eCOAST
MARINE RESEARCH

An assessment of the soft sediment fauna six years after construction of the Princess Amalia Wind Farm

Koen Lock, Marco Faasse and Thomas Vanagt

January 2014 – final

Lock K., Faasse M. and Vanagt T.

An assessment of the soft sediment fauna six years after construction of the Princess Amalia Wind Farm

eCOAST report 2013002

Cover photo: © Ad Meskens / Wikimedia Commons

Commissioned by	Prinses Amaliawindpark
Status	final
Project number	2013002
Report number	2013002
Publication date	January 2014
Title	Assessment of the soft sediment fauna six years after construction of the Princess Amalia wind farm
Authors	Dr. K. Lock, Ir. M. Faasse and Dr. T.J. Vanagt
Contributors	Jannes Heusinkveld, Remco de Nooij, Bob Jongepoerink (the Fieldwork Company), Lia De Bruyne (Waterbouwkundig laboratorium)
To cite as	Lock K., Faasse M. and Vanagt T.J. (2014). Assessment of the soft sediment fauna six years after construction of the Princess Amalia wind farm. eCOAST report 2013002.
Approved by:	Dr. T.J. Vanagt – director
Checked by:	Prof. Dr. J. Mees – director international development

CONTENTS

Figures

Tables

SUMMARY

During the present study, the macrobenthic fauna was investigated six years after the construction of the Princess Amalia Wind Farm. In April 2013, samples were taken with a boxcorer and a dredge in the turbine site (QT), an adjacent buffer zone (QAW), a northern (QCN) and a southern reference site (QCS). These sites were also sampled in 2003 during the baseline study (T0) and in 2012 (T5). Samples were taken at least 150 m away from the turbines.

Sediment characteristics of the turbine site were intermediate between the northern and the southern reference area. Density and species richness of the macrobenthic fauna in the boxcore samples of the turbine site were also intermediate between the northern and the southern reference site, whereas biodiversity indices and biomass values did not differ significantly between areas.

Also in the dredge samples, which contain the larger K-strategic species, the density decreased from north to south, but biomass as well, whereas no significant differences in the diversity were observed between the areas. In addition, no systematic differences in length-frequency distribution of sea urchins could be detected between the areas. Length-frequency distributions of the bivalve molluscs *Spisula elliptica*, *Chamelea striatula* and *Donax vittatus* did not show a clear difference between wind farm area and reference areas either and average densities of bivalve species were lower in the wind farm area compared to the reference areas. These results indicate that six years after installation of the wind farm, K-strategic species could not yet profit from the shelter from fishing activities.

It can therefore be concluded that the installation of the Princess Amalia Wind Farm did not have significant negative effects on the soft bottom benthic community. Moreover, after six years of closure of the windfarm for fisheries, no changes in benthos could be detected. The question is whether six years is too short for a recovery to a non-disturbed community to occur, or if the expected recovery potential was overestimated.

SAMENVATTING

Tijdens deze studie werd het macrobenthos onderzocht zes jaar na constructie van het Prinses Amaliawindpark. In April 2013 werden monsters genomen met een boxcorer en een bodemschaaf in het turbinegebied (QT), de aanliggende bufferzone (QAW), een noordelijk (QCN) en een zuidelijk referentiegebied (QCS). Deze gebieden werden eveneens bemonsterd in 2003 gedurende de baseline study (T0) en in 2012 (T5). Monsters werden genomen op een afstand van minimaal 150 m van de turbines.

Sedimentsamenstelling in het turbinegebied lag tussen de sedimentsamenstelling van het noordelijke en zuidelijke referentiegebied. Dichtheid en soortenrijkdom van het macrobenthos in de boxcoremonsters van het turbinegebied lagen eveneens tussen de waardes van het noordelijke en zuidelijke referentiegebied, terwijl biodiversiteitsindices en biomassa geen significante verschillen tussen gebieden vertoonden.

In de schaafmonsters, die de grotere K-strategische soorten bevatten, nam de dichtheid eveneens af van noord naar zuid, maar ook de biomassa, terwijl geen significante verschillen in de biodiversiteit tussen gebieden werden waargenomen. Bovendien konden geen systematische verschillen in lengte-frequentieverdeling van hartegels tussen gebieden worden vastgesteld. Lengte-frequentieverdelingen van de bivalven *Spisula elliptica*, *Chamelea striatula* en *Donax vittatus* gaven evenmin een duidelijk verschil tussen het windpark en de referentiegebieden te zien, en de gemiddelde dichtheid van bivalven was zelfs duidelijk lager in het windpark dan in de referentiegebieden. Deze resultaten geven aan dat zes jaar na installatie van het windpark, K-strategische soorten nog niet konden profiteren van de afwezigheid van visserij.

Derhalve kan geconcludeerd worden dat de installatie van het Prinses Amaliawindpark geen significant negatieve effecten op het macrobenthos van de zachte bodem heeft. Verder konden zes jaar na de afsluiting van het windpark voor visserij geen veranderingen in het benthos vastgesteld worden. De vraag is of zes jaar te kort is voor herstel naar een onverstoorde gemeenschap of dat het potentiële herstel te hoog was ingeschat.

1. INTRODUCTION

As part of the Monitoring- and Evaluation Program (MEP) of the Princess Amalia Wind Farm (PAWP), a number of research topics were identified. One of those topics was to characterise the benthic invertebrates living in the seabed. The hypothesis was that, due to the closure of the wind farm area for fisheries, the benthic community would develop differently compared to the surrounding environment. Bottom fisheries, especially beam trawling, which is very common in this part of the North Sea, is known to have detrimental effects on the benthos due to heavy bottom disturbance. Longer-living species, in particular, are affected by fisheries. A large area, completely closed to fisheries, would thus be expected to especially benefit longer-living species.

To investigate this hypothesis, a baseline study of the subtidal benthic fauna was carried out in 2003 by the Institute of Estuarine and Coastal Studies (University of Hull, UK). Samples were taken in the proposed Princess Amalia Wind Farm turbine site (QT), an adjacent buffer zone (QAW) and two reference sites situated north (QCN) and south (QCS) of the site. Results from this baseline study were reported in February 2004 (Jarvis *et al.*, 2004). Construction of the foundations started in the fall of 2006 and were completed in the spring of 2007; the area was officially closed for fisheries on October 16th of 2007. Five years (T5) after completion of the construction of the foundations of the Princess Amalia Wind Farm (2012), the monitoring study was repeated in the same four areas by eCOAST (Vanagt et al., 2013a). The results did not show any effect of the closure for fisheries on the soft sediment benthos, with values for biodiversity, abundance and biomass measured inside the wind farm, remaining similar to those from reference areas. It was concluded that 5 years is possibly too short to allow full recovery of a mature benthic community.

Therefore, in early 2013, six years (T6) after the construction of the Princess Amalia Wind Farm (2013), a new monitoring study was performed in the same four areas (QT, QAW, QCN and QCS). The object of this report is twofold:

- to report on the development of the benthic infauna in the Princess Amalia Wind Farm;
- to contrast the new findings with the baseline condition prior to the construction of the wind farm, and with the T5 monitoring results.

1.1 Princess Amalia Wind Farm

The Princes Amalia Wind Farm is the second offshore wind farm in the Dutch sector of the North Sea and the first to be located outside the 12 nautical mile limit. PAWP is located in Block Q7 of the Dutch Continental Shelf, at a distance of 23 to 26.4 km from the shore (off the coast of IJmuiden, The Netherlands), in water depths between 19 and 24 m. A total of 60 turbines (4.0 m diameter monopole foundations) were placed in an area of 17 km². The minimum distance between turbines is 550 m. The Princess Amalia Wind Farm has a designed power output of 435 GWh per annum.

The installation of the foundations and transition pieces took place from October 2006 till May 2007. Foundations measuring 54 metres, a diameter of 4 metres and 320 tons in weight were sunk into the sea-floor. The transition pieces, weighing 115-tons, were placed on the foundations using the Jumping Jack. To support the turbine foundations, a 15 m diameter scour-protection consisting of mixed size rocks was deposited on the soft sediment around the base of each monopile. Cables and wind turbines were installed from May 2007 to April 2008. The wind farm has been operational since June 2008.

1.2 Scope of the study

The aim of this study was to evaluate the potential impacts arising from the construction of the Princess Amalia Wind Farm or from the resulting closure of the area for fisheries. More specifically, we investigated the potential effects these may have had on the occurrence of the invertebrates living in and on the seabed. Comparisons were made between the baseline study, the T5 study and the current situation with respect to infaunal assemblage, epifaunal communities, faunal characteristics, evidence of anthropogenic effects (i.e. shell damage and shorter shells due to trawling) and sediment types.

By comparing the results obtained in the baseline study and the T5 study with the results of the present study and by comparing the data from the turbine site with the reference areas, we examined whether the installation of the wind farm impacted on the soft sediment benthos. A second related objective was to assess whether the wind farm provides shelter for certain longer-living species, such as large bivalves and sea urchins. Shell damage and length-frequency distribution of the bivalves were also assessed as it can be expected that less shells with scars and larger individuals may be found when the disturbance caused by trawling decreases (Witbaard & Klein, 1994).

2. MATERIAL AND METHODS

2.1 Survey design

For the present study, the same sampling strategy was chosen as used in the baseline study (Jarvis *et al.*, 2004) and the study five years after the construction (Vanagt et al., 2013a), to facilitate comparison of the data. Moreover, both reports mentioned that the used strategy was appropriate for the goals of the research. The baseline design identified reference areas similar in sediment characteristics to those present under the footprint of the wind farm. Sediment texture (i.e. median particle size) was thought to be one of the main structuring factors of benthic fauna distribution (Gray & Elliot, 2009).

Two references areas were used, one 40 km to the north of the turbine site (QCN) and another 30 km to the south (QCS). Both reference areas have the same distance to the shore as the turbine site. In addition, three pairs of sampling sites were located around the windfarm area (QAW), to reveal either a possible impact of increased fishing activity on the margins of the exclusion zone or a positive spill-over effect from inside the windfarm area. In the turbine site, samples were always taken at least 150 m away from the monopoles.

The projected sampling sites are indicated in Figure 1.

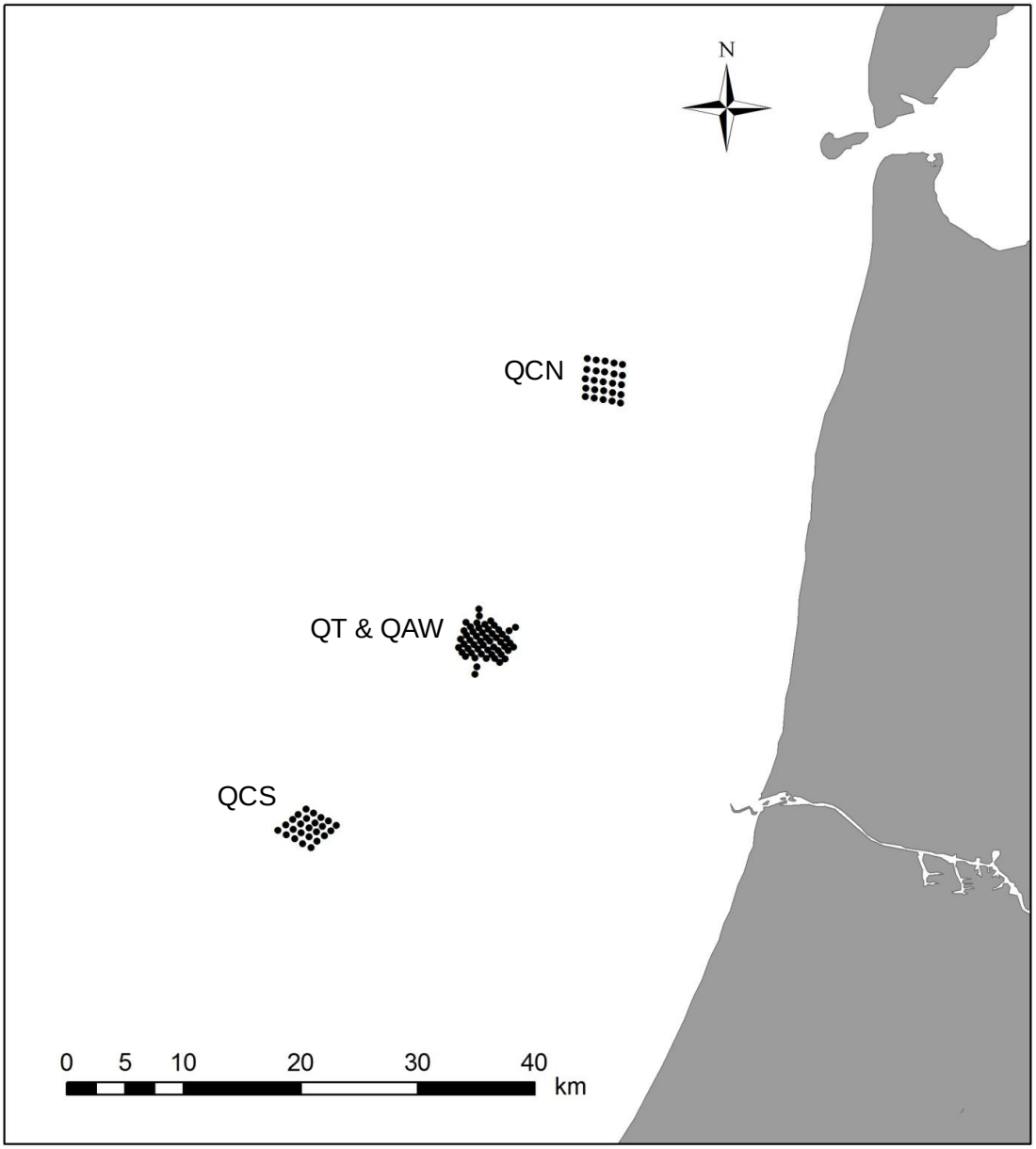

Figure 1: Projected sampling sites in the Dutch Coastal zone.

2.2 Sampling methods

2.2.1 Boxcore sampling

For the survey of the small infaunal invertebrates, the Reineck box with a circular corer (0.078m² sampling surface)[1] was chosen. A total of 199 samples of the projected 200 samples (see further) were collected at 103 stations (79 non-replicated stations and 24 replicated stations) from the turbine site, the adjacent buffer zone and the two reference (control) sites.

The overall sampling effort for the monitoring surveys was as follows (Figure 2):

Non-replicated stations

- Turbine site: 39 stations (39 samples)
- Northern reference area: 20 stations (20 samples)
- Southern reference area: 20 stations (20 samples)

Replicated stations:

- Turbine site: 8 stations (40 samples)
- Adjacent waters: 6 stations (30 samples)
- Northern reference area: 5 stations (25 samples)
- Southern reference area: 5 stations (25 samples)

At every pre-detemined sampling station, the Boxcore was lowered and a sample was taken. Upon retrieval of the sampler, the contents of the box corer's sample holder were inspected by a qualified surveyor and the quality of the sample was assessed. Samples disturbed or too low in volume were rejected. Valid samples were washed over a 1 mm sieve. The residue was photographed for possible future reference and stored in a HdPE jar with suitable fixing and preserving solution (4% formo-saline solution).

Boxcore samples were taken from the 6th till the 22nd of April 2013. This is one month later than in 2012. Samples were taken in a north to south direction. Only one station (QT17) was skipped, because it was located only 10 m from the cable to the OHVS.

[1] The Reineck box corer consists of a round metal box (29,5 cm diameter), which is attached to a weighted tubular steel frame. Upon deployment and when contact is made with the seabed, the projecting box is driven into the sediment by the weight of the corer. Once the tension has been taken by the lifting cable, a mechanism rotates a counterbalanced arm that swings a cutting plate through the sediment and under the box to retain the sediment contained within. The sampling device is then lifted from the seabed and through the water column to the survey vessel. The cutting plate has a rubberised upper surface, which seals the sediment sample within the box corer by sitting flush against the lower edge of the corer during the recovery from the seabed to the vessel.

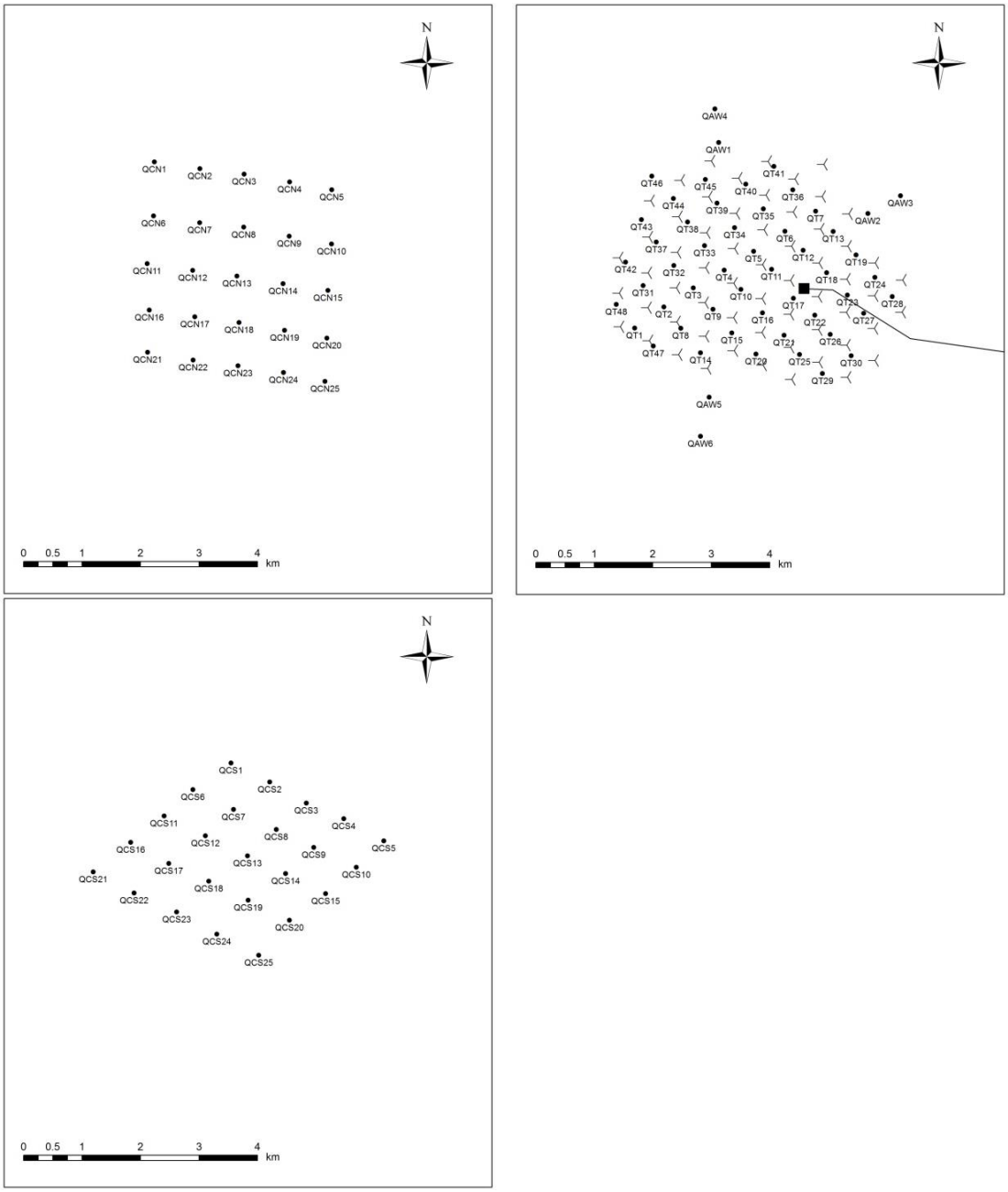

Figure 2: Sample positions of the boxcores in the four areas.

2.2.2 Triple D Dredge sampling

To survey less abundant and larger infaunal invertebrates, the Triple D dredge was chosen. This dredge has a cutting plate with a width of 1 m and a penetration depth of 15 cm, the retaining net has a mesh size of 6 mm. The dredge was towed for a distance of 50-800 m, depending on the sampled volume. A total of 39 samples were collected at 39 different stations.

The overall sampling effort for the monitoring surveys was as follows (Figure 3):

- Turbine site: 15 dredge tows
- Adjacent waters: 6 dredge tows
- Northern reference area: 9 dredge tows
- Southern reference area: 9 dredge tows

At the pre-determined sampling stations, the dredge was lowered and towed over a distance of 50-800 m through the seabed. Standard tow length was 100 m. If the sampled volume was too low or too high, tow length in the specific area was adapted to 50, 200 or 400 m. Because adjacent stations required similar tow length, first a tow length equal to the previous station was carried out. If the sample volume was still too low, a second haul was carried out. Once on deck, the retaining net was emptied and, if approved to be a successful sample, the content of the net was placed in a sample container and photographed for possible future reference. All dredge samples were sorted onshore, identified to species level if possible, wet weight per species determined and length of individuals measured. Depending on the total volume of the sample, a subsample was taken. The processed part of the sample was fixated with a 4% formo-saline solution.

Dredge samples were taken from the 23th till 26th of April in the order QCN, QCS, QT and QAW. This was one month later than in 2012. Samples were temporarily stored on ice in labeled, closed buckets till processing on land. At the end of each sampling day, samples were brought to land to be processed by the processing crew the next day.

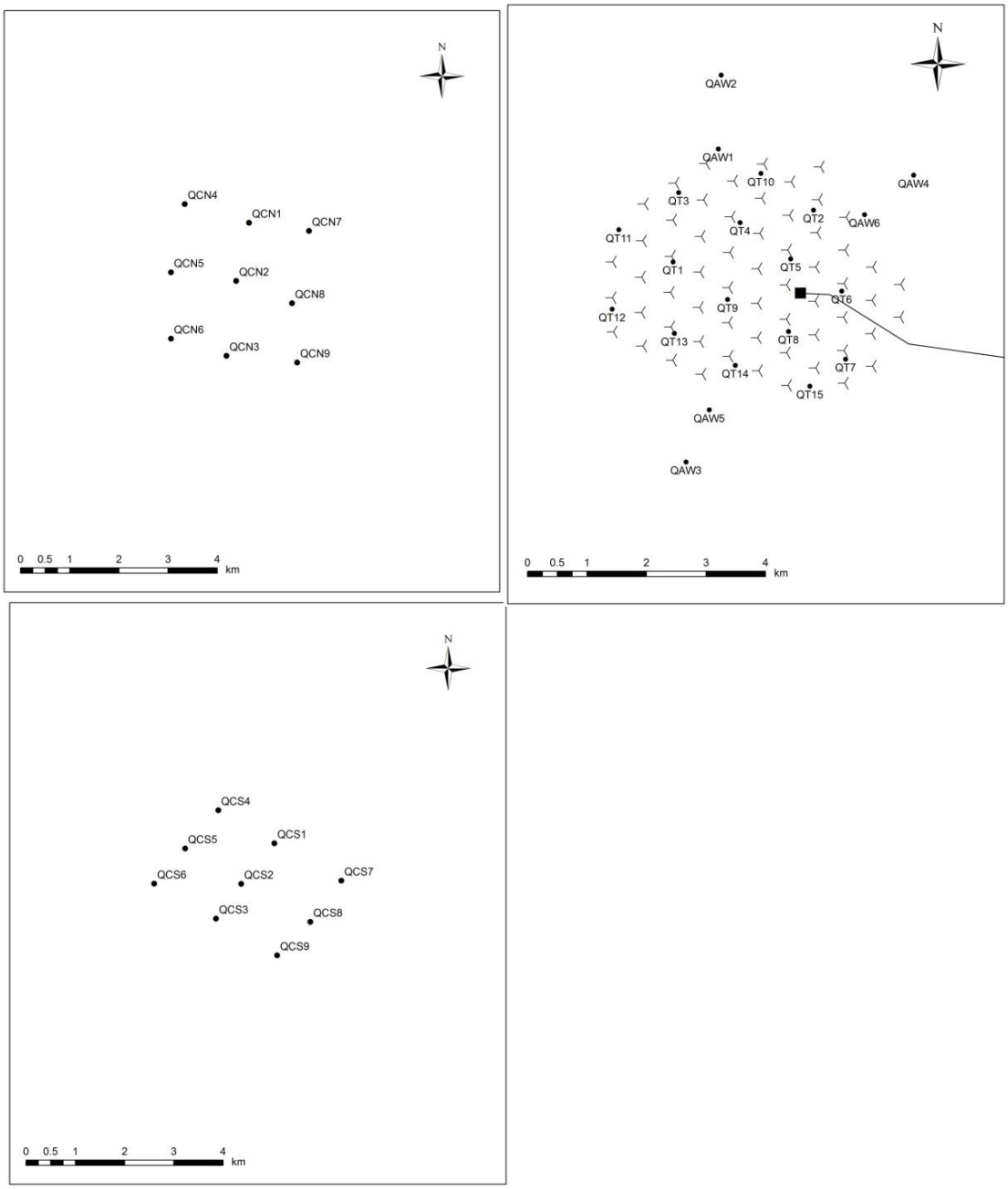

Figure 3: Sample positions of the dredges in the four areas.

2.3 Laboratory methods

2.3.1 Sediment analyses

Sediment particle size of the fraction less than 2000 μm was determined with laser granulometry (Malvern Mastersize 2000 laser granulometer).

To assess the organic matter content, the PrepAsh was used: an instrument for gravimetrical analysis, which increases precision while decreasing the time of analysis.

This is mainly accomplished by the completely automised run of 29 samples and one reference sample. The weight change of the sample is plotted while the temperature gradually increases according a predefined program.

2.3.2 Boxcore samples

In accordance with the research plan, only the non-replicate boxcore samples were sorted in the lab. The replicate samples were collected for possible further reference and would only be analysed if the data from the non-replicated sites suggested there might be patterns at a small spatial scale that were relevant for the research questions.

Sorting

After fixation with a 4% formo-saline solution, the benthos samples were stained with Rose Bengal (1%), which has the ability to stain proteins in animals that were caught alive. After 24h, the organisms were picked out.

The samples were thoroughly rinsed in a 1 mm sieve to remove as much fixation liquid as possible. The rinsed sediment was stored in a triage bin, where the organisms were picked out and preserved in 70% ethanol. The residue was kept for possible future audits.

Identification

All organisms were identified to species level whenever possible and counted. Identification was performed with a binocular microscope and based on the most recent systematic literature. For nomenclature and taxonomy, the World Register of Marine Species (WoRMS) was followed. All identified organisms were stored per species in separated tubes/jars.

Biomass

In this study, we opted to determine biomass (ash free dry weight) in an indirect way. Depending on the taxonomic class, a different method was used. This is according to the methods used for the T0 data (Jarvis *et al.*, 2004), T5 data of OWEZ (Daan *et al.*, 2007) and the T5 data of PAWP (Vanagt et al., 2013a), and where deviating from these methods, it is in accordance with the guidelines by the National Marine Biological Analytical Quality Controle Scheme (NMBAQCS).

Echinoids and *Ophiura* spp.

Lengths and widths (if possible) were measured of molluscs and echinoids, respectively. The central disk was measured of *Ophiura* spp. All measurements were done with a digital caliper with an accuracy of 0.01 mm.

Molluscs, polychaetes, larger crustaceans, gastropods and *Asterias rubens*

For molluscs a different method was used compared to the T0 and T5: biomass data of these organisms were determined with the Blotted wet weight method. Organisms were weighted per sample and per species. Individuals were dried on filter paper until no surface moisture was present. The organisms were gently placed in an aluminium cup (small organisms) or a porcelain cup (larger organisms) and weighted to 0.0001 gram accurate. Wet weight was transformed to ashfree dry weight (AFDW) by using applicable conversion factors for the different taxa (Ricciardi & Bourget, 1998).

2.3.3 Dredge samples

Sorting, identification and biomass

All 39 dredge samples were sorted, identified and weighted (wet weight) in a field laboratory. Some species (polychaetes and bivalves) were re-identified in the laboratory if there was some uncertainty about the identification. In addition, five complete samples were re-sorted and re-identified in the laboratory for quality control purposes. Shell lengths of the three most common bivalve mollusks were measured.

Shell damage

To assess whether bivalves suffered from shell damage, all species of bivalves that were regularly encountered were examined for scars under a dissecting microscope. In addition, width of sea urchins was measured to assess length-frequency distributions.

2.4 Statistical analyses

Density and biomass (Ash Free Dry Weight, AFDW) for the boxcore samples were standardised to the number of individuals per m^2 (ind/m^2) and for the dredge samples to the number of individuals per 100 m^2. In addition, diversity indices were calculated per sample (Shannon-Wiener, Pielou's Evenness and Gini-Simpson index). The Shannon index is based on the relative abundances of the species in a community and increases with increasing diversity. Pielou's evenness ranges from 0 to 1 and raises with decreasing variation in communities. The Gini-Simpson index equals the probability that two individuals represent different taxa, which raises with increasing diversity. Differences between the four different areas were assessed with Kruskal-Wallis ANOVA followed by post-hoc multiple comparisons using Statistica (StatSoft, 2004).

Multivariate analyses were carried out with the Primer v6 program (Clarke & Gorley, 2006). Before analysis, data were fourth-root transformed. Bray-Curtis similarity matrices were used to build up non-metric multidimensional scaling (MDS) plots. MDS plots give information on relationships between data points. SIMPER analysis allows to detect which species contribute to the distance between certain communities (dissimilarity percentage) and clustering in a community (similarity percentage). ANOSIM analyses

(Analysis of Similarities) were performed to determine significant differences ($p < 0.05$) between groups (areas) and sampling years (years).

2.5 Quality control

During the analyses of benthic samples - sorting and identification - quality controls were carried out. 10% of the boxcore samples and 12% of the dredge samples were re-analysed by a colleague analyst.

All controls were within the 90% similarity level set as a minimum acceptance criterion by NMBAQCS (Worsfold & Hall, 2010).

3. RESULTS

3.1 Physical variables

Sampling depth of the boxcore samples ranged from 17.0 m (QT 29) to 24.2 m (QCS 13.3), with a mean of 20.7 ± 1.4 m for all samples (Table 1). Despite the small range, sampling depth was still significantly deeper in the southern reference area than in the northern reference area and the turbine site (Figure 4).

Table 1: Sampling depth of the boxcore samples.

Area	Sampling depth (m)			
	Mean	St. Dev.	Min.	Max.
QCN	20.2	0.78	19.0	21.4
QT	20.3	1.44	17.0	23.0
QAW	20.3	1.13	19.1	22.3
QCS	21.8	1.48	18.9	24.2
Total	20.7	1.44	17.0	24.2

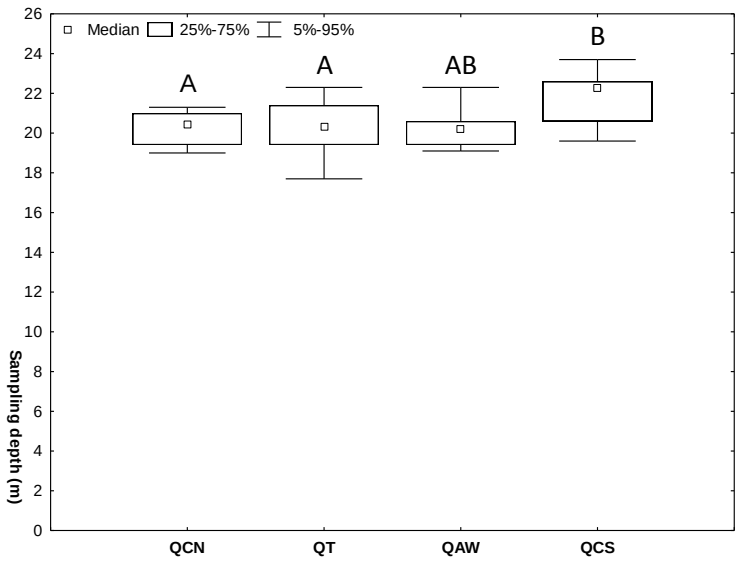

Figure 4: Box-whisker plots of the sampling depth for boxcore samples per area. Statistically significant differences (post-hoc multiple comparisons; $p < 0.05$) are indicated with different letters.

Median grain size ranged from 226 µm (QCN 10) to 339 µm (QCS 18), with a mean particle size of 282 ± 25 µm for all samples (Table 2); this can be classified as medium sand according to the Wentworth-scale. There was a slight north-south trend of coarsening sands, with a significantly higher median grain size in the southern reference

area and significantly lower median grain size in the northern reference area than in the the turbine site (Figure 5).

Table 2: Physical variables of the boxcore samples.

Area	Median particle size (µm)		Clay (%)		Sand (%)		Organic matter (%)	
	Mean	St. Dev.	Mean	St. Dev.	Mean	St. Dev.	Mean	St. Dev.
QCN	258	25.4	1.26	1.73	98.1	2.34	0.688	0.161
QT	280	15.2	0.203	0.674	99.6	1.07	0.710	0.104
QAW	285	12.3	0.000	0.000	100	0.00	0.653	0.0432
QCS	309	12.7	0.158	0.762	99.7	1.30	0.652	0.144

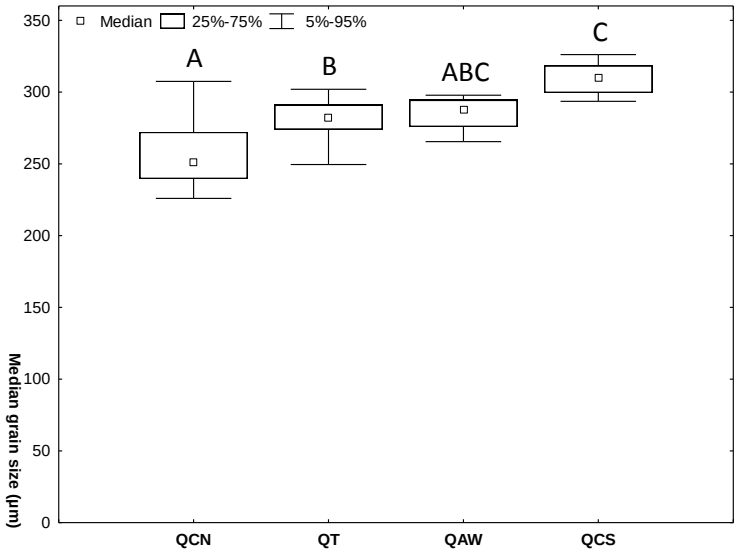

Figure 5: Box-whisker plats of the median grain size per area. Statistically significant differences (post-hoc multiple comparisons; $p < 0.05$) are indicated with different letters.

Clay percentages (particle size less than 63 µm) were very low, the mean ranged between 0% (QAW) and 1.3% (QCN). Sandy sediments dominated the three areas, with mean percentages varying between 98.1 and 100.0%. No significant differences in clay and sand percentages were observed between the areas.

Organic matter content was comparable between the different areas, with an overall mean of 0.688 ± 0.129%. The lowest value was measured for QCN 3.1 with a value of 0.425%, the highest value (1.19%) was measured in QCN 8. Despite the limited range, organic matter content was significantly lower in the southern reference area than in the turbine site (Figure 6).

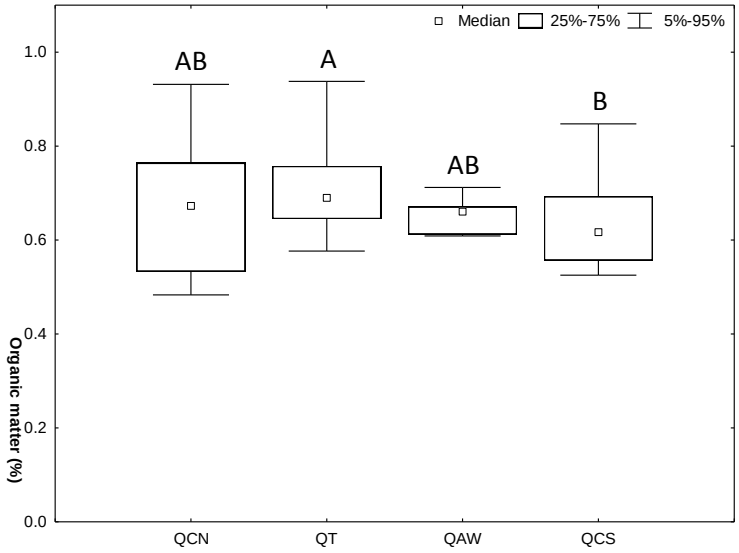

Figure 6: Box-whisker plot of the organic matter content per area. Statistically significant differences (post-hoc multiple comparisons; $p < 0.05$) are indicated with different letters.

3.2 Boxcore samples

General diversity – species composition

A total number of 71 different invertebrate taxa was found in the windfarm area and the two reference areas. The number of species per sample varied between 3 (QCS 8) and 20 (QCN 4 & 7) with an average of 11.7 ± 3.3 species per sample (Table 3). Species richness was significantly higher in the northern than in the southern reference area and the turbine site (Figure 7). Most of the taxa found were polychaete worms (31 taxa) and crustaceans (24 taxa); the latter contained amongst others 13 amphipod species and 7 decapod species (Figure 8).

Table 3: Biodiversity data of the boxcore samples per area.

Area	Samples	Number of species			Pielou's Evenness	Shannon Index	Gini-Simpson Index
		Total	Mean	St. Dev.			
QCN	25	50	13.7	2.89	0.772	2.00	0.790
QT	47	65	11.3	3.10	0.823	1.96	0.822
QAW	6	27	12.2	3.87	0.768	1.89	0.788
QCS	25	44	10.3	3.22	0.836	1.90	0.818
Total	103	71	11.7	3.32	0.811	1.95	0.811

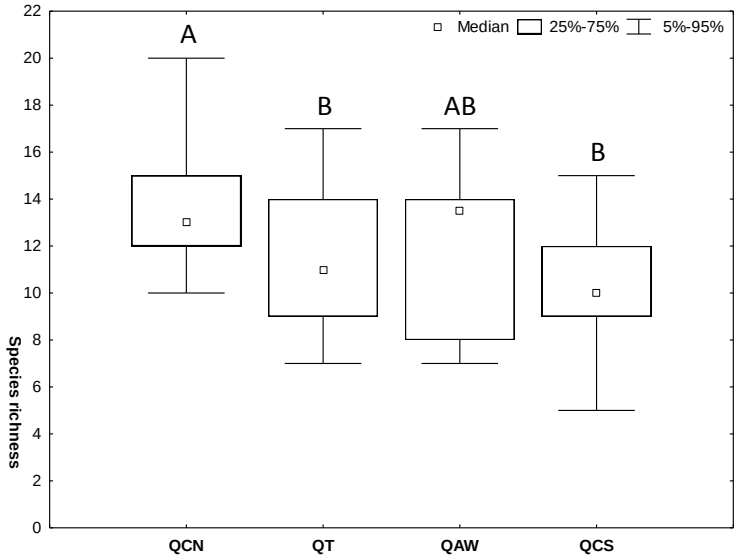

Figure 7: Box-whisker plot of species richness per area. Statistically significant differences (post-hoc multiple comparisons; $p < 0.05$) are indicated with different letters.

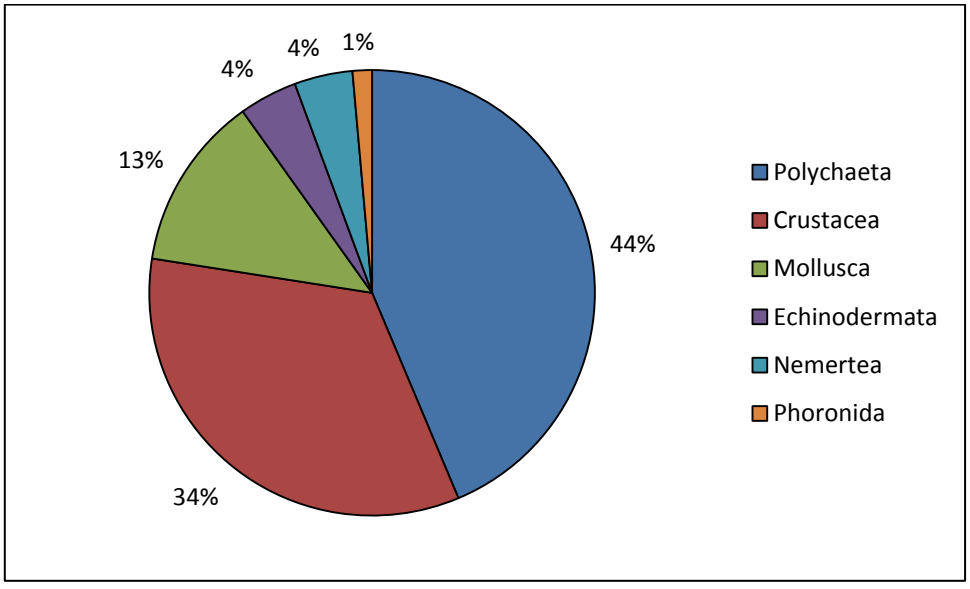

Figure 8: Proportion of species richness of the taxa present in the boxcore samples. Percentages represent the relative contribution of the different taxa to the species richness.

Pielou's evenness (Figure 9), Shannon Index (Figure 10) and Gini-Simpson Index (Figure 11) were all similar for the different areas.

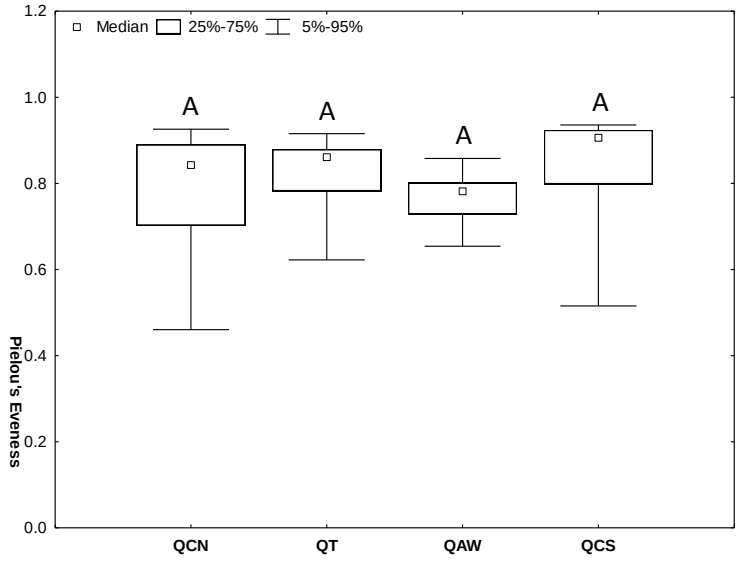

Figure 9: Box-whisker plot of Pielou's Evenness per area. Statistically significant differences (post-hoc multiple comparisons; $p < 0.05$) are indicated with different letters.

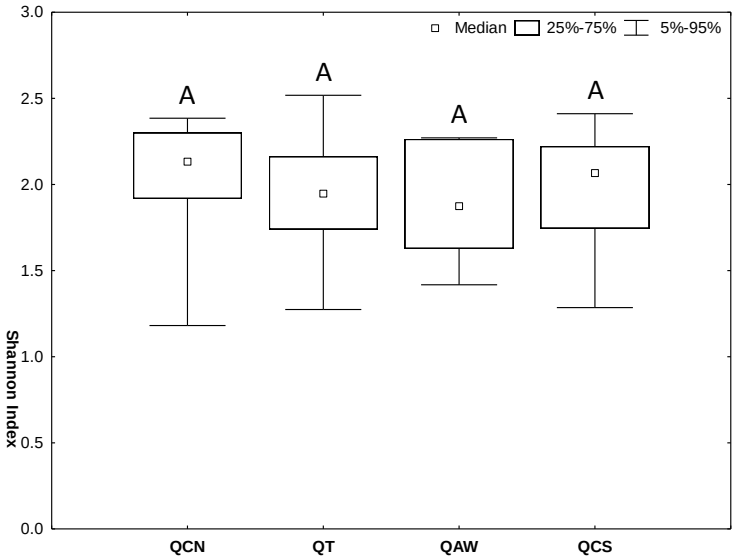

Figure 10: Box-whisker plot of Shannon Index per area. Statistically significant differences (post-hoc multiple comparisons; $p < 0.05$) are indicated with different letters.

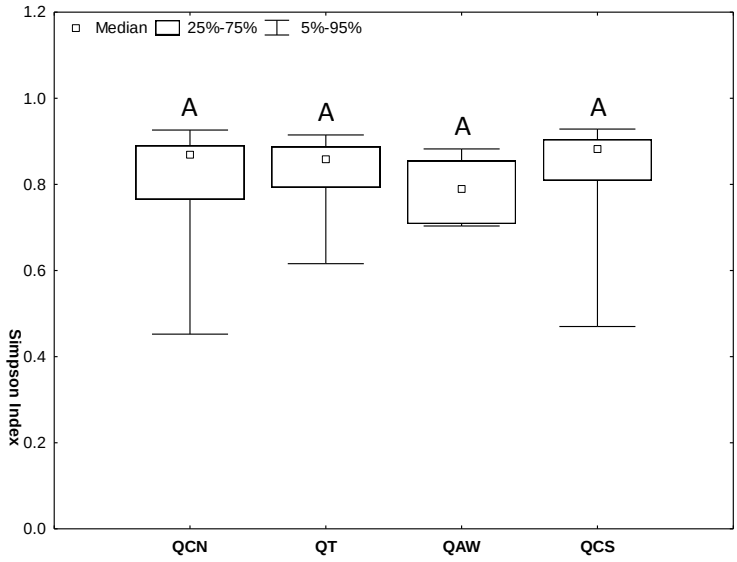

Figure 11: Box-whisker plot of Gini-Simpson Index per area. Statistically significant differences (post-hoc multiple comparisons; $p < 0.05$) are indicated with different letters.

A 'species accumulation curve' was used to examine if the amount of analysed samples was sufficient to get a representative idea of the biodiversity present (Figure 12). The maximum number of species was estimated using an extrapolation technique (Bootstrapping). The graph shows that at 103 samples, the number of species in the samples is close to an asymptotic value, which is the estimated total number of species present . This means that the sampling effort was sufficient. Looking at estimated versus observed number of species (endpoint of curve versus asymptotic value[2]) over all areas together, 92% of the estimated number of species was encountered in the samples. In the northern and southern reference site it was 91%, in the turbine site 90%.

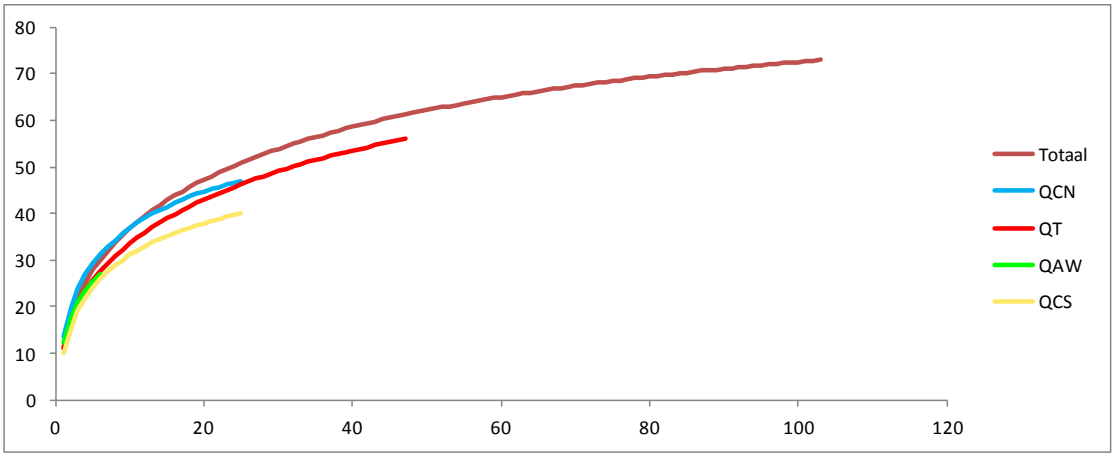

Figure 12: Estimated number of species (Y-axis) in relation to the number of samples (X-axis), determined with Bootstrapping.

[2] The number of species at the endpoint of the curve, i.e. at the total number of collected samples for an area, is the observed number of species. The curve bends asymptotically to a maximum at an infinite number of samples, which is the estimated total number of species.

Long-lived species

True K-strategists were not present in the boxcore samples. However, a number of species having a relatively long lifespan were present, especially in the dredge samples (see further). Fish were absent from the boxcores, as were most larger crustaceans. Longer-lived bivalves were very scarce in the boxcore samples. E.g. *Chamelea striatula* was present in only 4 boxcore samples with 1 individual each. In only one boxcore sample more than 1 individual of the bivalve *Spisula elliptica* was found.

Density and biomass

Mean invertebrate densities ranged from 388 ± 311 individuals/m² in QCS to 798 ± 519 individuals/m² in QCN (Table 4). The maximum density in one sample was observed in QCN 4 with 2090 individuals/m², which was mainly due to a high densities of the amphipods *Urothoe poseidonis* (910 individuals/m²) and *Bathyporeia elegans* (679 individuals/m². Density was significantly higher in the northern reference area than in the southern reference area and the turbine site (Figure 13).

Table 4: Density and biomass data of the boxcore samples.

Area	Density (N/m²)				Biomass (g AFDW/m²)			
	Mean	St. Dev.	Min.	Max.	Mean	St. Dev.	Min.	Max.
QCN	798	519	256	2090	11.3	11.0	0.592	32.0
QT	422	184	179	1000	7.15	6.04	0.143	25.4
QAW	568	224	308	910	18.9	14.6	1.61	37.8
QCS	388	311	115	1460	11.6	18.7	0.209	85.7
Total	513	363	115	2090	9.91	12.1	0.143	85.7

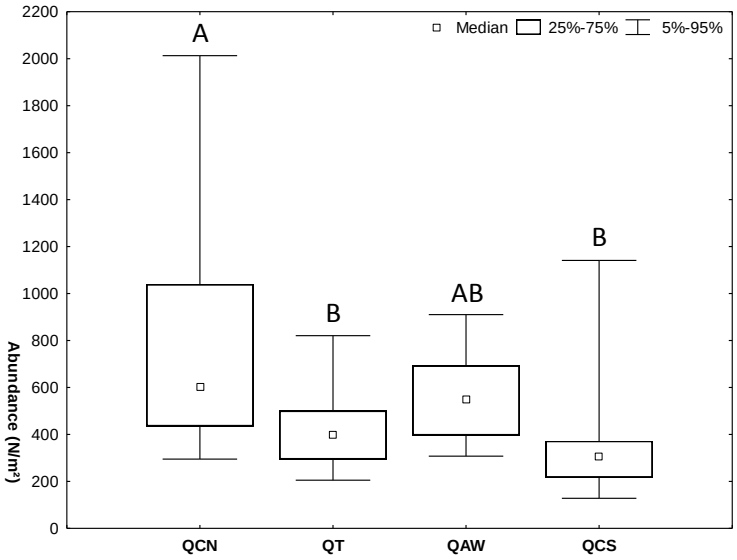

Figure 13: Box-whisker plot of abundance per area. Statistically significant differences (post-hoc multiple comparisons; $p < 0.05$) are indicated with different letters.

The mean biomass (AFDW) was highest in QAW (18.9 ± 14.6 g/m²) and lowest in the turbine site (7.15 ± 6.04 g/m²). High biomasses were mostly due to the presence of *Echinocardium cordatum*. There were no statistically significant differences in biomasses between the areas (Figure 14).

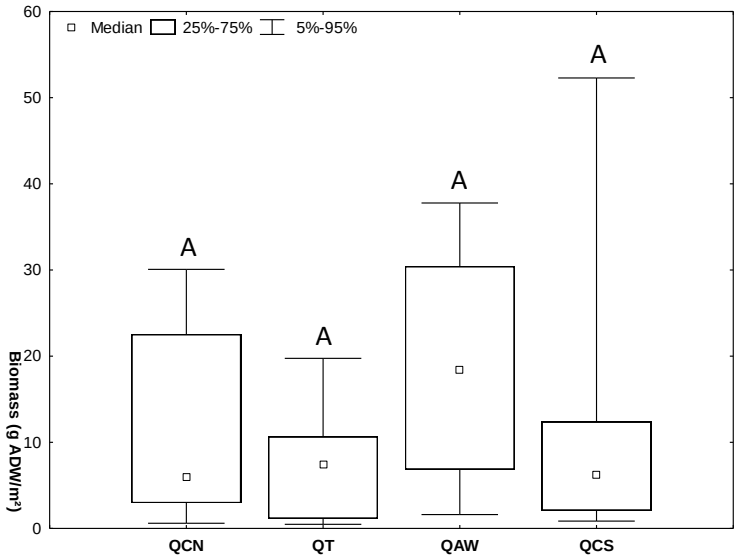

Figure 14: Box-whisker plot of biomass per area. Statistically significant differences (post-hoc multiple comparisons; $p < 0.05$) are indicated with different letters.

Multivariate analyses

The multivariate ANOSIM data-analysis showed statistical differences in density and biomass between the different areas ($p < 0.001$). Looking at the MDS-plot, it is clear that the samples are arranged along a north – south gradient (Figure 15). Dissimilarity between areas was derived from the ANOSIM and SIMPER results. The dissimilarity between the different areas was mainly caused by differences in densities of the the amphipods *Bathyporeia elegans*, *Urothoe poseidonis* and *Bathyporeia guillamsoniana* and the polychaetes *Magelona filiformis*, *Exogone hebes* and *Lanice conchilega* (Table 5). When these analyses were performed on the biomass data, similar dissimilarity percentages were obtained.

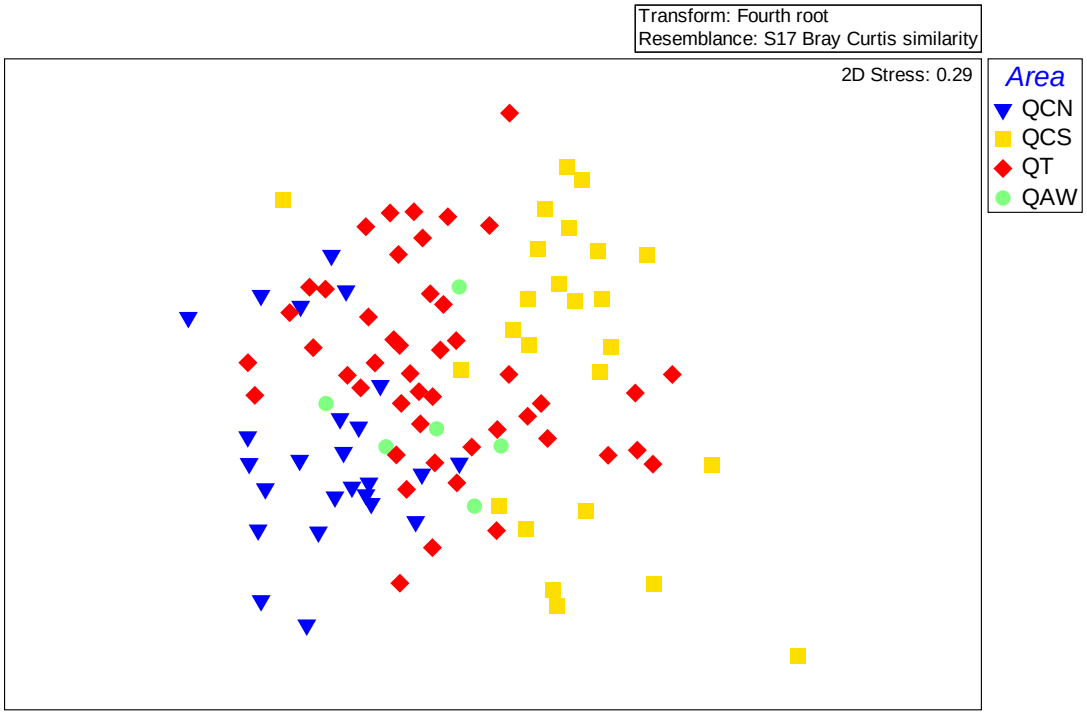

Figure 15: MDS plot based on density data with indication of the different areas (note the stress factor of 0.29, which suggest a relatively low relevance of the sample clusters).

The most abundant taxa were *Bathyporeia elegans*, *Nephtys cirrosa*, *Urothoe poseidonis* and *Scoloplos armiger*. These species led to a similarity of ± 40% in each area[3]. A total of 27 species (37%) occurred in all areas. The taxa listed in Table 6 were specific to one or two areas (North-South gradient from left to right) and occurred in more than one sample.

[3] In multivariate analyses, the areas QT and QAW were treated as one area, because of the low sample size of QAW.

Table 5: Results ANOSIM and SIMPER analyses of the boxcore samples.

Area	*R*	*p*	Dissimilarity (%)	Indicator species	Mean density Area 1 – Area 2	
QCN - QCS	0.517	0.001	66.7	*Bathyporeia elegans*	1.79	0.51
				Urothoe poseidonis	1.32	0
				Urothoe brevicornis	0.74	0.05
				Exogone hebes	0	0.85
				Lanice conchilega	0.74	0.04
				Magelona filiformis	0.81	0.34
QT - QCN	0.225	0.001	57.8	*Urothoe poseidonis*	0.07	1.32
				Magelona filiformis	0.35	0.81
				Bathyporeia elegans	1.33	1.79
				Lanice conchilega	0.18	0.74
				Chaetozone christiei	0.37	0.73
				Bathyporeia guilliamsoniana	0.57	0.82
QT - QCS	0.390	0.001	62.5	*Bathyporeia elegans*	1.33	0.51
				Exogone hebes	0	0.85
				Megaluropus agilis	0.4	0.74
				Spiophanes bombyx	0.67	0.32
				Bathyporeia guilliamsoniana	0.57	0.58
				Ophelia borealis	0.58	0.67

Table 6: Taxa specific to one or two areas, which appear in more than one sample.

QCN	QT and QAW	QCS
Angulus fabula *Donax vittatus* *Eumida sanguinea* *Phyllodoce groenlandica* *Poecilochaetes serpens*		
	Chamelea striatula *Ensis directus* *Hypereteone foliosa* *Malmgreniella darbouxi* *Nemertea sp. R* *Nemertea sp. S* *Perioculodes longimanus* *Urothoe poseidonis*	
	Capitella capitata *Ensis ensis* *Eunereis longissima* *Ophiura ophiura* *Syllis prolifera*	
		Leucothoe incisa *Nephtys longosetosa* *Pestarella tyrrhena* *Phoronis muelleri* *Psammodrilus balanoglossoides* *Spio goniocephala* *Spisula elliptica*
		Aricidea minuta *Exogone hebes* *Paraonis fulgens*

3.3 Dredge samples

General diversity – species composition

During the benthic dredge surveys, a total of 60 different species were identified, with an average of 24 ± 4 species per sample (Table 7). Species richness was similar in the different areas (Figure 16). 18 taxa were fishes, 13 bivalves, 11 decapods, five polychaetes, four echinoderms, two gastropods and one Nemertea.

Table 7: Biodiversity data of the dredge samples per area.

Area	Samples	Number of species			Pielou's Evenness	Shannon Index	Gini-Simpson Index
		Total	Mean	St. Dev.			
QCN	9	43	25.6	4.16	0,752	2,426	0,838
QT	15	50	23.0	4.87	0,760	2,358	0,855
QAW	6	36	23.7	3.20	0,704	2,222	0,833
QCS	9	38	24.6	2.70	0,789	2,523	0,890
Total	39	60	24.1	4.04	0,756	2,391	0,856

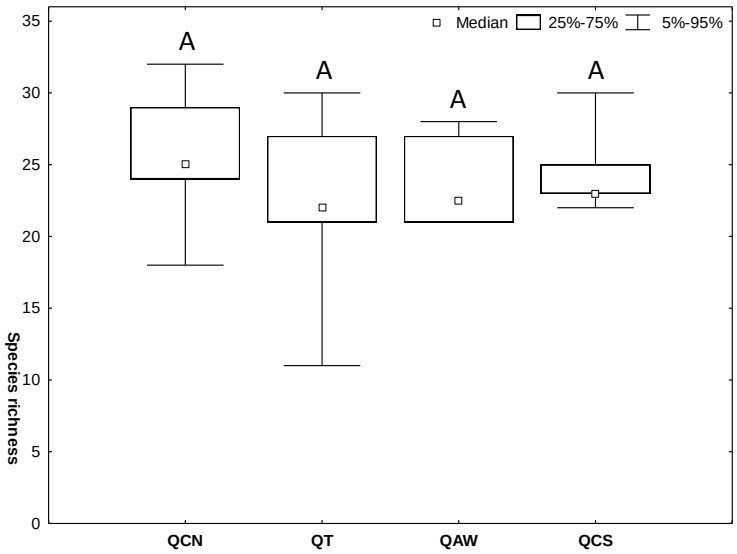

Figure 16: Box-whisker plot of species richness per area. Statistically significant differences (post-hoc multiple comparisons; $p < 0.05$) are indicated with different letters.

There is little variation in diversity between the different sampling areas. There were no statistically significant differences in Pielou's Evenness (Figure 17), Shannon Index (Figure 18) and Gini-Simpson Index (Figure 19) between the areas.

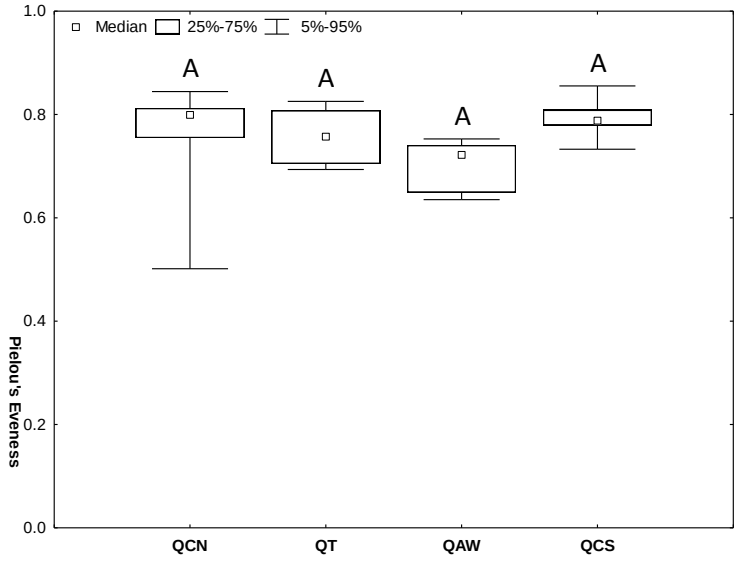

Figure 17: Box-whisker plot of Pielou's Evenness per area. Statistically significant differences (post-hoc multiple comparisons; $p < 0.05$) are indicated with different letters.

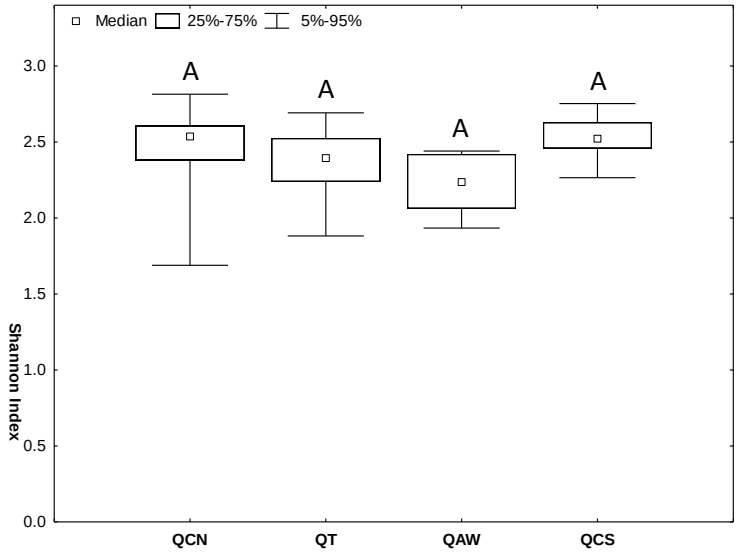

Figure 18: Box-whisker plot of Shannon Index per area. Statistically significant differences (post-hoc multiple comparisons; $p < 0.05$) are indicated with different letters.

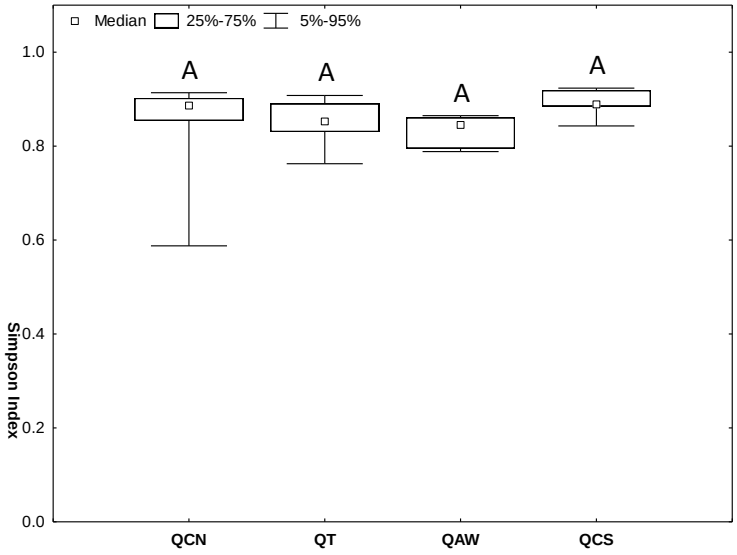

Figure 19: Box-whisker plot of Gini-Simpson Index per area. Statistically significant differences (post-hoc multiple comparisons; $p < 0.05$) are indicated with different letters.

The species accumulation curve shows that an asymptotic value is almost reached with an effort of 39 samples (Figure 20). At that point, 91% of the estimated number of species was encountered in the samples.

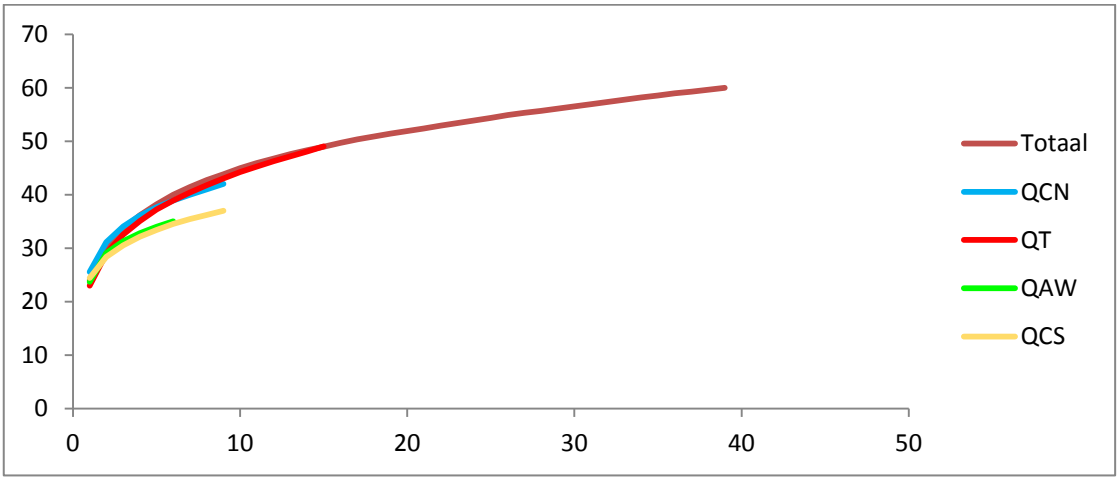

Figure 20: Dredge samples, estimated number of species (Y-axis) in relation to the number of samples (X-axis), determined with Bootstrapping.

Long-lived species

Although real K-strategists, such as rays and the Icelandic cyprine, were not present in the samples, as expected the dredge samples contained more long-lived species than the boxcore samples. The commercial fish species plaice, *Pleuronectes platessa*, and dab, *Limanda limanda*, showed only small differences in density between differen the impact and north and south reference areas. The lesser weaver, *Echiichthys vipera*, which is a more sedentary fish species, showed a clear north-south gradient, without a higher abundance in the

impact area. The burrowing prawn, *Pestarella tyrrhena*, a crustacean with restricted mobility, was absent in the northern reference area and showed no clear difference in density between the other areas. It was present in 7 dredge samples, but only in 2 boxcore samples with a total of 5 individuals. The bivalve *Chamelea striatula*, present in only 4 boxcore samples, was present in the majority of the dredge samples. The bivalve *Spisula elliptica*, rare in the boxcore samples, was found with several individuals in the majority of the dredge samples. A few siphons of the bivalve *Lutraria* sp. were present in the dredge samples. Overall, the average density of bivalves in the wind farm area (QT) was markedly lower (11 ind./100m²) than in the other three regions (QCN: 103 ind./100m², QCS: 21 ind./100m² and QAW: 41 ind./100m²).

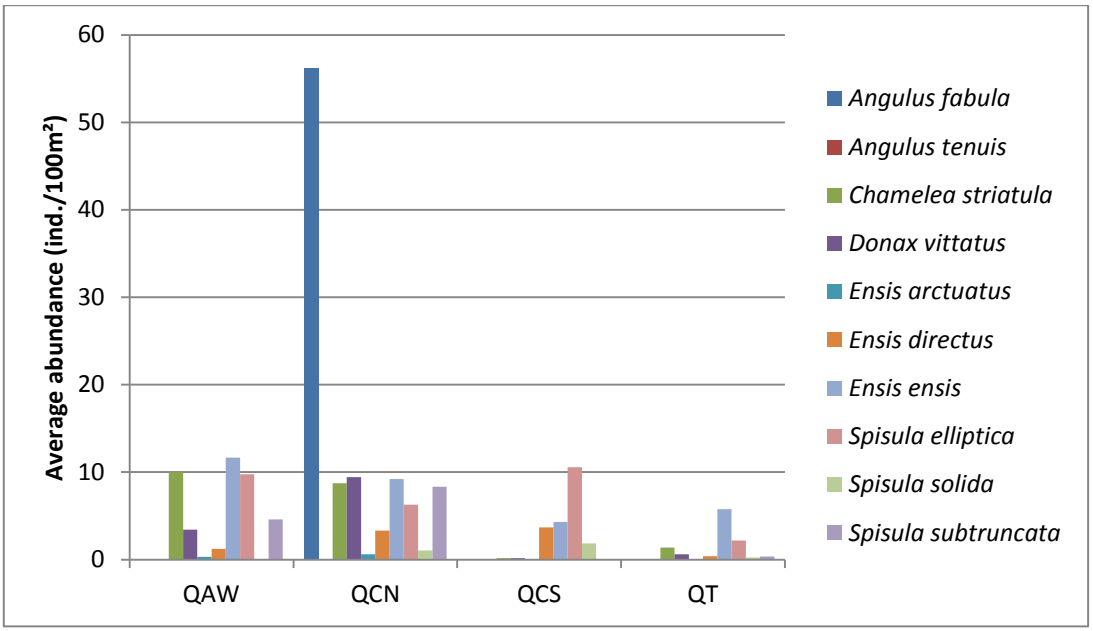

Figure 21: Average density of bivalve species in the dredge samples per area

Density and biomass

The mean dredge densities ranged from 111 ± 46 individuals/100 m² in QCS to 241 ± 118 individuals/100 m² in QCN. The highest density was observed in QCN 7 with 508 individuals/100 m², which was due to a high density of *Angulus fabula* (322 individuals/100 m²). Densities were significantly higher in the northern reference area compared to the turbine site and the southern reference area (Figure 22). The most abundant species was *Ophiura ophiura*, followed by *Ophiura albida*, *Angulus fabula* and *Crangon crangon*.

Table 8: Density and biomass data of the dredge sampling.

Area	Density (N/100m²)				Biomass (g AFDW/100m²)			
	Mean	St. Dev.	Min.	Max.	Mean	St. Dev.	Min.	Max.
QCN	241	118	122	508	57.2	17.6	27.3	85.3
QT	121	36.3	53.0	178	34.6	10.8	11.9	53.1
QAW	194	75.2	106	314	39.2	13.1	25.5	58.6
QCS	111	46.3	39.8	181	23.1	12.2	5.57	38.7
Total	158	86.7	39.8	508	37.9	17.5	5.57	85.3

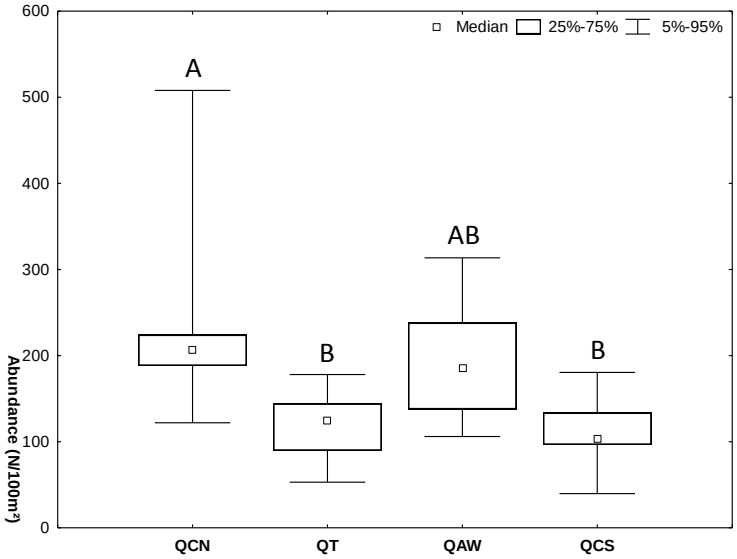

Figure 22: Box-whisker plot of abundance per area. Statistically significant differences (post-hoc multiple comparisons; $p < 0.05$) are indicated with different letters.

The mean dredge biomass ranged from 23.1 ± 12.2 g AFDW/100 m² in QCS to 57.2 ± 17.6 g AFDW/100 m² in QCN (Table 8). The highest biomass was observed in QCN 7 with 85.2 g AFDW/100 m². The biomass was significantly higher in the northern reference area compared to the turbine site and the southern reference area (Figure 23). The length-frequency distribution of *Echinocardium cordatum* in the different areas was similar (Figure 24), although slightly more large specimens of around 45 mm were captured in QCN.

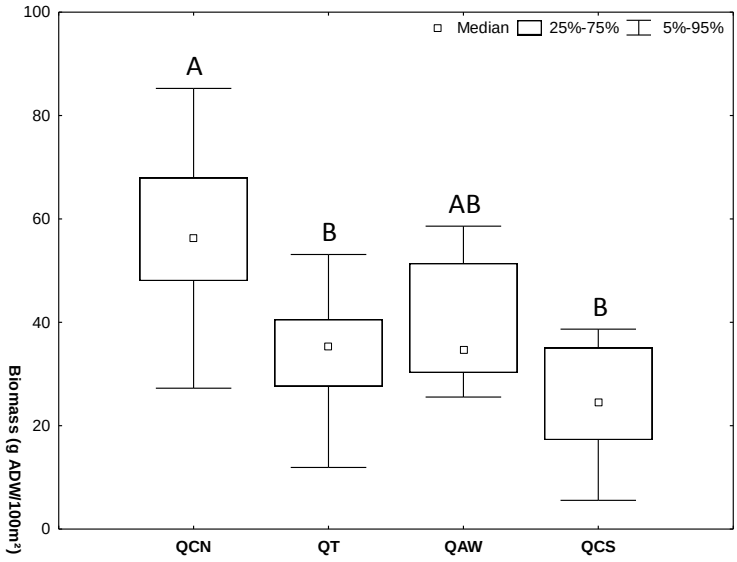

Figure 23: Box-whisker plot of biomass per area. Statistically significant differences (post-hoc multiple comparisons; $p < 0.05$) are indicated with different letters.

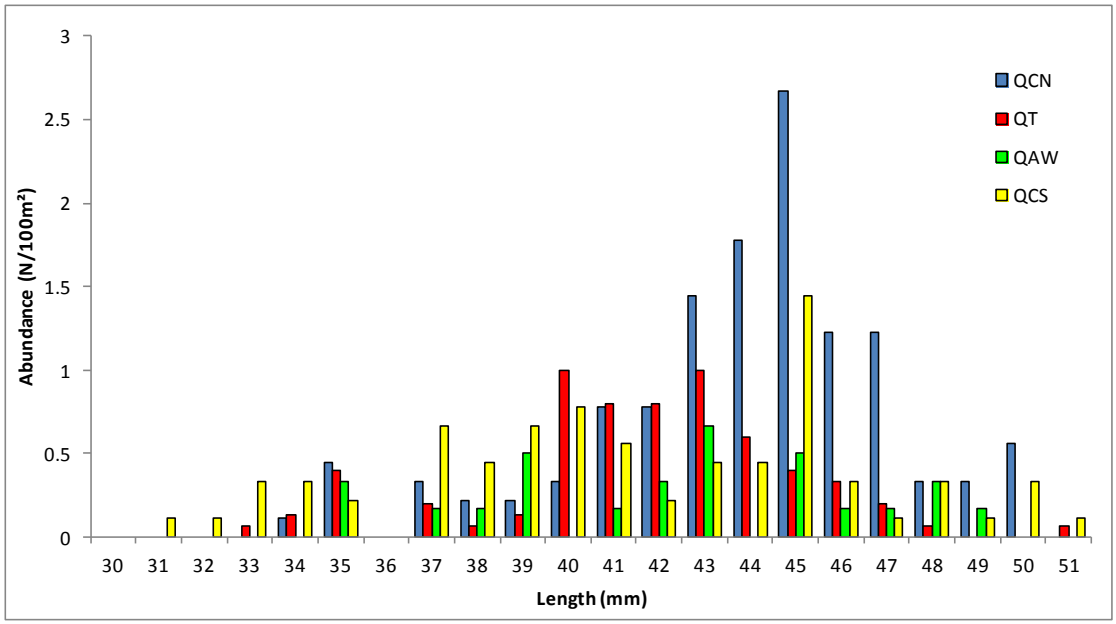

Figure 24: Length-frequency distribution of *Echinocardium cordatum* per area (shells smaller than 30 mm excluded).

The length-frequency distribution of common bivalve mollusks in the different areas was similar for *Spisula elliptica* (Figure 25). For *Chamelea striatula* there were more larger specimens in the northern reference area (Figure 26). Small specimens of *Donax vittatus* were only present in the northern reference area (Figure 27).

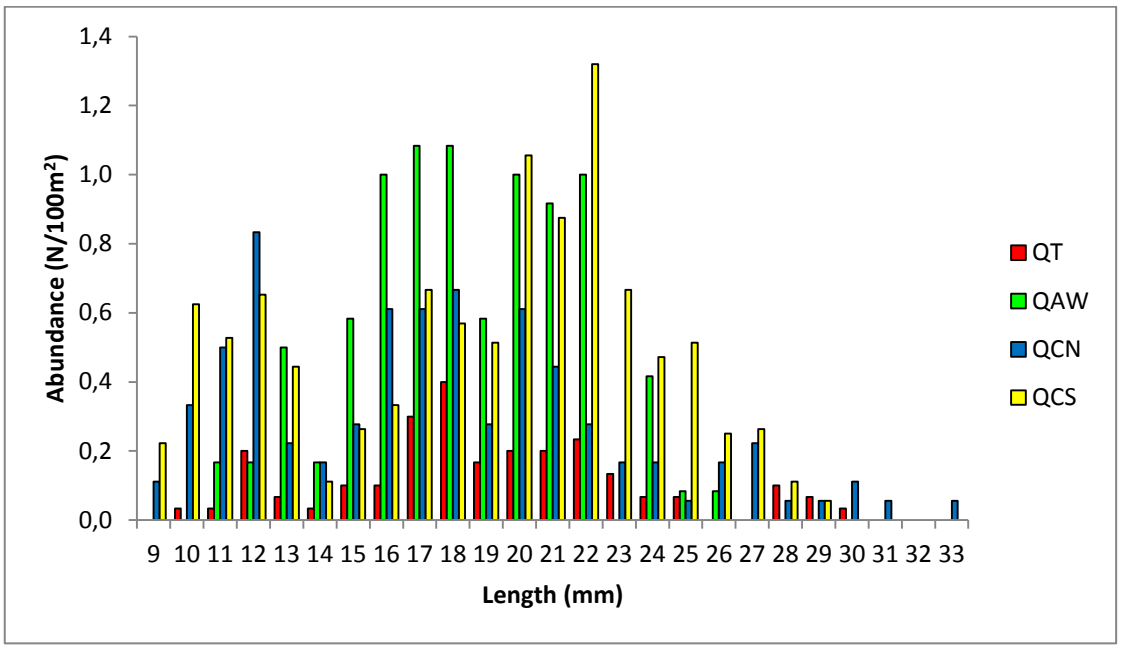

Figure 25: Length-frequency distribution of *Spisula elliptica* per area.

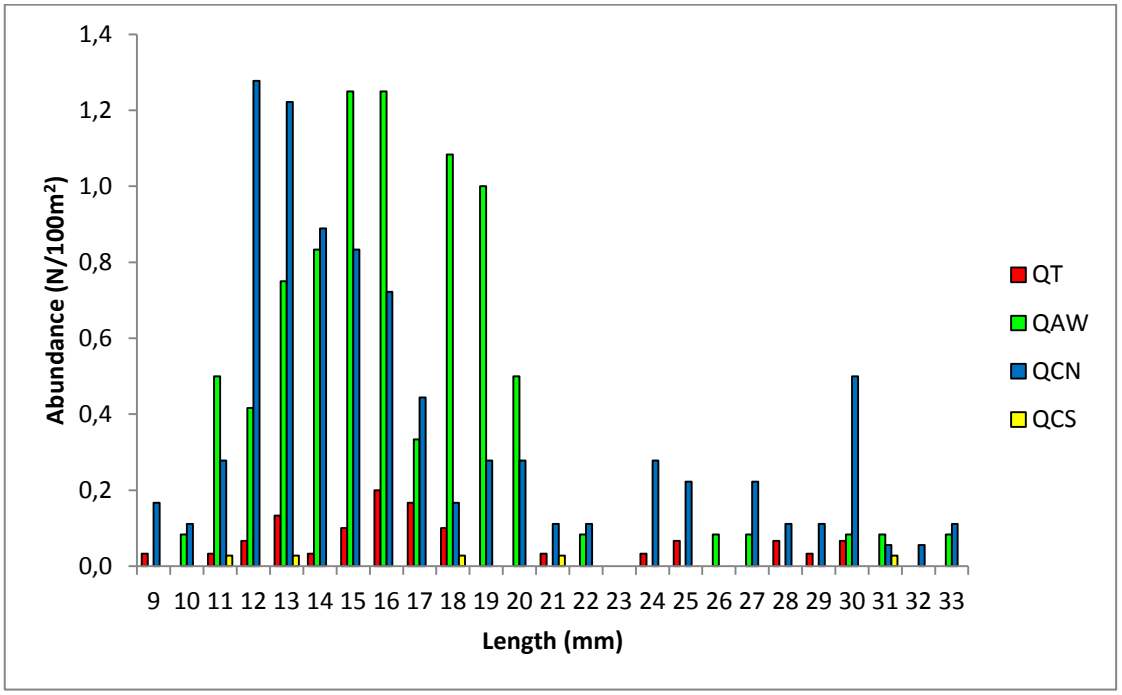

Figure 26: Length-frequency distribution of *Chamelea striatula* per area.

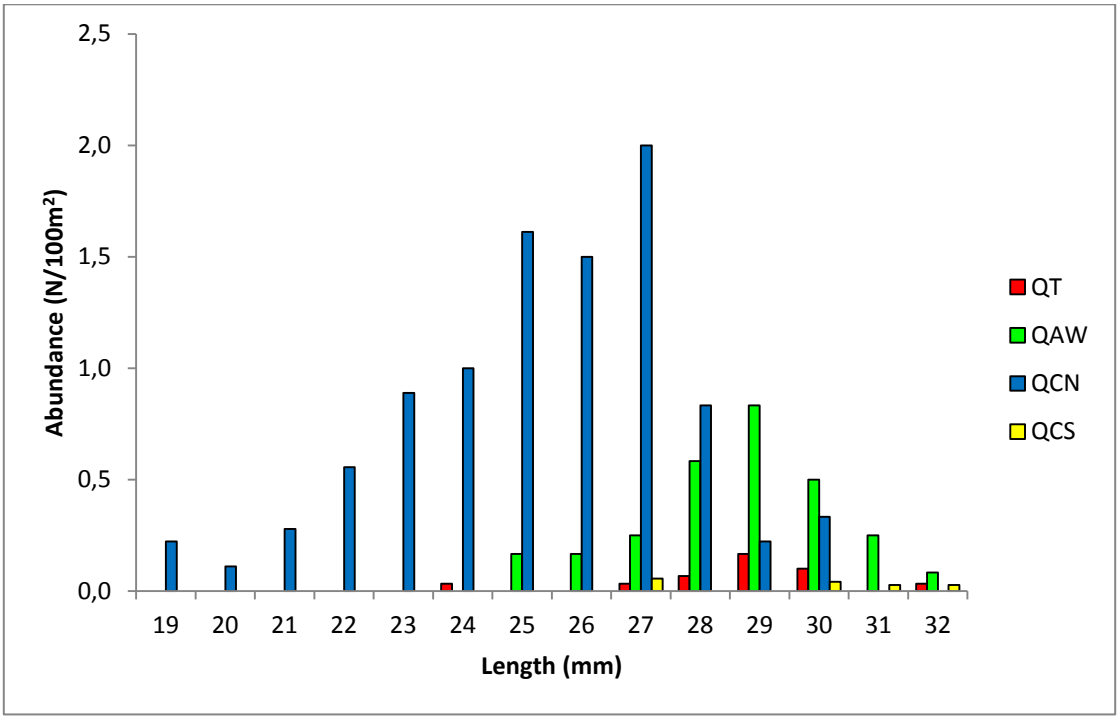

Figure 27: Length-frequency distribution of *Donax vittatus* per area.

Multivariate analyses

The ANOSIM analysis showed, as with the boxcore analysis, differences in densities between the different areas (Table 9). In contrast to the boxcore samples, the MDS-plot did not reveal a gradient from north to south, however, the areas were clearly separated (Figure 28). Dissimilarity between areas were mainly caused by differences in densities of *Lanice conchilega*, *Angulus fibula*, *Donax vittatus*, *Spisula subtruncata* and *Chamelea striatula*.

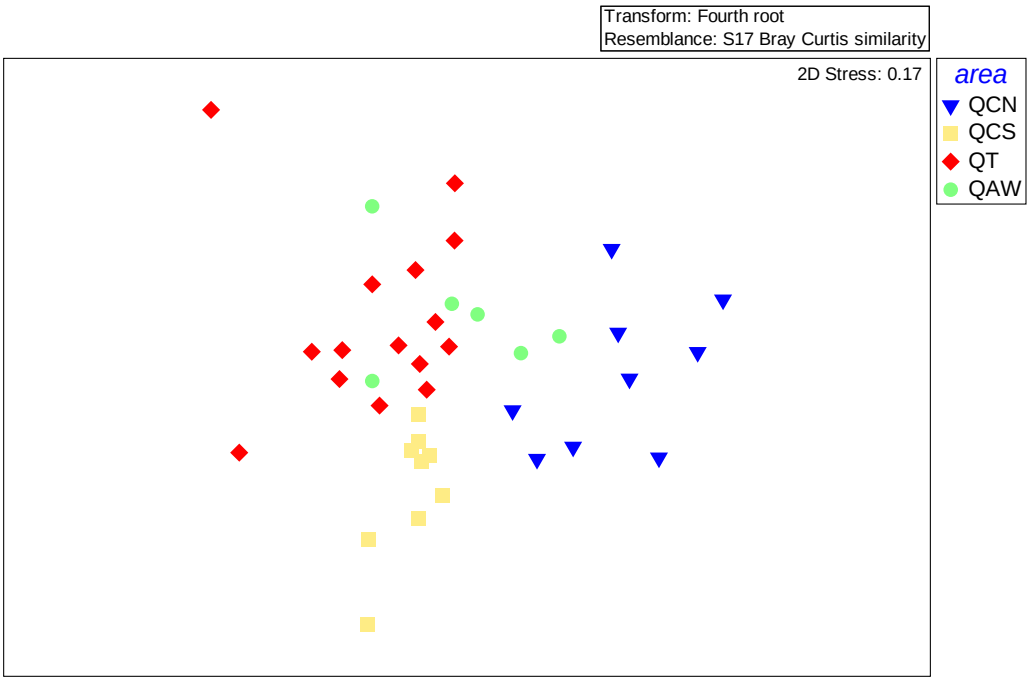

Figure 28: MDS plot based on density data in the dredge samples with indication of the different areas.

Table 9: Results ANOSIM and SIMPER analyses of the dredge samples.

Area	*R*	*p*	Dissimilarity (%)	Indicator species	Mean density Area 1 – Area 2	
QT - QCN	0.588	0.001	36.1	*Lanice conchilega*	0	1.3
				Angulus fabula	0	1.24
				Donax vittatus	0.63	1.67
				Spisula subtruncata	0.52	1.42
				Echinocardium cordatum	1.03	1.74
QT - QCS	0.293	0.009	31.5	*Ophiura ophiura*	2.45	1.44
				Spisula solida	0.14	1.14
				Asterias rubens	1.23	0.52
				Ensis directus	0.52	1.3
				Chamelea striatula	0.99	0.34
QCN - QCS	0.797	0.001	36.7	*Chamelea striatula*	1.65	0.34
				Spisula subtruncata	1.42	0.08
				Lanice conchilega	1.3	0
				Donax vittatus	1.67	0.41
				Angulus fabula	1.24	0

Within the areas, there was a similarity of ± 75%, due to the presence of *Ophiura albida*, *Ophiura ophiura*, *Ensis ensis* and *Pomatoschistus* sp. Species listed in Table 10 were specific to one or two areas and occurred in more than one sample.

Table 10: Dredge sample taxa specific to one or two areas and appearing in more than one sample.

QCN	QT and QAW	QCS
Alcyonidium condylocinereum *Angulus fabula* *Lanice conchilega*		
Ammodytes sp. *Ensis magnus* *Euspira nitida* *Lineus bilineatus* *Mactra stultorum* *Metridium senile* *Scolelepis bonnieri*		
	Sprattus sprattus	
		Aphia minuta *Arnoglossus laterna* *Corystes cassivelaunus* *Echiichtys vipera* *Pestarella tyrrhena*

Shell damage

Several species of Bivalvia were regularly encountered: *Angulus fabula*, *Chamelea striatula*, *Donax vittatus*, *Spisula elliptica*, *Spisula solida* and *Spisula subtruncta*. *Ensis* sp. was also abundant, however, most shells were severly damaged during sampling and therefore, possible shell repair could not be evaluated for this genus. The number of damaged shells was very low overall (Table 11). *Angulus fabula*, the most fragile species, most frequently showed shell repair. For *Angulus fabula*, shell repair was only observed in the northern reference area, however, this species did not occur in the other areas. *Spisula elliptica* also showed shell repair on a few occasions and *Spisula subtruncata* also showed shell repair once. However, *Spisula solida*, *Donax vittatus* and *Chamelea striatula* never showed shell repair.

Table 11: Number of damaged shells showing shell repair and total number of encountered individuals for the frequently encountered Bivalvia per area.

	QCN		QT		QAW		QCS	
	Repair	Total	Repair	Total	Repair	Total	Repair	Total
Angulus fabula	10	511						
Chamelea striatula		6		3		2		96
Donax vittatus		14		108		36		6
Spisula elliptica	1	97	2	58		97	2	324
Spisula solida		14		6				56
Spisula subtruncata		92		11	1	51		1

3.4 Comparison between data from 2012 and 2013

Boxcore

The ANOSIM analysis of the data of 2012 and 2013 together indicated that there was not a great difference between the two sampling years (Table 12). The samples of both years were not clearly separated in the MDS-plot (Figure 29). However, the different areas were clearly separated from each other, with the highest dissimilarity between the northern and the southern reference area (Table 13). In the MDS-plot, the samples of the two reference areas were plotted farthest from each other, with the samples of the turbine site plotted in between (Figure 30). Indeed, the two-way crossed ANOSIM analysis indicated that the differences between areas were far more important than differences between years (Table 14).

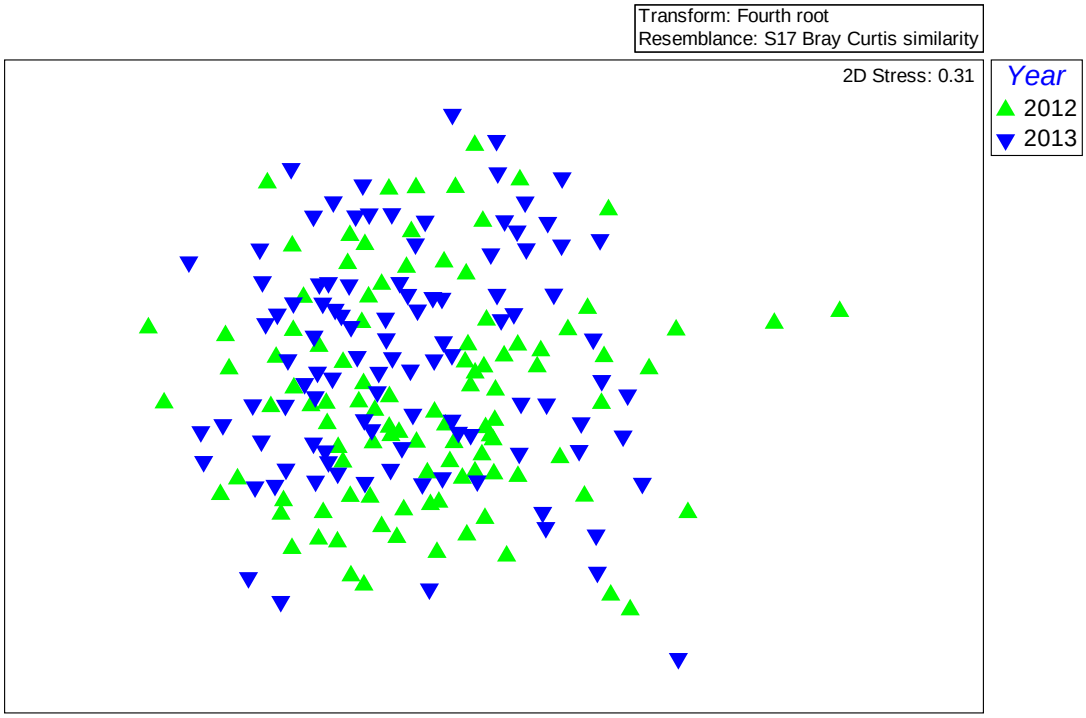

Figure 29: MDS plot based on density data in the boxcore samples with indication of the different sampling years.

Table 12: Results ANOSIM and SIMPER analyses of the boxcore samples of the different years.

Year	*R*	*p*	Dissimilarity (%)	Indicator species	Mean density Area 1 – Area 2	
				Bathyporeia elegans	1.92	2.36
				Bathyporeia guilliamsoniana	1.08	1.19
2012 - 2013	0.115	0.001	60.0	*Echinocardium cordatum*	1.15	1.19
				Urothoe brevicornis	0.80	0.94
				Ophelia borealis	0.72	1.01

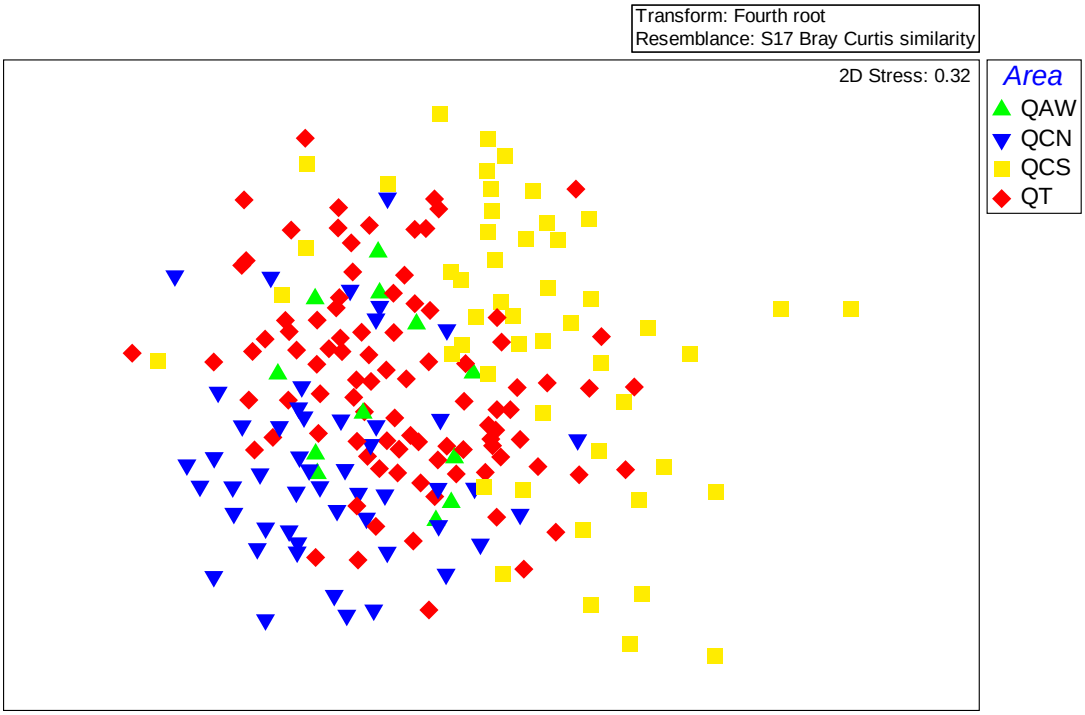

Figure 30: MDS plot based on density data in the boxsamples with indication of the different areas.

Table 13: Results ANOSIM and SIMPER analyses of the boxcore samples of the different areas.

Area	*R*	*p*	Dissimilarity (%)	Indicator species	Mean density Area 1 – Area 2	
QT – QCN	0.205	0.001	57.5	*Urothoe poseidonis*	0.07	1.83
				Bathyporeia guilliamsoniana	0.94	1.76
				Bathyporeia elegans	2.36	2.84
				Chaetozone christiei	0.81	1.53
				Magelona johnstoni	0.69	1.33
QT – QCS	0.358	0.001	62.8	*Bathyporeia elegans*	2.36	0.97
				Scoloplos armiger	2.68	1.93
				Echinocardium cordatum	1.05	1.27
				Ophelia borealis	0.81	1.28
				Bathyporeia guilliamsoniana	0.94	0.93
QCN – QCS	**0.383**	**0.001**	**65.6**	*Bathyporeia elegans*	2.84	0.97
				Urothoe poseidonis	1.83	0.08
				Chaetozone christiei	1.53	0.35
				Bathyporeia guilliamsoniana	1.76	0.93
				Magelona johnstoni	1.33	0.35

Table 14: Results two-way crossed ANOSIM analyses of the boxcore samples of the different years and areas.

Effect	*R*	*p*
Year	0.199	0.001
Area	0.355	0.001
QT - QCN	0.257	0.001
QT - QCS	0.408	0.001
QCN - QCS	0.419	0.001

Benthic dredge

In contrast to the boxcore samples, the dredge samples of the 2012 and 2013 strongly differed from each other, mainly due to lower densities of sea urchins in 2013 (Table 15). Samples of both years were clearly separated in the MDS-plot (Figure 31). Also the samples of the different areas differed from each other, with the samples from the northern and southern reference area differing most strongly from each other (Table 16). In the MDS-plot the samples of the northern and the southern reference area were again plotted farthest from each other, with the samples of the turbine site plotted in between (Figure 32). The two-way crossed ANOSIM analysis indicated that the differences between years even exceeded the difference between areas (Table 17).

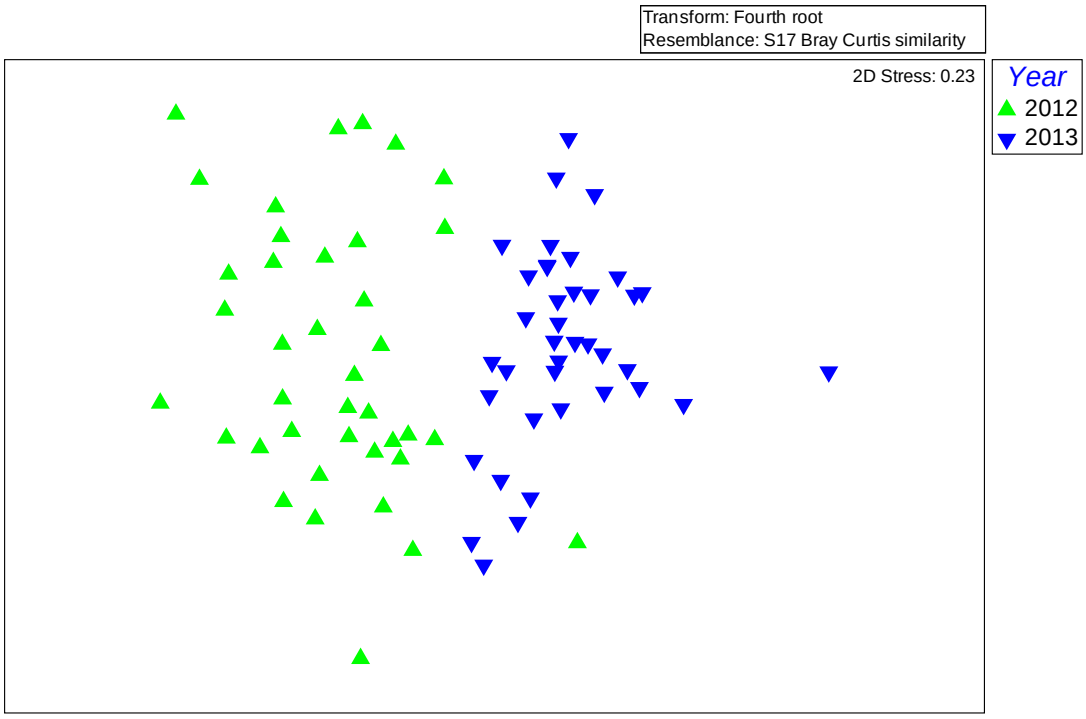

Figure 31: MDS plot based on density data in the dredge samples with indication of the different years.

Table 15: Results ANOSIM and SIMPER analyses of the dredge samples of the different years.

Year	*R*	*p*	Dissimilarity (%)	Indicator species	Mean density Area 1 – Area 2	
				Echinocardium cordatum	2.43	1.23
				Donax vittatus	1.36	0.82
2012 - 2013	0.548	0.001	40.4	*Pomatoschistus spp.*	0.81	1.56
				Euspira nitida	0.91	0.31
				Ensis directus	0.03	0.85

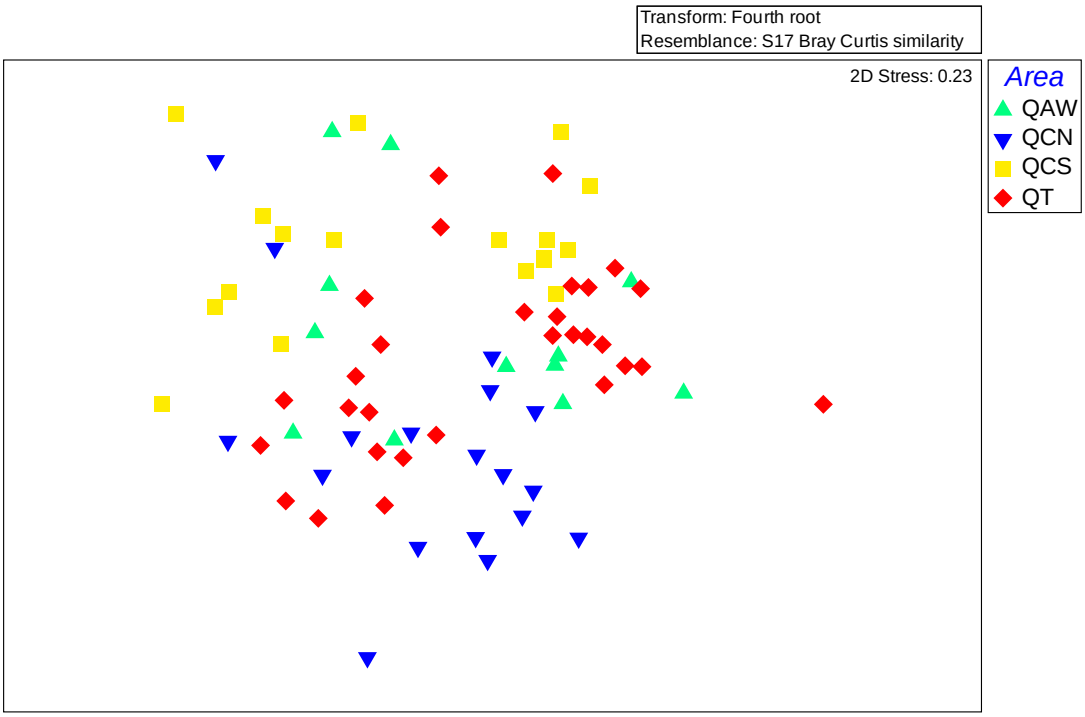

Figure 32: MDS plot based on density data in the dredge samples with indication of the different areas.

Table 16: Results ANOSIM and SIMPER analyses of the dredge samples of the different areas.

Area	*R*	*p*	Dissimilarity (%)	Indicator species	Mean density Area 1 – Area 2	
QT - QCN	0.209	0.001	37.3	*Donax vittatus*	1.03	1.90
				Lanice conchilega	0.13	1.06
				Echinocardium cordatum	1.81	1.93
				Angulus fabula	0.05	0.96
				Euspira nitida	0.54	0.93
QT - QCS	0.282	0.001	38.2	*Echinocardium cordatum*	1.81	1.78
				Ophiura ophiura	2.40	1.43
				Asterias rubens	1.16	0.37
				Ophelia borealis	1.19	2.01
				Donax vittatus	1.03	0.42
QCN - QCS	0.505	0.001	36.7	*Donax vittatus*	1.90	0.42
				Chamelea striatula	1.41	0.35
				Lanice conchilega	1.06	0.11
				Ophelia borealis	1.20	2.01
				Angulus fabula	0.96	0.06

Table 17: Results two-way crossed ANOSIM analyses of the dredge samples of the different years and areas.

Effect	*R*	*p*
Year	0.693	0.001
Area	0.453	0.001
QT - QCN	0.434	0.001
QT - QCS	0.397	0.001
QCN - QCS	0.661	0.001

4. DISCUSSION

4.1 Benthic macroinvertebrate community in Princess Amalia wind farm in 2013

The sampled sediments could all be classified as medium sands and there was a limited north to south gradient from finer to coarser sediment. Clay and organic matter fractions were low at all sampling sites. The southern reference area, which was characterised by coarser sediment, had the lowest species richness, the lowest density and the lowest biomass in the boxcore samples. The sediments in the turbine site (QT) were intermediate in grain size and abundance; biomass and species richness were intermediate. The sediment was finest in the northern reference area, where the highest density, biomass and species richness were observed. Two small crustacean species, *Urothoe poseidonis* and *Bathyporeia elegans*, were responsible for the high abundances in the northern reference area. The observed correlation between sediment grain size and benthos diversity, abundance and biomass has been well documented for the southern bight of the North Sea (Van Hoey *et al.*, 2004).

In the dredge samples, the highest abundances were also found in the northern reference area. However, species richness and biomass were similar in all investigated areas. Biomass was dominated by *Echinocardium cordatum* and the length-frequency distribution of this species was comparable between areas, albeit with a slightly higher presence of large specimens in the northern reference area.

Sandy subtidal areas are usually dominated by polychaete worms such as *Nephtys* sp., *Scoloplos armiger*, *Magelona* sp., *Chaetozone* sp., *Ophelia borealis* and *Lanice conchilega*, amphipod genera such as *Urothoe* and *Bathyporeia* and the echinoid *Echinocardium cordatum* (Heip & Craeymeersch, 1995). In the present study, the macrobenthic community was also dominated by these taxa, indicating that a typical subtidal macrobenthic community for sand sediment was present.

4.2 The evolution of benthos in the Princess Amalia Wind Farm

Because the same sampling areas and stations were monitored, the results of the present study (T6) could be directly compared to both the data collected during the baseline study (T0) (Jarvis *et al.*, 2004) and that of the previous campaign in the Princess Amalia Windpark (T5) (Vanagt *et al.*, 2012), In all these studies, a small north to south transition from finer to coarser sediment was observed. This gradual north to south transition along the Dutch coast was described earlier by Creutzberg *et al.* (1984).

In the baseline boxcore samples, 109 benthic invertebrate taxa were identified (Jarvis *et al.*, 2004), compared to 58 taxa in the T5 study (Vanagt et al., 2013a) and 71 taxa in the present study. However, the number of treated samples was 200 in T0 versus 102 in T5

and T6. The species-accumulation curve indicates that with a similar effort as in the T0, the amount of benthic taxa would have been close to 100 in 2013. The average species richness per sample was comparable between T0, T5 and T6. Densities in the boxcore samples were higher in T0 then in T5 and T6, which was due to high densities of e.g. *Spiophanes bombyx* during T0. T0 sampling was in May, T5 in March and T6 in April. The timing of T0 sampling later in spring may account for higher densities. As warming of seawater was particularly delayed during spring 2013 (T6) it is not likely that timing of sampling one month later than for T5 has led to a significant increase in densities. Despite the higher densities in T0, the biomasses were similar during all campaigns if large crabs (*Liocarcinus* spp.), razor clams (*Ensis* spp.) and sea urchins (*Echinocardium cordatum*) were not taken into account. Soft sediment benthos is known to potentially show large year-to-year variations (Holzhauer *et al.*, 2013), stressing the importance of reference areas in impact studies. In all three monitoring years, the pattern of a north-to-south gradient was found. The construction of the wind farm did not change this gradient.

In the dredge samples, 30 taxa were encountered in T6 versus 27 taxa in T5 and 32 taxa in T0 if polychaetes, Nemertea and fishes were not taken into account. The average species richness was slightly higher in dredge samples in T5 and T6 than in T0. Densities from dredge samples in QCN were higher in T0 then in T5 and T6, due to high densities of *Donax vittatus* in T0. However, densities in the other areas were higher in T5 and T6 than in T0, which was mainly caused by higher densities of *Echinocardium cordatum* in T5 and higher densities of *Ophiura ophiura* and *Ophiura albida* in T6. In the combined analyses of the T5 and T6 data, the year-to-year variation was much larger than the variation between areas. This was mainly due to *Echinocardium cordatum*. Epibenthic species are more mobile than endobenthic species, which could be an explanation for a larger yearly variation.

4.3 Influence of other wind farms in the southern bight of the North Sea

Short-term effects of the construction of Offshore Windfarm Egmond aan Zee (OWEZ) on the composition of the local benthic fauna living in and on top of the sediment were evaluated a few months after the installation of the wind farm (Daan *et al.*, 2007). Benthic fauna was, as in the present study, sampled with a boxcorer and a dredge within the wind farm and in six reference areas north and south of the wind farm. A high similarity between the fauna within the wind farm and the majority of the reference areas was observed. Density and diversity within the wind farm were well within the range of values observed in the reference areas. There was no indication that the macroinvertebrate community in OWEZ differed in any way from the reference areas.

This study was repeated in 2011, five years after construction (Bergman *et al.*, 2012). Again, no significant differences were found between the wind farm area and the reference areas. There was, however, an indication that bivalves showed a higher diversity, abundance and biomass in the wind farm area. These results are thus in agreement with the results obtained in the Princess Amalia Windpark. The authors

concluded that five years is not sufficient for full recovery of the benthos, because of depleted adult stocks (Bergman *et al.*, 2012). After the T5, a similar conclusion was drawn for Princess Amalia (Vanagt et al., 2013a).

In the wind farms on the Bligh Bank and the Thornton Banks in Belgium, no differences in sediment and macrobenthos between turbine and reference sites could be found in the first years after construction (Coates & Vincx, 2010). These results are in line with the present study. However, a lower median grain size and higher macrobenthic densities were observed in 2010 at distances one and seven meters away from the scour protection system (boulders) of one turbine on the Thornton Bank (Coates *et al.*, 2011). Changes in the close vicinity to the turbines were explained by decreased current speeds caused by changing hydrodynamics or by the relatively stable sand pits created during dredging. In 2011, an accumulation of juvenile starfish, together with the polychaetes *Spio* spp. and *Spiophanes bombyx* was obvious at stations less than 50 m away from the scour protection of one turbine on the Thornton Bank (Coates *et al.*, 2012). Lower current speeds and changing granulometric characteristics appeared to create a substantial change in the macrobenthic community six years after construction, especially in a southwest direction. This indicates that alterations in soft sediment macrobenthos could start from the immediate vicinity of the turbines and spread from there. These findings have evident implications for future sampling designs, where it might be advisable to include distance from the turbine foundations as a parameter for positioning sampling locations.

The Horns Rev wind farm is situated 14 to 20 km off Blåvands Huk, the most western point of Denmark. In this area, the sediment consisted of medium sand without organic matter. One and two years after the wind farm became operational, benthic fauna was monitored by SCUBA divers (Bech *et al.*, 2005). The macrobenthic community at Horns Rev did not show signs of stress response due to the impact from construction and operating activities. The density of the most abundant bivalves and bristle worms increased in the wind farm area, whereas the reference areas remained unchanged. This indicated that a potential decrease in predation pressure from birds contributed to increasing differences between densities for their favoured prey. Indeed, bird observations showed predominant foraging activity outside the wind farm area. The sampling depth in Horns Rev was maximum 10.4 m, which is much less than the sampling depth in the present study, where the influence of birds is expected to be much less important. Later research in Horns Rev showed no statistical difference in community structure and abundance and biomass of designated indicator organisms over a longer period, between 1999 and 2005 (Leonhard & Pedersen, 2006). Despite the difference in sampling strategy - in Horns Rev the samples were taken by SCUBA divers at distances of 5, 25 and 100 m from the turbine, while in PAWP, the samples were taken with boxcores at a minimum distance of 150 m from the turbine – almost half of the soft substrate species found in Horns Rev were also encountered during the present study. Only a few species from Horns Rev were related to hard substrate, such as *Eulalia viridis*, *Jassa marmorata, Balanus* spp. and *Mytilus edulis*. The most abundant species in Horns Rev, *Goodallia triangularis* and *Pisione remota*, were not observed in the present study. High abundances as recorded for those species (in some years averages higher than 600 ind./m²) were not recorded in PAWP.

4.4 Shell damage as indicator for reduced beam trawling

The incidence of sand grains incorporated into repairs in the shell matrix of bivalves increased with the expansion of the Dutch Beam trawling fleet in the southern bight of the North Sea (Witbaard & Klein, 1994). The same damage could also be seen to occur in starfish. (Kaiser, 1996). Examination of shell scars of long-lived species could provide a historical picture of fishing disturbance, whereas damaged starfish or specimens with regenerating arms could be a useful short term (1 – 2 year) indicator (Witbaard & Klein, 1994; Kaiser, 1996). Because the closure of wind farms for fisheries was expected to increase opportunities for long-living bivalve species, shell damage was assessed during the present study. However, only a few shells of the species *Angulus fibula*, *Spisula elliptica* and *Spisula subtruncata* were encountered that possessed scars and the number of scarred shells was not sufficient to perform statistical analyses. In 2012, no indication of differences in shell damage between the wind farm area and the reference area could be found either (Vanagt et al., 2013a).

4.5 The effect of wind turbines on soft sediment benthos

The study design in the Princess Amalia Wind Farm, with the first post-construction monitoring at T5, was not best suited to assess the potential immediate impact of the construction on the soft sediment benthos. Five and six years after construction, no indications can be found of a direct positive or negative effect of the presence of wind turbines on the benthos. This was also the case for Horns Rev (Leonhard & Pedersen, 2006), whereas in Belgium higher diversity was found very close to the turbines (Coates *et al.*, 2010 and 2012). While the authors hypothesized this was due to changes in hydrodynamic conditions, looking at the species composition, it seems more likely this is due to the presence of hard substrate, in the form of the turbines itself and/or the scour stones. This would question their subsequent hypothesis that changes in the benthic community could start from the vicinity of the turbines.

We conclude that the only clear immediate effect of the construction and operation of the wind turbines, is the negligible loss of soft sediment surface due to the scour protection around the foundation poles. In return, these scour stones add a biodiversity similar to those found on ship wrecks for example (Vanagt *et al.*, 2013b).

4.6 The effect of closure of the Princess Amalia Wind Farm for fisheries

Although an immediate impact of the construction and operation of the wind farm was not expected, there was strong belief that the closure of the wind farm for fisheries would turn the area into a refuge for certain benthic species, and that biodiversity would increase as a result of the recovery of permanently disturbed benthic communities in the Southern North Sea (Hiddink *et al.*, 2006; Dannheim, 2007).

It was expected that especially larger, K-strategic species would profit from the shelter from fishing activities. K-strategic species are characterised by a slower growth rate, are longer-lived, grow bigger and generally begin to reproduce later than r-strategy species. *Nephtys caeca* and other big polychaetes may for example grow to seven years old, *Chamelea striatula* 12 years and *Echinocardium cordatum* 10 or even up to 20 years in some instances (Van Moorsel, 2005).

Although the monitoring of ship movements indicated that the fishing prohibition in the wind farm is well obeyed (Koldenhof and de Jong, 2013), such a possitive effect could not (yet) be observed. *Echinocardium cordatum,* for instance, was found in comparable densities and length classes in the turbine area and in the reference areas. Densities of this species were higher during both the T0 and T5. The same holds true for other K-strategic species, such as the above mentioned *Nephtys caeca* and *Chamelea striatula.* Moreover, bivalves densities were significantly lower in the wind farm than in the reference areas. Similar observations were made in all other wind farms investigated in the Southern North Sea: there is no visible shift from r-strategists to K-strategists, nor do we see an increase in occurrence within the K-strategic species.

This led Bergman *et al.* (2012) to conclude that recovery takes more than five or six years, maybe even up to 20 years (Duineveld *et al.*, 2007). One of the reasons could be the lack of adult stock. We found several long-living species in fair quantities in this study, both in the wind farm area and in the reference areas. It seems that for these species there is sufficient breeding stock. For species that have gone virtually extinct, a much longer period of time may be required to elapse before larvae would settle by accident in the undisturbed wind farm area.

However, all studies seem to point out that the closure of wind farms for fisheries does not have a significant impact on the *average* benthos community, as defined by species that live less than five years.

We conclude that the wind farm areas do not result in an enriched benthic community, even after a significant wait of six years. Whether a recovery to an unknown 'undisturbed' state could happen, cannot be determined at the moment. This would require further monitoring, at for instance T10 or even T15.

4.7 Remarkable findings

Two of the polychaete species found in this study have seldom been recorded from the coastal sea area of the Netherlands before. *Aricidea wassi* is a small species which has only recently been recorded in Dutch waters (Holtmann *et al.*, 1996). *Psammodrilus balanoglossoides* is a minute species with a body width of about 0.5 mm, which can be easily lost during sieving of macrobenthos samples. It is rarely recorded from the Dutch coast and known as a predominantly intertidal species (Westheide, 1990; Wolff, 1973).

Phoronids have been recorded from the wider area of the windfarm before, mentioned as *Phoronis* sp. (Jarvis *et al.*, 2004). We identified specimens as *Phoronis muelleri*, a species

known from the southern North Sea, among other sea areas, but often collected as damaged, unidentifiable specimens.

The burrowing crustacean *Pestarella tyrrhena* is not often recorded from Dutch waters (Holtmann *et al.*, 1996; Jarvis *et al.*, 2004; Vanagt *et al.*, 2013); its occurrence seems restricted to coastal waters. Further offshore, only its relative *Callianassa subterranea* is common.

The tanaidacean *Tanaissus lilljeborgi* has only been recorded from Dutch offshore waters before by Jarvis *et al.* (2004). This minute species with a body width of about 0.5 mm may be easily lost during sieving of macrobenthos samples. Wolff (1973) only found it in samples collected for the study of interstitial fauna.

The fish species *Ciliata mustela*, *Myoxocephalus scorpius* and *Taurulus bubalis* usually are associated with hard substrates. Their presence in the dredge samples probably should be ascribed to the nearby presence of wind turbine piles and scour protection.

5. CONCLUSIONS

Biodiversity and abundance of soft sediment benthos vary between different wind farms in the southern bight of the North Sea, yet densities and biomasses within a windfarm are in most cases not consequently different from those in reference areas, which indicates no measurable effects of wind farms on density and biomass of common benthos species. This pattern was confirmed during the present study.

Sediment characteristics of the turbine site were intermediate between the northern and the southern reference area. Density and species richness of the macrobenthic fauna in the boxcore samples of the turbine site were also intermediate between the northern and the southern reference area, while no significant differences were observed in biodiversity indices, nor in terms of biomass. Also in the dredge samples, which contain larger K-strategic species, the density decreased from north to south, as well as biomass, but no significant differences in the diversity were observed between the areas. These results indicate that six years after installation of the wind farm, K-strategic species could not yet profit from the shelter from fishing activities. Bivalves with scars were rarely observed during the present study and the possible influence of reduced trawling could thus not be evaluated. The length-frequency distribution of sea urchins did not indicate that larger animals were found in the turbine site. Length-frequency distributions of the bivalve molluscs *Spisula elliptica*, *Chamelea striatula* and *Donax vittatus* did not show a clear difference between wind farm area and reference areas either, and overall densities of bivalves was lower in the wind farm area than in the reference areas. None of the expected effects of reduced fishing activities could therefore be detected.

In this report, we question whether wind farm areas could indeed harbor a benthic community that resembles those in the pre-bottom trawling fisheries era. Is T6 too soon after the closure of the area to see major changes and should the study be repeated in several years time, or is the base hypothesis that wind farms will result as refuge areas false?

6. BIBLIOGRAPHY

Bech, M., Frederiksen, R., Pedersen, J. & Leonhard, S.B. (2005). Infauna monitoring Horns Rev Offshore Wind Farm. Annual Status Report 2004. Bio/consults A/S: 1-64.

Bergman M., Duineveld G., Daan R., Mulder M. and Ubels S. (2012). Impact of OWEZ wind farm on the local benthic community. Final Report. NIOZ report OWEZ_R_261_T2_20121010.

Clarke, K.R. & Gorley, R.N. (2006). Primer v6: user manual/tutorial, Primer-e ltd, Plymouth.

Coates, D. & Vincx, M. (2010). Monitoring the effects of offshore wind farms on the soft-substratum macrobenthos: Year-1 Bligh Bank and Year-2 Thorntonbank. In: Degraer, S., Brabant, R. & Rumes, B., (Eds.), Offshore wind farms in the Belgian part of the North Sea: Early environmental impact assessment and spatio-temporal variability, pp. 83-103. Royal Belgian Institute of Natural Sciences, Management Unit of the North Sea Mathematical Models, Marine ecosystem management unit.

Coates, D., Vanaverbeke, J., Rabaut, M. & Vincx, M. (2011). Soft-sediment macrobenthos around offshore wind turbines in the Belgian Part of the North Sea reaveals a clear shift in species composition. In: Degraer, S., Brabant, R. & Rumes, B., (Eds.), Offshore wind farms in the Belgian part of the North Sea: Selected findings from the baseline and targeted monitoring, pp. 47-63. Royal Belgian Institute of Natural Sciences, Management Unit of the North Sea Mathematical Models, Marine ecosystem management unit.

Coates, D., Vanaverbeke, J. & Vincx, M. (2012). Enrichment of the soft sediment macrobenthos around a gravity based foundation on the Thorntonbank. In: Degraer, S., Brabant, R. & Rumes, B., (Eds.), Offshore wind farms in the Belgian part of the North Sea: Heading for an understanding of environmental impacts, pp. 41-54. Royal Belgian Institute of Natural Sciences, Management Unit of the North Sea Mathematical Models, Marine ecosystem management unit.

Daan, E., Mulder, M. & Bergman, M.J.N. (2007). Impact of windfarm OWEZ on the local macrobenthos community. Koninklijk Nedelands Instituut voor Zeeonderzoek (NIOZ), NL. Report OWEZ_R_261_T5_20091216: 1-77.

Duineveld G., Bergman M. and Laveleye M. (2007). Effects of an area closed to fisheries on the composition of the benthic fauna in the southern North Sea. ICES J. Mar. Sci. 64, 1-10.

Gray, J.S. & Elliot, M. (2009). Ecology of marine sediments. Oxford University Press.

Heip, C.H.R. & Craeymeersch, J.A. (1995). Benthic community structures in the North Sea. Helgoländer Meeresuntersuch, 49: 313-328.

Hiddink, J.G., Jennings, S., Kaiser, M.J., Queiros, A.M., Duplisea, D.E., Piet, G.J., (2006). Cumulative impacts of seabed trawl disturbance on benthic biomass, production, and species richness in different habitats. Can. J. Fish. Aquat. Sci. 63, 721–736.

Holtmann, S.E., Groenewold, A., Schrader, K.H.M., Asjes, J., Craeymeersch, J.A., Duineveld, G.C.A., Bostelen, A.J. van & J. van der Meer (1996). Atlas of the zoobenthos of the Dutch Continental Shelf. Ministry of Transport, Public Works and Water Management, North Sea Directorate, Rijswijk, 244 pp.

Jarvis, S., Allen, J., Proctor, N., Crossfield, A., Dawes, O., Leighton, A., McNeill, L. & Musk, W. (2004). North Sea wind farms: Q7 Lot 1 Benthic fauna. Institute of Estuarine & Coastal Studies, Hull, UK. IECS rep. ZBB607.2-F-2004: 1-65.

Kaiser, M.J. (1996). Starfish damage as an indicator of trawling intensity. Marine Ecology Progress Series, 134: 303 – 307.

Koldenhof Y. and de Jong R. (2013). Scheepvaartbewegingen Prinses Amalia Windpark. Analyse voor 2009, 2010 en 2011. Marin report 25805.600.

Leonhard, S.B. & Pedersen, J. (2006). Benthic communities at Horns Rev before, during and after construction of Horns Rev Offshore Wind Farm. Final Report, Annual Report 2005. Bio/consult, 134 pp.

Ricciardi, A. & Bourget E. (1998). Weight-to-weight conversion factors for marine benthic organisms. Marine Ecology Progress Series, 163: 245-251.

StatSoft Inc. (2004). STATISTICA (data analysis software system), version 7. www.statsoft.com, Statsoft, Tulsa.

Tempelman D., M. de Kluijver, J.T. van der Wal, G. van Moorsel, W. Lewis, A. Storm & Vanagt, T. (2009). The Macrobenthic Fauna in the Dutch Sector of the North Sea in 2007 and a comparison with previous data. Grontmij|AquaSense-rapport 202462-2, Commisioned by: Waterdienst, Amsterdam, 52 pp.

Vanagt T., L. Van de Moortel L., J. Heusinkveld, M. Faasse, R. Pérez-Domínguez and K. Lock (2013a). Assessment of the soft sediment fauna five years after construction of the Princess Amalia wind farm. eCOAST report 2012011-2, 52pp.

Vanagt T., Van de Moortel L. and Faasse M. (2013b). Development of hard substrate fauna in the Princess Amalia Wind Farm. Monitoring 3.5 years after construction. eCOAST report 2011036.

Van Moorsel, G.W.N.M. (2005). Macrofauna en hydromorfologie van zoute wateren. Ecosub, Doorn, 74 pp.

Westheide, W. (1990). Polychaetes: interstitial families. Synopsis of the British Fauna (New Series) no. 44. UBS, Oegstgeest, 152 pp.

Witbaard, R. & Klein, R. (1994). Long-term trends on the effects of southern North Sea beam trawl fishery on the bivalve mollusc *Arctica islandica* L. (Mollusca, Bivalvia). ICES Journal of Marine Science, 51: 99-105.

Wolff, W.J. (1973). The estuary as a habitat. An analysis of data of the soft-bottom macrofauna of the estuarine area of the rivers Rhine, Meuse and Scheldt. Zoologische Verhandelingen, Leiden, 126 pp.

Worsfold, T. & Hall, D. (2010). National Marine Biological Analytical Quality Control Scheme: Guidelines for processing marine macrobenthic invertebrate samples: a processing requirements protocol, version 1.0, june 2010.

7. ANNEX LIST

7.1 Annex 1: Species list

7.2 Annex 2: Sampling coordinates

7.3 Annex 3: Raw data boxcore

7.4 Annex 4: Raw data dredge

7.5 Annex 5: Physical variables

Annex 1: Species list

[1]: Species identified in the boxcore samples; [2]: species identified in the dredge samples.

Phylum	Class	Species
Annelida	Polychaeta	*Aricidea (Aricidea) minuta* Southward, 1956 [1]
		Aricidea (Aricidea) wassi Pettibone, 1965 [1]
		Capitella capitata (Fabricius, 1780) [1]
		Chaetozone christiei Chambers, 2000 [1]
		Eteone longa (Fabricius, 1780) [1]
		Eumida sanguinea (Örsted, 1843) [1]
		Eunereis longissima Johnston, 1840 [1]
		Exogone (Parexogone) hebes (Webster & Benedict, 1884) [1]
		Hypereteone foliosa (Quatrefages, 1865) [1]
		Lanice conchilega (Pallas, 1766) [1,2]
		Magelona filiformis Wilson, 1959 [1]
		Magelona johnstoni Fiege, Licher & Mackie, 2000 [1]
		Magelona mirabilis (Johnston, 1865) [1]
		Malmgreniella darbouxi Pettibone, 1993 [1]
		Nephtys caeca (Fabricius, 1780) [1]
		Nephtys cirrosa (Ehlers, 1868) [1]
		Nephtys hombergii Savigny in Lamarck, 1818 [1]
		Nephtys longosetosa Örsted, 1842 [1]
		Nephtys sp. [1,2]
		Ophelia borealis Quatrefages, 1866 [1,2]
		Paraonis fulgens (Levinsen, 1884) [1]
		Phyllodoce groenlandica Örsted, 1842 [1,2]
		Poecilochaetus serpens Allen, 1904 [1]
		Psammodrilus balanoglossoides Swedmark, 1952 [1]
		Scolelepis bonnieri (Mesnil, 1896) [1,2]
		Scoloplos (Scoloplos) armiger (Müller, 1776) [1]
		Spio goniocephala Thulin, 1957 [1]
		Spio martinensis Mesnil, 1896 [1]
		Spiophanes bombyx (Claparède, 1870) [1]
		Streptosyllis websteri Southern, 1914 [1]
		Syllis prolifera Krohn, 1852 [1]
		Travisia forbesii Johnston, 1840 [1]
Nemertea	/	*Lineus bilineatus* (Renier, 1804) [2]
		Nemertea spp. A [1]
		Nemertea spp. B [1]
		Nemertea spp. C [1]
Phoronida	/	*Phoronis muelleri* Selys-Longchamps, 1903 [1]

Annex 1: species list

Phylum	Class	Species
Arthropoda	Malacostraca (Amphipoda)	*Apherusa* sp. [1]
		Bathyporeia elegans Watkin, 1938 [1]
		Bathyporeia guilliamsoniana (Bate, 1857) [1]
		Jassa herdmani (Walker, 1893) [1]
		Leucothoe incisa (Robertson, 1892) [1]
		Megaluropus agilis Hoeck, 1889 [1]
		Microprotopus maculatus Norman, 1867 [1]
		Orchomenella nana (Krøyer, 1846) [1]
		Perioculodes longimanus (Bate & Westwood, 1868) [1]
		Pontocrates arcticus Sars, 1895 [1]
		Pontocrates arenarius (Bate, 1858) [1]
		Urothoe brevicornis Bate, 1862 [1]
		Urothoe poseidonis Reibish, 1905 [1]
	Malacostraca (Cumacea)	*Monopseudocuma gilsoni* (Gilson, 1906) [1]
		Pseudocuma (Pseudocuma) longicorne (Bate, 1858) [1]
	Malacostraca (Decapoda)	*Corystes cassivelaunus* (Pennant, 1777) [2]
		Crangon allmanni Kinahan, 1860 [2]
		Crangon crangon (Linnaeus, 1758) [2]
		Liocarcinus holsatus (Fabricius, 1798) [1,2]
		Macropodia rostrata (Linnaeus, 1761) [2]
		Pagurus bernhardus (Linnaeus, 1758) [1,2]
		Pestarella tyrrhena (Petagna, 1792) [1,2]
		Philocheras trispinosus (Hailstone & Westwood, 1835) [2]
		Pinnotheres pisum (Linnaeus, 1767) [1,2]
		Processa modica modica Williamson & Rochanaburanon, 1979 [1,2]
		Thia scutellata (Fabricius, 1793) [1,2]
	Malacostraca (Mysida)	*Gastrosaccus spinifer* (Goës, 1864) [1]
	Malacostraca (Tanaidacea)	*Tanaissus lilljeborgi* (Stebbing, 1891) [1]
Mollusca	Bivalvia	*Angulus fabula* (Gmelin, 1791) [1,2]
		Angulus tenuis (da Costa, 1778) [2]
		Chamelea striatula (da Costa, 1778) [1,2]
		Donax vittatus (da Costa, 1778) [1,2]
		Ensis directus (Conrad, 1843) [1,2]
		Ensis ensis (Linnaeus, 1758) [1,2]
		Ensis magnus Schumacher, 1817 [2]
		Lutraria sp. [2]
		Mactra stultorum (Linnaeus, 1758) [2]
		Mytilus edulis Linnaeus, 1758 [2]
		Spisula elliptica (Brown, 1827) [1,2]
		Spisula solida (Linnaeus, 1758) [2]
		Spisula subtruncata (da Costa, 1778) [1,2]
		Tellimya ferruginosa (Montagu, 1808) [1]

Phylum	Class	Species
	Gastropoda	*Euspira catena* (da Costa, 1778) [2]
		Euspira nitida (Donovan, 1804) [1,2]
Echinodermata	Asteroidea	*Asterias rubens* Linnaeus, 1758 [2]
	Echinoidea	*Echinocardium cordatum* (Pennant, 1777) [1,2]
	Ophiuroidea	*Ophiura albida* Forbes, 1839 [1,2]
		Ophiura ophiura (Linnaeus, 1758) [1,2]
Chordata	Actinopterygii	*Agonus cataphractus* (Linnaeus, 1758) [2]
		Ammodytes tobianus Linnaeus, 1758 [2]
		Aphia minuta (Risso, 1810) [2]
		Arnoglossus laterna (Walbaum, 1792) [2]
		Buglossidium luteum (Risso, 1810) [2]
		Callionymus sp. [2]
		Ciliata mustela (Linnaeus, 1758) [2]
		Echiichthys vipera (Cuvier, 1829) [2]
		Hyperoplus lanceolatus (Le Sauvage, 1824) [2]
		Limanda limanda (Linnaeus, 1758) [2]
		Myoxocephalus scorpius (Linnaeus, 1758) [2]
		Pleuronectes platessa Linnaeus, 1758 [2]
		Pomatoschistus sp. [2]
		Solea solea (Linnaeus, 1758) [2]
		Sprattus sprattus (Linnaeus, 1758) [2]
		Syngnathus rostellatus Nilsson, 1855 [2]
		Taurulus bubalis (Euphrasen, 1786) [2]
		Trachurus trachurus (Linnaeus, 1758) [2]

Station	Date	Time	Coordinates
QCN 1	6/04/2013	13:47	N52.8061860334128 E4.35225795954465
QCN 2	6/04/2013	16:50	N52.8053009882569 E4.36466895975172
QCN 3.0	6/04/2013	14:28	N52.8044010233134 E4.37418803572654
QCN 3.1	6/04/2013	14:55	N52.8046160191297 E4.375064028427
QCN 3.2	6/04/2013	15:02	N52.8037270344793 E4.37480100430548
QCN 3.3	6/04/2013	16:58	N52.8042079880833 E4.37627697363495
QCN 3.4	6/04/2013	14:18	N52.8041710238903 E4.37555202282965
QCN 4	6/04/2013	15:23	N52.8037700336426 E4.38728702254593
QCN 5	6/04/2013	15:49	N52.8016860410571 E4.3974439613521
QCN 6	6/04/2013	16:31	N52.7981939725577 E4.35199602507054
QCN 7	6/04/2013	16:22	N52.7968739904463 E4.36376203782856
QCN 8	6/04/2013	16:15	N52.7959910407662 E4.37499697320163
QCN 9	6/04/2013	16:07	N52.7946889959275 E4.38651303760707
QCN 10	6/04/2013	14:59	N52.7932530082762 E4.39695202745497
QCN 11.0	6/04/2013	17:14	N52.7907329890877 E4.35031000524759
QCN 11.1	6/04/2013	17:19	N52.7905200049281 E4.35083404183387
QCN 11.2	6/04/2013	17:29	N52.7902829647064 E4.34999601915478
QCN 11.3	6/04/2013	17:40	N52.7914489712566 E4.3512799590826
QCN 11.4	6/04/2013	17:48	N52.7914769668132 E4.34993298724293
QCN 12	7/04/2013	12:16	N52.7896730136126 E4.36196101829409
QCN 13.0	7/04/2013	11:38	N52.7887339890003 E4.37321003526449
QCN 13.1	7/04/2013	11:43	N52.78912701644 E4.37378503382205
QCN 13.2	7/04/2013	11:56	N52.7887019701302 E4.37328597530722
QCN 13.3	7/04/2013	12:03	N52.7890199795365 E4.37309402972459
QCN 13.4	7/04/2013	12:09	N52.7893980033695 E4.37229297123849
QCN 14	7/04/2013	11:31	N52.7873330377042 E4.38501602970063
QCN 15.0	7/04/2013	10:53	N52.7862770017236 E4.39654600806534
QCN 15.1	7/04/2013	10:58	N52.786553017795 E4.39750699326395
QCN 15.2	7/04/2013	11:05	N52.785937031731 E4.39717498607933
QCN 15.3	7/04/2013	11:11	N52.7859910111874 E4.3960659764707
QCN 15.4	7/04/2013	11:21	N52.7867970149964 E4.39645900391042
QCN 16	7/04/2013	13.00	N52.7838399633765 E4.35040899552404
QCN 17	7/04/2013	13:06	N52.7824410237371 E4.36217601411044
QCN 18	7/04/2013	13:17	N52.7816930226981 E4.37401796691119
QCN 19	7/04/2013	13:23	N52.7800970245152 E4.38497697003185
QCN 20	7/04/2013	13:29	N52.7787570096552 E4.39575903117656
QCN 21	7/04/2013	14:03	N52.7771989814937 E4.35018301941454
QCN 22	7/04/2013	14:23	N52.7760649938136 E4.3614649772644
QT 1	10/04/2013	18:06	N52.5800260249525 E4.19484296813607
QT 2.0	21/04/2013	15:24	N52.5826799869537 E4.20196398161351
QT 2.1	21/04/2013	15:32	N52.5826229900121 E4.2021130118519
QT 2.2	21/04/2013	15:39	N52.5822710338979 E4.20152300968766

Annex 2: Coordinates

QT 2.3	21/04/2013	15:45	N52.5826909672468 E4.20199298299849
QT 2.4	21/04/2013	15:51	N52.5827980041503 E4.20184998773038
QT 3	21/04/2013	15:56	N52.58698602207 E4.20870303176343
QT 4	10/04/2013	17:35	N52.5888980180025 E4.21500496566295
QT 5	10/04/2013	17:18	N52.5916949752718 E4.22241800464689
QT 6.0	21/04/2013	0.75	N52.5948339980095 E4.23442801460623
QT 6.1	21/04/2013	18:27	N52.5944800302386 E4.2344519868493
QT 6.2	21/04/2013	18:31	N52.5944940280169 E4.23477401956915
QT 6.3	21/04/2013	18:37	N52.5945370271801 E4.23457402735948
QT 6.4	21/04/2013	18:42	N52.5943689700216 E4.23461903817951
QT 7	10/04/2013	16:53	N52.5973889697343 E4.24230398610234
QT 8	10/04/2013	17:51	N52.5809949729591 E4.20715799555182
QT 9	10/04/2013	17:43	N52.5851290114223 E4.21461202204227
QT 10.0	21/04/2013	17:32	N52.5862950179725 E4.22285403124988
QT 10.1	21/04/2013	17:37	N52.5861279666423 E4.22226503491401
QT 10.2	21/04/2013	17:43	N52.5861579738557 E4.22243895940482
QT 10.3	21/04/2013	0.71	N52.5861100293695 E4.22242102213203
QT 10.4	21/04/2013	17:57	N52.5862629991024 E4.22298202291131
QT 11	21/04/2013	18:04	N52.5888560246676 E4.23045901581645
QT 12	21/04/2013	18:12	N52.5918549858033 E4.23737199045717
QT 13	10/04/2013	16:46	N52.5945449899882 E4.24460699781775
QT 14	10/04/2013	18:15	N52.576123997569 E4.21122003346681
QT 15	10/04/2013	18:22	N52.5789770297706 E4.21956597827374
QT 16	22/04/2013	11:25	N52.5821489933878 E4.22757597640156
QT 17	/	/	/
QT 18.0	21/04/2013	18:51	N52.5895910337567 4.24681303091347
QT 18.1	21/04/2013	18:58	N52.589649958536 4.24677195958793
QT 18.2	21/04/2013	19:04	N52.589538982138 4.24653097987174
QT 18.3	21/04/2013	19:09	N52.589272018522 4.24661102704703
QT 18.4	21/04/2013	19:15	N52.58937000297 4.24686499871313
QT 19	10/04/2013	16:33	N52.59166396223 4.25206001847982
QT 20	10/04/2013	0.75	N52.5757860392332 4.22556700184941
QT 21.0	22/04/2013	10:55	N52.5788880139589 4.23287199810147
QT 21.1	22/04/2013	11:02	N52.5789480283856 4.23282497562468
QT 21.2	22/04/2013	11:08	N52.5788920372724 4.23314902000129
QT 21.3	22/04/2013	11:13	N52.5784809887409 4.23311398364603
QT 21.4	22/04/2013	11:19	N52.5787219684571 4.23276403918862
QT 22	22/04/2013	11:33	N52.5816839653998 4.24042702652513
QT 23	22/04/2013	11:57	N52.5843769870698 4.2486329935491
QT 24	22/04/2013	12:03	N52.5869469624012 4.25560195930302
QT 25	22/04/2013	0.42	N52.5744160171598 4.23469296656548
QT 26	22/04/2013	11:41	N52.5783700123429 4.24671898595988

QT 27	22/04/2013	0.46	N52.5824530050158 4.2538639716804
QT 28	22/04/2013	12:08	N52.5842230115085 4.26272900775074
QT 29	22/04/2013	0.44	N52.5715619791299 4.24156302586197
QT 30	22/04/2013	0.42	N52.574220970273 4.24947202205657
QT 31	21/04/2013	15:15	N52.5867229979485 4.19753196649253
QT 32	21/04/2013	16:03	N52.5897590070962 4.2069139983505
QT 33.0	21/04/2013	16:09	N52.5922520365566 4.21306002885103
QT 33.1	21/04/2013	16:15	N52.5923610012978 4.21235997229814
QT 33.2	21/04/2013	16:25	N52.5921109691262 4.2124000377953
QT 33.3	21/04/2013	16:29	N52.5921119749546 4.21328097581863
QT 33.4	21/04/2013	16:35	N52.5918969791382 4.21244001947343
QT 34	10/04/2013	17:27	N52.590567022562 4.21863600611686
QT 35	10/04/2013	17:09	N52.5975049752742 4.22775601968169
QT 36	10/04/2013	17:02	N52.5987350195646 4.23436297103762
QT 37	21/04/2013	14:53	N52.5936180353164 4.20126099139451
QT 38	21/04/2013	0.55	N52.5963679701089 4.20907099731266
QT 39	20/04/2013	12:06	N52.599372966215 4.21650800853967
QT 40.0	20/04/2013	12:16	N52.60188896209 4.22398902475833
QT 40.1	20/04/2013	12:26	N52.6020280178636 4.22397502698004
QT 40.2	20/04/2013	12:35	N52.6022229809314 4.22424601390957
QT 40.3	20/04/2013	12:41	N52.6021519862115 4.22369197010993
QT 40.4	20/04/2013	12:46	N52.601955011487 4.22393496148288
QT 41	20/04/2013	12:55	N52.6049529667943 4.23122202046215
QT 42	21/04/2013	15.00	N52.5907009653747 4.1933059785515
QT 43	21/04/2013	13:56	N52.5959539879113 4.19890500605106
QT 44	20/04/2013	13:14	N52.6000600308179 4.20546501874923
QT 44.1	21/04/2013	13:21	N52.5998300313949 4.20569099485874
QT 44.2	21/04/2013	13:31	N52.5999629683792 4.20563701540231
QT 44.3	21/04/2013	13:36	N52.5998680014163 4.20541900210082
QT 44.4	21/04/2013	13:43	N52.5995400175452 4.20541397295892
QT 45	20/04/2013	11:58	N52.6029139850288 4.21397399157285
QT 46	20/04/2013	13:08	N52.6035130396485 4.20006103813648
QT 47	10/04/2013	17:58	N52.5782440323382 4.19992198236286
QT 48	21/04/2013	15:07	N52.5832219608128 4.1899299994111
QCN 23.0	7/04/2013	13:51	N52.7748740091919 E4.37283402308821
QCN 23.1	7/04/2013	13:58	N52.7749750111252 E4.37291700392961
QCN 23.2	7/04/2013	14:03	N52.7748079597949 E4.37269203364849
QCN 23.3	7/04/2013	14:08	N52.7747809700667 E4.37350298278033
QCN 23.4	7/04/2013	14:13	N52.7748679742217 E4.37308698892593
QCN 24	7/04/2013	13:44	N52.7737970184534 E4.38459400087594
QCN 25	7/04/2013	13:37	N52.772122984752 E4.39488303847611
QAW 3.0	7/04/2013	16:04	N52.5997450388967 E4.26285096444189
QAW 3.1	7/04/2013	16:10	N52.5994009617716 E4.2626020219177

Annex 2: Coordinates

QAW 3.2	7/04/2013	16:16	N52.5999990105628 E4.26261099055409
QAW 3.3	7/04/2013	16:22	N52.5999550055712 E4.26351003348827
QAW 3.4	7/04/2013	16:26	N52.5998570211231 E4.26299303770065
QAW 2.0	7/04/2013	16:34	N52.5971810147166 E4.25433402881026
QAW 2.1	7/04/2013	16:44	N52.5968139711767 E4.25528696738183
QAW 2.2	7/04/2013	16:51	N52.5974349863827 E4.25438499078154
QAW 2.3	7/04/2013	16:57	N52.5972199905663 E4.25401601940393
QAW 2.4	7/04/2013	17:02	N52.5973069947212 E4.25385902635753
QAW 1.0	7/04/2013	17:18	N52.6084560155868 E4.21720999293029
QAW 1.1	7/04/2013	17:26	N52.6086870208382 E4.21703900210559
QAW 1.2	7/04/2013	17:31	N52.6081140339374 E4.21657003462314
QAW 1.3	7/04/2013	17:39	N52.6086870208382 E4.2180380411446
QAW 1.4	7/04/2013	17:46	N52.6089499611407 E4.21740696765482
QAW 4.0	7/04/2013	17:55	N52.6140839606523 E4.21654103323817
QAW 4.1	7/04/2013	18:01	N52.6137709803879 E4.2165149655193
QAW 4.2	7/04/2013	18:06	N52.6138070225715 E4.21676600351929
QAW 4.3	7/04/2013	18:09	N52.6139859762042 E4.21596301719546
QAW 4.4	7/04/2013	18:13	N52.6138979662209 E4.21674898825585
QAW 5.0	7/04/2013	18:55	N52.5693710334599 E4.21406703069806
QAW 5.1	7/04/2013	19:01	N52.5690629985183 E4.21387902460992
QAW 5.2	7/04/2013	19:09	N52.5695110112428 E4.21369403600692
QAW 5.3	7/04/2013	19:15	N52.5690289679914 E4.21323202550411
QAW 5.4	7/04/2013	19:02	N52.5690550357103 E4.21336596831679
QAW 6.0	7/04/2013	19:26	N52.5630990229547 E4.21101601794362
QAW 6.1	7/04/2013	19:33	N52.5631889607757 E4.21149001456797
QAW 6.2	7/04/2013	19:38	N52.5636069662868 E4.21127401292324
QAW 6.3	7/04/2013	19:45	N52.5635160226374 E4.21087997965514
QAW 6.4	7/04/2013	19:05	N52.563026016578 E4.21147802844643
QCS 1	9/04/2013	12:13	N52.4591709673404 E3.99965702556073
QCS 2	9/04/2013	12:02	N52.4561249837279 E4.00968798436224
QCS 3.0	9/04/2013	11:25	N52.4529159720987 E4.01839996688067
QCS 3.1	9/04/2013	11:37	N52.4529029801487 E4.01836903765797
QCS 3.2	9/04/2013	11:43	N52.4525159876793 E4.01815798133611
QCS 3.3	9/04/2013	11:49	N52.4526920076459 E4.01798103936016
QCS 3.4	9/04/2013	11:54	N52.452539037913 E4.01767803356051
QCS 4	9/04/2013	11:15	N52.4504530336707 E4.02789699845016
QCS 5	9/04/2013	11:05	N52.4467739649116 E4.03762897476553
QCS 6	9/04/2013	12:22	N52.4551319796591 E3.98968499153852
QCS 7	9/04/2013	12:32	N52.4520310107618 E4.0001109894365
QCS 8	9/04/2013	12:45	N52.4489270243793 E4.01069900952279
QCS 9	9/04/2013	12:55	N52.4458320066332 E4.02010702528059
QCS 10	9/04/2013	13:03	N52.4429330416023 E4.03071801178157

QCS 11.0	9/04/2013	15:33	N52.4513049703091 E3.98257898166775
QCS 11.1	9/04/2013	15:04	N52.4512420222163 E3.98282297886908
QCS 11.2	9/04/2013	15:46	N52.4515379872173 E3.98247202858328
QCS 11.3	9/04/2013	15:53	N52.4512599594891 E3.98254998028278
QCS 11.4	9/04/2013	16:00	N52.4513140227645 E3.98240296170115
QCS 12	9/04/2013	15:25	N52.448395024985 E3.9929240103811
QCS 13.0	9/04/2013	14:47	N52.4449629709124 E4.00335595943033
QCS 13.1	9/04/2013	14:53	N52.4449039623141 E4.00333601050078
QCS 13.2	9/04/2013	15:05	N52.4449469614773 E4.00289000943303
QCS 13.3	9/04/2013	15:13	N52.4449099972844 E4.00351001881062
QCS 13.4	9/04/2013	15:17	N52.4450109992176 E4.00340499356389
QCS 14	9/04/2013	14:41	N52.442244971171 E4.01273899711668
QCS 15.0	9/04/2013	14:04	N52.4388560000807 E4.02323598973453
QCS 15.1	9/04/2013	14:08	N52.4388460256159 E4.02299299836158
QCS 15.2	9/04/2013	14:16	N52.4386819917708 E4.02320497669279
QCS 15.3	9/04/2013	14:22	N52.4388020206242 E4.02323096059262
QCS 15.4	9/04/2013	14:32	N52.4388659745454 E4.02258798480033
QCS 16	9/04/2013	17:15	N52.447350975126 E3.97425801493227
QCS 17	9/04/2013	17:08	N52.4439070187509 E3.98352999240159
QCS 18	9/04/2013	17:05	N52.4417999759316 E3.99319600313901
QCS 19	9/04/2013	16:58	N52.4383580312132 E4.00364002212882
QCS 20	9/04/2013	16:49	N52.4348340276628 E4.01373300701379
QCS 21	9/04/2013	17:28	N52.4427600391209 E3.96435203030705
QCS 22	9/04/2013	17:34	N52.4392920266836 E3.97501599043607
QCS 23.0	9/04/2013	17:42	N52.4362789839506 E3.98527703247964
QCS 23.1	9/04/2013	17:49	N52.436406975612 E3.98473204113543
QCS 23.2	9/04/2013	17:53	N52.4369089677929 E3.9856070280075
QCS 23.3	9/04/2013	17:58	N52.4363290239125 E3.98617096245288
QCS 23.4	9/04/2013	18:06	N52.4362290278077 E3.9856350235641
QCS 24	9/04/2013	18:13	N52.4330569803714 E3.99567101150751
QCS 25	9/04/2013	18:19	N52.4294290412217 E4.0060410182923

Annex 3a: Box core density data (N/m²)

	QCN1	QCN2	QCN3.1	QCN4	QCN5	QCN6	QCN7	QCN8
Angulus fabula					141			
Apherusa sp.								
Aricidea minuta								
Aricidea sp.					13			
Aricidea wassi	13	13	38			13		
Bathyporeia elegans	90	51	654	679	51	77	256	308
Bathyporeia guilliamsoniana				51	51		13	38
Bathyporeia sp.								
Bivalvia sp.		13						
Brachyura sp.								
Capitella capitata								
Capitellidae sp.								
Chaetozone christiei		26			77	13	13	51
Chamelea striatula								13
Cirratulidae sp.								
Crangon sp.								
Donax vittatus					13			
Echinocardium cordatum	13			13	38	13	38	
Ensis directus				13				
Ensis ensis								
Ensis sp.							13	
Eteone longa		13		13				
Eumida sanguinea								13
Eunereis longissima								
Euspira nitida								
Exogone hebes								
Gastrosaccus spinifer			13					
Hypereteone foliosa								
Jassa herdmani								
Lanice conchilega	13			26			26	51
Leucothoe incisa								
Liocarcinus holsatus								
Magelona filiformis			13	26	115		38	26
Magelona johnstoni			13	38	26		13	13
Magelona mirabilis				13	13	13		
Magelona sp.				13	13			
Malmgreniella darbouxi	13			13				13
Megaluropus agilis		13			26	26	13	
Microprotopus maculatus								
Monopseudocuma gilsoni								
Natantia sp.								
Nemertea sp. A				13			13	
Nemertea sp. B				64		13	13	13
Nemertea sp. C				38				
Nephtys caeca								
Nephtys cirrosa	26	77	26	77	13	51	77	51

Annex 3: Box core data

	QCN1	QCN2	QCN3.1	QCN4	QCN5	QCN6	QCN7	QCN8
Nephtys hombergii								
Nephtys longosetosa								
Nereidae sp.							13	
Ophelia borealis	26	13	13				13	
Ophiura albida								
Ophiura ophiura								
Ophiura sp.								
Orchomenella nana								
Pagurus bernhardus								
Paraonis fulgens								
Perioculodes longimanus								
Pestarella tyrrhena								
Phoronis muelleri								
Phoronis sp.								
Phyllodoce groenlandica		13				13		
Phyllodocidae sp.								
Pinnotheres pisum								
Poecilochaetus serpens				13			13	
Polychaeta sp.		13						
Polynoidae sp.								
Pontocrates arcticus						13		
Pontocrates arenarius								
Pontocrates sp.								
Processa modica				13			13	13
Psammodrilus balanoglossoides								
Pseudocuma longicorne								
Scolelepis bonnieri						13		
Scoloplos armiger	26	64	26	26		13	38	13
Spio goniocephala								
Spio martinensis								
Spio sp.								
Spionidae sp.								
Spiophanes bombyx							38	13
Spisula elliptica								
Spisula subtruncata								13
Streptosyllis websteri							13	13
Syllidae sp.								
Syllis prolifera								
Tanaissus lilljeborgi				13		13		
Tellimya ferruginosa					26			
Terebellidae sp.								
Thia scutellata	13		26					
Travisia forbesii								
Urothoe brevicornis	26	26	13	13		13	26	
Urothoe poseidonis				910	1397			64
Urothoe sp.			13	13				

	QCN9	QCN10	QCN11.2	QCN12	QCN13.1	QCN14	QCN15.4	QCN16
Angulus fabula		77					128	
Apherusa sp.								
Aricidea minuta								
Aricidea sp.				13				
Aricidea wassi			13					
Bathyporeia elegans	231	167	90	26	397	38	64	26
Bathyporeia guilliamsoniana	90	38	38	26	26	26		38
Bathyporeia sp.								
Bivalvia sp.								
Brachyura sp.								
Capitella capitata								
Capitellidae sp.								
Chaetozone christiei	77			13	26	26	51	13
Chamelea striatula								
Cirratulidae sp.								
Crangon sp.								
Donax vittatus								
Echinocardium cordatum				13		38	26	13
Ensis directus		13					13	
Ensis ensis								
Ensis sp.								
Eteone longa								
Eumida sanguinea								
Eunereis longissima								
Euspira nitida		13						
Exogone hebes								
Gastrosaccus spinifer								13
Hypereteone foliosa			13					
Jassa herdmani								
Lanice conchilega		26	141	64				38
Leucothoe incisa								
Liocarcinus holsatus								
Magelona filiformis		77		38	64	26	141	
Magelona johnstoni	167	128		13		13	38	
Magelona mirabilis	26	13						
Magelona sp.	13	13					13	
Malmgreniella darbouxi			77	26				13
Megaluropus agilis	26	26			77	13		26
Microprotopus maculatus				13				
Monopseudocuma gilsoni				13	26			13
Natantia sp.								
Nemertea sp. A								
Nemertea sp. B	64		13	26	64	51		
Nemertea sp. C				13				
Nephtys caeca								
Nephtys cirrosa	13	13	77	51	51	77	13	51

Annex 3: Box core data

	QCN9	QCN10	QCN11.2	QCN12	QCN13.1	QCN14	QCN15.4	QCN16
Nephtys hombergii			13					
Nephtys longosetosa								
Nereidae sp.								
Ophelia borealis			13	13				
Ophiura albida								
Ophiura ophiura								
Ophiura sp.								
Orchomenella nana								
Pagurus bernhardus								
Paraonis fulgens								
Perioculodes longimanus								
Pestarella tyrrhena								
Phoronis muelleri								
Phoronis sp.								
Phyllodoce groenlandica								
Phyllodocidae sp.								
Pinnotheres pisum								
Poecilochaetus serpens			13					
Polychaeta sp.								
Polynoidae sp.								
Pontocrates arcticus		51			51	13	13	
Pontocrates arenarius								
Pontocrates sp.								
Processa modica								
Psammodrilus balanoglossoides								
Pseudocuma longicorne								
Scolelepis bonnieri	13						13	
Scoloplos armiger	77	13		77	26	64		64
Spio goniocephala								
Spio martinensis		13						
Spio sp.								
Spionidae sp.								
Spiophanes bombyx				13				13
Spisula elliptica								
Spisula subtruncata								
Streptosyllis websteri								
Syllidae sp.								
Syllis prolifera								
Tanaissus lilljeborgi								
Tellimya ferruginosa							13	
Terebellidae sp.								
Thia scutellata			13			13	13	
Travisia forbesii								
Urothoe brevicornis		13	26	64	38		13	
Urothoe poseidonis	282	551		38	13	1115	872	13
Urothoe sp.						51		

	QCN17	QCN18	QCN19	QCN20	QCN21	QCN22	QCN23.2	QCN24
Angulus fabula				26				
Apherusa sp.								
Aricidea minuta								
Aricidea sp.								
Aricidea wassi								
Bathyporeia elegans	90	513	128	77	103	51	141	103
Bathyporeia guilliamsoniana	13	38		26			26	
Bathyporeia sp.								
Bivalvia sp.								
Brachyura sp.								
Capitella capitata								
Capitellidae sp.								
Chaetozone christiei			38	13	26	38		
Chamelea striatula								
Cirratulidae sp.								
Crangon sp.								
Donax vittatus			13					
Echinocardium cordatum		13		13		13	13	
Ensis directus								
Ensis ensis								
Ensis sp.			13					
Eteone longa			13		13			
Eumida sanguinea					13			
Eunereis longissima								
Euspira nitida								
Exogone hebes								
Gastrosaccus spinifer				26		13		
Hypereteone foliosa								
Jassa herdmani								
Lanice conchilega	13		26	13	26	13	38	
Leucothoe incisa								
Liocarcinus holsatus								
Magelona filiformis	13		64	26				38
Magelona johnstoni		13	13	13		13	13	51
Magelona mirabilis					13			
Magelona sp.								
Malmgreniella darbouxi		13		13				
Megaluropus agilis	13	64				26	51	
Microprotopus maculatus								
Monopseudocuma gilsoni	26	26	51			13		
Natantia sp.								
Nemertea sp. A			13					13
Nemertea sp. B		13		51	38		13	13
Nemertea sp. C								
Nephtys caeca			13					
Nephtys cirrosa	77	26	51	154	38	51	26	77

Annex 3: Box core data

	QCN17	QCN18	QCN19	QCN20	QCN21	QCN22	QCN23.2	QCN24
Nephtys hombergii								
Nephtys longosetosa								
Nereidae sp.								
Ophelia borealis					51			
Ophiura albida						13		
Ophiura ophiura								
Ophiura sp.								
Orchomenella nana								
Pagurus bernhardus								
Paraonis fulgens								
Perioculodes longimanus								13
Pestarella tyrrhena								
Phoronis muelleri								
Phoronis sp.								
Phyllodoce groenlandica								
Phyllodocidae sp.								
Pinnotheres pisum								
Poecilochaetus serpens								
Polychaeta sp.			13					
Polynoidae sp.								
Pontocrates arcticus		13		13			13	13
Pontocrates arenarius								
Pontocrates sp.								
Processa modica								
Psammodrilus balanoglossoides								
Pseudocuma longicorne								
Scolelepis bonnieri					13		13	13
Scoloplos armiger	90	26	38	26	38	38	26	64
Spio goniocephala								
Spio martinensis							13	
Spio sp.								
Spionidae sp.								
Spiophanes bombyx								
Spisula elliptica								
Spisula subtruncata								
Streptosyllis websteri								
Syllidae sp.								
Syllis prolifera								
Tanaissus lilljeborgi								
Tellimya ferruginosa								
Terebellidae sp.								
Thia scutellata								
Travisia forbesii								
Urothoe brevicornis	51	77			13	13	13	
Urothoe poseidonis	51	51	38	115			90	64
Urothoe sp.								

	QCN25	QT1	QT2.4	QT3	QT4	QT5	QT6.2	QT7
Angulus fabula								
Apherusa sp.								
Aricidea minuta								
Aricidea sp.								
Aricidea wassi								
Bathyporeia elegans	141	115	64	77	231		410	38
Bathyporeia guilliamsoniana	51	26			13			26
Bathyporeia sp.						13		
Bivalvia sp.								
Brachyura sp.					13			
Capitella capitata								
Capitellidae sp.								
Chaetozone christiei					13			13
Chamelea striatula					13			
Cirratulidae sp.								
Crangon sp.								
Donax vittatus								
Echinocardium cordatum	26	13		13	13			
Ensis directus				13				
Ensis ensis								
Ensis sp.			13					
Eteone longa			13					
Eumida sanguinea								
Eunereis longissima								
Euspira nitida								
Exogone hebes								
Gastrosaccus spinifer								
Hypereteone foliosa					13	13		
Jassa herdmani								
Lanice conchilega	38			26				
Leucothoe incisa								
Liocarcinus holsatus							13	
Magelona filiformis	51							
Magelona johnstoni	13		13	26			13	
Magelona mirabilis			26			13	13	
Magelona sp.								
Malmgreniella darbouxi	13							
Megaluropus agilis	38						13	
Microprotopus maculatus								
Monopseudocuma gilsoni	13			38			13	
Natantia sp.		13				13		
Nemertea sp. A	13	13	13	13			26	13
Nemertea sp. B					13		13	
Nemertea sp. C								
Nephtys caeca								
Nephtys cirrosa	154	64	77	51	64	154	90	90

Annex 3: Box core data

	QCN25	QT1	QT2.4	QT3	QT4	QT5	QT6.2	QT7
Nephtys hombergii								
Nephtys longosetosa								
Nereidae sp.								
Ophelia borealis				13		26	13	
Ophiura albida								
Ophiura ophiura					13			
Ophiura sp.								
Orchomenella nana								
Pagurus bernhardus								
Paraonis fulgens								
Perioculodes longimanus								
Pestarella tyrrhena								
Phoronis muelleri								
Phoronis sp.								
Phyllodoce groenlandica								
Phyllodocidae sp.								
Pinnotheres pisum								
Poecilochaetus serpens								
Polychaeta sp.	13				13			
Polynoidae sp.								
Pontocrates arcticus	26	26		13	26		13	
Pontocrates arenarius								
Pontocrates sp.								
Processa modica					13			
Psammodrilus balanoglossoides		13						
Pseudocuma longicorne								
Scolelepis bonnieri								
Scoloplos armiger	13	154	77		90	51	26	
Spio goniocephala								
Spio martinensis								
Spio sp.								
Spionidae sp.			51	115		13		
Spiophanes bombyx		13			13		26	
Spisula elliptica								
Spisula subtruncata								
Streptosyllis websteri								
Syllidae sp.								
Syllis prolifera								
Tanaissus lilljeborgi								
Tellimya ferruginosa								
Terebellidae sp.								
Thia scutellata	13							
Travisia forbesii								
Urothoe brevicornis			13		13		26	26
Urothoe poseidonis	423							
Urothoe sp.								

	QT8	QT9	QT10.0	QT11	QT12	QT13	QT14	QT15
Angulus fabula								
Apherusa sp.								
Aricidea minuta								
Aricidea sp.								
Aricidea wassi								
Bathyporeia elegans	64		51	26	13	51	51	26
Bathyporeia guilliamsoniana			26	13	13	13		26
Bathyporeia sp.								
Bivalvia sp.								
Brachyura sp.								
Capitella capitata								
Capitellidae sp.								
Chaetozone christiei				13	26		13	13
Chamelea striatula								
Cirratulidae sp.								
Crangon sp.								
Donax vittatus								
Echinocardium cordatum		13	26	13			38	
Ensis directus								
Ensis ensis								
Ensis sp.								
Eteone longa				13				
Eumida sanguinea								
Eunereis longissima		13						
Euspira nitida								13
Exogone hebes								
Gastrosaccus spinifer								
Hypereteone foliosa		13	26				13	
Jassa herdmani								
Lanice conchilega								
Leucothoe incisa							13	
Liocarcinus holsatus								
Magelona filiformis		26	26	26				
Magelona johnstoni		13				13		13
Magelona mirabilis						13		
Magelona sp.	13							
Malmgreniella darbouxi				13				
Megaluropus agilis								51
Microprotopus maculatus								
Monopseudocuma gilsoni				13	13			13
Natantia sp.								
Nemertea sp. A		13	13			13		
Nemertea sp. B		13			26	13		13
Nemertea sp. C		26				13		
Nephtys caeca								
Nephtys cirrosa	103	64	90	115	64	77	77	128

Annex 3: Box core data

	QT8	QT9	QT10.0	QT11	QT12	QT13	QT14	QT15
Nephtys hombergii				13				
Nephtys longosetosa								
Nereidae sp.								
Ophelia borealis	13		13	26		13		13
Ophiura albida								
Ophiura ophiura	13							
Ophiura sp.								
Orchomenella nana								
Pagurus bernhardus				13				
Paraonis fulgens								
Perioculodes longimanus								13
Pestarella tyrrhena								
Phoronis muelleri	26						13	77
Phoronis sp.		64			103			
Phyllodoce groenlandica								
Phyllodocidae sp.								
Pinnotheres pisum								
Poecilochaetus serpens								
Polychaeta sp.			13					
Polynoidae sp.								
Pontocrates arcticus							13	13
Pontocrates arenarius								
Pontocrates sp.								
Processa modica								13
Psammodrilus balanoglossoides								
Pseudocuma longicorne								
Scolelepis bonnieri								13
Scoloplos armiger	38	64	141	26	64	103	77	26
Spio goniocephala								
Spio martinensis								
Spio sp.								
Spionidae sp.						13		
Spiophanes bombyx	26			51	26			13
Spisula elliptica						13		
Spisula subtruncata								
Streptosyllis websteri								
Syllidae sp.								
Syllis prolifera								
Tanaissus lilljeborgi								
Tellimya ferruginosa								
Terebellidae sp.								
Thia scutellata		13		13				
Travisia forbesii								
Urothoe brevicornis			13	13		38		51
Urothoe poseidonis				13				
Urothoe sp.								

	QT16	QT18.0	QT19	QT20	QT21.0	QT22	QT23	QT24
Angulus fabula								
Apherusa sp.								
Aricidea minuta								
Aricidea sp.								
Aricidea wassi								
Bathyporeia elegans		603	346	38		38	192	423
Bathyporeia guilliamsoniana		13	13				26	26
Bathyporeia sp.								
Bivalvia sp.								
Brachyura sp.								
Capitella capitata				38				
Capitellidae sp.								
Chaetozone christiei	13	13						
Chamelea striatula				13			13	
Cirratulidae sp.								
Crangon sp.								
Donax vittatus								
Echinocardium cordatum	13			13	13			
Ensis directus							13	
Ensis ensis		13						
Ensis sp.								
Eteone longa						13		
Eumida sanguinea								
Eunereis longissima				13				
Euspira nitida								
Exogone hebes								
Gastrosaccus spinifer								
Hypereteone foliosa								13
Jassa herdmani								
Lanice conchilega	26			13				
Leucothoe incisa								
Liocarcinus holsatus								
Magelona filiformis			13			26	167	13
Magelona johnstoni			13			26	26	13
Magelona mirabilis		13						
Magelona sp.	13							
Malmgreniella darbouxi								
Megaluropus agilis							13	38
Microprotopus maculatus								
Monopseudocuma gilsoni		26		13	13		51	77
Natantia sp.	13		13	13				
Nemertea sp. A	38	13	26				26	13
Nemertea sp. B			13	13	13		26	
Nemertea sp. C	13				13			
Nephtys caeca								
Nephtys cirrosa	90	64	51	90	51	38	103	115

Annex 3: Box core data

	QT16	QT18.0	QT19	QT20	QT21.0	QT22	QT23	QT24
Nephtys hombergii								
Nephtys longosetosa								
Nereidae sp.								
Ophelia borealis	13	13	13	38	13	26	13	
Ophiura albida	13							
Ophiura ophiura								
Ophiura sp.								
Orchomenella nana								
Pagurus bernhardus								
Paraonis fulgens								
Perioculodes longimanus								
Pestarella tyrrhena								
Phoronis muelleri			13					
Phoronis sp.	26			51				
Phyllodoce groenlandica								
Phyllodocidae sp.			13					
Pinnotheres pisum								
Poecilochaetus serpens								
Polychaeta sp.								
Polynoidae sp.				13				
Pontocrates arcticus	13	13		13	26			26
Pontocrates arenarius								13
Pontocrates sp.								
Processa modica								
Psammodrilus balanoglossoides								
Pseudocuma longicorne								
Scolelepis bonnieri								
Scoloplos armiger	115	13	13	51	77	218	77	64
Spio goniocephala						26		13
Spio martinensis	13							
Spio sp.								
Spionidae sp.	13							
Spiophanes bombyx	26	13					64	154
Spisula elliptica							13	
Spisula subtruncata								
Streptosyllis websteri								
Syllidae sp.								
Syllis prolifera				38				
Tanaissus lilljeborgi							13	
Tellimya ferruginosa							13	
Terebellidae sp.								
Thia scutellata								
Travisia forbesii								
Urothoe brevicornis	38	13	64	13	13	26	13	
Urothoe poseidonis	26							
Urothoe sp.								

	QT25	QT26	QT27	QT28	QT29	QT30	QT31	QT32
Angulus fabula								
Apherusa sp.								
Aricidea minuta								
Aricidea sp.								
Aricidea wassi								
Bathyporeia elegans	167	179	115	26	90	449	64	51
Bathyporeia guilliamsoniana	13	13	13		13			
Bathyporeia sp.								
Bivalvia sp.								
Brachyura sp.								
Capitella capitata								
Capitellidae sp.								
Chaetozone christiei	13						13	13
Chamelea striatula								
Cirratulidae sp.						13		
Crangon sp.								
Donax vittatus								
Echinocardium cordatum	13	13	13	13	38			
Ensis directus								
Ensis ensis								13
Ensis sp.								
Eteone longa		13	13					
Eumida sanguinea								
Eunereis longissima								
Euspira nitida								
Exogone hebes								
Gastrosaccus spinifer								
Hypereteone foliosa								
Jassa herdmani	13							
Lanice conchilega	26			13		13		
Leucothoe incisa								
Liocarcinus holsatus								
Magelona filiformis			13	13			26	
Magelona johnstoni	13		13	26				
Magelona mirabilis							26	
Magelona sp.								
Malmgreniella darbouxi								
Megaluropus agilis	13	26	26					13
Microprotopus maculatus								
Monopseudocuma gilsoni	38	26			13		13	
Natantia sp.		13						
Nemertea sp. A					26	26		26
Nemertea sp. B	26			26				
Nemertea sp. C			13					
Nephtys caeca								
Nephtys cirrosa	51	90	64	38	103	51	51	128

Annex 3: Box core data

	QT25	QT26	QT27	QT28	QT29	QT30	QT31	QT32
Nephtys hombergii								
Nephtys longosetosa								
Nereidae sp.								
Ophelia borealis		13	13	13		26	13	38
Ophiura albida								
Ophiura ophiura								
Ophiura sp.								
Orchomenella nana								
Pagurus bernhardus								
Paraonis fulgens								
Perioculodes longimanus								
Pestarella tyrrhena								
Phoronis muelleri								
Phoronis sp.						26		
Phyllodoce groenlandica								
Phyllodocidae sp.								
Pinnotheres pisum								
Poecilochaetus serpens								
Polychaeta sp.								
Polynoidae sp.								
Pontocrates arcticus	13	13	13		13	13		13
Pontocrates arenarius								
Pontocrates sp.								
Processa modica								
Psammodrilus balanoglossoides								
Pseudocuma longicorne								
Scolelepis bonnieri	13				13			
Scoloplos armiger	77	26	13	90	26	26	26	38
Spio goniocephala								
Spio martinensis					13			
Spio sp.								
Spionidae sp.								
Spiophanes bombyx					13	13	13	64
Spisula elliptica								
Spisula subtruncata								
Streptosyllis websteri								
Syllidae sp.								
Syllis prolifera								
Tanaissus lilljeborgi								
Tellimya ferruginosa								
Terebellidae sp.								
Thia scutellata							13	
Travisia forbesii								
Urothoe brevicornis	13	26	26		13			
Urothoe poseidonis								
Urothoe sp.								

	QT33.0	QT34	QT35	QT36	QT37	QT38	QT39	QT40.0
Angulus fabula								
Apherusa sp.								
Aricidea minuta								
Aricidea sp.								
Aricidea wassi								
Bathyporeia elegans		90	64	26	38		26	51
Bathyporeia guilliamsoniana		26			13	26		13
Bathyporeia sp.								
Bivalvia sp.								
Brachyura sp.								
Capitella capitata				13			13	
Capitellidae sp.								
Chaetozone christiei	26	13	13					
Chamelea striatula								
Cirratulidae sp.								13
Crangon sp.								
Donax vittatus								
Echinocardium cordatum	13	13				13		13
Ensis directus								
Ensis ensis								
Ensis sp.								
Eteone longa								
Eumida sanguinea								
Eunereis longissima								
Euspira nitida								
Exogone hebes								
Gastrosaccus spinifer								
Hypereteone foliosa	13							
Jassa herdmani								
Lanice conchilega							13	
Leucothoe incisa								
Liocarcinus holsatus								
Magelona filiformis								26
Magelona johnstoni		13						26
Magelona mirabilis	13			13				
Magelona sp.								
Malmgreniella darbouxi								
Megaluropus agilis					38	13		26
Microprotopus maculatus								
Monopseudocuma gilsoni							13	51
Natantia sp.	13			13				
Nemertea sp. A	13		26			13	13	
Nemertea sp. B		26		13	13			13
Nemertea sp. C							26	
Nephtys caeca								
Nephtys cirrosa	51	64	179	90	115	103	90	64

Annex 3: Box core data

	QT33.0	QT34	QT35	QT36	QT37	QT38	QT39	QT40.0
Nephtys hombergii								
Nephtys longosetosa								
Nereidae sp.								
Ophelia borealis			13	13	13		26	26
Ophiura albida	13							
Ophiura ophiura								
Ophiura sp.								
Orchomenella nana								
Pagurus bernhardus								
Paraonis fulgens								
Perioculodes longimanus								
Pestarella tyrrhena							26	
Phoronis muelleri								
Phoronis sp.			244					
Phyllodoce groenlandica								
Phyllodocidae sp.								
Pinnotheres pisum				13				
Poecilochaetus serpens								
Polychaeta sp.								
Polynoidae sp.								
Pontocrates arcticus		13	26			13		
Pontocrates arenarius								
Pontocrates sp.								
Processa modica							26	
Psammodrilus balanoglossoides		13						
Pseudocuma longicorne								
Scolelepis bonnieri								
Scoloplos armiger	38	103	26	51	26	64	64	26
Spio goniocephala						26		13
Spio martinensis								
Spio sp.	26							
Spionidae sp.								
Spiophanes bombyx	64	26	13	13	13		26	51
Spisula elliptica			26	13				
Spisula subtruncata								
Streptosyllis websteri								
Syllidae sp.			13					
Syllis prolifera							13	
Tanaissus lilljeborgi								
Tellimya ferruginosa		13						
Terebellidae sp.								
Thia scutellata						13		
Travisia forbesii								
Urothoe brevicornis				38		13	13	13
Urothoe poseidonis								
Urothoe sp.								

	QT41	QT42	QT43	QT44.0	QT45	QT46	QT47	QT48
Angulus fabula								
Apherusa sp.								
Aricidea minuta								
Aricidea sp.								
Aricidea wassi				13				
Bathyporeia elegans	372	77				77		38
Bathyporeia guilliamsoniana						13	13	13
Bathyporeia sp.								
Bivalvia sp.								
Brachyura sp.								
Capitella capitata								
Capitellidae sp.								
Chaetozone christiei				13				
Chamelea striatula								
Cirratulidae sp.								
Crangon sp.				13				
Donax vittatus								
Echinocardium cordatum	13	13	13	13	13		26	13
Ensis directus								
Ensis ensis								
Ensis sp.	13					13	13	
Eteone longa	13							
Eumida sanguinea								
Eunereis longissima								
Euspira nitida								
Exogone hebes								
Gastrosaccus spinifer								
Hypereteone foliosa								
Jassa herdmani								
Lanice conchilega			26		13			
Leucothoe incisa								13
Liocarcinus holsatus								
Magelona filiformis				13				
Magelona johnstoni		26		13		13		
Magelona mirabilis								
Magelona sp.								
Malmgreniella darbouxi								
Megaluropus agilis	51			13				
Microprotopus maculatus								
Monopseudocuma gilsoni	13	13			13			51
Natantia sp.								13
Nemertea sp. A				26				
Nemertea sp. B		13		13				
Nemertea sp. C								13
Nephtys caeca								
Nephtys cirrosa	77	38	77	90	38	38	64	141

Annex 3: Box core data

	QT41	QT42	QT43	QT44.0	QT45	QT46	QT47	QT48
Nephtys hombergii								
Nephtys longosetosa								
Nereidae sp.								
Ophelia borealis								13
Ophiura albida								
Ophiura ophiura								
Ophiura sp.								
Orchomenella nana	13							
Pagurus bernhardus								
Paraonis fulgens								
Perioculodes longimanus								
Pestarella tyrrhena								
Phoronis muelleri								
Phoronis sp.						13		
Phyllodoce groenlandica								
Phyllodocidae sp.								
Pinnotheres pisum								
Poecilochaetus serpens								
Polychaeta sp.								
Polynoidae sp.		13						
Pontocrates arcticus	13	13				13		
Pontocrates arenarius								
Pontocrates sp.								13
Processa modica								13
Psammodrilus balanoglossoides							13	
Pseudocuma longicorne								
Scolelepis bonnieri		13			13			
Scoloplos armiger	77		26	64	51	26	141	13
Spio goniocephala			13			13		
Spio martinensis								
Spio sp.								
Spionidae sp.								13
Spiophanes bombyx	38	13	13	13	13			103
Spisula elliptica					13			
Spisula subtruncata								
Streptosyllis websteri								
Syllidae sp.								
Syllis prolifera								13
Tanaissus lilljeborgi	13							
Tellimya ferruginosa								
Terebellidae sp.								
Thia scutellata					13		26	26
Travisia forbesii								
Urothoe brevicornis	13		13					
Urothoe poseidonis								
Urothoe sp.								

	QAW1.4	QAW2.3	QAW3.2	QAW4.1	QAW5.3	QAW6.4	QCS1	QCS2
Angulus fabula								
Apherusa sp.	13							
Aricidea minuta								13
Aricidea sp.								
Aricidea wassi								
Bathyporeia elegans	26	346	218	26	115	179		
Bathyporeia guilliamsoniana	13	26	13		38	13	26	77
Bathyporeia sp.			26					
Bivalvia sp.								
Brachyura sp.								
Capitella capitata								
Capitellidae sp.								
Chaetozone christiei	13		13	13	13		13	
Chamelea striatula								
Cirratulidae sp.								
Crangon sp.								
Donax vittatus								
Echinocardium cordatum	13	13			38	13		
Ensis directus								
Ensis ensis								
Ensis sp.								
Eteone longa	13							
Eumida sanguinea								
Eunereis longissima								
Euspira nitida								
Exogone hebes							64	
Gastrosaccus spinifer			13					
Hypereteone foliosa								
Jassa herdmani								
Lanice conchilega								
Leucothoe incisa								
Liocarcinus holsatus								
Magelona filiformis			38	13	295			
Magelona johnstoni		13	13		13			
Magelona mirabilis	38						13	13
Magelona sp.			13		13	13		
Malmgreniella darbouxi								
Megaluropus agilis	26	13	13	13	13	13		13
Microprotopus maculatus								
Monopseudocuma gilsoni	128	13			38		13	13
Natantia sp.								
Nemertea sp. A		13			13	26		
Nemertea sp. B	13		26		13			
Nemertea sp. C								
Nephtys caeca								
Nephtys cirrosa	64	64	141	64	64	26	64	51

Annex 3: Box core data

	QAW1.4	QAW2.3	QAW3.2	QAW4.1	QAW5.3	QAW6.4	QCS1	QCS2
Nephtys hombergii								
Nephtys longosetosa	13							
Nereidae sp.								
Ophelia borealis			13	26			13	26
Ophiura albida								
Ophiura ophiura		13	26					
Ophiura sp.								
Orchomenella nana								
Pagurus bernhardus								
Paraonis fulgens								13
Perioculodes longimanus								
Pestarella tyrrhena								
Phoronis muelleri								
Phoronis sp.								
Phyllodoce groenlandica								
Phyllodocidae sp.								
Pinnotheres pisum								
Poecilochaetus serpens								
Polychaeta sp.							13	
Polynoidae sp.								
Pontocrates arcticus		13	38					
Pontocrates arenarius								
Pontocrates sp.								
Processa modica							13	
Psammodrilus balanoglossoides								
Pseudocuma longicorne	13							
Scolelepis bonnieri							26	
Scoloplos armiger	64	141	26	141	90	115	51	128
Spio goniocephala								
Spio martinensis								
Spio sp.								
Spionidae sp.								
Spiophanes bombyx		13			13		26	
Spisula elliptica							13	
Spisula subtruncata								
Streptosyllis websteri								
Syllidae sp.								
Syllis prolifera								
Tanaissus lilljeborgi								
Tellimya ferruginosa					13			
Terebellidae sp.								
Thia scutellata					13		13	
Travisia forbesii								
Urothoe brevicornis		13	26		26			
Urothoe poseidonis					90			
Urothoe sp.								

	QCS3.1	QCS4	QCS5	QCS6	QCS7	QCS8	QCS9	QCS10
Angulus fabula								
Apherusa sp.								
Aricidea minuta				51	13			
Aricidea sp.								
Aricidea wassi								
Bathyporeia elegans								
Bathyporeia guilliamsoniana	77	26		26	13		38	64
Bathyporeia sp.	13							
Bivalvia sp.								
Brachyura sp.								
Capitella capitata								
Capitellidae sp.								
Chaetozone christiei				13				
Chamelea striatula								
Cirratulidae sp.								
Crangon sp.								
Donax vittatus								
Echinocardium cordatum			13	13		128		13
Ensis directus								
Ensis ensis								
Ensis sp.								
Eteone longa								
Eumida sanguinea								
Eunereis longissima								
Euspira nitida								
Exogone hebes	13		26		782		13	
Gastrosaccus spinifer	13							
Hypereteone foliosa								
Jassa herdmani								
Lanice conchilega			13					
Leucothoe incisa								
Liocarcinus holsatus								
Magelona filiformis	13	26	13		26			
Magelona johnstoni								13
Magelona mirabilis		13						
Magelona sp.				13				
Malmgreniella darbouxi								
Megaluropus agilis	26	13		51			13	13
Microprotopus maculatus								
Monopseudocuma gilsoni				26			26	
Natantia sp.								
Nemertea sp. A	13				26		13	
Nemertea sp. B								
Nemertea sp. C								
Nephtys caeca								
Nephtys cirrosa	51	38	51	38	90		38	13

Annex 3: Box core data

	QCS3.1	QCS4	QCS5	QCS6	QCS7	QCS8	QCS9	QCS10
Nephtys hombergii	13							
Nephtys longosetosa								
Nereidae sp.								
Ophelia borealis	26	13	26		13		64	26
Ophiura albida								
Ophiura ophiura								
Ophiura sp.								
Orchomenella nana								
Pagurus bernhardus								
Paraonis fulgens			13				13	
Perioculodes longimanus								
Pestarella tyrrhena								
Phoronis muelleri					38			
Phoronis sp.			167				26	26
Phyllodoce groenlandica								
Phyllodocidae sp.								
Pinnotheres pisum								
Poecilochaetus serpens								
Polychaeta sp.								
Polynoidae sp.								
Pontocrates arcticus								
Pontocrates arenarius								
Pontocrates sp.								
Processa modica			13		38		13	
Psammodrilus balanoglossoides	13							
Pseudocuma longicorne								
Scolelepis bonnieri	13			13	13			13
Scoloplos armiger	38	90	13	13	77	13	51	26
Spio goniocephala	13	13			13			13
Spio martinensis								
Spio sp.								
Spionidae sp.	13							
Spiophanes bombyx								
Spisula elliptica								
Spisula subtruncata								
Streptosyllis websteri	13							
Syllidae sp.								
Syllis prolifera								
Tanaissus lilljeborgi	26							
Tellimya ferruginosa						13		
Terebellidae sp.								
Thia scutellata								
Travisia forbesii								
Urothoe brevicornis								
Urothoe poseidonis								
Urothoe sp.								

	QCS11.0	QCS12	QCS13.3	QCS14	QCS15.0	QCS16	QCS17	QCS18
Angulus fabula								
Apherusa sp.								
Aricidea minuta								
Aricidea sp.								
Aricidea wassi								
Bathyporeia elegans			26	13		26	90	13
Bathyporeia guilliamsoniana	13		13	13	13			
Bathyporeia sp.								
Bivalvia sp.								
Brachyura sp.								
Capitella capitata								
Capitellidae sp.			13					
Chaetozone christiei		13						
Chamelea striatula								
Cirratulidae sp.								
Crangon sp.								
Donax vittatus								
Echinocardium cordatum	26	13	13		13	26	13	26
Ensis directus								
Ensis ensis								
Ensis sp.								
Eteone longa								
Eumida sanguinea								
Eunereis longissima								
Euspira nitida								
Exogone hebes		218	1051	13	64			
Gastrosaccus spinifer								13
Hypereteone foliosa								
Jassa herdmani								
Lanice conchilega								
Leucothoe incisa			13	13				
Liocarcinus holsatus								
Magelona filiformis		13	13	13				
Magelona johnstoni							13	
Magelona mirabilis					26	26		26
Magelona sp.			13	13			13	
Malmgreniella darbouxi								
Megaluropus agilis	13		13	51	13			
Microprotopus maculatus								
Monopseudocuma gilsoni						13		
Natantia sp.								
Nemertea sp. A			26		26		13	
Nemertea sp. B								
Nemertea sp. C								
Nephtys caeca								
Nephtys cirrosa	51	77	64	90	64	64	38	26

Annex 3: Box core data

	QCS11.0	QCS12	QCS13.3	QCS14	QCS15.0	QCS16	QCS17	QCS18
Nephtys hombergii								
Nephtys longosetosa								
Nereidae sp.								
Ophelia borealis		26	13					
Ophiura albida								
Ophiura ophiura								
Ophiura sp.								13
Orchomenella nana								
Pagurus bernhardus								
Paraonis fulgens						38		13
Perioculodes longimanus								
Pestarella tyrrhena			38					
Phoronis muelleri								
Phoronis sp.			26	26	13			
Phyllodoce groenlandica								
Phyllodocidae sp.								
Pinnotheres pisum								
Poecilochaetus serpens								
Polychaeta sp.								
Polynoidae sp.								
Pontocrates arcticus				13				13
Pontocrates arenarius								
Pontocrates sp.								
Processa modica		13	26		13			
Psammodrilus balanoglossoides								
Pseudocuma longicorne								
Scolelepis bonnieri								
Scoloplos armiger		141	77	77	26		13	13
Spio goniocephala								
Spio martinensis								
Spio sp.								
Spionidae sp.		13						
Spiophanes bombyx		13		26	13	13		
Spisula elliptica								13
Spisula subtruncata								
Streptosyllis websteri		13	13					
Syllidae sp.								
Syllis prolifera								
Tanaissus lilljeborgi								
Tellimya ferruginosa	26							
Terebellidae sp.								
Thia scutellata		13	13					
Travisia forbesii						13		
Urothoe brevicornis								
Urothoe poseidonis								
Urothoe sp.								

	QCS19	QCS20	QCS21	QCS22	QCS23.0	QCS24	QCS25
Angulus fabula							
Apherusa sp.							
Aricidea minuta							
Aricidea sp.							
Aricidea wassi					26	38	26
Bathyporeia elegans	26			13	90	64	64
Bathyporeia guilliamsoniana							
Bathyporeia sp.							
Bivalvia sp.							
Brachyura sp.							
Capitella capitata							
Capitellidae sp.							
Chaetozone christiei	38	13		13			
Chamelea striatula							
Cirratulidae sp.							
Crangon sp.							
Donax vittatus							
Echinocardium cordatum	13	13	13	13		13	13
Ensis directus							
Ensis ensis							
Ensis sp.			13				
Eteone longa					13		13
Eumida sanguinea							
Eunereis longissima							
Euspira nitida							
Exogone hebes	64	256		51	26		
Gastrosaccus spinifer						26	
Hypereteone foliosa							
Jassa herdmani							
Lanice conchilega							
Leucothoe incisa							
Liocarcinus holsatus							
Magelona filiformis				26			
Magelona johnstoni		13			13		26
Magelona mirabilis				13		13	38
Magelona sp.							
Malmgreniella darbouxi							
Megaluropus agilis	38	115		38	13	13	13
Microprotopus maculatus							
Monopseudocuma gilsoni	13	26					
Natantia sp.							
Nemertea sp. A	13	13	13		26		
Nemertea sp. B							
Nemertea sp. C							
Nephtys caeca							
Nephtys cirrosa	90	51	26	26	38	26	64

Annex 3: Box core data

	QCS19	QCS20	QCS21	QCS22	QCS23.0	QCS24	QCS25
Nephtys hombergii							
Nephtys longosetosa	13						
Nereidae sp.							
Ophelia borealis	13	13		13	26		13
Ophiura albida		26					
Ophiura ophiura							
Ophiura sp.							
Orchomenella nana							
Pagurus bernhardus							
Paraonis fulgens			38			13	
Perioculodes longimanus							
Pestarella tyrrhena							
Phoronis muelleri							
Phoronis sp.		13					
Phyllodoce groenlandica							
Phyllodocidae sp.							
Pinnotheres pisum							
Poecilochaetus serpens							
Polychaeta sp.							
Polynoidae sp.							
Pontocrates arcticus							
Pontocrates arenarius							
Pontocrates sp.							
Processa modica							
Psammodrilus balanoglossoides	26						
Pseudocuma longicorne							
Scolelepis bonnieri	26			13			
Scoloplos armiger	128	64	13	51		51	26
Spio goniocephala							
Spio martinensis							
Spio sp.							
Spionidae sp.		13		13			
Spiophanes bombyx	13	90					
Spisula elliptica		13				13	
Spisula subtruncata							
Streptosyllis websteri					13		
Syllidae sp.							
Syllis prolifera							
Tanaissus lilljeborgi							
Tellimya ferruginosa							
Terebellidae sp.				26			
Thia scutellata							
Travisia forbesii							
Urothoe brevicornis						38	
Urothoe poseidonis							
Urothoe sp.							

Annex 3b: Box core biomass data (g AFDW/m²)

	QCN1	QCN2	QCN3.1	QCN4	QCN5	QCN6	QCN7	QCN8
Angulus fabula					3.53474			
Apherusa sp.								
Aricidea minuta								
Aricidea sp.					0.00021			
Aricidea wassi	0.00021	0.00021	0.00106			0.00021		
Bathyporeia elegans	0.02692	0.01538	0.19615	0.20385	0.01538	0.02308	0.07692	0.09231
Bathyporeia guilliamsoniana				0.00537	0.00537		0.00537	0.00537
Bathyporeia sp.								
Bivalvia sp.		0.46369						
Brachyura sp.								
Capitella capitata								
Capitellidae sp.								
Chaetozone christiei		0.02809			0.02149	0.00021	0.00745	0.02320
Chamelea striatula								0.48054
Cirratulidae sp.								
Crangon sp.								
Donax vittatus					0.05056			
Echinocardium cordatum	5.06004			6.65894	26.15482	2.63726	15.09465	
Ensis directus				4.90403				
Ensis ensis								
Ensis sp.							0.52137	
Eteone longa		0.00021		0.00362				
Eumida sanguinea								0.00106
Eunereis longissima								
Euspira nitida								
Exogone hebes								
Gastrosaccus spinifer			0.01282					
Hypereteone foliosa								
Jassa herdmani								
Lanice conchilega	0.54439			1.63191			3.43322	0.79765
Leucothoe incisa								
Liocarcinus holsatus								
Magelona filiformis			0.00298	0.00851	0.04129		0.01979	0.00341
Magelona johnstoni			0.00341	0.02852	0.03043		0.01149	0.02298
Magelona mirabilis				0.03809	0.01596	0.04171		
Magelona sp.				0.01639	0.10598			
Malmgreniella darbouxi	0.01064			0.00873				0.00043
Megaluropus agilis		0.00385			0.00385	0.00385	0.00385	
Microprotopus maculatus								
Monopseudocuma gilsoni								
Natantia sp.								
Nemertea sp. A				0.00513			0.02103	
Nemertea sp. B				0.01538		0.00590	0.04949	0.00308
Nemertea sp. C				0.06308				
Nephtys caeca								
Nephtys cirrosa	0.12642	0.05704	0.18941	0.21942	0.06491	0.25687	0.24496	0.13237

Annex 3: Box core data

	QCN1	QCN2	QCN3.1	QCN4	QCN5	QCN6	QCN7	QCN8
Nephtys hombergii								
Nephtys longosetosa								
Nereidae sp.							7.21142	
Ophelia borealis	0.12450	0.09343	0.05618				0.10130	
Ophiura albida								
Ophiura ophiura								
Ophiura sp.								
Orchomenella nana								
Pagurus bernhardus								
Paraonis fulgens								
Perioculodes longimanus								
Pestarella tyrrhena								
Phoronis muelleri								
Phoronis sp.								
Phyllodoce groenlandica		2.39381				2.68367		
Phyllodocidae sp.								
Pinnotheres pisum								
Poecilochaetus serpens				0.02086			0.02809	
Polychaeta sp.		0.00426						
Polynoidae sp.								
Pontocrates arcticus						0.00385		
Pontocrates arenarius								
Pontocrates sp.								
Processa modica				0.18150			0.12735	0.08271
Psammodrilus balanoglossoides								
Pseudocuma longicorne								
Scolelepis bonnieri						0.16685		
Scoloplos armiger	0.05959	0.16408	0.00979	0.05321		0.11386	0.05321	0.05214
Spio goniocephala								
Spio martinensis								
Spio sp.								
Spionidae sp.								
Spiophanes bombyx							0.09407	0.00021
Spisula elliptica								
Spisula subtruncata								0.53822
Streptosyllis websteri							0.00021	0.00021
Syllidae sp.								
Syllis prolifera								
Tanaissus lilljeborgi				0.00385		0.00385		
Tellimya ferruginosa					0.02962			
Terebellidae sp.								
Thia scutellata	0.04019		0.12079					
Travisia forbesii								
Urothoe brevicornis	0.00385	0.00385	0.00385	0.00385		0.00385	0.00385	
Urothoe poseidonis				0.00385	0.00385			0.00385
Urothoe sp.			0.00385	0.00385				

	QCN9	QCN10	QCN11.2	QCN12	QCN13.1	QCN14	QCN15.4	QCN16
Angulus fabula		1.60388					3.70390	
Apherusa sp.								
Aricidea minuta								
Aricidea sp.				0.00021				
Aricidea wassi			0.00021					
Bathyporeia elegans	0.06923	0.05000	0.02692	0.00769	0.11923	0.01154	0.01923	0.00769
Bathyporeia guilliamsoniana	0.00537	0.00537	0.00537	0.00537	0.00537	0.00537		0.00537
Bathyporeia sp.								
Bivalvia sp.								
Brachyura sp.								
Capitella capitata								
Capitellidae sp.								
Chaetozone christiei	0.04107			0.01554	0.02192	0.01596	0.04937	0.01319
Chamelea striatula								
Cirratulidae sp.								
Crangon sp.								
Donax vittatus								
Echinocardium cordatum				18.93561		26.60385	18.16047	2.63726
Ensis directus		22.00458					0.32838	
Ensis ensis								
Ensis sp.								
Eteone longa								
Eumida sanguinea								
Eunereis longissima								
Euspira nitida		0.23003						
Exogone hebes								
Gastrosaccus spinifer								0.01282
Hypereteone foliosa			0.06874					
Jassa herdmani								
Lanice conchilega		2.71516	12.29613	12.55173				1.36120
Leucothoe incisa								
Liocarcinus holsatus								
Magelona filiformis		0.01788		0.01107	0.03448	0.01043	0.03192	
Magelona johnstoni	0.26177	0.15153		0.02426		0.02660	0.03554	
Magelona mirabilis	0.04618	0.00596						
Magelona sp.	0.06448	0.14259					0.06597	
Malmgreniella darbouxi			0.02149	0.00170				0.00702
Megaluropus agilis	0.00385	0.00385			0.00385	0.00385		0.00385
Microprotopus maculatus				0.00321				
Monopseudocuma gilsoni				0.00256	0.00512			0.00256
Natantia sp.								
Nemertea sp. A								
Nemertea sp. B	0.04923		0.02333	0.02667	0.07974	0.04179		
Nemertea sp. C				0.00026				
Nephtys caeca								
Nephtys cirrosa	0.06023	0.31285	0.66251	0.08194	0.26390	0.06236	0.02001	0.14451

Annex 3: Box core data

	QCN9	QCN10	QCN11.2	QCN12	QCN13.1	QCN14	QCN15.4	QCN16
Nephtys hombergii			0.04405					
Nephtys longosetosa								
Nereidae sp.								
Ophelia borealis			0.02596	0.00936				
Ophiura albida								
Ophiura ophiura								
Ophiura sp.								
Orchomenella nana								
Pagurus bernhardus								
Paraonis fulgens								
Perioculodes longimanus								
Pestarella tyrrhena								
Phoronis muelleri								
Phoronis sp.								
Phyllodoce groenlandica								
Phyllodocidae sp.								
Pinnotheres pisum								
Poecilochaetus serpens			0.00341					
Polychaeta sp.								
Polynoidae sp.								
Pontocrates arcticus		0.00385			0.00385	0.00385	0.00385	
Pontocrates arenarius								
Pontocrates sp.								
Processa modica								
Psammodrilus balanoglossoides								
Pseudocuma longicorne								
Scolelepis bonnieri	0.04342						0.03746	
Scoloplos armiger	0.16643	0.01256		0.30902	0.04682	0.15536		0.74487
Spio goniocephala								
Spio martinensis		0.01107						
Spio sp.								
Spionidae sp.								
Spiophanes bombyx				0.00021				0.04278
Spisula elliptica								
Spisula subtruncata								
Streptosyllis websteri								
Syllidae sp.								
Syllis prolifera								
Tanaissus lilljeborgi								
Tellimya ferruginosa							0.01255	
Terebellidae sp.								
Thia scutellata			0.03131			0.03512	0.04887	
Travisia forbesii								
Urothoe brevicornis		0.00385	0.00385	0.00385	0.00385		0.00385	
Urothoe poseidonis	0.00385	0.00385		0.00385	0.00385	0.00385	0.00385	0.00385
Urothoe sp.						0.00385		

	QCN17	QCN18	QCN19	QCN20	QCN21	QCN22	QCN23.2	QCN24
Angulus fabula				0.36251				
Apherusa sp.								
Aricidea minuta								
Aricidea sp.								
Aricidea wassi								
Bathyporeia elegans	0.02692	0.15385	0.03846	0.02308	0.03077	0.01538	0.04231	0.03077
Bathyporeia guilliamsoniana	0.00537	0.00537		0.00537			0.00537	
Bathyporeia sp.								
Bivalvia sp.								
Brachyura sp.								
Capitella capitata								
Capitellidae sp.								
Chaetozone christiei			0.02788	0.00766	0.01107	0.00362		
Chamelea striatula								
Cirratulidae sp.								
Crangon sp.								
Donax vittatus			0.02461					
Echinocardium cordatum		2.63726		2.63726		6.65894	12.49021	
Ensis directus								
Ensis ensis								
Ensis sp.			2.83194					
Eteone longa			0.00021		0.00021			
Eumida sanguinea					0.00873			
Eunereis longissima								
Euspira nitida								
Exogone hebes								
Gastrosaccus spinifer				0.02564		0.01282		
Hypereteone foliosa								
Jassa herdmani								
Lanice conchilega	0.01298		0.00021	0.75019	4.13553	0.00021	0.09768	
Leucothoe incisa								
Liocarcinus holsatus								
Magelona filiformis	0.00021		0.02724	0.00915				0.01703
Magelona johnstoni		0.00596	0.00596	0.02767		0.03448	0.06278	0.15089
Magelona mirabilis					0.07768			
Magelona sp.								
Malmgreniella darbouxi		0.01128		0.05193				
Megaluropus agilis	0.00385	0.00385				0.00385	0.00385	
Microprotopus maculatus								
Monopseudocuma gilsoni	0.00512	0.00512	0.01024			0.00256		
Natantia sp.								
Nemertea sp. A			0.00026					0.04564
Nemertea sp. B		0.01923		0.01077	0.06000		0.01590	0.01846
Nemertea sp. C								
Nephtys caeca			1.25075					
Nephtys cirrosa	0.28965	0.03597	0.11194	0.36605	0.02682	0.12088	0.18813	0.10343

Annex 3: Box core data

	QCN17	QCN18	QCN19	QCN20	QCN21	QCN22	QCN23.2	QCN24
Nephtys hombergii								
Nephtys longosetosa								
Nereidae sp.								
Ophelia borealis					0.18366			
Ophiura albida						0.35392		
Ophiura ophiura								
Ophiura sp.								
Orchomenella nana								
Pagurus bernhardus								
Paraonis fulgens								
Perioculodes longimanus								0.00385
Pestarella tyrrhena								
Phoronis muelleri								
Phoronis sp.								
Phyllodoce groenlandica								
Phyllodocidae sp.								
Pinnotheres pisum								
Poecilochaetus serpens								
Polychaeta sp.			0.00638					
Polynoidae sp.								
Pontocrates arcticus		0.00385		0.00385			0.00385	0.00385
Pontocrates arenarius								
Pontocrates sp.								
Processa modica								
Psammodrilus balanoglossoides								
Pseudocuma longicorne								
Scolelepis bonnieri					0.01958		0.05044	0.16962
Scoloplos armiger	0.25283	0.06917	0.06321	0.06108	0.21282	0.13259	0.23857	0.22814
Spio goniocephala								
Spio martinensis							0.00021	
Spio sp.								
Spionidae sp.								
Spiophanes bombyx								
Spisula elliptica								
Spisula subtruncata								
Streptosyllis websteri								
Syllidae sp.								
Syllis prolifera								
Tanaissus lilljeborgi								
Tellimya ferruginosa								
Terebellidae sp.								
Thia scutellata								
Travisia forbesii								
Urothoe brevicornis	0.00385	0.00385			0.00385	0.00385	0.00385	
Urothoe poseidonis	0.00385	0.00385	0.00385	0.00385			0.00385	0.00385
Urothoe sp.								

	QCN25	QT1	QT2.4	QT3	QT4	QT5	QT6.2	QT7
Angulus fabula								
Apherusa sp.								
Aricidea minuta								
Aricidea sp.								
Aricidea wassi								
Bathyporeia elegans	0.04231	0.03462	0.01923	0.02308	0.06923		0.12308	0.01154
Bathyporeia guilliamsoniana	0.00537	0.00537			0.00537			0.00537
Bathyporeia sp.						0.00214		
Bivalvia sp.								
Brachyura sp.					0.00385			
Capitella capitata								
Capitellidae sp.								
Chaetozone christiei					0.01554			0.00830
Chamelea striatula					0.48054			
Cirratulidae sp.								
Crangon sp.								
Donax vittatus								
Echinocardium cordatum	21.87025	8.26092		10.33382	4.17467			
Ensis directus				5.67494				
Ensis ensis								
Ensis sp.			0.80244					
Eteone longa			0.00021					
Eumida sanguinea								
Eunereis longissima								
Euspira nitida								
Exogone hebes								
Gastrosaccus spinifer								
Hypereteone foliosa					0.00553	0.00873		
Jassa herdmani								
Lanice conchilega	2.92713			0.00021				
Leucothoe incisa								
Liocarcinus holsatus							12.52731	
Magelona filiformis	0.03107							
Magelona johnstoni	0.04022		0.05469	0.07662			0.00511	
Magelona mirabilis			0.03980			0.02043	0.01745	
Magelona sp.								
Malmgreniella darbouxi	0.01852							
Megaluropus agilis	0.00385						0.00385	
Microprotopus maculatus								
Monopseudocuma gilsoni	0.00256			0.00768			0.00256	
Natantia sp.		0.00385				0.00385		
Nemertea sp. A	0.01026	0.09154	0.01282	0.07000			1.02641	0.00026
Nemertea sp. B					0.00667		0.01538	
Nemertea sp. C								
Nephtys caeca								
Nephtys cirrosa	0.48055	0.11769	0.06597	0.01788	0.09832	0.46544	0.05065	0.11386

Annex 3: Box core data

	QCN25	QT1	QT2.4	QT3	QT4	QT5	QT6.2	QT7
Nephtys hombergii								
Nephtys longosetosa								
Nereidae sp.								
Ophelia borealis				0.08470		0.08598	0.07491	
Ophiura albida								
Ophiura ophiura					20.03341			
Ophiura sp.								
Orchomenella nana								
Pagurus bernhardus								
Paraonis fulgens								
Perioculodes longimanus								
Pestarella tyrrhena								
Phoronis muelleri								
Phoronis sp.								
Phyllodoce groenlandica								
Phyllodocidae sp.								
Pinnotheres pisum								
Poecilochaetus serpens								
Polychaeta sp.	0.00021				0.00021			
Polynoidae sp.								
Pontocrates arcticus	0.00385	0.00385		0.00385	0.00385		0.00385	
Pontocrates arenarius								
Pontocrates sp.								
Processa modica					0.05669			
Psammodrilus balanoglossoides		0.00021						
Pseudocuma longicorne								
Scolelepis bonnieri								
Scoloplos armiger	0.00298	0.94705	0.20622		0.25773	0.16728	0.05533	
Spio goniocephala								
Spio martinensis								
Spio sp.								
Spionidae sp.			0.00021	0.00021		0.01979		
Spiophanes bombyx		0.00638			0.14408		0.00021	
Spisula elliptica								
Spisula subtruncata								
Streptosyllis websteri								
Syllidae sp.								
Syllis prolifera								
Tanaissus lilljeborgi								
Tellimya ferruginosa								
Terebellidae sp.								
Thia scutellata	0.00613							
Travisia forbesii								
Urothoe brevicornis			0.00385		0.00385		0.00385	0.00385
Urothoe poseidonis	0.00385							
Urothoe sp.								

	QT8	QT9	QT10.0	QT11	QT12	QT13	QT14	QT15
Angulus fabula								
Apherusa sp.								
Aricidea minuta								
Aricidea sp.								
Aricidea wassi								
Bathyporeia elegans	0.01923		0.01538	0.00769	0.00385	0.01538	0.01538	0.00769
Bathyporeia guilliamsoniana			0.00537	0.00537	0.00537	0.00537		0.00537
Bathyporeia sp.								
Bivalvia sp.								
Brachyura sp.								
Capitella capitata								
Capitellidae sp.								
Chaetozone christiei				0.00553	0.02043		0.00489	0.02192
Chamelea striatula								
Cirratulidae sp.								
Crangon sp.								
Donax vittatus								
Echinocardium cordatum		10.67134	5.86334	6.65894			9.29109	
Ensis directus								
Ensis ensis								
Ensis sp.								
Eteone longa				0.00170				
Eumida sanguinea								
Eunereis longissima		0.14429						
Euspira nitida								0.14668
Exogone hebes								
Gastrosaccus spinifer								
Hypereteone foliosa		0.00447	0.10684				0.01000	
Jassa herdmani								
Lanice conchilega								
Leucothoe incisa							0.00385	
Liocarcinus holsatus								
Magelona filiformis		0.02384	0.01383	0.02001				
Magelona johnstoni		0.05533				0.07108		0.02001
Magelona mirabilis						0.06427		
Magelona sp.	0.02575							
Malmgreniella darbouxi				0.00021				
Megaluropus agilis								0.00385
Microprotopus maculatus								
Monopseudocuma gilsoni				0.00256	0.00256			0.00256
Natantia sp.								
Nemertea sp. A		0.20923	0.01897			0.00026		
Nemertea sp. B		0.01564			0.00026	0.01923		0.00692
Nemertea sp. C		0.01821				0.03103		
Nephtys caeca								
Nephtys cirrosa	0.28880	0.11492	0.19856	0.14472	0.13727	0.06619	0.15664	0.54695

Annex 3: Box core data

	QT8	QT9	QT10.0	QT11	QT12	QT13	QT14	QT15
Nephtys hombergii				0.12854				
Nephtys longosetosa								
Nereidae sp.								
Ophelia borealis	0.04384		0.02256	0.09811		0.00021		0.21984
Ophiura albida								
Ophiura ophiura	19.41028							
Ophiura sp.								
Orchomenella nana								
Pagurus bernhardus				0.00385				
Paraonis fulgens								
Perioculodes longimanus								0.00385
Pestarella tyrrhena								
Phoronis muelleri	0.00681						0.02022	0.03363
Phoronis sp.		0.03277			0.05427			
Phyllodoce groenlandica								
Phyllodocidae sp.								
Pinnotheres pisum								
Poecilochaetus serpens								
Polychaeta sp.			0.00021					
Polynoidae sp.								
Pontocrates arcticus							0.00385	0.00385
Pontocrates arenarius								
Pontocrates sp.								
Processa modica								0.10513
Psammodrilus balanoglossoides								
Pseudocuma longicorne								
Scolelepis bonnieri								0.17068
Scoloplos armiger	0.10301	0.10492	1.12561	0.08023	0.34200	0.17430	0.16749	0.18771
Spio goniocephala								
Spio martinensis								
Spio sp.								
Spionidae sp.						0.00021		
Spiophanes bombyx	0.00021			0.08406	0.02596			0.01681
Spisula elliptica						0.27599		
Spisula subtruncata								
Streptosyllis websteri								
Syllidae sp.								
Syllis prolifera								
Tanaissus lilljeborgi								
Tellimya ferruginosa								
Terebellidae sp.								
Thia scutellata		0.01544		0.00613				
Travisia forbesii								
Urothoe brevicornis			0.00385	0.00385		0.00385		0.00385
Urothoe poseidonis				0.00385				
Urothoe sp.								

	QT16	QT18.0	QT19	QT20	QT21.0	QT22	QT23	QT24
Angulus fabula								
Apherusa sp.								
Aricidea minuta								
Aricidea sp.								
Aricidea wassi								
Bathyporeia elegans		0.18077	0.10385	0.01154		0.01154	0.05769	0.12692
Bathyporeia guilliamsoniana		0.00537	0.00537				0.00537	0.00537
Bathyporeia sp.								
Bivalvia sp.								
Brachyura sp.								
Capitella capitata				0.01809				
Capitellidae sp.								
Chaetozone christiei	0.01234	0.01171						
Chamelea striatula				2.66038			4.24198	
Cirratulidae sp.								
Crangon sp.								
Donax vittatus								
Echinocardium cordatum	8.84029			7.47944	1.79262			
Ensis directus							0.32626	
Ensis ensis		8.99370						
Ensis sp.								
Eteone longa						0.00128		
Eumida sanguinea								
Eunereis longissima				0.24411				
Euspira nitida								
Exogone hebes								
Gastrosaccus spinifer								
Hypereteone foliosa								0.04256
Jassa herdmani								
Lanice conchilega	1.00238			0.00021				
Leucothoe incisa								
Liocarcinus holsatus								
Magelona filiformis			0.00894			0.01213	0.12024	0.00830
Magelona johnstoni			0.01362			0.07789	0.10620	0.01000
Magelona mirabilis		0.00596						
Magelona sp.	0.07087							
Malmgreniella darbouxi								
Megaluropus agilis							0.00385	0.00385
Microprotopus maculatus								
Monopseudocuma gilsoni		0.00512		0.00256	0.00256		0.01024	0.01536
Natantia sp.	0.00385		0.00385	0.00385				
Nemertea sp. A	0.05308	0.00308	0.07513				0.13436	0.03769
Nemertea sp. B			0.01000	0.00026	0.00282		0.02205	
Nemertea sp. C	0.00026				0.00026			
Nephtys caeca								
Nephtys cirrosa	0.06704	0.04022	0.11556	0.30135	0.20005	0.07640	0.12791	0.23964

Annex 3: Box core data

	QT16	QT18.0	QT19	QT20	QT21.0	QT22	QT23	QT24
Nephtys hombergii								
Nephtys longosetosa								
Nereidae sp.								
Ophelia borealis	0.18877	0.12854	0.05831	0.08853	0.01809	0.05427	0.03150	
Ophiura albida	0.22338							
Ophiura ophiura								
Ophiura sp.								
Orchomenella nana								
Pagurus bernhardus								
Paraonis fulgens								
Perioculodes longimanus								
Pestarella tyrrhena								
Phoronis muelleri			0.00170					
Phoronis sp.	0.00745			0.03150				
Phyllodoce groenlandica								
Phyllodocidae sp.			0.00511					
Pinnotheres pisum								
Poecilochaetus serpens								
Polychaeta sp.								
Polynoidae sp.				0.00021				
Pontocrates arcticus	0.00385	0.00385		0.00385	0.00385			0.00385
Pontocrates arenarius								0.00385
Pontocrates sp.								
Processa modica								
Psammodrilus balanoglossoides								
Pseudocuma longicorne								
Scolelepis bonnieri								
Scoloplos armiger	0.34136	0.05044	0.00192	0.14089	0.45288	0.98536	0.30242	0.08917
Spio goniocephala						0.00064		0.00021
Spio martinensis	0.01043							
Spio sp.								
Spionidae sp.	0.00021							
Spiophanes bombyx	0.00021	0.00021					0.00021	0.01660
Spisula elliptica							0.24672	
Spisula subtruncata								
Streptosyllis websteri								
Syllidae sp.								
Syllis prolifera				0.00447				
Tanaissus lilljeborgi							0.00385	
Tellimya ferruginosa							0.00014	
Terebellidae sp.								
Thia scutellata								
Travisia forbesii								
Urothoe brevicornis	0.00385	0.00385	0.00385	0.00385	0.00385	0.00385	0.00385	
Urothoe poseidonis	0.00385							
Urothoe sp.								

	QT25	QT26	QT27	QT28	QT29	QT30	QT31	QT32
Angulus fabula								
Apherusa sp.								
Aricidea minuta								
Aricidea sp.								
Aricidea wassi								
Bathyporeia elegans	0.05000	0.05385	0.03462	0.00769	0.02692	0.13462	0.01923	0.01538
Bathyporeia guilliamsoniana	0.00537	0.00537	0.00537		0.00537			
Bathyporeia sp.								
Bivalvia sp.								
Brachyura sp.								
Capitella capitata								
Capitellidae sp.								
Chaetozone christiei	0.01639						0.02873	0.01192
Chamelea striatula								
Cirratulidae sp.						0.00021		
Crangon sp.								
Donax vittatus								
Echinocardium cordatum	10.21816	2.63726	10.05348	8.50591	9.96121			
Ensis directus								
Ensis ensis								3.67005
Ensis sp.								
Eteone longa		0.00021	0.00192					
Eumida sanguinea								
Eunereis longissima								
Euspira nitida								
Exogone hebes								
Gastrosaccus spinifer								
Hypereteone foliosa								
Jassa herdmani	0.00385							
Lanice conchilega	0.00021			0.00021		0.00021		
Leucothoe incisa								
Liocarcinus holsatus								
Magelona filiformis			0.00702	0.00681			0.02171	
Magelona johnstoni	0.03512		0.01341	0.11620				
Magelona mirabilis							0.09449	
Magelona sp.								
Malmgreniella darbouxi								
Megaluropus agilis	0.00385	0.00385	0.00385					0.00385
Microprotopus maculatus								
Monopseudocuma gilsoni	0.00768	0.00512			0.00256		0.00256	
Natantia sp.		0.00385						
Nemertea sp. A					0.02205	0.02795		0.01333
Nemertea sp. B	0.04333			0.03564				
Nemertea sp. C			0.00692					
Nephtys caeca								
Nephtys cirrosa	0.06193	0.29369	0.19856	0.14855	0.27411	0.16515	0.03852	0.17792

Annex 3: Box core data

	QT25	QT26	QT27	QT28	QT29	QT30	QT31	QT32
Nephtys hombergii								
Nephtys longosetosa								
Nereidae sp.								
Ophelia borealis		0.21027	0.05853	0.04639		0.11897	0.07193	0.19941
Ophiura albida								
Ophiura ophiura								
Ophiura sp.								
Orchomenella nana								
Pagurus bernhardus								
Paraonis fulgens								
Perioculodes longimanus								
Pestarella tyrrhena								
Phoronis muelleri								
Phoronis sp.						0.02149		
Phyllodoce groenlandica								
Phyllodocidae sp.								
Pinnotheres pisum								
Poecilochaetus serpens								
Polychaeta sp.								
Polynoidae sp.								
Pontocrates arcticus	0.00385	0.00385	0.00385		0.00385	0.00385		0.00385
Pontocrates arenarius								
Pontocrates sp.								
Processa modica								
Psammodrilus balanoglossoides								
Pseudocuma longicorne								
Scolelepis bonnieri	0.10428				0.03299			
Scoloplos armiger	0.30646	0.02894	0.01596	0.31348	0.12748	0.00255	0.27560	0.26922
Spio goniocephala								
Spio martinensis					0.00021			
Spio sp.								
Spionidae sp.								
Spiophanes bombyx					0.05065	0.01043	0.00021	0.00021
Spisula elliptica								
Spisula subtruncata								
Streptosyllis websteri								
Syllidae sp.								
Syllis prolifera								
Tanaissus lilljeborgi								
Tellimya ferruginosa								
Terebellidae sp.								
Thia scutellata							0.05712	
Travisia forbesii								
Urothoe brevicornis	0.00385	0.00385	0.00385		0.00385			
Urothoe poseidonis								
Urothoe sp.								

	QT33.0	QT34	QT35	QT36	QT37	QT38	QT39	QT40.0
Angulus fabula								
Apherusa sp.								
Aricidea minuta								
Aricidea sp.								
Aricidea wassi								
Bathyporeia elegans		0.02692	0.01923	0.00769	0.01154		0.00769	0.01538
Bathyporeia guilliamsoniana		0.00537			0.00537	0.00537		0.00537
Bathyporeia sp.								
Bivalvia sp.								
Brachyura sp.								
Capitella capitata				0.00724			0.00021	
Capitellidae sp.								
Chaetozone christiei	0.00830	0.00745	0.00021					
Chamelea striatula								
Cirratulidae sp.								0.00021
Crangon sp.								
Donax vittatus								
Echinocardium cordatum	8.87945	2.49834				7.27240		2.63726
Ensis directus								
Ensis ensis								
Ensis sp.								
Eteone longa								
Eumida sanguinea								
Eunereis longissima								
Euspira nitida								
Exogone hebes								
Gastrosaccus spinifer								
Hypereteone foliosa	0.02213							
Jassa herdmani								
Lanice conchilega							0.00021	
Leucothoe incisa								
Liocarcinus holsatus								
Magelona filiformis								0.01362
Magelona johnstoni		0.08066						0.02001
Magelona mirabilis	0.00766			0.02894				
Magelona sp.								
Malmgreniella darbouxi								
Megaluropus agilis					0.00385	0.00385		0.00385
Microprotopus maculatus								
Monopseudocuma gilsoni							0.00256	0.01024
Natantia sp.	0.00385			0.00385				
Nemertea sp. A	0.01897		0.00026			0.03436	0.00026	
Nemertea sp. B		0.01590		0.00154	0.08615			0.06103
Nemertea sp. C							0.05923	
Nephtys caeca								
Nephtys cirrosa	0.08641	0.03703	0.44075	0.12982	0.37733	0.07938	0.50524	0.06789

Annex 3: Box core data

	QT33.0	QT34	QT35	QT36	QT37	QT38	QT39	QT40.0
Nephtys hombergii								
Nephtys longosetosa								
Nereidae sp.								
Ophelia borealis			0.05427	0.02064	0.27007		0.07747	0.17026
Ophiura albida	3.40122							
Ophiura ophiura								
Ophiura sp.								
Orchomenella nana								
Pagurus bernhardus								
Paraonis fulgens								
Perioculodes longimanus								
Pestarella tyrrhena							7.31077	
Phoronis muelleri								
Phoronis sp.			0.19452					
Phyllodoce groenlandica								
Phyllodocidae sp.								
Pinnotheres pisum				0.02602				
Poecilochaetus serpens								
Polychaeta sp.								
Polynoidae sp.								
Pontocrates arcticus		0.00385	0.00385			0.00385		
Pontocrates arenarius								
Pontocrates sp.								
Processa modica							0.24919	
Psammodrilus balanoglossoides		0.00021						
Pseudocuma longicorne								
Scolelepis bonnieri								
Scoloplos armiger	0.13472	0.40117	0.20601	0.28816	0.29688	0.39670	0.11939	0.01724
Spio goniocephala						0.00021		0.00021
Spio martinensis								
Spio sp.	0.00021							
Spionidae sp.								
Spiophanes bombyx	0.00021	0.00021	0.00021	0.00021	0.00021		0.07044	0.00021
Spisula elliptica			0.13891	0.64004				
Spisula subtruncata								
Streptosyllis websteri								
Syllidae sp.			0.00021					
Syllis prolifera							0.00021	
Tanaissus lilljeborgi								
Tellimya ferruginosa		0.00261						
Terebellidae sp.								
Thia scutellata						0.00613		
Travisia forbesii								
Urothoe brevicornis				0.00385		0.00385	0.00385	0.00385
Urothoe poseidonis								
Urothoe sp.								

	QT41	QT42	QT43	QT44.0	QT45	QT46	QT47	QT48
Angulus fabula								
Apherusa sp.								
Aricidea minuta								
Aricidea sp.								
Aricidea wassi				0.00341				
Bathyporeia elegans	0.11154	0.02308				0.02308		0.01154
Bathyporeia guilliamsoniana						0.00537	0.00537	0.00537
Bathyporeia sp.								
Bivalvia sp.								
Brachyura sp.								
Capitella capitata								
Capitellidae sp.								
Chaetozone christiei				0.03469				
Chamelea striatula								
Cirratulidae sp.								
Crangon sp.				0.00385				
Donax vittatus								
Echinocardium cordatum	9.26414	9.72961	6.65894	10.14633	6.65894		18.58218	9.17694
Ensis directus								
Ensis ensis								
Ensis sp.	4.04476					0.06903	0.02531	
Eteone longa	0.01745							
Eumida sanguinea								
Eunereis longissima								
Euspira nitida								
Exogone hebes								
Gastrosaccus spinifer								
Hypereteone foliosa								
Jassa herdmani								
Lanice conchilega			0.00043		0.00021			
Leucothoe incisa								0.00385
Liocarcinus holsatus								
Magelona filiformis				0.00702				
Magelona johnstoni		0.05618		0.01788		0.03341		
Magelona mirabilis								
Magelona sp.								
Malmgreniella darbouxi								
Megaluropus agilis	0.00385			0.00385				
Microprotopus maculatus								
Monopseudocuma gilsoni	0.00256	0.00256			0.00256			0.01024
Natantia sp.								0.00385
Nemertea sp. A				0.01462				
Nemertea sp. B		0.03410		0.00487				
Nemertea sp. C								0.00026
Nephtys caeca								
Nephtys cirrosa	0.03916	0.08279	0.32604	0.13833	0.15068	0.36222	0.05895	0.44650

Annex 3: Box core data

	QT41	QT42	QT43	QT44.0	QT45	QT46	QT47	QT48
Nephtys hombergii								
Nephtys longosetosa								
Nereidae sp.								
Ophelia borealis								0.00021
Ophiura albida								
Ophiura ophiura								
Ophiura sp.								
Orchomenella nana	0.00385							
Pagurus bernhardus								
Paraonis fulgens								
Perioculodes longimanus								
Pestarella tyrrhena								
Phoronis muelleri								
Phoronis sp.						0.04639		
Phyllodoce groenlandica								
Phyllodocidae sp.								
Pinnotheres pisum								
Poecilochaetus serpens								
Polychaeta sp.								
Polynoidae sp.		0.00021						
Pontocrates arcticus	0.00385	0.00385				0.00385		
Pontocrates arenarius								
Pontocrates sp.								0.00385
Processa modica								0.07108
Psammodrilus balanoglossoides							0.00021	
Pseudocuma longicorne								
Scolelepis bonnieri		0.04554			0.07598			
Scoloplos armiger	0.21325		0.05704	0.20388	0.19728	0.10215	0.74445	0.04001
Spio goniocephala			0.00021			0.00021		
Spio martinensis								
Spio sp.								
Spionidae sp.								0.00043
Spiophanes bombyx	0.00021	0.00021	0.01128	0.00511	0.00021			0.00021
Spisula elliptica					0.20153			
Spisula subtruncata								
Streptosyllis websteri								
Syllidae sp.								
Syllis prolifera								0.00021
Tanaissus lilljeborgi	0.00385							
Tellimya ferruginosa								
Terebellidae sp.								
Thia scutellata					1.27769		0.33296	0.87260
Travisia forbesii								
Urothoe brevicornis	0.00385		0.00385					
Urothoe poseidonis								
Urothoe sp.								

	QAW1.4	QAW2.3	QAW3.2	QAW4.1	QAW5.3	QAW6.4	QCS1	QCS2
Angulus fabula								
Apherusa sp.	0.00385							
Aricidea minuta								0.00021
Aricidea sp.								
Aricidea wassi								
Bathyporeia elegans	0.00769	0.10385	0.06538	0.00769	0.03462	0.05385		
Bathyporeia guilliamsoniana	0.00537	0.00537	0.00537		0.00537	0.00537	0.00537	0.00537
Bathyporeia sp.			0.00214					
Bivalvia sp.								
Brachyura sp.								
Capitella capitata								
Capitellidae sp.								
Chaetozone christiei	0.00809		0.02618	0.00936	0.00638		0.00021	
Chamelea striatula								
Cirratulidae sp.								
Crangon sp.								
Donax vittatus								
Echinocardium cordatum	6.02690	8.77530			29.35407	9.91882		
Ensis directus								
Ensis ensis								
Ensis sp.								
Eteone longa	0.00021							
Eumida sanguinea								
Eunereis longissima								
Euspira nitida								
Exogone hebes							0.00021	
Gastrosaccus spinifer			0.01282					
Hypereteone foliosa								
Jassa herdmani								
Lanice conchilega								
Leucothoe incisa								
Liocarcinus holsatus								
Magelona filiformis			0.00787	0.00724	0.15493			
Magelona johnstoni		0.07619	0.05640		0.05640			
Magelona mirabilis	0.17473						0.01958	0.08917
Magelona sp.			0.06342		0.03788	0.00426		
Malmgreniella darbouxi								
Megaluropus agilis	0.00385	0.00385	0.00385	0.00385	0.00385	0.00385		0.00385
Microprotopus maculatus								
Monopseudocuma gilsoni	0.02560	0.00256			0.00768		0.00256	0.00256
Natantia sp.								
Nemertea sp. A		0.01000			0.11872	0.05744		
Nemertea sp. B	0.00026		0.02923		0.02974			
Nemertea sp. C								
Nephtys caeca								
Nephtys cirrosa	0.19963	0.06385	0.19537	0.21835	0.06768	0.02192	0.49098	0.10364

Annex 3: Box core data

	QAW1.4	QAW2.3	QAW3.2	QAW4.1	QAW5.3	QAW6.4	QCS1	QCS2
Nephtys hombergii								
Nephtys longosetosa	0.24219							
Nereidae sp.								
Ophelia borealis			0.00021	0.27773			0.00106	1.04197
Ophiura albida								
Ophiura ophiura		16.92184	37.20344					
Ophiura sp.								
Orchomenella nana								
Pagurus bernhardus								
Paraonis fulgens								0.00064
Perioculodes longimanus								
Pestarella tyrrhena								
Phoronis muelleri								
Phoronis sp.								
Phyllodoce groenlandica								
Phyllodocidae sp.								
Pinnotheres pisum								
Poecilochaetus serpens								
Polychaeta sp.							0.00021	
Polynoidae sp.								
Pontocrates arcticus		0.00385	0.00385					
Pontocrates arenarius								
Pontocrates sp.								
Processa modica							0.19123	
Psammodrilus balanoglossoides								
Pseudocuma longicorne	0.00256							
Scolelepis bonnieri							0.10896	
Scoloplos armiger	0.16089	0.43288	0.10215	1.07347	0.48119	0.33413	0.31455	0.50141
Spio goniocephala								
Spio martinensis								
Spio sp.								
Spionidae sp.								
Spiophanes bombyx		0.01043			0.00021		0.03086	
Spisula elliptica							0.19074	
Spisula subtruncata								
Streptosyllis websteri								
Syllidae sp.								
Syllis prolifera								
Tanaissus lilljeborgi								
Tellimya ferruginosa					0.01008			
Terebellidae sp.								
Thia scutellata					0.04125		0.89248	
Travisia forbesii								
Urothoe brevicornis		0.00385	0.00385		0.00385			
Urothoe poseidonis					0.00385			
Urothoe sp.								

	QCS3.1	QCS4	QCS5	QCS6	QCS7	QCS8	QCS9	QCS10
Angulus fabula								
Apherusa sp.								
Aricidea minuta				0.00489	0.00277			
Aricidea sp.								
Aricidea wassi								
Bathyporeia elegans								
Bathyporeia guilliamsoniana	0.00537	0.00537		0.00537	0.00537		0.00537	0.00537
Bathyporeia sp.	0.00214							
Bivalvia sp.								
Brachyura sp.								
Capitella capitata								
Capitellidae sp.								
Chaetozone christiei				0.00021				
Chamelea striatula								
Cirratulidae sp.								
Crangon sp.								
Donax vittatus								
Echinocardium cordatum			2.63726	8.27959		52.28368		2.63726
Ensis directus								
Ensis ensis								
Ensis sp.								
Eteone longa								
Eumida sanguinea								
Eunereis longissima								
Euspira nitida								
Exogone hebes	0.00021		0.00106		0.03320		0.00021	
Gastrosaccus spinifer	0.01282							
Hypereteone foliosa								
Jassa herdmani								
Lanice conchilega			0.00021					
Leucothoe incisa								
Liocarcinus holsatus								
Magelona filiformis	0.00383	0.02405	0.01043		0.09151			
Magelona johnstoni								0.00681
Magelona mirabilis		0.13748						
Magelona sp.				0.01447				
Malmgreniella darbouxi								
Megaluropus agilis	0.00385	0.00385		0.00385			0.00385	0.00385
Microprotopus maculatus								
Monopseudocuma gilsoni				0.00512			0.00512	
Natantia sp.								
Nemertea sp. A	0.00538				0.00026		0.00026	
Nemertea sp. B								
Nemertea sp. C								
Nephtys caeca								
Nephtys cirrosa	0.06938	0.09960	0.32987	0.12791	0.36946		0.00851	0.00085

Annex 3: Box core data

	QCS3.1	QCS4	QCS5	QCS6	QCS7	QCS8	QCS9	QCS10
Nephtys hombergii	0.41734							
Nephtys longosetosa								
Nereidae sp.								
Ophelia borealis	0.00043	0.00958	0.00383		0.00234		0.68443	0.04874
Ophiura albida								
Ophiura ophiura								
Ophiura sp.								
Orchomenella nana								
Pagurus bernhardus								
Paraonis fulgens			0.00681				0.00298	
Perioculodes longimanus								
Pestarella tyrrhena								
Phoronis muelleri					0.05959			
Phoronis sp.			0.23602				0.00468	0.01234
Phyllodoce groenlandica								
Phyllodocidae sp.								
Pinnotheres pisum								
Poecilochaetus serpens								
Polychaeta sp.								
Polynoidae sp.								
Pontocrates arcticus								
Pontocrates arenarius								
Pontocrates sp.								
Processa modica			0.08842		0.36237		0.08017	
Psammodrilus balanoglossoides	0.00021							
Pseudocuma longicorne								
Scolelepis bonnieri	0.30433			0.09556	0.06108			0.15493
Scoloplos armiger	0.34264	0.55674	0.02554	0.00021	1.10177	0.01043	0.22708	0.20112
Spio goniocephala	0.00298	0.02086			0.00936			0.00660
Spio martinensis								
Spio sp.								
Spionidae sp.	0.02831							
Spiophanes bombyx								
Spisula elliptica								
Spisula subtruncata								
Streptosyllis websteri	0.00021							
Syllidae sp.								
Syllis prolifera								
Tanaissus lilljeborgi	0.00769							
Tellimya ferruginosa						0.00007		
Terebellidae sp.								
Thia scutellata								
Travisia forbesii								
Urothoe brevicornis								
Urothoe poseidonis								
Urothoe sp.								

	QCS11.0	QCS12	QCS13.3	QCS14	QCS15.0	QCS16	QCS17	QCS18
Angulus fabula								
Apherusa sp.								
Aricidea minuta								
Aricidea sp.								
Aricidea wassi								
Bathyporeia elegans			0.00769	0.00385		0.00769	0.02692	0.00385
Bathyporeia guilliamsoniana	0.00537		0.00537	0.00537	0.00537			
Bathyporeia sp.								
Bivalvia sp.								
Brachyura sp.								
Capitella capitata								
Capitellidae sp.			0.00021					
Chaetozone christiei		0.02043						
Chamelea striatula								
Cirratulidae sp.								
Crangon sp.								
Donax vittatus								
Echinocardium cordatum	12.08246	6.65894	6.91965		6.65894	12.71765	2.63726	10.88110
Ensis directus								
Ensis ensis								
Ensis sp.								
Eteone longa								
Eumida sanguinea								
Eunereis longissima								
Euspira nitida								
Exogone hebes		0.01192	0.05789	0.00021	0.00383			
Gastrosaccus spinifer								0.01282
Hypereteone foliosa								
Jassa herdmani								
Lanice conchilega								
Leucothoe incisa			0.00385	0.00385				
Liocarcinus holsatus								
Magelona filiformis		0.10130	0.18047	0.00021				
Magelona johnstoni							0.09747	
Magelona mirabilis					0.08385	0.06746		0.12216
Magelona sp.			0.00021	0.05916			0.06448	
Malmgreniella darbouxi								
Megaluropus agilis	0.00385		0.00385	0.00385	0.00385			
Microprotopus maculatus								
Monopseudocuma gilsoni						0.00256		
Natantia sp.								
Nemertea sp. A			0.03308		0.75744		0.00026	
Nemertea sp. B								
Nemertea sp. C								
Nephtys caeca								
Nephtys cirrosa	0.24581	0.44841	0.57057	0.25602	0.13982	0.19728	0.01000	0.09917

Annex 3: Box core data

	QCS11.0	QCS12	QCS13.3	QCS14	QCS15.0	QCS16	QCS17	QCS18
Nephtys hombergii								
Nephtys longosetosa								
Nereidae sp.								
Ophelia borealis		0.16664	0.04639					
Ophiura albida								
Ophiura ophiura								
Ophiura sp.								0.58847
Orchomenella nana								
Pagurus bernhardus								
Paraonis fulgens						0.00702		0.00404
Perioculodes longimanus								
Pestarella tyrrhena			10.02777					
Phoronis muelleri								
Phoronis sp.			0.01447	0.00447	0.00021			
Phyllodoce groenlandica								
Phyllodocidae sp.								
Pinnotheres pisum								
Poecilochaetus serpens								
Polychaeta sp.								
Polynoidae sp.								
Pontocrates arcticus				0.00385				0.00385
Pontocrates arenarius								
Pontocrates sp.								
Processa modica		0.04992	0.21894		0.07933			
Psammodrilus balanoglossoides								
Pseudocuma longicorne								
Scolelepis bonnieri								
Scoloplos armiger		1.03771	0.50332	1.08794	0.33115		0.04810	0.05384
Spio goniocephala								
Spio martinensis								
Spio sp.								
Spionidae sp.		0.00021						
Spiophanes bombyx		0.01596		0.00021	0.01617	0.12024		
Spisula elliptica								2.67124
Spisula subtruncata								
Streptosyllis websteri		0.00021	0.00021					
Syllidae sp.								
Syllis prolifera								
Tanaissus lilljeborgi								
Tellimya ferruginosa	0.03836							
Terebellidae sp.								
Thia scutellata		0.03765	0.80173					
Travisia forbesii						0.28795		
Urothoe brevicornis								
Urothoe poseidonis								
Urothoe sp.								

	QCS19	QCS20	QCS21	QCS22	QCS23.0	QCS24	QCS25
Angulus fabula							
Apherusa sp.							
Aricidea minuta							
Aricidea sp.							
Aricidea wassi					0.00234	0.00575	0.00192
Bathyporeia elegans	0.00769			0.00385	0.02692	0.01923	0.01923
Bathyporeia guilliamsoniana							
Bathyporeia sp.							
Bivalvia sp.							
Brachyura sp.							
Capitella capitata							
Capitellidae sp.							
Chaetozone christiei	0.00255	0.00153		0.01107			
Chamelea striatula							
Cirratulidae sp.							
Crangon sp.							
Donax vittatus							
Echinocardium cordatum	4.91947	7.45045	6.65894	85.12821		8.98445	4.67160
Ensis directus							
Ensis ensis							
Ensis sp.			2.56779				
Eteone longa					0.00021		0.00064
Eumida sanguinea							
Eunereis longissima							
Euspira nitida							
Exogone hebes	0.00021	0.01213		0.00021	0.00021		
Gastrosaccus spinifer						0.02564	
Hypereteone foliosa							
Jassa herdmani							
Lanice conchilega							
Leucothoe incisa							
Liocarcinus holsatus							
Magelona filiformis				0.01447			
Magelona johnstoni		0.07896			0.00617		0.06768
Magelona mirabilis				0.07768		0.04959	0.10492
Magelona sp.							
Malmgreniella darbouxi							
Megaluropus agilis	0.00385	0.00385		0.00385	0.00385	0.00385	0.00385
Microprotopus maculatus							
Monopseudocuma gilsoni	0.00256	0.00512					
Natantia sp.							
Nemertea sp. A	0.00026	0.00026	0.08692		0.02974		
Nemertea sp. B							
Nemertea sp. C							
Nephtys caeca							
Nephtys cirrosa	0.39393	0.15472	0.09726	0.11875	0.07959	0.09215	0.17366

Annex 3: Box core data

	QCS19	QCS20	QCS21	QCS22	QCS23.0	QCS24	QCS25
Nephtys hombergii							
Nephtys longosetosa	0.02873						
Nereidae sp.							
Ophelia borealis	0.02618	0.00128		0.00021	0.05980		0.12173
Ophiura albida		7.05359					
Ophiura ophiura							
Ophiura sp.							
Orchomenella nana							
Pagurus bernhardus							
Paraonis fulgens			0.00319			0.00021	
Perioculodes longimanus							
Pestarella tyrrhena							
Phoronis muelleri							
Phoronis sp.		0.00681					
Phyllodoce groenlandica							
Phyllodocidae sp.							
Pinnotheres pisum							
Poecilochaetus serpens							
Polychaeta sp.							
Polynoidae sp.							
Pontocrates arcticus							
Pontocrates arenarius							
Pontocrates sp.							
Processa modica							
Psammodrilus balanoglossoides	0.00021						
Pseudocuma longicorne							
Scolelepis bonnieri	0.09407			0.03171			
Scoloplos armiger	0.74806	0.22559	0.00851	0.23474		0.11492	0.11152
Spio goniocephala							
Spio martinensis							
Spio sp.							
Spionidae sp.		0.00021		0.00681			
Spiophanes bombyx	0.00021	0.00021					
Spisula elliptica		0.18072				1.62017	
Spisula subtruncata							
Streptosyllis websteri					0.00021		
Syllidae sp.							
Syllis prolifera							
Tanaissus lilljeborgi							
Tellimya ferruginosa							
Terebellidae sp.				0.07683			
Thia scutellata							
Travisia forbesii							
Urothoe brevicornis						0.00385	
Urothoe poseidonis							
Urothoe sp.							

Annex 4a: Benthic dredge density data (N/100m²)

	QCN1	QCN2	QCN3	QCN4	QCN5	QCN6	QCN7	QCN8
Agonus cataphractus							1	
Ammodytes tobianus								
Angulus fabula	1					0.5	322	178
Angulus tenuis								
Aphia minuta								
Arnoglossus laterna								
Asterias rubens	3	3			1.5	0.5	1	
Buglossidium luteum	2		1	2	1.5	4	7	1
Callionymus species	1	1		1	0.5			
Chamelea striatula	5	23	15	8	5	9.5	5	5
Ciliata mustela								
Corystes cassivelaunus								
Crangon allmanni								
Crangon crangon	6	3	2	1	7	6.5	6	8
Donax vittatus	8	12	7	1	2	11.5	17	17
Echiichthys vipera								
Echinocardium cordatum	22	12	1	14	3	12	18	6
Ensis directus	1	2		10	6.5	6	1	1
Ensis ensis	8	21	13	6	6	13	4	8
Ensis magnus	1					1	2	
Euspira catena						0.5		
Euspira nitida	4					1.5	12	11
Hyperoplus lanceolatus			4	2	2	3	3	4
Lanice conchilega	5	31		37	3	3	3	4
Limanda limanda	8	3	1	2	2.5	5	5	3
Lineus bilineatus		1		2			2	
Liocarcinus holsatus	4	6	4	7	1.5	2	2	3
Lutraria sp.				1		1	3	
Macropodia rostrata						0.5		
Mactra stultorum						0.5		
Myoxocephalus scorpius								
Mytilus edulis								
Nephtys sp.	7	8	5	4	4	4.5	10	18
Ophelia borealis	4	3	4	19	26	9.5	1	
Ophiura albida	17	13	16	27	24.5	10.5	3	5
Ophiura ophiura	42	57	34	25	43.5	48.5	39	46
Pagurus bernhardus	7		2	1	3.5	2.5	2	1
Pestarella tyrrhena								
Philocheras trispinosus					0.5			
Phyllodoce groenlandica								
Pinnotheres pisum								
Pleuronectes platessa				1		0.5	3	1

Annex 4: Dredge sample data

	QCN1	QCN2	QCN3	QCN4	QCN5	QCN6	QCN7	QCN8
Pomatoschistus sp.	20	5	4	8	15	15	14	7
Processa modica					1.5	0.5	1	
Scolelepis bonnieri								
Solea solea	1	1						
Spisula elliptica	6	6	2	1	19	19.5		1
Spisula solida		1	2	2	3.5	1		
Spisula subtruncata	23	2		3	1	13.5	13	17
Sprattus sprattus								
Syngnathus rostellatus		2			1	0.5	1	
Taurulus bubalis								
Thia scutellata	1	7	5	4	3.5	4.5	7	8
Trachurus trachurus								

	QCN9	QT1	QT2	QT3	QT4	QT5	QT6	QT7
Agonus cataphractus								
Ammodytes tobianus	1.5							
Angulus fabula	4.5							
Angulus tenuis	0.5							
Aphia minuta		0.5						
Arnoglossus laterna		1	1.5	0.5	2			1.5
Asterias rubens	1	6	5	7	4		1.5	2
Buglossidium luteum	7	9.5	8.5	8	4	4	4	2.5
Callionymus species		1.5	1	0.5	1	4	0.5	0.5
Chamelea striatula	3	2	2	1.5	1	4	0.5	1
Ciliata mustela								
Corystes cassivelaunus		0.5		0.5				0.5
Crangon allmanni	1			1				0.5
Crangon crangon	15	20	11	19.5	17	12	4.5	11.5
Donax vittatus	9.5	1	2.5					
Echiichthys vipera								1
Echinocardium cordatum	13	0.5	1	5	1			17.5
Ensis directus	2.5	0.5	0.5		1		0.5	0.5
Ensis ensis	4	10.5	4	5.5	4	12	4	4
Ensis magnus	1.5		0.5					
Euspira catena								
Euspira nitida	2	0.5						
Hyperoplus lanceolatus		1	0.5		1		0.5	1.5
Lanice conchilega								
Limanda limanda	0.5	1	1.5	1.5	2		0.5	1
Lineus bilineatus								
Liocarcinus holsatus	3.5			1	1	8	1	
Lutraria sp.	0.5							
Macropodia rostrata								
Mactra stultorum								
Myoxocephalus scorpius								
Mytilus edulis								0.5
Nephtys sp.	7	1.5	0.5	3.5	2			2.5
Ophelia borealis	0.5	5.5	2	6	6	8	3	1
Ophiura albida	4	26	14.5	33	30	12	6	6
Ophiura ophiura	56	60	20.5	61	53	60	15	15.5
Pagurus bernhardus	1.5	2.5		2	2		1	1.5
Pestarella tyrrhena		0.5		0.5	1			
Philocheras trispinosus	1	2	2	1			1.5	2.5
Phyllodoce groenlandica		0.5						
Pinnotheres pisum								
Pleuronectes platessa		1	1	1				0.5

Annex 4: Dredge sample data

	QCN9	QT1	QT2	QT3	QT4	QT5	QT6	QT7
Pomatoschistus sp.	10	5.5	5	5.5	8	4	6	5.5
Processa modica								
Scolelepis bonnieri	0.5							
Solea solea								
Spisula elliptica	2	6	2.5	5	2		1.5	3
Spisula solida		2		0.5				
Spisula subtruncata	2.5	0.5		1				
Sprattus sprattus								0.5
Syngnathus rostellatus	2.5							1
Taurulus bubalis								
Thia scutellata	3.5	7.5	2.5	5.5	1		1.5	3.5
Trachurus trachurus								0.5

	QT8	QT9	QT10	QT11	QT12	QT13	QT14	QT15
Agonus cataphractus								
Ammodytes tobianus		0.5					0.5	
Angulus fabula								
Angulus tenuis								
Aphia minuta								
Arnoglossus laterna	1		1	1	1	1	0.5	1
Asterias rubens	3.5	12	2	2	7	2.5	2.5	1
Buglossidium luteum	13.5	7	5	4	9	2.5	1.5	6
Callionymus species	0.5	1.5	1	2	0.5	1	2	1
Chamelea striatula	1	1.5			1		4	1
Ciliata mustela			1					
Corystes cassivelaunus	0.5			1				
Crangon allmanni	0.5						0.5	
Crangon crangon	17.5	20	14	10	12	14	11.5	13
Donax vittatus	0.5		1	3			1	
Echiichthys vipera								1
Echinocardium cordatum	11.5	2.5	5	6		2		15
Ensis directus			2					1
Ensis ensis	3	1.5	4	22	2	3.5	4.5	2
Ensis magnus								
Euspira catena								
Euspira nitida					0.5		0.5	
Hyperoplus lanceolatus			4	1		0.5	0.5	1
Lanice conchilega								
Limanda limanda	1	1			1	1	2	2
Lineus bilineatus					0.5			
Liocarcinus holsatus		0.5	4	4	0.5	0.5		1
Lutraria sp.		0.5						
Macropodia rostrata								
Mactra stultorum								
Myoxocephalus scorpius		0.5						
Mytilus edulis								
Nephtys sp.	1.5	2	1		1	0.5	1	4
Ophelia borealis	2	2	10	22	3	3	6	12
Ophiura albida	27	26	10	8	33.5	8.5	20	21
Ophiura ophiura	49	26	45	13	9.5	27	37.5	20
Pagurus bernhardus	3.5	2	3		2	1.5	3	4
Pestarella tyrrhena	0.5							
Philocheras trispinosus		2	1	1	1	0.5	0.5	1
Phyllodoce groenlandica								
Pinnotheres pisum		0.5						
Pleuronectes platessa	0.5	1.5		1	2.5	0.5	1	1

Annex 4: Dredge sample data

	QT8	QT9	QT10	QT11	QT12	QT13	QT14	QT15
Pomatoschistus sp.	10	5.5	9		10	1.5	3.5	5
Processa modica	1	0.5			0.5			
Scolelepis bonnieri								
Solea solea				1				
Spisula elliptica	0.5	0.5	2		2	0.5	4	3
Spisula solida				1				
Spisula subtruncata	1	1			2			
Sprattus sprattus	1.5	13.5	6					
Syngnathus rostellatus	0.5			1				
Taurulus bubalis		0.5						
Thia scutellata	5	4	1	2	3	1		7
Trachurus trachurus								

	QAW1	QAW2	QAW3	QAW4	QAW5	QAW6	QCS1A	QCS2
Agonus cataphractus					0.5			
Ammodytes tobianus				1		1		
Angulus fabula								
Angulus tenuis								
Aphia minuta								
Arnoglossus laterna	1		1	0.5	1.5	2.5	0.25	0.375
Asterias rubens	5	4.5		3	1.5	3.5	0.25	
Buglossidium luteum		7	2	6.5	8	11	1.25	2.75
Callionymus species	2			1	1	0.5	0.5	0.25
Chamelea striatula		0.5	8	0.5	46.5	4.5	0.25	
Ciliata mustela								
Corystes cassivelaunus		0.5	1			1		
Crangon allmanni						0.5		0.125
Crangon crangon	11	18.5	22	11	16.5	14		0.625
Donax vittatus		0.5	5	2	6.5	6.5		0.125
Echiichthys vipera							0.25	
Echinocardium cordatum	1	6	1		6	0.5	0.5	0.875
Ensis directus	1	0.5	4		2		1.25	0.5
Ensis ensis	1	3.5	23	6	21.5	15	0.5	1.625
Ensis magnus		0.5	1			0.5		
Euspira catena								
Euspira nitida				1	1			
Hyperoplus lanceolatus	1			1.5	1	1.5	2	0.75
Lanice conchilega								
Limanda limanda	2		1	1	1.5			0.125
Lineus bilineatus								
Liocarcinus holsatus	1	0.5	1	1	2.5	2	0.5	0.25
Lutraria sp.					1.5			
Macropodia rostrata								
Mactra stultorum						0.5		
Myoxocephalus scorpius								
Mytilus edulis								
Nephtys sp.	4		4	0.5	6	4	2	1.375
Ophelia borealis	5	2.5	15	0.5	3.5	14	20.25	13.125
Ophiura albida	20	38	65	58.5	41	34	9.5	7
Ophiura ophiura	33	47	57	41.5	92	61	0.75	0.75
Pagurus bernhardus	1	1		2	2	2.5		0.25
Pestarella tyrrhena								
Philocheras trispinosus	4	0.5		1	1.5	1	0.25	
Phyllodoce groenlandica								
Pinnotheres pisum								
Pleuronectes platessa	1	1	1	0.5	1	2		0.125

Annex 4: Dredge sample data

	QAW1	QAW2	QAW3	QAW4	QAW5	QAW6	QCS1A	QCS2
Pomatoschistus sp.	9	4	1	10	3	8	3	2
Processa modica					1			
Scolelepis bonnieri		0.5						
Solea solea								
Spisula elliptica	1		19	10	14.5	14	3.5	4.5
Spisula solida							2	0.75
Spisula subtruncata			4	2	20	1.5	0.25	
Sprattus sprattus								
Syngnathus rostellatus	1	0.5						
Taurulus bubalis								
Thia scutellata	1	0.5	2	0.5	9	0.5	3.75	1.5
Trachurus trachurus								

	QCS3	QCS4B	QCS5	QCS6	QCS7	QCS8	QCS9
Agonus cataphractus							0.25
Ammodytes tobianus							
Angulus fabula							
Angulus tenuis							
Aphia minuta						0.25	
Arnoglossus laterna	1.5	1.5	3.25	1.5	0.5	1.5	
Asterias rubens	0.5	0.5	0.25			0.25	0.5
Buglossidium luteum	10	6.25	16.5	12.5	9.5	11.25	4.25
Callionymus species	2.5	1	1.5	2	0.5	0.75	0.5
Chamelea striatula		0.25			0.75	0.25	
Ciliata mustela							
Corystes cassivelaunus		0.25			0.25		
Crangon allmanni						0.25	
Crangon crangon	9	4.75	6.75	8	2.75	8	4.5
Donax vittatus				0.5	0.25	0.5	0.25
Echiichthys vipera	0.5		1.5	0.5	0.25	0.5	0.5
Echinocardium cordatum	5	0.5	3.25	4	0.5	5.25	2.75
Ensis directus	5	1.75	1.75	3.5	12.25	3	4
Ensis ensis	5.5	5.5	6	6	2.75	4.5	6.5
Ensis magnus							
Euspira catena							
Euspira nitida							
Hyperoplus lanceolatus	5.5	1.5	3	6	0.5	4.5	2.75
Lanice conchilega							
Limanda limanda	0.5	0.75	1	1			
Lineus bilineatus							
Liocarcinus holsatus	3	1.5	1.5	2	2	0.5	0.25
Lutraria sp.					0.75		
Macropodia rostrata							
Mactra stultorum							
Myoxocephalus scorpius							
Mytilus edulis							
Nephtys sp.	3.5	1.25	2.75	3	2.5	4.75	5.75
Ophelia borealis	35.5	12	13.25	34.5	12.5	12.5	17.5
Ophiura albida	40	26.5	22	35	12.25	23.25	24.5
Ophiura ophiura	6.5	9.75	5	4	7.75	8.25	4.25
Pagurus bernhardus	1	0.75	3	2.5	0.25	1	0.25
Pestarella tyrrhena			1.25		0.25	0.25	
Philocheras trispinosus	2	0.25	6.5	3.5	0.25	2	0.25
Phyllodoce groenlandica							
Pinnotheres pisum							
Pleuronectes platessa	2	0.25	1	1	0.5	1	

Annex 4: Dredge sample data

	QCS3	QCS4B	QCS5	QCS6	QCS7	QCS8	QCS9
Pomatoschistus sp.	8	11.25	13.25	14.5	7.5	5.25	2.5
Processa modica			0.25		0.75	0.75	
Scolelepis bonnieri							
Solea solea					0.25	0.5	0.5
Spisula elliptica	22	8.75	11.5	15.5	11	10.5	8
Spisula solida	3	1	1.25	4	1.25	1.75	1.75
Spisula subtruncata							
Sprattus sprattus							
Syngnathus rostellatus						0.25	
Taurulus bubalis							
Thia scutellata	8.5	6	6.25	3.5	8.5	8.75	4.5
Trachurus trachurus							

Annex 4b: Benthic dredge biomass data (g AFDW/100m²)

	QCN1	QCN2	QCN3	QCN4	QCN5	QCN6	QCN7	QCN8
Agonus cataphractus							0.110	
Ammodytes tobianus								
Angulus fabula	0.092					0.005	11.172	6.693
Angulus tenuis								
Aphia minuta								
Arnoglossus laterna								
Asterias rubens	14.783	14.366			7.833	0.791	4.336	
Buglossidium luteum	0.370	0.055	0.210	0.915	0.423	0.905	1.105	0.450
Callionymus species	1.220	0.055		0.065	0.023			
Chamelea striatula	0.637	1.956	0.951	0.650	0.684	1.148	1.530	0.660
Ciliata mustela								
Corystes cassivelaunus								
Crangon allmanni								
Crangon crangon	0.875	0.842	0.545	0.050	1.592	1.163	1.007	1.221
Donax vittatus	1.057	1.585	1.207	0.127	0.328	1.721	2.090	2.035
Echiichthys vipera								
Echinocardium cordatum	21.605	15.088	1.207	11.246	3.406	10.102	16.813	5.659
Ensis directus	1.361					0.600	1.053	
Ensis ensis	0.214	1.961		6.525	2.464	3.106	0.474	0.182
Ensis magnus	1.033	3.889	2.397	0.803	2.177	1.666	0.476	1.327
Euspira catena						0.230		
Euspira nitida	0.048					0.019	0.189	0.143
Hyperoplus lanceolatus			1.680	0.965	0.178	0.753	0.140	0.370
Lanice conchilega	0.314	1.770		3.449	0.206	0.125	0.144	1.103
Limanda limanda	10.625	4.515	1.305	2.210	1.500	6.535	7.790	3.340
Lineus bilineatus		0.127		0.067			0.058	
Liocarcinus holsatus	5.676	8.102	4.802	7.277	3.127	5.544	3.383	6.798
Lutraria sp.				0.400		0.497	0.927	
Macropodia rostrata						0.066		
Mactra stultorum						0.308		
Myoxocephalus scorpius								
Mytilus edulis								
Nephtys sp.	0.938	3.348	0.955	0.041	0.396	1.297	1.105	3.399
Ophelia borealis	0.122	0.070	0.068	0.485	0.891	0.281	0.026	
Ophiura albida	0.650	0.351	0.338	0.878	0.744	0.432	0.111	0.208
Ophiura ophiura	10.049	6.279	7.456	7.040	10.787	11.525	9.555	11.219
Pagurus bernhardus	4.945		2.368	0.322	1.359	1.045	1.747	0.027
Pestarella tyrrhena								
Philocheras trispinosus					0.008			
Phyllodoce groenlandica								
Pinnotheres pisum								
Pleuronectes platessa				2.920		3.065	7.470	5.800

Annex 4: Dredge sample data

	QCN1	QCN2	QCN3	QCN4	QCN5	QCN6	QCN7	QCN8
Pomatoschistus sp.	1.210	0.220	0.120	0.440	0.773	0.793	0.680	0.250
Processa modica					0.058	0.025	0.033	
Scolelepis bonnieri								
Solea solea	6.095	0.925						
Spisula elliptica	0.286	0.425	0.157	0.023	1.529	0.669		0.047
Spisula solida		0.195	0.736	0.258	0.785	0.340		
Spisula subtruncata	0.793	0.066		0.139	0.029	0.457	0.474	0.553
Sprattus sprattus								
Syngnathus rostellatus		0.005			0.010	0.005	0.010	
Taurulus bubalis								
Thia scutellata	0.264	1.766	0.759	0.710	0.528	0.990	1.650	2.063
Trachurus trachurus								

	QCN9	QT1	QT2	QT3	QT4	QT5	QT6	QT7
Agonus cataphractus								
Ammodytes tobianus	0.178							
Angulus fabula	0.193							
Angulus tenuis	0.058							
Aphia minuta		0.010						
Arnoglossus laterna		0.478	0.050	0.020	0.470			0.728
Asterias rubens	7.906	12.886	5.077	6.004	9.477		0.742	3.550
Buglossidium luteum	2.220	3.113	2.215	1.973	1.170	1.340	1.130	0.365
Callionymus species		0.813	1.408	0.053	0.070	0.100	0.038	0.220
Chamelea striatula	0.379	0.125	0.269	0.068	0.158	0.127	0.200	0.141
Ciliata mustela								
Corystes cassivelaunus		0.825		0.833				0.718
Crangon allmanni	0.149			0.091				0.083
Crangon crangon	4.043	6.064	3.003	4.942	4.455	3.630	1.337	3.416
Donax vittatus	1.101	0.166	0.419					
Echiichthys vipera								0.050
Echinocardium cordatum	14.445	0.420	0.788	3.609	0.351			15.559
Ensis directus	1.417		1.161					
Ensis ensis	1.196	0.175	0.230		0.808		0.320	0.425
Ensis magnus	0.646	2.090	1.006	0.986	0.898	1.461	0.511	0.782
Euspira catena								
Euspira nitida	0.042	0.006						
Hyperoplus lanceolatus		0.063	0.025		0.740		0.150	0.690
Lanice conchilega								
Limanda limanda	0.540	1.948	1.783	1.368	2.020		1.583	2.015
Lineus bilineatus								
Liocarcinus holsatus	5.676			1.188	2.624	14.124	1.345	
Lutraria sp.	0.206							
Macropodia rostrata								
Mactra stultorum								
Myoxocephalus scorpius								
Mytilus edulis								0.176
Nephtys sp.	3.008	0.126	0.009	0.676	0.019			0.292
Ophelia borealis	0.024	0.153	0.091	0.159	0.113	0.389	0.071	0.050
Ophiura albida	0.068	0.913	0.527	1.342	1.073	0.416	0.218	0.172
Ophiura ophiura	12.961	9.165	4.280	12.181	8.723	9.360	2.964	3.003
Pagurus bernhardus	0.706	1.897		1.558	2.556		0.486	1.339
Pestarella tyrrhena		0.074		0.017	0.132			
Philocheras trispinosus	0.025	0.050	0.272	0.041			0.041	0.083
Phyllodoce groenlandica		0.039						
Pinnotheres pisum								
Pleuronectes platessa	0.198	4.418	0.725	7.243				0.255

Annex 4: Dredge sample data

	QCN9	QT1	QT2	QT3	QT4	QT5	QT6	QT7
Pomatoschistus sp.	0.258	0.353	0.198	0.315	0.410	0.040	0.340	0.345
Processa modica								
Scolelepis bonnieri	0.005							
Solea solea								
Spisula elliptica	0.136	0.326	0.274	0.411	0.123		0.231	0.393
Spisula solida		0.507		0.122				
Spisula subtruncata	0.242	0.020		0.030				
Sprattus sprattus								0.173
Syngnathus rostellatus	0.018							0.010
Taurulus bubalis								
Thia scutellata	0.677	1.254	0.281	0.734	0.066		0.231	0.350
Trachurus trachurus								0.013

	QT8	QT9	QT10	QT11	QT12	QT13	QT14	QT15
Agonus cataphractus								
Ammodytes tobianus		0.300					0.233	
Angulus fabula								
Angulus tenuis								
Aphia minuta								
Arnoglossus laterna	0.028		0.040	0.030	0.485	0.485	0.013	0.055
Asterias rubens	4.511	25.162	2.173	2.483	12.828	3.337	8.454	0.970
Buglossidium luteum	3.600	1.508	1.240	1.320	2.228	0.873	0.055	0.770
Callionymus species	0.023	0.720	0.185	0.175	0.028	0.065	0.148	0.205
Chamelea striatula	0.210	0.119			0.070		0.589	0.469
Ciliata mustela			1.605					
Corystes cassivelaunus	1.163			0.231				
Crangon allmanni	0.050						0.041	
Crangon crangon	4.480	4.653	4.703	2.393	2.566	4.100	2.582	3.548
Donax vittatus	0.058		0.200	0.716			0.204	
Echiichthys vipera								0.060
Echinocardium cordatum	9.524	2.422	2.608	5.635		0.999		12.860
Ensis directus								
Ensis ensis			2.105					1.602
Ensis magnus	0.646	0.246	0.724	4.374	0.356	0.772	0.743	0.870
Euspira catena								
Euspira nitida					0.003		0.006	
Hyperoplus lanceolatus			1.675	0.915		0.058	0.065	0.115
Lanice conchilega								
Limanda limanda	1.363				0.138	1.245	2.328	3.795
Lineus bilineatus					0.012			
Liocarcinus holsatus		1.196	6.699	5.561	0.858	0.347		2.079
Lutraria sp.								
Macropodia rostrata								
Mactra stultorum								
Myoxocephalus scorpius		0.753						
Mytilus edulis								
Nephtys sp.	0.227	0.723	0.289		0.011	0.041	0.056	0.361
Ophelia borealis	0.056	0.035	0.361	0.700	0.057	0.073	0.267	0.392
Ophiura albida	0.952	0.923	0.377	0.293	1.453	0.364	0.705	0.598
Ophiura ophiura	8.473	4.989	8.736	2.334	1.476	5.145	7.124	3.874
Pagurus bernhardus	2.017	1.388	2.031		0.787	1.122	1.222	3.217
Pestarella tyrrhena	0.074							
Philocheras trispinosus		0.058	0.050	0.017	0.017	0.017	0.017	0.017
Phyllodoce groenlandica								
Pinnotheres pisum		0.008						
Pleuronectes platessa	1.738	6.228		4.340	9.018	0.583	2.093	0.450

Annex 4: Dredge sample data

	QT8	QT9	QT10	QT11	QT12	QT13	QT14	QT15
Pomatoschistus sp.	0.690	0.385	0.320		0.668	0.115	0.203	0.235
Processa modica	0.008	0.008			0.008			
Scolelepis bonnieri								
Solea solea				3.385				
Spisula elliptica	0.032	0.056	0.307		0.080	0.039	0.489	0.303
Spisula solida				0.299				
Spisula subtruncata	0.041	0.046			0.083			
Sprattus sprattus	0.008	0.085	1.390					
Syngnathus rostellatus	0.010			0.020				
Taurulus bubalis		0.440						
Thia scutellata	0.586	0.677	0.124	0.195	0.297	0.215		1.122
Trachurus trachurus								

	QAW1	QAW2	QAW3	QAW4	QAW5	QAW6	QCS1A	QCS2
Agonus cataphractus					0.118			
Ammodytes tobianus				0.103		0.338		
Angulus fabula								
Angulus tenuis								
Aphia minuta								
Arnoglossus laterna	0.400		1.235	0.078	0.038	0.410	0.099	0.014
Asterias rubens	6.092	4.932		3.662	7.872	1.586	0.012	
Buglossidium luteum		2.040	0.480	1.805	1.443	2.900	0.325	1.061
Callionymus species	0.465			0.150	0.385	0.030	0.035	0.010
Chamelea striatula		0.064	0.515	0.010	3.478	0.550	0.009	
Ciliata mustela								
Corystes cassivelaunus		0.652	1.716			1.939		
Crangon allmanni						0.041		0.006
Crangon crangon	5.561	5.255	4.983	3.102	4.488	4.076		0.182
Donax vittatus		0.096	0.822	0.399	0.891	1.303		0.036
Echiichthys vipera								
Echinocardium cordatum	0.643	5.211	1.547		3.660	0.606	0.591	0.669
Ensis directus		0.591	1.071			0.307		
Ensis ensis	0.511	0.362	2.209		1.714		0.529	0.352
Ensis magnus	0.150	0.462	2.747	0.718	2.115	2.048	0.035	0.239
Euspira catena								
Euspira nitida				0.200	0.019			
Hyperoplus lanceolatus	0.075			0.710	0.525	0.365	0.821	0.076
Lanice conchilega								
Limanda limanda	1.295		1.160	2.485	1.653			0.046
Lineus bilineatus								
Liocarcinus holsatus	1.980	0.660	0.495	1.106	2.739	2.665	0.516	0.171
Lutraria sp.					0.673			
Macropodia rostrata								
Mactra stultorum						0.192		
Myoxocephalus scorpius								
Mytilus edulis								
Nephtys sp.	0.052		0.375	0.007	0.681	0.307	0.758	0.296
Ophelia borealis	0.251	0.048	0.421	0.014	0.104	0.460	0.601	0.596
Ophiura albida	0.767	1.550	2.314	2.161	1.651	1.222	0.190	0.163
Ophiura ophiura	6.377	6.464	9.653	6.263	18.363	11.551	0.127	0.169
Pagurus bernhardus	1.144	0.578		0.497	1.099	1.404		0.115
Pestarella tyrrhena								
Philocheras trispinosus	0.099	0.008		0.025	0.050	0.008	0.004	
Phyllodoce groenlandica								
Pinnotheres pisum								
Pleuronectes platessa	4.515	0.980	17.860	0.445	1.280	1.940		0.242

Annex 4: Dredge sample data

	QAW1	QAW2	QAW3	QAW4	QAW5	QAW6	QCS1A	QCS2
Pomatoschistus sp.	0.290	0.220	0.015	0.520	0.125	0.405	0.075	0.078
Processa modica					0.014			
Scolelepis bonnieri		0.002						
Solea solea								
Spisula elliptica	0.081		1.325	0.934	0.837	1.506	0.086	0.466
Spisula solida							0.797	0.277
Spisula subtruncata			0.157	0.063	0.956	0.036	0.006	
Sprattus sprattus								
Syngnathus rostellatus	0.010	0.008						
Taurulus bubalis								
Thia scutellata	0.083	0.066	0.330	0.091	1.642	0.074	0.619	0.305
Trachurus trachurus								

	QCS3	QCS4B	QCS5	QCS6	QCS7	QCS8	QCS9
Agonus cataphractus							0.035
Ammodytes tobianus							
Angulus fabula							
Angulus tenuis							
Aphia minuta						0.003	
Arnoglossus laterna	0.298	0.398	0.950	0.455	0.020	0.294	
Asterias rubens	2.537	0.728	0.051			0.766	2.127
Buglossidium luteum	3.235	2.395	5.304	3.698	3.055	3.398	0.991
Callionymus species	0.325	0.093	0.399	0.398	0.138	0.060	0.081
Chamelea striatula		0.048			0.164	0.040	
Ciliata mustela							
Corystes cassivelaunus		0.330			0.260		
Crangon allmanni						0.021	
Crangon crangon	2.376	0.998	1.374	1.807	0.672	1.646	1.139
Donax vittatus				0.091	0.040	0.126	0.036
Echiichthys vipera	0.013		0.299	0.065	0.129	0.405	0.295
Echinocardium cordatum	4.847	0.392	2.518	5.129	0.184	4.275	2.190
Ensis directus							
Ensis ensis	2.320	1.518	0.686	3.083	6.595	1.459	2.649
Ensis magnus	0.889	0.825	1.203	1.019	0.406	0.635	1.146
Euspira catena							
Euspira nitida							
Hyperoplus lanceolatus	0.898	0.483	0.529	0.623	0.241	0.968	0.663
Lanice conchilega							
Limanda limanda	0.358	1.630	0.228	0.133			
Lineus bilineatus							
Liocarcinus holsatus	3.713	2.244	2.327	7.574	2.549	0.879	0.582
Lutraria sp.					0.151		
Macropodia rostrata							
Mactra stultorum							
Myoxocephalus scorpius							
Mytilus edulis							
Nephtys sp.	1.146	0.613	0.934	0.069	1.518	0.821	0.890
Ophelia borealis	1.418	0.403	0.711	1.536	0.401	0.279	0.648
Ophiura albida	1.021	0.670	0.595	0.962	0.380	0.479	0.853
Ophiura ophiura	2.135	0.700	0.769	1.112	2.187	2.646	1.375
Pagurus bernhardus	1.281	0.127	1.004	2.543	0.053	0.241	0.033
Pestarella tyrrhena			0.388		0.173	0.066	
Philocheras trispinosus	0.099	0.008	0.198	0.132	0.004	0.050	0.008
Phyllodoce groenlandica							
Pinnotheres pisum							
Pleuronectes platessa	5.308	0.228	1.244	0.618	0.840	1.250	

Annex 4: Dredge sample data

	QCS3	QCS4B	QCS5	QCS6	QCS7	QCS8	QCS9
Pomatoschistus sp.	0.263	0.429	0.431	0.538	0.328	0.190	0.074
Processa modica			0.004		0.012	0.012	
Scolelepis bonnieri							
Solea solea					1.229	1.129	1.478
Spisula elliptica	2.024	0.781	11.426	2.055	0.899	0.673	0.847
Spisula solida	0.757	0.303	0.599	1.457	0.545	0.921	0.691
Spisula subtruncata							
Sprattus sprattus							
Syngnathus rostellatus						0.003	
Taurulus bubalis							
Thia scutellata	1.427	0.903	0.912	0.536	1.415	1.170	0.718
Trachurus trachurus							

Annex 5: Physical variables

Sample	Median particle size (µm)	Clay (%)	Sand (%)	Organic matter (%)
QCN1	307	0.427	98.702	0.487
QCN2	293	0.000	100.000	0.519
QCN3.1	323	0.372	99.122	0.425
QCN4	241	3.585	95.125	0.738
QCN5	226	4.572	93.391	0.931
QCN6	290	0.000	100.000	0.532
QCN7	243	0.000	100.000	0.712
QCN8	252	3.007	95.878	0.632
QCN9	241	3.578	95.212	0.764
QCN10	226	3.801	94.823	0.926
QCN11.2	277	0.000	100.000	0.533
QCN12	239	0.000	100.000	0.648
QCN13.1	251	0.000	100.000	0.671
QCN14	254	3.723	94.893	0.739
QCN15.4	236	3.795	94.865	0.762
QCN16	267	0.289	98.923	0.483
QCN17	259	0.414	98.775	0.619
QCN18	250	0.000	100.000	0.750
QCN19	232	3.460	95.116	0.909
QCN20	240	0.000	100.000	0.792
QCN21	272	0.400	98.783	0.625
QCN22	277	0.000	100.000	0.532
QCN23.2	269	0.000	100.000	0.599
QCN24	239	0.000	100.000	0.776
QCN25	246	0.000	99.999	1.101
QT1	300	0.000	100.000	0.575
QT2.4	293	0.000	100.000	0.773
QT3	306	0.000	100.000	0.600
QT4	289	0.000	100.000	0.578
QT5	274	0.000	100.000	0.628
QT6.2	280	0.000	100.000	0.645
QT7	284	0.000	100.000	0.695
QT8	299	0.000	100.000	0.605
QT9	253	0.374	98.812	0.698
QT10.0	287	0.000	99.999	0.777
QT11	282	0.000	100.000	0.824
QT12	240	0.288	98.682	0.788
QT13	281	0.000	100.000	0.690
QT14	281	0.596	98.516	0.662
QT15	251	2.565	96.117	0.688
QT16	250	2.598	95.970	0.938
QT18.0	274	0.000	100.000	0.706
QT19	272	0.000	100.000	0.709
QT20	248	2.987	95.280	0.967
QT21.0	262	0.000	100.000	0.735
QT22	282	0.000	100.000	0.646
QT23	282	0.000	100.000	0.667
QT24	277	0.000	100.000	0.720
QT25	279	0.000	100.000	0.687

Annex 5: Physical variables

Sample	Median particle size (µm)	Clay (%)	Sand (%)	Organic matter (%)
QT26	285	0.000	100.000	0.723
QT27	282	0.000	100.000	0.734
QT28	276	0.000	99.999	0.852
QT29	291	0.000	100.000	0.680
QT30	276	0.000	100.000	0.738
QT31	311	0.000	100.000	0.590
QT32	274	0.000	100.000	0.782
QT33.0	284	0.000	100.000	0.758
QT34	276	0.000	100.000	0.688
QT35	276	0.000	100.000	0.715
QT36	273	0.000	100.000	0.646
QT37	292	0.000	100.000	0.640
QT38	301	0.000	100.000	0.571
QT39	263	0.000	100.000	0.686
QT40.0	273	0.000	100.000	0.778
QT41	282	0.000	100.000	0.634
QT42	302	0.000	100.000	0.576
QT43	295	0.000	100.000	0.640
QT44.0	282	0.000	100.000	0.660
QT45	279	0.110	99.660	1.100
QT46	293	0.000	100.000	0.663
QT47	292	0.000	100.000	0.756
QT48	282	0.000	100.000	0.774
QAW1.4	295	0.000	100.000	0.609
QAW2.3	276	0.000	100.000	0.661
QAW3.2	266	0.000	100.000	0.712
QAW4.1	298	0.000	100.000	0.612
QAW5.3	284	0.000	100.000	0.671
QAW6.4	291	0.000	100.000	0.676
QCS1	287	0.000	100.000	0.681
QCS2	315	0.000	100.000	0.718
QCS3.1	300	0.000	100.000	0.592
QCS4	326	0.000	100.000	0.571
QCS5	318	0.000	100.000	0.525
QCS6	296	0.000	100.000	0.652
QCS7	295	0.000	99.999	0.677
QCS8	294	3.815	93.502	1.187
QCS9	319	0.000	99.999	0.575
QCS10	320	0.000	100.000	0.546
QCS11.0	302	0.000	100.000	0.617
QCS12	310	0.000	100.000	0.774
QCS13.3	296	0.000	100.000	0.712
QCS14	300	0.000	100.000	0.796
QCS15.0	303	0.131	99.584	0.653
QCS16	322	0.000	99.999	0.530
QCS17	316	0.000	100.000	0.541
QCS18	339	0.000	100.000	0.557
QCS19	303	0.000	100.000	0.613
QCS20	312	0.000	100.000	0.847
QCS21	316	0.000	100.000	0.564
QCS22	296	0.000	100.000	0.693
QCS23.0	306	0.000	100.000	0.637
QCS24	325	0.000	100.000	0.538
QCS25	317	0.000	100.000	0.504