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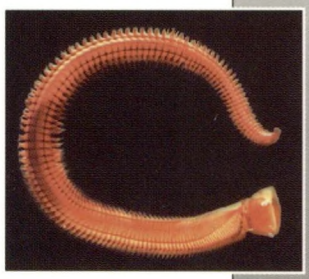

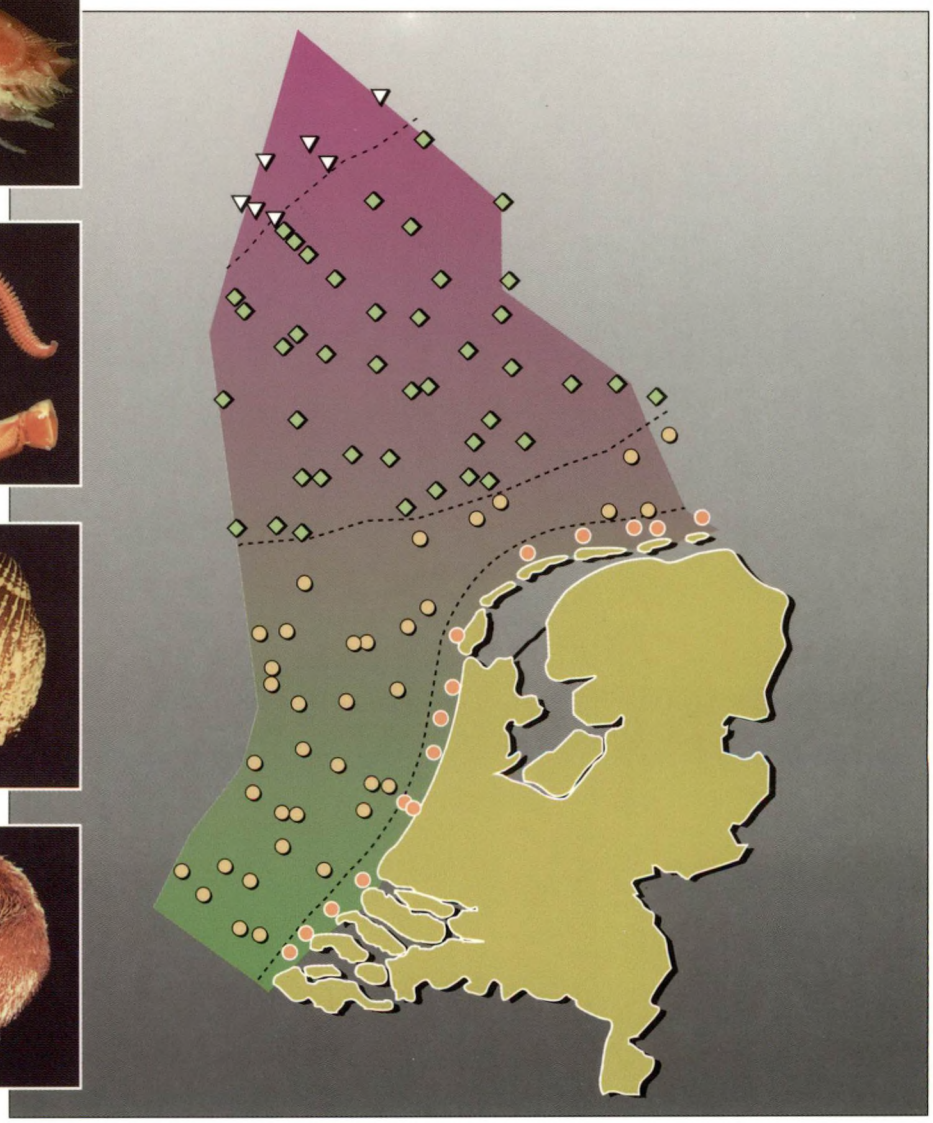

Nederlands Instituut voor Onderzoek der Zee

Monitoring Macrozoobenthos of the North Sea

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THE MACROBENTHIC FAUNA IN THE DUTCH SECTOR OF THE NORTH SEA IN 1998 AND A COMPARISON WITH PREVIOUS DATA

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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)

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1. SUMMARY

The present report describes the results of a survey of the macrobenthos found on 100 stations spread over the Dutch Continental Shelf (DCS) in 1998. The report also contains a comparison between the 1998 results and data obtained during earlier macrobenthic studies between 1986 and 1997. Furthermore, it was tested how the trends, which were observed in 1997, continued in 1998. The survey forms a part of the 'Biological monitoring programme of marine waters' (MON*Biologie) commissioned by the National Institute for Coastal and Marine Management (RIKZ; contract RKZ 522). The purpose of the project 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 take place every year in spring to early summer. In 1998 the 100 selected stations were sampled in the period between 30 March to 19 June. On the basis of the results collected in the years 1986 to 1998 an analysis has been made of the trends and fluctuations of some selected species and of principal attributes of the community over the respective time-interval. The community attributes studied were the diversity, abundance and biomass of the total macrofauna and of the 4 major taxonomic groups. Temporal variation or trends in the data were assessed separately for each of the four subareas in the DCS *i.e.* the Coastal, Offshore areas, Dogger Bank and Oyster Ground. Based on these results the following conclusions can be summarized:

- In the **Oyster Ground** subarea we observed a downtrend trend in the abundance of various characteristic species *viz.* the burrowing brittle star *Amphiura filiformis*, its commensal the bivalve *Mysella bidentata*, and the burrowing shrimp *Callianassa subterranea*. These developments are also supported by other studies of the fauna in the Oyster Ground, especially at the Frisian Front area. The sediment grain size data on the Oyster Ground sediments suggest that from 1992 onwards the sediment composition changed to sediment with low mud content. Possibly the reduction of the species mentioned above is a response to the decrease of the mud content in the sediment of this area. The developments on the species level can also observed on the level of community parameters. Total density decreased between 1994-1998 while the biomass of the total fauna and particularly of Molluscs and Echinoderms was low in the period 1996-1998.
- Diversity of macrofauna living in the **Dogger Bank** subarea is the highest on the DCS in all years of sampling. The high macrofauna diversity in this case coincides with the highest average density and the lowest biomass. However, in 1998 the average total biomass was much higher than found in 1997. The highest densities were observed on

the Dogger Bank in the years 1992/1993, following by a period of low densities between 1994 and 1997. Most of the common species of this area occurred also in 1998 with low densities, though some species (*Acrocnida brachiata*, *Echinocardium cordatum*, *Bathyporeia elegans*, and *Urothoe poseidonis*) were found to be quite abundant in the last year of monitoring.

- The **Offshore** subarea has a low diversity. However, since 1995 it has been on a higher level than in the preceding years. The Offshore subarea has on average the lowest macrofauna density on the whole DCS. Total density and densities of the two taxa Polychaeta and Mollusca showed a decrease between 1995 and 1998. On the level of individual species no clear trends could be detected except for a decrease of the polychaete *Nephtys cirrosa* in the period 1993-1998. By means of the DECORANA ordination a separation of the years 1986, 1990 and 1993 was found in the Offshore subarea as a possibly response to the changes in abundances of *N. cirrosa*.
- The **Coastal** subarea contains quite variable macrofauna assemblages. In this subarea we found low biomass values as well as very high ones due to the large numbers of bivalves. Diversity in the Coastal subarea was lowest among all subareas. It attained its lowest level in 1996 together with the total density. Some species (*Tellina fabula*, *Nephtys hombergii* and *Urothoe poseidonis*) which decreased in numbers between 1986 and 1992 appear to stay on the same level of density from 1992 onwards. The biomass of echinoderms decreased significantly between 1992 and 1998 due to the decrease of *Echinocardium cordatum* in this period. In the DECORANA ordination plot of the Coastal subarea the years 1986 and 1997 deviate from the rest with regard to the benthos community. The separation of 1997 was also found in the preceding year due to the low abundance of some common species of the subarea, viz. *Echinocardium cordatum, Nephtys hombergii, Tellina fabula* and *Natica alderi.* Being the subarea which is most susceptible to changes in the nutrient supply by rivers, it is significant to note that in the coastal subarea no indication was found of trend-like changes of the benthos assemblage.

In our results a lot of variability was found of the macrobenthos community which can be caused by changes in environmental circumstances (*e.g.* sediment structure), differences in human impact and also by climatic factors. In other areas of the North Sea, significant relations have been found between the year-to-year variation in the benthos community and indices of climate variation. Therefore it can be interesting to correlate the long-term variability in the macrozoobenthos with the variability of climate parameters (*e.g.* sea-surface temperature (SST), North Atlantic Oscillation (NAO-index)). Clearly more data from the macrobenthos of the DCS are need to judge what are general trends and what only local phenomena.

2. SAMENVATTING

In dit rapport worden de resultaten gepresenteerd van een macrobenthos bemonstering die in 1998 werd uitgevoerd op het Nederlands Continentale Plat (NCP). Deze resultaten worden vergeleken met gegevens uit macrobenthos onderzoek in de jaren 1986 tot 1997. Bovendien is er gekeken in hoeverre de trends, die zich in 1997 hadden aangediend, zich hebben doorgezet in 1998. Het onderzoek maakt deel uit van het 'Biologisch Monitoring programma zoute wateren' (MON*Biologie) in opdracht van het Rijksinstituut voor Kust en Zee (RIKZ; contract RKZ 522). 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 effecten van anthropogene activiteiten (*bijv.* eutrofiëring, verontreiniging, boomkorvisserij).

In het kader van dit project wordt er jaarlijks veldonderzoek uitgevoerd in het voorjaar tot vroege zomer. In 1998 zijn de 100 geselecteerde stations in de periode van 30 maart tot 19 juni bemonsterd. Aan de hand van de gegevens die in de tijd tussen 1986 en 1998 verzameld zijn, is er een overzicht gemaakt van de trends en fluctuaties in een aantal geselecteerde soorten en belangrijke kenmerken van de benthische gemeenschap. Deze set kenmerken bestaat uit de diversiteit, de dichtheid en biomassa van de totale fauna en de 4 belangrijkste taxa. Tijdelijke variatie of trends zijn afzonderlijk onderzocht in vier subgebieden, te weten de Kustzone, het Offshore gebied, de Doggersbank en de Oestergronden. Op grond van deze resultaten kunnen de volgende conclusies worden samengevat:

- In het **Oestergronden** subgebied is er een neerwaartse trend in abundantie gevonden van een aantal karakteristieke soorten, zoals de zich ingravende slangster *Amphiura filiformis*, zijn commensaal de schelp *Mysella bidentata*, en de gravende kreeft *Callianassa subterranea*. Deze ontwikkeling wordt bevestigt door lopend onderzoek naar de fauna van de Oestergronden, met name op het Frisian Front gebied. De resultaten van de korrelgrootte analyse van het sediment wijzen erop dat er in de Oestergronden vanaf 1992 een verschuiving van de sediment samenstelling heeft plaats gevonden in richting van een sediment met lagere slibgehaltes. De vermindering van de boven genoemden soorten zou mogelijk een reactie op de afname van het slibgehalte van het sediment in dit gebied kunnen zijn. De ontwikkelingen op soortsniveau zijn ook terug te vinden op het niveau van de gemeenschap kenmerken. De totale dichtheid is tussen 1994-1998 afgenomen terwijl de biomassa van de totale fauna en met name van de Mollusca en Echinodermata laag was in de periode 1996-1998.
- De diversiteit van de macrofauna in het **Doggersbank** subgebied is het hoogste van het NCP in alle jaren van bemonstering. De hoge macrofauna diversiteit in dit

subgebied gaat samen met gemiddeld de hoogste dichtheid en de laagste biomassa. Desondanks was de gemiddelde totale biomassa in 1998 veel hoger dan in 1997. De hoogste dichtheden zijn op de Doggersbank gevonden in de jaren 1992/1993, gevolgd door een periode van lage dichtheden tussen 1994 en 1997. De meesten soorten die dominant zijn in dit gebied werden in 1998 ook nog in lage dichtheden aangetroffen, terwijl een aantal soorten (*Acrocnida brachiata*, *Echinocardium cordatum*, *Bathyporeia elegans* en *Urothoe poseidonis*) weer vrij abundant waren in het laatste monitoring jaar.

- Het **Offshore** subgebied toont een lage diversiteit, maar sinds 1995 op een iets hoger niveau dan in de tijd daarvoor. In het Offshore subgebied zijn gemiddeld de laagste dichtheden van het hele NCP gemeten. De totale dichtheid en de dichtheden van de twee taxa Polychaeta en Mollusca laten tussen 1995 en 1998 een afname zien. Op soortsniveau zijn er in het Offshore subgebied geen eenduidige trends geconstateerd afgezien van de afname van *Nephtys cirrosa* in de periode 1993-1998. Op grond van de DECORANA ordinatie is er een afsplitsing van de jaren 1986, 1990 en 1993 gevonden wat een mogelijke reactie zou kunnen zijn op de veranderingen in dichtheden van *N. cirrosa*.
- Het **Kust** subgebied bevat een tamelijk variabele macrofauna gemeenschap. In dit subgebied zijn de laagsten biomassa getallen maar ook hele hoge getallen gevonden, als gevolg van een hoge abundantie van schelpdieren. De diversiteit in het kust subgebied was van alle subgebieden het laagst en heeft in 1996 samen met de totale dichtheid een dieptepunt bereikt. Een aantal soorten (*Tellina fabula*, *Nephtys hombergii* en *Urothoe poseidonis*) zijn tussen 1986 en 1992 afgenomen maar zijn daarna op het zelfde dichtheidsniveau gebleven. De echinoderm biomassa is significant afgenomen tussen 1992 en 1998 als gevolg van de afname van *Echinocardium cordatum* in deze periode. In het DECORANA ordinatie plot van het kust subgebied wijken de jaren 1986 en 1997 qua fauna samenstelling af van de rest van de waarnemingen. De afsplitsing van 1997 is ook in het voorgaande jaar waargenomen als gevolg van een lage abundantie van sommige dominante soorten zoals *Echinocardium cordatum, Nephtys hombergii, Tellina fabula* and *Natica alderi.* Omdat het kust subgebied het meest vatbaar is voor veranderingen van nutrienten aanvoer van de rivieren is het belangrijk om op te merken dat er in dit subgebied geen aanwijzing is gevonden van trendmatige veranderingen van de benthos gemeenschap.

Onze resultaten laten veel variatie van de macrobenthos gemeenschap zien welke veroorzaakt kunnen zijn door veranderingen in milieu omstandigheden (*bijv.* sediment structuur), verschillen in menselijke activiteiten en ook door veranderingen van klimaat factoren. In andere gebieden van de Noordzee zijn significante relaties gevonden tussen jaarlijkse fluctuaties van de benthos gemeenschap en de variaties in klimaat indexen.

Daarom kan het interessant zijn om de langere termijn variatie van het macrozoobenthos te correleren met de variatie van klimaat parameters (*bijv.* zee-oppervlak temperatuur, Noord Atlantisch Oscillatie (NAO-index)). Er zijn duidelijk meer data van het macrobenthos op het NCP nodig om te kunnen beoordelen wat algemene trends zijn en wat alleen maar een lokaal fenomeen is.

3. INTRODUCTION

In 1989 the **BIO**logical **MON**itoring programme of marine waters (BIOMON, MON*Biologie) was started with the goal to study the temporal variation of the marine ecosystems in the Dutch Continental Shelf (DCS) including the Wadden Sea and the Delta area (Dekker & de Bruin, 1998). It is an initiative of the National Institute for Coastal and Marine Management of Rijkswaterstaat (RIKZ) in association with several Dutch institutes (Yland, 1995). The subject of this long-term monitoring programme comprises besides the macrobenthos also plankton, fish, seagrass, hard substrate populations, seabirds and mammals.

This report presents the data from a survey of the macrobenthos in the Dutch Continental Sector of the North Sea carried out in spring 1998. The report furthermore contains a comparison between the 1998 results and those obtained during the first part of the monitoring programme (1991-1997), the ICES North Sea Benthos Survey (ICES-NSBS) in 1986, the MILZON-BENTHOS programme (1988-1993) and the unpublished Dogger Bank study completed in 1986/1987 (Heyman, unpubl.). In 1990 a pilot study of the BIOMON project was carried out on 7 locations of the DCS and the results were also included in the database.

In order to optimize the information output with the lowest possible effort, a new sampling strategy was adopted in 1995 (Essink, 1995). Moreover, the aim of the BIOMON programme is to study the macrobenthos of the major habitats from the whole DCS rather than at single stations. The merit of the new sampling strategy was discussed by van der Meer, 1997. During earlier BIOMON surveys (1991-1994), 5 replicate boxcore samples were collected from 25 locations (Duineveld, 1992). With the new strategy a total of 100 stations are sampled according to a stratified random design while only one sample per station is taken. Prior to the sample site selection for the new strategy, the study area was divided into 4 subareas, *viz.* the southern part of the Dogger Bank (*DOG*= 7 stations), the Oyster Ground (*OYS*= 42 stations), the Coastal zone (*COA*= 15 stations) and the Offshore (*OFF*= 36 stations) area. The number of stations per subarea depends on its surface area. The 100 stations that were selected include the 25 old BIOMON stations (1991-1994) and 75 additional stations which are more or less randomly distributed over the DCS (Essink, 1995).

The combined analysis of the results from the BIOMON survey in spring 1997 and those from previous surveys (Holtmann *et al.*, 1998) indicated some notable trends between 1986 and 1997. For most of the community attributes in the four subareas no clear linear trends were found between 1986 and 1997. However, some trend-like changes were found on species-level. Of the two characteristic species of the Oyster Ground subarea, *Amphiura filiformis* and *Callianassa subterranea*, a decrease was found in the period 1991-1997. In the Dogger Bank subarea a decrease was noticed of the amphipod *Bathyporeia elegans* and in the Coastal area a downward trend was observed of *Echinocardium cordatum*, *Nephtys hombergii* and *Tellina fabula*. In the present report it is discussed how the trends, which were observed in 1997, continued in 1998.

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 samples are standardized (Essink, 1991) and have remained unaltered since the beginning of the monitoring project in 1991.

4.1. Sampling

In 1998 the 100 selected stations were sampled in the period 30 March to 19 June. The main part of the stations was visited with the RV. Mitra (North Sea Directorate, RWS). Two stations in the Coastal subarea with a water depth less than 10 m, *viz. COA 13 & 14*, were sampled on 18 May 1998 with the RV. Delta (RWS).

In Fig. 1 an overview of the sampling stations in 1998 is given. The geographical positions of the 100 stations, together with the former station 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 RV. Mitra and the weather conditions during this part of the survey in 1998 can be found in the cruise report of Rijkswaterstaat (van 't Hart, 1998).

4.2. Sample treatments

At each station shown in Fig. 1 two boxcore samples (0.068 m^2, 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 pooled subsamples (3.4 cm ∅, depth 10 cm) were 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, hydrozoans, 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. As in previous years the juveniles were not included in the database that was used to illustrate the spatial distribution and trends of the macrobenthos. Sizes (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, other worms, larger crustaceans and ophiuroids*:
  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.
- *Remaining taxa*:
  Directly, by drying a sample at 60 °C for at least 60 hours and subsequently incinerating at 520 °C for 2 hours (Duineveld & Witte, 1987).

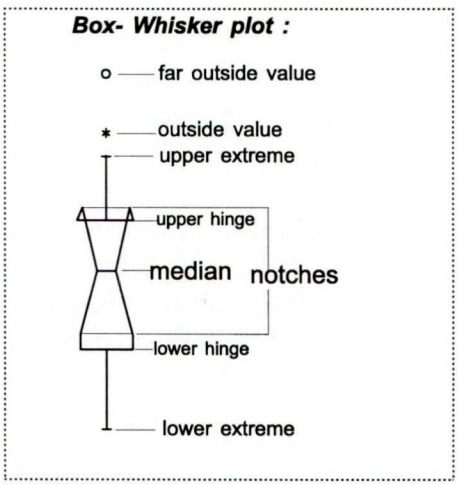
Small molluscs, amphipods and cumaceans were assigned an average individual AFDW of 0.2-0.5 mg. The same value is used by Holtmann & Groenewold (1992; 1994) in their analysis of macrobenthos from the MILZON-BENTHOS project in the southern North Sea between 1991 and 1993. This estimated individual weight 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 recent 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 distribution of the sample 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 more plentiful 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.

In order to highlight the trends in certain variables over time, scatter plots were smoothed with the LOWESS method (Cleveland, 1979; 1981; Wilkinson, 1990). The total density and the densities of the macrobenthos taxa were scaled by a log (x+1) transformation to reduce the influence of outliers (clumped distribution).

To illustrate the differences between the 4 subareas of the DCS and the significance of differences, notched Box-Whisker plots were drawn. The notches surrounding the medians provide a measure of the rough significance of differences between the median values. If the notches around two medians do not overlap, the medians are roughly significantly different at the 95 % confidence level (McGill *et al.*, 1978). All the scatter- and Box-Whisker plots were made with the program SYSTAT (version 5.0) (SYSTAT inc. IL, USA).



4.5. ORDINATION

Possible changes in the species assemblages in the four subareas during the period 1986-1998 were resolved with the ordination technique DECORANA (**DE**trended **COR**respondence **ANA**lysis) (Hill, 1979; Hill & Gauch, 1980). In this plot the stations are grouped according to their similarity in terms of species composition. The DECORANA version we used is part of the Fortran package CANOCO 2.2 (Ter Braak, 1986). The input data for the analysis consisted of the average species abundances per subarea in each year of sampling. The averages were subsequently scaled by a linear transformation.

4.6. 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 analysed with a Malvern Particle Sizer (MPS) by the laboratory of the National Institute for Coastal and Marine Management (RIKZ, Middelburg). Two parameters were derived from the grain size data: the percentage (by weight) of mud (%, particles 16-63 µm) and the median grain size (µm). The latter value was calculated using the entire size range *i.e.* including the mud fraction. The sediment samples of the two Coastal stations *COA 13* & *COA 14* were lost in the laboratory.

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

Characterisation of the sedimenttype according to the median grain size (after Gullentops *et al.*, 1977).

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

5. Results

5.1. Changes in sediment composition

The sediment composition plays an important role in the distribution of the benthic fauna. For this reason the same environmental parameters, including grain size, were measured in 1998 at the 100 sampling sites as in previous years. The median grain size, the mud content (*i.e.* the particle size fraction between 16 and 63 μm) and the water depth (not corrected for differences due to the tidal cycles) are given in Table 1a/b. This overview also includes the date of sampling in 1998. The median grain size and mud percentage is not available for the two Coastal stations *COA 13* & *COA 14*.

The spatial distribution of the median grain size, mud percentage and depth in 1998 on the DCS is illustrated by the maps in Figs. 2-4. These show that coarse sand was found in the southern part of the DCS and on one location in the eastern Offshore area (*OFF 29*) (Fig. 2). Sediment with a relatively high proportion of mud was found in the area between the 30 and 40 m depth contour (Fig. 3). In the Offshore and Coastal subareas the mud percentage was almost zero, except for one location near the Dutch coast (*COA 3*) which had 6 % of mud (Table 1a/b). Table 2 summarizes the mean values of the abiotic parameters for the 4 subareas in 1998. Although the sediment data have the same range as in 1997, the mean values of the median grain size are somewhat higher in 1998 in all subareas, but these differences are not significant (*t*-test). The basic distribution pattern of sediment types is the same as found in earlier surveys *i.e.* the Dogger Bank and Coastal subareas consist of fine sand with almost nil percent mud in 1998. The coarsest sediment was found in the Offshore subarea. The very fine sandy sediment in the Oyster Ground subarea showed has the highest percentages of mud (in 1998 mean: 6.5 %, max. 25 % at *OYS 36*).

Because data on the sediment composition are available from both the BIOMON (1990-1998) and earlier surveys (ICES, MILZON), it is possible to analyse the year-to-year fluctuation of the sediment grain size in the DCS between 1986 and 1998. In subareas where the mud content was found to be zero in several samples only one symbol is given in Fig. 6. The median grain size showed an increase in the period 1986-1995 in all subareas and seems to have stabilized between 1995 and 1998 (Fig. 5). The mud percentage showed the opposite development in the 4 subareas *i.e.* a clear decrease of the mud content was found between 1992 and 1998 in the Dogger Bank and Oyster Ground subareas. This trend was less clear in the Offshore and Coastal subareas (Fig. 6).

It should be noticed that the sieving method used for sediment analysis in the 1980's was replaced by the Malvern Particle Sizer (MPS) which complicates the comparison between these early data and those from the 90's (see Zonneveld, 1994).

5.2. DISTRIBUTION OF THE MACROBENTHIC FAUNA IN 1998

A total number of 215 species/taxa were identified in the 100 bottom samples in 1998. 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 summarized in Appendix-2. The two appendices contain 27 genera comprising juveniles which could not be identified any further. The data presented in all other tables and figures in this report do not include these juveniles. Otherwise the temporarily high abundance of the juveniles, which only occurs after the time of spatfall, would suggest a higher total density and a higher macrobenthic diversity than realistic in view of the annual sampling frequency. Of the 215 species/ taxa that we classified in 1998, 43 % belongs to the Polychaeta. This means that 92 polychaete species were found in the whole study area. Approximately 24 and 20 % of the total species belonged to the Crustacea and Mollusca, respectively. The Echinodermata contributed about 7 % of the species and the remaining 6 % were recorded as miscellaneous at higher taxonomic levels.

The most common species, *i.e.* ones that were found at more than 15 % of the sampling stations, are listed in Table 3. The polychaetes are not only the most species-rich taxon in 1998, but also the one composed of common species *i.e.* species that were found on a large number of locations. The brittle star *Amphiura filiformis* had the highest mean density (163 ind./m^2) in the 1998 survey. The highest mean biomass among all species occurring in more than 15 % of the samples was recorded for the heart urchin *Echinocardium cordatum* (4.2 g AFDW/m^2) (Table 3). An overview of the most dominant species in the four subareas is given in Table 4. The temporal fluctuations in density or biomass of all these species are shown in Figs. 10-13. The sea urchin *Echinocardium cordatum,* the amphipod *Bathyporeia elegans* and the polychaetes *Spiophanes bombyx* and *Magelona papillicornis* were found to be abundant in all four subareas (Table 4). In the northern subareas (Dogger Bank and Oyster Ground), dominant species were more evenly distributed over the four major taxonomic groups while in the Offshore and Coastal subareas most of the species belong to the polychaetes.

5.2.1. DIVERSITY

The diversity of the macrobenthic fauna in 1998 was calculated using some general indices applied to the dataset without the juvenile individuals. The species richness ($Hill_0$) varied in 1998 between 3 (*COA 13*) and 39 (*DOG 7*) species per boxcore sample. The spatial distribution of the $Hill_0$ diversity (Fig. 7) shows in general the same pattern as in previous years. High $Hill_0$ values were found in the northern subareas while low species richness was found in the southern part of the DCS. In the southern subarea only one

location close to the Dutch coast (*OFF 23*) yielded a sample with more than 30 species. Table 2 summarizes the diversity of the 4 subareas of the Dutch Continental Sector. On average, highest species richness ($Hill_0$) and the highest values for the Shannon Wiener index were found in the Dogger Bank subarea which also held the lowest values of the Simpson index (Table 2). The macrofauna in the Coastal subarea was far less diverse than in the other subareas in 1998 as shown by relatively low $Hill_0$ and Shannon Wiener index values in combination with high values for Simpsons index. This means that in this area only a few species were found, but often with high numbers of individuals.

5.2.2. Density and biomass

Table 2 shows mean values of selected abiotic and biotic parameters for each of the 4 subareas in 1998. The spatial distribution of total density and biomass in 1998 are illustrated by the maps in Figs. 8 & 9. The total biomass on the DCS varied between 0.05 and 415 g AFDW/m^2 in 1998 (*COA 5* and *COA 13* respectively). The Coastal subarea also yielded the highest and lowest values for total density of the 1998 survey *i.e.* 5501 ind./m^2 at *COA 6* and 117 ind./m^2 at *COA 13*.

In all subareas the mean total biomass was higher in 1998 than in 1997. This is most explicit in the Dogger Bank subarea where we arrived at a mean of 13.2 g AFDW/m^2 in 1998 - compared to a 1997 mean of 5.5 AFDW/m^2 - due to the higher biomass of echinoderms (Table 2). In the Coastal subarea also a higher total biomass was found in 1998, caused by the high biomass of molluscs.

Except for the relatively low mean density in the Oyster Ground subarea, mean total density in the other subareas had the same range as in 1997 (Table 2). The Dogger Bank subarea, on average, had the highest density and the lowest biomass of all subareas. The lowest mean density was measured in the Offshore subarea.

5.3. Temporal variation of the macrobenthic fauna

5.3.1. Density and biomass of selected species

Figs. 10-13 depict the temporal variation in density or biomass of some selected species in the 4 subareas during the period 1986-1998. The selected species are the ones that are widely distributed and occur on more than 15 % of the locations (Table 3 & 4). From the ICES survey in 1986 biomass values are not available for all species.

<u>*Dogger Bank*</u> (Fig. 10a/b)
In the Dogger Bank subarea most species attained the highest abundances in the period 1993/1994, whereas in 1995/1996 the lowest values of density were found (Fig. 10a/b).

The same trend was found with the amphipod *Bathyporeia elegans* and the two echinoderms, *Acrocnida brachiata* and *Echinocardium cordatum*. However, the decrease of these latter 3 species did not continue in 1998. The small amphipod *Urothoe poseidonis* showed the highest density in 1998. Of some polychaetes *i.e. Lanice conchilega*, *Magelona papillicornis* and *Nephtys cirrosa* the abundances were found to be quite low in 1998. The mollusc *Tellina fabula* was found in 1998 on all stations (Table 4) and showed only little variation at the southern Dogger Bank during the whole monitoring period.

Oyster Ground (Fig. 11a-c)
Erratic fluctuations of species abundances in the Oyster Ground subarea between 1986 and 1998 were much smaller than in the Dogger Bank subarea. The mean density of one of the most dominant species in the Oyster Ground, the brittle star *Amphiura filiformis*, decreased significantly ($p<0.000$) between 1986 and 1998. Its density in 1998 was found to be higher than in 1997, 388 *vs.* 248 ind./m^2 respectively (Table 4), but this difference was not significant (*t*-test). The decline of *Amphiura* biomass over the period 1986 to 1998 was not as marked as the decline in abundance. Holtmann *et al.* (1998) found a clear downward trend in the abundance of the burrowing shrimp *Callianassa subterranea* during the period 1991-1997. In 1998 the mean values density and biomass of *Callianassa* were somewhat higher than in 1997 (Fig. 11a). However, the decrease of the bivalve *Mysella bidentata* (Fig. 11b) as noticed in 1997 continued in 1998.

Offshore (Fig. 12a/b)
Most of the abundant species from the Offshore subarea (Table 4) showed little variation in the period between 1986 and 1998. The common polychaete *Nephtys cirrosa* which was found on 72 % of the locations in 1998, seems to decrease in density since 1993 but not so in biomass (Fig. 12b). The Offshore subarea had the highest mean density of the sea urchin *Echinocardium cordatum* (18.7 ind./m^2) of all subareas (Table 4), but no trend could be distinguished for this species during the monitoring period (Fig. 12a).

Coast (Fig. 13a-c)
In the Coastal subarea some trends were observed between 1986 and 1998. The bivalve *Tellina fabula* (Fig. 13a), the polychaete *Nephtys hombergii* and the amphipod *Urothoe poseidonis* (Fig. 13c) decreased in density from 1986 to 1992 after which they remained stable up to 1998. In 1998 the amphipod *Urothoe poseidonis* was the most dominant species of this subarea, where it was found on 86 % of the sampling stations (Table 4). The polychaete *Scoloplos armiger* showed a positive trend between 1996 and 1998 (Fig. 13c) and the echinoderm *Echinocardium cordatum* decreased in the Coastal subarea from 1992 to 1998 (Fig. 13a).

5.3.2. DIVERSITY, TOTAL DENSITY AND TOTAL BIOMASS

The temporal variation of diversity, total density and total biomass of the whole macrobenthic fauna (excluding the juvenile species) as well as of the 4 major taxa *viz.* polychaetes, crustaceans, molluscs and echinoderms, are illustrated in Figs. 14-20. In most of these figures the same vertical scales were used to facilitate the comparison between the subareas and between the four taxonomic groups. In order to detect and accentuate trends a smoothed line was drawn through the scatter plots.

Diversity (Figs. 14-16)
Throughout the whole monitoring period, the highest diversity ($Hill_0$, Shannon-Wiener) was found at the stations in the two northern subareas. By contrast, diversity in the southern part of the DCS was much lower in the same period (Figs. 14-16). Diversity in the Dogger Bank subarea showed little year-to-year fluctuation and was highest of all subareas *i.e.* the highest values for the $Hill_0$ (species richness) and Shannon Wiener indices and the lowest values for Simpsons index (Figs. 14-16). A total number of 30 or more species per boxcore sample is quite normal in the Dogger Bank subarea.

The $Hill_0$ diversity in the Oyster Ground subarea had the highest value in 1986. Between 1991 and 1998 it was quite stable with the lowest value in 1993. In the Offshore subarea $Hill_0$ increased in the period 1986-1995 and remained quite stable during the last 3 years of monitoring (Fig. 14). The curve of the Shannon-Wiener diversity suggests a gradual increase in the Offshore subarea between 1986 and 1998 (Fig. 15). In the Coastal subarea diversity ($Hill_0$) reached the lowest mean value in 1996 and subsequently increased to the same level as found in earlier years. The Shannon-Wiener index in the Coastal subarea decreased from 1986 to 1996 and increased in the last two years of the study (1997/1998). The trend in Simpsons index was opposite to that of the Shannon-Wiener index (Figs. 15 & 16) as could be expected from the nature of these two indices (cf. 4.4.).

Density (Figs. 17/18a-d)
The Dogger Bank subarea had the highest total density of all subareas during the whole monitoring period (Fig. 17) with the relatively low values in the years 1986 and 1990. From 1995 onwards 7 stations in the Dogger Bank subarea were annually sampled and total density on these sites varied only slightly. In this subarea the density of the 4 major taxa changed in 1994/1995 from an increase into a decrease (Fig. 18a). In the Oyster Ground subarea a slight decrease of the total density was observed between 1994 and 1998. The most distinct trends among the 4 taxonomic groups in the Oyster Ground subarea are the decreases of the molluscs (1994-1998) and of the echinoderms (1992-1998) (Fig. 18b). The reduction of the two abundant Oyster Ground species *i.e. Mysella*

bidentata (Fig. 11b) and *Amphiura filiformis* (Fig. 11a) partly explain these decreases. In the two southern subareas total density fluctuated much stronger, especially in the Coastal subarea. Here relatively high total densities were found in the first period of the study (1986-1989) and in 1994/1995. In the same years the abundance of polychaetes was also quite high (Fig. 18d). Concomitant with the trends among some abundant species in the Coastal area (Fig. 13a-c), total density of crustaceans and molluscs decreased, whereas that of the echinoderms increased. The density of the polychaetes and molluscs in the Offshore area showed in general the same pattern as total density *i.e.* an upward trend between 1986-1995 and a downward trend from 1995 to 1998 (Fig. 18c).

Biomass (Figs. 19/20a-d)
The total biomass in the Dogger Bank subarea was on average lowest of the whole DCS (Fig. 19). The lowest biomass value in this subarea was found in 1997, which caused a break in the upward trend found between 1986 and 1996. Molluscs and echinoderms were the most dominant taxa in the Dogger Bank subarea with respect to biomass. The biomass values of the molluscs showed no trend between 1986 and 1998 in this area (Fig. 20a). In the Oyster Ground subarea, the highest mean biomass was found in the period 1990-1994 (Fig. 19). The biomass of 3 of the 4 taxonomic groups displayed little temporal variation. The echinoderm biomass follows in general the same trend as the biomass of *Amphiura filiformis i.e.* a decrease between 1994 and 1997 (Fig. 11a). The total biomass and the biomass of the 4 taxa in the Offshore subarea showed no distinct trend during the monitoring period (Figs. 19 & 20c). The average total biomass in the Coastal subarea was highest of all subareas due to the locally high biomass values of molluscs which frequently surpassed 100 g AFDW/m^2 (Fig. 20d). No trend could be distinguished in the total biomass in the Coastal subarea. However, a significant decrease ($p<0.000$) was found in this subarea of the echinoderm biomass (1992-1998) due to the decrease of the biomass of *Echinocardium cordatum* (Fig. 13a).

5.3.3. Comparison of species assemblages (1986-1998)

An ordination technique was used to detect temporal changes in the community as a whole, for instance due to more subtle changes in the dominance among species, including the ones less abundant than those in Figs. 11-13. Firstly, a DECORANA ordination was made of all subareas together using the yearly average species abundances in the 4 areas from the period 1986-1998 (Fig. 21). In this plot the points that are close together correspond to years that are more similar in species composition, than points that are more separated. As was found in earlier reports (Holtmann *et al.*, 1997; 1998) the four subareas are clearly separated in the ordination plot. The wide separation between the

muddy Oyster Ground and the sandy Offshore subareas, suggests that sediment grain size plays an important role in the distribution of species and assemblages in Fig. 21. The points belonging to the Dogger Bank subarea form the most compact cluster in contrast to those of the Offshore subarea which are much more dispersed. In all subareas the points representing the first years (1986/1990) and in the Coastal subarea also the year 1991 stand more apart from the group of points belonging to more recent years (Fig. 21). Nevertheless, no consistent changes in species composition were noticed.

In order to improve the resolution we also made separate ordination plots for each of the 4 subareas (Fig. 22 a-d). Besides the distinction between the years 1986-1991 and subsequent years which we also found in Fig. 21, a separation of other years (1993/1997) was observed in the Coastal and Offshore subarea. Holtmann *et al.* (1998) described the isolation of the year 1997 in the Coastal subarea from the rest, as was also found in the present report (Fig 22d). This isolation is the result of the low densities of some common species viz. *Echinocardium cordatum, Nephtys hombergii, Tellina fabula* and *Natica alderi*. In the plot of the Offshore subarea 1993 appears separated from the other years which suggests differences in macrobenthic assemblages in this particular year (Fig 22c). This is due to the high abundance of the dominant species of the Offshore subarea, *Nephtys cirrosa* (Fig. 12b). The separation of the year 1997 in the Offshore subarea (see Holtmann *et al.*, 1998) has disappeared after inclusion of the 1998 data.

6. Discussion and conclusions

Macrobenthic communities form a useful indicator for changes in environmental circumstances because they integrate effects over relevant time scales of 1-100 years depending on the life-span of the species. Biological time series often shows a lot of annual variability in the macrobenthic communities. Changes can be caused by natural reasons, but also by anthropogenic influences. The Dutch Continental Sector of the North Sea is a very intensively used ecosystem. Many of the human activities (*e.g.* oil gas drilling, dredging, eutrophication, pollutants, fishery etc.) taking place in this area directly or indirectly affect the benthic communities (Bergman *et al.*, 1990; Daan & Mulder, 1996; Daan *et al.*, 1999). However, not only human impacts but also changes in sediment composition or in climatic parameters will cause changes in the benthic ecosystem. Kröncke *et al.*, 1998 found a strong correlation between benthic parameters and climatic factors like the sea-surface temperature (SST) and the North Atlantic Oscillation (NAO-index) in the subtidal zone north of the island Norderney. A high NAO-index is associated with strong westerly winds and warm winter temperatures in Europe (Hurrell, 1995) and results in an increase in benthic biomass of the subtidal benthic communities (Kröncke *et al.*, 1998).

During the monitoring period we observed a lot of erratic or 'natural' year-to-year variation in the abundance of individuals species particularly of the short-living species. However, the major aim of this monitoring program is to detect trend-like changes covering several years. Using the existing knowledge on the distribution of the benthic fauna of the North Sea, the DCS was divided into four subareas, each of which having a characteristic set of species and environmental conditions (Holtmann *et al.*, 1996). The main features of the four subareas, together with the temporal trends in community parameters and abundances of individual species can be summarized as follows:

Dogger Bank

During the monitoring programme only the southern part of the Dogger Bank was studied and a relatively small number (7) of stations were sampled. This subarea holds, on average, the highest density and the lowest biomass of macrobenthos among all subareas during most part of the monitoring period. The most common species of this subarea are the two polychaetes *Magelona papillicornis* and *Spiophanes bombyx*, the bivalve *Tellina fabula* and the brittle star *Acrocnida brachiata* of which the latter is typical for this area (Table 4). Besides the invariably high diversity of the macrofauna in this subarea, the abundances of individual species was quite variable between 1986 and 1998. A period of peak densities was observed in 1992/1993 and followed by a period of low densities between 1994/1997. Most of the dominant species also occurred with low densities in 1998. However, of some species *viz. Acrocnida brachiata, Echinocardium cordatum* and the amphipods *Bathyporeia elegans* and *Urothoe poseidonis*, higher densities were found

in 1998 than in the preceding years (Fig. 10a). The relatively long-living species *Echinocardium cordatum* (up to 10 years) have a relatively strong indicative value for changing conditions. Since in 1998 only individuals of about 30-40 mm were found in the Dogger Bank subarea, the higher density of *E. cordatum* in 1998 was not caused by a recruitment success of 1997. In the southern North Sea the sea urchin can be found on all types of sediment but grows faster in shallow, sandy than in deep, muddy area (Duineveld & Jenness, 1984).

Oyster Ground

The Oyster Ground subarea is the deepest (30-55 m) of the four subareas. The relatively low tidal current speeds in this subarea allow fine particles to settle and as a result the highest mud content of the whole DCS are found here. Next to water depth, current speed and sediment, the area is characterized by the summer stratification of the water column. All these factors contribute to the presence of a typical Oyster Ground fauna and a sharp faunal boundary at the 30 m isobath bordering the Oyster Grounds (Fig. 8; cf. Duineveld *et al.*, 1990.; Künitzer *et al.*, 1992).

In 1998 the macrobenthos assemblage of the Oyster Ground was again quite homogeneous and characterized by the brittle star *Amphiura filiformis*, the burrowing shrimp *Callianassa subterranea*, the amphipod *Harpinia antennaria*, the two polychaetes *Nephtys hombergii* and *Pholoe minuta*, and the bivalves *Mysella bidentata* and *Abra alba* (Table 4). The sediment composition of the Oyster Ground showed some remarkable trends between 1986 and 1998 (Fig. 5 & 6). The mud percentages showed a clear downward trend between 1992 and 1998. Changes in the mud content can have consequences for obligatory inhabitants of muddy sediment. The brittle star *Amphiura filiformis*, for instance, typically lives in the top 5 cm of muddy sediments. Populations of *A. filiformis* have often been found to be quite stable in number and size composition, also in the southern North Sea (O'Connor, 1983; Duineveld & Noort, 1986; Künitzer, 1990). However, the abundance of *A. filiformis* in the Oyster Ground subarea showed a noticeable decrease between 1986 and 1998 (Fig. 11a), which might be a response to decreased percentages of mud in the Oyster Ground sediment. The decrease of *A. filiformis* is also supported by other studies of the macrofauna in the Oyster Ground, especially at the Frisian Front area (Duineveld *et al.*, in prep.). The bivalve *Mysella bidentata* which is usually found in association with *A. filiformis*, also showed a decrease during the last four years (1994-1998) (Fig. 11b). Abundances of other characteristic species showed, if not stable, also a downward trend. The mudshrimp *Callianassa subterranea* constructs intensive and complex burrow systems in soft sediment down to 50 cm depth. Because of these burrows *Callianassa* probably has a profound effect on the biochemical cycles in the sediment (Witbaard & Duineveld, 1989; Rowden & Jones, 1994). *Callianassa* which in 1998 was still the second most dominant species of the Oyster Ground, showed a distinct break in density in 1991 *i.e.* high densities followed by

a downward trend up to 1998 (Fig.11a). The mud content and the abundance of *C. subterranea* in the Oyster Ground follow the same trends, with highest values in 1991 and a decrease until 1998 (Fig. 6 & 11a).

Offshore

The shallow Offshore subarea comprises the broad zone between the Coastal subarea and the 30 m depth isobath forming the border of the Oyster Ground subarea. Because of its geographically intermediate position, the macrobenthos in samples from near the edge of the Offshore area show high similarity with that in nearby subareas. This is illustrated by the high dispersion of the data points of the Offshore subarea in the DECORANA ordination plot (Fig. 21). The whole subarea is covered by sediment with a high median grain size (Table 1b). This explains the presence of characteristic species of coarse sand such as the amphipods *Urothoe poseidonis* and *Bathyporeia elegans*, next to dominant but more widely distributed species like the polychaetes *Nephtys cirrosa, Scoloplos armiger, Spiophanes bombyx and Magelona papillicornis.* Most of these abundant species showed no consistent trend during the monitoring period (Fig. 12a/b). Only *Nephtys cirrosa* occurred with peak densities in the year 1993 which explains the isolated position of this particular year in the DECORANA plot (Fig. 22c).

Coast

The Coastal subarea is a relatively shallow area with fine sand and on average low percentage of mud (Table 2), but with mud patches at some locations. The average data on the mud content from the period 1992 to 1995 showed a clear downward trend. However, the average percentage mud seems to have stabilized on a lower level during the last 4 years (Fig. 6). The spatially heterogeneous character of the assemblage in the Coastal subarea is illustrated by locally high biomass values caused by dense patches of the bivalves *Ensis spp.* and *Spisula subtruncata*. The biomass of the major taxonomic groups showed little variation during the monitoring period (Fig. 20d). Only the biomass of the echinoderms clearly decreased between 1992 and 1998 due to the decrease of the biomass of *Echinocardium cordatum* (Fig. 13a). The benthic fauna in the Coastal subarea is characterized by a low diversity due the low species richness in combination with the dominance by a few species (Table 2). The most dominant species of this subarea in 1998 are the amphipod *Urothoe poseidonis* and a few polychaete species (*Capitella capitata*, *Magelona papillicornis*, *Scoloplos armiger*, and *Lanice conchilega*).

Because of its direct contact with the land, the coastal subarea receives most of the nutrients and pollutants supplied by the rivers. Consequently one would expect that any reduction of these inputs due to governmental measures would become more manifest in this subarea than in the rest of the DCS. However, abundances of the most dominant species showed little variation. The densities of *Tellina fabula*, *Nephtys hombergii* and *Urothoe poseidonis* showed a remarkable decrease in the first part of the study and were

quite stable within the last 6 years of monitoring (Fig. 13a-c). The separation of the year 1997 in the DECORANA ordination plot indicating changes in the assemblage of the Coastal subarea, as was also found in the 1997 report. This separation was due to the low abundance of some common species of the subarea, viz. *Echinocardium cordatum, Nephtys hombergii, Tellina fabula* and *Natica alderi* (Holtmann *et al.*, 1998). Similarly, biomass of the total community and of taxonomic groups did not yield any indication for a major change of the food supply during the monitoring period.

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8. References

BRAAK, C.J.F TER, 1986. CANOCO - a FORTRAN program for canonical community ordination by [partial] [detrended] [canonical] correspondence analysis, principal components analysis and redundancy analysis (version 2.0) -*TNO Institute of Applied Computer Science, Statistics Department Wageningen, The Netherlands.*

BERGMAN, M.J.N., M. FONDS, M. HUP, W. LEWIS, P. VAN DER PUYL, A. STAM & D. DEN UYL, 1990. Direct effects of beamtrawl fishing on benthic fauna in the North Sea - a pilot study. -*In: Effects of beamtrawl fishery on the bottom fauna of the North Sea. BEON-rapport 8: 33-57.*

CLEVELAND, W.S., 1979. Robust locally weighted regression and smoothing scatterplots. *Journal of the American Statistical Association 74: 829-836.*

CLEVELAND, W.S., 1981. LOWESS: A program for smoothing scatterplots by robust locally weighted regression. -*The American Statistician 35: 54.*

DAAN, R. & M. MULDER, 1996. Long-term effects of OBM cutting discharges at 12 locations on the Dutch Continental Shelf. -*NIOZ-report 1996-6, NIOZ, Texel, The Netherlands: 36pp.*

DAAN, R., M.J.N. BERGMAN & G.C.A. DUINEVELD, 1999. Macrobenthos op Loswal Noord en Noordwest in 1998, 2 jaar na verplaatsing van het stortingsgebied. -*NIOZ-report 1999-1, NIOZ, Texel, The Netherlands: 52pp.*

DEKKER, R. & W. DE BRUIN, 1998. Het macrozoobenthos op twaalf raaien in de Waddenzee en de Eems-Dollard in 1997. -*NIOZ-rapport 1998-3: 53pp.*

DUINEVELD, G.C.A. & M.I. JENNESS, 1984. Differences in growth rates of the sea urchin *Echinocardium cordatum* as estimated by the parameter w of the Bertalanffy equation applied to skeletal rings. -*Mar. Ecol. Prog. Ser. 19: 65-72.*

DUINEVELD, G.C.A. & G.J. VAN NOORT, 1986. Observations on the population dynamics of *Amphiura filiformis* (Ophiuroidea: Echinodermata) in the southern North Sea and its exploitation by the dab, *Limanda limanda*. -*Neth. J. Sea Res. 20(1): 85-94.*

DUINEVELD, G.C.A., H.J. WITTE, 1987. Report on an intercalibration exercise on methods for determining ashfree dry weight of macrozoobenthos.- *ICES CM 1987/L:39: 6pp.*

DUINEVELD, G.C.A., P.A.W.J. DE WILDE & A. KOK, 1990. A symposis of the macrobenthic assemblages and benthic ETS activity in the Dutch sector of the North Sea. -*Neth. J. Sea Res. 26(1): 125-138.*

DUINEVELD, G.C.A., 1992. The macrobenthic fauna in the Dutch sector of the North Sea in 1991. -*NIOZ-report 1992-6, NIOZ, Texel, The Netherlands: 17pp.*

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.*

HART, W.I.J. VAN 'T, 1998. Meetverslag ms. Mitra, week 14, 15, 23, 25 (1998) EXP*BMN/ BENTHOS. *-Rijkswaterstaat, Directie Noordzee: 73pp.*

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

HILL, M.O., 1979. DECORANA - a FORTRAN program for detrended correspondence analysis and reciprocal averaging. *-Ecology and Systematic, Cornell University, Ithaca, New York: 52pp.*

HILL, M.O. & H.G. GAUCH, 1980. Detrended correspondence analysis: an improved ordination technique *-Vegetation 42: 47-58.*

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., A. GROENEWOLD, K.H.M. SCHRADER, J. ASJES, J.A. CRAEYMEERSCH, G.C.A. DUINEVELD, A.J. VAN BOSTELEN & J. VAN DER MEER, 1996. Atlas of the zoobenthos of the Dutch Continental Shelf. *-Ministry of Transport, Public Works and Water Management, North Sea Directorate, Rijswijk: 244pp.*

HOLTMANN, S.E., M. MULDER & R. DAAN, 1997. The macrobenthic fauna in the Dutch sector of the North Sea in 1996 and a comparison with previous data. *-NIOZ-report 1997-8, NIOZ, Texel, The Netherlands: 100pp.*

HOLTMANN, S.E., G.C.A. DUINEVELD, M. MULDER & P.A.W.J. DE WILDE, 1998. The macrobenthic fauna in the Dutch sector of the North Sea in 1997 and a comparison with previous data. *-NIOZ-report 1998-5, NIOZ, Texel, The Netherlands: 103pp.*

HURRELL, J.W., 1995. Decadal trends in the North Atlantic Oscillation: regional temperatures and precipitation. *-Science 269: 676-679.*

KRÖNCKE, I., J.W. DIPPNER, H. HEYEN & B. ZEISS, 1998. Long-term changes in macrofaunal communities off Norderney (East Frisia, Germany) in relation to climate variability. *-Mar. Ecol. Prog. Ser. 167: 25-36.*

KÜNITZER, A., D. BASFORD, J.A. CRAEYMEERSCH, J.M. DEWARUMEZ, J. DÖRJES, G.C.A. DUINEVELD, A. ELEFTHERIOU, C. HEIP, P. HERMAN, P. KINGSTON, U. NIERMANN, E. RACHOR, H. RUMOHR, AND P.A.W.J. DE WILDE, 1992. The benthic infauna of the North Sea: species distribution and assemblages. -*ICES J. mar. Sci. 49: 127-143.*

MCGILL, R., J.W. TUKEY & W.A. LARSEN, 1978. Variation of box plots. -*The American Statistics 32: 12-16.*

MEER, J. VAN DER, 1997. Sampling design of monitoring programmes for marine benthos: a comparison between the use of fixed versus randomly selected stations. -*J. of Sea Res. 37: 167-179.*

O'CONNOR, B., T. BOWMER & A. GREHAN, 1983. Long-term assessment of the population dynamics of *Amphiura filiformis* (Echinodermata: Ophiuroidae) in Galway Bay (west coast of Ireland). -*Mar. Biol. 75: 279-286.*

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.*

ROWDEN, A.A. & M.B. JONES, 1994. A contribution to the biology of the burrowing mud shrimp, *Callianassa subterranea* (Decapoda: Thalassinidea). -*J. mar. biol. Ass. U.K.: 623-635.*

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: 117pp.*

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

WILKINSON, L., 1990. SYGRAPH: The system for graphics. -*Evanston, IL; SYSTAT, Inc.: 547pp.*

WITBAARD, R. & G.C.A. DUINEVELD, 1989. Some aspects of the biology and ecology of the burrowing shrimp *Callianassa subterranea* (Montagu) (Thalassinidea) from the southern North Sea. -*Sarsia 74: 209-219.*

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

ZONNEVELD, P.C., 1994. Vergelijkend onderzoek korrelgroottebepaling (zeef/malvern). -*Rijks Geologische Dienst, Rapp. No. OP 6500.*

Tables and Figures

Tables:

Figures:

Table1a. Station number, position, date, depth and sediment composition of the survey in 1998.

Station (name)			Geographical position				Sediment	
new		previously	E	N	Date	Depth (m)	Med. Gr. Size (μm)	Mud (%)
DOG	1	Dog E5	04°03'00"	55°28'18"	08/04/98	30.5	186	0
DOG	2	Dog D3	03°38'30"	55°10'00"	07/04/98	37.0	213	0
DOG	3	ICES 97/SM38	03°30'00"	55°15'00"	07/04/98	29.0	190	0
DOG	4	TS 235	03°09'26"	55°10'14"	07/04/98	30.9	198	0
DOG	5	Dog C5	03°14'00"	54°54'42"	07/04/98	35.5	200	0
DOG	6	Dog C6	03°05'00"	54°57'06"	07/04/98	22.7	211	0
DOG	7	ICES 87/SM 37	03°00'00"	55°00'00"	07/04/98	25.0	241	0
OYS	1	MZ 1-3 '91	03°25'30"	54°23'00"	31/03/98	48.0	111	4
OYS	2	MZ 9-1 '91	05°32'30"	54°11'30"	16/06/98	39.8	191	8
OYS	3	ICES 88/SM 39	04°00'00"	55°00'00"	08/04/98	48.5	138	0
OYS	4	Dog B5	02°56'00"	54°33'00"	31/03/98	34.0	151	0
OYS	5	MZ 8-3 '91	04°55'00"	54°01'10"	04/06/98	42.0	126	10
OYS	6	Dog E2	04°22'48"	55°18'24"	08/04/98	46.5	88	14
OYS	7	MZ 2-1 '91	04°18'00"	54°53'00"	08/04/98	51.0	111	5
OYS	8	MZ 12-4 '91	04°54'00"	53°44'40"	04/06/98	36.8	177	9
OYS	9	MZ 15-1 '93	03°37'50"	53°45'20"	31/03/98	39.0	191	0
OYS	10	MZ 1-1 '91	03°42'30"	54°39'00"	07/04/98	45.0	95	14
OYS	11	MZ 12-1 '91	05°10'00"	53°55'30"	16/06/98	38.9	110	22
OYS	12	MZ 5-4 '91	04°26'00"	54°10'00"	09/04/98	49.4	112	4
OYS	13	ICES 78/SM 31	03°30'00"	54°45'00"	07/04/98	44.5	123	11
OYS	14	MZ 5-3 '91	04°44'30"	54°20'00"	04/06/98	45.8	92	15
OYS	15	MZ 5-1 '91	04°21'20"	54°28'30"	08/04/98	51.4	161	1
OYS	16	MZ 3-4 '91	05°03'00"	54°38'30"	04/06/98	46.1	197	0
OYS	17	MZ 17-2 '93	03°25'08"	54°00'21"	31/03/98	43.0	114	8
OYS	18	MZ 10-2 '91	05°54'00"	54°11'20"	16/06/98	37.2	215	0
OYS	19	Dog B2	03°19'00"	54°20'00"	31/03/98	51.0	190	6
OYS	20	Dog A1	02°51'51"	54°05'00"	31/03/98	50.0	167	0
OYS	21	TS 50	04°46'03"	53°46'04"	04/06/98	38.2	103	21
OYS	22	MZ 1-4 '91	03°38'30"	54°18'30"	31/03/98	45.0	135	1
OYS	23	Dog C3	03°22'00"	54°49'24"	07/04/98	41.7	100	13
OYS	24	MZ 11-3 '93	03°29'46"	53°30'00"	31/03/98	33.0	129	7
OYS	25	MZ 2-3 '91	04°32'00"	54°39'00"	08/04/98	50.5	174	0
OYS	26	MZ 8-5 '91	04°47'30"	53°55'20"	04/06/98	41.4	122	17
OYS	27	ICES 70/SM 60	05°00'00"	54°30'00"	04/06/98	43.0	126	0
OYS	28	ICES 42/SM 19	03°30'00"	53°45'00"	31/03/98	37.0	199	0
OYS	29	ICES 68/SM 32	03°00'00"	54°30'00"	31/03/98	37.0	102	8
OYS	30	MZ 11-1 '93	03°18'21"	53°31'30"	31/03/98	35.0	124	8
OYS	31	MZ 19-2 '93	04°09'06"	53°50'42"	09/04/98	42.5	138	1
OYS	32	MZ 6-5 '91	05°05'00"	54°15'30"	16/06/98	43.9	143	8
OYS	33	MZ 4-1 '91	04°03'00"	54°16'00"	09/04/98	49.0	154	0
OYS	34	MZ 16-3 '93	04°16'37"	53°37'40"	09/04/98	37.6	113	15
OYS	35	MZ 18-3 '93	03°52'24"	53°51'31"	09/04/98	39.3	163	0
OYS	36	META 2	04°30'00"	53°42'05"	09/04/98	38.6	97	25
OYS	37	TS 100	04°20'27"	54°09'04"	09/04/98	49.5	99	6
OYS	38	ICES 34/SM 20	03°00'00"	53°30'00"	31/03/98	31.5	140	7
OYS	39	ICES 69/SM 30	04°00'00"	54°30'00"	08/04/98	41.0	151	0
OYS	40	ICES 89/SM 58	05°00'00"	55°00'00"	04/06/98	41.1	111	4
OYS	41	RHC 4/Dog C4	03°17'36"	54°51'42"	07/04/98	39.3	112	1
OYS	42	R 70	06°12'51"	54°07'03"	03/06/98	32.7	219	0

Table1b. Station number, position, date, depth and sediment composition of the survey in 1998.

Station (name)			Geographical position				Sediment	
new		previously	E	N	Date	Depth (m)	Med. Gr. Size (μm)	Mud (%)
OFF	1	MZ 18-2 '91	05°59'00"	53°51'30"	03/06/98	31.0	215	0
OFF	2	MZ VIA-12-25-2 '89	06°06'25"	53°37'29"	03/06/98	22.2	213	0
OFF	3	MZ VA-12-25-3 '89	05°49'37"	53°36'40"	03/06/98	25.7	190	0
OFF	4	MZ 16-3 '91	04°57'30"	53°40'00"	04/06/98	31.5	201	0
OFF	5	MZ 14-1 '91	04°22'30"	53°29'00"	09/04/98	28.9	214	0
OFF	6	MZ IIA-12-25-2 '89	04°26'32"	53°11'16"	19/06/98	28.8	313	0
OFF	7	MZ IA-25-40-4 '89	04°18'22"	53°05'59"	19/06/98	34.2	224	0
OFF	8	MZ C-40-65-4 '88	04°00'30"	53°01'30"	18/06/98	29.7	238	0
OFF	9	MZ B-25-40-2 '88	04°13'50"	52°49'20"	19/06/98	27.0	265	0
OFF	10	MZ W-40-65-3 '88	03°50'30"	52°45'40"	18/06/98	30.2	291	0
OFF	11	MZ 10-4 '92	03°31'18"	53°17'00"	19/06/98	26.4	201	0
OFF	12	MZ 9-2 '92	03°23'30"	53°03'55"	19/06/98	28.1	263	0
OFF	13	MZ 9-1 '92	03°11'36"	53°02'58"	19/06/98	29.5	259	0
OFF	14	MZ 8-2 '92	03°17'20"	52°53'53"	10/04/98	33.2	275	0
OFF	15	MZ 8-5 '92	03°17'18"	52°50'12"	10/04/98	33.6	286	0
OFF	16	ICES 20/SM 3	03°30'00"	52°45'00"	10/04/98	28.0	258	0
OFF	17	MZ 6-2 '92	03°12'12"	52°27'43"	03/04/98	30.0	308	0
OFF	18	MZ 6-1 '92	03°11'25"	52°20'25"	03/04/98	27.3	321	0
OFF	19	MZ 1-1 '92	03°24'42"	52°15'10"	17/06/98	31.4	388	0
OFF	20	ICES 15/SM 5	03°30'00"	52°15'00"	17/06/98	29.6	345	0
OFF	21	ICES 12/SM 10	03°00'00"	52°00'00"	17/06/98	36.6	714	0
OFF	22	MZ T-25-40-3 '88	03°59'15"	52°16'30"	30/03/98	24.4	348	0
OFF	23	MZ N-12-25-1 '88	04°09'50"	52°23'08"	30/03/98	23.7	323	0
OFF	24	/	03°42'58"	52°00'00"	02/04/98	26.0	383	0
OFF	25	/	03°24'26"	52°06'12"	02/04/98	32.0	352	0
OFF	26	/	03°11'34"	51°56'07"	17/06/98	29.1	560	0
OFF	27	/	03°14'28"	51°41'40"	18/06/98	28.4	341	0
OFF	28	/	02°52'48"	51°52'40"	17/06/98	35.1	432	0
OFF	29	R 50	06°18'36"	53°57'14"	03/06/98	31.0	384	0
OFF	30	TS 30	04°56'17"	53°36'56"	04/06/98	25.7	213	0
OFF	31	META 1	03°55'01"	52°59'53"	18/06/98	26.5	253	0
OFF	32	N 30	04°02'53"	52°23'15"	30/03/98	23.6	320	0
OFF	33	N 50	03°47'07"	52°28'30"	10/04/98	30.1	260	0
OFF	34	N 70	03°31'53"	52°34'10"	10/04/98	31.3	309	0
OFF	35	W 30	03°06'49"	51°43'06"	18/06/98	30.3	344	0
OFF	36	W 70	02°40'45"	51°57'25"	17/06/98	44.0	557	0
COA	1	MZ VIA-05-12-1 '89	05°59'53"	53°32'34"	03/06/98	17.0	219	0
COA	2	MZ VA -00-05-5 '89	05°37'48"	53°30'19"	03/06/98	9.6	184	0
COA	3	MZ W-00-05-5 '88	04°31'50"	52°32'50"	05/06/98	16.7	229	6
COA	4	MZ C-00-05-5 '88	04°40'00"	52°50'00"	02/06/98	9.8	206	0
COA	5	MZ IB-00-05-5 '89	04°41'20"	53°03'23"	02/06/98	10.0	212	0
COA	6	MZ VIB-00-05-3 '89	06°11'10"	53°32'18"	03/06/98	9.0	163	0
COA	7	R 3	06°33'51"	53°33'58"	03/06/98	8.8	214	0
COA	8	TS 4	05°09'02"	53°24'54"	16/06/98	11.5	249	0
COA	9	ICES 21/SM 1	04°30'00"	52°45'00"	02/06/98	19.8	230	0
COA	10	N 2	04°24'20"	52°15'36"	30/03/98	10.5	264	0
COA	11	N 10	04°18'01"	52°17'41"	30/03/98	18.0	338	0
COA	12	VD 1	03°23'15"	51°37'04"	18/06/98	13.7	282	0
COA	13	VD 2	03°36'02"	51°42'23"	18/05/98	4.8	.	.
COA	14	VD 3	03°48'48"	51°47'26"	18/05/98	4.0	.	.
COA	15	VD 4	03°55'09"	51°55'20"	02/04/98	15.0	208	0

Table 2. Mean values of abiotic and biotic parameters of the 4 distinguished areas in 1998 (C.V.: coefficient of variation =s.d./mean).

	AREA							
	south.Dogger Bank		Oyster Ground		Offshore area		Coastal area	
No. of stations	7	C.V.	42	C.V.	36	C.V.	15	C.V.
Median Grain Size (µm)	205.6	0.09	138.4	0.26	315.6	0.35	230.6	0.19
Mud content (%)	0.0	\	6.5	1.06	0.0	\	0.5	3.32
Depth (m)	30.1	0.17	42.3	0.13	29.6	0.14	11.9	0.39
Diversity:								
No. of total species	66		137		107		57	
No. species per core	29.6	0.17	23.9	0.21	16.3	0.38	15.4	0.36
Shannon- Wiener diversity	2.70	0.08	2.46	0.16	2.16	0.21	2.00	0.23
Simpson's dominance	0.12	0.34	0.16	0.61	0.19	0.63	0.22	0.58
No. individuals (ind./m²):								
Crustaceans	854.9	0.61	183.2	0.51	347.0	1.16	327.7	1.21
Echinoderms	144.2	0.92	419.0	1.32	39.4	1.58	32.2	1.64
Molluscs	420.1	1.12	283.5	1.10	78.8	1.07	618.4	1.78
Polychaetes	562.2	0.32	460.8	0.66	616.1	1.20	817.3	1.39
Miscellaneous	156.8	0.55	148.4	1.02	56.9	1.38	42.9	1.43
TOTAL DENSITY	2138.2	0.21	1494.9	0.56	1138.2	0.85	1838.5	0.90
Biomass (g AFDW/m²):								
Crustaceans	0.27	0.60	2.50	1.61	0.18	2.20	0.10	1.18
Echinoderms	8.42	0.92	6.22	1.16	8.11	1.57	1.72	1.76
Molluscs	2.26	1.09	0.67	1.77	3.40	2.52	50.57	2.08
Polychaetes	1.97	0.88	4.36	1.73	2.71	1.74	5.47	0.97
Miscellaneous	0.26	0.67	0.84	2.28	0.94	2.91	1.86	3.33
TOTAL BIOMASS	13.18	0.68	14.59	0.71	15.35	1.30	59.72	1.73

Table 3. Mean density (ind./m²) and biomass (g AFDW/m²) with standard deviation (st.dev.) of the macrobenthos species found in more than 15 % of the stations in 1998.

Species name	*%*	*Density*	*St.dev.*	*Biomass*	*St.dev.*
SCOLOPLOS ARMIGER	57	78.0	186.5	0.2440	0.6903
SPIOPHANES BOMBYX	53	92.5	298.7	0.0763	0.1903
MAGELONA PAPILLICORNIS	51	92.8	265.0	0.1521	0.4535
BATHYPOREIA ELEGANS	46	74.5	160.7	0.0223	0.0482
NEPHTYS HOMBERGII	46	13.8	19.2	0.4149	0.9283
MYSELLA BIDENTATA	45	54.0	132.3	0.0112	0.0276
GONIADA MACULATA	43	13.2	23.7	0.0229	0.0538
UROTHOE POSEIDONIS	43	95.2	224.5	0.0287	0.0674
NEPHTYS CIRROSA	42	17.1	26.2	0.1140	0.2412
CHAETOZONE SETOSA	41	27.4	92.5	0.0103	0.0274
ECHINOCARDIUM CORDATUM	41	14.2	29.3	4.1774	8.5630
TELLINA FABULA	38	44.8	115.6	0.2159	0.7100
AMPHIURA FILIFORMIS	37	163.3	400.9	1.3414	3.3429
MONTACUTA FERRUGINOSA	35	29.0	92.1	0.0213	0.0524
PHOLOE MINUTA	35	36.1	90.7	0.0083	0.0210
SPIO FILICORNIS	35	23.3	61.0	0.0073	0.0192
ABRA ALBA	34	33.1	105.1	0.0262	0.1051
CALLIANASSA SUBTERRANEA	34	18.9	35.9	0.6133	1.3204
NATICA ALDERI	34	7.2	12.2	0.0166	0.0683
BATHYPOREIA GUILLIAMSONIANA	28	15.2	35.7	0.0050	0.0116
HARPINIA ANTENNARIA	28	14.3	29.3	0.0043	0.0088
PSEUDOCUMA LONGICORNIS	28	7.0	14.2	0.0014	0.0028
CYLICHNA CYLINDRACEA	26	9.7	24.6	0.0093	0.0245
MEGALUROPUS AGILIS	25	6.3	13.4	0.0019	0.0040
PERIOCULODES LONGIMANUS	24	4.2	8.4	0.0013	0.0025
LANICE CONCHILEGA	23	26.2	113.1	0.7291	2.7044
OPHIURA ALBIDA	20	8.3	26.5	0.1369	0.3935
POECILOCHAETUS SERPENS	20	10.1	37.1	0.0144	0.0779
CULTELLUS PELLUCIDUS	19	6.0	16.5	0.0147	0.0845
EUDORELLA TRUNCATULA	19	5.0	12.0	0.0010	0.0024
NOTOMASTUS LATERICEUS	19	7.9	20.8	0.2534	0.8176
NUCULA TURGIDA	19	7.2	18.7	0.0375	0.0941
CAPITELLA CAPITATA	17	9.7	41.1	0.0018	0.0088
DIASTYLIS BRADYI	17	3.1	7.9	0.0019	0.0047
GYPTIS CAPENSIS	17	3.5	9.1	0.0026	0.0091
HARMOTHOE LUNULATA	17	8.5	36.7	0.0091	0.0357
LUMBRINERIS LATREILLI	16	4.7	14.1	0.0106	0.0376
SCOLELEPIS BONNERI	16	4.4	15.5	0.0453	0.1331
NEREIS LONGISSIMA	15	3.8	11.3	0.0384	0.1837
SYNELMIS KLATTI	15	4.1	11.6	0.0016	0.0047

Table 4. Mean density (ind./m²) with standard deviation (st.dev.) of the most dominant species found in the four subareas in 1998. Together with the figure numbers that illustrate the temporal patters of these species. In this table 100 % means that the species was found on all locations of the specific subarea.

I. Dogger Bank:

Species name	%	Density	St.dev.	Fig. no.
Acrocnida brachiata	100	119.13	124.56	10a
Magelona papillicornis	100	131.69	106.18	10b
Spiophanes bombyx	100	112.87	39.35	10b
Tellina fabula	100	206.91	318.68	10a
Bathyporeia elegans	85	344.86	322.39	10a
Mysella bidentata	85	140.04	182.12	10a
Urothoe poseidonis	85	217.39	181.45	10a
Spio filicornis	71	25.09	26.35	10b
Echinocardium cordatum	57	8.34	7.80	10b
Natica alderi	57	12.54	13.18	10a
Nephtys cirrosa	57	22.99	36.68	10b
Nephtys hombergii	57	14.64	14.65	10b
Pholoe minuta	57	37.61	46.92	10b

II. Oyster Ground:

Species name	%	Density	St.dev.	Fig. no.
Amphiura filiformis	85	388.39	546.40	11a
Callianassa subterranea	78	43.89	44.30	11a
Harpinia antennaria	66	34.14	37.22	11a
Nephtys hombergii	66	20.20	21.43	11c
Pholoe minuta	66	78.72	126.97	11b
Mysella bidentata	64	89.52	173.21	11b
Abra alba	61	61.65	146.58	11b
Chaetozone setosa	52	22.29	32.51	11b
Scoloplos armiger	45	34.48	86.75	11c
Nucula turgida	40	15.68	25.94	11b
Echinocardium cordatum	35	11.84	28.95	11a
Natica alderi	30	5.91	11.21	11b
Spiophanes bombyx	30	27.17	73.02	11c
Bathyporeia elegans	28	16.37	46.62	11a
Magelona papillicornis	28	57.82	118.76	11c

III. Offshore:

Species name	%	Density	St.dev.	Fig. no.
Nephtys cirrosa	72	30.89	25.89	12b
Scoloplos armiger	72	99.98	161.61	12b
Spiophanes bombyx	66	169.07	474.35	12b
Magelona papillicornis	58	44.29	96.07	12b
Urothoe poseidonis	58	134.51	287.01	12a
Bathyporeia elegans	55	97.13	165.12	12a
Spio filicornis	50	37.39	81.69	12b
Echinocardium cordatum	47	18.69	33.29	12a
Natica alderi	44	10.16	14.34	12a
Tellina fabula	33	30.88	61.25	12a
Aricidae minuta	27	14.22	31.57	12a
Lanice conchilega	25	46.74	175.55	12a

IV. Coast:

Species name	%	Density	St.dev.	Fig. no.
Urothoe poseidonis	86	204.82	292.71	13c
Capitella capitata	73	47.80	91.79	13b
Magelona papillicornis	73	288.70	613.13	13b
Scoloplos armiger	73	182.39	370.34	13c
Lanice conchilega	66	57.55	95.21	13b
Nephtys hombergii	60	22.43	22.71	13c
Spiophanes bombyx	60	81.93	154.81	13c
Tellina fabula	60	57.54	100.83	13a
Bathyporeia elegans	53	56.57	123.26	13c
Mysella bidentata	46	37.05	83.29	13a
Nephtys cirrosa	46	20.48	35.32	13b
Abra alba	33	42.92	97.29	13a
Echinocardium cordatum	33	12.68	27.01	13a
Pectinaria koreni	33	24.38	64.88	13b
Spio filicornis	26	24.39	60.25	13c
Spisula subtruncata	20	276.03	1001.35	13a

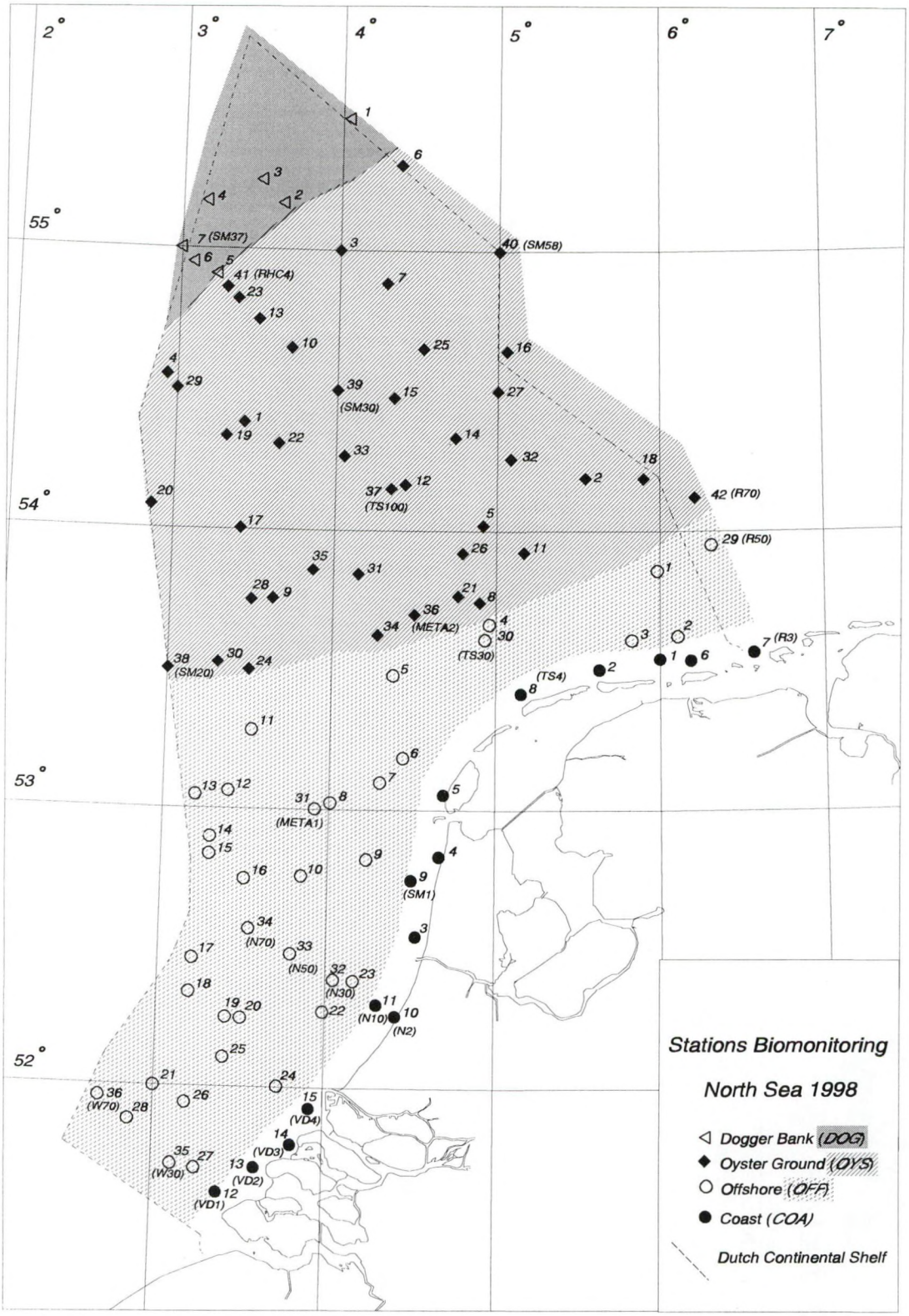

Fig. 1. Locations of the sampling stations which have been visited during the survey in 1998.

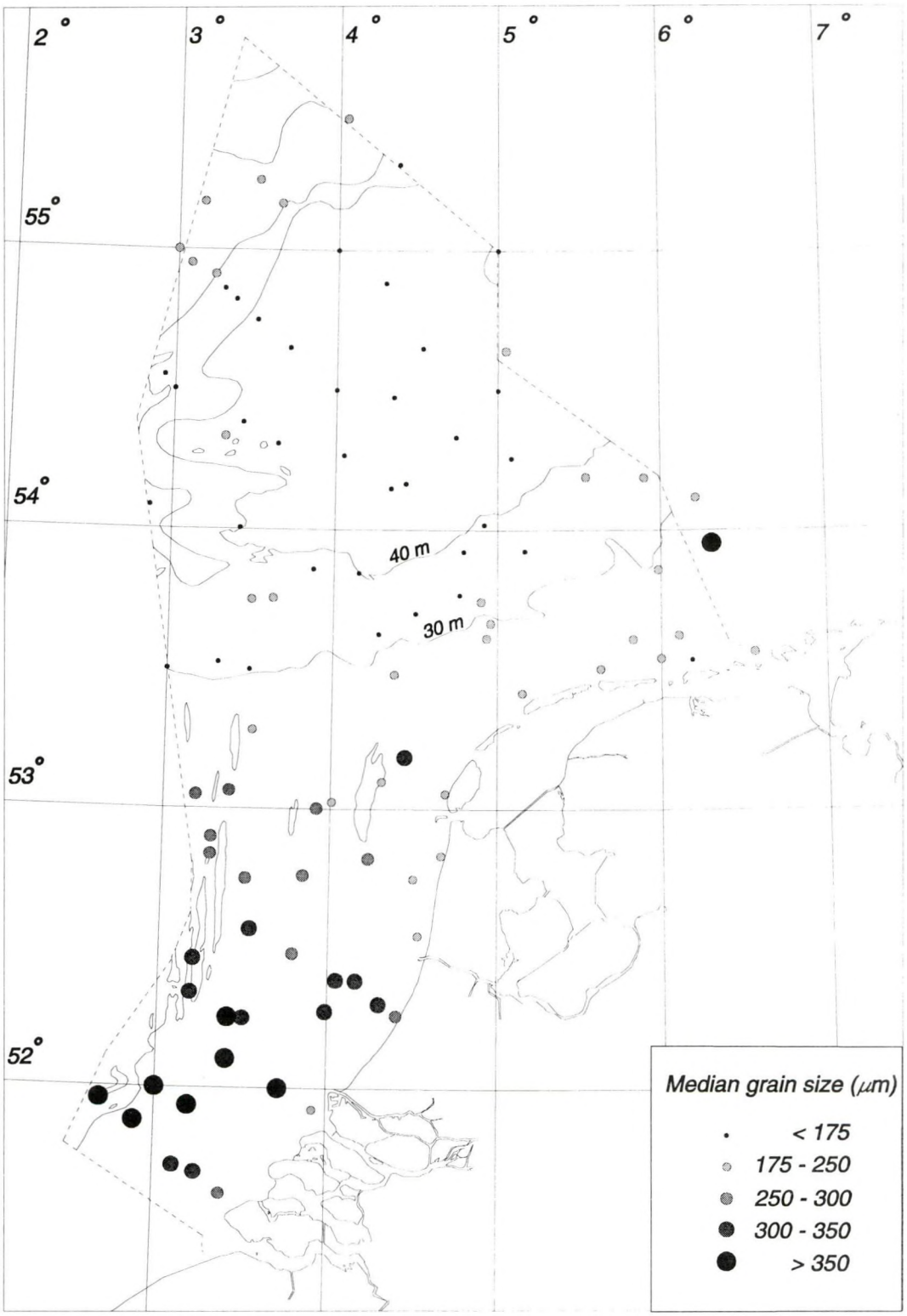

Fig. 2. The median grain size (μm) of the sediment in 1998.

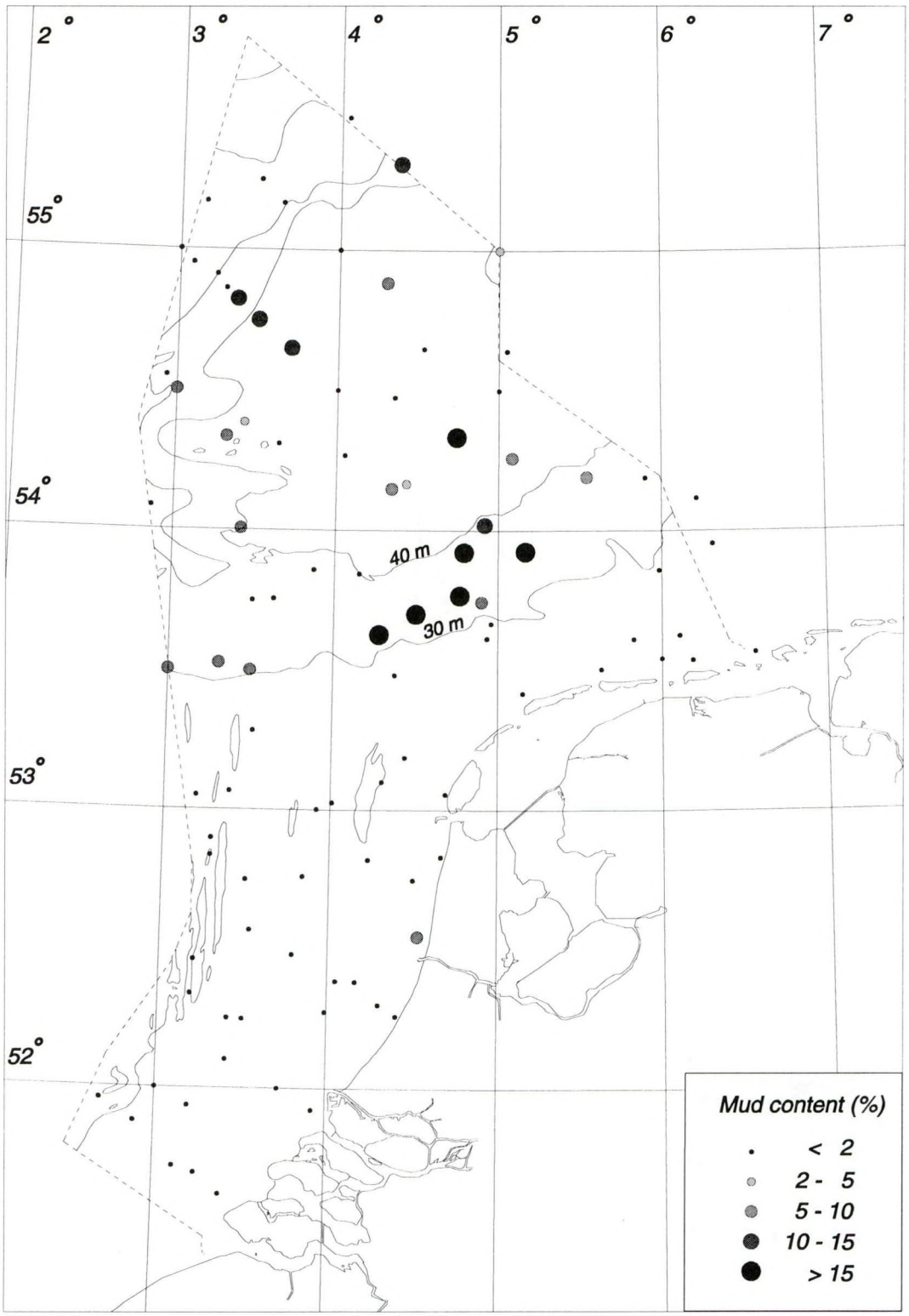

Fig. 3. The mud content (%) of the sediment in 1998.

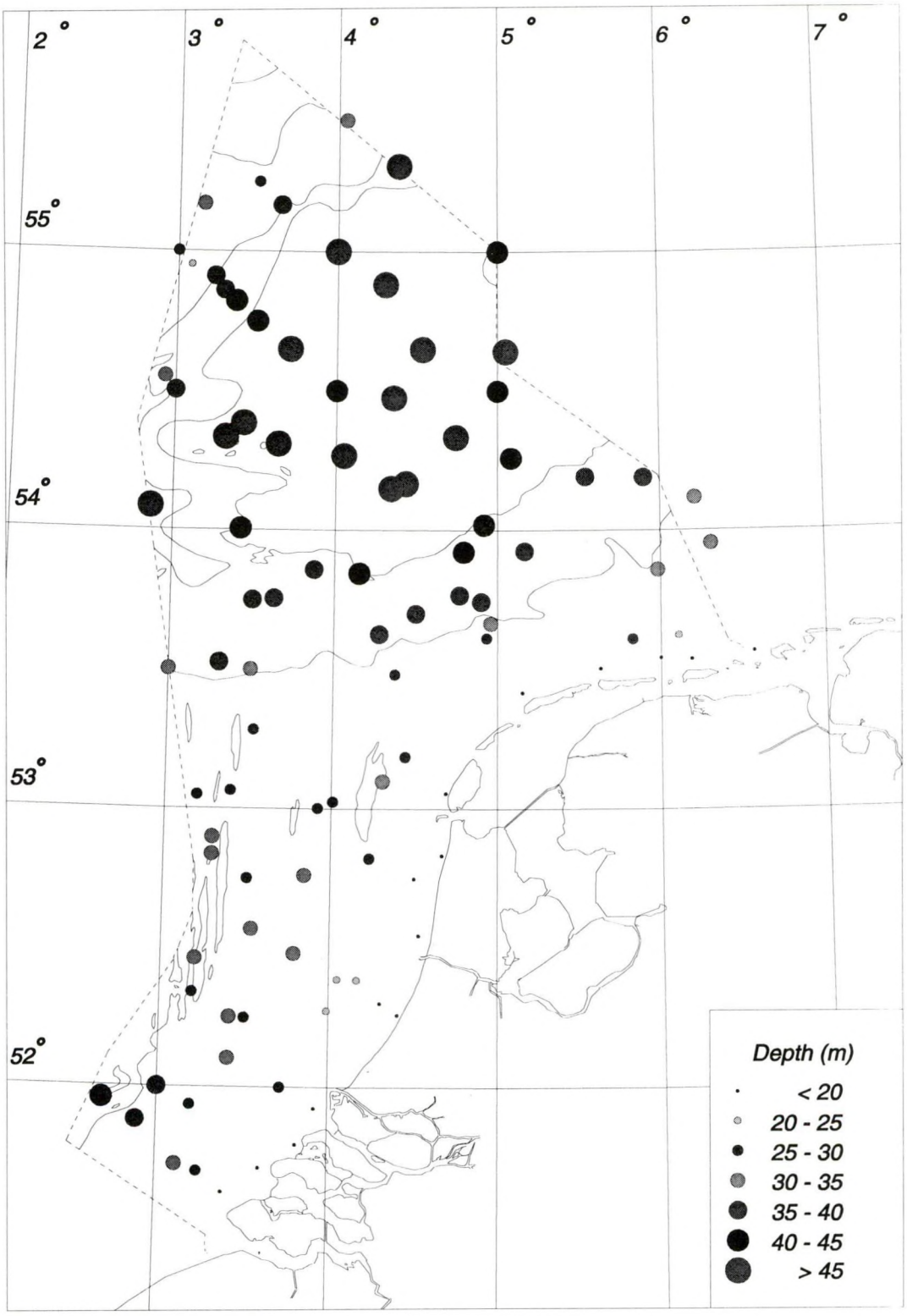

Fig. 4. The water depth (m) of the sampling stations in 1998.

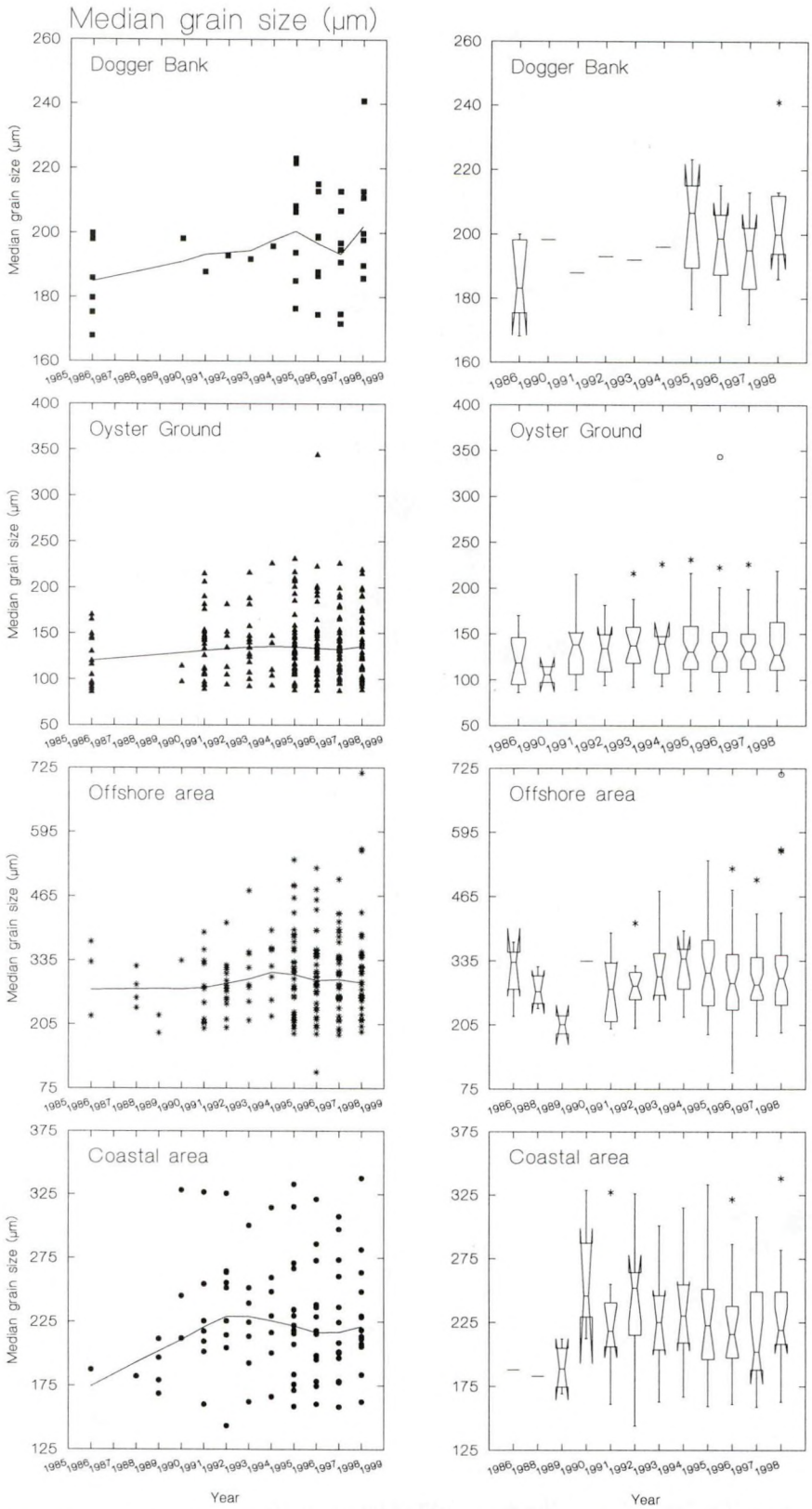

Fig. 5. Temporal patterns of the median grain size (μm) in the period 1986-1998.

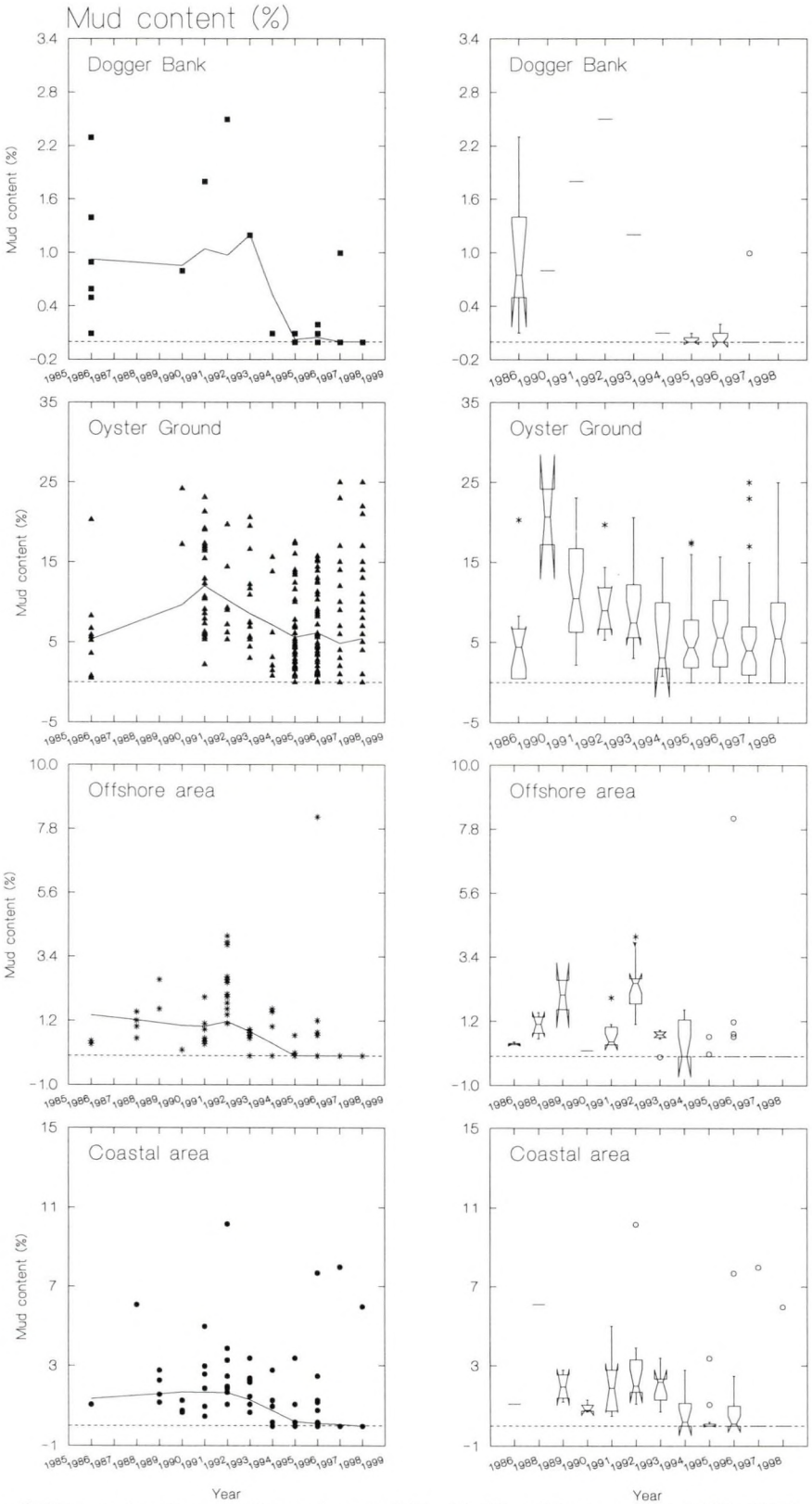

Fig. 6. Temporal patterns of the mud content (%, 16-63 μm) in the period 1986-1998.

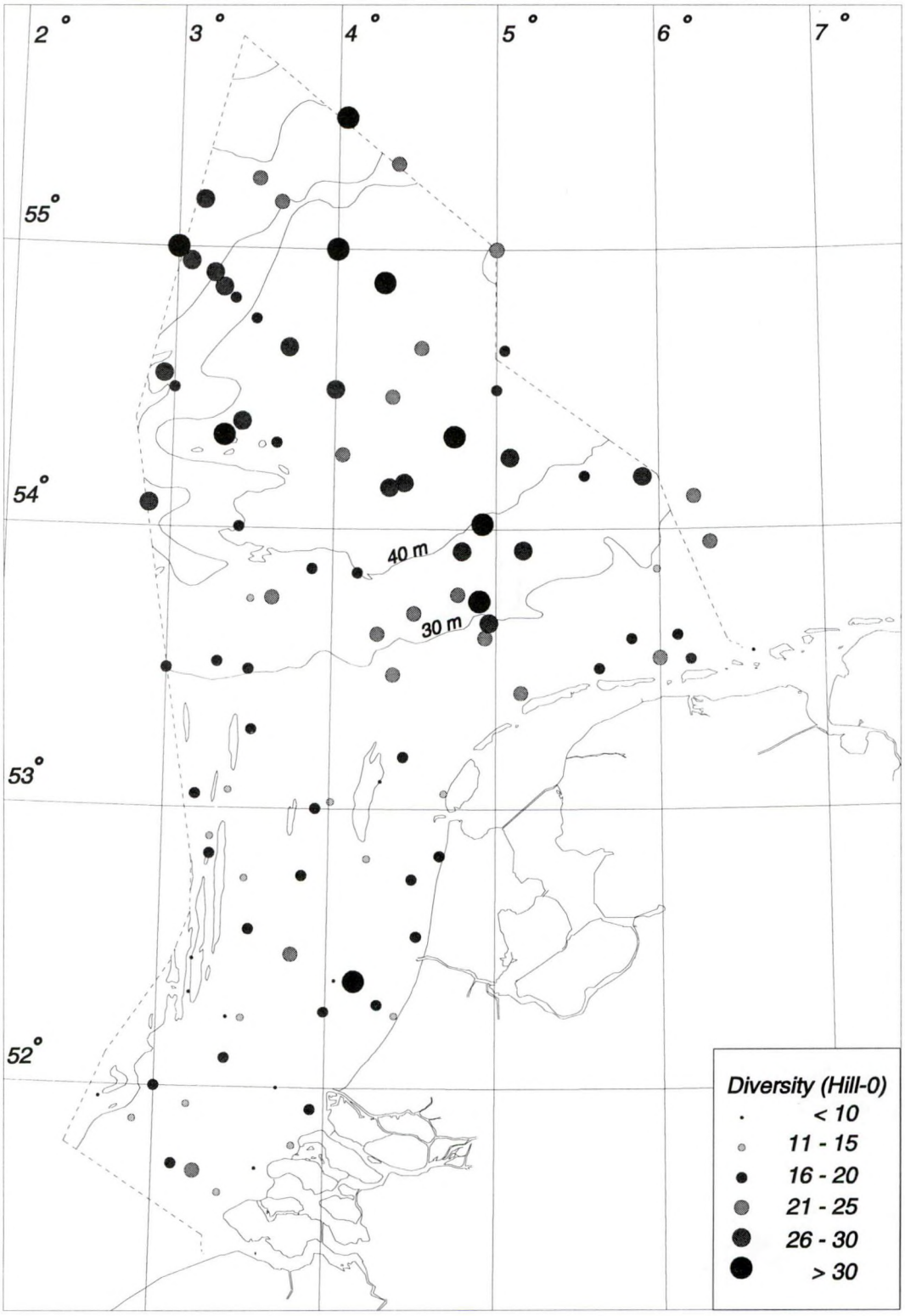

Fig. 7. The number of species per sample (Hill-0) of the macrobenthos in 1998.

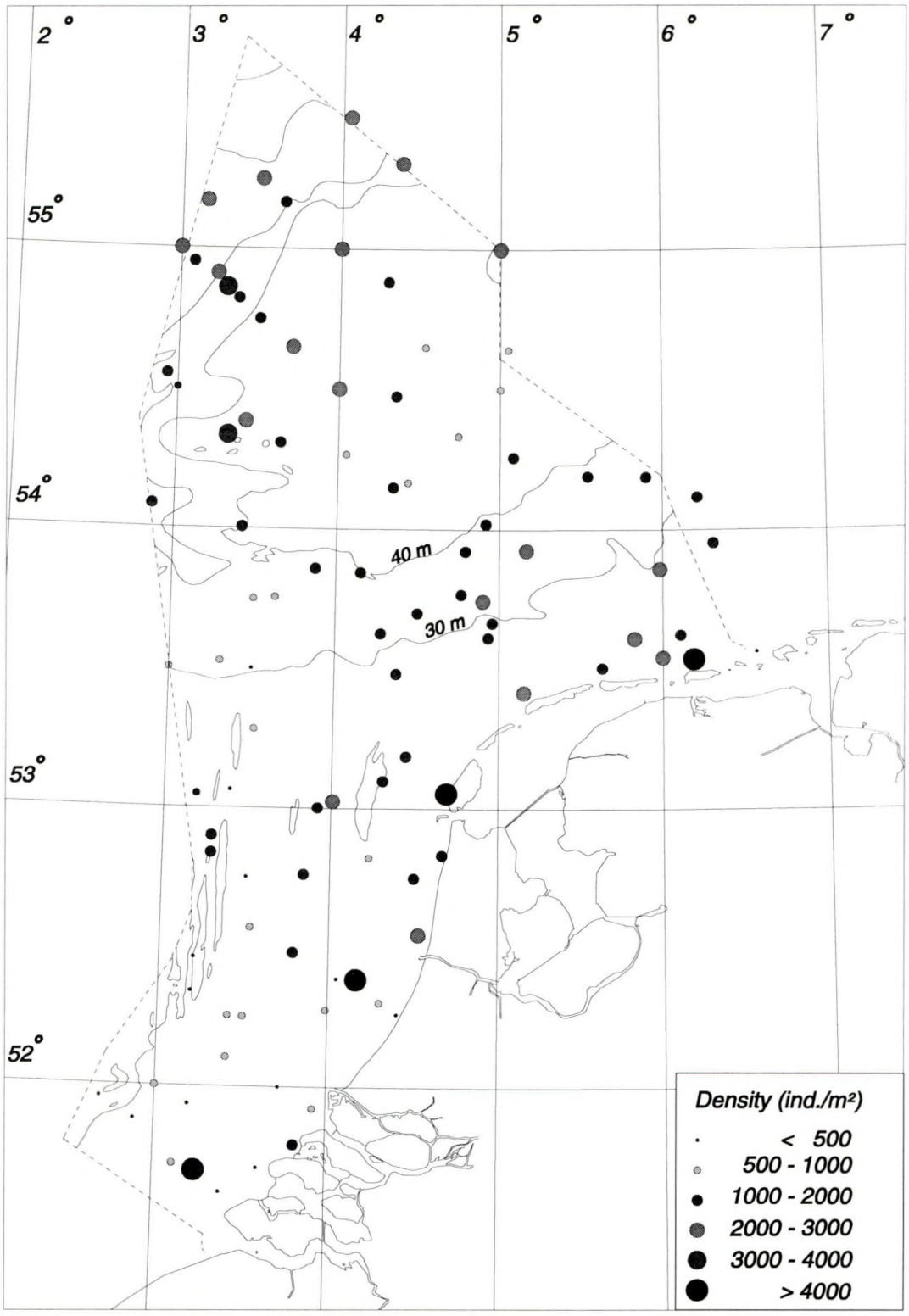

Fig. 8. The total density (ind./m²) of the macrozoobenthos in 1998.

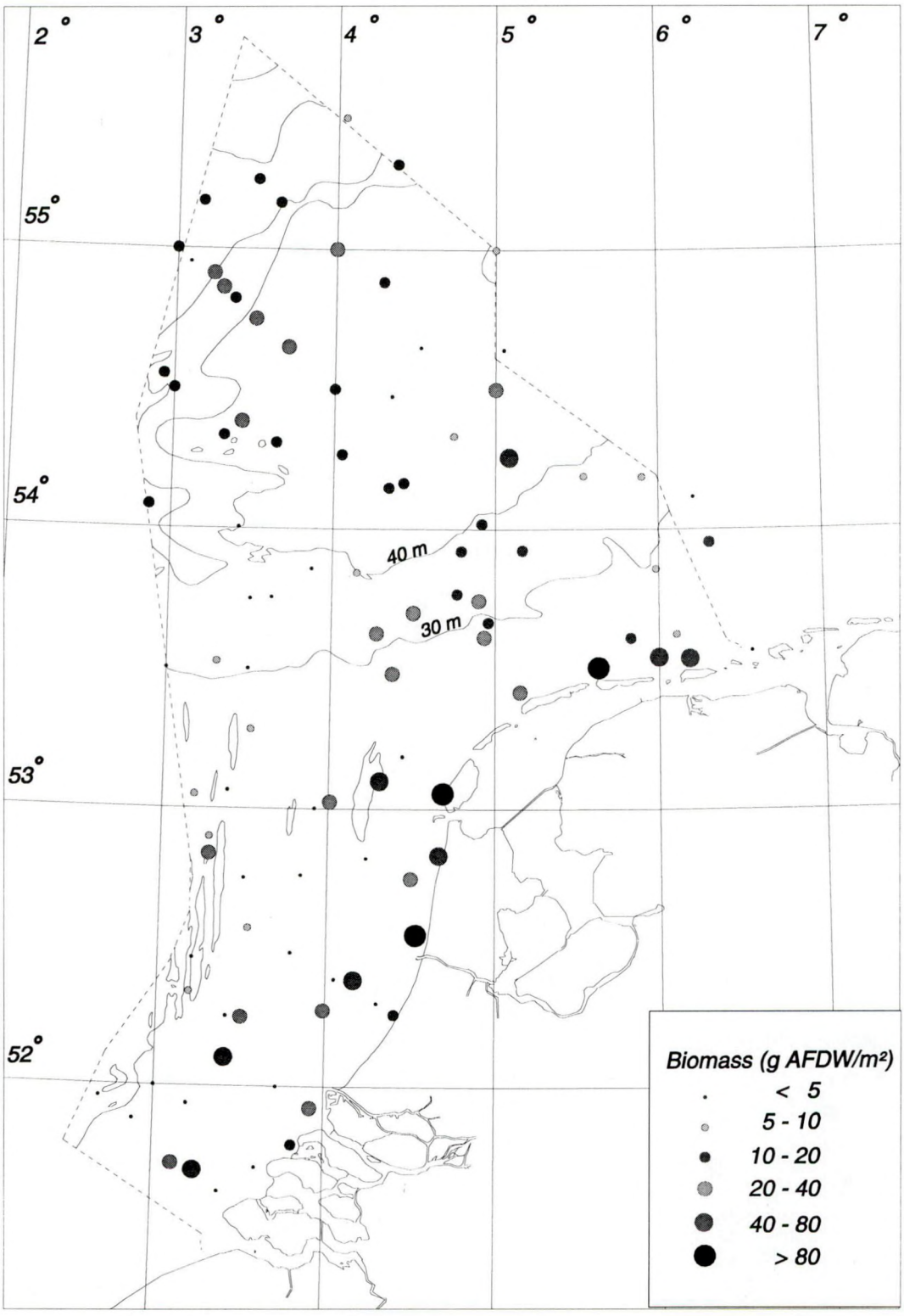

Fig. 9. The total biomass (g AFDW/m²) of the macrobenthos in 1998.

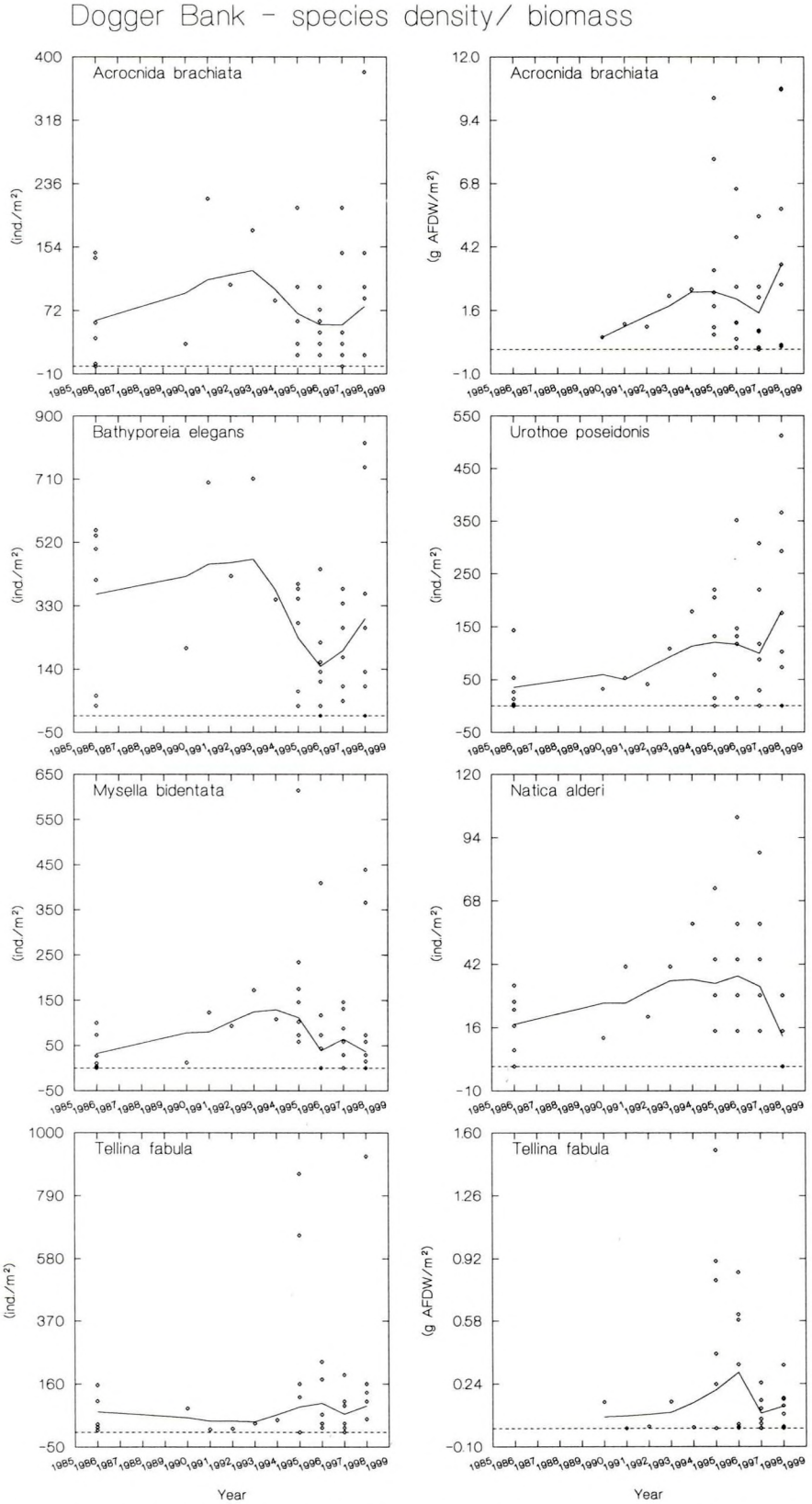

Fig. 10a. Temporal patterns (ind./m² & g AFDW/m²) of some selected species between 1986-1998.

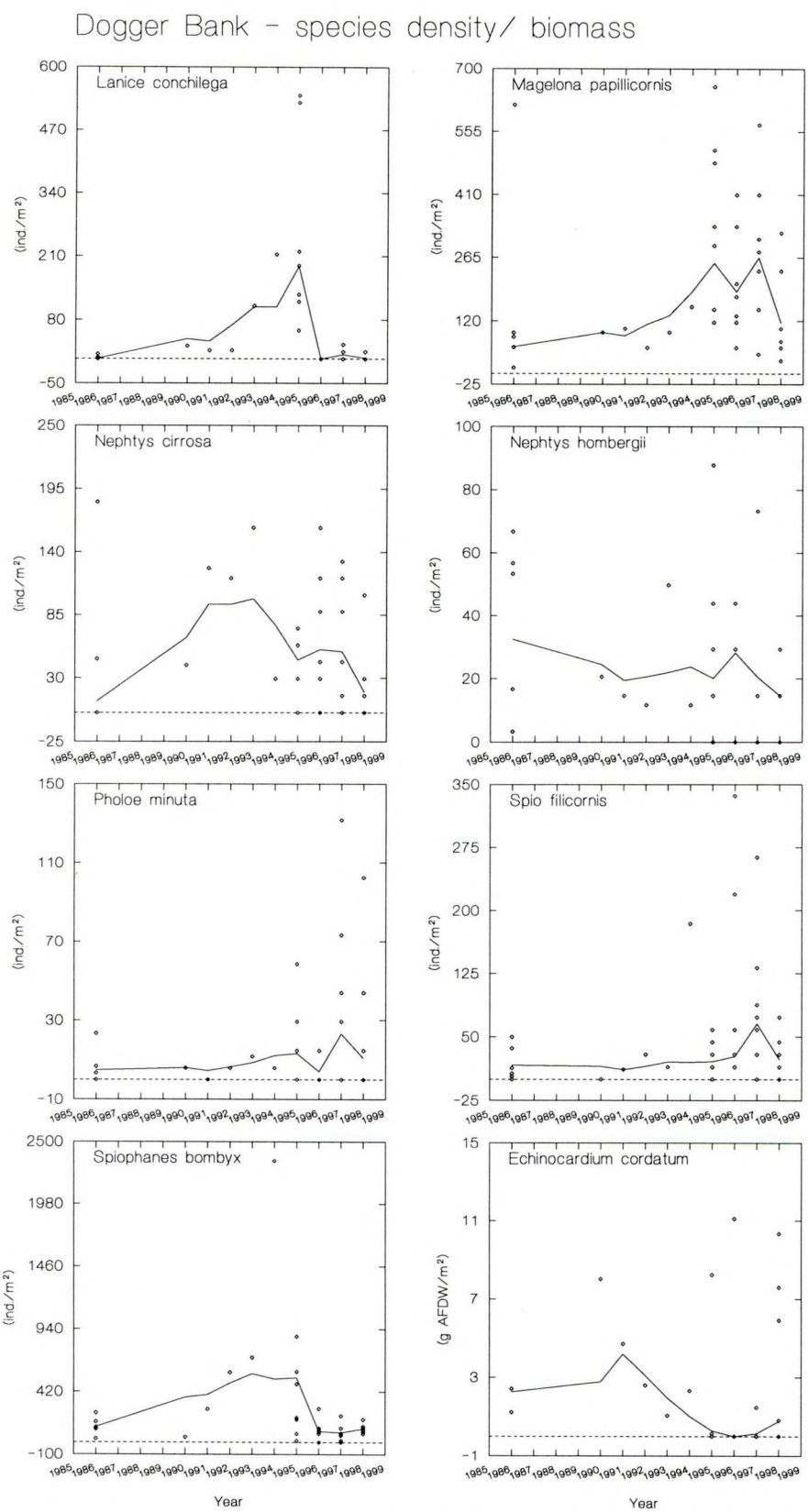

Fig. 10b. Temporal patterns (ind./m² & g AFDW/m²) of some selected species between 1986-1998.

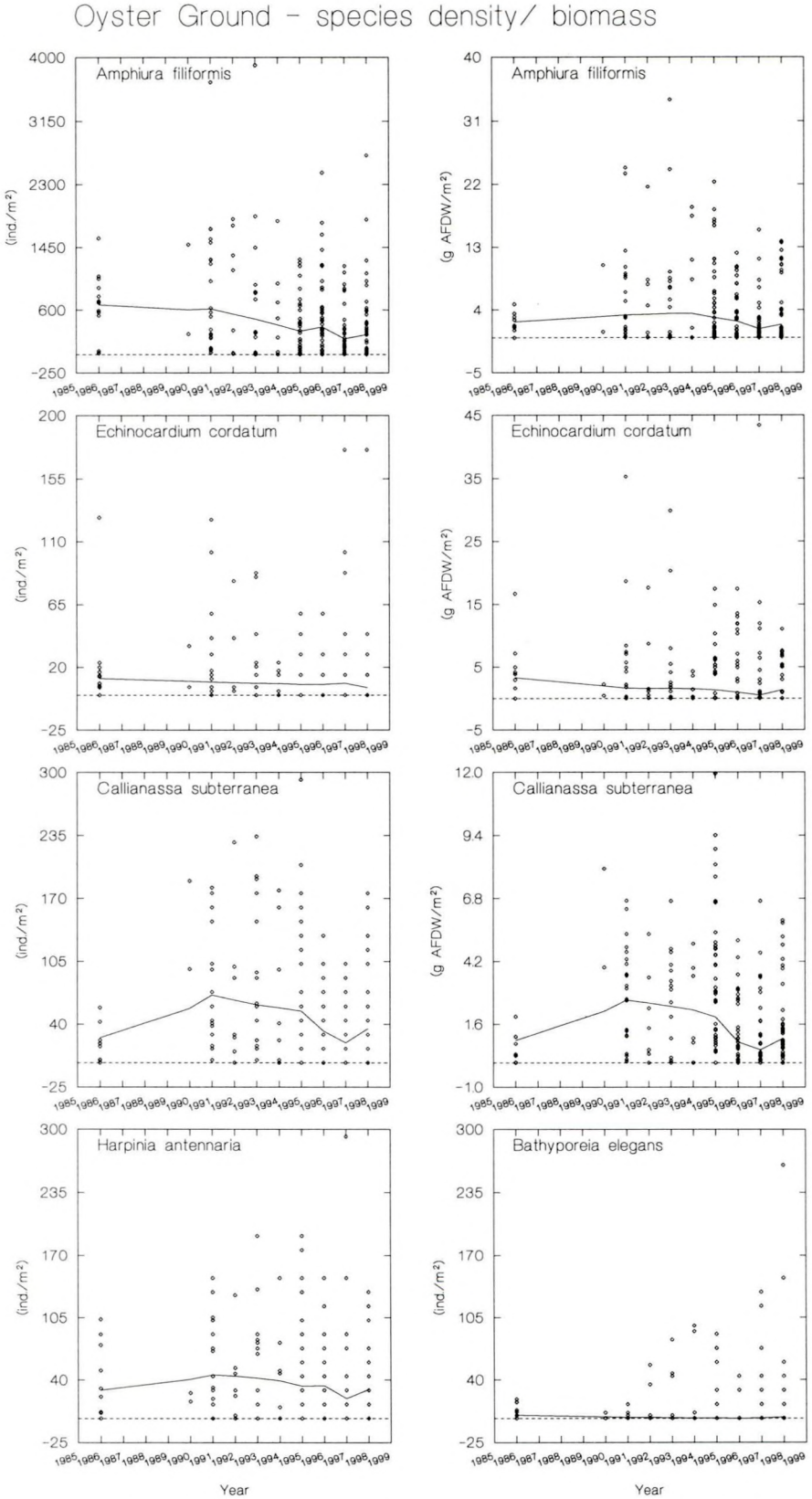

Fig. 11a. Temporal patterns (ind./m² & g AFDW/m²) of some selected species between 1986-1998.

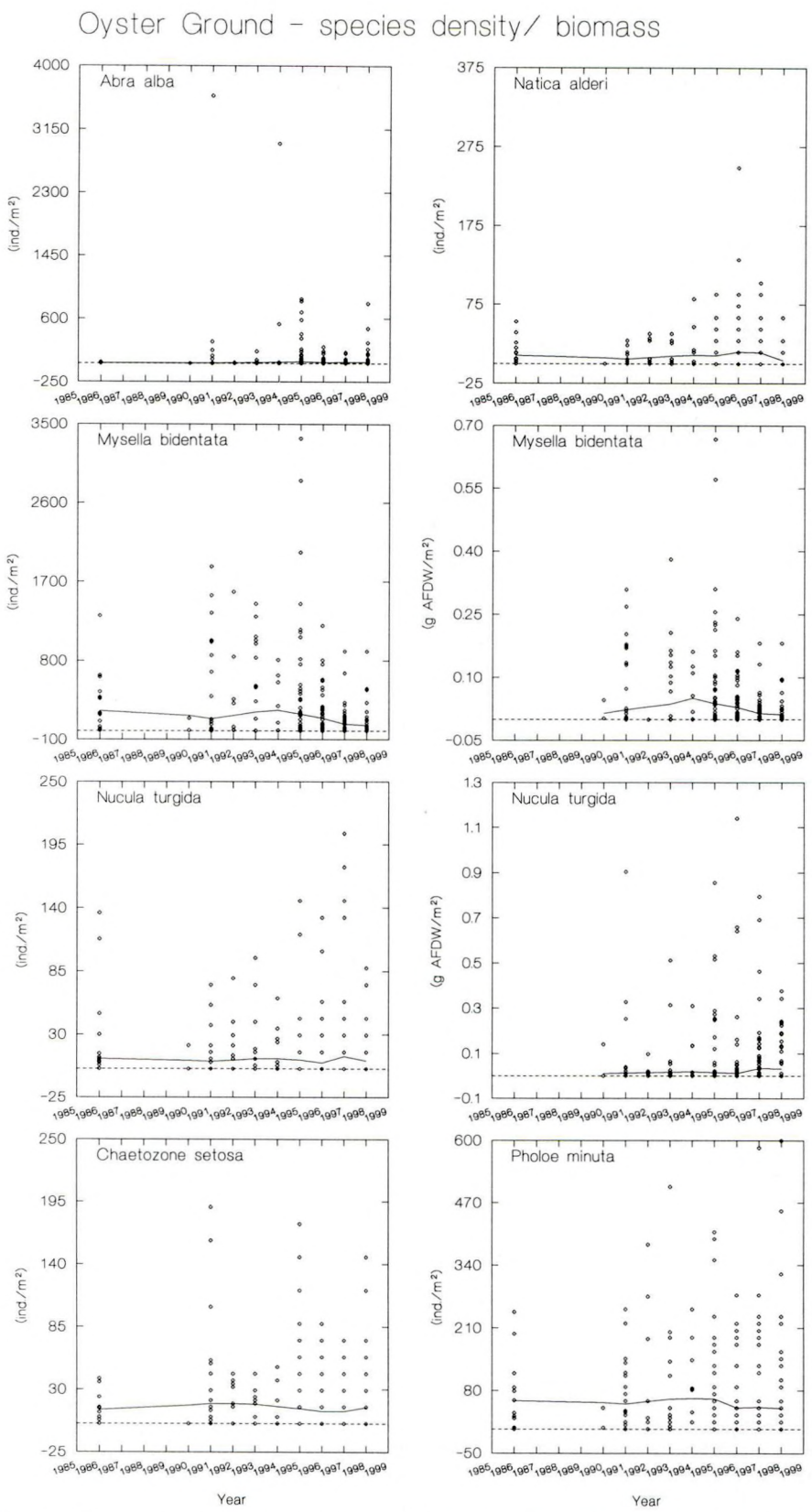

Fig. 11b. Temporal patterns (ind./m² & g AFDW/m²) of some selected species between 1986-1998.

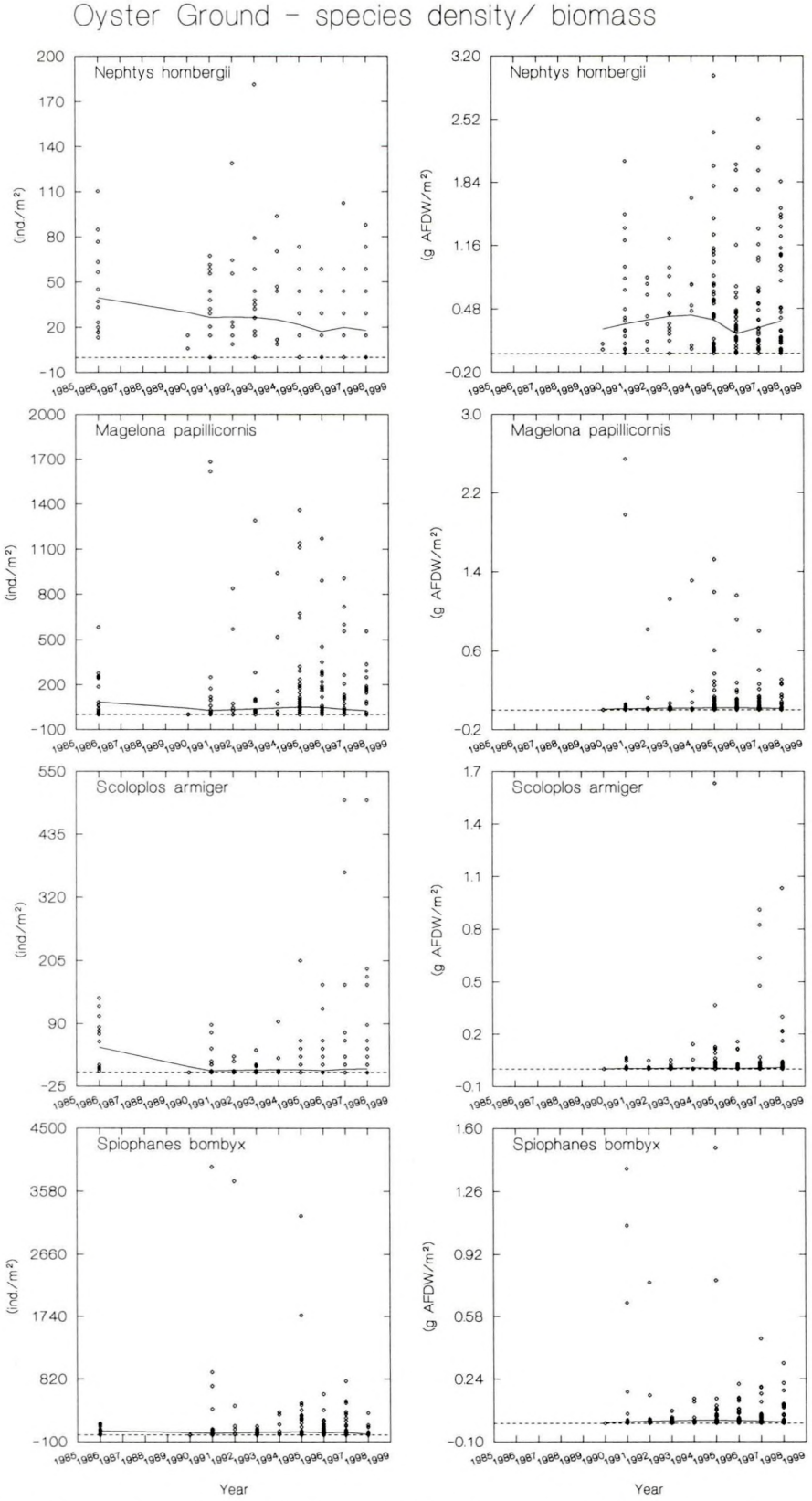

Fig. 11c. Temporal patterns (ind./m² & g AFDW/m²) of some selected species between 1986-1998.

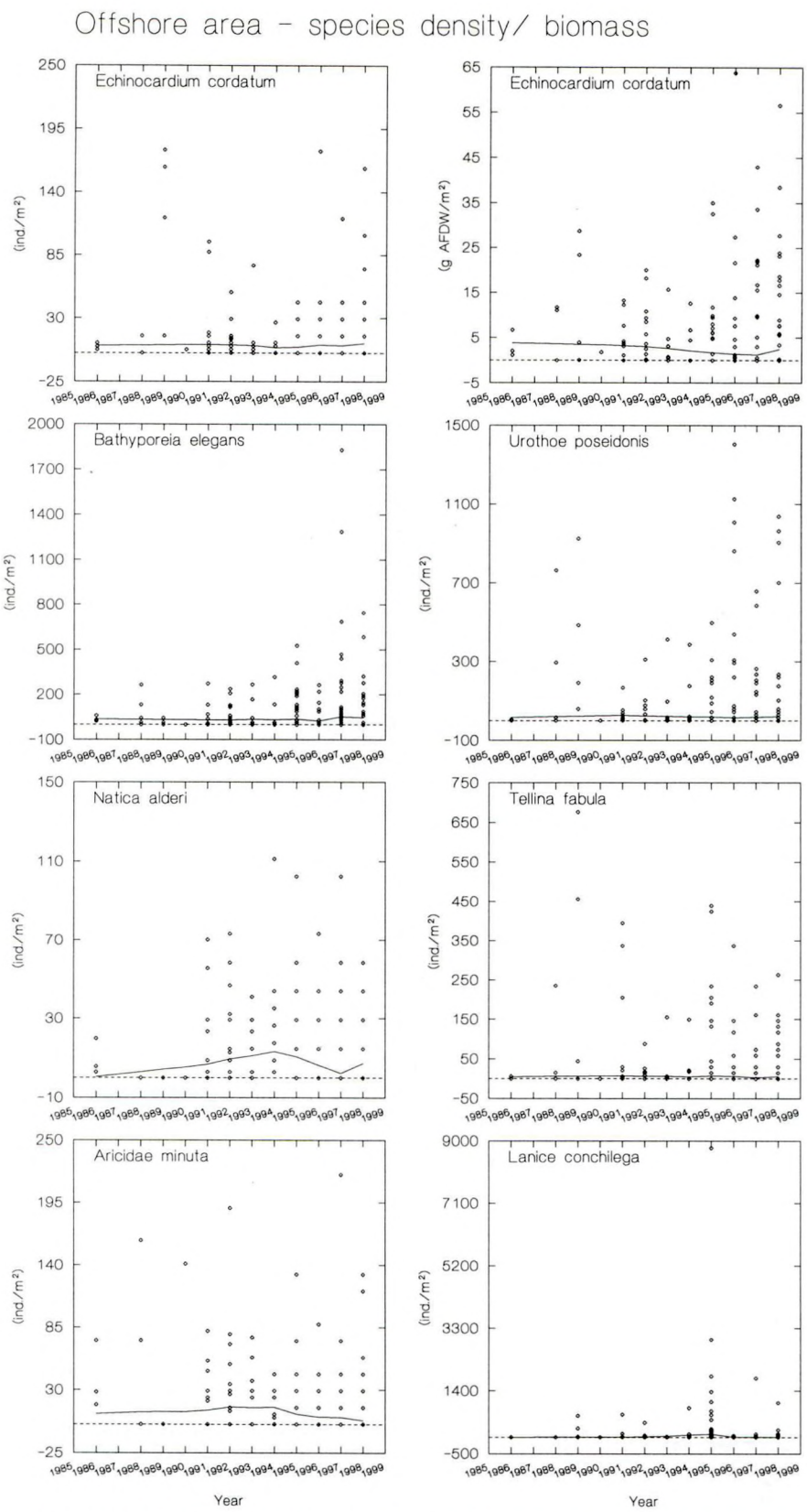

Fig. 12a. Temporal patterns (ind./m² & g AFDW/m²) of some selected species between 1986-1998.

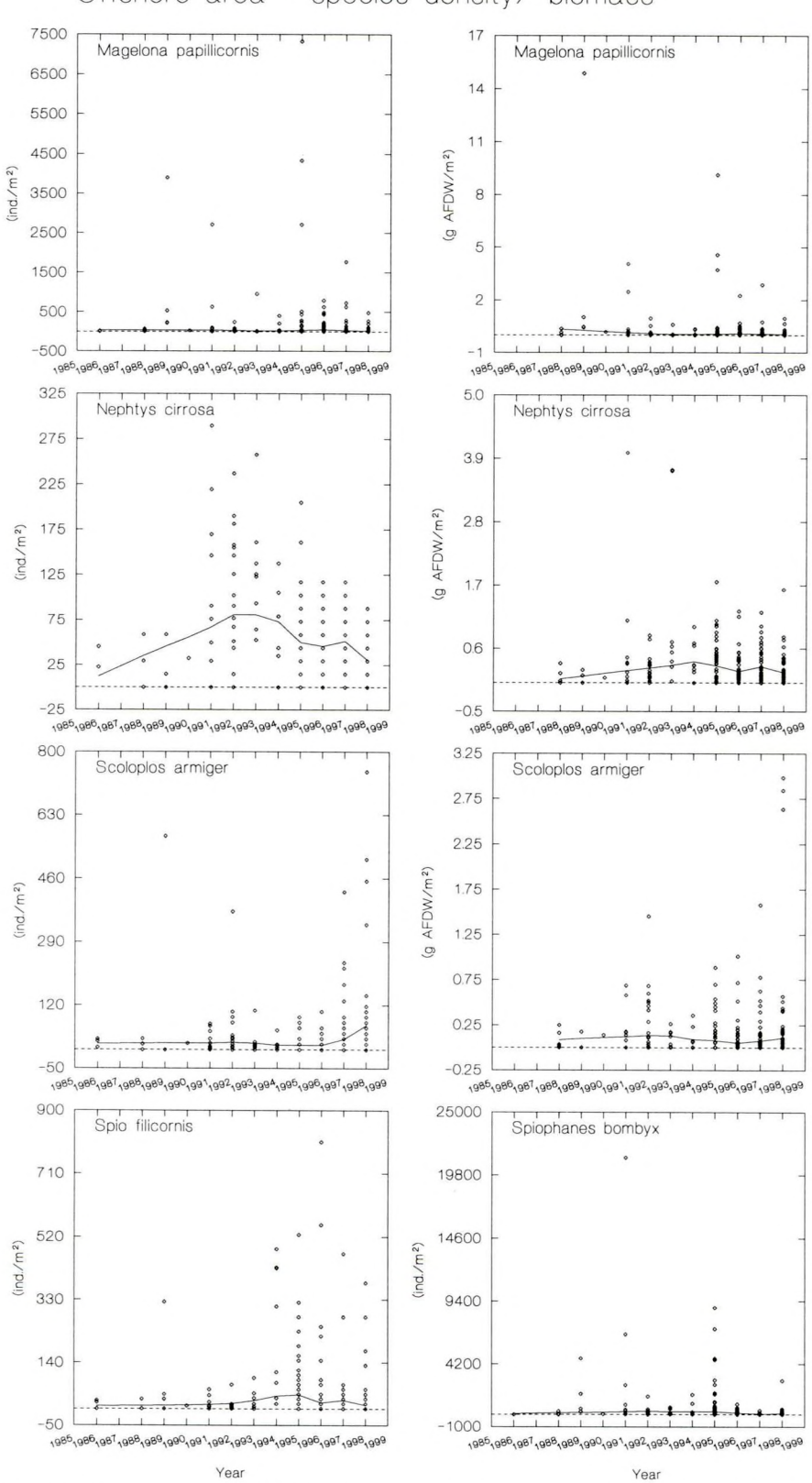

Fig. 12b. Temporal patterns (ind./m² & g AFDW/m²) of some selected species between 1986-1998.

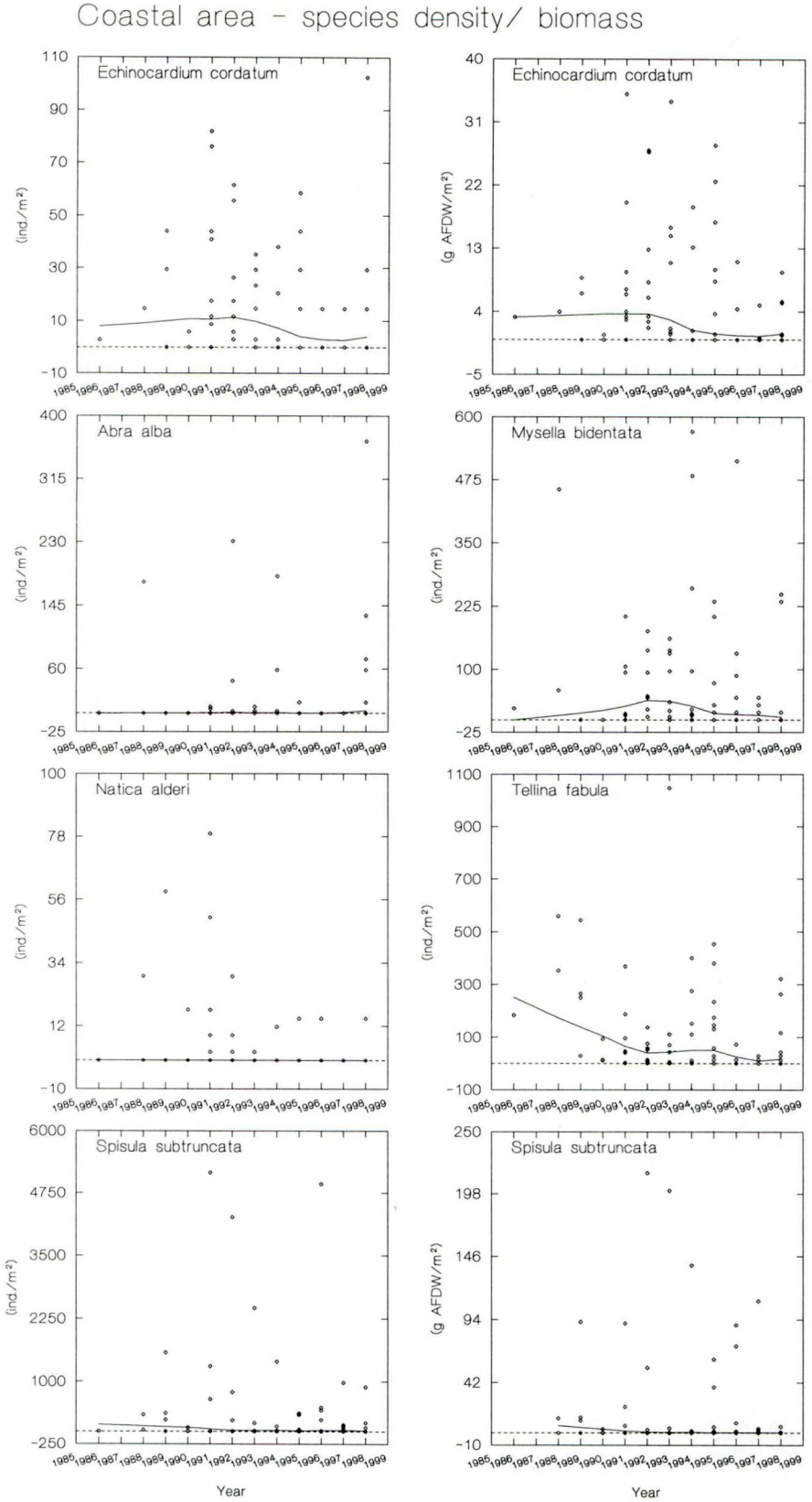

Fig. 13a. Temporal patterns (ind./m² & g AFDW/m²) of some selected species between 1986-1998.

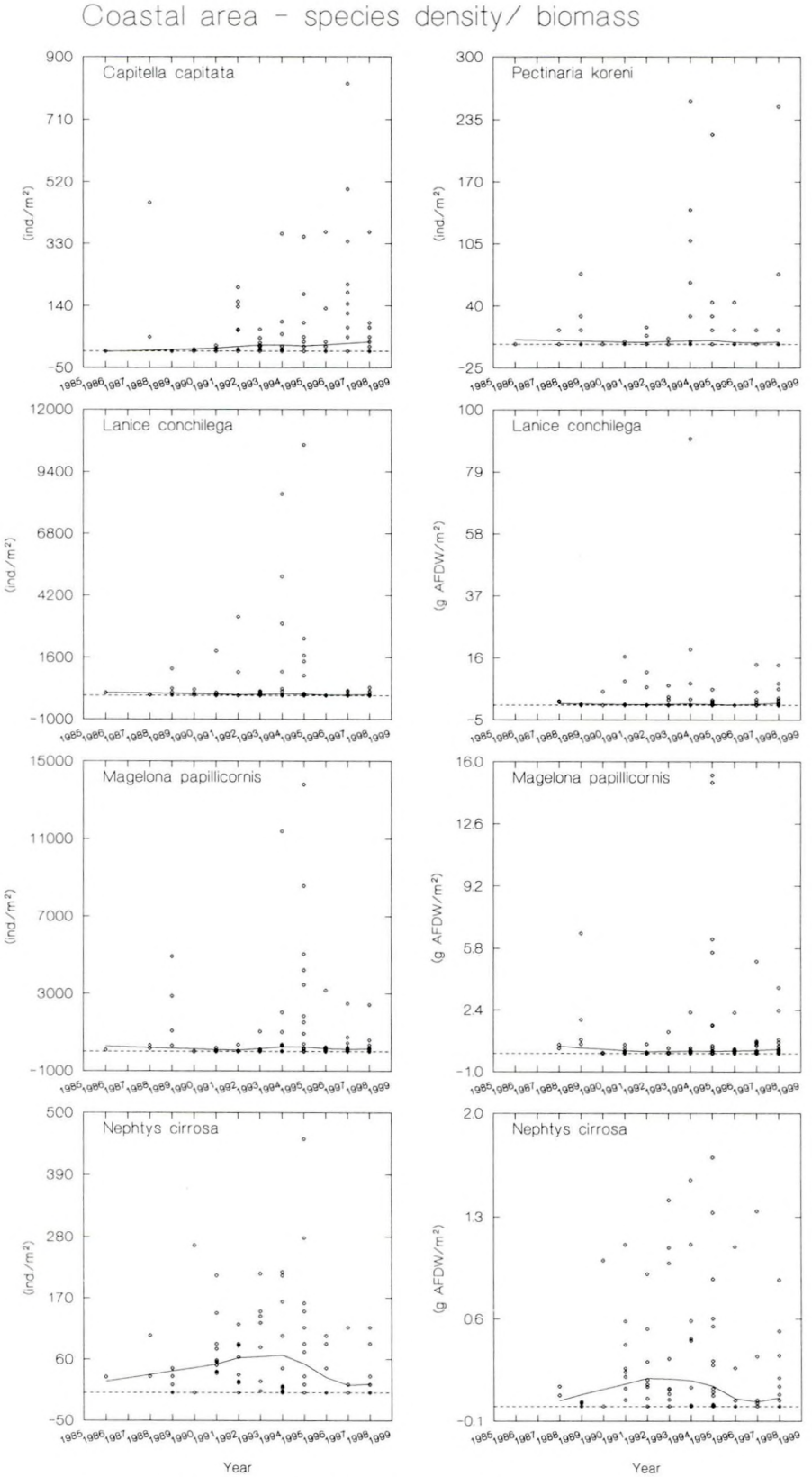

Fig. 13b. Temporal patterns (ind./m² & g AFDW/m²) of some selected species between 1986-1998.

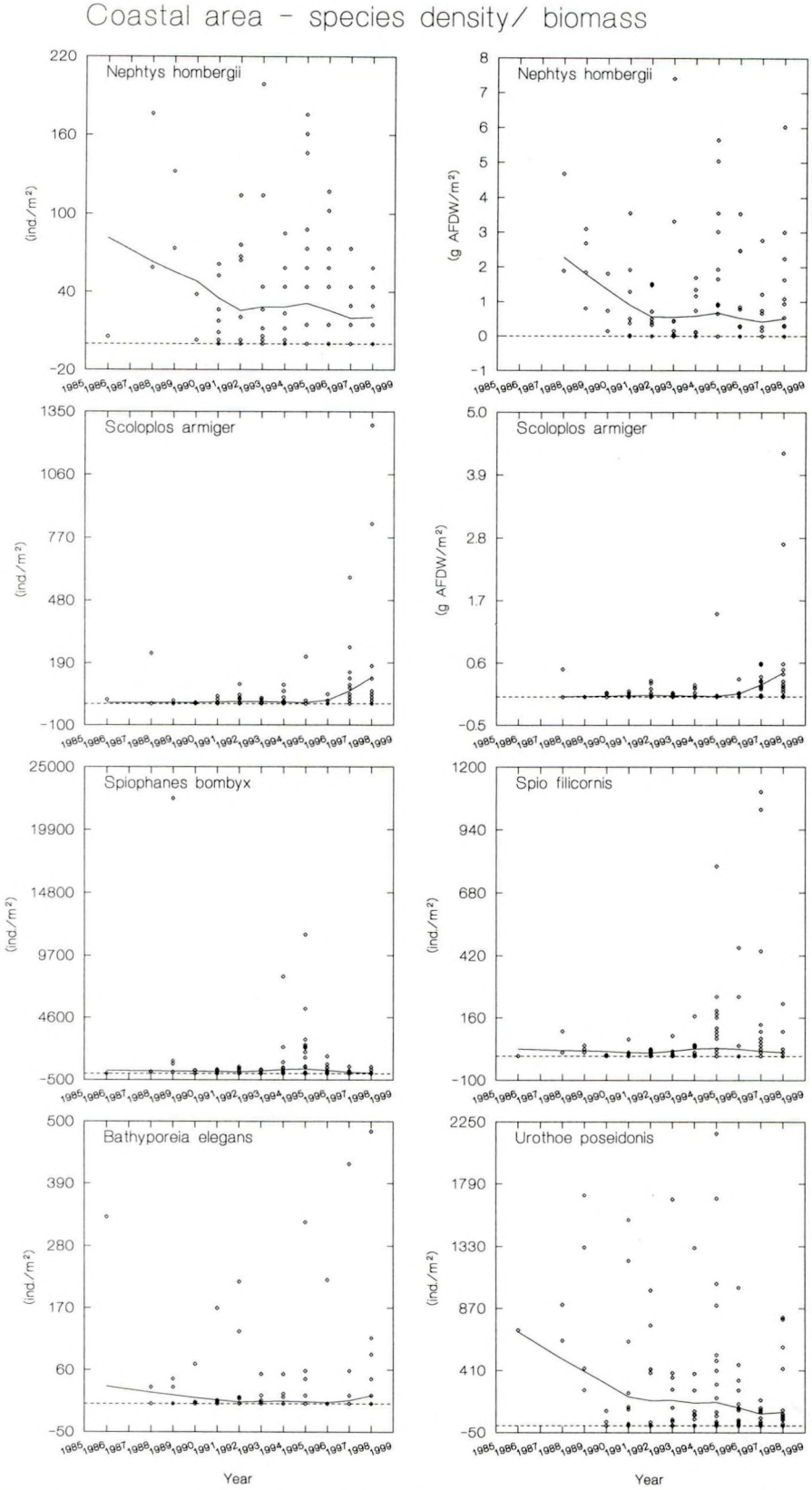

Fig. 13c. Temporal patterns (ind./m² & g AFDW/m²) of some selected species between 1986-1998.

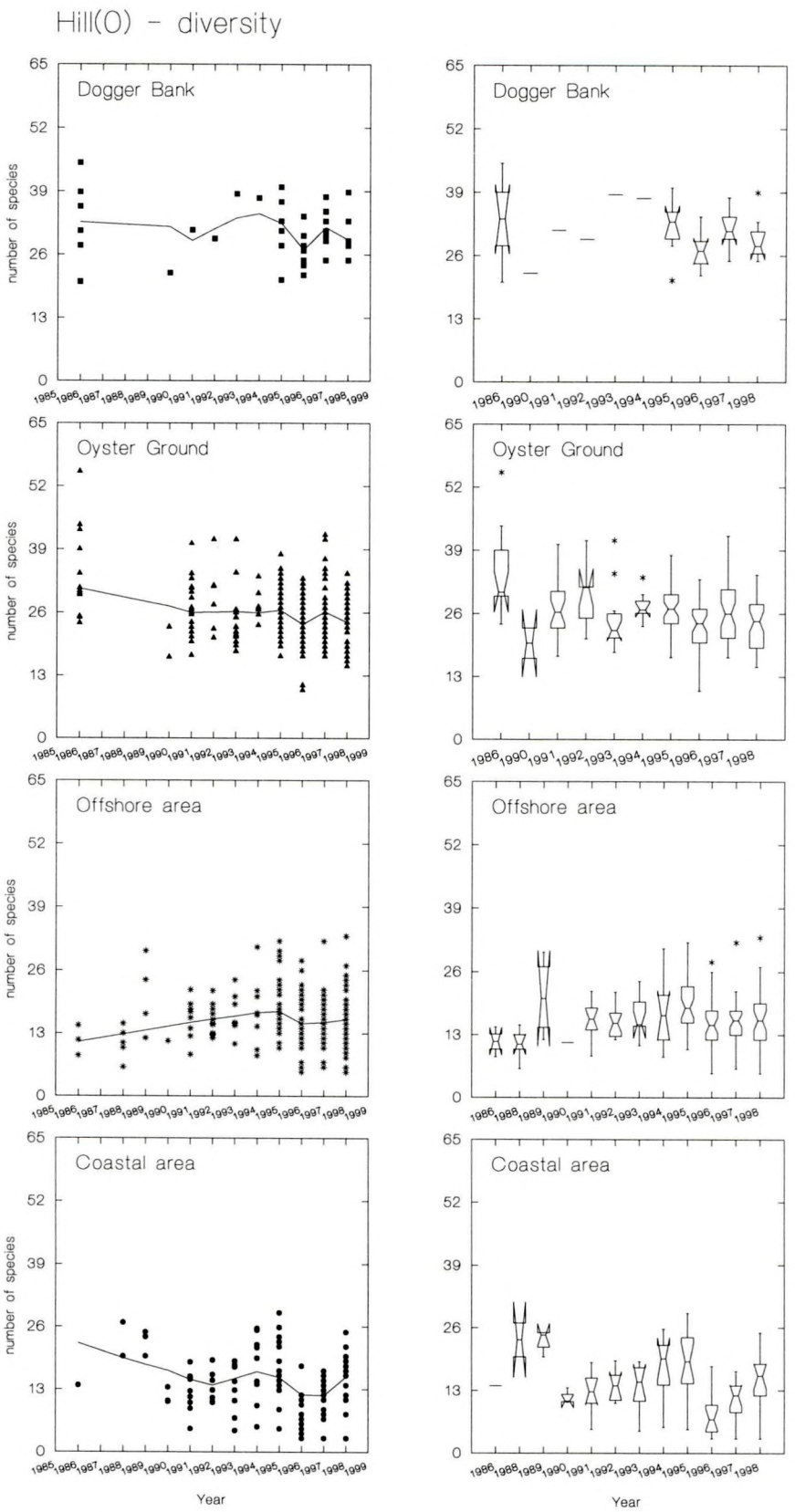

Fig. 14. Temporal patterns of the species richness (Hill-0) between 1986-1998.

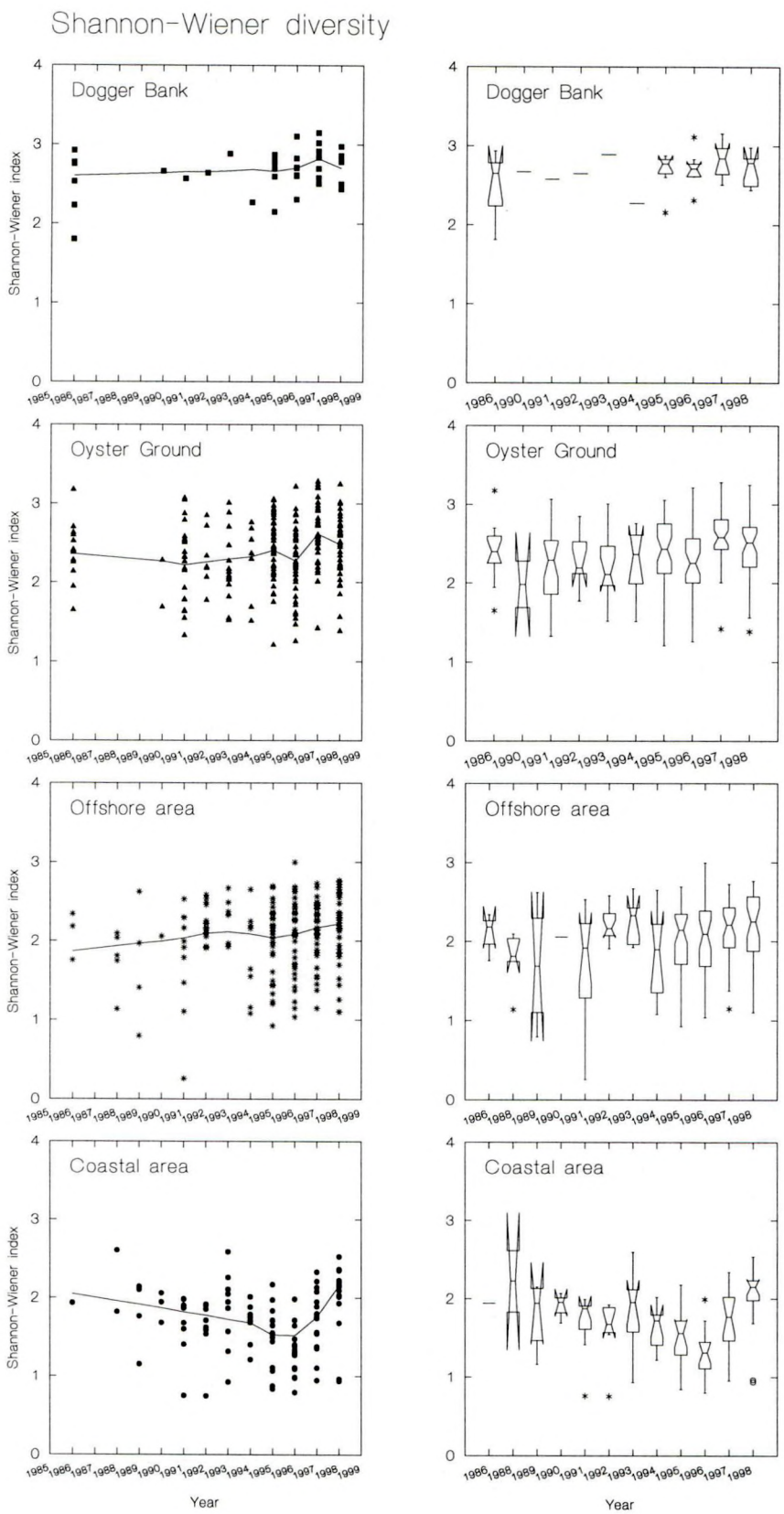

Fig. 15. Temporal patterns of the Shannon-Wiener diversity between 1986-1998.

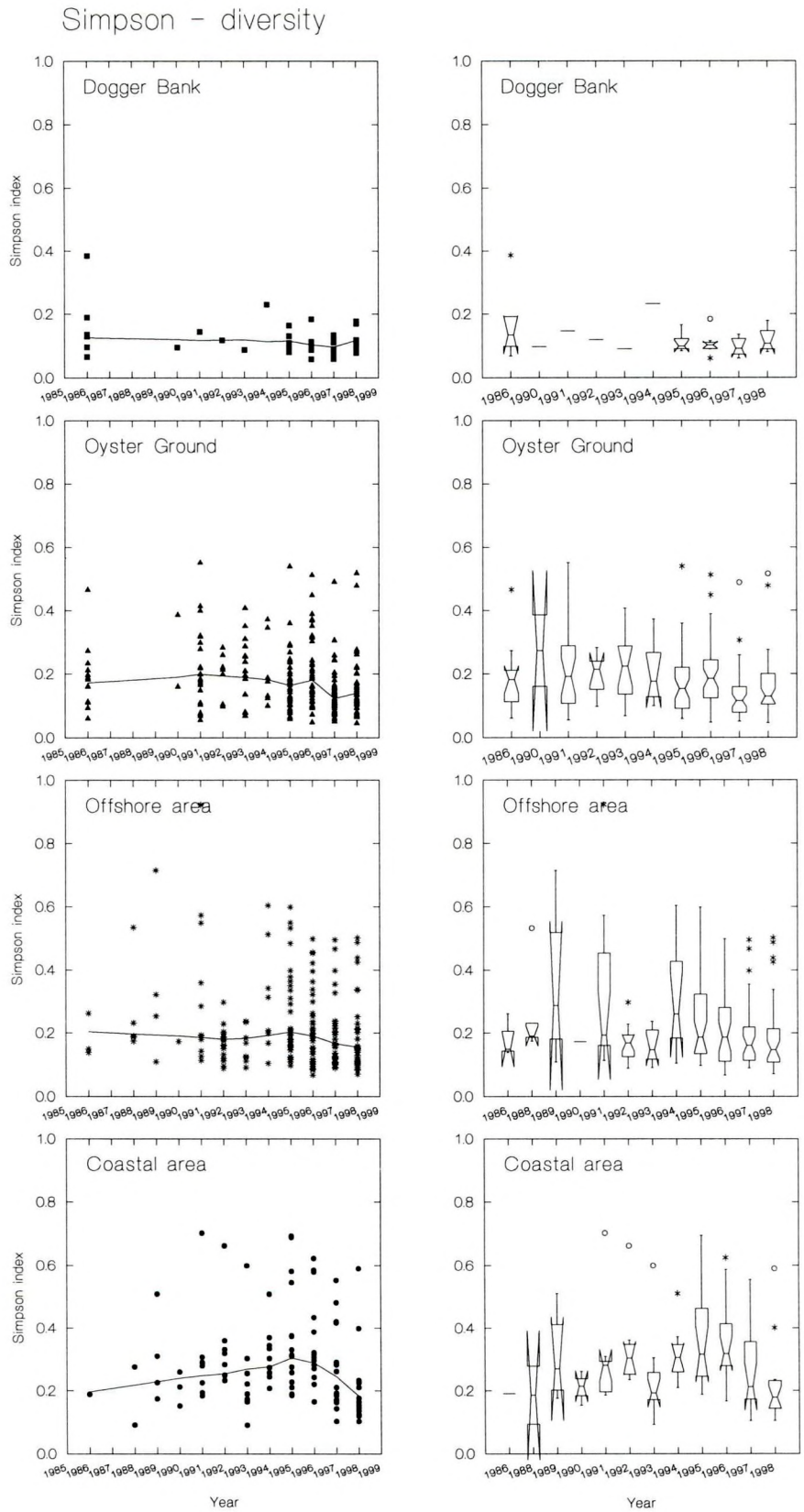

Fig. 16. Temporal patterns of the Simpson index of dominance between 1986-1998.

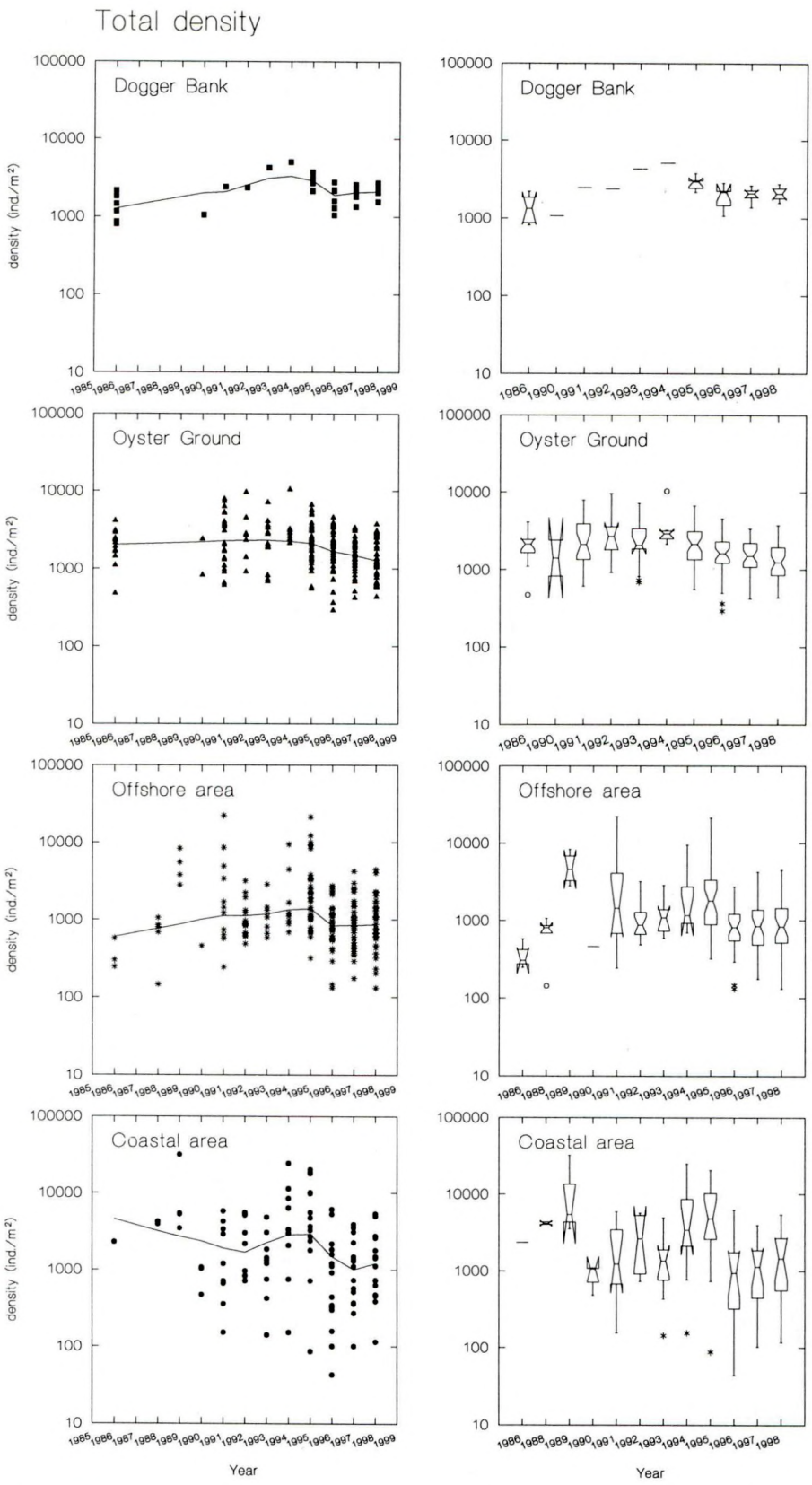

Fig. 17. Temporal patterns of the total macrobenthos density (ind./m²) between 1986-1998.

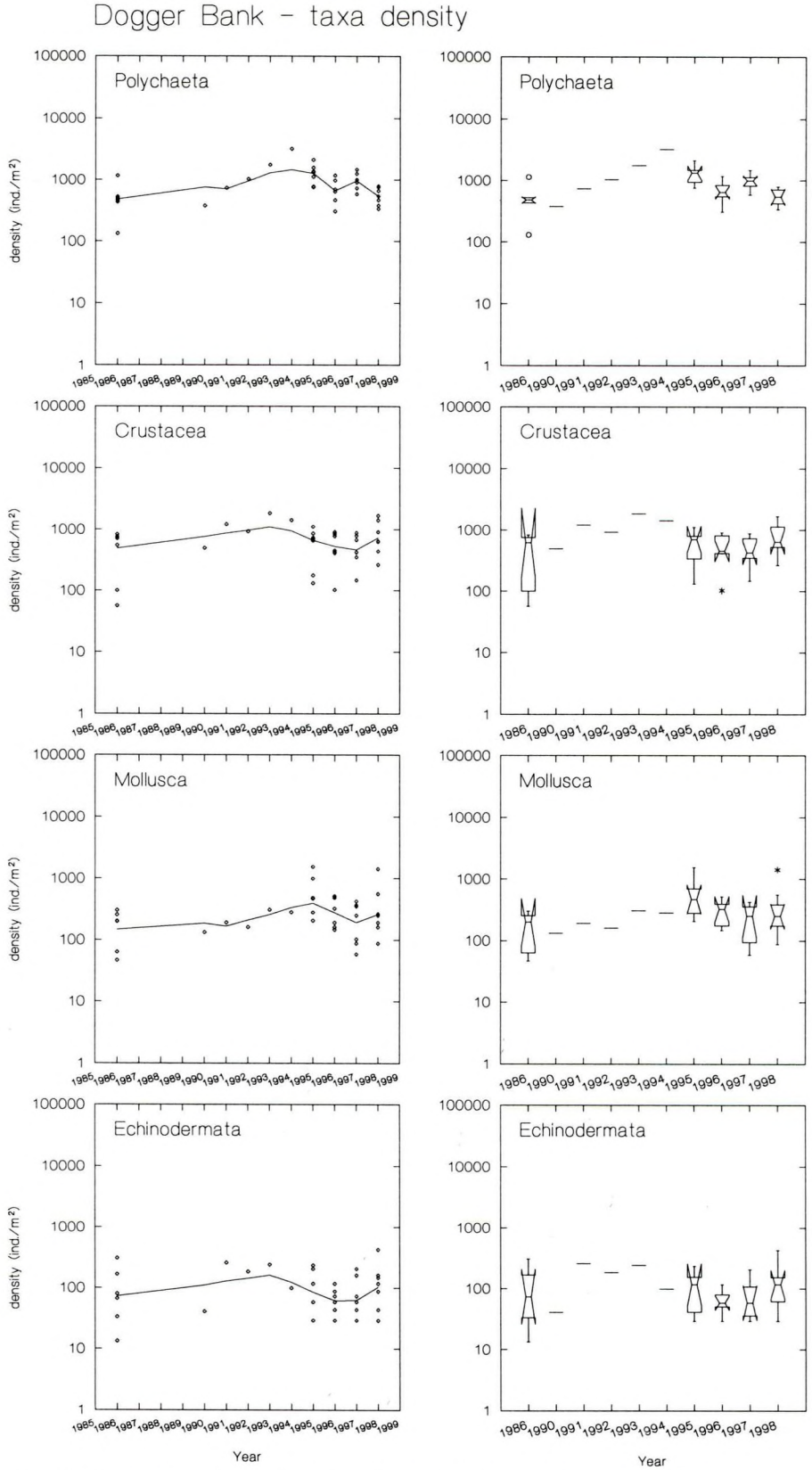

Fig. 18a. The density (ind./m²) of 4 macrobenthos taxa between 1986-1998.

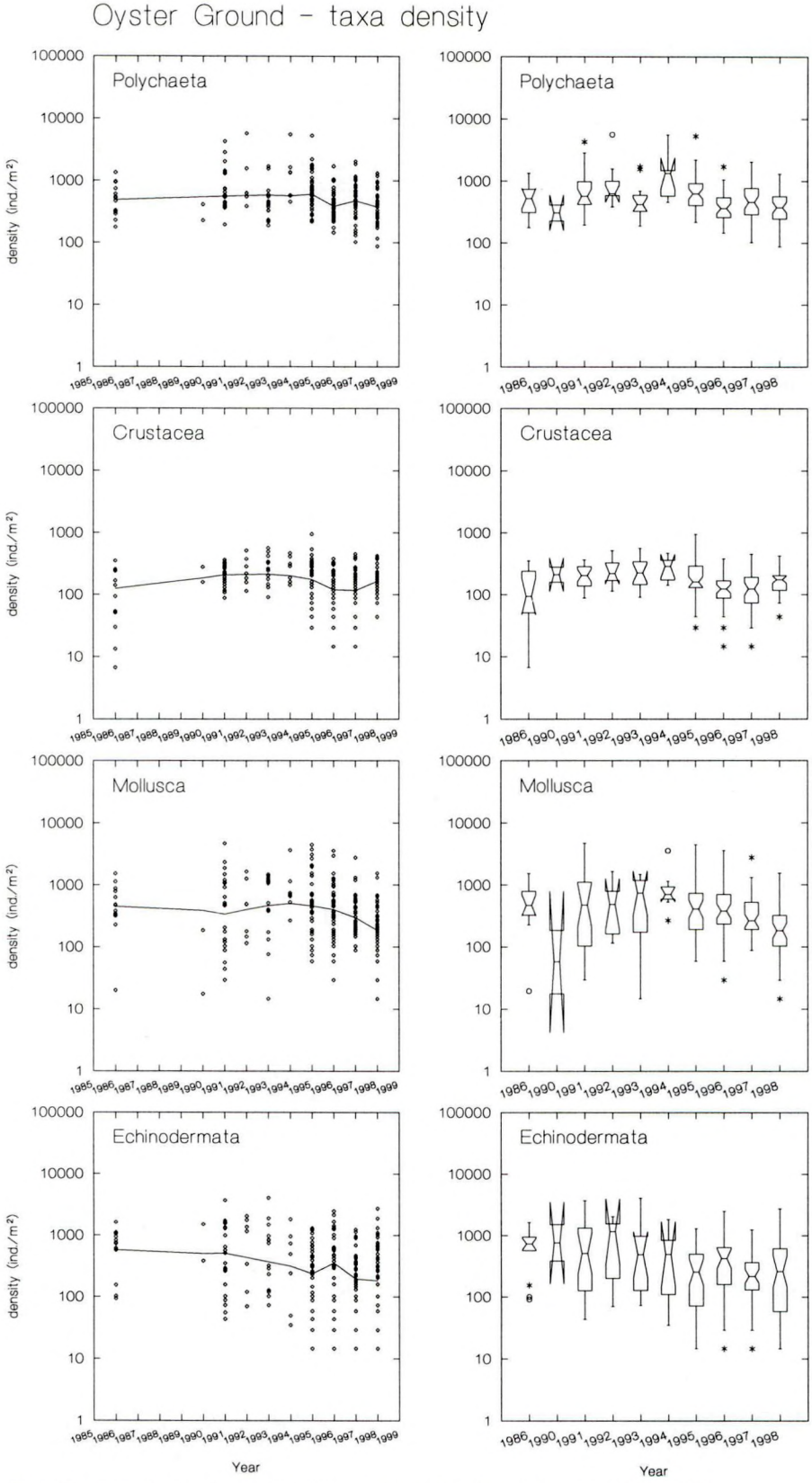

Fig. 18b. The density (ind./m²) of 4 macrobenthos taxa between 1986-1998.

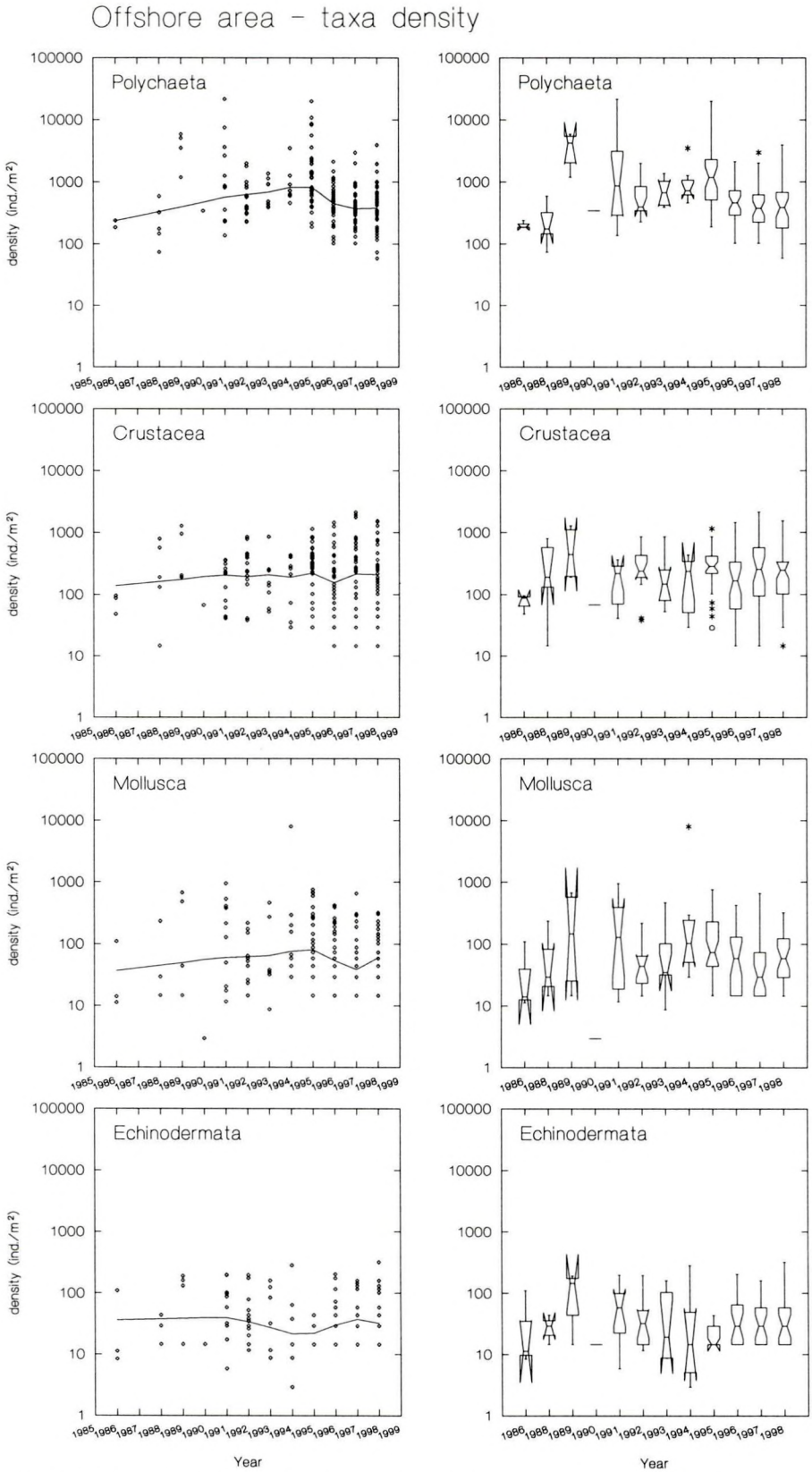

Fig. 18c. The density (ind./m²) of 4 macrobenthos taxa between 1986-1998.

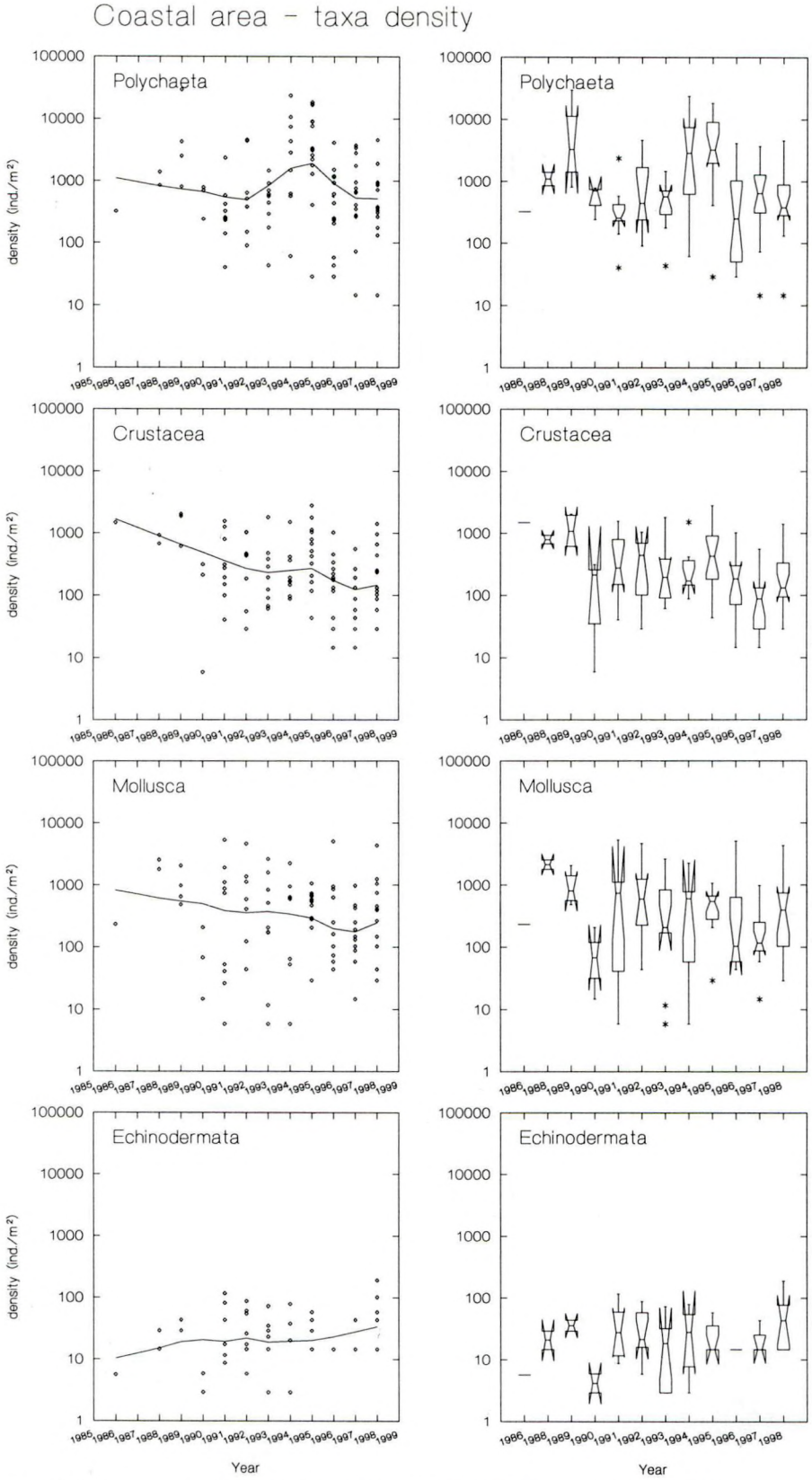

Fig. 18d. The density (ind./m²) of 4 macrobenthos taxa between 1986-1998.

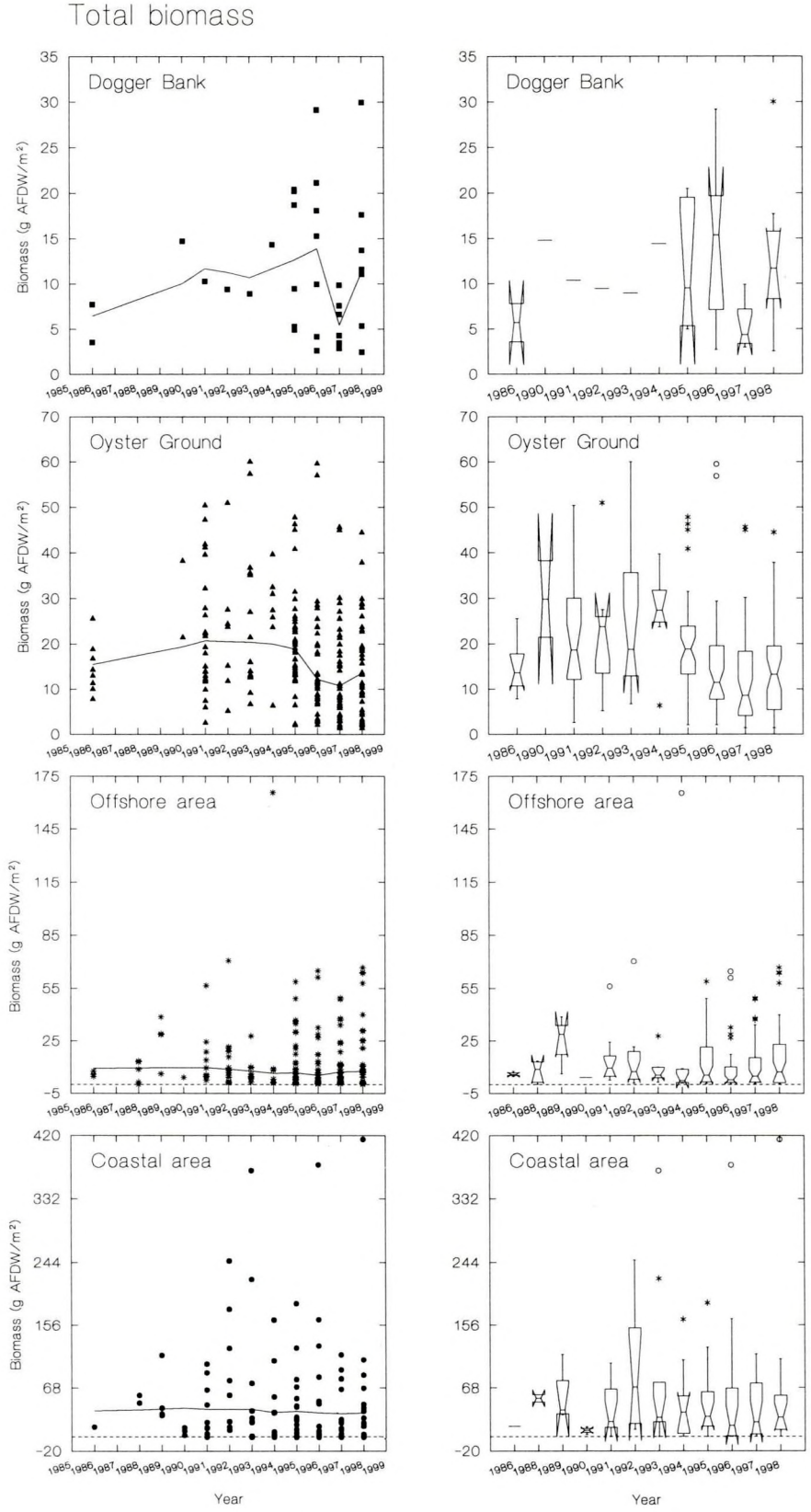

Fig. 19. Temporal patterns of the total biomass (g AFDW/m²) between 1986-1998.

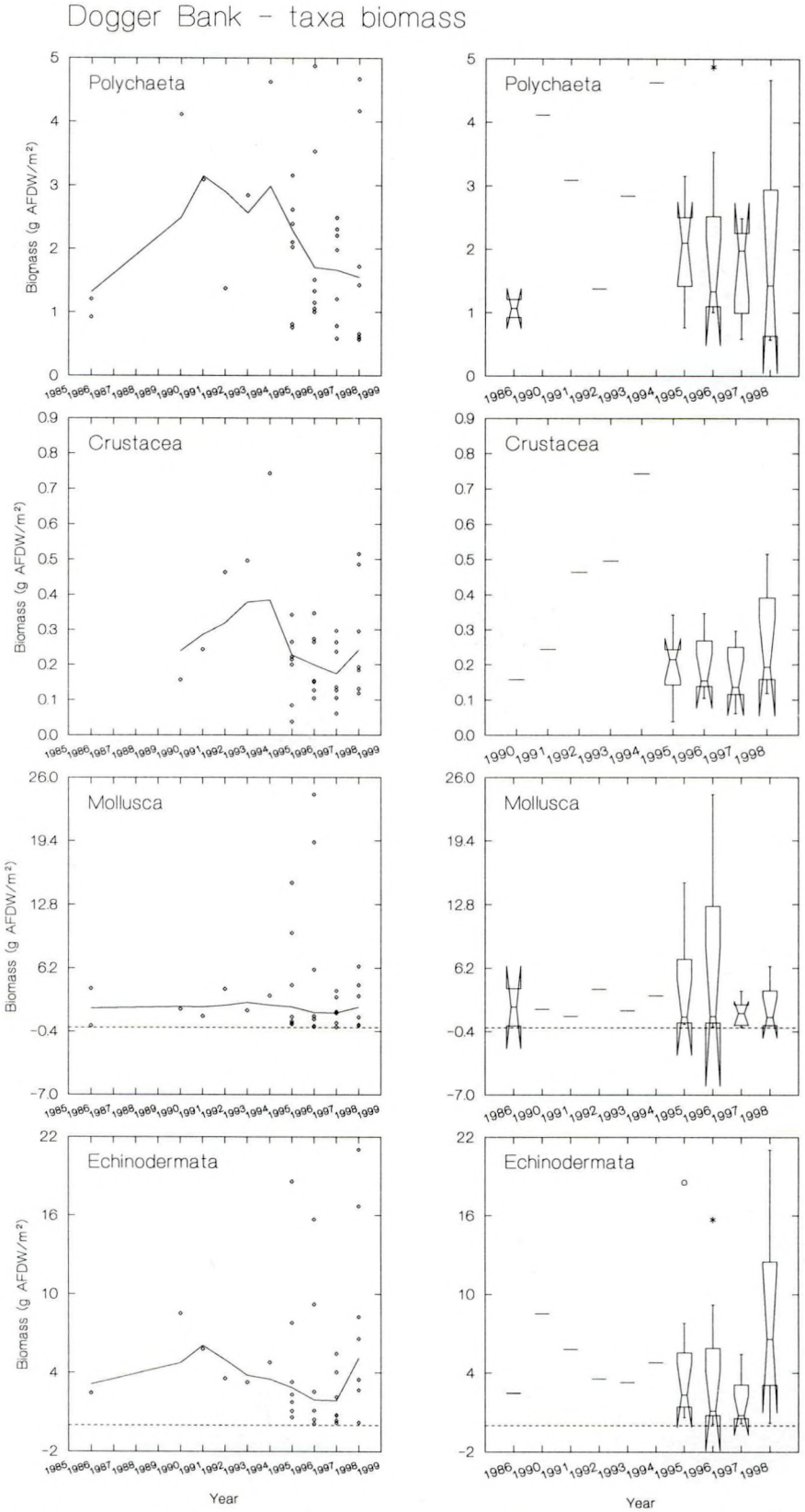

Fig. 20a. The biomass (g AFDW/m²) of 4 macrobenthos taxa between 1986-1998.

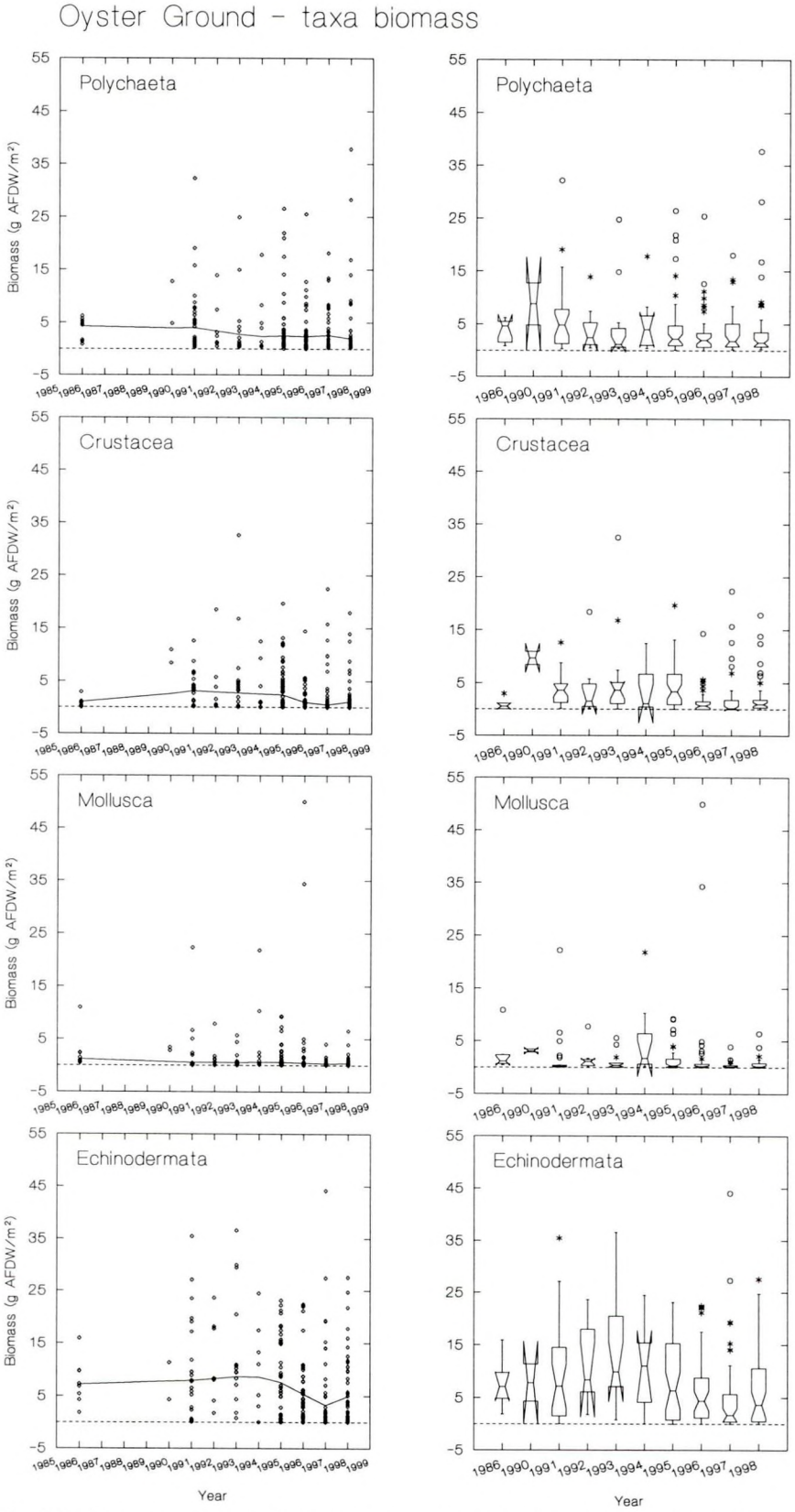

Fig. 20b. The biomass (g AFDW/m²) of 4 macrobenthos taxa between 1986-1998.

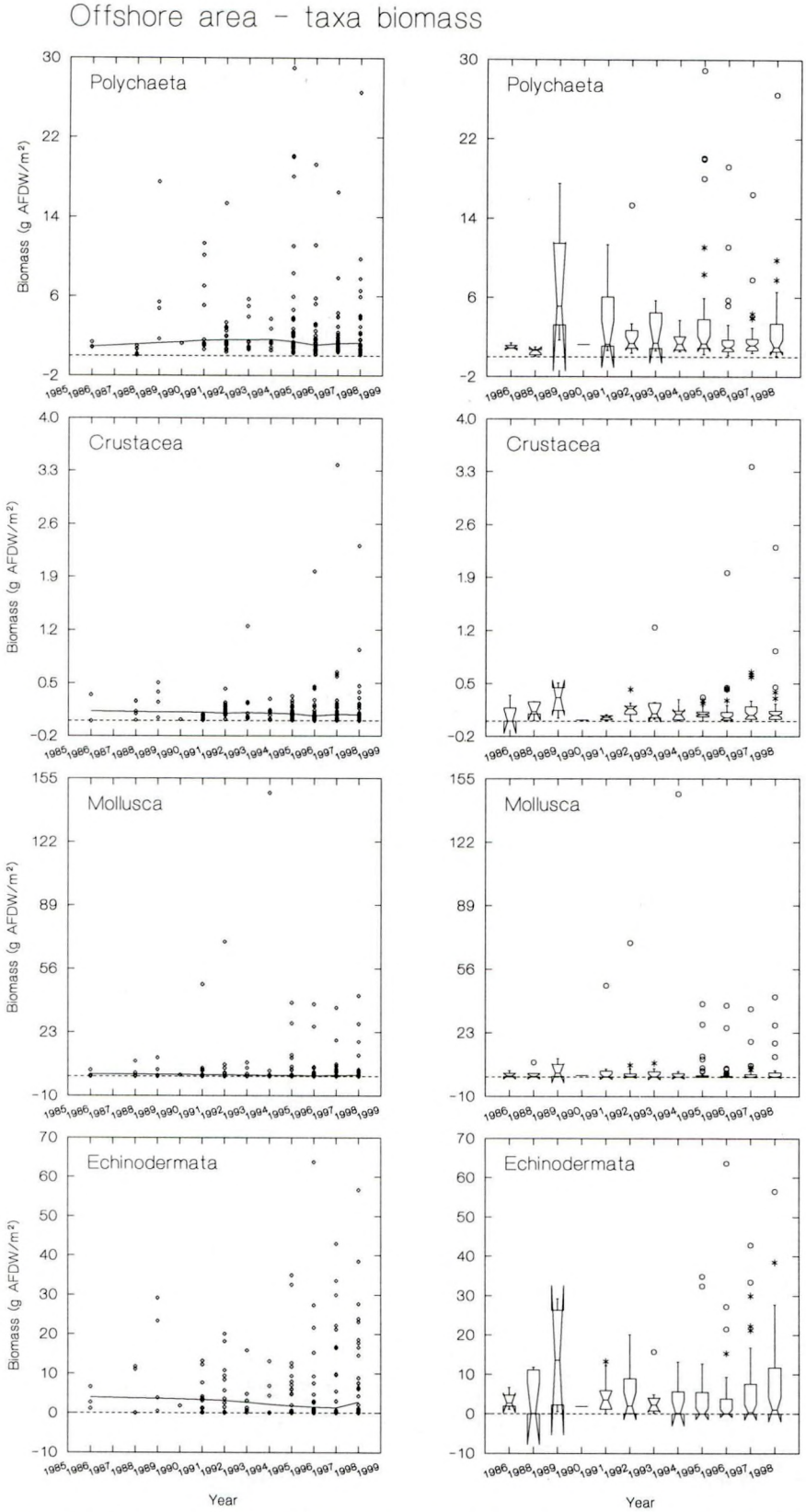

Fig. 20c. The biomass (g AFDW/m²) of 4 macrobenthos taxa between 1986-1998.

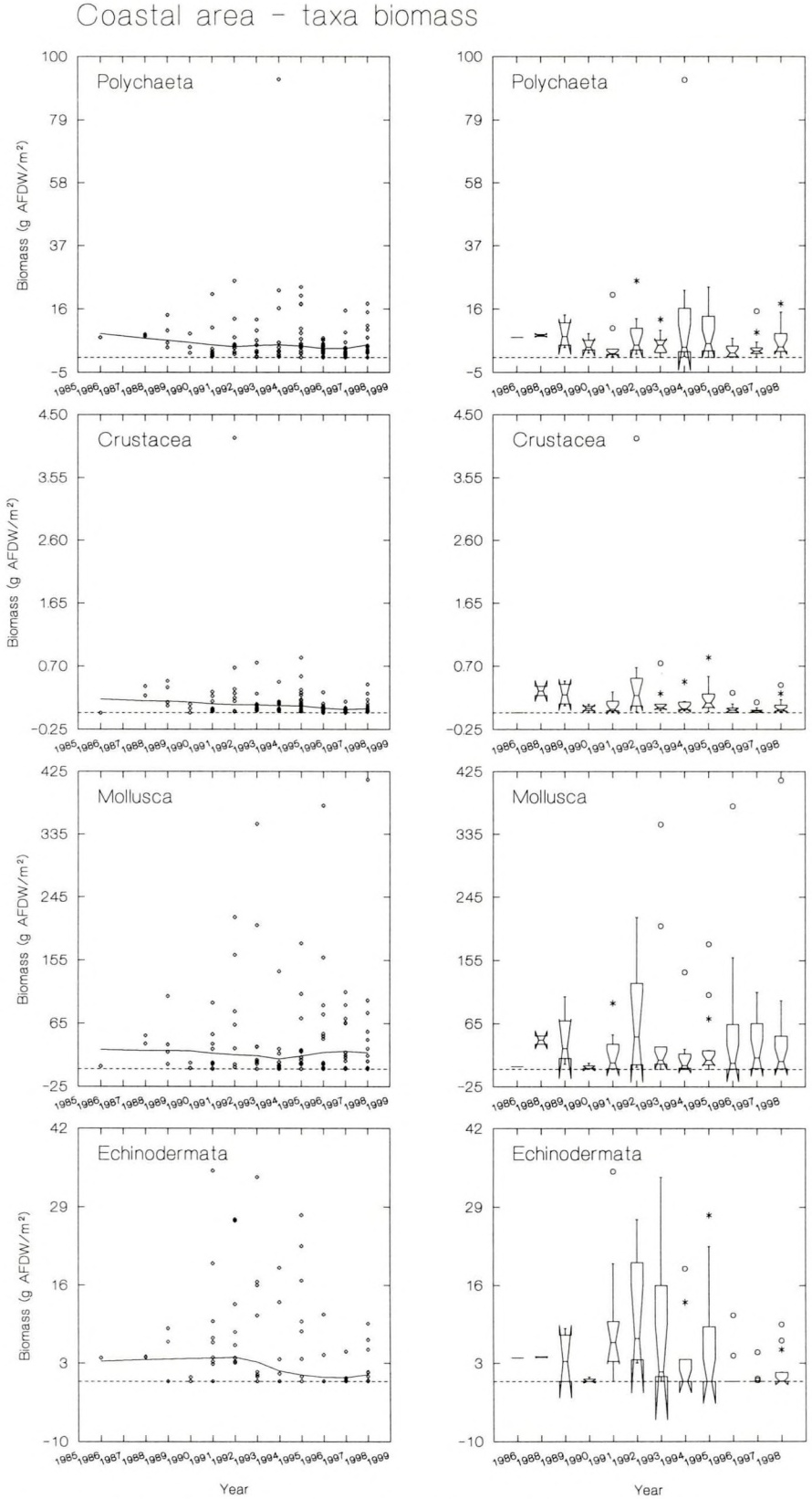

Fig. 20d. The biomass (g AFDW/m²) of 4 macrobenthos taxa between 1986-1998.

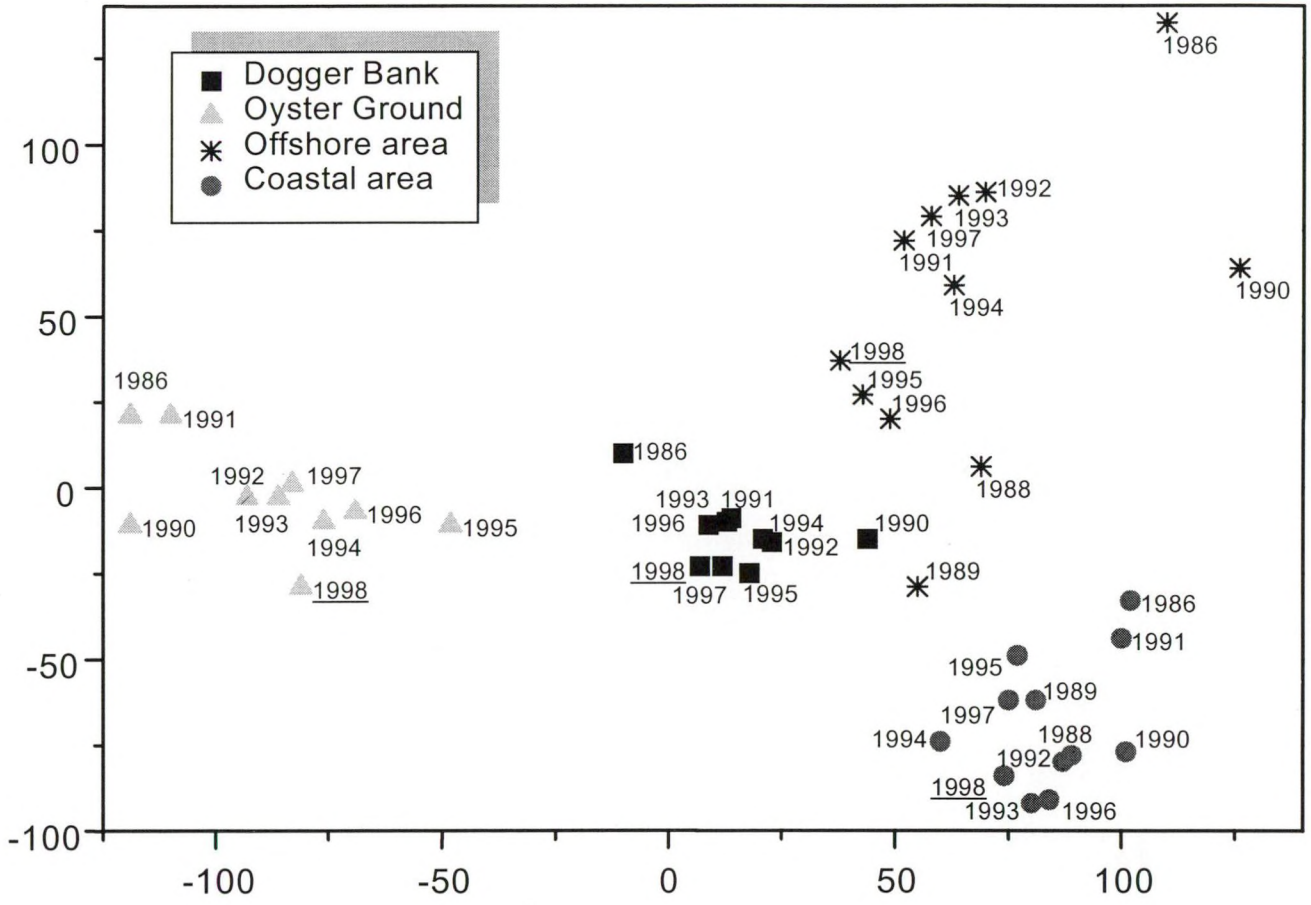

Fig. 21. The DECORANA ordinaten of the combined datasets from 1986 (ICES-NSBS), 1988-1993 (MILZON- project) and 1990-1998 (Monitoring North Sea, this report).

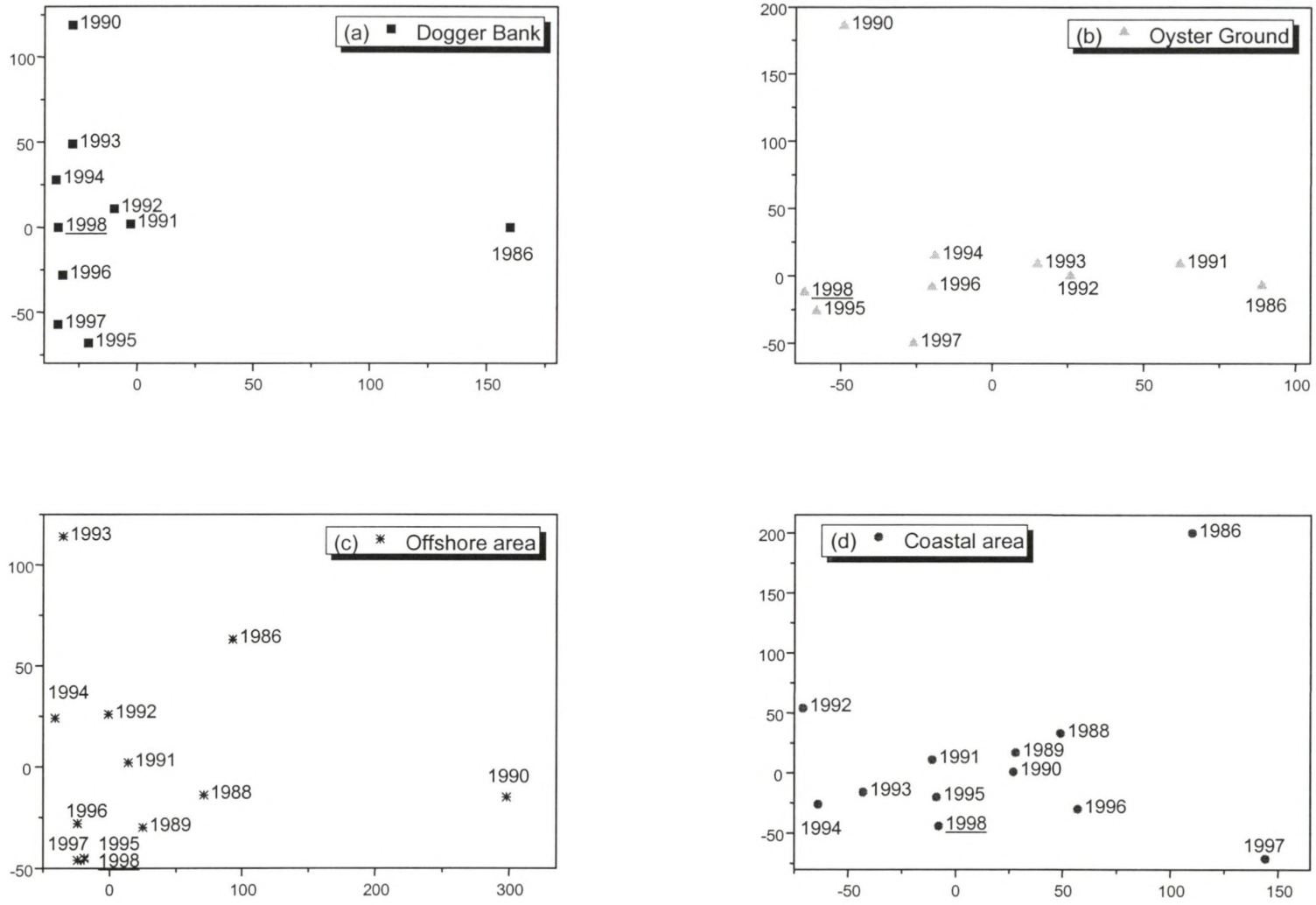

Fig. 22. The DECORANA ordinaten of the 4 distinguished areas; the southern part of the Dogger Bank (a), the Oyster Ground (b), the Offshore area (c) and the Coastal area (d) using the data of the period 1986 - 1998.

Appendices

Appendix-1 Biomonitoring 1998 (+=presence, - =absence)

	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	
Species name	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	*Code*
ABRA ALBA	-	-	-	-	-	-	-	+	+	-	-	+	+	-	+	-	-	+	+	+	-	-	-	-	+	ABRA ALBA
ABRA JUVENILE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	ABRA JUVE
ABRA PRISMATICA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	+	-	-	-	-	-	-	-	ABRA PRIS
ACROCNIDA BRACHIATA	+	+	+	+	+	+	+	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ACRO BRAC
AMPELISCA BREVICORNIS	-	-	-	+	+	-	-	-	+	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	AMPE BREV
AMPELISCA TENUICORNIS	-	-	-	-	-	-	-	-	-	+	-	-	-	+	-	-	-	-	-	-	-	+	-	-	-	AMPE TENU
AMPHARETE SPEC.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	AMPH ARET
AMPHIURA FILIFORMIS	-	-	-	-	-	-	-	+	+	+	-	+	+	+	+	+	+	+	-	+	+	+	+	+	+	AMPH FILI
AMPHIPODA SPEC.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	AMPH IPOD
AMPHITRITINAE SPEC.	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	AMPH ITRI
ANAITIDES GROENLANDICA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ANAI GROE
ANAITIDES JUVENILE	-	-	-	-	+	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ANAI JUVE
ANAITIDES MACULATA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ANAI MACU
ANAITIDES MUCOSA	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ANAI MUCO
ANAITIDES SUBULIFERA	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ANAI SUBU
ANTHOZOA SPEC.	-	-	-	-	-	-	-	+	-	-	-	-	-	-	+	-	-	+	-	-	-	-	-	-	+	ANTH OZOA
AONIDES PAUCIBRANCHIATA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	AONI PAUC
APHRODITA ACULEATA	-	-	-	-	-	-	-	-	-	+	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	APHR ACUL
APHRODITA JUVENILE	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	APHR JUVE
APLACOPHORA	-	-	-	-	-	-	-	+	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	APLA COPH
ARCHIANNELIDA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ARCH IANN
ARCTICA ISLANDICA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	ARCT ISLA
ARGISSA HAMATIPES	+	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	ARGI HAMA
ARICIDEA MINUTA	+	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ARIC MINU
ASCIDIACEA SPEC.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ASCI DIAC
ASTARTE TRIANGULARIS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ASTA TRIA
ASTEROIDEA JUVENILE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ASTE JUVE
ASTERIAS RUBENS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	ASTE RUBE
ASTROPECTEN IRREGULARIS	-	-	-	-	-	-	-	-	-	-	-	-	+	+	-	-	-	-	-	-	-	-	-	-	-	ASTR IRRE
ATYLUS FALCATUS	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ATYL FALC
ATYLUS SWAMMERDAMI	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ATYL SWAM
BATHYPOREIA ELEGANS	+	+	+	+	-	+	+	-	-	+	-	-	+	+	-	+	-	-	-	-	-	-	+	+	+	BATH ELEG
BATHYPOREIA GUILLIAMSONIANA	+	-	+	+	+	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	BATH GUIL
BATHYPOREIA JUVENILE	+	+	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	BATH JUVE
BATHYPOREIA TENUIPES	-	+	+	+	+	-	+	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	BATH TENU
BRISSOPSIS LYRIFERA	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	BRIS LYRI
CALLIANASSA JUVENILE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	+	+	+	-	-	-	-	+	-	CALL JUVE
CALLIANASSA SUBTERRANEA	-	-	-	-	-	-	-	+	+	+	-	+	+	-	+	+	+	+	+	-	+	+	+	+	+	CALL SUBT
CALLIANASSA TYRRHENA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	CALL TYRR
CAMPYLASPIS GLABRA	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	CAMP GLAB
CAPITELLA CAPITATA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	CAPI CAPI
CAPITELLIDAE SPEC.	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	+	-	-	+	-	-	-	CAPI TELL
CAPRELLIDAE SPEC.	-	-	-	-	-	-	+	-	-	-	-	-	-	-	+	-	-	+	-	-	-	-	-	-	-	CAPR ELLI
CHAETOZONE SETOSA	+	-	-	-	+	+	-	+	-	+	+	+	-	+	-	+	+	-	+	+	+	+	-	+	+	CHAE SETO
CHAETOPTERUS VARIOPEDATUS	-	-	-	-	-	-	+	-	-	+	-	+	-	+	-	-	-	-	+	-	+	+	-	-	-	CHAE VARI
CHLAMYS SPEC.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	CHLA SPEC
CINGULA VITREA	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	+	+	-	+	+	-	-	+	CING VITR
CIROLANA CRANCHII	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	CIRO CRAN
CORBULA GIBBA	-	-	-	-	-	-	-	-	+	-	-	+	-	+	+	-	-	+	+	-	+	-	+	-	-	CORB GIBB
COROPHIUM AFFINE	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	CORO AFFI
COROPHIUM SPEC.	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	CORO PHIU
COROPHIUM VOLUTATOR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	CORO VOLU
CORYSTES CASSIVELAUNUS	-	-	-	-	-	-	-	-	+	-	-	+	-	-	+	-	-	+	-	-	+	-	-	-	+	CORY CASS
CORYSTES JUVENILE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	CORY JUVE

Appendix-1 Biomonitoring 1998 (+=presence, - =absence)

	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	
Species name	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	*Code*
CUCUMARIA ELONGATA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	CUCU ELON
CULTELLUS PELLUCIDUS	-	+	-	-	+	-	-	-	+	-	-	+	-	-	-	-	-	-	-	-	+	-	+	-	-	CULT PELL
CYLICHNA CYLINDRACEA	-	-	-	-	-	-	-	+	+	-	+	-	+	+	-	-	+	+	+	+	+	+	-	-	+	CYLI CYLI
DIASTYLIS BRADYI	-	-	-	+	-	-	-	-	-	+	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	DIAS BRAD
DIPLOCIRRUS GLAUCUS	-	-	-	-	-	-	-	+	-	+	-	-	-	+	+	+	+	-	-	-	-	-	-	-	-	DIPL GLAU
DOSINIA EXOLETA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	DOSI EXOL
DOSINIA LUPINUS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	DOSI LUPI
DOSINIA SPEC.	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	DOSI SPEC
ECHINOCARDIUM CORDATUM	-	+	+	-	+	-	+	-	-	-	+	-	-	-	-	-	+	+	+	+	-	-	-	-	-	ECHI CORD
ECHINOCARDIUM JUVENILE	-	-	-	-	-	-	-	-	+	-	-	+	+	-	+	-	-	+	-	-	-	+	+	-	+	ECHI JUVE
ECHINOCYAMUS PUSILLUS	+	-	+	-	-	+	-	-	-	-	-	-	-	-	+	+	-	-	-	-	-	-	-	-	-	ECHI PUSI
EDWARDSIA CLAPAREDII	+	+	-	+	-	+	+	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	+	-	EDWA CLAP
ENSIS ARCUATUS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ENSI ARCU
ENSIS DIRECTUS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ENSI DIRE
ENSIS ENSIS	-	-	+	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ENSI ENSI
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ETEONE JUVENILE	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ETEO JUVE
ETEONE LONGA	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ETEO LONG
EUDORELLOPSIS DEFORMIS	-	-	-	-	-	+	-	-	-	-	-	-	-	+	-	+	-	-	-	-	-	-	-	+	-	EUDO DEFO
EUDORELLA TRUNCATULA	-	-	-	-	-	-	-	-	-	+	-	+	-	-	+	-	+	+	-	-	+	+	-	-	-	EUDO TRUN
EULIMA ALBA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	EULI ALBA
EUMIDA SANGUINEA	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	EUMI SANG
EUZONUS FLABELLIGERUS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	EUZO FLAB
EXOGONE HEBES	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	EXOG HEBE
EXOGONE NAIDINA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	EXOG NAID
GATTYANA CIRROSA	-	-	-	-	-	-	-	-	-	+	-	+	-	+	-	-	-	-	+	-	-	+	-	-	-	GATT CIRR
GLYCERA JUVENILE	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	GLYC JUVE
GLYCERA LAPIDUM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	GLYC LAPI
GLYCERA ROUXI	-	-	-	-	-	-	-	+	-	+	-	-	-	-	-	-	-	-	+	-	+	-	-	-	-	GLYC ROUX
GOLFINGIA ELONGATA	-	-	-	-	-	-	-	+	-	-	-	+	-	-	-	-	-	-	+	-	-	-	-	-	-	GOLF ELON
GOLFINGIA SPEC.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	GOLF SPEC
GOLFINGIA VULGARIS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	-	-	-	GOLF VULG
GONIADA MACULATA	+	-	+	+	+	+	+	-	-	+	+	+	+	+	-	+	-	+	-	-	-	+	-	+	+	GONI MACU
GYPTIS CAPENSIS	+	-	-	-	+	-	-	-	-	-	+	+	-	-	+	-	-	-	-	-	+	-	-	+	+	GYPT CAPE
HARMOTHOE JUVENILE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	HARM JUVE
HARMOTHOE LONGISETIS	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	+	HARM LONG
HARMOTHOE LUNUATA	+	+	+	+	-	-	-	+	-	-	+	-	-	-	+	-	-	-	-	-	-	-	-	-	-	HARM LUNU
HARMOTHOE NODOSA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	HARM NODO
HARPINIA ANTENNARIA	-	-	-	-	-	-	-	-	-	+	-	-	+	+	-	+	+	-	-	+	+	+	+	+	-	HARP ANTE
HARPINIA PECTINATA	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	+	+	-	-	-	-	-	-	HARP PECT
HESIONURA AUGENERI	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	HESI AUGE
HETEROMASTUS FILIFORMIS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	HETE FILI
HIPPOMEDON DENTICULATUS	+	+	-	+	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	HIPP DENT
HOLOTHURIOIDEA SPEC.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	HOLO THUR
HYDROZOA SPEC.	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	HYDR OZOA
IONE THORACIA	-	-	-	-	-	-	-	+	-	+	-	-	+	-	-	-	+	-	-	-	+	-	-	-	-	IONE THOR
IPHINOE TRISPINOSA	+	-	-	+	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	IPHI TRIS
LANICE CONCHILEGA	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	LANI CONC
LANICE JUVENILE	-	-	-	-	-	-	-	-	+	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	+	LANI JUVE
LEPTOSYNAPTA INHAERENS	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	LEPT INHA
LEPTON SQUAMOSUM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	LEPT SQUA
LEUCOTHOE INCISA	-	+	-	-	-	-	+	-	-	-	+	-	-	-	-	-	-	-	+	-	-	-	-	-	-	LEUC INCI
LEUCOTHOE LILLJEBORGI	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	LEUC LILL
LEUCOTHOE RICHIARDII	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	+	-	-	-	-	-	-	-	LEUC RICH

Appendix-1 Biomonitoring 1998 (+=presence, - =absence)

	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	
Species name	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	*Code*
LUCINOMA BOREALIS	-	-	+	-	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	LUCI BORE
LUMBRINERIS LATREILLI	-	-	-	-	-	-	-	-	-	-	-	+	-	+	+	-	-	-	-	-	+	-	-	-	-	LUMB LATR
LYSILLA LOVENI	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	+	-	-	-	-	LYSI LOVE
MACOMA BALTHICA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	MACO BALT
MACTRA CORALLINA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	MACT CORA
MACTRA SPEC.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	MACT SPEC
MAGELONA ALLENI	+	+	-	-	-	-	-	+	-	-	+	-	-	-	-	-	-	-	-	+	+	-	-	-	-	MAGE ALLE
MAGELONA JUVENILE	+	+	+	+	+	-	-	-	+	+	+	+	+	-	-	-	+	-	-	-	-	-	-	-	+	MAGE JUVE
MAGELONA PAPILLICORNIS	+	+	+	+	+	+	+	-	-	-	+	-	-	-	-	+	-	+	-	-	-	-	-	+	+	MAGE PAPI
MEDIOMASTUS FRAGILIS	-	-	-	-	-	-	-	-	+	-	-	-	-	-	+	-	-	+	-	-	-	-	-	-	-	MEDI FRAG
MEGALUROPUS AGILIS	+	+	-	-	-	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	MEGA AGIL
MELITA OBTUSATA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	MELI OBTU
METOPA BOREALIS	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	METO BORI
MICROPROTOPUS MACULATA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	MICR MACU
MONTACUTA FERRUGINOSA	-	+	-	-	+	-	+	-	-	-	+	-	-	-	-	-	+	-	-	+	-	-	-	-	-	MONT FERR
MYRIOCHELE HEERI	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	MYRI HEER
MYSELLA BIDENTATA	+	-	+	+	+	+	+	+	-	+	+	+	+	+	-	-	+	+	+	+	+	-	+	+	-	MYSE BIDE
NATICA ALDERI	-	+	-	-	+	+	+	-	-	-	-	+	-	+	-	-	-	-	+	-	-	-	+	-	-	NATI ALDE
NEBALIA BIPES	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NEBA BIPE
NEMERTINI	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	-	+	+	-	+	+	NEME RTIN
NEPHTYS CAECA	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NEPH CAEC
NEPHTYS CIRROSA	+	-	+	+	-	+	-	-	-	-	-	-	-	-	+	-	+	-	-	-	-	-	-	-	-	NEPH CIRR
NEPHTYS HOMBERGII	+	-	-	-	+	+	+	+	+	+	+	-	+	-	+	+	-	-	-	+	-	-	+	+	+	NEPH HOMB
NEPHTYS INCISA	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	+	-	+	+	-	-	-	NEPH INCI
NEPHTYS JUVENILE	+	-	-	-	+	-	+	-	-	+	+	+	+	+	-	+	+	+	-	+	+	-	-	+	-	NEPH JUVE
NEPHTYS LONGOSETOSA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NEPH LONG
NEREIS JUVENILE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NERE JUVE
NEREIS LONGISSIMA	-	-	-	-	-	-	-	-	-	-	-	+	-	-	+	-	-	+	+	-	-	-	-	-	+	NERE LONG
NOTOMASTUS JUVENILE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	NOTO JUVE
NOTOMASTUS LATERICEUS	-	-	+	-	-	-	+	-	-	+	-	+	-	+	-	-	+	+	-	-	-	+	-	-	-	NOTO LATE
NUCULA TENIUS	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	NUCU TENU
NUCULA TURGIDA	-	-	-	-	-	-	-	-	+	-	+	+	-	-	+	-	-	+	-	+	+	-	-	-	+	NUCU TURG
OLIGOCHAETA SPEC.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	OLIG OCHA
OPHELINA ACUMINATA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	OPHE ACUM
OPHELIIDAE JUVENILE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	OPHE JUVE
OPHELIA LIMACINA	+	-	+	+	-	+	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	OPHE LIMA
OPHELINAE SPEC.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	OPHE LINA
OPHIURA ALBIDA	-	+	-	-	-	-	+	-	-	-	-	+	+	-	+	-	-	+	-	-	-	-	-	-	-	OPHI ALBI
OPHIODROMUS FLEXUOSUS	-	-	-	-	-	-	-	+	-	-	-	-	+	-	-	-	-	-	-	-	+	-	+	+	-	OPHI FLEX
OPHIURIDAE JUVENILE	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	OPHI JUVE
OPHIURA TEXTURATA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	OPHI TEXT
ORBINIA SERTULATA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ORBI SERT
ORCHOMENE HUMILIS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	ORCH HUMI
ORCHOMENE NANA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ORCH NANA
OWENIA FUSIFORMIS	+	-	+	+	-	+	+	-	-	+	+	-	-	+	-	-	-	-	-	-	-	-	+	-	-	OWEN FUSI
OWENIA JUVENILE	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	+	-	-	-	-	-	-	-	OWEN JUVE
PARAONIS FULGENS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	PARA FULG
PARAONIS GRACILIS	-	-	-	-	-	-	-	-	-	+	-	+	-	+	+	-	-	-	+	+	-	-	-	-	-	PARA GRAC
PECTINARIA JUVENILE	-	-	-	-	-	-	-	+	-	+	-	-	-	+	+	-	-	+	-	-	-	+	-	-	-	PECT JUVE
PECTINARIA KORENI	-	-	-	-	-	-	+	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	PECT KORE
PERIOCULODES LONGIMANUS	+	+	-	+	+	-	+	-	-	-	-	-	-	-	-	-	+	-	-	+	-	+	-	-	+	PERI LONG
PHILINE SPEC.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	PHIL SPEC
PHOLOE MINUTA	-	+	+	-	+	-	+	+	-	+	+	+	+	+	+	-	+	+	+	+	-	+	+	+	-	PHOL MINU
PHORONIDA SPEC.	+	+	+	-	+	+	+	+	+	+	+	+	+	+	+	+	+	+	-	-	+	+	+	+	+	PHOR ONID

Appendix-1 Biomonitoring 1998 (+=presence, - =absence)

	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
Species name	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	*Code*
PHOTIS LONGICAUDATA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	PHOT LONG
PISIONE REMOTA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	PISI REMO
PLATHYHELMITHES	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	PLAT HYHE
POECILOCHAETUS SERPENS	-	-	-	-	-	-	+	-	-	-	-	-	-	-	+	+	-	-	+	-	+	-	-	+	+	POEC SERP
POLYCHAETA JUVENILE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	POLY CHAE
POLYDORA SPEC.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	+	-	-	-	-	-	-	-	POLY DORA
POLYNOE KINBERGI	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	+	-	-	-	-	POLY KINB
PONTOCRATES ALTAMARINUS	+	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	PONT ALTA
PSEUDOCUMA LONGICORNIS	+	-	-	+	+	-	+	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	PSEU LONG
PSEUDOPOLYDORA PULCHRA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	PSEU PULC
PSEUDOCUMA SIMILIS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	PSEU SIMI
SAGARTIA TROGLODYTES	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	SAGA TROG
SAXICAVELLA JEFFREYSI	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	SAXI JEFF
SCALIBREGMA INFLATUM	-	-	-	-	-	-	-	-	+	-	-	+	-	-	+	-	-	+	-	-	-	-	-	-	+	SCAL INFL
SCOLOPLOS ARMIGER	-	-	-	-	-	+	-	+	-	+	+	-	+	+	+	+	-	-	+	+	-	-	-	+	+	SCOL ARMI
SCOLELEPIS BONNIERI	+	-	+	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	SCOL BONN
SCOLELEPIS FOLIOSA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	SCOL FOLI
SCOLOPLOS JUVENILE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	SCOL JUVE
SCOLELEPIS SQUAMATA	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	SCOL SQUA
SIGALION JUVENILE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	SIGA JUVE
SIGALION MATHILDAE	-	-	+	-	+	-	+	-	-	-	+	-	-	-	-	+	-	-	-	+	-	-	-	-	-	SIGA MATH
SIPHONOECETES KROYERANUS	-	+	+	+	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	SIPH KROY
SIPUNCULIDA SPEC.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	SIPU NCUL
SOSANE GRACILIS	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	SOSA GRAC
SPIOPHANES BOMBYX	+	+	+	+	+	+	+	-	+	-	+	-	+	-	+	-	-	-	-	-	-	-	-	-	+	SPIO BOMB
SPIO FILICORNIS	-	+	-	+	+	+	+	-	-	-	-	-	-	-	-	-	-	-	+	-	+	+	-	-	+	SPIO FILI
SPIOPHANES JUVENILE	+	+	+	+	+	+	+	+	-	+	+	+	+	+	-	+	+	+	-	-	-	-	+	+	+	SPIO JUVE
SPIOPHANES KROEYERI	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	SPIO KROE
SPISULA ELLIPTICA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	SPIS ELLI
SPISULA JUVENILE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	SPIS JUVE
SPISULA SUBTRUNCATA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	SPIS SUBT
STHENELAIS JUVENILE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	STHE JUVE
STHENELAIS LIMICOLA	-	-	-	-	-	-	-	-	-	+	-	-	+	+	+	-	-	-	-	-	+	-	+	-	-	STHE LIMI
STREPTOSYLLIS WEBSTERI	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	STRE WEBS
SYLLIDAE SPEC.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	SYLL IDAE
SYNCHELIDIUM MACULATUM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	SYNC MACU
SYNELMIS KLATTI	-	-	-	-	-	-	-	-	-	-	-	+	+	+	-	-	+	-	+	-	+	+	+	-	-	SYNE KLAT
TELLINA FABULA	+	+	+	+	+	+	+	-	-	-	+	-	+	-	+	+	-	+	-	-	-	-	-	-	-	TELL FABU
TELLINA PYGMAEA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	TELL PYGM
TELLINA TENUIS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	TELL TENU
THARYX MARIONI	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	THAR MARI
THRACIA CONVEXA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	THRA CONV
THRACIA PHASEOLINA	+	-	-	+	-	-	+	-	-	-	+	-	-	+	-	-	-	-	-	-	-	-	-	-	-	THRA PHAS
THYASIRA FLEXUOSA	-	-	-	-	+	-	-	+	-	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	THYA FLEX
TRAVISIA FORBESII	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	TRAV FORB
TURRITELLA COMMUNIS	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	TURR COMM
UNCIOLA PLANIPES	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	UNCI PLAN
UPOGEBIA DELTAURA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	+	+	-	-	-	-	-	-	UPOG DELT
UROTHOE BREVICORNIS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	UROT BREV
UROTHOE ELEGANS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	+	-	UROT ELEG
UROTHOE POSEIDONIS	+	+	+	+	-	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	UROT POSE
VENUS JUVENILE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	-	-	VENU JUVE
VENUS STRIATULA	-	-	-	-	-	-	-	-	-	-	+	-	+	-	-	-	+	-	+	-	-	-	-	-	-	VENU STRI
No. Species	38	29	29	32	34	30	42	31	22	37	31	37	30	36	38	26	31	36	29	21	35	27	20	24	33	

Appendix-1 Biomonitoring 1998 (+=presence, - =absence)

	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	
Species name	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	*Code*
ABRA ALBA	+	-	+	-	-	+	-	+	+	+	+	+	+	+	+	+	+	-	+	-	+	+	-	+	ABRA ALBA
ABRA JUVENILE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ABRA JUVE
ABRA PRISMATICA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	ABRA PRIS
ACROCNIDA BRACHIATA	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	+	-	ACRO BRAC
AMPELISCA BREVICORNIS	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	+	-	+	-	-	-	-	-	AMPE BREV
AMPELISCA TENUICORNIS	+	-	-	+	-	-	-	+	-	-	-	-	-	-	+	-	-	-	-	-	+	-	-	-	AMPE TENU
AMPHARETE SPEC.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	AMPH ARET
AMPHIURA FILIFORMIS	+	+	+	+	+	-	+	+	-	+	+	+	+	+	+	+	+	+	-	+	+	+	+	-	AMPH FILI
AMPHIPODA SPEC.	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	AMPH IPOD
AMPHITRITINAE SPEC.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	AMPH ITRI
ANAITIDES GROENLANDICA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ANAI GROE
ANAITIDES JUVENILE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ANAI JUVE
ANAITIDES MACULATA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ANAI MACU
ANAITIDES MUCOSA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ANAI MUCO
ANAITIDES SUBULIFERA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	ANAI SUBU
ANTHOZOA SPEC.	+	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	ANTH OZOA
AONIDES PAUCIBRANCHIATA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	AONI PAUC
APHRODITA ACULEATA	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	APHR ACUL
APHRODITA JUVENILE	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	APHR JUVE
APLACOPHORA	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	APLA COPH
ARCHIANNELIDA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ARCH IANN
ARCTICA ISLANDICA	-	+	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ARCT ISLA
ARGISSA HAMATIPES	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	ARGI HAMA
ARICIDEA MINUTA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ARIC MINU
ASCIDIACEA SPEC.	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	ASCI DIAC
ASTARTE TRIANGULARIS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ASTA TRIA
ASTEROIDEA JUVENILE	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ASTE JUVE
ASTERIAS RUBENS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ASTE RUBE
ASTROPECTEN IRREGULARIS	+	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	ASTR IRRE
ATYLUS FALCATUS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ATYL FALC
ATYLUS SWAMMERDAMI	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ATYL SWAM
BATHYPOREIA ELEGANS	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	+	-	-	+	-	+	-	+	BATH ELEG
BATHYPOREIA GUILLIAMSONIANA	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	BATH GUIL
BATHYPOREIA JUVENILE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	BATH JUVE
BATHYPOREIA TENUIPES	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	+	BATH TENU
BRISSOPSIS LYRIFERA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	BRIS LYRI
CALLIANASSA JUVENILE	+	-	+	-	-	+	-	+	+	+	-	+	+	+	+	+	+	+	+	+	+	-	-	-	CALL JUVE
CALLIANASSA SUBTERRANEA	+	+	+	+	-	+	+	+	+	-	+	+	+	+	+	+	-	+	+	+	-	-	+	-	CALL SUBT
CALLIANASSA TYRRHENA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	CALL TYRR
CAMPYLASPIS GLABRA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	CAMP GLAB
CAPITELLA CAPITATA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	CAPI CAPI
CAPITELLIDAE SPEC.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	CAPI TELL
CAPRELLIDAE SPEC.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	CAPR ELLI
CHAETOZONE SETOSA	+	+	-	-	-	+	-	-	-	+	-	-	-	+	-	-	-	+	-	+	+	-	+	-	CHAE SETO
CHAETOPTERUS VARIOPEDATUS	-	-	-	-	-	-	-	+	-	-	-	-	+	+	-	-	-	+	-	-	-	-	-	-	CHAE VARI
CHLAMYS SPEC.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	CHLA SPEC
CINGULA VITREA	-	-	-	-	-	+	+	+	-	-	-	-	+	+	+	-	-	-	-	-	-	-	-	-	CING VITR
CIROLANA CRANCHII	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	CIRO CRAN
CORBULA GIBBA	-	+	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	+	-	-	-	CORB GIBB
COROPHIUM AFFINE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	CORO AFFI
COROPHIUM SPEC.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	CORO PHIU
COROPHIUM VOLUTATOR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	CORO VOLU
CORYSTES CASSIVELAUNUS	-	-	-	-	-	-	-	+	+	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	CORY CASS
CORYSTES JUVENILE	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	CORY JUVE

Appendix-1 Biomonitoring 1998 (+=presence, - =absence)

	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	
Species name	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	*Code*
CUCUMARIA ELONGATA	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	CUCU ELON
CULTELLUS PELLUCIDUS	+	-	-	-	+	-	-	+	-	-	-	-	-	-	-	-	-	-	+	-	+	+	-	+	CULT PELL
CYLICHNA CYLINDRACEA	+	+	+	-	-	-	+	+	+	-	+	-	-	+	+	-	-	+	+	-	+	-	+	+	CYLI CYLI
DIASTYLIS BRADYI	-	+	-	-	+	+	+	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	DIAS BRAD
DIPLOCIRRUS GLAUCUS	+	+	+	+	-	-	-	-	-	-	-	+	-	-	-	+	-	-	-	-	+	-	-	-	DIPL GLAU
DOSINIA EXOLETA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	DOSI EXOL
DOSINIA LUPINUS	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	+	-	-	DOSI LUPI
DOSINIA SPEC.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	DOSI SPEC
ECHINOCARDIUM CORDATUM	+	+	-	-	-	+	-	-	+	-	+	+	-	+	-	+	-	+	-	-	-	-	+	-	ECHI CORD
ECHINOCARDIUM JUVENILE	-	-	+	-	-	-	-	-	+	+	-	-	-	+	-	-	-	-	-	-	-	+	-	+	ECHI JUVE
ECHINOCYAMUS PUSILLUS	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	+	ECHI PUSI
EDWARDSIA CLAPAREDII	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	EDWA CLAP
ENSIS ARCUATUS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ENSI ARCU
ENSIS DIRECTUS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ENSI DIRE
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ETEONE JUVENILE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ETEO JUVE
ETEONE LONGA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	ETEO LONG
EUDORELLOPSIS DEFORMIS	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	EUDO DEFO
EUDORELLA TRUNCATULA	+	-	+	-	+	+	+	+	-	-	-	+	-	-	+	+	-	+	+	-	+	-	-	-	EUDO TRUN
EULIMA ALBA	-	+	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	EULI ALBA
EUMIDA SANGUINEA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	EUMI SANG
EUZONUS FLABELLIGERUS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	EUZO FLAB
EXOGONE HEBES	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	EXOG HEBE
EXOGONE NAIDINA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	EXOG NAID
GATTYANA CIRROSA	-	-	-	-	-	-	-	-	+	-	-	-	-	+	+	-	-	-	+	-	-	-	-	-	GATT CIRR
GLYCERA JUVENILE	-	-	-	+	-	-	-	-	+	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	GLYC JUVE
GLYCERA LAPIDUM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	GLYC LAPI
GLYCERA ROUXI	-	+	+	-	-	-	-	+	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	GLYC ROUX
GOLFINGIA ELONGATA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	+	-	-	-	-	-	GOLF ELON
GOLFINGIA SPEC.	-	-	+	-	-	-	-	-	-	-	-	-	-	+	-	-	-	+	-	-	-	-	-	-	GOLF SPEC
GOLFINGIA VULGARIS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	GOLF VULG
GONIADA MACULATA	+	+	+	+	-	+	-	+	+	+	-	+	+	+	+	+	-	-	-	+	+	+	+	+	GONI MACU
GYPTIS CAPENSIS	-	-	-	+	-	-	-	+	-	-	-	+	+	+	-	+	-	+	-	-	-	-	-	-	GYPT CAPE
HARMOTHOE JUVENILE	-	-	-	-	+	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	HARM JUVE
HARMOTHOE LONGISETIS	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	HARM LONG
HARMOTHOE LUNUATA	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	HARM LUNU
HARMOTHOE NODOSA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	HARM NODO
HARPINIA ANTENNARIA	+	+	-	+	+	-	+	-	+	-	-	+	+	+	+	+	+	+	+	+	+	+	+	-	HARP ANTE
HARPINIA PECTINATA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	HARP PECT
HESIONURA AUGENERI	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	HESI AUGE
HETEROMASTUS FILIFORMIS	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	HETE FILI
HIPPOMEDON DENTICULATUS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	HIPP DENT
HOLOTHURIOIDEA SPEC.	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	HOLO THUR
HYDROZOA SPEC.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	HYDR OZOA
IONE THORACIA	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	+	-	-	-	-	-	IONE THOR
IPHINOE TRISPINOSA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	IPHI TRIS
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LANICE JUVENILE	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	LANI JUVE
LEPTOSYNAPTA INHAERENS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	LEPT INHA
LEPTON SQUAMOSUM	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	LEPT SQUA
LEUCOTHOE INCISA	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	LEUC INCI
LEUCOTHOE LILLJEBORGI	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	+	-	-	-	-	-	-	LEUC LILL
LEUCOTHOE RICHIARDII	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	LEUC RICH

Appendix-1 Biomonitoring 1998 (+=presence, - =absence)

	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	
Species name	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	*Code*
LUCINOMA BOREALIS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	LUCI BORE
LUMBRINERIS LATREILLI	+	+	+	-	-	+	+	+	-	-	-	+	-	+	+	+	-	+	+	-	-	-	-	-	LUMB LATR
LYSILLA LOVENI	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	LYSI LOVE
MACOMA BALTHICA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	MACO BALT
MACTRA CORALLINA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	MACT CORA
MACTRA SPEC.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	MACT SPEC
MAGELONA ALLENI	-	-	-	-	-	-	-	-	-	+	+	-	-	-	-	-	-	-	-	+	-	+	-	-	MAGE ALLE
MAGELONA JUVENILE	-	+	-	+	-	+	-	-	-	-	+	+	+	+	-	-	+	-	-	-	+	+	+	+	MAGE JUVE
MAGELONA PAPILLICORNIS	-	-	-	-	+	-	-	-	-	+	-	-	-	-	-	-	+	-	-	+	-	+	+	+	MAGE PAPI
MEDIOMASTUS FRAGILIS	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	+	+	-	-	-	-	-	-	-	MEDI FRAG
MEGALUROPUS AGILIS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	MEGA AGIL
MELITA OBTUSATA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	MELI OBTU
METOPA BOREALIS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	METO BORI
MICROPROTOPUS MACULATA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	MICR MACU
MONTACUTA FERRUGINOSA	-	-	-	-	-	+	-	-	+	-	-	+	-	+	-	-	+	+	-	-	-	+	+	+	MONT FERR
MYRIOCHELE HEERI	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	MYRI HEER
MYSELLA BIDENTATA	+	+	-	+	+	-	+	+	-	-	+	-	+	-	-	-	+	+	-	-	+	+	+	+	MYSE BIDE
NATICA ALDERI	-	-	+	-	+	-	-	+	+	-	+	-	-	-	-	+	-	+	-	-	-	+	+	-	NATI ALDE
NEBALIA BIPES	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NEBA BIPE
NEMERTINI	+	+	-	+	+	+	-	+	-	+	+	+	+	-	+	+	+	+	+	+	+	+	+	+	NEME RTIN
NEPHTYS CAECA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NEPH CAEC
NEPHTYS CIRROSA	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	+	-	-	+	NEPH CIRR
NEPHTYS HOMBERGII	-	+	+	+	+	-	+	-	+	-	+	-	+	-	+	+	+	+	+	+	+	+	+	-	NEPH HOMB
NEPHTYS INCISA	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NEPH INCI
NEPHTYS JUVENILE	+	-	-	-	+	+	-	+	+	+	-	+	-	+	-	+	-	+	-	+	+	+	+	-	NEPH JUVE
NEPHTYS LONGOSETOSA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NEPH LONG
NEREIS JUVENILE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NERE JUVE
NEREIS LONGISSIMA	-	-	-	-	-	+	-	+	-	-	-	-	-	+	-	+	-	-	+	-	+	-	-	-	NERE LONG
NOTOMASTUS JUVENILE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NOTO JUVE
NOTOMASTUS LATERICEUS	+	+	+	-	-	-	-	-	-	-	-	-	-	+	-	+	+	+	+	-	-	-	-	-	NOTO LATE
NUCULA TENIUS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NUCU TENU
NUCULA TURGIDA	+	-	-	+	+	+	-	-	+	+	+	-	-	-	-	-	-	-	-	+	-	-	+	-	NUCU TURG
OLIGOCHAETA SPEC.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	OLIG OCHA
OPHELINA ACUMINATA	-	-	+	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	OPHE ACUM
OPHELIIDAE JUVENILE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	OPHE JUVE
OPHELIA LIMACINA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	OPHE LIMA
OPHELINAE SPEC.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	OPHE LINA
OPHIURA ALBIDA	-	+	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	OPHI ALBI
OPHIODROMUS FLEXUOSUS	+	+	+	-	-	+	-	-	-	-	-	+	+	-	-	-	-	+	+	-	-	-	+	-	OPHI FLEX
OPHIURIDAE JUVENILE	+	+	+	+	+	+	+	+	-	-	+	+	+	+	+	-	-	+	+	-	-	+	+	+	OPHI JUVE
OPHIURA TEXTURATA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	OPHI TEXT
ORBINIA SERTULATA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ORBI SERT
ORCHOMENE HUMILIS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ORCH HUMI
ORCHOMENE NANA	-	-	-	+	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ORCH NANA
OWENIA FUSIFORMIS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	OWEN FUSI
OWENIA JUVENILE	-	-	-	-	-	-	-	-	+	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	OWEN JUVE
PARAONIS FULGENS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	PARA FULG
PARAONIS GRACILIS	-	-	-	-	-	-	+	-	-	-	-	-	-	+	-	-	-	-	+	-	-	-	-	-	PARA GRAC
PECTINARIA JUVENILE	-	-	+	-	-	-	-	+	+	-	-	-	-	+	-	-	-	-	-	-	-	+	-	-	PECT JUVE
PECTINARIA KORENI	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	PECT KORE
PERIOCULODES LONGIMANUS	-	-	+	-	-	-	-	+	-	-	+	-	-	-	-	-	-	-	-	-	-	+	-	-	PERI LONG
PHILINE SPEC.	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	PHIL SPEC
PHOLOE MINUTA	+	+	-	+	+	-	+	+	-	-	-	-	-	+	+	+	+	+	-	-	+	+	+	-	PHOL MINU
PHORONIDA SPEC.	-	+	+	+	-	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	-	PHOR ONID

Appendix-1 Biomonitoring 1998 (+=presence, - =absence)

	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
Species name	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	*Code*
PHOTIS LONGICAUDATA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	PHOT LONG
PISIONE REMOTA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	PISI REMO
PLATHYHELMITHES	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	-	-	-	-	-	-	-	PLAT HYHE
POECILOCHAETUS SERPENS	+	-	-	-	-	-	-	-	-	+	-	+	-	-	-	-	-	-	+	-	-	-	-	-	POEC SERP
POLYCHAETA JUVENILE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	POLY CHAE
POLYDORA SPEC.	-	-	+	-	-	-	+	-	-	-	-	-	+	-	-	+	-	+	+	-	+	-	-	-	POLY DORA
POLYNOE KINBERGI	-	-	-	-	-	-	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	POLY KINB
PONTOCRATES ALTAMARINUS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	PONT ALTA
PSEUDOCUMA LONGICORNIS	-	-	-	-	-	-	-	-	-	-	+	+	+	-	-	-	-	-	-	+	-	-	+	-	PSEU LONG
PSEUDOPOLYDORA PULCHRA	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	PSEU PULC
PSEUDOCUMA SIMILIS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	PSEU SIMI
SAGARTIA TROGLODYTES	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	SAGA TROG
SAXICAVELLA JEFFREYSI	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	SAXI JEFF
SCALIBREGMA INFLATUM	-	-	+	-	+	-	-	+	-	-	-	-	-	+	-	-	-	-	-	-	+	-	-	-	SCAL INFL
SCOLOPLOS ARMIGER	-	-	-	+	+	-	-	-	-	-	-	-	-	-	+	-	-	-	-	+	+	+	+	+	SCOL ARMI
SCOLELEPIS BONNIERI	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	SCOL BONN
SCOLELEPIS FOLIOSA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	SCOL FOLI
SCOLOPLOS JUVENILE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	SCOL JUVE
SCOLELEPIS SQUAMATA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	SCOL SQUA
SIGALION JUVENILE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	SIGA JUVE
SIGALION MATHILDAE	-	-	-	+	-	-	-	-	-	+	-	-	-	-	-	-	+	-	-	+	-	-	-	-	SIGA MATH
SIPHONOECETES KROYERANUS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	SIPH KROY
SIPUNCULIDA SPEC.	-	-	-	-	-	-	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	SIPU NCUL
SOSANE GRACILIS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	SOSA GRAC
SPIOPHANES BOMBYX	-	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	+	+	-	+	+	+	SPIO BOMB
SPIO FILICORNIS	+	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	+	-	-	-	-	-	+	SPIO FILI
SPIOPHANES JUVENILE	+	+	+	+	+	-	+	-	+	-	+	+	-	+	-	-	-	-	+	-	+	+	+	+	SPIO JUVE
SPIOPHANES KROEYERI	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	SPIO KROE
SPISULA ELLIPTICA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	SPIS ELLI
SPISULA JUVENILE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	SPIS JUVE
SPISULA SUBTRUNCATA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	SPIS SUBT
STHENELAIS JUVENILE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	STHE JUVE
STHENELAIS LIMICOLA	-	+	-	+	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	+	-	STHE LIMI
STREPTOSYLLIS WEBSTERI	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	STRE WEBS
SYLLIDAE SPEC.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	SYLL IDAE
SYNCHELIDIUM MACULATUM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	SYNC MACU
SYNELMIS KLATTI	-	+	-	-	-	-	+	-	-	-	+	-	-	+	+	-	-	-	+	-	-	+	-	-	SYNE KLAT
TELLINA FABULA	-	-	-	-	+	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	+	+	+	TELL FABU
TELLINA PYGMAEA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	TELL PYGM
TELLINA TENUIS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	TELL TENU
THARYX MARIONI	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	THAR MARI
THRACIA CONVEXA	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	THRA CONV
THRACIA PHASEOLINA	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	THRA PHAS
THYASIRA FLEXUOSA	+	-	-	+	+	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	+	-	THYA FLEX
TRAVISIA FORBESII	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	TRAV FORB
TURRITELLA COMMUNIS	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	TURR COMM
UNCIOLA PLANIPES	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	UNCI PLAN
UPOGEBIA DELTAURA	-	+	+	-	-	-	+	+	-	-	-	-	+	-	-	+	-	+	+	-	+	-	-	-	UPOG DELT
UROTHOE BREVICORNIS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	UROT BREV
UROTHOE ELEGANS	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	UROT ELEG
UROTHOE POSEIDONIS	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	+	UROT POSE
VENUS JUVENILE	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	VENU JUVE
VENUS STRIATULA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	+	-	-	-	+	-	-	-	VENU STRI
No. Species	34	30	32	23	24	21	26	32	27	18	23	23	23	33	27	25	21	27	33	20	32	32	33	28	

Appendix-1 Biomonitoring 1998 (+=presence, - =absence)

	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	Off	
Species name	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	*Code*
ABRA ALBA	-	+	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	ABRA ALBA
ABRA JUVENILE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ABRA JUVE
ABRA PRISMATICA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ABRA PRIS
ACROCNIDA BRACHIATA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ACRO BRAC
AMPELISCA BREVICORNIS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	AMPE BREV
AMPELISCA TENUICORNIS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	AMPE TENU
AMPHARETE SPEC.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	AMPH ARET
AMPHIURA FILIFORMIS	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	AMPH FILI
AMPHIPODA SPEC.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	AMPH IPOD
AMPHITRITINAE SPEC.	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	AMPH ITRI
ANAITIDES GROENLANDICA	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	ANAI GROE
ANAITIDES JUVENILE	-	+	+	+	-	+	-	+	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ANAI JUVE
ANAITIDES MACULATA	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ANAI MACU
ANAITIDES MUCOSA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ANAI MUCO
ANAITIDES SUBULIFERA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	ANAI SUBU
ANTHOZOA SPEC.	-	-	-	-	+	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	+	-	+	-	-	ANTH OZOA
AONIDES PAUCIBRANCHIATA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	AONI PAUC
APHRODITA ACULEATA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	APHR ACUL
APHRODITA JUVENILE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	APHR JUVE
APLACOPHORA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	APLA COPH
ARCHIANNELIDA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	ARCH IANN
ARCTICA ISLANDICA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ARCT ISLA
ARGISSA HAMATIPES	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ARGI HAMA
ARICIDEA MINUTA	-	-	-	-	-	-	-	-	-	-	-	+	+	-	-	-	+	-	+	-	-	-	-	-	+	+	ARIC MINU
ASCIDIACEA SPEC.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ASCI DIAC
ASTARTE TRIANGULARIS	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	ASTA TRIA
ASTEROIDEA JUVENILE	-	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	ASTE JUVE
ASTERIAS RUBENS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	ASTE RUBE
ASTROPECTEN IRREGULARIS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ASTR IRRE
ATYLUS FALCATUS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ATYL FALC
ATYLUS SWAMMERDAMI	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	ATYL SWAM
BATHYPOREIA ELEGANS	-	+	+	-	+	+	-	+	+	+	+	+	+	+	+	+	-	-	-	+	-	-	+	-	-	-	BATH ELEG
BATHYPOREIA GUILLIAMSONIANA	-	-	-	-	-	-	-	+	-	+	-	+	+	+	+	-	-	-	-	+	+	-	+	-	+	-	BATH GUIL
BATHYPOREIA JUVENILE	-	-	-	+	-	-	-	-	+	+	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	BATH JUVE
BATHYPOREIA TENUIPES	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	BATH TENU
BRISSOPSIS LYRIFERA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	BRIS LYRI
CALLIANASSA JUVENILE	-	-	+	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	CALL JUVE
CALLIANASSA SUBTERRANEA	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	CALL SUBT
CALLIANASSA TYRRHENA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	CALL TYRR
CAMPYLASPIS GLABRA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	CAMP GLAB
CAPITELLA CAPITATA	+	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	CAPI CAPI
CAPITELLIDAE SPEC.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	CAPI TELL
CAPRELLIDAE SPEC.	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	CAPR ELLI
CHAETOZONE SETOSA	+	+	+	+	-	-	-	+	-	+	+	-	-	+	+	-	-	-	+	-	-	-	-	-	-	-	CHAE SETO
CHAETOPTERUS VARIOPEDATUS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	CHAE VARI
CHLAMYS SPEC.	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	CHLA SPEC
CINGULA VITREA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	CING VITR
CIROLANA CRANCHII	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	CIRO CRAN
CORBULA GIBBA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	CORB GIBB
COROPHIUM AFFINE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	CORO AFFI
COROPHIUM SPEC.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	CORO PHIU
COROPHIUM VOLUTATOR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	CORO VOLU
CORYSTES CASSIVELAUNUS	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	CORY CASS
CORYSTES JUVENILE	-	-	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	CORY JUVE

Appendix-1 Biomonitoring 1998 (+=presence, - =absence)

	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	
Species name	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	*Code*
CUCUMARIA ELONGATA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	CUCU ELON
CULTELLUS PELLUCIDUS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	CULT PELL
CYLICHNA CYLINDRACEA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	CYLI CYLI
DIASTYLIS BRADYI	-	-	+	-	-	-	-	-	+	-	-	-	-	-	-	+	-	-	-	-	-	-	+	-	-	-	DIAS BRAD
DIPLOCIRRUS GLAUCUS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	DIPL GLAU
DOSINIA EXOLETA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	DOSI EXOL
DOSINIA LUPINUS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	DOSI LUPI
DOSINIA SPEC.	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	DOSI SPEC
ECHINOCARDIUM CORDATUM	-	+	-	+	+	-	+	+	-	-	-	-	-	+	+	-	-	+	-	+	-	+	+	-	+	-	ECHI CORD
ECHINOCARDIUM JUVENILE	+	+	+	+	-	+	+	+	+	+	+	+	+	+	-	-	-	-	+	+	-	-	-	-	-	-	ECHI JUVE
ECHINOCYAMUS PUSILLUS	-	-	-	-	-	+	-	-	+	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ECHI PUSI
EDWARDSIA CLAPAREDII	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	EDWA CLAP
ENSIS ARCUATUS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	+	-	ENSI ARCU
ENSIS DIRECTUS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ENSI DIRE
ENSIS ENSIS	-	-	-	-	-	-	-	+	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	ENSI ENSI
ENSIS SPEC.	-	-	-	-	-	-	-	-	+	-	-	-	+	-	-	-	-	-	-	+	-	+	-	-	-	-	ENSI SPEC
ETEONE JUVENILE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	ETEO JUVE
ETEONE LONGA	-	-	-	-	+	-	-	-	-	+	-	-	-	-	+	+	+	-	-	-	-	+	-	-	+	-	ETEO LONG
EUDORELLOPSIS DEFORMIS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	EUDO DEFO
EUDORELLA TRUNCATULA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	EUDO TRUN
EULIMA ALBA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	EULI ALBA
EUMIDA SANGUINEA	+	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	-	-	-	EUMI SANG
EUZONUS FLABELLIGERUS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	EUZO FLAB
EXOGONE HEBES	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	EXOG HEBE
EXOGONE NAIDINA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	+	-	EXOG NAID
GATTYANA CIRROSA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	GATT CIRR
GLYCERA JUVENILE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	GLYC JUVE
GLYCERA LAPIDUM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	GLYC LAPI
GLYCERA ROUXI	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	GLYC ROUX
GOLFINGIA ELONGATA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	GOLF ELON
GOLFINGIA SPEC.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	GOLF SPEC
GOLFINGIA VULGARIS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	GOLF VULG
GONIADA MACULATA	-	-	-	-	-	-	-	+	-	+	-	-	+	+	+	+	-	-	-	-	-	-	-	-	-	-	GONI MACU
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HARMOTHOE JUVENILE	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	HARM JUVE
HARMOTHOE LONGISETIS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	HARM LONG
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HARPINIA ANTENNARIA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	HARP ANTE
HARPINIA PECTINATA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	HARP PECT
HESIONURA AUGENERI	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	+	-	-	-	-	+	HESI AUGE
HETEROMASTUS FILIFORMIS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	HETE FILI
HIPPOMEDON DENTICULATUS	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	HIPP DENT
HOLOTHURIOIDEA SPEC.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	HOLO THUR
HYDROZOA SPEC.	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	-	-	-	-	-	-	-	-	-	+	-	HYDR OZOA
IONE THORACIA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	IONE THOR
IPHINOE TRISPINOSA	-	-	-	-	-	-	+	-	+	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	IPHI TRIS
LANICE CONCHILEGA	-	+	+	-	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	-	-	-	LANI CONC
LANICE JUVENILE	+	+	+	+	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	LANI JUVE
LEPTOSYNAPTA INHAERENS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	LEPT INHA
LEPTON SQUAMOSUM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	LEPT SQUA
LEUCOTHOE INCISA	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	LEUC INCI
LEUCOTHOE LILLJEBORGI	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	LEUC LILL
LEUCOTHOE RICHIARDII	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	LEUC RICH

Appendix-1 Biomonitoring 1998 (+=presence, - =absence)

	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	
Species name	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	*Code*
LUCINOMA BOREALIS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	LUCI BORE
LUMBRINERIS LATREILLI	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	LUMB LATR
LYSILLA LOVENI	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	LYSI LOVE
MACOMA BALTHICA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	MACO BALT
MACTRA CORALLINA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	MACT CORA
MACTRA SPEC.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	MACT SPEC
MAGELONA ALLENI	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	MAGE ALLE
MAGELONA JUVENILE	+	+	+	-	+	+	-	+	-	-	+	-	+	-	-	-	-	-	+	-	+	-	-	-	-	-	MAGE JUVE
MAGELONA PAPILLICORNIS	+	+	+	+	+	-	+	+	+	-	+	+	-	-	+	+	-	+	-	+	-	-	-	-	+	+	MAGE PAPI
MEDIOMASTUS FRAGILIS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	MEDI FRAG
MEGALUROPUS AGILIS	-	+	-	-	-	+	-	-	-	+	-	-	+	+	-	+	-	-	+	+	+	+	+	-	+	+	MEGA AGIL
MELITA OBTUSATA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	MELI OBTU
METOPA BOREALIS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	METO BORI
MICROPROTOPUS MACULATA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	MICR MACU
MONTACUTA FERRUGINOSA	+	+	-	+	+	-	+	-	-	-	-	-	-	+	+	-	-	-	-	-	-	-	+	-	-	-	MONT FERR
MYRIOCHELE HEERI	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	MYRI HEER
MYSELLA BIDENTATA	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	-	-	MYSE BIDE
NATICA ALDERI	+	-	-	+	-	+	-	-	-	-	+	+	+	+	+	-	-	-	-	-	-	+	+	+	+	-	NATI ALDE
NEBALIA BIPES	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NEBA BIPE
NEMERTINI	+	+	+	+	+	+	-	+	+	+	+	+	-	-	+	-	-	-	-	-	+	+	+	-	-	+	NEME RTIN
NEPHTYS CAECA	-	+	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NEPH CAEC
NEPHTYS CIRROSA	-	-	+	-	-	+	-	-	+	+	+	-	+	+	+	+	+	+	+	+	+	+	+	+	+	+	NEPH CIRR
NEPHTYS HOMBERGII	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	NEPH HOMB
NEPHTYS INCISA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NEPH INCI
NEPHTYS JUVENILE	-	+	+	-	+	+	+	+	+	-	+	+	-	-	-	-	-	-	+	-	-	-	+	-	-	+	NEPH JUVE
NEPHTYS LONGOSETOSA	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	+	-	-	+	-	-	-	-	NEPH LONG
NEREIS JUVENILE	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NERE JUVE
NEREIS LONGISSIMA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	NERE LONG
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NUCULA TENIUS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NUCU TENU
NUCULA TURGIDA	-	-	-	+	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NUCU TURG
OLIGOCHAETA SPEC.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	OLIG OCHA
OPHELINA ACUMINATA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	OPHE ACUM
OPHELIIDAE JUVENILE	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	OPHE JUVE
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OPHELINAE SPEC.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	OPHE LINA
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OPHIODROMUS FLEXUOSUS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	OPHI FLEX
OPHIURIDAE JUVENILE	+	-	-	-	-	+	-	+	+	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	OPHI JUVE
OPHIURA TEXTURATA	-	-	+	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	OPHI TEXT
ORBINIA SERTULATA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ORBI SERT
ORCHOMENE HUMILIS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ORCH HUMI
ORCHOMENE NANA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ORCH NANA
OWENIA FUSIFORMIS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	OWEN FUSI
OWENIA JUVENILE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	OWEN JUVE
PARAONIS FULGENS	-	-	-	-	-	-	-	-	+	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	PARA FULG
PARAONIS GRACILIS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	PARA GRAC
PECTINARIA JUVENILE	-	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	PECT JUVE
PECTINARIA KORENI	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	PECT KORE
PERIOCULODES LONGIMANUS	-	-	+	+	+	-	+	-	+	-	+	-	-	-	-	-	-	-	-	-	-	-	+	-	+	-	PERI LONG
PHILINE SPEC.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	PHIL SPEC
PHOLOE MINUTA	-	-	-	-	+	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	PHOL MINU
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Appendix-1 Biomonitoring 1998 (+=presence, - =absence)

	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	
Species name	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	*Code*
PHOTIS LONGICAUDATA	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	PHOT LONG
PISIONE REMOTA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	PISI REMO
PLATHYHELMITHES	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	PLAT HYHE
POECILOCHAETUS SERPENS	+	+	+	+	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	-	-	-	POEC SERP
POLYCHAETA JUVENILE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	POLY CHAE
POLYDORA SPEC.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	POLY DORA
POLYNOE KINBERGI	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	POLY KINB
PONTOCRATES ALTAMARINUS	-	-	-	-	-	-	-	-	-	+	+	-	+	+	+	-	-	-	-	-	-	-	-	-	-	+	PONT ALTA
PSEUDOCUMA LONGICORNIS	-	-	-	+	-	-	-	-	-	+	-	-	-	+	-	-	-	+	-	+	-	+	-	+	+	-	PSEU LONG
PSEUDOPOLYDORA PULCHRA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	PSEU PULC
PSEUDOCUMA SIMILIS	-	-	-	+	-	+	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	PSEU SIMI
SAGARTIA TROGLODYTES	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	SAGA TROG
SAXICAVELLA JEFFREYSI	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	SAXI JEFF
SCALIBREGMA INFLATUM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	SCAL INFL
SCOLOPLOS ARMIGER	+	+	+	+	+	+	+	-	+	+	+	+	+	+	+	+	-	-	-	-	-	+	+	+	-	-	SCOL ARMI
SCOLELEPIS BONNIERI	-	-	-	-	-	-	-	-	+	+	-	-	-	-	-	-	+	-	-	-	-	+	-	-	+	-	SCOL BONN
SCOLELEPIS FOLIOSA	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	SCOL FOLI
SCOLOPLOS JUVENILE	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	SCOL JUVE
SCOLELEPIS SQUAMATA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	+	-	-	-	-	+	-	SCOL SQUA
SIGALION JUVENILE	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	SIGA JUVE
SIGALION MATHILDAE	-	-	-	-	+	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	SIGA MATH
SIPHONOECETES KROYERANUS	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	SIPH KROY
SIPUNCULIDA SPEC.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	SIPU NCUL
SOSANE GRACILIS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	SOSA GRAC
SPIOPHANES BOMBYX	+	+	-	+	+	+	-	+	-	+	-	-	+	-	-	+	-	-	-	+	+	+	+	+	+	-	SPIO BOMB
SPIO FILICORNIS	-	-	-	+	-	+	+	+	+	+	-	-	+	-	-	+	-	-	+	+	+	-	-	-	-	+	SPIO FILI
SPIOPHANES JUVENILE	-	-	+	-	+	-	-	-	+	+	+	+	-	+	+	+	-	-	-	-	-	-	-	-	+	-	SPIO JUVE
SPIOPHANES KROEYERI	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	SPIO KROE
SPISULA ELLIPTICA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	SPIS ELLI
SPISULA JUVENILE	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	SPIS JUVE
SPISULA SUBTRUNCATA	-	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	SPIS SUBT
STHENELAIS JUVENILE	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	STHE JUVE
STHENELAIS LIMICOLA	-	-	-	+	-	-	-	-	-	-	-	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	STHE LIMI
STREPTOSYLLIS WEBSTERI	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	-	-	-	-	STRE WEBS
SYLLIDAE SPEC.	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	SYLL IDAE
SYNCHELIDIUM MACULATUM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	SYNC MACU
SYNELMIS KLATTI	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	SYNE KLAT
TELLINA FABULA	-	+	+	+	+	-	-	+	-	-	+	-	+	+	+	-	-	-	-	-	-	-	-	+	-	-	TELL FABU
TELLINA PYGMAEA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	TELL PYGM
TELLINA TENUIS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	TELL TENU
THARYX MARIONI	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	THAR MARI
THRACIA CONVEXA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	THRA CONV
THRACIA PHASEOLINA	-	-	-	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	THRA PHAS
THYASIRA FLEXUOSA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	THYA FLEX
TRAVISIA FORBESII	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	TRAV FORB
TURRITELLA COMMUNIS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	TURR COMM
UNCIOLA PLANIPES	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	UNCI PLAN
UPOGEBIA DELTAURA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	UPOG DELT
UROTHOE BREVICORNIS	-	-	-	-	-	-	-	-	-	+	-	-	+	+	-	+	-	+	-	+	-	+	+	-	+	-	UROT BREV
UROTHOE ELEGANS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	UROT ELEG
UROTHOE POSEIDONIS	-	-	-	+	+	-	+	+	+	-	+	+	+	+	+	-	+	-	-	+	-	+	+	+	+	-	UROT POSE
VENUS JUVENILE	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	VENU JUVE
VENUS STRIATULA	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	VENU STRI
No. Species	20	27	28	34	27	23	11	21	18	23	26	14	21	17	18	15	5	7	11	15	20	19	35	9	21	13	

Appendix-1 Biomonitoring 1998 (+=presence, - =absence)

	Offshore area										Coastal area															
	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Coa	Coa	Coa	Coa	Coa	Coa	Coa	Coa	Coa	Coa	Coa	Coa	Coa	Coa	Coa	
Species name	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	*Code*
ABRA ALBA	-	-	-	-	-	-	-	-	-	-	+	-	+	+	-	+	-	-	-	-	-	-	-	+	-	ABRA ALBA
ABRA JUVENILE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ABRA JUVE
ABRA PRISMATICA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ABRA PRIS
ACROCNIDA BRACHIATA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ACRO BRAC
AMPELISCA BREVICORNIS	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	AMPE BREV
AMPELISCA TENUICORNIS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	AMPE TENU
AMPHARETE SPEC.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	AMPH ARET
AMPHIURA FILIFORMIS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	AMPH FILI
AMPHIPODA SPEC.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	AMPH IPOD
AMPHITRITINAE SPEC.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	AMPH ITRI
ANAITIDES GROENLANDICA	+	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ANAI GROE
ANAITIDES JUVENILE	-	-	+	-	+	-	+	-	-	-	+	-	-	+	+	+	-	+	-	-	-	-	-	-	-	ANAI JUVE
ANAITIDES MACULATA	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	ANAI MACU
ANAITIDES MUCOSA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ANAI MUCO
ANAITIDES SUBULIFERA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ANAI SUBU
ANTHOZOA SPEC.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ANTH OZOA
AONIDES PAUCIBRANCHIATA	+	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	AONI PAUC
APHRODITA ACULEATA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	APHR ACUL
APHRODITA JUVENILE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	APHR JUVE
APLACOPHORA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	APLA COPH
ARCHIANNELIDA	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ARCH IANN
ARCTICA ISLANDICA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ARCT ISLA
ARGISSA HAMATIPES	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ARGI HAMA
ARICIDEA MINUTA	-	-	-	-	+	+	+	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ARIC MINU
ASCIDIACEA SPEC.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ASCI DIAC
ASTARTE TRIANGULARIS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ASTA TRIA
ASTEROIDEA JUVENILE	+	-	-	-	-	-	-	-	-	-	-	+	-	-	+	-	-	-	-	-	-	-	-	+	-	ASTE JUVE
ASTERIAS RUBENS	-	-	-	-	-	-	-	-	-	-	+	-	+	-	-	-	-	-	-	-	-	-	-	-	-	ASTE RUBE
ASTROPECTEN IRREGULARIS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ASTR IRRE
ATYLUS FALCATUS	-	-	-	-	-	-	-	-	-	-	+	+	+	-	-	+	-	-	+	-	+	-	-	-	-	ATYL FALC
ATYLUS SWAMMERDAMI	+	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	ATYL SWAM
BATHYPOREIA ELEGANS	-	-	-	+	+	-	+	+	+	-	+	-	+	-	-	-	+	+	-	+	+	+	-	-	+	BATH ELEG
BATHYPOREIA GUILLIAMSONIANA	-	-	+	-	-	-	+	+	-	-	+	-	+	-	-	+	-	+	+	-	+	-	-	-	+	BATH GUIL
BATHYPOREIA JUVENILE	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	BATH JUVE
BATHYPOREIA TENUIPES	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	BATH TENU
BRISSOPSIS LYRIFERA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	BRIS LYRI
CALLIANASSA JUVENILE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	CALL JUVE
CALLIANASSA SUBTERRANEA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	CALL SUBT
CALLIANASSA TYRRHENA	+	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	CALL TYRR
CAMPYLASPIS GLABRA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	CAMP GLAB
CAPITELLA CAPITATA	+	-	-	-	-	-	+	-	-	-	+	+	+	+	+	+	+	+	+	-	+	-	-	-	+	CAPI CAPI
CAPITELLIDAE SPEC.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	CAPI TELL
CAPRELLIDAE SPEC.	-	-	+	-	+	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	CAPR ELLI
CHAETOZONE SETOSA	-	-	+	+	+	-	+	-	-	-	+	-	-	-	-	-	-	-	+	-	-	-	-	-	-	CHAE SETO
CHAETOPTERUS VARIOPEDATUS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	CHAE VARI
CHLAMYS SPEC.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	CHLA SPEC
CINGULA VITREA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	CING VITR
CIROLANA CRANCHII	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	CIRO CRAN
CORBULA GIBBA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	CORB GIBB
COROPHIUM AFFINE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	CORO AFFI
COROPHIUM SPEC.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	CORO PHIU
COROPHIUM VOLUTATOR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	CORO VOLU
CORYSTES CASSIVELAUNUS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	CORY CASS
CORYSTES JUVENILE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	CORY JUVE

Appendix-1 Biomonitoring 1998 (+=presence, - =absence)

	Offshore area										Coastal area															
	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Coa	Coa	Coa	Coa	Coa	Coa	Coa	Coa	Coa	Coa	Coa	Coa	Coa	Coa	Coa	
Species name	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	*Code*
CUCUMARIA ELONGATA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	CUCU ELON
CULTELLUS PELLUCIDUS	-	-	+	-	+	-	-	-	-	-	+	-	-	+	-	+	-	+	-	-	-	-	-	-	-	CULT PELL
CYLICHNA CYLINDRACEA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	CYLI CYLI
DIASTYLIS BRADYI	-	-	-	+	-	-	-	-	-	-	+	-	-	+	+	-	-	-	-	-	+	-	-	-	-	DIAS BRAD
DIPLOCIRRUS GLAUCUS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	DIPL GLAU
DOSINIA EXOLETA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	DOSI EXOL
DOSINIA LUPINUS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	DOSI LUPI
DOSINIA SPEC.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	DOSI SPEC
ECHINOCARDIUM CORDATUM	+	-	+	+	-	-	-	+	+	-	+	+	+	+	-	-	-	-	+	-	-	-	-	-	-	ECHI CORD
ECHINOCARDIUM JUVENILE	+	+	+	+	+	+	-	-	-	-	+	+	+	+	-	-	-	+	-	+	-	-	-	-	-	ECHI JUVE
ECHINOCYAMUS PUSILLUS	-	-	+	-	-	-	-	-	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ECHI PUSI
EDWARDSIA CLAPAREDII	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	EDWA CLAP
ENSIS ARCUATUS	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ENSI ARCU
ENSIS DIRECTUS	-	-	-	-	-	-	-	-	-	-	+	+	+	+	+	+	-	-	-	-	-	-	-	-	-	ENSI DIRE
ENSIS ENSIS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	+	-	-	-	ENSI ENSI
ENSIS SPEC.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	+	ENSI SPEC
ETEONE JUVENILE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ETEO JUVE
ETEONE LONGA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	ETEO LONG
EUDORELLOPSIS DEFORMIS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	EUDO DEFO
EUDORELLA TRUNCATULA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	EUDO TRUN
EULIMA ALBA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	EULI ALBA
EUMIDA SANGUINEA	+	-	-	-	-	-	-	-	-	-	+	+	-	-	-	+	-	+	-	-	+	-	-	+	-	EUMI SANG
EUZONUS FLABELLIGERUS	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	EUZO FLAB
EXOGONE HEBES	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	EXOG HEBE
EXOGONE NAIDINA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	EXOG NAID
GATTYANA CIRROSA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	GATT CIRR
GLYCERA JUVENILE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	GLYC JUVE
GLYCERA LAPIDUM	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	GLYC LAPI
GLYCERA ROUXI	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	GLYC ROUX
GOLFINGIA ELONGATA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	GOLF ELON
GOLFINGIA SPEC.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	GOLF SPEC
GOLFINGIA VULGARIS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	GOLF VULG
GONIADA MACULATA	-	-	-	+	+	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	GONI MACU
GYPTIS CAPENSIS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	GYPT CAPE
HARMOTHOE JUVENILE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	HARM JUVE
HARMOTHOE LONGISETIS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	+	HARM LONG
HARMOTHOE LUNUATA	-	-	+	+	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	+	-	HARM LUNU
HARMOTHOE NODOSA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	HARM NODO
HARPINIA ANTENNARIA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	HARP ANTE
HARPINIA PECTINATA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	HARP PECT
HESIONURA AUGENERI	-	+	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	HESI AUGE
HETEROMASTUS FILIFORMIS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	HETE FILI
HIPPOMEDON DENTICULATUS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	HIPP DENT
HOLOTHURIOIDEA SPEC.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	HOLO THUR
HYDROZOA SPEC.	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	HYDR OZOA
IONE THORACIA	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	IONE THOR
IPHINOE TRISPINOSA	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	IPHI TRIS
LANICE CONCHILEGA	+	-	+	-	-	-	+	-	-	-	+	-	+	+	+	+	-	+	-	+	+	-	-	+	+	LANI CONC
LANICE JUVENILE	+	-	+	+	-	-	-	-	-	-	+	+	-	+	+	+	-	-	-	-	-	-	-	+	-	LANI JUVE
LEPTOSYNAPTA INHAERENS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	LEPT INHA
LEPTON SQUAMOSUM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	LEPT SQUA
LEUCOTHOE INCISA	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	LEUC INCI
LEUCOTHOE LILLJEBORGI	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	LEUC LILL
LEUCOTHOE RICHIARDII	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	LEUC RICH

Appendix-1 Biomonitoring 1998 (+=presence, - =absence)

	Offshore area										Coastal area															
	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Coa	Coa	Coa	Coa	Coa	Coa	Coa	Coa	Coa	Coa	Coa	Coa	Coa	Coa	Coa	
Species name	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	*Code*
LUCINOMA BOREALIS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	LUCI BORE
LUMBRINERIS LATREILLI	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	LUMB LATR
LYSILLA LOVENI	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	LYSI LOVE
MACOMA BALTHICA	-	-	-	-	-	-	-	-	-	-	-	+	-	+	-	+	-	-	-	-	-	-	-	-	-	MACO BALT
MACTRA CORALLINA	-	+	-	-	-	-	-	-	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	MACT CORA
MACTRA SPEC.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	MACT SPEC
MAGELONA ALLENI	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	MAGE ALLE
MAGELONA JUVENILE	-	-	-	+	-	-	-	-	-	-	+	+	-	-	-	+	-	+	-	+	-	+	-	-	-	MAGE JUVE
MAGELONA PAPILLICORNIS	-	-	-	+	+	+	+	+	-	-	+	+	+	-	+	+	+	+	+	+	-	+	-	-	+	MAGE PAPI
MEDIOMASTUS FRAGILIS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	MEDI FRAG
MEGALUROPUS AGILIS	-	+	+	-	+	-	+	+	+	-	-	-	-	-	-	-	-	+	-	-	-	+	-	-	-	MEGA AGIL
MELITA OBTUSATA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	MELI OBTU
METOPA BOREALIS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	METO BORI
MICROPROTOPUS MACULATA	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	MICR MACU
MONTACUTA FERRUGINOSA	+	-	-	+	+	-	-	-	-	-	+	+	+	+	+	+	-	+	+	-	+	-	-	-	-	MONT FERR
MYRIOCHELE HEERI	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	MYRI HEER
MYSELLA BIDENTATA	+	-	+	-	-	-	-	-	-	-	+	-	+	+	-	-	-	+	+	-	-	+	-	-	+	MYSE BIDE
NATICA ALDERI	+	-	+	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	NATI ALDE
NEBALIA BIPES	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NEBA BIPE
NEMERTINI	+	-	+	+	+	-	+	-	+	+	+	-	-	+	+	+	-	+	+	+	+	-	-	-	-	NEME RTIN
NEPHTYS CAECA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NEPH CAEC
NEPHTYS CIRROSA	-	+	+	-	-	+	+	+	+	+	-	-	+	-	-	-	+	+	-	+	+	+	-	+	-	NEPH CIRR
NEPHTYS HOMBERGII	+	-	-	-	+	-	+	-	-	-	-	-	+	+	+	+	-	+	+	+	-	-	-	+	+	NEPH HOMB
NEPHTYS INCISA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NEPH INCI
NEPHTYS JUVENILE	-	-	-	-	+	-	-	-	+	-	+	+	+	-	+	+	-	+	+	-	+	+	-	-	+	NEPH JUVE
NEPHTYS LONGOSETOSA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	NEPH LONG
NEREIS JUVENILE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NERE JUVE
NEREIS LONGISSIMA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	+	+	NERE LONG
NOTOMASTUS JUVENILE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NOTO JUVE
NOTOMASTUS LATERICEUS	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NOTO LATE
NUCULA TENIUS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NUCU TENU
NUCULA TURGIDA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NUCU TURG
OLIGOCHAETA SPEC.	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	OLIG OCHA
OPHELINA ACUMINATA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	OPHE ACUM
OPHELIIDAE JUVENILE	-	-	+	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	OPHE JUVE
OPHELIA LIMACINA	-	-	+	-	+	-	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	OPHE LIMA
OPHELINAE SPEC.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	OPHE LINA
OPHIURA ALBIDA	-	-	-	-	+	-	+	-	-	-	+	-	-	-	-	-	-	-	-	+	+	-	-	+	-	OPHI ALBI
OPHIODROMUS FLEXUOSUS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	OPHI FLEX
OPHIURIDAE JUVENILE	-	+	+	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	OPHI JUVE
OPHIURA TEXTURATA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	OPHI TEXT
ORBINIA SERTULATA	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ORBI SERT
ORCHOMENE HUMILIS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ORCH HUMI
ORCHOMENE NANA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ORCH NANA
OWENIA FUSIFORMIS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	OWEN FUSI
OWENIA JUVENILE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	OWEN JUVE
PARAONIS FULGENS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	PARA FULG
PARAONIS GRACILIS	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	PARA GRAC
PECTINARIA JUVENILE	-	-	-	-	-	-	-	-	-	-	+	-	-	-	+	-	-	-	-	-	-	-	-	-	-	PECT JUVE
PECTINARIA KORENI	+	-	-	-	-	-	-	-	-	-	+	+	-	+	-	+	-	-	+	-	-	-	-	-	-	PECT KORE
PERIOCULODES LONGIMANUS	-	-	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	PERI LONG
PHILINE SPEC.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	PHIL SPEC
PHOLOE MINUTA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	PHOL MINU
PHORONIDA SPEC.	-	-	-	-	-	-	+	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	PHOR ONID

Appendix-1 Biomonitoring 1998 (+=presence, - =absence)

	Offshore area										Coastal area															
	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Coa	Coa	Coa	Coa	Coa	Coa	Coa	Coa	Coa	Coa	Coa	Coa	Coa	Coa	Coa	
Species name	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	*Code*
PHOTIS LONGICAUDATA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	PHOT LONG
PISIONE REMOTA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	PISI REMO
PLATHYHELMITHES	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	PLAT HYHE
POECILOCHAETUS SERPENS	-	-	-	+	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	POEC SERP
POLYCHAETA JUVENILE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	POLY CHAE
POLYDORA SPEC.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	POLY DORA
POLYNOE KINBERGI	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	POLY KINB
PONTOCRATES ALTAMARINUS	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	+	PONT ALTA
PSEUDOCUMA LONGICORNIS	-	+	+	+	-	+	+	+	-	-	+	+	+	-	-	-	-	-	+	-	-	-	-	-	-	PSEU LONG
PSEUDOPOLYDORA PULCHRA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	PSEU PULC
PSEUDOCUMA SIMILIS	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	PSEU SIMI
SAGARTIA TROGLODYTES	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	SAGA TROG
SAXICAVELLA JEFFREYSI	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	SAXI JEFF
SCALIBREGMA INFLATUM	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	SCAL INFL
SCOLOPLOS ARMIGER	+	-	+	+	+	+	+	+	+	-	+	+	+	-	+	+	-	+	+	+	+	+	-	+	-	SCOL ARMI
SCOLELEPIS BONNIERI	-	+	+	+	-	-	-	+	-	-	-	+	-	-	-	-	+	+	-	-	-	+	-	-	-	SCOL BONN
SCOLELEPIS FOLIOSA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	SCOL FOLI
SCOLOPLOS JUVENILE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	SCOL JUVE
SCOLELEPIS SQUAMATA	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	SCOL SQUA
SIGALION JUVENILE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	SIGA JUVE
SIGALION MATHILDAE	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	SIGA MATH
SIPHONOECETES KROYERANUS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	SIPH KROY
SIPUNCULIDA SPEC.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	SIPU NCUL
SOSANE GRACILIS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	SOSA GRAC
SPIOPHANES BOMBYX	+	+	+	+	+	+	+	+	+	-	-	+	+	-	+	+	-	+	+	-	-	+	-	+	+	SPIO BOMB
SPIO FILICORNIS	-	+	+	-	+	+	-	+	-	+	-	+	-	-	-	-	+	+	-	-	-	+	-	-	-	SPIO FILI
SPIOPHANES JUVENILE	-	-	-	-	+	-	+	+	+	-	-	-	-	-	-	-	-	-	+	-	-	+	-	-	-	SPIO JUVE
SPIOPHANES KROEYERI	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	SPIO KROE
SPISULA ELLIPTICA	+	-	-	-	-	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	SPIS ELLI
SPISULA JUVENILE	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	SPIS JUVE
SPISULA SUBTRUNCATA	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	-	-	-	+	-	-	-	-	-	-	SPIS SUBT
STHENELAIS JUVENILE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	STHE JUVE
STHENELAIS LIMICOLA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	STHE LIMI
STREPTOSYLLIS WEBSTERI	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	STRE WEBS
SYLLIDAE SPEC.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	SYLL IDAE
SYNCHELIDIUM MACULATUM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	SYNC MACU
SYNELMIS KLATTI	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	SYNE KLAT
TELLINA FABULA	-	-	-	+	+	-	-	-	-	-	+	+	+	+	-	+	-	+	+	-	+	-	-	-	+	TELL FABU
TELLINA PYGMAEA	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	TELL PYGM
TELLINA TENUIS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	TELL TENU
THARYX MARIONI	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	THAR MARI
THRACIA CONVEXA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	THRA CONV
THRACIA PHASEOLINA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	THRA PHAS
THYASIRA FLEXUOSA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	THYA FLEX
TRAVISIA FORBESII	-	-	+	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	TRAV FORB
TURRITELLA COMMUNIS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	TURR COMM
UNCIOLA PLANIPES	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	UNCI PLAN
UPOGEBIA DELTAURA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	UPOG DELT
UROTHOE BREVICORNIS	-	-	-	-	+	-	+	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	UROT BREV
UROTHOE ELEGANS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	UROT ELEG
UROTHOE POSEIDONIS	+	-	-	+	-	+	+	-	+	-	-	+	+	+	+	+	+	+	+	+	+	+	-	+	+	UROT POSE
VENUS JUVENILE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	VENU JUVE
VENUS STRIATULA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	VENU STRI
No. Species	28	15	28	25	24	11	25	17	18	10	31	22	21	19	17	24	8	26	20	13	19	15	3	16	18	

NOTE

Explanation of abbreviations in the tables:

N	= Number of individuals per m^2
B	= Biomass in g AFDW/m^2
SUMS	= Sum of density and biomass per boxcore
NSPC	= Number of species per boxcore
SH-W	= Shannon-Wiener index of diversity
SIMP	= Simpson index of dominance

All species names have been abbreviated by the first four characters of the generic name and the first four characters of the specific name. For full scientific names, see Appendix-1.

Station index:

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STATION:	DOG 1		DOG 2		DOG 3		DOG 4		DOG 5	
CRUSTACEA	N	B	N	B	N	B	N	B	N	B
AMPEBREV	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.022	14.6	0.015
ARGIHAMA	58.5	0.018	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000
ATYLFALC	29.3	0.009	14.6	0.004	0.0	0.000	0.0	0.000	0.0	0.000
BATHELEG	131.7	0.040	87.8	0.026	263.3	0.079	819.3	0.246	0.0	0.000
BATHGUIL	43.9	0.013	0.0	0.000	43.9	0.013	146.3	0.044	43.9	0.013
BATHJUVE	73.2	0.015	58.5	0.012	160.9	0.032	292.6	0.058	0.0	0.000
BATHTENU	0.0	0.000	131.7	0.040	14.6	0.004	29.3	0.009	131.7	0.040
DIASBRAD	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.022	0.0	0.000
HIPPDENT	43.9	0.029	29.3	0.009	0.0	0.000	29.3	0.037	43.9	0.044
IPHITRIS	14.6	0.015	0.0	0.000	0.0	0.000	43.9	0.013	0.0	0.000
LEUCINCI	0.0	0.000	14.6	0.004	0.0	0.000	0.0	0.000	0.0	0.000
MEGAAGIL	14.6	0.004	29.3	0.009	0.0	0.000	0.0	0.000	0.0	0.000
PERILONG	14.6	0.004	29.3	0.009	0.0	0.000	29.3	0.009	14.6	0.004
PONTALTA	14.6	0.004	0.0	0.000	0.0	0.000	58.5	0.018	0.0	0.000
PSEULONG	29.3	0.006	0.0	0.000	0.0	0.000	29.3	0.006	14.6	0.003
SIPHKROY	0.0	0.000	29.3	0.009	29.3	0.009	29.3	0.009	0.0	0.000
UROTPOSE	512.1	0.154	73.2	0.022	292.6	0.088	175.6	0.053	0.0	0.000
ECHINODERMATA										
ACROBRAC	102.4	2.655	87.8	10.671	380.4	5.755	87.8	3.476	146.3	10.706
ECHICORD	0.0	0.000	14.6	5.912	14.6	0.816	0.0	0.000	14.6	10.328
ECHIPUSI	43.9	0.015	0.0	0.000	29.3	0.019	0.0	0.000	0.0	0.000
OPHIALBI	0.0	0.000	14.6	0.102	0.0	0.000	0.0	0.000	0.0	0.000
OPHIJUVE	87.8	0.009	14.6	0.002	43.9	0.004	29.3	0.003	87.8	0.009
MOLLUSCA										
CULTPELL	0.0	0.000	14.6	0.011	0.0	0.000	0.0	0.000	58.5	0.776
DOSISPEC	14.6	0.003	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000
ENSIENSI	0.0	0.000	0.0	0.000	43.9	0.699	0.0	0.000	0.0	0.000
LUCIBORE	0.0	0.000	0.0	0.000	29.3	2.304	0.0	0.000	14.6	3.097
MONTFERR	0.0	0.000	58.5	0.060	0.0	0.000	0.0	0.000	14.6	0.045
MYSEBIDE	58.5	0.012	0.0	0.000	438.9	0.088	29.3	0.006	365.8	0.110
NATIALDE	0.0	0.000	14.6	0.017	0.0	0.000	0.0	0.000	29.3	0.004
TELLFABU	160.9	0.159	102.4	0.123	43.9	0.163	43.9	0.010	921.7	0.341
THRAPHAS	29.3	0.049	0.0	0.000	0.0	0.000	14.6	6.342	0.0	0.000
THYAFLEX	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	29.3	0.033
POLYCHAETA										
ANAIJUVE	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.004
ARICMINU	29.3	0.006	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000
CHAESETO	43.9	0.010	0.0	0.000	0.0	0.000	0.0	0.000	29.3	0.012
ETEOLONG	0.0	0.000	0.0	0.000	0.0	0.000	29.3	0.008	0.0	0.000
EUMISANG	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.004
GONIMACU	160.9	0.046	0.0	0.000	58.5	0.222	87.8	0.257	29.3	0.066
GYPTCAPE	29.3	0.014	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.006
HARMLUNU	29.3	0.006	43.9	0.019	29.3	0.017	14.6	0.006	0.0	0.000
LANICONC	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.407
MAGEALLE	14.6	0.012	29.3	0.012	0.0	0.000	0.0	0.000	0.0	0.000
MAGEJUVE	468.2	0.062	204.8	0.023	58.5	0.008	117.0	0.015	380.4	0.048
MAGEPAPI	234.1	0.189	321.9	0.483	29.3	0.012	73.2	0.085	102.4	0.116
NEPHCAEC	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	14.6	2.997
NEPHCIRR	14.6	0.035	0.0	0.000	14.6	0.033	29.3	0.066	0.0	0.000
NEPHHOMB	29.3	0.765	0.0	0.000	0.0	0.000	0.0	0.000	29.3	0.342
NEPHJUVE	102.4	0.015	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.006
NOTOLATE	0.0	0.000	0.0	0.000	14.6	0.245	0.0	0.000	0.0	0.000
OPHELIMA	43.9	0.048	0.0	0.000	14.6	0.029	14.6	0.010	0.0	0.000
OWENFUSI	58.5	0.116	0.0	0.000	14.6	0.048	14.6	0.019	0.0	0.000
PHOLMINU	0.0	0.000	102.4	0.015	14.6	0.004	0.0	0.000	102.4	0.023
SCOLBONN	14.6	0.415	0.0	0.000	14.6	0.195	0.0	0.000	0.0	0.000
SIGAMATH	0.0	0.000	0.0	0.000	29.3	0.579	0.0	0.000	29.3	0.073
SOSAGRAC	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.035	0.0	0.000
SPIOBOMB	87.8	0.060	190.2	0.062	102.4	0.043	87.8	0.083	117.0	0.106
SPIOFILI	0.0	0.000	73.2	0.019	0.0	0.000	14.6	0.006	43.9	0.014
SPIOJUVE	2165.2	0.072	1199.7	0.079	248.7	0.015	658.4	0.029	351.1	0.017
MISCELLANEOUS										
EDWACLAP	87.8	0.264	14.6	0.029	0.0	0.000	29.3	0.187	0.0	0.000
NEMERTIN	87.8	0.232	29.3	0.016	43.9	0.200	73.2	0.080	73.2	0.290
PHORONID	87.8	0.012	29.3	0.008	73.2	0.006	0.0	0.000	29.3	0.006
SUMS	5267.0	5.587	3057.9	17.805	2589.5	11.731	3175.1	11.266	3350.3	30.103
DIVERSITY										
NSPC	38		29		29		32		34	
SH-W	2.487		2.432		2.742		2.613		2.669	
SIMP	0.194		0.182		0.092		0.129		0.121	

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STATION:	DOG 6		DOG 7		OYS 1		OYS 2		OYS 3	
CRUSTACEA	N	B	N	B	N	B	N	B	N	B
AMPEBREV	0.0	0.000	0.0	0.000	0.0	0.000	58.5	0.037	0.0	0.000
AMPETENU	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.004
ARGIHAMA	0.0	0.000	43.9	0.013	0.0	0.000	0.0	0.000	0.0	0.000
BATHELEG	365.8	0.110	746.1	0.224	0.0	0.000	0.0	0.000	14.6	0.004
BATHGUIL	73.2	0.022	219.5	0.066	0.0	0.000	0.0	0.000	0.0	0.000
BATHTENU	0.0	0.000	102.4	0.031	0.0	0.000	0.0	0.000	0.0	0.000
CALLSUBT	0.0	0.000	0.0	0.000	29.3	0.847	43.9	3.259	43.9	0.349
CAMPGLAB	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.003
CAPRELLI	0.0	0.000	14.6	0.003	0.0	0.000	0.0	0.000	0.0	0.000
CIROCRAN	0.0	0.000	0.0	0.000	14.6	0.114	0.0	0.000	0.0	0.000
COROPHIU	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.003
CORYCASS	0.0	0.000	0.0	0.000	0.0	0.000	175.6	0.312	0.0	0.000
DIASBRAD	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	43.9	0.018
EUDODEFO	14.6	0.003	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000
EUDOTRUN	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.003
HARPANTE	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	102.4	0.031
HIPPDENT	29.3	0.006	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000
IONETHOR	0.0	0.000	0.0	0.000	14.6	0.020	0.0	0.000	14.6	0.007
IPHITRIS	0.0	0.000	29.3	0.029	0.0	0.000	0.0	0.000	0.0	0.000
LEUCINCI	0.0	0.000	14.6	0.004	0.0	0.000	0.0	0.000	0.0	0.000
LEUCLILL	14.6	0.004	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000
MEGAAGIL	29.3	0.009	14.6	0.004	0.0	0.000	0.0	0.000	0.0	0.000
METOBORI	0.0	0.000	0.0	0.000	14.6	0.004	0.0	0.000	0.0	0.000
NEBABIPE	0.0	0.000	0.0	0.000	102.4	0.031	0.0	0.000	0.0	0.000
PERILONG	0.0	0.000	14.6	0.004	0.0	0.000	0.0	0.000	0.0	0.000
PSEULONG	0.0	0.000	87.8	0.018	0.0	0.000	0.0	0.000	0.0	0.000
SIPHKROY	0.0	0.000	29.3	0.009	0.0	0.000	0.0	0.000	0.0	0.000
UROTPOSE	102.4	0.031	365.8	0.110	0.0	0.000	0.0	0.000	0.0	0.000
ECHINODERMATA										
ACROBRAC	14.6	0.199	14.6	0.131	0.0	0.000	0.0	0.000	0.0	0.000
AMPHFILI	0.0	0.000	0.0	0.000	1828.8	13.860	29.3	0.109	936.3	12.560
BRISLYRI	0.0	0.000	0.0	0.000	14.6	7.599	0.0	0.000	0.0	0.000
ECHICORD	0.0	0.000	14.6	7.599	0.0	0.000	0.0	0.000	0.0	0.000
ECHIJUVE	0.0	0.000	0.0	0.000	0.0	0.000	3467.3	0.173	0.0	0.000
ECHIPUSI	14.6	0.002	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000
LEPTINHA	0.0	0.000	0.0	0.000	43.9	0.357	0.0	0.000	0.0	0.000
OPHIALBI	0.0	0.000	14.6	0.530	0.0	0.000	0.0	0.000	0.0	0.000
OPHIJUVE	248.7	0.025	219.5	0.022	790.0	0.079	248.7	0.025	877.8	0.088
MOLLUSCA										
ABRAALBA	0.0	0.000	0.0	0.000	14.6	0.057	131.7	0.014	0.0	0.000
APLACOPH	0.0	0.000	0.0	0.000	14.6	0.399	0.0	0.000	0.0	0.000
CORBGIBB	0.0	0.000	0.0	0.000	0.0	0.000	29.3	0.004	0.0	0.000
CULTPELL	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.008	0.0	0.000
CYLICYLI	0.0	0.000	0.0	0.000	29.3	0.019	14.6	0.055	0.0	0.000
ENSISPEC	14.6	0.890	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000
LUCIBORE	14.6	0.137	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000
MONTFERR	0.0	0.000	14.6	0.109	0.0	0.000	0.0	0.000	0.0	0.000
MYSEBIDE	73.2	0.015	14.6	0.003	87.8	0.018	0.0	0.000	43.9	0.009
NATIALDE	14.6	0.026	29.3	0.052	0.0	0.000	0.0	0.000	0.0	0.000
NUCUTENU	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.011
NUCUTURG	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.155	0.0	0.000
TELLFABU	43.9	0.001	131.7	0.078	0.0	0.000	0.0	0.000	0.0	0.000
THRAPHAS	0.0	0.000	58.5	0.040	0.0	0.000	0.0	0.000	0.0	0.000
THYAFLEX	0.0	0.000	0.0	0.000	58.5	0.008	0.0	0.000	29.3	0.011
TURRCOMM	0.0	0.000	0.0	0.000	14.6	0.080	0.0	0.000	0.0	0.000
POLYCHAETA										
ANAIJUVE	0.0	0.000	0.0	0.000	0.0	0.000	29.3	0.004	0.0	0.000
ANAIMUCO	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.014	0.0	0.000
ANAISUBU	0.0	0.000	29.3	0.010	0.0	0.000	0.0	0.000	0.0	0.000
APHRACUL	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	14.6	10.332
APHRJUVE	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.002
ARICMINU	14.6	0.002	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000
CAPITELL	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.001
CHAESETO	14.6	0.010	0.0	0.000	43.9	0.027	0.0	0.000	58.5	0.019
CHAEVARI	0.0	0.000	14.6	0.398	0.0	0.000	0.0	0.000	29.3	3.716
DIPLGLAU	0.0	0.000	0.0	0.000	14.6	0.015	0.0	0.000	14.6	0.023
ETEOJUVE	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.001
GATTCIRR	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.769
GLYCROUX	0.0	0.000	0.0	0.000	14.6	0.008	0.0	0.000	14.6	0.010
GONIMACU	58.5	0.100	29.3	0.037	0.0	0.000	0.0	0.000	14.6	0.014
HARMLONG	0.0	0.000	0.0	0.000	0.0	0.000	43.9	0.025	0.0	0.000
HARMLUNU	0.0	0.000	0.0	0.000	14.6	0.004	0.0	0.000	0.0	0.000
LANIJUVE	0.0	0.000	0.0	0.000	0.0	0.000	43.9	0.004	0.0	0.000
MAGEALLE	0.0	0.000	0.0	0.000	14.6	0.010	0.0	0.000	0.0	0.000
MAGEJUVE	0.0	0.000	0.0	0.000	0.0	0.000	102.4	0.019	14.6	0.004
MAGEPAPI	58.5	0.033	102.4	0.068	0.0	0.000	0.0	0.000	0.0	0.000
MEDIFRAG	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.002	0.0	0.000
MYRIHEER	0.0	0.000	14.6	0.054	0.0	0.000	0.0	0.000	0.0	0.000
NEPHCIRR	102.4	0.153	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000
NEPHHOMB	14.6	0.073	29.3	0.174	29.3	0.888	14.6	1.049	14.6	0.046
NEPHJUVE	0.0	0.000	29.3	0.014	0.0	0.000	0.0	0.000	14.6	0.004
NOTOLATE	0.0	0.000	73.2	1.155	0.0	0.000	0.0	0.000	14.6	1.541
OPHELIMA	14.6	0.025	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000
OPHIFLEX	0.0	0.000	0.0	0.000	14.6	0.012	0.0	0.000	0.0	0.000
OWENFUSI	73.2	0.197	43.9	0.041	0.0	0.000	0.0	0.000	14.6	0.008
PARAGRAC	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	73.2	0.010

PECTJUVE	0.0	0.000	0.0	0.000	14.6	0.002	0.0	0.000	14.6	0.001
PECTKORE	0.0	0.000	14.6	0.927	0.0	0.000	0.0	0.000	0.0	0.000
PHOLMINU	0.0	0.000	43.9	0.017	102.4	0.014	0.0	0.000	453.5	0.112
POECSERP	0.0	0.000	14.6	0.021	0.0	0.000	0.0	0.000	0.0	0.000
SCALINFL	0.0	0.000	0.0	0.000	0.0	0.000	570.6	0.072	0.0	0.000
SCOLARMI	14.6	0.015	0.0	0.000	14.6	0.006	0.0	0.000	160.9	0.299
SCOLBONN	0.0	0.000	14.6	0.041	0.0	0.000	0.0	0.000	0.0	0.000
SIGAMATH	0.0	0.000	87.8	1.574	0.0	0.000	0.0	0.000	0.0	0.000
SPIOBOMB	73.2	0.039	131.7	0.147	0.0	0.000	321.9	0.218	0.0	0.000
SPIOFILI	29.3	0.012	14.6	0.006	0.0	0.000	0.0	0.000	0.0	0.000
SPIOJUVE	351.1	0.027	248.7	0.017	29.3	0.004	0.0	0.000	14.6	0.002
STHELIMI	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.010
MISCELLANEOUS										
ANTHOZOA	0.0	0.000	0.0	0.000	14.6	1.513	0.0	0.000	0.0	0.000
EDWACLAP	73.2	0.190	14.6	0.023	0.0	0.000	0.0	0.000	0.0	0.000
GOLFELON	0.0	0.000	0.0	0.000	14.6	0.023	0.0	0.000	0.0	0.000
HYDROZOA	0.0	0.000	43.9	0.006	0.0	0.000	0.0	0.000	0.0	0.000
NEMERTIN	29.3	0.193	29.3	0.016	29.3	0.097	14.6	0.010	14.6	0.013
PHORONID	190.2	0.039	58.5	0.006	43.9	0.012	43.9	0.037	43.9	0.012
PLATHYHE	0.0	0.000	0.0	0.000	14.6	0.006	0.0	0.000	0.0	0.000
SUMS	2179.9	2.585	3277.2	13.828	3496.3	26.132	5442.4	5.603	3247.2	30.047
DIVERSITY										
NSPC	30		42		31		22		37	
SH-W	2.818		2.991		1.797		1.507		2.304	
SIMP	0.087		0.088		0.328		0.425		0.181	

STATION:	OYS 4		OYS 5		OYS 6		OYS 7		OYS 8	
CRUSTACEA	N	B	N	B	N	B	N	B	N	B
AMPETENU	0.0	0.000	0.0	0.000	0.0	0.000	29.3	0.009	0.0	0.000
BATHELEG	0.0	0.000	0.0	0.000	14.6	0.004	14.6	0.004	0.0	0.000
BATHTENU	29.3	0.009	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000
CALLJUVE	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	117.0	0.222
CALLSUBT	0.0	0.000	117.0	1.299	29.3	1.617	0.0	0.000	175.6	4.295
CAPRELLI	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.003
COROAFFI	0.0	0.000	0.0	0.000	14.6	0.003	0.0	0.000	0.0	0.000
CORYCASS	0.0	0.000	14.6	0.011	0.0	0.000	0.0	0.000	58.5	0.123
DIASBRAD	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.007	0.0	0.000
EUDODEFO	0.0	0.000	0.0	0.000	0.0	0.000	87.8	0.018	0.0	0.000
EUDOTRUN	0.0	0.000	14.6	0.003	0.0	0.000	0.0	0.000	14.6	0.003
HARPANTE	0.0	0.000	0.0	0.000	73.2	0.022	43.9	0.013	0.0	0.000
HARPPECT	0.0	0.000	87.8	0.026	0.0	0.000	0.0	0.000	0.0	0.000
IONETHOR	0.0	0.000	0.0	0.000	14.6	0.037	0.0	0.000	0.0	0.000
LEUCINCI	14.6	0.004	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000
LEUCRICH	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.004
PSEULONG	0.0	0.000	0.0	0.000	29.3	0.006	0.0	0.000	0.0	0.000
UPOGDELT	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	117.0	13.549
ECHINODERMATA										
ACROBRAC	43.9	3.011	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000
AMPHFILI	0.0	0.000	160.9	0.090	629.1	10.532	599.8	1.489	14.6	0.029
ASTRIRRE	0.0	0.000	0.0	0.000	14.6	0.022	14.6	0.301	0.0	0.000
ECHICORD	14.6	7.599	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000
ECHIJUVE	0.0	0.000	43.9	0.002	29.3	0.002	0.0	0.000	5822.7	0.291
ECHIPUSI	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.001
OPHIALBI	0.0	0.000	43.9	0.214	14.6	0.011	0.0	0.000	29.3	0.881
OPHIJUVE	219.5	0.022	29.3	0.003	175.6	0.018	687.6	0.069	43.9	0.004
MOLLUSCA										
ABRAALBA	0.0	0.000	14.6	0.003	14.6	0.113	0.0	0.000	278.0	0.772
ABRAPRIS	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	117.0	0.179
APLACOPH	0.0	0.000	0.0	0.000	0.0	0.000	29.3	0.022	0.0	0.000
CINGVITR	0.0	0.000	29.3	0.009	0.0	0.000	0.0	0.000	0.0	0.000
CORBGIBB	0.0	0.000	14.6	0.056	0.0	0.000	14.6	0.122	14.6	0.003
CULTPELL	0.0	0.000	29.3	0.006	0.0	0.000	0.0	0.000	0.0	0.000
CYLICYLI	14.6	0.121	0.0	0.000	14.6	0.026	29.3	0.010	0.0	0.000
ENSIENSI	14.6	4.370	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000
LEPTSQUA	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.003
MONTFERR	14.6	0.014	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000
MYSEBIDE	14.6	0.003	14.6	0.003	117.0	0.023	58.5	0.012	0.0	0.000
NATIALDE	0.0	0.000	14.6	0.011	0.0	0.000	14.6	0.005	0.0	0.000
NUCUTURG	29.3	0.242	14.6	0.135	0.0	0.000	0.0	0.000	14.6	0.188
TELLFABU	321.9	0.088	0.0	0.000	14.6	0.001	0.0	0.000	29.3	0.001
THRAPHAS	43.9	0.013	0.0	0.000	0.0	0.000	14.6	0.140	0.0	0.000
THYAFLEX	102.4	0.275	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000
VENUSTRI	14.6	1.410	0.0	0.000	29.3	3.786	0.0	0.000	0.0	0.000
POLYCHAETA										
AMPHITRI	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.001	0.0	0.000
APHRACUL	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.019	0.0	0.000
CHAESETO	14.6	0.004	14.6	0.002	0.0	0.000	146.3	0.019	0.0	0.000
CHAEVARI	0.0	0.000	14.6	6.276	0.0	0.000	14.6	7.342	0.0	0.000
DIPLGLAU	0.0	0.000	0.0	0.000	0.0	0.000	43.9	0.139	14.6	0.004
GATTCIRR	0.0	0.000	14.6	0.127	0.0	0.000	14.6	0.630	0.0	0.000
GLYCJUVE	0.0	0.000	14.6	0.002	0.0	0.000	0.0	0.000	0.0	0.000
GONIMACU	43.9	0.023	14.6	0.023	29.3	0.019	14.6	0.006	0.0	0.000
GYPTCAPE	14.6	0.004	14.6	0.019	0.0	0.000	0.0	0.000	14.6	0.008
HARMLUNU	14.6	0.010	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.035
LANIJUVE	0.0	0.000	29.3	0.002	0.0	0.000	0.0	0.000	0.0	0.000
LUMBLATR	0.0	0.000	29.3	0.095	0.0	0.000	14.6	0.004	14.6	0.079

MAGEALLE	29.3	0.199	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000
MAGEJUVE	87.8	0.012	43.9	0.006	73.2	0.008	0.0	0.000	0.0	0.000
MAGEPAPI	292.6	0.151	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000
MEDIFRAG	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	117.0	0.035
NEPHCIRR	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.015
NEPHHOMB	14.6	0.176	0.0	0.000	58.5	1.560	0.0	0.000	29.3	1.362
NEPHINCI	0.0	0.000	14.6	0.969	0.0	0.000	0.0	0.000	0.0	0.000
NEPHJUVE	29.3	0.010	58.5	0.019	14.6	0.008	73.2	0.039	0.0	0.000
NERELONG	0.0	0.000	14.6	0.044	0.0	0.000	0.0	0.000	14.6	0.023
NOTOLATE	0.0	0.000	58.5	0.923	0.0	0.000	14.6	0.178	0.0	0.000
OPHIFLEX	0.0	0.000	0.0	0.000	29.3	0.089	0.0	0.000	0.0	0.000
OWENFUSI	14.6	0.008	0.0	0.000	0.0	0.000	29.3	0.008	0.0	0.000
OWENJUVE	0.0	0.000	0.0	0.000	14.6	0.002	0.0	0.000	0.0	0.000
PARAGRAC	0.0	0.000	29.3	0.004	0.0	0.000	43.9	0.006	14.6	0.002
PECTJUVE	0.0	0.000	0.0	0.000	0.0	0.000	29.3	0.002	29.3	0.002
PECTKORE	0.0	0.000	14.6	0.001	0.0	0.000	0.0	0.000	0.0	0.000
PHOLMINU	14.6	0.012	14.6	0.004	599.8	0.120	87.8	0.029	43.9	0.015
POECSERP	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.015
POLYDORA	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	395.0	0.122
SCALINFL	0.0	0.000	117.0	0.015	0.0	0.000	0.0	0.000	146.3	0.019
SCOLARMI	14.6	0.015	0.0	0.000	190.2	0.218	14.6	0.006	14.6	0.014
SCOLSQUA	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.081	0.0	0.000
SIGAMATH	73.2	0.633	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000
SPIOBOMB	29.3	0.104	0.0	0.000	29.3	0.100	0.0	0.000	321.9	0.085
SPIOJUVE	43.9	0.004	14.6	0.002	146.3	0.010	29.3	0.002	0.0	0.000
STHELIMI	0.0	0.000	0.0	0.000	14.6	0.041	14.6	0.073	14.6	0.008
SYNEKLAT	0.0	0.000	14.6	0.004	29.3	0.014	43.9	0.012	0.0	0.000
MISCELLANEOUS										
ANTHOZOA	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.621
EDWACLAP	0.0	0.000	0.0	0.000	0.0	0.000	29.3	0.084	0.0	0.000
GOLFELON	0.0	0.000	14.6	0.004	0.0	0.000	0.0	0.000	0.0	0.000
NEMERTIN	87.8	0.695	160.9	0.924	14.6	0.006	102.4	2.823	43.9	0.071
PHORONID	14.6	0.006	117.0	0.019	219.5	0.035	190.2	0.033	746.1	0.492
SUMS	1726.3	19.246	1477.1	11.356	2692.0	18.452	2647.9	13.756	8938.4	23.578
DIVERSITY										
NSPC	31		37		30		36		38	
SH-W	2.806		3.202		2.551		2.650		1.609	
SIMP	0.095		0.056		0.128		0.134		0.437	

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STATION:	OYS 9		OYS 10		OYS 11		OYS 12		OYS 13	
CRUSTACEA	N	B	N	B	N	B	N	B	N	B
AMPEBREV	0.0	0.000	29.3	0.092	0.0	0.000	0.0	0.000	0.0	0.000
BATHELEG	43.9	0.013	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000
CALLJUVE	87.8	0.040	14.6	0.004	146.3	0.195	29.3	0.009	0.0	0.000
CALLSUBT	29.3	0.946	14.6	0.301	160.9	5.793	102.4	3.904	0.0	0.000
CAPRELLI	0.0	0.000	0.0	0.000	14.6	0.003	0.0	0.000	0.0	0.000
CORYCASS	0.0	0.000	0.0	0.000	29.3	0.070	0.0	0.000	0.0	0.000
EUDODEFO	43.9	0.009	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000
EUDOTRUN	0.0	0.000	14.6	0.003	43.9	0.009	0.0	0.000	0.0	0.000
HARPANTE	43.9	0.013	29.3	0.009	0.0	0.000	0.0	0.000	29.3	0.009
HARPPECT	0.0	0.000	0.0	0.000	14.6	0.004	14.6	0.004	0.0	0.000
IONETHOR	0.0	0.000	14.6	0.009	0.0	0.000	0.0	0.000	0.0	0.000
LEUCINCI	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.004	0.0	0.000
LEUCRICH	0.0	0.000	0.0	0.000	14.6	0.004	0.0	0.000	0.0	0.000
ORCHHUMI	14.6	0.004	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000
PERILONG	0.0	0.000	14.6	0.004	0.0	0.000	0.0	0.000	14.6	0.004
UPOGDELT	0.0	0.000	0.0	0.000	43.9	0.599	14.6	3.164	0.0	0.000
UROTELEG	29.3	0.009	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000
ECHINODERMATA										
AMPHFILI	43.9	0.647	1272.8	13.676	541.3	3.205	0.0	0.000	716.9	11.241
BRISLYRI	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	14.6	9.591
ECHICORD	0.0	0.000	43.9	11.058	43.9	3.033	14.6	0.955	29.3	6.714
ECHIJUVE	0.0	0.000	0.0	0.000	1433.7	0.072	0.0	0.000	0.0	0.000
ECHIPUSI	14.6	0.002	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000
OPHIALBI	0.0	0.000	0.0	0.000	102.4	2.112	0.0	0.000	0.0	0.000
OPHIJUVE	87.8	0.009	321.9	0.032	29.3	0.003	14.6	0.002	146.3	0.015
MOLLUSCA										
ABRAALBA	0.0	0.000	0.0	0.000	804.7	0.106	29.3	0.004	14.6	0.098
ABRAPRIS	0.0	0.000	0.0	0.000	43.9	0.769	0.0	0.000	0.0	0.000
CINGVITR	0.0	0.000	0.0	0.000	73.2	0.015	14.6	0.003	0.0	0.000
CORBGIBB	0.0	0.000	0.0	0.000	43.9	0.084	14.6	0.166	0.0	0.000
CYLICYLI	0.0	0.000	102.4	0.029	87.8	0.061	73.2	0.032	29.3	0.011
DOSISPEC	14.6	0.012	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000
LUCIBORE	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.422
MONTFERR	0.0	0.000	14.6	0.021	0.0	0.000	0.0	0.000	14.6	0.019
MYSEBIDE	0.0	0.000	482.8	0.097	160.9	0.032	14.6	0.003	321.9	0.064
NATIALDE	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.005	0.0	0.000
NUCUTENU	0.0	0.000	14.6	0.043	0.0	0.000	0.0	0.000	0.0	0.000
NUCUTURG	0.0	0.000	0.0	0.000	87.8	0.130	0.0	0.000	73.2	0.377
TELLFABU	14.6	0.001	0.0	0.000	14.6	0.001	0.0	0.000	0.0	0.000
VENUSTRI	0.0	0.000	43.9	0.004	0.0	0.000	14.6	0.002	0.0	0.000
POLYCHAETA										
APHRJUVE	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.004
CAPITELL	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.002	0.0	0.000
CHAESETO	14.6	0.008	117.0	0.043	0.0	0.000	14.6	0.006	29.3	0.012
CHAEVARI	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.504	0.0	0.000
DIPLGLAU	14.6	0.006	14.6	0.066	0.0	0.000	0.0	0.000	0.0	0.000
EUMISANG	0.0	0.000	14.6	0.073	0.0	0.000	0.0	0.000	0.0	0.000
EXOGHEBE	14.6	0.001	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000
GATTCIRR	0.0	0.000	0.0	0.000	0.0	0.000	29.3	0.017	0.0	0.000
GLYCROUX	0.0	0.000	0.0	0.000	0.0	0.000	29.3	0.058	0.0	0.000
GONIMACU	14.6	0.044	0.0	0.000	87.8	0.014	0.0	0.000	0.0	0.000
HARMNODO	0.0	0.000	14.6	0.035	0.0	0.000	0.0	0.000	0.0	0.000
LYSILOVE	0.0	0.000	14.6	1.416	0.0	0.000	0.0	0.000	0.0	0.000
MAGEALLE	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	29.3	0.214
MAGEJUVE	0.0	0.000	14.6	0.002	0.0	0.000	0.0	0.000	0.0	0.000
MAGEPAPI	248.7	0.062	0.0	0.000	14.6	0.021	0.0	0.000	0.0	0.000
MEDIFRAG	0.0	0.000	0.0	0.000	29.3	0.008	0.0	0.000	0.0	0.000
NEPHCIRR	0.0	0.000	14.6	0.012	0.0	0.000	0.0	0.000	0.0	0.000
NEPHHOMB	14.6	0.380	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.033
NEPHINCI	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.643	0.0	0.000
NEPHJUVE	14.6	0.004	29.3	0.008	14.6	0.004	0.0	0.000	29.3	0.010
NERELONG	0.0	0.000	0.0	0.000	73.2	0.158	14.6	0.008	0.0	0.000
NOTOLATE	0.0	0.000	29.3	0.240	43.9	1.607	0.0	0.000	0.0	0.000
OPHEACUM	0.0	0.000	14.6	0.069	0.0	0.000	0.0	0.000	0.0	0.000
OPHELIMA	14.6	0.004	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000
OWENJUVE	0.0	0.000	0.0	0.000	73.2	0.008	0.0	0.000	0.0	0.000
PARAGRAC	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.004	14.6	0.002
PECTJUVE	0.0	0.000	0.0	0.000	29.3	0.002	0.0	0.000	0.0	0.000
PHOLMINU	0.0	0.000	146.3	0.017	43.9	0.010	14.6	0.006	146.3	0.048
POECSERP	43.9	0.015	0.0	0.000	0.0	0.000	14.6	0.008	0.0	0.000
POLYDORA	0.0	0.000	0.0	0.000	43.9	0.006	0.0	0.000	0.0	0.000
POLYKINB	0.0	0.000	14.6	0.243	0.0	0.000	0.0	0.000	0.0	0.000
SCALINFL	0.0	0.000	0.0	0.000	43.9	0.017	0.0	0.000	0.0	0.000
SCOLARMI	14.6	0.006	0.0	0.000	0.0	0.000	14.6	0.017	29.3	0.010
SIGAMATH	14.6	0.135	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.068
SPIOFILI	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.010	0.0	0.000
SPIOJUVE	14.6	0.002	29.3	0.004	43.9	0.004	0.0	0.000	0.0	0.000
SYNEKLAT	0.0	0.000	14.6	0.008	0.0	0.000	43.9	0.019	0.0	0.000
MISCELLANEOUS										
ANTHOZOA	0.0	0.000	0.0	0.000	14.6	0.367	0.0	0.000	0.0	0.000
GOLFELON	0.0	0.000	0.0	0.000	0.0	0.000	73.2	0.776	0.0	0.000
NEMERTIN	87.8	0.058	43.9	0.422	29.3	0.830	14.6	0.019	0.0	0.000
PHORONID	58.5	0.087	87.8	0.033	234.1	0.162	0.0	0.000	0.0	0.000
SUMS	1053.1	2.516	3042.8	28.071	4755.0	19.518	716.5	10.355	1741.1	28.965
DIVERSITY										
NSPC	26		31		36		29		21	
SH-W	2.815		2.199		2.604		3.104		2.069	
SIMP	0.092		0.218		0.141		0.059		0.222	

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STATION:	OYS 14		OYS 15		OYS 16		OYS 17		OYS 18	
CRUSTACEA	N	B	N	B	N	B	N	B	N	B
AMPETENU	0.0	0.000	29.3	0.009	0.0	0.000	0.0	0.000	0.0	0.000
ARGIHAMA	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.004
BATHELEG	0.0	0.000	0.0	0.000	29.3	0.009	29.3	0.009	58.5	0.018
CALLJUVE	0.0	0.000	0.0	0.000	0.0	0.000	29.3	0.018	0.0	0.000
CALLSUBT	29.3	1.389	73.2	0.628	29.3	0.597	29.3	0.779	43.9	0.270
CORYCASS	29.3	0.026	0.0	0.000	0.0	0.000	0.0	0.000	58.5	0.079
EUDODEFO	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.003	0.0	0.000
EUDOTRUN	14.6	0.003	58.5	0.012	0.0	0.000	0.0	0.000	0.0	0.000
HARPANTE	29.3	0.009	58.5	0.018	102.4	0.031	117.0	0.035	0.0	0.000
IONETHOR	14.6	0.009	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000
PERILONG	0.0	0.000	14.6	0.004	0.0	0.000	0.0	0.000	14.6	0.004
UROTELEG	0.0	0.000	0.0	0.000	0.0	0.000	234.1	0.070	0.0	0.000
UROTPOSE	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.004
ECHINODERMATA										
AMPHFILI	58.5	0.285	14.6	0.043	409.6	1.286	263.3	0.465	14.6	0.182
ASTERUBE	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.132
ECHIJUVE	0.0	0.000	14.6	0.001	14.6	0.001	0.0	0.000	4184.2	0.209
OPHIJUVE	14.6	0.002	29.3	0.003	29.3	0.003	819.3	0.082	204.8	0.021
MOLLUSCA										
ABRAALBA	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.002
ABRAJUVE	73.2	0.007	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000
ARCTISLA	0.0	0.000	14.6	0.007	0.0	0.000	0.0	0.000	0.0	0.000
CINGVITR	43.9	0.009	160.9	0.032	0.0	0.000	0.0	0.000	14.6	0.003
CORBGIBB	87.8	0.260	0.0	0.000	14.6	0.006	0.0	0.000	0.0	0.000
CULTPELL	29.3	0.003	0.0	0.000	29.3	0.002	0.0	0.000	0.0	0.000
CYLICYLI	14.6	0.002	14.6	0.007	0.0	0.000	0.0	0.000	14.6	0.028
MYSEBIDE	87.8	0.018	0.0	0.000	43.9	0.009	14.6	0.003	0.0	0.000
NATIALDE	0.0	0.000	0.0	0.000	14.6	0.026	0.0	0.000	0.0	0.000
NUCUTURG	43.9	0.058	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.225
TURRCOMM	14.6	0.729	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000
VENUJUVE	0.0	0.000	14.6	0.002	14.6	0.002	0.0	0.000	0.0	0.000
POLYCHAETA										
CAPITELL	0.0	0.000	14.6	0.001	0.0	0.000	0.0	0.000	0.0	0.000
CHAESETO	29.3	0.006	29.3	0.025	0.0	0.000	29.3	0.010	14.6	0.004
CHAEVARI	14.6	2.369	14.6	2.760	0.0	0.000	0.0	0.000	0.0	0.000
GATTCIRR	0.0	0.000	14.6	0.122	0.0	0.000	0.0	0.000	0.0	0.000
GLYCROUX	14.6	0.006	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000
GONIMACU	0.0	0.000	14.6	0.039	0.0	0.000	43.9	0.064	14.6	0.006
GYPTCAPE	14.6	0.008	0.0	0.000	0.0	0.000	14.6	0.077	14.6	0.008
HARMLONG	0.0	0.000	0.0	0.000	14.6	0.014	0.0	0.000	14.6	0.075
LANICONC	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.039
LANIJUVE	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	58.5	0.006
LUMBLATR	14.6	0.031	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000
LYSILOVE	14.6	1.958	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000
MAGEALLE	14.6	0.114	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000
MAGEJUVE	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	131.7	0.015
MAGEPAPI	0.0	0.000	0.0	0.000	0.0	0.000	160.9	0.058	175.6	0.257
NEPHHOMB	0.0	0.000	0.0	0.000	14.6	0.494	14.6	0.158	14.6	0.139
NEPHINCI	29.3	0.707	14.6	0.168	0.0	0.000	0.0	0.000	0.0	0.000
NEPHJUVE	14.6	0.004	0.0	0.000	0.0	0.000	43.9	0.010	0.0	0.000
NERELONG	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.010
NOTOJUVE	14.6	0.006	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000
NOTOLATE	0.0	0.000	14.6	0.359	0.0	0.000	0.0	0.000	0.0	0.000
OPHELINA	0.0	0.000	29.3	0.002	0.0	0.000	0.0	0.000	0.0	0.000
OPHIFLEX	29.3	0.075	0.0	0.000	14.6	0.056	14.6	0.006	0.0	0.000
OWENFUSI	0.0	0.000	0.0	0.000	29.3	0.079	0.0	0.000	0.0	0.000
PECTJUVE	0.0	0.000	14.6	0.001	0.0	0.000	0.0	0.000	0.0	0.000
PHOLMINU	0.0	0.000	14.6	0.002	14.6	0.002	102.4	0.015	0.0	0.000
POECSERP	43.9	0.062	0.0	0.000	0.0	0.000	58.5	0.073	321.9	0.751
POLYKINB	14.6	0.326	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000
SCALINFL	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	29.3	0.178
SCOLARMI	0.0	0.000	0.0	0.000	0.0	0.000	29.3	0.035	87.8	0.160
SIGAJUVE	0.0	0.000	0.0	0.000	0.0	0.000	29.3	0.004	0.0	0.000
SPIOBOMB	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	43.9	0.095
SPIOFILI	14.6	0.004	248.7	0.044	0.0	0.000	0.0	0.000	58.5	0.012
SPIOJUVE	0.0	0.000	0.0	0.000	29.3	0.002	58.5	0.006	234.1	0.014
SPIOKROE	14.6	0.098	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000
STHELIMI	14.6	0.116	0.0	0.000	14.6	0.139	0.0	0.000	0.0	0.000
SYNEKLAT	29.3	0.010	73.2	0.033	14.6	0.006	0.0	0.000	0.0	0.000
MISCELLANEOUS										
ANTHOZOA	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	14.6	6.505
EDWACLAP	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.010	0.0	0.000
GOLFVULG	29.3	0.355	29.3	0.162	0.0	0.000	0.0	0.000	0.0	0.000
NEMERTIN	14.6	0.396	43.9	0.293	0.0	0.000	43.9	0.074	87.8	0.039
PHORONID	43.9	0.010	58.5	0.019	58.5	0.015	29.3	0.006	29.3	0.006
SUMS	1009.4	9.469	1126.3	4.794	936.2	2.778	2238.4	2.069	6056.5	9.497
DIVERSITY										
NSPC	35		27		20		24		33	
SH-W	3.353		2.817		2.220		2.356		1.510	
SIMP	0.042		0.092		0.217		0.172		0.485	

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STATION:	OYS 19		OYS 20		OYS 21		OYS 22		OYS 23	
CRUSTACEA	N	B	N	B	N	B	N	B	N	B
AMPETENU	14.6	0.004	0.0	0.000	0.0	0.000	14.6	0.022	0.0	0.000
BATHGUIL	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	29.3	0.009
CALLJUVE	14.6	0.004	0.0	0.000	73.2	0.079	0.0	0.000	0.0	0.000
CALLSUBT	14.6	0.154	102.4	1.440	102.4	5.901	29.3	0.895	0.0	0.000
CIROCRAN	14.6	0.213	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000
CORYJUVE	0.0	0.000	0.0	0.000	190.2	0.022	0.0	0.000	0.0	0.000
DIASBRAD	0.0	0.000	43.9	0.013	0.0	0.000	0.0	0.000	14.6	0.010
EUDODEFO	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.003
EUDOTRUN	14.6	0.003	0.0	0.000	43.9	0.009	0.0	0.000	29.3	0.006
HARPANTE	14.6	0.004	58.5	0.018	0.0	0.000	29.3	0.009	58.5	0.018
LEUCINCI	0.0	0.000	0.0	0.000	14.6	0.004	0.0	0.000	0.0	0.000
ORCHNANA	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.004	14.6	0.004
PERILONG	0.0	0.000	0.0	0.000	14.6	0.004	0.0	0.000	0.0	0.000
UPOGDELT	0.0	0.000	14.6	0.009	29.3	6.647	0.0	0.000	0.0	0.000
UROTELEG	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.004
ECHINODERMATA										
AMPHFILI	2691.9	9.317	994.8	4.154	87.8	0.100	585.2	5.049	278.0	11.451
ASTRIRRE	14.6	1.298	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000
CUCUELON	0.0	0.000	0.0	0.000	14.6	3.988	0.0	0.000	0.0	0.000
ECHICORD	14.6	5.413	14.6	7.599	0.0	0.000	0.0	0.000	0.0	0.000
ECHIJUVE	0.0	0.000	0.0	0.000	585.2	0.029	0.0	0.000	0.0	0.000
HOLOTHUR	14.6	0.041	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000
OPHIALBI	0.0	0.000	14.6	0.008	0.0	0.000	0.0	0.000	0.0	0.000
OPHIJUVE	994.8	0.100	468.2	0.047	73.2	0.007	292.6	0.029	146.3	0.015
MOLLUSCA										
ABRAALBA	14.6	0.011	0.0	0.000	468.2	0.125	0.0	0.000	0.0	0.000
APLACOPH	29.3	0.549	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000
ARCTISLA	0.0	0.000	29.3	0.009	0.0	0.000	0.0	0.000	0.0	0.000
CORBGIBB	0.0	0.000	14.6	0.011	0.0	0.000	0.0	0.000	0.0	0.000
CULTPELL	14.6	0.111	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.294
CYLICYLI	131.7	0.137	29.3	0.013	14.6	0.044	0.0	0.000	0.0	0.000
EULIALBA	0.0	0.000	14.6	0.002	0.0	0.000	0.0	0.000	0.0	0.000
LEPTSQUA	0.0	0.000	0.0	0.000	29.3	0.009	0.0	0.000	0.0	0.000
MYSEBIDE	219.5	0.044	117.0	0.023	0.0	0.000	160.9	0.032	468.2	0.094
NATIALDE	0.0	0.000	0.0	0.000	14.6	0.010	0.0	0.000	14.6	0.001
NUCUTURG	14.6	0.011	0.0	0.000	0.0	0.000	87.8	0.191	29.3	0.343
PHILSPEC	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.003	0.0	0.000
TELLFABU	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	117.0	0.003
THRACONV	0.0	0.000	29.3	0.490	0.0	0.000	0.0	0.000	0.0	0.000
THYAFLEX	14.6	0.001	0.0	0.000	0.0	0.000	43.9	0.024	43.9	0.002
POLYCHAETA										
APHRACUL	14.6	0.116	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000
APHRJUVE	0.0	0.000	0.0	0.000	14.6	0.004	0.0	0.000	0.0	0.000
CHAESETO	58.5	0.023	43.9	0.008	0.0	0.000	0.0	0.000	0.0	0.000
DIPLGLAU	14.6	0.010	43.9	0.023	14.6	0.004	14.6	0.014	0.0	0.000
GLYCJUVE	0.0	0.000	0.0	0.000	0.0	0.000	29.3	0.004	0.0	0.000
GLYCROUX	0.0	0.000	29.3	0.220	14.6	0.004	0.0	0.000	0.0	0.000
GONIMACU	14.6	0.015	14.6	0.033	14.6	0.012	29.3	0.019	0.0	0.000
GYPTCAPE	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.017	0.0	0.000
HARMJUVE	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.002
HETEFILI	14.6	0.002	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000
LUMBLATR	29.3	0.010	14.6	0.014	14.6	0.006	0.0	0.000	0.0	0.000
MAGEJUVE	0.0	0.000	43.9	0.004	0.0	0.000	14.6	0.002	0.0	0.000
MAGEPAPI	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	146.3	0.062
MEDIFRAG	0.0	0.000	0.0	0.000	14.6	0.002	0.0	0.000	0.0	0.000
NEPHHOMB	0.0	0.000	58.5	0.245	14.6	1.456	29.3	0.108	29.3	0.778
NEPHJUVE	14.6	0.006	0.0	0.000	0.0	0.000	0.0	0.000	29.3	0.010
NOTOLATE	14.6	0.075	43.9	1.178	14.6	0.603	0.0	0.000	0.0	0.000
OPHEACUM	0.0	0.000	0.0	0.000	14.6	0.004	0.0	0.000	0.0	0.000
OPHIFLEX	29.3	0.050	14.6	0.019	14.6	0.037	0.0	0.000	0.0	0.000
PECTJUVE	0.0	0.000	0.0	0.000	58.5	0.004	0.0	0.000	0.0	0.000
PHOLMINU	219.5	0.048	87.8	0.015	0.0	0.000	131.7	0.029	160.9	0.025
POECSERP	14.6	0.004	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000
POLYDORA	0.0	0.000	0.0	0.000	29.3	0.006	0.0	0.000	0.0	0.000
SCALINFL	0.0	0.000	0.0	0.000	14.6	0.002	0.0	0.000	14.6	0.043
SCOLARMI	0.0	0.000	0.0	0.000	0.0	0.000	43.9	0.025	29.3	0.015
SIGAMATH	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.407	0.0	0.000
SPIOBOMB	0.0	0.000	14.6	0.043	14.6	0.019	0.0	0.000	0.0	0.000
SPIOFILI	14.6	0.004	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000
SPIOJUVE	29.3	0.002	14.6	0.002	131.7	0.014	14.6	0.001	58.5	0.004
STHELIMI	0.0	0.000	14.6	0.035	0.0	0.000	14.6	0.029	0.0	0.000
SYNEKLAT	0.0	0.000	29.3	0.010	0.0	0.000	0.0	0.000	0.0	0.000
MISCELLANEOUS										
ANTHOZOA	14.6	0.158	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000
EDWACLAP	14.6	0.013	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000
GOLFSPEC	0.0	0.000	0.0	0.000	73.2	0.404	0.0	0.000	0.0	0.000
NEMERTIN	58.5	1.007	29.3	0.042	0.0	0.000	14.6	10.702	14.6	0.006
PHORONID	0.0	0.000	43.9	0.019	278.0	0.068	58.5	0.019	0.0	0.000
SUMS	4827.4	18.958	2487.0	15.744	2501.6	19.625	1697.0	17.636	1784.8	13.203
DIVERSITY										
NSPC	34		30		32		23		24	
SH-W	1.665		2.324		2.632		2.310		2.520	
SIMP	0.359		0.204		0.118		0.171		0.123	

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STATION:	OYS 24		OYS 25		OYS 26		OYS 27		OYS 28	
CRUSTACEA	N	B	N	B	N	B	N	B	N	B
AMPEBREV	14.6	0.077	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000
AMPETENU	0.0	0.000	0.0	0.000	14.6	0.004	0.0	0.000	0.0	0.000
AMPHIPOD	0.0	0.000	0.0	0.000	0.0	0.000	29.3	0.006	0.0	0.000
BATHELEG	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	146.3	0.044
CALLJUVE	43.9	0.020	0.0	0.000	87.8	0.099	29.3	0.015	29.3	0.011
CALLSUBT	43.9	1.563	14.6	0.441	58.5	4.887	43.9	0.869	0.0	0.000
CORYCASS	0.0	0.000	0.0	0.000	43.9	0.046	14.6	0.011	0.0	0.000
DIASBRAD	14.6	0.015	14.6	0.007	0.0	0.000	0.0	0.000	0.0	0.000
EUDOTRUN	43.9	0.009	43.9	0.009	14.6	0.003	0.0	0.000	0.0	0.000
HARPANTE	0.0	0.000	73.2	0.022	0.0	0.000	43.9	0.013	0.0	0.000
ORCHNANA	14.6	0.004	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000
PERILONG	0.0	0.000	0.0	0.000	14.6	0.004	0.0	0.000	0.0	0.000
UPOGDELT	0.0	0.000	14.6	2.120	14.6	0.121	0.0	0.000	0.0	0.000
UROTPOSE	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.004
ECHINODERMATA										
AMPHFILI	0.0	0.000	73.2	0.078	424.3	1.303	0.0	0.000	14.6	0.365
ASTEJUVE	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.002	0.0	0.000
ECHICORD	14.6	1.109	0.0	0.000	0.0	0.000	14.6	7.599	0.0	0.000
ECHIJUVE	0.0	0.000	0.0	0.000	0.0	0.000	1389.9	0.069	14.6	0.001
ECHIPUSI	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.001
OPHIALBI	0.0	0.000	0.0	0.000	73.2	0.829	0.0	0.000	0.0	0.000
OPHIJUVE	14.6	0.002	117.0	0.012	160.9	0.016	0.0	0.000	0.0	0.000
MOLLUSCA										
ABRAALBA	43.9	0.004	0.0	0.000	29.3	0.002	190.2	0.019	14.6	0.001
ARCTISLA	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.003	0.0	0.000
CINGVITR	14.6	0.003	14.6	0.003	29.3	0.006	0.0	0.000	0.0	0.000
CULTPELL	0.0	0.000	0.0	0.000	14.6	0.001	0.0	0.000	0.0	0.000
CYLICYLI	0.0	0.000	14.6	0.020	14.6	0.044	14.6	0.014	0.0	0.000
EULIALBA	0.0	0.000	14.6	0.008	0.0	0.000	0.0	0.000	0.0	0.000
MONTFERR	43.9	0.057	0.0	0.000	0.0	0.000	87.8	0.061	0.0	0.000
MYSEBIDE	0.0	0.000	29.3	0.006	58.5	0.012	0.0	0.000	0.0	0.000
NATIALDE	0.0	0.000	0.0	0.000	14.6	0.003	14.6	0.004	0.0	0.000
NUCUTURG	29.3	0.067	0.0	0.000	0.0	0.000	43.9	0.187	87.8	0.235
THRAPHAS	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.004
TURRCOMM	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.812	0.0	0.000
VENUJUVE	0.0	0.000	14.6	0.001	0.0	0.000	0.0	0.000	0.0	0.000
POLYCHAETA										
CHAESETO	0.0	0.000	73.2	0.052	0.0	0.000	0.0	0.000	0.0	0.000
CHAEVARI	0.0	0.000	0.0	0.000	0.0	0.000	117.0	25.825	0.0	0.000
GATTCIRR	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.612	0.0	0.000
GLYCJUVE	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.008	0.0	0.000
GLYCROUX	0.0	0.000	0.0	0.000	14.6	0.166	0.0	0.000	0.0	0.000
GONIMACU	14.6	0.004	0.0	0.000	14.6	0.004	29.3	0.046	14.6	0.008
GYPTCAPE	0.0	0.000	0.0	0.000	14.6	0.006	0.0	0.000	0.0	0.000
HARMJUVE	0.0	0.000	14.6	0.006	0.0	0.000	0.0	0.000	0.0	0.000
HARMLONG	0.0	0.000	0.0	0.000	0.0	0.000	29.3	0.286	0.0	0.000
HARMLUNU	0.0	0.000	0.0	0.000	14.6	0.008	0.0	0.000	0.0	0.000
LANICONC	29.3	1.219	0.0	0.000	14.6	1.636	0.0	0.000	0.0	0.000
LANIJUVE	0.0	0.000	0.0	0.000	0.0	0.000	102.4	0.021	0.0	0.000
LUMBLATR	29.3	0.075	14.6	0.044	58.5	0.232	0.0	0.000	0.0	0.000
MAGEALLE	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	29.3	0.058
MAGEJUVE	29.3	0.004	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000
MAGEPAPI	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	190.2	0.081
NEPHHOMB	0.0	0.000	29.3	0.237	0.0	0.000	29.3	1.491	0.0	0.000
NEPHINCI	0.0	0.000	0.0	0.000	14.6	1.135	0.0	0.000	0.0	0.000
NEPHJUVE	29.3	0.006	0.0	0.000	58.5	0.008	14.6	0.004	14.6	0.004
NERELONG	29.3	0.072	0.0	0.000	14.6	0.014	0.0	0.000	0.0	0.000
OPHIFLEX	14.6	0.019	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000
OWENJUVE	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.002	0.0	0.000
PARAGRAC	0.0	0.000	29.3	0.004	0.0	0.000	0.0	0.000	0.0	0.000
PECTJUVE	0.0	0.000	0.0	0.000	14.6	0.001	102.4	0.006	0.0	0.000
PHOLMINU	0.0	0.000	29.3	0.006	14.6	0.002	0.0	0.000	0.0	0.000
POECSERP	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.008
POLYDORA	0.0	0.000	29.3	0.021	0.0	0.000	0.0	0.000	0.0	0.000
POLYKINB	0.0	0.000	14.6	0.116	14.6	0.290	0.0	0.000	0.0	0.000
SCALINFL	0.0	0.000	0.0	0.000	14.6	0.006	0.0	0.000	0.0	0.000
SIGAMATH	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	43.9	0.521
SPIOJUVE	0.0	0.000	14.6	0.001	0.0	0.000	14.6	0.001	0.0	0.000
STHELIMI	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.035
SYNEKLAT	0.0	0.000	14.6	0.006	0.0	0.000	0.0	0.000	0.0	0.000
THARMARI	0.0	0.000	14.6	0.004	0.0	0.000	0.0	0.000	0.0	0.000
MISCELLANEOUS										
ANTHOZOA	0.0	0.000	14.6	0.006	0.0	0.000	0.0	0.000	0.0	0.000
NEMERTIN	29.3	0.016	0.0	0.000	29.3	0.006	0.0	0.000	14.6	0.006
PHORONID	14.6	0.002	58.5	0.010	43.9	0.012	29.3	0.003	29.3	0.010
SIPUNCUL	0.0	0.000	14.6	0.015	29.3	0.021	0.0	0.000	0.0	0.000
SUMS	556.0	4.345	804.5	3.254	1448.0	10.926	2472.4	37.989	716.7	1.397
DIVERSITY										
NSPC	21		26		32		27		18	
SH-W	2.948		2.979		2.805		1.942		2.369	
SIMP	0.055		0.065		0.116		0.331		0.139	

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STATION:	OYS 29		OYS 30		OYS 31		OYS 32		OYS 33	
CRUSTACEA	N	B	N	B	N	B	N	B	N	B
AMPETENU	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	29.3	0.009
ARGIHAMA	0.0	0.000	0.0	0.000	14.6	0.004	0.0	0.000	0.0	0.000
CALLJUVE	0.0	0.000	204.8	0.110	146.3	0.088	73.2	0.064	14.6	0.002
CALLSUBT	14.6	0.257	131.7	1.310	58.5	0.746	29.3	2.188	43.9	1.220
CORYCASS	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.004	0.0	0.000
EUDOTRUN	0.0	0.000	14.6	0.003	0.0	0.000	0.0	0.000	14.6	0.003
HARPANTE	0.0	0.000	14.6	0.004	29.3	0.009	14.6	0.004	14.6	0.004
IONETHOR	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.009	0.0	0.000
PERILONG	14.6	0.004	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000
PSEULONG	14.6	0.003	14.6	0.003	14.6	0.003	0.0	0.000	0.0	0.000
UPOGDELT	0.0	0.000	0.0	0.000	29.3	1.056	0.0	0.000	0.0	0.000
ECHINODERMATA										
ACROBRAC	73.2	1.407	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000
AMPHFILI	73.2	0.823	43.9	0.633	365.8	3.443	43.9	0.135	190.2	0.614
ASTRIRRE	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.383
ECHICORD	14.6	7.599	29.3	5.153	0.0	0.000	14.6	3.704	0.0	0.000
ECHIJUVE	0.0	0.000	0.0	0.000	0.0	0.000	1199.7	0.060	0.0	0.000
LEPTINHA	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	14.6	2.050
OPHIJUVE	175.6	0.018	14.6	0.002	87.8	0.009	58.5	0.006	117.0	0.012
MOLLUSCA										
ABRAALBA	14.6	0.019	58.5	0.156	117.0	0.017	29.3	0.001	14.6	0.022
CINGVITR	0.0	0.000	0.0	0.000	14.6	0.002	43.9	0.009	14.6	0.003
CORBGIBB	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.234	0.0	0.000
CYLICYLI	14.6	0.002	0.0	0.000	0.0	0.000	43.9	0.018	14.6	0.055
DOSILUPI	0.0	0.000	0.0	0.000	14.6	2.156	0.0	0.000	0.0	0.000
MONTFERR	0.0	0.000	14.6	0.023	0.0	0.000	14.6	0.026	0.0	0.000
MYSEBIDE	14.6	0.003	0.0	0.000	29.3	0.006	0.0	0.000	0.0	0.000
NATIALDE	29.3	0.060	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000
NUCUTURG	29.3	0.242	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000
SAXIJEFF	0.0	0.000	14.6	0.091	0.0	0.000	0.0	0.000	0.0	0.000
TELLFABU	87.8	0.014	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000
THYAFLEX	43.9	0.075	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000
VENUSTRI	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.034
POLYCHAETA										
CHAESETO	14.6	0.008	0.0	0.000	0.0	0.000	0.0	0.000	29.3	0.014
CHAEVARI	0.0	0.000	0.0	0.000	0.0	0.000	160.9	32.677	14.6	4.866
DIPLGLAU	0.0	0.000	14.6	0.017	0.0	0.000	0.0	0.000	0.0	0.000
EXOGHEBE	0.0	0.000	0.0	0.000	14.6	0.001	0.0	0.000	0.0	0.000
GATTCIRR	0.0	0.000	0.0	0.000	0.0	0.000	73.2	3.264	14.6	1.541
GLYCROUX	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	14.6	1.697
GONIMACU	0.0	0.000	29.3	0.006	29.3	0.008	14.6	0.004	14.6	0.004
GYPTCAPE	0.0	0.000	29.3	0.017	29.3	0.006	14.6	0.023	0.0	0.000
LUMBLATR	0.0	0.000	29.3	0.098	0.0	0.000	14.6	0.010	14.6	0.017
MAGEALLE	14.6	0.237	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000
MAGEJUVE	175.6	0.019	43.9	0.008	14.6	0.002	14.6	0.002	0.0	0.000
NEPHCIRR	0.0	0.000	0.0	0.000	0.0	0.000	29.3	0.019	0.0	0.000
NEPHHOMB	43.9	1.064	0.0	0.000	29.3	0.937	0.0	0.000	14.6	0.485
NEPHJUVE	0.0	0.000	14.6	0.006	0.0	0.000	14.6	0.004	0.0	0.000
NERELONG	0.0	0.000	0.0	0.000	0.0	0.000	58.5	0.259	0.0	0.000
NOTOLATE	0.0	0.000	0.0	0.000	0.0	0.000	102.4	1.439	0.0	0.000
OPHEACUM	0.0	0.000	14.6	0.044	0.0	0.000	0.0	0.000	0.0	0.000
OPHIFLEX	0.0	0.000	14.6	0.056	29.3	0.087	0.0	0.000	0.0	0.000
OWENJUVE	0.0	0.000	0.0	0.000	14.6	0.001	0.0	0.000	0.0	0.000
PARAGRAC	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.002	0.0	0.000
PECTJUVE	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.002	0.0	0.000
PHOLMINU	0.0	0.000	0.0	0.000	0.0	0.000	87.8	0.017	29.3	0.008
POECSERP	0.0	0.000	43.9	0.019	0.0	0.000	0.0	0.000	0.0	0.000
POLYDORA	0.0	0.000	0.0	0.000	146.3	0.017	0.0	0.000	0.0	0.000
PSEUPULC	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.048	0.0	0.000
SCALINFL	0.0	0.000	0.0	0.000	0.0	0.000	204.8	0.064	0.0	0.000
SCOLARMI	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.033
SPIOFILI	0.0	0.000	0.0	0.000	58.5	0.015	0.0	0.000	0.0	0.000
SPIOJUVE	14.6	0.001	58.5	0.014	0.0	0.000	73.2	0.006	0.0	0.000
SPIOKROE	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.064
SYNEKLAT	14.6	0.006	0.0	0.000	0.0	0.000	14.6	0.006	29.3	0.008
MISCELLANEOUS										
ASCIDIAC	14.6	0.002	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000
GOLFELON	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	29.3	0.012
GOLFSPEC	0.0	0.000	0.0	0.000	0.0	0.000	58.5	0.266	0.0	0.000
NEMERTIN	58.5	1.481	29.3	1.120	43.9	0.015	0.0	0.000	14.6	0.108
PHORONID	14.6	0.004	58.5	0.015	43.9	0.017	14.6	0.006	14.6	0.002
SUMS	980.1	13.349	936.2	8.909	1375.3	8.644	2603.9	44.581	775.0	13.271
DIVERSITY										
NSPC	23		23		23		33		27	
SH-W	2.691		2.750		2.615		2.351		2.834	
SIMP	0.095		0.092		0.114		0.230		0.099	

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STATION:	OYS 34		OYS 35		OYS 36		OYS 37		OYS 38	
CRUSTACEA	N	B	N	B	N	B	N	B	N	B
AMPEBREV	0.0	0.000	14.6	0.004	0.0	0.000	14.6	0.042	0.0	0.000
BATHELEG	0.0	0.000	29.3	0.009	0.0	0.000	0.0	0.000	14.6	0.004
CALLJUVE	263.3	0.224	29.3	0.009	190.2	0.191	43.9	0.020	58.5	0.044
CALLSUBT	58.5	5.227	0.0	0.000	58.5	4.038	58.5	1.383	14.6	1.811
DIASBRAD	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.004	0.0	0.000
EUDOTRUN	29.3	0.006	0.0	0.000	29.3	0.006	14.6	0.003	0.0	0.000
HARPANTE	29.3	0.009	29.3	0.009	58.5	0.018	29.3	0.009	14.6	0.004
IONETHOR	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.018	0.0	0.000
LEUCINCI	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	29.3	0.009
LEUCLILL	14.6	0.004	0.0	0.000	14.6	0.004	0.0	0.000	0.0	0.000
LEUCRICH	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.004	0.0	0.000
MELIOBTU	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.004
PSEULONG	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.003
UPOGDELT	58.5	8.714	0.0	0.000	29.3	4.718	14.6	0.160	0.0	0.000
UROTELEG	0.0	0.000	14.6	0.004	0.0	0.000	0.0	0.000	0.0	0.000
ECHINODERMATA										
AMPHFILI	278.0	0.526	438.9	1.032	438.9	1.014	0.0	0.000	14.6	0.033
CUCUELON	0.0	0.000	0.0	0.000	14.6	4.649	0.0	0.000	0.0	0.000
ECHICORD	43.9	5.006	0.0	0.000	175.6	7.407	0.0	0.000	0.0	0.000
OPHIALBI	0.0	0.000	0.0	0.000	117.0	1.229	0.0	0.000	0.0	0.000
OPHIJUVE	0.0	0.000	0.0	0.000	117.0	0.012	73.2	0.007	0.0	0.000
MOLLUSCA										
ABRAALBA	117.0	0.012	43.9	0.004	0.0	0.000	29.3	0.012	0.0	0.000
CULTPELL	0.0	0.000	0.0	0.000	0.0	0.000	29.3	0.002	0.0	0.000
CYLICYLI	0.0	0.000	0.0	0.000	14.6	0.034	29.3	0.004	0.0	0.000
MONTFERR	0.0	0.000	43.9	0.048	14.6	0.014	0.0	0.000	0.0	0.000
MYSEBIDE	0.0	0.000	14.6	0.003	14.6	0.003	0.0	0.000	0.0	0.000
NATIALDE	14.6	0.007	0.0	0.000	14.6	0.022	0.0	0.000	0.0	0.000
NUCUTURG	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	29.3	0.056
VENUSTRI	0.0	0.000	14.6	0.054	0.0	0.000	0.0	0.000	0.0	0.000
POLYCHAETA										
APHRACUL	14.6	3.495	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000
CAPITELL	0.0	0.000	0.0	0.000	0.0	0.000	43.9	0.006	0.0	0.000
CHAESETO	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.002	0.0	0.000
CHAEVARI	0.0	0.000	0.0	0.000	0.0	0.000	43.9	9.868	0.0	0.000
DIPLGLAU	14.6	0.015	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000
GATTCIRR	0.0	0.000	0.0	0.000	0.0	0.000	29.3	1.995	0.0	0.000
GLYCJUVE	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.004	0.0	0.000
GONIMACU	29.3	0.017	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.008
GYPTCAPE	14.6	0.006	0.0	0.000	29.3	0.008	0.0	0.000	0.0	0.000
LUMBLATR	102.4	0.237	0.0	0.000	29.3	0.035	43.9	0.073	0.0	0.000
MAGEJUVE	0.0	0.000	14.6	0.002	0.0	0.000	0.0	0.000	0.0	0.000
MAGEPAPI	0.0	0.000	73.2	0.027	0.0	0.000	0.0	0.000	146.3	0.052
MEDIFRAG	131.7	0.017	14.6	0.002	0.0	0.000	0.0	0.000	0.0	0.000
NEPHHOMB	14.6	0.021	14.6	1.130	73.2	0.247	29.3	0.442	43.9	0.129
NEPHJUVE	58.5	0.008	0.0	0.000	43.9	0.006	0.0	0.000	117.0	0.025
NERELONG	14.6	0.035	0.0	0.000	0.0	0.000	14.6	0.006	0.0	0.000
NOTOLATE	73.2	5.353	29.3	0.371	29.3	0.097	102.4	1.388	0.0	0.000
OPHEJUVE	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.001
OPHIFLEX	0.0	0.000	0.0	0.000	14.6	0.033	29.3	0.089	0.0	0.000
PARAGRAC	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.002	0.0	0.000
PHOLMINU	14.6	0.004	29.3	0.010	58.5	0.023	0.0	0.000	0.0	0.000
POECSERP	0.0	0.000	0.0	0.000	0.0	0.000	73.2	0.069	0.0	0.000
POLYDORA	14.6	0.004	0.0	0.000	14.6	0.004	73.2	0.089	0.0	0.000
SCOLARMI	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.043
SIGAJUVE	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	29.3	0.004
SIGAMATH	0.0	0.000	29.3	0.093	0.0	0.000	0.0	0.000	14.6	0.226
SPIOBOMB	0.0	0.000	29.3	0.014	0.0	0.000	43.9	0.012	14.6	0.008
SPIOFILI	0.0	0.000	0.0	0.000	14.6	0.006	0.0	0.000	0.0	0.000
SPIOJUVE	0.0	0.000	0.0	0.000	0.0	0.000	29.3	0.004	0.0	0.000
SYNEKLAT	0.0	0.000	0.0	0.000	0.0	0.000	29.3	0.015	0.0	0.000
MISCELLANEOUS										
GOLFELON	0.0	0.000	0.0	0.000	0.0	0.000	234.1	0.633	0.0	0.000
GOLFSPEC	0.0	0.000	0.0	0.000	14.6	0.006	0.0	0.000	0.0	0.000
GOLFVULG	0.0	0.000	0.0	0.000	0.0	0.000	102.4	0.415	0.0	0.000
NEMERTIN	14.6	0.010	43.9	0.017	43.9	0.091	14.6	0.002	14.6	0.010
PHORONID	14.6	0.004	175.6	0.048	29.3	0.019	14.6	0.004	175.6	0.062
PLATHYHE	14.6	0.008	14.6	0.004	0.0	0.000	0.0	0.000	0.0	0.000
SUMS	1448.1	28.970	1141.3	2.894	1697.0	23.933	1375.4	16.786	804.4	2.535
DIVERSITY										
NSPC	25		21		27		33		20	
SH-W	2.674		2.312		2.701		3.157		2.507	
SIMP	0.100		0.185		0.108		0.060		0.117	

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STATION:	OYS 39		OYS 40		OYS 41		OYS 42		OFF 1	
CRUSTACEA	N	B	N	B	N	B	N	B	N	B
AMPETENU	29.3	0.009	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000
BATHELEG	0.0	0.000	29.3	0.009	0.0	0.000	263.3	0.079	0.0	0.000
BATHGUIL	0.0	0.000	0.0	0.000	0.0	0.000	29.3	0.009	0.0	0.000
BATHTENU	0.0	0.000	102.4	0.031	73.2	0.022	14.6	0.004	0.0	0.000
CALLJUVE	43.9	0.009	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000
CALLSUBT	0.0	0.000	0.0	0.000	14.6	0.654	0.0	0.000	0.0	0.000
CORYJUVE	0.0	0.000	14.6	0.007	0.0	0.000	0.0	0.000	0.0	0.000
EUDODEFO	0.0	0.000	102.4	0.021	0.0	0.000	0.0	0.000	0.0	0.000
EUDOTRUN	29.3	0.006	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000
HARPANTE	117.0	0.035	131.7	0.040	43.9	0.013	0.0	0.000	0.0	0.000
HIPPDENT	0.0	0.000	0.0	0.000	14.6	0.004	29.3	0.009	0.0	0.000
PERILONG	0.0	0.000	14.6	0.004	0.0	0.000	0.0	0.000	0.0	0.000
PSEULONG	0.0	0.000	0.0	0.000	43.9	0.009	0.0	0.000	0.0	0.000
UPOGDELT	14.6	0.068	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000
UROTPOSE	0.0	0.000	0.0	0.000	0.0	0.000	58.5	0.018	0.0	0.000
ECHINODERMATA										
ACROBRAC	0.0	0.000	0.0	0.000	14.6	0.379	0.0	0.000	0.0	0.000
AMPHFILI	1097.3	9.708	307.2	3.935	336.5	10.448	0.0	0.000	0.0	0.000
ECHICORD	0.0	0.000	0.0	0.000	14.6	7.004	0.0	0.000	0.0	0.000
ECHIJUVE	0.0	0.000	29.3	0.002	0.0	0.000	4476.8	0.224	14.6	0.002
ECHIPUSI	0.0	0.000	0.0	0.000	0.0	0.000	29.3	0.011	0.0	0.000
OPHIALBI	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	58.5	2.121
OPHIJUVE	0.0	0.000	131.7	0.013	73.2	0.007	73.2	0.007	14.6	0.002
MOLLUSCA										
ABRAALBA	29.3	0.102	43.9	0.005	0.0	0.000	14.6	0.002	0.0	0.000
ABRAPRIS	0.0	0.000	0.0	0.000	29.3	0.137	0.0	0.000	0.0	0.000
APLACOPH	14.6	0.012	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000
CORBGIBB	14.6	0.030	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000
CULTPELL	14.6	0.083	43.9	0.139	0.0	0.000	29.3	0.008	0.0	0.000
CYLICYLI	43.9	0.010	0.0	0.000	131.7	0.119	14.6	0.014	0.0	0.000
DOSIEXOL	0.0	0.000	0.0	0.000	14.6	0.758	0.0	0.000	0.0	0.000
DOSILUPI	0.0	0.000	14.6	0.028	0.0	0.000	0.0	0.000	0.0	0.000
MACOBALT	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.010	0.0	0.000
MACTCORA	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.004	0.0	0.000
MONTFERR	0.0	0.000	14.6	0.032	29.3	0.036	73.2	0.042	29.3	0.026
MYSEBIDE	117.0	0.023	131.7	0.026	907.1	0.181	14.6	0.003	0.0	0.000
NATIALDE	0.0	0.000	14.6	0.010	58.5	0.038	0.0	0.000	14.6	0.044
NUCUTURG	0.0	0.000	0.0	0.000	14.6	0.110	0.0	0.000	0.0	0.000
TELLFABU	0.0	0.000	14.6	0.001	351.1	0.045	87.8	1.115	0.0	0.000
THRACONV	14.6	0.006	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000
THYAFLEX	0.0	0.000	0.0	0.000	14.6	0.079	0.0	0.000	0.0	0.000
VENUSTRI	14.6	0.114	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.182
POLYCHAETA										
ANAISUBU	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.010	0.0	0.000
APHRJUVE	14.6	0.004	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000
CAPICAPI	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.004
CHAESETO	58.5	0.124	43.9	0.004	0.0	0.000	43.9	0.027	775.4	0.203
DIPLGLAU	29.3	0.014	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000
ETEOLONG	14.6	0.012	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000
EUMISANG	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	29.3	0.031
GONIMACU	14.6	0.004	14.6	0.010	29.3	0.004	14.6	0.091	0.0	0.000
HARMJUVE	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.002
HETEFILI	0.0	0.000	0.0	0.000	73.2	0.015	0.0	0.000	0.0	0.000
LANIJUVE	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.001	102.4	0.068
MAGEALLE	14.6	0.010	0.0	0.000	14.6	0.110	0.0	0.000	0.0	0.000
MAGEJUVE	43.9	0.002	73.2	0.004	219.5	0.019	292.6	0.039	117.0	0.008
MAGEPAPI	0.0	0.000	555.9	0.305	336.5	0.125	87.8	0.265	482.8	0.967
NEPHCIRR	29.3	0.023	0.0	0.000	0.0	0.000	43.9	0.110	0.0	0.000
NEPHHOMB	29.3	0.485	87.8	1.257	43.9	1.846	0.0	0.000	0.0	0.000
NEPHJUVE	14.6	0.004	73.2	0.021	29.3	0.006	0.0	0.000	0.0	0.000
NERELONG	29.3	0.056	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000
OPHIFLEX	0.0	0.000	0.0	0.000	29.3	0.066	0.0	0.000	0.0	0.000
PECTJUVE	0.0	0.000	14.6	0.001	0.0	0.000	0.0	0.000	0.0	0.000
PHOLMINU	321.9	0.044	87.8	0.017	234.1	0.102	0.0	0.000	0.0	0.000
POECSERP	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	43.9	0.046
POLYDORA	14.6	0.006	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000
SCALINFL	14.6	0.143	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000
SCOLARMI	175.6	0.043	497.4	1.033	29.3	0.029	58.5	0.214	453.5	2.634
SCOLJUVE	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.004
SPIOBOMB	0.0	0.000	14.6	0.048	117.0	0.326	146.3	0.178	146.3	0.044
SPIOFILI	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.004	0.0	0.000
SPIOJUVE	14.6	0.002	58.5	0.008	175.6	0.015	43.9	0.004	0.0	0.000
STHELIMI	0.0	0.000	0.0	0.000	29.3	0.037	0.0	0.000	0.0	0.000
SYNEKLAT	0.0	0.000	14.6	0.004	0.0	0.000	0.0	0.000	0.0	0.000
MISCELLANEOUS										
ANTHOZOA	0.0	0.000	29.3	0.013	0.0	0.000	0.0	0.000	0.0	0.000
EDWACLAP	0.0	0.000	14.6	0.064	0.0	0.000	0.0	0.000	43.9	0.415
NEMERTIN	29.3	0.027	14.6	0.006	29.3	0.019	58.5	0.008	131.7	0.293
PHORONID	219.5	0.069	453.5	0.125	14.6	0.006	0.0	0.000	14.6	0.001
SUMS	2677.3	11.285	3189.2	7.222	3584.7	22.770	6071.4	2.507	2530.8	7.096
DIVERSITY										
NSPC	32		32		33		28		20	
SH-W	2.357		2.759		2.733		1.315		2.146	
SIMP	0.200		0.095		0.106		0.550		0.174	

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STATION:	OFF 2		OFF 3		OFF 4		OFF 5		OFF 6	
CRUSTACEA	N	B	N	B	N	B	N	B	N	B
BATHELEG	73.2	0.022	146.3	0.044	0.0	0.000	58.5	0.018	204.8	0.061
BATHJUVE	0.0	0.000	0.0	0.000	14.6	0.003	0.0	0.000	0.0	0.000
CALLJUVE	0.0	0.000	14.6	0.004	0.0	0.000	0.0	0.000	0.0	0.000
CALLSUBT	0.0	0.000	0.0	0.000	43.9	0.077	0.0	0.000	0.0	0.000
CAPRELLI	0.0	0.000	0.0	0.000	29.3	0.006	0.0	0.000	0.0	0.000
CORYCASS	14.6	0.055	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000
CORYJUVE	0.0	0.000	14.6	0.004	14.6	0.040	0.0	0.000	0.0	0.000
DIASBRAD	0.0	0.000	14.6	0.006	0.0	0.000	0.0	0.000	0.0	0.000
HIPPDENT	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	43.9	0.013
LEUCINCI	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.004	0.0	0.000
MEGAAGIL	14.6	0.004	0.0	0.000	0.0	0.000	0.0	0.000	43.9	0.013
PERILONG	0.0	0.000	14.6	0.004	43.9	0.013	14.6	0.004	0.0	0.000
PSEULONG	0.0	0.000	0.0	0.000	14.6	0.003	0.0	0.000	0.0	0.000
PSEUSIMI	0.0	0.000	0.0	0.000	14.6	0.003	0.0	0.000	14.6	0.003
UROTPOSE	0.0	0.000	0.0	0.000	14.6	0.004	219.5	0.066	0.0	0.000
ECHINODERMATA										
AMPHFILI	0.0	0.000	0.0	0.000	14.6	0.279	0.0	0.000	0.0	0.000
ASTATRIA	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.004
ASTEJUVE	58.5	0.012	14.6	0.003	0.0	0.000	0.0	0.000	0.0	0.000
ECHICORD	14.6	0.259	0.0	0.000	102.4	5.607	29.3	17.783	0.0	0.000
ECHIJUVE	1141.1	0.057	3072.3	0.154	18726.4	0.936	0.0	0.000	1784.9	0.089
ECHIPUSI	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	73.2	0.090
OPHIALBI	0.0	0.000	0.0	0.000	14.6	0.607	0.0	0.000	14.6	0.530
OPHIJUVE	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	29.3	0.003
OPHITEXT	0.0	0.000	14.6	1.214	0.0	0.000	14.6	0.027	0.0	0.000
MOLLUSCA										
ABRAALBA	29.3	0.002	0.0	0.000	29.3	0.659	0.0	0.000	0.0	0.000
MONTFERR	14.6	0.004	0.0	0.000	87.8	0.058	29.3	0.006	0.0	0.000
MYSEBIDE	0.0	0.000	0.0	0.000	14.6	0.003	0.0	0.000	0.0	0.000
NATIALDE	0.0	0.000	0.0	0.000	29.3	0.636	0.0	0.000	14.6	0.009
NUCUTURG	0.0	0.000	0.0	0.000	29.3	0.511	0.0	0.000	0.0	0.000
SPISJUVE	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.003
SPISSUBT	29.3	0.006	43.9	0.023	0.0	0.000	0.0	0.000	0.0	0.000
TELLFABU	160.9	1.097	263.3	2.696	87.8	0.255	146.3	2.210	0.0	0.000
THRAPHAS	0.0	0.000	0.0	0.000	43.9	0.044	29.3	0.231	0.0	0.000
VENUJUVE	0.0	0.000	0.0	0.000	14.6	0.001	0.0	0.000	0.0	0.000
POLYCHAETA										
AMPHITRI	0.0	0.000	0.0	0.000	14.6	0.004	0.0	0.000	0.0	0.000
ANAIGROE	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.151	0.0	0.000
ANAIJUVE	29.3	0.004	87.8	0.006	29.3	0.004	0.0	0.000	14.6	0.004
ANAIMACU	0.0	0.000	14.6	0.010	0.0	0.000	0.0	0.000	0.0	0.000
CAPICAPI	43.9	0.008	14.6	0.012	0.0	0.000	0.0	0.000	0.0	0.000
CHAESETO	14.6	0.004	482.8	0.112	43.9	0.015	0.0	0.000	0.0	0.000
ETEOLONG	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.010	0.0	0.000
EUMISANG	29.3	0.006	73.2	0.027	0.0	0.000	0.0	0.000	0.0	0.000
GYPTCAPE	0.0	0.000	0.0	0.000	0.0	0.000	58.5	0.027	0.0	0.000
HARMLUNU	14.6	0.056	14.6	0.031	0.0	0.000	14.6	0.041	14.6	0.021
LANICONC	43.9	2.617	73.2	2.630	0.0	0.000	102.4	1.997	14.6	0.079
LANIJUVE	614.5	0.154	365.8	0.097	117.0	0.035	0.0	0.000	0.0	0.000
MAGEJUVE	1082.6	0.048	907.1	0.029	0.0	0.000	29.3	0.008	102.4	0.008
MAGEPAPI	14.6	0.050	204.8	0.666	278.0	0.326	117.0	0.156	0.0	0.000
NEPHCAEC	14.6	0.243	0.0	0.000	0.0	0.000	14.6	0.545	0.0	0.000
NEPHCIRR	0.0	0.000	14.6	0.035	0.0	0.000	0.0	0.000	58.5	0.197
NEPHHOMB	0.0	0.000	0.0	0.000	14.6	0.110	0.0	0.000	0.0	0.000
NEPHJUVE	58.5	0.012	58.5	0.019	0.0	0.000	58.5	0.012	14.6	0.004
NOTOLATE	0.0	0.000	0.0	0.000	14.6	0.935	73.2	4.306	0.0	0.000
OPHEJUVE	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	58.5	0.006
OPHELIMA	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.149
PECTJUVE	14.6	0.001	102.4	0.006	0.0	0.000	0.0	0.000	0.0	0.000
PECTKORE	0.0	0.000	58.5	0.023	0.0	0.000	0.0	0.000	0.0	0.000
PHOLMINU	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.006	0.0	0.000
POECSERP	14.6	0.010	14.6	0.039	14.6	0.017	0.0	0.000	0.0	0.000
SCOLARMI	336.5	2.841	512.1	2.984	146.3	0.166	58.5	0.054	102.4	0.438
SCOLFOLI	29.3	0.008	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000
SIGAJUVE	0.0	0.000	0.0	0.000	58.5	0.027	0.0	0.000	0.0	0.000
SIGAMATH	0.0	0.000	0.0	0.000	0.0	0.000	43.9	0.348	0.0	0.000
SPIOBOMB	263.3	0.110	0.0	0.000	438.9	0.199	14.6	0.133	175.6	0.129
SPIOFILI	0.0	0.000	0.0	0.000	29.3	0.010	0.0	0.000	278.0	0.114
SPIOJUVE	0.0	0.000	102.4	0.014	0.0	0.000	29.3	0.006	0.0	0.000
STHELIMI	0.0	0.000	0.0	0.000	14.6	0.583	0.0	0.000	0.0	0.000
MISCELLANEOUS										
ANTHOZOA	0.0	0.000	0.0	0.000	0.0	0.000	14.6	2.594	0.0	0.000
NEMERTIN	58.5	0.129	73.2	0.122	131.7	0.299	117.0	0.361	14.6	0.035
PHORONID	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.001	0.0	0.000
SUMS	4227.9	7.818	6788.2	11.012	20730.6	12.474	1360.4	31.103	3116.0	2.004
DIVERSITY										
NSPC	27		28		34		27		23	
SH-W	2.192		2.072		0.596		2.909		1.778	
SIMP	0.172		0.240		0.817		0.072		0.348	

Appendix - 2 Biomonitoring 1998

STATION:	OFF 7		OFF 8		OFF 9		OFF 10		OFF 11	
CRUSTACEA	N	B	N	B	N	B	N	B	N	B
BATHELEG	0.0	0.000	321.9	0.097	190.2	0.057	746.1	0.224	131.7	0.040
BATHGUIL	0.0	0.000	117.0	0.047	0.0	0.000	87.8	0.035	0.0	0.000
BATHJUVE	0.0	0.000	0.0	0.000	73.2	0.015	234.1	0.047	0.0	0.000
CALLJUVE	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.018
DIASBRAD	0.0	0.000	0.0	0.000	14.6	0.007	0.0	0.000	0.0	0.000
IPHITRIS	14.6	0.004	0.0	0.000	14.6	0.006	0.0	0.000	0.0	0.000
MEGAAGIL	0.0	0.000	0.0	0.000	0.0	0.000	29.3	0.009	0.0	0.000
PERILONG	14.6	0.004	0.0	0.000	29.3	0.009	0.0	0.000	14.6	0.004
PHOTLONG	0.0	0.000	14.6	0.004	0.0	0.000	0.0	0.000	0.0	0.000
PONTALTA	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	29.3	0.009
PSEULONG	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	43.9	0.009
PSEUSIMI	0.0	0.000	0.0	0.000	0.0	0.000	29.3	0.006	0.0	0.000
SIPHKROY	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.003
UROTBREV	0.0	0.000	0.0	0.000	0.0	0.000	102.4	0.031	0.0	0.000
UROTPOSE	702.2	0.211	1038.7	0.312	43.9	0.013	0.0	0.000	14.6	0.004
ECHINODERMATA										
ECHICORD	160.9	56.638	14.6	8.891	0.0	0.000	0.0	0.000	0.0	0.000
ECHIJUVE	43.9	0.002	409.6	0.021	2018.9	0.101	365.8	0.018	5939.8	0.297
ECHIPUSI	0.0	0.000	0.0	0.000	14.6	0.038	0.0	0.000	29.3	0.043
OPHIALBI	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.877
OPHIJUVE	0.0	0.000	29.3	0.003	29.3	0.003	0.0	0.000	14.6	0.002
MOLLUSCA										
DOSISPEC	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.003
ENSIENSI	0.0	0.000	14.6	5.668	0.0	0.000	0.0	0.000	0.0	0.000
ENSISPEC	0.0	0.000	0.0	0.000	14.6	3.164	0.0	0.000	0.0	0.000
MONTFERR	73.2	0.020	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000
NATIALDE	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.008
NUCUTURG	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	29.3	0.290
TELLFABU	0.0	0.000	131.7	5.326	0.0	0.000	0.0	0.000	73.2	0.338
POLYCHAETA										
ANAIJUVE	0.0	0.000	14.6	0.002	0.0	0.000	14.6	0.001	0.0	0.000
CHAESETO	0.0	0.000	29.3	0.056	0.0	0.000	14.6	0.004	87.8	0.012
ETEOLONG	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.010	0.0	0.000
EXOGHEBE	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.002	0.0	0.000
GONIMACU	0.0	0.000	14.6	0.072	0.0	0.000	14.6	0.125	0.0	0.000
GYPTCAPE	0.0	0.000	14.6	0.010	0.0	0.000	0.0	0.000	0.0	0.000
LANIJUVE	0.0	0.000	14.6	0.004	0.0	0.000	0.0	0.000	0.0	0.000
MAGEJUVE	0.0	0.000	14.6	0.004	0.0	0.000	0.0	0.000	87.8	0.019
MAGEPAPI	14.6	0.023	102.4	0.170	87.8	0.311	0.0	0.000	14.6	0.039
NEPHCIRR	0.0	0.000	0.0	0.000	73.2	0.357	29.3	0.442	29.3	0.031
NEPHJUVE	14.6	0.004	29.3	0.004	14.6	0.004	0.0	0.000	14.6	0.006
NEPHLONG	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.056	0.0	0.000
NEREJUVE	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.004	0.0	0.000
OPHELIMA	0.0	0.000	0.0	0.000	0.0	0.000	29.3	0.079	0.0	0.000
PARAFULG	0.0	0.000	0.0	0.000	0.0	0.000	43.9	0.008	0.0	0.000
PHOLMINU	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.002
POECSERP	0.0	0.000	102.4	0.010	0.0	0.000	0.0	0.000	0.0	0.000
SCOLARMI	14.6	0.021	0.0	0.000	43.9	0.191	43.9	0.072	14.6	0.010
SCOLBONN	0.0	0.000	0.0	0.000	14.6	0.288	14.6	0.446	0.0	0.000
SIGAMATH	14.6	1.045	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000
SPIOBOMB	0.0	0.000	321.9	0.160	0.0	0.000	14.6	0.332	0.0	0.000
SPIOFILI	14.6	0.004	43.9	0.015	131.7	0.041	58.5	0.023	0.0	0.000
SPIOJUVE	0.0	0.000	0.0	0.000	117.0	0.035	1199.7	0.305	87.8	0.021
SYLLIDAE	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.001
MISCELLANEOUS										
ANTHOZOA	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	14.6	4.989
NEMERTIN	0.0	0.000	29.3	0.045	14.6	0.010	14.6	0.042	43.9	0.113
SUMS	1082.4	57.976	2823.5	20.919	2940.6	4.649	3145.4	2.320	6817.5	7.185
DIVERSITY										
NSPC	11		21		18		23		26	
SH-W	1.283		2.131		1.393		1.981		0.756	
SIMP	0.450		0.189		0.482		0.224		0.760	

Appendix - 2 Biomonitoring 1998

STATION:	OFF 12		OFF 13		OFF 14		OFF 15		OFF 16	
CRUSTACEA	N	B	N	B	N	B	N	B	N	B
BATHELEG	175.6	0.053	146.3	0.044	131.7	0.040	278.0	0.083	58.5	0.018
BATHGUIL	43.9	0.013	14.6	0.006	14.6	0.006	14.6	0.006	0.0	0.000
BATHJUVE	0.0	0.000	58.5	0.012	0.0	0.000	0.0	0.000	0.0	0.000
DIASBRAD	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.006
IPHITRIS	0.0	0.000	14.6	0.004	0.0	0.000	0.0	0.000	0.0	0.000
MEGAAGIL	0.0	0.000	14.6	0.004	29.3	0.009	0.0	0.000	14.6	0.004
PONTALTA	43.9	0.013	0.0	0.000	146.3	0.044	43.9	0.013	14.6	0.004
PSEULONG	0.0	0.000	0.0	0.000	0.0	0.000	43.9	0.009	0.0	0.000
UROTBREV	0.0	0.000	43.9	0.013	204.8	0.061	0.0	0.000	14.6	0.004
UROTPOSE	14.6	0.004	29.3	0.009	234.1	0.070	907.1	0.272	0.0	0.000
ECHINODERMATA										
ECHICORD	0.0	0.000	0.0	0.000	29.3	7.661	43.9	38.479	0.0	0.000
ECHIJUVE	4213.4	0.211	32917.5	1.646	29.3	0.002	0.0	0.000	0.0	0.000
MOLLUSCA										
CHLASPEC	14.6	0.002	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000
ENSIENSI	0.0	0.000	14.6	0.701	0.0	0.000	0.0	0.000	0.0	0.000
ENSISPEC	0.0	0.000	14.6	2.733	0.0	0.000	0.0	0.000	0.0	0.000
MACTSPEC	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.003
MONTFERR	0.0	0.000	0.0	0.000	43.9	0.075	29.3	0.012	0.0	0.000
NATIALDE	14.6	0.058	29.3	0.016	14.6	0.038	58.5	0.195	0.0	0.000
TELLFABU	0.0	0.000	14.6	0.027	58.5	0.234	14.6	0.181	0.0	0.000
POLYCHAETA										
ARICMINU	14.6	0.001	14.6	0.004	0.0	0.000	0.0	0.000	0.0	0.000
CHAESETO	0.0	0.000	0.0	0.000	29.3	0.004	14.6	0.006	0.0	0.000
ETEOLONG	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.010	29.3	0.050
GONIMACU	0.0	0.000	43.9	0.035	43.9	0.172	58.5	0.212	14.6	0.027
MAGEJUVE	0.0	0.000	29.3	0.004	0.0	0.000	0.0	0.000	0.0	0.000
MAGEPAPI	14.6	0.044	0.0	0.000	0.0	0.000	14.6	0.008	14.6	0.087
NEPHCIRR	0.0	0.000	58.5	1.628	14.6	0.008	14.6	0.162	87.8	0.191
NEPHJUVE	14.6	0.004	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000
PARAFULG	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	87.8	0.017
SCOLARMI	102.4	0.570	87.8	0.404	58.5	0.512	73.2	0.237	29.3	0.093
SPIOBOMB	0.0	0.000	102.4	0.044	0.0	0.000	0.0	0.000	29.3	0.062
SPIOFILI	0.0	0.000	14.6	0.008	0.0	0.000	0.0	0.000	14.6	0.008
SPIOJUVE	58.5	0.008	0.0	0.000	29.3	0.002	14.6	0.010	43.9	0.004
STHEJUVE	0.0	0.000	14.6	0.002	0.0	0.000	0.0	0.000	0.0	0.000
STHELIMI	14.6	0.048	14.6	0.066	0.0	0.000	0.0	0.000	0.0	0.000
MISCELLANEOUS										
HYDROZOA	0.0	0.000	0.0	0.000	14.6	0.006	14.6	0.003	0.0	0.000
NEMERTIN	14.6	0.006	0.0	0.000	0.0	0.000	14.6	0.071	0.0	0.000
SUMS	4754.5	1.035	33692.7	7.409	1126.6	8.943	1667.7	39.969	482.7	0.578
DIVERSITY										
NSPC	14		21		17		18		15	
SH-W	0.594		0.171		2.412		1.734		2.451	
SIMP	0.788		0.955		0.118		0.331		0.106	

Appendix - 2 Biomonitoring 1998

STATION:	OFF 17		OFF 18		OFF 19		OFF 20		OFF 21	
CRUSTACEA	N	B	N	B	N	B	N	B	N	B
BATHELEG	0.0	0.000	0.0	0.000	0.0	0.000	87.8	0.026	0.0	0.000
BATHGUIL	0.0	0.000	0.0	0.000	0.0	0.000	29.3	0.009	43.9	0.013
COROPHIU	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	29.3	0.006
MEGAAGIL	0.0	0.000	0.0	0.000	14.6	0.004	14.6	0.004	29.3	0.009
PSEULONG	0.0	0.000	29.3	0.006	0.0	0.000	14.6	0.003	0.0	0.000
SYNCMACU	0.0	0.000	0.0	0.000	14.6	0.004	0.0	0.000	0.0	0.000
UROTBREV	0.0	0.000	248.7	0.075	0.0	0.000	14.6	0.004	0.0	0.000
UROTPOSE	14.6	0.004	0.0	0.000	0.0	0.000	58.5	0.018	0.0	0.000
ECHINODERMATA										
ASTATRIA	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.004
ASTEJUVE	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.004
ECHICORD	0.0	0.000	14.6	7.599	0.0	0.000	43.9	27.698	0.0	0.000
ECHIJUVE	0.0	0.000	0.0	0.000	380.4	0.019	58.5	0.003	0.0	0.000
MOLLUSCA										
ENSISPEC	0.0	0.000	0.0	0.000	0.0	0.000	14.6	2.271	0.0	0.000
TELLPYGM	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	102.4	0.138
POLYCHAETA										
AMPHARET	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	29.3	0.002
AONIPAUC	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	73.2	0.012
ARICMINU	29.3	0.010	0.0	0.000	117.0	0.017	0.0	0.000	0.0	0.000
CHAESETO	0.0	0.000	0.0	0.000	14.6	0.014	0.0	0.000	0.0	0.000
ETEOLONG	29.3	0.037	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000
EXOGNAID	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	29.3	0.002
GLYCLAPI	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.006
HESIAUGE	0.0	0.000	0.0	0.000	29.3	0.002	14.6	0.001	14.6	0.001
MAGEJUVE	0.0	0.000	0.0	0.000	14.6	0.006	0.0	0.000	14.6	0.002
MAGEPAPI	0.0	0.000	14.6	0.189	0.0	0.000	14.6	0.091	0.0	0.000
MEDIFRAG	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	73.2	0.006
NEPHCIRR	43.9	0.222	43.9	0.112	29.3	0.199	43.9	0.237	43.9	0.390
NEPHHOMB	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	29.3	0.056
NEPHJUVE	0.0	0.000	0.0	0.000	29.3	0.004	0.0	0.000	0.0	0.000
NEPHLONG	0.0	0.000	0.0	0.000	14.6	0.311	0.0	0.000	0.0	0.000
SCOLBONN	14.6	0.093	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000
SCOLJUVE	0.0	0.000	14.6	0.015	0.0	0.000	0.0	0.000	0.0	0.000
SCOLSQUA	0.0	0.000	14.6	0.164	0.0	0.000	14.6	0.041	0.0	0.000
SPIOBOMB	0.0	0.000	0.0	0.000	0.0	0.000	219.5	0.170	58.5	0.035
SPIOFILI	0.0	0.000	0.0	0.000	380.4	0.120	14.6	0.006	29.3	0.006
STREWEBS	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	43.9	0.010
MISCELLANEOUS										
NEMERTIN	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	58.5	0.190
OLIGOCHA	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	29.3	0.001
SUMS	131.7	0.366	380.3	8.160	1038.7	0.700	658.2	30.581	775.6	0.892
DIVERSITY										
NSPC	5		7		11		15		20	
SH-W	1.523		1.225		1.583		2.241		2.831	
SIMP	0.229		0.451		0.284		0.158		0.067	

Appendix - 2 Biomonitoring 1998

STATION:	OFF 22		OFF 23		OFF 24		OFF 25		OFF 26	
CRUSTACEA	N	B	N	B	N	B	N	B	N	B
AMPHIPOD	0.0	0.000	29.3	0.006	0.0	0.000	0.0	0.000	0.0	0.000
ATYLSWAM	0.0	0.000	14.6	0.004	0.0	0.000	0.0	0.000	0.0	0.000
BATHELEG	0.0	0.000	14.6	0.004	0.0	0.000	0.0	0.000	0.0	0.000
BATHGUIL	0.0	0.000	29.3	0.009	0.0	0.000	29.3	0.009	0.0	0.000
CALLTYRR	0.0	0.000	146.3	0.529	0.0	0.000	0.0	0.000	0.0	0.000
CAPRELLI	0.0	0.000	43.9	0.004	0.0	0.000	0.0	0.000	0.0	0.000
DIASBRAD	0.0	0.000	14.6	0.009	0.0	0.000	0.0	0.000	0.0	0.000
LEUCINCI	0.0	0.000	117.0	0.035	0.0	0.000	0.0	0.000	0.0	0.000
MEGAAGIL	29.3	0.009	58.5	0.018	0.0	0.000	14.6	0.004	14.6	0.004
PERILONG	0.0	0.000	14.6	0.004	0.0	0.000	14.6	0.004	0.0	0.000
PONTALTA	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	87.8	0.026
PSEULONG	14.6	0.003	0.0	0.000	14.6	0.003	14.6	0.003	0.0	0.000
UROTBREV	87.8	0.026	87.8	0.026	0.0	0.000	278.0	0.083	0.0	0.000
UROTPOSE	14.6	0.004	965.6	0.290	14.6	0.004	14.6	0.004	0.0	0.000
ECHINODERMATA										
ASTERUBE	0.0	0.000	29.3	0.246	0.0	0.000	0.0	0.000	0.0	0.000
ECHICORD	14.6	14.605	73.2	3.389	0.0	0.000	29.3	23.185	0.0	0.000
OPHIALBI	0.0	0.000	14.6	0.690	0.0	0.000	0.0	0.000	0.0	0.000
MOLLUSCA										
ABRAALBA	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.001
ENSIARCU	0.0	0.000	14.6	17.973	0.0	0.000	14.6	41.707	0.0	0.000
ENSISPEC	14.6	1.880	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000
MONTFERR	0.0	0.000	43.9	0.038	0.0	0.000	0.0	0.000	0.0	0.000
MYSEBIDE	0.0	0.000	29.3	0.006	14.6	0.003	0.0	0.000	0.0	0.000
NATIALDE	29.3	0.004	14.6	0.002	29.3	0.005	14.6	0.113	0.0	0.000
SPISELLI	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	29.3	0.109
TELLFABU	0.0	0.000	0.0	0.000	14.6	0.001	0.0	0.000	0.0	0.000
POLYCHAETA										
ANAIGROE	0.0	0.000	29.3	0.508	0.0	0.000	0.0	0.000	0.0	0.000
ANAISUBU	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.035	0.0	0.000
ARICMINU	0.0	0.000	0.0	0.000	0.0	0.000	43.9	0.006	14.6	0.002
CAPICAPI	0.0	0.000	14.6	0.004	0.0	0.000	0.0	0.000	0.0	0.000
ETEOJUVE	0.0	0.000	29.3	0.004	0.0	0.000	0.0	0.000	0.0	0.000
ETEOLONG	29.3	0.004	0.0	0.000	0.0	0.000	14.6	0.004	0.0	0.000
EUMISANG	29.3	0.029	175.6	0.131	0.0	0.000	0.0	0.000	0.0	0.000
EXOGNAID	0.0	0.000	0.0	0.000	0.0	0.000	117.0	0.006	0.0	0.000
HARMLUNU	0.0	0.000	321.9	0.251	0.0	0.000	0.0	0.000	0.0	0.000
HESIAUGE	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.001
LANICONC	73.2	2.456	1038.7	21.405	0.0	0.000	0.0	0.000	0.0	0.000
MAGEPAPI	0.0	0.000	0.0	0.000	0.0	0.000	29.3	0.050	14.6	0.143
NEPHCIRR	29.3	0.232	73.2	0.632	58.5	0.064	43.9	0.502	43.9	0.807
NEPHJUVE	0.0	0.000	73.2	0.029	0.0	0.000	0.0	0.000	14.6	0.004
NEPHLONG	43.9	0.479	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000
NERELONG	0.0	0.000	29.3	0.840	0.0	0.000	0.0	0.000	0.0	0.000
OWENJUVE	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.001	0.0	0.000
PECTKORE	0.0	0.000	29.3	2.221	0.0	0.000	0.0	0.000	0.0	0.000
PHOLMINU	0.0	0.000	14.6	0.001	0.0	0.000	0.0	0.000	0.0	0.000
PISIREMO	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	29.3	0.002
POECSERP	14.6	0.008	117.0	0.182	0.0	0.000	0.0	0.000	0.0	0.000
SCOLARMI	102.4	0.106	87.8	0.153	43.9	0.025	0.0	0.000	0.0	0.000
SCOLBONN	29.3	0.355	0.0	0.000	0.0	0.000	14.6	0.311	0.0	0.000
SCOLSQUA	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.237	0.0	0.000
SPIOBOMB	131.7	0.116	29.3	0.205	29.3	0.017	131.7	0.521	0.0	0.000
SPIOFILI	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	29.3	0.008
SPIOJUVE	0.0	0.000	0.0	0.000	0.0	0.000	117.0	0.006	0.0	0.000
STREWEBS	14.6	0.001	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000
MISCELLANEOUS										
ANTHOZOA	29.3	0.373	0.0	0.000	14.6	0.016	0.0	0.000	0.0	0.000
ARCHIANN	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.001
HYDROZOA	0.0	0.000	0.0	0.000	0.0	0.000	29.3	0.003	0.0	0.000
NEMERTIN	43.9	0.303	219.5	14.168	0.0	0.000	0.0	0.000	14.6	0.010
PHORONID	0.0	0.000	117.0	0.029	0.0	0.000	0.0	0.000	0.0	0.000
SUMS	775.6	20.994	4155.2	64.043	234.0	0.139	1009.3	66.796	336.4	1.118
DIVERSITY										
NSPC	19		35		9		21		13	
SH-W	2.678		2.618		2.046		2.478		2.343	
SIMP	0.085		0.133		0.145		0.128		0.120	

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STATION:	OFF 27		OFF 28		OFF 29		OFF 30		OFF 31	
CRUSTACEA	N	B	N	B	N	B	N	B	N	B
AMPEBREV	14.6	0.004	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000
ATYLSWAM	14.6	0.004	0.0	0.000	0.0	0.000	14.6	0.004	0.0	0.000
BATHELEG	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.004	585.2	0.176
BATHGUIL	0.0	0.000	0.0	0.000	14.6	0.004	0.0	0.000	0.0	0.000
BATHJUVE	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	160.9	0.032
CALLTYRR	14.6	2.190	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000
CAPRELLI	0.0	0.000	0.0	0.000	14.6	0.003	0.0	0.000	14.6	0.003
DIASBRAD	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.015	0.0	0.000
IONETHOR	14.6	0.042	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000
IPHITRIS	14.6	0.007	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000
LEUCINCI	58.5	0.018	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000
MEGAAGIL	0.0	0.000	43.9	0.013	14.6	0.004	0.0	0.000	29.3	0.009
PERILONG	0.0	0.000	0.0	0.000	14.6	0.004	14.6	0.004	0.0	0.000
PONTALTA	14.6	0.004	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000
PSEULONG	0.0	0.000	14.6	0.003	14.6	0.003	43.9	0.009	0.0	0.000
UROTBREV	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.004
UROTPOSE	102.4	0.041	0.0	0.000	0.0	0.000	175.6	0.053	0.0	0.000
ECHINODERMATA										
ASTEJUVE	73.2	0.015	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000
ECHICORD	14.6	16.613	0.0	0.000	14.6	5.912	29.3	18.596	0.0	0.000
ECHIJUVE	14.6	0.002	14.6	0.002	58.5	0.003	3730.7	0.186	2516.4	0.126
ECHIPUSI	0.0	0.000	0.0	0.000	307.2	0.242	0.0	0.000	0.0	0.000
OPHIALBI	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.530
OPHIJUVE	0.0	0.000	14.6	0.006	58.5	0.012	0.0	0.000	0.0	0.000
MOLLUSCA										
CULTPELL	0.0	0.000	0.0	0.000	14.6	0.002	0.0	0.000	14.6	0.001
ENSIARCU	87.8	27.175	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000
MACTCORA	0.0	0.000	14.6	0.003	0.0	0.000	0.0	0.000	0.0	0.000
MONTFERR	29.3	0.015	0.0	0.000	0.0	0.000	14.6	0.003	14.6	0.003
MYSEBIDE	29.3	0.006	0.0	0.000	14.6	0.003	0.0	0.000	0.0	0.000
NATIALDE	14.6	0.054	0.0	0.000	14.6	0.031	14.6	0.020	43.9	0.115
SPISELLI	14.6	0.009	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000
SPISJUVE	0.0	0.000	14.6	0.002	0.0	0.000	0.0	0.000	0.0	0.000
TELLFABU	0.0	0.000	0.0	0.000	0.0	0.000	117.0	2.440	29.3	0.013
TELLPYGM	0.0	0.000	43.9	0.014	0.0	0.000	0.0	0.000	0.0	0.000
POLYCHAETA										
ANAIGROE	131.7	0.628	0.0	0.000	0.0	0.000	14.6	0.010	0.0	0.000
ANAIJUVE	0.0	0.000	0.0	0.000	14.6	0.001	0.0	0.000	29.3	0.002
AONIPAUC	14.6	0.002	29.3	0.008	117.0	0.077	0.0	0.000	0.0	0.000
ARICMINU	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	131.7	0.019
CAPICAPI	14.6	0.008	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000
CHAESETO	0.0	0.000	0.0	0.000	14.6	0.027	43.9	0.037	29.3	0.023
EUMISANG	14.6	0.006	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000
EUZOFLAB	0.0	0.000	43.9	0.033	0.0	0.000	0.0	0.000	0.0	0.000
GONIMACU	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.286	14.6	0.019
HARMLUNU	0.0	0.000	0.0	0.000	43.9	0.056	14.6	0.012	0.0	0.000
HESIAUGE	0.0	0.000	14.6	0.001	0.0	0.000	0.0	0.000	0.0	0.000
LANICONC	58.5	0.122	0.0	0.000	219.5	1.170	0.0	0.000	0.0	0.000
LANIJUVE	58.5	0.008	0.0	0.000	29.3	0.002	1755.6	0.521	0.0	0.000
MAGEJUVE	0.0	0.000	0.0	0.000	0.0	0.000	58.5	0.008	0.0	0.000
MAGEPAPI	0.0	0.000	0.0	0.000	0.0	0.000	43.9	0.043	58.5	0.203
NEPHCIRR	0.0	0.000	29.3	0.133	29.3	0.373	0.0	0.000	0.0	0.000
NEPHHOMB	14.6	5.042	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.062
NEPHJUVE	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.002
NOTOLATE	0.0	0.000	0.0	0.000	0.0	0.000	29.3	3.347	0.0	0.000
OPHEJUVE	0.0	0.000	0.0	0.000	204.8	0.019	0.0	0.000	0.0	0.000
OPHELIMA	0.0	0.000	0.0	0.000	58.5	0.172	0.0	0.000	14.6	0.010
ORBISERT	0.0	0.000	0.0	0.000	29.3	0.861	0.0	0.000	0.0	0.000
PECTKORE	102.4	2.161	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000
POECSERP	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.014	0.0	0.000
SCALINFL	14.6	0.008	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000
SCOLARMI	746.1	0.153	0.0	0.000	117.0	0.415	117.0	0.187	73.2	0.178
SCOLBONN	0.0	0.000	14.6	0.043	14.6	0.411	14.6	0.097	0.0	0.000
SIGAMATH	0.0	0.000	0.0	0.000	0.0	0.000	29.3	0.019	0.0	0.000
SPIOBOMB	2838.2	1.640	43.9	0.023	131.7	0.046	190.2	0.019	468.2	0.440
SPIOFILI	0.0	0.000	58.5	0.023	29.3	0.008	0.0	0.000	175.6	0.058
SPIOJUVE	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	731.5	0.039
TRAVFORB	0.0	0.000	0.0	0.000	58.5	0.371	0.0	0.000	0.0	0.000
MISCELLANEOUS										
ARCHIANN	0.0	0.000	14.6	0.001	0.0	0.000	0.0	0.000	0.0	0.000
NEMERTIN	58.5	7.622	0.0	0.000	117.0	0.396	131.7	0.325	14.6	0.016
SUMS	4593.4	63.596	409.5	0.307	1784.5	10.628	6656.5	26.258	5208.3	2.082
DIVERSITY										
NSPC	28		15		28		25		24	
SH-W	1.567		2.564		2.818		1.453		1.836	
SIMP	0.411		0.085		0.083		0.386		0.277	

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STATION:	OFF 32		OFF 33		OFF 34		OFF 35		OFF 36	
CRUSTACEA	N	B	N	B	N	B	N	B	N	B
BATHELEG	0.0	0.000	14.6	0.004	58.5	0.018	58.5	0.018	0.0	0.000
BATHGUIL	0.0	0.000	58.5	0.018	29.3	0.029	0.0	0.000	0.0	0.000
CALLTYRR	0.0	0.000	29.3	0.033	0.0	0.000	0.0	0.000	0.0	0.000
MEGAAGIL	0.0	0.000	73.2	0.022	14.6	0.004	14.6	0.004	0.0	0.000
PSEULONG	29.3	0.006	14.6	0.003	14.6	0.003	0.0	0.000	0.0	0.000
PSEUSIMI	0.0	0.000	0.0	0.000	0.0	0.000	29.3	0.006	0.0	0.000
UNICPLAN	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.004
UROTBREV	0.0	0.000	43.9	0.013	73.2	0.022	14.6	0.004	0.0	0.000
UROTPOSE	14.6	0.004	234.1	0.070	0.0	0.000	14.6	0.004	0.0	0.000
ECHINODERMATA										
ECHICORD	0.0	0.000	0.0	0.000	14.6	7.599	29.3	23.874	0.0	0.000
ECHIJUVE	14.6	0.001	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000
ECHIPUSI	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.032	58.5	0.008
OPHIALBI	0.0	0.000	14.6	0.162	0.0	0.000	0.0	0.000	0.0	0.000
OPHIJUVE	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.004
MOLLUSCA										
MACTCORA	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.003	29.3	0.003
SPISELLI	14.6	0.392	14.6	0.131	0.0	0.000	0.0	0.000	0.0	0.000
POLYCHAETA										
ANAIJUVE	0.0	0.000	14.6	0.001	0.0	0.000	0.0	0.000	0.0	0.000
ANAIMACU	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.033
ARICMINU	58.5	0.004	58.5	0.004	0.0	0.000	29.3	0.002	0.0	0.000
CAPICAPI	0.0	0.000	146.3	0.015	0.0	0.000	0.0	0.000	0.0	0.000
CHAESETO	0.0	0.000	43.9	0.027	0.0	0.000	0.0	0.000	0.0	0.000
EXOGHEBE	0.0	0.000	190.2	0.015	0.0	0.000	0.0	0.000	0.0	0.000
GLYCLAPI	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.017
GONIMACU	0.0	0.000	0.0	0.000	29.3	0.062	0.0	0.000	0.0	0.000
HESIAUGE	0.0	0.000	0.0	0.000	0.0	0.000	58.5	0.004	0.0	0.000
LANICONC	0.0	0.000	58.5	2.097	0.0	0.000	0.0	0.000	0.0	0.000
MAGEPAPI	14.6	0.021	14.6	0.017	29.3	0.023	0.0	0.000	0.0	0.000
NEPHCIRR	58.5	0.342	14.6	0.095	43.9	0.172	73.2	0.753	29.3	0.425
NEPHHOMB	0.0	0.000	14.6	0.141	0.0	0.000	0.0	0.000	0.0	0.000
NEPHJUVE	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.008	0.0	0.000
OPHEJUVE	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.001
OPHELIMA	0.0	0.000	29.3	0.400	29.3	0.015	0.0	0.000	0.0	0.000
PARAGRAC	0.0	0.000	0.0	0.000	29.3	0.002	0.0	0.000	0.0	0.000
SCOLARMI	43.9	0.044	87.8	0.106	73.2	0.209	29.3	0.006	0.0	0.000
SCOLBONN	0.0	0.000	0.0	0.000	14.6	0.153	0.0	0.000	0.0	0.000
SCOLSQUA	0.0	0.000	0.0	0.000	0.0	0.000	29.3	0.050	0.0	0.000
SPIOBOMB	29.3	0.014	14.6	0.023	29.3	0.019	234.1	0.156	0.0	0.000
SPIOFILI	14.6	0.008	0.0	0.000	14.6	0.006	0.0	0.000	14.6	0.006
SPIOJUVE	0.0	0.000	146.3	0.010	58.5	0.004	29.3	0.001	0.0	0.000
TRAVFORB	43.9	0.315	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000
MISCELLANEOUS										
HYDROZOA	0.0	0.000	0.0	0.000	73.2	0.019	0.0	0.000	0.0	0.000
NEMERTIN	0.0	0.000	160.9	0.846	0.0	0.000	14.6	0.035	29.3	0.032
OLIGOCHA	0.0	0.000	14.6	0.001	0.0	0.000	0.0	0.000	0.0	0.000
PHORONID	0.0	0.000	117.0	0.037	0.0	0.000	14.6	0.004	0.0	0.000
SUMS	336.4	1.150	1623.7	4.292	629.3	8.359	716.9	24.966	234.0	0.533
DIVERSITY										
NSPC	11		25		17		18		10	
SH-W	2.246		2.803		2.672		2.426		2.166	
SIMP	0.117		0.077		0.077		0.143		0.129	

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STATION:	COA 1		COA 2		COA 3		COA 4		COA 5	
CRUSTACEA	N	B	N	B	N	B	N	B	N	B
ATYLFALC	14.6	0.004	14.6	0.004	14.6	0.004	0.0	0.000	0.0	0.000
BATHELEG	43.9	0.013	0.0	0.000	14.6	0.004	0.0	0.000	0.0	0.000
BATHGUIL	14.6	0.006	0.0	0.000	14.6	0.004	0.0	0.000	0.0	0.000
CAPRELLI	117.0	0.012	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000
DIASBRAD	14.6	0.007	0.0	0.000	0.0	0.000	14.6	0.007	14.6	0.010
MICRMACU	0.0	0.000	14.6	0.004	0.0	0.000	0.0	0.000	0.0	0.000
PSEULONG	29.3	0.006	14.6	0.003	29.3	0.006	0.0	0.000	0.0	0.000
UROTPOSE	0.0	0.000	43.9	0.013	585.2	0.176	43.9	0.013	424.3	0.127
ECHINODERMATA										
ASTEJUVE	0.0	0.000	219.5	0.044	0.0	0.000	0.0	0.000	14.6	0.003
ASTERUBE	14.6	0.304	0.0	0.000	14.6	1.462	0.0	0.000	0.0	0.000
ECHICORD	29.3	0.646	102.4	5.273	29.3	5.419	14.6	0.816	0.0	0.000
ECHIJUVE	453.5	0.023	43.9	0.002	219.5	0.011	14.6	0.002	0.0	0.000
OPHIALBI	14.6	0.530	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000
MOLLUSCA										
ABRAALBA	58.5	0.009	0.0	0.000	14.6	0.203	131.7	0.013	0.0	0.000
CULTPELL	14.6	0.001	0.0	0.000	0.0	0.000	87.8	0.006	0.0	0.000
ENSIDIRE	14.6	27.199	58.5	77.988	58.5	96.565	29.3	33.519	29.3	42.617
MACOBALT	0.0	0.000	117.0	1.634	0.0	0.000	73.2	2.380	0.0	0.000
MONTFERR	87.8	0.040	204.8	0.172	643.7	0.278	482.8	0.259	409.6	0.244
MYSEBIDE	14.6	0.003	0.0	0.000	14.6	0.003	234.1	0.047	0.0	0.000
SPISSUBT	0.0	0.000	0.0	0.000	0.0	0.000	175.6	5.433	3891.6	370.285
TELLFABU	263.3	1.669	14.6	0.087	321.9	0.618	43.9	0.004	0.0	0.000
POLYCHAETA										
ANAIJUVE	87.8	0.010	0.0	0.000	0.0	0.000	14.6	0.001	58.5	0.012
CAPICAPI	87.8	0.006	14.6	0.002	73.2	0.010	14.6	0.002	29.3	0.004
CHAESETO	58.5	0.010	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000
EUMISANG	14.6	0.004	14.6	0.004	0.0	0.000	0.0	0.000	0.0	0.000
HARMLUNU	146.3	0.211	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000
LANICONC	160.9	7.365	0.0	0.000	58.5	1.674	29.3	1.479	14.6	0.062
LANIJUVE	1711.7	0.348	190.2	0.010	0.0	0.000	190.2	0.010	351.1	0.019
MAGEJUVE	131.7	0.008	819.3	0.066	0.0	0.000	0.0	0.000	0.0	0.000
MAGEPAPI	117.0	0.153	336.5	0.780	131.7	0.415	0.0	0.000	190.2	0.396
NEPHCIRR	0.0	0.000	0.0	0.000	14.6	0.081	0.0	0.000	0.0	0.000
NEPHHOMB	0.0	0.000	0.0	0.000	58.5	0.941	58.5	2.244	14.6	1.085
NEPHJUVE	58.5	0.004	14.6	0.002	14.6	0.010	0.0	0.000	14.6	0.004
PECTJUVE	29.3	0.002	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.002
PECTKORE	14.6	0.017	14.6	0.006	0.0	0.000	73.2	0.010	0.0	0.000
POECSERP	14.6	0.068	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000
SCOLARMI	1287.4	2.694	117.0	0.581	29.3	0.087	0.0	0.000	29.3	0.218
SCOLBONN	0.0	0.000	58.5	0.205	0.0	0.000	0.0	0.000	0.0	0.000
SPIOBOMB	0.0	0.000	87.8	0.010	555.9	0.228	0.0	0.000	58.5	0.097
SPIOFILI	0.0	0.000	219.5	0.056	0.0	0.000	0.0	0.000	0.0	0.000
MISCELLANEOUS										
NEMERTIN	175.6	0.142	0.0	0.000	0.0	0.000	14.6	0.064	14.6	0.254
SUMS	5295.7	41.512	2735.6	86.946	2911.3	108.199	1741.1	46.307	5573.9	415.440
DIVERSITY										
NSPC	31		22		21		19		17	
SH-W	2.305		2.427		2.230		2.389		1.216	
SIMP	0.179		0.136		0.148		0.132		0.504	

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STATION:	COA 6		COA 7		COA 8		COA 9		COA 10	
CRUSTACEA	N	B	N	B	N	B	N	B	N	B
ATYLFALC	14.6	0.004	0.0	0.000	0.0	0.000	43.9	0.013	0.0	0.000
BATHELEG	0.0	0.000	87.8	0.026	482.8	0.145	0.0	0.000	14.6	0.004
BATHGUIL	14.6	0.004	0.0	0.000	131.7	0.040	102.4	0.031	0.0	0.000
MEGAAGIL	0.0	0.000	0.0	0.000	14.6	0.004	0.0	0.000	0.0	0.000
PSEULONG	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.003	0.0	0.000
UROTPOSE	87.8	0.026	14.6	0.004	790.0	0.237	804.7	0.241	14.6	0.004
ECHINODERMATA										
ECHICORD	0.0	0.000	0.0	0.000	0.0	0.000	14.6	9.591	0.0	0.000
ECHIJUVE	0.0	0.000	0.0	0.000	87.8	0.004	0.0	0.000	29.3	0.002
OPHIALBI	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.042
MOLLUSCA										
ABRAALBA	365.8	0.037	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000
CULTPELL	102.4	0.009	0.0	0.000	29.3	0.002	0.0	0.000	0.0	0.000
ENSIDIRE	29.3	48.620	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000
ENSIENSI	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	190.2	10.406
ENSISPEC	0.0	0.000	0.0	0.000	14.6	18.526	0.0	0.000	0.0	0.000
MACOBALT	117.0	3.429	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000
MONTFERR	14.6	0.003	0.0	0.000	58.5	0.171	102.4	0.089	0.0	0.000
MYSEBIDE	0.0	0.000	0.0	0.000	14.6	0.003	248.7	0.050	0.0	0.000
NATIALDE	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.010	0.0	0.000
SPISSUBT	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	73.2	0.719
TELLFABU	117.0	1.154	0.0	0.000	29.3	0.210	43.9	0.796	0.0	0.000
POLYCHAETA										
ANAIJUVE	219.5	0.029	0.0	0.000	29.3	0.004	0.0	0.000	0.0	0.000
ANAIMACU	58.5	0.039	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000
CAPICAPI	365.8	0.085	29.3	0.008	29.3	0.004	14.6	0.001	0.0	0.000
CHAESETO	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.006	0.0	0.000
EUMISANG	29.3	0.058	0.0	0.000	14.6	0.006	0.0	0.000	0.0	0.000
HARMLONG	58.5	0.031	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000
LANICONC	175.6	5.504	0.0	0.000	29.3	2.433	0.0	0.000	14.6	0.570
LANIJUVE	10943.2	0.145	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000
MAGEJUVE	263.3	0.014	0.0	0.000	380.4	0.046	0.0	0.000	14.6	0.002
MAGEPAPI	2428.6	3.634	160.9	0.622	599.8	2.366	146.3	0.247	29.3	0.058
NEPHCIRR	0.0	0.000	14.6	0.043	14.6	0.137	0.0	0.000	29.3	0.195
NEPHHOMB	29.3	0.288	0.0	0.000	14.6	0.543	43.9	0.311	43.9	1.640
NEPHJUVE	58.5	0.008	0.0	0.000	102.4	0.054	73.2	0.010	0.0	0.000
NEPHLONG	0.0	0.000	29.3	3.088	0.0	0.000	0.0	0.000	0.0	0.000
PECTKORE	248.7	0.494	0.0	0.000	0.0	0.000	14.6	0.506	0.0	0.000
SCOLARMI	833.9	4.281	0.0	0.000	29.3	0.133	58.5	0.274	14.6	0.019
SCOLBONN	0.0	0.000	131.7	0.145	29.3	0.859	0.0	0.000	0.0	0.000
SPIOBOMB	321.9	0.541	0.0	0.000	87.8	0.037	14.6	0.164	0.0	0.000
SPIOFILI	0.0	0.000	14.6	0.004	102.4	0.033	0.0	0.000	0.0	0.000
SPIOJUVE	0.0	0.000	0.0	0.000	0.0	0.000	117.0	0.039	0.0	0.000
MISCELLANEOUS										
HYDROZOA	0.0	0.000	0.0	0.000	102.4	0.016	0.0	0.000	0.0	0.000
NEMERTIN	87.8	0.293	0.0	0.000	29.3	0.644	73.2	1.040	29.3	1.709
PLATHYHE	0.0	0.000	0.0	0.000	14.6	0.492	0.0	0.000	0.0	0.000
SAGATROG	0.0	0.000	0.0	0.000	0.0	0.000	58.5	23.174	0.0	0.000
SUMS	16985.5	68.729	482.8	3.939	3262.6	27.149	2018.8	36.595	512.1	15.370
DIVERSITY										
NSPC	24		8		26		20		13	
SH-W	1.443		1.688		2.418		2.227		2.120	
SIMP	0.440		0.227		0.135		0.194		0.182	

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STATION:	COA 11		COA 12		COA 13		COA 14		COA 15	
CRUSTACEA	N	B	N	B	N	B	N	B	N	B
AMPEBREV	14.6	0.012	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000
ATYLFALC	14.6	0.004	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000
ATYLSWAM	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.004
BATHELEG	43.9	0.013	43.9	0.013	0.0	0.000	0.0	0.000	117.0	0.035
BATHGUIL	73.2	0.022	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.004
COROVOLU	0.0	0.000	0.0	0.000	58.5	0.037	0.0	0.000	0.0	0.000
DIASBRAD	14.6	0.022	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000
MEGAAGIL	0.0	0.000	14.6	0.004	0.0	0.000	0.0	0.000	0.0	0.000
MELIOBTU	14.6	0.004	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000
PERILONG	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.004
PONTALTA	0.0	0.000	14.6	0.004	0.0	0.000	0.0	0.000	14.6	0.004
SYNCMACU	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.004	0.0	0.000
UROTBREV	0.0	0.000	0.0	0.000	43.9	0.013	0.0	0.000	0.0	0.000
UROTPOSE	73.2	0.022	14.6	0.004	0.0	0.000	117.0	0.035	58.5	0.018
ECHINODERMATA										
ASTEJUVE	0.0	0.000	0.0	0.000	0.0	0.000	117.0	0.023	0.0	0.000
OPHIALBI	43.9	0.121	0.0	0.000	0.0	0.000	190.2	1.560	0.0	0.000
OPHIJUVE	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.002
MOLLUSCA										
ABRAALBA	0.0	0.000	0.0	0.000	0.0	0.000	73.2	0.009	0.0	0.000
ENSIENSI	0.0	0.000	29.3	1.814	0.0	0.000	0.0	0.000	0.0	0.000
ENSISPEC	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	14.6	10.923
MONTFERR	14.6	0.011	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000
MYSEBIDE	0.0	0.000	14.6	0.003	0.0	0.000	0.0	0.000	14.6	0.003
TELLFABU	14.6	0.002	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.087
TELLTENU	0.0	0.000	0.0	0.000	0.0	0.000	29.3	0.141	0.0	0.000
POLYCHAETA										
CAPICAPI	14.6	0.001	0.0	0.000	0.0	0.000	0.0	0.000	43.9	0.010
ETEOLONG	43.9	0.019	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000
EUMISANG	14.6	0.002	0.0	0.000	0.0	0.000	43.9	0.077	0.0	0.000
HARMLONG	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000	14.6	0.031
HARMLUNU	0.0	0.000	0.0	0.000	0.0	0.000	87.8	0.125	0.0	0.000
HARMNODO	0.0	0.000	0.0	0.000	0.0	0.000	29.3	0.015	0.0	0.000
LANICONC	14.6	0.740	0.0	0.000	0.0	0.000	336.5	13.653	29.3	1.555
LANIJUVE	0.0	0.000	0.0	0.000	0.0	0.000	1975.1	0.130	0.0	0.000
MAGEJUVE	0.0	0.000	29.3	0.004	0.0	0.000	0.0	0.000	0.0	0.000
MAGEPAPI	0.0	0.000	29.3	0.216	0.0	0.000	0.0	0.000	160.9	0.247
NEPHCIRR	87.8	0.518	117.0	0.867	0.0	0.000	29.3	0.350	0.0	0.000
NEPHHOMB	0.0	0.000	0.0	0.000	0.0	0.000	29.3	3.003	43.9	6.025
NEPHJUVE	14.6	0.004	29.3	0.006	0.0	0.000	0.0	0.000	29.3	0.029
NERELONG	29.3	1.039	0.0	0.000	0.0	0.000	14.6	0.014	14.6	1.265
POLYCHAE	0.0	0.000	0.0	0.000	14.6	0.002	0.0	0.000	0.0	0.000
SCOLARMI	175.6	0.178	43.9	0.402	0.0	0.000	117.0	0.483	0.0	0.000
SCOLBONN	0.0	0.000	29.3	0.479	0.0	0.000	0.0	0.000	0.0	0.000
SPIOBOMB	0.0	0.000	14.6	0.010	0.0	0.000	29.3	0.010	58.5	0.085
SPIOFILI	0.0	0.000	29.3	0.012	0.0	0.000	0.0	0.000	0.0	0.000
SPIOJUVE	0.0	0.000	292.6	0.023	0.0	0.000	0.0	0.000	0.0	0.000
MISCELLANEOUS										
NEMERTIN	43.9	0.138	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.000
SUMS	760.7	2.872	746.2	3.862	117.0	0.052	3233.4	19.633	687.3	20.331
DIVERSITY										
NSPC	19		15		3		16		18	
SH-W	2.581		2.139		0.974		1.567		2.499	
SIMP	0.102		0.195		0.401		0.393		0.113	

CONTENTS