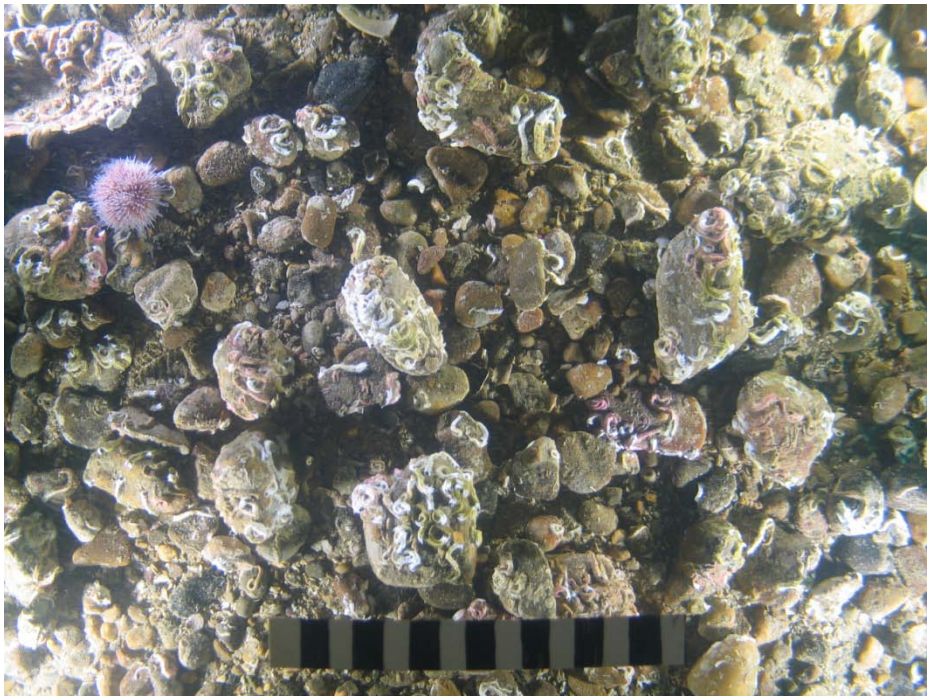
Beatrice Offshore Wind Farm



Benthic Survey 2010 Technical Report

CMACS Ref: J3151 Beatrice Benthic Technical Report

Prepared for
Beatrice Offshore Wind Farm Ltd

Centre for Marine and Coastal Studies Ltd

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CMACS Ltd.
80 Eastham Village Road
Eastham
Wirral CH62 0AW

Tel 0151 327 7177
Fax 0151 327 6344
info@cmacsltd.co.uk

CMACS Ltd.
Asahi House
10 Church Road, Port Erin
Isle of Man IM9 6AQ

Tel 01624 836 846

Centre for Marine and Coastal Studies Ltd.
Registered in England No. 4883990

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Glossary

AFDW	Ash Free Dry Weight; a measure of biomass approximating to organic content of a plant or animal, calculated by subtracting the ash content (after combustion) from the dry weight.
Benthic	Pertaining to the seabed.
Biogenic reefs	Reef-like structures built up by aggregations of animals; in the Thames Estuary region usually the tube worm Sabellaria spinulosa, sometimes known locally as “ross”.
Biotope	A description of physical habitat and its associated biological community
Biotope complex	A group of biotopes with similar overall physical and biological characteristics.
CEFAS	Centre for Environment, Fisheries and Aquaculture Science.
Circalittoral	The subzone of the rocky sublittoral below that dominated by algae (the infralittoral), and dominated by animals; can also refer to sedimentary areas of equivalent depths.
Demersal	Generally living on or near the seabed, usually used with reference to fish.
Diversity index	A statistic used to estimate the degree to which the total number of individual organisms in a given ecosystem, area, community or trophic level is divided evenly over different species, i.e. measure of heterogeneity.
Epifauna	Animals living on the surface of the seabed, either attached to hard surfaces such as bedrock, stones, shells etc (e.g. many tubeworms) or free (e.g. crabs).
Infralittoral	A subzone of the sublittoral in which upward-facing rocks are dominated by erect algae, typically kelps; can also refer to sedimentary areas of equivalent depths.
Infauna	Animals living within seabed sediments (e.g. many molluscs, worms).
ISQG	Interim Sediment Quality Guidelines, published initially for use in UK waters by Cole et al, 1999.
MLS	Minimum Landing Size
PAH	Polycyclic Aromatic Hydrocarbons.

PCB	Polychlorinated Biphenyls.
PEL	Probable Effects Level, published initially for use in UK waters by Cole et al, 1999.
Phi	A measure of granular particle diameter where Phi = $-\log_2 D$ (where D = diameter, usually in mm).
PMF	Priority Marine Features (PMFs) are habitats and species which we consider to be of greatest marine nature conservation importance in Scottish territorial waters.
PSA	Particle Size Analysis.
SEA	Strategic Environmental Assessment.
Sublittoral	Below the extreme low water mark; subtidal.
TEL	Threshold Effects Level, published initially for use in UK waters by Cole et al, 1999.
TOC	Total Organic Content.

Executive summary

This document reports benthic environmental survey work carried out in relation to the proposed Beatrice Offshore Wind Farm development on behalf of Beatrice Offshore Windfarm Limited (BOWL). The surveys were undertaken to support the Beatrice Offshore Wind Farm Environmental Statement.

The survey was undertaken using drop down camera, benthic grab and beam trawl equipment. There were forty five combined grab and camera stations (where the same position was used for a grab and camera station), forty four independent grab stations, fifteen independent camera stations and fourteen 2 m beam trawl stations in the planned survey programme. Sample positions were determined following a review of a comprehensive survey of seabed morphology and bathymetry completed by others in advance of the benthic survey.

Benthic surveys were carried out during October and November 2010. The benthic grab survey and the majority (all but six stations) of the camera survey was completed between October 6th and October 27th. The remaining six camera stations and the beam trawls were conducted between the 20th and 23rd of November.

All eighty nine proposed grab stations were visited. Single faunal samples were successfully obtained from eighty four stations with five faunal grab stations failing due to stony ground, although four of these were successfully surveyed by camera. Additional grab samples were taken at twelve of these stations to obtain sediments for contaminant analysis.

Still images and video footage (approximately five minutes) were successfully obtained at fifty four camera stations and video footage alone was obtained at six of the camera stations. One failed grab stations (56) was re-visited with the drop down camera where both still images and video footage were obtained.

All fourteen proposed trawl stations were successfully sampled. The majority of organisms were identified in the field to species level, all commercial fish species were measured and the age and length of any scallops caught was recorded.

Sediments from six locations were investigated for a suite of possible heavy metal and organic contaminants due to the history of oil and gas explorations and production activities in the general area. Organic contaminants (Polycylic Aromatic Hydrocarbons (PAHs), n-alkanes, and total alkanes) were present at very low levels or not detected. Barium was present at levels ranging from 133 - 273 mg/kg, but these levels are lower than published values for North Sea sediments sampled at greater than 5 km from oil and gas platforms. No heavy metals were present at levels that exceeded Interim Sediment Quality Guidelines or CEFAS or Marine Scotland Action levels where these exist. There was no apparent relationship between distribution of any of the metals, including barium, and the distribution of known wellheads.

The majority of the seabed was dominated by medium sands, often with varying amounts of shell fragments, whole shell or gravel. Hard substrate seabeds such as cobble and boulders were very infrequent, though coarser material was found in scattered locations, mostly in a few small but discrete patches in the north west of the survey area, and towards the eastern boundary of the survey area.

The biological communities were rich in terms of numbers of organisms and numbers of taxa; a total of 8,286 individuals representing 356 taxa were identified from the 84 grabs. Mean values

were: 98.6 individual, 34.5 taxa and 2.88 Shannon Wiener diversity index, per 0.1 m2 grab. The communities were not particularly rich in terms of biomass (mean of 2.98 g/m^2 ash free dry weight). Communities were dominated numerically by a variety of worms and to a lesser extent molluscs; this was largely as expected based on published reports, although the high abundances in some areas of the small fanworm *Jasmineira caudata* was not particularly expected for this area; however, this is a widespread and abundant species around the whole of the UK. Biomass was dominated by molluscs (41.8%), with polychaetes and echinoderms contributing most of the remainder.

Epifaunal communities as identified by beam trawls and camera survey were generally relatively sparse. The beam trawls also sampled demersal fish, which were dominated by flatfish such as dab and plaice in the main. Sandeels *Ammodytes tobianus* and *Hyperoplus lanceolatus* were also frequent in some of the beam trawls. There were some areas of coarser seabed sediments with higher numbers of organisms typical of coarse ground. Starfish *Asteria rubens*, urchins, especially *Echinus esculentus*, queen scallops *Aequipecten opercularis*, hermit crabs *Pagurus bernhardus* and *P. prideaux*, and spider crabs *Macropodia* spp, dominated the invertebrate community at these locations, along with smaller numbers of a variety of other, mostly crustacean, species.

Community classification against the JNCC biotope classification was carried out, taking into account all of the trawl, grab, camera and sediment information, but influenced mostly by the infaunal grab sampling due to the strong predominance of sandy and gravelly sediments in the area. Four main biotopes (or variants) or biotope complexes, were identified from the infaunal data:

Two of the infaunal biotopes/biotope complexes are extensive within the survey area (SS.SCS.ICS.MoeVen *Moerella* spp. with venerid bivalves in infralittoral gravelly sand biotope and SS.SSA.CfiSa Circalittoral fine sand biotope complex). The SS.SCS.ICS.MoeVen occurs on this part of the Smith Bank at depths of around 35-45 m, rather more than is typical for this biotope, which is more usually limited to 20 m or less.

Two further infaunal biotopes are patchy and/or limited in extent (a *Glycera lapidum* dominated version of the MoeVen biotope, and a variant of SS.SCS.CCSMedLumVen *Mediomastus fragilis*, *Lumbrinereis* spp. and venerid bivalves in circalittoral coarse sand or gravel with high abundances of the fanworm *Jasmineira caudata*).

In addition a small patch of cobble and boulder reef dominated mostly by tubeworms and barnacles, and tentatively ascribed to the epifaunal biotope SS.SCS.CCS.PomB *Pomatoceros triqueter* with barnacles and bryozoan crusts on unstable circalittoral cobbles and pebbles was identified in the north west of the area, totalling 0.021 km^2, and it seems likely that one or two smaller patches of less distinct (ie less easily detected on sidescan sonar) similar habitat occur elsewhere on the north western boundaries of the application area and towards the eastern boundary of the area. Larger boulders had a richer associated fauna than the majority of the cobbles/boulders, including unidentified hydroids and the soft coral *Alcyonium digitatum*.

A map of these biotopes and biotope complexes has been produced, and their extents estimated using GIS.

The SS.SCS.CCS.PomB biotope seems to equate to potential Annex 1 geogenic reef habitat as defined under the European Habitats Directive, but the main area found is at most of medium reefiness according to published definitions, whilst smaller areas appear to be of low reefiness.

No indications of potential biogenic Annex 1 habitats as defined under the European Habitats Directive, such as *Sabellaria spinulosa* reefs or *Modiolus modious* reefs, were found.

Scottish Natural Heritage (SNH) have listed the SS.SCS.ICS.MoeVen *Moerella* spp. with venerid bivalves in infralittoral gravelly sand biotope on a draft list of 53 species and habitats that are considered as Priority Marine Features (PMFs) (SNH 2011). These are habitats and species which are considered by SNH to be of greatest marine nature conservation importance in Scottish territorial waters. The draft PMF list contains 53 habitats and species and will be used to guide future research and support the advice SNH gives on marine biodiversity.

According to SNH (pers comm) this biotope qualified as a PMF based on the following criteria:

- proportional importance: Scottish territorial waters are considered to be nationally important, based on the known distribution of records
- decline/ threat of decline: considered to be in decline and/or under threat of decline as a result of anthropogenic pressures
- functional importance: this habitat is considered to be of functional importance through supporting important food species

Although *Tellina* (formerly called *Moerella*) *pygmaea* as a species has long been known to be abundant in the Smith Bank area, the list of known areas in Scottish waters from where the SS.SCS.ICS.MoeVen biotope has been recorded does not presently appear to include the Moray Firth, with the majority of records from Shetland, Orkney and some instances on the west coast of Scotland (e.g. Loch Slapin and Loch Kishorn) and Outer Hebrides (e.g. Sounds of Barra and Harris; SNH, pers comm). This survey has therefore contributed to an increased knowledge of the distribution of this biotope in Scottish waters.

No rare or unusual species were found apart from three juveniles of the bivalve *Arctica islandica*, a long lived species vulnerable to physical impacts such as demersal fishing that is also on the draft list of PMFs.

1. Introduction

Centre for Marine and Coastal Studies Ltd (CMACS) was contracted by Beatrice Offshore Windfarm Ltd (BOWL) to undertake benthic ecology surveys and provide an environmental characterisation of the seabed in support of an environmental impact assessment for the proposed Beatrice Offshore Wind Farm in the Moray Firth, north east Scotland. This document is a technical report presenting the results of the surveys.

CMACS developed a programme of camera, grab and beam trawl surveys in order to provide information on benthic infauna and epifauna in and around the proposed wind farm area:

1. Grab sampling to provide information on sediment characteristics, benthic invertebrate infaunal communities and contaminants.

2. Drop-down camera to increase the spatial intensity of seabed sampling to supplement information gained from grabbing. Drop down camera was also used to provide information from areas where grab sampling failed due to difficult ground conditions, to investigate areas of possible hard ground identified from acoustic data, and to survey for important/sensitive habitats such as biogenic reef in a non-destructive manner.

3. 2m beam trawls to describe the epifaunal community, and also including some information on smaller demersal fish and shellfish.

1.1. Seabed communities on the Smith Bank

According to the review of the SEA[1] Area 5 by Eleftheriou et al (2004), Smith Bank is a shallow bank (40m), with relatively coarse (in comparison to much of the deeper offshore North Sea) sediment composed of sand and shelly gravel, with occasional outcrops of rock. McIntyre (1958) noted that on the Smith Bank polychaetes and molluscs were the numerically dominant groups, but that the pea urchin *Echinocyamus pusillus* was the numerically dominant species, while the rather larger bivalve mollusc *Cochlodesma praetenue* contributed most of the biomass. Eleftheriou et al (2004) note that a number of studies (e.g. Heip et al, 1992; Jennings et al, 1999; Zuhlke, 2001) have suggested that northern North Sea benthic infauna and epifauna seems to be richer and more diverse than those in the central and southern North Sea, although this work is rather general and probably mostly relates to rather deeper areas than Smith Bank. The same authors also point out that differing survey methods used in these studies make it difficult to be very conclusive about this.

Of the few detailed studies that have been done in the area, the most comprehensive have probably been those carried out in support of the nearby Beatrice oil field. Hartley & Bishop (1986) reported on a large number of 1mm sieved grab samples from areas mostly to the south of the Beatrice Offshore Wind Farm survey carried out in 1977, 1980 and 1981. Most of their samples were therefore in deeper areas with finer sediments than encountered here, but a few samples in the north eastern area of their survey grid were in shallower areas on the Smith

[1] Strategic Environmental Assessment undertaken in support of the exploitation of offshore oil and gas resources.

Bank, overlapping the southern part of the BOWL survey area. These shallower areas had fine to medium sands with low mud content but variable gravel content, in contrast to the finer sediments in the deeper areas, and the presence of the bivalve *Tellina (*formerly *Moerella) pygmaea* was strongly associated with these shallower areas. Other fauna that were more abundant on the shallow Smith Bank area than elsewhere included the bivalve *Crenella decussata*, the polychaete worm *Travisia forbesii,* and the amphipods *Bathyporeia* spp. The polychaete *Spiophanes bombyx* and the bivalve *C. praetenue* were ubiquitous, being abundant in these shallower sands but also in the deeper, finer sands. Taxa mainly limited to deeper finer sediments, and hence at reduced densities on the Smith Bank samples, included numerous bivalves such as *Nucula tenuis*, *Dosinia lupinus*, *Gari fervensis*, *Abra prismatica* and *Tellina fabula*, the polychaetes *Goniada maculata* and *Pholoe minuta*, the amphipod *Urothoe elegans*, and the burrowing brittle star *Acrocnida brachiata*.

Hartley and Bishop (1986) considered the infauna of the whole area to be rich and diverse, and noted that comparison with earlier reports suggested a degree of long term persistence of the fauna in qualitative and quantitative terms.

There is relatively detailed information on areas much closer inshore, notably in an SNH commissioned report on the Moray Firth SAC to the 30m contour (Foster-Smith et al, 2009). Benthic communities in these areas are very varied and rather different to those in the Beatrice OWF survey area. Foster–Smith et al (2009) considered many of the communities in the outer part of their study area to be variations on *Amphiura* (burrowing brittle stars) communities, which are associated with sediments with high mud contents. However, it is noteworthy that, as well as a variety of infaunal biotopes, they also report the presence of horse mussel (*Modiolus modiolus*) beds in the Inverness and Cromarty Firths. An estimated 4-5 km^2 of *Modiolus* beds/reefs are also known from depths of 40m or so off Noss Head, in a band extending roughly from Wick northwards (Moore & Roberts, 2011). Whilst there are no reports suggesting the presence of beds or reefs of this species in the Smith Bank area, it was sensible to be aware of the possibility when planning the survey.

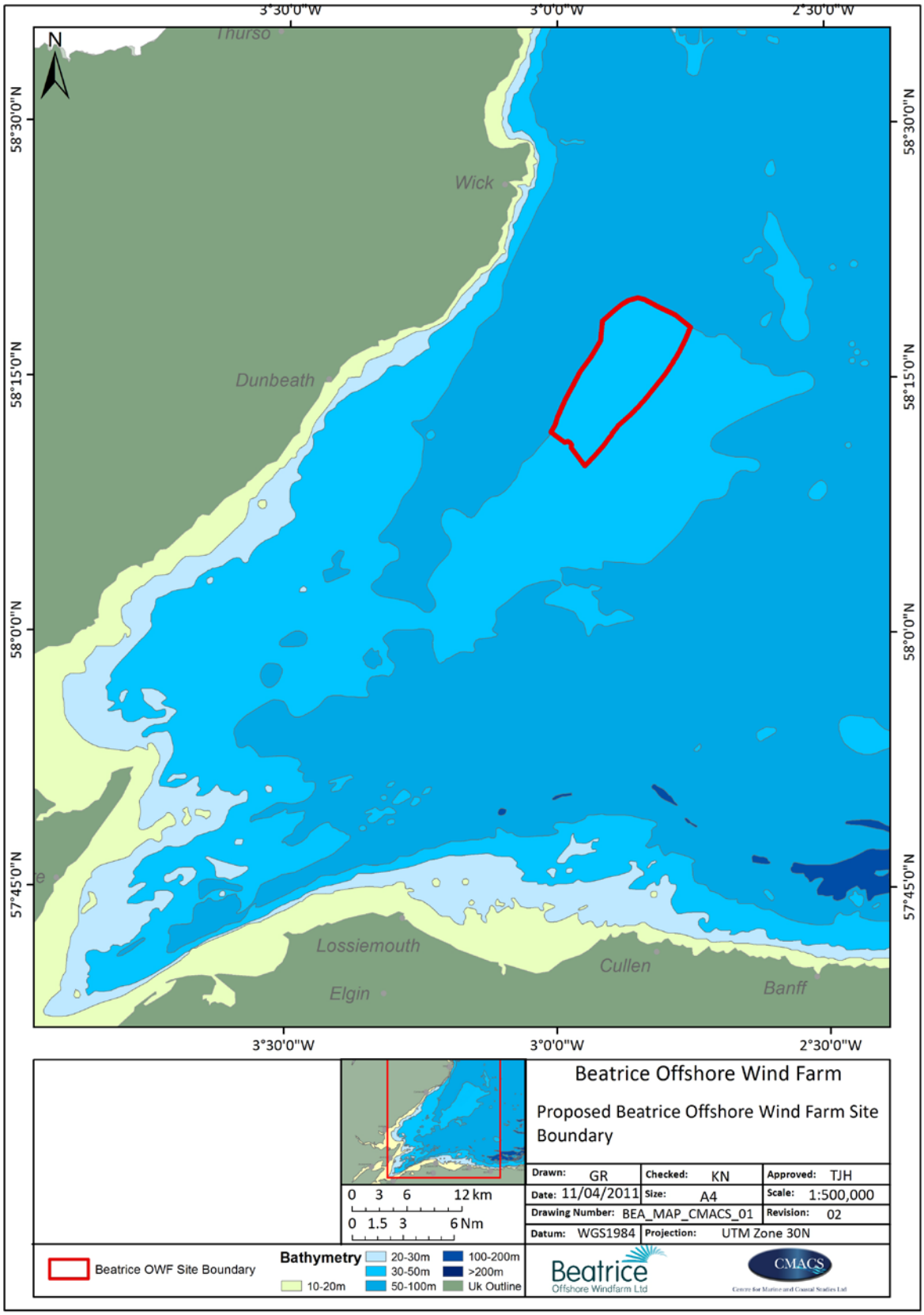

Figure 1. Boundary for the surveys in connection with the proposed Beatrice Offshore Wind Farm.

2. Methods

2.1. Survey locations

Survey locations were determined using a sediment characteristics map and georeferenced sidescan sonar survey outputs provided by OSIRIS Projects Ltd, and following an extensive consultation with regulators and other interested parties. The detailed survey programme, rationale and methodology was set out in the Survey Method Statement (Beatrice Benthic Survey Statement v5, CMACS 2010) which was agreed with key consultees and stakeholders including Marine Scotland, Scottish Natural Heritage and the Crown Estate.

Sampling effort was spread across the study area to target areas of differing substrate. Some grab and camera positions were placed together in areas of anticipated mixed ground where both methods were expected to provide useful data. Increased camera effort was targeted in areas expected to be relatively coarse (cobbles and boulder substrates) with lower camera effort directed towards areas expected to be finer (sandy) sediments where grab sampling was more appropriate. Stations within the application site boundary, in deeper waters on the edge of the application site boundary and three located to the north of the application site boundary on Smith Bank were all visited. A further three grab stations were visited on a sandbank some 13 km to the north east in similar depths to the Smith Bank, in order to determine whether similar communities may occur there with a view to possible future reference locations for any monitoring programme.

Trawl stations were located within the proposed BEATRICE OFFSHORE WIND FARM boundaries, again providing representative coverage of the range of ground conditions present (but avoiding obvious obstructions and rough ground that could damage the trawl).

All sampling locations are shown in Figure 2 - Figure 5.

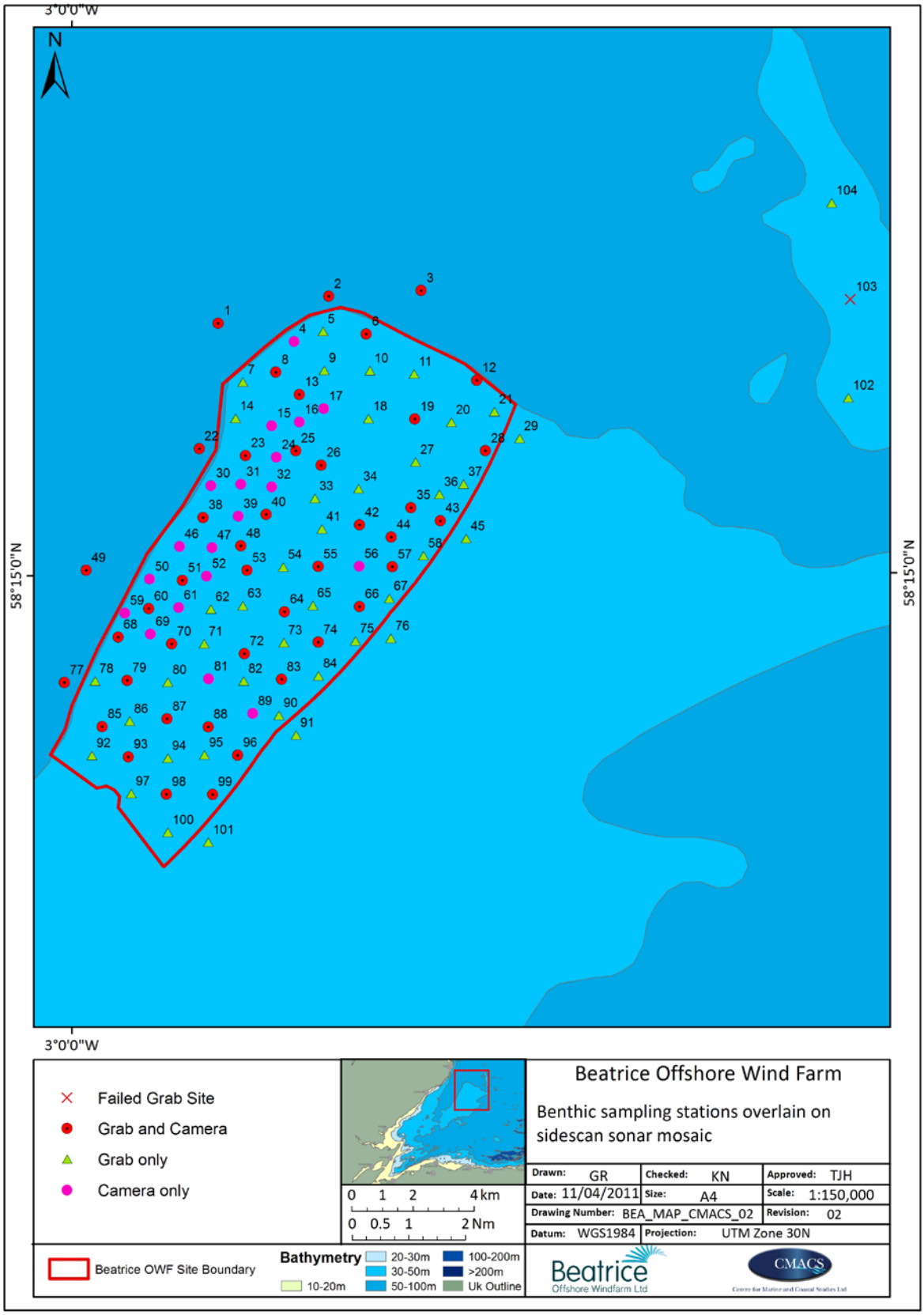

Figure 2. Benthic grab and camera stations. Grab samples that were intended at stations 4, 56, 81, 89, 103 were not successfully taken due to stones in the jaws of the grab, but camera images were obtained at all of these sites except for 103.

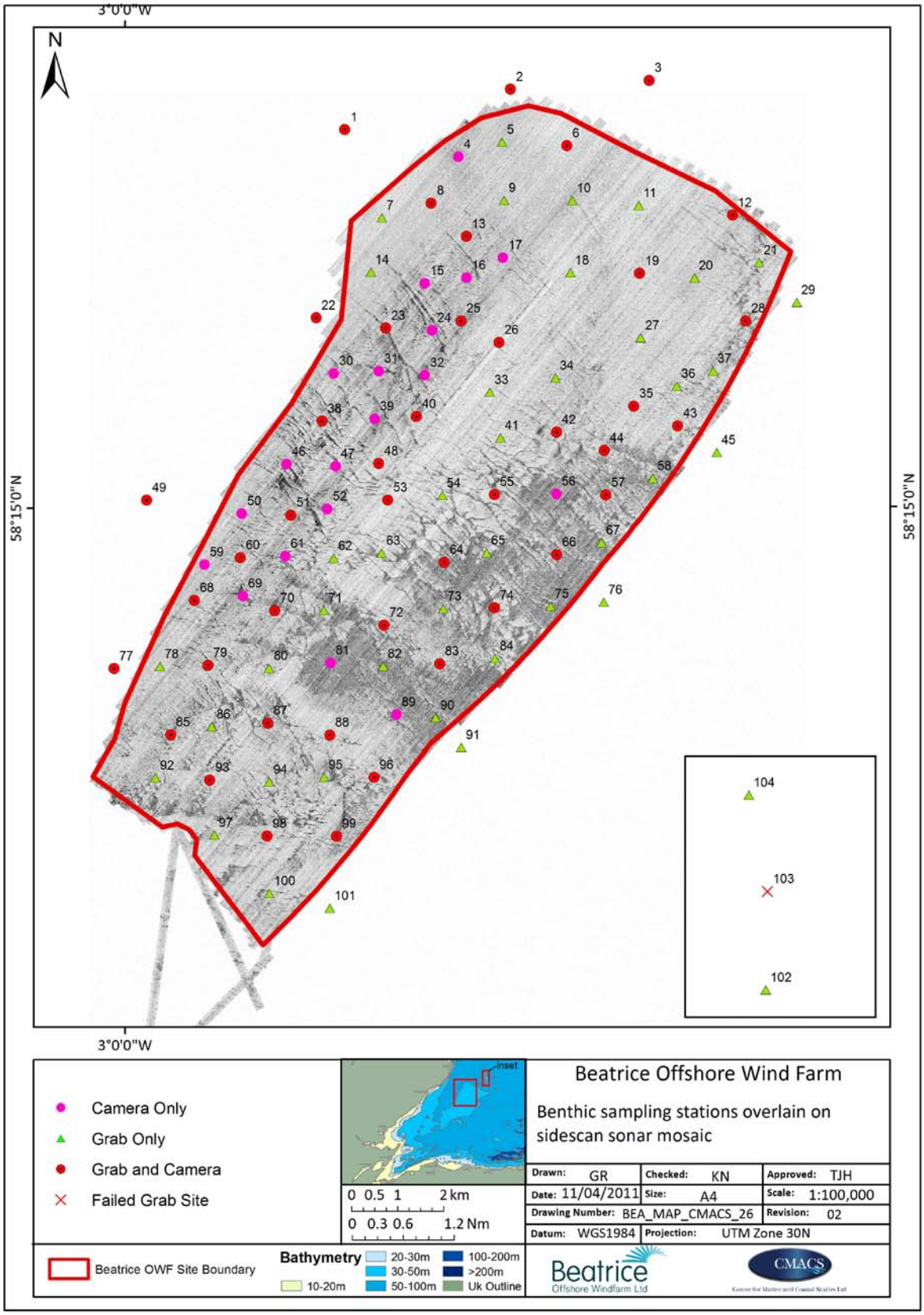

Figure 3. Grab and camera stations superimposed over a sidescan sonar image of the proposed Beatrice Offshore Wind Farm site from Osiris Projects Ltd.

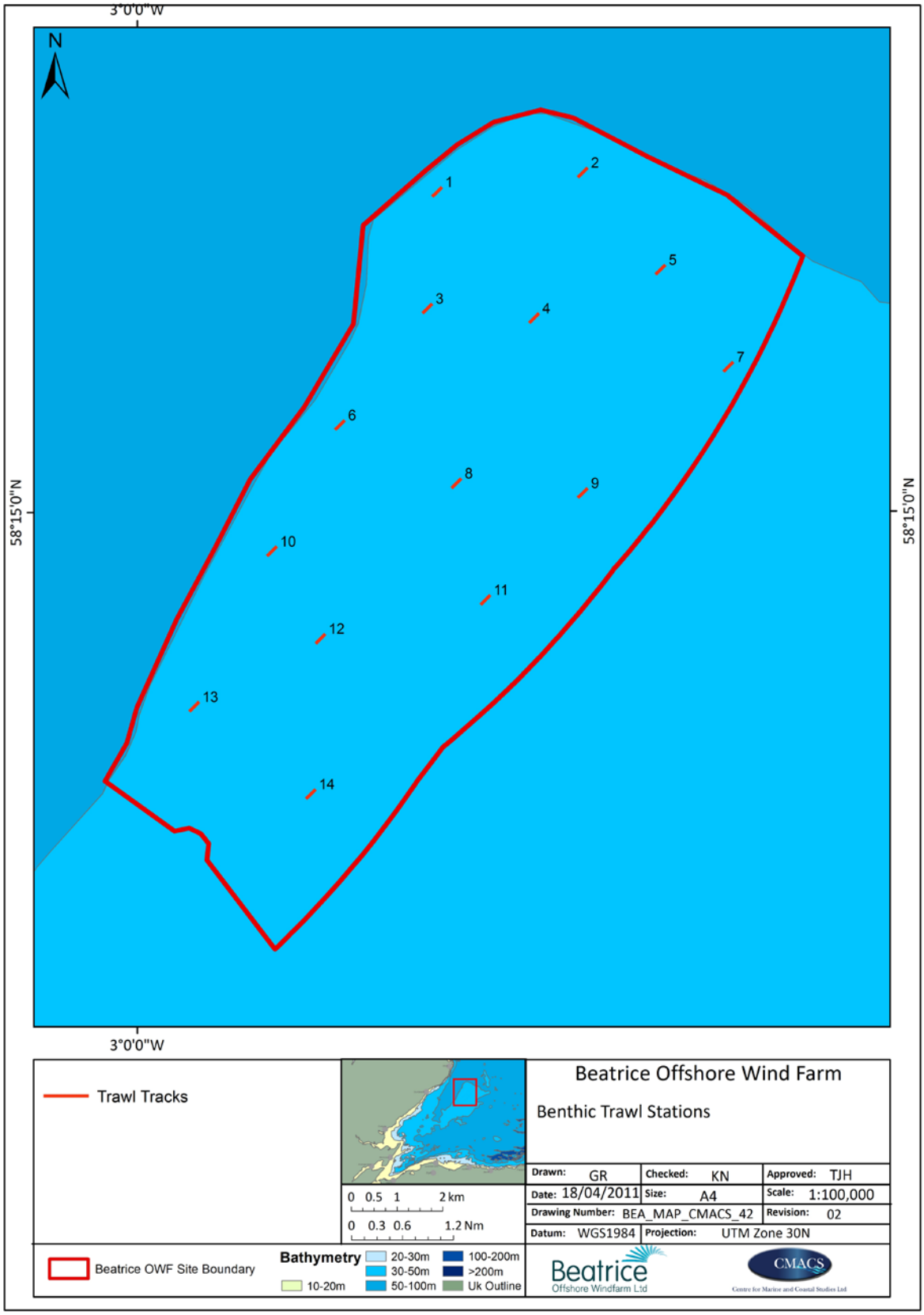

Figure 4. Benthic Trawl Stations. All trawl stations were located within the application site boundary.

2.2. Grab sampling survey

2.2.1. Field sampling

A Hamon grab (0.1 m^2 sample area) was used to sample seabed sediments from the survey vessel Chartwell (supplied and crewed by Osiris Projects). Its design is ideal for use in areas where mixed, coarse sediment/gravel is expected. The grab was deployed while the vessel was held stationary over the target. The grab was lowered using a hydraulic winch. Upon successful retrieval of each grab, sample position in UTM coordinates, date, time and water depth were recorded. A digital photograph of contents of each faunal grab was taken after draining and deposition into a container. Notes on sediment type, colour, volume and any obvious fauna observed were recorded.

Special attention was given to the identification of special habitats. Protocols required that If Annex 1 habitats were suspected to be present, no further grabbing would be undertaken at that station and a note would be made to revisit the station with the drop down camera. Extra vigilance was required for the possible presence of *Sabellaria spinulosa* and other biogenic reef organisms, and if found consideration was to be given as to its form (individual, crust or potential reef) with reference to guidelines drafted by Gubbay (2007) for *Sabellaria*.

The project protocol required that samples be rejected if they were of less than 5 litres in volume (2.5 litres over hard-packed sands). Stations were only abandoned after three successive failures to obtain a sample. Any stations that were abandoned were added to the stations to be visited with the drop down camera, if the station was not already a camera station.

After initial recordings and photographs were taken a sub-sample amounting to ten times the volume of the largest particle or 10 % of the sample was removed for use in particle size analysis (PSA) and total organic carbon (TOC) analysis. These subsamples were kept cool prior to freezing back in the CMACS laboratory.

Once the PSA sub-sample had been removed, all faunal samples were immediately sieved over a 1 mm mesh using a low pressure seawater hose, and deposited into buckets for transport back to the laboratory. Samples were labelled both externally on the buckets and internally using a plastic tag. All samples were fixed using sufficient 10 % buffered saline formalin to achieve a final concentration of ca. 4-5 % on immediate arrival onshore.

Grab samples that were intended at stations 4, 56, 81, 89, and 103 were not successfully taken due to an inability to obtain a sufficiently large sample, often because of stones caught in the jaws of the grab, but camera images were subsequently obtained at all of these sites except for 103. Grab station 56 was not originally intended to be a camera station but this was changed in the field following the grabbing failure.

The contaminant sampling strategy is summarised below in Figure 5.

At twelve stations where samples for possible contaminant analysis were required a second grab sample was taken (Figure 5). The grab was washed thoroughly with seawater before deployment. As far as possible, contaminant samples were taken from the top 2 cm of sediment. Hydrocarbon samples were collected with an acetone washed metal scoop and stored in a clearly labelled, clean amber glass container. Samples for metal contaminant testing

were taken using a plastic spoon and then stored in a plastic container. Contaminant samples were frozen immediately onboard and kept frozen until return to the CMACS laboratory.

A contaminant sample was to be taken at grab station 56 which failed. A contaminant sample was taken from adjacent grab station 55 instead.

Position fixes for all samples were provided in the survey field report.

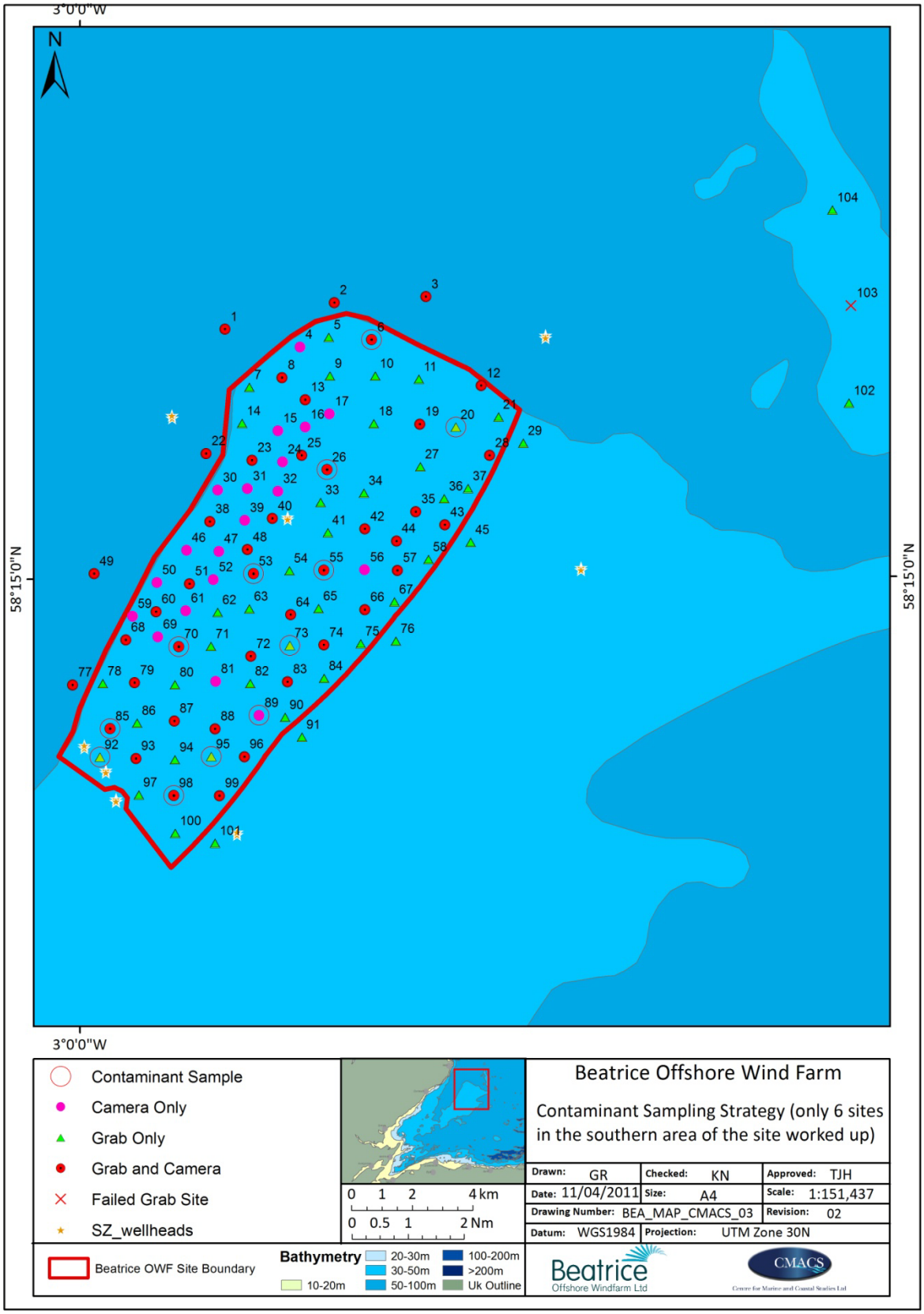

Figure 5. Beatrice Offshore Wind Farm benthic contaminant sampling strategy (only 6 sites in the southern area of the site worked up).

2.2.2. Laboratory analyses

2.2.2.1. Sediment – particle size analysis

Particle size analysis was carried out by dry sieving sediments comprising sands and coarser sediments, or by laser size analysis using a Coulter Counter for fine sediments. Samples were allocated for Coulter Counter analysis if the technician felt that the sample was cohesive and unlikely to sieve satisfactorily, whenever particle aggregation was suspected after drying and initial sieving, or when the total fraction of silt after dry sieving was greater than 5 %. Fifteen samples were wet sieved and analysed by laser analysis in order to provide data to ABPmer to inform the coastal processes study and assessment.

For dry sieving, after drying at 80°C for 24 hrs, samples were sieved on Endecott BS 410 test sieves using a Retsch AS200 sieve shaker at the mesh apertures provided in Table 1.

The weights of the sediment retained on each of the sieve series, or relative proportion by volume if the sample was analysed by Coulter Counter, were then used to calculate the mean and median particle sizes and the determination of sorting index by calculating the standard deviation of Phi. These were then used to determine sediment type according to the definitions as used by Buchanan et al (1984) (Table 2 and Table 3) and also the Folk and Ward classification system as used by the British Geological Survey (BGS) (Long, 2006).

TOC of dry sediment was determined by loss on ignition at 450 ºC. Analysis was carried out on the fraction of the sediment less than 1 mm to avoid undue influence from large stones.

Table 1. Sieve series used for particle size analysis by dry sieving (mesh size in mm).

Sieve size (mm)										
63	31.5	16	8	4	2	1	0.5	0.25	0.125	0.063

Table 2. Classification used for defining sediment type (from Buchanan et al, 1984).

Wentworth Scale (mm)	Phi units	Sediment types
>256 mm	<-8	Boulders
64 - 256 mm	-8 to -6	Cobble
4 - 64 mm	-6 to -2	Pebble
2 - 4 mm	-2 to -1	Granule
1 - 2 mm	-1 to 0	Very coarse sand
0.5 - 1 mm	0 - 1	Coarse sand
250 - 500 µm	1 - 2	Medium sand
125 - 250 µm	2 - 3	Fine sand
63 - 125 µm	3 - 4	Very fine sand
<63 µm	>4	Silt

Table 3. Classification used to define the degree of sediment sorting (from Buchanan et al, 1984).

Standard Deviation of mean Phi	Classification
<0.35	Very well sorted
0.35 - 0.5	Well sorted
0.5 - 0.71	Moderately well sorted
0.71 - 1	Moderately sorted
1 - 2	Poorly sorted
2 - 4	Very poorly sorted
>4	Extremely poorly sorted

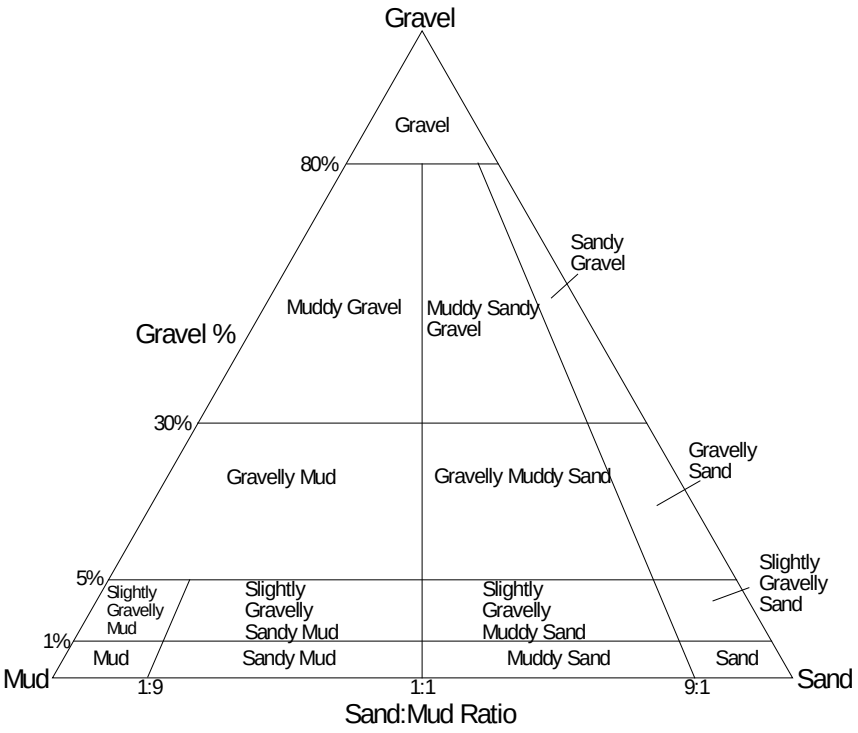

Figure 6. Sediment classification after Folk (1954) as also used by the BGS (Long, 2006). "Gravel" is greater than 2 mm and "mud" is less than 63 µm.

2.2.2.2. Sediment contaminants analysis

Samples of sediment from six of the "contaminants" sites were sent to a UKAS accredited laboratory for analysis for a suite of metals, total hydrocarbons, n-alkanes and PAHs. This required collection of three sub-samples from each contaminant grab sample with storage and analysis requirements as set out in Table 4.

The remaining six contaminant samples were held in a freezer in case they may subsequently be needed for additional analyses.

Table 4 Chemical contaminant storage and analysis requirements.

Determinant	Sub-sample size	Storage	Target LoD (ppm)	Accreditation	Technique
Heavy and Trace Metals (except. Hg)	50g	Frozen; clean plastic bags	1.0	NAMAS	HF Extraction & ICPOES
Mercury			0.04	NAMAS	Cold vapour AAS
Total Hydrocarbons	300ml	Chilled; hexane washed glass jars	0.1	NAMAS	GC-FID
PAHs & n-alkanes	50g	Frozen; hexane washed glass jars	0.001	NAMAS	GC-MS

LoD = Limit of Detection

2.2.2.3. Fauna

All grab samples for faunal analysis were rewashed in the laboratory over a 1 mm sieve, and all animals then picked from the sediment and sorted into major taxonomic groups. Wherever possible, all macrofauna from the grab samples were identified to species level and counted. Colonial animals were recorded as present or absent.

The following quality control procedures were used for specimen sorting and identification:

- Experienced operatives carried out all sorting with low power microscopes available for use.
- A proportion of samples (minimum 10%; typically one sample randomly selected from each batch of ten recently sorted samples) was re-sorted by an experienced sorter other than the original. Under this protocol, if the number of animals found in the original sorting is less than 95% of the total found (sorting plus re-sorting) all of the other samples in the appropriate batch sorted by that person must be re-sorted.
- An experienced marine invertebrate taxonomist carried out all identification using relevant up to date identification guides and papers, and an appropriate range of stereo and monocular microscopes.

The laboratory participates in the National Marine Biological Analytical Quality Control (NMBAQC) Scheme.

Biomass to major group (Polychaeta, Oligochaeta, Crustacea, Mollusca, Echinodermata and "Others") was determined by wet weight and conversion to Ash Free Dry Weight (AFDW) using published conversion factors (note that this avoided ashing of the samples which would have destroyed them). Wet weighing was carried out to the nearest 0.1mg after carefully blotting the animals first. Biomass determination was carried out following the protocols described in the National Marine Monitoring Plan (NMMP) "Green Book" (Anon, 2001). Whilst shelled animals such as molluscs were weighed in their shells, the conversion to ash-free dry weight figures effectively removes the shell element from the final values.

Conversion factors from the measured wet weight to ash free dry weight were based on the published values in Riccardi & Bourget (1998). The actual values used are given in Appendix 1.

Fish were ignored for biomass purposes as they are not invertebrates, and are potentially very large animals that probably only occur sporadically in grab samples and would strongly skew the data.

Data was analysed using a combination of univariate statistics, including community descriptors such as numbers of taxa, numbers of organisms and Shannon Wiener diversity indices, and multivariate analysis which was used to produce dendrograms and two dimensional multi-dimensional scaling (MDS) plots based on Bray-Curtis similarities, in order to investigate community relationships. In two dimensional MDS plots a stress value of <0.05 indicates that there is an excellent representation of the relationship between the various samples, 0.1 indicates good ordination and 0.2 indicates a potentially useful 2-dimensional picture (Clarke & Warwick, 2001). The analytical software package PRIMER 6 was used for the multivariate analyses.

2.3. Drop down camera survey

Fifty five camera stations (fifty four planned camera stations plus the additional Station 56 originally intended to be a grab only station) were sampled from the Chartwell before bad weather forced the survey to be temporarily suspended. Three to five images were obtained from each station depending on the heterogeneity of the seabed (i.e. additional images were taken if the seabed composition varied noticeably from one image to the next) by moving the camera within the 20 m target area. The remaining 6 camera stations were sampled from the Sardonyx-II which was chartered for the benthic trawl survey (Section 2.4). Continuous video footage was obtained from deployment of the camera at the surface to retrieval of the camera at the surface. The marine biologist on board reviewed all live video footage and decided when sufficient data had been collected to retrieve the camera.

The camera survey had a number of purposes:

- to increase the spatial intensity of seabed sampling and supplement information gained from grabbing and trawling, by providing additional data on habitat type and visible epifauna, with more emphasis on areas identified from sidescan images as possible hard ground and less on areas identified as likely to be sandy;
- to provide a technique to allow the relatively rapid interpretation of failed grab stations and/or significant seabed sensitivities (if present) through the addition of supplementary stations as required.
- to investigate potentially sensitive seabed features in a non-intrusive manner;

The equipment used was a jointly developed CMACS/OSIRIS drop down camera system which has a freshwater housing unit (sometimes called a freshwater lens although this is a misnomer since the water does not act as a lens but reduces the path length of light through turbid seawater) to maximise ability to obtain useful imagery. Lighting was provided by four halogen lamps fixed to each corner of the frame base.

The Sardonyx II did not have the capability to use the much larger frame and camera system used aboard the Chartwell. Instead, a Kongsberg underwater Diver TV system was mounted on a pyramidal shaped frame supplied by ERM and weighted with a length of anchor chain. 100m of umbilical connected the camera to an acquisition unit in the main cabin where video footage was streamed and recorded onto DVD (no stills taken directly). A ring of LEDs around the lens provided illumination.

Live feed and digital stills to an onboard computer were available aboard the Chartwell and live feed to an acquisitions unit only available on the Sardonyx. The live feed was recorded as digital video footage as the camera approached, rested on, and then left the seabed. Such footage records mobile animals and helps identification of sediment type and epifauna when reviewed.

In both instances, the camera was deployed while the vessel was held stationary (or as close as possible) over the target. The camera was lowered to the seabed with a hydraulic winch. Once the camera system was in the water, the live video feed was recorded. Once the camera was static on the seabed a marine biologist captured and logged still images via an onboard computer (live video feed only onboard Sardonyx). Details of obvious fauna, flora and sediment

type were noted along with position, depth and time. Particular attention was paid to identifying potential Annex 1 habitats. The live video feed was terminated as the camera left the seabed.

Sample position was fixed upon image capture using vessel's GPS (handheld GPS onboard Sardonyx) and recorded on an onboard computer. The image was then referenced and stored on computer and backed-up to disc. Video footage obtained on the Chartwell was recorded with an overlay showing time and date so that stored footage could be easily identified later. Video footage obtained on the Sardonyx was accompanied by a written description of station location for identification and review later.

Drop down camera images were taken of the seabed stations where satisfactory grab samples could not be obtained, if not already a camera station. Survey protocol required that if any sensitive species or habitats were observed at grab, trawl or camera stations, further investigation of these stations was to be undertaken using the camera.

2.4. Trawl survey

The trawl survey was conducted on board the fishing vessel, Sardonyx-II. Surveys were carried out using a standard CEFAS design 2m beam trawl with a 5mm square mesh cod-end and chain matrix between the beam and foot-rope. The trawl was lowered to and raised from the seabed using a hydraulic winch operated by the vessel skipper and towed on the main winch cable. Trawling was undertaken over a distance of 300m into the prevailing current with a preferred speed of approximately 2 knots over the ground where possible. Once fished, the trawl was retrieved and the sample recovered on board into fish boxes.

The 2m beam trawls are used as they are a standard scientific trawl size, and because they cause relatively limited damage to the seabed and are suitable for use within and around wind farm arrays; however this gear is not ideal for surveying the presence of large demersal fish, many of which frequently avoid capture, and data is consequently considered to be only qualitative for these fish.

A digital photograph was taken of each sample before any sorting or taxonomic identification took place. All commercial fish were identified to species level and measured (length, mm). The presence of any elasmobranch or rare fish taxa was also recorded, these individuals were also measured and where possible sexed. The numbers and taxonomic identification of all remaining fish taxa were also recorded.

Epibenthic invertebrates were counted and identified to species level with colonies of hydroids, soft corals and bryozoans being recorded as present or absent, or recorded by weight (g) if present in sufficient quantities. Any invertebrates not identified in the field were retained and preserved for later taxonomic identification. Sub-sampling of trawl samples (sometimes required where very large hauls or large numbers of individual species were obtained) was never required on this project, although the relevant procedures were in place should it have been.

3. Results

3.1. Grab samples

3.1.1. Sediment

Full results of the sediment analysis are given in Appendix 2. The predominant sediment types according to BGS classification (Long, 2006) and the percentage contributions of mud sand and gravel are given in Figure 7 and Figure 8, while the distribution of mean phi (Φ) and TOC are given in Figure 9 and Figure 10.

According to BGS classification there were 4 groups of sediment type found across the Beatrice Offshore Wind Farm survey area - sand, slightly gravelly sand, gravelly sand and sandy gravel (Figure 7).

Substrata to the north of the survey area were predominantly composed of medium sand and slightly gravelly sand with a small cluster of stations to the north east of the area (Stations 12, 20 and 28) being composed of gravelly sand. Nearfield stations 1,2,3 and 20 on the north western edge of the Beatrice Offshore Wind Farm survey area and 102 and 104 on the small bank further to the north of the area (see inset - Figure 7) were either slightly gravelly sand or gravelly sand. The deepest water depths were recorded at these nearfield stations off the Smith Bank and stations in the north west of the Beatrice Offshore Wind Farm survey area on top of the Smith Bank.

The central western region of the survey area was predominantly medium sand despite sidescan data suggesting this area was made up of harder/coarser ground. The central eastern region of the area was coarser than other parts with sandy gravel, gravelly sand and slightly gravelly sand being the predominant sediment type according to BGS.

Sediments in the southern part of the survey area were similar to that of the north but with a mix of medium and coarse sand, slightly gravelly sand and gravelly sand. Water depths were shallowest in the southern section of the survey area.

Percentage contribution data shows that the majority of grab stations sampled were predominantly sand with very little mud content overall (Figure 8). The majority of the sands were either moderately sorted, moderately well sorted, or well sorted (Appendix 2). Finer sediments with mud content were generally found in the northern part of the survey area with central areas containing little or no mud content. This was reflected in mean phi values which were highest in the northernmost part of the survey area, lower (larger sediment size) in the southern area and highly variable in the central eastern areas (Figure 9). Percentage contribution of gravel was greatest in these central eastern areas of the survey area, and this is reflected in the poorer sorting coefficients for the samples from these areas (Appendix 2); it should be noted that the mean phi values for poorly sorted sediments are often highly inaccurate and more emphasis should therefore be placed on other parameters in interpretation of such sediments.

In general the overall coarseness of the seabed according to PSA analysis was lower than was expected from the acoustic survey information, and this was further confirmed by camera observations (see later).

The TOC of sediments across the Beatrice Offshore Wind Farm survey area was mostly quite low, with a mean of 0.83% ranging from 0.24% at station 92 in the southern portion of the survey area to 2.39% at station 22; a nearfield station on the north western edge of the Beatrice Offshore Wind Farm survey area. In general, TOC was greatest in the northern areas (Figure 10) where % mud content and sediment grain size was lowest (Figure 8 and Figure 9) and to some extent along the eastern edge of the survey area where % gravel content was high. Lowest TOC values were recorded in southern areas, mirrored by lowest mean phi values.

Full TOC data (as estimated by loss on ignition) are provided in Appendix 2.

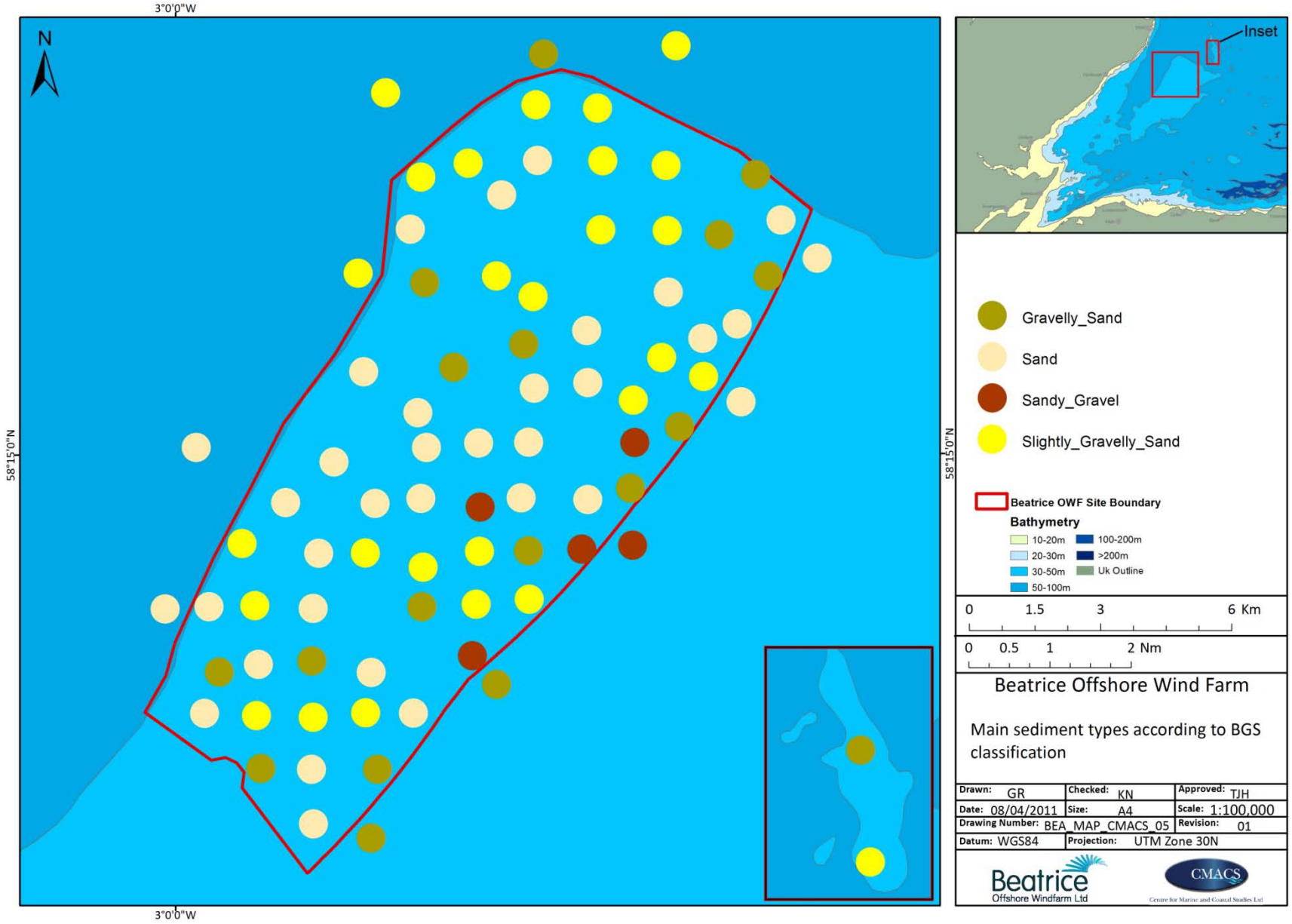

Figure 7. Main sediment types according to BGS classification.

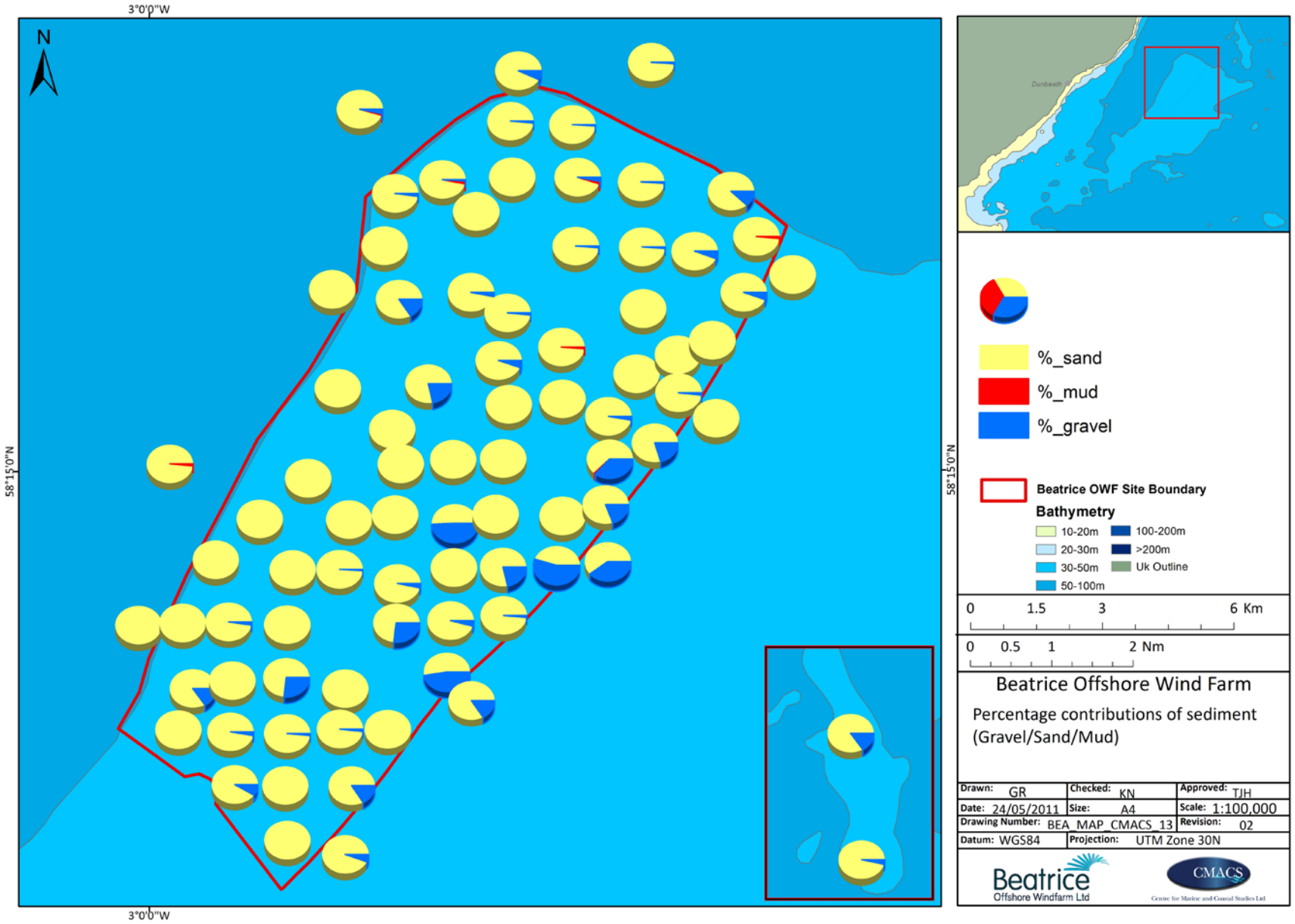

Figure 8. Percentage contributions of mud sand and gravel.

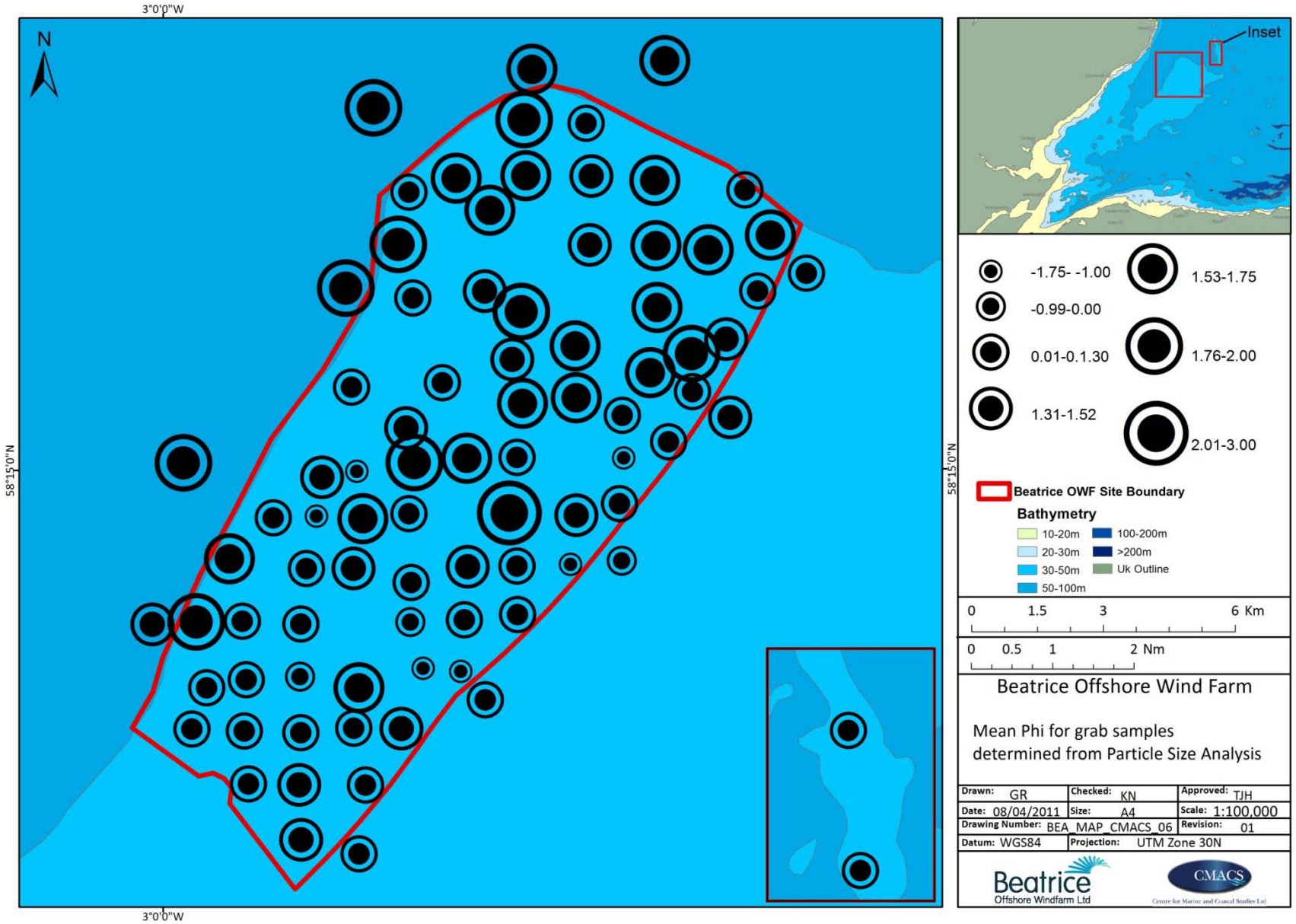

Figure 9. Mean phi for grab samples from PSA across the Beatrice Offshore Wind Farm site.

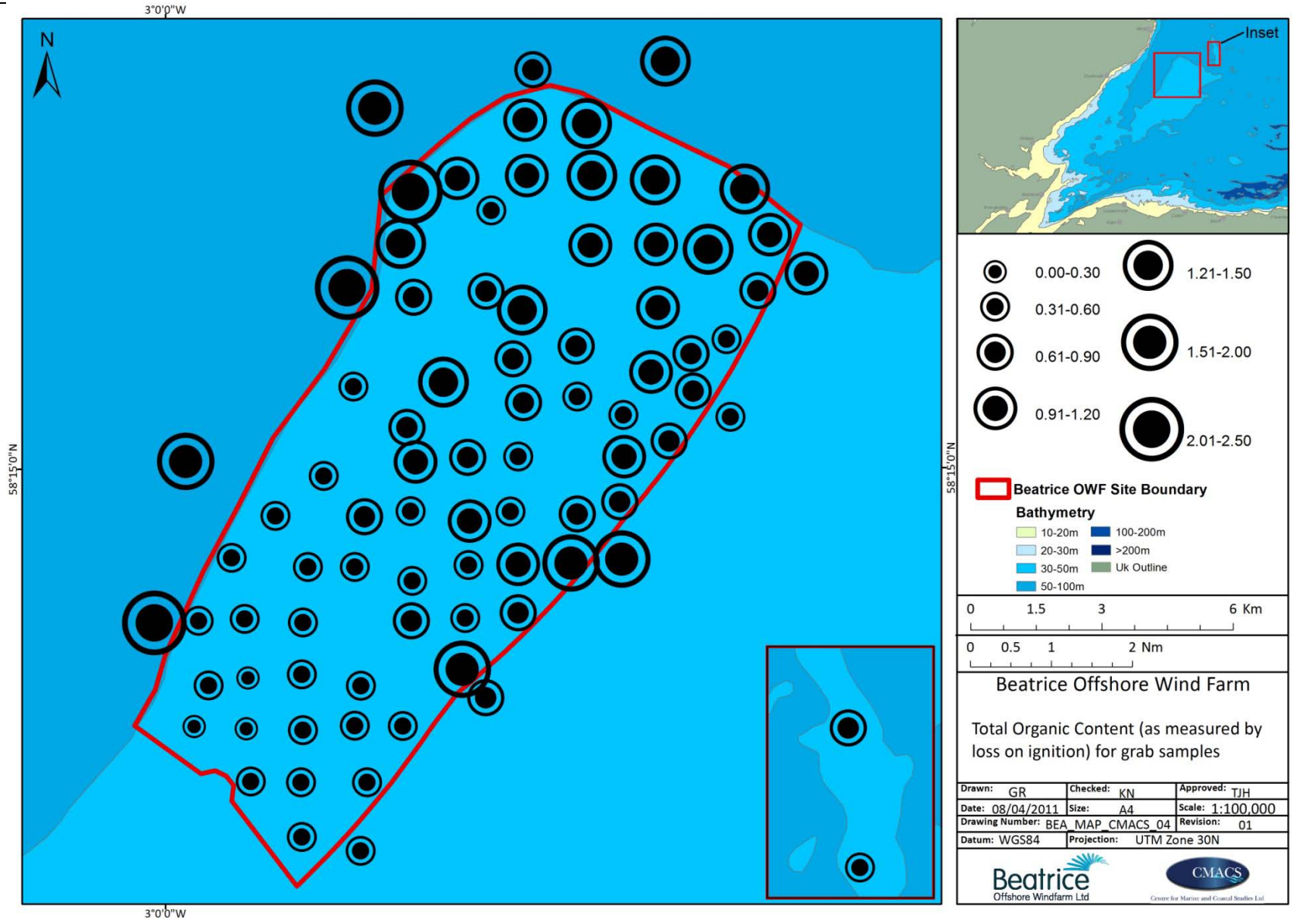

Figure 10. Total Organic Content (as measured by loss on ignition) for grab samples.

3.1.2. Contaminants analysis

There are no definitive guides to acceptable contamination levels; a common practice is to assess contamination levels against CEFAS or Marine Scotland action levels for the disposal of dredged material (Table 6) and / or the ISQG levels dictated by Canadian Interim Sediment Quality Guidelines (ISQG) (Table 5).

The Interim Sediment Quality Guideline (ISQG) levels given by Cole et al (1999) indicate threshold effect levels (TEL) and probable effects levels (PEL). Below the more conservative TEL it is thought that contaminants will have little or no effect on the environment, whilst levels above PEL are expected to show at least some effects on the environment. ISGQ levels are given for some heavy metals that are thought to be particularly harmful to the environment.

CEFAS guidelines have two 'action levels', contaminant concentrations below action level one are thought to be of no danger to the environment if disposed of at sea, whilst levels above action level two are considered unsuitable for disposal at sea. Marine Scotland has similar actions levels, though with slightly different values (see Table 6).

ISGQ and potential effecting levels for metals in Table 5 and CEFAS action levels 1 and 2 provided in Table 6.

Table 5. Interim Sediment Quality Guideline levels for metal compounds (mg/kg). TEL= Threshold Effects levels and PEL = Potential Effects levels.

Contaminant	TEL	PEL
Arsenic	7.24	41.6
Cadmium	0.7	4.2
Copper	18.7	108
Lead	30.2	112
Mercury	0.13	0.7
Nickel	n/v	n/v
Zinc	124	271

*values given in µg. g-1 dry weight (= mg/kg) (from Cole, S., Codling, I.D., Parr, W. & Zabel, T. 1999. Guidelines for managing water quality impacts within UK European marine stations. Prepared for the UK Marine SAC Project. Natura 2000). N/v = No Value

Table 6. "Action Levels" from CEFAS disposal of dredging aggregate at sea and from Marine Scotland

Contaminant/Compound	CEFAS		MARINE SCOTLAND	
	Action Level 1	Action Level 2	Action Level 1	Action Level 2
	mg/kg dry Weight (ppm)		mg/kg dry weight (ppm)	
As (Arsenic)	20	100	20	70
Hg (Mercury)	0.3	3	0.25	1.5
Cd (Cadmium)	0.4	5	0.4	4
Cr (Chromium)	40	400	50	370
Cu (Copper)	40	400	30	300

Contaminant/Compound	CEFAS Action Level 1	CEFAS Action Level 2	MARINE SCOTLAND Action Level 1	MARINE SCOTLAND Action Level 2
Ni (Nickel)	20	200	30	150
Pb (Lead)	50	500	50	400
Zn (Zinc)	130	800	130	600
TBT	0.1	1	0.1	0.5
DBT	0.1	1		
MBT	0.1	1		
PCBs, sum of ICES 7	0.01	None		
PCBs, sum of 25 congeners	0.02	0.2	0.02	0.018
DDT	0.001			
Dieldrin	0.005			
Naphthalene			0.1	
Acenaphthene			0.1	
Acenaphthylene			0.1	
Fluorene			0.1	
Phenanthrene			0.1	
Anthracene			0.1	
Fluoranthene			0.1	
Pyrene			0.1	
Benz[b]fluoranthene			0.1	
Benz[k]fluoranthene			0.1	
Benzo[a]pyrene			0.1	
Indeno[1,2,3-cd]pyrene			0.1	
Benzo[g,h,i]perylene			0.1	
Dibenz[a,h]anthracene			0.01	

Sediment contaminant data for 6 stations sampled on the Beatrice Offshore Wind Farm station are summarised in Table 7 and Table 8.

Table 7. Results of sediment analysis for hydrocarbon contamination

Determinant	Station 55	70	85	92	95	98
Total Poly Aromatic Hydrocarbons (ng/g)	<1	<1	<1	<1	<1	<1
Total Petroleum Hydrocarbons (mg/kg)	2.397	1.133	1.424	0.444	0.355	1.101

Table 8. Results of sediment analysis for metal contamination (mg/kg)

Contaminant	Station 55	70	85	92	95	98
Aluminium (Tot.OES)	10700	14400	8540	7270	13500	12100
Arsenic (HF-MS)	6.5	5.7	5.6	3.4	6.2	4.3
Barium (Tot.OES)	159	214	273	133	199	205
Cadmium (HF-MS)	0.1	0.1	0.1	0.1	0.1	0.1
Chromium (HF-MS)	11.4	14.1	11.3	11	10.9	9.4
Copper (HF-MS)	3.8	4.7	3.9	4.9	2.6	1.3
Lead (HF-MS)	16.5	10.9	12.8	8.5	7.2	8.2
Mercury (Tot.MS)	0.01	0.01	0.01	<0.01	0.01	0.01
Nickel (HF-MS)	2.8	2.9	3.4	2	2.5	15.1
Tin (HF-MS)	1.2	0.8	0.9	0.6	0.5	0.5
Vanadium (HF-MS)	19.2	20.9	18.2	16.3	19.5	17.7
Zinc (HF-MS)	17.2	15.8	13.1	9.9	11.8	12.4

Contaminant analysis of samples taken show that all stations have low levels of contamination, well below the low threshold level as determined by ISQG levels, CEFAS action one levels and Marine Scotland action one levels. Low levels of all metal compounds tested were present except for mercury at station 92 where it was below the detectable limits. At all other stations there was only a trace amount of mercury.

There is a concentration of wellheads in the south of the wind farm area; however there does not appear to be an obvious trend in concentration of metals and hydrocarbons with distance from wellheads. Station 92 for example, is located within close proximity of several wellheads and had the lowest concentrations for all contaminants tested. A number of examples of the distribution of contaminants are given in map form in Figure 11 to Figure 14.

Levels of barium were reasonably high compared to most of the other metals (Table 8); however there are no advisory contamination levels for barium, which is a relatively inert metal that is widely used in drilling muds to add weight, and can therefore be used as an indicator for possible contamination by drilling activities. According to CEFAS (2001) mean values for total barium in sediments within 500m of active oil and gas installations in the North Sea were over 33,500 mg/kg, with elevated levels of around 1100 – 1200 mg/kg within 500 - 1500 m, and a mean of 320 mg/kg for samples taken over 5 km from the installations. Values of 133 – 273 mg/kg total barium found in this survey therefore clearly do not indicate any gross contamination. The highest level was at station 85 in the south west region of the area, whilst the lowest was in close proximity to several wellheads at station 92 (Figure 11).

Concentrations of vanadium were lower in the southern extent of the survey area with lowest concentrations found at station 92 and highest concentrations at station 70 further to the north (Figure 12). Similarly, nickel concentrations were lowest at station 92 (Figure 13). Station 98,

also located in the far south of the survey area showed higher levels of nickel than any other of the six contaminant stations (Figure 13).

Concentrations of Total Petroleum Hydrocarbons (TPH) also showed no obvious trend with distance from wellheads. Station 92 is situated very close to numerous wellheads and this again has among the lowest concentrations for all contaminants tested. Station 55 to the north did show increased levels compared to other stations further to the south (Figure 14). Many n-alkanes were not detected and those which were detected were at low levels; results for these are presented in Appendix 3.

Although there are no guideline values with which to compare these levels, the levels are all typically around 2 parts per billion (ppb) or less which is clearly very low.

PAHs were not detected in any of the samples. The results are presented for completeness in Appendix 4 since this details the precise suite of PAHs that was investigated.

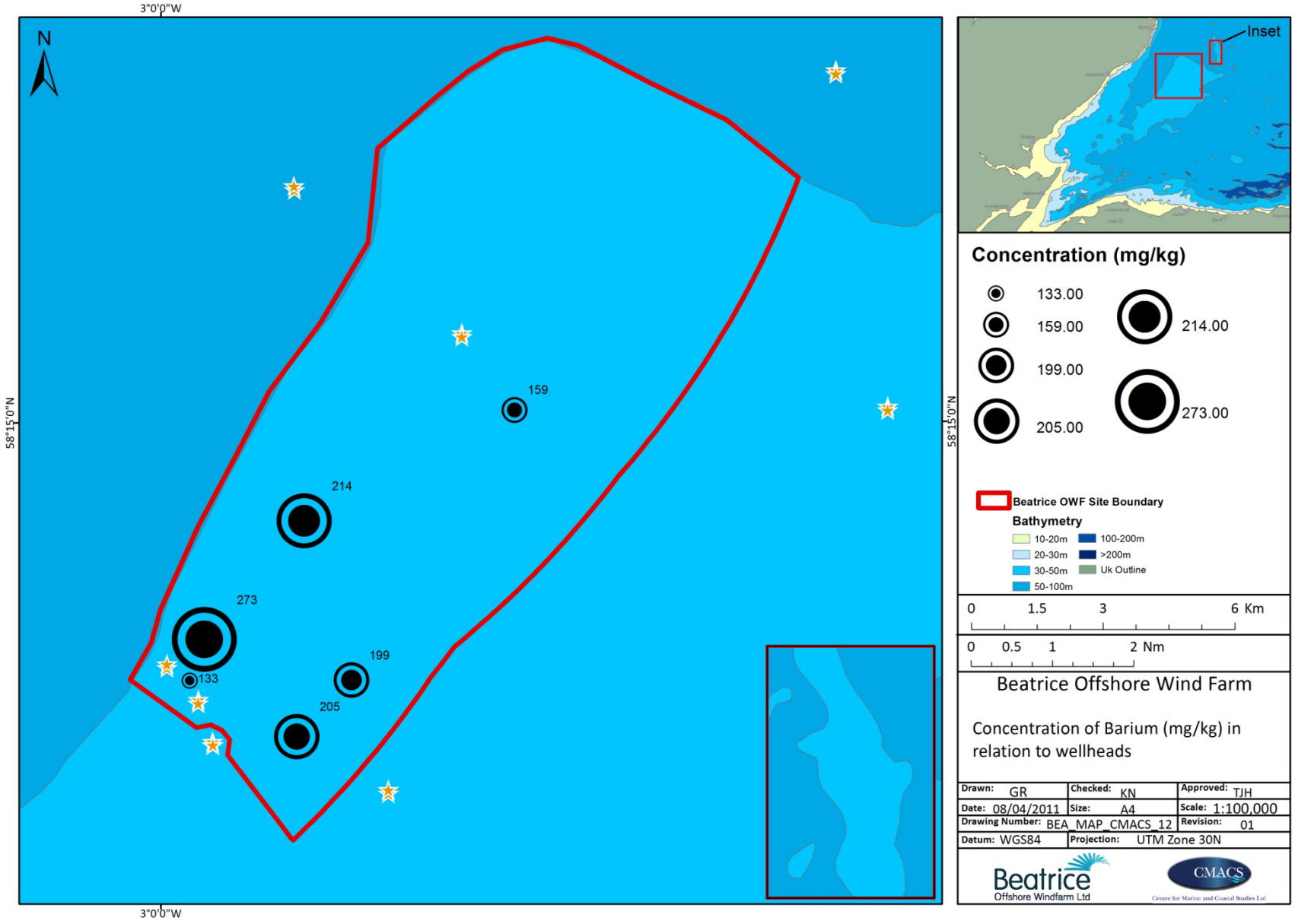

Figure 11. Concentrations of Barium (mg/kg) at contaminant stations in relation to wellheads.

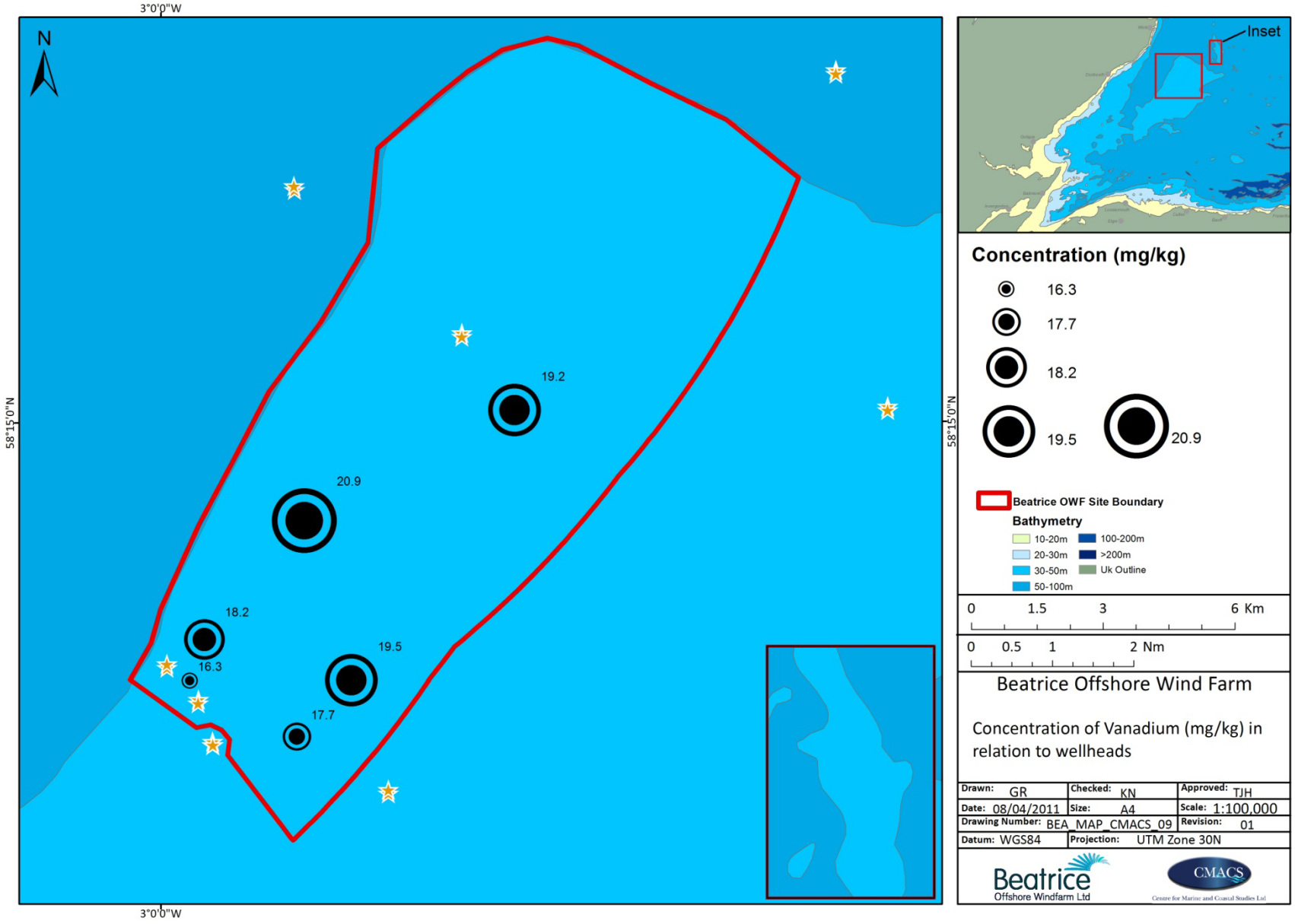

Figure 12. Concentrations of Vanadium (mg/kg) at contaminant stations in relation to wellheads.

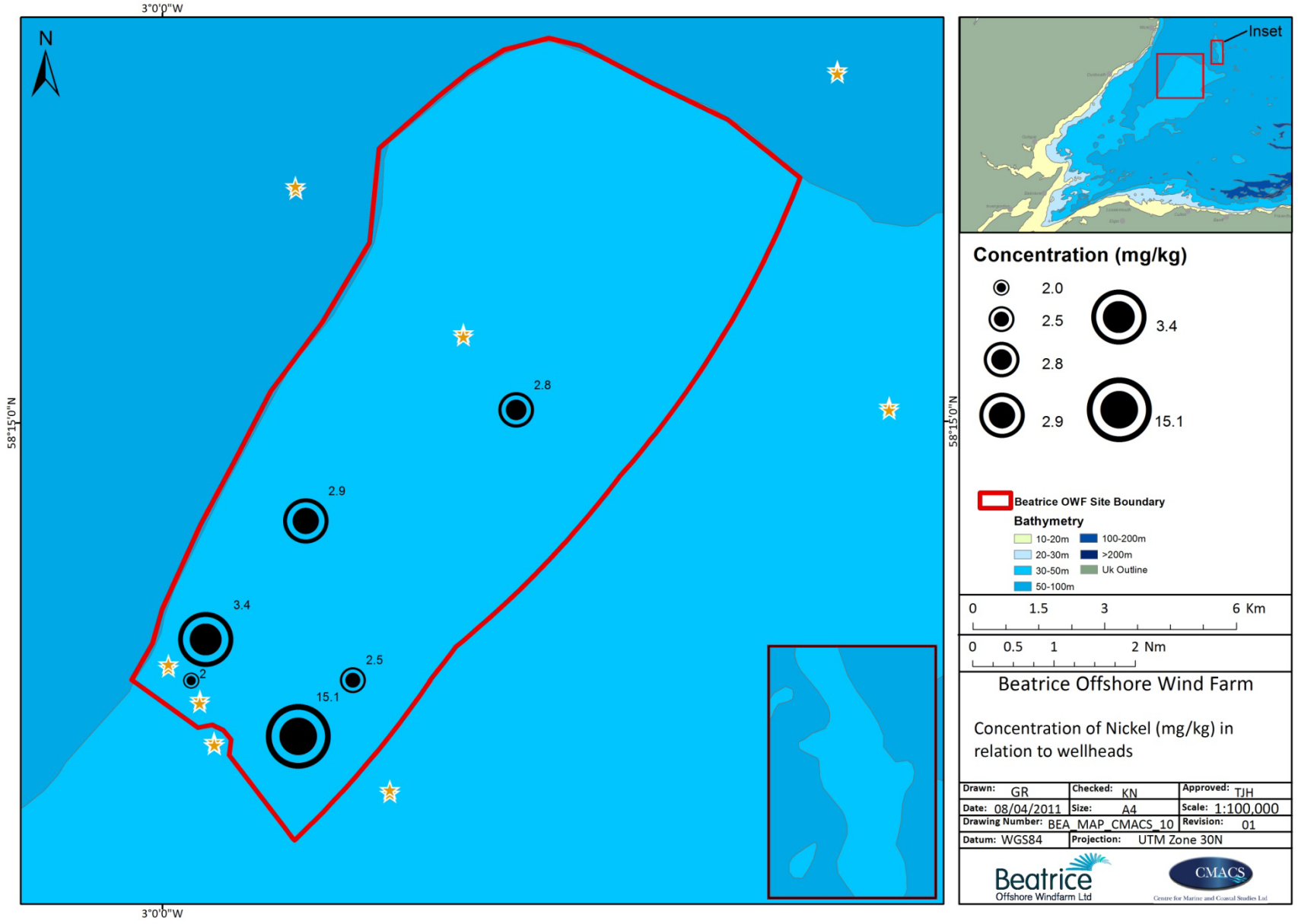

Figure 13. Concentrations of Nickel (mg/kg) at contaminant stations in relation to wellheads.

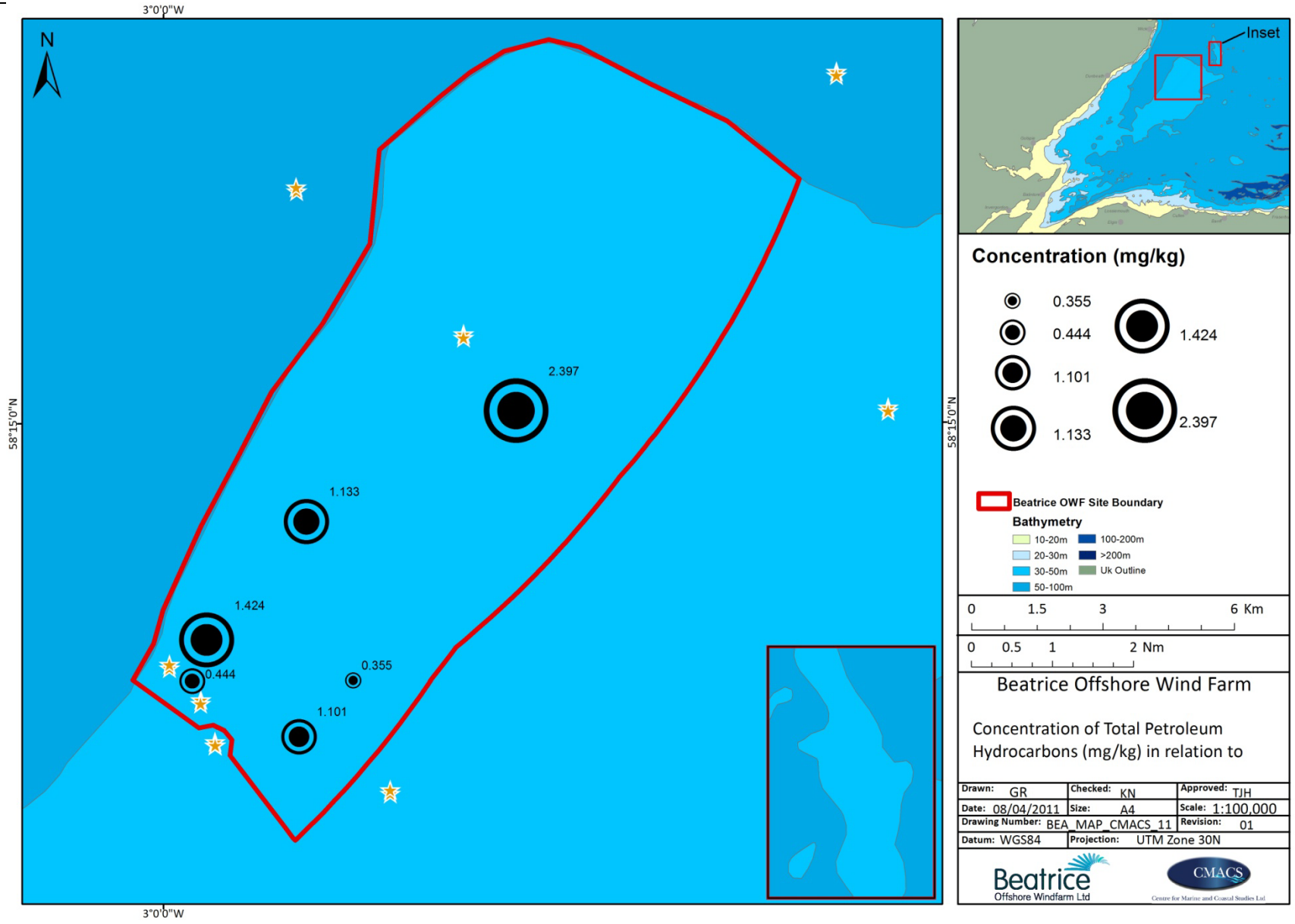

Figure 14. Concentrations of Total Petroleum Hydrocarbons (mg/kg) at contaminant stations in relation to wellheads.

3.1.3. Fauna

3.1.3.1. Enumeration and diversity

Raw faunal data are provided in Appendix 5.

A total of 8286 individuals from 356 taxa were found in the grab samples, of which the majority were identified to genus or species level, but some were only resolved to higher taxonomic levels (e.g. phylum 'Nematoda').

Summary data for the most abundant overall taxa is given in Table 9 and total taxa and total individuals per grab station are mapped in Figure 15 and Figure 16. Distribution of selected abundant species is mapped in Figure 20 - Figure 24.

Taxa

The infaunal component of the fauna was, as expected from existing data from the area, very rich, with 356 taxa recorded from the 84 grab samples. Numbers of different taxa was greatest in the central eastern region of the Beatrice Offshore Wind Farm survey area (Figure 15) where sediment data suggested sediment types were predominantly gravelly sand and slightly gravelly sand (Figure 7). The station with the highest number of taxa was Station 75, located on the eastern edge of the survey area at which 100 different taxa recorded; the sediment here was a poorly sorted sandy gravel. The station with the lowest number of taxa was Station 45, a nearfield station also on the eastern edge of the survey area with only 7 different taxa recorded. The sediment at this station was well sorted medium sand with a low (2%) gravel content – slightly gravelly sand according to the BGS classification. These results are typical for UK waters, since mobile well sorted sands tend to have low richness and diversity and more gravelly or mixed sediments tend to be much more rich and diverse.

Individuals

There were also quite high numbers of individuals, dominated by *Spiophanes bombyx* (a ubiquitous polychaete worm species occuring in many biotopes around the British Isles) and the tiny fanworm *Jasmineira caudata*, a relatively widespread species in British waters that does not seem to be strongly indicative of any particular biotope, and in fact is rarely mentioned in biotopes species lists (Connor et al, 2004). Biotopes are discussed further below.

Similar to the trend with number of taxa, the highest numbers of individuals recorded was greatest in the central eastern part of the survey area and to some extent the north western region (Figure 16). The station with the largest number of individuals was Station 90, located on the eastern boundary with 596 individuals recorded. The station with the fewest recorded individuals was again the sandy Station 45 with only 10 individuals recorded.

As expected, the Shannon Wiener diversity metric also showed higher diversity indices in stations located along the eastern edge of the survey area particularly in the more central region where sediments are identified to be gravelly sand and sandy gravel (Figure 17).

The north and western application site boundary runs along the edges of the north western region of Smith Bank. Any differences in terms of taxa/individuals recorded and diversity indices between those stations on the bank and those stations off the bank are comparable to the differences found between stations across the wider survey area.

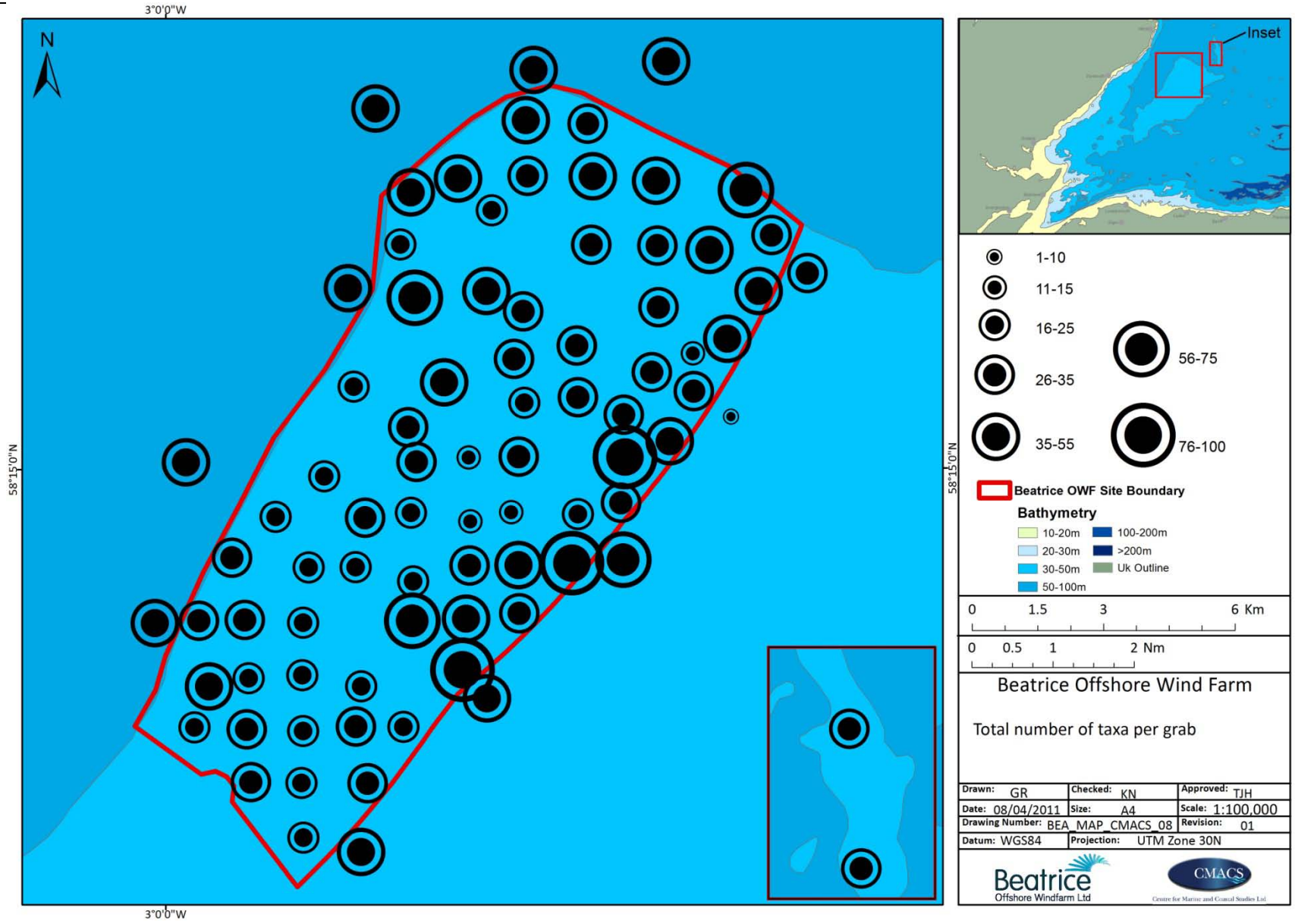

Figure 15. Number of taxa in the grab at each grab station.

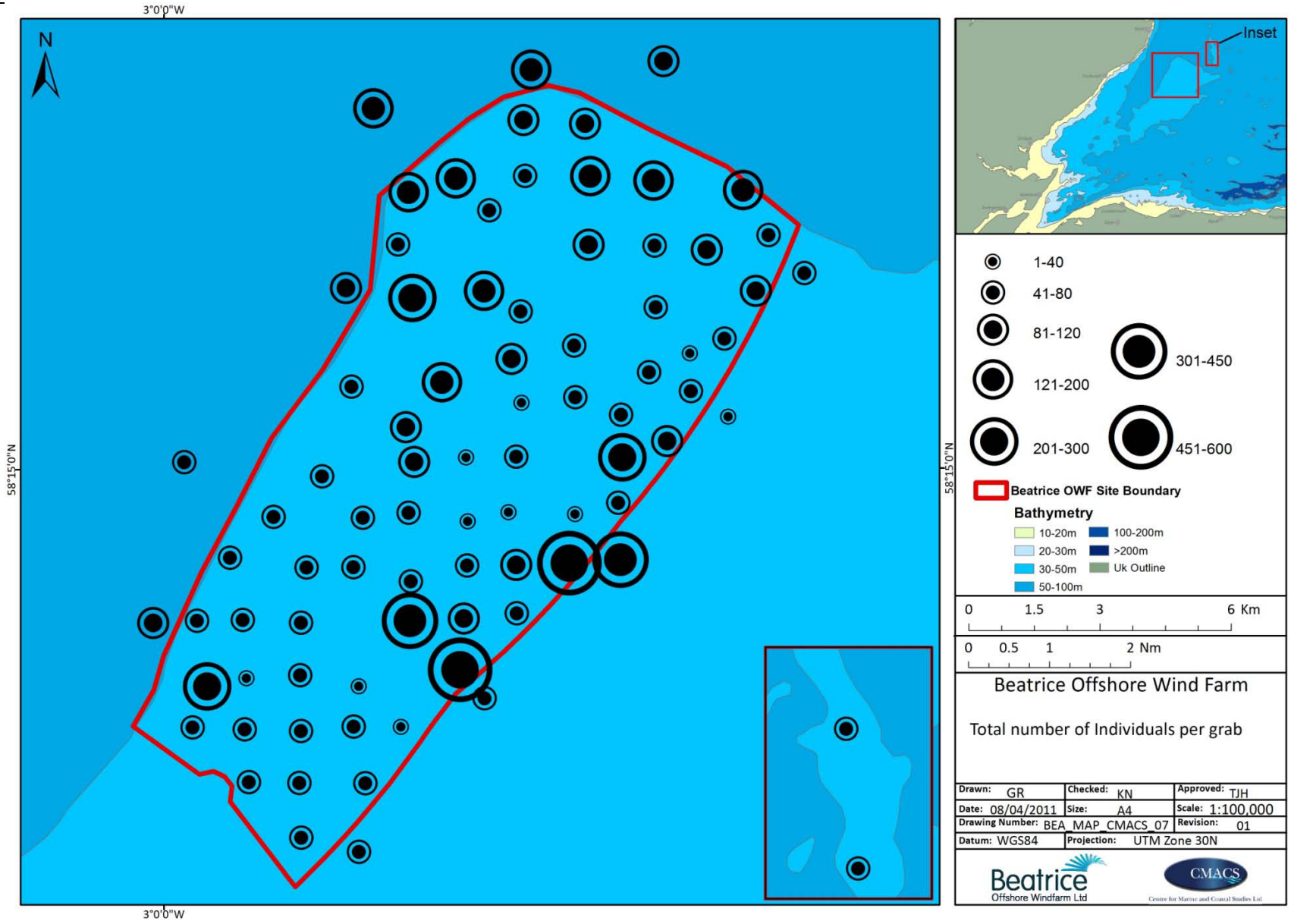

Figure 16. Total number of individuals per grab at each grab station.

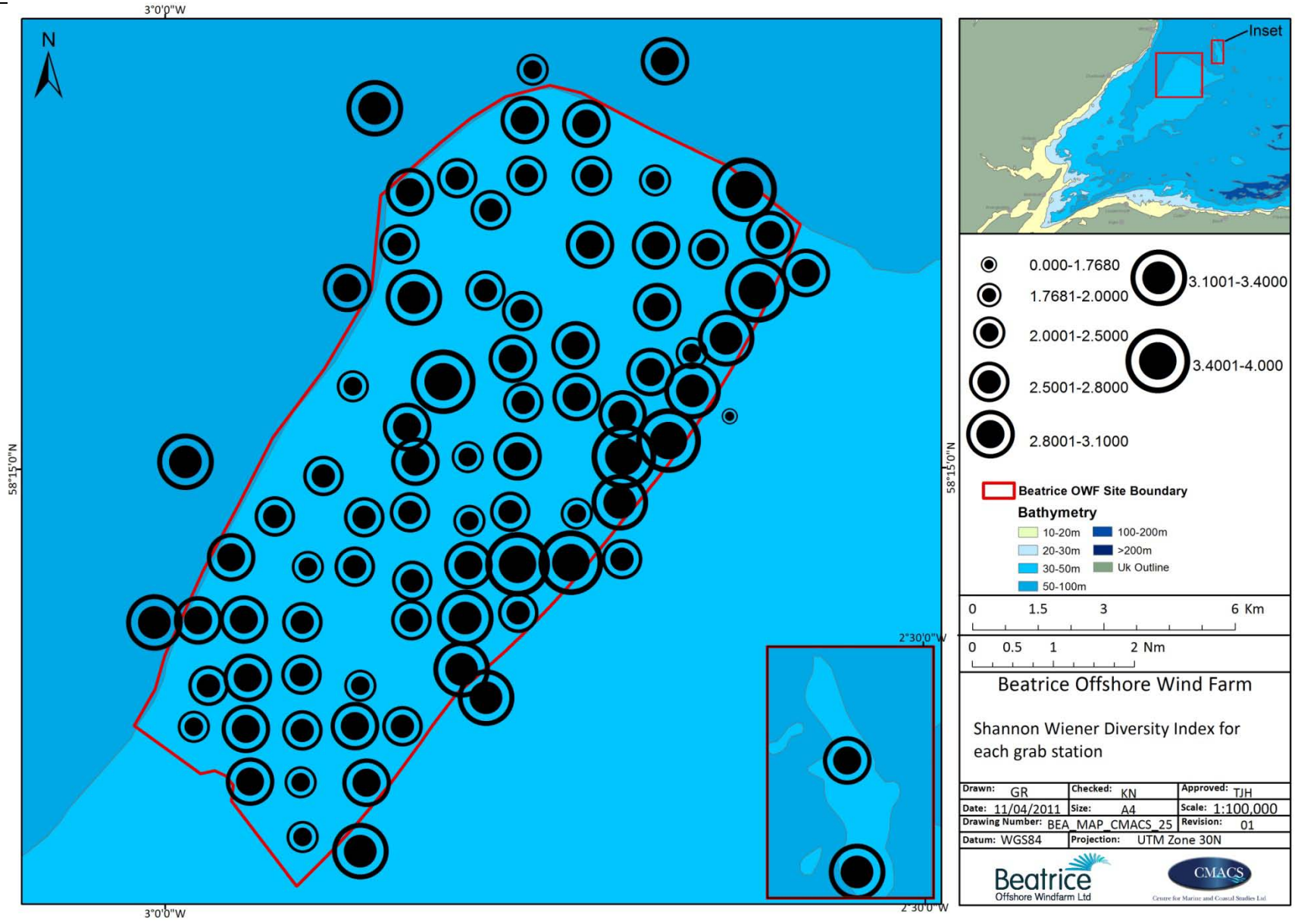

Figure 17. Shannon Wiener diversity index of faunal grab sample at each grab station.

3.1.3.2. Species composition

In general, the dominant faunal group across the study area were annelid worms accounting for 38% of all taxa (Figure 18) and 62% of individuals (Figure 19) recorded. Of almost 8300 countable organisms recorded, 5125 were annelid worms, of which virtually all were polychaetes (along with a small number of unidentified oligochaetes).

Polychaete worms were very much the most abundant group found in terms of both numbers of taxa and numbers of individuals, including the two highly abundant taxa (*S. bombyx* and *J. caudata*) discussed above, and also the encrusting tubeworms *Hydroides norvegica* and *Pomatoceros triqueter*, although in these cases the high totals were mostly due to high numbers of individuals encrusting stones at a limited number of stations.

Molluscs were the next most abundant group, though only three bivalve species (*Cochlodesma praetenue*, *Moerella pygmaea*, and *Gari fervensis*) were found at abundances averaging more than one per grab. All of these polychaete and mollusc species are common and widespread species in British waters that have frequently been found in the Moray Firth.

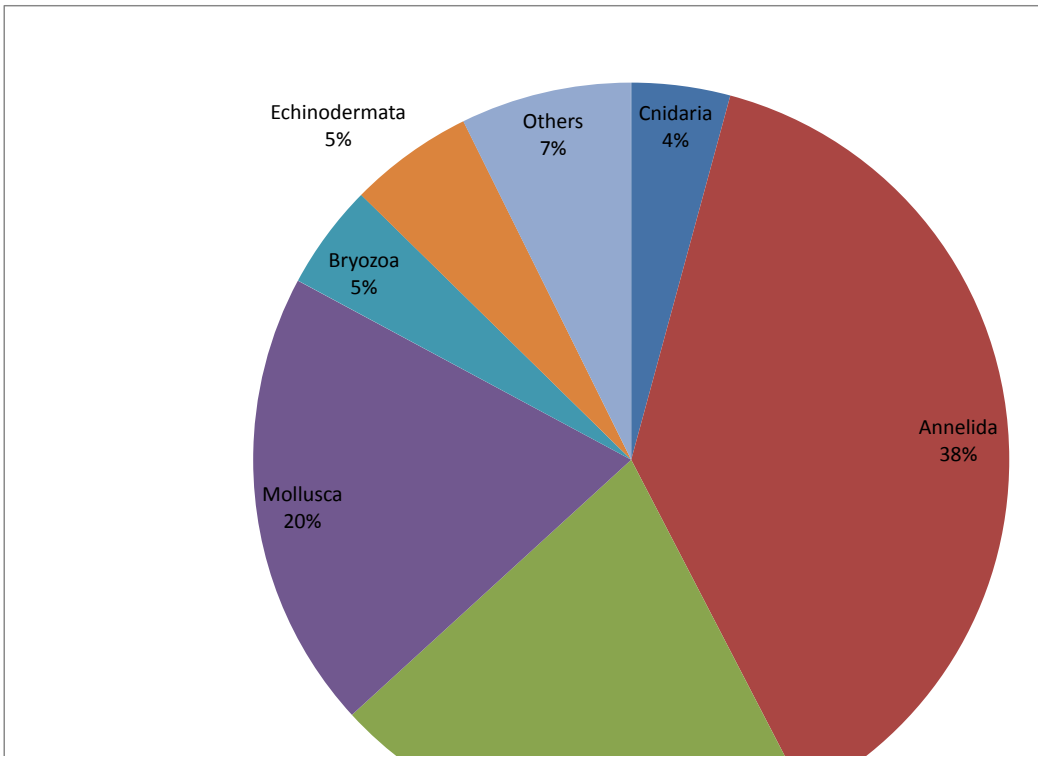

Figure 18. Numbers of taxa by major group (N.B. Others category includes Porifera, Platyhelminthes, Nemertea, Entoprocta, Sipuncula, Chelicerata, Phoronida and Tunicata)

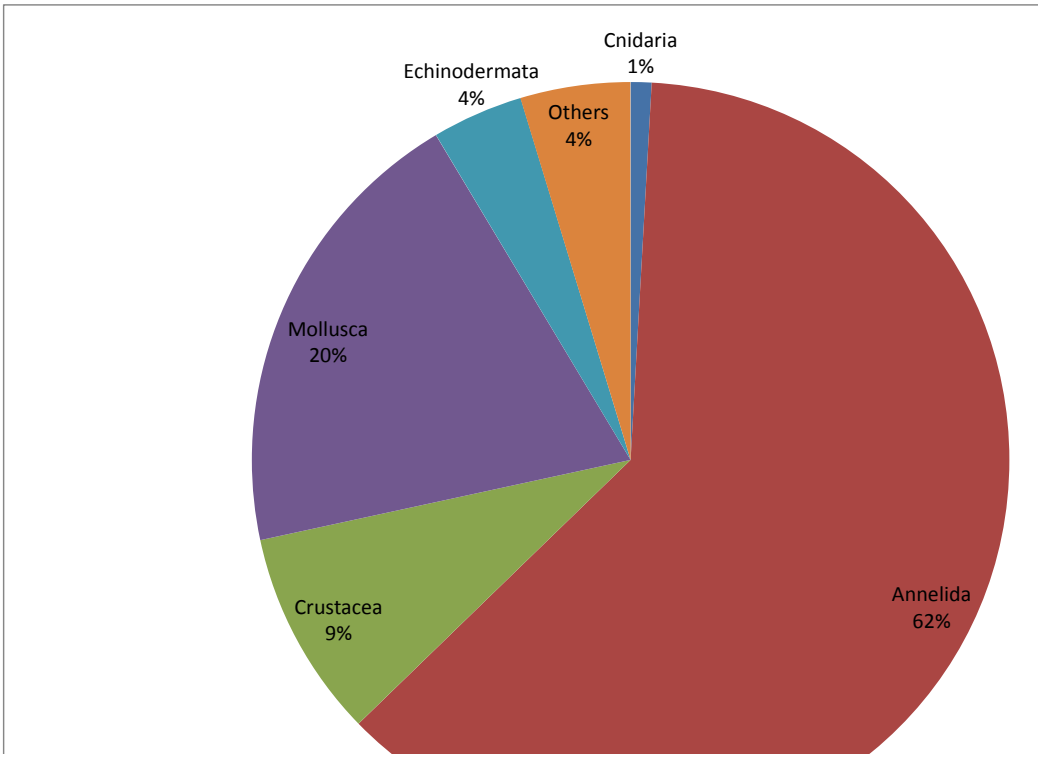

Figure 19. Numbers of individuals by major group (NB colonial species such as bryozoa not included)

Colonial taxa were present relatively infrequently, larger amounts being restricted to just a few stations, and were mostly dominated by hydroids and bryozoa with very low amounts of other groups such as sponges for example.

Colonial taxa were more abundant at grab stations 75, 76, 82, 90 and 91 (Appendix 5) which all lie in the eastern central area of the survey area, stations 76 and 91 being nearfield stations on the eastern edge of the survey area. These stations were grab only stations and sediment type was predominantly sandy gravel and gravelly sand (Figure 7) with much greater % gravel content than the majority of stations across the station (Figure 8).

Table 9. Summary of the most abundant taxa overall from the grab survey

Group	Species	Total number
Polychaete	*Spiophanes bombyx*	1307
Polychaete	*Jasmineira caudata*	575
Polychaete	*Hydroides norvegica*	486
Mollusc	*Cochlodesma praetenue*	286
Mollusc	*Moerella pygmaea*	282
Polychaete	*Ophelia borealis*	255
Polychaete	*Pomatoceros triqueter*	240
Polychaete	*Glycera lapidum*	184
Echinoderm	*Echinocyamus pusillus*	176
Polychaete	*Notomastus latericeus*	171
Mollusc	*Gari fervensis*	167
Nemertea	Nemertea spp.	151
Crustacea	*Galathea intermedia*	126
Polychaete	*Aonides paucibranchiata*	108
Polychaete	*Owenia fusiformis*	88
Mollusc	*Abra prismatica*	79
Polychaete	*Poecilochaetus serpens*	76
Sipunculid	*Phascolion strombus*	74
Polychaete	*Nephtys cirrosa*	70
Polychaete	*Lumbrineris gracilis*	69
Mollusc	*Dosinia* spp. juv.	69
Anemone	*Edwardsia* sp.	66
Polychaete	*Clymenura johnstoni*	66
Mollusc	*Leptochiton asellus*	66
Mollusc	*Euspira pulchella*	66
Phoronid	*Phoronis* spp.	66
Mollusc	*Crenella decussata*	59
Mollusc	*Phaxas pellucidus*	58
Mollusc	*Tellina fabula*	58
Polychaete	*Aricidea cerrutii*	57
Echinoderm	*Amphiura filiformis*	54
Polychaete	*Spio armata*	50
Polychaete	*Pista cristata*	50
Polychaete	*Scoloplos (scoloplos) armiger*	45
Nematode	Nematoda spp.	42
Polychaete	*Thelepus cincinnatus*	41
Mollusc	*Clausinella fasciata*	41

In addition 111 copepoda spp. were found but these were pelagic taxa that were ignored in data analyses

3.1.3.3. Individual taxa

Spiophanes bombyx

This fairly ubiquitous polychaete was the most abundant species recorded with a total of 1307 individuals across the station and presence at 79 out of 86 stations (Figure 20). *S. bombyx* was widespread across the survey area with the greatest abundances in the predominantly sandy area to the north.

Jasmineira caudata

This small fanworm was the second most abundant species recorded during the grab survey (575 individuals) but was recorded at relatively few stations overall (25 out of 86). *J. caudata* was fairly widespread across the survey area (Figure 21) but most abundant at Station 76, a nearfield station along the Eastern edge of the survey area with a total of 164 individuals recorded. This is a very small, widespread and often abundant species in UK waters that does not feature conspicuously in previous surveys of the Smith Bank area.

Hydroides norvegica

This encrusting tubeworm was recorded at 23 out of 86 stations, although fairly widely distributed across the survey area (Figure 22). Stations on the eastern edge showed higher abundances overall. The highest abundance of *H. norvegica* at any one station was 104, recorded at station 90. Areas along the eastern edge of the station, particularly in the central region where abundances where highest are dominated by sandy gravel and slightly gravelly sand (Figure 7).

Cochlodesma praetenue

A bivalve mollusc, *C. praetenue* was common at stations across the station, being recorded at 64 out of 86 stations with a total of 286 individuals (Table 9). *C. praetenue* was less abundant in the south and east of the survey area (Figure 23). However, *C. praetenue* was rarely highly abundant with the highest abundance being 19 individuals at station 53. This species has been recognised by previous workers as contributing the highest biomass of any species on the Smith Bank.

Tellina pygmaea

Tellina pygmaea, a bean-shaped tellin known until recently as *Moerella pygmaea*, was recorded at 56 out of 86 stations with a total of 282 individuals (Table 9). Abundances were lower, although the species was not completely absent, in the northern area of the station (Figure 24) with higher abundances found in the central western region of the station, particularly stations 38, 48, 51 and 70. This species has been reported by previous workers as being abundant on at least the southern part of the Smith Bank.

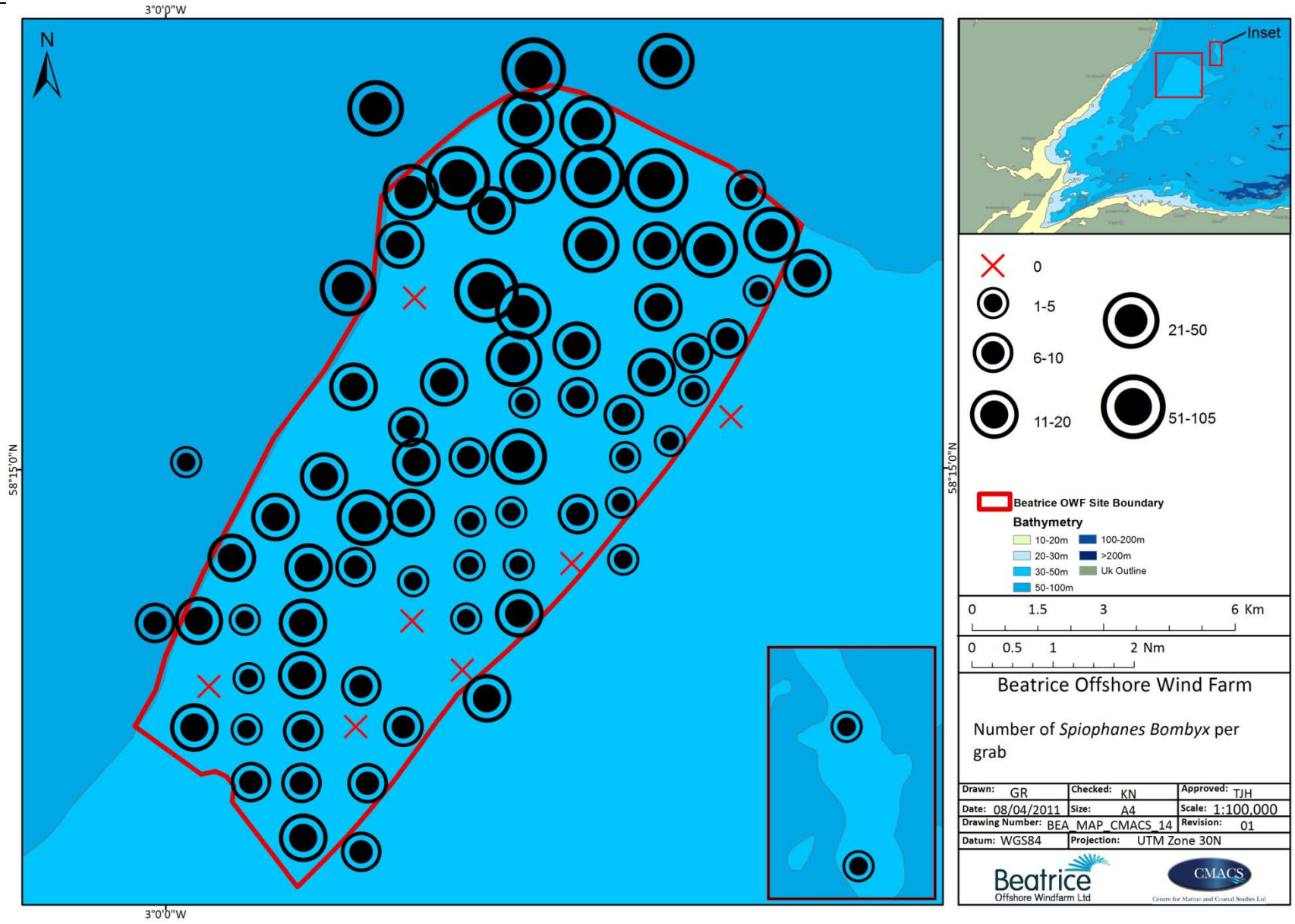

Figure 20. Distribution of *Spiophanes bombyx* from the grab survey.

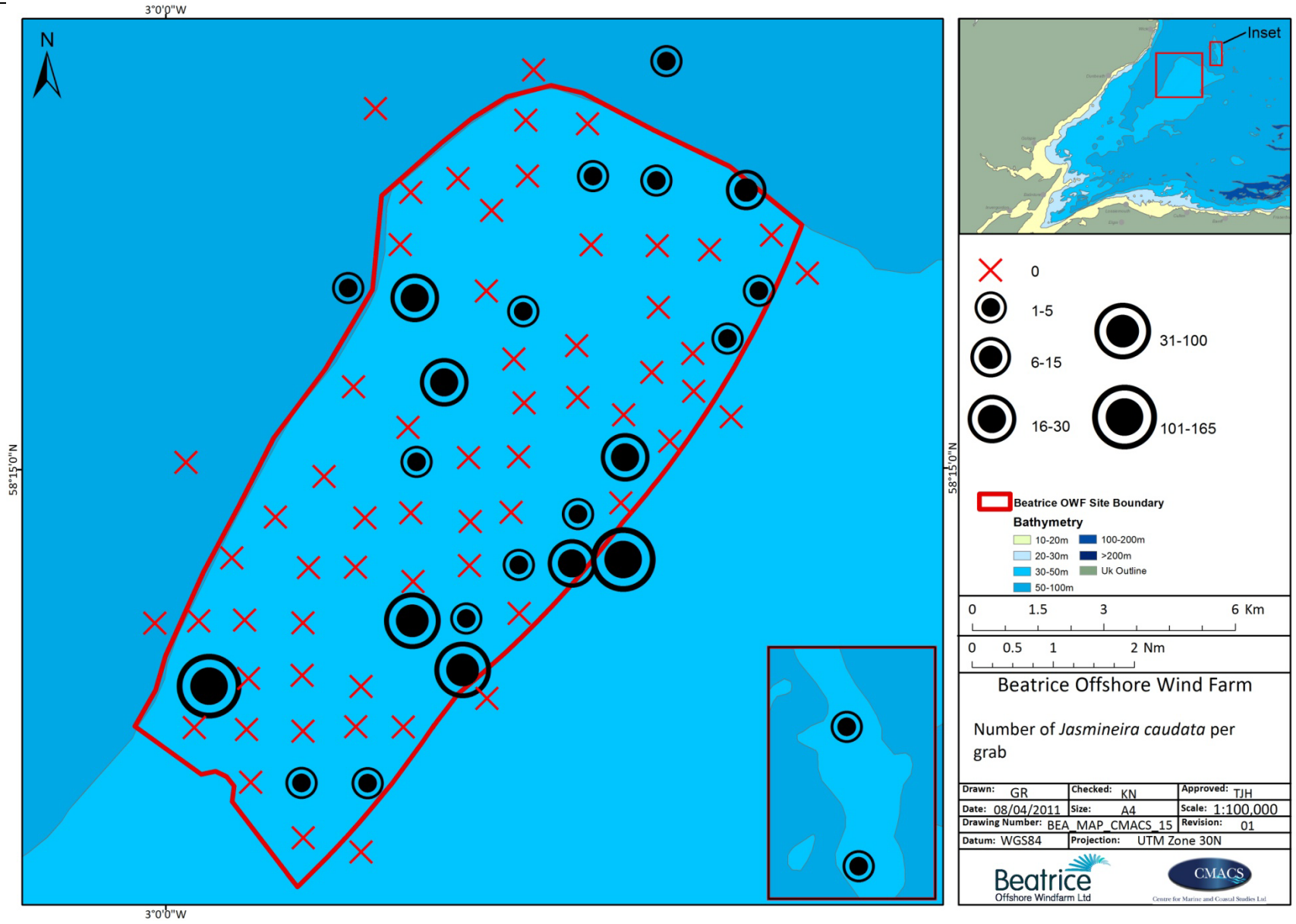

Figure 21. Distribution of *Jasmineira caudata* from the grab survey.

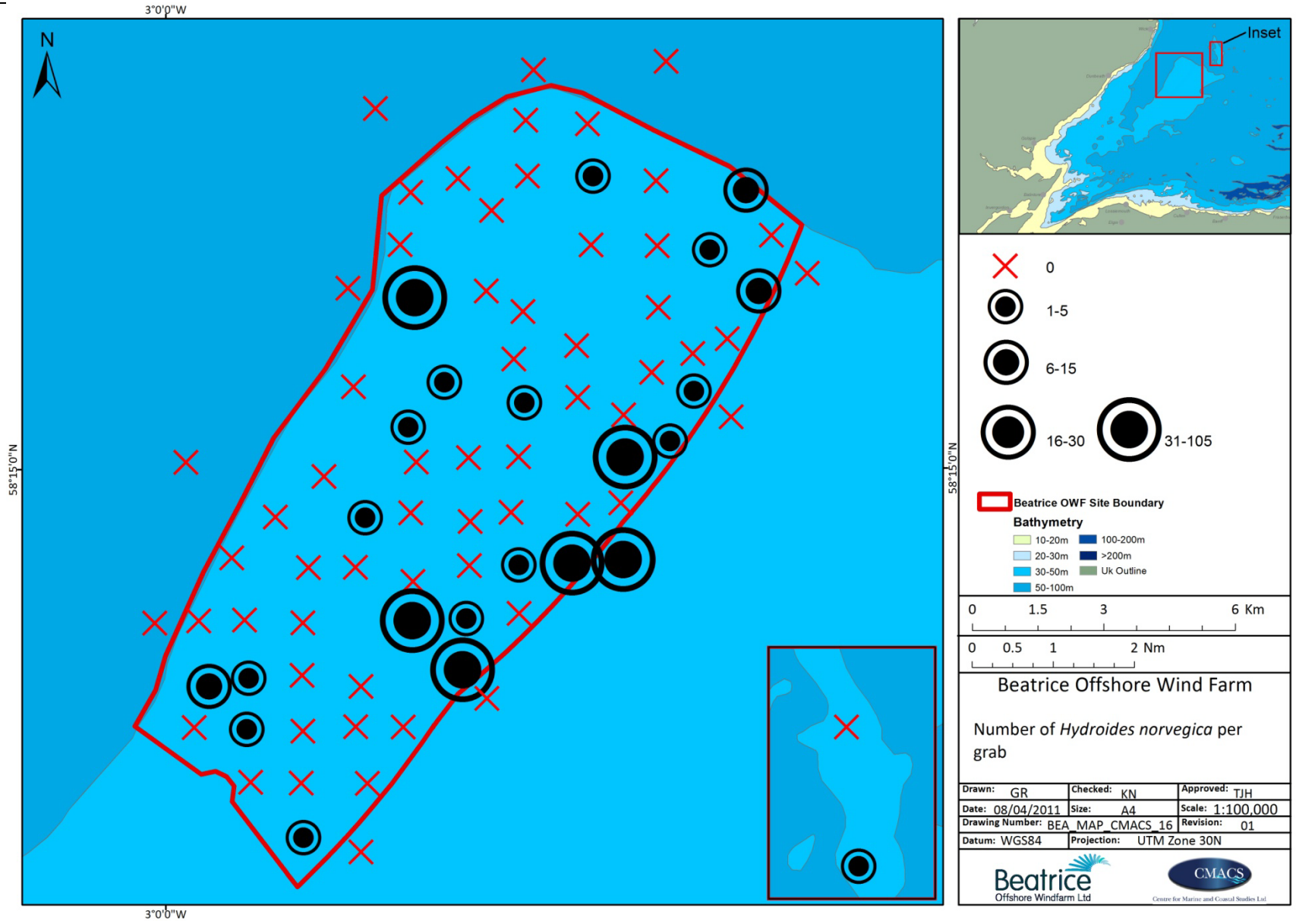

Figure 22. Distribution of *Hydroides norvegica* from the grab survey.

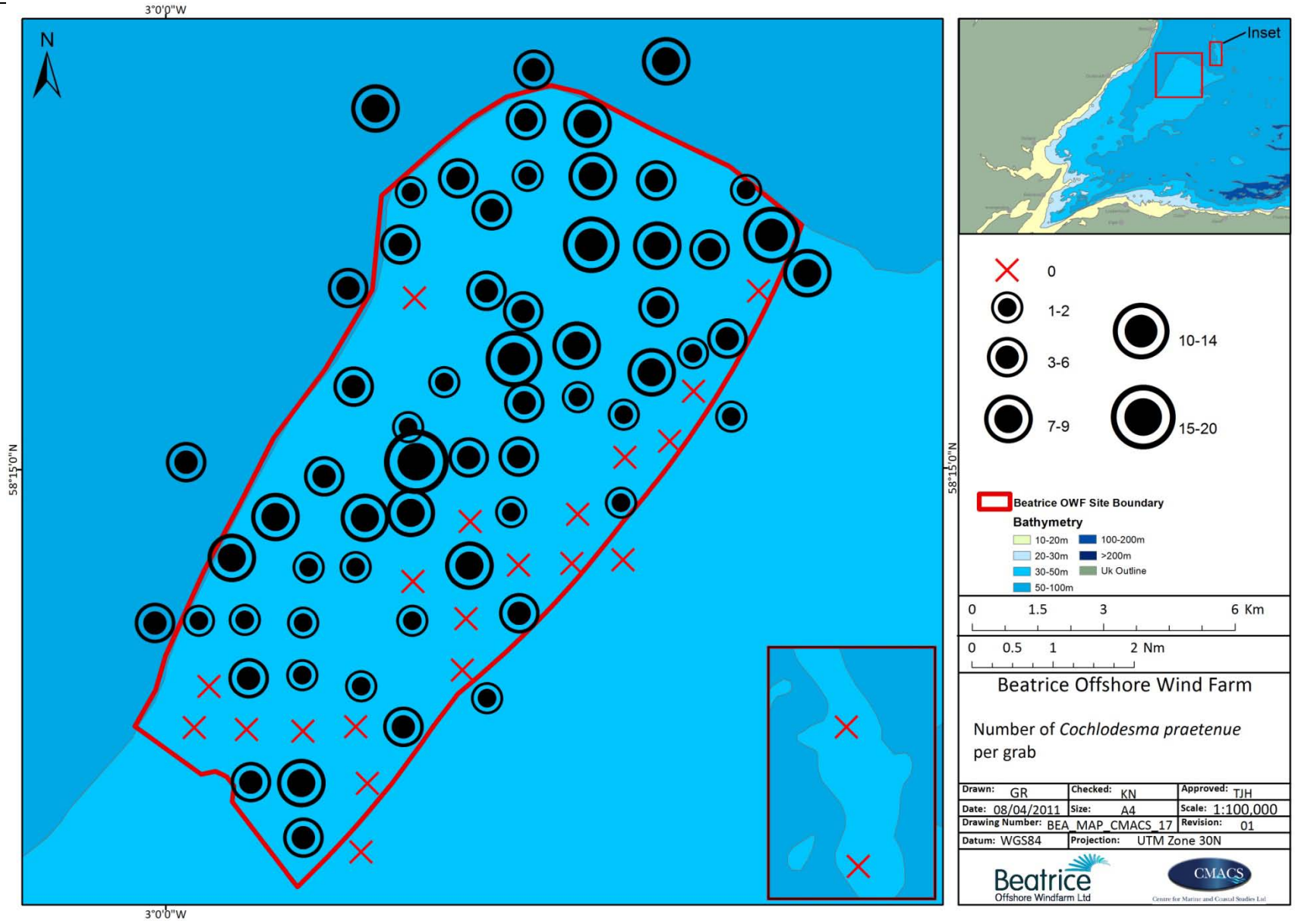

Figure 23. Distribution of *Cochlodesma praetenue* from the grab survey.

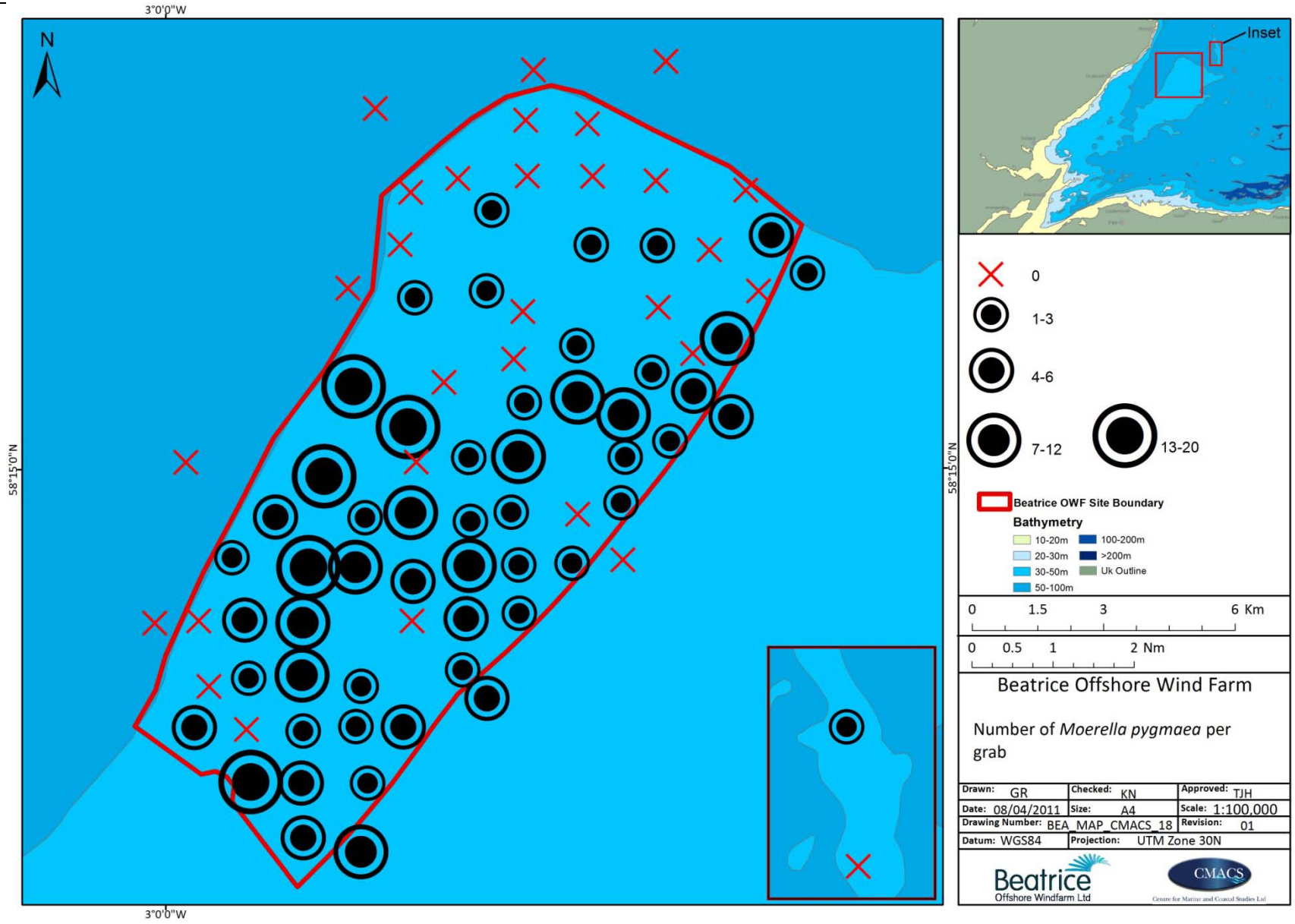

Figure 24. Distribution of *Tellina pygmaea* from the grab survey.

3.1.3.4. Species of note

There were no potential reefs formed by species such as horse mussel *Modiolus modiolus* or *Sabellaria spinulosa* that would qualify as Annex 1 habitats under the EU Habitats Directive[2] in any of the grabs – neither species was found even as occasional individuals in the grabs (while none were seen in the camera survey, and only a single *M. modiolus* was found in the trawls, see later). There were small numbers of greater sandeel *Hyperoplus lanceolatus* (15 in total from 84 stations). Sandeels of this species and also *Ammodytes tobianus* were also frequent in the beam trawls. These important prey species are discussed in more detail in the section on fish communities (section 3.3.2).

Three very small specimens of the bivalve *Arctica islandica* (a priority marine feature, see SNH website) were recorded, but no adults – although it is possible that the adults would be more deeply buried in the sediment and less likely to be regularly recorded in grab samples anyway. This species is very large and slow growing and thought to be vulnerable to fishing impacts. The *A. islandica* appear, at least in this survey, to be associated with the MoeVen biotope (see below). Aside from the overall richness of the community, nothing else of special interest in terms of individual invertebrate species was found.

3.1.3.5. Biomass

Ash free dry weight biomass data for all samples are given in Appendix 6, based on the conversion factors from measured wet weight given in Appendix 1. Biomass varied quite considerably between stations with total biomass ranging from 0.05 g/m^2 at Station 45 to 55.60 g/m^2 at Station 88 (Figure 25). When compared to the number of individuals per grab (Figure 16) there is no strong trend. To a degree, biomass levels did apparently mirror overall trends shown in number of taxa and number of individuals recorded across the survey area with higher biomass totals recorded at stations located along the eastern edge of the survey area. However, some stations with larger numbers of individuals did not have high total biomass levels, while station 88 recorded just 26 individuals from 16 different taxa but recorded the highest total biomass of 55.6 g/m^2. Biomass levels for Station 88 were dominated by a single large echinoderm, *Spatangus purpureus*. *S. purpureus* is a large brightly coloured burrowing heart urchin common in sands and gravels around the British Isles.

Similarly, at Station 75 with a high biomass of 38 g/m^2, nine green sea urchins (*Echinocyamus pusillus*) which are small, flat burrowing heart urchins and one *S. purpureus* were recorded.

Overall, biomass was dominated by molluscs (41.8% of total AFDW biomass for the survey as a whole) followed by echinoderms and polychaetes (28.7% and 24.6% respectively) with crustaceans and "others" contributing only 3.3 and 1.7% respectively.

Biomass was generally highest along the north eastern boundary of the survey area and at some stations in the southern area, with lowest values mostly in the central, northern and western areas. There appeared to be a slight tendency for the sandier sediments to have lower values, but this was far from consistent.

[2] Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild flora and fauna.

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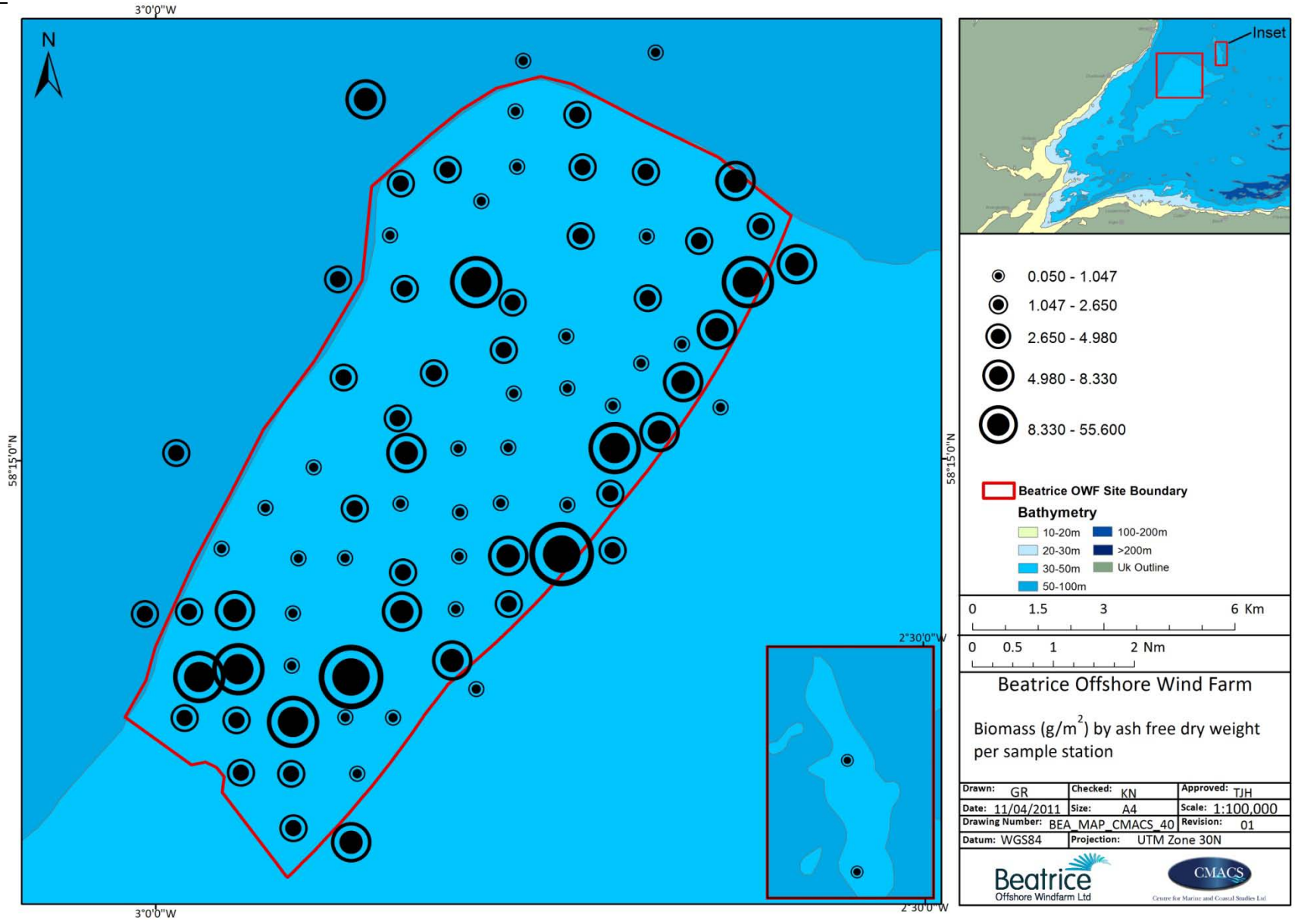


Figure 25. Biomass by ash free dry weight (AFDW) at each grab station.

3.2. Camera survey

A complete set of photographs and video footage from all stations visited during this survey has been collated electronically. However, a brief description of each main habitat observed and recorded using the drop down camera follows, in addition to an example image of each habitat type described (Figure 26). More detailed notes from all camera records are given in Appendix 7.

In interpreting the following comments it should be noted that determination of sand size fractions (fine, medium, coarse sand etc) is not easy from video or stills images, and moreover the visible sediment surface does not always accurately reflect what is immediately below the surface; for example there is sometimes a very thin layer of fine shell, sand or silt overlying rather different sediments. For these reasons more reliance should be placed on the results of PSA from grab samples when considering sedimentary areas; the focus of the camera survey was more for investigation of possible hard substrata or sensitive habitats.

3.2.1. Main habitat descriptions from still photographs

3.2.1.1. Fine sand/silt

Overall, the number of stations with fine sand and/or silt was low and they were located in a small cluster of stations (16, 17 and 26) in the northern most extent of the survey area. The four near-field stations along the western edge of the survey area (1, 22, 49 and 77) in deeper waters off the Smith Bank also had much finer sand/muddy sediment. There were a few coarser sediments (see below) that appeared to have a thin veneer of silt. Evidence of fauna recorded from images and video footage consisted mainly of burrows (sometimes numerous) likely to be from tubeworms, and tubeworm tubes protruding through the sediment surface. There was an unidentified hermit crab at Station 1.

3.2.1.2. Medium sand

The majority of stations across the survey area appeared to be composed of medium sand. At most stations, there were small fragments of bivalve and gastropod shell in the sediment and the sediment was often drawn up into ripples by tidal action. Fauna recorded included common starfish (*Asterias rubens*), hermit crabs, tubeworm tubes protruding from the sediment surface, some burrows (probably mostly from tubeworms) and a number of deceased urchin tests. Notably, stations 32, 38, 55, 57 and 87 contained very little or no visible epifauna.

3.2.1.3. Coarse sand and shell

This habitat was similar to the medium sand but usually with a more obvious bivalve and gastropod shell component and sand of much coarser appearance. This habitat

was apparently less common than medium sand across the surveyed camera sites, being noted at only several stations across the northern and central regions of the survey area. Fauna recorded included tubeworm tubes protruding the seabed, hydroids and occasional sandeels, and unidentified burrows were common. A single sand mason worm (*Lanice conchilega*) and edible urchin (*Echinus esculentus*) were also present.

3.2.1.4. Shell fragments

This habitat was apparently dominated almost entirely by shell fragments with very little/no sand. It was observed at only three stations (40, 46 and 83), all of which were located in the central region of the survey area. Station 40 was composed of medium to coarse shell fragments with a large number of empty razor shells (*Ensis arcuatus*). There was a silty veneer on shell fragments which was easily disturbed from camera motion. This habitat was not completely homogenous across each station with some areas on video footage shown to be devoid of shell fragments. Station 46 was similar to 40 but shell fragments were homogenous across the station with no sandy patches. Station 83 also appeared to consist largely of shell fragments with distinct banding (bands >1m apart) of coarser and finer shell fragments. Fauna recorded included encrusting tubeworms *Pomatoceros sp.* on shell fragments, some infaunal tubeworms in places and an individual hooknose (*Agonus cataphractus*) present at Station 40.

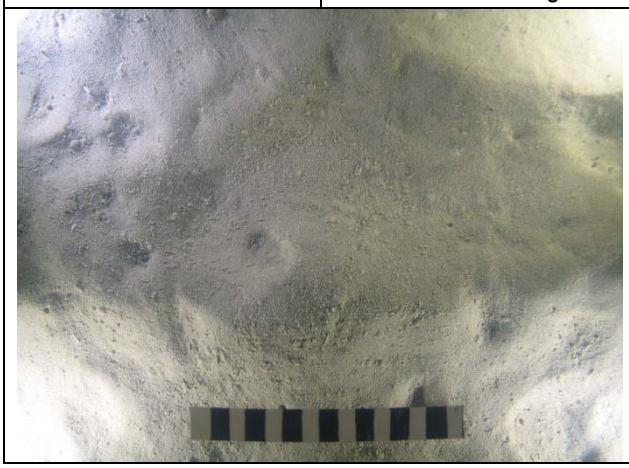
3.2.1.5. Mixed cobble and pebbles

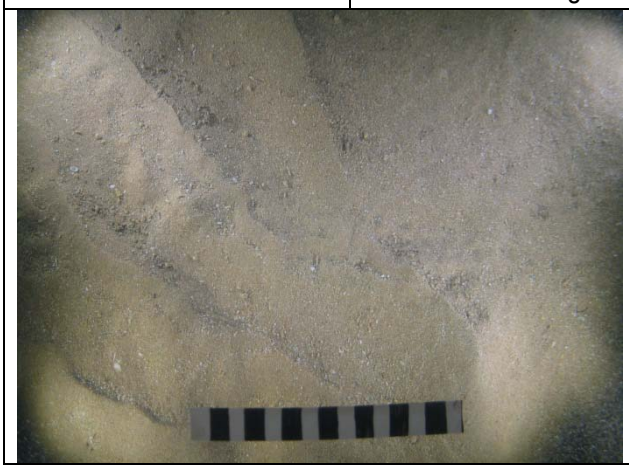
This habitat was found at only two stations (56 and 81), both of which were located in the central eastern region of the BOWF survey area. Cobbles and pebble were surrounded by finer gravels with some bivalve and gastropod shell components. Station 56 had a fine veneer of silt on top of coarser sediment types and Station 81 had very small amounts of coarse sand amongst cobble and pebble in some places. Faunal diversity was high with several different species recorded: *Echinus esculentus*; *Pomatoceros* sp.*; Asterias rubens; Pagurus prideauxi* (with the commensal anemone *Adamsia carciniopados*) and *Munida rugosa*. Hydroids and encrusting bryozoa were present but not at high levels of coverage.

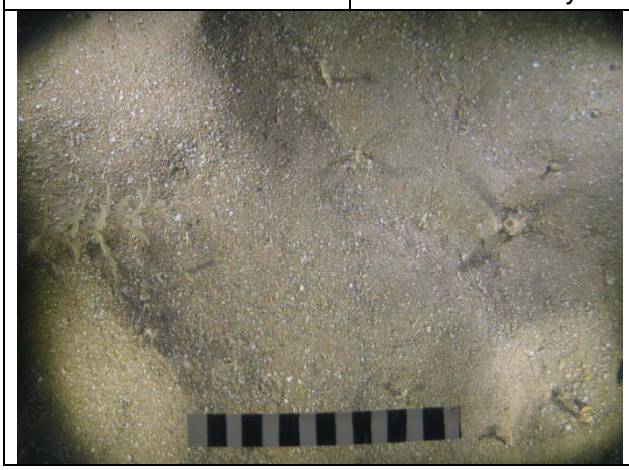
3.2.1.6. Encrusted cobble and boulders

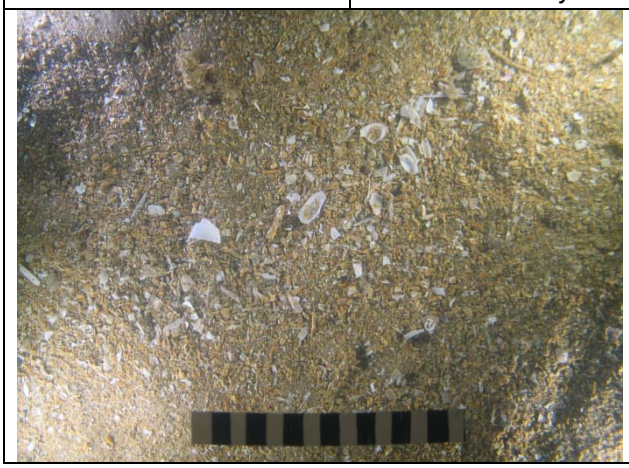
This habitat was only found at Station 4 in the north western part of the survey area. Small boulders were numerous at this site amongst cobble and large pebbles, with a veneer of silt covering the harder substrate. Previously collected sidescan information suggested the possibility of occasional scattered much larger boulders in this area but none were seen on the video. Fauna identified were similar to those of mixed cobble and pebble sediments (see above) with slightly higher species diversity. There were numerous clumps of soft coral *Alcyonium digitatum*, encrusting *Pomatoceros sp* and unidentified barnacles (possibly *Balanus crenatus*) on boulders with some bushy hydroids, and motile species including the common urchin *Echinus esculentus*, and the squat lobster *Munida rugosa* amongst boulders and cobble.

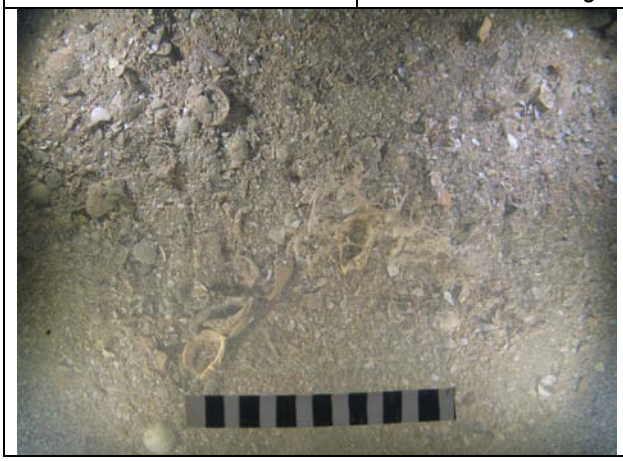
3.2.2. Examples of still photographs of main habitats

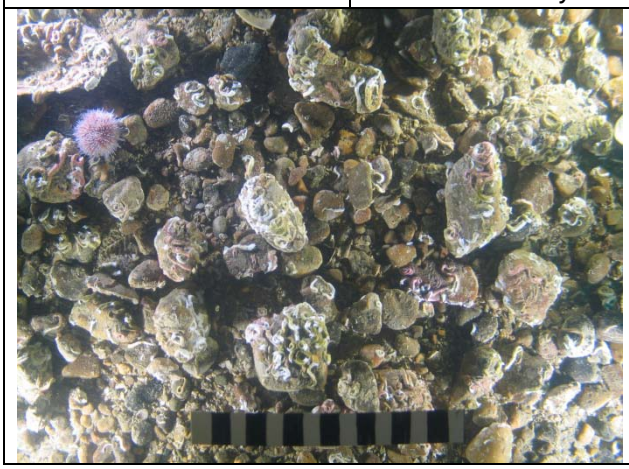
Station	77 Camera and grab	Position	499736 6453040
		Substratum	Fine sand/silt
		Depth (m)	59.1
		Notes	Camera and grab station. Biotope in this area was determined to be SS.SSA.CfiSa Circalittoral fine sand

Station	42 Camera and grab	Position	509401 6458230
		Substratum	Medium sand
		Depth (m)	45.7
		Notes	Biotope in this area was determined to be SS.SCS.ICS.MoeVen *Moere*lla spp. with venerid bivalves in infralittoral gravelly sand (see later)

Station	24 Camera only	Position	506702 6460424
		Substratum	Coarse sand with some fine shell fragment shell
		Depth (m)	48.6
		Notes	This camera only station lies near the boundary of areas later determined to be MoeVen biotope and Circalittoral fine sand biotope complex but is much more likely to be the former

Station	83 Camera only	Position	506859 6453141
		Substratum	Coarse sand with shell fragments
		Depth (m)	38.2
		Notes	Biotope in this area was determined to be SS.SCS.ICS.MoeVen *Moere*lla spp. with venerid bivalves in infralittoral gravelly sand (*Glycera* dominated version of the biotope) (see later)

Station	23 Camera and grab	Position	505665 6460484
		Substratum	Coarse sand with shell fragments
		Depth (m)	48.8
		Notes	Biotope in this area was determined to be SS.SCS.CCS.MedLumVen *Mediomastus fragilis*, *Lumbrinereis* spp. and venerid bivalves in circalittoral coarse sand or gravel (*Jasmineira* dominated version of the biotope) (see later)

Station	81 Camera only	Position	504455 6453175
		Substratum	Mixed cobble and pebbles
		Depth (m)	39.1
		Notes	SS.SCS.CCS.PomB *Pomatoceros triqueter* with barnacles and bryozoan crusts on unstable circalittoral cobbles and pebbles; small in extent

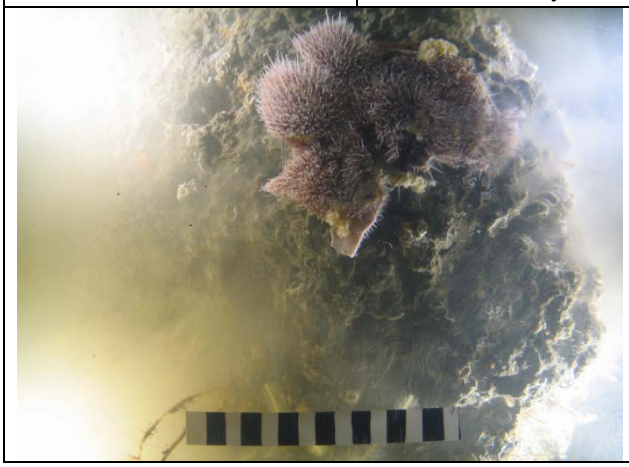
Station	4 Camera only	Position	507256 6464213
		Substratum	Encrusted boulders
		Depth (m)	57.8
		Notes	The majority of the substrate at Station 4 appeared to consist of smaller cobble/boulders than this, and was determined to be SS.SCS.CCS.PomB biotope

Figure 26. Examples of photographs of main sediment types recorded during drop down camera survey; scale bar represents 15 cm on the seabed.

3.2.3. Comparison with side scan survey

Overall, the results of the benthic survey, taking into account both grab and camera surveys, matched relatively well with expectations from review of the sidescan sonar survey data. Expected ground types consisted mainly of sands and gravelly sands across the central and southern section of the station with a small area to the north being predominantly sand.

The predominant sediment type observed across the central and southern part of the survey area was sand, but many stations had a considerable shell or gravel component. The high levels of broken shell present within many of the sandy samples might explain why sediments sometimes appeared coarser (e.g. gravelly) in sidescan sonar images of these areas. Shell fragments are hard and can be large and so will give stronger returns on side scan than a purely sandy bottom.

The predominant sediment type observed in the northern most part of the station was sand, as expected.

The area running along the western edge of the Beatrice station was observed to be less coarse than the initial side scan survey suggested. Till outcrops and coarse ground (ie boulder and cobble components likely to be high) were expected; however, the grab/camera survey identified sediment types in this area to be predominantly sand with gravelly sand or shelly sand at a few stations.

In areas where the grab/camera survey identified sand and not boulders or cobble as expected, it is likely that some coarser ground including boulders is nevertheless present but in low amounts, and isolated in distribution.

3.2.4. Extent and nature of coarse ground

3.2.4.1. Station 4

Station 4 to the far north west of the Beatrice Offshore Wind Farm survey area consisted predominantly of stable boulders and large cobble extending mostly 10-20 cm above the seabed (although more in places) (Figure 26). The percentage coverage of cobble/boulder in this area was much greater than 10 % (coverage 100 % in places) and, from the camera survey, clearly covered an area greater than 25 m^2 therefore representing an area of potential 'cobble reef' as defined in Limpenny et al (2010).

The potential for rocky reef (including cobble reef) in these areas was identified from sidescan sonar records prior to the start of the benthic survey. Sidescan information indicated this area to be hard ground consisting of glacial till and isolated boulders (Figure 27). As described above, in many places camera survey did not find the expected coarse grounds, but in this one location cobble and small boulders seemed to be fairly abundant and in places almost continuous. Moreover, whilst in many places it was extremely difficult, or impossible, to reliably correlate the camera images with the sidescan outputs, in this particular case there was a clear sidescan image of the probable cobble/boulder area, which is shown in Figure 27. The area of this community has been estimated at 0.021 km^2.

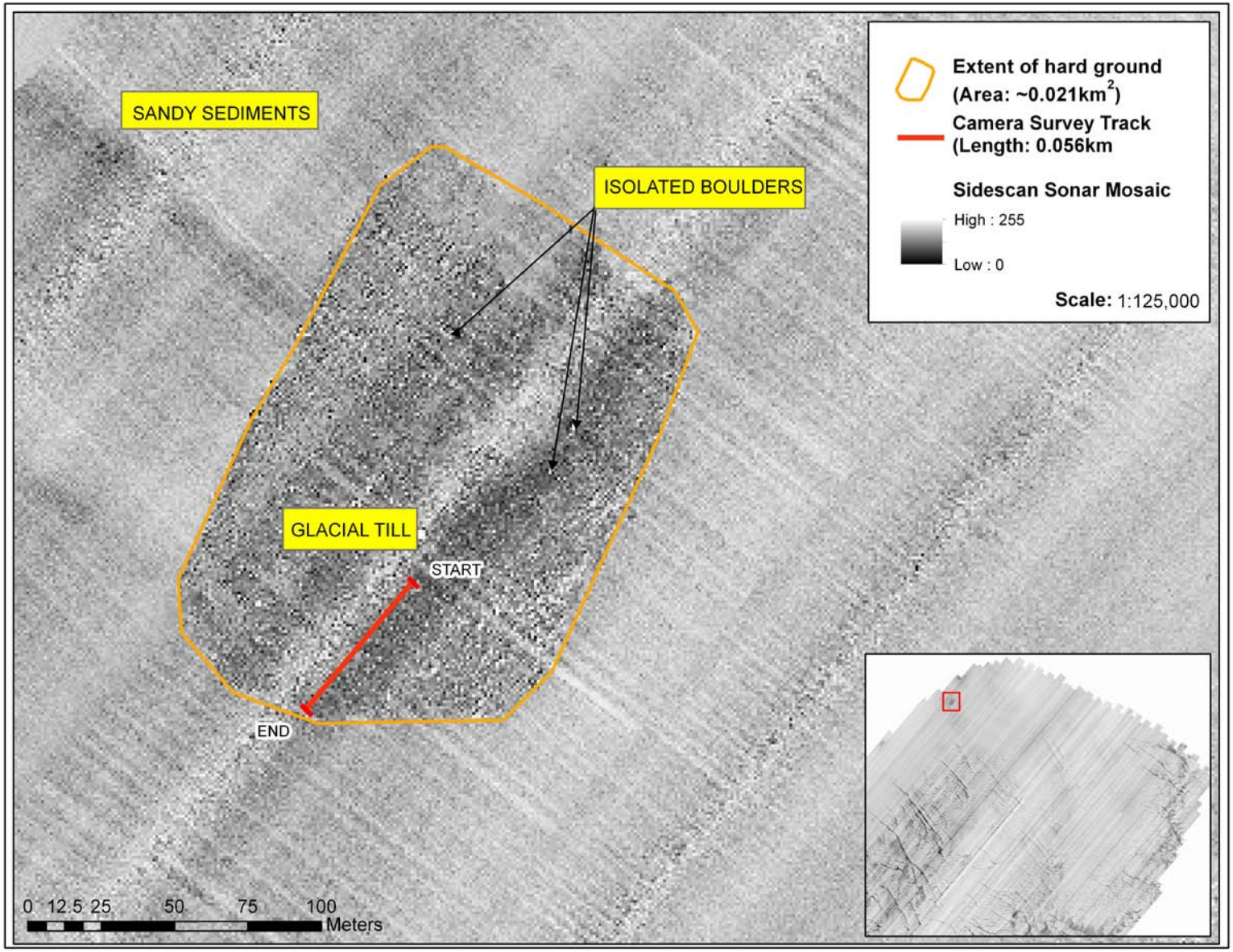


Figure 27 Sidescan sonar (Osiris Projects Ltd) showing area of hard ground located at grab/camera station 4 and track of camera survey (labelled glacial till on the original sidescan sonar outputs. Examples of possible isolated larger boulders are also shown.

Associated fauna consisted mainly of keelworm (*Pomatoceros sp,* probably mostly *P. triqueter*) and barnacles (*Balanus* sp) encrusting both cobbles and boulders, along with scattered small clumps of soft coral (*Alcyonium digitatum*) and occasional small patches of short hydroid and/or bryozoan turf. There were also several edible urchins (*Echinus esculentus*) and a squat lobster (*Munida rugosa*) identified at Station 4 amongst cobbles and boulders. There may have been occasional anemones but these were very indistinct. Most of the stones and fauna were heavily covered in silt. From the sidescan ouptuts, there are possibly two much smaller, less distinct, areas to the north and west of this one on the boundary of the survey area that may represent similar habitat, but these are insufficiently distinct to identify or map confidently. This community clearly shows some similarity with the biotope SS.SCS.CCS.PomB *Pomatoceros triqueter* with barnacles and bryozoan crusts on unstable circalittoral cobbles and pebbles, but is probably rather more stable and somewhat richer in other fauna than typical examples of that biotope, particularly on the boulder components. It would appear to be a potential Annex 1 cobble reef habitat, but according to the very provisional definitions provided in Limpenny et al (2010) is probably of medium reefiness. This is primarily on the basis of it matching the medium reefiness definition of having 40-90 % cobble/boulder cover, and secondarily because it meets the medium reefiness definition of projecting between 64 mm and 5 m from the seabed, although in the latter case the definition is clearly only just met. The community does not appear to have a particularly rich associated fauna.

3.2.4.2. Station 56

Station 56 is located on the eastern edge of the survey area. From sidescan analysis, sandy gravel was to be expected in this area hence this station originally being a grab only station. This station was visited as an additional camera station which showed the sediment to be much coarser than first expected.

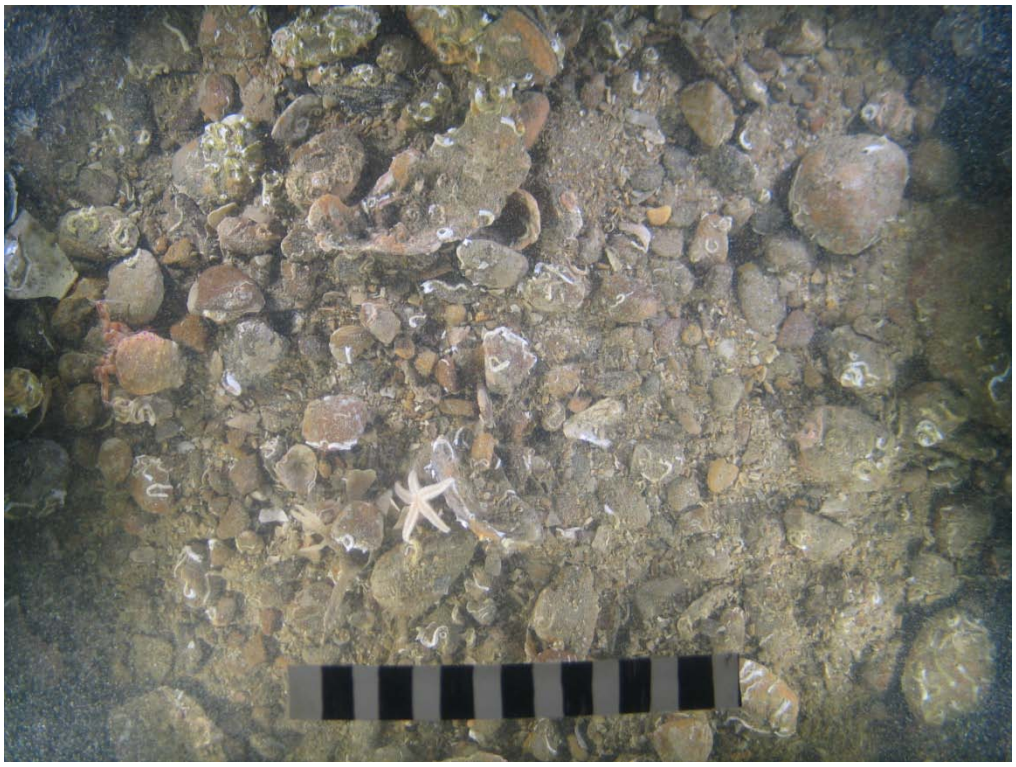


Figure 28. Station 56 – Sediment type recorded during drop down camera survey; scale bar represents 15 cm on the seabed.

The predominant sediment type was cobble, pebble and gravel with 90-100% coverage of the seabed (Figure 28). The area of coarse material was >25 m^2 although it is not possible from the sidescan to discern the likely extent of the area, and there were no patches of sand amongst the gravel. However, due to the lack of elevation (mostly <10 cm from the seafloor) the level of reefiness is low (Limpenny et al, 2010).

Asscociated fauna was not noticeably rich and consisted mostly of starfish (*Asterias rubens*), edible urchin (*Echinus esculentus*), hermit crab (*Pagurus prideauxi*), but sea mat *Flustra foliacea* was present in places and there were some encrusting tubeworms (probably *Pomatoceros triqueter*) on shell fragments/coarse gravel.

3.2.4.3. Station 81

Station 81 in the central area to the south of the station was found to consist of pebbles and coarse gravel with percentage coverage of seabed of 100% (Figure 26). There was no finer material present in patches and the area was greater than >25m^2. However, due to the lack of elevation (mostly <10 cm from the seafloor) the level of reefiness is low (Limpenny et , 2010).

Expected ground type from the sidescan was sandy gravel. The camera/grab suggested ground type was consistently coarser than this but again the area does not show up distinctly on the sidescan, and so it is not possible discern the likely extent of the area.

Associated fauna consisted of starfish (*Asterias rubens*), edible urchin (*Echinus esculentus*), small amounts of hydroids, and encrusting tubeworms (*Pomatoceros* sp) on gravel.

Like station 4, stations 56 and 82 seem likely to be low reefiness cobble reef areas in which the community shows some similarity with the biotope SS.SCS.CCS.PomB *Pomatoceros triqueter* with barnacles and bryozoan crusts on unstable circalittoral cobbles and pebbles, but arguably rather richer, and these areas, being difficult to discern on sidescan, seemed likely to be very small in extent.

3.2.4.4. Isolated boulders

Station 66 located along the eastern edge of the station consisted predominantly of medium sand with shell fragments. Analysis of camera stills (Figure 29) and video footage (Figure 30) revealed numerous isolated small boulders amongst areas of sand. Despite being elevated from the seabed (10-20cm) the percentage coverage of boulders is <10% and this therefore does not represent a stony reef as defined in Limpenny et al (2010).

Initial analysis of sidescan data predicted this area to the east of the station to consist predominantly of sandy gravels which, overall, was supported by grab sediment data (Figure 7).

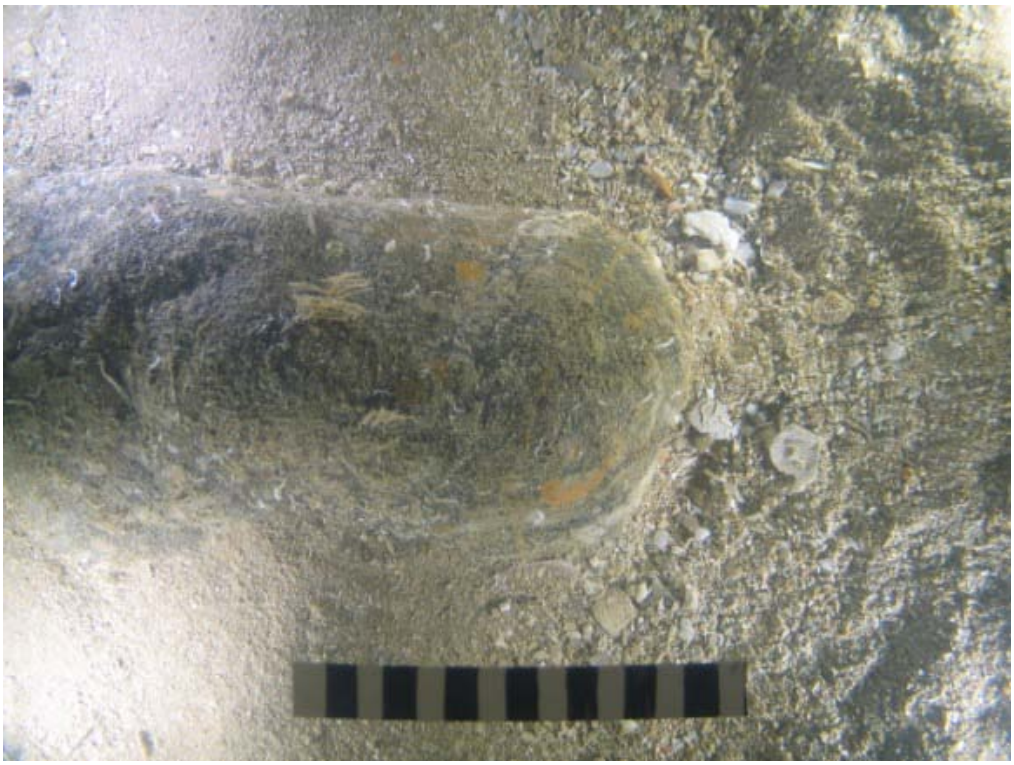


Figure 29. Station 66 - still image of medium sand with shell fragments and single small boulder; scale bar represents 15 cm on the seabed.

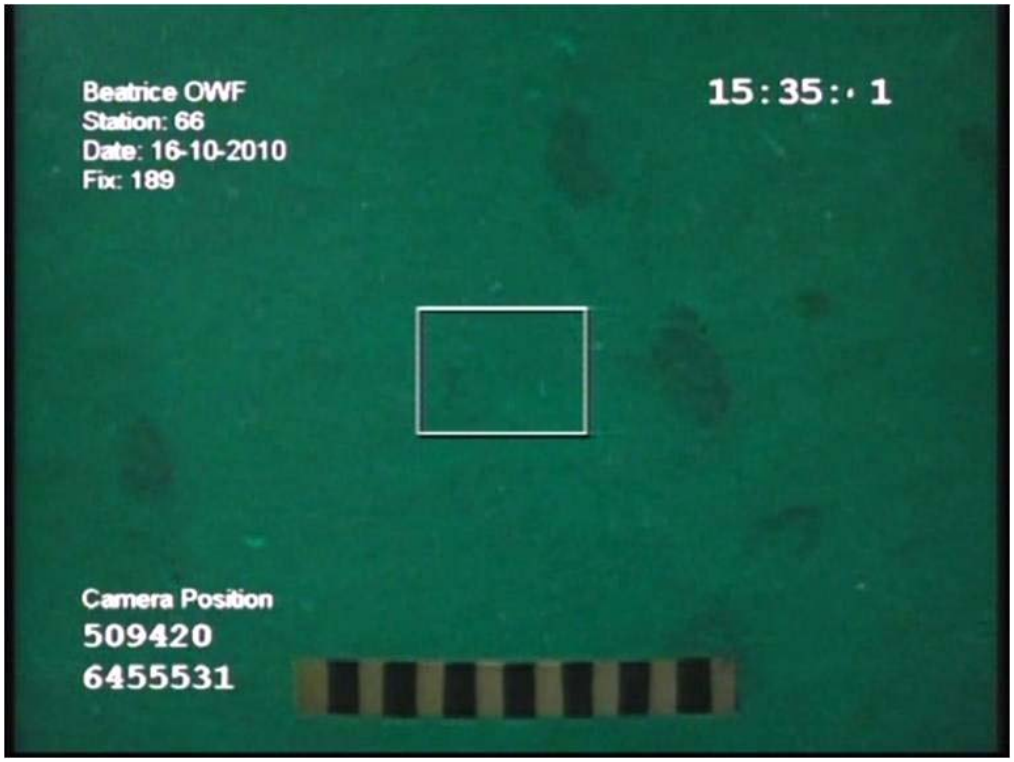


Figure 30. Station 66 - still image captured from video footage showing presence of isolated boulders (camera approximately 5 m from seabed at time of capture; scale bar therefore of no relevance.)

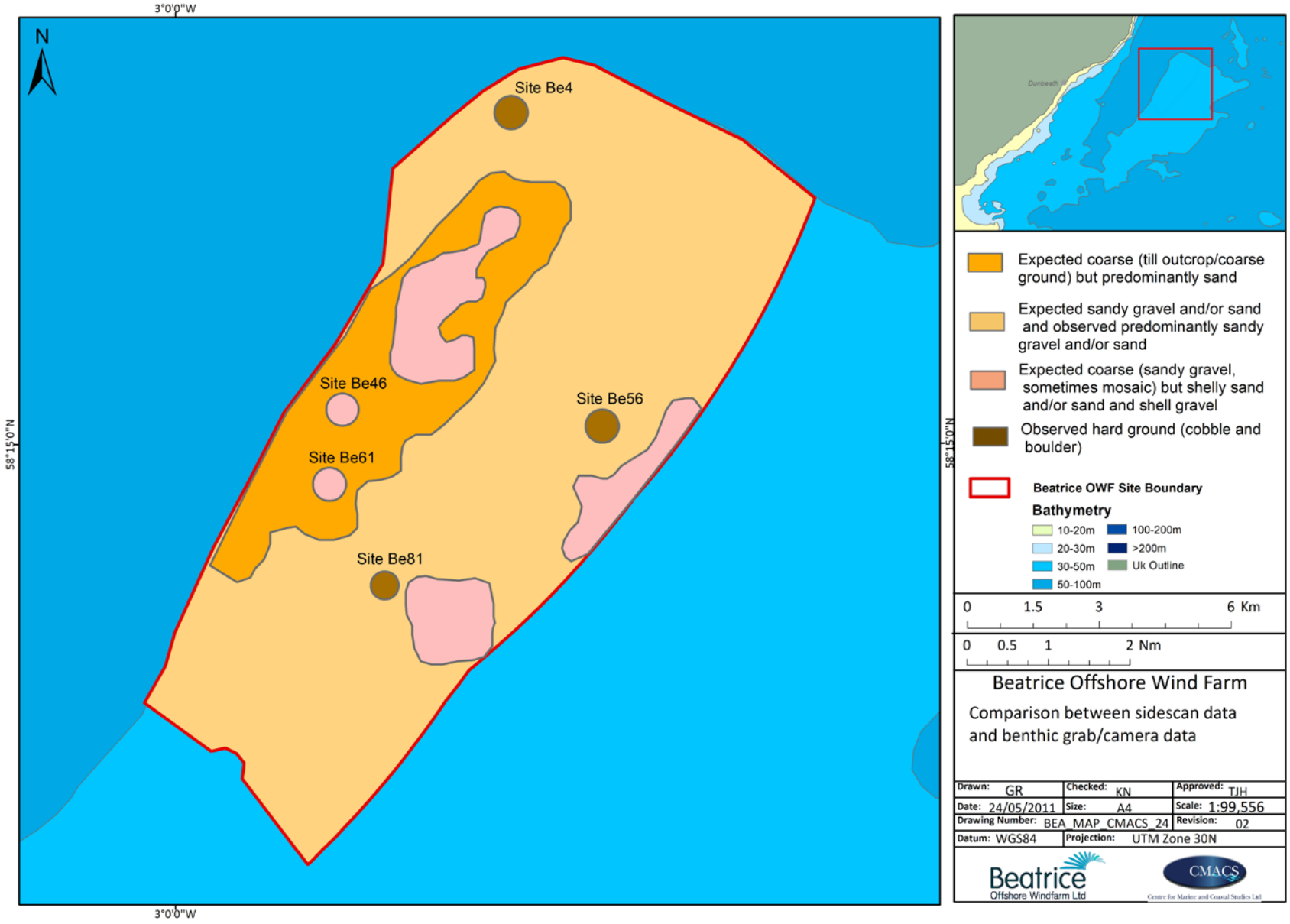


Figure 31. Comparison of sidescan sonar data (expected ground types) and drop down camera data (observed ground types).

3.3. Beam trawls

The fourteen 2m scientific trawl stations were successfully sampled on the 21st and 22nd November 2010 from aboard the Sardonyx II, which operated out of Wick. Coordinate fixes of trawl start and end points are detailed in Appendix 8. Raw count data are available in Appendix 9, and length data in Appendix 10. Digital photographs of each haul (pre-sorting) are available in Appendix 11 (N.B. Station 3 was mistakenly labelled as Station 2 in the field).

A total of 1119 individuals from 67 taxa were recorded in the 14 beam trawls, the large majority of which were identified to genus or species level, but some were only identifiable to higher taxonomic levels (e.g. family 'Aphroditiidae').

3.3.1. Epifaunal invertebrates

Excluding colonial organisms, a total of 673 individual epifaunal invertebrates from 39 taxa were recorded during the survey. Five colonial taxa were also recorded but these were present only in very small amounts, even on the coarser grounds. Dead men's fingers (the soft coral *Alcyonium digitatum*), for example, was recorded at a maximum abundance of 50g, whereas CMACS have regularly recorded over 10kg of this species in 300m trawls on coarse ground elsewhere round the U.K. Invertebrate epifauna was most numerous at stations 11 & 12, midway along the proposed array area, and was most speciose at the same two stations, but also at Station 3, towards the north west portion of the proposed array area, despite far fewer individuals being recorded there (Figure 32). Station 2, at the northern edge of the survey area, was both the least numerous and speciose site (Figure 33).

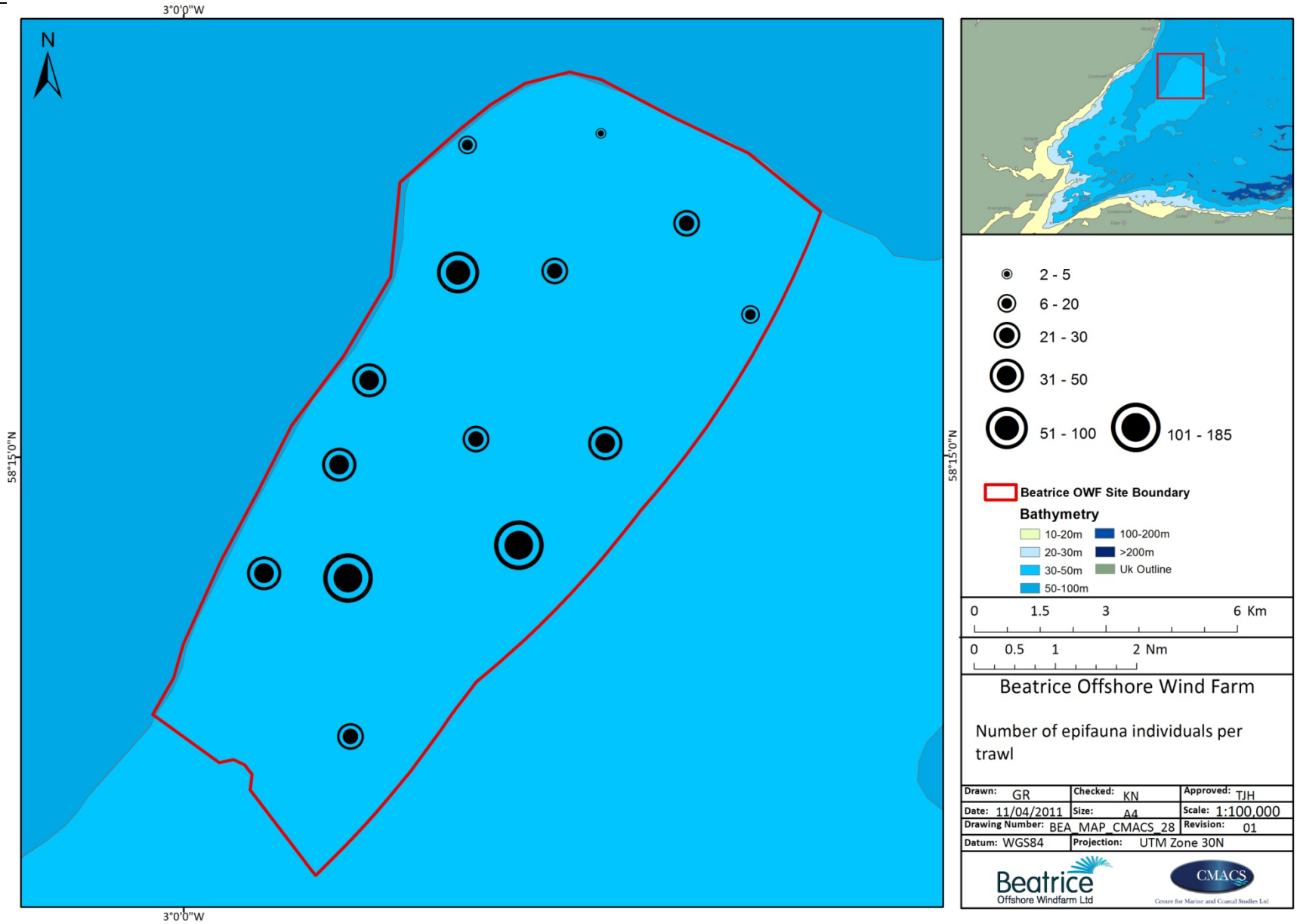


Figure 32. Total epifaunal invertebrate abundance recorded during trawl survey (excluding colonials).

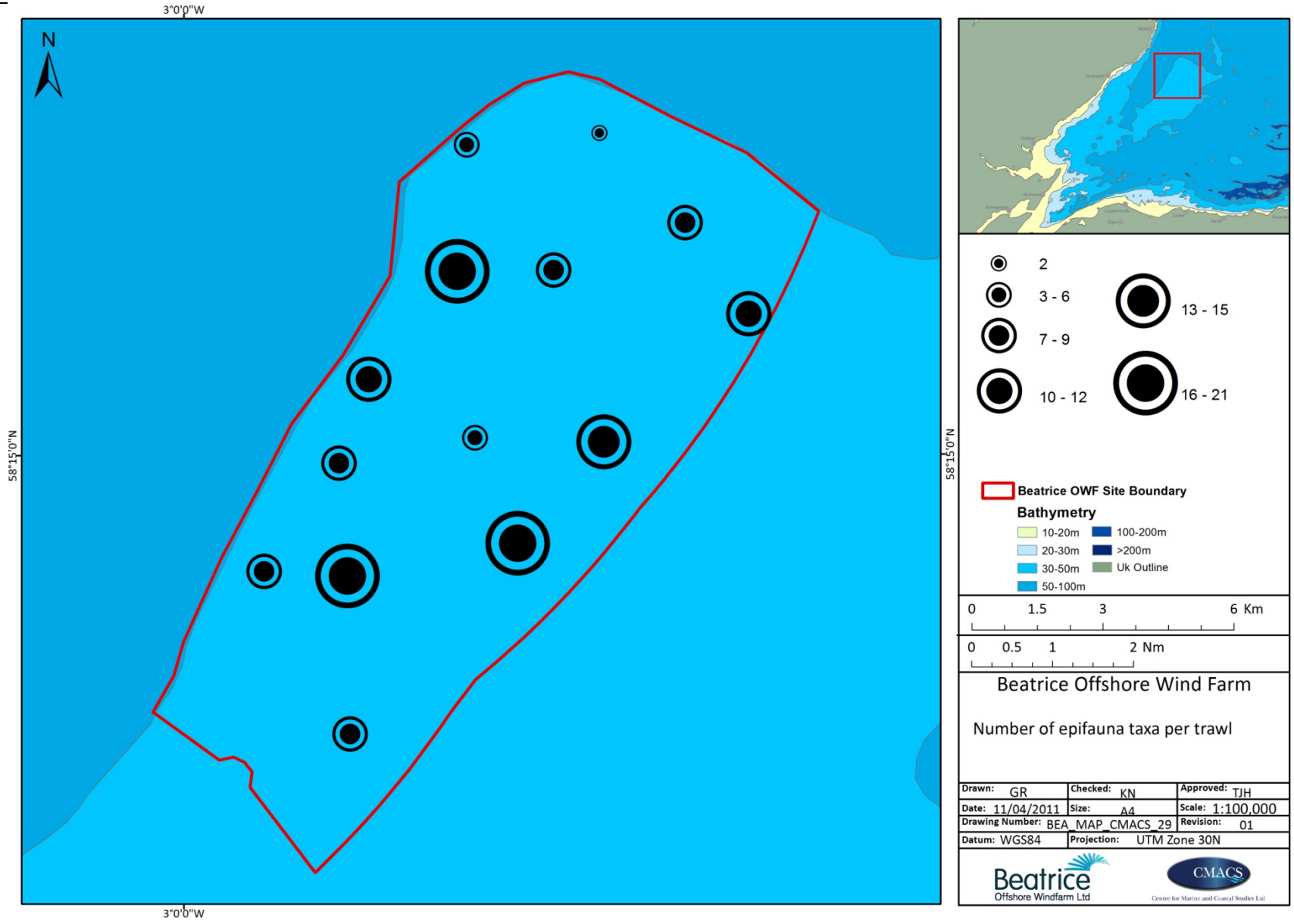


Figure 33. Total number of epifaunal invertebrate taxa recorded during trawl survey (including colonials).

The common starfish (*Asterias rubens*) was by far the most abundant and widespread invertebrate organism recorded, being present at every station throughout the survey area, and in approximately three times the numbers of the next most abundant species. Queen scallops (*Aequipecten opercularis*), edible sea urchins (*Echinus esculentus*), hermit crabs and associated cloak anenomes (*Pagarus prideauxi* and *Adamsia carciniopados*), long-legged spider crabs (*Macropodia* sp.), brown shrimps (*Crangon crangon*) and hermit crabs (*Pagarus bernhardus*) were also moderately abundant. The two most abundant, non-commercial species are mapped below (common starfish, Figure 34; edible sea urchin, Figure 35).

Commercial invertebrate species were predominantly recorded in low numbers, except for queen scallops and brown shrimp. Queen scallops were most common at stations 11 and 12, midway along the survey area, and seemed to be less abundant to the north, where they were absent at stations 2, 4 and 7 (Figure 36). They averaged 71.0 mm ± 11.9 standard deviation (S.D.) shell width and 4.2 ± 1.2 years (estimated by counting growth rings). These specimens were predominantly large (maximum size attained is often quoted as 90 mm, Hayward et al, 1996) and certainly above the minimum landing size (MLS) of 45 mm. 34% of the specimens were estimated using growth rings to be aged 5 years or over, while 70% were aged 4 years or over, with a maximum age of 8 years, suggesting that commercial fishing pressure may not be particularly high at present. All data were supplied to the consultants dealing with commercial fisheries for the Beatrice Offshore Wind Farm. Brown shrimp were caught throughout the survey area, except at stations 2 and 9 (to the north and north east of the wind farm application area), but not in large numbers at any particular station (Figure 37). This species can be expected to occur at much greater densities in shallower, inshore bays, for example. Other commercial species recorded included nine common whelk (*Buccinum undatum*; all over the MLS of 45 mm), two greater scallop (*Pecten maximus*; both of landable size; MLS 110 mm), and one of each of edible crab (*Cancer pagarus*; above MLS of 140 mm), horse mussel (*Modiolus modiolus*) and pink shrimp (*Pandalus montagui*). Whilst *Modiolus modiolus* is capable of forming biogenic reefs requiring protection under Annex 1 of the European Habitats Directive, only one live specimen was recorded during the trawl survey (and one dead, both at the same station). Furthermore, none were observed during the grab or camera surveys, nor were shells of dead specimens, which in areas of *Modiolus* reef can form very extensive dense deposits, and therefore population levels in the area are expected to be minimal, and certainly not reef-forming.

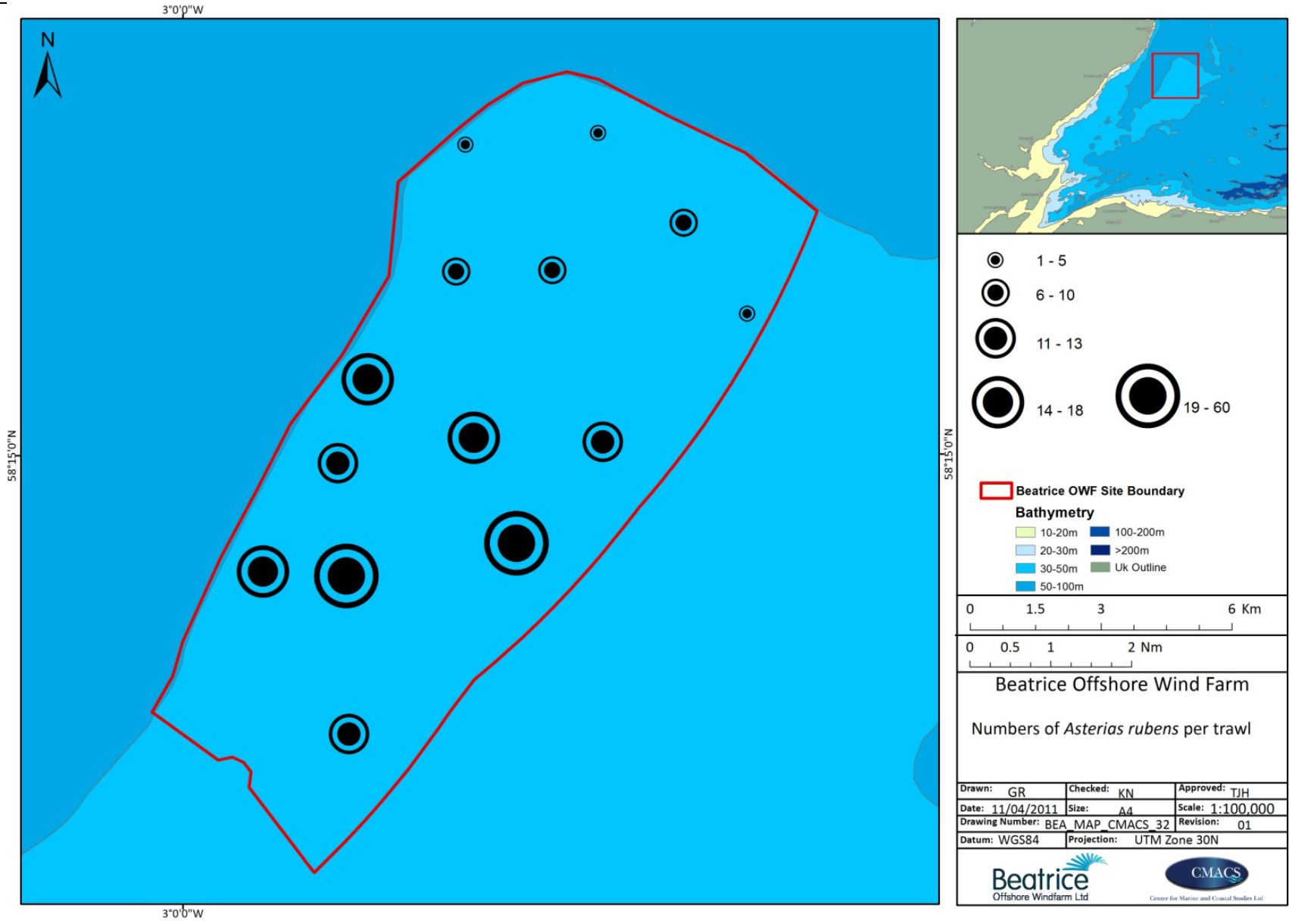


Figure 34. Common starfish (*Asterias rubens*) abundance recorded during trawl survey.

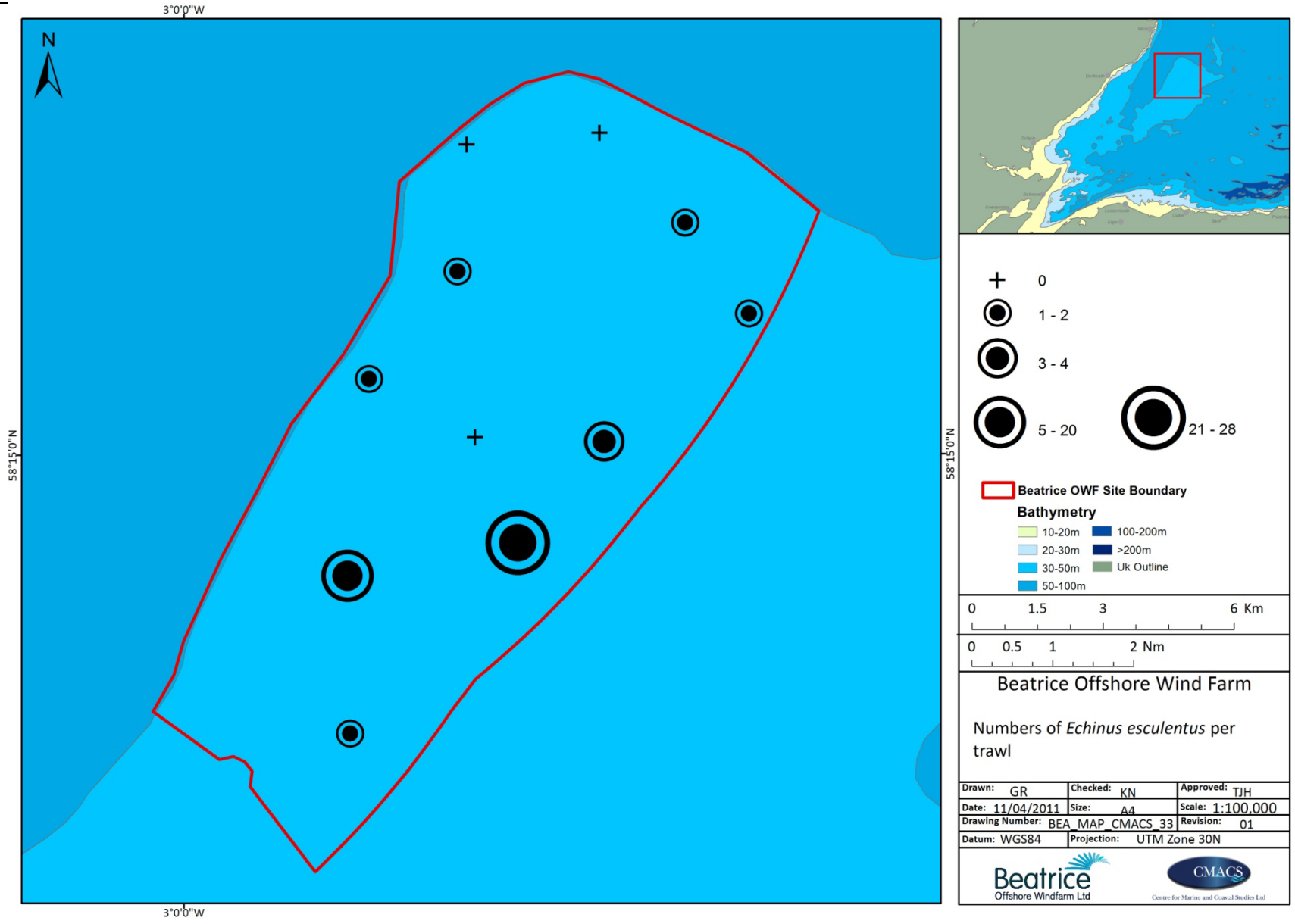


Figure 35. Edible sea urchin (*Echinus esculentus*) abundance recorded during trawl survey.

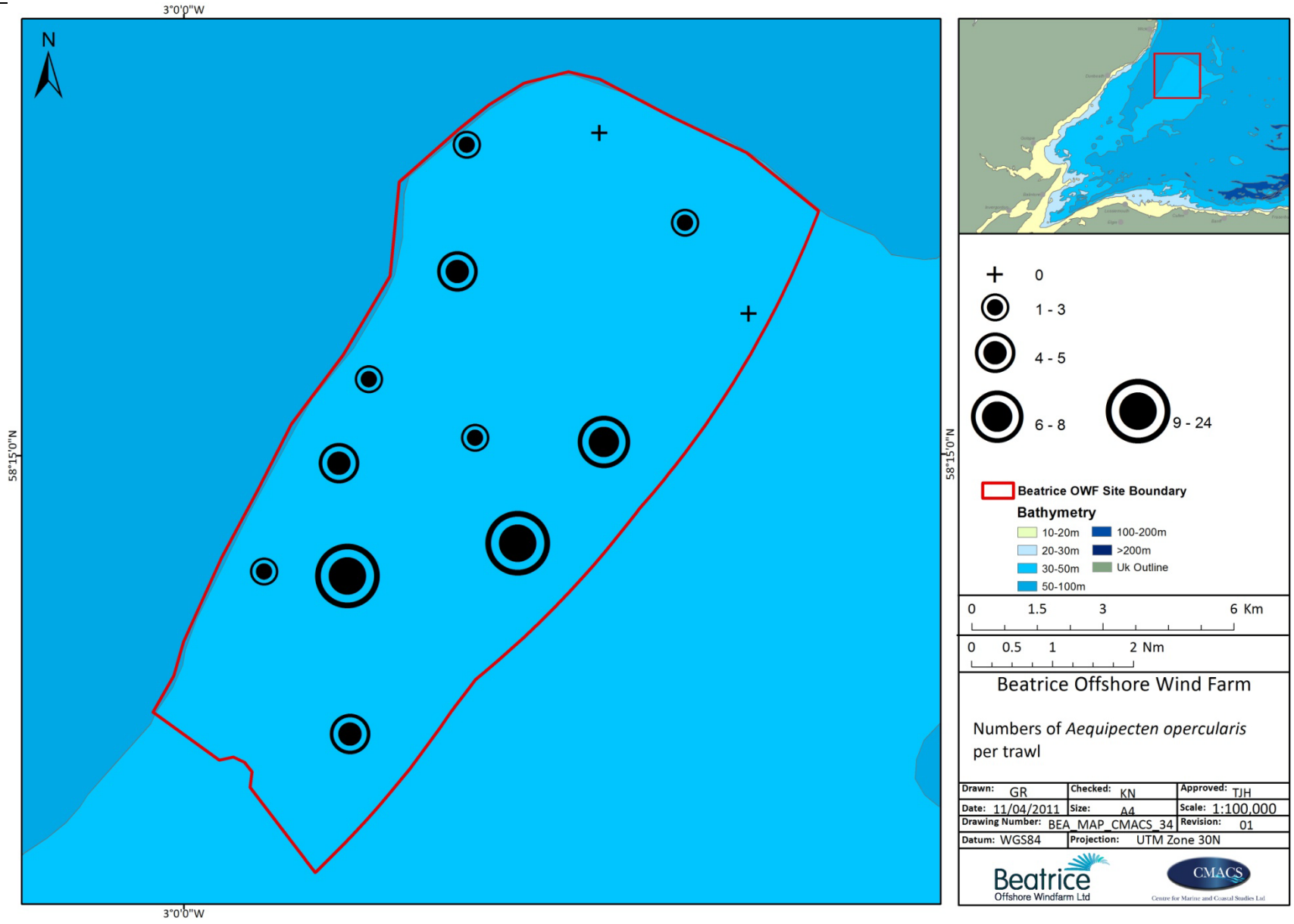


Figure 36. Queen scallop (*Aequipecten opercularis*) abundance recorded during trawl survey.

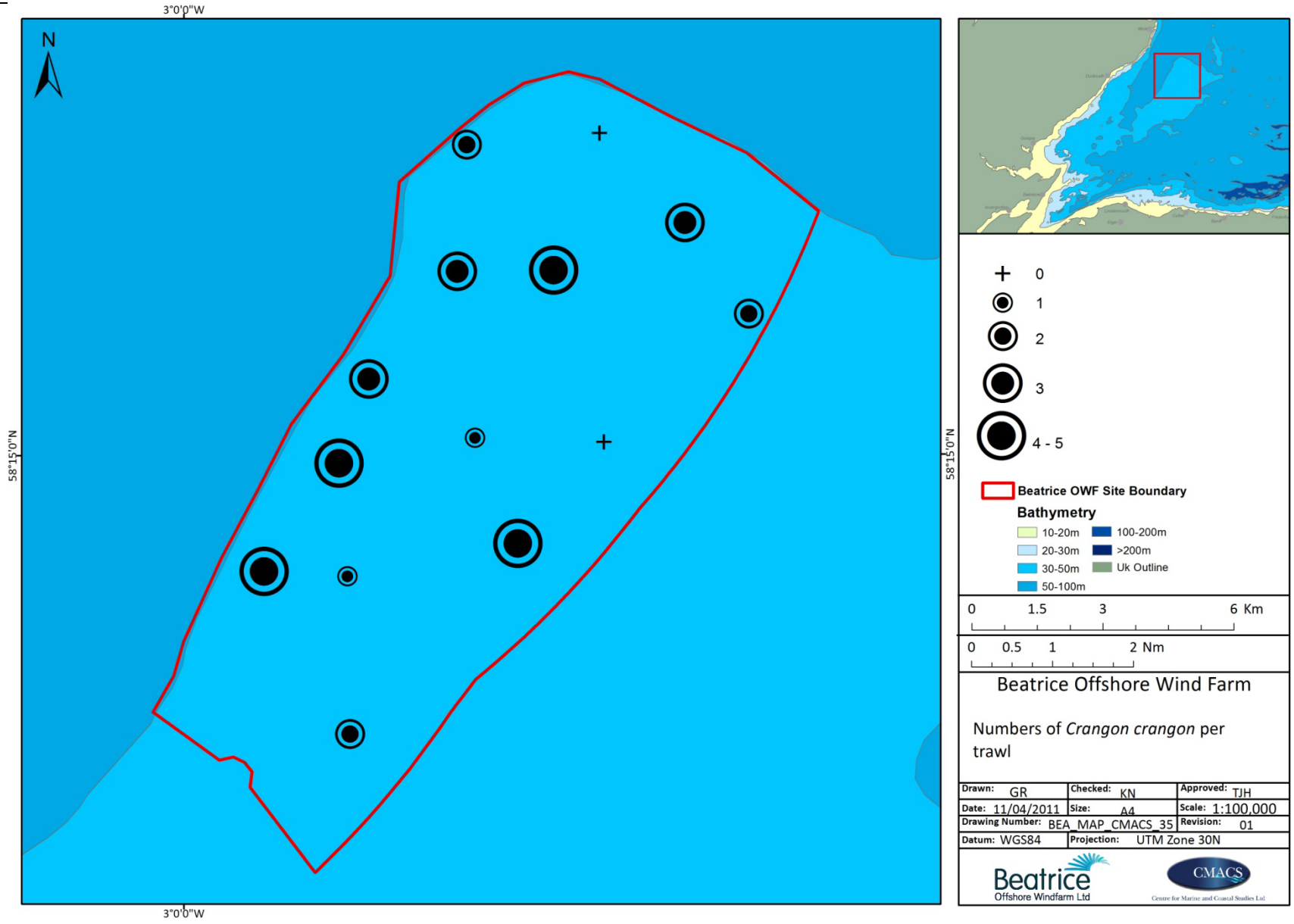


Figure 37. Brown shrimp (*Crangon crangon*) abundance recorded during trawl survey.

3.3.2. Fish

It is worth re-emphasising here that 2m beam trawl gear is not ideal for surveying the presence of large demersal fish, many of which frequently avoid capture, and data is consequently considered to be only qualitative for these fish.

A total of 446 fish from 23 taxa were recorded during the survey. Fish were most abundant at stations 6 & 11 to the west and east of the proposed wind farm development area respectively (Figure 38). Station 11 was also the most speciose (Figure 39), but Station 6 was not particularly diverse in comparison (where the catch was dominated by transparent gobies, *Aphia minuta*). No station exhibited quite such low abundance or diversity of fish as observed at Station 2 for epifaunal invertebrates. The lowest fish abundance was recorded at Stations 1 & 3, both to the north west of the survey area, and the fewest species at Station 5, to the north.

The transparent goby was by far the most abundant and widespread fish species recorded during the survey, being found at all 14 stations and almost twice as abundant as the next most numerous species. It was most common through the centre of the array area (at stations 6, 8, 9, 10 & 11). However, it should be noted that this small, schooling species is predominantly pelagic, except during May to August, when it breeds on the sea bed (Wheeler 1978). It is therefore likely that these specimens were caught whilst the trawl was being lowered to or raised from the sea bed, and that their true numbers are therefore not well sampled; these data should therefore be treated with caution.

Dab (*Limanda limanda*) was also abundant, and was found at 12 of the 14 survey stations; most commonly at Station 12, just south of the centre of the wind farm application area. Lesser and greater sand eels (*Ammodytes tobianus* and *Hyperoplus lanceolatus*), and hooknose (*Agonus cataphractus*) were also moderately numerous. Sandeel distribution is mapped in Figure 43. The two most numerous non-commercial species are mapped below (transparent goby, Figure 40; dab, Figure 41).

Commercial fish species were recorded in low numbers. Almost all were flatfish species, particularly if dab are included in the commercial fish category. Dab are occasionally retained by fishermen if large enough, but not always regarded as a commercial species, and are discussed above.

Plaice (*Pleuronectes platessa*) was the most abundant truly commercial species (with the arguable exception of sandeels), but with a total of only 12 individuals caught at half of the survey stations (Figure 42). The species was generally limited to the western edge and northern areas of the proposed array area. They averaged 183.0 mm ± 14.9 S.D. and were therefore well below MLS (270 mm). Five lemon sole were recorded from three stations just north of the centre of the survey area. Whilst there is no MLS for this species, these specimens were below the European Commission's Minimum Marketing Standard of 250mm (averaging 149.6 ± 50.4 S.D.). One of each of haddock (*Melanogrammus aeglefinus*; only just below MLS of 300 mm), Dover sole (*Solea solea*; well below MLS of 240 mm), (red gurnard (*Aspitrigla cuculus*; no MLS,

but a small specimen), and megrim (*Lepidorhombus whiffiagonis*; just half the MLS of 200 mm) were also recorded.

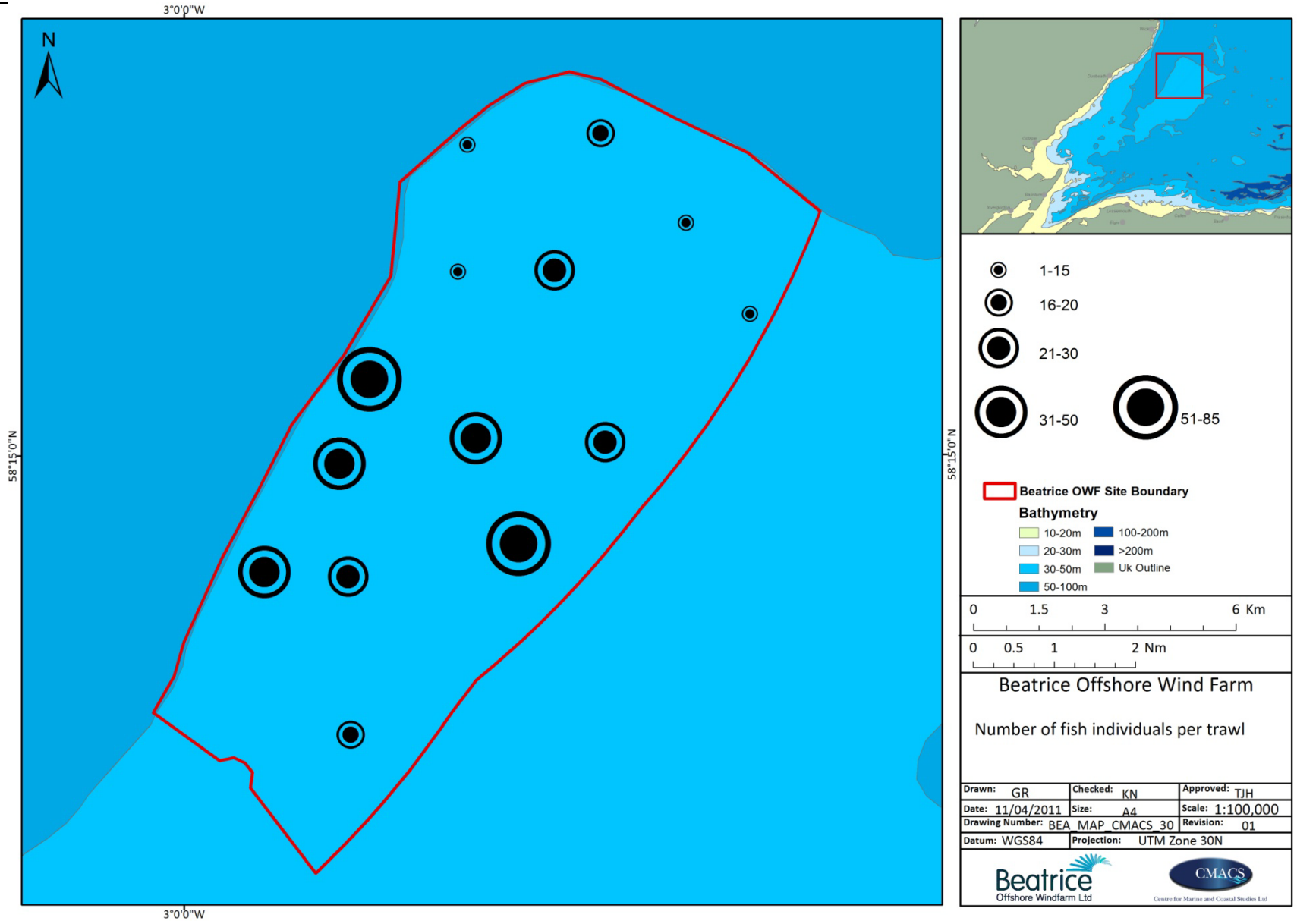


Figure 38. Total fish abundance recorded during trawl survey.

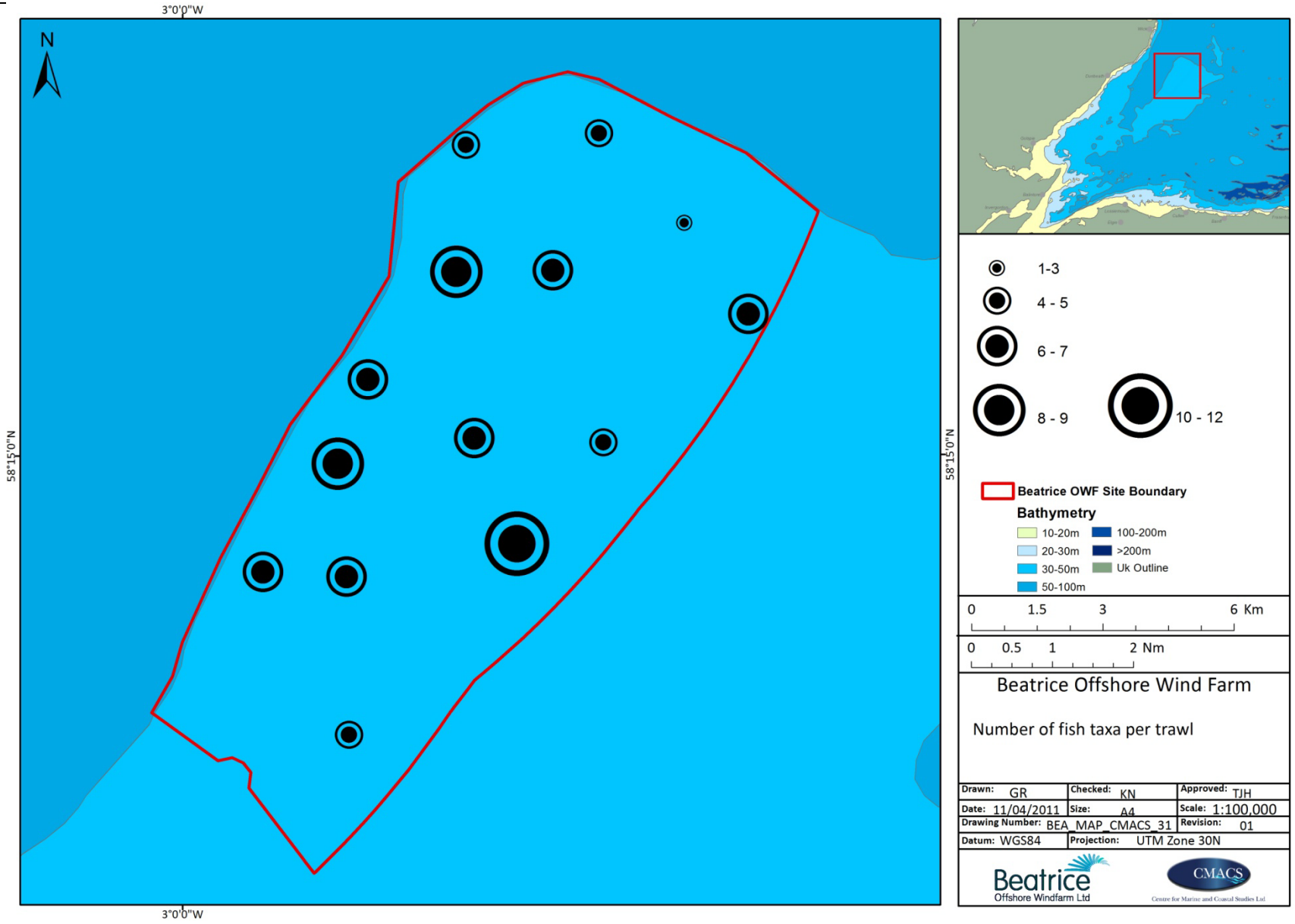


Figure 39. Total number of fish taxa recorded during trawl survey.

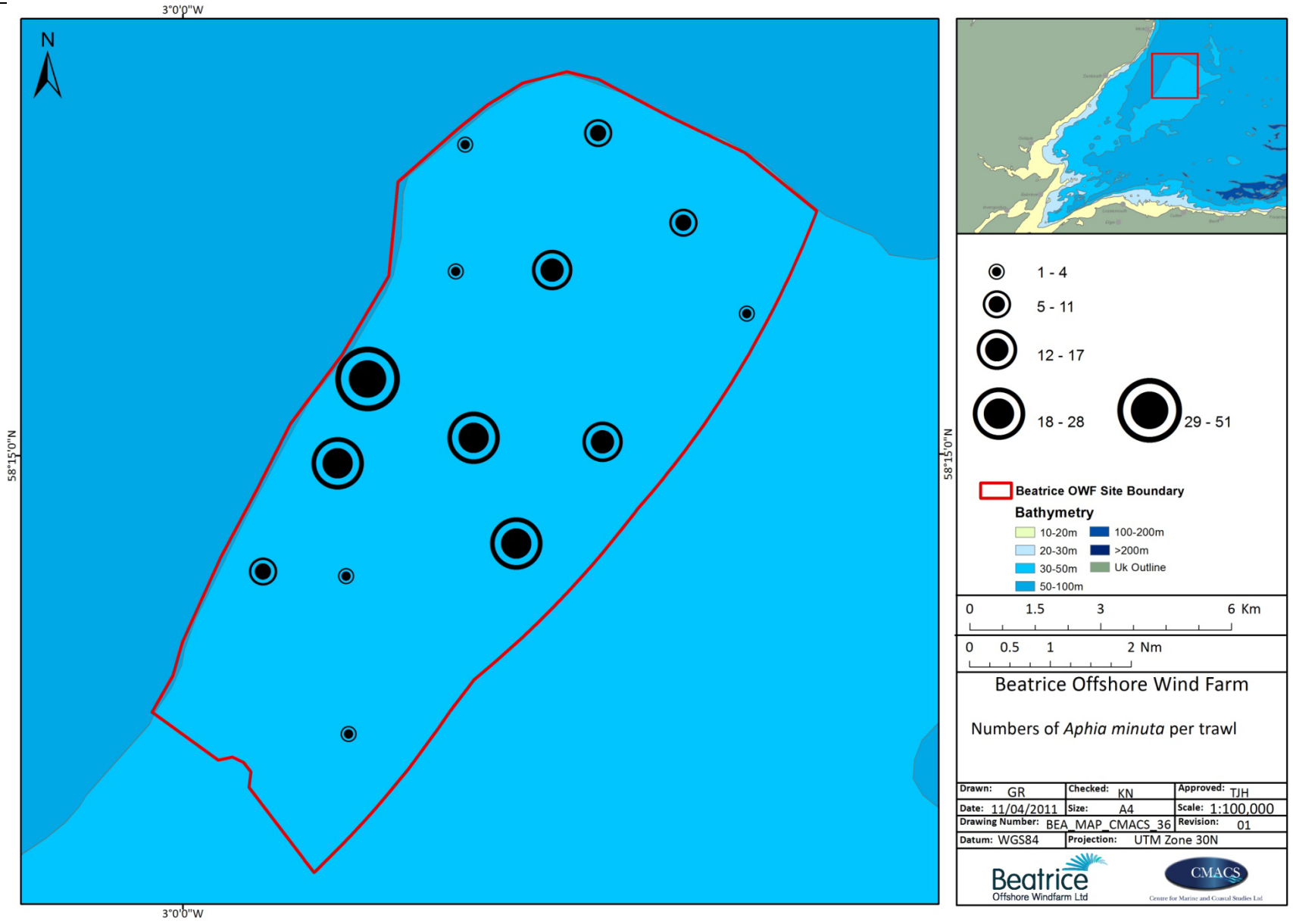


Figure 40. Transparent goby (*Aphia minuta*) abundance recorded during trawl survey.

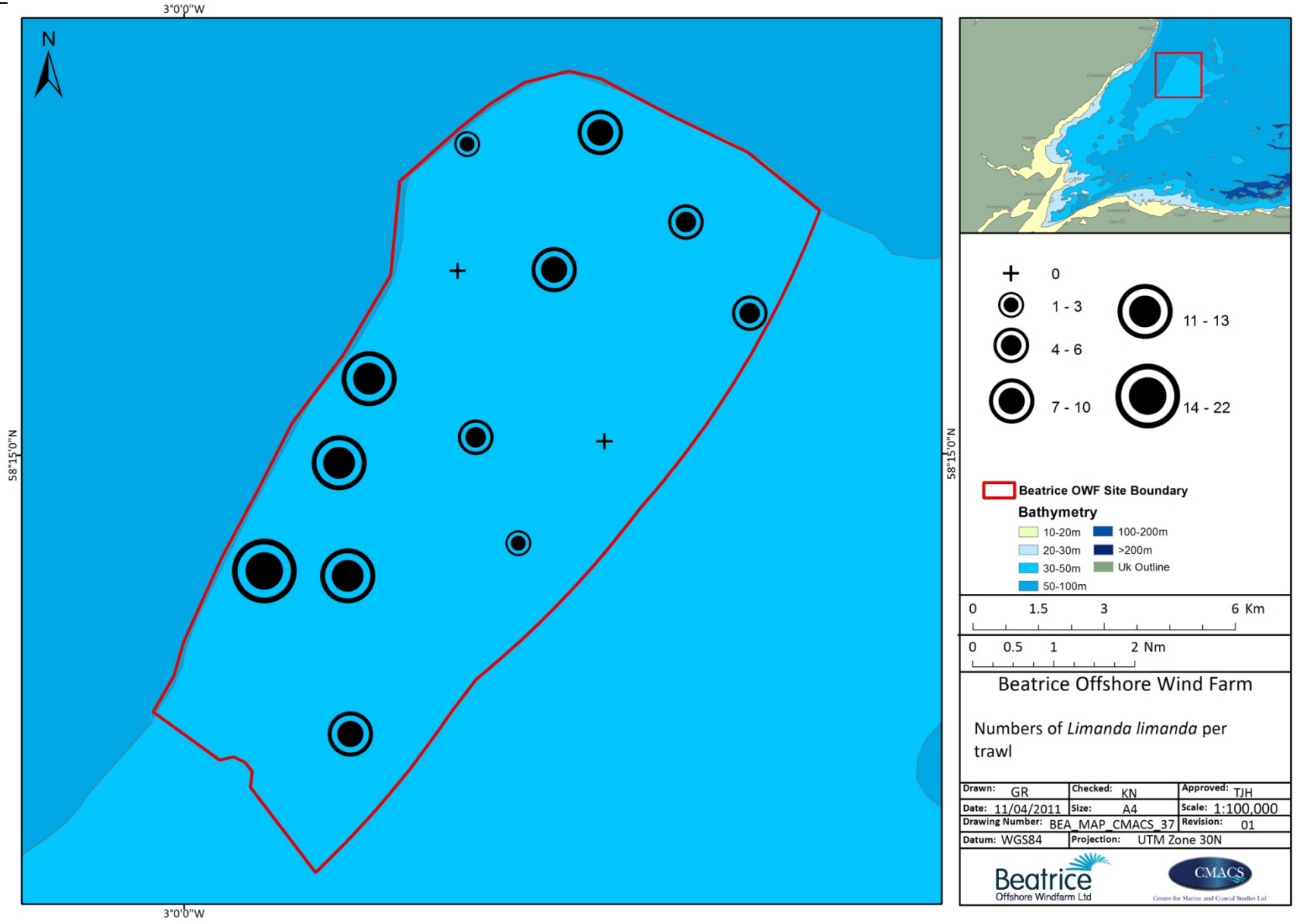


Figure 41. Dab (*Limanda limanda*) abundance recorded during trawl survey.

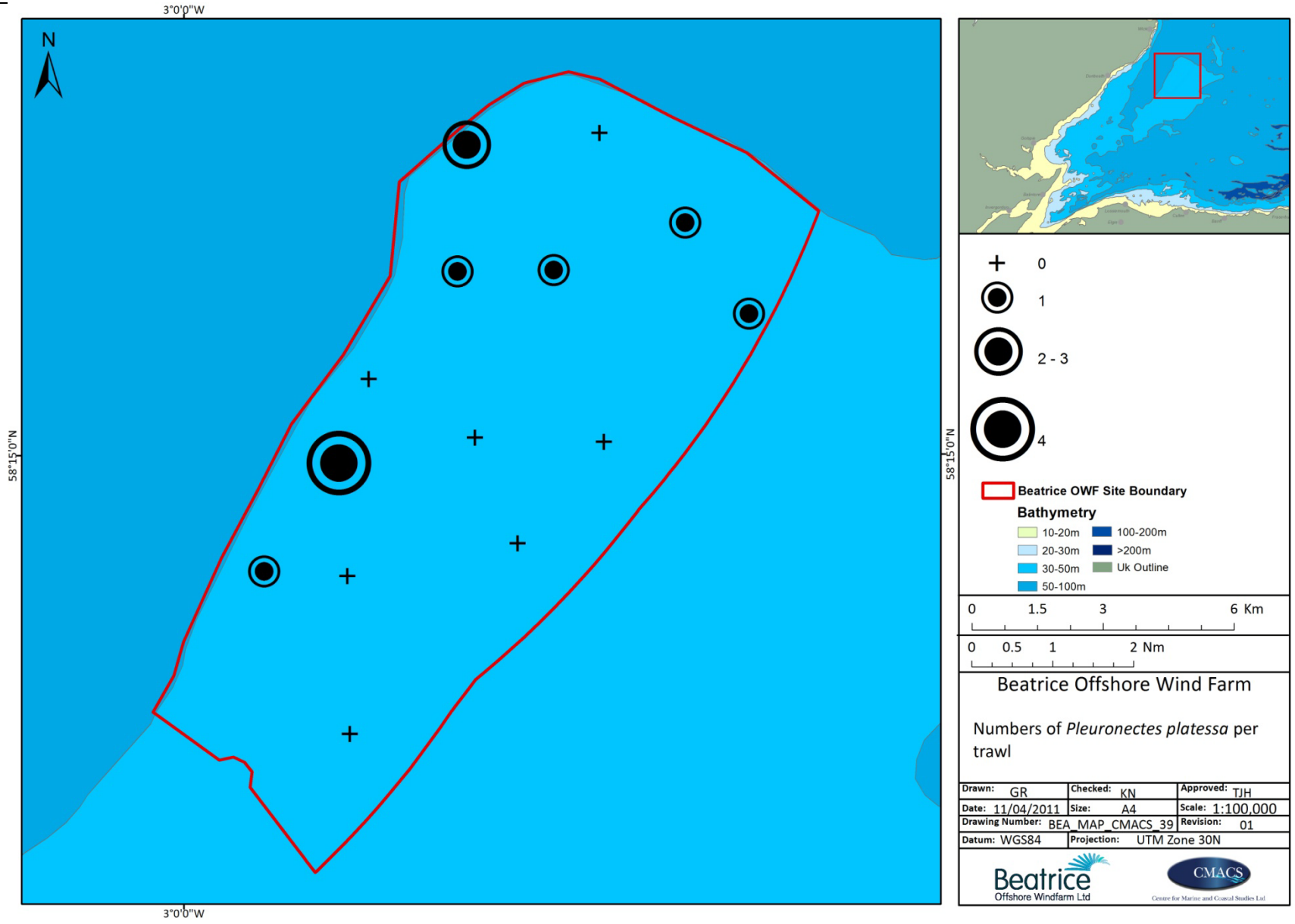


Figure 42. Plaice (*Pleuronectes platessa*) abundance recorded during trawl survey.

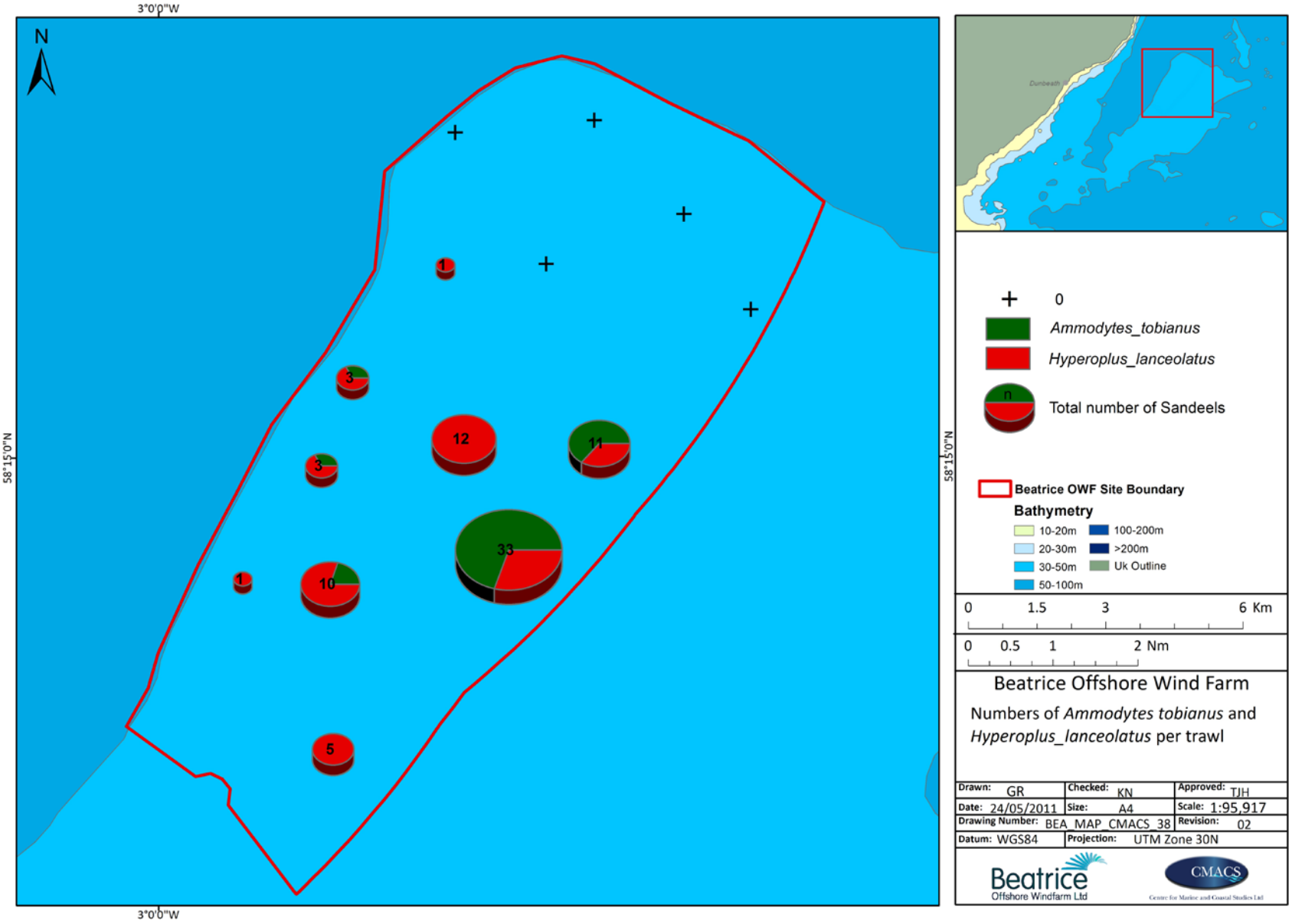


Figure 43. Lesser and greater sand eel (*Ammodytes* sp. *& Hyperoplus sp.*) abundances recorded during trawl survey; nos refer to total sandeels recorded at that station..

No elasmobranchs (sharks, skates and rays) were caught, although there was one small-spotted catshark egg case at Station 11, in the east of the survey area.

3.3.3. Statistical analysis

Cluster analysis and MDS plot were performed on all of the Beatrice 2 m beam trawl samples, although colonial data were omitted (owing to being recorded by weight or presence/absence). A stress level of 0.1 was obtained, indicating good ordination.

The results show that the most distinct epifaunal community occurred at Station 2, with just 35% similarity (Figure 44 and Figure 45). Such a difference is most likely to be explained by the fact that whilst a representative group of fishes were recorded at the station, barely any invertebrates were present (just one common starfish, *Asterias rubens*, and one little cuttlefish, *Sepiola* sp). Observation of sediment types (see section 2.2.2.1) gives no clear reasons for this since the slightly gravelly sand at this location was found at many other locations. Assemblages at all other stations bore approximately 45% group averaged similarity to each other. Stations 3, 9, 11 and 12 formed a loose cluster together, most likely owing to similar, moderately rich (in terms of both abundance and diversity) invertebrate communities inhabiting the coarser, more gravelly substrate present in those areas. Starfish *A. rubens*, urchins, especially *E. esculantus*, queen scallops *A. opercularis*, hermit crabs *Pagurus bernhardus* and *P. prideaux*, and spider crabs *Macropodia* spp, dominated the invertebrate community here, along with smaller numbers of a variety of other, mostly crustacean, species. Apart from Station 7, the remainder of the assemblages (sites, 4, 5, 6, 8, 10, 13, 14) were markedly alike (with almost 60% similarity) with lower diversity and abundance of both invertebrates and fishes typical of sandy substrata. However, although there were a few small differences in the constituent invertebrate community in particular, even Station 7 showed a fish and invertebrate community broadly similar in its make up to the rest of this cluster.

3.3.4. Overview

The communities of invertebrate and fish species recorded were mostly composed of common and widespread organisms typical of moderately shallow, generally sandy substrata. No rare, unusual or protected species were recorded. Whilst patches of coarse substrate within the area might be suitable habitat for herring spawning (to be investigated further by other consultants), beam trawls sample only at the seabed and are therefore not suitable for sampling pelagic fish such as herring, and their absence from the trawls should not be used to inform any assessment of the species in the area. While not commercially fished *per se*, sand eels are a major target of "industrial fishing" for use in animal feed and fertilizer (Wilding & Barnes 2008). Concerns have been raised in the past that over-exploitation of their stocks may have indirect effects upon their predators; specifically diving sea birds such as the auks (e.g. Atlantic puffin, *Fratercula artica*) and terns (Monaghan et al, 1989). Both lesser and greater sand eels were recorded during the survey but again the gear used is far from ideal for determining their true distribution and

abundance. Data from the sediment analysis was provided to the relevant consultants in order to investigate the likely suitability for sandeels.

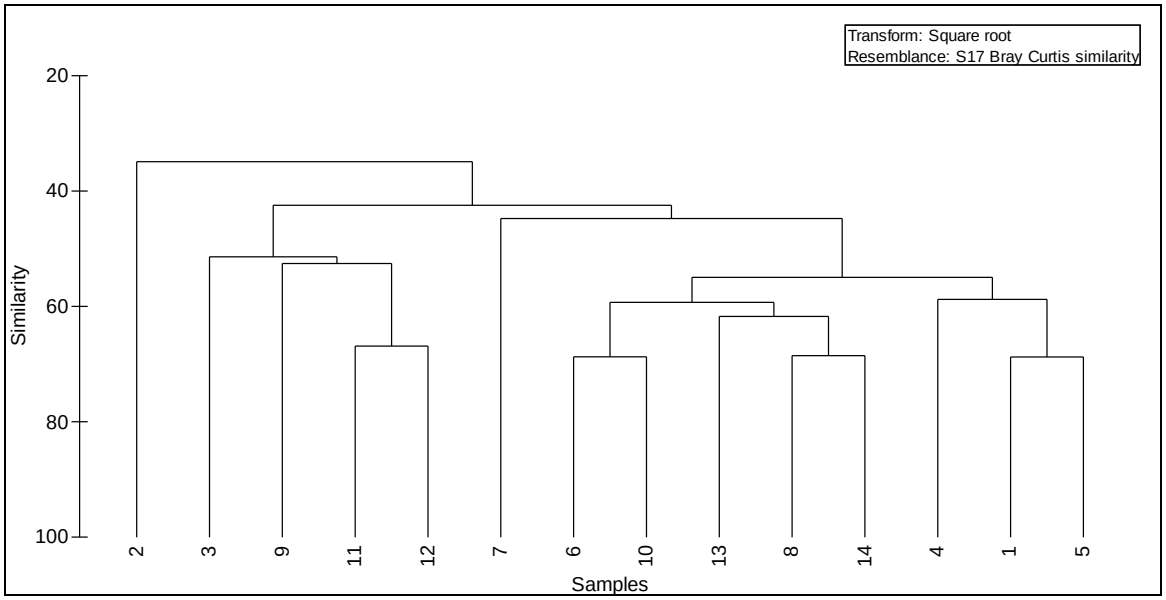


Figure 44. Dendrogram of faunal data from trawl samples

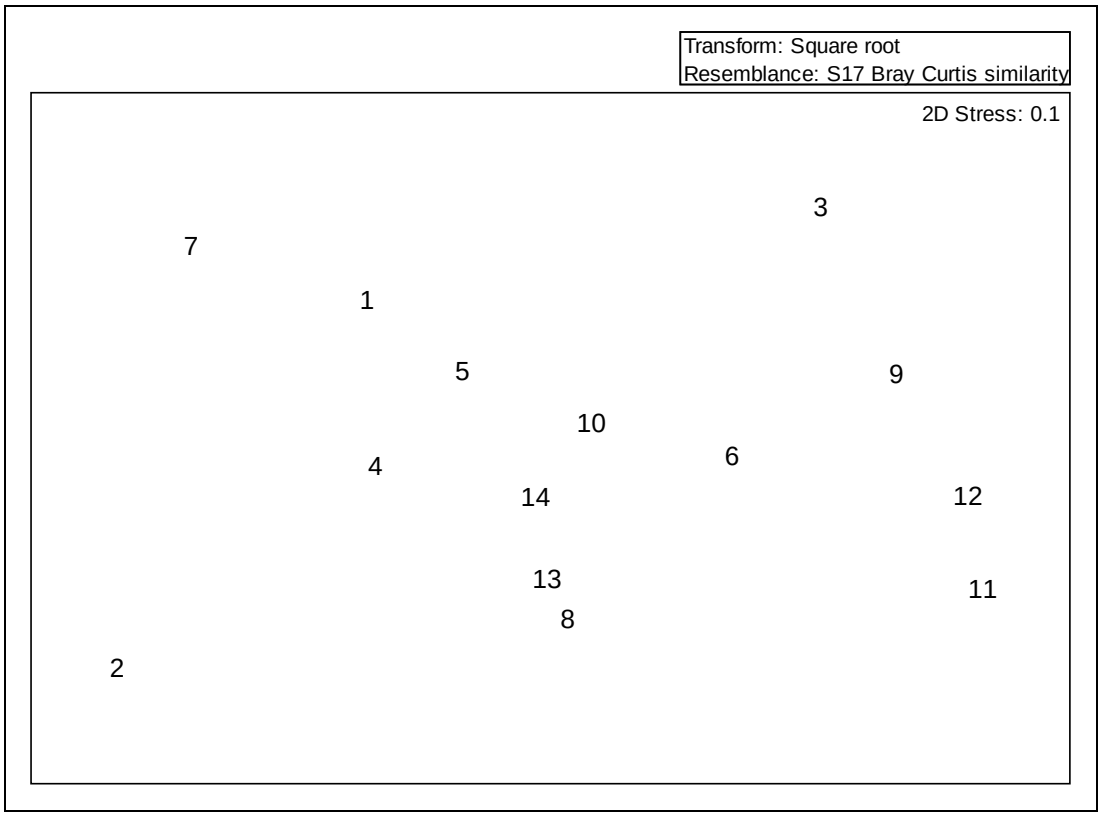


Figure 45. Multi-dimensional scaling plot of trawl data

3.4. Community analysis and possible biotopes

Community analysis has been carried out largely on the basis of the infaunal grab data since the seabed is strongly sedimentary. Community analysis was approached using widely used techniques using the PRIMER v6 routine, and then interpreted against the JNCC biotope classification after Connor et al (2004). Primer v6 was used to prepare the dendrogram and associated multidimensional scaling plots shown in Figure 46 to Figure 52.

The dendrogram indicates groups likely to be ecologically significant at a group averaged similarity level of 30%, as shown by the dotted lines in Figure 46. This indicates that 80 of the 84 samples fall into three main groups, but with one group being clearly split into two sub-groups (referred to as groups 1a and 1b) at a level of around 35% similarity. Four outlying "groups" consisting of single samples are also shown.

Superimposing these groups on the associated MDS makes clear the overlapping nature of the groups, with frequent instances of stations being apparently more similar to stations in other groups than to most of the stations within the same group. This is a common characteristic of seabed communities, particularly where the fauna is rich.

It should be pointed out that the stress level of the MDS plot is 0.14 (Figure 47 - Figure 52), which falls between the levels of 0.1 (indicating good ordination) and 0.2 (indicating a potentially useful 2-dimensional picture) (Clarke and Warwick, 2001), suggesting the relationships implied are not completely dependable. Nevertheless, the groupings from the dendrogram are reasonably discrete, although there is clearly some degree of overlap between the groups, particularly between groups 1a and 1b. A SIMPER analysis was used to clarify the differences between these two groups; this was used in determining the likely biotopes associated with these two groupings, which is discussed in detail in Table 10. The SIMPER analysis indicates that the differences between the groupings is subtle, and that there are no particular species that are very strongly responsible for discriminating between the two groups; the strongest differences are with the polychaete *Spiophanes bombyx*, and the bivalve *Tellina pygmaea*, a potentially important species for discriminating between biotopes.

Full results of SIMPER analysis are included in Appendix 12.

Superimposing environmental variables upon the MDS plot makes it clear that, unsurprisingly, total organic carbon content of the sediment fine fraction (as indicated by loss on ignition) (Figure 49), water depth (Figure 48), and sediment type (% mud, % gravel and sediment description after the system of BGS, as used by JNCC) (Figure 52) all appear to have a moderately strong relationship with the faunal community. These factors are in themselves all likely to be strongly interdependent.

Summary information on the groups identified from the dendrogram has been prepared in Table 10, including major sediment descriptions as well as summary univariate statistics on the fauna (number of taxa, numbers of countable individuals and Shannon Wiener Diversity indices) and lists of the main fauna and their abundances. This information has then been matched against the lists of biotopes from British Waters presented in Connor et al (2004) with the aid of the Bioscribe tool recently developed through the Aggregates Levy Sustainability Fund (ALSF; Bioscribe v.1.2). From this, likely biotope matches, with justifications, are given for each group in Table 10.

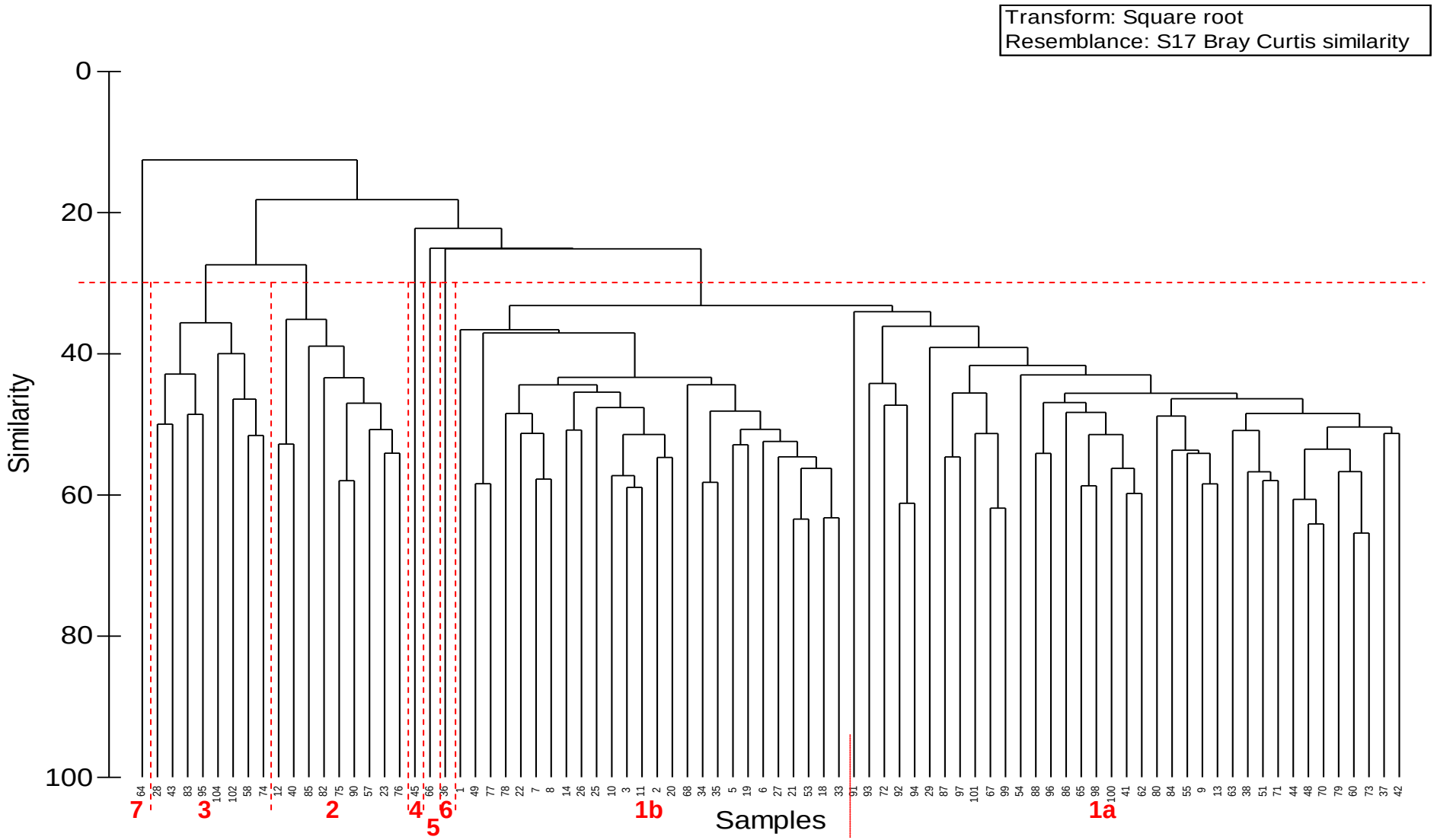


Figure 46. Dendrogram of the infaunal community data derived from grab samples, using the same data and transformation as in Figure 31. The community groupings (1a&b, 2, 3, 4, 5, 6, &7) suggested by a group averaged similarity level of 30% are shown by red dashed lines.

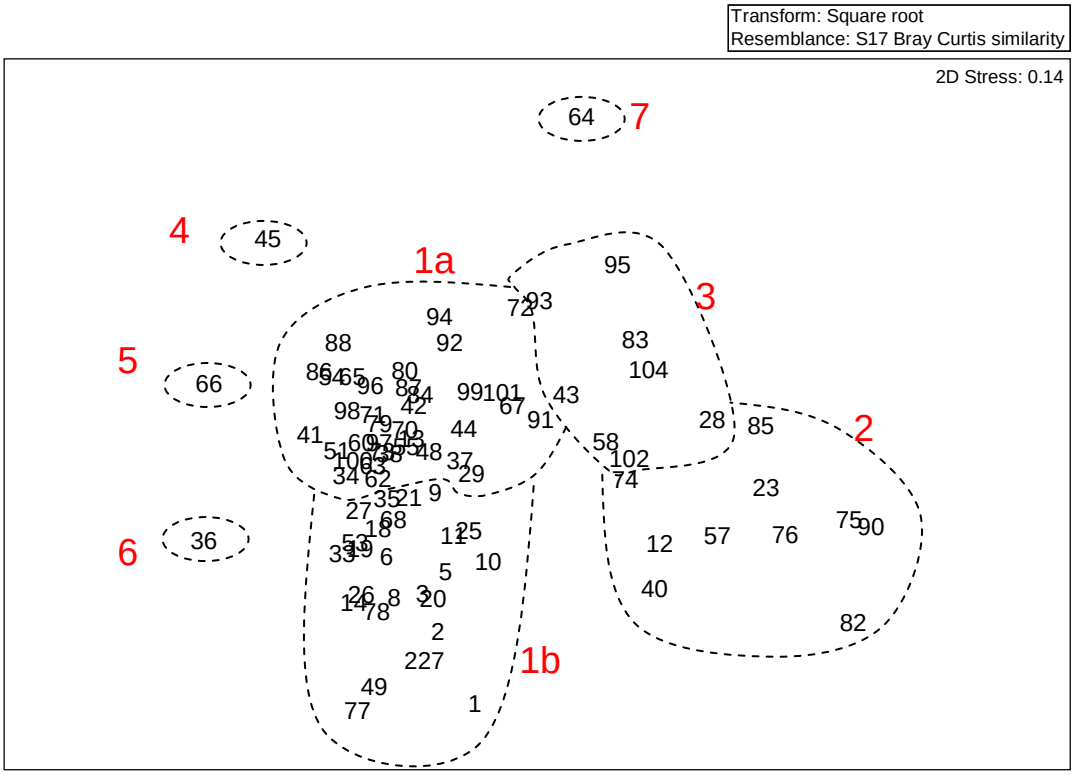


Figure 47. MDS based on the same Primer analysis as the dendrogram in Figure 30. Putative groupings as identified in the dendrogram are superimposed with dotted lines. The MDS was prepared using the full grab faunal dataset and with square root transformation.

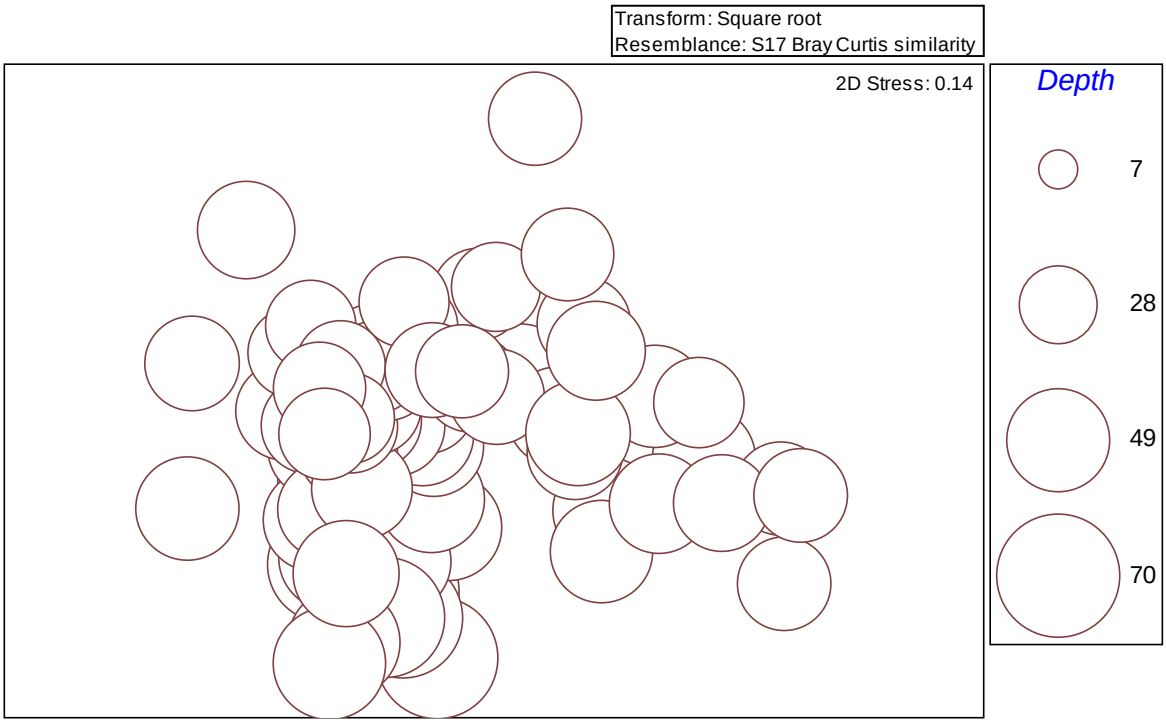


Figure 48. MDS as in Figure 31 with approximate water depth in metres superimposed.

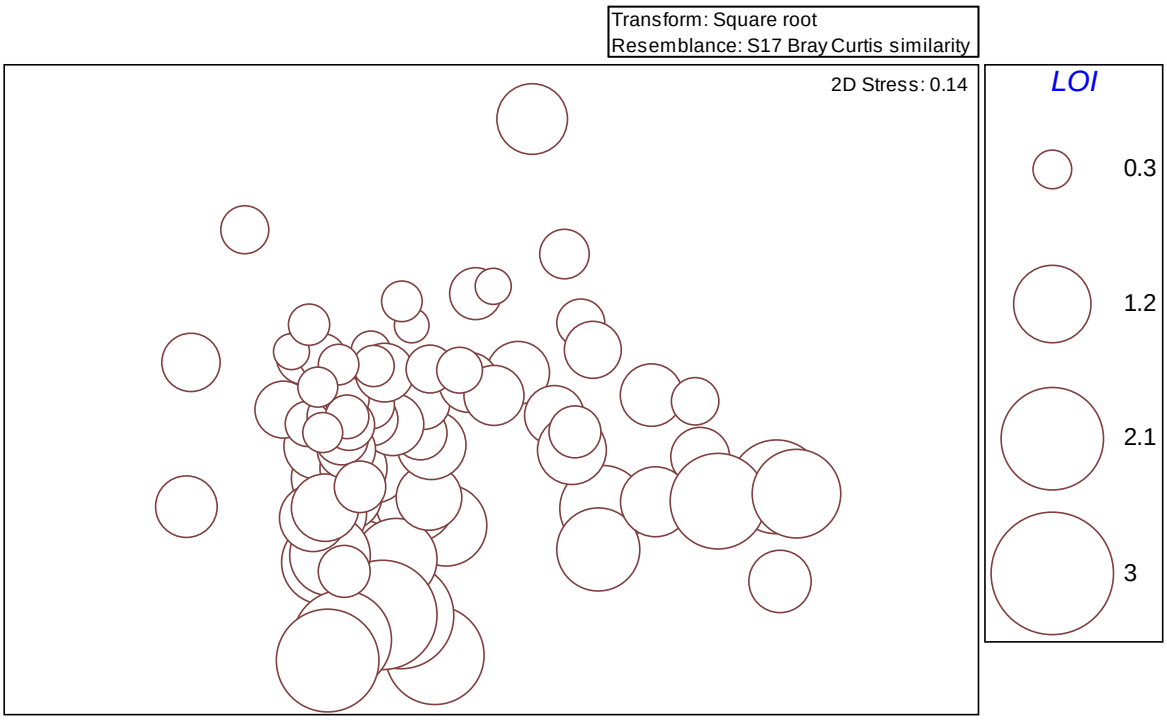


Figure 49. MDS as in Figure 31 with loss on ignition (%) from the fine fraction of the sediment superimposed.

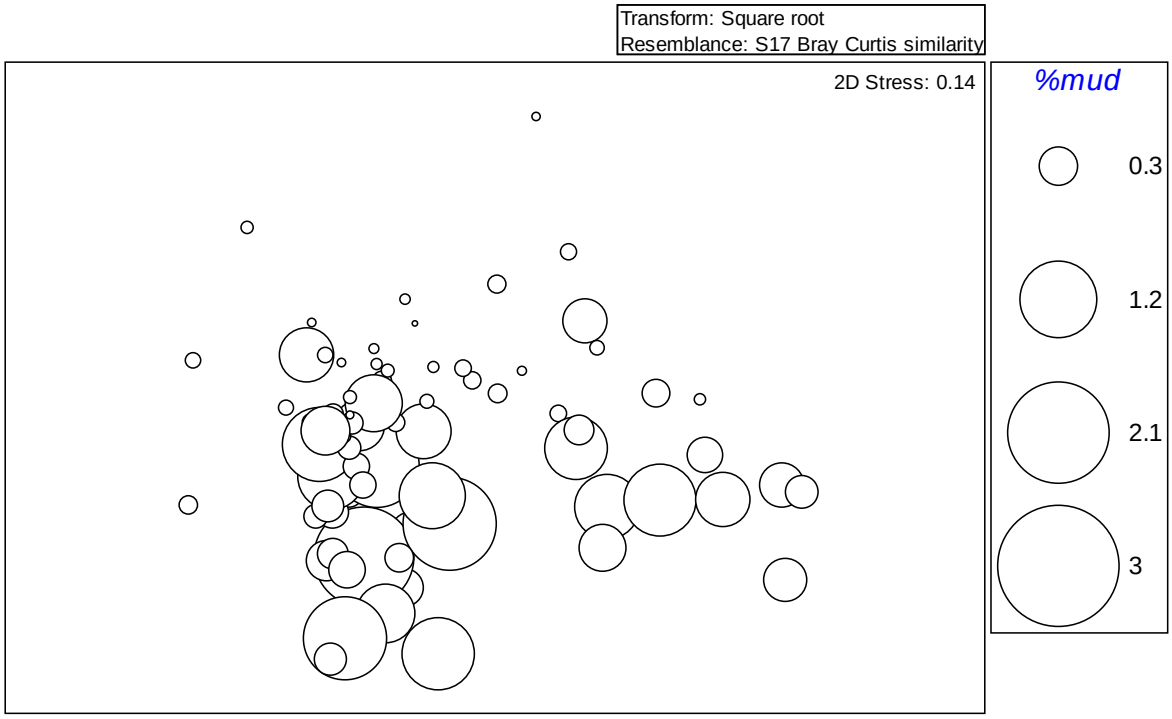


Figure 50. MDS as in Figure 31 with % mud content of the sediment superimposed.

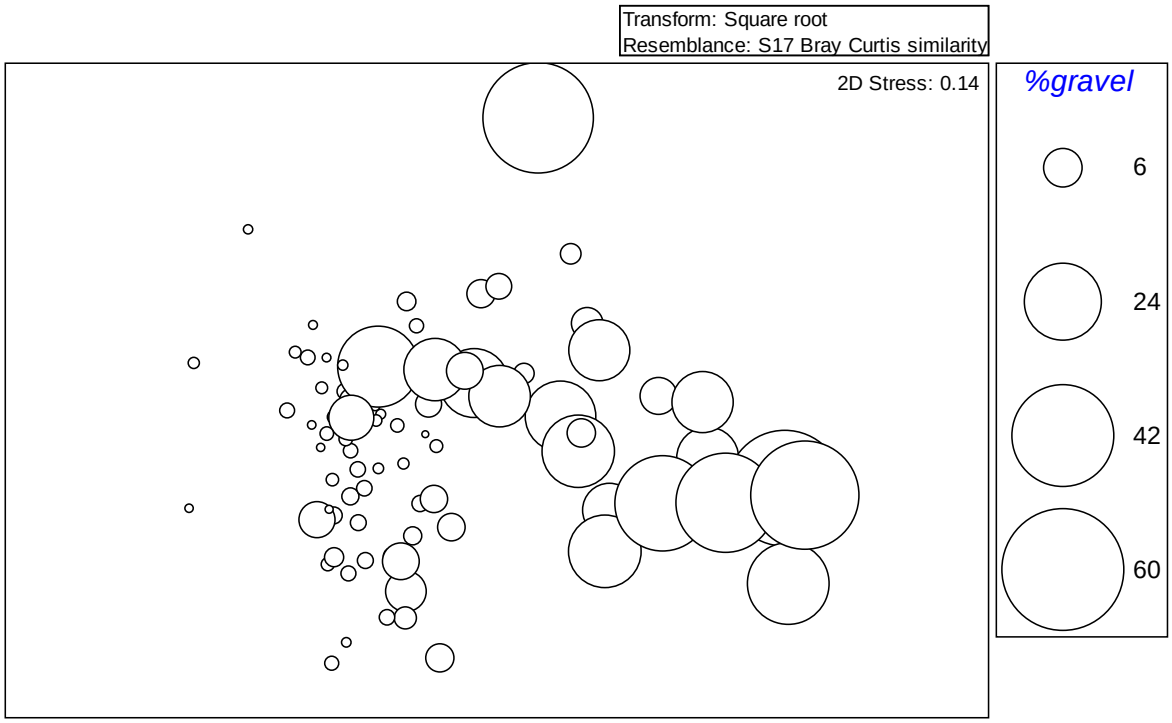


Figure 51. MDS as in Figure 31 with % gravel content of the sediment superimposed.

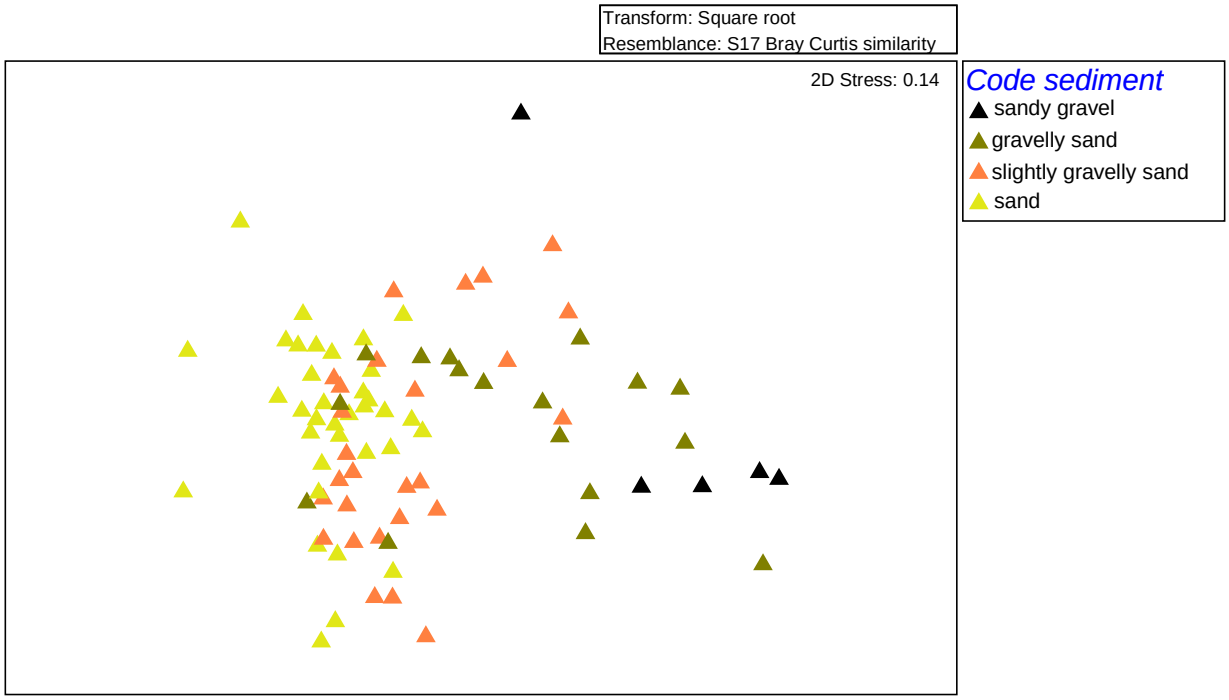


Figure 52. MDS as in Figure 31 with sediment descriptions (after BGS, Long, 2006) superimposed.

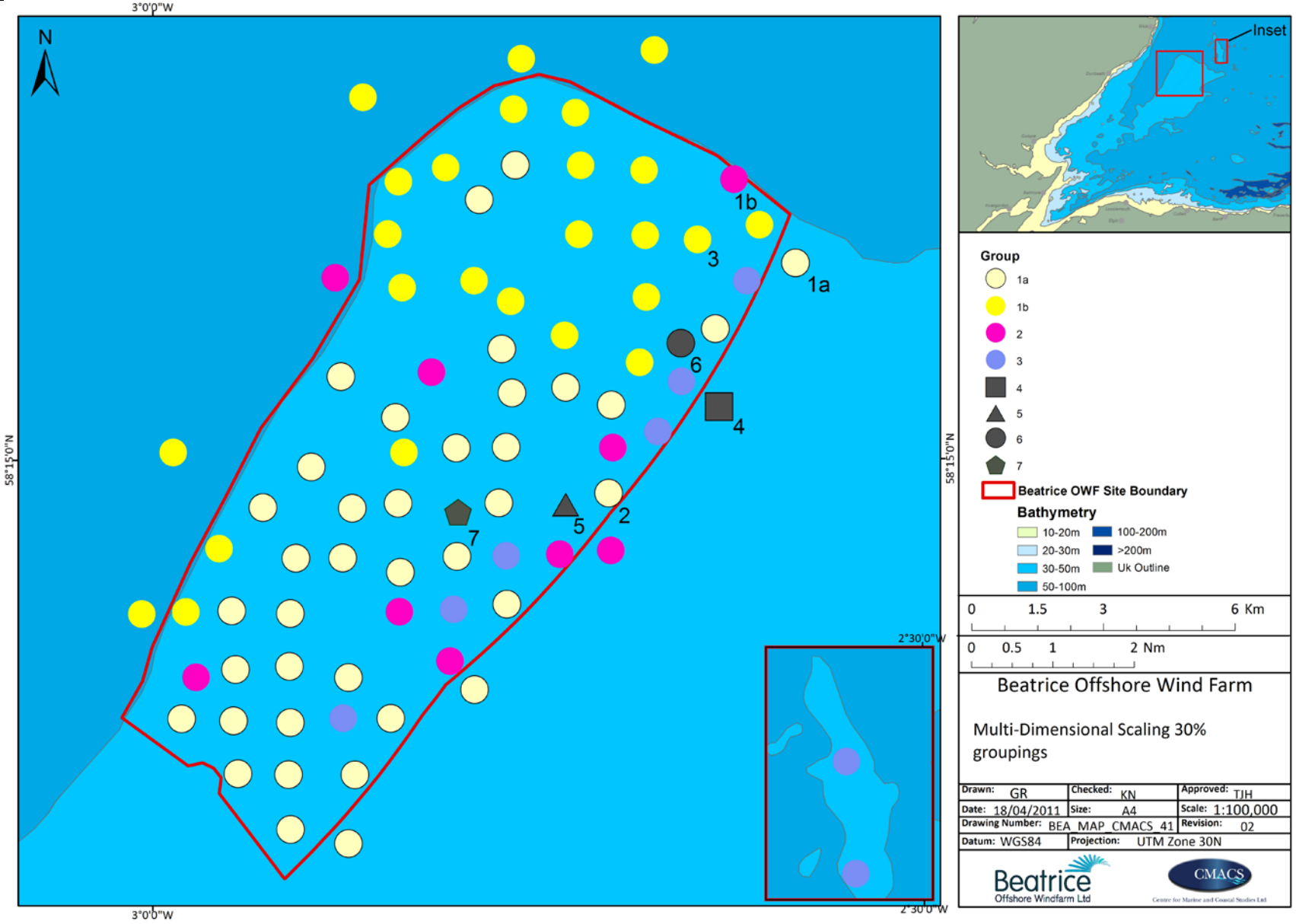


Figure 53. Multi-Dimensional Scaling 30% groupings derived from Figure 46 – Dendrogram of the infaunal community data and Table 10 – Summary of sediment and faunal characteristics.

Table 10 Summary of sediment and faunal characteristics at stations grouped according to the dendrogram in Figure 46 with notes on likely biotopes. Ash free dry weight (AFDW) figures exclude fish. S-W = Shannon Wiener Diversity Index.

Group (stations)	1a (9, 13, 29, 33, 37, 38, 41, 42, 44, 48, 51, 54, 55, 60, 62, 63, 65, 67, 70, 71, 72, 73, 79, 80, 84, 86, 87, 88, 91, 92, 93, 94, 96, 97, 98, 99, 100, 101)				
Predominant sediment type	Medium sands, but sometimes slightly gravelly or even gravelly				
% gravel (mean & range)	3.3 (0.2 - 26.5)	% sand (mean & range)	96.6 (73.5 – 99.7)	%mud	1.3-2.2%
Total taxa	171	Countable ind. / 0.1m2	55.1	Taxa / 0.1m2	25.1
S-W div index / 0.1m2	2.78	AFDW(g/m2)	2.95		

Most abundant taxa (to 0.45/0.1m2)				Colonial orgs (% occ.) all	
Spiophanes bombyx	10.87	Nemertea spp.	0.61	Lagotia viridis	100%
Moerella pygmaea	6.29	Poecilochaetus serpens	0.61	Athecata sp.	8%
Ophelia borealis	4.58	Bathyporeia guilliamsoniana	0.61	Hydrallmania falcata	5%
Cochlodesma praetenue	3.21	Travisia forbesi	0.61	Pedicellina sp.	5%
Echinocyamus pusillus	2.32	Abra prismatica	0.58	Phialella quadrata	3%
Copepoda spp.	1.58	Clymenura johnstoni	0.53	Sertularella gayi	3%
Nephtys cirrosa	1.13	Aonides paucibranchiata	0.47	Sertularia cupressina	3%
Glycera lapidum	1.11	Phoronis spp.	0.47	Obelia sp.	3%
Gari fervensis	1.05	Pista cristata	0.45	Clytia hemisphaerica	3%
Dosinia spp. Juv.	1.05	Dosinia lupinus	0.45	Tubulipora sp.	3%
Owenia fusiformis	0.89	Gastrosaccus spinifer	0.45	Disporella hispida	3%
Edwardsia sp.	0.89			Beania mirabilis	3%
Crenella decussata	0.87			Escharella immersa	3%
Euspira pulchella	0.76			Escharella variolosa	3%
Aponuphis bilineata	0.66			Schizomavella sp.	3%

This group is a good match for the biotope SS.SCS.ICS.MoeVen Moerella spp. with venerid bivalves in infralittoral gravelly sand. Many of the characteristic species, including *Tellina (=Moerella) pygmaea*, a number of worm species such as *Glycera lapidum* and *Spiophanes bombyx*, and some amphipod crustacea such as *Bathyporeia guilliamsoniana*, occur at quite high densities. A number of venerid bivalve species, and other robust bivalves, are also found in these samples, notably *Dosinia lupinus and Dosinia* spp juveniles, with some *Timoclea ovata*, *Clausinella fasciata*, and *Goodallia triangularis* (not listed above as densities were lower so they were not amongst the most abundant taxa). As noted by Connor et al (2004) these often quite large species typically occur at comparatively low densities, and are hence often under-represented in grab sample; the densities found in these samples therefore may still be typical of the biotope. The sediment also matches well with the description in Connor et al (2004) of "Medium to coarse sand and gravelly sand". From the field notes it is clear that shell and shell fragments were often associated with these sediments, and may contribute much of the gravel sized particles, although not often sufficiently abundant to be noticed on the camera survey. There are few colonial or encrusting organisms due to the lack of hard substrate. However, the biotope on Smith Bank is deeper than is reportedly typical of this biotope, which is more usually limited to 20m or less.

Conclusion This group is a good match for the biotope SS.SCS.ICS.MoeVen *Moerella* spp. with venerid bivalves in infralittoral gravelly sand.

Group (stations)	1b (1, 2, 3, 5, 6, 7, 8, 10, 11, 14, 18, 19, 20, 21, 22, 25, 26, 27, 34, 35, 49, 53, 68, 77, 78,)				
Predominant sediment type	Fine and medium sands, sometimes slightly gravelly				
% gravel (mean & range)	1.6 (0.3-6.7)	% sand (mean & range)	97.8 (93 - 99.5)	%mud	0.1 - 2%
Total taxa	177	Countable ind. / 0.1m2	99.2	Taxa / 0.1m2	36.7
S-W div index / 0.1m2	2.86	AFDW(g/m2)2	1.79		

Most abundant taxa (to 0.56/0.1m2)				Colonial orgs (% occ.) all	
Spiophanes bombyx	33.48	Nephtys sp. Juv.	1.04	Lagotia viridis	92%
Cochlodesma praetenue	6.32	Nephtys cirrosa	0.96	Phialella quadrata	48%
Gari fervensis	5.00	Crenella decussata	0.96	Athecata sp.	40%
Abra prismatica	2.24	Aricidea cerrutii	0.96	Bougainvillia sp.	4%
Tellina fabula	2.08	Edwardsia sp.	0.84	Hydrallmania falcata	4%
Ophelia borealis	2.04	Dosinia spp. Juv.	0.80	Pedicellina cernua	4%
Echinocyamus pusillus	1.92	Diplocirrus glaucus	0.80	Alcyonidium mytili	4%
Owenia fusiformis	1.80	Timoclea ovata	0.76		
Amphiura filiformis	1.68	Bathyporeia elegans	0.72		
Lumbrineris gracilis	1.60	Glycera lapidum	0.68		
Phaxas pellucidus	1.60	Clymenura johnstoni	0.68		
Poecilochaetus serpens	1.44	Euspira pulchella	0.60		
Copepoda spp.	1.32	Lanice conchilega	0.60		
Nemertea spp.	1.28	Moerella pygmaea	0.56		
Chaetozone christiei	1.20	Spiophanes kroyeri	0.56		
Scoloplos (scol.) armiger	1.16	Spio decorata	0.56		
Phoronis spp.	1.08	Galathowenia oculata	0.56		

This is a fairly rich and diverse community with few encrusting or colonial organisms due to the lack of hard substrate. The species present indicate the most likely biotope complex to be SS.SSA.CfiSa Circalittoral fine sand. This is split into two biotopes: SS.SSA.CfiSa.EpusOborApri *Echinocyamus pusillus, Ophelia borealis* and *Abra prismatica* in circalittoral fine sand, and SS.SSA.CfiSa.ApriBatPo *Abra prismatica, Bathyporeia elegans* and polychaetes in circalittoral fine sand, but neither of these biotopes is particularly well described due to an absence of reliable data, and the community found here appears to match quite well with both, due to fairly high numbers of both *Echinocyamus pusillus* and *Abra prismatica* along with modest numbers of the amphipod crustacean *Bathyporea elegans* and numerous polychaete species typical of clean fine sand such as *Spiophanes bombyx, Ophelia borealis* and *Nephtys cirrosa*. Despite the title of this biotope complex, the descriptions in Connor et al (2004) mention that the biotopes occur in medium to fine sands (from 25 – 100m depth), matching very well with the sediments encountered here. Connor et al also consider that communities described by Basford and Elftheriou, 1988 and Kunitzer et al, 1992, for the central and northern north sea belong to these biotopes, although they do not give any further information on distributions.

It also has a number of characteristic species typical of the biotope SS.SSa.IMuSa.FfabMag *Fabulina fabula* and *Magelona mirabilis* with venerid bivalves and amphipods in infralittoral compacted fine muddy sand. *Fabulina* (now *Tellina*) *fabula* is reasonably abundant, although *Magelona* spp are almost absent and *Bathyporeia* spp not very abundant. Other species typical of this biotope such as the worm *Spiophanes bombyx* and the bivalves *Gari fervensis*, *Abra prismatica* and *Phaxas pellicidus* are present at reasonably high abundances. This biotope is normally found in much shallower areas than this, and the sediment here is considerably less muddy than is typical for this biotope, although it was the muddiest in this survey. This community also has some similarity to the biotope SS.SCS.ICS.MoeVen *Moerella* spp. with venerid bivalves in infralittoral gravelly sand assigned to group 1a, to which the overall community is very similar, but with much lower densities of the characteristic species *Tellina (=Moerella) pygmaea* and also *Bathyporeia guilliamsoniana*. Many of the characteristic species, including *Tellina pygmaea*, a number of worm species such as *Glycera lapidum* and *Spiophanes bombyx*, and some amphipod crustacea such as *Bathyporeia guilliamsoniana*, occur at only very low densities. A number of venerid bivalve species, and other robust bivalves, are found in these samples, but only at very low densities. The sediment is clearly slightly finer than the description in Connor et al (2004) of "Medium to coarse sand and gravelly sand".

Conclusion Overall, the best match is clearly with the biotope complex SS.SSA.CfiSa Circalittoral fine sand, but it is not possible to determine which of the two biotopes this includes provides the better match.

Group (stations)	2 (12, 23, 40, 57, 75, 76, 82, 85, 90)				
Predominant sediment type	Gravelly sands & sandy gravels, sand elements dominated by coarse & medium sands				
% gravel (mean & range)	23.7 (11.7-54.4)	% sand (mean & range)	69.7(45.2 – 87.5)	%mud	<1
Total taxa	249	Countable ind. / 0.1m2	334.3	Taxa / 0.1m2	75.3
S-W div index / 0.1m2	3.27	AFDW(g/m2)	8.09		

Most abundant taxa (to 1.56 /0.1m2)				Colonial orgs (% occ.) to 22%)	
Jasmineira caudata	61.33	Thelepus cincinnatus	2.89	Lagotia viridis	100%
Hydroides norvegica	49.00	Atylus vedlomensis	2.89	Escharella immersa	89%
Pomatoceros triqueter	26.67	Mediomastus fragilis	2.89	Schizomavella sp.	78%
Galathea intermedia	14.00	Gibbula tumida	2.78	Porifera crusts indet.	67%
Notomastus latericeus	12.67	Polycirrus spp.	2.56	Disporella hispida	67%
Glycera lapidum	8.33	Spiophanes bombyx	2.44	Obelia sp.	44%
Nemertea spp.	8.22	Clymenura johnstoni	2.33	Alcyonium digitatum	44%
Leptochiton asellus	7.33	Lumbrineris gracilis	2.11	Tubulipora sp.	44%
Phascolion strombus	6.00	Malmgreniella mcintoshi	2.11	Escharella variolosa	44%
Aonides paucibranchiata	5.33	Nereimyra punctata	2.11	Microporella ciliata	44%
Nematoda spp.	4.11	Verruca stroemia	2.00	Sertularella gayi	33%
Clausinella fasciata	4.11	Polygordius spp.	1.89	Clytia hemisphaerica	33%
Malmgreniella spp.	4.11	Maera othonis	1.78	Hydrallmania falcata	22%
Gari depressa	3.67	Scalibregma inflatum	1.67	Pedicellina cernua	22%
Spio armata	3.44	Thracia villosiuscula	1.67		
Echinocyamus pusillus	3.00	Gnathia oxyuraea	1.56		
Harmothoe spp.	3.00				

This very rich and diverse group (and with a high average biomass) is very difficult to match clearly with any biotope. The dominant species, the very small fanworm *Jasmineira caudata,* is only associated with two biotopes (SS.SBR.SMus.ModMx *Modiolus modiolus* beds on open coast circalittoral mixed sediment and SS.SMx.CMx.MysThyMx *Mysella bidentata* and *Thyasira* spp. in circalittoral muddy mixed sediment) according to published comparative tables (JNCC comparative tables 0405). However, the community here is very clearly very different to both of these, with none of their main characterising features or species. This community is very rich in both infaunal and encrusting worms and best fits with the SS.SCS.CCS.MedLumVen *Mediomastus fragilis*, *Lumbrinereis* spp. and venerid bivalves in circalittoral coarse sand or gravel biotope that has been noted previously in the central Moray Firth (JNCC undated) although the two characteristic species (*Mediomastus fragilis* and *Lumbrineris gracilis*) are both present in only modest numbers in these samples. The venerid bivalve *Clausinella fasciata* was abundant, whilst a number of other venerids (notably *Goodallia triangularis*, *Timoclea ovata* and venerid juveniles) were reported at reasonably high abundances. Other species found here that are characteristic of this biotope include numerous polychaete species and the small pea urchin *Echinocyamus pusillis*. The small squat lobster *Galathea intermedia,* usually indicative of very rough ground, was also very abundant. The larger stones present in some samples were colonised by encrusting organisms including the tubeworms *Hydroides norvegica* and *Pomatoceros triqueter*, several bryozoan and hydroid species, and the dead men's fingers *Alcyonium digitatum*.

Conclusion This community appears likely to be a variant of the MedLumVen biotope, unusually dominated numerically by the small fanworm *Jasmineira caudata*.

Group (stations)	3 (28, 43, 58, 74, 83, 95, 102, 104)				
Predominant sediment type	Slightly gravelly sand or gravelly sand, (the sands being dominated by coarse & medium sands)				
% gravel (mean & range)	9.1% (1.7-21.2)	% sand (mean & range)	90.7 (77.9 – 90.7)	%mud	<1
Total taxa	122	Countable ind. / 0.1m2	78.5	Taxa / 0.1m2	37.5
S-W div index / 0.1m2	3.31	AFDW(g/m2)	2.54		

Most abundant taxa (to 0.88 /0.1m2)				Colonial orgs (% occ.) all	
Glycera lapidum	6.13	Phoronis spp.	1.50	Lagotia viridis	75%
Notomastus latericeus	4.75	Lanice conchilega	1.50	Disporella hispida	25%
Aonides paucibranchiata	3.63	Spio filicornis	1.50	Schizomavella sp.	25%
Hydroides norvegica	3.25	Aglaophamus rubella	1.38	Porifera crusts indet.	12%
Ophelia borealis	3.00	Polygordius spp.	1.25	Sertularella gayi	12%
Nemertea spp.	2.75	Poecilochaetus serpens	1.13	Pedicellina sp.	12%
Pista cristata	2.25	Phascolion strombus	1.13	Tubulipora sp.	12%
Spiophanes bombyx	2.13	Euspira pulchella	1.13	Alcyonidium sp.	12%
Pisione remota	2.13	Hesionura elongata	1.13	Alcyonidium diaphanum	12%
Moerella pygmaea	2.00	Edwardsia sp.	1.00	Escharella immersa	12%
Syllis armillaris	2.00	Clymenura johnstoni	1.00	Escharella variolosa	12%
Urothoe marina	2.00	Spio armata	1.00		
Aricidea cerrutii	1.75	Hyperoplus lanceolatus	1.00		
Jasmineira caudata	1.63	Atylus vedlomensis	0.88		
Echinocyamus pusillus	1.63	Pontocrates arenarius	0.88		
Syllis cornuta	1.63				

This moderately rich and very diverse group (although with a very low average biomass) is very strongly dominated by polychaete worms (this being the reason for the relatively low biomass, worms being often far smaller than many molluscs and echinoderms, for example), but less gravelly and less rich than groups 1a, 1b and 2. Many of the species present, including the top three species, as well as *Ophelia borealis*, *Echinocyamus pusillus* and a number of venerid bivalves, are typical of the MoeVen biotope. However, the top three species (all polychaetes) are not usually this abundant in this biotope, whilst *Tellina (=Moerella) pygmaea* itself is present at a modest average of 2 individuals per 0.1m2. The sediment in these samples is typical of MoeVen.

This group of samples occurs in a relatively narrow band along parts of the eastern edge of the survey area, but also includes the two samples taken at the reference station on a sandbank to the north east (stations 102 and 104).

Glycera lapidum is the characteristic and dominant species in a much more impoverished biotope, SS.SCS.ICS.Glap *Glycera lapidum* in impoverished infralittoral mobile gravel and sand, which also typically includes *Spiophanes bombyx* and *Ophelia borealis*, but with few other taxa. Connor et al (2004) note that this biotope may well be an impoverished version of the MoeVen biotope that develops when there is increased sediment disturbance. Like the MoeVen biotope, the Glap biotope is considered by Connor et al to occur more typically in shallower water, to a maximum of 20m.

Unusually, however, this community, although strongly dominated by *Glycera lapidum,* is rather richer and more diverse (see indices above) than the more typical MoeVen community described earlier (group 1a).

Conclusion This community can best be considered as a *Glycera* dominated version of the MoeVen biotope that is rather richer in species and individuals than typical MoeVen.

Group (stations)	4 (station 45 only)				
Predominant sediment type	Medium sand				
% gravel	<1	% sand	99.6	%mud	<0.1
Total taxa	7	Countable ind. / 0.1m2	10	Taxa / 0.1m2	7
S-W div index / 0.1m2	1.77	AFDW(g/m2)	0.055		

Most abundant taxa (all)				Colonial orgs (% occ.) all	
Moerella pygmaea	4			Lagotia viridis	100%
Ophelia borealis	2				
Cochlodesma praetenue	1				
Dosinia spp. Juv.	1				
Dosinia lupinus	1				
Chamelea striatula	1				

This species poor and low diversity sample is not distinctive enough to try to fit it into a biotope on the basis of a single sample and is probably best regarded as a sandier patch within the MoeVen biotope, which makes sense when viewed with the overall distribution of both that biotope and the relevent sediments. The six species found all seem to be associated with the MoeVen biotope and include *Tellina (=Moerella) pygmaea* itself and the venerids *Dosinia* spp and *Chamelea striatula*.

Conclusion This station is probably best regarded as a sandier patch within the MoeVen biotope.

Group (stations)	5 (station 66 only)				
Predominant sediment type	Medium sand				
% gravel	<1)	% sand	99.5	%mud	<0.1
Total taxa	17	Countable ind. / 0.1m2	29	Taxa / 0.1m2	17
S-W div index / 0.1m2	2.47	AFDW(g/m2)	0.11		

Most abundant taxa (all)				Colonial orgs (% occ.) all	
Spiophanes bombyx	9	Pista cristata	1	Hydrallmania falcata	100%
Bathyporeia guilliamsoniana	4	Hippomedon denticulatus	1	Clytia hemisphaerica	100%
Dosinia spp. Juv.	3	Spio decorata	1		
Copepoda spp.	2	Hyperoplus lanceolatus	1		
Jasmineira caudata	1	Veneridae sp. Juv.	1		
Ophelia borealis	1	Megaluropus agilis	1		
Nephtys cirrosa	1	Spisula elliptica	1		
Phaxas pellucidus	1				

This sample shows a similarity in the dendrogram and MDS plot (Figure 46 and Figure 47) with 1b (SS.SSA.CfiSa Circalittoral fine sand). However, although it is composed of well sorted fine and medium sands, it lacks the main characteristic species (notably *Abra prismatica* and *Echinocyamus pusillus*), and is situated in an area of generally coarser seabed. It also has several species in common with the MoeVen biotope; it seems more appropriate to consider it as a slightly anomalous part of that biotope complex, which is present in neighbouring samples.

Conclusion This station is best regarded as part of the MoeVen biotope.

Group (stations)	6 (station 36 only)				
Predominant sediment type	Medium and fine sands				
% gravel	<1)	% sand	99.6	%mud	<0.1
Total taxa	13	Countable ind. / 0.1m2	21	Taxa / 0.1m2	13
S-W div index / 0.1m2	2.21	AFDW(g/m2)	0.06		

Most abundant taxa (all)				Colonial orgs (% occ.) all	
Spiophanes bombyx	8			Lagotia viridis	100%
Cochlodesma praetenue	2				
Dosinia spp. Juv.	2				
Phascolion strombus	1				
Phoronis spp.	1				
Tellina fabula	1				
Nephtys sp. Juv.	1				
Timoclea ovata	1				
Siphonoecetes striatus	1				
Eudorellopsis deformis	1				
Hyalinoecia tubicola	1				
Ophiuridae sp. Juv.	1				

This sample shows a similarity in the dendrogram and MDS plot (Figure 46 and Figure 47) with group 1a (SS.SCS.ICS.MoeVen *Moere*lla spp. with venerid bivalves in infralittoral gravelly sand."). Although the sediment is somewhat finer than is typical, and it lacks the main characteristic species (*Tellina (=Moerella) pygmaea*), it includes the venerids *Timoclea ovata* and *Dosinia* spp, as well as the polychaete *Spiophanes bombyx* and it seems appropriate to consider it as part of that biotope, which is present in neighbouring samples.

Conclusion This station is best regarded as part of the MoeVen biotope

Group (stations)		7 (station 64 only)					
Predominant sediment type		Sandy gravel					
% gravel	49.3	% sand	50.7		%mud	<0.1	
Total taxa	12	Countable ind. / 0.1m2	16		Taxa / 0.1m2	12	
S-W div index / 0.1m2	2.39	AFDW(g/m2)	0.14				

Most abundant taxa (all)				Colonial orgs (% occ.)	
Thelepus cincinnatus	3			None found	
Moerella pygmaea	2				
Cirratulus cirratus	2				
Spiophanes bombyx	1				
Glycera lapidum	1				
Notomastus latericeus	1				
Aonides paucibranchiata	1				
Eumida spp.	1				
Scolelepis (P) korsuni	1				
Eusyllis blomstrandi	1				
Gammaropsis maculata	1				
Bodotria scorpioides	1				

This sample is poor in both species and countable individuals, but in the dendrogram and MDS plot (Figure 46 and Figure 47) it displays some similarity with group 3, and this can be seen in the presence of *Spiophanes bombyx*, *Glycera lapidum*, *Notomastus latericeus* and *Aonides paucibranchiata*, as well, of course, as *Tellina (=Moerella) pygmaea*. Like those of group 3 samples, the sediment has high gravel content, and it is clear that this sample should be assigned to the ***Glycera lapidum*** dominated version of the MoeVen biotope.

Conclusion This station is part of the ***Glycera lapidum*** dominated version of the MoeVen biotope.

Based on these outputs, and using also the detailed seabed features maps prepared by OSIRIS using acoustic surveys, an interpretation of likely biotope distributions has been prepared (Figure 54). In a very small number of cases, it was considered more realistic to ignore the community groupings/biotopes given in Table 10 and to assign biotopes over a broad area, usually on the basis of wider general distribution of that biotope, and/or sediments, or on the basis of the seabed features map, in the knowledge that there are always likely to be smaller patches of other communities within any designated biotope. Four main biotopes (or variants) or biotope complexes, have been identified, of which two are extensive within the survey area (SS.SCS.ICS.MoeVen *Moerella* spp. with venerid bivalves in infralittoral gravelly sand biotope and SS.SSA.CfiSa Circalittoral fine sand biotope complex) and two are patchy and/or limited in extent (*Glycera lapidum* dominated version of the MoeVen biotope, and SS.SCS.CCS.MedLumVen *Mediomastus fragilis*, *Lumbrinereis* spp. and venerid bivalves in circalittoral coarse sand or gravel).

The highly patchy nature of sediments can cause difficulties in assigning biotopes to areas. One example of this was at Station 89, where acoustic survey suggested that coarse sediments could be expected; experience with the grab was in accordance with this, since four attempts to grab failed to result in any samples, but the camera survey found only medium or medium to coarse sand with fine shell fragments (although an alternative explanation is that there were large numbers of stones hidden within the sediment). Overall, however, the biotope map produced is considered to be reliable. During preparation of this biotope map, there was regular liaison with the team preparing a biotope map for the proposed adjacent Moray Offshore Wind Farm, and close agreement in both methods and results was found.

In addition, the small patch of cobble and boulder reef dominated mostly by tubeworms and barnacles, and tentatively ascribed to the biotope SS.SCS.CCS.PomB *Pomatoceros triqueter* with barnacles and bryozoan crusts on unstable circalittoral cobbles and pebbles that was identified by camera survey in the north west of the area was added to the map. It seems likely that one or two smaller patches of similar, but less distinct - ie less easily detected on sidescan sonar - habitat occur elsewhere near the north western boundaries of the proposed development area as shown in Figure 54, although these could not be mapped in detail.

Comparing Figure 25 with Figure 54, biomass was not very clearly correlated to biotope, although the CfiSa biotope had the lowest overall levels and the highest values were found in the other three biotopes; however, values in the MoeVen biotope were especially variable, with many of both the lowest and highest values present in these areas.

The area of each biotope (including variants of biotopes) or biotope complex (i.e. the fine sand habitat) was estimated using GIS software separately for the areas within and outside of the proposed development area, and the resulting estimates are presented in Table 11.

Table 11 Area of each biotope, biotope variant or biotope complex as estimated using GIS software. Total areas, as well as areas within and outside the proposed application site boundary, are given.

Biotope complex / biotope (or variant)	Total area (km^2)	Area outside development area (km^2)	Area within development area (km^2)
a) SS.SSA.CfiSa Circalittoral fine sand biotope complex	83.32	40.95	42.37
b) SS.SCS.ICS.MoeVen *biotope*	86.07	11.32	74.74
c) SS.SCS.ICS.MoeVen (*Glycera* dominated variant of the biotope)	7.25	0.50	6.75
b) + c) (=all MoeVen biotope)	93.31	11.82	81.49
d) SS.SCS.CCS.MedLumVen (*Jasmineira* dominated variant of the biotope)	9.68	2.14	7.54
e) SS.SCS.CCS.PomB biotope	0.021	0	0.021

The overall conclusion is that the area is strongly dominated by infaunal biotopes in sands, with varying amount of gravel in some places, but hard substrata are relatively rare. The beam trawl data also supports this, since even trawls carried out in areas expected to be quite coarse (notably trawl station 3, 9, 11 and 12) found limited evidence of hard substrates - the organisms found were predominantly those associated with sandy sediments, while hard ground species such as dead men's fingers (*Alcyonium digitatum*) plumose anemone (*Metridium senile*) the urchins *Psammechinus miliaris* and bushy hydroids and bryozoa were mostly either absent (*M. senile*) or present in only very small amounts. Even the hornwrack *Flustra foliacea*, which is capable of growing on shell and small stones, was present in only small amounts, although this species is often quite seasonal and some may have been removed by autumn storms. The larger urchin *Echinus esculentus* was found in higher numbers, but this species has quite a cosmopolitan distribution and can occur on relatively sandy substrates.

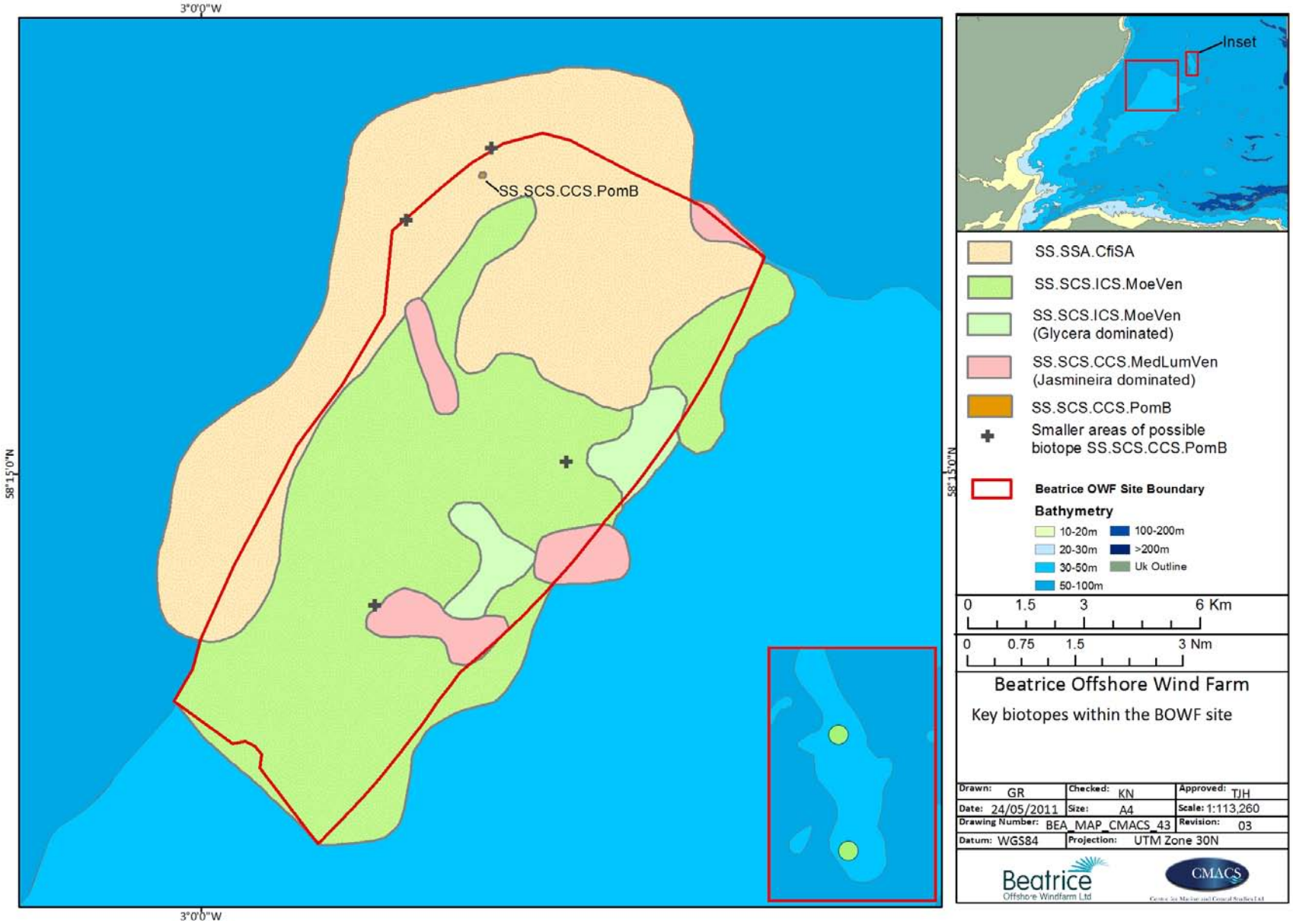


Figure 54. Biotope map for the Beatrice OWF survey area. See text for full biotope definitions.

4. Conclusions and Discussion

Sediments from six locations were investigated for a suite of possible heavy metal and orgnaic contaminants due to the history of oil and gas explorations and production activities in the general area. Organic contaminants (Polyclic Aromatic Hydrocarbons, n-alkanes, and total alkanes) were present at very low levels or not detected. Barium was present at levels ranging from 133 - 273 mg/kg, and whilst this may have come from past drilling activities, these levels are lower than published values for North Sea sediments sampled at greater than 5 km from oil and gas platforms, and do not suggest gross contamination. All heavy metals were present at levels that were in all cases below Interim Sediment Quality Guidelines and CEFAS and Marine Scotland Action levels where these exist. There was no apparent relationship between distribution of any of the metals, including barium, and distribution of known wellheads.

The majority of the seabed was dominated by medium sands, often with varying amounts of shell fragments, whole shell or gravel. Hard substrate seabeds such as cobble and boulders were very infrequent, though coarser material was found in scattered locations, mostly in a few small but discrete patches in the north west of the survey area, and towards the eastern boundary of the survey area. The biological communities were rich in terms of numbers of organisms and numbers of taxa; and a total of 8,286 individuals from 356 taxa from the 84 grabs; mean values were 98.6 individual, 34.5 taxa and 2.88 Shannon Wiener diversity index, per 0.1 m2 grab. The communities were not particularly rich in terms of biomass (mean of 2.98 g/m^2 ash free dry weight). They were dominated numerically by a variety of worms and to a lesser extent molluscs that were largely as expected based on published reports, although the high abundances in some areas of the small fanworm *Jasmineira caudata* was not particularly expected for this area; however, this is a widespread and abundant species around the whole of the UK. Biomass was dominated by molluscs (41.8%), with polychaetes and echinoderms contributing most of the remainder.

Epifaunal communities as identified by beam trawls and camera survey were generally relatively sparse, with the demersal fish communities being dominated by flatfish such as dab and plaice in the main. Sandeels *Ammodytes tobianus* and *Hyperoplus lanceolatus* were also frequent in some of the beam trawls. There were some areas of coarser seabed sediments with higher numbers of organisms typical of coarse ground. Starfish *Asteria rubens*, urchins, especially *Echinus esculentus*, queen scallops *Aequipecten opercularis*, hermit crabs *Pagurus bernhardus* and *P. prideaux*, and spider crabs *Macropodia* spp, dominated the invertebrate community here, along with smaller numbers of a variety of other, mostly crustacean, species.

Community classification against the JNCC biotope classification was carried out, taking into account all of the trawl, grab, camera and sediment information, but influenced mostly by the infaunal grab sampling due to the strong predominance of sandy and gravelly sediments in the area. Four main biotopes (or variants) or biotope complexes, were identified from the infaunal data, of which two are extensive within the survey area (SS.SCS.ICS.MoeVen *Moerella* spp. with venerid bivalves in infralittoral gravelly sand biotope and SS.SSA.CfiSa Circalittoral fine sand biotope complex) and two are patchy and/or limited in extent (a *Glycera lapidum* dominated version of the MoeVen biotope, and a variant of SS.SCS.CCS.MedLumVen *Mediomastus fragilis*, *Lumbrinereis* spp. and venerid bivalves in circalittoral coarse sand or gravel with high abundances of the fanworm *Jasmineira caudata*). In addition a small patch of cobble and boulder reef dominated mostly by tubeworms and barnacles, and ascribed to the biotope SS.SCS.CCS.PomB *Pomatoceros triqueter* with barnacles and bryozoan crusts on

unstable circalittoral cobbles and pebbles was identified in the north west of the area, totalling 0.021 km^2, and it seems likely that one or two smaller patches of less distinct (i.e. less easily detected on sidescan sonar) similar habitat occur elsewhere on the boundaries of the application area in the northern part, and in the east, of the area. The main area seems to equate to potential Annex 1 habitat but of medium reefiness at most according to the definitions provided in Limpenny et al (2010), with, in the main, a fairly sparse and not very diverse associated biological community, although larger boulders had a slightly richer community including hydroids and soft corals *Alcyonium digitatum*. The smaller areas are of low reefiness. A map of these biotopes and biotope complexes has been produced.

No indications of potential biogenic Annex 1 habitats such as *Sabellaria spinulosa* reefs or *Modiolus modious* reefs were found. Despite the existence of *Modiolus* beds in shallow inshore parts of the Moray Firth, only a single live example was found in the whole survey (in one of the beam trawl samples) and there were no accumulations of dead *Modiolus* shell.

SNH have listed the SS.SCS.ICS.MoeVen *Moerella* spp. with venerid bivalves in infralittoral gravelly sand biotope on a draft list of 53 species and habitats that are considered as Priority Marine Features. According to the SNH website (SNH, 2011) "Priority Marine Features (PMFs) are habitats and species which we consider to be of greatest marine nature conservation importance in Scottish territorial waters. The draft PMF list contains 53 habitats and species and will be used to guide future research and support the advice SNH gives on marine biodiversity."

According to SNH (pers comm) this biotope qualified as a PMF based on the following criteria:

- proportional importance: Scottish territorial waters are considered to be nationally important, based on the known distribution of records
- decline/ threat of decline: considered to be in decline and/or under threat of decline as a result of anthropogenic pressures
- functional importance: this habitat is considered to be of functional importance through supporting important food species

Although *Tellina pygmaea* has long been known to be abundant in the Smith Bank area, the list of known areas in Scottish waters from where this biotope has been recorded does not presently appear to include the Moray Firth with the majority of records from Shetland, Orkney and some instances on the west coast of Scotland (e.g. Loch Slapin and Loch Kishorn) and Outer Hebrides (e.g. Sounds of Barra and Harris (SNH, pers comm).

No rare or unusual species were found apart from three juveniles of the bivalve *Arctica islandica*, a long lived species vulnerable to physical impacts such as demersal fishing that is also on the draft list of PMFs.

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Appendix 1. Grab survey – raw faunal data

Group	Class	Order	Name	1	2	3	5	6	7	8	9	10	11	12	13	14	18	19	20	21	22	23	25	26	27	28	29	33	34	35
			Astrorhiza limicola	4	1	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			Decapoda larvae	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
			Branchiostoma lanceolatum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			Fish larvae indet	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
			Lagotia viridis	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
			Athecata sp.	P	-	-	-	P	P	-	-	P	-	-	-	-	P	-	-	-	-	-	-	-	P	-	-	P	-	-
Porifera			Porifera crusts indet.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	P	-	-	-	P	-	-	-	-
Cnidaria	Leptolida	Filifera	Eudendrium sp.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cnidaria	Leptolida	Filifera	Bougainvillia sp.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	P	-	-	-	-	-	-	-	-	-
Cnidaria	Leptolida	Conica	Phialella quadrata	-	P	P	-	-	P	P	-	P	-	-	-	P	-	P	P	-	P	P	-	-	-	-	-	P	-	P
Cnidaria	Leptolida	Conica	Halecium sp.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cnidaria	Leptolida	Conica	Abietinaria abietina	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cnidaria	Leptolida	Conica	Hydrallmania falcata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	P	-	-	-	-	-	-	P	-	-	-
Cnidaria	Leptolida	Conica	Sertularella gayi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	P	-	-	-
Cnidaria	Leptolida	Conica	Sertularia cupressina	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	P	-	-	-
Cnidaria	Leptolida	Proboscoida	Obelia sp.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cnidaria	Leptolida	Proboscoida	Clytia hemisphaerica	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cnidaria	Leptolida	Alcyonacea	Alcyonium digitatum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cnidaria	Hexacorallia	Ceriantharia	Cerianthus lloydii	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	1	-	-	-	-
Cnidaria	Hexacorallia	Actinaria	Actinaria spp.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cnidaria	Hexacorallia	Actinaria	Adamsia carciniopados	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cnidaria	Hexacorallia	Actinaria	Edwardsia sp.	-	1	-	-	-	-	-	1	-	1	-	-	-	-	-	2	1	-	2	3	1	-	-	-	-	3	1
Platyhelminthes	Tuerbellaria		Turbellaria sp.	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nemertea	Nemertea		Nemertea spp.	3	2	1	1	2	-	1	1	2	2	7	-	1	1	1	1	1	1	15	1	1	-	7	-	-	-	3
Nematoda	Nematoda		Nematoda spp.	-	-	1	-	-	-	-	-	1	-	2	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-
Entoprocta	Coloniales		Pedicellina sp.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Entoprocta	Coloniales		Pedicellina cernua	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	P	-	-	-	-	-	-	-	-	-
Chaetognatha	Chaetognatha		Sagitta sp.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pogonophora	Pogonophora		Pogonophora sp. Indet.	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-

Group	Class	Order	Name	1	2	3	5	6	7	8	9	10	11	12	13	14	18	19	20	21	22	23	25	26	27	28	29	33	34	35
Sipuncula	Sipunculidea	Golfingiiformes	Golfingia elongata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sipuncula	Sipunculidea	Golfingiiformes	Phascolion strombus	1	1	-	-	-	1	1	-	1	-	5	-	-	-	1	-	-	-	7	1	-	-	1	-	-	-	-
Sipuncula	Sipunculidea	Golfingiiformes	Onchnesoma steenstrupii?	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Opheliida	Travisia forbesi	-	-	-	-	-	-	-	-	-	1	-	-	-	1	-	-	-	-	-	-	2	-	-	-	2	1	1
Annelida	Polychaeta	Opheliida	Ophelina acuminata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Opheliida	Scalibregma celticum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Opheliida	Scalibregma inflatum	2	1	-	-	-	-	-	-	-	-	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Sigalion squamosus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Polygordiida	Polygordius spp.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	1	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Sthenelais limicola	3	-	3	-	-	1	1	1	1	1	-	-	-	-	-	-	-	-	-	1	-	-	-	-	1	-	1
Annelida	Polychaeta	Oweniida	Galathowenia oculata	5	-	1	-	-	2	1	-	-	1	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-
Annelida	Polychaeta	Oweniida	Myriochele danielsseni	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Oweniida	Owenia fusiformis	4	1	1	1	-	5	3	1	2	1	1	1	2	4	2	2	2	3	1	3	2	2	-	2	3	-	1
Annelida	Polychaeta	Terebellida	Pectinaria (Lagis) koreni	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Terebellida	Ampharete lindstroemi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Eteone longa/flava (agg.)	1	-	1	1	-	1	-	-	2	-	-	-	2	-	-	-	-	-	2	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Terebellida	Terebellides stroemi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Terebellida	Terebellidae sp. Juv.	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
Annelida	Polychaeta	Terebellida	Lanice conchilega	-	2	-	2	1	-	-	-	2	-	-	-	-	-	1	-	1	2	1	2	-	-	3	1	-	-	-
Annelida	Polychaeta	Terebellida	Pista cristata	-	-	-	-	-	-	-	1	1	-	2	1	-	-	-	-	-	-	1	-	-	-	3	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Hesionura elongata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-
Annelida	Polychaeta	Terebellida	Polycirrus spp.	-	-	-	1	-	-	-	-	-	-	1	-	-	-	-	-	-	-	2	1	-	-	1	-	-	-	-
Annelida	Polychaeta	Terebellida	Thelepus cincinnatus	-	-	-	-	-	-	-	-	1	-	4	-	-	-	-	-	2	-	-	3	1	-	-	1	-	-	-
Annelida	Polychaeta	Sabellida	Jasmineira caudata	-	-	1	-	-	-	-	-	1	1	13	-	-	-	-	-	-	1	16	-	1	-	4	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Mystides caeca	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Sabellida	Pseudopotamilla reniformis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Sabellida	Hydroides norvegica	-	-	-	-	-	-	-	-	2	-	11	-	-	-	-	3	-	-	84	-	-	-	14	-	-	-	-
Annelida	Polychaeta	Sabellida	Pomatoceros triqueter	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Pseudomystides limbata	-	-	-	-	-	-	-	1	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Sabellida	Spirorbis spirorbis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Myzostomida	Oligochaeta spp.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Anaitides groenlandica	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Group	Class	Order	Name	1	2	3	5	6	7	8	9	10	11	12	13	14	18	19	20	21	22	23	25	26	27	28	29	33	34	35
Annelida	Polychaeta	Phyllodocida	Phyllodoce (Anaitides) rosea	1	1	-	-	-	-	-	-	1	-	-	-	-	-	-	1	-	1	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Pisione remota	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	3	-	-	-	4	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Eulalia bilineata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Eulalia mustela	-	-	-	-	-	-	-	-	-	-	4	-	-	-	-	-	-	-	1	-	-	-	2	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Eumida spp.	1	-	-	1	-	1	-	2	-	-	2	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Pterocirrus sp.?	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Aphrodita aculeata	1	-	-	1	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	1	-	-
Annelida	Polychaeta	Phyllodocida	Glycera sp. Juv.	-	1	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Glycera alba	4	-	-	-	-	-	1	-	-	1	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	1
Annelida	Polychaeta	Phyllodocida	Glycera gigantea	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Glycera lapidum	-	-	-	-	-	2	-	-	5	2	17	1	-	-	-	-	1	1	11	4	-	1	7	4	-	-	-
Annelida	Polychaeta	Phyllodocida	Glycera oxycephala	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Glycinde nordmanni	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Goniada maculata	-	-	-	-	-	-	1	-	-	-	-	1	-	-	-	-	-	1	-	1	-	-	-	2	-	1	1
Annelida	Polychaeta	Phyllodocida	Goniadella gracilis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	1	-	-	-	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Sphaerodoridium claparedii	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Psamathe fusca	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Nereimyra punctata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Podarkeopsis capensis	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Microphthalmus similis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Syllidae sp. Indet	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Syllis cornuta	-	-	-	-	-	-	-	-	-	-	5	-	-	-	-	-	-	-	-	-	-	-	7	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Eurysyllis tuberculata	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Trypanosyllis coeliaca	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Syllis armillaris	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-	-	-	5	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Eusyllis blomstrandi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Odontosyllis fulgurans	-	-	-	-	-	-	-	-	1	-	-	-	-	-	1	-	-	4	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Odontosyllis gibba	-	2	-	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Streptosyllis websteri	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Syllides benedicti	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Exogone hebes	1	-	-	-	1	-	-	-	1	-	1	-	-	-	-	-	-	-	-	1	-	-	1	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Exogone verugera	-	-	-	-	-	-	-	-	1	2	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	2

Group	Class	Order	Name	1	2	3	5	6	7	8	9	10	11	12	13	14	18	19	20	21	22	23	25	26	27	28	29	33	34	35
Annelida	Polychaeta	Phyllodocida	Sphaerosyllis bulbosa	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Sphaerosyllis taylori	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	1	-
Annelida	Polychaeta	Phyllodocida	Autolytus spp.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Nereis longissima	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	1	2	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Nereis zonata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Aglaophamus rubella	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	1	-	-	-	2	1	-	-	-
Annelida	Polychaeta	Phyllodocida	Nephtys sp. Juv.	-	1	-	-	3	3	-	-	3	-	1	-	-	-	-	6	1	-	-	-	1	-	-	-	-	3	1
Annelida	Polychaeta	Phyllodocida	Nephtys assimilis	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	1	-	1	-	-
Annelida	Polychaeta	Phyllodocida	Nephtys caeca	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
Annelida	Polychaeta	Phyllodocida	Nephtys cirrosa	-	-	-	-	1	-	1	3	-	2	-	3	2	2	3	-	1	1	-	2	-	3	-	1	3	-	-
Annelida	Polychaeta	Phyllodocida	Nephtys hombergii	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	1	-	-	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Malmgreniella spp.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Harmothoe spp.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Nephtys kersivalensis	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Nephtys longosetosa	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Harmothoe antilopes	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
Annelida	Polychaeta	Eunicida	Aponuphis bilineata	-	1	-	-	-	-	-	-	-	-	1	1	-	-	-	1	-	-	1	-	-	-	3	-	-	-	-
Annelida	Polychaeta	Eunicida	Hyalinoecia tubicola	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	1	-	-	-	1	-
Annelida	Polychaeta	Eunicida	Nothria conchylega	-	-	-	-	-	-	1	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Eunicida	Eunice harassii	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Eunicida	Lumbrineris agastos	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Eunicida	Lumbrineris gracilis	8	4	2	2	-	2	-	-	2	-	4	-	-	-	-	2	-	4	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Harmothoe fragilis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Eunicida	Notocirrus scoticus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Eunicida	Protodorvillea kefersteini	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	2	-	-	-	-
Annelida	Polychaeta	Eunicida	Schistomeringos neglecta	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Orbiniida	Orbinia (Orbinia) sertulata	-	-	-	-	-	-	-	1	-	-	-	1	-	-	-	-	-	-	-	-	-	-	1	2	-	-	-
Annelida	Polychaeta	Phyllodocida	Malmgreniella arenicolae	1	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Orbiniida	Scoloplos (scoloplos) armiger	5	4	2	2	1	1	1	1	-	2	-	-	-	-	1	2	-	1	-	-	2	1	-	1	1	1	-
Annelida	Polychaeta	Orbiniida	Aricidea catherinae	1	-	-	-	-	3	1	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Orbiniida	Aricidea cerrutii	-	-	2	5	3	-	1	1	3	4	1	-	-	-	1	-	1	-	-	1	-	-	1	1	-	1	2

Group	Class	Order	Name	1	2	3	5	6	7	8	9	10	11	12	13	14	18	19	20	21	22	23	25	26	27	28	29	33	34	35
Annelida	Polychaeta	Orbiniida	Paradoneis lyra	1	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Malmgreniella mcintoshi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Spionida	Apistobranchus tullbergi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Spionida	Poecilochaetus serpens	-	1	1	1	2	4	5	1	1	1	3	1	2	-	-	2	2	1	4	1	-	1	3	-	4	1	-
Annelida	Polychaeta	Spionida	Aonides paucibranchiata	-	1	2	4	-	-	1	1	1	3	5	-	-	-	-	-	-	-	4	-	-	-	7	-	-	-	-
Annelida	Polychaeta	Spionida	Laonice bahusiensis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Spionida	Malacoceros vulgaris	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Spionida	Minuspio cirrifera	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-	2	-	-	-	-	1	-	-	-	-	-	-
Annelida	Polychaeta	Spionida	Polydora sp.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Spionida	Polydora caeca	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Spionida	Polydora caulleryi	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Spionida	Prionospio fallax	-	-	-	-	-	-	-	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Spionida	Pseudopolydora pulchra	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1	-	-	-	-	-	-	-
Annelida	Polychaeta	Spionida	Scolelepis (Scolelepis) sp.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Spionida	Scolelepis (S) bonnieri	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Spionida	Scolelepis (P) korsuni	-	-	-	-	-	-	-	-	1	-	1	-	1	-	-	-	-	-	1	-	-	-	3	-	-	-	-
Annelida	Polychaeta	Spionida	Spio armata	-	-	-	-	-	-	-	-	-	-	2	1	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Spionida	Spio decorata	-	1	1	-	-	-	1	-	1	1	-	-	-	-	-	-	-	1	-	1	1	1	-	-	-	-	-
Annelida	Polychaeta	Spionida	Spio filicornis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Spionida	Spiophanes bombyx	45	66	40	28	27	42	51	30	74	103	6	16	15	22	18	48	24	36	-	61	29	20	1	15	21	11	19
Annelida	Polychaeta	Spionida	Spiophanes kroyeri	1	4	1	-	1	-	-	1	1	1	5	-	-	-	-	-	-	1	-	1	-	-	-	1	-	-	-
Annelida	Polychaeta	Phyllodocida	Chrysopetalum debile	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Spionida	Magelona alleni	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Spionida	Magelona filiformis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-
Annelida	Polychaeta	Spionida	Aphelochaeta sp. Type 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Spionida	Caulleriella alata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Spionida	Chaetozone zetlandica	-	-	-	-	-	-	-	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Spionida	Chaetozone christiei	4	-	-	4	3	4	-	-	2	2	-	-	1	1	-	3	-	1	-	-	1	-	-	-	-	-	-
Annelida	Polychaeta	Spionida	Cirratulus cirratus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Spionida	Tharyx killariensis	-	-	1	-	1	-	-	-	2	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Spionida	Tharyx sp. type 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Spionida	Diplocirrus glaucus	4	1	1	-	-	1	3	1	1	-	-	-	1	-	-	1	-	4	-	-	-	-	-	-	-	-	-

Group	Class	Order	Name	1	2	3	5	6	7	8	9	10	11	12	13	14	18	19	20	21	22	23	25	26	27	28	29	33	34	35
Annelida	Polychaeta	Capitellida	Mediomastus fragilis	-	-	-	-	-	-	-	-	-	-	9	-	1	-	-	-	-	-	-	-	-	-	2	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Pholoe inornata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Pholoe baltica	2	-	-	-	-	2	-	-	1	-	-	-	-	-	-	1	-	-	-	-	-	1	-	-	-	-	-
Annelida	Polychaeta	Capitellida	Notomastus latericeus	3	-	-	-	-	-	-	-	-	-	4	-	-	1	-	-	-	1	20	-	-	-	3	1	-	-	-
Annelida	Polychaeta	Capitellida	Peresiella clymenoides	1	-	-	-	-	3	1	-	-	-	-	-	-	-	1	-	-	1	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Capitellida	Maldanidae sp. Juv.	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Capitellida	Praxillura longissima	-	-	1	1	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Capitellida	Clymenura johnstoni	-	-	-	1	1	-	1	3	1	4	1	1	-	2	-	2	1	-	1	-	-	2	-	1	1	1	1
Annelida	Polychaeta	Capitellida	Euclymene lumbricoides	4	1	1	-	-	-	-	-	-	1	1	-	-	-	-	1	-	-	-	1	2	-	-	1	-	-	-
Annelida	Polychaeta	Capitellida	Euclymene oerstedi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Opheliida	Ophelia borealis	-	-	4	-	2	-	1	3	2	7	-	1	-	3	4	-	3	-	-	2	1	4	-	1	5	3	5
Chelicerata	Pycnogonida		Anoplodactylus petiolatus	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chelicerata	Pycnogonida		Nymphon brevirostre	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	1	-	-	-	-	-	-	-	-
Crustacea	Branchiopoda	Rhizocephala	Copepoda spp.	-	1	-	4	2	2	4	2	-	1	4	1	-	5	-	-	1	-	-	-	-	2	-	2	-	3	2
Crustacea	Maxillopoda	Siphonostomatoida	Ostracoda sp. Indet	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Maxillopoda	Thoracica	Verruca stroemia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	-	-	-	1	-	-	-	-
Crustacea	Maxillopoda	Thoracica	Balanus crenatus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Amphipoda	Apherusa bispinosa	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
Crustacea	Eumalacostraca	Cumacea	Vauntompsonia cristata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Cumacea	Bodotria scorpioides	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Cumacea	Eudorellopsis deformis	-	-	-	1	-	1	1	-	-	-	-	-	-	-	1	-	-	-	-	-	-	1	-	-	-	-	-
Crustacea	Eumalacostraca	Cumacea	Pseudocuma similis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Amphipoda	Monoculodes carinatus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Cumacea	Diastylis laevis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Cumacea	Diastylis rugosa	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Euphausiacea	Nyctiphanes couchi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Amphipoda	Perioculodes longimanus	-	-	1	-	1	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
Crustacea	Eumalacostraca	Decapoda	Caridion gordoni?	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Decapoda	Eualus pusiolus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Amphipoda	Pontocrates arenarius	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-
Crustacea	Eumalacostraca	Amphipoda	Synchelidium haplocheles	-	-	-	-	-	-	-	-	-	1	-	-	-	-	1	-	-	-	-	-	-	1	-	-	-	-	-
Crustacea	Eumalacostraca	Amphipoda	Synchelidium maculatum	-	-	-	-	-	-	-	-	1	-	-	-	-	1	-	-	-	-	-	-	1	-	-	-	-	-	-

Group	Class	Order	Name	1	2	3	5	6	7	8	9	10	11	12	13	14	18	19	20	21	22	23	25	26	27	28	29	33	34	35
Crustacea	Eumalacostraca	Decapoda	Crangon crangon	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Decapoda	Paguridae spp. Indet.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Decapoda	Anapagurus hyndmanni	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Decapoda	Anapagurus laevis	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Decapoda	Pagurus prideaux	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Decapoda	Galathea intermedia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Decapoda	Ebalia tuberosa	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Decapoda	Ebalia tumefacta	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Decapoda	Hyas coarctatus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Decapoda	Atelecyclus rotundatus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Decapoda	Liocarcinus spp. Juv.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Decapoda	Portumnus latipes	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Amphipoda	Leucothoe incisa	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Amphipoda	Stenothoe marina	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Amphipoda	Urothoe elegans	-	-	-	-	-	1	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Amphipoda	Urothoe marina	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	2	-	-	-	-
Crustacea	Eumalacostraca	Amphipoda	Harpinia antennaria	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Amphipoda	Harpinia laevis	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Amphipoda	Hippomedon denticulatus	-	-	1	-	-	-	1	3	-	-	-	1	-	-	-	-	1	1	-	-	-	-	-	-	-	1	2
Crustacea	Eumalacostraca	Amphipoda	Lepidepecreum longicorne	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Amphipoda	Orchomene nanus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-	-	-
Crustacea	Eumalacostraca	Amphipoda	Tmetonyx similis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Amphipoda	Argissa hamatipes	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Amphipoda	Iphimedia obesa	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Amphipoda	Atylus falcatus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Amphipoda	Atylus vedlomensis	-	-	-	-	-	1	-	-	-	1	-	-	-	-	-	-	-	-	6	1	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Amphipoda	Ampelisca brevicornis	-	-	-	1	-	1	-	-	-	-	2	-	-	1	-	-	1	-	-	1	-	-	1	-	1	1	-
Crustacea	Eumalacostraca	Amphipoda	Ampelisca spinipes	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Amphipoda	Gastrosaccus spinifer	-	-	-	1	-	-	-	-	-	-	1	-	-	-	-	-	-	1	-	-	-	-	1	-	-	-	-
Crustacea	Eumalacostraca	Amphipoda	Ampelisca tenuicornis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Amphipoda	Ampelisca typica	1	-	1	-	-	-	-	1	3	-	1	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Amphipoda	Bathyporeia elegans	-	-	1	1	1	2	4	2	-	-	-	1	-	-	1	-	-	2	-	-	-	-	-	-	-	1	2

Group	Class	Order	Name	1	2	3	5	6	7	8	9	10	11	12	13	14	18	19	20	21	22	23	25	26	27	28	29	33	34	35
Crustacea	Eumalacostraca	Amphipoda	Bathyporeia guilliamsoniana	-	-	-	-	-	-	1	2	-	-	-	-	-	-	-	-	1	-	-	-	-	1	-	-	-	-	3
Crustacea	Eumalacostraca	Amphipoda	Megaluropus agilis	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	1	-
Crustacea	Eumalacostraca	Amphipoda	Cheirocratus sp. Female	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Amphipoda	Cheirocratus sundevallii	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Amphipoda	Maera othonis	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Amphipoda	Gammaropsis cornuta	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Amphipoda	Gammaropsis maculata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Amphipoda	Ericthonius punctatus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Amphipoda	Aoridae sp. Female	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	1	-
Crustacea	Eumalacostraca	Amphipoda	Autonoe longipes	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Amphipoda	Leptocheirus hirsutimanus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Leptostraca	Nebalia bipes	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Amphipoda	Corophium crassicorne	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Amphipoda	Siphonoecetes striatus	2	-	-	1	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	1	-	-
Crustacea	Eumalacostraca	Amphipoda	Unciola planipes	-	-	-	-	-	-	-	-	-	1	-	1	-	-	-	-	-	-	-	1	-	-	-	-	-	1	2
Crustacea	Eumalacostraca	Amphipoda	Pariambus typicus	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Amphipoda	Phtisica marina	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Amphipoda	Pseudoprotella phasma	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Isopoda	Gnathia sp. Female	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Isopoda	Gnathia oxyuraea	-	-	-	-	-	-	-	-	-	-	6	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Isopoda	Gnathia vorax	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Mysidacea	Schistomysis kervillei	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Isopoda	Astacilla dilatata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Gastropoda	Cephalaspidea	Acteon tornatilis	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Gastropoda	Cephalaspidea	Cylichna cylindracea	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1	-	-	-
Mollusca	Gastropoda	Cephalaspidea	Philine aperta	-	-	1	-	-	-	-	-	1	1	-	-	-	-	1	-	-	-	1	-	-	-	-	-	-	-	-
Mollusca	Gastropoda	Archaeogastropoda	Emarginula rosea	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Gastropoda	Nudibranchia	Doto spp.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Gastropoda	Nudibranchia	Goniodoris sp.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Gastropoda	Nudibranchia	Onchidoridae sp.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-
Mollusca	Gastropoda	Nudibranchia	Onchidoris depressa	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Scaphopoda	Dentaliida	Antalis entalis	2	-	-	-	1	-	-	-	1	-	-	-	-	1	1	-	-	-	-	-	-	1	-	-	-	-	-

Group	Class	Order	Name	1	2	3	5	6	7	8	9	10	11	12	13	14	18	19	20	21	22	23	25	26	27	28	29	33	34	35
Mollusca	Pelecypoda	Nuculoida	Nucula sp. Juv.	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Pelecypoda	Nuculoida	Nucula nucleus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Gastropoda	Arcaeogastropoda	Gibbula tumida	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Pelecypoda	Arcoida	Glycymeris glycymeris	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Pelecypoda	Mytiloida	Mytilidae sp. Juv.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	1	-	-	-
Mollusca	Pelecypoda	Mytiloida	Crenella decussata	-	-	1	1	-	-	-	-	1	1	-	1	1	-	2	-	2	-	-	1	2	5	-	-	3	3	3
Mollusca	Pelecypoda	Mytiloida	Modiolarca tumida	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Pelecypoda	Limoida	Limatula sulcata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Pelecypoda	Ostreoida	Palliolum furtivum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Pelecypoda	Ostreoida	Anomiidae sp.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Pelecypoda	Veneroida	Lucinoma borealis	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-
Mollusca	Pelecypoda	Veneroida	Thyasira flexuosa	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Pelecypoda	Veneroida	Montacuta substriata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Pelecypoda	Veneroida	Tellimya ferruginosa	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Pelecypoda	Veneroida	Kurtiella bidentata	4	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	1	1	-	-	-	-	-	-
Mollusca	Pelecypoda	Veneroida	Goodallia triangularis	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Pelecypoda	Veneroida	Tridonta montagui	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
Mollusca	Pelecypoda	Veneroida	Parvicardium ovale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Pelecypoda	Veneroida	Parvicardium scabrum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Pelecypoda	Veneroida	Spisula elliptica	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-
Mollusca	Pelecypoda	Veneroida	Solenacea sp. Juv/damg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1	-	-	1	-
Mollusca	Pelecypoda	Veneroida	Ensis arcuatus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-
Mollusca	Pelecypoda	Veneroida	Ensis ensis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Pelecypoda	Veneroida	Phaxas pellucidus	2	1	3	-	1	3	1	-	2	2	1	-	-	3	-	3	1	1	-	1	2	2	-	-	1	-	1
Mollusca	Pelecypoda	Veneroida	Arcopagia crassa	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Pelecypoda	Veneroida	Tellina fabula	1	5	3	2	-	6	4	-	-	2	-	-	2	3	2	1	1	3	-	-	2	-	-	-	5	-	-
Mollusca	Pelecypoda	Veneroida	Moerella pygmaea	-	-	-	-	-	-	-	-	-	-	-	3	-	1	1	-	4	-	1	1	-	-	-	3	-	2	2
Mollusca	Pelecypoda	Veneroida	Gari depressa	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-
Mollusca	Pelecypoda	Veneroida	Gari fervensis	2	2	8	6	5	7	6	1	2	-	-	-	5	6	5	5	4	5	-	3	7	1	-	-	7	4	-
Mollusca	Pelecypoda	Veneroida	Abra spp. juv.	-	1	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Pelecypoda	Veneroida	Abra prismatica	2	1	2	3	-	3	1	-	3	1	-	1	1	4	5	1	3	2	-	2	1	1	-	2	7	-	3
Mollusca	Pelecypoda	Veneroida	Arctica islandica	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-

Group	Class	Order	Name	1	2	3	5	6	7	8	9	10	11	12	13	14	18	19	20	21	22	23	25	26	27	28	29	33	34	35
Mollusca	Pelecypoda	Veneroida	Veneridae sp. Juv.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Pelecypoda	Veneroida	Circomphalus casina	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	2	-	-
Mollusca	Pelecypoda	Veneroida	Gouldia minima	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Pelecypoda	Veneroida	Chamelea striatula	1	-	-	-	-	2	-	-	-	-	1	-	-	-	-	-	-	-	1	-	-	-	-	-	-	1	-
Mollusca	Pelecypoda	Veneroida	Clausinella fasciata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Pelecypoda	Veneroida	Timoclea ovata	3	1	3	2	1	-	-	-	1	1	1	-	1	2	-	1	-	-	-	-	1	1	-	1	1	-	1
Mollusca	Pelecypoda	Veneroida	Tapes rhomboides	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Pelecypoda	Veneroida	Dosinia spp. Juv.	-	-	-	1	1	-	1	-	1	1	-	-	-	1	1	1	-	-	1	2	-	1	-	-	3	1	2
Mollusca	Pelecypoda	Veneroida	Dosinia lupinus	1	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	1	-	-	-	-	1	-	1	-	-	-
Mollusca	Pelecypoda	Veneroida	Mysia undata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Pelecypoda	Myoida	Mya arenaria	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Pelecypoda	Myoida	Hiatella arctica	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Pelecypoda	Pholadomyoida	Thracia phaseolina	-	-	-	-	-	1	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Pelecypoda	Pholadomyoida	Thracia villosiuscula	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-
Mollusca	Pelecypoda	Pholadomyoida	Cochlodesma praetenue	7	6	7	3	7	2	6	2	8	5	1	3	5	11	9	4	10	4	-	3	3	6	-	8	13	7	8
Mollusca	Pelecypoda	Pholadomyoida	Lyonsia norwegica	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Gastropoda	Mesogastropoda	Onoba semicostata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Gastropoda	Mesogastropoda	Capulus ungaricus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
Mollusca	Gastropoda	Mesogastropoda	Euspira montagui	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Gastropoda	Mesogastropoda	Euspira pulchellus	-	-	-	1	-	-	-	1	1	2	2	1	-	1	2	1	-	-	-	1	2	-	1	-	-	-	-
Mollusca	Gastropoda	Mesogastropoda	Amauropsis islandicus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Polyplacophora	Neoloricata	Leptochiton asellus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-	-	-	-	-	-	-	-
Mollusca	Gastropoda	Mesogastropoda	Eulima bilineata	-	-	-	-	-	-	-	-	1	-	1	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	1
Mollusca	Gastropoda	Neogastropoda	Mangelia nebula	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1
Mollusca	Gastropoda	Neogastropoda	Propebela turricula	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Gastropoda	Neogastropoda	Raphitoma linearis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Gastropoda	Neogastropoda	Raphitoma purpurea	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
Mollusca	Gastropoda	Heterostropha	Odostomia sp.	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Gastropoda	Heterostropha	Chrysallida decussata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bryozoa	Gymnolaemata	Cheilostomatida	Flustra foliacea	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bryozoa	Gymnolaemata	Cheilostomatida	Callopora dumerilii	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bryozoa	Gymnolaemata	Cheilostomatida	Beania mirabilis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Group	Class	Order	Name	1	2	3	5	6	7	8	9	10	11	12	13	14	18	19	20	21	22	23	25	26	27	28	29	33	34	35
Bryozoa	Stenolaemata	Cyclostomatida	Tubulipora sp.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	P	-	-	-	-
Bryozoa	Gymnolaemata	Cheilostomatida	Chorizopora brongniartii	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bryozoa	Gymnolaemata	Cheilostomatida	Escharella immersa	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	P	-	-	-	-	-	-	-	-
Bryozoa	Gymnolaemata	Cheilostomatida	Escharella variolosa	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	P	-	-	-	-	-	-	-	-
Bryozoa	Gymnolaemata	Cheilostomatida	Porella concinna	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bryozoa	Gymnolaemata	Cheilostomatida	Schizomavella sp.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	P	-	-	-	P	-	-	-	-
Bryozoa	Gymnolaemata	Cheilostomatida	Microporella ciliata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bryozoa	Gymnolaemata	Cheilostomatida	Fenestrulina malusii	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bryozoa	Gymnolaemata	Cheilostomatida	Disporella hispida	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	P	-	-	-	P	-	-	-	-
Bryozoa	Gymnolaemata	Ctenostomatida	Alcyonidium sp.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bryozoa	Gymnolaemata	Ctenostomatida	Alcyonidium diaphanum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bryozoa	Gymnolaemata	Ctenostomatida	Alcyonidium mytili	P	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bryozoa	Gymnolaemata	Ctenostomatida	Alcyonidium parasiticum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phoronida	Phoronida		Phoronis spp.	6	1	-	-	-	1	2	-	-	3	2	-	1	-	-	6	-	-	2	1	-	-	1	-	-	-	1
Echinodermata	Ophiuroidea	Ophiurida	Ophiothrix fragilis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Echinodermata	Ophiuroidea	Ophiurida	Ophiactis balli	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Echinodermata	Ophiuroidea	Ophiurida	Amphiura sp. Juv.	-	-	-	-	3	1	1	-	-	-	-	-	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-
Echinodermata	Ophiuroidea	Ophiurida	Acrocnida brachiata	-	-	1	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-
Echinodermata	Ophiuroidea	Ophiurida	Amphiura filiformis	1	2	1	1	3	6	2	-	-	-	-	-	2	2	1	-	1	11	-	-	3	-	-	-	5	-	1
Echinodermata	Ophiuroidea	Ophiurida	Amphipholis squamata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Echinodermata	Ophiuroidea	Ophiurida	Ophiuridae sp. Juv.	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Echinodermata	Ophiuroidea	Ophiurida	Ophiura sp. Juv.	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
Echinodermata	Ophiuroidea	Ophiurida	Ophiocten affinis	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Echinodermata	Ophiuroidea	Ophiurida	Ophiura albida	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	2	-	-	-	-	-	-	-
Echinodermata	Echinoidea	Echinoida	Psammechinus miliaris	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
Echinodermata	Echinoidea	Clypeasteroidea	Echinocyamus pusillus	-	-	6	1	5	-	-	5	7	3	-	4	-	2	-	3	3	-	4	1	-	1	1	3	4	4	1
Echinodermata	Echinoidea	Spatangoida	Spatangus purpureus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Echinodermata	Echinoidea	Spatangoida	Echinocardium sp. Juv.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Echinodermata	Echinoidea	Spatangoida	Echinocardium cordatum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Echinodermata	Echinoidea	Spatangoida	Echinocardium flavescens	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
Echinodermata	Holothurioidea	Dendrochirotida	Thyone fusus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Echinodermata	Holothurioidea	Apodida	Leptosynapta inhaerens	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Group	Class	Order	Name	1	2	3	5	6	7	8	9	10	11	12	13	14	18	19	20	21	22	23	25	26	27	28	29	33	34	35
Echinodermata	Asteroidea	Forcipulatida	Asteriidae Juv.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chordata	Ascidiacea	Enterogona	Tunicata sp. Indet.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tunicata	Ascidiacea	Pleurogona	Polycarpa fibrosa	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
Tunicata	Ascidiacea	Pleurogona	Dendrodoa grossularia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tunicata	Ascidiacea	Pleurogona	Molgula spp. Juv.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
Chordata	Ascidiacea	Phlebobranchiata	Ascidia mentula	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chordata	Osteichthyes	Perciformes	Hyperoplus lanceolatus	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Gastropoda	Neogastropoda	Propebela turricula	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Gastropoda	Neogastropoda	Raphitoma linearis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Gastropoda	Neogastropoda	Raphitoma purpurea	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
Mollusca	Gastropoda	Heterostropha	Odostomia sp.	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Gastropoda	Heterostropha	Chrysallida decussata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bryozoa	Gymnolaemata	Cheilostomatida	Flustra foliacea	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bryozoa	Gymnolaemata	Cheilostomatida	Callopora dumerilii	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bryozoa	Gymnolaemata	Cheilostomatida	Beania mirabilis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bryozoa	Stenolaemata	Cyclostomatida	Tubulipora sp.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	P	-	-	-	-
Bryozoa	Gymnolaemata	Cheilostomatida	Chorizopora brongniartii	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bryozoa	Gymnolaemata	Cheilostomatida	Escharella immersa	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	P	-	-	-	-	-	-	-	-
Bryozoa	Gymnolaemata	Cheilostomatida	Escharella variolosa	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	P	-	-	-	-	-	-	-	-
Bryozoa	Gymnolaemata	Cheilostomatida	Porella concinna	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bryozoa	Gymnolaemata	Cheilostomatida	Schizomavella sp.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	P	-	-	-	P	-	-	-	-
Bryozoa	Gymnolaemata	Cheilostomatida	Microporella ciliata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bryozoa	Gymnolaemata	Cheilostomatida	Fenestrulina malusii	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bryozoa	Gymnolaemata	Cheilostomatida	Disporella hispida	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	P	-	-	-	P	-	-	-	-
Bryozoa	Gymnolaemata	Ctenostomatida	Alcyonidium sp.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bryozoa	Gymnolaemata	Ctenostomatida	Alcyonidium diaphanum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bryozoa	Gymnolaemata	Ctenostomatida	Alcyonidium mytili	P	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bryozoa	Gymnolaemata	Ctenostomatida	Alcyonidium parasiticum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phoronida	Phoronida		Phoronis spp.	6	1	-	-	-	1	2	-	-	3	2	-	1	-	-	6	-	-	2	1	-	-	1	-	-	-	1
Echinodermata	Ophiuroidea	Ophiurida	Ophiothrix fragilis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Echinodermata	Ophiuroidea	Ophiurida	Ophiactis balli	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Echinodermata	Ophiuroidea	Ophiurida	Amphiura sp. Juv.	-	-	-	-	3	1	1	-	-	-	-	-	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-

Group	Class	Order	Name	1	2	3	5	6	7	8	9	10	11	12	13	14	18	19	20	21	22	23	25	26	27	28	29	33	34	35
Echinodermata	Ophiuroidea	Ophiurida	Acrocnida brachiata	-	-	1	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-
Echinodermata	Ophiuroidea	Ophiurida	Amphiura filiformis	1	2	1	1	3	6	2	-	-	-	-	-	2	2	1	-	1	11	-	-	3	-	-	-	5	-	1
Echinodermata	Ophiuroidea	Ophiurida	Amphipholis squamata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Echinodermata	Ophiuroidea	Ophiurida	Ophiuridae sp. Juv.	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Echinodermata	Ophiuroidea	Ophiurida	Ophiura sp. Juv.	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
Echinodermata	Ophiuroidea	Ophiurida	Ophiocten affinis	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Echinodermata	Ophiuroidea	Ophiurida	Ophiura albida	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	2	-	-	-	-	-	-	-
Echinodermata	Echinoidea	Echinoida	Psammechinus miliaris	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
Echinodermata	Echinoidea	Clypeasteroidea	Echinocyamus pusillus	-	-	6	1	5	-	-	5	7	3	-	4	-	2	-	3	3	-	4	1	-	1	1	3	4	4	1
Echinodermata	Echinoidea	Spatangoida	Spatangus purpureus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Echinodermata	Echinoidea	Spatangoida	Echinocardium sp. Juv.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Echinodermata	Echinoidea	Spatangoida	Echinocardium cordatum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Echinodermata	Echinoidea	Spatangoida	Echinocardium flavescens	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
Echinodermata	Holothurioidea	Dendrochirotida	Thyone fusus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Echinodermata	Holothurioidea	Apodida	Leptosynapta inhaerens	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Echinodermata	Asteroidea	Forcipulatida	Asteriidae Juv.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chordata	Ascidiacea	Enterogona	Tunicata sp. Indet.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tunicata	Ascidiacea	Pleurogona	Polycarpa fibrosa	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
Tunicata	Ascidiacea	Pleurogona	Dendrodoa grossularia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tunicata	Ascidiacea	Pleurogona	Molgula spp. Juv.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
Chordata	Ascidiacea	Phlebobranchiata	Ascidia mentula	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chordata	Osteichthyes	Perciformes	Hyperoplus lanceolatus	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Group	Class	Order	Name	36	37	38	40	41	42	43	44	45	48	49	51	53	54	55	57	58	60	62	63	64	65	66	67	68	70	71
			Astrorhiza limicola	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			Decapoda larvae	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-
			Branchiostoma lanceolatum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			Fish larvae indet	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			Lagotia viridis	P	P	P	P	P	P	P	P	P	P	-	P	P	P	P	P	P	P	P	P	P	-	P	-	P	P	P	P
			Athecata sp.	-	-	P	-	-	-	-	P	-	-	P	-	P	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Porifera			Porifera crusts indet.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	P	-	-	-	-	-	-	-	-	-	-	-
Cnidaria	Leptolida	Filifera	Eudendrium sp.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	P	-	-	-	-	-	-	-	-	-	-	-
Cnidaria	Leptolida	Filifera	Bougainvillia sp.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cnidaria	Leptolida	Conica	Phialella quadrata	-	-	-	-	-	-	-	-	-	-	P	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cnidaria	Leptolida	Conica	Halecium sp.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cnidaria	Leptolida	Conica	Abietinaria abietina	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cnidaria	Leptolida	Conica	Hydrallmania falcata	-	P	-	-	-	-	-	-	-	-	-	-	-	-	-	P	-	-	-	-	-	-	P	-	-	-	-
Cnidaria	Leptolida	Conica	Sertularella gayi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	P	P	-	-	-	-	-	-	-	-	-	-
Cnidaria	Leptolida	Conica	Sertularia cupressina	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cnidaria	Leptolida	Proboscoida	Obelia sp.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	P	-	-	-	-	-	-	-	-	-	-	-	-
Cnidaria	Leptolida	Proboscoida	Clytia hemisphaerica	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	P	-	-	-	-	-	-	P	-	-	-	-
Cnidaria	Leptolida	Alcyonacea	Alcyonium digitatum	-	-	-	P	-	-	-	-	-	-	-	-	-	-	-	P	-	-	-	-	-	-	-	-	-	-	-
Cnidaria	Hexacorallia	Ceriantharia	Cerianthus lloydii	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-
Cnidaria	Hexacorallia	Actinaria	Actinaria spp.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cnidaria	Hexacorallia	Actinaria	Adamsia carciniopados	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cnidaria	Hexacorallia	Actinaria	Edwardsia sp.	-	1	-	-	1	3	5	1	-	2	1	-	4	-	1	-	-	2	1	2	-	1	-	-	-	1	-
Platyhelminthes	Tuerbellaria		Turbellaria sp.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nemertea	Nemertea		Nemertea spp.	-	1	1	3	-	1	2	2	-	2	5	-	-	-	-	6	1	2	-	1	-	-	-	1	-	1	-
Nematoda	Nematoda		Nematoda spp.	-	1	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Entoprocta	Coloniales		Pedicellina sp.	-	P	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Entoprocta	Coloniales		Pedicellina cernua	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chaetognatha	Chaetognatha		Sagitta sp.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-
Pogonophora	Pogonophora		Pogonophora sp. Indet.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sipuncula	Sipunculidea	Golfingiiformes	Golfingia elongata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-

Group	Class	Order	Name	36	37	38	40	41	42	43	44	45	48	49	51	53	54	55	57	58	60	62	63	64	65	66	67	68	70	71
Sipuncula	Sipunculidea	Golfingiiformes	Phascolion strombus	1	-	-	1	-	-	-	1	-	-	1	-	1	-	-	8	2	-	-	-	-	-	-	-	-	-
Sipuncula	Sipunculidea	Golfingiiformes	Onchnesoma steenstrupii?	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Opheliida	Travisia forbesi	-	1	-	-	1	1	-	-	-	-	-	5	-	-	1	-	-	3	1	-	-	-	-	-	-	1	-
Annelida	Polychaeta	Opheliida	Ophelina acuminata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Opheliida	Scalibregma celticum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Opheliida	Scalibregma inflatum	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Sigalion squamosus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Polygordiida	Polygordius spp.	-	-	-	-	-	-	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Sthenelais limicola	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Oweniida	Galathowenia oculata	-	-	-	-	-	-	-	-	-	-	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Oweniida	Myriochele danielsseni	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Oweniida	Owenia fusiformis	-	-	1	1	3	-	1	1	-	-	-	-	2	-	2	-	1	-	1	1	-	-	-	2	2	2	-
Annelida	Polychaeta	Terebellida	Pectinaria (Lagis) koreni	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Terebellida	Ampharete lindstroemi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Eteone longa/flava (agg.)	-	-	1	-	-	-	1	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
Annelida	Polychaeta	Terebellida	Terebellides stroemi	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Terebellida	Terebellidae sp. Juv.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Terebellida	Lanice conchilega	-	-	-	-	-	2	2	-	-	-	-	-	1	-	-	2	1	-	-	-	-	-	-	2	-	1	-
Annelida	Polychaeta	Terebellida	Pista cristata	-	1	-	1	-	-	2	1	-	-	-	-	-	-	1	6	4	-	-	-	-	-	1	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Hesionura elongata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Terebellida	Polycirrus spp.	-	-	-	2	-	-	-	-	-	-	-	-	-	1	-	1	2	-	-	-	-	-	-	-	1	-	-
Annelida	Polychaeta	Terebellida	Thelepus cincinnatus	-	1	-	1	-	1	-	-	-	-	-	-	-	-	-	11	1	-	-	-	3	-	-	-	-	-	-
Annelida	Polychaeta	Sabellida	Jasmineira caudata	-	1	-	19	-	-	-	-	-	-	-	-	1	-	-	21	-	-	-	-	-	-	1	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Mystides caeca	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Sabellida	Pseudopotamilla reniformis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Sabellida	Hydroides norvegica	-	-	-	5	1	-	1	-	-	4	-	-	-	-	-	50	2	-	4	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Sabellida	Pomatoceros triqueter	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Pseudomystides limbata	-	1	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Sabellida	Spirorbis spirorbis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Myzostomida	Oligochaeta spp.	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Annelida	Polychaeta	Phyllodocida	Anaitides groenlandica	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Phyllodoce (Anaitides) rosea	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1

Group	Class	Order	Name	36	37	38	40	41	42	43	44	45	48	49	51	53	54	55	57	58	60	62	63	64	65	66	67	68	70	71
Annelida	Polychaeta	Phyllodocida	Pisione remota	-	-	-	-	-	-	5	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Eulalia bilineata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Eulalia mustela	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Eumida spp.	-	-	1	2	-	-	1	-	-	-	-	-	-	-	-	1	1	-	-	-	1	-	-	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Pterocirrus sp.?	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Aphrodita aculeata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Glycera sp. Juv.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Glycera alba	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Glycera gigantea	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Glycera lapidum	-	2	-	2	-	-	11	3	-	2	-	-	-	-	1	8	4	-	-	-	1	-	-	3	-	1	-
Annelida	Polychaeta	Phyllodocida	Glycera oxycephala	-	1	1	-	-	-	-	-	-	1	-	-	1	-	-	-	-	2	-	-	-	-	-	-	1	2	-
Annelida	Polychaeta	Phyllodocida	Glycinde nordmanni	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Goniada maculata	-	2	-	-	-	-	-	-	-	-	1	-	1	-	1	-	-	1	-	-	-	1	-	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Goniadella gracilis	-	-	-	2	-	-	-	1	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Sphaerodoridium claparedii	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Psamathe fusca	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Nereimyra punctata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Podarkeopsis capensis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Microphthalmus similis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Syllidae sp. Indet	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Syllis cornuta	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Eurysyllis tuberculata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Trypanosyllis coeliaca	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Syllis armillaris	-	1	-	-	-	-	3	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Eusyllis blomstrandi	-	1	-	1	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	1	-	-	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Odontosyllis fulgurans	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Odontosyllis gibba	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Streptosyllis websteri	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Syllides benedicti	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Exogone hebes	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Exogone verugera	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Sphaerosyllis bulbosa	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Group	Class	Order	Name	36	37	38	40	41	42	43	44	45	48	49	51	53	54	55	57	58	60	62	63	64	65	66	67	68	70	71
Annelida	Polychaeta	Phyllodocida	Sphaerosyllis taylori	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Autolytus spp.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Nereis longissima	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Nereis zonata	-	1	-	1	-	1	-	-	-	-	-	-	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Aglaophamus rubella	-	-	-	1	-	-	1	-	-	-	-	-	-	-	-	1	2	-	-	-	-	-	-	1	-	-	1
Annelida	Polychaeta	Phyllodocida	Nephtys sp. Juv.	1	2	-	3	-	-	-	-	-	1	1	-	1	-	-	1	-	-	-	-	-	-	-	-	1	-	-
Annelida	Polychaeta	Phyllodocida	Nephtys assimilis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Nephtys caeca	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Nephtys cirrosa	-	2	1	-	2	-	2	-	-	1	-	1	5	-	2	-	-	3	1	2	-	-	1	-	-	1	-
Annelida	Polychaeta	Phyllodocida	Nephtys hombergii	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Malmgreniella spp.	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Harmothoe spp.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Nephtys kersivalensis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-
Annelida	Polychaeta	Phyllodocida	Nephtys longosetosa	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Harmothoe antilopes	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Eunicida	Aponuphis bilineata	-	-	-	-	-	-	-	2	-	2	-	-	-	-	-	2	-	-	-	-	-	-	-	2	-	1	-
Annelida	Polychaeta	Eunicida	Hyalinoecia tubicola	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Eunicida	Nothria conchylega	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
Annelida	Polychaeta	Eunicida	Eunice harassii	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Eunicida	Lumbrineris agastos	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
Annelida	Polychaeta	Eunicida	Lumbrineris gracilis	-	-	-	6	-	-	1	1	-	-	3	1	-	-	-	2	1	-	-	-	-	-	-	2	3	-	-
Annelida	Polychaeta	Phyllodocida	Harmothoe fragilis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Eunicida	Notocirrus scoticus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Eunicida	Protodorvillea kefersteini	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Eunicida	Schistomeringos neglecta	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Orbiniida	Orbinia (Orbinia) sertulata	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	1	-	-	-
Annelida	Polychaeta	Phyllodocida	Malmgreniella arenicolae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	1	-	-
Annelida	Polychaeta	Orbiniida	Scoloplos (scoloplos) armiger	-	-	-	1	-	-	-	-	-	-	2	2	-	-	-	-	1	-	-	1	-	-	-	-	-	-	1
Annelida	Polychaeta	Orbiniida	Aricidea catherinae	-	-	-	-	-	-	-	-	-	1	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Orbiniida	Aricidea cerrutii	-	-	-	-	-	-	3	-	-	-	-	-	-	-	1	2	4	-	-	1	-	-	-	1	-	-	-
Annelida	Polychaeta	Orbiniida	Paradoneis lyra	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
Annelida	Polychaeta	Phyllodocida	Malmgreniella mcintoshi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-

Group	Class	Order	Name	36	37	38	40	41	42	43	44	45	48	49	51	53	54	55	57	58	60	62	63	64	65	66	67	68	70	71
Annelida	Polychaeta	Spionida	Apistobranchus tullbergi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Spionida	Poecilochaetus serpens	-	1	1	-	-	1	2	-	-	3	1	-	4	-	2	1	3	-	1	1	-	1	-	1	2	-	1
Annelida	Polychaeta	Spionida	Aonides paucibranchiata	-	1	-	6	-	-	3	1	-	1	-	-	-	-	1	4	3	-	-	-	1	-	-	-	-	1	-
Annelida	Polychaeta	Spionida	Laonice bahusiensis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Spionida	Malacoceros vulgaris	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Spionida	Minuspio cirrifera	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Spionida	Polydora sp.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Spionida	Polydora caeca	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Spionida	Polydora caulleryi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Spionida	Prionospio fallax	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Spionida	Pseudopolydora pulchra	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Spionida	Scolelepis (Scolelepis) sp.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Spionida	Scolelepis (S) bonnieri	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Spionida	Scolelepis (P) korsuni	-	-	1	1	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	1	-	-	1	-	-	1
Annelida	Polychaeta	Spionida	Spio armata	-	-	-	3	-	1	-	1	-	-	-	-	-	-	1	6	8	-	-	-	-	1	-	-	-	-	-
Annelida	Polychaeta	Spionida	Spio decorata	-	-	-	-	-	-	-	-	-	-	2	-	-	-	1	1	-	-	-	1	-	-	1	-	2	-	-
Annelida	Polychaeta	Spionida	Spio filicornis	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	1	-
Annelida	Polychaeta	Spionida	Spiophanes bombyx	8	9	18	11	1	9	4	10	-	10	4	11	16	10	22	3	3	12	23	12	1	2	9	1	13	14	9
Annelida	Polychaeta	Spionida	Spiophanes kroyeri	-	-	-	4	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Chrysopetalum debile	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Spionida	Magelona alleni	-	-	-	-	-	-	-	-	-	-	3	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
Annelida	Polychaeta	Spionida	Magelona filiformis	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Spionida	Aphelochaeta sp. Type 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Spionida	Caulleriella alata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Spionida	Chaetozone zetlandica	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Spionida	Chaetozone christiei	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-	1
Annelida	Polychaeta	Spionida	Cirratulus cirratus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	2	-	-	-	-	-	-
Annelida	Polychaeta	Spionida	Tharyx killariensis	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Spionida	Tharyx sp. type 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Spionida	Diplocirrus glaucus	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Capitellida	Mediomastus fragilis	-	-	-	4	-	-	-	-	-	-	-	-	-	-	-	1	2	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Pholoe inornata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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Annelida	Polychaeta	Phyllodocida	Pholoe baltica	-	-	-	1	-	-	-	-	-	-	1	-	-	-	-	-	-	-	1	-	-	-	-	1	-	-	-
Annelida	Polychaeta	Capitellida	Notomastus latericeus	-	-	-	11	-	-	4	1	-	-	-	-	-	-	-	34	9	-	-	1	1	-	-	4	-	-	-
Annelida	Polychaeta	Capitellida	Peresiella clymenoides	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Capitellida	Maldanidae sp. Juv.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Capitellida	Praxillura longissima	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Capitellida	Clymenura johnstoni	-	2	-	-	-	2	-	-	-	-	-	-	-	1	-	5	3	-	-	-	-	-	-	1	-	-	-
Annelida	Polychaeta	Capitellida	Euclymene lumbricoides	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Capitellida	Euclymene oerstedi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Opheliida	Ophelia borealis	-	1	8	-	1	8	2	5	2	9	-	2	2	3	2	-	4	4	4	2	-	5	1	5	8	2	8
Chelicerata	Pycnogonida		Anoplodactylus petiolatus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chelicerata	Pycnogonida		Nymphon brevirostre	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Branchiopoda	Rhizocephala	Copepoda spp.	-	-	1	-	-	4	-	-	-	2	2	2	2	6	8	2	1	1	1	-	-	2	2	1	1	-	2
Crustacea	Maxillopoda	Siphonostomatoida	Ostracoda sp. Indet	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Maxillopoda	Thoracica	Verruca stroemia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Maxillopoda	Thoracica	Balanus crenatus	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Amphipoda	Apherusa bispinosa	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Cumacea	Vauntompsonia cristata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Cumacea	Bodotria scorpioides	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-
Crustacea	Eumalacostraca	Cumacea	Eudorellopsis deformis	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Cumacea	Pseudocuma similis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Amphipoda	Monoculodes carinatus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Cumacea	Diastylis laevis	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Cumacea	Diastylis rugosa	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Euphausiacea	Nyctiphanes couchi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Amphipoda	Perioculodes longimanus	-	-	-	-	-	-	-	-	-	-	-	2	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Decapoda	Caridion gordoni?	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Decapoda	Eualus pusiolus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Amphipoda	Pontocrates arenarius	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Amphipoda	Synchelidium haplocheles	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Amphipoda	Synchelidium maculatum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Decapoda	Crangon crangon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Decapoda	Paguridae spp. Indet.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Group	Class	Order	Name	36	37	38	40	41	42	43	44	45	48	49	51	53	54	55	57	58	60	62	63	64	65	66	67	68	70	71
Crustacea	Eumalacostraca	Decapoda	Anapagurus hyndmanni	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Decapoda	Anapagurus laevis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Decapoda	Pagurus prideaux	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Decapoda	Galathea intermedia	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	8	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Decapoda	Ebalia tuberosa	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Decapoda	Ebalia tumefacta	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Decapoda	Hyas coarctatus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Decapoda	Atelecyclus rotundatus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Decapoda	Liocarcinus spp. Juv.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Decapoda	Portumnus latipes	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Amphipoda	Leucothoe incisa	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Amphipoda	Stenothoe marina	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Amphipoda	Urothoe elegans	-	-	-	3	-	-	-	-	-	-	1	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Amphipoda	Urothoe marina	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	3	-	-	-	-	-	-	1	-	-	-
Crustacea	Eumalacostraca	Amphipoda	Harpinia antennaria	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Amphipoda	Harpinia laevis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Amphipoda	Hippomedon denticulatus	-	-	1	-	1	-	-	-	-	-	1	-	2	-	-	-	-	-	1	-	-	-	1	-	-	-	-
Crustacea	Eumalacostraca	Amphipoda	Lepidepecreum longicorne	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Amphipoda	Orchomene nanus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Amphipoda	Tmetonyx similis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Amphipoda	Argissa hamatipes	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Amphipoda	Iphimedia obesa	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Amphipoda	Atylus falcatus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Amphipoda	Atylus vedlomensis	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-	1	2	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Amphipoda	Ampelisca brevicornis	-	1	-	1	1	-	-	-	-	-	-	-	2	1	1	3	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Amphipoda	Ampelisca spinipes	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Amphipoda	Gastrosaccus spinifer	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Amphipoda	Ampelisca tenuicornis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Amphipoda	Ampelisca typica	-	1	-	-	-	-	-	1	-	1	-	-	-	1	-	2	-	-	-	-	-	-	-	1	-	-	-
Crustacea	Eumalacostraca	Amphipoda	Bathyporeia elegans	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Amphipoda	Bathyporeia guilliamsoniana	-	2	-	-	-	4	-	-	-	-	-	-	-	1	1	-	-	1	-	-	-	-	4	1	-	1	-
Crustacea	Eumalacostraca	Amphipoda	Megaluropus agilis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1	-	-	-	-

Group	Class	Order	Name	36	37	38	40	41	42	43	44	45	48	49	51	53	54	55	57	58	60	62	63	64	65	66	67	68	70	71
Crustacea	Eumalacostraca	Amphipoda	Cheirocratus sp. Female	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Amphipoda	Cheirocratus sundevallii	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Amphipoda	Maera othonis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Amphipoda	Gammaropsis cornuta	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Amphipoda	Gammaropsis maculata	-	-	-	-	-	1	-	-	-	-	-	1	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-
Crustacea	Eumalacostraca	Amphipoda	Ericthonius punctatus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Amphipoda	Aoridae sp. Female	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Amphipoda	Autonoe longipes	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Amphipoda	Leptocheirus hirsutimanus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
Crustacea	Eumalacostraca	Leptostraca	Nebalia bipes	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Amphipoda	Corophium crassicorne	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Amphipoda	Siphonoecetes striatus	1	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Amphipoda	Unciola planipes	-	1	-	-	-	1	-	-	-	-	-	1	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Amphipoda	Pariambus typicus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Amphipoda	Phtisica marina	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Amphipoda	Pseudoprotella phasma	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Isopoda	Gnathia sp. Female	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Isopoda	Gnathia oxyuraea	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Isopoda	Gnathia vorax	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Mysidacea	Schistomysis kervillei	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Isopoda	Astacilla dilatata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Gastropoda	Cephalaspidea	Acteon tornatilis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Gastropoda	Cephalaspidea	Cylichna cylindracea	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Gastropoda	Cephalaspidea	Philine aperta	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Gastropoda	Archaeogastropoda	Emarginula rosea	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Gastropoda	Nudibranchia	Doto spp.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Gastropoda	Nudibranchia	Goniodoris sp.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Gastropoda	Nudibranchia	Onchidorididae sp.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Gastropoda	Nudibranchia	Onchidoris depressa	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Scaphopoda	Dentaliida	Antalis entalis	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Pelecypoda	Nuculoida	Nucula sp. Juv.	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Pelecypoda	Nuculoida	Nucula nucleus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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Mollusca	Gastropoda	Arcaeogastropoda	Gibbula tumida	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Pelecypoda	Arcoida	Glycymeris glycymeris	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Pelecypoda	Mytiloida	Mytilidae sp. Juv.	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-
Mollusca	Pelecypoda	Mytiloida	Crenella decussata	-	2	-	-	-	4	-	2	-	4	-	1	1	-	1	-	-	2	1	3	-	-	-	-	-	2	-
Mollusca	Pelecypoda	Mytiloida	Modiolarca tumida	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Pelecypoda	Limoida	Limatula sulcata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Pelecypoda	Ostreoida	Palliolum furtivum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Pelecypoda	Ostreoida	Anomiidae sp.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Pelecypoda	Veneroida	Lucinoma borealis	-	-	-	-	-	-	-	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Pelecypoda	Veneroida	Thyasira flexuosa	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Pelecypoda	Veneroida	Montacuta substriata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Pelecypoda	Veneroida	Tellimya ferruginosa	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
Mollusca	Pelecypoda	Veneroida	Kurtiella bidentata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Pelecypoda	Veneroida	Goodallia triangularis	-	-	-	-	-	-	-	1	-	-	-	1	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Pelecypoda	Veneroida	Tridonta montagui	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	1
Mollusca	Pelecypoda	Veneroida	Parvicardium ovale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Pelecypoda	Veneroida	Parvicardium scabrum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Pelecypoda	Veneroida	Spisula elliptica	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	1	-	-	1	-	-	-	-
Mollusca	Pelecypoda	Veneroida	Solenacea sp. Juv/damg	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Pelecypoda	Veneroida	Ensis arcuatus	-	-	1	-	-	-	1	-	-	1	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-	1
Mollusca	Pelecypoda	Veneroida	Ensis ensis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Pelecypoda	Veneroida	Phaxas pellucidus	-	-	-	-	-	-	-	-	-	1	2	-	-	-	-	-	-	2	-	-	-	-	1	1	-	1	-
Mollusca	Pelecypoda	Veneroida	Arcopagia crassa	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Pelecypoda	Veneroida	Tellina fabula	1	-	-	-	-	-	-	-	-	-	1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Pelecypoda	Veneroida	Moerella pygmaea	-	12	15	-	2	11	5	9	4	16	-	19	-	1	7	2	3	6	3	10	2	2	-	3	3	16	10
Mollusca	Pelecypoda	Veneroida	Gari depressa	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Pelecypoda	Veneroida	Gari fervensis	-	3	1	1	2	1	-	2	-	2	6	1	8	-	1	1	-	-	2	-	-	1	-	-	9	3	2
Mollusca	Pelecypoda	Veneroida	Abra spp. juv.	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Pelecypoda	Veneroida	Abra prismatica	-	2	-	-	-	-	-	-	-	2	5	1	2	-	-	-	-	1	1	-	-	-	-	-	3	-	1
Mollusca	Pelecypoda	Veneroida	Arctica islandica	-	-	-	-	1	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Pelecypoda	Veneroida	Veneridae sp. Juv.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-
Mollusca	Pelecypoda	Veneroida	Circomphalus casina	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-	1

Group	Class	Order	Name	36	37	38	40	41	42	43	44	45	48	49	51	53	54	55	57	58	60	62	63	64	65	66	67	68	70	71
Mollusca	Pelecypoda	Veneroida	Gouldia minima	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Pelecypoda	Veneroida	Chamelea striatula	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Pelecypoda	Veneroida	Clausinella fasciata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Pelecypoda	Veneroida	Timoclea ovata	1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1	-	-	-	-	-	-	-
Mollusca	Pelecypoda	Veneroida	Tapes rhomboides	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Pelecypoda	Veneroida	Dosinia spp. Juv.	2	-	1	-	5	3	1	1	1	2	1	1	5	1	3	1	-	-	1	4	-	1	3	-	-	-	1
Mollusca	Pelecypoda	Veneroida	Dosinia lupinus	-	-	-	-	-	1	-	1	1	-	-	1	2	-	-	-	2	1	2	4	-	-	-	-	-	-	1
Mollusca	Pelecypoda	Veneroida	Mysia undata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Pelecypoda	Myoida	Mya arenaria	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Pelecypoda	Myoida	Hiatella arctica	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Pelecypoda	Pholadomyoida	Thracia phaseolina	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	2	1	-	-
Mollusca	Pelecypoda	Pholadomyoida	Thracia villosiuscula	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Pelecypoda	Pholadomyoida	Cochlodesma praetenue	2	4	3	1	6	1	-	1	1	2	4	6	19	3	3	-	-	7	7	7	-	2	-	1	8	1	2
Mollusca	Pelecypoda	Pholadomyoida	Lyonsia norwegica	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Gastropoda	Mesogastropoda	Onoba semicostata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Gastropoda	Mesogastropoda	Capulus ungaricus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Gastropoda	Mesogastropoda	Euspira montagui	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Gastropoda	Mesogastropoda	Euspira pulchellus	-	-	-	-	2	-	-	2	-	-	-	-	-	-	2	3	1	2	1	-	-	1	-	-	3	-	-
Mollusca	Gastropoda	Mesogastropoda	Amauropsis islandicus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Polyplacophora	Neoloricata	Leptochiton asellus	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	5	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Gastropoda	Mesogastropoda	Eulima bilineata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Gastropoda	Neogastropoda	Mangelia nebula	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Gastropoda	Neogastropoda	Propebela turricula	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Gastropoda	Neogastropoda	Raphitoma linearis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Gastropoda	Neogastropoda	Raphitoma purpurea	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Gastropoda	Heterostropha	Odostomia sp.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Gastropoda	Heterostropha	Chrysallida decussata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bryozoa	Gymnolaemata	Cheilostomatida	Flustra foliacea	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	P	-	-	-	-	-	-	-	-	-	-	-
Bryozoa	Gymnolaemata	Cheilostomatida	Callopora dumerilii	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bryozoa	Gymnolaemata	Cheilostomatida	Beania mirabilis	-	P	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bryozoa	Stenolaemata	Cyclostomatida	Tubulipora sp.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bryozoa	Gymnolaemata	Cheilostomatida	Chorizopora brongniartii	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Group	Class	Order	Name	36	37	38	40	41	42	43	44	45	48	49	51	53	54	55	57	58	60	62	63	64	65	66	67	68	70	71
Bryozoa	Gymnolaemata	Cheilostomatida	Escharella immersa	-	-	-	P	-	-	-	-	-	-	-	-	-	-	-	P	P	-	-	-	-	-	-	-	-	-	-
Bryozoa	Gymnolaemata	Cheilostomatida	Escharella variolosa	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bryozoa	Gymnolaemata	Cheilostomatida	Porella concinna	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bryozoa	Gymnolaemata	Cheilostomatida	Schizomavella sp.	-	-	-	P	-	-	-	-	-	-	-	-	-	-	-	P	-	-	-	-	-	-	-	-	-	-	-
Bryozoa	Gymnolaemata	Cheilostomatida	Microporella ciliata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bryozoa	Gymnolaemata	Cheilostomatida	Fenestrulina malusii	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bryozoa	Gymnolaemata	Cheilostomatida	Disporella hispida	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	P	-	-	-	-	-	-	-	-	-	-	-
Bryozoa	Gymnolaemata	Ctenostomatida	Alcyonidium sp.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bryozoa	Gymnolaemata	Ctenostomatida	Alcyonidium diaphanum	-	-	-	-	-	-	P	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bryozoa	Gymnolaemata	Ctenostomatida	Alcyonidium mytili	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bryozoa	Gymnolaemata	Ctenostomatida	Alcyonidium parasiticum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phoronida	Phoronida		Phoronis spp.	1	-	-	2	-	1	-	1	-	1	-	-	-	-	-	1	-	-	1	-	-	-	-	2	2	-	2
Echinodermata	Ophiuroidea	Ophiurida	Ophiothrix fragilis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Echinodermata	Ophiuroidea	Ophiurida	Ophiactis balli	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Echinodermata	Ophiuroidea	Ophiurida	Amphiura sp. Juv.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	2	-	-
Echinodermata	Ophiuroidea	Ophiurida	Acrocnida brachiata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
Echinodermata	Ophiuroidea	Ophiurida	Amphiura filiformis	-	-	-	1	-	-	-	-	-	-	1	-	2	-	-	-	-	2	-	-	-	-	-	-	-	-	-
Echinodermata	Ophiuroidea	Ophiurida	Amphipholis squamata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Echinodermata	Ophiuroidea	Ophiurida	Ophiuridae sp. Juv.	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Echinodermata	Ophiuroidea	Ophiurida	Ophiura sp. Juv.	-	-	-	P	-	-	-	-	-	-	-	-	-	-	-	P	-	-	-	-	-	-	-	-	-	-	-
Echinodermata	Ophiuroidea	Ophiurida	Ophiocten affinis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
Echinodermata	Ophiuroidea	Ophiurida	Ophiura albida	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Echinodermata	Echinoidea	Echinoida	Psammechinus miliaris	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Echinodermata	Echinoidea	Clypeasteroidea	Echinocyamus pusillus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Echinodermata	Echinoidea	Spatangoida	Spatangus purpureus	-	3	4	-	4	5	1	6	-	7	-	5	4	1	1	4	1	1	2	2	-	2	-	1	5	3	1
Echinodermata	Echinoidea	Spatangoida	Echinocardium sp. Juv.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Echinodermata	Echinoidea	Spatangoida	Echinocardium cordatum	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Echinodermata	Echinoidea	Spatangoida	Echinocardium flavescens	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-
Echinodermata	Holothurioidea	Dendrochirotida	Thyone fusus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-
Echinodermata	Holothurioidea	Apodida	Leptosynapta inhaerens	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
Echinodermata	Asteroidea	Forcipulatida	Asteriidae Juv.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
Chordata	Ascidiacea	Enterogona	Tunicata sp. Indet.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Group	Class	Order	Name	36	37	38	40	41	42	43	44	45	48	49	51	53	54	55	57	58	60	62	63	64	65	66	67	68	70	71
Tunicata	Ascidiacea	Pleurogona	Polycarpa fibrosa	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tunicata	Ascidiacea	Pleurogona	Dendrodoa grossularia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
Tunicata	Ascidiacea	Pleurogona	Molgula spp. Juv.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
Chordata	Ascidiacea	Phlebobranchiata	Ascidia mentula	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chordata	Osteichthyes	Perciformes	Hyperoplus lanceolatus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1

Group	Class	Order	Name	72	73	74	75	76	77	78	79	80	82	83	84	85	86	87	88	90	91	92	93	94	95	96	97	98	99	100	101	102	104
			Astrorhiza limicola	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			Decapoda larvae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1	-	-	-	-	-	-	-
			Branchiostoma lanceolatum	-	-	-	1	-	-	-	-	-	-	1	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-
			Fish larvae indet	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			Lagotia viridis	P	P	-	P	P	-	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	-
			Athecata sp.	-	-	-	-	-	P	P	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Porifera			Porifera crusts indet.	-	-	-	P	P	-	-	-	-	P	-	-	-	-	-	-	P	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cnidaria	Leptolida	Filifera	Eudendrium sp.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cnidaria	Leptolida	Filifera	Bougainvillia sp.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cnidaria	Leptolida	Conica	Phialella quadrata	-	-	-	-	-	-	P	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cnidaria	Leptolida	Conica	Halecium sp.	-	-	-	-	P	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cnidaria	Leptolida	Conica	Abietinaria abietina	-	-	-	-	-	-	-	-	-	P	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cnidaria	Leptolida	Conica	Hydrallmania falcata	-	-	-	-	-	-	-	-	-	P	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cnidaria	Leptolida	Conica	Sertularella gayi	-	-	-	-	-	-	-	-	-	P	-	-	P	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cnidaria	Leptolida	Conica	Sertularia cupressina	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cnidaria	Leptolida	Proboscoida	Obelia sp.	-	-	-	P	P	-	-	-	-	P	-	-	-	-	-	-	P	-	-	-	-	-	-	-	-	-	-	-	-	-
Cnidaria	Leptolida	Proboscoida	Clytia hemisphaerica	-	-	-	P	-	-	-	-	-	P	-	-	-	-	-	-	-	-	-	-	-	P	-	-	-	-	-	-	-	-
Cnidaria	Leptolida	Alcyonacea	Alcyonium digitatum	-	-	-	-	P	-	-	-	-	-	-	-	-	-	-	-	P	-	-	-	-	-	-	-	-	-	-	-	-	-
Cnidaria	Hexacorallia	Ceriantharia	Cerianthus lloydii	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cnidaria	Hexacorallia	Actinaria	Actinaria spp.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
Cnidaria	Hexacorallia	Actinaria	Adamsia carciniopados	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cnidaria	Hexacorallia	Actinaria	Edwardsia sp.	-	1	-	-	1	2	1	-	-	-	-	-	-	-	3	1	-	-	3	-	-	-	2	3	2	-	2	-	2	1
Platyhelminthes	Tuerbellaria		Turbellaria sp.	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nemertea	Nemertea		Nemertea spp.	1	1	-	7	6	1	1	1	-	9	3	-	11	-	-	-	10	1	2	2	1	1	-	-	-	-	-	1	5	3
Nematoda	Nematoda		Nematoda spp.	-	-	-	7	6	-	-	-	-	-	-	-	5	-	-	-	17	-	-	-	-	-	-	-	-	-	-	-	-	-
Entoprocta	Coloniales		Pedicellina sp.	-	-	-	-	-	-	-	-	-	-	-	-	-	P	-	-	-	-	-	-	-	P	-	-	-	-	-	-	-	-
Entoprocta	Coloniales		Pedicellina cernua	-	-	-	-	-	-	-	-	-	P	-	-	P	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chaetognatha	Chaetognatha		Sagitta sp.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
Pogonophora	Pogonophora		Pogonophora sp. Indet.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Group	Class	Order	Name	72	73	74	75	76	77	78	79	80	82	83	84	85	86	87	88	90	91	92	93	94	95	96	97	98	99	100	101	102	104
Sipuncula	Sipunculidea	Golfingiiformes	Golfingia elongata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sipuncula	Sipunculidea	Golfingiiformes	Phascolion strombus	-	-	2	8	2	-	-	-	-	8	2	-	2	-	-	-	13	-	-	-	-	-	-	-	-	-	-	-	1	1
Sipuncula	Sipunculidea	Golfingiiformes	Onchnesoma steenstrupii?	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Opheliida	Travisia forbesi	-	1	-	-	-	-	-	1	-	-	-	-	-	2	-	1	-	-	-	-	-	-	2	-	-	-	-	-	-	-
Annelida	Polychaeta	Opheliida	Ophelina acuminata	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Opheliida	Scalibregma celticum	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Opheliida	Scalibregma inflatum	-	-	-	-	1	-	-	-	-	2	-	-	-	-	-	-	5	-	-	-	-	-	-	-	-	-	-	-	1	-
Annelida	Polychaeta	Phyllodocida	Sigalion squamosus	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Polygordiida	Polygordius spp.	-	-	-	11	1	-	-	-	-	-	3	-	3	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Sthenelais limicola	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Oweniida	Galathowenia oculata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Oweniida	Myriochele danielsseni	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Oweniida	Owenia fusiformis	-	1	-	-	1	-	-	-	-	-	1	-	-	2	1	-	-	1	-	2	-	-	-	4	-	2	1	-	1	1
Annelida	Polychaeta	Terebellida	Pectinaria (Lagis) koreni	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Terebellida	Ampharete lindstroemi	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Eteone longa/flava (agg.)	-	-	-	1	2	-	-	-	-	-	1	-	3	-	-	-	1	-	-	2	-	-	-	-	-	-	-	1	-	1
Annelida	Polychaeta	Terebellida	Terebellides stroemi	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Terebellida	Terebellidae sp. Juv.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Terebellida	Lanice conchilega	-	-	4	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	2	-
Annelida	Polychaeta	Terebellida	Pista cristata	-	-	3	1	1	-	-	-	4	-	-	1	-	-	-	-	1	-	-	-	-	-	-	2	-	3	-	2	3	3
Annelida	Polychaeta	Phyllodocida	Hesionura elongata	1	-	-	-	-	-	-	-	-	-	7	-	1	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Terebellida	Polycirrus spp.	-	-	2	-	5	-	-	-	-	2	-	-	5	-	-	-	5	-	-	-	-	-	-	-	-	-	-	1	-	-
Annelida	Polychaeta	Terebellida	Thelepus cincinnatus	-	-	-	1	3	-	-	-	-	5	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	1	-
Annelida	Polychaeta	Sabellida	Jasmineira caudata	-	-	2	26	164	-	-	-	-	98	3	-	106	-	-	-	89	-	-	-	-	-	-	-	1	1	-	-	3	1
Annelida	Polychaeta	Phyllodocida	Mystides caeca	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Sabellida	Pseudopotamilla reniformis	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Sabellida	Hydroides norvegica	-	-	3	68	71	-	-	-	-	42	5	-	6	1	-	-	104	-	-	2	-	-	-	-	-	-	2	-	1	-
Annelida	Polychaeta	Sabellida	Pomatoceros triqueter	-	-	-	14	18	-	-	-	-	133	-	-	7	-	-	-	55	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Pseudomystides limbata	1	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-

Group	Class	Order	Name	72	73	74	75	76	77	78	79	80	82	83	84	85	86	87	88	90	91	92	93	94	95	96	97	98	99	100	101	102	104
Annelida	Polychaeta	Sabellida	Spirorbis spirorbis	-	-	-	-	-	-	-	-	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Myzostomida	Oligochaeta spp.	-	-	-	4	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
Annelida	Polychaeta	Phyllodocida	Anaitides groenlandica	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Phyllodoce (Anaitides) rosea	-	-	-	-	-	-	-	1	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Pisione remota	-	-	-	-	-	-	-	-	-	-	5	-	7	-	-	-	-	-	-	-	-	3	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Eulalia bilineata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Eulalia mustela	-	-	1	3	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	1	-	-
Annelida	Polychaeta	Phyllodocida	Eumida spp.	-	-	1	1	-	-	1	-	-	1	-	-	2	-	-	-	3	-	-	-	-	-	-	-	-	-	-	1	1	-
Annelida	Polychaeta	Phyllodocida	Eumida bahusiensis	-	-	-	-	1	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Pterocirrus sp.?	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Aphrodita aculeata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Glycera sp. Juv.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Glycera alba	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Glycera gigantea	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Glycera lapidum	4	-	5	6	4	1	-	1	1	7	8	1	13	-	-	1	7	1	2	2	4	7	1	-	-	6	-	1	1	6
Annelida	Polychaeta	Phyllodocida	Glycera oxycephala	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1	-	-	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Glycinde nordmanni	-	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Goniada maculata	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Goniadella gracilis	-	-	1	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Sphaerodoridium claparedii	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Psamathe fusca	-	-	-	4	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Nereimyra punctata	-	-	-	6	7	-	-	-	-	1	-	-	-	-	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Podarkeopsis capensis	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
Annelida	Polychaeta	Phyllodocida	Microphthalmus similis	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Syllidae sp. Indet	-	-	-	1	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Syllis cornuta	3	-	1	-	-	-	-	-	-	1	2	-	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	1
Annelida	Polychaeta	Phyllodocida	Eurysyllis tuberculata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Trypanosyllis coeliaca	-	-	-	3	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Syllis armillaris	-	-	1	7	2	-	-	-	-	-	4	-	-	-	-	-	1	-	-	-	-	2	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Eusyllis blomstrandi	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Group	Class	Order	Name	72	73	74	75	76	77	78	79	80	82	83	84	85	86	87	88	90	91	92	93	94	95	96	97	98	99	100	101	102	104
Annelida	Polychaeta	Phyllodocida	Odontosyllis fulgurans	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Odontosyllis gibba	-	-	-	2	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Streptosyllis websteri	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Syllides benedicti	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Exogone hebes	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	2	-	-	1	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Exogone verugera	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Sphaerosyllis bulbosa	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Sphaerosyllis taylori	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Autolytus spp.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Nereis longissima	-	-	-	1	2	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Nereis zonata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Aglaophamus rubella	1	-	-	-	-	-	-	-	1	-	-	-	1	-	-	-	-	1	1	-	-	2	-	-	-	1	-	1	3	1
Annelida	Polychaeta	Phyllodocida	Nephtys sp. Juv.	-	-	1	-	-	1	-	1	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Nephtys assimilis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Nephtys caeca	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	1	-	-	-	-	-	-	1	-	-	-	1	-	-
Annelida	Polychaeta	Phyllodocida	Nephtys cirrosa	-	1	-	-	-	-	1	2	3	-	-	2	-	2	-	1	-	-	-	-	-	-	1	1	2	1	-	1	-	-
Annelida	Polychaeta	Phyllodocida	Nephtys hombergii	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Malmgreniella spp.	-	-	-	18	2	-	-	-	-	-	-	-	2	-	-	1	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Harmothoe spp.	-	-	-	11	1	-	-	-	-	4	-	-	-	-	-	-	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Nephtys kersivalensis	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Nephtys longosetosa	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Harmothoe antilopes	-	-	-	-	1	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Eunicida	Aponuphis bilineata	1	-	-	-	-	-	-	-	1	-	-	1	3	-	1	-	1	1	1	2	1	-	-	6	-	1	-	1	-	-
Annelida	Polychaeta	Eunicida	Hyalinoecia tubicola	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Eunicida	Nothria conchylega	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Eunicida	Eunice harassii	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Eunicida	Lumbrineris agastos	-	-	-	1	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Eunicida	Lumbrineris gracilis	-	-	1	-	4	8	-	-	-	1	-	-	1	-	2	-	1	-	-	-	-	-	-	-	-	-	-	-	1	-
Annelida	Polychaeta	Phyllodocida	Harmothoe fragilis	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Eunicida	Notocirrus scoticus	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Eunicida	Protodorvillea kefersteini	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	-	-	1	-	1	-	-	-	-	-	-	-	-

Group	Class	Order	Name	72	73	74	75	76	77	78	79	80	82	83	84	85	86	87	88	90	91	92	93	94	95	96	97	98	99	100	101	102	104
Annelida	Polychaeta	Eunicida	Schistomeringos neglecta	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Orbiniida	Orbinia (Orbinia) sertulata	1	-	-	-	-	-	-	-	-	-	1	1	-	-	-	1	-	-	-	-	-	-	-	-	-	1	-	1	1	-
Annelida	Polychaeta	Phyllodocida	Malmgreniella arenicolae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Orbiniida	Scoloplos (scoloplos) armiger	-	-	1	-	-	-	1	-	-	1	-	-	-	-	1	-	-	-	-	-	-	1	-	1	-	-	-	1	1	-
Annelida	Polychaeta	Orbiniida	Aricidea catherinae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Orbiniida	Aricidea cerrutii	-	-	1	1	-	-	-	-	2	2	2	3	-	-	-	-	1	-	-	-	-	1	1	-	-	1	-	-	-	2
Annelida	Polychaeta	Orbiniida	Paradoneis lyra	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8	-	-	-	-	-	-	-	-	-	-	-	-	1
Annelida	Polychaeta	Phyllodocida	Malmgreniella mcintoshi	-	-	-	10	2	-	-	-	-	-	-	-	-	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Spionida	Apistobranchus tullbergi	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Spionida	Poecilochaetus serpens	-	-	1	-	-	2	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1	-	1	-	-
Annelida	Polychaeta	Spionida	Aonides paucibranchiata	5	-	1	9	6	-	-	-	-	-	6	-	8	-	1	-	6	1	-	2	-	4	1	-	-	-	-	2	1	4
Annelida	Polychaeta	Spionida	Laonice bahusiensis	-	-	-	-	5	-	-	-	-	-	-	-	1	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Spionida	Malacoceros vulgaris	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Spionida	Minuspio cirrifera	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Spionida	Polydora sp.	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Spionida	Polydora caeca	-	-	-	-	2	-	-	-	-	1	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Spionida	Polydora caulleryi	-	1	-	1	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Spionida	Prionospio fallax	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Spionida	Pseudopolydora pulchra	-	-	-	-	-	1	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-
Annelida	Polychaeta	Spionida	Scolelepis (Scolelepis) sp.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Spionida	Scolelepis (S) bonnieri	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Spionida	Scolelepis (P) korsuni	-	-	1	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Spionida	Spio armata	-	-	-	-	6	-	-	-	-	7	-	1	1	-	1	-	4	-	-	1	-	-	3	-	-	-	-	-	-	-
Annelida	Polychaeta	Spionida	Spio decorata	-	-	-	-	-	-	1	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Spionida	Spio filicornis	-	1	-	-	-	-	-	-	-	-	3	-	-	-	-	-	-	1	1	-	4	9	-	-	-	-	-	1	-	-
Annelida	Polychaeta	Spionida	Spiophanes bombyx	3	3	4	-	2	6	19	1	13	-	1	17	-	5	11	6	-	14	12	5	9	-	7	10	8	8	18	8	3	1
Annelida	Polychaeta	Spionida	Spiophanes kroyeri	-	-	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Chrysopetalum debile	-	-	-	9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Group	Class	Order	Name	72	73	74	75	76	77	78	79	80	82	83	84	85	86	87	88	90	91	92	93	94	95	96	97	98	99	100	101	102	104
Annelida	Polychaeta	Spionida	Magelona alleni	-	-	-	-	-	3	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Spionida	Magelona filiformis	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Spionida	Aphelochaeta sp. Type 1	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Spionida	Caulleriella alata	-	-	-	3	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Spionida	Chaetozone zetlandica	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
Annelida	Polychaeta	Spionida	Chaetozone christiei	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1	2	-	-	-	1	-	-
Annelida	Polychaeta	Spionida	Cirratulus cirratus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Spionida	Tharyx killariensis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Spionida	Tharyx sp. type 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Spionida	Diplocirrus glaucus	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Capitellida	Mediomastus fragilis	-	-	-	-	4	-	-	-	-	2	-	-	1	-	-	-	5	-	-	1	-	-	-	-	-	-	-	-	1	-
Annelida	Polychaeta	Phyllodocida	Pholoe inornata	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Phyllodocida	Pholoe baltica	-	-	1	-	-	-	1	-	-	1	-	-	-	-	-	-	5	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Capitellida	Notomastus latericeus	-	-	20	11	13	-	-	-	-	-	1	-	6	-	-	-	15	1	1	-	-	-	-	-	-	1	-	3	-	1
Annelida	Polychaeta	Capitellida	Peresiella clymenoides	-	-	-	-	-	-	1	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Capitellida	Maldanidae sp. Juv.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Capitellida	Praxillura longissima	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Capitellida	Clymenura johnstoni	1	1	1	3	11	-	-	1	-	-	-	1	-	-	1	-	-	-	-	-	-	1	-	1	-	2	-	-	1	2
Annelida	Polychaeta	Capitellida	Euclymene lumbricoides	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
Annelida	Polychaeta	Capitellida	Euclymene oerstedi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Annelida	Polychaeta	Opheliida	Ophelia borealis	4	4	3	-	-	-	-	4	9	-	6	7	3	2	7	5	-	-	7	5	9	9	3	5	6	6	5	7	-	-
Chelicerata	Pycnogonida		Anoplodactylus petiolatus	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chelicerata	Pycnogonida		Nymphon brevirostre	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Branchiopoda	Rhizocephala	Copepoda spp.	4	-	4	1	2	-	1	4	-	-	-	-	2	1	5	-	-	2	2	1	1	-	-	-	1	2	-	2	-	-
Crustacea	Maxillopoda	Siphonostomatoida	Ostracoda sp. Indet	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Maxillopoda	Thoracica	Verruca stroemia	-	-	1	-	2	-	-	-	-	5	-	-	-	-	-	-	3	2	-	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Maxillopoda	Thoracica	Balanus crenatus	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Crustacea	Eumalacostraca	Amphipoda	Apherusa bispinosa	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Cumacea	Vauntompsonia cristata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-

Group	Class	Order	Name	72	73	74	75	76	77	78	79	80	82	83	84	85	86	87	88	90	91	92	93	94	95	96	97	98	99	100	101	102	104
Crustacea	Eumalacostraca	Cumacea	Bodotria scorpioides	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Cumacea	Eudorellopsis deformis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Cumacea	Pseudocuma similis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Amphipoda	Monoculodes carinatus	-	-	-	-	-	-	-	-	-	-	2	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Cumacea	Diastylis laevis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Cumacea	Diastylis rugosa	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Euphausiacea	Nyctiphanes couchi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Amphipoda	Perioculodes longimanus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Decapoda	Caridion gordoni?	-	-	-	2	-	-	-	-	-	1	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Decapoda	Eualus pusiolus	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Amphipoda	Pontocrates arenarius	1	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	1	-	1	-	3	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Amphipoda	Synchelidium haplocheles	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Amphipoda	Synchelidium maculatum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Decapoda	Crangon crangon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Decapoda	Paguridae spp. Indet.	-	-	-	1	-	-	-	-	-	1	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Decapoda	Anapagurus hyndmanni	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Decapoda	Anapagurus laevis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Decapoda	Pagurus prideaux	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Decapoda	Galathea intermedia	-	-	-	39	5	-	-	-	-	13	-	-	1	-	-	-	55	-	-	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Decapoda	Ebalia tuberosa	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Decapoda	Ebalia tumefacta	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Decapoda	Hyas coarctatus	-	-	-	-	-	-	-	-	-	1	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Decapoda	Atelecyclus rotundatus	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Decapoda	Liocarcinus spp. Juv.	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Decapoda	Portumnus latipes	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Amphipoda	Leucothoe incisa	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Amphipoda	Stenothoe marina	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
Crustacea	Eumalacostraca	Amphipoda	Urothoe elegans	-	-	-	-	-	3	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Amphipoda	Urothoe marina	-	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6	-	-	-	-	-	-	-	-	-	-	4	1

Group	Class	Order	Name	72	73	74	75	76	77	78	79	80	82	83	84	85	86	87	88	90	91	92	93	94	95	96	97	98	99	100	101	102	104
Crustacea	Eumalacostraca	Amphipoda	Harpinia antennaria	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Amphipoda	Harpinia laevis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Amphipoda	Hippomedon denticulatus	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	2	-	-	-	-	-
Crustacea	Eumalacostraca	Amphipoda	Lepidepecreum longicorne	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
Crustacea	Eumalacostraca	Amphipoda	Orchomene nanus	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Amphipoda	Tmetonyx similis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	1	-	-	-	-	-	-
Crustacea	Eumalacostraca	Amphipoda	Argissa hamatipes	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Amphipoda	Iphimedia obesa	-	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Amphipoda	Atylus falcatus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Crustacea	Eumalacostraca	Amphipoda	Atylus vedlomensis	2	-	-	1	5	-	-	-	-	1	5	-	3	-	-	-	6	1	-	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Amphipoda	Ampelisca brevicornis	-	1	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	2	-	-	-	-	-	1	-	-	1	-	-	-
Crustacea	Eumalacostraca	Amphipoda	Ampelisca spinipes	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Amphipoda	Gastrosaccus spinifer	-	-	-	-	-	-	-	-	-	-	-	-	-	1	3	-	-	-	-	4	3	-	1	2	1	1	-	1	-	-
Crustacea	Eumalacostraca	Amphipoda	Ampelisca tenuicornis	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Amphipoda	Ampelisca typica	-	-	-	-	-	-	-	-	1	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	4	-	-
Crustacea	Eumalacostraca	Amphipoda	Bathyporeia elegans	-	-	-	-	-	2	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
Crustacea	Eumalacostraca	Amphipoda	Bathyporeia guilliamsoniana	-	1	-	-	-	-	-	-	-	-	-	2	-	1	1	1	-	1	-	-	-	-	-	-	-	2	-	1	-	-
Crustacea	Eumalacostraca	Amphipoda	Megaluropus agilis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	1
Crustacea	Eumalacostraca	Amphipoda	Cheirocratus sp. Female	-	-	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
Crustacea	Eumalacostraca	Amphipoda	Cheirocratus sundevallii	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Amphipoda	Maera othonis	-	-	-	1	2	-	-	-	-	2	-	-	1	-	-	-	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Amphipoda	Gammaropsis cornuta	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Amphipoda	Gammaropsis maculata	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Amphipoda	Ericthonius punctatus	-	-	-	-	-	-	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Amphipoda	Aoridae sp. Female	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Amphipoda	Autonoe longipes	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Amphipoda	Leptocheirus hirsutimanus	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
Crustacea	Eumalacostraca	Leptostraca	Nebalia bipes	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Amphipoda	Corophium	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Group	Class	Order	Name	72	73	74	75	76	77	78	79	80	82	83	84	85	86	87	88	90	91	92	93	94	95	96	97	98	99	100	101	102	104
			crassicorne																														
Crustacea	Eumalacostraca	Amphipoda	Siphonoecetes striatus	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Crustacea	Eumalacostraca	Amphipoda	Unciola planipes	2	-	1	-	-	-	-	-	3	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	1	1	-
Crustacea	Eumalacostraca	Amphipoda	Pariambus typicus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Amphipoda	Phtisica marina	-	-	1	1	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
Crustacea	Eumalacostraca	Amphipoda	Pseudoprotella phasma	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Isopoda	Gnathia sp. Female	-	-	-	4	1	-	-	-	-	-	-	-	-	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Isopoda	Gnathia oxyuraea	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Isopoda	Gnathia vorax	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Mysidacea	Schistomysis kervillei	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crustacea	Eumalacostraca	Isopoda	Astacilla dilatata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
Mollusca	Gastropoda	Cephalaspidea	Acteon tornatilis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Gastropoda	Cephalaspidea	Cylichna cylindracea	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Gastropoda	Cephalaspidea	Philine aperta	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Gastropoda	Archaeogastropoda	Emarginula rosea	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Gastropoda	Nudibranchia	Doto spp.	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Gastropoda	Nudibranchia	Goniodoris sp.	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Gastropoda	Nudibranchia	Onchidorididae sp.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Gastropoda	Nudibranchia	Onchidoris depressa	-	-	-	3	-	-	-	-	-	1	-	-	-	-	-	-	5	-	-	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Scaphopoda	Dentaliida	Antalis entalis	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Pelecypoda	Nuculoida	Nucula sp. Juv.	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Pelecypoda	Nuculoida	Nucula nucleus	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Gastropoda	Arcaeogastropoda	Gibbula tumida	-	-	-	14	-	-	-	-	-	-	-	-	-	-	-	-	10	-	-	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Pelecypoda	Arcoida	Glycymeris glycymeris	-	-	-	7	-	-	-	-	-	-	-	-	-	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Pelecypoda	Mytiloida	Mytilidae sp. Juv.	-	-	-	5	1	-	-	-	-	1	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Pelecypoda	Mytiloida	Crenella decussata	-	1	1	1	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	1	-	-	1	-	-	3	-	-	-
Mollusca	Pelecypoda	Mytiloida	Modiolarca tumida	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Pelecypoda	Limoida	Limatula sulcata	-	-	-	1	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Pelecypoda	Ostreoida	Palliolum furtivum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Pelecypoda	Ostreoida	Anomiidae sp.	-	-	-	-	-	-	-	-	-	3	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Pelecypoda	Veneroida	Lucinoma borealis	-	-	-	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Group	Class	Order	Name	72	73	74	75	76	77	78	79	80	82	83	84	85	86	87	88	90	91	92	93	94	95	96	97	98	99	100	101	102	104
Mollusca	Pelecypoda	Veneroida	Thyasira flexuosa	-	-	-	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Pelecypoda	Veneroida	Montacuta substriata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Pelecypoda	Veneroida	Tellimya ferruginosa	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-
Mollusca	Pelecypoda	Veneroida	Kurtiella bidentata	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Pelecypoda	Veneroida	Goodallia triangularis	-	-	-	5	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Pelecypoda	Veneroida	Tridonta montagui	-	-	1	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Pelecypoda	Veneroida	Parvicardium ovale	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	7	-	-	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Pelecypoda	Veneroida	Parvicardium scabrum	-	-	-	1	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Pelecypoda	Veneroida	Spisula elliptica	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
Mollusca	Pelecypoda	Veneroida	Solenacea sp. Juv/damg	-	1	-	1	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-
Mollusca	Pelecypoda	Veneroida	Ensis arcuatus	-	-	-	-	-	-	-	-	1	-	-	-	2	-	-	-	-	-	-	-	1	1	-	1	-	-	2	-	-	-
Mollusca	Pelecypoda	Veneroida	Ensis ensis	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Pelecypoda	Veneroida	Phaxas pellucidus	-	1	-	-	-	4	5	1	-	-	-	1	-	-	1	-	-	-	-	-	-	-	2	1	1	2	-	-	-	-
Mollusca	Pelecypoda	Veneroida	Arcopagia crassa	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
Mollusca	Pelecypoda	Veneroida	Tellina fabula	-	-	-	-	-	4	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Pelecypoda	Veneroida	Moerella pygmaea	4	9	2	2	-	-	-	4	7	-	4	3	-	3	7	2	2	5	6	-	2	1	5	13	4	3	5	9	-	1
Mollusca	Pelecypoda	Veneroida	Gari depressa	-	-	-	25	1	-	-	-	-	-	-	-	-	-	-	-	5	2	-	-	-	-	-	-	-	-	-	2	-	-
Mollusca	Pelecypoda	Veneroida	Gari fervensis	-	2	-	-	-	7	12	2	1	-	-	-	-	-	-	1	-	1	-	-	-	-	1	1	-	-	2	-	-	-
Mollusca	Pelecypoda	Veneroida	Abra spp. juv.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Pelecypoda	Veneroida	Abra prismatica	-	1	1	-	-	5	2	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
Mollusca	Pelecypoda	Veneroida	Arctica islandica	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Pelecypoda	Veneroida	Veneridae sp. Juv.	-	-	-	9	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	1	-	-
Mollusca	Pelecypoda	Veneroida	Circomphalus casina	-	1	-	3	-		1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
Mollusca	Pelecypoda	Veneroida	Gouldia minima	-	-	-	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Pelecypoda	Veneroida	Chamelea striatula	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Mollusca	Pelecypoda	Veneroida	Clausinella fasciata	-	-	2	26	-	-	-	-	-	1	-	-	2	1	-	-	8	-	-	-	-	-	-	-	-	-	-	1	-	-
Mollusca	Pelecypoda	Veneroida	Timoclea ovata	-	-	-	6	-	-	-	-	-	-	-	-	-	-	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Pelecypoda	Veneroida	Tapes rhomboides	-	-	2	1	1	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Pelecypoda	Veneroida	Dosinia spp. Juv.	-	1	-	-	-	-	-	5	2	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-	1	1	-	1	-	-
Mollusca	Pelecypoda	Veneroida	Dosinia lupinus	-	-	1	-	-	-	1	2	-	-	-	1	1	-	-	-	-	-	-	-	-	1	2	-	-	-	-	-	1	-
Mollusca	Pelecypoda	Veneroida	Mysia undata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-

Group	Class	Order	Name	72	73	74	75	76	77	78	79	80	82	83	84	85	86	87	88	90	91	92	93	94	95	96	97	98	99	100	101	102	104
Mollusca	Pelecypoda	Myoida	Mya arenaria	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Pelecypoda	Myoida	Hiatella arctica	-	-	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Pelecypoda	Pholadomyoida	Thracia phaseolina	-	-	-	-	-	-	-	-	-	1	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
Mollusca	Pelecypoda	Pholadomyoida	Thracia villosiuscula	-	-	1	4	-	-	-	-	-	-	-	-	-	-	-	-	7	-	-	1	-	-	-	-	-	-	-	-	-	1
Mollusca	Pelecypoda	Pholadomyoida	Cochlodesma praetenue	-	7	-	-	-	5	1	2	1	1	-	4	-	3	1	1	-	2	-	-	-	-	4	3	8	-	4	-	-	-
Mollusca	Pelecypoda	Pholadomyoida	Lyonsia norwegica	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Gastropoda	Mesogastropoda	Onoba semicostata	-	-	-	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Gastropoda	Mesogastropoda	Capulus ungaricus	-	-	-	-	-	-	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Gastropoda	Mesogastropoda	Euspira montagui	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Gastropoda	Mesogastropoda	Euspira pulchellus	-	1	-	2	1	1	-	2	-	-	2	2	5	3	-	-	-	-	1	1	1	3	-	1	1	1	-	3	2	-
Mollusca	Gastropoda	Mesogastropoda	Amauropsis islandicus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-
Mollusca	Polyplacophora	Neoloricata	Leptochiton asellus	-	-	-	13	3	-	-	-	-	6	-	-	-	-	-	-	35	-	-	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Gastropoda	Mesogastropoda	Eulima bilineata	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Gastropoda	Neogastropoda	Mangelia nebula	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Gastropoda	Neogastropoda	Propebela turricula	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Gastropoda	Neogastropoda	Raphitoma linearis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Gastropoda	Neogastropoda	Raphitoma purpurea	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Gastropoda	Heterostropha	Odostomia sp.	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Mollusca	Gastropoda	Heterostropha	Chrysallida decussata	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bryozoa	Gymnolaemata	Cheilostomatida	Flustra foliacea	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bryozoa	Gymnolaemata	Cheilostomatida	Callopora dumerilii	-	-	-	-	P	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bryozoa	Gymnolaemata	Cheilostomatida	Beania mirabilis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	P	-	-	-	-	-	-	-	-	-	-	-	-	-
Bryozoa	Stenolaemata	Cyclostomatida	Tubulipora sp.	-	-	-	P	P	-	-	-	-	P	-	-	-	-	-	-	P	P	-	-	-	-	-	-	-	-	-	-	-	-
Bryozoa	Gymnolaemata	Cheilostomatida	Chorizopora brongniartii	-	-	-	-	-	-	-	-	-	P	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bryozoa	Gymnolaemata	Cheilostomatida	Escharella immersa	-	-	-	P	P	-	-	-	-	P	-	-	P	-	-	-	P	P	-	-	-	-	-	-	-	-	-	-	-	-
Bryozoa	Gymnolaemata	Cheilostomatida	Escharella variolosa	-	-	P	P	P	-	-	-	-	-	-	-	-	-	-	-	P	P	-	-	-	-	-	-	-	-	-	-	-	-
Bryozoa	Gymnolaemata	Cheilostomatida	Porella concinna	-	-	-	-	P	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bryozoa	Gymnolaemata	Cheilostomatida	Schizomavella sp.	-	-	P	P	P	-	-	-	-	P	-	-	-	-	-	-	P	P	-	-	-	-	-	-	-	-	-	-	-	-
Bryozoa	Gymnolaemata	Cheilostomatida	Microporella ciliata	-	-	-	P	P	-	-	-	-	P	-	-	-	-	-	-	P	-	-	-	-	-	-	-	-	-	-	-	-	-
Bryozoa	Gymnolaemata	Cheilostomatida	Fenestrulina malusii	-	-	-	P	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bryozoa	Gymnolaemata	Cheilostomatida	Disporella hispida	-	-	-	P	P	-	-	-	-	P	P	-	-	-	-	-	P	P	-	-	-	-	-	-	-	-	-	-	-	-

Group	Class	Order	Name	72	73	74	75	76	77	78	79	80	82	83	84	85	86	87	88	90	91	92	93	94	95	96	97	98	99	100	101	102	104
Bryozoa	Gymnolaemata	Ctenostomatida	Alcyonidium sp.	-	-	-	-	-	-	-	-	-	-	P	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bryozoa	Gymnolaemata	Ctenostomatida	Alcyonidium diaphanum	-	-	-	-	-	-	-	-	-	-	-	-	P	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bryozoa	Gymnolaemata	Ctenostomatida	Alcyonidium mytili	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bryozoa	Gymnolaemata	Ctenostomatida	Alcyonidium parasiticum	-	-	-	-	-	-	-	-	-	-	-	-	P	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phoronida	Phoronida		Phoronis spp.	1	1	5	-	-	-	3	-	-	-	-	-	1	-	1	-	-	1	-	-	-	1	-	4	-	1	-	1	3	2
Echinodermata	Ophiuroidea	Ophiurida	Ophiothrix fragilis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-
Echinodermata	Ophiuroidea	Ophiurida	Ophiactis balli	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-
Echinodermata	Ophiuroidea	Ophiurida	Amphiura sp. Juv.	-	-	-	8	-	2	1	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
Echinodermata	Ophiuroidea	Ophiurida	Acrocnida brachiata	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	1	-	-	-
Echinodermata	Ophiuroidea	Ophiurida	Amphiura filiformis	-	1	-	2	-	2	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Echinodermata	Ophiuroidea	Ophiurida	Amphipholis squamata	-	-	1	1	-	-	-	-	-	1	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Echinodermata	Ophiuroidea	Ophiurida	Ophiuridae sp. Juv.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Echinodermata	Ophiuroidea	Ophiurida	Ophiura sp. Juv.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Echinodermata	Ophiuroidea	Ophiurida	Ophiocten affinis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	1	-
Echinodermata	Ophiuroidea	Ophiurida	Ophiura albida	-	-	1	1	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Echinodermata	Echinoidea	Echinoida	Psammechinus miliaris	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Echinodermata	Echinoidea	Clypeasteroidea	Echinocyamus pusillus	-	4	5	9	4	-	2	2	1	-	3	1	1	-	-	-	5	1	1	-	2	-	-	-	5	-	1	6	1	1
Echinodermata	Echinoidea	Spatangoida	Spatangus purpureus	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Echinodermata	Echinoidea	Spatangoida	Echinocardium sp. Juv.	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Echinodermata	Echinoidea	Spatangoida	Echinocardium cordatum	-	-	-	-	-	1	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Echinodermata	Echinoidea	Spatangoida	Echinocardium flavescens	1	-	-	-	-	-	-	-	2	-	-	-	1	-	-	-	-	-	3	1	1	-	1	-	-	1	1	-	-	-
Echinodermata	Holothurioidea	Dendrochirotida	Thyone fusus	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Echinodermata	Holothurioidea	Apodida	Leptosynapta inhaerens	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Echinodermata	Asteroidea	Forcipulatida	Asteriidae Juv.	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-
Chordata	Ascidiacea	Enterogona	Tunicata sp. Indet.	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tunicata	Ascidiacea	Pleurogona	Polycarpa fibrosa	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tunicata	Ascidiacea	Pleurogona	Dendrodoa grossularia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
Tunicata	Ascidiacea	Pleurogona	Molgula spp. Juv.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Group	Class	Order	Name	72	73	74	75	76	77	78	79	80	82	83	84	85	86	87	88	90	91	92	93	94	95	96	97	98	99	100	101	102	104
Chordata	Ascidiacea	Phlebobranchiata	Ascidia mentula	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chordata	Osteichthyes	Perciformes	Hyperoplus lanceolatus	-	-	-	1	-	-	-	-	-	-	4	-	1	-	-	-	-	-	-	1	-	4	-	-	-	1	-	-	-	-

Appendix 2. Grab survey biomass estimated by ash free dry weight (AFDW). Conversion factors used are given in Appendix 3.

Station	Polychaeta g/m²	Oligochaeta g/m²	Crustacea g/m²	Mollusca g/m²	Echinodermata g/m²	Others g/m²	Total g/m²
1	2.6030	0.0000	0.0078	1.6115	0.0031	0.1153	4.34
2	0.6499	0.0000	0.0001	0.1755	0.0023	0.0238	0.85
3	0.1813	0.0000	0.0550	0.3917	0.0225	0.0002	0.65
5	0.2042	0.0000	0.0138	0.6044	0.0071	0.0009	0.83
6	0.2565	0.0000	0.0013	1.9464	0.0638	0.0223	2.29
7	1.3098	0.0000	0.0075	0.1632	0.0716	0.0296	1.58
8	0.2994	0.0000	0.0425	0.9130	0.0004	0.0248	1.28
9	0.2125	0.0000	0.0544	0.1182	0.0153	0.0048	0.41
10	0.5862	0.0000	0.0084	0.4193	0.0134	0.1188	1.15
11	1.3638	0.0000	0.0037	0.1088	0.0065	0.0381	1.52
12	1.3546	0.0000	0.0523	1.4484	0.0001	0.3281	3.18
13	0.0866	0.0000	0.0253	0.0305	0.0191	0.0000	0.16
14	0.0790	0.0000	0.0001	0.1001	0.0075	0.0002	0.19
18	0.1829	0.0000	0.0091	1.9182	0.0167	0.0265	2.15
19	0.0810	0.0000	0.0038	0.5124	0.0083	0.0032	0.61
20	0.2837	0.0000	0.0253	1.2017	0.0069	0.0544	1.57
21	0.9610	0.0000	0.0370	0.6113	0.0139	0.0029	1.63
22	0.6293	0.0000	0.0018	1.5835	0.0641	0.0002	2.28
22	1.2928	0.0000	0.0210	0.1354	0.0063	0.0014	1.46
23	1.6771	0.0000	1.6455	3.3524	1.4933	0.1583	8.33
25	1.2704	0.0000	0.0076	1.0145	0.0126	0.0449	2.35
26	0.4469	0.0000	0.0010	1.4001	0.0009	0.0298	1.88
28	0.9197	0.0000	0.0257	4.7846	0.0006	0.0675	5.80
29	2.7600	0.0000	0.0028	0.0754	0.5803	0.1044	3.52
33	0.4597	0.0000	0.0012	1.1007	0.0167	0.0000	1.58
34	0.8109	0.0000	0.0312	0.0938	0.0111	0.0168	0.96
35	0.2274	0.0000	0.0520	0.1476	0.0084	0.0063	0.44
36	0.0210	0.0000	0.0004	0.0270	0.0001	0.0100	0.06
37	2.9669	0.0000	0.0084	1.1924	0.0068	0.0182	4.19
38	0.0910	0.0000	0.0225	1.6480	0.0146	0.0112	1.79
40	1.0467	0.0002	1.0747	0.0473	0.0008	0.1248	2.29
41	0.1469	0.0000	0.0412	0.2343	0.0073	0.0134	0.44
42	0.3427	0.0000	0.0113	0.0753	0.0264	0.0349	0.49
43	0.8368	0.0000	0.0009	3.2912	0.0846	0.0270	4.24
44	0.1968	0.0000	0.0016	0.1513	0.0152	0.0646	0.43
45	0.0077	0.0000	0.0000	0.0469	0.0000	0.0000	0.05
48	0.2458	0.0000	0.0018	0.9545	0.0302	0.0185	1.25
49	0.2755	0.0000	0.0276	1.5512	0.0008	0.0908	1.95
51	0.5322	0.0000	0.0032	0.1218	0.0210	0.0000	0.68
53	0.4211	0.0000	0.0532	2.4950	0.0077	0.0575	3.03
54	0.0637	0.0000	0.0198	0.0123	0.0015	0.0000	0.10
55	0.3893	0.0000	0.0187	0.1048	0.0025	0.0090	0.52
57	2.8830	0.0000	0.1740	4.0023	0.0265	0.0638	7.15
58	1.3904	0.0000	0.0243	0.5794	2.3409	0.0107	4.35
60	0.5267	0.0000	0.0028	0.2510	0.0038	0.0398	0.82
62	0.1027	0.0000	0.0309	0.0841	2.3593	0.0060	2.58
63	0.2448	0.0000	0.0000	0.3895	0.0587	0.0031	0.70

Station	Polychaeta g/m²	Oligochaeta g/m²	Crustacea g/m²	Mollusca g/m²	Echinodermata g/m²	Others g/m²	Total g/m²
64	0.1336	0.0000	0.0001	0.0031	0.0000	0.0000	0.14
65	0.2122	0.0000	0.0004	0.0504	0.0038	0.0010	0.27
66	0.0550	0.0000	0.0338	0.0256	0.0000	0.0000	0.11
67	0.8898	0.0000	0.0118	0.1524	0.0031	0.0495	1.11
68	0.4202	0.0000	0.0006	0.2205	0.0362	0.0338	0.71
70	0.3021	0.0000	0.0013	0.0396	0.0084	0.0337	0.39
71	0.1739	0.0002	0.0012	0.1047	0.0088	0.0204	0.31
72	0.2368	0.0000	0.0094	0.0282	2.1214	0.0070	2.40
73	0.1208	0.0000	0.0062	0.2575	0.0199	0.0020	0.41
74	1.3947	0.0000	0.0153	1.7986	0.0167	0.1331	3.36
75	1.7526	0.0028	0.0938	35.8997	0.3096	0.8286	38.89
76	2.1890	0.0000	0.0888	0.3187	0.0148	0.0366	2.65
77	0.5146	0.0000	0.0307	0.7494	0.5799	0.0808	1.96
78	0.3227	0.0000	0.0019	0.6067	0.0191	0.0964	1.05
79	0.5736	0.0000	0.0035	2.3282	0.0169	0.0009	2.92
80	0.2392	0.0000	0.0044	0.0270	0.1655	0.0000	0.44
82	1.9525	0.0000	0.4711	1.4569	0.0038	0.0350	3.92
83	0.1952	0.0000	0.0090	0.0847	0.1499	0.1540	0.59
84	1.9002	0.0000	0.0148	0.0702	0.0037	0.0000	1.99
85	0.9376	0.0002	2.7890	2.9818	0.6136	0.1151	7.44
86	5.5406	0.0000	0.0066	0.0913	0.0004	0.0002	5.64
87	0.1682	0.0000	0.0387	0.0290	0.0000	0.0423	0.28
88	0.1706	0.0000	0.0015	1.1928	54.2275	0.0102	55.60
90	2.2698	0.0000	0.4001	2.0580	0.1221	0.1292	4.98
91	0.3667	0.0000	0.0604	0.0334	0.0102	0.0022	0.47
92	0.4947	0.0000	0.0015	0.0117	2.0077	0.0323	2.55
93	0.1339	0.0000	0.0492	0.0390	1.4462	0.1222	1.79
94	0.1909	0.0000	0.0709	4.8025	1.6263	0.0039	6.69
95	0.3210	0.0000	0.0037	0.6124	0.0000	0.0704	1.01
96	0.2176	0.0000	0.0498	0.0329	0.5788	0.0051	0.88
97	0.8301	0.0000	0.1063	0.6048	0.0123	0.1409	1.69
98	0.2576	0.0000	0.0520	0.7980	0.0134	0.0017	1.12
99	0.2344	0.0000	0.0141	0.0611	0.0443	0.0037	0.36
100	0.2195	0.0000	0.0187	0.9791	0.0912	0.0077	1.32
101	1.1501	0.0000	0.0285	2.7161	0.0118	0.0012	3.91
102	0.4781	0.0002	0.0457	0.0505	0.0037	0.1246	0.70
104	0.1664	0.0000	0.0256	0.1049	0.0095	0.0068	0.31
Mean	61.6472	0.0035	8.2152	104.6432	71.7816	4.1587	250.45
Mean(%)	**24.6%**	**0.001%**	**3.3%**	**41.8%**	**28.7%**	**1.7%**	**24.6%**

Appendix 3. Conversion factors from the measured wet weight to ash free dry weight were based on the published values in Riccardi & Bourget (1998). The values used were as follows:

Group	Value AFDW/WW	Notes
Polychaetes	0.16	
Oligochaetes	0.167	
Crustacea	0.147	
Mollusca	0.058	Value for bivalves used as these are very much the dominant molluscs in these samples.
Echinodermata	0.0545	Mean value for echinoidea and ophiuroidea used, based on approximate numerical codominance
Others	0.17	Weighted average for phoronids, sipunculids, actinaria and nemertea used, as these were dominant weighable groups in terms of numbers
Fish	AFDW Not estimated as these are not invertebrates, and are large animals that probably only occur sporadically in grab samples and would strongly skew the data.	

Appendix 4. Grab survey – raw PSA data. Stations in black (e.g. 6cont) represent contaminant sample data.

Raw Data (contribution to each size class %)														Summary Statistics and Descriptors						
Station	LOI %	63 mm	31.5 mm	16 mm	8 mm	4 mm	2 mm	1 mm	0.5 mm	0.25 mm	0.125 mm	0.063 mm	<0.063 mm	Mean phi	Mean mm	Skew-ness	Kurt-osis	Classification after Buchanan	Folk Traingles after BGS	Sorting
1	1.95	0.00	0.00	0.00	0.28	0.50	2.44	4.86	5.96	23.34	53.10	8.46	1.07	0.276	0.960	-0.499	1.509	Medium Sand	Slightly Gravelly Sand	Moderately Sorted
2	0.87	0.00	0.00	2.98	2.24	0.39	1.06	1.57	2.27	43.18	42.34	3.66	0.29	0.326	1.228	-0.136	2.292	Medium Sand	Gravelly Sand	Poorly Sorted
3	1.37	0.00	0.00	0.00	0.00	0.25	0.92	1.69	2.85	50.01	39.64	4.32	0.34	0.324	0.627	0.221	0.826	Medium Sand	Slightly Gravelly Sand	Moderately Well Sorted
4	Station Fail																			
5	1.06	0.00	0.00	0.00	0.14	0.29	0.90	1.78	2.40	44.22	45.54	4.39	0.34	0.282	0.625	-0.490	0.816	Medium Sand	Slightly Gravelly Sand	Moderately Well Sorted
6 cont	1.49	0.00	0.00	0.00	0.00	0.24	0.79	1.97	4.05	43.03	44.61	5.02	0.30	0.318	0.736	0.241	1.078	Medium Sand	Slightly Gravelly Sand	Moderately Sorted
6	1.34	0.00	0.00	0.00	0.07	0.18	0.76	1.67	3.63	78.27	11.51	3.48	0.44	0.413	0.428	0.046	2.744	Medium Sand	Slightly Gravelly Sand	Well Sorted
7	2.27	0.00	0.00	0.00	0.00	0.44	1.54	2.99	5.41	73.69	15.24	0.68	0.01	0.416	0.468	-0.040	2.857	Medium Sand	Slightly Gravelly Sand	Well Sorted
8	1.19	0.00	0.00	0.00	0.02	0.17	0.86	1.18	6.50	41.51	43.30	4.42	2.04	0.319	1.649	0.250	1.120	Medium Sand	Slightly Gravelly Sand	Moderately Sorted
9	1.06	0.00	0.00	0.00	0.00	0.11	0.39	1.17	2.49	54.88	37.45	3.35	0.18	0.327	0.522	0.467	0.585	Medium Sand	Sand	Moderately Well Sorted
10	1.32	0.00	0.00	0.52	0.23	0.63	1.91	3.48	15.48	43.03	30.00	2.90	1.77	0.405	1.305	-0.150	1.165	Medium Sand	Slightly Gravelly Sand	Moderately Sorted
11	1.26	0.00	0.00	0.00	0.05	0.21	0.81	2.02	4.19	55.03	34.37	3.15	0.18	0.333	0.642	0.230	0.898	Medium Sand	Slightly Gravelly Sand	Moderately Well Sorted
12	1.48	0.00	0.00	0.52	0.13	1.34	9.67	21.98	26.36	20.93	13.54	4.66	0.86	0.705	1.493	0.160	0.982	Coarse Sand	Gravelly Sand	Poorly Sorted
13	0.49	0.00	0.00	0.00	0.00	0.00	0.39	0.58	2.50	71.59	23.06	1.79	0.08	0.346	0.486	0.564	1.662	Medium Sand	Sand	Well Sorted
14	1.42	0.00	0.00	0.00	0.00	0.05	0.65	1.78	3.88	41.34	45.99	5.99	0.33	0.280	0.736	-0.333	1.078	Medium Sand	Sand	Moderately Sorted
18	1.04	0.00	0.00	0.00	0.11	0.21	0.86	1.65	3.01	78.01	13.82	2.17	0.16	0.366	0.542	0.315	2.622	Medium Sand	Slightly Gravelly Sand	Moderately Well Sorted
19	1.09	0.00	0.00	0.40	0.02	0.15	0.59	1.29	2.39	52.59	38.50	3.87	0.21	0.326	0.527	0.449	0.583	Medium Sand	Slightly Gravelly Sand	Moderately Well Sorted

		Raw Data (contribution to each size class %)												Summary Statistics and Descriptors						
Station	LOI %	63 mm	31.5 mm	16 mm	8 mm	4 mm	2 mm	1 mm	0.5 mm	0.25 mm	0.125 mm	0.063 mm	<0.063 mm	Mean phi	Mean mm	Skew-ness	Kurt-osis	Classification after Buchanan	Folk Traingles after BGS	Sorting
20	1.34	0.00	0.00	0.90	1.06	1.29	2.21	3.67	5.28	44.67	39.07	1.69	0.17	0.337	0.931	-0.034	1.533	Medium Sand	Gravelly Sand	Moderately Sorted
20 cont	1.94	0.00	0.00	0.45	4.55	4.21	3.70	4.47	5.27	27.83	43.04	6.05	0.43	0.476	1.680	-0.440	2.041	Medium Sand	Gravelly Sand	Poorly Sorted
21	1.03	0.00	0.00	0.00	0.04	0.06	0.35	1.73	13.40	50.80	29.75	2.40	1.45	0.344	1.540	0.218	0.922	Medium Sand	Sand	Moderately Well Sorted
22	2.39	0.00	0.00	0.00	0.00	0.13	0.83	1.59	3.53	26.10	56.77	10.35	0.70	0.264	0.756	-0.387	1.203	Medium Sand	Slightly Gravelly Sand	Moderately Sorted
23	0.69	0.00	0.00	2.37	1.17	3.08	8.89	14.33	40.75	20.00	7.56	1.60	0.26	0.872	1.341	-0.126	1.166	Coarse Sand	Gravelly Sand	Poorly Sorted
25	0.86	0.00	0.00	29.16	6.53	0.64	8.31	0.00	0.00	0.00	0.00	0.00	55.36	1.375	2.773	-0.672	0.736	Very Coarse Sand	Sandy Gravel	Moderately Sorted
26	1.30	0.00	0.00	0.00	0.22	0.18	1.07	2.28	4.37	30.42	56.94	4.32	0.19	0.274	1.867	-0.613	0.927	Medium Sand	Slightly Gravelly Sand	Moderately Well Sorted
26 cont	1.27	0.00	0.00	0.00	0.27	0.09	0.74	1.93	3.44	26.96	62.16	4.18	0.23	0.269	0.634	-0.629	0.917	Medium Sand	Slightly Gravelly Sand	Moderately Well Sorted
27	1.09	0.00	0.00	0.00	0.00	0.12	0.52	3.10	11.08	44.81	37.22	2.23	0.90	0.337	1.570	0.155	0.906	Medium Sand	Sand	Moderately Well Sorted
28	0.78	0.00	0.00	0.00	0.71	0.97	3.84	16.45	43.29	25.47	7.65	1.47	0.16	0.792	1.088	0.022	1.356	Coarse Sand	Gravelly Sand	Poorly Sorted
29	0.96	0.00	0.00	0.00	0.00	0.13	0.52	2.56	8.76	75.82	11.17	0.93	0.10	0.421	0.445	-0.020	2.773	Medium Sand	Sand	Well Sorted
33	0.90	0.00	0.00	4.48	0.00	0.19	0.58	1.09	1.98	73.11	16.54	1.91	0.11	0.361	0.876	0.045	4.967	Medium Sand	Gravelly Sand	Moderately Sorted
34	0.86	0.00	0.00	0.00	0.00	0.08	0.20	1.04	5.83	42.91	46.05	2.76	1.12	0.319	1.648	0.137	0.838	Medium Sand	Sand	Moderately Well Sorted
35	0.90	0.00	0.00	0.00	0.00	0.24	0.71	1.50	4.21	58.22	32.43	2.54	0.14	0.336	0.624	0.260	0.884	Medium Sand	Slightly Gravelly Sand	Moderately Well Sorted
36	0.76	0.00	0.00	0.00	0.12	0.05	0.11	0.42	3.02	45.04	49.34	1.84	0.07	0.282	0.518	-0.426	0.575	Medium Sand	Sand	Moderately Well Sorted
37	0.57	0.00	0.00	0.00	0.00	0.04	0.15	1.36	14.71	58.54	23.06	1.57	0.62	0.400	1.320	0.023	1.013	Medium Sand	Sand	Moderately Sorted
38	0.35	0.00	0.00	0.00	0.00	0.04	0.31	1.97	23.44	56.65	16.44	0.62	0.52	0.441	1.182	-0.026	0.994	Medium Sand	Sand	Moderately Sorted
40	1.38	0.00	0.00	1.67	3.19	6.97	9.49	14.67	11.67	22.49	25.74	3.66	0.45	0.702	1.832	-0.443	0.754	Coarse Sand	Gravelly Sand	Poorly Sorted
41	0.65	0.00	0.00	0.00	0.00	0.21	0.68	0.91	3.09	60.33	33.14	1.59	0.05	0.335	0.510	0.505	0.599	Medium Sand	Sand	Moderately Well Sorted
42	0.51	0.00	0.00	0.00	0.00	0.02	0.48	1.16	4.92	65.19	26.34	1.81	0.08	0.344	0.603	0.299	0.929	Medium Sand	Sand	Moderately Well Sorted
43	0.79	0.00	0.00	0.00	0.06	0.11	1.51	9.02	29.65	48.58	10.24	0.82	0.02	0.545	0.807	-0.362	1.137	Coarse Sand	Slightly Gravelly	Moderately Sorted

Raw Data (contribution to each size class %)														Summary Statistics and Descriptors						
Station	LOI %	63 mm	31.5 mm	16 mm	8 mm	4 mm	2 mm	1 mm	0.5 mm	0.25 mm	0.125 mm	0.063 mm	<0.063 mm	Mean phi	Mean mm	Skew-ness	Kurt-osis	Classification after Buchanan	Folk Traingles after BGS	Sorting
																			Sand	
44	0.55	0.00	0.00	1.06	0.17	0.28	1.23	3.44	15.04	66.44	11.57	0.73	0.04	0.500	0.735	-0.412	3.265	Medium Sand	Slightly Gravelly Sand	Moderately Sorted
45	0.46	0.00	0.00	0.00	0.00	0.00	0.35	1.30	3.32	72.67	21.69	0.64	0.03	0.352	0.475	0.561	1.663	Medium Sand	Sand	Well Sorted
48	0.78	0.00	0.00	0.00	0.00	0.20	0.53	1.68	9.28	65.80	21.20	1.24	0.07	0.356	0.620	0.260	2.460	Medium Sand	Sand	Moderately Well Sorted
49	1.95	0.00	0.00	0.00	0.00	0.02	0.35	1.03	2.18	25.85	56.09	13.07	1.41	0.257	0.657	-0.260	0.973	Medium Sand	Sand	Moderately Well Sorted
51	0.41	0.00	0.00	0.00	0.00	0.09	0.20	0.65	6.79	68.75	22.80	0.68	0.05	0.352	0.591	0.295	2.383	Medium Sand	Sand	Moderately Well Sorted
53	0.91	0.00	0.00	0.00	0.00	0.12	0.14	0.53	3.08	40.68	52.94	2.31	0.21	0.277	0.519	-0.467	0.580	Medium Sand	Sand	Moderately Well Sorted
53 cont	0.64	0.00	0.00	0.00	0.00	0.10	0.43	1.17	3.10	52.60	40.58	1.90	0.12	0.327	0.519	0.441	0.580	Medium Sand	Sand	Moderately Well Sorted
54	0.61	0.00	0.00	0.56	0.04	0.13	0.16	1.47	11.34	53.17	31.63	0.94	0.57	0.344	1.539	0.214	0.929	Medium Sand	Sand	Moderately Well Sorted
55 cont	0.55	0.00	0.00	0.00	0.00	0.14	0.72	1.86	5.84	77.38	13.27	0.75	0.04	0.416	0.431	-0.003	2.736	Medium Sand	Sand	Well Sorted
55	0.57	0.00	0.00	0.00	0.00	0.06	0.47	2.05	6.93	75.48	13.76	1.17	0.08	0.416	0.440	-0.003	2.719	Medium Sand	Sand	Well Sorted
56	Station Fail																			
57	0.98	0.00	2.27	17.02	6.90	6.19	11.45	5.09	25.04	16.79	7.39	0.93	0.94	2.005	-1.004	-0.488	0.772	Very Fine Gravel	Sandy Gravel	Very Poorly Sorted
58	0.71	0.00	0.00	3.58	7.78	2.54	6.24	12.59	23.30	29.95	12.89	1.08	0.06	1.000	1.767	-0.352	1.209	Coarse Sand	Gravelly Sand	Poorly Sorted
60	0.43	0.00	0.00	0.00	0.00	0.18	0.61	1.14	3.89	79.11	14.16	0.83	0.09	0.413	0.401	0.045	2.555	Medium Sand	Sand	Well Sorted
62	0.68	0.00	0.00	0.00	0.16	0.13	0.55	0.26	3.31	50.85	42.86	1.77	0.11	0.324	0.519	0.421	0.577	Medium Sand	Sand	Moderately Well Sorted
63	0.58	0.00	0.00	0.00	0.00	0.15	0.58	0.75	3.02	84.76	9.94	0.78	0.03	0.416	0.292	0.294	1.787	Medium Sand	Sand	Very Well Sorted
64	1.00	0.00	32.54	5.97	5.93	3.10	1.73	2.97	9.22	27.28	10.95	0.29	0.01	3.329	3.025	-0.296	0.489	Very Fine Gravel	Sandy Gravel	Very Poorly Sorted
65	0.44	0.00	0.00	0.00	0.19	0.03	0.09	0.39	2.07	35.04	30.94	31.21	0.05	0.217	0.870	0.023	0.545	Fine Sand	Sand	Moderately Sorted
66	0.68	0.00	0.00	0.00	0.00	0.08	0.42	1.80	8.46	63.34	25.20	0.65	0.05	0.351	0.625	0.255	1.011	Medium Sand	Sand	Moderately Well Sorted

Raw Data (contribution to each size class %)														Summary Statistics and Descriptors						
Station	LOI %	63 mm	31.5 mm	16 mm	8 mm	4 mm	2 mm	1 mm	0.5 mm	0.25 mm	0.125 mm	0.063 mm	<0.063 mm	Mean phi	Mean mm	Skew-ness	Kurt-osis	Classification after Buchanan	Folk Traingles after BGS	Sorting
67	0.72	0.00	0.00	7.86	3.85	2.55	4.93	7.45	8.31	46.36	17.86	0.78	0.06	0.721	2.037	-0.595	1.422	Coarse Sand	Gravelly Sand	Very Poorly Sorted
68	0.53	0.00	0.00	0.18	0.15	0.06	0.58	1.62	6.36	61.83	27.71	1.37	0.14	0.345	0.630	0.255	0.967	Medium Sand	Slightly Gravelly Sand	Moderately Well Sorted
70	0.45	0.00	0.00	0.00	0.00	0.05	0.30	2.38	20.43	58.45	16.93	0.77	0.66	0.434	1.205	-0.024	2.249	Medium Sand	Sand	Moderately Sorted
70 cont	0.54	0.00	0.00	0.00	0.00	0.06	0.74	2.32	7.72	70.09	18.81	0.19	0.07	0.363	0.599	0.252	2.598	Medium Sand	Sand	Moderately Well Sorted
71	0.46	0.00	0.00	0.00	0.00	0.01	1.01	2.49	8.79	66.47	20.85	0.37	0.01	0.360	0.619	0.245	2.520	Medium Sand	Slightly Gravelly Sand	Moderately Well Sorted
72	0.54	0.00	0.00	1.58	7.88	11.70	18.59	23.30	14.42	9.17	9.61	3.17	0.57	1.638	1.954	0.038	1.101	Very Coarse Sand	Sandy Gravel	Poorly Sorted
72	0.52	0.00	0.00	0.53	0.24	0.41	2.04	7.47	20.06	59.34	9.59	0.30	0.01	0.532	0.801	-0.437	1.259	Coarse Sand	Slightly Gravelly Sand	Moderately Sorted
73	0.54	0.00	0.00	0.00	0.00	0.31	0.67	1.77	5.96	68.44	22.27	0.54	0.05	0.354	0.606	0.269	2.490	Medium Sand	Slightly Gravelly Sand	Moderately Well Sorted
73 cont	0.95	0.00	0.00	0.00	0.00	0.12	0.77	2.05	8.25	73.44	14.55	0.78	0.05	0.417	0.450	-0.014	2.698	Medium Sand	Sand	Well Sorted
74	1.76	0.00	0.00	3.20	6.42	6.05	8.75	6.60	19.60	28.66	18.89	1.02	0.81	0.737	0.440	-0.499	1.178	Coarse Sand	Gravelly Sand	Poorly Sorted
75	1.83	0.00	0.00	0.95	4.55	24.93	23.92	14.30	9.73	16.37	3.65	1.19	0.41	2.091	1.833	0.343	0.782	Very Fine Gravel	Sandy Gravel	Poorly Sorted
77	2.11	0.00	0.00	0.00	0.00	0.22	0.58	0.78	1.81	79.12	13.86	3.44	0.21	0.360	0.458	0.583	1.860	Medium Sand	Sand	Well Sorted
78	0.54	0.00	0.00	0.00	0.19	0.13	0.59	0.52	1.86	37.79	56.17	2.48	0.27	0.274	0.516	-0.495	0.586	Medium Sand	Sand	Moderately Well Sorted
79	0.39	0.00	0.00	0.00	0.25	0.66	1.25	1.78	5.09	84.87	5.34	0.73	0.03	0.424	0.401	-0.069	2.809	Medium Sand	Slightly Gravelly Sand	Well Sorted
80	0.31	0.00	0.00	0.00	0.05	0.19	0.62	1.40	5.23	86.46	5.45	0.59	0.02	0.422	0.375	-0.036	2.628	Medium Sand	Sand	Well Sorted
81	Station Fail																			
82	0.78	0.00	0.00	6.07	12.48	5.09	3.27	6.47	17.46	30.58	15.97	2.22	0.38	1.273	2.473	-0.439	0.900	Very Coarse Sand	Gravelly Sand	Very Poorly Sorted
83	0.46	0.00	0.00	0.00	0.00	0.57	4.29	8.25	49.48	32.48	4.33	0.24	0.39	0.669	0.579	0.200	0.934	Coarse Sand	Slightly Gravelly Sand	Moderately Well Sorted
84	0.69	0.00	0.00	0.00	0.15	0.24	1.15	3.53	14.75	62.62	16.70	0.83	0.03	0.430	0.852	-0.128	2.963	Medium Sand	Slightly Gravelly Sand	Moderately Sorted
85 cont	0.45	0.00	0.00	4.04	1.86	3.02	7.14	15.98	25.62	38.51	3.54	0.25	0.03	0.956	1.497	-0.432	1.104	Coarse Sand	Gravelly Sand	Poorly Sorted

		Raw Data (contribution to each size class %)												Summary Statistics and Descriptors						
Station	LOI %	63 mm	31.5 mm	16 mm	8 mm	4 mm	2 mm	1 mm	0.5 mm	0.25 mm	0.125 mm	0.063 mm	<0.063 mm	Mean phi	Mean mm	Skew-ness	Kurt-osis	Classification after Buchanan	Folk Traingles after BGS	Sorting
85	0.33	0.00	0.00	0.00	0.57	3.59	10.97	28.49	27.55	28.19	0.44	0.17	0.03	0.921	1.064	-0.112	0.733	Coarse Sand	Gravelly Sand	Poorly Sorted
86	0.26	0.00	0.00	0.00	0.23	0.12	0.21	1.10	14.98	64.59	18.40	0.39	0.00	0.416	1.267	0.001	2.405	Medium Sand	Sand	Moderately Sorted
87	0.34	0.00	0.00	17.11	4.68	2.89	1.83	1.48	6.85	51.03	13.72	0.39	0.03	1.549	2.582	-0.782	0.888	Very Coarse Sand	Gravelly Sand	Very Poorly Sorted
88	0.34	0.00	0.00	0.00	0.00	0.05	0.26	1.14	3.45	66.51	28.25	0.31	0.01	0.343	0.494	0.537	0.628	Medium Sand	Sand	Well Sorted
89	Station Fail																			
90	1.57	0.00	0.00	20.29	10.34	4.94	11.82	16.99	11.52	12.18	9.98	1.72	0.22	2.628	2.568	-0.168	0.698	Very Fine Gravel	Sandy Gravel	Very Poorly Sorted
90 cont	1.20	0.00	0.00	7.48	7.95	6.34	11.34	19.97	18.83	20.09	6.84	1.01	0.14	1.671	2.102	-0.158	0.959	Very Coarse Sand	Sandy Gravel	Very Poorly Sorted
91	0.72	0.00	0.00	6.10	1.42	3.38	4.40	8.53	14.78	39.33	21.18	0.80	0.07	0.585	1.827	-0.501	2.010	Coarse Sand	Gravelly Sand	Poorly Sorted
92	0.24	0.00	0.00	0.00	0.00	0.12	0.70	1.99	14.59	75.72	6.65	0.22	0.01	0.489	0.559	-0.328	2.587	Medium Sand	Sand	Moderately Well Sorted
92 cont	0.26	0.00	0.00	0.00	0.00	0.12	0.99	2.53	16.95	72.86	6.39	0.15	0.01	0.501	0.582	-0.343	2.508	Coarse Sand	Slightly Gravelly Sand	Moderately Well Sorted
93	0.26	0.00	0.00	0.00	0.00	0.72	1.96	8.96	29.92	52.04	6.02	0.32	0.07	0.554	0.784	-0.411	1.112	Coarse Sand	Slightly Gravelly Sand	Moderately Sorted
94	0.33	0.00	0.00	0.00	0.06	0.21	1.13	3.90	26.00	58.57	9.89	0.23	0.02	0.523	0.730	-0.376	1.142	Coarse Sand	Slightly Gravelly Sand	Moderately Sorted
95	0.49	0.00	0.00	0.00	0.03	0.24	1.43	6.37	29.02	51.82	10.53	0.50	0.05	0.535	0.784	-0.370	1.149	Coarse Sand	Slightly Gravelly Sand	Moderately Sorted
95 cont	0.45	0.00	0.00	0.00	0.16	0.71	2.77	9.57	33.20	47.12	6.00	0.41	0.05	0.565	0.799	-0.382	1.109	Coarse Sand	Slightly Gravelly Sand	Moderately Sorted
96	0.33	0.00	0.00	0.00	0.00	0.13	0.29	0.78	5.02	75.92	17.53	0.30	0.01	0.362	0.546	0.314	2.486	Medium Sand	Sand	Moderately Well Sorted
97	0.38	0.00	0.00	1.14	0.58	3.20	3.28	3.80	7.47	56.61	23.65	0.25	0.01	0.426	1.135	-0.274	4.101	Medium Sand	Gravelly Sand	Poorly Sorted
98	0.32	0.00	0.00	0.00	0.15	0.15	0.27	0.70	11.42	59.21	27.81	0.31	0.00	0.350	1.515	0.244	0.963	Medium Sand	Sand	Moderately Well Sorted
98 cont	0.36	0.00	0.00	0.00	0.00	0.13	0.67	1.39	4.09	80.08	13.36	0.27	0.01	0.415	0.403	0.027	2.613	Medium Sand	Sand	Well Sorted
99	0.46	0.00	0.00	4.62	5.75	2.58	2.79	5.12	11.00	59.18	8.74	0.21	0.02	0.689	1.539	-0.710	2.158	Coarse Sand	Gravelly Sand	Poorly Sorted
100	0.32	0.00	0.00	0.00	0.00	0.19	0.54	1.42	4.28	71.30	21.74	0.04	0.49	0.353	0.578	0.304	2.422	Medium Sand	Sand	Moderately Well Sorted

Raw Data (contribution to each size class %)														Summary Statistics and Descriptors						
Station	LOI %	63 mm	31.5 mm	16 mm	8 mm	4 mm	2 mm	1 mm	0.5 mm	0.25 mm	0.125 mm	0.063 mm	<0.063 mm	Mean phi	Mean mm	Skew-ness	Kurt-osis	Classification after Buchanan	Folk Traingles after BGS	Sorting
101	0.42	0.00	0.00	0.00	0.32	1.26	3.88	6.92	11.71	58.60	16.89	0.35	0.06	0.455	1.061	-0.276	3.784	Medium Sand	Gravelly Sand	Poorly Sorted
102	0.54	0.00	0.00	0.00	0.26	0.62	2.39	8.91	39.66	37.65	8.77	1.56	0.18	0.639	0.828	0.263	1.145	Coarse Sand	Slightly Gravelly Sand	Moderately Sorted
103	Station Fail																			
104	0.65	0.00	0.00	10.84	1.90	0.27	2.07	8.10	26.03	42.73	7.45	0.57	0.04	0.712	1.638	-0.662	2.252	Coarse Sand	Gravelly Sand	Poorly Sorted

Appendix 5. Contaminants – n-alkanes Concentrations (ng/g).

Station	55	70	85	92	95	98
Alkane						
nC10	<1	<1	<1	<1	<1	<1
nC11	<1	<1	<1	<1	<1	<1
nC12	<1	<1	<1	<1	<1	<1
nC13	<1	<1	<1	<1	<1	<1
nC14	<1	<1	<1	<1	<1	<1
nC15	<1	<1	<1	<1	<1	<1
nC16	<1	<1	<1	<1	<1	<1
nC17	<1	<1	1.1	<1	1.1	<1
pristane	2.3	2.5	3.9	1.3	2.9	1.3
nC18	<1	<1	1.2	<1	<1	<1
phytane	<1	<1	<1	<1	<1	<1
nC19	<1	<1	<1	<1	<1	<1
nC20	<1	<1	<1	<1	<1	<1
nC21	<1	<1	<1	<1	<1	<1
nC22	<1	<1	<1	<1	<1	<1
nC23	<1	1.0	1.1	<1	<1	<1
nC24	1.7	<1	<1	<1	<1	<1
nC25	1.4	1.5	1.6	<1	1.3	<1
nC26	2.7	2.4	2.0	<1	1.4	<1
nC27	1.6	1.8	2.4	<1	1.4	<1
nC28	<1	1.1	1.1	<1	<1	1.2
nC29	3.5	2.9	3.5	1.2	2.9	1.4
nC30	2.3	1.2	1.5	<1	1.8	<1
nC31	2.8	3.3	3.5	1.1	2.4	<1
nC32	<1	<1	<1	<1	<1	<1
nC33	1.2	1.6	1.7	<1	1.4	<1
nC34	1.8	<1	1.4	<1	<1	1.6
nC35	2.3	1.5	1.1	<1	1.5	<1
nC36	1.4	<1	<1	<1	<1	<1
nC37	<1	<1	<1	<1	<1	<1
Total Oil (ug/kg)	2,397.6	1,133.4	1,424.2	444.7	355.2	1,101.5
Total n alkanes (ng/g)	22	18	23	2	15	4
Carbon Preference Index	1.28	2.93	2.22	#DIV/0!	3.72	0.49
Pristane	2	2	4	1	3	1
Phytane	<1	<1	<1	<1	<1	<1
Pristane / phytane ratio						

Appendix 6. Contaminants – Polyaromatic Hydrocarbon (PAH) Concentrations (ng/g dry weight basis) for DTI 2-6 ring and EPA 16 PAHs.

DTI 2-6 ring PAHs		*Station :*	55	70	85	92	95	98
PAH Fraction	*# PAH*	*Mass*						
Naphthalene	1	128	<1	<1	<1	<1	<1	<1
C1 Naphthalenes		142	<1	<1	<1	<1	<1	<1
C2 Naphthalenes		156	<1	<1	<1	<1	<1	<1
C3 Naphthalenes		170	<1	<1	<1	<1	<1	<1
C4 Naphthalenes		184	<1	<1	<1	<1	<1	<1
Sum Naphthalenes			0	0	0	0	0	0
Phenanthrene / Anthracene	2	178	<1	<1	<1	<1	<1	<1
C1 178		192	<1	<1	<1	<1	<1	<1
C2 178		206	<1	<1	<1	<1	<1	<1
C3 178		220	<1	<1	<1	<1	<1	<1
Sum 178			0	0	0	0	0	0
Dibenzthiophene		184	<1	<1	<1	<1	<1	<1
C1 Dibenzthiophenes		198	<1	<1	<1	<1	<1	<1
C2 Dibenzthiophenes		212	<1	<1	<1	<1	<1	<1
C3 Dibenzthiophenes		226	<1	<1	<1	<1	<1	<1
Sum Dibenzthiophenes			0	0	0	0	0	0
Fluoranthene / pyrene	2	202	<1	<1	<1	<1	<1	<1
C1 202		216	<1	<1	<1	<1	<1	<1
C2 202		230	<1	<1	<1	<1	<1	<1
C3 202		244	<1	<1	<1	<1	<1	<1
Sum 202			0	0	0	0	0	0
Benzanthracene / chrysene	2	228	<1	<1	<1	<1	<1	<1
C1 228		242	<1	<1	<1	<1	<1	<1
C2 228		256	<1	<1	<1	<1	<1	<1
Sum 228			0	0	0	0	0	0
Benzfluoranthenes / benzopyrenes	3	252	<1	<1	<1	<1	<1	<1
C1 252		266	<1	<1	<1	<1	<1	<1
C2 252		280	<1	<1	<1	<1	<1	<1
Sum 252			0	0	0	0	0	0
Aranthanthrenes / indenopyrene / benzperylene	3	276	<1	<1	<1	<1	<1	<1
C1 276		290	<1	<1	<1	<1	<1	<1
C2 276		304	<1	<1	<1	<1	<1	<1
Sum 276			0	0	0	0	0	0
Sum of all fractions			0	0	0	0	0	0
Sum of NPD fraction			0	0	0	0	0	0

EPA 16 PAHs	*Station :*	55	70	85	92	95	98
PAH	*Mass*						
Naphthalene	128	<1	<1	<1	<1	<1	<1
Acenaphthylene	152	<1	<1	<1	<1	<1	<1
Acenaphthene	154	<1	<1	<1	<1	<1	<1
Fluorene	166	<1	<1	<1	<1	<1	<1
Phenanthrene	178	<1	<1	<1	<1	<1	<1
Dibenzothiophene	184	<1	<1	<1	<1	<1	<1
Anthracene	178	<1	<1	<1	<1	<1	<1
Fluoranthene	202	<1	<1	<1	<1	<1	<1
Pyrene	202	<1	<1	<1	<1	<1	<1
Benzo[a]anthracene	228	<1	<1	<1	<1	<1	<1
Chrysene	228	<1	<1	<1	<1	<1	<1
Benzo[b]fluoranthene	252	<1	<1	<1	<1	<1	<1
Benzo[k]fluoranthene	252	<1	<1	<1	<1	<1	<1
Benzo[a]pyrene	252	<1	<1	<1	<1	<1	<1
Indeno[123,cd]pyrene	276	<1	<1	<1	<1	<1	<1
Dibenzo[a,h]anthracene	278	<1	<1	<1	<1	<1	<1
Benzo[ghi]perylene	276	<1	<1	<1	<1	<1	<1

Appendix 7. Beam trawl survey – coordinate fixes

Station	Date	Time	Time	Depth	Fix start	Fix X	Fix Y	Location start	Fix finish	Fix X	Fix Y	Location finish
1	21/11/2010	11:05	11:15	64.5	89	506478	6463658	N58 18.831 W2 53.367	90	507005	6463967	N58 18.997 W2 52.826
2	22/11/2010	14:25	14:35	55	121	509515	6463925	N58 18.972 W2 50.256	122	509959	6464150	N58 19.092 W2 49.800
3	21/11/2010	11:45	11:55	51.5	91	506260	6460763	N58 17.271 W2 53.594	92	506689	6461327	N58 17.574 W2 53.154
4	22/11/2010	11:25	11:40	52	111	508463	6460789	N58 17.283 W2 51.340	112	508945	6461044	N58 17.419 W2 50.846
5	22/11/2010	11:55	12:05	54	113	511473	6461876	N58 17.864 W2 48.257	114	511841	6462297	N58 18.090 W2 47.878
6	21/11/2010	12:25	12:40	47.5	93	504233	6458297	N58 15.943 W2 55.671	94	504301	6458655	N58 16.136 W2 55.601
7	22/11/2010	10:45	10:55	50	109	512929	6459793	N58 16.739 W2 46.774	110	513237	6460112	N58 16.911 W2 46.457
8	22/11/2010	09:25	09:40	45	105	506664	6456960	N58 15.221 W2 53.188	106	507135	6457309	N58 15.409 W2 52.705
9	22/11/2010	10:05	10:20	44	117	513518	6460669	N58 17.210 W2 46.168	118	513487	6460674	N58 17.213 W2 46.199
10	21/11/2010	13:00	13:20	45	95	503553	6456376	N58 14.909 W2 56.368	96	502681	6455431	N58 14.400 W2 57.260
11	21/11/2010	15:10	15:30	42	103	507642	6454539	N58 13.916 W2 52.193	104	507961	6455124	N58 14.230 W2 51.865
12	21/11/2010	14:47	15:05	41	101	503745	6453791	N58 13.515 W2 56.174	102	504304	6454067	N58 13.664 W2 55.603
13	21/11/2010	13:35	13:50	43	97	501834	6453902	N58 13.576 W2 58.126	98	501453	6452814	N58 12.990 W2 58.516
14	21/11/2010	14:10	14:25	41	99	503806	6450183	N58 11.571 W2 56.116	100	504030	6450750	N58 11.877 W2 55.887

Appendix 8. Beam trawl survey – raw data

Common Name	Species Name	Beatrice Trawl 2010 1	2	3	4	5	6	7	8	9	10	11	12	13	14
Fish															
Hooknose	*Agonus cataphractus*	1	1	1	2			1	1	2	1	8	3		1
Lesser sand eel	*Ammodytes* sp						1			7	1	23	2		
Transparent goby	*Aphia minuta*	4	7	3	13	8	51	1	23	17	24	28	1	11	2
Scald fish	*Arnoglossus laterna*		1												
Red gurnard	*Aspitrigla cuculus*											1			
Solenette	*Buglossidium luteum*								1					1	
Dragonet	*Callionymus lyra*							2	1			3		1	
Greater sand eel	*Hyperoplus* sp			1			2		12	4	2	10	8	1	5
Megrim	*Lepidorhombus whiffiagonis*				1										
Dab	*Limanda limanda*	1	8		9	5	11	6	6		11	2	13	22	10
Haddock	*Melanogrammus aeglefinus*										1				
Thickback sole	*Microchirus variegatus*		1		1						1	1			
Lemon sole	*Microstomus kitt*			1	1							3			
Bull-rout	*Myoxocephalus scorpius*											1			
Flounder	*Pleuronectes flesus*			1											
Plaice	*Pleuronectes platessa*	3		1	1	1		1			4			1	
Catshark egg	*Scyliorhinus canicula*											1			
Dover sole	*Solea solea*			1											
Pipefish	*Syngnathus* sp												1		
Deep-snouted pipefish	*Syngnathus typhle*							1							
Sea scorpion	*Taurulus bubalis*	1		1			1				1	2			
Poor cod	*Trisopterus minutus*													1	
Unidentified juv flatfish (2cm)							1								

Common Name	Species Name	Beatrice Trawl 2010 1	2	3	4	5	6	7	8	9	10	11	12	13	14
Cnidarians															
Cloak anenome	*Adamsia carciniopados*			11			7			4		5	6	3	
Crustaceans															
Unidentified amphipod	*Amphipoda sp*										1				
Circular crab	*Atelecyclus undecimdentatus*						1					2	1		
Edible crab	*Cancer pagarus*										1				
Brown Shrimp	*Crangon crangon*	2		3	5	3	3	2	1		5	5	1	4	2
Nut crab	*Ebalia sp*			1								2	2		
Strawberry crab	*Eurynome aspersa*			1								1	1		
Squat lobster	*Galathea sp*			1	1			1	2	1		4			2
Scorpion spider crab	*Inachus dorsettensis*							1				3			
Harbour crab	*Liocarcinus depurator*			1					3			4	2	1	
Swimming crab	*Liocarcinus holsatus*							1							
Longed-legged spider crab	*Macropodia sp*	1		7	3	1	4	1		3	2	8	7		
Squat lobster	*Munida rugosa*									1					
Hermit crab	*Pagarus prideauxi*			11			7			4		5	6	3	
Hermit crab	*Pagurus bernhardus*	1		2	1	1	3		3	2	3	23	7	5	2
Pink Shrimp	*Pandalus montagui*				1										
Long-clawed Porcelain crab	*Pisidia longicornis*			1											
Shrimp	*Pontophilus spinosus*				1										
Broad-clawed pocelain crab	*Porcellana platycheles*											1			
Risso's crab	*Xantho pilipes*									1					
Molluscs															
Queen scallop	*Aequipecten opercularis*	1		5		3	3		2	8	5	24	24	1	5
Common whelk	*Buccinum undatum*			5		2						2			
Sea wash ball (whelk eggs)	*Buccinum undatum*				10g				10g		20g				10g

Common Name	Species Name	Beatrice Trawl 2010 1	2	3	4	5	6	7	8	9	10	11	12	13	14
Horse mussel	*Modiolus modiolus*									1					
Greater scallop	*Pecten maximus*			1								1			
Unidentified chiton	*Polyplacophora sp*												1		
Little cuttlefish	*Sepiolidae sp*	1	1			2	2					2		1	1
Venus shell	*Veneridae sp*												1		
Echinoderms															
Common starfish	*Asterias rubens*	5	1	7	10	10	15	5	18	11	13	60	55	17	13
Sand star	*Astropecten irregularis*			1							1		1		
Common sun star	*Crossaster papposus*							1				1			
Sea cucumber	*Cucumaria frondosa*									1					
Edible sea urchin	*Echinus esculentus*			1		1	1	1		4		28	20		2
Sea star	*Henricia sp*							1							
Brittle star	*Ophiocomina negra*														1
Brittle star	*Ophiura ophiura*					1									
Brittle star	*Ophiura albida*												1		
Sea urchin	*Psammechinus miliaris*						1			1	1	3	4		
Annelids															
Rag worm	*Nereidae sp*									2		1			
Hemichordates															
Sea squirt	*Ascidiacea sp*							1							
Colonials															
Cnidarians															
Dead mans fingers	*Alcyonium digitatum*			50g					P	40g	P		20g	20g	10g
Hydrozoa*			P	P	P	10g	P	P	P	P	P	P	P	P	P

Common Name	Species Name	Beatrice Trawl 2010 1	2	3	4	5	6	7	8	9	10	11	12	13	14
Bryozoans															
Dogger itch	*Alcyonidium diaphanum*		10g	P	P										
Hornwrack	*Flustra foliacea*	30g	10g	50g	20g	30g	20g	20g	30g	15g	20g	10g	10g	20g	P
Bryozoan		P	P	P	P	P	P	P	P	P	P	P	P	P	P

Appendix 9. Beam trawl survey – fish lengths including common mussel and queen scallop (length and estimated age)

							Length (mm)								
Station	Individual	Horse mussel	Dab	Dover sole	Edible crab	Flounder	Great scallop	Haddock	Lemon sole	Megrim	Plaice	Queen scallop	Red gurnard	Thickback sole	Unidentified flatfish
1	1		247									52 (5)			
1	2		174												
1	3		187												
2	1		150											138	
2	2		156												
2	3		144												
2	4		169												
2	5		129												
2	6		136												
2	7		134												
2	8		132												
3	1		136	153		211	150 (8)		190		189	70 (5)			
3	2		167									82 (5)			
3	3		126									78 (5)			
3	4		145									50 (3)			
3	5		176									75 (4)			
4	1		128						165	100	187			124	
4	2		140												
4	3		180												
4	4		126												
4	5		171												
4	6		152												
4	7		141												

		Length (mm)													
Station	Individual	Horse mussel	Dab	Dover sole	Edible crab	Flounder	Great scallop	Haddock	Lemon sole	Megrim	Plaice	Queen scallop	Red gurnard	Thickback sole	Unidentified flatfish
4	8		135												
4	9		135												
5	1		142								176	90 (7)			
5	2		163									71 (4)			
5	3		129									86 (6)			
5	4		149												
5	5		146												
6	1		131									72 (5)			22
6	2		147									70 (5)			
6	3		151									47 (3)			
6	4		146												
6	5		132												
6	6		145												
6	7		144												
6	8		163												
6	9		134												
6	10		183												
6	11		134												
7	1		151								210				
7	2		126												
7	3		151												
7	4		177												
7	5		148												
7	6		111												
8	1		187									69 (3)			
8	2		162									71 (4)			

		Length (mm)													
Station	Individual	Horse mussel	Dab	Dover sole	Edible crab	Flounder	Great scallop	Haddock	Lemon sole	Megrim	Plaice	Queen scallop	Red gurnard	Thickback sole	Unidentified flatfish
8	3		147												
8	4		117												
8	5		129												
8	6		158												
9	1	130										70 (4)			
9	2											62 (3)			
9	3											68 (4)			
9	4											65 (3)			
9	5											85 (7)			
9	6											70 (4)			
9	7											70 (6)			
9	8											70 (4)			
10	1		130		170			283			203	184 (5)		128	
10	2		143								167	70 (4)			
10	3		220								170	65 (3)			
10	4		180								180	50 (2)			
10	5		138									72 (3)			
10	6		155												
10	7		165												
10	8		110												
10	9		141												
10	10		132												
10	11		108												
11	1		174				145 (10)		188			84 (4)	185	104	
11	2		174						137			95 (5)			
11	3								68			70 (4)			

Station	Individual	Length (mm)													
		Horse mussel	Dab	Dover sole	Edible crab	Flounder	Great scallop	Haddock	Lemon sole	Megrim	Plaice	Queen scallop	Red gurnard	Thickback sole	Unidentified flatfish
11	4											67 (4)			
11	5											75 (5)			
11	6											48 (3)			
11	7											75 (5)			
11	8											32 (2)			
11	9											50 (3)			
11	10											85 (5)			
11	11											80 (4)			
11	12											75 (3)			
11	13											50 (3)			
11	14											55 (2)			
11	15											72 (3)			
11	16											75 (4)			
11	17											74 (3)			
11	18											74 (3)			
11	19											70 (4)			
11	20											78 (4)			
11	21											90 (6)			
11	22											66 (3)			
11	23											78 (4)			
11	24											77 (4)			
12	1		223									68 (4)			
12	2		153									69 (4)			
12	3		138									85 (7)			
12	4		219									85 (6)			
12	5		155									72 (4)			

Station	Individual	Length (mm)													
		Horse mussel	Dab	Dover sole	Edible crab	Flounder	Great scallop	Haddock	Lemon sole	Megrim	Plaice	Queen scallop	Red gurnard	Thickback sole	Unidentified flatfish
12	6		193									78 (4)			
12	7		138									90 (8)			
12	8		157									78 (4)			
12	9		179									61 (5)			
12	10		160									89 (6)			
12	11		128									73 (4)			
12	12		124									80(5)			
12	13		99									52 (3)			
12	14											72 (4)			
12	15											75 (4)			
12	16											69 (3)			
12	17											52 (3)			
12	18											49 (3)			
12	19											75 (5)			
12	20											78 (5)			
12	21											50 (2)			
12	22											80 (5)			
12	23											70 (4)			
12	24											73 (4)			
13	1		200								165	72 (6)			
13	2		162								184				
13	3		134												
13	4		145												
13	5		117												
13	6		184												
13	7		136												

Station	Individual	Length (mm)													
		Horse mussel	Dab	Dover sole	Edible crab	Flounder	Great scallop	Haddock	Lemon sole	Megrim	Plaice	Queen scallop	Red gurnard	Thickback sole	Unidentified flatfish
13	8		139												
13	9		182												
13	10		139												
13	11		66												
13	12		165												
13	13		195												
13	14		117												
13	15		146												
13	16		134												
13	17		141												
13	18		145												
13	19		152												
13	20		118												
13	21		113												
13	22		144												
14	1		194									65 (4)			
14	2		163									80 (5)			
14	3		138									74 (4)			
14	4		120									80 (4)			
14	5		193									75 (5)			
14	6		150												
14	7		108												
14	8		192												
14	9		195												
14	10		115												
14	11		40												

Appendix 10. Beam trawl survey – digital photographs of hauls (N.B. Station 3 labelled mistakenly as Station 2 during survey)

Station 1

Station 2

Station 3 (NOT STATION 2)

Station 4

Station 5

Station 6

Station 7

Station 8

Station 9

Station 10

Station 11

Station 12

Station 13

Station 14

Appendix 11. Results of Simper analysis for Groups 1b and 1a (Average dissimilarity =66.76)

Species	Group 1b Av.Abund	Group 1a Av.Abund	Av.Diss	Diss/SD	Contrib%	Cum.%
Spiophanes bombyx	5.42	3.08	2.95	1.45	4.42	4.42
Moerella pygmaea	0.37	2.33	2.36	1.89	3.54	7.96
Gari fervensis	2.1	0.7	1.87	1.68	2.8	10.76
Ophelia borealis	1.11	2.02	1.45	1.37	2.17	12.92
Tellina fabula	1.21	0	1.44	1.38	2.16	15.08
Cochlodesma praetenue	2.47	1.49	1.43	1.27	2.14	17.22
Abra prismatica	1.43	0.34	1.41	1.58	2.11	19.33
Amphiura filiformis	1.04	0.09	1.2	1.21	1.8	21.13
Echinocyamus pusillus	1.06	1.26	1.2	1.33	1.8	22.93
Phaxas pellucidus	1.06	0.36	1.05	1.32	1.58	24.51
Copepoda spp.	0.83	0.99	1.04	1.21	1.56	26.07
Owenia fusiformis	1.19	0.64	1.03	1.29	1.54	27.61
Poecilochaetus serpens	1.07	0.46	0.99	1.24	1.48	29.09
Crenella decussata	0.72	0.57	0.93	1.09	1.39	30.48
Nephtys cirrosa	0.7	0.82	0.93	1.19	1.39	31.88
Glycera lapidum	0.43	0.75	0.93	1.07	1.39	33.27
Scoloplos (scoloplos) armiger	0.84	0.23	0.91	1.21	1.36	34.63
Lumbrineris gracilis	0.78	0.13	0.9	0.86	1.34	35.97
Edwardsia sp.	0.59	0.69	0.87	1.13	1.31	37.28
Dosinia spp. Juv.	0.68	0.7	0.87	1.1	1.3	38.58
Chaetozone christiei	0.74	0.2	0.85	1.02	1.27	39.85
Nemertea spp.	0.94	0.54	0.84	1.16	1.26	41.12
Phoronis spp.	0.62	0.4	0.82	0.98	1.23	42.35
Nephtys sp. Juv.	0.67	0.13	0.81	0.94	1.22	43.56
Euspira pulchellus	0.46	0.62	0.79	1.06	1.19	44.75
Aricidea cerrutii	0.6	0.27	0.77	0.92	1.15	45.9
Timoclea ovata	0.63	0.12	0.74	1.04	1.11	47.01
Clymenura johnstoni	0.55	0.43	0.73	1.03	1.09	48.1
Bathyporeia elegans	0.53	0.15	0.66	0.89	0.98	49.09
Bathyporeia guilliamsoniana	0.18	0.5	0.65	0.9	0.97	50.06
Travisia forbesi	0.26	0.43	0.63	0.83	0.94	51
Aponuphis bilineata	0.08	0.52	0.62	0.84	0.92	51.92
Aonides paucibranchiata	0.31	0.38	0.62	0.79	0.92	52.85
Diplocirrus glaucus	0.54	0.03	0.61	0.81	0.91	53.76
Lanice conchilega	0.46	0.18	0.61	0.86	0.91	54.67
Phialella quadrata	0.5	0	0.6	0.98	0.89	55.57
Spio decorata	0.49	0.08	0.59	0.9	0.89	56.45
Hippomedon denticulatus	0.39	0.25	0.59	0.84	0.88	57.33
Dosinia lupinus	0.25	0.36	0.55	0.78	0.82	58.15

Ampelisca brevicornis	0.32	0.25	0.51	0.81	0.77	58.92
Athecata sp.	0.42	0.05	0.51	0.85	0.76	59.68
Amphiura sp. Juv.	0.37	0.05	0.49	0.67	0.73	60.41
Goniada maculata	0.27	0.27	0.48	0.78	0.72	61.12
Spiophanes kroyeri	0.41	0.05	0.47	0.69	0.71	61.83
Ampelisca typica	0.2	0.3	0.45	0.71	0.68	62.52
Sthenelais limicola	0.4	0.05	0.45	0.73	0.68	63.19
Galathowenia oculata	0.41	0	0.44	0.7	0.67	63.86
Gastrosaccus spinifer	0.08	0.32	0.43	0.59	0.65	64.51
Eteone longa/flava (agg.)	0.3	0.12	0.42	0.65	0.63	65.14
Glycera oxycephala	0.21	0.21	0.41	0.66	0.61	65.75
Unciola planipes	0.17	0.25	0.41	0.63	0.61	66.36
Pista cristata	0.04	0.34	0.4	0.59	0.6	66.96
Phascolion strombus	0.35	0.03	0.4	0.73	0.59	67.55
Notomastus latericeus	0.14	0.26	0.39	0.61	0.59	68.14
Euclymene lumbricoides	0.32	0.05	0.38	0.62	0.57	68.71
Hydroides norvegica	0.12	0.24	0.38	0.51	0.57	69.28
Antalis entalis	0.32	0	0.38	0.66	0.56	69.84
Pholoe baltica	0.3	0.05	0.37	0.64	0.55	70.39
Magelona alleni	0.29	0.03	0.36	0.54	0.53	70.92
Echinocardium flavescens	0	0.27	0.34	0.54	0.51	71.43
Peresiella clymenoides	0.3	0	0.34	0.59	0.5	71.93
Orbinia (Orbinia) sertulata	0	0.28	0.33	0.6	0.49	72.42
Acrocnida brachiata	0.23	0.05	0.32	0.58	0.48	72.9
Spio armata	0	0.26	0.32	0.54	0.48	73.38
Circomphalus casina	0.2	0.08	0.32	0.49	0.47	73.85
Jasmineira caudata	0.23	0.08	0.31	0.61	0.47	74.32
Aricidea catherinae	0.26	0.03	0.31	0.49	0.46	74.78
Exogone verugera	0.19	0.11	0.3	0.53	0.45	75.23
Glycera alba	0.27	0	0.3	0.53	0.44	75.67
Spio filicornis	0	0.24	0.29	0.48	0.43	76.11
Thelepus cincinnatus	0.2	0.08	0.29	0.49	0.43	76.54
Phyllodoce (Anaitides) rosea	0.19	0.11	0.29	0.58	0.43	76.97
Aglaophamus rubella	0	0.24	0.28	0.56	0.42	77.39
Eumida spp.	0.19	0.09	0.28	0.56	0.42	77.81
Siphonoecetes striatus	0.21	0.05	0.28	0.54	0.41	78.23
Ensis arcuatus	0	0.23	0.27	0.51	0.4	78.63
Lucinoma borealis	0.24	0	0.27	0.41	0.4	79.03
Perioculodes longimanus	0.15	0.09	0.27	0.51	0.4	79.43
Thracia phaseolina	0.12	0.13	0.26	0.49	0.39	79.82
Minuspio cirrifera	0.21	0	0.24	0.48	0.36	80.19
Eudorellopsis deformis	0.19	0	0.23	0.48	0.35	80.53
Scolelepis (P) korsuni	0.08	0.14	0.23	0.48	0.35	80.88
Odontosyllis gibba	0.17	0.03	0.22	0.45	0.34	81.21

Kurtiella bidentata	0.19	0	0.22	0.42	0.33	81.54
Exogone hebes	0.15	0.05	0.21	0.48	0.31	81.86
Philine aperta	0.15	0.03	0.2	0.45	0.29	82.15
Odontosyllis fulgurans	0.15	0.03	0.19	0.37	0.29	82.44
Synchelidium haplocheles	0.15	0	0.19	0.42	0.29	82.73
Praxillura longissima	0.15	0	0.19	0.42	0.29	83.01
Polycirrus spp.	0.12	0.05	0.19	0.42	0.28	83.3
Atylus vedlomensis	0.12	0.07	0.19	0.42	0.28	83.58
Tharyx killariensis	0.17	0	0.18	0.42	0.27	83.85
Pseudopolydora pulchra	0.12	0.05	0.18	0.43	0.27	84.13
Magelona filiformis	0.15	0	0.18	0.35	0.27	84.4
Megaluropus agilis	0.12	0.05	0.18	0.42	0.27	84.67
Pseudomystides limbata	0.07	0.11	0.18	0.39	0.27	84.94
Nephtys kersivalensis	0.15	0	0.18	0.35	0.26	85.21
Astrorhiza limicola	0.17	0	0.17	0.35	0.26	85.46
Aphrodita aculeata	0.15	0	0.17	0.42	0.26	85.72
Cylichna cylindracea	0.13	0.03	0.17	0.39	0.26	85.98
Decapoda larvae	0.04	0.11	0.17	0.39	0.25	86.23
Nephtys caeca	0.04	0.11	0.17	0.39	0.25	86.48
Urothoe elegans	0.14	0	0.16	0.34	0.24	86.72
Nucula sp. Juv.	0.13	0	0.16	0.35	0.23	86.96
Thyasira flexuosa	0.13	0	0.15	0.28	0.23	87.19
Hyalinoecia tubicola	0.12	0	0.15	0.36	0.23	87.42
Chamelea striatula	0.13	0	0.14	0.35	0.21	87.63
Nothria conchylega	0.12	0	0.14	0.36	0.21	87.84
Synchelidium maculatum	0.12	0	0.13	0.36	0.2	88.04
Goodallia triangularis	0.04	0.08	0.13	0.35	0.2	88.24
Hyperoplus lanceolatus	0.04	0.08	0.13	0.35	0.2	88.44
Nephtys assimilis	0.12	0	0.13	0.36	0.19	88.63
Spisula elliptica	0.08	0.03	0.13	0.33	0.19	88.82
Eulima bilineata	0.12	0	0.13	0.36	0.19	89.01
Harpinia antennaria	0.12	0	0.12	0.36	0.18	89.19
Leucothoe incisa	0.09	0	0.12	0.28	0.17	89.36
Solenacea sp. Juv/damg	0.04	0.05	0.11	0.31	0.17	89.53
Paradoneis lyra	0.08	0.03	0.11	0.33	0.17	89.7
Stenothoe marina	0.08	0.03	0.11	0.25	0.16	89.86
Arctica islandica	0.04	0.05	0.11	0.31	0.16	90.02

Appendix 12. Benthic camera survey - field notes

Camera Location	Depth (m)	Still Images: Image Ref	Still Images: Sediment description	Still Images: Visible epifauna & flora	Video Footage (Timings; video overlay information): Video Ref	Video Footage: Sediment description	Video Footage: Visible epifauna	Notes
1	69.3	Be1a	Veneer of fine sand/mud on top of empty shells and some shell fragments. Suspended sediment in image.	Possible burrow centre.	Be1	On the seabed (18:22:01). Sediment fine silty mud, easily disturbed and long time before clearing. Defined sand ripples, well-spaced.	Squid (18:21:32) Squid releasing ink (18:21:51). Some zooplankton pass through image whilst on bottom. Small hermit crab (18:24:08).	
		Be1b	Muddy silt with some shell fragments. Suspended sediment in image.	Hydroids in top centre of image.				
		Be1c	Muddy silt with some shell fragments and empty shell. Suspended sediment in image.	2 tubeworm burrows (~1cm diameter).				
2	58					Sand with some very small shell fragments amongst. Large individual empty shell/small cobble underlying.	No visible epifauna.	
3	57					Medium to fine sand. Sediment easily suspended. Sand ripples.	Possible detached hydroid.	

Camera Location	Depth (m)	Still Images: Image Ref	Still Images: Sediment description	Still Images: Visible epifauna & flora	Video Footage (Timings; video overlay information): Video Ref	Video Footage: Sediment description	Video Footage: Visible epifauna	Notes
4	57.8	Be4a	Small boulders, cobble and coarse gravel with muddy veneer.	Encrusting keelworm (*Pomatoceros triqueter*), barnacles (*Balanus balanus*?), squat lobster (*Munida rugosa*) and unidentified orange anemome? (top centre of image). Encrusting turf covering some of the cobbles.	Be4	On the seabed (18:37:53). Large cobble and boulders with some sand amongst. Thin layer of silt on boulders being displaced and suspended when camera lands. As camera sweeps substrate remains large cobble and boulder with layer of silty mud.	*Echinus esculentus* (18:37:54) *Munida rugosa* (18:38:38) hydroids on large cobble (18:38:55) large mass of *Alcyonium digatatum* on boulder and possible red coloured anemone (18:38:57) large mass of hydroid and encrusting soft coral/anemones? on cobble (18:39:12). Unidentified anemone (18:39:13), clumps of unidentified mass (18:39:16). *Alcyonium digitatum* (18:39:24) *Echinus esculentus* on boulder (18:39:25) heavily encrusted rock and *Pomatoceros triqueter*. Unidentified hydroids with long stems attached to rock (18:39:26) hydroids and small clumps of *Alcyonium digitatum* on rock (18:39:46) buried scallop shell (18:39:50) broken piece of *Alcyonium digitatum* (18:39:53) *Echinus esculentus* (18:40:16) *Alcyonium digitatum* (18:40:19).	Camera drifting due to wind on vessel, difficult to obtain image.
		Be4b	Boulders.	Soft coral (*Alcyonium digitatum*) mass, approximately 10cmx10cm. Other encrusting fauna on boulder likely to be anemones but difficult to tell from still shot.				

Camera Location	Depth (m)	Still Images: Image Ref	Still Images: Sediment description	Still Images: Visible epifauna & flora	Video Footage (Timings; video overlay information): Video Ref	Video Footage: Sediment description	Video Footage: Visible epifauna	Notes
4	57.8	Be4c	Large single boulder.	Edible urchin *(Echinus esculentus*), encrusting keelworm (*Pomatoceros triqueter*). Hydroids present. Possible crinoid bottom.				
		Be4d	Cobble and some large pebbles with Silty mud amongst, some shell fragments.	No epifauna discernable.				
6	56					Medium sand. No distinct sand ripples.	No visible epifauna.	
8	59.8	Be8a	Medium to fine sand with some small shell fragments and distinct sand ripples (~10cm peak to peak).	Hydroids present. Unidentified terebellid worm (*Lanice conchilega*?) top centre of image. Lots of empty *Lagis Koreni* tubes.	Be8a	On the seabed (17:56:17). Medium sand with some ripples and depressions, some small shell fragments. As camera moves, some very fine sediments are suspended.	Possible tubeworm (17:56:14).	1st attempt failed due to vessel drifting (wind) and increasing sea states. Camera being dragged along seabed, unable to hold position to get image, suspended sediments obscuring view.
		Be8b	Medium to fine sand. Suspended sediment in image.	No epifauna discernable.				

Camera Location	Depth (m)	Still Images: Image Ref	Still Images: Sediment description	Still Images: Visible epifauna & flora	Video Footage (Timings; video overlay information): Video Ref	Video Footage: Sediment description	Video Footage: Visible epifauna	Notes
8	59.8	Be8c	Medium to fine sand.	Sea potato (*Echinocardium chordatum*) semi-buried. Possible burrow (centre).	Be8b	On the seabed (18:08:28).	Part buried urchin - deceased (18:08:31) unidentified flatfish crosses field of view, possibly megrim or witch?? (18:08:44).	
12	52					Medium to coarse sand with some small shell fragments amongst.	No visible epifauna.	
13	51.2	Be13a	Medium sand and some small shell fragments with distinct sand ripple (~25cm peak to peak).	Small mass of hydroid? (above scale bar). Empty *Lagis Koreni* tubes.	Be13	On the seabed (17:45:44). Medium sand with distinct sand ripples. Some shell fragments underlying	Mass of hydrozoa? (17:47:03).	
		Be13b	Medium sand with distinct sand ripple.	No visible epifauna. Some burrows on ridge of sand ripple.				
		Be13c	Medium sand.	Hydroid.				
15	49.5	Be15a	Medium sand with visible sand ripples.	Small hermit crab? and burrows (top right of image). Worm tubes.	Be15	On the seabed (17:08:40). Medium sand with distinct sand ripples visible as camera moves. Some very fine shell fragments amongst. Camera umbilical into view as camera moved.	Unidentified debris, possibly a branch of hydrozoa? (17:09:00). Hermit crab (17:09:03) top right of screen, moves as camera starts to lift. *Flustra folicea* (17:10:12). Possible tubeworm top right of image (17:10:50)	
		Be15b	Medium sand with very small shell fragments.	No visible epifauna.				
		Be15c	Medium sand.	No visible epifauna.				

Camera Location	Depth (m)	Still Images: Image Ref	Still Images: Sediment description	Still Images: Visible epifauna & flora	Video Footage (Timings; video overlay information): Video Ref	Video Footage: Sediment description	Video Footage: Visible epifauna	Notes
16	50	Be16a	Fine sand and silt with empty shells and shell fragments.	No visible epifauna. Dead crab carapace and legs; left centre.	Be16	On the seabed (17:20:52). Fine sand with numerous large shell fragments. Silt disturbed with camera landing, long time to settle out. As camera moves, bottom sediment becomes very silty with whole shells underlying.	Large razor shell on its side - empty (17:22:43).	
		Be16b	Fine sand and silt with empty shells and shell fragments.	Tubeworm tube top centre.				
		Be16c	Fine sand and silt with empty shells and shell fragments.	Empty razor shells, one in centre with encrusting keelworm (*Pomatoceros triqueter*). Tubeworm top centre (*Sabella*?). Sea potato test up from empty razor shell, left.				
17	51.4	Be17a	Fine sand with some small shell fragments.	2 unidentified Terebellid worm tubes above right of scale bar.	Be17	On the seabed (17:32:38). Medium sand with sand ripples. Surface of sediment looks somewhat 'fluffy' - organic matter? As camera moves, sediment becomes fine sand/mud.	Buried urchin and possible tubeworms?? (17:34:30).	
		Be17b	Medium to fine sand.	Patches of weed/hydroid?				
		Be17c	Medium to fine sand.	Patches of weed/hydroid?				

Camera Location	Depth (m)	Still Images: Image Ref	Still Images: Sediment description	Still Images: Visible epifauna & flora	Video Footage (Timings; video overlay information): Video Ref	Video Footage: Sediment description	Video Footage: Visible epifauna	Notes
19	54					Medium sand with distinct ripples in places. Some small shell fragments amongst sand. Sediment easily suspended.	Small amount of hydroids in places.	
22	65.2	Be22a	Medium to fine sand.	No visible epifauna	Be22	On the seabed (16:00:29). Medium to fine sand, easily disturbed and suspended, some undulations in sediment but no distinct sand ripples.	Possible *Macropodia sp.*?? (16:01:43). Tubeworm burrows and tubes (16:01:56). Hydrozoa top left?? (16:02:23) Tubeworm tubes (16:02:45).	
		Be22b	Medium to fine sand.	Unidentified tubeworm top left (Fanworm tube?). Some burrows.				
		Be22c	Medium to fine sand.	Hydrozoa present. 4 tubeworm tubes and some small burrows (bottom left).				
23	47	Be23a	Sand with shell fragments (some large/whole) and fine to medium gravel amongst.	Some encrusting keelworm (*Pomatoceros triqueter*) on shells. Single bright yellow tubeworm tube (top right of image).	Be23	On the seabed (16:12:16). Very coarse shell and some fine to medium gravel amongst.	Mass of hydroids with long stems when landing on seabed (16:12:13). White round object - possible urchin test as camera moves away (16:12:58). Large mass of hydroid in centre moving with current (16:13:23). Small amount of hydroid (16:14:01).	
		Be23b	Sand with shell fragments (some large/whole) and fine to medium gravel amongst.	Individual sand mason worm (*Lanice conchilega*), some encrusting keelworm (*Pomatoceros triqueter*) on shells. Hydrozoa and bryozoa present.				

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23	47	Be23c	SAME IMAGE AS Be23b	SAME IMAGE AS Be23b				
		Be23d	Sand with shell fragments (some large/whole) and fine to medium gravel amongst.	Few encrusting keelworm (*Pomatoceros triqueter*) on shells. Hydrozoa and bryozoa present.				
24	48.6	Be24a	Medium to coarse sand with fine shell fragments.	Individual Queen scallop (*Aequipecten opercularis*) could be dead or alive and some tubeworms, possibly *Lanice conchilega*? Hydroids present.	Be24	On the seabed (16:21:09). Medium to coarse sand with some fine shell fragments. Sand ripples apparent as camera comes to land. As camera moves, seabed seems homogenous.	Hydroids left of image moving in current and protruding tubes present (16:22:42).	
		Be24b	Medium sand with fine shell fragments.	No visible epifauna.				
		Be24c	Medium to coarse sand with fine shell fragments.	Hydrozoa present. Tubeworm (right of image).				
		Be24d	SAME IMAGE AS Be24c	SAME IMAGE AS Be24c				

Camera Location	Depth (m)	Still Images: Image Ref	Still Images: Sediment description	Still Images: Visible epifauna & flora	Video Footage (Timings; video overlay information): Video Ref	Video Footage: Sediment description	Video Footage: Visible epifauna	Notes
25	50.5	Be25a	Medium sand with shell fragments.	No visible epifauna.	Be25	On the seabed (16:41:27). Medium sand with some fine shell fragments, very few whole shells present. As camera moves, sand ripples are very distinct and some smaller depressions obvious.	Possible crab in top centre of image (16:41:27). Small mass of hydroids (16:43:07).	
		Be25b	Medium sand with shell fragments. Distinct sand ripples (~15cm peak to peak).	No visible epifauna.				
		Be25c	Medium sand with shell fragments. Distinct sand ripples (~8-10cm peak to peak).	Hydrozoa present.				
26	50.6	Be26a	Fine sand.	No visible epifauna.	Be26	On the seabed (16:53:06). Medium to fine sand, no distinct sand ripples but some depressions.	Edible crab to far left of image above scale bar?? (16:53:04) - camera doesn't settle. Underlying urchin test/shell? and tubeworm burrows (16:54:50).	
		Be26b	Fine sand.	No visible epifauna.				
		Be26c	Fine sand.	No visible epifauna.				

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28	50					Very coarse sand/very fine gravel with shell fragments (some large whole empty shells). Distinct bands (~10cm across) of shell fragments in troughs of large sand ripples.	Individual Queen scallop (*Aequipecten opercularis*) and some bryozoa (*Flustra foliacea*).	
30	48	Be30a	Medium sand with visible sand ripples (omni-directional).	No visible epifauna.	Be30	On the seabed (15:47:38). Medium sand. As camera comes to land sand ripples seem to be in all directions with no clear pattern.	As camera moves, some white objects (15:48:35).	
		Be30b	Medium sand with very fine shell fragments.	Protruding tubeworm above left of scale bar.				
		Be30c	Medium sand with very fine shell fragments.	No visible epifauna.				
31	46.3	Be31a	Predominantly broken shell (some whole but empty) with very thin veneer of silt.	Lemon sole (*Microstomus kitt*), approximately 15-20cm in length at top of image.	Be31	On the seabed (15:34:31). Large/whole shell fragments. As camera moves shell fragments become mixed with sand. Camera on its side (15:36:00). As camera moves again, there are no shell fragments, just medium sand (final two images).	*Microstomus kitt* top left of screen (15:34:33). Hermit crab moving around (16:35:20).	Camera upturned, had to be re-lifted and dropped again.
		Be31b	SAME POSITION AS IMAGE Be31c	SAME POSITION AS IMAGE Be31c				
		Be31c	Predominantly broken shell (some whole but empty) with very thin veneer of silt.	Hermit crab (*Pagurus sp.*).				

Camera Location	Depth (m)	Still Images: Image Ref	Still Images: Sediment description	Still Images: Visible epifauna & flora	Video Footage (Timings; video overlay information): Video Ref	Video Footage: Sediment description	Video Footage: Visible epifauna	Notes
31	46.3	Be31d	Medium sand.	No visible epifauna.				
		Be31e	Medium sand.	No visible epifauna.				
32	49.9	Be32a	Medium sand.	Individual sand mason worm (*Lanice conchilega*) centre of image.	Be32	On the seabed (15:23:14). Medium sand with some depressions. Seabed homogenous as camera moves.	No visible epifauna.	
		Be32b	Medium sand.	No visible epifauna.				
		Be32c	Medium sand with large sand ripple.	No visible epifauna.				
35	48.7	Be35a	Fine sand/silt with some shell fragments.	No visible epifauna.	Be35	Water very clear on descent, able to see bottom from some distance above. On the seabed (13:24:48). Fine sandy mud with shell fragments. As camera moves, there is a higher content of silt (some suspended).	Numerous tubeworm burrows (12:26:19). Tubeworm tubes protruding from seabed (13:26:56).	
		Be35b	Fine sand/silt with shell fragments underlying.	Several tubeworm burrows and tubes. Keelworm (*Pomatoceros triqueter*) on shell in centre.				
		Be35c	Medium sand.	2 tubeworm casts protruding sediment centre bottom and centre top of image.				
38	45.5	Be38a	Medium sand with distinct sand ripples (~15cm peak to peak) and shell fragments.	No visible epifauna.	Be38	On the seabed (14:48:38). Distinct sand ripples in medium sand. Sand ripples prominent as camera moves.	No visible epifauna.	

Camera Location	Depth (m)	Still Images: Image Ref	Still Images: Sediment description	Still Images: Visible epifauna & flora	Video Footage (Timings; video overlay information): Video Ref	Video Footage: Sediment description	Video Footage: Visible epifauna	Notes
38	45.5	Be38b	Medium sand with sand ripples and shell fragments	No visible epifauna.				
		Be38c	Medium sand and shell fragments.	No visible epifauna.				
39	47.5	Be39a	Medium sand with some shell fragments and single large pebble.	Single protruding tube (light yellow in colour). Dead *Ensis* above scale bar?? *Lanice conchilega* left of orange stone in centre of image.	Be39	On the seabed (14:59:36). Medium to fine sand with underlying shells and pebbles. As camera moves, sediment type remains the same with sand and some broken shell fragments. Some sand ripples present in parts.	Possible hydroids above scale bar (14:59:58). As camera moves (15:00:49), individual *Pecten maximus*. Hydroid (15:01:20). Camera moves with vessel - more intermittent clumps of hydroid amongst sand (15:01:34). Possible crab/rock top right (15:02:06).	
		Be39b	Medium sand with small shell fragments amongst.	No visible epifauna.				
		Be39c	Medium sand with small shell fragments amongst. Some larger shell fragments/gravel.	Single protruding tubeworm tube. Hydrozoa present.				
		Be39d	SAME AS IMAGE Be39c	SAME AS IMAGE Be39c				
		Be39e	Medium sand with small shell fragments amongst. Some larger shell fragments/gravel.	4 protruding tubeworm tubes at top of image.				

Camera Location	Depth (m)	Still Images: Image Ref	Still Images: Sediment description	Still Images: Visible epifauna & flora	Video Footage (Timings; video overlay information): Video Ref	Video Footage: Sediment description	Video Footage: Visible epifauna	Notes
40	49.5	Be40a	Mainly broken shell with shell fragments, some pebble and overlaying silt.	Some encrusting keelworm (*Pomatoceros triqueter*) on shells.	Be40	On the seabed (15:09:20). Predominantly coarse shell and medium gravel. Overlying silt easily disturbed and remaining suspended. Homogenous at first then changes to medium sand with sand ripples (15:11:03).	Numerous empty razor shells as camera pans across (15:10:43). *Agonus cataphractus* (15:10:51). Possible prawn or squid, bottom left of shot (15:11:36).	
		Be40b	Coarse shell fragments, some pebbles and medium sand with overlying silt.	Some encursting keelworm (*Pomatoceros triqueter*) on shells. Empty razor shell and urchin test.				
		Be40c	Medium sand with sand ripples (~15cm peak to peak) and shell fragments, one pebble.	2 encrusting keelworm (*Pomatoceros triqueter*) on pebble. *Macropodia sp.* or *Lanice conchilega*? (centre of image)				
		Be40d	Medium sand with some fine shell fragments. Sand ripples (~15cm peak to peak).	Single burrow.				

Camera Location	Depth (m)	Still Images: Image Ref	Still Images: Sediment description	Still Images: Visible epifauna & flora	Video Footage (Timings; video overlay information): Video Ref	Video Footage: Sediment description	Video Footage: Visible epifauna	Notes
42	45.7	Be42a	Medium sand with sand ripples and some shell fragments.	No visible epifauna.	Be42	On the seabed (13:49:28). Medium sand wind sand ripples and numerous, small depressions (not burrow-like). Medium sand is homogenous throughout area covered. As camera lifts with list (13:52:05) large area of seabed is visible and all sandy.	No visible epifauna.	
		Be42b	Medium sand and some shell fragments.	Tubeworm tubes (top left of image).				
		Be42c	Medium sand with shell fragments.	Tubeworm tubes top and bottom left.				
		Be42d	SAME AS IMAGE Be42c	SAME AS IMAGE Be42c				
43	46.9	Be43a	Very coarse sand and small shell fragments.	No visible epifauna.	Be43	On the seabed (13:14:19). Coarse sand with distinctive sand ripples. As camera pans, seabed looks very homogenous and sand ripples visible. Tubeworm tube, empty and shells pass with current (13:14:47).	As camera lands, there is a release from tubeworm burrow in sand - left of image (13:15:08), as suspended sediment clears, burrows seem closed up. Sand mason worm bottom right (13:15:26). As camera lifts, sandeel is seen in bottom left swimming away (13:15:33).	
		Be43b	Coarse sand and shell fragments.	No visible epifauna.				
		Be43c	Coarse sand and many shell fragments.	2 sand mason worm (*Lanice conchilega*) bottom right of image.				

Camera Location	Depth (m)	Still Images: Image Ref	Still Images: Sediment description	Still Images: Visible epifauna & flora	Video Footage (Timings; video overlay information): Video Ref	Video Footage: Sediment description	Video Footage: Visible epifauna	Notes
44	46.4	Be44a	Medium sand with shell fragments.	Possible sand mason worm (*Lanice conchilega*) centre?	Be44	On the seabed (12:58:30). Medium sand, some shell fragments (white objects) dispersed as camera moves over area. Some coarser sand with fine shell fragments in parts.	No visible epifauna.	
		Be44b	Medium sand, some fine shell fragments.	No visible epifauna.				
		Be44c	Medium sand with shell fragments.	No visible epifauna.				
46	46.7	Be46a	Coarse gravel and shells with some small pebbles	1 dead Queen scallop shell (*Aequipecten opercularis*) and some small amount of encrusting keelworm (*Pomatoceros triqueter*). Hydrozoa present.	Be46	As camera comes in to land, area is devoid of sand covering. On the seabed (14:37:35). Coarse gravel and pebbles with shell fragments (some large/whole). As camera moves, ground type remains the same.	Hydroids (14:38:02). Some interspersed hydroids.	
		Be46b	Broken shell and shell fragments	Some encrusting keelworm (Pomatoceros triqueter) on shells and hydroids bottom centre.				
		Be46c	Coarse and fine shell fragments with some medium sand amongst in places.	Single unidentified Terebellid worm (top left of image). Some encrusting keelworm (*Pomatoceros triqueter*) on shells. Worm hole top right of image.				

Camera Location	Depth (m)	Still Images: Image Ref	Still Images: Sediment description	Still Images: Visible epifauna & flora	Video Footage (Timings; video overlay information): Video Ref	Video Footage: Sediment description	Video Footage: Visible epifauna	Notes
47	45.6	Be47a	Medium sand.	No visible epifauna.	Be47	On the seabed (14:26:18). Medium sand, no distinct sand ripples. As camera leaves, area looks to have sand throughout, some shells scattered.	Worm tubes (14:27:46).	
		Be47b	Medium sand.	No visible epifauna.				
		Be47c	Med-fine sand with some shell fragments (sand on right hand side of image looks very fine).	2 unidentified Terebellid worm tubes. Other possible one below left scale bar??				
48	47.5	Be48a	Medium sand with shell fragments	No visible epifauna	Be48	On the seabed (14:15:00). Medium sand, sand ripples.	Hermit crab (14:15:54). Fluffy matter (organic) on sediment surface)	
		Be48b	Medium sand with some sand ripples. Few shell fragments.	Hermit crab (*Pagurus prideauxi*) with hydrozoa (*Hydractinia echinata*) on shell??				
		Be48c	Medium sand. Few shell fragments.	Possible burrow bottom left?				
49	67.3	Be49a	Fine sand with ripple, single empty shell bottom.	4 unidentified worm tubes protruding from seabed. Single burrow (right of image). Worm group in centre.	Be49	As camera approaches, seabed sandy with distinct ripples (11:17:42) On the seabed (11:18:03). Fine sand, easily disturbed and suspended in view, slow to settle. As camera moves ripples and depressions become more distinctive.	Numerous tubeworm burrows and tubeworm tubes protruding from seabed (11:18:31).	

Camera Location	Depth (m)	Still Images: Image Ref	Still Images: Sediment description	Still Images: Visible epifauna & flora	Video Footage (Timings; video overlay information): Video Ref	Video Footage: Sediment description	Video Footage: Visible epifauna	Notes
49	67.3	Be49b	Fine sand with distinct sand ripples (10-15cm peak to peak) and broken shell/fragments.	Dull yellow worm tube protruding surface (above left of scale bar). Unidentified mass in small depression centre right.				
		Be49c	Fine sand with sand ripples. Few shell fragments	Dull yellow worm tube (left centre of image) and 3 burrows.				
50	48.2	Be50a	Medium sand and some very fine shell fragments with sand ripples.	Single protruding tubeworm tube top centre of image and centre left.	Be50	On the seabed (11:37:46). Predominantly medium sand but with some very fine shell fragments in places. Very distinct sand ripples.	Tubeworm protruding from seabed (11:38:00). Unidentified mass, possibly hydroids as camera pans (11:38:32). Burrow top left of image (11:38:53). *Pomatoceros* encrusted shell (11:38:57).	
		Be50b	Medium sand and some very fine shell fragments with sand ripples.	Protruding tubeworms centre right.				
		Be50c	Medium sand and some very fine shell fragments with sand ripples.	No visible epifauna.				
51	45.3	Be51a	Medium sand with sand ripples and shell fragments.	Deceased urchin test (~6cm in length).	Be51	On the seabed (11:50:26). Medium sand with ripples.	Deceased urchin test (11:50:26). Burrow, top centre of image and possible tubeworm left centre (11:52:15).	
		Be51b	Medium sand with very few shell fragments.	No visible epifauna.				
		Be51c	Medium sand with some very fine shell fragments.	No visible epifauna.				

Camera Location	Depth (m)	Still Images: Image Ref	Still Images: Sediment description	Still Images: Visible epifauna & flora	Video Footage (Timings; video overlay information): Video Ref	Video Footage: Sediment description	Video Footage: Visible epifauna	Notes
52	47.4	Be52a	Medium sand with sand ripples. Few fine shell fragments.	No visible epifauna.	Be52	On the seabed (12:00:06). Medium sand with ripples. Some very fine shell fragments in places mixed in with sand.	Tubeworm protruding from seabed? Shadow right centre (12:01:04).	
		Be52b	Sand.	Can't interpret image.				Image quality poor
		Be52c	Medium sand and shell fragments.	No visible epifauna.				
		Be52d	Medium sand and shell fragments.	Small, yellow tube worm tube above right of scale bar and top left of image.				
53	48.6	Be53a	Medium to fine sand.	Tubeworm tube centre left and top right	Be53	Camera hovers above seabed for several seconds. Looks like sand throughout area. On the seabed (12:12:19). Medium sand.	Possible urchin/crab as camera pans (12:13:10). Deceased urchin test (12:13:15). Unidentified mass, possibly a burrowing anemone? Centre (12:13:47).	
		Be53b	Medium to fine sand with some fine shell fragments. Sand ripples (~10cm peak to peak).	Tubeworm tubes. Top left of image and centre.				
		Be53c	Medium sand, sand ripple. Few shell fragments and some find sand in ripple.	Possible bivalve (bottom right), could be empty.				
		Be53d	SAME AS IMAGE Be53c	SAME AS IMAGE Be53c				Same as image Be53c

Camera Location	Depth (m)	Still Images: Image Ref	Still Images: Sediment description	Still Images: Visible epifauna & flora	Video Footage (Timings; video overlay information): Video Ref	Video Footage: Sediment description	Video Footage: Visible epifauna	Notes
55	43.5	Be55a	Medium sand and some very fine shell fragments with distinct sand ripples (8-10cm peak to peak).	No visible epifauna.	Be55	On the seabed (12:26:22). Medium sand with distinct sand ripples and numerous depressions (not burrow-like).	No visible epifauna.	
		Be55b	Medium sand and some very fine shell fragments with distinct sand ripples (8-10cm peak to peak).	No visible epifauna.				
		Be55c	SAME AS IMAGE Be55b	SAME AS IMAGE Be55b				
		Be55d	Medium sand and some very fine shell fragments with distinct sand ripples (8-10cm peak to peak).	No visible epifauna.				
56	45.5	Be56a	Cobbles, pebbles and gravel with some broken shell.	Starfish (*Asterias rubens*), Hermit crab *(Pagurus prideauxi*) with cloak anemone (*Adamsia carciniopados*), *Flustra folicea* present, encrusting keelworm (*Pomatoceros triqueter*). Possible bivalves (top centre).	Be56	As camera hovers over seabed (12:37:19) there are no sandy patches, completely coarse material. On the seabed (12:37:38). Very coarse consisting of pebbles and small cobbles. Some silt disturbed when camera lands (thin veneer).	2 urchins, likely *Echinus esculentus* (12:37:27). *Echinus esculentus* and *Pomatoceros* encrusted cobble, top left (12:37:30). *Asterias rubens* (12:37:39). *Pagurus prideauxi* with cloak anemone moves as camera lifts (12:38:18). 2 *Echinus esculentus* (12:39:38).	FAILED GRAB SITE RE-VISIT

Camera Location	Depth (m)	Still Images: Image Ref	Still Images: Sediment description	Still Images: Visible epifauna & flora	Video Footage (Timings; video overlay information): Video Ref	Video Footage: Sediment description	Video Footage: Visible epifauna	Notes
56	45.5	Be56b	SAME AS IMAGE Be56a	SAME AS IMAGE Be56a	Be56			Same as image Be56a
		Be56c	Cobbles, pebbles and gravel with some broken shell.	Encrusting keelworm (*Pomatoceros triqueter*).				
		Be56d	Large pebbles and gravel with some broken shell.	Encrusting keelworm (*Pomatoceros triqueter*).				
57	47.3	Be57a	Medium to fine sand.	No visible epifauna.	Be57	On the seabed (12:48:40). Medium sand.	No visible epifauna.	
		Be57b	Medium to fine sand.	Burrows/tube holes left of image.				
		Be57c	Medium to fine sand and some shell fragments.	No visible epifauna.				
59	52.2	Be59a	Medium to fine sand.	Tubeworm tube protruding from seabed (right of image). 2 sand mason worm (*Lanice conchilega*). 2 burrows (left of image).	Be59	On the seabed (16:43:-1). Medium to fine sand with some small depressions.	2 distinct burrows and several protruding worm tubes (16:43:54). Swimming polychaete as camera lifts off seabed (16:44:05). Possible burrow (16:44:-4). Fluffy organic matter on sediment surface (16:45:-4).	One of the 'seconds' digits missing from timer!
		Be59b	Medium to fine sand with some very fine shell fragments.	Possible burrowing anemone?? (above right of scale bar).				
		Be59c	Medium to fine sand.	No visible epifauna.				

Camera Location	Depth (m)	Still Images: Image Ref	Still Images: Sediment description	Still Images: Visible epifauna & flora	Video Footage (Timings; video overlay information): Video Ref	Video Footage: Sediment description	Video Footage: Visible epifauna	Notes
60	44.6	Be60a	Medium sand with some very fine shell fragments.	Small, yellow tube worm tube (top right of image).	Be60	On the seabed (16:32:22). Medium sand with some very fine shell fragments amongst in places. As camera pans, sand ripples apparent (16:33:53).	Possible urchin test (16:32:15). Empty tubeworm tube (16:34:21). Possible crab appendage and obvious 'footprint' like depressions in sediment (hermit crab?) (16:34:23).	
		Be60b	Medium sand with some very fine shell fragments.	No visible epifauna.				
		Be60c	Medium sand with some very fine shell fragments.	Crab appendage?? and tracks in sediment.				
61	45.3	Be61a	Coarse sand and shell fragments (some large/whole).	No visible epifauna.	Be61	As camera approaches seabed (16:17:45) there are distinct lines of coarser, lighter in colour material and darker bands of sand. On the seabed (16:17:59). Large/whole shell fragments and coarse sand mixed with fine shell fragments.	Loose branch of hydroid? moves in current (16:18:25). Small sandeel swims past camera, top left to bottom right (16:19:02). Possible burrows in sediment, small depressions (16:19:03).	
		Be61b	Coarse sand and shell fragments.	No visible epifauna.				
		Be61c	Coarse sand and shell fragments.	No visible epifauna.				

Camera Location	Depth (m)	Still Images: Image Ref	Still Images: Sediment description	Still Images: Visible epifauna & flora	Video Footage (Timings; video overlay information): Video Ref	Video Footage: Sediment description	Video Footage: Visible epifauna	Notes
64	40.5	Be64a	Medium sand. Some suspended sediment in image.	Possible tubeworm?? (above centre and centre right of scale bar).	Be64	On the seabed (15:55:49). Medium to coarse sand. Some large pebbles/small cobbles interspersed. As camera pans, seabed predominantly sand with some small shell fragments and cobbles amongst.	Tall standing hydroid and sandeel disturbed and swim away in different directions (15:55:41). Numerous zooplankton swimming in front of camera (15:55:42). Tubeworms (15:55:58). Tubeworms and hydroids (15:56:18).	
		Be64b	Medium to coarse sand with fine shell fragments.	2 substantial tubeworm tubes protruding from seabed brown/yellow in colour. Burrow to left of image. Hydrozoa present (top left of image).				
		Be64c	Medium to coarse sand with fine shell fragments.	Hydrozoa centre right of image??				

Camera Location	Depth (m)	Still Images: Image Ref	Still Images: Sediment description	Still Images: Visible epifauna & flora	Video Footage: Video Ref	Video Footage: Sediment description	Video Footage: Visible epifauna	Notes
66	42.5	Be66a	Medium sand.	*Macropodi*a sp.?? Or sand mason (*Lanice conchilega*) (Middle left of image)	Be66	On the seabed (15:34:46). Medium to coarse sand. As camera moves, some large cobbles amongst sand (15:35:40). Camera moves onto large boulder (15:36:42).	Possible sandeel leaving burrow as camera approaches seabed (15:34:44). Tubeworms, bottom left (15:35:06). Possible worm protruding sediment surface, bottom right (15:36:09). *Echinus esculentus* (15:37:55).	
		Be66b	Medium to coarse sand with shell fragments.	Pitting' in centre of image. Old burrows potentially?				Stones in med sand, urchin (*Spatangus*?)
		Be66c	Boulder amongst coarse sand and shell fragments.	Encrusting keelworm (*Pomatoceros triqueter*), hydroids and bryozoa on boulder.				
		Be66d	SAME IMAGE AS Be66c	SAME IMAGE AS Be66c				Same as image Be66c
		Be66e	SAME IMAGE AS Be66c	SAME IMAGE AS Be66c				Same as image Be66c
		Be66f	Coarse sand and shell fragments	No visible epifauna.				
68	46.5	Be68a	Medium sand with some shell fragments	No visible epifauna. Two possible burrows in centre which may have been caused by epifaunal activity.	Be68	On the seabed (14:19:26). Medium sand. As camera moves sand ripples distinctive (14:20:20). Sand becomes coarser in areas.	Loose hydroid (14:19:25). Potential burrows (14:19:55). Tubeworm (14:20:25). Urchin test (14:21:26). Deceased urchin, possibly sea potato test (14:21:29).	Video overlay should read fix 179 but is 178
		Be68b	Medium sand and shell fragments	Tubeworm tube top centre of image				
		Be68c	Medium sand with very fine shell fragments	Terebellid tubes. Deceased urchin test (~5cm in length).				

Camera Location	Depth (m)	Still Images: Image Ref	Still Images: Sediment description	Still Images: Visible epifauna & flora	Video Footage (Timings; video overlay information): Video Ref	Video Footage: Sediment description	Video Footage: Visible epifauna	Notes
69	43.5	Be69a	Medium to coarse gravel with pebbles and shells	Encrusting keelworm (*Pomatoceros triqueter*). Hydrozoa present.	Be69	On the seabed (14:31:52). Gravel, pebbles and shell. As camera pans over sea, ground type does not change. Numerous empty razor shells.	Encrusting *Pomatoceros triqueter.*	
		Be69b	Medium to coarse gravel with pebbles and shells.	Some encrusting keelworm (*Pomatoceros triqueter*) on shells and pebbles. Hydrozoa present.				
		Be69c	Medium to coarse gravel with pebbles and shells.	Some encrusting keelworm (*Pomatoceros triqueter*) on shells and pebbles. Hydrozoa present. Empty razor shell.				
70	43.4	Be70a	Medium sand with some very fine shell fragments.	Single tube protruding from seabed centre left.	Be70	On the seabed (14:45:46). Medium sand with some very fine shell fragments. Sand ripples.	Single tubeworm protruding seabed (14:46:00)	
		Be70b	SAME IMAGE AS Be70a	SAME IMAGE AS Be70a				Same as image Be70a
		Be70c	Medium to coarse sand with some fine shell fragments.	No visible epifauna. Some small depressions in sand, potential burrows.				
		Be70d	Medium to coarse sand with some fine shell fragments.	No visible epifauna.				

Camera Location	Depth (m)	Still Images: Image Ref	Still Images: Sediment description	Still Images: Visible epifauna & flora	Video Footage (Timings; video overlay information): Video Ref	Video Footage: Sediment description	Video Footage: Visible epifauna	Notes
72	40	Be72a	Medium sand with fine shell fragments.	No visible epifauna. Some small depressions in sand, potential burrows.	Be72	On the seabed (15:02:56). Medium to coarse sand. Small depressions and lines in sediment in some places.	Large hermit crab and unidentified starfish, possibly feeding?? (15:02:57). Tubeworm, top right (15:03:57).	
		Be72b	Medium sand with fine shell fragments	No visible epifauna. Some small depressions in sand, potential burrows caused by epifaunal activity?				
		Be72c	Medium sand with some very fine shell fragments	No visible epifauna. Tracks in sediment - epifaunal activity?				
74	43.4	Be74a	Medium to coarse sand with some shell fragments.	Terebellid worm tube (top left of image). Some small depressions in sand burrow centre of image.	Be74	On the seabed (15:19:40). Medium to coarse sand with distinct, well-spaced sand ripples. As camera moves and lands, burrows open up then close.	Tubeworm and several small depressions in the sand (15:19:45). Open burrows. Empty tubeworm? (15:21:22).	
		Be74b	Medium to coarse sand.	No visible epifauna				
		Be74c	Coarse sand and shell fragment (suspended sediment in image).	Terebellid worm tube (right of scale bar) and distinct depression/burrow (top centre of image)				
		Be74d	SAME AS IMAGE Be74c	SAME AS IMAGE Be74c				Same as image Be74c

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77	59.1	Be77a	Very fine sand/mud.	Small tubeworm tube (top left of image). Several depressions in sediment and some small burrows.	Be77	On the seabed (13:58:19). Fine sand/mud, easily disturbed, remains suspended.	Numerous burrows as camera comes to land (13:58:17). Large burrows in centre (13:59:37). Possible crab (14:01:09) Tubeworms (14:01:25).	Ignore fix 177
		Be77b	Very fine sand/mud.	Single sand mason worm (*Lanice conchilega*). Unidentified small orange thing top left?? Large depressions/burrows in sediment.				
		Be77c	Very fine sand/mud.	Several sand mason worms (*Lanice conchilega*) and individual larger dull yellow tubeworm tube protruding from the seabed (bottom left of image).				
79	41.8	Be79a	Medium to coarse sand with shell fragments (some large/whole).	Terebellid tube worms (centre).	Be79	As camera comes in to land, distinct patches of shell and sand. On the seabed (13:40:12). Medium to coarse sand with large shell fragments, some whole.	Large hermit crab (13:40:52). Hydroids (13:41:04). Tubeworms (13:41:48).	

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79	41.8	Be79b	Medium sand with shell fragments.	Terebellid tube worms protruding from sediment. Burrows top left.	Be79			
		Be79c	Medium sand with shell fragments.	Hydroid. Unknown mass (left of image), light yellow in colour - possibly large tubeworm. Burrow centre.				
81	39.1	Be81a	Pebbles with some coarse gravel and small cobbles	Starfish (*Asterias rubens*) - arm protruding top left, encrusting keelworm (*Pomatoceros triqueter*) and edible urchin (*Echinus esculentus*). Orange encrusting bryozoa.	Be81	On the seabed (13:19:32). Coarse gravel, pebbles and some small cobbles. As camera pans over area, substrate homogenous.	*Echinus esculentus*, top right (13:19:24), centre top (13:19:26), top left (13:19:32). Encrusting *Pomatoceros triqueter*. *Echinus esculentus*(13:19:55). *Echinus esculentus* (13:20:05*). Asterias rubens* (13:20:11). Urchin, possibly *Echinus* (13:20:37). *Echinus esculentus* and hydroid top left and right (13:20:44). *Echinus esculentus* (13:21:46) (13:21:56).	
		Be81b	Pebbles with some coarse gravel and small cobbles.	Starfish (*Asterias rubens*) and encrusting keelworm (*Pomatoceros triqueter*). Orange encrusting bryozoa.				

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81	39.1	Be81c	Pebbles with some coarse gravel and small cobbles.	Encrusting keelworm (*Pomatoceros triqueter*) and edible urchin (*Echinus esculentus*). Large mass of hydrozoa, *Halecium sp.?* Orange encrusting bryozoa. Juvenile scallop inside empty shell (top right of image), purple in colour.				
		Be81d	Pebbles with some coarse gravel, small cobbles and coarse sand amongst.	Squat lobster (*Munida rigosa*). Encrusting keelworm (*Pomatoceros triqueter*) Some hydrozoa and orange encrusting bryozoa.				
83	38.2	Be83a	Coarse sand and fine shell fragments	No visible epifauna.	Be83	Distinct banding of shell and sand (13:01:17). On the seabed (13:01:36). Coarse sand and fine shell fragments, some larger.	Some tubeworms in places.	
		Be83b	Predominantly medium to fine shell fragments with some coarse sand.	Few tubeworms (possibly *Lanice conchilega*?). Empty *Lagis koreni* top right.				

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83	38.2	Be83c	Predominantly medium to fine shell fragments with some coarse sand.	Possible burrow centre left of image. Dead *Ensis sp*. Shell in centre. Some encrusting keelworm (*Pomatoceres triqueter*).				
85	38.1	Be85a	Medium to coarse sand with shell fragments (some large/whole).	Encrusting keelworm (*Pomatoceros triqueter*) on shells. Possible Terebellid worm (centre). Burrow bottom right of image and evidence of bioturbation in centre of image.	Be85	On the seabed (11:57:09). Sand with shell fragments, some large/whole. Very distinct banding of shells and sand (11:57:31).	Empty tubes and shells (11:58:26). *Pecten maximus* part buried, empty? (12:00:22).	
		Be85b	Medium to coarse sand with shell fragments (some large/whole).	Worm tube protruding from sediment. Possible deceased crab (small) under shell (left of image).				

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85	38.1	Be85c	Medium to coarse sand with shell fragments (some large/whole).	Encrusting keelworm (*Pomatoceros triqueter*) on shells. Scallop buried (*Pecten maximus*??) - unknown if dead or alive.				
87	39.2	Be87a	Medium to fine sand.	No visible epifauna. Some small depressions in sand, potential burrows.	Be87	On the seabed (12:19:55). Medium sand. Small depressions and lines in the sand, possible hermit crab tracks.	No visible epifauna.	
		Be87b	Medium sand with some small shell fragments.	No visible epifauna				
		Be87c	SAME AS IMAGE Be87c	SAME AS IMAGE Be87c				Same as image Be87b
		Be87d	Medium sand with very few shell fragments.	Some small tubeworm tubes protruding from the sediment surface top centre of image.				
88	38.7	Be88a	Medium to fine sand with very few shell fragments.	No visible epifauna. Some evidence of track and bioturbation.	Be88	On the seabed (12:34:18). Medium sand with some tracks in sediment. Very distinct sand ripples, tracks and burrows in sand (12:34:55).	Possible tubeworms, centre (12:34:25) burrows (12:34:55).	

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88	38.7	Be88b	Medium sand with large distinct sand ripples (15-20cm peak to peak).	No visible epifauna. Burrow. Some distinct tracks/marks in sediment and small depressions??				
		Be88c	Medium to fine sand	No visible epifauna				
89	41.1	Be89a	Medium to coarse sand with some fine shell fragments.	7 or so large tubes and some smaller tubes protruding the sediment. Possible hermit crab (centre) with weed and barnacles on shell.	Be89	On the seabed (12:47:40). Medium sand. As camera pans some coarser material visible in places.	Tall protruding tubeworm, top right (12:47:40). Several tubeworms (12:47:49). Hermit crab, centre (12:47:55). Unidentified flatfish swimming right to left (12:49:21). Tubeworms, bottom right (12:49:36). Flatfish swimming bottom left to centre as camera lifts (12:49:56).	
		Be89b	Medium sand with some fine shell fragments.	*Macropodia sp*. centre of image				
		Be89c	Medium sand with some fine shell fragments.	Mass of hydroid?? (left centre) Large tubeworm (bottom right) *Macropodia sp*. or *Lanice*?? (Left centre of image).				
93	37.4	Be93a	Medium to fine sand with some fine shell fragments.	Tall standing tube, distinct sand particles. *Lanice*??	Be93	On the seabed (11:43:00). Medium sand, some fine shell fragments amongst. As camera moves, track in sand in places.	Tall standing tubeworm (11:43:01).	Same as image Be93b

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93	37.4	Be93b	SAME AS IMAGE Be93a	SAME AS IMAGE Be93a	Be93			
		Be93c	Medium to fine sand with shell fragments.	No visible epifauna.				
		Be93d	Medium sand with some shell fragments.	No visible epifauna. Some distinct tracks/marks in sediment and small depressions-hermit crab tracks, trailing caudal fin??				
96	38.1	Be96a	Medium sand with sand ripples.	*Lanice conchilega*?? (top centre) Some distinct tracks/marks in sediment and small depressions-hermit crab tracks, trailing caudal fin??	Be96	On the seabed (11:18:00). Medium sand with some sand ripples. Some tracks/markings and small depressions.	Empty whelk shell (11:18:46).	
		Be96b	Medium to fine sand with sand ripples	No visible epifauna. Some small depressions in sand, potential burrows.				
		Be96c	Medium to fine sand	No visible epifauna. Some tracks in sediment				

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98	39.6	Be98a	Sand.	Unable to interpret image.	Be98	On the seabed (10:59:08). Medium sand. Some tracks/markings at first. Some very fine shell fragments in places.	Single tubeworm protruding seabed (11:01:14)	Poor quality image
		Be98b	Medium sand.	No visible epifauna.				
		Be98c	Medium sand.	*Lanice conchilega* far left and dead tubeworm tube.				
		Be98d	Medium sand	*Lanice conchilega*?? (above scale bar)				
99	41.9	Be99a	Medium sand with small amount of very fine shell fragments.	Large single tubeworm tube protruding from the sediment. Possible burrow (centre). Some tracks in sediment.	Be99	On the seabed (10:42:50). Medium sand. Some tracks/markings in places.	Tubeworm protruding from seabed and possible burrow (10:42:51). *Asterias rubens*, bottom centre and *Luidia*??, top left (10:43:31). *Asterias rubens*, left (10:43:36). Empty (?) bivalve shell; centre (10:43:49).	
		Be99b	Medium to fine sand with some shell fragments (empty bivalve shell).	2 sand mason worm (*Lanice conchilega*) individuals in centre of image.				
		Be99c	Medium to fine sand.	No visible epifauna. Possible burrow.				