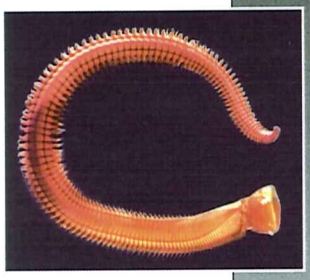
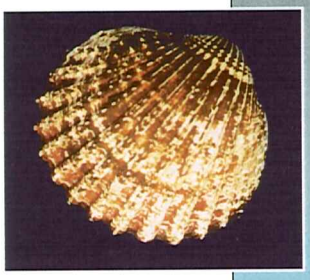
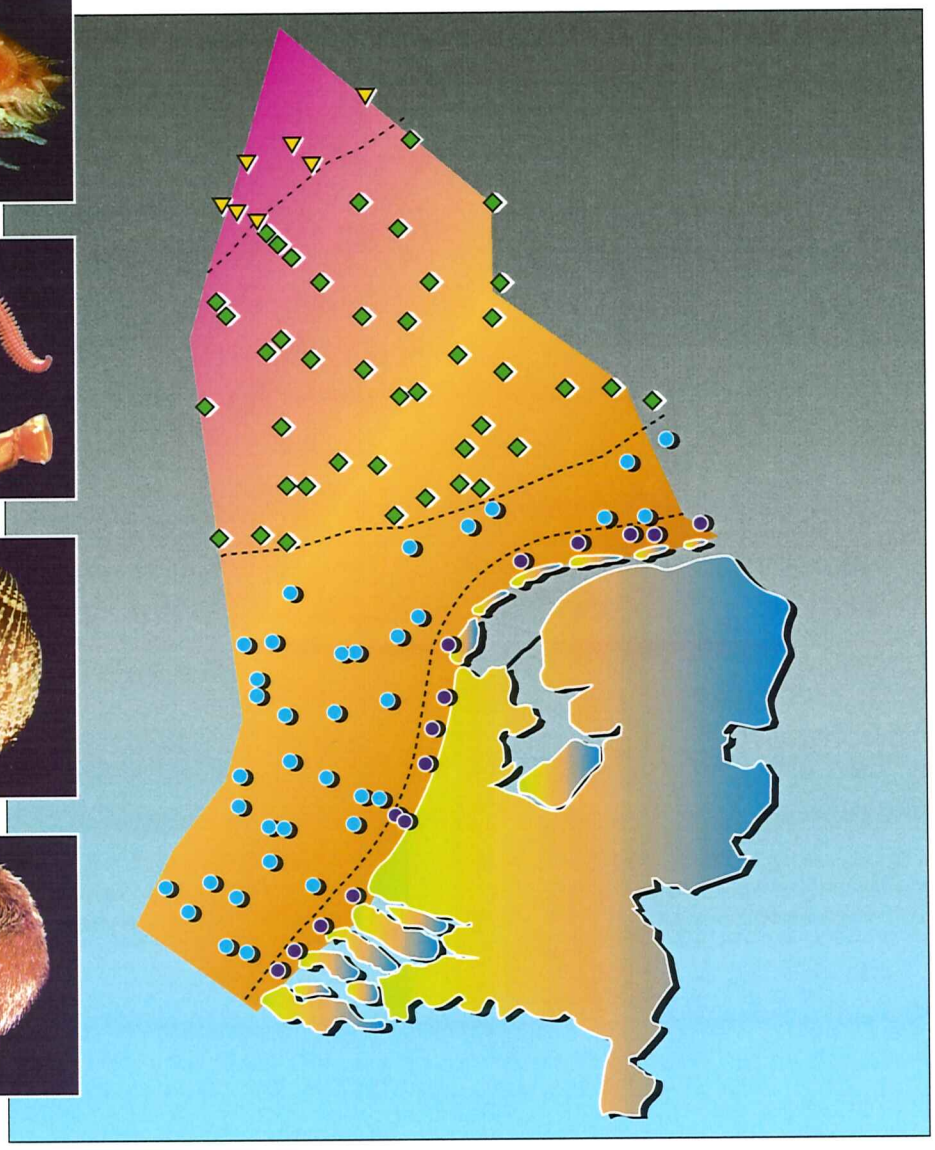
NIOZ-RAPPORT 2005 - 3

THE MACROBENTHIC FAUNA IN THE DUTCH SECTOR OF THE NORTH SEA IN 2004 AND A COMPARISON WITH PREVIOUS DATA

R. Daan and M. Mulder







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Monitoring Macrozoobenthos of the North Sea

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THE MACROBENTHIC FAUNA IN THE DUTCH SECTOR OF THE NORTH SEA IN 2004 AND A COMPARISON WITH PREVIOUS DATA

R. DAAN AND M. MULDER

This report presents data of the monitoring program of macrozoobenthos in the Dutch Continental Shelf (DCS) of the North Sea, a cooperation between the National Institute for Coastal and Marine Management/RIKZ (Rijkswaterstaat), the North Sea Directorate (Rijkswaterstaat) and the Department of Marine Ecology (NIOZ)

ROYAL NETHERLANDS INSTITUTE FOR SEA RESEARCH
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1. SUMMARY

In this report the results are presented of a macrobenthos survey on the Dutch Continental Shelf (DCS), carried out in 2004. The survey forms part of the 'Biological monitoring program of marine waters' (MON*BIOLOGIE, generally referred to as 'BIOMON') which was initiated by the National Institute for Coastal and Marine Management (RIKZ). The purpose of the program is to obtain insight into the year-to-year variations of the macrobenthic assemblages and to detect trend-like changes, that possibly indicate anthropogenic influences on the marine environment (*e.g.* eutrophication, pollution, beam-trawl fishery).

Within the framework of this project fieldwork is carried out every year in spring. In 2004 the 100 BIOMON stations were sampled in the period between March 5 and April 6. On the basis of the results collected in 2004 and previous years an analysis is made of the trends and fluctuations of some selected species and of basic community attributes over the period 1986-2004. The community attributes studied were the diversity, abundance and biomass of the total macrofauna. Temporal variation or trends were investigated separately for each of the four subareas in the DCS *i.e.* the Coastal, Offshore areas, Dogger Bank and Oyster Ground. The conclusions of this study can be summarized as follows:

1. At the Dogger Bank the sand star *Acrocnida brachiata*, the bivalve *Mysella bidentata* the amphipod *Bathyporeia elegans* and the gastropod *Euspira nitida* showed increasing abundance after a decreasing trend in the preceding years. Nevertheless the total fauna abundance was relatively low due to low densities of a few normally abundant polychaete species. New to the Dogger Bank is the occurrence of the polychaete *Euclymene droebachiensis*.
2. In the Oyster Ground the decrease in average silt concentrations that was observed in the two preceding years continued in 2004. Between 1999 and 2004 the silt concentrations decreased at 33 of the 42 stations in this area. The decrease was particularly dramatic in the Frisian Front area. In the other subareas silt contents did not change and the median grain sizes were stable too.
3. In the Oyster Ground there is no indication that the decrease of the silt concentrations has affected the abundance of one or more of the most common species. Typical silt species like the brittlestar *Amphiura filiformis* and the crustacean *Callianassa subterranea* both increased. The polychaetes *Prionospio steenstrupi* and *Chone infundibuliformis* were found for the first time in the Oyster Ground. *P. steenstrupi* has previously been found only once in the offshore area; C. infundibuliformis was known from the Klaverbank and from a station north of the Dogger Bank.

4. The dip in fauna densities, observed in 2003 in the western part of the southern offshore area, has appeared to be just an incidental feature. The mean number of species per sample was in 2004 back at the usual level of the years before 2003. The density of the gastropod *Euspira nitida* had strongly increased. On the other hand some common polychaete species (*Magelona mirabilis, M. johnstoni, Chaetozone setosa, Lanice conchilega, Spiophanes bombyx* and *Aricidea minuta*) continued the decreasing trend observed in previous years. The crustacean *Leptognathia* spec., in 2003 found in the Oyster Ground, was found for the first time in the offshore area. New to the offshore area were also the polychaete *Thelepus cincinnatus* and the *anthozoan Peachia cylindrica.* Both were formerly known from the Klaverbank only.
5. In the coastal area biomass values were at the same high level as found in 2003. This was mainly caused by the abundance of the razor clam Ensis americanus. Although the numbers of *E. americanus* had decreased compared to 2003, biomass remained the same since growth of the surviving animals compensated the loss of biomass by mortality. The data suggest that growth of *E. americanus* is density dependent. A species new to the coastal are, and probably to the Dutch sector, is the polychaete *Malacoceros vulgaris*. The species was known from the German Bight. Another species that was not found before within BIOMON in the coastal area is the polychaete *Nereis diversicolor*. In fact this is an estuarine species and well known from the Wadden Sea.

2. SAMENVATTING

In dit rapport worden de resultaten gepresenteerd van een macrobenthos bemonstering die in 2004 werd uitgevoerd op het Nederlands Continentale Plat (NCP). De bemonstering vond plaats in het kader van het 'Biologische Monitoring Programma Zoute Wateren' (MON*BIOLOGIE, gewoonlijk aangeduid als 'BIOMON'), dat geïnitieerd is door het Rijksinstituut voor Kust en Zee. Met het project wordt beoogd inzicht te krijgen in de jaarlijkse fluctuaties van de macrobenthos gemeenschappen en vast te stellen of er op de langere termijn trendmatige veranderingen optreden. Dergelijke veranderingen zouden onder meer kunnen plaats vinden als gevolg van anthropogene activiteiten (bijv. eutrofiëring, verontreiniging, boomkorvisserij).

In het kader van dit project wordt jaarlijks veldonderzoek uitgevoerd in het voorjaar. In 2004 zijn de 100 BIOMON stations tussen 5 maart en 6 april bemonsterd. Aan de hand van de gegevens die in 2003 en voorgaande jaren zijn verzameld is een overzicht verkregen van de trends en fluctuaties bij een aantal geselecteerde soorten en een aantal kenmerken van de benthische gemeenschap als geheel over de periode 1986 - 2004. De parameters die de bodemgemeenschap kenmerken zijn hier de diversiteit, de dichtheid en de biomassa van de totale fauna. Temporele variatie en trends zijn voor vier subgebieden van het NCP, de Kustzone, het Offshore gebied, de Doggersbank en de Oestergronden, afzonderlijk onderzocht. De conclusies van deze studie kunnen als volgt worden samengevat:

1. Op de Doggersbank vertoonden de slangster *Acrocnida brachiata*, het tweetandschelpje *Mysella bidentata*, de amphipode *Bathyporeia elegans* en de gastropode *Euspira nitida* een toename, na een periode van afname in de voorgaande jaren. Toch was de totale faunadichtheid relatief laag, als gevolg van de geringe dichtheden van enkele gewoonlijk talrijke polychaetensoorten. Nieuw voor de Doggersbank is de vondst van de polychaet *Euclymene droebachiensis*.
2. In de Oestergronden zette de afname in slibgehalten van het sediment, zoals waargenomen in de voorgaande twee jaren, zich voort. Tussen 1999 en 2004 zijn de slibgehalten op 33 van de 42 stations in de Oestergronden gedaald. De afname was met name evident in het Friese Front gebied. In de andere subgebieden was er geen verandering in slib en ook de mediane korrelgrootte was constant.
3. In de Oestergronden bestaat er geen aanwijzing dat de afname van slibconcentraties gevolgen heeft gehad voor de dichtheden van een of meer van de meest algemene soorten. Karakteristieke slibsoorten als de slangster *Amphiura filiformis* en het kreeftje *Callianassa subterranea* namen de laatste jaren juist toe. Soorten die nog niet

eerder in de Oestergronden werden aangetroffen zijn *Prionospio steenstrupi* en *Chone infundibuliformis*, beide polychaeten. *P. steenstrupi* is voorheen slechts één keer aangetroffen in het offshoregebied. *C. infundibuliformis* was al bekend van de Klaverbank.

4. De bijzonder lage faunadichtheid die in 2003 in het westelijke deel van het zuidelijke offshoregebied werden gevonden bleek van tijdelijke aard te zijn. In 2004 was het aantal soorten per monster weer terug op het niveau van voor 2003. De gastropode *Euspira nitida* bleek in het gehele offshoregebied sterk te zijn toegenomen. Aan de andere kant had de afnemende trend die zich de afgelopen jaren had voorgedaan bij de polychaeten *Magelona mirabilis, M. johnstoni, Chaetozone setosa, Lanice cochilega, Spiophanes bombyx* en *Aricidea minuta* zich voortgezet. Nieuw voor het offshoregebied was de kreeftachtige *Leptognathia*, die eerder alleen een keer (in 2003) gevonden was in de Oestergronden. Ook nieuw waren de polychaet *Thelepus cincinnatus* en de anemoon *Peachia cylindrica*. Beide waren to nog toe alleen bekend van de Klaverbank.
5. In de kustzone was de gemiddelde totale biomassa nog op praktisch hetzelfde hoge niveau als in 2003. Het hoge biomassagetal kwam met name voor rekening van de amerikaanse zwaardschede *Ensis americanus*. Hoewel de aantallen *E. americanus* in een jaar tijd wel waren afgenomen bleef de biomassa op peil, doordat mortaliteit gecompenseerd werd door groei van de overlevende dieren. De data wijzen erop dat groei van *E. americanus* dichtheidsafhankelijk is. Een soort die nieuw is voor de kustzone, en waarschijnlijk voor het NCP, is de polychaet *Malacoceros vulgaris*. Deze soort was wel bekend van de Duitse Bocht. Binnen het BIOMON-programma was ook de polychaet *Nereis diversicolor* nog niet eerder in de kustzone aangetroffen. Dit is echter een estuariene soort, die algemeen bekend is van de Waddenzee.

3. INTRODUCTION

In 1989 the **BIO**logical **MON**itoring program of marine waters (project MON* BIOLOGIE) was started with the goal to study the temporal variation of the marine ecosystems on the Dutch Continental Shelf (DCS) including the Wadden Sea and the Delta area. It is an initiative of the National Institute for Coastal and Marine Management (RIKZ) of Rijkswaterstaat in association with several Dutch institutes (Yland, 1995). The biological monitoring program comprises besides the macrobenthos also plankton, fish, seagrass, hard substrate populations, seabirds and mammals.

This report presents the data collected during the macrobenthos survey carried out in spring 2004. Further the results of the 2004 survey are compared with the BIOMON data collected in previous years (1991-2003) and those obtained during the ICES North Sea Benthos Survey (ICES-NSBS, 1986) and the MILZON-BENTHOS program (1988-1993). In 1990 a pilot study of the BIOMON project was carried out at 7 locations on the DCS and the results are also included in the data base.

The aim of the BIOMON program is to obtain insight in the spatial and temporal variation in the composition of the macrobenthos and to detect possible trendlike changes on the DCS as a whole or in parts of it. During the first years (1991-1994) there were 25 stations located along 5 transects perpendicular to the Dutch coast. At these stations 5 replicate boxcore samples were collected each year. Although in this way a rather detailed picture was obtained of the fauna composition at each of these stations, it was argued that (changes in) the macrobenthos composition of the DCS as a whole could better be studied by spreading the sampling effort over a larger number of stations. Therefore, from 1995 onwards the sampling strategy changed and each year 100 stations were visited, that were selected according to a stratified random sampling design in each of the 4 subareas of the DCS, i.e. Dogger Bank, Oyster Ground, Offshore area and Coastal area (Fig. 1). The number of stations within each subarea was proportional to its surface area. At each station only one sample was taken. The 100 stations that were selected include the 25 original BIOMON stations. The selection procedure is described in more detail by Essink (1995) and Holtmann *et al.* (1996).

The analysis of the results obtained in previous years (Daan & Mulder, 2004) has shown that there were generally no clear trends at the community level (faunal density, biomass, biodiversity parameters) in the 4 subareas. However, the southern part of the offshore area appeared to be extremely poor in fauna in 2003. Particularly the number of species per sample was very low that year. The new data may show whether this was just an incidental dip or a trendwise development.

At the species level there were some trendlike developments at the Dogger Bank and in the coastal area. At the Dogger Bank the sand star *Acrocnida brachiata*, the bivalve *Mysella bidentata* and the amphipod *Bathyporeia elegans* showed decreasing abundance between 2000 and 2003, whereas the polychaete *Aricidea minuta* had completely disappeared. In the coastal area the amphipod *Urothoe poseidonis* showed a continuous increase from 1998 onwards. Further, there was a strong increase of the rasor clam *Ensis americanus*, particularly in terms of biomass.

In the Oyster Ground there was a recovery of the brittle star *Amphiura filiformis* after a dip of this species in the second half of the nineties, particularly in the Frisian Front area. Further no trendlike changes could be observed at the species level. This may seem remarkable, since there was a strong decrease in silt contents of the sediment in recent years. Apparently this decrease had no direct consequence with respect to the abundance of individual species.

The new data will show to what extent the trends observed in previous years continued in 2004.

4. MATERIAL AND METHODS

To ensure that any changes that are observed are not due to methodological differences, the procedures for sampling and processing the fauna samples are standardized (Essink, 1991) and have remained unaltered since the beginning of the monitoring project in 1991.

4.1. SAMPLING

In 2004 the BIOMON stations were sampled in the period March 5 to April 6. Most stations have a water depth >5 m and were visited with the RV Arca (North Sea Directorate, RWS). However, two stations in the Coastal subarea with a water depth less than 10 m, *viz.* COA 13 & 14 were sampled with the RV. Delta.

Fig. 1 shows the positions of the stations . The exact geographical positions of the 100 stations, together with the DONAR codes and selected abiotic characteristics (depth/sediment) of the stations are summarized in Table 1a/b. More general information about the cruise carried out with the vessel and the weather conditions during the survey in 2004 can be found in the cruise report of Rijkswaterstaat (Anonymous, 2004).

4.2. SAMPLE TREATMENTS

At each station two boxcore samples (0.078 m², minimal depth 15 cm) were taken. One of the samples was used for sediment analysis and the other sample was washed through a sieve with round holes (1 mm) to collect the macrobenthic fauna. For sediment analysis 2 subsamples (3.4 cm ∅, depth 10 cm) were pooled and immediately stored at -20°C. The residue of the macrobenthos samples was preserved in a borax-buffered solution of 4-6 % formaldehyde in seawater and stored at room temperature.

In the laboratory the macrobenthos samples were stained with rose-bengal and washed over a set of nested sieves with 0.7 mm as the smallest mesh size, to facilitate sorting. The macrofauna was identified to species level, except for some notoriously difficult taxa such as anthozoans, phoronids, priapulids and nemerteans, and subsequently counted. Juvenile macrobenthic animals which because of their size could not be identified to species level were recorded on higher taxonomic levels, usually the genus level. Sizes (to nearest 0.5 mm) were recorded for most molluscs and echinoderms.

4.3. ASHFREE DRY WEIGHT

The ash-free dry weight (AFDW) of the different taxa was determined in one of the following ways:

- *Molluscs and echinoids*:

By means of length-AFDW relationships of the form $W=a*L^b$ (W=AFDW in g and L=length in mm).

- *Polychaetes, larger crustaceans, ophiuroids and remaining taxa*:

Indirectly, by converting the (blotted) wet weight into AFDW by means of conversion factors provided by Rumohr *et al.* (1987) and Ricciardi & Bourget (1998). Wet weights were measured with a Mettler PJ300 balance to the nearest mg.

Small amphipods and cumaceans were assigned an average individual AFDW of 0.2-0.5 mg. The same value is used by Holtmann & Groenewold (1992; 1994) in their analysis of macrobenthos from the MILZON-BENTHOS project in the southern North Sea between 1991 and 1993. This estimated individual weight is based on previous determinations of the AFDW of the taxa in question (Duineveld; Holtmann, unpubl.).

4.4. STATISTICS

In addition to the density (ind./m²) and biomass (g AFDW/m²), the diversity of each macrobenthos sample was calculated. In the literature a suit of biodiversity indices have been used to identify possible changes of the benthic fauna (Hill, 1973; Peterson, 1977; Pearson & Rosenberg, 1978; Harper & Hawksworth, 1994). In this report, we used three indices each representing a different aspect of the faunal diversity. The species richness ($Hill_0$) stands for the number of species per boxcore sample and is the simplest index. The other two indices, the Shannon-Wiener index (H') (Shannon & Weaver, 1949) and the Simpson index (D) for dominance (Simpson, 1949), are based on the proportional abundances of the individual species in the samples. The Simpson index is sensitive to the abundance only of the commonest species and can therefore be regarded as a measure of dominance (Hill, 1973). A high value for Simpsons index means low diversity, whereas a high value for the $Hill_0$ or Shannon-Wiener index indicates high diversity.

4.5. SEDIMENT ANALYSIS

At each station shown in Fig. 1, two subsamples were taken from an intact boxcore sample and subsequently pooled for laboratory analysis of the sediment composition (*e.g.* grain size, content of calcium carbonate). The grain size was analyzed with a Malvern Particle Sizer by the laboratory of the National Institute for Coastal and Marine Management (RIKZ, Middelburg). Two parameters were derived from the grain size data: the median grain size (μm) and the percentage (by weight) of mud. We here define mud as the total fraction mineral particles < 63 μm. However, for comparison with previous years we also calculated the fraction 16-63 μm.

Sediment types were classified on the basis of the median grain size as follows:

Characterization of the sediment type according to the median grain size (after Gullentops *et al.*, 1977).

< 175 μm	Very fine sand
175 - 250 μm	Fine sand
250 - 300 μm	Medium-fine sand
300 - 350 μm	Medium-coarse sand
> 350 μm	Coarse sand

5. RESULTS AND DISCUSSION

5.1 SEDIMENT COMPOSITION

The median grain size and silt content of the sediment at the stations sampled are listed in Table 1. Spatial and temporal patterns are illustrated in Fig. 2, 3 and 4.

The spatial pattern in median grain size was quite similar to that in preceding years. As a result the mean median grain size in the four subareas appeared to be very stable (Fig. 4). A comparison between the values measured at the individual stations in 2004 (Fig. 2) and those found in 2003 shows that at only four stations the size class had changed. In fact, in none of these four stations there was a really big change, but the median grain size was about the critical level that seperates two size classes, so that the measured value is sometimes just below this level, sometimes just above. The differences in median grainsize measured in 2004 and that measured in 2003 was at 88 stations less than 20 µm.

A relatively large median grain size was found at station OYS 8. Although in previous years the values varied already within a relatively broad range of 142 to 202 µm, the value of 232 µm found in 2004 seems to be substantially higher. Station OYS 8 is situated in the southern part of the Frisian Front area, close to the offshore area and therefore at a rather steep depth gradient leading from fine sand south of the station to very fine sand north of it. This might explain why there are relatively large local variations in median grain size.

The distribution of silt in the sediment roughly showed the same spatial pattern as in the preceding years, *i.e.* high silt concentrations in the Oyster Ground and low concentrations in the other subareas (Fig. 3). However, it was noticed already in 2003 that there has been a steady and significant decrease of silt concentrations in the sediment of the Oyster Ground. This decrease appeared to have continued in 2004. From 1999 onwards the mean silt content at the 42 stations in the Oyster Ground changed as follows

1999	2000	2001	2002	2003	2004
13.0 %	11.2 %	11.9 %	8.7 %	8.1 %	7.5 %

Fig. 5 shows that a decrease of silt concentrations took place at 33 of the 42 stations in the area. The strongest decrease was observed at stations where in the nineties the highest concentrations occurred. Particularly in the Frisian Front area, at the southern edge of the Oyster Ground, the change was dramatic. But also in the central part of the Oyster Ground there was a substantial decrease. Increased resuspension by elevated

turbulence of near bottom water could be a possible cause for the loss of silt from (the upper 10 cm of) the sediment. Wind conditions might have changed, resulting in a more frequent occurrence of stormy weatherand increased resuspension. We therefore consulted the wind data collected by the Royal Netherlands Meteorological Institute (KNMI, de Bilt) at platform K13, near the southwestern edge of the Oyster Ground (Fig.6). The strongest decline in the silt concentrations was between March 2001 and March 2002. The figure shows that the two months before March 2002 were the most stormy period within the four years over which the measurements are plotted. However, it seems questionable whether this period was extreme enough to explain the strong decrease.

5.2. DISTRIBUTION OF THE MACROBENTHIC FAUNA IN 2004

5.2.1 Diversity, density and biomass

A total number of 199 species/taxa were identified in the 100 boxcore samples in 2004, including 1 that was identified to genus level only and 12 that were identified to higher taxa (family level or higher). The total number of taxa is within the range of previous years (181 – 231). The distribution of the species over the stations (presence/absence) and the scientific names are given in Appendix-1. The basic data on macrobenthic abundance, biomass and diversity are listed in Appendix-2.

The mean number of species per sample ($Hill_0$) was, like in previous years the highest on the Dogger Bank and in the Oyster Ground and the lowest in the coastal and offshore area (Table 2, Fig. 7,10). There is an overall pattern of high species richness in the north and low species richness in the south. In the Oyster Ground a tendency for a slight increase in species richness can be observed from 1996 onwards. In the other subareas no clear long term trend can be observed in species richness.

As usual, the Shannon Wiener diversity was the highest at the Dogger Bank (Fig. 11). Numbers of individuals were more or less equally distributed among the species found, so Simpson's dominance was low here (Fig.12). Lower Shannon-Wiener diversity was found in the Oyster Ground and the offshore area respectively. In the Oyster Ground, the Shannon Wiener diversity tended to be lower in the period 2001 – 2004 than in the second half of the nineties. In contrast, Simpson's dominance was higher between 2001 and 2004. The cause of these changes is probably the recovery of populations of the brittle star *Amphiura filiformis*. This species occurred in low densities paticularly in the second half of the nineties but returned as a highly dominant species in recent years. The opposite holds for the offshore area, where a slight increase could be observed in

Shannon Wiener diversity and a decrease of Simpson's dominance. This can be explained by the fact that a few polychaete species (*Lanice conchilega*, *Chaetozone setosa* and *Spiophanes bombyx*), which were particularly abundant in the mid-nineties and dominated the fauna by number, occurred in lower densities after 2000. As a result the numbers of individuals became more evenly distributed among the different species.

Compared to previous years, relatively low faunal densities were found at the Dogger Bank in 2004 (Table 2, Fig. 8, 13). The average density was about 20% lower than the lowest density found between 1995 and 2003. In contrast, relatively high macrofauna densities occurred in the Oyster Ground. Since 1999 there seems to be a gradual increase, particularly due to the recovery of *Amphiura filiformis*. In the offshore area there was no substantial change compared to previous years. However in the coastal area the average total fauna density was very low in 2004, even 20% lower than the lowest value found between 1995 and 2003. A main cause of the low overall fauna densities in the coastal area were the low abundance of the polychaetes *Spiophanes bombyx* and the *Magelona mirabilis/M. johnstoni* group. But also the populations of the mollusc *Spisula subtruncata* were at a low abundance level. In neither of the four subareas a substantial change could be observed in the contribution of the different taxonomic groups to the total fauna abundance.

After very low biomass values at the Dogger Bank in 2002, a clear sign of recovery could be observed in 2003 (Fig. 14). This recovery seemed to continue in 2004. Unless low overall faunal densities, the average biomass further increased. It was noticed already that the 'recovery' of biomass at the Dogger Bank in 2003 was largely caused by the return of (only a few) large specimens of the sea urchin *Echinocardium cordatum* in the samples (Daan & Mulder, 2004). A few even larger specimens were present in the samples in 2004. Based on their size these animals must have been at least four years old (Duineveld & Jenness, 1984). This means that these animals must have been living at the Dogger Bank already in 2002. Apparently this generation was absent in the samples in 2002, just by incident.

In the Oyster Ground, there has been a slight but continuous increase in biomass from 1997 onwards (Fig. 14). This trend seems to have continued in 2004, partly due to the increase of the brittle star *Amphiura filiformis*. Note that the peak biomass value in 2002 was explained completely, by the incidental occurrence of one very large specimen of the otter-shell (*Lutraria lutraria*) in one Oyster Ground sample.

In the offshore area biomass values seem to be stable since 1995. However, in the coastal area there has been a strong increase in biomass between 2002 and 2003 (Daan & Mulder, 2004). The increase was caused by the biomass increase of the bivalve *Ensis americanus*. This species had a very succesful spatfall in 2001 and in spring 2002 large

numbers of juvenile specimens were found at several stations. In 2003 the densities were still high, but now the juveniles of 2002 had grown up to a size of 5 to 10 cm, which explains the strong biomass increase. In 2004 the biomass was still at the high level of 2003. Although the numbers of *E. americanus* in the samples had substantially decreased, the total biomass of the species remained the same, since growth of the surviving animals compensated the loss of biomass by mortality.

5.2.2. TEMPORAL VARIATION IN DENSITY AND BIOMASS OF INDIVIDUAL SPECIES

Figs. 15-18 illustrate the temporal variation in density or biomass of a number of individual species in the 4 subareas during the period 1986-2004.

Dogger Bank (Fig. 15a-c)

For three species that had shown a decreasing trend in the preceding years this trend came to an end in 2004. The sand star *Acrocnida brachiata,* the bivalve *Mysella bidentata* and the amphipod *Bathyporeia elegans* all occurred in increased abundance in 2004. Also the gastropod *Euspira nitida*, which was found in relatively low abundance in the preceding years, seemed to have considerably increased in the past season. In contrast, the polychaete species *Magelona mirabilis/M.johnstoni, Chaetozone setosa* and *Spiophanes bombyx* and the amphipod *Urothoe poseidonis* were found to be rather scarce in 2004. The polychaete *Aricidea minuta*, absent since 1999, was still absent in 2004.

A species new to the Dogger Bank is the polychaete *Euclymene droebachiensis*. In 2004 5 specimens were found at station DOG 7, at the border line with the British sector. We could find only one record of this species from the Dutch sector: van Moorsel (2003) found the species in 2002 at a few stations on the Klaverbank. Further the species is known from the deeper parts of the Central North Sea, north of the Dogger Bak and the Dutch sector. Here de Wilde & Duineveld (1988) found *E. droebachiensis* at 6 stations during the Synoptic Mapping of 1986. At the stations where the species occurred, the number of specimens found was generally more than one.

Oyster Ground (Fig. 16a-c)

In the Oyster Ground the brittle star *Amphiura filiformis* continued it's recovery from the dip in population densities in the second half of the nineties. At two stations densities were found exceeding 3000 individuals per m^2. Recovery of *A. filiformis* included the Frisan Front area, where a strong decrease had been observed since 1993. The crustacean *Callianassa subterranea* also shows a gradual numerical increase in

recent years. The species has shown a more or less similar long-term trend as found in *A. filiformis*, *i.e.* a decreasing trend from 1993 onwards and an increasing trend from 2000.

Recently, experiments by Amaro (in prep.) have shown differential impact of *A. filiformis* and *C. subterranea* on the silt-retaining properties of sediments. The results of these experiments showed that high densities of the deposit feeding *C. subterranea* lowered the resistance of sediments to erosion and promoted resuspension of silt into the water column. In contrast, high densities of the filter feeding *A. filiformis* promoted the silt-retaining properties of sediment, whereas at low densities resuspension increased. This finding is interesting since the decreased silt concentrations could possibly be related to changes in the populations of both species. Such a relation, however, seems ambiguous. Indeed, on the one hand the decrease in silt concentrations corresponds with the increase in *C. subterranea* densities. On the other hand, it did not correspond with a decrease in *A. filiformis* densities. In other words, there is no unequivocal relationship.

The bivalve *Nucula nitidosa* shows, from the mid-nineties on a gradual increase. Densities in 2004 were substantially (about 3 to 5 times) higher than in the first half of the nineties. The decreasing trend in the tube-building polychaete *Chaetopterus variopedatus* continued in 2004. The low silt concentrations do not satisfactorily explain this trend, since the decrease started in 2001, when the silt concentrations were still at a high level.

There were two polychaete species that had not been observed in the Oyster Ground before. One specimen of *Prionospio steenstrupi* was present in the sample of OYS 25 in the cental Oyster Ground. The species was found only once before, at station OFF 9, west of Petten, in 2000 (Daan & Mulder, 2001). The other species was *Chone infundibuliformis*, present at station OYS 40, at the border with the German sector. On the DCS this species was only known from the Klaverbank (van Moorsel, 1991, 2003). Further the species has been recorded at two stations just north of the Dogger Bank and the Dutch sector during the Synoptic Mapping (de Wilde & Duineveld, 1988).

Offshore area (Fig. 17a-c)

In the offshore area there was a strong increase in the average abundance of the gastropod *Euspira nitida*. This increase was partly caused by the very high abundance of *E. nitida* at three stations (OFF 11, 12 and 13) in the northwestern part of the offshore area. At each of these stations the density was well beyond 200 individuals per m^2, which is higher than found anywhere before in the offshore area. However, also at the other stations the average density had doubled compared to the preceding year.

There were some polychaete species in the offshore area that had shown a decreasing trend in recent years. These species, *Magelona mirabilis/M. johnstoni,*

Chaetozone setosa, Lanice conchilega and *Spiophanes bombyx*, all continued this trend in 2004. Further, also *Aricidea minuta* occurred in lower abundance than in previous years.

Station OFF 33 was in 2004 not as rich (25 species) as it used to be in preceding years (>30 species). However, among the offshore stations it was still one of the richest stations and accomodated such particular mollusc species as *Alvania lactea, Tornus subcarinatus, Striarca lactea* and Polyplacophorans.

The area immediately south of OFF 33 has shown to be extremely poor in fauna in 2003 and the question was raised, whether the low numbers of species at the 10 stations in this area in 2003 marked the onset of a trendwise decrease. However, the data collected in 2004 show that the species richness at these stations had recovered to values well beyond 10 species per sample, i.e. the usual level of the years before 2003. In other words, there does not seem to be a trendwise decrease in the southwestern offshore area, but only an incidental dip of low duration..

A species not found before in the offshore area is the crustacean *Leptognathia spec.*. In 2003 we found this species for the first time, in the Oyster Ground. We couldn't find any other record from the North Sea. Three other species are new within the BIOMON programme. Two of them were present in the sample of station OFF 27, west of Zeeland. The polychaete *Thelepus cincinnatus* has been found in the Dutch sector only at the Klaverbank (van Moorsel, 2003). Further this species was observed during the Synoptic Mapping at one station northwest of the Dogger Bank (de Wilde & Duineveld, 1988). The other species was the anthozoan *Peachia cylindrica*, a burrowing anemone capable of existing in relatively unstable sands, probably due to its large size and ability to bury itself deeply in the substratum (Manuel, 1981). For the North Sea we could find only two records of this species, both from the Klaverbank (van Moorsel, 1991. 2003). Finally, the polychaete *Eteone flava* was found at station OFF 22, west of Noordwijk. For this species however, there are a number of records from other research programmes at stations in both the offshore area and the Oyster Ground (Mulder, 1986; Mulder et al., 1987; Holtmann & Groenewold, 1992, 1994; Daan et al., 1990).

<u>*Coastal area*</u> (Fig. 18a-c)

In the coastal area the bivalve *Spisula subtruncata* was found at only a few stations and only in low numbers. The *Spisula* banks that were found on the stations COA 3, 4, 6 and 9 in 2000 have gradually disappeared after 4 years, which has resulted in a very low average density in 2004, but there does not seem to be a long-term decreasing trend.

The american razor clam *Ensis americanus* still occurred in high densities in 2004. Indeed, there was a slight numerical decrease compared to 2002 and 2003, but the

average density was still higher than ever before 2002 and biomass had not decreased. The major part of the *E. americanus* populations existed of the year class that settled as larval recruits in 2001 and were found as juveniles for the first time in 2002 (Daan & Mulder, 2004). The growth of this year class can be followed at 5 coastal stations where the species was particularly abundant (Fig. 19a/b). The initial densities and size of the juveniles found in 2002 differed substantially between the stations. The highest numbers were observed at station COA 2 near Ameland, but the animals were the smallest here. This might be explained by suboptimal feeding conditions or late settlement. However, it might also indicate that the high densities induced intraspecific competition already among juveniles and, thus, food limited conditions under which growth was not optimal. The largest juveniles occurred in 2002 at COA 8 and 11, near Terschelling and Noordwijk respectively. Animals of intermediate size occurred at COA 3 and 15, near IJmuiden and Voorne-Putten. After 2002 the growth rates were obviously different between stations. Near Ameland and Terschelling the densities remained relatively high, but growth was slow. Near Ameland the animals had grown up to an average of 75 to 80 mm in 2004 and near Terschelling to 90 to 95 mm. At the other three stations the densities were relatively low, but the average size had increased to an average of 110 to 115 mm. These results indicate that enhanced intraspecific competition for space and/or food might have substantially suppressed growth rates in the case of high population densities. This would mean that growth of *E. americanus* in the coastal area is density dependent.

A species new to the BIOMON programme is the polychaete *Malacoceros vulgaris*. We could not find any other record from the Dutch sector. The species is not new to the North Sea. It's occurrence has been mentioned from the area around Helgoland (Harms, 1993). Another species that was not found before during BIOMON is the polychaete *Nereis diversicolor*. However, this species was already reported from the coastal area by Kluijver & Nieuwenhuizen (1998) and there is one unpublished record from a NIOZ course in 2000. In fact *N. diversicolor* is an estuarine species and it is very well known from the Wadden Sea (e.g. Tydeman, 2000; Dekker & Waasdorp, 2004).

6. Acknowledgements

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Tables and Figures

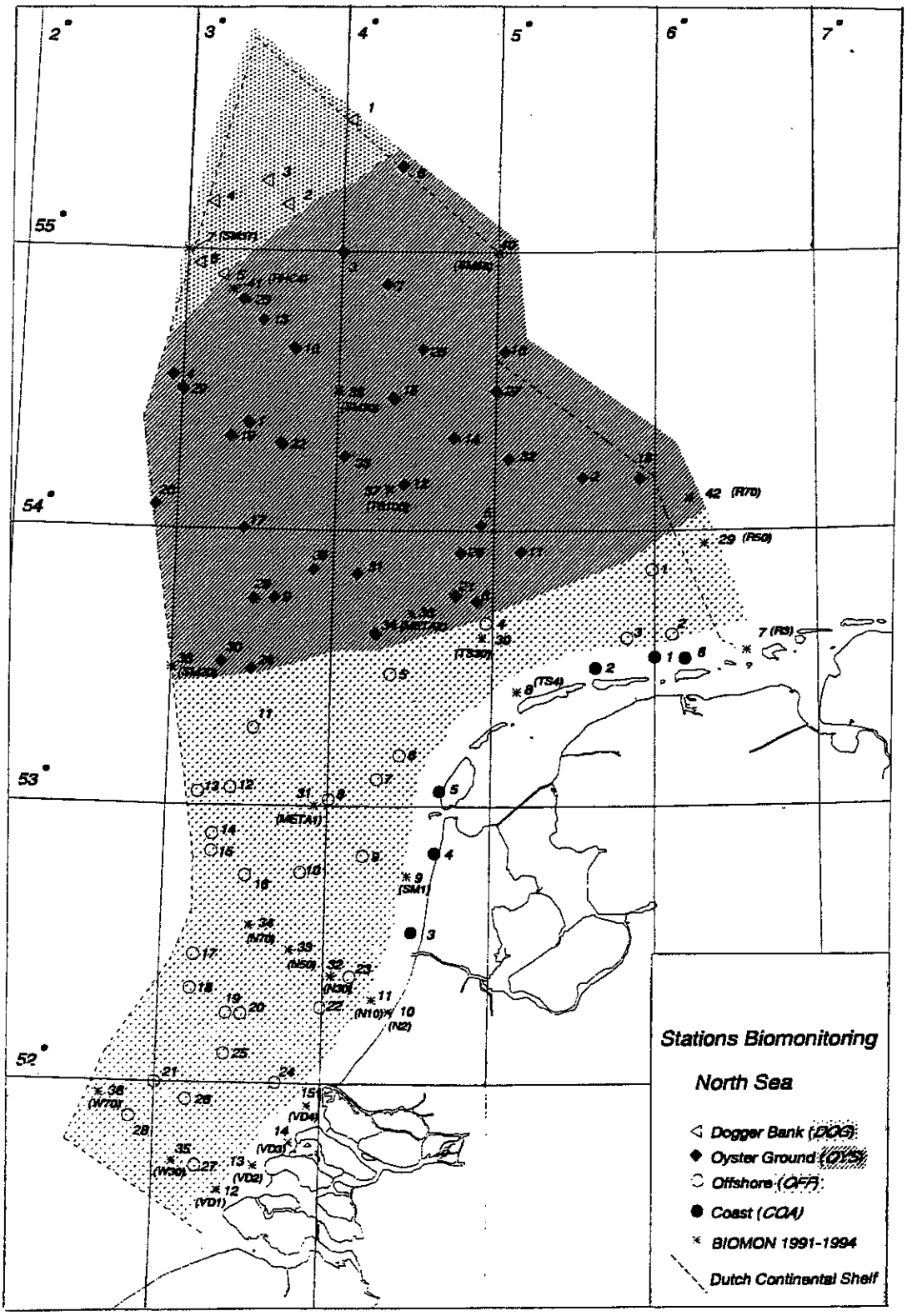

Fig. 1. Locations of the sampling stations

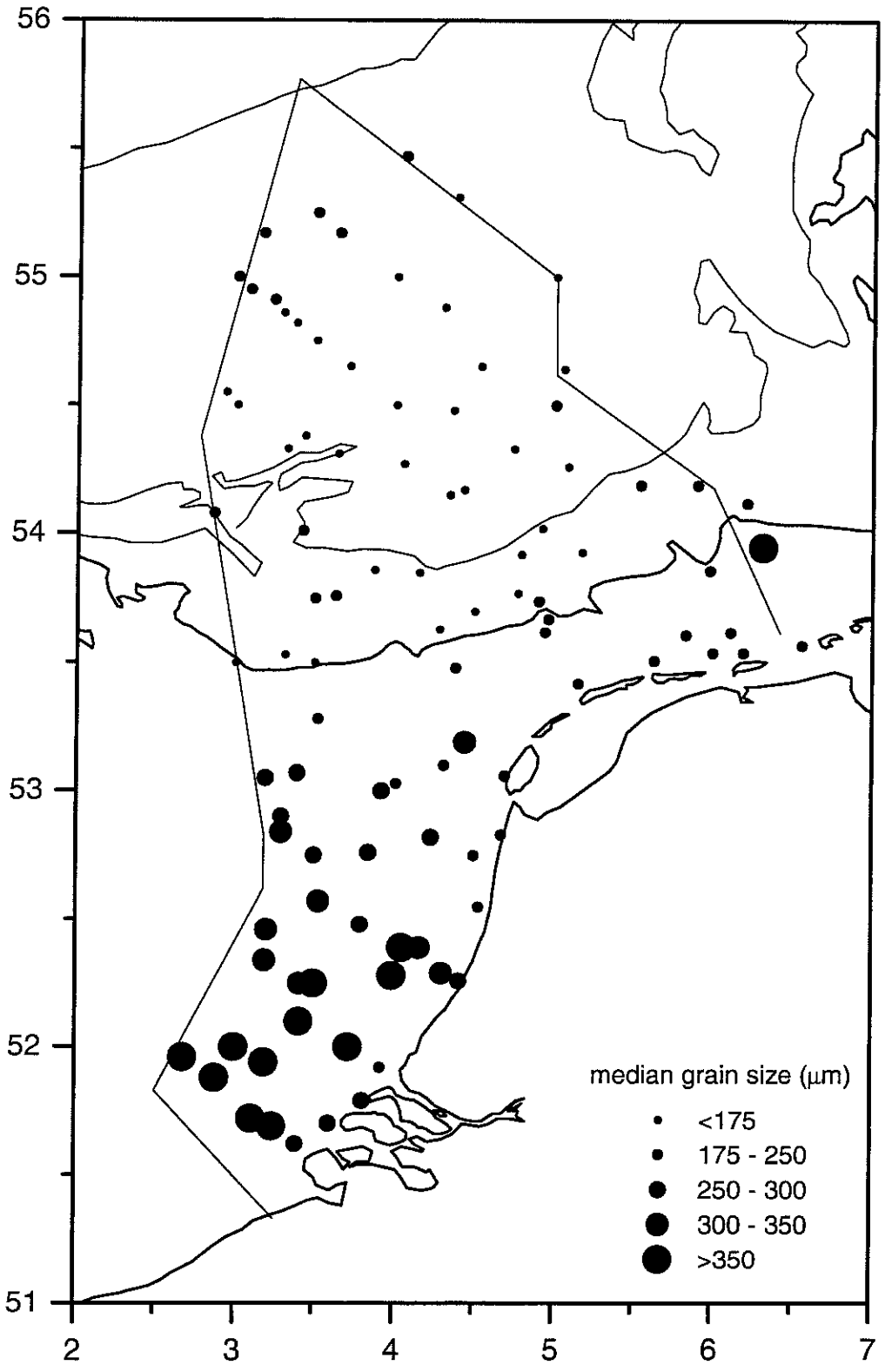

Fig. 2: Median grain size (µm) of the sediment in 2004

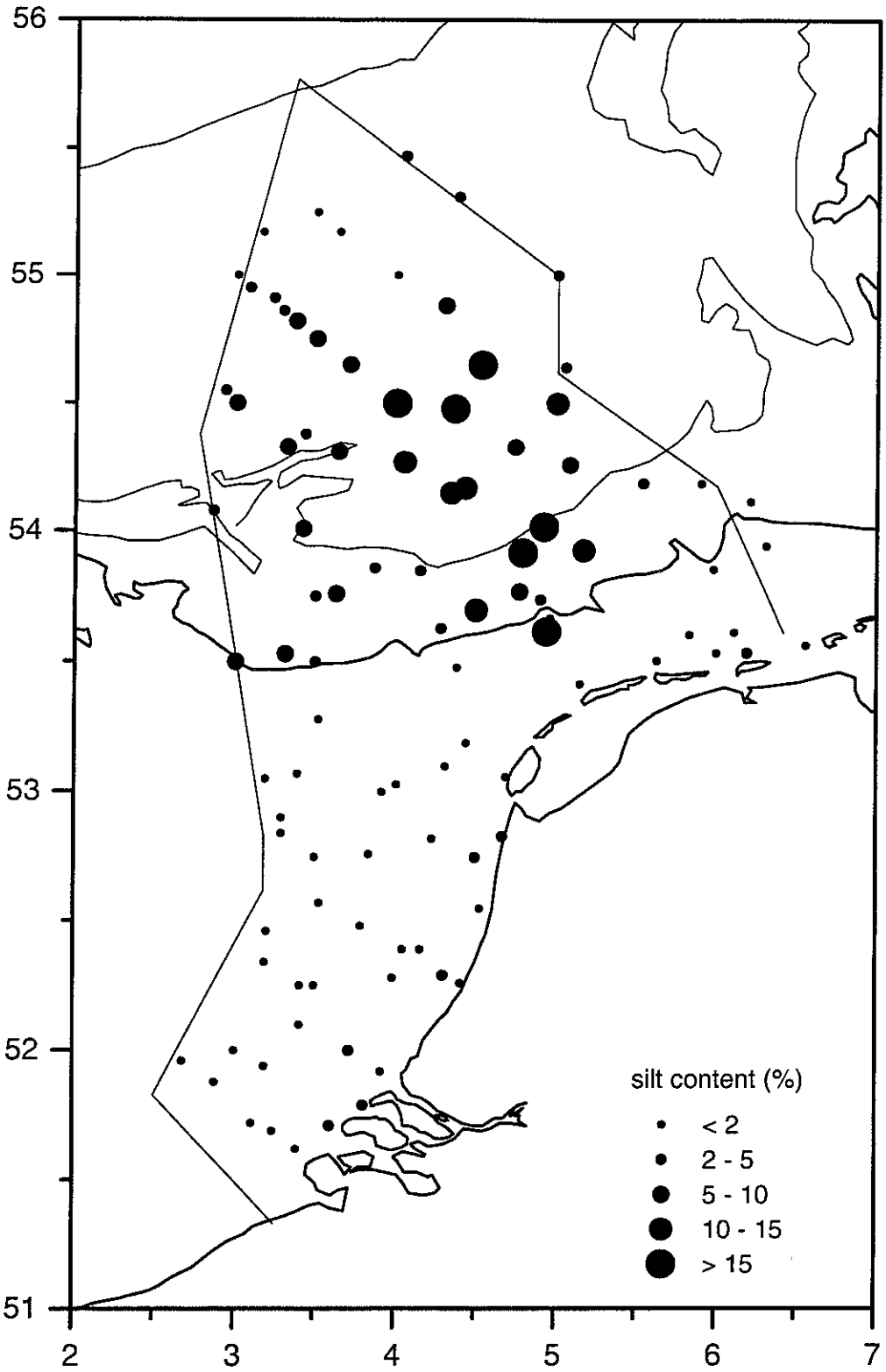

Fig. 3: Silt content (fraction <63 µm) of the sediment in 2004.

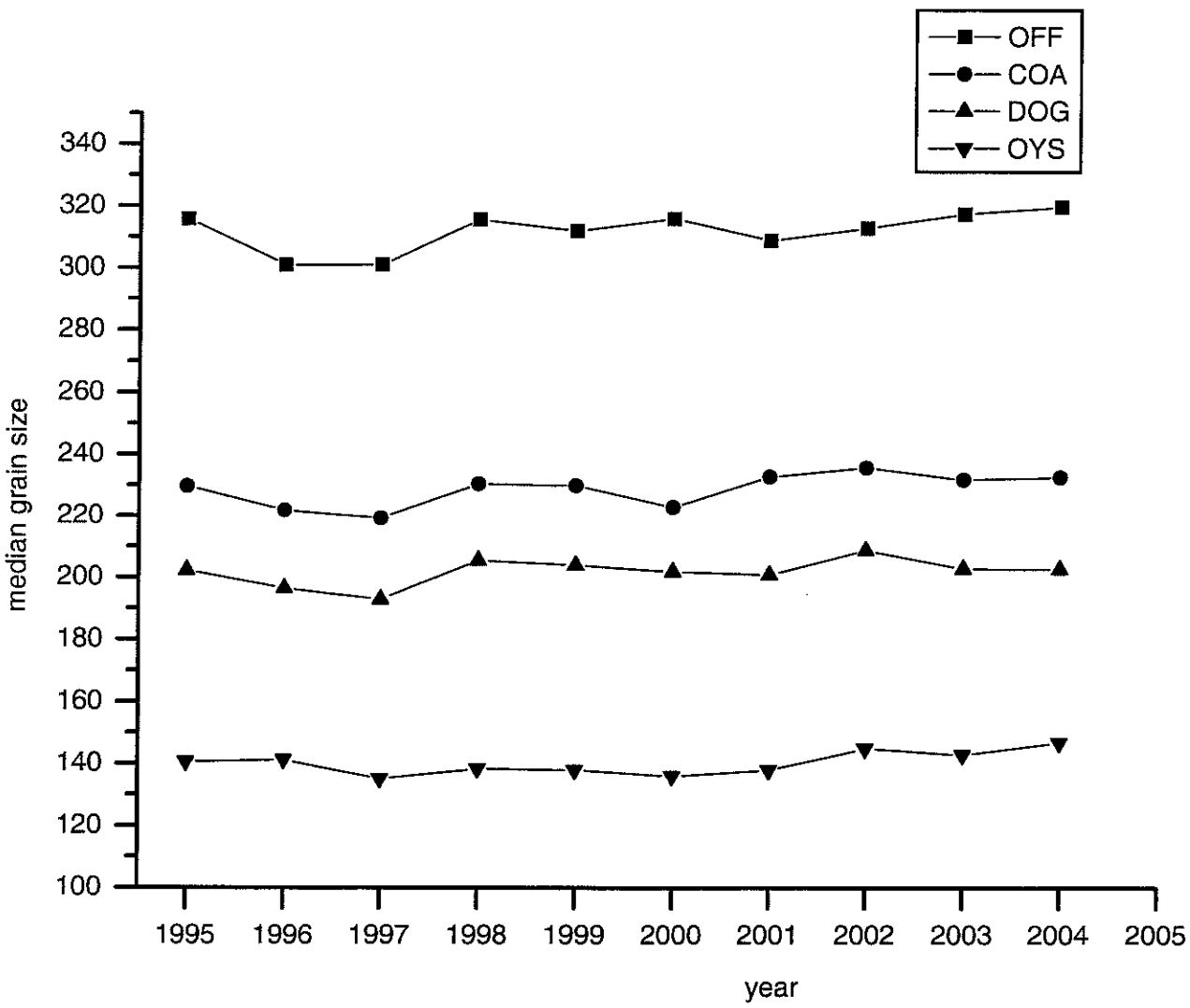

Fig. 4: Temporal trends in the mean median grain size in the four subareas.

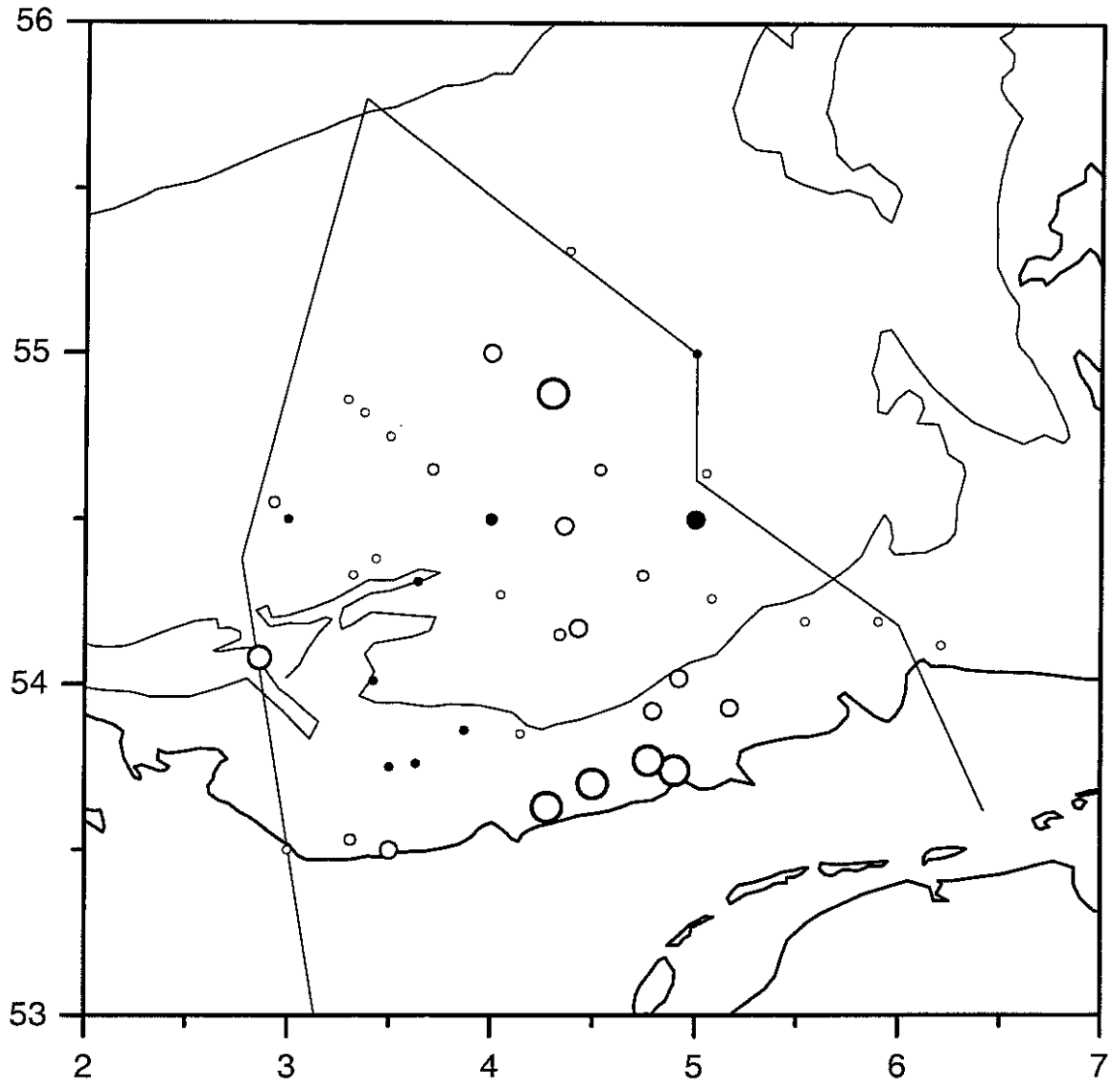

Fig. 5. Changes in silt content (%) of the sediment in the Oyster Ground between 1999 and 2004.

- decrease<4%
- decrease 4-8%
- decrease 8-12%
- decrease 12-16%
- decrease >16%
- increase <4%
- increase 4-8%
- increase 8-12%

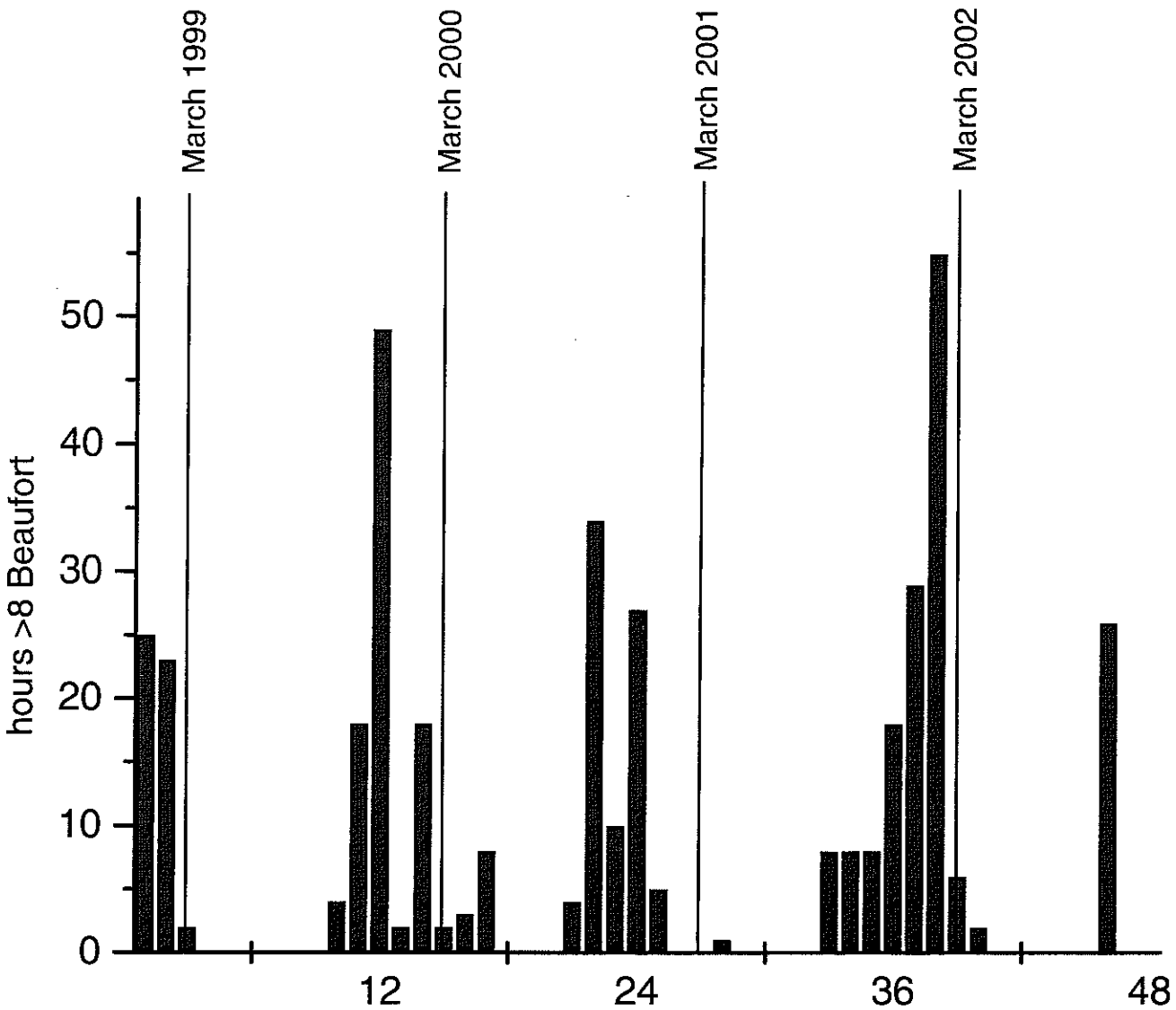

Fig. 6. Stormy weather in the period 1999 - 2002: monthly number of hours > 8 Beaufort at platform K13 in the southern North Sea. (Data KNMI de Bilt)

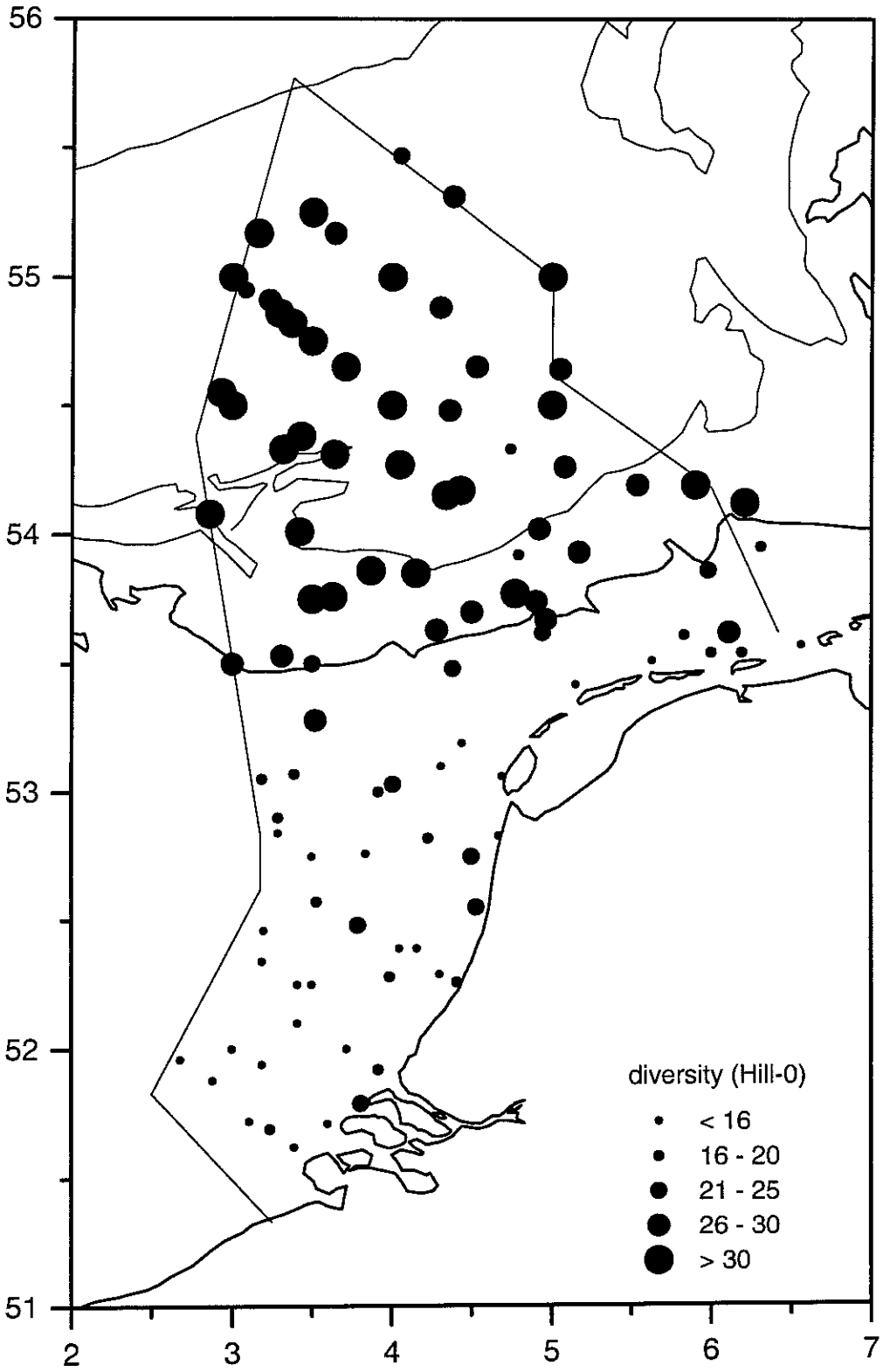

Fig. 7: The number of species per sample (Hill-0) in 2004.

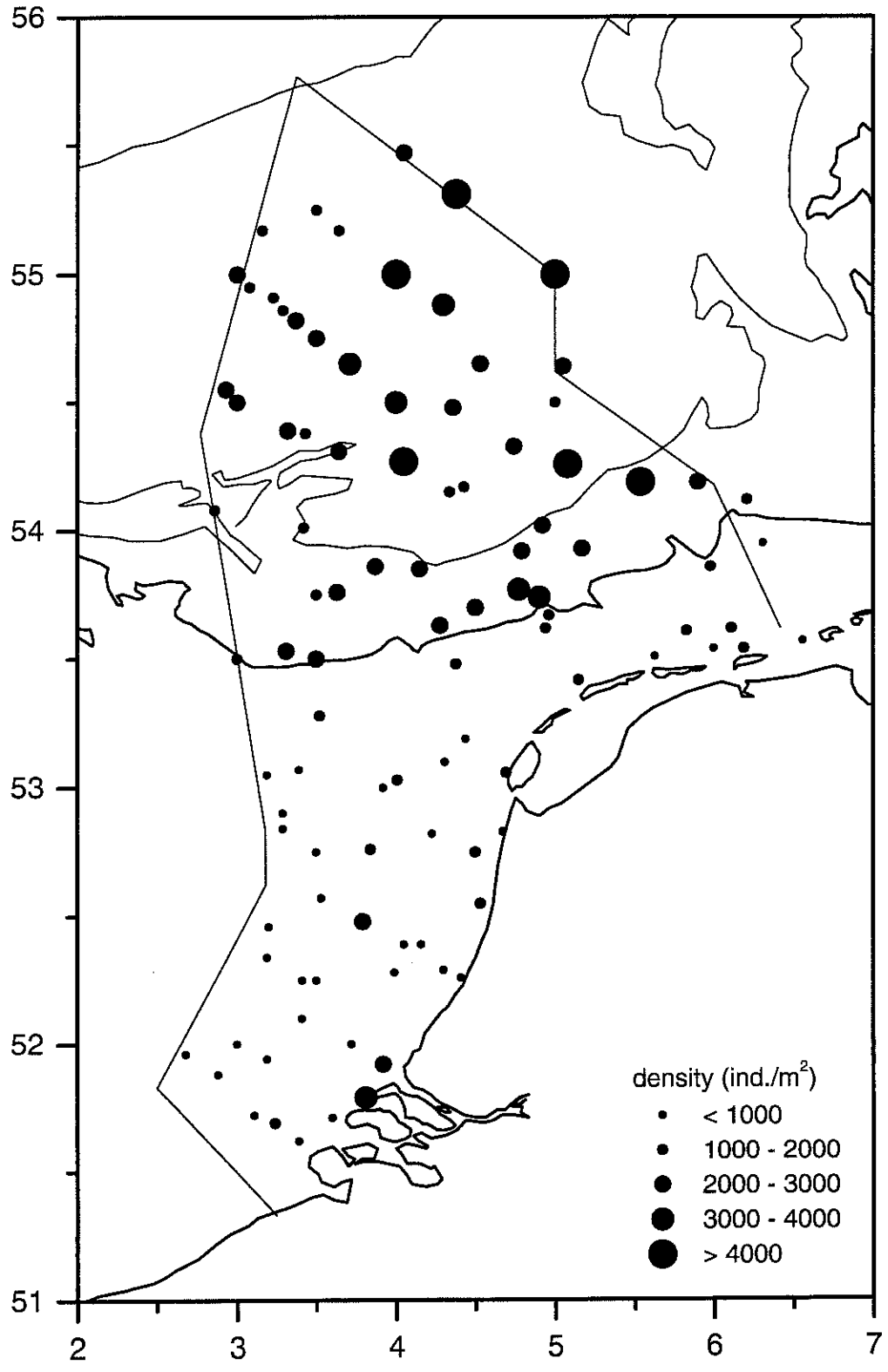

Fig. 8: The total fauna density in 2004.

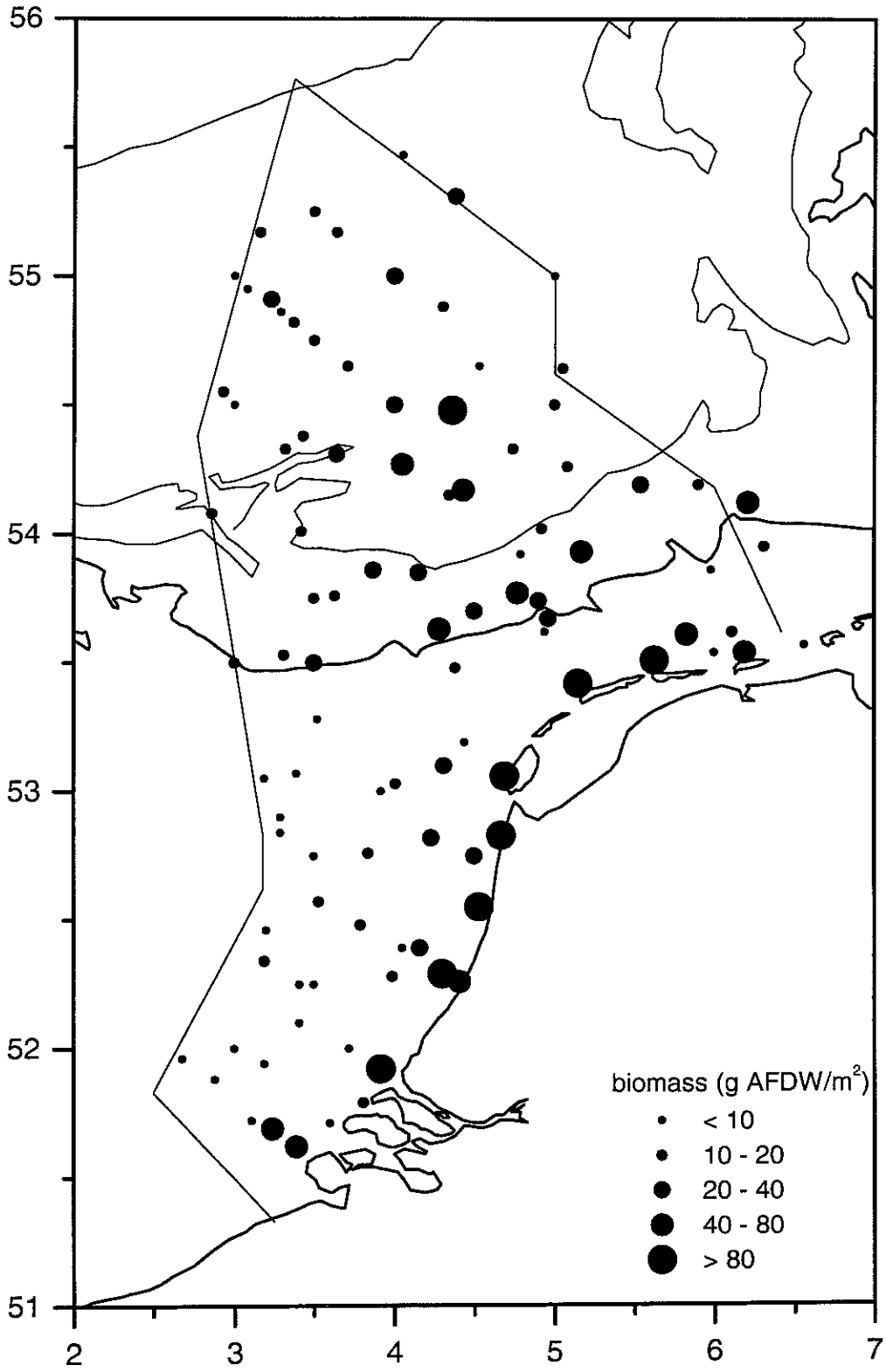

Fig. 9: The total biomass (g AFDW/m2) of the macrobenthos in 2004.

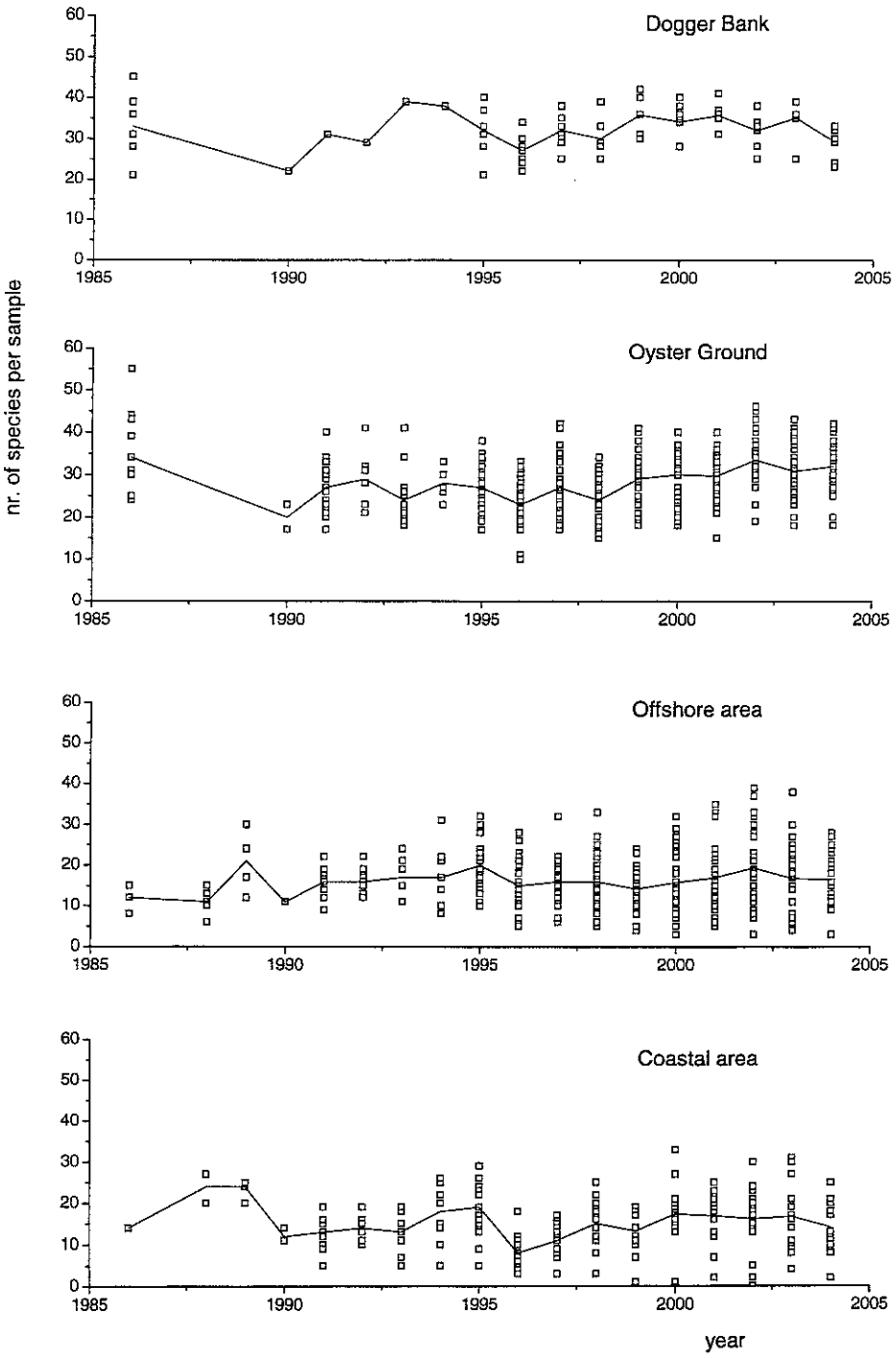

Fig. 10: Temporal patterns in species richness (Hill-0) between 1986 and 2004.

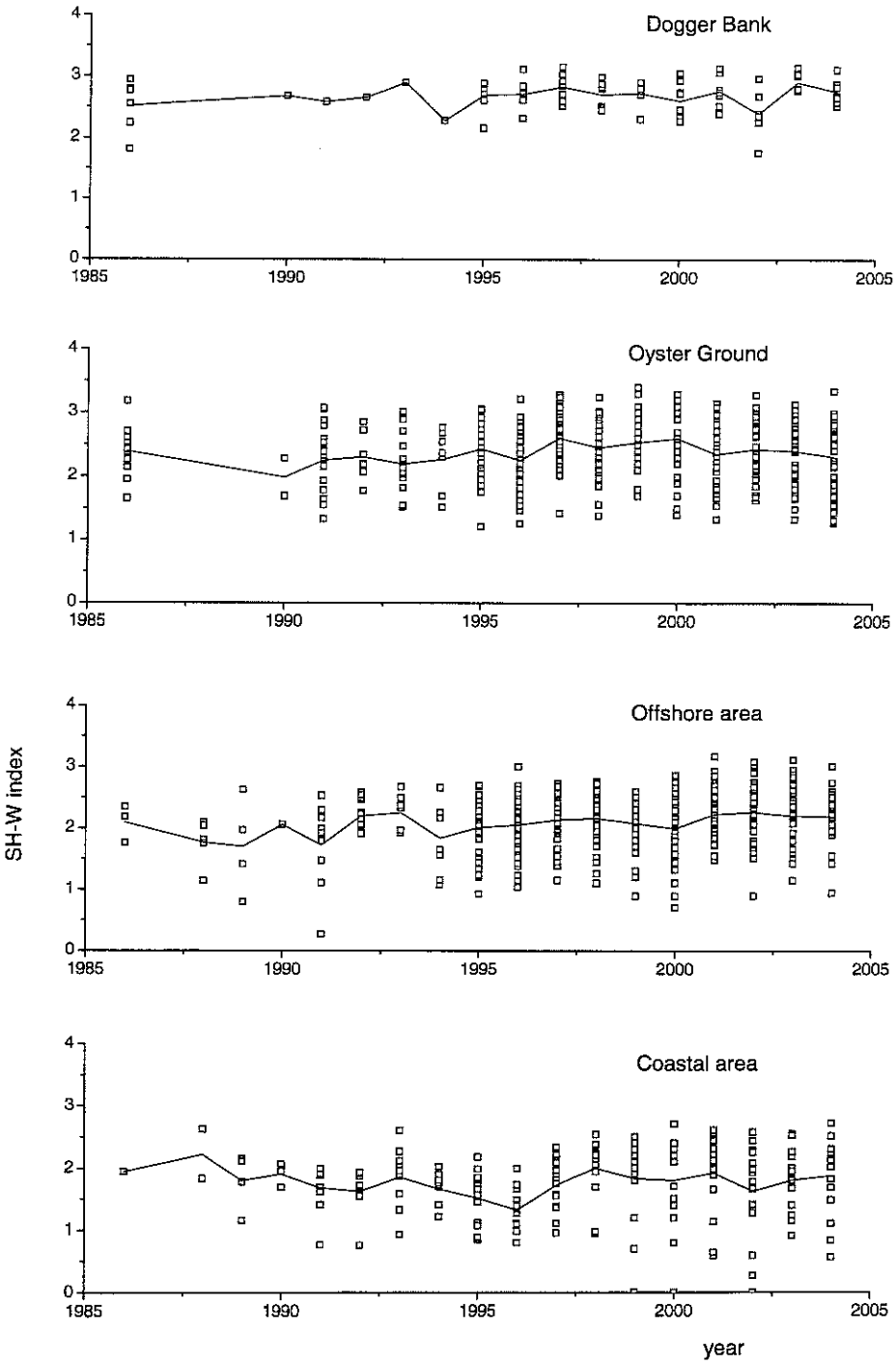

Fig. 11: Temporal patterns in Shannon-Wiener diversity between 1986 and 2004.

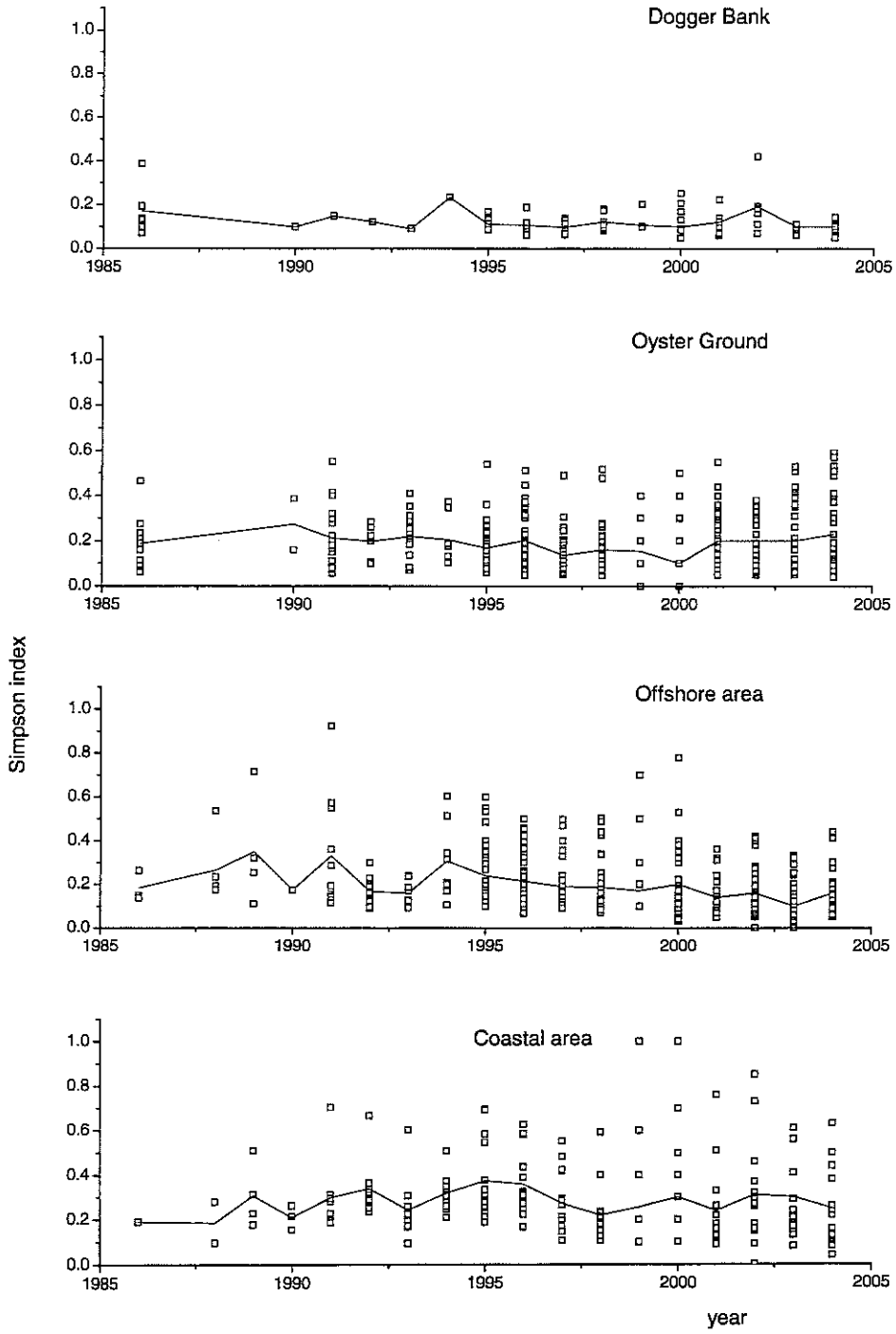

Fig. 12: Temporal patterns Simpson's dominance between 1986 and 2004.

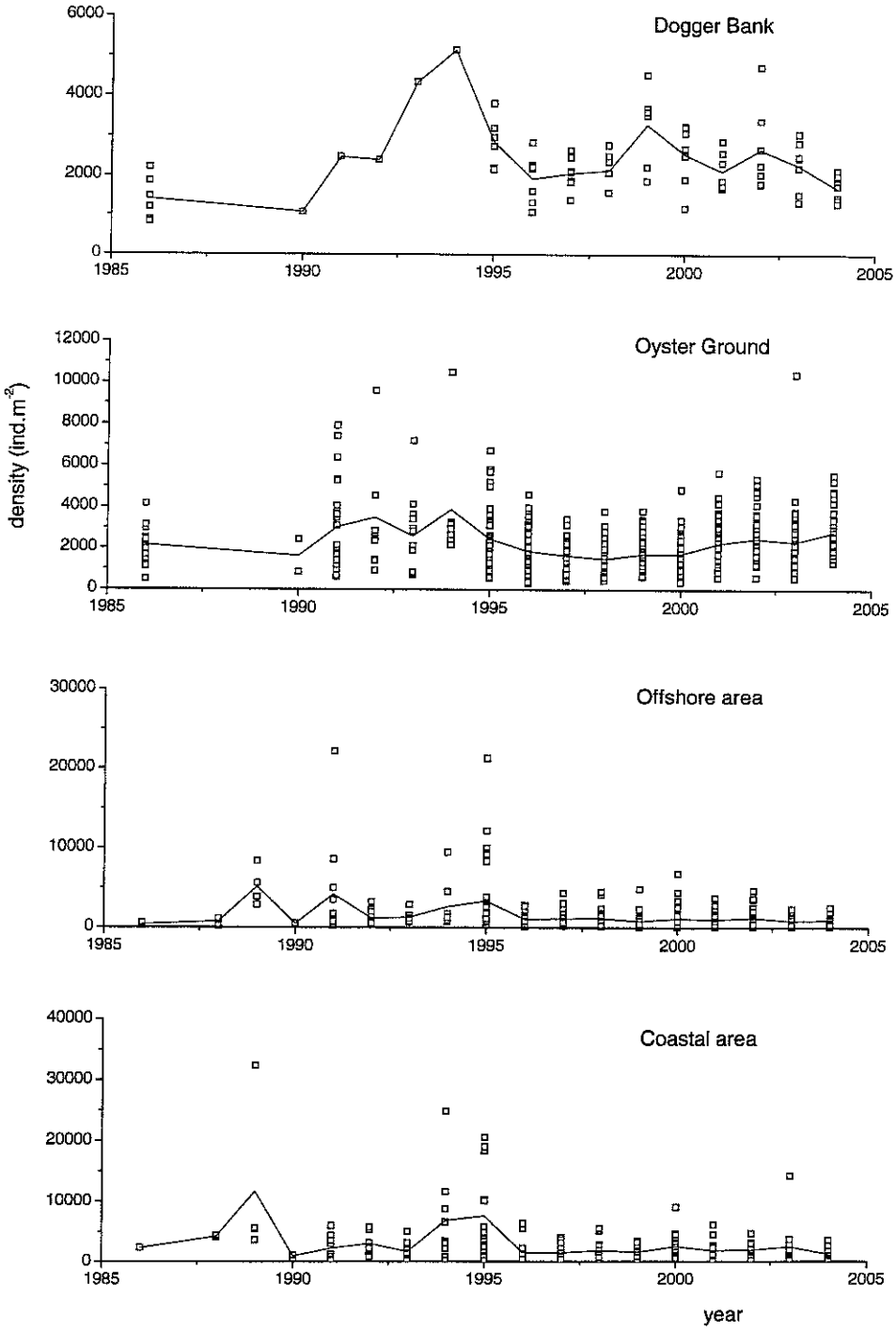

Fig. 13: Temporal patterns in macrobenthos density between 1986 and 2004.

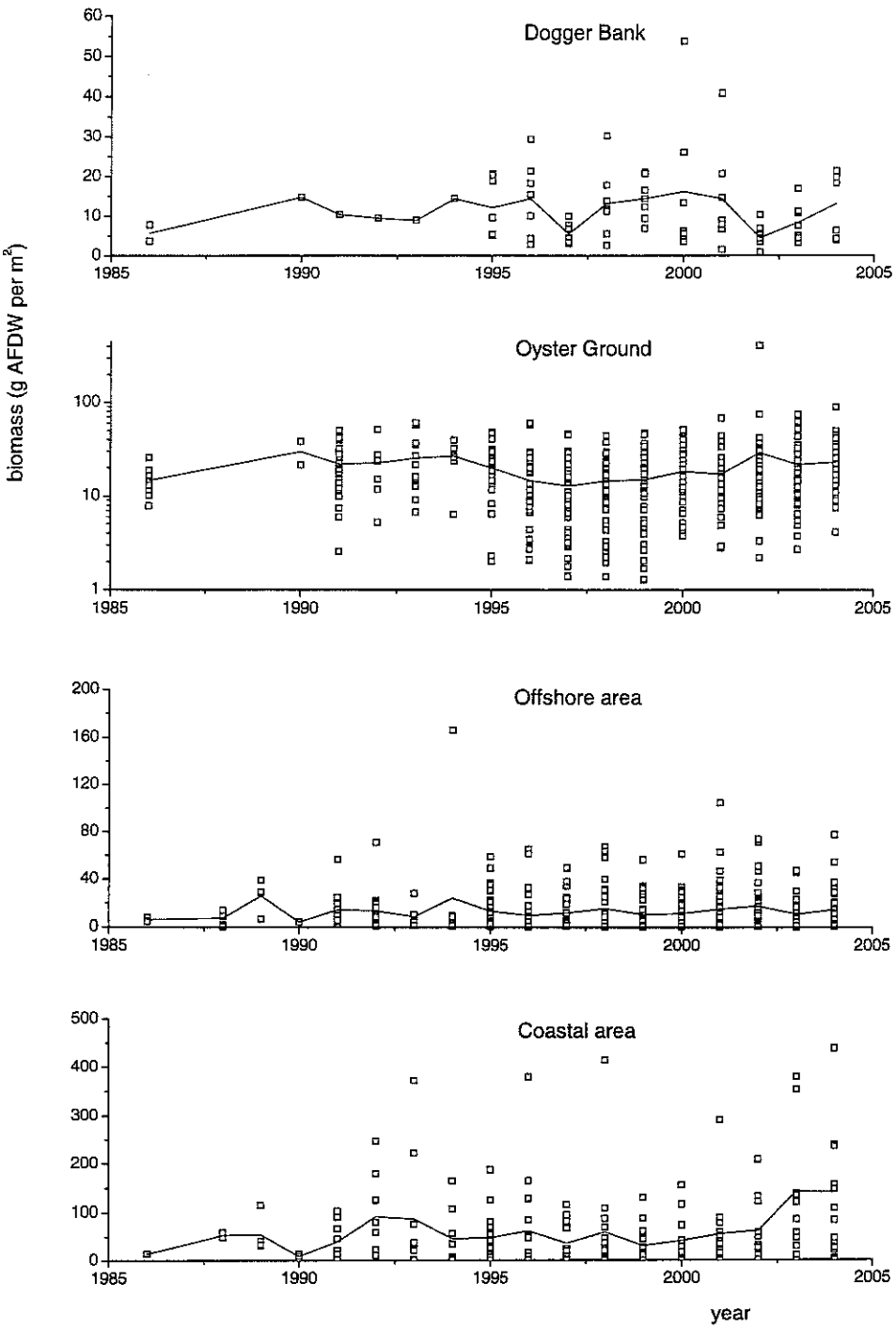

Fig. 14: Temporal patterns in biomass between 1986 and 2004.

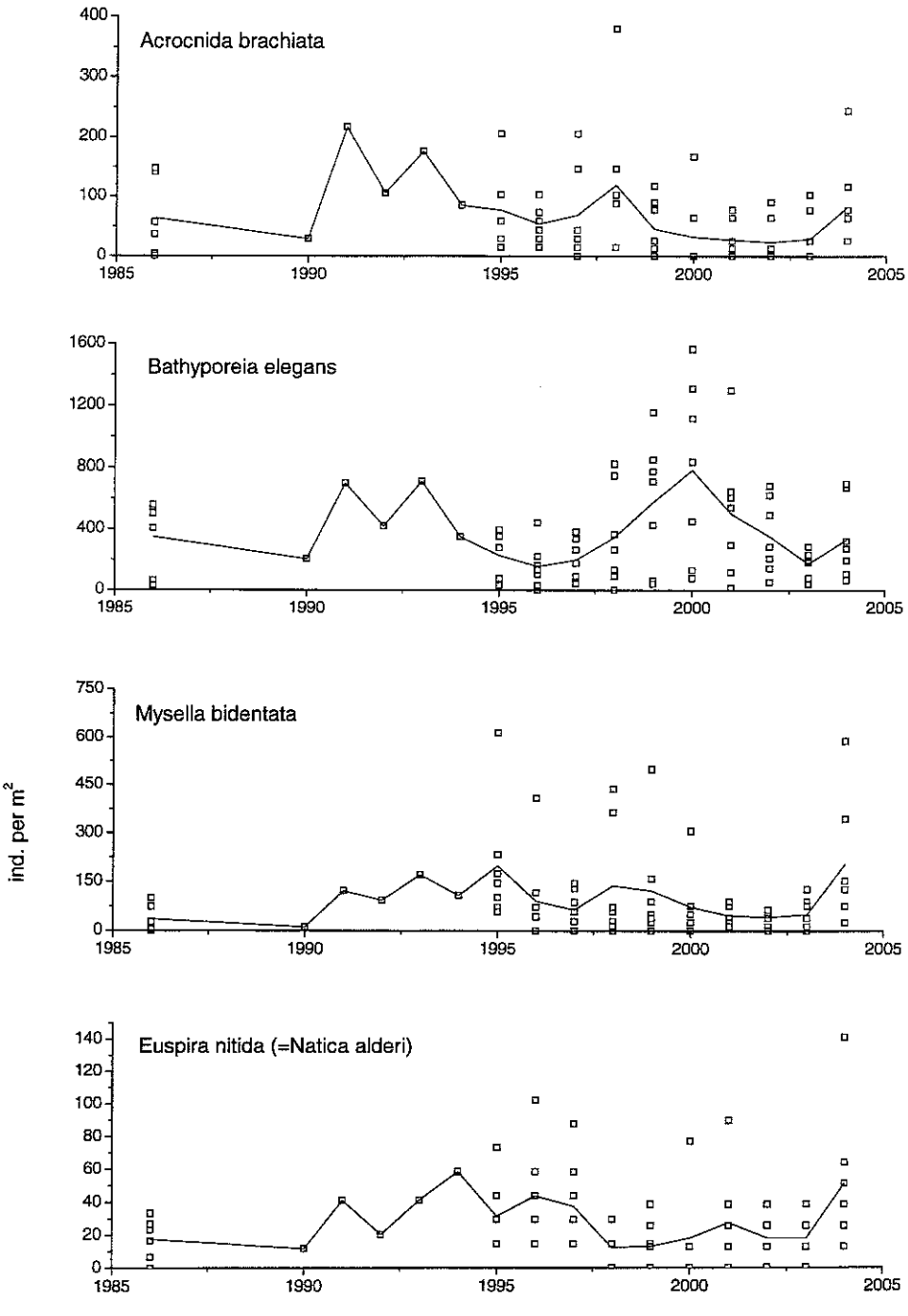

Fig. 15a: Densities of 4 species at the Dogger Bank (1986-2004)

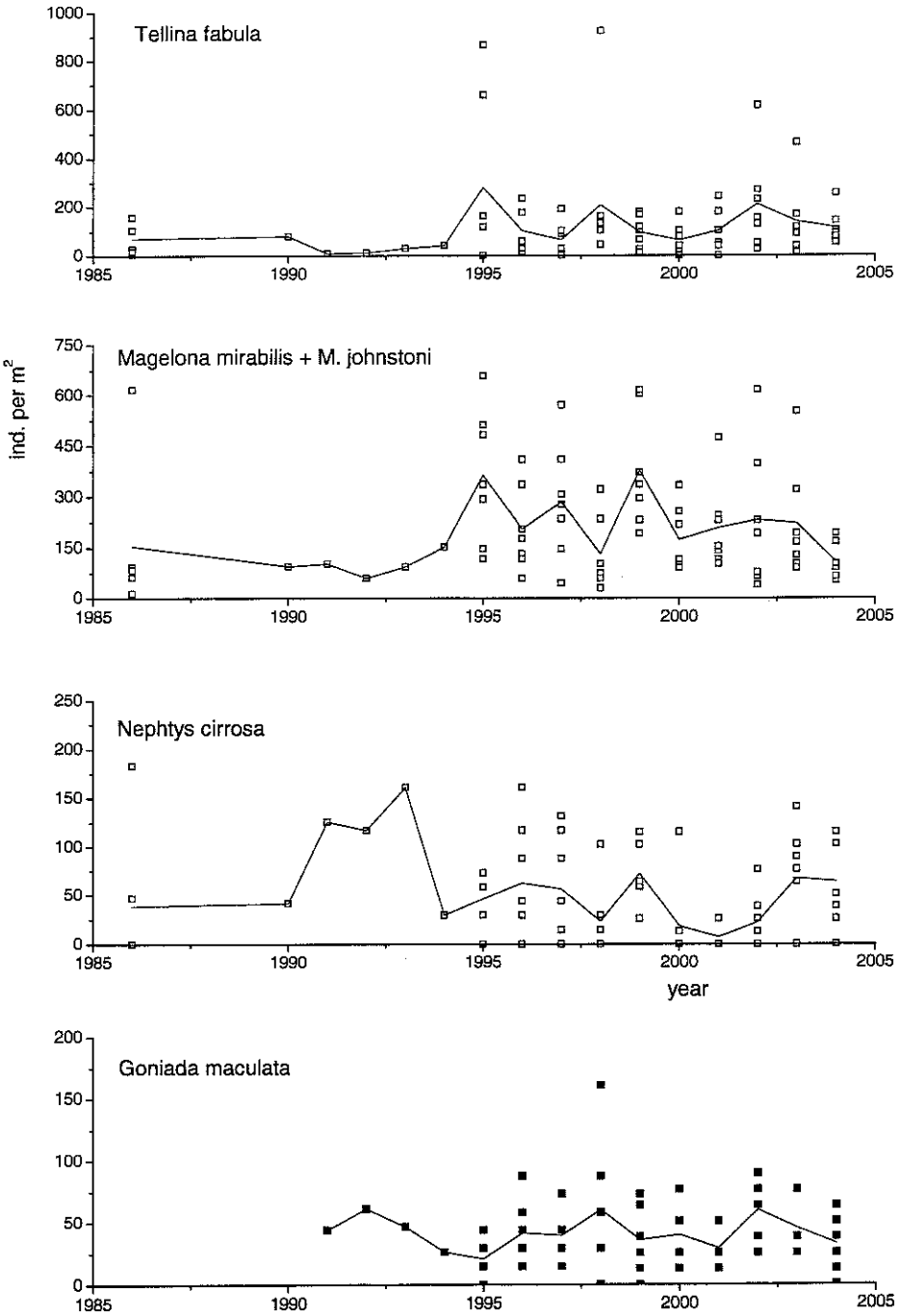

Fig. 15b: Densities of 4 species at the Dogger Bank (1986-2004)

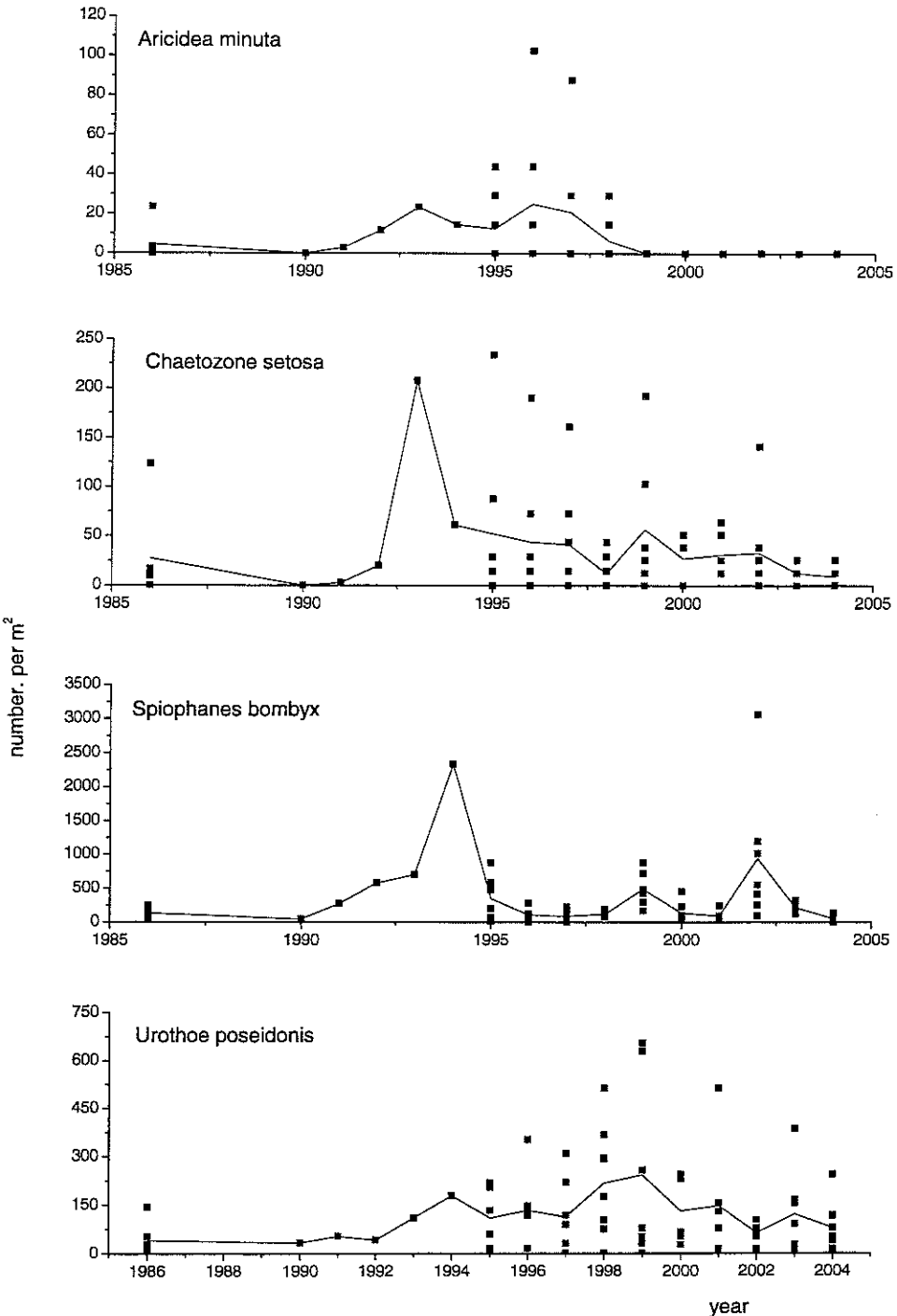

Fig. 15c: Densities of 4 species at the Dogger Bank (1986-2004)

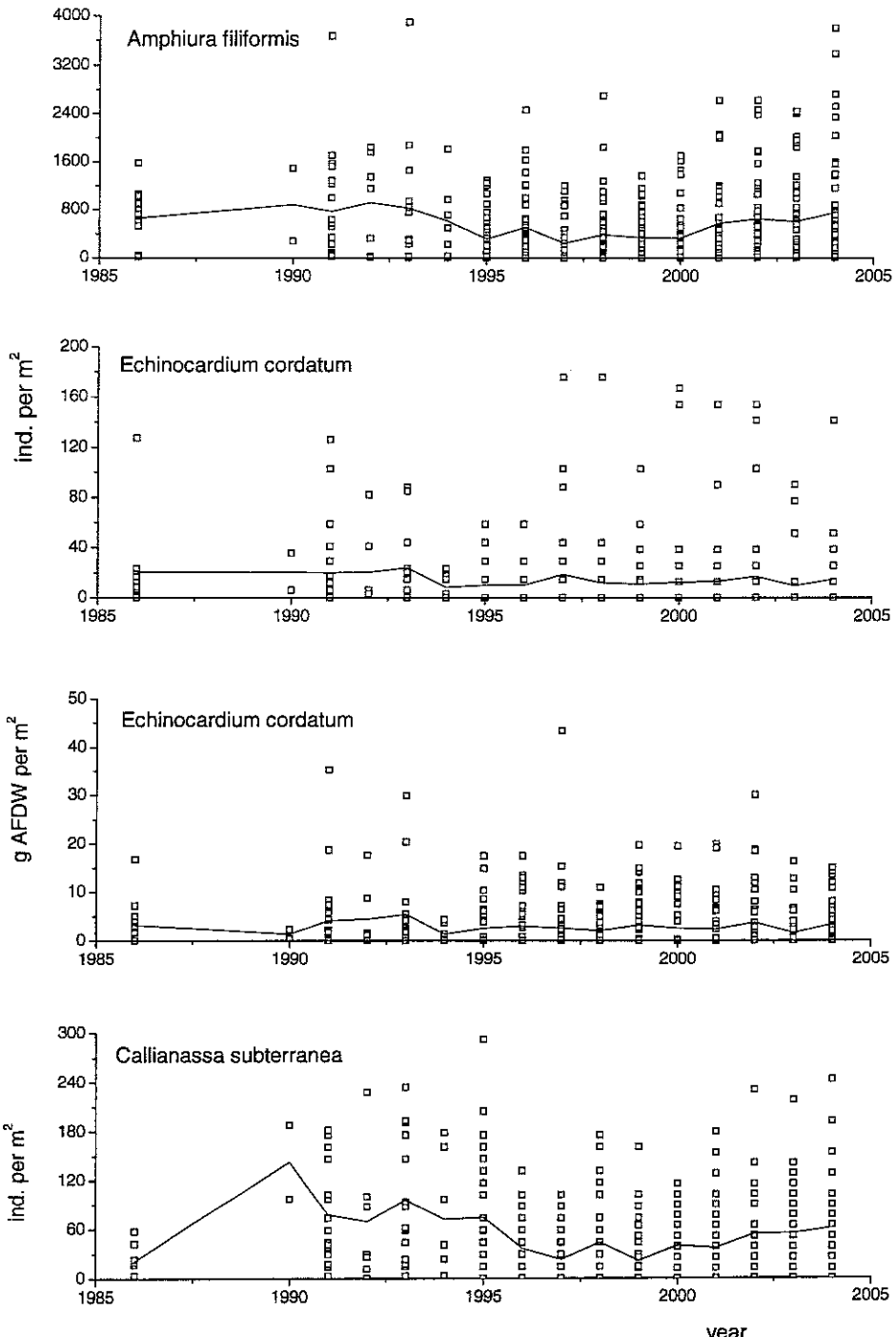

Fig. 16a: Densities (and biomass for E. cordatum) of 3 species in the Oyster Ground (1986-2004).

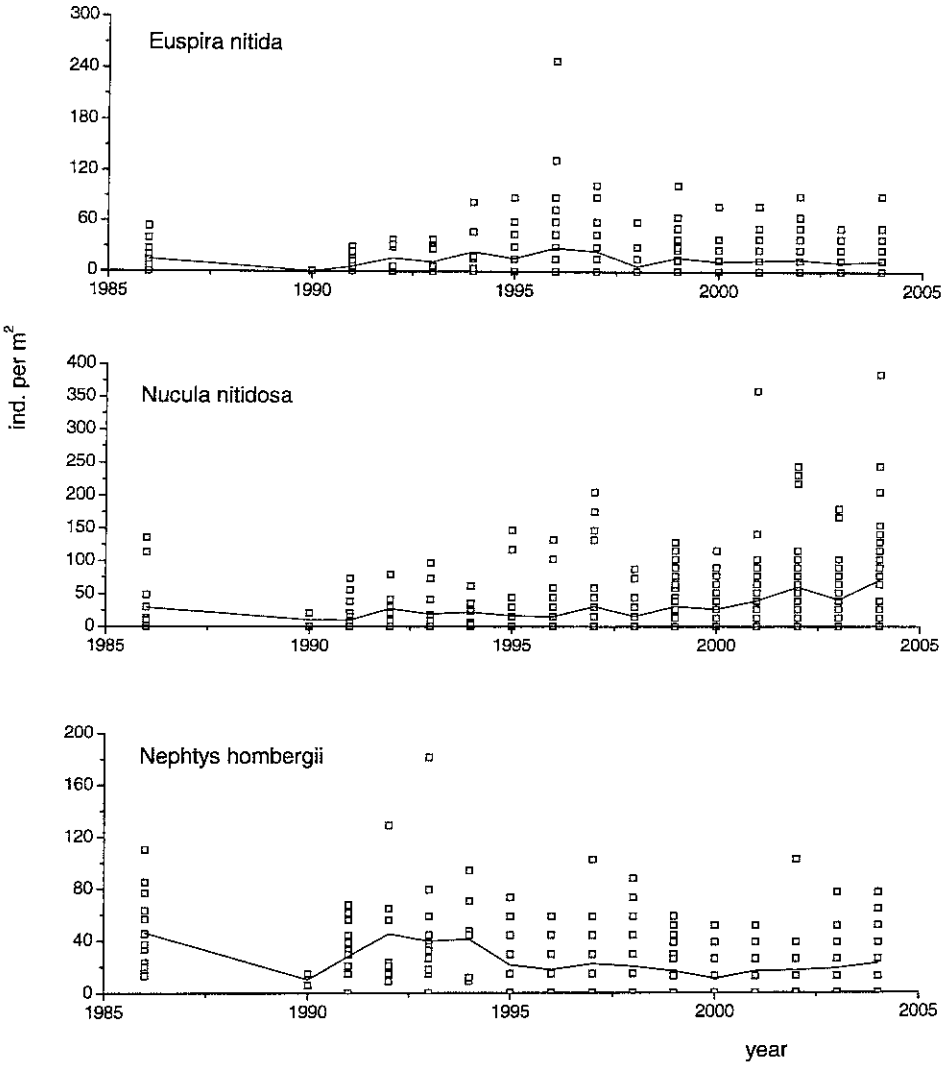

Fig. 16b: Densities of 3 species in the Oyster Ground (1986-2004)

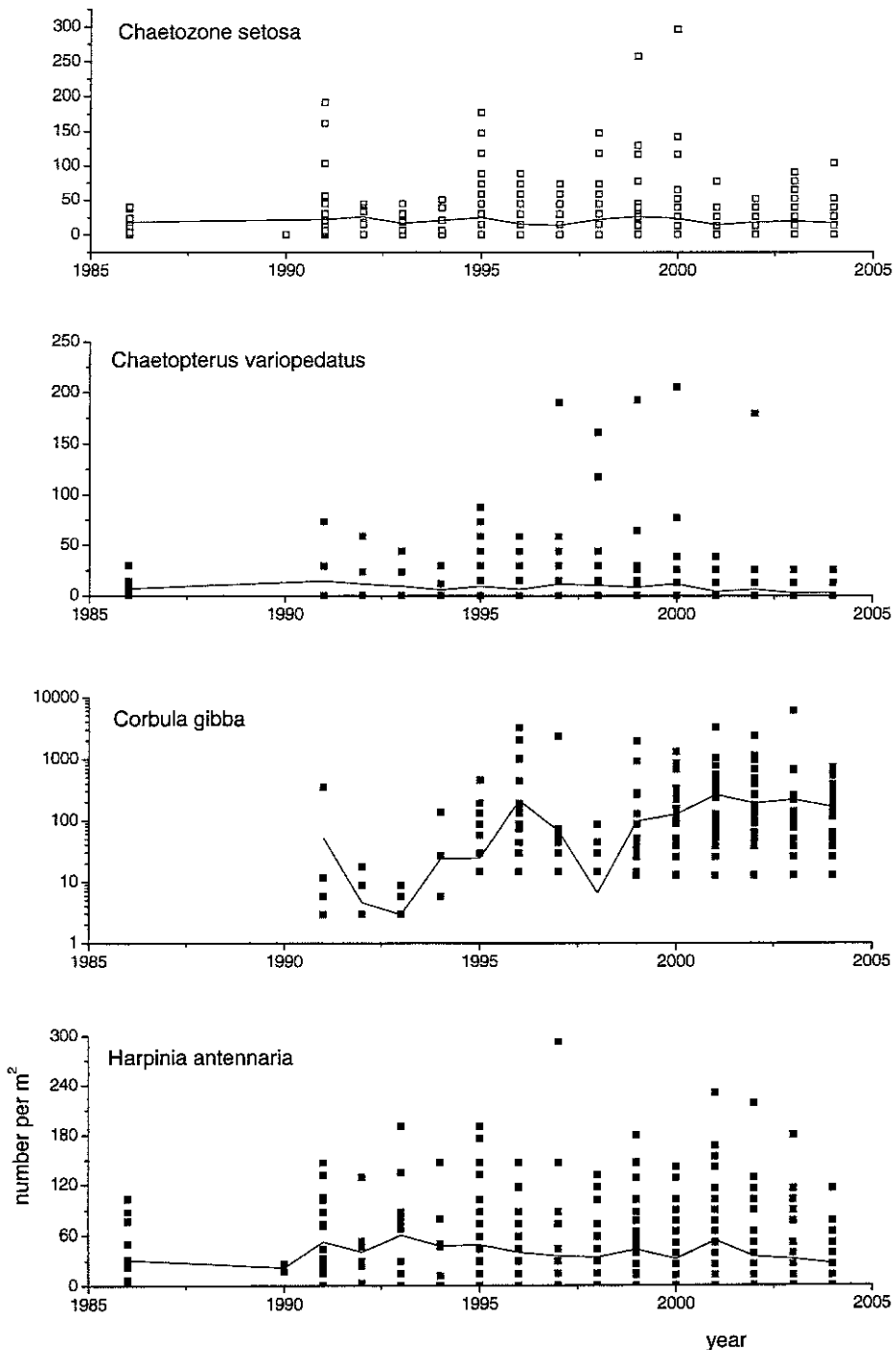

Fig. 16c: Densities of 4 species in the Oyster Ground (1986-2004).

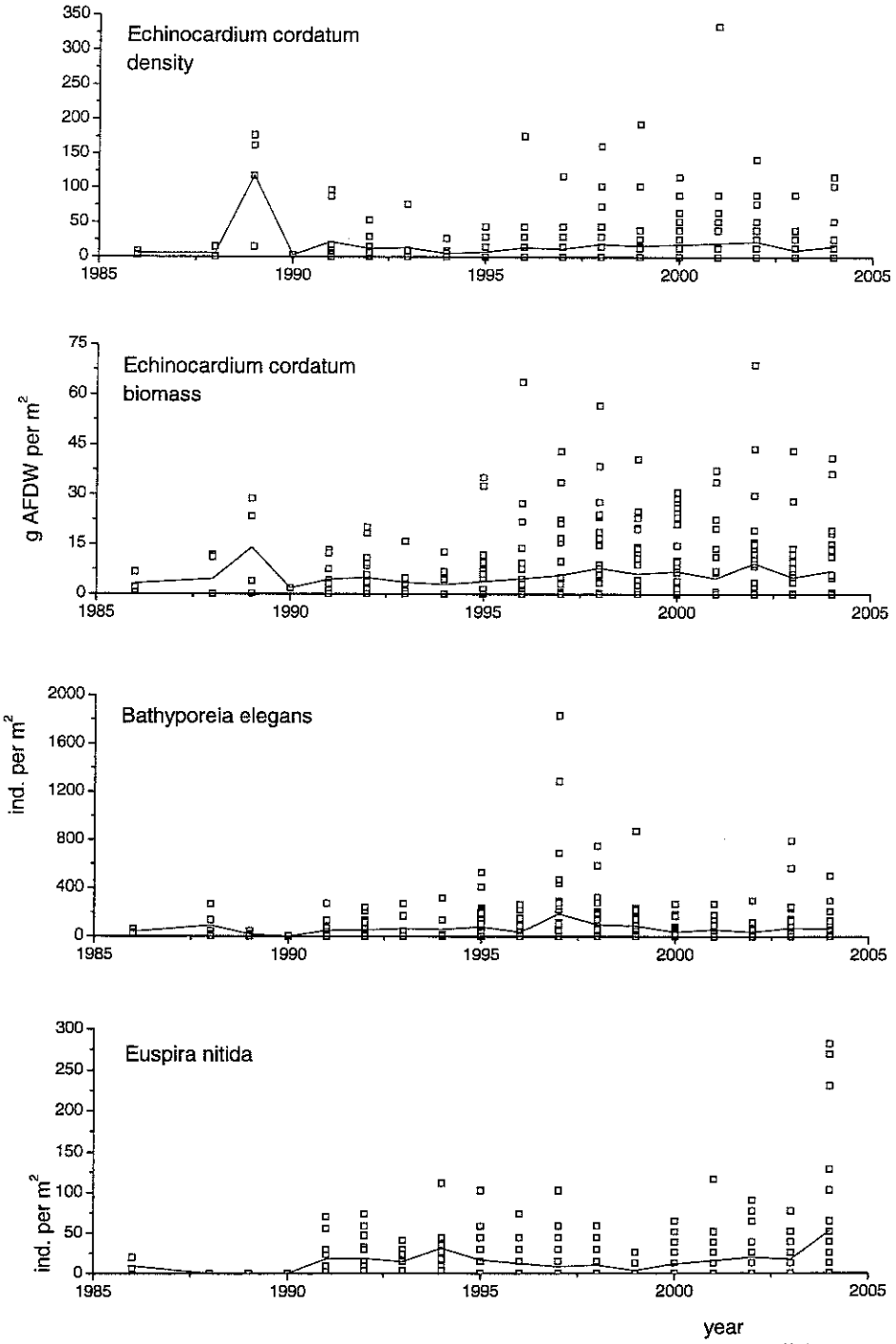

Fig. 17a: Densities (and biomass of E. cordatum) of 3 species in the offshore area (1986-2004).

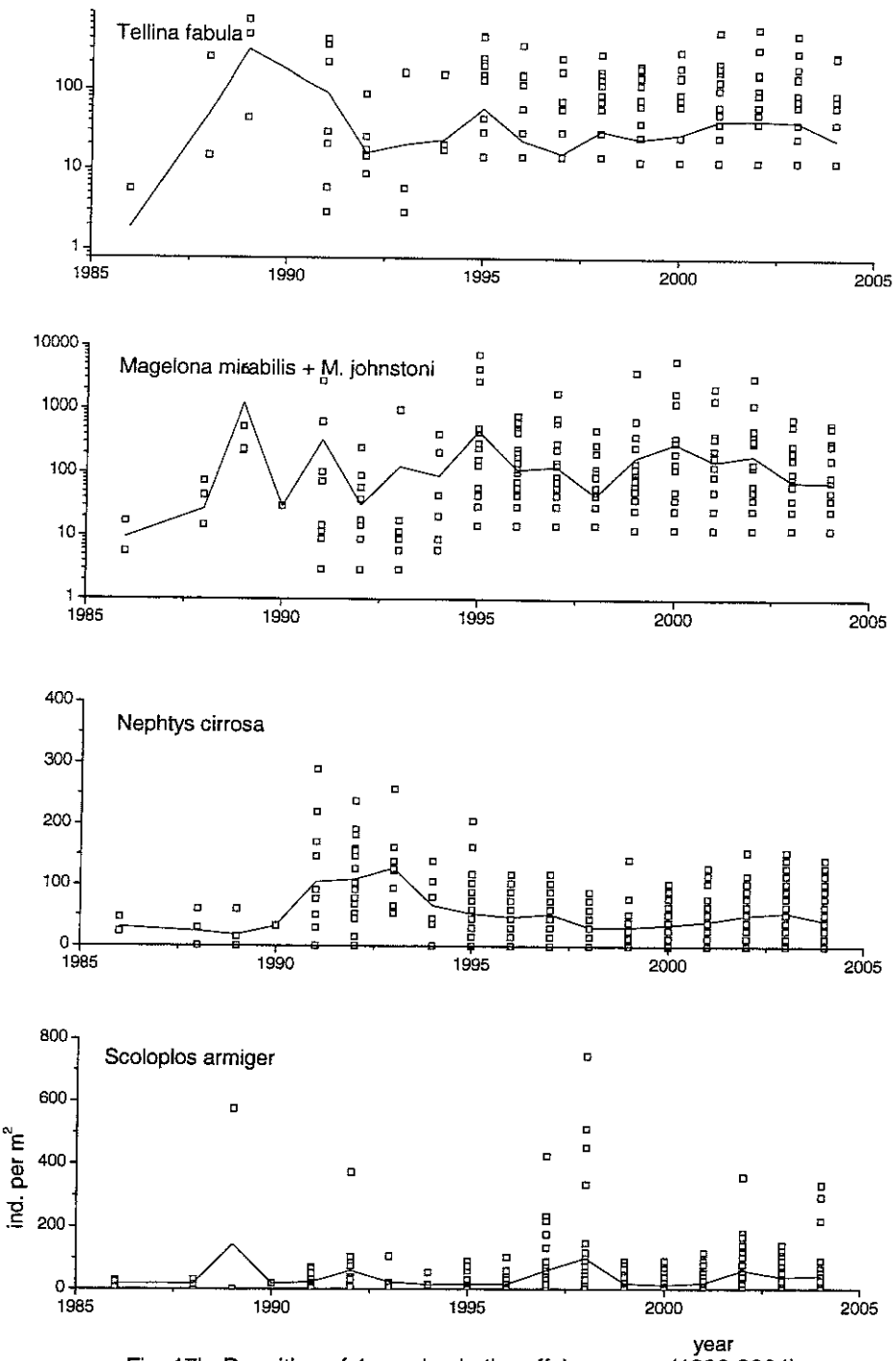

Fig. 17b: Densities of 4 species in the offshore area (1986-2004)

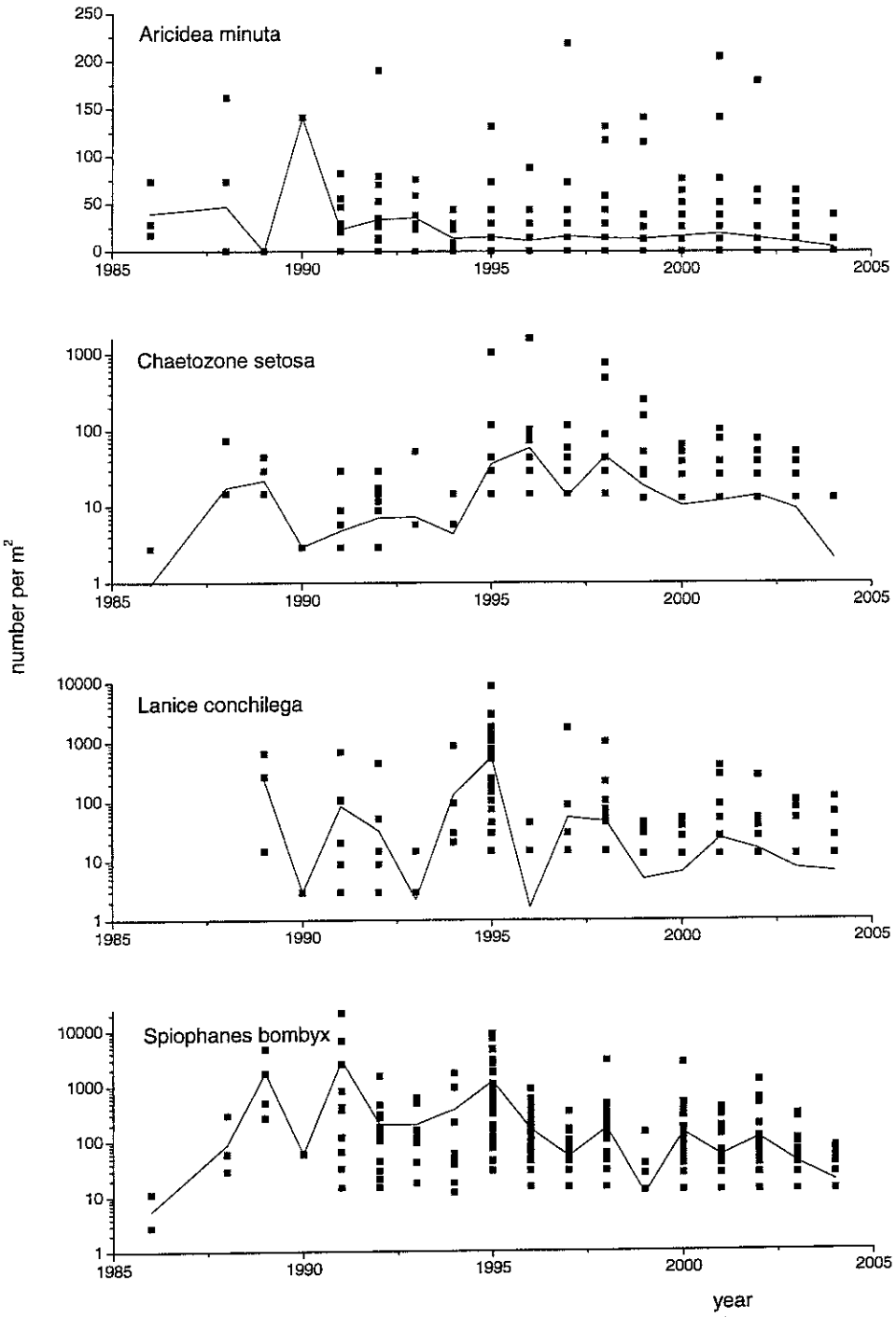

Fig. 17c: Densities of 4 species in the offshore area (1986-2004).

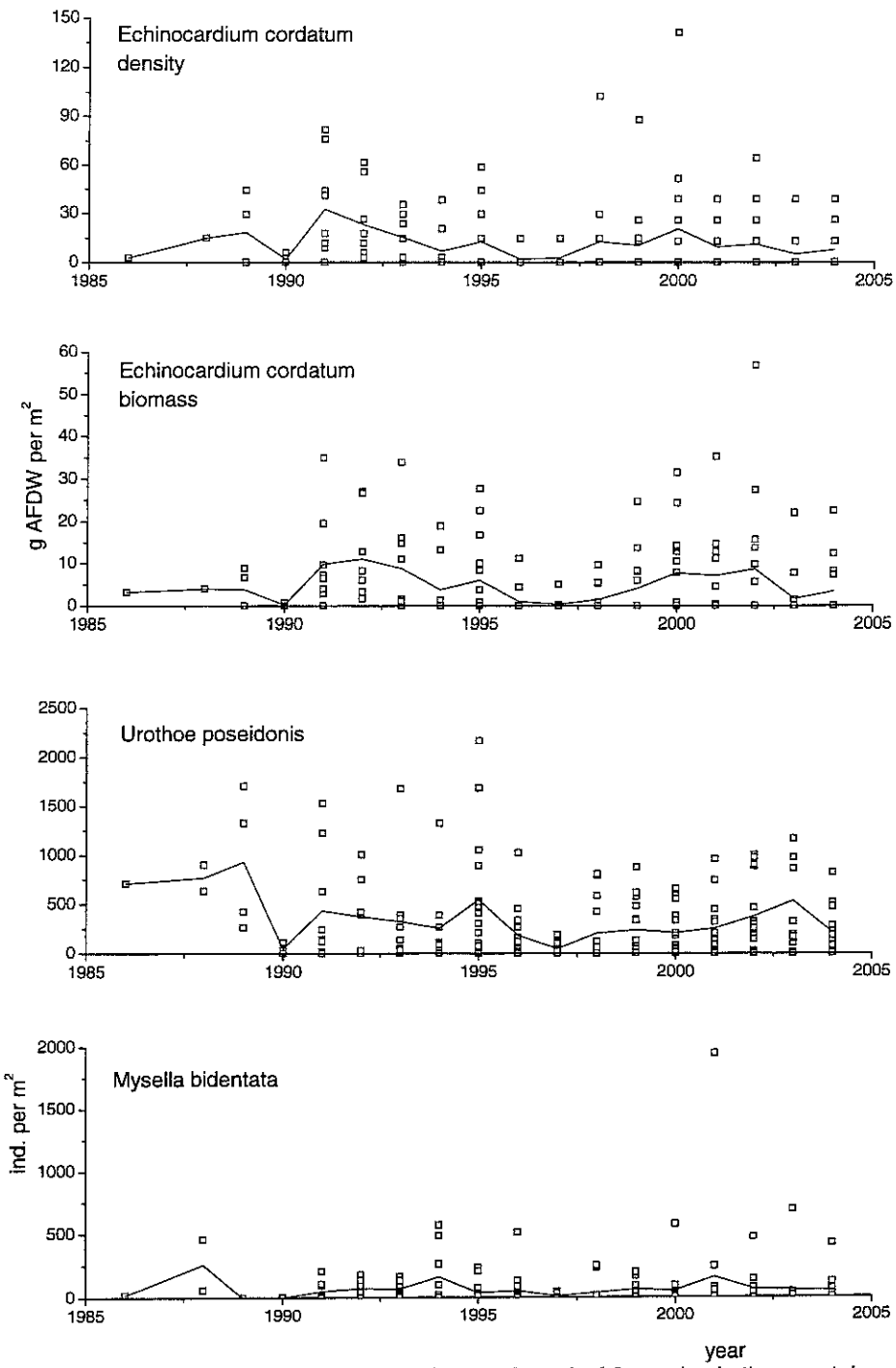

Fig. 18a: Densities (and biomass of E. cordatum) of 3 species in the coastal area (1986-2004).

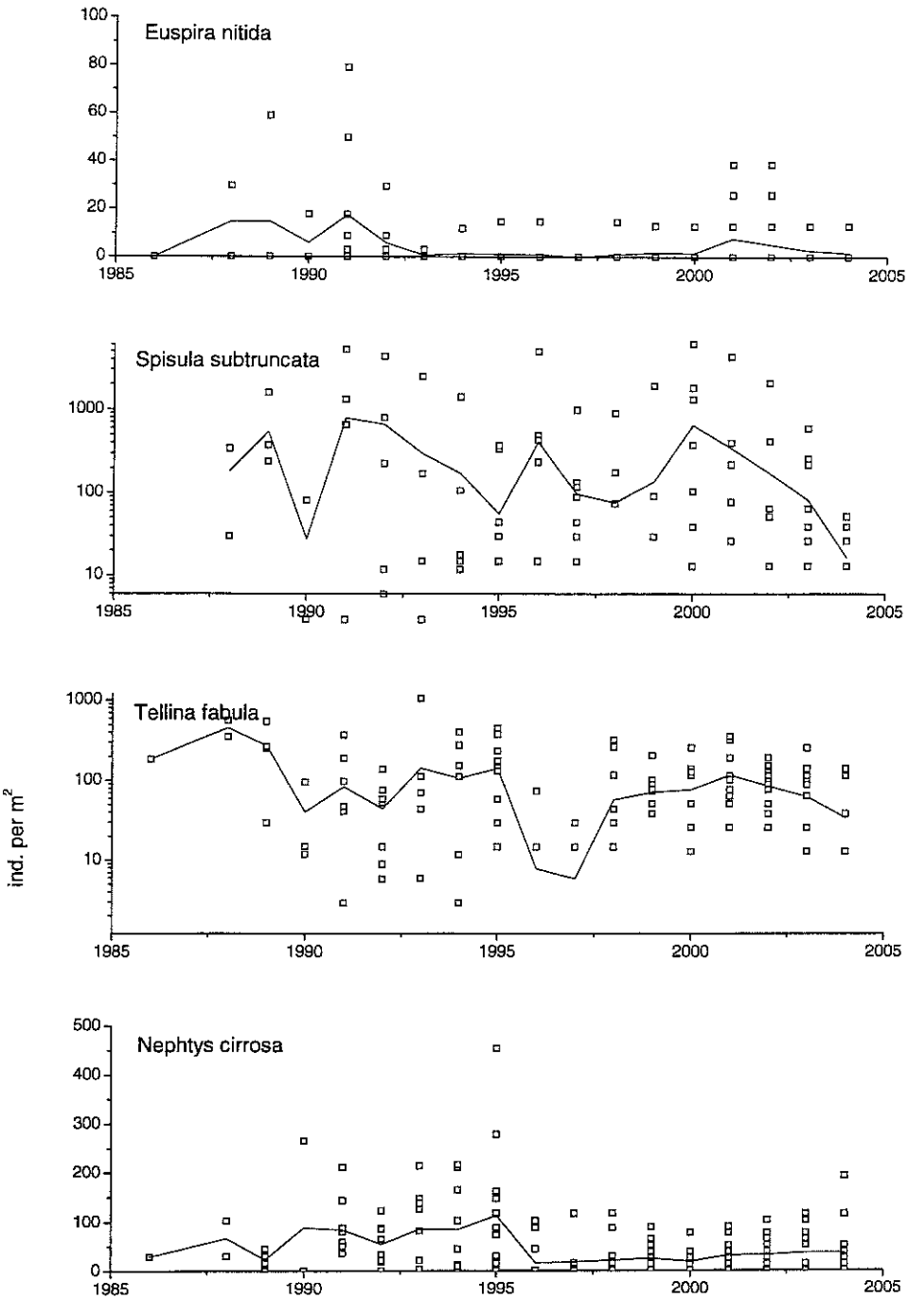

Fig. 18b: Densities of 4 species in the coastal area (1986-2004)

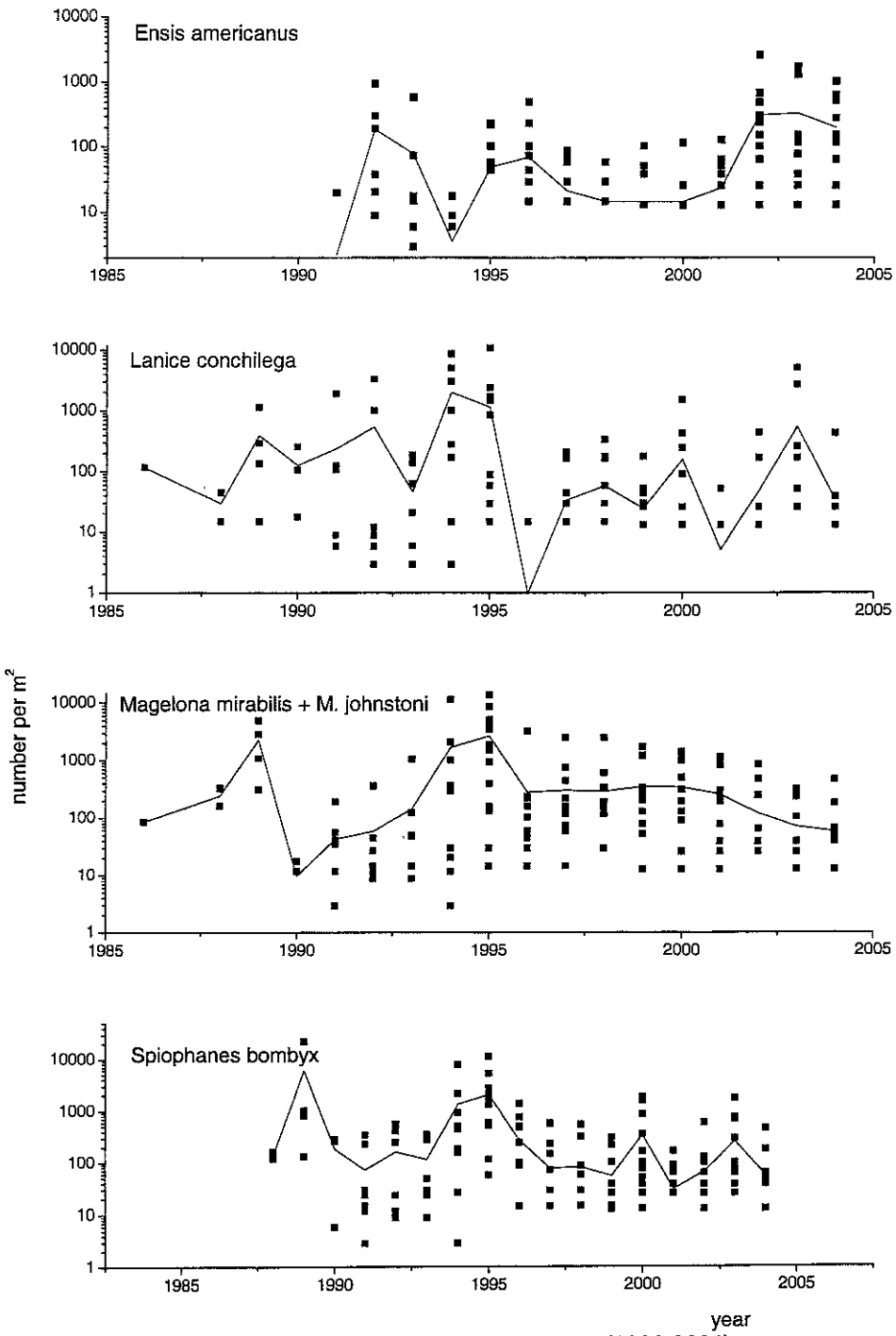

Fig. 18c: Densities of 4 species in the coastal area (1986-2004).

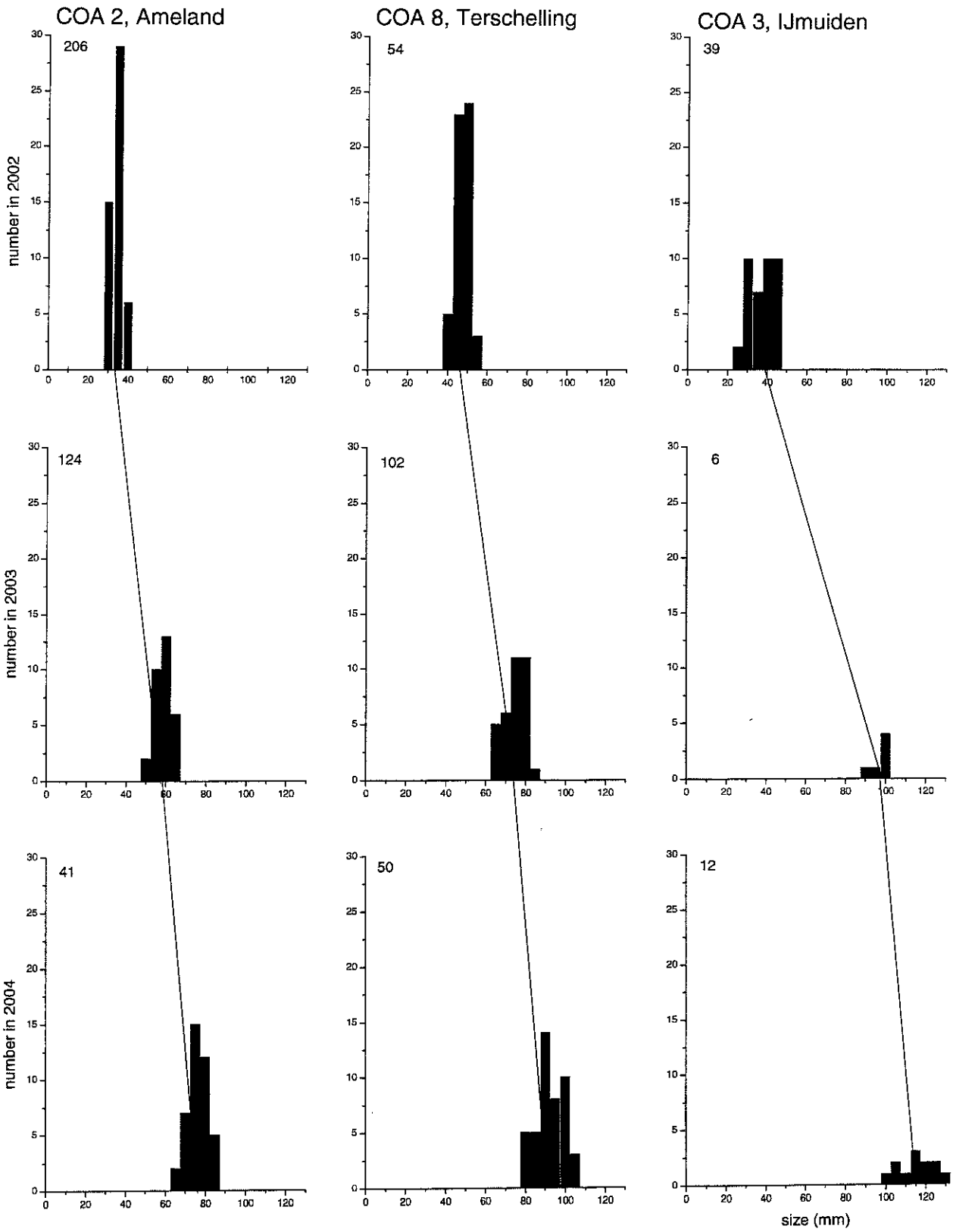

Fig. 19a: Size class distribution of *Ensis americanus* at 3 coastal stations between 2002 and 2004

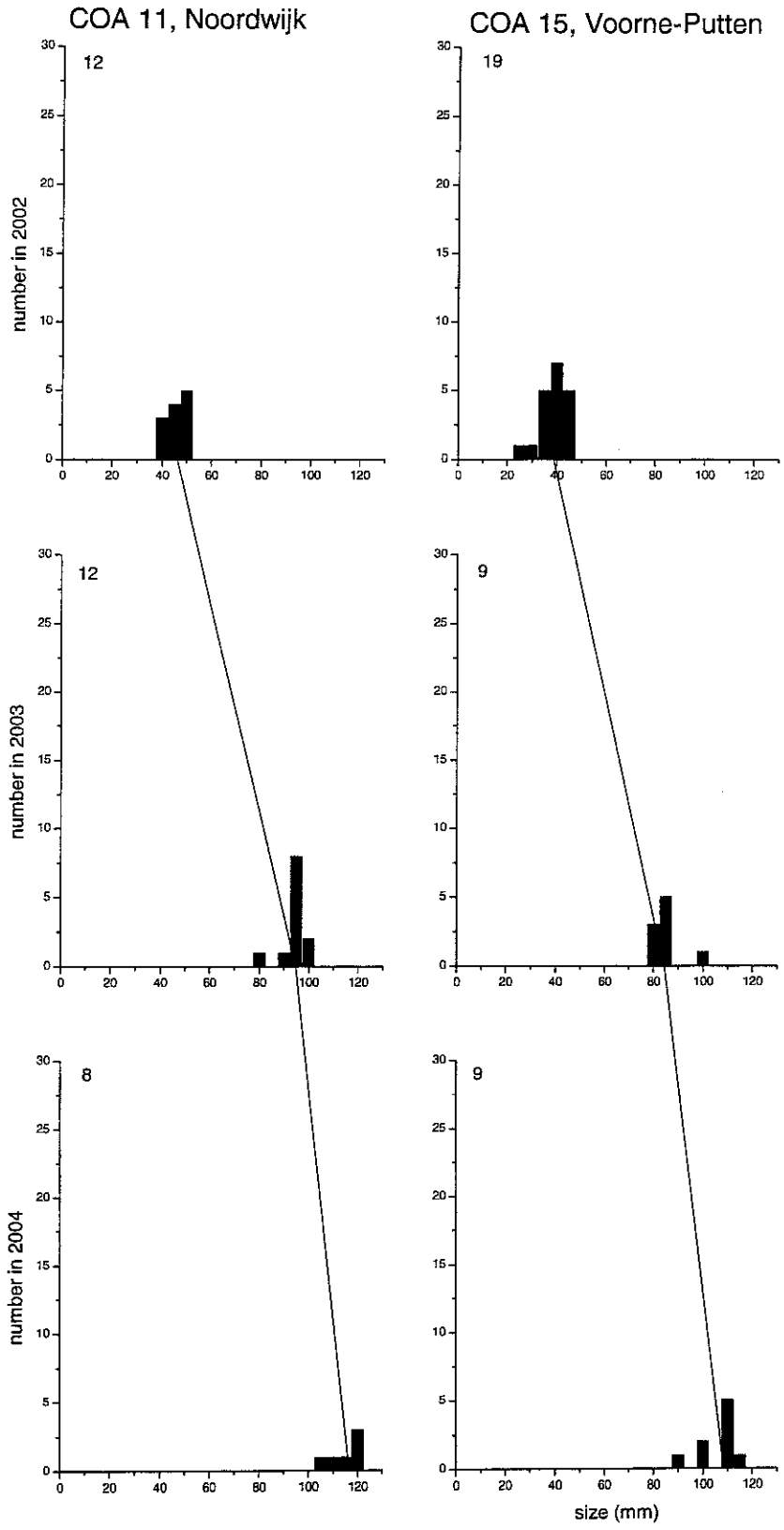

Fig. 19b: Size class distribution of *Ensis americanus* at 2 coastal stations between 2002 and 2004

Table 1a. Station number, position, date, depth and sediment composition of the survey 2004.

Station (name)		Geographical position				Sediment composition		
NIOZ	DONAR	E	N	Date	Depth (m)	Med.Gr.	Mud (%)	Mud (%)
code	code					Size (mm)	Fr.<63 mm	Fr.16-63 mm
DOG 01	DOGGBK06	04°03'00"	55°28'18"	24/03/2004	30.0	217	3.4	0
DOG 02	DOGGBK02	03°38'30"	55°10'00"	24/03/2004	36.2	185	1.5	0
DOG 03	DOGGBK03	03°30'00"	55°15'00"	24/03/2004	28.1	200	1.8	0
DOG 04	TERSLG235	03°09'26"	55°10'14"	24/03/2004	30.1	210	1	0
DOG 05	DOGGBK04	03°14'00"	54°54'42"	23/03/2004	35.7	176	2.8	0
DOG 06	DOGGBK05	03°05'00"	54°57'06"	23/03/2004	23.0	230	2.4	0
DOG 07	DOGGBK08	03°00'00"	55°00'00"	23/03/2004	25.0	204	0.2	0
OYS 01	OESTGDN43	03°25'30"	54°23'00"	31/03/2004	45.5	118	3.5	0
OYS 02	FRIESFT16	05°32'30"	54°11'30"	25/03/2004	39.0	213	4	0
OYS 03	OESTGDN02	04°00'00"	55°00'00"	23/03/2004	47.6	116	0.5	0
OYS 04	OESTGDN03	02°56'00"	54°33'00"	31/03/2004	34.0	141	2.2	0
OYS 05	FRIESFT02	04°55'00"	54°01'10"	31/03/2004	43.0	131	16.4	4.6
OYS 06	OESTGDN04	04°22'48"	55°18'24"	24/03/2004	46.0	152	2.8	0
OYS 07	OESTGDN05	04°18'00"	54°53'00"	23/03/2004	50.3	91	8.2	1.8
OYS 08	FRIESFT03	04°54'00"	53°44'40"	01/04/2004	37.0	232	2.8	0
OYS 09	FRIESFT04	03°37'50"	53°45'20"	30/03/2004	37.5	192	6.4	0
OYS 10	OESTGDN06	03°42'30"	54°39'00"	23/03/2004	44.3	115	6.4	0.9
OYS 11	FRIESFT05	05°10'00"	53°55'30"	31/03/2004	40.0	151	13.5	1.5
OYS 12	OESTGDN07	04°26'00"	54°10'00"	31/03/2004	49.0	96	11.7	1.6
OYS 13	OESTGDN08	03°30'00"	54°45'00"	23/03/2004	44.5	115	6.9	1.8
OYS 14	OESTGDN09	04°44'30"	54°20'00"	24/03/2004	47.0	141	9.1	0.9
OYS 15	OESTGDN10	04°21'20"	54°28'30"	23/03/2004	50.1	96	15.2	7.8
OYS 16	OESTGDN11	05°03'00"	54°38'30"	24/03/2004	47.0	165	4.2	0
OYS 17	OESTGDN12	03°25'08"	54°00'21"	30/03/2004	42.0	199	7.1	0.9
OYS 18	FRIESFT06	05°54'00"	54°11'20"	25/03/2004	37.0	224	1.6	0
OYS 19	OESTGDN13	03°19'00"	54°20'00"	31/03/2004	48.2	124	9.6	4.5
OYS 20	OESTGDN14	02°51'51"	54°05'00"	30/03/2004	51.8	201	2.3	0
OYS 21	TERSLG50	04°46'03"	53°46'04"	01/04/2004	38.0	121	8.5	1.7
OYS 22	OESTGDN15	03°38'30"	54°18'30"	31/03/2004	43.7	158	9.6	2.6
OYS 23	OESTGDN16	03°22'00"	54°49'24"	23/03/2004	41.5	136	5.3	0.9
OYS 24	BREEVTN34	03°29'46"	53°30'00"	30/03/2004	33.2	130	2.9	0
OYS 25	OESTGDN17	04°32'00"	54°39'00"	23/03/2004	49.6	116	17.0	10.4
OYS 26	FRIESFT07	04°47'30"	53°55'20"	01/04/2004	42.0	136	19.3	5.7
OYS 27	OESTGDN18	05°00'00"	54°30'00"	24/03/2004	44.0	180	11.6	1.6
OYS 28	FRIESFT08	03°30'00"	53°45'00"	30/03/2004	36.0	203	3	0
OYS 29	OESTGDN19	03°00'00"	54°30'00"	31/03/2004	36.2	127	8.3	1.8
OYS 30	BREEVTN02	03°18'21"	53°31'30"	30/03/2004	35.1	128	7.7	0
OYS 31	FRIESFT09	04°09'06"	53°50'42"	30/03/2004	44.0	142	3.2	0
OYS 32	FRIESFT10	05°05'00"	54°15'30"	25/03/2004	42.0	162	8.6	0
OYS 33	OESTGDN20	04°03'00"	54°16'00"	31/03/2004	47.8	107	12.4	5.1
OYS 34	FRIESFT11	04°16'37"	53°37'40"	01/04/2004	37.6	122	2.6	0
OYS 35	FRIESFT12	03°52'24"	53°51'31"	30/03/2004	40.0	163	3.5	0
OYS 36	FRIESFT17	04°30'00"	53°42'05"	01/04/2004	39.0	112	12.2	2.3
OYS 37	TERSLG100	04°20'27"	54°09'04"	31/03/2004	49.3	98	14.4	6.6
OYS 38	BREEVTN26	03°00'00"	53°30'00"	30/03/2004	32.5	144	6.7	0
OYS 39	OESTGDN22	04°00'00"	54°30'00"	23/03/2004	44.7	117	17.0	8.4
OYS 40	OESTGDN21	05°00'00"	55°00'00"	24/03/2004	41.0	157	4.6	0
OYS 41	OESTGDN23	03°17'36"	54°51'42"	23/03/2004	39.3	151	3.5	0
OYS 42	ROTTMPT70	06°12'51"	54°07'03"	25/03/2004	33.0	236	0.6	0

Table 1b. Station number, position, date, depth and sediment composition of the survey 2004.

Station (name)		Geographical position				Sediment composition		
NIOZ code	DONAR code	E	N	Date	Depth (m)	Med.Gr. Size (mm)	Mud (%) Fr.<63 mm	Mud (%) Fr.16-63 mm
OFF 01	FRIESFT13	05°59'00"	53°51'30"	25/03/2004	31.0	216	0.8	0
OFF 02	WADDKT07	06°06'25"	53°37'29"	06/04/2004	23.3	217	0.5	0
OFF 03	WADDKT02	05°49'37"	53°36'40"	06/04/2004	26.2	195	0.7	0
OFF 04	FRIESFT14	04°57'30"	53°40'00"	01/04/2004	31.0	201	0.7	0
OFF 05	FRIESFT15	04°22'30"	53°29'00"	01/04/2004	28.5	216	0.7	0
OFF 06	BREEVTN03	04°26'32"	53°11'16"	01/04/2004	31.0	300	1.2	0
OFF 07	BREEVTN04	04°18'22"	53°05'59"	01/04/2004	36.0	243	0.8	0
OFF 08	BREEVTN05	04°00'30"	53°01'30"	19/03/2004	29.0	242	0.6	0
OFF 09	BREEVTN06	04°13'50"	52°49'20"	26/03/2004	26.0	260	0.7	0
OFF 10	BREEVTN07	03°50'30"	52°45'40"	19/03/2004	30.3	287	0.8	0
OFF 11	BREEVTN08	03°31'18"	53°17'00"	18/03/2004	27.1	203	0.6	0
OFF 12	BREEVTN09	03°23'30"	53°03'55"	18/03/2004	28.0	270	1.7	0
OFF 13	BREEVTN10	03°11'36"	53°02'58"	18/03/2004	29.4	281	1.1	0
OFF 14	BREEVTN11	03°17'20"	52°53'53"	18/03/2004	32.8	279	1.1	0
OFF 15	BREEVTN12	03°17'18"	52°50'12"	18/03/2004	33.3	307	1.2	0
OFF 16	BREEVTN13	03°30'00"	52°45'00"	18/03/2004	26.5	272	0.6	0
OFF 17	BREEVTN14	03°12'12"	52°27'43"	18/03/2004	28.0	300	0.6	0
OFF 18	BREEVTN15	03°11'25"	52°20'25"	18/03/2004	29.0	335	0.6	0
OFF 19	BREEVTN16	03°24'42"	52°15'10"	18/03/2004	28.8	337	0.6	0
OFF 20	BREEVTN17	03°30'00"	52°15'00"	18/03/2004	30.3	397	0.7	0
OFF 21	BREEVTN18	03°00'00"	52°00'00"	17/03/2004	37.0	549	0.4	0
OFF 22	BREEVTN19	03°59'15"	52°16'30"	26/03/2004	23.3	372	0.8	0
OFF 23	BREEVTN20	04°09'50"	52°23'08"	26/03/2004	22.5	318	0.5	0
OFF 24	BREEVTN21	03°42'58"	52°00'00"	17/03/2004	28.0	573	2.1	0
OFF 25	BREEVTN22	03°24'26"	52°06'12"	17/03/2004	31.0	351	0.4	0
OFF 26	BREEVTN23	03°11'34"	51°56'07"	17/03/2004	29.9	441	0.8	0
OFF 27	BREEVTN24	03°14'28"	51°41'40"	17/03/2004	26.7	412	0.3	0
OFF 28	BREEVTN25	02°52'48"	51°52'40"	17/03/2004	34.0	424	0.5	0
OFF 29	ROTTMPT50	06°18'36"	53°57'14"	25/03/2004	31.0	368	2	0
OFF 30	TERSLG30	04°56'17"	53°36'56"	01/04/2004	25.0	223	18.4	5.0
OFF 31	BREEVTN27	03°55'01"	52°59'53"	19/03/2004	26.0	259	1.1	0
OFF 32	NOORDWK30	04°02'53"	52°23'15"	26/03/2004	23.3	351	0.6	0
OFF 33	NOORDWK50	03°47'07"	52°28'30"	19/03/2004	30.0	278	1	0
OFF 34	NOORDWK70	03°31'53"	52°34'10"	18/03/2004	31.0	313	0.7	0
OFF 35	WALCRN30	03°06'49"	51°43'06"	17/03/2004	28.4	404	0.6	0
OFF 36	WALCRN70	02°40'45"	51°57'25"	17/03/2004	44.0	535	0.5	0
COA 01	WADDKT03	05°59'53"	53°32'34"	06/04/2004	18.3	238	1.7	0
COA 02	WADDKT04	05°37'48"	53°30'19"	06/04/2004	8.9	196	0.8	0
COA 03	HOLLSKT03	04°31'50"	52°32'50"	02/04/2004	18.2	231	1.8	0
COA 04	HOLLSKT02	04°40'00"	52°50'00"	02/04/2004	11.3	209	2.4	0
COA 05	WADDKT05	04°41'20"	53°03'23"	06/04/2004	11.4	205	0	0
COA 06	WADDKT06	06°11'03"	53°32'09"	06/04/2004	7.7	181	1.2	0
COA 07	ROTTMPT3	06°32'46"	53°34'57"	25/03/2004	7.2	179	0.7	0
COA 08	TERSLG4	05°09'02"	53°24'54"	06/04/2004	12.5	222	1.1	0
COA 09	HOLLSKT04	04°30'00"	52°45'00"	02/04/2004	21.2	230	2.3	0
COA 10	NOORDWK2	04°24'20"	52°15'36"	02/04/2004	13.0	253	1.7	0
COA 11	NOORDWK10	04°18'01"	52°17'41"	26/03/2004	18.5	318	5	0
COA 12	VOORDTA2	03°23'15"	51°37'04"	17/03/2004	11.5	280	1	0
COA 13	VOORDTA3	03°36'02"	51°42'33"	05/03/2004	4.3	281	3.3	0
COA 14	VOORDTA4	03°48'48"	51°47'26"	05/03/2004	3.8	262	1	0
COA 15	VOORDTA5	03°55'09"	51°55'20"	17/03/2004	14.5	206	0.5	0

Table 2. Mean values of abiotic and biotic parameters in the 4 areas in 2004.

	AREA			
	Dogger Bank	Oyster Ground	Offshore area	Coastal area
No. of stations	7	42	36	15
Median Grain Size (μm)	203	147	320	233
Silt content (fr.< 63um,%)	1.9	7.5	1.3	1.6
silt (fr. 16- 63um, %)	0.0	1.7	0.1	0.0
Depth (m)	30	42	29	12
Diversity:				
Total number of species	64	151	99	55
Number of specier per core	29.1	32.0	16.5	14.1
Shannon- Wiener diversity	2.75	2.31	2.19	1.87
Simpson's dominance	0.10	0.23	0.16	0.25
No. individuals (ind./m²):				
Crustaceans	565	269	236	301
Echinoderms	180	779	36	9
Molluscs	488	653	195	412
Polychaetes	440	531	270	446
Miscellaneous	24	550	117	8
TOTAL DENSITY	1695	2781	854	1176
Biomass (g AFDW/m²):				
Crustaceans	0.3	9.9	1.2	0.2
Echinoderms	7.5	7.7	7.2	3.4
Molluscs	3.1	1.3	3.8	131.6
Polychaetes	2.2	3.4	1.8	5.3
Miscellaneous	0.0	0.9	0.4	0.0
TOTAL BIOMASS	13.1	23.2	14.3	140.6

Appendix-1 Biomonitoring 2004
(+ = presence)

	Dogger Bank							Oyster Ground																		
	Dog	Dog	Dog	Dog	Dog	Dog	Dog	Oys	Oys	Oys	Oys	Oys	Oys	Oys	Oys	Oys	Oys	Oys	Oys	Oys	Oys	Oys	Oys	Oys	Oys	
	1	2	3	4	5	6	7	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
Species name																										**Code**
Abra alba									+			+		+	+	+		+	+				+	+	+	ABRAALBA
Abra nitida													+													ABRANITI
Abra prismatica							+						+													ABRAPRIS
Acrocnida brachiata	+	+	+	+	+	+	+				+															ACROBRAC
Altenaeum dawsoni																			+							ALTENDAW
Alvania lactea																										ALVALACT
Ampelisca brevicornis								+		+																AMPEBREV
Ampelisca tenuicornis								+		+		+					+		+		+		+			AMPETENU
Ampharete spec.juv.												+														AMPHSPEC
Amphipoda indet.								+										+								AMPHINDE
Amphiura chiajei	+	+	+		+	+	+				+															AMPHCHIA
Amphiura filiformis									+	+		+	+	+	+	+	+	+	+	+	+	+	+	+	+	AMPHFILI
Anthozoa spec.								+		+									+							ANTHOZOA
Aonides paucibranchiata							+																			AONIPAUC
Aphelochaeta marioni																			+		+					APHEMARI
Aphrodite aculeata								+																		APHRACUL
Aplacophora										+																APLACOPH
Argissa hamatipes																										ARGISHAMA
Aricidea minuta																										ARICMINU
Asteroidea indet.				+																						ASTEINDE
Astropecten irregularis														+												ASTRIRRE
Atylus swammerdami		+	+		+																					ATYLSWAM
Bathyporeia elegans	+	+	+	+	+	+	+						+			+	+							+	+	BATHELEG
Bathyporeia guilliamsoniana	+	+	+	+	+	+	+																			BATHGUIL
Bivalve indet.																			+							BIVAINDE
Branchiostoma lanceolatum														+			+									BRANLANC
Brissopsis lyrifera																						+				BRISLYRI
Callianassa subterranea								+	+	+		+	+		+	+	+	+	+	+	+	+	+	+	+	CALLSUBT
Callianassa subterranea juv.								+	+	+		+			+	+	+	+	+	+	+	+	+	+		CALLJUVE
Callianassa tyrrhena																										CALLTYRR
Callianassa spec. juv.																										CALLSPEC
Capitella capitata																										CAPICAPI
Caprellidae spec.																										CAPRELLI
Chaetopterus variopedatus									+					+					+							CHAEVARI
Chaetozone setosa		+		+	+		+	+		+	+					+	+			+		+		+	+	CHAESETO
Chamelea striatula												+							+				+			CHAMSTRI
Chone duneri									+																	CHONDUNE
Chone infundibuliformis																										CHONINFU
Corbula gibba							+	+	+			+		+	+	+				+	+	+	+	+	+	CORBGIBB
Corophium affine										+																COROAFFI
Corystes cassivelaunus																+							+	+		CORYCASS
Crangon crangon juv.																										CRANCRAN
Cucumaria elongata																										CUCUELON
Cylichna cylindracea			+						+	+			+	+		+	+		+	+			+	+	+	CYLICYLI
Devonia perrieri																										DEVOPERR
Diastylis bradyi		+		+																		+				DIASBRAD
Diplocirrus glaucus					+				+	+	+		+	+			+		+	+				+		DIPLGLAU
Donax vittatus																										DONAVITT
Dosinia lupinus	+	+	+	+						+									+							DOSILUPI
Ebalia cranchii			+				+																			EBALCRAN
Ebalia tumefacta	+												+													EBALTUME

Appendix-1 Biomonitoring 2004
(+ = presence)

	Dogger Bank							Oyster Ground																	
	Dog	Dog	Dog	Dog	Dog	Dog	Dog	Oys	Oys	Oys	Oys	Oys	Oys	Oys	Oys	Oys	Oys	Oys	Oys	Oys	Oys	Oys	Oys	Oys	Oys	
	1	2	3	4	5	6	7	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
Species name																										**Code**
Ebalia spec.juv.																										EBALSPEC
Echinocardium cordatum		+	+	+	+				+	+	+		+	+	+				+	+		+			+	ECHICORD
Echinocyamus pusillus	+	+			+		+									+								+		ECHIPUSI
Echiurus echiurus										+							+									ECHIECHI
Edwardsia claparedii			+					+												+						EDWACLAP
Ensis americanus																										ENSIAMER
Ensis arcuatus																										ENSIARCU
Ensis ensis	+	+	+	+																				+		ENSIENSI
Ensis phaxoides																										ENSIPHAX
Ensis siliqua																										ENSISIL!
Eteone barbata																										ETEOBARB
Eteone flava																										ETEOFLAV
Eteone foliosa																										ETEOFOLI
Eteone longa					+																					ETEOLONG
Euclymene droebachiensis							+																			EUCLDROE
Eudorella emarginata														+												EUDOEMAR
Eudorella truncatula																	+				+		+			EUDOTRUN
Eudorellopsis deformis																+								+		EUDODEFO
Eumida sanguinea											+															EUMISANG
Euspira nitida	+	+	+	+	+	+	+		+		+				+	+		+	+				+		+	EUSPNITI
Euzonus flabelligerus																										EUZOFLAB
Exogone hebes																										EXOGHEBE
Gari fervensis		+	+	+			+																			GARIFERV
Gattyana cirrosa									+					+					+							GATTCIRR
Glycera lapidum																										GLYCLAPI
Glycera rouxi																										GLYCROUX
Glycera spec. juv.												+			+											GLYCSPEC
Glycinde nordmanni								+								+			+							GLYCNORD
Golfingia elongata																										GOLFELON
Golfingia vulgaris																			+							GOLFVULG
Golfingia spec.																			+		+					GOLFSPEC
Goniada maculata	+	+	+	+		+	+	+	+		+					+		+	+	+			+	+	+	GONIMACU
Goodallia triangularis																										GOODTRIA
Gyptis capensis	+	+	+	+			+		+		+	+			+			+	+				+		+	GYPTCAPE
Harmothoe ljungmani																										HARMLJUN
Harmothoe spec. juv.											+															HARMSPEC
Harpinia antennaria								+	+	+			+			+	+	+	+	+			+	+		HARPANTE
Hesionura elongata																										HESIELON
Heteromastus filiformis																										HETEFILI
Hippomedon denticulatus																										HIPPDENT
Hyala vitrea									+			+						+	+			+			+	HYALVITR
Hyperiidae spec.	+	+																								HYPERIID
Ione thoracica								+	+			+					+		+		+	+	+			IONETHOR
Iphinoe trispinosa						+																				IPHITRIS
Labidoplax buski												+														LABIBUSK
Lagisca extenuata																						+				LAGIEXTE
Lanice conchilega		+									+	+	+													LANICONC
Lepton squamosum															+			+								LEPTSQUA
Leptognathia spec.																										LEPTSPEC
Leptosynapta inhaerens														+												LEPTINHA
Leucothoe incisa															+											LEUCINCI

Appendix-1 Biomonitoring 2004
(+ = presence)

	Dogger Bank							Oyster Ground																	
	Dog	Dog	Dog	Dog	Dog	Dog	Dog	Oys	Oys	Oys	Oys	Oys	Oys	Oys	Oys	Oys	Oys	Oys	Oys	Oys	Oys	Oys	Oys	Oys	
	1	2	3	4	5	6	7	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
Species name																										**Code**
Liocarcinus marmoreus																										LIOCMARM
Liocarcinus spec. juv.						+																				LIOCSPEC
Lucinoma borealis			+								+															LUCIBORE
Lumbrineris fragilis																										LUMBFRAG
Lumbrineris latreilli															+			+				+				LUMBLATR
Lumbrineris spec. juv.																										LUMBSPEC
Lysilla loveni										+																LYSILOVE
Macoma balthica																										MACOBALT
Mactra corallina		+		+	+		+																			MACTCORA
Magelona alleni											+									+				+	+	MAGEALLE
Magelona johnstoni	+			+	+	+	+		+		+	+				+	+			+			+	+		MAGEJOHN
Magelona mirabilis		+	+		+	+	+				+	+	+				+			+			+	+		MAGEMIRA
Malacoceros vulgaris																										MALAVULG
Maldanidae spec. juv.							+																			MALDSPEC
Malmgreniella lunulata	+		+	+	+	+						+	+													MALMLUNU
Mediomastus fragilis								+							+			+	+		+				+	MEDIFRAG
Megaluropus agilis				+	+	+	+																			MEGAAGIL
Microprotopus maculatus																										MICRMACU
Mya truncata																										MYATRUNC
Mya truncata juv.															+					+			+			MYATRUN
Myriochele oculata												+		+		+										MYRIOCUL
Mysella bidentata	+	+	+	+	+	+	+		+	+	+	+	+	+		+	+	+	+	+	+	+	+	+	+	MYSEBIDE
Mysia undata							+						+							+	+					MYSIUNDA
Nebalia bipes																										NEBABIPE
Nematoda																										NEMATODA
Nemertini				+	+					+	+				+	+	+	+		+				+	+	NEMERTIN
Nephrops norvegicus																						+				NEPHNORV
Nephtys assimilis					+																					NEPHASSI
Nephtys caeca									+		+		+					+	+						+	NEPHCAEC
Nephtys cirrosa	+		+	+	+	+	+			+																NEPHCIRR
Nephtys hombergii		+				+	+	+		+	+		+	+			+	+	+		+	+	+		+	NEPHHOMB
Nephtys incisa												+														NEPHINCI
Nephtys longosetosa																										NEPHLONG
Nephtys spec. juv.										+	+			+												NEPHSPEC
Nereis diversicolor																										NEREDIVE
Nereis longissima									+	+	+													+		NERELONG
Notomastus latericeus	+			+			+		+		+	+						+	+			+	+			NOTOLATE
Nucula nitidosa		+			+			+	+		+	+	+	+	+	+	+	+	+	+			+	+	+	NUCUNITI
Oligochaeta															+											OLIGOCHA
Ophelia limacina	+			+													+									OPHELIMA
Ophelina acuminata										+			+													OPHEACUM
Ophiodromus flexuosus								+	+			+		+	+	+		+	+	+	+	+		+	+	OPHIFLEX
Ophiura albida															+			+								OPHIALBI
Ophiura texturata																										OPHITEXT
Ophiura spec. juv.																										OPHISPEC
Orchomene nana											+					+				+						ORCHNANA
Orchomene spec. juv.																										ORCHSPEC
Owenia fusiformis	+		+			+	+	+	+	+				+				+		+						OWENFUSI
Pagurus bernhardus																										PAGUBERN
Paraonis fulgens										+				+		+			+		+					PARAFULG

Appendix-1 Biomonitoring 2004
(+ = presence)

	Dogger Bank							Oyster Ground																	
	Dog	Dog	Dog	Dog	Dog	Dog	Dog	Oys	Oys	Oys	Oys	Oys	Oys	Oys	Oys	Oys	Oys	Oys	Oys	Oys	Oys	Oys	Oys	Oys	
	1	2	3	4	5	6	7	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
Species name																										**Code**
Peachia cylindrica																										PEACCYLI
Pectinaria auricoma														+		+				+		+		+		PECTAURI
Pectinaria koreni														+			+			+		+				PECTKORE
Perioculodes longimanus	+			+	+	+	+	+																		PERILONG
Phaxas pellucidus										+							+			+			+	+		PHAXPELL
Pholoe minuta			+		+			+	+	+	+	+	+	+			+		+	+	+		+		+	PHOLMINU
Phoronida				+	+		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	PHORONID
Phyllodoce groenlandica																									+	PHYLGROE
Phyllodoce maculata											+						+					+	+			PHYLMACU
Phyllodoce rosea																+				+						PHYLROSE
Phyllodoce spec. juv.															+											PHYLSPEC
Phyllodocidae indet.																								+		PHYLINDE
Poecilochaetus serpens				+					+			+			+					+	+			+	+	POECSERP
Polychaeta indet.																										POLYINDE
Polydora ciliata															+			+	+			+				POLYCILI
Polynoe kinbergi										+												+				POLYKINB
Polyplacophora																										POLYPLAC
Pontocrates altamarinus																										PONTALTA
Pontophilus bispinosus					+																					PONTBISP
Prionospio cirrifera												+														PRIOCIRR
Prionospio steenstrupi																										PRIOSTEE
Processa edulis crassipes																										PROCEDUL
Processa nouveli holthuisi																	+						+			PROCNOHO
Processa parva																										PROCPARV
Pseudocuma longicornis							+				+															PSEULONG
Saxicavella jeffreysi										+							+									SAXIJEFF
Scalibregma inflatum																										SCALINFL
Scolelepis bonnieri																										SCOLBONN
Scoloplos armiger								+		+	+		+				+			+				+	+	SCOLARMI
Scopelocheirus hopei																										SCOPHOPE
Semierycina nitida																										SEMINITI
Sigalion mathildae			+	+	+	+	+				+					+									SIGAMATH
Siphonoecetus kroyeranus			+																							SIPHKROY
Sphaerodorum flavum																										SPHAFLAV
Spio filicornis		+	+	+	+			+			+		+	+		+			+	+	+	+	+		+	SPIOFILI
Spiophanes bombyx		+	+	+	+	+	+	+	+		+	+	+		+	+		+		+			+	+	+	SPIOBOMB
Spiophanes kroeyeri												+					+	+				+				SPIOKROE
Spisula subtruncata																										SPISSUBT
Spisula spec. juv.																+										SPISSPEC
Stenula rubrovittata											+															STENURUBR
Sthenelais limicola		+	+								+			+		+				+				+		STHELIMI
Streptosyllis websteri																										STREWEBS
Striarca lactea																										STRILACT
Syllidae spec.																										SYLLIDAE
Synchelidium maculatum			+													+										SYNCMACU
Synelmis klatti								+		+			+			+	+			+	+	+		+		SYNEKLAT
Tellimya ferruginosa		+	+	+	+	+			+						+	+				+					+	TELLFERR
Tellimya tenella										+												+				TELLTENE
Tellina fabula	+	+	+	+	+	+	+				+					+									+	TELLFABU
Tellina pygmea																										TELLPYGM
Tellina tenuis																										TELLTENU
Terebellidae spec.																										TERESPEC

Appendix-1 Biomonitoring 2004
(+ = presence)

	Dogger Bank							Oyster Ground																	
	DoG	DoG	DoG	DoG	DoG	DoG	DoG	OyS	OyS	OyS	OyS	OyS	OyS	OyS	OyS	OyS	OyS	OyS	OyS	OyS	OyS	OyS	OyS	OyS	
	1	2	3	4	5	6	7	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
Species name																										**Code**
Terebellides stroemi														+												TERESTRO
Tharyx killariensis																										THARKILL
Thelepus cincinnatus																										THELCINC
Thia scutellata																										THIASCUT
Thracia convexa																	+									THRACONV
Thracia papyracea	+		+		+	+					+					+									+	THRAPAPY
Thyasira flexuosa											+		+				+			+						THYAFLEX
Tornus subcarinatus																										TORNSUBC
Turbellaria spec.								+						+			+					+				TURBELLA
Turritella communis														+											+	TURRCOMM
Upogebia deltaura															+			+	+			+				UPOGDELT
Upogebia deltaura juv.															+			+	+							UPOGJUVE
Upogebia stellata																			+				+			UPOGSTEL
Urothoe brevicornis	+	+	+	+												+										UROTBREV
Urothoe poseidonis	+	+	+	+		+	+									+										UROTPOSE
Venerupis senegalensis																										VENESENE
Westwoodilla caecula										+							+					+				WESTCAEC

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(+ = presence)

	Oyster Ground																								
	Oys	Oys	Oys	Oys	Oys	Oys	Oys	Oys	Oys	Oys	Oys	Oys	Oys	Oys	Oys	Oys	Oys	Oys	Oys	Oys	Oys	Oys	Oys	Oys	
	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	
Species name																									**Code**
Abra alba	+	+	+	+	+	+				+	+	+	+	+		+	+	+							ABRAALBA
Abra nitida														+							+				ABRANITI
Abra prismatica																									ABRAPRIS
Acrocnida brachiata																							+		ACROBRAC
Altenaeum dawsoni																									ALTENDAW
Alvania lactea																									ALVALACT
Ampelisca brevicornis																					+				AMPEBREV
Ampelisca tenuicornis	+				+		+				+			+	+										AMPETENU
Ampharete spec.juv.																									AMPHSPEC
Amphipoda indet.																									AMPHINDE
Amphiura chiajei																									AMPHCHIA
Amphiura filiformis	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	AMPHFILI
Anthozoa spec.				+			+																		ANTHOZOA
Aonides paucibranchiata																									AONIPAUC
Aphelochaeta marioni																									APHEMARI
Aphrodite aculeata																							+		APHRACUL
Aplacophora							+														+				APLACOPH
Argissa hamatipes										+															ARGISHAMA
Aricidea minuta																									ARICMINU
Asteroidea indet.																									ASTEINDE
Astropecten irregularis																									ASTRIRRE
Atylus swammerdami																									ATYLSWAM
Bathyporeia elegans	+			+	+	+			+	+		+	+				+			+	+	+	+	+	BATHELEG
Bathyporeia guilliamsoniana					+						+						+							+	BATHGUIL
Bivalve indet.																									BIVAINDE
Branchiostoma lanceolatum	+						+												+						BRANLANC
Brissopsis lyrifera																					+				BRISLYRI
Callianassa subterranea	+	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+	+	+	+				CALLSUBT
Callianassa subterranea juv.	+	+	+	+		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+			CALLJUVE
Callianassa tyrrhena																									CALLTYRR
Callianassa spec. juv.																									CALLSPEC
Capitella capitata																									CAPICAPI
Caprellidae spec.																									CAPRELLI
Chaetopterus variopedatus	+													+	+						+				CHAEVARI
Chaetozone setosa	+			+	+		+							+	+		+		+	+	+		+		CHAESETO
Chamelea striatula				+					+				+				+		+			+			CHAMSTRI
Chone duneri																									CHONDUNE
Chone infundibuliformis																						+			CHONINFU
Corbula gibba		+	+	+	+		+	+	+	+	+	+	+	+	+	+	+	+	+		+	+		+	CORBGIBB
Corophium affine																									COROAFFI
Corystes cassivelaunus				+					+				+		+									+	CORYCASS
Crangon crangon juv.																									CRANCRAN
Cucumaria elongata			+												+	+									CUCUELON
Cylichna cylindracea	+	+	+	+	+				+	+				+	+			+	+		+				CYLICYLI
Devonia perrieri		+	+																						DEVOPERR
Diastylis bradyi	+								+										+		+		+		DIASBRAD
Diplocirrus glaucus					+				+	+	+				+		+				+		+		DIPLGLAU
Donax vittatus																									DONAVITT
Dosinia lupinus		+		+	+					+	+						+				+	+			DOSILUPI
Ebalia cranchii																								+	EBALCRAN
Ebalia tumefacta																									EBALTUME

Appendix-1 Biomonitoring 2004
(+ = presence)

	Oyster Ground																								
	Oys	Oys	Oys	Oys	Oys	Oys	Oys	Oys	Oys	Oys	Oys	Oys	Oys	Oys	Oys	Oys	Oys	Oys	Oys	Oys	Oys	Oys	Oys	Oys	
	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	
Species name																									**Code**
Ebalia spec.juv.																							+		EBALSPEC
Echinocardium cordatum	+	+		+		+	+			+		+	+		+	+	+		+	+		+		+	ECHICORD
Echinocyamus pusillus										+													+		ECHIPUSI
Echiurus echiurus																									ECHIECHI
Edwardsia claparedii	+						+		+						+										EDWACLAP
Ensis americanus																									ENSIAMER
Ensis arcuatus																									ENSIARCU
Ensis ensis																									ENSIENSI
Ensis phaxoides																								+	ENSIPHAX
Ensis siliqua																									ENSISILI
Eteone barbata																									ETEOBARB
Eteone flava																									ETEOFLAV
Eteone foliosa																		+							ETEOFOLI
Eteone longa																									ETEOLONG
Euclymene droebachiensis																									EUCLDROE
Eudorella emarginata																									EUDOEMAR
Eudorella truncatula	+	+			+	+							+	+				+		+	+				EUDOTRUN
Eudorellopsis deformis										+					+						+				EUDODEFO
Eumida sanguinea											+			+											EUMISANG
Euspira nitida		+	+			+			+	+		+						+		+		+	+	+	EUSPNITI
Euzonus flabelligerus																									EUZOFLAB
Exogone hebes																									EXOGHEBE
Gari fervensis																									GARIFERV
Gattyana cirrosa	+														+					+					GATTCIRR
Glycera lapidum																									GLYCLAPI
Glycera rouxi										+															GLYCROUX
Glycera spec. juv.	+	+																	+						GLYCSPEC
Glycinde nordmanni							+					+		+		+									GLYCNORD
Golfingia elongata			+											+				+	+						GOLFELON
Golfingia vulgaris	+								+										+						GOLFVULG
Golfingia spec.														+	+										GOLFSPEC
Goniada maculata	+		+	+	+	+			+	+	+	+	+			+		+	+	+	+	+	+		GONIMACU
Goodallia triangularis																									GOODTRIA
Gyptis capensis		+	+		+	+	+	+		+		+	+		+	+		+		+	+				GYPTCAPE
Harmothoe ljungmani				+																					HARMLJUN
Harmothoe spec. juv.										+													+		HARMSPEC
Harpinia antennaria	+	+	+	+	+		+		+	+	+	+	+		+		+		+		+	+	+		HARPANTE
Hesionura elongata																									HESIELON
Heteromastus filiformis																									HETEFILI
Hippomedon denticulatus				+																					HIPPDENT
Hyala vitrea	+	+					+						+	+	+		+	+	+						HYALVITR
Hyperiidae spec.		+		+																					HYPERIID
Ione thoracica		+	+		+	+	+	+		+					+	+	+	+	+	+					IONETHOR
Iphinoe trispinosa																									IPHITRIS
Labidoplax buski																									LABIBUSK
Lagisca extenuata																									LAGIEXTE
Lanice conchilega						+		+			+						+							+	LANICONC
Lepton squamosum															+			+							LEPTSQUA
Leptognathia spec.																									LEPTSPEC
Leptosynapta inhaerens		+	+										+						+						LEPTINHA
Leucothoe incisa	+		+			+					+	+					+			+					LEUCINCI

Appendix-1 Biomonitoring 2004
(+ = presence)

									Oyster Ground																
	Oys	Oys	Oys	Oys	Oys	Oys	Oys	Oys	Oys	Oys	Oys	Oys	Oys	Oys	Oys	Oys	Oys	Oys	Oys	Oys	Oys	Oys	Oys	Oys	
	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	
Species name																									**Code**
Liocarcinus marmoreus																									LIOCMARM
Liocarcinus spec. juv.																									LIOCSPEC
Lucinoma borealis																									LUCIBORE
Lumbrineris fragilis																			+						LUMBFRAG
Lumbrineris latreilli		+	+	+		+		+				+		+		+		+							LUMBLATR
Lumbrineris spec. juv.			+																						LUMBSPEC
Lysilla loveni													+												LYSILOVE
Macoma balthica																									MACOBALT
Mactra corallina		+																						+	MACTCORA
Magelona alleni	+	+		+					+								+				+	+	+	+	MAGEALLE
Magelona johnstoni				+					+	+	+	+	+	+			+			+			+		MAGEJOHN
Magelona mirabilis	+			+	+				+	+	+	+	+	+		+	+	+		+	+	+	+	+	MAGEMIRA
Malacoceros vulgaris																									MALAVULG
Maldanidae spec. juv.																									MALDSPEC
Malmgreniella lunulata		+	+			+					+		+											+	MALMLUNU
Mediomastus fragilis	+	+				+						+				+	+								MEDIFRAG
Megaluropus agilis																									MEGAAGIL
Microprotopus maculatus																									MICRMACU
Mya truncata																						+			MYATRUNC
Mya truncata juv.																									MYATRUN
Myriochele oculata			+			+				+		+	+	+		+	+	+	+			+			MYRIOCUL
Mysella bidentata	+	+		+	+		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		MYSEBIDE
Mysia undata				+					+		+		+						+		+	+			MYSIUNDA
Nebalia bipes																					+				NEBABIPE
Nematoda																									NEMATODA
Nemertini		+			+	+	+			+	+								+	+	+	+	+	+	NEMERTIN
Nephrops norvegicus																									NEPHNORV
Nephtys assimilis																							+	+	NEPHASSI
Nephtys caeca			+					+				+				+									NEPHCAEC
Nephtys cirrosa											+	+								+				+	NEPHCIRR
Nephtys hombergii	+	+		+	+		+		+		+	+	+	+	+	+	+			+	+	+	+		NEPHHOMB
Nephtys incisa							+											+							NEPHINCI
Nephtys longosetosa																									NEPHLONG
Nephtys spec. juv.	+		+		+			+	+			+	+			+		+	+			+	+		NEPHSPEC
Nereis diversicolor																									NEREDIVE
Nereis longissima			+	+	+						+					+		+							NERELONG
Notomastus latericeus		+	+			+	+				+				+										NOTOLATE
Nucula nitidosa	+	+	+	+	+	+	+	+	+	+	+	+	+			+	+	+		+	+	+	+	+	NUCUNITI
Oligochaeta																									OLIGOCHA
Ophelia limacina													+	+						+					OPHELIMA
Ophelina acuminata			+																						OPHEACUM
Ophiodromus flexuosus			+		+			+	+				+	+	+	+	+	+	+		+				OPHIFLEX
Ophiura albida		+	+													+		+							OPHIALBI
Ophiura texturata																									OPHITEXT
Ophiura spec. juv.											+														OPHISPEC
Orchomene nana											+										+	+			ORCHNANA
Orchomene spec. juv.																				+					ORCHSPEC
Owenia fusiformis	+	+									+											+		+	OWENFUSI
Pagurus bernhardus																								+	PAGUBERN
Paraonis fulgens																									PARAFULG

Appendix-1 Biomonitoring 2004
(+ = presence)

	Oyster Ground																								
	Oys	Oys	Oys	Oys	Oys	Oys	Oys	Oys	Oys	Oys	Oys	Oys	Oys	Oys	Oys	Oys	Oys	Oys	Oys	Oys	Oys	Oys	Oys	Oys	
	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	
Species name																									**Code**
Peachia cylindrica																									PEACCYLI
Pectinaria auricoma		+					+		+	+					+		+				+				PECTAURI
Pectinaria koreni		+					+														+				PECTKORE
Perioculodes longimanus											+		+												PERILONG
Phaxas pellucidus				+	+				+		+												+		PHAXPELL
Pholoe minuta	+			+	+									+	+		+	+	+		+	+			PHOLMINU
Phoronida	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	PHORONID
Phyllodoce groenlandica																									PHYLGROE
Phyllodoce maculata				+																					PHYLMACU
Phyllodoce rosea																								+	PHYLROSE
Phyllodoce spec. juv.																									PHYLSPEC
Phyllodocidae indet.																							+		PHYLINDE
Poecilochaetus serpens		+	+			+	+		+					+		+	+							+	POECSERP
Polychaeta indet.																									POLYINDE
Polydora ciliata			+					+					+			+			+						POLYCILI
Polynoe kinbergi																									POLYKINB
Polyplacophora																									POLYPLAC
Pontocrates altamarinus																									PONTALTA
Pontophilus bispinosus																									PONTBISP
Prionospio cirrifera														+											PRIOCIRR
Prionospio steenstrupi							+																		PRIOSTEE
Processa edulis crassipes																									PROCEDUL
Processa nouveli holthuisi				+																			+		PROCNOHO
Processa parva																									PROCPARV
Pseudocuma longicornis																				+					PSEULONG
Saxicavella jeffreysi																									SAXIJEFF
Scalibregma inflatum																			+		+		+		SCALINFL
Scolelepis bonnieri																								+	SCOLBONN
Scoloplos armiger	+			+	+					+	+						+	+			+	+	+	+	SCOLARMI
Scopelocheirus hopei																							+		SCOPHOPE
Semierycina nitida				+														+							SEMINITI
Sigalion mathildae				+	+						+												+		SIGAMATH
Siphonoecetus kroyeranus																									SIPHKROY
Sphaerodorum flavum					+																				SPHAFLAV
Spio filicornis	+		+	+	+		+	+			+			+	+	+	+	+	+	+	+			+	SPIOFILI
Spiophanes bombyx	+			+	+	+	+		+	+	+	+	+				+	+		+		+	+	+	SPIOBOMB
Spiophanes kroeyeri																					+	+			SPIOKROE
Spisula subtruncata						+						+		+						+					SPISSUBT
Spisula spec. juv.																									SPISSPEC
Stenula rubrovittata																									STENURUBR
Sthenelais limicola				+			+			+	+		+				+		+		+	+			STHELIMI
Streptosyllis websteri																									STREWEBS
Striarca lactea																									STRILACT
Syllidae spec.																									SYLLIDAE
Synchelidium maculatum																						+			SYNCMACU
Synelmis klatti	+	+		+			+								+				+		+	+			SYNEKLAT
Tellimya ferruginosa						+			+	+			+		+		+			+				+	TELLFERR
Tellimya tenella																									TELLTENE
Tellina fabula					+																		+	+	TELLFABU
Tellina pygmea																									TELLPYGM
Tellina tenuis																									TELLTENU
Terebellidae spec.					+																				TERESPEC

Appendix-1 Biomonitoring 2004
(+ = presence)

									Oyster Ground																	
	Oys	Oys	Oys	Oys	Oys	Oys	Oys	Oys	Oys	Oys	Oys	Oys	Oys	Oys	Oys	Oys	Oys	Oys	Oys	Oys	Oys	Oys	Oys	Oys	Oys	
	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42		
Species name																										**Code**
Terebellides stroemi		+																								TERESTRO
Tharyx killariensis															+											THARKILL
Thelepus cincinnatus																										THELCINC
Thia scutellata																										THIASCUT
Thracia convexa																										THRACONV
Thracia papyracea				+						+	+						+						+	+		THRAPAPY
Thyasira flexuosa	+			+	+						+											+	+			THYAFLEX
Tornus subcarinatus																										TORNSUBC
Turbellaria spec.	+	+									+															TURBELLA
Turritella communis																					+					TURRCOMM
Upogebia deltaura			+										+		+	+			+							UPOGDELT
Upogebia deltaura juv.		+	+					+																		UPOGJUVE
Upogebia stellata																										UPOGSTEL
Urothoe brevicornis																									+	UROTBREV
Urothoe poseidonis									+									+							+	UROTPOSE
Venerupis senegalensis																										VENESENE
Westwoodilla caecula																										WESTCAEC

Appendix-1 Biomonitoring 2004
(+ = presence)

											Offshore area																
	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	
Species name																											**Code**
Abra alba											+																ABRAALBA
Abra nitida																											ABRANITI
Abra prismatica																											ABRAPRIS
Acrocnida brachiata																											ACROBRAC
Altenaeum dawsoni																											ALTENDAW
Alvania lactea																											ALVALACT
Ampelisca brevicornis																											AMPEBREV
Ampelisca tenuicornis																											AMPETENU
Ampharete spec.juv.																											AMPHSPEC
Amphipoda indet.																											AMPHINDE
Amphiura chiajei				+																							AMPHCHIA
Amphiura filiformis																											AMPHFILI
Anthozoa spec.				+																							ANTHOZOA
Aonides paucibranchiata																			+		+						AONIPAUC
Aphelochaeta marioni																											APHEMARI
Aphrodite aculeata																											APHRACUL
Aplacophora																											APLACOPH
Argissa hamatipes																											ARGISHAMA
Aricidea minuta									+									+	+	+		+					ARICMINU
Asteroidea indet.																											ASTEINDE
Astropecten irregularis																											ASTRIRRE
Atylus swammerdami		+																									ATYLSWAM
Bathyporeia elegans	+	+	+		+	+		+	+	+	+	+	+		+	+	+		+	+	+	+	+		+		BATHELEG
Bathyporeia guilliamsoniana		+				+		+	+	+	+	+	+	+					+			+	+		+		BATHGUIL
Bivalve indet.																											BIVAINDE
Branchiostoma lanceolatum																											BRANLANC
Brissopsis lyrifera																											BRISLYRI
Callianassa subterranea	+	+		+																							CALLSUBT
Callianassa subterranea juv.				+																							CALLJUVE
Callianassa tyrrhena																											CALLTYRR
Callianassa spec. juv.									+																		CALLSPEC
Capitella capitata		+																									CAPICAPI
Caprellidae spec.																											CAPRELLI
Chaetopterus variopedatus																											CHAEVARI
Chaetozone setosa	+		+		+						+			+													CHAESETO
Chamelea striatula																											CHAMSTRI
Chone duneri																											CHONDUNE
Chone infundibuliformis																											CHONINFU
Corbula gibba				+																							CORBGIBB
Corophium affine																											COROAFFI
Corystes cassivelaunus				+				+																			CORYCASS
Crangon crangon juv.								+																			CRANCRAN
Cucumaria elongata																											CUCUELON
Cylichna cylindracea																											CYLICYLI
Devonia perrieri																											DEVOPERR
Diastylis bradyi																											DIASBRAD
Diplocirrus glaucus																											DIPLGLAU
Donax vittatus		+			+		+	+	+	+	+	+		+	+	+	+		+	+	+				+		DONAVITT
Dosinia lupinus																											DOSILUPI
Ebalia cranchii																											EBALCRAN
Ebalia tumefacta																											EBALTUME

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(+ = presence)

	Offshore area																										
	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	
Species name																											**Code**
Ebalia spec.juv.																											EBALSPEC
Echinocardium cordatum	+		+	+	+	+	+	+	+				+	+		+			+	.+		+			+		ECHICORD
Echinocyamus pusillus								+			+	+	+		+												ECHIPUSI
Echiurus echiurus																											ECHIECHI
Edwardsia claparedii																											EDWACLAP
Ensis americanus																											ENSIAMER
Ensis arcuatus																											ENSIARCU
Ensis ensis									+		+											+					ENSIENSI
Ensis phaxoides																											ENSIPHAX
Ensis siliqua																											ENSISILI
Eteone barbata							+																				ETEOBARB
Eteone flava																							+				ETEOFLAV
Eteone foliosa													+			+											ETEOFOLI
Eteone longa												+															ETEOLONG
Euclymene droebachiensis																											EUCLDROE
Eudorella emarginata																											EUDOEMAR
Eudorella truncatula																											EUDOTRUN
Eudorellopsis deformis																											EUDODEFO
Eumida sanguinea		+	+	+	+																						EUMISANG
Euspira nitida			+	+	+		+	+		+	+	+	+	+	+	+	+	+	+	+	+	+	+		+	+	EUSPNITI
Euzonus flabelligerus																					+					+	EUZOFLAB
Exogone hebes										+																	EXOGHEBE
Gari fervensis																											GARIFERV
Gattyana cirrosa																											GATTCIRR
Glycera lapidum																								+			GLYCLAPI
Glycera rouxi																											GLYCROUX
Glycera spec. juv.											+																GLYCSPEC
Glycinde nordmanni																											GLYCNORD
Golfingia elongata																											GOLFELON
Golfingia vulgaris																											GOLFVULG
Golfingia spec.																											GOLFSPEC
Goniada maculata								+			+	+	+	+	+												GONIMACU
Goodallia triangularis																											GOODTRIA
Gyptis capensis			+	+							+		+	+													GYPTCAPE
Harmothoe ljungmani																											HARMLJUN
Harmothoe spec. juv.		+			+																						HARMSPEC
Harpinia antennaria																											HARPANTE
Hesionura elongata																				+							HESIELON
Heteromastus filiformis																					+						HETEFILI
Hippomedon denticulatus																											HIPPDENT
Hyala vitrea																											HYALVITR
Hyperiidae spec.																											HYPERIID
Ione thoracica	+																										IONETHOR
Iphinoe trispinosa														+													IPHITRIS
Labidoplax buski																											LABIBUSK
Lagisca extenuata																											LAGIEXTE
Lanice conchilega		+		+	+						+																LANICONC
Lepton squamosum																											LEPTSQUA
Leptognathia spec.						+																					LEPTSPEC
Leptosynapta inhaerens																											LEPTINHA
Leucothoe incisa	+	+		+						+																	LEUCINCI

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(+ = presence)

											Offshore area																
	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	
Species name																											**Code**
Liocarcinus marmoreus																										+	LIOCMARM
Liocarcinus spec. juv.																											LIOCSPEC
Lucinoma borealis																											LUCIBORE
Lumbrineris fragilis																											LUMBFRAG
Lumbrineris latreilli																											LUMBLATR
Lumbrineris spec. juv.																											LUMBSPEC
Lysilla loveni																											LYSILOVE
Macoma balthica																											MACOBALT
Mactra corallina																											MACTCORA
Magelona alleni																											MAGEALLE
Magelona johnstoni	+	+	+	+	+		+	+		+	+	+	+							+				+			MAGEJOHN
Magelona mirabilis	+	+	+	+	+		+	+	+	+				+		+									+		MAGEMIRA
Malacoceros vulgaris																											MALAVULG
Maldanidae spec. juv.																											MALDSPEC
Malmgreniella lunulata		+			+																						MALMLUNU
Mediomastus fragilis																											MEDIFRAG
Megaluropus agilis														+							+						MEGAAGIL
Microprotopus maculatus		+																									MICRMACU
Mya truncata																											MYATRUNC
Mya truncata juv.																											MYATRUN
Myriochele oculata																											MYRIOCUL
Mysella bidentata				+																							MYSEBIDE
Mysia undata																											MYSIUNDA
Nebalia bipes																											NEBABIPE
Nematoda					+	+		+													+						NEMATODA
Nemertini	+	+		+			+	+	+			+		+					+	+			+		+	+	NEMERTIN
Nephrops norvegicus																											NEPHNORV
Nephtys assimilis	+																										NEPHASSI
Nephtys caeca			+															+	+								NEPHCAEC
Nephtys cirrosa		+		+		+	+		+	+	+	+	+		+	+	+	+	+		+	+	+	+	+	+	NEPHCIRR
Nephtys hombergii	+			+	+								+				+			+		+					NEPHHOMB
Nephtys incisa																											NEPHINCI
Nephtys longosetosa												+															NEPHLONG
Nephtys spec. juv.					+						+					+											NEPHSPEC
Nereis diversicolor																											NEREDIVE
Nereis longissima																											NERELONG
Notomastus latericeus	+										+															+	NOTOLATE
Nucula nitidosa				+	+						+																NUCUNITI
Oligochaeta			+																								OLIGOCHA
Ophelia limacina		+				+							+									+					OPHELIMA
Ophelina acuminata																											OPHEACUM
Ophiodromus flexuosus																											OPHIFLEX
Ophiura albida	+		+	+	+			+				+			+												OPHIALBI
Ophiura texturata			+								+																OPHITEXT
Ophiura spec. juv.											+			+	+						+						OPHISPEC
Orchomene nana																											ORCHNANA
Orchomene spec. juv.																											ORCHSPEC
Owenia fusiformis	+			+																							OWENFUSI
Pagurus bernhardus																											PAGUBERN
Paraonis fulgens						+						+					+	+								+	PARAFULG

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(+ = presence)

	Offshore area																									
	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	
Species name																											**Code**
Peachia cylindrica																											PEACCYLI
Pectinaria auricoma																											PECTAURI
Pectinaria koreni																											PECTKORE
Perioculodes longimanus																									+		PERILONG
Phaxas pellucidus																											PHAXPELL
Pholoe minuta																											PHOLMINU
Phoronida	+	+	+	+		+				+	+									+		+	+				PHORONID
Phyllodoce groenlandica																							+				PHYLGROE
Phyllodoce maculata																											PHYLMACU
Phyllodoce rosea																											PHYLROSE
Phyllodoce spec. juv.																											PHYLSPEC
Phyllodocidae indet.																											PHYLINDE
Poecilochaetus serpens	+				+																						POECSERP
Polychaeta indet.																											POLYINDE
Polydora ciliata																											POLYCILI
Polynoe kinbergi																											POLYKINB
Polyplacophora																											POLYPLAC
Pontocrates altamarinus															+												PONTALTA
Pontophilus bispinosus																											PONTBISP
Prionospio cirrifera																											PRIOCIRR
Prionospio steenstrupi																											PRIOSTEE
Processa edulis crassipes																							+				PROCEDUL
Processa nouveli holthuisi		+																									PROCNOHO
Processa parva																											PROCPARV
Pseudocuma longicornis								+	+				+		+			+	+		+		+		+	+	PSEULONG
Saxicavella jeffreysi																											SAXIJEFF
Scalibregma inflatum				+																							SCALINFL
Scolelepis bonnieri										+		+	+	+		+	+	+									SCOLBONN
Scoloplos armiger	+	+	+	+	+	+	+	+	+	+		+	+			+						+	+				SCOLARMI
Scopelocheirus hopei																											SCOPHOPE
Semierycina nitida																											SEMINITI
Sigalion mathildae	+	+	+	+				+			+																SIGAMATH
Siphonoecetus kroyeranus	+																										SIPHKROY
Sphaerodorum flavum																											SPHAFLAV
Spio filicornis	+	+	+				+					+									+	+				+	SPIOFILI
Spiophanes bombyx	+	+			+		+	+			+		+	+	+		+	+	+	+		+			+	+	SPIOBOMB
Spiophanes kroeyeri																											SPIOKROE
Spisula subtruncata					+																						SPISSUBT
Spisula spec. juv.																											SPISSPEC
Stenula rubrovittata																											STENURUBR
Sthenelais limicola													+														STHELIMI
Streptosyllis websteri																											STREWEBS
Striarca lactea																											STRILACT
Syllidae spec.																											SYLLIDAE
Synchelidium maculatum									+			+															SYNCMACU
Synelmis klatti																											SYNEKLAT
Tellimya ferruginosa		+	+	+	+		+		+	+	+		+	+					+			+			+		TELLFERR
Tellimya tenella																											TELLTENE
Tellina fabula	+	+	+	+	+		+	+	+		+			+													TELLFABU
Tellina pygmea																				+						+	TELLPYGM
Tellina tenuis															+												TELLTENU
Terebellidae spec.																											TERESPEC

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(+ = presence)

											Offshore area															
	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	
Species name																											**Code**
Terebellides stroemi																											TERESTRO
Tharyx killariensis																											THARKILL
Thelepus cincinnatus																											THELCINC
Thia scutellata												+	+													+	THIASCUT
Thracia convexa																											THRACONV
Thracia papyracea	+	+		+	+						+																THRAPAPY
Thyasira flexuosa																											THYAFLEX
Tornus subcarinatus																											TORNSUBC
Turbellaria spec.																											TURBELLA
Turritella communis																											TURRCOMM
Upogebia deltaura																											UPOGDELT
Upogebia deltaura juv.																											UPOGJUVE
Upogebia stellata																											UPOGSTEL
Urothoe brevicornis		+				+		+		+	+			+		+	+		+			+	+				UROTBREV
Urothoe poseidonis	+	+	+			+		+	+	+	+	+	+	+	+	+	+	+	+	+		+	+				UROTPOSE
Venerupis senegalensis																											VENESENE
Westwoodilla caecula																											WESTCAEC

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(+ = presence)

	Offshore area										Coastal area															
	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Coa	Coa	Coa	Coa	Coa	Coa	Coa	Coa	Coa	Coa	Coa	Coa	Coa	Coa	Coa	
	27	28	29	30	31	32	33	34	35	36	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
Species name																										**Code**
Abra alba											+					+								+	+	ABRAALBA
Abra nitida																										ABRANITI
Abra prismatica																										ABRAPRIS
Acrocnida brachiata				+																						ACROBRAC
Altenaeum dawsoni																										ALTENDAW
Alvania lactea							+																			ALVALACT
Ampelisca brevicornis																										AMPEBREV
Ampelisca tenuicornis																										AMPETENU
Ampharete spec.juv.																										AMPHSPEC
Amphipoda indet.																										AMPHINDE
Amphiura chiajei							+																			AMPHCHIA
Amphiura filiformis																										AMPHFILI
Anthozoa spec.							+																			ANTHOZOA
Aonides paucibranchiata			+																							AONIPAUC
Aphelochaeta marioni																										APHEMARI
Aphrodite aculeata																										APHRACUL
Aplacophora																										APLACOPH
Argissa hamatipes																										ARGISHAMA
Aricidea minuta						+		+	+	+																ARICMINU
Asteroidea indet.																										ASTEINDE
Astropecten irregularis																										ASTRIRRE
Atylus swammerdami		+													+											ATYLSWAM
Bathyporeia elegans	+		+	+	+		+	+	+		+	+					+		+			+				BATHELEG
Bathyporeia guilliamsoniana			+	+	+		+	+	+		+	+	+						+							BATHGUIL
Bivalve indet.																										BIVAINDE
Branchiostoma lanceolatum																										BRANLANC
Brissopsis lyrifera																										BRISLYRI
Callianassa subterranea																										CALLSUBT
Callianassa subterranea juv.																										CALLJUVE
Callianassa tyrrhena	+					+	+												+							CALLTYRR
Callianassa spec. juv.																										CALLSPEC
Capitella capitata											+		+			+		+						+		CAPICAPI
Caprellidae spec.		+																								CAPRELLI
Chaetopterus variopedatus																										CHAEVARI
Chaetozone setosa					+						+								+	+						CHAESETO
Charnelea striatula			+																							CHAMSTRI
Chone duneri																										CHONDUNE
Chone infundibuliformis																										CHONINFU
Corbula gibba																										CORBGIBB
Corophium affine																										COROAFFI
Corystes cassivelaunus																										CORYCASS
Crangon crangon juv.													+							+						CRANCRAN
Cucumaria elongata																										CUCUELON
Cylichna cylindracea																										CYLICYLI
Devonia perrieri																										DEVOPERR
Diastylis bradyi																										DIASBRAD
Diplocirrus glaucus																										DIPLGLAU
Donax vittatus					+	+		+		+	+			+												DONAVITT
Dosinia lupinus																										DOSILUPI
Ebalia cranchii																										EBALCRAN
Ebalia tumefacta																										EBALTUME

Appendix-1 Biomonitoring 2004
(+ = presence)

	Offshore area										Coastal area															
	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Coa	Coa	Coa	Coa	Coa	Coa	Coa	Coa	Coa	Coa	Coa	Coa	Coa	Coa	Coa	
	27	28	29	30	31	32	33	34	35	36	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
Species name																										**Code**
Ebalia spec.juv.																										EBALSPEC
Echinocardium cordatum	+		+	+			+	+					+			+			+	+						ECHICORD
Echinocyamus pusillus				+																						ECHIPUSI
Echiurus echiurus																										ECHIECHI
Edwardsia claparedii																										EDWACLAP
Ensis americanus												+	+	+	+	+		+		+	+	+		+	+	ENSIAMER
Ensis arcuatus																	+									ENSIARCU
Ensis ensis						+																				ENSIENSI
Ensis phaxoides																										ENSIPHAX
Ensis siliqua			+																							ENSISILI
Eteone barbata																										ETEOBARB
Eteone flava																										ETEOFLAV
Eteone foliosa								+																		ETEOFOLI
Eteone longa				+		+													+			+				ETEOLONG
Euclymene droebachiensis																										EUCLDROE
Eudorella emarginata																										EUDOEMAR
Eudorella truncatula																										EUDOTRUN
Eudorellopsis deformis																										EUDODEFO
Eumida sanguinea										+														+		EUMISANG
Euspira nitida	+		+	+	+	+	+		+	+									+			+				EUSPNITI
Euzonus flabelligerus		+																								EUZOFLAB
Exogone hebes							+																			EXOGHEBE
Gari fervensis																										GARIFERV
Gattyana cirrosa																										GATTCIRR
Glycera lapidum																										GLYCLAPI
Glycera rouxi																										GLYCROUX
Glycera spec. juv.		+																								GLYCSPEC
Glycinde nordmanni																										GLYCNORD
Golfingia elongata																										GOLFELON
Golfingia vulgaris																										GOLFVULG
Golfingia spec.																										GOLFSPEC
Goniada maculata			+					+																		GONIMACU
Goodallia triangularis		+	+																							GOODTRIA
Gyptis capensis																										GYPTCAPE
Harmothoe ljungmani																										HARMLJUN
Harmothoe spec. juv.							+											+	+					+		HARMSPEC
Harpinia antennaria																										HARPANTE
Hesionura elongata																										HESIELON
Heteromastus filiformis							+																			HETEFILI
Hippomedon denticulatus																										HIPPDENT
Hyala vitrea																										HYALVITR
Hyperiidae spec.																										HYPERIID
Ione thoracica																										IONETHOR
Iphinoe trispinosa																										IPHITRIS
Labidoplax buski																										LABIBUSK
Lagisca extenuata																										LAGIEXTE
Lanice conchilega				+										+				+						+	+	LANICONC
Lepton squamosum																										LEPTSQUA
Leptognathia spec.																										LEPTSPEC
Leptosynapta inhaerens																										LEPTINHA
Leucothoe incisa	+																	+		+						LEUCINCI

Appendix-1 Biomonitoring 2004
(+ = presence)

	Offshore area										Coastal area															
	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Coa	Coa	Coa	Coa	Coa	Coa	Coa	Coa	Coa	Coa	Coa	Coa	Coa	Coa	Coa	
	27	28	29	30	31	32	33	34	35	36	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
Species name																										**Code**
Liocarcinus marmoreus																									+	LIOCMARM
Liocarcinus spec. juv.																										LIOCSPEC
Lucinoma borealis																										LUCIBORE
Lumbrineris fragilis																										LUMBFRAG
Lumbrineris latreilli																										LUMBLATR
Lumbrineris spec. juv.																										LUMBSPEC
Lysilla loveni																										LYSILOVE
Macoma balthica												+		+		+	+									MACOBALT
Mactra corallina																										MACTCORA
Magelona alleni																										MAGEALLE
Magelona johnstoni	+			+	+									+		+	+	+		+					+	MAGEJOHN
Magelona mirabilis		+		+				+		+	+	+				+	+								+	MAGEMIRA
Malacoceros vulgaris											+															MALAVULG
Maldanidae spec. juv.																										MALDSPEC
Malmgreniella lunulata				+									+							+					+	MALMLUNU
Mediomastus fragilis																										MEDIFRAG
Megaluropus agilis		+		+																						MEGAAGIL
Microprotopus maculatus																										MICRMACU
Mya truncata																										MYATRUNC
Mya truncata juv.																										MYATRUN
Myriochele oculata																										MYRIOCUL
Mysella bidentata											+		+	+		+		+	+	+	+			+	+	MYSEBIDE
Mysia undata																										MYSIUNDA
Nebalia bipes																										NEBABIPE
Nematoda					+																					NEMATODA
Nemertini	+		+	+	+	+	+												+						+	NEMERTIN
Nephrops norvegicus																										NEPHNORV
Nephtys assimilis														+												NEPHASSI
Nephtys caeca											+					+										NEPHCAEC
Nephtys cirrosa	+	+	+		+	+	+	+	+	+			+		+		+	+		+	+	+	+	+	+	NEPHCIRR
Nephtys hombergii				+			+				+		+	+	+	+					+			+	+	NEPHHOMB
Nephtys incisa																										NEPHINCI
Nephtys longosetosa	+																									NEPHLONG
Nephtys spec. juv.	+				+				+		+								+	+						NEPHSPEC
Nereis diversicolor																			+							NEREDIVE
Nereis longissima														+						+				+	+	NERELONG
Notomastus latericeus													+						+		+			+	+	NOTOLATE
Nucula nitidosa																										NUCUNITI
Oligochaeta							+						+													OLIGOCHA
Ophelia limacina	+			+						+																OPHELIMA
Ophelina acuminata																										OPHEACUM
Ophiodromus flexuosus																										OPHIFLEX
Ophiura albida	+	+			+																			+		OPHIALBI
Ophiura texturata																										OPHITEXT
Ophiura spec. juv.				+																						OPHISPEC
Orchomene nana																										ORCHNANA
Orchomene spec. juv.																										ORCHSPEC
Owenia fusiformis													+												+	OWENFUSI
Pagurus bernhardus																										PAGUBERN
Paraonis fulgens							+			+																PARAFULG

Appendix-1 Biomonitoring 2004
(+ = presence)

	Offshore area										Coastal area															
	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Coa	Coa	Coa	Coa	Coa	Coa	Coa	Coa	Coa	Coa	Coa	Coa	Coa	Coa	Coa	
	27	28	29	30	31	32	33	34	35	36	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
Species name																										**Code**
Peachia cylindrica				+																						PEACCYLI
Pectinaria auricoma																										PECTAURI
Pectinaria koreni																										PECTKORE
Perioculodes longimanus													+													PERILONG
Phaxas pellucidus																										PHAXPELL
Pholoe minuta																										PHOLMINU
Phoronida	+				+		+	+	+				+						+							PHORONID
Phyllodoce groenlandica																										PHYLGROE
Phyllodoce maculata																										PHYLMACU
Phyllodoce rosea																			+					+		PHYLROSE
Phyllodoce spec. juv.																										PHYLSPEC
Phyllodocidae indet.																										PHYLINDE
Poecilochaetus serpens	+																		+							POECSERP
Polychaeta indet.																				+						POLYINDE
Polydora ciliata																										POLYCILI
Polynoe kinbergi																										POLYKINB
Polyplacophora							+																			POLYPLAC
Pontocrates altamarinus												+														PONTALTA
Pontophilus bispinosus																										PONTBISP
Prionospio cirrifera																										PRIOCIRR
Prionospio steenstrupi																										PRIOSTEE
Processa edulis crassipes																										PROCEDUL
Processa nouveli holthuisi			+																							PROCNOHO
Processa parva							+																			PROCPARV
Pseudocuma longicornis		+					+	+	+	+	+															PSEULONG
Saxicavella jeffreysi																										SAXIJEFF
Scalibregma inflatum																										SCALINFL
Scolelepis bonnieri	+								+								+				+	+	+		SCOLBONN
Scoloplos armiger	+		+	+	+	+	+	+			+							+	+			+		+		SCOLARMI
Scopelocheirus hopei																										SCOPHOPE
Semierycina nitida																										SEMINITI
Sigalion mathildae				+																						SIGAMATH
Siphonoecetus kroyeranus																										SIPHKROY
Sphaerodorum flavum																										SPHAFLAV
Spio filicornis	+								+				+	+	+	+										SPIOFILI
Spiophanes bombyx	+		+	+	+	+		+	+		+		+			+		+	+	+		+		+	+	SPIOBOMB
Spiophanes kroeyeri																										SPIOKROE
Spisula subtruncata											+		+			+		+	+	+	+			+		SPISSUBT
Spisula spec. juv.																										SPISSPEC
Stenula rubrovittata																										STENURUBR
Sthenelais limicola																										STHELIMI
Streptosyllis websteri		+																								STREWEBS
Striarca lactea							+																			STRILACT
Syllidae spec.										+																SYLLIDAE
Synchelidium maculatum					+			+									+	+								SYNCMACU
Synelmis klatti																										SYNEKLAT
Tellimya ferruginosa			+	+				+					+			+			+	+	+	+				TELLFERR
Tellimya tenella																										TELLTENE
Tellina fabula				+							+		+	+	+	+			+					+	+	TELLFABU
Tellina pygmea		+	+							+																TELLPYGM
Tellina tenuis											+							+		+				+		TELLTENU
Terebellidae spec.																										TERESPEC

Appendix-1 Biomonitoring 2004
(+ = presence)

	Offshore area										Coastal area															
	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Coa	Coa	Coa	Coa	Coa	Coa	Coa	Coa	Coa	Coa	Coa	Coa	Coa	Coa	Coa	
	27	28	29	30	31	32	33	34	35	36	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
Species name																										**Code**
Terebellides stroemi																										TERESTRO
Tharyx killariensis																										THARKILL
Thelepus cincinnatus		+																								THELCINC
Thia scutellata			+					+																		THIASCUT
Thracia convexa																										THRACONV
Thracia papyracea			+																							THRAPAPY
Thyasira flexuosa																										THYAFLEX
Tornus subcarinatus	+						+																			TORNSUBC
Turbellaria spec.																										TURBELLA
Turritella communis																										TURRCOMM
Upogebia deltaura																										UPOGDELT
Upogebia deltaura juv.																										UPOGJUVE
Upogebia stellata																										UPOGSTEL
Urothoe brevicornis				+			+	+			+	+	+	+	+	+		+	+	+	+			+	+	UROTBREV
Urothoe poseidonis	+		+	+	+	+	+	+	+		+	+	+	+	+	+		+	+	+	+	+		+	+	UROTPOSE
Venerupis senegalensis																								+		VENESENE
Westwoodilla caecula																										WESTCAEC

station	DOG 01		DOG 02		DOG 03		DOG 04		DOG 05	
Crustacea	n	b	n	b	n	b	n	b	n	b
atylswam			25.7	0.008	12.8	0.004			25.7	0.008
batheleg	667.2	0.200	269.4	0.081	192.5	0.058	102.6	0.031	64.2	0.019
bathguil	218.1	0.065	77.0	0.023	64.2	0.019	12.8	0.004	38.5	0.012
diasbrad			25.7	0.008			25.7	0.008		
ebalcran					12.8	0.129				
ebaltume	12.8	0.627								
hyperiid	12.8	0.004	25.7	0.008						
megaagil							12.8	0.004	12.8	0.004
perilong	25.7	0.008					12.8	0.004	12.8	0.004
pontbisp									12.8	0.004
siphkroy					12.8	0.004				
syncmacu					12.8	0.004				
urotbrev	12.8	0.004	25.7	0.008	25.7	0.008	25.7	0.008		
urotpose	38.5	0.012	243.8	0.073	77.0	0.023	115.5	0.035		
Echinodermata										
acrobrac	25.7	0.135	25.7	1.512	243.8	2.752	64.2	1.591	115.5	8.083
amphchia	141.1	0.447	38.5	0.006	25.7	0.011			128.3	0.012
asteinde							12.8	0.018		
echicord			12.8	9.737	12.8	5.649	12.8	11.588	12.8	8.411
echipusi	12.8	0.001	12.8	0.002					12.8	0.001
Mollusca										
cylicyli					12.8	0.002				
dosilupi	179.6	0.094	12.8	0.024	12.8	0.047	12.8	0.004		
ensiensi	12.8	2.388	12.8	2.108	12.8	2.754	12.8	2.447		
euspniti	141.1	0.183	38.5	0.018	51.3	0.036	25.7	0.025	12.8	0.004
gariferv			12.8	0.003	25.7	5.401	25.7	0.223		
lucibore					12.8	0.902				
mactcora			12.8	3.041			77.0	0.012	12.8	0.003
mysebide	128.3	0.009	77.0	0.010	346.4	0.034	128.3	0.016	590.2	0.066
nucuniti			12.8	0.233					12.8	0.064
tellfabu	77.0	0.294	102.6	0.505	256.6	0.056	89.8	0.051	77.0	0.144
tellferr			38.5	0.015	12.8	0.002	38.5	0.053	25.7	0.005
thrapapy	38.5	0.014			12.8	0.076			12.8	0.015
Polychaeta										
chaeseto			25.7	0.010			12.8	0.003	12.8	0.007
diplglau									12.8	0.007
eteolong									12.8	0.007
gonimacu	64.2	0.141	51.3	0.076	38.5	0.127	12.8	0.051		
gyptcape	51.3	0.112	12.8	0.020	12.8	0.005	12.8	0.003		
laniconc			12.8	0.300						
magejohn	51.3	0.105					89.8	0.178	51.3	0.027
magemira			89.8	0.036	64.2	0.025			141.1	0.075
malmlunu	12.8	0.012			12.8	0.005	12.8	0.003	38.5	0.020
nephassi									25.7	0.970
nephcirr	115.5	0.240			51.3	0.273	102.6	0.108	25.7	0.014
nephhomb			12.8	0.080						
notolate	25.7	1.016					12.8	0.225		
ophelima	64.2	0.076					12.8	0.003		
owenfusi	12.8	0.012			25.7	0.108				
pholminu					38.5	0.015			25.7	0.014
poecserp							12.8	0.003		
sigamath					51.3	0.200	77.0	0.896	12.8	0.303
spiobomb			64.2	0.132	51.3	0.020	51.3	0.428	128.3	0.068
spiofili			51.3	0.020	12.8	0.005	51.3	0.014	51.3	0.027
sthelimi			25.7	0.213	12.8	0.075				
Miscellaneous taxa										
edwaclap					12.8	0.116				
nemertin							12.8	0.028	12.8	0.034
phoronid							102.6	0.027	12.8	0.003
sum	2142.6	6.199	1449.8	18.311	1834.7	18.945	1385.6	18.093	1744.9	18.433

nspc	24.0		29.0		33.0		32.0		30.0	
SH-W	2.5		2.9		2.8		3.1		2.6	
Simp	0.1		0.1		0.1		0.0		0.1	

station	**DOG 06**		**DOG 07**		**OYS 01**		**OYS 02**		**OYS 03**	
Crustacea	n	b	n	b	n	b	n	b	n	b
ampebrev					12.8	0.004			12.8	0.004
ampetenu					25.7	0.008			12.8	0.004
amphinde					12.8	0.004				
batheleg	320.8	0.096	692.8	0.208						
bathguil	77.0	0.023	77.0	0.023						
calljuve					38.5	0.119	77.0	0.241	25.7	0.198
callsubt					38.5	3.162	89.8	3.187	38.5	5.627
coroaffi									12.8	0.004
ebalcran			12.8	0.019						
harpante					12.8	0.004	64.2	0.019	64.2	0.019
ionethor					38.5	0.052	12.8	0.013		
iphitris	12.8	0.004								
liocspec	12.8	0.150								
megaagil	25.7	0.008	38.5	0.012						
perilong	25.7	0.008	12.8	0.004	38.5	0.012				
pseulong			12.8	0.004						
urotpose	51.3	0.015	12.8	0.004						
westcaec									12.8	0.004
Echinodermata										
acrobrac	77.0	1.960	25.7	0.194						
amphchia	12.8	0.003	115.5	0.027						
amphfili							1590.9	7.600	3387.1	9.038
echicord							25.7	5.888	25.7	7.095
echipusi			115.5	0.018						
Mollusca										
abraalba							38.5	0.405		
abrapris			12.8	0.127						
corbgibb			12.8	0.002	51.3	0.042	51.3	0.129		
cylicyli					179.6	0.063	38.5	0.033	102.6	0.044
dosilupi									25.7	1.868
euspniti	25.7	0.029	64.2	0.056			38.5	0.013		
gariferv			25.7	0.026						
hyalvitr					77.0	0.077	25.7	0.026		
mactcora			25.7	0.018						
mysebide	154.0	0.017	25.7	0.003	538.9	0.039	1039.2	0.121	128.3	0.013
mysiunda			12.8	0.003						
nucuniti					12.8	0.002	384.9	0.929		
phaxpell									12.8	0.014
saxijeff									25.7	0.007
tellfabu	51.3	0.124	141.1	0.003						
tellferr	38.5	0.007					25.7	0.036		
telltene									12.8	0.028
thrapapy	12.8	0.001			12.8	0.000				
thyaflex					25.7	0.002				
aplacoph									12.8	0.139
Polychaeta										
aonipauc			12.8	0.007						
aphracul					12.8	10.300				
chaeseto			12.8	0.007	51.3	0.014			25.7	0.010
chaevari							12.8	6.620		
chondune							12.8	0.005		
diplglau							12.8	0.005	51.3	0.020

eucidroe			64.2	0.562						
gattcirr							12.8	0.049		
glycnord					12.8	0.064				
gonimacu	25.7	0.047	38.5	0.076	12.8	0.003	25.7	0.098		
gyptcape			25.7	0.014			51.3	0.196		
lysilove									25.7	0.190
magejohn	64.2	0.059	12.8	0.007			51.3	0.020		
magemira	38.5	0.036	154.0	0.081						
maldspec			25.7	0.014						
malmlunu	25.7	0.017								
medifrag					12.8	0.003				
nephcaec							12.8	0.093		
nephcirr	38.5	0.097	115.5	0.061					12.8	0.025
nephhomb	25.7	0.063	12.8	1.246	77.0	0.208			51.3	0.349
nephspec									38.5	0.015
nerelong							12.8	0.410	12.8	0.147
notolate			12.8	0.698			12.8	0.049		
opheacum									12.8	0.135
ophiflex					12.8	0.032	25.7	0.098		
owenfusi	128.3	0.445	38.5	0.125	12.8	0.003	25.7	0.098	38.5	0.015
parafulg									12.8	0.005
pholminu					77.0	0.020	38.5	0.015	141.1	0.056
poecserp							12.8	0.005		
polykinb									12.8	0.005
scolarmi					12.8	0.003			12.8	0.005
sigamath	12.8	0.506	25.7	0.362						
spiobomb	38.5	0.202	12.8	0.007	12.8	0.003	230.9	0.091		
spiofili					64.2	0.017				
syneklat					12.8	0.003			12.8	0.005
Miscellaneous taxa										
anthozoa					12.8	0.663			12.8	0.858
edwaclap					12.8	0.065				
turbella					12.8	0.039				
nemertin									12.8	0.200
echiechi									12.8	0.337
phoronid			12.8	0.005	141.1	0.061	680.0	0.269	12.8	0.007
sum	1295.8	3.916	2014.3	4.022	1680.7	15.094	4734.3	26.765	4426.4	26.492
nspc	23.0		33.0		32.0		30.0		34.0	
SH-W	2.7		2.7		2.7		2.1		1.3	
Simp	0.1		0.1		0.1		0.2		0.6	

station	**OYS 04**		**OYS 05**		**OYS 06**		**OYS 07**		**OYS 08**	
Crustacea	n	b	n	b	n	b	n	b	n	b
ampetenu			12.8	0.004						
batheleg					51.3	0.015				
calljuve			102.6	0.133					115.5	0.398
callsubt			89.8	6.389	12.8	1.286			102.6	7.710
ebaltume					38.5	0.027				
eudoemar							12.8	0.004		
harpante					51.3	0.015				
ionethor			25.7	0.038						
leucinci									25.7	0.008
orchnana	89.8	0.027								
pseulong	51.3	0.015								
stenrubr	12.8	0.004								
upogdelt									12.8	12.221
upogjuve									12.8	0.046
Echinodermata										

acrobrac	25.7	1.612								
amphchia	25.7	0.001								
amphfili			295.1	1.658	3797.7	16.241	2514.7	4.015	89.8	0.181
astrirre							12.8	2.457		
echicord	12.8	0.283			12.8	11.200	51.3	2.871	25.7	4.921
leptinha			12.8	1.245			38.5	0.076		
ophialbi									77.0	1.388
Mollusca										
abraalba			25.7	0.597			38.5	0.004	51.3	0.002
abraniti					12.8	0.003				
abrapris					12.8	0.178				
chamstri			12.8	3.076						
corbgibb			538.9	1.714			12.8	0.096	12.8	0.004
cylicyli					77.0	0.020	38.5	0.016		
euspniti	12.8	0.085							51.3	0.202
hyalvitr			744.1	0.744						
leptsqua									25.7	0.106
lucibore	12.8	0.370								
myatrun									12.8	0.000
mysebide	12.8	0.003	372.1	0.055	474.7	0.079	77.0	0.004		
mysiunda					12.8	0.236				
nucuniti	12.8	0.046	115.5	0.121	89.8	0.054	38.5	0.025	12.8	0.075
tellfabu	38.5	0.038								
tellferr									25.7	0.032
thrapapy	12.8	0.003								
thyaflex	295.1	0.532			25.7	0.010				
turrcomm							25.7	2.624		
Polychaeta										
amphspec			12.8	0.007						
chaeseto	25.7	0.044								
chaevari							25.7	1.013		
diplglau	12.8	0.022			12.8	0.007	89.8	0.166		
eumisang	25.7	0.135								
gattcirr							25.7	0.483		
glycspec			12.8	0.010					12.8	0.010
gonimacu	51.3	0.127								
gyptcape	51.3	0.088	25.7	0.020					38.5	0.030
harmspec	12.8	0.022								
laniconc	12.8	0.022	12.8	0.278	25.7	2.876				
lumblatr									25.7	0.020
magealle	12.8	0.178								
magejohn	89.8	0.032	25.7	0.020						
magemira	808.3	0.193	64.2	0.051	51.3	0.027				
malmlunu			12.8	0.010	12.8	0.007				
medifrag									89.8	0.071
myriocul			12.8	0.010			12.8	0.024		
nephcaec	12.8	3.316			12.8	0.044				
nephhomb	12.8	0.774			25.7	0.322	64.2	0.572		
nephinci			25.7	0.435						
nephspec	12.8	0.022					12.8	0.024		
nerelong	12.8	0.342								
notolate	38.5	5.047	12.8	0.777						
opheacum					25.7	0.173				
ophiflex			12.8	0.042			12.8	0.024	12.8	0.010
owenfusi							25.7	0.047		
parafulg							25.7	0.003		
pectauri							25.7	0.125		
pectkore							12.8	0.002		
pholminu	25.7	0.044	38.5	0.030	192.5	0.102	51.3	0.007		

phylmacu	25.7	0.044								
phylspec									12.8	0.010
poecserp			25.7	0.020					38.5	0.030
polycili									77.0	0.061
priocirr			12.8	0.010						
scolarmi	89.8	0.154			38.5	0.020				
sigamath	38.5	0.163								
spiobomb	89.8	0.154	12.8	0.010	77.0	0.041			38.5	0.030
spiokroe			38.5	0.030						
spiofili	12.8	0.022			25.7	0.014	12.8	0.002		
sthelimi	51.3	0.141					12.8	0.024		
syneklat					12.8	0.007				
terestro							12.8	0.024		
Miscellaneous taxa										
turbella							12.8	0.002		
nemertin	12.8	0.040							25.7	0.480
oligocha									25.7	0.020
phoronid	115.5	0.068	282.3	0.149	64.2	0.034	12.8	0.007	2424.9	0.960
branlanc							12.8	0.040		
sum	2270.9	14.212	2989.4	17.685	5247.5	33.034	3323.0	14.779	3476.9	29.029
nspc	37.0		29.0		26.0		29.0		27.0	
SH-W	2.6		2.4		1.3		1.3		1.5	
Simp	0.2		0.1		0.5		0.6		0.5	

station	**OYS 09**		**OYS 10**		**OYS 11**		**OYS 12**		**OYS 13**	
Crustacea	n	b	n	b	n	b	n	b	n	b
ampetenu			25.7	0.008			12.8	0.004		
amphinde					12.8	0.004				
batheleg	12.8	0.004	64.2	0.019						
calljuve	141.1	0.423	12.8	0.004	89.8	0.254	89.8	0.210	12.8	0.006
callsubt	128.3	6.366	25.7	1.719	128.3	9.367	25.7	2.205	25.7	1.008
corycass	12.8	7.708								
eudodefo	12.8	0.004								
eudotrun			12.8	0.004						
harpante	25.7	0.008	77.0	0.023	12.8	0.004	12.8	0.004	25.7	0.008
ionethor			38.5	0.062			25.7	0.004		
orchnana	38.5	0.012							12.8	0.004
procnoho			25.7	0.352						
syncmacu	12.8	0.004								
upogdelt					38.5	31.729	12.8	10.483		
upogjuve					12.8	0.131	25.7	0.181		
upogstei							12.8	1.928		
urotbrev	64.2	0.019								
urotpose	154.0	0.046								
westcaec			12.8	0.004						
Echinodermata										
amphfili	51.3	0.079	2335.1	10.822	269.4	2.824	102.6	0.553	1154.7	6.355
echicord							12.8	0.557	12.8	2.639
echipusi	25.7	0.007								
ophialbi					38.5	0.241				
Mollusca										
abraalba	38.5	0.001			12.8	0.000	38.5	0.048		
altendaw							51.3	0.004		
chamstri							12.8	0.004		
corbgibb	230.9	0.042							25.7	0.007
cylicyli	64.2	0.015	77.0	0.037			12.8	0.023	64.2	0.048
dosilupi							12.8	2.320		
euspniti	89.8	0.044			12.8	0.015	12.8	0.004		

hyalvitr					12.8	0.013	25.7	0.026		
leptsqua					25.7	0.030				
myatrun									12.8	0.004
mysebide	51.3	0.007	154.0	0.023	102.6	0.010	77.0	0.003	551.7	0.100
mysiunda									12.8	0.003
nucuniti	205.3	0.270	154.0	0.155	38.5	0.156	64.2	0.108	38.5	0.029
phaxpell			12.8	0.014					12.8	0.019
saxijeff			12.8	0.004						
spisspec	12.8	0.003								
tellfabu	51.3	0.005								
tellferr	51.3	0.026							12.8	0.006
thraconv			12.8	0.009						
thrapapy	25.7	0.007								
thyaflex			12.8	0.006					12.8	0.001
bivainde							38.5	0.001		
Polychaeta										
aphemari							12.8	0.008		
chaeseto	25.7	0.014	102.6	0.054					38.5	0.041
chaevari							25.7	20.572		
diplglau			25.7	0.014			12.8	0.003	89.8	0.344
gattcirr							25.7	0.992		
glycnord	25.7	0.069					12.8	0.130		
gonimacu	38.5	0.020			12.8	0.005	12.8	0.003	51.3	0.054
gyptcape					12.8	0.005	12.8	0.029		
lumblatr					25.7	0.010				
magealle									12.8	0.088
magejohn	64.2	0.051	12.8	0.007					12.8	0.003
magemira			12.8	0.007					77.0	0.020
medifrag					51.3	0.020	38.5	0.010		
myriocul	38.5	0.020								
nephcaec					12.8	0.024	12.8	0.696		
nephhomb			12.8	0.303	12.8	0.024	38.5	0.278		
notolate					12.8	0.688	12.8	0.029		
ophelima			12.8	0.129						
ophiflex	25.7	0.124			12.8	0.059	12.8	0.029	38.5	0.169
owenfusi					25.7	0.081			12.8	0.003
parafulg	12.8	0.007					51.3	0.014		
pectauri	51.3	0.027							12.8	0.003
pectkore			12.8	0.239					12.8	0.003
pholminu			141.1	0.075			25.7	0.007	51.3	0.014
phyimacu			25.7	0.014						
phyirose	12.8	0.007							12.8	0.003
poecserp									12.8	0.014
polycili					51.3	0.020	12.8	0.003		
scolarmi			64.2	0.034					51.3	0.054
sigamath	25.7	0.428								
spiobomb	154.0	0.081			12.8	0.007			115.5	0.030
spiokroe			25.7	0.014	12.8	0.005				
spiofili	12.8	0.000					25.7	0.007	12.8	0.003
sthelimi	12.8	0.007							12.8	0.081
syneklat	12.8	0.007	25.7	0.014					12.8	0.003
Miscellaneous taxa										
anthozoa							12.8	0.006		
edwaclap									12.8	0.056
turbella			12.8	0.110						
nemertin	25.7	0.071	25.7	3.043	25.7	2.309			12.8	0.056
golfspec							12.8	0.005		
golfvulg							128.3	2.386		
echiechi			12.8	0.059						

phoronid	654.3	0.345	128.3	0.068	1886.0	1.673	141.1	0.075	51.3	0.027
branlanc			12.8	0.008						
sum	2694.3	16.377	3733.5	17.452	2976.6	49.707	1321.5	43.952	2707.1	11.309
nspc	38.0		34.0		28.0		40.0		36.0	
SH-W	3.0		1.8		1.7		3.3		2.2	
Simp	0.1		0.4		0.4		0.0		0.2	

station	**OYS 14**		**OYS 15**		**OYS 16**		**OYS 17**		**OYS 18**	
Crustacea	n	b	n	b	n	b	n	b	n	b
ampetenu	12.8	0.004			38.5	0.012				
batheleg							25.7	0.008	12.8	0.004
calljuve	115.5	0.164	51.3	0.085	64.2	0.216	77.0	0.083		
callsubt	64.2	6.747	64.2	6.872	12.8	2.779	12.8	1.280	51.3	1.001
corycass					12.8	2.217	12.8	1.969		
diasbrad			25.7	0.008						
eudodefo							25.7	0.008		
eudotrun	38.5	0.012			12.8	0.004				
harpante					38.5	0.012	77.0	0.023		
ionethor	38.5	0.054	25.7	0.015	25.7	0.006				
nephnorv			12.8	57.689						
procnoho					64.2	1.721				
upogdelt			12.8	7.269						
upogstel					12.8	1.199				
westcaec			12.8	0.004						
Echinodermata										
amphfili	526.0	5.259	744.1	6.870	641.5	3.741	89.8	0.521	243.8	0.995
brislyri			12.8	0.903						
echicord			25.7	6.143					38.5	11.907
echipusi							25.7	0.003		
Mollusca										
abraalba					12.8	0.010	38.5	0.041	25.7	0.202
chamstri					12.8	0.001				
corbgibb	256.6	0.105	230.9	0.093	282.3	0.055	141.1	0.044	641.5	0.312
cylicyli					25.7	0.003	38.5	0.003	64.2	0.054
ensiensi							12.8	9.493		
euspniti					12.8	0.004			12.8	0.085
hyalvitr			25.7	0.026					12.8	0.013
myatrun					12.8	0.000				
mysebide	410.6	0.026	218.1	0.027	423.4	0.032	51.3	0.005	269.4	0.038
mysiunda	12.8	0.004								
nucuniti					102.6	0.099	25.7	0.068	38.5	0.137
phaxpell					12.8	0.073	12.8	0.513		
tellfabu									12.8	0.001
tellferr									205.3	0.151
teltene			51.3	0.009						
thrapapy									25.7	0.001
turrcomm									12.8	0.178
Polychaeta										
aphemari	12.8	0.002								
chaeseto			25.7	0.010			12.8	0.008	12.8	0.036
diplglau							12.8	0.008		
gonimacu					25.7	0.076	12.8	0.008	12.8	0.036
gyptcape					25.7	0.014			38.5	0.107
lagiexte			51.3	0.181						
lumblatr			12.8	0.044						
magealle							12.8	0.008	12.8	0.036
magejohn					25.7	0.014	282.3	0.186		
magemira					25.7	0.014	89.8	0.059		

medifrag	12.8	0.002							12.8	0.003
nephcaec									12.8	2.430
nephhomb	38.5	0.061	38.5	0.261	64.2	1.209			12.8	0.107
nerelong							12.8	0.008		
notolate			12.8	0.044	12.8	0.007				
ophiflex	38.5	0.061	38.5	0.152			12.8	0.076	25.7	0.071
parafulg	12.8	0.002								
pectauri			38.5	0.508			12.8	0.008		
pectkore			12.8	1.069						
pholminu	12.8	0.002			51.3	0.027			25.7	0.007
phylgroe									12.8	0.036
phylinde							12.8	0.008		
phylmacu			12.8	0.005	12.8	0.007				
poecserp	38.5	0.061					51.3	0.034	25.7	0.071
polycili			25.7	0.010						
polykinb			12.8	0.005						
scolarmi							12.8	0.008	12.8	0.003
spiobomb					25.7	0.014	115.5	0.076	25.7	0.071
spiofili	38.5	0.005	128.3	0.051	51.3	0.027			12.8	0.003
spiokroe			12.8	0.005						
sthelimi							12.8	0.085		
syneklat	12.8	0.002	25.7	0.010			25.7	0.017		
Miscellaneous taxa										
turbella			25.7	0.010						
nemertin							12.8	0.014	12.8	0.042
golfspec	12.8	0.005								
phoronid	295.1	0.156	102.6	0.054	526.0	0.278	166.8	0.088	474.7	0.188
sum	2001.5	12.732	2091.3	88.432	2668.6	13.868	1539.6	14.765	2412.0	18.325
nspc	20.0		30.0		30.0		32.0		31.0	
SH-W	2.2		2.5		2.5		2.9		2.4	
Simp	0.2		0.2		0.1		0.1		0.1	

station	**OYS 19**		**OYS 20**		**OYS 21**		**OYS 22**		**OYS 23**	
Crustacea	n	b	n	b	n	b	n	b	n	b
ampetenu	25.7	0.008							12.8	0.004
batheleg	12.8	0.004					12.8	0.004	38.5	0.012
bathguil									12.8	0.004
calljuve	25.7	0.023	102.6	0.450	384.9	0.845	38.5	0.722		
callsubt	25.7	0.768	89.8	3.787	192.5	14.617	51.3	6.840	12.8	1.184
corycass							12.8	5.183	12.8	1.099
diasbrad	12.8	0.004								
eudotrun	12.8	0.004	12.8	0.004					12.8	0.004
harpante	51.3	0.015	64.2	0.019	12.8	0.004	115.5	0.035	77.0	0.023
hippdent							12.8	0.004		
hyperiid			77.0	0.023			12.8	0.004		
ionethor			12.8	0.004	38.5	0.027			25.7	0.062
leucinci	12.8	0.004			12.8	0.004				
procnoho							12.8	0.947		
upogdelt					38.5	24.441				
upogjuve			12.8	0.042	64.2	0.441				
Echinodermata										
amphfili	1552.4	5.935	423.4	3.668	166.8	0.406	705.7	3.380	872.4	7.244
cucuelon					12.8	0.234				
echicord	12.8	1.880	12.8	0.315			12.8	8.100		
leptinha			12.8	2.271	12.8	0.957				
ophialbi			12.8	0.002	77.0	0.150				
Mollusca										
abraalba	25.7	0.047	77.0	0.004	12.8	0.000	38.5	0.048	25.7	0.002

chamstri							25.7	0.006		
corbgibb			64.2	0.032	64.2	0.020	256.6	0.053	12.8	0.002
cylicyli	128.3	0.030	12.8	0.009	38.5	0.048	64.2	0.059	25.7	0.016
devoperr			12.8	0.007	12.8	0.010				
dosilupi			12.8	0.001			25.7	0.002	25.7	1.609
euspniti			51.3	0.010	25.7	0.017				
hyalvitr	77.0	0.077	77.0	0.077						
mactcora			64.2	0.010						
mysebide	269.4	0.027	397.7	0.029			307.9	0.023	500.4	0.063
mysiunda							12.8	0.003		
nucuniti	38.5	0.034	12.8	0.002	77.0	0.136	154.0	0.175	89.8	0.091
phaxpell							12.8	0.273	25.7	0.033
seminiti							12.8	0.001		
tellfabu									12.8	0.139
thrapapy							12.8	0.000		
thyaflex	25.7	0.016					12.8	0.019	38.5	0.087
Polychaeta										
chaeseto	25.7	0.007					38.5	0.010	12.8	0.014
chaevari	12.8	3.910								
diplglau									102.6	0.108
gattcirr	12.8	1.362								
glycspec	12.8	0.024	12.8	0.012						
gonimacu	38.5	0.042			12.8	0.041	12.8	0.017	12.8	0.014
gyptcape			12.8	0.012	38.5	0.015			12.8	0.014
harmljun							12.8	0.003		
lumblatr			12.8	0.012	38.5	0.122	12.8	0.003		
lumbspec					12.8	0.005				
magealle	12.8	0.076	12.8	0.012			12.8	0.003		
magejohn							12.8	0.003		
magemira	25.7	0.007					64.2	0.017	192.5	0.051
malmiunu			12.8	0.012	12.8	0.190				
medifrag	25.7	0.007	12.8	0.012						
myriocul					372.1	0.147				
nephcaec					12.8	0.396				
nephhomb	38.5	0.218	25.7	0.163			25.7	0.559	12.8	0.059
nephspec	12.8	0.003			12.8	0.005			12.8	0.014
nereiong					25.7	0.645	12.8	0.003	12.8	0.014
notolate			25.7	1.517	12.8	0.041				
opheacum					12.8	0.041				
ophiflex					12.8	0.005			12.8	0.059
owenfusi	12.8	0.003	12.8	0.012						
pectauri			12.8	0.012						
pectkore			12.8	0.012						
pholminu	141.1	0.037					12.8	0.003	166.8	0.176
phylmacu							12.8	0.003		
poecserp			12.8	0.012	64.2	0.025				
polycili					230.9	0.091				
scolarmi	12.8	0.003					89.8	0.119	179.6	0.190
sigamath							25.7	0.034	25.7	0.315
sphaflav									12.8	0.003
spiobomb	25.7	0.027					12.8	0.003	77.0	0.020
spiofili	51.3	0.014			12.8	0.005	25.7	0.007	12.8	0.003
sthelimi							25.7	0.034		
syneklat	25.7	0.007	12.8	0.012			38.5	0.010		
terespec									12.8	0.003
terestro			12.8	0.012						
Miscellaneous taxa										
anthozoa							12.8	11.570		
edwaclap	25.7	0.124								

nemertin			12.8	0.121					12.8	0.017
turbella	12.8	0.007	12.8	0.007						
golfelon					38.5	0.413				
golfvulg	12.8	0.130								
phoronid	115.5	0.061	64.2	0.030	1026.4	0.406	128.3	0.059	38.5	0.015
branlanc	12.8	0.005								
sum	2976.6	14.952	1911.7	12.748	3194.7	44.951	2514.7	38.342	2758.5	12.766
nspc	37.0		38.0		34.0		41.0		36.0	
SH-W	2.2		2.8		2.5		2.8		2.5	
Simp	0.3		0.1		0.1		0.1		0.1	

station	**OYS 24**		**OYS 25**		**OYS 26**		**OYS 27**		**OYS 28**	
Crustacea	n	b	n	b	n	b	n	b	n	b
ampetenu			12.8	0.004						
argishama									12.8	0.004
batheleg	38.5	0.012					12.8	0.004	192.5	0.058
calljuve	89.8	0.931	25.7	0.012	192.5	0.319	38.5	0.012	218.1	0.192
callsubt	154.0	6.749	12.8	1.126	64.2	3.503	12.8	2.175	89.8	2.858
corycass							12.8	0.602		
diasbrad							12.8	0.004		
eudodefo									25.7	0.008
eudotrun	38.5	0.012								
harpante			12.8	0.004			25.7	0.008	25.7	0.008
ionethor	25.7	0.035	12.8	0.046	64.2	0.044			12.8	0.002
leucinci	25.7	0.008								
upogjuve					12.8	0.050				
urotpose							12.8	0.004		
Echinodermata										
amphfili	12.8	0.408	1360.0	3.334	115.5	1.556	218.1	0.562	12.8	0.004
echicord	51.3	13.628	12.8	1.994					12.8	11.986
echipusi									51.3	0.005
Mollusca										
abraalba	89.8	0.019							12.8	0.001
chamstri							12.8	0.001		
corbgibb			590.2	0.137	166.8	0.043	615.8	0.305	384.9	0.072
cylicyli							25.7	0.011	25.7	0.079
dosilupi									38.5	0.011
euspniti	38.5	0.015					12.8	0.015	12.8	0.004
hyalvitr					38.5	0.038				
mysebide			128.3	0.011	89.8	0.007	77.0	0.004	12.8	0.001
mysiunda							12.8	0.014		
nucuniti	12.8	0.019	12.8	0.002	25.7	0.078	25.7	0.011	38.5	0.075
phaxpell							12.8	0.304		
spissubt	12.8	0.020								
tellferr	12.8	0.009					12.8	0.028	64.2	0.052
thrapapy									64.2	0.016
aplacoph			12.8	0.029						
Polychaeta										
chaeseto			12.8	0.005						
diplglau							12.8	0.105	25.7	0.007
glycnord			12.8	0.030						
glycroux									12.8	3.001
gonimacu	12.8	0.012					64.2	0.310	12.8	0.003
gyptcape	25.7	0.058	12.8	0.030	12.8	0.005			12.8	0.003
harmspec									25.7	0.007
laniconc	12.8	0.977			12.8	0.779				
lumblatr	77.0	0.220			12.8	0.005				
magealle							12.8	0.024		

magejohn							218.1	0.086	38.5	0.010
magemira							115.5	0.046	25.7	0.007
malmlunu	12.8	0.059								
medifrag	25.7	0.024								
myriocul	12.8	0.012							25.7	0.007
nephcaec					12.8	0.339				
nephhomb			51.3	0.103			12.8	0.108		
nephinci			12.8	0.969						
nephspec					25.7	0.010	12.8	0.012		
notolate	12.8	0.029	12.8	0.005						
ophiflex					12.8	0.005	12.8	0.036		
pectauri			51.3	0.122			12.8	0.005	12.8	0.003
pectkore			12.8	0.030						
poecserp	12.8	0.012	12.8	0.005			12.8	0.012		
polycili					51.3	0.020				
priostee			12.8	0.005						
scolarmi									12.8	0.003
spiobomb	102.6	0.095	12.8	0.005			25.7	0.024	12.8	0.003
spiofili			38.5	0.015	25.7	0.010				
sthelimi			25.7	0.061					25.7	0.218
syneklat			38.5	0.015						
Miscellaneous taxa										
anthozoa			25.7	0.034						
edwaclap			12.8	0.051			12.8	1.753		
nemertin	12.8	0.011	12.8	0.951					12.8	0.062
golfvulg							12.8	0.008		
phoronid	1565.3	0.620	38.5	0.020	1616.6	0.640	141.1	0.056	218.1	0.091
branlanc			12.8	0.006						
sum	2489.0	23.992	2617.3	9.163	2553.2	7.452	1834.7	6.647	1783.4	18.863
nspc	25.0		30.0		18.0		31.0		33.0	
SH-W	1.7		1.8		1.5		2.5		2.8	
Simp	0.4		0.3		0.4		0.2		0.1	

station	**OYS 29**		**OYS 30**		**OYS 31**		**OYS 32**		**OYS 33**	
Crustacea	n	b	n	b	n	b	n	b	n	b
ampetenu	25.7	0.008					38.5	0.012	12.8	0.004
batheleg			12.8	0.004	12.8	0.004				
bathguli	12.8	0.004								
calljuve	38.5	0.033	243.8	0.396	205.3	0.616	51.3	0.038	38.5	0.058
callsubt			128.3	7.479	64.2	4.592	38.5	3.916	77.0	4.003
corycass					25.7	1.436			12.8	1.303
eudodefo									12.8	0.004
eudotrun					12.8	0.004	12.8	0.004		
harpante	12.8	0.004	25.7	0.008	12.8	0.004			51.3	0.015
ionethor									25.7	0.027
leucinci	12.8	0.004	12.8	0.004						
orchnana	38.5	0.012								
perilong	12.8	0.004			25.7	0.008				
upogdelt					25.7	7.303			12.8	8.570
Echinodermata										
amphfili	77.0	0.025	51.3	0.151	243.8	0.916	2027.1	6.497	2720.0	17.337
cucuelon									12.8	0.003
echicord			12.8	0.775	12.8	10.821			12.8	4.139
leptinha					12.8	1.118				
ophispec	12.8	0.000								
Mollusca										
abraalba	12.8	0.001	12.8	0.001	38.5	0.173	38.5	0.002		
abraniti							64.2	0.234		

chamstri					12.8	0.003				
corbgibb	12.8	0.002	38.5	0.009	744.1	0.150	346.4	2.038	51.3	0.203
cylicyli							12.8	0.004	25.7	0.018
dosilupi	12.8	0.038								
euspniti			12.8	0.015						
hyalvitr					12.8	0.013	38.5	0.038	12.8	0.013
mysebide	12.8	0.001	89.8	0.007	230.9	0.042	834.0	0.063	731.3	0.080
mysiunda	12.8	0.003			25.7	0.436				
nucuniti	128.3	0.334	154.0	0.133	243.8	0.233				
phaxpell	38.5	0.361								
spissubt			77.0	0.103			12.8	0.001		
tellferr					25.7	0.015			38.5	0.025
thrapapy	25.7	0.083								
thyaflex	346.4	0.448								
Polychaeta										
chaeseto							12.8	0.003	102.6	0.027
chaevari							25.7	1.274	12.8	4.449
diplglau	25.7	0.030							12.8	0.003
eumisang	25.7	0.030					12.8	0.027		
gattcirr									12.8	0.854
glycnord			25.7	0.014			12.8	0.125		
gonimacu	38.5	0.010	12.8	0.007	38.5	0.158				
gyptcape			51.3	0.027	51.3	0.020			12.8	0.003
laniconc	77.0	4.171								
lumblatr			102.6	0.163	12.8	0.593	77.0	0.163		
magejohn	38.5	0.010	12.8	0.007	25.7	0.010	51.3	0.014		
magemira	615.8	0.163	12.8	0.007	25.7	0.010	12.8	0.003		
malmiunu	12.8	0.041			12.8	0.053				
medifrag			38.5	0.020						
myriocul			51.3	0.027	12.8	0.005	12.8	0.003		
nephcaec			12.8	0.178						
nephcirr	38.5	0.046	25.7	0.014						
nephhomb	12.8	0.169	25.7	0.200	38.5	0.158	38.5	0.054	77.0	0.652
nephspec			25.7	0.014	12.8	0.005				
nerelong	12.8	0.149								
notolate	51.3	2.032							12.8	0.024
ophelima					12.8	0.053	12.8	0.027		
ophiflex					12.8	0.053	12.8	0.071	12.8	0.024
owenfusi	25.7	0.030								
pectauri									12.8	0.024
pholminu							38.5	0.010	25.7	0.007
poecserp							12.8	0.027		
polycili					64.2	0.025				
priocirr							12.8	0.003		
scolarmi	89.8	0.107								
sigamath	25.7	0.479								
spiobomb	128.3	0.034	179.6	0.095	77.0	0.030				
spiofili	12.8	0.003					38.5	0.010	192.5	0.061
sthelimi	25.7	0.030			12.8	0.053				
syneklat									12.8	0.003
tharkili									12.8	0.003
Miscellaneous taxa										
edwaclap									12.8	0.054
nemertin	25.7	0.062								
turbella	12.8	0.005								
golfspec							12.8	0.014	12.8	0.002
golfelon							12.8	0.085		
phoronid	12.8	0.007	885.3	0.351	243.8	0.098	256.6	0.135	307.9	0.122
sum	2155.4	8.974	2335.1	10.204	2643.0	29.208	4182.6	14.897	4695.8	42.113

nspc	38.0		27.0		34.0		30.0		32.0	
SH-W	2.8		2.4		2.6		1.9		1.7	
Simp	0.1		0.2		0.1		0.3		0.4	

station	**OYS 34**		**OYS 35**		**OYS 36**		**OYS 37**		**OYS 38**	
Crustacea	n	b	n	b	n	b	n	b	n	b
batheleg			51.3	0.015					12.8	0.004
bathguil			12.8	0.004						
calljuve	205.3	1.228	38.5	0.060	243.8	0.502	89.8	0.177	154.0	0.368
callsubt	243.8	19.310	25.7	3.016	192.5	12.786	77.0	4.567	102.6	5.331
diasbrad							12.8	0.004		
eudotrun					12.8	0.004			12.8	0.004
harpante			12.8	0.004			51.3	0.015		
ionethor	12.8	0.004	12.8	0.029	12.8	0.006	12.8	0.029	12.8	0.002
leucinci			12.8	0.004					12.8	0.004
orchspec									12.8	0.004
pseulong									12.8	0.004
upogdelt	38.5	20.273					12.8	6.462		
urotpose					12.8	0.004				
Echinodermata										
amphfili	128.3	0.817	166.8	0.535	384.9	2.181	526.0	2.599	12.8	0.048
cucuelon	12.8	0.104								
echicord	12.8	0.557	25.7	14.275			12.8	0.283	25.7	4.203
leptinha							12.8	1.091		
ophiaibi	38.5	0.378			38.5	15.030				
Mollusca										
abraalba	141.1	0.010	12.8	0.000	102.6	0.561				
chamstri			12.8	1.766			12.8	0.003		
corbgibb	38.5	0.016	680.0	0.161	51.3	0.013	192.5	0.124		
cylicyli					25.7	0.061	51.3	0.020		
dosilupi			12.8	0.312						
euspniti					25.7	0.124			12.8	0.004
hyalvitr			64.2	0.064	12.8	0.013	25.7	0.026		
leptsqua	25.7	0.107					38.5	0.059		
mysebide	12.8	0.003	154.0	0.018	154.0	0.018	166.8	0.011	38.5	0.009
mysiunda							12.8	0.001		
nucuniti	25.7	0.092	115.5	0.088	141.1	0.290			128.3	0.070
seminiti					12.8	0.001				
spissubt									38.5	0.078
tellferr			166.8	0.098					12.8	0.011
thrapapy			12.8	0.001						
Polychaeta										
chaeseto			12.8	0.005			12.8	0.007	25.7	0.010
diplglau			12.8	0.005						
eteofoli							12.8	0.024		
glycnord	12.8	0.251								
glycspec							12.8	0.068		
gonimacu	51.3	0.020			38.5	0.015	12.8	0.024	12.8	0.005
gyptcape	64.2	0.025			38.5	0.081			25.7	0.010
laniconc			12.8	0.909						
lumbfrag							12.8	0.007		
lumblatr	102.6	0.041			25.7	0.010				
magealle			38.5	0.137						
magejohn			64.2	0.025					12.8	0.005
magemira	12.8	0.005	64.2	0.025	12.8	0.005			38.5	0.015
medifrag	192.5	0.076	12.8	0.005						
myriocul	38.5	0.015	12.8	0.005	102.6	0.041	12.8	0.007		
nephcaec	25.7	0.122								

nephcirr									51.3	0.019
nephhomb	12.8	0.229	25.7	0.693					12.8	0.154
nephinci					51.3	0.435				
nephspec	64.2	0.025			12.8	0.005	12.8	0.007		
nereiong	38.5	0.323			12.8	0.760				
ophelima									12.8	0.005
ophiflex	12.8	0.095	25.7	0.078	38.5	0.081	25.7	0.047		
pectauri			38.5	0.015						
pholminu			12.8	0.005	12.8	0.005	25.7	0.014		
poecserp	25.7	0.010	12.8	0.046						
polycili	230.9	0.091					192.5	0.102		
scalinfl							12.8	0.007		
scolarmi			38.5	0.046	12.8	0.005				
spiobomb			64.2	0.025	77.0	0.030			25.7	0.010
spiofili	38.5	0.015	12.8	0.005	12.8	0.005	102.6	0.054	38.5	0.015
sthelimi			12.8	0.088			25.7	0.095		
syneklat							12.8	0.007		
Miscellaneous taxa										
nemertin							12.8	0.096	12.8	0.011
golfelon					25.7	0.169	12.8	0.124		
golfvulg							25.7	0.576		
phoronid	910.9	0.481	141.1	0.056	680.0	0.359	51.3	0.027	1013.6	0.535
branlanc							25.7	0.006		
sum	2771.3	44.723	2206.8	22.624	2578.8	33.602	1924.5	16.767	1886.0	10.939
nspc	29.0		36.0		30.0		35.0		27.0	
SH-W	2.6		2.8		2.6		2.8		2.0	
Simp	0.1		0.1		0.1		0.1		0.3	

station	**OYS 39**		**OYS 40**		**OYS 41**		**OYS 42**		**OFF1**	
Crustacea	n	b	n	b	n	b	n	b	n	b
ampebrev	12.8	0.004								
batheleg	25.7	0.008	12.8	0.004	89.8	0.027	51.3	0.015	12.8	0.004
bathguil							12.8	0.004		
calljuve	25.7	0.006	12.8	0.004						
callsubt	12.8	2.048							12.8	0.993
corycass							12.8	10.785		
diasbrad	12.8	0.004			25.7	0.008				
ebalcran							12.8	0.025		
ebalspec					12.8	0.004				
eudodefo	12.8	0.004								
eudotrun	12.8	0.004								
harpante	51.3	0.015	12.8	0.004	38.5	0.012				
ionethor									25.7	0.060
leucinci									12.8	0.004
nebabipe	12.8	0.004								
orchnana	12.8	0.004	12.8	0.004						
pagubern							12.8	0.930		
procnoho					38.5	0.360				
scophope					12.8	0.004				
siphkroy									12.8	0.004
syncmacu			12.8	0.004						
urotbrev							64.2	0.019		
urotpose							295.1	0.089	64.2	0.019
Echinodermata										
acrobrac					38.5	1.931				
amphfili	1385.6	13.680	243.8	0.444	166.8	0.277	12.8	0.004		
brislyri	12.8	1.665								
echicord			141.1	0.218			12.8	15.034	12.8	0.349

echipusi					12.8	0.002				
ophialbi									51.3	0.053
Mollusca										
abraniti	12.8	0.014								
chamstri			25.7	0.004						
corbgibb	115.5	0.023	128.3	0.119			12.8	0.002		
cylicyli	128.3	0.035								
dosilupi	12.8	1.811	12.8	0.001						
ensiphax							12.8	4.560		
euspniti			12.8	0.023	25.7	0.017	51.3	0.071		
mactcora							12.8	0.251		
myatrun			89.8	0.003						
mysebide	282.3	0.020	77.0	0.010	38.5	0.004				
mysiunda	25.7	0.004	25.7	0.008						
nucuniti	154.0	0.201	38.5	0.015	25.7	0.093	12.8	0.002		
phaxpell					12.8	0.001				
tellfabu					12.8	0.260	25.7	1.126	77.0	0.311
tellferr							38.5	0.046		
thrapapy					64.2	0.100	38.5	0.013	12.8	0.003
thyaflex			25.7	0.036	115.5	0.313				
turrcomm	12.8	1.768								
aplacoph	12.8	0.042								
Polychaeta										
aphracul					12.8	0.005				
chaeseto	102.6	0.027			25.7	0.010			12.8	0.020
chaevari	12.8	1.324								
choninfu			12.8	0.097						
diplgiau	38.5	0.010			51.3	0.190				
gattcirr	12.8	1.634								
gonimacu	12.8	0.003	12.8	0.005	51.3	0.190				
gyptcape	12.8	0.019								
harmspec					12.8	0.005				
laniconc							25.7	5.499		
magealle	12.8	0.003	12.8	0.014	12.8	0.047	25.7	0.068		
magejohn					12.8	0.005			141.1	0.149
magemira	12.8	0.003	51.3	0.020	461.9	0.183	64.2	0.169	25.7	0.027
malmlunu							12.8	0.034		
myriocul			12.8	0.005						
nephassi					12.8	0.047	12.8	0.288	25.7	4.964
nephcirr							51.3	0.283		
nephhomb	25.7	0.037	38.5	0.891	25.7	0.095			12.8	0.185
nephspec			12.8	0.005	38.5	0.015				
notolate									51.3	1.082
ophiflex	12.8	0.019								
owenfusi			64.2	0.068			12.8	0.034	12.8	0.020
pectauri	25.7	0.278								
pectkore	12.8	0.139								
pholminu	218.1	0.058	64.2	0.025						
phylinde					12.8	0.005				
phylrose							38.5	0.102		
poecserp							230.9	0.610	128.3	0.234
scalinfl	12.8	0.019			12.8	0.047				
scolarmi	115.5	0.168	256.6	0.271	12.8	0.005	25.7	0.068	333.6	0.193
scolbonn							38.5	0.102		
sigamath					25.7	0.332			12.8	0.020
spiobomb			102.6	0.041	154.0	0.061	307.9	0.813	77.0	0.122
spiokroe	12.8	0.003	12.8	0.014						
spiofili	102.6	0.027					51.3	0.135	12.8	0.020
sthelimi	12.8	0.019	25.7	0.010						

syneklat	64.2	0.017	12.8	0.005						
Miscellaneous taxa										
nemertin	12.8	0.088	25.7	0.093	12.8	0.031	38.5	0.248	12.8	0.423
phoronid	179.6	0.071	3926.0	1.558	38.5	0.020	243.8	0.095	423.4	0.279
sum	3374.3	25.329	5529.7	4.021	1719.2	4.706	1873.2	41.523	1578.1	9.539
nspc	42.0		32.0		34.0		32.0		24.0	
SH-W	2.5		1.4		2.9		2.8		2.4	
Simp	0.2		0.5		0.1		0.1		0.1	

station	**OFF2**		**OFF3**		**OFF4**		**OFF5**		**OFF6**	
Crustacea	n	b	n	b	n	b	n	b	n	b
atylswam	64.2	0.019								
batheleg	51.3	0.015	25.7	0.008			12.8	0.004	89.8	0.027
bathguil	64.2	0.019							25.7	0.008
calljuve					38.5	0.192				
callsubt	12.8	3.110			25.7	0.795				
corycass					12.8	10.479				
ieptspec									12.8	0.004
ieucinci	12.8	0.004			25.7	0.008				
micrmacu	25.7	0.008								
procnoho	25.7	0.385								
urotbrev	51.3	0.015							12.8	0.004
urotpose	410.6	0.123	25.7	0.008					25.7	0.008
Echinodermata										
amphchia					12.8	0.119				
echicord			102.6	41.115	115.5	13.495	12.8	11.986	12.8	5.649
ophialbi			12.8	0.017	64.2	0.143	12.8	0.210		
ophitext			12.8	1.852						
Mollusca										
corbgibb					51.3	0.224				
donavitt	38.5	0.005					12.8	0.001		
euspniti			25.7	0.173	64.2	0.065	38.5	0.175		
goodtria									154.0	0.025
mysebide					12.8	0.001				
nucuniti					25.7	0.204	25.7	0.021		
spissubt							12.8	0.003		
tellfabu	256.6	6.468	243.8	7.489	12.8	0.205	38.5	0.087		
tellferr	12.8	0.009	128.3	0.034	102.6	0.062	230.9	0.134		
thrapapy	12.8	0.000			12.8	0.076	77.0	0.039		
Polychaeta										
capicapi	12.8	0.002								
chaeseto			12.8	0.010			12.8	0.008		
eumisang	64.2	0.008	12.8	0.010	25.7	0.010	12.8	0.008		
gyptcape			12.8	0.010	38.5	0.066				
harmspec	38.5	0.005					38.5	0.025		
laniconc	115.5	6.493			12.8	0.979	64.2	4.949		
magejohn	38.5	0.036	230.9	0.235	192.5	0.076	384.9	0.254		
magemira	38.5	0.036	77.0	0.078	89.8	0.036	218.1	0.144		
malmiunu	64.2	0.059					38.5	0.105		
nephcaec			12.8	2.427						
nephcirr	12.8	0.012			12.8	0.005			51.3	0.335
nephhomb					25.7	0.191	12.8	0.119		
nephspec							38.5	0.025		
ophelima	12.8	0.002							25.7	0.058
owenfusi					25.7	0.044				
parafulg									12.8	0.029
poecserp							12.8	0.008		
scalinfl					12.8	0.022				

scolarmi	25.7	0.024	64.2	0.051	38.5	0.015	51.3	0.034	38.5	0.086
sigamath	38.5	0.610	25.7	0.368	25.7	0.044				
spiobomb	51.3	0.174					64.2	0.398		
spiofili	25.7	0.003	12.8	0.010						
Miscellaneous taxa										
anthozoa					25.7	3.528				
nemertin	12.8	0.220			51.3	0.104				
nematoda							25.7	0.079	12.8	0.000
oligocha			12.8	0.010						
phoronid	12.8	0.005	256.6	0.059	77.0	0.030			25.7	0.005
sum	1603.8	17.869	1308.7	53.964	1231.7	31.219	1449.8	18.817	500.4	6.238
nspc	28.0		19.0		28.0		23.0		13.0	
SH-W	2.7		2.4		3.0		2.5		2.2	
Simp	0.1		0.1		0.1		0.1		0.1	

station	**OFF7**		**OFF8**		**OFF9**		**OFF10**		**OFF11**	
Crustacea	n	b	n	b	n	b	n	b	n	b
batheleg			89.8	0.027	205.3	0.062	295.1	0.089	500.4	0.150
bathguil			12.8	0.004	38.5	0.012	25.7	0.008	25.7	0.008
callspec					12.8	0.006				
corycass			12.8	12.407						
crancran			12.8	0.006						
leucinci							12.8	0.004		
pseulong			25.7	0.008	12.8	0.004				
syncmacu					12.8	0.004				
urotbrev			38.5	0.012			25.7	0.008	12.8	0.004
urotpose			757.0	0.227	192.5	0.058	128.3	0.038	12.8	0.004
Echinodermata										
echicord	51.3	18.204	12.8	0.254	12.8	15.034				
echipusi			12.8	0.001					25.7	0.011
ophialbi			25.7	0.261						
ophispec									12.8	0.002
ophitext									12.8	0.404
Mollusca										
abraalba									12.8	0.075
donavitt	12.8	0.001	51.3	0.009	102.6	2.532	1180.4	10.093	51.3	0.025
ensiensi					12.8	10.201			12.8	1.016
euspniti	38.5	0.028	64.2	0.026			12.8	0.109	269.4	0.568
nucuniti									25.7	0.397
tellfabu	64.2	0.807	12.8	0.488	12.8	0.015			64.2	0.612
tellferr	77.0	0.070			89.8	0.091	12.8	0.002	12.8	0.009
thrapapy									12.8	0.000
Polychaeta										
aricminu					12.8	0.017				
chaeseto									12.8	0.015
eteobarb	12.8	0.019								
exoghebe							12.8	0.036		
glycspec									12.8	0.015
gonimacu			12.8	0.137					141.1	0.168
gyptcape									25.7	0.030
laniconc									12.8	0.600
magejohn	25.7	0.037	192.5	0.344			12.8	0.036	51.3	0.061
magemira	64.2	0.093	89.8	0.159	38.5	0.051	12.8	0.036		
nephcirr	12.8	0.019			64.2	0.530	89.8	0.163	12.8	0.015
nephspec									12.8	0.015
notolate									38.5	5.133
scolarmi	218.1	0.671	12.8	0.137	89.8	0.313	38.5	0.107		
scolbonn							12.8	0.036		

sigamath			12.8	0.137					38.5	0.046
spiobomb	25.7	0.037	12.8	0.005					12.8	0.015
spiofili	12.8	0.019								
Miscellaneous taxa										
nemertin	12.8	0.121	12.8	0.155	12.8	0.011				
nematoda			12.8	0.003						
phoronid							38.5	0.015	12.8	0.005
sum	628.7	20.124	1488.3	14.807	923.8	28.939	1911.7	10.777	1449.8	9.402
nspc	13.0		21.0		16.0		15.0		27.0	
SH-W	2.1		1.9		2.3		1.4		2.4	
Simp	0.2		0.3		0.1		0.4		0.2	

station	**OFF12**		**OFF13**		**OFF14**		**OFF15**		**OFF16**	
Crustacea	n	b	n	b	n	b	n	b	n	b
batheleg	64.2	0.019	51.3	0.015			51.3	0.015	64.2	0.019
bathguil	12.8	0.004	12.8	0.004	25.7	0.008				
iphitris					12.8	0.004				
megaagil					12.8	0.004				
pontalta							12.8	0.004		
pseulong			12.8	0.004			12.8	0.004		
syncmacu	25.7	0.008								
thiascut	12.8	0.077	12.8	0.052						
urotbrev					38.5	0.012			12.8	0.004
urotpose	89.8	0.027	295.1	0.089	269.4	0.081	77.0	0.023	64.2	0.019
Echinodermata										
echicord			25.7	13.211	12.8	15.034			12.8	13.234
echipusi	51.3	0.008	51.3	0.009			38.5	0.006		
ophialbi	12.8	0.002					25.7	0.027		
ophispec					12.8	0.000	12.8	0.000		
Mollusca										
donavitt	77.0	0.012			12.8	0.003	51.3	0.023	64.2	0.041
euspniti	282.3	1.754	230.9	0.939	102.6	0.422	51.3	0.059	25.7	0.087
tellfabu					12.8	0.008				
tellltenu							12.8	0.003		
tellferr			12.8	0.033	38.5	0.048				
Polychaeta										
chaeseto					12.8	0.005				
eteofoli			12.8	0.042					12.8	0.005
eteolong	12.8	0.022								
gonimacu	38.5	0.281	12.8	0.122	12.8	0.097	12.8	0.122		
gyptcape			25.7	0.085	12.8	0.005				
magejohn	12.8	0.022	12.8	0.042						
magemira					12.8	0.005			25.7	0.010
nephcirr	12.8	0.022	12.8	0.263			25.7	0.244	64.2	0.186
nephhomb			12.8	1.294						
nephlong	25.7	0.916								
nephspec									12.8	0.005
ophelima			12.8	0.042						
parafulg	12.8	0.022								
scolarmi	38.5	0.293	38.5	0.127					25.7	0.010
scolbonn	12.8	0.022	12.8	0.042	12.8	0.420			38.5	0.459
spiobomb			12.8	0.042	12.8	0.005	12.8	0.122		
spiofili	12.8	0.022								
sthelimi			12.8	0.185						
Miscellaneous taxa										
nemertin	12.8	0.014			38.5	0.847				
sum	821.1	3.548	885.3	16.642	667.2	17.007	397.7	0.652	423.4	14.079
nspc	19.0		20.0		18.0		13.0		12.0	

SH-W	2.4		2.2		2.2		2.4		2.3	
Simp	0.1		0.2		0.2		0.1		0.1	

station	**OFF17**		**OFF18**		**OFF19**		**OFF20**		**OFF21**	
Crustacea	n	b	n	b	n	b	n	b	n	b
batheleg	25.7	0.008			12.8	0.004	12.8	0.004	12.8	0.004
bathguil					12.8	0.004				
megaagil									12.8	0.004
pseulong			89.8	0.027	25.7	0.008			179.6	0.054
urotbrev	12.8	0.004			38.5	0.012				
urotpose	89.8	0.027	12.8	0.004	25.7	0.008	64.2	0.019		
Echinodermata										
echicord					12.8	19.128	12.8	0.077		
ophispec									12.8	0.001
Mollusca										
donavitt	25.7	0.058			12.8	0.009	12.8	0.013	12.8	0.009
euspniti	25.7	0.042	25.7	0.037	25.7	0.079	25.7	0.066	128.3	0.040
tellpygm									51.3	0.038
tellferr					25.7	0.015				
Polychaeta										
aonipauc					51.3	0.053			12.8	0.008
aricminu			12.8	0.008	12.8	0.014	12.8	0.008		
euzoflab									89.8	0.059
hesielon							12.8	0.008		
hetefili									12.8	0.008
magejohn							12.8	0.085		
nephcaec			12.8	0.091	12.8	0.044				
nephcirr	77.0	0.356	12.8	0.091	12.8	0.044			25.7	0.635
nephhomb	12.8	0.059					12.8	0.085		
parafulg	12.8	0.007	64.2	0.042						
scolbonn	25.7	0.119	12.8	0.091						
spiobomb	25.7	0.014	51.3	0.034	25.7	0.025	12.8	0.008		
spiofili									12.8	0.008
Miscellaneous taxa										
nemertin					25.7	0.073	12.8	0.082		
nematoda									25.7	0.003
phoronid							51.3	0.014		
sum	333.6	0.692	295.1	0.427	333.6	19.518	256.6	0.469	590.2	0.872
nspc	10.0		9.0		15.0		12.0		13.0	
SH-W	2.1		1.9		2.6		2.2		2.0	
Simp	0.1		0.2		0.0		0.1		0.2	

station	**OFF22**		**OFF23**		**OFF24**		**OFF25**		**OFF26**	
Crustacea	n	b	n	b	n	b	n	b	n	b
batheleg	12.8	0.004	77.0	0.023			25.7	0.008		
bathguil	12.8	0.004	25.7	0.008			12.8	0.004		
liocmarm									12.8	9.950
perilong							12.8	0.004		
procedul			12.8	0.133						
pseulong			12.8	0.004			77.0	0.023	51.3	0.015
thiascut									12.8	0.023
urotbrev	38.5	0.012	25.7	0.008						
urotpose	77.0	0.023	269.4	0.081						
Echinodermata										
echicord	12.8	11.200					12.8	4.962		
Mollusca										
donavitt							12.8	0.004		

ensiensi	25.7	15.284								
euspniti	25.7	0.013	64.2	0.338			12.8	0.009	38.5	0.015
tellpygm									115.5	0.106
tellferr	12.8	0.002					12.8	0.001		
Polychaeta										
aricminu	12.8	0.015								
eteoflav			12.8	0.008						
euzoflab									12.8	0.022
glyclapi					38.5	0.208				
magejohn					12.8	0.166				
magemira							12.8	0.110		
nephcirr	38.5	0.462	115.5	1.033	12.8	0.381	77.0	0.439	64.2	0.332
nephhomb	12.8	0.154								
notolate									12.8	0.095
ophelima	12.8	0.015								
parafulg									12.8	0.022
phylgroe			12.8	0.281						
scolarmi	12.8	0.154	38.5	0.310						
spiobomb	12.8	0.015					77.0	0.122	64.2	0.110
spiofili	12.8	0.015							25.7	0.044
Miscellaneous taxa										
nemertin			12.8	0.119			12.8	0.141	12.8	0.051
phoronid	12.8	0.003	256.6	0.059						
sum	346.4	27.377	936.6	2.405	64.2	0.755	359.2	5.827	436.2	10.784
nspc	16.0		13.0		3.0		12.0		12.0	
SH-W	2.6		2.0		1.0		2.1		2.2	
Simp	0.1		0.2		0.3		0.1		0.1	

station	**OFF27**		**OFF28**		**OFF29**		**OFF30**		**OFF31**	
Crustacea	n	b	n	b	n	b	n	b	n	b
atylswam			12.8	0.004						
batheleg	25.7	0.008			12.8	0.004	295.1	0.089	102.6	0.031
bathguil					12.8	0.004	12.8	0.004	12.8	0.004
calltyrr	64.2	0.652								
caprelli			12.8	0.004						
leucinci	12.8	0.004								
megaagil			12.8	0.004			12.8	0.004		
procnoho					12.8	0.148				
pseulong			25.7	0.008						
syncmacu									12.8	0.004
thiascut					12.8	0.037				
urotbrev							115.5	0.035		
urotpose	77.0	0.023			12.8	0.004	397.7	0.119	77.0	0.023
Echinodermata										
acrobrac							38.5	3.662		
echicord	12.8	0.424			12.8	13.669	25.7	13.372		
echipusi							12.8	0.004		
ophialbi	89.8	0.091	38.5	0.006					12.8	0.026
ophispec							12.8	0.001		
Mollusca										
chamstri					12.8	0.009				
donavitt									115.5	4.287
ensisili					12.8	61.832				
euspniti	51.3	0.194			12.8	0.004	64.2	0.263	51.3	0.089
chaeseto									12.8	0.019
goodtria			25.7	0.002	333.6	0.030				
tellfabu							89.8	1.256		
tellpygm			25.7	0.051	12.8	0.011				

tellferr					12.8	0.001	25.7	0.007		
tornsubc	12.8	0.006								
thrapapy					12.8	0.000				
Polychaeta										
aonipauc					12.8	0.014				
eteolong							12.8	0.017		
euzoflab			12.8	0.005						
glycspec			12.8	0.005						
gonimacu					12.8	0.014				
laniconc							25.7	2.330		
magejohn	12.8	0.151					449.1	0.240	12.8	0.019
magemira			12.8	0.063			89.8	0.047		
malmlunu							64.2	0.100		
nephcirr	51.3	0.220	51.3	0.308	128.3	1.189			51.3	0.843
nephhomb							12.8	0.528		
nephspec									12.8	0.019
nephlong	12.8	0.281								
nephspec	12.8	0.010								
ophelima	25.7	0.020					12.8	0.017		
poecserp	12.8	0.010								
scolarmi	25.7	0.369			12.8	0.014	38.5	0.051	12.8	0.054
scolbonn	12.8	0.091								
sigamath							25.7	0.340		
spiobomb	38.5	0.030			12.8	0.014	12.8	0.017	12.8	0.019
spiofili	12.8	0.010								
strewebs			12.8	0.005						
thelcinc			12.8	0.008						
Miscellaneous taxa										
peaccyli							12.8	5.645		
nemertin	12.8	0.020			12.8	0.085	12.8	0.237	12.8	0.042
nematoda									12.8	0.003
phoronid	1116.2	0.295							77.0	0.020
sum	1693.6	2.911	269.4	0.472	680.0	77.081	1873.2	28.385	603.0	5.501
nspc	20.0		13.0		19.0		24.0		16.0	
SH-W	1.6		2.4		1.9		2.4		2.4	
Simp	0.4		0.1		0.3		0.1		0.1	

station	**OFF32**		**OFF33**		**OFF34**		**OFF35**		**OFF36**	
Crustacea	n	b	n	b	n	b	n	b	n	b
batheleg			51.3	0.015	128.3	0.038	12.8	0.004		
bathguil			25.7	0.008	12.8	0.004	25.7	0.008		
calltyrr	12.8	1.738	38.5	0.140						
procparv			12.8	0.327						
pseulong			12.8	0.004	25.7	0.008	51.3	0.015	25.7	0.008
syncmacu					12.8	0.004				
thiascut					12.8	0.069				
urotbrev			12.8	0.004	25.7	0.008				
urotpose	128.3	0.038	38.5	0.012	179.6	0.054	12.8	0.004		
Echinodermata										
amphchia			51.3	0.007						
echicord			12.8	5.892	51.3	36.209				
Mollusca										
alvalact			243.8	0.244						
donavitt	12.8	2.483			64.2	0.063			12.8	0.001
ensiensi	12.8	1.849								
euspniti	25.7	0.069	51.3	0.112			38.5	0.019	25.7	0.004
strilact			12.8	0.028						
tellpygm									38.5	0.006

tellferr					25.7	0.007				
tornsubc			25.7	0.013						
polyplac			12.8	0.005						
Polychaeta										
aricminu	38.5	0.010			38.5	0.041	12.8	0.014	12.8	0.002
eteofoli					12.8	0.014				
eteolong	25.7	0.007								
eumisang									12.8	0.002
exoghebe			89.8	0.005						
gonimacu					12.8	0.014				
harmspec			12.8	0.002						
hetefili			115.5	0.010						
magemira					25.7	0.029			12.8	0.002
nephcirr	38.5	0.156	141.1	0.759	102.6	0.263	64.2	0.406	64.2	0.957
nephhomb			25.7	0.428						
nephspec							12.8	0.014		
ophelima									12.8	0.029
parafulg			12.8	0.002					51.3	0.007
scolarmi	38.5	0.823	295.1	2.342	25.7	0.029				
scolbonn							12.8	0.014		
spiobomb	12.8	0.005			12.8	0.014	12.8	0.014		
spiofili							25.7	0.027		
syllidae									25.7	0.003
Miscellaneous taxa										
anthozoa			12.8	0.054						
nemertin	12.8	0.017	12.8	0.102						
oligocha			77.0	0.003						
phoronid			1052.1	0.417	51.3	0.003	205.3	0.081		
sum	359.2	7.195	2450.5	10.934	821.1	36.870	487.5	0.619	295.1	1.020
nspc	11.0		25.0		18.0		12.0		11.0	
SH-W	2.1		2.2		2.5		2.0		2.2	
Simp	0.1		0.2		0.1		0.2		0.1	

station	**COA 01**		**COA 02**		**COA 03**		**COA 04**		**COA 05**	
Crustacea	n	b	n	b	n	b	n	b	n	b
atylswam									12.8	0.004
batheleg	166.8	0.050	38.5	0.012						
bathguil	25.7	0.008	12.8	0.004	12.8	0.004				
crancran					25.7	0.010				
perilong					25.7	0.008				
pontalta			12.8	0.004						
pseulong	12.8	0.004								
urotbrev	12.8	0.004	12.8	0.004	77.0	0.023	51.3	0.015	12.8	0.004
urotpose	192.5	0.058	12.8	0.004	243.8	0.073	282.3	0.085	154.0	0.046
Echinodermata										
echicord					38.5	8.216				
Mollusca										
abraalba	12.8	0.086								
donavitt	12.8	0.001					25.7	0.014		
ensiamer			526.0	237.427	154.0	212.311	12.8	35.228	1052.1	524.695
macobalt			230.9	1.346			12.8	0.192		
mysebide	12.8	0.001			25.7	0.005	38.5	0.010		
spissubt	12.8	0.006			38.5	3.552				
tellfabu	38.5	0.623			115.5	1.176	12.8	0.260	12.8	0.181
telltenu	38.5	0.508								
tellferr					89.8	0.062				
Polychaeta										
capicapi	12.8	0.008			89.8	0.119				

chaeseto	12.8	0.008								
laniconc									38.5	2.368
magejohn							12.8	0.007		
magemira	64.2	0.247	12.8	0.008						
malavulg	12.8	1.680								
malmlunu					12.8	0.017				
nephassi							12.8	1.650		
nephcaec	12.8	0.173								
nephcirr					51.3	0.068			12.8	0.008
nephhomb	25.7	0.960			64.2	0.987	77.0	1.929	12.8	0.315
nephspec	38.5	0.025								
nerelong							12.8	0.007		
notolate					115.5	8.485				
owenfusi					25.7	0.120				
scolarmi	51.3	0.034								
spiobomb	51.3	0.034			64.2	0.085				
spiofili					12.8	0.017	38.5	0.020	25.7	0.017
Miscellaneous taxa										
oligocha					25.7	0.034				
phoronid					12.8	0.008				
sum	821.1	4.519	859.6	238.808	1321.5	235.379	590.2	39.417	1334.3	527.638
nspc	20.0		8.0		21.0		12.0		9.0	
SH-W	2.5		1.1		2.7		1.8		0.8	
Simp	0.1		0.4		0.1		0.3		0.6	

station	**COA 06**		**COA 07**		**COA 08**		**COA 09**		**COA 10**	
Crustacea	n	b	n	b	n	b	n	b	n	b
batheleg			77.0	0.023			25.7	0.008		
bathguil							12.8	0.004		
callyrr							12.8	0.094		
crancran									12.8	0.006
leucinci							12.8	0.004		
syncmacu			12.8	0.004	12.8	0.004				
urotbrev	243.8	0.073			77.0	0.023	64.2	0.019	12.8	0.004
urotpose	513.2	0.154			141.1	0.042	821.1	0.246	179.6	0.054
Echinodermata										
echicord	38.5	22.562					12.8	7.215	25.7	12.284
Mollusca										
abraalba	12.8	0.086								
ensiamer	12.8	7.922			641.5	438.424			64.2	66.097
ensiarcu			12.8	19.361						
euspniti							12.8	0.004		
macobalt	205.3	1.302	25.7	0.023						
mysebide	38.5	0.011			12.8	0.001	64.2	0.024	25.7	0.005
spissubt	38.5	3.565			12.8	0.004	51.3	3.224	51.3	1.985
tellfabu	12.8	0.205					141.1	2.047		
telltenu					12.8	0.064			51.3	1.210
telliferr	256.6	0.165					51.3	0.024	218.1	0.135
Polychaeta										
capicapi	12.8	0.014			64.2	0.034				
chaeseto							12.8	0.014	12.8	0.019
eteolong							12.8	0.014		
harmspec					12.8	0.007	12.8	0.014		
laniconc							25.7	0.848		
magejohn	38.5	0.041	166.8	0.396	38.5	0.020			38.5	0.056
magemira	12.8	0.014	12.8	0.024						
malmlunu									12.8	0.019
nephcaec	25.7	1.440								

nephcirr			51.3	0.422	12.8	0.007			192.5	0.528
nephhomb	25.7	0.417								
nephspec							38.5	0.041	12.8	0.019
neredive							12.8	2.586		
nerelong									12.8	0.293
notolate							51.3	7.298		
phylrose							25.7	0.027		
poecserp							64.2	0.088		
scolarmi					12.8	0.007	64.2	0.793		
scolbonn			38.5	0.054						
spiobomb	25.7	0.027			12.8	0.007	77.0	0.081	12.8	0.019
spiofili	128.3	0.135								
polyinde									12.8	0.019
Miscellaneous taxa										
nemertin							12.8	0.452		
phoronid							38.5	0.015		
sum	1642.2	38.132	397.7	20.307	1064.9	438.644	1732.1	25.183	949.4	82.751
nspc	17.0		8.0		13.0		25.0		17.0	
SH-W	2.1		1.7		1.5		2.2		2.3	
Simp	0.2		0.2		0.4		0.2		0.1	

station	**COA 11**		**COA 12**		**COA 13**		**COA 14**		**COA 15**	
Crustacea	n	b	n	b	n	b	n	b	n	b
batheleg			25.7	0.008						
liocmarm									12.8	2.065
leucinci	89.8	0.027								
urotbrev	25.7	0.008					38.5	0.012	77.0	0.023
urotpose	51.3	0.015	12.8	0.004			77.0	0.023	474.7	0.142
Echinodermata										
ophialbi							12.8	0.684		
Mollusca										
abraalba							89.8	0.612	77.0	0.667
ensiamer	115.5	105.006	25.7	45.302			282.3	122.928	141.1	128.551
euspniti			12.8	0.004						
mysebide	25.7	0.003					115.5	0.045	423.4	0.085
spissubt	25.7	0.006					12.8	0.002		
tellfabu							38.5	0.825	141.1	3.738
tellitenu							115.5	3.138		
tellferr	12.8	0.015	12.8	0.002						
venesene							12.8	0.003		
Polychaeta										
capicapi							64.2	0.042		
eteolong			12.8	0.014						
eumisang							154.0	0.102		
harmspec							25.7	0.017		
laniconc							423.4	8.154	12.8	0.181
magejohn									436.2	0.633
magemira									25.7	0.037
malmlunu									12.8	0.022
nephcirr	25.7	0.174	25.7	0.195	38.5	0.058	25.7	0.017	115.5	0.269
nephhomb	64.2	1.306					89.8	1.101	12.8	0.144
nerelong							128.3	11.486	25.7	1.849
notolate	12.8	0.368					89.8	2.479	64.2	4.952
owenfusi									77.0	0.931
phylrose							12.8	0.008		
scolarmi			25.7	0.027			38.5	0.025		
scolbonn	12.8	0.100	12.8	0.122	12.8	0.015				
spiobomb			12.8	0.014			1744.9	3.145	487.5	0.728

Miscellaneous taxa										
nemertin									25.7	0.192
sum	461.9	107.028	179.6	45.691	51.3	0.073	3592.4	154.847	2643.0	145.211
nspc	11.0		10.0		2.0		21.0		18.0	
SH-W	2.1		2.2		0.6		2.0		2.3	
Simp	0.1		0.0		0.5		0.3		0.1	