The Macrobenthic Fauna Monitoring in the Dutch Sector of the North Sea, MWTL 2009

and a comparison with previous data

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1 Summary

Rijkswaterstaat Waterdienst organises a series of national monitoring programmes within the framework of MWTL (Monitoring Waterstaatkundige Toestand des Lands Milieumeetnet Rijkswateren). One of these programs is the annual monitoring of macrobenthos in the North Sea, Wadden Sea and Delta Estuary. The monitoring programme of macrobenthos in the Dutch part of the North Sea was formerly referred to as BIOMON (biological monitoring). In this report, this project is henceforward referred to as MWTL. A consortium of the companies Grontmij (team Ecology) and Ecosub was involved in the execution of the monitoring in 2009.

This report presents the results of the macrobenthos survey on the Dutch continental shelf (DCS), carried out in 2009. To achieve an optimal comparability with previous surveys, great care has been taken to adhere to the systematics. The purpose of the programme is to obtain insight into the year-to-year variations of the macrobenthic assemblages and to detect trend-like changes. These changes possibly indicate anthropogenic influences on the marine environment (e.g. eutrophication, pollution, beam trawl fishery) or effects of climate changes such as rise in sea water temperature or the occurrence of anoxia near the sea bed. Like previous years, in spring 2009, 100 stations were sampled with a Reineck boxcorer (0,078 m^2 between 2 March and 16 April). In combination with data from previous years, an analysis was made of the visual trends and fluctuations of some species and of basic community attributes over the period 1991-2009.

The community attributes studied were diversity, abundance and biomass of the total macrobenthos found. Temporal variations and visual trends were investigated separately for each of the four sub-areas on the DCS (Dogger Bank, Oyster Grounds, Coastal and Offshore areas).

Totally, 216 taxa were found in the boxcore samples of the MWTL North Sea monitoring programme of 2009.

At the Dogger Bank, there was a steep increase in the number of species and total density. The biomass increased only slightly. This indicates that the high density increase is due to high numbers of small individuals. The total density increase is mainly related to the presence of Phoronida (3000 + ind/m^2) and polychaetes. About 50% of the fauna consists of phoronid worms, polychaetes and amphipods. The most commonly recorded species are Phoronida, *Magelona filiformis, Spiophanes bombyx* and *Bathyporeia elegans*. The density of *Acrocnida brachiata, Kurtiella bidentata, Amphiura filiformis* and *Bathyporeia elegans* was comparable to 2008. Regarding bivalves, *Tellina fabula* was found in high numbers on the Dogger Bank.

The total density at the Oyster Grounds slightly decreased compared to 2008. The numbers of species found remained similar to 2008. Also the biomass slightly decreased in 2009 compared to previous years. Echinoderms were the most numerous species group, followed by phoronid worms. The brittle star, *Amphiura filiformis*, phoronids, *Corbula gibba* (common basket shell) and the polychaetes *Magelona johnstoni* and *M. filiformis* present 50% of the total density. The density of *Corbula gibba* showed a strong decrease in density from 500 ind./m^2 to 80 ind/m^2 in 2009. The bivalve *Nucula nitida* shows a continuous increase in density in the last decade.

The densities in the Offshore area remained similar to 2008. The total density remained as high as in 2008. The number of species slightly decreased (in range with 2007). The Offshore area was dominated by polychaete worms (54% the total density). Especially the polychaete *Magelona johnstoni* was present in very high numbers (44% of the total density). The amphipods *Urothoe poseidonis, U. brevicornis* and *Bathyporeia elegans* were also present in high numbers (21% of the total density).

In the Coastal area, the number of species and the total hardly changed. The coastal zone was dominated by polychaete worms (*M. johnstoni*). The amphipod *Urothoe poseidonis* and the polychaetes *Capitella capitata* slightly increased in numbers compared to 2008. The American razor clam *Ensis directus* decreased in density again, especially compared to the years 2002-2007 when numbers were extremely high. However, *Ensis directus* still dominates the biomass of the Coastal zone.

2 Samenvatting

De Waterdienst van Rijkswaterstaat organiseert een reeks nationale monitoringprogramma's in het kader van MWTL (Monitoring Waterstaatkundige Toestand des Lands milieumeetnet rijkswateren). Een van deze programma's is de jaarlijkse monitoring van macrobenthos in de Noordzee, Waddenzee en de Zeeuwse Delta. De monitoring van macrobenthos in de Noordzee werd in het verleden over het algemeen aangeduid als BIOMON (biologische monitoring). In dit rapport wordt dit project aangeduid als MWTL Noordzee. De MWTL Noordzee-monitoring wordt georganiseerd door de Waterdienst van Rijkswaterstaat. Een consortium, bestaande uit medewerkers van Grontmij (team Ecologie) en Ecosub voerde de bemonstering, determinaties, analyse en rapportage van deze monitoring in 2009 uit.

Dit rapport geeft de resultaten van de monitoring in 2009 van het Nederlands Continentaal Plat (NCP) weer. Om een vergelijking het verleden te kunnen maken, is ervoor gezorgd dat de systematiek van de voorgaande monitoringsjaren werd aangehouden. Het doel van het monitoringprogramma is om inzicht te krijgen in de jaar-op-jaar variaties van de samenstelling van het macrobenthos en visuele trends. Deze duiden op mogelijke antropogene invloeden op het mariene milieu, zoals eutrofiëring, vervuiling of visserij. Maar ook veranderingen in het klimaat zoals toename van zware stormen, stijging van de zeewatertemperatuur en het optreden van zuurstofloosheid op de bodem als gevolg van stratificatie in de diepe delen van de Noordzee, kunnen met deze data onderzocht worden. In het kader van dit project wordt iedere lente een veldcampagne uitgevoerd. In 2009 zijn 100 MWTL stations met een Reineck Boxcorer (0,078 m^2) bemonsterd in de periode tussen 2 maart en 16 april. Dit rapport bevat ook een vergelijking met data uit voorgaande jaren met visuele trends en fluctuaties in soorten en eigenschappen van de benthosgemeenschap over de periode 1991-2009.

De bestudeerde gemeenschapskenmerken zijn dichtheid en biomassa van de totale macrobenthosgemeenschap. Temporele variaties en visuele trends werden afzonderlijk onderzocht voor ieder van de vier deelgebieden op het NCP: Doggersbank, Oestergronden, Kust- en Offshoregebied,.

In totaal werden er in 2009 216 taxa gevonden in de boxcoremonsters van de MWTL Noordzee monitoring.

Op de Doggersbank, nam het totaal aantal soorten en de totale dichtheid toe ten opzichte van de voorgaande jaren. De biomassa is echter slechts licht gestegen. Dit geeft aan, dat de stijging in de dichtheid te verklaren is door een toename in densiteit van kleine individuen. Dit wordt vooral veroorzaakt door de aanwezigheid van grote hoeveelheden hoefijzerwormen (Phoronida, 3000+ ind/m^2) en polychaeten. Ongeveer 50% van de fauna bestaat uit hoefijzerwormen, borstelwormen en vlokreeften. De meest voorkomende soorten waren Phoronida, *Magelona filiformis*, *Spiophanes bombyx* en *Bathyporeia elegans*. De dichtheden van de *Acrocnida brachiata, Kurtiella bidentata, Amphiura filiformis* en *Bathyporeia elegans* zijn vergelijkbaar met 2008. De talrijkste tweekleppige op de Doggersbank was *Tellina fabula*.

Op de Oestergronden daalde de totale dichtheid licht ten opzichte van 2008. Het totaal aantal soorten bleef ongeveer gelijk. De biomassa daalde ten opzichte van voorgaande jaren. Stekelhuidigen (*Echinodermata*) waren het meest talrijk, gevolgd door hoefijzerwormen (Phoronida). De slangster *Amphiura filiformis*, phoronide wormen, *Corbula gibba* en de borstelwormen *Magelona johnstoni* en *M. filiformis* droegen voor 50% bij aan de totale dichtheid. In 2008 bereikte *Corbula gibba* in een gemiddelde dichtheid van 500 ind/m^2, in 2009 werden er slechts 80 ind/m^2 aangetroffen. De laatste 10 jaar vertoont de tweekleppige *Nucula nitida* vertoont een continue stijgende trend.

In het Offshoregebied bleven dichtheden nagenoeg gelijk ten opzichte van 2008. Dit relatief hoge aantal individuen in 2008 werd in 2009 ook gevonden. Het aantal soorten is echter licht gedaald. (vergelijkbare aantallen met 2007). Het Offshoregebied werd gedomineerd door borstelwormen, deze bepalen meer dan 54% van de totale dichtheid. Vooral de borstelworm *Magelona johnstoni* is in zeer grote hoeveelheden aanwezig (44% van de totale dichtheid). De vlokreeftjes *Urothoe poseidonis*, *U. brevicornis* en *Bathyporeia elegans* zijn ook aanwezig in relatief hoge aantallen (21% van de totale dichtheid). Deze soorten zijn sterk toegenomen in aantal in 2009.

In de Kustzone is het totaal aantal soorten en de totale dichtheid per locatie vrijwel gelijk gebleven. De Kustzone werd gedomineerd door borstelwormen (*M. johnstoni*). De vlokreeft *Urothoe poseidonis* en de borstelwormen *Nepthys cirrosa* en *Capitella capitata* zijn licht gestegen in dichtheid ten opzichte van 2008. De dichtheid van de Amerikaanse zwaardschede (*Ensis directus*) nam opnieuw af, vooral in vergelijking met de jaren 2002-2007 toen de aantallen extreem hoog waren. Ondanks deze afname is *Ensis directus* nog steeds de dominante soort voor wat betreft biomassa.

3 Introduction

In 1989 the **BIO**logical **MON**itoring program of marine waters was initiated to study the temporal variation of the marine ecosystems on the Dutch continental shelf (DCS) including the Wadden Sea and the Delta area. This program started as an initiative of the National Institute for Coastal and Marine Management (former RIKZ), which has now integrated in Rijkswaterstaat Waterdienst and Deltares (Yland, 1995). Recently this programme was renamed to **MWTL** (Monitoring Waterstaatkundige Toestand des Lands). This programme monitors benthic fauna, plankton, fish, sea grass, hard substrate populations, seabirds and marine mammals. For the period 2009-2011 the consortium of Grontmij and Ecosub has been assigned to perform the monitoring of macrobenthos on the DCS.

In this report the data from the benthos survey of spring 2009 are presented. Data on all invertebrate species found in this survey are supplied. The result is compared with MWTL data from previous years (1991-2008), data obtained during the ICES North Sea Benthos Survey (ICES-NSBS, 1986) and the MILZON-BENTHOS programme (1988-1993). In 1990 a pilot study of the BIOMON project was carried out at 7 locations on the DCS. These results have also been included in the dataset.

The aim of the MWTL program is to gain insight in the spatial and temporal variation of the benthic fauna and to detect possible visual trends. During the first years (1991-1994), 25 stations located along five transects perpendicular to the Dutch coast were sampled. On every station five replicate boxcore samples were collected. This method was reviewed and starting from 1995 it was decided to take single samples on 100 stations scattered on the DCS. These locations were selected according to a stratified random sampling design in each of the 4 sub-areas of the DCS: Dogger Bank, Oyster Grounds, Offshore area and Coastal area (Fig. 1). The number of stations within each subarea is proportional to its surface area. Each station is sampled for benthic fauna and sediment. The 100 stations that are sampled nowadays include the 25 original BIOMON stations. The procedure for the selection of locations is described in more detail by Essink (1995) and Holtmann *et al*. (1996).

4 Materials and Methods

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

4.1 Sampling

In 2009, all 100 MWTL stations were sampled with a Reineck Boxcorer in the period 2 March - 16 April. In 98 stations the water depth exceeded 5 m. These stations were visited using the research vessel MS Rotterdam (North Sea Directorate, Rijkswaterstaat). Two stations in the coastal subarea with a water depth less than 10 m (VOORDTA3 and VOORDTA4) were sampled using the research vessel Delta. These final two locations were sampled on 16 April 2009. Figure 4-1 shows the positions of the stations. For geographical locations of the stations with DONAR codes and depth, see Appendix 1, table A1-1.

4.2 Sample treatments

On each station, two samples with a Reineck boxcorer (0.078 m², minimal depth 15 cm) were taken. One of the samples was used for sediment analysis, from which two subsamples (Ø 3.4 cm, sampling depth 10 cm) were pooled and immediately stored at -20°C. The other boxcore sample was washed through a sieve (mesh size 1 mm - circular holes). The sieved fraction was preserved in a borax-buffered solution of 4-6 % formaldehyde in seawater and stored at room temperature.

In the laboratory (Grontmij, Amsterdam) the macrobenthic samples were stained with Rose Bengal to facilitate sorting and washed in a set of nested thread sieves with 0.7 mm being the smallest mesh size. In the laboratories of Grontmij (Amsterdam) and *ecosub* (Doorn), the benthos found was identified to species level, except for anthozoans, phoronids and most nemerteans (because identification in these groups is difficult), 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. Lengths (± 0.5 mm) were recorded for most molluscs and echinoids.

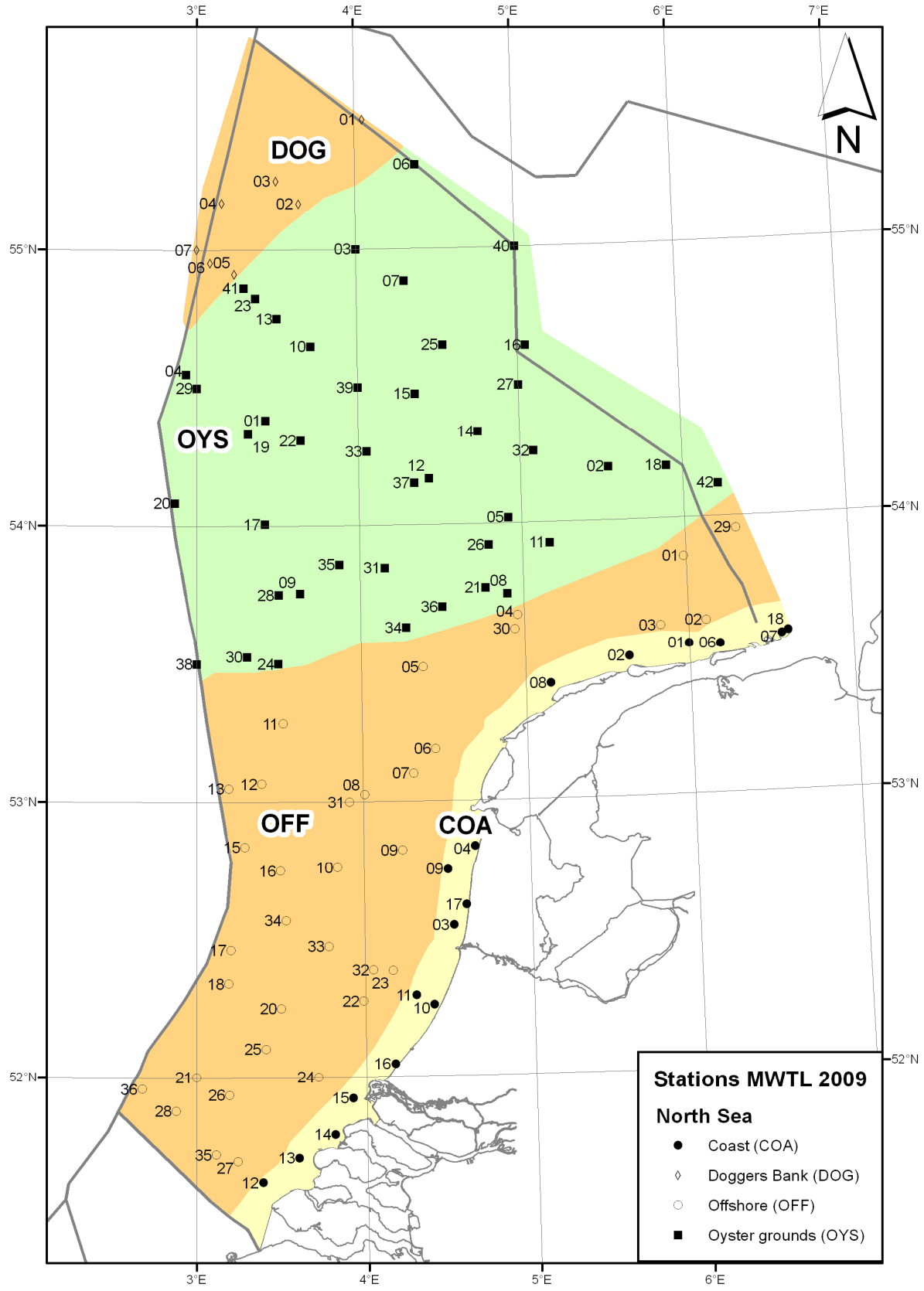

Figure 4-1 MWTL 2009, sampling stations

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 formula $W = a*L^b$
with W = ash-free dry weight (g), L = length (mm), a and b are conversion factors varying for different species.

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

Small amphipods and cumaceans were assigned an average individual AFDW of 0.2-0.5 mg. The same value was 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. These estimated individual weights are based on previous determinations of the AFDW of these taxa (Duineveld; Holtmann, unpubl.).

4.4 Diversity analyses

For each sample, density (ind./m²) and biomass (g AFDW/m²) were calculated. In the literature a number of indices have been proposed to represent biological diversity (Hill, 1973; Peterson, 1977; Pearson & Rosenberg, 1978; Harper & Hawksworth, 1994; Diaz, Solan & Valente, 2004; Dauvin & Ruellet, 2007). In this report, three indices are used, each representing a different aspect of the faunal diversity. The species richness ($Hill_0$) stands for the number of species per boxcore sample and is the simplest index. The other two indices, the Shannon-Wiener index (H') (Shannon & Weaver, 1949) and the Simpson index (D) for dominance (Simpson, 1949), are based on the proportional abundances of the individual species in the samples. The Simpson index is determined by the abundance of the most common species and can therefore be regarded as a measure of dominance (Hill, 1973). A high value of the Simpson index means low diversity, whereas a high value of $Hill_0$ or Shannon-Wiener's index indicates high diversity.

In this report, visual trends are discussed on a number of occasions. The description of these trends is based on information from the figures, and not from statistical trend analyses.

4.5 Sediment analysis

On each station a separate sediment sample was taken. From each sediment sample, two subsamples were taken from an intact boxcore sample and subsequently pooled for laboratory analysis of the sediment composition (*e.g.* grain size, content of calcium carbonate). The grain size was analyzed by laser diffraction (Malvern Mastersizer) at the laboratory of Rijkswaterstaat Waterdienst in Lelystad. Several parameters were derived from the grain size data: the median grain size (µm) and the silt content. The silt fraction was defined as the total fraction of mineral particles < 63 µm. For the purpose of comparison with previous years we also calculated the fraction of 16-63 µm. Sediment types were classified on the basis of the median grain size as shown in table 4-2.

Table 4-2 Characterization of the sediment type according to the median grain size (after Gullentops et al., 1977).

< 175 µm	Very fine sand
176 - 250 µm	Fine sand
251 - 300 µm	Medium-fine sand
301 - 350 µm	Medium-coarse sand
> 351 µm	Coarse sand

The organic carbon content was calculated by multiplying the amount of organic carbon by 1.97. Results of the sediment analyses are given in table A1-3.

5 Results and discussion

5.1 Sediment composition

The median grain size and silt content of the sediment for each station are listed in Table A1 - 2 of appendix 1. Spatial and temporal patterns are illustrated in appendix 1; Figure A1 - 2 and Figure A1 - 3.

The median grain size in 2009 was quite similar to those in preceding years (Figure 5-1). A comparison of 2009 data with previous years (Table A1 - 3) shows that at eight stations, a large difference is found. Station OYS39 shifted four size classes. The median grain size shifted from very fine sand to coarse sand. It is highly unlikely that this shift is correct (see below). In the Offshore area, four stations (OFF06, OFF27, OFF 29 and OFF34) showed a change of one size-class.

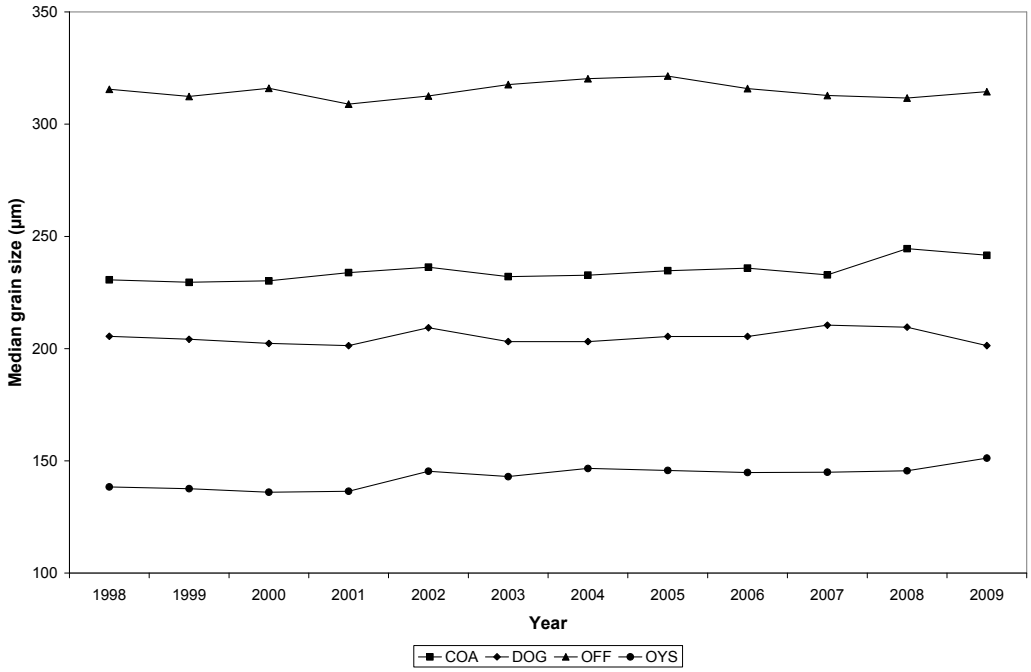

Figure 5-1: MWTL 1998-2009. Median grain size in the four sub-areas.

The distribution of silt in the sediment roughly showed a similar pattern as in preceding years. However, some changes in silt content can be distinguished. For the Oyster Grounds, a strong decrease was observed from 2002 onwards. In 2009, the silt concentration is compared to 2008. Table 5-1 shows the mean silt content for the 42 Oyster Grounds stations.

Table 5-1: Mean silt content at the Oyster Grounds, 1998-2009.

1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
11.3%	10.9%	11.2%	12.4%	8.7%	8.1%	8.1%	8.0%	7.9%	7.7%	8.7%	7.9%

Figure 5-2 and 5-3 show maps of the median grain size and silt fraction on the DCS. The highest silt concentrations were found in the Oyster Grounds (six stations with a silt content of over 15%), especially on the Frisian Front and central Oyster Grounds. In other sub-areas low concentrations of silt are found. The sediment of the Southern North Sea consists of a median course to course sand.

Station OYS39 consists of a course sand, which is not consistent with the other Oyster Grounds stations. It is unlikely that this measurement is correct. When this sample is still available we suggest that the analysis is repeated. If the silt concentration changes in a future measurement, this has to be corrected in the dataset. In case the median grain size is still high, there has been a (local) change in sediment composition on this station.

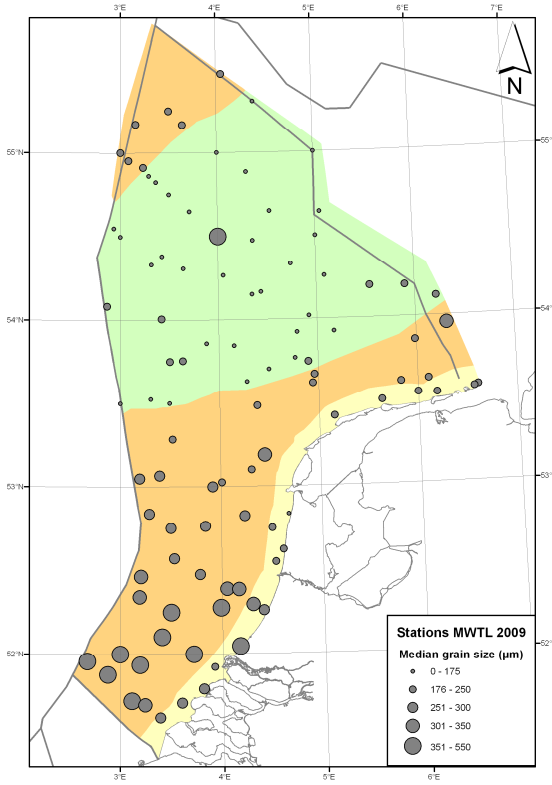

Figure 5-2 Median Grain size (µm)

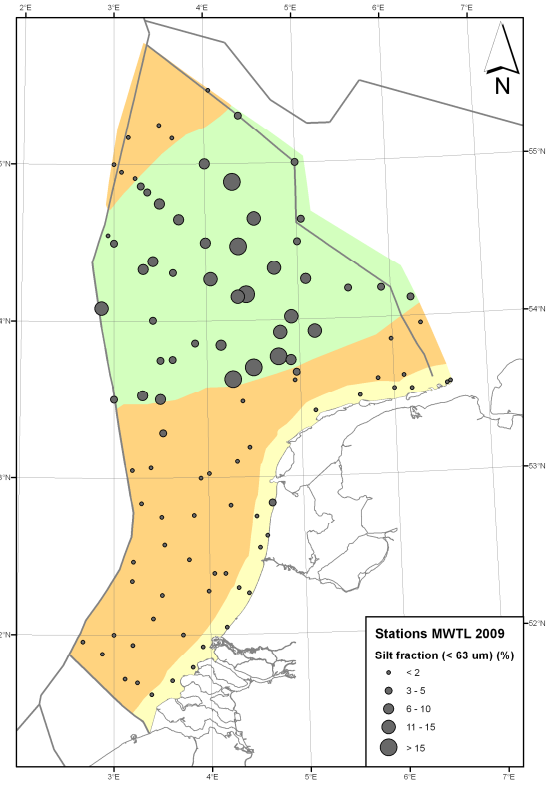

Figure 5-3 Silt fraction (< 63 µm) (%)

5.2 Distribution of the macrobenthic fauna in 2009

5.2.1 Diversity, density and biomass

In total 216 taxa were identified in the samples of 2009, including four taxa, only identified to genus level and eight identified to family level or higher. The total number of taxa is well in range with previous years (181 – 237). Several new or previously not recognised species were found. These are commented on in chapter 5.3. The presence/absence of the species at the stations is given in appendix 3. The basic data on macrobenthic abundance and biomass are listed in appendix 4.

In Table A2 - 1 an overview is given of the average values of sediment, species diversity, density and biomass in the four area's. Figure 5-4, 5-5 and 5-6 show the average number of species, densities and biomass for the four sub-areas in 2009.

Both species number and density showed a steep drop in 1996. It is expected that this is due to the severe preceding winter. Since then the Oyster Grounds seem to be a relatively stable stable region. On the Dogger Bank, the average density doubled in 2009, compared to 2008. Very high numbers of individuals were found in locations DOG04 and DOG05 (5776 and 4667 individuals).

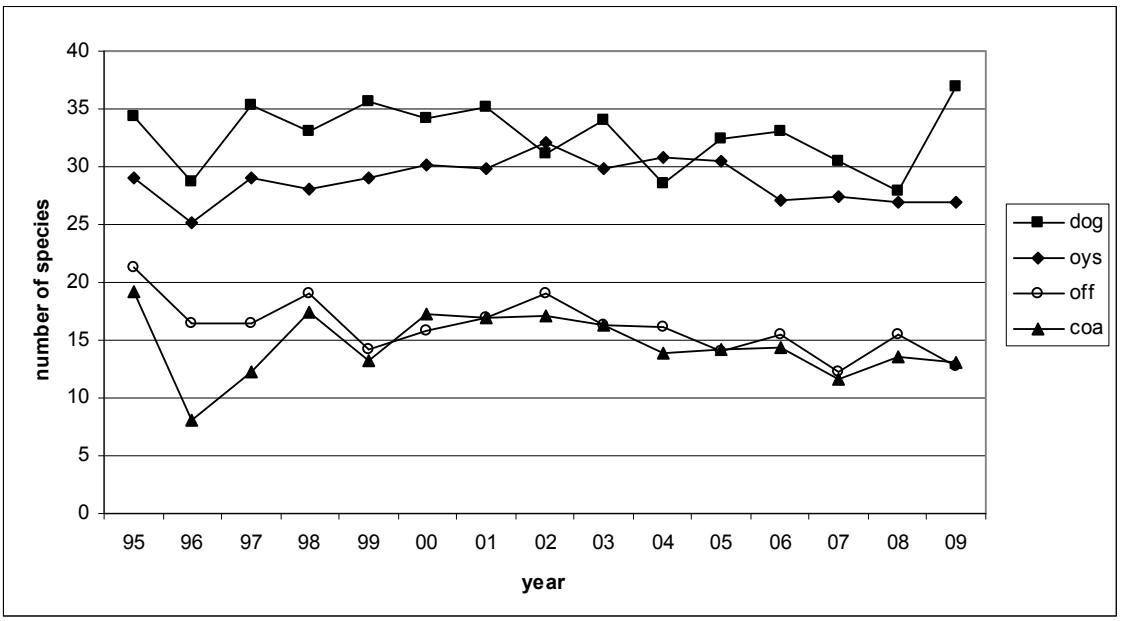

Figure 5-4 MWTL 1995-2009. Average number of macrobenthos species/sample in the sub-areas.

Hill-0 index

In 2009, the overall pattern of high species richness in the North part of the DCS and low species richness in the Southern part of the DCS continued. The mean number of species per sample (Hill-0) was highest on the Dogger Bank and the Oyster Grounds (Figure A2 - 1 and Figure A2 - 2). For the Dogger Bank, the number of species in 2009 was considerably higher than in previous years. On average, 37.9 species per station were found at the Dogger Bank, which is comparable to number found in 1997-2000, when the highest species numbers were recorded for the Dogger Bank[1]. For the Oyster Grounds, the mean number of species was comparable to the number found in 2006-2008, which was lower than the previous nine years. In 1996, an even lower number of species was recorded, which can be due to the severe preceding winter of 1995. The average values recorded for the Offshore area were slightly below those found in 2008. Species numbers for the Coastal area were similar to 2008. Since 2000 there is a slightly negative visual trend for the Coastal and Offshore area.

Shannon-Wiener index

In 2009, like in previous years, the Shannon-Wiener index was highest at the Dogger Bank (2.76) (Figure A2 - 3 and Figure A2 - 4). The diversity for the Oyster Grounds shows a stable visual trend since 2001. The index was the lowest in the Offshore and Coastal area (1.76 and 1.77 respectively). Compared to 2008, the diversity index increased at the Dogger Bank and Oyster Grounds and decreased at the Offshore and Coastal area.

Simpson's dominance index

In none of the four subregions, the benthic fauna was dominated by one taxon; therefore Simpson's dominance index was low. The index for most regions is comparable to the preceding years. But at the Offshore area, the Simpson's dominance index has been increasing slightly over the past six years (Figure A2 - 6). A lot of changes took place at location level in all sub-areas. The smallest number of changes took place in the Coastal area (9 changes out of 16 locations). However, the changes in all sub-areas were diverse and on average cancelled each other out.

[1] Observers' effect - the actual number of species in previous years may have been slightly higher, because some species were probably present , e.g. *Bathyporeia nana* and *Magelona filiformis*, but they were included in the numbers of congeners .

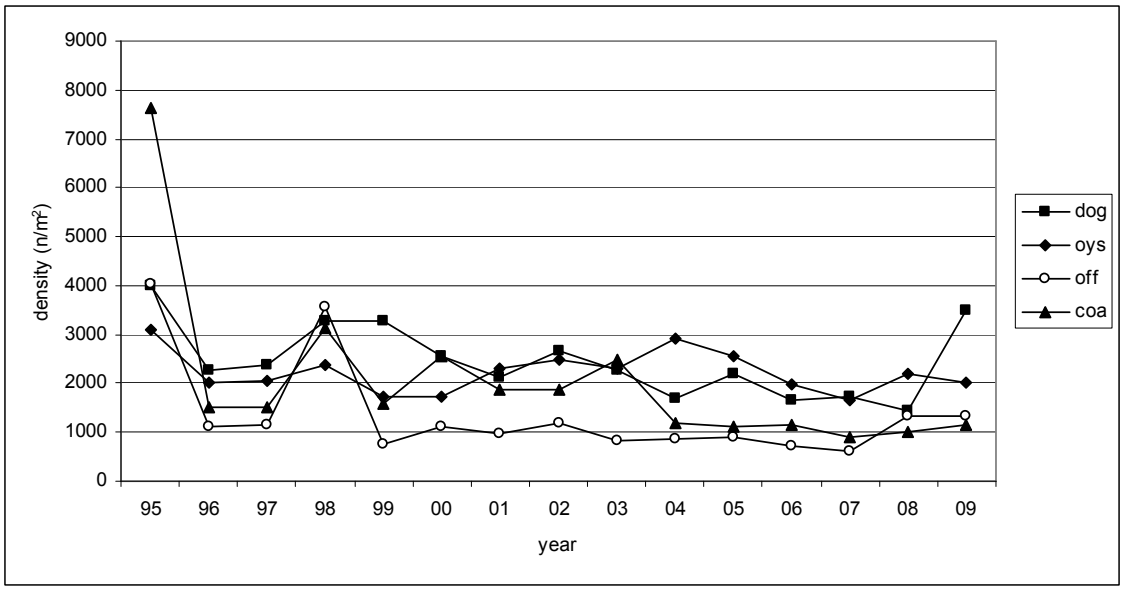

Figure 5-5 MWTL 1995-2009. Total macrobenthos densities/station in each of the sub-areas.

Total density

Figure 5-5 and figure A2-8 show the development of total macrobenthic density. The total density at the Dogger Bank increased sharply from 1445 ind/m^2 in 2008 to 3485 ind/m^2 in 2009. At the Oyster Grounds total density decreased from 2199 ind./m^2 in 2008 to 2000 ind./m^2 in 2009. The reason for this lower average is the exceptionally high density on OYS17 in 2008 (14000+). In 2009 the density on OYS17 was in range with the other locations (figure A2-8). Densities also increased in the Coastal area (from 1048 ind./m^2 in 2008 to 1160 ind./m^2 in 2009) and no change was observed for the Offshore area (from 1336 ind./m^2 in 2008 to 1345 ind./m^2 in 2009). The same visual trends are visible at location level. In every subarea there were quite some changes on location level, showing both decreases and increases. At the Dogger Bank all location-level changes increased. Although the average density on the Oyster Grounds slightly decreased, most locations for the Oyster Grounds showed an increase in density. In the Coastal and Offshore area most locations showed an increase in density.

Biomass

Figure 5-6 shows the development in total macrobenthic biomass. After low biomass values at the Dogger Bank in 2002, an increase in biomass was observed from 2003 and 2004. In 2009 the total biomass increased slightly compared to 2008. The biomass of the Coastal area was as low as in 2008 with biomass values comparable to the years before 1999 and 2000. See also Figure A2 - 9 and Figure A2 - 10.

At the Dogger Bank, fluctuations in average biomass seem rather strong. However, this may be expected as these values are based on seven locations only. The biomass in the Oyster Grounds was historically high in 2002. From this year on, a decrease in biomass was observed, which continued into 2009. In the Offshore area, the average biomass is stable since 1995. In the Coastal area, biomass peaked in 2003 to 2005. In 2009 the biomass was low. The biomass development in the Coastal area is strongly determined by the presence of the invasive bivalve *Ensis directus* (figure 5-6). The total biomass in the Coastal area has fallen to the level of 1999.

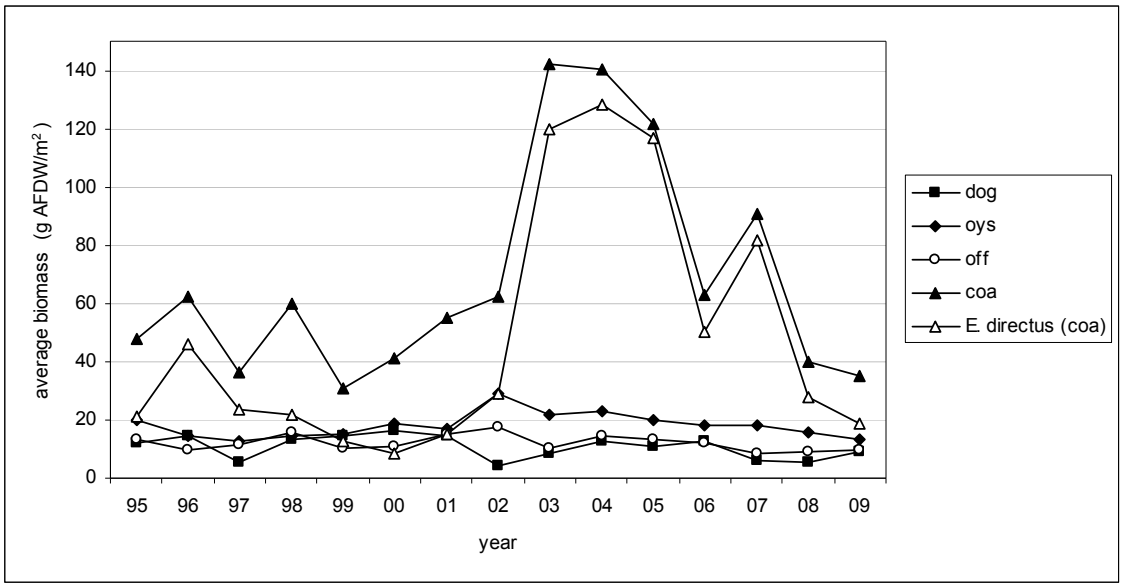

Figure 5-6 Average macrobenthos biomass per subarea from 1995 – 2009. For the Coastal area, total biomass (in legend: "COA") and the biomass of Ensis directus in the Coastal area ("E. directus (COA)*") are shown.*

5.2.2 Temporal variation in density and biomass of some selected species

In the text below and in figures A2 – 18 till 25 an overview is given on the temporal variation of specific species. In figure A2 – 11 till 17 a geographical overview for some selected species in 2009 is given.

Dogger Bank (Appendix 2; *Figure A2 - 18* and *Figure A2 - 19*)

On the Dogger Bank in 2009, a total of 77 taxa in 7 samples was found, and an average density of 3485 ind./m^2 . The most numerous were phoronid worms (Phoronida), the polychaetes *Magelona filiformis* and *Spiophanes bombyx* and the amphipod *Bathyporeia elegans*. These four taxa contributed 47% of the total density on the Dogger Bank. The amphipod crustaceans *B. elegans* and *Urothoe poseidonis* were found in similar densities as in 2008. The density of *Acrocnida brachiata* was slightly higher than in 2008 and a little higher than the minimum density of 2002. Phoronid worms were found with over 3,000 ind./m^2 at station DOG04.

Tellina fabula had a slightly higher density compared to the previous year. However another bivalve *Kurtiella bidentata* (syn. *Mysella bidentata*) continued to decrease. In 2008, its level already reached an all time low, but in 2009 it almost disappeared, averaging 11 ind./m^2. It is likely that this is due to the development of its host *Amphiura filiformis.* This brittle star also virtually disappeared from the Dogger Bank.

Many polychaetes showed an increase in density. The total number of polychaete species found at the Dogger Bank in 2009 was 31, which is high compared to previous years. One of the most numerous species was *Spiophanes bombyx* but also *Chaetozone setosa* s.l., *Goniada maculata*, *Magelona filiformis* and *Nepthys cirrosa* showed higher numbers compared to previous years. In contrast, the polychaete *Aricidea minuta* is still absent since 2007. As for gastropods, only a few specimens of *Euspira pulchella* (syn. *E. nitida*) were found. *Bathporeia nana* and *Spio decoratus* were not recorded previously. Due to the use of new insights in the identification of both species (d'Udekem d'Acoz, 2004 and Bick *et al.*, 2011), it has become apparent that both species are common inhabitants of the Dogger Bank. In paragraph 5.3 more information on these species is given.

Oyster Grounds (appendix 2; *Figure A2 - 20* and *Figure A2 - 21*)

On the Oystergrounds, a total of 143 taxa in 42 samples and an average density of 2000 ind./m^2 were found. Most abundant species were the brittle star *Amphiura filiformis*, phoronid worms (Phoronida), the common basket shell *Corbula gibba* and the polychaetes *Magelona johnstoni* and *M. filiformis*. These five species constituted 50% of the total density.

In 2008, *Corbula gibba* reached an average value of over 500 ind./m^2. This was the highest number so far recorded, but this was mainly due to two outliers. In 2009, the species is still one of the most numerous species, with an average of 80 ind./m^2. Another common species was the bivalve *Nucula nitidosa*, which in 2009 continued its gradual increase. The 2009 the density was the highest of the MWTL program. The numbers for both the bivalve *Kurtiella bidentata* (syn. *Mysella bidentata*) remained low. The numbers of the burrowing *Callianassa subterranea* in 2009 remained rather low compared to the 2004 maximum, but twice the 1996-1997 minimum.

Offshore area (appendix 2; *Figure A2 - 22* and Figure A2 - 23)

In the Offshore area, a total of 83 taxa over 34 samples was found. The average density of the samples was 1345 ind./m^2.

The most abundant and only dominant species was the polychaete *Magelona johnstoni*. In 2008, this species attributed 30% to the species total. In 2009 the species showed a further increase, making up 44% of the total density. All polychaetes combined on average make up 54% of the total density. Other common species are the amphipods *Urothoe poseidonis*, *U. brevicornis*, *Bathyporeia elegans* and the polychaete *Magelona filiformis*. Together with *M. johnstoni* these species make up 65% of the total density.

In the entire Offshore area, only two gastropod species were found: *Euspira pulchella* and *Potamopyrgus antipodarum*. They attribute only 0.5 % to the total density. *Euspira pulchella*, in 2008 already showing decreasing numbers, in 2009 again was found in only very low numbers.

Coastal area (appendix 2; Figure A2 - 24 and Figure A2 - 25)

In the Coastal area, a total of 63 taxa over 17 samples was found and an average density of 1160 ind./m^2. Most numerous was the polychaete worm *Magelona johnstoni*, attributing 25% of total density. The amphipod *Urothoe poseidonis* and the polychaete worms and *Capitella capitata* showed an increase in density when compared to 2008. The density of the American razor clam *Ensis directus* (syn. *E. americanus*) was very compared to those found in 2002-2007, even below counts recorded before 2002. The bivalve *Spisula subtrancata* was only observed in small numbers at just three stations.

5.3 Notes on scarce and previously unrecorded species

In the 2009 samples, several species were found not recorded previously in the MWTL project. These are commented on below. Also some remarks on previously reported but rare species are given.

5.3.1 Nemertea

Nemertea (also known as nemerteans or Nemertini) are a group of mainly predatory unsegmented worms. From the Dutch coast, some 20 species are known (Faasse, 2003). A few species occur in fresh water. Their identification is notoriously difficult. Live individuals can be identified using colour patterns, but preserved (and Rose-Bengal stained) specimens are generally not identified to species level. Within the MWTL program, so far only one species has been identified: *Malacobdella grossa*, a species living in the pallial cavity of bivalve species such as *Mya truncata*.

Cerebratulus marginatus – In 2009, at station OYS21 a particularly large nemertean species was present. It was identified as *Cerebratulus marginatus*. It has never been recorded in MWTL nor was it identified from the Dutch continental shelf. According to Gibson (1994), the species may reach 1 m in length and 25 mm in width. It is found between 20 and 150 m depth and is widespread in marine systems in the northern hemisphere (Gobson, 1994).

Photo 1 *Cerebratulus marginatus*, *major part of the* animal. Oyster Grounds (station OYS21), 3 March 2009. Note pseudo-segmentation

Photo 2 Same animal. Lateral view of anterior region

Another species of nemertean which is found in many sample is possibly a *Tubulanus* species. It shows a distinct reddish band at one third of its body length. As its identification is still unsure, we have continued to record these specimens as “Nemertea indet.”. Another species strikingly stains pink over its entire body using Rose Bengal. Possibly, this also is a *Tubulanus* species.

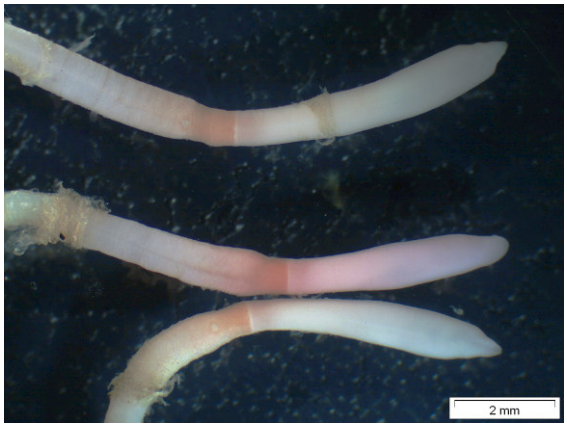

Photo 3 Possible *Tubulanus*. Note the pink band present at one third of body length. Oyster Grounds (station OYS28), 12 March 2009

Photo 4 Unknown, tiny nemertean showing all-pink colouring due to Rose Bengal. Offshore area (station OFF17), 11 March 2009

5.3.2 Polychaeta – Bristle worms

Caulleriella killariensis (syn. *Tharyx killariensis*) (family Cirratulidae) – Cirratulidae are difficult to identify and several new species have been described in recent years. *C. killariensis* at first glance looks somewhat similar to *Chaetozone christiei*. It is identified by the ‘knob-tipped’ chaetae in the posterior segments. The identification was confirmed by David Hall (Unicomarine). It was found in the Oyster Grounds (stations OYS16 and OYS39).

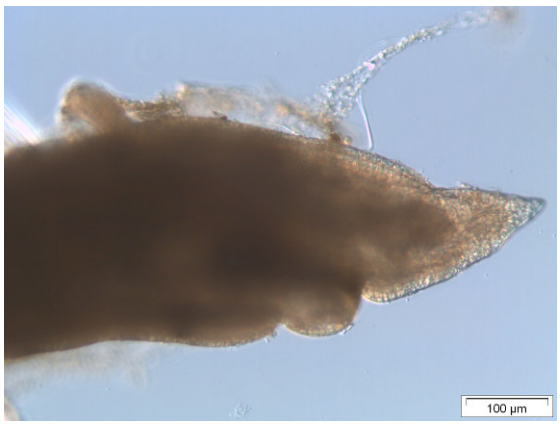

Photo 5 *Caulleriella killariensis* from Oyster Grounds (station OYS39), entire animal.
Photo 6 Same specimen. Prostomium long and pointed.

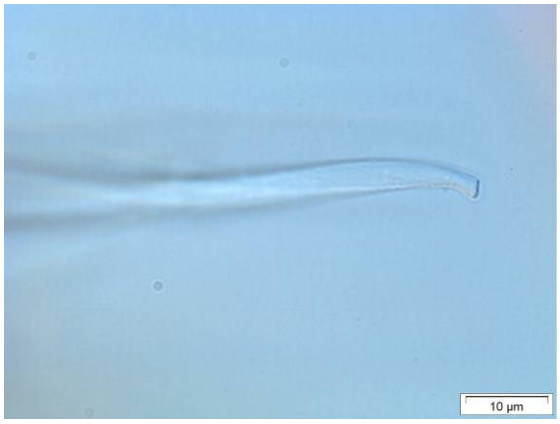

Photo 7 A knob-tipped chaeta from one of the tail-segments.

The species is not new to the MTWL program. Over the years 2000-2004, the species was recorded from three stations in the Oyster Grounds (OYS14, OYS33 and OYS39) (MWTL database, recorded as *Tharyx killariensis*). All locations lie in the central part of the Oyster Grounds.

Malmgreniella darbouxi (family Polynoidae, scale worms) – This species was identified by Dr. Barnich (Senckenberg Institut, Frankfurt). Initially, using Chambers & Muir (1997) we identified similar specimens as *M. marphysae* using Chambers & Muir (1997) and this was confirmed by Chambers. However, we kept some doubts, as we found this species frequently in tubes of *Lanice conchilega*, a polychaet not known as a host to *M. marphysae*. Following the re-identification of four specimens of *Malmgreniella marphysae* from MWTL 2009 by Dr. Barnich, it became apparent that both species occur in the Dutch continental shelf and that *M. darbouxi* is by far the most abundant. The species may be identified using Barnich & Fiege (2001). In 2001 *M. darbouxi* was not yet known to occur in the North Sea, but in the meantime it has been discovered at the Dogger Bank (Barnich pers. comm.). Our findings indicate a more extensive distribution in the North Sea. Specimens identified in the early years of MWTL as *Harmothoe lunulata* or *Malmgreniella lunulata*, probably also mainly belonged to *M. darbouxi*.

R. Barnich, in a personal comment, summarized the identification as follows:

Malmgreniella species can be separated by the shape of the distal end of the neuropodia. The tip of the neuropodium may be truncate (a term Pettibone uses for more or less blunt or rounded), or it may be elongate, pointed. To separate *M. darbouxi* and *M. marphysae*, one has to verify the presence or absence of the supra-acicular process.

M. marphysae – No well-defined supra-acicular process present. The aciculum is just penetrating through a slid or notch slightly below the distal-most part of the neuropodium.

M. darbouxi – Has a well-defined supra-acicular process. The form of this supra-acicular process may vary. It may be slender, digitiform, stout, blunt otherwise formed, but it is always a well-defined structure on top of the notch or slid.

M. darbouxi was identified from three stations in the Coastal area: COA03, COA06 and COA11. *M. marphysae* was found at Oyster Grounds station OYS06.

Malmgreniella macintoshi (syn. *Malmgrenia macintoshi*) (Polynoidae) – This species is new for the MWTL project. It was found at Oyster Grounds station OYS35. The species is identified by its elytra: the anterior half is covered by tubercles and the outer margin has long papillae. Our identification was confirmed by Dr. Meißner (Hamburg).

Presently, the name *Malmgreniella* is used on the TWN list and in WoRMS. However, also *Malmgrenia* is used. In December 2009 - after a request of Alex Muir and Suzan Chambers.- the ICZN has expressed an opinion[2], stating that the generic name *Malmgrenia* has been conserved.

Pholoe baltica (family Pholoidae) – This species has not yet been recorded as such within the MWTL programme. However it is probably by far the commonest species of the genus. Most, and possibly all previous records of *P. minuta* refer to this species. The actual *P. minuta* is a species to be found in the western North Atlantic (Petersen 1998).

Streptodonta pterochaeta (syn. *Ophistodonta pterochaeta*) (family Syllidae) – Members of the speciose family Syllidae are tiny worms, which are often difficult to identify. This species however is fairly easily recognised by the presence of paired knob-ended aciculae.

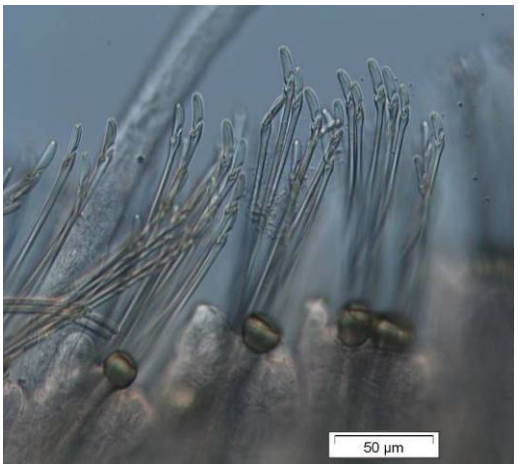

Photo 8 *Streptodonta pterochaeta* from Offshore (station OFF36), 10 March 2009. The head is on the left and its stomach to the right. Knob-ended aciculae are visible as dots along the anterior lateral side of the animal.

Photo 9 Same individual. Typical aciculae, resembling the tip of a match, are distinct.

The species was reported as new from the North Sea by Hartmann-Schröder (1971), who describes a Dutch record dating back to 1966 (as *Ophistodonta pterochaeta*). Three specimens of this species were found on 30 June 1966, 25 miles off the island of Schouwen (51º55' N 3º02'36" E) at a depth of 32 m in coarse sand (median grain size: 460 µm) and salinity of 19.35 ‰ Cl at the sea bed. This is close to MWTL station OFF26, in the southern part of the Offshore area. The 2009 animals are from OFF21, OFF25 and OFF36, also in this part of the Offshore area.

The species is not new to the MWTL program. In 1991-1994, again at OFF36, the species was found every year. Since then, it was no longer found.

Spio decoratus (family Spionidae) – This species is new for the Dutch continental shelf. Previously, the species most likely was identified as *S. filicornis*. *Spio decoratus* was identified with the help of Dr. Meißner (Senckenberg Inst., Hamburg). To identify *Spio* species, specimens are best stained using methyl green (see Bick *et al.* 2010). The species was found at the Dogger

[2] [ICZN, 2009). OPINION 2233 (Case 3417) *Malmgrenia* McIntosh, 1874 (Annelida, Polychaeta, POLYNOIDAE): Bulletin of Zoological Nomenclature 66 (4) 360-361]

Bank but is also found elsewhere. Therefore *Spio decoratus* is not confined to the Dogger Bank. (Not all *Spio* material has been checked on the occurrence of *S. decoratus*).

5.3.3 Sipuncula

Sipunculids, sipunculans or peanut worms are little-known creatures. They are hard to identify, especially juveniles. Only a few species have been recorded from the Dutch continental shelf. One of the best-known species is *Golfingia elongata*. Although common, it has rarely been photographed.

Photo 10 *Golfingia elongata*, entire animal, from Oyster Grounds (station OYS15), 31 March 2009. Note the coiled intestines (a double spiral).

Photo 11 Same animal. Note the regularly arranged bristles around the anterior 'introvert', an indication it still is a juvenile as adults gradually lose these due to wear.

Phascolion strombus (Sipuncula) – This species was found in the Oyster Grounds (station OYS14). It is characterised by its 'holdfast papillae'. It might be new for MWTL program. However in 2007, a possible *Phascolion* sp. was identified from a sample of the Oyster Grounds as well (station OYS16).

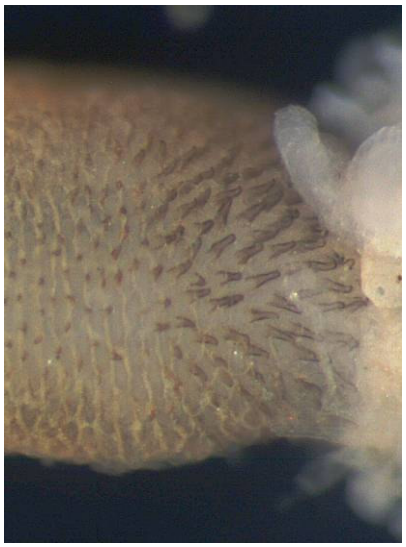

Photo 12 *Phascolion strombus* from Oyster Grounds (station OYS14), 31 March 2009.

Photo 13 Same animal, detail of 'holdfast papillae'.

Thysanocardia procera (syn. *Golfingia procera*) was in 2008 first recorded for the MWTL, from stations OYS11 and OYS26. In 2009, it was found at four locations in the Oyster Grounds (OYS08, OYS11, OYS16 and OYS21). It seems to be rather widespread in the Oyster Grounds. It is recognized by an internal characteristic: it is the only Sipuncula with villi on the contactile vessel, a structure on the oesophagus. The species was also found in 2002 in samples near the LG4 platform (Van Moorsel pers. comm.)

5.3.4 Crustacea – Amphipoda

Bathyporeia nana (family Haustoriidae) – This species was found at six out of seven sampling stations at the Dogger Bank. Being more than a single record, this suggests specimens of this species may in previous years have been deemed juveniles of other *Bathyporeia* species. The

species is probably one of the most characteristic inhabitants of the Dogger Bank (see also chapter 5.2) and Rachor & Nehmer (2003).

The presence of *B. nana* in a sample may be noticed when it contains adult males with a length of less than 3 mm. Such males have second antennae longer than body length. Other species grow much larger and males become adult at a larger size. *B. nana* is most similar to juvenile *B. elegans*. Most likely *B. nana* was previously identified as juveniles of *Bathyporeia elegans*. The most important character of *B. nana* is a distal setule on coxa 1. Additional differences with *B. elegans* are: absence of a tooth on coxa 2-3, only 2-4 posterior spines on the proximal part of the basis of P7 and a different setation pattern on urosome 3 (D'Udekem d'Acoz 2004).

Microprotopus maculatus (family Isaeidae) – Found for the first time since 2004, in the Coastal zone (station COA06). Its presence over the years shows remarkable differences. Over the years 1991-1995 it was found 20 times, mainly at locations in the Coastal zone (esp. COA10 and COA14). After this period, it was rarely found: from 1995 onward, so far only three records exist: 1998 (COA02), 2001 (OFF01) and 2004 (OFF02).

In 2009, *M. maculates* also was found in a monitoring program in the Ameland coastal region (Wijsman *et al.* 2009). The studied area in this program is located roughly between MWTL sampling stations COA01 and COA02. Here it was found at 11 out of 70 sampling stations. All localities have a sandy seabed, which is in line with Lincolns remark the "widespread" species' depth range is "0-70 m, often on sandy bottom sediments" (Lincoln 1979). It is also a common species in the Delta area (Faasse & van Moorsel 2000).

Photo 14 *Microprotopus maculatus* male (Ameland, near shore, 4 August 2009). Male, showing 2nd gnathopod developed as an enormous clasper.

Photo 15 *Orchomenella nana* from Voordelta (station COA15), 2 April 2009.

Orchomenella nana (syn. *Orchomene nana*; not *Tryphosella sarsi* - a distinct species and recognized by the shape of the accessory flagellum of the first antenna) – This species is not rare, but unusually high numbers were found in the Voordelta, at station COA15: 146 specimens in one sample.

O. nana belongs to the speciose family Lysianassidae. Many species of this family are scavengers. *O. nana* is known to feed on the carcasses of dead crabs (Lincoln 1979) which may explain that sometimes many individuals are found in a single sample. The density of over 1000 ind./m^2 is probably not a realistic value, but the result of extrapolating a very local concentration.

5.3.5 Crustacea – Cumacea

Diastylis lucifera (family Diastylidae) – A specimen of this species was found in the Coastal area (station COA09). The species is characterised by the presence of only a few spines on the telson. The species has not yet been recorded in the MWTL scheme.

5.3.6 Crustacea – Decapoda

Goneplax rhomboides (family Goneplacidae) – This species is reported for the first time within the MWTL project. It was found at the Oyster Grounds (station OYS37). It is a southern species, being known from the Dutch continental shelf since 2004. The "Angular crab or Mud runner" ha long and distinctive claws and stalked eyes (photo 16).

Photo 16 The Angular crab Goneplax rhomboides as depicted in Haeckel (1904).
Photo 17 An Angular crab (Scotland). Photo Godfried van Moorsel, *ecosub*.

5.3.7 Crustacea – Cirripedia (Barnacles and allies)

Parthenopea subterranea (family Peltogastridae) – *Callianassa subterranea* is a common inhabitant in the Oyster Grounds. This decapod makes elaborate burrows and is often found in high densities. It is often parasitized by isopods of the Bopyridae family: the species *Ione thoracica* and *Pseudione borealis* can often be found in the gill region of the animal. Rhizocephala species show a more drastic parasitism. The best-known species is *Sacculina carcini* (Dutch: “krabbenzakje”) which infests species like the Green crab (*Carcinus maenas*). *Parthenopea subterranea* is much less known. It lives firmly attached to the abdomen of *Callianassa*. It has been found on the Dutch continental shelf only once before (Huwae, 2001), but is new in the MWTL programme. Further details may be found in Tempelman & van Moorsel (2011).

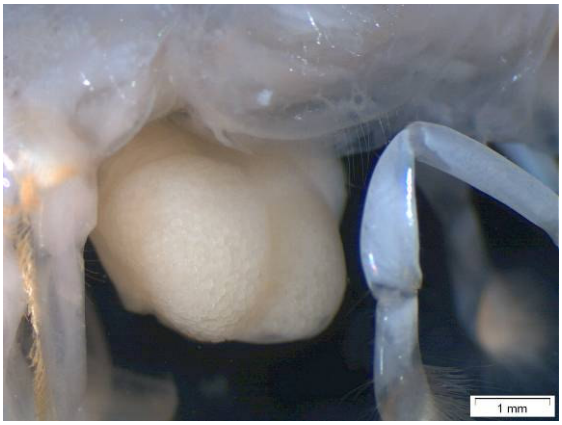

Photo 18 *Callianassa subterranea* from Oyster Grounds, station OYS24. Below the abdomen, a large expansion is visible: this is the parasite *Parthenopea subterranea*.
Photo 19 *Parthenopea subterranea* in more detail.

5.3.8 Crustacea – Tanaidacea

The crustacean order Tanaidacea is a little known group of crustaceans, only rarely encountered in macrobenthic samples. From The Netherlands, only a handful of species is known. These have been found along the coastline, in estuaries, in a canal near Amsterdam and at the Cleaver Bank.

Tanaopsis graciloides (Paratanoidea incerta sedis) – At the Oyster Grounds (station OYS20), one animal was collected. After having consulted Dr. Bamber (Southampton), the species was identified as *Tanaopsis graciloides*. The species is common in European seas, occurring from 5-240 m depths where it can be found in fine to coarse sand, sometimes in sea beds of sandy mud (Holdich & Jones 1983). The record of *T. graciloides* prompted us to check three tanaid records of the Cleaver Bank (Van Moorsel, 2003). These proved to be *T. graciloides* as well (identification again checked by Dr. Bamber). Common as it may be, as far as we know, our records of this species are new for the Dutch continental shelf.

Photo 20 *Tanaopsis graciloides* from Oyster Grounds (station OYS20).

5.3.9 Mollusca - Gastropoda (snails)

Acteon tornatilis (Mollusca Gastropoda) – This species is rarely found alive (R. de Bruyne, pers. comm.). Notwithstanding the presence of a shell, *Acteon* is an opisthobranch gastropod related to nudibranchs.

A live specimen of 3 mm was found in a sample from the Dogger Bank (DOG03). The species attains a maximum size of 25 x 10 mm (De Bruyne & De Boer 2008). In the MWTL project, the species has been found only a few times: DOG07 (1993), OYS28 (2000) and OYS06 (2005) (MWTL database). The soft part of the animal is large, hardly fitting within the shell. It is reported to be both predatory and scavenging (ERMS database).

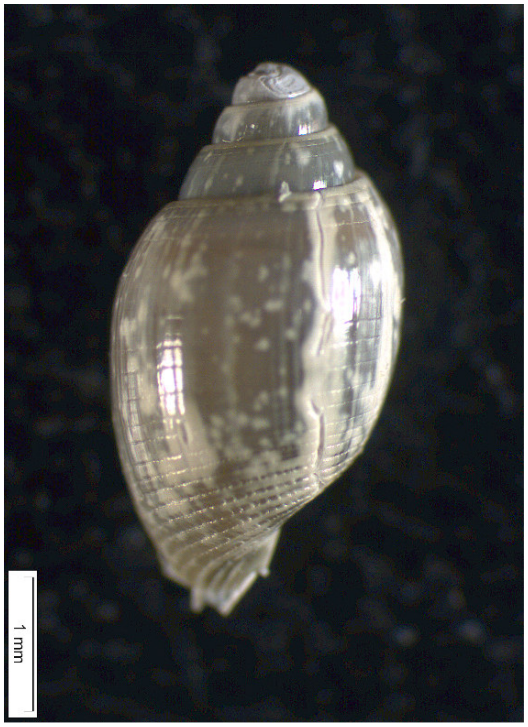

Photo 21 *Acteon tornatilis* Dogger Bank (DOG03), 17 March 2009, dorsal view (animal removed for picture).

Photo 22 *Acteon tornatilis* Dogger Bank (DOG03), 17 March 2009, ventral view.

6 Acknowledgements

The monitoring program was initiated by Rijkswaterstaat Waterdienst, guided by A. Naber. The authors wish to express their gratitude to the crew members of the vessels RV Rotterdam and RV Delta.

Also we would like to thank Marco Faasse (Arnemuiden) helped in identifying hydroids, molluscs and bryozoans. Dr. R. Barnich (Senckenberg Institut, Frankfurt/M) identified several difficult scale worms (*Malmgreniella*). Dr. R. Bamber (Southampton) identified *Tanaopsis graciloides*. Rykel de Bruyne (Halfweg) confirmed the identification of several mollusc species. Ton van Haaren (Grontmij | team Ecology) made photographs of many benthic species. David Hall (Unicomarine, England) helped us identifying the polychaete worm *Caulleriella killariensis*. Dr. Meißner (Senckenberg Institut, Hamburg) has kindly helped us identifying several difficult polychaete species, especially in the genus *Spio.*

Last but not least, we would like to thank all analysts for their input and knowledge in this survey.

Table 6-1: Contributors to the MWTL monitoring program 2009

Name	*Organisation*	*Species groups / Activity*
Mario de Kluijver	Grontmij	Sampling and fieldwork
David Tempelman	Grontmij	All groups
Amy de Beauvesere - Storm	Grontmij	Molluscs
Godfried van Moorsel	Ecosub	All groups
Marco Faasse	Grontmij	Hydroids, Molluscs, Bryozoans
Ton van Haaren	Grontmij	Photographs

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Appendix

Appendix 1

Locations and sediment

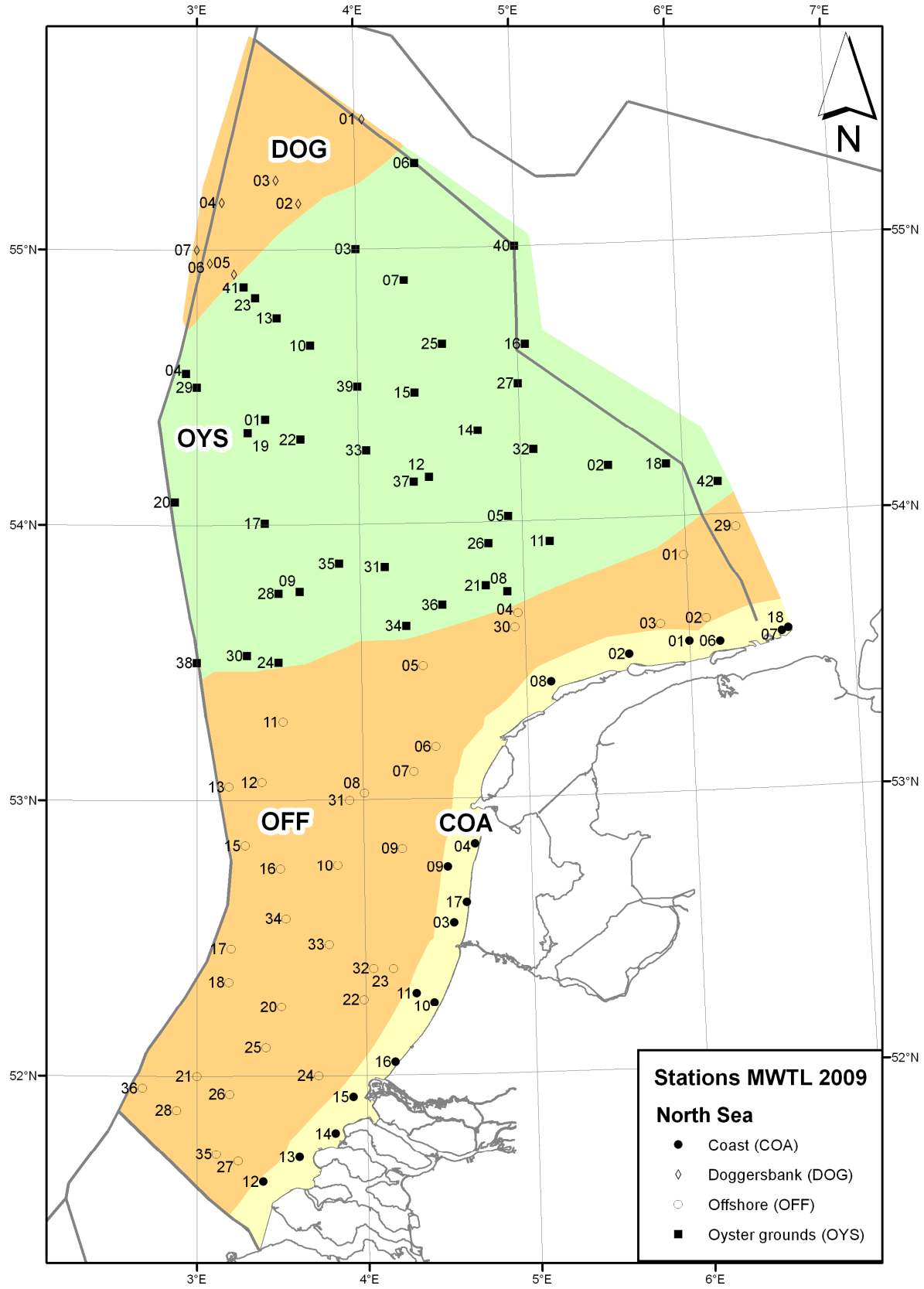


Figure A1 - 1 MWTL 2009. Locations of the sampling stations

In the tables below, two location codes are given. The first one is the AQS/NIOZ code. This code is used in the past in all MWTL reports. The next column contains the DONAR location codes. This location code is used in the Rijkswaterstaat database DONAR.

In 2005 OFF14 and In OFF19 were discarded as sample locations. They were replaced by OYS16 and 17. Due to a projection error in 2006 COA05 was replaced for COA18. In Tempelman et al. (2009a, 2009b and 2009c) these problems are further discussed.

Table A1 - 1a MWTL 2009. Locations, sampling dates and depth

	Station (name)		Geographical position			
AREA	**AQS/NIOZ code**	**DONAR code**	**Lat (N) ED50**	**Lon (E) ED50**	**Date**	**Depth (m)**
DOG	DOG01	DOGGBK07	55°28'18"	4°03'00"	17-mrt-09	30,8
DOG	DOG02	DOGGBK02	55°10'00"	3°38'30"	17-mrt-09	37
DOG	DOG03	DOGGBK03	55°15'00"	3°30'00"	17-mrt-09	28
DOG	DOG04	TERSLG235	55°10'14"	3°09'26"	18-mrt-09	30
DOG	DOG05	DOGGBK04	54°54'42"	3°14'00"	18-mrt-09	36
DOG	DOG06	DOGGBK05	54°57'06"	3°05'00"	18-mrt-09	23,2
DOG	DOG07	DOGGBK08	55°00'00"	3°00'00"	18-mrt-09	25
OYS	OYS01	OESTGDN43	54°23'00"	3°25'30"	18-mrt-09	45,9
OYS	OYS02	FRIESFT16	54°11'30"	5°32'30"	25-mrt-09	39,8
OYS	OYS03	OESTGDN02	55°00'00"	4°00'00"	17-mrt-09	48
OYS	OYS04	OESTGDN03	54°33'00"	2°56'00"	19-mrt-09	33,2
OYS	OYS05	FRIESFT02	54°01'10"	4°55'00"	26-mrt-09	42,3
OYS	OYS06	OESTGDN04	55°18'24"	4°22'48"	17-mrt-09	47,2
OYS	OYS07	OESTGDN05	54°53'00"	4°18'00"	17-mrt-09	50
OYS	OYS08	FRIESFT03	53°44'40"	4°54'00"	5-mrt-09	37,8
OYS	OYS09	FRIESFT04	53°45'20"	3°37'50"	12-mrt-09	38,1
OYS	OYS10	OESTGDN06	54°39'00"	3°42'30"	18-mrt-09	45
OYS	OYS11	FRIESFT05	53°55'30"	5°10'00"	25-mrt-09	39
OYS	OYS12	OESTGDN07	54°10'00"	4°26'00"	1-apr-09	49,2
OYS	OYS13	OESTGDN08	54°45'00"	3°30'00"	18-mrt-09	45
OYS	OYS14	OESTGDN09	54°20'00"	4°44'30"	31-mrt-09	47,4
OYS	OYS15	OESTGDN10	54°28'30"	4°21'20"	31-mrt-09	51
OYS	OYS16	OESTGDN11	54°38'30"	5°03'00"	31-mrt-09	47,2
OYS	OYS17	OESTGDN12	54°00'21"	3°25'08"	31-mrt-09	43,2
OYS	OYS18	FRIESFT06	54°11'20"	5°54'00"	25-mrt-09	37,5
OYS	OYS19	OESTGDN13	54°20'00"	3°19'00"	18-mrt-09	48,2
OYS	OYS20	OESTGDN14	54°05'00"	2°51'51"	19-mrt-09	51
OYS	OYS21	TERSLG50	53°46'04"	4°46'03"	5-mrt-09	39,2
OYS	OYS22	OESTGDN15	54°18'30"	3°38'30"	31-mrt-09	44,5
OYS	OYS23	OESTGDN16	54°49'24"	3°22'00"	18-mrt-09	42
OYS	OYS24	BREEVTN34	53°30'00"	3°29'46"	12-mrt-09	31,9
OYS	OYS25	OESTGDN17	54°39'00"	4°32'00"	17-mrt-09	50
OYS	OYS26	FRIESFT07	53°55'20"	4°47'30"	26-mrt-09	42,7
OYS	OYS27	OESTGDN18	54°30'00"	5°00'00"	31-mrt-09	44,2
OYS	OYS28	FRIESFT08	53°45'00"	3°30'00"	12-mrt-09	36,4
OYS	OYS29	OESTGDN19	54°30'00"	3°00'00"	19-mrt-09	35,6
OYS	OYS30	BREEVTN02	53°31'30"	3°18'21"	12-mrt-09	34,3
OYS	OYS31	FRIESFT09	53°50'42"	4°09'06"	30-mrt-09	42,9
OYS	OYS32	FRIESFT10	54°15'30"	5°05'00"	26-mrt-09	43,9
OYS	OYS33	OESTGDN20	54°16'00"	4°03'00"	31-mrt-09	48,5
OYS	OYS34	FRIESFT11	53°37'40"	4°16'37"	5-mrt-09	36,3
OYS	OYS35	FRIESFT12	53°51'31"	3°52'24"	30-mrt-09	39,8
OYS	OYS36	FRIESFT17	53°42'05"	4°30'00"	5-mrt-09	38,9
OYS	OYS37	TERSLG100	54°09'04"	4°20'27"	1-apr-09	49
OYS	OYS38	BREEVTN26	53°30'00"	3°00'00"	12-mrt-09	32,5
OYS	OYS39	OESTGDN22	54°30'00"	4°00'00"	31-mrt-09	45,5
OYS	OYS40	OESTGDN21	55°00'00"	5°00'00"	17-mrt-09	41,9
OYS	OYS41	OESTGDN23	54°51'42"	3°17'36"	18-mrt-09	39
OYS	OYS42	ROTTMPT70	54°07'03"	6°12'51"	25-mrt-09	33,4

Table A1 - 1b MWTL 2009. Location, sampling dates and depth

Station (name)			Geographical position			
AREA	**AQS/NIOZ code**	**DONAR code**	**Lat (N) ED50**	**Lon (E) ED50**	**Date**	**Depth (m)**
OFF	OFF01	FRIESFT13	53°51'30"	5°59'00"	4-mrt-09	31,7
OFF	OFF02	WADDKT07	53°37'29"	6°06'25"	4-mrt-09	23,9
OFF	OFF03	WADDKT02	53°36'40"	5°49'37"	4-mrt-09	24,9
OFF	OFF04	FRIESFT14	53°40'00"	4°57'30"	5-mrt-09	32,3
OFF	OFF05	FRIESFT15	53°29'00"	4°22'30"	5-mrt-09	26,9
OFF	OFF06	BREEVTN03	53°11'16"	4°26'32"	3-mrt-09	29,6
OFF	OFF07	BREEVTN04	53°05'59"	4°18'22"	3-mrt-09	35,5
OFF	OFF08	BREEVTN05	53°01'30"	4°00'30"	3-mrt-09	30,9
OFF	OFF09	BREEVTN06	52°49'20"	4°13'50"	3-mrt-09	27,8
OFF	OFF10	BREEVTN07	52°45'40"	3°50'30"	16-mrt-09	30,3
OFF	OFF11	BREEVTN08	53°17'00"	3°31'18"	12-mrt-09	25,8
OFF	OFF12	BREEVTN09	53°03'55"	3°23'30"	11-mrt-09	27
OFF	OFF13	BREEVTN10	53°02'58"	3°11'36"	11-mrt-09	28,5
OFF	OFF15	BREEVTN12	52°50'12"	3°17'18"	11-mrt-09	33,9
OFF	OFF16	BREEVTN13	52°45'00"	3°30'00"	11-mrt-09	27
OFF	OFF17	BREEVTN14	52°27'43"	3°12'12"	11-mrt-09	30,1
OFF	OFF18	BREEVTN15	52°20'25"	3°11'25"	11-mrt-09	30
OFF	OFF20	BREEVTN17	52°15'00"	3°30'00"	11-mrt-09	31
OFF	OFF21	BREEVTN18	52°00'00"	3°00'00"	10-mrt-09	32,3
OFF	OFF22	BREEVTN19	52°16'30"	3°59'15"	13-mrt-09	18,9
OFF	OFF23	BREEVTN20	52°23'08"	4°09'50"	2-mrt-09	23,3
OFF	OFF24	BREEVTN21	52°00'00"	3°42'58"	2-apr-09	27
OFF	OFF25	BREEVTN22	52°06'12"	3°24'26"	10-mrt-09	32,2
OFF	OFF26	BREEVTN23	51°56'07"	3°11'34"	10-mrt-09	27,3
OFF	OFF27	BREEVTN24	51°41'40"	3°14'28"	10-mrt-09	27,6
OFF	OFF28	BREEVTN25	51°52'40"	2°52'48"	10-mrt-09	32,3
OFF	OFF29	ROTTMPT50	53°57'14"	6°18'36"	25-mrt-09	31,4
OFF	OFF30	TERSLG30	53°36'56"	4°56'17"	5-mrt-09	24,5
OFF	OFF31	BREEVTN27	52°59'53"	3°55'01"	3-mrt-09	27,2
OFF	OFF32	NOORDWK30	52°23'15"	4°02'53"	2-mrt-09	23,7
OFF	OFF33	NOORDWK50	52°28'30"	3°47'07"	13-mrt-09	30,8
OFF	OFF34	NOORDWK70	52°34'10"	3°31'53"	11-mrt-09	30,9
OFF	OFF35	WALCRN30	51°43'06"	3°06'49"	10-mrt-09	31,2
OFF	OFF36	WALCRN70	51°57'25"	2°40'45"	10-mrt-09	43,5
COA	COA01	WADDKT03	53°32'34"	5°59'53"	4-mrt-09	16,9
COA	COA02	WADDKT04	53°30'19"	5°37'48"	4-mrt-09	9,6
COA	COA03	HOLLSKT03	52°32'50"	4°31'50"	2-mrt-09	16,3
COA	COA04	HOLLSKT02	52°50'00"	4°40'00"	3-mrt-09	11,3
COA	COA06	WADDKT06	53°32'18"	6°11'10"	4-mrt-09	9,2
COA	COA07	ROTTMPT3	53°33'58"	6°33'51"	4-mrt-09	8,5
COA	COA08	TERSLG4	53°24'54"	5°09'02"	5-mrt-09	13,2
COA	COA09	HOLLSKT04	52°45'00"	4°30'00"	2-mrt-09	21
COA	COA10	NOORDWK2	52°15'36"	4°24'20"	6-mrt-09	13,6
COA	COA11	NOORDWK10	52°17'41"	4°18'01"	6-mrt-09	19,5
COA	COA12	VOORDTA2	51°37'04"	3°23'15"	9-mrt-09	14,4
COA	COA13	VOORDTA3	51°42'23"	3°36'02"	16-apr-09	2,5
COA	COA14	VOORDTA4	51°47'26"	3°48'48"	16-apr-09	2,5
COA	COA15	VOORDTA5	51°55'20"	3°55'09"	2-apr-09	12,8
COA	COA16	TERHDE1	52°02'47"	4°10'12"	13-mrt-09	8,3
COA	COA17	EGMAZE1	52°37'15"	4°36'30"	2-mrt-09	7,7
COA	COA18	WADDKT08	53°34'36"	6°36'07"	4-mrt-09	12,8

Table A1 - 2a MWTL 2009. Sediment composition

Station (name)			Sediment composition		
AQS/NIOZ code	DONAR code	Depth (m)	Med.Gr Size (µm)	Silt (%) (Fr. <63 µm)	Organic carbon (%)
DOG01	DOGGBK07	30,8	211	0,9	0,0
DOG02	DOGGBK02	37	195	1,4	0,1
DOG03	DOGGBK03	28	198	1,4	0,1
DOG04	TERSLG235	30	208	0,6	0,0
DOG05	DOGGBK04	36	183	1,8	0,2
DOG06	DOGGBK05	23,2	220	0,5	0,1
DOG07	DOGGBK08	25	194	0,8	0,0
OYS01	OESTGDN43	45,9	117	6,2	0,2
OYS02	FRIESFT16	39,8	209	3,5	0,1
OYS03	OESTGDN02	48	117	6,5	0,2
OYS04	OESTGDN03	33,2	140	1,9	0,1
OYS05	FRIESFT02	42,3	131	11,0	0,3
OYS06	OESTGDN04	47,2	158	3,1	0,2
OYS07	OESTGDN05	50	91	18,3	0,3
OYS08	FRIESFT03	37,8	204	8,4	0,2
OYS09	FRIESFT04	38,1	191	2,3	0,0
OYS10	OESTGDN06	45	116	5,7	0,2
OYS11	FRIESFT05	39	153	13,2	0,4
OYS12	OESTGDN07	49,2	95	17,6	0,3
OYS13	OESTGDN08	45	115	5,5	0,2
OYS14	OESTGDN09	47,4	139	10,2	0,3
OYS15	OESTGDN10	51	96	16,2	0,2
OYS16	OESTGDN11	47,2	159	4,2	0,1
OYS17	OESTGDN12	43,2	196	3,0	0,1
OYS18	FRIESFT06	37,5	216	3,9	0,1
OYS19	OESTGDN13	48,2	121	7,1	0,3
OYS20	OESTGDN14	51	195	12,3	0,3
OYS21	TERSLG50	39,2	98	17,5	0,4
OYS22	OESTGDN15	44,5	161	3,9	0,2
OYS23	OESTGDN16	42	136	3,1	0,2
OYS24	BREEVTN34	31,9	129	6,9	0,3
OYS25	OESTGDN17	50	117	11,5	0,1
OYS26	FRIESFT07	42,7	133	12,7	0,4
OYS27	OESTGDN18	44,2	175	4,7	0,2
OYS28	FRIESFT08	36,4	204	3,1	0,1
OYS29	OESTGDN19	35,6	127	2,5	0,1
OYS30	BREEVTN02	34,3	130	6,6	0,3
OYS31	FRIESFT09	42,9	140	6,5	0,2
OYS32	FRIESFT10	43,9	164	8,8	0,2
OYS33	OESTGDN20	48,5	106	10,7	0,3
OYS34	FRIESFT11	36,3	114	20,1	0,3
OYS35	FRIESFT12	39,8	162	2,5	0,1
OYS36	FRIESFT17	38,9	108	18,0	0,5
OYS37	TERSLG100	49	118	12,8	0,3
OYS38	BREEVTN26	32,5	144	4,2	0,3
OYS39	OESTGDN22	45,5	387	6,8	0,2
OYS40	OESTGDN21	41,9	157	3,5	0,1
OYS41	OESTGDN23	39	151	2,5	0,2
OYS42	ROTTMPT70	33,4	234	2,5	0,1

Table A1 - 2b MWTL 2009. Sediment composition

Station (name)			Sediment composition		
AQS/NIOZ code	DONAR code	Depth (m)	Med.Gr Size (µm)	Silt (%) (Fr.<63 µm)	Organic carbon (%)
OFF01	FRIESFT13	31,7	217	1,6	0,1
OFF02	WADDKT07	23,9	215	1,2	0,1
OFF03	WADDKT02	24,9	195	1,8	0,1
OFF04	FRIESFT14	32,3	200	2,6	0,1
OFF05	FRIESFT15	26,9	224	1,5	0,0
OFF06	BREEVTN03	29,6	317	0,8	0,0
OFF07	BREEVTN04	35,5	238	1,4	0,1
OFF08	BREEVTN05	30,9	248	1,1	0,0
OFF09	BREEVTN06	27,8	260	0,6	0,0
OFF10	BREEVTN07	30,3	289	0,8	0,0
OFF11	BREEVTN08	25,8	208	2,8	0,1
OFF12	BREEVTN09	27	282	0,9	0,0
OFF13	BREEVTN10	28,5	291	0,9	0,0
OFF15	BREEVTN12	33,9	296	1,0	0,0
OFF16	BREEVTN13	27	264	0,9	0,0
OFF17	BREEVTN14	30,1	341	0,9	0,1
OFF18	BREEVTN15	30	321	0,6	0,0
OFF20	BREEVTN17	31	420	0,4	0,0
OFF21	BREEVTN18	32,3	421	0,7	0,0
OFF22	BREEVTN19	18,9	364	0,7	0,0
OFF23	BREEVTN20	23,3	338	0,8	0,0
OFF24	BREEVTN21	27	545	0,4	0,0
OFF25	BREEVTN22	32,2	438	0,5	0,0
OFF26	BREEVTN23	27,3	511	0,4	0,0
OFF27	BREEVTN24	27,6	344	0,7	0,0
OFF28	BREEVTN25	32,3	415	0,5	0,0
OFF29	ROTTMPT50	31,4	331	0,5	0,0
OFF30	TERSLG30	24,5	222	1,0	0,0
OFF31	BREEVTN27	27,2	262	0,7	0,0
OFF32	NOORDWK30	23,7	349	0,4	0,0
OFF33	NOORDWK50	30,8	282	0,9	0,0
OFF34	NOORDWK70	30,9	283	0,9	0,0
OFF35	WALCRN30	31,2	356	0,6	0,0
OFF36	WALCRN70	43,5	405	0,6	0,0
COA01	WADDKT03	16,9	219	1,3	0,1
COA02	WADDKT04	9,6	189	0,6	0,0
COA03	HOLLSKT03	16,3	223	1,6	0,0
COA04	HOLLSKT02	11,3	172	2,9	0,2
COA06	WADDKT06	9,2	194	1,1	0,0
COA07	ROTTMPT3	8,5	192	0,8	0,0
COA08	TERSLG4	13,2	223	0,7	0,0
COA09	HOLLSKT04	21	230	1,3	0,0
COA10	NOORDWK2	13,6	259	1,2	0,0
COA11	NOORDWK10	19,5	329	0,9	0,0
COA12	VOORDTA2	14,4	288	0,9	0,0
COA13	VOORDTA3	2,5	298	0,7	0,0
COA14	VOORDTA4	2,5	276	2,0	0,2
COA15	VOORDTA5	12,8	213	1,4	0,0
COA16	TERHDE1	8,3	405	0,5	0,0
COA17	EGMAZE1	7,7	203	1,1	0,0
COA18	WADDKT08	12,8	195	0,9	0,0

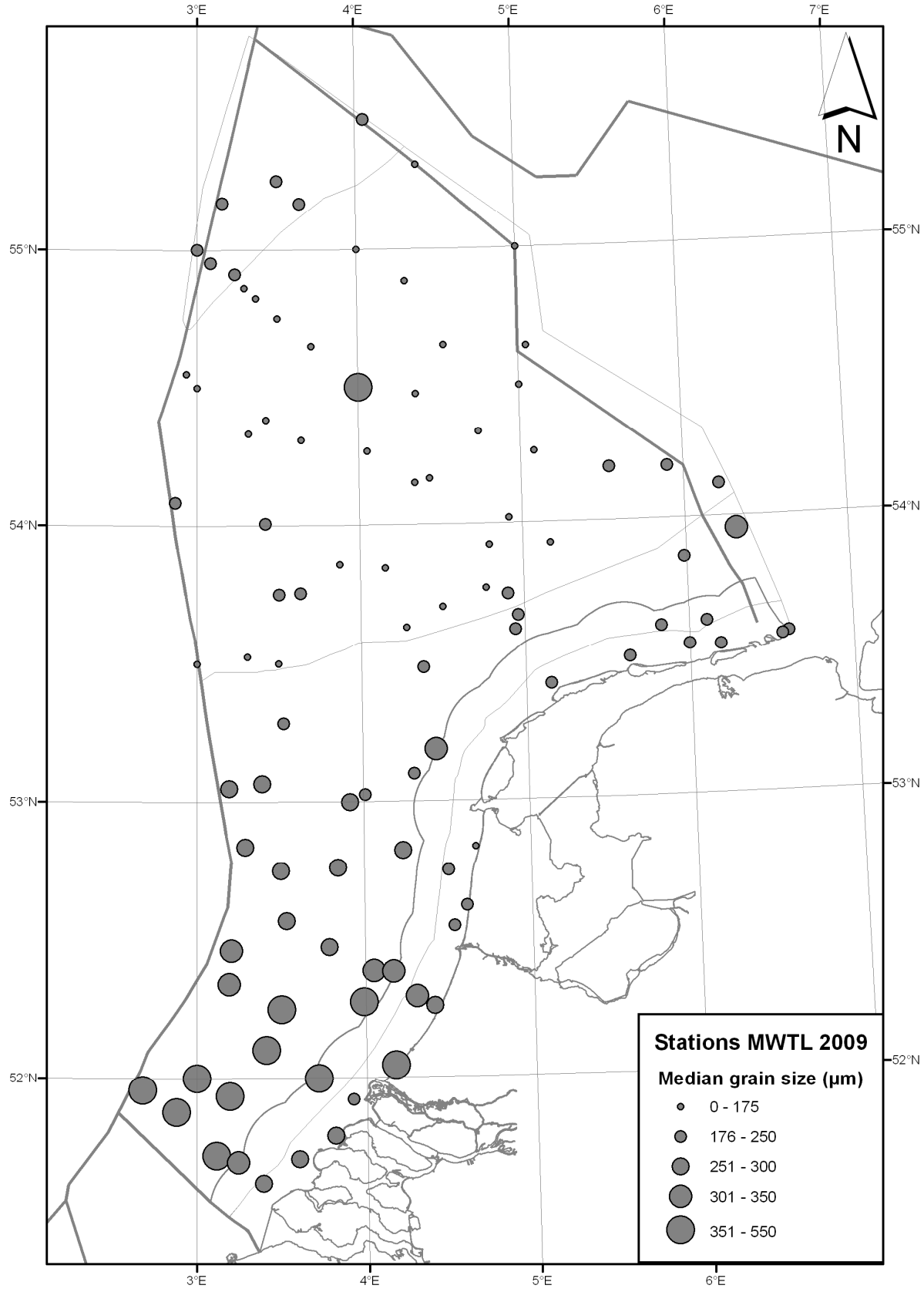


Figure A1 - 2 MWTL 2009. Median grain size (µm) of the sediment

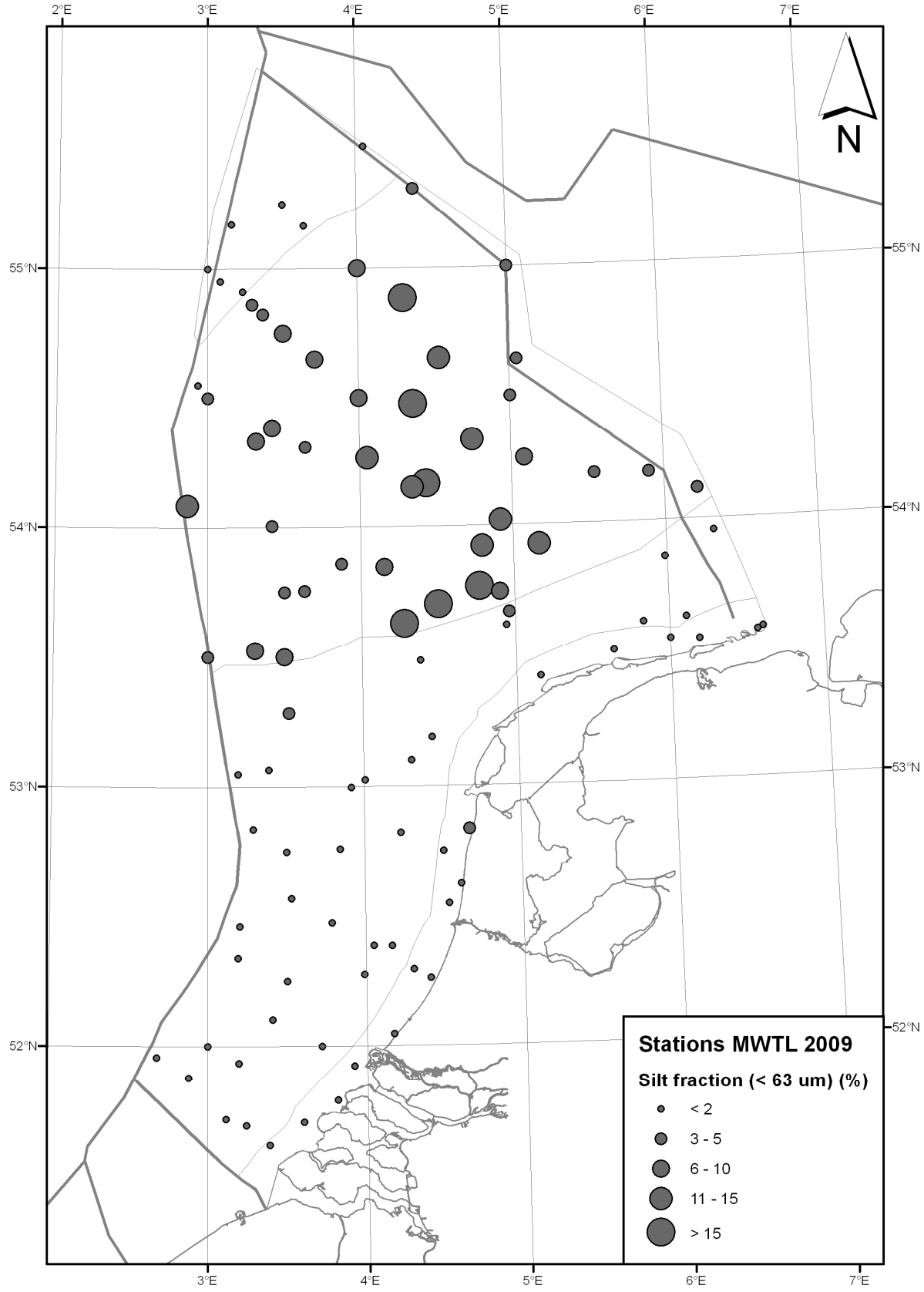


Figure A1 - 3 MWTL 2009. Silt content (fraction < 63 µm) of the sediment.

Table A1 - 3a MWTL 2006 – 2009. Sediment composition for Doggersbank and Oyster Grounds

DONAR code	Location code	Med.Gr Size (µm)				Silt (%) (Fr.<63 µm)			
		2006	2007	2008	2009	2006	2007	2008	2009
DOGGBK07	DOG01	227	218	224	211	0,4	0,2	0,5	0,9
DOGGBK02	DOG02	193	198	194	195	1,7	0,7	0,9	1,4
DOGGBK03	DOG03	204	221	217	198	0,7	0,2	0,8	1,4
TERSLG235	DOG04	206	211	212	208	0,7	0,4	0,9	0,6
DOGGBK04	DOG05	186	186	189	183	2,5	1,6	1,6	1,8
DOGGBK05	DOG06	220	234	227	220	0,2	0,2	0,7	0,5
DOGGBK08	DOG07	202	205	204	194	0,6	0,8	0,7	0,8
OESTGDN43	OYS01	117	117	120	117	11,6	9,6	7,5	6,2
FRIESFT16	OYS02	199	212	214	209	4,7	2,9	9,7	3,5
OESTGDN02	OYS03	115	117	115	117	8,1	8,3	7,9	6,5
OESTGDN03	OYS04	140	140	141	140	1,7	1,7	2,4	1,9
FRIESFT02	OYS05	133	131	131	131	11,2	10,4	13,9	11,0
OESTGDN04	OYS06	152	154	156	158	3,2	4,6	4,8	3,1
OESTGDN05	OYS07	90	89	90	91	18,2	21,3	18,9	18,3
FRIESFT03	OYS08	197	191	197	204	10,2	13,0	17,2	8,4
FRIESFT04	OYS09	192	191	194	191	2,6	2,7	3,6	2,3
OESTGDN06	OYS10	115	115	114	116	6,8	5,7	7,4	5,7
FRIESFT05	OYS11	152	153	146	153	20,9	9,6	18,0	13,2
OESTGDN07	OYS12	95	95	95	95	16,1	15,2	19,0	17,6
OESTGDN08	OYS13	115	116	118	115	4,3	4,5	5,1	5,5
OESTGDN09	OYS14	137	143	139	139	14,5	10,4	9,5	10,2
OESTGDN10	OYS15	96	94	95	96	14,8	17,6	18,2	16,2
OESTGDN11	OYS16	161	159	156	159	5,0	6,5	8,1	4,2
OESTGDN12	OYS17	200	196	201	196	2,3	3,1	2,6	3,0
FRIESFT06	OYS18	217	216	220	216	3,1	3,5	3,0	3,9
OESTGDN13	OYS19	121	120	121	121	7,7	8,0	6,6	7,1
OESTGDN14	OYS20	200	199	199	195	8,1	13,5	12,9	12,3
TERSLG50	OYS21	117	124	117	98	18,4	15,9	19,5	17,5
OESTGDN15	OYS22	156	162	171	161	3,1	3,0	2,8	3,9
OESTGDN16	OYS23	135	137	136	136	3,1	3,2	3,2	3,1
BREEVTN34	OYS24	128	127	134	129	6,1	8,6	3,7	6,9
OESTGDN17	OYS25	120	114	120	117	13,8	14,2	13,5	11,5
FRIESFT07	OYS26	134	134	132	133	12,8	13,0	14,1	12,7
OESTGDN18	OYS27	184	182	180	175	4,2	4,0	4,0	4,7
FRIESFT08	OYS28	204	205	205	204	2,1	2,1	1,9	3,1
OESTGDN19	OYS29	127	127	127	127	2,3	2,7	2,6	2,5
BREEVTN02	OYS30	130	130	129	130	6,6	5,2	5,4	6,6
FRIESFT09	OYS31	141	141	142	140	5,9	5,3	3,2	6,5
FRIESFT10	OYS32	163	155	162	164	10,1	6,3	15,3	8,8
OESTGDN20	OYS33	107	107	107	106	10,5	9,3	10,3	10,7
FRIESFT11	OYS34	119	117	116	114	9,9	10,3	14,7	20,1
FRIESFT12	OYS35	163	162	164	162	2,4	3,3	2,9	2,5
FRIESFT17	OYS36	109	112	109	108	15,8	13,3	18,3	18,0
TERSLG100	OYS37	97	97	97	118	15,3	14,1	15,1	12,8
BREEVTN26	OYS38	145	145	145	144	3,7	3,5	3,5	4,2
OESTGDN22	OYS39	116	116	116	387	5,1	7,5	6,5	6,8
OESTGDN21	OYS40	157	158	158	157	2,9	3,6	3,5	3,5
OESTGDN23	OYS41	151	151	150	151	2,4	2,6	2,6	2,5
ROTTMPT70	OYS42	235	237	235	234	1,0	1,9	1,0	2,5

Table A1 - 3b: MWTL 2006 – 2009. Sediment composition for Offshore area and Coastal area

DONAR code	Location code	Med.Gr Size (µm)				Silt (%) (Fr.<63 µm)			
		2006	2007	2008	2009	2006	2007	2008	2009
FRIESFT13	OFF01	217	219	217	217	1,2	1,1	1,7	1,6
WADDKT07	OFF02	223	217	216	215	0,8	0,8	1,3	1,2
WADDKT02	OFF03	194	195	195	195	0,9	1,9	1,5	1,8
FRIESFT14	OFF04	201	202	205	200	2,6	3,0	3,3	2,6
FRIESFT15	OFF05	217	218	221	224	1,6	1,2	1,0	1,5
BREEVTN03	OFF06	347	393	298	317	0,3	0,5	0,7	0,8
BREEVTN04	OFF07	232	236	224	238	1,0	1,1	1,5	1,4
BREEVTN05	OFF08	247	242	241	248	0,5	1,0	1,3	1,1
BREEVTN06	OFF09	261	262	270	260	0,3	0,8	0,6	0,6
BREEVTN07	OFF10	297	302	285	289	0,3	0,2	0,7	0,8
BREEVTN08	OFF11	204	207	207	208	2,7	2,6	2,4	2,8
BREEVTN09	OFF12	267	269	274	282	0,6	0,6	0,7	0,9
BREEVTN10	OFF13	266	267	284	291	1,9	0,6	0,9	0,9
BREEVTN12	OFF15	300	297	279	296	0,5	0,6	0,7	1,0
BREEVTN13	OFF16	286	265	276	264	0,3	0,8	0,6	0,9
BREEVTN14	OFF17	305	304	316	341	0,4	0,4	0,5	0,9
BREEVTN15	OFF18	331	339	343	321	0,2	0,3	0,4	0,6
BREEVTN17	OFF20	390	367	355	420	0,4	0,4	0,6	0,4
BREEVTN18	OFF21	463	383	478	421	0,2	0,2	0,3	0,7
BREEVTN19	OFF22	360	361	355	364	0,4	0,1	0,5	0,7
BREEVTN20	OFF23	327	334	318	338	0,5	0,6	0,5	0,8
BREEVTN21	OFF24	489	447	480	545	0,0	0,3	0,4	0,4
BREEVTN22	OFF25	344	379	385	438	0,7	0,7	0,5	0,5
BREEVTN23	OFF26	450	425	488	511	0,2	0,3	0,3	0,4
BREEVTN24	OFF27	411	470	397	344	0,3	0,4	0,8	0,7
BREEVTN25	OFF28	462	418	444	415	0,2	0,5	0,5	0,5
ROTTMPT50	OFF29	374	380	356	331	0,4	0,5	0,5	0,5
TERSLG30	OFF30	224	219	221	222	1,4	1,0	0,7	1,0
BREEVTN27	OFF31	272	266	260	262	0,3	0,8	0,6	0,7
NOORDWK30	OFF32	335	340	329	349	0,4	0,4	0,6	0,4
NOORDWK50	OFF33	289	281	282	282	0,4	0,5	0,7	0,9
NOORDWK70	OFF34	292	281	304	283	0,4	1,2	0,4	0,9
WALCRN30	OFF35	409	375	378	356	0,1	0,4	0,3	0,6
WALCRN70	OFF36	452	474	414	405	0,2	0,6	0,4	0,6
WADDKT03	COA01	251	230	229	219	0,4	1,2	0,8	1,3
WADDKT04	COA02	195	192	193	189	0,3	0,6	1,7	0,6
HOLLSKT03	COA03	230	223	224	223	2,0	1,9	1,8	1,6
HOLLSKT02	COA04	218	195	210	172	1,6	2,1	1,0	2,9
WADDKT06	COA06	189	195	199	194	0,7	0,4	0,8	1,1
ROTTMPT3	COA07	192	210	219	192	0,3	0,4	0,4	0,8
TERSLG4	COA08	223	220	226	223	1,2	0,3	0,5	0,7
HOLLSKT04	COA09	234	235	238	230	0,7	0,9	1,3	1,3
NOORDWK2	COA10	250	258	270	259	2,0	2,0	0,9	1,2
NOORDWK10	COA11	339	330	335	329	0,4	0,9	0,9	0,9
VOORDTA2	COA12	280	283	286	288	0,7	0,4	0,7	0,9
VOORDTA3	COA13	259	272	293	298	0,0	0,1	0,2	0,7
VOORDTA4	COA14	267	281	282	276	0,0	0,6	3,1	2,0
VOORDTA5	COA15	203	223	215	213	0,7	0,5	0,7	1,4
TERHDE1	COA16	282	226	334	405	0,3	0,8	0,6	0,5
EGMAZE1	COA17	254	201	222	203	0,6	0,6	1,0	1,1
WADDKT08	COA18*	-	184	182	195	-	0,5	0,3	0,9

Appendix 2

Diversity and biomass

Table A2 - 1: MWTL 2009. Mean values of abiotic and biotic parameters in the four sub-areas

	Total	Area			
		Dogger Bank	Oyster Grounds	Offshore area	Coastal area
Nr. of stations	100	7	42	34	17
Median grain size (µm)	226	201	151	314	242
Silt content (fr. < 63 µm, %)	3.9	1.05	7.89	0.94	1.16
Org. carbon (%)	0.11	0.07	0.22	0.02	0.03
CaCO3 (%)	5.22	5.64	5.87	3.87	6.16
Diversity					
Total number of species	216	77	143	83	63
Average number of species	20.4	37.9	27.9	13.7	13.8
Shannon & Wiener diversity	2.07	2.76	2.34	1.76	1.78
Simpsons' dominance	0.24	0.13	0.20	0.28	0.27
No. of indviduals (ind./m2)					
Crustaceans	312.0	965.2	185.9	305.7	370.2
Echinoderms	296.3	54.9	490.4	28.3	100.7
Bivalves	281.7	182.4	417.5	84.3	206.1
Gastropods	36.1	15.0	48.3	18.6	12.8
Polychaetes	794.5	1598.9	644.1	918.2	587.5
Micellaneaous	219.3	670.3	233.6	90.3	38.5
Average density	1738.5	3484.6	2000.3	1344.8	1160.0
Biomass (g AFDW/m2)					
Crustaceans	1.8	0.3	3.1	1.1	0.5
Echinoderms	7.1	2.2	5.8	6.5	21.3
Bivalves	5.8	2.7	0.7	4.1	25.2
Gastropods	0.1	0.0	0.1	0.1	0.2
Polychaetes	3.4	3.4	3.5	2.4	5.0
Micellaneaous	0.4	0.5	0.5	0.1	0.7
Average biomass	15.6	9.2	13.6	9.6	35.2

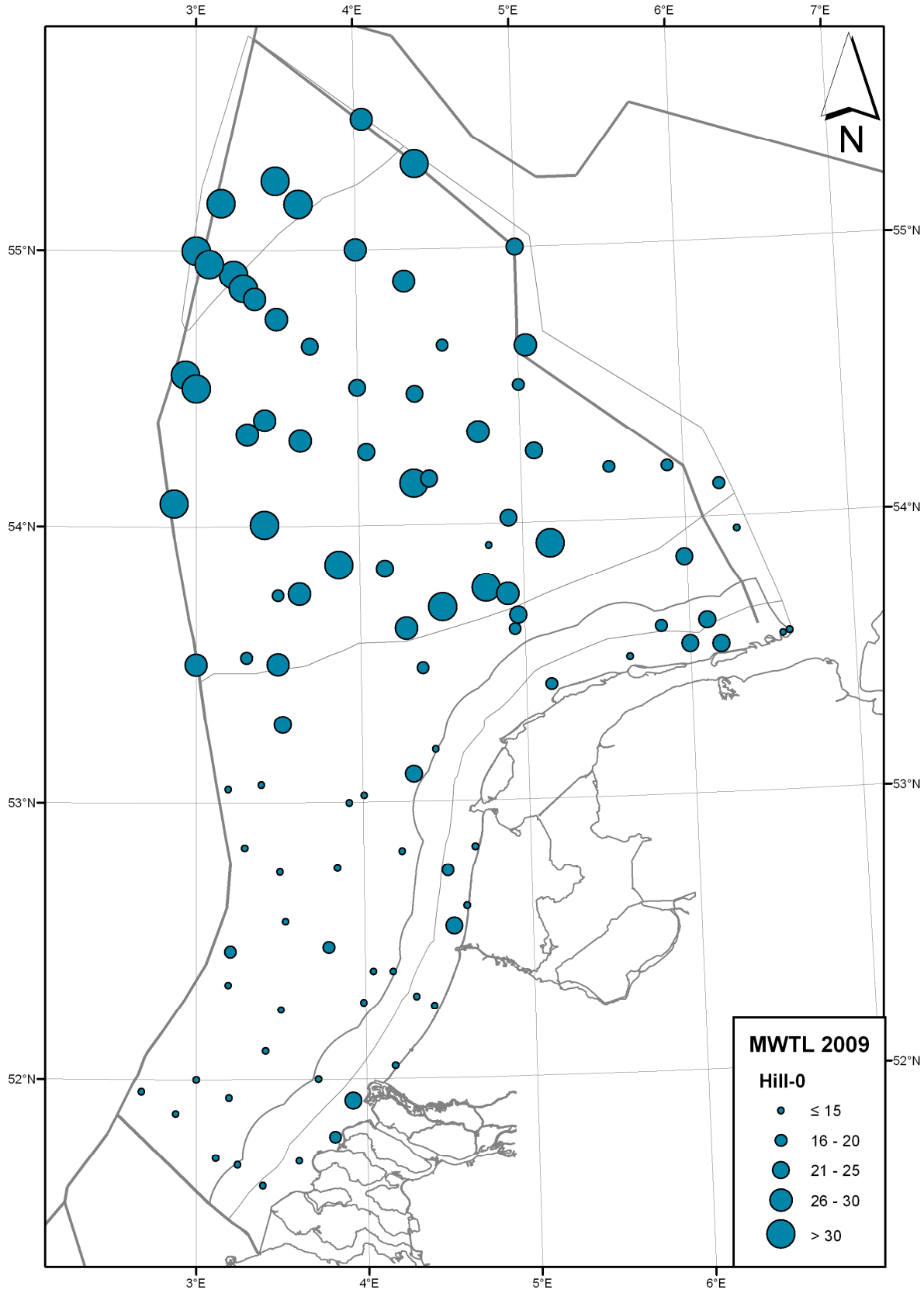


Figure A2 - 1 MWTL 2009. Diversity as expressed by species per sample (Hill-0).

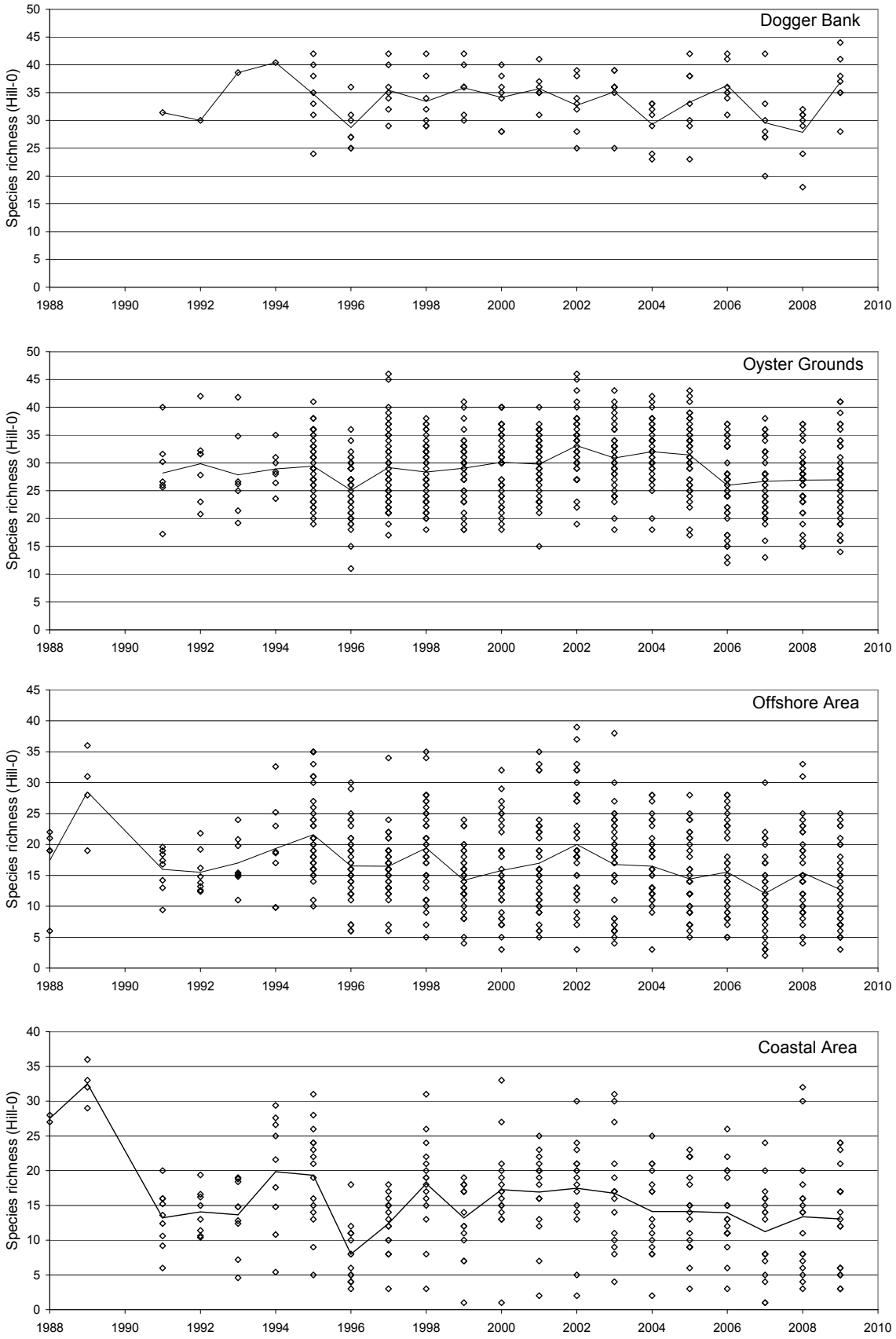


Figure A2 - 2 MWTL 1988 – 2009. Temporal patterns in species richness (Hill-0).

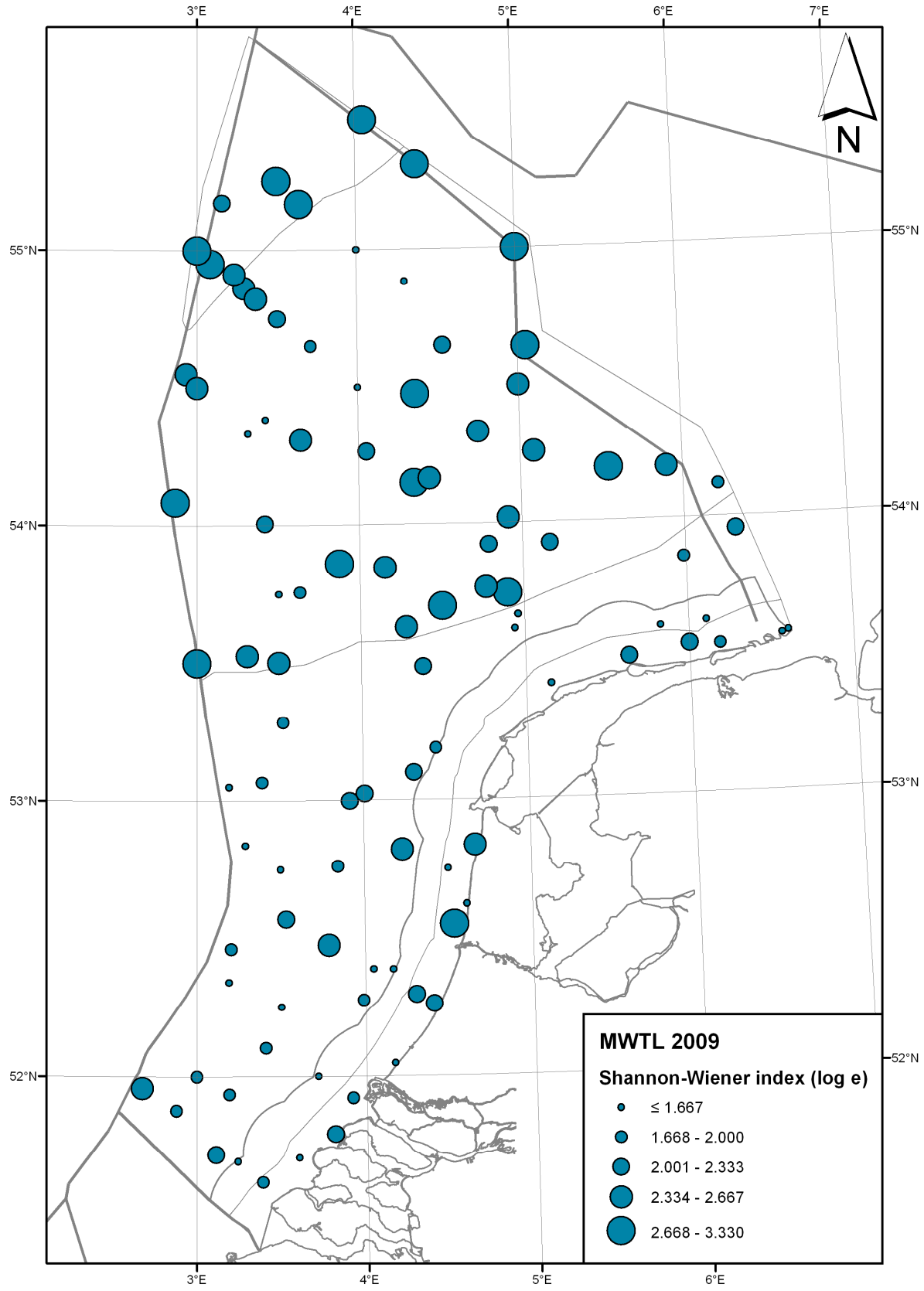


Figure A2 - 3 MWTL 2009. Diversity as expressed by the Shannon-Wiener index.

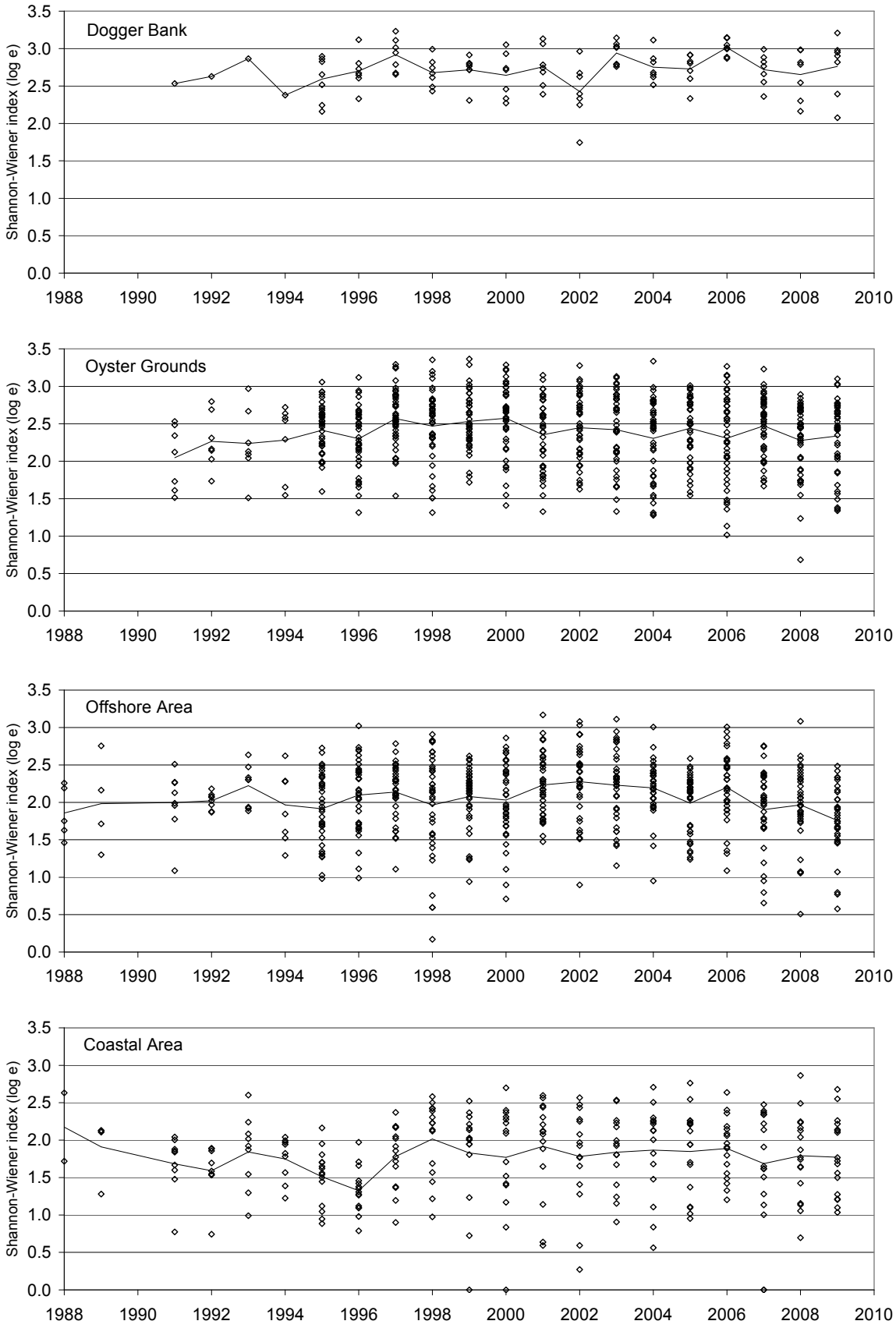


Figure A2 - 4 MWTL 1988 – 2009. Temporal patterns in diversity (Shannon-Wiener index).

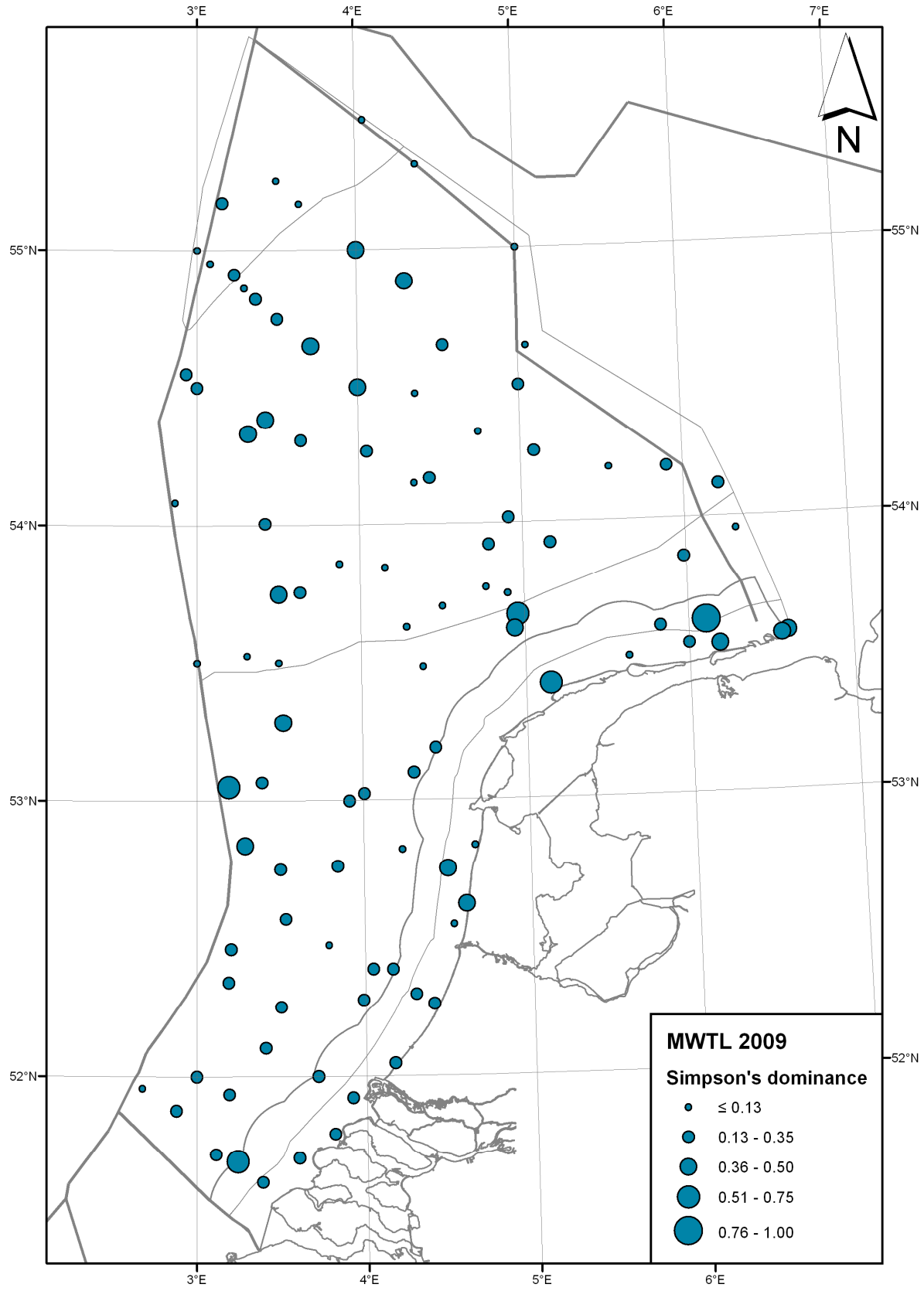


Figure A2 - 5 MWTL 2009. Diversity as expressed by Simpson's Dominance.

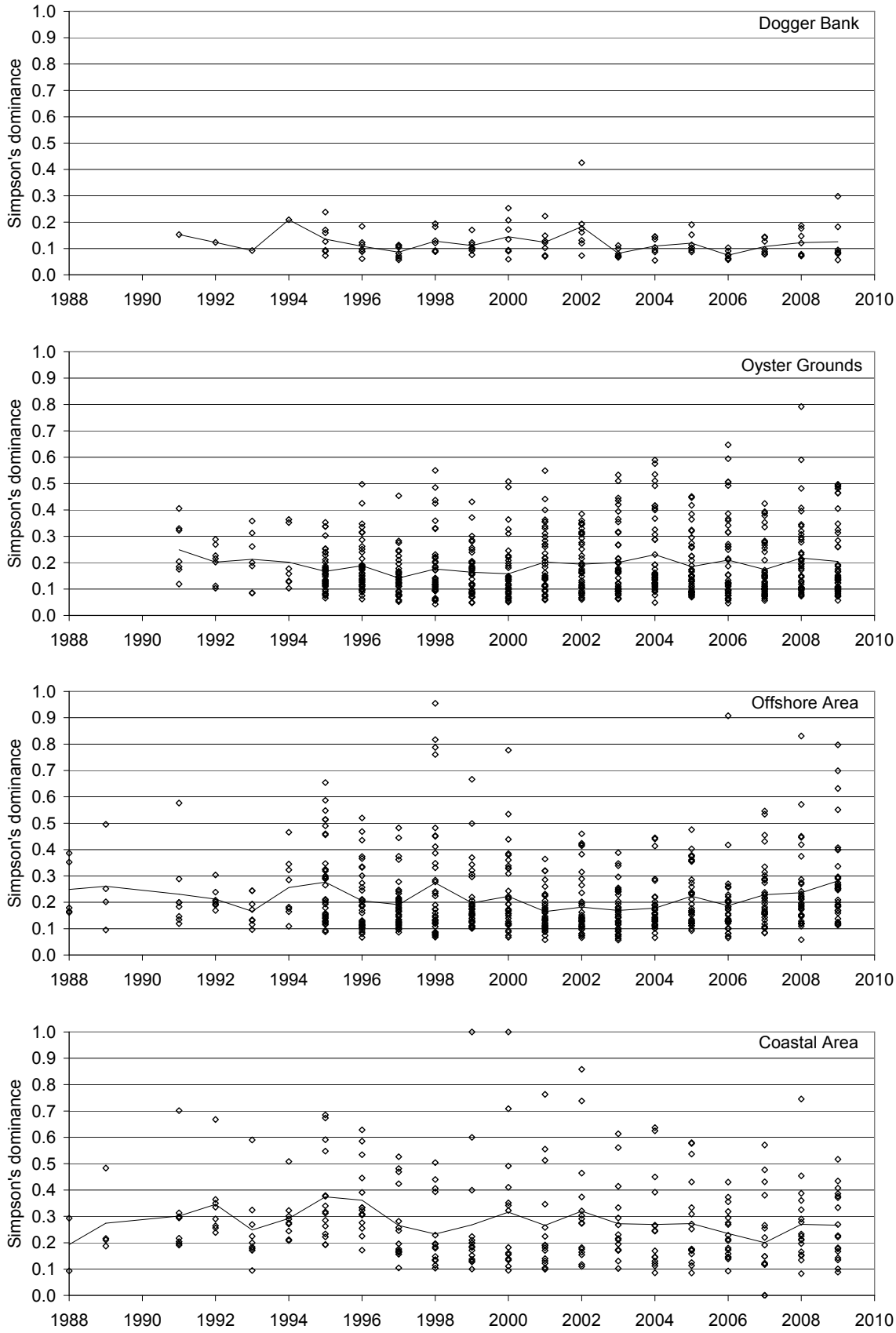


Figure A2 - 6 MWTL 1988 – 2009. Temporal patterns in diversity (Simpson's Dominance)

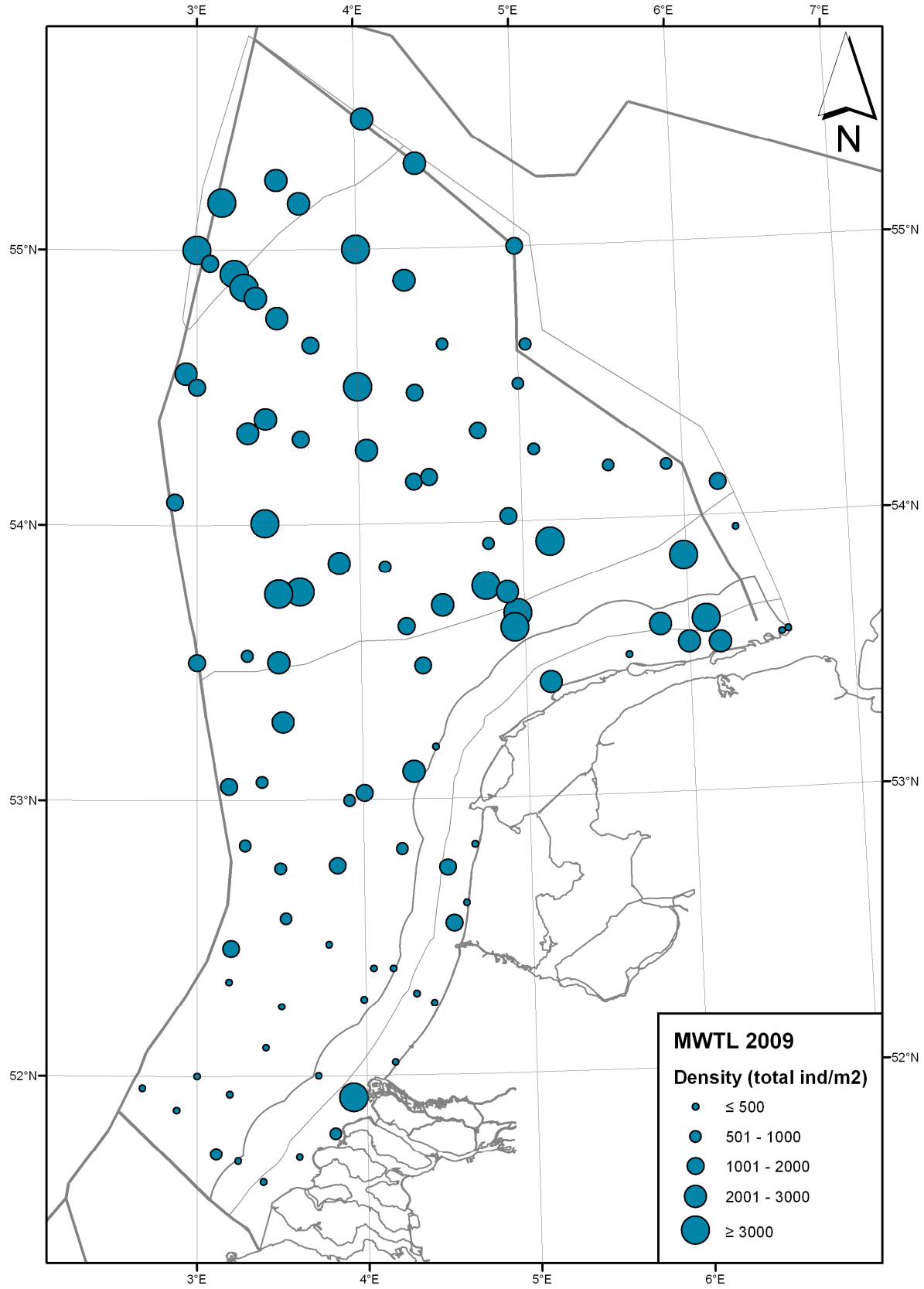


Figure A2 - 7 MWTL 2009. Density of benthic fauna.

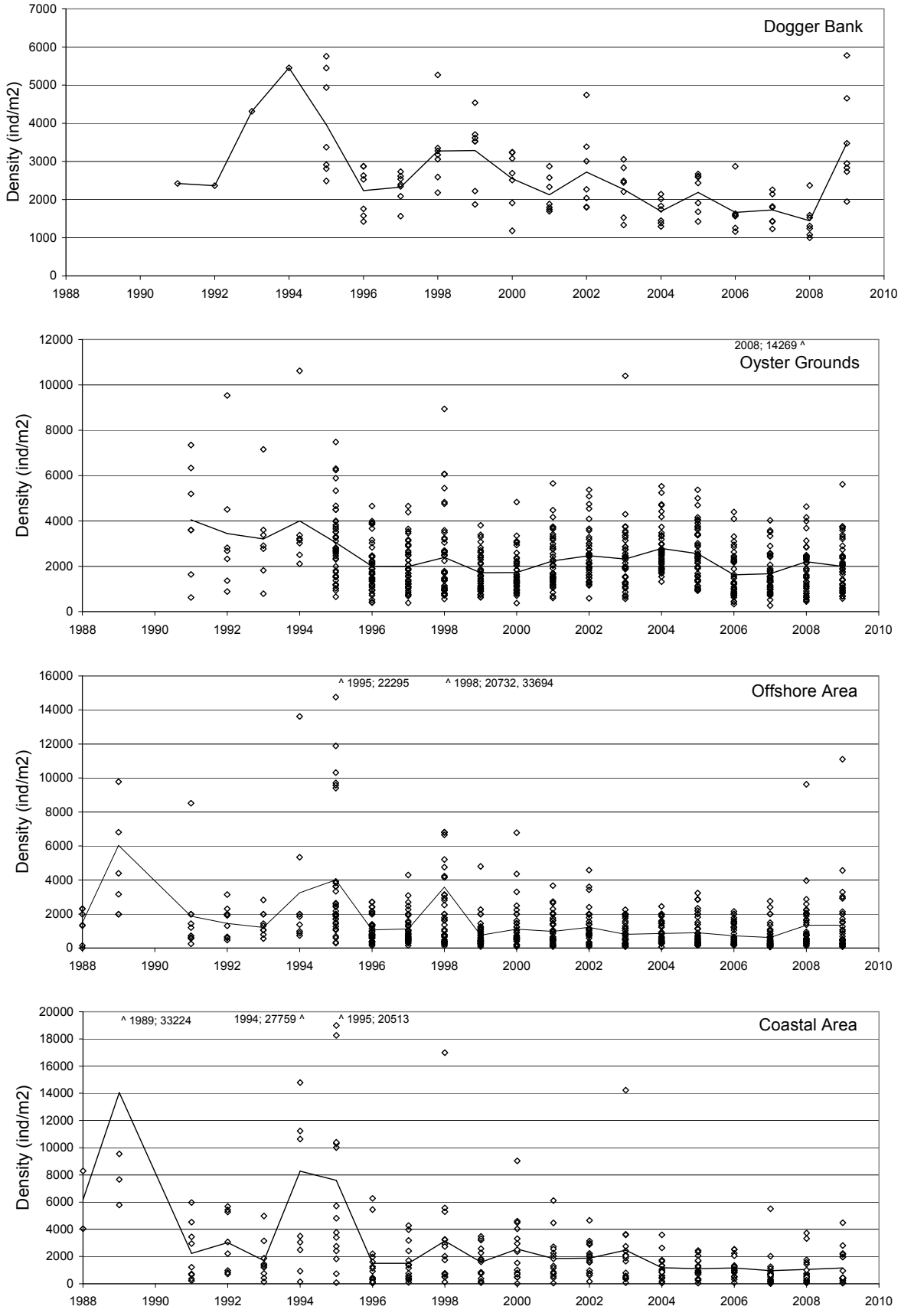


Figure A2 - 8 MWTL 1988 – 2009. Temporal patterns in benthic fauna density.

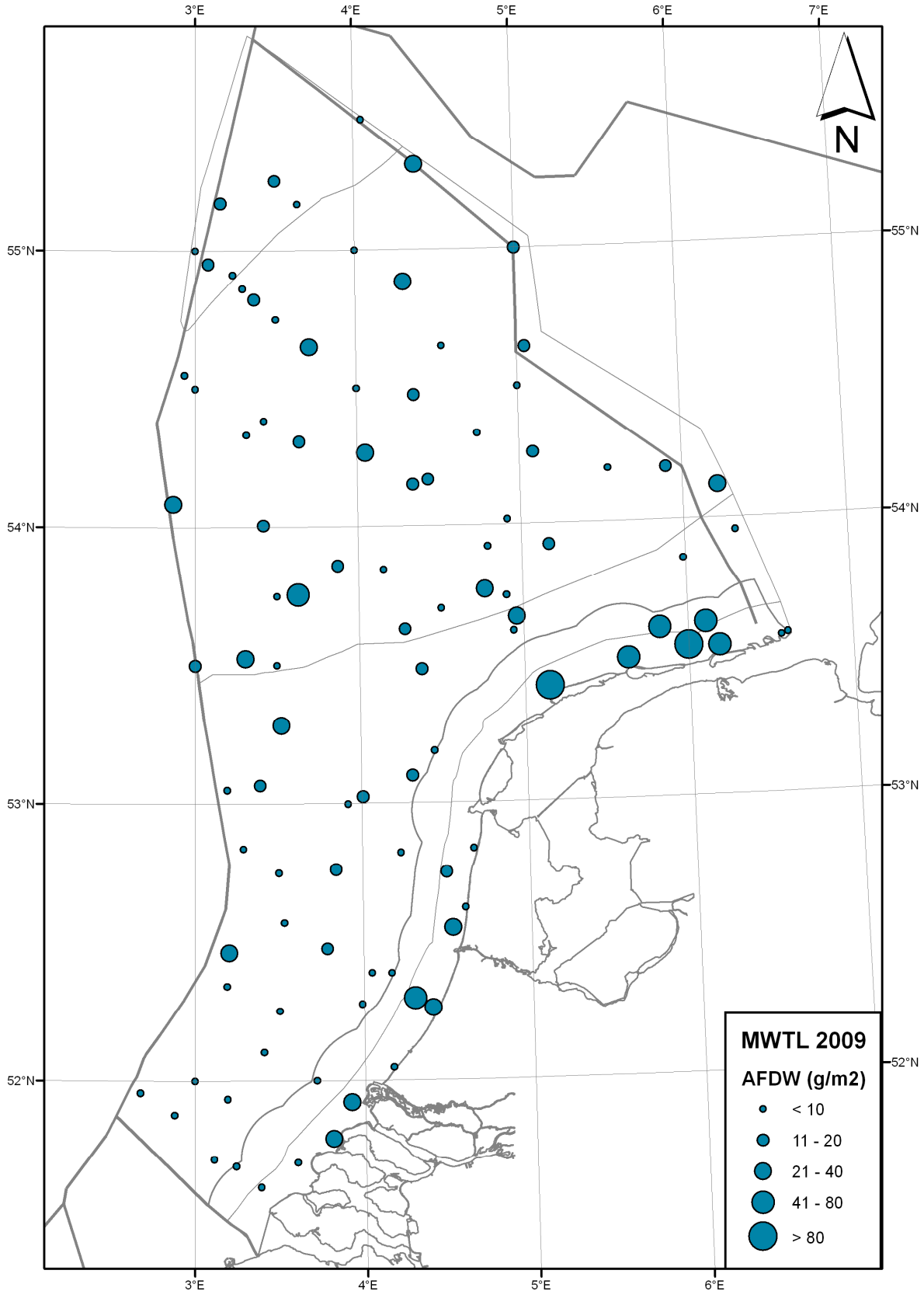


Figure A2 - 9 MWTL 2009. Biomass of benthic fauna

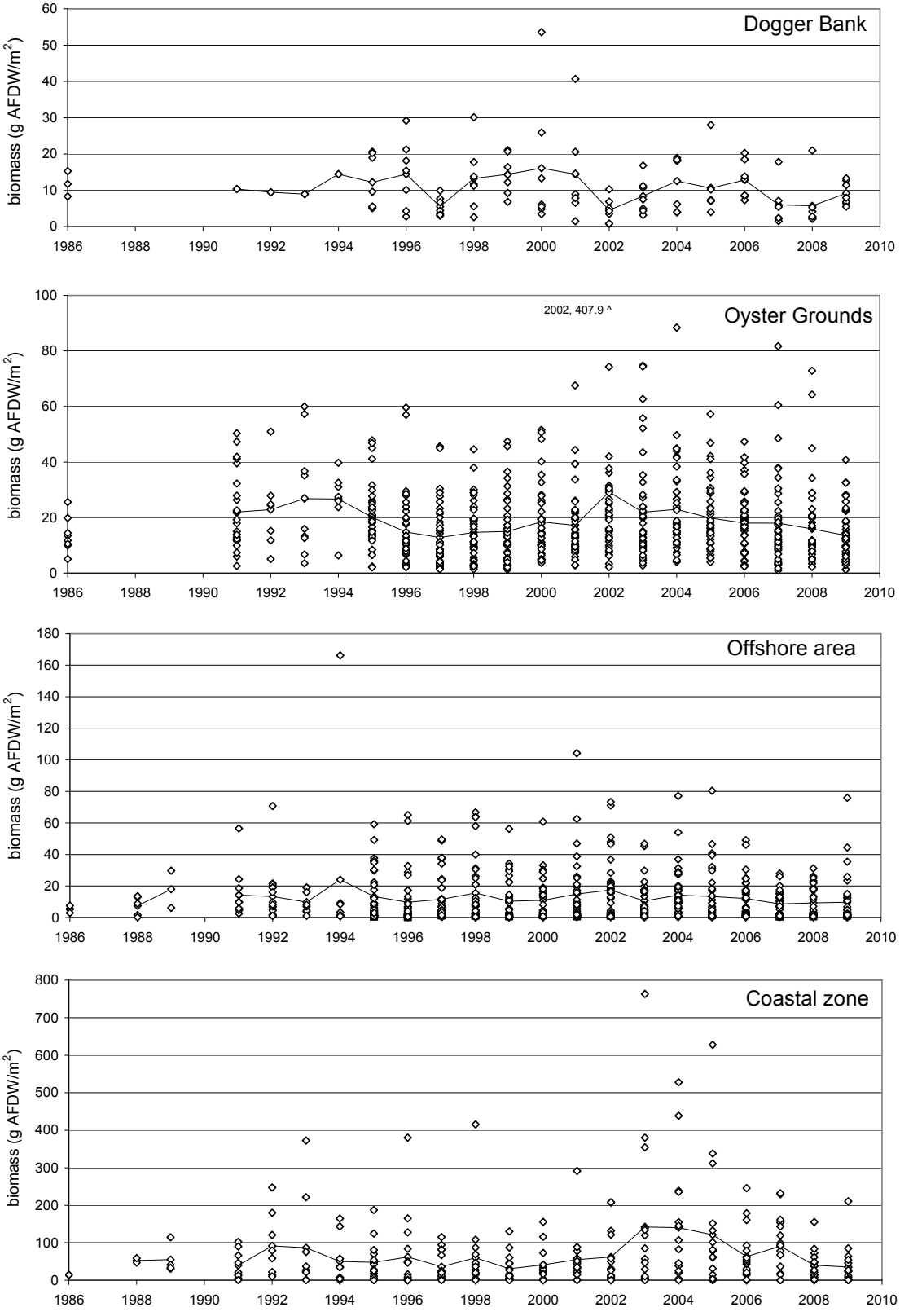


Figure A2 - 10 MWTL 1986 – 2009. Temporal patterns in biomass.

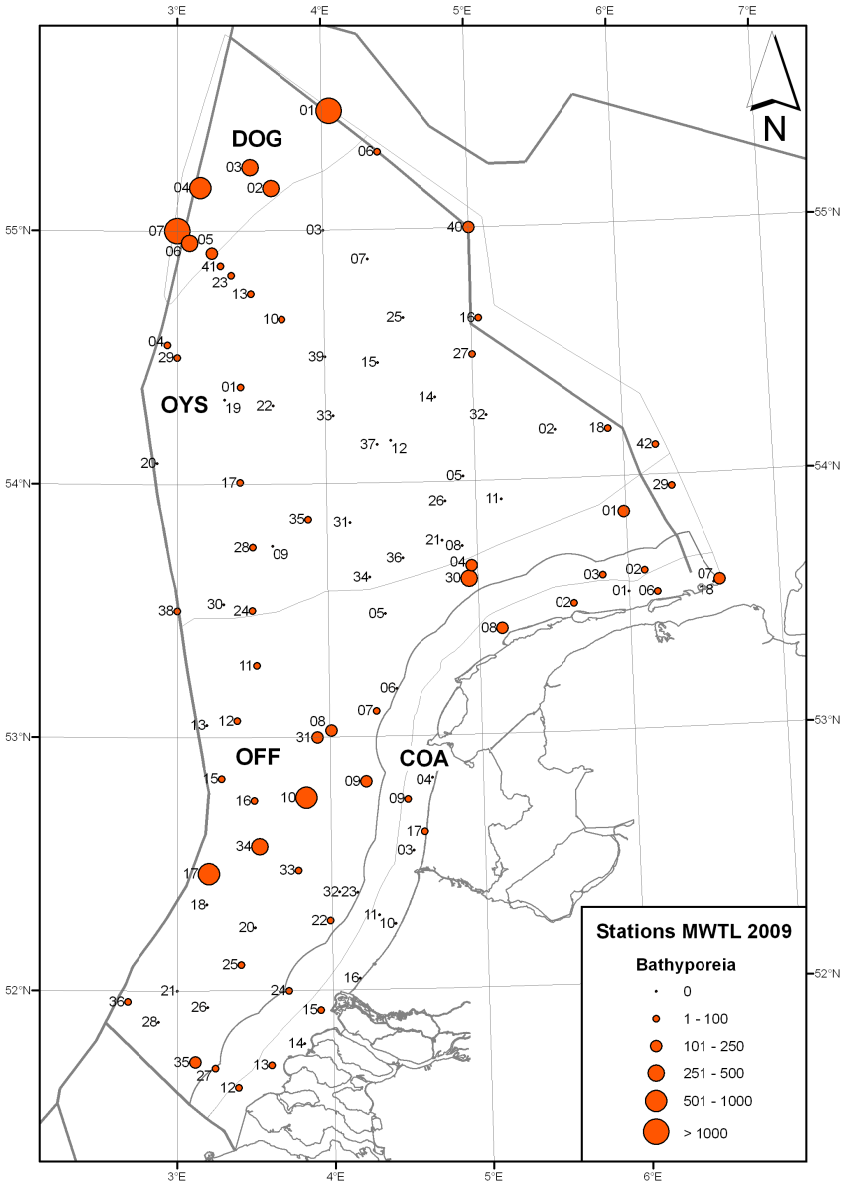


Figure A2 - 12 MWTL 2009. *Bathyporeia* density (n/m^2).

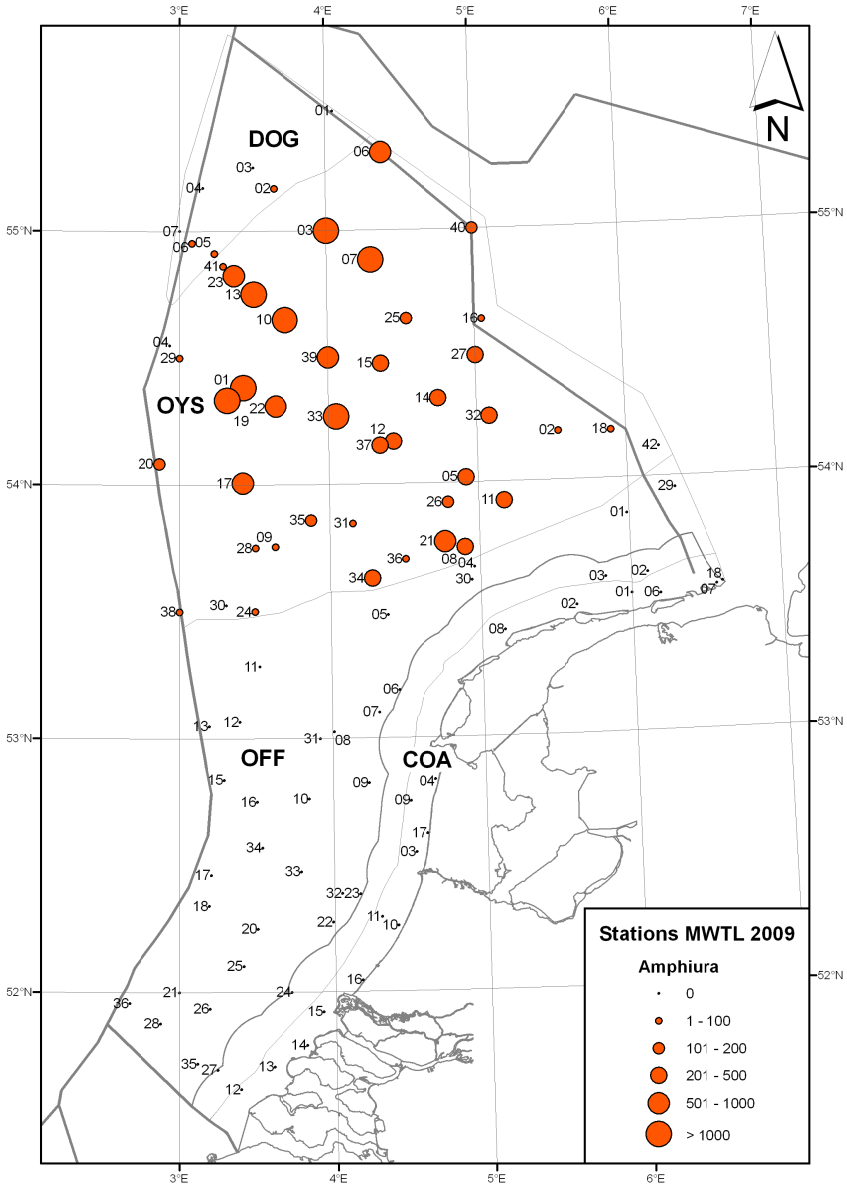
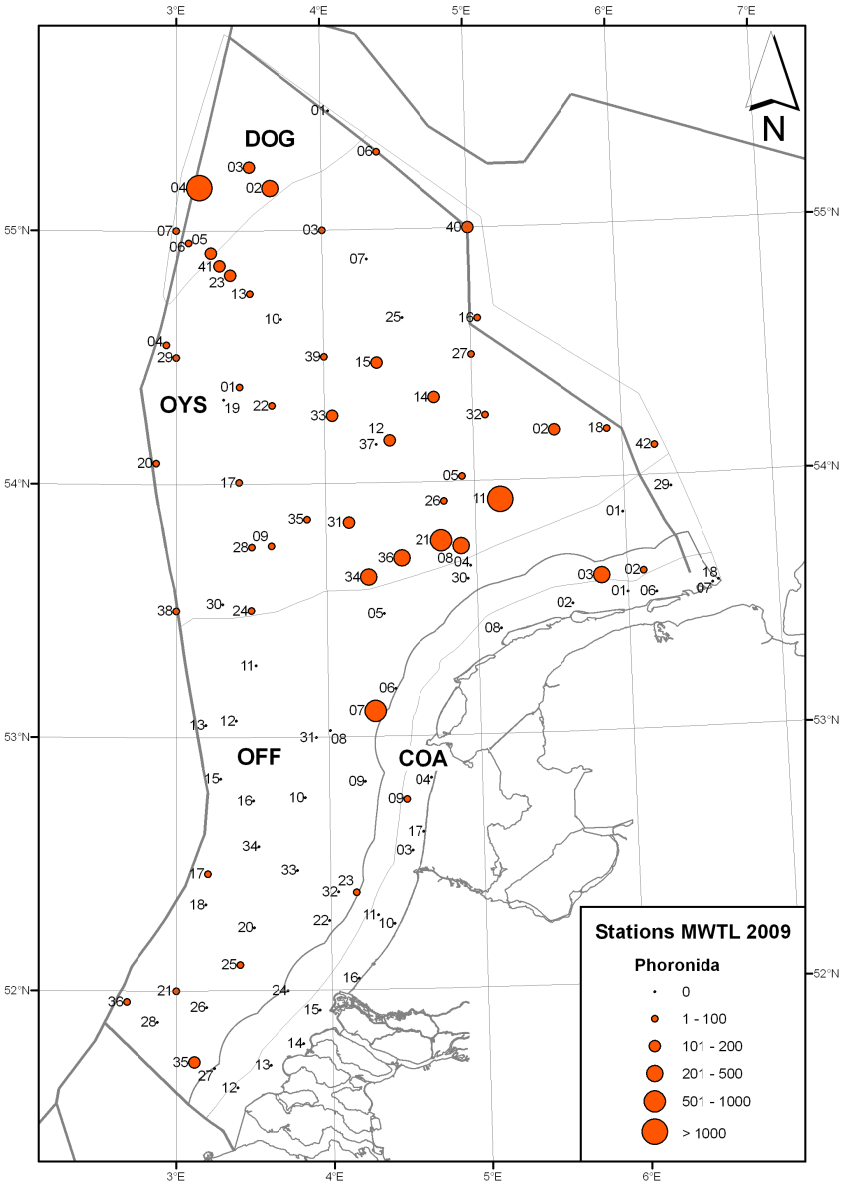


Figure A2 - 11 MWTL 2009. *Amphiura* density (n/m^2)



F igure A2 - 14 MWTL 2009. Phoronida density (n/m^2).

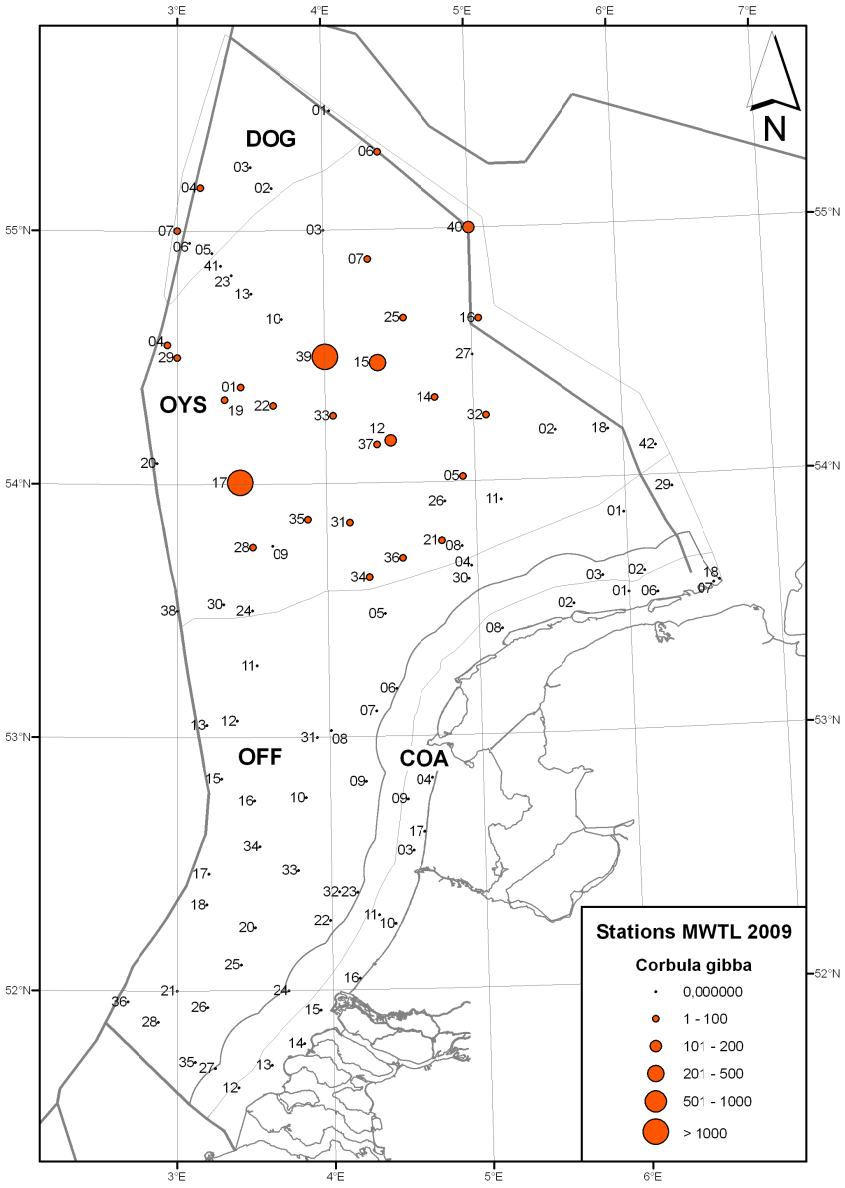


Figure A2 - 13 MWTL 2009. *Corbula gibba* density (n/m^2).

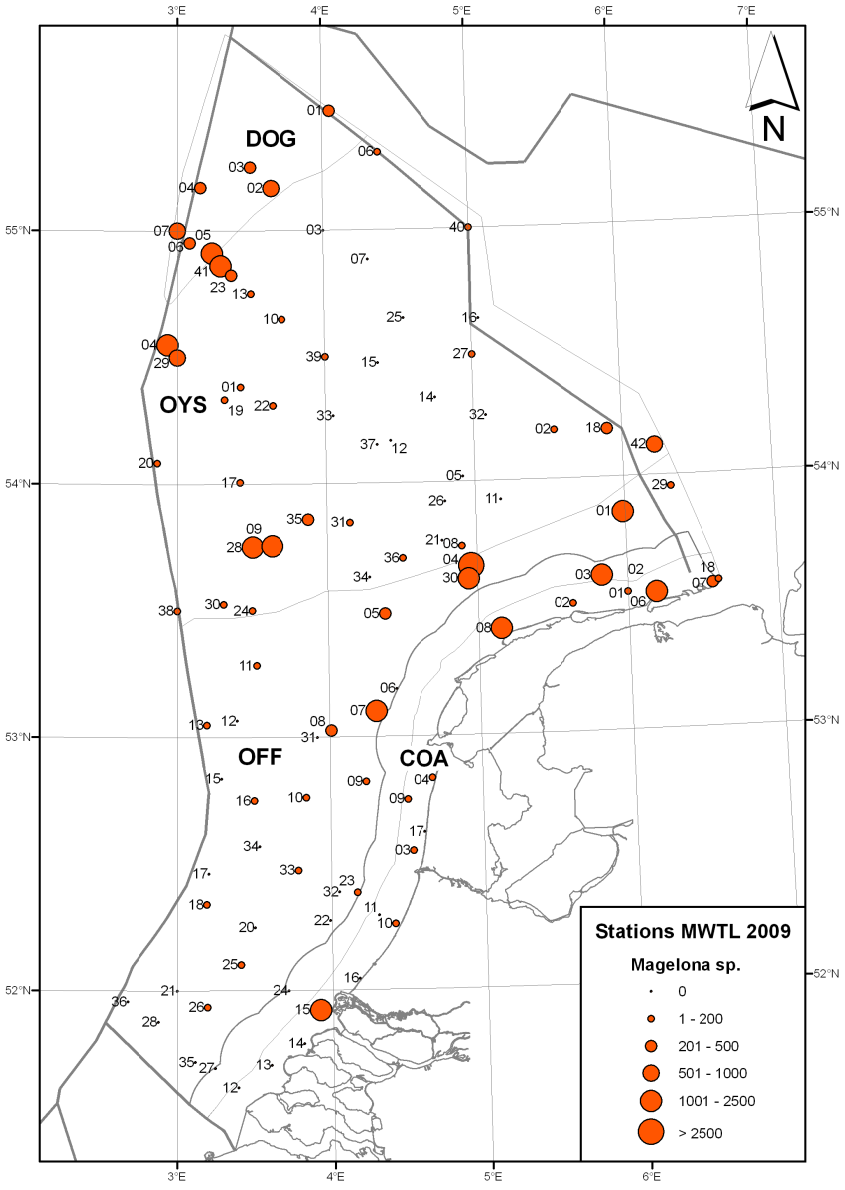


Figure A2 - 16 MWTL 2009. *Magelona* density (n/m^2)

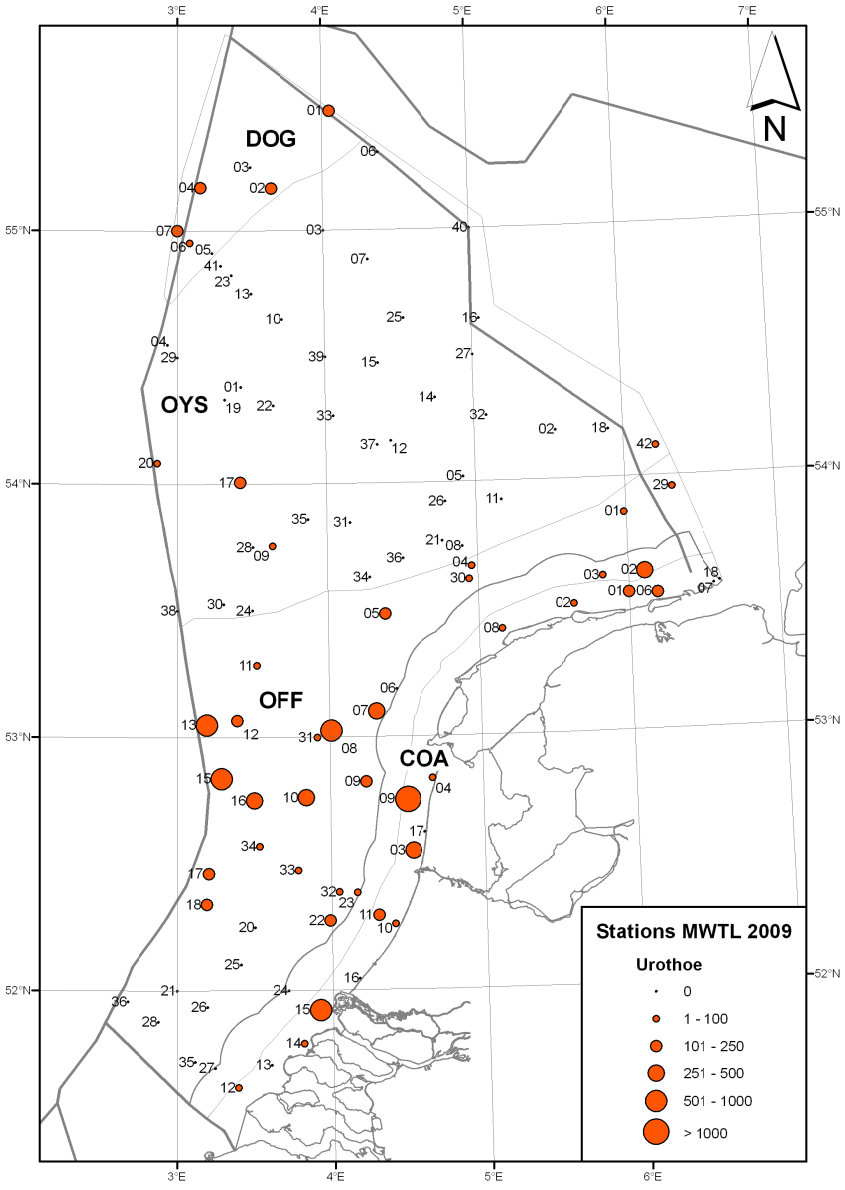
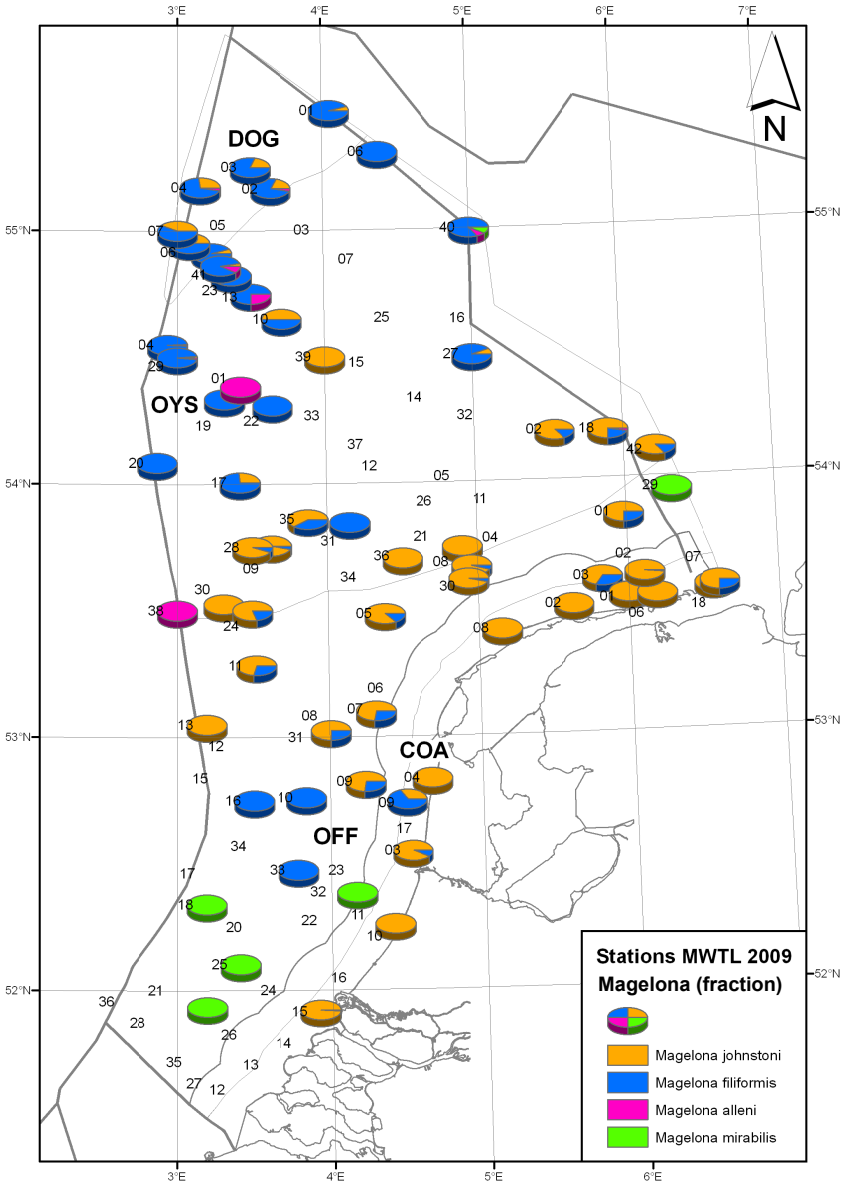


Figure A2 - 15 MWTL 2009. *Urothoe* density (n/m^2)



F igure A2 - 17 MWTL 2009. *Magelona* species (fraction).

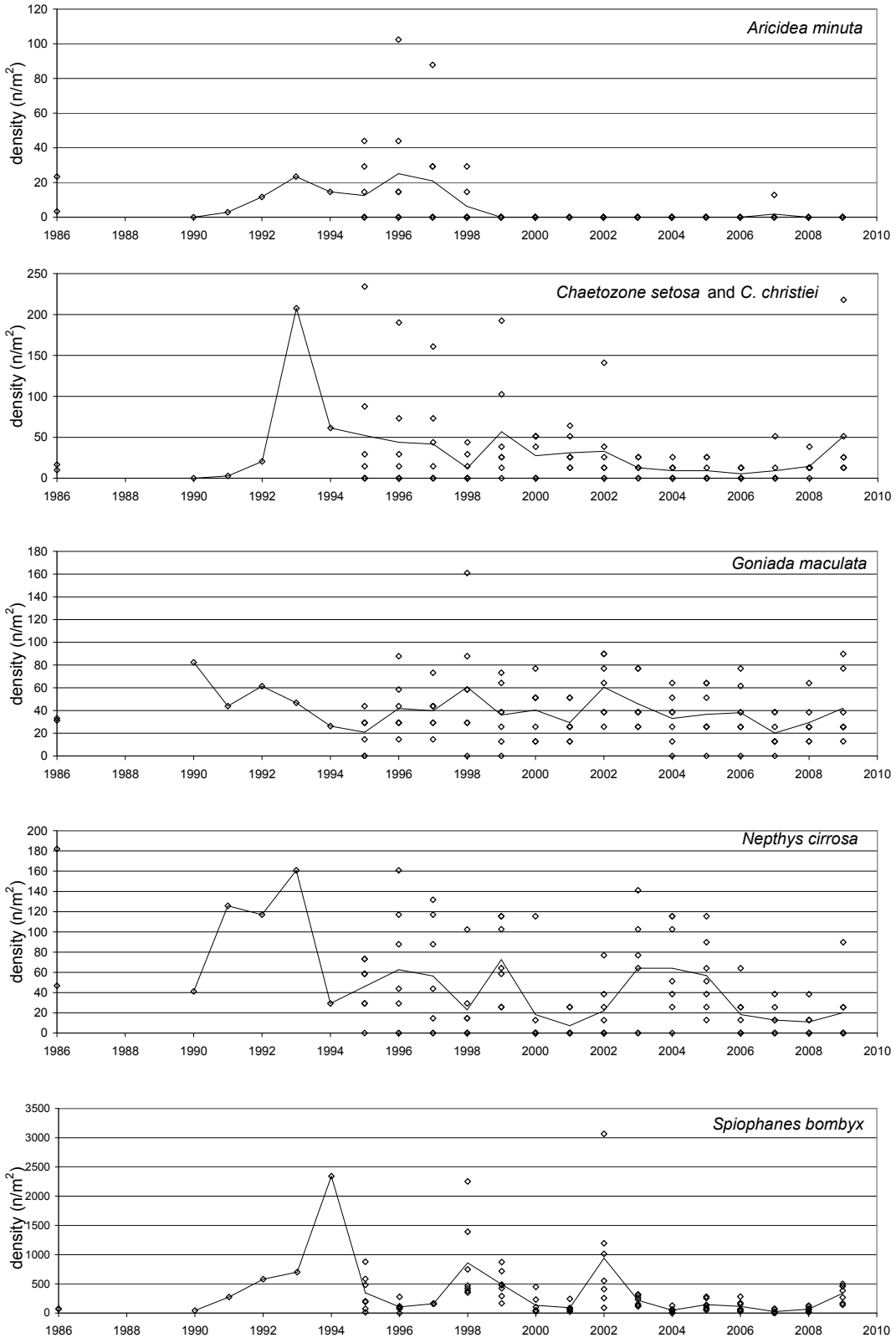


Figure A2 - 18 MWTL 1986 – 2009. Temporal patterns for density of five species at Dogger Bank (1): the polychaetes *Aricidea minuta, Chaetozone, Goniada maculata, Nephtys cirrosa* and *Spiophanes bombyx* (line shows the average density of all Dogger Bank stations

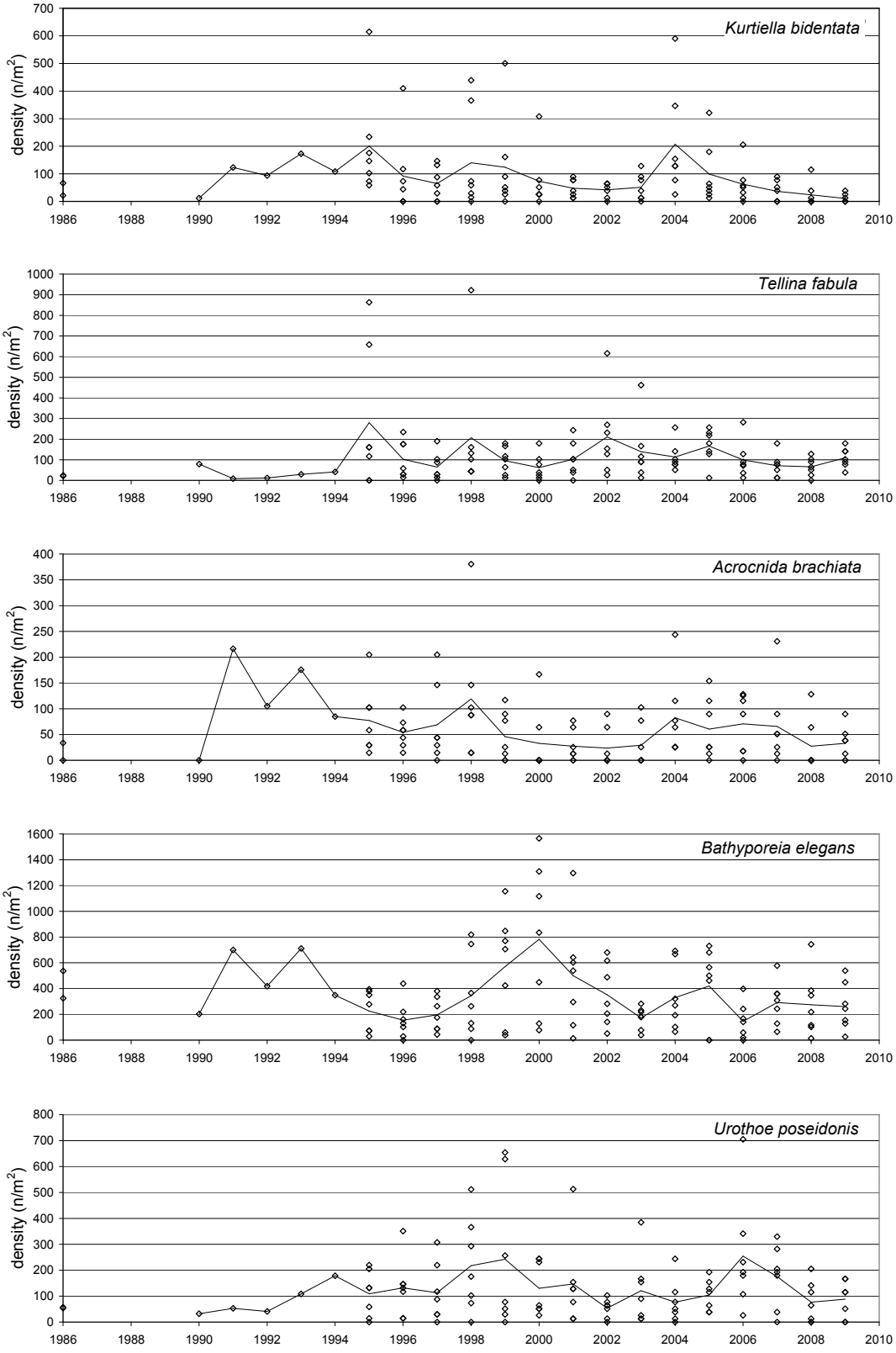


Figure A2 - 19 MWTL 1986 – 2009. Temporal patterns for density of five species at Dogger Bank (2): The bivalves *Kurtiella bidentata* and *Tellina fabula,* the brittle star *Acrocnida brachiata* and the amphipods *Bathyporeia elegans* and *Urothoe poseidonis* (line shows the average density of all Dogger Bank stations).

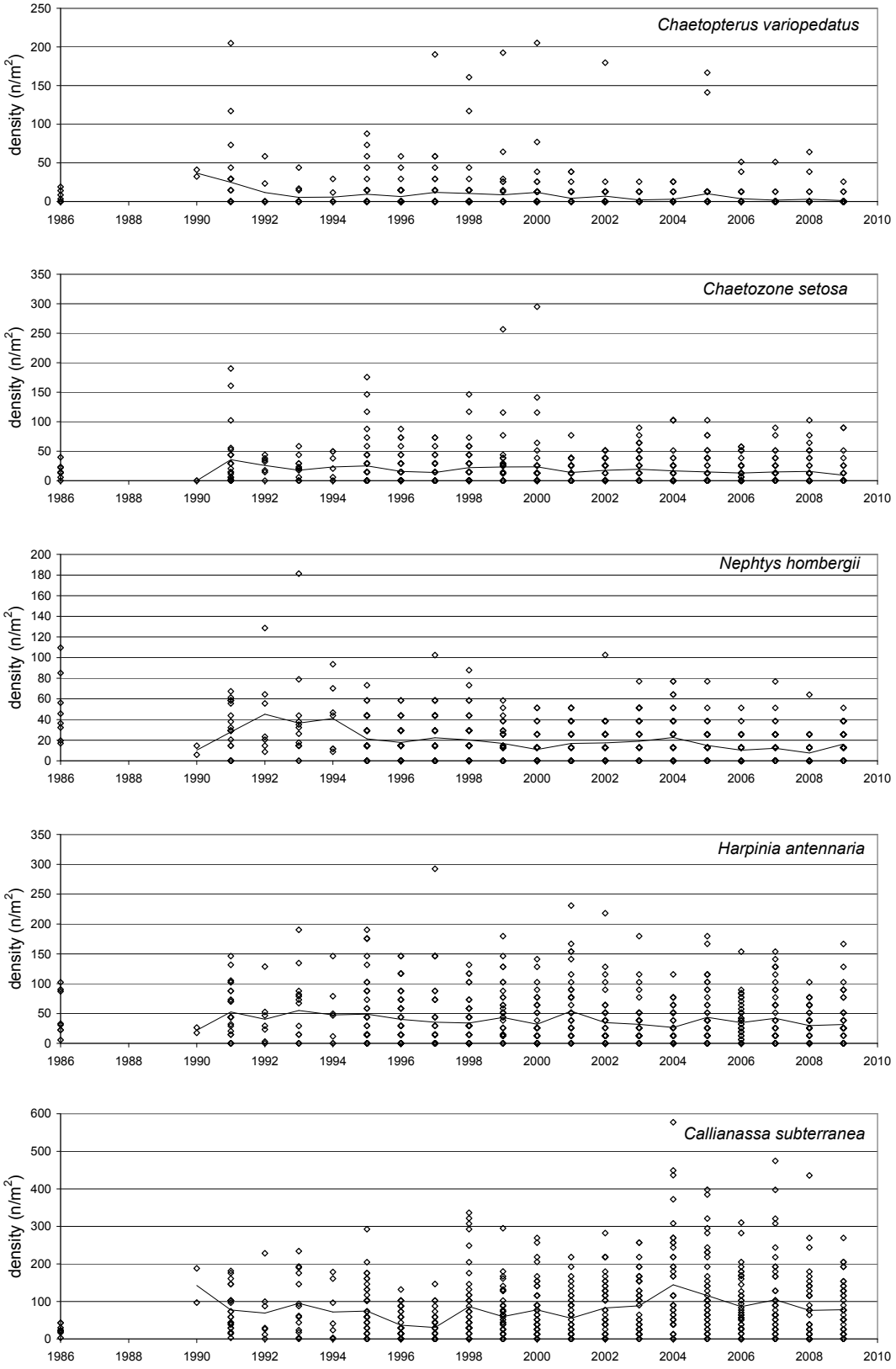


Figure A2 - 20 MWTL 1986 – 2009. Temporal patterns for density of five species in the area Oyster Grounds (1): the polychaetes *Chaetopteryx variopedatus, Chaetozone setosa* s.l. and *Nephtys hombergii* and the crustaceans *Harpinia antennaria* and *Calliannassa subterranea* (including juveniles) (line shows the average density of all Oyster Grounds stations).

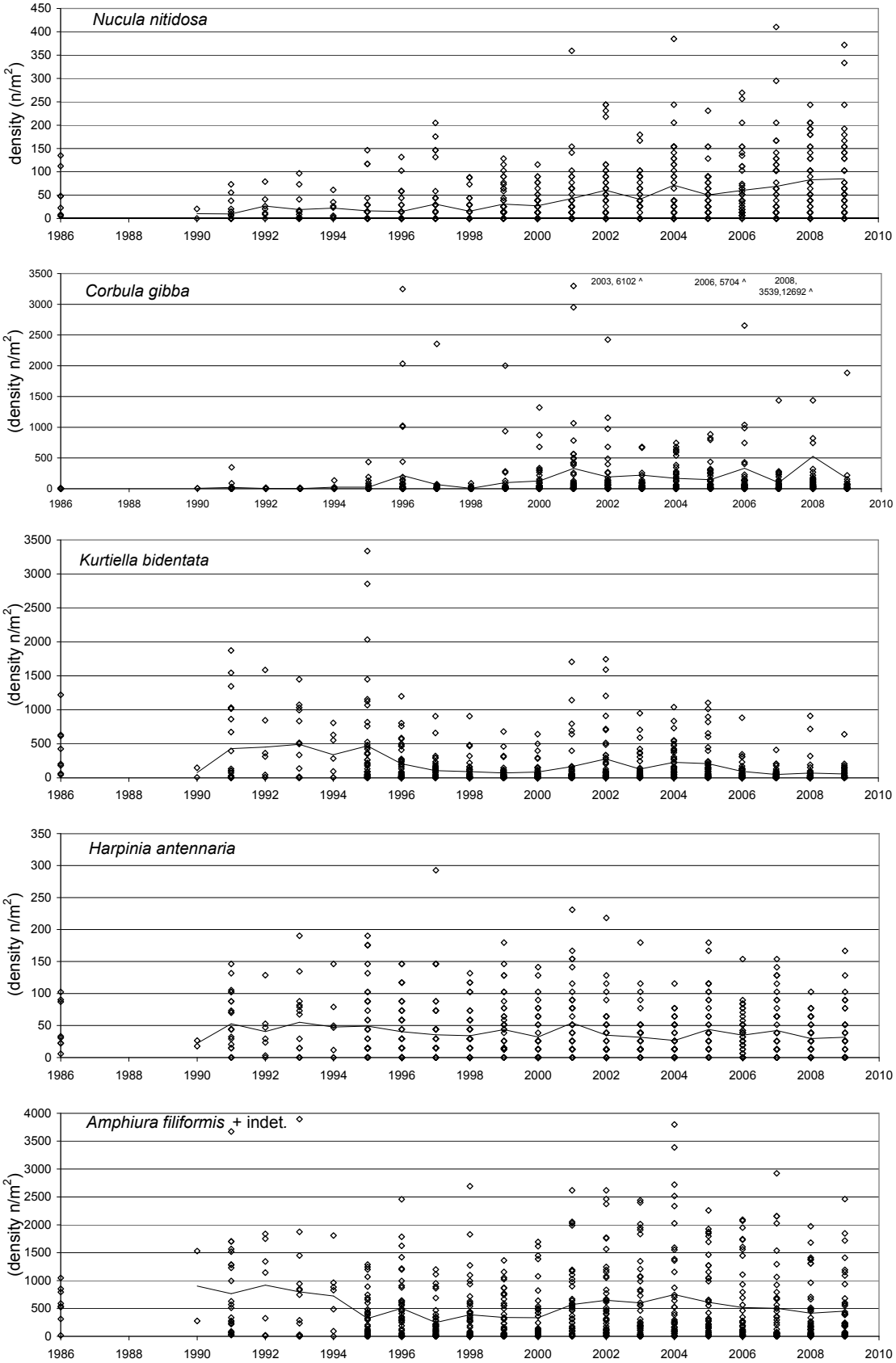


Figure A2 - 21 MWTL 1986 – 2009. Temporal patterns for density of five species in the area Oyster Grounds (2): the bivalves *Nucula nitidosa*, *Corbula gibba* and *Kurtiella bidentata*, the amphipod *Harpinia antennaria* and the brittle star *Amphiura filiformis* (including juveniles) - line showing average density of all Oyster Grounds stations.

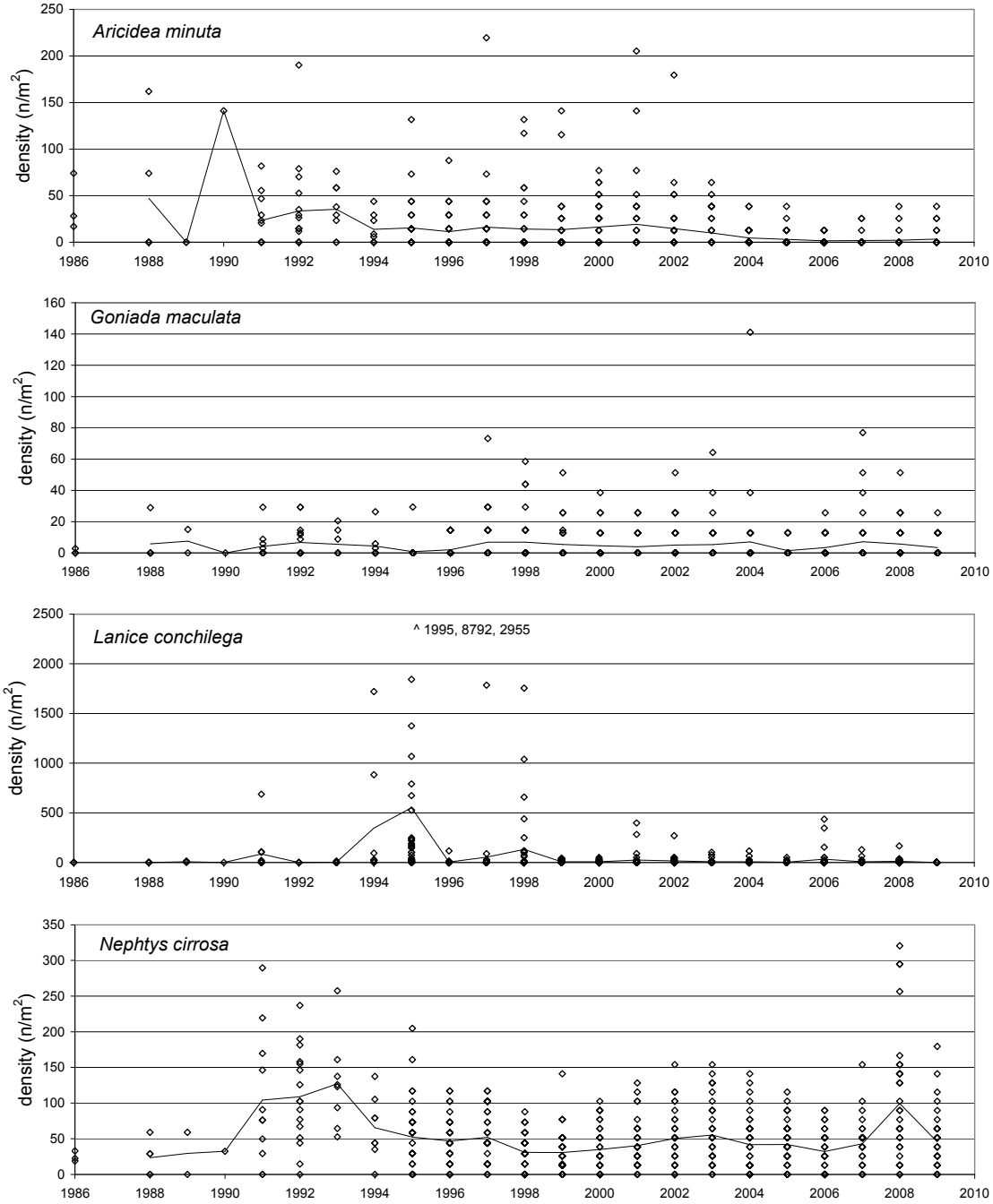


Figure A2 - 22 MWTL 1986 – 2009. Temporal patterns for density of four species in the Offshore area (1): the polychaetes *Aricidea minuta, Goniada maculata, Lanice conchilega* and *Nephtys cirrosa* - line showing average density of all sampling stations in the Offshore area.

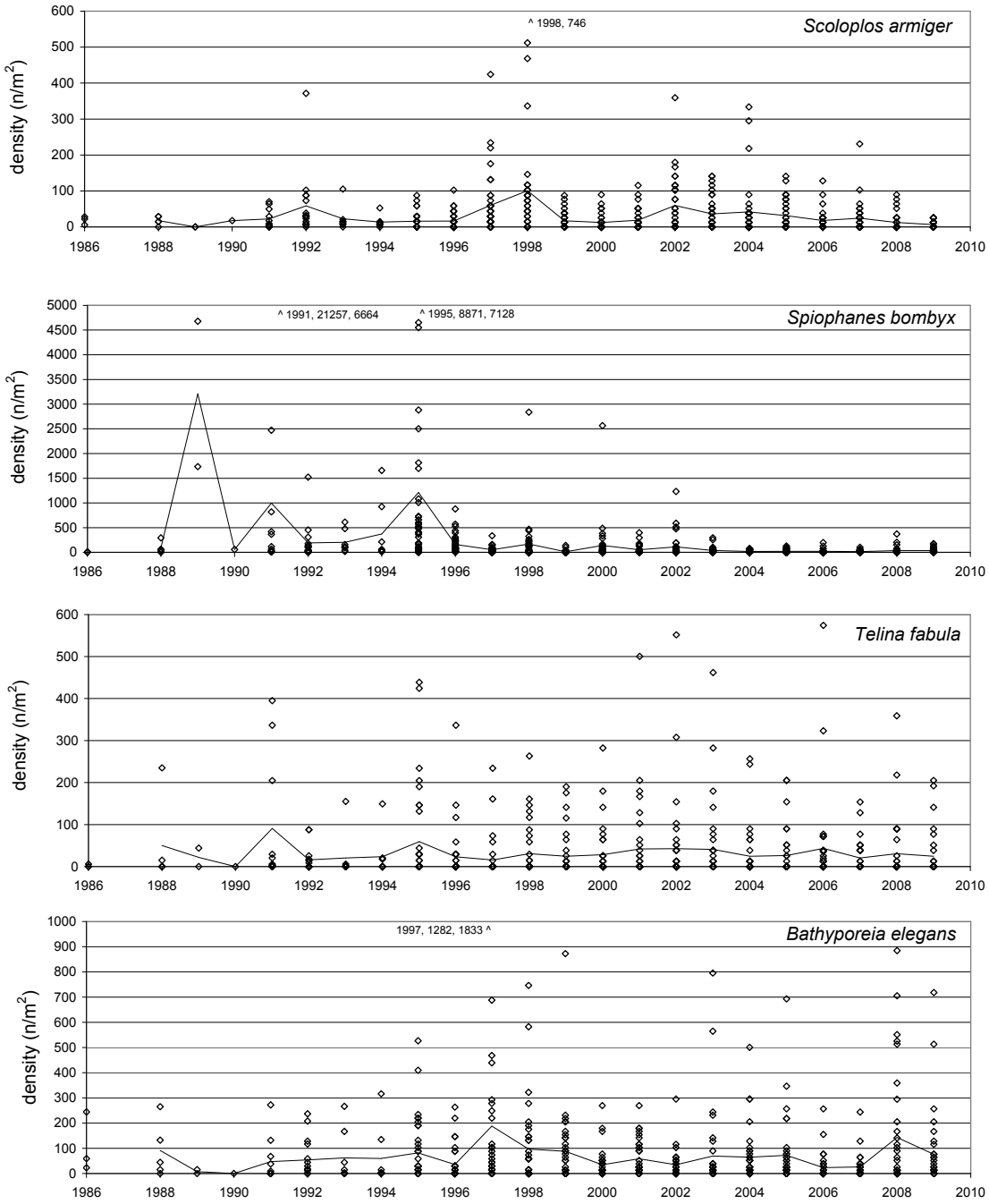


Figure A2 - 23 MWTL 1986 – 2009. Temporal patterns for density of four species in the Offshore area (2): the polychaetes *Scoloplos armiger* and *Spiophanes bombyx,* the bivalve *Tellina fabula* and the amphipod *Bathyporeia elegans* - line showing average density of all sampling stations in the Offshore area.

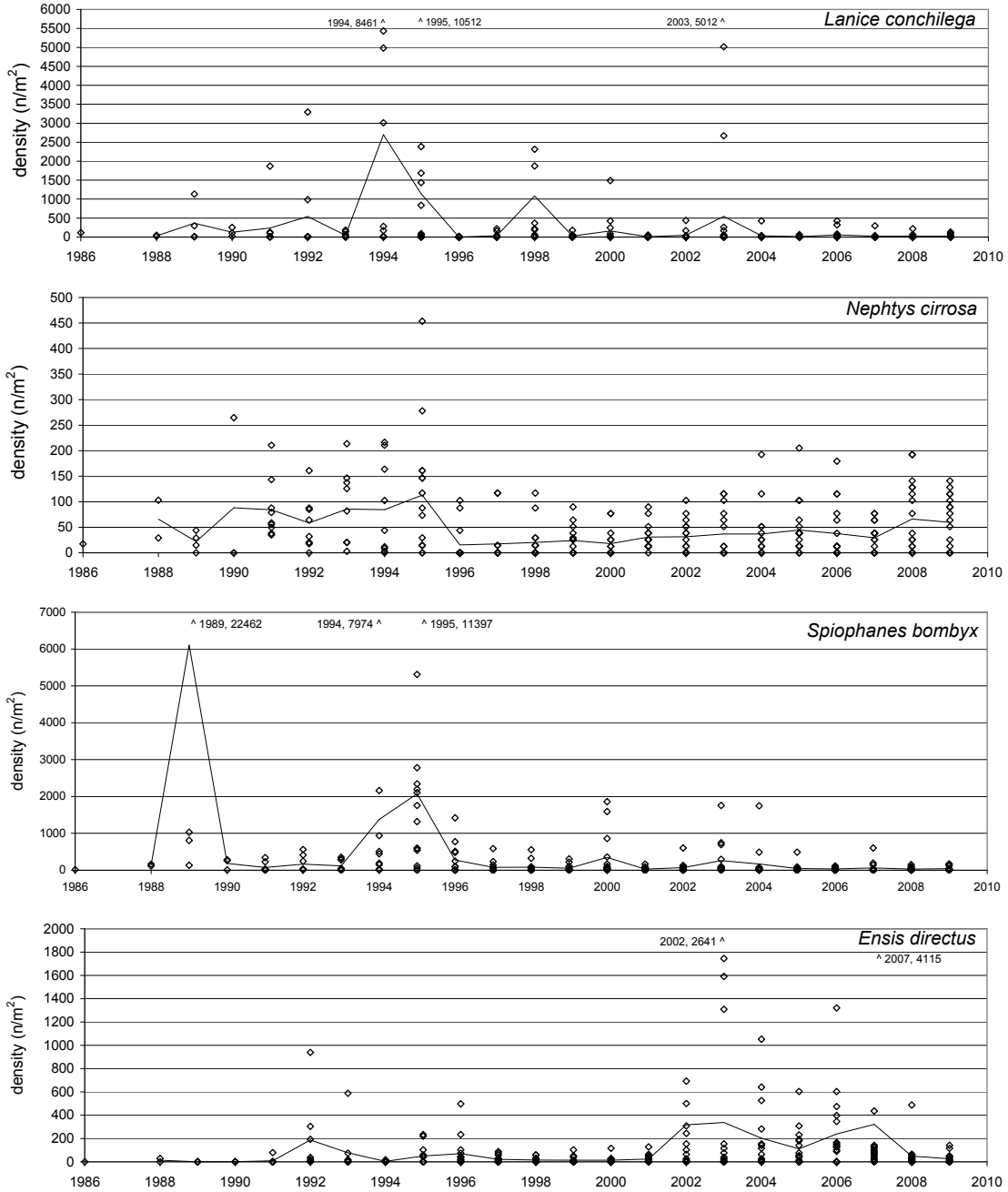


Figure A2 - 24 MWTL 1986 – 2009. Temporal patterns for density of four species in the Coastal area (1): the polychaetes *Lanice conchilega, Nephtys cirrosa* and *Spiophanes bombyx* and the razor clam *Ensis directus* (= *E. Americanus*) - line showing average density of all sampling stations in the Coastal area.

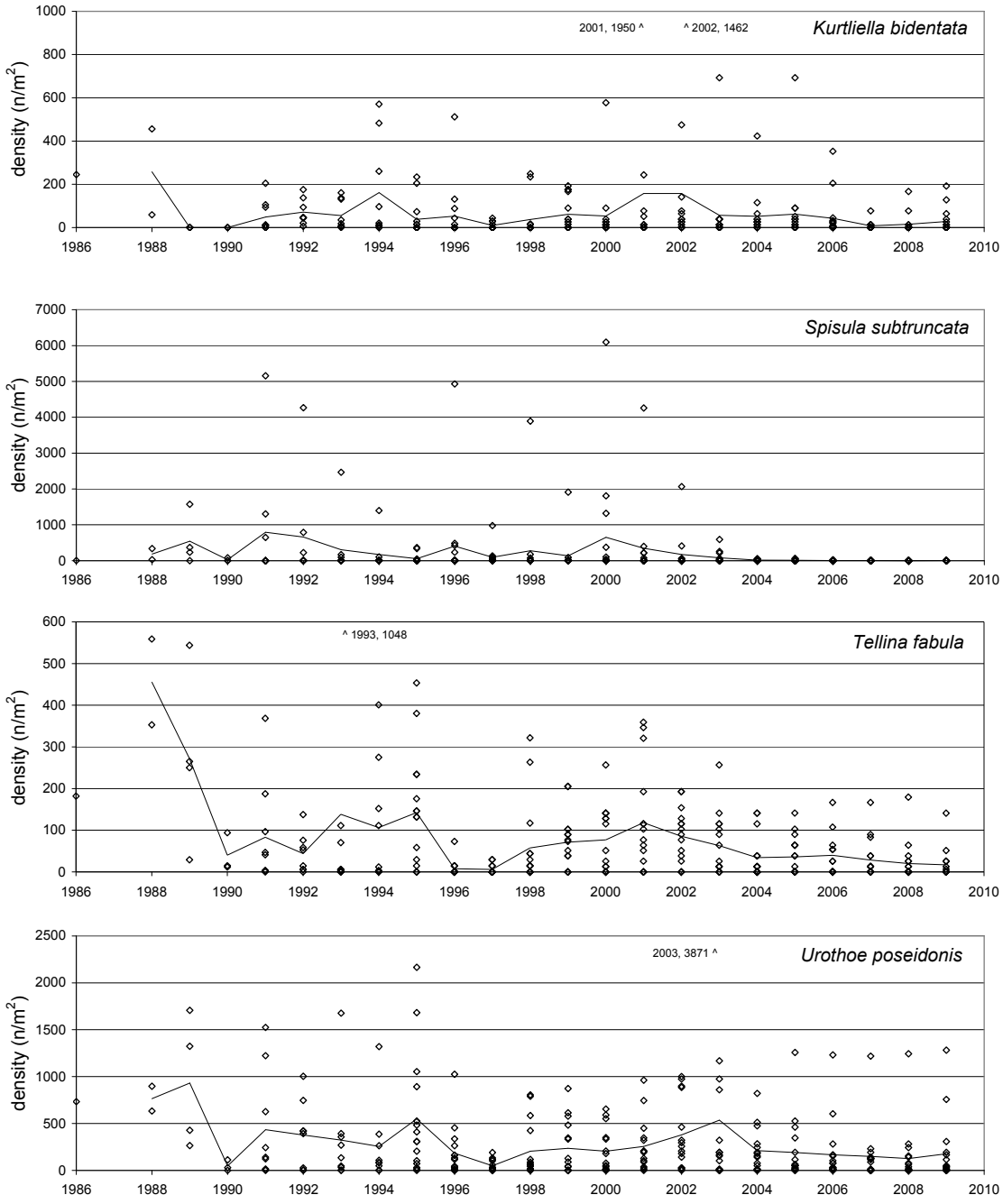


Figure A2 - 25 MWTL 1986 – 2009. Temporal patterns for density of four species in the Coastal area (2): the bivalves *Kurtiella bidentata, Spisula subtruncata* and *Tellina fabula* and the amphipod *Urothoe poseidonis* - line showing average density of all sampling stations in the Coastal area.

Appendix 3

Overview

Table A3 - 1a: Dogger Bank and Oyster Grounds (part 1), present taxa

	Dogger Bank							Oyster Grounds																	
Species	Dog 01	Dog 02	Dog 03	Dog 04	Dog 05	Dog 06	Dog 07	Oys 01	Oys 02	Oys 03	Oys 04	Oys 05	Oys 06	Oys 07	Oys 08	Oys 09	Oys 10	Oys 11	Oys 12	Oys 13	Oys 14	Oys 15	Oys 16	Oys 17	Species code
Anthozoa																									
Cerianthus lloydii			x							x															CERULLOY
Edwardsia	x	x	x	x	x	x		x		x	x		x					x		x	x				EDWA
Platyhelminthes																									
Turbellaria								x																	TURB
Nemertea																									
Nemertea	x	x	x	x	x	x	x	x		x	x	x	x	x	x	x	x	x		x		x	x	x	NEMR
Phoronida																									
Phoronida		x	x	x	x	x	x	x	x	x	x	x	x		x	x		x	x	x	x	x	x	x	PHOR
Polychaeta																									
Ampharetidae						x																			AMPR
Atherospio guillei									x									x							ATHOGUIL
Caulleriella killariensis																							x		CAUEKILL
Chaetopterus variopedatus													x	x											CHAEVARI
Chaetozone																				x					CHAZ
Chaetozone christiei	x	x	x	x	x	x	x						x			x		x			x		x		CHAZCHRI
Chaetozone setosa										x				x			x		x	x		x	x		CHAZSETO
Clymenura											x														CLYM
Clymenura lankesteri				x		x	x																		CLYMLANK
Diplocirrus glaucus		x						x		x	x			x	x	x		x		x				x	DIPOGLAU
Enipo kinbergi																				x					ENIPKINB
Eteone longa					x																				ETEOLONG
Eumida sanguinea													x	x											EUMISANG
Eunereis longissima					x				x				x					x			x				EUNELONG
Eunoe nodosa												x													EUNONODO
Exogone hebes																	x							x	EXOGHEBE
Gattyana cirrhosa										x				x											GATTCIRR
Glycera			x											x					x						GLYC
Glycera alba									x							x			x						GLYCALBA
Glycera lapidum																					x				GLYCLAPI
Glycera rouxi							x					x						x				x			GLYCROUX
Glycinde nordmanni		x	x		x		x	x			x	x			x			x							GLYINORD
Glyphohesione klatti								x					x	x					x			x	x		GLYPKLAT
Goniada maculata	x	x	x	x	x	x	x	x		x	x	x			x	x		x		x				x	GONAMACU
Lanice conchilega		x											x												LANCCONC
Laonice bahusiensis														x							x				LAONBAHU
Levinsenia gracilis														x					x		x	x			LEVIGRAC
Lumbrineris fragilis												x							x						LUMIFRAG
Lumbrineris latreilli									x			x			x			x							LUMILATR
Lysilla loveni																		x							LYSLLOVE
Magelona alleni		x		x	x			x			x									x					MAGEALLE
Magelona filiformis	x	x	x	x	x	x	x		x		x		x			x	x			x				x	MAGEFILI
Magelona johnstoni	x	x	x	x	x	x	x		x		x				x	x	x							x	MAGEJOHN
Maldanidae							x				x														MALD
Malmgreniella glabra													x					x							MALMGLAB
Malmgreniella ljungmani		x																							MALMLJUN
Malmgreniella marphysae													x												MALMMARP
Mediomastus fragilis												x	x	x	x			x	x			x			MEDOFRAG
Minuspio																									MINU
Minuspio multibranchiata								x						x					x		x	x			MINUMULT
Myriochele oculata							x								x	x		x							MYROOCUL
Nephtys	x		x			x	x		x	x	x	x				x		x	x			x	x		NEPY
Nephtys assimilis	x	x	x				x				x		x				x								NEPYASSI
Nephtys caeca	x	x																		x					NEPYCAEC
Nephtys cirrosa				x	x	x																			NEPYCIRR
Nephtys hombergii								x	x	x	x	x	x	x	x	x	x	x	x	x	x			x	NEPYHOMB
Nephtys incisa												x										x			NEPYINCI
Nereididae																									NEID
Notomastus latericeus							x						x	x	x	x		x			x				NOTMLATE
Ophelina acuminata														x											OPHLACUM
Ophiodromus flexuosus												x			x	x		x	x				x	x	OPHRFLEX
Owenia fusiformis	x	x	x	x		x	x			x	x										x		x		OWENFUSI
Pectinaria auricoma														x							x		x	x	PECTAURI
Pectinaria koreni		x		x				x															x		PECTKORE
Pholoe																									PHOE
Pholoe baltica			x					x		x			x	x	x			x		x	x	x	x	x	PHOEBALT

Table A3 - 1b: Dogger Bank and Oyster Grounds (part 1), present taxa

	Dogger Bank							Oyster Grounds																
Species	Dog 01	Dog 02	Dog 03	Dog 04	Dog 05	Dog 06	Dog 07	Oys 01	Oys 02	Oys 03	Oys 04	Oys 05	Oys 06	Oys 07	Oys 08	Oys 09	Oys 10	Oys 11	Oys 12	Oys 13	Oys 14	Oys 15	Oys 16	Oys 17	Species code
Phyllodoce mucosa																									PHYOMUCO
Phyllodoce rosea		x	x	x							x				x								x		PHYOROSE
Podarkeopsis helgolandica	x								x		x				x			x						x	PODKHELG
Poecilochaetus serpens	x	x		x		x	x				x	x			x	x		x							POEOSERP
Polychaeta	x							x							x	x					x				POCH
Polynoidae					x																				POLE
Prionospio cirrifera																		x							PRIOCIRR
Rhodine loveni														x											RHOILOVE
Scolelepis bonnieri		x	x				x																		SCOIBONN
Scolelepis squamata																									SCOISQUA
Scoloplos armiger		x	x	x	x		x	x		x	x		x			x	x			x				x	SCOSARMI
Sigalion mathildae	x	x	x	x	x	x	x				x					x	x							x	SIGLMATH
Spio decoratus					x						x														SPIODECO
Spio filicornis	x	x	x		x	x	x	x			x		x												SPIOFILI
Spiophanes bombyx	x	x	x	x	x	x	x		x	x	x	x	x		x	x		x		x				x	SPIPBOMB
Spiophanes kroyeri													x							x	x				SPIPKROY
Sthenelais limicola				x	x			x		x			x			x			x				x	x	STHELIMI
Terebellides stroemi														x					x		x	x			TERSSTRO
Sipunculida																									
Golfingia elongata																						x			GOLFELON
Phascolion strombus																					x				PHSOSTRO
Sipuncula												x							x						SIPU
Thysanocardia procera															x			x					x		THYNPROC
Crustacea, Amphipoda																									
Abludomelita obtusata		x									x														ABLUOBTU
Ampelisca								x																	AMPE
Ampelisca brevicornis											x		x												AMPEBREV
Ampelisca spinipes																									AMPESPIN
Ampelisca tenuicornis										x											x		x		AMPETENU
Argissa hamatipes		x		x	x	x														x				x	ARGIHAMA
Atylus falcatus				x		x																			ATYUFALC
Bathyporeia	x		x			x	x																		BATY
Bathyporeia elegans	x	x	x	x	x	x	x				x		x										x	x	BATYELEG
Bathyporeia guilliamsoniana	x	x	x	x	x	x	x																		BATYGUIL
Bathyporeia nana	x		x	x	x	x	x																		BATYNANA
Bathyporeia tenuipes		x	x	x	x		x	x			x						x			x					BATYTENU
Harpinia																		x						x	HARP
Harpinia antennaria								x	x	x		x		x		x	x		x	x	x	x	x		HARPANTE
Harpinia pectinata																					x				HARPPECT
Hippomedon denticulatus			x																						HIPMDENT
Iphimedia obesa					x																				IPHMOBES
Leucothoe												x						x							LEUT
Leucothoe incisa				x			x		x													x			LEUTINCI
Medicorophium affine																	x								MEDIAFFI
Megaluropus agilis				x		x	x																		MEGUAGIL
Orchomenella nana																	x								ORCENANA
Pariambus typicus		x			x																				PAIATYPI
Perioculodes longimanus	x		x	x	x	x	x						x												PEROLONG
Pontocrates arcticus				x		x	x																		PONOARCT
Siphonoecetes kroyeranus	x		x	x	x	x	x				x														SIPOKROY
Synchelidium maculatum	x	x			x	x	x				x														SYNHMACU
Urothoe elegans																x								x	UROTELEG
Urothoe poseidonis	x	x		x		x	x																		UROTPOSE
Westwoodilla caecula										x															WESTCAEC
Crustacea, Cumacea																									
Diastylis bradyi			x			x				x	x						x								DIATBRAD
Diastylis laevis																	x								DIATLAEV
Eudorella truncatula									x								x	x		x			x	x	EUDOTRUN
Eudorellopsis deformis																								x	EUDRDEFO
Pseudocuma longicornis					x	x	x						x							x					PSEOLONG
Crustacea, Decapoda																									
Callianassa subterranea								x	x		x	x	x	x	x	x	x	x		x	x	x	x	CALNSUBT
Corystes cassivelaunus																	x								CORTCASS
Ebalia cranchii			x																	x					EBALCRAN
Upogebia deltaura																		x	x			x			UPOGDELT
Upogebia stellata																		x							UPOGSTEL

Table A3 - 1c: Dogger Bank and Oyster Grounds (part 1), present taxa

	Doggersbank							Oyster Grounds																
Species	Dog 01	Dog 02	Dog 03	Dog 04	Dog 05	Dog 06	Dog 07	Oys 01	Oys 02	Oys 03	Oys 04	Oys 05	Oys 06	Oys 07	Oys 08	Oys 09	Oys 10	Oys 11	Oys 12	Oys 13	Oys 14	Oys 15	Oys 16	Oys 17	Species code
Crustacea, Isopoda																								
Gyge branchialis																	x							GYGEBRAN
Ione thoracica									x			x												IONETHOR
Pseudione borealis									x					x				x	x		x		x		PSEIBORE
Mollusca, Bivalvia																								
Abra alba										x					x					x		x			ABRAALBA
Abra nitida								x																	ABRANITI
Abra prismatica				x	x																				ABRAPRIS
Arctica islandica								x		x										x				x	ARCTISLA
Bivalvia					x	x					x							x				x			BIVA
Chamelea striatula		x			x						x		x										x	x	CHAMSTRI
Dosinia lupinus			x			x							x											x	DOSILUPI
Ensis ensis		x		x		x					x														ENSIENSI
Gari fervensis		x																							GARIFERV
Hemilepton nitidum									x									x							HEMLNITI
Kurtliella bidentata	x		x		x			x		x			x			x	x		x	x	x			x	KURLBIDE
Lepton squamosum																					x				LEPNSQUA
Lucinoma borealis							x																		LUCNBORE
Mysia undata										x				x							x				MYSAUNDA
Phaxas pellucidus		x			x						x				x										PHAXPELL
Tellimya ferruginosa			x			x										x	x			x		x	x		TELYFERR
Tellimya tenella	x																								TELYTENE
Tellina fabula	x	x	x	x	x	x	x				x		x												TELNFABU
Thracia papyracea			x	x							x														THRAPAPY
Thyasira flexuosa					x						x									x			x		THYSFLEX
Mollusca, Gastropoda																								
Acteon tornatilis			x																						ACTETORN
Buccinum undatum					x																				BUCCUNDA
Corbula gibba				x			x	x			x	x	x	x					x		x	x	x	x	CORUGIBB
Cylichna cylindracea				x				x		x			x	x		x	x			x		x	x	x	CYLCCYLI
Euspira pulchella	x	x			x		x					x		x	x			x						x	EUSRPULC
Hyala vitrea								x											x						HYAAVITR
Nucula nitidosa		x			x		x	x		x	x	x	x	x	x	x	x		x	x	x		x	x	NUCLNITI
Vitreolina antiflexa													x												VITRANTI
Echinodermata																								
Acrocnida brachiata	x	x		x		x	x																		ACRNBRAC
Amphiura		x			x								x												AMPI
Amphiura filiformis						x		x	x	x		x	x	x	x	x	x	x	x	x	x	x	x	x	AMPIFILI
Astropecten irregularis					x						x														ASTOIRRE
Brissopsis lyrifera														x									x		BRIPLYRI
Echinocardium cordatum			x		x											x	x					x		x	ECHNCORD
Echinocyamus pusillus	x																								ECHYPUSI
Ophiura									x				x												OPHU
Ophiura albida															x			x							OPHUALBI
Cephalochordata																								
Branchiostoma lanceolatum		x																							BRAALANC
Totaal taxa	28	41	35	37	44	35	38	30	19	28	41	23	39	29	27	27	25	37	22	29	28	23	29	33	

Table A3 - 2a: Oyster Grounds (part 2), present taxa

	Oyster Grounds																								
Species	Oys 18	Oys 19	Oys 20	Oys 21	Oys 22	Oys 23	Oys 24	Oys 25	Oys 26	Oys 27	Oys 28	Oys 29	Oys 30	Oys 31	Oys 32	Oys 33	Oys 34	Oys 35	Oys 36	Oys 37	Oys 38	Oys 39	Oys 40	Oys 41	Oys 42	Species code
Anthozoa																										
Edwardsia					x	x										x							x	x		*EDWA*
Platyhelminthes																										
Turbellaria			x	x			x																			*TURB*
Nemertea	x																									
Cerebratulus marginatus				x																						*CEREMARG*
Nemertea	x	x	x	x	x	x	x		x	x	x	x	x	x			x	x	x	x	x		x	x	x	*NEMR*
Phoronida																										
Phoronida	x		x	x	x	x	x		x	x		x		x	x	x	x	x	x		x	x	x	x		*PHOR*
Oligochaeta																										
Limnodriloides scandinavicus													x													*LIMLSCAN*
Polychaeta																										
Ampharete				x																						AMPA
Aphrodita aculeata			x		x																					APHOACUL
Atherospio guillei				x													x		x							ATHOGUIL
Caulleriella killariensis																						x				CAUEKILL
Chaetopterus variopedatus															x											CHAEVARI
Chaetozone christiei					x							x	x			x				x	x			x		CHAZCHRI
Chaetozone setosa		x			x													x				x				CHAZSETO
Diplocirrus glaucus						x						x												x		DIPOGLAU
Eunereis				x																						EUNE
Eunereis elitoralis																	x									EUNEELIT
Eunereis longissima						x			x								x		x							EUNELONG
Exogone hebes			x								x							x								EXOGHEBE
Gattyana cirrhosa																x										GATTCIRR
Glycera										x																GLYC
Glycera alba															x											GLYCALBA
Glycera lapidum																		x	x							GLYCLAPI
Glycera rouxi																				x						GLYCROUX
Glycinde nordmanni	x											x														GLYINORD
Glyphohesione klatti			x											x	x					x			x			GLYPKLAT
Goniada maculata		x	x	x		x	x				x	x	x	x		x	x	x	x				x	x		GONAMACU
Harmothoe			x																							HARM
Laonice bahusiensis		x																								LAONBAHU
Levinsenia gracilis																				x						LEVIGRAC
Lumbrineris fragilis																			x							LUMIFRAG
Lumbrineris latreilli			x	x			x			x							x		x							LUMILATR
Lysilla loveni			x																							LYSLLOVE
Magelona alleni	x											x									x		x	x		MAGEALLE
Magelona filiformis	x	x	x		x	x	x			x	x	x		x				x	x				x	x	x	MAGEFILI
Magelona johnstoni	x						x			x	x	x	x					x	x			x		x	x	MAGEJOHN
Malmgreniella ljungmani																			x							MALMLJUN
Malmgreniella mcintoshi																		x								MALMMCIN
Mediomastus fragilis				x			x							x	x		x		x			x				MEDOFRAG
Minuspio				x																						MINU
Minuspio multibranchiata															x	x				x		x				MINUMULT
Myriochele oculata				x													x									MYROOCUL
Nephtys	x		x	x	x	x	x	x			x				x	x				x	x	x			x	NEPY
Nephtys assimilis					x							x												x		NEPYASSI
Nephtys caeca				x		x								x												NEPYCAEC
Nephtys cirrosa					x						x														x	NEPYCIRR
Nephtys hombergii	x	x	x			x	x		x			x	x	x		x	x	x		x	x	x				NEPYHOMB
Nephtys incisa																x										NEPYINCI
Nereididae											x													x		NEID
Notomastus latericeus			x	x											x											NOTMLATE
Ophelina acuminata				x																						OPHLACUM
Ophiodromus flexuosus		x	x		x				x								x	x	x			x	x	x		OPHRFLEX
Owenia fusiformis				x		x				x						x	x		x							OWENFUSI
Pectinaria auricoma												x						x						x		PECTAURI
Pectinaria koreni				x	x															x						PECTKORE
Pholoe				x																						PHOE
Pholoe baltica		x	x		x										x	x				x		x				PHOEBALT
Phyllodoce rosea							x																x			PHYOROSE
Podarkeopsis helgolandica	x		x	x	x		x		x	x	x			x			x		x	x	x			x		PODKHELG
Poecilochaetus serpens			x		x		x	x	x		x	x	x	x			x	x	x	x			x	x	x	POEOSERP
Polychaeta								x		x		x				x				x				x		POCH

Table A3 - 2b: Oyster Grounds (part 2), present taxa

	Oyster Grounds																							
Species	Oys 18	Oys 19	Oys 20	Oys 21	Oys 22	Oys 23	Oys 24	Oys 25	Oys 26	Oys 27	Oys 28	Oys 29	Oys 30	Oys 31	Oys 32	Oys 33	Oys 34	Oys 35	Oys 36	Oys 37	Oys 38	Oys 39	Oys 40	Oys 41	Oys 42	Species code
Polynoidae						x																				POLE
Prionospio cirrifera			x																							PRIOCIRR
Scoloplos armiger					x	x					x	x										x	x	x	x	SCOSARMI
Sigalion mathildae	x	x				x					x			x				x			x			x		SIGLMATH
Spio filicornis			x									x									x		x	x	x	SPIOFILI
Spiophanes bombyx	x					x	x			x	x	x	x	x	x		x	x	x			x		x	x	SPIPBOMB
Spiophanes kroyeri								x											x							SPIPKROY
Sthenelais limicola		x	x		x	x		x		x								x	x		x	x	x	x		STHELIMI
Terebellides stroemi			x																	x						TERSSTRO
Sipunculida																										
Golfingia elongata															x											GOLFELON
Sipuncula							x										x			x						SIPU
Thysanocardia procera				x																						THYNPROC
Echiura																										
Echiurus echiurus												x											x			ECHUECHI
Crustacea, Amphipoda																										
Ampelisca brevicornis																							x	x		AMPEBREV
Ampelisca spinipes										x																AMPESPIN
Ampelisca tenuicornis		x				x		x												x						AMPETENU
Apherusa ovalipes																			x							APHROVAL
Argissa hamatipes																								x		ARGIHAMA
Bathyporeia elegans	x									x	x	x											x		x	BATYELEG
Bathyporeia tenuipes						x	x											x			x			x	x	BATYTENU
Harpinia												x												x		HARP
Harpinia antennaria		x	x		x	x	x	x		x					x	x		x		x		x	x			HARPANTE
Harpinia pectinata				x				x																		HARPPECT
Leucothoe incisa	x	x											x							x	x					LEUTINCI
Leucothoe procera																			x							LEUTPROC
Orchomenella nana																		x								ORCENANA
Perioculodes longimanus			x					x						x				x			x			x		PEROLONG
Synchelidium maculatum	x													x												SYNHMACU
Urothoe elegans			x																							UROTELEG
Urothoe poseidonis																									x	UROTPOSE
Crustacea, Cumacea																										
Diastylis																				x						DIAT
Diastylis bradyi									x			x				x										DIATBRAD
Diastylis laevis																	x		x							DIATLAEV
Eudorella truncatula		x		x			x		x					x					x	x						EUDOTRUN
Iphinoe trispinosa																					x					IPHITRIS
Parthenopea subterranea							x																			PARPSUBT
Pseudocuma longicornis																		x						x		PSEOLONG
Crustacea, Decapoda																										
Callianassa																						x				CALN
Callianassa subterranea	x	x	x	x	x		x	x	x	x	x		x	x	x	x	x	x	x	x		x	x			CALNSUBT
Corystes cassivelaunus	x				x																					CORTCASS
Crangon																		x								CRON
Crangon crangon																					x					CRONCRAN
Ebalia cranchii																								x	x	EBALCRAN
Goneplax rhomboides																				x						GONLRHOM
Liocarcinus holsatus													x													LICAHOLS
Processa modica modica	x																									PROEMOMO
Processa nouveli holthuisi																				x						PROENOHO
Upogebia deltaura				x													x									UPOGDELT
Upogebia stellata				x																						UPOGSTEL
Crustacea, Isopoda																										
Ione thoracica			x												x			x								IONETHOR
Pseudione borealis	x				x			x						x	x	x		x	x	x						PSEIBORE
Crustacea, Mysidacea																										
Heteromysis microps				x																						HETMMICR
Crustacea, Tanaidacea																										
Tanaopsis graciloides			x																							TANOGRAC
Mollusca, Bivalvia																										
Abra alba		x	x	x			x	x	x			x	x				x	x	x		x	x		x		ABRAALBA
Abra prismatica																								x		ABRAPRIS
Acanthocardia												x								x						ACAT
Arctica islandica												x						x				x				ARCTISLA
Bivalvia				x		x															x					BIVA

Table A3 - 2c: Oyster Grounds (part 2), present taxa

	Oyster Grounds																								
Species	Oys 18	Oys 19	Oys 20	Oys 21	Oys 22	Oys 23	Oys 24	Oys 25	Oys 26	Oys 27	Oys 28	Oys 29	Oys 30	Oys 31	Oys 32	Oys 33	Oys 34	Oys 35	Oys 36	Oys 37	Oys 38	Oys 39	Oys 40	Oys 41	Oys 42	**Species code**
Chamelea striatula		x																							CHAMSTRI
Dosinia lupinus					x						x													x	DOSILUPI
Ensis																									x ENSI
Kurtliella bidentata		x	x		x	x	x					x	x			x	x	x		x	x	x	x		x KURLBIDE
Lucinoma borealis						x																		x	LUCNBORE
Phaxas pellucidus												x												x	PHAXPELL
Saxicavella jeffreysi																						x			SAXCJEFF
Tellimya ferruginosa				x			x					x	x			x		x			x		x		x TELYFERR
Tellina fabula						x	x					x												x	x TELNFABU
Tellina pygmaea																					x				TELNPYGM
Thracia papyracea	x	x																						x	x THRAPAPY
Thyasira flexuosa		x			x	x						x												x	THYSFLEX
Mollusca, Gastropoda																									
Corbula gibba		x		x	x			x			x	x		x	x	x	x	x	x		x	x			CORUGIBB
Cylichna cylindracea		x		x	x							x			x	x		x	x	x	x	x		x	CYLCCYLI
Euspira pulchella							x				x						x	x	x		x	x		x	EUSRPULC
Hyala vitrea		x							x									x		x					HYAAVITR
Nucula nitidosa	x	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x NUCLNITI
Turritella communis																						x			TURRCOMM
Echinodermata																									
Amphiura												x							x			x		x	AMPI
Amphiura filiformis	x	x	x	x	x	x	x	x	x	x	x			x	x	x	x	x	x	x	x	x	x		AMPIFILI
Astropecten irregularis																								x	ASTOIRRE
Brissopsis lyrifera																x									BRIPLYRI
Echinocardium cordatum		x	x	x			x					x	x	x	x		x	x		x	x		x		x ECHNCORD
Leptopentacta elongata															x	x	x		x						LEPPELON
Leptosynapta inhaerens																			x						LEPYINHA
Ophiura albida				x				x									x	x	x						OPHUALBI
Cephalochordata																									
Totaal taxa	20	26	31	36	28	26	28	16	14	17	19	34	16	21	21	23	28	37	34	33	26	24	25	41	19	

Table A3 - 3a: Offshore area (part 1), present taxa

	Offshore area																									
Species	Off 01	Off 02	Off 03	Off 04	Off 05	Off 06	Off 07	Off 08	Off 09	Off 10	Off 11	Off 12	Off 13	Off 15	Off 16	Off 17	Off 18	Off 20	Off 21	Off 22	Off 23	Off 24	Off 25	Off 26	Off 27	*Species code*
Anthozoa																										
Actiniaria																x										ACNI
Platyhelminthes																										
Turbellaria												x							x							TURB
Nemertea																										
Nemertea		x	x	x	x		x	x	x		x		x			x						x				NEMR
Phoronida																										
Phoronida		x	x				x									x			x		x		x			PHOR
Oligochaeta																										
Tubificidae													x													TUFI
Polychaeta																										
Aricidea minuta		x								x		x														ARIIMINU
Aricidea suecica																				x						ARIISUEC
Capitella capitata		x																								CAITCAPI
Chaetozone christiei		x	x	x	x		x	x	x		x				x	x	x									CHAZCHRI
Chaetozone setosa	x																									CHAZSETO
Eteone longa	x	x	x	x			x																			ETEOLONG
Euzonus flabelligerus																		x					x			EUZOFLAB
Exogone hebes							x																			EXOGHEBE
Exogone naidina																								x		EXOGNAID
Glycera	x					x																		x		GLYC
Glycera lapidum														x				x								GLYCLAPI
Glycinde nordmanni				x																						GLYINORD
Goniada maculata	x		x				x				x		x	x												GONAMACU
Magelona filiformis	x	x	x	x	x		x	x	x	x	x				x											MAGEFILI
Magelona johnstoni	x	x	x	x	x		x	x	x		x		x													MAGEJOHN
Magelona mirabilis		x	x				x										x				x		x	x		MAGEMIRA
Nephtys	x				x	x		x	x		x		x	x	x	x		x	x		x					NEPY
Nephtys assimilis				x																						NEPYASSI
Nephtys caeca															x											NEPYCAEC
Nephtys cirrosa			x			x	x		x	x		x	x	x	x		x	x	x	x	x	x	x	x	x	NEPYCIRR
Nephtys hombergii	x	x		x							x					x										NEPYHOMB
Notomastus latericeus	x	x		x	x			x			x					x										NOTMLATE
Ophelia limacina	x									x		x											x			OPHELIMA
Owenia fusiformis	x																									OWENFUSI
Phyllodoce rosea					x			x								x										PHYOROSE
Podarkeopsis helgolandica				x																						PODKHELG
Poecilochaetus serpens		x			x																					POEOSERP
Polychaeta	x	x				x																				POCH
Scolelepis bonnieri															x			x								SCOIBONN
Scolelepis squamata																	x									SCOISQUA
Scoloplos armiger	x					x			x	x	x	x	x		x	x								x		SCOSARMI
Sigalion mathildae			x	x	x		x																			SIGLMATH
Spio filicornis					x		x																			SPIOFILI
Spio goniocephala																		x					x			SPIOGONI
Spio martinensis		x																								SPIOMART
Spiophanes bombyx	x	x	x	x	x	x		x		x	x	x	x	x	x	x							x			SPIPBOMB
Sthenelais limicola							x																			STHELIMI
Streptodonta pterochaeta																			x				x			STREPTER
Travisia forbesii																	x									TRAVFORB
Crustacea, Amphipoda																										
Apherusa						x																				APHR
Atylus swammerdami																			x							ATYUSWAM
Bathyporeia	x							x	x																	BATY
Bathyporeia elegans	x	x		x			x	x	x	x	x	x			x	x				x		x	x		x	BATYELEG
Bathyporeia guilliamsoniana			x	x				x	x	x				x	x	x				x						BATYGUIL
Bathyporeia tenuipes				x																						BATYTENU
Haustorius arenarius																								x		HAUTAREN
Leucothoe incisa	x			x							x															LEUTINCI
Megaluropus agilis					x				x							x						x				MEGUAGIL
Orchomenella nana		x														x										ORCENANA
Perioculodes longimanus	x						x				x					x										PEROLONG
Pontocrates altamarinus																									x	PONOALTA
Pontocrates arcticus				x							x	x														PONOARCT
Synchelidium maculatum							x													x						SYNHMACU
Urothoe brevicornis									x	x		x	x	x	x	x	x			x	x					UROTBREV
Urothoe poseidonis	x	x	x	x	x		x	x			x	x		x												UROTPOSE

Table A3 - 3b: Offshore area (part 1), present taxa

	Offshore area																									
Species	**Off 01**	**Off 02**	**Off 03**	**Off 04**	**Off 05**	**Off 06**	**Off 07**	**Off 08**	**Off 09**	**Off 10**	**Off 11**	**Off 12**	**Off 13**	**Off 15**	**Off 16**	**Off 17**	**Off 18**	**Off 20**	**Off 21**	**Off 22**	**Off 23**	**Off 24**	**Off 25**	**Off 26**	**Off 27**	***Species code***
Crustacea, Cumacea																										
Diastylis				x																						DIAT
Pseudocuma longicornis							x			x				x												PSEOLONG
Pseudocuma simile					x		x	x						x					x			x				PSEOSIMI
Crustacea, Decapoda																										
Callianassa tyrrhena			x																							CALNTYRR
Corystes cassivelaunus			x	x								x														CORTCASS
Crangon crangon						x																				CRONCRAN
Processa modica modica																x										PROEMOMO
Processa parva										x																PROEPARV
Mollusca, Bivalvia																										
Abra nitida											x															ABRANITI
Donax vittatus		x										x		x												DONXVITT
Ensis arcuatus		x	x																							ENSIARCU
Kurtliella bidentata											x															KURLBIDE
Phaxas pellucidus	x																									PHAXPELL
Spisula solida																				x						SPISSOLI
Spisula subtruncata	x																									SPISSUBT
Tellimya ferruginosa	x	x						x		x	x					x										TELYFERR
Tellina fabula	x	x	x	x			x	x	x	x				x												TELNFABU
Tellina pygmaea																			x							TELNPYGM
Tellina tenuis											x															TELNTENU
Thracia papyracea	x				x																					THRAPAPY
Mollusca, Gastropoda																										
Cylichna cylindracea	x																									CYLCCYLI
Euspira pulchella			x	x	x						x			x			x			x						EUSRPULC
Nucula nitidosa				x							x															NUCLNITI
Echinodermata																										
Asterias rubens			x																							ASTRRUBE
Echinocardium cordatum	x	x		x	x		x	x	x	x	x					x										ECHNCORD
Echinocyamus pusillus	x																									ECHYPUSI
Ophiura albida																				x						OPHUALBI
Cephalochordata																										
Totaal taxa	25	23	20	24	17	7	23	15	12	14	21	12	8	15	10	18	7	5	7	9	5	5	9	6	3	

Table A3 - 4a: Offshore area (part 2) and Coastal area, present taxa

	Offshore area									Coastal zone																
Species	Off 28	Off 29	Off 30	Off 31	Off 32	Off 33	Off 34	Off 35	Off 36	Coa 01	Coa 02	Coa 03	Coa 04	Coa 06	Coa 07	Coa 08	Coa 09	Coa 10	Coa 11	Coa 12	Coa 13	Coa 14	Coa 15	Coa 16	Coa 17	Coa 18	*Species code*
Anthozoa																										
Actiniaria																						x					ACNI
Nemertea																										
Nemertea	x	x	x	x		x							x	x													NEMR
Phoronida																										
Phoronida								x	x								x										PHOR
Oligochaeta																										
Tubificoides diazi										x												x					TUCODIAZ
Polychaeta																										
Aonides paucibranchiata									x																		AONIPAUC
Aphelochaeta marioni																						x					APLOMARI
Aricidea minuta				x	x																						ARIIMINU
Capitella capitata												x	x	x									x				CAITCAPI
Chaetozone christiei			x	x			x			x							x										CHAZCHRI
Eteone longa			x					x												x			x				ETEOLONG
Eumida sanguinea										x		x		x		x											EUMISANG
Eunereis longissima																						x	x				EUNELONG
Euzonus flabelligerus	x								x																		EUZOFLAB
Exogone hebes						x																					EXOGHEBE
Gattyana cirrhosa										x																	GATTCIRR
Glycera									x																		GLYC
Glycera lapidum	x		x																								GLYCLAPI
Goniada maculata				x			x																				GONAMACU
Lanice conchilega										x		x		x		x			x								LANCCONC
Magelona filiformis			x			x						x					x									x	MAGEFILI
Magelona johnstoni			x							x	x	x	x	x	x	x	x	x					x			x	MAGEJOHN
Magelona mirabilis		x													x								x				MAGEMIRA
Malmgreniella darbouxi												x		x					x								MALMDARB
Nephtys	x	x		x	x			x	x	x		x	x				x	x		x			x		x		NEPY
Nephtys assimilis												x	x										x				NEPYASSI
Nephtys caeca																								x			NEPYCAEC
Nephtys cirrosa	x	x	x	x	x	x	x	x	x		x			x	x	x	x	x	x	x	x		x		x	x	NEPYCIRR
Nephtys hombergii							x						x	x		x		x									NEPYHOMB
Notomastus latericeus			x						x	x		x					x		x			x	x				NOTMLATE
Ophelia limacina		x				x			x																		OPHELIMA
Owenia fusiformis										x		x	x	x				x	x			x	x				OWENFUSI
Pholoe baltica																						x					PHOEBALT
Phyllodoce mucosa										x			x														PHYOMUCO
Polychaeta			x		x					x			x			x		x						x	x		POCH
Polydora cornuta																						x					POYDCORN
Pygospio elegans																						x					PYGOELEG
Scolelepis bonnieri					x												x										SCOIBONN
Scolelepis squamata																										x	SCOISQUA
Scoloplos armiger			x			x	x																				SCOSARMI
Sigalion mathildae												x					x										SIGLMATH
Spio goniocephala								x																			SPIOGONI
Spio martinensis											x	x	x	x				x					x	x			SPIOMART
Spiophanes bombyx	x	x	x	x		x	x	x	x	x	x	x		x	x	x	x		x	x		x	x				SPIPBOMB
Streblospio shrubsolii																						x					STSPSHRU
Streptodonta pterochaeta									x																		STREPTER
Crustacea, Amphipoda																										
Apherusa ovalipes						x																					APHROVAL
Bathyporeia			x													x											BATY
Bathyporeia elegans			x	x		x	x	x						x		x	x			x	x		x		x		BATYELEG
Bathyporeia guilliamsoniana		x	x				x	x	x		x																BATYGUIL
Bathyporeia pelagica																										x	BATYPELA
Gammaridae																						x					GAMA
Leucothoe incisa												x				x			x								LEUTINCI
Megaluropus agilis				x		x	x												x								MEGUAGIL
Microprotopus maculatus														x													MICUMACU
Orchomenella nana												x											x				ORCENANA
Pontocrates altamarinus	x												x	x		x		x									PONOALTA
Pontocrates arcticus			x									x		x			x				x		x				PONOARCT
Synchelidium maculatum							x																x				SYNHMACU
Urothoe brevicornis				x	x	x	x																				UROTBREV
Urothoe poseidonis		x	x				x			x	x	x	x	x		x	x	x	x	x		x	x				UROTPOSE

Table A3 - 4b: Offshore area (part 2) and Coastal area, present taxa

	Offshore area									Coastal zone																
Species	Off 28	Off 29	Off 30	Off 31	Off 32	Off 33	Off 34	Off 35	Off 36	Coa 01	Coa 02	Coa 03	Coa 04	Coa 06	Coa 07	Coa 08	Coa 09	Coa 10	Coa 11	Coa 12	Coa 13	Coa 14	Coa 15	Coa 16	Coa 17	Coa 18	*Species code*
Crustacea, Cumacea																										
Diastylis lucifera																	x									DIATLUCI
Pseudocuma								x																		PSEO
Pseudocuma longicornis		x	x											x												PSEOLONG
Pseudocuma simile				x				x	x																	PSEOSIMI
Crustacea, Decapoda																										
Crangon crangon															x							x				CRONCRAN
Diogenes pugilator														x				x								DIOGPUGI
Liocarcinus holsatus											x												x			LICAHOLS
Processa modica modica		x																								PROEMOMO
Processa parva						x																				PROEPARV
Thia scutellata						x																				THIASCUT
Mollusca, Bivalvia																										
Abra alba										x		x	x	x		x						x				ABRAALBA
Donax vittatus											x					x										DONXVITT
Ensis												x					x									ENSI
Ensis arcuatus														x												ENSIARCU
Ensis directus										x	x					x		x	x	x		x	x			ENSIDIRE
Goodallia triangularis									x																	GOODTRIA
Kurtliella bidentata										x		x	x					x			x	x	x			KURLBIDE
Macoma balthica											x			x												x MACOBALT
Mytilus edulis																x										MYTIEDUL
Spisula subtruncata					x					x		x														SPISSUBT
Tellimya ferruginosa			x							x	x	x		x			x		x							TELYFERR
Tellina fabula			x							x		x	x	x		x	x						x			TELNFABU
Tellina pygmaea	x	x							x																	TELNPYGM
Tellina tenuis										x																TELNTENU
Mollusca, Gastropoda																										
Euspira pulchella			x	x					x																	EUSRPULC
Nassarius reticulatus																							x			NASARETI
Potamopyrgus antipodarum																					x					POPYANTI
Echinodermata																										
Echinocardium cordatum		x	x	x	x	x	x			x		x		x			x	x	x				x			ECHNCORD
Ophiura albida				x		x																	x			OPHUALBI
Ophiura ophiura									x			x							x							OPHUOPHI
Cephalochordata																										
Branchiostoma lanceolatum																										BRAALANC
Totaal taxa	7	11	20	15	7	16	13	8	15	21	12	24	14	24	5	17	17	12	13	6	5	17	23	3	3	6	

Appendix 4

Density and biomass of species in 4 subareas

Dogger Bank (DOG),

Density and biomass of species

Density (n/m2)	DOG01		DOG02		DOG03		DOG04		DOG05		DOG06		DOG07	
Biomass (AFDW g/m2)	DOGGBK07		DOGGBK02		DOGGBK03		TERSLG235		DOGGBK04		DOGGBK05		DOGGBK08	
Soort code	**n/m2**	**g/m2**	**n/m2**	**g/m2**	**n/m2**	**g/m2**	**n/m2**	**g/m2**	**n/m2**	**g/m2**	**n/m2**	**g/m2**	**n/m2**	**g/m2**
Anthozoa														
CERULLOY					12,8	0,013								
EDWA	76,9	0,096	89,7	0,223	38,5	0,137	64,1	0,195	12,8	0,039	25,6	0,078		
Nemertea														
NEMR	89,7	0,056	128,2	0,642	115,4	0,037	25,6	0,128	76,9	0,385	38,5	0,193	89,7	0,449
Phoronida														
PHOR			269,2	0,081	128,2	0,038	3064,1	0,920	192,3	0,058	51,3	0,015	89,7	0,027
Polychaeta														
AMPR											12,8	0,016		
CHAZCHRI	51,3	0,026	12,8	0,000	25,6	0,000	12,8	0,000	217,9	0,001	12,8	0,000	25,6	0,000
CLYMLANK							38,5	0,002			38,5	0,012	25,6	0,518
DIPOGLAU			12,8	0,000										
ETEOLONG									12,8	0,000				
EUNELONG									12,8	0,010				
GLYC					12,8	0,016								
GLYCROUX													25,6	0,320
GLYINORD			12,8	0,000	12,8	0,008			12,8	0,000			12,8	0,000
GONAMACU	89,7	0,310	25,6	0,000	25,6	0,000	76,9	0,001	25,6	0,000	38,5	0,090	12,8	0,000
LANCCONC			12,8	0,488										
MAGEALLE			25,6	0,002			12,8	0,001	12,8	0,000				
MAGEFILI	243,6	0,000	564,1	0,001	371,8	0,001	269,2	0,000	1756,4	0,003	217,9	0,000	294,9	0,001
MAGEJOHN	12,8	0,051	141,0	0,556	89,7	0,354	102,6	0,404	102,6	0,404	51,3	0,202	217,9	0,859
MALD													12,8	0,001
MALMLJUN			12,8	0,000										
MYROOCUL													25,6	0,000
NEPY	25,6	0,017			12,8	0,020					25,6	0,020	25,6	0,067
NEPYASSI	12,8	0,075	25,6	1,275	12,8	0,211							12,8	0,300
NEPYCAEC	12,8	0,465	12,8	1,119										
NEPYCIRR							25,6	0,014	25,6	0,014	89,7	0,390		
NOTMLATE													25,6	0,702
OWENFUSI	153,8	0,802	12,8	0,067	25,6	0,080	64,1	0,334			166,7	0,869	51,3	0,267
PECTKORE			12,8	0,000			12,8	0,000						
PHOEBALT					25,6	0,000								
PHYOROSE			12,8	0,000	12,8	0,000	12,8	0,000						
PODKHELG	25,6	0,000												
POEOSERP	12,8	0,000	25,6	0,000			12,8	0,000			25,6	0,000	12,8	0,000
POCH	12,8	3,701												
POLE									12,8	0,000				
SCOIBONN			12,8	0,001	12,8	0,008							38,5	0,159
SCOSARMI			38,5	0,079	89,7	0,184	12,8	0,026	474,4	0,974			25,6	0,053
SIGLMATH	12,8	0,199	25,6	0,478	12,8	0,028	89,7	1,674	12,8	0,239	12,8	0,442	76,9	0,750
SPIODECO									525,6	0,084				
SPIOFILI	76,9	0,020	153,8	0,002	230,8	0,059			12,8	0,003	76,9	0,020	243,6	0,062
SPIPBOMB	269,2	0,036	384,6	0,495	500,0	0,644	461,5	0,594	461,5	0,594	141,0	0,182	166,7	0,215
STHELIMI							25,6	0,001	12,8	0,000				
Crustacea, Amphipoda														
ABLUOBTU			12,8	0,004										
ARGIHAMA			12,8	0,004			38,5	0,012	38,5	0,012	12,8	0,004		
ATYUFALC							12,8	0,004			12,8	0,004		
BATY	448,7	0,075			89,7	0,015					76,9	0,013	884,6	0,148
BATYELEG	448,7	0,135	282,1	0,085	153,8	0,046	294,9	0,089	38,5	0,012	243,6	0,073	128,2	0,039
BATYGUIL	128,2	0,054	128,2	0,054	128,2	0,054	205,1	0,086	25,6	0,011	25,6	0,011	51,3	0,021
BATYNANA	115,4	0,020			64,1	0,011	256,4	0,044	25,6	0,004	51,3	0,009	128,2	0,022
BATYTENU			64,1	0,019	51,3	0,015	25,6	0,008	153,8	0,046			25,6	0,008
HIPMDENT					12,8	0,004								
IPHMOBES									12,8	0,004				
LEUTINCI							25,6	0,010					76,9	0,030
MEGUAGIL							25,6	0,008			51,3	0,015	51,3	0,015
PAIATYPI			12,8	0,004					25,6	0,008				
PEROLONG	12,8	0,004			25,6	0,008	25,6	0,008	38,5	0,012	64,1	0,019	25,6	0,008
PONOARCT							12,8	0,004			38,5	0,012	64,1	0,019
SIPOKROY	89,7	0,027			153,8	0,046	51,3	0,015	12,8	0,004	12,8	0,004	64,1	0,019
SYNHMACU	25,6	0,008	51,3	0,015					12,8	0,004	25,6	0,008	25,6	0,008
UROTPOSE	166,7	0,050	166,7	0,050			115,4	0,035			51,3	0,015	115,4	0,035
Crustacea, Cumacea														
DIATBRAD					12,8	0,003					12,8	0,003		
PSEOLONG									12,8	0,003	51,3	0,010	25,6	0,005

Density (n/m2)	DOG01		DOG02		DOG03		DOG04		DOG05		DOG06		DOG07	
Biomass (AFDW g/m2)	DOGGBK07		DOGGBK02		DOGGBK03		TERSLG235		DOGGBK04		DOGGBK05		DOGGBK08	
Soort code	**n/m2**	**g/m2**	**n/m2**	**g/m2**	**n/m2**	**g/m2**	**n/m2**	**g/m2**	**n/m2**	**g/m2**	**n/m2**	**g/m2**	**n/m2**	**g/m2**
Crustacea, Decapoda														
EBALCRAN					12,8	0,038								
Mollusca, Bivalvia														
ABRAPRIS							12,8	0,034	12,8	0,044				
BIVA									12,8		12,8			
CHAMSTRI			12,8	0,001					12,8	0,008				
DOSILUPI					25,6	0,028					12,8	0,003		
ENSIENSI			12,8	0,526			7,7	8,113			25,6	8,141		
GARIFERV			12,8	0,069										
KURLBIDE	12,8	0,004			38,5	0,009			25,6	0,001				
LUCNBORE													25,6	0,079
PHAXPELL			25,6	0,044					25,6	0,002				
TELYFERR					12,8	0,019					12,8	0,004		
TELYTENE	12,8	0,006												
TELNFABU	102,6	0,175	38,5	0,002	141,0	0,182	141,0	0,521	89,7	0,007	76,9	0,032	179,5	0,191
THRAPAPY					12,8	0,001	25,6	0,014						
THYSFLEX									25,6	0,087				
Mollusca, Gastropoda														
ACTETORN					12,8									
BUCCUNDA									12,8	0,095				
CORUGIBB							12,8	0,002					12,8	0,035
CYLCCYLI							12,8	0,002						
EUSRPULC	12,8	0,023	12,8	0,044					12,8	0,002			12,8	0,064
NUCLNITI			12,8	0,002					25,6	0,237			12,8	0,002
Echinodermata														
ACRNBRAC	38,5	0,005	12,8	0,346			89,7	0,000			38,5	0,264	51,3	0,000
AMPI			51,3	0,008					12,8	0,002				
AMPIFILI											12,8	0,033		
ASTOIRRE									12,8	4,307				
ECHNCORD					12,8	10,443			12,8	0,237				
ECHYPUSI	38,5	0,002												
Cephalochordata														
BRAALANC			12,8	0,001										
Totals	**2833,3**	**6,439**	**2961,5**	**6,787**	**2730,8**	**12,761**	**5776,9**	**13,303**	**4666,7**	**7,956**	**1948,7**	**11,205**	**3474,4**	**5,497**

Oystergrounds (OYS),

Density and biomass of species

Density (n/m2)	OYS01		OYS02		OYS03		OYS04		OYS05		OYS06		OYS07	
Biomass (AFDW g/m2)	OESTGDN43		FRIESFT16		OESTGDN02		OESTGDN03		FRIESFT02		OESTGDN04		OESTGDN05	
Soort code	**n/m2**	**g/m2**	**n/m2**	**g/m2**	**n/m2**	**g/m2**	**n/m2**	**g/m2**	**n/m2**	**g/m2**	**n/m2**	**g/m2**	**n/m2**	**g/m2**
Anthozoa														
CERULLOY					12,8	0,000								
EDWA	12,8	0,037			12,8	0,005	12,8	0,039			76,9	0,113		
Platyhelminthes														
TURB	12,8	0,118												
Nemertea														
NEMR	25,6	0,128			38,5	0,193	217,9	1,091	141,0	1,510	397,4	0,084	76,9	0,309
Phoronida														
PHOR	12,8	0,004	102,6	0,031	38,5	0,012	12,8	0,004	76,9	0,023	12,8	0,004		
Polychaeta														
ATHOGUIL			25,6	0,000										
CHAEVARI											12,8	18,513	25,6	7,768
CHAZCHRI											12,8	0,000		
CHAZSETO					89,7	0,036							12,8	0,000
CLYM							12,8	0,655						
DIPOGLAU	12,8	0,018			12,8	0,000	38,5	0,001					12,8	0,000
EUMISANG											12,8	0,025	12,8	0,033
EUNELONG			12,8	0,055							12,8	0,002		
EUNONODO									12,8	0,037				
GATTCIRR					12,8	0,049							38,5	3,720
GLYC													12,8	0,051
GLYCALBA			12,8	0,011										
GLYCROUX									25,6	0,000				
GLYINORD	12,8	0,000					12,8	0,000	12,8	0,000				
GLYPKLAT	12,8	0,000									12,8	0,000	25,6	0,000
GONAMACU	12,8	0,000			12,8	0,000	38,5	0,000	51,3	0,000				
LANCCONC											25,6	0,976		
LAONBAHU													12,8	0,075
LEVIGRAC													12,8	0,000
LUMIFRAG									12,8	0,000				
LUMILATR			12,8	0,000					76,9	0,001				
MAGEALLE	12,8	0,031					12,8	0,003						
MAGEFILI			12,8	0,000			1179,5	0,002			76,9	0,000		
MAGEJOHN			76,9	0,303			12,8	0,051						
MALD							12,8	0,002						
MALMGLAB											12,8	0,771		
MALMMARP											12,8	0,000		
MEDOFRAG									38,5	0,000	25,6	0,000	38,5	0,000
MINUMULT	25,6	0,000											12,8	0,000
NEPY			12,8	0,018	51,3	0,038	12,8	0,027	12,8	0,409				
NEPYASSI							12,8	0,755			12,8	1,168		
NEPYHOMB	25,6	0,184	25,6	0,546	12,8	0,480	12,8	0,341	38,5	0,549	12,8	0,812	25,6	0,283
NEPYINCI									12,8	1,074				
NOTMLATE											12,8	0,387	38,5	0,339
OPHLACUM													25,6	0,253
OPHRFLEX									25,6	0,001				
OWENFUSI					12,8	0,067	25,6	0,134						
PECTAURI													12,8	0,000
PECTKORE	38,5	1,524												
PHOEBALT	25,6	0,000			12,8	0,000					89,7	0,000	12,8	0,000
PHYOROSE							12,8	0,000						
PODKHELG			64,1	0,000			12,8	0,000						
POEOSERP							12,8	0,000	12,8	0,000				
POCH	12,8	0,737												
RHOILOVE													12,8	0,000
SCOSARMI	38,5	0,079			12,8	0,026	179,5	0,369			179,5	0,190		
SIGLMATH							12,8	0,239						
SPIODECO							89,7	0,014						
SPIOFILI	12,8	0,003					12,8	0,003			25,6	0,007		
SPIPBOMB			51,3	0,066	12,8	0,017	153,8	0,198	12,8	0,017	102,6	0,132		
SPIPKROY											12,8	0,000		
STHELIMI	12,8	0,093			12,8	0,000					12,8	0,000		
TERSSTRO													25,6	0,039
Sipunculida														
SIPU									12,8	0,000				
Crustacea, Amphipoda														
ABLUOBTU							38,5	0,012						
AMPE	12,8	0,004												

Density (n/m2)	OYS01		OYS02		OYS03		OYS04		OYS05		OYS06		OYS07	
Biomass (AFDW g/m2)	OESTGDN43		FRIESFT16		OESTGDN02		OESTGDN03		FRIESFT02		OESTGDN04		OESTGDN05	
Soort code	**n/m2**	**g/m2**	**n/m2**	**g/m2**	**n/m2**	**g/m2**	**n/m2**	**g/m2**	**n/m2**	**g/m2**	**n/m2**	**g/m2**	**n/m2**	**g/m2**
AMPEBREV							25,6	0,008			12,8	0,004		
AMPETENU					12,8	0,004								
BATYELEG							38,5	0,012			12,8	0,004		
BATYTENU	12,8	0,004					12,8	0,004						
HARPANTE	38,5	0,012	25,6	0,008	12,8	0,004			51,3	0,015			25,6	0,008
LEUT									12,8	0,005				
LEUTINCI			12,8	0,005										
PEROLONG											12,8	0,004		
SIPOKROY							12,8	0,004						
SYNHMACU							38,5	0,012						
WESTCAEC					25,6	0,008								
Crustacea, Cumacea														
DIATBRAD					12,8	0,003	12,8	0,003						
EUDOTRUN			25,6	0,005										
PSEOLONG											12,8	0,003		
Crustacea, Decapoda														
CALNSUBT	64,1	0,677	76,9	2,516			12,8	0,006	76,9	0,018	12,8	0,004	51,3	1,536
Crustacea, Isopoda														
IONETHOR			12,8	0,000					25,6	0,000				
PSEIBORE			25,6	0,019									12,8	0,010
Mollusca, Bivalvia														
ABRAALBA					12,8	0,001								
ABRANITI	76,9	0,017												
ARCTISLA	12,8	0,003			12,8	0,002								
BIVA							25,6							
CHAMSTRI							12,8	0,005			12,8	3,073		
DOSILUPI											12,8	2,800		
ENSIENSI							5,1	0,156						
HEMLNITI			12,8											
KURLBIDE	153,8	0,022			641,0	0,089					205,1	0,050		
MYSAUNDA					12,8	0,114							12,8	0,118
PHAXPELL							23,1	0,541						
TELNFABU							243,6	0,054			12,8	0,434		
THRAPAPY							12,8	0,002						
THYSFLEX							102,6	0,124						
Mollusca, Gastropoda														
CORUGIBB	25,6	0,085					12,8	0,002	12,8	0,010	12,8	0,004	25,6	0,061
CYLCCYLI	89,7	0,056			115,4	0,047					12,8	0,002	25,6	0,017
EUSRPULC									12,8	0,002			12,8	0,034
HYAAVITR	51,3	0,008												
NUCLNITI	25,6	0,008			64,1	0,045	166,7	0,088	51,3	0,037	25,6	0,010	102,6	0,085
VITRANTI											25,6	0,012		
Echinodermata														
AMPI											384,6	0,062		
AMPIFILI	1846,2	3,727	64,1	0,163	2461,5	6,261			397,4	0,282	423,1	3,004	1717,9	3,865
ASTOIRRE							12,8	1,788						
BRIPLYRI													38,5	7,093
OPHU			12,8	0,000							38,5	0,000		
Totals	**2730,8**	**7,580**	**679,5**	**3,747**	**3743,6**	**7,499**	**2925,6**	**6,748**	**1217,9**	**3,991**	**2397,4**	**32,655**	**2474,4**	**25,695**

Density (n/m2)	OYS08		OYS09		OYS10		OYS11		OYS12		OYS13		OYS14	
Biomass (AFDW g/m2)	FRIESFT03		FRIESFT04		OESTGDN06		FRIESFT05		OESTGDN07		OESTGDN08		OESTGDN09	
Soort code	n/m2	g/m2	n/m2	g/m2	n/m2	g/m2	n/m2	g/m2	n/m2	g/m2	n/m2	g/m2	n/m2	g/m2
Anthozoa														
EDWA							12,8	0,039			25,6	0,078	12,8	0,039
Nemertea														
NEMR	38,5	0,193	243,6	0,050	12,8	0,064	25,6	0,336			38,5	0,193		
Phoronida														
PHOR	397,4	0,119	25,6	0,008			1961,5	0,589	128,2	0,038	76,9	0,023	153,8	0,046
Polychaeta														
ATHOGUIL							192,3	0,125						
CHAZ											25,6	0,000		
CHAZCHRI			12,8	0,000			12,8	0,000					12,8	0,000
CHAZSETO					25,6	0,000			12,8	0,000	25,6	0,000		
DIPOGLAU	230,8	0,011	25,6	0,000			12,8	0,000			12,8	0,058		
ENIPKINB											12,8	0,053		
EUNELONG							12,8	0,134					12,8	0,004
EXOGHEBE					12,8	0,000								
GLYC									12,8	0,000				
GLYCALBA			12,8	0,035					12,8	1,922				
GLYCLAPI													38,5	0,000
GLYCROUX							12,8	0,000						
GLYINORD	12,8	0,000					25,6	0,049						
GLYPKLAT									12,8	0,000				
GONAMACU	76,9	0,001	25,6	0,000			12,8	0,000			25,6	0,003		
LAONBAHU													25,6	0,041
LEVIGRAC									25,6	0,000			12,8	0,000
LUMIFRAG									25,6	0,038				
LUMILATR	179,5	0,286					38,5	0,001						
LYSLLOVE							12,8	0,002						
MAGEALLE											38,5	0,171		
MAGEFILI			76,9	0,000	12,8	0,000					115,4	0,000		
MAGEJOHN	12,8	0,051	1948,7	7,679	12,8	0,051								
MALMGLAB							12,8	0,000						
MEDOFRAG	38,5	0,000					153,8	0,000	12,8	0,000				
MINUMULT									64,1	0,000			12,8	0,000
MYROOCUL	153,8	0,000	12,8	0,000			12,8	0,000						
NEPY			12,8	0,009			25,6	0,819	12,8	0,409				
NEPYASSI					25,6	0,217								
NEPYCAEC											38,5	0,199		
NEPYHOMB	12,8	1,201	12,8	0,108	38,5	1,194	12,8	0,834	38,5	0,153	25,6	0,386	51,3	1,159
NOTMLATE	102,6	0,055	12,8	0,387			12,8	0,387					12,8	0,387
OPHRFLEX	38,5	0,024	12,8	0,000			12,8	0,000	12,8	0,000				
OWENFUSI													12,8	0,067
PECTAURI													12,8	0,000
PHOEBALT	25,6	0,000					12,8	0,000			12,8	0,000	12,8	0,000
PHYOROSE	12,8	0,000												
PODKHELG	25,6	0,000					25,6	0,000						
POEOSERP	38,5	0,000	76,9	0,029			25,6	0,000						
POCH	12,8	0,000	12,8	0,000									12,8	0,000
PRIOCIRR							12,8	0,000						
SCOSARMI			38,5	0,030	166,7	0,342					102,6	0,211		
SIGLMATH			25,6	0,758	12,8	0,239								
SPIPBOMB	38,5	0,050	217,9	0,281			25,6	0,033			12,8	0,017		
SPIPKROY											12,8	0,059	25,6	0,000
STHELIMI			25,6	0,001					25,6	0,001				
TERSSTRO									38,5	0,000			51,3	0,121
Sipunculida														
PHSOSTRO													12,8	0,005
SIPU									12,8	0,000				
THYNPROC	25,6	0,000					12,8	0,101						
Crustacea, Amphipoda														
AMPETENU													12,8	0,004
ARGIHAMA											12,8	0,004		
BATYTENU					38,5	0,012					25,6	0,008		
HARP							12,8	0,004						
HARPANTE			89,7	0,027	12,8	0,004			25,6	0,008	12,8	0,004	25,6	0,008
HARPPECT													12,8	0,004
LEUT							51,3	0,020						
MEDIAFFI					12,8	0,003								
ORCENANA					12,8	0,004								
UROTELEG			12,8	0,004										

Density (n/m2)	OYS08		OYS09		OYS10		OYS11		OYS12		OYS13		OYS14	
Biomass (AFDW g/m2)	FRIESFT03		FRIESFT04		OESTGDN06		FRIESFT05		OESTGDN07		OESTGDN08		OESTGDN09	
Soort code	**n/m2**	**g/m2**	**n/m2**	**g/m2**	**n/m2**	**g/m2**	**n/m2**	**g/m2**	**n/m2**	**g/m2**	**n/m2**	**g/m2**	**n/m2**	**g/m2**
Crustacea, Cumacea														
DIATBRAD					12,8	0,003								
DIATLAEV					12,8	0,011								
EUDOTRUN					12,8	0,003	38,5	0,008			12,8	0,003		
PSEOLONG											12,8	0,003		
Crustacea, Decapoda														
CALNSUBT	128,2	5,612	102,6	0,394	12,8	0,152	115,4	3,228	192,3	4,629			205,1	3,511
CORTCASS					12,8	14,658								
EBALCRAN											12,8	0,032		
UPOGDELT							12,8	8,421	12,8	5,503				
UPOGSTEL							12,8	1,160						
Crustacea, Isopoda														
GYGEBRAN							25,6	0,000						
PSEIBORE							38,5	0,029	12,8	0,010			25,6	0,019
Mollusca, Bivalvia														
ABRAALBA	76,9	0,670									25,6	0,002		
ARCTISLA											12,8	0,007		
BIVA							51,3							
HEMLNITI							51,3							
KURLBIDE			25,6	0,009	25,6	0,001			76,9	0,008	141,0	0,026	38,5	0,003
LEPNSQUA													38,5	0,182
MYSAUNDA													12,8	0,073
PHAXPELL	12,8	0,001												
TELYFERR			64,1	0,052	12,8	0,017					38,5	0,034		
THYSFLEX											115,4	0,093		
Mollusca, Gastropoda														
CORUGIBB									153,8	0,051			76,9	0,027
CYLCCYLI			12,8	0,006	76,9	0,076					64,1	0,052		
EUSRPULC	12,8	0,157					51,3	0,008						
HYAAVITR									25,6	0,002				
NUCLNITI	102,6	0,449	179,5	0,190	51,3	0,053			12,8	0,014	141,0	0,291	38,5	0,008
Echinodermata														
AMPIFILI	205,1	0,522	25,6	0,065	1089,7	3,648	230,8	0,587	435,9	1,109	1192,3	2,771	410,3	1,999
ECHNCORD			38,5	30,616	25,6	7,530								
OPHUALBI	38,5	0,283					205,1	1,437						
Totals	**2051,3**	**9,683**	**3384,6**	**40,737**	**1743,6**	**28,282**	**3589,7**	**18,351**	**1397,4**	**13,896**	**2423,1**	**4,780**	**1384,6**	**7,707**

Density (n/m2)	OYS15		OYS16		OYS17		OYS18		OYS19		OYS20		OYS21	
Biomass (AFDW g/m2)	OESTGDN10		OESTGDN11		OESTGDN12		FRIESFT06		OESTGDN13		OESTGDN14		TERSLG50	
Soort code	**n/m2**	**g/m2**	**n/m2**	**g/m2**	**n/m2**	**g/m2**	**n/m2**	**g/m2**	**n/m2**	**g/m2**	**n/m2**	**g/m2**	**n/m2**	**g/m2**
Platyhelminthes														
TURB											12,8	0,061	38,5	0,072
Nemertea														
CEREMARG													12,8	7,814
NEMR	25,6	0,128	51,3	0,257	76,9	0,385	89,7	0,029	12,8	0,064	12,8	0,064	12,8	0,002
Phoronida														
PHOR	115,4	0,035	51,3	0,015	51,3	0,015	12,8	0,004			51,3	0,015	884,6	0,266
Polychaeta														
AMPA													12,8	0,010
APHOACUL											12,8	20,913		
ATHOGUIL													217,9	0,095
CAUEKILL			12,8	0,000										
CHAZCHRI			25,6	0,000										
CHAZSETO	89,7	0,001	12,8	0,000					25,6	0,000				
DIPOGLAU					25,6	0,000								
EUNE													12,8	0,005
EXOGHEBE					12,8	0,000					12,8	0,000		
GLYCROUX	12,8	0,057												
GLYINORD							25,6	0,001						
GLYPKLAT	12,8	0,000	25,6	0,000							51,3	0,000		
GONAMACU					51,3	0,113			12,8	0,000	12,8	0,000	76,9	0,036
HARM											12,8	0,000		
LAONBAHU									12,8	0,000				
LEVIGRAC	12,8	0,000												
LUMILATR											38,5	0,149	115,4	0,254
LYSLLOVE											12,8	0,571		
MAGEALLE							12,8	0,125						
MAGEFILI					141,0	0,000	89,7	0,000	12,8	0,000	12,8	0,000		
MAGEJOHN					51,3	0,202	307,7	1,212						
MEDOFRAG	12,8	0,000											320,5	0,165
MINU													12,8	0,004
MINUMULT	25,6	0,000												
MYROOCUL													102,6	0,000
NEPY	12,8	0,409	76,9	0,106			12,8	0,009			12,8	0,004	38,5	0,014
NEPYCAEC													12,8	0,037
NEPYHOMB					12,8	0,242	12,8	0,352	12,8	0,067	12,8	0,451		
NEPYINCI	12,8	0,044												
NOTMLATE											25,6	0,251	115,4	7,239
OPHLACUM													12,8	0,129
OPHRFLEX			38,5	0,001	12,8	0,140			12,8	0,000	25,6	0,001		
OWENFUSI			25,6	0,134									12,8	0,002
PECTAURI			12,8	0,000	25,6	0,102								
PECTKORE			12,8	0,000									12,8	0,509
PHOE													12,8	0,020
PHOEBALT	12,8	0,000	38,5	0,000	25,6	0,000			25,6	0,000	51,3	0,000		
PHYOROSE			12,8	0,000										
PODKHELG					12,8	0,000	12,8	0,000			12,8	0,000	25,6	0,024
POEOSERP											12,8	0,000		
PRIOCIRR											25,6	0,000		
SCOSARMI					12,8	0,026								
SIGLMATH					12,8	0,351	25,6	0,048	12,8	0,123				
SPIOFILI											12,8	0,003		
SPIPBOMB					38,5	0,050	38,5	0,050						
STHELIMI			25,6	0,001	25,6	0,169			12,8	0,000	12,8	0,000		
TERSSTRO	25,6	0,000									12,8	0,000		
Sipunculida														
GOLFELON	25,6	0,487												
THYNPROC			12,8	0,023									12,8	0,024
Crustacea, Amphipoda														
AMPETENU			25,6	0,008					12,8	0,004				
ARGIHAMA					12,8	0,004								
BATYELEG			12,8	0,004	12,8	0,004	89,7	0,027						
HARP					25,6	0,008								
HARPANTE	38,5	0,012	128,2	0,038					51,3	0,015	89,7	0,027		
HARPPECT													12,8	0,004
LEUTINCI	12,8	0,005					12,8	0,005	12,8	0,005				
PEROLONG											12,8	0,004		
SYNHMACU							12,8	0,004						
UROTELEG					141,0	0,042					25,6	0,008		

Density (n/m2)	OYS15		OYS16		OYS17		OYS18		OYS19		OYS20		OYS21	
Biomass (AFDW g/m2)	OESTGDN10		OESTGDN11		OESTGDN12		FRIESFT06		OESTGDN13		OESTGDN14		TERSLG50	
Soort code	**n/m2**	**g/m2**	**n/m2**	**g/m2**	**n/m2**	**g/m2**	**n/m2**	**g/m2**	**n/m2**	**g/m2**	**n/m2**	**g/m2**	**n/m2**	**g/m2**
Crustacea, Cumacea														
EUDOTRUN			25,6	0,005	25,6	0,005			12,8	0,003			25,6	0,005
EUDRDEFO					25,6	0,005								
Crustacea, Decapoda														
CALNSUBT	76,9	0,018	76,9	0,018	12,8	0,224	38,5	1,481	25,6	0,172	115,4	2,315	192,3	4,705
CORTCASS							12,8	11,887						
PROEMOMO							12,8	0,000						
UPOGDELT	12,8	0,043											51,3	0,171
UPOGSTEL													25,6	0,002
Crustacea, Isopoda														
IONETHOR											25,6	0,000		
PSEIBORE			51,3	0,039			25,6	0,019						
Crustacea, Mysidacea														
HETMMICR													12,8	0,000
Crustacea, Tanaidacea														
TANOGRAC											12,8	0,003		
Mollusca, Bivalvia														
ABRAALBA	25,6	0,008							12,8	0,018	64,1	0,048	128,2	0,008
ARCTISLA					25,6	0,004								
BIVA	12,8	0,000											12,8	
CHAMSTRI			12,8	0,001	12,8	0,118			12,8	2,147				
DOSILUPI					12,8	0,007								
KURLBIDE					141,0	0,014			76,9	0,005	12,8	0,001		
SPISSUBT													25,6	0,056
TELYFERR	76,9	0,072	12,8	0,004									12,8	0,004
THRAPAPY							12,8	0,008	12,8	0,006				
THYSFLEX			12,8	0,000					89,7	0,011				
Mollusca, Gastropoda														
CORUGIBB	217,9	0,194	76,9	0,017	1884,6	6,118			12,8	0,009			12,8	0,066
CYLCCYLI	51,3	0,026	38,5	0,020	38,5	0,042			12,8	0,002			25,6	0,047
EUSRPULC					12,8	0,634								
HYAAVITR									25,6	0,005				
NUCLNITI			12,8	0,003	192,3	0,086	38,5	0,203	51,3	0,017			51,3	0,040
Echinodermata														
AMPIFILI	205,1	0,522	38,5	0,098	576,9	2,488	38,5	0,189	1410,3	3,587	192,3	0,246	551,3	2,012
BRIPLYRI			12,8	13,659										
ECHNCORD	25,6	10,389			12,8	0,227			25,6	2,933	25,6	7,381	38,5	3,904
OPHUALBI													38,5	0,013
Totals	**1153,8**	**12,448**	**974,4**	**14,452**	**3756,4**	**11,827**	**935,9**	**15,654**	**2012,8**	**9,191**	**1038,5**	**32,517**	**3294,9**	**27,756**

Density (n/m2)	OYS22		OYS23		OYS24		OYS25		OYS26		OYS27		OYS28	
Biomass (AFDW g/m2)	OESTGDN15		OESTGDN16		BREEVTN34		OESTGDN17		FRIESFT07		OESTGDN18		FRIESFT08	
Soort code	**n/m2**	**g/m2**	**n/m2**	**g/m2**	**n/m2**	**g/m2**	**n/m2**	**g/m2**	**n/m2**	**g/m2**	**n/m2**	**g/m2**	**n/m2**	**g/m2**
Anthozoa														
EDWA	12,8	0,039	25,6	0,078										
Platyhelminthes														
TURB					12,8	0,061								
Nemertea														
NEMR	12,8	0,064	89,7	0,449	64,1	0,321			51,3	0,257	38,5	0,193	256,4	0,220
Phoronida														
PHOR	51,3	0,015	102,6	0,031	25,6	0,008			25,6	0,008	12,8	0,004		
Polychaeta														
APHOACUL	12,8	6,366												
CHAZCHRI	25,6	0,000												
CHAZSETO	12,8	0,000												
DIPOGLAU			64,1	0,001										
EUNELONG			12,8	0,006					12,8	0,016				
EXOGHEBE													12,8	0,000
GLYC											25,6	0,000		
GONAMACU			25,6	0,000	12,8	0,000							51,3	0,118
LUMILATR					12,8	0,000					12,8	0,000		
MAGEFILI	38,5	0,000	294,9	0,001	12,8	0,000					166,7	0,000	141,0	0,000
MAGEJOHN					51,3	0,202					12,8	0,051	2192,3	1,013
MEDOFRAG					192,3	0,033								
NEPY	25,6	0,030	25,6	0,015	89,7	0,032	25,6	0,013					12,8	0,002
NEPYASSI	12,8	0,097												
NEPYCAEC			12,8	8,352										
NEPYCIRR	12,8	0,004											12,8	0,047
NEPYHOMB			25,6	0,287	25,6	1,026			12,8	0,671				
NEID													12,8	0,001
OPHRFLEX	51,3	0,001							12,8	0,000				
OWENFUSI			12,8	0,001							64,1	0,334		
PECTKORE	12,8	0,000												
PHOEBALT	12,8	0,000												
PHYOROSE					12,8	0,000								
PODKHELG	38,5	0,000			51,3	0,000			12,8	0,000	12,8	0,000	12,8	0,000
POEOSERP	12,8	0,000			25,6	0,000	12,8	0,000	25,6	0,000			38,5	0,000
POCH							12,8	0,000			12,8	0,030		
POLE			12,8	0,000										
SCOSARMI	64,1	0,132	243,6	0,500									51,3	0,038
SIGLMATH			12,8	0,239									25,6	0,961
SPIPBOMB			115,4	0,149	461,5	0,594					12,8	0,017	166,7	0,215
SPIPKROY							12,8	0,000						
STHELIMI	12,8	0,000	12,8	0,000			38,5	0,001			38,5	0,001		
Sipunculida														
SIPU					12,8	0,000								
Crustacea, Amphipoda														
AMPESPIN											12,8	0,004		
AMPETENU			12,8	0,004			25,6	0,008						
BATYELEG											38,5	0,012	51,3	0,015
BATYTENU			38,5	0,012	51,3	0,015								
HARPANTE	89,7	0,027	25,6	0,008	25,6	0,008	102,6	0,031			38,5	0,012		
HARPPECT							12,8	0,004						
PEROLONG							12,8	0,004						
Crustacea, Cumacea														
DIATBRAD									12,8	0,003				
EUDOTRUN					25,6	0,005			12,8	0,003				
PARPSUBT					12,8	0,000								
Crustacea, Decapoda														
CALNSUBT	25,6	0,210			141,0	5,949	51,3	0,763	153,8	3,413	51,3	0,012	89,7	0,021
CORTCASS	12,8	0,083												
Crustacea, Isopoda														
PSEIBORE	25,6	0,019					12,8	0,010						
Mollusca, Bivalvia														
ABRAALBA					371,8	0,135	12,8	0,000	12,8	0,000				
BIVA			25,6	0,000										
DOSILUPI	12,8	2,355											12,8	0,007
KURLBIDE	25,6	0,003	25,6	0,003	38,5	0,005								
LUCNBORE			12,8	0,448										
TELYFERR					12,8	0,003								
TELNFABU			12,8	0,000	12,8	0,000								
THYSFLEX	115,4	0,092	38,5	0,004										

Density (n/m2)	OYS22		OYS23		OYS24		OYS25		OYS26		OYS27		OYS28	
Biomass (AFDW g/m2)	OESTGDN15		OESTGDN16		BREEVTN34		OESTGDN17		FRIESFT07		OESTGDN18		FRIESFT08	
Soort code	**n/m2**	**g/m2**	**n/m2**	**g/m2**	**n/m2**	**g/m2**	**n/m2**	**g/m2**	**n/m2**	**g/m2**	**n/m2**	**g/m2**	**n/m2**	**g/m2**
Mollusca, Gastropoda														
CORUGIBB	64,1	0,010					25,6	0,006					12,8	0,028
CYLCCYLI	38,5	0,094												
EUSRPULC					38,5	0,139							25,6	0,029
HYAAVITR									141,0	0,038				
NUCLNITI	333,3	0,399	141,0	0,287	153,8	0,241	12,8	0,005	12,8	0,002	76,9	0,036	12,8	0,010
Echinodermata														
AMPIFILI	602,6	1,533	679,5	1,728	25,6	0,065	192,3	0,489	179,5	0,457	230,8	0,587	12,8	0,209
ECHNCORD					141,0	0,927								
OPHUALBI							12,8	0,002						
Totals	**1769,2**	**11,575**	**2102,6**	**12,601**	**2115,4**	**9,770**	**576,9**	**1,335**	**679,5**	**4,867**	**859,0**	**1,292**	**3205,1**	**2,936**

Density (n/m2)	OYS29		OYS30		OYS31		OYS32		OYS33		OYS34		OYS35	
Biomass (AFDW g/m2)	OESTGDN19		BREEVTN02		FRIESFT09		FRIESFT10		OESTGDN20		FRIESFT11		FRIESFT12	
Soort code	**n/m2**	**g/m2**	**n/m2**	**g/m2**	**n/m2**	**g/m2**	**n/m2**	**g/m2**	**n/m2**	**g/m2**	**n/m2**	**g/m2**	**n/m2**	**g/m2**
Anthozoa														
EDWA									12,8	0,039				
Nemertea														
NEMR	38,5	0,193	51,3	0,140	51,3	0,257					38,5	0,286	64,1	0,008
Phoronida														
PHOR	12,8	0,004			141,0	0,042	51,3	0,015	115,4	0,059	448,7	0,135	25,6	0,008
Oligochaeta														
LIMLSCAN			12,8	0,000										
Polychaeta														
ATHOGUIL											89,7	0,086		
CHAEVARI							12,8	2,450						
CHAZCHRI	25,6	0,000	12,8	0,001					38,5	0,000				
CHAZSETO													25,6	0,000
DIPOGLAU	25,6	0,000												
EUNEELIT											12,8	0,002		
EUNELONG											12,8	0,498		
EXOGHEBE													12,8	0,000
GATTCIRR									12,8	0,106				
GLYCALBA							25,6	0,000						
GLYCLAPI													12,8	0,000
GLYINORD	12,8	0,000												
GLYPKLAT					12,8	0,000	12,8	0,000						
GONAMACU	25,6	0,000	12,8	0,007	38,5	0,098			38,5	0,046	12,8	0,006	12,8	0,000
LUMILATR											89,7	0,423		
MAGEALLE	12,8	0,073												
MAGEFILI	717,9	0,001			12,8	0,000							128,2	0,000
MAGEJOHN	12,8	0,051	25,6	0,101									192,3	0,758
MALMMCIN													12,8	0,000
MEDOFRAG					128,2	0,000	12,8	0,000			25,6	0,008		
MINUMULT							25,6	0,000	153,8	0,000				
MYROOCUL											12,8	0,000		
NEPY							12,8	0,409	25,6	0,059				
NEPYASSI	12,8	0,099												
NEPYCAEC					12,8	0,043								
NEPYHOMB	12,8	1,117	12,8	0,157	25,6	1,153			12,8	0,591	25,6	0,740	12,8	1,642
NEPYINCI									12,8	0,016				
NOTMLATE							25,6	0,775						
OPHRFLEX											25,6	0,093	12,8	0,000
OWENFUSI									38,5	0,201	12,8	0,010		
PECTAURI	38,5	0,055											38,5	0,000
PHOEBALT							12,8	0,000	25,6	0,000				
PODKHELG					25,6	0,000					64,1	0,052		
POEOSERP	12,8	0,000	25,6	0,022	12,8	0,000					25,6	0,027	76,9	0,000
POCH	12,8	0,402							12,8	0,132				
SCOSARMI	51,3	0,105												
SIGLMATH					12,8	0,098							64,1	0,024
SPIOFILI	12,8	0,003												
SPIPBOMB	76,9	0,099	38,5	0,050	38,5	0,050	25,6	0,033			12,8	0,003	166,7	0,215
STHELIMI													12,8	0,000
Sipunculida														
GOLFELON							51,3	0,073						
SIPU											12,8	0,020		
Echiura														
ECHUECHI	12,8	0,813												
Crustacea, Amphipoda														
BATYELEG	12,8	0,004												
BATYTENU													12,8	0,004
HARP	12,8	0,004												
HARPANTE							25,6	0,008	76,9	0,023			166,7	0,050
LEUTINCI			25,6	0,010										
ORCENANA													12,8	0,004
PEROLONG					12,8	0,004							12,8	0,004
SYNHMACU					12,8	0,004								
Crustacea, Cumacea														
DIATBRAD	12,8	0,003							25,6	0,005				
DIATLAEV											38,5	0,033		
EUDOTRUN					12,8	0,003								
PSEOLONG													25,6	0,005

Density (n/m2)	OYS29		OYS30		OYS31		OYS32		OYS33		OYS34		OYS35	
Biomass (AFDW g/m2)	OESTGDN19		BREEVTN02		FRIESFT09		FRIESFT10		OESTGDN20		FRIESFT11		FRIESFT12	
Soort code	**n/m2**	**g/m2**	**n/m2**	**g/m2**	**n/m2**	**g/m2**	**n/m2**	**g/m2**	**n/m2**	**g/m2**	**n/m2**	**g/m2**	**n/m2**	**g/m2**
Crustacea, Decapoda														
CALNSUBT			51,3	0,012	153,8	1,453	128,2	8,555	141,0	5,082	128,2	3,523	51,3	0,627
CRON													12,8	0,000
LICAHOLS			12,8	5,483										
UPOGDELT											12,8	3,708		
Crustacea, Isopoda														
IONETHOR							12,8	0,000					25,6	0,000
PSEIBORE					25,6	0,019	12,8	0,010	76,9	0,058			25,6	0,019
Mollusca, Bivalvia														
ABRAALBA	12,8	0,142	102,6	0,067							371,8	0,571	38,5	0,002
ACAT	12,8													
ARCTISLA	12,8	0,003											12,8	0,001
KURLBIDE	12,8	0,001	12,8	0,004					179,5	0,022	64,1	0,014	153,8	0,023
PHAXPELL	12,8	0,002												
TELYFERR	12,8	0,002	128,2	0,096					12,8	0,002			25,6	0,004
TELNFABU	76,9	0,012												
THYSFLEX	282,1	0,282												
Mollusca, Gastropoda														
CORUGIBB	12,8	0,004			51,3	0,014	64,1	0,031	64,1	0,053	25,6	0,120	76,9	0,026
CYLCCYLI	12,8	0,002					12,8	0,041	64,1	0,037			38,5	0,018
EUSRPULC											12,8	0,009	12,8	0,002
HYAAVITR													12,8	0,002
NUCLNITI	153,8	0,177	76,9	0,050	38,5	0,029	12,8	0,004	38,5	0,008	64,1	0,043	371,8	0,232
Echinodermata														
AMPI	64,1	0,009												
AMPIFILI					38,5	0,098	243,6	0,620	1153,8	6,539	230,8	0,198	192,3	0,489
BRIPLYRI									12,8	9,730				
ECHNCORD	12,8	0,138	89,7	16,147	12,8	1,466	12,8	0,348			12,8	2,365	12,8	9,730
LEPPELON							12,8	1,033	12,8	0,021	12,8	3,255		
OPHUALBI											12,8	0,600	12,8	0,001
Totals	**1859,0**	**3,801**	**692,3**	**22,347**	**871,8**	**4,830**	**807,7**	**14,404**	**2359,0**	**22,830**	**1910,3**	**16,823**	**2179,5**	**13,898**

Density (n/m2)	OYS36		OYS37		OYS38		OYS39		OYS40		OYS41		OYS42	
Biomass (AFDW g/m2)	FRIESFT17		TERSLG100		BREEVTN26		OESTGDN22		OESTGDN21		OESTGDN23		ROTTMPT70	
Soort code	**n/m2**	**g/m2**	**n/m2**	**g/m2**	**n/m2**	**g/m2**	**n/m2**	**g/m2**	**n/m2**	**g/m2**	**n/m2**	**g/m2**	**n/m2**	**g/m2**
Anthozoa														
EDWA									12,8	0,012	25,6	0,078		
Nemertea														
NEMR	25,6	0,128	12,8	0,064	38,5	0,193			12,8	0,002	500,0	0,144	89,7	0,449
Phoronida														
PHOR	397,4	0,119			51,3	0,015	51,3	0,015	141,0	0,098	192,3	0,058		
Polychaeta														
ATHOGUIL	102,6	0,000												
CAUEKILL							12,8	0,000						
CHAZCHRI			38,5	0,000	89,7	0,000					12,8	0,000		
CHAZSETO							38,5	0,000						
DIPOGLAU											12,8	0,060		
EUNELONG	12,8	0,174												
GLYCLAPI	12,8	0,002												
GLYCROUX			25,6	0,000										
GLYPKLAT			12,8	0,000					12,8	0,000				
GONAMACU	76,9	0,001							38,5	0,054	64,1	0,070		
LEVIGRAC			25,6	0,000										
LUMIFRAG	25,6	0,071												
LUMILATR	141,0	0,261												
MAGEALLE					12,8	0,070			12,8	0,000	102,6	0,150		
MAGEFILI									141,0	0,000	1012,8	0,002	115,4	0,000
MAGEJOHN	12,8	0,051					12,8	0,051			38,5	0,152	666,7	2,627
MAGEMIRA									12,8	0,029				
MALMLJUN	12,8	0,076												
MEDOFRAG	38,5	0,000					51,3	0,000						
MINUMULT			141,0	0,032			38,5	0,000						
NEPY			12,8	0,003	12,8	0,005	38,5	1,228					12,8	0,007
NEPYASSI											38,5	0,394		
NEPYCIRR													12,8	0,027
NEPYHOMB			38,5	0,291	38,5	1,260	38,5	0,544						
NEID											12,8	0,002		
OPHRFLEX	38,5	0,001					25,6	0,001	12,8	0,000	12,8	0,000		
OWENFUSI	38,5	0,201												
PECTAURI											12,8	0,000		
PECTKORE			25,6	0,000										
PHOEBALT			12,8	0,000			115,4	0,001						
PHYOROSE									12,8	0,000				
PODKHELG	25,6	0,000	12,8	0,000	12,8	0,000					38,5	0,000		
POEOSERP	102,6	0,001	12,8	0,000					12,8	0,000	12,8	0,000	12,8	0,000
POCH			12,8	0,000							12,8	0,694		
SCOSARMI							25,6	0,053	102,6	0,211	615,4	0,525	12,8	0,026
SIGLMATH					76,9	0,168					12,8	0,765		
SPIOFILI					12,8	0,003			25,6	0,007	115,4	0,029	12,8	0,003
SPIPBOMB	12,8	0,017					12,8	0,017			166,7	0,215	38,5	0,050
SPIPKROY	12,8	0,007												
STHELIMI	25,6	0,151			12,8	0,000	25,6	0,001	38,5	0,114	25,6	0,034		
TERSSTRO			38,5	0,000										
Sipunculida														
SIPU			12,8	0,325										
Echiura														
ECHUECHI									12,8	2,837				
Crustacea, Amphipoda														
AMPEBREV									12,8	0,004	12,8	0,004		
AMPETENU			25,6	0,008										
APHROVAL	12,8	0,004												
ARGIHAMA											12,8	0,004		
BATYELEG									115,4	0,035			25,6	0,008
BATYTENU					25,6	0,008					25,6	0,008	12,8	0,004
HARP											12,8	0,004		
HARPANTE			51,3	0,015			76,9	0,023	25,6	0,008				
LEUTINCI			12,8	0,005	38,5	0,015								
LEUTPROC	25,6	0,010												
PEROLONG					38,5	0,012					12,8	0,004		
UROTPOSE													25,6	0,008
Crustacea, Cumacea														
DIAT			12,8	0,003										
DIATLAEV	12,8	0,011												

Density (n/m2)	OYS36		OYS37		OYS38		OYS39		OYS40		OYS41		OYS42	
Biomass (AFDW g/m2)	FRIESFT17		TERSLG100		BREEVTN26		OESTGDN22		OESTGDN21		OESTGDN23		ROTTMPT70	
Soort code	**n/m2**	**g/m2**	**n/m2**	**g/m2**	**n/m2**	**g/m2**	**n/m2**	**g/m2**	**n/m2**	**g/m2**	**n/m2**	**g/m2**	**n/m2**	**g/m2**
EUDOTRUN	12,8	0,003	12,8	0,003										
IPHITRIS					12,8	0,003								
PSEOLONG											38,5	0,008		
Crustacea, Decapoda														
CALN							12,8	0,024						
CALNSUBT	205,1	3,711	269,2	4,263			12,8	0,076	12,8	1,625				
CRONCRAN					12,8	1,652								
EBALCRAN											12,8	0,036	12,8	0,420
GONLRHOM			12,8	4,330										
PROENOHO			12,8	0,116										
Crustacea, Isopoda														
PSEIBORE	12,8	0,010	51,3	0,039										
Mollusca, Bivalvia														
ABRAALBA	359,0	0,191			51,3	0,002	12,8	0,003			38,5	0,001		
ABRAPRIS											12,8	0,086		
ACAT			12,8											
ARCTISLA							25,6	0,001						
BIVA					12,8	0,000								
DOSILUPI											12,8	0,010		
ENSI													5,1	0,156
KURLBIDE			102,6	0,010	12,8	0,004	64,1	0,003	115,4	0,009			12,8	0,001
LUCNBORE											12,8	0,056		
PHAXPELL											12,8	0,019		
SAXCJEFF							25,6	0,017						
TELYFERR					102,6	0,098			89,7	0,051			64,1	0,104
TELNFABU											102,6	0,003	12,8	0,003
TELNPYGM					12,8	0,002								
THRAPAPY											12,8	0,000	25,6	0,001
THYSFLEX											128,2	0,238		
Mollusca, Gastropoda														
CORUGIBB	25,6	0,018	51,3	0,187			3846,2	0,969	115,4	0,027				
CYLCCYLI	25,6	0,040	25,6	0,011	25,6	0,309	25,6	0,010			12,8	0,073		
EUSRPULC	12,8	0,016			25,6	0,046	25,6	0,048			38,5	0,072		
HYAAVITR			12,8	0,003										
NUCLNITI	128,2	0,099	128,2	0,045	243,6	0,502	51,3	0,012	141,0	0,407	64,1	0,056	12,8	0,002
TURRCOMM							12,8	0,754						
Echinodermata														
AMPI	12,8	0,002					102,6	0,017			51,3	0,008		
AMPIFILI	64,1	0,163	397,4	2,183	12,8	0,033	833,3	2,120	179,5	0,224				
ASTOIRRE											12,8	5,260		
ECHNCORD			12,8	0,715	70,5	14,410			12,8	6,659			25,6	19,459
LEPPELON	12,8	2,727												
LEPYINHA	25,6	0,970												
OPHUALBI	25,6	0,505												
Totals	**2089,7**	**9,740**	**1641,0**	**12,650**	**1057,7**	**18,808**	**5615,4**	**5,987**	**1423,1**	**12,414**	**3679,5**	**9,321**	**1210,3**	**23,354**

Offshore area (OFF),

Density and biomass of species

Density (n/m2)	OFF01		OFF02		OFF03		OFF04		OFF05		OFF06		OFF07	
Biomass (AFDW g/m2)	FRIESFT13		WADDKT07		WADDKT02		FRIESFT14		FRIESFT15		BREEVTN03		BREEVTN04	
Soort code	**n/m2**	**g/m2**	**n/m2**	**g/m2**	**n/m2**	**g/m2**	**n/m2**	**g/m2**	**n/m2**	**g/m2**	**n/m2**	**g/m2**	**n/m2**	**g/m2**
Nemertea														
NEMR			12,8	0,064	64,1	0,037	76,9	0,355	64,1	0,202			25,6	0,128
Phoronida														
PHOR			25,6	0,008	487,2	0,146							576,9	0,173
Polychaeta														
ARIIMINU			12,8	0,000										
CAITCAPI			12,8	0,006										
CHAZCHRI			25,6	0,000	25,6	0,000	12,8	0,000	230,8	0,001			51,3	0,000
CHAZSETO	76,9	0,027												
ETEOLONG	102,6	0,018	89,7	0,103	25,6	0,013	38,5	0,000					51,3	0,006
EXOGHEBE													76,9	0,006
GLYC	12,8	0,001									12,8	0,001		
GLYINORD							12,8	0,000						
GONAMACU	12,8	0,002			12,8	0,000							12,8	0,000
MAGEFILI	564,1	0,226	166,7	0,000	641,0	0,001	192,3	0,000	51,3	0,000			359,0	0,001
MAGEJOHN	1679,5	2,088	9897,4	20,000	1346,2	5,305	3615,4	2,449	333,3	1,314			961,5	3,789
MAGEMIRA			12,8	0,000	12,8	0,000							12,8	0,000
NEPY	25,6	0,003							64,1	0,051	64,1	0,066		
NEPYASSI							12,8	0,258						
NEPYCIRR					12,8	0,032					64,1	0,344	51,3	0,057
NEPYHOMB	12,8	0,205	12,8	2,788			12,8	0,397						
NOTMLATE	141,0	0,063	25,6	0,653			76,9	6,001	141,0	2,679				
OPHELIMA	25,6	0,003												
OWENFUSI	12,8	0,010												
PHYOROSE									12,8	0,000				
PODKHELG							89,7	0,000						
POEOSERP			12,8	0,000					12,8	0,015				
POCH	12,8	0,918	12,8	0,000							12,8	0,253		
SCOSARMI	25,6	0,017									12,8	0,100		
SIGLMATH					12,8	0,073	12,8	0,016	25,6	1,105			12,8	0,019
SPIOFILI									12,8	0,003			12,8	0,003
SPIOMART			12,8	0,000										
SPIPBOMB	12,8	0,030	12,8	0,017	38,5	0,050	76,9	0,099	166,7	0,210	64,1	0,041		
STHELIMI													12,8	0,000
Crustacea, Amphipoda														
APHR											12,8	0,004		
BATY	64,1	0,011												
BATYELEG	76,9	0,023	25,6	0,008			115,4	0,035					25,6	0,008
BATYGUIL					38,5	0,016	25,6	0,011						
BATYTENU							12,8	0,004						
LEUTINCI	102,6	0,039					51,3	0,020						
MEGUAGIL									12,8	0,004				
ORCENANA			12,8	0,004										
PEROLONG	12,8	0,004											12,8	0,004
PONOARCT							12,8	0,004						
SYNHMACU													12,8	0,004
UROTPOSE	89,7	0,027	500,0	0,150	89,7	0,027	12,8	0,004	217,9	0,065			410,3	0,123
Crustacea, Cumacea														
DIAT							12,8	0,003						
PSEOLONG													12,8	0,003
PSEOSIMI									12,8	0,003			12,8	0,003
Crustacea, Decapoda														
CALNTYRR					12,8	0,002								
CORTCASS					12,8	15,026	12,8	2,955						
CRONCRAN											12,8	0,006		
Mollusca, Bivalvia														
DONXVITT			12,8	0,318										
ENSIARCU			12,8	45,457	19,2	22,607								
PHAXPELL	12,8	0,469												
SPISSUBT	25,6	0,009												
TELYFERR	12,8	0,004	38,5	0,022										
TELNFABU	12,8	0,006	141,0	2,008	76,9	0,680	12,8	0,004					205,1	1,171
THRAPAPY	102,6	0,169							12,8	0,001				

Density (n/m2)	OFF01		OFF02		OFF03		OFF04		OFF05		OFF06		OFF07	
Biomass (AFDW g/m2)	FRIESFT13		WADDKT07		WADDKT02		FRIESFT14		FRIESFT15		BREEVTN03		BREEVTN04	
Soort code	**n/m2**	**g/m2**	**n/m2**	**g/m2**	**n/m2**	**g/m2**	**n/m2**	**g/m2**	**n/m2**	**g/m2**	**n/m2**	**g/m2**	**n/m2**	**g/m2**
Mollusca, Gastropoda														
CYLCCYLI	12,8	0,197												
EUSRPULC					12,8	0,185	25,6	0,218	38,5	0,011				
NUCLNITI							12,8	0,162						
Echinodermata														
ASTRRUBE					12,8	0,243								
ECHNCORD	25,6	0,122	12,8	4,332			25,6	10,362	89,7	5,416			12,8	7,210
ECHYPUSI	25,6	0,001												
Totals	**3294,9**	**4,692**	**11102,0**	**75,939**	**2955,1**	**44,443**	**4564,1**	**23,356**	**1500,0**	**11,078**	**256,4**	**0,813**	**2923,1**	**12,707**

Density (n/m2)	OFF08		OFF09		OFF10		OFF11		OFF12		OFF13		OFF15	
Biomass (AFDW g/m2)	BREEVTN05		BREEVTN06		BREEVTN07		BREEVTN08		BREEVTN09		BREEVTN10		BREEVTN12	
Soort code	**n/m2**	**g/m2**	**n/m2**	**g/m2**	**n/m2**	**g/m2**	**n/m2**	**g/m2**	**n/m2**	**g/m2**	**n/m2**	**g/m2**	**n/m2**	**g/m2**
Platyhelminthes														
TURB									12,8	0,061				
Nemertea														
NEMR	51,3	0,028	76,9	0,178			12,8	0,005			12,8	0,065		
Oligochaeta														
TUFI											38,5	0,006		
Polychaeta														
ARIIMINU					12,8	0,000			38,5	0,000				
CHAZCHRI	141,0	0,149	38,5	0,043			25,6	0,000						
GLYCLAPI													12,8	0,000
GONAMACU							25,6	0,032			12,8	0,078	12,8	0,000
MAGEFILI	89,7	0,051	51,3	0,023	38,5	0,000	51,3	0,000						
MAGEJOHN	269,2	0,780	141,0	0,462			128,2	0,073			12,8	0,018		
NEPY	38,5	0,014	25,6	0,004			25,6	0,074			38,5	0,022	12,8	0,001
NEPYCIRR			25,6	0,454	51,3	0,190			179,5	0,226	38,5	0,648	64,1	0,187
NEPYHOMB							25,6	0,107						
NOTMLATE	12,8	0,216					1346,2	6,533						
OPHELIMA					25,6	0,112			12,8	0,056				
PHYOROSE	12,8	0,001												
SCOSARMI			12,8	0,131	12,8	0,026	12,8	0,014	12,8	0,026	12,8	0,003		
SPIPBOMB	51,3	0,092			102,6	0,132	128,2	0,165	38,5	0,050	12,8	0,015	76,9	0,061
Crustacea, Amphipoda														
BATY	89,7	0,015	64,1	0,011										
BATYELEG	51,3	0,015	128,2	0,039	512,8	0,154	12,8	0,004	38,5	0,012				
BATYGUIL	51,3	0,021	25,6	0,011	12,8	0,005							38,5	0,016
LEUTINCI							38,5	0,015						
MEGUAGIL			25,6	0,008										
PEROLONG							12,8	0,004						
PONOARCT							38,5	0,012	12,8	0,004				
UROTBREV			179,5	0,066	333,3	0,123			141,0	0,052	897,4	0,330	12,8	0,005
UROTPOSE	551,3	0,166					38,5	0,012	12,8	0,004			615,4	0,185
Crustacea, Cumacea														
PSEOLONG					25,6	0,005							12,8	0,003
PSEOSIMI	12,8	0,003											12,8	0,003
Crustacea, Decapoda														
CORTCASS									12,8	13,509				
PROEPARV					38,5	0,643								
Mollusca, Bivalvia														
ABRANITI							25,6	0,029						
DONXVITT									12,8	0,011			12,8	0,005
KURLBIDE							12,8	0,001						
TELYFERR	89,7	0,098			38,5	0,041	64,1	0,047						
TELNFABU	192,3	0,972	51,3	0,037	12,8	0,008							89,7	4,812
TELNTENU							25,6	0,001						
Mollusca, Gastropoda														
EUSRPULC							12,8	0,009					25,6	0,046
NUCLNITI							12,8	0,007						
Echinodermata														
ECHNCORD	12,8	9,730	12,8	0,138	38,5	9,173	64,1	28,259						
Totals	**1717,9**	**12,350**	**859,0**	**1,603**	**1256,4**	**10,613**	**2141,0**	**35,401**	**525,6**	**14,010**	**1076,9**	**1,184**	**1000,0**	**5,322**

Density (n/m2)	OFF16		OFF17		OFF18		OFF20		OFF21		OFF22		OFF23	
Biomass (AFDW g/m2)	BREEVTN13		BREEVTN14		BREEVTN15		BREEVTN17		BREEVTN18		BREEVTN19		BREEVTN20	
Soort code	**n/m2**	**g/m2**	**n/m2**	**g/m2**	**n/m2**	**g/m2**	**n/m2**	**g/m2**	**n/m2**	**g/m2**	**n/m2**	**g/m2**	**n/m2**	**g/m2**
Anthozoa														
ACNI			12,8	0,003										
Platyhelminthes														
TURB									12,8	0,006				
Nemertea														
NEMR			25,6	0,018										
Phoronida														
PHOR			12,8	0,004					38,5	0,012			25,6	0,008
Polychaeta														
ARIISUEC											64,1	0,010		
CHAZCHRI	12,8	0,016	25,6	0,035	12,8	0,000								
EUZOFLAB							12,8	0,005						
GLYCLAPI							12,8	0,046						
MAGEFILI	12,8	0,000												
MAGEMIRA					12,8	0,000							12,8	0,173
NEPY	128,2	0,056	102,6	0,090			51,3	0,050	12,8	0,002			51,3	0,011
NEPYCAEC	12,8	0,105												
NEPYCIRR	25,6	0,308			102,6	0,707	12,8	1,099	64,1	0,090	76,9	0,690	51,3	0,484
NEPYHOMB			12,8	0,156										
NOTMLATE			12,8	0,082										
PHYOROSE			12,8	0,005										
SCOIBONN	12,8	0,043					12,8	0,026						
SCOISQUA					76,9	0,728								
SCOSARMI	12,8	0,042	25,6	0,146										
SPIOGONI							12,8	0,005						
SPIPBOMB	25,6	0,052	179,5	0,231										
STREPTER									12,8	0,000				
TRAVFORB					12,8	0,434								
Crustacea, Amphipoda														
ATYUSWAM									12,8	0,004				
BATYELEG	64,1	0,019	717,9	0,216							12,8	0,004		
BATYGUIL	12,8	0,005	153,8	0,064							25,6	0,011		
MEGUAGIL			12,8	0,004										
ORCENANA			12,8	0,004										
PEROLONG			12,8	0,004										
SYNHMACU											12,8	0,004		
UROTBREV	371,8	0,137	153,8	0,057	179,5	0,066					179,5	0,066	76,9	0,028
Crustacea, Cumacea														
PSEOSIMI									12,8	0,003				
Crustacea, Decapoda														
PROEMOMO			25,6	0,000										
Mollusca, Bivalvia														
SPISSOLI											25,6	1,254		
TELYFERR			12,8	0,019										
TELNPYGM									25,6	0,042				
Mollusca, Gastropoda														
EUSRPULC					12,8	0,002					12,8	0,064		
Echinodermata														
ECHNCORD			25,6	24,705										
OPHUALBI											12,8	0,009		
Totals	**692,3**	**0,783**	**1551,3**	**25,842**	**410,3**	**1,938**	**115,4**	**1,230**	**192,3**	**0,157**	**423,1**	**2,112**	**217,9**	**0,704**

Density (n/m2)	OFF24		OFF25		OFF26		OFF27		OFF28		OFF29		OFF30	
Biomass (AFDW g/m2)	BREEVTN21		BREEVTN22		BREEVTN23		BREEVTN24		BREEVTN25		ROTTMPT50		TERSLG30	
Soort code	**n/m2**	**g/m2**	**n/m2**	**g/m2**	**n/m2**	**g/m2**	**n/m2**	**g/m2**	**n/m2**	**g/m2**	**n/m2**	**g/m2**	**n/m2**	**g/m2**
Nemertea														
NEMR	12,8	0,064							12,8	0,064	64,1	0,184	38,5	0,423
Phoronida														
PHOR			25,6	0,008										
Polychaeta														
CHAZCHRI													51,3	0,025
ETEOLONG													128,2	0,022
EUZOFLAB			12,8	0,000					25,6	0,000				
EXOGNAID					12,8	0,000								
GLYC					12,8	0,002								
GLYCLAPI									12,8	0,000			12,8	0,062
MAGEFILI													76,9	0,052
MAGEJOHN													1884,6	2,313
MAGEMIRA			25,6	0,274	12,8	0,123					12,8	0,058		
NEPY									38,5	0,022	51,3	0,026		
NEPYCIRR	38,5	0,438	141,0	0,079	12,8	0,021	64,1	2,031	51,3	1,048	38,5	0,307	51,3	0,241
NOTMLATE													38,5	1,451
OPHELIMA			25,6	1,138							12,8	0,021		
POCH													12,8	0,147
SCOSARMI					12,8	0,106							12,8	0,011
SPIOGONI			12,8	0,000										
SPIPBOMB			25,6	0,033					12,8	0,017	12,8	0,017	38,5	0,061
STREPTER			12,8	0,000										
Crustacea, Amphipoda														
BATY													141,0	0,024
BATYELEG	12,8	0,004	12,8	0,004			12,8	0,004					256,4	0,077
BATYGUIL											12,8	0,005	38,5	0,016
HAUTAREN					25,6	0,008								
MEGUAGIL	12,8	0,004												
PONOALTA							12,8	0,004	51,3	0,015				
PONOARCT													12,8	0,004
UROTPOSE											25,6	0,008	76,9	0,023
Crustacea, Cumacea														
PSEOLONG											12,8	0,003	38,5	0,008
PSEOSIMI	12,8	0,003												
Crustacea, Decapoda														
PROEMOMO											25,6	0,000		
Mollusca, Bivalvia														
TELYFERR													51,3	0,052
TELNFABU													38,5	0,027
TELNPYGM									12,8	0,002	25,6	0,045		
Mollusca, Gastropoda														
EUSRPULC													25,6	0,016
Echinodermata														
ECHNCORD											12,8	2,637	12,8	1,664
Totals	**89,7**	**0,512**	**294,9**	**1,535**	**89,7**	**0,260**	**89,7**	**2,039**	**217,9**	**1,167**	**307,7**	**3,311**	**3038,5**	**6,718**

Density (n/m2)	OFF31		OFF32		OFF33		OFF34		OFF35		OFF36	
Biomass (AFDW g/m2)	BREEVTN27		NOORDWK30		NOORDWK50		NOORDWK70		WALCRN30		WALCRN70	
Soort code	**n/m2**	**g/m2**	**n/m2**	**g/m2**	**n/m2**	**g/m2**	**n/m2**	**g/m2**	**n/m2**	**g/m2**	**n/m2**	**g/m2**
Nemertea												
NEMR	12,8	0,033			12,8	0,064						
Phoronida												
PHOR									128,2	0,038	12,8	0,004
Polychaeta												
AONIPAUC											38,5	0,000
ARIIMINU	25,6	0,000	25,6	0,004								
CHAZCHRI	12,8	0,000					25,6	0,000				
ETEOLONG									25,6	0,004		
EUZOFLAB											12,8	0,001
EXOGHEBE					12,8	0,000						
GLYC											25,6	0,005
GONAMACU	12,8	0,000					12,8	0,105				
MAGEFILI					12,8	0,000						
NEPY	38,5	0,008	128,2	0,166					89,7	0,090	51,3	0,084
NEPYCIRR	64,1	0,142	25,6	0,384	115,4	0,453	89,7	0,432	25,6	1,109	12,8	0,045
NEPYHOMB							12,8	0,195				
NOTMLATE											12,8	0,011
OPHELIMA					38,5	0,168					12,8	0,006
POCH			12,8	0,081								
SCOIBONN			12,8	0,123								
SCOSARMI					25,6	0,053	25,6	0,053				
SPIOGONI									25,6	0,013		
SPIPBOMB	25,6	0,033			12,8	0,017	12,8	0,017	25,6	0,032	25,6	0,035
STREPTER											38,5	0,000
Crustacea, Amphipoda												
APHROVAL					12,8	0,004						
BATYELEG	166,7	0,050			76,9	0,023	205,1	0,062	64,1	0,019		
BATYGUIL							76,9	0,032	38,5	0,016	25,6	0,011
MEGUAGIL	12,8	0,004			25,6	0,008	12,8	0,004				
SYNHMACU							12,8	0,004				
UROTBREV	89,7	0,033	38,5	0,014	25,6	0,009	76,9	0,028				
UROTPOSE							12,8	0,004				
Crustacea, Cumacea												
PSEO									51,3	0,010		
PSEOSIMI	12,8	0,003							51,3	0,010	12,8	0,003
Crustacea, Decapoda												
PROEPARV					25,6	0,502						
THIASCUT					12,8	0,711						
Mollusca, Bivalvia												
GOODTRIA											12,8	0,003
SPISSUBT			12,8	0,905								
TELNPYGM											115,4	0,099
Mollusca, Gastropoda												
EUSRPULC	12,8	0,034									12,8	0,004
Echinodermata												
ECHNCORD	12,8	0,008	12,8	3,246	38,5	12,442	12,8	1,664				
OPHUALBI	12,8	0,026			25,6	0,502						
OPHUOPHI											25,6	1,403
Totals	**512,8**	**0,373**	**269,2**	**4,924**	**474,4**	**14,955**	**589,7**	**2,598**	**525,6**	**1,342**	**448,7**	**1,713**

Coastal area (COA),

Density and biomass of species

Density (n/m2)	COA01		COA02		COA03		COA04		COA06		COA07		COA08	
Biomass (AFDW g/m2)	WADDKT03		WADDKT04		HOLLSKT03		HOLLSKT02		WADDKT06		ROTTMPT3		TERSLG4	
Soort code	**n/m2**	**g/m2**	**n/m2**	**g/m2**	**n/m2**	**g/m2**	**n/m2**	**g/m2**	**n/m2**	**g/m2**	**n/m2**	**g/m2**	**n/m2**	**g/m2**
Nemertea														
NEMR							12,8	0,169	38,5	0,193				
Oligochaeta														
TUCODIAZ	12,8	0,000												
Polychaeta														
CAITCAPI					89,7	0,020	25,6	0,002	51,3	0,025				
CHAZCHRI	12,8	0,003												
EUMISANG	25,6	0,011			76,9	0,034			38,5	0,001			12,8	0,011
GATTCIRR	12,8	0,176												
LANCCONC	128,2	2,542			115,4	8,238			76,9	3,699			38,5	2,119
MAGEFILI					12,8	0,000								
MAGEJOHN	25,6	0,016	64,1	0,253	153,8	0,606	12,8	0,019	1692,3	6,669	205,1	0,808	1525,6	4,084
MAGEMIRA											38,5	0,001		
MALMDARB					25,6	0,362			12,8	0,193				
NEPY	51,3	0,069			89,7	0,097	51,3	0,022						
NEPYASSI					38,5	2,023	12,8	3,362						
NEPYCIRR			51,3	0,448					76,9	0,380	102,6	0,973	141,0	2,009
NEPYHOMB							51,3	3,662	25,6	3,241			12,8	1,855
NOTMLATE	12,8	0,385			89,7	3,677								
OWENFUSI	38,5	0,111			89,7	0,468	25,6	0,148	64,1	0,334				
PHYOMUCO	38,5	0,202					12,8	0,014						
POCH	12,8	1,685					12,8	0,319					12,8	0,016
SIGLMATH					12,8	0,223								
SPIOMART			76,9	0,000	102,6	0,000	25,6	0,008	89,7	0,000				
SPIPBOMB	115,4	0,108	25,6	0,033	51,3	0,066			166,7	0,215	25,6	0,033	12,8	0,008
Crustacea, Amphipoda														
BATY													12,8	0,002
BATYELEG									12,8	0,004			153,8	0,046
BATYGUIL			25,6	0,011										
LEUTINCI					51,3	0,020							25,6	0,010
MICUMACU									12,8	0,003				
ORCENANA					12,8	0,004								
PONOALTA							12,8	0,004	25,6	0,008			25,6	0,008
PONOARCT					12,8	0,004			12,8	0,004				
UROTPOSE	166,7	0,050	12,8	0,004	307,7	0,092	38,5	0,012	192,3	0,058			38,5	0,012
Crustacea, Cumacea														
PSEOLONG									12,8	0,003				
Crustacea, Decapoda														
CRONCRAN											12,8	0,006		
DIOGPUGI									12,8	0,099				
LICAHOLS			12,8	0,063										
Mollusca, Bivalvia														
ABRAALBA	12,8	0,010			12,8	0,268	51,3	0,190	12,8	0,002			12,8	0,026
DONXVITT			25,6	0,012									12,8	0,006
ENSI					12,8	0,523								
ENSIARCU									12,8	23,980				
ENSIDIRE	141,0	103,2	51,3	62,159									44,9	74,523
KURLBIDE	192,3	0,128			25,6	0,008	38,5	0,004						
MACOBALT			89,7	0,757					38,5	0,755				
MYTIEDUL													12,8	0,000
SPISSUBT	12,8	0,004			12,8	0,082								
TELYFERR	679,5	0,306	12,8	0,001	435,9	0,231			76,9	0,032				
TELNFABU	25,6	0,419			25,6	0,369	12,8	0,120	25,6	0,804			51,3	0,002
TELNTENU	12,8	0,169												
Echinodermata														
ECHNCORD	487,2	101,1			89,7	16,517			25,6	4,841				
OPHUOPHI					12,8	0,541								
Totals	**2217,9**	**210,7**	**448,7**	**63,740**	**1961,5**	**34,473**	**397,4**	**8,054**	**2807,7**	**45,542**	**384,6**	**1,821**	**2147,4**	**84,737**

Density (n/m2)	COA09		COA10		COA11		COA12		COA13		COA14		COA15	
Biomass (AFDW g/m2)	HOLLSKT04		NOORDWK2		NOORDWK10		VOORDTA2		VOORDTA3		VOORDTA4		VOORDTA5	
Soort code	**n/m2**	**g/m2**	**n/m2**	**g/m2**	**n/m2**	**g/m2**	**n/m2**	**g/m2**	**n/m2**	**g/m2**	**n/m2**	**g/m2**	**n/m2**	**g/m2**
Anthozoa														
ACNI											12,8	3,271		
Phoronida														
PHOR	12,8	0,004												
Oligochaeta														
TUCODIAZ											102,6	0,000		
Polychaeta														
APLOMARI											128,2	0,062		
CAITCAPI													38,5	0,002
CHAZCHRI	64,1	0,000												
ETEOLONG							25,6	0,010					38,5	0,000
EUNELONG											25,6	1,483	12,8	2,297
LANCCONC					12,8	0,488								
MAGEFILI	51,3	0,000												
MAGEJOHN	25,6	0,101	51,3	0,092									1128,2	4,446
MAGEMIRA													12,8	0,000
MALMDARB					12,8	0,193								
NEPY	25,6	0,004	12,8	0,000			12,8	0,012					12,8	0,054
NEPYASSI													12,8	1,492
NEPYCIRR	64,1	0,231	12,8	0,044	89,7	0,294	89,7	0,537	25,6	0,236			115,4	0,826
NEPYHOMB			25,6	0,509										
NOTMLATE	89,7	3,916			12,8	0,387					333,3	4,070	12,8	0,387
OWENFUSI			38,5	0,054	12,8	0,067					64,1	1,733	12,8	0,067
PHOEBALT											12,8	0,000		
POCH			12,8	0,000										
POYDCORN											12,8	0,000		
PYGOELEG											12,8	0,000		
SCOIBONN	12,8	0,042												
SIGLMATH	12,8	0,047												
SPIOMART			25,6	0,005									76,9	0,000
SPIPBOMB	12,8	0,017			12,8	0,017	141,0	0,133			12,8	0,017	166,7	0,215
STSPSHRU											12,8	0,002		
Crustacea, Amphipoda														
BATYELEG	51,3	0,015					38,5	0,012	12,8	0,004			38,5	0,012
GAMA											12,8	0,004		
LEUTINCI					12,8	0,005								
MEGUAGIL					12,8	0,004								
ORCENANA													1871,8	0,563
PONOALTA			12,8	0,004										
PONOARCT	12,8	0,004							12,8	0,004			25,6	0,008
SYNHMACU													12,8	0,004
UROTPOSE	1282,1	0,385	25,6	0,008	115,4	0,035	51,3	0,015			12,8	0,004	756,4	0,227
Crustacea, Cumacea														
DIATLUCI	12,8	0,003												
Crustacea, Decapoda														
CRONCRAN											38,5	0,017		
DIOGPUGI			25,6	0,000										
LICAHOLS													12,8	5,672
Mollusca, Bivalvia														
ABRAALBA											12,8	0,005		
ENSI	1,3	0,894												
ENSIDIRE			115,4	21,895	38,5	40,014	25,6	2,864			12,8	13,522	12,8	3,435
KURLBIDE			12,8	0,004					12,8	0,007	128,2	0,070	64,1	0,011
TELYFERR	89,7	0,015			12,8	0,002								
TELNFABU	141,0	1,631											6,4	0,003
Mollusca, Gastropoda														
NASARETI													12,8	
POPYANTI									12,8					
Echinodermata														
ECHNCORD	25,6	4,841	12,8	1,466	12,8	11,977							12,8	6,659
OPHUALBI													12,8	0,020
OPHUOPHI					12,8	0,823								
Totals	**1988,5**	**12,150**	**384,6**	**24,083**	**371,8**	**54,304**	**384,6**	**3,584**	**76,9**	**0,251**	**948,7**	**24,259**	**4480,8**	**26,400**

Density (n/m2)	COA16		COA17		COA18	
Biomass (AFDW g/m2)	TERHDE1		EGMAZE1		WADDKT08	
Soort code	**n/m2**	**g/m2**	**n/m2**	**g/m2**	**n/m2**	**g/m2**
Polychaeta						
MAGEFILI					12,8	0,000
MAGEJOHN					38,5	0,152
NEPY			89,7	0,145		
NEPYCAEC	12,8	0,314				
NEPYCIRR			115,4	0,611	128,2	0,658
POCH	12,8	1,928	12,8	0,023		
SCOISQUA					12,8	0,001
SPIOMART	12,8	0,000				
Crustacea, Amphipoda						
BATYELEG			12,8	0,004		
BATYPELA					243,6	0,073
Mollusca, Bivalvia						
MACOBALT					12,8	0,005
Totals	**38,5**	**2,242**	**230,8**	**0,783**	**448,7**	**0,889**