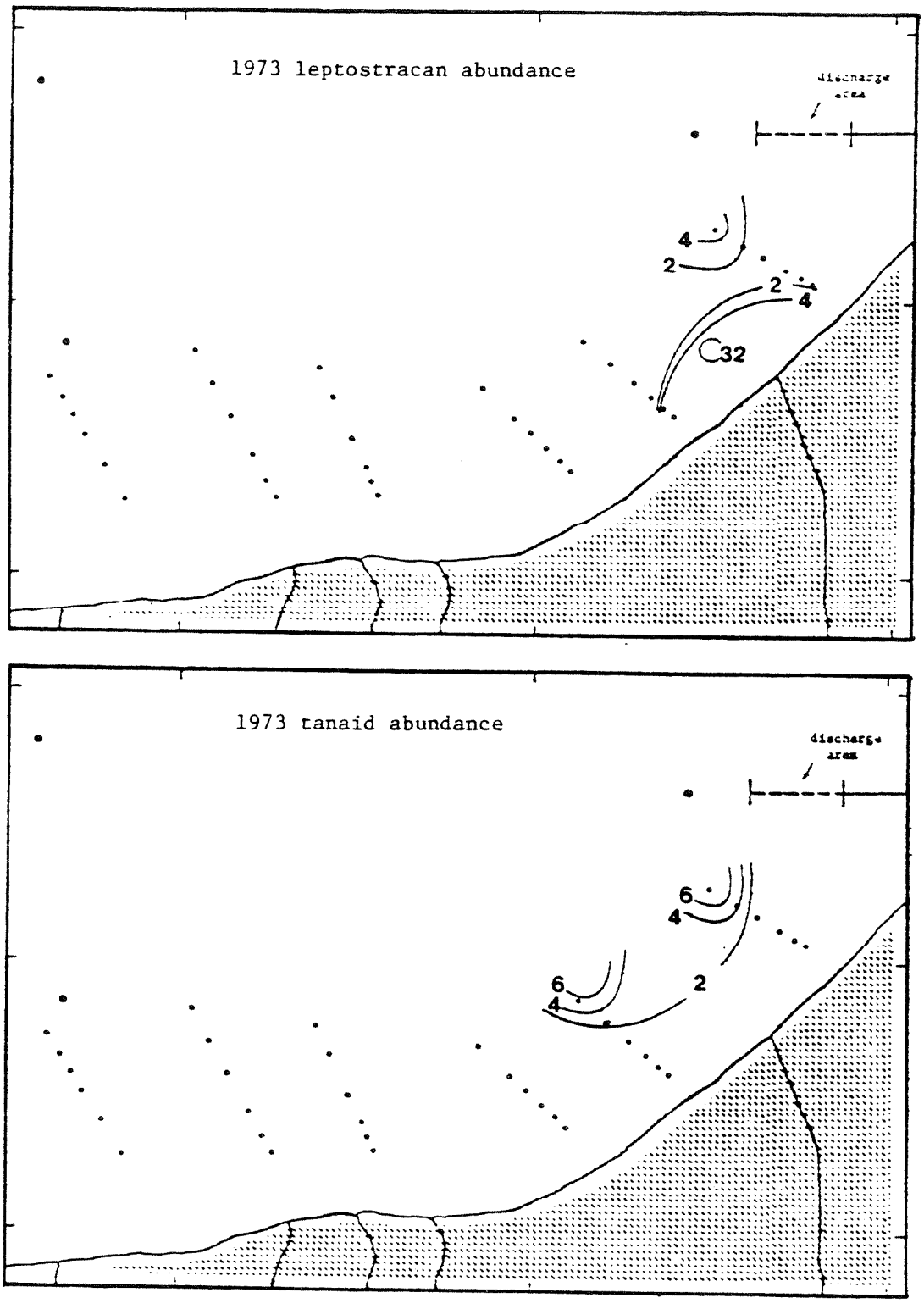

Fig. 27. Mean abundance of leptostracans and tanaids per 0.03 m^2 in August-October 1973 (Malkoff 1976). Location of stations surveyed in 1973 are not shown. Results have been superimposed on the 1974-75 station grid (Fig. 3).

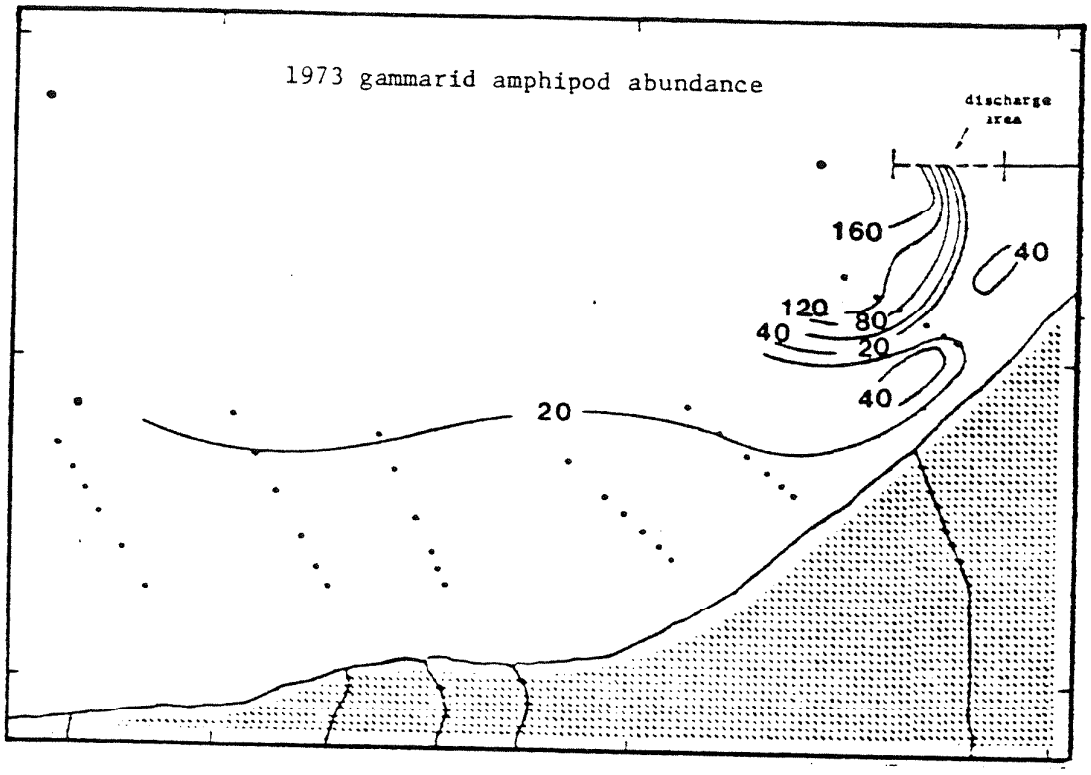

Fig. 28. Mean abundance of gammarid amphipods per 0.03 m^2 in August-October 1973 (Malkoff 1976). Location of stations surveyed in 1973 are not shown. Results have been superimposed on the 1974-75 station grid (Fig. 3).

in the benthic community at locations adjacent to the pipeline toward a faunal composition similar to that present at some distance from the pipeline. Only long-term monitoring of the area could determine if the magnitiude of the observed changes exceeds the natural range for organisms in this area.

The pattern of high abundance of gammarids, leptostracans, and tanaids and low abundance of molluscs and echinoderms still persists in the pipeline area. It may be that this pattern was the result of the high volatile organic and wood chip content of sediments adjacent to the pipeline.

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APPENDIX I

Abundance of major taxa and species of Pelecypoda in samples taken August 1974 through June 1976 at time series stations 7, 8, and 20.

Table I.1. Abundance of major taxa at station 7.

Date	Aug. 22 '74		Sep. 10	Oct. 4		Nov. 12		Dec. 3		Jan. 31 '75	
Grab size (m^2)	0.1		0.2	0.1		0.1		0.1		0.1	
Depth (m)	109	113	100	104	105	101	104	98	100	97	96
Sample No.	1	2	1	1	2	1	2	1	2	1	2
CRUSTACEA											
Ostracoda	26	29	60	45	25	26	19	16	40	26	11
Leptostraca	0	0	0	0	0	0	0	0	0	0	0
Tanaidacea	2	0	2	2	1	1	0	2	4	0	3
Isopoda	0	0	0	0	0	0	0	0	0	1	0
Amphipoda											
Caprellidea	0	0	0	3	0	0	1	16	0	1	2
Gammaridea	59	24	45	54	15	8	19	14	29	8	9
Mysidacea	0	4	1	1	1	0	0	0	0	0	1
Cumacea	29	14	28	32	5	8	6	8	11	11	11
Euphausiacea	0	2	2	0	0	0	0	0	0	0	0
Decapoda											
Natantia	0	0	1	4	2	1	0	0	0	0	0
Astacura	0	0	0	0	0	0	0	0	0	0	0
Brachyura	1	0	1	0	0	0	0	0	0	0	1
ANNELIDA											
Polychaeta	103	109	471	144	101	68	185	113	195	177	110
ECHINODERMATA											
Ophiuroidea	1	3	8	0	2	1	0	2	1	0	2
Holothuroidea	0	1	0	0	0	0	0	1	0	0	1
Echinoidea	0	0	0	0	0	0	0	0	0	0	0
MOLLUSCA											
Pelecypoda	406	148	994	896	395	588	717	526	468	613	439
Gastropoda	0	0	2	0	0	0	3	2	0	2	1

Date	Feb. 19		Mar. 3		Mar. 31		Apr. 16		May 1		May 15	
Grab size (m^2)	0.1		0.1		0.1		0.1		0.1		0.1	
Depth (m)	102	99	98	100	100	101	101	103	100	98	103	98
Sample No.	1	2	1	2	1	2	1	2	1	2	1	2
CRUSTACEA												
Ostracoda	10	23	17	20	13	9	9	20	11	24	25	28
Leptostraca	0	0	0	0	0	0	0	0	9	0	0	0
Tanaidacea	0	0	0	2	0	1	2	1	1	1	0	0
Isopoda	0	1	0	0	0	0	0	0	0	0	0	0
Amphipoda												
Caprellidea	0	0	0	0	5	2	2	0	0	8	0	0
Gammaridea	3	12	11	6	14	8	20	12	14	24	26	15
Mysidacea	1	2	0	3	0	0	0	2	0	1	3	1
Cumacea	11	8	7	3	12	2	4	7	14	8	17	0
Euphausiacea	0	0	0	0	0	0	0	0	0	0	0	0
Decapoda												
Natantia	0	0	0	0	0	0	0	0	1	0	0	0
Astacura	0	0	0	0	0	0	0	0	0	0	0	0
Brachyura	1	1	0	0	0	0	0	1	0	0	0	0
ANNELIDA												
Polychaeta	37	89	134	83	114	61	135	118	122	182	84	225
ECHINODERMATA												
Ophiuroidea	2	3	0	1	2	1	1	0	2	6	0	1
Holothuroidea	0	0	0	0	1	2	0	0	0	0	0	0
Echinoidea	0	0	0	0	0	0	0	0	0	0	0	0
MOLLUSCA												
Pelecypoda	290	380	393	472	1069	572	208	359	239	1319	510	705
Gastropoda	0	1	0	1	1	1	0	0	0	6	1	0

Table I.1. (continued)

Date	May 27		Jun. 11		Jul. 9		Jul. 16		Aug. 4		Aug. 19	
Grab size (m^2)	0.1		0.1		0.1		0.1		0.1		0.1	
Depth (m)	99	98	100	95	101	100	105	102	99	100	103	103
Sample No.	1	2	1	2	1	2	1	2	1	2	1	2
CRUSTACEA												
Ostracoda	14	26	34	32	21	20	27	18	19	36	26	26
Leptostraca	0	0	0	0	0	0	0	0	0	0	0	0
Tanaidacea	1	0	1	1	0	3	1	1	0	3	4	7
Isopoda	0	0	0	0	0	0	0	0	0	1	0	0
Amphipoda												
Caprellidea	0	7	2	1	0	6	1	0	1	5	0	10
Gammaridea	27	35	17	39	53	12	27	19	11	33	11	37
Mysidacea	2	1	0	3	0	0	0	0	0	0	0	0
Cumacea	13	7	7	7	2	6	1	5	5	8	11	8
Euphausiacea	0	0	0	0	0	0	2	0	0	0	0	0
Decapoda												
Natantia	0	0	0	0	0	1	0	2	0	0	0	0
Astacura	0	0	0	0	0	1	0	1	0	0	0	0
Brachyura	0	0	0	0	0	0	1	0	0	0	0	0
ANNELIDA												
Polychaeta	109	80	231	530	264	104	119	312	122	135	110	162
ECHINODERMATA												
Ophiuroidea	1	5	0	0	0	0	0	0	0	0	1	2
Holothuroidea	0	0	0	0	0	0	0	0	0	0	0	0
Echinoidea	0	0	0	0	0	0	0	0	0	0	0	0
MOLLUSCA												
Pelecypoda	779	768	438	593	552	251	530	284	391	910	307	1001
Gastropoda	4	0	1	0	11	0	1	0	0	4	0	1

Date	Sep. 3		Sep. 25		Oct. 3		Oct. 14		Oct. 30		Nov. 10	
Grab size (m^2)	0.1		0.1		0.1		0.1		0.1		0.1	
Depth (m)	104	104	107	105	100	100	101	103	103	97	102	99
Sample No.	1	2	1	2	1	2	1	2	1	2	1	2
CRUSTACEA												
Ostracoda	50	35	27	19	28	14	25	16	42	15	24	20
Leptostraca	0	0	0	0	0	0	0	0	0	0	0	0
Tanaidacea	0	2	1	1	2	1	8	6	6	2	4	2
Isopoda	0	0	0	0	0	0	0	0	0	0	0	0
Amphipoda												
Caprellidea	1	18	0	0	0	16	1	1	1	4	1	1
Gammaridea	20	19	12	9	30	13	19	17	24	8	12	13
Mysidacea	1	1	0	0	0	1	3	2	0	1	0	0
Cumacea	11	13	4	10	20	8	12	10	9	9	8	7
Euphausiacea	0	0	1	0	0	0	0	0	1	0	0	0
Decapoda												
Natantia	1	0	1	1	1	1	0	0	1	0	0	0
Astacura	0	0	0	0	0	0	1	0	0	0	0	0
Brachyura	1	0	0	0	0	0	0	1	0	0	0	0
ANNELIDA												
Polychaeta	114	82	68	104	445	116	106	123	263	71	117	66
ECHINODERMATA												
Ophiuroidea	2	1	1	0	1	10	1	0	2	0	0	2
Holothuroidea	0	0	0	0	0	0	2	0	0	0	0	0
Echinoidea	0	0	0	0	0	0	0	0	0	0	0	0
MOLLUSCA												
Pelecypoda	286	373	279	289	793	223	447	516	444	302	373	459
Gastropoda	0	0	0	0	0	0	0	4	2	1	0	0

Table I.1. (continued)

Date	Nov. 19		Dec. 18		Jan. 6 '76		Jan. 20		Feb. 11		Feb. 18	
Grab size (m^2)	0.1		0.1		0.1		0.1		0.1		0.1	
Depth (m)	102	103	99	96	101	102	101	100	100	99	98	102
Sample No.	1	2	1	2	1	2	1	2	1	2	1	2
CRUSTACEA												
Ostracoda	33	35	16	11	24	8	6	6	13	14	12	17
Leptostraca	0	0	0	0	0	0	0	0	0	0	0	0
Tanaidacea	3	0	0	2	1	1	5	2	2	2	0	1
Isopoda	0	0	0	0	0	0	0	0	0	0	0	0
Amphipoda												
Caprellidea	2	0	1	0	0	0	0	1	0	0	0	0
Gammaridea	12	14	6	4	2	9	11	5	1	2	4	2
Mysidacea	0	0	1	0	0	0	1	1	1	0	0	0
Cumacea	11	9	0	0	2	15	1	3	4	0	3	8
Euphausiacea	0	0	0	0	0	0	0	0	0	0	0	0
Decapoda												
Natantia	1	0	1	1	0	0	0	0	0	0	2	0
Astacura	0	1	0	0	0	0	0	0	0	0	0	0
Brachyura	1	1	0	1	0	0	0	0	0	0	0	0
ANNELIDA												
Polychaeta	89	439	55	103	67	212	104	148	45	48	36	51
ECHINODERMATA												
Ophiuroidea	1	2	1	0	0	7	0	1	0	1	1	0
Holothuroidea	1	0	0	1	0	0	0	0	0	2	2	0
Echinoidea	0	0	0	0	0	0	0	0	0	0	0	0
MOLLUSCA												
Pelecypoda	407	606	198	316	255	501	96	240	220	287	460	240
Gastropoda	1	0	0	0	0	2	1	1	2	0	2	0

Date	Mar. 9		Mar. 17		Apr. 7		Apr. 22		May 4		May 20	
Grab size (m^2)	0.1		0.1		0.1		0.1		0.1		0.1	
Depth (m)	103	99	97	98	102	99	100	98	99	101	100	98
Sample No.	1	2	1	2	1	2	1	2	1	2	1	2
CRUSTACEA												
Ostracoda	17	16	21	7	17	7	9	25	11	18	6	5
Leptostraca	0	0	0	0	0	0	0	0	0	0	0	0
Tanaidacea	4	3	1	1	4	2	2	0	1	1	2	0
Isopoda	0	0	0	0	0	0	0	0	0	0	0	0
Amphipoda												
Caprellidea	0	0	0	0	0	0	0	0	0	0	0	0
Gammaridea	6	4	4	9	9	10	10	5	2	0	5	5
Mysidacea	0	0	1	0	1	0	2	0	0	0	0	0
Cumacea	2	13	3	4	14	5	6	1	7	4	9	3
Euphausiacea	0	0	0	0	0	0	0	0	0	0	1	1
Decapoda												
Natantia	0	0	0	1	0	1	0	0	0	0	0	0
Astacura	0	0	0	0	0	0	0	0	0	0	0	0
Brachyura	0	0	0	2	0	0	0	0	0	0	0	0
ANNELIDA												
Polychaeta	85	165	52	38	209	151	92	317	71	78	256	183
ECHINODERMATA												
Ophiuroidea	4	11	0	0	0	0	0	3	0	1	2	2
Holothuroidea	0	1	0	0	0	0	0	1	1	0	0	0
Echinoidea	0	0	0	0	0	0	0	0	1	0	0	0
MOLLUSCA												
Pelecypoda	202	297	370	320	199	454	189	305	198	185	154	151
Gastropoda	0	0	2	0	0	0	3	0	2	2	0	2

Table I.1. (continued)

Date	Jun. 1		Jun. 16	
Grab size (m^2)	0.1		0.1	
Depth (m)	101	96	100	102
Sample No.	1	2	1	2
CRUSTACEA				
Ostracoda	17	17	16	13
Leptostraca	0	0	0	0
Tanaidacea	0	0	0	0
Isopoda	0	0	0	0
Amphipoda				
Caprellidea	0	0	0	0
Gammaridea	7	9	17	15
Mysidacea	1	0	0	0
Cumacea	11	4	6	3
Euphausiacea	0	1	0	0
Decapoda				
Natantia	1	0	0	0
Astacura	0	0	0	0
Brachyura	0	0	1	0
ANNELIDA				
Polychaeta	201	147	138	142
ECHINODERMATA				
Ophiuroidea	0	0	4	1
Holothuroidea	1	3	0	0
Echinoidea	0	0	0	0
MOLLUSCA				
Pelecypoda	258	230	256	177
Gastropoda	0	0	1	2

Table I.2. Abundance of Pelecypoda species at station 7.

Date	Aug. 22 '74		Sep. 10	Oct. 4		Nov. 12		Dec. 3		Jan. 31 '75	
Grab size (m^2)	0.1		0.2	0.1		0.1		0.1		0.1	
Depth (m)	109	113	100	104	105	101	104	98	100	97	96
Sample No.	1	2	1	1	2	1	2	1	2	1	2
MOLLUSCA											
Pelecypoda											
Acila castrensis	0	0	0	0	0	0	0	0	0	0	0
? Acila castrensis	0	0	0	0	0	0	0	0	0	0	0
Nucula bellotii	2	0	1	0	0	0	0	1	1	0	0
Megacrenella columbiana	0	0	0	0	0	0	0	0	0	0	0
Modiolus modiolus	1	0	0	0	0	0	0	0	0	0	0
Musculus substriatus	0	0	0	0	0	0	0	0	0	0	0
Cyclopecten randolphi	0	0	0	0	0	0	0	0	0	0	1
Cyclocardia ventricosa	0	0	6	5	4	0	1	5	0	1	6
Mysella tumida	4	1	6	0	1	1	2	0	1	3	1
Parvilucina tenuisculpta	0	0	0	0	0	0	0	0	0	0	0
Axinopsida serricata	9	10	5	10	3	5	6	0	0	5	1
Clinocardium nuttallii	0	0	0	0	0	0	0	0	0	0	0
Nemocardium centifilosum	0	0	0	1	0	0	0	0	0	1	0
Psephidia lordi	222	13	813	783	292	522	621	475	399	457	295
Macoma alaskana	0	0	0	0	0	0	0	0	0	0	0
Macoma carlottensis	148	102	143	78	66	46	71	25	49	130	126
Macoma carlottensis?	0	0	0	0	0	0	0	0	0	0	0
Macoma elimata	14	13	19	8	16	11	11	2	11	7	5
Macoma elimata?	0	0	0	0	0	0	0	0	0	0	0
Macoma inquinata?	0	0	0	0	0	0	0	0	0	0	0
Macoma obliqua	0	0	0	0	0	1	0	0	0	0	0
Macoma obliqua?	0	0	0	0	0	0	0	0	0	0	0
Macoma nasuta	0	0	0	0	0	0	0	0	0	0	0
Macoma spp?	6	9	0	11	13	2	5	3	0	0	0
Hiatella arctica	0	0	1	0	0	0	0	15	1	3	4
Mya arenaria	0	0	0	0	0	1	0	0	0	0	0

Date	Feb. 19		Mar. 3		Mar. 31		Apr. 16		May 1		May 15	
Grab size (m^2)	0.1		0.1		0.1		0.1		0.1		0.1	
Depth (m)	102	99	98	100	100	101	101	103	100	98	103	98
Sample No.	1	2	1	2	1	2	1	2	1	2	1	2
MOLLUSCA												
Pelecypoda												
Acila castrensis	0	0	0	1	0	1	1	0	0	0	1	0
? Acila castrensis	0	0	0	0	0	0	0	0	0	0	2	0
Nucula bellotii	0	0	0	0	0	1	1	1	0	1	1	1
Megacrenella columbiana	0	0	0	0	0	2	0	0	0	0	0	0
Modiolus modiolus	0	0	0	0	0	0	0	0	0	0	0	0
Musculus substriatus	0	0	0	0	0	0	0	0	0	0	0	0
Cyclopecten randolphi	0	0	0	0	0	0	0	0	0	0	0	0
Cyclocardia ventricosa	4	3	0	0	6	2	0	0	0	12	0	0
Mysella tumida	1	1	0	0	2	0	1	0	0	2	0	2
Parvilucina tenuisculpta	0	0	0	0	0	1	0	0	0	0	0	0
Axinopsida serricata	6	13	7	7	10	6	8	7	4	5	3	5
Clinocardium nuttallii	0	0	0	0	0	0	0	0	0	0	0	0
Nemocardium centifilosum	0	2	0	1	6	4	2	0	0	0	1	0
Psephidia lordi	147	222	194	280	348	444	47	162	40	1034	273	429
Macoma alaskana	0	0	0	0	0	1	0	0	0	0	0	0
Macoma carlottensis	125	128	101	172	179	96	142	175	184	260	217	257
Macoma carlottensis?	0	0	0	0	0	0	0	0	0	0	0	0
Macoma elimata	6	11	8	9	16	13	4	10	5	2	9	11
Macoma elimata?	0	0	0	0	0	0	2	0	0	0	0	0
Macoma inquinata?	0	0	0	0	0	0	0	1	0	0	0	0
Macoma obliqua	0	0	0	0	0	0	0	0	0	0	0	0
Macoma obliqua?	0	0	0	0	0	0	0	0	0	0	1	0
Macoma nasuta	0	0	0	0	0	0	0	1	0	0	0	0
Macoma spp?	1	0	2	0	2	1	0	2	0	3	0	0
Hiatella arctica	0	0	0	2	0	0	0	0	6	0	2	0
Mya arenaria	0	0	0	0	0	0	0	0	0	0	0	0

Table I.2. (continued)

Date	May 27		Jun. 11		Jul. 9		Jul. 16		Aug. 4		Aug. 19	
Grab size (m^2)	0.1		0.1		0.1		0.1		0.1		0.1	
Depth (m)	99	98	100	95	101	100	105	102	99	100	103	103
Sample No.	1	2	1	2	1	2	1	2	1	2	1	2
MOLLUSCA												
Pelecypoda												
Acila castrensis	0	0	0	0	0	0	0	0	0	1	0	1
? Acila castrensis	0	0	0	0	0	0	0	0	0	0	0	0
Nucula bellotii	1	0	0	1	5	0	1	0	0	0	7	0
Megacrenella columbiana	0	0	0	0	0	0	0	0	0	0	0	0
Modiolus modiolus	0	0	0	0	0	0	0	0	0	0	0	0
Musculus substriatus	0	1	0	0	0	0	0	0	0	0	0	0
Cyclopecten randolphi	0	0	0	1	0	0	0	0	0	0	0	0
Cyclocardia ventricosa	1	1	1	1	0	0	2	0	1	6	0	10
Mysella tumida	0	0	0	1	0	0	1	0	0	3	0	0
Parvilucina tenuisculpta	0	0	0	0	0	0	0	0	0	0	0	0
Axinopsida serricata	2	4	4	6	6	5	4	7	4	5	4	4
Clinocardium nuttallii	1	0	0	0	0	0	0	0	0	0	0	0
Nemocardium centifilosum	6	2	1	1	0	1	1	2	0	1	0	2
Psephidia lordi	515	455	268	390	323	51	317	142	196	718	140	718
Macoma alaskana	0	0	0	0	0	0	0	0	0	0	0	0
Macoma carlottensis	248	287	162	161	213	161	190	118	177	158	150	260
Macoma carlottensis?	0	0	0	0	0	0	0	0	0	1	0	0
Macoma elimata	5	6	2	11	5	10	14	14	12	17	6	6
Macoma elimata?	0	0	0	0	0	0	0	0	0	0	0	0
Macoma inquinata?	0	0	0	0	0	0	0	0	0	0	0	0
Macoma obliqua	0	2	0	1	0	0	0	1	1	0	0	0
Macoma obliqua?	0	0	0	0	0	0	0	0	0	0	0	0
Macoma nasuta	0	0	0	0	0	0	0	0	0	0	0	0
Macoma spp?	0	0	0	0	0	0	0	0	0	0	0	0
Hiatella arctica	0	10	0	19	0	23	0	0	0	0	0	0
Mya arenaria	0	0	0	0	0	0	0	0	0	0	0	0

Date	Sep. 3		Sep. 25		Oct. 3		Oct. 14		Oct. 30		Nov. 10	
Grab size (m^2)	0.1		0.1		0.1		0.1		0.1		0.1	
Depth (m)	104	104	107	105	100	100	101	103	103	97	102	99
Sample No.	1	2	1	2	1	2	1	2	1	2	1	2
MOLLUSCA												
Pelecypoda												
Acila castrensis	0	0	0	1	0	0	0	0	0	0	0	0
?Acila castrensis	1	0	0	0	0	0	0	0	0	0	0	0
Nucula bellotii	3	4	3	2	0	0	1	1	0	3	0	2
Nuculana cellulita	0	0	0	0	0	0	0	0	0	0	0	0
Megacrenella columbiana	0	0	0	0	0	1	0	0	0	0	0	0
Modiolus modiolus	0	0	0	0	0	0	0	0	0	0	0	0
Musculus substriatus	0	0	0	0	1	0	0	0	0	0	0	0
Cyclopecten randolphi	0	0	0	0	0	0	0	0	0	0	0	0
Cyclocardia ventricosa	0	0	1	7	8	1	1	6	3	1	1	2
Mysella tumida	0	0	0	0	0	0	3	3	0	0	3	0
Parvilucina tenuisculpta	0	0	0	0	0	0	0	0	0	0	0	0
Axinopsida serricata	5	2	7	2	1	4	5	10	6	29	7	11
Clinocardium nuttallii	0	0	0	0	0	0	0	1	0	0	0	0
Nemocardium centifilosum	0	1	0	3	0	0	1	0	1	0	0	2
Psephidia lordi	141	219	102	190	585	67	300	255	267	121	212	258
Macoma alaskana	0	0	0	0	0	0	0	0	0	0	0	0
Macoma alaskana?	0	0	0	0	0	0	0	0	0	0	0	0
Macoma carlottensis	127	139	157	80	183	145	130	232	152	133	101	128
Macoma carlottensis?	0	0	0	0	0	0	0	0	0	0	0	0
Macoma elimata	9	7	8	4	15	4	6	4	13	9	11	11
Macoma elimata?	0	0	0	0	0	0	0	0	0	0	0	0
Macoma inquinata?	0	0	0	0	0	0	0	0	0	0	0	0
Macoma obliqua	0	0	0	0	0	0	0	1	2	0	1	0
Macoma obliqua?	0	0	0	0	0	0	0	1	0	0	0	0
Macoma nasuta	0	0	0	0	0	0	0	0	0	0	0	0
Macoma spp?	0	0	1	0	0	0	0	0	0	0	37	45
Hiatella arctica	0	1	0	0	0	1	0	2	0	6	0	0
Mya arenaria	0	0	0	0	0	0	0	0	0	0	0	0

Table I.2. (continued)

Date	Nov. 19		Dec. 18		Jan. 6 '76		Jan. 20		Feb. 11		Feb. 18	
Grab size (m^2)	0.1		0.1		0.1		0.1		0.1		0.1	
Depth (m)	102	103	99	96	101	102	101	100	100	99	98	102
Sample No.	1	2	1	2	1	2	1	2	1	2	1	2
MOLLUSCA												
Pelecypoda												
Acila castrensis	0	1	0	0	0	1	0	0	0	0	0	0
?Acila castrensis	0	0	0	0	0	0	0	0	0	0	0	0
Nucula bellotii	1	1	1	2	0	0	0	0	2	3	0	1
Nuculana cellulita	0	0	0	0	0	0	0	0	0	0	0	0
Megacrenella columbiana	0	0	0	0	0	0	0	0	0	0	0	0
Modiolus modiolus	0	0	0	0	0	0	0	0	0	0	0	0
Musculus substriatus	0	0	0	0	0	0	0	0	0	0	0	0
Cyclopecten randolphi	0	0	0	0	0	0	0	0	0	0	0	0
Cyclocardia ventricosa	3	4	1	0	1	3	1	1	0	0	3	0
Mysella tumida	0	0	0	0	0	0	1	2	0	0	1	0
Parvilucina tenuisculpta	0	0	0	0	0	0	0	0	0	0	0	0
Axinopsida serricata	6	10	47	14	13	16	12	17	55	81	13	30
Clinocardium nuttallii	0	0	0	0	0	0	0	0	0	0	0	0
Nemocardium centifilosum	1	1	2	1	0	1	0	0	1	1	6	3
Psephidia lordi	262	397	63	180	133	374	13	120	70	106	366	108
Macoma alaskana	0	0	0	0	0	0	0	0	0	0	0	0
Macoma alaskana?	0	0	0	0	0	0	0	0	1	0	0	0
Macoma carlottensis	99	154	79	115	101	95	57	85	82	88	66	86
Macoma carlottensis?	0	0	0	0	0	2	0	0	0	0	0	0
Macoma elimata	6	15	4	3	7	9	5	7	8	7	1	12
Macoma elimata?	0	0	0	0	0	0	0	0	0	0	0	0
Macoma inquinata?	0	0	0	0	0	0	0	0	0	0	0	0
Macoma obliqua	0	1	1	1	0	0	0	0	1	1	0	0
Macoma obliqua?	0	0	0	0	0	0	0	0	0	0	0	0
Macoma nasuta	0	0	0	0	0	0	0	0	0	0	0	0
Macoma spp?	29	22	0	0	0	0	0	4	0	0	3	0
Hiatella arctica	0	0	0	0	0	0	7	4	0	0	1	0
Mya arenaria	0	0	0	0	0	0	0	0	0	0	0	0

Date	Mar. 9		Mar. 17		Apr. 7		Apr. 22		May 4		May 20	
Grab size (m^2)	0.1		0.1		0.1		0.1		0.1		0.1	
Depth (m)	103	99	97	98	102	99	100	98	99	101	100	98
Sample No.	1	2	1	2	1	2	1	2	1	2	1	2
MOLLUSCA												
Pelecypoda												
Acila castrensis	0	1	0	0	0	0	0	0	0	1	0	0
?Acila castrensis	0	0	0	0	0	0	0	0	0	0	0	0
Nucula bellotii	0	1	1	2	0	0	2	4	1	2	2	1
Nuculana cellulita	0	1	0	0	0	0	0	0	0	0	0	0
Megacrenella columbiana	0	0	0	0	0	0	0	0	0	0	0	0
Modiolus modiolus	0	0	0	0	0	0	0	0	0	0	0	0
Musculus substriatus	0	0	0	0	0	0	0	0	0	0	0	0
Cyclopecten randolphi	0	0	0	1	0	0	0	0	0	0	0	0
Cyclocardia ventricosa	2	5	1	0	0	5	0	0	0	0	0	0
Mysella tumida	1	1	0	0	0	0	0	0	0	0	0	0
Parvilucina tenuisculpta	0	0	0	0	0	0	0	0	0	0	0	0
Axinopsida serricata	41	46	29	16	20	33	80	31	25	40	35	70
Clinocardium nuttallii	0	0	0	0	0	0	0	0	0	0	0	0
Nemocardium centifilosum	1	4	7	1	1	3	3	2	2	3	1	0
Psephidia lordi	48	162	283	175	126	334	121	169	126	85	47	43
Macoma alaskana	0	0	0	0	0	0	0	0	0	0	0	0
Macoma alaskana?	0	0	0	0	0	0	0	0	0	0	0	0
Macoma carlottensis	95	64	37	55	47	73	72	79	36	46	35	31
Macoma carlottensis?	0	0	0	0	0	0	0	0	0	0	0	0
Macoma elimata	10	5	5	5	5	5	10	8	7	7	2	4
Macoma elimata?	0	0	0	0	0	0	0	0	0	0	0	1
Macoma inquinata?	0	0	0	0	0	0	0	0	0	0	0	0
Macoma obliqua	1	1	1	1	0	0	0	0	0	0	0	1
Macoma obliqua?	0	0	0	0	0	0	0	0	0	1	0	0
Macoma nasuta	0	0	0	0	0	0	0	0	0	0	0	0
Macoma spp?	3	5	5	0	0	0	1	0	0	0	0	0
Hiatella arctica	0	1	1	64	0	1	0	12	1	0	32	0
Mya arenaria	0	0	0	0	0	0	0	0	0	0	0	0

Table I.2. (continued)

Date	Jun. 1		Jun. 16	
Grab size (m^2)	0.1		0.1	
Depth (m)	101	96	100	102
Sample No.	1	2	1	2
MOLLUSCA				
Pelecypoda				
Acila castrensis	0	0	0	0
?Acila castrensis	0	0	0	0
Nucula bellotii	2	0	1	0
Nuculana cellulita	0	0	0	0
Megacrenella columbiana	0	0	0	0
Modiolus modiolus	0	0	0	0
Musculus substriatus	0	0	0	0
Cyclopecten randolphi	0	0	0	0
Cyclocardia ventricosa	1	1	6	0
Mysella tumida	0	0	0	0
Parvilucina tenuisculpta	0	0	0	0
Axinopsida serricata	46	42	25	67
Clinocardium nuttallii	0	0	0	0
Nemocardium centifilosum	1	1	4	2
Psephidia lordi	132	121	114	35
Macoma alaskana	0	0	0	0
Macoma alaskana?	0	0	0	0
Macoma carlottensis	60	56	35	54
Macoma carlottensis?	0	0	0	0
Macoma elimata	11	9	5	15
Macoma elimata?	0	0	0	0
Macoma inquinata?	0	0	0	0
Macoma obliqua	0	0	2	0
Macoma obliqua?	0	0	0	0
Macoma nasuta	0	0	0	0
Macoma spp?	5	0	2	3
Hiatella arctica	0	0	62	1
Mya arenaria	0	0	0	0

Table I.3. Abundance of major taxa at station 8.

Date	Aug. 22 '74		Sep. 10	Oct. 4		Nov. 12		Dec. 3		Jan. 31 '75	
Grab size (m^2)	0.1		0.2	0.1		0.1		0.1		0.1	
Depth (m)	100	99	102	100	103	92	100	103	99	99	99
Sample No.	1	2	1	1	2	1	2	1	2	1	2
CRUSTACEA											
Ostracoda	0	4	14	17	10	0	2	3	4	1	0
Leptostraca	0	0	2	0	5	0	0	0	0	0	1
Tanaidacea	0	0	0	0	0	0	0	0	0	0	0
Isopoda	0	0	0	0	0	0	0	0	0	0	0
Amphipoda											
Caprellidea	0	0	1	0	0	0	0	0	0	0	0
Gammaridea	7	5	276	108	207	27	29	40	52	43	32
Mysidacea	0	0	0	0	0	0	0	0	0	0	0
Cumacea	0	0	1	1	6	0	0	0	1	0	0
Euphausiacea	1	2	1	0	0	0	0	0	0	0	0
Decapoda											
Natantia	0	0	0	0	0	0	0	0	0	0	0
Astacura	0	0	0	0	0	0	0	0	0	0	0
Brachyura	0	0	0	0	0	0	0	0	0	0	0
ANNELIDA											
Polychaeta	202	600	266	81	155	25	33	55	19	5	6
ECHINODERMATA											
Ophiuroidea	0	0	0	0	0	0	0	1	0	0	0
Holothuroidea	0	0	0	0	0	0	0	0	0	0	0
Echinoidea	0	0	0	0	0	0	0	0	0	0	0
MOLLUSCA											
Pelecypoda	0	0	5	1	8	6	4	0	0	2	4
Gastropoda	0	0	0	0	0	0	0	0	0	0	0

Date	Feb. 19		Mar. 3		Mar. 31		Apr. 16		May 1		May 15	
Grab size (m^2)	0.1		0.1		0.1		0.1		0.1		0.1	
Depth (m)	99	99	97	100	97	99	102	102	99	98	97	103
Sample No.	1	2	1	2	1	2	1	2	1	2	1	2
CRUSTACEA												
Ostracoda	2	1	1	0	1	3	4	7	1	1	0	6
Leptostraca	0	0	0	55	0	0	0	0	0	0	0	10
Tenaidacea	0	0	0	31	0	0	0	0	0	0	0	0
Isopoda	0	0	0	0	0	0	0	0	0	0	0	0
Amphipoda												
Caprellidea	0	0	0	1	5	0	0	0	1	0	0	0
Gammaridea	80	285	118	288	73	367	103	40	37	71	92	383
Mysidacea	0	0	0	0	0	0	0	0	0	0	0	0
Cumacea	0	1	0	3	2	2	9	5	0	1	5	3
Euphausiacea	0	0	0	0	0	0	0	0	0	0	0	0
Decapoda												
Natantia	0	0	0	0	0	0	0	0	0	1	0	0
Astacura	0	0	0	0	0	0	0	0	0	0	0	0
Brachyura	0	0	0	2	0	0	0	0	0	0	0	0
ANNELIDA												
Polychaeta	42	145	36	30	72	155	237	17	47	191	132	556
ECHINODERMATA												
Ophiuroidea	0	0	0	0	0	0	0	0	0	0	0	0
Holothuroidea	0	0	0	0	0	0	0	0	0	0	0	0
Echinoidea	0	0	0	0	0	0	0	0	0	0	0	0
MOLLUSCA												
Pelecypoda	14	18	4	16	6	39	10	24	23	5	9	47
Gastropoda	0	0	0	0	0	0	0	0	0	0	0	0

Table I.3. (continued)

Date	May 27		Jun. 11		Jul. 9		Jul. 16		Aug. 4		Aug. 19	
Grab size (m^2)	0.1		0.1		0.1		0.1		0.1		0.1	
Depth (m)	102	103	100	99	104	102	99	99	102	103	102	102
Sample No.	1	2	1	2	1	2	1	2	1	2	1	2
CRUSTACEA												
Ostracoda	1	4	5	2	2	0	2	1	1	0	4	6
Leptostraca	0	1	2	0	0	0	1	0	0	1	0	0
Tanaidacea	0	0	0	0	0	0	0	0	0	0	0	0
Isopoda	1	0	0	0	0	0	0	0	0	0	0	0
Amphipoda												
Caprellidea	0	0	0	0	0	0	0	0	0	0	0	1
Gammaridea	13	340	155	106	47	52	26	63	4	71	50	75
Mysidacea	0	0	0	0	0	0	0	0	0	0	0	0
Cumacea	0	2	15	15	3	0	0	6	5	7	8	3
Euphausiacea	0	0	0	0	0	0	0	0	0	0	0	0
Decapoda												
Natantia	0	0	0	0	0	0	0	0	0	0	0	0
Astacura	0	0	0	0	0	0	0	0	0	0	0	0
Brachyura	0	0	0	0	0	1	0	0	1	0	0	3
ANNELIDA												
Polychaeta	198	182	150	308	128	168	115	210	49	166	68	95
ECHINODERMATA												
Ophiuroidea	0	0	0	1	0	0	0	0	0	0	0	0
Holothuroidea	0	0	0	0	0	0	0	0	0	0	0	0
Echinoidea	0	0	0	0	0	0	0	0	0	0	0	0
MOLLUSCA												
Pelecypoda	4	9	18	29	8	4	30	16	10	8	19	23
Gastropoda	0	0	0	0	0	0	0	0	0	0	0	0

Date	Sep. 3		Sep. 25		Oct. 3		Oct. 14		Oct. 30		Nov. 10	
Grab size (m^2)	0.1		0.1		0.1		0.1		0.1		0.1	
Depth (m)	104	103	102	102	101	102	101	102	102	98	99	99
Sample No.	1	2	1	2	1	2	1	2	1	2	1	2
CRUSTACEA												
Ostracoda	4	1	3	0	3	3	1	2	0	2	0	0
Leptostraca	0	0	1	0	0	0	0	0	0	1	2	0
Tanaidacea	0	0	0	0	1	2	0	0	0	0	0	0
Isopoda	0	0	0	0	0	0	0	0	0	0	1	0
Amphipoda												
Caprellidea	0	6	0	0	0	2	0	0	0	0	0	0
Gammaridea	19	29	7	17	10	158	0	8	31	47	32	14
Mysidacea	0	0	0	0	0	0	0	0	0	1	0	0
Cumacea	5	7	12	7	6	0	5	4	7	11	0	7
Euphausiacea	0	0	0	0	0	1	0	0	0	0	0	0
Decapoda												
Natantia	0	0	0	0	0	0	0	0	3	0	0	0
Astacura	0	0	0	0	0	0	0	0	0	0	0	0
Brachyura	0	0	0	0	0	0	0	0	0	0	0	0
ANNELIDA												
Polychaeta	104	27	12	41	6	25	6	13	53	16	47	2
ECHINODERMATA												
Ophiuroidea	0	0	0	0	0	0	0	0	0	0	0	0
Holothuroidea	0	0	0	0	0	0	0	0	0	0	0	0
Echinoidea	0	0	0	0	0	0	0	0	0	0	0	0
MOLLUSCA												
Pelecypoda	8	10	6	6	4	6	3	8	45	5	9	5
Gastropoda	0	0	0	0	0	0	0	0	1	0	0	0

Table I.3. (continued)

Date	Nov. 21		Dec. 18		Jan. 6 '76		Jan. 20		Feb. 11		Feb. 18	
Grab size (m^2)	0.1		0.1		0.1		0.1		0.1		0.1	
Depth (m)	100	99	100	101	100	99	99	97	101	93	100	100
Sample No.	1	2	1	2	1	2	1	2	1	2	1	2
CRUSTACEA												
Ostracoda	30	5	1	0	1	1	0	1	0	2	3	2
Leptostraca	1	0	1	0	0	2	0	0	27	71	2	0
Tanaidacea	6	0	0	1	0	0	0	1	0	0	0	0
Isopoda	0	0	0	0	0	1	0	0	2	0	0	0
Amphipoda												
Caprellidea	0	0	0	0	0	0	0	0	0	0	0	0
Gammaridea	101	14	4	1	0	15	5	4	89	171	7	2
Mysidacea	1	0	0	0	0	0	0	0	0	0	0	0
Cumacea	18	1	0	0	0	0	2	0	2	0	0	0
Euphausiacea	0	0	0	0	0	0	0	0	0	0	0	0
Decapoda												
Natantia	1	0	0	0	0	0	0	1	0	1	0	0
Astacura	0	0	0	0	0	0	0	0	0	0	0	0
Brachyura	0	0	0	0	0	0	0	0	0	0	0	0
ANNELIDA												
Polychaeta	317	8	11	7	17	26	79	122	56	231	17	11
ECHINODERMATA												
Ophiuroidea	0	0	0	0	0	0	0	0	0	0	0	0
Holothuroidea	0	0	0	0	0	0	0	0	0	0	0	0
Echinoidea	0	0	0	0	0	0	0	0	0	0	0	0
MOLLUSCA												
Pelecypoda	40	52	53	29	66	49	9	9	22	46	16	9
Gastropoda	0	0	0	0	0	0	0	0	0	0	0	0

Date	Mar. 9		Mar. 17		Apr. 7		Apr. 22		May 4		May 20	
Grab size (m^2)	0.1		0.1		0.1		0.1		0.1		0.1	
Depth (m)	99	98	96	95	100	100	97	97	97	96	96	96
Sample No.	1	2	1	2	1	2	1	2	1	2	1	2
CRUSTACEA												
Ostracoda	1	0	1	1	0	0	2	3	1	1	0	0
Leptostraca	0	0	0	0	0	0	2	0	0	1	0	2
Tanaidacea	0	0	0	0	0	0	0	0	0	1	0	0
Isopoda	0	0	0	0	1	0	0	0	0	1	0	0
Amphipoda												
Caprellidea	0	0	0	0	1	0	0	0	0	0	0	0
Gammaridea	20	7	4	3	5	19	14	12	13	11	1	9
Mysidacea	0	0	0	0	0	0	0	0	0	0	0	0
Cumacea	0	0	0	0	2	0	6	0	0	3	0	0
Euphausiacea	0	0	0	0	0	0	0	0	0	0	0	0
Decapoda												
Natantia	0	0	0	0	0	0	0	0	0	0	0	0
Astacura	0	0	0	0	0	0	0	0	0	0	0	0
Brachyura	0	0	0	0	0	0	0	0	0	0	0	0
ANNELIDA												
Polychaeta	98	10	25	15	167	69	137	186	177	76	175	154
ECHINODERMATA												
Ophiuroidea	0	0	0	0	0	0	0	0	0	0	0	0
Holothuroidea	0	0	0	0	0	0	0	0	0	0	0	0
Echinoidea	0	0	0	0	0	0	0	0	0	0	0	0
MOLLUSCA												
Pelecypoda	35	25	9	9	31	26	26	39	30	26	10	26
Gastropoda	0	0	0	1	0	0	1	0	0	0	0	0

Table I.3. (continued)

Date	Jun. 1		Jun. 16	
Grab size (m^2)	0.1		0.1	
Depth (m)	95	97	101	100
Sample No.	1	2	1	2
CRUSTACEA				
Ostracoda	2	0	3	0
Leptostraca	0	0	0	0
Tanaidacea	0	0	0	0
Isopoda	1	0	0	1
Amphipoda				
Caprellidea	0	0	0	0
Gammaridea	1	4	5	2
Mysidacea	0	0	0	0
Cumacea	2	3	0	0
Euphausiacea	0	0	0	0
Decapoda				
Natantia	0	0	0	0
Astacura	0	0	0	0
Brachyura	0	0	1	0
ANNELIDA				
Polychaeta	164	132	62	172
ECHINODERMATA				
Ophiuroidea	0	0	0	0
Holothuroidea	0	0	0	0
Echinoidea	0	0	0	0
MOLLUSCA				
Pelecypoda	53	64	49	42
Gastropoda	0	0	0	0

Table I.4. Abundance of Pelecypoda species at station 8.

Date	Aug. 22 '74		Sep. 10		Oct. 4		Nov. 12		Dec. 3		Jan. 31 '75	
Grab size (m^2)	0.1		0.2		0.1		0.1		0.1		0.1	
Depth (m)	100	99	102		100	103	92	100	103	99	99	99
Sample No.	1	2	1		1	2	1	2	1	2	1	2
MOLLUSCA												
Pelecypoda												
Modiolus modiolus	0	0	0		0	0	0	0	0	0	0	0
Mysella tumida	0	0	0		0	0	0	0	0	0	0	0
Axinopsida serricata	0	0	0		0	0	0	1	0	0	0	0
Psephidia lordi	0	0	1		0	0	1	2	0	0	0	0
Macoma balthica?	0	0	0		0	0	0	0	0	0	0	0
Macoma carlottensis	0	0	0		0	3	0	0	0	0	2	4
Macoma carlottensis?	0	0	0		0	0	0	1	0	0	0	0
Macoma elimata	0	0	0		0	0	0	0	0	0	0	0
Macoma inquinata?	0	0	0		0	0	0	0	0	0	0	0
Macoma obliqua?	0	0	0		0	0	0	0	0	0	0	0
Macoma nasuta	0	0	0		0	0	0	0	0	0	0	0
Macoma spp?	0	0	1		0	5	0	0	0	0	0	0
Hiatella arctica	0	0	0		0	0	0	0	0	0	0	0
Mya arenaria	0	0	0		0	0	0	0	0	0	0	0
Indeterminate	0	0	3		1	0	5	0	0	0	0	0

Date	Feb. 19		Mar. 3		Mar. 31		Apr. 16		May 1		May 15	
Grab size (m^2)	0.1		0.1		0.1		0.1		0.1		0.1	
Depth (m)	99	99	97	100	97	99	102	102	99	98	97	103
Sample No.	1	2	1	2	1	2	1	2	1	2	1	2
MOLLUSCA												
Pelecypoda												
Modiolus modiolus	1	0	0	0	0	0	0	0	0	0	0	0
Mysella tumida	0	0	0	0	0	0	0	0	0	0	0	0
Axinopsida serricata	0	0	0	0	0	2	0	0	0	0	0	0
Psephidia lordi	0	0	0	0	1	2	0	1	0	0	0	1
Macoma balthica?	0	0	0	0	0	0	0	0	0	0	0	0
Macoma carlottensis	8	10	0	13	4	28	10	22	22	0	6	38
Macoma carlottensis?	0	0	0	0	0	0	0	0	0	0	0	0
Macoma elimata	1	0	0	0	0	0	0	0	1	0	0	2
Macoma inquinata?	0	0	0	0	1	1	0	0	0	0	0	0
Macoma obliqua?	0	0	0	0	0	0	0	0	0	0	0	2
Macoma nasuta	0	0	0	0	0	0	0	0	0	0	0	0
Macoma spp?	4	7	1	3	0	6	0	0	0	5	0	4
Hiatella arctica	0	1	0	0	0	0	0	0	0	0	0	0
Mya arenaria	0	0	0	0	0	0	0	0	0	0	0	0
Indeterminate	0	0	3	0	0	0	0	1	0	0	3	0

Table I.4. (continued)

Date	May 27		Jun. 11		Jul. 9		Jul. 16		Aug. 4		Aug. 19	
Grab size (m^2)	0.1		0.1		0.1		0.1		0.1		0.1	
Depth (m)	102	103	100	99	104	102	99	99	102	103	102	102
Sample No.	1	2	1	2	1	2	1	2	1	2	1	2
MOLLUSCA												
Pelecypoda												
Modiolus modiolus	0	0	0	0	0	0	0	0	0	0	0	0
Mysella tumida	0	0	0	0	0	0	0	0	0	0	1	0
Axinopsida serricata	0	0	0	0	0	0	0	0	0	0	0	0
Psephidia lordi	0	1	1	0	0	0	0	0	1	0	0	1
Macoma balthica?	0	0	1	1	0	0	0	0	0	0	0	0
Macoma carlottensis	3	5	15	27	7	3	30	14	9	8	18	21
Macoma carlottensis?	0	1	0	0	0	0	0	0	0	0	0	1
Macoma elimata	1	0	0	0	0	0	0	0	0	0	0	0
Macoma inquinata?	0	0	0	0	0	0	0	0	0	0	0	0
Macoma obliqua?	0	1	0	1	0	0	0	1	0	0	0	0
Macoma nasuta	0	0	1	0	0	0	0	0	0	0	0	0
Macoma spp?	0	0	0	0	1	1	0	1	0	0	0	0
Hiatella arctica	0	0	0	0	0	0	0	0	0	0	0	0
Mya arenaria	0	1	0	0	0	0	0	0	0	0	0	0
Indeterminate	0	0	0	0	0	0	0	0	0	0	0	0

Date	Sep. 3		Sep. 25		Oct. 3		Oct. 14		Oct. 30		Nov. 10	
Grab size (m^2)	0.1		0.1		0.1		0.1		0.1		0.1	
Depth (m)	104	103	102	102	101	102	101	102	102	98	99	99
Sample No.	1	2	1	2	1	2	1	2	1	2	1	2
MOLLUSCA												
Pelecypoda												
Nucula bellotii	0	0	0	0	0	0	0	0	0	0	0	0
Modiolus modiolus	0	0	0	0	0	0	0	0	0	0	0	0
Mysella tumida	0	0	0	0	0	0	0	0	0	0	0	0
Axinopsida serricata	0	0	0	0	1	0	0	0	0	0	0	0
Psephidia lordi	0	2	0	0	0	0	0	0	0	0	0	0
Macoma alaskana?	0	0	0	0	0	0	0	0	0	0	0	0
Macoma balthica	0	0	0	0	0	0	0	0	1	0	0	0
Macoma balthica?	0	0	0	0	0	0	0	0	0	0	0	0
Macoma calcarea?	0	0	0	0	0	0	0	0	0	0	0	0
Macoma carlottensis	7	8	6	6	3	2	3	8	35	2	4	3
Macoma carlottensis?	0	0	0	0	0	3	0	0	0	0	0	0
Macoma elimata	0	0	0	0	0	0	0	0	0	0	0	0
Macoma elimata?	0	0	0	0	0	0	0	0	0	0	0	1
Macoma inquinata?	1	0	0	0	0	0	0	0	0	0	0	0
Macoma obliqua	0	0	0	0	0	0	0	0	7	2	0	0
Macoma obliqua?	0	0	0	0	0	0	0	0	0	0	1	0
Macoma nasuta	0	0	0	0	0	0	0	0	0	0	0	0
Macoma spp.	0	0	0	0	0	0	0	0	2	1	4	1
Hiatella arctica	0	0	0	0	0	0	0	0	0	0	0	0
Mya arenaria	0	0	0	0	0	1	0	0	0	0	0	0
Indeterminate	0	0	0	0	0	0	0	0	0	0	0	0

Table I.4. (continued)

Date	Nov. 21		Dec. 18		Jan. 6 '76		Jan. 20		Feb. 11		Feb. 19	
Grab size (m^2)	0.1		0.1		0.1		0.1		0.1		0.1	
Depth (m)	100	99	100	101	100	99	99	97	101	93	100	100
Sample No.	1	2	1	2	1	2	1	2	1	2	1	2
MOLLUSCA												
Pelecypoda												
Nucula bellotii	0	0	1	0	0	0	1	0	0	0	0	0
Modiolus modiolus	0	0	0	0	0	0	0	0	0	0	0	0
Mysella tumida	0	0	0	0	0	0	0	0	0	0	0	0
Axinopsida serricata	0	1	0	0	0	0	0	0	0	0	0	1
Psephidia lordi	0	0	0	2	1	0	0	0	0	0	0	0
Macoma alaskana?	0	0	0	0	1	0	0	0	0	0	0	0
Macoma balthica	0	0	0	0	0	0	0	0	0	0	0	0
Macoma balthica?	0	0	0	0	0	0	0	0	0	0	0	1
Macoma calcarea?	0	0	0	0	0	0	0	0	0	0	0	0
Macoma carlottensis	30	26	49	24	60	41	4	7	15	36	14	7
Macoma carlottensis?	0	0	0	0	0	0	0	0	0	0	0	0
Macoma elimata	0	0	1	1	2	2	2	2	2	3	0	0
Macoma elimata?	0	1	0	0	0	0	0	0	0	0	0	0
Macoma inquinata?	0	0	0	0	0	0	0	0	0	0	0	0
Macoma obliqua	6	3	2	1	2	5	0	0	5	4	1	0
Macoma obliqua?	0	0	0	0	0	0	0	0	0	1	0	0
Macoma nasuta	0	0	0	0	0	0	2	0	0	0	0	0
Macoma spp?	4	21	0	0	0	0	0	0	0	2	1	0
Hiatella arctica	0	0	0	0	0	0	0	0	0	0	0	0
Mya arenaria	0	0	0	0	0	1	0	0	0	0	0	0
Indeterminate	0	0	0	1	0	0	0	0	0	0	0	0

Date	Mar. 9		Mar. 17		Apr. 7		Apr. 22		May 4		May 20	
Grab size (m^2)	0.1		0.1		0.1		0.1		0.1		0.1	
Depth (m)	99	98	96	95	100	100	97	97	97	96	96	96
Sample No.	1	2	1	2	1	2	1	2	1	2	1	2
MOLLUSCA												
Pelecypoda												
Nucula bellotii	1	0	0	0	0	0	0	0	1	0	0	0
Modiolus modiolus	0	0	0	0	0	0	0	0	0	0	0	0
Mysella tumida	0	0	0	0	0	0	0	0	0	0	0	0
Axinopsida serricata	0	0	0	0	0	0	0	0	1	0	0	0
Psephidia lordi	0	1	0	0	0	0	0	1	0	0	0	1
Macoma alaskana?	0	0	0	0	0	0	0	1	0	0	0	0
Macoma balthica	0	0	0	0	0	0	0	0	0	0	0	0
Macoma balthica?	0	0	0	0	0	0	0	0	0	0	0	0
Macoma calcarea?	0	0	0	0	0	0	0	0	0	0	0	0
Macoma carlottensis	19	18	4	7	20	29	37	22	20	14	10	24
Macoma carlottensis?	0	0	0	0	0	0	0	0	0	0	0	0
Macoma elimata	1	1	0	0	2	1	1	2	1	0	0	1
Macoma elimata?	0	0	0	0	0	0	0	0	0	0	0	0
Macoma inquinata?	0	0	0	0	0	0	0	0	0	0	0	0
Macoma obliqua	0	4	3	1	0	0	1	0	1	3	0	0
Macoma obliqua?	0	0	0	0	1	1	0	0	0	0	0	0
Macoma nasuta	0	0	0	0	0	0	0	0	0	0	0	0
Macoma spp?	13	1	2	0	3	0	0	0	6	9	0	0
Hiatella arctica	0	0	0	1	0	0	0	0	0	0	0	0
Mya arenaria	0	0	0	0	0	0	0	0	0	0	0	0
Indeterminate	1	0	0	0	0	0	0	0	0	0	0	0

Table I.4. (continued)

Date	Jun. 1		Jun. 16	
Grab size (m^2)	0.1		0.1	
Depth (m)	95	97	101	100
Sample No.	1	2	1	2
MOLLUSCA				
Pelecypoda				
Nucula bellotii	1	1	0	0
Modiolus modiolus	0	0	0	0
Mysella tumida	0	0	0	0
Axinopsida serricata	0	0	0	0
Psephidia lordi	1	0	1	1
Macoma alaskana?	0	0	0	0
Macoma balthica	0	0	0	0
Macoma balthica?	0	0	0	0
Macoma calcarea?	0	0	2	0
Macoma carlottensis	45	56	43	36
Macoma carlottensis?	0	0	0	0
Macoma elimata	1	2	2	1
Macoma elimata?	0	0	0	0
Macoma inquinata?	0	0	0	0
Macoma obliqua	1	1	0	0
Macoma obliqua?	0	0	0	0
Macoma nasuta	0	0	0	0
Macoma spp?	4	4	1	4
Hiatella arctica	0	0	0	0
Mya arenaria	0	0	0	0
Indeterminate	0	0	0	0

Table I.5. Abundance of major taxa at station 20.

Date	Aug. 22 '74		Sep. 10	Oct. 4		Nov. 12		Dec. 3		Jan. 31 '75	
Grab size (m^2)	0.1		0.2	0.1		0.1		0.1		0.1	
Depth (m)	121	133	132	137	137	132	134	131	130	133	134
Sample No.	1	2	1	1	2	1	2	1	2	1	2
CRUSTACEA											
Ostracoda	3	0	5	1	2	2	2	0	1	0	5
Leptostraca	0	0	0	0	0	0	0	0	0	0	0
Tanaidacea	0	0	0	0	0	0	0	0	0	0	0
Isopoda	0	0	1	0	1	0	0	0	1	0	0
Amphipoda											
Caprellidea	0	0	0	0	0	0	1	0	0	0	0
Gammaridea	48	4	161	26	36	44	29	47	36	16	21
Mysidacea	0	0	1	0	0	0	0	0	0	0	0
Cumacea	15	0	23	5	9	8	2	5	4	1	5
Euphausiacea	0	0	19	0	0	0	0	0	0	0	0
Decapoda											
Natantia	0	0	2	0	0	0	1	1	0	0	0
Astacura	0	0	0	0	0	0	0	0	0	0	0
Brachyura	0	0	0	0	0	0	0	0	1	0	0
ANNELIDA											
Polychaeta	67	13	154	39	82	32	92	91	135	54	46
ECHINODERMATA											
Ophiuroidea	4	3	20	6	6	5	3	6	2	4	3
Holothuroidea	1	0	1	0	1	0	2	0	0	0	1
Echinoidea	0	0	0	0	0	0	0	0	1	0	0
MOLLUSCA											
Pelecypoda	67	65	85	31	59	30	35	34	46	30	28
Gastropoda	0	0	0	0	2	0	0	0	0	0	0

Date	Feb. 18		Mar. 3		Mar. 31		Apr. 16		May 1		May 15	
Grab size (m^2)	0.1		0.1		0.1		0.1		0.1		0.1	
Depth (m)	132	134	134	134	131	131	133	132	132	133	134	134
Sample No.	1	2	1	2	1	2	1	2	1	2	1	2
CRUSTACEA												
Ostracoda	1	1	3	2	0	2	0	2	0	1	1	0
Leptostraca	0	0	0	0	0	0	0	0	0	0	0	0
Tanaidacea	0	0	0	0	0	0	0	0	0	0	0	0
Isopoda	0	0	0	0	0	0	0	0	0	1	0	0
Amphipoda												
Caprellidea	0	0	0	1	2	0	0	0	0	0	0	0
Gammaridea	37	32	31	31	35	25	27	21	22	32	21	22
Mysidacea	0	0	1	0	2	0	0	2	0	0	0	0
Cumacea	0	2	0	5	10	4	8	1	4	6	2	4
Euphausiacea	0	0	0	0	0	0	0	0	0	0	0	0
Decapoda												
Natantia	0	0	0	0	0	0	0	0	0	0	2	0
Astacura	0	0	0	0	0	0	0	0	0	0	0	0
Brachyura	0	0	0	0	0	0	0	0	0	0	2	0
ANNELIDA												
Polychaeta	60	37	57	42	30	11	61	39	31	30	80	44
ECHINODERMATA												
Ophiuroidea	4	2	1	2	5	0	8	0	3	4	1	1
Holothuroidea	0	3	0	1	1	0	0	2	1	0	1	0
Echinoidea	0	0	0	0	0	0	0	0	0	0	0	0
MOLLUSCA												
Pelecypoda	37	43	20	35	37	49	52	38	48	49	44	48
Gastropoda	0	0	0	0	0	0	0	0	0	0	0	0

Table I.5. (continued)

Date	May 27		Jun. 11		Jul. 9		Jul. 16		Aug. 4		Aug. 19	
Grab size (m^2)	0.1		0.1		0.1		0.1		0.1		0.1	
Depth (m)	130	130	129	128	134	131	132	132	130	134	134	134
Sample No.	1	2	1	2	1	2	1	2	1	2	1	2
CRUSTACEA												
Ostracoda	5	4	5	0	2	2	2	1	1	1	2	2
Leptostraca	0	0	0	0	0	0	0	0	0	0	0	0
Tanaidacea	0	0	0	0	0	0	0	0	0	0	0	0
Isopoda	0	0	0	0	0	1	0	0	1	0	0	0
Amphipoda												
Caprellidea	0	0	0	1	0	0	0	0	0	0	0	0
Gammaridea	32	19	25	35	15	16	19	35	25	11	16	28
Mysidacea	0	0	0	0	0	0	0	0	0	0	0	0
Cumacea	13	5	4	8	5	7	6	3	4	4	4	3
Euphausiacea	0	0	0	0	0	0	0	0	0	0	0	0
Decapoda												
Natantia	0	0	0	0	0	0	0	0	0	0	0	0
Astacura	0	0	0	0	0	0	0	0	0	0	0	0
Brachyura	0	0	0	0	1	0	0	0	0	0	0	0
ANNELIDA												
Polychaeta	35	24	88	85	56	93	68	48	44	55	33	34
ECHINODERMATA												
Ophiuroidea	1	2	0	1	4	2	2	3	12	0	5	2
Holothuroidea	0	1	2	0	2	1	1	0	1	0	0	0
Echinoidea	0	1	0	0	0	1	0	0	0	0	0	0
MOLLUSCA												
Pelecypoda	49	66	89	45	86	80	60	66	76	39	71	42
Gastropoda	0	0	0	0	0	0	0	0	0	0	0	0

Date	Sep. 3		Sep. 25		Oct. 3		Oct. 14		Oct. 30		Nov. 10	
Grab size (m^2)	0.1		0.1		0.1		0.1		0.1		0.1	
Depth (m)	132	134	130	131	133	131	130	131	136	134	134	134
Sample No.	1	2	1	2	1	2	1	2	1	2	1	2
CRUSTACEA												
Ostracoda	3	0	1	2	1	5	9	1	2	6	4	1
Leptostraca	0	0	0	0	0	0	0	0	0	0	0	0
Tanaidacea	0	0	0	1	0	0	0	0	0	1	0	0
Isopoda	0	0	0	0	0	1	0	0	0	0	0	0
Amphipoda												
Caprellidea	0	0	0	0	0	1	0	0	0	0	0	0
Gammaridea	28	15	34	18	24	28	25	14	26	20	20	26
Mysidacea	0	0	0	0	0	0	0	0	1	0	0	0
Cumacea	9	4	1	2	4	4	2	0	2	2	3	4
Euphausiacea	0	0	0	0	0	0	0	0	0	0	0	0
Decapoda												
Natantia	2	0	1	0	0	0	0	0	0	0	0	1
Astacura	0	0	0	0	0	0	0	0	1	1	0	1
Brachyura	0	0	0	0	0	0	0	1	0	0	0	0
ANNELIDA												
Polychaeta	35	36	47	84	75	55	32	25	70	49	29	70
ECHINODERMATA												
Ophiuroidea	9	5	4	6	3	4	10	0	5	7	5	3
Holothuroidea	1	2	0	1	0	0	1	1	1	0	1	0
Echinoidea	0	0	0	0	0	0	0	0	0	0	0	0
MOLLUSCA												
Pelecypoda	88	78	96	88	92	65	78	56	106	57	87	106
Gastropoda	0	0	1	0	0	0	1	0	0	0	0	0

Table I.5. (continued)

Date	Nov. 21		Dec. 18		Jan. 6 '76		Jan. 20		Feb. 11		Feb. 19	
Grab size (m^2)	0.1		0.1		0.1		0.1		0.1		0.1	
Depth	130	130	131	132	128	128	130	132	141	132	129	133
Sample No.	1	2	1	2	1	2	1	2	1	2	1	2
CRUSTACEA												
Ostracoda	2	4	4	1	2	6	0	3	3	5	4	0
Leptostraca	0	0	0	0	0	0	0	0	0	0	0	0
Tanaidacea	0	0	0	0	0	0	0	0	0	0	0	0
Isopoda	0	0	0	0	0	0	2	0	0	0	0	0
Amphipoda												
Caprellidea	0	0	0	0	0	0	0	0	0	0	1	0
Gammaridea	13	24	19	16	7	23	12	21	11	14	22	9
Mysidacea	0	0	1	0	0	0	0	0	0	0	0	0
Cumacea	0	2	0	0	2	0	0	0	0	0	7	0
Euphausiacea	0	0	0	0	0	0	0	0	0	0	0	0
Decapoda												
Natantia	0	0	1	0	0	0	1	0	0	0	0	0
Astacura	0	0	0	0	0	0	0	0	0	0	0	0
Brachyura	0	0	1	1	0	2	1	0	0	0	0	0
ANNELIDA												
Polychaeta	64	49	41	33	38	64	40	33	27	22	48	22
ECHINODERMATA												
Ophiuroidea	2	1	0	0	2	5	3	1	0	0	4	2
Holothuroidea	1	0	1	1	1	2	1	0	0	0	5	3
Echinoidea	0	0	0	0	1	1	0	0	0	0	0	0
MOLLUSCA												
Pelecypoda	90	102	50	114	79	82	82	67	53	51	74	71
Gastropoda	0	1	0	0	0	0	0	1	0	0	0	0

Date	Mar. 9		Mar. 17		Apr. 6		Apr. 21		May 4		May 20	
Grab size (m^2)	0.0		0.1		0.1		0.1		0.1		0.1	
Depth (m)	129	129	131	130	131	131	129	129	130	129	133	131
Sample No.	1	2	1	2	1	2	1	2	1	2	1	2
CRUSTACEA												
Ostracoda	5	4	0	0	1	0	1	2	0	1	1	2
Leptostraca	3	0	0	0	0	0	0	0	0	0	0	0
Tanaidacea	0	0	0	1	0	0	0	0	0	0	0	0
Isopoda	0	0	0	0	0	0	0	0	0	0	0	1
Amphipoda												
Caprellidea	0	0	0	0	0	0	0	0	0	0	0	0
Gammaridea	12	8	13	12	12	2	16	7	4	8	7	14
Mysidacea	0	0	0	0	0	0	0	0	0	0	0	0
Cumacea	1	1	3	2	0	0	6	3	1	0	1	3
Euphausiacea	0	0	0	0	0	0	0	0	0	0	0	0
Decapoda												
Natantia	0	0	0	0	0	0	0	0	0	0	0	0
Astacura	0	0	0	0	0	0	0	0	0	0	0	0
Brachyura	0	0	0	0	0	0	0	0	0	0	0	0
ANNELIDA												
Polychaeta	44	51	38	26	34	56	44	58	19	25	58	95
ECHINODERMATA												
Ophiuroidea	1	1	3	5	0	0	2	0	0	0	5	4
Holothuroidea	2	0	0	1	0	0	0	0	0	0	3	4
Echinoidea	0	0	1	0	0	0	0	0	0	0	0	0
MOLLUSCA												
Pelecypoda	82	91	69	102	51	34	70	63	45	54	94	109
Gastropoda	0	0	0	0	1	0	1	0	0	0	0	0

Table I.5. (continued)

Date	Jun. 1		Jun. 16
Grab size (m^2)	0.1		0.1
Depth (m)	130	131	132 131
Sample No.	1	2	1 & 2
CRUSTACEA			
Ostracoda	2	4	3
Leptostraca	0	0	0
Tanaidacea	0	0	0
Isopoda	0	0	0
Amphipoda			
Caprellidea	0	0	0
Gammaridea	10	22	25
Mysidacea	0	0	0
Cumacea	10	4	8
Euphausiacea	0	0	0
Decapoda			
Natantia	0	0	0
Astacura	0	1	0
Brachyura	0	0	0
ANNELIDA			
Polychaeta	81	65	74
ECHINODERMATA			
Ophiuroidea	5	3	1
Holothuroidea	1	0	3
Echinoidea	0	0	0
MOLLUSCA			
Pelecypoda	137	119	117
Gastropoda	0	0	1

Table I.6. Abundance of Pelecypoda species at station 20.

Date	Aug. 22 '74		Sep. 10	Oct. 4		Nov. 12		Dec. 3		Jan. 31 '75	
Grab size (m^2)	0.1		0.2	0.1		0.1		0.1		0.1	
Depth (m)	121	133	132	137	137	132	134	131	130	133	134
Sample No.	1	2	1	1	2	1	2	1	2	1	2
MOLLUSCA											
Pelecypoda											
Acila castrensis	0	1	0	0	0	0	0	0	1	0	0
Nucula bellotii	0	0	4	3	1	0	0	1	0	0	0
Yoldia thraciaeformis	0	0	0	0	0	0	0	0	0	0	0
Modiolus modiolus	0	0	0	0	0	0	0	1	0	0	0
Mysella tumida	0	0	0	0	0	0	0	0	0	0	0
? Mysella tumida	0	0	0	0	0	1	0	0	0	0	0
Lucinoma annulata	0	0	0	0	0	0	0	0	0	1	0
Parvilucina tenuisculpta	0	0	0	0	0	0	0	0	0	0	0
Axinopsida serricata	11	12	21	11	11	11	7	17	14	11	9
Compsomyax subdiaphana	0	0	0	0	0	1	0	0	0	1	0
Psephidia lordi	0	0	0	0	0	0	0	0	0	1	0
Macoma carlottensis	51	52	59	17	41	17	28	15	29	15	19
Macoma elimata	1	0	0	0	0	0	0	0	2	1	0
Macoma elimata?	0	0	1	0	0	0	0	0	0	0	0
Macoma spp?	0	0	0	0	5	0	0	0	0	0	0
Indeterminate	4	0	0	0	1	0	0	0	0	0	0

Date	Feb. 18		Mar. 3		Mar. 31		Apr. 16		May 1		May 15	
Grab size (m^2)	0.1		0.1		0.1		0.1		0.1		0.1	
Depth (m)	132	134	134	134	131	131	133	132	132	133	134	134
Sample No.	1	2	1	2	1	2	1	2	1	2	1	2
MOLLUSCA												
Pelecypoda												
Acila castrensis	0	0	0	0	0	0	0	0	0	0	0	0
Nucula bellotii	1	1	0	1	0	1	2	2	0	1	1	0
Yoldia thraciaeformis	0	0	0	0	0	0	1	0	0	0	0	0
Modiolus modiolus	0	0	0	0	0	0	0	0	0	0	0	0
Mysella tumida	0	1	0	1	0	0	0	1	0	0	0	1
? Mysella tumida	0	0	0	0	0	0	0	0	0	0	0	0
Lucinoma annulata	0	0	0	0	0	0	0	0	0	0	0	0
Parvilucina tenuisculpta	0	1	0	0	0	0	0	0	0	0	0	0
Axinopsida serricata	11	14	6	11	7	8	11	11	10	11	11	9
Compsomyax subdiaphana	0	0	0	0	0	0	0	0	0	0	0	0
Psephidia lordi	0	0	0	0	0	2	0	0	0	0	0	0
Macoma carlottensis	25	26	14	42	25	38	38	23	38	37	31	38
Macoma elimata	0	0	0	0	5	0	0	1	0	0	1	0
Macoma elimata?	0	0	0	0	0	0	0	0	0	0	0	0
Macoma spp?	0	0	0	0	0	0	0	0	0	0	0	0
Indeterminate	0	0	0	0	0	0	0	0	0	0	0	0

Table I.6. (continued)

Date	May 27		Jun. 11		Jul. 9		Jul. 16		Aug. 4		Aug. 19	
Grab size (m^2)	0.1		0.1		0.1		0.1		0.1		0.1	
Depth (m)	130	130	129	128	134	131	132	132	130	134	134	134
Sample No.	1	2	1	2	1	2	1	2	1	2	1	2
MOLLUSCA												
Pelecypoda												
Acila castrensis	0	0	0	0	0	0	0	1	0	0	0	0
Nucula bellotii	0	1	1	0	3	2	1	0	2	1	1	2
Yoldia thraciaeformis	0	0	0	0	0	0	0	0	0	0	0	0
Modiolus modiolus	0	0	0	0	0	0	0	0	0	0	0	0
Mysella tumida	0	0	0	0	0	0	0	1	0	0	0	0
? Mysella tumida	0	0	0	0	0	0	0	0	0	0	0	0
Lucinoma annulata	0	0	0	0	0	0	0	0	0	0	0	0
Parvilucina tenuisculpta	0	0	0	0	0	0	0	0	0	0	0	0
Axinopsida serricata	11	14	9	13	12	9	16	9	11	4	10	5
Compsomyax subdiaphana	0	1	0	0	0	0	1	0	0	0	0	0
Psephidia lordi	0	0	1	1	0	0	0	0	0	0	0	0
Macoma carlottensis	37	50	78	29	69	69	41	55	61	34	60	34
Macoma elimata	1	0	0	2	2	0	1	0	2	0	0	0
Macoma elimata?	0	0	0	0	0	0	0	0	0	0	0	0
Macoma spp?	0	0	0	0	0	0	0	0	0	0	0	0
Indeterminate	0	0	0	0	0	0	0	0	0	0	0	0

Date	Sep. 3		Sep. 25		Oct. 3		Oct. 14		Oct. 30		Nov. 10	
Grab size (m^2)	0.1		0.1		0.1		0.1		0.1		0.1	
Depth (m)	132	134	130	131	133	131	130	131	136	134	134	134
Sample No.	1	2	1	2	1	2	1	2	1	2	1	2
MOLLUSCA												
Pelecypoda												
Acila castrensis	0	0	0	0	1	0	0	0	0	0	0	0
Nucula bellotii	0	1	4	1	0	0	3	1	2	0	2	0
Yoldia thraciaeformis	0	0	0	0	0	0	0	0	0	0	0	0
Modiolus modiolus	0	0	0	0	0	0	0	0	0	0	0	0
Mysella tumida	2	1	2	0	0	0	0	0	1	0	0	0
? Mysella tumida	0	0	1	0	0	0	0	0	0	0	0	0
Lucinoma annulata	0	0	0	0	0	0	0	0	0	0	0	0
Parvilucina tenuisculpta	0	0	0	0	0	0	0	0	0	0	0	0
Axinopsida serricata	13	25	26	27	25	23	23	31	47	25	34	50
Nemocardium centifiloswm	0	0	0	0	0	0	1	0	0	0	0	0
Compsomyax subdiaphana	0	0	0	1	0	0	1	0	0	0	0	0
Psephidia lordi	0	1	0	0	0	0	0	0	0	0	0	0
Macoma carlottensis	73	50	63	57	64	42	49	23	54	31	37	49
Macoma carlottensis?	0	0	0	0	0	0	0	0	0	0	13	7
Macoma elimata	0	0	0	1	2	0	0	1	1	1	0	0
Macoma elimata?	0	0	0	0	0	0	0	0	0	0	0	0
Macoma obliqua	0	0	0	0	0	0	1	0	1	0	0	0
Macoma obliqua?	0	0	0	0	0	0	0	0	0	0	0	0
Macoma spp?	0	0	0	1	0	0	0	0	0	0	1	0
Indeterminate	0	0	0	0	0	0	0	0	0	0	0	0

Table I.6. (continued)

Date	Nov. 21		Dec. 18		Jan. 6 '76		Jan. 20		Feb. 11		Feb. 19	
Grab size (m^2)	0.1		0.1		0.1		0.1		0.1		0.1	
Depth (m)	130	130	131	132	128	128	130	132	141	132	129	133
Sample No.	1	2	1	2	1	2	1	2	1	2	1	2
MOLLUSCA												
Pelecypoda												
Acila castrensis	0	0	0	0	1	0	0	0	0	0	0	0
Nucula bellotti	1	2	1	2	0	0	1	0	0	1	1	0
Yoldia thraciaeformis	0	0	0	0	0	0	0	0	0	0	0	0
Modiolus modiolus	0	0	0	0	0	0	0	0	0	0	0	0
Mysella tumida	1	0	0	0	0	1	0	0	0	0	0	0
? Mysella tumida	0	0	0	0	0	0	0	0	0	0	0	0
Lucinoma annulata	0	0	0	0	1	0	0	0	0	1	0	0
Parvilucina tenuisculpta	0	0	0	0	0	0	0	0	0	0	0	0
Axinopsida serricata	46	38	20	50	40	36	31	33	33	34	30	46
Nemocardium centifilosum	0	0	0	0	0	0	0	0	0	0	0	0
Compsomyax subdiaphana	0	1	0	0	1	0	0	0	0	0	0	0
Psephidia lordi	0	0	0	0	0	0	0	0	0	0	2	0
Macoma carlottensis	41	60	28	62	36	44	49	33	19	15	39	24
Macoma carlottensis?	0	0	0	0	0	0	0	0	0	0	0	0
Macoma elimata	1	1	0	0	0	0	0	1	1	0	0	1
Macoma elimata?	0	0	0	0	0	0	0	0	0	0	0	0
Macoma obliqua	0	0	0	0	0	1	1	0	0	0	0	0
Macoma obliqua?	0	0	0	0	0	0	0	0	0	0	0	0
Macoma spp?	0	0	0	0	0	0	0	0	0	0	2	0
Indeterminate	0	0	1	0	0	0	0	0	0	0	0	0

Date	Mar. 9		Mar. 17		Apr. 6		Apr. 21		May 4		May 20	
Grab size (m^2)	0.1		0.1		0.1		0.1		0.1		0.1	
Depth (m)	129	129	131	130	131	131	129	129	130	129	133	131
Sample No.	1	2	1	2	1	2	1	2	1	2	1	2
MOLLUSCA												
Pelecypoda												
Acila castrensis	0	0	0	0	0	0	0	0	0	0	0	0
Nucula bellotti	0	4	0	1	0	2	0	2	0	0	0	2
Yoldia thraciaeformis	0	0	1	0	0	0	0	0	0	0	0	1
Modiolus modiolus	0	0	0	0	0	0	0	0	0	0	0	0
Mysella tumida	0	0	0	0	0	0	0	0	0	2	0	0
? Mysella tumida	0	0	0	0	0	0	0	0	0	0	0	1
Lucinoma annulata	0	0	0	0	0	0	0	0	0	0	0	0
Parvilucina tenuisculpta	0	0	0	0	0	0	0	0	0	0	0	0
Axinopsida serricata	48	30	46	36	23	16	28	20	26	35	44	40
Nemocardium centifilosum	0	0	0	0	0	0	0	0	0	0	0	0
Compsomyax subdiaphana	0	0	0	0	0	0	0	0	0	0	0	0
Psephidia lordi	0	1	0	0	0	0	0	0	0	0	0	0
Macoma carlottensis	30	52	21	63	27	16	41	41	19	16	47	58
Macoma carlottensis?	0	0	0	0	0	0	0	0	0	0	0	0
Macoma elimata	0	0	0	1	1	0	1	0	0	0	1	3
Macoma elimata?	0	0	0	0	0	0	0	0	0	0	0	0
Macoma obliqua	3	1	1	1	0	0	0	0	0	0	0	0
Macoma obliqua?	0	0	0	0	0	0	0	0	0	1	0	0
Macoma spp?	0	3	0	0	0	0	0	0	0	0	2	4
Indeterminate	1	0	0	0	0	0	0	0	0	0	0	0

Table I.6. (continued)

Date	Jun. 1		Jun. 16
Grab size (m^2)	0.1		0.1
Depth (m)	130	131	132 131
Sample No.	1	2	1 & 2
MOLLUSCA			
Pelecypoda			
Acila castrensis	0	0	1
Nucula bellotii	0	4	1
Yoldia thraciaeformis	0	0	0
Modiolus modiolus	0	0	0
Mysella tumida	0	0	0
? Mysella tumida	0	0	0
Lucinoma annulata	0	0	0
Parvilucina tenuisculpta	0	0	0
Axinopsida serricata	58	41	75
Nemocardium centifilosum	0	0	0
Compsomyax subdiaphana	0	0	0
Pseudidia lordi	0	0	0
Macoma carlottensis	70	72	38
Macoma carlottensis?	0	0	0
Macoma elimata	0	1	2
Macoma elimata?	0	0	0
Macoma obliqua	2	1	0
Macoma obliqua?	0	0	0
Macoma spp?	5	0	0
Indeterminate	2	0	0

APPENDIX II

Abundance of major taxa and species of Mollusca in samples taken October 1974 and November 1975 at intensive series stations.

Table II.1 Abundance of major taxa at intensive series stations October 1974.

Transect-Station	A-1		B-1		C-1		D-1		E-1		F-1	
Grab size (m^2)	0.03		0.03		0.03		0.03		0.03		0.03	
Depth (m)	16	16	13	14	15	13	17	16	15	15	16	14
Sample No.	1	2	1	2	1	2	1	2	1	2	2	3
CRUSTACEA												
Ostracoda	73	34	58	71	60	62	35	27	31	25	35	46
Leptostraca	0	0	0	0	0	0	0	0	0	0	0	0
Tanaidacea	0	0	0	0	1	0	0	0	1	1	2	0
Isopoda	1	0	0	0	0	0	0	0	0	0	0	0
Amphipoda												
Caprellidea	0	0	0	0	0	0	0	1	0	0	0	0
Gammaridea	1	0	1	1	1	0	0	2	4	8	0	2
Mysidacea	0	0	0	0	0	0	0	1	0	0	0	0
Cumacea	0	1	0	1	0	0	0	0	0	0	0	0
Euphausiacea	0	0	0	0	0	0	0	0	0	0	0	0
Decapoda												
Natantia	1	0	0	0	0	0	0	0	0	0	0	0
Astacura	0	0	0	0	0	0	0	0	0	0	0	0
Brachyura	0	0	0	0	2	0	0	0	0	0	0	0
ANNELIDA												
Polychaeta	6	11	6	9	28	3	10	49	56	6	35	29
ECHINODERMATA												
Ophiuroidea	0	0	0	0	0	0	0	0	1	0	0	0
Holothuroidea	0	0	0	0	0	0	0	0	0	0	0	0
Echinoidea	0	0	0	0	0	0	0	0	0	0	0	0
MOLLUSCA												
Pelecypoda	49	48	95	95	48	34	29	16	12	56	15	23
Gastropoda	0	1	0	0	0	0	0	0	1	0	0	1

Transect-Station	A-2		B-2		C-2		D-2		E-2		F-2	
Grab size (m^2)	0.03		0.03		0.03		0.03		0.03		0.03	
Depth (m)	32	33	30	34	28	32	32	31	29	29	32	30
Sample No.	1	2	1	2	1	2	1	2	1	2	2	3
CRUSTACEA												
Ostracoda	37	55	47	70	61	43	21	19	41	28	25	36
Leptostraca	0	0	0	0	0	0	0	0	0	0	0	0
Tanaidacea	0	0	0	0	3	0	0	0	0	0	1	0
Isopoda	0	0	0	0	0	0	0	0	0	0	0	0
Amphipoda												
Caprellidea	0	0	0	0	0	0	0	0	0	0	0	0
Gammaridea	2	6	1	1	0	0	0	0	2	5	2	1
Mysidacea	0	0	0	0	0	0	0	0	0	0	0	0
Cumacea	0	0	0	1	0	0	0	0	0	0	0	0
Euphausiacea	0	0	0	0	0	0	0	0	0	0	0	0
Decapoda												
Natantia	0	0	0	0	0	0	0	0	0	0	0	0
Astacura	0	0	0	0	0	0	0	0	0	0	0	0
Brachyura	0	0	0	0	0	1	0	0	0	0	0	1
ANNELIDA												
Polychaeta	2	10	5	14	48	4	21	8	10	20	46	40
ECHINODERMATA												
Ophiuroidea	0	0	0	0	0	0	0	0	0	0	0	0
Holothuroidea	0	0	0	0	0	0	0	0	0	0	0	0
Echinoidea	0	0	0	0	0	0	0	0	0	0	0	0
MOLLUSCA												
Pelecypoda	6	29	99	114	110	126	5	42	14	14	15	8
Gastropoda	0	0	0	0	0	1	2	0	0	0	0	1

Table II.1 (continued)

Transect-Station	A-3		B-3		C-3		D-3		E-3		F-3	
Grab size (m^2)	0.03		0.0		0.03		0.03		0.03		0.03	
Depth (m)	47	46	47	44	47	46	48	47	45	44	45	44
Sample No.	1	2	1	2	1	2	1	2	1	2	2	3
CRUSTACEA												
Ostracoda	21	13	37	65	36	63	37	40	47	64	44	29
Leptostraca	0	1	0	0	0	0	0	0	0	0	0	0
Tenaidacea	0	0	0	2	0	0	0	0	1	1	0	2
Isopoda	0	1	0	0	0	0	0	0	1	0	0	0
Amphipoda												
Caprellidea	0	0	0	0	0	0	0	0	0	0	0	3
Gammaridea	1	1	0	0	0	0	4	0	2	2	2	9
Mysidacea	0	0	0	0	0	0	0	0	0	0	0	0
Cumacea	0	0	0	0	0	1	0	0	0	0	0	1
Euphausiacea	0	0	0	0	0	0	0	0	0	0	0	0
Decapoda												
Natantia	0	0	0	0	0	0	0	0	0	0	0	0
Astacura	0	0	0	0	0	0	0	0	0	0	0	0
Brachyura	0	0	0	0	0	0	0	0	0	0	0	1
ANNELIDA												
Polychaeta	7	33	9	25	24	36	14	24	13	16	41	73
ECHINODERMATA												
Ophiuroidea	0	0	0	0	0	0	0	0	0	0	1	0
Holothuroidea	0	0	0	0	0	0	0	0	0	0	0	1
Echinoidea	0	0	0	0	0	0	0	0	0	0	0	0
MOLLUSCA												
Pelecypoda	6	4	122	127	102	116	79	70	43	66	51	44
Gastropoda	0	0	0	1	0	0	0	0	0	0	2	0

Transect-Station	A-4		B-4		C-4		D-4		E-4		F-4	
Grab size (m^2)	0.03		0.03		0.03		0.03		0.03		0.03	
Depth (m)	60	61	61	59	62	60	65	63	61	65	64	62
Sample No.	1	2	1	2	1	2	1	2	2	3	1	2
CRUSTACEA												
Ostrocoda	20	14	23	40	23	29	32	21	28	15	31	19
Leptostraca	0	1	0	0	0	0	0	0	4	0	0	0
Tanaidacea	1	0	0	1	0	0	0	0	1	1	1	1
Isopoda	0	0	0	0	0	0	0	0	0	0	0	0
Amphipoda												
Caprellidea	0	0	0	0	0	0	0	0	0	0	0	0
Gammaridea	0	0	0	4	0	0	2	1	1	3	6	3
Mysidacea	0	0	0	0	0	0	0	0	0	0	0	0
Cumacea	0	0	0	1	1	1	1	0	0	1	2	0
Euphausiacea	0	0	0	0	0	0	0	0	0	0	0	0
Decapoda												
Natantia	0	0	0	0	0	0	0	0	0	0	0	0
Astacura	0	0	0	0	0	0	0	0	0	0	0	0
Brachyura	0	0	0	0	0	0	0	0	0	0	0	0
ANNELIDA												
Polychaeta	15	12	19	19	11	37	40	11	27	22	36	51
ECHINODERMATA												
Ophiuroidea	0	0	0	0	0	0	0	1	1	0	0	0
Holothuroidea	0	0	0	0	0	0	0	0	0	0	0	2
Echinoidea	0	0	0	0	0	0	0	0	0	0	0	0
MOLLUSCA												
Pelecypoda	1	7	77	115	36	115	110	113	6	83	100	215
Gastropoda	0	0	0	0	0	0	0	0	0	0	0	0

Table II.1. (continued)

Transect-Station	A-5		B-5		C-5		D-5		E-5		F-5	
Grab size (m^2)	0.03		0.03		0.03		0.03		0.03		0.03	
Depth (m)	79	80	76	77	77	77	77	78	78	77	74	79
Sample No.	2	3	1	2	1	2	1	2	1	2	1	2
CRUSTACEA												
Ostrocoda	11	6	19	39	7	13	32	18	20	15	39	31
Leptostraca	11	0	0	0	0	0	0	0	0	0	0	0
Tanaidacea	12	41	23	49	0	0	1	0	2	0	2	7
Isopoda	0	1	0	0	0	0	0	0	0	0	0	0
Amphipoda												
Caprellidea	0	0	0	0	0	0	0	0	0	0	1	5
Gammaridea	23	28	10	29	2	1	4	5	0	3	8	8
Mysidacea	0	0	0	0	0	0	0	0	0	0	0	0
Cumacea	0	0	0	2	0	0	5	0	1	0	5	3
Euphausiacea	0	0	0	0	0	0	0	0	0	0	0	0
Decapoda												
Natantia	0	0	0	0	0	0	0	0	0	0	0	0
Astacura	0	0	0	0	0	0	0	0	0	0	0	0
Brachyura	0	0	0	0	0	0	0	0	0	0	0	0
ANNELIDA												
Polychaeta	34	15	12	76	24	9	20	15	24	21	124	72
ECHINODERMATA												
Ophiuroidea	0	0	0	2	0	0	0	0	0	0	0	2
Holothuroidea	0	0	0	0	0	0	0	0	0	0	0	1
Echinoidea	0	0	0	0	0	0	0	0	0	0	0	0
MOLLUSCA												
Pelecypoda	1	7	11	61	15	166	133	229	133	116	324	401
Gastropoda	0	0	0	0	0	0	0	0	0	0	0	0

Transect-Station	A-6		B-6		C-6		D-6		E-6		F-6	
Grab size (m^2)	0.03		0.03		0.03		0.03		0.03		0.03	
Depth (m)	95	96	95	96	92	96	90	95	93	90	89	93
Sample No.	2	3	1	2	1	2	1	2	2	3	1	2
CRUSTACEA												
Ostracoda	1	3	20	19	10	10	20	21	20	15	9	4
Leptostraca	0	2	0	0	0	0	0	0	0	0	0	0
Tanaidacea	4	60	32	25	0	0	0	1	0	2	1	0
Isopoda	0	0	0	0	0	1	0	0	0	1	0	0
Amphipoda												
Caprellidea	0	0	0	0	0	0	0	0	0	0	2	0
Gammaridea	29	216	78	75	4	0	8	5	3	6	15	6
Mysidacea	0	0	0	0	0	0	0	0	0	0	0	0
Cumacea	0	0	0	3	0	1	0	0	1	2	6	2
Euphausiacea	0	0	0	0	0	0	0	0	0	0	0	0
Decapoda												
Natantia	0	0	0	0	0	0	0	0	0	0	0	0
Astacura	0	0	0	0	0	0	0	0	0	0	0	0
Brachyura	0	0	0	0	0	0	0	0	0	0	0	0
ANNELIDA												
Polychaeta	14	49	81	27	20	30	22	23	22	27	58	34
ECHINODERMATA												
Ophiuroidea	0	0	3	0	0	0	0	0	0	0	0	0
Holothuroides	0	0	0	0	0	0	0	0	0	0	0	0
Echinoidea	0	0	0	0	0	0	0	0	0	0	0	0
MOLLUSCA												
Pelecypoda	4	8	171	53	11	50	208	147	209	95	307	289
Gastropoda	0	0	0	2	0	0	0	0	0	0	0	0

Table II.2. Abundance of major taxa at intensive series stations November 1975.

Transect-Station	A-1			B-1		C-1		D-1		E-1		F-1	
Grab size (m^2)	0.03			0.03		0.03		0.03		0.03		0.03	
Depth (m)	15	13	14	14	14	11	14	17	13	17	16	13	14
Sample No.	1	2	3	1	2	1	2	1	2	1	2	1	2
CRUSTACEA													
Ostrocoda	31	30	34	42	62	64	42	16	53	8	30	23	30
Leptostraca	0	0	0	0	0	0	0	1	1	0	0	0	0
Tanaidacea	0	0	0	0	0	0	0	0	0	1	2	0	1
Isopoda	0	0	0	0	0	0	0	0	0	0	0	0	0
Amphipoda													
Caprellidea	0	0	0	0	0	0	0	0	0	0	0	1	0
Gammaridea	0	0	0	0	0	0	0	1	1	0	0	0	2
Mysidacea	0	0	0	0	0	0	0	0	0	0	0	0	0
Cumacea	0	0	0	0	0	0	0	0	0	0	0	0	0
Euphausiacea	0	0	0	0	0	0	0	0	0	0	0	0	0
Decapoda													
Natantia	0	0	0	0	0	0	0	0	0	0	0	0	0
Astacura	0	0	0	0	0	0	0	0	0	0	0	0	0
Brachyura	3	0	0	0	0	0	0	0	0	0	0	0	0
ANNELIDA													
Polychaeta	15	11	6	26	28	16	15	14	22	32	32	19	50
ECHINODERMATA													
Ophiuroidea	0	0	0	0	0	0	0	0	0	0	0	0	0
Holothuroidea	0	0	0	0	0	0	0	0	0	2	0	0	0
Echinoidea	0	0	0	0	0	0	0	0	0	0	0	0	0
MOLLUSCA													
Pelecypoda	32	34	22	58	41	23	28	9	32	4	33	10	23
Gastropoda	0	0	0	0	0	0	0	0	1	0	0	1	0

Transect-Station	A-2			B-2			C-2		D-2		E-2		F-2	
Grab size (m^2)	0.03			0.03			0.03		0.03		0.03		0.03	
Depth (m)	29	32	29	26	29	28	31	31	31	28	32	29	31	30
Sample No.	1	2	3	1	2	3	1	2	1	2	1	2	1	2
CRUSTACEA														
Ostrocoda	34	36	21	27	44	55	55	64	18	9	47	31	32	28
Leptostraca	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tanaidacea	0	0	0	0	0	0	0	0	0	0	1	0	0	0
Isopoda	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Amphipoda														
Caprellidea	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gammaridea	11	1	1	0	3	0	0	0	2	0	0	1	0	0
Mysidacea	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cumacea	0	0	0	0	2	0	0	0	0	0	0	0	3	0
Euphausiacea	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Decapoda														
Natantia	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Astacura	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Brachyura	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ANNELIDA														
Polychaeta	33	10	10	8	19	11	33	57	21	23	29	27	19	17
ECHINODERMATA														
Ophiuroidea	0	0	0	0	0	0	1	0	0	0	0	0	0	0
Holothuroidea	0	0	0	0	0	0	1	1	2	0	0	0	0	0
Echinoidea	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MOLLUSCA														
Pelecypoda	43	47	75	22	85	101	40	72	6	6	9	5	2	7
Gastropoda	1	0	0	0	0	2	0	1	0	0	0	0	0	0

Table II.2. (continued)

Transect-Station	A-3			B-3		C-3		D-3		E-3		F-3	
Grab size (m^2)	0.03			0.03		0.03		0.03		0.03		0.03	
Depth (m)	44	45	42	46	45	44	46	50	48	47	42	46	45
Sample No.	1	2	3	1	2	1	2	1	2	1	2	1	2
CRUSTACEA													
Ostrocoda	31	28	69	42	31	41	22	10	13	52	42	11	12
Leptostraca	0	0	0	0	0	0	0	0	0	0	0	0	0
Tanaidacea	0	0	0	0	0	0	0	0	0	0	0	0	0
Isopoda	0	0	0	0	0	0	0	0	0	0	0	0	0
Amphipoda													
Caprellidea	0	0	0	0	0	0	0	0	0	0	0	0	0
Gammaridea	0	3	16	1	12	1	1	0	0	4	0	0	1
Mysidacea	0	0	0	0	0	0	0	0*	0	0	0	0	0
Cumacea	0	0	0	1	0	0	0	1	2	0	0	1	0
Euphausiacea	0	0	0	0	0	0	0	0	0	0	0	0	0
Decapoda													
Natantia	0	0	0	0	0	0	0	0	0	0	0	0	0
Astacura	0	0	0	0	0	0	0	0	0	0	0	0	0
Brachyura	0	0	1	0	0	0	0	0	0	0	0	0	0
ANNELIDA													
Polychaeta	13	12	15	21	26	34	49	20	8	19	20	51	49
ECHINODERMATA													
Ophiuroidea	0	0	0	0	0	0	0	0	0	2	0	0	1
Holothuroidea	0	0	0	0	0	0	0	0	0	0	0	0	0
Echinoidea	0	0	0	0	0	0	0	0	0	0	0	0	0
MOLLUSCA													
Pelecypoda	10	19	23	24	14	38	21	0	1	6	9	12	16
Gastropoda	0	0	0	0	0	0	0	0	0	1	0	2	0

Transect Station	A-4			B-4		C-4		D-4		E-4		F-4	
Grab size (m^2)	0.03			0.03		0.03		0.03		0.03		0.03	
Depth (m)	61	64	60	66	61	60	62	61	65	63	58	65	63
Sample No.	1	2	3	1	2	1	2	1	2	1	2	1	2
CRUSTACEA													
Ostrocoda	5	3	13	10	22	18	6	5	8	7	20	0	4
Leptostraca	0	0	0	0	0	0	0	0	0	0	0	0	0
Tanaidacea	0	0	1	1	0	5	1	0	1	0	1	0	0
Isopoda	0	0	0	0	0	0	0	0	0	0	0	0	0
Amphipoda													
Caprellidea	0	0	0	0	0	0	0	0	0	0	0	0	0
Gammaridea	3	3	2	3	1	3	2	0	2	0	2	1	1
Mysidacea	0	0	0	0	0	0	0	0	0	0	0	0	0
Cumacea	0	2	0	0	1	1	1	1	0	0	2	1	0
Euphausiacea	0	0	0	0	0	0	1	0	0	0	0	0	0
Decapoda													
Natantia	0	0	0	0	0	0	0	0	0	0	0	0	0
Astacura	0	0	0	0	0	0	0	0	0	0	0	0	0
Brachyura	0	0	0	0	0	0	0	0	0	0	0	0	0
ANNELIDA													
Polychaeta	5	7	16	20	21	58	60	8	75	19	40	32	30
ECHINODERMATA													
Ophiuroidea	0	0	0	0	0	1	2	0	0	0	0	0	0
Holothuroidea	0	0	0	0	0	0	0	0	0	0	0	0	0
Echinoidea	0	0	0	0	0	0	0	0	0	0	0	0	0
MOLLUSCA													
Pelecypoda	10	8	5	75	58	37	21	2	12	54	57	32	37
Gastropoda	0	0	0	0	0	0	0	0	0	0	3	0	0

Table II.2. (continued)

Transect-Station	A-5			B-5			C-5		D-5		E-5		F-5	
Grab size (m^2)	0.03			0.03			0.03		0.03		0.03		0.03	
Depth (m)	76	79	77	74	75	75	73	77	79	74	77	75	78	74
Sample No.	1	2	3	1	2	3	1	2	1	2	1	2	1	2
CRUSTACEA														
Ostrocoda	3	2	1	19	9	12	5	11	4	4	0	7	2	0
Leptostraca	5	0	6	0	0	0	0	0	0	0	0	0	0	0
Tanaidacea	15	39	4	35	6	4	0	1	2	6	0	1	0	2
Isopoda	1	0	0	0	0	0	0	0	0	0	0	0	0	0
Amphipoda														
Caprellidea	0	0	0	0	0	0	0	0	2	0	0	0	0	0
Gammaridea	9	9	5	5	9	3	4	5	1	6	2	1	3	1
Mysidacea	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cumacea	0	0	0	0	2	0	3	2	0	0	1	0	2	0
Euphausiacea	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Decapoda														
Natantia	0	1	0	0	0	0	0	0	0	0	0	0	0	0
Astacura	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Brachyura	2	0	0	1	2	1	0	0	0	0	0	0	0	0
ANNELIDA														
Polychaeta	34	17	30	34	24	25	44	33	31	60	29	32	37	26
ECHINODERMATA														
Ophiuroidea	0	0	0	1	0	0	0	0	0	0	0	0	0	0
Holothuroidea	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Echinoidea	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MOLLUSCA														
Pelecypoda	8	7	7	24	26	23	78	135	70	62	123	105	133	115
Gastropoda	0	0	0	0	1	0	0	0	3	1	0	1	0	0

Transect-Station	A-6			B-6		C-6		D-6		E-6		F-6	
Grab size (m^2)	0.03			0.03		0.03		0.03		0.03		0.03	
Depth (m)	97	95	94	95	91	90	90	89	92	89	90	90	91
Sample No.	1	2	3	1	2	1	2	1	2	1	2	1	2
CRUSTACEA													
Ostrocoda	2	2	1	1	3	3	12	5	0	8	8	2	2
Leptostraca	1	1	5	0	0	0	0	0	0	0	0	0	0
Tanaidacea	32	57	51	1	5	0	0	1	2	0	0	0	0
Isopoda	0	0	0	0	0	0	0	0	0	0	0	0	0
Amphipoda													
Caprellidea	0	0	0	0	0	0	0	0	0	0	0	0	0
Gammaridea	57	30	38	4	8	0	3	2	2	1	1	1	5
Mysidacea	0	0	0	0	0	0	0	0	0	0	0	0	0
Cumacea	0	0	0	2	1	0	2	0	0	0	0	0	0
Euphausiacea	0	0	0	0	0	0	0	0	0	0	0	0	0
Decapoda													
Natantia	0	1	0	0	0	0	0	0	0	0	0	0	0
Astacura	0	0	0	0	0	0	0	0	0	0	0	0	0
Brachyura	1	0	1	0	0	0	0	0	0	0	0	0	0
ANNELIDA													
Polychaeta	66	56	36	60	35	57	23	39	22	19	0	87	68
ECHINODERMATA													
Ophiuroidea	0	0	0	0	0	0	0	0	0	0	0	0	1
Holothuroidea	0	0	0	0	0	0	0	1	0	0	0	0	0
Echinoidea	0	0	0	0	0	0	0	0	0	0	0	0	0
MOLLUSCA													
Pelecypoda	37	27	20	35	31	74	125	151	103	193	92	276	150
Gastropoda	0	0	0	1	0	0	0	0	0	0	0	2	0

Table II.3. Abundance of Mollusca at intensive series stations October 1974.

Transect-Station	A-1		B-1		C-1		D-1		E-1		F-1	
Grab size (m^2)	0.03		0.03		0.03		0.03		0.03		0.03	
Depth (m)	16	16	13	14	15	13	17	16	15	15	16	14
Sample No.	1	2	1	2	1	2	1	2	1	2	2	3
MOLLUSCA												
Pelecypoda												
Acila castrensis	0	0	0	0	0	0	0	0	0	0	0	0
Nucula bellotii	0	0	0	0	0	0	0	0	0	0	0	0
Megacrenella columbiana	0	0	0	0	0	0	0	0	0	0	0	0
Cyclocardia ventricosa	0	0	0	0	0	0	0	0	0	0	0	0
Mysella tumida	0	0	0	0	0	0	0	0	1	0	0	0
Axinopsida serricata	0	0	0	0	0	2	0	2	0	0	0	1
Clinocardium nuttallii	0	0	1	0	0	0	0	0	1	0	0	0
Nemocardium centifilosum	0	0	0	0	0	0	0	0	0	0	0	0
Compsomyax subdiaphana	0	0	0	0	0	0	0	0	0	0	0	0
Psephidia lordi	44	45	93	94	47	28	28	12	10	56	15	22
Macoma alaskana	0	0	0	0	0	0	0	0	0	0	0	0
Macoma carlottensis	0	0	0	0	0	0	0	0	0	0	0	0
Macoma carlottensis?	0	0	0	0	0	0	0	0	0	0	0	0
Macoma elimata	0	0	0	0	0	0	0	1	0	0	0	0
Macoma elimata?	0	0	0	0	0	0	0	0	0	0	0	0
Macoma inquinata	0	0	0	0	0	0	0	0	0	0	0	0
Macoma obliqua	0	1	0	0	0	3	0	1	0	0	0	0
Macoma obliqua?	4	1	0	0	1	0	1	0	0	0	0	0
Macoma spp?	0	0	1	1	0	0	0	0	0	0	0	0
Hiatella arctica	0	0	0	0	0	0	0	0	0	0	0	0
Mya arenaria	1	1	0	0	0	1	0	0	0	0	0	0
Indeterminate	0	0	0	0	0	0	0	0	0	0	0	0
Gastropoda												
Bittium sp.	0	0	0	0	0	0	0	0	1	0	0	1
?Colus sp.	0	0	0	0	0	0	0	0	0	0	0	0
Naticidae	0	1	0	0	0	0	0	0	0	0	0	0

Transect-Station	A-2		B-2		C-2		D-2		E-2		F-2	
Grab size (m^2)	0.03		0.03		0.03		0.03		0.03		0.03	
Depth (m)	32	33	30	34	28	32	32	31	29	29	32	30
Sample No.	1	2	1	2	1	2	1	2	1	2	2	3
MOLLUSCA												
Pelecypoda												
Acila castrensis	0	0	0	0	0	0	0	0	0	0	0	0
Nucula bellotii	0	0	0	0	0	0	0	0	0	0	0	0
Megacrenella columbiana	0	0	0	0	0	0	0	0	0	0	0	0
Cyclocardia ventricosa	0	0	0	0	0	0	0	0	0	0	0	0
Mysella tumida	0	1	0	1	0	0	0	0	0	0	0	1
Axinopsida serricata	0	0	0	0	0	0	0	0	0	0	0	0
Clinocardium nuttallii	0	0	0	0	0	0	0	0	0	0	0	0
Nemocardium centifilosum	0	0	0	0	0	0	0	0	0	0	0	0
Compsomyax subdiaphana	0	0	0	0	0	0	1	0	0	0	0	0
Psephidia lordi	1	13	96	113	110	124	3	42	12	14	15	6
Macoma alaskana	0	0	0	0	0	0	0	0	0	0	0	0
Macoma carlottensis	0	0	0	0	0	0	0	0	0	0	0	0
Macoma carlottensis?	0	0	0	0	0	0	0	0	0	0	0	0
Macoma elimata	0	0	0	0	0	0	0	0	0	0	0	0
Macoma elimata?	0	0	0	0	0	0	0	0	0	0	0	0
Macoma inquinata	0	0	0	0	0	0	0	0	0	0	0	0
Macoma obliqua	5	0	0	0	0	0	0	0	0	0	0	0
Macoma obliqua?	0	14	2	0	0	2	1	0	2	0	0	1
Macoma spp?	0	0	0	0	0	0	0	0	0	0	0	0
Hiatella arctica	0	0	0	0	0	0	0	0	0	0	0	0
Mya arenaria	0	0	1	0	0	0	0	0	0	0	0	0
Indeterminate	0	1	0	0	0	0	0	0	0	0	0	0
Gastropoda												
Bittium sp.	0	0	0	0	0	0	0	0	0	0	0	1
?Colus sp.	0	0	0	0	0	0	1	0	0	0	0	0
Naticidae	0	0	0	0	0	1	1	0	0	0	0	0

Table II.3. (continued)

Transect-Station	A-3		B-3		C-3		D-3		E-3		F-3	
Grab size (m^2)	0.03		0.03		0.03		0.03		0.03		0.03	
Depth (m)	47	46	47	44	47	46	48	47	45	44	45	44
Sample No.	1	2	1	2	1	2	1	2	1	2	2	3
MOLLUSCA												
Pelecypoda												
Acila castrensis	0	0	0	0	0	0	0	0	0	0	0	0
Nucula bellotii	0	0	0	0	0	0	0	0	0	0	0	0
Megacrenella columbiana	0	0	0	0	0	0	0	0	0	0	0	0
Cyclocardia ventricosa	0	0	0	0	0	0	0	0	0	0	0	0
Mysella tumida	0	0	0	0	0	2	0	0	0	0	1	1
Axinopsida serricata	0	0	0	0	0	0	0	1	0	0	1	0
Clinocardium nuttallii	0	0	0	0	0	0	0	0	0	0	0	0
Nemocardium centifilosum	0	0	0	0	0	0	0	0	0	0	0	0
Compsomyax subdiaphana	0	0	0	0	0	0	0	0	0	0	0	0
Psephidia lordi	5	3	121	127	101	112	79	67	43	66	47	36
Macoma alaskana	0	0	0	0	0	0	0	0	0	0	0	0
Macoma carlottensis	0	0	0	0	0	0	0	0	0	0	1	2
Macoma carlottensis?	0	0	1	0	0	0	0	1	0	0	0	0
Macoma elimata	0	0	0	0	1	0	0	0	0	0	0	4
Macoma elimata?	0	0	0	0	0	2	0	0	0	0	0	0
Macoma inquinata	0	0	0	0	0	0	0	0	0	0	1	0
Macoma obliqua	0	1	0	0	0	0	0	0	0	0	0	0
Macoma obliqua?	0	0	0	0	0	0	0	0	0	0	0	0
Macoma spp?	1	0	0	0	0	0	0	0	0	0	0	1
Hiatella arctica	0	0	0	0	0	0	0	0	0	0	0	0
Mya arenaria	0	0	0	0	0	0	0	1	0	0	0	0
Indeterminate	0	0	0	0	0	0	0	0	0	0	0	0
Gastropoda												
Bittium sp.	0	0	0	0	0	0	0	0	0	0	0	0
?Colus sp.	0	0	0	1	0	0	0	0	0	0	2	0
Naticidae	0	0	0	0	0	0	0	0	0	0	0	0

Transect-Station	A-4		B-4		C-4		D-4		E-4		F-4	
Grab size (m^2)	0.03		0.03		0.03		0.03		0.03		0.03	
Depth (m)	60	61	61	59	62	60	63	63	61	63	63	62
Sample No.	1	2	1	2	1	2	1	2	2	3	1	2
MOLLUSCA												
Pelecypoda												
Acila castrensis	0	0	0	0	0	0	0	0	0	0	0	0
Nucula bellotii	0	0	0	0	0	0	0	0	0	0	0	0
Megacrenella columbiana	0	0	0	0	0	0	0	0	0	0	0	1
Cyclocardia ventricosa	0	0	0	0	0	0	0	0	0	0	0	0
Mysella tumida	0	0	1	0	0	6	0	0	0	2	0	0
Axinopsida serricata	0	0	0	0	0	0	0	0	0	0	0	0
Clinocardium nuttallii	0	0	0	0	0	0	0	1	0	0	0	0
Nemocardium centifilosum	0	0	0	0	0	0	0	0	0	0	0	0
Compsomyax subdiaphana	0	0	0	0	0	0	0	0	0	0	0	0
Psephidia lordi	1	5	74	115	33	107	107	111	3	81	96	213
Macoma alaskana	0	0	0	0	0	0	0	0	0	0	1	0
Macoma carlottensis	0	0	0	0	2	2	2	0	2	0	2	1
Macoma carlottensis?	0	0	0	0	0	0	0	0	0	0	0	0
Macoma elimata	0	0	0	0	1	0	1	0	1	0	0	0
Macoma elimata?	0	0	0	0	0	0	0	0	0	0	0	0
Macoma inquinata	0	0	0	0	0	0	0	0	0	0	0	0
Macoma obliqua	0	0	0	0	0	0	0	0	0	0	0	0
Macoma obliqua?	0	1	0	0	0	0	0	0	0	0	0	0
Macoma spp?	0	0	2	0	0	0	0	0	0	0	1	0
Hiatella arctica	0	0	0	0	0	0	0	1	0	0	0	0
Mya arenaria	0	0	0	0	0	0	0	0	0	0	0	0
Indeterminate	0	1	0	0	0	0	0	0	0	0	0	0
Gastropoda												
Bittium sp.	0	0	0	0	0	0	0	0	0	0	0	0
?Colus sp.	0	0	0	0	0	0	0	0	0	0	0	0
Naticidae	0	0	0	0	0	0	0	0	0	0	0	0

Table II.3. (continued)

Transect-Station	A-5		B-5		C-5		D-5		E-5		F-5	
Grab size (m^2)	0.03		0.03		0.03		0.03		0.03		0.03	
Depth (m)	79	80	76	77	77	77	77	78	78	77	74	79
Sample No.	2	3	1	2	1	2	1	2	1	2	1	2
MOLLUSCA												
Pelecypoda												
Acila castrensis	0	0	0	0	0	0	0	0	0	0	0	0
Nucula bellotii	0	0	0	0	0	0	0	0	0	0	1	0
Megacrenella columbiana	0	0	0	0	0	0	0	0	0	0	0	0
Cyclocardia ventricosa	0	0	0	0	0	0	0	0	0	0	0	0
Mysella tumida	0	0	0	0	0	0	0	0	0	1	1	0
Axinopsida serricata	0	0	0	0	1	0	0	0	0	0	0	0
Clinocardium nuttallii	0	0	0	0	0	0	1	0	0	0	0	0
Nemocardium centrifilosum	0	0	0	0	0	0	0	0	0	0	0	0
Compsomyax subdiaphana	0	0	0	0	0	0	0	0	0	0	0	0
Psephidia lordi	0	1	10	54	14	165	130	226	131	94	306	390
Macoma alaskana	0	0	0	0	0	0	0	0	0	0	0	0
Macoma carlottensis	0	3	0	5	0	0	1	2	1	18	15	6
Macoma carlottensis	0	0	0	0	0	0	0	0	0	0	0	0
Macoma elimata	0	0	0	1	0	0	1	1	1	2	1	4
Macoma elimata?	0	0	0	0	0	0	0	0	0	0	0	0
Macoma inquinata	0	0	0	0	0	0	0	0	0	0	0	0
Macoma obliqua	0	0	0	0	0	0	0	0	0	0	0	0
Macoma obliqua?	0	0	0	0	0	0	0	0	0	0	0	0
Macoma spp?	1	3	1	1	0	1	0	0	0	1	0	0
Hiatella arctica	0	0	0	0	0	0	0	0	0	0	0	1
Mya arenaria	0	0	0	0	0	0	0	0	0	0	0	0
Indeterminate	0	0	0	0	0	0	0	0	0	0	0	0
Gastropoda												
Bittium sp.	0	0	0	0	0	0	0	0	0	0	0	0
?Colus sp.	0	0	0	0	0	0	0	0	0	0	0	0
Naticidae	0	0	0	0	0	0	0	0	0	0	0	0

Transect-Station	A-6		B-6		C-6		D-6		E-6		F-6	
Grab size (m^2)	0.03		0.03		0.03		0.03		0.03		0.03	
Depth (m)	95	96	93	96	92	96	90	95	93	90	89	93
Sample No.	2	3	1	2	1	2	1	2	2	3	1	2
MOLLUSCA												
Pelecypoda												
Acila castrensis	0	0	1	0	0	0	0	0	0	0	0	0
Nucula bellotii	0	0	0	1	0	0	0	0	0	0	0	0
Megacrenella columbiana	0	0	0	0	0	0	0	0	0	0	0	0
Cyclocardia ventricosa	0	0	0	0	0	0	0	0	0	0	0	1
Mysella tumida	0	0	0	0	0	0	1	2	0	0	2	0
Axinopsida serricata	0	0	1	0	1	1	0	0	1	0	2	0
Clinocardium nuttallii	0	0	0	0	0	0	0	0	0	0	0	0
Nemocardium centrifilosum	0	0	1	0	0	0	0	0	0	0	0	0
Compsomyax subdiaphana	0	0	0	0	0	0	0	0	0	0	0	0
Psephidia lordi	1	2	163	36	1	4	203	141	192	80	292	270
Macoma alaskana	0	0	0	0	0	0	0	0	0	0	0	0
Macoma carlottensis	0	4	5	8	9	40	2	4	13	15	9	11
Macoma carlottensis?	0	0	0	0	0	0	0	0	0	0	0	2
Macoma elimata	0	1	0	2	0	4	2	0	2	0	2	5
Macoma elimata?	0	0	0	0	0	0	0	0	0	0	0	0
Macoma inquinata	0	0	0	0	0	0	0	0	0	0	0	0
Macoma obliqua	0	0	0	1	0	0	0	0	0	0	0	0
Macoma obliqua?	0	0	0	0	0	0	0	0	0	0	0	0
Macoma spp?	3	1	0	5	0	1	0	0	1	0	0	0
Hiatella arctica	0	0	0	0	0	0	0	0	0	0	0	0
Mya arenaria	0	0	0	0	0	0	0	0	0	0	0	0
Indeterminate	0	0	0	0	0	0	0	0	0	0	0	0
Gastropoda												
Bittium sp.	0	0	0	0	0	0	0	0	0	0	0	0
?Colus sp.	0	0	0	2	0	0	0	0	0	0	0	0
Naticidae	0	0	0	0	0	0	0	0	0	0	0	0

Table II.4. Abundance of Mollusca at intensive series stations November 1975.

Transect-Station	A-1			B-1		C-1		D-1		E-1		F-1	
Grab size (m^2)	0.03			0.03		0.03		0.03		0.03		0.03	
Depth (m)	15	13	14	14	14	11	14	17	13	17	16	13	14
Sample No.	1	2	3	1	2	1	2	1	2	1	2	1	2
MOLLUSCA													
Pelecypoda													
Nucula bellotii	0	0	0	0	0	0	0	0	0	0	0	0	0
Modiolus modiolus	0	0	0	0	0	0	0	0	0	0	0	0	0
Mysella tumida	0	0	0	0	1	0	0	0	0	0	0	0	0
Axinopsida serricata	0	1	0	0	0	1	0	0	2	1	3	1	2
Clinocardium nuttallii	0	0	0	1	0	0	0	0	0	0	0	0	0
Nemocardium centifilosum	0	0	0	0	0	0	0	0	0	0	0	0	0
Saxidomus giganteus	0	0	0	0	0	0	0	0	0	0	0	0	0
Compsomyax subdiaphana	0	0	0	0	0	0	0	0	0	0	0	0	0
Psephidia lordi	24	28	20	56	34	22	27	8	28	2	30	7	20
? Mactra sp.	0	0	0	0	0	0	0	0	0	0	0	0	1
Macoma alaskana	1	0	0	0	0	0	0	0	0	0	0	0	0
Macoma alaskana?	0	0	0	0	0	0	0	0	0	0	0	0	0
Macoma balthica	0	2	0	0	0	0	0	0	0	0	0	0	0
Macoma balthica?	0	0	0	0	0	0	0	0	0	0	0	0	0
Macoma carlottensis	2	0	0	0	0	0	0	0	0	0	0	0	0
Macoma carlottensis?	0	0	0	0	1	0	0	0	0	0	0	0	0
Macoma elimata	0	0	0	0	0	0	0	0	0	0	0	0	0
Macoma elimata?	0	0	0	0	0	0	0	0	0	0	0	0	0
Macoma nasuta	0	0	0	0	0	0	0	0	0	0	0	0	0
Macoma obliqua	2	1	0	0	1	0	1	1	0	1	0	0	0
Macoma obliqua?	0	0	0	1	3	0	0	0	2	0	0	0	0
Macoma spp?	3	1	2	0	0	0	0	0	0	0	0	1	0
Solen sicarius	0	0	0	0	1	0	0	0	0	0	0	0	0
Mya arenaria	0	0	0	0	0	0	0	0	0	0	0	0	0
Hiatella arctica	0	0	0	0	0	0	0	0	0	0	0	0	0
Pandora filosa?	0	0	0	0	0	0	0	0	0	0	0	0	0
Indeterminate	0	1	0	0	0	0	0	0	0	0	0	0	0
Gastropoda													
Bittium sp.	0	0	0	0	0	0	0	0	0	0	0	0	0
?Colus sp.	0	0	0	0	0	0	0	0	0	0	0	0	0
Naticidae	0	0	0	0	0	0	0	0	1	0	0	1	0
Indeterminate	0	0	0	0	0	0	0	0	0	0	0	0	0

Transect-Station	A-2			B-2			C-2		D-2		E-2		F-2	
Grab size (m^2)	0.03			0.03			0.03		0.03		0.03		0.03	
Depth (m)	29	32	29	26	29	28	31	31	31	28	32	29	31	30
Sample No.	1	2	3	1	2	3	1	2	1	2	1	2	1	2
MOLLUSCA														
Pelecypoda														
Nucula bellotii	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Modiolus modiolus	0	1	0	0	0	0	0	0	0	0	0	0	0	0
Mysella tumida	0	0	0	0	0	0	0	0	0	1	0	0	0	0
Axinopsida serricata	0	1	0	0	1	0	5	6	1	0	0	0	0	0
Clinocardium nuttallii	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nemocardium centifilosum	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Saxidomus giganteus	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Compsomyax subdiaphana	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Psephidia lordi	26	40	61	21	80	97	33	64	4	3	8	3	0	5
? Mactra sp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Macoma alaskana	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Macoma alaskana?	0	0	0	0	2	0	0	0	0	0	0	0	0	0
Macoma balthica	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Macoma balthica?	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Macoma carlottensis	7	1	6	0	0	0	1	1	0	0	0	1	1	0
Macoma carlottensis?	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Macoma elimata	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Macoma elimata?	0	0	0	0	0	2	0	0	0	0	0	0	0	0
Macoma nasuta	1	0	0	0	0	1	0	0	0	0	0	0	0	0
Macoma obliqua	0	0	4	0	1	0	1	1	1	2	1	1	1	1
Macoma obliqua?	0	0	0	0	1	0	0	0	0	0	0	0	0	0
Macoma spp.	9	4	4	0	0	1	0	0	0	0	0	0	0	0
Solen sicarius	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mya arenaria	0	0	0	1	0	0	0	0	0	0	0	0	0	0
Hiatella arctica	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pandora filosa?	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Indeterminate	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gastropoda														
Bittium sp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0
? Colus sp.	0	0	0	0	0	0	0	1	0	0	0	0	0	0
Naticidae	1	0	0	0	0	2	0	0	0	0	0	0	0	0
Indeterminate	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table II.4. (continued)

Transect-Station	A-3			B-3		C-3		D-3		E-3		F-3	
Grab size (m^2)	0.03			0.03		0.03		0.03		0.03		0.03	
Depth (m)	44	45	42	46	45	44	46	50	48	47	42	46	45
Sample No.	1	2	3	1	2	1	2	1	2	1	2	1	2
MOLLUSCA													
Pelecypoda													
Nucula bellotii	0	0	0	0	0	0	0	0	0	0	0	0	0
Modiolus modiolus	0	0	0	0	0	0	0	0	0	0	0	0	0
Mysella tumida	0	0	0	0	1	0	0	0	0	0	0	0	0
Axinopsida serricata	0	0	0	0	0	0	0	0	0	0	0	0	0
Clinocardium nuttallii	0	0	0	0	0	0	0	0	0	0	0	0	0
Nemocardium centifilosum	0	0	0	0	0	0	0	0	0	0	0	0	0
Saxidomus giganteus	0	0	0	0	0	0	0	0	0	0	0	0	0
Compsomyax subdiaphana	0	0	0	0	0	1	0	0	0	0	0	0	0
Psephidia lordi	7	6	13	24	12	31	14	0	0	3	8	8	11
? Mactra sp.	0	0	0	0	0	0	0	0	0	0	0	0	0
Macoma alaskana	0	0	0	0	0	0	0	0	0	0	0	0	0
Macoma alaskana?	0	0	0	0	0	0	0	0	0	0	0	0	0
Macoma balthica	0	0	0	0	0	0	0	0	0	0	0	0	0
Macoma balthica?	0	0	0	0	0	0	0	0	0	0	0	0	0
Macoma carlottensis	2	4	5	0	1	4	6	0	0	3	0	3	2
Macoma carlottensis?	0	0	0	0	0	0	0	0	1	0	0	0	0
Macoma elimata	0	0	0	0	0	1	0	0	0	0	0	1	1
Macoma elimata?	0	0	0	0	0	0	0	0	0	0	0	0	0
Macoma nasuta	0	0	0	0	0	0	0	0	0	0	0	0	0
Macoma obliqua	0	0	0	0	0	0	0	0	0	0	1	0	2
Macoma obliqua?	0	0	0	0	0	0	0	0	0	0	0	0	0
Macoma spp.	1	9	4	0	0	1	1	0	0	0	0	0	0
Solen sicarius	0	0	0	0	0	0	0	0	0	0	0	0	0
Mya arenaria	0	0	1	0	0	0	0	0	0	0	0	0	0
Hiatella arctica	0	0	0	0	0	0	0	0	0	0	0	0	0
Pandora filosa?	0	0	0	0	0	0	0	0	0	0	0	0	0
Indeterminate	0	0	0	0	0	0	0	0	0	0	0	0	0
Gastropoda													
Bittium sp.	0	0	0	0	0	0	0	0	0	0	0	0	0
? Colus sp.	0	0	0	0	0	0	0	0	0	1	0	1	0
Naticidae	0	0	0	0	0	0	0	0	0	0	0	1	0
Indeterminate	0	0	0	0	0	0	0	0	0	0	0	0	0

Transect-Station	A-4			B-4		C-4		D-4		E-4		F-4	
Grab size (m^2)	0.03			0.03		0.03		0.03		0.03		0.03	
Depth (m)	61	64	60	66	61	60	62	61	65	63	58	65	63
Sample No.	1	2	3	1	2	1	2	1	2	1	2	1	2
MOLLUSCA													
Pelecypoda													
Nucula bellotii	1	0	0	0	0	0	0	0	0	0	0	0	0
Modiolus modiolus	0	0	0	0	0	0	0	0	0	0	0	0	0
Mysella tumida	0	0	0	0	0	0	1	0	0	0	0	0	0
Axinopsida serricata	0	0	0	0	0	0	0	0	0	0	0	0	0
Clinocardium nuttallii	0	0	0	0	0	0	0	0	0	0	0	0	0
Nemocardium centifilosum	0	0	0	0	0	0	0	0	0	0	0	0	0
Saxidomus giganteus	0	0	0	0	0	0	0	0	0	0	0	0	0
Compsomyax subdiaphana	0	0	0	0	0	0	0	0	0	0	0	0	0
Psephidia lordi	0	1	0	66	48	13	4	2	9	41	38	26	32
? Mactra sp.	0	0	0	0	0	0	0	0	0	0	0	0	0
Macoma alaskana	0	0	0	0	0	0	0	0	0	1	0	0	0
Macoma alaskana?	2	0	0	0	0	0	0	0	0	0	0	0	0
Macoma balthica	0	0	0	0	0	0	0	0	0	0	0	0	0
Macoma balthica?	0	0	1	0	0	0	0	0	0	0	0	0	0
Macoma carlottensis	7	5	1	8	9	21	13	0	2	10	15	5	3
Macoma carlottensis?	0	0	0	0	0	0	0	0	0	0	0	0	0
Macoma elimata	0	0	0	0	1	0	0	0	0	0	2	1	1
Macoma elimata?	0	0	0	0	0	0	0	0	0	0	0	0	0
Macoma nasuta	0	0	0	0	0	0	0	0	0	0	0	0	0
Macoma obliqua	0	0	1	1	0	1	0	0	0	2	2	0	1
Macoma obliqua?	0	0	0	0	0	0	0	0	0	0	0	0	0
Macoma spp.	0	2	2	0	0	1	3	0	1	0	0	0	0
Solen sicarius	0	0	0	0	0	0	0	0	0	0	0	0	0
Mya arenaria	0	0	0	0	0	0	0	0	0	0	0	0	0
Hiatella arctica	0	0	0	0	0	1	0	0	0	0	0	0	0
Pandora filosa?	0	0	0	0	0	0	0	0	0	0	0	0	0
Indeterminate	0	0	0	0	0	0	0	0	0	0	0	0	0
Gastropoda													
Bittium sp.	0	0	0	0	0	0	0	0	0	0	0	0	0
? Colus sp.	0	0	0	0	0	0	0	0	0	0	3	0	0
Naticidae	0	0	0	0	0	0	0	0	0	0	0	0	0
Indeterminate	0	0	0	0	0	0	0	0	0	0	0	0	0

Table II.4. (continued)

Transect-Station	A-5			B-5			C-5		D-5		E-5		F-5	
Grab size (m^2)	0.03			0.03			0.03		0.03		0.03		0.03	
Depth (m)	76	79	77	74	75	75	73	77	79	74	77	75	78	74
Sample No.	1	2	3	1	2	3	1	2	1	2	1	2	1	2
MOLLUSCA														
Pelecypoda														
Nucula bellotii	0	0	0	0	0	0	0	0	2	0	0	0	0	0
Modiolus modiolus	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mysella tumida	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Axinopsida serricata	0	0	0	0	0	0	1	1	0	0	1	0	0	1
Clinocardium nuttallii	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nemocardium centifilosum	0	0	0	0	0	0	0	0	0	0	0	0	1	1
Saxidomus giganteus	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Compsomyax subdiaphana	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Psephidia lordi	0	0	0	14	12	18	54	104	51	57	81	86	120	101
? Mactra sp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Macoma alaskana	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Macoma alaskana?	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Macoma balthica	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Macoma balthica?	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Macoma carlottensis	8	6	7	8	13	3	21	29	17	5	39	17	10	11
Macoma carlottensis?	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Macoma elimata	0	0	0	0	0	2	2	1	0	0	1	2	2	1
Macoma elimata?	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Macoma nasuta	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Macoma obliqua	0	0	0	0	0	0	0	0	0	0	1	0	0	0
Macoma obliqua?	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Macoma spp.	0	1	0	2	0	0	0	0	0	0	0	0	0	0
Solen sicarius	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mya arenaria	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hiatella arctica	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pandora filosa?	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Indeterminate	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gastropoda														
Bittium sp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0
? Colus sp.	0	0	0	0	0	0	0	0	2	0	0	1	0	0
Naticidae	0	0	0	0	1	0	0	0	1	0	0	0	0	0
Indeterminate	0	0	0	0	0	0	0	0	0	1	0	0	0	0

Transect-Station	A-6			B-6		C-6		D-6		E-6		F-6	
Grab size (m^2)	0.03			0.03		0.03		0.03		0.03		0.03	
Depth (m)	97	95	94	95	91	90	90	89	92	89	90	90	91
Sample No.	1	2	3	2	3	1	2	1	2	1	2	1	2
MOLLUSCA													
Pelecypoda													
Nucula bellotii	0	0	0	0	0	1	1	0	0	0	0	0	0
Modiolus modiolus	0	0	0	0	0	0	0	0	0	0	0	0	0
Mysella tumida	0	0	0	0	0	0	0	0	0	0	0	0	2
Axinopsida serricata	0	0	0	0	0	5	0	0	0	0	0	0	0
Clinocardium nuttallii	0	0	0	0	0	0	0	0	0	0	0	0	0
Nemocardium centifilosum	0	0	0	0	0	0	0	0	0	0	0	0	0
Saxidomus giganteus	0	0	0	0	0	0	0	0	0	0	0	0	0
Compsomyax subdiaphana	0	0	0	0	0	0	0	0	0	0	0	0	0
Psephidia lordi	0	1	0	0	5	34	109	143	98	150	49	246	130
? Mactra sp.	0	0	0	0	0	0	0	0	0	0	0	0	0
Macoma alaskana	0	0	0	0	0	0	0	0	0	0	0	0	0
Macoma alaskana?	0	0	0	0	0	0	0	0	0	0	0	0	0
Macoma balthica	0	0	0	0	0	0	0	0	0	0	0	0	0
Macoma balthica?	0	0	0	0	0	0	0	0	0	0	0	0	0
Macoma carlottensis	37	5	20	34	21	33	11	7	4	37	40	29	17
Macoma carlottensis?	0	21	0	0	0	0	0	0	0	1	0	0	1
Macoma elimata	0	0	0	1	1	1	3	1	1	5	3	1	0
Macoma elimata?	0	0	0	0	0	0	0	0	0	0	0	0	0
Macoma nasuta	0	0	0	0	0	0	0	0	0	0	0	0	0
Macoma obliqua	0	0	0	0	0	0	1	0	0	0	0	0	0
Macoma obliqua?	0	0	0	0	0	0	0	0	0	0	0	0	0
Macoma spp.	0	0	0	0	4	0	0	0	0	0	0	0	0
Solen sicarius	0	0	0	0	0	0	0	0	0	0	0	0	0
Mya arenaria	0	0	0	0	0	0	0	0	0	0	0	0	0
Hiatella arctica	0	0	0	0	0	0	0	0	0	0	0	0	0
Pandora filosa?	0	0	0	0	0	0	0	0	0	0	0	0	0
Indeterminate	0	0	0	0	0	0	0	0	0	0	0	0	0
Gastropoda													
Bittium sp.	0	0	0	0	0	0	0	0	0	0	0	1	0
? Colus sp.	0	0	0	0	0	0	0	0	0	0	0	1	0
Naticidae	0	0	0	1	0	0	0	0	0	0	0	0	0
Indeterminate	0	0	0	0	0	0	0	0	0	0	0	0	0