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NRA

National Rivers Authority
Anglian Region

Report on the results of a comparison of data from two surveys of the macrofauna of the Wash carried out in 1991 and 1993.

Unicomarine Ltd.

1995

Monitoring Survey of the Wash 1993

Contents

List of Tables, Figures and Appendices

Tables

Figures

Appendices

1. Summary

This report presents the results of a survey of fourteen stations in the Wash, carried out in 1993. Each of the stations had been sampled previously, in 1991, when they formed part of a larger survey of sixty-six stations covering the major part of the sub-tidal area of the Wash. Three replicate Day grab samples were taken from each station.

Information on the major physical parameters of the sediment and the fauna living within the sediment was collected for each station, together with some information on the sediment chemistry. These data are presented and the physical nature and biology of the stations is described.

Comparisons are made with the information obtained from the survey undertaken in 1991. In most cases the recorded levels of heavy metals were lower in the 1993 survey than in the 1991 survey. In general, the biology of the stations was similar in the two years with similar numbers of taxa and individuals being recorded. A number of differences were identified however, and these seem to be associated with marked changes in the proportion of silt and clay in the sediment at a number of stations. The possible significance of such changes to longer term monitoring is briefly discussed.

Range grab - 10 years (+18 years)
Mini grab - 91, 93 } 3 years

2. Introduction

In August 1991 a survey of the benthic biology of the major part of the sub-tidal region in the Wash was undertaken by the NRA. The survey formed part of a general monitoring review of the area. The study involved the collection of samples from a roughly rectangular grid of stations for the determination of biological and physico-chemical parameters. The approximate locations of the positions sampled in 1991 are indicated in Figure 1, also shown are the approximate positions of the major sand-banks and channels in the Wash.

Sixty-six stations were sampled and three replicate Day grab samples were taken at each. Full analysis of the macrofauna (that retained by a 500µm mesh) occurring within the sediment at each of the positions was undertaken and information on the nature of the sediment (particle size analysis) was also obtained from each station. Full details of the study have been reported in the 'Wash Zone Report' (NRA, 1994a).

One of the aims of the study was to determine suitable locations for a reduced number of sampling stations to be monitored on a longer term basis. Accordingly, a sub-set of the 1991 sampling positions, fourteen in total, was re-sampled in 1993. Site selection was based upon a combination of factors, including a requirement to cover the main part of the Wash and to include representative stations from each of the major regions noted in the report on the result of the 1991 survey. The approximate locations of these fourteen stations are given in Figure 2. For reference purposes the position of the remaining 1991 stations that were not re-sampled is indicated with a cross.

This report presents the results from the 1993 survey and compares the information obtained with that from the same sites sampled in 1991.

3. Results from the 1993 survey

3.1 Sediment - physical parameters

Full particle size analysis was made of the sediment collected from each of the sampling stations and the resulting summary statistics are given in Table 1. Field observations of the nature of the sediment, made at the time of sampling, are also given. To facilitate comparison between the years the corresponding data are provided in Table 2 for the same sampling positions from the 1991 survey. Also included in Table 2 are the locations as recorded for the 1991 survey.

3.2 Sediment - chemical parameters

The levels of a number of chemical determinands (metals and pesticides) in the sediment were obtained for the 1993 sampling positions and this information is summarised in Table 3 (the raw data are included as Appendix 1). Similar data for a more limited number of determinands were obtained in 1991 and are included in the report of the 1991 survey.

3.3 Macrofauna

For the 1991 survey, identification and enumeration of the animals living within the sediment (benthic infauna) collected by the grab sampling was undertaken jointly by the NRA and Unicomarine Ltd. In order that valid comparisons of the fauna could be made across the entire area sampled, Unicomarine Ltd. undertook cross-checking of identifications upon completion of sample analysis and, where necessary, the resolution of differences in the naming of the same taxon. This involved the re-examination of specimens of certain taxa found in the survey.

For the second of the surveys (1993) identification of the fauna from the samples was carried out by another operator and re-examination of specimens was not carried out. Cross-comparison of the lists of taxa from the two surveys was undertaken however, and in a few cases differences of identification were resolved. For example, in a few instances it was considered that two names had been applied to the same taxon. In such cases the counts of individuals for the taxa were pooled in the survey in which the separation of the taxa had been made. In other cases changes in the taxonomy of a family over the period between the two surveys may have resulted in a taxon not being counted in one survey when it was recognised in the other. In these few instances also, the counts of individuals were combined. The pooled data, for both years of the study, are presented in Table 4. The raw data for 1993 is included as Appendix 2. For the analyses described below the pooled data as presented in Table 4 have been utilised.

It is not considered likely that any real major differences in the fauna between the two years will have been masked by the above process, nor that artificial differences have been created. However, the situation highlights the need for procedures to maintain reference collections of specimens from each area under study, and for these collections to be available prior to the identification of the fauna from a new survey. This is of particular importance if different individuals or organisations are involved in the analysis. Without such procedures the information content of the data may be reduced.

4. Comparison of the two surveys, 1991 and 1993

4.1 Sediment - physical parameters

In the report of the 1991 survey sediment parameters were identified as being the main factor determining the distribution of species. In particular the median particle size and percentage of clay and silt in the sediment were important. The values of these two parameters have been plotted diagrammatically for the fourteen sites sampled in both years in Figures 3 and 4 respectively.

It may be seen from an examination of the Figures and the information in Tables 1 and 2 that the sample sites fall into two groups: those at which the median particle size was generally similar in the two years; and those at which a fairly marked change was recorded (where the median particle size differed between years by >50%). The former group comprises stations 3, 5, 12, 17, 21, 22, 42, 51, 60, 63 and the latter stations 26, 33, 39, 45.

There is some indication that, in general, the median particle size of the stations located more towards the periphery of the Wash were similar in the two years while the largest changes in this parameter were apparent at the more central, deeper, stations.

A complementary pattern to that described above for the median particle size may be seen in the values for the percentage of silt-clay in the sediment. The values of this parameter for the two surveys are presented in Figure 4. Very large (>100-fold) increases in the value were recorded for stations 5, 21, 45, 51, 60 and, to a somewhat smaller degree (40-fold increase), site 63. These sites are in the main located in the shallower areas (<10m) towards the periphery of the area of study.

The precise reasons for the above changes are unknown and it is likely that a number of factors are involved. It is possible that major differences in the volume of freshwater entering the Wash in the periods immediately prior to the two surveys are involved. The 1991 survey was undertaken during an extended period of drought and the resulting low freshwater flows in the major estuaries would have carried reduced amounts of sediment into the Wash. Increased deposition in the estuaries of the finer sediments (silts and clays) was observed in this period (NRA, 1994b). The period of drought effectively ended in September 1992 and the increased freshwater flows removed the fine sediment that had built up in the estuaries, carrying them in suspension into the Wash. The 1993 survey reported here was undertaken during a period of 'normal' flows and the observed increase in the amount of silt and clay at some stations is possibly an indication of where the finer particles were deposited following the period of drought. The possible significance of this to monitoring is discussed further below.

4.2 Sediment - chemical parameters

Detailed analysis of the data on sediment chemistry has not been undertaken for the purposes of the present report. Many of the determinands considered in the 1993 survey were not measured in 1991. Examination of the values for a number of metals, Arsenic (As), Cadmium (Cd), Chromium (Cr), Iron (Fe), Lead (Pb) and Mercury (Hg) indicated that in every case the 1993 value was less than that recorded in 1991 at the same station. Whether this represents a real change in the sediment loading, or a change in analytical technique, is impossible to determine from the data available. The situation was somewhat different for Copper (Cu) where approximately half of the values recorded in 1993 were higher than those recorded in 1991 and half were lower.

4.3 Macrofauna

An examination of the list of taxa recorded in Table 4 indicates that in general the fauna recorded and the overall pattern of abundance at the stations was similar in the two surveys. Comparison of various aspects of the biology of the stations over the two surveys are made in the following sections.

4.3.1 Univariate Analyses

4.3.1.1 Number of taxa

In 1991 the deeper stations (17, 22, 33, 39, 42) were found to be have the largest number of species present and the peripheral stations (5, 12, 26, 51, 60, 63) the least.

The situation in 1993 was very similar with relatively small differences in the number of taxa recorded at the stations. The small number of stations sampled towards the periphery, but still within channels rather than on or immediately adjacent to sand-banks (stations 3, 21, 45) were found in both years to have intermediate numbers of taxa. The information is illustrated in Figure 5 and the spatial differences and temporal similarity may be seen.

4.3.1.2 Number of individuals

The total number of individuals recorded at the stations in the two years has been plotted in a similar manner to the number of taxa (Figure 6). The situation is similar to that described above for the number of taxa. Spatial differences between the stations are apparent, with more individuals recorded at the deeper stations and there is a high degree of similarity between the two years.

4.3.1.3 Diversity

Taxonomic diversity, as measured by the Shannon-Wiener diversity index, is an expression of the degree to which the individuals recorded at a station are distributed among the species. Low diversity values may reflect low numbers of taxa or a high degree of bias towards a single taxon. High values of the index generally reflect higher numbers of taxa and a more even distribution of individuals between the taxa. A comparison of the index is presented in Figure 7. Overall the pattern is very similar, though with one exception worth noting. Station 22 appears to have undergone a marked decline in diversity (Shannon-Wiener index 1991 = 2.37, 1993 = 1.11). Re-examination of Figures 5 and 6 shows respectively similar numbers of taxa and rather higher number of individuals (note use of logarithmic scale in Figure 6). Closer examination of the raw data (Appendix 2) indicates that the main reason for the elevated number of total individuals was an increase in the number of phoronids (worm like, tubicolous filter feeders) from approximately 7600 m^{-2} to 61000 m^{-2}. These animals frequently occur in large masses and adjacent grab samples may have large variations in numbers. Estimation of the true population is complicated by the fragile nature of the specimens and the difficulty of extraction of all specimens from the sediment.

Removal of this taxon from the calculation of the Shannon-Wiener index results in a value for 1993 which is very similar to that recorded for 1991 (2.34 rather than 1.11). The value calculated excluding phoronids is indicated on Figure 7 with an open circle around the 1993 value at station 22. This illustrates one of the potential flaws of relying solely upon the value of such indices without reference to the original data.

4.3.2 Multivariate Analyses

In the report on the results of the 1991 survey, the analytical technique of cluster analysis was used to examine the similarity between the faunal communities occurring at the stations sampled. The sixty-six stations were divided into eight groups on this basis. Consideration of the physical aspects of the stations indicated that the median particle size of the sediment, the percentage of silt and clay in the sediment and the depth of the station were important in determining the fauna present and hence the degree of similarity between stations.

A similar analysis of the data from the 1993 survey has been carried out, together with a re-analysis of the data for the same stations from the earlier survey. The two analyses utilised data grouped where necessary in the same manner to allow direct comparison. For this reason and also because only the fourteen stations sampled in 1993 have been re-analysed, the dendrogram for 1991 shows some differences in structure when compared with the dendrogram presented in the original report.

The resulting dendrograms illustrating the degree of similarity between the stations as determined by cluster analysis are presented in Figure 8, (1991) and Figure 9, (1993). Superficially the two dendrograms are rather different in appearance. A number of groups are apparent in Figure 8 (re-analysis of the 1991 data) while there is a clearer division into two main groups in Figure 9 (analysis of the 1993 data). On closer inspection however the two analyses seem more alike. In both years the deeper stations 17 + 22 + 39 and 33 + 42 are linked at a high similarity level of around 65%. Also linked in both years are the stations 3, 21 and 45 which are located in somewhat shallower water, in channels nearer to the shore. One difference between the years is found with station 63 which in 1991 also grouped with these three stations. In 1993 it was placed with the more peripheral stations 5, 12, 21, 26, 51 and 60.

Thus the overall grouping of stations is similar; an initial division between the deeper water stations, with the indication of a further sub-group within the deeper water stations, and the others constituting a looser grouping of the stations located in shallow waters around the periphery of the Wash. The fauna of station 63 appears in 1993 to have more in common with the shallow stations than with the somewhat deeper, channel stations 3, 21 and 45 with which it was grouped in 1991. Station 51 groups more closely with stations 5, 12 26, 60 (and 63) in 1993 than in 1991, although the association is still relatively weak.

4.3.3 Distribution of selected species

In the 1991 report the distribution patterns of some of the more common taxa were plotted, illustrating the association of a species with a particular combination of sediment type and depth. This was repeated for a number of taxa, comparing the distributions in the two years. In the main distributions patterns were very similar in the two years and, with one exception, are not repeated here.

4.3.3.1 The polychaete worm Sabellaria.

The reef-building polychaetes of the genus *Sabellaria* and the communities associated with them are identified as of importance in the major review of UK estuaries published in 1991 (NCC, 1991).

The species occurring in the Wash is *Sabellaria spinulosa* and was recorded in large numbers at some of the sites. It was shown in the report of the results from the first survey of the Wash that *Sabellaria* occurred mainly in the deeper, more central, parts of the area surveyed. The distribution of the records of individuals of this species was found to be very similar in the second year. The raw data are included in Table 4 and are presented diagrammatically in Figure 10. Included in Figure 10 for comparison is the distribution of numbers for the earlier survey (1991). The pattern for the two years is very similar. In both years the highest numbers of individuals were recorded at sites 33 and 42, with only relatively small numbers recorded elsewhere. The numbers

recorded at site 33 were considerably reduced in 1993 compared with 1991 (4540 vs. 751), whereas at site 42 the numbers were a little higher (690 vs. 837). Without considerably more sampling effort, specifically targeted at obtaining a estimate of the population of this species, it would be unwise to ascribe too much significance to the differences observed. The tube-building habit of the animals means that even adjacent grab samples may contain very different numbers depending on how the grab samples the material.

5. Discussion

The information presented above indicates high degree of stability in the fauna of the area between 1991 and 1993, particularly of the deeper stations. The change in the nature of the sediment described for the shallower stations, in several instances to a considerably muddier substratum, had associated faunal differences. As mentioned above it seems likely that such changes were the result of natural factors, including weather and tidal conditions, and their influence on sediment movement.

The shallower stations have a naturally poorer fauna than the deeper more central stations due to the harsher conditions (exposure and wave action) and more limited range of sediment types. Small changes in the number of species recorded may therefore have a large effect on the degree to which stations appear similar when the data are examined with techniques such as cluster analysis.

For this reason it may seem inappropriate to use the shallower stations for monitoring purposes and that only the deeper more diverse stations should be considered. The shallower stations are important however and should continue to be monitored as they represent communities not occurring elsewhere in the Wash. The possibility of a greater degree of variation arising for natural reasons should be borne in mind when attempting interpretation of the data.

In areas of marked natural change, such as the periphery of sandbank, the procedure of sampling at a fixed geographical position is questionable. It may be better to consider the functional position of the stations, for example bank edge, channel or bank top, and to ensure subsequent sampling is in the equivalent position on subsequent occasions. Whether this is in addition to re-sampling at the original geographical location or as a replacement for it will be determined by the precise purpose of the monitoring programme.

6. References

NRA (1994a). **Wash Zone Report pts. I & II.** NRA Anglian Region Central Area Biology. 1994.

NRA (1994b). **Great Ouse Biological Surveys 1992 & 1993.** NRA Anglian Region Central Area Biology. Internal NRA Report.

NCC (1991). **Nature conservation and estuaries in Great Britain.** Nature Conservancy Council. 1991

TABLES

Table 1. Physical characteristics of the sediment from the fourteen stations sampled in the 1993 survey.

Site	Median Particle Size(phi)	Mean Particle Size(phi)	Median Particle Size(um)	Mean Particle Size(um)	% Clay & Silt	% Organic Carbon	LOI at 400°C (%)	Coal content (%)	Sorting	Skew
3	2.40	2.39	188.97	190.16	9.23	0.23	0.77	0.58	1.04	0.395
5	2.40	2.55	189.54	170.57	38.88	0.23	0.74	0.55	2.73	0.734
12	2.19	2.26	219.35	209.16	11.01	0.00	0.51	0.31	1.12	0.500
17	2.13	1.83	228.23	280.88	15.42	0.30	1.01	0.74	1.65	0.387
21	2.37	2.51	193.56	175.66	28.50	0.38	0.90	0.74	2.34	0.748
22	4.18	2.70	55.30	154.16	52.63	1.30	2.06	1.90	2.24	0.052
26	1.74	1.68	299.25	312.62	19.50	0.00	0.62	0.35	1.82	0.673
33	0.90	0.19	537.45	876.89	15.13	0.45	1.83	0.84	2.69	0.208
39	1.88	1.10	272.14	465.67	16.29	0.38	0.78	0.77	2.46	0.082
42	1.59	0.70	331.63	614.42	14.50	0.92	2.19	1.48	2.80	-0.068
45	3.96	2.67	64.43	156.69	49.69	0.60	0.92	0.72	2.37	0.091
51	2.42	2.51	187.40	175.09	18.84	0.31	0.78	0.66	1.71	0.707
60	2.22	2.36	214.05	194.17	25.86	0.23	0.52	0.32	2.30	0.760
63	3.44	3.26	91.98	104.33	47.63	0.22	0.68	2.29	2.60	0.565

Table 2. Physical characteristics of the sediment from each of the fourteen stations when sampled in the 1991 survey.

Site	Longitude	Latitude	Depth(m)	Median Particle Size(um)	Mean Particle Size(um)	% Clay & Silt	% Organic Carbon
3	52 59 11	00 12 39	12.6	245.5	227.4	1.01	0
5	52 56 03	00 11 58	4 to 8	245.3	247.9	0.12	0
12	53 00 61	00 17 67	10	169.8	206.6	0.87	0.31
17	52 57 57	00 16 63	7	253.7	244.8	4.74	1.16
21	52 52 79	00 13 82	6	261.2	229.9	0.25	0.58
22	52 54 87	00 15 78	9	39.2	45	56.8	1.58
26	53 01 95	00 23 40	16.5	132.1	143.4	7.61	0.66
33	53 00 66	00 24 00	36.5	121.5	138.9	42.1	1.33
39	52 57 64	00 22 75	19.9	177	272.5	19.7	0.79
42	53 03 19	00 28 91	28.3	434.1	798.6	14.8	0.63
45	52 54 86	00 21 61	3	298.3	332	0.11	0.79
51	52 50 66	00 18 96	3.8	199.7	227.4	0.05	0
60	52 52 59	00 23 20	4.2	181.3	218.6	0.13	0.37
63	52 57 42	00 28 84	3.4	163.7	195.2	1.18	0.66

Table 3. Chemical parameters of the sediment from each of the sampled stations.

	ALDRIN	ARSENIC TOT	CD (DRY WT)	CR (DRY WT)	CU (DRY WT)	DDE (PP')	DDT (OP')	DDT (PP')	DIELDRIN	ENDRIN DS	FE (DRY WT)	HCB	HCBD	HCH ALPHA	HCH BETA	HCH GAMMA	HG(DRY WT)	ISODRIN
Site Code	98441	70052	02544	03762	02164	98451	74501	98471	98461	70231	04224	73791	73461	73781	74511	98411	02702	73451
R05HXWASH03	-	8.8	0.5	31.8	18.2	-	-	-	-	-	17200	-	-	-	-	-	0.12	-
R05HXWASH05	10	12.6	0.5	35.6	35.6	10	10	10	10	10	23800	10	-	10	-	10	0.18	10
R05HXWASH12	-	12.9	0.5	38.9	17.4	-	-	-	-	-	21700	-	-	-	-	-	0.1	-
R05HXWASH17	1	16.4	0.5	38.1	28.5	1	1	1	1	1	24500	1	-	1	-	1	0.2	1
R05HXWASH21	10	13.9	0.5	35	19.7	10	10	10	10	10	21200	10	-	10	-	-	0.15	10
R05HXWASH22	1	23.8	0.5	52.5	31	1	1	1	1	1	30600	1	-	1	-	1	0.27	1
R05HXWASH26	-	15.5	0.5	36.3	13	-	-	-	-	-	16500	-	-	-	-	-	0.09	-
R05HXWASH33	1	7.24	0.5	55.1	27.4	1	1	1	1	1	26400	1	-	1	-	1	0.22	1
R05HXWASH39	1	22.915	0.655	56.025	26.665	1	1	1	1	1	26800	1.25	1	1	1	1	0.24	1.5
R05HXWASH42	1	17.4	0.5	50	27.4	1	1	1	1	1	26600	1	-	1	-	1	0.2	1
R05HXWASH45	1	19	0.5	46.1	24.6	1	1	1	1	1	26300	1	-	1	-	1	0.19	1
R05HXWASH51	10	13.5	0.5	48.4	24.5	10	10	10	10	10	23700	10	-	10	-	10	0.17	10
R05HXWASH60	10	14.1	0.5	43.8	19.2	10	10	10	10	10	21400	10	-	10	-	-	0.14	10
R05HXWASH63	-	15.7	0.5	46.6	21.1	-	-	-	-	-	25100	-	-	-	-	-	0.16	-

Averaged values

Table 3. Chemical parameters of the sediment from each of the sampled stations.

	NI (DRY WT)	PB (DRY WT)	PCB - C101	PCB - C105	PCB - C118	PCB - C138	PCB - C153	PCB - C156	PCB - C180	PCB - C28	PCB - C52	PCB -C31	SDS OV 500	SOLIDS 105	TDE PP'	TI (DRY WT)	V (DRY WT)	ZN (DRY WT)
Site Code	04304	03294	74261	75231	74271	74281	74291	75241	74301	74231	74241	75221	90011	90301	70211	03171	03531	02464
R05HXWASH03	22.1	33	-	-	-	-	-	-	-	-	-	-	1.5	74	-	401	38.2	97.3
R05HXWASH05	25.4	41.4	10	-	10	10	10	-	10	10	10	-	2	72.5	10	484	60	83.2
R05HXWASH12	24.4	34	-	-	-	-	-	-	-	-	-	-	1.2	58.9	-	595	57	79
R05HXWASH17	27.3	49.5	1	-	1	1	1	-	1	1	1	-	2.5	71	1	453	61.3	91.2
R05HXWASH21	25.6	38.2	10	-	10	10	10	-	10	10	10	-	1.2	74.4	10	386	51.1	78.9
R05HXWASH22	34.6	62.7	1	-	1	1	1	-	1	1	1	-	6	67.5	1	553	81	118
R05HXWASH26	26.3	19.3	-	-	-	-	-	-	-	-	-	-	1.4	75.3	-	411	38.8	46
R05HXWASH33	32.4	56.5	13	-	1	1	1	-	1	1	1	-	2.1	74.2	1	535	83.7	118
R05HXWASH39	31.625	63.5	1.5	5	1.5	1.5	1.5	1	1	5.3	1	6.1	1.7	80.2	3.1	534	79.2	125.25
R05HXWASH42	31.6	55.6	1	-	1	1	1	-	1	1	1	-	3.2	48.6	1	462	82.3	117
R05HXWASH45	29.5	55.3	1	-	1	1	1	-	1	1	1	-	0.8	78.1	1	467	73.5	113
R05HXWASH51	31.8	51.8	1	-	1	1	1	-	1	1	1	-	0.6	77.4	10	430	64.8	115
R05HXWASH60	28.9	57.5	10	-	10	10	10	-	10	10	10	-	0.5	74.8	10	477	61	101
R05HXWASH63	29.1	47.2	-	-	-	-	-	-	-	-	-	-	0.8	76.4	-	576	70.9	97.4

Averaged values

Table 4. Number of individuals of each taxon recorded in three Day grab samples taken from each of the fourteen stations sampled in both 1991 and 1993. Where necessary taxa have been pooled to facilitate comparisons between the years.

Station	03		05		12		17		21		22		26		33		39		42		45		51		60		63	
Taxon	1991	1993	1991	1993	1991	1993	1991	1993	1991	1993	1991	1993	1991	1993	1991	1993	1991	1993	1991	1993	1991	1993	1991	1993	1991	1993	1991	1993
Alcyonium digitatum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
Actiniidae	-	4	-	-	-	-	-	15	-	-	1	1	-	-	16	9	3	3	3	-	-	-	-	-	-	-	2	-
Turbellaria indet.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8	-	-	-	-	-	-	-	-
Nemertea	3	3	-	-	-	6	21	48	2	3	5	4	1	6	86	129	37	52	43	99	1	8	-	-	-	-	-	-
Sipunculans	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10	14	-	2	-	39	-	-	-	-	-	-	-	-
Aphrodita aculeata	-	-	-	-	-	-	-	-	-	-	1	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Scale worms	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Harmothoe	-	-	-	-	-	-	5	33	7	4	4	10	-	-	133	74	-	12	-	213	-	10	-	-	-	-	-	-
Harmothoe extenuata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
Harmothoe impar	5	-	-	-	-	-	32	9	-	3	10	-	-	-	370	-	55	-	199	-	-	-	-	-	1	-	-	-
Harmothoe marphysae	-	-	-	-	-	-	24	1	13	5	5	-	-	-	2	-	-	-	4	2	-	12	-	-	-	-	-	-
Lepidonotus squamatus	-	-	-	-	-	-	1	-	-	-	-	-	-	-	5	-	-	-	4	53	-	-	-	-	-	-	-	-
Pholoe	8	6	2	-	-	-	166	122	2	6	154	147	-	-	523	938	263	164	430	1522	2	85	-	-	-	-	1	-
Sthenelais boa	-	-	-	-	-	-	1	1	-	-	-	-	-	-	3	-	-	1	5	1	-	-	-	-	-	-	-	-
Phyllodocidae	7	-	-	-	-	-	-	-	2	-	18	1	-	-	29	23	-	3	-	5	-	4	-	-	-	-	-	-
Eteone foliosa	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10	1	5	1	3	5	-	-	-	-	1	-	-	-
Hesionura elongata	-	-	-	-	-	-	-	-	-	-	-	-	-	18	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Eteone picta	-	-	-	-	-	-	1	-	-	-	-	-	-	-	3	1	-	-	4	-	-	-	-	-	-	-	-	-
Eteone	6	1	-	-	-	-	17	52	1	2	3	25	-	-	7	11	10	41	10	7	1	3	-	-	33	1	-	-
Eulalia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	5	-	-	-	2	-	-	-	-	-	-	-	-
Phyllodoce groenlandica	-	-	-	-	-	1	-	2	-	-	-	2	-	-	-	1	1	4	-	-	-	-	-	-	-	-	1	-
Phyllodoce mucosa	8	-	-	1	-	-	5	70	7	54	-	12	-	-	-	-	1	24	-	-	1	43	1	-	18	10	2	-
Phyllodoce rosea	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	1	2	-	-	-	-	-	-
Eulalia bilineata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	4	-	-	-	55	-	-	-	-	-	-	-	-
Eumida	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-	-	-	-	8	-	-	-	-	-	-	-	-
Eumida bahusiensis	46	15	-	-	-	-	303	278	19	43	25	37	-	-	4	36	151	278	11	67	2	230	-	-	-	-	-	-
Phyllodoce	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Scalibregma celticum	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	1	-	1	-	-	-	-	-	-	-	-
Oweniidae	4	12	-	-	-	-	2	75	-	-	13	18	-	-	-	22	2	104	-	1	-	-	-	-	-	-	-	-
Glycera	1	-	-	1	-	1	10	12	1	1	-	2	1	2	-	-	4	11	-	1	-	1	-	-	-	-	-	-
Glycera lapidum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6	7	-	-	1	-	-	-	-	-	-	-	-	-
Goniada maculata	-	-	1	-	-	-	-	3	2	1	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sphaerodoropsis minuta	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sphaerodorum gracilis	-	-	-	-	-	-	-	-	-	-	3	1	-	-	3	-	-	-	-	2	-	-	-	-	-	-	-	-
Kefersteinia cirrata	-	-	-	-	-	-	-	-	-	-	-	1	-	-	36	9	-	2	33	168	-	-	-	-	-	-	-	-
Nereimyra punctata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
Microphthalmus similis	-	-	-	-	-	-	-	-	-	-	-	-	-	6	-	36	-	-	-	-	-	2	-	-	-	-	-	-
Autolytus	32	7	-	-	-	-	111	71	28	15	139	69	-	-	125	114	43	71	27	400	2	26	-	-	1	2	5	-
Syllids	-	-	-	-	-	-	6	-	-	-	-	-	-	-	19	1	-	-	-	-	-	-	-	-	-	-	-	-
Syllis armillaris	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	9	-	-	-	-	-	-	-	-
Amblyosyllis formosa	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
Eusyllis blomstrandi	-	-	-	-	-	-	2	2	-	-	-	-	-	-	10	27	-	2	11	57	-	-	-	-	-	-	-	-
Pionosyllis lamelligera	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	11	-	-	-	-	-	-	-	-
Streptosyllis websteri	-	-	3	-	2	1	1	-	1	-	-	-	1	-	2	-	-	-	-	-	-	-	-	-	19	7	1	-
Syllides cf. japonica	-	-	-	-	-	-	-	1	-	-	-	1	-	-	-	9	-	2	-	7	-	-	-	-	-	-	-	-
Exogone hebes	-	-	-	-	-	-	49	89	-	1	1	-	-	-	25	12	43	44	3	1	4	-	-	-	-	-	-	-
Exogone naidina	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7	20	-	-	-	64	-	-	-	-	-	-	-	-
Exogone verugera	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7	1	-	-	-	-	-	-	-	-	-	-	-	-
Sphaerosyllis	-	-	-	-	-	-	1	-	-	-	-	-	-	-	4	87	-	1	-	15	-	-	-	-	-	-	-	-

Table 4. Number of individuals of each taxon recorded in three Day grab samples taken from each of the fourteen stations sampled in both 1991 and 1993. Where necessary taxa have been pooled to facilitate comparisons between the years.

Station	03		05		12		17		21		22		26		33		39		42		45		51		60		63	
Taxon	1991	1993	1991	1993	1991	1993	1991	1993	1991	1993	1991	1993	1991	1993	1991	1993	1991	1993	1991	1993	1991	1993	1991	1993	1991	1993	1991	1993
Sphaerosyllis bulbosa	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-	1	-	-	-	-	-	-	-	-
Proceraea cornuta	-	3	-	-	-	-	1	12	-	1	-	6	-	-	-	-	1	5	-	2	6	10	-	-	-	-	-	-
Nereis	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nereis longissima	-	2	-	-	-	-	8	29	-	5	1	12	-	-	9	13	9	32	10	50	-	12	-	-	-	-	-	-
Nephtys	1	59	2	-	-	-	16	7	27	16	67	47	4	-	-	1	-	3	3	-	15	11	-	-	33	-	-	22
Nephtys caeca	1	1	-	-	-	-	-	2	2	-	1	-	-	-	2	3	1	2	-	-	3	-	-	-	-	-	-	-
Nephtys cirrosa	1	3	12	12	49	51	-	-	7	4	-	-	1	33	-	-	1	-	-	-	-	1	2	18	32	69	-	8
Nephtys hombergii	34	32	22	37	6	2	32	7	64	25	71	56	-	-	3	-	9	5	5	-	63	2	2	9	10	-	60	57
Nephtys kersivalensis	-	-	-	-	-	-	-	1	-	-	-	10	-	-	-	1	-	10	-	6	-	-	-	-	-	-	-	-
Nephtys longosetosa	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lumbrineris	1	-	-	-	-	-	1	-	-	-	2	1	-	-	9	3	1	3	3	22	-	-	-	-	-	-	-	-
Protodorvillea kefersteini	-	-	-	-	-	-	1	1	-	-	-	1	-	-	86	117	5	44	56	70	-	-	-	-	-	-	-	-
Scoloplos armiger	168	43	1	2	1	2	138	284	27	20	323	304	1	-	206	7	353	176	183	32	107	55	1	-	1	2	3	5
Aricidea minuta	35	17	-	1	3	-	68	28	11	7	1	-	-	2	10	5	37	76	-	-	1	8	-	-	2	-	4	6
Poecilochaetus serpens	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-	-	-	-	-	-	-	-	-	-	-	-
Spionidae larvae indet.	-	-	-	-	-	-	-	2	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aonides oxycephala	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-
Aonides paucibranchiata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	85	229	5	4	-	6	-	-	-	-	-	-	-	-
Laonice bahusiensis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	4	-	-	-	-	-	-	-	-	-	-	-	-
Polydora	-	-	-	-	-	-	1	-	-	-	3	10	-	-	76	72	1	-	-	234	-	-	-	-	-	-	-	-
Pseudopolydora pulchra	4	3	-	-	-	-	76	128	-	2	25	77	-	-	2	7	49	46	4	10	-	2	-	-	-	-	-	-
Pygospio elegans	20	8	-	-	-	-	9	2	4	-	22	10	-	-	-	-	7	-	9	-	101	46	-	-	16	1	7	-
Spiophanes bombyx	294	197	1	2	18	5	105	51	630	358	16	71	20	1	5	2	13	1	1	1	642	310	-	1	14	-	26	17
Magelona filiformis	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Magelona mirabilis	3	1	2	5	8	12	10	6	8	11	-	-	3	4	-	-	-	-	-	-	1	3	-	1	2	1	2	17
Cirratulidae	-	-	-	-	-	-	1	3	-	-	-	-	-	-	5	3	-	12	-	102	-	3	-	-	-	-	-	-
Caulleriella alata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10	18	-	4	-	12	-	-	-	-	-	-	-	-
Caulleriella zetlandica	-	1	-	-	-	-	-	-	-	-	-	1	-	-	-	72	-	128	-	5	-	10	-	-	-	-	-	-
Chaetozone setosa	27	24	-	2	5	4	127	27	5	7	98	2	-	-	325	-	730	9	129	-	6	11	-	-	-	-	-	7
Cirratulus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-
Cirriformia tentaculata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	8	5	-	-	-	-	-	-	-	-
Dodecaceria concharum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	2	-	-	-	-	-	-	-	-
Tharyx marioni	-	-	1	-	-	-	7	2	1	-	10	1	1	-	235	30	72	9	192	63	-	-	-	5	-	-	2	-
Flabelligeridae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Pherusa plumosa	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10	-	-	-	-	1	-	-	-	-	-	-	-	-
Capitella capitata	8	-	5	3	2	-	78	1	43	117	2	1	-	-	-	-	7	1	1	-	3	30	-	3	1	-	21	-
Mediomastus fragilis	44	13	-	-	-	1	131	78	1	1	124	-	-	-	136	63	594	525	168	108	43	10	-	-	-	-	-	-
Notomastus latericeus	-	-	-	-	-	-	30	10	-	-	6	-	-	-	2	1	8	20	-	-	1	-	-	-	-	-	-	-
Arenicola marina	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
Maldanidae	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ophelia borealis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	1	-	-	-	-	-	-
Ophelina acuminata	-	-	-	-	-	-	4	7	-	-	-	-	-	-	6	1	9	5	-	-	-	-	-	-	-	-	-	-
Scalibregmatidae sp. A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	109	-	-	-	-	-	-	-	-
Scalibregma inflatum	1	15	-	-	-	-	10	39	-	-	112	479	-	-	9	2	86	76	1	4	-	5	-	-	-	-	-	-
Protodrilus indet.	-	-	-	-	-	-	-	-	-	-	-	-	-	8	-	27	-	-	-	-	-	-	-	-	-	-	-	-
Pectinaria koreni	20	1	-	1	1	-	56	59	-	-	-	88	-	-	15	7	38	161	-	1	25	12	-	-	-	-	-	-
Sabellaria spinulosa	6	-	-	-	1	-	193	7	1	-	5	14	-	-	4540	751	1	4	690	837	-	-	-	-	-	-	-	-
Ampharete	6	2	-	-	-	-	34	-	4	1	34	3	-	-	48	37	-	83	-	18	-	5	-	-	-	-	-	-
Amphareto acutifrons	[redacted]	1	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	87	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]

Table 4. Number of individuals of each taxon recorded in three Day grab samples taken from each of the fourteen stations sampled in both 1991 and 1993. Where necessary taxa have been pooled to facilitate comparisons between the years.

Station	03		05		12		17		21		22		26		33		39		42		45		51		60		63	
Taxon	1991	1993	1991	1993	1991	1993	1991	1993	1991	1993	1991	1993	1991	1993	1991	1993	1991	1993	1991	1993	1991	1993	1991	1993	1991	1993	1991	1993
Ampharete lindstroemi	5	1	-	-	-	-	164	153	-	-	75	24	-	-	18	3	270	3	41	3	2	-	-	-	-	-	-	-
Terebellides stroemi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
Terebellomorphs	9	-	-	-	-	-	2	-	-	-	1	-	-	-	1	8	-	-	-	28	-	1	-	-	-	-	-	-
Axionice maculata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	20	-	-	-	-	-	-	-	-
Lanice conchilega	11	42	-	-	-	-	233	328	33	524	35	394	-	-	16	20	92	417	14	1	-	399	-	-	-	-	1	-
Polycirrus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6	9	-	-	10	212	-	-	-	-	-	-	-	-
Thelepus cincinnatus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	19	-	-	-	-	-	-	-	-
Sabella pavonina	-	12	-	-	-	-	1	1	-	-	-	-	-	-	25	16	4	-	1	-	-	2	-	-	-	-	-	-
Pomatoceros triqueter	-	-	-	-	-	-	1	-	-	-	-	-	-	-	43	5	-	-	201	251	-	-	-	-	-	-	-	-
Oligochaeta	92	11	2	5	1	-	63	20	1	-	66	33	-	-	22	9	15	122	4	-	7	14	1	-	2	-	17	5
Pycnogonida	5	-	-	-	-	-	-	1	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-
Nymphon brevirostre	-	-	-	-	-	-	-	4	-	-	1	1	-	-	3	6	-	2	-	10	-	-	-	-	-	-	-	-
Nymphon gracile	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-
Achelia	3	-	-	-	-	-	47	9	1	1	1	3	-	-	69	35	6	1	100	87	4	8	-	-	1	-	-	-
Endeis spinosa	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-
Callipallene brevirostris	-	-	-	-	-	-	9	5	-	1	-	-	-	-	24	11	-	1	26	48	-	-	-	-	-	-	-	-
Anoplodactylus petiolatus	13	-	-	1	1	-	46	18	14	2	6	8	1	1	5	17	23	18	34	77	7	8	-	-	-	-	-	-
Anoplodactylus pygmaeus	-	-	-	-	-	-	-	-	1	-	1	-	-	-	3	1	-	-	2	-	-	-	-	-	-	-	-	-
Pycnogonum littorale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
Cirripedia indet.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	62	-	-	-	-	-	-	-	-
Nebalia bipes	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
Mysids	-	-	-	-	-	-	-	-	1	-	-	-	-	1	-	-	-	-	-	3	-	-	-	-	-	-	-	-
Gastrosaccus spinifer	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Neomysis integer	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-
Schistomysis kervillei	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	1	-	-	-	-	-	-	-
Schistomysis spiritus	1	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Amphipoda	2	-	-	-	-	-	-	17	1	-	-	1	-	-	3	58	-	9	-	62	-	3	-	-	-	-	-	-
Perioculodes longimanus	2	-	-	-	1	2	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	3	14
Pontocrates altamarinus	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pontocrates arenarius	-	-	1	-	5	2	-	-	-	-	-	-	5	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Amphilochus	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Amphilochus manudens	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	10	12	-	-	-	-	-	-	-	-
Amphilochus neapolitanus	-	-	-	-	-	-	2	-	-	-	-	-	-	-	1	-	2	1	2	17	-	-	-	-	-	-	-	-
Cressa dubia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6	26	-	-	17	120	-	-	-	-	-	-	-	-
Metopa borealis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	-	-	-	-	-	-	-	-
Stenothoe indet.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-
Stenothoe marina	1	-	-	-	-	-	2	3	-	-	-	-	-	-	14	5	-	1	14	37	-	2	-	-	-	-	-	-
Urothoe indet.	-	-	-	-	-	-	-	-	-	1	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Urothoe elegans	-	-	-	-	-	-	1	-	-	-	-	-	-	-	2	-	1	-	-	-	-	-	-	-	-	-	-	-
Urothoe poseidonis	-	-	-	-	3	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	3	-	-	-	-	-	-
Urothoe pulchella	-	-	-	-	1	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	-
Harpinia pectinata	-	-	-	-	-	-	1	2	-	-	-	-	-	-	3	5	-	-	2	1	-	-	-	-	-	-	-	-
Metaphoxus fultoni	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-	-	-	4	3	-	-	-	-	-	-	-	-
Lysianassidae indet.	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
Iphimedia minuta	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-	-	-	-	-	-	-	-
Atylus	1	1	-	-	-	-	-	2	1	-	2	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
Atylus falcatus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
Atylus guttatus	7	-	-	-	-	-	7	-	4	2	1	-	-	-	-	1	2	1	-	-	-	-	-	-	-	-	-	-
Atylus swammerdami	2	-	-	-	-	-	-	-	-	1	1	-	-	-	-	1	-	1	-	-	-	2	-	-	-	-	3	-

Table 4. Number of individuals of each taxon recorded in three Day grab samples taken from each of the fourteen stations sampled in both 1991 and 1993. Where necessary taxa have been pooled to facilitate comparisons between the years.

Station	03		05		12		17		21		22		26		33		39		42		45		51		60		63	
Taxon	1991	1993	1991	1993	1991	1993	1991	1993	1991	1993	1991	1993	1991	1993	1991	1993	1991	1993	1991	1993	1991	1993	1991	1993	1991	1993	1991	1993
Guernea coalita	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
Ampelisca	-	-	-	-	-	-	-	-	-	-	3	-	-	-	-	-	-	5	-	-	-	-	-	-	-	-	-	-
Ampelisca brevicornis	23	4	-	1	-	-	73	85	1	3	47	12	-	-	-	-	13	15	-	-	-	-	-	-	-	-	-	2
Ampelisca diadema	-	-	-	-	-	-	26	86	-	-	3	16	-	-	74	20	39	74	26	25	-	-	-	-	-	-	1	-
Ampelisca spinipes	-	-	-	-	-	-	3	1	-	-	6	-	-	-	10	21	12	6	3	1	-	-	-	-	-	-	-	-
Ampelisca typica	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-
Bathyporeia	-	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bathyporeia elegans	-	-	-	-	-	5	-	-	-	-	-	-	11	6	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Bathyporeia gracilis	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bathyporeia guilliamsoniana	-	-	1	-	6	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	2	-	-
Bathyporeia sarsi	-	-	1	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	15	2	-	-
Bathyporeia tenuipes	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-
Megaluropus agilis	-	-	-	-	-	-	-	-	-	-	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Melitidae indet.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-
Abludomelite obtusata	2	-	-	-	-	-	-	-	-	1	4	-	-	-	1	13	3	1	-	-	-	-	-	-	-	-	-	-
Cheirocratus sundevallii	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	-	-	-	-	-	-	-	-
Melita	1	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Melita palmata	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-
Gammaropsis indet.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-
Gammaropsis maculata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	67	-	1	-	39	-	-	-	-	-	-	-	-
Megamphopus cornutus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	13	-	1	-	3	-	-	-	-	-	-	-	-
Microprotopus maculatus	39	-	-	-	2	-	87	3	40	1	94	-	-	-	-	-	37	-	-	-	10	17	-	-	-	-	2	-
Photis pollex	-	-	-	-	-	-	17	25	-	2	6	8	-	-	2	11	38	30	1	1	1	1	-	-	-	-	-	-
Aora gracilis	4	-	-	-	-	-	31	8	-	-	14	4	-	-	28	54	16	10	52	49	-	-	1	-	-	-	-	-
Corophium	1	-	-	-	-	-	32	9	-	-	1	-	-	-	9	-	-	-	-	1	-	-	-	-	-	-	-	-
Corophium crassicorne	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
Unciola crenatipalma	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9	131	-	-	1	2	-	-	-	-	-	-	-	-
Dyopedos monacanthus	2	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	3	1	1	-	-	-	-	-	-	-	-	-
Pariambus typicus	33	8	2	-	-	-	630	36	44	3	63	31	-	-	-	-	23	16	1	28	2	10	-	-	-	-	1	-
Phtisica marina	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	17	-	-	-	-	-	-	-	-
Janira maculosa	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-
Idotea linearis	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-	-	-	-	-	-
Tanaids	-	-	5	-	3	16	-	-	6	9	-	-	1	-	18	3	-	-	-	15	-	1	-	-	66	45	25	36
Cumopsis goodsiri	1	-	1	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	2	-	-	9	9	-	-
Bodotria scorpioides	2	-	-	1	-	-	12	65	-	5	6	5	-	-	10	87	12	62	9	18	-	32	-	-	-	-	2	-
Iphinoe trispinosa	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Eudorella truncatula	-	-	-	-	-	-	-	-	1	-	19	20	-	-	1	-	2	-	1	-	-	-	-	-	-	-	-	-
Cumella pygmaea	-	-	-	-	-	-	1	-	-	-	-	-	-	-	23	-	-	-	7	1	1	-	-	-	-	-	-	-
Pseudocuma longicornis	11	-	-	-	7	-	1	-	10	3	8	-	1	-	1	1	3	-	-	-	6	-	3	-	6	-	19	-
Diastylis indet.	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-	-	-	-	-	-
Diastylis bradyi	5	-	-	-	2	-	4	6	2	3	5	-	1	-	-	-	2	5	-	-	18	8	-	1	1	-	-	2
Thoralus cranchii	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-
Pandalus montagui	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	4	-	-	-	-	-	-	-	-	-
Crangon crangon	2	1	-	-	-	1	1	1	-	1	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	1	1
Anapagurus laevis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-
Pagurus bernhardus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-
Pagurus cuanensis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
Pisidia longicornis	1	-	-	-	-	-	-	2	-	1	-	-	-	-	68	68	-	-	440	356	-	-	-	-	-	-	-	-
[redacted]	[redacted]																											

Table 4. Number of individuals of each taxon recorded in three Day grab samples taken from each of the fourteen stations sampled in both 1991 and 1993. Where necessary taxa have been pooled to facilitate comparisons between the years.

Station	03		05		12		17		21		22		26		33		39		42		45		51		60		63	
Taxon	1991	1993	1991	1993	1991	1993	1991	1993	1991	1993	1991	1993	1991	1993	1991	1993	1991	1993	1991	1993	1991	1993	1991	1993	1991	1993	1991	1993
Macropodia linaresi	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	1	-	-	-	4	-	1	-	-	-	-	-	-
Atelecyclus rotundatus	-	-	-	-	-	-	-	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cancer pagurus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	-	-	1	-	-	-	-	-	-	-	-	-
Liocarcinus	3	-	-	-	-	-	-	-	-	-	1	-	-	-	-	1	-	1	-	-	-	2	-	-	-	-	-	-
Carcinus maenas	-	-	-	-	-	-	-	4	-	2	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pilumnus hirtellus	-	-	-	-	-	-	-	1	-	1	-	-	-	-	1	-	-	-	-	4	-	-	-	-	-	-	-	-
Pinnotheres pisum	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bivalves	33	1	-	-	1	-	198	1	-	-	2	1	1	-	50	1	35	1	98	4	13	-	-	-	-	-	-	-
Polyplacophora	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-
Gastropoda	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Opisthobranchia	-	-	-	-	-	-	1	-	-	-	2	-	-	-	1	17	-	-	2	16	-	-	-	-	-	-	-	-
Tellina	-	-	-	-	-	-	2	-	-	-	-	-	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Ensis americanus	1	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
Retusa	50	-	2	-	4	1	30	-	2	-	8	8	-	-	33	28	38	1	3	4	4	-	-	-	-	-	5	44
Leptochiton asellus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	-	-	-	-	-	-	-	-
Gastropoda indet.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-
Gibbula cineraria	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	8	-	-	12	9	-	-	-	-	-	-	-	-
Hydrobia ulvae	-	-	-	-	-	-	11	-	-	-	-	-	-	-	-	-	-	-	9	-	-	-	2	-	-	-	-	-
Rissoa interrupta	-	-	-	-	-	-	22	-	-	1	-	-	-	-	4	-	-	-	-	94	-	-	-	-	-	-	-	-
Onoba semicostata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	4	-	-	-	-	-	-	-	-	-
Caecum glabrum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-
Chrysallida indistincta	-	-	-	-	-	-	-	-	-	-	2	58	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Partulida spiralis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	163	-	-	-	-	-	-	-	-	-	-	-	-	-
Noemiamea dolioliformis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Crepidula fornicata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	4	-	1	4	11	-	-	-	-	-	-	-	-
Buccinum undatum	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nucula nitidosa	-	-	-	-	-	-	-	-	-	-	-	10	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-
Nucula nucleus	-	-	-	-	-	-	2	5	-	-	10	14	-	-	45	13	193	177	64	60	1	-	-	-	-	-	-	-
Nuculana minuta	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Mytilidae indet.	-	4	-	9	-	-	-	4	-	11	-	9	-	-	-	212	-	22	-	118	-	55	-	5	-	3	-	1
Mytilus edulis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-
Modiolarca tumida	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-	-	-	-	-	-	-	-
Modiolus	4	-	-	-	-	-	37	-	3	-	2	-	-	-	90	-	-	-	9	-	22	-	-	-	-	-	5	-
Modiolus modiolus	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	55	-	-	1	-	-	-	-	-	-	-	-	2
Aequipecten opercularis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Lucinoma borealis	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Semierycina nitida	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mysella bidentata	59	102	1	11	-	1	83	37	18	16	370	1068	-	-	22	4	34	131	20	24	73	5	-	-	-	-	5	-
Tellimya ferruginosa	-	-	-	-	-	-	3	17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cerastoderma edule	-	-	1	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
Spisula solida	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	15	-	-	-	-	-	-
Solan	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ensis	2	-	1	1	-	-	-	2	-	298	-	129	-	-	-	1	-	23	-	-	-	249	-	-	-	4	-	-
Phaxas pellucidus	-	-	-	-	-	-	-	4	-	-	-	1	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-
Angulus tenuis	2	1	9	2	11	15	12	1	14	12	2	-	4	-	-	1	-	2	-	-	6	16	-	-	1	-	5	2
Fabulina fabula	17	62	2	12	5	17	67	81	26	37	-	24	-	-	1	2	12	12	1	-	15	28	-	-	-	-	12	38
Macoma balthica	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1	-	-	-
Abra	-	-	-	-	1	-	56	-	-	-	-	-	-	-	12	-	-	-	-	-	-	-	-	-	-	-	-	-
Abra alba	8	8	-	-	-	-	129	63	-	1	1101	2273	1	-	198	31	734	426	131	54	2	16	-	-	-	-	-	3

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Abra nitida	-	-	-	-	-	-	-	-	-	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Abra prismatica	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-
Venerupis juv. indet.	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Venerupis senegalensis	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	2	-	-	-	2	-	-	-	-	-	-	-	-
Mya	-	-	-	-	-	-	12	5	-	-	-	1	-	1	19	27	1	8	1	42	-	-	-	-	-	-	-	-
Hiatella arctica	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	2	-	-	-	18	-	-	-	-	-	-	-	-
Barnea candida	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-
Phoronis	2	-	-	-	-	-	43	1	-	-	2241	18576	-	-	6	-	-	-	12	33	-	-	-	-	-	-	-	-
Holothurians	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ophiuroids juv	-	17	-	-	-	-	3	565	-	7	-	34	-	-	10	10	-	211	-	11	-	38	-	-	-	-	-	3
Crossaster papposus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10	1	-	-	-	-	-	-	-	-
Asterias rubens	-	-	-	-	-	-	-	1	-	1	-	-	-	-	-	-	1	-	1	-	-	1	-	-	-	-	-	-
Amphipholis squamata	-	-	-	-	-	-	-	3	-	-	-	2	-	-	8	32	-	2	17	29	-	-	-	-	-	-	-	-
Ophiura albida	45	80	-	-	-	-	43	120	1	12	52	61	-	-	135	18	146	64	2	2	6	7	-	-	-	-	5	6
Ophiura ophiura	4	33	3	-	-	-	1	11	-	-	25	45	-	-	-	-	5	64	-	2	2	7	-	-	-	-	5	1
Echinoidea juv. indet.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	1	-	2	-	-	-	-	-	-	-	-
Psammechinus miliaris	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-
Echinocardium cordatum	-	1	-	-	-	-	-	10	-	-	-	-	-	-	-	-	-	3	-	-	-	-	-	-	-	-	-	-
Holothuroidea juv. indet.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-	3	-	2	-	3	-	-	-	-	-	-
Thyone fusus	-	-	-	-	-	-	-	6	-	-	1	-	-	-	-	-	2	3	1	-	-	-	-	-	-	-	-	-
Tunicata	-	-	-	-	-	-	-	3	-	-	-	-	-	-	182	63	-	2	180	509	-	-	-	-	-	-	-	-
Total taxa	71	45	25	21	32	23	99	91	50	59	82	75	25	16	121	117	74	98	92	128	46	69	10	8	26	15	33	23
Total individuals	1308	864	84	111	159	153	4183	3514	1146	1680	5693	24436	69	93	8831	4361	4481	4235	3876	7244	1238	1940	15	43	289	159	258	299
PIE	0.92	0.91	0.9	0.85	0.88	0.85	0.95	0.94	0.69	0.82	0.8	0.411	0.88	0.82	0.72	0.91	0.91	0.95	0.92	0.92	0.71	0.9	0.94	0.77	0.89	0.73	0.91	0.9
Shannon-Wiener	3.14	2.84	2.65	2.33	2.73	2.36	3.55	3.37	2.12	2.27	2.37	1.111	2.6	2.1	2.44	3.3	2.91	3.35	3.1	3.36	2.03	2.86	2.21	1.64	2.53	1.71	2.81	2.54
Max individuals	294	197	22	37	49	51	630	565	630	524	2241	18576	20	33	4540	938	734	525	690	1522	642	399	3	18	66	69	60	57
%ND	22.5	22.8	26.2	33.3	30.8	33.3	15.1	16.1	55	31.2	39.4	76.02	29	35.5	51.4	21.5	16.4	12.4	17.8	21	51.9	20.6	20	41.9	22.8	43.4	23.3	19.1

FIGURES

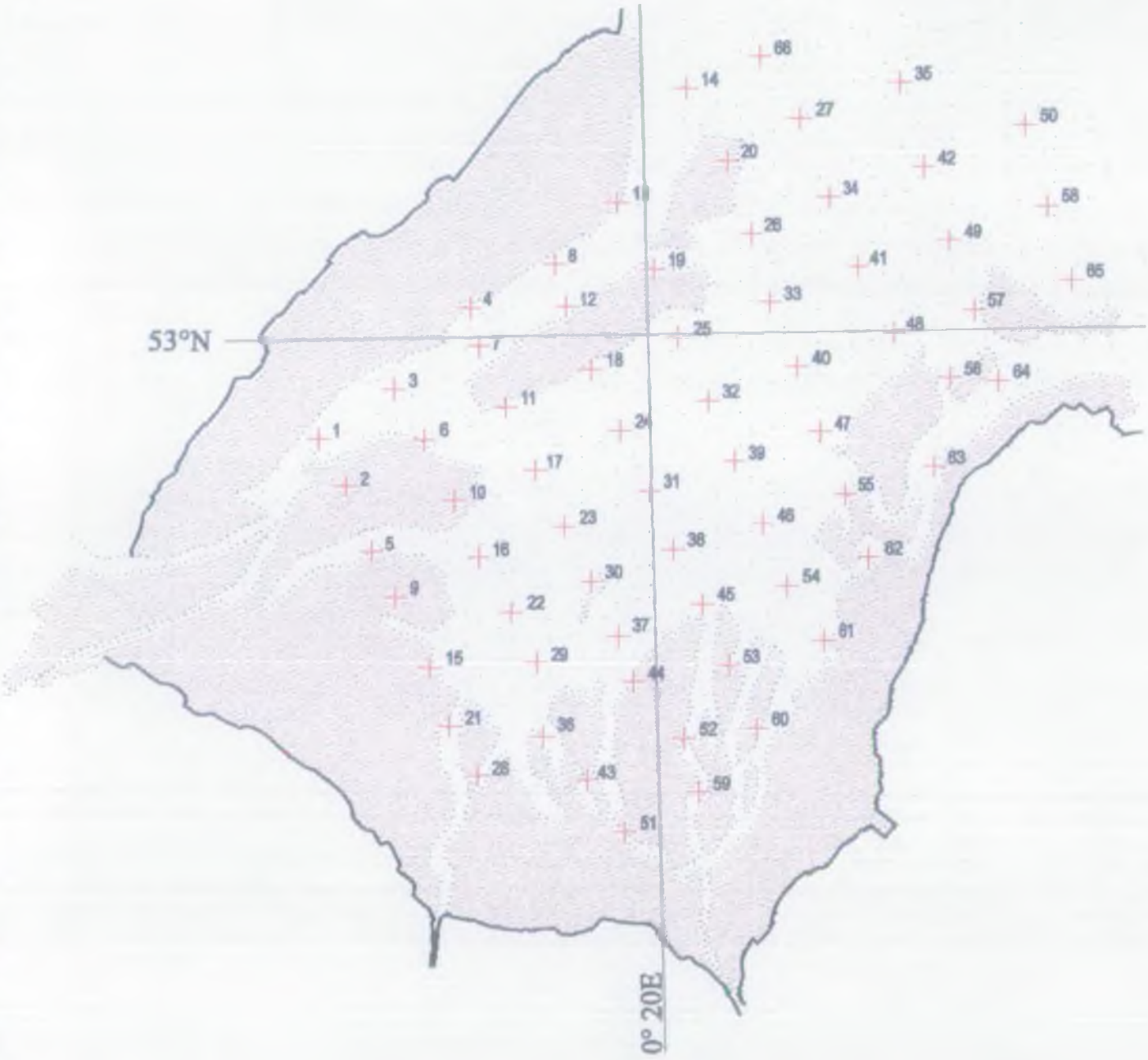

Figure 1. Location of the sixty-six sites sampled in the 1991 survey. The approximate position of the major sand banks is indicated.

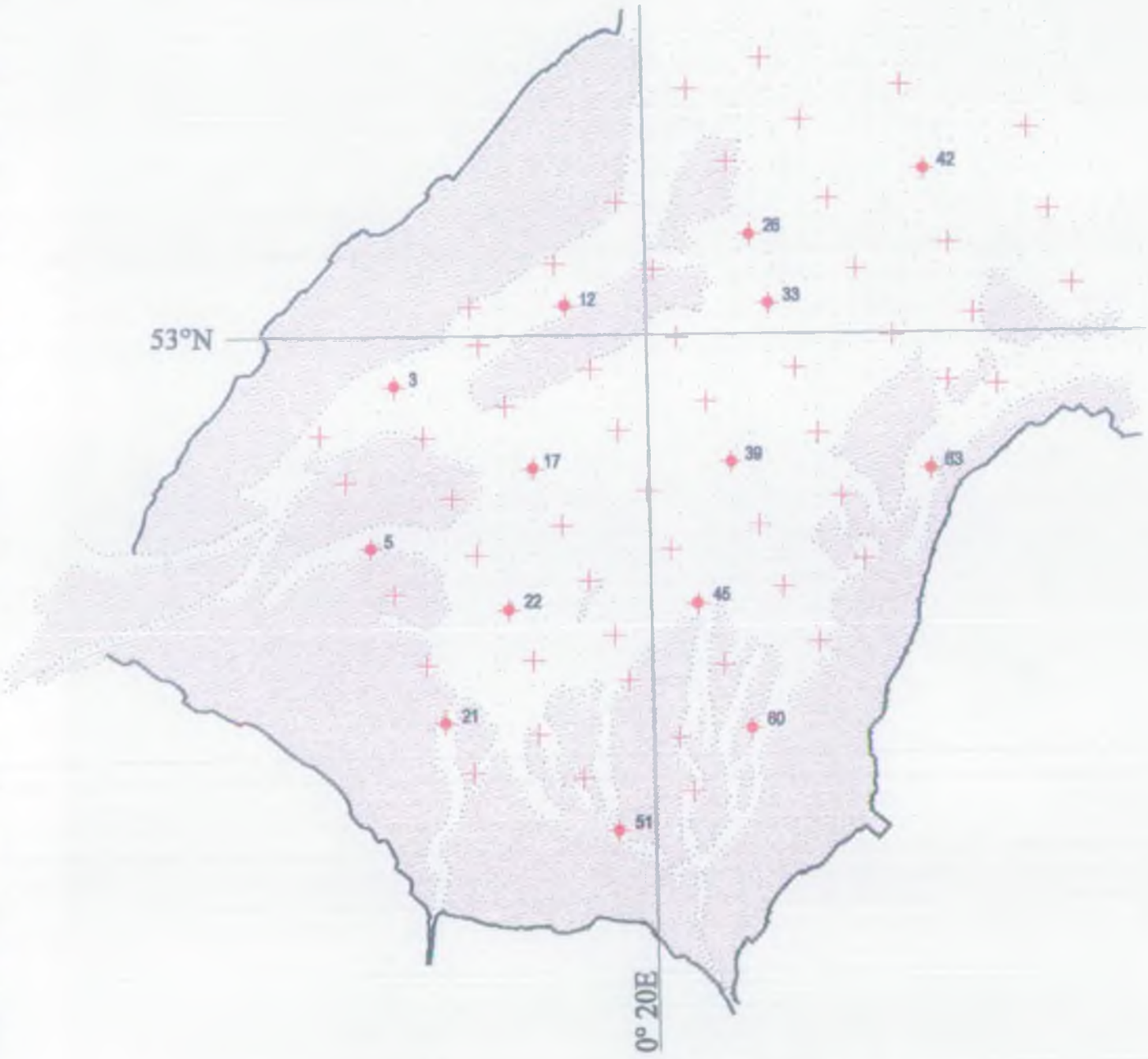

Figure 2. Location of the fourteen sites re-sampled in the 1993 survey. For reference the position of the 1991 stations which were not re-sampled is indicated.

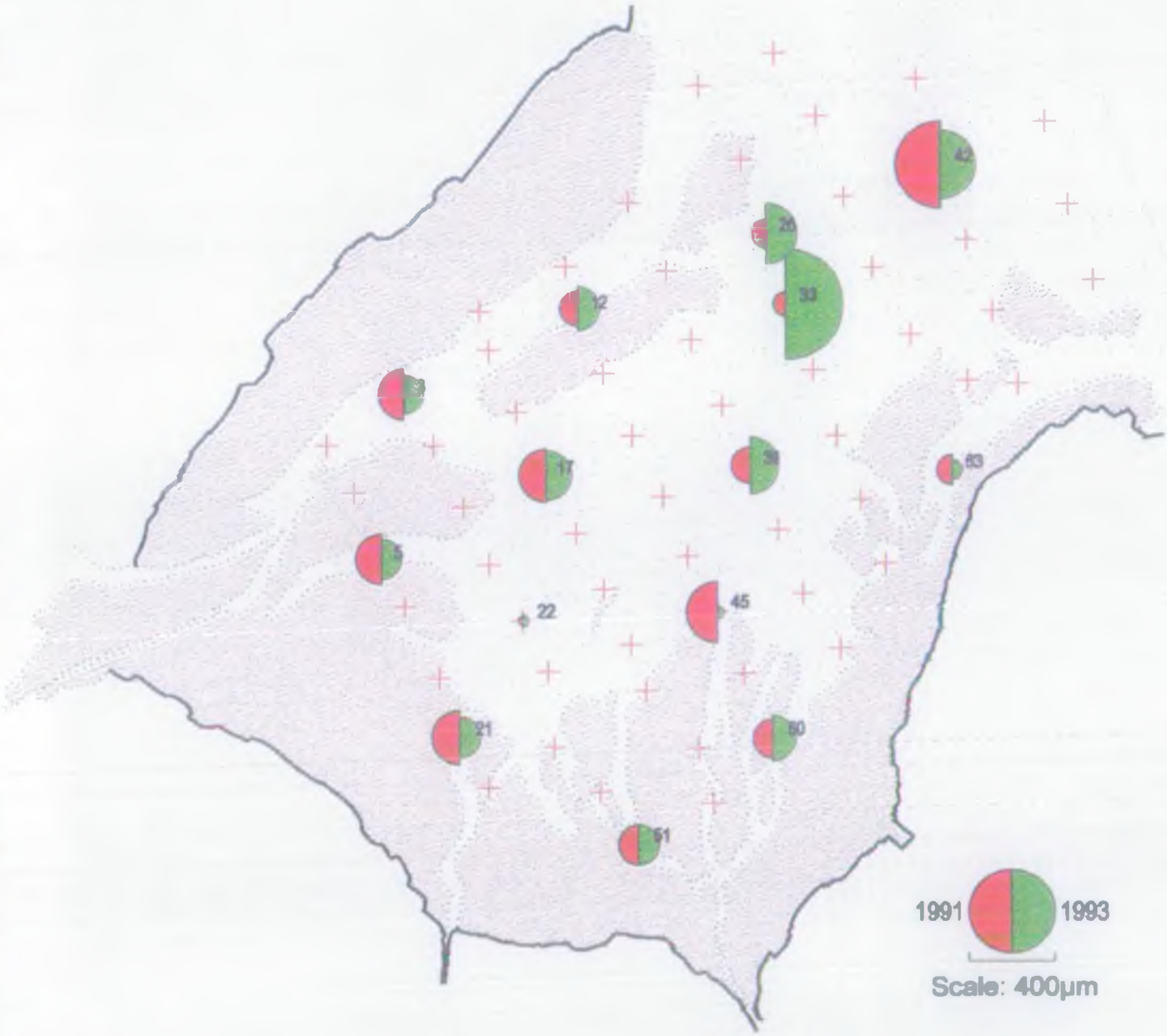

Figure 3. Median particle size (µm) for the fourteen stations sampled in both 1991 and 1993. Data for 1991 is shown in red, that for 1993, in green. The diameter of the half-circles is proportional to the median particle size.

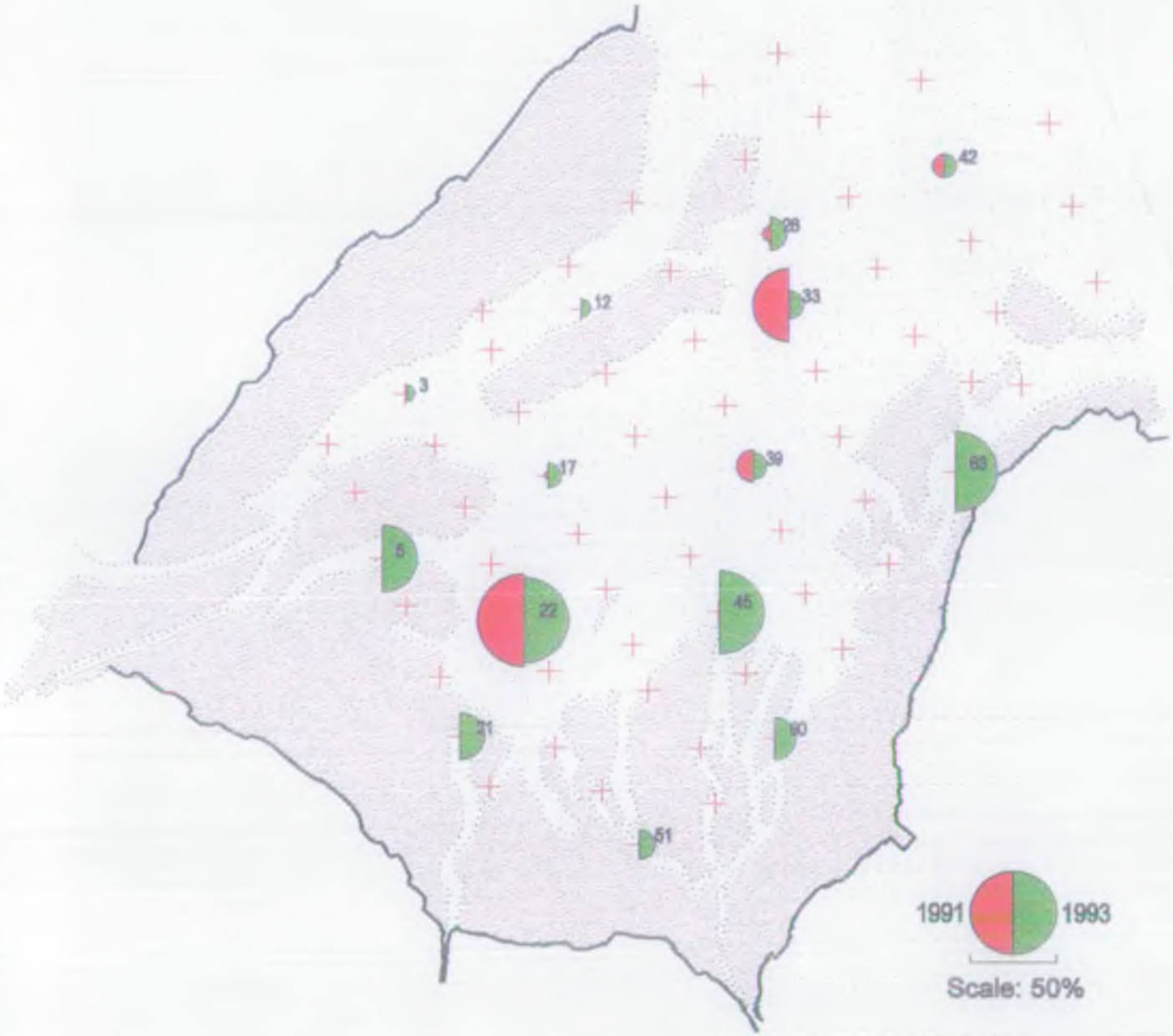

Figure 4. The percentage of clay and silt in the sediment for the fourteen stations sampled in both 1991 and 1993. Data for 1991 is shown in red, that for 1993, in green. The diameter of the half-circles is proportional to the percentage of clay and silt.

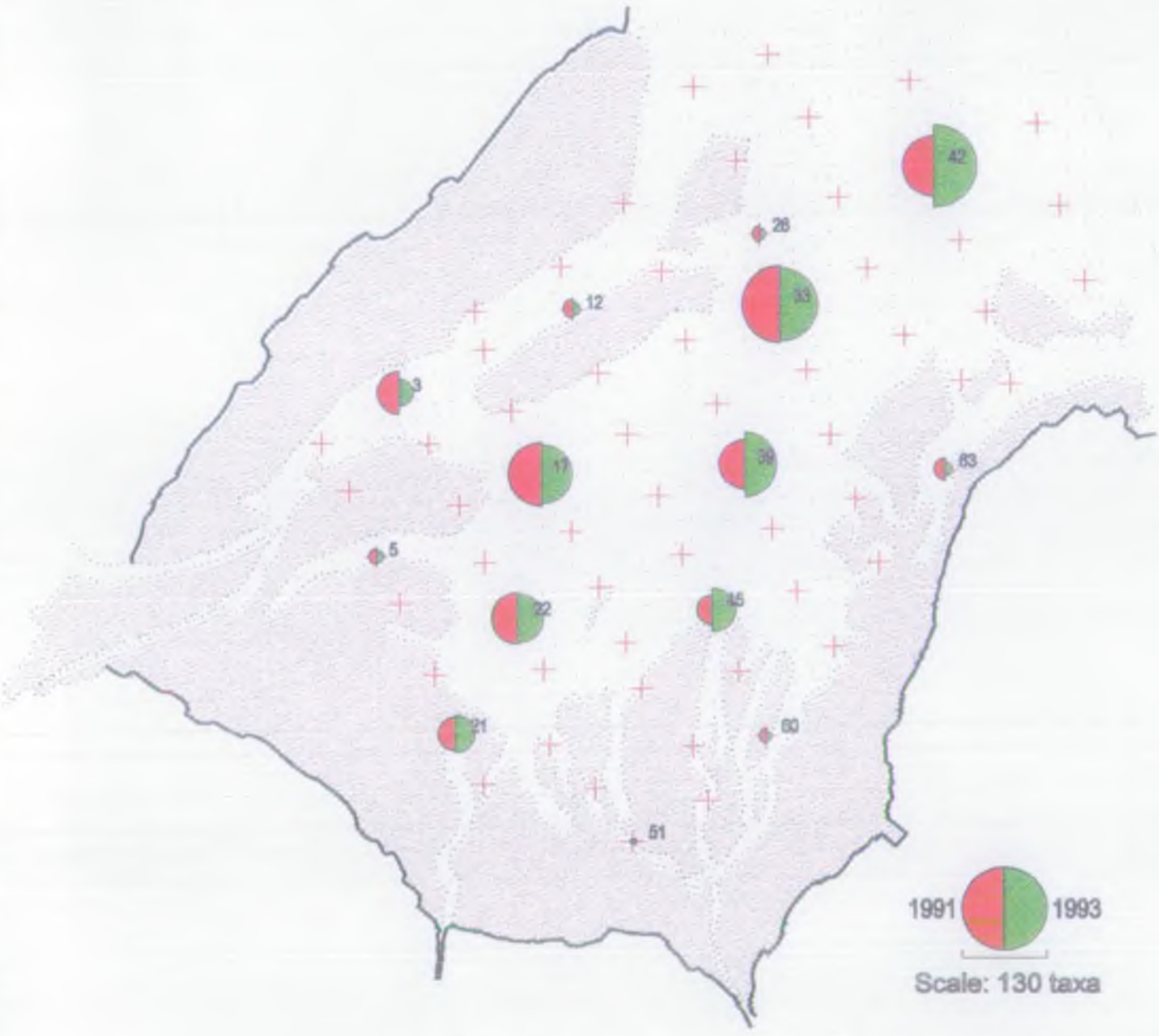

Figure 5. Comparison of the number of taxa recorded at each of the sampling stations in 1991 with that found in 1993. Data for 1991 is shown in red, that for 1993, in green. The diameter of the half-circles is proportional to the number of taxa.

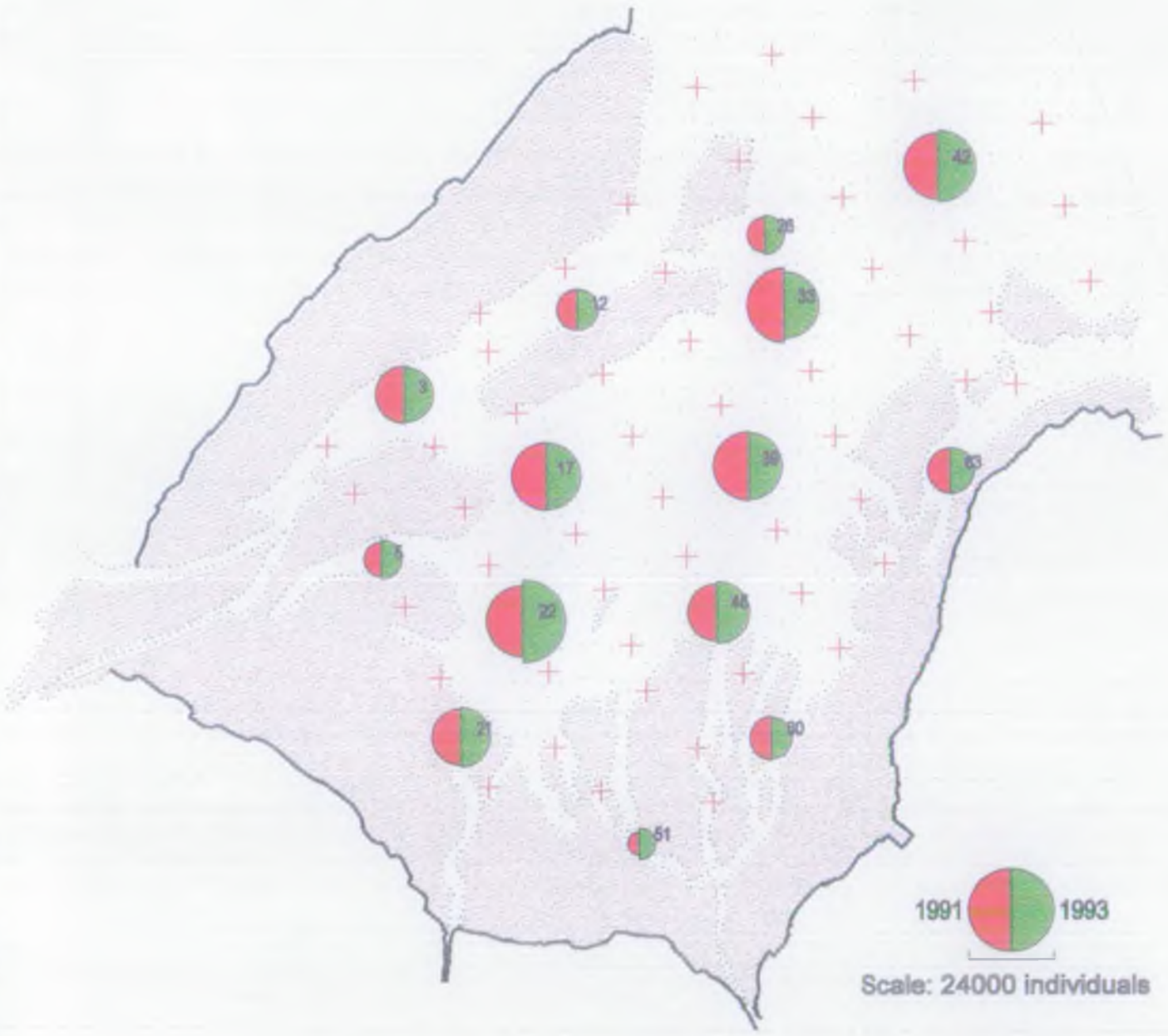

Figure 6. Comparison of the number of individuals recorded at each of the sampling stations in 1991 with that found in 1993. Data for 1991 is shown in red, that for 1993, in green. The diameter of the half-circles is proportional to the logarithm of the number of individuals.

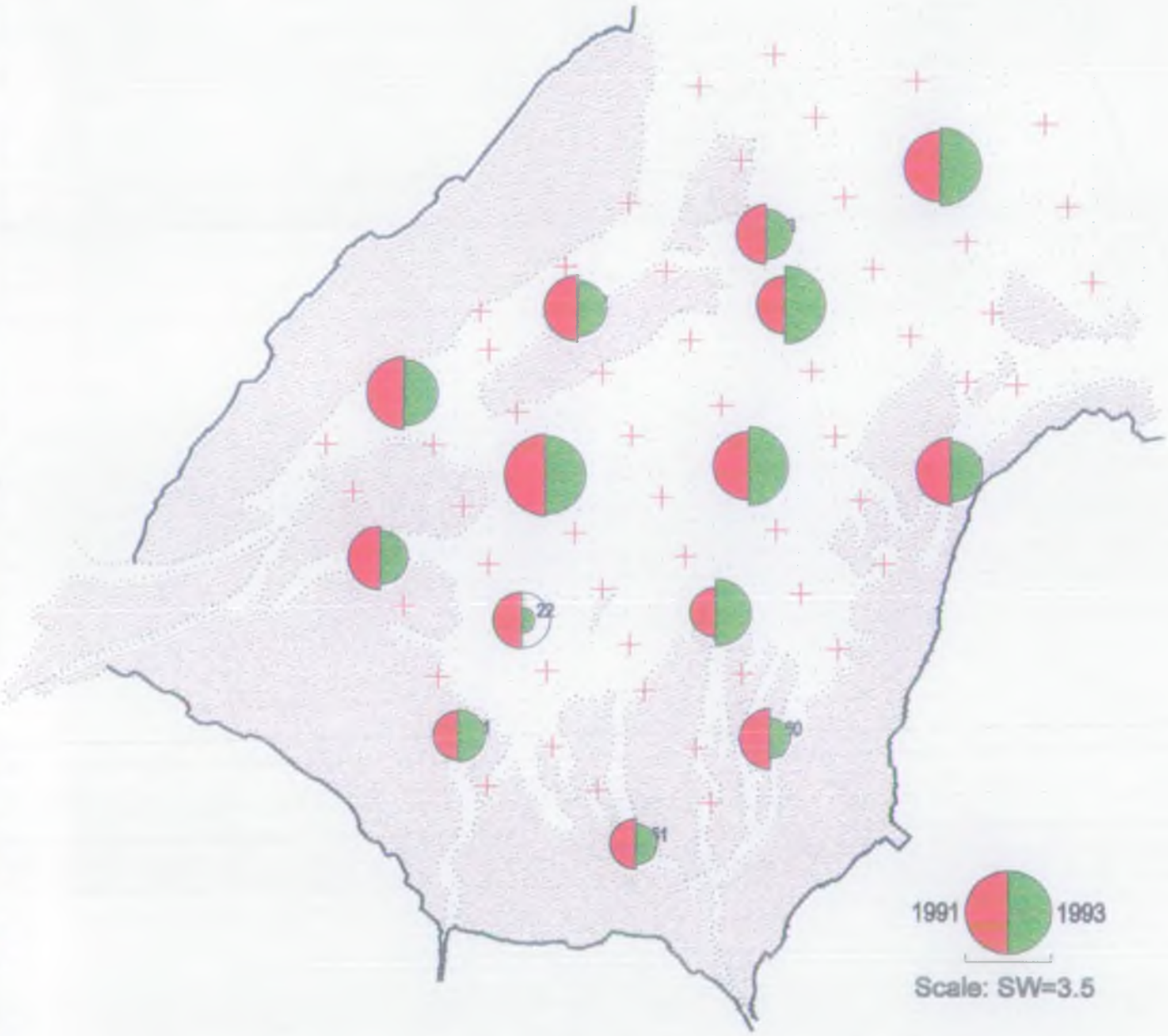

Figure 7. Comparison of the calculated value of the Shannon-Wiener diversity index at each of the sampling stations in 1991 with that found in 1993. Data for 1991 is shown in red, that for 1993, in green. The diameter of the half-circles is proportional to the size of the index.

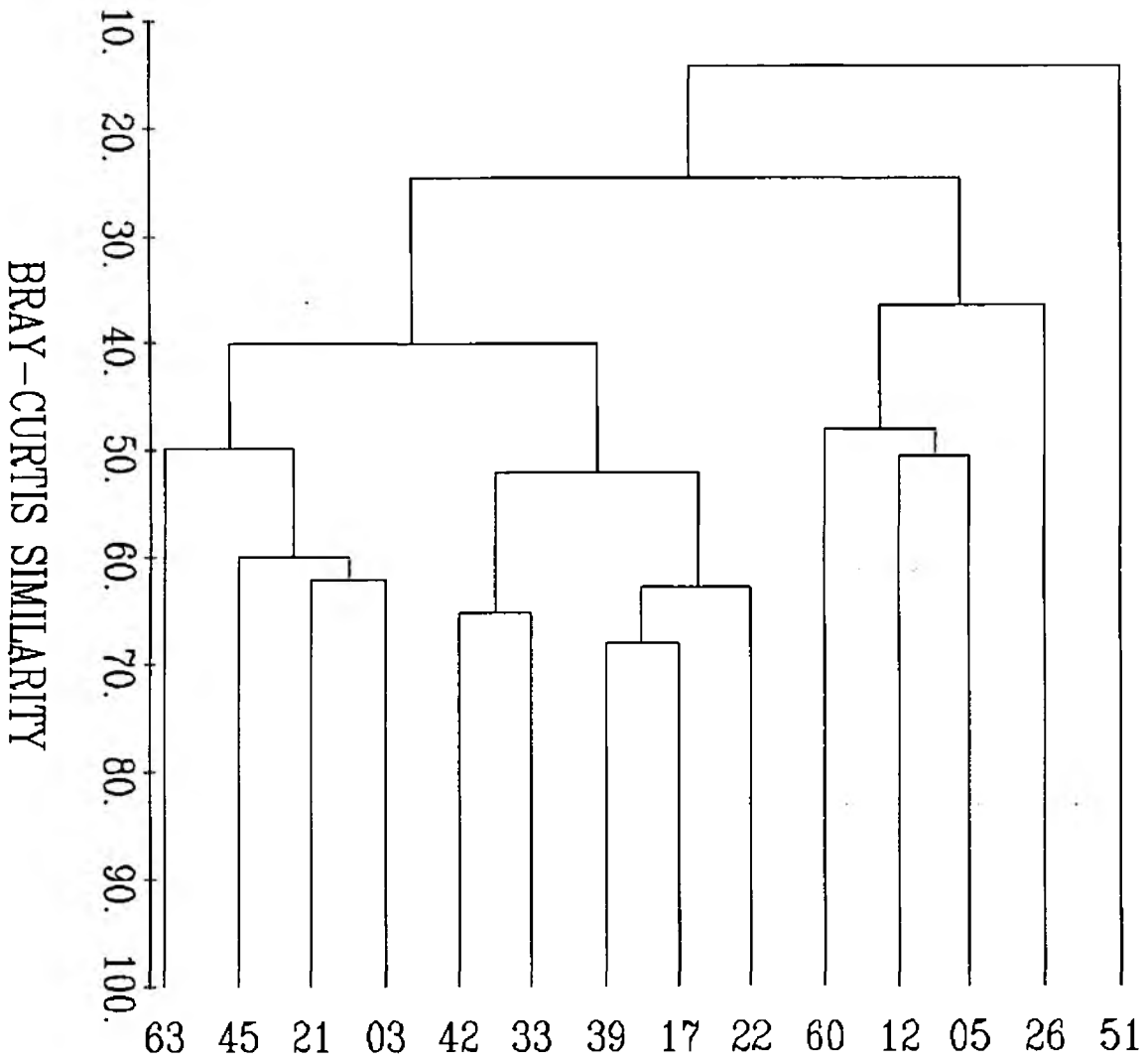

Figure 8. Dendrogram of the result of re-analysis of the faunal data from the 1991 survey for the fourteen sampling stations. Bray-Curtis, group average.

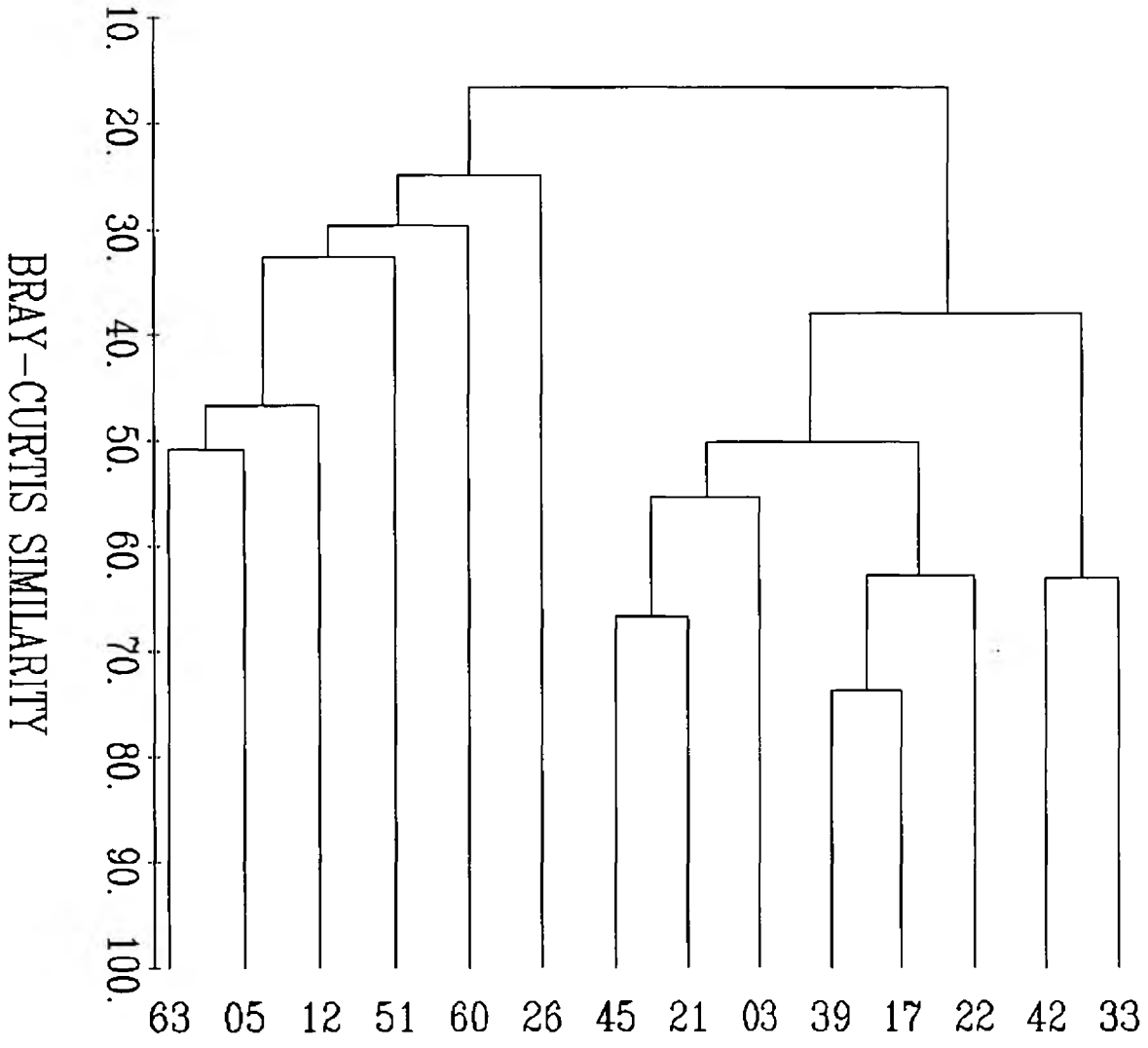

Figure 9. Dendrogram of the result of analysis of the faunal data from the 1993 survey for the fourteen sampling stations. Bray-Curtis, group average.

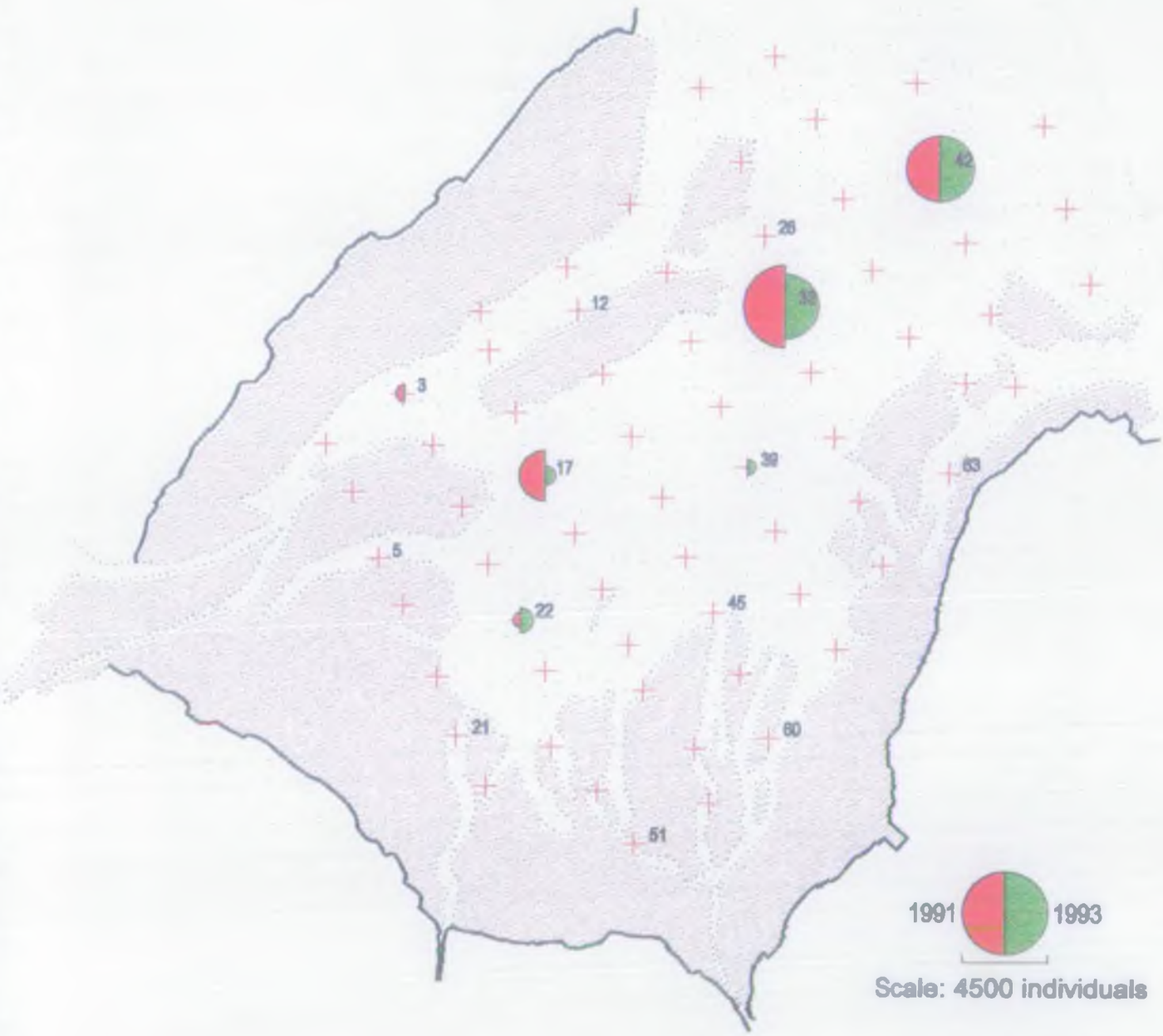

Figure 10. Distribution of the polychaete worm *Sabellaria spinulosa.* Data for 1991 is shown in red, that for 1993, in green. The diameter of the half-circles is proportional to the number of individuals recorded in three Day grab samples.

APPENDICES

Appendix 1. Raw chemical data for the fourteen sampling stations (1993 survey).

PTCODE	DATE	Q	RESULT	CODE	NAME
R05HXWASH03	17/08/93		18.20	02164	COPPER IN SOLIDS MG/KG DRY SOLIDS
R05HXWASH05	17/08/93		35.60	02164	COPPER IN SOLIDS MG/KG DRY SOLIDS
R05HXWASH12	17/08/93		17.40	02164	COPPER IN SOLIDS MG/KG DRY SOLIDS
R05HXWASH17	17/08/93		28.50	02164	COPPER IN SOLIDS MG/KG DRY SOLIDS
R05HXWASH21	17/08/93		19.70	02164	COPPER IN SOLIDS MG/KG DRY SOLIDS
R05HXWASH22	17/08/93		31.00	02164	COPPER IN SOLIDS MG/KG DRY SOLIDS
R05HXWASH26	17/08/93		13.00	02164	COPPER IN SOLIDS MG/KG DRY SOLIDS
R05HXWASH33	18/08/93		27.40	02164	COPPER IN SOLIDS MG/KG DRY SOLIDS
R05HXWASH39	18/08/93		26.60	02164	COPPER IN SOLIDS MG/KG DRY SOLIDS
R05HXWASH39	15/02/93		26.73	02164	COPPER IN SOLIDS MG/KG DRY SOLIDS
R05HXWASH42	18/08/93		27.40	02164	COPPER IN SOLIDS MG/KG DRY SOLIDS
R05HXWASH45	18/08/93		24.60	02164	COPPER IN SOLIDS MG/KG DRY SOLIDS
R05HXWASH51	17/08/93		24.50	02164	COPPER IN SOLIDS MG/KG DRY SOLIDS
R05HXWASH60	18/08/93		19.20	02164	COPPER IN SOLIDS MG/KG DRY SOLIDS
R05HXWASH63	18/08/93		21.10	02164	COPPER IN SOLIDS MG/KG DRY SOLIDS
R05HXWASH03	17/08/93		97.30	02464	ZINC IN SOLIDS MG/KG DRY SOLIDS
R05HXWASH05	17/08/93		83.20	02464	ZINC IN SOLIDS MG/KG DRY SOLIDS
R05HXWASH12	17/08/93		79.00	02464	ZINC IN SOLIDS MG/KG DRY SOLIDS
R05HXWASH17	17/08/93		91.20	02464	ZINC IN SOLIDS MG/KG DRY SOLIDS
R05HXWASH21	17/08/93		78.90	02464	ZINC IN SOLIDS MG/KG DRY SOLIDS
R05HXWASH22	17/08/93		118.00	02464	ZINC IN SOLIDS MG/KG DRY SOLIDS
R05HXWASH26	17/08/93		46.00	02464	ZINC IN SOLIDS MG/KG DRY SOLIDS
R05HXWASH33	18/08/93		118.00	02464	ZINC IN SOLIDS MG/KG DRY SOLIDS
R05HXWASH39	18/08/93		113.00	02464	ZINC IN SOLIDS MG/KG DRY SOLIDS
R05HXWASH39	15/02/93		137.50	02464	ZINC IN SOLIDS MG/KG DRY SOLIDS
R05HXWASH42	18/08/93		117.00	02464	ZINC IN SOLIDS MG/KG DRY SOLIDS
R05HXWASH45	18/08/93		113.00	02464	ZINC IN SOLIDS MG/KG DRY SOLIDS
R05HXWASH51	17/08/93		115.00	02464	ZINC IN SOLIDS MG/KG DRY SOLIDS
R05HXWASH60	18/08/93		101.00	02464	ZINC IN SOLIDS MG/KG DRY SOLIDS
R05HXWASH63	18/08/93		97.40	02464	ZINC IN SOLIDS MG/KG DRY SOLIDS
R05HXWASH03	17/08/93	<	0.50	02544	CADMIUM IN SOLIDS MG/KG DRY SOLIDS
R05HXWASH05	17/08/93	<	0.50	02544	CADMIUM IN SOLIDS MG/KG DRY SOLIDS
R05HXWASH12	17/08/93	<	0.50	02544	CADMIUM IN SOLIDS MG/KG DRY SOLIDS
R05HXWASH17	17/08/93	<	0.50	02544	CADMIUM IN SOLIDS MG/KG DRY SOLIDS
R05HXWASH21	17/08/93	<	0.50	02544	CADMIUM IN SOLIDS MG/KG DRY SOLIDS
R05HXWASH22	17/08/93	<	0.50	02544	CADMIUM IN SOLIDS MG/KG DRY SOLIDS
R05HXWASH26	17/08/93	<	0.50	02544	CADMIUM IN SOLIDS MG/KG DRY SOLIDS
R05HXWASH33	18/08/93	<	0.50	02544	CADMIUM IN SOLIDS MG/KG DRY SOLIDS
R05HXWASH39	18/08/93	<	0.50	02544	CADMIUM IN SOLIDS MG/KG DRY SOLIDS
R05HXWASH39	15/02/93		0.81	02544	CADMIUM IN SOLIDS MG/KG DRY SOLIDS
R05HXWASH42	18/08/93	<	0.50	02544	CADMIUM IN SOLIDS MG/KG DRY SOLIDS
R05HXWASH45	18/08/93	<	0.50	02544	CADMIUM IN SOLIDS MG/KG DRY SOLIDS
R05HXWASH51	17/08/93	<	0.50	02544	CADMIUM IN SOLIDS MG/KG DRY SOLIDS
R05HXWASH60	18/08/93	<	0.50	02544	CADMIUM IN SOLIDS MG/KG DRY SOLIDS
R05HXWASH63	18/08/93	<	0.50	02544	CADMIUM IN SOLIDS MG/KG DRY SOLIDS
R05HXWASH03	17/08/93		0.12	02702	MERCURY IN SOLIDS MG/KG DRY SOLIDS
R05HXWASH05	17/08/93		0.18	02702	MERCURY IN SOLIDS MG/KG DRY SOLIDS
R05HXWASH12	17/08/93		0.10	02702	MERCURY IN SOLIDS MG/KG DRY SOLIDS
R05HXWASH17	17/08/93		0.20	02702	MERCURY IN SOLIDS MG/KG DRY SOLIDS
R05HXWASH21	17/08/93		0.15	02702	MERCURY IN SOLIDS MG/KG DRY SOLIDS
R05HXWASH22	17/08/93		0.27	02702	MERCURY IN SOLIDS MG/KG DRY SOLIDS
R05HXWASH26	17/08/93		0.09	02702	MERCURY IN SOLIDS MG/KG DRY SOLIDS
R05HXWASH33	18/08/93		0.22	02702	MERCURY IN SOLIDS MG/KG DRY SOLIDS
R05HXWASH39	18/08/93		0.22	02702	MERCURY IN SOLIDS MG/KG DRY SOLIDS
R05HXWASH39	15/02/93		0.26	02702	MERCURY IN SOLIDS MG/KG DRY SOLIDS
R05HXWASH42	18/08/93		0.20	02702	MERCURY IN SOLIDS MG/KG DRY SOLIDS
R05HXWASH45	18/08/93		0.19	02702	MERCURY IN SOLIDS MG/KG DRY SOLIDS

Appendix 1. Raw chemical data for the fourteen sampling stations (1993 survey).

PTCODE	DATE	Q	RESULT	CODE	NAME
R05HXWASH51	17/08/93		0.17	02702	MERCURY IN SOLIDS MG/KG DRY SOLIDS
R05HXWASH60	18/08/93		0.14	02702	MERCURY IN SOLIDS MG/KG DRY SOLIDS
R05HXWASH63	18/08/93		0.16	02702	MERCURY IN SOLIDS MG/KG DRY SOLIDS
R05HXWASH03	17/08/93		401.00	03171	TITANIUM MG/KG DRY SOLIDS
R05HXWASH05	17/08/93		484.00	03171	TITANIUM MG/KG DRY SOLIDS
R05HXWASH12	17/08/93		595.00	03171	TITANIUM MG/KG DRY SOLIDS
R05HXWASH17	17/08/93		453.00	03171	TITANIUM MG/KG DRY SOLIDS
R05HXWASH21	17/08/93		386.00	03171	TITANIUM MG/KG DRY SOLIDS
R05HXWASH22	17/08/93		553.00	03171	TITANIUM MG/KG DRY SOLIDS
R05HXWASH26	17/08/93		411.00	03171	TITANIUM MG/KG DRY SOLIDS
R05HXWASH33	18/08/93		535.00	03171	TITANIUM MG/KG DRY SOLIDS
R05HXWASH39	18/08/93		534.00	03171	TITANIUM MG/KG DRY SOLIDS
R05HXWASH42	18/08/93		462.00	03171	TITANIUM MG/KG DRY SOLIDS
R05HXWASH45	18/08/93		467.00	03171	TITANIUM MG/KG DRY SOLIDS
R05HXWASH51	17/08/93		430.00	03171	TITANIUM MG/KG DRY SOLIDS
R05HXWASH60	18/08/93		477.00	03171	TITANIUM MG/KG DRY SOLIDS
R05HXWASH63	18/08/93		576.00	03171	TITANIUM MG/KG DRY SOLIDS
R05HXWASH03	17/08/93		33.00	03294	LEAD IN SOLIDS MG/KG DRY SOLIDS
R05HXWASH05	17/08/93		41.40	03294	LEAD IN SOLIDS MG/KG DRY SOLIDS
R05HXWASH12	17/08/93		34.00	03294	LEAD IN SOLIDS MG/KG DRY SOLIDS
R05HXWASH17	17/08/93		49.50	03294	LEAD IN SOLIDS MG/KG DRY SOLIDS
R05HXWASH21	17/08/93		38.20	03294	LEAD IN SOLIDS MG/KG DRY SOLIDS
R05HXWASH22	17/08/93		62.70	03294	LEAD IN SOLIDS MG/KG DRY SOLIDS
R05HXWASH26	17/08/93		19.30	03294	LEAD IN SOLIDS MG/KG DRY SOLIDS
R05HXWASH33	18/08/93		56.50	03294	LEAD IN SOLIDS MG/KG DRY SOLIDS
R05HXWASH39	18/08/93		55.40	03294	LEAD IN SOLIDS MG/KG DRY SOLIDS
R05HXWASH39	15/02/93		71.60	03294	LEAD IN SOLIDS MG/KG DRY SOLIDS
R05HXWASH42	18/08/93		55.60	03294	LEAD IN SOLIDS MG/KG DRY SOLIDS
R05HXWASH45	18/08/93		55.30	03294	LEAD IN SOLIDS MG/KG DRY SOLIDS
R05HXWASH51	17/08/93		51.80	03294	LEAD IN SOLIDS MG/KG DRY SOLIDS
R05HXWASH60	18/08/93		57.50	03294	LEAD IN SOLIDS MG/KG DRY SOLIDS
R05HXWASH63	18/08/93		47.20	03294	LEAD IN SOLIDS MG/KG DRY SOLIDS
R05HXWASH03	17/08/93		38.20	03531	VANADIUM MG/KG DRY SOLIDS
R05HXWASH05	17/08/93		60.00	03531	VANADIUM MG/KG DRY SOLIDS
R05HXWASH12	17/08/93		57.00	03531	VANADIUM MG/KG DRY SOLIDS
R05HXWASH17	17/08/93		61.30	03531	VANADIUM MG/KG DRY SOLIDS
R05HXWASH21	17/08/93		51.10	03531	VANADIUM MG/KG DRY SOLIDS
R05HXWASH22	17/08/93		81.00	03531	VANADIUM MG/KG DRY SOLIDS
R05HXWASH26	17/08/93		38.80	03531	VANADIUM MG/KG DRY SOLIDS
R05HXWASH33	18/08/93		83.70	03531	VANADIUM MG/KG DRY SOLIDS
R05HXWASH39	18/08/93		79.20	03531	VANADIUM MG/KG DRY SOLIDS
R05HXWASH42	18/08/93		82.30	03531	VANADIUM MG/KG DRY SOLIDS
R05HXWASH45	18/08/93		73.50	03531	VANADIUM MG/KG DRY SOLIDS
R05HXWASH51	17/08/93		64.80	03531	VANADIUM MG/KG DRY SOLIDS
R05HXWASH60	18/08/93		61.00	03531	VANADIUM MG/KG DRY SOLIDS
R05HXWASH63	18/08/93		70.90	03531	VANADIUM MG/KG DRY SOLIDS
R05HXWASH03	17/08/93		31.80	03762	CHROMIUM IN SOLIDS MG/KG DRY SOLIDS
R05HXWASH05	17/08/93		35.60	03762	CHROMIUM IN SOLIDS MG/KG DRY SOLIDS
R05HXWASH12	17/08/93		38.90	03762	CHROMIUM IN SOLIDS MG/KG DRY SOLIDS
R05HXWASH17	17/08/93		38.10	03762	CHROMIUM IN SOLIDS MG/KG DRY SOLIDS
R05HXWASH21	17/08/93		35.00	03762	CHROMIUM IN SOLIDS MG/KG DRY SOLIDS
R05HXWASH22	17/08/93		52.50	03762	CHROMIUM IN SOLIDS MG/KG DRY SOLIDS
R05HXWASH26	17/08/93		36.30	03762	CHROMIUM IN SOLIDS MG/KG DRY SOLIDS
R05HXWASH33	18/08/93		55.10	03762	CHROMIUM IN SOLIDS MG/KG DRY SOLIDS
R05HXWASH39	18/08/93		52.80	03762	CHROMIUM IN SOLIDS MG/KG DRY SOLIDS
R05HXWASH39	15/02/93		59.25	03762	CHROMIUM IN SOLIDS MG/KG DRY SOLIDS
R05HXWASH42	18/08/93		50.00	03762	CHROMIUM IN SOLIDS MG/KG DRY SOLIDS

Appendix 1. Raw chemical data for the fourteen sampling stations (1993 survey).

PTCODE	DATE	Q	RESULT	CODE	NAME
R05HXWASH45	18/08/93		46.10	03762	CHROMIUM IN SOLIDS MG/KG DRY SOLIDS
R05HXWASH51	17/08/93		48.40	03762	CHROMIUM IN SOLIDS MG/KG DRY SOLIDS
R05HXWASH60	18/08/93		43.80	03762	CHROMIUM IN SOLIDS MG/KG DRY SOLIDS
R05HXWASH63	18/08/93		46.60	03762	CHROMIUM IN SOLIDS MG/KG DRY SOLIDS
R05HXWASH03	17/08/93		17200.00	04224	IRON IN SOLIDS MG/KG DRY SOLIDS
R05HXWASH05	17/08/93		23800.00	04224	IRON IN SOLIDS MG/KG DRY SOLIDS
R05HXWASH12	17/08/93		21700.00	04224	IRON IN SOLIDS MG/KG DRY SOLIDS
R05HXWASH17	17/08/93		24500.00	04224	IRON IN SOLIDS MG/KG DRY SOLIDS
R05HXWASH21	17/08/93		21200.00	04224	IRON IN SOLIDS MG/KG DRY SOLIDS
R05HXWASH22	17/08/93		30600.00	04224	IRON IN SOLIDS MG/KG DRY SOLIDS
R05HXWASH26	17/08/93		16500.00	04224	IRON IN SOLIDS MG/KG DRY SOLIDS
R05HXWASH33	18/08/93		26400.00	04224	IRON IN SOLIDS MG/KG DRY SOLIDS
R05HXWASH39	18/08/93		26800.00	04224	IRON IN SOLIDS MG/KG DRY SOLIDS
R05HXWASH42	18/08/93		26600.00	04224	IRON IN SOLIDS MG/KG DRY SOLIDS
R05HXWASH45	18/08/93		26300.00	04224	IRON IN SOLIDS MG/KG DRY SOLIDS
R05HXWASH51	17/08/93		23700.00	04224	IRON IN SOLIDS MG/KG DRY SOLIDS
R05HXWASH60	18/08/93		21400.00	04224	IRON IN SOLIDS MG/KG DRY SOLIDS
R05HXWASH63	18/08/93		25100.00	04224	IRON IN SOLIDS MG/KG DRY SOLIDS
R05HXWASH03	17/08/93		22.10	04304	NICKEL IN SOLIDS MG/KG DRY SOLIDS
R05HXWASH05	17/08/93		25.40	04304	NICKEL IN SOLIDS MG/KG DRY SOLIDS
R05HXWASH12	17/08/93		24.40	04304	NICKEL IN SOLIDS MG/KG DRY SOLIDS
R05HXWASH17	17/08/93		27.30	04304	NICKEL IN SOLIDS MG/KG DRY SOLIDS
R05HXWASH21	17/08/93		25.60	04304	NICKEL IN SOLIDS MG/KG DRY SOLIDS
R05HXWASH22	17/08/93		34.60	04304	NICKEL IN SOLIDS MG/KG DRY SOLIDS
R05HXWASH26	17/08/93		26.30	04304	NICKEL IN SOLIDS MG/KG DRY SOLIDS
R05HXWASH33	18/08/93		32.40	04304	NICKEL IN SOLIDS MG/KG DRY SOLIDS
R05HXWASH39	18/08/93		31.40	04304	NICKEL IN SOLIDS MG/KG DRY SOLIDS
R05HXWASH39	15/02/93		31.85	04304	NICKEL IN SOLIDS MG/KG DRY SOLIDS
R05HXWASH42	18/08/93		31.60	04304	NICKEL IN SOLIDS MG/KG DRY SOLIDS
R05HXWASH45	18/08/93		29.50	04304	NICKEL IN SOLIDS MG/KG DRY SOLIDS
R05HXWASH51	17/08/93		31.80	04304	NICKEL IN SOLIDS MG/KG DRY SOLIDS
R05HXWASH60	18/08/93		28.90	04304	NICKEL IN SOLIDS MG/KG DRY SOLIDS
R05HXWASH63	18/08/93		29.10	04304	NICKEL IN SOLIDS MG/KG DRY SOLIDS
R05HXWASH03	17/08/93		8.80	70052	ARSENIC TOTAL MG/KG DRY SOLIDS
R05HXWASH05	17/08/93		12.60	70052	ARSENIC TOTAL MG/KG DRY SOLIDS
R05HXWASH12	17/08/93		12.90	70052	ARSENIC TOTAL MG/KG DRY SOLIDS
R05HXWASH17	17/08/93		16.40	70052	ARSENIC TOTAL MG/KG DRY SOLIDS
R05HXWASH21	17/08/93		13.90	70052	ARSENIC TOTAL MG/KG DRY SOLIDS
R05HXWASH22	17/08/93		23.80	70052	ARSENIC TOTAL MG/KG DRY SOLIDS
R05HXWASH26	17/08/93		15.50	70052	ARSENIC TOTAL MG/KG DRY SOLIDS
R05HXWASH33	18/08/93		7.24	70052	ARSENIC TOTAL MG/KG DRY SOLIDS
R05HXWASH39	18/08/93		20.50	70052	ARSENIC TOTAL MG/KG DRY SOLIDS
R05HXWASH39	15/02/93		25.33	70052	ARSENIC TOTAL MG/KG DRY SOLIDS
R05HXWASH42	18/08/93		17.40	70052	ARSENIC TOTAL MG/KG DRY SOLIDS
R05HXWASH45	18/08/93		19.00	70052	ARSENIC TOTAL MG/KG DRY SOLIDS
R05HXWASH51	17/08/93		13.50	70052	ARSENIC TOTAL MG/KG DRY SOLIDS
R05HXWASH60	18/08/93		14.10	70052	ARSENIC TOTAL MG/KG DRY SOLIDS
R05HXWASH63	18/08/93		15.70	70052	ARSENIC TOTAL MG/KG DRY SOLIDS
R05HXWASH05	17/08/93	<	10.00	70211	TDE PP' - UG/KG DRY SOLIDS
R05HXWASH17	17/08/93	<	1.00	70211	TDE PP' - UG/KG DRY SOLIDS
R05HXWASH21	17/08/93	<	10.00	70211	TDE PP' - UG/KG DRY SOLIDS
R05HXWASH22	17/08/93	<	1.00	70211	TDE PP' - UG/KG DRY SOLIDS
R05HXWASH33	18/08/93	<	1.00	70211	TDE PP' - UG/KG DRY SOLIDS
R05HXWASH39	18/08/93	<	1.00	70211	TDE PP' - UG/KG DRY SOLIDS
R05HXWASH39	15/02/93		5.20	70211	TDE PP' - UG/KG DRY SOLIDS
R05HXWASH42	18/08/93	<	1.00	70211	TDE PP' - UG/KG DRY SOLIDS
R05HXWASH45	18/08/93	<	1.00	70211	TDE PP' - UG/KG DRY SOLIDS

Appendix 1. Raw chemical data for the fourteen sampling stations (1993 survey).

PTCODE	DATE	Q	RESULT	CODE	NAME
R05HXWASH51	17/08/93	<	10.00	70211	TDE PP' - UG/KG DRY SOLIDS
R05HXWASH60	18/08/93	<	10.00	70211	TDE PP' - UG/KG DRY SOLIDS
R05HXWASH05	17/08/93	<	10.00	70231	ENDRIN - UG/KG DRY SOLIDS
R05HXWASH17	17/08/93	<	1.00	70231	ENDRIN - UG/KG DRY SOLIDS
R05HXWASH21	17/08/93	<	10.00	70231	ENDRIN - UG/KG DRY SOLIDS
R05HXWASH22	17/08/93	<	1.00	70231	ENDRIN - UG/KG DRY SOLIDS
R05HXWASH33	18/08/93	<	1.00	70231	ENDRIN - UG/KG DRY SOLIDS
R05HXWASH39	15/02/93	<	1.00	70231	ENDRIN - UG/KG DRY SOLIDS
R05HXWASH39	18/08/93	<	1.00	70231	ENDRIN - UG/KG DRY SOLIDS
R05HXWASH42	18/08/93	<	1.00	70231	ENDRIN - UG/KG DRY SOLIDS
R05HXWASH45	18/08/93	<	1.00	70231	ENDRIN - UG/KG DRY SOLIDS
R05HXWASH51	17/08/93	<	10.00	70231	ENDRIN - UG/KG DRY SOLIDS
R05HXWASH60	18/08/93	<	10.00	70231	ENDRIN - UG/KG DRY SOLIDS
R05HXWASH05	17/08/93	<	10.00	73451	ISODRIN - UG/KG DRY SOLIDS
R05HXWASH17	17/08/93	<	1.00	73451	ISODRIN - UG/KG DRY SOLIDS
R05HXWASH21	17/08/93	<	10.00	73451	ISODRIN - UG/KG DRY SOLIDS
R05HXWASH22	17/08/93	<	1.00	73451	ISODRIN - UG/KG DRY SOLIDS
R05HXWASH33	18/08/93	<	1.00	73451	ISODRIN - UG/KG DRY SOLIDS
R05HXWASH39	18/08/93	<	1.00	73451	ISODRIN - UG/KG DRY SOLIDS
R05HXWASH39	15/02/93	<	2.00	73451	ISODRIN - UG/KG DRY SOLIDS
R05HXWASH42	18/08/93	<	1.00	73451	ISODRIN - UG/KG DRY SOLIDS
R05HXWASH45	18/08/93	<	1.00	73451	ISODRIN - UG/KG DRY SOLIDS
R05HXWASH51	17/08/93	<	10.00	73451	ISODRIN - UG/KG DRY SOLIDS
R05HXWASH60	18/08/93	<	10.00	73451	ISODRIN - UG/KG DRY SOLIDS
R05HXWASH39	15/02/93	<	1.00	73461	HEXACHLOROBUTADIENE - UG/KG DRY SOLIDS
R05HXWASH05	17/08/93	<	10.00	73781	HCH ALPHA - UG/KG DRY SOLIDS
R05HXWASH17	17/08/93	<	1.00	73781	HCH ALPHA - UG/KG DRY SOLIDS
R05HXWASH21	17/08/93	<	10.00	73781	HCH ALPHA - UG/KG DRY SOLIDS
R05HXWASH22	17/08/93	<	1.00	73781	HCH ALPHA - UG/KG DRY SOLIDS
R05HXWASH33	18/08/93	<	1.00	73781	HCH ALPHA - UG/KG DRY SOLIDS
R05HXWASH39	15/02/93	<	1.00	73781	HCH ALPHA - UG/KG DRY SOLIDS
R05HXWASH39	18/08/93	<	1.00	73781	HCH ALPHA - UG/KG DRY SOLIDS
R05HXWASH42	18/08/93	<	1.00	73781	HCH ALPHA - UG/KG DRY SOLIDS
R05HXWASH45	18/08/93	<	1.00	73781	HCH ALPHA - UG/KG DRY SOLIDS
R05HXWASH51	17/08/93	<	10.00	73781	HCH ALPHA - UG/KG DRY SOLIDS
R05HXWASH60	18/08/93	<	10.00	73781	HCH ALPHA - UG/KG DRY SOLIDS
R05HXWASH05	17/08/93	<	10.00	73791	HEXACHLOROBENZENE - UG/KG DRY SOLIDS
R05HXWASH17	17/08/93	<	1.00	73791	HEXACHLOROBENZENE - UG/KG DRY SOLIDS
R05HXWASH21	17/08/93	<	10.00	73791	HEXACHLOROBENZENE - UG/KG DRY SOLIDS
R05HXWASH22	17/08/93	<	1.00	73791	HEXACHLOROBENZENE - UG/KG DRY SOLIDS
R05HXWASH33	18/08/93	<	1.00	73791	HEXACHLOROBENZENE - UG/KG DRY SOLIDS
R05HXWASH39	18/08/93	<	1.00	73791	HEXACHLOROBENZENE - UG/KG DRY SOLIDS
R05HXWASH39	15/02/93	<	1.50	73791	HEXACHLOROBENZENE - UG/KG DRY SOLIDS
R05HXWASH42	18/08/93	<	1.00	73791	HEXACHLOROBENZENE - UG/KG DRY SOLIDS
R05HXWASH45	18/08/93	<	1.00	73791	HEXACHLOROBENZENE - UG/KG DRY SOLIDS
R05HXWASH51	17/08/93	<	10.00	73791	HEXACHLOROBENZENE - UG/KG DRY SOLIDS
R05HXWASH60	18/08/93	<	10.00	73791	HEXACHLOROBENZENE - UG/KG DRY SOLIDS
R05HXWASH05	17/08/93	<	10.00	74231	PCB AS THE CONGENERS C28 - DRY SOLIDS
R05HXWASH17	17/08/93	<	1.00	74231	PCB AS THE CONGENERS C28 - DRY SOLIDS
R05HXWASH21	17/08/93	<	10.00	74231	PCB AS THE CONGENERS C28 - DRY SOLIDS
R05HXWASH22	17/08/93	<	1.00	74231	PCB AS THE CONGENERS C28 - DRY SOLIDS
R05HXWASH33	18/08/93	<	1.00	74231	PCB AS THE CONGENERS C28 - DRY SOLIDS
R05HXWASH39	18/08/93	<	1.00	74231	PCB AS THE CONGENERS C28 - DRY SOLIDS
R05HXWASH39	15/02/93		9.60	74231	PCB AS THE CONGENERS C28 - DRY SOLIDS
R05HXWASH42	18/08/93	<	1.00	74231	PCB AS THE CONGENERS C28 - DRY SOLIDS
R05HXWASH45	18/08/93	<	1.00	74231	PCB AS THE CONGENERS C28 - DRY SOLIDS
R05HXWASH51	17/08/93	<	1.00	74231	PCB AS THE CONGENERS C28 - DRY SOLIDS

Appendix 1. Raw chemical data for the fourteen sampling stations (1993 survey).

PTCODE	DATE	Q	RESULT	CODE	NAME
R05HXWASH60	18/08/93	<	10.00	74231	PCB AS THE CONGENERS C28 - DRY SOLIDS
R05HXWASH05	17/08/93	<	10.00	74241	PCB AS THE CONGENERS C52 - DRY SOLIDS
R05HXWASH17	17/08/93	<	1.00	74241	PCB AS THE CONGENERS C52 - DRY SOLIDS
R05HXWASH21	17/08/93	<	10.00	74241	PCB AS THE CONGENERS C52 - DRY SOLIDS
R05HXWASH22	17/08/93	<	1.00	74241	PCB AS THE CONGENERS C52 - DRY SOLIDS
R05HXWASH33	18/08/93	<	1.00	74241	PCB AS THE CONGENERS C52 - DRY SOLIDS
R05HXWASH39	15/02/93	<	1.00	74241	PCB AS THE CONGENERS C52 - DRY SOLIDS
R05HXWASH39	18/08/93	<	1.00	74241	PCB AS THE CONGENERS C52 - DRY SOLIDS
R05HXWASH42	18/08/93	<	1.00	74241	PCB AS THE CONGENERS C52 - DRY SOLIDS
R05HXWASH45	18/08/93	<	1.00	74241	PCB AS THE CONGENERS C52 - DRY SOLIDS
R05HXWASH51	17/08/93	<	1.00	74241	PCB AS THE CONGENERS C52 - DRY SOLIDS
R05HXWASH60	18/08/93	<	10.00	74241	PCB AS THE CONGENERS C52 - DRY SOLIDS
R05HXWASH05	17/08/93	<	10.00	74261	PCB AS THE CONGENERS C101 - DRY SOLIDS
R05HXWASH17	17/08/93	<	1.00	74261	PCB AS THE CONGENERS C101 - DRY SOLIDS
R05HXWASH21	17/08/93	<	10.00	74261	PCB AS THE CONGENERS C101 - DRY SOLIDS
R05HXWASH22	17/08/93	<	1.00	74261	PCB AS THE CONGENERS C101 - DRY SOLIDS
R05HXWASH33	18/08/93		13.00	74261	PCB AS THE CONGENERS C101 - DRY SOLIDS
R05HXWASH39	18/08/93	<	1.00	74261	PCB AS THE CONGENERS C101 - DRY SOLIDS
R05HXWASH39	15/02/93	<	2.00	74261	PCB AS THE CONGENERS C101 - DRY SOLIDS
R05HXWASH42	18/08/93	<	1.00	74261	PCB AS THE CONGENERS C101 - DRY SOLIDS
R05HXWASH45	18/08/93	<	1.00	74261	PCB AS THE CONGENERS C101 - DRY SOLIDS
R05HXWASH51	17/08/93	<	1.00	74261	PCB AS THE CONGENERS C101 - DRY SOLIDS
R05HXWASH60	18/08/93	<	10.00	74261	PCB AS THE CONGENERS C101 - DRY SOLIDS
R05HXWASH05	17/08/93	<	10.00	74271	PCB AS THE CONGENERS C118 - DRY SOLIDS
R05HXWASH17	17/08/93	<	1.00	74271	PCB AS THE CONGENERS C118 - DRY SOLIDS
R05HXWASH21	17/08/93	<	10.00	74271	PCB AS THE CONGENERS C118 - DRY SOLIDS
R05HXWASH22	17/08/93	<	1.00	74271	PCB AS THE CONGENERS C118 - DRY SOLIDS
R05HXWASH33	18/08/93	<	1.00	74271	PCB AS THE CONGENERS C118 - DRY SOLIDS
R05HXWASH39	18/08/93	<	1.00	74271	PCB AS THE CONGENERS C118 - DRY SOLIDS
R05HXWASH39	15/02/93	<	2.00	74271	PCB AS THE CONGENERS C118 - DRY SOLIDS
R05HXWASH42	18/08/93	<	1.00	74271	PCB AS THE CONGENERS C118 - DRY SOLIDS
R05HXWASH45	18/08/93	<	1.00	74271	PCB AS THE CONGENERS C118 - DRY SOLIDS
R05HXWASH51	17/08/93	<	1.00	74271	PCB AS THE CONGENERS C118 - DRY SOLIDS
R05HXWASH60	18/08/93	<	10.00	74271	PCB AS THE CONGENERS C118 - DRY SOLIDS
R05HXWASH05	17/08/93	<	10.00	74281	PCB AS THE CONGENERS C138 - DRY SOLIDS
R05HXWASH17	17/08/93	<	1.00	74281	PCB AS THE CONGENERS C138 - DRY SOLIDS
R05HXWASH21	17/08/93	<	10.00	74281	PCB AS THE CONGENERS C138 - DRY SOLIDS
R05HXWASH22	17/08/93	<	1.00	74281	PCB AS THE CONGENERS C138 - DRY SOLIDS
R05HXWASH33	18/08/93	<	1.00	74281	PCB AS THE CONGENERS C138 - DRY SOLIDS
R05HXWASH39	18/08/93	<	1.00	74281	PCB AS THE CONGENERS C138 - DRY SOLIDS
R05HXWASH39	15/02/93	<	2.00	74281	PCB AS THE CONGENERS C138 - DRY SOLIDS
R05HXWASH42	18/08/93	<	1.00	74281	PCB AS THE CONGENERS C138 - DRY SOLIDS
R05HXWASH45	18/08/93	<	1.00	74281	PCB AS THE CONGENERS C138 - DRY SOLIDS
R05HXWASH51	17/08/93	<	1.00	74281	PCB AS THE CONGENERS C138 - DRY SOLIDS
R05HXWASH60	18/08/93	<	10.00	74281	PCB AS THE CONGENERS C138 - DRY SOLIDS
R05HXWASH05	17/08/93	<	10.00	74291	PCB AS THE CONGENERS C153 - DRY SOLIDS
R05HXWASH17	17/08/93	<	1.00	74291	PCB AS THE CONGENERS C153 - DRY SOLIDS
R05HXWASH21	17/08/93	<	10.00	74291	PCB AS THE CONGENERS C153 - DRY SOLIDS
R05HXWASH22	17/08/93	<	1.00	74291	PCB AS THE CONGENERS C153 - DRY SOLIDS
R05HXWASH33	18/08/93	<	1.00	74291	PCB AS THE CONGENERS C153 - DRY SOLIDS
R05HXWASH39	18/08/93	<	1.00	74291	PCB AS THE CONGENERS C153 - DRY SOLIDS
R05HXWASH39	15/02/93	<	2.00	74291	PCB AS THE CONGENERS C153 - DRY SOLIDS
R05HXWASH42	18/08/93	<	1.00	74291	PCB AS THE CONGENERS C153 - DRY SOLIDS
R05HXWASH45	18/08/93	<	1.00	74291	PCB AS THE CONGENERS C153 - DRY SOLIDS
R05HXWASH51	17/08/93	<	1.00	74291	PCB AS THE CONGENERS C153 - DRY SOLIDS
R05HXWASH60	18/08/93	<	10.00	74291	PCB AS THE CONGENERS C153 - DRY SOLIDS
R05HXWASH05	17/08/93	<	10.00	74301	PCB AS THE CONGENERS C180 - DRY SOLIDS

Appendix 1. Raw chemical data for the fourteen sampling stations (1993 survey).

PTCODE	DATE	Q	RESULT	CODE	NAME
R05HXWASH17	17/08/93	<	1.00	74301	PCB AS THE CONGENERS C180 - DRY SOLIDS
R05HXWASH21	17/08/93	<	10.00	74301	PCB AS THE CONGENERS C180 - DRY SOLIDS
R05HXWASH22	17/08/93	<	1.00	74301	PCB AS THE CONGENERS C180 - DRY SOLIDS
R05HXWASH33	18/08/93	<	1.00	74301	PCB AS THE CONGENERS C180 - DRY SOLIDS
R05HXWASH39	15/02/93	<	1.00	74301	PCB AS THE CONGENERS C180 - DRY SOLIDS
R05HXWASH39	18/08/93	<	1.00	74301	PCB AS THE CONGENERS C180 - DRY SOLIDS
R05HXWASH42	18/08/93	<	1.00	74301	PCB AS THE CONGENERS C180 - DRY SOLIDS
R05HXWASH45	18/08/93	<	1.00	74301	PCB AS THE CONGENERS C180 - DRY SOLIDS
R05HXWASH51	17/08/93	<	1.00	74301	PCB AS THE CONGENERS C180 - DRY SOLIDS
R05HXWASH60	18/08/93	<	10.00	74301	PCB AS THE CONGENERS C180 - DRY SOLIDS
R05HXWASH39	15/02/93	<	1.50	74441	TRIFLURALIN UG/KG DRY SOLIDS
R05HXWASH05	17/08/93	<	10.00	74501	DDT (OP') UG/KG DRY SOLIDS
R05HXWASH17	17/08/93	<	1.00	74501	DDT (OP') UG/KG DRY SOLIDS
R05HXWASH21	17/08/93	<	10.00	74501	DDT (OP') UG/KG DRY SOLIDS
R05HXWASH22	17/08/93	<	1.00	74501	DDT (OP') UG/KG DRY SOLIDS
R05HXWASH33	18/08/93	<	1.00	74501	DDT (OP') UG/KG DRY SOLIDS
R05HXWASH39	15/02/93	<	1.00	74501	DDT (OP') UG/KG DRY SOLIDS
R05HXWASH39	18/08/93	<	1.00	74501	DDT (OP') UG/KG DRY SOLIDS
R05HXWASH42	18/08/93	<	1.00	74501	DDT (OP') UG/KG DRY SOLIDS
R05HXWASH45	18/08/93	<	1.00	74501	DDT (OP') UG/KG DRY SOLIDS
R05HXWASH51	17/08/93	<	10.00	74501	DDT (OP') UG/KG DRY SOLIDS
R05HXWASH60	18/08/93	<	10.00	74501	DDT (OP') UG/KG DRY SOLIDS
R05HXWASH39	15/02/93	<	1.00	74511	HCH BETA UG/KG DRY SOLIDS
R05HXWASH39	15/02/93		6.10	75221	PCB AS THE CONGENER C31 - DRY SOLIDS
R05HXWASH39	15/02/93	<	5.00	75231	PCB AS THE CONGENER C105 - DRY SOLIDS
R05HXWASH39	15/02/93	<	1.00	75241	PCB AS THE CONGENER C156 - DRY SOLIDS
R05HXWASH03	17/08/93		1.50	90011	SOLIDS TOT ORGANIC + VOLATILE (105-500C)
R05HXWASH05	17/08/93		2.00	90011	SOLIDS TOT ORGANIC + VOLATILE (105-500C)
R05HXWASH12	17/08/93		1.20	90011	SOLIDS TOT ORGANIC + VOLATILE (105-500C)
R05HXWASH17	17/08/93		2.50	90011	SOLIDS TOT ORGANIC + VOLATILE (105-500C)
R05HXWASH21	17/08/93		1.20	90011	SOLIDS TOT ORGANIC + VOLATILE (105-500C)
R05HXWASH22	17/08/93		6.00	90011	SOLIDS TOT ORGANIC + VOLATILE (105-500C)
R05HXWASH26	17/08/93		1.40	90011	SOLIDS TOT ORGANIC + VOLATILE (105-500C)
R05HXWASH33	18/08/93		2.10	90011	SOLIDS TOT ORGANIC + VOLATILE (105-500C)
R05HXWASH39	18/08/93		1.70	90011	SOLIDS TOT ORGANIC + VOLATILE (105-500C)
R05HXWASH42	18/08/93		3.20	90011	SOLIDS TOT ORGANIC + VOLATILE (105-500C)
R05HXWASH45	18/08/93		0.80	90011	SOLIDS TOT ORGANIC + VOLATILE (105-500C)
R05HXWASH51	17/08/93		0.60	90011	SOLIDS TOT ORGANIC + VOLATILE (105-500C)
R05HXWASH60	18/08/93		0.50	90011	SOLIDS TOT ORGANIC + VOLATILE (105-500C)
R05HXWASH63	18/08/93		0.80	90011	SOLIDS TOT ORGANIC + VOLATILE (105-500C)
R05HXWASH39	15/02/93		79.95	90300	SOLIDS TOTAL 105 C %
R05HXWASH03	17/08/93		74.00	90301	SOLIDS TOTAL 105 C %
R05HXWASH05	17/08/93		72.50	90301	SOLIDS TOTAL 105 C %
R05HXWASH12	17/08/93		58.90	90301	SOLIDS TOTAL 105 C %
R05HXWASH17	17/08/93		71.00	90301	SOLIDS TOTAL 105 C %
R05HXWASH21	17/08/93		74.40	90301	SOLIDS TOTAL 105 C %
R05HXWASH22	17/08/93		67.50	90301	SOLIDS TOTAL 105 C %
R05HXWASH26	17/08/93		75.30	90301	SOLIDS TOTAL 105 C %
R05HXWASH33	18/08/93		74.20	90301	SOLIDS TOTAL 105 C %
R05HXWASH39	18/08/93		80.20	90301	SOLIDS TOTAL 105 C %
R05HXWASH42	18/08/93		48.60	90301	SOLIDS TOTAL 105 C %
R05HXWASH45	18/08/93		78.10	90301	SOLIDS TOTAL 105 C %
R05HXWASH51	17/08/93		77.40	90301	SOLIDS TOTAL 105 C %
R05HXWASH60	18/08/93		74.80	90301	SOLIDS TOTAL 105 C %
R05HXWASH63	18/08/93		76.40	90301	SOLIDS TOTAL 105 C %
R05HXWASH05	17/08/93	<	10.00	98411	HCH GAMMA - UG/KG DRY SOLIDS
R05HXWASH17	17/08/93	<	1.00	98411	HCH GAMMA - UG/KG DRY SOLIDS

Appendix 1. Raw chemical data for the fourteen sampling stations (1993 survey).

PTCODE	DATE	Q	RESULT	CODE	NAME
R05HXWASH22	17/08/93	<	1.00	98411	HCH GAMMA - UG/KG DRY SOLIDS
R05HXWASH33	18/08/93	<	1.00	98411	HCH GAMMA - UG/KG DRY SOLIDS
R05HXWASH39	15/02/93	<	1.00	98411	HCH GAMMA - UG/KG DRY SOLIDS
R05HXWASH39	18/08/93	<	1.00	98411	HCH GAMMA - UG/KG DRY SOLIDS
R05HXWASH42	18/08/93	<	1.00	98411	HCH GAMMA - UG/KG DRY SOLIDS
R05HXWASH45	18/08/93	<	1.00	98411	HCH GAMMA - UG/KG DRY SOLIDS
R05HXWASH51	17/08/93	<	10.00	98411	HCH GAMMA - UG/KG DRY SOLIDS
R05HXWASH05	17/08/93	<	10.00	98441	ALDRIN - UG/KG DRY SOLIDS
R05HXWASH17	17/08/93	<	1.00	98441	ALDRIN - UG/KG DRY SOLIDS
R05HXWASH21	17/08/93	<	10.00	98441	ALDRIN - UG/KG DRY SOLIDS
R05HXWASH22	17/08/93	<	1.00	98441	ALDRIN - UG/KG DRY SOLIDS
R05HXWASH33	18/08/93	<	1.00	98441	ALDRIN - UG/KG DRY SOLIDS
R05HXWASH39	15/02/93	<	1.00	98441	ALDRIN - UG/KG DRY SOLIDS
R05HXWASH39	18/08/93	<	1.00	98441	ALDRIN - UG/KG DRY SOLIDS
R05HXWASH42	18/08/93	<	1.00	98441	ALDRIN - UG/KG DRY SOLIDS
R05HXWASH45	18/08/93	<	1.00	98441	ALDRIN - UG/KG DRY SOLIDS
R05HXWASH51	17/08/93	<	10.00	98441	ALDRIN - UG/KG DRY SOLIDS
R05HXWASH60	18/08/93	<	10.00	98441	ALDRIN - UG/KG DRY SOLIDS
R05HXWASH05	17/08/93	<	10.00	98451	DDE (PP') - DRY SOLIDS
R05HXWASH17	17/08/93	<	1.00	98451	DDE (PP') - DRY SOLIDS
R05HXWASH21	17/08/93	<	10.00	98451	DDE (PP') - DRY SOLIDS
R05HXWASH22	17/08/93	<	1.00	98451	DDE (PP') - DRY SOLIDS
R05HXWASH33	18/08/93	<	1.00	98451	DDE (PP') - DRY SOLIDS
R05HXWASH39	15/02/93	<	1.00	98451	DDE (PP') - DRY SOLIDS
R05HXWASH39	18/08/93	<	1.00	98451	DDE (PP') - DRY SOLIDS
R05HXWASH42	18/08/93	<	1.00	98451	DDE (PP') - DRY SOLIDS
R05HXWASH45	18/08/93	<	1.00	98451	DDE (PP') - DRY SOLIDS
R05HXWASH51	17/08/93	<	10.00	98451	DDE (PP') - DRY SOLIDS
R05HXWASH60	18/08/93	<	10.00	98451	DDE (PP') - DRY SOLIDS
R05HXWASH05	17/08/93	<	10.00	98461	DIELDRIN - UG/KG DRY SOLIDS
R05HXWASH17	17/08/93	<	1.00	98461	DIELDRIN - UG/KG DRY SOLIDS
R05HXWASH21	17/08/93	<	10.00	98461	DIELDRIN - UG/KG DRY SOLIDS
R05HXWASH22	17/08/93	<	1.00	98461	DIELDRIN - UG/KG DRY SOLIDS
R05HXWASH33	18/08/93	<	1.00	98461	DIELDRIN - UG/KG DRY SOLIDS
R05HXWASH39	15/02/93	<	1.00	98461	DIELDRIN - UG/KG DRY SOLIDS
R05HXWASH39	18/08/93	<	1.00	98461	DIELDRIN - UG/KG DRY SOLIDS
R05HXWASH42	18/08/93	<	1.00	98461	DIELDRIN - UG/KG DRY SOLIDS
R05HXWASH45	18/08/93	<	1.00	98461	DIELDRIN - UG/KG DRY SOLIDS
R05HXWASH51	17/08/93	<	10.00	98461	DIELDRIN - UG/KG DRY SOLIDS
R05HXWASH60	18/08/93	<	10.00	98461	DIELDRIN - UG/KG DRY SOLIDS
R05HXWASH05	17/08/93	<	10.00	98471	DDT (PP') - UG/KG DRY SOLIDS
R05HXWASH17	17/08/93	<	1.00	98471	DDT (PP') - UG/KG DRY SOLIDS
R05HXWASH21	17/08/93	<	10.00	98471	DDT (PP') - UG/KG DRY SOLIDS
R05HXWASH22	17/08/93	<	1.00	98471	DDT (PP') - UG/KG DRY SOLIDS
R05HXWASH33	18/08/93	<	1.00	98471	DDT (PP') - UG/KG DRY SOLIDS
R05HXWASH39	15/02/93	<	1.00	98471	DDT (PP') - UG/KG DRY SOLIDS
R05HXWASH39	18/08/93	<	1.00	98471	DDT (PP') - UG/KG DRY SOLIDS
R05HXWASH42	18/08/93	<	1.00	98471	DDT (PP') - UG/KG DRY SOLIDS
R05HXWASH45	18/08/93	<	1.00	98471	DDT (PP') - UG/KG DRY SOLIDS
R05HXWASH51	17/08/93	<	10.00	98471	DDT (PP') - UG/KG DRY SOLIDS
R05HXWASH60	18/08/93	<	10.00	98471	DDT (PP') - UG/KG DRY SOLIDS

Appendix 2. Number of individuals of each taxon recorded in three Day grab samples taken from each of the fourteen stations sampled in 1991. Taxa presented as identified no combining.

MCS	Taxon	03	05	12	17	21	22	26	33	39	42	45	51	60	63
D1024	Alcyonium digitatum	-	-	-	-	-	-	-	-	-	1	-	-	-	-
D1149	Actiniidae indet.	4	-	-	15	-	1	-	9	3	-	-	-	-	-
F0001	Turbellaria indet.	-	-	-	-	-	-	-	-	-	8	-	-	-	-
G0000	Nemertea indet.	-	-	6	24	2	1	6	95	22	73	3	-	-	-
G0038	Tubulanus cf. albocapitatu	-	-	-	-	-	-	-	-	3	-	-	-	-	-
G0046	Tubulanus polymorphus	3	-	-	23	1	3	-	32	27	24	5	-	-	-
G0001	Lineus indet.	-	-	-	1	-	-	-	-	-	-	-	-	-	-
G0107	Oerstedia dorsalis	-	-	-	-	-	-	-	2	-	2	-	-	-	-
N0009	Golfingia elongata	-	-	-	-	-	-	-	-	-	1	-	-	-	-
N0016	Golfingia minuta	-	-	-	-	-	-	-	14	2	38	-	-	-	-
P0027	Aphrodita aculeata	-	-	-	-	-	5	-	-	-	-	-	-	-	-
P0093	Gattyana cirrosa	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P0097	Harmothoe indet.	-	-	-	33	4	10	-	74	12	213	10	-	-	-
P0102	Harmothoe extenuata	-	-	-	-	-	-	-	-	-	1	-	-	-	-
P0107	Harmothoe impar	-	-	-	9	3	-	-	-	-	-	-	-	-	-
P0121	Harmothoe marphysae	-	-	-	1	5	-	-	-	-	2	12	-	-	-
P0133	Lepidonotus squamatus	-	-	-	-	-	-	-	-	-	53	-	-	-	-
P0168	Pholoe indet.	6	-	-	122	6	147	-	938	164	1522	85	-	-	-
P0187	Sthenelais boa	-	-	-	1	-	-	-	-	1	1	-	-	-	-
P0200	Phyllodocidae juv. indet.	-	-	-	-	-	1	-	23	3	5	4	-	-	-
P0204	Eteone foliosa	-	-	-	-	-	-	-	1	1	5	-	-	-	-
P0205	Eteone longa	1	-	-	52	2	25	-	11	41	7	3	-	1	-
P0213	Hesionura elongata	-	-	-	-	-	-	18	-	-	-	-	-	-	-
P0224	Eteone picta	-	-	-	-	-	-	-	1	-	-	-	-	-	-
P0253	Phyllodoce groenlandica	-	-	1	2	-	2	-	1	4	-	-	-	-	-
P0257	Phyllodoce mucosa	-	1	-	70	54	12	-	-	24	-	43	-	10	-
P0258	Phyllodoce rosea	-	-	-	-	1	-	-	-	-	-	2	-	-	-
P0268	Eulalia indet.	-	-	-	-	-	-	-	5	-	1	-	-	-	-
P0270	Eulalia bilineata	-	-	-	-	-	-	-	4	-	55	-	-	-	-
P0274	Eulalia tripunctata	-	-	-	-	-	-	-	-	-	1	-	-	-	-
P0277	Eulalia viridis	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P0282	Eumida indet.	-	-	-	-	-	-	-	-	-	8	-	-	-	-
P0283	Eumida bahusiensis	15	-	-	278	43	37	-	36	278	67	230	-	-	-
P0471	Glycera juv. indet.	-	-	-	6	1	1	-	-	3	-	-	-	-	-
P0476	Glycera lapidum	-	-	-	-	-	-	-	7	-	-	-	-	-	-
P0478	Glycera oxycephala	-	-	-	-	-	-	2	-	-	-	-	-	-	-
P0481	Glycera tridactyla	-	1	1	6	-	1	-	-	8	1	1	-	-	-
P0493	Goniada maculata	-	-	-	3	1	2	-	-	-	-	-	-	-	-
P0527	Sphaerodorum gracilis	-	-	-	-	-	1	-	-	-	2	-	-	-	-
P0552	Kefersteinia cirrata	-	-	-	-	-	1	-	9	2	168	-	-	-	-
P0563	Nereimyra punctata	-	-	-	-	-	-	-	-	-	1	-	-	-	-
P0601	Microphthalmus similis	-	-	-	-	-	-	6	36	-	-	2	-	-	-
P0635	Syllidae indet.	-	-	-	-	-	-	-	1	-	-	-	-	-	-
P0667	Typosyllis armillaris	-	-	-	-	-	-	-	-	-	9	-	-	-	-
P0680	Amblyosyllis formosa	-	-	-	-	-	-	-	-	-	1	-	-	-	-
P0686	Eusyllis blomstrandi	-	-	-	2	-	-	-	27	2	57	-	-	-	-
P0710	Pionosyllis lamelligera	-	-	-	-	-	-	-	-	-	11	-	-	-	-
P0723	Streptosyllis websteri	-	-	1	-	-	-	-	-	-	-	-	-	7	-
P0727	Syllides cf. japonica	-	-	-	1	-	1	-	9	2	7	-	-	-	-
P0744	Exogone hebes	-	-	-	89	1	-	-	12	44	1	-	-	-	-
P0745	Exogone naidina	-	-	-	-	-	-	-	20	-	64	-	-	-	-
P0746	Exogone verugera	-	-	-	-	-	-	-	1	-	-	-	-	-	-
P0750	Spaerosyllis indet.	-	-	-	-	-	-	-	2	1	-	-	-	-	-
P0751	Sphaerosyllis bulbosa	-	-	-	-	-	-	-	1	-	1	-	-	-	-
P0752	Sphaerosyllis erinaceus	-	-	-	-	-	-	-	-	-	1	-	-	-	-

Appendix 2. Number of individuals of each taxon recorded in three Day grab samples taken from each of the fourteen stations sampled in 1991. Taxa presented as identified no combining.

P0756	Sphaerosyllis tetralix	-	-	-	-	-	-	-	-	-	2	-	-	-	-
	Sphaerosyllis taylori	-	-	-	-	-	-	-	85	-	12	-	-	-	-
P0764	Autolytus brachycephalus	-	-	-	-	-	-	-	1	-	1	-	-	-	-
P0767	Autolytus langerhansi	5	-	-	55	15	59	-	-	27	76	10	-	2	-
P0771	Autolytus prolifer	2	-	-	16	-	10	-	113	44	323	16	-	-	-
P0785	Proceraea cornuta	3	-	-	12	1	6	-	-	5	2	10	-	-	-
P0834	Nereis longissima	2	-	-	29	5	12	-	13	32	50	12	-	-	-
P0867	Nephtys juv. indet.	59	-	-	7	16	47	-	1	3	-	11	-	-	22
P0868	Nephtys caeca	1	-	-	2	-	-	-	3	2	-	-	-	-	-
P0870	Nephtys cirrosa	3	12	51	-	4	-	33	-	-	-	1	18	69	8
P0871	Nephtys hombergii	32	37	2	7	25	56	-	-	5	-	2	9	-	57
P0872	Nephtys kersivalensis	-	-	-	1	-	10	-	1	10	6	-	-	-	-
P1008	Lumbrineris gracilis	-	-	-	-	-	1	-	3	3	22	-	-	-	-
P1104	Protodorvillea kefersteini	-	-	-	1	-	1	-	117	44	70	-	-	-	-
P1152	Scoloplos armiger	43	2	2	284	20	304	-	7	176	32	55	-	2	5
P1158	Aricidea minuta	17	1	-	28	7	-	2	5	76	-	8	-	-	6
P1221	Poecilochaetus serpens	1	-	-	-	-	-	-	12	-	-	-	-	-	-
P1225	Spionidae larvae indet.	-	-	-	2	-	-	1	-	-	-	-	-	-	-
P1228	Aonides paucibranchiata	-	-	-	-	-	-	-	229	4	6	-	-	-	-
P1250	Laonice bahusiensis	-	-	-	-	-	-	-	4	-	-	-	-	-	-
P1277	Polydora caulleryi	-	-	-	-	-	-	-	2	-	-	-	-	-	-
P1287	Polydora quadrilobata	-	-	-	-	-	10	-	-	-	-	-	-	-	-
P1274	Polydora sp. A	-	-	-	-	-	-	-	63	-	234	-	-	-	-
P1312	Pseudopolydora pulchra	3	-	-	128	2	77	-	7	46	10	2	-	-	-
P1317	Pygospio elegans	8	-	-	2	-	10	-	-	-	-	46	-	1	-
P1337	Spio martinensis	1	79	14	-	31	-	-	-	-	-	1	13	12	24
P1333	Spio theeli	-	-	-	7	-	-	15	3	-	1	-	-	-	-
P1343	Spiophanes bombyx	197	2	5	51	358	71	1	2	1	1	310	1	-	17
P1365	Magelona mirabilis	1	5	12	6	11	-	4	-	-	-	3	1	1	17
P1392	Cirratulidae indet.	-	-	-	3	-	-	-	3	12	11	3	-	-	-
P1392	Cirratulidae sp. A	-	-	-	-	-	-	-	-	-	2	-	-	-	-
P1392	Cirratulidae sp. B	-	-	-	-	-	-	-	-	-	89	-	-	-	-
P1394	Caulleriella alata	-	-	-	-	-	-	-	18	4	12	-	-	-	-
P1398	Caulleriella zetlandica	1	-	-	-	-	1	-	72	128	5	10	-	-	-
P1403	Chaetozone setosa	24	2	4	27	7	2	-	-	9	-	11	-	-	7
P1414	Cirriformia tentaculata	-	-	-	-	-	-	-	-	-	5	-	-	-	-
P1418	Dodecaceria indet.	-	-	-	-	-	-	-	-	-	2	-	-	-	-
P1424	Tharyx marioni	-	-	-	2	-	1	-	30	9	63	-	5	-	-
P1491	Pherusa plumosa	-	-	-	-	-	-	-	-	-	1	-	-	-	-
P1531	Capitella capitata	-	3	-	1	117	1	-	-	1	-	30	3	-	-
P1558	Mediomastus fragilis	13	-	1	78	1	-	-	63	525	108	10	-	-	-
P1563	Notomastus latericeus	-	-	-	10	-	-	-	1	20	-	-	-	-	-
P1576	Arenicola marina	-	-	-	-	-	-	-	-	-	1	-	-	-	-
P1690	Ophelia borealis	-	-	-	-	-	-	-	-	-	-	1	-	-	-
P1719	Ophelina acuminata	-	-	-	7	-	-	-	1	5	-	-	-	-	-
P1731	Scalibregmatidae sp. A	-	-	-	-	-	-	-	-	-	109	-	-	-	-
P1743	Scalibregma inflatum	15	-	-	39	-	479	-	2	76	4	5	-	-	-
	Scalibregma celticum	-	-	-	1	-	-	-	-	1	1	-	-	-	-
P1806	Protodrilus indet.	-	-	-	-	-	-	8	27	-	-	-	-	-	-
P1828	Myriochele oculata	9	-	-	70	-	8	-	21	98	1	-	-	-	-
P1836	Owenia fusiformis	3	-	-	5	-	10	-	1	6	-	-	-	-	-
P1854	Lagis koreni	1	1	-	59	-	88	-	7	161	1	12	-	-	-
P1876	Sabellaria spinulosa	-	-	-	7	-	14	-	751	4	837	-	-	-	-
P1904	Ampharete juv. indet.	2	-	-	-	1	3	-	37	83	18	5	-	-	-
P1909	Ampharete acutifrons	1	-	-	-	-	21	-	-	1	-	1	-	-	-
P1910	Ampharete lindstroemi	1	-	-	153	-	24	-	3	3	3	-	-	-	-

Appendix 2. Number of individuals of each taxon recorded in three Day grab samples taken from each of the fourteen stations sampled in 1991. Taxa presented as identified no combining.

P1990	Terebellides stroemi	-	-	-	-	-	-	-	-	-	1	-	-	-	-
P2000	Terebellidae juv. indet.	-	-	-	-	-	-	-	8	-	28	1	-	-	-
P2013	Axionice maculata	-	-	-	-	-	-	-	-	-	20	-	-	-	-
P2031	Lanice conchilega	42	-	-	328	524	394	-	20	417	1	399	-	-	-
P2117	Polycirrus sp. A	-	-	-	-	-	-	-	9	-	212	-	-	-	-
P2124	Polycirrus medusa	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P2144	Thelepus cincinnatus	-	-	-	-	-	-	-	-	-	19	-	-	-	-
P2261	Sabella pavonina	12	-	-	1	-	-	-	16	-	-	2	-	-	-
P2303	Pomatoceros lamarcki	-	-	-	-	-	-	-	5	-	251	-	-	-	-
P2484	Tubificoides indet.	11	5	-	20	-	33	-	9	122	-	14	-	-	5
Q0001	Pycnogonida indet.	-	-	-	1	-	-	-	-	-	-	-	-	-	-
Q0004	Nymphon brevirostre	-	-	-	4	-	1	-	6	2	10	-	-	-	-
Q0017	Achelia echinata	-	-	-	9	1	3	-	35	1	87	7	-	-	-
Q0020	Achelia longipes	-	-	-	-	-	-	-	-	-	-	1	-	-	-
Q0039	Endeis spinosa	-	-	-	-	-	-	-	-	-	-	1	-	-	-
Q0045	Callipallene brevirostris	-	-	-	5	1	-	-	11	1	48	-	-	-	-
Q0062	Anoplodactylus petiolatus	-	1	-	18	2	8	1	17	18	77	8	-	-	-
Q0063	Anoplodactylus pygmaeus	-	-	-	-	-	-	-	1	-	-	-	-	-	-
R0022	Cirripedia indet.	-	-	-	-	-	-	-	-	-	62	-	-	-	-
S0006	Nebalia bipes	-	-	-	-	-	-	-	-	-	1	-	-	-	-
S0046	Mysidae indet.	-	-	-	-	-	-	1	-	-	3	-	-	-	-
S0166	Amphipoda indet.	-	-	-	17	-	1	-	58	9	62	3	-	-	-
S0228	Perioculodes longimanus	-	-	2	-	-	-	-	-	-	-	-	-	-	14
S0234	Pontocrates arenarius	-	-	2	-	-	-	1	-	-	-	-	-	-	-
S0279	Amphilocus manudens	-	-	-	-	-	-	-	2	-	12	-	-	-	-
S0280	Amphilocus neapolitanus	-	-	-	-	-	-	-	-	1	17	-	-	-	-
S0328	Cressa dubia	-	-	-	-	-	-	-	26	-	120	-	-	-	-
S0335	Metopa borealis	-	-	-	-	-	-	-	-	-	4	-	-	-	-
S0366	Stenothoe indet.	-	-	-	-	-	-	-	2	-	-	-	-	-	-
S0370	Stenothoe marina	-	-	-	3	-	-	-	5	1	37	2	-	-	-
S0427	Urothoe indet.	-	-	-	-	1	-	2	-	-	-	-	-	-	-
S0429	Urothoe elegans	-	-	-	-	-	-	-	-	-	-	-	-	-	-
S0431	Urothoe poseidonis	-	-	-	-	1	-	-	-	-	-	3	-	-	-
S0441	Harpinia pectinata	-	-	-	2	-	-	-	5	-	1	-	-	-	-
S0447	Metaphoxus fultoni	-	-	-	-	-	-	-	-	-	3	-	-	-	-
S0464	Lysianassidae indet.	-	-	-	-	-	1	-	-	-	1	-	-	-	-
S0626	Iphimedia minuta	-	-	-	-	-	-	-	-	-	3	-	-	-	-
S0680	Atylus indet.	1	-	-	2	-	-	-	1	-	-	-	-	-	-
S0681	Atylus falcatus	-	-	-	-	-	-	-	1	-	-	-	-	-	-
S0682	Atylus guttatus	-	-	-	-	2	-	-	1	1	-	-	-	-	-
S0683	Atylus swammerdami	-	-	-	-	1	-	-	1	1	-	2	-	-	-
S0696	Guernea coalita	-	-	-	-	-	-	-	1	-	-	-	-	-	-
S0707	Ampelisca juv. indet.	-	-	-	-	-	-	-	-	5	-	-	-	-	-
S0710	Ampelisca brevicornis	4	1	-	85	3	12	-	-	15	-	-	-	-	2
S0711	Ampelisca diadema	-	-	-	86	-	16	-	20	74	25	-	-	-	-
S0718	Ampelisca spinipes	-	-	-	1	-	-	-	21	6	1	-	-	-	-
S0741	Bathyporeia elegans	-	-	5	-	-	-	6	-	-	-	-	-	-	-
S0743	Bathyporeia guilliamsonia	-	-	4	-	-	-	-	-	-	-	-	-	2	-
S0747	Bathyporeia sarsi	-	-	2	-	-	-	-	-	-	-	-	-	2	-
S0805	Melitidae indet.	-	-	-	-	-	-	-	-	-	-	1	-	-	-
S0808	Abludomelita obtusata	-	-	-	-	1	-	-	13	1	-	-	-	-	-
S0825	Cheirocratus sundevallii	-	-	-	-	-	-	-	-	-	5	-	-	-	-
S0896	Gammaropsis indet.	-	-	-	-	-	-	-	-	-	-	2	-	-	-
S0898	Gammaropsis maculata	-	-	-	-	-	-	-	67	1	39	-	-	-	-
S0912	Megamphopus cornutus	-	-	-	-	-	-	-	13	1	3	-	-	-	-
S0918	Microprotopus maculatus	-	-	-	3	1	-	-	-	-	-	17	-	-	-

Appendix 2. Number of individuals of each taxon recorded in three Day grab samples taken from each of the fourteen stations sampled in 1991. Taxa presented as identified no combining.

S0924	Photis pollex	-	-	-	25	2	8	-	11	30	1	1	-	-	-
S0974	Aora gracilis	-	-	-	8	-	4	-	54	10	49	-	-	-	-
S1017	Corophium indet,	-	-	-	9	-	-	-	-	-	1	-	-	-	-
S1023	Corophium crassicorne	-	-	-	-	-	-	-	1	-	-	-	-	-	-
S1038	Unciola crenatipalma	-	-	-	-	-	-	-	131	-	2	-	-	-	-
S1051	Dyopedos monacanthus	-	-	-	-	-	-	-	-	1	-	-	-	-	-
S1084	Pariambus typicus	8	-	-	36	3	31	-	-	16	28	10	-	-	-
S1096	Phtisica marina	-	-	-	-	-	-	-	-	-	17	-	-	-	-
S1484	Janira maculosa	-	-	-	-	-	-	-	-	-	2	-	-	-	-
S1554	Idotea linearis	-	-	-	-	-	-	-	-	-	-	3	-	-	-
S1908	Leptognathia gracilis	-	-	16	-	9	-	-	3	-	1	-	-	45	36
S1921	Pseudoparatanais batei	-	-	-	-	-	-	-	-	-	14	1	-	-	-
S1988	Cumopsis goodsiri	-	-	-	-	-	-	-	-	-	-	2	-	9	-
S2003	Bodotria scorpioides	-	1	-	65	5	5	-	87	62	18	32	-	-	-
S2015	Iphinoe trispinosa	-	-	-	1	-	-	-	-	-	-	-	-	-	-
S2022	Eudorella truncatula	-	-	-	-	-	20	-	-	-	-	-	-	-	-
S2048	Cumella pygmaea	-	-	-	-	-	-	-	-	-	1	-	-	-	-
S2072	Pseudocuma longicornis	-	-	-	-	3	-	-	1	-	-	-	-	-	-
S2095	Diastylis indet.	-	1	-	-	-	-	-	-	-	-	3	-	-	-
S2096	Diastylis bradyi	-	-	-	6	3	-	-	-	5	-	8	1	-	2
S2144	Decapoda larvae	4	2	6	1	3	-	5	3	-	-	4	4	-	1
S2293	Thoralus cranchii	-	-	-	-	-	-	-	-	-	2	-	-	-	-
S2331	Crangon crangon	1	-	1	1	1	-	-	-	-	-	-	-	-	1
S2448	Anapagurus laevis	-	-	-	-	-	-	-	-	-	2	-	-	-	-
S2465	Pagurus bernhardus	-	-	-	-	-	-	-	-	1	-	-	-	-	-
S2468	Pagurus cuanensis	-	-	-	-	-	-	-	-	-	1	-	-	-	-
S2502	Pisidia longicornis	-	-	-	2	1	-	-	68	-	356	-	-	-	-
S2584	Macropodia linaresi	-	-	-	-	-	-	-	1	-	4	1	-	-	-
S2646	Cancer pagurus	-	-	-	-	-	-	-	2	-	-	-	-	-	-
S2666	Liocarcinus indet.	-	-	-	-	-	-	-	1	-	-	-	-	-	-
S2673	Liocarcinus pusillus	-	-	-	-	-	-	-	-	1	-	2	-	-	-
S2690	Carcinus maenas	-	-	-	4	2	1	-	-	-	-	-	-	-	-
S2735	Pilumnus hirtellus	-	-	-	1	1	-	-	-	-	4	-	-	-	-
S2779	Pinnotheres pisum	-	-	1	-	-	-	-	-	-	-	-	-	-	-
W005	Leptochiton asellus	-	-	-	-	-	-	-	-	-	5	-	-	-	-
W009	Gastropoda indet.	-	-	-	-	-	-	-	2	-	-	-	-	-	-
W018	Gibbula juv. indet.	-	-	-	-	-	-	-	8	-	9	-	-	-	-
W028	Rissoa parva	-	-	-	-	1	-	-	-	-	94	-	-	-	-
W043	Caecum glabrum	-	-	-	-	-	-	-	2	-	-	-	-	-	-
W051	Chrysallida indistincta	-	-	-	-	-	58	-	-	-	-	-	-	-	-
W072	Crepidula fornicata	-	-	-	-	-	-	-	4	1	11	-	-	-	-
W084	Buccinum undatum	-	-	-	-	-	1	-	-	-	-	-	-	-	-
W101	Retusa obtusa	-	-	1	-	-	8	-	28	1	4	-	-	-	44
W123	Nudibranchia indet.	-	-	-	-	-	-	-	17	-	16	-	-	-	-
W161	Pelecypoda indet.	1	-	-	1	-	1	-	1	1	4	-	-	-	-
W161	Nucula nitidosa	-	-	-	-	-	10	-	-	1	-	-	-	-	-
W161	Nucula nucleus	-	-	-	5	-	14	-	13	177	60	-	-	-	-
W164	Mytilidae indet.	4	9	-	4	11	9	-	212	22	118	55	5	3	1
W165	Mytilus edulis	-	-	-	-	-	-	-	2	-	-	-	-	-	-
W166	Modiolarca tumida	-	-	-	-	-	-	-	-	-	3	-	-	-	-
W167	Modiolus modiolus	-	-	-	-	-	-	-	55	-	-	-	-	-	2
W184	Lucinoma borealis	-	-	-	-	-	1	-	-	-	-	-	-	-	-
W190	Mysella bidentata	102	11	1	37	16	1068	-	4	131	24	5	-	-	-
W191	Tellimya ferruginosa	-	-	-	17	-	-	-	-	-	-	-	-	-	-
W199	Cerastoderma edule	-	-	-	-	2	-	-	-	-	-	-	-	1	-
W200	Spisula solida	-	-	-	-	-	-	-	2	-	-	15	-	-	-

Appendix 2. Number of individuals of each taxon recorded in three Day grab samples taken from each of the fourteen stations sampled in 1991. Taxa presented as identified no combining.

W202	Ensis americanus	-	1	-	2	298	129	-	1	23	-	249	-	4	-
W203	Phaxas pellucidus	-	-	-	4	-	1	-	-	2	-	-	-	-	-
W204	Angulus tenuis	1	2	15	1	12	-	-	1	2	-	16	-	-	2
W205	Fabulina fabula	62	12	17	81	37	24	-	2	12	-	28	-	-	38
W210	Abra alba	8	-	-	63	1	2273	-	31	426	54	16	-	-	3
W210	Abra nitida	-	-	-	-	-	4	-	-	-	-	-	-	-	-
W218	Venerupis juv. indet.	-	-	-	-	-	1	-	-	-	-	-	-	-	-
W218	Venerupis senegalensis	-	-	-	-	-	-	-	2	-	2	-	-	-	-
W222	Mya truncata	-	-	-	5	-	1	1	27	8	42	-	-	-	-
W225	Hiatella arctica	-	-	-	-	-	-	-	2	-	18	-	-	-	-
W227	Barnea candida	-	-	-	-	-	-	-	-	1	-	-	-	-	-
ZA000	Phoronis hippocrepia	-	-	-	-	-	-	-	-	-	33	-	-	-	-
ZA000	Phoronis muelleri	-	-	-	1	-	18576	-	-	-	-	-	-	-	-
ZB014	Crossaster papposus	-	-	-	-	-	-	-	-	-	1	-	-	-	-
ZB019	Asterias rubens	-	-	-	1	1	-	-	-	-	-	1	-	-	-
ZB030	Amphipholis squamata	-	-	-	3	-	2	-	32	2	29	-	-	-	-
ZB031	Ophiura juv. indet.	17	-	-	565	7	34	-	10	211	11	38	-	-	3
ZB031	Ophiura albida	80	-	-	120	12	61	-	18	64	2	7	-	-	6
ZB031	Ophiura ophiura	33	-	-	11	-	45	-	-	64	2	7	-	-	1
ZB033	Echinoidea juv. indet.	-	-	-	-	-	-	-	2	1	2	-	-	-	-
ZB035	Psammechinus miliaris	-	-	-	-	-	-	-	-	-	1	-	-	-	-
ZB040	Echinocardium cordatum	1	-	-	10	-	-	-	-	3	-	-	-	-	-
ZB041	Holothuroidea juv. indet.	-	-	-	-	-	-	-	3	3	2	3	-	-	-
ZB049	Thyone fusus	-	-	-	6	-	-	-	-	3	-	-	-	-	-
ZD012	Perophora listeri	-	-	-	P	-	-	-	P	P	P	P	-	-	-
ZD143	Ascidiella scabra	-	-	-	1	-	-	-	6	-	103	-	-	-	-
ZD025	Molgula manhattensis	-	-	-	2	-	-	-	57	2	406	-	-	-	-