Cambois Connection – Marine Scheme

Environmental Statement – Volume 3

Appendix 8.1: Benthic Survey Report (Phase 1 and 2)

sse Renewables

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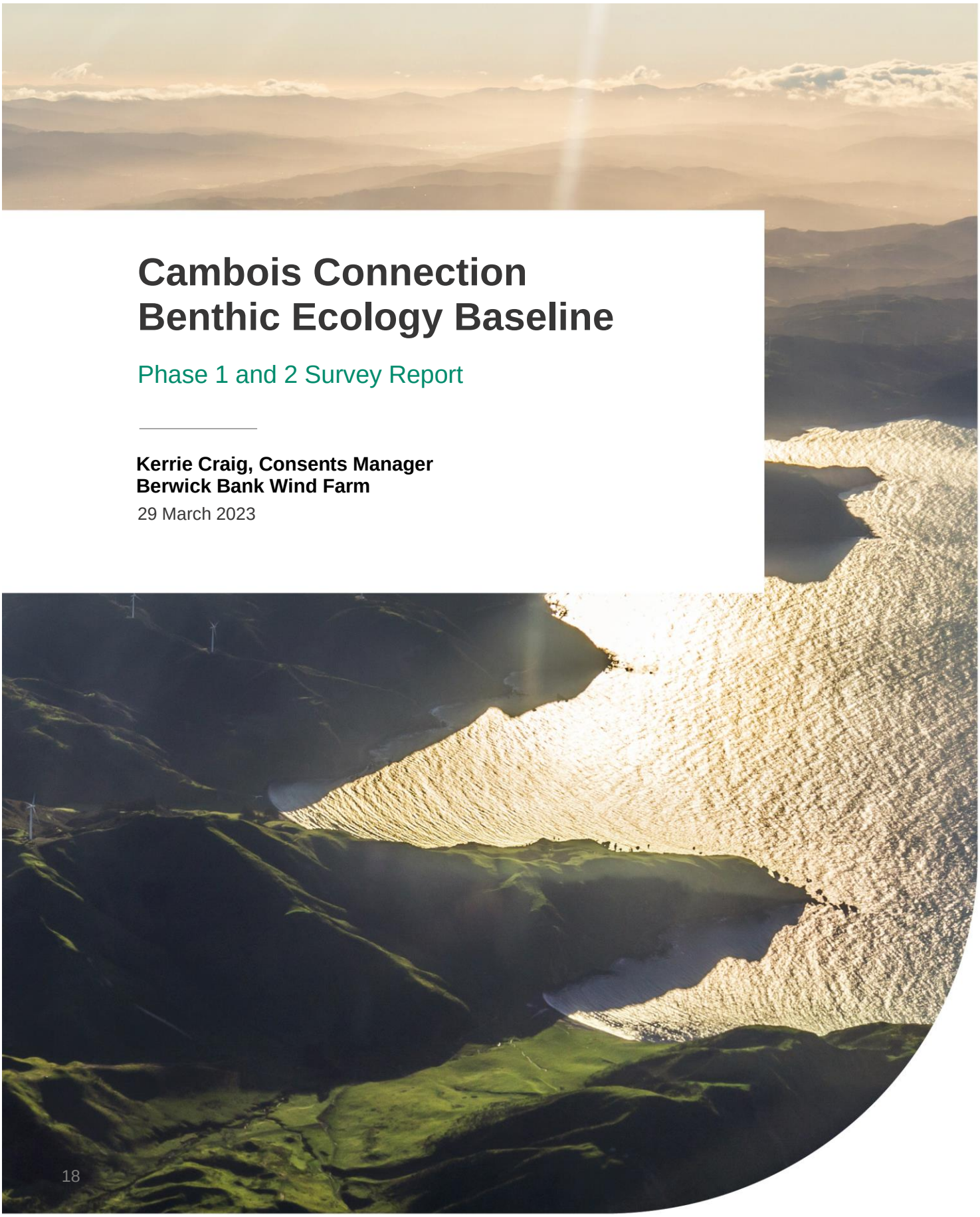

Cambois Connection Benthic Ecology Baseline

Phase 1 and 2 Survey Report

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Berwick Bank Wind Farm

29 March 2023

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Document history

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1. Introduction

1.1. Project Background

Berwick Bank Offshore Wind Farm (OWF) (the Project), developed by Berwick Bank Wind Farm Limited (BBWFL) (which is a wholly owned subsidiary of SSE Renewables), is an offshore wind farm development situated in the Outer Firth of Forth, Scotland. The Project has the potential to deliver up to 4.1 GW of installed capacity, generating enough clean, renewable energy to power over five million homes.

The Project secured a grid connection agreement for 2.3GW connecting in 2026 / 2027 at Branxton, near Torness in East Lothian, Scotland. The Project has also signed connection agreement with National Grid for up to 1.8GW at Cambois, Blyth, Northumberland, England, herein referred to as the Cambois Connection. This will form a separate planning application to be submitted in 2023. An Environmental Impact Assessment (EIA) will be caried out as part of planning applications to Marine Scotland and the Marine Management Organisation (MMO) and an offshore benthic ecology baseline survey campaign is required to inform the EIA.

Natural Power Consultants Ltd (Natural Power) has been appointed to manage and execute the delivery of a benthic ecology baseline survey of the Cambois Connection export cable corridor (ECC) running from Berwick Bank OWF to the landfall location at Cambois, in Blyth, Northumberland.

Due to poor weather in the second half of 2022, the survey work and subsequent reporting was split into two Phases. The Phase 1 survey included benthic grab sampling at 58 planned survey stations, drop down video (DDV) at 27 of the survey stations and incorporation of geophysical survey data and phase 1 survey data into benthic habitat mapping. The Phase 2 survey included DDV at an additional 43 sampling stations and incorporation of Phase 1 and Phase 2 survey data into benthic habitat mapping. It should be noted that the benthic survey area initially included a western ECC option which traversed the Farnes East Marine Conservation Zone (MCZ), initial survey work included grab sampling and DDV at stations located within this western ECC. However, due to feedback from statutory stakeholders, including Natural England, BBWFL made the decision to remove the western ECC option, therefore grab samples taken at stations within this western ECC corridor were not subsequently analysed and are not discussed within this report.

1.2. Document Purpose

This report has been produced in order to provide BBWFL with the findings of both the Phase 1 and Phase 2 benthic ecology baseline surveys covering the Cambois Connection ECC, in order to meet two specific objectives of the survey:

- To characterise the benthic environment that is present within the ECC; and
- To identify the occurrence and distribution of any habitats and species of conservation importance.

2. Survey Methodology

2.1. Benthic Baseline Survey Design

The locations of benthic grab and DDV sampling locations were based upon existing publicly available datasets describing existing seabed conditions and biotopes within the ECC area, specifically:

- JNCC MPA Mapper;
- Nature Scot SiteLink;
- Cefas OneBenthic Data Extraction Tool;
- EUSeamap Substrate Type (2021);
- EUSeamap MSFD Benthic Broad Habitat Types (2021); and
- EMODnet Bathymetry Mean Depth.

Figure 2.1 shows the proposed sampling stations and predicted sediment types. EUSeamap MSFD Benthic Broad Habitat Types (2021) data suggests the area consists mainly of a mixture of mud, sand and coarse sediment with potential areas of rock and biogenic reef and an area of mixed sediment nearshore.

2.2. Benthic Grab

Sampling stations were positioned along the extent of the ECC providing sufficient coverage of the area (Figure 2.1). Given the heterogeneity of the substrate type across the ECC 58 sample stations were identified, providing sufficient coverage to characterise the benthic habitat across the entire survey area.

A subset of 15 benthic sampling stations were identified for contaminant sampling, situated in finer sediment where this type of analysis can be performed and with a higher frequency of sampling stations closer to the shore where higher levels of contaminants are typically expected.

2.3. Drop Down Video (DDV) Survey

Drop Down Video (DDV) transects were conducted at a total of 70 locations (sampling stations) (27 sampling stations during Phase 1 and 43 sampling stations during Phase 2) in the designated survey area using the Joint Nature Conservation Committee (JNCC) protocol (Davies *et al*., 2001; JNCC, 2018) and the Epibiota Remote Monitoring from Digital Imagery: Operational Guidelines (Hitchin *et al*., 2015). Stations were selected to cover all sediment types and habitats. Additionally, where reef features were encountered, assessments were made using current available guidance notes i.e., Gubbay (2007) and Limpenny *et al*. (2010) for potential *Sabellaria* reefs, and Golding *et al.* (2020) and Irving (2009) for potential cobble reefs.

All sample locations were sampled using an observation class Remotely Operated Vehicle (ROV), manually manoeuvred by an experienced surveyor via remote control. The ROV recorded video footage within the unit at 4K resolution which was viewed in real time at the surface with a minimum of three minutes of video footage collected at each sampling station. During deployment, whilst recording video imagery, ‘frame captures’ were collected using a remote controller, with a minimum of three still images being captured per sampling station. The system was equipped with laser points (10cm apart)

to provide an indication of scale, and also video LED flood lights (6000 lumens) to provide illumination of the seabed.

Surveys were undertaken during appropriate tides/weather conditions to allow optimum visual imagery capture. At each sampling station, the immediate survey area was checked for obstructions e.g., static gear. The ROV was prepared for deployment while the vessel moved into position to start the drop. The vessel approached the sample location identified and positioned itself so that wind and tide caused the vessel to drift away from the equipment whilst deployed.

The image feed was reviewed as the data was collected to enable the confirmation image quality and any seabed features recorded.

Notes on the visible sediment conditions, seabed features and fauna were made in-situ together with Differential Global Positioning System (DGPS) position, water depth and date/time. Positions were fixed at the start and end of each deployment and a continuous log of GPS data was recorded whilst the camera was deployed. The ROV was recovered to the vessel and the haul line was coiled into a box to ensure it did not tangle for any subsequent deployments and to avoid trip hazards. The vessel then moved to the next sampling station. The ROV was also used to check suitability and ensure no Annex I (EU Habitats Directive 92/43/EEC) or sensitive habitats) were present at benthic grab stations.

2.4. **Benthic grab survey**

The grab survey was undertaken at 58 sampling stations along the ECC, in order to collect information on the physical nature of the seafloor and the composition of the infauna, as per Limpenny *et al.,* (2010), Coggan *et al*., (2007), and JNCC Marine Monitoring Handbook Procedural Guidance 3-5 (Holt & Sanderson, 2001).

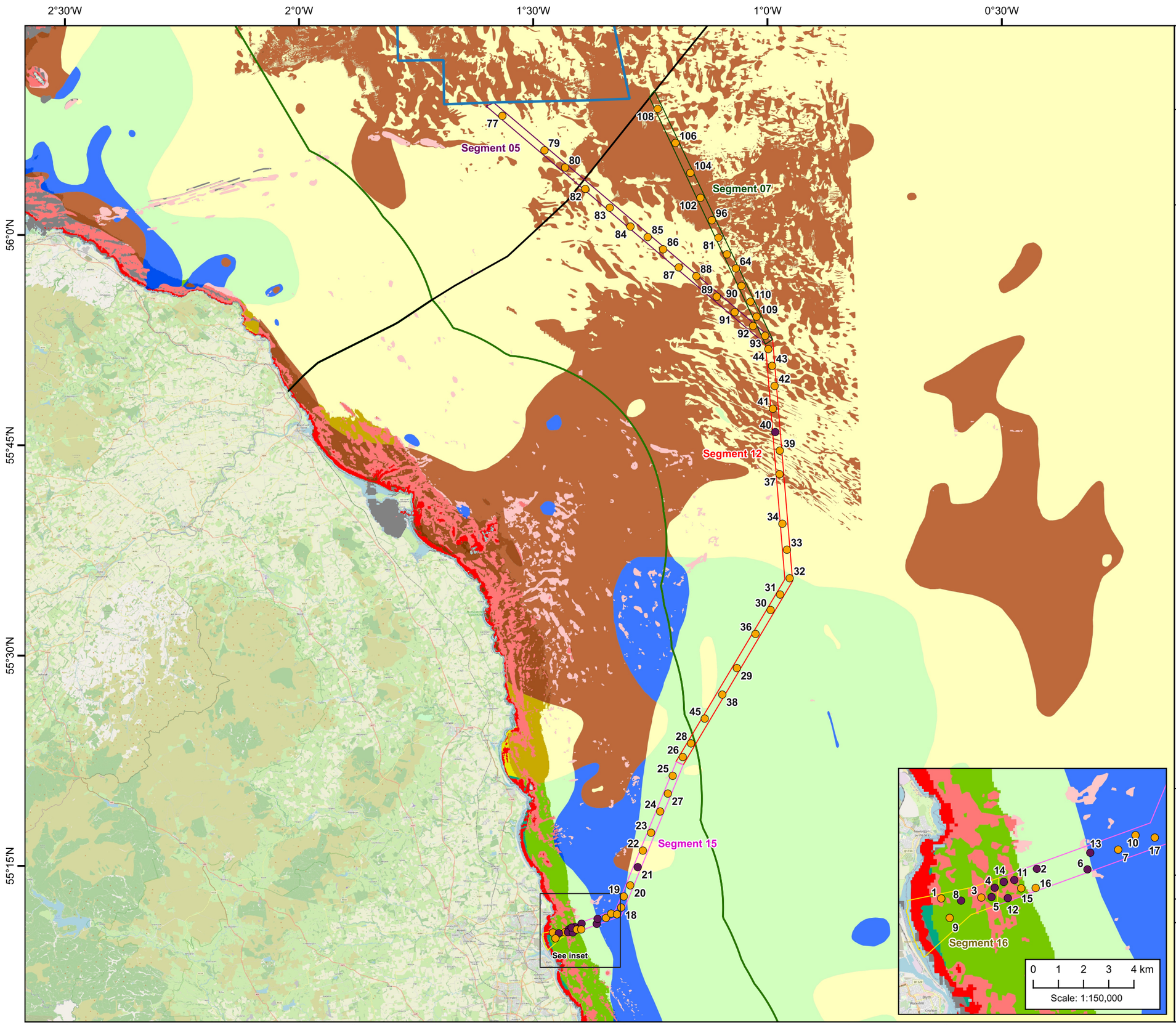
Benthic sampling was undertaken using a 0.1m^2 mini-Hamon or day grab (a day grab was used for the contaminated sediment sampling). At each sampling station the grab was deployed, and once fired on the seabed, recovered. After successful grabs were recovered, providing each grab sample was deemed acceptable by the lead surveyor (according to the relevant protocols), the samples were fully described (sediment and biological characterisation) and a labelled photograph taken. The sample was deemed unacceptable if; the sample represented less than half the total capacity, the grab had not struck the seabed in a flat area resulting in an incomplete sample, or the grab jaws were not fully closed. All locations where a grab failed were recorded using GPS positions. Up to three failed attempts per sampling station were allowed, prior to abandoning that sampling station.

At each station a subsample of at least 100 ml was collected for Particle Size Analysis (PSA), Total Organic Carbon (TOC) analysis using a metal scoop and placed in a sample bag with an inside and outside label clearly marked with the sampling station. Samples were collected and stored in accordance with the NMBAQC PSA protocol. Each benthic fauna sample was sieved on board through a 1mm sieve, larger rocks/shells were placed directly into the sample pot. The sieved residues were then gently backwashed into sealable containers and preserved by adding borax buffered 4-5% saline formalin solution. Each sample was labelled clearly on the lid and an additional waterproof label placed in the container which recorded the client, survey name, date, area, station number and grab number. Benthic faunal sampling was carried out in accordance with JNCC Procedural Guideline No.3-9 (Thomas, 2001).

At fifteen pre-determined stations (stations: 2, 5,6,8, 9, 13, 14, 15, 19, 22, 23, 25, 26, 48, 30) a separate grab was deployed for collecting contaminants samples from an undisturbed sediment surface., Samples were taken with the appropriate metal or plastic scoop and transferred to appropriate labelled

containers for transportation in a cool box prior to analysis. The samples were stored in accordance with the guidelines for monitoring contaminants in sediments (OSPAR, 2014).

On successful completion of the work at that sampling station, the vessel moved to the next station where the procedure was repeated until all stations were sampled. A full survey log was maintained throughout the survey detailing time of sampling, GPS position, number of attempts required, station number, water depth, physical characteristics of the sample, digital image number and presence of any other relevant features.



Project:

Cambois Connect Benthic Baseline

Title:

Figure 2.1: Cambois Connection Benthic Sampling Stations

Key

- Berwick Bank site boundary
- 12 nautical mile (NM) limit
- England/Scotland territorial boundary

Benthic sampling stations

- DDV only
- Grab & DDV

Cable corridor segment IDs

- 05
- 07
- 12
- 15
- 16

EUSeamap (2021) MSFD Benthic Broad Habitat Types

- Infralittoral coarse sediment
- Infralittoral rock and biogenic reef
- Infralittoral sand
- Infralittoral mud
- Circalittoral rock and biogenic reef
- Circalittoral sand
- Circalittoral mud
- Offshore circalittoral mixed sediment
- Offshore circalittoral coarse sediment
- Offshore circalittoral rock and biogenic reef
- Offshore circalittoral sand
- Offshore circalittoral mud

Scale @ A3: 1:500,000

Coordinate System: WGS84 UTM Zone 30N
Graticules: WGS84

0 5 10 15 20 km

N

Date: 12-05-23	Prepared by: RB	Checked by: ME
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3. Sample Analysis

3.1. DDV Imagery Analysis

DDV and still images were reviewed, processed, and analysed in accordance with current guidelines, including the standards for analysis in visual seabed surveys (BS EN 16260:2012) and Turner *et al*., 2016. Imagery was also assessed using the NMBAQC image quality categories whereby the video footage is allocated a score of 'good', 'poor' or 'very poor'. The imagery was reviewed for features of conservation interest, including an Annex I reef assessment following the appropriate JNCC guidance notes (Gubbay, 2007; Irving, 2009; Golding *et al.,* 2020). The main purpose of the analysis of the imagery was to identify what fauna and broadscale habitats exist in a video record or still image, and to provide quantitative and semi-quantitative data and to note where one substrate type changes to another. The results of analyses are described in this report and provided in MS Excel spreadsheet proformas, along with image reference collections for each habitat and taxon recorded, and video clips for each broadscale habitat and biotope. The DDV footage was initially viewed rapidly (x4 speed) in order to segment it into sections representing different broadscale habitats. The start and end points of each segment were logged, and each segment treated as a separate record and subsequently subjected to more detailed analysis. Brief changes in substrate type lasting less than 5m were considered as incidental patches are recorded as part of the habitat description, or as a 'habitat mosaic'. The DDV footage was then viewed at normal or slower than normal speed, noting the physical and biological characteristics, such as substrate type and percent cover (in line with current guidelines), seabed character, conspicuous taxa, and life forms along with any modifiers or visible impacts present. Taxa were identified to the most detailed taxonomic level possible and recorded with abundance counts for erect species and percent cover estimated visually for colonial/encrusting species, as well as categories based upon the MNCR SACFOR abundance scale (Hiscock, 1996). Where appropriate, any relevant features of conservation interest or Annex I habitats were noted at each sample location. Quantification of epifauna was performed manually for DDV analysis and recorded directly in a proforma spreadsheet (Appendix E).

All data were recorded as each DDV clip or still image was analysed and European Marine Observation and Data Network (EMODnet) and Marine Environmental Data and Information Network (MEDIN) compliant proforma spreadsheets were used to input imagery data and metadata, with reference to the latest species dictionary from the World Register of Marine Species (WoRMS[1]) database.

3.1.1. Annex I Assessment

The DDV footage was reviewed and analysed in accordance with current guidance to identify any potential Annex I features. Where reef was recorded within DDV footage current assessment methods for biogenic or stony reefs were used (Turner *et al*., 2016, Gubbay, 2007; Irving, 2009; Golding *et al*., 2020).

3.2. Benthic Faunal Analysis

All biota was extracted and identified according to the National Marine Biological Analytical Quality Control (NMBAQC) Taxonomic Discrimination Protocol (TDP) (Worsfold *et al*., 2010). Samples were washed with tap water through sieves to remove the preserving agent, with different sized sieves used to aid in sorting. To further aid sorting and to avoid damage to specimens, light organic matter and fauna were elutriated (floated off) and sorted separately. The larger retained contents were sorted in a white sorting tray, whilst smaller fauna were sorted under a stereomicroscope.

[1] https://www.marinespecies.org/

Fauna were identified to the lowest taxonomic level practicable using appropriate keys and references and enumerated. Species that were present as juveniles were differentiated from adults, where possible. Colonial organisms were recorded as present or absent and broken or damaged specimens that may not be fully identified were described as 'Taxa Indet.' (indeterminate). Juvenile specimens not displaying adult characteristics necessary for identification to species were described as 'Taxa juv.', and groups not generally identified to species because of taxonomic or morphological reasons were recorded as Taxa sp.

For each sample, the biomass was calculated following identification and enumeration of individual species. Sample species were sorted into five major faunal taxonomic groups consisting of 'Cnidaria', 'Annelida', 'Crustacea', 'Mollusca', 'Echinodermata' and 'other', and the relative weights calculates.

3.3. PSA and TOC Analyses

PSA was determined to fractions ranging between <63 µm and >63 mm, using NMBAQC[2] methodology which utilises stacked sieves for >1 mm fraction and laser granulometry for the <1 mm fraction. Sediment samples were processed through stacked sieves at particle size diameters of 0.5 phi intervals over the range 64 mm to 63 µm (Wentworth Scale) (Table 4.1). The sieves were shaken for 15 minutes, and the contents of each sieve subsequently weighed. Finer fractions (<63 µm) were oven dried and weighed as a separate fraction, with further laser diffraction analysis if this fraction is >5 % of the total sample.

The classification system used for sediment type and sorting index were carried out according to the methods of Buchanan *et al*., (1984). For reporting purposes, the PSA results per sampling station were expressed as a cumulative percentage of each particle size passing through each sieve. These percentages were then converted to absolute percentages retained on each sieve.

All samples were analysed for TOC through Loss on Ignition (LOI) whereby each sample is weighed before being heated to a high temperature (105^{o}C) until all the carbon dioxide from carbonates is burned off and the sample is weighed again. The difference in weights is the LOI which is then converted to TOC using a conversion factor.

Table 3.1: The classification of sediment particle size ranges into size classes

Range of Particle Size	Wentworth Sediment Classification	Phi Unit
<63µm	Silt/Clay	>4 Ø
63-125 µm	Very Fine Sand	4 Ø, 3.5 Ø
125-250 µm	Fine Sand	3 Ø, 2.5 Ø
250-500 µm	Medium Sand	2 Ø, 1.5 Ø
500-1000 µm	Coarse Sand	1 Ø, 1.5 Ø
1000-2000 µm (1 – 2mm)	Very Coarse Sand	0 Ø, -0.5 Ø
2000 – 4000 µm (2 – 4mm)	Very Fine Gravel	-1 Ø, -1.5 Ø
4000 -8000 µm (4 – 8mm)	Fine Gravel	-2 Ø, -2.5 Ø
8 -64 mm	Medium, Coarse & Very Coarse Gravel	-3 Ø to -5.5 Ø
64 – 256 mm	Cobble	-6 Ø to -7.5 Ø
>256 mm	Boulder	< -8 Ø

Source: adapted from Buchanan, 1984

[2] https://www.nmbaqcs.org/qa-standards/

3.4. Contaminants Analysis

Samples were analysed by a UKAS accredited and MMO validated laboratory, against a full suite of contaminated sediment criteria in line with Cefas action levels and Canadian guidance levels (CMME, 2001). These guidance documents list prescribed levels against which the samples were analysed. Samples were analysed for the range of contaminants provided in Table 3.2:

Table 3.2: Chemical contaminants sediments analysed for

Sediment contaminants			
Arsenic	PCB28	Acenaphthene	Fluoranthene
Cadmium	PCB52	Acenaphthylene	Fluorene
Chromium	PCB101	Anthracene	Indeno[123,cd]pyrene
Copper	PCB118	Benz(a)anthracene	Naphthalene
Lead	PCB138	Benzo(a)pyrene	Phenanthrene
Mercury	PCB153	Benzo[b]fluoranthene	Pyrene
Nickel	PCB180	Benzo[ghi]perylene	Total hydrocarbon (THC)
Zinc		Benzo[k]fluoranthene	
Dibutyltin		Chrysene	
Tributyltin		Dibenz(a,h)anthracene	

4. Data Analysis

4.1. Benthic Grab Analysis

All data collected from surveys, including up to date species nomenclature in accordance with the WoRMs database, abundance, biomass and physical parameters such as PSA and depth, were collated in excel spreadsheets. Based on PSA results, each sampling station was assigned a Folk (1954) classification using the Folk Ternary diagram provided in the JNCC guidance (Parry, 2015) and the percentage composition of gravel, sand and mud was calculated.

A suite of statistical analyses on the data collected from the grab survey work were undertaken using the “vegan” package in R, with some univariate indices calculated manually in R. General R packages used in the statistical analysis and production of outputs were: "tidyverse", "magrittr", "ggpubr","janitor","taxize","rstatix", "readxl","bookdown","pander","plotrix", "cluster", “clustig”, "factoextra", "ggrepel", "dendextend", and "patchwork".

4.1.1. Univariate Statistics

The following species diversity indices were calculated for the benthic grab sample species data:

- Number of Species (S): provides the number of species present in a sample, with no indication of relative abundances;
- Number of individuals (n): provides the total number of individuals counted;
- Species Diversity - Shannon-Wiener index (H’): measures the uncertainty in predicting the identity of the next species withdrawn from a sample. Typically between 1.5 and 3.5, a lower value shows lower diversity;
- Species Richness - Margalef’s index (d): measures the number of species present for a given number of individuals. The higher the index, the greater the diversity;
- Simpson’s indexes (1-λ): demonstrate a measure of the probability of choosing two individuals from a sample that are different species. D = 0 (minimum diversity), D = 1.0 (maximum diversity); and
- Pielou’s evenness (J’): shows how evenly the individuals in a sample are distributed. J’ is a range of zero to one. The less variation in the samples, the higher J’ is.

These univariate indices enable the reduction of large datasets into useful metrics, which can be used to accurately describe community structures.

4.1.2. Multivariate Statistics

Multivariate analysis is an effective method for detecting subtle changes in benthic community datasets. Multivariate analyses were undertaken in R on the whole dataset, including individual replicates. Due to the partially skewed nature of the fauna data, and its varying abundances, a square root transformation was applied to normalise the data distribution, reducing dominant effects of highly abundant taxa.

A Bray-Curtis resemblance matrix was applied to the transformed infauna data. Non-Metric Multidimensional Scaling (NMDS) plots were produced to examine the similarity between sampling stations. The similarity profile (SIMPROF) analysis routine was utilised to determine the statistically significant groups (i.e., samples that would naturally group as communities). One-way Analysis of Similarity (ANOSIM) revealed whether there were any statistically significant results and, if significant, the Similarity Percentages (SIMPER) function was used to provide information on the main species driving the groupings, which aids in determining the community structure and biotopes.

4.2. Biotope Assignment

Infauna survey results groupings and characterising species were identified through the SIMPROF, NMDS and SIMPER analyses and these were used in combination with the PSA results and physical characteristics (such as depth and zone) to classify the grab sample station biotopes according to the Marine Habitat Classification for Britain and Ireland (Connor *et al*., 2004).

DDV samples were assigned habitat classifications based on species present according to the most current classification. Where appropriate, broadscale habitats, Features of Conservation Interest (FOCI) or Habitats Directive, Annex I Habitat were also assigned to each sampling station and still image. Guidance notes provided by JNCC report 546 (Parry, 2015) were used to assist this process.

Infauna (grab) and epibenthic (DDV) biotope classifications were incorporated into an Excel spreadsheet alongside physical characteristics such as depth and PSA, and final benthic habitats assigned to each sampling station. The majority of infauna and epibenthic habitat assignment at a sampling station were consistent or complimentary. At the DDV stations, where no benthic grabs were taken, the DDV classification was ground truthed to geophysical data prior to assigning final biotopes. Classification was supported by use of JNCC comparative tables and guidance (Parry, 2019).

4.3. Benthic Habitat Mapping

For the habitat mapping, the overarching strategy was to combine information from the geophysical data with the benthic sample data using geostatistical processing and spatial statistical analysis. This process used the sample data to 'ground truth' the geophysical data, a strategy which is described in the Mapping European Seabed Habitats (MESH) documentation. The existing geophysical data required processing prior to integration so that the data were spatially coincident, at identical spatial resolutions and in a suitable format for the mathematical analyses.

Bathymetry and backscatter data were collected for the ECC, which are relevant to the benthic environment. These data were incorporated within a Geographic Information System (GIS) and processed to produce derived data sets which were then used to predict benthic habitat variability or complexity within the areas surveyed. Benthic sample data was used initially as training sites to model the distribution of the biological habitat classes found in the ECC.

The ground truth point data were buffered to create a training area of 25m radius around each point and these areas associated with the appropriate habitat category. The integration analysis was performed within the GIS and image processing software and the training areas were used to extract values from each of the geophysical layers that could be associated with the biological habitat classes. These values were used to create a statistical 'signature' for each class with these signatures then applied to the whole geophysical data set.

The machine learning tool 'Random Forest classification' within 'Vision using Generic Algorithms' (VIGRA), was selected to produce the habitat maps as this provided a relatively high accuracy output. Random forest classification is an ensemble algorithm, which creates multiple decision trees from a randomly selected subset of the training areas, and the outputs from each decision tree are then evaluated to determine the final habitat class to be mapped based upon the average value or majority class from all the decision trees generated.

5. Results

The Phase 1 subtidal benthic survey campaign was carried out between 22 September and 14 October 2022. DDV imagery was retrieved from 27 sampling stations along the ECC. Grab samples were recovered at all 58 sampling stations for faunal analysis and sediment PSA and TOC. Sediment grab samples were also recovered at 15 sampling stations for contaminants analysis.

The Phase 2 DDV survey campaign was undertaken over three days on 15 and 16 February, and 21 March 2023. DDV imagery was retrieved from all 47 sampling stations along the ECC.

Sampling station locations are provided (Figure 2.1) and the station coordinates and depths are presented (Appendix A).

5.1. DDV

For the Phase 1 survey, a total of 30 imagery samples across 27 sampling stations (as two sampling stations were split into two segments) were collected. Phase 2 returned 43 imagery samples (no videos were segmented) across 43 sampling stations. The results showed the seabed at the majority of sampling stations comprised of sand and mud dominated sediment interspersed with patches of coarser sediment.. A number of sampling stations were recorded as the broadscale habitat 'subtidal mud' with some burrows observed (including some complex burrow systems from *Nephrops*). 'Subtidal sand' was typically observed at inshore sampling locations with 'Subtidal Coarse Sediment' observed at five sampling stations towards the north of the site and subtidal Mixed Sediment' observed to the north of the site and at one inshore location. In addition. epifauna was typically sparse throughout the ECC and the most abundant taxa observed were brittle stars (*Ophiuroidea*). Other epifauna included seapens (*Pennatula phosphorea*), fish, (*Pleuronectiformes*, *Gadidae*, *Callionymiformes*, *Triglidae, Melanogrammus aeglefinus, Pleuronectes platessa*), starfish (*Asterias rubens*, *Asteroidea, Crossaster papposus*), crustacea (*Brachyura, Paguridae, Nephrops norvegicus, Decapoda*, *Majoidea, Liocarcinus sp., Munida rugosa, Goneplax rhomboides, Cancer pagurus, Pagurus prideau*), anemones (*Actiniaria* and *Adamsia palliata*), tube worms (*Sabellidae*, *Terrebellidae*, *Chaetopteridae*), scallops (*Pectinidae*, *Pecten maximus*) and sea urchins (*Echinus esculentus*). DDV video and stills proformas are provided (Appendix E).

No Invasive Non-Native Species (INNS) were found. Potential Annex I stony reef was found at seven locations. Five in the nearshore area (1, 4, 11, 12 and 14), and two offshore at station 34 in segment 12 and 88 in segment 5 of the ECC. However these two stations were composed of cobbles with relatively low percentage cover and were assessed as 'low' stony reef (Section 5.8). .).

The UK BAP Habitat 'Subtidal sands and Gravels' (SS.SSa.CMuSa, SS.SCS and SS.SCS.CCS biotopes) was recorded at nine offshore stations (5, 9, 80, 82, 83, 89, 96, 102, 104) and 'Mud habitats in Deepwater' (SS.SMu.CSaMu and SS.SMu.CFiMu) was recorded at 38 offshore stations (Table 5.3).

Litter (as defined in Annex 5.1 of the Joint Research Centres Guidance on Monitoring of Marine Litter in European Seas[3]) was only found during the Phase 2 survey on three separate instances with observations of string-like litter in sampling station 88, loose material or plastic in sampling station 96 and potential litter in sampling station 93.

5.2. Infauna

In total, 4,254 individuals were found within the 58 infaunal samples, representing 273 unique taxa (full species list is provided in Appendix B). The samples containing the highest number of species (56) and individuals (180) were sampling stations 37 and 3, respectively. Where 'species' is referred to, this is in relation to a unique taxon. The top

[3] https://mcc.jrc.ec.europa.eu/documents/201702074014.pdf

10 most abundant species found, are presented (Table 5.1). One individual of the bivalve *Arctica islandica* was recorded at each of six stations, namely stations 3, 19, 22, 31,36 and 108. This bivalve tends to be solitary and is a FOCI in England and Priority Marine Feature (PMF) in Scotland. Although *Sabellaria spinulosa* was identified at four stations, abundances were low and not indicative of *Sabellaria* reef. No INNS species were identified from the sampling stations along the ECC.

Table 5.1: Ten most abundant species present and sampling stations they were found

Species	Total abundance	Stations
Amphiura filiformis	395	10,100,102,104,108,109,110,17,18,19,20,22,23,24,25,26,27,3,30,32,33,36,37,38,41,42,43,44,64,77,79,81,82,83,84,85,86,87,88,89,9,90,91,92,93,96
Amphiuridae	386	1,10,100,102,104,108,109,110,17,18,19,20,22,23,24,26,27,3,30,32,36,37,38,39,41,42,43,44,45,64,7,77,79,80,81,82,83,84,85,86,87,90,91,92,96
Scoloplos armiger	172	100,102,104,108,109,110,22,23,25,27,28,30,31,32,33,36,37,39,41,42,43,44,64,77,79,80,81,82,83,84,85,86,87,88,89,90,91,92,96
Diplocirrus glaucus	145	10,100,110,18,19,20,22,23,24,25,26,27,28,30,34,36,37,38,39,42,43,44,45,64,77,79,82,83,85,86,87,90,91,92,93
Paramphinome jeffreysii	144	100,102,20,22,23,25,27,30,31,32,33,34,36,37,39,41,42,43,45,64,7,80,84,85,86,87,89,90,96
Spatangoida	142	10,104,17,18,23,25,26,3,30,33,34,36,37,39,41,42,43,44,64,77,79,81,82,9,91,92,93,96
Thyasira flexuosa	139	108,110,15,17,18,24,25,26,28,30,34,37,39,42,43,44,45,64,77,79,82,85,86,87,89,91,92,93
Spiophanes bombyx	137	10,100,102,104,108,109,110,17,18,19,22,23,24,25,28,3,30,37,39,41,64,77,79,81,82,83,84,85,86,87,89,9,90,91,92,93,96
Chamelea striatula	127	1,100,108,110,15,17,19,3,30,43,44,64,77,79,82,84,85,87,9,90,96
Lumbrineris cingulata	120	10,102,108,15,16,19,20,22,23,24,25,27,3,33,34,39,43,7,80,84,88,89,93,96

5.2.1. Diversity

Diversity results are presented (Figure 5.1). The number of taxa ranged from 3 to 56, and the number of individuals ranged from 3 to 180. Richness index values ranged from 1.82 to 10.76. Evenness and diversity values are high and relatively consistent across the ECC. Richness, number of individuals and species number show no discernible pattern relating to location.

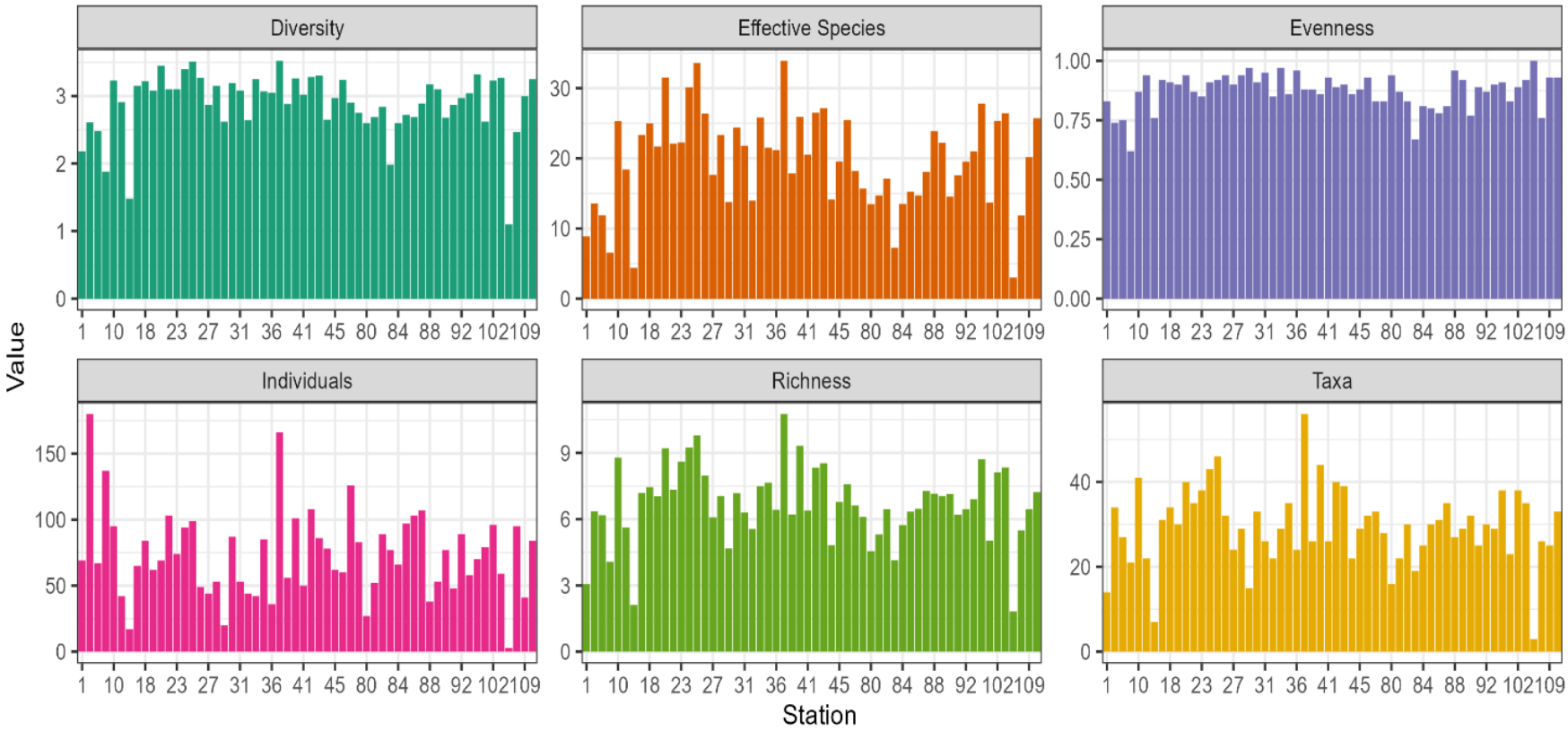


Figure 5.1: Univariate diversity indices at subtidal benthic grab sampling stations along the export cable corridor

5.2.2. Community Analysis

SIMPROF found nine statistically significant groups of stations based on relatedness of species composition (Figure 5.2).

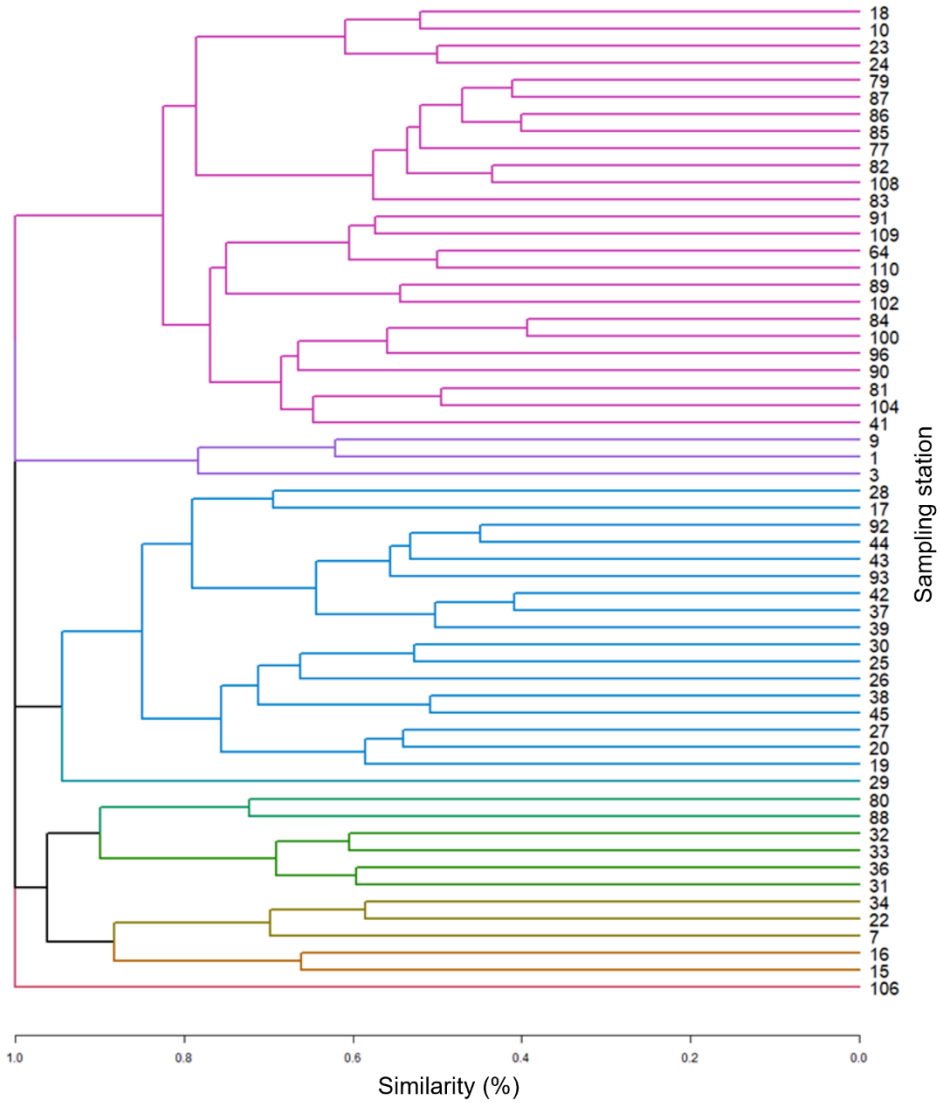


Figure 5.2: Station groupings (SIMPROF) revealed through clustering analysis of benthic grab stations

Table 5.2: Station groupings from SIMPROF analysis of benthic samples

Groupings	Stations
a	106
b	15, 16, 28, 29
c	1, 3, 9
d	32, 33, 34
e	18, 37, 39, 41, 42, 43, 44, 91, 92, 93
f	100, 108, 110, 64, 77, 79, 82, 83, 84, 85, 86, 87, 90
g	102, 104, 109, 81, 89, 96
h	10, 17, 19, 20, 22, 23, 24, 25, 26, 27, 30, 31, 36, 38, 45
i	7, 80, 88

The species driving the groupings in Table 5.2 are provided (Section 5.6, Table 5.4). Stations were grouped by the Folk (1954) classification to determine whether species composition varied between Folk classes. (Figure 5.4). When species assemblages were compared between Folk classifications by ANOSIM (Figure 5.4), a significant result was found (p = 0.002, R = 0.346). This illustrates the importance of sediment type in the resulting species assemblages and overall benthic community.

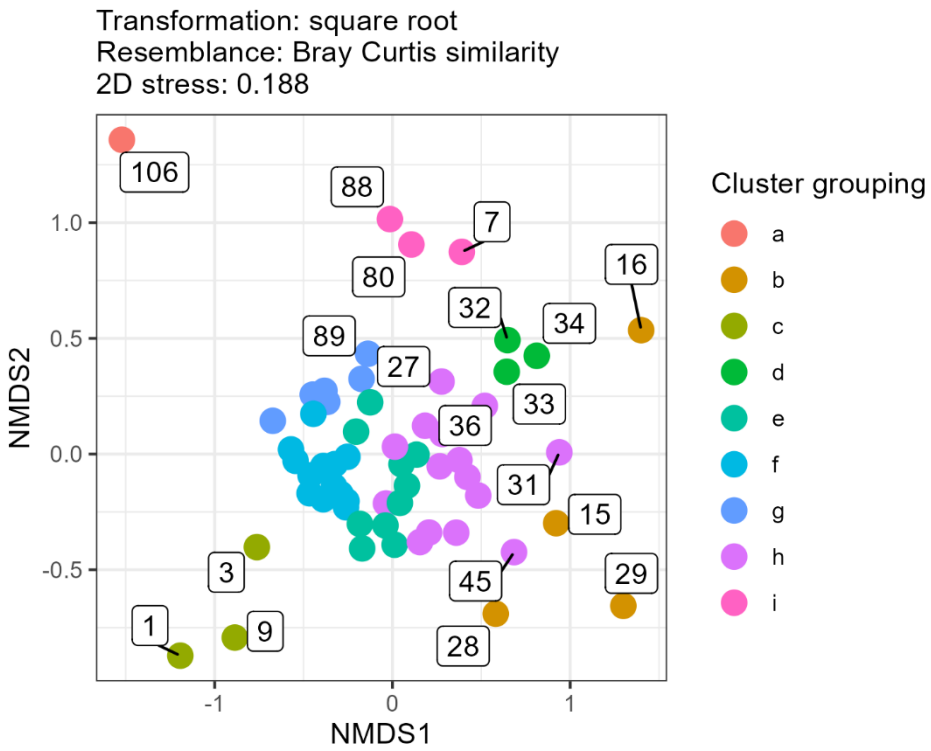


Figure 5.3: NMDS plot showing clustering of subtidal benthic grab sampling stations based on species composition

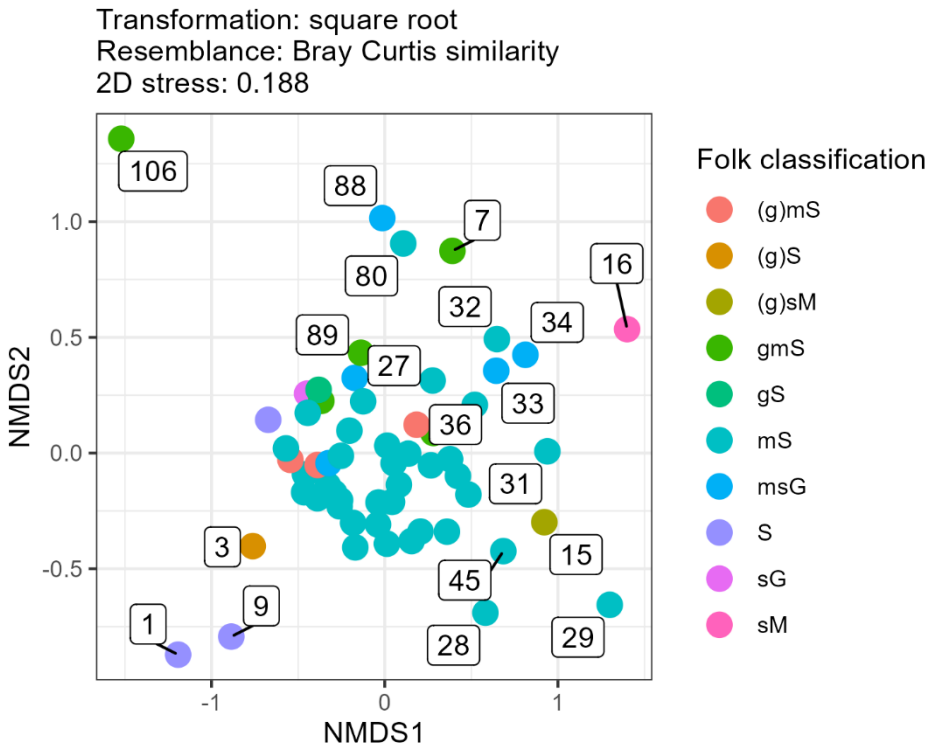


Figure 5.4: NMDS plot showing clustering of subtidal benthic grab sampling stations based on species composition, coloured by the Folk (1954) classification of the sediment

5.3. Biomass

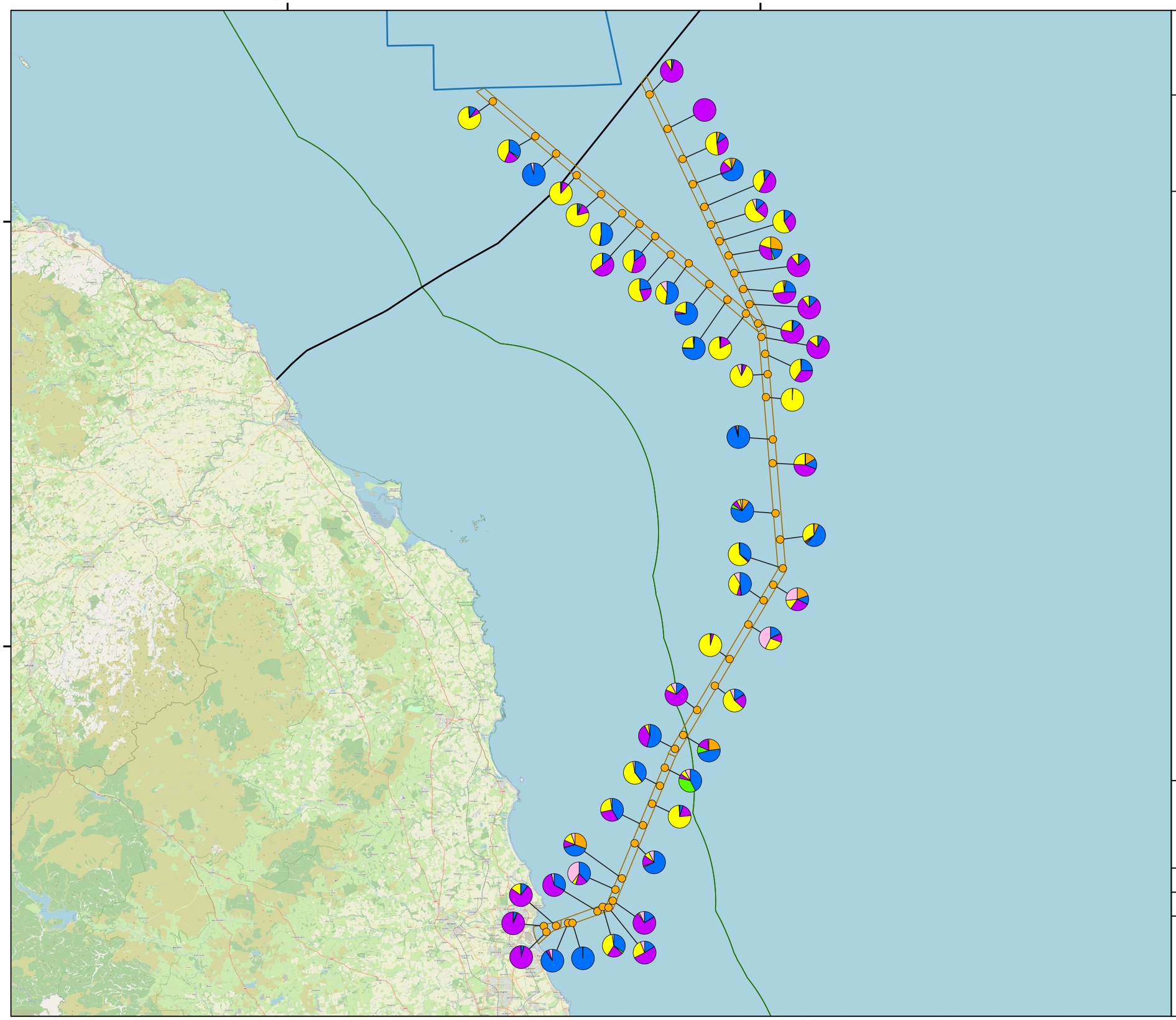
Taxa from all stations sampled were separated in the main faunal groupings for biomass measurements to be made. For each benthic grab faunal station, the biomass of each major faunal groups, as a proportion of overall biomass, is shown in Figure 5.5. Near shore stations are dominated by proportions of Mollusca and Annelida (segmented worms). The majority of the stations in the middle of the export cable corridor tend to be dominated by Echinodermata. Moving further offshore stations become dominated by Mollusca. Sampling station 25 had a high proportion of crustacea (21.73g), compared to other locations.

2°0'W

1°0'W

56°0'N

55°30'N



Project:

Cambois Connect Benthic Baseline

Title:

Figure 5.5: Biomass Proportions of Major Faunal Groupings

Key

- Berwick Bank site boundary
- Cable corridor
- 12 nautical mile (NM) limit
- England/Scotland territorial boundary
- Benthic sampling station

Final groupings

- Cnidaria
- Annelida
- Crustacea
- Mollusca
- Echinoderm
- Other

Scale @ A3: 1:500,000

Coordinate System: WGS84 UTM Zone 30N
Graticules: WGS84

0 5 10 15 20 km

N

Date: 28-04-23	Prepared by: RB	Checked by: ME
Ref: GB200769_M_104_B		

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5.4. PSA and TOC

PSA was undertaken on a sample from each sampling station and TOC analysis performed on finer sediments. The survey area consisted mostly of muddy sand with small areas of gravelly muddy sand and muddy sandy gravel (Folk, 1954) with most offshore sampling stations comprising muddy sand. Figures 5.6 to 5.8 demonstrate the sediment type across the survey area. Sampling station 16 and 15 returned the highest TOC values (7.86% and 6.77%, respectively), at least double the next highest values. These locations had a higher content of finer mud fractions, which typically has a higher TOC. The full list of the percentages of each particle size and TOC results is provided in Appendix C.

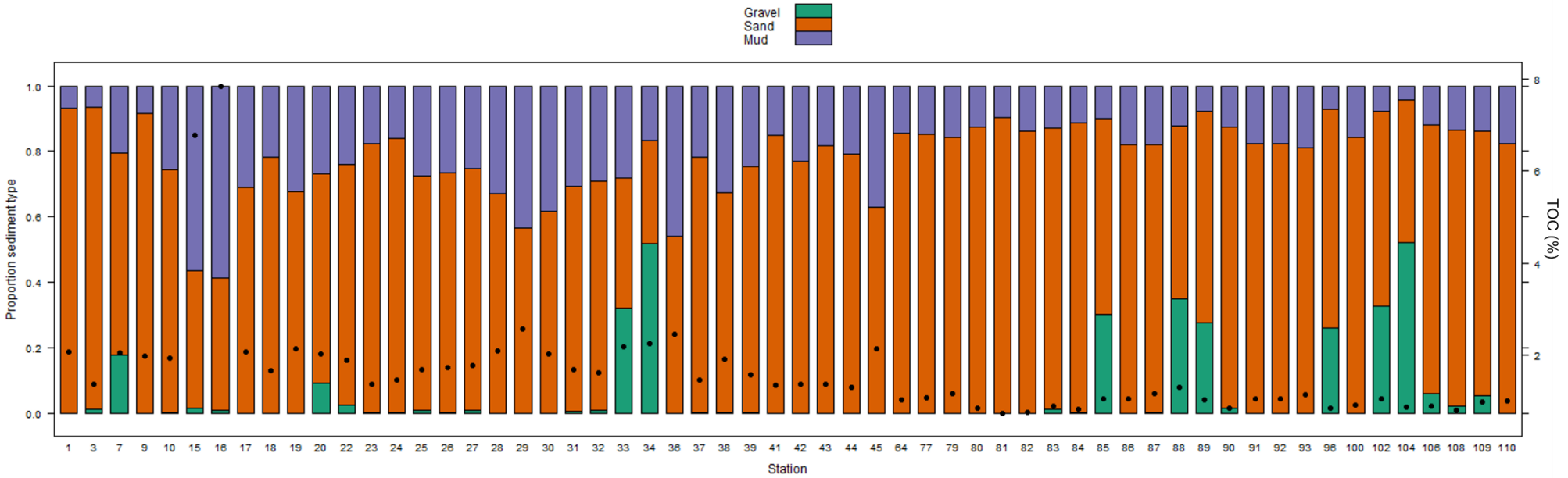

Figure 5.6: PSA and TOC at subtidal benthic grab sampling stations along the export cable corridor

2°30'W
2°0'W
1°30'W
1°0'W
0°30'W
56°0'N
55°45'N
55°30'N
55°15'N
See inset
0 2 4 6 8 km
Scale: 1:200,000

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Figure 5.7: PSA Folk Classification

Key

- Berwick Bank site boundary
- 12 nautical mile (NM) limit
- England/Scotland territorial boundary

Cable corridor segment IDs

- 05
- 07
- 12
- 15
- 16

PSA Folk Classification

- (Gravelly) muddy sand
- (Gravelly) sand
- (Gravelly) sandy mud
- Gravelly muddy sand
- Gravelly sand
- Muddy sand
- Muddy sandy gravel
- Sand
- Sandy gravel
- Sandy mud

Scale @ A3: 1:500,000

Coordinate System: WGS84 UTM Zone 30N
Graticules: WGS84

0 5 10 15 20 km

N

Date: 28-04-23	Prepared by: RB	Checked by: ME
Ref: GB200769_M_105_B		

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2°0'W

1°0'W

56°0'N

55°30'N

Project:

Cambois Connect Benthic Baseline

Title:

Figure 5.8: PSA Percentage Sediment Types

Key

- Berwick Bank site boundary
- Cable corridor
- 12 nautical mile (NM) limit
- England/Scotland territorial boundary
- Benthic sampling station

Sediment types

- Gravel (%)
- Sand (%)
- Mud (%)

Scale @ A3: 1:500,000

Coordinate System: WGS84 UTM Zone 30N
Graticules: WGS84

0 5 10 15 20 km

N

Date: 28-04-23	Prepared by: RB	Checked by: ME
Ref: GB200769_M_106_B		

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5.5. Contaminants

A range of contaminants were assessed against Cefas and Canadian (CCME, 2001) action level guidelines. When metals were assessed against the guidelines, no contaminants were above the Cefas Action Level 2 (AL2), upper limits and those which were above Action Level 1 (AL1) were only marginally so. Levels of cadmium, copper, lead, mercury and zinc all fell well below Cefas AL1 lower limit. Sampling stations 2 and 15 returned values for chromium and nickel slightly above the AL1 threshold but well below AL2. All heavy metals, except chromium were under the Canadian Interim Sediment Quality Guideline (ISQG) / Threshold Effect Level (TEL) levels.

Levels of organotins, Polychlorinated biphenyls (∑PCB7) were below guidelines assessed and all organotins were all under AL1 levels. Levels of Poly Aromatic Hydrocarbons (∑PAH16) were all below Cefas AL1. Canadian guidelines do not specify a value for the sum of the 16 PAHs, and as such each PAH was assessed against its own guideline where available. Of the thirteen PAH with individual thresholds, sampling stations 14 and 15 consistently exceeded the ISQG/TEL, with other sampling stations exceeding the ISQG/TEL for different PAHs.

The total Hydrocarbon Content (THC) levels were generally low (below Cefas AL1), however sampling stations 1 and 15 had values which were above Cefas AL1.

A full breakdown of contaminant results can be found in Appendix D.

5.6. Biotope Assignment

5.6.1. DDV

All DDV results are provided within this report, incorporating both Phase 1 and Phase 2 surveys

A total of 11 habitats / biotopes were classified from DDV across the ECC; two down to level 5, five to level 4, and four to level 3 (Table 5.3). The most common was ‘Circalittoral sandy mud‘ (SS.SMu.CSaMu). Other biotopes included ‘Seapens and burrowing megafauna in circalittoral fine mud’(SS.SMu.CFiMu.SpnMeg), ‘Circalittoral muddy sand‘ (SS.SSa.CMuSa), ‘Sublittoral sands and muddy sands’ (SS.SSa), and ‘Sublittoral cohesive mud and sandy mud communities’ (SS.SMu). The biotope ‘Seapens and burrowing megafauna in circalittoral fine mud’ (SS.SMu.CFiMu.SpnMeg) was recorded at stations where burrows were clearly observed in sufficient density (>0.1m^2 for burrows over 3cm), the presence of burrowing megafauna (*Nephrops norvegicus*) was observed at six stations and the seapen *Pennatula phosphorea* was observed at 34 locations. Where burrows were observed at lower densities, the sandy mud habitat was recorded as the broader habitat of SS.SMu.CsaMu or ‘Circalittoral fine mud’ (SS.SMu.CFiMu), depending on silt and sand content. The substrates observed were largely homogeneous in nature, however segmentation was required at sampling stations 1 and 14 due to the presence of a change in habitat from soft sediments to soft rock communities. The DDV sample station images and stills, along with the DDV analysis proformas are provided (Appendix E).

Table 5.3: Subtidal biotopoes identified during analysis of video imageryBiotope	MNCR classification description	EUNIS (2022) equivalent	Stations
SS.SMu	Sublittoral cohesive mud and sandy mud communities	A5.3	29
SS.SMu.CFiMu	Circalittoral fine mud	A5.36	30, 31, 32, 33, 35, 36, 37, 39, 40, 42, 43, 44, 79, 85, 86, 87

Table 5.3: Subtidal biotopoes identified during analysis of video imageryBiotope	MNCR classification description	EUNIS (2022) equivalent	Stations
SS.SMu.CFiMu.SpnMeg	Seapens and burrowing megafauna in circalittoral fine mud	A5.361	2, 6, 7, 15, 16, 27, 28, 38 ,45
SS.SMu.CSaMu	Circalittoral sandy mud	MC6	10, 17, 18, 19, 20, 22, 23, 24, 25, 26, 41, 64, 77, 81, 90, 91, 92, 93, 100, 108, 109, 110
SS. SCS	Sublittoral coarse sediment (unstable cobbles and pebbles, gravels and coarse sands)	A5.1	80, 96, 104
SS.SCS.CCS	Circalittoral coarse sediment	A5.14	89, 102
SS.SSa	Sublittoral sands and muddy sands	A5.2	1, 3, 8
SS.SSa.CMuSa	Circalittoral muddy sand	A5.26	5, 9, 82, 83
CR.MCR	Soft rock communities	A4.23	1, 11, 12, 14
CR.MCR.EcCr.FaAlCr.Flu	*Flustra foliacea* on slightly scoured silty circalittoral rock	A4.2141	4
SS.SMx.CMx	Circalittoral mixed sediment.	A5.44	13, 21, 34, 84, 88, 106

5.6.2. Benthic Grabs

SIMPER analysis was run to determine species contributing greatest variation between Folk classifications and the five top contributors to the SIMPROF station groupings (Table 5.4).

Table 5.4: Average contributions of species most similar between station groupings, based on SIMPER analysis

Station grouping	Most influential species driving similarity	Folk sediment classification	Approximate depth range (m)
a	*Cochlodesma praetenue* *Ennucula tenuis* *Euspira nitida*	Gravelly muddy Sand	60m
b	*Ophelina acuminata,* *Abra nitida,* *Thyasira flexuosa* *Lumbrineris cingulata,* *Harpinia antennaria,*	Muddy sand Gravelly sandy mud	27m – 93m
c	*Chamelea striatula,* *Fabulina fabula,* *Amphiuridae*	Sand Gravelly sand	8m – 18m

Station grouping	Most influential species driving similarity	Folk sediment classification	Approximate depth range (m)
	Abra prismatica, *Nucula nitidosa,*		
d	*Paramphinome jeffreysii,* *Lumbrineris cingulata,* *Ampharete lindstroemi,* *Notomastus,* *Leptochiton asellus*	Muddy sandy gravel	82m – 90m
e	*Spatangoida,* *Amphiuridae,* *Thyasira flexuosa,* *Paramphinome jeffreysii,* *Amphiura filiformis*	Muddy sand	53m – 90m
f	*Amphiura filiformis,* *Amphiuridae,* *Scoloplos armiger,* *Spiophanes bombyx* *Thy*	Muddy sand with some gravel	58m – 74m
g	*Amphiura filiformis,* *Amphiuridae,* *Scoloplos armiger,* *Paramphinome jeffreysii,* *Spiophanes bombyx,*	Sand Gravelly muddy sand Muddy sandy gravel Sandy gravel	54m – 70m
h	*Amphiuridae,* *Diplocirrus glaucus,* *Amphiura filiformis,* *Lumbrineris cingulata,* *Terebellides*	Muddy sand with some gravel	45m – 100m
i	*Lumbrineris cingulata,* *Hemilepton nitidum* *Spiophanes kroyeri,* *Peresiella clymenoides* *Glycera alba*	Gravelly muddy sand Muddy sandy gravel	47m – 64m

Depth varies throughout the ECC from the infralittoral habitats closer to shore and offshore circalittoral habitats closer to the Array Area. Whilst depth and sediment types vary across the sediment groupings, there is considerable overlap between groupings in terms of fauna with *Amphiura filiformis*, *Amphiuridae* and *Paramphinome jeffreysii* characterising species for several groupings. This suggests that a complex of similar and/or transitional biotopes are present within the ECC. Infauna (grab) characterising species were incorporated into an Excel spreadsheet alongside epibenthic (DDV) biotope classifications (where available), physical characteristics such as depth and sediment characteristics, and final benthic habitats assigned to each sampling station. Biotopes assigned from video are not necessarily always reflective of the final biotope once other defining parameters such a PSA and infauna are

taken into consideration, since imagery only accounts for epifaunal species. At stations where DDV imagery was collected but no benthic grab could be taken (2, 4, 5, 6, 8,11, 12, 13, 14, 21, 35 and 40), the DDV biotope assigned was compared against the geophysical data to determine sediment type (as no PSA data is available) and any other locally assigned biotopes. Where there was a mismatch, a final biotope was determined based upon the DDV results and geophysical data combined providing a fuller representation of the habitat.

5.6.3. Final biotopes

A total of thirteen biotopes were classified across the ECC, one down to level 3, six down to level 4 and six down to level 5. The most common biotope found was '*Paramphinome jeffreysii, Thyasira* spp. and *Amphiura filiformis* in offshore circalittoral sandy mud' (SS.SMu.OMu.PjefThyAfil) found at 26 sampling stations. Where a suitable fit was not possible or did not seem typical of the results, a conservative approach was adopted, and a higher level biotope was assigned. These included 'Offshore circalittoral mixed sediment' (SS.SMx.OMx), 'Circalittoral mixed sediment' (SS.SMx.CMx), , 'Circalittoral sandy mud' (SS.SMu.CSaMu), 'Offshore circalittoral mud '(SS.SMu.OMu), 'Infralittoral muddy sands' (SS.SSa.IMuSa) and 'Offshore circalittoral coarse sediment' (SS.SCS.OCS) '. In addition, one location (sampling station 1) was classified a mosaic of rock (CR.MCR) interspersed with soft sediment (SS.SSa.IMuSa.FfabMag). All biotopes are provided (Table 5.5) and full biotope descriptions in Appendix F.

Table 5.5: Final subtidal biotopes found within the export cable corridor

Final Biotope	MNCR classification description	EUNIS (2022) equivalent	Stations
SS.SMx.OMx	Offshore circalittoral mixed sediment	MD4	33, 34, 106, 109
SS.SMx.CMx	Circalittoral mixed sediment	MC4	7, 13, 21, 88
SS.SMx.CMx.KurThyMx	*Kurtiella bidentata* and *Thyasira* spp. in circalittoral muddy mixed sediment	MC4213	85
SS.SSa.CFiSa.ApriBatPo	*Abra prismatica, Bathyporeia elegans* and polychaetes in circalittoral fine sand	A5.252	64, 77, 79, 81, 82, 83, 84, 86, 87, 90, 100, 108, 110,
SS.SSa.OSa.OfusAfil	*Owenia fusiformis* and *Amphiura filiformis* in offshore circalittoral sand or muddy sand	A5.272	80
SS.SMu.CSaMu	Circalittoral sandy mud	A5.35	2, 6
SS.SMu.CSaMu.ThyEten	*Thyasira* spp. and *Ennucula tenuis* in circalittoral sandy mud	A5.352	15, 16, 28, 29
SS.SMu.OMu	Offshore circalittoral mud	MD6	35, 40
SS.SMu.OMu.PjefThyAfil	*Paramphinome jeffreysii, Thyasira* spp. and *Amphiura filiformis* in offshore circalittoral sandy mud	A5.376	10, 17, 18, 19, 20, 22, 23, 24, 25, 26, 27, 30, 31, 32, 36, 37, 38, 39, 41, 42, 43, 44, 45, 91, 92, 93
SS.SSa.IMuSa	Infralittoral muddy sand	A5.24	5, 8
SS.SSa.IMuSa.FfabMag	*Fabulina fabula* and *Magelona mirabilis* with venerid bivalves and amphipods in infralittoral compacted fine muddy sand	MB5236	3, 9

Final Biotope	MNCR classification description	EUNIS (2022) equivalent	Stations
SS.SCS.OCS	Offshore circalittoral coarse sediment	MD3	89, 96, 102, 104
CR.MCR	Soft rock communities	A4.2	4, 11, 12, 14
CR.MCR SS.SSa.IMuSa.FfabMag	Mosaic of Moderate energy circalittoral rock *And* *Fabulina fabula* and *Magelona mirabilis* with venerid bivalves and amphipods in infralittoral compacted fine muddy sand		1

2°30'W
2°0'W
1°30'W
1°0'W
0°30'W
56°0'N
55°45'N
55°30'N
55°15'N
See inset
0 2 4 6 8 km
Scale: 1:200,000

Project:

Cambois Connect Benthic Baseline

Title:

Figure 5.9: Benthic Biotope Classification

Key

- Berwick Bank site boundary
- 12 nautical mile (NM) limit
- England/Scotland territorial boundary

Cable corridor segment IDs

- 05
- 07
- 12
- 15
- 16

Benthic biotope classification

- CR.MCR
- CR.MCR/SS.SSa.IMuSa.FfabMag
- SS.SCS.OCS
- SS.SMu.CSaMu
- SS.SMu.CSaMu.ThyEten
- SS.SMu.OMu
- SS.SMu.OMu.PjefThyAfil
- SS.SMx.CMx
- SS.SMx.CMx.KurThyMx
- SS.SMx.OMx
- SS.SSa.CFiSa.ApriBatPo
- SS.SSa.IMuSa
- SS.SSa.IMuSa.FfabMag
- SS.SSa.OSa.OfusAfil

Scale @ A3: 1:500,000

Coordinate System: WGS84 UTM Zone 30N
Graticules: WGS84

0 5 10 15 20 km

N

Date: 15-05-23	Prepared by: RB	Checked by: ME
Ref: GB200769_M_107_C		

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5.7. Benthic Habitat Mapping

The predicted habitats for the ECC show the inshore areas are dominated by the biotope Sublittoral sands and muddy sands (SS.SSa) closest to shore, with some further refined to Circalittoral muddy sand (SS.SSa.CMuSa), typically characterised by a wide variety of polychaetes and bivalves, supporting a rich infaunal community. There are discrete patches of rock present, assigned as stony (1, 11 and 14) and bedrock (4 and 12) reef. Within 12 nautical miles, DDV analysis of stations 2, 6, 7, 14, 15, 16, 27, 28, 38 and 45, initially suggested an epifaunal component was present indicating the OSPAR habitat of 'Sea pen and burrowing megafauna community' (SS.Smu.CfiMu.SpnMeg). However, PSA data showed none of these stations consisted of fine muds, and on assessment of the infauna data, no stations were assigned the SS.Smu.CfiMu.SpnMeg biotope (Table 5.6).

Muddier habitats, with the biotope of *'Paramphinome jeffreysii*, *Thyasira* spp. and *Amphiura filiformis* in offshore circalittoral sandy mud' (SS.SMu.OMu.PjefThyAfil), dominate the cable corridor moving offshore until the bifurcation in the route along with patches of sandy habitats (SS.SSa.IMUSa) and mixed substrate habitats (SS.SMx.CMx) closer inshore.

Where the export cable corridor is orientated diagonally to the northeast further offshore, bands of mixed sediment habitats and small patches of coarse or sandy habitats occur between areas of mud, with the biotope of *'Paramphinome jeffreysii*, *Thyasira* spp. and *Amphiura filiformis* in offshore circalittoral sandy mud' (SS.SMu.OMu.PjefThyAfil) dominating the cable corridor as it moves offshore and is orientated north until the bifurcation in the route.Where the cable corridor diverges into two sections the seabed habitats become dominated by sandy substrate and the biotope of '*Abra prismatica*, *Bathyporeia elegans* and polychaetes in circalittoral fine sand' (SS.SSa.CFiSa.ApriBatPo) is common, particularly along the western route. This is interspersed with areas of Offshore circalittoral coarse sediment (SS.SCS.OCS) and Offshore circalittoral mixed sediment (SS.SMx.OMx) and to a lesser extent offshore mud habitats of with the polychaete, bivalve and brittle star community of SS.SMu.OMu.PjefThyAfil.

Table 5.6: Final biotopes incorporated into the habitat mapping

Final Biotopes Assigned		
SS.SMx.OMx	SS.SMu.CSaMu	SS.SSa.IMuSa.FfabMag
SS.SMx.CMx	SS.SMu.CSaMu.ThyEten	SS.SCS.OCS
SS.SMx.CMx.KurThyMx	SS.SMu.OMu	CR.MCR
SS.SSa.CFiSa.ApriBatPo	SS.SMu.OMu.PjefThyAfil	
SS.SSa.OSa.OfusAfil	SS.SSa.IMuSa	

1°30'W

1°15'W

1°00'W

56°06'N

56°00'N

55°54'N

Cable Corridor Segment 7

Cable Corridor Segment 5

Project:

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Title:

Figure 5.10: Benthic Characterisation Habitat Map (Page 1 of 4 - Cable Corridor Segments 5 and 7)

Key

- Berwick Bank site boundary
- Cable corridor
- 12 nautical mile (NM) limit

MNCR sample point

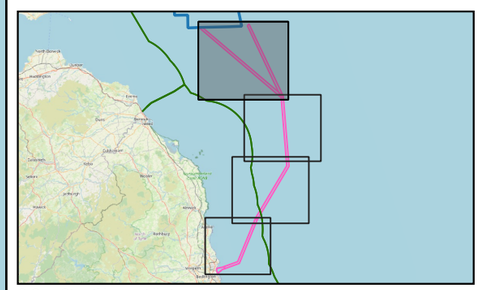
- SS.SCS.OCS
- SS.SMu.OMu, SS.SMu.OMu.PjefThyAfil
- SS.SSa.CFiSa.ApriBatPo
- SS.SMx.CMx, SS.SMx.CMx.KurThyMx, SS.SMx.OMx
- SS.SSa.OSa.OfusAfil

MNCR benthic habitats

- SS.SCS
- SS.SMu
- SS.SMx
- SS.SSa

Annex I Habitat

- Stony reef (Low) (Annex I)



Scale @ A3: 1:135,000

Coordinate System: WGS84 UTM zone 30N
Graticules: WGS84

0 1 2 3 4 km

N

Date: 02-06-23	Prepared by: JO	Checked by: ME
Ref: GB200769_M_108_B		

Drawing by:
The Natural Power Consultants Limited
The Green House
Forrest Estate, Dalry
Castle Douglas, DG7 3XS, UK
Tel: +44 (0)1644 430008
Fax: +44 (0)845 299 1236
Email: sayhello@naturalpower.com
www.naturalpower.com

1°15'W

1°00'W

0°45'W

55°48'N

55°42'N

55°36'N

Cable Corridor Segment 12

Project:

Cambois Connect Benthic Baseline

Title:

Figure 5.10: Benthic Characterisation Habitat Map (Page 2 of 4 - Cable Corridor Segment 12 - North)

Key

- Cable corridor
- 12 nautical mile (NM) limit

MNCR sample point

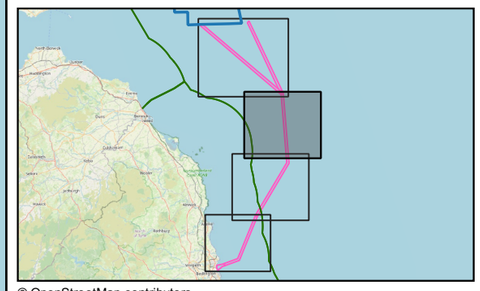
- SS.SMu.OMu, SS.SMu.OMu.PjefThyAfil

MNCR benthic habitats

- SS.SCS
- SS.SMu
- SS.SMx
- SS.SSa

Annex I Habitat

- Stony reef (Low) (Annex I)



Scale @ A3: 1:115,000

Coordinate System: WGS84 UTM zone 30N
Graticules: WGS84

0 1 2 3 4 km

N

Date: 02-06-23	Prepared by: JO	Checked by: ME
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1°15'W

1°00'W

55°36'N

55°30'N

55°24'N

Cable Corridor Segement 12

Project:

Cambois Connect Benthic Baseline

Title:

Figure 5.10: Benthic Characterisation Habitat Map (Page 3 of 4 - Cable Corridor Segment 12 - South)

Key

- Cable corridor
- 12 nautical mile (NM) limit

MNCR sample point

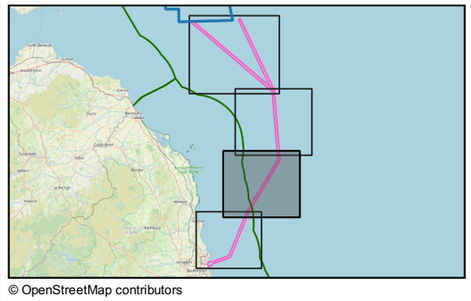
- SS.SMu.CSaMu, S.SMu.CSaMu.ThyEten, SS.SMu.OMu.PjefThyAfil
- SS.SMu.OMu, SS.SMu.OMu.PjefThyAfil

MNCR benthic habitats

- SS.SCS
- SS.SMu
- SS.SMx
- SS.SSa

Annex I Habitat

- Stony reef (Low) (Annex I)



Scale @ A3: 1:115,000

Coordinate System: WGS84 UTM zone 30N
Graticules: WGS84

0 1 2 3 4 km

N

Date: 02-06-23	Prepared by: JO	Checked by: ME
Ref: GB200769_M_108_B		

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1°30'W

1°15'W

55°18'N

55°12'N

Cable Corridor Segment 15

Cable Corridor Segment 16

Project:

Cambois Connect Benthic Baseline

Title:

Figure 5.10: Benthic Characterisation Habitat Map (Page 4 of 4 - Cable Corridor Segments 15 and 16)

Key

- Cable corridor
- 12 nautical mile (NM) limit

MNCR sample point

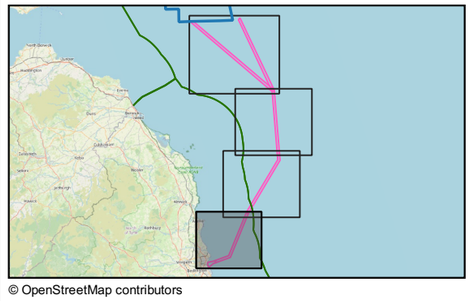
- CR.MCR
- SS.SMu.CSaMu, S.SMu.CSaMu.ThyEten, SS.SMu.OMu.PjefThyAfil
- SS.SMu.OMu, SS.SMu.OMu.PjefThyAfil
- SS.SSa.IMuSa, SS.SSa.IMuSa.FfabMag
- SS.SMx.CMx, SS.SMx.CMx.KurThyMx, SS.SMx.OMx

MNCR benthic habitats

- CR.MCR
- SS.SCS
- SS.SMu
- SS.SMx
- SS.SSa

Annex I Habitat

- Bedrock Reef (Annex I)
- Stony Reef (Annex I)
- Stony reef (Low) (Annex I)



Scale @ A3: 1:100,000

Coordinate System: WGS84 UTM zone 30N
Graticules: WGS84

0 1 2 3 4 km

N

Date: 02-06-23	Prepared by: JO	Checked by: ME
Ref: GB200769_M_108_B		

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5.8. Species and Habitats of Conservation Importance

A number of designated sites exist in the vicinity of the work. In Scottish waters, the ECC passes through the Firth of Forth Banks Complex Nature Conservation Marine Protected Area (MPA). The ECC runs alongside the Farnes East MCZ (to the west) and the nearshore section passes through Coquet to St Mary's MCZ on route to landfall.

During Phase 1 and Phase 2 surveying, a number of habitats and species of importance were identified. *Sabellaria spinulosa* was found as individual specimens at one location (88) but not in the reef aggregation form. Annex I stony reef was identified in one segment of the video capture for sampling station 1 but the other segment contained 'Sublittoral sands and muddy sands' (SS.SSa) and the overall biotope for the station was SS.SSa.IMuSa.FfabMag. Moderate energy circalittoral rock (CR.MCR) was identified at stations 1, 4, 11, 12, 14, 34 and 8. The imagery was assessed for the presence of Annex I Reefs, using the current guidance (Irving 2009, Godling *et al,* 2020). When determining whether an area of the seabed should be considered as Annex I stony reef, four characteristics (composition, elevation, extent, or biota) were scored to meet the criteria required to be considered as contributing to the Marine Natura site network of qualifying reefs in terms of the EU Habitats Directive. Following this assessment, stations 4 and 12 were classified as bedrock reef, stations 1, 11 and 14 as rocky reef. Stations 34 and 88 composed of pebbles and cobbles with relatively low percentage cover and were therefore assessed as 'low' stony reef (Figure 5.10). Species assemblages were typical of Annex I reef, with a faunal turf covering and included characterising species such as anemones, Bryozoans, crabs, squat lobsters, *Alcyonium digitatum,* starfish, brittle stars and hermit crabs.

Final habitat mapping characterised a number of UK BAP habitats including 'Subtidal sands and Gravels' (SS.SSa.CFiSa.ApriBatPo, SS.SSa.OSa.OfusAfil) which were recorded at 14 stations (64, 77, 79, 80, 81, 82, 83, 84, 86, 87, 90, 96, 100, 108 and 110). A number of sampling stations were recorded from visual imagery analysis as 'Seapen and burrowing megafauna communities' which are also considered to be 'mud habitats in deep water', and the OSPAR habitat and PMF Seapen and burrowing megafauna communities'. However, although burrows were present at some of the stations, only one seapen species, *Pennatula phosphorea,* was identified through the DDV imagery analysis, and when assessed alongside the sediment data (or geophysical data if no grab undertaken) and infaunal data, no locations were classified as Seapen and burrowing megafauna communities' due to sediment being coarser than visualised.

The bivalve species *Arctica islandica,* was recorded in the infaunal samples collected at six stations . This species is a FOCI in England and a PMF in Scotland. It is a long-lived, slow-growing bivalve that takes between c. 5 and c. 15 years to reach maturity depending on location. Furthermore, fourteen stations within Scottish waters were characterised by a PMF biotope: SS.SSa.CFiSa.ApriBatPo and SS.SSa.OSa.OfusAfil (offshore subtidal sands and muds).

6. Conclusion

The subtidal benthic ecology depicts a relatively heterogenous environment with 13 biotopes classified across the ECC. The sediments consist mainly of muddy Sand and sandy Mud with varying degrees of gravel, some areas of mixed and coarse sediments, and small areas of circalittoral rock closer to shore. The community structure is typical of most North Sea communities, comprising of a range of characterising species including polychaetes, bivalves, amphipods, hydroids and bryozoans. The nearshore area is dominated by molluscs and annelids, whilst further offshore more echinoderms are present within samples.

A number of biotopes were identified, typical of biotopes commonly found in the North Sea, and complimentary to those already recorded off the Northumberland coastline (e.g. Blyth Offshore Wind Farm Annual Monitoring Reports[4]). Inshore muddier habitats, with the biotope of *'Paramphinome jeffreysii*, *Thyasira* spp. and *Amphiura filiformis* in offshore circalittoral sandy mud' (SS.SMu.OMu.PjefThyAfil), dominate the cable corridor. This graduates to muddy sand habitats along the cable corridor with areas of mixed sediment habitats and coarse sediment habitats in between. There is a clear biotope shift from SS.SMx.CMx to SS.SSa.CFiSa.ApriBatPo as the sediment changes from mixed sediment to finer sand, closer to the array arrea. These biotopes are interspersed with other biotopes common in highly dynamic areas and are common of the mosaic pattern typically observed offshore. A number of stations were identified as higher level biotopes (CR.MCR, SS.SMx.OMx, SS.SMx.CMx, SS.SMu.CSaMu, SS.SMu.OMu, SS.SSa.IMuSa, and SS.SCS.OCS).

The most abundant biotope in the ECC area was SS.SMu.OMu.PjefThyAfil (*Paramphinome jeffreysii*, *Thyasira* spp. and *Amphiura filiformis* in offshore circalittoral sandy mud). In areas of the North Sea, such as the Swallow Sand MCZ, this biotope has been observed in sediments with a coarse material component. This biotope along with SS.SMu.CSaMu.ThyEten, SS.SMuCSaMu.AfilKurAnit, SS.SMu.CSaMu.AfilEten and SS.SSa.OSa.OfusAfil, may comprise the *Amphiura* dominated components of the 'off-shore muddy sand association' (Jones 1951; Mackie 1990) and the infralittoral etage described by Glemarec (1973) and may exist in a transitional environment with SS.SSa.OSa.OfusAfil.

Annex I features (stony reef) were identified at seven locations . Whilst the reef forming species *Sabellaria spinulosa* was found at a single location along the ECC in low abundance, there was no evidence of biogenic reef. A number of BAP habitats, which are also categorised as PMF in Scottish waters are present. No INNS species were identified during the benthic survey campaign.

Contaminated sediment results showed low levels of chemical contaminants at stations sampled within the ECC. The majority of contaminant levels at sampled stations were below Cefas AL1 and Canadian Interim Sediment Quality Guidelines. THC levels were above Cefas AL1 at two locations. These locations are relatively close to shore in an area which has a high shipping use associated with the nearby Port of Blyth.

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Appendices

A. Sample Locations

Table 1: Phase 1 and 2 Subtidal Sampling Locations

Station	Depth	Latitude	Longitude	Sample type	Contaminated Sediment (Y/N)
1	8	55.1620	-1.5000	Grab & DDV	Y
2	44	55.17182	-1.43996	DDV	Y
3	18	55.1620	-1.4750	Grab & DDV	Y
4	16	55.1654	-1.4665	DDV	N
5	28	55.1621	-1.4686	DDV	N
6	48	55.17121	-1.40846	DDV	Y
7	47	55.1780	-1.3890	Grab & DDV	N
8	18	55.16107	-1.48766	DDV	Y
9	12	55.1550	-1.4950	Grab & DDV	Y
10	45	55.1830	-1.3780	Grab & DDV	N
11	35	55.1680	-1.4542	DDV	N
12	25	55.1616	-1.4585	DDV	N
13	50	55.17712	-1.40646	DDV	Y
14	33	55.1674	-1.4608	DDV	N
15	27	55.1650	-1.4500	Grab & DDV	Y
16	37	55.1650	-1.4410	Grab & DDV	N
17	53	55.1820	-1.3660	Grab & DDV	N
18	53	55.1900	-1.3570	Grab & DDV	N
19	51	55.2030	-1.3510	Grab & DDV	Y
20	51	55.2160	-1.3370	Grab & DDV	N
21	51	55.2375	-1.3205	DDV	N
22	55	55.2570	-1.3090	Grab & DDV	Y
23	60	55.2780	-1.2910	Grab & DDV	Y
24	60	55.3030	-1.2710	Grab & DDV	N
25	65	55.3450	-1.2430	Grab & DDV	Y
26	72	55.3670	-1.2210	Grab & DDV	Y
27	64	55.3240	-1.2540	Grab & DDV	N
28	75	55.3830	-1.2030	Grab & DDV	N
29	93	55.4710	-1.1030	Grab & DDV	N
30	96	55.5390	-1.0290	Grab & DDV	Y
31	100	55.5570	-1.0080	Grab & DDV	N
32	90	55.5760	-0.9870	Grab & DDV	N
33	82	55.6100	-0.9910	Grab & DDV	N

Station	Depth	Latitude	Longitude	Sample type	Contaminated Sediment (Y/N)
34	88	55.6410	-0.9990	Grab & DDV	N
35	89	55.66743	-0.99755	DDV	N
36	95	55.5110	-1.0620	Grab & DDV	N
37	85	55.7000	-1.0020	Grab & DDV	N
38	85	55.4400	-1.1350	Grab & DDV	N
39	90	55.7280	-1.0000	Grab & DDV	N
40	86	55.75025	-1.00847	DDV	N
41	77	55.7780	-1.0120	Grab & DDV	N
42	82	55.8050	-1.0070	Grab & DDV	N
43	84	55.8290	-1.0110	Grab & DDV	N
44	87	55.8490	-1.0180	Grab & DDV	N
45	80	55.4120	-1.1730	Grab & DDV	N
64	65	55.9460	-1.0820	Grab & DDV	N
77	67	56.1340	-1.5700	Grab & DDV	N
79	70	56.0920	-1.4820	Grab & DDV	N
80	62	56.0710	-1.4390	Grab & DDV	N
81	59	55.9830	-1.1170	Grab & DDV	N
82	66	56.0450	-1.3970	Grab & DDV	N
83	60	56.0220	-1.3460	Grab & DDV	N
84	58	55.9990	-1.3030	Grab & DDV	N
85	64	55.9860	-1.2670	Grab & DDV	N
86	70	55.9710	-1.2350	Grab & DDV	N
87	74	55.9490	-1.2030	Grab & DDV	N
88	64	55.9380	-1.1660	Grab & DDV	N
89	64	55.9130	-1.1240	Grab & DDV	N
90	65	55.9250	-1.0710	Grab & DDV	N
91	72	55.8940	-1.0870	Grab & DDV	N
92	73	55.8770	-1.0490	Grab & DDV	N
93	80	55.8650	-1.0240	Grab & DDV	N
96	58	56.0040	-1.1300	Grab & DDV	N
100	62	55.9630	-1.1000	Grab & DDV	N
102	55	56.0310	-1.1530	Grab & DDV	N
104	54	56.0610	-1.1730	Grab & DDV	N
106	60	56.0970	-1.2030	Grab & DDV	N
108	60	56.1380	-1.2390	Grab & DDV	N
109	70	55.8880	-1.0410	Grab & DDV	N
110	72	55.9060	-1.0530	Grab & DDV	N

B. Species List

Taxon	Aphia ID	1	3	7	9	10	15	16	17	18	19	20	22	23	24	25	26	27	28	29	30	31	32	33	34	36	37	38	39	41	42	43	44	45	64	77	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	96	100	102	104	106	108	109	110
Astrorhiza limicola	113843	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
Folliculinidae	1692	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
Foraminifera	1410	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
Porifera	558	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
Leuckartiara octona	117791	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	1	0	0	0	1	1	0
Bougainvilliidae	1594	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Merona cornucopiae	117434	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
Eucheilota maculata	117535	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lovenella clausa	117736	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
Filellum serpens	117690	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hydrallmania falcata	117890	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
Halopteris catharina	117631	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Schizotricha frutescens	117636	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
Clytia hemisphaerica	117368	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Obelia dichotoma	117386	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Alcyonium digitatum	125333	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
Virgularia mirabilis	128539	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pennatula phosphorea	128517	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cerianthus lloydii	283798	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	3	0	2	1	0	3	0	1	2	1	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	3	0	1	1	0	0	1	0	0	0	1	1
Edwardsiidae	100665	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
Edwardsia	100730	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	2	1	1	0	0	0	1	1	0	0	1	0	0	0	1	1	0	1	0	7	5	0	0	1	5
Platyhelminthes	793	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	0	0	0	0	1	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nemertea	152391	0	0	0	0	0	0	0	1	0	0	0	0	0	1	1	0	2	0	0	0	0	0	1	1	0	2	0	0	0	0	0	0	1	0	0	1	0	0	0	0	2	1	1	0	0	0	0	0	1	0	0	0	1	2	0	0	1	0
Tubulanus polymorphus	122637	0	0	0	0	0	0	0	0	0	1	0	1	1	1	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	1	0
Cerebratulus	122348	0	0	0	0	0	1	0	1	0	2	1	2	0	2	2	0	0	1	1	0	1	1	0	0	0	1	0	1	0	1	0	0	1	1	0	0	0	0	0	2	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	2	0	0
Nematoda	799	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	1	0	0	0	0	0	0	4	0	1	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
Loxosomella murmanica	111834	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
Golfingia (Golfingia) elongata	175026	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Thysanocardia procera	136063	0	0	0	0	0	0	0	2	0	0	0	0	0	0	1	1	0	2	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Phascolion (Phascolion) strombus stron	416714	0	0	1	0	0	0	0	1	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0
Aphroditidae	938	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Aphrodita aculeata	129840	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Enipo elisabethae	130737	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
Enipo kinbergi	130738	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
Malmgrenia andreapolis	147008	0	0	0	0	1	0	0	1	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Harmothoe antilopes	130754	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Harmothoe glabra	571832	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Harmothoe impar	130770	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
Pholoe pallida	130604	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	1	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Pholoe baltica	130599	0	0	1	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	3	0	0	0	0	0	3	0	1	0	0	0	1	0	0	4	1	1	0	0	1	0	0
Sigalion mathildae	131072	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sthenelais limicola	131077	0	2	0	0	1	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	2	3	1	1	0	0	0	0	1	0	2	0	3	0	0	1	1	0	1	2	1	2	0	1	0	1	3	0
Eteone longa	130616	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hypereteone foliosa	152250	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Phyllodoce groenlandica	334506	2	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	3	0	0	1	0	0	3	0	1	0	0	0	2	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	1
Phyllodoce rosea	334514	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	4	0	1	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	2
Chaetoparia nilssoni	130610	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Eumida bahusiensis	130641	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	2	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Eumida sanguinea	130644	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Glycera alba	130116	0	0	2	0	1	0	0	0	0	0	0	3	1	0	0	1	1	0	1	1	0	0	0	4	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0	0	0	0	1	0	0	1	0	0	0	0
Glycera celtica	130119	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
Glycera lapidum	130123	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0
Glycera unicornis	130131	0	0	2	0	0	0	1	1	0	1	1	0	0	2	0	1	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Glycinde nordmanni	130136	0	0	1	0	0	0	0	0	0	0	1	0	0	1	0	2	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	2	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Goniada maculata	130140	0	0	0	0	1	0	0	1	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	1	1	0	1	1	0	0	1	0	0	0	0	1	0	0	1	0	2	0	1	0	1	1	0	1	1	1	0	0	0	0	2
Sphaerodorum gracilis	131100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0
Oxydromus flexuosus	710680	0	0	1	0	1	0	0	0	0	1	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Podarkeopsis capensis	130195	0	1	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Glyphohesione klatti	130696	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Syllis cornuta	157583	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
Eusyllis blomstrandi	131290	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Streptosyllis websteri	131402	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exogone verugera	333456	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
Nereididae	22496	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nephtys	129370	0	0	0	1	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0
Nephtys assimilis	130353	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	1	0	1	2	0	0	0	0	0	0	0	0	0	0	0	1	0	0
Nephtys cirrosa	130357	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
Nephtys hombergii	130359	0	0	1	1	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	2	0	0	0	0	0	1	2	3	0	0	1	0	0	1	1	2	0	1	1	0	0	1	0	0	0	0	0	2	0	1
Nephtys incisa	130362	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nephtys kersivalensis	130363	0	0	0	0	0	1	0	0	4	0	0	0	0	2	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nephtys longosetosa	130364	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	2	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1	0	1	0	0	1	0	0	0	1	2
Nephtys pente	130352	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Paramphinome jeffreysii	129837	0	0	1	0	0	0	0	0	0	0	3	11	4	0	6	0	1	0	0	6	3	3	4	14	5	18	0	3	3	15	5	0	2	1	0	0	1	0	0	0	2	1	8	1	0	9	1	0	0	0	1	6	6	0	0	0	0	0
Nothria	129402	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0
Lumbrineridae	967	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lumbrineris cingulata	130240	0	3	24	0	3	5	3	0	0	4	6	18	6	6	3	0	4	0	0	0	0	0	1	14	0	0	0	1	0	0	1	0	0	0	0	0	2	0	0	0	1	0	0	0	1	4	0	0	0	1	1	0	6	0	0	2	0	0
Abyssoninoe hibernica	146469	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	1	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Drilonereis filum	129856	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Notocirrus scoticus	129861	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ophryotrocha	129266	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Orbiniidae	902	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Orbinia sertulata	130523	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Scoloplos armiger	130537	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2	0	2	2	0	3	1	2	3	0	2	7	0	5	4	3	5	8	0	3	7	7	2	6	2	7	8	18	9	5	2	4	2	2	4	0	2	9	6	5	0	4	2	5
Levinsenia gracilis	130578	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Paradoneis lyra	130585	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	3	0	0	0	1	0	0	0	1	2	0	0	0	0	3	0	5	1	0	0	0	0
Apistobranchus	129198	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Poecilochaetus serpens	130711	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	1	0	0
Aonides paucibranchiata	131107	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	1	0	0	0	0	0
Laonice irinae	1518242	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Prionospio multibranchiata	131160	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Prionospio cirrifera	131153	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Polydora	129619	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dipolydora flava	131118	0	0	0	0	2	0	0	1	1	0	0	0	0	1	1	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Prionospio fallax	131157	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Aurospio banyulensis	146532	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0
Scolelepis korsuni	131174	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0
Spiophanes bombyx	131187	0	3	0	1	10	0	0	1	7	3	0	3	1	1	3	0	0	1	0	1	0	0	0	0	0	3	0	1	1	0	0	0	0	4	18	4	0	1	5	1	1	6	2	7	0	2	2	11	5	3	3	5	3	1	0	1	5	7
Spiophanes kroyeri	131188	0	0	1	0	2	2	1	2	3	1	1	3	1	0	2	1	0	2	0	0	0	1	0	1	0	3	1	1	1	1	3	0	0	0	2	3	5	0	1	0	1	1	1	1	3	1	1	2	6	4	1	0	0	1	0	1	1	2
Magelona	129341	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Magelona alleni	130266	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0
Magelona filiformis	130268	0	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
Magelona johnstoni	130269	7	2	0	5	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Magelona minuta	130270	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chaetopterus variopedatus	129914	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0
Spiochaetopterus	129233	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Aphelochaeta	129240	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chaetozone christiei	152217	2	5	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chaetozone setosa	129955	0	0	0	0	1	0	0	2	0	1	1	1	0	0	2	1	3	3	0	0	0	0	0	0	0	0	2	0	0	0	0	0	7	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
Cirratulus caudatus	129957	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cirratulus cirratus	129959	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tharyx killariensis	152269	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0
Diplocirrus glaucus	130100	0	0	0	0	2	0	0	0	2	8	3	1	2	1	12	3	2	4	0	9	0	0	0	1	2	4	13	6	0	7	3	4	13	2	2	3	0	0	3	2	0	6	4	3	0	0	2	1	5	3	0	1	0	0	0	0	0	6
Heteromastus filiformis	129884	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	3	1	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mediomastus fragilis	129892	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	1	0	0	0	0
Notomastus	129220	0	0	0	0	0	2	0	0	0	0	1	0	1	2	0	0	0	0	0	1	1	3	3	4	2	2	0	1	1	1	1	0	0	0	1	0	2	0	0	0	0	0	0	0	2	2	0	0	0	1	0	0	2	0	0	0	0	0
Peresiella clymenoides	129906	0	0	4	0	3	2	0	2	0	0	1	3	1	0	4	1	1	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	1	1	0	0	0	3	4	1	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0
Maldanidae	923	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Clymenella cincta	130278	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Leiochone	146991	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	1	0	2	1	0	0	0	0
Euclymene oerstedii	130294	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Praxillella affinis	130322	0	0	0	0	0	0	1	1	1	0	0	0	0	1	1	0	0	0	0	3	3	0	1	2	2	0	0	1	1	0	0	0	2	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rhodine gracilior	130330	0	0	0	0	0	0	0	0	0	1	2	4	0	0	1	0	0	0	0	0	0	2	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ophelia borealis	130491	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	1	0	0	0	0
Ophelina acuminata	130500	0	0	0	0	1	5	9	0	0	1	0	3	1	0	0	0	0	0	1	0	0	0	0	0	0	3	0	1	0	0	0	1	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Scalibregma inflatum	130980	0	2	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	1	0	1	0	0	0	1	1
Galathowenia oculata	146950	0	0	1	1	0	1	0	0	0	0	1	6	0	2	7	1	0	0	0	9	2	0	0	1	0	0	1	2	0	0	0	3	0	0	1	0	0	0	0	0	0	0	0	0	1	1	1	0	0	1	0	0	4	2	0	0	1	1
Myriochele danielsseni	130540	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
Owenia	129427	0	0	0	1	0	0	0	0	3	0	1	1	0	0	0	0	0	0	0	1	0	0	0	0	0	1	2	0	2	1	0	0	0	0	1	0	1	3	1	0	0	0	0	0	0	0	1	0	0	0	2	1	0	0	0	0	1	2
Amphictene auricoma	152448	0	0	0	0	0	0	0	0	0	2	0	0	0	1	2	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0
Lagis koreni	152367	0	1	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	4	0	0	0	0	1	0	0	0	0	0	3	0	0	1	0	0	0	0	0	0	0	0	0	0	0
Sabellaria spinulosa	130867	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0
Ampharete falcata	129777	0	0	0	0	1	0	0	0	0	0	3	1	0	0	1	2	0	1	2	2	6	0	0	1	1	3	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0
Ampharete acutifrons	129775	0	0	0	0	0	0	0	2	1	0	0	2	0	0	0	0	0	0	0	0	1	0	2	0	0	1	2	0	0	2	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
Ampharete lindstroemi	129781	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	1	0	1	0	2	4	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Anobothrus gracilis	129789	0	0	0	0	1	0	0	0	0	0	2	2	2	2	3	1	2	0	0	1	2	0	0	0	1	1	2	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	0	1	0	0	0	0	0
Samytha sexcirrata	129819	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Terebellides	129717	0	0	1	0	0	0	0	2	0	1	3	3	0	3	7	6	2	1	0	5	4	0	0	1	2	0	2	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Trichobranchus glacialis	131574	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Trichobranchus roseus	131575	0	0	0	0	1	1	0	0	1	1	0	0	1	4	3	2	1	0	0	0	1	0	2	0	0	6	0	2	0	2	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lanice conchilega	131495	0	0	0	0	1	0	0	0	2	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0
Pista cf. bansei	152254	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0
Lysilla loveni	131500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0
Polycirrus	129710	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
Streblosoma	129712	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Thelepus cincinnatus	131543	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	1	0	0	0	0	0	0	0	0	0	0
Chone fauveli	130889	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sabella pavonina	130967	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hydroides norvegica	131009	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0
Nymphon brevirostre	150520	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
Nymphon grossipes	134688	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Verruca stroemia	106257	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
Herpyllobiidae	128574	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Myodocopida	2104	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Apherusa bispinosa	102160	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Westwoodilla caecula	102932	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
Leucothoe lilljeborgi	102462	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Stenothoe marina	103166	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Urothoe elegans	103228	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0
Harpinia antennaria	102960	0	2	0	0	0	1	1	0	3	0	0	0	2	5	0	1	0	1	0	3	2	0	3	1	1	0	0	5	4	3	0	0	2	0	3	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	0	1	0	0	0	0	0	0	0	1
Paraphoxus oculatus	102986	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Acidostoma neglectum	102495	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
Acidostoma obesum	102497	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hippomedon denticulatus	102570	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tryphosites longipes	102779	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nicippe tumida	102944	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nototropis falcatus	102139	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nototropis vedlomensis	179538	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0
Ampelisca brevicornis	101891	1	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
Ampelisca diadema	101896	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ampelisca tenuicornis	101930	0	0	0	0	4	3	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ampelisca typica	101933	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bathyporeia elegans	103058	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	1	0	0	0	0	2	0	1	1	0	1	0	0
Bathyporeia guilliamsoniana	103060	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bathyporeia tenuipes	103076	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cheirocratus	101669	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Megamphopus cornutus	102377	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
Gammaropsis maculata	102364	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Photis longicaudata	102383	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Protomedeia fasciata	102443	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	2	1	1	0	0	0	0	2	0	2	0	0	2	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Medicorophium affine	423507	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Centraloecetes kroyeranus	1059646	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pariambus typicus	101857	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Phtisica marina	101864	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
Astacilla	118445	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
Tanaopsis graciloides	136458	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
Tanaissus lilljeborgi	136486	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Iphinoe trispinosa	110462	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Eudorella truncatula	110535	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Leucon (Leucon) nasica	110618	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Petalosarsia declivis	110593	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pseudocuma (Pseudocuma) simile	110628	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Diastylis	110398	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Diastylis bradyi	110472	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Diastylis laevis	110481	0	1	0	0	4	2	0	0	2	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Diastylis lucifera	110483	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Diastyloides biplicata	110494	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Decapoda	1130	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0
Nephrops norvegicus	107254	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Paguridae	106738	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Anapagurus laevis	107218	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pagurus bernhardus	107232	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Galathea intermedia	107150	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Atelecyclus rotundatus	107273	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pilumnus hirtellus	107418	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chaetoderma nitidulum	139106	0	0	0	0	0	1	0	0	0	2	2	0	0	1	0	0	0	0	0	2	0	0	0	0	0	0	0	2	0	0	0	3	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	1	0	0	0	0	0
Leptochiton asellus	140199	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
Gastropoda	101	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Turritellinella tricarinata	1381415	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Euspira fusca	140529	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Euspira nitida	151894	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0
Epitonium trevelyanum	139736	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
Acteon tornatilis	138691	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cylichna cylindracea	139476	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	6	0	0	2	1	2	1	0	0	2	0	2	0	0	0	0	1	0	0	0	0	1	0	0	0	1
Philine	138339	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hermania scabra	867492	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	1	0	0	0	1	0	0	1	0	0	4	2	2	1	4	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	1	0
Armina loveni	138804	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Antalis entalis	150534	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	2	0	1	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nucula nitidosa	140589	2	7	0	13	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ennucula tenuis	140584	0	0	1	0	2	0	0	2	1	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	1	1	0	1	0	1	0	0	0	2	2	0	0	1	0	1	0	1	0	2	2	0	0	1	0	0	0	0	1	1	1	1	1	3	2	3
Nuculana minuta	140577	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Anomiidae	214	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
Lucinoma borealis	140283	0	0	0	0	0	0	0	5	5	0	1	0	1	0	1	3	0	3	0	0	1	0	0	0	0	0	0	5	0	1	8	3	0	3	0	0	2	1	0	0	0	0	0	1	0	0	0	1	0	0	1	0	3	3	1	1	1	1	0	0	0	6
Thyasira biplicata	141655	0	0	0	0	1	0	0	3	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	1	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Thyasira flexuosa	141662	0	0	0	0	0	4	0	1	2	0	0	0	0	3	2	1	0	1	0	5	0	3	0	0	0	3	0	3	0	3	0	7	5	14	4	5	7	10	0	0	1	0	1	0	0	2	10	23	0	1	0	1	10	4	0	0	0	0	0	0	2	3
Hemilepton nitidum	246148	0	0	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0
Tellimya tenella	152397	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Devonia perrieri	140365	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tellimya ferruginosa	146952	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	9	0	0	2	2	0	0	0	0	0	0	0	1	7	1	7	0	0	0	0	0	0	0	0	0	1	0	0	1	1	0	0	0	0	0
Kurtiella bidentata	345281	0	6	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	2	1	0	0	4	2	0	0	0	3	0	3	2	1	1	1	5	0	0	27	0	0	0	2	0	0	0	0	15	0	0
Acanthocardia	137732	0	0	0	0	0	0	0	0	0	0	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Papillicardium minimum	1417307	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Spisula subtruncata	140302	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	4	0	0	1	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	3	0	0	0	0	0	0
Ensis	138333	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
Phaxas pellucidus	140737	0	0	1	2	0	0	0	0	1	0	0	0	1	0	1	1	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
Fabulina fabula	146907	18	1	0	64	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Gari fervensis	140870	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
Abra alba	141433	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Abra nitida	141435	0	0	0	0	2	1	0	7	3	0	3	1	0	2	2	1	1	1	1	7	3	1	3	0	0	0	2	3	0	1	0	3	10	4	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0
Abra prismatica	141436	14	7	0	2	2	0	0	0	1	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	3	5	3	0	2	1	2	1	0	0	0	0	4	0	0	2	0	8	1	0	3	4	1	0	3	2	4
Arctica islandica	138802	0	1	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
Chamelea striatula	141908	9	55	0	28	0	1	0	3	0	5	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	1	0	3	1	1	0	0	2	0	2	0	1	1	0	1	0	0	1	0	0	0	1	6	0	0	0	2	0	3
Timoclea ovata	141929	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0
Dosinia	138636	0	4	0	2	0	0	0	0	3	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	1	0	0	0	0	3	0	3	0	0	0	0	0	0	0	1	0	3	0	2	3	0	0	0	0	0	1
Dosinia lupinus	141912	0	0	1	0	0	0	0	0	1	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
Mysia undata	140728	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	1	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Varicorbula gibba	378492	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hiatella arctica	140103	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
Thracia convexa	141644	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Thracia phaseolina	152378	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Thracia villosiuscula	141651	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0
Cochlodesma praetenue	181373	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2	0	0	1	0	0	1	1	0	0	0
Cuspidaria cuspidata	139442	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Alcyonidium parasiticum	111604	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
Amathia	111022	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Scruparia chelata	111540	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Flustra foliacea	111367	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
Callopora dumerilii	111196	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
Alderina imbellis	111184	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
Crisularia plumosa	834039	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
Scrupocellaria scruposa	111250	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cellaria	110869	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Escharella immersa	111484	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
Phoronis	128545	0	2	0	3	1	0	0	7	5	1	1	3	1	1	2	0	0	0	0	0	0	2	1	0	0	0	0	2	1	0	2	3	2	2	0	1	8	1	0	1	7	1	7	0	2	0	1	0	1	1	0	3	7	1	1	1	1	1	0	0	0	5
Asteroidea	123080	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Astropecten irregularis	123867	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
Amphiuridae	123206	4	32	2	0	14	0	0	7	11	5	3	10	18	15	0	3	2	3	2	0	0	4	0	1	0	0	1	17	6	14	2	9	3	6	1	7	20	2	1	5	14	5	14	9	17	11	13	11	0	0	9	3	5	0	9	17	16	7	0	14	4	2
Acrocnida brachiata	236130	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
Amphiura chiajei	125073	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	1	0	1	0	0	1	3	1	2	1	0	2	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0
Amphiura filiformis	125080	0	9	0	1	8	0	0	1	7	8	8	6	7	7	3	1	10	1	10	0	0	3	0	2	2	0	1	9	3	0	5	6	2	3	0	4	17	23	0	13	19	13	19	38	12	21	28	16	1	4	6	4	1	4	9	12	4	6	0	29	5	7
Amphipholis squamata	125064	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ophiuridae	123200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	2	3	2	3	0	0	0	1	0	0	0	0	0	0	0	1	0	0	2	0	3	0	0
Ophiocten affinis	124850	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	1	0	2	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
Ophiura ophiura	124929	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Echinocyamus pusillus	124273	0	0	0	0	0	0	0	1	1	1	1	0	0	0	0	1	0	1	0	0	0	0	0	0	1	0	0	1	0	1	2	2	0	0	0	1	0	0	0	1	0	1	0	3	0	0	2	0	1	2	0	1	2	3	0	0	2	1	0	0	0	0
Spatangoida	123106	0	1	0	2	10	0	0	1	3	0	0	0	1	0	1	4	0	4	0	0	0	7	0	0	1	3	1	14	0	18	2	9	11	15	0	1	3	1	0	1	1	1	1	0	0	0	0	0	0	0	0	4	13	11	1	0	0	2	0	0	0	0
Echinocardium cordatum	124392	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	2	0	2	0	0	0	0	1	0	0	1	0	0	0	0	1	0	0	0	0	0	0
Echinocardium flavescens	124394	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
Brissopsis lyrifera	124373	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Paraleptopentacta elongata	1474372	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Leptosynapta	123449	0	0	0	0	1	0	0	2	0	2	1	0	1	2	0	0	1	0	1	0	0	0	0	0	0	0	0	0	1	0	0	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Labidoplax buskii	124455	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	1	2	1	1	0	2	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Enteropneusta	1820	0	0	1	0	1	0	0	0	1	1	0	2	1	1	1	1	0	1	0	0	0	4	2	1	2	1	1	0	2	0	0	1	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0

C. PSA and TOC Results

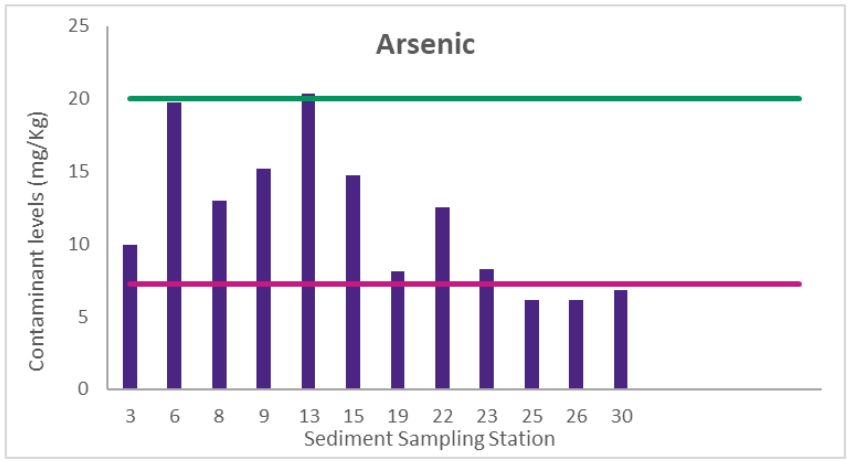
Station	% GRAVEL	% SAND	% MUD	% V COARSE GRAVEL	% COARSE GRAVEL	% MEDIUM GRAVEL	% FINE GRAVEL	% V FINE GRAVEL	% V COARSE SAND	% COARSE SAND	% MEDIUM SAND	% FINE SAND	% V FINE SAND	% V COARSE SILT	% COARSE SILT	% MEDIUM SILT	% FINE SILT	% V FINE SILT	% CLAY	Folk Classification	Folk Abbreviation	TOC (%)
1	0.02%	93.26%	6.72%	0.00%	0.00%	0.00%	0.00%	0.02%	0.07%	0.00%	12.31%	60.43%	20.46%	0.11%	2.20%	1.38%	1.39%	1.17%	0.48%	Sand	S	2.05175095
3	1.43%	92.17%	6.40%	0.00%	0.00%	0.29%	0.20%	0.94%	2.23%	0.14%	18.00%	54.89%	16.91%	0.09%	1.87%	1.30%	1.54%	1.13%	0.46%	(gravelly) Sand	(g)S	1.35607596
7	17.73%	61.66%	20.61%	0.00%	0.00%	5.12%	6.24%	6.37%	5.48%	12.32%	23.43%	14.96%	5.47%	3.14%	3.64%	4.39%	4.54%	2.99%	1.92%	gravelly muddy Sand	gmS	2.02835050414
9	0.13%	91.45%	8.42%	0.00%	0.00%	0.00%	0.02%	0.11%	0.06%	0.00%	3.46%	50.58%	37.35%	1.13%	1.81%	2.00%	1.46%	1.29%	0.73%	Sand	S	1.96705160 1
10	0.49%	74.03%	25.48%	0.00%	0.00%	0.00%	0.12%	0.36%	0.77%	9.91%	30.32%	26.15%	6.88%	3.38%	4.75%	5.93%	6.00%	3.51%	1.91%	muddy Sand	mS	1.92809 7075
15	1.70%	41.92%	56.38%	0.00%	0.00%	0.00%	0.55%	1.16%	1.26%	0.27%	3.00%	13.85%	23.55%	15.17%	10.10%	10.20%	9.70%	6.58%	4.62%	(gravelly) sandy Mud	(g)sM	6.773130816
16	0.89%	40.60%	58.52%	0.00%	0.00%	0.00%	0.71%	0.17%	0.19%	0.00%	1.88%	16.03%	22.50%	14.77%	10.89%	10.62%	10.19%	7.05%	4.99%	sandy Mud	sM	7.859444146
17	0.14%	68.89%	30.98%	0.00%	0.00%	0.00%	0.02%	0.12%	0.53%	3.33%	25.11%	30.91%	8.99%	4.19%	5.66%	6.68%	7.14%	4.56%	2.75%	muddy Sand	mS	2.0674 10741
18	0.14%	78.06%	21.79%	0.00%	0.00%	0.00%	0.01%	0.13%	0.56%	3.63%	28.76%	36.60%	8.52%	2.54%	4.10%	4.58%	5.13%	3.41%	2.03%	muddy Sand	mS	1.6536 33855
19	0.07%	67.80%	32.13%	0.00%	0.00%	0.00%	0.00%	0.07%	0.23%	4.42%	30.28%	27.06%	5.81%	4.38%	5.36%	7.06%	7.64%	4.83%	2.86%	muddy Sand	mS	2.1402 54408
20	9.20%	64.07%	26.72%	0.00%	0.00%	1.30%	3.04%	4.86%	6.77%	7.07%	23.06%	21.29%	5.88%	4.08%	4.90%	5.53%	5.69%	3.87%	2.65%	gravelly muddy Sand	gmS	2.0061 37564
22	2.59%	73.44%	23.97%	0.00%	0.00%	0.00%	0.92%	1.68%	3.78%	10.99%	32.92%	20.21%	5.54%	4.32%	4.02%	4.93%	5.02%	3.35%	2.32%	(gravelly) muddy Sand	(g)mS	1.8723 21936
23	0.25%	82.16%	17.59%	0.00%	0.00%	0.00%	0.07%	0.18%	0.89%	6.46%	39.11%	31.53%	4.17%	2.78%	2.97%	3.69%	4.00%	2.59%	1.55%	muddy Sand	mS	1.3478 157
24	0.45%	83.39%	16.16%	0.00%	0.00%	0.00%	0.05%	0.40%	1.02%	13.60%	34.60%	26.62%	7.55%	2.87%	2.65%	3.48%	3.61%	2.29%	1.26%	muddy Sand	mS	1.4583 84054
25	1.10%	71.26%	27.65%	0.00%	0.51%	0.00%	0.09%	0.50%	0.66%	2.26%	21.89%	31.47%	14.98%	4.66%	4.74%	6.34%	6.18%	3.65%	2.08%	muddy Sand	mS	1.6719 35508
26	0.51%	73.10%	26.38%	0.00%	0.00%	0.33%	0.01%	0.17%	0.38%	1.10%	18.91%	33.97%	18.74%	4.69%	4.34%	5.85%	5.82%	3.60%	2.09%	muddy Sand	mS	1.7134 12144
27	0.99%	73.81%	25.20%	0.00%	0.00%	0.60%	0.20%	0.18%	0.92%	2.28%	26.70%	33.37%	10.54%	3.96%	4.05%	5.25%	5.82%	3.80%	2.31%	muddy Sand	mS	1.7721 57979
28	0.10%	66.88%	33.02%	0.00%	0.00%	0.00%	0.00%	0.10%	0.16%	0.00%	4.73%	31.12%	30.87%	7.72%	4.52%	6.64%	6.60%	4.53%	3.02%	muddy Sand	mS	2.0796 97883
29	0.00%	56.47%	43.52%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.00%	0.00%	19.05%	37.41%	11.63%	5.52%	9.17%	8.36%	5.42%	3.42%	muddy Sand	mS	2.5721 22609

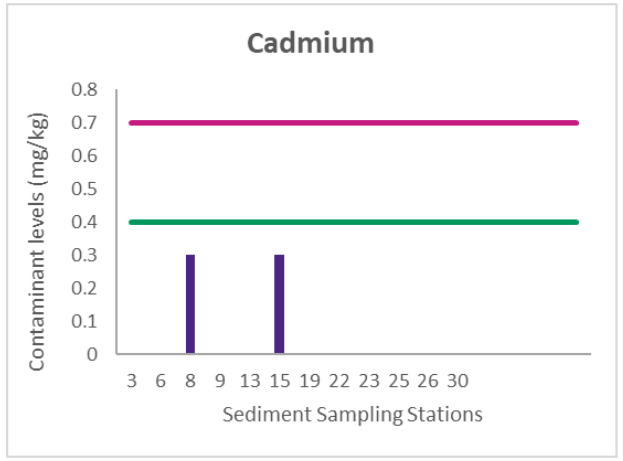
Station	% GRAVEL	% SAND	% MUD	% V COARSE GRAVEL	% COARSE GRAVEL	% MEDIUM GRAVEL	% FINE GRAVEL	% V FINE GRAVEL	% V COARSE SAND	% COARSE SAND	% MEDIUM SAND	% FINE SAND	% V FINE SAND	% V COARSE SILT	% COARSE SILT	% MEDIUM SILT	% FINE SILT	% V FINE SILT	% CLAY	Folk Classification	Folk Abbreviation	TOC (%)
30	0.10%	61.46%	38.44%	0.00%	0.00%	0.00%	0.02%	0.08%	0.07%	0.00%	1.35%	26.09%	33.96%	8.71%	6.04%	9.02%	7.53%	4.45%	2.68%	muddy Sand	mS	2.005748252
31	0.66%	68.67%	30.67%	0.00%	0.00%	0.00%	0.17%	0.48%	0.86%	0.00%	4.76%	30.17%	32.88%	6.42%	4.60%	7.09%	6.13%	4.02%	2.40%	muddy Sand	mS	1.667004832
32	0.95%	69.95%	29.11%	0.00%	0.62%	0.09%	0.10%	0.14%	0.23%	0.00%	7.77%	34.03%	27.91%	4.17%	4.72%	6.81%	6.58%	4.39%	2.43%	muddy Sand	mS	1.601764676
33	32.01%	39.81%	28.18%	0.00%	0.00%	14.77%	9.51%	7.74%	5.56%	0.90%	8.47%	14.41%	10.47%	3.38%	4.54%	6.30%	6.20%	4.22%	3.54%	muddy sandy Gravel	msG	2.178363402
34	51.94%	31.24%	16.82%	0.00%	14.60%	18.34%	12.83%	6.18%	3.41%	2.76%	8.15%	8.66%	8.26%	3.03%	2.62%	3.71%	3.67%	2.35%	1.45%	muddy sandy Gravel	msG	2.243515202
36	0.06%	53.99%	45.96%	0.00%	0.00%	0.00%	0.00%	0.06%	0.15%	0.00%	0.55%	21.42%	31.86%	9.87%	7.83%	11.40%	9.16%	4.88%	2.80%	muddy Sand	mS	2.455894002
37	0.21%	77.91%	21.88%	0.00%	0.00%	0.00%	0.15%	0.06%	0.12%	1.05%	19.83%	37.71%	19.19%	2.03%	4.99%	5.79%	4.74%	2.76%	1.58%	muddy Sand	mS	1.444432361
38	0.22%	67.36%	32.43%	0.00%	0.00%	0.21%	0.00%	0.01%	0.06%	0.00%	1.05%	28.91%	37.33%	7.94%	4.42%	7.42%	6.31%	3.88%	2.45%	muddy Sand	mS	1.913763913
39	0.48%	75.04%	24.48%	0.00%	0.00%	0.00%	0.27%	0.21%	0.06%	0.00%	4.72%	41.81%	28.45%	1.45%	5.74%	6.75%	5.41%	3.28%	1.86%	muddy Sand	mS	1.569551821
41	0.01%	84.91%	15.08%	0.00%	0.00%	0.00%	0.00%	0.01%	0.18%	11.88%	34.69%	28.48%	9.68%	1.84%	3.39%	3.59%	3.09%	2.03%	1.14%	muddy Sand	mS	1.337205765
42	0.07%	76.88%	23.05%	0.00%	0.00%	0.00%	0.02%	0.05%	0.41%	1.21%	18.61%	37.16%	19.49%	1.86%	5.35%	6.06%	5.14%	3.04%	1.62%	muddy Sand	mS	1.349069479
43	0.09%	81.54%	18.38%	0.00%	0.00%	0.00%	0.07%	0.01%	0.06%	0.00%	5.35%	48.51%	27.62%	0.84%	5.16%	4.68%	3.69%	2.54%	1.47%	muddy Sand	mS	1.367991893
44	0.05%	79.14%	20.81%	0.00%	0.00%	0.00%	0.01%	0.04%	0.02%	0.00%	1.30%	46.12%	31.70%	0.38%	5.87%	6.03%	4.51%	2.63%	1.39%	muddy Sand	mS	1.297197925
45	0.06%	63.07%	36.87%	0.00%	0.00%	0.00%	0.03%	0.03%	0.07%	0.00%	2.07%	27.59%	33.34%	8.37%	5.52%	8.33%	7.40%	4.50%	2.75%	muddy Sand	mS	2.136268393
64	0.12%	85.31%	14.57%	0.00%	0.00%	0.10%	0.00%	0.02%	0.04%	0.00%	14.68%	54.27%	16.31%	0.56%	5.23%	4.04%	2.67%	1.45%	0.62%	muddy Sand	mS	1.025650484
77	0.13%	84.94%	14.92%	0.00%	0.00%	0.00%	0.11%	0.02%	0.04%	0.00%	6.19%	58.47%	20.24%	0.48%	5.41%	4.06%	2.73%	1.52%	0.72%	muddy Sand	mS	1.065711898
79	0.02%	84.11%	15.87%	0.00%	0.00%	0.00%	0.00%	0.02%	0.05%	0.00%	1.97%	56.08%	26.01%	0.10%	4.67%	4.62%	3.38%	2.03%	1.07%	muddy Sand	mS	1.149688014
80	0.08%	87.32%	12.61%	0.00%	0.00%	0.00%	0.00%	0.08%	0.19%	18.72%	22.55%	32.46%	13.39%	0.84%	3.90%	3.42%	2.49%	1.35%	0.62%	muddy Sand	mS	0.835476357
81	0.03%	90.28%	9.69%	0.00%	0.00%	0.00%	0.00%	0.03%	0.09%	5.21%	44.76%	36.97%	3.25%	1.17%	3.01%	2.64%	1.89%	0.81%	0.17%	Sand	S	0.720425513
82	0.12%	85.93%	13.94%	0.00%	0.00%	0.00%	0.01%	0.11%	0.38%	0.00%	16.85%	56.29%	12.42%	0.79%	5.25%	3.71%	2.45%	1.26%	0.49%	muddy Sand	mS	0.751309017
83	1.28%	85.71%	13.01%	0.00%	0.00%	0.06%	0.48%	0.75%	1.30%	0.55%	26.95%	47.34%	9.56%	0.82%	4.32%	3.48%	2.56%	1.30%	0.52%	muddy Sand	mS	0.873673214
84	0.49%	88.16%	11.34%	0.00%	0.00%	0.13%	0.21%	0.15%	0.09%	0.10%	18.91%	57.33%	11.74%	0.46%	4.05%	3.05%	2.24%	1.20%	0.34%	muddy Sand	mS	0.813225815
85	30.20%	59.66%	10.14%	0.00%	16.83%	5.46%	2.79%	5.12%	9.66%	0.00%	2.63%	34.02%	13.36%	0.28%	3.54%	2.85%	1.93%	1.04%	0.49%	muddy	msG	1.03248954

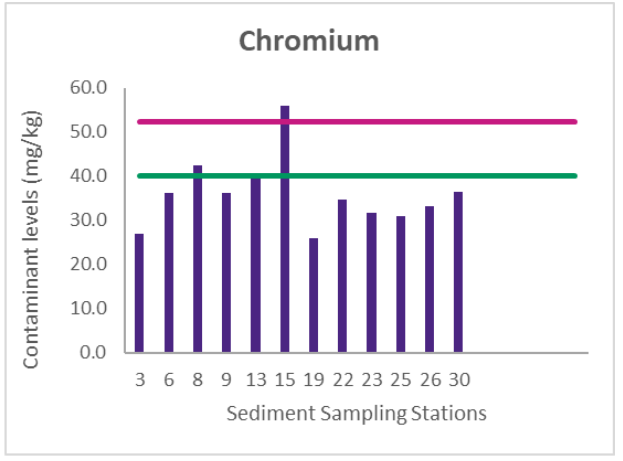
Station	% GRAVEL	% SAND	% MUD	% V COARSE GRAVEL	% COARSE GRAVEL	% MEDIUM GRAVEL	% FINE GRAVEL	% V FINE GRAVEL	% V COARSE SAND	% COARSE SAND	% MEDIUM SAND	% FINE SAND	% V FINE SAND	% V COARSE SILT	% COARSE SILT	% MEDIUM SILT	% FINE SILT	% V FINE SILT	% CLAY	Folk Classification	Folk Abbreviation	TOC (%)
																				sandy Gravel		
86	0.03 %	82.15 %	17.82 %	0.00%	0.00%	0.00%	0.00%	0.03%	0.04%	0.00%	2.01%	55.45 %	24.64 %	0.40%	6.04%	5.15%	3.47%	1.84%	0.91%	muddy Sand	mS	1.052275831
87	0.23 %	81.76 %	18.01 %	0.00%	0.00%	0.21%	0.01%	0.01%	0.05%	0.00%	1.43%	52.63 %	27.65 %	0.20%	5.50%	5.11%	3.79%	2.27%	1.15%	muddy Sand	mS	1.151729214
88	35.13%	52.51 %	12.36 %	0.00%	12.89 %	13.58 %	3.90%	4.75%	4.61%	4.24%	12.54 %	21.35 %	9.77%	1.16%	3.05%	3.14%	2.65%	1.53%	0.84%	muddy sandy Gravel	msG	1.282296803
89	27.64%	64.67 %	7.69%	0.00%	4.03%	12.15 %	7.68%	3.78%	4.38%	11.03 %	22.90 %	20.73 %	5.63%	0.59%	2.19%	1.95%	1.57%	0.94%	0.45%	gravelly muddy Sand	gmS	1.022738939
90	1.60 %	85.73 %	12.66 %	0.00%	0.00%	0.64%	0.57%	0.40%	0.40%	6.15%	36.40 %	35.36 %	7.43%	1.18%	3.89%	3.45%	2.45%	1.22%	0.48%	(gravelly) muddy Sand	(g)mS	0.832697771
91	0.06 %	82.26 %	17.68 %	0.00%	0.00%	0.00%	0.03%	0.03%	0.17%	3.74%	24.16 %	39.21 %	14.97 %	1.21%	5.28%	4.94%	3.56%	1.82%	0.87%	muddy Sand	mS	1.041049916
92	0.07 %	82.35 %	17.58 %	0.00%	0.00%	0.00%	0.05%	0.02%	0.08%	0.00%	11.83 %	52.57 %	17.87 %	0.61%	5.51%	4.86%	3.62%	2.04%	0.96%	muddy Sand	mS	1.044631021
93	0.02 %	80.94 %	19.04 %	0.00%	0.00%	0.00%	0.02%	0.00%	0.06%	0.00%	13.09 %	47.79 %	19.99 %	0.72%	5.75%	5.40%	3.96%	2.13%	1.09%	muddy Sand	mS	1.131935447
96	26.00%	66.93 %	7.07%	21.75 %	1.00%	1.30%	0.98%	0.96%	0.95%	10.69 %	33.75 %	19.17 %	2.36%	1.08%	1.88%	1.83%	1.39%	0.68%	0.20%	gravelly Sand	gS	0.837414582
100	0.15 %	84.08 %	15.77 %	0.00%	0.00%	0.07%	0.05%	0.03%	0.07%	1.20%	27.60 %	44.67 %	10.54 %	1.23%	5.31%	4.27%	2.92%	1.44%	0.60%	muddy Sand	mS	0.897159479
102	32.80%	59.28 %	7.92%	0.00%	8.88%	6.89%	8.83%	8.20%	6.13%	12.72 %	20.26 %	15.47 %	4.70%	0.68%	1.84%	2.02%	1.81%	1.05%	0.52%	muddy sandy Gravel	msG	1.035793596
104	52.29%	43.48 %	4.23%	36.91 %	5.45%	3.92%	3.32%	2.69%	2.09%	6.69%	16.49 %	14.97 %	3.23%	0.32%	1.38%	1.14%	0.84%	0.43%	0.12%	sandy Gravel	sG	0.863899508
106	6.16 %	81.82 %	12.02 %	0.00%	0.00%	1.41%	1.74%	3.01%	2.73%	3.28%	25.80 %	41.25 %	8.75%	0.80%	3.92%	3.12%	2.35%	1.27%	0.56%	gravelly muddy Sand	gmS	0.876627748
108	2.31 %	84.03 %	13.66 %	1.80%	0.08%	0.33%	0.02%	0.07%	0.19%	2.14%	31.77 %	42.50 %	7.43%	1.23%	4.59%	3.66%	2.57%	1.23%	0.39%	(gravelly) muddy Sand	(g)mS	0.798791817
109	5.38 %	80.65 %	13.97 %	1.23%	0.06%	2.57%	0.96%	0.56%	0.70%	6.24%	34.00 %	32.78 %	6.93%	1.44%	3.96%	3.75%	2.86%	1.38%	0.57%	gravelly muddy Sand	gmS	0.965372163
110	0.03 %	82.23 %	17.74 %	0.00%	0.00%	0.00%	0.01%	0.02%	0.05%	0.01%	17.03 %	48.53 %	16.60 %	0.82%	5.52%	4.84%	3.58%	1.97%	1.02%	muddy Sand	mS	0.997003806

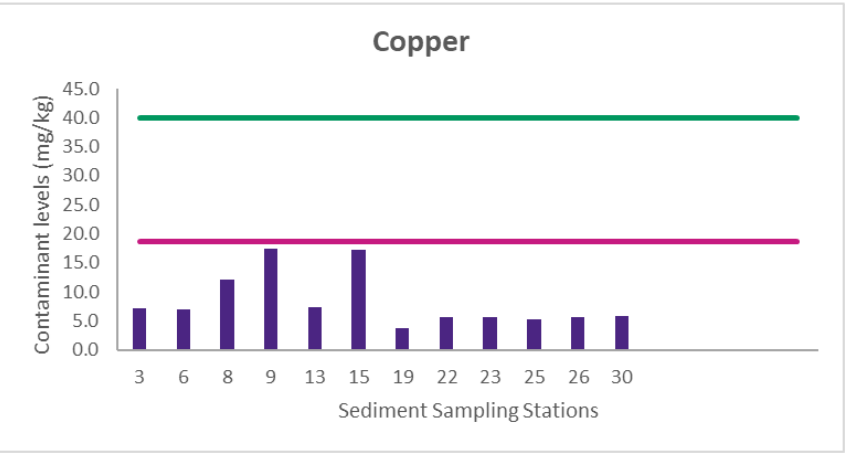
D. Contaminated Sediment Results

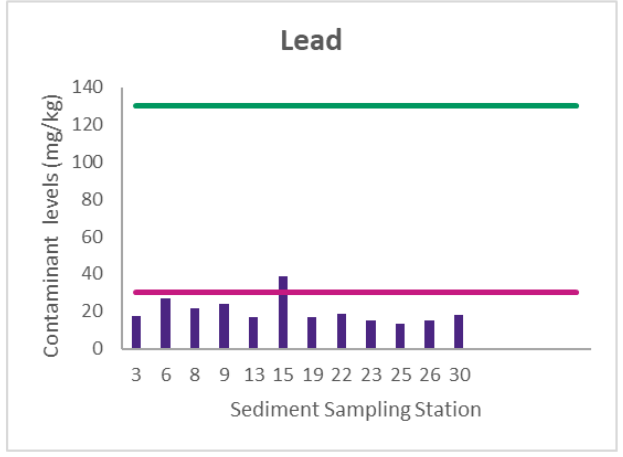
		Sampling Station													CEFAS LEVELS		Canadian Levels	
Metal	**1**	**2**	**3**	**6**	**8**	**9**	**13**	**15**	**19**	**22**	**23**	**25**	**26**	**30**	**AL1**	**AL2**	**ISQG/TEL**	**PEL**
Arsenic	14.3	14.3	9.9	19.7	13.0	15.2	20.3	14.7	8.1	12.5	8.3	6.1	6.1	6.8	20	100	7.24	41.6
Cadmium	<0.2	0.3	<0.2	<0.2	0.3	<0.2	<0.2	0.3	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.4	5	0.7	4.2
Chromium	32.7	61.7	27.0	36.2	42.5	36.3	39.4	55.9	25.9	34.6	31.8	30.9	33.3	36.4	40	400	52.3	160.0
Copper	19.3	18.5	7.2	7.0	12.1	17.5	7.3	17.3	3.8	5.6	5.7	5.2	5.7	5.9	40	400	18.7	108
Lead	21.6	41.4	17.7	27.2	21.6	23.7	16.9	38.8	16.7	18.9	15.3	13.2	15.4	17.9	50	500	30.2	112
Mercury	0.02	0.07	0.02	0.04	0.02	0.03	0.02	0.07	0.02	0.02	0.02	0.02	0.02	0.03	0.3	3	0.13	0.7
Nickel	13.8	25.9	8.1	14.7	12.2	13.7	18.5	22.5	9.0	12.5	11.4	10.9	11.9	12.3	20	200	none	none
Zinc	80.3	70.8	29.6	48.4	40.2	58.3	44.7	64.4	32.3	34.3	30.6	24.7	27.3	28.4	130	800	124	271
Aluminium															none	none	none	none
Lithium															none	none	none	none

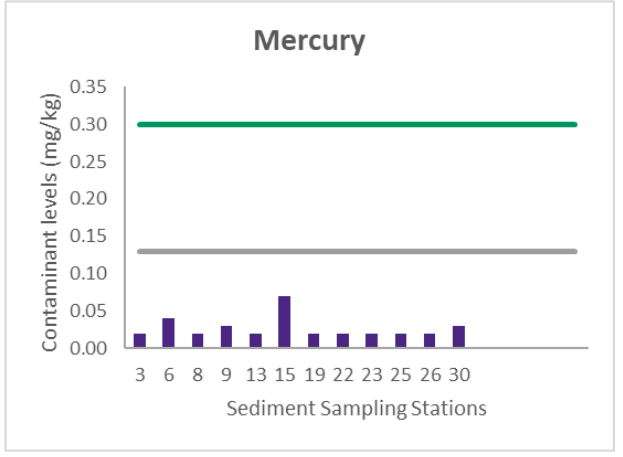

Arsenic
Contaminant levels (mg/Kg)
25
20
15
10
5
0
3 6 8 9 13 15 19 22 23 25 26 30
Sediment Sampling Station

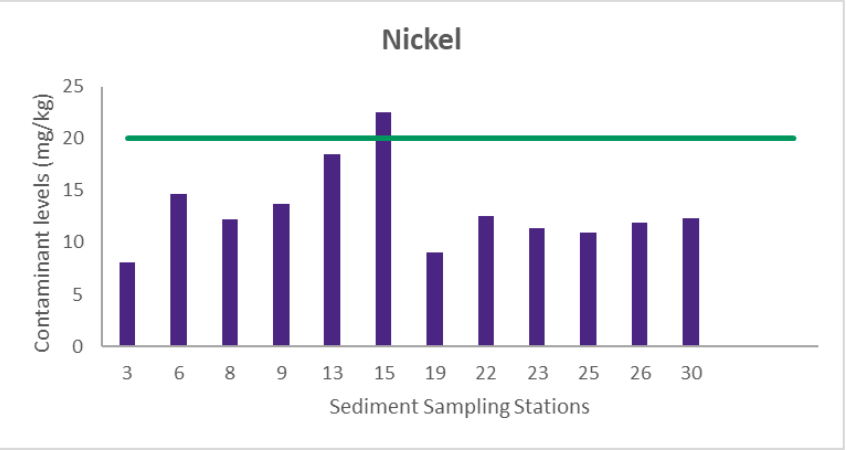

Cadmium
Contaminant levels (mg/kg)
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
3 6 8 9 13 15 19 22 23 25 26 30
Sediment Sampling Stations

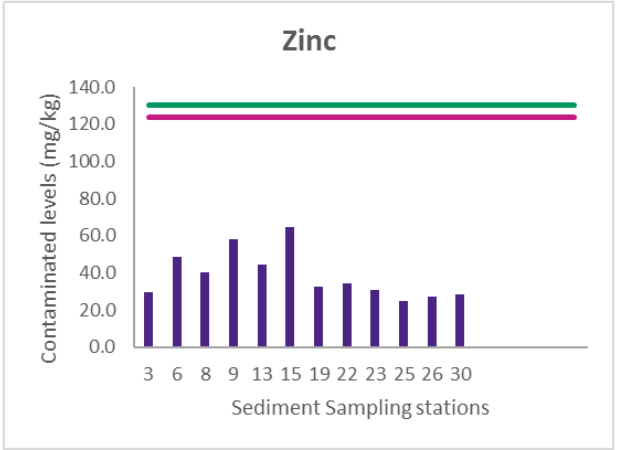

Chromium
Contaminant levels (mg/kg)
60.0
50.0
40.0
30.0
20.0
10.0
0.0
3 6 8 9 13 15 19 22 23 25 26 30
Sediment Sampling Stations


Copper
Contaminant levels (mg/kg)
45.0
40.0
35.0
30.0
25.0
20.0
15.0
10.0
5.0
0.0
3 6 8 9 13 15 19 22 23 25 26 30
Sediment Sampling Stations


Lead
Contaminant levels (mg/kg)
140
120
100
80
60
40
20
0
3 6 8 9 13 15 19 22 23 25 26 30
Sediment Sampling Station


Mercury
Contaminant levels (mg/kg)
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
3 6 8 9 13 15 19 22 23 25 26 30
Sediment Sampling Stations

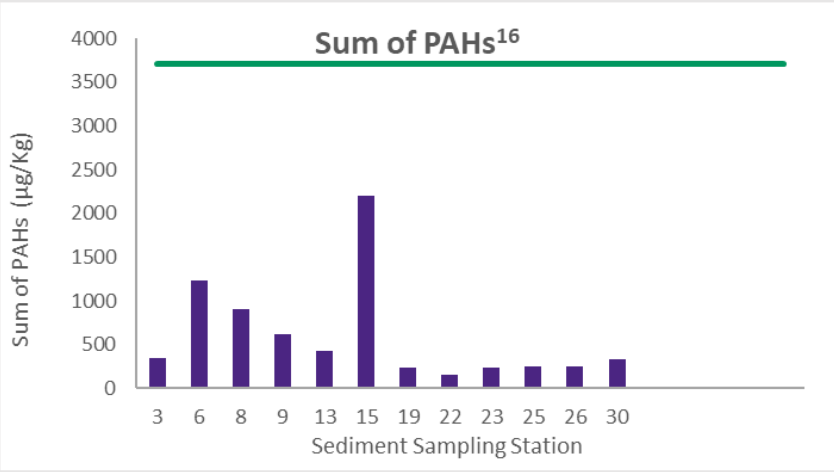

Nickel
Contaminant levels (mg/kg)
25
20
15
10
5
0
3 6 8 9 13 15 19 22 23 25 26 30
Sediment Sampling Stations

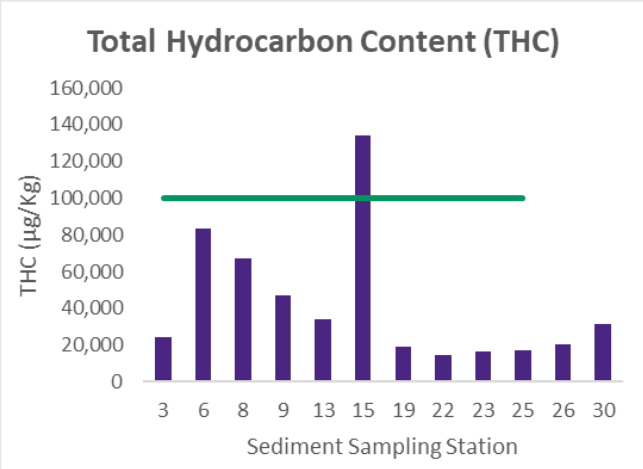

Zinc
Contaminated levels (mg/kg)
140.0
120.0
100.0
80.0
60.0
40.0
20.0
0.0
3 6 8 9 13 15 19 22 23 25 26 30
Sediment Sampling stations

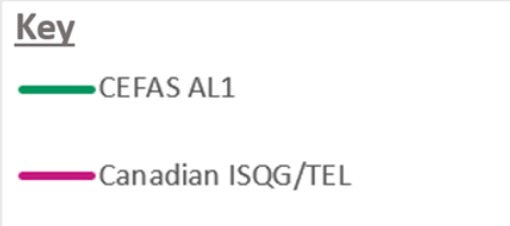

Key
CEFAS AL1
Canadian ISQG/TEL
Canadian ISQG/TEL - Mercury

					Sampling Station	1	2	3	6	8	9	13	15	19	22	23	25	26	30	Reference Material (% Recovery)	QC Blank
Analyte	Accreditation	Method No	Limit of Detection	Units	Date Extracted	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment		
Dibutyltin	UKAS	ASC/SOP/301	1	µg/Kg (Dry Weight)	19/10/2022	<5	<5	<1	<5	<1	<1	<5	<5	<5	<1	<5	<5	<5	<5	109	<1
Tributyltin	UKAS	ASC/SOP/301	1	µg/Kg (Dry Weight)	19/10/2022	<5	<5	<1	<5	<1	<1	<5	<5	<5	<1	<5	<5	<5	<5	88	<1

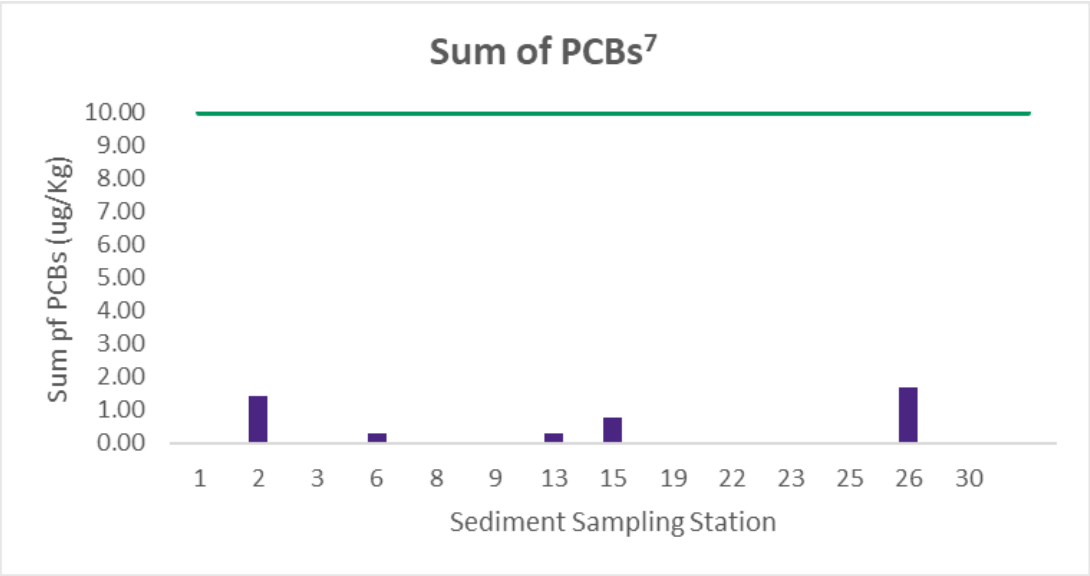
	Sampling Station														Sum of PAH's		Canadian Levels		Sum ISQG/TEL	CEFAS
µg/Kg	1	2	3	6	8	9	13	15	19	22	23	25	26	30	CEFAS AL1	CEFAS AL2	ISQG/TEL	PEL		THC
ACENAPTH	87.0	56.8	12.5	35.3	40.9	25.8	10.1	79.4	3.74	1.77	1.89	1.69	1.97	1.94	3712	12760	6.71	88.9	766	100000
ACENAPHY	17.5	13.3	2.69	9.24	7.39	5.92	3.73	17.7	1.83	1.17	1.52	1.96	1.64	2.55	3712	12760	5.87	128	766	100000
ANTHRACN	81.8	81.9	17.3	47.8	42.0	24.7	14.9	98.9	7.36	3.02	3.56	4.29	4.31	3.72	3712	12760	46.9	245	766	100000
BAA	106	122	19.6	77.2	45.1	31.0	25.3	136	14.0	7.76	12.7	15.8	12.4	13.9	3712	12760	74.8	693	766	100000
BAP	101	111	17.7	75.2	43.9	30.7	27.6	121	15.4	12.0	18.1	18.9	19.1	28.3	3712	12760	88.8	763	766	100000
BBF	73	129	13.6	86.6	29.7	19.5	34.3	123	21.6	13.3	26.3	27.0	28.0	46.1	3712	12760			766	100000
BENZGHIP	134	120	22.1	91.8	58.4	41.2	36.5	146	21.3	17.1	24.7	26.0	27.5	49.6	3712	12760			766	100000
BKF	58.8	84.7	15.2	71.1	27.2	17.7	24.8	97.6	15.8	11.7	20.2	20.2	21.2	17.4	3712	12760			766	100000
CHRYSENE	113	127	28.0	81.4	50.1	34.0	28.0	140	15.5	9.65	17.7	18.2	15.2	17.5	3712	12760	108	846	766	100000
DBENZAH	18.7	22.7	2.78	16.3	6.99	5.15	6.45	24.5	3.56	2.87	4.40	3.89	4.44	6.48	3712	12760	6.22	135	766	100000
FLUORANT	149	229	30.4	123	65.0	43.1	41.1	219	26.3	13.5	25.5	28.2	20.7	24.0	3712	12760	113	1494	766	
FLUORENE	108.0	65.0	14.3	39.8	46.3	32.8	13.0	89.1	5.08	2.55	2.96	2.79	3.29	4.15	3712	12760	21.2	144	766	
INDPYR	45.5	91.7	10.6	71.2	18.7	13.8	30.9	88.9	21.5	16.7	25.3	25.3	27.8	55.8	3712	12760	20.2	201	766	
NAPTH	224.0	122.3	28.3	81.5	82.6	66.9	28.1	159	13.4	8.00	7.77	5.75	12.9	11.3	3712	12760	34.6	391	766	
PHENANT	636	359	80.5	201	267	179	64.7	444	28.1	15.4	22.8	27.7	23.4	26.0	3712	12760	86.7	544	766	
PYRENE	170	213	34.2	128	77.1	50.3	41.5	223	23.7	13.1	21.8	27.4	20.3	20.3	3712	12760	153	1398		
THC	134,000	105,000	24,500	83,500	67,000	47,200	33,900	134,000	19,000	14,700	16,700	16,800	20,300	31,400	100000					
Sum of PAHs	2123		350	1236	908	622	431	2207	238	150	237	255	244	329						







µg/Kg	Sampling Station														
	1	2	3	6	8	9	13	15	19	22	23	25	26	30	
PCB28	<0.08	0.12	<0.08	<0.08	<0.08	<0.08	<0.08	0.12	<0.08	<0.08	<0.08	<0.08	0.12	<0.08	
PCB52	<0.08	0.12	<0.08	<0.08	<0.08	<0.08	<0.08	0.11	<0.08	<0.08	<0.08	<0.08	0.14	<0.08	
PCB101	<0.08	0.18	<0.08	0.08	<0.08	<0.08	<0.08	0.13	<0.08	<0.08	<0.08	<0.08	0.25	<0.08	
PCB118	<0.08	0.29	<0.08	0.10	<0.08	<0.08	<0.08	0.11	<0.08	<0.08	<0.08	<0.08	0.32	<0.08	
PCB138	<0.08	0.32	<0.08	<0.08	<0.08	<0.08	0.10	0.10	<0.08	<0.08	<0.08	<0.08	0.34	<0.08	
PCB153	<0.08	0.27	<0.08	0.14	<0.08	<0.08	0.13	0.12	<0.08	<0.08	<0.08	<0.08	0.29	<0.08	
PCB180	<0.08	0.12	<0.08	<0.08	<0.08	<0.08	0.09	0.09	<0.08	<0.08	<0.08	<0.08	0.23	<0.08	
Sum of PCBs	0.00	1.42	0.00	0.32	0.00	0.00	0.32	0.78	0.00	0.00	0.00	0.00	1.69	0.00	0.00

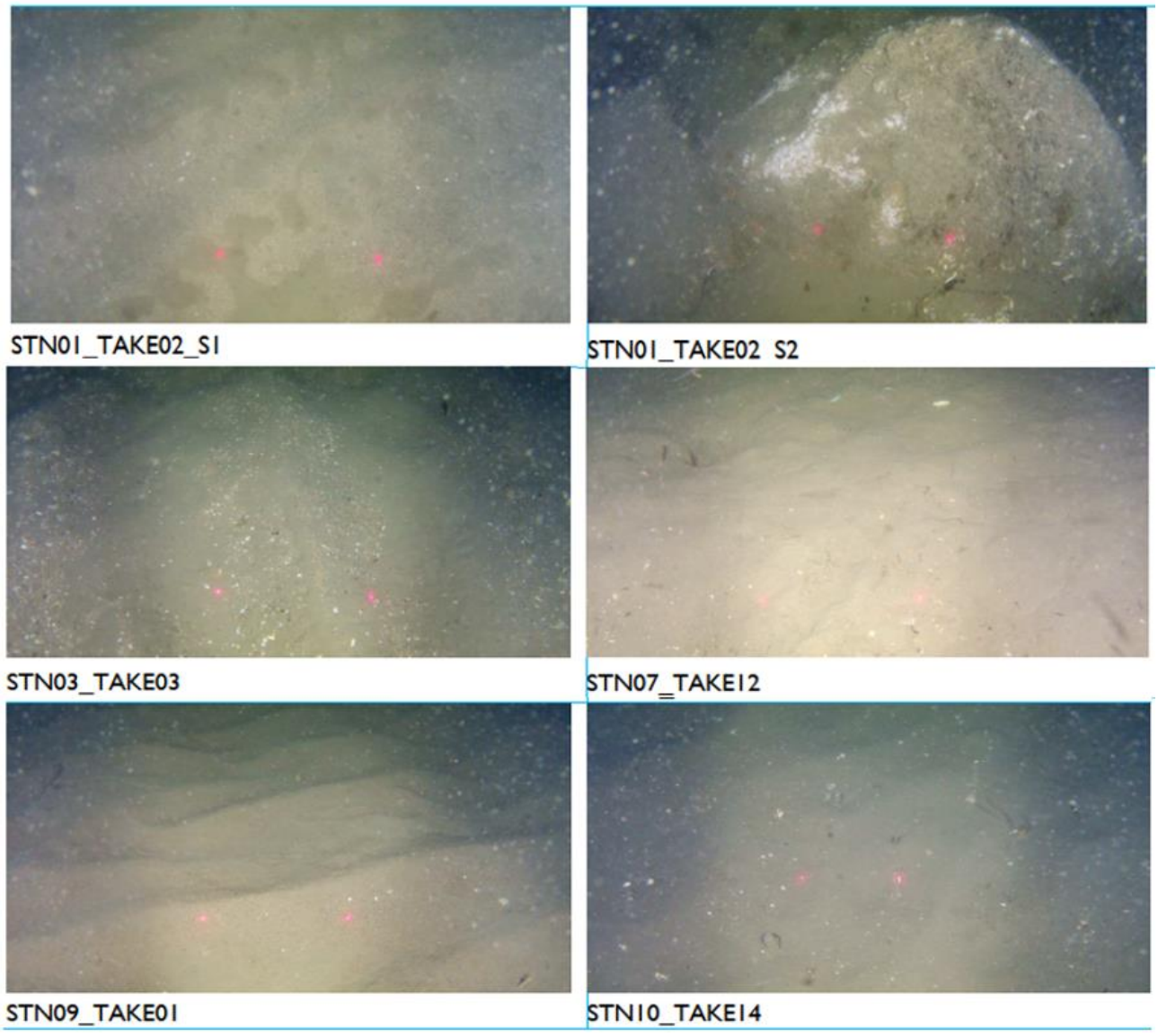

Sum of PCBs7
Sum pf PCBs (ug/Kg)
10.00
9.00
8.00
7.00
6.00
5.00
4.00
3.00
2.00
1.00
0.00
1
2
3
6
8
9
13
15
19
22
23
25
26
30
Sediment Sampling Station


Key
CEFAS AL1
Canadian ISQG/TEL

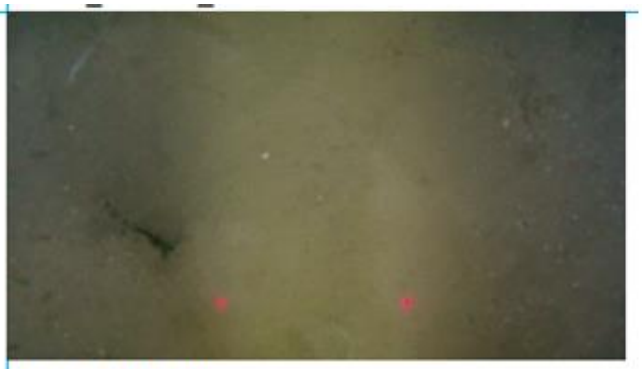
E. DDV Image and Stills Proformas

Example Imagery from the DDV survey along the ECC.

Phase 1 Survey



STN15_TAKE08

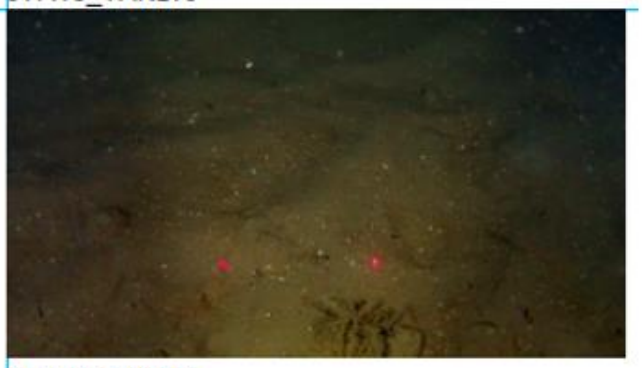


STN16_TAKE10

STN17_TAKE15

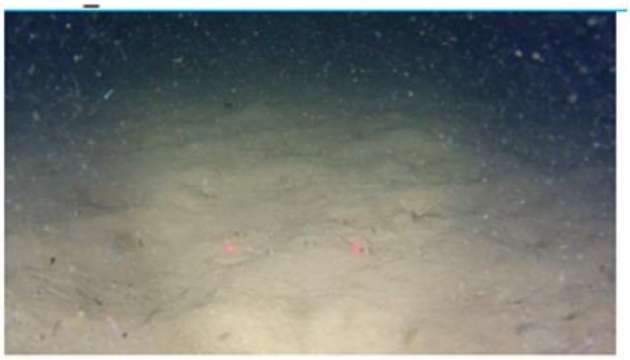
STN18_TAKE16

STN19_TAKE17

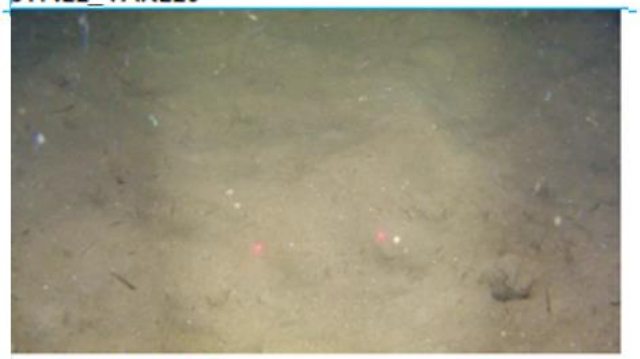


STN20_TAKE18

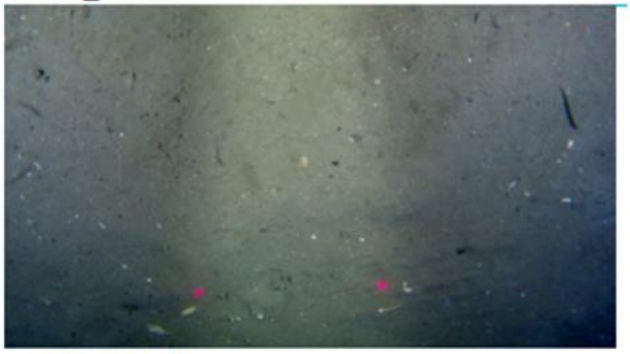
STN22_TAKE20



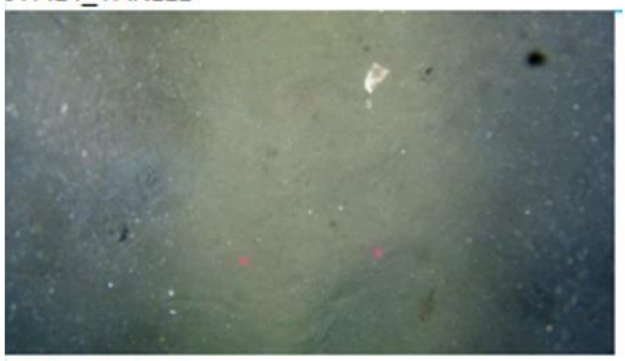
STN23_TAKE21



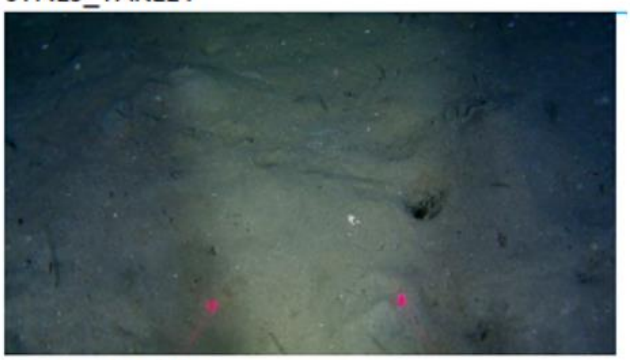
STN24_TAKE22



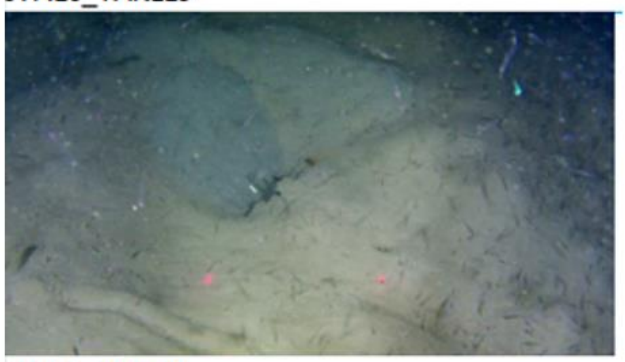
STN25_TAKE24



STN26_TAKE25

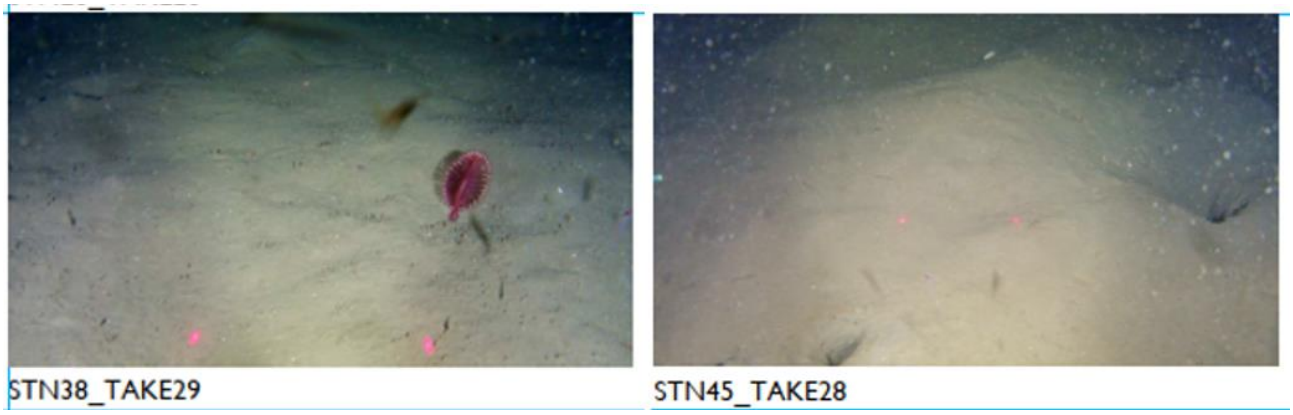


STN27_TAKE23

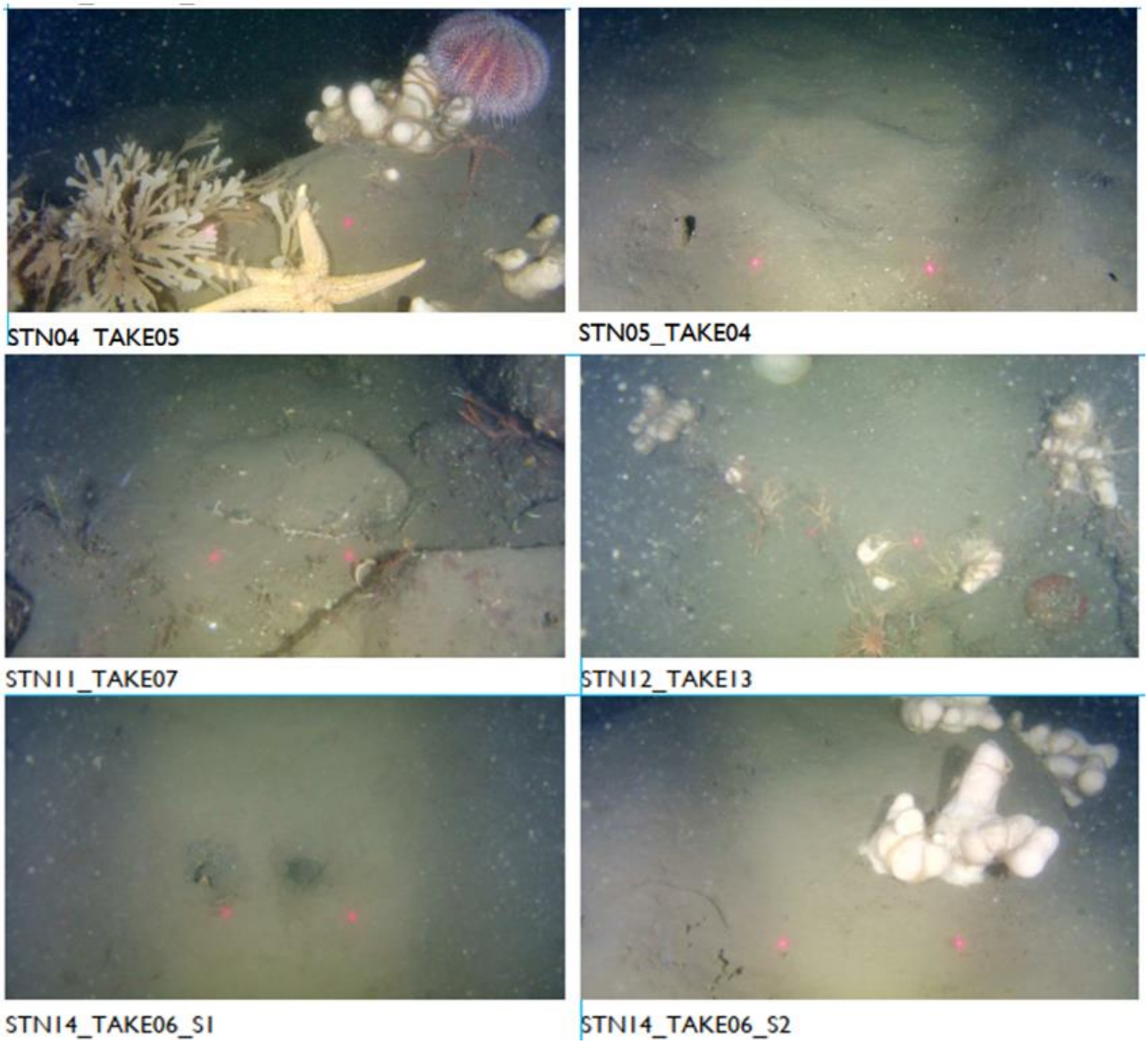


STN28_TAKE26

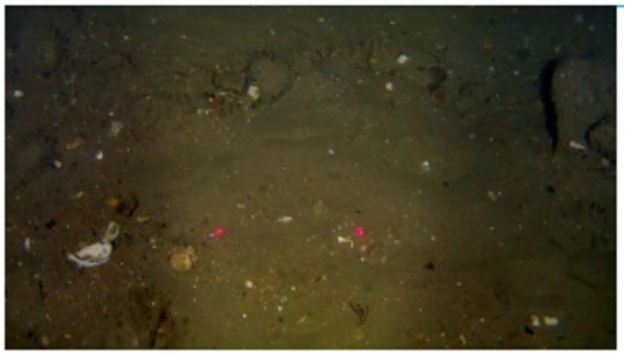
STN29_TAKE30



Example Imagery from the **removed**[4] DDV survey sampling stations along the western ECC option.

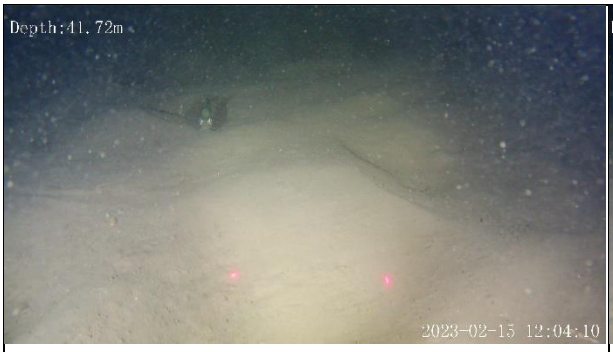


[4] Sampling stations within the western ECC option which was subsequently removed from the survey area

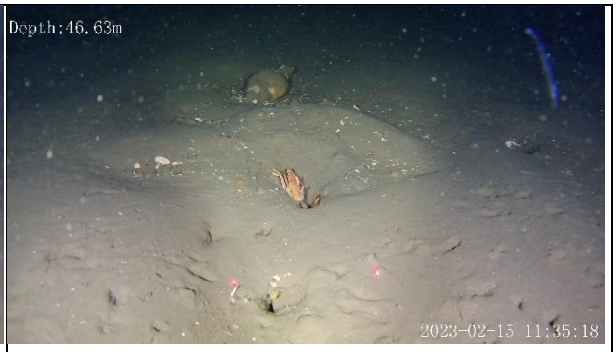


STN21_TAKE19

Phase 2 Survey



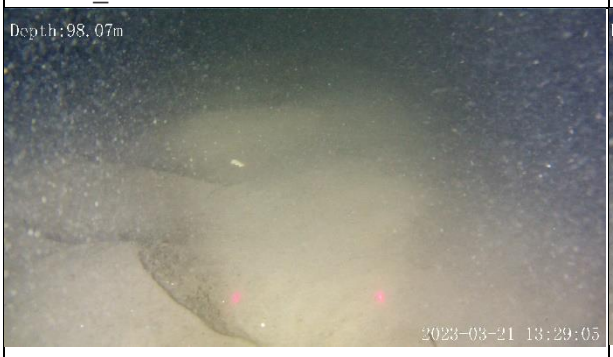
STN002_TAKE005



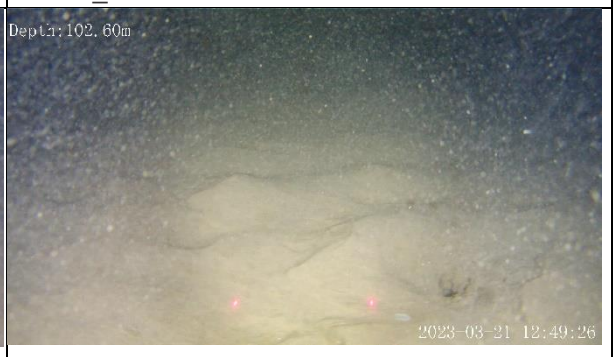
STN006_TAKE003

STN008_TAKE006

STN013_TAKE002



STN030_TAKE013



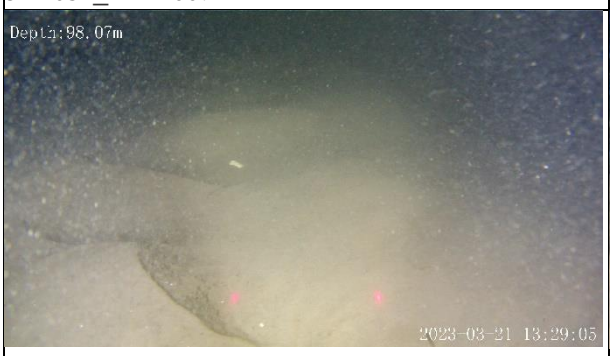
STN031_TAKE012

STN032_TAKE011

STN033_TAKE010

STN034_TAKE009

STN035_TAKE008

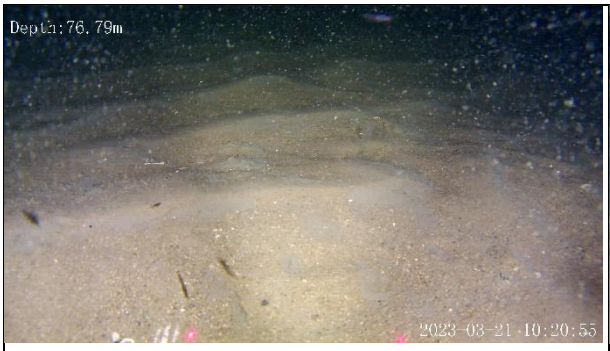


STN036_TAKE014

STN037_TAKE007

STN039_TAKE006

STN040_TAKE005



STN041_TAKE004

STN042_TAKE003

STN043_TAKE002

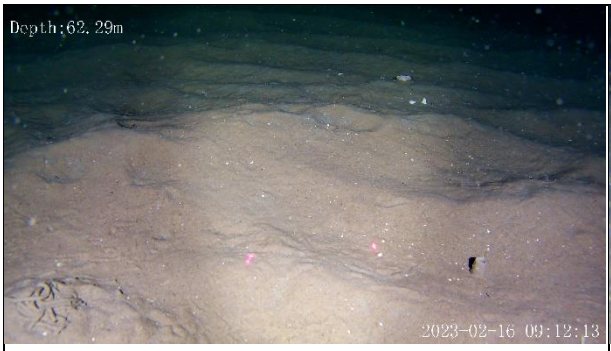
STN044_TAKE001

STN064_TAKE004

STN077_TAKE012

STN079_TAKE013

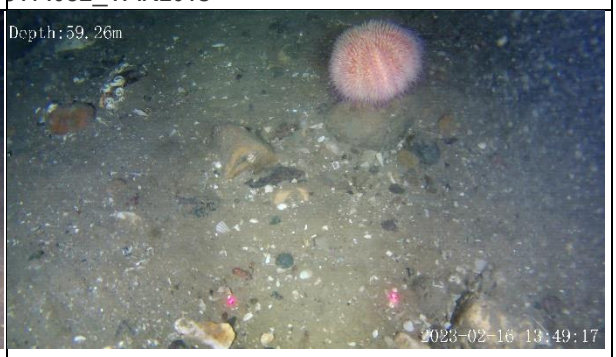
STN080_TAKE014



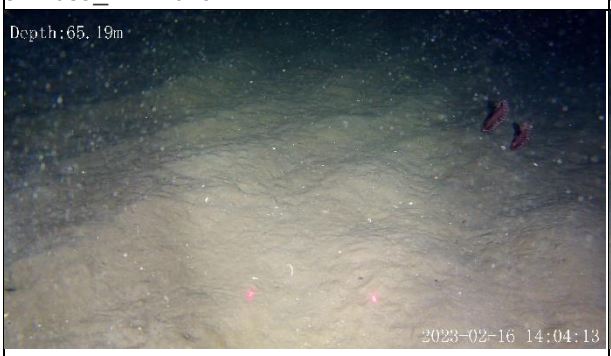
STN081_TAKE006

STN082_TAKE015

STN083_TAKE016



STN084_TAKE017



STN085_TAKE018

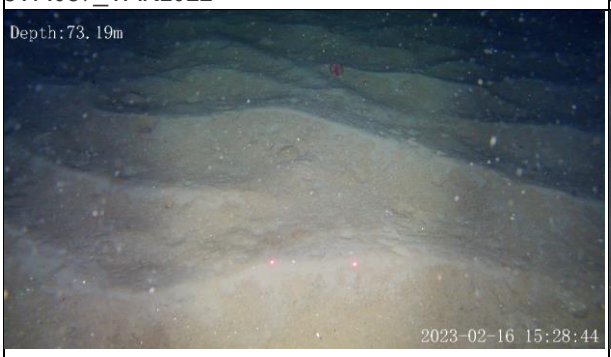
STN086_TAKE019

STN087_TAKE020

STN088_TAKE021

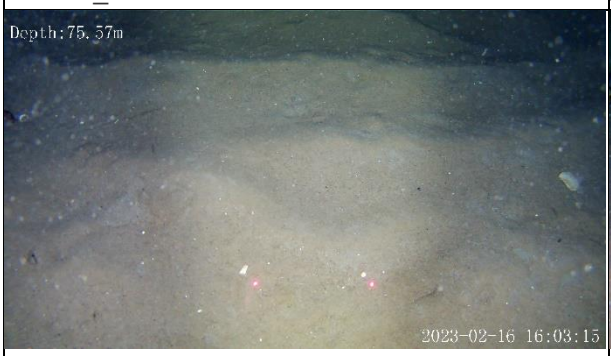
STN089_TAKE022

STN090_TAKE003



STN091_TAKE023

STN092_TAKE024



STN093_TAKE025

STN096_TAKE008

STN100_TAKE005

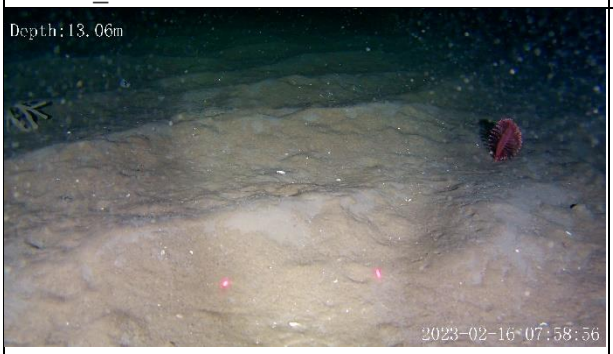
STN102_TAKE007

STN104_TAKE009

STN106_TAKE010

STN108_TAKE011

STN109_TAKE001



STN110_TAKE002

Phase 1 DDV Images and Stills Proforma

	General Metadata	Description	Your Data and Information
Project Metadata	**Project Name**	*The nationally/internationally accepted version of the project name.*	Berwick Bank Underwater Imagery
	Project Code	*Provide a code to uniquely identify the project and allow links to be made between the tables. It is recommended that the website of organisation responsible is used followed by a unique code which should reflect the code used by the funding organisation where possible.*	2022-1014
	Project Start Date	*The date that the project started which is from when the funding was in place to start. Use the 1st of the month if the exact date is not known.*	2022-03-29
	Project End Date	*The date that the project finished or is due to finish. Use the 1st of the month if the exact date is not known.*	
	Project Website	*If a project website exists give the address. This should be the web address of the environmental surveys and not, in the case of impact assessments, the engineering development.*	
	Project Metadata URL	*A URL which links to the metadata for the project. It is recommended that the website of organisation responsible for the work is used followed by a unique code which should reflect the code used by the funding organisation where possible.*	
Survey Metadata	**Survey Name**	*Title of the survey*	Berwick Bank Phase 1 Underwater Imagery Survey
	Survey Run By	*Name the organisation(s) running the survey*	NPC/ENVISION
	Survey Type	*Give the type of survey*	Underwater Imagery
	Survey Abstract	*Brief description of the purpose of the survey and types of measurements that were made for the survey.*	

	Cruise Code	*A unique code for the survey to allow links to be built between this and sample event data. It is recommended that the website of organisation responsible for the work is used followed by a unique code which should reflect the code used by the funding organisation where possible.*	1215S
	Survey Metadata URL	*A URL which links to the metadata for the survey. It is recommended that the website of organisation responsible for the work is used followed by a unique code which should reflect the code used by the funding organisation where possible.*	
	Data Originator	*The organisation who has created the data set. If the organisation is not in European Directory of Marine Organisations (EDMO) please contact enquiries@oceannet.org to add it. If a person who is not associated with any organisation generated the data then please provide the name in the sample event table.*	ENVISION
	Data Owner	*Organisation that owns the data set. If the organisation is not in EDMO please contact enquiries@oceannet.org to add it.*	
	Survey Start Date	*The date and time that the survey started.*	21/09/2022
	Survey End Date	*The date and time that the survey ended. May be left null if the survey is ongoing.*	2022-09-24
	Data Acquisition Time Zone	*Give the time zone in which the date and time of the data acquisition is made (preferably Coordinated Universal Time (UTC))*	BST
	Spatial Coordinate Reference System	*Spatial coordinate reference system. Describes the system of spatial referencing. i.e. the datum used to supply the decimal latitudes and longitudes. There are additional fields to indicate the datum of the*	

		original data if the coordinates have been transformed.	
	Original Coordinate Reference System (if different)	*Datum of original coordinates if different from the one used to supply data*	
	Transformation	*If transformation is undertaken to create decimal degrees*	
	Position Fix, Method and Source	*Please provide method and source of the of the position fix instrument*	
	Horizontal Accuracy (m)	*How accurate the spatial positions are likely to be.*	
	Depth Reference	*Give the reference to which the depth has been calculated e.g. Ordnance Datum Newlyn; Highest Astronomical Tide. Mandatory if seabed depths are given for each sample.*	
	Vertical Positional Accuracy (m)	*How accurate the vertical resolution is. Must be provided if seabed depths are given.*	
	Platform Type	*The platform type (e.g. Research Vessel) from which the sampling device was deployed.*	
	Platform Name	*Mandatory if a vessel was used for the survey. The name of the ship. If your ship is not on the list please contact accessions@ices.dk*	
	Marine Recorder Survey ID	*Enter the Marine Recorder Survey number if the survey is entered into Marine Recorder. This is a unique number which is assigned by Marine Recorder on entering survey information, and starts with the letters MR and is then often followed by the acronym of the organisation which owns the survey.*	

	Mesh Guide	*Enter the MESH GUID number for the survey. This is the Globally unique identifier (GUI) of the habitat map. It consists of 2-letter country code (which corresponds to ISO3166-1) plus 6 digits. Each GUI must correspond to a record in the metadata catalogue. A metadata template can be downloaded from the MESH website, www.searchmesh.net.*	
	cruiseReportReference	*Cruise report or boat log reference if applicable.*	
	surveyReportReference	*Survey report reference if applicable.*	
	confidentiality	*Note if the survey is confidential. If not noted, the data will be assumed to be releasable to the public*	

	Gear Metadata	**Description**	**Your Data and Information**
Method Information	**Gear Type**	Specific sampling equipment used	Remotely Operated Vehicle (ROV)
	Method ID Code	CruiseCode_GearCode	_ROV
	Sampling Device	Category of sampling device used	311 Cameras
	Camera Height (m)	The distance in metres from the seabed to the camera. This can be an average height along a transect or the height at which an image is taken with a drop-down camera. If	Variable

		an average, please specify a range (if known) in methodNotes.	
	Camera Make & Model	The make and model(s) of the camera(s), lenses and housing used to collect the data.	QYSEA FIFISH V6 EXPERT
	Device Configuration	The device configuration of the video tow set-up including: focal range, scaling lasers, filters used, mounting angle, dGPS used, on-board monitoring facility, etc. with particular reference to any custom modifications made.	4K video footage with built in LEDs and laser pointers, approximately 10cm apart
	Video/Stills Format & Compression	The format of the video/stills data collected and the compression type used.	.mkv, .jpg
	Transect Width (m) (Video Only)	The average width of the transect or width of video swath, if a video transect/tow. If standardised for gear record here, otherwise ignore.	
	Transect Length (m) (Video Only)	The length of the transect or width of video swath, if a video transect/tow is a standardised length, record here, otherwise ignore this field.	
	Vessel Speed of Travel	Averaged speed at which the observer or vessel travelled	
	Stills File Format	The file format of the stills data collected	.jpg
	Camera Sledge Make	Make of camera sledge used	

	Lights Make & Model	Make and model of lights used	2 x 3000 Lumen LED headlights: variable intensity via controller
	Calibration Notes	To include white balancing, laser scaling, etc.	
	Actual Laser Width	Scaling laser width (mm)	
	Actual Laser Height	Scaling laser height (mm), where using lasers in a box or vertical orientation.	10cm
	Processing Notes	Describe any post processing that was undertaken to the video and stills.	
	Protocols Used	SOPs/Protocols used. Any written methodology used should be referenced and linked. If the methodology is not referenced then provide a full description here.	
	Replicates	If replicates were taken please indicate number per sample.	
	Analytical Laboratory	The laboratory/organisation(s) (with EDMO record ID) that analysed the samples **if different** from the originator identified in the general metadata. Contact MEDIN to add an organisation to this list	
	Analytical Personnel	Names of the personnel who were involved in analysing the samples and their role in the analysis.	JC - analyst, AB - QA
	Method Images	Reference any images of equipment set up	
	Method Notes	Any further notes on sample analysis that may be of relevance.	

	QC Scheme	Description of any quality control scheme that samples were audited under during the analysis.	
	QC Method Notes	Any further notes on quality control scheme that may be of relevance.	

Station Number	RepAttempt	Habitat Segment Number	Video Sample Ref	MetadataSoLTime (hh:mm:ss)	MetadataEoLTime (hh:mm:ss)	Date	BriefHabitatDescription (Physical & biotic)	Method	MethodID	Lapse HabitatStartTime (hh:mm:ss)	MetadataHabitatStartTime (hh:mm:ss)	Lapse HabitatEndTime (hh:mm:ss)	MetadataHabitatEndTime (hh:mm:ss)	Duration (hh:mm:ss)	Survey Run By	MetadataStart - Latitude (DecDeg)	MetadataStart - Longitude (DecDeg)	Metadata End - Latitude (DecDeg)	Metadata End - Longitude (DecDeg)	SoL Depth (m)	Distance Travelled (m)
STN001	A1	1	BB_VIDEO_STN001_TAKE002_S1.mkv	11:25:29	11:28:41	2022-09-22	rippled sand	Remotely Operated Vehicle	_ROV	00:00:04	11:25:33	00:02:13	11:27:42	00:02:09	ENVISION	55.162010	-1.500150	55.162143	-1.500523	10.5	28m
STN001	A1	2	BB_VIDEO_STN001_TAKE002_S2.mkv	11:25:29	11:28:41	2022-09-22	silt/crust covered boulders and cobbles. Bryozoans, anemones, serpulid worms, crab	Remotely Operated Vehicle	_ROV	00:02:13	11:27:42	00:02:46	11:28:15	00:00:33		55.162143	-1.500523	55.162277	-1.500337	10.5	19m
STN001	A1	3	BB_VIDEO_STN001_TAKE002_S3.mkv	11:25:29	11:28:41	2022-09-22	rippled sand with one boulder and bryozoan/ hydrozoan	Remotely Operated Vehicle	_ROV	00:02:46	11:28:15	00:03:12	11:28:41	00:00:26		55.162277	-1.500337	55.162410	-1.500710	10.5	28m
STN003	A1	1	BB_VIDEO_STN003_TAKE003.mkv	11:49:36	11:52:55	2022-09-22	shelly, slightly muddy sand, starfish	Remotely Operated Vehicle	_ROV	00:00:09	11:49:45	00:03:14	11:52:59	00:03:05	ENVISION	55.161540	-1.475370	55.162070	-1.476180	16.4	79m
STN004	A1	1	BB_VIDEO_STN004_TAKE005.mkv	12:28:02	12:32:30	2022-09-22	silt covered bedrock and boulders	Remotely Operated Vehicle	_ROV	00:00:05	12:28:07	00:04:25	12:32:32	00:04:20	ENVISION	55.165030	-1.466270	55.165400	-1.466540	16.4	45m
STN005	A1	1	BB_VIDEO_STN005_TAKE004.mkv	12:10:26	12:13:47	2022-09-22	muddy sand	Remotely Operated Vehicle	_ROV	00:00:15	12:10:41	00:03:14	12:13:55	00:02:59	ENVISION	55.161550	-1.467860	55.162060	-1.468620	28	74m

STN007	A1	1	BB_VIDEO_STN007_TAKE012.mkv	15:50:37	15:53:54	2022-09-22	shelly sandy mud with some burrows, mysids	Remotely Operated Vehicle	_ROV	00:00:18	15:50:55	00:03:10	15:54:05	00:03:10	ENVISION	55.178130	-1.389170	55.178020	-1.389680	45	35m
STN009	A1	1	BB_VIDEO_STN009_TAKE001.mkv	19:23:33	19:26:05	2022-09-22	rippled muddy sand	Remotely Operated Vehicle	_ROV	00:00:12	19:23:45	00:02:29	19:26:14	00:02:17	ENVISION	55.154790	-1.495610	55.155320	-1.496000	25	64m
STN010	A1	1	BB_VIDEO_STN010_TAKE014.mkv	06:26:21	06:29:09	2022-09-23	shelly sandy mud	Remotely Operated Vehicle	_ROV	00:00:08	06:26:29	00:02:38	06:29:07	00:02:30	ENVISION	55.183620	-1.378120	55.183960	-1.377150	45	73m
STN011	A1	1	BB_VIDEO_STN011_TAKE007.mkv	13:11:11	13:14:31	2022-09-22	silt covered boulders and cobbles, with lots of squat lobsters	Remotely Operated Vehicle	_ROV	00:00:08	13:11:19	00:03:18	13:14:37	00:03:10	ENVISION	55.168020	-1.454220	55.168120	-1.454610	35	28m
STN012	A1	1	BB_VIDEO_STN012_TAKE013.mkv	16:46:32	16:50:28	2022-09-22	silt covered rock, Alyconium, briitle stars, Caridea	Remotely Operated Vehicle	_ROV	00:00:09	16:46:41	00:03:47	16:50:28	00:03:38	ENVISION	55.161580	-1.458450	55.161920	-1.459060	25	54m
STN014	A1	1	BB_VIDEO_STN014_TAKE006_S1.mkv	12:47:24	12:51:39	2022-09-22	sandy mud, with some burrows. Brief rocky outcrops in sand	Remotely Operated Vehicle	_ROV	00:00:02	12:47:26	00:03:12	12:50:38	00:03:10	ENVISION	55.167360	-1.460780	55.167365	-1.460780	33	50m (estimated)
STN014	A1	2	BB_VIDEO_STN014_TAKE006_S2.mkv	12:47:24	12:51:39	2022-09-22	silt covered rocks, with Alcyonium, some brittle stars	Remotely Operated Vehicle	_ROV	00:03:12	12:50:36	00:04:01	12:51:25	00:00:49	ENVISION	55.167365	-1.460780	55.167370	-1.460780	33	10m (estimated)

STN015	A1	1	BB_VIDEO_STN015_TAKE008.mkv	13:32:30	13:34:09	2022-09-22	sandy mud with some burrows	Remotely Operated Vehicle	_ROV	00:00:04	13:32:34	00:01:22	13:33:56	00:01:18	ENVISION	55.164960	-1.449750	55.165180	-1.450210	37	38m
STN016	A2	1	BB_VIDEO_STN016_TAKE010.mkv	14:28:04	14:31:16	2022-09-22	sandy mud and burrows	Remotely Operated Vehicle	_ROV	00:00:43	14:28:47	00:03:09	14:31:56	00:02:26	ENVISION	55.164690	-1.440810	55.164700	-1.440920	36	50m (estimated)
STN017	A1	1	BB_VIDEO_STN017_TAKE015.mkv	06:53:14	06:56:17	2022-09-23	sandy mud and burrows	Remotely Operated Vehicle	_ROV	00:00:01	06:53:15	00:03:00	06:56:15	00:02:59	ENVISION	55.181920	-1.366270	55.182100	-1.365110	50	76m
STN018	A1	1	BB_VIDEO_STN018_TAKE016.mkv	07:19:49	07:22:22	2022-09-23	sandy mud with some burrows	Remotely Operated Vehicle	_ROV	00:00:02	07:19:51	00:02:32	07:22:23	00:02:30	ENVISION	55.190740	-1.355850	55.191010	-1.355070	53	59m
STN019	A1	1	BB_VIDEO_STN019_TAKE017.mkv	07:46:01	07:48:44	2022-09-23	muddy sand, lots of worm tubes	Remotely Operated Vehicle	_ROV	00:00:08	07:46:09	00:02:40	07:48:49	00:02:32	ENVISION	55.203220	-1.350410	55.203640	-1.349860	51	59m
STN020	A1	1	BB_VIDEO_STN020_TAKE018.mkv	08:15:09	08:18:10	2022-09-23	muddy sand with shells	Remotely Operated Vehicle	_ROV	00:00:32	08:15:41	00:03:01	08:18:42	00:02:29	ENVISION	55.216280	-1.336870	55.216860	-1.336450	51	70m
STN021	A1	1	BB_VIDEO_STN021_TAKE019.mkv	08:41:49	08:45:38	2022-09-23	sand, mud, cobbles.	Remotely Operated Vehicle	_ROV	00:00:01	08:41:50	00:00:00	08:41:50	00:03:38	ENVISION	55.236980	-1.320960	55.237500	-1.320470	51	65m
STN022	A1	1	BB_VIDEO_STN022_TAKE020.mkv	09:00:15	09:02:55	2022-09-23	sandy mud	Remotely Operated Vehicle	_ROV	00:00:01	09:00:16	00:00:00	09:00:16	00:02:38	ENVISION	55.256900	-1.309020	55.257440	-1.308940	55	61m
STN023	A1	1	BB_VIDEO_STN023_TAKE021.mkv	09:56:42	10:00:07	2022-09-23	sandy mud	Remotely Operated Vehicle	_ROV	00:00:02	09:56:44	00:03:25	10:00:09	00:03:23	ENVISION	55.278330	-1.290870	55.278800	-1.290730	61	53m

STN024	A1	1	BB_VIDEO_STN024_TAKE022.mkv	10:22:06	10:24:48	2022-09-23	sandy mud, mysids	Remotely Operated Vehicle	_ROV	00:00:02	10:22:08	00:02:42	10:24:50	00:02:40	ENVISION	55.302140	-1.271700	55.302520	-1.271300	64	49m
STN025	A1	1	BB_VIDEO_STN025_TAKE024.mkv	11:22:49	11:26:31	2022-09-23	sandy mud, bits of shell, mysids	Remotely Operated Vehicle	_ROV	00:00:06	11:22:55	00:03:39	11:26:34	00:03:33	ENVISION	55.345200	-1.242210	55.344970	-1.241490	65	52m
STN026	A1	1	BB_VIDEO_STN026_TAKE025.mkv	11:51:44	11:54:59	2022-09-23	sandy mud, Sea pens	Remotely Operated Vehicle	_ROV	00:00:04	11:51:48	00:03:13	11:55:01	00:03:09	ENVISION	55.366970	-1.221200	55.366430	-1.220490	75	75m
STN027	A1	1	BB_VIDEO_STN027_TAKE023.mkv	11:01:22	11:05:00	2022-09-23	sandy mud	Remotely Operated Vehicle	_ROV	00:00:03	11:01:25	00:03:35	11:05:00	00:03:32	ENVISION	55.324370	-1.253740	55.324380	-1.253210	67	34m
STN028	A1	1	BB_VIDEO_STN028_TAKE026.mkv	12:13:59	12:16:45	2022-09-23	sandy mud, burrows, pennatula	Remotely Operated Vehicle	_ROV	00:00:04	12:14:03	00:02:46	12:16:49	00:02:42	ENVISION	55.382960	-1.202500	55.382100	-1.201470	75	116m
STN029	A1	1	BB_VIDEO_STN029_TAKE030.mkv	15:07:18	15:10:06	2022-09-23	sandy mud, burrows, pennatula	Remotely Operated Vehicle	_ROV	00:00:02	15:07:20	00:02:23	15:09:43	00:02:21	ENVISION	55.470810	-1.102650	55.469590	-1.102010	95	141m

STN038	A1	1	BB_VIDEO_STN038_TAKE029.mkv	14:15:59	14:19:25	2022-09-23	sandy mud with some burrows	Remotely Operated Vehicle	_ROV	00:00:01	14:16:00	00:03:28	14:19:28	00:03:27	ENVISION	55.438990	-1.135120	55.437750	-1.134400	92	145m
STN045	A2	1	BB_VIDEO_STN045_TAKE028.mkv	13:42:13	13:45:37	2022-09-23	sandy mud with some burrows	Remotely Operated Vehicle	_ROV	00:00:06	13:42:19	00:03:22	13:45:41	00:03:16	ENVISION	55.411000	-1.172600	55.410150	-1.172140	86	99m

EUNIS Broadscale Habitat	MNCR Code	MNCR Classification Descriptor (Exact Copy)	Secondary MNCR Code (Mosaic Habitats Only)	Secondary MNCR Classification Descriptor (Exact Copy - Mosaic Habitats Only)	Habitat FOCI - only for SoS	Annex 1 Habitats	OSPAR Habitat	Total burrow density	>3cm Burrow density	DeterminedBy	.	NMBAQC Image Quality	COMMENTS & Human activities	COMPLETED BY:-	Internal QC by:-
Subtidal Sand	SS.SSa	Sublittoral sands and n			Subtidal Sands and Gravels			-	-	JC	_IQ1	Good		JC	AB
Moderate Energy Circalittoral Rock	CR.MCR	Moderate energy circalittoral rock				Stony reef		-	-	JC	_IQ2	Good		JC	AB
Subtidal Sand	SS.SSa	Sublittoral sands and muddy sands			Subtidal Sands and Gravels			-	-	JC	_IQ3	Poor	variable height of camera, bit dark	JC	AB
Subtidal Sand	SS.SSa	Sublittoral sands and m			Subtidal Sands and Gravels			-	-	JC	_IQ4	Good		JC	AB
Moderate Energy Circalittoral Rock	CR.MCR. EcCr.FaAlCr.Flu	Flustra foliacea on slightly scoured silty circalittoral rock				Bedrock reef		-	-	JC	_IQ5	Good	some thick silt veener on bedrock	JC	AB
Subtidal Sand	SS.SSa.CMuSa	Circalittoral muddy san			Subtidal Sands and Gravels			-	-	JC	_IQ6	Good	suspended sediment	JC	AB

Subtidal Mud	SS.SMu.CFiMu.SpnMeg	Seapens and burrowing megafauna in circalittoral fine mud			Sea Pen and Burrowing Megafauna Communities		Sea-pen and burrowing megafauna communities	0.285714	0.171429	JC	_IQ7	Good	Suspended sediment. couple of small burrows	JC	AB
Subtidal Sand	SS.SSa.CMuSa	Circalittoral	muddy san		Subtidal Sands and Gravels			-	-	JC	_IQ8	Poor	suspended sediment and fast camera movement	JC	AB
Subtidal Mud	SS.SMu.CSaMu	Circalittoral	sandy mud		Mud Habitats in Deepwater			0.178082	0.068493	JC	_IQ9	Poor	suspended sediment and fast camera movement	JC	AB
Moderate Energy Circalittoral Rock	CR.MCR	Moderate energy circal				Stony reef		-	-	JC	_IQ10	Good	patch of sandy mud around 2:30-2:55	JC	AB
Moderate Energy Circalittoral Rock	CR.MCR	Moderate energy circal				Bedrock reef		-	-	JC	_IQ11	Poor	suspended sediment	JC	AB
Subtidal Mud	SS.SMu.CFiMu.SpnMeg	Seapens and burrowing megafauna in circalittoral fine mud			Sea Pen and Burrowing Megafauna Communities		Sea-pen and burrowing megafauna communities	0.16	0.12	JC	_IQ12	Poor	suspended sediment. Potential thick sand veneer (some outcropping rock). Assumed distance 50m.	JC	AB
Moderate Energy Circalittoral Rock	CR.MCR	Moderate energy circal				Stony reef		-	-	JC	_IQ13	Good	bit dark	JC	AB

Subtidal Mud	SS.SMu.CFiMu.SpnMeg	Seapens and burrowing megafauna in circalittoral fine mud			Sea Pen and Burrowing Megafauna Communities		Sea-pen and burrowing megafauna communities	0.157895	0.157895	JC	_IQ14	Poor	suspended sediment and camera crash. Not fine mud.	JC	AB
Subtidal Mud	SS.SMu.CFiMu.SpnMeg	Seapens and burrowing megafauna in circalittoral fine mud			Sea Pen and Burrowing Megafauna Communities		Sea-pen and burrowing megafauna communities	1.02	0.4	JC	_IQ15	Poor	suspended sediment, poor lighting. Assumed distance 50m.	JC	AB
Subtidal Mud	SS.SMu.CSaMu	Circalittoral sandy mud			Mud Habitats in Deepwater			0.157895	0.039474	JC	_IQ16	Poor	suspended sediment, poor lighting, fast camera. Not fine sediment.	JC	AB
Subtidal Mud	SS.SMu.CSaMu	Circalittoral	sandy mud		Mud Habitats in Deepwater			0.220339	0.050847	JC	_IQ17	Poor	dark, suspended sediment	JC	AB
Subtidal Mud	SS.SMu.CSaMu	Circalittoral	sandy mud		Mud Habitats in Deepwater			0.288136	0.016949	JC	_IQ18	Good	suspended sediment	JC	AB
Subtidal Mud	SS.SMu.CSaMu	Circalittoral	sandy mud		Mud Habitats in Deepwater			0.171429	0	JC	_IQ19	Poor	dark, suspended sediment	JC	AB
Subtidal Mixed Sediment	SS.SMx.CMx	Circalittoral	mixed sedi					-	-	JC	_IQ20	Poor	dark, suspended sediment	JC	AB
Subtidal Mud	SS.SMu.CSaMu	Circalittoral	sandy mud		Mud Habitats in Deepwater			0.131148	0.081967	JC	_IQ21	Poor	dark, suspended sediment	JC	AB
Subtidal Mud	SS.SMu.CSaMu	Circalittoral	sandy mud		Mud Habitats in Deepwater			0.283019	0.075472	JC	_IQ22	Good	some suspended sediment	JC	AB

Subtidal Mud	SS.SMu.CSaMu	Circalittoral sandy mud			Mud Habitats in Deepwater			0.306122	0.061224	JC	_IQ23	Good	some suspended sediment and mysids. Unidentifiable red possible taxa.	JC	AB
Subtidal Mud	SS.SMu.CSaMu	Circalittoral sandy mud			Mud Habitats in Deepwater			0.153846	0.038462	JC	_IQ24	Poor	lots of suspended sediment. Not fine mud. Unidentifiable red possible taxa	JC	AB
Subtidal Mud	SS.SMu.CSaMu	Circalittoral sandy mud			Mud Habitats in Deepwater			0.08	0	JC	_IQ25	Poor	lots of suspended sediment. Not fine mud	JC	AB
Subtidal Mud	SS.SMu.CFiMu.SpnMeg	Seapens and burrowing megafauna in circalittoral fine mud			Sea Pen and Burrowing Megafauna Communities		Sea-pen and burrowing megafauna communities	0.941176	0.294118	JC	_IQ26	Good	lots of suspended sediment, whilst camera adjusting. Not fine mud	JC	AB
Subtidal Mud	SS.SMu.CFiMu.SpnMeg	Seapens and burrowing megafauna in circalittoral fine mud			Sea Pen and Burrowing Megafauna Communities		Sea-pen and burrowing megafauna communities	0.155172	0.112069	JC	_IQ27	Good	mysid swarm	JC	AB
Subtidal Mud	SS.SMu	Sublittoral cohesive mud and sandy mud communities			Mud Habitats in Deepwater			0.12766	0.06383	JC	_IQ28	Very Poor	mysid swarm. Over exposed in places. Unidentifiable pink/red poss taxa in mud throughout.	JC	AB

Subtidal Mud	SS.SMu.CFiMu.SpnMeg	Seapens and burrowing megafauna in circalittoral fine mud			Sea Pen and Burrowing Megafauna Communities		Sea-pen and burrowing megafauna communities	0.2	0.110345	JC	_IQ29	Poor	mysids	JC	AB
Subtidal Mud	SS.SMu.CFiMu.SpnMeg	Seapens and burrowing megafauna in circalittoral fine mud			Sea Pen and Burrowing Megafauna Communities		Sea-pen and burrowing megafauna communities	0.212121	0.131313	JC	_IQ30	Good	suspended sediment	JC	AB

Phase 2. DDV Images and Stills Proforma

	General Metadata	Description	Your Data and Information
Project Metadata	**Project Name**	*The nationally/internationally accepted version of the project name.*	Berwick Bank Underwater Imagery
	Project Code	*Provide a code to uniquely identify the project and allow links to be made between the tables. It is recommended that the website of organisation responsible is used followed by a unique code which should reflect the code used by the funding organisation where possible.*	2022-1014
	Project Start Date	*The date that the project started which is from when the funding was in place to start. Use the 1st of the month if the exact date is not known.*	2022-03-29
	Project End Date	*The date that the project finished or is due to finish. Use the 1st of the month if the exact date is not known.*	
	Project Website	*If a project website exists give the address. This should be the web address of the environmental surveys and not, in the case of impact assessments, the engineering development.*	
	Project Metadata URL	*A URL which links to the metadata for the project. It is recommended that the website of organisation responsible for the work is used followed by a unique code which should reflect the code used by the funding organisation where possible.*	
Survey Metadata	**Survey Name**	*Title of the survey*	Berwick Bank Phase 2 Underwater Imagery Survey
	Survey Run By	*Name the organisation(s) running the survey*	NPC/ENVISION
	Survey Type	*Give the type of survey*	Underwater Imagery
	Survey Abstract	*Brief description of the purpose of the survey and types of measurements that were made for the survey.*	

	Cruise Code	*A unique code for the survey to allow links to be built between this and sample event data. It is recommended that the website of organisation responsible for the work is used followed by a unique code which should reflect the code used by the funding organisation where possible.*	1215S
	Survey Metadata URL	*A URL which links to the metadata for the survey. It is recommended that the website of organisation responsible for the work is used followed by a unique code which should reflect the code used by the funding organisation where possible.*	
	Data Originator	*The organisation who has created the data set. If the organisation is not in European Directory of Marine Organisations (EDMO) please contact enquiries@oceannet.org to add it. If a person who is not associated with any organisation generated the data then please provide the name in the sample event table.*	ENVISION
	Data Owner	*Organisation that owns the data set. If the organisation is not in EDMO please contact enquiries@oceannet.org to add it.*	
	Survey Start Date	*The date and time that the survey started.*	2023-02-15
	Survey End Date	*The date and time that the survey ended. May be left null if the survey is ongoing.*	2023-03-21
	Data Acquisition Time Zone	*Give the time zone in which the date and time of the data acquisition is made (preferably Coordinated Universal Time (UTC))*	UTC
	Spatial Coordinate Reference System	*Spatial coordinate reference system. Describes the system of spatial referencing. i.e. the datum used to supply the decimal latitudes and longitudes. There are additional fields to indicate the datum of the original data if the coordinates have been transformed.*	

	Original Coordinate Reference System (if different)	*Datum of original coordinates if different from the one used to supply data*	
	Transformation	*If transformation is undertaken to create decimal degrees*	
	Position Fix, Method and Source	*Please provide method and source of the of the position fix instrument*	
	Horizontal Accuracy (m)	*How accurate the spatial positions are likely to be.*	
	Depth Reference	*Give the reference to which the depth has been calculated e.g. Ordnance Datum Newlyn; Highest Astronomical Tide. Mandatory if seabed depths are given for each sample.*	
	Vertical Positional Accuracy (m)	*How accurate the vertical resolution is. Must be provided if seabed depths are given.*	
	Platform Type	*The platform type (e.g. Research Vessel) from which the sampling device was deployed.*	
	Platform Name	*Mandatory if a vessel was used for the survey. The name of the ship. If your ship is not on the list please contact accessions@ices.dk*	
	Marine Recorder Survey ID	*Enter the Marine Recorder Survey number if the survey is entered into Marine Recorder. This is a unique number which is assigned by Marine Recorder on entering survey information, and starts with the letters MR and is then often followed by the acronym of the organisation which owns the survey.*	
	Mesh Guide	*Enter the MESH GUID number for the survey. This is the Globally unique identifier (GUI) of the habitat map. It consists of 2-letter country code (which corresponds to ISO3166-1) plus 6 digits. Each GUI must correspond to a record in the metadata catalogue. A metadata template can be downloaded from the MESH website, www.searchmesh.net.*	
	cruiseReportReference	*Cruise report or boat log reference if applicable.*	

	surveyReportReference	*Survey report reference if applicable.*	
	confidentiality	*Note if the survey is confidential. If not noted, the data will be assumed to be releasable to the public*	

	Gear Metadata	Description	Your Data and Information
Method Information	**Gear Type**	Specific sampling equipment used	Remotely Operated Vehicle
	Method ID Code	CruiseCode_GearCode	_ROV
	Sampling Device	Category of sampling device used	311 Cameras
	Camera Height (m)	The distance in metres from the seabed to the camera. This can be an average height along a transect or the height at which an image is taken with a drop-down camera. If an average, please specify a range (if known) in methodNotes.	Variable
	Camera Make & Model	The make and model(s) of the camera(s), lenses and housing used to collect the data.	QYSEA FIFISH V6 EXPERT
	Device Configuration	The device configuration of the video tow set-up including: focal range, scaling lasers, filters used, mounting angle, dGPS used, on-board monitoring facility, etc. with particular reference to any custom modifications made.	4K video footage with built in LEDs and laser pointers, approximately 10cm apart
	Video/Stills Format & Compression	The format of the video/stills data collected and the compression type used.	.mkv, .jpg
	Transect Width (m) (Video Only)	The average width of the transect or width of video swath, if a video transect/tow. If standardised for gear record here, otherwise ignore.	
	Transect Length (m) (Video Only)	The length of the transect or width of video swath, if a video transect/tow is a standardised length, record here, otherwise ignore this field.	
	Vessel Speed of Travel	Averaged speed at which the observer or vessel travelled	

	Stills File Format	The file format of the stills data collected	.jpg
	Camera Sledge Make	Make of camera sledge used	
	Lights Make & Model	Make and model of lights used	2 x 3000 Lumen LED headlights: variable intensity via controller
	Calibration Notes	To include white balancing, laser scaling, etc.	
	Actual Laser Width	Scaling laser width (mm)	10cm
	Actual Laser Height	Scaling laser height (mm), where using lasers in a box or vertical orientation.	
	Processing Notes	Describe any post processing that was undertaken to the video and stills.	
	Protocols Used	SOPs/Protocols used. Any written methodology used should be referenced and linked. If the methodology is not referenced then provide a full description here.	
	Replicates	If replicates were taken please indicate number per sample.	
	Analytical Laboratory	The laboratory/organisation(s) (with EDMO record ID) that analysed the samples **if different** from the originator identified in the general metadata. Contact MEDIN to add an organisation to this list	

	Analytical Personnel	Names of the personnel who were involved in analysing the samples and their role in the analysis.	
	Method Images	Reference any images of equipment set up	
	Method Notes	Any further notes on sample analysis that may be of relevance.	
	QC Scheme	Description of any quality control scheme that samples were audited under during the analysis.	
	QC Method Notes	Any further notes on quality control scheme that may be of relevance.	

Station Number	Image / Still Sample Ref	Metadata Fix Time (hh:mm:ss)	Date (yyyy-mm-dd)	BriefHabitatDescription (Physical & biotic)	Method	MethodID	Survey Run By	Latitude (DecDeg)	Longitude (DecDeg)	Still Number	Depth (m)	Pebbles 4mm to 64mm	Shells_Empty	Shells_LiveModiolus	Granule 2mm to 4mm	Shell_2mm to 16mm	Sand 0.063mm to 2mm	Mud less than 0.063mm	Total %	AutoEunisGroup	AutoRock	Broadscale Habitat - only for SoS waters	Habitat FOCI - only for SoS	OSPAR Habitat	MNCR Code	MNCR Classification Descriptor (Exact Copy)	DeterminedBy	NMBAQC Image Quality	COMMENTS & Human activities	COMPLETED BY:-	Internal QC by:-
STN002	BB_STILL_STN002_TAKE005_01	11:58:25	15/02/2023	Mud with burrows	Remotely Operated Vehicle	_ROV	ENVISION	55.171815	-1.439962	1	44.0						70	30	100	mud and sa		Subtidal Mud	Sea Pen and Burrowing Megafauna Communities	Sea-pen and burrowing megafauna communities	SS.SMu.CFiMu.SpnMeg	Seapens and burrowing megafauna in circalittoral fine mud	EB	Poor	Suspended sediment and dark	EB	
STN002	BB_STILL_STN002_TAKE005_02	11:58:25	15/02/2023	Mud	Remotely Operated Vehicle	_ROV	ENVISION	55.171815	-1.439962	2	44.0						70	30	100	mud and sa		Subtidal Mud	Mud Habitats in Deepwater		SS.SMu.CFiMu	Circalittoral fine mud	EB	Poor	Suspended sediment and dark	EB	
STN002	BB_STILL_STN002_TAKE005_03	11:58:25	15/02/2023	Mud with a fish	Remotely Operated Vehicle	_ROV	ENVISION	55.171815	-1.439962	3	44.0						70	30	100	mud and sa		Subtidal Mud	Mud Habitats in Deepwater		SS.SMu.CFiMu	Circalittoral fine mud	EB	Good		EB	
STN006	BB_STILL_STN006_TAKE003_01	11:31:47	15/02/2023	Sandy mud with turf and hydroids	Remotely Operated Vehicle	_ROV	ENVISION	55.171212	-1.408457	1	48.0					5	65	30	100	mud and sa		Subtidal Mud	Mud Habitats in Deepwater		SS.SMu.CSaMu	Circalittoral sandy mud	EB	Good		EB	
STN006	BB_STILL_STN006_TAKE003_02	11:31:47	15/02/2023	Sandy mud with turf	Remotely Operated Vehicle	_ROV	ENVISION	55.171212	-1.408457	2	48.0					5	65	30	100	mud and sa		Subtidal Mud	Mud Habitats in Deepwater		SS.SMu.CSaMu	Circalittoral sandy mud	EB	Good		EB	
STN006	BB_STILL_STN006_TAKE003_03	11:31:47	15/02/2023	Sandy mud with a crab	Remotely Operated Vehicle	_ROV	ENVISION	55.171212	-1.408457	3	48.0					5	65	30	100	mud and sa		Subtidal Mud	Mud Habitats in Deepwater		SS.SMu.CSaMu	Circalittoral sandy mud	EB	Good		EB	
STN008	BB_STILL_STN008_TAKE006_01	12:27:28	15/02/2023	Rippled sand	Remotely Operated Vehicle	_ROV	ENVISION	55.161073	-1.487660	1	18.0					1	99		100	sand and m		Subtidal Sand	Subtidal Sands and Gravels		SS.SSa	Sublittoral sands and muddy sands	EB	Good		EB	
STN008	BB_STILL_STN008_TAKE006_02	12:27:28	15/02/2023	Rippled sand	Remotely Operated Vehicle	_ROV	ENVISION	55.161073	-1.487660	2	18.0					1	99		100	sand and m		Subtidal Sand	Subtidal Sands and Gravels		SS.SSa	Sublittoral sands and muddy sands	EB	Good		EB	
STN008	BB_STILL_STN008_TAKE006_03	12:27:28	15/02/2023	Rippled sand	Remotely Operated Vehicle	_ROV	ENVISION	55.161073	-1.487660	3	18.0					1	99		100	sand and m		Subtidal Sand	Subtidal Sands and Gravels		SS.SSa	Sublittoral sands and muddy sands	EB	Good		EB	
STN013	BB_STILL_STN013_TAKE002_01	11:15:22	15/02/2023	Sandy mud with some shell and a sabellid worm	Remotely Operated Vehicle	_ROV	ENVISION	55.177117	-1.406463	1	50.0					10	65	25	100	mixed sedi		Subtidal Mixed Sediment			SS.SMx.CMx	Circalittoral mixed sediment	EB	Good	Paguroidea clear in video	EB	CA
STN013	BB_STILL_STN013_TAKE002_02	11:15:22	15/02/2023	Sand and mud with a cobble, some shell, Alcyonium and a flatfish	Remotely Operated Vehicle	_ROV	ENVISION	55.177117	-1.406463	2	50.0					5	40	25	100	mixed sedi	Rock	Moderate Energy Circalittoral Rock			CR.MCR	Moderate energy circalittoral rock	EB	Good	Only patch of rock in video, not stony reef as no extent	EB	
STN013	BB_STILL_STN013_TAKE002_03	11:15:22	15/02/2023	Sandy mud with some shell	Remotely Operated Vehicle	_ROV	ENVISION	55.177117	-1.406463	3	50.0					10	65	25	100	mixed sedi		Subtidal Mixed Sediment			SS.SMx.CMx	Circalittoral mixed sediment	EB	Good		EB	
STN030	BB_STILL_STN030_TAKE013_01	13:06:49	21/03/2023	Mud with turf	Remotely Operated Vehicle	_ROV	ENVISION	55.538210	-1.029020	1	101.0						70	30	100	mud and sa		Subtidal Mud	Mud Habitats in Deepwater		SS.SMu.CFiMu	Circalittoral fine mud	EB	Good		EB	

STN030	BB_STILL_STN030_TAKE013_02	13:06:49	21/03/2023	Mud with turf	Remotely Operated Vehicle	_ROV	ENVISION	55.538210	-1.029020	2	101.0						70	30	100	mud and sa		Subtidal Mud	Mud Habitats in Deepwater		SS.SMu.CFiMu	Circalittoral fine mud	EB	Poor	Dark, water column	EB	
STN030	BB_STILL_STN030_TAKE013_03	13:06:49	21/03/2023	Mud with turf and chaetopteridae	Remotely Operated Vehicle	_ROV	ENVISION	55.538210	-1.029020	3	101.0						70	30	100	mud and sa		Subtidal Mud	Mud Habitats in Deepwater		SS.SMu.CFiMu	Circalittoral fine mud	EB	Good		EB	
STN031	BB_STILL_STN031_TAKE012_01	12:47:36	21/03/2023	Mud with a burrow	Remotely Operated Vehicle	_ROV	ENVISION	55.556580	-1.008460	1	102.0						70	30	100	mud and sa		Subtidal Mud	Mud Habitats in Deepwater		SS.SMu.CFiMu	Circalittoral fine mud	EB	Poor	Dark, water column	EB	CA
STN031	BB_STILL_STN031_TAKE012_02	12:47:36	21/03/2023	Mud with turf	Remotely Operated Vehicle	_ROV	ENVISION	55.556580	-1.008460	2	102.0						70	30	100	mud and sa		Subtidal Mud	Mud Habitats in Deepwater		SS.SMu.CFiMu	Circalittoral fine mud	EB	Poor	Dark, water column	EB	
STN031	BB_STILL_STN031_TAKE012_03	12:47:36	21/03/2023	Mud and sand	Remotely Operated Vehicle	_ROV	ENVISION	55.556580	-1.008460	3	102.0						80	20	100	mud and sa		Subtidal Mud	Mud Habitats in Deepwater		SS.SMu.CFiMu	Circalittoral fine mud	EB	Poor	Dark, water column	EB	CA
STN032	BB_STILL_STN032_TAKE011_01	12:29:38	21/03/2023	Mud with turf	Remotely Operated Vehicle	_ROV	ENVISION	55.575640	-0.987260	1	92.0						70	30	100	mud and sa		Subtidal Mud	Mud Habitats in Deepwater		SS.SMu.CFiMu	Circalittoral fine mud	EB	Poor	Dark at top	EB	
STN032	BB_STILL_STN032_TAKE011_02	12:29:38	21/03/2023	Mud with a flatfish	Remotely Operated Vehicle	_ROV	ENVISION	55.575640	-0.987260	2	92.0						70	30	100	mud and sa		Subtidal Mud	Mud Habitats in Deepwater		SS.SMu.CFiMu	Circalittoral fine mud	EB	Poor	Dark at top	EB	
STN032	BB_STILL_STN032_TAKE011_03	12:29:38	21/03/2023	Mud with a burrow	Remotely Operated Vehicle	_ROV	ENVISION	55.575640	-0.987260	3	92.0						70	30	100	mud and sa		Subtidal Mud	Mud Habitats in Deepwater		SS.SMu.CFiMu	Circalittoral fine mud	EB	Poor	Dark at top	EB	CA
STN033	BB_STILL_STN033_TAKE010_01	12:10:12	21/03/2023	Mud with a fish and pennatula	Remotely Operated Vehicle	_ROV	ENVISION	55.609230	-0.991640	1	83.0						70	30	100	mud and sa		Subtidal Mud	Mud Habitats in Deepwater		SS.SMu.CFiMu	Circalittoral fine mud	EB	Poor	Dark at edges	EB	
STN033	BB_STILL_STN033_TAKE010_02	12:10:12	21/03/2023	Mud with turf	Remotely Operated Vehicle	_ROV	ENVISION	55.609230	-0.991640	2	83.0						70	30	100	mud and sa		Subtidal Mud	Mud Habitats in Deepwater		SS.SMu.CFiMu	Circalittoral fine mud	EB	Good		EB	
STN033	BB_STILL_STN033_TAKE010_03	12:10:12	21/03/2023	Mud with a hermit crab	Remotely Operated Vehicle	_ROV	ENVISION	55.609230	-0.991640	3	83.0						70	30	100	mud and sa		Subtidal Mud	Mud Habitats in Deepwater		SS.SMu.CFiMu	Circalittoral fine mud	EB	Good		EB	
STN034	BB_STILL_STN034_TAKE009_01	11:52:07	21/03/2023	Sand, pebbles and cobbles with turf, crust and an anemone	Remotely Operated Vehicle	_ROV	ENVISION	55.640570	-0.999910	1	85.0	20					60	10	100	mixed sedi		Subtidal Mixed Sediment			SS.SMx.CMx	Circalittoral mixed sediment	EB	Poor	Blurry and dark	EB	
STN034	BB_STILL_STN034_TAKE009_02	11:52:07	21/03/2023	Sand, pebbles and cobbles with turf	Remotely Operated Vehicle	_ROV	ENVISION	55.640570	-0.999910	2	85.0	10					60	10	100	mixed sedi		Subtidal Mixed Sediment			SS.SMx.CMx	Circalittoral mixed sediment	EB	Good		EB	
STN034	BB_STILL_STN034_TAKE009_03	11:52:07	21/03/2023	Sand, pebbles and cobbles with turf	Remotely Operated Vehicle	_ROV	ENVISION	55.640570	-0.999910	3	85.0	20					50	10	100	mixed sedi		Subtidal Mixed Sediment			SS.SMx.CMx	Circalittoral mixed sediment	EB	Poor	Blurry and dark	EB	CA
STN035	BB_STILL_STN035_TAKE008_01	11:33:27	21/03/2023	Mud with a sabellid worm and turf	Remotely Operated Vehicle	_ROV	ENVISION	55.667430	-0.997550	1	89.0						70	30	100	mud and sa		Subtidal Mud	Mud Habitats in Deepwater		SS.SMu.CFiMu	Circalittoral fine mud	EB	Poor	Dark, water column	EB	
STN035	BB_STILL_STN035_TAKE008_02	11:33:27	21/03/2023	Mud with a chaetopteridae	Remotely Operated Vehicle	_ROV	ENVISION	55.667430	-0.997550	2	89.0						70	30	100	mud and sa		Subtidal Mud	Mud Habitats in Deepwater		SS.SMu.CFiMu	Circalittoral fine mud	EB	Poor	Dark, water column	EB	

STN035	BB_STILL_STN035_TAKE008_03	11:33:27	21/03/2023	Mud and sand	Remotely Operated Vehicle	_ROV	ENVISION	55.667430	-0.997550	3	89.0						80	20	100	mud and sa		Subtidal Mud	Mud Habitats in Deepwater		SS.SMu.CFiMu	Circalittoral fine mud	EB	Good		EB	
STN036	BB_STILL_STN036_TAKE014_01	13:26:48	21/03/2023	Mud	Remotely Operated Vehicle	_ROV	ENVISION	55.509740	-1.062760	1	98.0						70	30	100	mud and sa		Subtidal Mud	Mud Habitats in Deepwater		SS.SMu.CFiMu	Circalittoral fine mud	EB	Poor	Dark, water column	EB	CA
STN036	BB_STILL_STN036_TAKE014_02	13:26:48	21/03/2023	Mud	Remotely Operated Vehicle	_ROV	ENVISION	55.509740	-1.062760	2	98.0						70	30	100	mud and sa		Subtidal Mud	Mud Habitats in Deepwater		SS.SMu.CFiMu	Circalittoral fine mud	EB	Poor	Dark, water column	EB	
STN036	BB_STILL_STN036_TAKE014_03	13:26:48	21/03/2023	Mud with mysids	Remotely Operated Vehicle	_ROV	ENVISION	55.509740	-1.062760	3	98.0						70	30	100	mud and sa		Subtidal Mud	Mud Habitats in Deepwater		SS.SMu.CFiMu	Circalittoral fine mud	EB	Good		EB	
STN037	BB_STILL_STN037_TAKE007_01	11:13:54	21/03/2023	Sand and mud with pennatula and turf	Remotely Operated Vehicle	_ROV	ENVISION	55.698520	-1.002050	1	84.0						80	20	100	mud and sa		Subtidal Mud	Mud Habitats in Deepwater		SS.SMu.CFiMu	Circalittoral fine mud	EB	Good		EB	
STN037	BB_STILL_STN037_TAKE007_02	11:13:54	21/03/2023	Sand and mud with pennatula and turf	Remotely Operated Vehicle	_ROV	ENVISION	55.698520	-1.002050	2	84.0						80	20	100	mud and sa		Subtidal Mud	Mud Habitats in Deepwater		SS.SMu.CFiMu	Circalittoral fine mud	EB	Good		EB	
STN037	BB_STILL_STN037_TAKE007_03	11:13:54	21/03/2023	Sand and mud with chaetopteridae and turf	Remotely Operated Vehicle	_ROV	ENVISION	55.698520	-1.002050	3	84.0						80	20	100	mud and sa		Subtidal Mud	Mud Habitats in Deepwater		SS.SMu.CFiMu	Circalittoral fine mud	EB	Good		EB	
STN039	BB_STILL_STN039_TAKE006_01	10:55:30	21/03/2023	Mud with a pennatula	Remotely Operated Vehicle	_ROV	ENVISION	55.726460	-1.000160	1	90.0						70	30	100	mud and sa		Subtidal Mud	Mud Habitats in Deepwater		SS.SMu.CFiMu	Circalittoral fine mud	EB	Good		EB	
STN039	BB_STILL_STN039_TAKE006_02	10:55:30	21/03/2023	Mud with a pennatula and sabellid worm	Remotely Operated Vehicle	_ROV	ENVISION	55.726460	-1.000160	2	90.0						70	30	100	mud and sa		Subtidal Mud	Mud Habitats in Deepwater		SS.SMu.CFiMu	Circalittoral fine mud	EB	Good		EB	
STN039	BB_STILL_STN039_TAKE006_03	10:55:30	21/03/2023	Mud with burrows, a pennatula and a fish	Remotely Operated Vehicle	_ROV	ENVISION	55.726460	-1.000160	3	90.0						70	30	100	mud and sa		Subtidal Mud	Sea Pen and Burrowing Megafauna Communities	Sea-pen and burrowing megafauna communities	SS.SMu.CFiMu.SpnMeg	Seapens and burrowing megafauna in circalittoral fine mud	EB	Good		EB	
STN040	BB_STILL_STN040_TAKE005_01	10:37:46	21/03/2023	Sandy mud with a squat lobster, hermit crab and pennatula	Remotely Operated Vehicle	_ROV	ENVISION	55.750250	-1.008470	1	86.0						80	20	100	mud and sa		Subtidal Mud	Mud Habitats in Deepwater		SS.SMu.CFiMu	Circalittoral fine mud	EB	Poor	Dark, water column	EB	
STN040	BB_STILL_STN040_TAKE005_02	10:37:46	21/03/2023	Sandy mud with a hermit and a pennatula	Remotely Operated Vehicle	_ROV	ENVISION	55.750250	-1.008470	2	86.0						80	20	100	mud and sa		Subtidal Mud	Mud Habitats in Deepwater		SS.SMu.CFiMu	Circalittoral fine mud	EB	Poor	Dark, water column	EB	
STN040	BB_STILL_STN040_TAKE005_03	10:37:46	21/03/2023	Sandy mud with a pennatula	Remotely Operated Vehicle	_ROV	ENVISION	55.750250	-1.008470	3	86.0						80	20	100	mud and sa		Subtidal Mud	Mud Habitats in Deepwater		SS.SMu.CFiMu	Circalittoral fine mud	EB	Good		EB	
STN041	BB_STILL_STN041_TAKE004_01	10:19:04	21/03/2023	Sand and mud with turf	Remotely Operated Vehicle	_ROV	ENVISION	55.777270	-1.012090	1	77.0						80	20	100	mud and sa		Subtidal Mud	Mud Habitats in Deepwater		SS.SMu.CSaMu	Circalittoral sandy mud	EB	Good		EB	
STN041	BB_STILL_STN041_TAKE004_02	10:19:04	21/03/2023	Sand and mud with turf	Remotely Operated Vehicle	_ROV	ENVISION	55.777270	-1.012090	2	77.0						80	20	100	mud and sa		Subtidal Mud	Mud Habitats in Deepwater		SS.SMu.CSaMu	Circalittoral sandy mud	EB	Good		EB	CA

STN041	BB_STILL_STN041_TAKE004_03	10:19:04	21/03/2023	Sand and mud with a pennatula	Remotely Operated Vehicle	_ROV	ENVISION	55.777270	-1.012090	3	77.0						80	20	100	mud and sa		Subtidal Mud	Mud Habitats in Deepwater		SS.SMu.CSaMu	Circalittoral sandy mud	EB	Good		EB	
STN042	BB_STILL_STN042_TAKE003_01	10:02:15	21/03/2023	Sand and mud with a fish and hermit	Remotely Operated Vehicle	_ROV	ENVISION	55.799300	-1.005900	1	84.0						80	20	100	mud and sa		Subtidal Mud	Mud Habitats in Deepwater		SS.SMu.CFiMu	Circalittoral fine mud	EB	Good		EB	
STN042	BB_STILL_STN042_TAKE003_02	10:02:15	21/03/2023	Sand and mud with a hermit and chaetopteridae	Remotely Operated Vehicle	_ROV	ENVISION	55.799300	-1.005900	2	84.0						80	20	100	mud and sa		Subtidal Mud	Mud Habitats in Deepwater		SS.SMu.CFiMu	Circalittoral fine mud	EB	Good		EB	
STN042	BB_STILL_STN042_TAKE003_03	10:02:15	21/03/2023	Sand and mud with a fish	Remotely Operated Vehicle	_ROV	ENVISION	55.799300	-1.005900	3	84.0						80	20	100	mud and sa		Subtidal Mud	Mud Habitats in Deepwater		SS.SMu.CFiMu	Circalittoral fine mud	EB	Poor	Dark, water column	EB	
STN043	BB_STILL_STN043_TAKE002_01	09:42:17	21/03/2023	Sand and mud with turf	Remotely Operated Vehicle	_ROV	ENVISION	55.829567	-1.011383	1	85.0						80	20	100	mud and sa		Subtidal Mud	Mud Habitats in Deepwater		SS.SMu.CFiMu	Circalittoral fine mud	EB	Good		EB	
STN043	BB_STILL_STN043_TAKE002_02	09:42:17	21/03/2023	Sand and mud with a hermit and turf	Remotely Operated Vehicle	_ROV	ENVISION	55.829567	-1.011383	2	85.0						80	20	100	mud and sa		Subtidal Mud	Mud Habitats in Deepwater		SS.SMu.CFiMu	Circalittoral fine mud	EB	Good		EB	
STN043	BB_STILL_STN043_TAKE002_03	09:42:17	21/03/2023	Sand and mud with a hermit, pennatula and turf	Remotely Operated Vehicle	_ROV	ENVISION	55.829567	-1.011383	3	85.0						80	20	100	mud and sa		Subtidal Mud	Mud Habitats in Deepwater		SS.SMu.CFiMu	Circalittoral fine mud	EB	Poor	Dark, water column	EB	
STN044	BB_STILL_STN044_TAKE001_01	09:20:44	21/03/2023	Sandy mud with pennatula	Remotely Operated Vehicle	_ROV	ENVISION	55.847950	-1.024440	1	86.0						75	25	100	mud and sa		Subtidal Mud	Mud Habitats in Deepwater		SS.SMu.CFiMu	Circalittoral fine mud	EB	Good		JC	
STN044	BB_STILL_STN044_TAKE001_02	09:20:44	21/03/2023	Sandy mud with a lanice	Remotely Operated Vehicle	_ROV	ENVISION	55.847950	-1.024440	2	86.0						75	25	100	mud and sa		Subtidal Mud	Mud Habitats in Deepwater		SS.SMu.CFiMu	Circalittoral fine mud	EB	Good		JC	
STN044	BB_STILL_STN044_TAKE001_03	09:20:44	21/03/2023	Sandy mud with a hermit crab	Remotely Operated Vehicle	_ROV	ENVISION	55.847950	-1.024440	3	86.0						75	25	100	mud and sa		Subtidal Mud	Mud Habitats in Deepwater		SS.SMu.CFiMu	Circalittoral fine mud	EB	Good		JC	
STN064	BB_STILL_STN064_TAKE004_01	08:34:57	16/02/2023	Sand and mud with Flustra	Remotely Operated Vehicle	_ROV	ENVISION	55.945683	-1.081750	1	72.0						80	20	100	mud and sa		Subtidal Mud	Mud Habitats in Deepwater		SS.SMu.CSaMu	Circalittoral sandy mud	EB	Good		EB	
STN064	BB_STILL_STN064_TAKE004_02	08:34:57	16/02/2023	Sand and mud with a pennatula	Remotely Operated Vehicle	_ROV	ENVISION	55.945683	-1.081750	2	72.0						80	20	100	mud and sa		Subtidal Mud	Mud Habitats in Deepwater		SS.SMu.CSaMu	Circalittoral sandy mud	EB	Good		EB	CA
STN064	BB_STILL_STN064_TAKE004_03	08:34:57	16/02/2023	Sand and mud with a chaetopterus	Remotely Operated Vehicle	_ROV	ENVISION	55.945683	-1.081750	3	72.0						80	20	100	mud and sa		Subtidal Mud	Mud Habitats in Deepwater		SS.SMu.CSaMu	Circalittoral sandy mud	EB	Good		EB	
STN077	BB_STILL_STN077_TAKE012_01	12:00:33	16/02/2023	Sand and mud with chaetopteridae and a flatfish	Remotely Operated Vehicle	_ROV	ENVISION	56.134273	-1.570320	1	71.0						80	20	100	mud and sa		Subtidal Mud	Mud Habitats in Deepwater		SS.SMu.CSaMu	Circalittoral sandy mud	EB	Good		EB	
STN077	BB_STILL_STN077_TAKE012_02	12:00:33	16/02/2023	Sand and mud with a pennatula	Remotely Operated Vehicle	_ROV	ENVISION	56.134273	-1.570320	2	71.0						80	20	100	mud and sa		Subtidal Mud	Mud Habitats in Deepwater		SS.SMu.CSaMu	Circalittoral sandy mud	EB	Good		EB	
STN077	BB_STILL_STN077_TAKE012_03	12:00:33	16/02/2023	Sand and mud with alcyonium	Remotely Operated Vehicle	_ROV	ENVISION	56.134273	-1.570320	3	71.0						80	20	100	mud and sa		Subtidal Mud	Mud Habitats in Deepwater		SS.SMu.CSaMu	Circalittoral sandy mud	EB	Good		EB	

STN079	BB_STILL_STN079_TAKE013_01	12:28:20	16/02/2023	Mud and sand with turf	Remotely Operated Vehicle	_ROV	ENVISION	56.092177	-1.480985	1	72.0						80	20	100	mud and sa		Subtidal Mud	Mud Habitats in Deepwater		SS.SMu.CFiMu	Circalittoral fine mud	EB	Poor	Dark, water column	EB	
STN079	BB_STILL_STN079_TAKE013_02	12:28:20	16/02/2023	Mud and sand with pennatula and a hermit crab	Remotely Operated Vehicle	_ROV	ENVISION	56.092177	-1.480985	2	72.0						80	20	100	mud and sa		Subtidal Mud	Mud Habitats in Deepwater		SS.SMu.CFiMu	Circalittoral fine mud	EB	Poor	Dark, water column	EB	CA
STN079	BB_STILL_STN079_TAKE013_03	12:28:20	16/02/2023	Mud and sand with pennatula and a hermit crab	Remotely Operated Vehicle	_ROV	ENVISION	56.092177	-1.480985	3	72.0						80	20	100	mud and sa		Subtidal Mud	Mud Habitats in Deepwater		SS.SMu.CFiMu	Circalittoral fine mud	EB	Good		EB	
STN080	BB_STILL_STN080_TAKE014_01	12:47:52	16/02/2023	Sand, a cobble and shell with Flustra and turf	Remotely Operated Vehicle	_ROV	ENVISION	56.071255	-1.438578	1	62.0					20	80		100	coarse sed		Subtidal Coarse Sediment	Subtidal Sands and Gravels		SS.SCS	Sublittoral coarse sediment (unstable cobbles and pebbles, gravels and coarse sands)	EB	Poor	Dark, water column	EB	
STN080	BB_STILL_STN080_TAKE014_02	12:47:52	16/02/2023	Sand, a cobble and shell with Flustra and a flatfish	Remotely Operated Vehicle	_ROV	ENVISION	56.071255	-1.438578	2	62.0	5			5	20	65		100	coarse sed		Subtidal Coarse Sediment	Subtidal Sands and Gravels		SS.SCS	Sublittoral coarse sediment (unstable cobbles and pebbles, gravels and coarse sands)	EB	Good		EB	
STN080	BB_STILL_STN080_TAKE014_03	12:47:52	16/02/2023	Sand and shell with terebellidae and Flustra	Remotely Operated Vehicle	_ROV	ENVISION	56.071255	-1.438578	3	62.0				5	20	75		100	coarse sed		Subtidal Coarse Sediment	Subtidal Sands and Gravels		SS.SCS	Sublittoral coarse sediment (unstable cobbles and pebbles, gravels and coarse sands)	EB	Good		EB	
STN081	BB_STILL_STN081_TAKE006_01	09:11:56	16/02/2023	Sand and mud with chaetopteridae	Remotely Operated Vehicle	_ROV	ENVISION	55.983000	-1.117530	1	63.0						80	20	100	mud and sa		Subtidal Mud	Mud Habitats in Deepwater		SS.SMu.CSaMu	Circalittoral sandy mud	EB	Good		EB	
STN081	BB_STILL_STN081_TAKE006_02	09:11:56	16/02/2023	Sand and mud with turf	Remotely Operated Vehicle	_ROV	ENVISION	55.983000	-1.117530	2	63.0						80	20	100	mud and sa		Subtidal Mud	Mud Habitats in Deepwater		SS.SMu.CSaMu	Circalittoral sandy mud	EB	Good		EB	
STN081	BB_STILL_STN081_TAKE006_03	09:11:56	16/02/2023	Sand and mud with turf	Remotely Operated Vehicle	_ROV	ENVISION	55.983000	-1.117530	3	63.0						80	20	100	mud and sa		Subtidal Mud	Mud Habitats in Deepwater		SS.SMu.CSaMu	Circalittoral sandy mud	EB	Good		EB	
STN082	BB_STILL_STN082_TAKE015_01	13:12:20	16/02/2023	Rippled sand with turf	Remotely Operated Vehicle	_ROV	ENVISION	56.045815	-1.397137	1	69.0					5	95		100	sand and m		Subtidal Sand	Subtidal Sands and Gravels		SS.SSa.CMuSa	Circalittoral muddy sand	EB	Good		EB	
STN082	BB_STILL_STN082_TAKE015_02	13:12:20	16/02/2023	Rippled sand with a crustacea	Remotely Operated Vehicle	_ROV	ENVISION	56.045815	-1.397137	2	69.0					5	95		100	sand and m		Subtidal Sand	Subtidal Sands and Gravels		SS.SSa.CMuSa	Circalittoral muddy sand	EB	Good		EB	
STN082	BB_STILL_STN082_TAKE015_03	13:12:20	16/02/2023	Rippled sand	Remotely Operated Vehicle	_ROV	ENVISION	56.045815	-1.397137	3	69.0					5	95		100	sand and m		Subtidal Sand	Subtidal Sands and Gravels		SS.SSa.CMuSa	Circalittoral muddy sand	EB	Good		EB	
STN083	BB_STILL_STN083_TAKE016_01	13:31:07	16/02/2023	Rippled coarse sand with Flustra	Remotely Operated Vehicle	_ROV	ENVISION	56.021395	-1.343992	1	62.0					5	95		100	sand and m		Subtidal Sand	Subtidal Sands and Gravels		SS.SSa.CMuSa	Circalittoral muddy sand	EB	Good		EB	

STN083	BB_STILL_STN083_TAKE016_02	13:31:07	16/02/2023	Rippled coarse sand with a chaetopteridae	Remotely Operated Vehicle	_ROV	ENVISION	56.021395	-1.343992	2	62.0					5	95		100	sand and r		Subtidal Sand	Subtidal Sands and Gravels		SS.SSa.CMuSa	Circalittoral muddy sand	EB	Good		EB	
STN083	BB_STILL_STN083_TAKE016_03	13:31:07	16/02/2023	Rippled coarse sand	Remotely Operated Vehicle	_ROV	ENVISION	56.021395	-1.343992	3	62.0					5	95		100	sand and r		Subtidal Sand	Subtidal Sands and Gravels		SS.SSa.CMuSa	Circalittoral muddy sand	EB	Good		EB	
STN084	BB_STILL_STN084_TAKE017_01	13:47:25	16/02/2023	Mud, sand and shell with turf	Remotely Operated Vehicle	_ROV	ENVISION	55.998502	-1.302493	1	62.0			10		10	70	10	100	mixed sedi		Subtidal Mixed Sediment			SS.SMx.CMx	Circalittoral mixed sediment	EB	Good		EB	
STN084	BB_STILL_STN084_TAKE017_02	13:47:25	16/02/2023	Mud, sand and pebbles with an urchin	Remotely Operated Vehicle	_ROV	ENVISION	55.998502	-1.302493	2	62.0	10			0	20	55	10	100	mixed sedi		Subtidal Mixed Sediment			SS.SMx.CMx	Circalittoral mixed sediment	EB	Good		EB	
STN084	BB_STILL_STN084_TAKE017_03	13:47:25	16/02/2023	Mud, sand and cobbles with Flustra and a nudibranch	Remotely Operated Vehicle	_ROV	ENVISION	55.998502	-1.302493	3	62.0		5			10	65	10	100	mixed sedi		Subtidal Mixed Sediment			SS.SMx.CMx	Circalittoral mixed sediment	EB	Good	Caryophillia clear in video	EB	
STN085	BB_STILL_STN085_TAKE018_01	14:03:37	16/02/2023	Sand and mud with pennatula	Remotely Operated Vehicle	_ROV	ENVISION	55.985303	-1.266577	1	67.0					1	79	20	100	mud and sa		Subtidal Mud	Mud Habitats in Deepwater		SS.SMu.CFiMu	Circalittoral fine mud	EB	Good		EB	
STN085	BB_STILL_STN085_TAKE018_02	14:03:37	16/02/2023	Sand and mud with Flustra and hydroids	Remotely Operated Vehicle	_ROV	ENVISION	55.985303	-1.266577	2	67.0					1	79	20	100	mud and sa		Subtidal Mud	Mud Habitats in Deepwater		SS.SMu.CFiMu	Circalittoral fine mud	EB	Good		EB	
STN085	BB_STILL_STN085_TAKE018_03	14:03:37	16/02/2023	Sand and mud	Remotely Operated Vehicle	_ROV	ENVISION	55.985303	-1.266577	3	67.0					1	79	20	100	mud and sa		Subtidal Mud	Mud Habitats in Deepwater		SS.SMu.CFiMu	Circalittoral fine mud	EB	Good		EB	
STN086	BB_STILL_STN086_TAKE019_01	14:19:08	16/02/2023	Sandy mud with pennatula	Remotely Operated Vehicle	_ROV	ENVISION	55.971087	-1.235850	1	71.0						80	20	100	mud and sa		Subtidal Mud	Mud Habitats in Deepwater		SS.SMu.CFiMu	Circalittoral fine mud	EB	Good		EB	
STN086	BB_STILL_STN086_TAKE019_02	14:19:08	16/02/2023	Sandy mud with a fish	Remotely Operated Vehicle	_ROV	ENVISION	55.971087	-1.235850	2	71.0						80	20	100	mud and sa		Subtidal Mud	Mud Habitats in Deepwater		SS.SMu.CFiMu	Circalittoral fine mud	EB	Good		EB	
STN086	BB_STILL_STN086_TAKE019_03	14:19:08	16/02/2023	Sandy mud with pennatula and a chaetopteridae	Remotely Operated Vehicle	_ROV	ENVISION	55.971087	-1.235850	3	71.0						80	20	100	mud and sa		Subtidal Mud	Mud Habitats in Deepwater		SS.SMu.CFiMu	Circalittoral fine mud	EB	Good		EB	
STN087	BB_STILL_STN087_TAKE020_01	14:35:20	16/02/2023	Mud with turf and a pennatula	Remotely Operated Vehicle	_ROV	ENVISION	55.948913	-1.202583	1	76.0						70	30	100	mud and sa		Subtidal Mud	Mud Habitats in Deepwater		SS.SMu.CFiMu	Circalittoral fine mud	EB	Good		EB	
STN087	BB_STILL_STN087_TAKE020_02	14:35:20	16/02/2023	Mud with a pennatula	Remotely Operated Vehicle	_ROV	ENVISION	55.948913	-1.202583	2	76.0						70	30	100	mud and sa		Subtidal Mud	Mud Habitats in Deepwater		SS.SMu.CFiMu	Circalittoral fine mud	EB	Good		EB	
STN087	BB_STILL_STN087_TAKE020_03	14:35:20	16/02/2023	Mud with pennatula and a burrow	Remotely Operated Vehicle	_ROV	ENVISION	55.948913	-1.202583	3	76.0						70	30	100	mud and sa		Subtidal Mud	Mud Habitats in Deepwater		SS.SMu.CFiMu	Circalittoral fine mud	EB	Good		EB	
STN088	BB_STILL_STN088_TAKE021_01	14:50:39	16/02/2023	Mud, sand, cobbles, pebbles and shell with hydroids and crust	Remotely Operated Vehicle	_ROV	ENVISION	55.938325	-1.166208	1	64.0	10			5	10	45	10	100	mixed sedi		Subtidal Mixed Sediment			SS.SMx.CMx	Circalittoral mixed sediment	EB	Good		EB	

STN088	BB_STILL_STN088_TAKE021_02	14:50:39	16/02/2023	Mud, sand, pebbles and cobbles with crustacea and turf	Remotely Operated Vehicle	_ROV	ENVISION	55.938325	-1.166208	2	64.0	10			5	20	45	10	100	mixed sedi		Subtidal Mixed Sediment			SS.SMx.CMx	Circalittoral mixed sediment	EB	Good		EB	
STN088	BB_STILL_STN088_TAKE021_03	14:50:39	16/02/2023	Mud, sand, shell and a cobble with starfish and hydroids	Remotely Operated Vehicle	_ROV	ENVISION	55.938325	-1.166208	3	64.0	10			10	20	40	10	100	mixed sedi		Subtidal Mixed Sediment			SS.SMx.CMx	Circalittoral mixed sediment	EB	Good		EB	
STN089	BB_STILL_STN089_TAKE022_01	15:07:47	16/02/2023	Sand with a hermit	Remotely Operated Vehicle	_ROV	ENVISION	55.912462	-1.123957	1	68.0		5			5	85	5	100	coarse sed		Subtidal Coarse Sediment	Subtidal Sands and Gravels		SS.SCS.CCS	Circalittoral coarse sediment	EB	Good		EB	
STN089	BB_STILL_STN089_TAKE022_02	15:07:47	16/02/2023	Sand with a hermit crab and chaetopteridae	Remotely Operated Vehicle	_ROV	ENVISION	55.912462	-1.123957	2	68.0		5			5	85	5	100	coarse sed		Subtidal Coarse Sediment	Subtidal Sands and Gravels		SS.SCS.CCS	Circalittoral coarse sediment	EB	Good		EB	
STN089	BB_STILL_STN089_TAKE022_03	15:07:47	16/02/2023	Sand with an aequipecten	Remotely Operated Vehicle	_ROV	ENVISION	55.912462	-1.123957	3	68.0				5	5	85	5	100	coarse sed		Subtidal Coarse Sediment	Subtidal Sands and Gravels		SS.SCS.CCS	Circalittoral coarse sediment	EB	Good		EB	
STN090	BB_STILL_STN090_TAKE003_01	08:17:21	16/02/2023	Sand and mud with a flatfish	Remotely Operated Vehicle	_ROV	ENVISION	55.924668	-1.071638	1	68.0					5	75	20	100	mud and sa		Subtidal Mud	Mud Habitats in Deepwater		SS.SMu.CSaMu	Circalittoral sandy mud	EB	Good		EB	
STN090	BB_STILL_STN090_TAKE003_02	08:17:21	16/02/2023	Sand and mud with turf	Remotely Operated Vehicle	_ROV	ENVISION	55.924668	-1.071638	2	68.0						80	20	100	mud and sa		Subtidal Mud	Mud Habitats in Deepwater		SS.SMu.CSaMu	Circalittoral sandy mud	EB	Good		EB	
STN090	BB_STILL_STN090_TAKE003_03	08:17:21	16/02/2023	Sand and mud with a hermit crab	Remotely Operated Vehicle	_ROV	ENVISION	55.924668	-1.071638	3	68.0						80	20	100	mud and sa		Subtidal Mud	Mud Habitats in Deepwater		SS.SMu.CSaMu	Circalittoral sandy mud	EB	Good		EB	
STN091	BB_STILL_STN091_TAKE023_01	15:27:14	16/02/2023	Mud and sand with a hermit and a pennatula	Remotely Operated Vehicle	_ROV	ENVISION	55.895005	-1.087165	1	75.0						80	20	100	mud and sa		Subtidal Mud	Mud Habitats in Deepwater		SS.SMu.CSaMu	Circalittoral sandy mud	EB	Poor	Dark, water column	EB	
STN091	BB_STILL_STN091_TAKE023_02	15:27:14	16/02/2023	Mud and sand with a pennatula	Remotely Operated Vehicle	_ROV	ENVISION	55.895005	-1.087165	2	75.0						80	20	100	mud and sa		Subtidal Mud	Mud Habitats in Deepwater		SS.SMu.CSaMu	Circalittoral sandy mud	EB	Good		EB	
STN091	BB_STILL_STN091_TAKE023_03	15:27:14	16/02/2023	Mud and sand with Flustra	Remotely Operated Vehicle	_ROV	ENVISION	55.895005	-1.087165	3	75.0						80	20	100	mud and sa		Subtidal Mud	Mud Habitats in Deepwater		SS.SMu.CSaMu	Circalittoral sandy mud	EB	Good		EB	
STN092	BB_STILL_STN092_TAKE024_01	15:45:38	16/02/2023	Mud and sand	Remotely Operated Vehicle	_ROV	ENVISION	55.876570	-1.048817	1	76.0						80	20	100	mud and sa		Subtidal Mud	Mud Habitats in Deepwater		SS.SMu.CSaMu	Circalittoral sandy mud	EB	Good		EB	
STN092	BB_STILL_STN092_TAKE024_02	15:45:38	16/02/2023	Mud and sand with a pennatula	Remotely Operated Vehicle	_ROV	ENVISION	55.876570	-1.048817	2	76.0						80	20	100	mud and sa		Subtidal Mud	Mud Habitats in Deepwater		SS.SMu.CSaMu	Circalittoral sandy mud	EB	Good		EB	
STN092	BB_STILL_STN092_TAKE024_03	15:45:38	16/02/2023	Sandy mud with a chaetopteridae	Remotely Operated Vehicle	_ROV	ENVISION	55.876570	-1.048817	3	76.0						80	20	100	mud and sa		Subtidal Mud	Mud Habitats in Deepwater		SS.SMu.CSaMu	Circalittoral sandy mud	EB	Good		EB	
STN093	BB_STILL_STN093_TAKE025_01	16:00:45	16/02/2023	Sandy mud	Remotely Operated Vehicle	_ROV	ENVISION	55.863215	-1.024152	1	79.0						80	20	100	mud and sa		Subtidal Mud	Mud Habitats in Deepwater		SS.SMu.CSaMu	Circalittoral sandy mud	EB	Good		EB	
STN093	BB_STILL_STN093_TAKE025_02	16:00:45	16/02/2023	Sandy mud with a pennatula	Remotely Operated Vehicle	_ROV	ENVISION	55.863215	-1.024152	2	79.0						80	20	100	mud and sa		Subtidal Mud	Mud Habitats in Deepwater		SS.SMu.CSaMu	Circalittoral sandy mud	EB	Good		EB	

STN093	BB_STILL_STN093_TAKE025_03	16:00:45	16/02/2023	Sandy mud with a pennatula	Remotely Operated Vehicle	_ROV	ENVISION	55.863215	-1.024152	3	79.0						80	20	100	mud and sa		Subtidal Mud	Mud Habitats in Deepwater		SS.SMu.CSaMu	Circalittoral sandy mud	EB	Good	Pennatula clearly visible in video	EB	
STN096	BB_STILL_STN096_TAKE008_01	09:59:18	16/02/2023	Mud and coarse sand with a cobble	Remotely Operated Vehicle	_ROV	ENVISION	56.003318	-1.130133	1	63.0		5			5	80	5	100	coarse sed		Subtidal Coarse Sediment	Subtidal Sands and Gravels		SS.SCS	Sublittoral coarse sediment (unstable cobbles and pebbles, gravels and coarse sands)	EB	Good		EB	
STN096	BB_STILL_STN096_TAKE008_02	09:59:18	16/02/2023	Mud and coarse sand with Flustra	Remotely Operated Vehicle	_ROV	ENVISION	56.003318	-1.130133	2	63.0		5			5	85	5	100	coarse sed		Subtidal Coarse Sediment	Subtidal Sands and Gravels		SS.SCS	Sublittoral coarse sediment (unstable cobbles and pebbles, gravels and coarse sands)	EB	Good	Pleuronectiformes clear in video	EB	
STN096	BB_STILL_STN096_TAKE008_03	09:59:18	16/02/2023	Mud and coarse sand with Flustra	Remotely Operated Vehicle	_ROV	ENVISION	56.003318	-1.130133	3	63.0		5			5	85	5	100	coarse sed		Subtidal Coarse Sediment	Subtidal Sands and Gravels		SS.SCS	Sublittoral coarse sediment (unstable cobbles and pebbles, gravels and coarse sands)	EB	Good		EB	
STN100	BB_STILL_STN100_TAKE005_01	08:51:09	16/02/2023	Sand and mud with turf	Remotely Operated Vehicle	_ROV	ENVISION	55.962267	-1.100363	1	66.0						80	20	100	mud and sa		Subtidal Mud	Mud Habitats in Deepwater		SS.SMu.CSaMu	Circalittoral sandy mud	EB	Good		EB	CA
STN100	BB_STILL_STN100_TAKE005_02	08:51:09	16/02/2023	Sand and mud with turf and hydroids	Remotely Operated Vehicle	_ROV	ENVISION	55.962267	-1.100363	2	66.0						80	20	100	mud and sa		Subtidal Mud	Mud Habitats in Deepwater		SS.SMu.CSaMu	Circalittoral sandy mud	EB	Good	Brachyura clear in video	EB	
STN100	BB_STILL_STN100_TAKE005_03	08:51:09	16/02/2023	Sand and mud with an aequipecten	Remotely Operated Vehicle	_ROV	ENVISION	55.962267	-1.100363	3	66.0						80	20	100	mud and sa		Subtidal Mud	Mud Habitats in Deepwater		SS.SMu.CSaMu	Circalittoral sandy mud	EB	Good		EB	
STN102	BB_STILL_STN102_TAKE007_01	09:40:46	16/02/2023	Coarse sand	Remotely Operated Vehicle	_ROV	ENVISION	56.030605	-1.152585	1	60.0				10		85	5	100	coarse sed		Subtidal Coarse Sediment	Subtidal Sands and Gravels		SS.SCS.CCS	Circalittoral coarse sediment	EB	Good		EB	
STN102	BB_STILL_STN102_TAKE007_02	09:40:46	16/02/2023	Coarse sand with turf	Remotely Operated Vehicle	_ROV	ENVISION	56.030605	-1.152585	2	60.0	5	5		10		75	5	100	coarse sed		Subtidal Coarse Sediment	Subtidal Sands and Gravels		SS.SCS.CCS	Circalittoral coarse sediment	EB	Good		EB	
STN102	BB_STILL_STN102_TAKE007_03	09:40:46	16/02/2023	Coarse sand with a scallop	Remotely Operated Vehicle	_ROV	ENVISION	56.030605	-1.152585	3	60.0	5	5		20		65	5	100	coarse sed		Subtidal Coarse Sediment	Subtidal Sands and Gravels		SS.SCS.CCS	Circalittoral coarse sediment	EB	Good		EB	CA
STN104	BB_STILL_STN104_TAKE009_01	10:23:40	16/02/2023	Rippled sand with some shell, turf and Alcyonium	Remotely Operated Vehicle	_ROV	ENVISION	56.059907	-1.172700	1	60.0				5	5	90		100	coarse sed		Subtidal Coarse Sediment	Subtidal Sands and Gravels		SS.SCS	Sublittoral coarse sediment (unstable cobbles and pebbles, gravels and coarse sands)	EB	Good		EB	

STN104	BB_STILL_STN104_TAKE009_02	10:23:40	16/02/2023	Rippled sand with some shell and a hermit crab	Remotely Operated Vehicle	_ROV	ENVISION	56.059907	-1.172700	2	60.0					10	90		100	coarse sed		Subtidal Coarse Sediment	Subtidal Sands and Gravels		SS.SCS	Sublittoral coarse sediment (unstable cobbles and pebbles, gravels and coarse sands)	EB	Good		EB	CA
STN104	BB_STILL_STN104_TAKE009_03	10:23:40	16/02/2023	Rippled sand with some shell and turf	Remotely Operated Vehicle	_ROV	ENVISION	56.059907	-1.172700	3	60.0				5	10	85		100	coarse sed		Subtidal Coarse Sediment	Subtidal Sands and Gravels		SS.SCS	Sublittoral coarse sediment (unstable cobbles and pebbles, gravels and coarse sands)	EB	Good		EB	
STN106	BB_STILL_STN106_TAKE010_01	10:45:15	16/02/2023	Sand and mud with turf	Remotely Operated Vehicle	_ROV	ENVISION	56.097110	-1.203212	1	67.0					10	80	10	100	mixed sedi		Subtidal Mixed Sediment			SS.SMx.CMx	Circalittoral mixed sediment	EB	Good		EB	
STN106	BB_STILL_STN106_TAKE010_02	10:45:15	16/02/2023	Sand and mud with an anemone	Remotely Operated Vehicle	_ROV	ENVISION	56.097110	-1.203212	2	67.0					10	80	10	100	mixed sedi		Subtidal Mixed Sediment			SS.SMx.CMx	Circalittoral mixed sediment	EB	Good		EB	
STN106	BB_STILL_STN106_TAKE010_03	10:45:15	16/02/2023	Sand and mud with a chaetopteridae	Remotely Operated Vehicle	_ROV	ENVISION	56.097110	-1.203212	3	67.0		5			5	80	10	100	mixed sedi		Subtidal Mixed Sediment			SS.SMx.CMx	Circalittoral mixed sediment	EB	Good		EB	
STN108	BB_STILL_STN108_TAKE011_01	11:07:25	16/02/2023	Sand and mud with turf	Remotely Operated Vehicle	_ROV	ENVISION	56.137678	-1.238987	1	65.0						80	20	100	mud and sa		Subtidal Mud	Mud Habitats in Deepwater		SS.SMu.CSaMu	Circalittoral sandy mud	EB	Good		EB	
STN108	BB_STILL_STN108_TAKE011_02	11:07:25	16/02/2023	Sand and mud with turf and a chaetopteridae	Remotely Operated Vehicle	_ROV	ENVISION	56.137678	-1.238987	2	65.0						80	20	100	mud and sa		Subtidal Mud	Mud Habitats in Deepwater		SS.SMu.CSaMu	Circalittoral sandy mud	EB	Good		EB	
STN108	BB_STILL_STN108_TAKE011_03	11:07:25	16/02/2023	Sand and mud	Remotely Operated Vehicle	_ROV	ENVISION	56.137678	-1.238987	3	65.0						80	20	100	mud and sa		Subtidal Mud	Mud Habitats in Deepwater		SS.SMu.CSaMu	Circalittoral sandy mud	EB	Good		EB	
STN109	BB_STILL_STN109_TAKE001_01	07:41:24	16/02/2023	Sand and mud with turf / tubes	Remotely Operated Vehicle	_ROV	ENVISION	55.887797	-1.041705	1	70.0						80	20	100	mud and sa		Subtidal Mud	Mud Habitats in Deepwater		SS.SMu.CSaMu	Circalittoral sandy mud	EB	Good		EB	
STN109	BB_STILL_STN109_TAKE001_02	07:41:24	16/02/2023	Sand and mud with a starfish	Remotely Operated Vehicle	_ROV	ENVISION	55.887797	-1.041705	2	70.0						80	20	100	mud and sa		Subtidal Mud	Mud Habitats in Deepwater		SS.SMu.CSaMu	Circalittoral sandy mud	EB	Good		EB	
STN109	BB_STILL_STN109_TAKE001_03	07:41:24	16/02/2023	Sand and mud with sabellidae and a crab	Remotely Operated Vehicle	_ROV	ENVISION	55.887797	-1.041705	3	70.0						80	20	100	mud and sa		Subtidal Mud	Mud Habitats in Deepwater		SS.SMu.CSaMu	Circalittoral sandy mud	EB	Good		EB	
STN110	BB_STILL_STN110_TAKE002_01	07:58:32	16/02/2023	Sand and mud with a pennatula	Remotely Operated Vehicle	_ROV	ENVISION	55.906163	-1.053428	1	75.0						80	20	100	mud and sa		Subtidal Mud	Mud Habitats in Deepwater		SS.SMu.CSaMu	Circalittoral sandy mud	EB	Good		EB	
STN110	BB_STILL_STN110_TAKE002_02	07:58:32	16/02/2023	Sand and mud with turf	Remotely Operated Vehicle	_ROV	ENVISION	55.906163	-1.053428	2	75.0						80	20	100	mud and sa		Subtidal Mud	Mud Habitats in Deepwater		SS.SMu.CSaMu	Circalittoral sandy mud	EB	Good		EB	CA
STN110	BB_STILL_STN110_TAKE002_03	07:58:32	16/02/2023	Sand and mud	Remotely Operated Vehicle	_ROV	ENVISION	55.906163	-1.053428	3	75.0						80	20	100	mud and sa		Subtidal Mud	Mud Habitats in Deepwater		SS.SMu.CSaMu	Circalittoral sandy mud	EB	Good		EB	

F. Biotope Descriptions

SS.SMx.OMx - Offshore circalittoral mixed sediment

Offshore (deep) circalittoral habitats with slightly muddy mixed gravelly sand and stones or shell. This habitat may cover large areas of the offshore continental shelf although there is relatively little data available. Such habitats are often highly diverse with a high number of infaunal polychaete and bivalve species. Animal communities in this habitat are closely related to offshore gravels and coarse sands and in some areas populations of the horse mussel Modiolus modiolus may develop in these habitats (see SS.SBR.SMus.ModMx). Only one biotope is currently described under this biotope complex.

SS.SMx.CMx - Circalittoral mixed sediment

Mixed (heterogeneous) sediment habitats in the circalittoral zone (generally below 15-20 m) including well mixed muddy gravelly sands or very poorly sorted mosaics of shell, cobbles and pebbles embedded in or lying upon mud, sand or gravel. Due to the variable nature of the seabed a variety of communities can develop which are often very diverse. A wide range of infaunal polychaetes, bivalves, echinoderms and burrowing anemones such as *Cerianthus lloydii* are often present in such habitats and the presence of hard substrata (shells and stones) on the surface enables epifaunal species to become established, particularly hydroids such as *Nemertesia* spp. and *Hydrallmania falcata*. The combination of epifauna and infauna can lead to species rich communities. Coarser mixed sediment communities may show a strong resemblance, in terms of infauna, to biotopes within the SS.SCS complex. However, infaunal data for this biotope complex is limited to that described under the biotope SS.SMx.CMx.KurThyMx, and so are not representative of the infaunal component of this biotope complex.

SS.SMx.CMx.KurThyMx - *Kurtiella bidentata* and *Thyasira* spp. in circalittoral muddy mixed sediment

In moderately exposed or sheltered, circalittoral muddy sands and gravels a community characterised by the bivalves *Thyasira* spp. (often *Thyasira flexuosa*), *Kurtiella bidentata* and *Prionospio fallax* may develop. Infaunal polychaetes such as *Hilbigneris gracilis*, *Chaetozone setosa* and *Scoloplos armiger* are also common in this community whilst amphipods such as *Ampelisca* spp. and the cumacean *Eudorella truncatula* may also be found in some areas. The brittlestar *Amphiura filiformis* may also be abundant at some sites. Conspicuous epifauna on larger pebbles or shell gravel may include hydroids, encrusting bryozoans *Escharella* spp. particularly *Escharella immersa*, *Disporella hispida*, and, in shallower waters, maerl (*Phymatolithon calcareum*), although at very low abundances and not forming maerl beds. In some sheltered areas, organic enrichment of this biotope increases the occurrence of species such as *Ophryotrocha*sp., *Scoloplos* sp., *Mediomastus fragilis*, *Lumbrineris* sp., Capitellids and *Tubificoides pseudogaster*.

SS.SSa.CFiSa.ApriBatPo - *Abra prismatica, Bathyporeia elegans* and polychaetes in circalittoral fine sand

In circalittoral and offshore medium to fine sands between 25 m and 100 m a community characterised by the bivalve *Abra prismatica*, the amphipod *Bathyporeia elegans* and polychaetes such as *Scoloplos armiger*, *Spiophanes bombyx*, *Aonides paucibranchiata*, *Chaetozone setosa*, *Ophelia borealis* and *Nephtys longosetosa* may be found. The cumacean *Eudorellopsis deformis* and the opheliid polychaetes such as *Ophelia borealis*, *Travisia forbesii* or *Ophelina neglecta* are often present in this biotope. The brittlestar *Amphiura filiformis* may also be common at some sites. This biotope has been reported in the central and northern North Sea (Basford and Eleftheriou, 1989; Künitzer *et al*., 1992). Variants to the biotope, with sparser fauna in medium coarse sand with some gravel in deeper water, have been found off the east coast of England, similarly comprised of annelid worms such as *Nephtys cirrosa*, *Ophelia borealis*, and *Spio armata*, brittle stars *Amphipholis squamata*, and crustacea such as *Gastrosaccus spinifer*. In variable gravelly sands with pebbles, sparse fauna may also include bryozoans, such as *Conopeum reticulum* and *Aspidelectra melolontha*, and there may be presence of *Sabellaria spinulosa*.

SS.SSa.OSa.OfusAfil - *Owenia fusiformis* and *Amphiura filiformis* in offshore circalittoral sand or muddy sand

Areas of slightly muddy sand (generally <20% mud) in offshore waters may be characterised by high numbers of the tube building oweniid polychaete *Owenia fusiformis* and *Galathowenia* sp., often with the brittlestar *Amphiura filiformis*. Whilst *O. fusiformis* is also found in other circalittoral or offshore biotopes it usually occurs in lower abundances than in SS.SSa.OSa.OfusAfil. Other species found in this community are the polychaetes *Goniada maculata, Pholoe inornata, Diplocirrus glaucus, Chaetozone setosa* and Spiophanes kroyeri with occasional bivalves such as Timoclea ovata and Thyasira equalis. The sea cucumber Labidoplax buski and the cumacean Eudorella truncatula are also commonly often found in this biotope. This biotope along with SS.SMu.CSaMu.ThyEten, SS.SMu.CSaMu.AfilKurAnit, SS.SMu.CSaMu.AfilEten and SS.SMu.OMu.PjefThyAfil, may comprise the Amphiura dominated components of the 'offshore muddy sand association' (Jones 1951; Mackie 1990) and the infralittoral etage described by Glemarec (1973). Variants of the biotope may contain the characteristic high numbers of Owenia fusiformis and Amphiura filiformis but may also include Arctica islandica and Ennucula tenuis. Where these occur, the biotope may be considered a transitionary variant between SS.SSa.OSa.OfusAfil and SS.SMu.CSaMu.AfilKurAnit.

SS.SMu.CSaMu - Circalittoral sandy mud

Circalittoral, cohesive sandy mud, typically with over 20% silt/clay, generally in water depths of over 10 m, with weak or very weak tidal streams. This habitat is generally found in deeper areas of bays and marine inlets or offshore from less wave exposed coasts. Seapens such as *Virgularia mirabilis* and brittlestars such as *Amphiura* spp. are particularly characteristic of this habitat whilst infaunal species include the tube building polychaetes *Lagis koreni* and *Owenia fusiformis*, and deposit feeding bivalves such as *Kurtiella bidentata* and *Abra* spp.

SS.SMu.CSaMu.ThyEten - *Thyasira* spp. and *Ennucula tenuis* in circalittoral sandy mud

Circalittoral cohesive sandy muds with small quantities of gravel, off sheltered or moderately exposed coasts may support populations characterised by *Thyasira* spp., in particular *Thyasira flexuosa*. Other characteristic taxa may include *Ennucula tenuis*, *Goniada maculate* and in some areas *Rhodine gracilior*. *Kurtiella bidentata*, *Abra alba*, *Harpinia antennaria* and *Amphiura filiformis* may be abundant in some examples of this biotope. Whilst moderately diverse, animal abundances are often low and it is possible that the biotope is the result of sedimentary disturbance e.g. from trawling and is possibly an impoverished version of SS.SMu.CSaMu.AfilEten. Collectively the biotopes SS.SMu.CSaMu.ThyEten, SS.SMu.CSaMu.AfilKurAnit, SS.SMu.CSaMu.AfilEten, SS.SMu.OMu.PjefThyAfil, and SS.SSa.OSa.OfusAfil, may form the *Amphiura* dominated components of the 'off-shore muddy sand association' described by other workers (Jones 1951; Thorson 1957; Mackie 1990) and the infralittoral etage described by Glemarec (1973).

SS.SMu.OMu - Offshore circalittoral mud

In mud and cohesive sandy mud in the offshore circalittoral zone, typically below 50-70 m, a variety of faunal communities may develop, depending upon the level of silt/clay and organic matter in the sediment. Communities are typically dominated by polychaetes but often with high numbers of bivalves such as *Thyasira* spp., echinoderms and foraminifera.

SS.SMu.OMu.PjefThyAfil - *Paramphinome jeffreysii, Thyasira* spp. and *Amphiura filiformis* in offshore circalittoral sandy mud

Deep, offshore cohesive sandy mud communities characterised by the polychaete *Paramphinome jeffreysii*, bivalves such as *Parathyasira equalis* and *Thyasira gouldi* (sometimes in elevated densities) and the brittlestar *Amphiura filiformis*. Other taxa may include *Laonice cirrata*, the holothurian *Labidoplax buskii* and the polychaetes *Goniada maculata*, *Spiophanes kroyeri* and *Aricidea (Acmira) catherinae*. *Amphiura chiajei* may be occasional in this biotope as may *Hermania scabra*, *Levinsenia gracilis*, and *Pholoe inornata*. In areas of the North Sea, such as the Swallow Sand MCZ, this biotope has been observed in sediments with a coarse material component. This biotope along with

SS.SMu.CSaMu.ThyEten, SS.SMuCSaMu.AfilKurAnit, SS.SMu.CSaMu.AfilEten and SS.SSa.OSa.OfusAfil, may comprise the *Amphiura* dominated components of the 'off-shore muddy sand association' (Jones 1951; Mackie 1990) and the infralittoral etage described by Glemarec (1973) and may exist in a transitional environment with SS.SSa.OSa.OfusAfil.

SS.SSa.IMuSa. – Infralittoral muddy sand

Non-cohesive muddy sand (with 5% to 20% silt/clay) in the infralittoral zone, extending from the extreme lower shore down to more stable circalittoral zone at about 15-20 m. The habitat supports a variety of animal-dominated communities, particularly polychaetes (*Magelona mirabilis, Spiophanes bombyx* and *Chaetozone setosa*), bivalves (*Fabulina fibula* and *Chamelea gallina*) and the urchin *Echinocardium cordatum*.

SS.SSa.IMuSa.FfabMag - *Fabulina fabula* and *Magelona mirabilis* with venerid bivalves and amphipods in infralittoral compacted fine muddy sand

In stable, fine, compacted sands and slightly muddy sands in the infralittoral and littoral fringe, communities dominated by venerid bivalves such as *Chamelea gallina* occur. This biotope may be characterised by a prevalence of *Fabulina fabula* and *Magelona mirabilis* or other species of *Magelona* (e.g. *M. filiformis*). Other taxa, including the amphipod *Bathyporeia* spp. and polychaetes such as *Chaetozone setosa*, *Spiophanes bombyx* and *Nephtys* spp. are also commonly recorded. In some areas the bivalve *Spisula elliptica* may also occur in this biotope in low numbers. The community is relatively stable in its species composition, however, numbers of *Magelona* and *F. fabulina* tend to fluctuate. Around the Scilly Isles numbers of *F. fabulina* in this biotope are uncommonly low whilst these taxa are often found in higher abundances in muddier communities (presumably due to the higher organic content). In deeper, offshore variants of this biotope, although still present, there is a reduction in the component species *F. fabula*, whilst *Magelona filiformis*, *Bathyporeia* spp., annelid and nemertean worms, and Amphiuridae may be more common. Consequently, it may be better to revise this biotope on the basis of less ubiquitous taxa such as key amphipod species (E.I.S. Rees pers. comm. 2002) although more data is required to test this. SS.SSa.IMuSa.FfabMag and SS.SCS.ICS.MoeVen are collectively considered to be the 'shallow *Venus* community' or 'boreal off-shore sand association' of previous workers (see Petersen 1918; Jones 1950; Thorson 1957). These communities have been shown to correlate well with particular levels of current induced 'bed-stress' (Warwick & Uncles 1980). The 'Arctic *Venus* Community' and 'Mediterranean *Venus* Community' described to the north and south of the UK (Thorson 1957) probably occur in the same habitat and appears to be the same biotope described as the *Ophelia borealis* community in northern France and the central North Sea (Künitzer *et al.* 1992). Sites with this biotope may undergo transitions in community composition. The epibiotic biotopes SS.SSa.IMUSa.EcorEns and SS.SSa.IMuSa.AreISa may also overlay this biotope in some areas.

SS.SCS.OCS - Offshore circalittoral coarse sediment

Offshore (deep) circalittoral habitats with coarse sands and gravel or shell. This habitat may cover large areas of the offshore continental shelf although there is relatively little quantitative data available. Such habitats are quite diverse compared to shallower versions of this habitat and generally characterised by robust infaunal polychaete and bivalve species. Animal communities in this habitat are closely related to offshore mixed sediments and in some areas settlement of *Modiolus modiolus* larvae may occur and consequently these habitats may occasionally have large numbers of juvenile *M. modiolus*. In areas where the mussels reach maturity their byssus threads bind the sediment together, increasing stability and allowing an increased deposition of silt leading to the development of the biotope SS.SBR.SMus.ModMx.

CR.MCR - Soft rock communities

This biotope complex occurs on moderately wave-exposed, circalittoral soft bedrock subject to moderately strong tidal streams. As this complex is found in highly turbid water conditions, the circalittoral zone may begin at the low water mark, due to poor light penetration. This complex is dominated by the piddock *Pholas dactylus*. Other species typical of this complex include the polychaete *Polydora* and *Bispira volutacornis*, the sponges *Cliona*

celata and *Suberites ficus*, the bryozoan *Flustra foliacea*, *Alcyonium digitatum*, the starfish *Asterias rubens*, the mussel *Mytilus edulis* and the crab *Necora puber* and *Cancer pagurus*. Foliose red algae may also be present. Three biotopes have been identified within this complex: Pid, Pol and Hia. Please note: in areas subject to very high turbidity, biotopes within this biotope complex may occur in the infralittoral and even the littoral zone

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