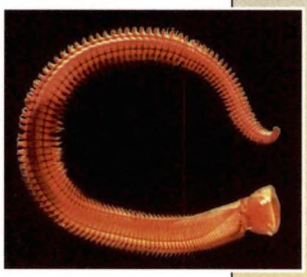
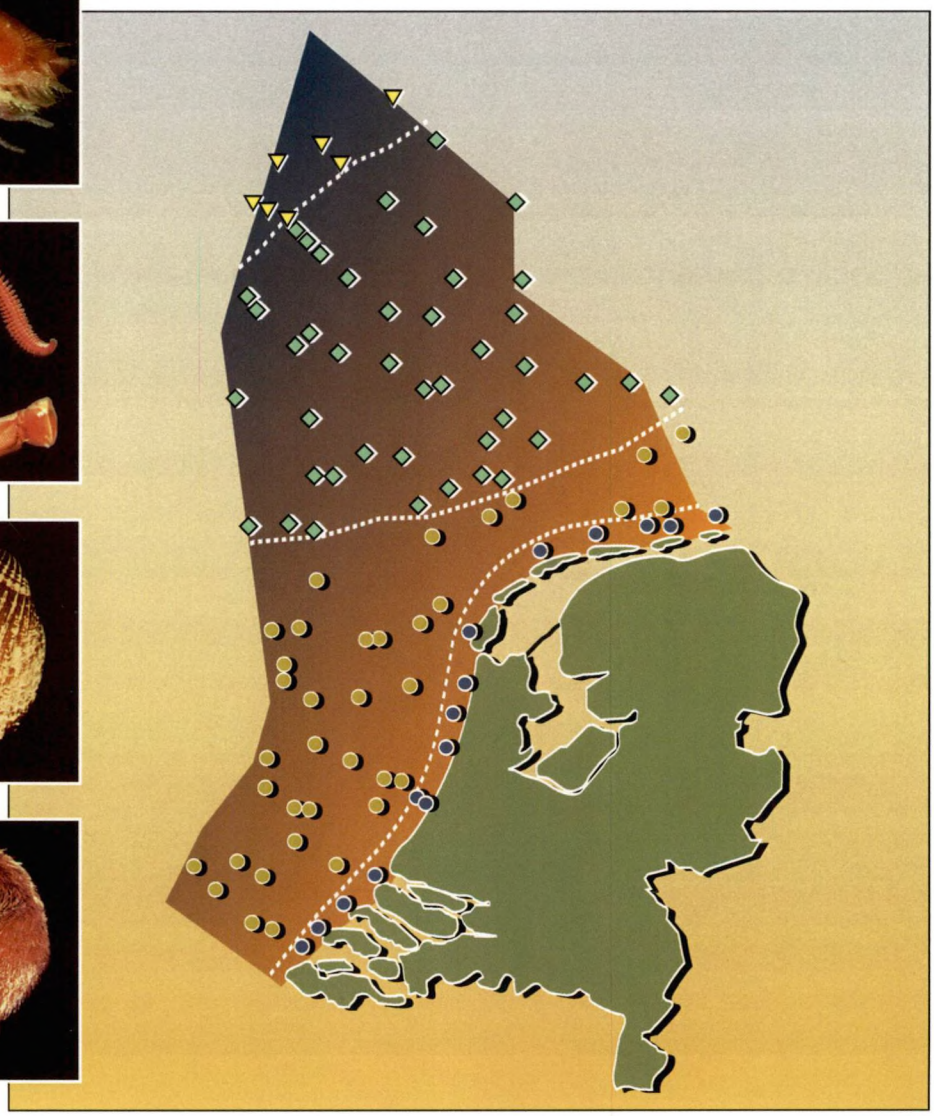
NIOZ-RAPPORT 2006 - 3

158

THE MACROBENTHIC FAUNA IN THE DUTCH SECTOR OF THE NORTH SEA IN 2005 AND A COMPARISON WITH PREVIOUS DATA

R. Daan and M. Mulder





N

Koninklijk Nederlands Instituut voor Onderzoek der Zee

Monitoring Macrozoobenthos of the North Sea

Royal Netherlands Institute for Sea Research (NIOZ)
P.O. Box 59, 1790 AB Den Burg, Texel
The Netherlands

ISSN 0923 - 3210

Cover design: H. Hobbelink

THE MACROBENTHIC FAUNA IN THE DUTCH SECTOR OF THE NORTH SEA IN 2005 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
Monitoring Macrozoobenthos of the North Sea

NIOZ-RAPPORT 2006-3

1. SUMMARY

In this report the results are presented of a macrobenthos survey on the Dutch Continental Shelf (DCS), carried out in 2005. 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 2005 the 100 BIOMON stations were sampled in the period between March 14 and April 12. On the basis of the results collected in 2005 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 gastropod *Euspira nitida* showed increasing abundance from 1999 onwards, whereas the polychaetes *Magelona mirabilis/M. johnstoni* and *Chaetozone setosa* showed a decreasing trend in the same period. New to the Dogger Bank is the occurrence of the polychaete *Nicomache lumbricalis* and the bivalve *Myrtea spinifera.*
2. In the Oyster Ground, where a decrease in average silt concentrations had been observed in the three preceding years, there was no further decrease in 2005. The mean silt content of the sediment (8%) was at a similar level as in 2004.
3. In the Oyster Ground there is no indication that the decrease of silt concentrations has affected the abundance of one or more of the most common species. The brittlestar *Amphiura filiformis* stabilized at the same high density level as found in 2004. The mud shrimp *Callianassa subterranea* continued its increasing trend.. The bivalves *Astarte montagui* and *Musculus niger*, the polychaetes *Nicomache lumbricalis* and *Travisia forbesi* and the amphipod *Tryphosites longipes* were found for the first time in the Oyster Ground. All species were already known from other areas in the Dutch sector.
4. In the offshore area a decreasing tendency could be observed in the polychaetes *Aricidea minuta*, *Lanice conchilega* and *Spiophanes bombyx*, whereas increasing

trends were shown by the sea urchin *Echinocardium cordatum* and the gastropod *Euspira nitda*. The bivalve *Arcopagia crassa* and the polychaete *Apistobranchus tullbergi* were found for the first time in the offshore area. Both species were already known from a few stations in other parts of the Dutch sector.

5. In the coastal area biomass values were at the same high level as found in 2003 and 2004. This was mainly caused by the abundance of the razor clam *Ensis americanus*. Loss of biomass due to (slight) mortality in *E. americanus* was compensated by growth of the surviving animals. Growth of *E. americanus* seems density dependent. Population densities of the bivalve *Spisula subtruncata* further decreased. A species new to the coastal area is the otter shell *Lutraria lutraria*. This species seems to have colonized the whole coastal area recently.

2. SAMENVATTING

In dit rapport worden de resultaten gepresenteerd van een macrobenthos bemonstering die in 2005 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 2005 zijn de 100 BIOMON stations tussen 14 maart en 12 april bemonsterd. Aan de hand van de gegevens die in 2005 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 - 2005. 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 vertoonde de gastropode *Euspira nitida* toenemende dichtheden vanaf 1999. Daarentegen was er in dezelfde periode een afname te zien bij de polychaeten *Magelona mirabilis/M johnstoni* en *Chaetozone setosa*. Soorten die nieuw zijn voor de Doggersbank zijn de polychaet *Nicomache lumbricalis* en de bivalve *Myrtea spinifera*.
2. In de Oestergronden, waar in de voorgaande jaren een afname was geconstateerd van de slibgehalten in de bodem, bleek het slib in 2005 niet verder te zijn afgenomen. Het gemiddelde slibgehalte van het sediment (8%) lag op een vergelijkbaar niveau als in 2004.
3. In de Oestergronden waren er geen tekenen die er op wijzen dat het afgenomen slibgehalte effekt had gehad op de dichtheden van een of meer van de algemene soorten. De dichtheden van de slangster *Amphiura filiformis* hadden zich gestabiliseerd op hetzelfde hoge niveau als in 2004. De crustacee *Callianassa subterranea* bleek de toenemende tendens van de afgelopen jaren te hebben voortgezet. De bivalven *Astarte montagui* en *Musculus niger*, de polychaeten

Nicomache lumbricalis en *Travisia forbesi* en de amphipode *Tryphosites longipes* werden voor het eerst in de Oestergronden aangetroffen. Al deze soorten waren wel al eerder eens in een ander deel van het NCP gevonden.

4. In het offshore gebied werd een afnemende tendens waargenomen bij de polychaeten *Aricidea minuta*, *Lanice conchilega* en *Spiophanes bombyx*. terwijl er een toenemende trend was bij de hartegel *Echinocardium cordatum* en de gastropode *Euspira nitida*. De bivalve *Arcopagia crassa* en de polychaet *Apistobranchus tullbergi* werden voor het eerst in het offshore gebied aangetroffen. Beide soorten waren wel al bekend van enkele stations in andere delen van de Nederlandse sector.
5. In de kustzone lagen de biomassagetallen nog op hetzelfde hoge niveau als in 2003 en 2004. Dit werd met name veroorzaakt door de aanwezigheid van grote dichtheden van de Amerikaanse zwaardschede *Ensis americanus*. Verliezen van biomassa als gevolg van (lichte) mortaliteit in het afgelopen jaar bleken te zijn gecompenseerd door groei van de overlevende dieren. Groei van *E. americanus* lijkt dichtheidsafhankelijk te zijn. Populatiedichtheden van de afgeknotte strandschelp *Spisula subtruncata* bleken verder te zijn afgenomen. Een soort die nieuw is voor het kustgebied is de otterschelp *Lutraria lutraria*. Deze soort lijkt recentelijk het hele kustgebied te hebben gekoloniseerd.

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 2005. Further the results of the 2005 survey are compared with the BIOMON data collected in previous years (1991-2004) 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, 2005) has shown that there were generally no clear trends at the community level (faunal density, biomass, biodiversity parameters) in the 4 subareas. Even in the Oyster Ground where a rather strong decrease in silt contents was observed in recent years, this was not reflected in a change in the faunal community. The new survey data will show whether the

trendwise change in silt concentrations continued and if the community is responding to the changed sediment composition in the area at the longer term.

At the species level there were various developments in the different areas. 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 in 2004 after a decreasing trend in previous years. In the Oyster Ground typical silt species like the brittlestar *Amphiura filiformis* and the mud shrimp *Callianassa subterranea* showed increasing densities after 2000 following a period of low abundance in the second half of the nineties. In the southern Offshore area the gastropod *Euspira nitida* had strongly increased in 2004, whereas there was a gradual decrease in a number of common polychaete species. In the Coastal area very high biomass values were found from 2003 onwards, particularly due to the presence of dense populations of the american razor clam *Ensis americanus*.

The new data will show to what extent the trends observed in previous years continued in 2005.

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 2005 the BIOMON stations were sampled in the period March 14 to April 12. 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 2005 can be found in the cruise report of Rijkswaterstaat (Anonymous, 2005).

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 stable (Fig. 4). Also at the individual stations the median grain size had not substantially changed compared to preceding years. A comparison between the values measured at the individual stations in 2005 (Fig. 2) and those found in 2004 shows that at only five 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 separates two size classes, so that the measured value is sometimes just below this level, sometimes just above. At 92 stations the differences in median grainsize measured in 2005 and in 2004 was less than 20 μm.

At station OYS 8, where a substantially larger median grain size was found in 2004 compared to previous years, the 2005 value had returned to the usual level. Station OYS 8 is situated in the southern part of the Frisian Front area at a rather steep depth gradient leading from fine sand south of the station to very fine sand north of it. This is likely to be the cause that there can occur relatively large local variations in median grain size in bottom samples.

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, in recent years a steady and significant decrease of silt concentrations in the sediment of the Oyster Ground has been observed (Daan & Mulder, 2005). The mean silt concentrations in the Oyster Ground declined from 13% in 1999 to 7.5% in 2004. In 2005 the mean concentration was at a similar low level (8%) as in 2004.

5.2. DISTRIBUTION OF THE MACROBENTHIC FAUNA IN 2004

5.2.1 Diversity, density and biomass

A total number of 193 species/taxa were identified in the 100 boxcore samples in 2005, 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 – 2005 than in the second half of the nineties. In contrast, Simpson's dominance was higher between 2001 and 2005. 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 offshore area and the coastal area have the lowest Shannon Wiener diversity and highest Simpson's dominance. This is explained by the relatively low numbers of species and the high abundance of a few polychaete species (*Lanice conchilega, Chaetozone setosa* and *Spiophanes bombyx*) in the offshore area and the high abundance of american razor clams (*Ensis americanus*) in the coastal area. There is no indication of a trendwise change in these diversity parameters.

In 2004, relatively low faunal densities were found at the Dogger Bank (Table 2, Fig. 8, 13). Although no further decrease was observed, the densities were still low in 2005. In contrast, a gradual increase in macrofauna densities was observed in the Oyster Ground from 1998 onwards, particularly due to the recovery of the brittle star *Amphiura filiformis*. This increase continued in 2005. In the offshore area there was no substantial change compared to previous years. 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. Although not further decreased these densities were still low in 2005. 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 level.

After very low biomass (AFDW) values at the Dogger Bank in 2002, a clear sign of recovery could be observed in 2003, which continued in 2004 (Fig. 14). In 2005 biomass stabilized at a mean level of 11 $g.m^{-2}$. In the Oyster Ground, the slight increase in biomass from 1997 onwards came to an end (Fig. 14) at a level of 20 $g.m^{-2}$. In the offshore area biomass was stable at 13 $g.m^{-2}$.

In the coastal area there has been a strong increase in biomass between 2002 and 2003. The increase was caused by the biomass development of the bivalve *Ensis americanus*, which had a very succesful spatfall in 2001. In the following years population densities of this generation gradually decreased due to mortality, but growth of the surviving animals compensated this loss of biomass and in 2005 the average biomass was still at the same high level as found in 2003 and 2004.

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 1986-2005.

<u>*Dogger Bank*</u> (Fig. 15a-c)

Among the more or less abundant species at the Dogger Bank only one species showed increasing densities in recent years. In the gastropod *Euspira nitida* there is an increasing trend from 1999 onwards. Most of the other species occurred in fluctuating densities without showing any trendwise development. In a few species a decreasing trend could be observed. The polychaetes *Magelona mirabilis / M. johnstoni* and *Chaetozone setosa* showed a decreasing trend between 1999 and 2005. Another polychaete, *Aricidea minuta*, which was commonly found in the years up to 1998, disappeared in 1999 and was never found again after that.

A species new to the Dogger Bank is the polychaete *Nicomache lumbricalis*. In 2005 2 specimens were found at station DOG 6, close to the British sector. We could find only one record of this species from the Dutch sector: van Moorsel (2003) found one specimen on the Klaverbank in 2002. *N. Lumbricalis* is known as a cold water species and has been reported from Arctic and North-Atlantic areas and also from the sub-Antarctic seas (Hartmann-Schröder, 1996). Another species that was not found before at the Dogger Bank is the bivalve *Myrtea spinifera*. This species has been found only once before within BIOMON, at the Oyster Ground station OYS 41, which is situated close to

the Dogger Bank. *M. spinifera* is widely distributed in the northern Atlantic and has also been found in the Indian Ocean (Tebble, 1966).

Finally the find of the bivalve *Nucula nucleus* may ask for some discussion. *N. nucleus* has been found only once before within BIOMON and that was at station OYS 23 in 1995 (Holtmann *et al.*, 1996). In 2005, the species was not only found at the Dogger Bank, but also at 3 stations in the Oyster Ground (see the paragraph below). It seems likely that the species has sometimes been overlooked in the past. Particularly the small younger specimens are not always easily to distinguish from the more common *N. nitidosa*. Living *N. nucleus* have been found at the Klaverbank (van Moorsel, 2003) and the valves of recently died specimens were found in several shell grit samples from the Oyster Ground (Wesselingh, pers. comm.). Further there are several records of beached specimens ('Het Zeepaard'), although its is not always clear whether these observations concerned recently died or (sub-)fossile specimens.

Oyster Ground (Fig. 14a-c)

In the Oyster Ground the brittle star *Amphiura filiformis* has recovered from the dip in population densities in the second half of the nineties. The numbers did not further increase in 2005, but stabilized at almost the same high level that was found in 2004. A more or less similar development can be observed in the bivalve *Nucula nitidosa*. The mud shrimp *Callianassa subterranea* continued its increasing trend that had been observed already since the end of the ninetees. All three species are typical dwellers of silty sediments. Apparently they were not affected in their abundance by the decreasing silt concentrations in the Oyster Ground.

The decreasing trend that was observed in the tube-building polychaete *Chaetopterus variopedatus* in the period between 2000 and 2004 seems to have come to an end in 2005. In the other more or less common species no trendwise long-term development could be observed.

There were two bivalve species that within BIOMON had not been observed in the Oyster Ground before. *Astarte (Tridonta) montagui* had been found only at the Dogger Bank (Bergman & van Santbrink, 1998; Daan & Mulder, 2002, 2004). The new record is from station OYS 13, which is lying close to the Dogger Bank. The mytilid *Musculus niger* has formerly been found in the central Oyster Ground by Holtmann & Groenewold (1992), Bergman & van Santbrink (1998) and Creutzberg (unpubl. data). The species is probably too sparsely distributed to be effictively sampled with a boxcorer. The

finds of *N. nucleus* at 3 Oyster Ground stations suggests that this species may have been overlooked in the past (see the Dogger Bank paragraph).

Two polychaete species were also new to the Oyster Ground. *Nicomache lumbricalis*, mentioned above from the Dogger Bank, was also found at station OYS 14. Further we found *Travisia forbesi* at station OYS 15. Till now this species was well known from the sandy southern offshore area, but not from silty sediments like in the Oyster Ground. Van Moorsel et al. (1991) reported the species from the Klaverbank.

Another species that was not found before in the Oyster Ground is the amphipod *Tryphosites longipes*. In 2005 it was present at 3 stations in the northern part of the Oyster Ground. Within the DCS it has only been reported from the Klaverbank by van Moorsel (1991). Further it was known from a few stations at the British part of the Dogger Bank (de Wilde & Duineveld, 1988).

Offshore area (Fig. 15a-c)

In the offshore area a decreasing tendency can be observed in recent years in the polychaetes *Aricidea minuta*, *Lanice conchilega* and *Spiophanes bombyx*. Herewith *A. minuta* seems to follow the same trend as already was observed at the Dogger Bank. An increasing trend is shown by the gastropod *Euspira nitida*. The other common species showed more or less random year to year fluctuations around a mean that did not show any trendlike development.

The southern part of the offshore area (south of OFF 33) has appeared to be very 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. The data collected in the following year suggested that the species richness at these stations had recovered. The mean species richness was well beyond 10 species per sample, which was the usual level of the years before 2003. However in 2005, species richness was low again in this area, with on average 9.4 species per sample. This may indicate that there is still a tendency for decreasing species richness in the southern part of the offshore area.

A species that was found for the first time in the offshore area (at OFF 6 , west of Texel) is the bivalve *Arcopagia crassa*. In the Dutch sector this species was, till now, known only from the Klaverbank, where it has been found by Creutzberg (unpubl. data) and by van Moorsel (1991, 2003). *A. crassa* is distributed from the Norwegian sea along the Atlantic coast south to Senegal.(Tebble, 1966). Another bivalve species that is seldom found in the Dutch sector is *Diplodonta rotundata*, which occurred at station OFF 33. In 2002 the species was found at the same station. Other records are from the area west of Zeeland (Mulder, 1986) and from the northwestern part of the offshore area (Daan et al., 1990).

Another species that, within BIOMON, was not found before in the offshore area, was the polychaete *Apistobranchus tullbergi*. We found this species only once before at station DOG 1 in 1999. Other records are from the area west of Zeeland (Mulder, 1986) and from a few stations in the British part of the Dogger Bank (de Wilde & Duineveld, 1988). Finally it seems remarkable that the anthozoan *Peachia cylindrica*, which we found in 2004 for the first time, was found again in the offshore area in 2005 at station OFF15. This species was formerly only known from the Klaverbank (van Moorsel, 1991, 2003).

Coastal area (Fig. 16a-c)

In the coastal area the densities of the bivalve *Spisula subtruncata* further decreased. The *Spisula* banks that were present on several stations in 2000 gradually disappeared in the next 5 years, so that average densities declined from several hundreds per m^2 in 2000 to about 10 per m^2 in 2005.

The american razor clam *Ensis americanus* showed a slight numerical decrease after peak densities in 2002, but the average densitiy was still high and there was no decrease in biomass. 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, 2003). The growth of this year class can be followed at 5 coastal stations where the species was particularly abundant (Fig. 17a/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 different between stations. Near Ameland and Terschelling the densities remained relatively high, but growth was slow. Near Ameland the animals had grown up to on average 95 mm in 2005 and near Terschelling to 105 to 110 mm. At the other three stations the densities were relatively low, but the average size had increased to about 120 mm. These results indicate that enhanced intraspecific competition for space and/or food might have 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 that has not been found before in the coastal area during the BIOMON programme is the otter shell *Lutraria lutraria*. However, it was not unknown that this

species had colonized the coastal area. Cadee (2004) and van der Valk (2004) already reported the finds of freshly beached specimens on the Dutch coast and Craeymeersch & Perdon (2005) found the species alive at several stations in the coastal area. It seems remarkable that the sandy bottom in the coastal area appears to be a suitable substrate for the species to settle on. Nearly all observations in the Dutch sector before 2004 were done in the Oyster Ground, except for one which came from station OFF 30 just south of the Oyster Ground. Most records originate from samples collected with a Triple-D dredge (Bergman & van Santbrink, 1998).

6. Acknowledgements

The monitoring program is initiated by the National Institute for Coastal and Marine Management (RIKZ), with J. de Vlas and M.J. Latuhihin as project leaders, and is carried out in cooperation with the North Sea Directorate (DNZ) and the department of Marine Ecology of the NIOZ. We want to thank the captain and crew on board of the RV Arca and RV Delta for their assistance during the fieldwork, W. Schreurs and G. den Hartog (RIKZ Middelburg) for the analysis of the sediment samples, J. de Vlas for critically reading the original manuscript, M. van Arkel for his contribution in the organization and H. Hobbelink for the cover design.

6. References

ANONYMOUS, 2005. Meetverslag ms. Arca, jaargang 2005. Mon*Biologie Benthos. - Rijkswaterstaat, Directie Noordzee.

BERGMAN, M.J.N. & J. VAN SANTBRINK, 1998. Distribution of larger sized invertebrate species (megafauna) in the Dutch sector of the North Sea. In M.J.N. BERGMAN et al.: The distribution of benthis macrofauna in the Dutch sector of the North Sea in relation to the microdistribution of beam trawling. BEON report 98-2.

CADÉE, M.C., 2004. De otterschelp – *Lutraria lutraria* (Linné, 1758) – levend aangespoeld bij Langevelderslag (prov. Zuid-Holland). Het zeepaard 64 (3): 70-72.

CRAEYMEERSCH, J.A. & J. PERDON, 2005. De otterschelp *Lutraria* in de Nederlandse wateren. Het Zeepaard 65 (5): 144-150.

DAAN, R., W.E. LEWIS & M. MULDER, 1990. Biological effects of discharged oil-contaminated drill cuttings in the North Sea. NIOZ-report 1990-5, NIOZ, Texel, The Netherlands: 1-79.

DAAN, R. & M. MULDER, 2002. The macrobenthic fauna in the Dutch sector of the North Sea in 2001 and a comparison with previous data. NIOZ-report 2002-1, NIOZ, Texel, The Netherlands: 1-90.

DAAN, R. & M. MULDER, 2003. The macrobenthic fauna in the Dutch sector of the North Sea in 2002 and a comparison with previous data. NIOZ-report 2003-5, NIOZ, Texel, The Netherlands: 1-94.

DAAN, R. & M. MULDER, 2004. The macrobenthic fauna in the Dutch sector of the North Sea in 2003 and a comparison with previous data. NIOZ-report 2004-4, NIOZ, Texel, The Netherlands: 1-93.

DAAN, R. & M. MULDER, 2005. The macrobenthic fauna in the Dutch sector of the North Sea in 2004 and a comparison with previous data. NIOZ-report 2005-3, NIOZ, Texel, The Netherlands: 1-95.

ESSINK, K., 1991. Bemonstering en analyse van macroscopische bodemfauna van de Voordelta en de Noordzee (Nederlands Continentaal Plat). Getijdewateren Standaard Voorschrift, Rijkswaterstaat, Dienst Getijdewateren: 9pp.

ESSINK, K., 1995. Change of strategy for monitoring macrozoobenthos in the Dutch sector of the North Sea. National Institute for Coastal and Marine Management/RIKZ/ Working-document OS-95.606x: 5pp.

GULLENTOPS, F., M. MOENS, A. RINGELE & R, SENGIER, 1977. Geologische kenmerken van de suspensies en de sedimenten. In: J. Nihoul & F. Gullentops (eds): Mathematisch Model Noordzee. Vol 4. Sedimentologie.

HARPER, J.L. & D.L. HAWKSWORTH, 1994. Biodiversity: measurement and estimation. Phil. Trans. R. Soc., Ser. B, 345: 5-12.

HARTMANN-SCHRÖDER, 1996. Annelida, Borstenwürmer, Polychaeta. Die Tierwelt Deutschlands, 58. Teil. Gustav Rischer Verlag, Jena.

HILL, M.O., 1973. Diversity and evenness: A unifying notation and its consequences. Ecology 54(2): 427-432.

HOLTMANN, S.E. & A. GROENEWOLD, 1992. Distribution of the zoobenthos on the Dutch Continental Shelf: the Oyster Ground, Frisian Front, Vlieland Ground and Terschelling Bank (1991). NIOZ-report 1992-8, NIOZ, Texel, The Netherlands, NIOO-CEMO rapporten en verslagen 1992-6: 129pp.

HOLTMANN, S.E. & A. GROENEWOLD, 1994. Distribution of the zoobenthos on the Dutch Continental Shelf: The western Frisian Front, Brown Bank and Broad Fourteens (1992/1993). NIOZ-report 1994-1, NIOZ, Texel, The Netherlands, NIOO-CEMO rapporten en verslagen 1994-1: 136pp.

HOLTMANN, S.E., J.J.M. BELGERS, B. KRACHT & R. DAAN, 1996. The macrobenthic fauna in the Dutch sector of the North Sea in 1995 and a comparison with previous_data. NIOZ-report 1996-8, NIOZ, Texel, The Netherlands: 102 pp.

MOORSEL, G.W.N.M. VAN & H.W. WAARDENBURG, 1991. Short-term recovery of geomorphology and macrobenthos of the Klaverbank (North Sea) after gravel extraction. Bureau Waardenburg, Culemborg, rep. Nr. 91.20.

MOORSEL, G.W.N.M. VAN, 2003. Ecologie van de Klaverbank; Biotasurvey 2002. Rapport in opdracht van RIKZ. 105 pp.

MULDER, M., 1986. Onderzoek naar de mogelijke effecten van het lozen van titaandioxide afvalzuur op de macrobenthische fauna in de Noordzee. TECON-rapport 1, NIOZ, Texel, The Netherlands: 75 pp.

PEARSON, T.H. & R. ROSENBERG, 1978. Macrobenthic succession in relation to organic enrichment and pollution of the marine environment. Oceanogr. Mar. Biol. Ann. Rev. *16: 229-311.*

PETERSON, C.H., 1977. Species diversity and perturbations: predictions of a non-interactive model. *Oikos 29: 239-244.*

RICCIARDI, A. & E. BOURGET, 1998. Weight-to-weight conversion factors for marine benthic macroinvertebrates. Mar. Ecol. Prog. Ser. 163: 245-251.

RUMOHR, H., T. BREY & S. ANKAR, 1987. A compilation of biometric conversion factors for benthic invertebrates in the Baltic Sea. -Baltic Marine Biology Publ. 9: 1-56.

SHANNON, C.E. & W. WEAVER, 1949. The mathematical theory of communication. Univ. of Illinois Press, Urbana.

SIMPSON, E.H., 1949. Measurements of diversity. Nature, 163: 688-688.

TEBBLE, N., 1966. British bivalve seashells. Royal Scottish Museum, Edinburgh

VALK, B. VAN DER, 2004. Otterschelpen op de Hollandse kust: een succesvolle kolonisatie in 2002? Het Zeepaard 64 (4): 107-109.

WILDE, P.W.J. DE & G.C.A. DUINEVELD, 1988. Macrobenthos van het Nederlands Continentaal Plat verzameld tijdens de ICES 'North Sea Benthos Survey', april 1986, 107 pp.

YLAND, E., 1995. Biologisch monitoringprogramma zoute wateren, stand van zaken 1995. Werkdocument RIKZ IT-95.170X: 39pp.

Tables and Figures

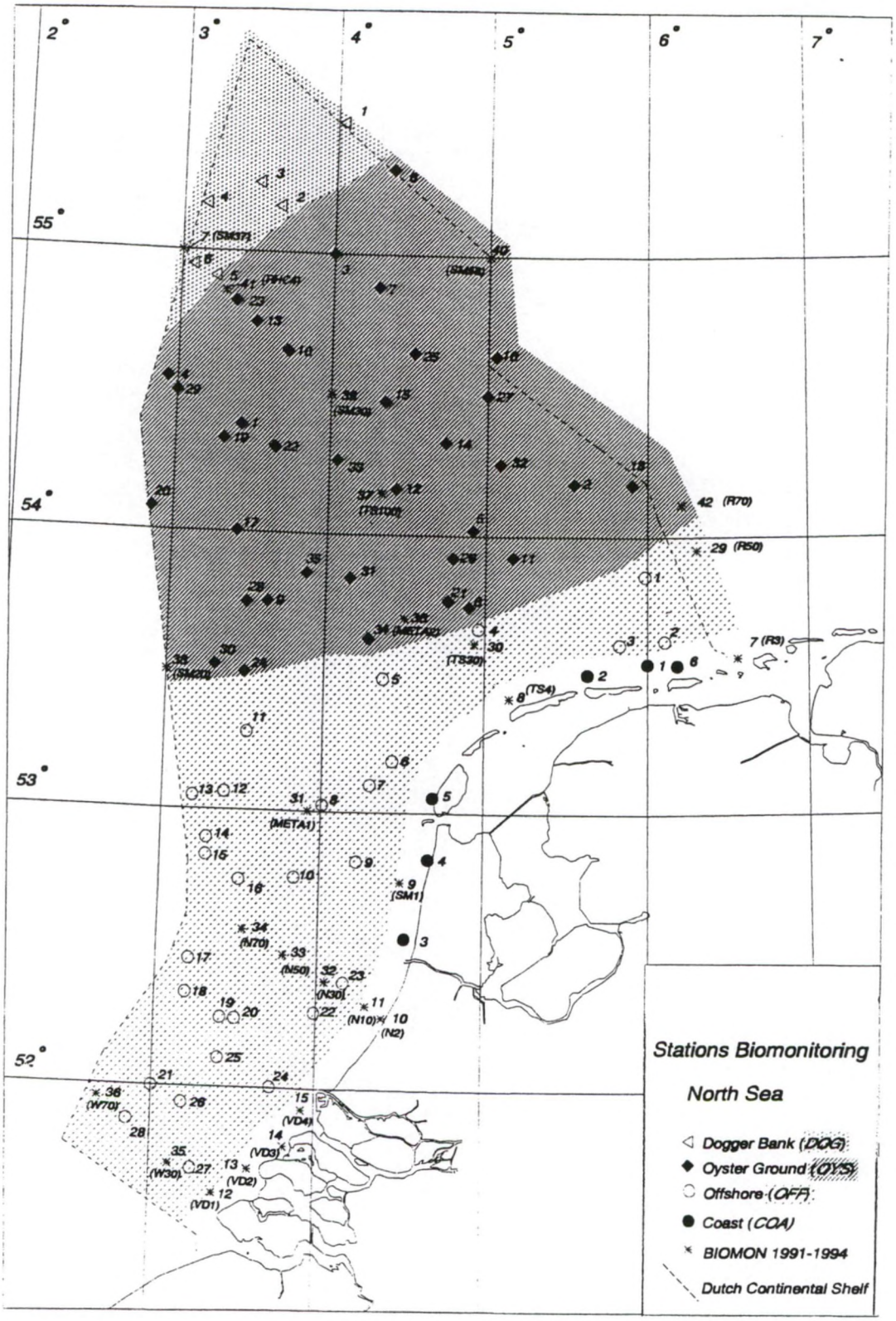


Fig. 1. Locations of the sampling stations

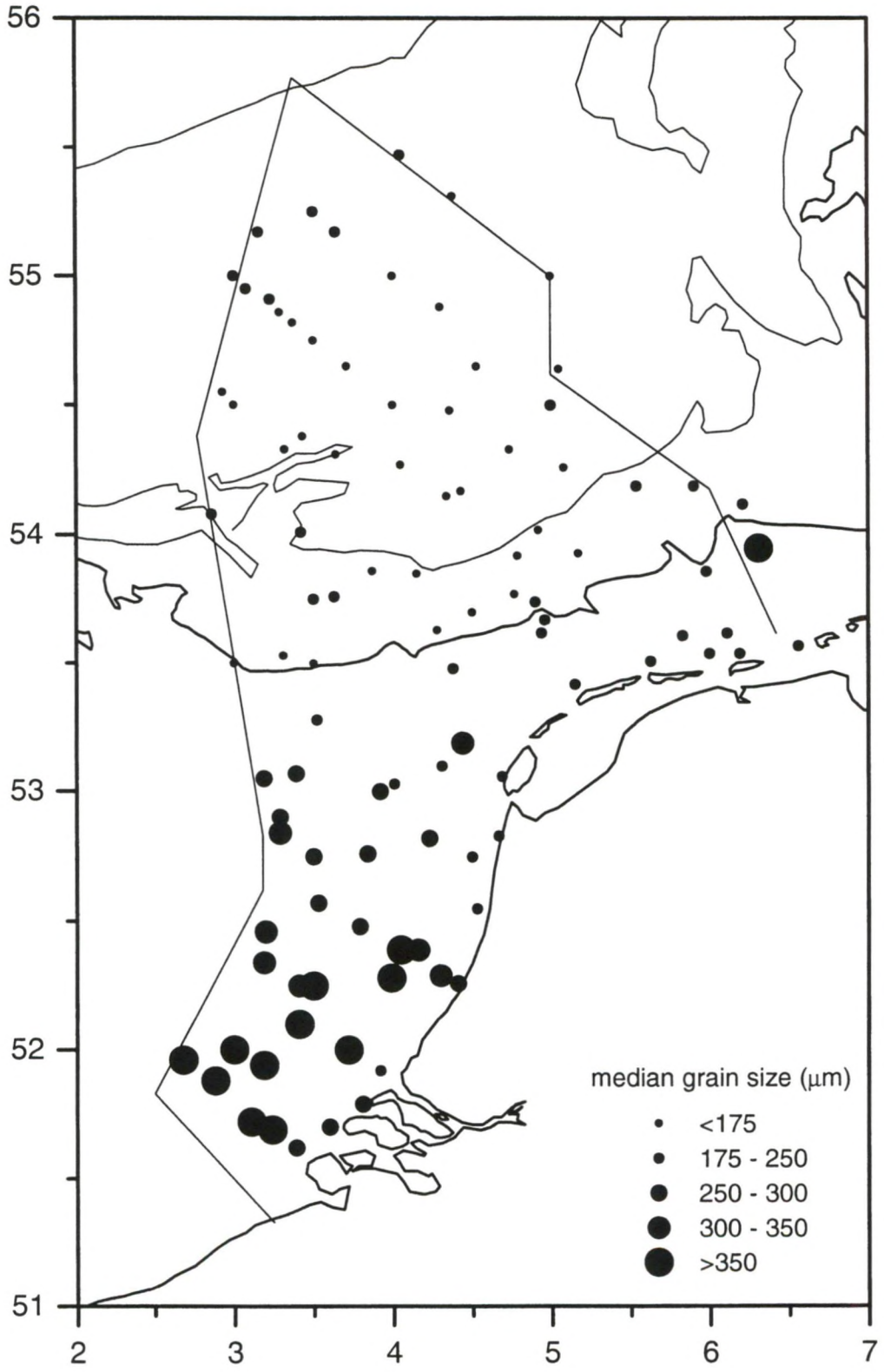


Fig. 2: Median grain size (μm) of the sediment in 2005

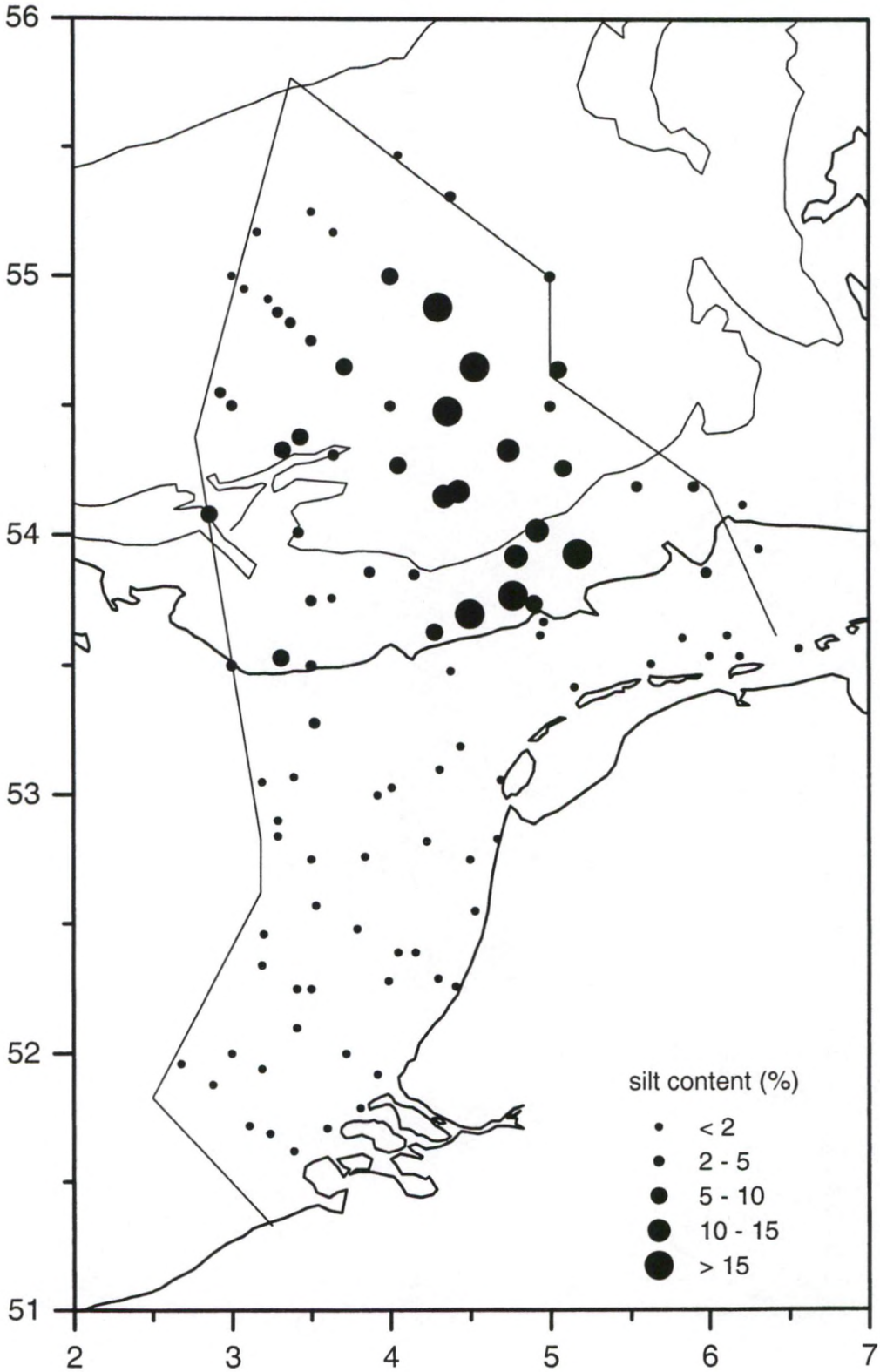


Fig. 3: Silt content (fraction <63 μm) of the sediment in 2005.

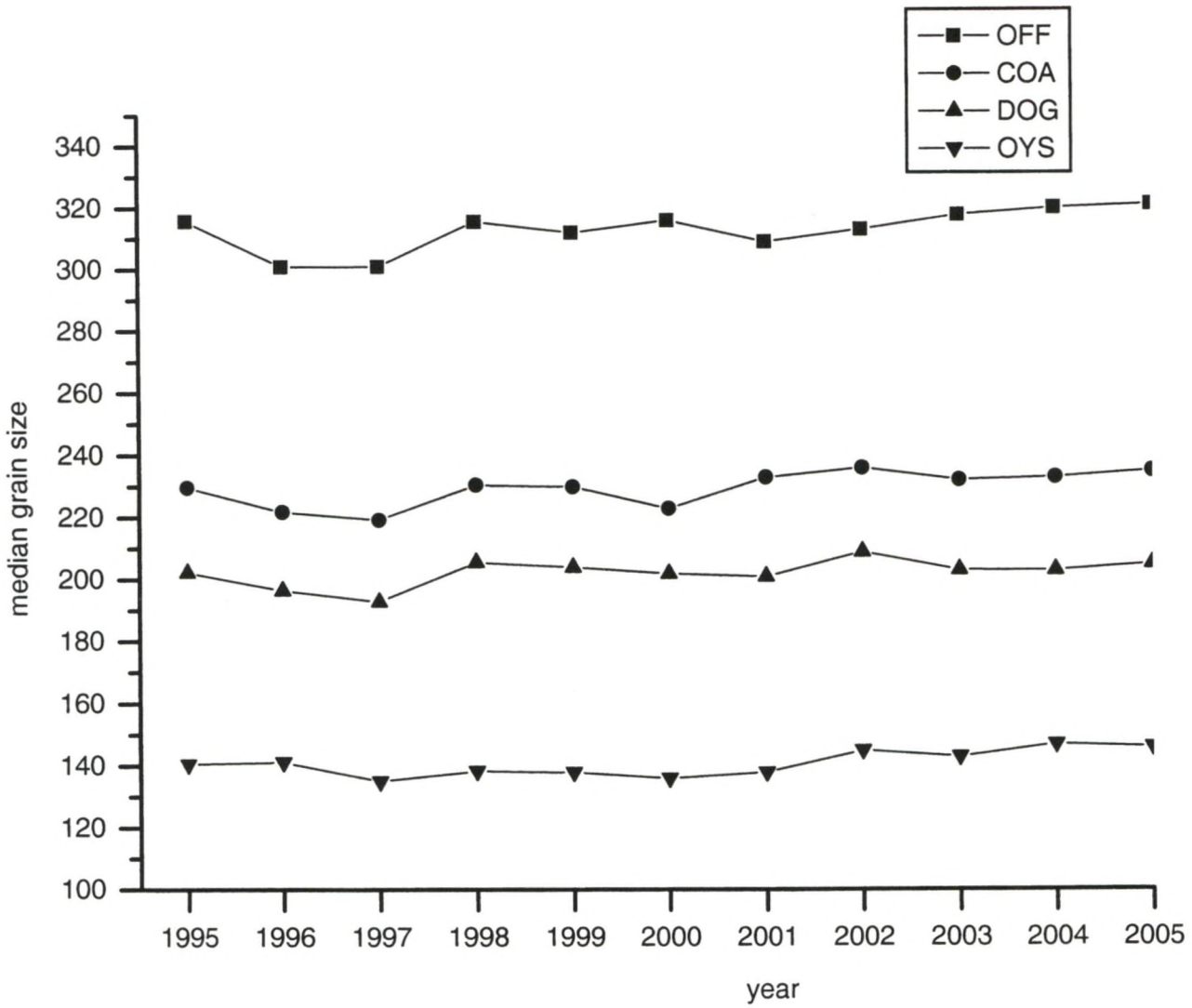


Fig. 4: Temporal trends in the mean median grain size in the four subareas.

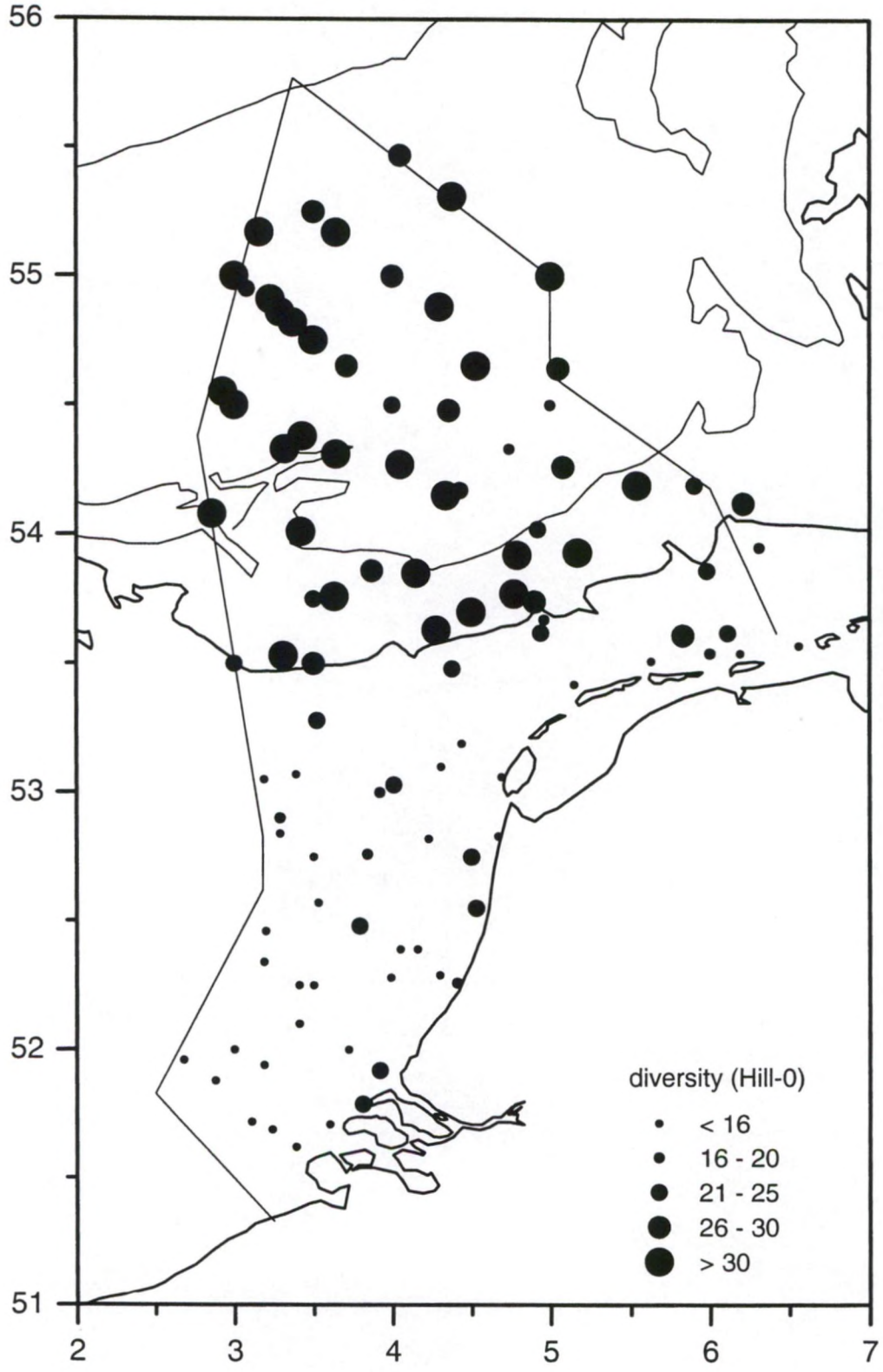


Fig. 5: The number of species per sample (Hill-0) in 2005.

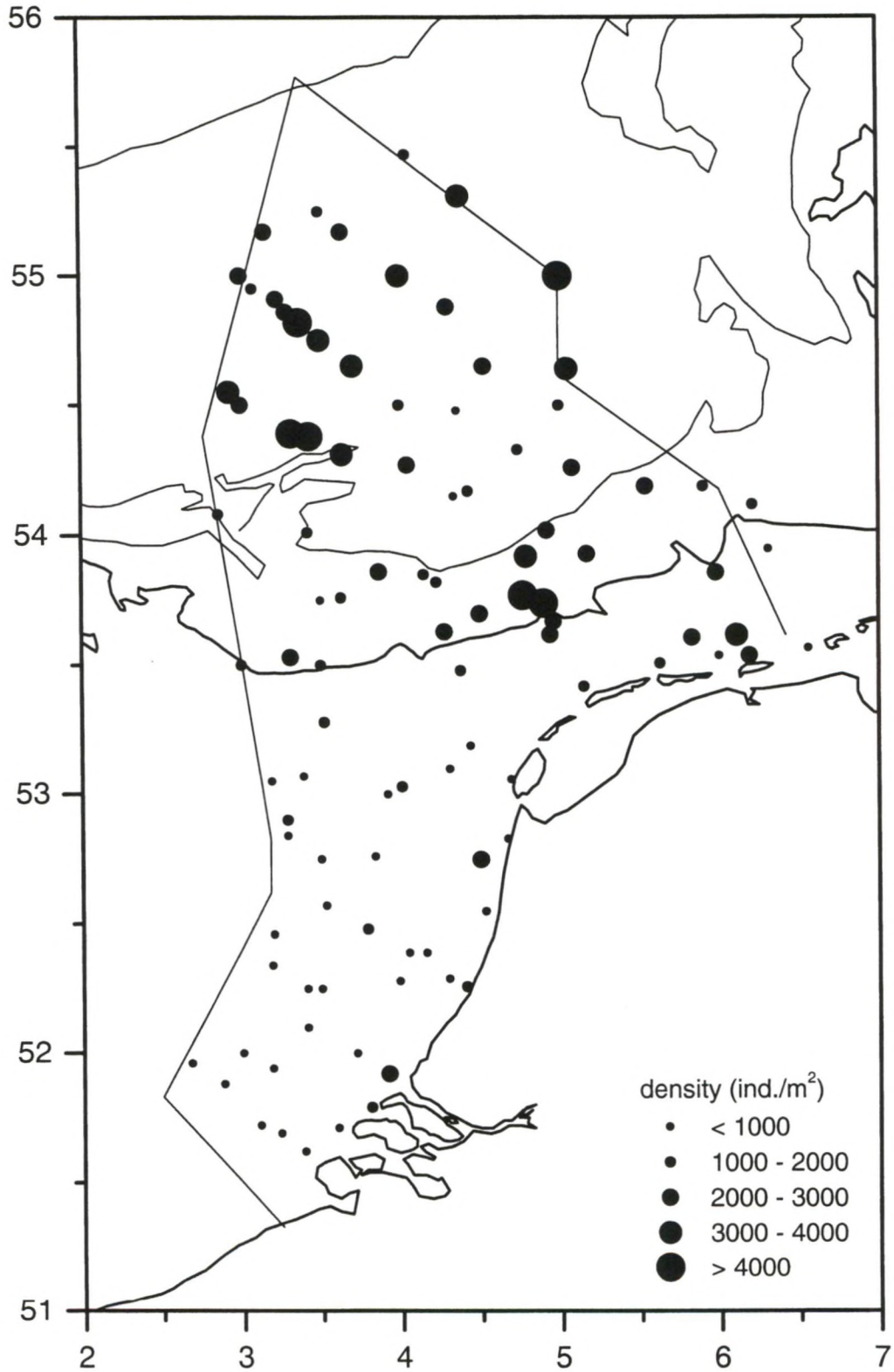


Fig. 6: The total fauna density in 2005.

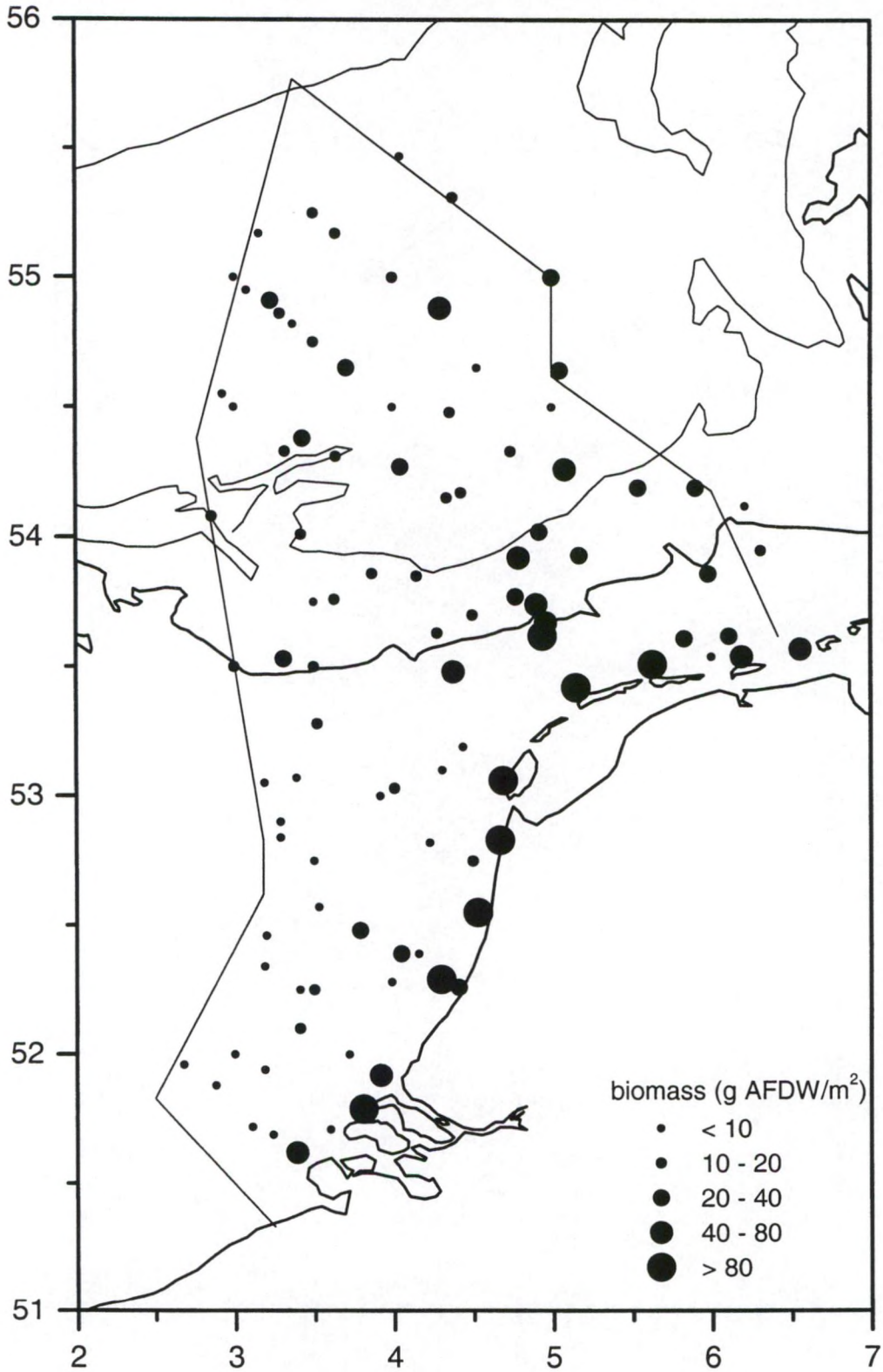


Fig. 7: The total biomass (g AFDW/m2) of the macrobenthos in 2005.

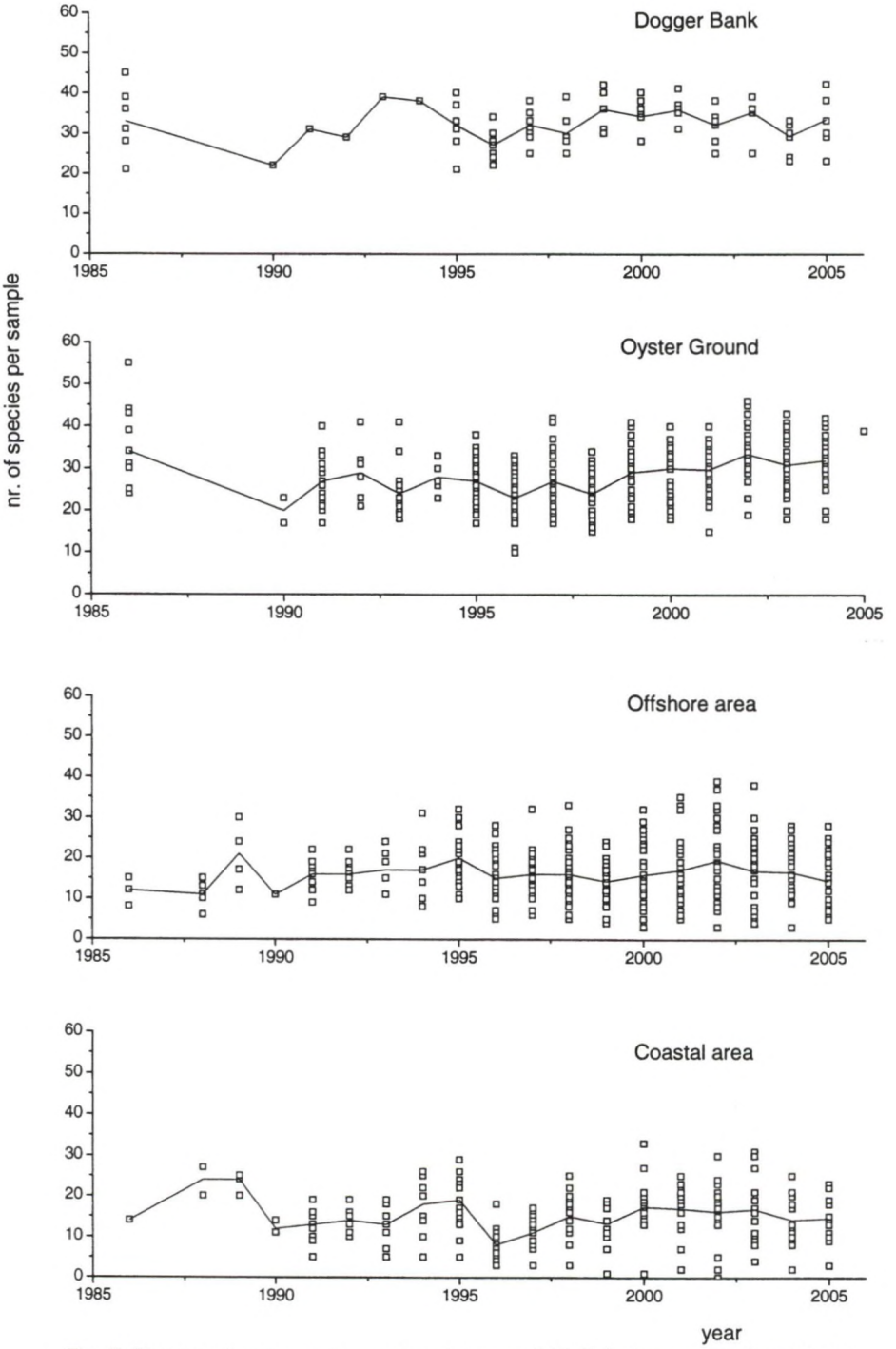


Fig. 8: Temporal patterns in species richness (Hill-0) between 1986 and 2005.

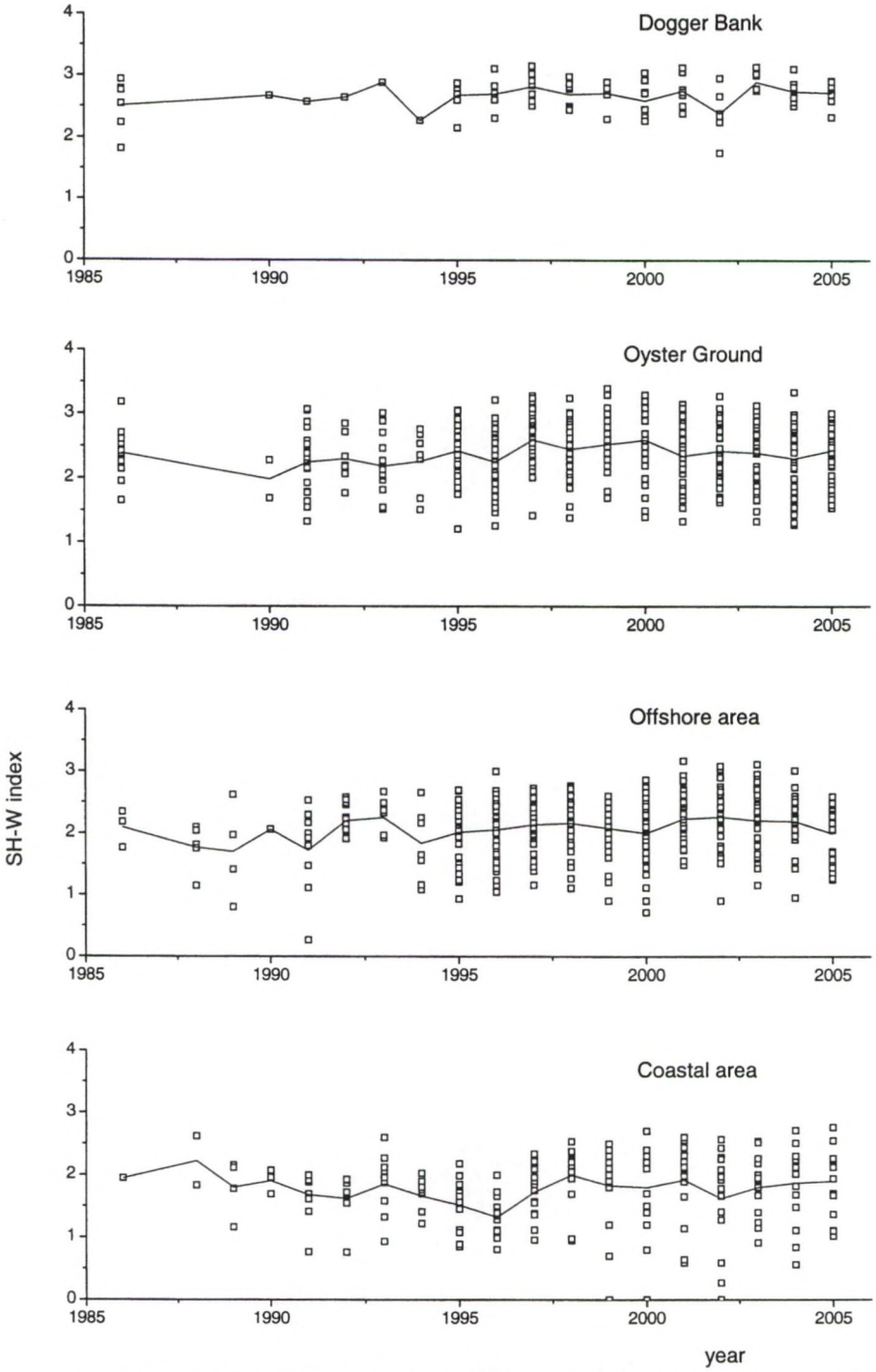


Fig. 9: Temporal patterns in Shannon-Wiener diversity between 1986 and 2005.

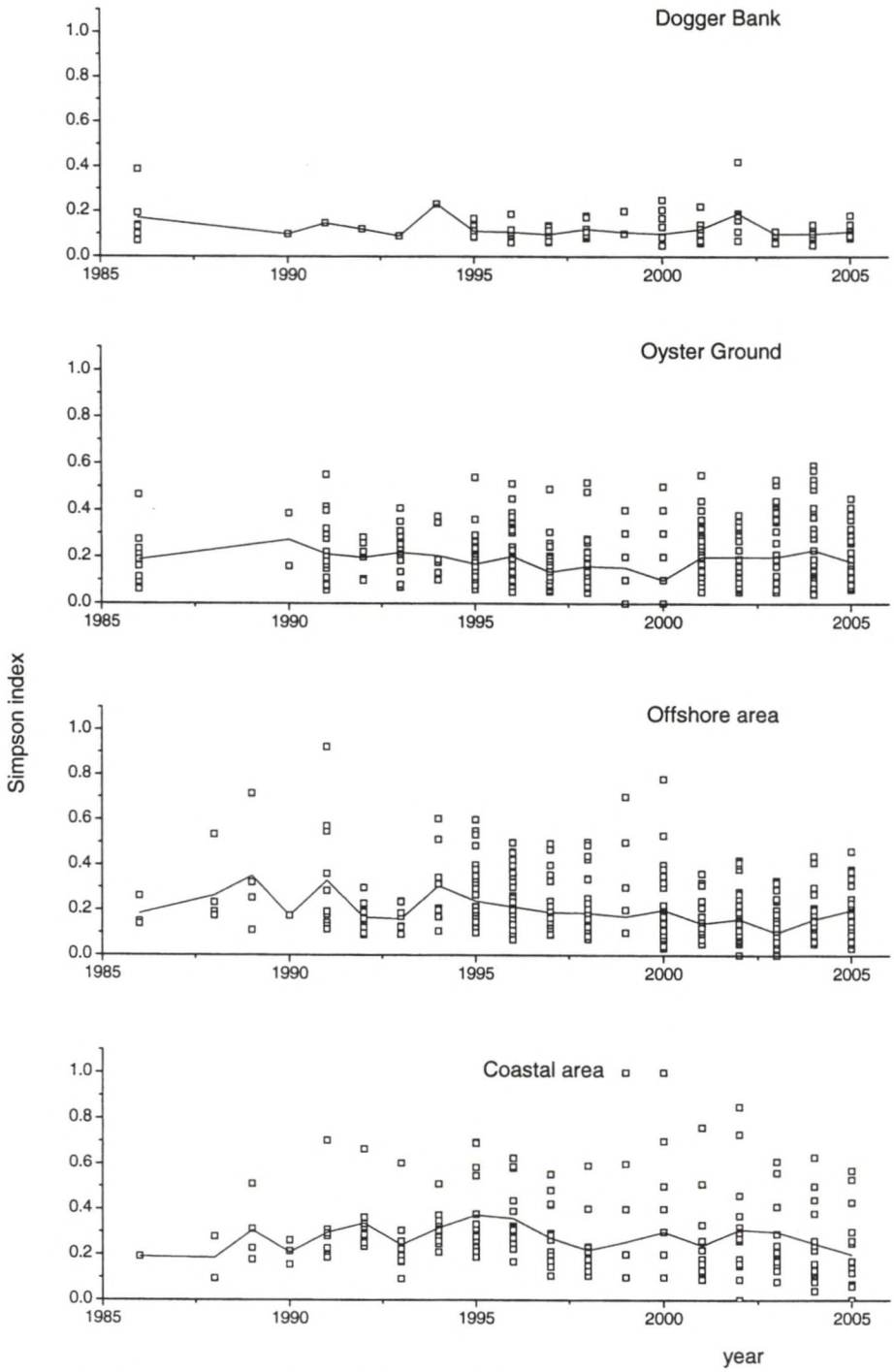


Fig. 10: Temporal patterns in Simpson's dominance between 1986 and 2005.

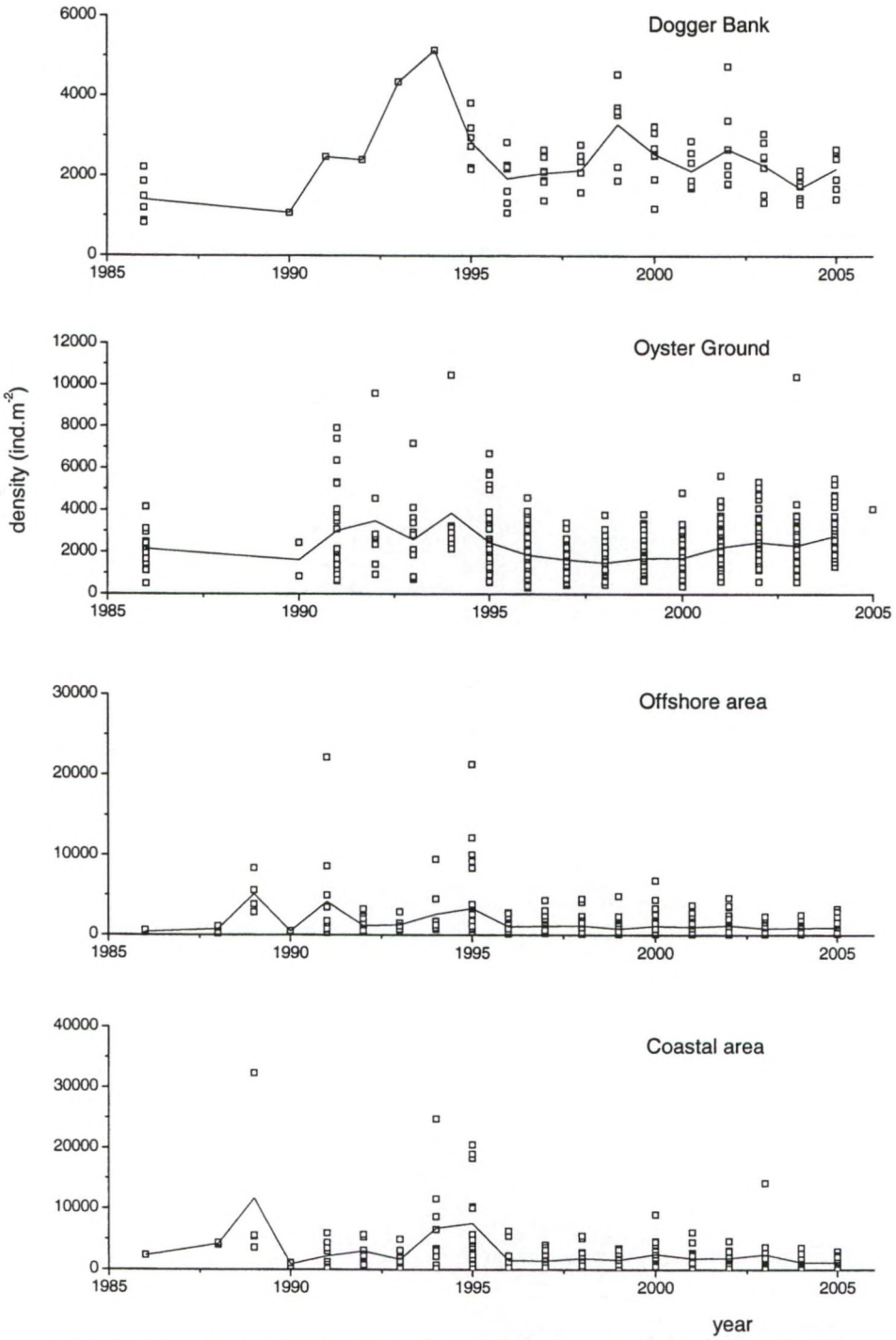


Fig. 11: Temporal patterns in macrobenthos density between 1986 and 2005.

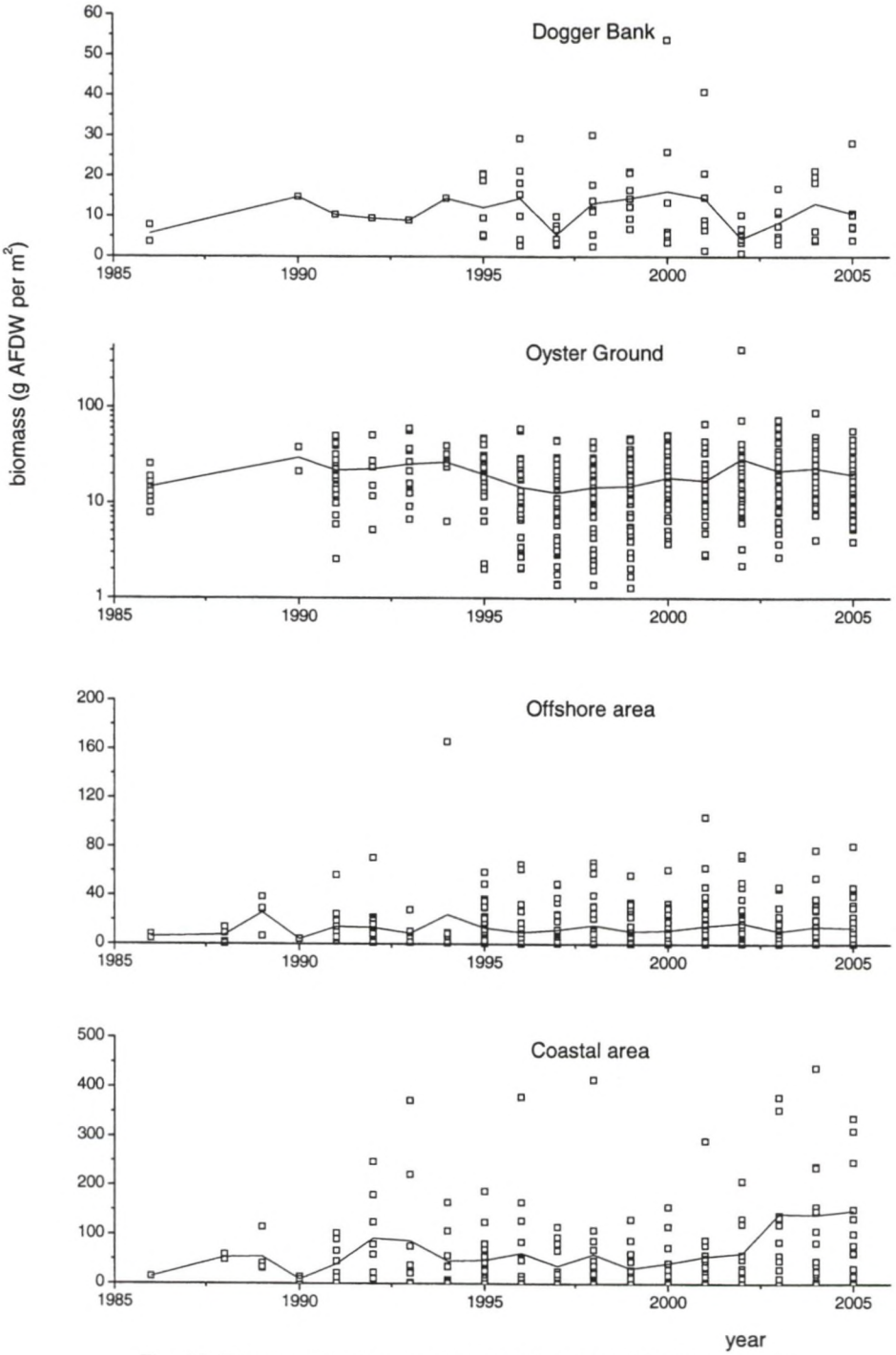


Fig. 12: Temporal patterns in biomass between 1986 and 2005.

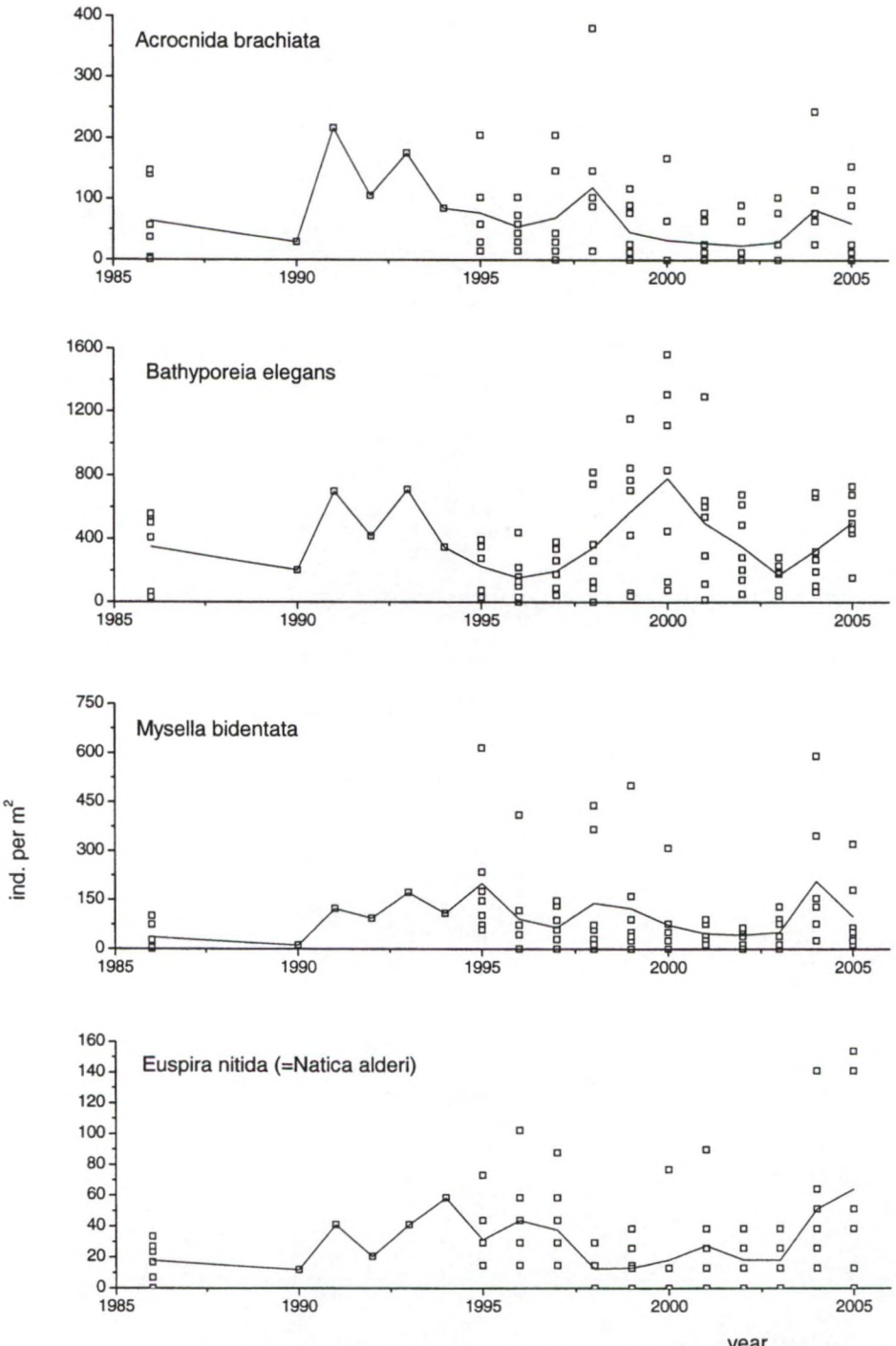


Fig. 13a: Densities of 4 species at the Dogger Bank (1986-2005)

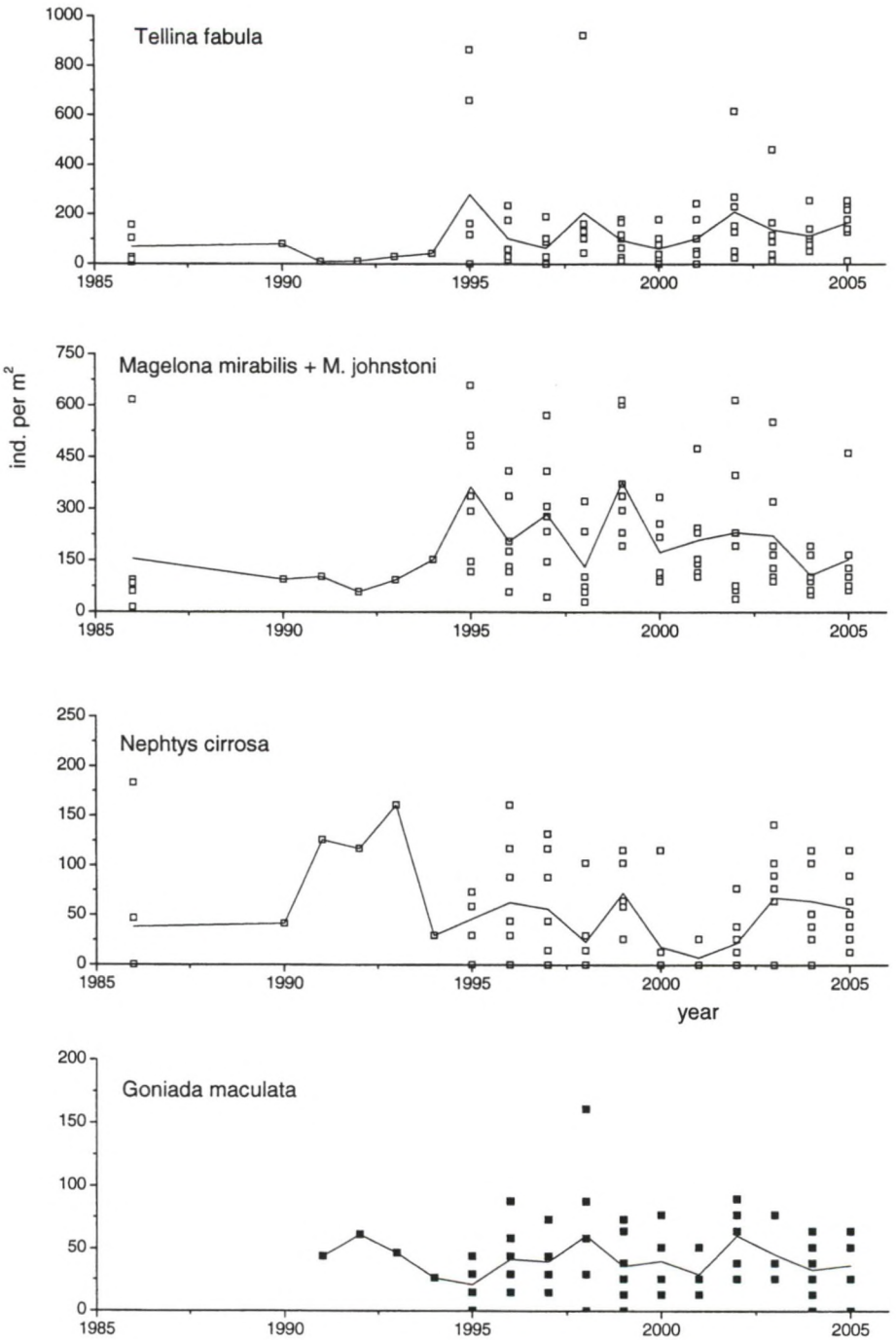


Fig. 13b: Densities of 4 species at the Dogger Bank (1986-2005)

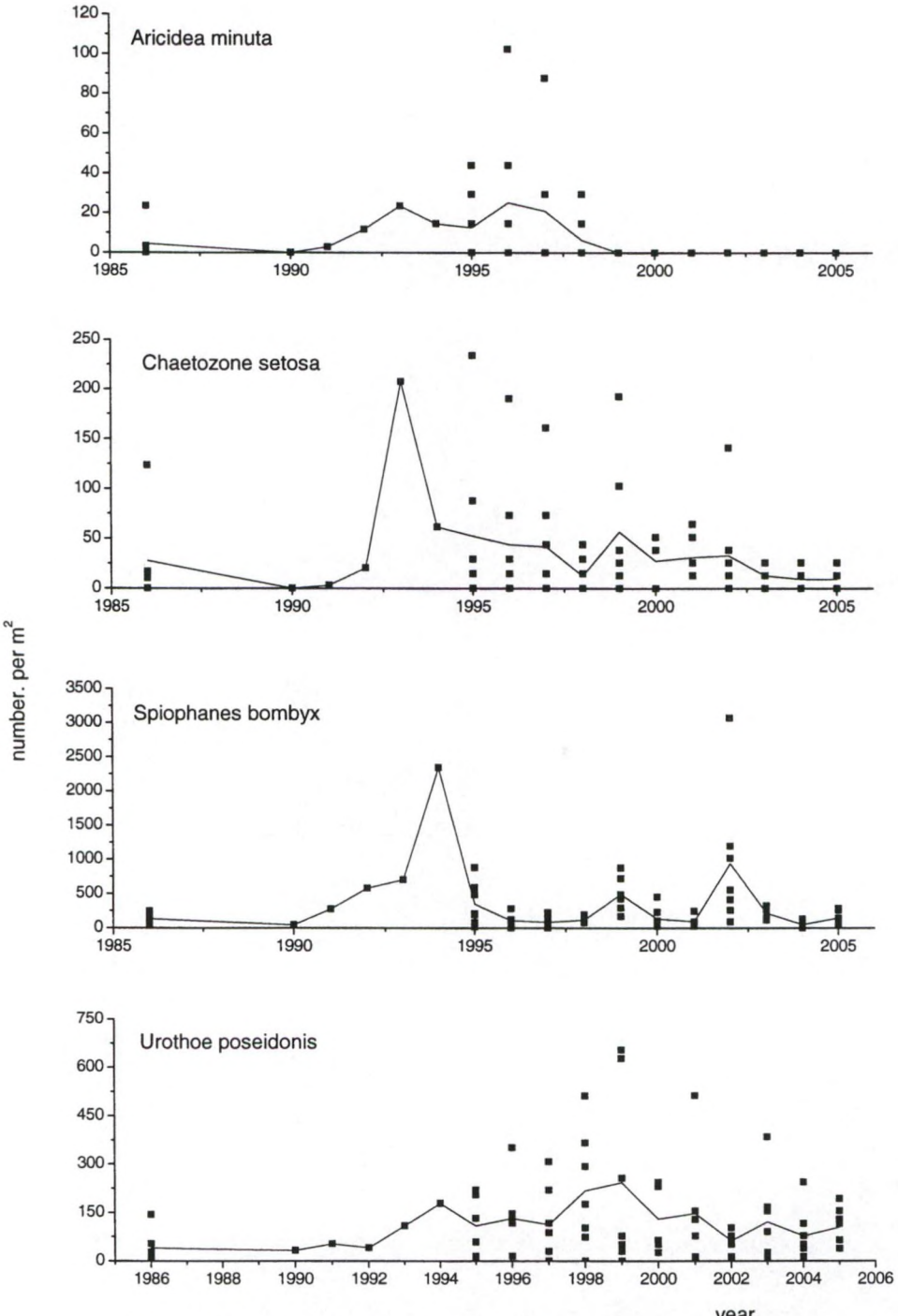


Fig. 13c: Densities of 4 species at the Dogger Bank (1986-2005)

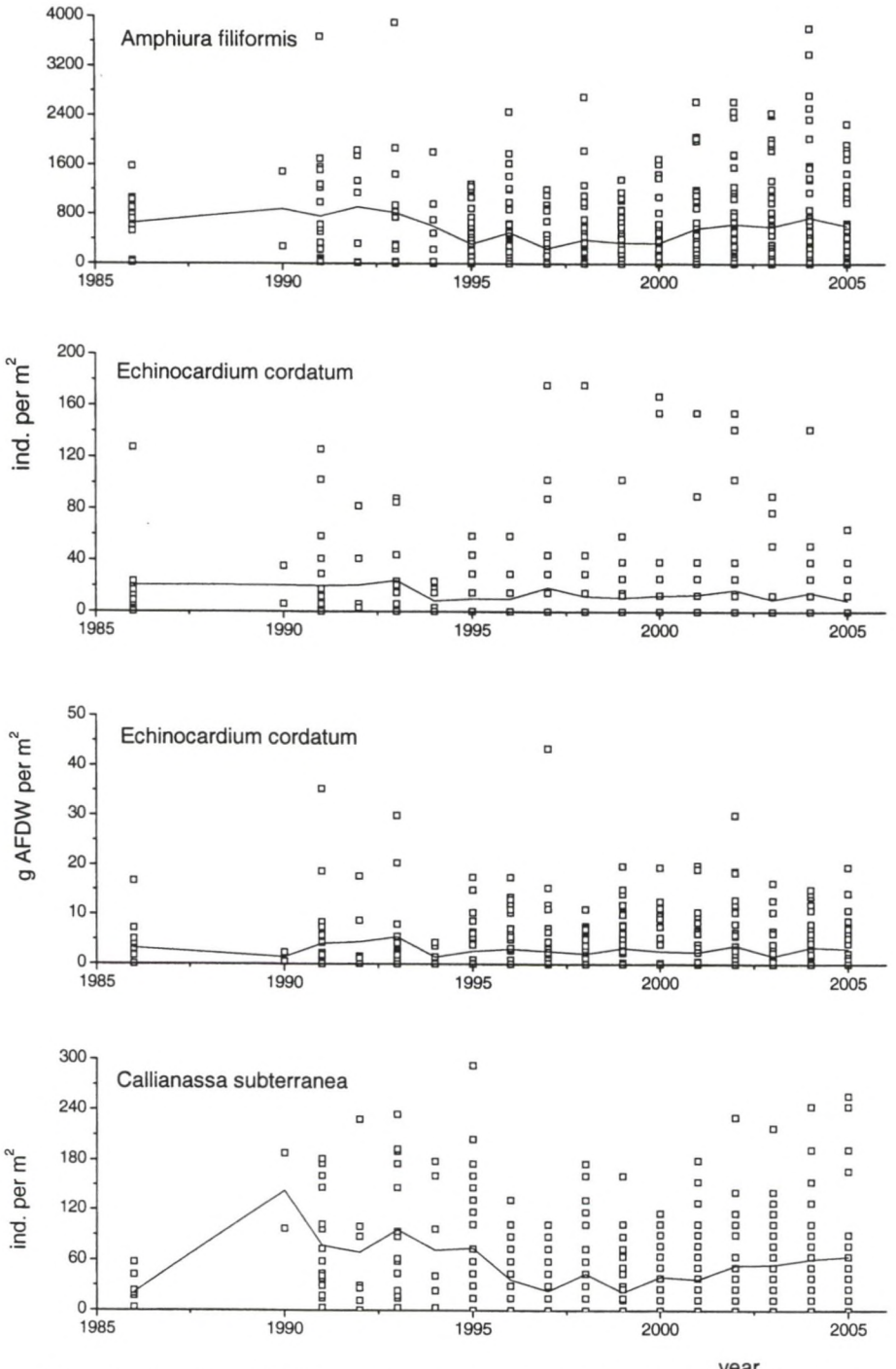


Fig. 14a: Densities (and biomass for E. cordatum) of 3 species in the Oyster Ground (1986-2005).

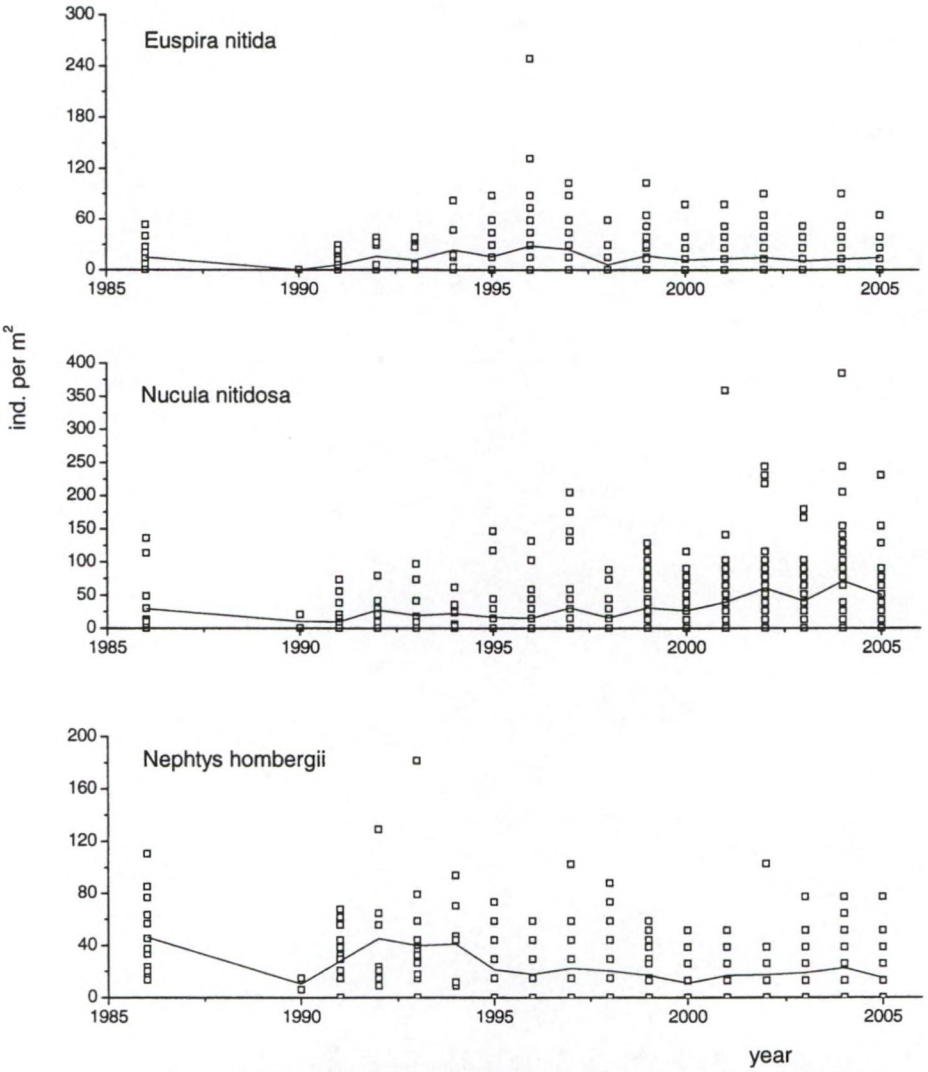


Fig. 14b: Densities of 3 species in the Oyster Ground (1986-2005)

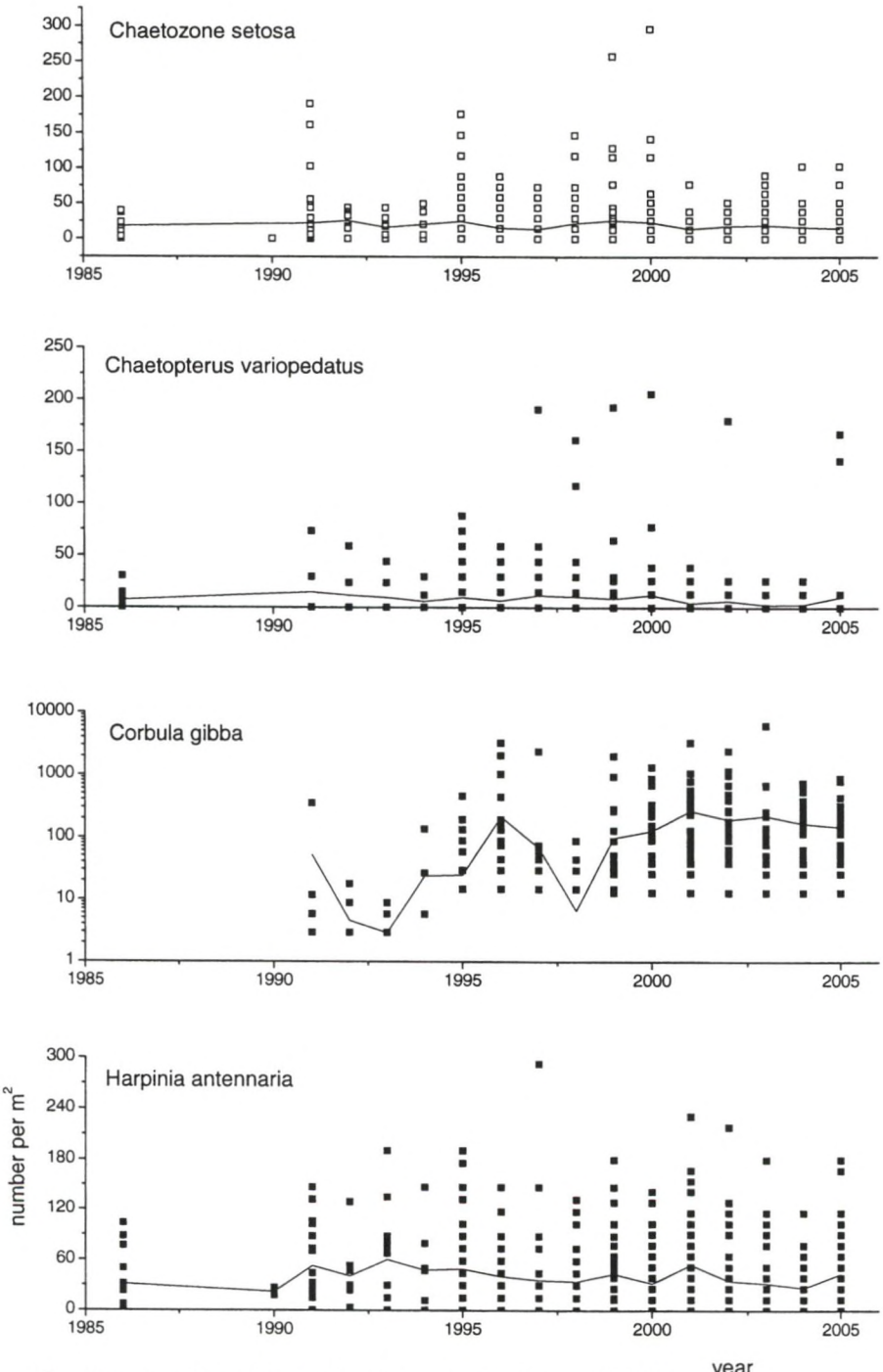


Fig. 14c: Densities of 4 species in the Oyster Ground (1986-2005).

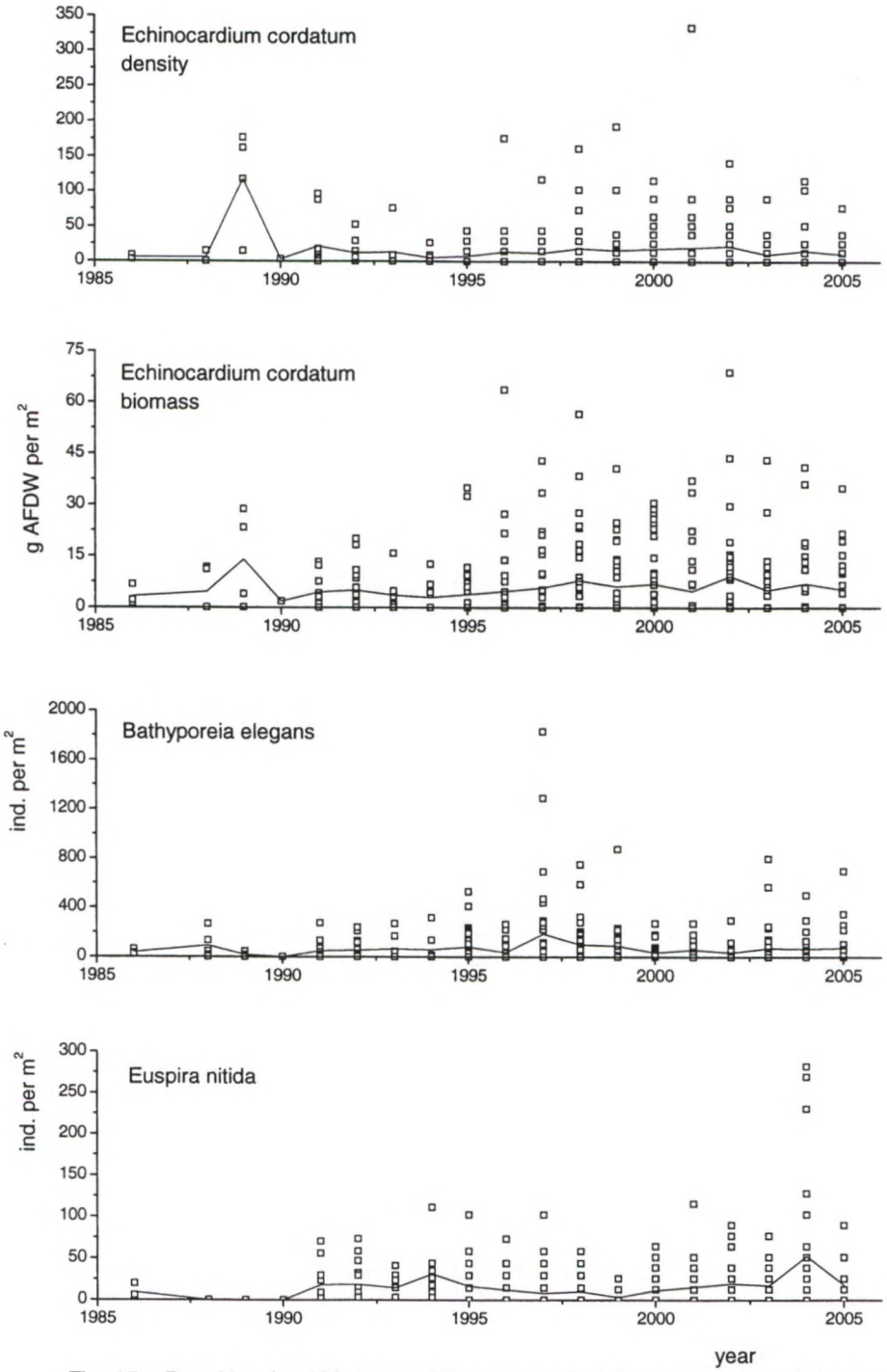


Fig. 15a: Densities (and biomass of E. cordatum) of 3 species in the offshore area (1986-2005).

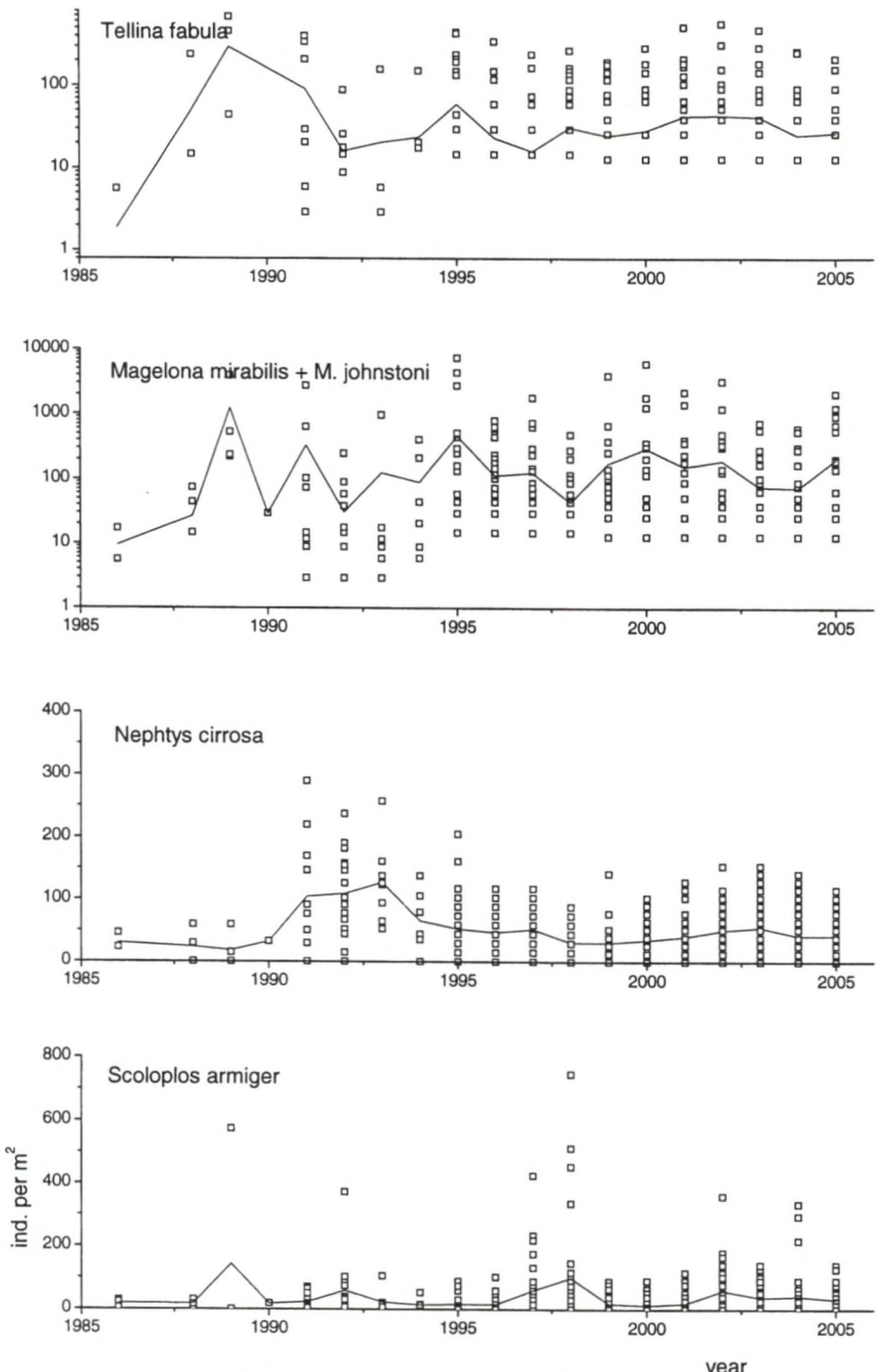


Fig. 15b: Densities of 4 species in the offshore area (1986-2005)

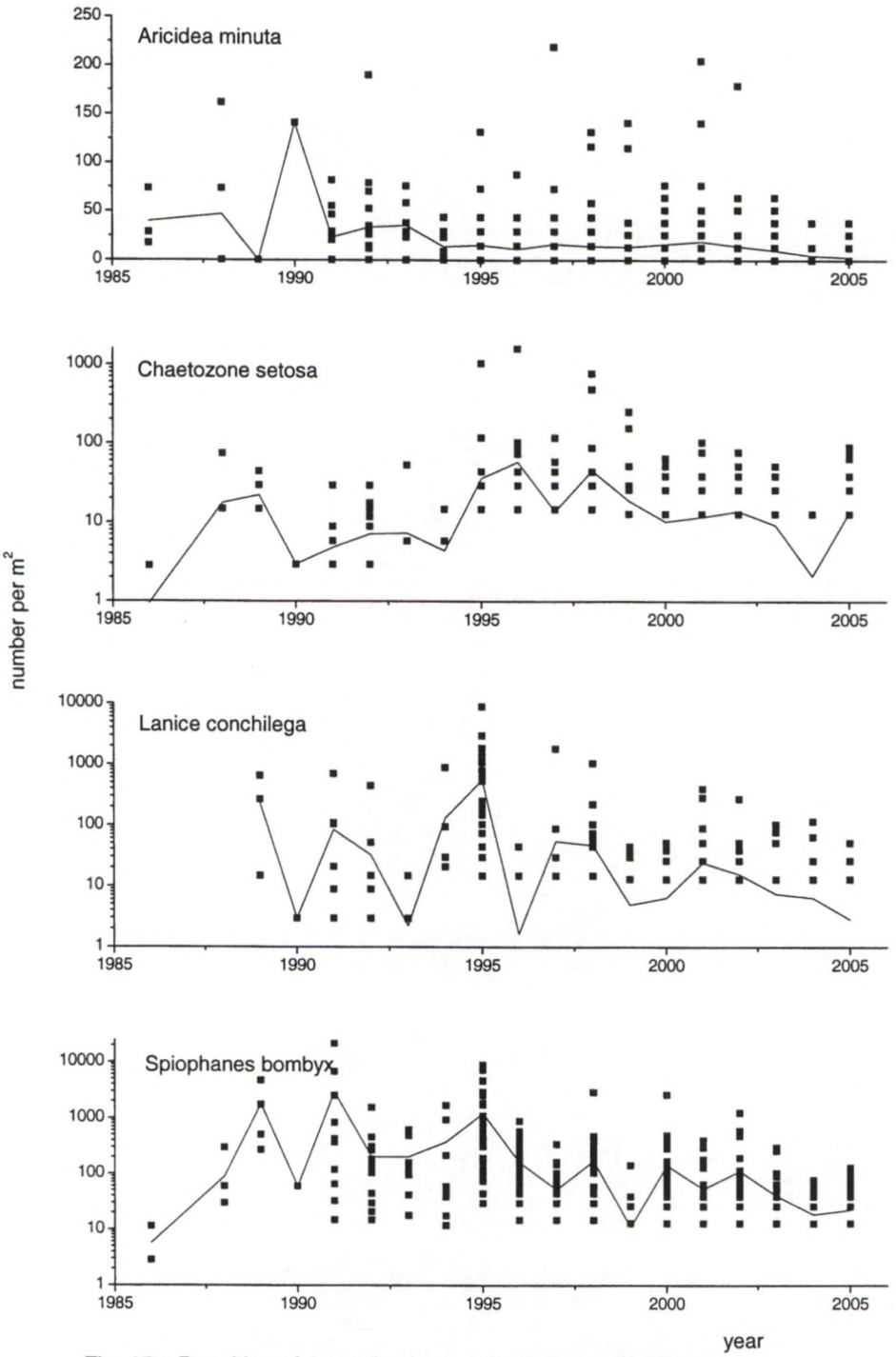


Fig. 15c: Densities of 4 species in the offshore area (1986-2005).

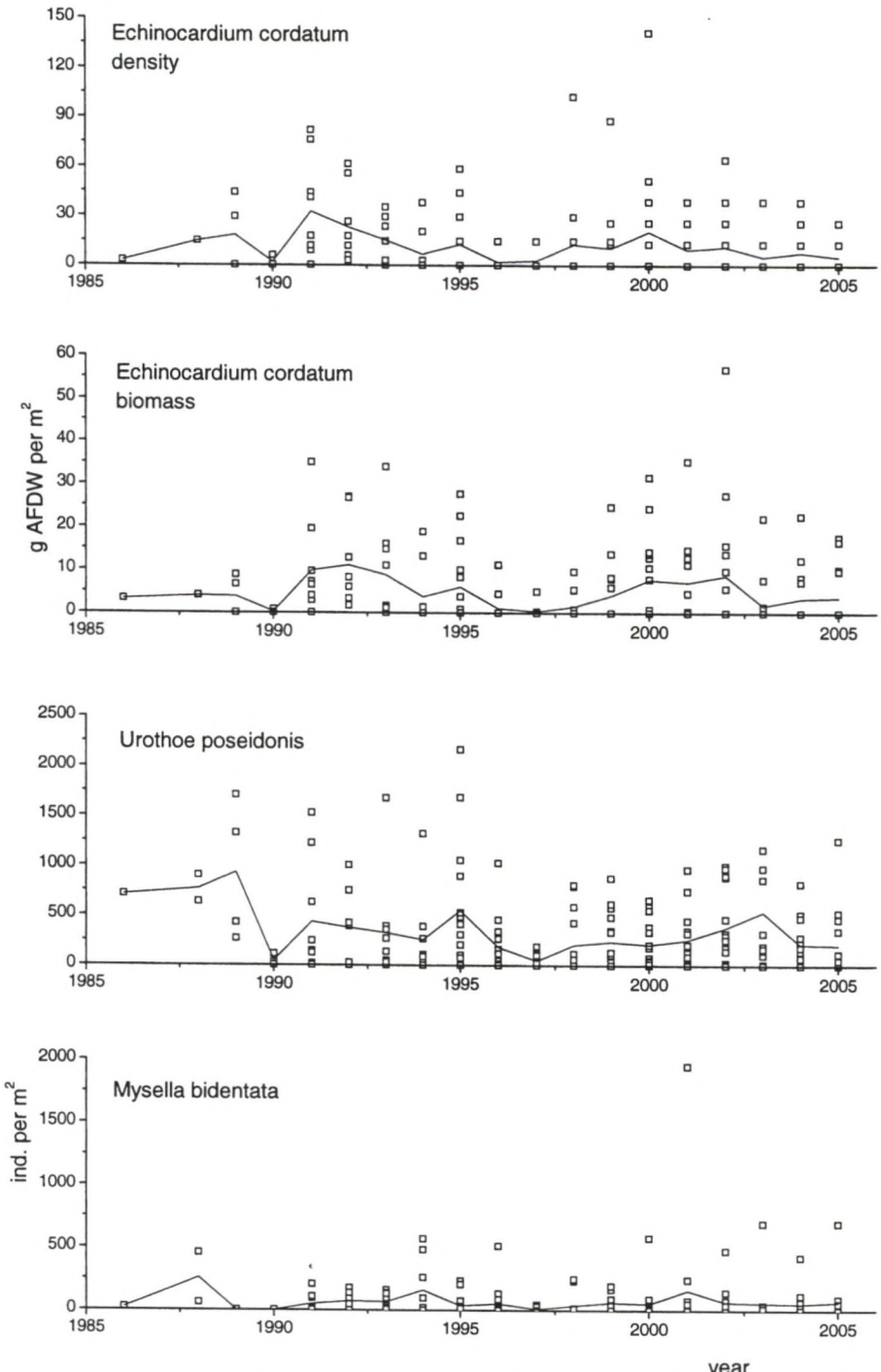


Fig. 16a: Densities (and biomass of E. cordatum) of 3 species in the coastal area (1986-2005).

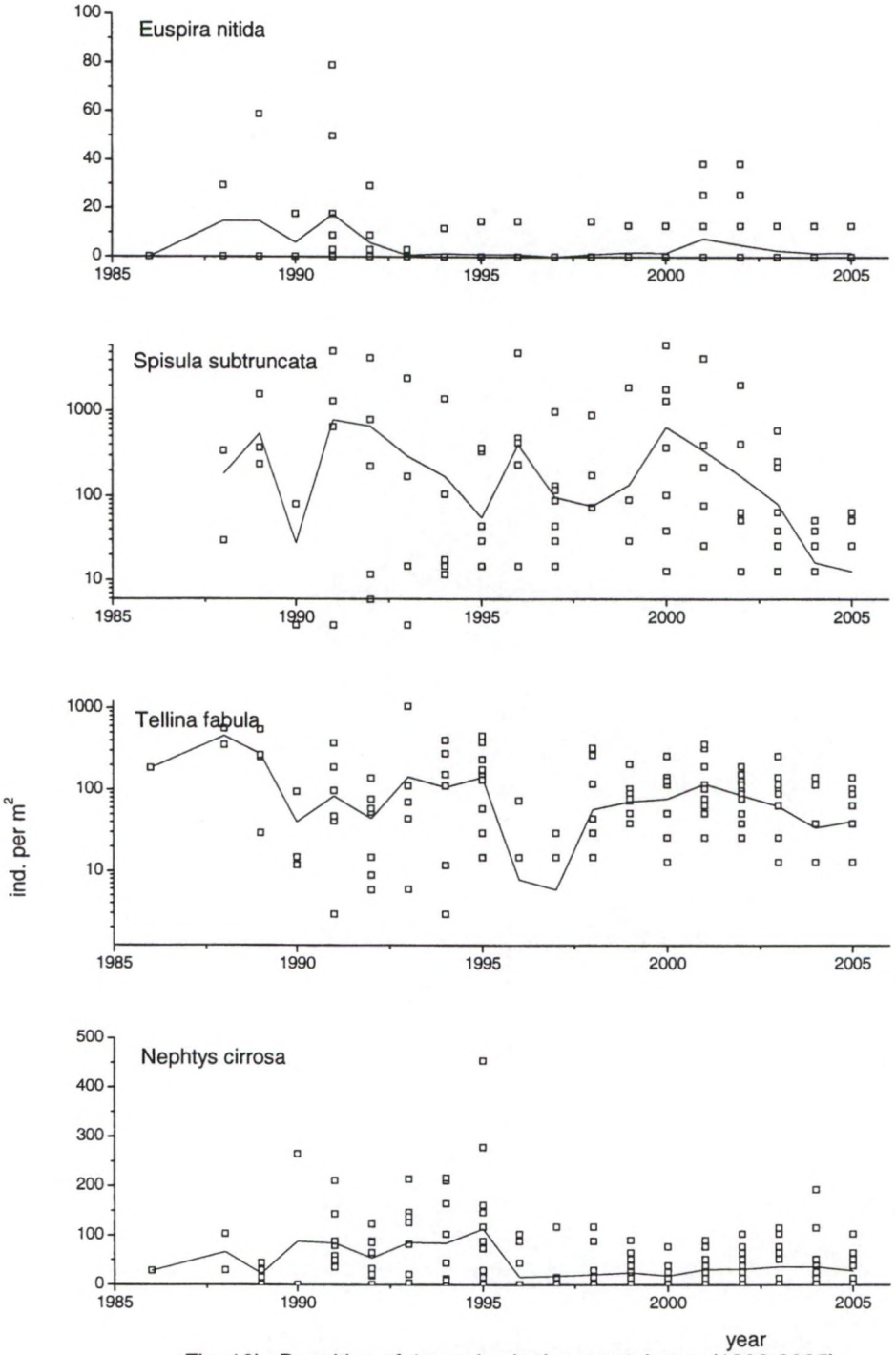


Fig. 16b: Densities of 4 species in the coastal area (1986-2005)

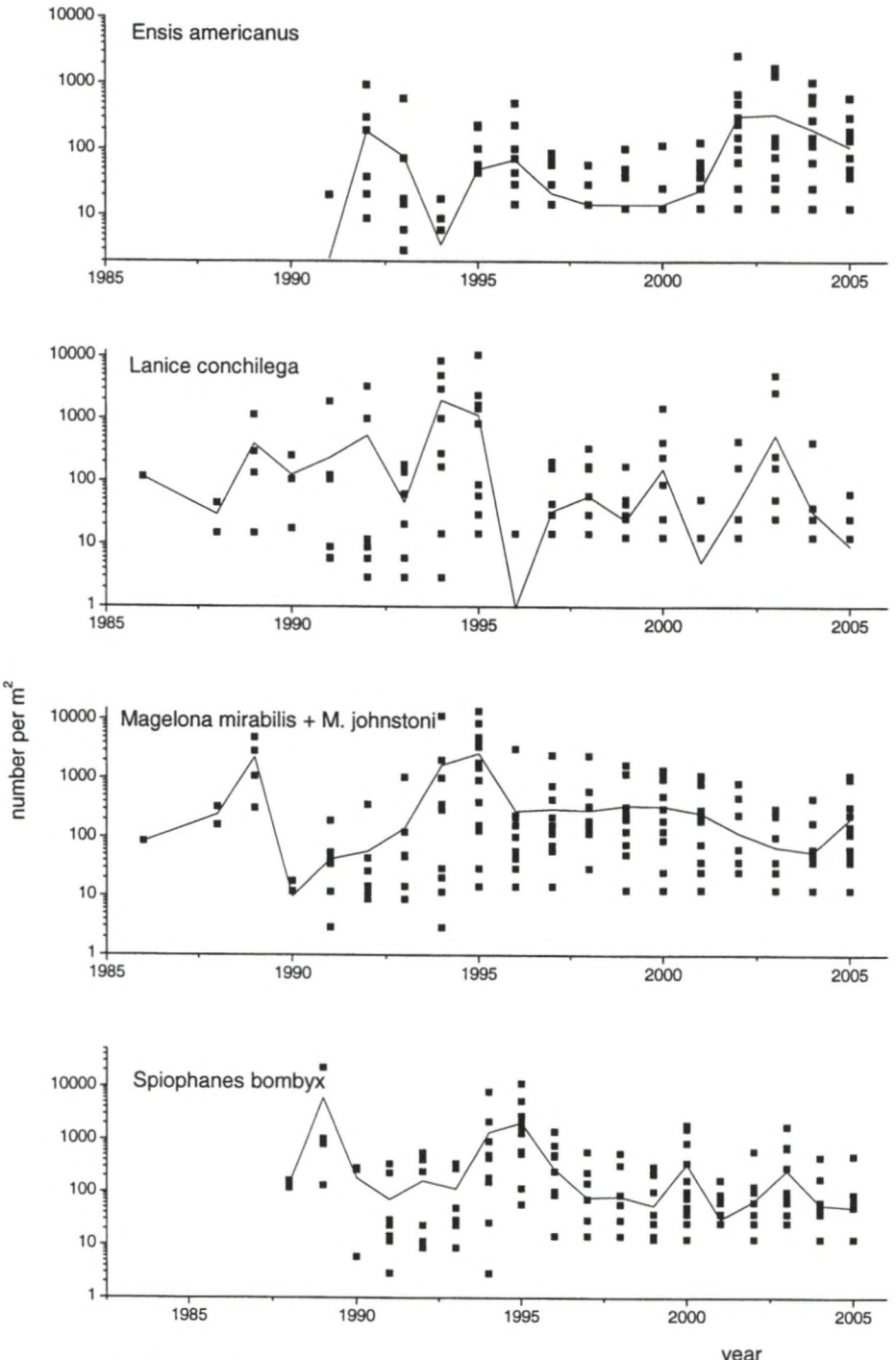


Fig. 16c: Densities of 4 species in the coastal area (1986-2005).

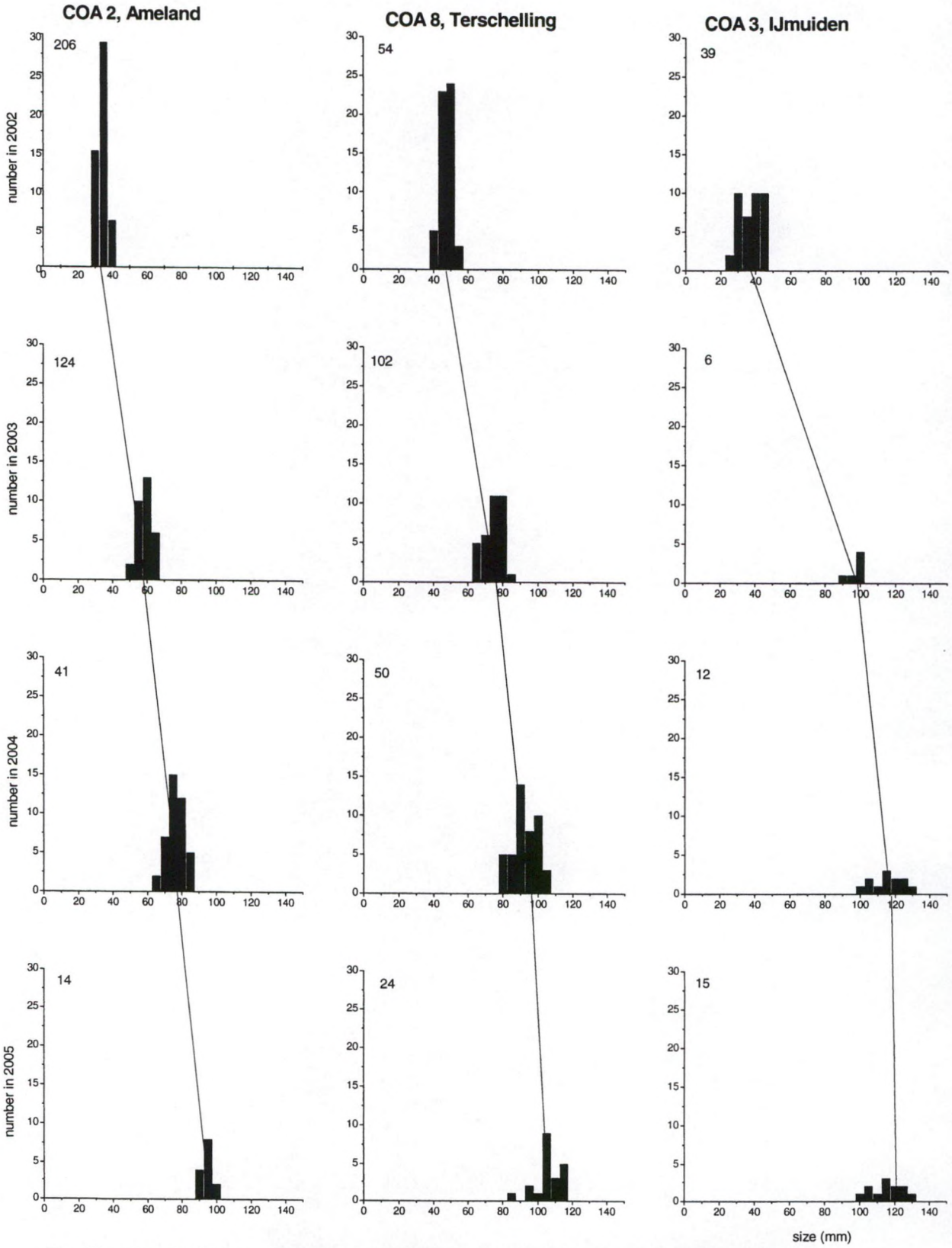


Fig. 17a: Size distribution of *Ensis americanus* at 3 coastal stations between 2002 and 2005

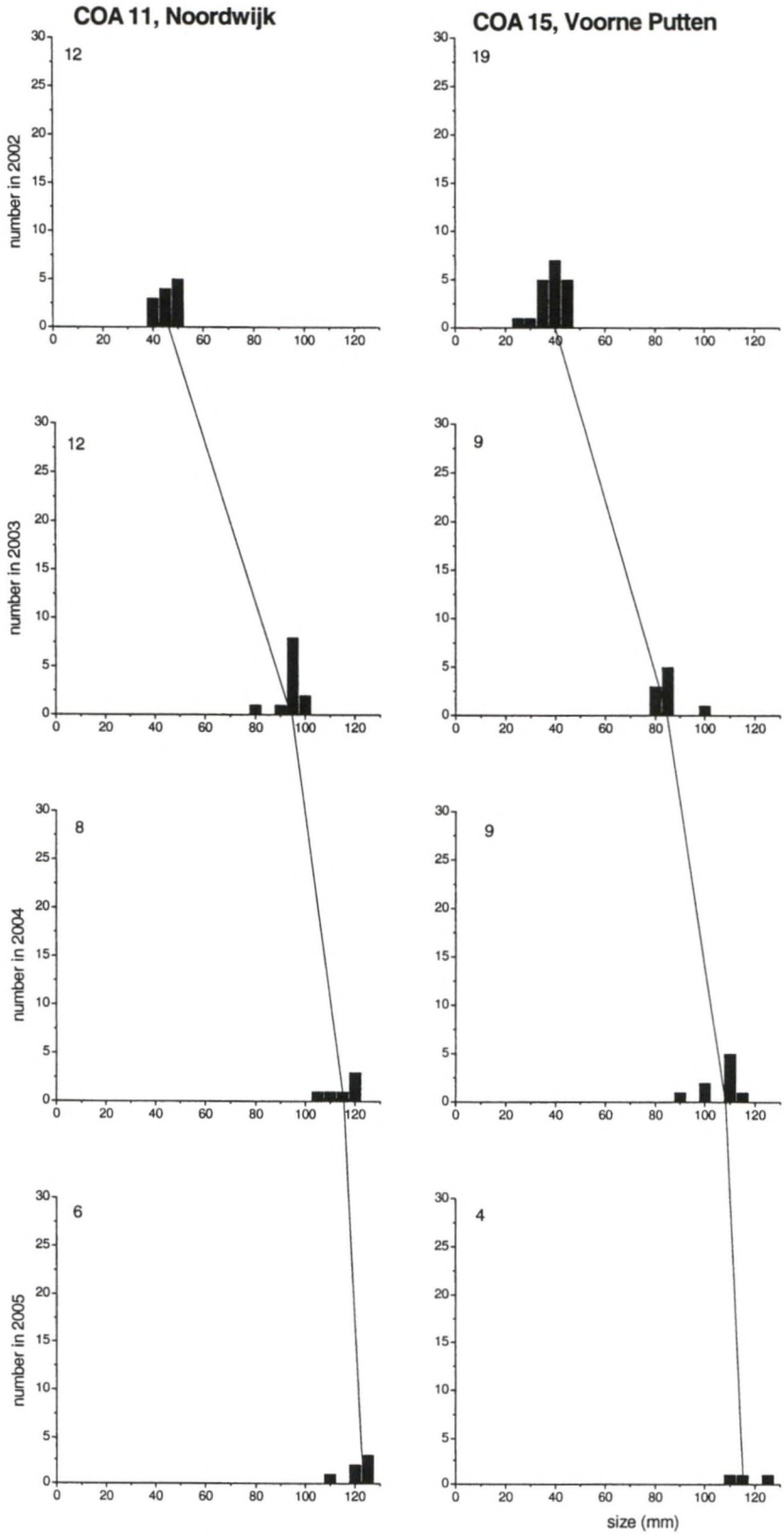


Fig. 17b: Size class distribution of *Ensis americanus* at 2 coastal stations between 2002 and 2005

Table 1a. Station number, position, date, depth and sediment composition of the survey 2005.

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
DOG 01	DOGGBK06	04°03'00"	55°28'18"	30/03/2005	30.0	221	0.0	0.0
DOG 02	DOGGBK02	03°38'30"	55°10'00"	30/03/2005	36.2	190	1.9	0.0
DOG 03	DOGGBK03	03°30'00"	55°15'00"	30/03/2005	28.1	204	0.0	0.0
DOG 04	TERSLG235	03°09'26"	55°10'14"	05/04/2005	30.1	208	0.2	0.0
DOG 05	DOGGBK04	03°14'00"	54°54'42"	05/04/2005	35.7	184	1.2	0.0
DOG 06	DOGGBK05	03°05'00"	54°57'06"	05/04/2005	23.0	238	0.0	0.0
DOG 07	DOGGBK08	03°00'00"	55°00'00"	05/04/2005	25.0	193	0.8	0.0
OYS 01	OESTGDN43	03°25'30"	54°23'00"	06/04/2005	45.5	117	10.0	4.5
OYS 02	FRIESFT16	05°32'30"	54°11'30"	24/03/2005	39.0	218	3.3	0.0
OYS 03	OESTGDN02	04°00'00"	55°00'00"	30/03/2005	47.6	117	8.0	1.8
OYS 04	OESTGDN03	02°56'00"	54°33'00"	06/04/2005	34.0	142	2.5	0.0
OYS 05	FRIESFT02	04°55'00"	54°01'10"	31/03/2005	43.0	134	12.7	1.5
OYS 06	OESTGDN04	04°22'48"	55°18'24"	30/03/2005	46.0	158	3.3	0.0
OYS 07	OESTGDN05	04°18'00"	54°53'00"	30/03/2005	50.3	91	18.0	11.3
OYS 08	FRIESFT03	04°54'00"	53°44'40"	23/03/2005	37.0	194	9.1	2.5
OYS 09	FRIESFT04	03°37'50"	53°45'20"	23/03/2005	37.5	194	1.6	0.0
OYS 10	OESTGDN06	03°42'30"	54°39'00"	05/04/2005	44.3	116	5.5	0.9
OYS 11	FRIESFT05	05°10'00"	53°55'30"	31/03/2005	40.0	153	17.0	5.3
OYS 12	OESTGDN07	04°26'00"	54°10'00"	31/03/2005	49.0	96	14.2	6.7
OYS 13	OESTGDN08	03°30'00"	54°45'00"	05/04/2005	44.5	116	4.4	0.9
OYS 14	OESTGDN09	04°44'30"	54°20'00"	31/03/2005	47.0	137	14.4	2.4
OYS 15	OESTGDN10	04°21'20"	54°28'30"	05/04/2005	50.1	95	16.7	8.5
OYS 16	OESTGDN11	05°03'00"	54°38'30"	31/03/2005	47.0	160	8.9	1.8
OYS 17	OESTGDN12	03°25'08"	54°00'21"	07/04/2005	42.0	197	2.0	0.0
OYS 18	FRIESFT06	05°54'00"	54°11'20"	24/03/2005	37.0	214	3.4	0.0
OYS 19	OESTGDN13	03°19'00"	54°20'00"	06/04/2005	48.2	122	8.0	1.8
OYS 20	OESTGDN14	02°51'51"	54°05'00"	07/04/2005	51.8	203	9.1	0.8
OYS 21	TERSLG50	04°46'03"	53°46'04"	16/03/2005	38.0	118	18.7	5.9
OYS 22	OESTGDN15	03°38'30"	54°18'30"	07/04/2005	43.7	162	3.9	0.0
OYS 23	OESTGDN16	03°22'00"	54°49'24"	05/04/2005	41.5	136	3.8	0.0
OYS 24	BREEVTN34	03°29'46"	53°30'00"	23/03/2005	33.2	131	4.6	0.0
OYS 25	OESTGDN17	04°32'00"	54°39'00"	05/04/2005	49.6	119	22.9	6.3
OYS 26	FRIESFT07	04°47'30"	53°55'20"	31/03/2005	42.0	135	14.6	1.5
OYS 27	OESTGDN18	05°00'00"	54°30'00"	31/03/2005	44.0	180	3.3	0.0
OYS 28	FRIESFT08	03°30'00"	53°45'00"	23/03/2005	36.0	204	2.1	0.0
OYS 29	OESTGDN19	03°00'00"	54°30'00"	06/04/2005	36.2	126	2.4	0.0
OYS 30	BREEVTN02	03°18'21"	53°31'30"	23/03/2005	35.1	128	6.6	0.0
OYS 31	FRIESFT09	04°09'06"	53°50'42"	23/03/2005	44.0	141	3.7	0.0
OYS 32	FRIESFT10	05°05'00"	54°15'30"	24/03/2005	42.0	167	9.2	0.8
OYS 33	OESTGDN20	04°03'00"	54°16'00"	07/04/2005	47.8	107	9.4	2.6
OYS 34	FRIESFT11	04°16'37"	53°37'40"	16/03/2005	37.6	119	9.8	2.4
OYS 35	FRIESFT12	03°52'24"	53°51'31"	23/03/2005	40.0	162	4.2	0.0
OYS 36	FRIESFT17	04°30'00"	53°42'05"	16/03/2005	39.0	106	17.4	5.1
OYS 37	TERSLG100	04°20'27"	54°09'04"	31/03/2005	49.3	97	12.9	6.0
OYS 38	BREEVTN26	03°00'00"	53°30'00"	23/03/2005	32.5	142	3.6	0.0
OYS 39	OESTGDN22	04°00'00"	54°30'00"	05/04/2005	44.7	116	5.7	0.9
OYS 40	OESTGDN21	05°00'00"	55°00'00"	30/03/2005	41.0	159	2.6	0.0
OYS 41	OESTGDN23	03°17'36"	54°51'42"	05/04/2005	39.3	153	3.0	0.0
OYS 42	ROTTMPT70	06°12'51"	54°07'03"	24/03/2005	33.0	239	1.4	0.0

Table 1b. Station number, position, date, depth and sediment composition of the survey 2005.

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
OFF 01	FRIESFT13	05°59'00"	53°51'30"	24/03/2005	31.0	219	2.6	0.0
OFF 02	WADDKT07	06°06'25"	53°37'29"	17/03/2005	23.3	223	0.4	0.0
OFF 03	WADDKT02	05°49'37"	53°36'40"	17/03/2005	26.2	198	1.2	0.0
OFF 04	FRIESFT14	04°57'30"	53°40'00"	17/03/2005	31.0	204	1.9	0.0
OFF 05	FRIESFT15	04°22'30"	53°29'00"	16/03/2005	28.5	222	0.6	0.0
OFF 06	BREEVTN03	04°26'32"	53°11'16"	22/03/2005	31.0	315	0.4	0.0
OFF 07	BREEVTN04	04°18'22"	53°05'59"	22/03/2005	36.0	224	2.0	0.0
OFF 08	BREEVTN05	04°00'30"	53°01'30"	22/03/2005	29.0	240	1.2	0.0
OFF 09	BREEVTN06	04°13'50"	52°49'20"	25/03/2005	26.0	266	0.9	0.0
OFF 10	BREEVTN07	03°50'30"	52°45'40"	25/03/2005	30.3	298	0.3	0.0
OFF 11	BREEVTN08	03°31'18"	53°17'00"	22/03/2005	27.1	207	2.2	0.0
OFF 12	BREEVTN09	03°23'30"	53°03'55"	29/03/2005	28.0	274	1.0	0.0
OFF 13	BREEVTN10	03°11'36"	53°02'58"	29/03/2005	29.4	288	1.6	0.0
OFF 14	BREEVTN11	03°17'20"	52°53'53"	29/03/2005	32.8	283	0.6	0.0
OFF 15	BREEVTN12	03°17'18"	52°50'12"	29/03/2005	33.3	320	1.2	0.0
OFF 16	BREEVTN13	03°30'00"	52°45'00"	29/03/2005	26.5	271	0.7	0.0
OFF 17	BREEVTN14	03°12'12"	52°27'43"	21/03/2005	28.0	305	0.9	0.0
OFF 18	BREEVTN15	03°11'25"	52°20'25"	21/03/2005	29.0	333	0.8	0.0
OFF 19	BREEVTN16	03°24'42"	52°15'10"	21/03/2005	28.8	345	0.2	0.0
OFF 20	BREEVTN17	03°30'00"	52°15'00"	21/03/2005	30.3	401	0.8	0.0
OFF 21	BREEVTN18	03°00'00"	52°00'00"	12/04/2005	37.0	488	0.1	0.0
OFF 22	BREEVTN19	03°59'15"	52°16'30"	14/03/2005	23.3	358	0.2	0.0
OFF 23	BREEVTN20	04°09'50"	52°23'08"	14/03/2005	22.5	335	0.3	0.0
OFF 24	BREEVTN21	03°42'58"	52°00'00"	21/03/2005	28.0	481	0.3	0.0
OFF 25	BREEVTN22	03°24'26"	52°06'12"	21/03/2005	31.0	360	1.3	0.0
OFF 26	BREEVTN23	03°11'34"	51°56'07"	12/04/2005	29.9	436	0.5	0.0
OFF 27	BREEVTN24	03°14'28"	51°41'40"	11/04/2005	26.7	468	1.3	0.0
OFF 28	BREEVTN25	02°52'48"	51°52'40"	11/04/2005	34.0	468	0.0	0.0
OFF 29	ROTTMPT50	06°18'36"	53°57'14"	24/03/2005	31.0	368	0.1	0.0
OFF 30	TERSLG30	04°56'17"	53°36'56"	17/03/2005	25.0	222	1.1	0.0
OFF 31	BREEVTN27	03°55'01"	52°59'53"	22/03/2005	26.0	262	0.0	0.0
OFF 32	NOORDWK30	04°02'53"	52°23'15"	14/03/2005	23.3	343	0.4	0.0
OFF 33	NOORDWK50	03°47'07"	52°28'30"	14/03/2005	30.0	292	0.2	0.0
OFF 34	NOORDWK70	03°31'53"	52°34'10"	14/03/2005	31.0	299	1.0	0.0
OFF 35	WALCRN30	03°06'49"	51°43'06"	11/04/2005	28.4	392	0.0	0.0
OFF 36	WALCRN70	02°40'45"	51°57'25"	11/04/2005	44.0	563	0.3	0.0
COA 01	WADDKT03	05°59'53"	53°32'34"	17/03/2005	18.3	239	0.5	0.0
COA 02	WADDKT04	05°37'48"	53°30'19"	17/03/2005	8.9	187	0.7	0.0
COA 03	HOLLSKT03	04°31'50"	52°32'50"	18/03/2005	18.2	218	1.3	0.0
COA 04	HOLLSKT02	04°40'00"	52°50'00"	18/03/2005	11.3	248	0.9	0.0
COA 05	WADDKT05	04°41'20"	53°03'23"	18/03/2005	11.4	211	0.6	0.0
COA 06	WADDKT06	06°11'03"	53°32'09"	17/03/2005	7.7	195	1.2	0.0
COA 07	ROTTMPT3	06°32'46"	53°34'57"	17/03/2005	7.2	191	0.3	0.0
COA 08	TERSLG4	05°09'02"	53°24'54"	17/03/2005	12.5	226	0.4	0.0
COA 09	HOLLSKT04	04°30'00"	52°45'00"	18/03/2005	21.2	235	0.9	0.0
COA 10	NOORDWK2	04°24'20"	52°15'36"	14/03/2005	13.0	252	0.5	0.0
COA 11	NOORDWK10	04°18'01"	52°17'41"	14/03/2005	18.5	331	0.3	0.0
COA 12	VOORDTA2	03°23'15"	51°37'04"	11/04/2005	11.5	281	1.0	0.0
COA 13	VOORDTA3	03°36'02"	51°42'33"	21/03/2005	4.0	259	0.4	0.0
COA 14	VOORDTA4	03°48'48"	51°47'26"	21/03/2005	3.5	263	1.9	0.0
COA 15	VOORDTA5	03°55'09"	51°55'20"	11/04/2005	14.5	204	1.9	0.0
	TERHEIDE1	04°10'07"	52°02'44"	11/04/2005	8.5	192	0.8	0.0

Table 2. Mean values of abiotic and biotic parameters in the 4 areas in 2005.

	AREA			
	Dogger Bank	Oyster Ground	Offshore area	Coastal area
No. of stations	7	42	36	15
Median Grain Size (μm)	205	146	321	235
Silt content (fr.< 63um,%)	0.6	8.0	0.8	0.9
silt (fr. 16- 63um, %)	0.0	2.0	0.0	0.0
Depth (m)	30	42	29	12
Diversity:				
Total number of species	74	143	95	60
Number of specier per core	33.3	31.4	14.4	14.6
Shannon- Wiener diversity	2.73	2.44	1.99	1.88
Simpson's dominance	0.11	0.18	0.20	0.23
No. individuals (ind./m²):				
Crustaceans	836	247	241	336
Echinoderms	277	638	18	15
Molluscs	401	632	128	310
Polychaetes	620	585	439	535
Miscellaneous	57	464	83	10
TOTAL DENSITY	2190	2567	910	1208
Biomass (g AFDW/m²):				
Crustaceans	0.3	6.2	1.2	7.2
Echinoderms	5.7	6.8	7.0	3.8
Molluscs	0.8	1.5	2.6	133.5
Polychaetes	3.6	4.7	2.4	3.4
Miscellaneous	0.1	0.7	0.3	0.5
TOTAL BIOMASS	10.6	19.8	13.4	148.4

Appendix -1 Biomonitoring 2005
(+ = 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**
Abra alba								+	+					+	+	+		+	+	+		+		+		ABRAALBA
Abra nitida											+		+													ABRANITI
Abra prismatica											+															ABRAPRIS
Acanthocardia echinata														+												ACANECHI
Acanthocardia spec. juv.																										ACANSPEC
Acrocnida brachiata	+	+	+	+	+		+																			ACROBRAC
Acteon tornatilis													+													ACTETORN
Ampelisca brevicornis					+						+		+									+	+			AMPEBREV
Ampelisca tenuicornis			+					+		+	+		+	+								+				AMPETENU
Ampharete spec.juv.																										AMPHSPEC
Amphipoda indet.																										AMPHINDE
Amphiura chiajei	+	+	+	+	+	+	+																			AMPHCHIA
Amphiura filiformis								+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	AMPHFILI
Amphiura spec.																										AMPHSPEC
Anthozoa spec.																										ANTHOZOA
Aonides paucibranchiata																										AONIPAUC
Apherusa ovalipes																										APHEROVA
Aphrodite aculeata																+										APHRACUL
Apistobranchus tullbergi																										APISTULL
Aplacophora								+		+										+						APLACOPH
Arcopagia crassa																										ARCOCRAS
Arctica islandica juv.																										ARCTJUVE
Aricidea minuta																										ARICMINU
Astarte montagui																				+						ASTAMONT
Asterias rubens																										ASTERUBE
Astropecten irregularis																								+		ASTRIRRE
Atylus swammerdami		+																								ATYLSWAM
Bathyporeia elegans	+	+	+	+	+	+	+		+	+	+		+			+	+			+			+	+	+	BATHELEG
Bathyporeia guilliamsoniana	+	+	+	+	+	+	+									+										BATHGUIL
Branchiostoma lanceolatum		+		+		+	+										+									BRANLANC
Brissopsis lyrifera																										BRISLYRI
Callianassa subterranea								+	+			+				+		+	+	+	+	+	+	+	+	CALLSUBT
Callianassa subterranea juv.								+	+			+		+	+	+		+	+		+	+	+	+		CALLJUVE
Callianassa tyrrhena																										CALLTYRR
Capitella capitata																										CAPICAPI
Caprellidae spec.		+			+																					CAPRELLI
Carcinus maenas																										CARCMAEN
Chaetopterus variopedatus								+	+	+				+				+				+				CHAEVARI
Chaetozone setosa				+		+	+	+			+						+		+	+	+	+		+		CHAESETO
Chamelea striatula					+	+			+	+	+						+			+				+		CHAMSTRI
Chlamis varia																										CHLAVARI
Chone duneri													+													CHONDUNE
Corbula gibba							+	+	+	+	+	+			+		+	+			+	+	+	+	+	CORBGIBB
Corystes cassivelaunus																									+	CORYCASS
Cucumaria elongata																										CUCUELON
Cylichna cylindracea			+		+		+	+	+	+		+		+	+	+	+	+	+	+			+	+		CYLICYLI
Diastylis bradyi														+												DIASBRAD
Diogenes pugilator																										DIOGPUGI
Diplocirrus glaucus					+			+			+		+			+		+		+				+		DIPLGLAU
Diplodonta rotundata																										DIPLOROTU
Donax vittatus																										DONAVITT

Appendix -1 Biomonitoring 2005
(+ = 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	
	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**
Dosinia lupinus	+		+	+				+	+							+	+									DOSILUPI
Ebalia cranchii		+		+	+																					EBALCRAN
Ebalia spec.juv.																		+								EBALSPEC
Echinocardium cordatum		+	+		+			+	+	+				+		+	+	+	+	+			+		+	ECHICORD
Echinocardium cordatum juv.															+											ECHIJUVE
Echinocyamus pusillus		+			+	+	+									+										ECHIPUSI
Echiuridae spec.																										ECHISPEC
Edwardsia claparedii													+						+		+		+			EDWACLAP
Ensis americanus																										ENSIAMER
Ensis ensis	+										+															ENSIENSI
Ensis spec.																										ENSISPEC
Enteropneusta spec.																								+		ENTESPEC
Eteone foliosa											+															ETEOFOLI
Eteone longa			+	+																						ETEOLONG
Eudorella truncatula								+		+				+			+	+	+		+					EUDOTRUN
Eudorellopsis deformis																+										EUDODEFO
Eumida sanguinea					+																			+		EUMISANG
Eurydice spinigera																										EURYSPIN
Euspira nitida	+	+		+	+	+	+		+		+		+	+	+			+		+	+					EUSPNITI
Euzonus flabelligerus																										EUZOFLAB
Exogone hebes																										EXOGHEBE
Gammaropsis spec.																										GAMMSPEC
Gari fervensis			+																							GARIFERV
Gattyana cirrosa														+				+	+			+				GATTCIRR
Glycera alba																									+	GLYCALBA
Glycera lapidum												+										+				GLYCLAPI
Glycera rouxi								+						+												GLYCROUX
Glycera spec. juv.								+										+						+		GLYCSPEC
Glycinde nordmanni									+	+															+	GLYCNORD
Golfingia elongata																		+			+					GOLFELON
Golfingia vulgaris								+	+										+			+				GOLFVULG
Goniada maculata	+	+	+		+	+	+	+	+		+		+		+	+		+		+		+	+	+	+	GONIMACU
Goodallia triangularis																										GOODTRIA
Gyptis capensis	+								+				+		+			+							+	GYPTCAPE
Harmothoe glabra																							+			HARMGLAB
Harmothoe spec. juv.		+	+		+		+						+													HARMSPEC
Harpinia antennaria								+	+	+			+			+	+	+	+	+		+	+	+		HARPANTE
Heteromastus filiformis																										HETEFILI
Hippomedon denticulatus	+			+																						HIPPDENT
Hyala vitrea								+						+				+	+		+			+		HYALVITR
Hyperiidae spec.							+																			HYPERIID
Ione thoracica								+				+				+										IONETHOR
Iphinoe trispinosa																										IPHITRIS
Labidoplax buski										+					+		+									LABIBUSK
Lanice conchilega		+			+						+		+													LANICONC
Lepidepecreum longicorne																										LEPILONG
Lepton squamosum															+			+								LEPTSQUA
Leucothoe incisa	+		+	+	+	+	+				+	+												+		LEUCINCI
Liocarcinus marmoreus																										LIOCMARM
Lucinoma borealis			+		+																					LUCIBORE
Lumbrineris fragilis									+																	LUMBFRAG

Appendix -1 Biomonitoring 2005
(+ = 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**
Lumbrineris latreilli												+			+			+	+				+			LUMBLATR
Lutraria lutraria																										LUTRLUTR
Lysilla loveni																										LYSILOVE
Macoma balthica																										MACOBALT
Mactra corallina											+															MACTCORA
Magelona alleni	+			+	+						+									+				+		MAGEALLE
Magelona johnstoni	+	+	+	+		+	+		+		+					+				+				+	+	MAGEJOHN
Magelona mirabilis	+	+	+	+	+	+	+		+		+	+	+			+		+		+				+	+	MAGEMIRA
Maldanidae spec.				+			+																			MALDSPEC
Malmgreniella lunulata		+	+		+						+				+											MALMLUNU
Mediomastus fragilis								+	+						+			+	+					+	+	MEDIFRAG
Megaluropus agilis				+																						MEGAAGIL
Musculus niger														+												MUSCNIGE
Mya truncata																										MYATRUN
Mya truncata juv.																										MYAJUVEN
Myriochele oculata		+					+	+									+									MYRIOCUL
Myrtea spinifera					+																					MYRTSPIN
Mysella bidentata	+	+	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+	+	+		+	+	+	MYSEBIDE
Mysia undata								+			+															MYSIUNDA
Nematoda																										NEMATODA
Nemertini	+	+	+	+	+	+	+	+	+	+	+	+	+		+	+				+	+	+	+	+	+	NEMERTIN
Nephtys assimilis							+				+															NEPHASSI
Nephtys caeca					+		+													+				+	+	NEPHCAEC
Nephtys cirrosa	+	+	+	+	+	+	+		+	+						+						+				NEPHCIRR
Nephtys hombergii		+		+				+	+	+			+	+			+	+			+	+		+		NEPHHOMB
Nephtys incisa												+		+												NEPHINCI
Nephtys indet.																										NEPHINDE
Nephtys longosetosa		+												+												NEPHLONG
Nephtys spec. juv.		+		+				+	+		+	+	+				+	+		+		+				NEPHSPEC
Nereis diversicolor																										NEREDIVE
Nereis longissima									+			+	+		+			+								NERELONG
Nicomache lumbricalis						+															+					NICOLUMB
Notomastus latericeus	+	+	+				+						+			+			+	+		+	+			NOTOLATE
Nucula nitidosa								+	+	+		+	+		+	+	+	+		+			+	+	+	NUCUNITI
Nucula nucleus		+											+	+			+									NUCUNUCL
Oligochaeta																							+			OLIGOCHA
Ophelia limacina																										OPHELIMA
Ophelina acuminata													+	+									+			OPHEACUM
Ophiodromus flexuosus														+					+			+	+			OPHIFLEX
Ophiura albida															+											OPHIALBI
Ophiura texturata																										OPHITEXT
Ophiura spec. juv.											+	+														OPHISPEC
Orbinia sertulata										+									+							ORBISERT
Orchomene nana				+							+															ORCHNANA
Owenia fusiformis	+			+		+	+	+	+		+		+	+	+		+			+			+			OWENFUSI
Paraonis fulgens										+				+					+	+	+	+				PARAFULG
Peachia cylindrica																										PEACCYLI
Pectinaria auricoma								+		+			+	+		+	+			+				+	+	PECTAURI
Pectinaria koreni																						+				PECTKORE
Perioculodes longimanus	+			+			+																	+		PERILONG
Petricola pholadiformis																										PETRPHOL

Appendix -1 Biomonitoring 2005
(+ = 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	
	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**
Phaxas pellucidus		+						+			+									+		+		+		PHAXPELL
Pholoe minuta			+		+		+	+	+	+	+		+	+	+		+	+		+					+	PHOLMINU
Phoronida	+	+		+			+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	PHORONID
Phyllodoce groenlandica		+															+									PHYLGROE
Phyllodoce maculata																										PHYLMACU
Phyllodoce rosea											+		+			+										PHYLROSE
Podarkeopsis helgolandica											+															PODAHELG
Poecilochaetus serpens		+			+				+		+	+	+		+	+									+	POECSERP
Polydora ciliata															+			+					+			POLYCILI
Polynoe kinbergi																										POLYKINB
Pontocrates altamarinus														+												PONTALTA
Pontophilus trispinosus																										PONTTRIS
Prionospio steenstrupi														+												PRIOSTEE
Processa nouveli holthuisi																										PROCNOHO
Processa parva																										PROCPARV
Pseudocuma longicornis				+							+														+	PSEULONG
Rhodine loveni														+												RHODLOVE
Scalibregma inflatum																										SCALINFL
Scolelepis bonnieri			+		+						+															SCOLBONN
Scoloplos armiger					+		+	+		+	+		+			+	+							+		SCOLARMI
Scopelocheirus hopei																										SCOPHOPE
Semierycina nitida												+			+			+					+			SEMINITI
Sigalion mathildae	+	+		+	+		+									+								+		SIGAMATH
Siphonoecetus kroyeranus	+	+		+	+		+																			SIPHKROY
Spio filicornis		+	+		+	+		+			+			+	+		+	+	+		+		+			SPIOFILI
Spiophanes bombyx	+	+	+	+	+	+	+	+	+		+	+	+			+		+				+			+	SPIOBOMB
Spiophanes kroeyeri										+																SPIOKROE
Spisula elliptica																										SPISELLI
Spisula subtruncata												+			+			+								SPISSUBT
Spisula spec. juv.																	+									SPISSPEC
Sthenelais limicola			+		+			+	+	+		+					+			+		+				STHELIMI
Streptosyllis websteri																										STREWEBS
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
Terebellides stroemi																										TERESTRO
Thia scutellata																										THIASCUT
Thracia convexa																										THRACONV
Thracia papyracea	+	+			+		+								+	+									+	THRAPAPY
Thyasira flexuosa					+			+			+		+							+						THYAFLEX
Tornus subcarinatus																										TORNSUBC
Travisia forbesii																						+				TRAVFORB
Tryphosites longipes																										TRYPLONG
Tunicata spec.							+																			TUNISPEC
Turbellaria spec.	+																+	+				+				TURBELLA

Appendix -1 Biomonitoring 2005
(+ = 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	
	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**
Turritella communis												+		+												TURRCOMM
Upogebia deltaura												+			+			+					+			UPOGDELT
Upogebia deltaura juv.																							+			UPOGJUVE
Upogebia stellata																							+			UPOGSTEL
Upogebia stellata juv.																										UPOGJUVE
Urothoe brevicornis		+		+	+	+	+																			UROTBREV
Urothoe poseidonis	+	+	+	+	+	+	+				+					+								+		UROTPOSE
Venerupis senegalensis																										VENESENE
Vitreolina antiflexa																										VITRANTI

Appendix -1 Biomonitoring 2005
(+ = 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	
	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
Acanthocardia echinata																									ACANECHI
Acanthocardia spec. juv.							+												+						ACANSPEC
Acrocnida brachiata																									ACROBRAC
Acteon tornatilis																									ACTETORN
Ampelisca brevicornis	+		+																						AMPEBREV
Ampelisca tenuicornis	+	+					+								+	+									AMPETENU
Ampharete spec.juv.																				+					AMPHSPEC
Amphipoda indet.																									AMPHINDE
Amphiura chiajei																									AMPHCHIA
Amphiura filiformis	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		+	+	+		AMPHFILI
Amphiura spec.																									AMPHSPEC
Anthozoa spec.																				+					ANTHOZOA
Aonides paucibranchiata											+														AONIPAUC
Apherusa ovalipes																									APHEROVA
Aphrodite aculeata																									APHRACUL
Apistobranchus tullbergi																									APISTULL
Aplacophora		+																			+				APLACOPH
Arcopagia crassa																									ARCOCRAS
Arctica islandica juv.					+						+			+	+				+		+				ARCTJUVE
Aricidea minuta																									ARICMINU
Astarte montagui																									ASTAMONT
Asterias rubens																									ASTERUBE
Astropecten irregularis																						+			ASTRIRRE
Atylus swammerdami																									ATYLSWAM
Bathyporeia elegans				+	+	+				+	+	+	+		+		+			+	+	+	+	+	BATHELEG
Bathyporeia guilliamsoniana																	+					+	+	+	BATHGUIL
Branchiostoma lanceolatum																									BRANLANC
Brissopsis lyrifera															+										BRISLYRI
Callianassa subterranea	+	+	+	+	+	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+		+	CALLSUBT
Callianassa subterranea juv.	+	+	+	+		+	+	+	+	+		+	+	+	+	+	+	+	+		+			+	CALLJUVE
Callianassa tyrrhena																									CALLTYRR
Capitella capitata																									CAPICAPI
Caprellidae spec.																									CAPRELLI
Carcinus maenas																									CARCMAEN
Chaetopterus variopedatus				+				+						+	+				+						CHAEVARI
Chaetozone setosa					+		+		+			+			+				+	+	+				CHAESETO
Chamelea striatula					+		+			+	+	+	+				+				+	+			CHAMSTRI
Chlamis varia																									CHLAVARI
Chone duneri																									CHONDUNE
Corbula gibba	+	+	+	+			+	+	+	+	+		+	+	+	+	+	+	+		+	+		+	CORBGIBB
Corystes cassivelaunus																									CORYCASS
Cucumaria elongata															+										CUCUELON
Cylichna cylindracea	+	+	+	+	+		+	+		+					+			+	+				+		CYLICYLI
Diastylis bradyi	+			+									+			+									DIASBRAD
Diogenes pugilator																									DIOGPUGI
Diplocirrus glaucus	+		+		+	+		+		+	+	+						+			+		+		DIPLGLAU
Diplodonta rotundata																									DIPLOROTU
Donax vittatus																									DONAVITT

Appendix -1 Biomonitoring 2005
(+ = 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**
Dosinia lupinus		+			+																+	+	+			DOSILUPI
Ebalia cranchii																							+			EBALCRAN
Ebalia spec.juv.																										EBALSPEC
Echinocardium cordatum						+			+			+							+	+		+	+			ECHICORD
Echinocardium cordatum juv.																										ECHIJUVE
Echinocyamus pusillus										+																ECHIPUSI
Echiuridae spec.																										ECHISPEC
Edwardsia claparedii							+												+			+				EDWACLAP
Ensis americanus																										ENSIAMER
Ensis ensis																										ENSIENSI
Ensis spec.																										ENSISPEC
Enteropneusta spec.	+																									ENTESPEC
Eteone foliosa																										ETEOFOLI
Eteone longa																										ETEOLONG
Eudorella truncatula				+									+		+											EUDOTRUN
Eudorellopsis deformis	+				+					+																EUDODEFO
Eumida sanguinea											+															EUMISANG
Eurydice spinigera																										EURYSPIN
Euspira nitida			+		+	+	+	+	+	+	+	+	+			+		+		+			+	+		EUSPNITI
Euzonus flabelligerus																										EUZOFLAB
Exogone hebes																										EXOGHEBE
Gammaropsis spec.																										GAMMSPEC
Gari fervensis												+											+			GARIFERV
Gattyana cirrosa								+						+	+											GATTCIRR
Glycera alba																										GLYCALBA
Glycera lapidum																										GLYCLAPI
Glycera rouxi							+																			GLYCROUX
Glycera spec. juv.	+	+																+	+							GLYCSPEC
Glycinde nordmanni																										GLYCNORD
Golfingia elongata			+					+								+										GOLFELON
Golfingia vulgaris														+					+							GOLFVULG
Goniada maculata			+	+	+	+		+	+		+	+	+			+	+	+				+	+	+		GONIMACU
Goodallia triangularis																										GOODTRIA
Gyptis capensis			+		+	+		+				+				+	+	+	+				+			GYPTCAPE
Harmothoe glabra																										HARMGLAB
Harmothoe spec. juv.																										HARMSPEC
Harpinia antennaria	+	+	+	+	+	+	+	+		+	+	+	+	+	+		+	+	+		+	+	+			HARPANTE
Heteromastus filiformis																										HETEFILI
Hippomedon denticulatus																										HIPPDENT
Hyala vitrea	+	+	+				+	+					+	+	+	+	+		+							HYALVITR
Hyperiidae spec.	+																									HYPERIID
Ione thoracica			+				+					+		+	+		+	+							+	IONETHOR
Iphinoe trispinosa																				+						IPHITRIS
Labidoplax buski		+					+								+			+								LABIBUSK
Lanice conchilega		+				+					+	+										+				LANICONC
Lepidepecreum longicorne												+														LEPILONG
Lepton squamosum			+					+											+							LEPTSQUA
Leucothoe incisa						+						+	+				+	+		+					+	LEUCINCI
Liocarcinus marmoreus																										LIOCMARM
Lucinoma borealis																										LUCIBORE
Lumbrineris fragilis			+																+							LUMBFRAG

Appendix -1 Biomonitoring 2005
(+ = 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	
	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**
Lumbrineris latreilli		+	+			+	+	+				+		+		+	+	+							LUMBLATR
Lutraria lutraria																									LUTRLUTR
Lysilla loveni				+											+										LYSILOVE
Macoma balthica																									MACOBALT
Mactra corallina																+									MACTCORA
Magelona alleni	+	+			+						+	+		+								+		+	MAGEALLE
Magelona johnstoni		+				+			+	+	+	+					+			+		+	+	+	MAGEJOHN
Magelona mirabilis				+	+				+	+	+	+								+	+	+	+	+	MAGEMIRA
Maldanidae spec.																									MALDSPEC
Malmgreniella lunulata		+				+												+							MALMLUNU
Mediomastus fragilis			+			+							+	+		+		+	+			+			MEDIFRAG
Megaluropus agilis																									MEGAAGIL
Musculus niger																									MUSCNIGE
Mya truncata								+																	MYATRUN
Mya truncata juv.							+																		MYAJUVEN
Myriochele oculata			+	+		+		+		+						+		+							MYRIOCUL
Myrtea spinifera																									MYRTSPIN
Mysella bidentata	+	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+	+		+	+	+		MYSEBIDE
Mysia undata					+																		+		MYSIUNDA
Nematoda																								+	NEMATODA
Nemertini	+	+	+	+			+	+		+	+		+				+	+				+	+	+	NEMERTIN
Nephtys assimilis											+											+	+	+	NEPHASSI
Nephtys caeca						+		+					+					+				+			NEPHCAEC
Nephtys cirrosa					+					+		+				+									NEPHCIRR
Nephtys hombergii	+	+	+	+	+		+	+	+		+	+				+	+		+	+	+		+		NEPHHOMB
Nephtys incisa						+										+			+						NEPHINCI
Nephtys indet.																						+			NEPHINDE
Nephtys longosetosa								+																+	NEPHLONG
Nephtys spec. juv.	+	+		+	+						+	+								+		+	+	+	NEPHSPEC
Nereis diversicolor																									NEREDIVE
Nereis longissima		+	+					+			+				+										NERELONG
Nicomache lumbricalis																									NICOLUMB
Notomastus latericeus		+	+	+	+			+			+		+	+		+	+	+							NOTOLATE
Nucula nitidosa	+	+	+	+	+		+	+	+	+	+	+	+		+	+	+	+	+	+	+	+	+	+	NUCUNITI
Nucula nucleus																									NUCUNUCL
Oligochaeta												+													OLIGOCHA
Ophelia limacina												+													OPHELIMA
Ophelina acuminata																									OPHEACUM
Ophiodromus flexuosus	+			+			+	+					+	+	+	+		+	+		+				OPHIFLEX
Ophiura albida			+																						OPHIALBI
Ophiura texturata																									OPHITEXT
Ophiura spec. juv.		+											+				+								OPHISPEC
Orbinia sertulata																									ORBISERT
Orchomene nana								+																+	ORCHNANA
Owenia fusiformis	+		+				+				+	+										+	+	+	OWENFUSI
Paraonis fulgens							+							+					+						PARAFULG
Peachia cylindrica																									PEACCYLI
Pectinaria auricoma	+	+			+						+											+	+		PECTAURI
Pectinaria koreni			+								+								+						PECTKORE
Perioculodes longimanus		+											+									+			PERILONG
Petricola pholadiformis																									PETRPHOL

Appendix -1 Biomonitoring 2005
(+ = 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	
	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**
Phaxas pellucidus					+				+		+					+						+			PHAXPELL
Pholoe minuta	+				+	+		+			+			+	+				+		+		+		PHOLMINU
Phoronida	+	+	+	+		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		+		+	PHORONID
Phyllodoce groenlandica																						+			PHYLGROE
Phyllodoce maculata																									PHYLMACU
Phyllodoce rosea						+					+		+				+						+		PHYLROSE
Podarkeopsis helgolandica																									PODAHELG
Poecilochaetus serpens		+	+								+	+		+		+	+	+				+	+	+	POECSERP
Polydora ciliata				+				+					+												POLYCILI
Polynoe kinbergi				+																					POLYKINB
Pontocrates altamarinus																									PONTALTA
Pontophilus trispinosus																									PONTTRIS
Prionospio steenstrupi																									PRIOSTEE
Processa nouveli holthuisi																			+						PROCNOHO
Processa parva				+																					PROCPARV
Pseudocuma longicornis																									PSEULONG
Rhodine loveni																									RHODLOVE
Scalibregma inflatum											+														SCALINFL
Scolelepis bonnieri					+						+														SCOLBONN
Scoloplos armiger	+			+	+						+	+				+				+	+	+	+	+	SCOLARMI
Scopelocheirus hopei												+													SCOPHOPE
Semierycina nitida			+	+			+						+			+									SEMINITI
Sigalion mathildae				+						+	+						+			+			+		SIGAMATH
Siphonoecetus kroyeranus																									SIPHKROY
Spio filicornis		+		+			+	+					+		+	+		+	+		+				SPIOFILI
Spiophanes bombyx	+			+	+	+		+	+	+	+	+				+	+	+		+		+	+	+	SPIOBOMB
Spiophanes kroeyeri							+					+		+											SPIOKROE
Spisula elliptica																									SPISELLI
Spisula subtruncata			+																						SPISSUBT
Spisula spec. juv.																									SPISSPEC
Sthenelais limicola			+		+	+	+		+		+	+	+	+	+	+					+	+	+		STHELIMI
Streptosyllis websteri																									STREWEBS
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
Terebellides stroemi								+						+											TERESTRO
Thia scutellata																									THIASCUT
Thracia convexa																+			+						THRACONV
Thracia papyracea		+			+	+				+	+	+				+	+			+				+	THRAPAPY
Thyasira flexuosa	+			+	+						+				+								+		THYAFLEX
Tornus subcarinatus			+					+																	TORNSUBC
Travisia forbesii																									TRAVFORB
Tryphosites longipes	+			+																		+	+		TRYPLONG
Tunicata spec.																									TUNISPEC
Turbellaria spec.	+	+						+				+						+							TURBELLA

Appendix -1 Biomonitoring 2005
(+ = 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	
	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**
Turritella communis																									TURRCOMM
Upogebia deltaura			+					+					+	+		+									UPOGDELT
Upogebia deltaura juv.			+																						UPOGJUVE
Upogebia stellata				+																					UPOGSTEL
Upogebia stellata juv.							+																		UPOGJUVE
Urothoe brevicornis																									UROTBREV
Urothoe poseidonis										+														+	UROTPOSE
Venerupis senegalensis																									VENESENE
Vitreolina antiflexa					+																	+			VITRANTI

Appendix -1 Biomonitoring 2005
(+ = 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
Acanthocardia echinata																											ACANECHI
Acanthocardia spec. juv.																											ACANSPEC
Acrocnida brachiata																											ACROBRAC
Acteon tornatilis																											ACTETORN
Ampelisca brevicornis																											AMPEBREV
Ampelisca tenuicornis																											AMPETENU
Ampharete spec.juv.																											AMPHSPEC
Amphipoda indet.																											AMPHINDE
Amphiura chiajei																											AMPHCHIA
Amphiura filiformis																											AMPHFILI
Amphiura spec.				+																							AMPHSPEC
Anthozoa spec.			+																								ANTHOZOA
Aonides paucibranchiata																											AONIPAUC
Apherusa ovalipes								+												+							APHEROVA
Aphrodite aculeata																											APHRACUL
Apistobranchus tullbergi																+											APISTULL
Aplacophora																											APLACOPH
Arcopagia crassa						+																					ARCOCRAS
Arctica islandica juv.																											ARCTJUVE
Aricidea minuta										+				+								+					ARICMINU
Astarte montagui																											ASTAMONT
Asterias rubens																											ASTERUBE
Astropecten irregularis																											ASTRIRRE
Atylus swammerdami																		+									ATYLSWAM
Bathyporeia elegans	+	+	+	+	+	+		+	+	+	+	+	+	+	+	+			+	+		+	+		+	+	BATHELEG
Bathyporeia guilliamsoniana	+	+	+					+	+					+					+			+	+		+		BATHGUIL
Branchiostoma lanceolatum												+															BRANLANC
Brissopsis lyrifera																											BRISLYRI
Callianassa subterranea			+																								CALLSUBT
Callianassa subterranea juv.																											CALLJUVE
Callianassa tyrrhena																				+							CALLTYRR
Capitella capitata			+																								CAPICAPI
Caprellidae spec.																											CAPRELLI
Carcinus maenas																											CARCMAEN
Chaetopterus variopedatus																											CHAEVARI
Chaetozone setosa	+	+	+	+	+		+	+		+	+			+		+		+									CHAESETO
Chamelea striatula																											CHAMSTRI
Chlamis varia																											CHLAVARI
Chone duneri																											CHONDUNE
Corbula gibba	+			+																							CORBGIBB
Corystes cassivelaunus				+	+																						CORYCASS
Cucumaria elongata																											CUCUELON
Cylichna cylindracea																											CYLICYLI
Diastylis bradyi																											DIASBRAD
Diogenes pugilator																											DIOGPUGI
Diplocirrus glaucus																											DIPLGLAU
Diplodonta rotundata																											DIPLOROTU
Donax vittatus		+		+				+	+	+		+				+				+					+		DONAVITT

Appendix -1 Biomonitoring 2005
(+ = 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**
Dosinia lupinus																											DOSILUPI
Ebalia cranchii																											EBALCRAN
Ebalia spec.juv.																											EBALSPEC
Echinocardium cordatum	+	+	+	+	+		+	+			+		+	+	+					+					+		ECHICORD
Echinocardium cordatum juv.														+													ECHIJUVE
Echinocyamus pusillus												+															ECHIPUSI
Echiuridae spec.																											ECHISPEC
Edwardsia claparedii																											EDWACLAP
Ensis americanus																											ENSIAMER
Ensis ensis																											ENSIENSI
Ensis spec.								+														+					ENSISPEC
Enteropneusta spec.																											ENTESPEC
Eteone foliosa			+															+							+		ETEOFOLI
Eteone longa		+	+		+				+	+																	ETEOLONG
Eudorella truncatula											+																EUDOTRUN
Eudorellopsis deformis																											EUDODEFO
Eumida sanguinea	+															+											EUMISANG
Eurydice spinigera																	+	+									EURYSPIN
Euspira nitida		+			+	+		+	+		+	+	+	+	+	+	+		+		+	+		+	+	+	EUSPNITI
Euzonus flabelligerus																					+			+		+	EUZOFLAB
Exogone hebes																											EXOGHEBE
Gammaropsis spec.																											GAMMSPEC
Gari fervensis																											GARIFERV
Gattyana cirrosa																											GATTCIRR
Glycera alba																					+						GLYCALBA
Glycera lapidum																				+				+			GLYCLAPI
Glycera rouxi																											GLYCROUX
Glycera spec. juv.																											GLYCSPEC
Glycinde nordmanni																											GLYCNORD
Golfingia elongata																											GOLFELON
Golfingia vulgaris																											GOLFVULG
Goniada maculata								+			+		+	+													GONIMACU
Goodallia triangularis						+																					GOODTRIA
Gyptis capensis				+	+						+			+													GYPTCAPE
Harmothoe glabra																											HARMGLAB
Harmothoe spec. juv.																											HARMSPEC
Harpinia antennaria											+																HARPANTE
Heteromastus filiformis										+																	HETEFILI
Hippomedon denticulatus																											HIPPDENT
Hyala vitrea																											HYALVITR
Hyperiidae spec.																+											HYPERIID
Ione thoracica																											IONETHOR
Iphinoe trispinosa							+																				IPHITRIS
Labidoplax buski																											LABIBUSK
Lanice conchilega	+		+		+						+																LANICONC
Lepidepecreum longicorne																											LEPILONG
Lepton squamosum																											LEPTSQUA
Leucothoe incisa							+				+												+				LEUCINCI
Liocarcinus marmoreus																											LIOCMARM
Lucinoma borealis																											LUCIBORE
Lumbrineris fragilis																											LUMBFRAG

Appendix -1 Biomonitoring 2005
(+ = 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**
Lumbrineris latreilli																											LUMBLATR
Lutraria lutraria																											LUTRLUTR
Lysilla loveni																											LYSILOVE
Macoma balthica																											MACOBALT
Mactra corallina																											MACTCORA
Magelona alleni																											MAGEALLE
Magelona johnstoni	+	+	+	+	+	+	+	+	+	+	+	+	+	+									+				MAGEJOHN
Magelona mirabilis	+	+	+	+	+		+	+	+		+			+				+	+								MAGEMIRA
Maldanidae spec.																											MALDSPEC
Malmgreniella lunulata		+	+		+																						MALMLUNU
Mediomastus fragilis																											MEDIFRAG
Megaluropus agilis									+	+															+		MEGAAGIL
Musculus niger																											MUSCNIGE
Mya truncata																											MYATRUN
Mya truncata juv.																											MYAJUVEN
Myriochele oculata											+																MYRIOCUL
Myrtea spinifera																											MYRTSPIN
Mysella bidentata										+														+			MYSEBIDE
Mysia undata																											MYSIUNDA
Nematoda						+																					NEMATODA
Nemertini			+	+	+	+	+	+	+	+	+					+				+	+						NEMERTIN
Nephtys assimilis							+																				NEPHASSI
Nephtys caeca																											NEPHCAEC
Nephtys cirrosa	+	+	+			+		+	+	+		+	+	+		+	+	+	+		+	+	+	+	+	+	NEPHCIRR
Nephtys hombergii		+	+	+				+		+	+									+							NEPHHOMB
Nephtys incisa																											NEPHINCI
Nephtys indet.																											NEPHINDE
Nephtys longosetosa																											NEPHLONG
Nephtys spec. juv.												+							+								NEPHSPEC
Nereis diversicolor																											NEREDIVE
Nereis longissima																											NERELONG
Nicomache lumbricalis																											NICOLUMB
Notomastus latericeus	+			+							+																NOTOLATE
Nucula nitidosa											+																NUCUNITI
Nucula nucleus																											NUCUNUCL
Oligochaeta			+																		+						OLIGOCHA
Ophelia limacina			+					+										+									OPHELIMA
Ophelina acuminata																											OPHEACUM
Ophiodromus flexuosus																											OPHIFLEX
Ophiura albida			+			+	+			+	+																OPHIALBI
Ophiura texturata																											OPHITEXT
Ophiura spec. juv.	+																										OPHISPEC
Orbinia sertulata																											ORBISERT
Orchomene nana							+																				ORCHNANA
Owenia fusiformis				+																							OWENFUSI
Paraonis fulgens										+						+				+						+	PARAFULG
Peachia cylindrica															+												PEACCYLI
Pectinaria auricoma																											PECTAURI
Pectinaria koreni																											PECTKORE
Perioculodes longimanus					+															+							PERILONG
Petricola pholadiformis																											PETRPHOL

Appendix -1 Biomonitoring 2005
(+ = 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**
Phaxas pellucidus																											PHAXPELL
Pholoe minuta																											PHOLMINU
Phoronida	+	+	+	+		+																	+	+	+		PHORONID
Phyllodoce groenlandica																											PHYLGROE
Phyllodoce maculata																											PHYLMACU
Phyllodoce rosea																											PHYLROSE
Podarkeopsis helgolandica																											PODAHELG
Poecilochaetus serpens	+																										POECSERP
Polydora ciliata																											POLYCILI
Polynoe kinbergi																											POLYKINB
Pontocrates altamarinus																											PONTALTA
Pontophilus trispinosus																											PONTTRIS
Prionospio steenstrupi																											PRIOSTEE
Processa nouveli holthuisi																		+					+				PROCNOHO
Processa parva																											PROCPARV
Pseudocuma longicornis						+							+				+	+	+		+				+	+	PSEULONG
Rhodine loveni																											RHODLOVE
Scalibregma inflatum																											SCALINFL
Scolelepis bonnieri																+		+	+							+	SCOLBONN
Scoloplos armiger	+	+	+		+	+	+	+	+	+		+	+	+		+			+			+	+	+			SCOLARMI
Scopelocheirus hopei																											SCOPHOPE
Semierycina nitida																											SEMINITI
Sigalion mathildae	+	+	+	+	+																						SIGAMATH
Siphonoecetus kroyeranus																											SIPHKROY
Spio filicornis					+		+							+			+		+	+							SPIOFILI
Spiophanes bombyx	+	+	+	+	+			+		+	+	+		+			+								+		SPIOBOMB
Spiophanes kroeyeri																											SPIOKROE
Spisula elliptica						+																					SPISELLI
Spisula subtruncata	+		+	+																							SPISSUBT
Spisula spec. juv.																											SPISSPEC
Sthenelais limicola																											STHELIMI
Streptosyllis websteri																											STREWEBS
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
Terebellides stroemi																											TERESTRO
Thia scutellata																			+								THIASCUT
Thracia convexa																											THRACONV
Thracia papyracea	+		+		+																						THRAPAPY
Thyasira flexuosa																											THYAFLEX
Tornus subcarinatus																											TORNSUBC
Travisia forbesii																											TRAVFORB
Tryphosites longipes																											TRYPLONG
Tunicata spec.																											TUNISPEC
Turbellaria spec.																											TURBELLA

Appendix -1 Biomonitoring 2005
(+ = 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**
Turritella communis																											TURRCOMM
Upogebia deltaura																											UPOGDELT
Upogebia deltaura juv.																											UPOGJUVE
Upogebia stellata																											UPOGSTEL
Upogebia stellata juv.																											UPOGJUVE
Urothoe brevicornis		+						+	+					+	+							+					UROTBREV
Urothoe poseidonis	+	+	+		+	+	+	+	+	+		+	+	+	+	+			+	+		+	+		+		UROTPOSE
Venerupis senegalensis																											VENESENE
Vitreolina antiflexa																											VITRANTI

Appendix -1 Biomonitoring 2005
(+ = 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	Egma	Terhe	
	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	1	1	
Species name																												**Code**
Abra alba																								+	+			ABRAALBA
Abra nitida																												ABRANITI
Abra prismatica																												ABRAPRIS
Acanthocardia echinata																												ACANECHI
Acanthocardia spec. juv.																												ACANSPEC
Acrocnida brachiata																												ACROBRAC
Acteon tornatilis																												ACTETORN
Ampelisca brevicornis																												AMPEBREV
Ampelisca tenuicornis																												AMPETENU
Ampharete spec.juv.																												AMPHSPEC
Amphipoda indet.																										+		AMPHINDE
Amphiura chiajei				+																								AMPHCHIA
Amphiura filiformis																												AMPHFILI
Amphiura spec.																												AMPHSPEC
Anthozoa spec.																			+									ANTHOZOA
Aonides paucibranchiata																												AONIPAUC
Apherusa ovalipes								+																				APHEROVA
Aphrodite aculeata																												APHRACUL
Apistobranchus tullbergi																												APISTULL
Aplacophora																												APLACOPH
Arcopagia crassa																												ARCOCRAS
Arctica islandica juv.																												ARCTJUVE
Aricidea minuta					+	+		+																				ARICMINU
Astarte montagui																												ASTAMONT
Asterias rubens				+																								ASTERUBE
Astropecten irregularis																												ASTRIRRE
Atylus swammerdami								+										+									+	ATYLSWAM
Bathyporeia elegans			+	+	+		+	+	+	+	+				+	+	+	+	+	+					+	+		BATHELEG
Bathyporeia guilliamsoniana			+	+	+		+	+		+	+	+					+		+									BATHGUIL
Branchiostoma lanceolatum																												BRANLANC
Brissopsis lyrifera																												BRISLYRI
Callianassa subterranea																												CALLSUBT
Callianassa subterranea juv.																												CALLJUVE
Callianassa tyrrhena	+						+												+		+							CALLTYRR
Capitella capitata											+		+		+									+				CAPICAPI
Caprellidae spec.				+																								CAPRELLI
Carcinus maenas																+	+											CARCMAEN
Chaetopterus variopedatus																												CHAEVARI
Chaetozone setosa				+	+			+			+								+					+				CHAESETO
Chamelea striatula																												CHAMSTRI
Chlamis varia										+																		CHLAVARI
Chone duneri																												CHONDUNE
Corbula gibba																												CORBGIBB
Corystes cassivelaunus																												CORYCASS
Cucumaria elongata																												CUCUELON
Cylichna cylindracea																												CYLICYLI
Diastylis bradyi																												DIASBRAD
Diogenes pugilator																		+	+	+								DIOGPUGI
Diplocirrus glaucus																												DIPLGLAU
Diplodonta rotundata							+																					DIPLOROTU
Donax vittatus				+	+		+				+			+						+						+		DONAVITT

Appendix -1 Biomonitoring 2005
(+ = 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	Egma	Terhe	
	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	1	1	
Species name																												**Code**
Dosinia lupinus			+																									DOSILUPI
Ebalia cranchii																												EBALCRAN
Ebalia spec.juv.																												EBALSPEC
Echinocardium cordatum			+			+	+						+			+				+				+			ECHICORD
Echinocardium cordatum juv.																												ECHIJUVE
Echinocyamus pusillus		+																										ECHIPUSI
Echiuridae spec.																				+								ECHISPEC
Edwardsia claparedii																												EDWACLAP
Ensis americanus	+						+					+	+	+	+			+		+	+	+		+	+		+	ENSIAMER
Ensis ensis						+																						ENSIENSI
Ensis spec.			+				+																					ENSISPEC
Enteropneusta spec.																												ENTESPEC
Eteone foliosa							+																					ETEOFOLI
Eteone longa							+		+																			ETEOLONG
Eudorella truncatula																												EUDOTRUN
Eudorellopsis deformis																												EUDODEFO
Eumida sanguinea				+									+											+		+		EUMISANG
Eurydice spinigera																	+											EURYSPIN
Euspira nitida	+	+		+	+		+	+		+			+												+			EUSPNITI
Euzonus flabelligerus										+																		EUZOFLAB
Exogone hebes							+																					EXOGHEBE
Gammaropsis spec.				+																								GAMMSPEC
Gari fervensis																												GARIFERV
Gattyana cirrosa																												GATTCIRR
Glycera alba																												GLYCALBA
Glycera lapidum																												GLYCLAPI
Glycera rouxi																												GLYCROUX
Glycera spec. juv.									+																			GLYCSPEC
Glycinde nordmanni																												GLYCNORD
Golfingia elongata																												GOLFELON
Golfingia vulgaris																												GOLFVULG
Goniada maculata																												GONIMACU
Goodallia triangularis			+																									GOODTRIA
Gyptis capensis																												GYPTCAPE
Harmothoe glabra																												HARMGLAB
Harmothoe spec. juv.																												HARMSPEC
Harpinia antennaria																												HARPANTE
Heteromastus filiformis							+		+																			HETEFILI
Hippomedon denticulatus							+																					HIPPDENT
Hyala vitrea																												HYALVITR
Hyperiidae spec.																												HYPERIID
Ione thoracica																												IONETHOR
Iphinoe trispinosa																+												IPHITRIS
Labidoplax buski																												LABIBUSK
Lanice conchilega													+	+				+			+			+				LANICONC
Lepidepecreum longicorne																												LEPILONG
Lepton squamosum																												LEPTSQUA
Leucothoe incisa				+		+															+							LEUCINCI
Liocarcinus marmoreus																								+				LIOCMARM
Lucinoma borealis																												LUCIBORE
Lumbrineris fragilis																												LUMBFRAG

Appendix -1 Biomonitoring 2005
(+ = 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	Egma	Terhe	
	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	1	1	
Species name																												**Code**
Lumbrineris latreilli																												LUMBLATR
Lutraria lutraria																								+				LUTRLUTR
Lysilla loveni																												LYSILOVE
Macoma balthica												+				+	+	+										MACOBALT
Mactra corallina																												MACTCORA
Magelona alleni																												MAGEALLE
Magelona johnstoni			+	+	+						+	+	+	+	+	+	+	+	+	+		+			+	+		MAGEJOHN
Magelona mirabilis				+	+							+		+		+	+		+						+		+	MAGEMIRA
Maldanidae spec.																												MALDSPEC
Malmgreniella lunulata																								+				MALMLUNU
Mediomastus fragilis																												MEDIFRAG
Megaluropus agilis										+																		MEGAAGIL
Musculus niger																												MUSCNIGE
Mya truncata																												MYATRUN
Mya truncata juv.																												MYAJUVEN
Myriochele oculata																												MYRIOCUL
Myrtea spinifera																												MYRTSPIN
Mysella bidentata											+		+	+					+	+		+		+	+	+		MYSEBIDE
Mysia undata																												MYSIUNDA
Nematoda		+	+																									NEMATODA
Nemertini			+	+		+	+	+		+			+	+					+	+			+		+	+		NEMERTIN
Nephtys assimilis													+							+									NEPHASSI
Nephtys caeca					+				+												+							+	NEPHCAEC
Nephtys cirrosa	+	+	+		+	+	+	+	+	+	+		+	+	+		+		+	+	+	+	+		+	+	+	NEPHCIRR
Nephtys hombergii	+										+					+			+			+		+	+			NEPHHOMB
Nephtys incisa																												NEPHINCI
Nephtys indet.																												NEPHINDE
Nephtys longosetosa										+																		NEPHLONG
Nephtys spec. juv.										+						+		+	+						+			NEPHSPEC
Nereis diversicolor											+																	NEREDIVE
Nereis longissima																									+			NERELONG
Nicomache lumbricalis																												NICOLUMB
Notomastus latericeus				+															+					+	+			NOTOLATE
Nucula nitidosa																												NUCUNITI
Nucula nucleus																												NUCUNUCL
Oligochaeta																								+				OLIGOCHA
Ophelia limacina			+				+			+																		OPHELIMA
Ophelina acuminata																												OPHEACUM
Ophiodromus flexuosus																												OPHIFLEX
Ophiura albida				+																				+				OPHIALBI
Ophiura texturata				+																								OPHITEXT
Ophiura spec. juv.			+																									OPHISPEC
Orbinia sertulata																												ORBISERT
Orchomene nana													+															ORCHNANA
Owenia fusiformis				+									+		+					+				+	+			OWENFUSI
Paraonis fulgens										+																		PARAFULG
Peachia cylindrica																												PEACCYLI
Pectinaria auricoma																												PECTAURI
Pectinaria koreni													+															PECTKORE
Perioculodes longimanus					+																							PERILONG
Petricola pholadiformis																								+				PETRPHOL

Appendix -1 Biomonitoring 2005
(+ = 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	Egma	Terhe	
	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	1	1	
Species name																												**Code**
Phaxas pellucidus																												PHAXPELL
Pholoe minuta																												PHOLMINU
Phoronida	+		+				+	+													+							PHORONID
Phyllodoce groenlandica																												PHYLGROE
Phyllodoce maculata													+															PHYLMACU
Phyllodoce rosea							+																					PHYLROSE
Podarkeopsis helgolandica																												PODAHELG
Poecilochaetus serpens	+																		+									POECSERP
Polydora ciliata																												POLYCILI
Polynoe kinbergi																												POLYKINB
Pontocrates altamarinus																												PONTALTA
Pontophilus trispinosus																		+										PONTTRIS
Prionospio steenstrupi																												PRIOSTEE
Processa nouveli holthuisi																												PROCNOHO
Processa parva							+																			+		PROCPARV
Pseudocuma longicornis					+				+	+																+		PSEULONG
Rhodine loveni																												RHODLOVE
Scalibregma inflatum																												SCALINFL
Scolelepis bonnieri			+			+																+						SCOLBONN
Scoloplos armiger				+	+	+	+	+			+						+		+	+	+	+					+	SCOLARMI
Scopelocheirus hopei																												SCOPHOPE
Semierycina nitida																												SEMINITI
Sigalion mathildae				+									+															SIGAMATH
Siphonoecetus kroyeranus									+																			SIPHKROY
Spio filicornis									+			+	+	+	+	+		+	+	+				+	+	+		SPIOFILI
Spiophanes bombyx	+		+	+	+		+	+	+		+	+	+						+			+		+	+			SPIOBOMB
Spiophanes kroeyeri																												SPIOKROE
Spisula elliptica											+																	SPISELLI
Spisula subtruncata												+		+					+						+			SPISSUBT
Spisula spec. juv.																												SPISSPEC
Sthenelais limicola																												STHELIMI
Streptosyllis websteri																										+		STREWEBS
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
Terebellides stroemi																												TERESTRO
Thia scutellata						+	+																					THIASCUT
Thracia convexa																												THRACONV
Thracia papyracea			+																									THRAPAPY
Thyasira flexuosa																												THYAFLEX
Tornus subcarinatus																												TORNSUBC
Travisia forbesii									+																			TRAVFORB
Tryphosites longipes																												TRYPLONG
Tunicata spec.																												TUNISPEC
Turbellaria spec.																												TURBELLA

Appendix -1 Biomonitoring 2005
(+ = 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	Egma	Terhe	
	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	1	1	
Species name																												**Code**
Turritella communis																												TURRCOMM
Upogebia deltaura																												UPOGDELT
Upogebia deltaura juv.																												UPOGJUVE
Upogebia stellata																												UPOGSTEL
Upogebia stellata juv.																												UPOGJUVE
Urothoe brevicornis				+				+					+	+	+	+		+	+	+		+		+	+	+		UROTBREV
Urothoe poseidonis	+			+	+	+	+	+	+		+	+	+	+	+	+		+	+	+	+	+	+	+	+	+		UROTPOSE
Venerupis senegalensis																								+				VENESENE
Vitreolina antiflexa																												VITRANTI

station	DOG 01		DOG-02		DOG 03		DOG 04		DOG 05	
Crustacea	n	b	n	b	n	b	n	b	n	b
ampebrev									12.83	0.004
ampetenu					12.83	0.004			153.96	0.046
atylswam			12.83	0.004	436.22	0.131				
batheleg	500.37	0.150	731.31	0.219			461.88	0.139		
bathguil	141.13	0.042	179.62	0.054	64.15	0.019	153.96	0.046	25.66	0.008
caprelli			25.66	0.008					12.83	0.004
ebalcran			12.83	0.140			12.83	0.004	12.83	0.010
hippdent	12.83	0.004					25.66	0.008		
leucinci	25.66	0.008			12.83	0.004	38.49	0.012	12.83	0.004
megaagil							12.83	0.004		
orchnana							12.83	0.004		
perilong	12.83	0.004					25.66	0.008		
pseulong							12.83	0.004		
siphkroy	12.83	0.004	38.49	0.012			64.15	0.019	51.32	0.015
syncmacu					12.83	0.004				
urotbrev			25.66	0.008			12.83	0.004	12.83	0.004
urotpose	38.49	0.012	192.45	0.058	115.47	0.035	128.3	0.038	38.49	0.012
Echinodermata										
acrobrac	25.66	0.084	12.83	0.237	153.96	3.429	25.66	1.272	89.81	6.802
amphchia	12.83	0.001	179.62	0.031	89.81	0.004	372.07	0.226	615.84	0.084
echicord			12.83	4.747	12.83	4.747			25.66	14.733
echipusi			12.83	0.002					12.83	0.004
Mollusca										
chamstri									12.83	0.004
cylicyli					12.83	0.012			12.83	0.001
dosilupi	38.49	0.009			25.66	0.043	38.49	0.045		
ensiensi	12.83	0.304								
euspniti	38.49	0.072	141.13	0.128			153.96	0.353	51.32	0.093
gariferv					12.83	0.006				
lucibore					12.83	0.851			12.83	1.009
myrtspin									12.83	0.004
mysebide	38.49	0.010	64.15	0.007	179.62	0.033	12.83	0.003	51.32	0.007
nucunucl			12.83	0.024						
phaxpell			12.83	0.273						
tellfabu	128.3	0.458	256.6	0.538	141.13	0.082	230.94	0.184	218.11	0.409
tellferr	25.66	0.042			12.83	0.011			64.15	0.073
thrapapy	12.83	0.001	12.83	0.139					12.83	0.006
thyaflex									51.32	0.342
Polychaeta										
chaeseto							25.66	0.007		
diplglau									12.83	0.003
eteolong					12.83	0.003	25.66	0.007		
eumisang									38.49	0.010
gonimacu	51.32	0.176	64.15	0.339	25.66	0.007			25.66	0.061
gyptcape	12.83	0.003								
harmspec			25.66	0.010	12.83	0.003			25.66	0.007
laniconc			102.64	2.312					38.49	1.253
magealle	12.83	0.044					25.66	0.044	12.83	0.030
magejohn	25.66	0.007	25.66	0.010	12.83	0.003	141.13	0.242		
magemira	38.49	0.007	51.32	0.020	64.15	0.017	25.66	0.007	461.88	0.122
maldspec							12.83	0.278		
malmlunu			12.83	0.005	64.15	0.017			64.15	0.152
myriocul			12.83	0.005						
nephcaec									25.66	1.926
nephcirr	51.32	0.176	38.49	0.086	64.15	0.130	89.81	0.154	25.66	0.007
nephhomb			25.66	0.876			12.83	2.036		

nephlong			12.83	0.029						
nephspec			38.49	0.015			25.66	0.007		
notolate	38.49	2.959	12.83	0.005	12.83	0.081				
owenfusi	12.83	0.003					38.49	0.066		
pholminu					12.83	0.003			38.49	0.010
phylgroe			12.83	0.005						
poecserp			25.66	0.058					12.83	0.030
scolarmi									25.66	0.061
scolbonn					12.83	0.266			25.66	0.061
sigamath	12.83	0.415	12.83	0.124			12.83	0.127	25.66	0.213
spiobomb	51.32	0.014	89.81	0.036	256.6	0.068	282.26	0.075	141.13	0.037
spiofili			38.49	0.015	12.83	0.003			25.66	0.007
sthelimi					25.66	0.163			12.83	0.198
Miscellaneous										
nemertin	12.83	0.056	12.83	0.020	12.83	0.006	25.66	0.056	51.32	0.037
turbella	12.83	0.005								
phoronid	12.83	0.002	12.83	0.019			64.15	0.076		
branlanc			25.66	0.042			12.83	0.006		
sum	1424	7.409	2592	10.659	1912	10.205	2617	7.031	2669	27.972
nspc	29		38		30		33		42	
SH-W	2.60		2.80		2.70		2.83		2.92	
Simp	0.14		0.11		0.10		0.08		0.10	

station	**DOG 06**		**DOG 07**		**OYS-01**		**OYS 02**		**OYS 03**	
Crustacea	n	b	n	b	n	b	n	b	n	b
ampetenu					25.66	0.008			12.83	0.004
batheleg	679.99	0.204	564.52	0.169			12.83	0.004	12.83	0.004
bathguil	102.64	0.031	141.13	0.042						
calljuve					38.49	0.212	64.15	0.167		
callsubt					51.32	3.433	76.98	5.439		
eudotrun					12.83	0.004			12.83	0.004
harpante					115.47	0.035	64.15	0.019	38.49	0.012
hyperiid			12.83	0.004						
ionethor					25.66	0.006				
leucinci	76.98	0.023	12.83	0.004						
perilong			12.83	0.004						
siphkroy			38.49	0.012						
syncmacu	25.66	0.008	25.66	0.008						
urotbrev	12.83	0.004	12.83	0.004						
urotpose	64.15	0.019	153.96	0.046						
Echinodermata										
acrobrac			115.47	3.637						
amphchia	51.32	0.040	64.15	0.002						
amphfili					1873.18	8.622	218.11	0.880	1924.5	6.235
echicord					12.83	6.664	12.83	6.664	12.83	2.114
echipusi	25.66	0.003	25.66	0.020						
labibusk									12.83	0.014
Mollusca										
abraalba					38.49	0.020	25.66	0.129		
aplacoph					12.83	0.056			12.83	0.003
chamstri	25.66	0.001					12.83	1.433	25.66	0.003
corbgibb			12.83	0.023	64.15	0.064	51.32	0.062	12.83	0.007
cylicyli			12.83	0.001	64.15	0.047	25.66	0.032	89.81	0.023
dosilupi					25.66	0.018	12.83	0.120		
euspniti	12.83	0.002	51.32	0.049			25.66	0.222		
hyalvitr					38.49	0.038				
mysebide	25.66	0.005	320.75	0.033	821.12	0.122	89.81	0.011	1013.57	0.188
mysiunda					25.66	0.002				

nucuniti					51.32	0.033	230.94	1.135	64.15	0.071
phaxpell					12.83	0.001				
tellfabu	12.83	0.089	179.62	0.111						
thrapapy			25.66	0.019						
thyaflex					51.32	0.040				
Polychaeta										
chaeseto	12.83	0.010	25.66	0.010	51.32	0.047				
chaevari					12.83	7.589	12.83	5.829	12.83	6.859
diplglau					12.83	0.012				
glycnord							25.66	0.027	12.83	0.007
glycroux					12.83	0.903				
glycspec					12.83	0.012				
gonimacu	25.66	0.129	64.15	0.149	25.66	0.024	38.49	0.041		
gyptcape							38.49	0.015		
harmspec			38.49	0.015						
lumbfrag							12.83	0.005		
magejohn	38.49	0.030	12.83	0.005			102.64	0.041		
magemira	89.81	0.071	89.81	0.036			25.66	0.010		
maldspec			12.83	0.005						
medifrag					12.83	0.012	12.83	0.005		
myriocul			38.49	0.015	12.83	0.012				
nephassi			12.83	0.511						
nephcaec			12.83	0.948						
nephcirr	115.47	0.586	12.83	0.005			12.83	0.014	12.83	0.029
nephhomb					25.66	0.391	12.83	0.014	25.66	0.058
nephspec					25.66	0.024	25.66	0.027		
nerelong							12.83	0.014		
nicolumb	25.66	1.716								
notolate			12.83	0.374						
orbisert									12.83	0.029
owenfusi	89.81	0.395	76.98	0.098	25.66	0.024	25.66	0.010		
parafulg									12.83	0.007
pectauri					102.64	0.222			51.32	0.115
pholminu			12.83	0.005	102.64	0.095	115.47	0.046	38.49	0.020
poecserp							179.62	0.190		
scolarmi			12.83	0.005	51.32	0.047			12.83	0.007
sigamath			38.49	0.190						
spiobomb	128.3	0.102	64.15	0.025	12.83	0.012	230.94	0.091		
spiokroe									12.83	0.029
spiofili	12.83	0.010			38.49	0.012				
sthelimi					38.49	0.036	25.66	0.591	25.66	0.058
Miscellaneous										
nemertin	12.83	0.107	12.83	0.471	64.15	1.307	12.83	0.017	25.66	0.906
golfvulg					25.66	0.403	38.49	0.042		
phoronid			76.98	0.081	38.49	0.020	551.69	0.291	115.47	0.046
tunispec			12.83	0.002						
branlanc	12.83	0.006	12.83	0.020						
sum	1681	4.030	2438	7.159	4067.11	30.628	2437.7	23.641	3618.06	18.300
nspc	23		38		39		34		26	
SH-W	2.33		2.91		2.19		2.86		1.54	
Simp	0.18		0.09		0.26		0.09		0.36	

station	**OYS 04**		**OYS 05**		**OYS 06**		**OYS 07**		**OYS 08**	
Crustacea	n	b	n	b	n	b	n	b	n	b
ampebrev	12.83	0.004			12.83	0.004				
ampetenu	12.83	0.004			25.66	0.008	25.66	0.008		
batheleg	128.3	0.038			51.32	0.015				
calljuve			38.49	0.073			12.83	0.008	102.64	1.226

callsubt			89.81	5.881						
diasbrad							12.83	0.004		
eudotrun							25.66	0.008		
harpante					38.49	0.012				
ionethor			25.66	0.038						
leucinci	64.15	0.019	12.83	0.004						
orchnana	12.83	0.004								
pontalta							12.83	0.004		
pseulong	12.83	0.004								
upogdelt			38.49	8.679					64.15	28.315
urotpose	12.83	0.004								
Echinodermata										
amphfili	64.15	0.072	64.15	0.180	1039.23	12.198	1693.56	8.695	218.11	2.102
echicord							12.83	1.375		
echijuve									12.83	0.000
labibusk									12.83	0.784
ophialbi									38.49	0.497
ophispec	89.81	0.018	12.83	0.003						
Mollusca										
abraalba							12.83	0.002	51.32	0.115
abraniti	230.94	0.021			25.66	0.007				
abrapris	12.83	0.007								
acanechi							12.83	4.907		
actetorn					12.83	0.039				
chamstri	12.83	0.003								
corbgibb	12.83	0.007	295.09	0.622					205.28	0.063
cylicyli			25.66	0.005			25.66	0.007	12.83	0.001
ensiensi	12.83	0.006								
euspniti	38.49	0.036			12.83	0.064	12.83	0.004	25.66	0.029
hyalvitr							12.83	0.013		
leptsqua									25.66	0.080
mactcora	12.83	0.044								
muscnige							12.83	0.372		
mysebide	115.47	0.021			654.33	0.134	179.62	0.031	12.83	0.003
mysiunda	25.66	0.004								
nucuniti			25.66	0.048	38.49	0.078			51.32	0.140
nucunucl					89.81	0.147	12.83	0.019		
phaxpell	12.83	0.258								
seminiti			12.83	0.001					25.66	0.003
spissubt			25.66	0.004					51.32	0.014
tellfabu	25.66	0.002								
tellferr							12.83	0.002		
thrapapy									25.66	0.001
thyaflex	166.79	0.333			38.49	0.005				
turrcomm			12.83	3.013			12.83	6.935		
Polychaeta										
chaeseto	25.66	0.020								
chaevari							141.13	14.514		
chondune					12.83	0.049				
dipIglau	38.49	0.030			25.66	0.098				
eteofoli	12.83	0.010								
gattcirr							102.64	2.591		
glyclapi			12.83	0.207						
glycroux							12.83	1.252		
gonimacu	76.98	0.224			51.32	0.196			12.83	0.008
gyptcape					12.83	0.005			12.83	0.081
harmspec					38.49	0.015				
laniconc	25.66	1.975			76.98	1.101				
lumblatr			38.49	0.147					51.32	0.034

magealle	102.64	0.298								
magejohn	282.26	0.112								
magemira	885.27	0.362	51.32	0.007	102.64	0.041				
malmlunu	25.66	0.383							12.83	0.081
medifrag									179.62	0.119
nephassi	25.66	0.383								
nephhomb					76.98	1.611	12.83	0.113		
nephinci			38.49	1.605			12.83	0.113		
nephlong							12.83	0.113		
nephspec	25.66	0.020	25.66	0.003	25.66	0.010				
nerelong			12.83	0.049	12.83	0.782			12.83	0.081
notolate					12.83	0.049				
opheacum					12.83	0.005	12.83	0.113		
ophiflex							12.83	0.113		
owenfusi	12.83	0.010			12.83	0.005	12.83	0.113	141.13	0.093
parafulg							25.66	0.007		
pectauri					12.83	0.005	38.49	0.340		
pholminu	12.83	0.010			256.6	0.102	25.66	0.005	25.66	0.017
phylrose	12.83	0.010			38.49	0.015				
podahelg	12.83	0.010								
poecserp	102.64	0.298	12.83	0.002	25.66	0.010			25.66	0.017
polycili									256.6	0.169
priostee							12.83	0.003		
rhodlove							38.49	0.340		
scolarmi	51.32	0.078			12.83	0.005				
scolbonn	12.83	0.191								
spiobomb	474.71	0.376	38.49	0.005	230.94	0.091				
spiofili	12.83	0.010					51.32	0.007	12.83	0.008
sthelimi			12.83	0.049						
terespec			12.83	0.049						
Miscellaneous										
edwaclap					25.66	0.285				
nemertin	89.81	0.426	25.66	0.008	51.32	0.141			12.83	0.082
phoronid	12.83	0.010	1026.4	0.406	205.28	0.081	25.66	0.008	3310.14	1.748
sum	3425.61	6.579	1988.65	21.113	3374.29	17.468	2655.81	42.141	5003.7	46.872
nspc	43		25		34		33		29	
SH-W	2.85		1.98		2.51		1.73		1.59	
Simp	0.10		0.29		0.15		0.41		0.45	

station	**OYS 09**		**OYS 10**		**OYS 11**		**OYS 12**		**OYS 13**	
Crustacea	n	b	n	b	n	b	n	b	n	b
batheleg	128.3	0.038	25.66	0.008					51.32	0.015
bathguil	12.83	0.004								
calljuve	166.79	1.055			64.15	0.314	102.64	0.164		
callsubt	64.15	1.218			166.79	6.711	51.32	3.576	12.83	2.898
ebalspec					12.83	0.010				
eudodefo	76.98	0.023								
eudotrun			12.83	0.004	64.15	0.019	12.83	0.004		
harpante	38.49	0.012	179.62	0.054	12.83	0.004	12.83	0.004	115.47	0.035
ionethor	51.32	0.008								
upogdelt					64.15	6.640				
urotpose	25.66	0.008								
Echinodermata										
amphfili	76.98	0.045	1847.52	8.631	218.11	0.835	102.64	0.753	1270.17	7.172
echicord	12.83	6.936	12.83	8.100	12.83	4.139	38.49	8.736	12.83	6.142
echipusi	25.66	0.009								
labibusk			12.83	1.604						

Mollusca										
abraalba	12.83	0.001			115.47	0.056	25.66	0.004	89.81	0.021
aplacoph									12.83	0.000
astamont									25.66	0.003
chamstri			38.49	0.001					51.32	0.012
corbgibb			25.66	0.041	25.66	0.009				
cylicyli	12.83	0.073	64.15	0.054	12.83	0.060	25.66	0.036	51.32	0.073
dosilupi	12.83	0.000	12.83	1.973						
euspniti					12.83	0.015			38.49	0.310
hyalvitr					25.66	0.026	76.98	0.077		
leptsqua					12.83	0.034				
mysebide	38.49	0.006	397.73	0.070	64.15	0.005	51.32	0.008	449.05	0.089
nucuniti	89.81	0.119	89.81	0.106	38.49	0.145			51.32	0.143
nucunucl			12.83	0.024						
phaxpell									25.66	0.275
seminiti					12.83	0.001				
spissubt					12.83	0.004				
spisspec			12.83	0.001						
tellferr	25.66	0.042	12.83	0.015	12.83	0.004	38.49	0.054	38.49	0.027
thrapapy	51.32	0.002								
thyaflex									12.83	0.001
Polychaeta										
aphracul	12.83	0.012								
chaeseto			38.49	0.015			12.83	0.005	76.98	0.071
chaevari					12.83	2.667				
diplglau	12.83	0.012			25.66	0.010			64.15	0.059
gattcirr					12.83	0.139	12.83	0.202		
glycspec					12.83	0.005				
gonimacu	25.66	0.279			25.66	0.010			25.66	0.024
gyptcape					12.83	0.005				
lumblatr					12.83	0.005	12.83	0.202		
magealle									12.83	0.012
magejohn	38.49	0.036							12.83	0.012
magemira	25.66	0.024			25.66	0.010			64.15	0.059
medifrag					51.32	0.020	38.49	0.015		
myriocul			12.83	0.005						
nephcaec									25.66	0.393
nephcirr	12.83	0.012								
nephhomb			25.66	0.159	51.32	0.076				
nephspec			51.32	0.020	25.66	0.010			51.32	0.047
nereiong					12.83	0.005				
notolate	38.49	0.036					12.83	1.008	12.83	0.012
ophiflex							38.49	0.605		
orbisert							12.83	0.202		
owenfusi			12.83	0.005					12.83	0.012
parafulg							12.83	0.005	12.83	0.012
pectauri	25.66	0.024	38.49	0.015					38.49	0.036
pholminu			102.64	0.041	51.32	0.020			128.3	0.119
phylgroe			12.83	0.088						
phylrose	12.83	0.012								
poecserp	25.66	0.024								
polycili					89.81	0.036				
scolarmi	12.83	0.012	102.64	0.041						
sigamath	12.83	0.141								
spiobomb	25.66	0.024			12.83	0.005				
spiofili			12.83	0.005	25.66	0.010	218.11	0.058		
sthelimi			12.83	0.085					25.66	0.024
syneklat	12.83	0.012	12.83	0.005			25.66	0.010	25.66	0.024

Miscellaneous										
edwaclap							12.83	0.121		
nemertin	12.83	0.042							38.49	0.071
turbella			12.83	0.330	12.83	0.366				
golfelon					12.83	0.071				
golfvulg							25.66	0.069		
phoronid	679.99	0.269	166.79	0.066	1424.13	0.728	141.13	0.056	76.98	0.041
branlanc			12.83	0.011						
sum	1911.67	10.567	3387.12	22.142	2873.92	23.253	1116.21	15.994	3015.05	18.452
nspc	34		30		38		24		33	
SH-W	2.69		1.91		2.29		2.76		2.38	
Simp	0.14		0.32		0.26		0.08		0.21	

station	**OYS 14**		**OYS 15**		**OYS 16**		**OYS 17**		**OYS 18**	
Crustacea	n	b	n	b	n	b	n	b	n	b
ampebrev			12.83	0.004	12.83	0.004				
ampetenu			12.83	0.004						
batheleg					12.83	0.004	102.64	0.031	51.32	0.015
calljuve	51.32	0.125	12.83	0.100	128.3	0.312	12.83	0.135		
callsubt	38.49	3.514	38.49	1.586	12.83	1.207	25.66	0.835	64.15	3.760
corycass									12.83	19.990
eudotrun	12.83	0.004								
harpante			51.32	0.015	12.83	0.004	38.49	0.012		
leucinci							12.83	0.004		
perilong							12.83	0.004		
pseulong									12.83	0.004
upogdelt					25.66	7.900				
upogjuve					12.83	0.065				
upogstel					12.83	1.465				
urotpose							12.83	0.004		
Echinodermata										
amphfili	320.75	4.262	25.66	0.041	1462.62	9.646	166.79	0.419	25.66	0.010
astrirre							12.83	6.456		
echicord					12.83	6.142			25.66	7.610
Mollusca										
abraalba			38.49	0.048			12.83	0.000		
chamstri							12.83	0.001		
corbgibb	12.83	0.159	307.92	0.230	795.46	0.257	256.6	0.051	12.83	0.002
cylicyli					12.83	0.039	51.32	0.052		
euspniti	12.83	0.004								
hyalvitr	192.45	0.192					25.66	0.026		
mysebide	153.96	0.021			230.94	0.031	64.15	0.007	51.32	0.006
nucuniti					38.49	0.025	25.66	0.352	76.98	0.622
phaxpell			12.83	0.180			12.83	0.001		
seminiti					12.83	0.001				
tellferr			25.66	0.007	12.83	0.023			76.98	0.053
thrapapy									25.66	0.024
Polychaeta										
chaeseto	51.32	0.014	38.49	0.010			12.83	0.015		
chaevari			12.83	8.359						
diplglau							12.83	0.015		
eumisang							12.83	0.015		
gattcirr			12.83	0.735						
glycalba									12.83	0.010
glyclapi			12.83	0.059						
glycspec							38.49	0.046		
glycnord									12.83	0.010
gonimacu			12.83	0.005	25.66	0.020	25.66	0.030	38.49	0.030

gyptcape									25.66	0.020
harmglab					12.83	0.010				
lumblatr					12.83	0.010				
magealle							25.66	0.030		
magejohn							192.45	0.229	192.45	0.152
magemira							51.32	0.061	102.64	0.081
medifrag							12.83	0.015	12.83	0.010
nephcaec							12.83	0.269	12.83	1.423
nephcirr			25.66	0.119						
nephhomb	12.83	0.144	12.83	0.059			12.83	0.149		
nephspec			12.83	0.005						
nicolumb	12.83	1.731								
notolate			38.49	0.518	25.66	0.937				
opheacum					12.83	0.173				
ophiflex			12.83	0.003	12.83	0.010				
owenfusi					25.66	0.020				
parafulg	51.32	0.014	25.66	0.008						
pectauri							38.49	0.015	12.83	0.010
pectkore			12.83	0.005						
pholminu									76.98	0.061
poecserp									359.24	0.285
polycili					89.81	0.071				
scolarmi							25.66	0.030		
sigamath							12.83	0.147		
spiobomb			12.83	0.005					25.66	0.020
spiofili	12.83	0.005			12.83	0.010				
sthelimi			12.83	0.059						
syneklat			38.49	0.010	25.66	0.051	12.83	0.019		
travforb			12.83	1.158						
Miscellaneous										
edwaclap	12.83	0.053			51.32	0.031				
nemertin	12.83	1.626	12.83	0.008	12.83	0.008	12.83	0.017	76.98	0.172
oligocha					25.66	0.020				
golfelon	12.83	0.237								
turbella			12.83	0.005						
golfvulg			38.49	0.606						
phoronid	64.15	0.034	12.83	0.007	744.14	0.295	25.66	0.014	192.45	0.102
entespec							12.83	5.115		
sum	1039.23	12.151	923.76	17.210	3900.32	28.803	1411.3	14.644	1590.92	34.483
nspc	17		30		30		35		25	
SH-W	2.19		2.79		1.98		2.98		2.69	
Simp	0.15		0.12		0.22		0.07		0.09	

station	**OYS 19**		**OYS 20**		**OYS 21**		**OYS 22**		**OYS 23**	
Crustacea	n	b	n	b	n	b	n	b	n	b
ampebrev	12.83	0.004			12.83	0.004				
ampetenu	25.66	0.008	12.83	0.004						
batheleg							51.32	0.015	38.49	0.012
calljuve	38.49	0.044	12.83	0.038	141.13	0.325	38.49	0.148		
callsubt	38.49	3.206	89.81	4.494	243.77	8.562	38.49	5.972	12.83	0.127
diasbrad	12.83	0.004					12.83	0.004		
eudodefo	12.83	0.004							12.83	0.004
eudotrun							38.49	0.012		
harpante	76.98	0.023	38.49	0.012	38.49	0.012	89.81	0.027	166.79	0.050
hyperiid	12.83	0.004								
ionethor					25.66	0.040				
perilong			12.83	0.004						
procparv							12.83	0.137		

tryplong	12.83	0.004					25.66	0.008		
upogdelt					51.32	20.890				
upogjuve					12.83	0.046				
upogstel							12.83	0.119		
Echinodermata										
amphfili	2258.08	7.603	654.33	2.373	641.5	2.078	1154.7	2.400	1270.17	6.032
labibusk			12.83	0.466						
ophialbi					38.49	0.409				
ophispec			12.83	0.000						
Mollusca										
abraalba	25.66	0.056	64.15	0.024	102.64	0.265	38.49	0.102	230.94	0.123
aplacoph			12.83	0.004						
arctjuve									12.83	0.001
chamstri									25.66	0.003
corbgibb	64.15	0.024	115.47	0.039	885.27	0.216	320.75	0.103		
cylicyli	153.96	0.049	38.49	0.017	51.32	0.063	102.64	0.044	51.32	0.022
dosilupi			12.83	0.001					12.83	0.038
euspniti					64.15	0.056			25.66	0.013
hyalvitr	51.32	0.051	12.83	0.013	12.83	0.013				
leptsqua					12.83	0.132				
mysebide	603.01	0.073	128.3	0.013	243.77	0.023	898.1	0.100	1103.38	0.133
mysiunda									12.83	0.581
nucuniti	51.32	0.181	12.83	0.014	153.96	0.098	128.3	0.352	89.81	0.126
phaxpell									12.83	0.011
seminiti					25.66	0.003	141.13	0.006		
spissubt					38.49	0.023				
tellfabu							25.66	0.002	12.83	0.019
teliferr	12.83	0.011								
thrapapy			12.83	0.002					12.83	0.000
thyaflex	256.6	0.019					51.32	0.005	115.47	0.023
tornsubc					12.83	0.006				
vitranti									12.83	0.018
Polychaeta										
chaeseto									12.83	0.007
chaevari							12.83	6.774		
diplglau	12.83	0.008			38.49	0.032			25.66	0.014
glycspec	12.83	0.008	12.83	0.005						
gonimacu					64.15	0.051	12.83	0.135	12.83	0.007
gyptcape					25.66	0.020			38.49	0.010
laniconc			12.83	0.005						
lumbfrag					12.83	0.012				
lumblatr			25.66	0.715	64.15	0.051				
lysilove							12.83	1.318		
magealle	12.83	0.008	12.83	0.005					12.83	0.103
magejohn			12.83	0.005						
magemira							12.83	0.003	153.96	0.042
malmiunu			12.83	0.357						
medifrag					12.83	0.010				
myriocul					898.1	0.054	12.83	0.003		
nephcirr									12.83	0.103
nephhomb	25.66	0.666	38.49	1.072	25.66	0.119	25.66	0.271	12.83	0.103
nephspec	12.83	0.008	38.49	0.015			12.83	0.003	12.83	0.003
nerelong			12.83	0.357	12.83	0.012				
notolate			12.83	0.688	25.66	1.014	12.83	0.135	25.66	0.207
ophiflex	38.49	0.103					25.66	0.271		
owenfusi	12.83	0.008			51.32	0.042				
pectauri	12.83	0.008	25.66	0.012					25.66	0.010
pectkore					12.83	0.322				
pholminu	115.47	0.076							256.6	0.075

poecserp			12.83	0.005	12.83	0.010				
polycili							12.83	0.003		
polykinb							12.83	0.135		
scolarmi	12.83	0.008					102.64	0.027	64.15	0.020
scolbonn									12.83	0.103
sigarnath							12.83	0.135		
spiobomb	12.83	0.008					38.49	0.010	76.98	0.030
spiofili			12.83	0.005			25.66	0.007		
sthelimi					12.83	0.010			25.66	0.207
syneklat	25.66	0.017	51.32	0.022			51.32	0.014		
Miscellaneous										
nemertin	12.83	0.006	12.83	0.079	38.49	0.161	12.83	0.048		
turbella	12.83	0.024	25.66	0.003						
golfelon					38.49	0.298				
phoronid	89.81	0.047	89.81	0.047	1218.85	0.640	102.64	0.041		
entespec	12.83	1.404								
sum	4156.92	13.863	1680.73	10.996	5375.77	36.144	3695.04	18.949	4015.79	8.381
nspc	34		34		37		36		35	
SH-W	1.89		2.57		2.53		2.41		2.28	
Simp	0.32		0.17		0.13		0.17		0.19	

station	**OYS 24**		**OYS 25**		**OYS 26**		**OYS 27**		**OYS 28**	
Crustacea	n	b	n	b	n	b	n	b	n	b
ampetenu			12.83	0.004						
batheleg	12.83	0.004							51.32	0.015
calljuve	51.32	0.071	12.83	0.010	128.3	0.308	25.66	0.067	25.66	0.044
callsubt	166.79	3.814	12.83	0.722	166.79	8.425	12.83	1.239	76.98	2.150
eudodefo									115.47	0.035
harpante	25.66	0.008	102.64	0.031	25.66	0.008			25.66	0.008
ionethor			25.66	0.031						
leucinci	12.83	0.004								
orchnana					12.83	0.004				
upogjuve			12.83	0.052						
upogdelt					51.32	17.111				
urotpose									12.83	0.004
Echinodermata										
amphfili	12.83	0.013	1796.2	5.029	551.69	2.608	269.43	1.221	25.66	0.050
echicord	25.66	8.677					12.83	5.185		
echipusi									25.66	0.005
labibusk			12.83	0.323						
Mollusca										
abraalba	128.3	0.597	38.49	0.009	12.83	0.021			12.83	0.001
acanspec			25.66	0.003						
chamstri			12.83	0.000					12.83	0.138
corbgibb			153.96	0.088	821.12	0.513	269.43	0.132	64.15	0.014
cylicyli			12.83	0.012	12.83	0.030			38.49	0.109
euspniti	25.66	0.019	12.83	0.002	25.66	0.023	12.83	0.064	12.83	0.034
hyalvitr			25.66	0.026	25.66	0.026				
leptsqua					64.15	0.092				
myajuven			12.83	0.000						
myatrun					12.83	8.507				
mysebide	12.83	0.003	141.13	0.025	192.45	0.020	89.81	0.015	25.66	0.006
nucuniti			12.83	0.007	12.83	0.007	12.83	0.099	153.96	0.591
phaxpell							12.83	0.158		
seminiti			25.66	0.001						
thrapapy	51.32	0.001							38.49	0.001
tornsubc					12.83	0.006				

Polychaeta										
chaeseto			76.98	0.030			38.49	0.015		
chaevari					12.83	0.517				
diplglau	12.83	0.022			12.83	0.003			12.83	0.008
gattcirr					12.83	1.162				
glycroux			12.83	0.532						
gonimacu	25.66	0.044			51.32	0.135	12.83	0.007		
gyptcape	12.83	0.022			38.49	0.014				
laniconc	12.83	0.022								
lumblatr	153.96	0.264	25.66	0.010	76.98	0.203				
magejohn	51.32	0.088					256.6	0.102	51.32	0.027
magemira							153.96	0.058	76.98	0.041
malmlunu	38.49	0.066								
medifrag	25.66	0.044								
myriocul	12.83	0.022			12.83	0.003			12.83	0.008
nephcaec	12.83	1.035			25.66	0.068				
nephcirr									12.83	0.008
nephhomb			12.83	0.049	12.83	0.034	12.83	0.141		
nephinci	12.83	1.013								
nephlong					12.83	0.034				
nerelong					38.49	0.102				
notolate					38.49	0.102				
ophiflex			12.83	0.049	12.83	0.003				
owenfusi			12.83	0.005						
parafulg			12.83	0.005						
pholminu	38.49	0.066			64.15	0.025				
phylrose	12.83	0.022								
polycili					38.49	0.015				
sigamath									25.66	0.520
spiobomb	153.96	0.264			25.66	0.007	12.83	0.005	25.66	0.015
spiofili			76.98	0.030	25.66	0.010				
spiokroe			12.83	0.005						
sthelimi	12.83	0.022	25.66	0.098			12.83	0.042		
syneklat					25.66	0.008	12.83	0.005		
terestro					12.83	0.149				
Miscellaneous										
edwaclap			51.32	0.305						
nemertin			12.83	0.014	12.83	0.025			12.83	0.014
turbella					38.49	0.015				
golfelon					12.83	0.120				
phoronid	256.6	0.135	128.3	0.068	1026.4	0.542	89.81	0.047	12.83	0.007
sum	1372.81	16.375	2938.07	7.759	3772.02	41.041	1321.49	8.620	962.25	3.936
nspc	27		32		39		18		25	
SH-W	2.75		1.83		2.49		2.21		2.90	
Simp	0.08		0.38		0.15		0.14		0.06	

station	**OYS 29**		**OYS 30**		**OYS 31**		**OYS 32**		**0YS 33**	
Crustacea	n	b	n	b	n	b	n	b	n	b
ampetenu									12.83	0.004
batheleg	51.32	0.015	76.98	0.023	12.83	0.004			12.83	0.004
calljuve			115.47	1.328	76.98	0.058	115.47	0.341	115.47	0.745
callsubt	25.66	0.008	166.79	6.399	166.79	2.134	76.98	5.468		
diasbrad					12.83	0.004				
eudotrun					12.83	0.004			12.83	0.004
harpante	25.66	0.008	25.66	0.008	115.47	0.035	12.83	0.004	89.81	0.027
ionethor			25.66	0.052			12.83	0.002	12.83	0.004
lepilong			12.83	0.004						
leucinci			38.49	0.012	12.83	0.004				

perilong					12.83	0.004				
scophope			25.66	0.008						
upogdelt					25.66	9.066	12.83	0.362		
Echinodermata										
amphfili	38.49	0.038	25.66	0.086	153.96	0.110	615.84	3.785	1052.06	7.824
brislyri									12.83	9.393
cucuelon									12.83	5.029
echicord			64.15	19.538						
labibusk									12.83	0.525
ophispec					51.32	0.002				
Mollusca										
abraalba	423.39	0.283	51.32	0.004	12.83	0.000	12.83	0.160		
abraniti			12.83	0.030					12.83	0.011
abrapris	12.83	0.065	12.83	2.015						
arctjuve	12.83	0.001					12.83	0.004	25.66	0.004
chamstri	12.83	0.004			12.83	0.013				
corbgibb	25.66	0.007			38.49	0.027	436.22	2.847	64.15	0.028
cylicyli									64.15	0.058
euspniti	25.66	0.142	12.83	0.002	12.83	0.004				
gariferv			12.83	0.004						
hyalvitr					38.49	0.038	38.49	0.038	89.81	0.090
mysebide			38.49	0.007	25.66	0.003	230.94	0.032	128.3	0.027
nucuniti	89.81	0.210	12.83	0.087	12.83	0.038			25.66	0.082
phaxpell	64.15	0.064								
seminiti					38.49	0.002				
tellfabu	51.32	0.105								
tellferr			51.32	0.063	12.83	0.004			25.66	0.048
telltene									12.83	0.002
thrapapy	76.98	0.029	38.49	0.000						
thyaflex	243.77	0.267							12.83	0.001
Polychaeta										
aonipauc	12.83	0.010								
chaeseto			12.83	0.007					102.64	0.027
chaevari							166.79	38.520	12.83	1.296
diplglau	25.66	0.025	25.66	0.054						
eumisang	12.83	0.015								
gattcirr							76.98	2.810	12.83	1.355
gonimacu	12.83	0.134	12.83	0.007	12.83	0.017				
gyptcape			38.49	0.020						
laniconc	12.83	1.301	12.83	0.027						
lumblatr			102.64	0.054			25.66	0.051		
lysilove									12.83	1.849
magealle	25.66	0.024	12.83	0.008			12.83	0.025		
magejohn	166.79	0.110	25.66	0.014						
magemira	449.05	0.296	38.49	0.020						
medifrag					12.83	0.017	64.15	0.012		
nephassi	12.83	0.132								
nephcaec					12.83	1.748				
nephcirr			51.32	0.105						
nephhomb	12.83	0.132	25.66	0.051						
nephspec	38.49	0.032	12.83	0.007						
nerelong	12.83	0.132							12.83	0.108
notolate	12.83	0.134			12.83	1.309	51.32	1.277		
ophelima			25.66	0.015						
ophiflex					25.66	0.030	12.83	0.022	12.83	0.003
owenfusi	38.49	0.027	12.83	0.007						
parafulg							12.83	0.003		
pectauri	25.66	0.034								
pectkore	12.83	0.015								

pholminu	12.83	0.015					38.49	0.007	25.66	0.008
phylrose	12.83	0.010			12.83	0.007				
poecserp	38.49	0.030	12.83	0.007			38.49	0.076		
polycili					102.64	0.122				
scalinfl	12.83	0.132								
scolarmi	25.66	0.017	12.83	0.025						
scolbonn	12.83	0.134								
sigamath	25.66	0.264								
spiobomb	205.28	0.139	89.81	0.047						
spiokroe			12.83	0.007			12.83	0.003		
spiofili					38.49	0.049			295.09	0.083
sthelimi	25.66	0.264	12.83	0.008	25.66	0.030	12.83	0.022	12.83	0.005
syneklat									25.66	0.008
terestro							12.83	0.862		
Miscellaneous										
nemertin	12.83	0.040			12.83	0.014				
turbella			12.83	0.010						
oligocha			25.66	0.014						
golfvulg							141.13	0.263		
phoronid	102.64	0.041	731.31	0.386	269.43	0.142	76.98	0.041	38.49	0.020
sum	2553.17	5.341	2142.61	30.571	1398.47	15.130	2335.06	57.296	2373.55	29.602
nspc	42		41		31		26		31	
SH-W	2.98		2.85		2.87		2.49		2.27	
Simp	0.08		0.13		0.08		0.13		0.22	

station	**OYS 34**		**OYS 35**		**OYS 36**		**OYS 37**		**OYS 38**	
Crustacea	n	b	n	b	n	b	n	b	n	b
ampetenu	12.83	0.004								
batheleg			166.79	0.050					51.32	0.015
bathguil			12.83	0.004						
calljuve	51.32	0.048	141.13	0.146	128.3	0.271	89.81	0.117		
callsubt	51.32	2.552	256.6	8.882	192.45	6.990	76.98	4.088	64.15	1.582
diasbrad	12.83	0.004								
harpante			102.64	0.031	12.83	0.004	12.83	0.004		
ionethor			25.66	0.008	12.83	0.017				
iphitris									12.83	0.004
leucinci			38.49	0.012	12.83	0.004			25.66	0.008
procnoho							12.83	0.294		
upogdelt	12.83	7.184								
Echinodermata										
amphfili	141.13	0.769	282.26	0.219	307.92	1.051	179.62	0.916		
echicord							12.83	0.903	38.49	7.104
labibusk					12.83	0.799				
ophispec			25.66	0.001						
Mollusca										
abraalba	538.86	0.834	51.32	0.302	179.62	0.277	12.83	0.000	51.32	0.005
abraniti					51.32	0.136				
abrapris									12.83	0.075
acanspec							12.83	0.001		
arctjuve							12.83	0.014		
chamstri			25.66	1.069						
corbgibb	76.98	0.028	243.77	0.087	141.13	0.058	141.13	0.163		
cylicyli					38.49	0.108	12.83	0.012		
euspniti	64.15	0.192			64.15	0.083			12.83	0.002
hyalvitr	12.83	0.013	12.83	0.013			25.66	0.026		
leptsqua							12.83	0.009		
mactcora	51.32	0.216								
mysebide	25.66	0.004	89.81	0.012	205.28	0.026	12.83	0.001		

nucuniti	64.15	0.438	76.98	0.468	25.66	0.186	25.66	0.026	64.15	0.357
phaxpell	12.83	0.429								
seminiti	25.66	0.003								
tellferr							12.83	0.004	89.81	0.058
thraconv	12.83	2.184					12.83	1.150		
thrapapy	76.98	0.001	64.15	0.001					12.83	0.000
Polychaeta										
amphspec									12.83	0.017
chaeseto							12.83	0.003	25.66	0.014
chaevari							12.83	5.267		
diplglau					25.66	0.034				
glycspec					12.83	0.003	12.83	0.036		
gonimacu	12.83	0.007	51.32	0.088	12.83	0.003				
gyptcape	38.49	0.010	38.49	0.066	38.49	0.085	25.66	0.075		
lumbfrag							12.83	0.036		
lumblatr	282.26	0.454	25.66	0.046	128.3	0.237				
magejohn			38.49	0.068					25.66	0.014
magemira									12.83	0.008
malmlunu					12.83	0.007				
medifrag	38.49	0.010			51.32	0.008	12.83	0.003		
myriocul	89.81	0.027			230.94	0.034				
nephcaec					12.83	0.132				
nephcirr	12.83	0.024								
nephhomb	38.49	0.064	38.49	0.066			25.66	0.069	12.83	0.007
nephinci	25.66	0.042					12.83	0.523		
nephspec									25.66	0.015
notolate	12.83	0.823	12.83	0.022	12.83	0.008				
ophiflex	25.66	0.042			76.98	0.135	12.83	0.003		
parafulg							12.83	0.003		
pectkore							12.83	0.003		
pholminu							38.49	0.008		
phylrose			12.83	0.024						
poecserp	38.49	0.014	89.81	0.154	25.66	0.003				
scolarmi	12.83	0.005							51.32	0.027
sigamath			25.66	0.505					51.32	0.279
spiobomb	25.66	0.008	51.32	0.088	12.83	0.005			76.98	0.041
spiofili	25.66	0.008			12.83	0.005	25.66	0.003		
sthelimi	12.83	0.027								
syneklat			12.83	0.022						
Miscellaneous										
anthozoa									12.83	3.373
edwaclap							12.83	0.260		
nemertin			25.66	0.102	12.83	0.017				
turbella					12.83	0.008				
golfelon	12.83	0.273								
golfvulg							38.49	0.428		
phoronid	564.52	0.224	115.47	0.061	359.24	0.190	25.66	0.014	397.73	0.210
sum	2514.68	17.051	2155.44	13.264	2437.7	10.948	987.91	14.504	1141.87	13.392
nspc	34		29		31		33		22	
SH-W	2.69		2.96		2.84		3.01		2.49	
Simp	0.12		0.06		0.07		0.07		0.14	

station	**OYS 39**		**OYS 40**		**OYS 41**		**OYS 42**		**OFF 01**	
Crustacea	n	b	n	b	n	b	n	b	n	b
batheleg	12.83	0.004	51.32	0.015	89.81	0.027	89.81	0.027	218.11	0.065
bathguil			12.83	0.004	12.83	0.004	12.83	0.004	12.83	0.004
calljuve	38.49	0.094					25.66	0.050		
callsubt	12.83	1.491	12.83	0.520			38.49	2.902		

ebalcran					12.83	0.015				
harpante	64.15	0.019	12.83	0.004	51.32	0.015				
ionethor							12.83	0.038		
leucinci							38.49	0.012		
orchnana							12.83	0.004		
perilong			12.83	0.004						
tryplong			102.64	0.031	38.49	0.012				
urotpose							76.98	0.023	38.49	0.012
Echinodermata										
amphfili	987.91	6.430	205.28	0.305	423.39	0.327				
astrirre			12.83	3.790						
echicord			25.66	14.279	12.83	10.821			25.66	15.401
ophispec									25.66	0.000
Mollusca										
abraalba	25.66	0.008			76.98	0.009			12.83	0.039
abrapris					12.83	0.127				
aplacoph	12.83	0.006								
arctjuve	12.83	0.007								
chamstri	12.83	0.000	12.83	0.523						
corbgibb	128.3	0.053	141.13	0.026			12.83	0.004	51.32	0.027
cylicyli					25.66	0.147				
dosilupi	12.83	0.105	25.66	0.055	12.83	0.001				
euspniti					38.49	0.076	12.83	0.004		
gariferv					12.83	0.004				
mysebide	153.96	0.025	12.83	0.003	25.66	0.007				
mysiunda					12.83	0.285				
nucuniti	89.81	0.188	25.66	0.006	89.81	0.593	12.83	0.010		
phaxpell			12.83	0.087						
spissubt									12.83	0.004
tellfabu					25.66	0.001	12.83	0.001	153.96	0.371
tellferr			76.98	0.036					89.81	0.080
thrapapy							25.66	0.105	25.66	0.000
thyaflex					64.15	0.045				
vitranti			12.83	0.018						
Polychaeta										
chaeseto	38.49	0.015							64.15	0.081
diplglau	12.83	0.029			64.15	0.025				
eumisang									25.66	0.036
gonimacu			25.66	0.027	12.83	0.030	51.32	0.261		
gyptcape					12.83	0.007				
laniconc			12.83	2.532					12.83	0.699
magealle			25.66	0.027			12.83	0.032		
magejohn			38.49	0.041	12.83	0.007	218.11	0.173	1141.87	1.373
magemira	12.83	0.003	102.64	0.108	526.03	0.208	141.13	0.122	89.81	0.117
medifrag			12.83	0.015						
nephassi			12.83	0.195	12.83	0.215	51.32	1.197		
nephcaec			25.66	0.750						
nephcirr									38.49	0.063
nephhomb	25.66	0.183			12.83	0.135				
nephinde			12.83	0.146						
nephlong							12.83	0.032		
nephspec			12.83	0.014	25.66	0.010	25.66	0.027		
notolate									38.49	2.169
ophiflex	12.83	0.034								
owenfusi			102.64	0.069	12.83	0.007	64.15	0.161		
pectauri			51.32	0.054	64.15	0.027				
pholminu	76.98	0.030			12.83	0.007				
phylgroe			12.83	0.014						
phylrose					12.83	0.007				

poecserp			51.32	0.054	25.66	0.061	38.49	0.034	25.66	0.047
scolarmi	76.98	0.030	179.62	0.190	76.98	0.180	25.66	0.027	76.98	0.098
sigamath					12.83	0.349			25.66	0.986
spiobomb			64.15	0.068	218.11	0.088	153.96	0.122	89.81	0.117
spiofili	76.98	0.030								
sthelimi	51.32	0.135	12.83	0.014	64.15	0.159				
syneklat	12.83	0.020	12.83	0.015						
Miscellaneous										
edwaclap			12.83	0.059						
nemertin			12.83	0.014	25.66	0.019	38.49	0.019	38.49	0.183
nematoda							25.66	0.006		
phoronid			3130.52	1.653			295.09	0.156	12.83	0.007
sum	1962.99	8.943	4695.78	25.845	2245.25	14.481	1539.6	5.553	2347.89	22.082
nspc	23		38		36		27		24	
SH-W	2.05		1.68		2.78		2.79		2.13	
Simp	0.27		0.45		0.11		0.08		0.25	

station	**OFF 02**		**OFF 03**		**OFF 04**		**OFF 05**		**OFF 06**	
Crustacea	n	b	n	b	n	b	n	b	n	b
batheleg	25.66	0.008	64.15	0.019	12.83	0.004	25.66	0.008	12.83	0.004
bathguil	38.49	0.012	12.83	0.004						
callsubt			12.83	0.004						
corycass					12.83	3.911	12.83	20.284		
perilong							12.83	0.004		
pseulong									12.83	0.004
syncmacu	25.66	0.008								
urotbrev	25.66	0.008								
urotpose	230.94	0.069	64.15	0.019			12.83	0.004	12.83	0.004
Echinodermata										
amphspec					12.83	0.001				
echicord	38.49	19.470	25.66	12.292	76.98	35.024	12.83	11.986		
ophialbi			12.83	0.003					12.83	0.037
Mollusca										
abraalba	12.83	0.021					38.49	0.033		
arcocras									12.83	0.004
corbgibb					12.83	0.035				
donavitt	25.66	0.005			12.83	0.001				
euspniti	12.83	0.004					51.32	0.051	25.66	0.056
goodtria									243.77	0.026
spiselli									12.83	0.009
spissubt			12.83	0.012	12.83	0.003				
tellfabu	205.28	3.950	205.28	6.227	25.66	0.065	89.81	0.135		
tellferr	256.6	0.063	115.47	0.034	436.22	0.230	89.81	0.072		
thrapapy			128.3	0.005			25.66	0.026		
Polychaeta										
capicapi			51.32	0.041						
chaeseto	64.15	0.073	76.98	0.061	12.83	0.008	12.83	0.012		
eteofoli			12.83	0.014						
eteolong	25.66	0.030	12.83	0.017			12.83	0.012		
gyptcape					51.32	0.037	12.83	0.012		
laniconc			51.32	2.806			25.66	6.198		
magejohn	1924.5	2.925	898.1	0.803	51.32	0.037	513.2	0.417	25.66	0.058
magemira	128.3	0.203	38.49	0.036	153.96	0.119	38.49	0.030		
malmlunu	12.83	0.014	12.83	0.017			12.83	0.010		
nephcirr	25.66	0.027	12.83	0.017					51.32	0.660
nephhomb	25.66	3.367	12.83	1.633	12.83	1.431				
notolate					25.66	3.008				
ophelima			12.83	0.014						

owenfusi					1616.58	1.067				
scolarmi	64.15	0.081	141.13	0.112			25.66	0.024	51.32	0.115
sigamath	25.66	0.652	38.49	1.047	51.32	1.394	38.49	0.901		
spiobomb	12.83	0.015	76.98	0.061	12.83	0.008	12.83	0.010		
spiofili							12.83	0.014		
Miscellaneous										
anthozoa			12.83	5.713						
nemertin			51.32	0.660	12.83	0.048	25.66	0.198	12.83	0.065
nematoda									76.98	0.007
oligocha			38.49	0.030						
phoronid	25.66	0.012	667.16	0.264	230.94	0.091			25.66	0.008
sum	3233.16	31.130	2873.92	32.078	2848.26	46.521	1116.21	40.721	590.18	1.097
nspc	22		28		20		22		14	
SH-W	1.70		2.37		1.61		2.20		2.05	
Simp	0.37		0.16		0.35		0.23		0.19	

station	**OFF 07**		**OFF 08**		**OFF 09**		**OFF 10**		**OFF 11**	
Crustacea	n	b	n	b	n	b	n	b	n	b
apheoval			12.83	0.004						
batheleg			76.98	0.023	692.82	0.208	89.81	0.027	76.98	0.023
bathguil			38.49	0.012	38.49	0.012				
eudotrun									25.66	0.008
harpante									12.83	0.004
iphitris	12.83	0.004								
leucinci	38.49	0.012							12.83	0.004
megaagil					51.32	0.015	12.83	0.004		
orchnana	12.83	0.004								
syncmacu					12.83	0.004				
urotbrev			89.81	0.027	25.66	0.008				
urotpose	128.3	0.038	821.12	0.246	89.81	0.027	51.32	0.015		
Echinodermata										
echicord	12.83	6.664	38.49	10.018					38.49	10.803
ophialbi	12.83	0.026					12.83	0.404	25.66	0.038
Mollusca										
donavitt			12.83	0.001	25.66	3.096	51.32	2.402		
ensispec			12.83	3.895						
euspniti			12.83	0.034	12.83	0.034			25.66	0.109
mysebide							12.83	0.001		
nucuniti									12.83	0.099
tellfabu	89.81	0.021	51.32	0.264					51.32	0.083
tellferr			128.3	0.095					166.79	0.116
Polychaeta										
aricminu							38.49	0.046		
chaeseto	89.81	0.122	12.83	0.012			25.66	0.030	38.49	0.030
eteolong					12.83	0.032	38.49	0.046		
gonimacu			12.83	0.012					12.83	0.012
gyptcape									38.49	0.030
hetefili							12.83	0.014		
laniconc									12.83	0.012
magejohn	38.49	0.061	141.13	0.149	12.83	0.032	12.83	0.015	641.5	0.423
magemira	115.47	0.154	51.32	0.054	25.66	0.058			38.49	0.030
myriocul									12.83	0.008
nephassi	12.83	1.436								
nephcirr			64.15	0.169	25.66	0.058	64.15	0.820		
nephhomb			12.83	0.418			12.83	0.030	12.83	0.256
notolate									51.32	5.131
ophelima			12.83	0.012						
parafulg							12.83	0.014		

scolarmi	128.3	0.174	76.98	0.078	51.32	0.122	89.81	0.373		
spiobomb			128.3	0.132			102.64	0.122	76.98	0.061
spiofili	25.66	0.036								
syllidae							12.83	0.014		
Miscellaneous										
nemertin	25.66	0.212	12.83	1.313	76.98	0.243	12.83	0.048	12.83	0.023
sum	744.14	8.963	1821.86	17.120	1154.7	3.947	667.16	4.434	1398.47	17.322
nspc	14		21		14		18		21	
SH-W	2.29		2.14		1.61		2.59		2.13	
Simp	0.11		0.22		0.37		0.07		0.23	

station	**OFF 12**		**OFF 13**		**OFF 14**		**OFF 15**		**OFF 16**	
Crustacea	n	b	n	b	n	b	n	b	n	b
batheleg	38.49	0.012	51.32	0.015	256.6	0.077	12.83	0.004	102.64	0.031
bathguil					192.45	0.058				
hyperiid									12.83	0.004
pseulong			12.83	0.004						
syncmacu	12.83	0.004	12.83	0.004	12.83	0.004			12.83	0.004
urotbrev					12.83	0.004	12.83	0.004		
urotpose	25.66	0.008	115.47	0.035	359.24	0.108	102.64	0.031	128.3	0.038
Echinodermata										
echicord			12.83	0.179	12.83	0.019	12.83	4.335		
echipusi	12.83	0.014			12.83	0.002				
Mollusca										
donavitt	51.32	0.087							76.98	6.451
euspniti	25.66	0.124	89.81	0.182	89.81	0.230	12.83	0.085	25.66	0.037
tellfabu			12.83	0.006	38.49	0.508				
tellferr			12.83	0.002			12.83	0.002		
Polychaeta										
apistull									12.83	0.005
aricminu					12.83	0.022				
chaeseto					12.83	0.022			12.83	0.005
eumisang									12.83	0.005
gonimacu			12.83	0.022	12.83	0.022				
gyptcape					12.83	0.022				
magejohn	64.15	0.085	25.66	0.044	25.66	0.044				
magemira					12.83	0.022				
nephcirr	12.83	0.181	102.64	0.479	25.66	0.044			25.66	0.014
nephspec	12.83	0.017								
parafulg									25.66	0.014
scolarmi	76.98	0.522	12.83	0.022	12.83	0.022			12.83	0.351
scolbonn									12.83	0.005
spiobomb	51.32	0.068			38.49	0.066				
spiofili					25.66	0.044				
Miscellaneous										
peaccyli							12.83	0.003		
nemertin									12.83	0.079
branlanc	12.83	0.011								
sum	397.73	4.840	474.71	0.994	1180.36	1.340	179.62	4.499	487.54	7.042
nspc	12		12		19		8		14	
SH-W	2.27		2.07		2.15		1.45		2.20	
Simp	0.09		0.14		0.17		0.31		0.13	

station	**OFF 17**		**OFF 18**		**OFF 19**		**OFF 20**		**OFF 21**	
Crustacea	n	b	n	b	n	b	n	b	n	b
apheoval							25.66	0.008		
atylswam			12.83	0.004						

batheleg					25.66	0.008	25.66	0.008		
bathguil					12.83	0.004				
calltyrr							12.83	7.475		
euryspin	12.83	0.004	12.83	0.004						
procnoho			12.83	0.281						
perilong							25.66	0.008		
pseulong	12.83	0.004	12.83	0.004	64.15	0.019			12.83	0.004
thiascut					12.83	0.033				
urotpose					38.49	0.012	102.64	0.031		
Echinodermata										
echicord							12.83	10.451		
Mollusca										
donavitt							12.83	0.004		
euspniti	12.83	0.009			25.66	0.031			25.66	0.006
Polychaeta										
chaeseto			12.83	0.066						
eteofoli			12.83	0.066						
euzoflab									179.62	0.129
glycalba									12.83	0.010
glyclapi							12.83	0.119		
magemira			12.83	0.066	25.66	0.078				
nephcirr	76.98	0.298	25.66	0.132	38.49	0.423	38.49	0.129	38.49	0.505
nephspec					12.83	0.039				
ophelima			25.66	0.539						
parafulg							12.83	0.017		
scolarmi					12.83	0.039				
scolbonn			12.83	0.066	25.66	0.638				
spiobomb	12.83	0.007								
spiofili	51.32	0.007			12.83	0.037	12.83	0.019		
Miscellaneous										
nemertin							12.83	0.006	12.83	0.093
oligocha									12.83	0.005
sum	179.62	0.328	153.96	1.227	307.92	1.361	307.92	18.294	295.09	0.752
nspc	6		10		12		12		7	
SH-W	1.48		2.25		2.34		2.17		1.33	
Simp	0.23		0.03		0.07		0.12		0.38	

station	**OFF 22**		**OFF 23**		**OFF 24**		**OFF 25**		**OFF 26**	
Crustacea	n	b	n	b	n	b	n	b	n	b
batheleg	12.83	0.004	12.83	0.004			64.15	0.019	12.83	0.004
bathguil	12.83	0.004	25.66	0.008			25.66	0.008		
leucinci			12.83	0.004						
megaagil							25.66	0.008		
procnoho			12.83	0.268						
pseulong							38.49	0.012	12.83	0.004
urotbrev	12.83	0.004								
urotpose	372.07	0.112	205.28	0.062			12.83	0.004		
Echinodermata										
echicord							12.83	10.451		
Mollusca										
donavitt							12.83	0.003		
ensispec	12.83	4.560								
euspniti	25.66	0.025			12.83	0.002	12.83	0.034	25.66	0.031
mysebide					12.83	0.001				
Polychaeta										
aricminu	25.66	0.003								
eteofoli							12.83	0.066		
euzoflab					12.83	0.041			76.98	0.032

glyclapi					89.81	0.178				
magejohn			12.83	0.059						
nephcirr	64.15	0.308	64.15	0.296	51.32	0.918	89.81	0.437	38.49	0.611
parafulg									12.83	0.010
scolarmi	12.83	0.003	38.49	0.178	12.83	0.041				
scolbonn									12.83	0.628
spiobomb							25.66	0.010		
Miscellaneous										
phoronid			487.54	0.129	12.83	0.003	51.32	0.014		
sum	551.69	5.037	872.44	1.007	205.28	1.190	384.9	11.197	192.45	1.369
nspc	9		9		7		12		7	
SH-W	1.24		1.35		1.57		2.25		1.68	
Simp	0.46		0.37		0.23		0.10		0.18	

station	**OFF 27**		**OFF 28**		**OFF 29**		**OFF 30**		**OFF 31**	
Crustacea	n	b	n	b	n	b	n	b	n	b
batheleg					12.83	0.004	346.41	0.104	218.11	0.065
bathguil					12.83	0.004	38.49	0.012	38.49	0.012
calltyrr	38.49	1.761								
caprelli							25.66	0.008		
gammspec							192.45	0.058		
leucinci							12.83	0.004		
perilong									12.83	0.004
pseulong									12.83	0.004
syncmacu									51.32	0.015
urotbrev							25.66	0.008		
urotpose	384.9	0.115					295.09	0.089	38.49	0.012
Echinodermata										
amphchia							12.83	0.077		
asterube							51.32	56.970		
echicord					12.83	12.392				
echipusi			12.83	0.004						
ophialbi							12.83	0.004		
ophispec					12.83	0.001				
ophitext							12.83	1.177		
Mollusca										
donavitt							25.66	0.004	115.47	2.223
dosilupi					25.66	0.007				
ensiamer	12.83	6.525								
ensispec							12.83	19.361		
euspniti	12.83	0.002	12.83	0.002			12.83	0.138	51.32	0.122
goodtria					282.26	0.049				
tellfabu							25.66	0.401		
tellpygm			38.49	0.007	38.49	0.023				
thrapapy					38.49	0.004				
Polychaeta										
aricminu									12.83	0.017
chaeseto							25.66	0.017	12.83	0.017
eumisang							12.83	0.007		
magejohn					12.83	0.137	615.84	0.877	51.32	0.061
magemira							307.92	0.425	89.81	0.107
nephcaec									12.83	3.336
nephcirr	38.49	0.310	89.81	0.112	115.47	0.660			64.15	0.308
nephhomb	12.83	0.103								
notolate							12.83	0.269		
ophelima					25.66	0.102				
owenfusi							12.83	0.007		
poecserp	25.66	0.207								

scolarmi							25.66	0.017	89.81	0.107
scolbonn					12.83	0.139				
sigamath							38.49	0.229		
spiobomb	25.66	0.029			12.83	0.139	25.66	0.017	12.83	0.017
Miscellaneous										
nemertin					12.83	0.008	12.83	0.107		
nematoda			12.83	0.002	25.66	0.003				
phoronid	153.96	0.024			218.11	0.034				
sum	705.65	9.075	166.79	0.139	872.44	13.730	2193.93	80.385	885.27	6.426
nspc	9		5		16		25		16	
SH-W	1.44		1.26		2.06		2.30		2.40	
Simp	0.34		0.31		0.18		0.15		0.11	

station	**OFF 32**		**OFF 33**		**OFF 34**		**OFF 35**		**OFF 36**	
Crustacea	n	b	n	b	n	b	n	b	n	b
apheoval					25.66	0.008				
atylswam					12.83	0.004				
batheleg			25.66	0.008	51.32	0.015	12.83	0.004	12.83	0.004
bathguil			12.83	0.004	12.83	0.004			12.83	0.004
calltyrr			25.66	3.986						
hippdent			12.83	0.004						
leucinci	12.83	0.004								
megaagil									12.83	0.004
procparv			25.66	0.406						
pseulong							12.83	0.004	38.49	0.012
siphkroy							12.83	0.004		
thiascut	12.83	0.393	38.49	0.472						
urotbrev					12.83	0.004				
urotpose	38.49	0.012	153.96	0.046	179.62	0.054	25.66	0.008		
Echinodermata										
echicord	25.66	21.678	12.83	10.821						
Mollusca										
chlavari									12.83	0.007
diplorotu			12.83	0.434						
donavitt			25.66	0.004						
ensiamer			12.83	19.361						
ensiensi	12.83	7.202								
ensispec			12.83	2.037						
euspniti			12.83	0.004	12.83	0.004			12.83	0.023
tellferr					12.83	0.015				
tellpygm									51.32	0.012
Polychaeta										
aricminu	12.83	0.078			12.83	0.010				
chaeseto					12.83	0.008				
eteofoli			25.66	0.030						
eteolong			51.32	0.068			12.83	0.007		
euzoflab									12.83	0.003
exoghebe			243.77	0.019						
glycspec							12.83	0.007		
hetefili			192.45	0.254			12.83	0.007		
nephcaec							12.83	8.012		
nephcirr	25.66	0.257	51.32	0.943	89.81	0.644	51.32	0.442	12.83	0.357
nephlong									12.83	3.914
nephspec									12.83	0.005
ophelima			25.66	0.030					38.49	0.012
parafulg									25.66	0.008
phylrose			12.83	0.008						
scolarmi	12.83	0.080	89.81	0.237	12.83	0.008				

scolbonn	12.83	0.080								
spiobomb			12.83	0.014	12.83	0.008	64.15	0.027		
spiofili							25.66	0.010		
travforb							12.83	0.393		
Miscellaneous										
nemertin	12.83	0.023	12.83	0.079	12.83	0.071			12.83	0.573
phoronid			410.56	0.163	102.64	0.041				
sum	179.62	29.805	1513.94	39.433	577.35	1.091	269.43	8.924	282.26	4.937
nspc	10		24		15		12		14	
SH-W	2.21		2.45		2.16		2.27		2.48	
Simp	0.05		0.13		0.15		0.09		0.06	

station	**COA 01**		**COA 02**		**COA 03**		**COA 04**		**COA 05**	
Crustacea	n	b	n	b	n	b	n	b	n	b
batheleg	76.98	0.023							12.83	0.004
bathguil	12.83	0.004	12.83	0.004						
orchnana					12.83	0.004				
syncmacu	25.66	0.008	51.32	0.015			12.83	0.004		
urotbrev					51.32	0.015	12.83	0.004	38.49	0.012
urotpose	25.66	0.008	12.83	0.004	51.32	0.015	64.15	0.019	51.32	0.015
Echinodermata										
echicord					12.83	10.089				
Mollusca										
donavitt	12.83	0.800					12.83	0.006		
ensiamer			179.62	143.229	192.45	291.124	51.32	99.317	603.01	627.172
euspniti					12.83	0.171				
macobalt			38.49	0.142						
mysebide	12.83	0.003			38.49	0.005	12.83	0.001		
spiselli	12.83	0.004								
spissubt			64.15	6.348			25.66	0.156		
tellferr	12.83	0.006			115.47	0.046				
tellfabu	38.49	1.472	12.83	0.000	64.15	1.120	64.15	0.325		
telltenu	12.83	0.001								
Polychaeta										
capicapi	179.62	0.091			64.15	0.068			12.83	0.008
chaeseto	25.66	0.012								
eumisang					25.66	0.024				
laniconc					25.66	1.446	12.83	0.288		
magejohn	12.83	0.007	1090.55	1.040	38.49	0.041	141.13	0.108	64.15	0.042
magemira			51.32	0.047			12.83	0.008		
nephassi					12.83	2.517				
nephcirr	12.83	0.007			51.32	0.315	38.49	0.742	12.83	0.293
nephhomb	25.66	0.654								
neredive	12.83	1.604								
owenfusi					64.15	0.554			12.83	0.102
pectkore					38.49	1.321				
phylmacu					12.83	0.014				
scolarmi	282.26	0.801								
sigamath					25.66	0.955				
spiobomb	51.32	0.024	64.15	0.152	12.83	0.014				
spiofili			128.3	0.295	25.66	0.000	218.11	0.168	25.66	0.017
Miscellaneous										
nemertin					12.83	0.217	12.83	0.093		
sum	846.78	5.556	1706.39	151.287	962.25	311.506	692.82	101.450	833.95	627.675
nspc	18		11		22		14		9	
SH-W	2.22		1.37		2.76		2.12		1.11	
Simp	0.16		0.43		0.07		0.15		0.53	

station	COA 06		COA 07		COA 08		C0A 09		COA 10	
Crustacea	n	b	n	b	n	b	n	b	n	b
atylswam					12.83	0.004				
batheleg	25.66	0.008	628.67	0.189	51.32	0.015	102.64	0.031	12.83	0.004
bathguil			64.15	0.019			64.15	0.019		
calltyrr							12.83	0.991		
carcmaen	12.83	39.860	12.83	60.793						
diogpugi					12.83	0.100	12.83	0.208	38.49	0.445
euryspin			12.83	0.004						
iphitris	12.83	0.004								
ponttris					12.83	0.770				
syncmacu	12.83	0.004					12.83	0.004		
urotbrev	76.98	0.023			12.83	0.004	218.11	0.065	76.98	0.023
urotpose	526.03	0.158			115.47	0.035	1257.34	0.377	461.88	0.139
Echinodermata										
echicord	25.66	17.534							25.66	16.527
Mollusca										
donavitt									25.66	0.009
ensiamer					307.92	336.039			12.83	7.556
macobalt	12.83	0.050	38.49	0.027	12.83	0.006				
mysebide							89.81	0.048	89.81	0.039
spissubt							51.32	4.692		
tellfabu	64.15	1.328					102.64	2.401	38.49	0.800
telltenu					12.83	0.211			64.15	0.808
tellferr	474.71	0.232							51.32	0.041
Polychaeta										
chaeseto							38.49	0.051		
laniconc					12.83	0.083				
magejohn	975.08	0.528	12.83	0.053	115.47	0.076	25.66	0.032	243.77	0.249
magemira	12.83	0.007	38.49	0.163			12.83	0.015		
nephassi									12.83	0.698
nephcirr			12.83	0.127			64.15	0.339	38.49	0.119
nephhomb	12.83	1.064					12.83	0.068		
nephspec	12.83	0.008			12.83	0.012	38.49	0.051		
notolate							12.83	0.948		
owenfusi									51.32	0.156
poecserp							12.83	0.015		
scolarmi			12.83	0.054			76.98	0.102	38.49	0.032
spiobomb							51.32	0.068		
spiofili	179.62	0.125			526.03	0.347	38.49	0.051	12.83	0.012
Miscellaneous										
anthozoa							12.83	3.974		
nemertin							12.83	0.011	12.83	0.062
echispec									12.83	3.359
sum	2437.7	60.934	833.95	61.428	1218.85	337.761	2335.06	15.363	1321.49	31.077
nspc	15		9		13		23		19	
SH-W	1.70		1.02		1.67		1.94		2.26	
Simp	0.25		0.57		0.26		0.30		0.17	

station	COA 11		COA 12		COA 13		COA 14		COA 15	
Crustacea	n	b	n	b	n	b	n	b	n	b
batheleg									12.83	0.004
calltyrr	12.83	1.663								
leucinci	12.83	0.004								
liocmarm							25.66	2.092		
urotbrev			12.83	0.004			12.83	0.004	64.15	0.019
urotpose	51.32	0.015	25.66	0.008	12.83	0.004	51.32	0.015	346.41	0.104

Echinodermata										
echicord								2.736	12.83	9.737
ophialbi							153.96	0.341		
Mollusca										
abraalba							76.98	163.472	12.83	0.160
ensiamer	76.98	119.507	38.49	61.519			141.13	13.902	51.32	58.192
euspniti								0.009	12.83	0.085
lutrlutr							12.83	49.247		
mysebide			25.66	0.005			51.32	1.102	692.82	0.212
petrphol							25.66	6.912		
spissubt									51.32	0.064
tellfabu							141.13	0.036	89.81	1.372
tellferr									89.81	0.072
venesene							25.66	0.036		
Polychaeta										
capicapi							38.49	0.012		
chaeseto							38.49	0.307		
eumisang							12.83			
laniconc	25.66	0.918					64.15	0.003		
magejohn			12.83	0.039					307.92	0.325
magemira									25.66	0.027
malmlunu							12.83			
nephcaec	12.83	9.892						3.213		
nephcirr	102.64	0.301	38.49	0.264	12.83	0.047		2.405	38.49	0.146
nephhomb			25.66	0.178			25.66	0.564	25.66	0.798
nephspec									12.83	0.014
nerelong									38.49	1.736
notolate							89.81		25.66	3.949
owenfusi							115.47		38.49	0.865
scolarmi	25.66	0.239	25.66	0.078				0.440		
scolbonn			25.66	0.176				0.047		
spiobomb			12.83	0.039			487.54		89.81	0.095
spiofili							51.32	0.002	12.83	0.014
Miscellaneous										
nemertin					12.83	0.017			12.83	0.088
oligocha							12.83	246.955		
phoronid	38.49	0.010								
sum	359.24	132.550	243.77	62.327	38.49	0.068	1667.9		2065.63	78.106
nspc	9		10		3		22		22	
SH-W	1.94		2.23		1.10		2.55		2.26	
Simp	0.14		0.06		0.00		0.12		0.17	

station	**EGMAZE**		**TERHEI**	
Crustacea	n	b	n	b
amphinde	12.83	0.004		
atylswam			12.83	0.004
batheleg	38.49	0.012		
procparv	12.83	0.402		
pseulong	12.83	0.004		
syncmacu	38.49	0.012		
urotbrev	51.32	0.015		
urotpose	192.45	0.058		
Mollusca				
donavitt	25.66	1.671		
ensiamer			230.94	80.727
mysebide	38.49	0.002		
telltenu	12.83	0.346		

Polychaeta				
eumisang	12.83	0.003		
magejohn	64.15	0.130		
magemira			12.83	0.091
nephcaec			12.83	0.261
nephcirr	205.28	0.894	25.66	0.181
scolarmi			12.83	0.015
spiofili	38.49	0.010		
Miscellaneous				
nemertin	12.83	0.031		
sum	769.8	3.595	307.92	81.286
nspc	14		6	
SH-W	2.16		0.95	
Simp	0.15		0.56	

CONTENTS