Scottish Government
Riaghaltas na h-Alba
gov.scot

Biological analyses of seabed imagery from within and around Marine Protected Areas in Orkney, Shetland, Inner Sound, and Islay and Jura in 2019

Scottish Marine and Freshwater Science Vol 12 No 2

R J Shucksmith, R L Shelmerdine, R Shucksmith

marinescotland

Biological analyses of seabed imagery from within and around Marine Protected Areas in Orkney, Shetland, Inner Sound, and Islay and Jura in 2019

Scottish Marine and Freshwater Science Vol 12 No 2

R J Shucksmith, R L Shelmerdine, R Shucksmith

Published by Scottish Government
ISSN: 2043-7722
DOI: 10.7489/12364-1

Marine Scotland is the directorate of the Scottish Government responsible for the integrated management of Scotland's seas. Marine Scotland Science provides expert scientific and technical advice on marine and fisheries issues. Scottish Marine and Freshwater Science is a series of reports that publishes results of research and monitoring carried out by Marine Scotland Science. It also publishes the results of marine and freshwater scientific work that has been carried out for Marine Scotland under external commission. These reports are not subject to formal peer-review.

This report presents the results of marine and freshwater scientific work carried out for Marine Scotland under external commission.

Contents

Tables

Figures

Biological analyses of seabed imagery from within and around Marine Protected Areas in Orkney, Shetland, Inner Sound, and Islay and Jura in 2019

R J Shucksmith, R L Shelmerdine, R Shucksmith

NAFC Marine Centre, Port Arthur, Scalloway, Shetland, ZE1 0UN

Executive summary

This project, “Engaging the fishing industry in marine environmental survey and monitoring”, has been funded by the European Maritime and Fisheries Fund (EMFF), led by Marine Scotland and supported by Marine Scotland Science and NatureScot. The project worked with the fishing industry to undertake survey and monitoring work[1]. During 2019, seabed surveys were carried out at four regions along the western and northern Scottish coast in and around Marine Protected Areas (MPAs) using a drop down video (DDV) system deployed from a fishing vessel.

The objective of each survey was to improve knowledge of the extent and distribution of Priority Marine Features (PMFs) within and adjacent to MPAs. PMFs were observed within each region surveyed, with observations occurring both within and outside of designated sites.

Eight PMF habitats such as flame shell, maerl, seagrass, and horse mussel beds were observed from 413 drop down video tows in total; six habitats observed in 85 tows observed in Inner Sound, six habitats observed in 144 tows around Islay and Jura, five habitats observed in 118 tows around Orkney; and five habitats observed in 66 tows in Shetland.

Two low or limited mobility PMF species (the northern feather star and the white cluster anemone) were observed from 106 DDV tows, 74 in Inner Sound and 32 in Islay and Jura. Two mobile PMF species (angler fish and sand eels and two mobile PMF species’ eggs (flapper skate and herring) were observed during the surveys from 11 tows in total; three from four tows in Inner Sound; two from two tows around Islay and Jura; and two from five tows in Shetland.

[1] See - https://www2.gov.scot/Resource/0052/00522371.pdf

Introduction

The Marine (Scotland) Act 2010 provides a framework which will help balance competing demands on the maritime environment, integrating the economic growth of industry with the need to protect Scotland's seas. Where necessary, suitable conservation measures may be implemented at the wider seas level (e.g. through marine planning), targeted at specific species (e.g. improved protection for seals), or delivered within key locations (e.g. through the identification of new Marine Protected Areas (MPAs). MPAs include both Natura sites - Special Areas of Conservation (SAC) and Special Protection Areas (SPAs), and nature conservation MPAs. The habitats and species for which an MPA has been selected and receive protection within it are known as 'protected features'.

To help target action under each of these three pillars, NatureScot have generated a focused list of habitats and species of importance in Scottish waters - the Priority Marine Features (PMFs) (Tyler-Walters *et al.*, 2016). PMFs are protected within the MPA network but also receive protection when found outside of MPAs. Where PMFs occur within an MPA, but not listed as 'protected features', they are not directly protected by the designation.

The project "Engaging the fishing industry in marine environmental survey and monitoring" was funded by the European Maritime and Fisheries Fund (EMFF) and carried out from 2017 to 2020. Marine Scotland led the project, supported by NatureScot and Marine Scotland Science. The aims of the project were to:

i. Develop and test robust underwater video camera systems for use from fishing vessels, including undertaking a series of sea trials;
ii. Undertake marine survey and monitoring work in partnership with the fishing industry, with the principle aim of assessing the extent and condition of selected habitats and species. Where appropriate, develop innovative and collaborative survey designs, to evaluate the efficacy of new fisheries management measures within MPAs;
iii. Provide training to, and engagement with, the fishing industry through on-board training events and ongoing dialogue and communication.

Evidence gathered will be used to help deliver national and international commitments in relation to the protection and restoration of marine biodiversity, including in MPAs.

Seabed surveys were carried out in 2018 and 2019 under parts (i) and (ii) of this project using a drop down video (DDV) system commissioned by Marine Scotland Science and deployed from a fishing vessel in and around MPAs within territorial waters off western and northern Scotland. During 2019, four seabed surveys were carried out as part of this project (Figure 1). This report presents the results of survey work undertaken in 2019.

The objective of each survey was to improve knowledge of the extent and distribution of MPA protected features and PMFs such as flame shell beds, maerl beds, seagrass beds, and horse mussel beds, within and adjacent to MPAs, and to generally improve our knowledge of the type and distribution of seabed habitats in the survey areas. Seabed video and still photographic imagery were collected during the four surveys; these have been analysed to assign biotope codes, and to identify the presence of protected species or habitats. The results of this analysis are presented in this report.

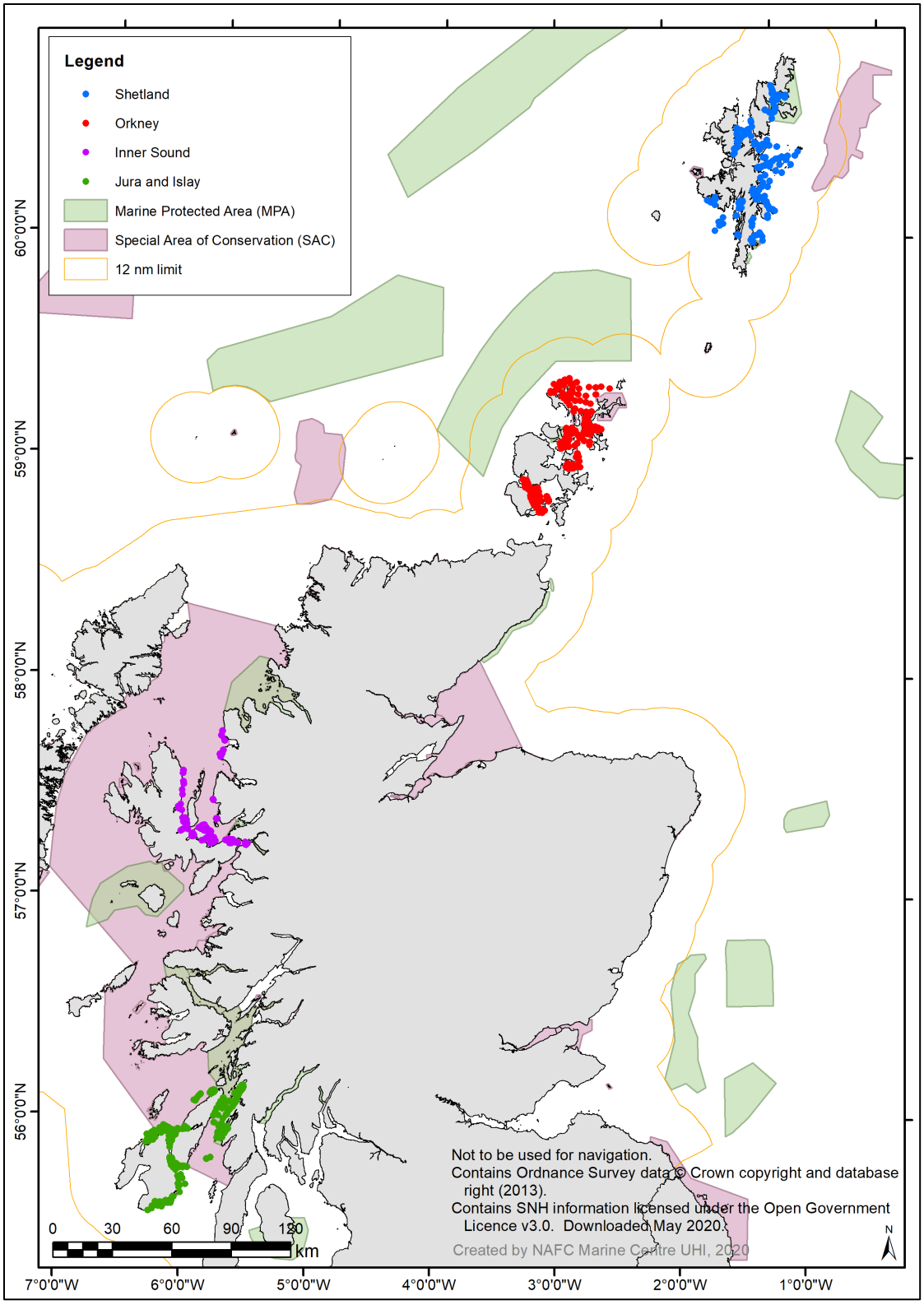


Figure 1: The locations of drop down video (DDV) tows at the four survey regions of Islay and Jura, Inner Sound, Orkney, and Shetland.

Methods

Data collection

Video data were collected using a drop down video (DDV) system commissioned from C-Tecnics specifically for the EMFF surveys, consisting of a standard definition (SD) video camera and a high definition (HD) video camera. An overlay was used on the SD video feed, displaying time, date, depth, and positional information. The overlay information on the SD footage was not available for direct download but was embedded within the SD video footage itself. Red laser lines spaced at 100 mm apart aided assessment of area of seabed in the field of view.

During operation, the camera frame was lowered over the side of the vessel by winch and positioned just above the seabed. A live feed of the SD video signal was provided to the surface control unit (SCU) for the use of the camera operator. For each tow, the vessel was allowed to drift in the direction of the prevailing current or wind, generally for approximately five minutes, while recording video continuously. Longer or shorter tows and the active re-positioning of the vessel during a tow occurred in some situations depending on the local conditions and habitats encountered. The LED lighting level was controlled from the SCU and was generally kept at maximum or just below maximum (to reduce screen flicker). The HD video was stored on the camera for later downloading, while SD video with overlay was recorded directly on the SCU. In addition, HD snapshot images were taken at intervals during the tow.

For each survey, tow metadata were recorded from the ship's navigation on paper forms. The camera system did not record the GPS feed to the SCU so a backup Garmin handheld GPS was used to record vessel position during each survey day. The handheld GPS recorded vessel track data (logged every second throughout the survey day as Garmin proprietary data files) and manual waypoints were recorded at the start and end of each video tow and downloaded at the end of each day.

Drop down video analysis

The video and photographic images collected via dropdown video (DDV) were used to describe the nature of the seabed, in terms of the physical structure and the species assemblages. Video analysis was undertaken following the NMBAQC remote monitoring digital imagery guidelines (Turner *et al.*, 2016). Species present were, as far

as possible, identified and quantified using the semi-quantitative Marine Nature Conservation Review (MNCR) SACFOR abundance scale (Hiscock, 1996). Biotopes were assigned based on physical and biological attributes as described in 'The Marine Habitat Classification for Britain and Ireland Version 15.03' (JNCC, 2015).

All video tows were assessed to determine the appropriate biotope level to assign. The biotope classification system is divided into six Levels from 1 to 6, with each level providing an increasing level of detail (Level 4 represents a biotope complex, Level 5 a biotope, and Level 6 a sub-biotope). The level which could be assigned was determined by video quality (dictated by factors such as tow speed, exposure, and field of view) and the ability to determine substratum type and species from video/image analysis alone. Where substratum type could not be fully distinguished from video footage, a biotope was assigned at the highest level available, focussing on biota, where identifiable. In most cases biotope complexes could be assigned at Level 4, and in many cases more detailed biotopes could be identified down to Levels 5 or 6. In other cases where identification to species level is needed to distinguish between biotopes at Levels 5 or 6 and, where such identification is not possible from video or still images, a Level 4 biotope complex was assigned. Where fauna and flora were absent or not distinguishable from video (e.g. sediment infauna), biotopes were assigned at Level 3 or 2 based on substratum type and energy.

Video tows traversing a sequence of biotopes were split into corresponding segments, with each segment assigned a unique biotope code in most cases. In a few cases, where two biotopes co-occurred as a mosaic (e.g. maerl or flame shell (*Limaria hians*) bed underlying kelp park/forest), two biotopes were recorded for the same tow or segment.

Tows and segments of tows were assessed for the presence of PMFs (see Tyler-Walters *et al.*, 2016). Separate tow segments (and biotopes) were defined for areas of 5x5 m (25 m^2) or greater, in line with guidance on video analysis (JNCC, 2015; Turner *et al.,* 2016). Where biogenic habitats occurred, for example those created by maerl, flame shells, and horse mussels (*Modiolus modiolus*), a minimum of 25 m^2 was used to assign a 'bed' classification, and within this area a minimum percentage cover or abundance was used to determine whether biotope code criteria were met. The SACFOR abundance scales and minimum abundances used to define a bed are detailed in Table 1. Where biogenic habitats occurred, but did not meet either the abundance or area requirements, their presence was noted in the habitat description.

Table 1

SACFOR abundance scales chosen for biogenic habitats.

Habitat	Abundance	SACFOR scale selected
Maerl beds	10% live maerl	Crust/meadow % cover
Flame shell beds	10% (nests)	% cover
Horse mussel beds	Common (C)	Size of individual 3 to 15 cm, density scale

Within the report all PMF species names and/or their biotope codes are coloured red for ease of identification within the document.

Maerl - Maerl beds were categorised to Level 4 (SS.SMp.Mrl), as maerl requires microscopical examination to determine the species, which is a requirement for distinguishing between biotopes at Levels 5 and 6. Areas of maerl were categorised as a bed where the percentage cover exceeded 10% of live maerl over an area of 25 m^2 or more. Percentage cover of dead maerl was also recorded.

Flame shells - The presence of flame shell nests from the video footage was determined using the presence of clear byssus threads and the presence of three-dimensional structures above the seabed. This approach has the potential to underestimate flame shell beds where byssus threads are not visible (e.g. under seaweed or due to tow speed), or where nests are not forming raised structures. Where flame shells existed, they were categorised as beds where nests (rather than counts of individuals) covered an area of 10% or more, over an area of 25 m^2 or more.

'Clumpy' maerl - The presence of maerl forming raised clumps 'clumpy maerl' was also noted, as these clumps have been observed to form[2] when maerl is bound together by flame shell byssus threads. They can, therefore, be indicative of flame shell nests when other evidence, such as clear threads are not visible. The presence of these clumps was therefore recorded.

Horse mussels - Where horse mussels were present, they were categorised as 'beds' where they were recorded as 'Common' and covered an area of 25 m^2 or more.

[2] See annex D of ITT

Burrowed mud – Within fine mud biotopes, seapens (including Virgularia *mirabilis, Pennatula phosphorea, Funiculina quadrangularis*), mounds (formed by *Maxmuelleria lankesteri)* and burrows (including *Nephrops norvegicus*) are characterising fauna. Where mounds and burrows were clearly present these were assigned the biotope 'SS.SMu.CFiMu.MegMax - Burrowing megafauna and *Maxmuelleria lankesteri*' in circalittoral mud'. Where seapens were a prominent feature these were characterised as 'SS.SMu.CFiMu.SpnMeg - Seapens and burrowing megafauna in circalittoral fine mud'. Where mounds and seapens, were absent, and borrows were sparse, but the sediment was considered fine mud, these were assigned the circalittoral fine mud (SS.SMu.CFiMu) biotope (Level 3). Where mounds were less evident, but other characterising species of SS.SMu.CFiMu.MegMax were present, including *Nephrops norvegicus,* the SS.SMu.CFiMu.MegMax biotope was assigned.

Northern feather star – The PMF species the northern feather star *Leptometra celtica* was distinguished from similar *Antedon* spp. by characteristic behaviour, where individuals have been observed to spread out their arms into a vertical fan across the current when in areas of moderate water flow. *Antedon* spp. present at the same site was not observed to show this behaviour (Picton, 1993). This species is classified as a PMF at single occurrences (it does not require aggregations).

Common Skate - This PMF species has now been recognised as two distinct species (Flapper and Blue Skate) that have long been confused under the single scientific name *Dipturus batis*. Work is still being undertaken to identify the differences in the two species egg cases. Within this report the name common skate, to reflect the current PMF name (although this will be updated to the flapper skate *Dipturus intermedia* at the next revision of the PMF list). Throughout this report the scientific name *Dipturus spp.* has been used.

All species names in this report text are those currently accepted within WoRMS. In a small number of instances, the species names used within the habitat classification system (JNCC, 2015), both in the biotope codes and biotope names, no longer reflect the currently accepted nomenclature. Of particular note is the change of sugar kelp from *Laminaria saccharina* to *Saccharina latissima*, and tubeworm from *Pomatoceros triqueter* to *Spirobranchus triqueter*. Biotope codes and names have not been altered to reflect any changes in naming.

Depths

All depths within the results section of this report are given to chart datum, and to the nearest meter.

Historic data

New records presented in this report have been compared to historical survey records of PMFs within the survey areas. Historical records are held within the NatureScot database Geodatabase of Marine features adjacent to Scotland (GeMS) which can be downloaded from the Natural Spaces webpages.

Marine Protected Areas (MPAs)

Where tows were undertaken in areas that are designated SACs or MPAs this is noted within the report text, along with whether the tows related to the protected features of the site. Whether an area is protected as an SPA or pSPA is not noted in this report.

Quality control

To ensure consistency with biotope classification between recorder and between regions, regular quality control meetings were held. For any footage where the recorder was uncertain on the biotope assignment, this was watched simultaneously by two team members and classification was agreed between the team members. In addition, all video footage was re-watched once during the quality control (QC) of data and assessed against assigned codes.

GIS

As it was not possible to download positional information overlaid on the SD video footage, the primary source of positional information was obtained from the hand-held GPS unit. Positional information from the hand-held GPS unit was exported to ArcGIS and combined for each survey day to obtain a point record of the vessel's track information. Start and end times, obtained from waypoint information, were used to extract all vessel track points occurring during each DDV tow. The tow point data was transformed to line information and each tow was assessed for accuracy and completeness. All vessel tow tracks found to have errors were replaced with positional

information obtained from the SD system overlay. These data had to be extracted manually with positional information recorded every 30 seconds. The data were imported to ArcGIS and combined with the hand-held GPS track data to create a vessel track for each video tow.

Combining the hand-held GPS and SD track information highlighted differences in the positional accuracy of the two data sets. Although it was possible to use both data types together, it was not always possible to use both data types along the same tow. Where there was a disparity between data sets, the more complete data set was used, which was predominantly the SD data. On occasions, there was no available GPS or SD track information. In these circumstances, a straight line was created between the start and end waypoint locations.

The analysis of species and habitats from the DDV footage was recorded into an Excel spreadsheet and exported to ArcGIS as a biotope information table.

Since the SD positional information did not always match up to the positions from the hand-held GPS, and subsequently the vessel tow track, it was, therefore, decided to use route information along the tow track to determine where changes in biotopes occurred. Route information is an ArcGIS tool that allows the user to specify distances along each tow and determine positional information based on an average vessel speed. This has been shown in past work to produce relatively accurate information (Shelmerdine *et al.*, 2013; Shelmerdine *et al.*, 2014; Shelmerdine and Mouat, 2018). The resultant point file of biotope changes was used to split each tow track into constituent biotope sections. These tow sections were then combined with the biotope information tables.

Results

Inner Sound

A total of 151 DDV tows (Figure 2) were carried out around Inner Sound and Loch Alsh. Six PMF habitats were recorded:

- kelp beds;
- kelp and seaweed communities on sublittoral sediment;
- burrowed mud;

- flame shell beds;
- maerl beds; and
- maerl or coarse shell gravel with burrowing sea cucumbers.

One low or limited mobility PMF species:

- northern feather star (*Leptometra celtica*)

Three mobile PMF species or their eggs:

- sandeels;
- common skate eggs;
- Atlantic herring eggs.

Within the survey area there are two MPAs for benthic habitats:

- Lochs Duich, Long and Alsh MPA (flame shell beds and burrowed mud);
- Lochs Duich, Long and Alsh Reefs SAC for reefs (horse mussel beds, kelp forest, tide-swept and deep very sheltered faunal communities on rock.

It is noted that the Inner Sound area is within the Inner Hebrides and the Minches SAC, designated for harbour porpoises.

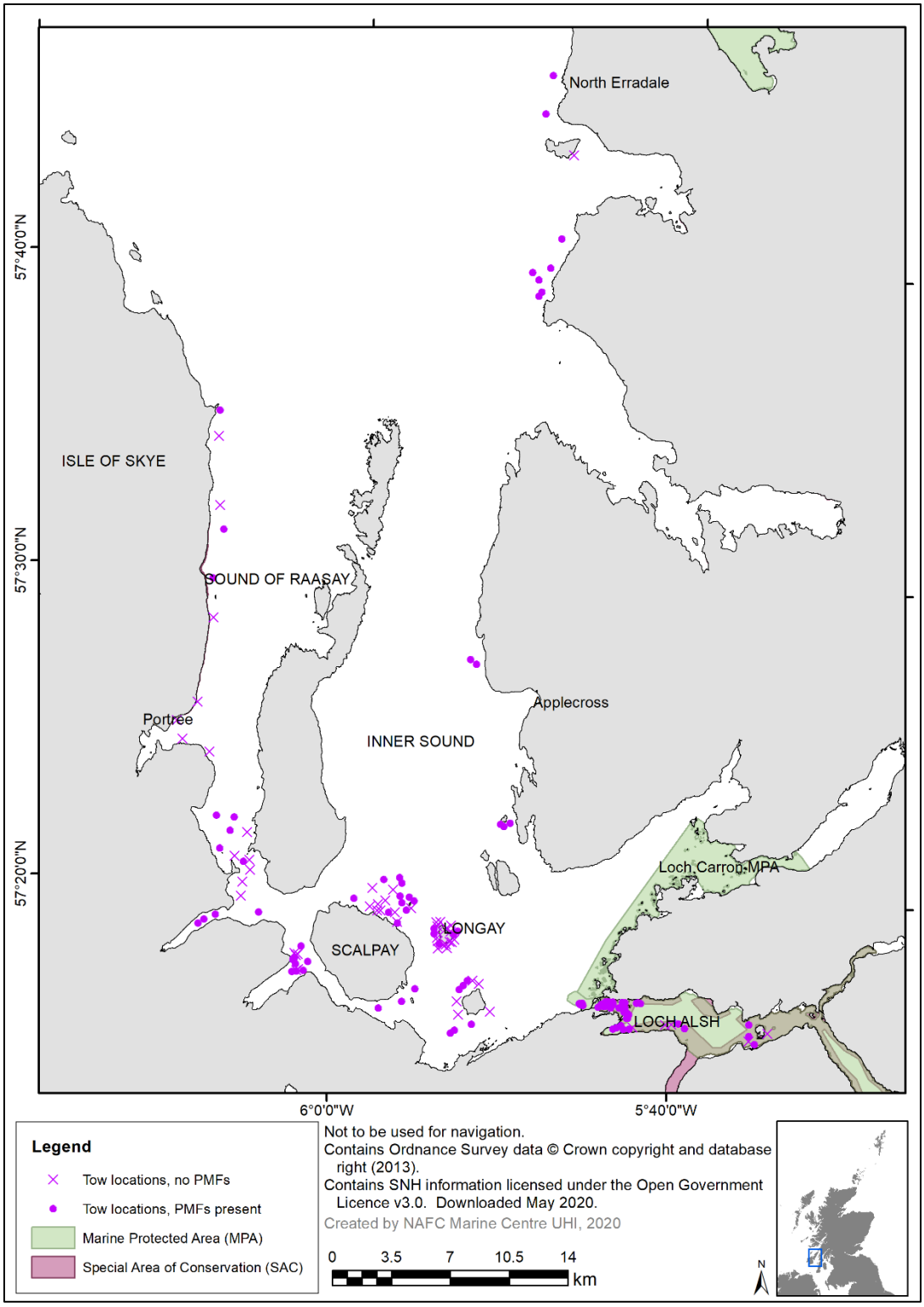


Figure 2: Locations of tows and Priority Marine Features (PMFs) surveyed in 2019 during the EMFF project around Inner Sound with protected areas shown. For greater detail, see maps on page 20.

Outer Gairloch

Drop down video (DDV) tows were undertaken at nine locations (Tows 109-117) in water depths ranging between 13 and 22 m in the Outer Gairloch area (Figure 4 and Figure 4). These tows were targeted due to diver[3] observations of herring spawning locations and additionally to identify the known extent of maerl and maerl gravel within the area. The survey area is not within an MPA.

At the locations surveyed, maerl was present at varying abundances at all tows except Tow 109. Maerl beds (SS.SMp.Mrl) were present at three tows, namely 110, 111, 116 and part of Tow 113. Maerl gravels (SS.SCS.CCS.Nmix) were present at four tows, representing potential historic beds. At these tows, dead maerl cover was often high and the maerl fragments small (often less than 1 cm). Fish eggs, presumed to be herring eggs (*Clupea harengus*) which have previously been observed in the area, covered large areas of seabed on Tows 114 and 115 (Figure 4). Sandeels *Ammodytes* spp. were observed on Tow 113 (Figure 4).

The only tow not observed to contain maerl (Tow 109, Figure 3), was found to contain muddy mixed sediments (SS.SMx.CMx.CIloMx and SS.SMx.CMx) and bedrock with sparse faunal and algal crusts (CR.MCR.EcCr.FaAlCr). These habitats were also observed on part of Tow 111.

The northern feather star (*Leptometra celtica*) PMF was observed on Tow 116 (Figure 4).

Northern Sound of Raasay and Inner Sound (Applecross)

Drop down video tows were undertaken at nine locations (Tows 52-59, Figure 6 and Figure 7; Tows 90-92 and 118-119, Figure 8) in water depths ranging from 11 to 74 m. These tows are not within an MPA and this area was identified for surveying due to the limited number of records for the area.

Tows in Inner Sound were relatively faunally sparse on mixed sediments to the south of Applecross (SS.SMx.CMx.CIloMx and SS.SMx.CMx) with northern feather stars (*Leptometra celtica*) observed on Tow 90 (Figure 8). To the north of Applecross, sparse

[3] https://www.bbc.co.uk/news/uk-scotland-highlands-islands-43550363

mixed sediments (SS.SMx.CMx.CIloMx) transitioned into flame shell (*Limaria hians*) nests (SS.SMx.IMx.Lim) on Tow 118. Nests appeared to comprise a proportion of maerl (<5% living). An adjacent tow, Tow 119, was observed to support maerl beds (SS.SMp.Mrl), giving way to fine sand and sandy mud (SS.SSa.CFiSa and SS.SMu.CSaMu) supporting sea pens (*Virgularia mirabilis*) and queen scallops (*Aequipecten opercularis*). The northern feather star (*Leptometra celtica*) PMF was observed at low densities (Occasional, O) on the maerl bed.

In the northern Sound of Raasay habitats were predominantly deep mud with relatively low epifaunal species densities, including burrowing anemones (*Cerianthus lloydii*), brittlestars (*O.ophiura*), and squat lobsters (*Munida rugosa*) (SS.SSa.CMuSa, SS.SMu.CFiMu, SS.SMu.CSaMu, SS.SMu.CFiMu.MegMax, and SS.SMx.CMx). In shallower depths, a *Laminaria hyperborea* kelp park was observed on rock (IR.MIR.KR.Lhyp.Pk), giving way to relatively sparse faunal crusts (CR.MCR.EcCr.FaAlCr).

Kyle of Lochalsh and Loch na Beiste

Within this area there are two partially overlapping nature conservation designations for benthic features. Lochs Duich, Long and Alsh MPA is designated for burrowed mud and flame shell (*Limaria hians*) beds and Lochs Duich, Long and Alsh Reefs SAC is designated for Reefs. Drop down video tows were undertaken at 34 locations (Tows 1-8, 93-108, 120-127, and 137-138) in water depths ranging from 9 to 81 m (Figure 9).

Within the survey areas flame shell nests were present at 24 of the tows (SS.SMx.IMx.Lim), all tows within the northeast survey extent and Tows 121 and 124 at the southeast extent. These tows had water depths ranging from 9 to 35 m. Abundant brittlestars were frequently recorded on the beds and adjacent habitats, including on rock and mixed sediment (CR.MCR.EcCr.FaAlCr.Bri and SS.SMx.CMx.OphMx). Mixed sediments (SS.SMx.CMx) were also observed within some tows where flame shell nests were absent or not at sufficient densities (>10% cover) to classify as a flame shell bed. At shallower depths, seaweed communities (*Laminaria hyperborea*) were observed on sediment (Tows 1 and 5) and on rock (Tow 1) (SS.SMp.KSwSS and IR.MIR.KR.LhypVt). Within Kyle of Lochalsh, historic records exist (in GeMS) for maerl, flame shell beds, and horse mussel (*Modiolus modiolus*) beds.

Flame shell nests were not recorded from deeper water tows in the Kyle of Lochalsh area. Relatively sparse communities on pebbles and stones (SS.SCS.CCS.PomB) or solitary ascidian communities on bedrock (CR.LCR.BrAs.AmenCio) were recorded from these tows (105, 106, 107, 138, and 121).

Historic records held within GeMS indicate the presence of burrowed mud communities within Loch na Beiste. Mud communities were recorded during this survey from Tows 122-127 and 137-138, with sea pens, including the tall sea pen *Funiculina quadrangularis* (SS.SMu.CFiMu, SS.SMu.CSaMu, and SS.SMu.CFiMu.SpnMeg.Fun, SS.SMu.CFiMu.MegMax). Large quantities of litter (e.g. floats, ropes, plastic boxes, and metal drinks cans) were observed on Tow 137, at levels which made biotope analysis not possible at the end of the tow.

The northern feather star (*Leptometra celtica*) PMF was observed on Tows 104-106 Tows 120-124 (Abundant to Frequent) on sediment and on flame shell beds. Some of these records fall within the SAC boundary (104, part of Tows 105-107, Tow120, Tow 121, end of Tow 122 and 123, and all of Tow 124; see Figure 9).

Loch Alsh and Glas Eilean

Drop down video tows were undertaken at nine locations (Tows 128-136) in water depths ranging from 10 to 50 m (Figure 10). These tows all fell within the Lochs Duich, Long and Alsh MPA, designated for burrowed mud and flame shell beds and they all fell within the Lochs Duich Long and Alsh Reefs SAC, designated for reefs. Predictive habitat modelling, commissioned by NatureScot[4], indicated the potential for burrowed mud in the area and historic records of the PMF sea pens and burrowing megafauna exist within this area (held within GeMS). Tows in central Loch Alsh (Tows 128-131) showed mud dominated communities with sea pens, including the tall sea pen, *Funiculina quadrangularis* (SS.SMu.CFiMu.SpnMeg.Fun), and firework anemone (*Pachycerianthus multiplicatus*) at two tows (129 and 130). Where sediment was more mixed, communities were dominated by the burrowing anemone, *Cerianthus lloydii* (SS.SMx.CMx.ClloMx).

Five tows were surveyed around Glas Eilean (Figure 10). Two shallow tows to the north and south of the island supported tide swept kelp communities (IR.MIR.KT), with

[4] https://www.nls.uk/e-monographs/2014/600.pdf

patches of maerl noted on Tow 132. These tows fall within the Lochs Duich, Long and Alsh SAC. Unstable cobble and pebble communities supported sparse faunal communities (SS.SCS.CCS.PomB) at two tows (133 and 135) and mixed sediment with burrowing anemones were observed for part of the tow on Tow 135. In deeper water, burrowed mud communities were observed to the west of the island (SS.SMu.CFiMu.SpnMeg) on Tow 136.

Scalpay and Outer Loch Ainort

Drop down video tows were undertaken at 16 locations (Tows 15-27, 29-31) in water depths from 8 to 50 m (Figure 11 and Figure 12). Footage from Tow 25 was not of a sufficient quality to analyse due to the fast tow speed and sediment plumes created when the DDV frame touched the seabed. The tows did not fall within an MPA, however, a single historic record exists within GeMS (from 1980) suggesting the presence of maerl at the entrance to Loch Ainort and the presence of a horse mussel bed to the north of the entrance (1988).

Footage from twelve tows (15-27) were analysed around the entrance to Loch Ainort (Figure 11). Flame shell nests were present at sufficient abundances (>10% cover) to categorise as a bed, and, therefore, a PMF, on Tow 23 (SS.SMx.IMx.Lim) and were noted as potentially present on Tows 15 and 19. A maerl bed was noted on Tow 24 (SS.SMp.Mrl) and was observed in flame shell nest material at the adjacent Tow 23. Dead maerl was present in high abundance on Tow 22 (SS.SMx.IMx). Muddy mixed sediments were commonly observed on Tows 15 to 19 and 25 (SS.SMx.CMx and SS.SMx.CMx.CIloMx). Bivalves and echinoderms dominated the fauna at these tows, with the scallops *Pecten maximus* and *A. opercularis* noted at several tows. The northern feather star, *Leptometra celtica*, was observed on Tow 15. In shallower depths, seaweed communities were observed on sediment (SS.SMp.KSwSS; Tows 19 and 26), comprising red algae and *Saccharina latissima.* At the deepest tow surveyed in this area, in 50 m water depth, burrowed mud communities were observed (SS.SMu.CFiMu.MegMax).

Tows between Scalpay and Skye (Tows 29-31) revealed sediment communities in water depths of 15 to 30 m (Figure 12). All tows supported mud communities, with Tows 29 and 31 supporting echinoderm dominated mud communities with small rocks and stones, including northern feather stars (*Leptometra celtica*) at Occasional abundance

at both stations. Muddy sediments were observed on Tow 30, with sea pens (Frequent, F) and burrowed mud communities (Common, C) (SS.SMu.CFiMu.SpnMeg).

Northeast of Scalpay and Longay

Drop down video tows were undertaken at 42 locations (Tows 9-14, 28, 43-47, 71-87, and 139-151) in water depths of 10 to 52 m (Figure 13 and Figure 14). These tows do not fall within an MPA for benthic habitats. Historic records exist for PMFs in the area, with members of the public reporting (to NatureScot) flame shell nests and maerl around the island of Longay (Figure 14) and to the northeast of Scalpay (Figure 13).

To the northeast of Scalpay and adjacent to the coast, hard substrates were common with faunal and algal crust communities on moderate energy rock. Further offshore, rock was interspersed with coarse sediments including maerl beds (SS.SMp.Mrl), maerl gravel (SS.SCS.ICS and SS.SCS.CCS), and areas of flame shell beds (SS.SMx.IMx.Lim). From the video footage analysis, it was noted that flame shell nests comprised dead maerl (e.g. Tow 86) and also occurred alternately with areas of maerl bed (e.g. Tows 86 and 147). Muddy sediments were only observed at one deeper water tow (Tow 148) at 48 m water depth, supporting a burrowed mud community (SS.SMu.CFiMu.MegMax) with *Nephrops* observed within burrows. Several of the tows appeared to show possible fishing pressure, with some tows showing limited epifauna (e.g. 148) and, where maerl occurred, high proportions of dead and broken maerl pieces were noted (e.g. Tow 150). The northern feather star (*Leptometra celtica*) PMF was noted on Tows 80 (Common, C) and 86 (Rare, R, to Occasional, O).

At shallower depths on bedrock, *Laminaria hyperborea* parks were observed on Tows 85 and 86 (IR.MIR.KR.Lhyp.GzPk).

Southwest of Raasay and Loch Sligachan

Drop down video tows were undertaken at 15 locations (Tows 32-51) in water depths of 10 to 93 m (Figure 15). These tows do not fall within an MPA identified for its benthic communities and limited records exist for the area. Of the locations surveyed, three tows were within Loch Sligachan (Tows 33 to 35), at relatively shallow depths of 10 to 27 m, comprising of sediment communities. At shallower depths, seaweed on sediment (SS.SMp.KSwSS) was observed with mud communities observed at greater depths (SS.SMu.CFiMu and SS.SMu.CFiMu.MegMax). At the inner most tow (Tow 35),

sediments were more mixed with boulders on mud (SS.SMx.CMx). At the outer tow (Tow 33), some horse mussels were observed, but were not considered abundant enough (recoded as Frequent, F) to classify as a bed. The tow speed on Tow 33, and entanglement with algae, inhibited analysis of the footage for parts of the tow. Northern feather stars (*Leptometra celtica*) were categorised as Frequent (F) on Tow 34.

Within the Narrows of Raasay, sublittoral sediment communities dominated with circalittoral mixed sediments observed at seven of the twelve tows (Tows 36-42). At the most southerly tow surveyed within the sound (Tow 32), infralittoral mixed sediments supported the kelp species *Laminaria hyperborea* (SS.SMp.KSwSS). At two of these tows (Tow 40 and 42), northern feather star (*Leptometra celtica*) were recorded as Abundant (A) and Frequent (F). Tows at the north of the Narrows of Raasay revealed northern feather stars (*Leptometra celtica*) on faunal and algae encrusted moderate energy rock (CR.MCR.EcCr.FaAlCr) on Tows 48 and 49. Deeper tows revealed mud communities with sea pens, large burrows, and brittlestars (SS.SMu.CFiMu.MegMax, SS.SMu.CFiMu.SpnMeg, SS.SMu.CFiMu, SS.SMu.CSaMu, and SS.SSa.CMuSa). The firework anemone, a PMF species, was present on tow 48 (*Pachycerianthus multiplicatus*).

Pabay

Drop down video tows were undertaken at 11 locations (Tows 62-70 and 88-89) in water depths of 11 to 32 m around Pabay (Figure 16). These tows do not fall within an existing MPA designation for benthic species or habitats, however, they were identified as within an area which may support maerl and flame shell beds. PMFs were seen at five of the 11 tows, with the habitats including: mud communities with sea pens SS.SMu.CFiMu.SpnMeg.Fun, supporting the tall sea pen *Funiculina quadrangularis* (Tow 62); flame shell beds (SS.SMx.IMx.Lim) on Tows 63 and 67; and maerl beds (SS.SMp.Mrl) on Tow 66. At both tows which revealed flame shell beds (63 and 67), maerl was observed incorporated into the nest material. Tows to the west of the Pabay revealed muddy sand with echinoderm dominated communities including *Ophiura* spp. and *Luidia ciliaris* (SS.SMu.CSaMu) on Tows 64 and 65. To the south and east of Pabay, circalittoral sandy mud supporting echinoderm dominated communities and infralittoral fine sand (SS.SMu.CSaMu and SS.SSa.IFiSa) supported high densities of queen scallops *Aequipecten opercularis* (S) and the northern feather star (*Leptometra celtica*) PMF (Occasional, O) were observed. At shallower depths, seaweed

communities were observed on Tows 68 and 69 (IR.MIR.KR) and on Tow 63 (IR.LIR.K.Lsac.Pk).

Inner Sound Maps

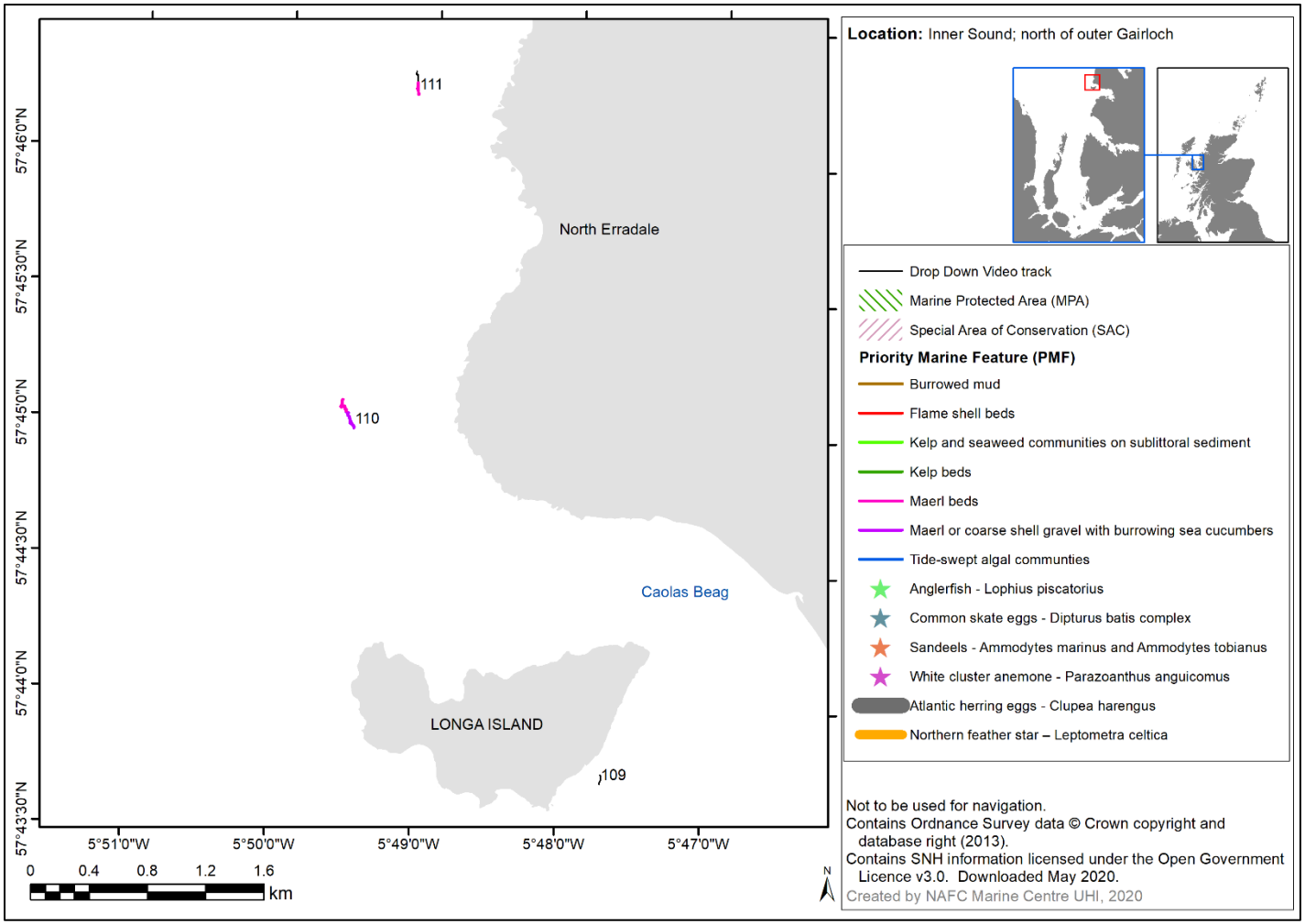


Figure 3: Priority Marine Features (PMF) identified from 2019 surveys and their corresponding drop down video tows (tow numbers shown) to the north of outer Gairloch, Inner Sound.

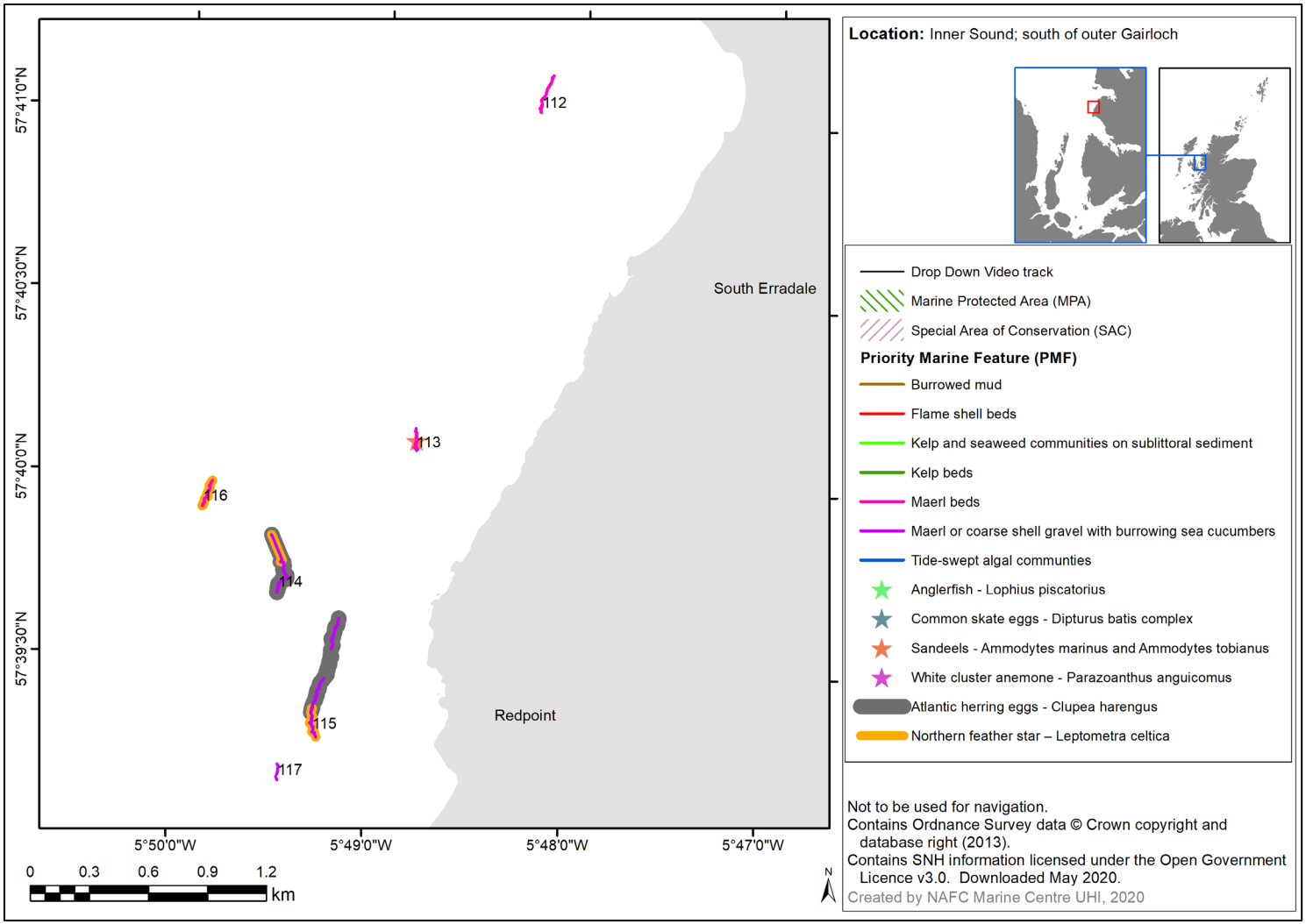


Figure 4: Priority Marine Features (PMF) identified from 2019 surveys and their corresponding drop down video tows (tow numbers shown) to the south of outer Gairloch, Inner Sound.

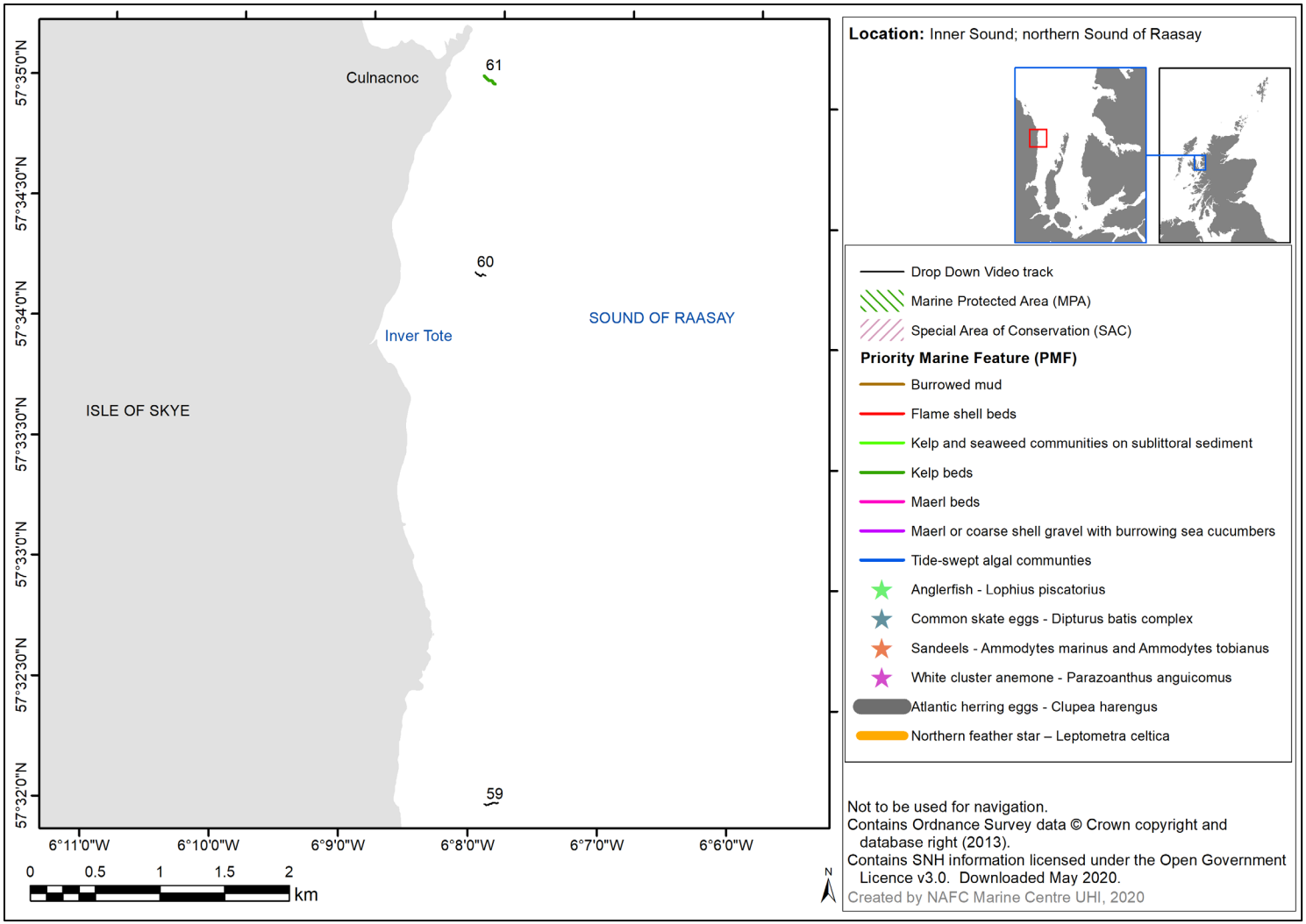


Figure 5: Priority Marine Features (PMF) identified from 2019 surveys and their corresponding drop down video tows (tow numbers shown) in northern Sound of Raasay, Inner Sound.

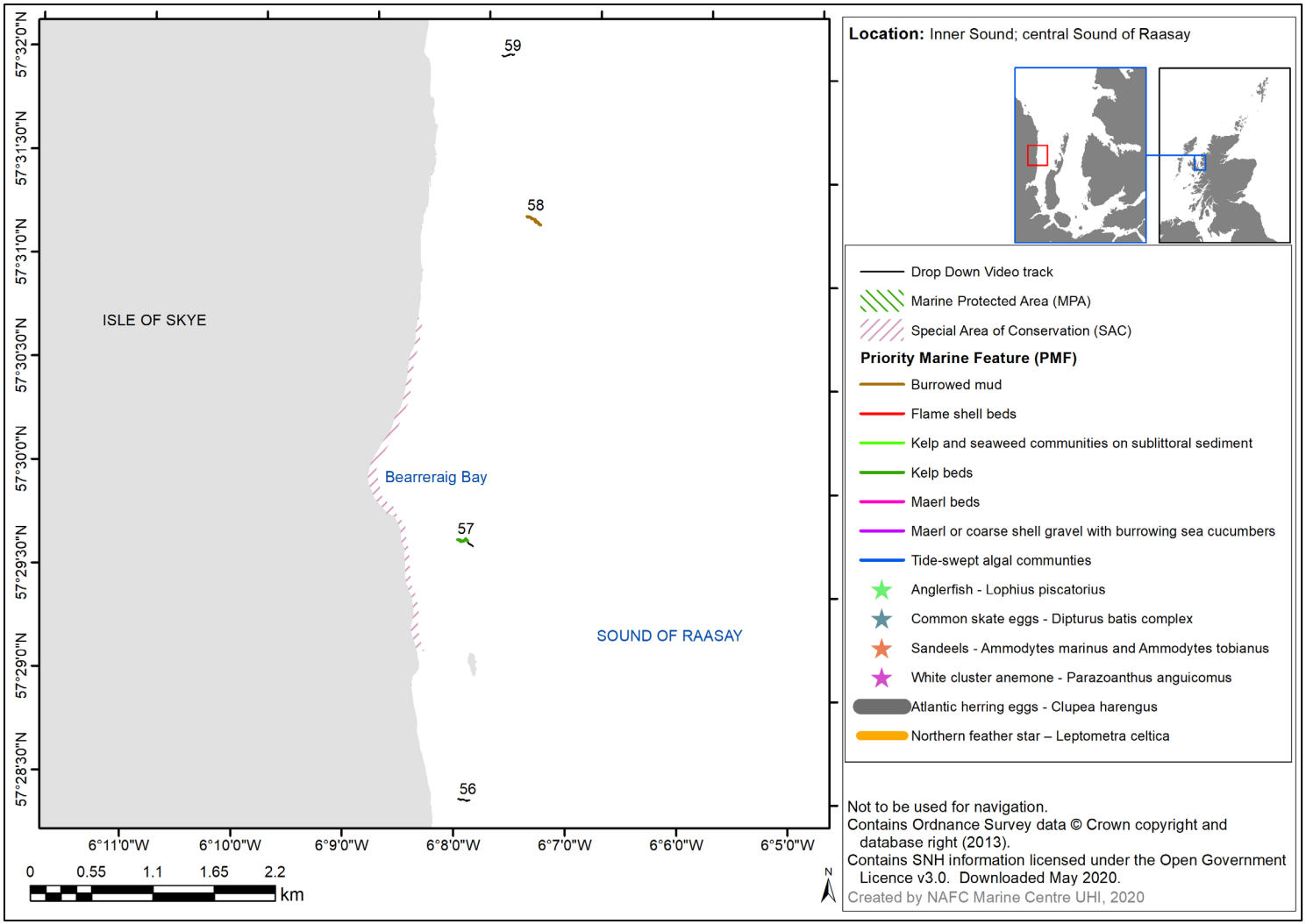


Figure 6: Priority Marine Features (PMF) identified from 2019 surveys and their corresponding drop down video tows (tow numbers shown) in central Sound of Raasay, Inner Sound, with protected areas shown.

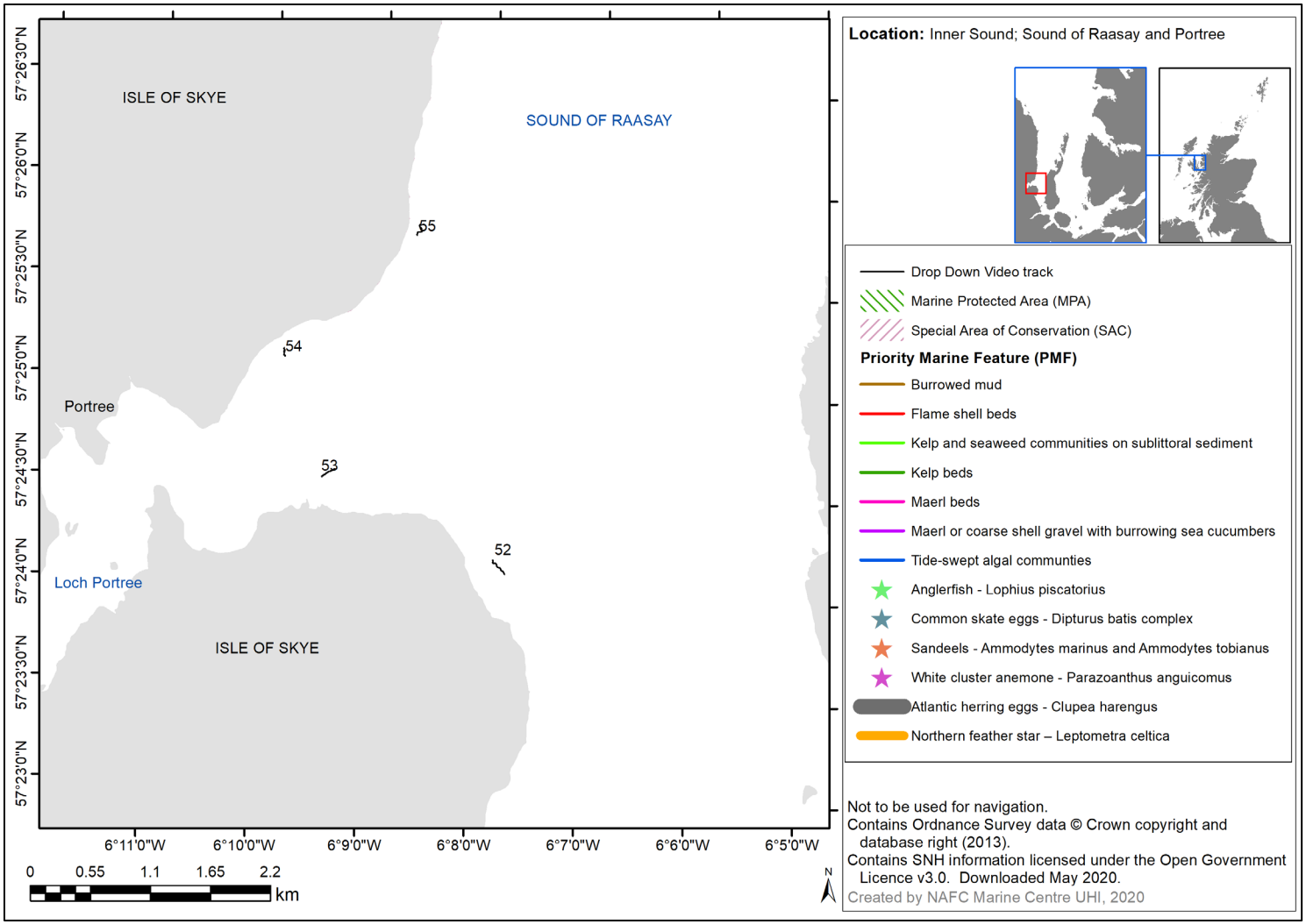


Figure 7: Priority Marine Features (PMF) identified from 2019 surveys and their corresponding drop down video tows (tow numbers shown) in central Sound of Raasay near Portree.

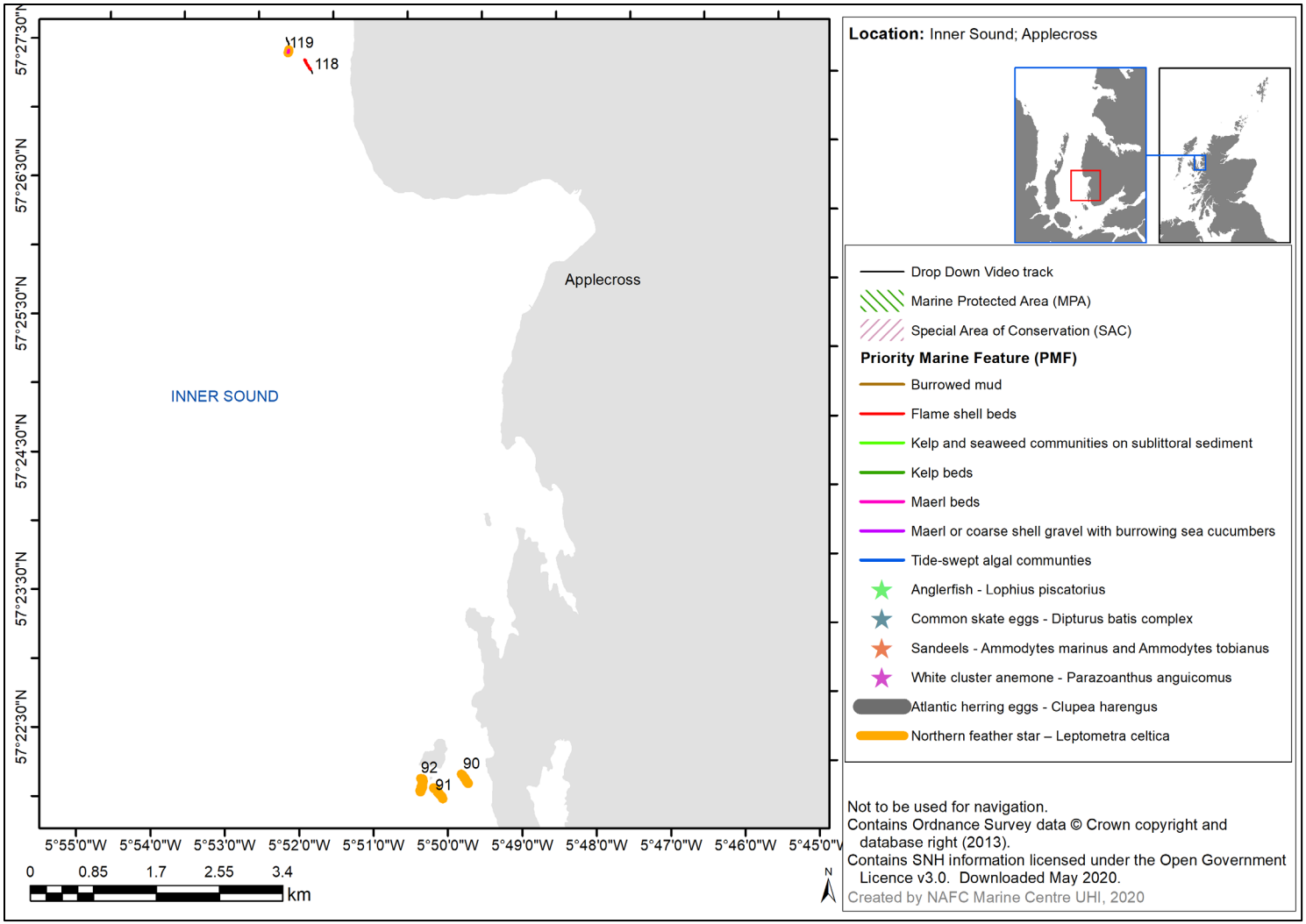


Figure 8: Priority Marine Features (PMF) identified from 2019 surveys and their corresponding drop down video tows (tow numbers shown) near Applecross, Inner Sound.

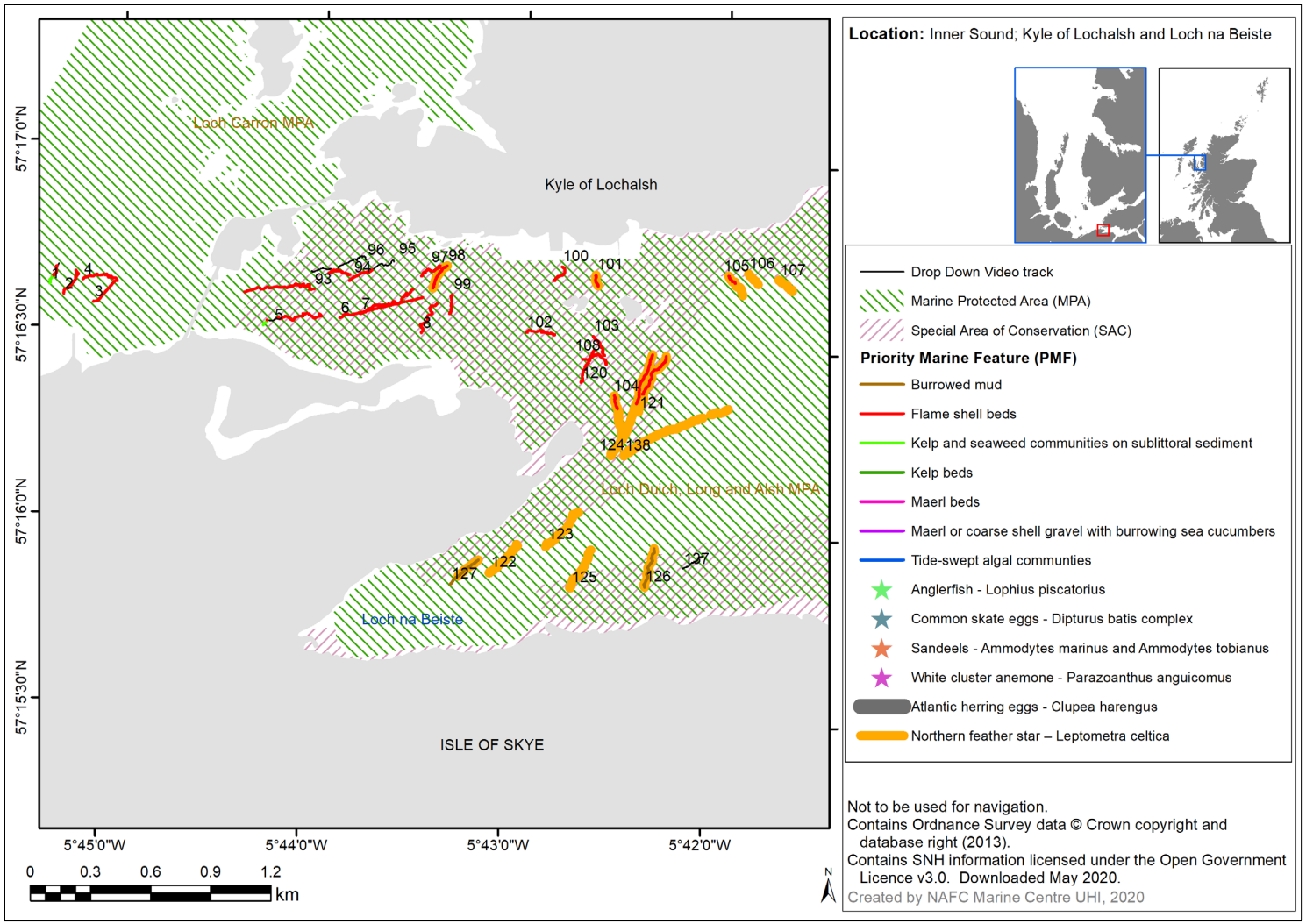


Figure 9: Priority Marine Features (PMF) identified from 2019 surveys and their corresponding drop down video tows (tow numbers shown) in Kyle of Lochalsh and Loch na Beiste, with protected areas shown.

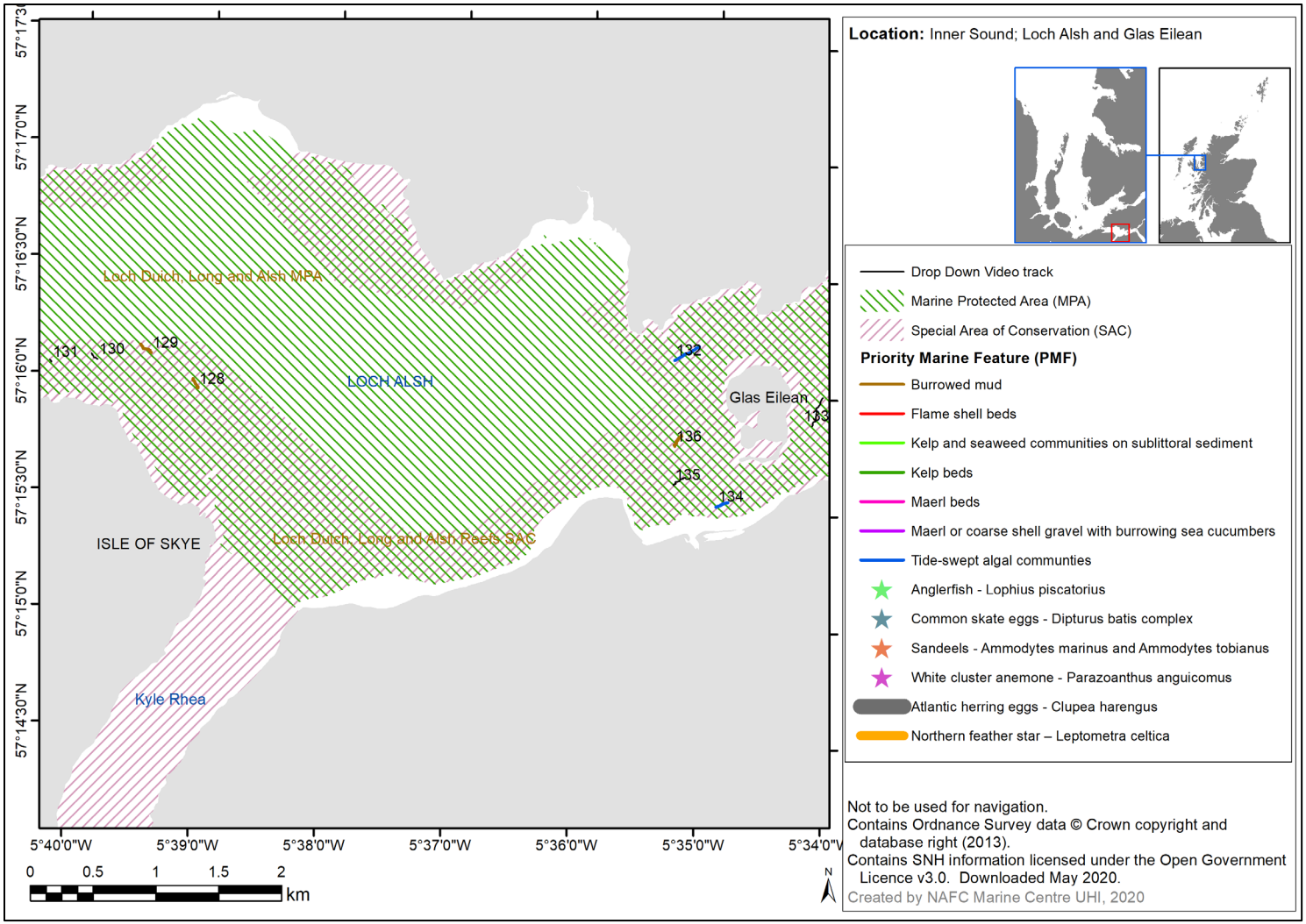


Figure 10: Priority Marine Features (PMF) identified from 2019 surveys and their corresponding drop down video tows (tow numbers shown) in central Loch Alsh, with protected areas shown.

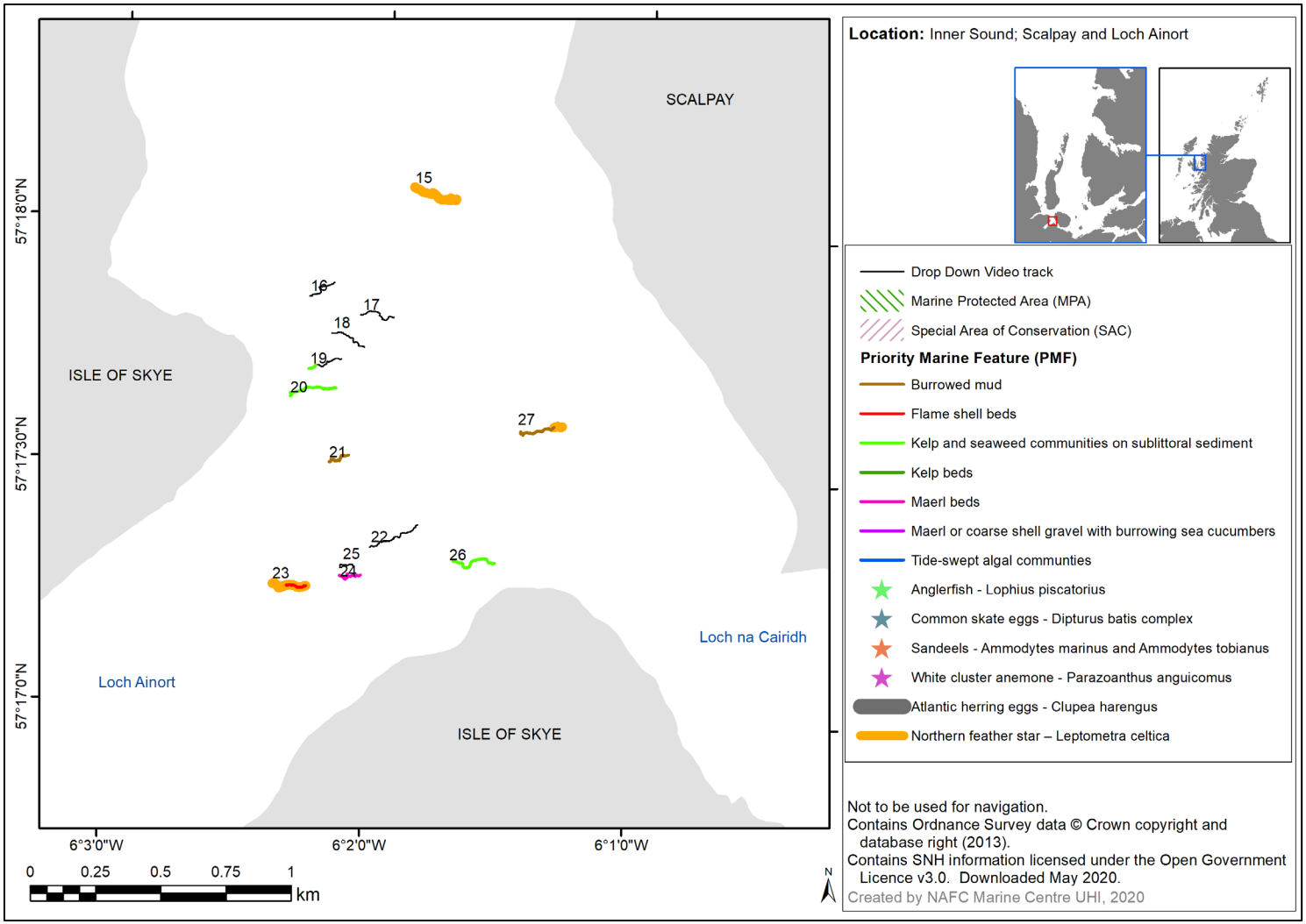


Figure 11: Priority Marine Features (PMF) identified from 2019 surveys and their corresponding drop down video tows (tow numbers shown) around Scalpay and in Loch Ainort.

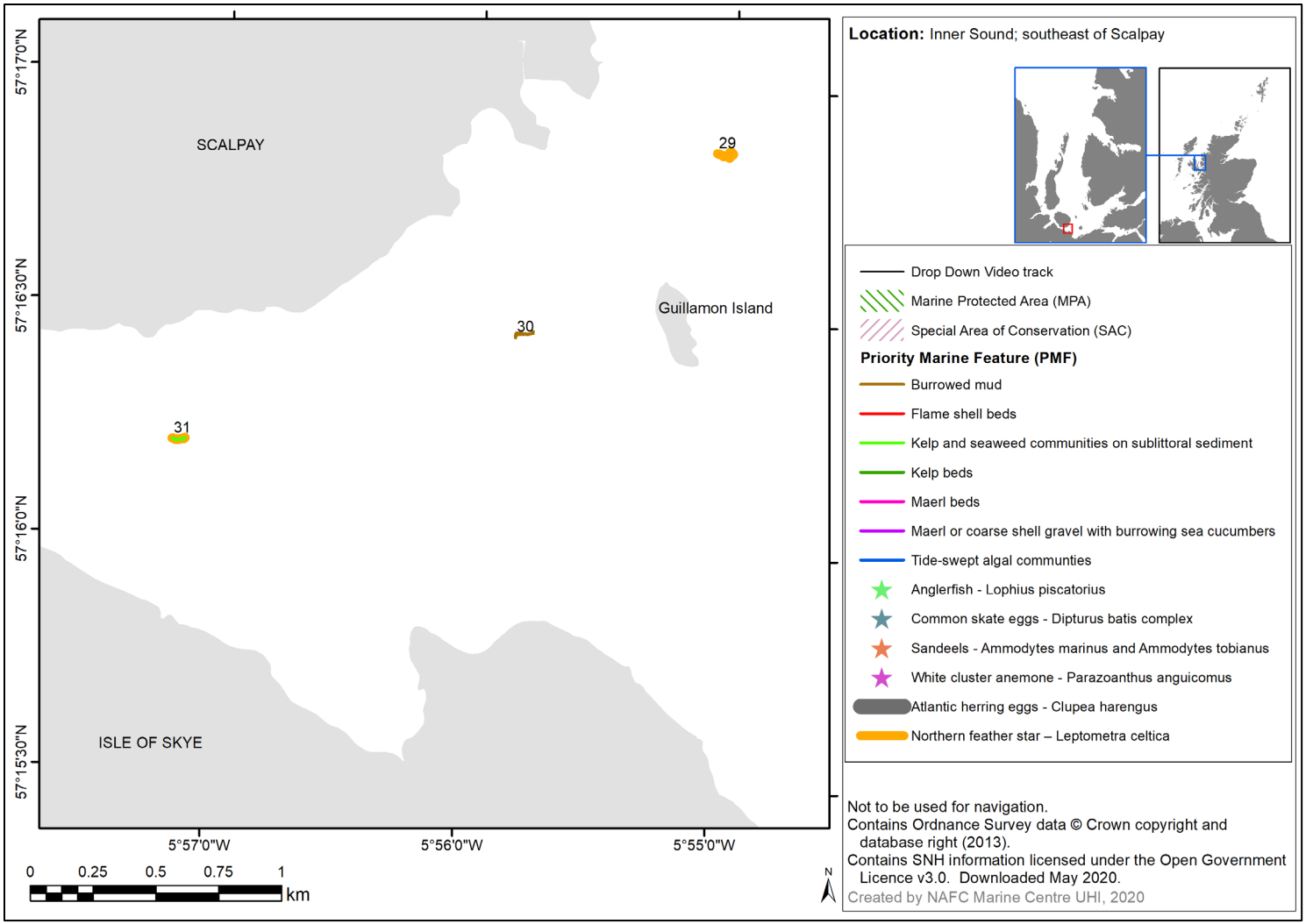


Figure 12: Priority Marine Features (PMF) identified from 2019 surveys and their corresponding drop down video tows (tow numbers shown) to the southeast of Scalpay.

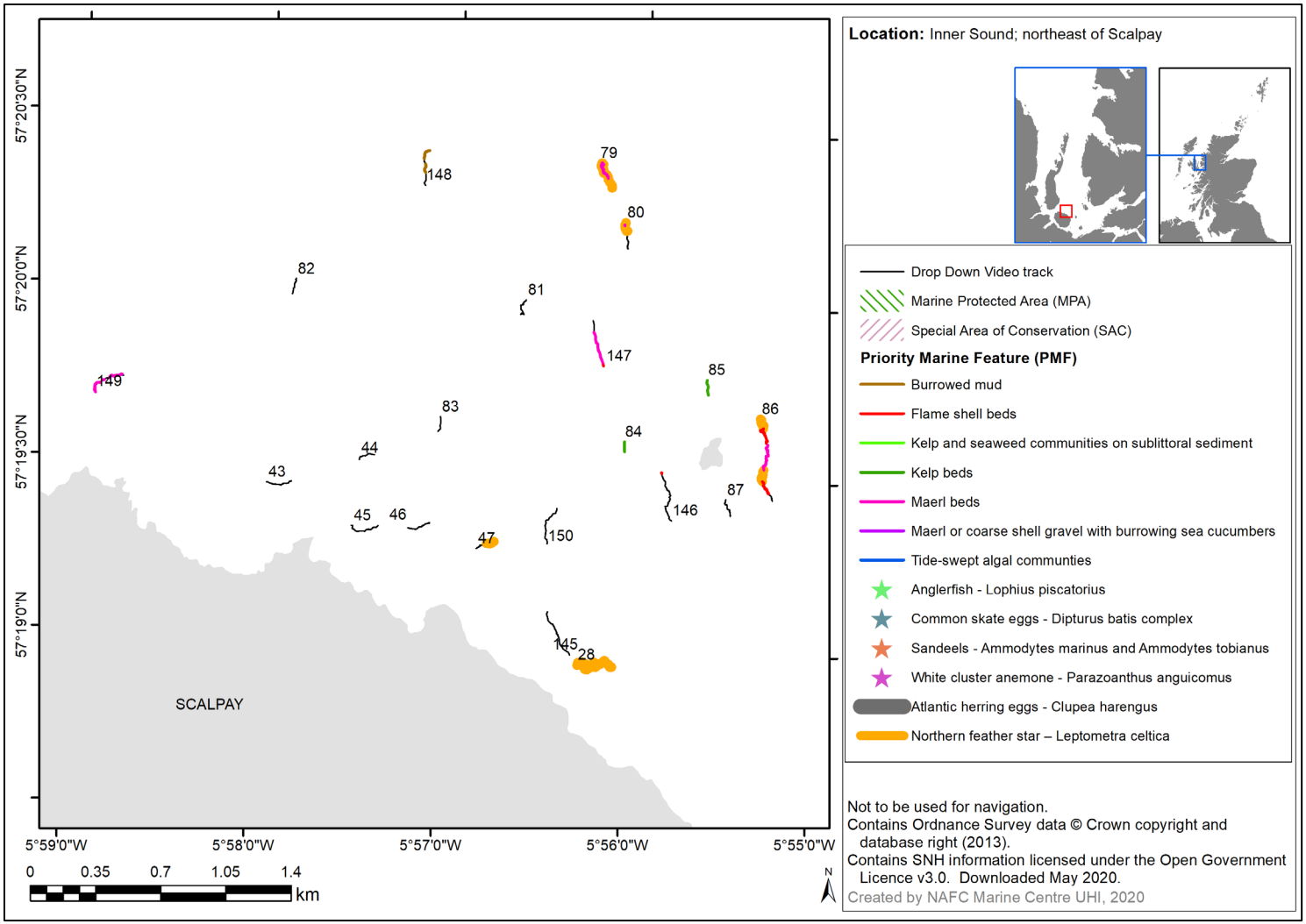


Figure 13: Priority Marine Features (PMF) identified from 2019 surveys and their corresponding drop down video tows (tow numbers shown) to the northeast of Scalpay.

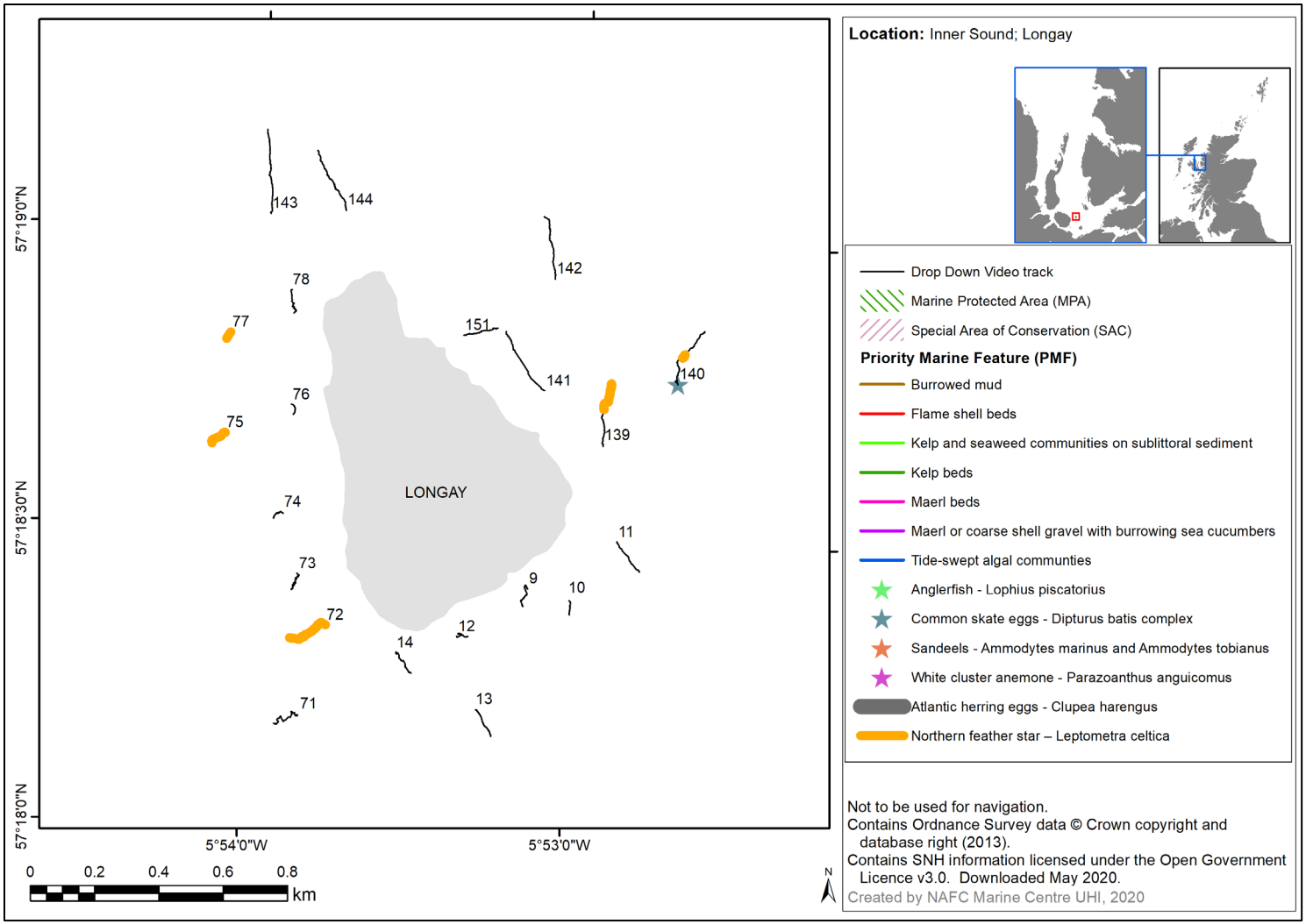


Figure 14: Priority Marine Features (PMF) identified from 2019 surveys and their corresponding drop down video tows (tow numbers shown) around Longay, Inner Sound.

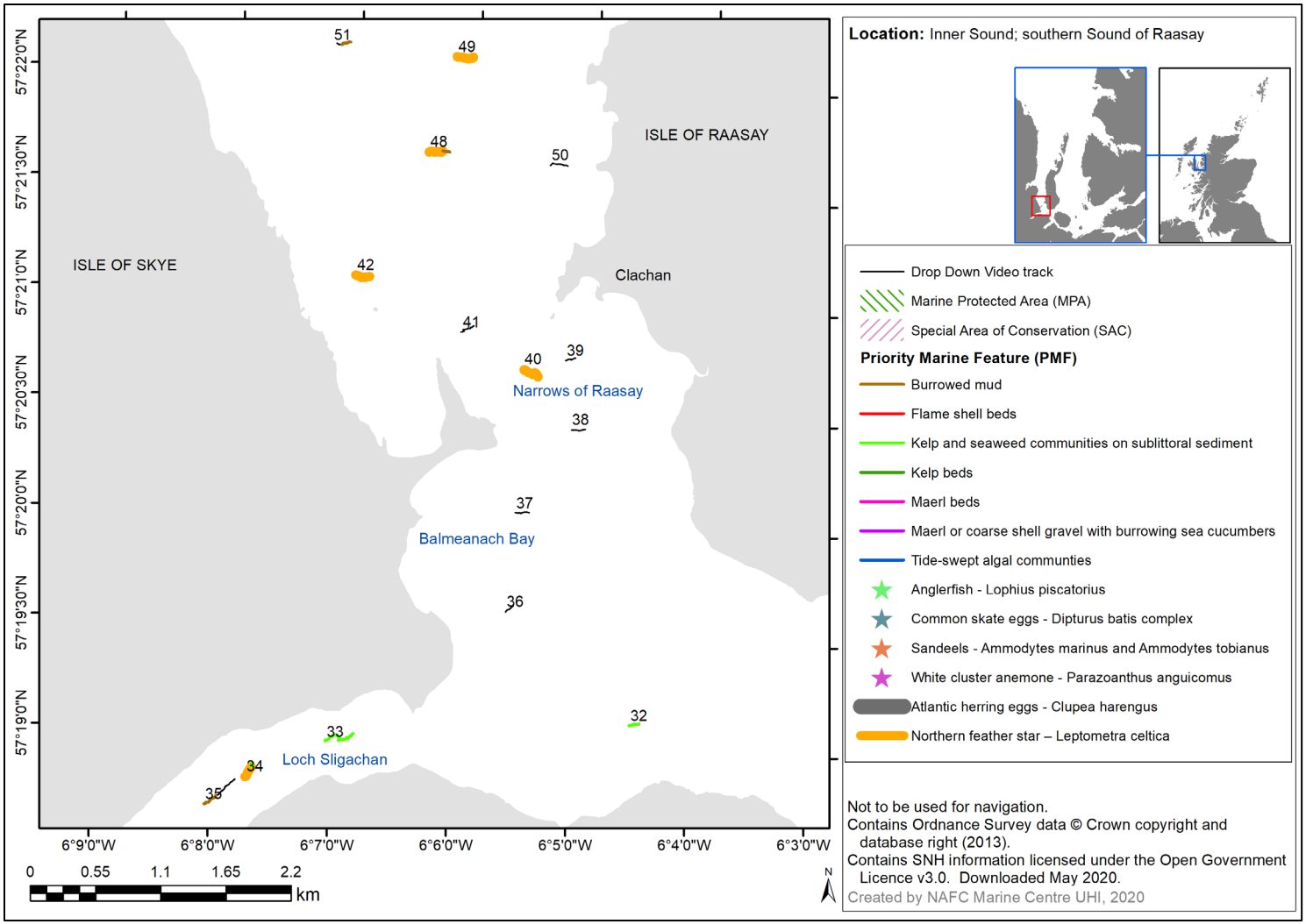


Figure 15: Priority Marine Features (PMF) identified from 2019 surveys and their corresponding drop down video tows (tow numbers shown) in southern Sound of Raasay and Loch Sligachan.

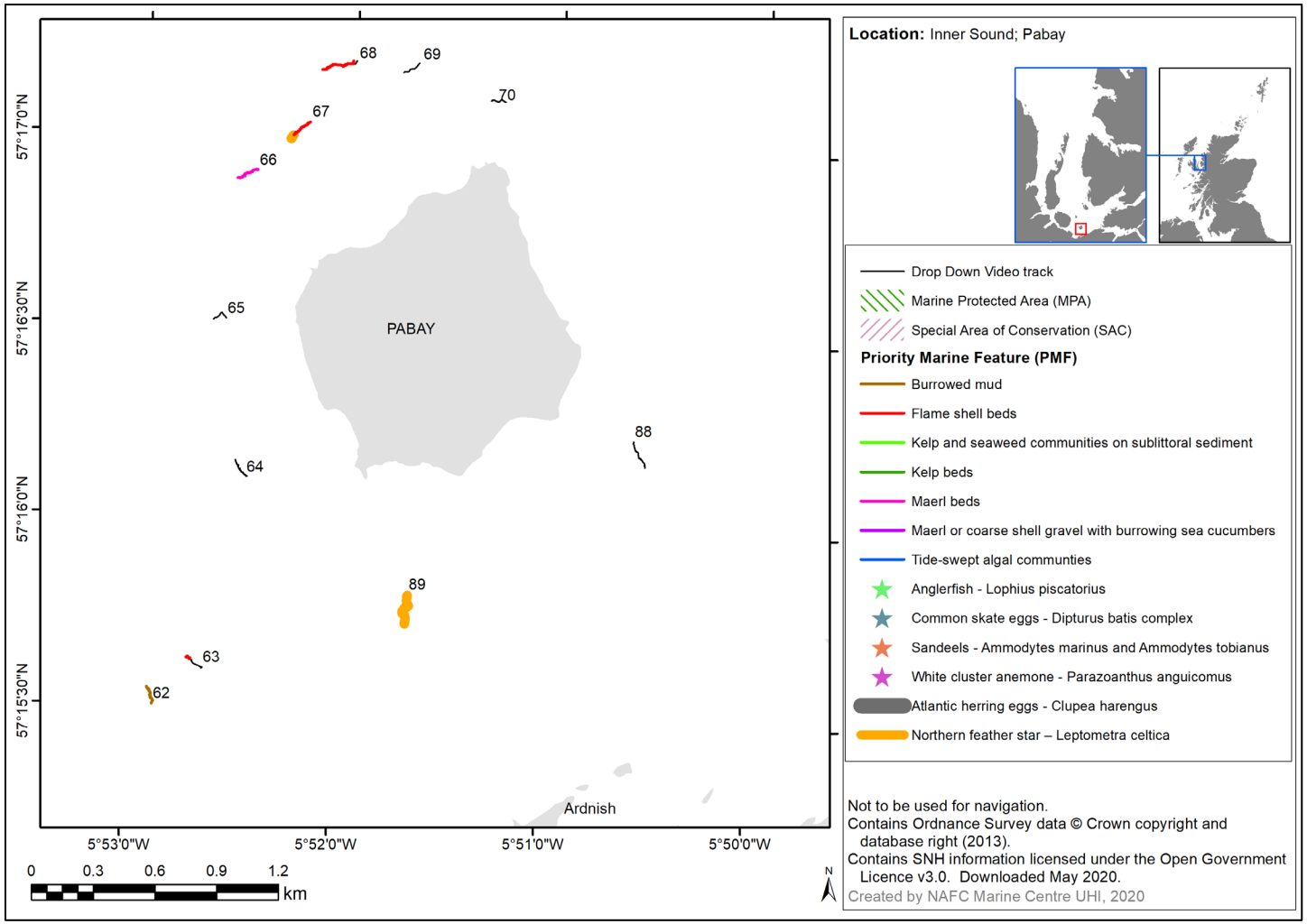


Figure 16: Priority Marine Features (PMF) identified from 2019 surveys and their corresponding drop down video tows (tow numbers shown) around Pabay.

Islay and Jura

A total of 225 DDV tows (Figure 17) were carried out around the Islay and Jura coasts with six PMF habitats:

- kelp beds;
- kelp and seaweed communities on sublittoral sediments;
- burrowed mud;
- maerl beds;
- maerl or coarse gravel with burrowing cucumbers;
- northern sea fan, and sponge communities.

Two limited mobility PMF species:

- white cluster anemone;
- northern feather star.

Two mobile PMF species:

- sandeels;
- common skate (eggs).

Within the Islay and Jura survey area there are five MPAs:

- South-East Islay Skerries SAC (designated for harbour seals),
- Inner Hebrides and the Minches SAC (designated for harbour porpoise),
- Firth of Lorn SAC (designated for reefs),
- Loch Sween MPA (designated for burrowed mud, native oysters, maerl beds, and sublittoral and mixed sediment communities), and
- Loch Sunart to the Sound of Jura MPA (designated for common skate and geomorphological features).

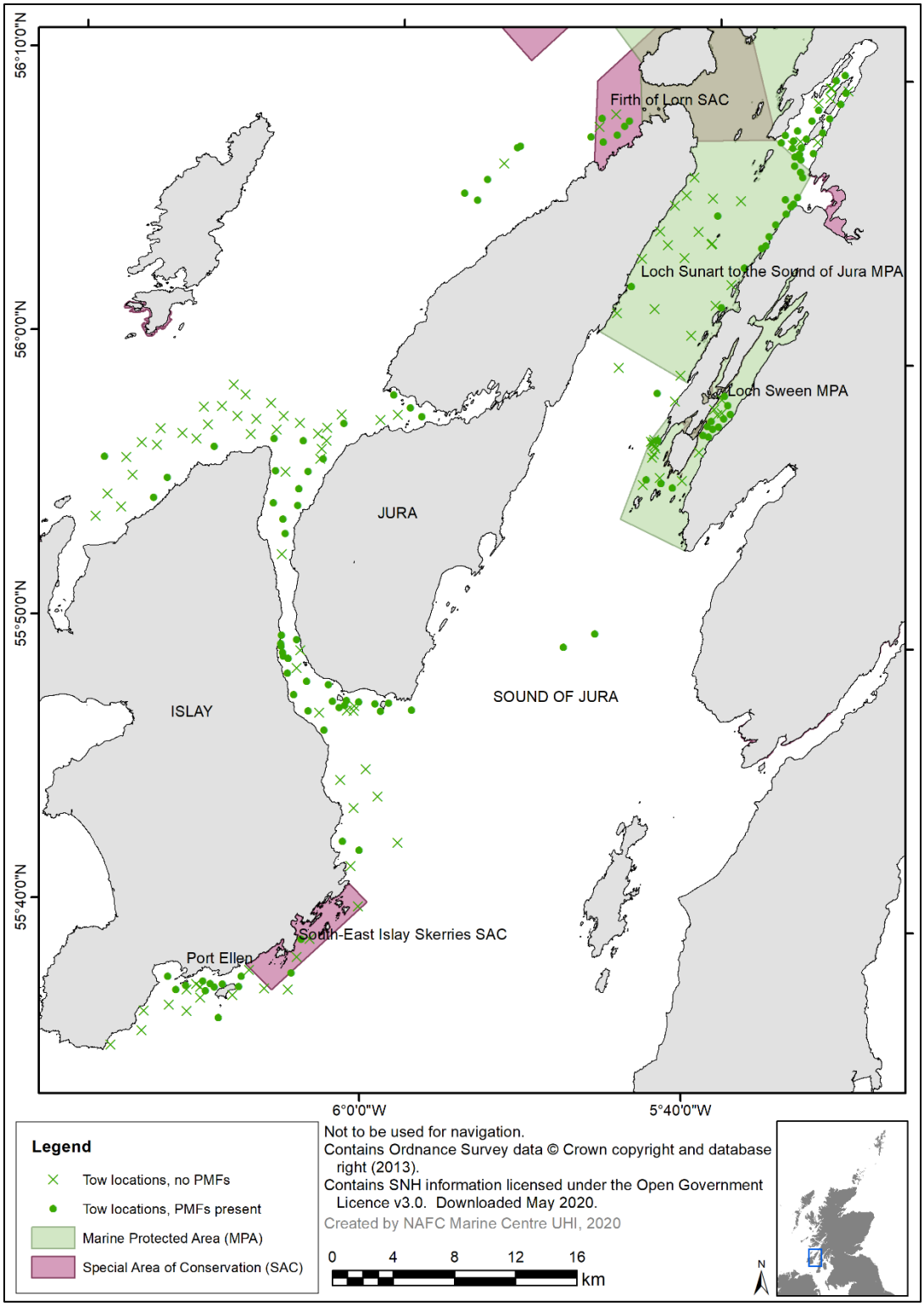


Figure 17: Locations of tows and Priority Marine Features (PMFs) surveyed in 2019 during the EMFF project around Islay and Jura with protected areas shown. For greater detail, see maps on page 44.

Port Ellen and south east Islay

Drop down video tows were undertaken at 28 locations (Tows 1-28) in water depths of 10 to 30 m (Figure 18 and Figure 19). The tows do not fall within an existing MPA designated for benthic habitats or species. The South-East Islay Skerries SAC covers part of this survey sub-area but is designated for harbour seals. The tows showed a high proportion of subtidal sediments, with muddy sand (SS.SSa.CMuSa) noted at four tows and coarse sediment at four tows (SS.SCS.CCS). Live maerl (<10%) and relatively high proportions of fragmented dead maerl (up to 100% maerl gravel cover) were noted at two of these tows (10 and 11) and moderate levels on Tow 5 (5-10% dead maerl). At two tows nearly 100% dead maerl cover was observed, as was the presence of the sea cucumber, *Neopentadactyla mixta* (Tows 8 and 14) (SS.SCS.CCS.Nmix). The high proportion of dead maerl at these tows (8, 10, 11, and 14) is potentially indicative of human impacts. Maerl beds (SS.SMp.Mrl) were observed at five tows in this area, two observed adjacent to Port Ellen, and three between Texa and Islay (Figure 18). A historic record of maerl exist within GeMS (from 1982), which corresponds to tow 8, and may provide an opportunity to determine whether the proportion of live maerl has changed at this survey location.

Mixed sediments were common throughout the area, with seven tows classified, or part classified, as circalittoral mixed sediment (SS.SMx.CMx) and two supporting brittlestar beds (SS.SMx.CMx.OphMx). Infralittoral mixed sediments were also observed, supporting seaweed communities (SS.SMp.KSwSS, SS.SMp.KSwSS.LsacR, and SS.SMp.KSwSS.LsacR.Gv). Areas of infralittoral rock, supporting kelp communities (IR.HIR.KFaR.LhypRVt, IR.MIR.KR.Lhyp.Ft, IR.MIR.KR.Lhyp.Pk, IR.MIR.KR.LhypTX.Ft, IR.MIR.KR.LhypT.Pk, IR.MIR.KT.XKTX, and IR.MIR.KT) were noted. Only one tow, tow 18, supported circalittoral rock communities (CR.MCR.EcCr.FaAlCr.Pom).

Sound of Islay (north entrance) and approaches

Drop down video tows were undertaken within Loch Tarbert, Jura, the north entrance of the Sound of Islay, and along the northeast Islay coast (Tows 29-78; Figure 20 and Figure 21). The tows do not fall within an MPA but historic records for maerl exist within the north entrance of the Sound of Islay. The most northerly stations within this sub-area fall within the Inner Hebrides and the Minches SAC designated for harbour porpoises. Within Loch Tarbert (Jura), five DDV tows were undertaken at the mouth of the loch (Tows 64-68; Figure 20), in depths ranging from 10 to 20 m. All tows revealed

sediment communities, with the deepest tow (Tow 65) supporting circalittoral sea pen communities with burrowing megafauna (SS.SMu.CFiMu.SpnMeg). Sea pens (*Virgularia mirabilis*) were also observed in infralittoral sediment communities on Tows 67 and 68 (SS.SMu.IFiMu.PhiVir and SS.SMu.IFiMu). Infralittoral sediments supported kelp and seaweed communities on fine mud and on more mixed sediment (SS.SMp.KSwSS).

Within the Sound of Islay (north entrance), 19 drop down video tows (Tows 29-33, 53-56, and 69-78) were undertaken, within survey depths of 13 to 42 m (Figure 20). All tows revealed sublittoral sediment communities. Circalittoral mixed or coarse sediment communities were prevalent, particularly within the Sound (SS.SMx.CMx and SS.SCS.CCS), with only two tows categorised as sand (SS.SSa.CFiSa). Within the sediment communities, some were impoverished, presumably due to the mobile nature of the sand, cobbles, and pebbles. Those supporting fauna were dominated by hydroids and bryozoans. Infralittoral communities of kelps and seaweeds on sediments (predominantly cobbles) were observed across the area (SS.SMp.KSwSS and SS.SMp.KSwSS.LsacR.CbPb). On more stable sediments, kelp forests were observed on tide swept mixed sediment (IR.MIR.KR.LhypTX.Ft and IR.MIR.KT). On Tow 55, small patches of maerl were noted underneath the kelp canopy, however, the video evidence did not suggest that the maerl occurred at sufficient quantities (<10% live maerl) or at sufficient extent (<25 m^2) to additionally warrant a maerl bed biotope classification.

Twenty-three locations were surveyed (Tows 37-52 and 57-63) to the northeast of Islay, within depth ranges of 12 to 83 m (Figure 21). Subtidal sediments dominated, with circalittoral mixed substrate (SS.SMx.CMx, SS.SCS.CCS.Nmix, and SS.SMx.CMx.CIloMx). Fine sand was also observed, commonly with sparse epifauna (SS.SSa.CFiSa). At the deepest tows, pockets of muddy sediment were present, also with relatively sparse epifaunal communities (SS.SSa.CMuSa).

In shallower waters, tide swept kelp communities on mixed sediments and seaweed on sediment were observed (IR.MIR.KR.LhypTX.Ft, SS.SMp.KSwSS, IR.MIR.KT).

Sound of Islay (south entrance) and approaches

Drop down video tows were undertaken within the south entrance of the Sound of Islay, southwest of Jura, and the southeast coast of Islay (Figure 22, Figure 23 and Figure 24,

respectively). These tows do not fall within an MPA. Two maerl bed records were noted within a marine renewable survey (Howson, C. & Mercer, T., 2012), east of Am Fraoch Eilean and at the northwest of this survey area.

Within the Sound of Islay, depth ranges of 11 to 30 m were surveyed (Tows 79-106; Figure 22). These 28 locations, in common with the north end of the Sound of Islay, were dominated by sublittoral sediment communities with only one tow (Tow 87) classified as circalittoral rock supporting faunal turf communities (CR.HCR.XFa). Due to the relatively shallow depths, only two sites within the Sound were classified as circalittoral sediment (SS.SSa.IFiSa.IMoSa and SS.SCS.CCS), with the sand and coarse sediment communities supporting only sparse epifaunal communities. At the Sound entrance, one tow (Tow 96) was classified as circalittoral mixed sediment, with boulders and cobbles (SS.SMx.CMx) and supported a more diverse faunal turf community including hydroids and the northern feather star, *Leptometra celtica* (Frequent, F).

All other tows were classified as infralittoral sediments, supporting tide swept kelp beds (IR.MIR.KR.LhypTX.Pk and IR.MIR.KR.LhypTX.Ft), or kelps and seaweeds on sediments (SS.SMp.KSwSS and SS.SMp.KSwSS.LsacR.CbPb), and maerl beds (SS.SMp.Mrl) were observed at five tows (Tow 81, 82, 90, 98, and 103). Maerl records on Tows 81, 82, and 103 correspond with those identified during commercial marine renewable surveys, (Howson, C & Mercer, T., 2012).

Outside of the Sound of Islay, 11 locations were surveyed to the southeast of Islay (Tows 107-117; Figure 24 and Figure 25). Muddy sediments were common supporting both shallow infralittoral and deeper circalittoral communities. In the infralittoral, the kelp *Saccharina latissima* was observed on mud (SS.SMp.KSwSS.LsacR.Mu). In shallow circalittoral communities closer to the coast muddy sand (SS.SSa.CMuSa) and muddy circalittoral mixed sediment (SS.SMx.CMx) were observed. The deepest tow (Tow 113), at 102 m, was also characterised as muddy sand but with limited epifauna (SS.SSa.CMuSa). Closer to the Sound of Islay, Tows 107 and 109 were dominated by accumulation of horse mussel shells and were classified as mixed sediment (SS.SMx.CMx). The northern feather star (*Leptometra celtica*) PMF was observed on Tow 112 (Rare, R).

Two tows to the east of Jura in depths of 142 and 190 m were observed to support burrowing megafauna, including Norway lobster (*Nephrops norvegicus*), in mud communities (SS.SMu.CFiMu.MegMax).

Sound of Jura (north)

Drop down video tows were undertaken within the north of the Sound of Jura, with 32 locations surveyed (Tows 118-151; Figure 26 to Figure 30). These tows fall within the Loch Sunart to the Sound of Jura MPA, designated for common skate (*Dipturus* spp.) and geomorphological features. The tows also fall within the Inner Hebrides and the Minches SAC, designated for harbour porpoise. Existing PMF records within GeMS are limited to the east side of the Sound of Jura, with records of northern sea fan, *Swiftia pallida*, communities from Seasearch surveys in 2015 and a JNCC survey from 1982.

All surveyed tows showed the effects of a highly tidal regime, with most tows supporting dense hydroids and bryozoan communities, on both circalittoral rock (CR.HCR.Xfa, CR.HCR.FaT.Ctub, and CR.HCR.FaT.CTub.Adig) and on mixed sediments (SS.SMx.CMx.FluHyd, SS.SMx.CMx, and SS.SMx.CMx.OphMx). Slightly lower energy faunal communities were observed on Tows 131 (CR.MCR.EcCr.FaAlCr; Figure 26) and 143 (CR.MCR.EcCr.FaAlCr.Sec; Figure 29).

The northern feather star, *Leptometra celtica*, PMF was observed on both mixed sediment communities and on bedrock (Tows 119, 123, 131-134, 136-138, and 150) but at relatively low to moderate abundance (Occasional to Frequent).

Northern sea fan, *Swiftia pallida*, communities (CR.HCR.XFa.SwiLgAs and CR.MCR.EcCr.CarSwi) were observed at six tows situated on the east side of the Sound of Jura. In between areas of bedrock supporting the *northern sea fan* communities, circalittoral mixed sediments (SS.SMx.CMx), coarse sediments (SS.SCS.CCS), and muddy sand (SS.SMu.CSaMu) were observed.

The white cluster anemone, *Parazoanthus anguicomus*, was observed on Tow 141 (CR.HCR.XFa; Figure 29), where it was classified as Frequent (F), with multiple sightings across the tow, and on Tow 150 where it is was observed on three occasions (CR.HCR.XFa.SwiLgAs; Figure 26).

Mud communities were restricted to the entrance of Loch Crinan (Tows 136, 138, 150, and 151), with burrowed mud communities (SS.SMu.CFiMu.MegMax) on Tow 136, sea pens and burrowing megafauna (SS.SMu.CFiMu.SpnMeg) on Tows 150 and 151, and muddy sand (SS.SMu.CSaMu) on Tows 136 and 138 (Figure 26).

Three infralittoral habitats supporting tide swept kelp and red algal communities (IR.MIR.KT, IR.HIR.KFaR.LhypR.Ft and IR.HIR.KFaR.FoR) were recorded.

Loch Craignish

Drop down video tows were undertaken within Loch Craignish, Sound of Jura, with 31 locations surveyed (Tows 152-172 and 187-195; Figure 31 and Figure 32). Burrowed mud has previously been recorded within Loch Craignish, with GeMS records from a JNCC survey (1989) and a Seasearch survey (1990).

Within Loch Craignish, mud communities were frequently observed, in contrast to the nearby high energy Sound of Jura tows. Tows to the east of Eilean Righ and Island Macaskin (Tows 155-162) all supported mud communities on mixed sediment (SS.SMx.CMx and SS.SMx.CMx.ClloMx), sandy mud (SS.SMu.CSaMu and SS.SMu.CSaMu.AfilNten), and sea pens and burrowing megafauna (SS.SMu.CFiMu.SpnMeg). To the northwest of Eilean Righ, burrowed mud and sea pens (SS.SMu.CFiMu.MegMax) and burrowing megafauna (SS.SMu.CFiMu.SpnMeg) were also observed, as well as infralittoral fine mud communities to the west (SS.SMu.IFiMu.PhiVir). Seaweed on sediment communities, dominated by sugar kelp, *Saccharina latissima*, were observed on Tows 187-190 (SS.SMp.KSwSS.LsacCho, SS.SMp.KSwSS.LsacR.Mu, and SS.SMp.KSwSS). Sea pens were also observed at these tows (*Virgularia mirabilis*).

The tows at the mouth of Loch Craignish showed the greatest variability between tows. Tows 154, 164, 166, and 169 supported the northern sea fan, *Swiftia pallida* (CR.HCR.XFa.SwiLgAs and CR.MCR.EcCr.CarSwi.LgAs). Adjacent substrates included moderate energy rock with the cup coral *Caryophyllia smithii* (CR.MCR.EcCr.CarSp.Bri and CR.MCR.EcCr.CarSp), coarse sediments (SS.SCS.CCS), mixed sediment (SS.SMx.CMx), sandy mud (SS.SSa.CMuSa), and burrowed mud (SS.SMu.CFiMu.MegMax and SS.SMu.CFiMu.SpnMeg). A common skate egg (*Dipturus spp.*) was observed on Tow 164 on a boulder slope just outside the boundary of the Loch Sunart to the Sound of Jura MPA designated for flapper skate, *Dipturus* spp.

Two tows at the loch entrance (Tow 155 and 165), supported infralittoral tide swept seaweed communities (SS.SMp.KSwSS.LsacR.CbPb) and kelp communities on rock (IR.HIR.KFaR.LhypR.Ft).

The northern feather star, *Leptometra celtica*, PMF was frequently observed in Loch Craignish, but at relatively low abundance (Tows 153, 156, 160, 161, 164, 166, and 172).

Northwest Jura

Drop down video tows were undertaken at 14 locations (Tows 173-186) in water depths of 24.5 to 110 m (Figure 33 and Figure 34). Tows 173-179 fall within the Firth of Lorn SAC, designated for reefs and within the Inner Hebrides and the Minches SAC, designated for harbour porpoises. Within GeMS there are burrowed mud records from 1997 and northern sea fan and sponge community records from Marine Scotland surveys in 2018 to the northwest of Jura.

The tows surveyed revealed mud communities (SS.SSa.CMuSa, SS.SMu.CSaMu.VirOphPmax, and SS.SMu.CFiMu.MegMax), often adjacent to moderate energy circalittoral rock supporting faunal and algal crusts. These rock communities were characterised by the cup coral *Caryophyllia smithii* and hydroids (CR.MCR.EcCr, CR.MCR.EcCr.FaAlCr, and CR.MCR.EcCr.CarSp). Northern sea fan (*Swiftia pallida*) communities were noted at three tows (181, 184, and 185) (CR.MCR.EcCr.CarSwi). The white cluster anemone (*Parazoanthus anguicomus*) was recorded on Tows 184 and 185 amongst *Swiftia pallida* communities. The northern feather star (*Leptometra celtica*) was noted on Tows 173-176 and 185 on both muddy sand and circalittoral rock habitat. Tows 173-179 fall within the Firth of Lorn SAC, designated for reefs. Northern sea fan and northern feather stars, when occurring on circalittoral rock on Tows 173, 175, 176, and 179 would form part of the protected features of the SAC, as well as PMFs (Figure 33).

Mixed substrate was recorded at two locations for part of the tows: Tows 180 and 184, both in 30 to 40 m water depth (SS.SMx.CMx). Both locations supported hydroids such as *Nemertesia antennina,* and Tow 184 (Figure 34) supported both the northern feather star (*Leptometra celtica*) and the white cluster anemone (*Parazoanthus anguicomus*).

Infralittoral tows were limited to Tow 181, with foliose red algae communities noted in water depths of 25 to 30 m (IR.HIR.KFaR.FoR; Figure 34).

Kilmory to Keillmore and Loch Sween

Drop down video tows were undertaken at 28 locations (Tows 196-225) in water depths of 9 to 70 m (Figure 35 and Figure 36). Tows 200-225 fall within Loch Sween MPA, designated for burrowed mud, maerl beds, native oysters and sublittoral mud and mixed sediment communities.

Within Loch Sween, locations were surveyed in water depths of 9 to 29 m. All tows supported sublittoral sediment communities. Protected features of the MPA were observed at the head of the loch and included eight records of burrowed mud (SS.SMu.CFiMu.MegMax) and one of sea pen and burrowed mud (SS.SMu.CFiMu.SpnMeg). Sandy mud supporting brittlestars and burrowing fauna (SS.SMu.CSaMu.AfilMysAnit and SS.SMu.CSaMu) were also observed. At the loch mouth, shallower infralittoral sediment communities supported red filamentous algae (SS.SMp.KSwSS). Mixed sediment communities were observed at two locations, one at the mouth of the loch (Tow 208) and one along the northwest coast of the loch (Tow 225; SS.SMx.CMx). Low energy circalittoral rock communities, supporting ascidians (*Ascidiella aspersa*) and hydroid communities (CR.LCR.BrAs) was observed on Tow 225.

Four locations were surveyed between the mouth of Loch Sween and the islands of Corr Eilean and Eilean Ghamhna (Tows 205, 206, 209, and 210) in water depths of 14 to 25 m (Figure 35). Three tows supported algal communities, two on sediments (SS.SMp.KSwSS and SS.SMp.KSwSS.LsacR) and one on infralittoral rock (IR.HIR.KSed.XKScrR and IR.HIR.KFaR.FoR). Adjacent to these seaweed communities faunally sparse mixed sediment communities (SS.SMx.CMx) and faunally sparse coarse sediment (SS.SCS.CCS) were observed on Tows 205 and 209, respectively, with the later supporting a small shoal of sandeels (*Ammodytes* spp.). In contrast, mixed sediments and boulders on Tow 210 supported dense hydroid communities (SS.SMx.CMx and CR.HCR.XFa).

To the west of the Island of Danna, eight DDV tows were undertaken, in water depths between 19 and 70 m (Figure 35). All tows revealed coarse or mixed sediment communities for at least part of the tow, and at only one tow, Tow 196, was infralittoral

mixed sediment recorded, with cobbles and pebbles supporting the sugar kelp *Saccharina latissima* and red algae (SS.SMp.KSwSS.LsacR.CbPb). All other tows consisted of circalittoral mixed sediments supporting bryozoans (*Flustra foliacea*), hydroids (*Hydrallmania falcata*), brittlestars (*Ophiothrix fragilis*), and tube worms (*Spirobranchus triqueter*) (SS.SMx.CMx, SS.SMx.CMx.FluHyd, SS.SMx.CMx.OphMx, and SS.SCS.CCS.PomB). Only Tow 204 showed a faunally sparse fine sand community for part of the tow (SS.SSa.CFiSa).

Islay and Jura Maps

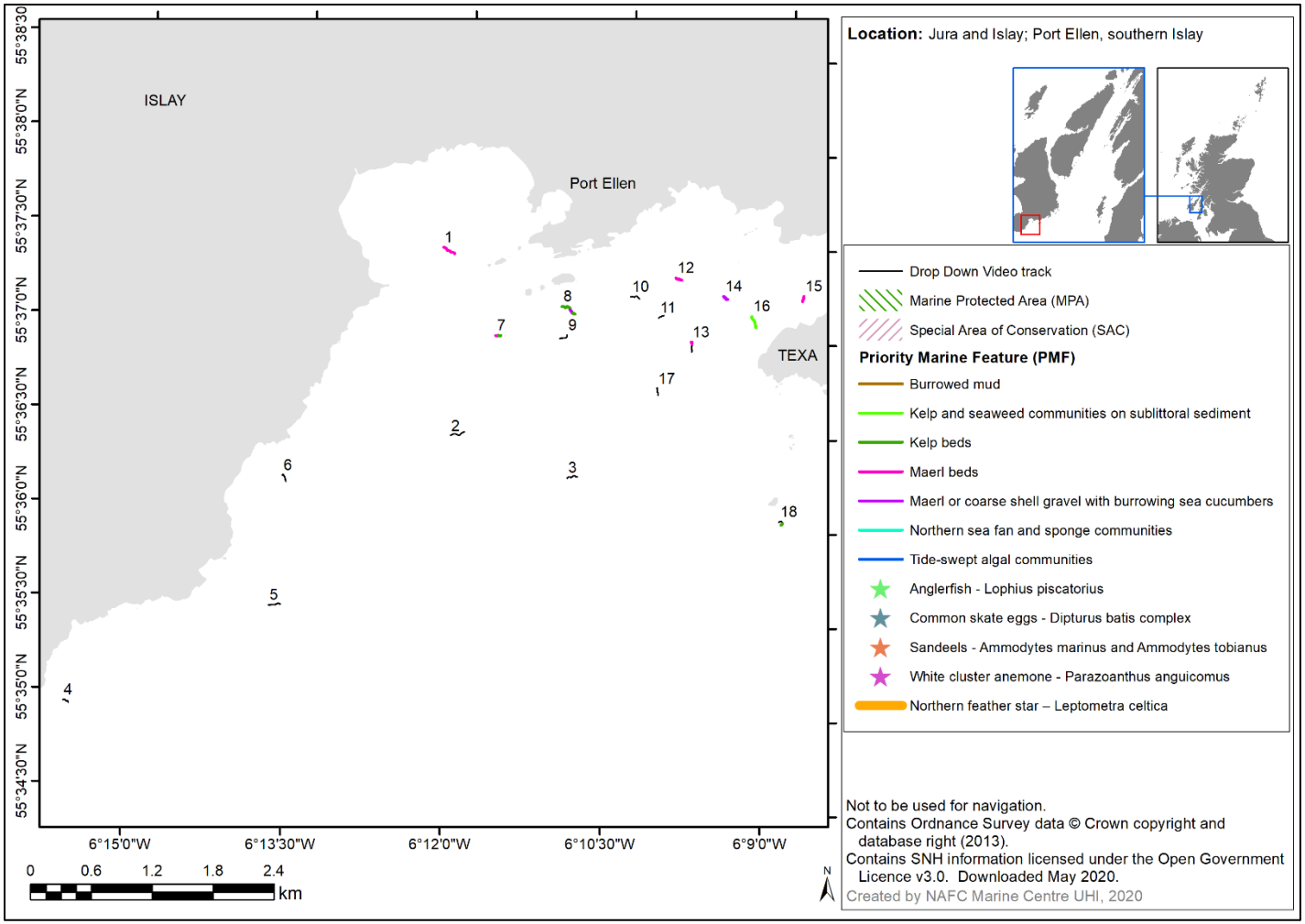


Figure 18: Priority Marine Features (PMF) identified from 2019 surveys and their corresponding drop down video tows (tow numbers shown) at Port Ellen, Islay.

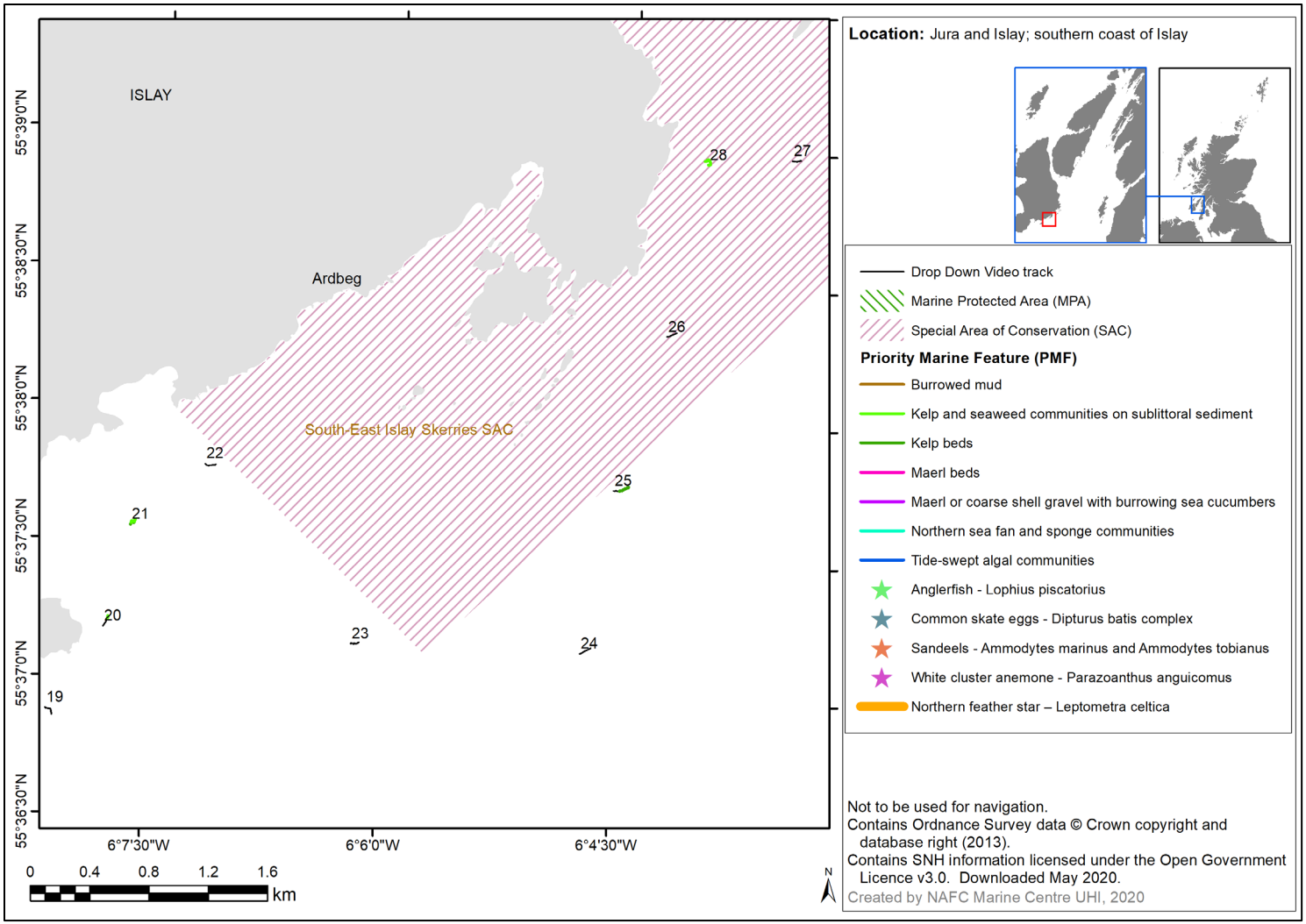


Figure 19: Priority Marine Features (PMF) identified from 2019 surveys and their corresponding drop down video tows (tow numbers shown) southeast of Islay with protected areas shown.

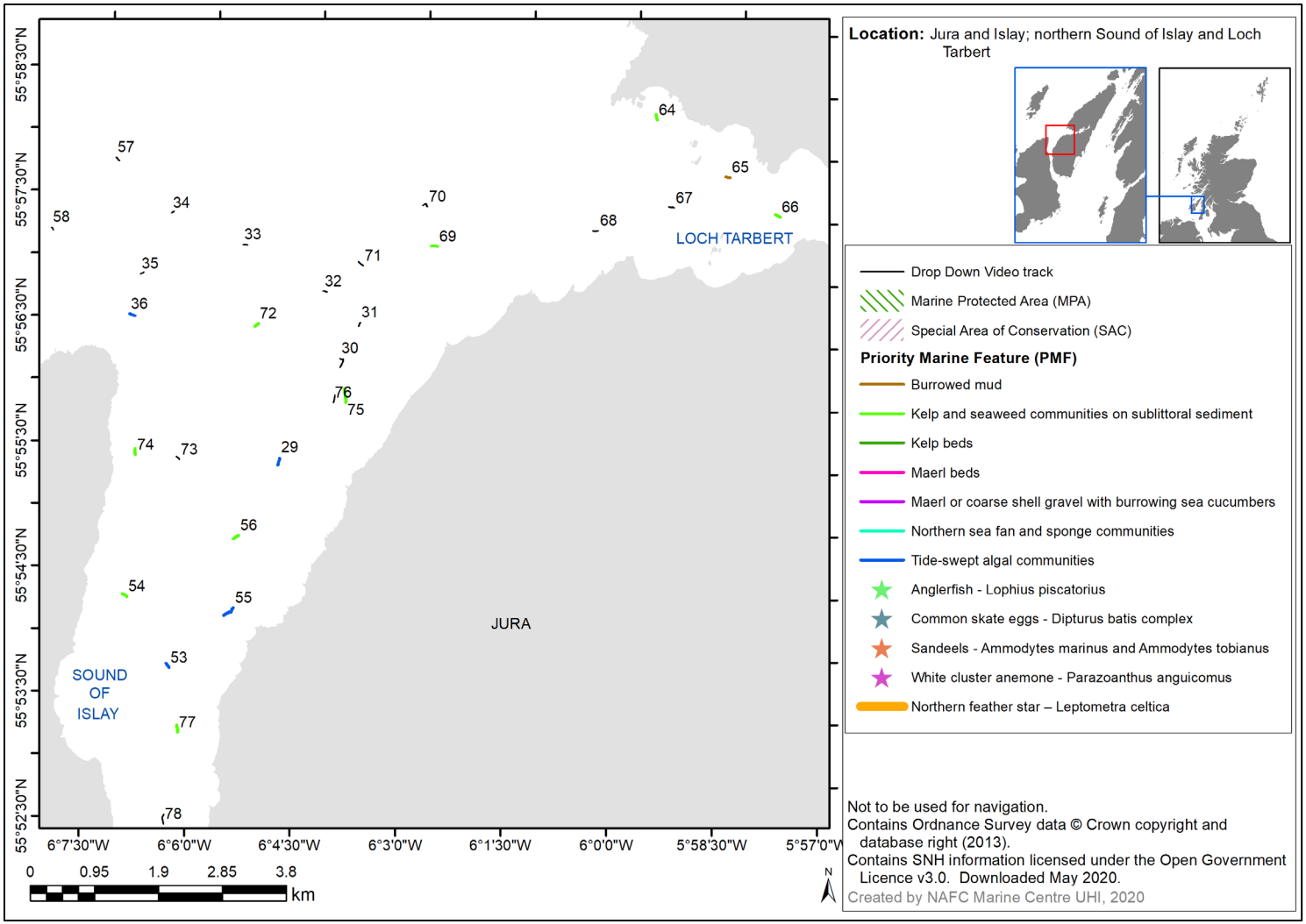


Figure 20: Priority Marine Features (PMF) identified from 2019 surveys and their corresponding drop down video tows (tow numbers shown) within the north of the Sound of Islay.

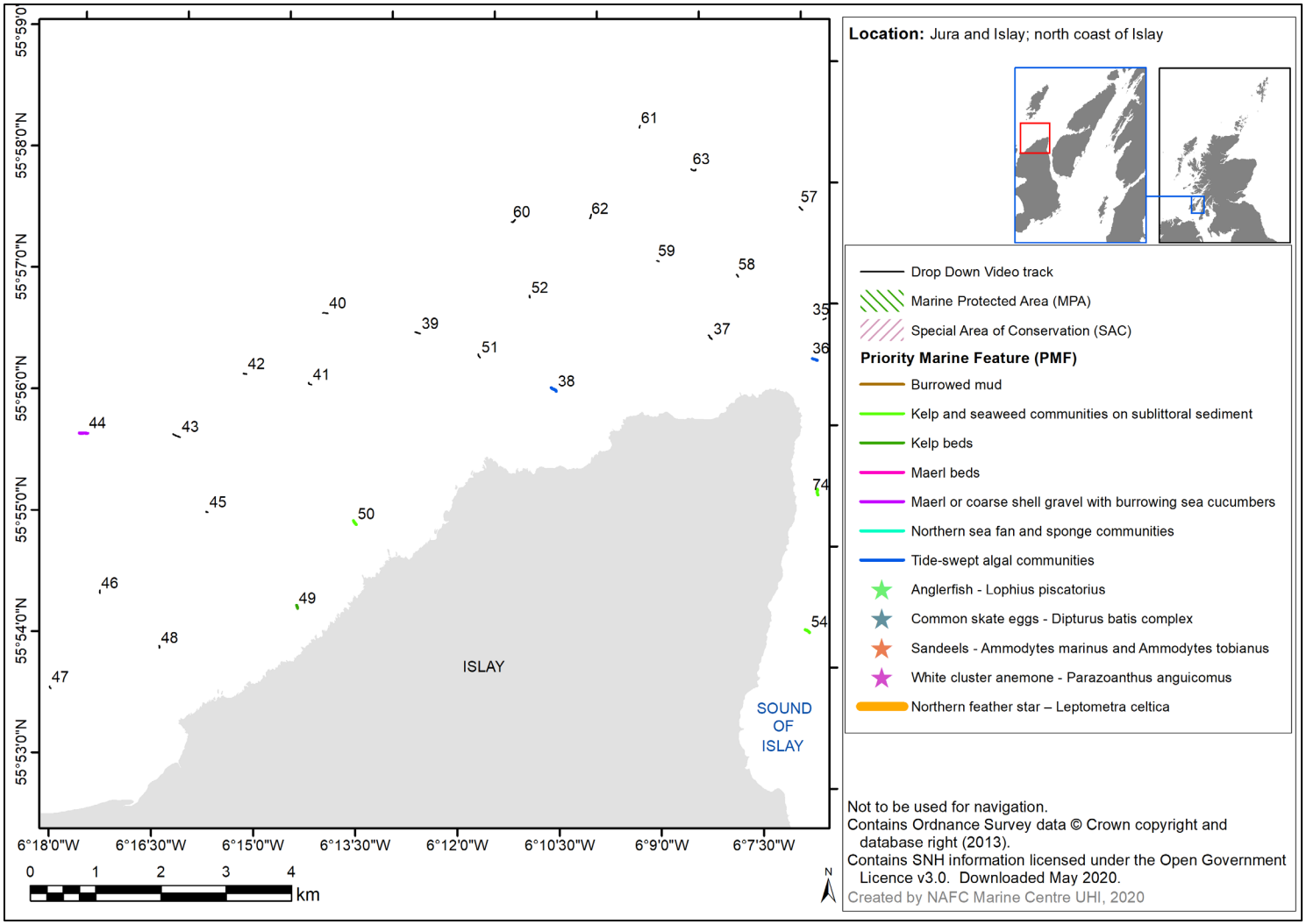


Figure 21: Priority Marine Features (PMF) identified from 2019 surveys and their corresponding drop down video tows (tow numbers shown) to the north of Islay.

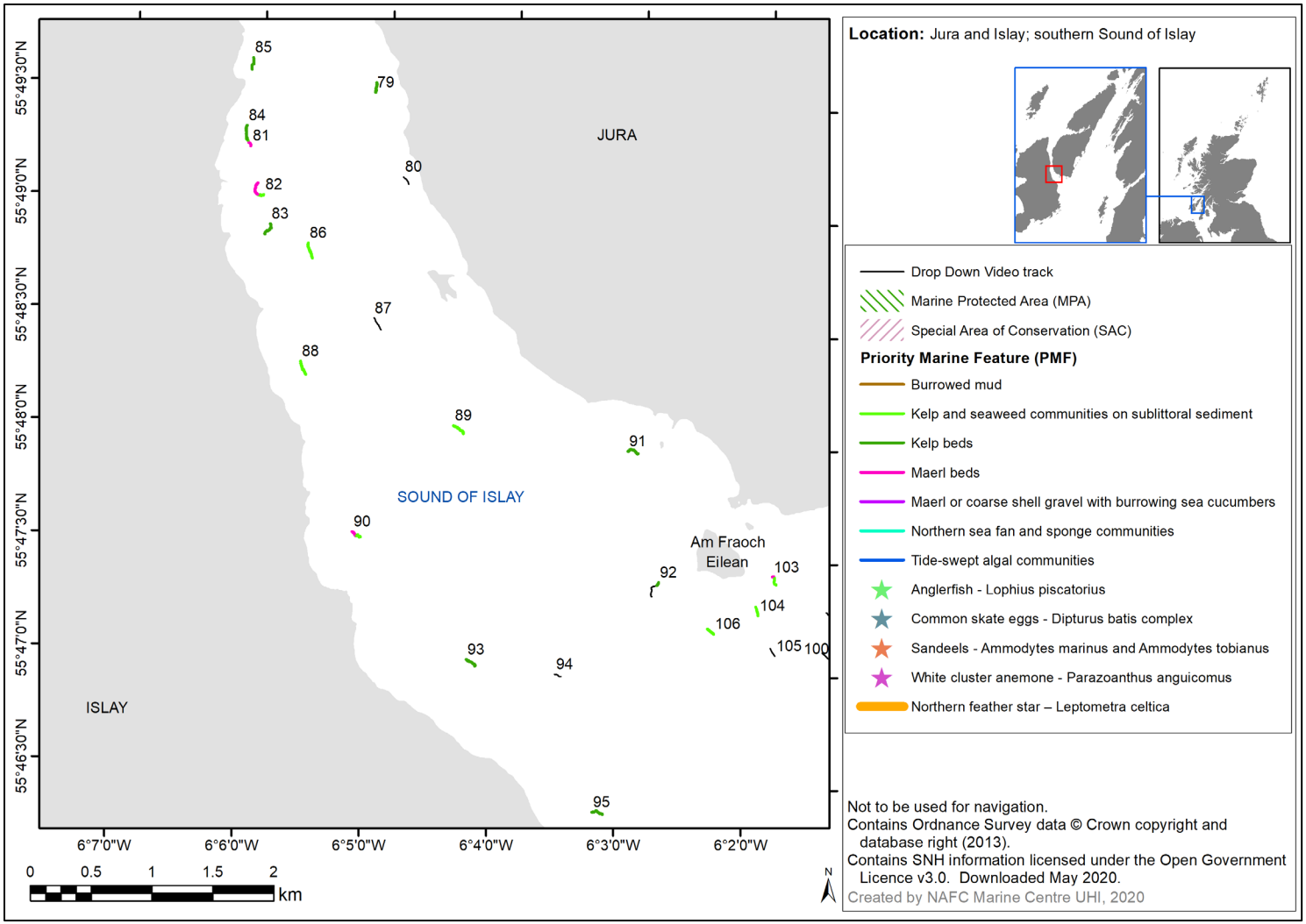


Figure 22: Priority Marine Features (PMF) identified from 2019 surveys and their corresponding drop down video tows (tow numbers shown) within the south of the Sound of Islay.

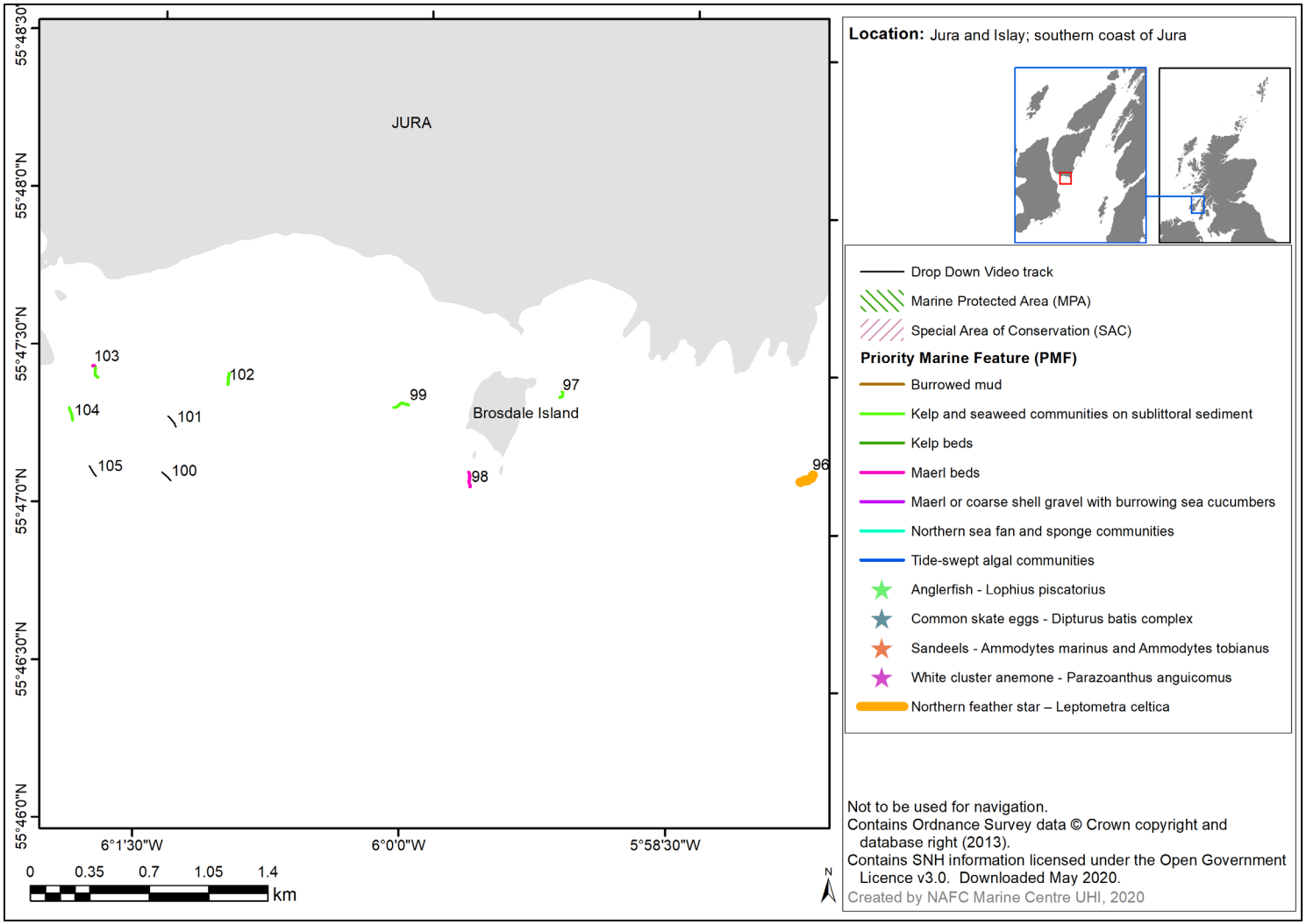


Figure 23: Priority Marine Features (PMF) identified from 2019 surveys and their corresponding drop down video tows (tow numbers shown) to the south of Jura.

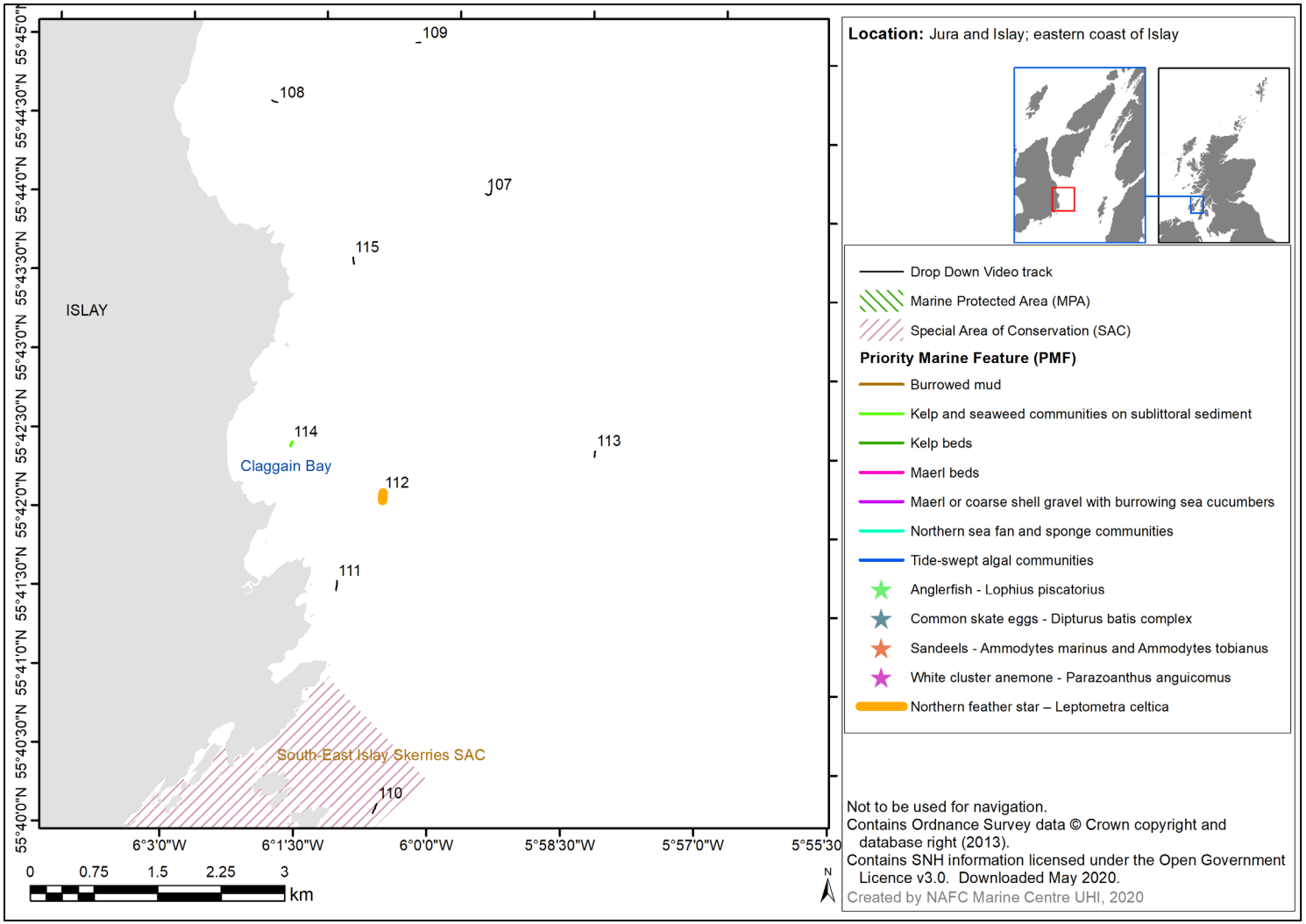


Figure 24: Priority Marine Features (PMF) identified from 2019 surveys and their corresponding drop down video tows (tow numbers shown) to the southeast of Isla with protected areas shown.

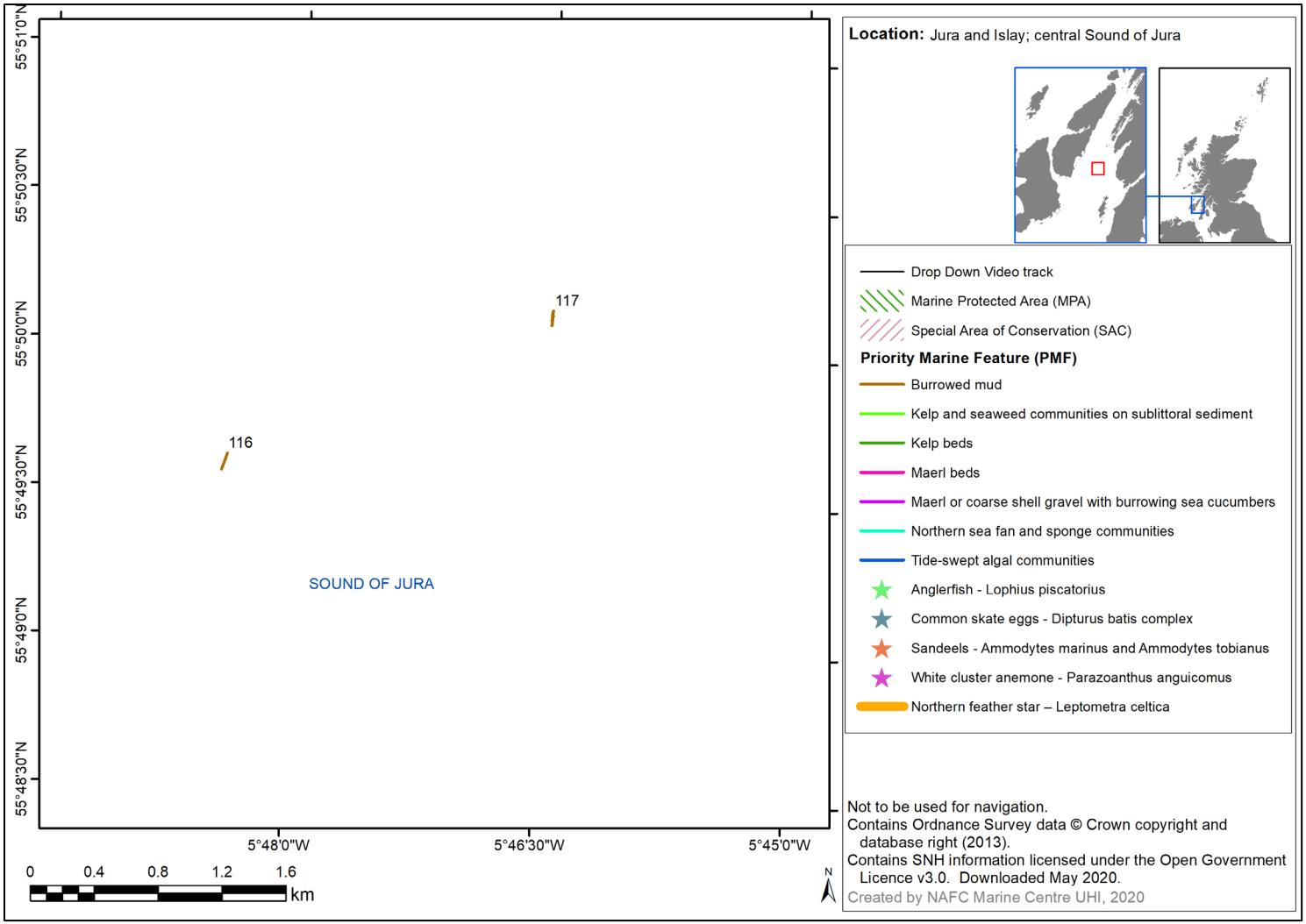


Figure 25: Priority Marine Features (PMF) identified from 2019 surveys and their corresponding drop down video tows (tow numbers shown) in central Sound of Jura.

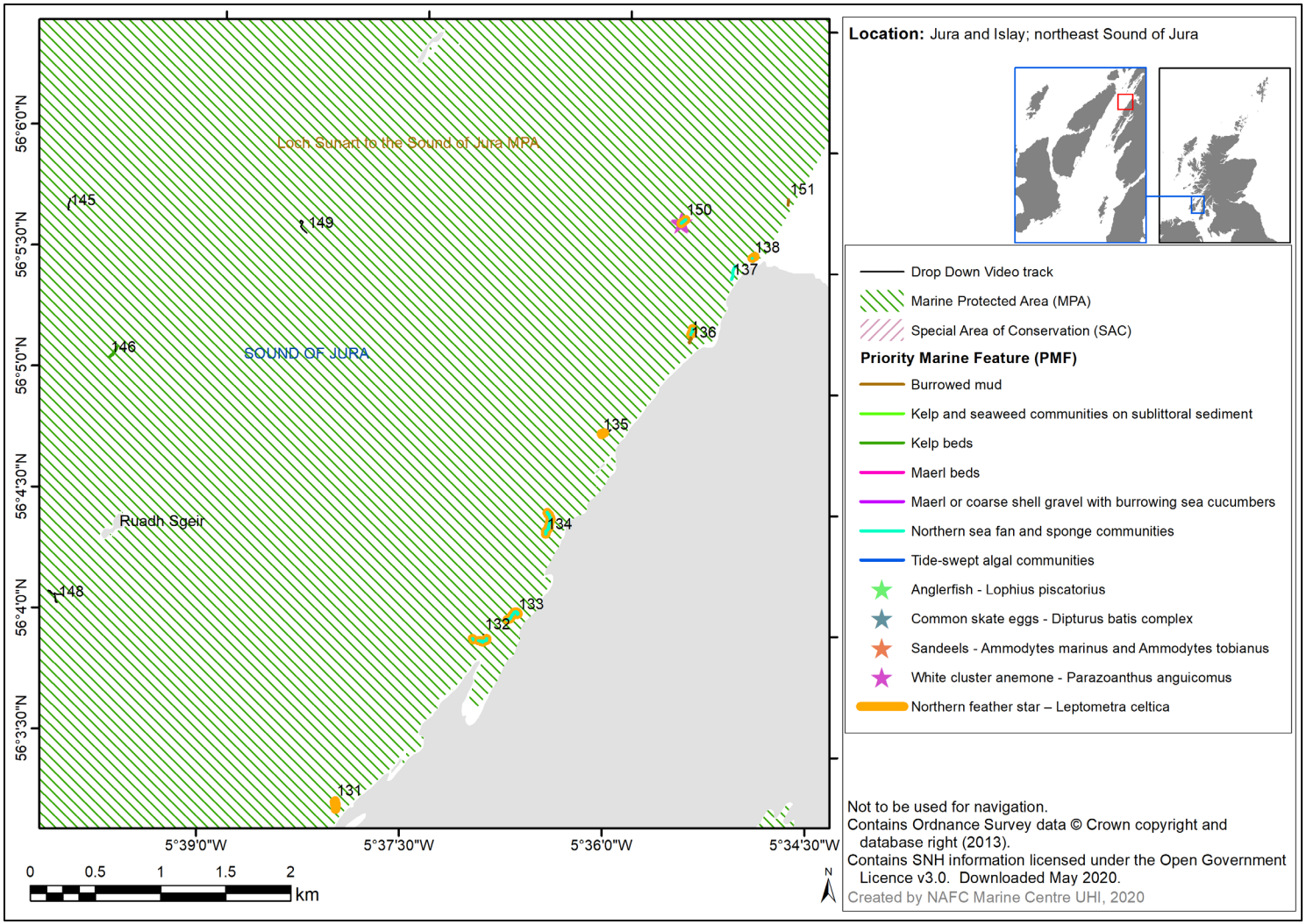


Figure 26: Priority Marine Features (PMF) identified from 2019 surveys and their corresponding drop down video tows (tow numbers shown) to the northeast of the Sound of Jura, with protected areas shown.

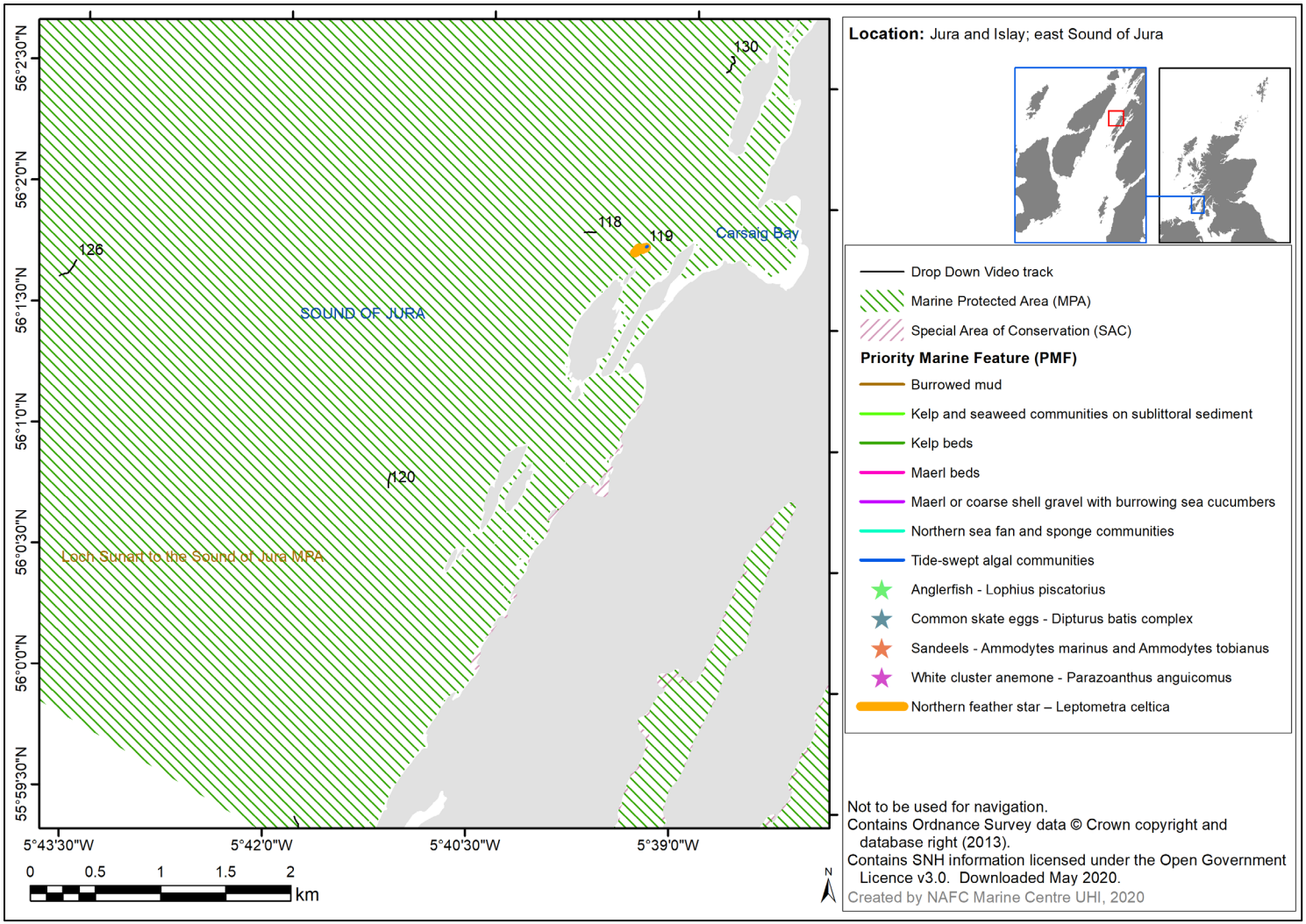


Figure 27: Priority Marine Features (PMF) identified from 2019 surveys and their corresponding drop down video tows (tow numbers shown) to the east of the Sound of Jura, with protected areas shown.

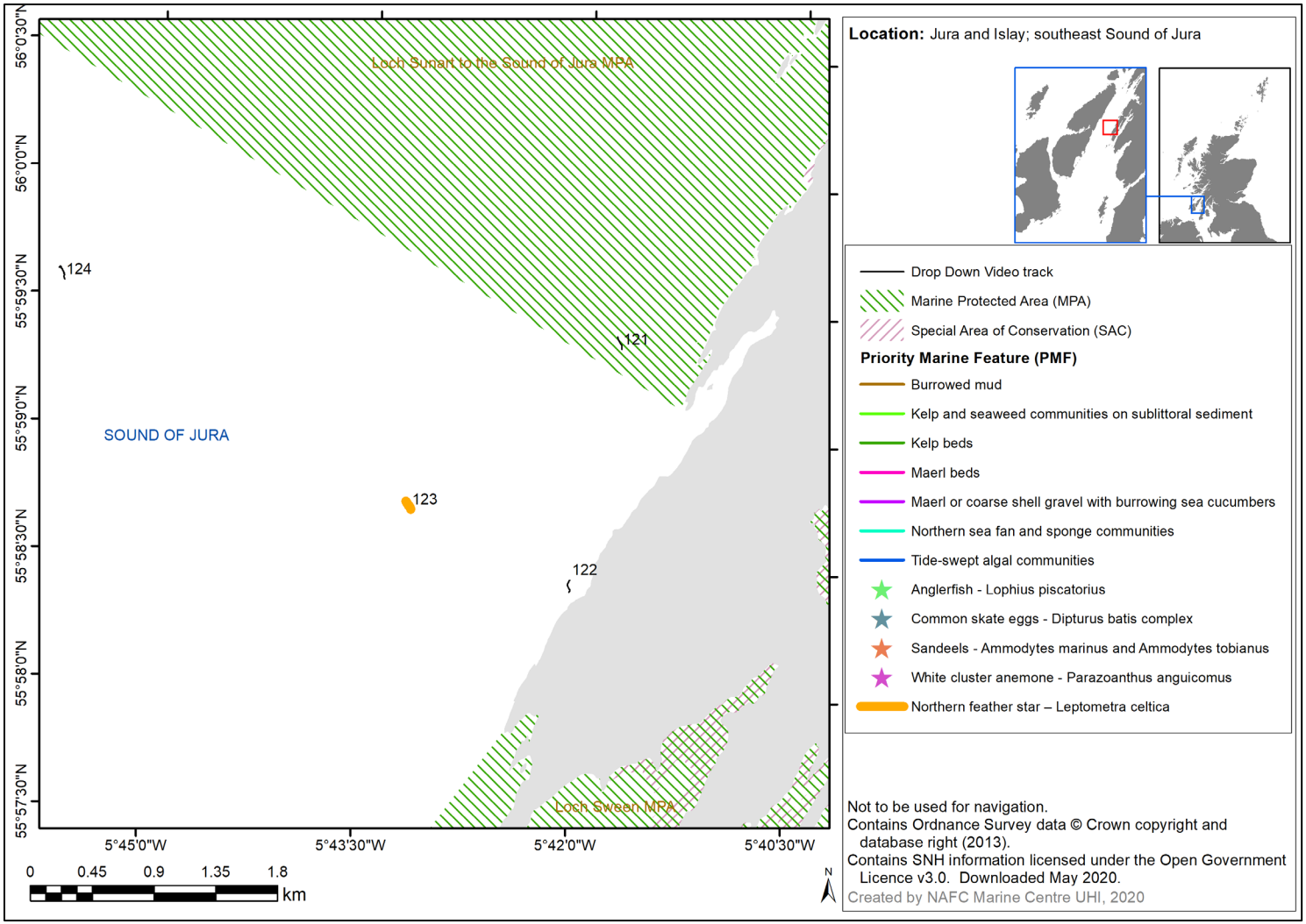


Figure 28: Priority Marine Features (PMF) identified from 2019 surveys and their corresponding drop down video tows (tow numbers shown) to the southeast of the Sound of Jura, with protected areas shown.

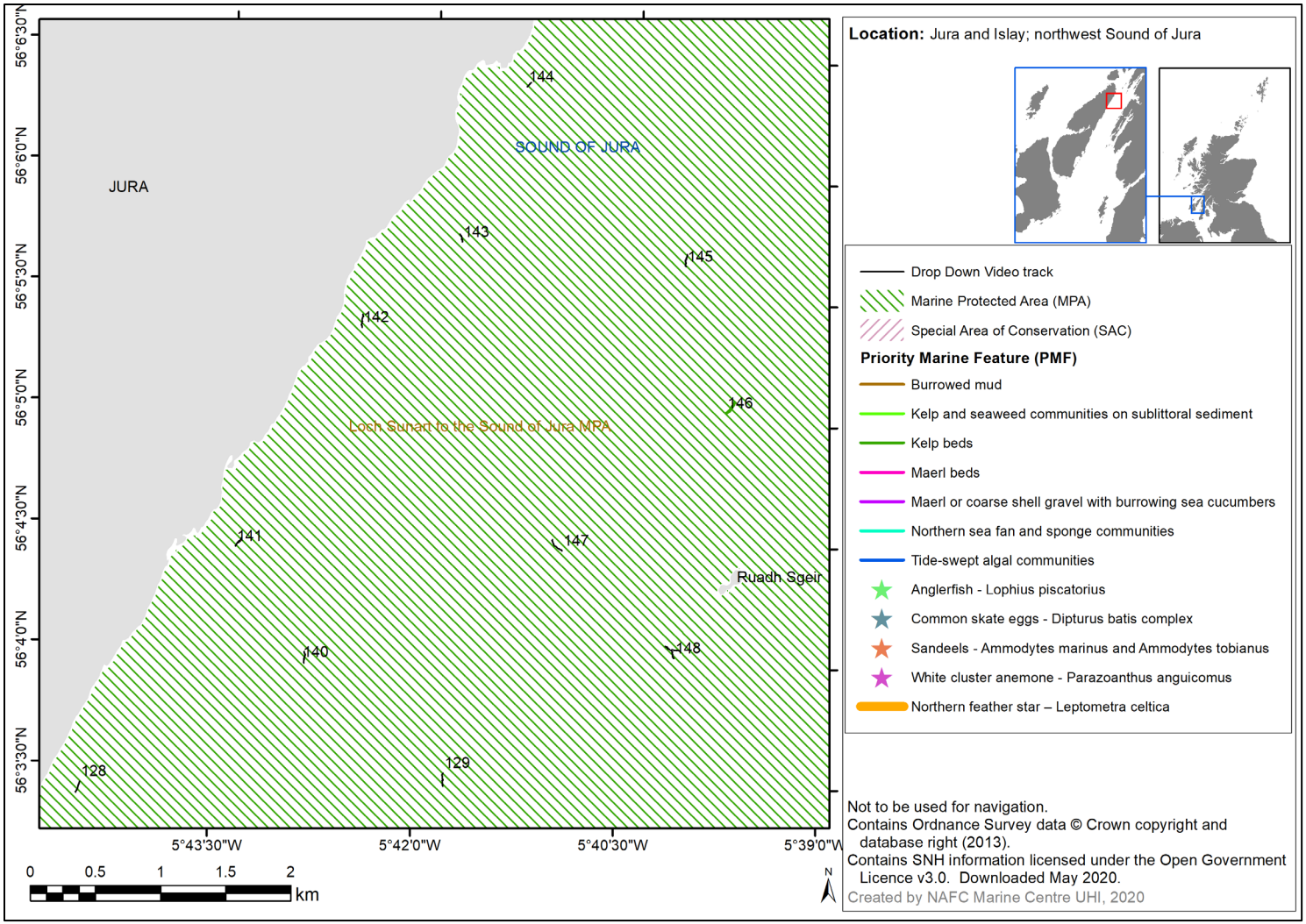


Figure 29: Priority Marine Features (PMF) identified from 2019 surveys and their corresponding drop down video tows (tow numbers shown) to the northwest of the Sound of Jura, with protected areas shown.

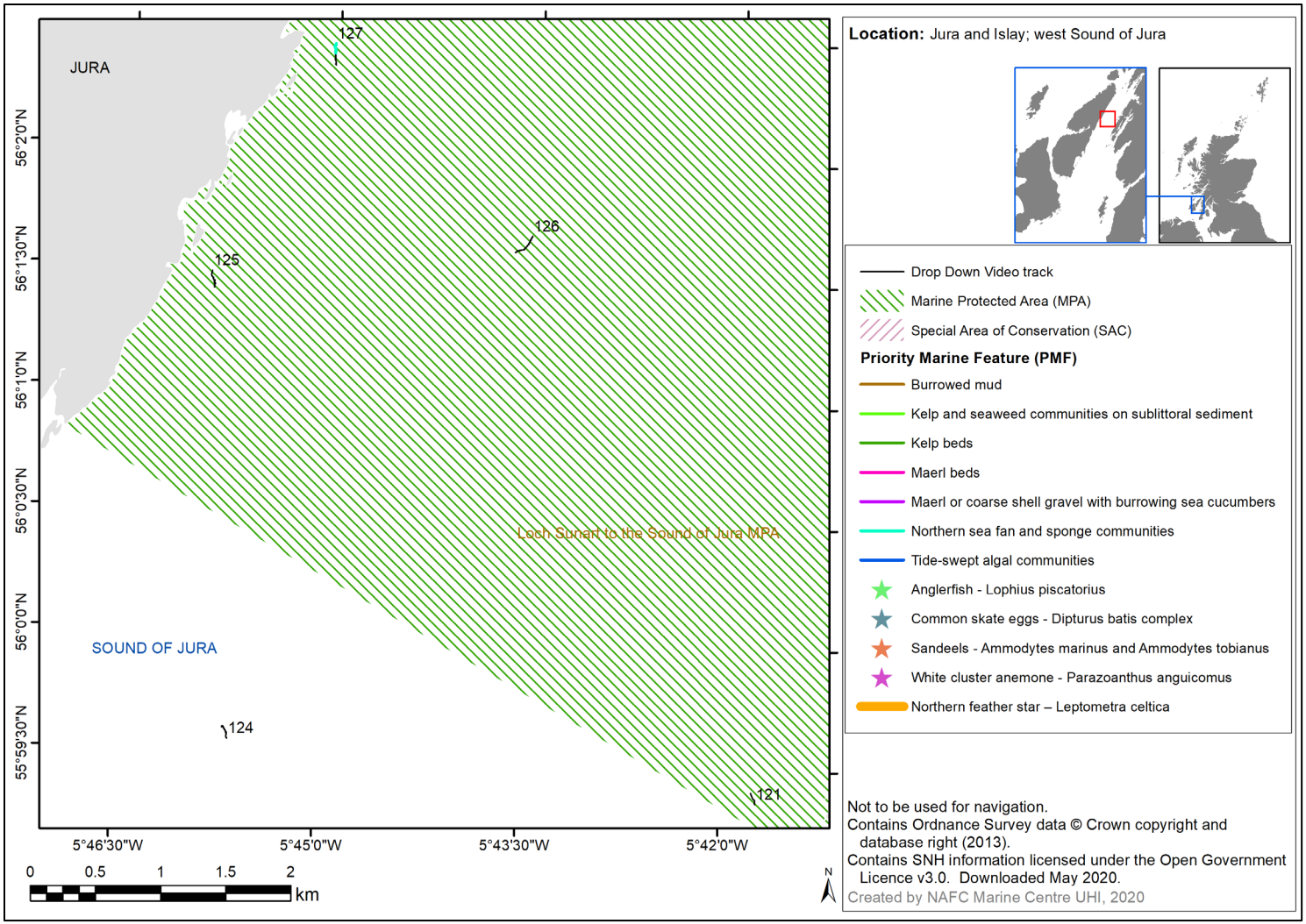


Figure 30: Priority Marine Features (PMF) identified from 2019 surveys and their corresponding drop down video tows (tow numbers shown) to the west of the Sound of Jura, with protected areas shown.

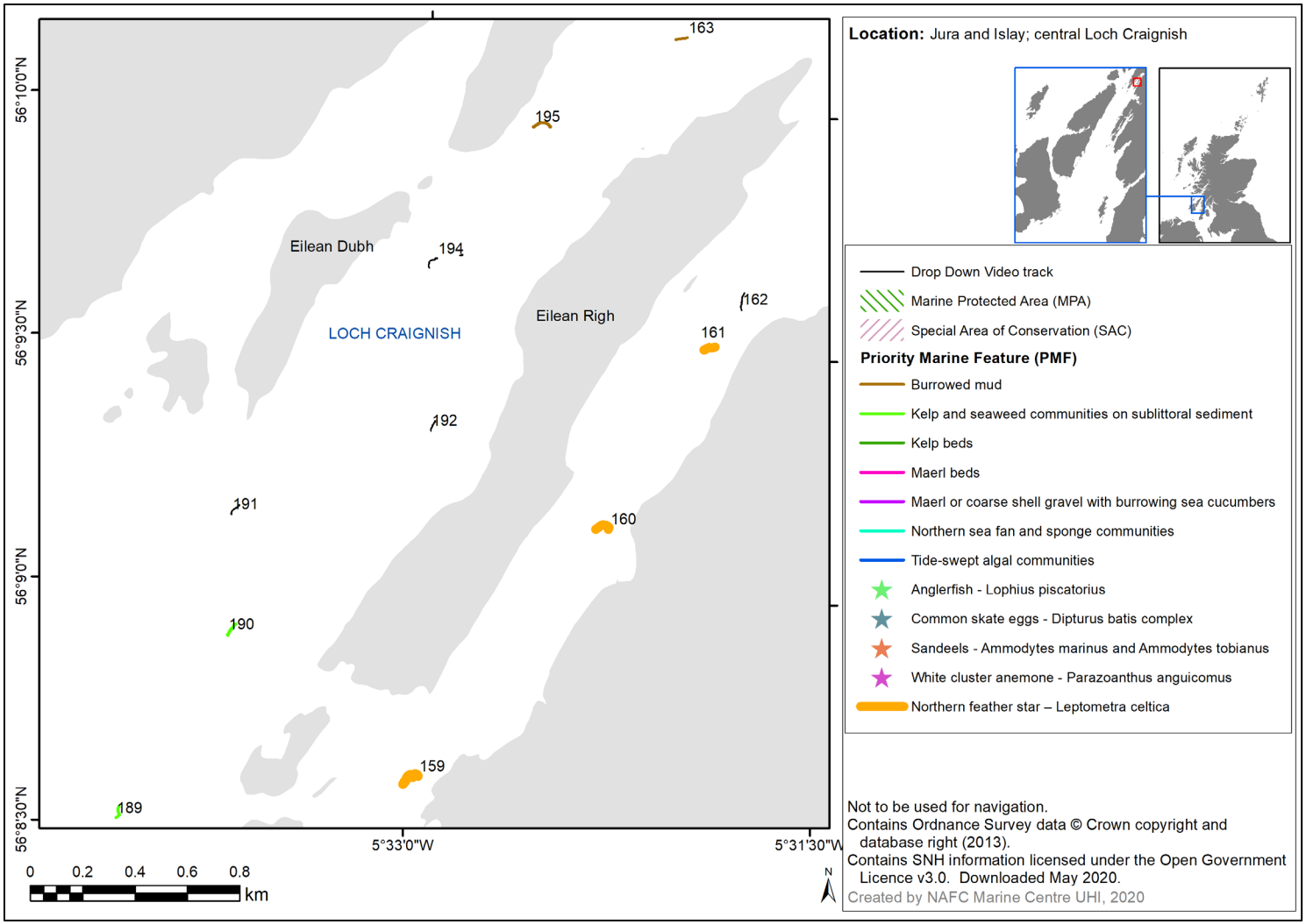


Figure 31: Priority Marine Features (PMF) identified from 2019 surveys and their corresponding drop down video tows (tow numbers shown) at central Loch Craignish.

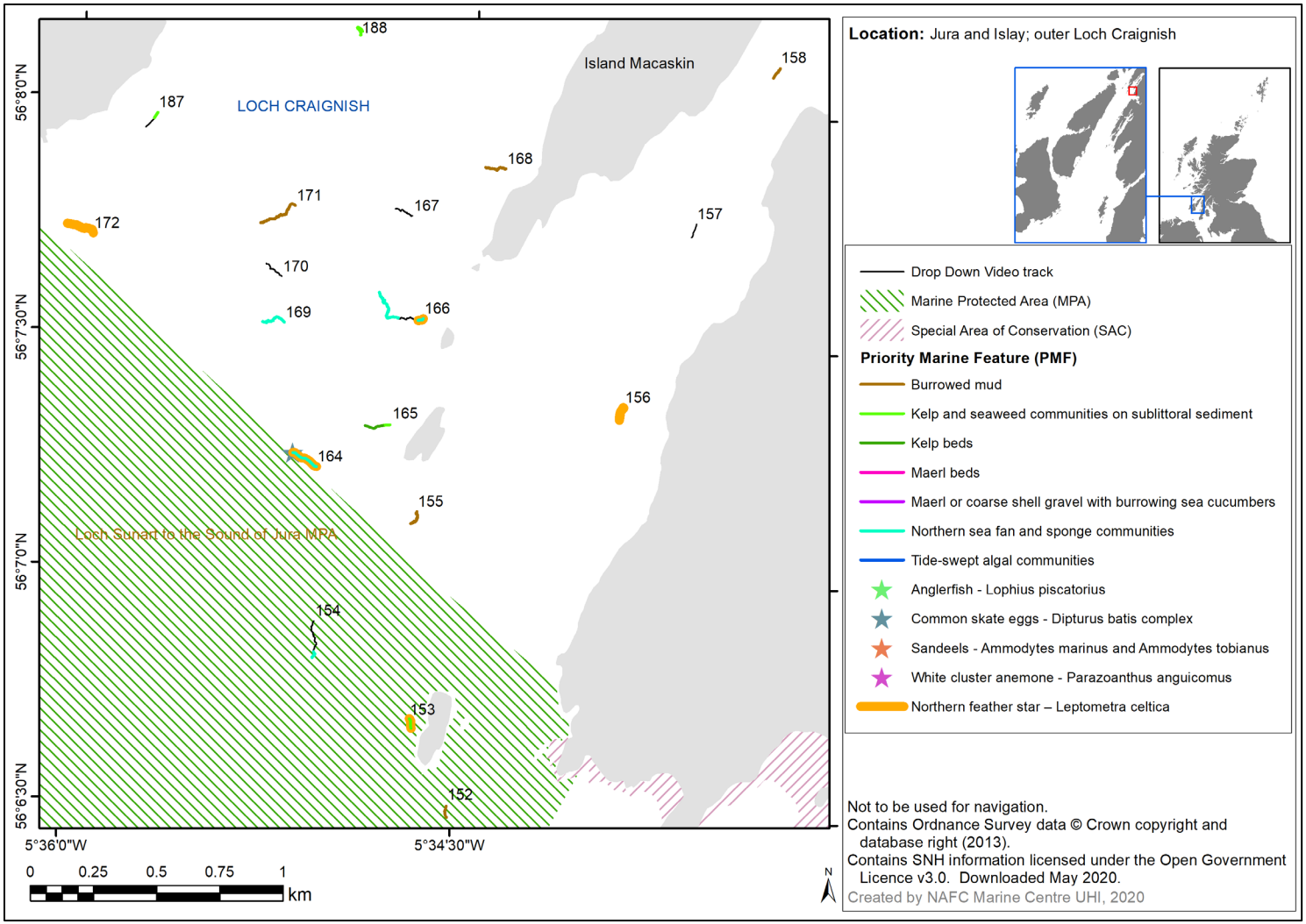


Figure 32: Priority Marine Features (PMF) identified from 2019 surveys and their corresponding drop down video tows (tow numbers shown) at outer Loch Craignish, with protected areas shown.

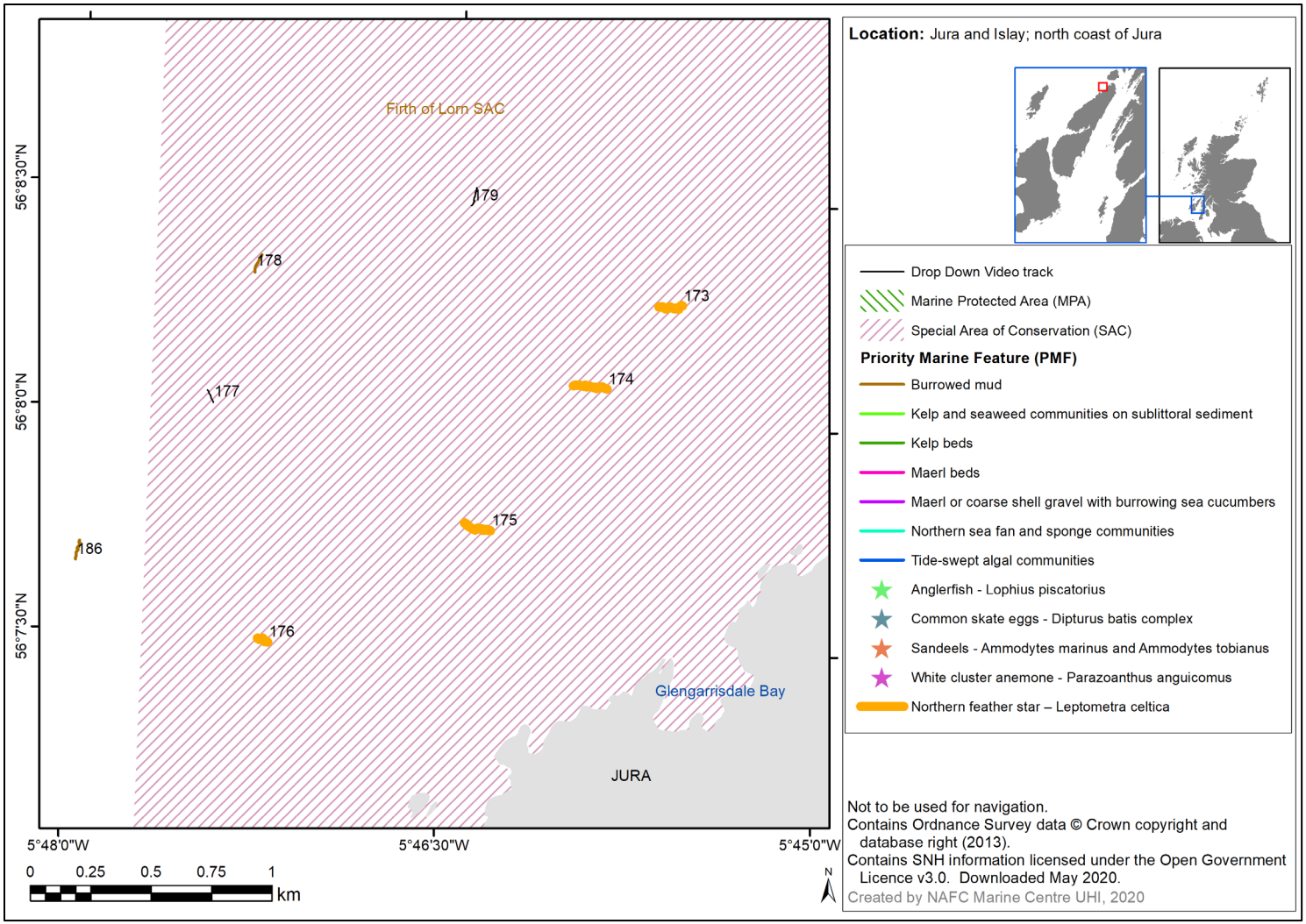


Figure 33: Priority Marine Features (PMF) identified from 2019 surveys and their corresponding drop down video tows (tow numbers shown) from north Jura, with protected areas shown.

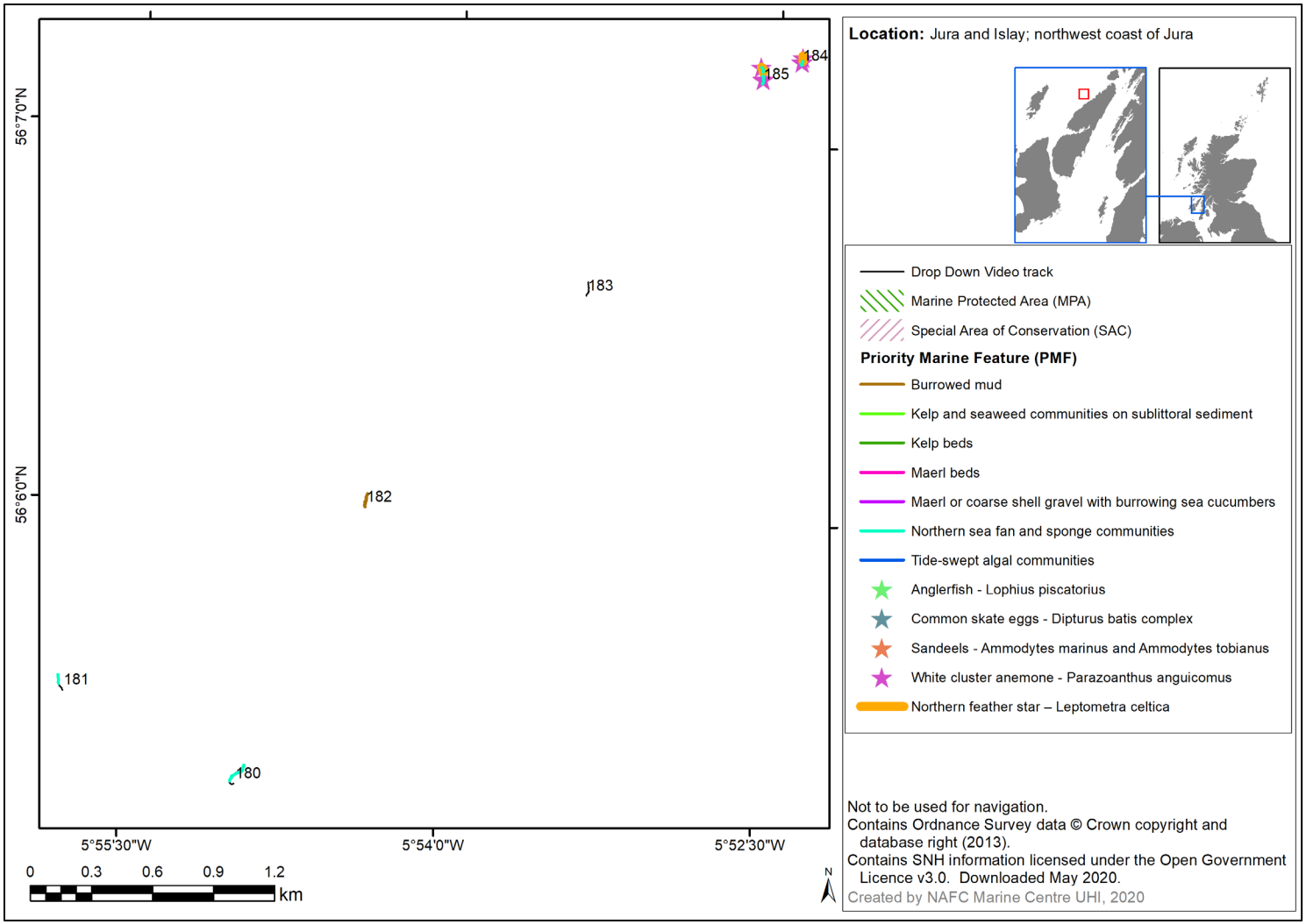


Figure 34: Priority Marine Features (PMF) identified from 2019 surveys and their corresponding drop down video tows (tow numbers shown) from northwest Jura.

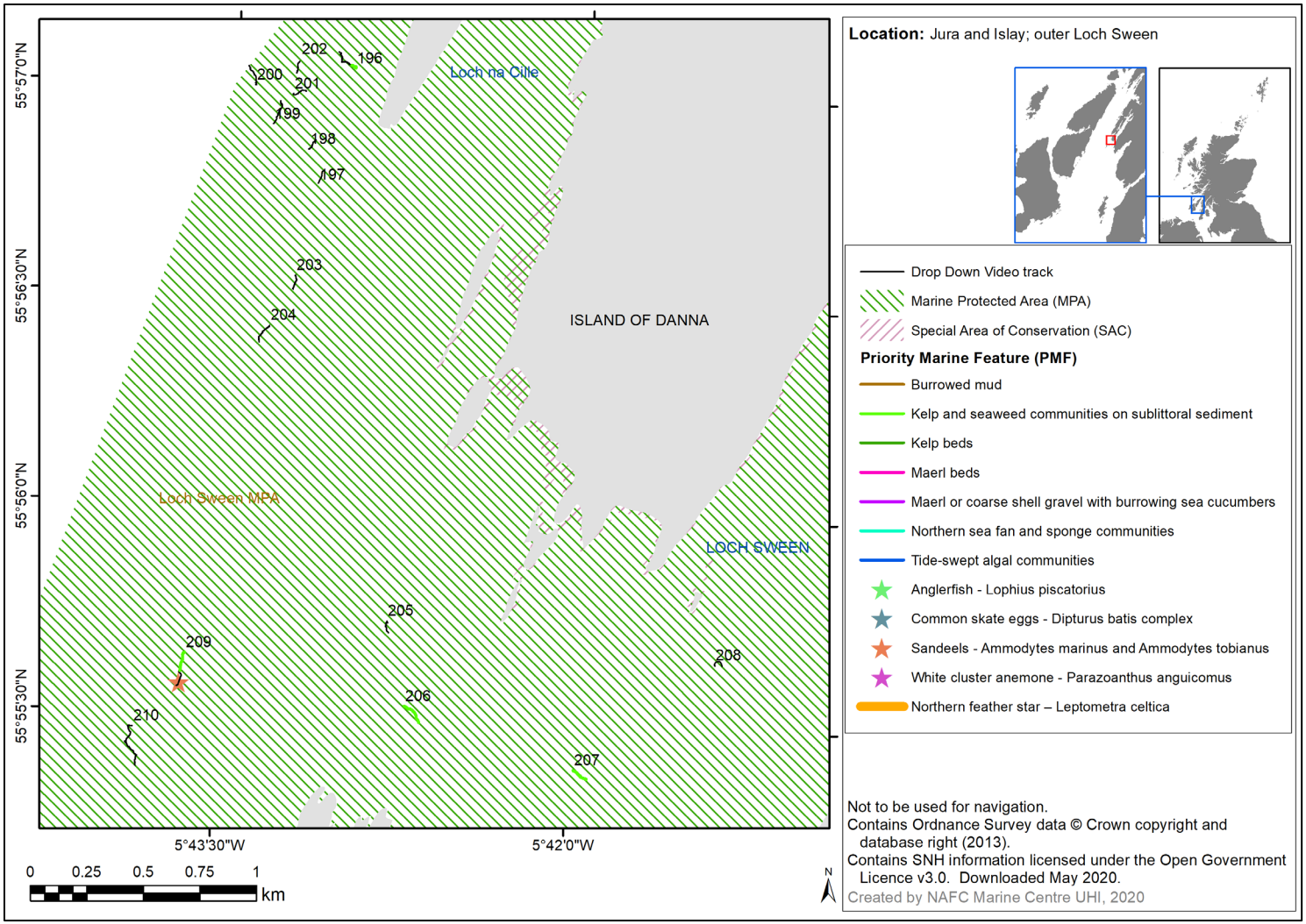


Figure 35: Priority Marine Features (PMF) identified from 2019 surveys and their corresponding drop down video tows (tow numbers shown) from outer Loch Sween and the southern Sound of Jura, with protected areas.

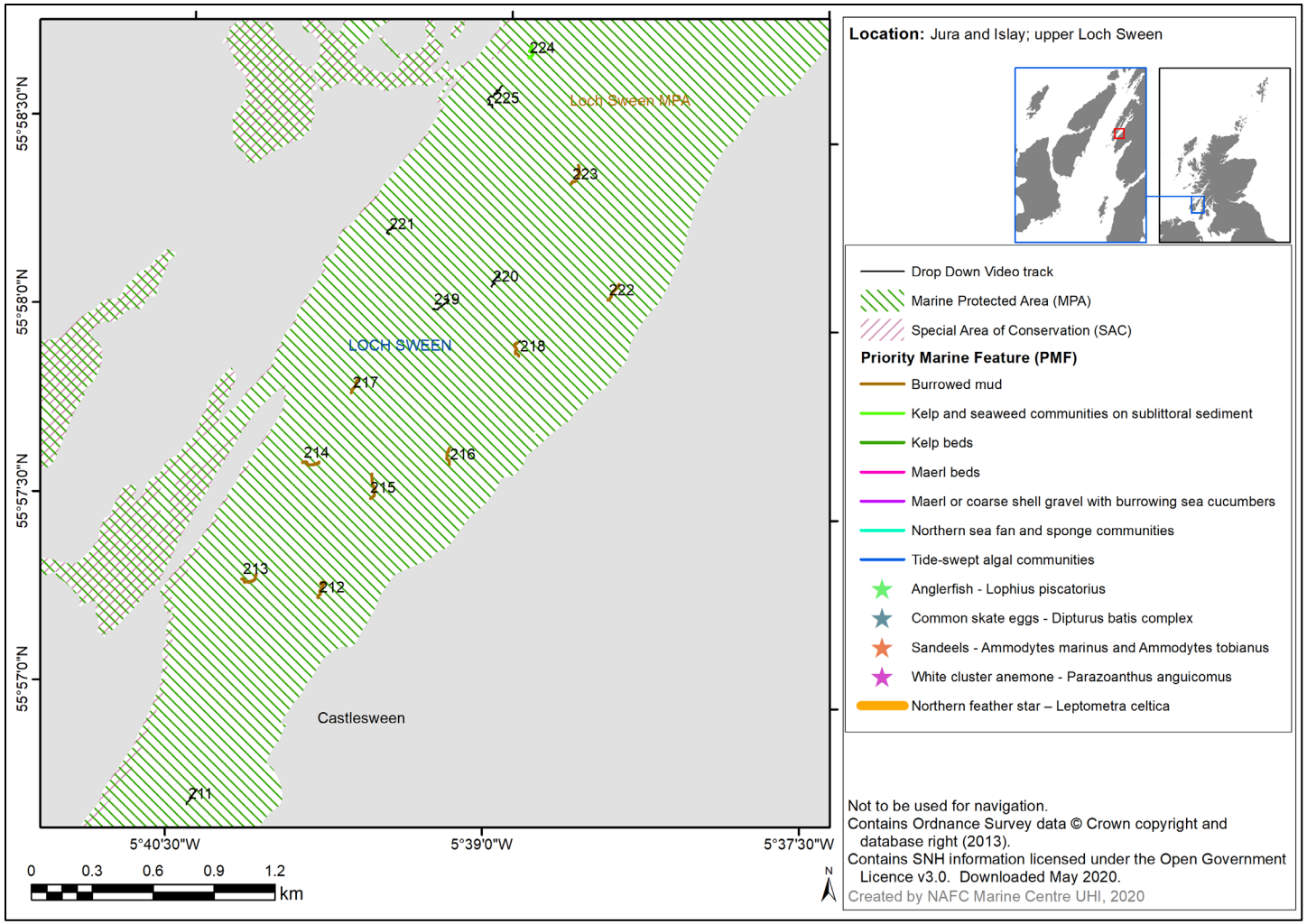


Figure 36: Priority Marine Features (PMF) identified from 2019 surveys and their corresponding drop down video tows (tow numbers shown) from upper Loch Sween, with protected areas shown.

Orkney

A total of 228 DDV tows were carried out around the Orkney coast (Figure 37) with six PMF habitats:

- kelp beds;
- kelp and seaweed communities on sublittoral sediments;
- burrowed mud;
- maerl beds;
- flame shell beds;
- horse mussel beds.

One mobile PMF species:

- sandeels recorded.

There are four designations within the survey area contributing to the MPA network:

- Wyre and Rousay Sounds MPA (designated for maerl beds and kelp and seaweed communities on sublittoral sediment),
- Faray and Holm of Faray SAC (designated for grey seals),
- Sanday SAC (designated for harbour seals and intertidal mud and sandflats), and;
- Papa Westray MPA (designated for black guillemot and geomorphological features).

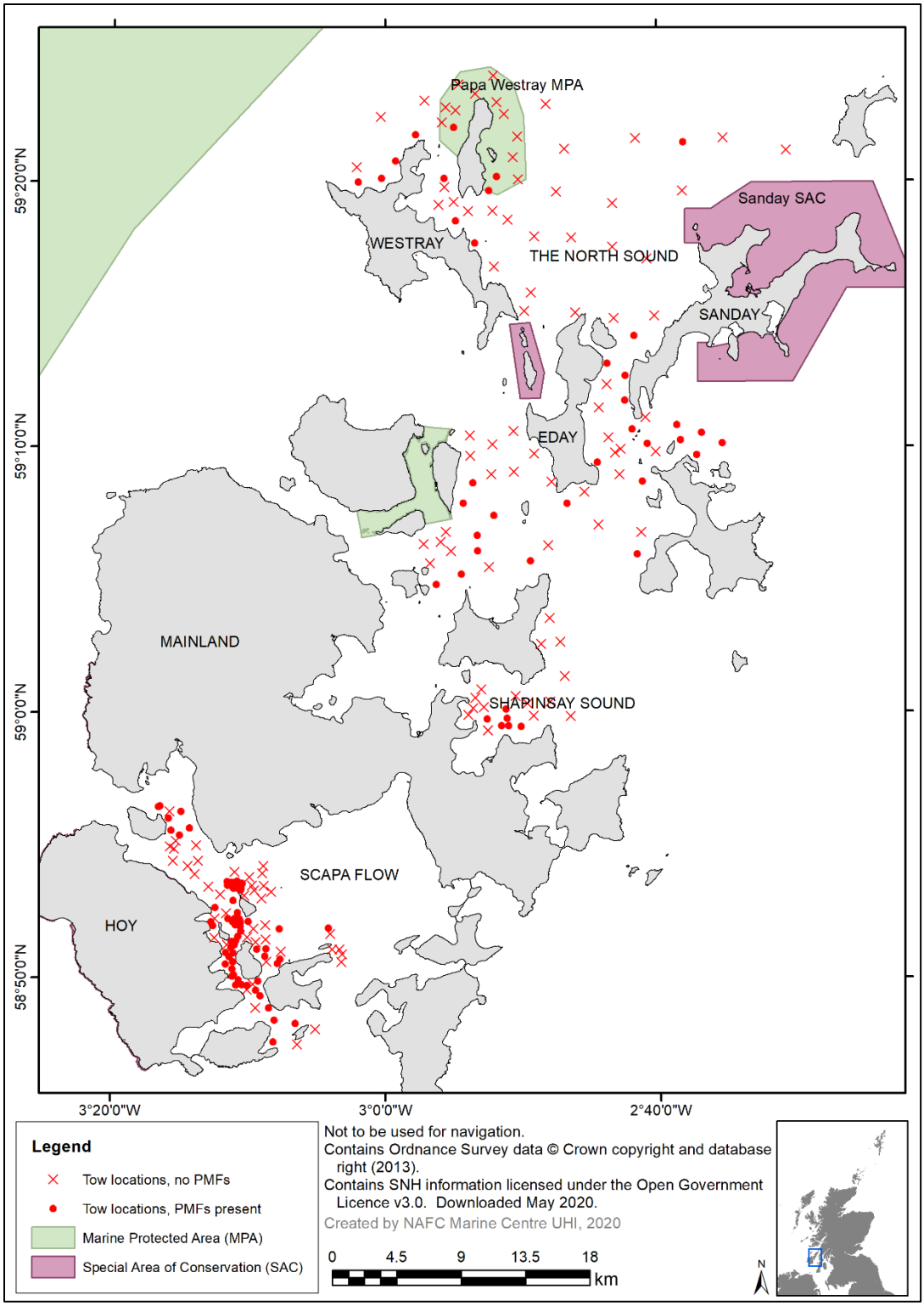


Figure 37: Locations of tows and Priority Marine Features (PMFs) surveyed in 2019 during the EMFF project around Orkney with protected areas shown. For greater detail, see maps on page 70.

Southwest Scapa Flow and Flotta

None of the sampling locations in the Southwest Scapa Flow and Flotta survey area is within MPAs designated for their seabed habitats or species, however, GeMS records exist for flame shell beds and horse mussel beds.

To the northeast of Flotta, drop down video (DDV) tows were undertaken at six locations (Tows 223-228) in water depths of 18 to 51 m (Figure 38). The tows were all cohesive mud communities with extensive burrows and mounds. All tows, except Tow 228, were classified as sandy mud (SS.SMu.CSaMu), while Tow 228 was classified as cohesive burrowed mud (SS.SMu.CFiMu.MegMax).

Thirteen DDV tows were undertaken to the east of Fara and to the north of Flotta, (Tows 175-186, and 200; Figure 39). Sediments all contained a muddy fraction but mostly with a stone gravel overlay. The burrowing anemone, *Cerianthus lloydii*, was commonly observed at six tows (SS.SMx.CMx.ClloMx). One tow was muddier and the sea pen, *Virgularia mirabilis*, was observed (SS.Smu.CSaMu.VirOphPmax.HAS). In shallower water, red seaweed communities were present (SS.SMp.KSwSS.Pcri and SS.SMp.KSwSS) locally with 100% sediment cover.

To the east of the island of Switha, bedrock, cobbles, and boulders support faunal communities (CR.MCR.EcCr.FaAlCr.Adig and SS.SMx.CMx.OphMx; Figure 40). Whilst to the north of Switha, within Switha Sound, maerl beds and seaweed communities on sediment dominate (SS.SMp.KSwSS and SS.SMp.Mrl). Muddy sand communities were also present (SS.SSa.IMuSa). Within Gutter Sound seaweed communities on sediment dominated (SS.SMp.KSwSS.Pcri and SS.SMp.KSwSS; Figure 41 and Figure 42). Previous NatureScot surveys (Kamphausen, 2019) found flame shell beds (SS.SMx.IMx.Lim) in this area beneath loose algae mats. However, from the video footage it was not possible to determine whether flame shell beds were present or not at most tows, as clear nest material was not visible through the algae. Where there was some evidence of nests, these areas of greater certainty on their own, were not always sufficient to classify as a flame shell bed, as they covered less than 25 m^2. For these reasons, flame shell bed abundance is likely to be under-recorded. Clear evidence of flame shell nests was noted at six tows (Tows 172, 195-199, and 202; SS.SMx.IMx.Lim; Figure 42), all within Gutter Sound between the islands of Fara and Rysa Little. Tows 172, 197, 198, and 202 corresponded to areas previously identified as supporting flame shell beds by NatureScot. Within Tow 201, individual flame shells were observed but

there was not sufficient evidence (clear nests with 10% cover over >25 m^2) to suggest extensive nests, although it was noted that individual flame shells have been observed by NatureScot divers close to the survey tow (Kamphausen, 2019).

To the south of Cava, beds of loose lying algae (SS.SMp.KSwSS.Pcri) were observed (Tows 203-212) and, although previous NatureScot surveys in the area have noted the presence of flame shell nests within this area, it was not possible to confirm their presence from the DDV evidence (Figure 42). Muddy communities dominated by burrowing anemones were observed (SS.SMx.CMx.ClloMx) on Tow 213.

Within Rysa Sound, mats of loose lying algae were noted (SS.SMp.KSwSS), as well as sandy mud communities (SS.SSa and SS.SMu.CSaMu; Figure 42).

Northwest Scapa Flow

The northwest of Scapa flow area does not fall within an existing MPA designation for benthic habitats or species. Historic records held within GeMS for the area include maerl and horse mussel beds. To the north of the Calf of Cava, horse mussel beds were observed (SS.SBR.SMus.ModHAs) on Tows 146-150 and Tows 215-222 (Figure 43). At the most northly tow in this cluster (Tow 222), horse mussel beds gave way to sparse horse mussels (SS.SMx.CMx and SS.SMu.CSaMu). Whilst to the north and northeast of Cava, circalittoral muddy mixed sediment communities dominated (SS.SMx.CMx) on Tows 136, 138, 141, 144, and 145 and sandy mud (SS.SMu.CSaMu) on Tows 142 and143. Two shallower tows (Tows 137 and 140) supported loose lying mats of red algae, *Phyllophora crispa* (SS.SMp.KSwSS.Pcri). Circalittoral habitats were also observed through the Bring Deeps (SS.SMx.CMx), with muddy fractions also present (SS.SMu.CSaMu.VirOphPmax and SS.SMu.CSaMu; Figure 43 and Figure 44).

In Clestrain Sound, maerl beds (SS.SMp.Mrl) are observed at six locations (Tows 121-124, 126, 129, and 214; Figure 44). Tows in shallower water, closer to the Orkney mainland, supported kelp communities (IR.MIR.KR.LhypTX.Pk), whilst tows to the south of Graemsay were muddier (SS.SSa.CMuSa and SS.SSa.CMuSa.AbraAirr).

Shapinsay, Egilsay, and central Orkney

Within the Shapinsay, Egilsay, and central Orkney Isles, 65 DDV tows were undertaken (Tows 51 and 54-120; Figure 45 to Figure 47). There are no MPAs for benthic habitats

or species within this survey area. Historic records within GeMS include maerl bed records within the sounds from 1999 and 2011. Twenty-two DDV tows were undertaken to the south and east of Shapinsay, with depth ranges of 11 to 37 m (Tows 99-120; Figure 47). To the east of the island, at the entrance to Shapinsay Sound, and to the west of Shapinsay Sound coarse sediments and coarse mixed sediments were observed (SS.SCS.CCS, SS.SMx.CMx.FluHyd, and SS.SCS.CCS.PomB). Tows further to the south (Tows 114 and 115) appeared to be muddier than around Shapinsay (SS.SSa.CMuSa, SS.SCS.ICS.SLan, and SS.SSa.IFiSa.IMoSa). To the south of Shapinsay Sound, maerl beds were observed at five tows (SS.SMp.Mrl) and a horse mussel bed was observed north of that in the centre of Shapinsay Sound (SS.SBR.SMus.ModT).

Maerl beds (SS.SMp.Mrl) were found to the west of Stronsay, Eday Sound, and Spurness Sound (Figure 45). Maerl was observed on a mosaic mud habitat with the peacock worm, *Sabella pavonina* (SS.SMx.IMx.SpavSpAn; Tow 76). Within the shallower infralittoral sites, kelp was observed on sediments (SS.SMp.KSwSS.LsacR and SS.SMp.KSwSS.LsacR.CbPb), mixed sediments (IR.MIR.KR.LhypTX.Ft), tidal rapids (IR.MIR.KT.XKTX) and on tide swept bedrock (IR.HIR.KFaR.LhypR.Ft). Kelp was also seen mosaiced with maerl (SS.SMp.Mrl - Tow 80).

On bedrock and mixed sediments, sand affected communities were evident in Sounds, for example in Eday Sound, with turf communities on bedrock (CR.MCR.EcCr.FaAlCr.Sec; Tows 20 and 51; Figure 48 and Figure 45, respectively) and hydroid and bryozoan communities on mixed sediment (SS.SMx.CMx.FluHyd; Tows 100, 103, 106, and 113; Figure 47). In the northeast and southeast entrances to the Stronsay Firth the dahlia anemone (*Urticina felina*) dominated on sand scoured rock (CR.MCR.EcCr.UrtSc; Tow 84, 87, 88, and 96; Figure 46), and on sediment communities, brittlestars were found to be dominant (SS.SMx.CMx.OphMx; Tow 55, 85, and 91; Figure 45 and Figure 46). The severe effect of sediment movement was evident at a number of stations, with tows faunally sparse (SS.SSa.IFiSa.IMoSa; Tow 86, 89, 97, and 116). Elsewhere, sediment communities varied from sand (SS.SSa.IFiSa; tow 93) to more mixed and coarse sediment (SS.SMx.IMx, Tow 69; SS.SMx.CMx, Tows 57-59, 77, and 94; and SS.SCS.CCS, Tow 60, 75, 79, 99, 101, 103-105, and 112). Very high energy sites were observed to the northwest of the Fall of Warness (CR.HCR.XFa; Tow 90, Figure 45).

Muddy communities were only observed at three locations, within St Catherine's Bay (Stronsay) on Tow71 (SS.SSa.CMuSa), muddy sand to the south of Egilsay on Tow 78 (SS.SSa.CMuSa.AbraAirr) and Tow 76 (SS.SMx.IMx.SpavSpAn). Both Tows 71 and 76 had thin overlays of maerl, but not at sufficient quantities to qualify as a bed (<10% living maerl cover over an area >25 m^2).

Westray and Sanday

There are two MPAs in the Westray and Sanday area for marine and benthic features. The Papa Westray MPA surrounds all but the southwest coast of Papa Westray, designated for black guillemot and geomorphological reasons. The east coast of Sanday forms the Sanday SAC for harbour seals, intertidal mud and sand flats, reefs, and subtidal sandbanks. Fifty DDV tows were undertaken to the north of the islands of Westray and Sanday (Tows 1-48, 52, and 53; Figure 45, and Figure 48 to Figure 52). Survey depths ranged from 10 to 60 m. Within the open North Sound area, stretching between Westray and Sanday, sediment habitat dominated (SS.SCS.CCS, Tow3, 5, 11, and 17; SS.Ssa.CMuSa, Tow 4; SS.SSa.CFiSa, Tows 16, 22-25, and 32; and SS.SMx.CMx, Tows 6 and 18) with several tows faunally sparse, reflecting the high energy nature of the area.

Within The North Sound, occasional relatively deep (30 to 40 m) outcrops of circalittoral rock supported communities of faunal and algal crusts (CR.MCR.EcCr.FaAlCr, Tows 1, 14, and 21; CR.MCR.EcCr.FaAlCr.Adig, Tow 19; CR.HCR.XFa.FluCoAs.Paur, Tow 13; and CR.MCR.EcCr.FaAlCr.Sec, Tow 20) with some tows clearly affected by sand scour (CR.MCR.EcCr.FaAlCr.Flu, Tow 15). Closer to the coasts of Sanday and Westray, and also on a shallower bar to the north of Sanday (15-29 m), kelp communities were observed on bedrock (IR.HIR.KFaR.LhypR.Ft, Tow 12 and 39; IR.HIR.KFaR.LhypR.Pk, Tow 12; and IR.MIR.KR.LhypTX.Pk, Tow 26).

Tows 12-15 are adjacent to the Sanday SAC, with reef features also observed at these tows (IR.HIR.KFaR.LhypR.Ft, Tow 12; IR.HIR.KFaR.LhypR.Pk, Tow 12; CR.HCR.XFa.FluCoAs.Paur, Tow 13; CR.MCR.EcCr.FaAlCr, Tow 14; and CR.MCR.EcCr.FaAlCr.Flu, Tow 15).

To the east of the island of Papa Westray, circalittoral communities on fine sand (SS.SSa.CFiSa, Tow 29) and coarse and mixed sediment were observed (SS.SCS.CCS.PomB, Tows 7 and 8; SS.SMx.CMx, Tow 6; and SS.SMx.CMx.OphMx,

e.g. Tow 31). Infralittoral kelp communities were also observed on a mosaic mixed sediment (IR.MIR.KR.Lhyp.Ft and IR.MIR.KR.LhypTX.Pk, Tow 30).

To the north of Papa Westray, high and moderate energy circalittoral rock communities were observed at all tows in moderate water depths (30 to 41 m) (CR.MCR.EcCr.FaAlCr, Tows 33 and 35; CR.HCR.XFa.FluCoAs.Paur, Tow 34; and CR.HCR.XFa, Tow 48) with evidence of sand scour.

To the west of Papa Westray and north of Westray in water depths of 26 to 40 m, high and moderate energy circalittoral rock communities were present (CR.MCR.EcCr.FaAlCr, Tows 36 and 39; CR.MCR.EcCr.FaAlCr.Adig, Tow 44; CR.MCR.EcCr.FaAlCr.Bri, Tow 43; and CR.HCR.XFa.FluCoAs.Paur, Tow 44-47). Infralittoral communities were found to be dominated by kelp (IR.MIR.KR.Lhyp.Ft, Tow 40-42 and IR.HIR.KFaR.LhypR.Pk, Tow 39).

Within the shallow Papa Sound (between Westray and Papa Westray), water depth ranged from 10 to 29 m over the six tows undertaken. Four circalittoral sediment communities were identified supporting the brittlestar, *Amphiura brachiata* (SS.SSa.CMuSa.AbraAirr, Tows 9, 27-28, and 49). Two infralittoral sediment communities were surveyed, one supporting kelp (SS.SMp.KSwSS.LsacR.Mu, Tow 50) and one maerl bed (SS.SMp.Mrl, Tow 10).

Sandeels (*Ammodytes* spp.) were noted during one tow on Tow 29.

Orkney Maps

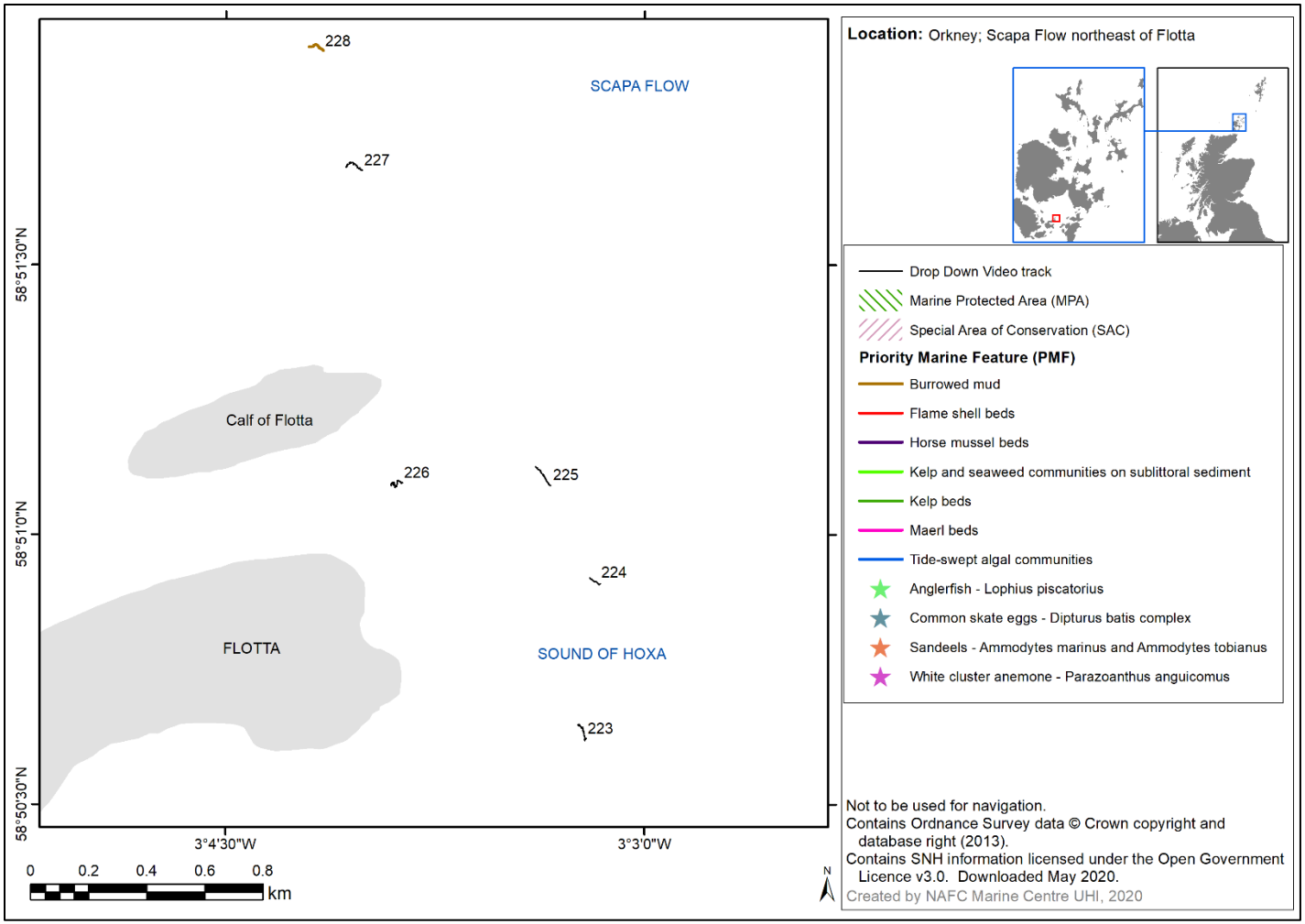


Figure 38: Priority Marine Features (PMF) identified from 2019 surveys and their corresponding drop down video tows (tow numbers shown) to the north and east of Flotta in Scapa Flow.

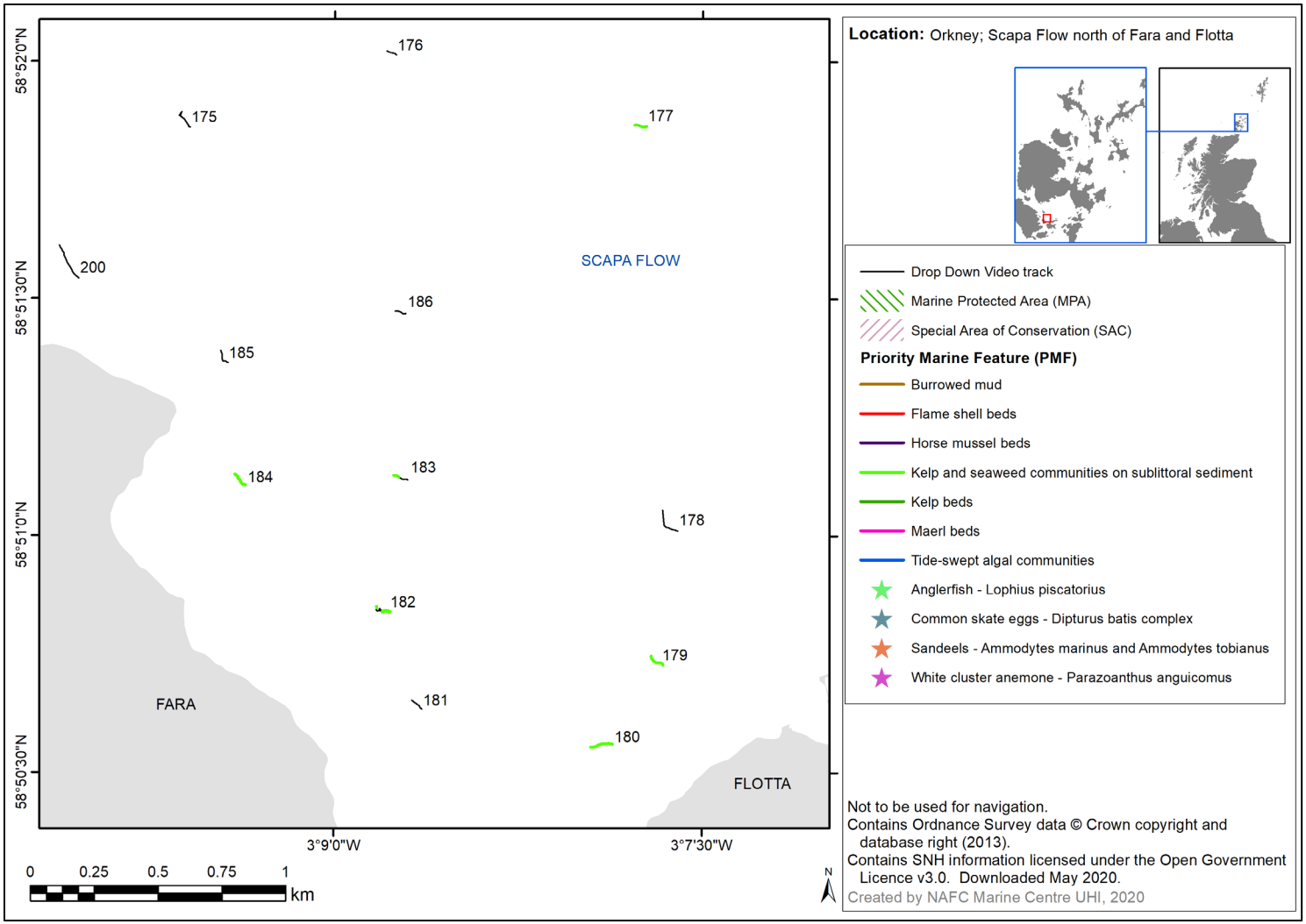


Figure 39: Priority Marine Features (PMF) identified from 2019 surveys and their corresponding drop down video tows (tow numbers shown) to the north of Fara and Flotta in Scapa Flow.

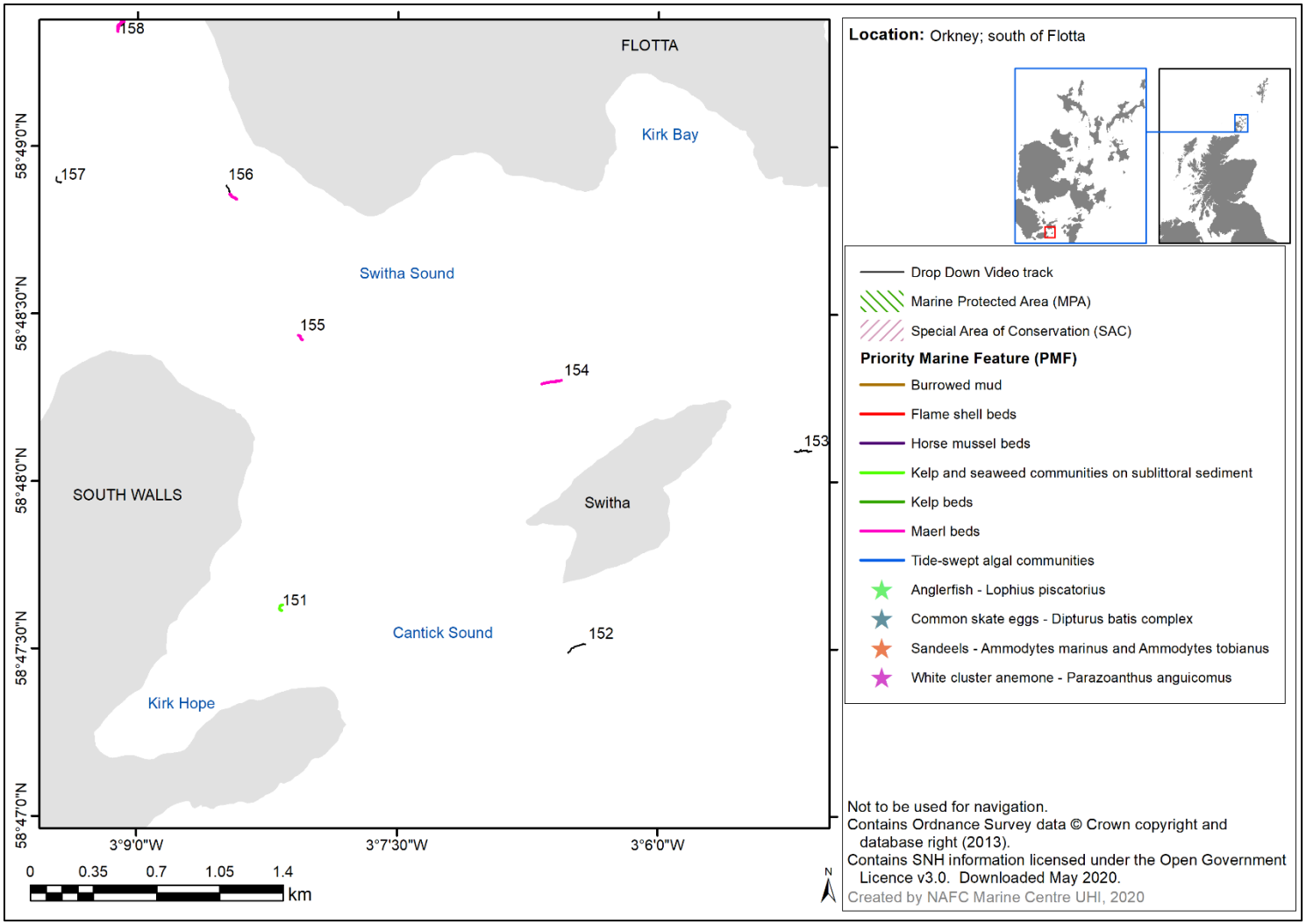


Figure 40: Priority Marine Features (PMF) identified from 2019 surveys and their corresponding drop down video tows (tow numbers shown) to the south of Flotta and around Switha.

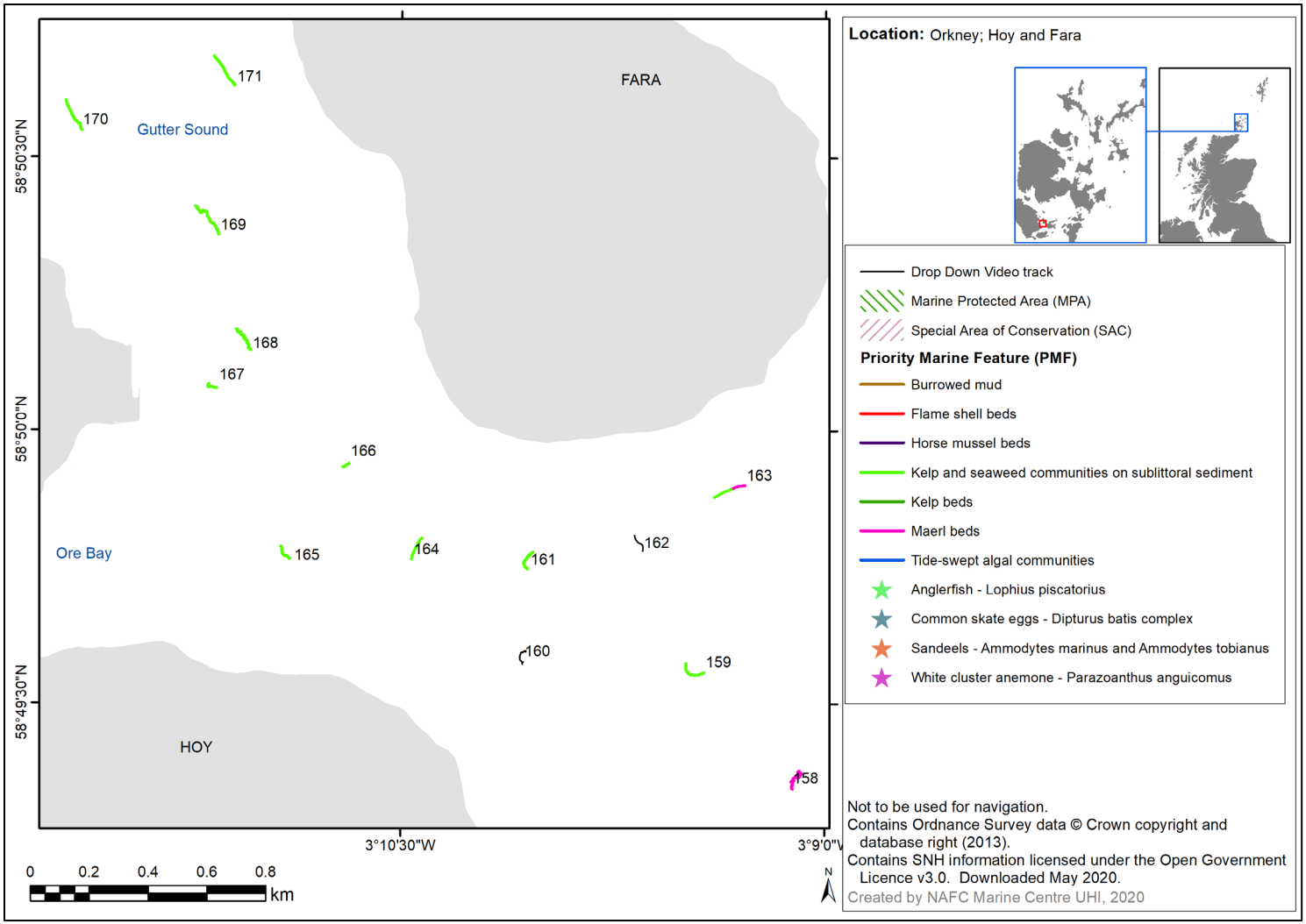


Figure 41: Priority Marine Features (PMF) identified from 2019 surveys and their corresponding drop down video tows (tow numbers shown) between Hoy and Fara.

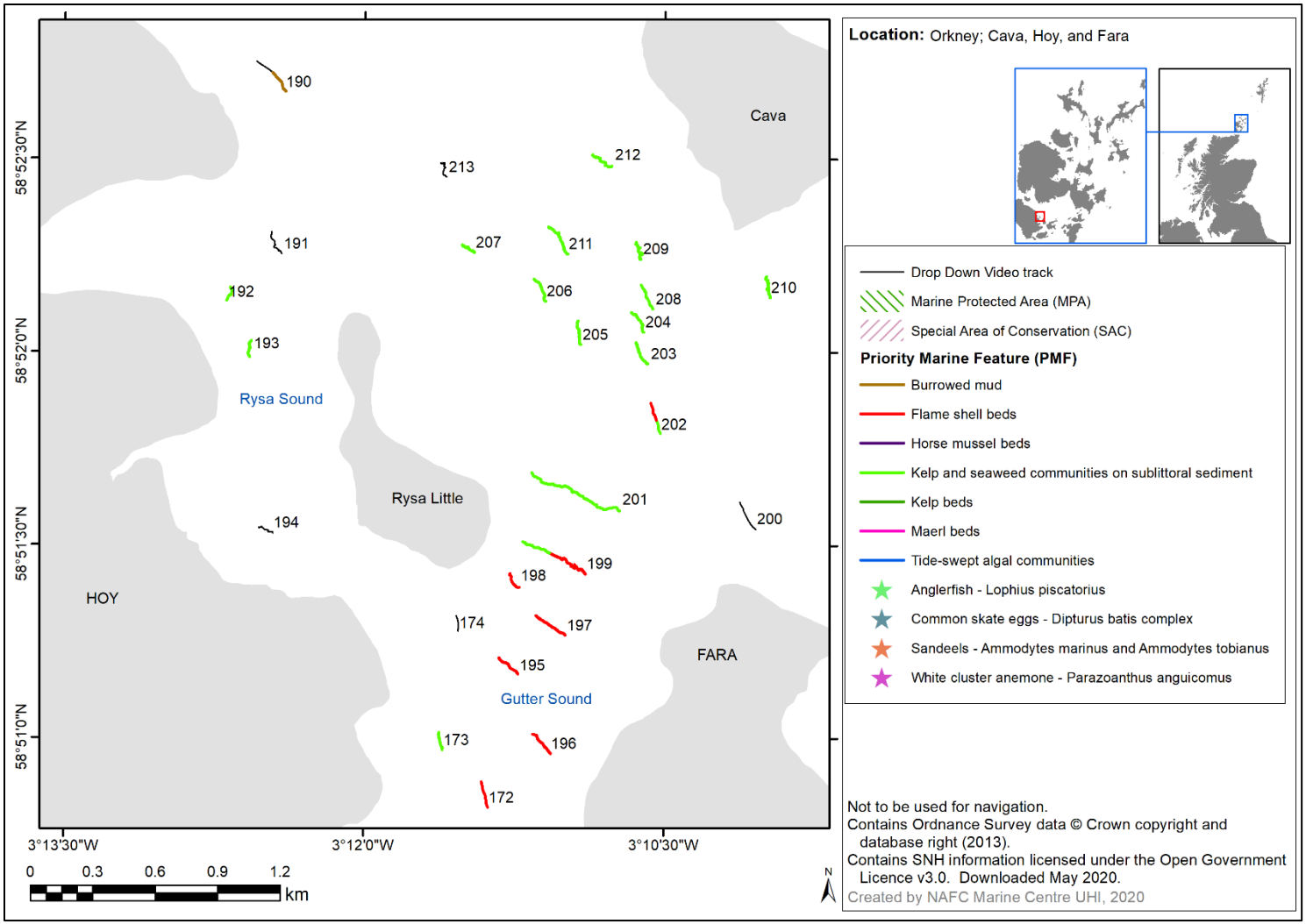


Figure 42: Priority Marine Features (PMF) identified from 2019 surveys and their corresponding drop down video tows (tow numbers shown) between Fara, Hoy, and Cava.

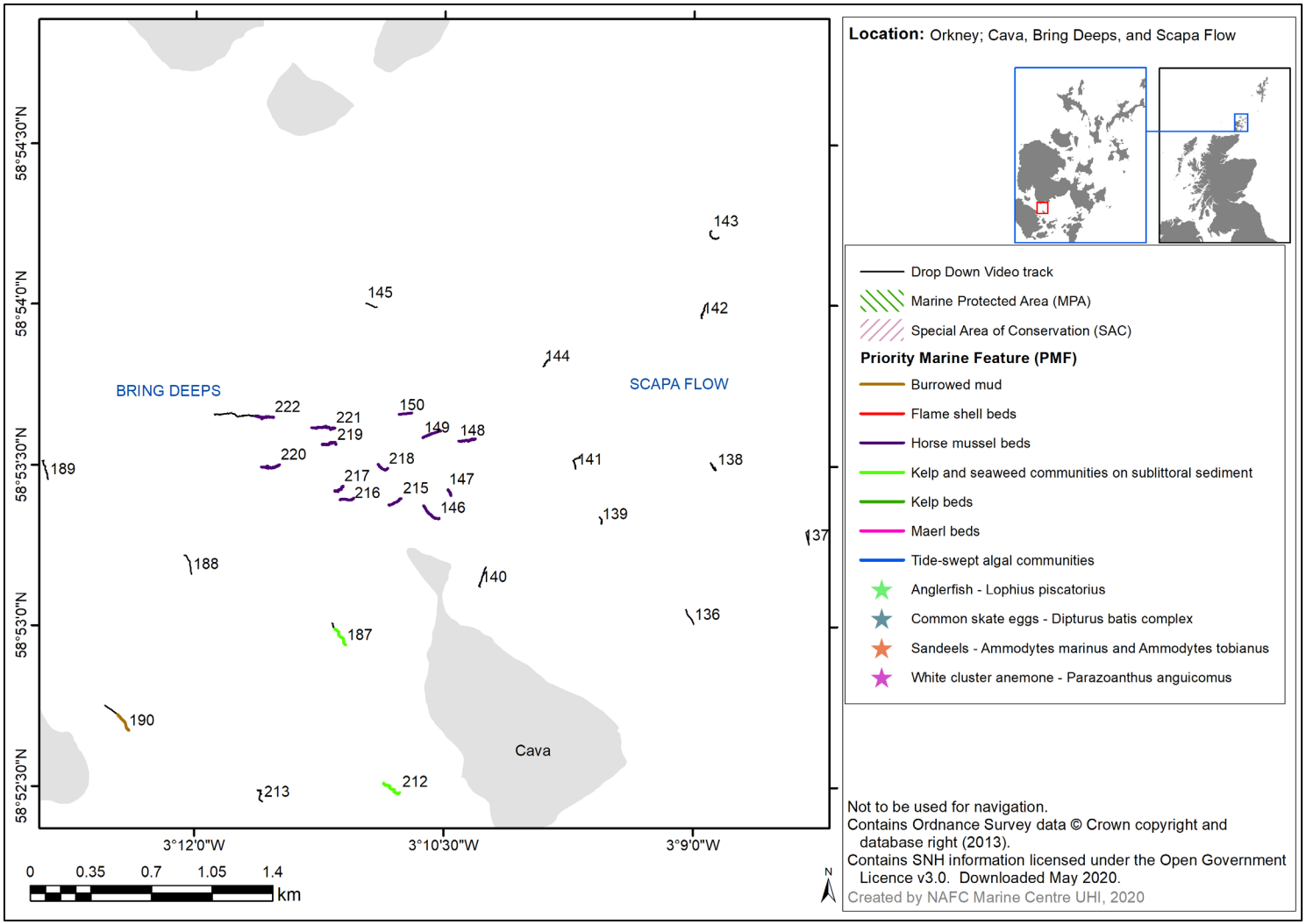


Figure 43: Priority Marine Features (PMF) identified from 2019 surveys and their corresponding drop down video tows (tow numbers shown) to the north of Cava in Bring Deeps and Scapa Flow.

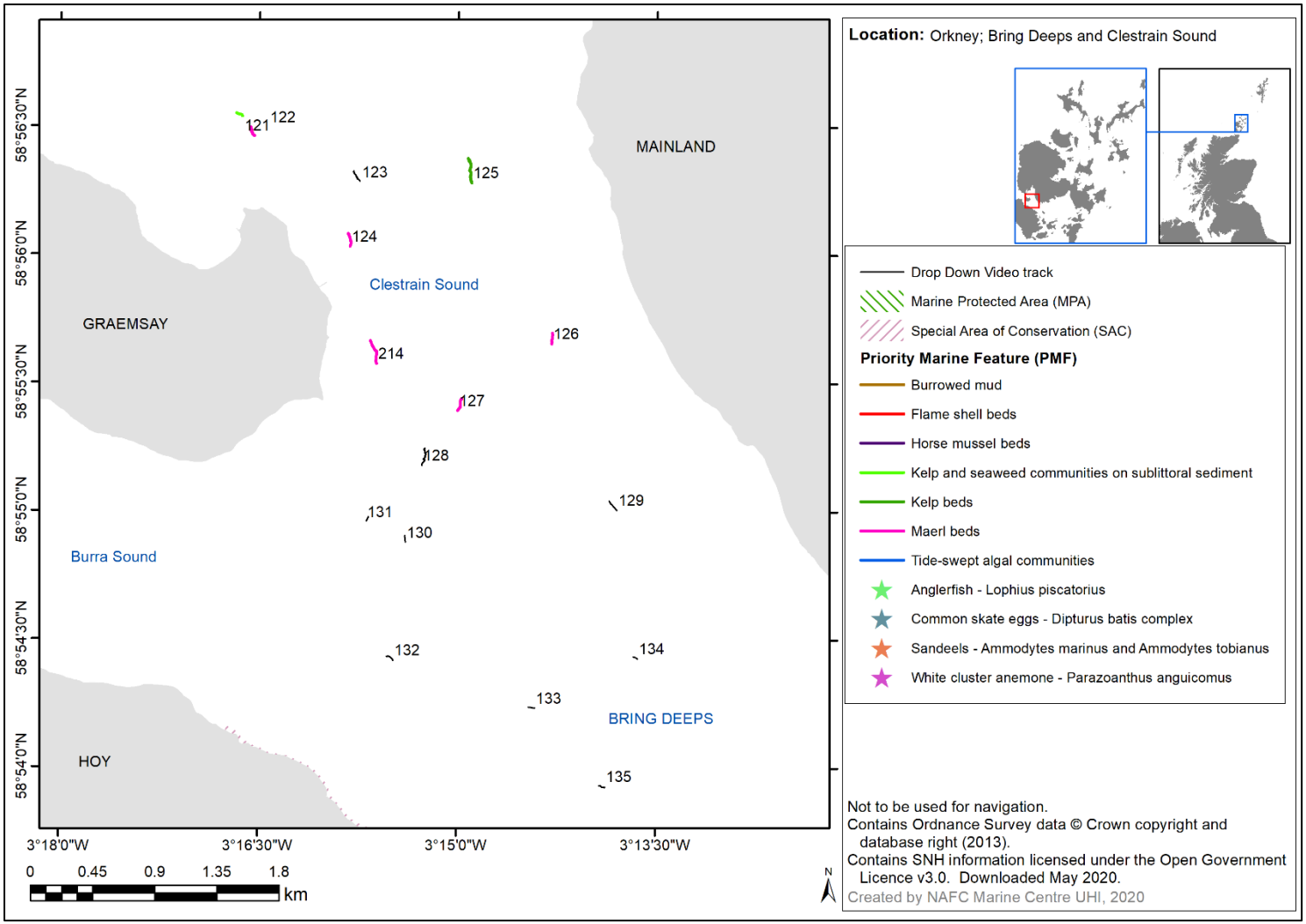


Figure 44: Priority Marine Features (PMF) identified from 2019 surveys and their corresponding drop down video tows (tow numbers shown) in Bring Deeps and Clestrain Sound.

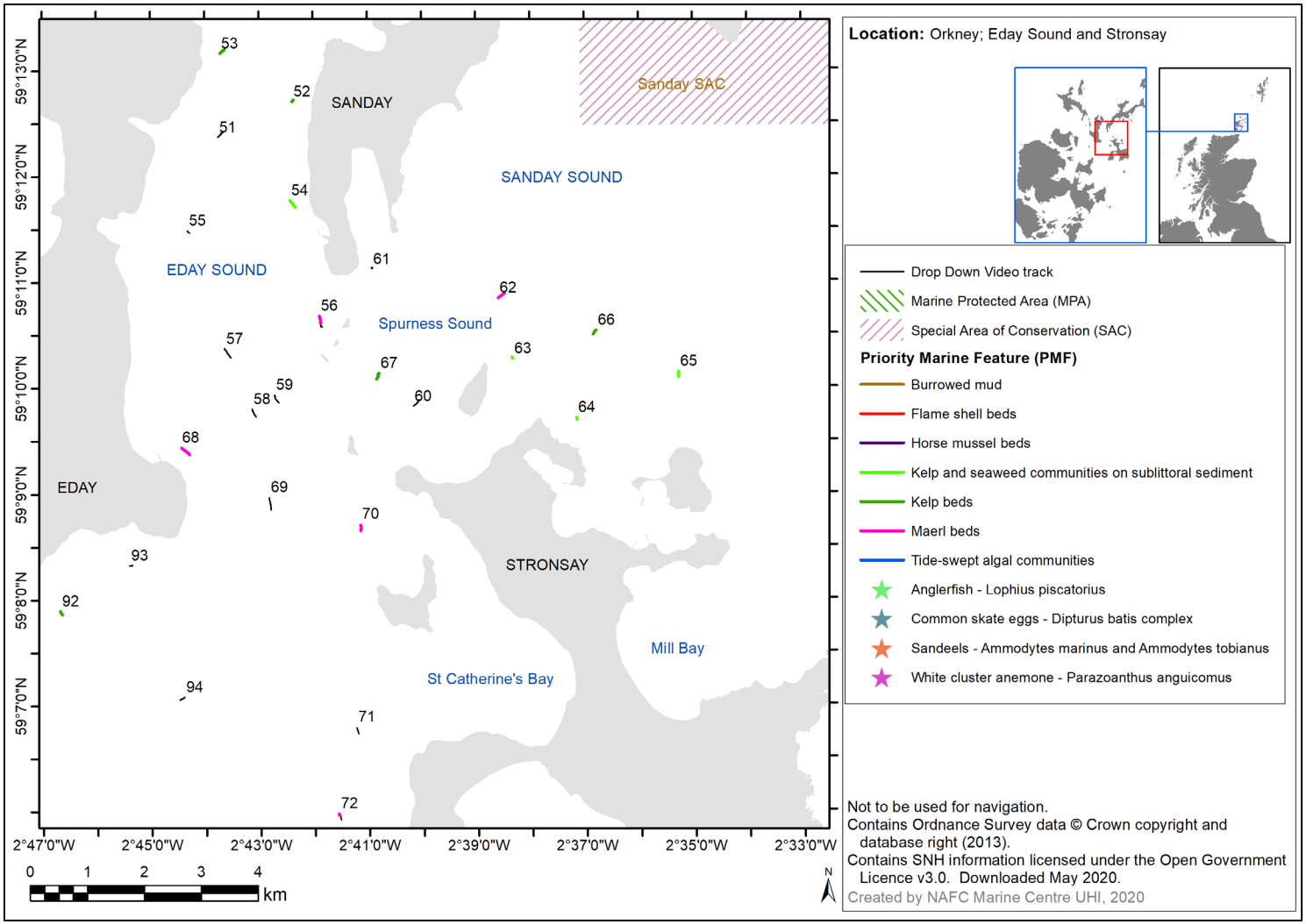


Figure 45: Priority Marine Features (PMF) identified from 2019 surveys and their corresponding drop down video tows (tow numbers shown) around the islands of Eday, Sanday, and Stronsay, with protected areas.

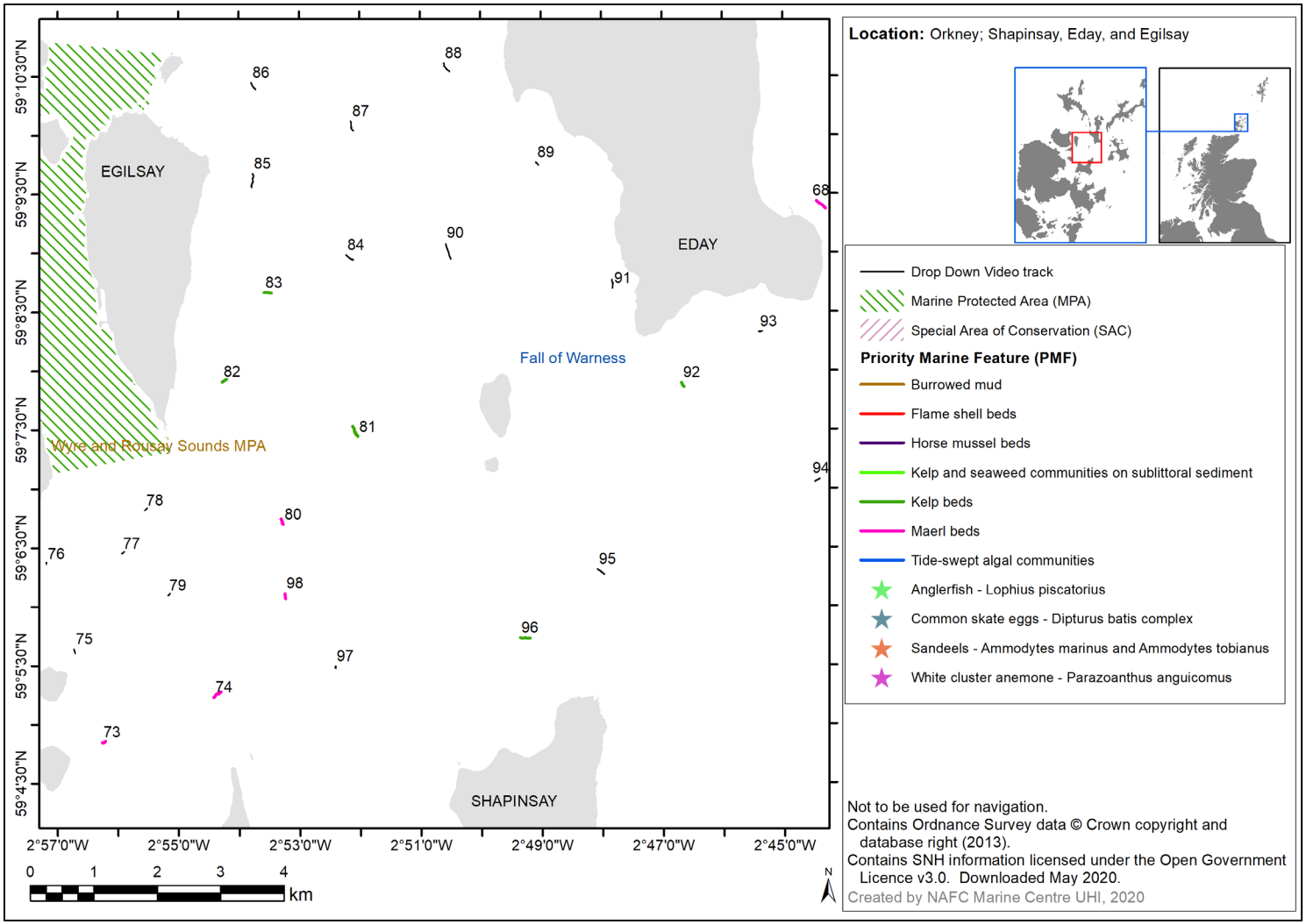


Figure 46: Priority Marine Features (PMF) identified from 2019 surveys and their corresponding drop down video tows (tow numbers shown) north of Shapinsay and between Egilsay and Eday, with protected areas.

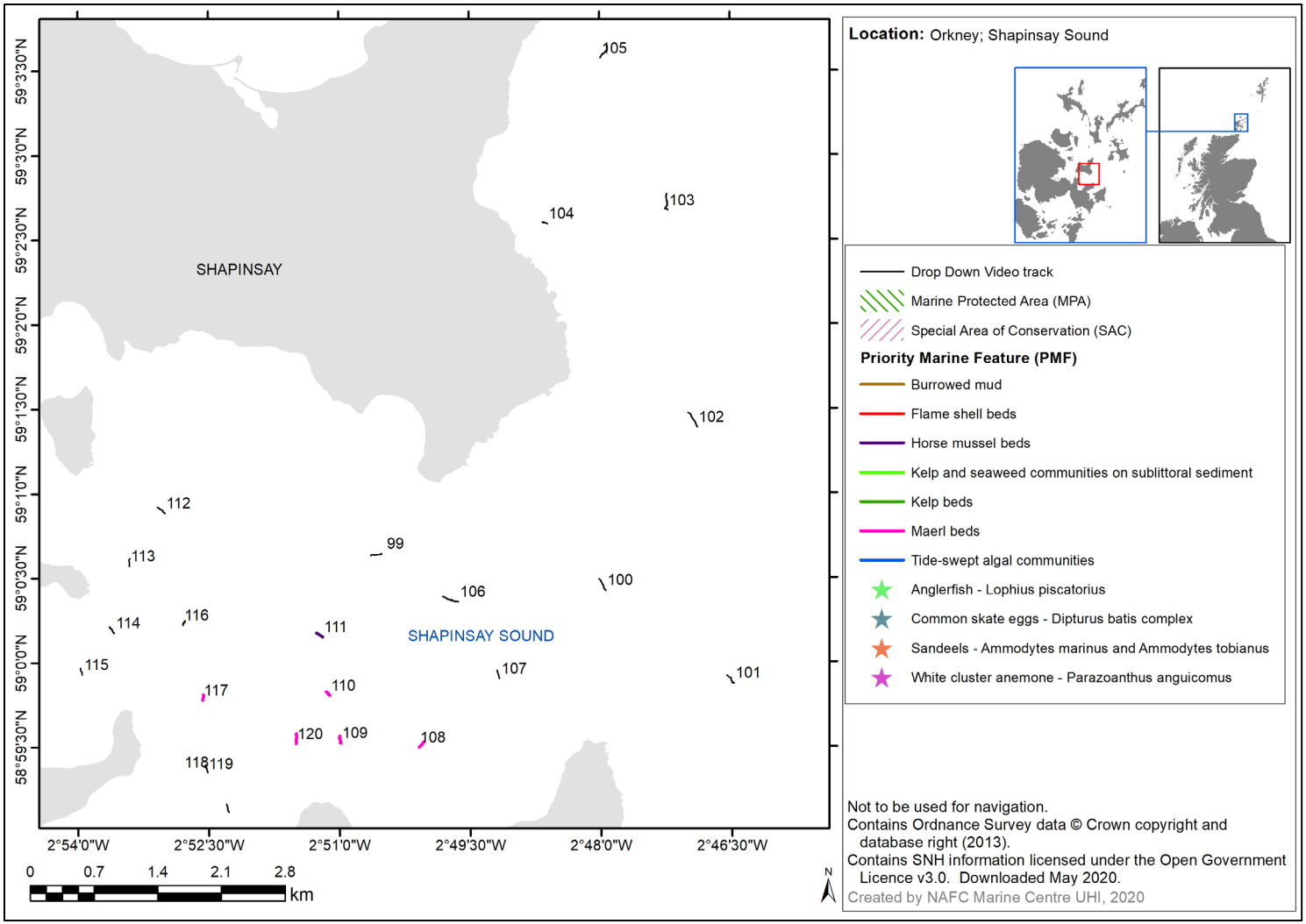


Figure 47: Priority Marine Features (PMF) identified from 2019 surveys and their corresponding drop down video tows (tow numbers shown) south and east of Shapinsay.

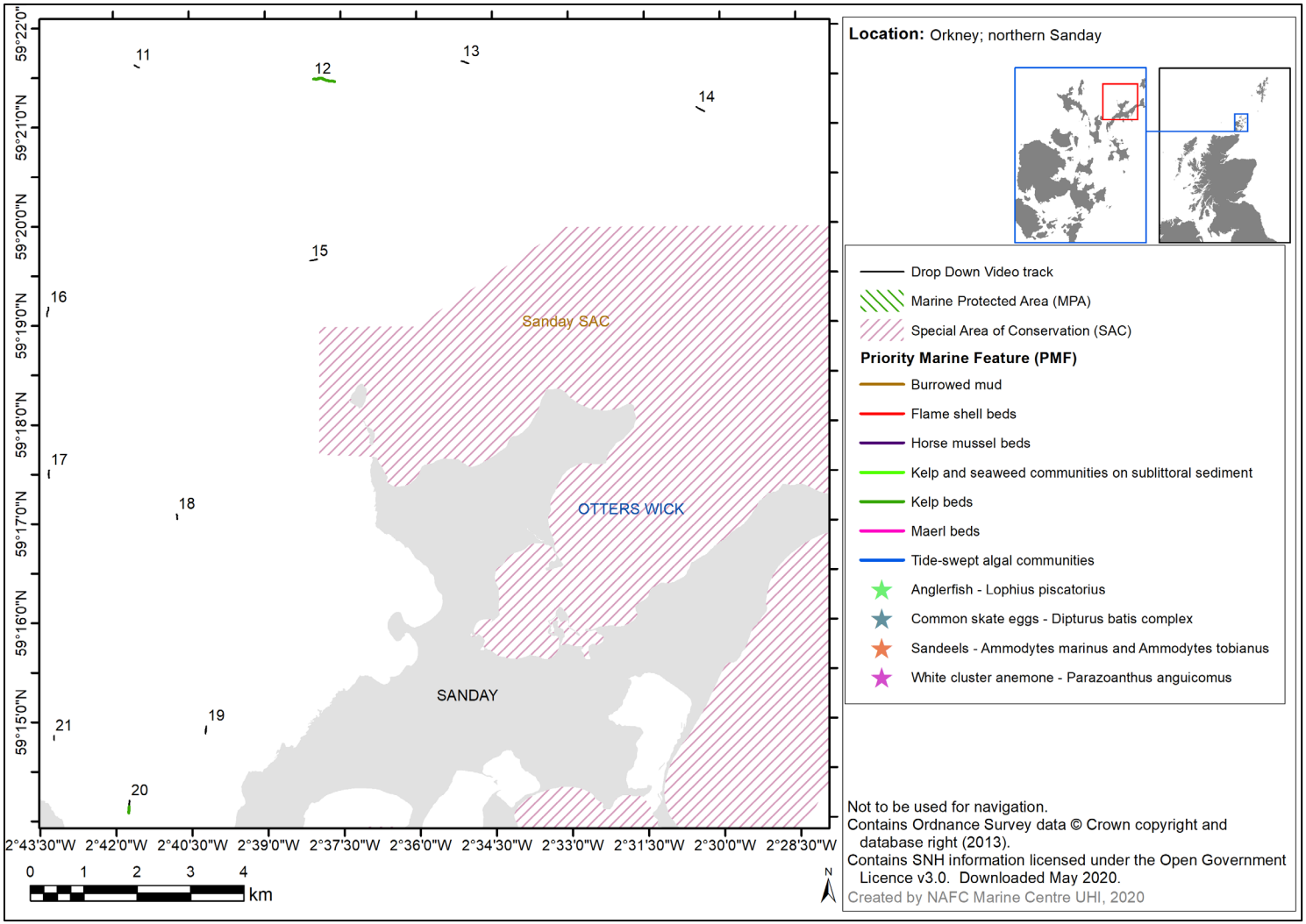


Figure 48: Priority Marine Features (PMF) identified from 2019 surveys and their corresponding drop down video tows (tow numbers shown) north of Sanday, with protected areas shown.

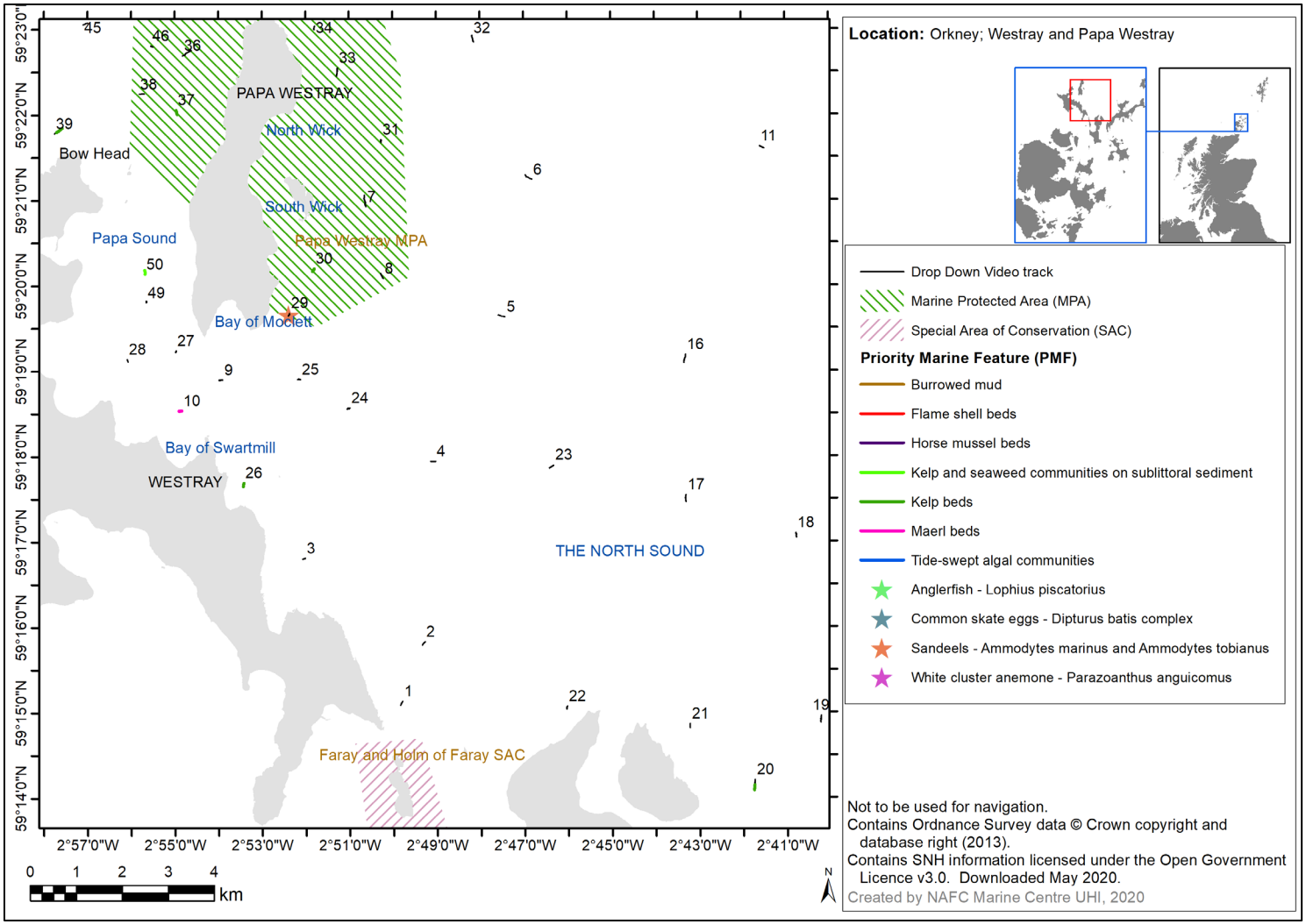


Figure 49: Priority Marine Features (PMF) identified from 2019 surveys and their corresponding drop down video tows (tow numbers shown) around Papa Westray and west of Westray, with protected areas shown.

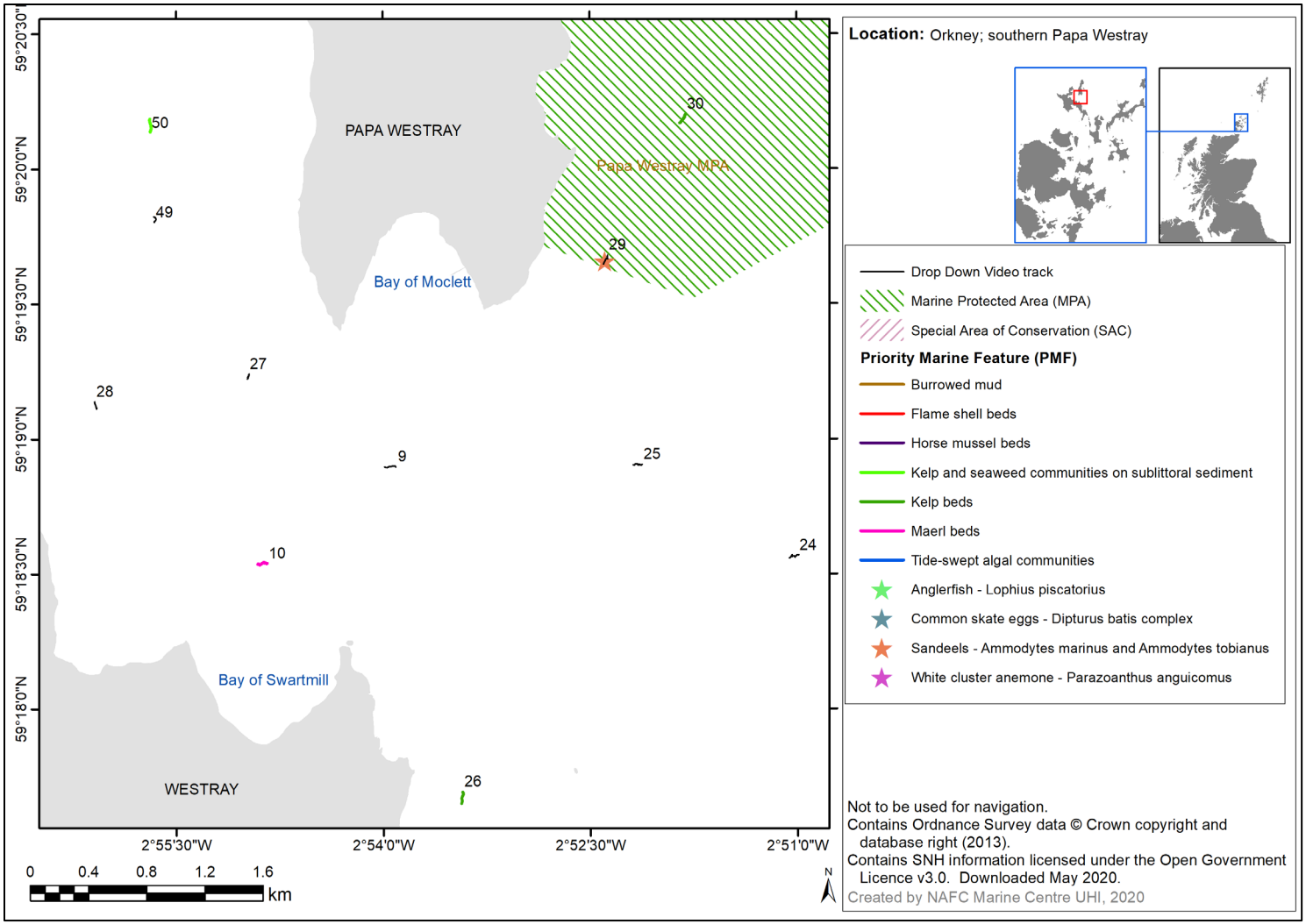


Figure 50: Priority Marine Features (PMF) identified from 2019 surveys and their corresponding drop down video tows (tow numbers shown) between Papa Westray and Westray, with protected areas shown.

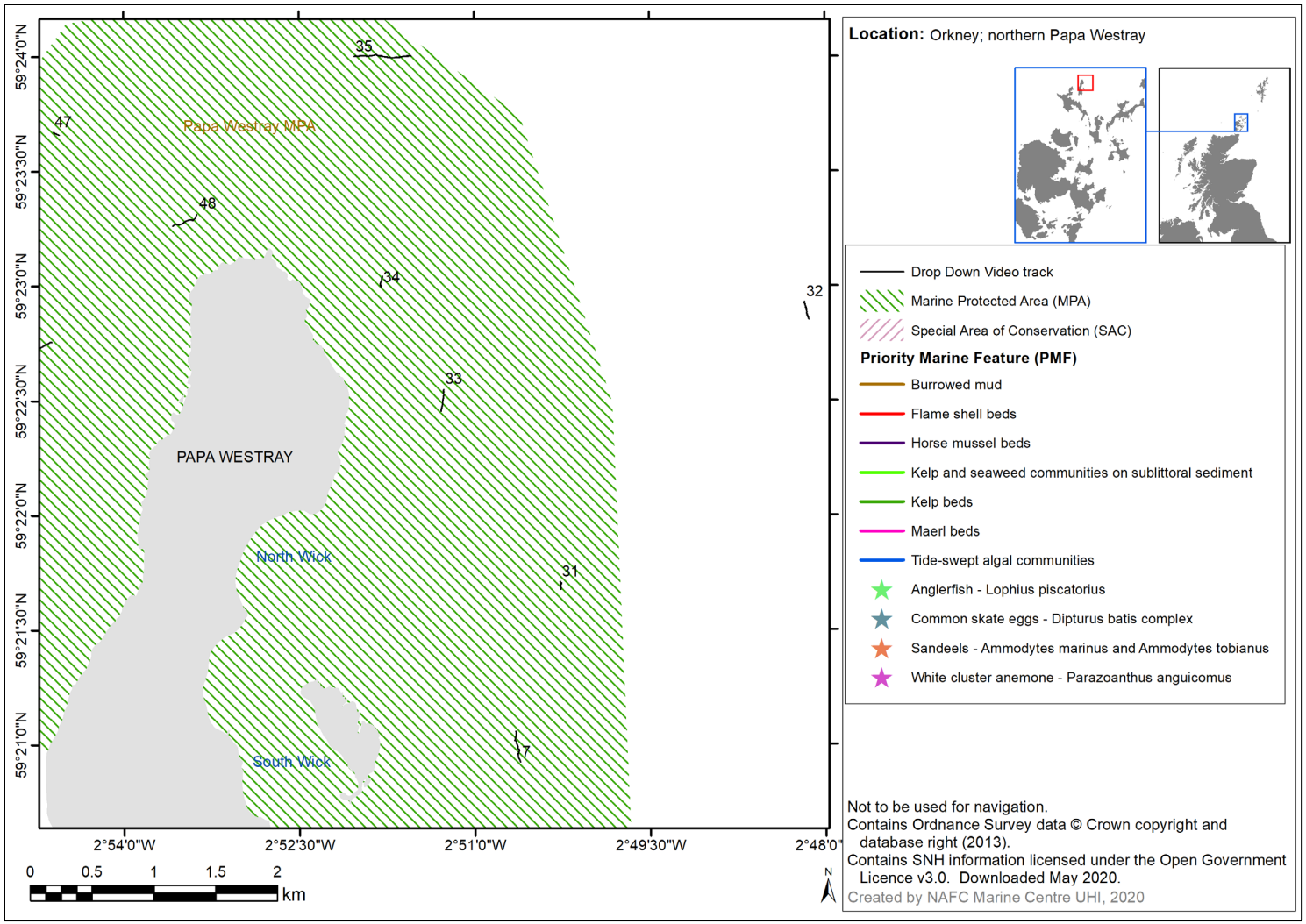


Figure 51: Priority Marine Features (PMF) identified from 2019 surveys and their corresponding drop down video tows (tow numbers shown) north of Papa Westray, with protected areas shown.

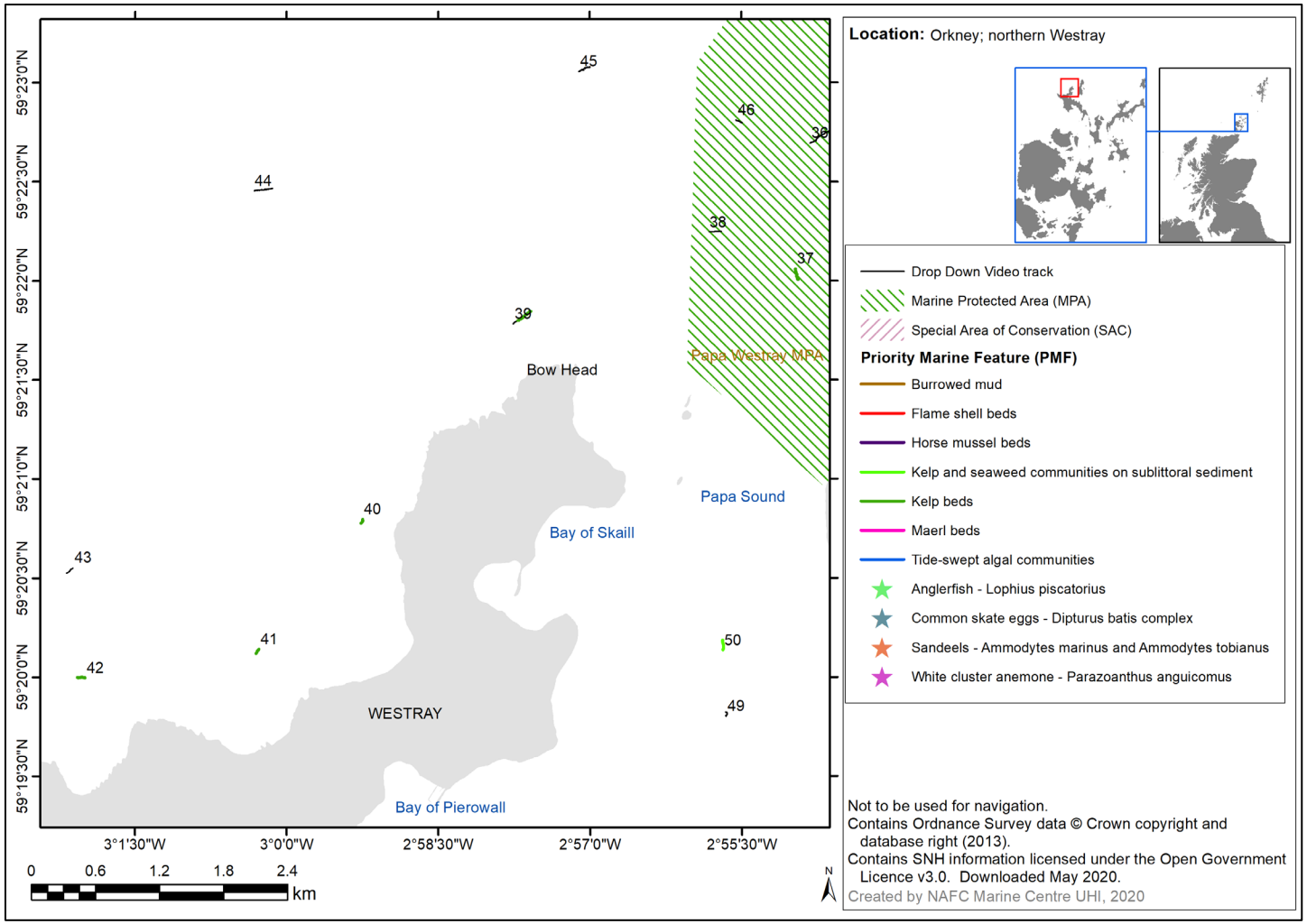


Figure 52: Priority Marine Features (PMF) identified from 2019 surveys and their corresponding drop down video tows (tow numbers shown) north of Westray, with protected areas shown.

Shetland

A total of 175 DDV tows were carried out around the Shetland coast (Figure 53) with PMF habitats identified:

- kelp beds;
- kelp and seaweed communities on sublittoral sediments;
- horse mussel beds;
- maerl beds;
- maerl or coarse shell gravel with burrowing cucumbers.

Mobile PMF species:

- anglerfish (monkfish);
- common skate (eggs).

There are six sites contributing to the MPA network in the survey area:

- Papa Stour SAC (designated for reefs and sea caves),
- Sullom Voe SAC (designated for lagoons, reefs, and shallow inlets and bays),
- Yell Sound Coast SAC (designated for otters and harbour seals),
- Mousa SAC (designated for harbour seals and reefs),
- Fetlar to Haroldswick MPA (designated for black guillemot, horse mussel beds, circalittoral sand and coarse sediment communities, maerl beds, shallow tide-swept coarse sands with burrowing bivalves, and kelp and seaweed communities on sublittoral sediment), and
- Mousa to Boddam MPA (designated for sandeels and geomorphology).

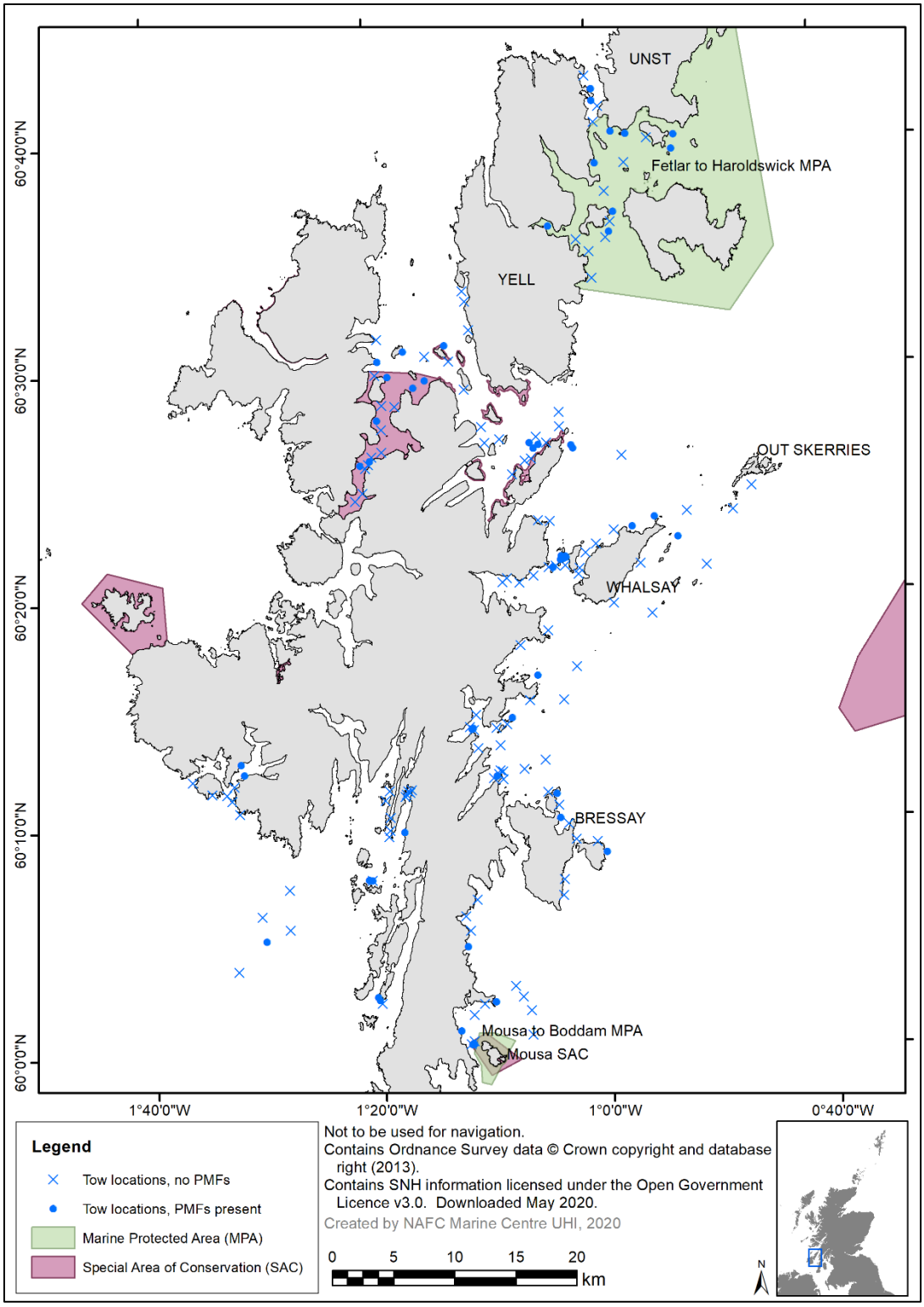


Figure 53: Locations of tows and Priority Marine Features (PMFs) surveyed in 2019 during the EMFF project around Shetland with protected areas shown. For greater detail, see maps on page 99.

Cat Firth and Lax Firth, east Mainland

Drop down video tows were undertaken in the east Shetland Mainland area, at the entrance to voes, their headlands, and in the adjacent open coast. There are no MPA designations within this area. Within the Wadbister, Cat Firth, Lax Firth, and Gletness connected voe network, seven DDV tows were undertaken (Tows 26-31 and Tow 36; Figure 54). A single historic maerl bed record exists within Wadbister Voe (1987), and a horse mussel bed record exists to the north of the Gletness Isles (1987).

The single survey location within Cat Firth revealed a mixed circalittoral sediment (SS.SMx.CMx) with broken shell, including horse mussel shell, and live individual horse mussels (Occasional, O). Similar habitats were observed at the entrance to Wadbister Voe (north of Wadbister Ness, Figure 54) with the sediment found to be muddy sand (SS.SSa.CMuSa) grading into mixed circalittoral sediment (SS.SMx.CMx) with broken horse mussel shells and living individuals observed. In muddier sediments, the sea pen, *Virgularia mirabilis*, was common. Within the centre of Wadbister Voe, maerl beds (SS.SMp.Mrl) were observed at two tows (Tows 27 and 28) 115 m apart. Tow 29 was located adjacent to the Wadbister bar and started 17 m to the northeast of a historic record of maerl from August 1986. However, grazed sugar kelp (*Saccharina latissima*) communities (IR.LIR.K.Lsac.Gz) were observed on Tow 29 and there was no evidence of a maerl bed. Locations of all three Tows 27-29 fall within the Shetland Shellfish Management Organisation (SSMO) Closed Area 10 for maerl beds surveyed by NAFC Marine Centre during 2011 (Shelmerdine *et al.*, 2013; Shelmerdine *et al.*, 2014). The SSMO closed area prohibits scallop dredging within the area for the conservation of maerl.

A single survey location (Tow 36) at the mouth of Lax Firth Voe revealed a faunally sparse muddy sand habitat (SS.SSa.CMuSa). A single survey tow (Tow 31) at Gletness Voe revealed a fine sand community with the lugworm, *Arenicola marina*. This tow was next to a finfish aquaculture site.

Six locations were surveyed off the open coast on Tows 32-35, 37, 38, and 175 (Figure 55 and Figure 56). Tow 32 was adjacent to the South Isle of Gletness and showed a coarse sediment community of cobbles and pebbles, supporting only robust fauna (SS.SCS.CCS.PomB). To the north, Tow 33 was in shallower water (9-14 m) and revealed kelp communities, (IR.MIR.KR.Lhyp.Ft and IR.LIR.K.Lsac.Gz). At the Kirkabister Headland (Tow 34), brittlestars dominated a cobble/boulder community

(SS.SMx.CMx.OphMx) before sediments became rockier and shallower, supporting red algal dominated communities (IR.HIR.KFaR.FoR). Further offshore, brittlestars were found to be abundant with *Ophiopholis aculeata* on and under rocks and boulders on Tow 35 (CR.MCR.EcCr.FaAlCr.Bri, Figure 55). Brittlestars were also observed on coarse to mixed sediment (SS.SCS.CCS) on Tow 37, but at much lower abundances (Figure 56). The deepest surveyed site in the area (44 to 47 m, Tow 38) was on bedrock and supported faunal and algal crusts (CR.MCR.EcCr.FaAlCr). Tow 175 was found to have more vertical bedrock in shallower water, 15 to 22 m, and showed faunally sparse communities, with fast growing sugar kelp, *Saccharina latissima*, (IR.HIR.KSed.LsacSac) grading into very faunally sparse rock (CR.MCR.EcCr.FaAlCr).

Five locations at Kebister Ness, Dales Voe, (Tows 20-25) revealed muddy sand communities, (Tows 20-22; SS.SSa.CMuSa), with mixed muddy sediments on Tow 24 (Figure 57). The slightly shallower Tow 23 (20 m) was the only tow supporting kelp communities (SS.SMp.KSwSS) on mixed sediment. Tow 25 was the longest and most varied tow, with mixed sediments and sediment affected bedrock. Communities included abundant brittlestars and individual and small clumps of horse mussels, although not at sufficient abundance or extent to constitute a bed.

Whalsay, Lunning Sound, and Dury Voe

There are currently no MPAs around Whalsay, Lunning Sound, or Dury Voe. Historic horse mussel bed records held within GeMS are located within Dury Voe (Seasearch, 2012) and in south Lunning Sound (1987). Historic maerl records exist in Lunning Sound. Four locations in South Nesting Bay (south of Dury Voe) were surveyed during the 2019 EMFF survey (Tows 47-50, Figure 55). Tows 49 and 50 supported brittlestars (*Ophiura ophiura* and *Ophiocomina nigra*) and moderate quantities of king scallops, *Pecten maximus*, on circalittoral fine sand (SS.SSa.CFiSa). In contrast, Tow 47 (Figure 55) was located further offshore and supported kelp communities on a rock pinnacle (IR.MIR.KR.Lhyp.GzPk) and Tow 48 supported faunal and algal crusts (CR.MCR.EcCr.FaAlCr).

To the east of Whalsay and south of Out Skerries eight locations were surveyed, with faunal and algal crusts (CR.MCR.EcCr.FaAlCr) dominating on Tows 60, 61, and 95, reflecting the exposed nature of the sites (Figure 58). *Caryophyllia smithii* were also present on Tows 94, 96, and 97(CR.MCR.EcCr.FaAlCr.Car), with *Spirobranchus triqueter* and sparse *Alcyonium digitatum* also present on Tow 97

(CR.MCR.EcCr.FaAlCr.Pom), and brittlestars on Tow 62 (CR.MCR.EcCr.FaAlCr.Bri). Infralittoral communities were only recorded from Tow 61 (IR.MIR.KR.Lhyp.GzPk). Circalittoral mixed sediments (SS.SMx.CMx) supporting low densities of brittlestars were observed on Tow 59, and at the start of Tow 97 where faunally sparse circalittoral fine sand was recorded.

To the north and west of Whalsay, seven locations were surveyed (Tows163-169, Figure 59). Tows 167 to 169 were dominated by brittlestar beds on mixed sediment (SS.SMx.CMx.OphMx). One anglerfish (monkfish), *Lophius piscatorius*, was observed on Tow 166. Tows 167 and 168 contained high quantities of dead horse mussel shells, and on Tow 167 live horse mussels were locally common, but clumping was rarely observed and it was, therefore, not classed as a bed. It is unclear whether, due to the abundance of dead shells and the presence of live individuals, Tow 167 may have supported a horse mussel bed in the past.

To the north of Whalsay, mixed sediment communities of bryozoans and hydroids were seen on Tow 163 (SS.SMx.CMx.FluHyd). Coarse sediments were found on Tow 164 (SS.SCS.CCS) with live maerl fragments recorded as rare. The beginning of Tow 166 showed a similar habitat that transitioned to bedrock, with faunal and algal turfs (CR.MCR.EcCr.FaAlCr). Shallower substrates on Tow 165 supported kelp communities (IR.MIR.KR.Lhyp.GzFt and IR.MIR.KR.Lhyp.GzPk).

Survey locations within Dury Voe and east of Lunning Sound (Tows 51-58 and 170-174) were dominated by brittlestars (Figure 60 and Figure 61). Circalittoral sandy mud at the most westerly tow (174) supported sea pen, *Virgularia mirabilis*, and brittlestar, *Ophiura ophiura*, communities (SS.SMu.CSaMu.VirOphPmax). Within Dury Voe circalittoral muddy sand supported a community dominated by *O. ophiura* (SS.SSa.CMuSa) at the start of Tow 51 grading into coarser mixed sediment (stones and pebbles on sand) with dense brittlestar beds, *Ophiothrix fragilis* and *Ophiocomina nigra*, (SS.SMx.CMx.OphMx) toward the mouth of the voe. At the interface between Dury Voe and Lunning Sound (Tow 175), bedrock supported sparse sugar kelp (*Saccharina latissima*) with red algae (IR.HIR.KSed.LsacSac) and sparse faunal crust communities (CR.MCR.EcCr.AdigVt).

To the east of Lunning Sound, surveyed depths ranged from 16 to 42 m. The substrate varied between bedrock outcrops and mixed and coarse sediments. Algal and faunal communities on bedrock outcrops appeared to be influenced by scour or sediment

movement. In shallower water (14 to 22 m) bedrock outcrops were observed to support grazed kelp parks (IR.MIR.KR.Lhyp.GzPk on Tow 53) and scoured seaweed communities (IR.HIR.KSed.XKScrR on Tow 57). Outcrops in deeper water (17 to 35 m) supported faunal and algal crust communities (CR.MCR.EcCr.FaAlCr on Tows 53 and 55 and CR.MCR.EcCr.AdigVt on Tow 52). Seaweed communities were also observed on sediment substrates (SS.SMp.KSwSS.LsacR) at four tows (55-58) and SS.SMp.KSwSS on Tow 54. A historic record of a horse mussel bed was targeted within this survey (Tow 53) but was not re-found during this survey effort. Therefore, the continued presence of this historic record was not re-confirmed. Due to the differences in observed sediment type (current and historic record), it suggests a discrepancy between survey locations.

On Tows 55 and 56 maerl was observed on sediment, including between boulders, but live maerl was only recorded as Occasional and not observed in sufficient quantity to qualify as a bed. Dead maerl was observed on coarse sediments (SS.SCS.CCS, Tow 56) and was present in moderate quantities (Occasional) in places, but was recorded as Rare over the whole length of the tow. Surveys undertaken by NAFC Marine Centre in 2011 also indicated the presence of a maerl bed (dead and live maerl) and there is currently a SSMO Closed Area in the area protecting these occurrences (see Shelmerdine *et al.*, 2013; Shelmerdine *et al.*, 2014).

At the deepest surveyed location (38 to 42 m), mixed sediments supporting dense beds of brittlestars (SS.SMx.CMx.OphMx) were recorded with patches of bedrock supporting faunal and algal crusts.

Yell

The Fetlar to Haroldswick MPA is designated for black guillemot, horse mussel beds, circalittoral sand and coarse sediment communities, maerl beds, shallow tide-swept coarse sands with burrowing bivalves, and kelp and seaweed communities on sublittoral sediment. Drop down video tows were carried out at 21 locations within Bluemull Sound, Colgrave Sound, Mid Yell Voe, and the Yell Coast (Figure 62 to Figure 66). These survey locations predominantly fall within the Fetlar to Haroldswick MPA. Within Bluemull Sound (Tows 123-127), infralittoral kelp communities were noted on Tows 124 and 125 (IR.MIR.KR.LhypTX.Pk) whilst on Tow 126, kelp communities were sand scoured (Figure 62). Sublittoral bedrock in water depths of 23 to 38 m, supported mixed

faunal turf communities (CR.MCR.EcCr.FaAlCr.Adig, Tows 123 and 127), with the seafloor supporting brittlestars on rock on Tow 125 (CR.MCR.EcCr.FaAlCr.Bri).

Locations to the south of Bluemull Sound (Tows 128 and 134, Figure 62 and Figure 64) and locations to the east of Uyea (Tows 131 and 132, Figure 63) supported maerl beds (SS.SMp.Mrl) and maerl gravels with burrowing sea cucumbers (SS.SCS.CCS.Nmix). On Tow 134, the maerl bed appears to extend beyond the tow. Maerl beds are listed as a protected feature of the MPA while maerl gravels with burrowing sea cucumbers are not; they are, however, a PMF. Infralittoral rock communities supported grazed kelp forests on Tow 129 (IR.MIR.KR.Lhyp.GzFt, Figure 62) and kelp communities affected by sand scour on Tow 130 (IR.HIR.KSed.LsacSac, Figure 63). Mobile clean sand was noted on Tows 130 and 134 (SS.SSa.IFiSa.IMoSa) and coarse sediments were also noted on Tows 131 and 132, adjacent to the maerl biotopes, and on Tow 135. On Tow 135 significant quantities of dead maerl were noted (c.80% cover) but live maerl was rarely recorded (c.5%; SS.SCS.CCS). Although very locally a high abundance (Super abundant, S) of maerl was noted, the extent was not sufficient to qualify as a bed. Tow 133 was dominated by brittlestars (SS.SMx.CMx.OphMx).

Within Colgrave Sound the tows to the north (136 and 137) were dominated by brittlestars on mixed sediment (SS.SMx.CMx.OphMx, Figure 65). The protected feature horse mussel beds were noted on Tow 136 (SS.SBR.SMus.ModT) and non-qualifying abundances (Frequent, F, and rarely clumping) were recorded on Tow 137. Maerl beds were present on Tows 136 and 138, despite recorded depths of more than 30 m (SS.SMp.Mrl). On Tow 139, sparse living maerl was recorded at <5%, however, the maerl gravel was observed to form unusual clumps (DDV footage timestamp 00:02:17, becoming more frequent from 00:05:10). The cause of the clumps was unclear and could be the result of a binding effect of other species. If caused by flame shells the relatively low abundance noted here would not qualify as a bed.

Survey locations in Mid Yell Voe and the east Yell coast (Tows 121, 122, 140, and 141) showed varied habitats, with the tow within Mid Yell Voe (Tow 121) showing silt covered seaweed communities (SS.SMp.KSwSS.Pcri, Figure 66). Tows 122, 140, and 141 were faunally sparse, presumably due to the mobile nature of the sediment and exposure of the sites.

The Fetlar to Haroldswick MPA area has been extensively surveyed in the past with multiple records held within GeMS (including by Heriot Watt University; commissioned

by NatureScot, Hirst, *et al.*, 2013, NatureScot, Marine Scotland and also by the NAFC Marine Centre (for examples see: Shelmerdine *et al.*, 2013; Shelmerdine *et al.*, 2014). Previous records of maerl (SS.SMp.Mrl) and horse mussel beds (SS.SBR.SMus.ModT) were noted in Colgrave Sound, Hascosay Sound, and south of Bluemull Sound. Tide swept algae communities have also previously been recorded.

Sullom Voe and Yell Sound

Drop down video tows were carried out at 41 locations within Yell Sound, Lunna Ness, and Sullom Voe. Tows within Sullom Voe were within the Sullom Voe SAC designated for lagoons, reefs, and shallow inlets and bays. On the eastern side of Yell Sound, three tows were surveyed (Tows 104, 105, and 106, Figure 67). All three tows were faunally sparse (SS.SSa.IFiSa.IMoSa) with occasional seaweed species noted (e.g. *Saccharina latissima*).

On the west side of Yell Sound, horse mussels were observed on Tows 142-145, however, were only abundant enough to be classified as a bed on Tows 143 and 145 (SS.SBR.SMus.ModT), with Tow 142 categorised as sparse horse mussels (SS.SMx.CMx.CIloModHo) and Tow 144 found to be mixed sediment (SS.SMx.CMx; Figure 68). Tow 142 falls within a SSMO Closed Area 04 for horse mussel beds.

Within Sullom Voe, twelve locations were surveyed (Tows 146-157, Figure 69 and Figure 70). Horse mussel beds were recorded on Tow 151 (SS.SBR.SMus.ModHAs) and, although horse mussels were noted on Tows 152, 154, and 155, they were not at sufficient quantities to qualify as a bed (Frequent, F). The sea pen, *Virgularia mirabilis*, was recorded on Tows 146, 154, and 153 (SS.SMu.CSaMu.VirOphPmax) and loose lying mats of algae were observed on Tow 155 (SS.SMp.KSwSS.Pcri). Sediment varied from circalittoral sandy mud (Tows 146, 154, 156, and 157), fine sand (Tow 149) and mixed sediment (Tow 156).

Around the Yell Sound isles, ten locations were surveyed (Tows 107-116; Figure 67, Figure 68, and Figure 71). Brittlestars were observed on rock and mixed sediment on Tows 107, 111, and 113-116 (CR.MCR.EcCr.FaAlCr.Bri and SS.SMx.CMx.OphMx). Infralittoral kelp communities were either sand scoured or found on sub-littoral sediment on Tows 107-110 (SS.SMp.KSwSS and IR.HIR.KSed.XKScrR). Where densities of brittlestars were lower, mixed sediment was faunally sparse and presumably unstable and dominated by *Spirobranchus triqueter* on Tow 111 (SS.SCS.CCS.PomB). Faunal

and algal crusts were observed on Tows 107 (CR.MCR.EcCr.FaAlCr.Pom) and 114 (CR.MCR.EcCr.FaAlCr.Adig). On Tow 112 and part of Tow 111 (outer section of the Sullom Voe SAC), horse mussel beds (a protected feature of the SAC) were recorded (SS.SBR.SMus.ModT), corresponding with historic records, Figure 68.

Twelve locations were surveyed around Lunna Ness (Tows 98-103, 117-120, and 158-160; Figure 72 and Figure 73). Tows 98-100 and 102-103 were located to the north and northeast of Lunna Ness (Figure 72). Tow 99 and the end of Tow 98 were classified as coarse sediment (SS.SCS.CCS). Tow 100 blended from a hornwrack, *Flustra foliacea*, dominated mixed substrate community (SS.SMx.CMx.FluHyd) to brittlestar beds (SS.SMx.CMx.OphMx). The beginning of the tow on Tow 98 started with tide swept kelp communities (IR.MIR.KR.LhypT.Ft) before transitioning to a kelp park (IR.HIR.KSed.LsacSac) and on to a boulder slope with faunal and algal crusts (CR.MCR.EcCr.FaAlCr). On the boulder slope, three common skate eggs (*Dipturus intermedia*) were noted. The boulder slope became coarse sediment (SS.SCS.CCS) at a depth of 54 m. The adjacent tow (103) was on sediment, alternating between kelp communities affected by sediments (IR.HIR.KSed.XKScrR) with patches of mobile clean sand (SS.SSa.IFiSa.IMoSa) to faunal and algal crusts (CR.MCR.EcCr.FaAlCr) and kelp and seaweed communities on sediment (SS.SMp.KSwSS). In contrast, Tow 102, located in 127 m of water, was dominated by scallops on muddy sand (SS.SSa.CMuSa).

The eight locations to the west of Lunna Ness included maerl beds (SS.SMp.Mrl) on Tows 101, 120, and 158, and maerl gravels with burrowing cucumbers on Tow 120 (SS.SCS.CCS.Nmix; Figure 73). On Tow 120, two anglerfish (monkfish), *Lophius piscatorius*, were observed. On Tow 101, maerl was noted between kelp covered boulders (IR.MIR.KT.XKTX) and seaweed communities were also observed on sediment (SS.SMp.KSwSS). Nearby, Tow 159, in slightly more exposed conditions, was also characterised by fast growing seaweed species on rocks (IR.HIR.KSed.LsacSac), transitioning into faunal and algal crusts, with water depths along the tow increasing from 17 to 41 m (CR.MCR.EcCr.FaAlCr). Tows 117-119 were faunally sparse with biotopes ranging from muddy sand (SS.SSa.CMuSa) on Tow 117, mixed sediments (SS.SMx.CMx) and fine sediment (SS.SSa.CFiSa) on Tow 118, and infralittoral coarse sediment (SS.SCS.ICS) on Tow 119. Coarse sediments (SS.SCS.CCS) were also observed on Tow 120, as were brittlestar beds on rock (CR.MCR.EcCr.FaAlCr.Bri). Nearby, Tow 160 was characterised by brittlestars on mixed sediment (SS.SMx.CMx.OphMx).

Gruting Voe, West Mainland

There are no MPAs in the Gruting Voe and West Mainland area. Drop down video tows were carried out at eight locations within Gruting Voe and on the open coast around Vaila (Figure 74). Shallower inner tows in Gruting Voe (Tows 90 and 91) were dominated by low energy silt-covered algae communities on sediment (SS.SMp.KSwSS). It was noted that Tow 90 was adjacent to an operational shellfish aquaculture site and Tow 91 was adjacent to an operational finfish aquaculture site. The outer tows (Tows 88 and 92) in deeper water (25 to 33 m) showed no evidence of silt and comprised fine sand with the main species observed at both tows *O. ophiura* (SS.SSa.CFiSa). Open coast locations (Tows 86, 87, and 89) were dominated by brittlestars, either on rock or on cobbles and boulders (CR.MCR.EcCr.FaAlCr.Bri and SS.SMx.CMx.OphMx). Tow 93 supported kelp communities (IR.HIR.KSed.LsacSac) at shallower depths (15 m), with deeper rock supporting sparse faunal and algal crust communities (CR.MCR.EcCr.FaAlCr.Pom) before giving way to a seafloor also dominated by brittlestars (SS.SMx.CMx.OphMx).

Limited records for this area exist within GeMS, with two dating from 1987, one from west Vaila and one from east Vaila, both within the kelp zone (IR.HIR.KFaR.LhypFa and IR.MIR.KR.Lhyp.GzFt). Seasearch records from Garda Stack (south of Vaila) also indicate kelp communities in shallow depths.

North of Papa and southwest of Mainland

The waters around the southwest of Mainland Shetland are not designated as an MPA. Offshore, Burra Haaf, five locations were surveyed (Tows 66-70) in relatively deep water, with the deepest tow at 115 to 117 m (Figure 75). At this deepest tow (66) the sandy mud habitat (SS.SMu.CSaMu) supported a moderate burrowed community and the fleshy sea pen, *Pennatula phosphorea*, was noted. At shallower depths, the sediment became coarser and more varied, including mixed sediment (SS.SMx.CMx) on Tows 67, 68, and 69, and patches of circalittoral rock (CR.LCR and CR.MCR.EcCr.FaAlCr) were noted on Tows 67 and 68, respectively. The shallowest point, on Tow 70 in 56 to 64 m of water, consisted of brittlestars overlying coralline crusts (CR.MCR.EcCr.CarSp.Bri). The anglerfish, *Lophius piscatorius*, was noted on Tow 67 on both mixed sediment and rock.

In the more sheltered conditions offered within the near-shore islands, tows were undertaken north of the island of Papa (Figure 76). These tows were to map the extent of a maerl bed previously identified by commercial surveys (Tows 82-85). The biotope SS.SMp.Mrl was recorded on Tows 83-85. On Tow 82, and the beginning of Tow 83, dead maerl was noted with a layer of organic material covering 30-50% of sediment surface. Seaweed communities on rocks were noted in shallower depths, closer to Papa, with IR.MIR.KR.LhypTX.Ft and IR.HIR.KSed.LsacSac recorded.

At the southwest of the island of East Burra, three DDV tows (Tows 63-65) in the lower infralittoral to the upper circalittoral (depths ranging from 16 to 26 m) revealed faunally sparse sand communities (SS.SSa.CFiSa) with areas of bedrock supporting a *Laminaria hyperborea* park (IR.MIR.KR.Lhyp.GzPk) on bedrock outcrops (Figure 77). On bedrock outcrops, occasional horse mussels were observed and, in places, were locally common. However, the limited extent and habitat (rock) meant these observations were not classified as a horse mussel bed.

Whitedale (Whiteness, Stromfirth Voe, and outer Weisdale)

Activities in Whiteness and Weisdale are restricted for a number of industries due to the presence of seagrass beds; via Shetland Island Council policy which prohibited aquaculture development within the Whiteness voe and the head of Weisdale Voe, and SSMO management measures which prohibit scallop dredging (Area 12). Additionally, the Draft Shetland Islands Regional Marine Plan includes policy proposed to extend current SIC aquaculture policy to include all development types[5]. Whiteness Voe was selected in 1987 as a Marine Consultation area.

Eleven locations were surveyed in the Whitedale area (Tows 71-81) (Figure 78). The shallowest survey tows water depth (8-13 m) were at the head of Whiteness Voe (Tows 76-80) and all were dominated by the lugworm, *Arenicola marina*, and the brittlestar, *Ophiura* spp. (SS.SMu.IFiMu.Are). At the entrance to Whiteness Voe, sparse seaweed communities were present within the lower infralittoral (SS.SMp.KSwSS).

---

[5] *Draft Shetland Islands Regional Marine Plan Policy MP DEV3: Development Restricted Areas: Developments will not be permitted in:*
a) Whiteness Voe, north of a line between Usta Ness and Grutwick, which reduce visual amenity, or adversely impact protected habitats and species; ……
Unless it can be demonstrated that the proposal is necessary in order to deliver social, economic or environmental benefits that clearly outweigh the projected impact.

Three locations were surveyed in outer and inner Stromness Voe (Tow 73-75; Figure 78). The outer tow (Tow 73) consisted of muddy sand (SS.SSa.CMuSa) with sparse faunal communities. Tow 74 was adjacent to a now fallowed finfish aquaculture site. This tow was the deepest surveyed within this area, with surveyed depths ranging from 29 to 42 m. The sediment surface showed an overlay of organic material. Within Stromness Voe, coarse mixed sediments were observed with broken shells (SS.SMx.CMx). Within GeMS, historic records exist for horse mussels in this area, but these were not observed during this survey.

To the west of Stromness Voe, two DDV tows were undertaken (Tows 71 and 72; Figure 78). On Tow 71, muddy sand (SS.SSa.CMuSa) communities were observed with brittlestars, *O. ophiura*, dominating the epifauna. On Tow 72, sediments were coarser and more mixed, with sparse epifauna (SS.SMx.CMx).

Mousa, southeast Mainland

The sea area around the island of Mousa is an SAC for sea caves, reefs, and harbour seals. The area is also an MPA for sandeels and geomorphological features. Thirteen DDV tows were undertaken in the Mousa and southeast Mainland area (Tows 1-13) with surveyed depths ranging from 13 to 84 m (Figure 79 and Figure 80). The tows in Mousa Sound (Tows 1-5), in water depths of 26 to 30 m, showed very varied habitats across the tows and included faunal and algal crusts on rock (CR.MCR.EcCr.FaAlCr) – some of which fall within the SAC boundary for reefs, and coarse sand (SS.SCS.CCS) on Tows 1-5 (Figure 79). Maerl beds (SS.SMp.Mrl) were only recorded on Tows 1-3. This maerl bed has previously been recorded during NatureScot commissioned monitoring surveys and the current survey provided additional records, of the beds extent to the west and north. Observations of maerl from Tows 2 and 3 extend beyond the boundaries of the MPA and SAC, although all maerl records fall within the SSMO closed area (see Figure 79).

Four inshore DDV tows were undertaken near to Sandwick and Cunningsburgh (Tows 6-8, and 12; Figure 79 and Figure 80). At shallower depths kelp park was observed on Tows 6 and 12 (IR.MIR.KR.Lhyp.GzPk). At greater depth, mixed sediments and bedrock with faunal and algal crusts were observed (SS.SMx.CMx, CR.MCR.EcCr.FaAlCr and CR.MCR.EcCr.FaAlCr.Bri) on Tow 6. On Tow 8, bedrock with faunal and algal crusts were observed (CR.MCR.EcCr.FaAlCr). Faunally sparse fine sand (SS.SSa.CFiSa) was also observed on Tows 7 and 8.

Four tows were undertaken further offshore (Tows 9-11 and 13), in relatively deep water (37 to 82 m; Figure 80). Faunal and algal crusts were observed at all the tows (CR.MCR.EcCr.FaAlCr.Car, CR.MCR.EcCr.FaAlCr, and CR.MCR.EcCr.FaAlCr.Bri). Tow 10 showed the greatest physical variation with sandy mud (SS.SMu.CSaMu) and mixed sediments also observed (SS.SMx.CMx). Clumps of horse mussels were observed during the tow (Frequent, F) but did not occur at sufficient abundance to fit the description of one of the component biotopes of the horse mussel bed PMF.

Bressay and south of Lerwick

There are no MPA designations for seabed habitats in the sea area around Bressay and south of Lerwick. To the south of Lerwick Harbour, four DDV tows were undertaken around East Voe of Quarff (Tows 14-17; Figure 81). All tows were close to the coast, with surveyed depth ranges from 10 to 27 m. Seaweed communities were observed on cobbles and pebbles (SS.SMp.KSwSS) and sediment affected seaweed communities were observed on bedrock and boulders (IR.HIR.KSed.XKScrR and IR.HIR.KSed), with sparse fauna below the kelp canopy. Cobbles and pebbles (SS.SCS.ICS.SSh) and bedrock all supported relatively sparse faunal communities (CR.MCR.EcCr.FaAlCr.Car and CR.MCR.EcCr.FaAlCr).

The southeast coast of Bressay also showed sparse communities, with the two DDV tows (18 and 19) supporting few faunal and algal species (CR.MCR.EcCr.FaAlCr) in deeper water and sediment disturbed kelp communities in shallower depths (<25 m; IR.HIR.KSed and IR.HIR.KSed.LsacSac; Figure 82).

Three DDV tows were completed around the Isle of Noss (which is an SPA for breeding seabirds), with tows to the exposed east (Tow 46) and north (Tow 45) coasts and adjacent to Noss Sound (Tow 44; Figure 82). Tow 46, the most exposed and the deepest surveyed site (20 to 29 m), supported a sparse grazed kelp park, possibly also occasionally affected by sediment movement (IR.MIR.KR.Lhyp.GzPk). Beneath the kelp park, sparse faunal and algal communities existed and were dominated by the urchin, *Echinus esculentus*, and encrusting coralline algae (CR.MCR.EcCr.FaAlCr). This habitat was also observed on Tow 45. At the entrance to Noss Sound, in depths of 13 to 14 m, the mobile nature of the sediment has led to a faunally sparse community (SS.SSa.IFiSa.IMoSa).

Drop down video tows to the north of Bressay (Tows 39 to 43) spanned depth ranges from 13 to 40 m (Figure 56). The deepest surveyed tow to the north of the Bressay coast (Tow 39) showed an epifauna of brittlestars, *O. ophiura*, on coarse sediment (SS.SCS.CCS). Tows to the east of Bressay were on bedrock with only patches of sediment observed. The shallowest survey location (Tow 40) revealed a grazed kelp park (IR.MIR.KR.Lhyp.GzFt) and Tow 43 was found to be a kelp community of faster growing opportunistic kelp species, *Saccharina latissima*, (IR.HIR.KSed.LsacSac). At bedrock and sediment interfaces, clumps of horse mussels were observed at both Tows 41 and 42. While on Tow 41 the extent, abundance (Frequent, F), associated fauna, and substratum (bedrock with small sand pockets), meant that a 'bed' biotope was not assigned but rather the biotope CR.MCR.EcCr.FaAlCr. On Tow 42, a mosaic of faunal and algal crusts (CR.MCR.EcCr.FaAlCr) and horse mussel beds (SS.SBR.SMus.ModT) were recorded.

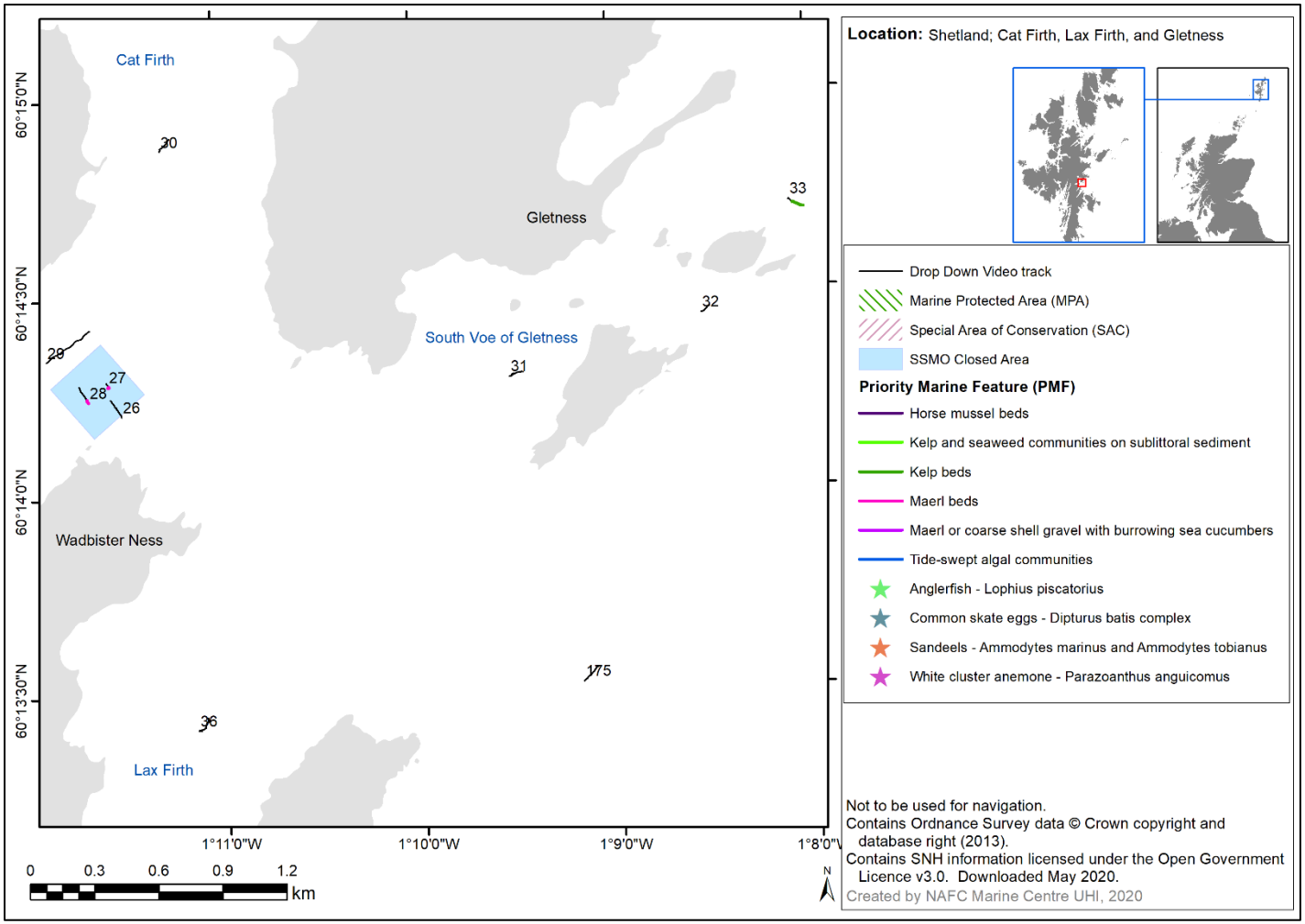


Figure 54: Priority Marine Features (PMF) identified from 2019 surveys and their corresponding drop down video tows (tow numbers shown) in Cat Firth and Lax Firth, and near Gletness and Wadbister Ness.

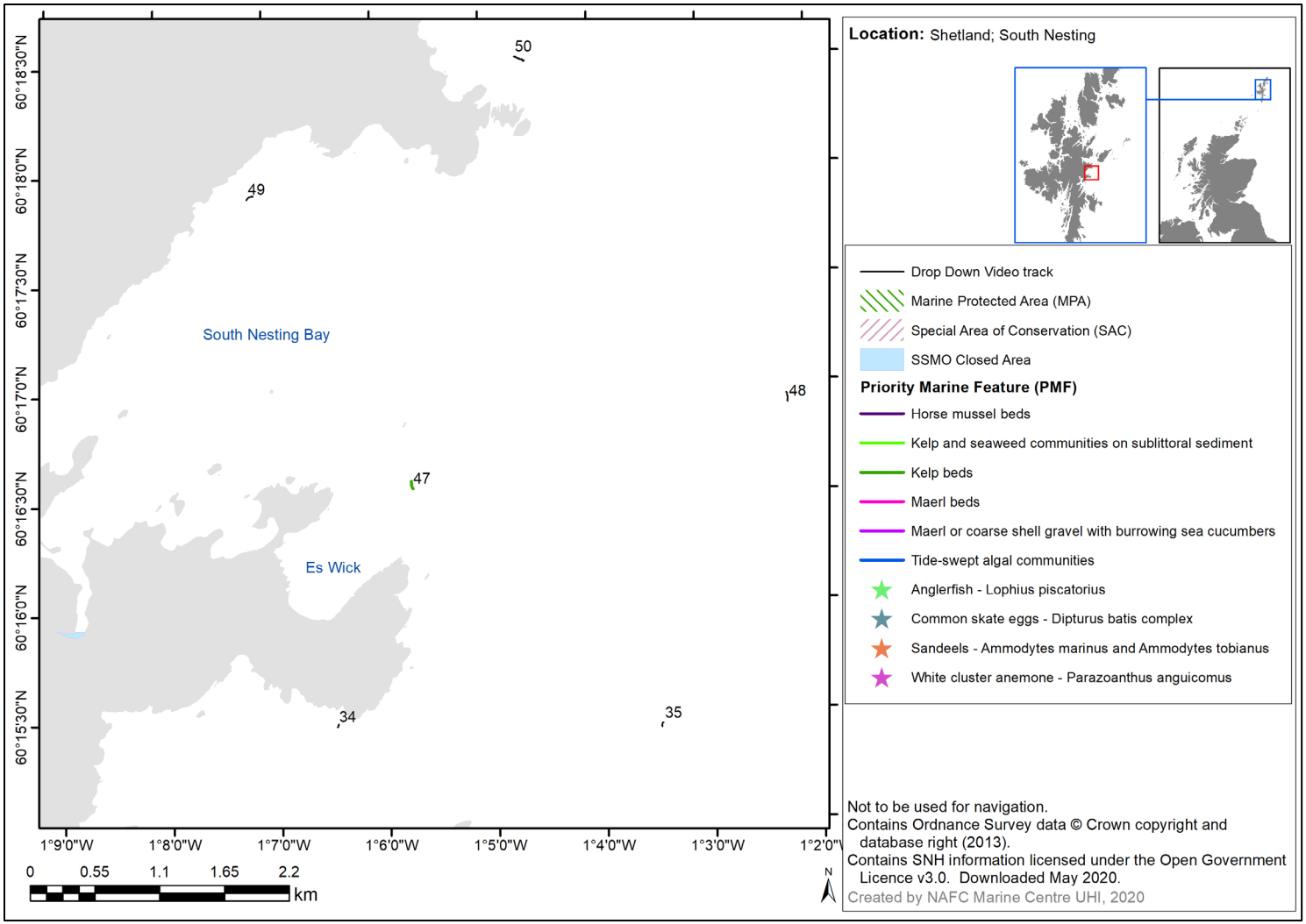


Figure 55: Priority Marine Features (PMF) identified from 2019 surveys and their corresponding drop down video tows (tow numbers shown) near South Nesting Bay.

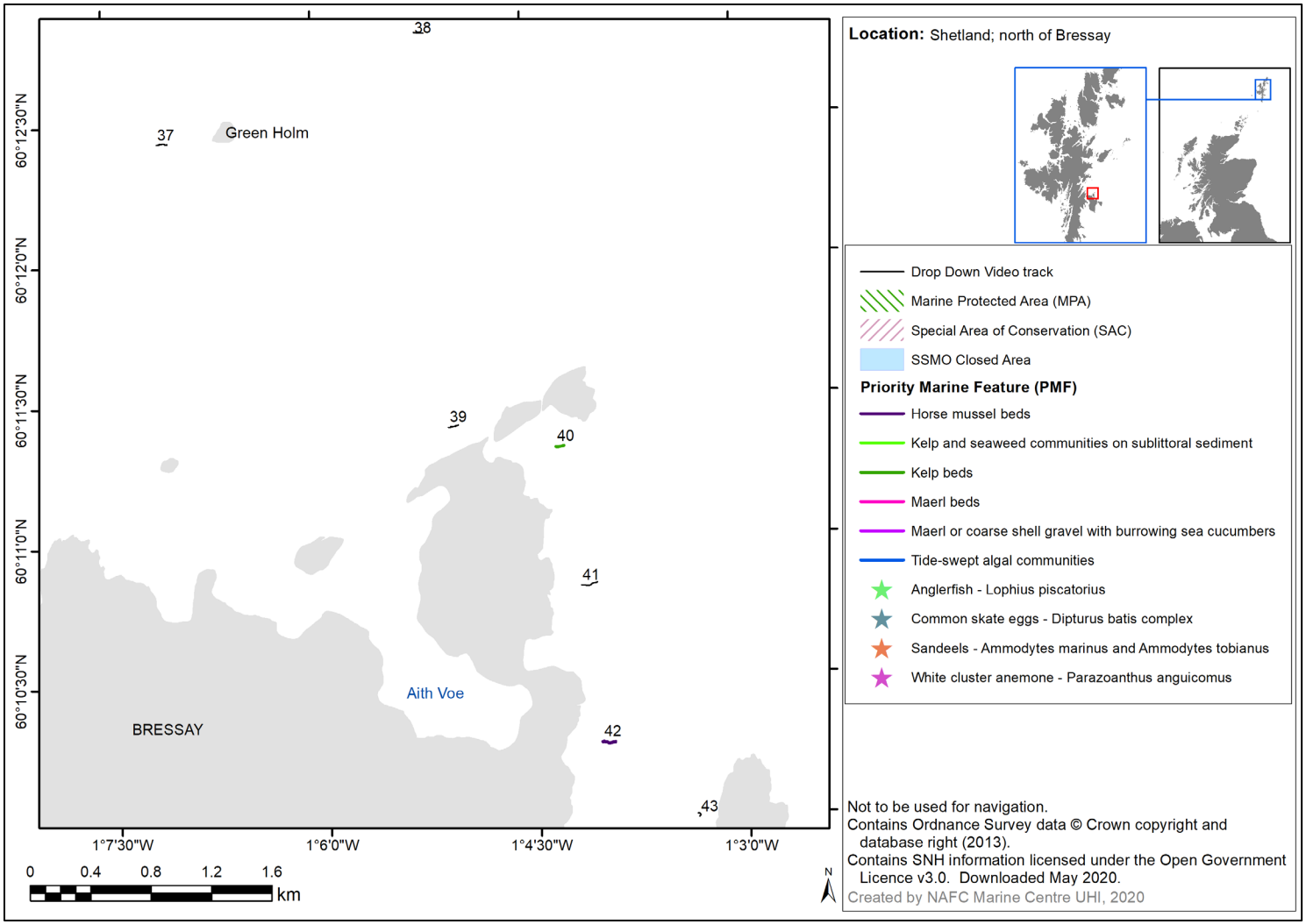


Figure 56: Priority Marine Features (PMF) identified from 2019 surveys and their corresponding drop down video tows (tow numbers shown) north of Bressay.

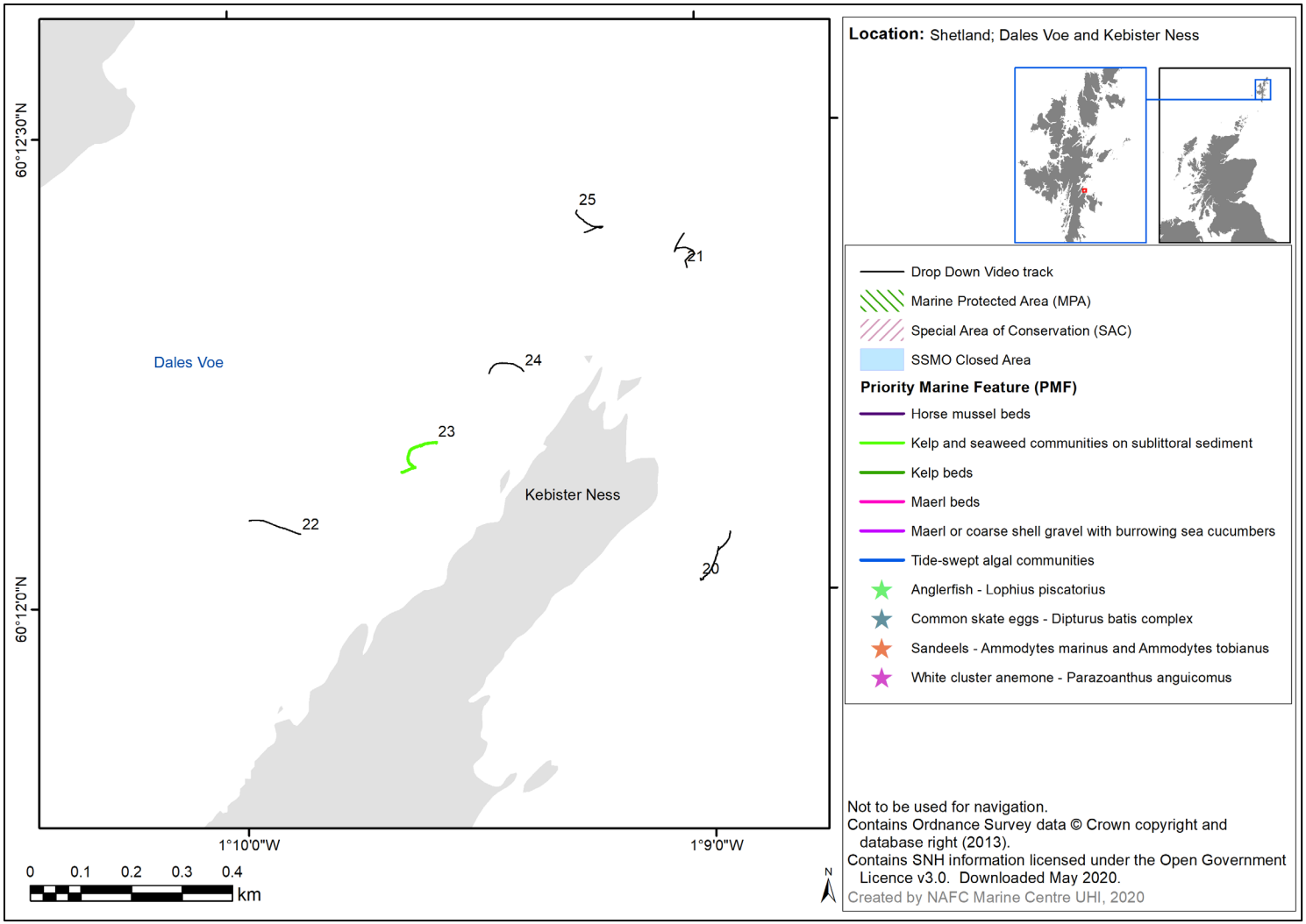


Figure 57: Priority Marine Features (PMF) identified from 2019 surveys and their corresponding drop down video tows (tow numbers shown) around Kebister Ness and within Dales Voe.

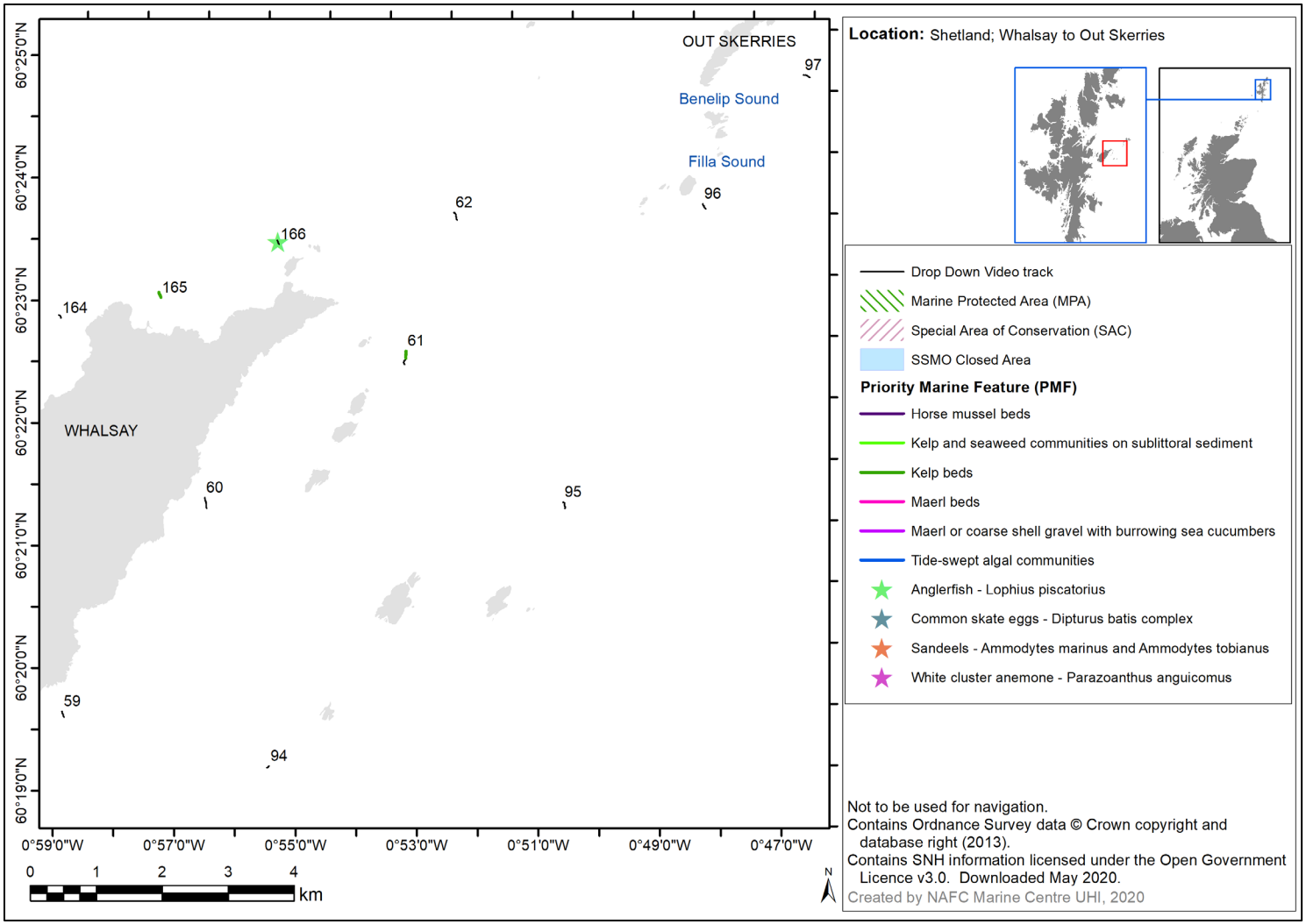


Figure 58: Priority Marine Features (PMF) identified from 2019 surveys and their corresponding drop down video tows (tow numbers shown) from Whalsay to Out Skerries.

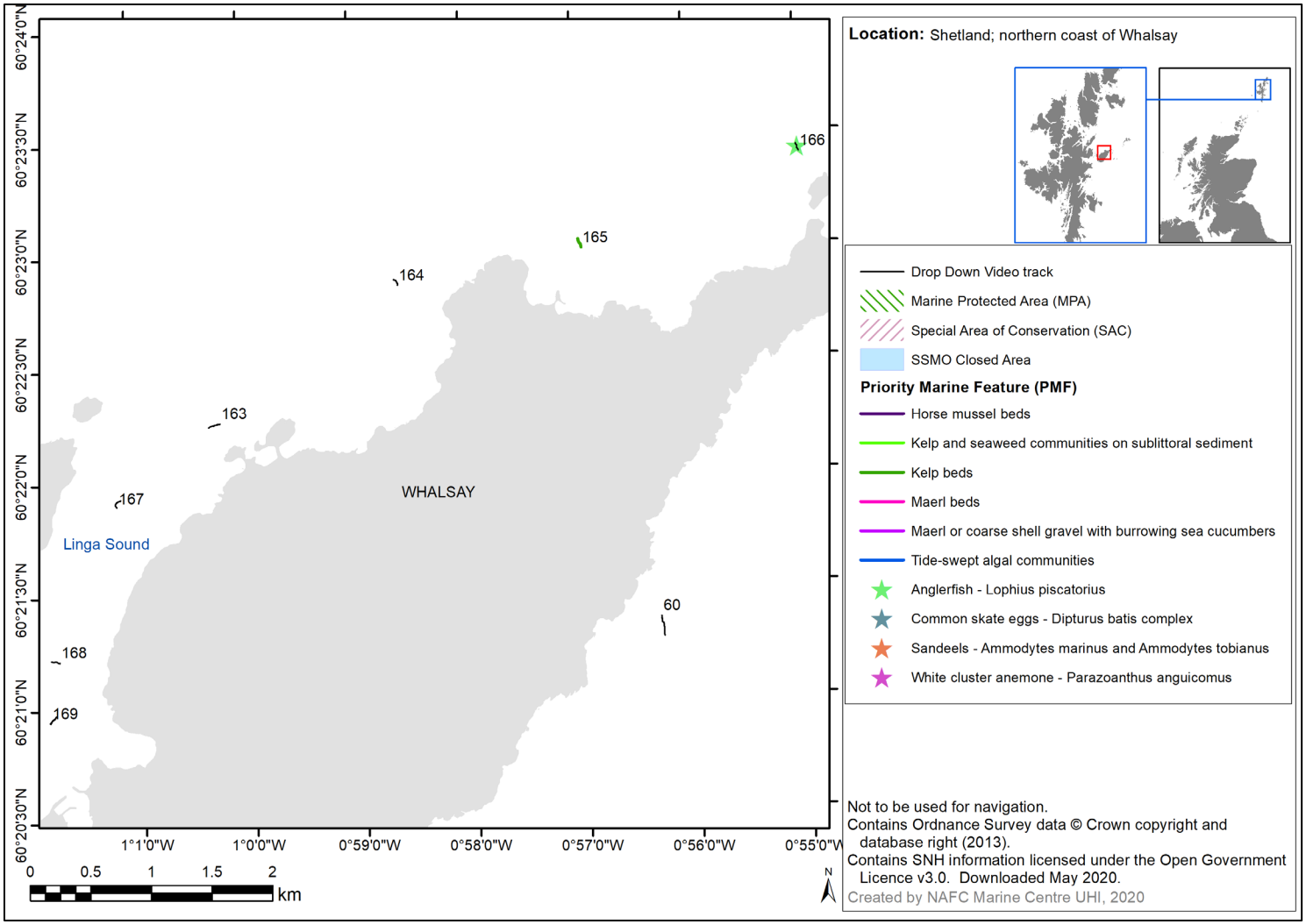


Figure 59: Priority Marine Features (PMF) identified from 2019 surveys and their corresponding drop down video tows (tow numbers shown) around Whalsay.

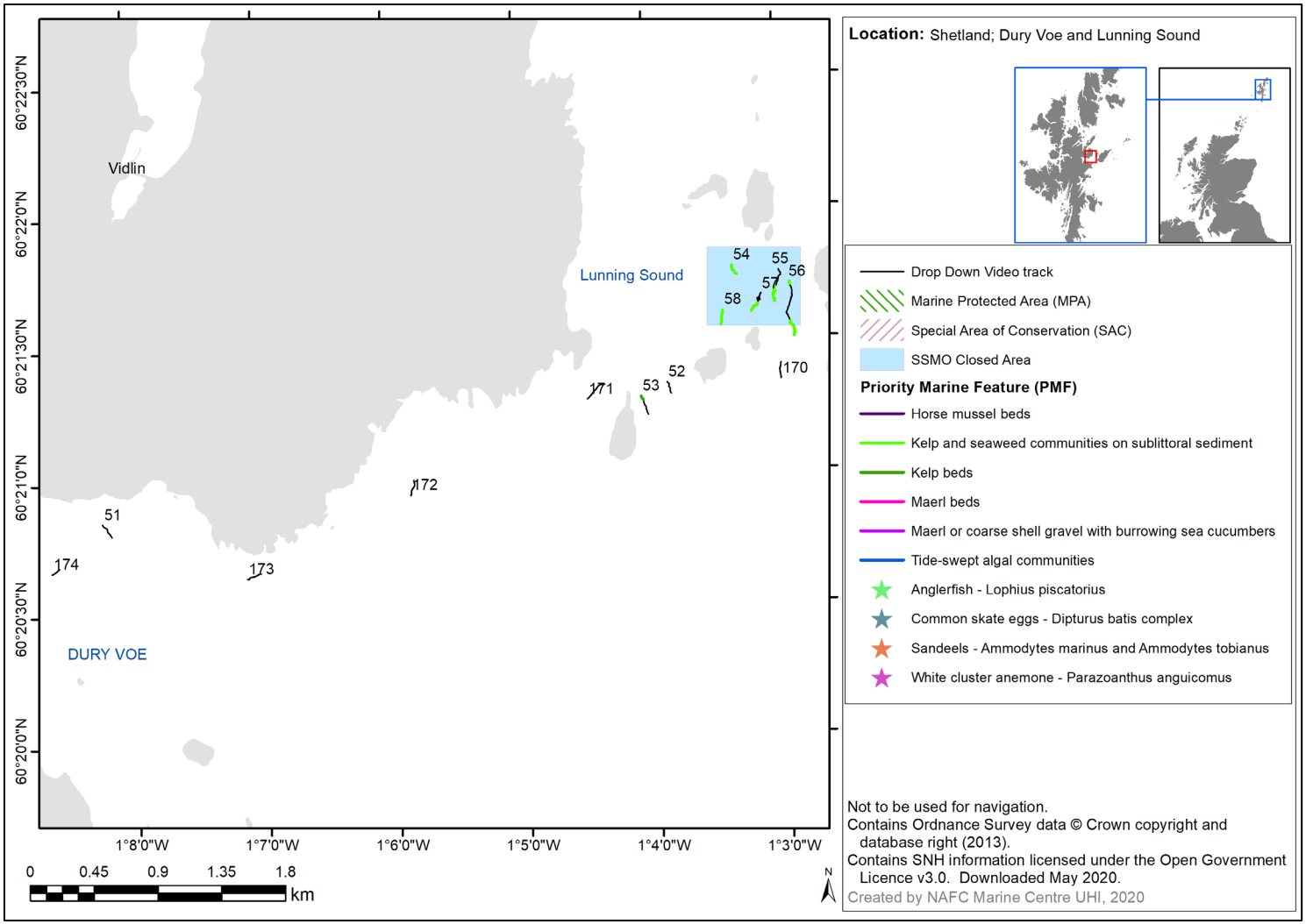


Figure 60: Priority Marine Features (PMF) identified from 2019 surveys and their corresponding drop down video tows (tow numbers shown) in Dury Voe and east of Lunning Sound, with protected areas shown.

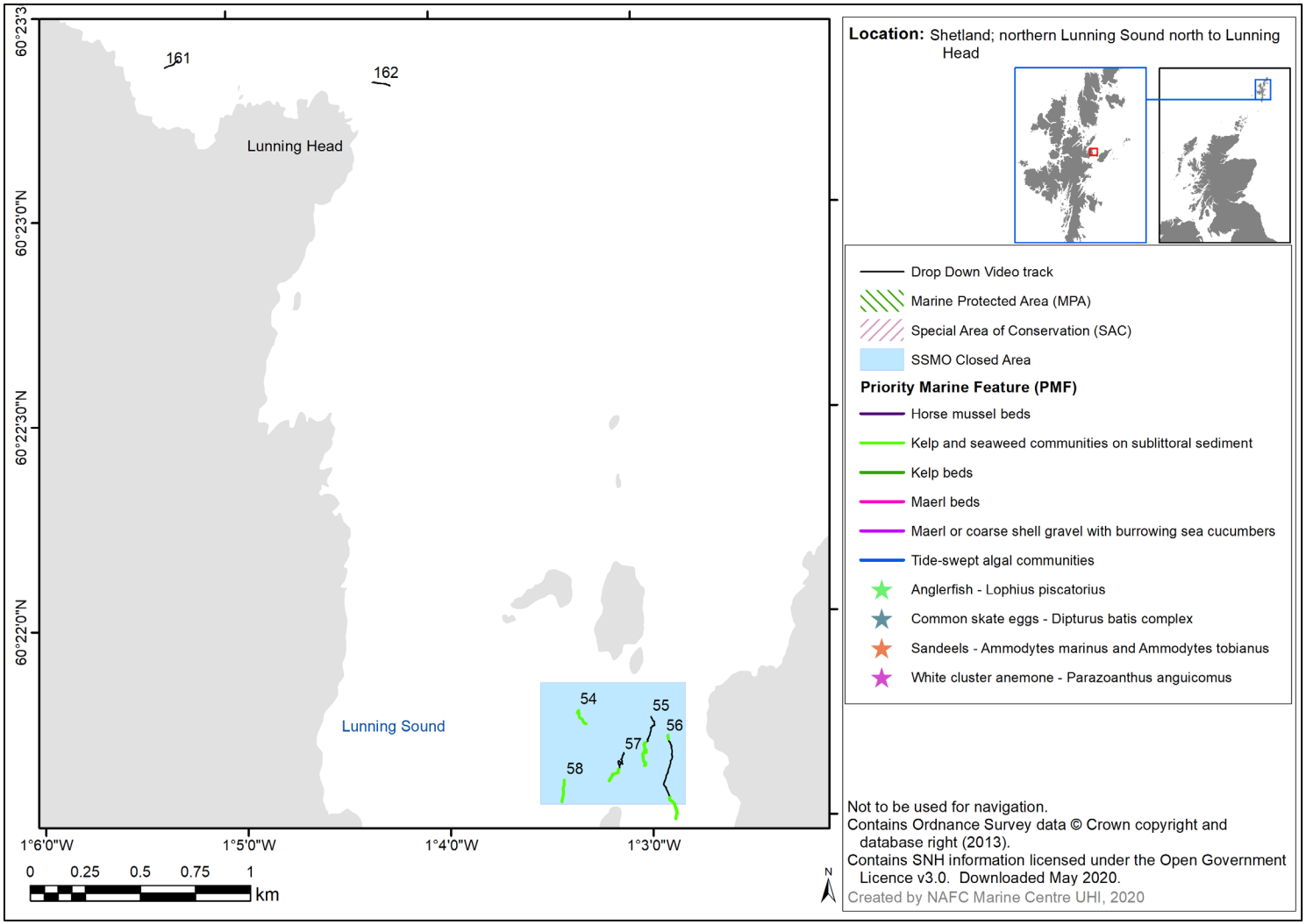


Figure 61: Priority Marine Features (PMF) identified from 2019 surveys and their corresponding drop down video tows (tow numbers shown) east and north of Lunning Sound, with protected areas shown.

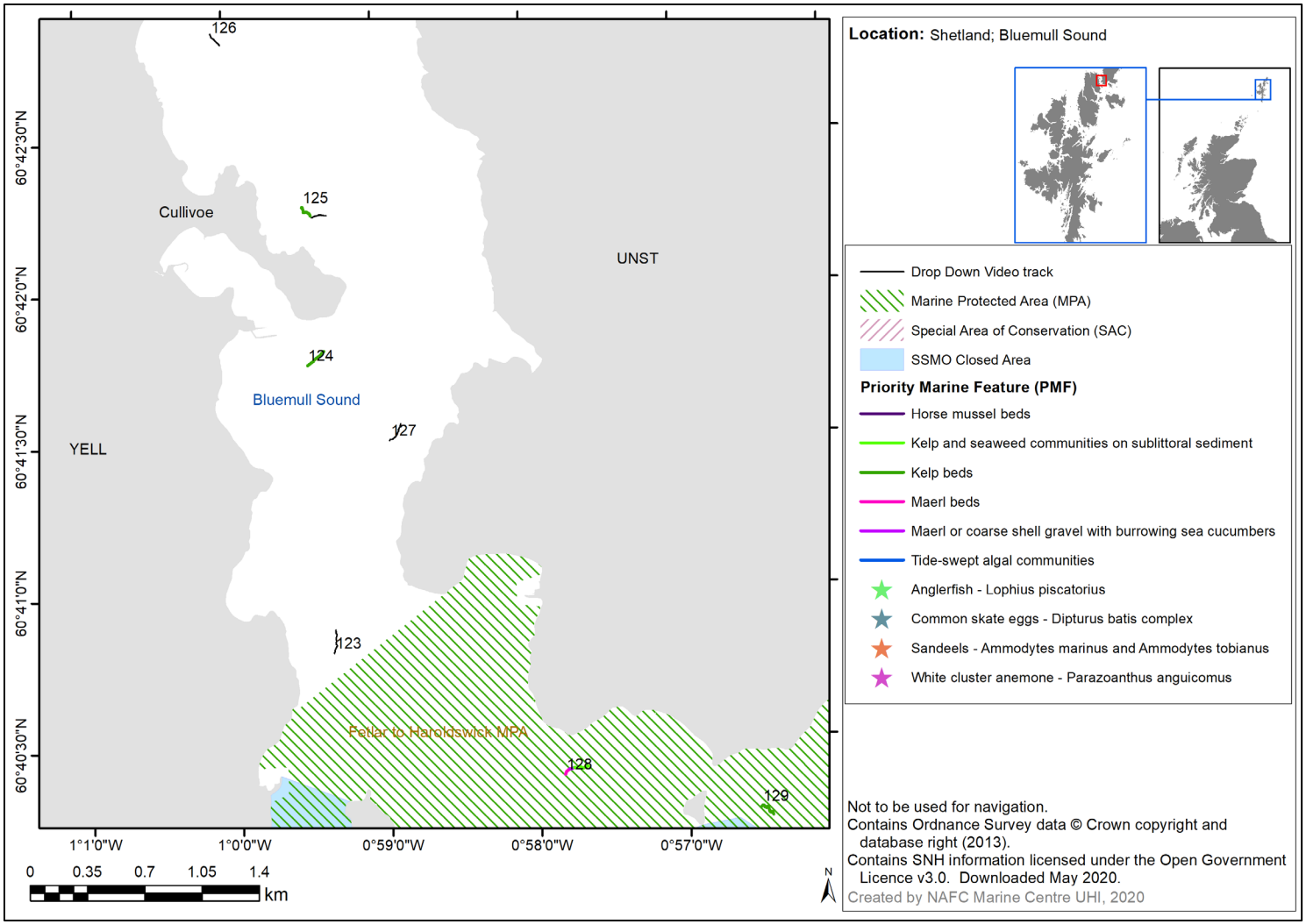


Figure 62: Priority Marine Features (PMF) identified from 2019 surveys and their corresponding drop down video tows (tow numbers shown) in Bluemull Sound, with protected areas shown.

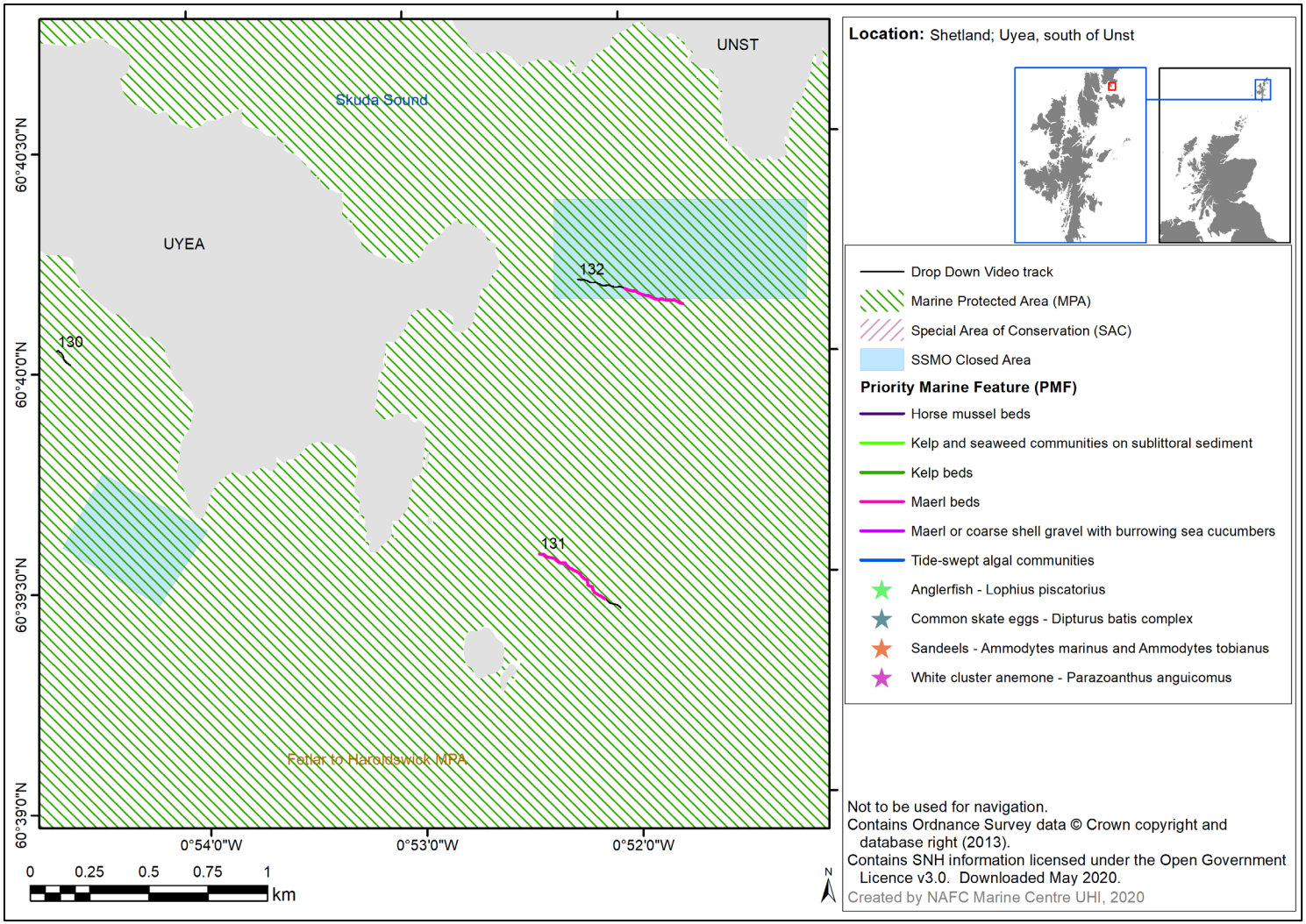


Figure 63: Priority Marine Features (PMF) identified from 2019 surveys and their corresponding drop down video tows (tow numbers shown) around the island of Uyea, south of Unst, with protected areas shown.

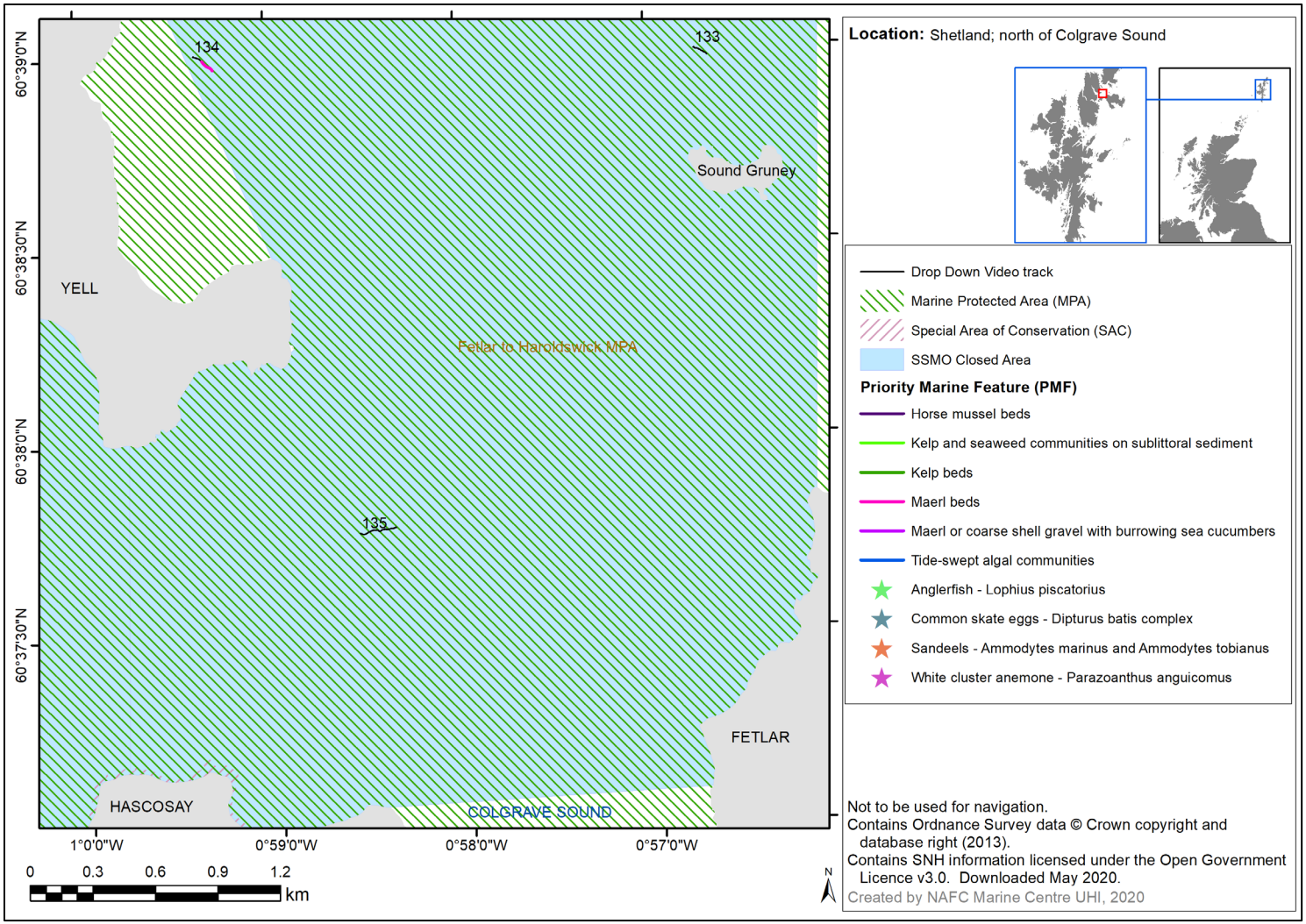


Figure 64: Priority Marine Features (PMF) identified from 2019 surveys and their corresponding drop down video tows (tow numbers shown) north of Colgrave Sound, with protected areas shown.

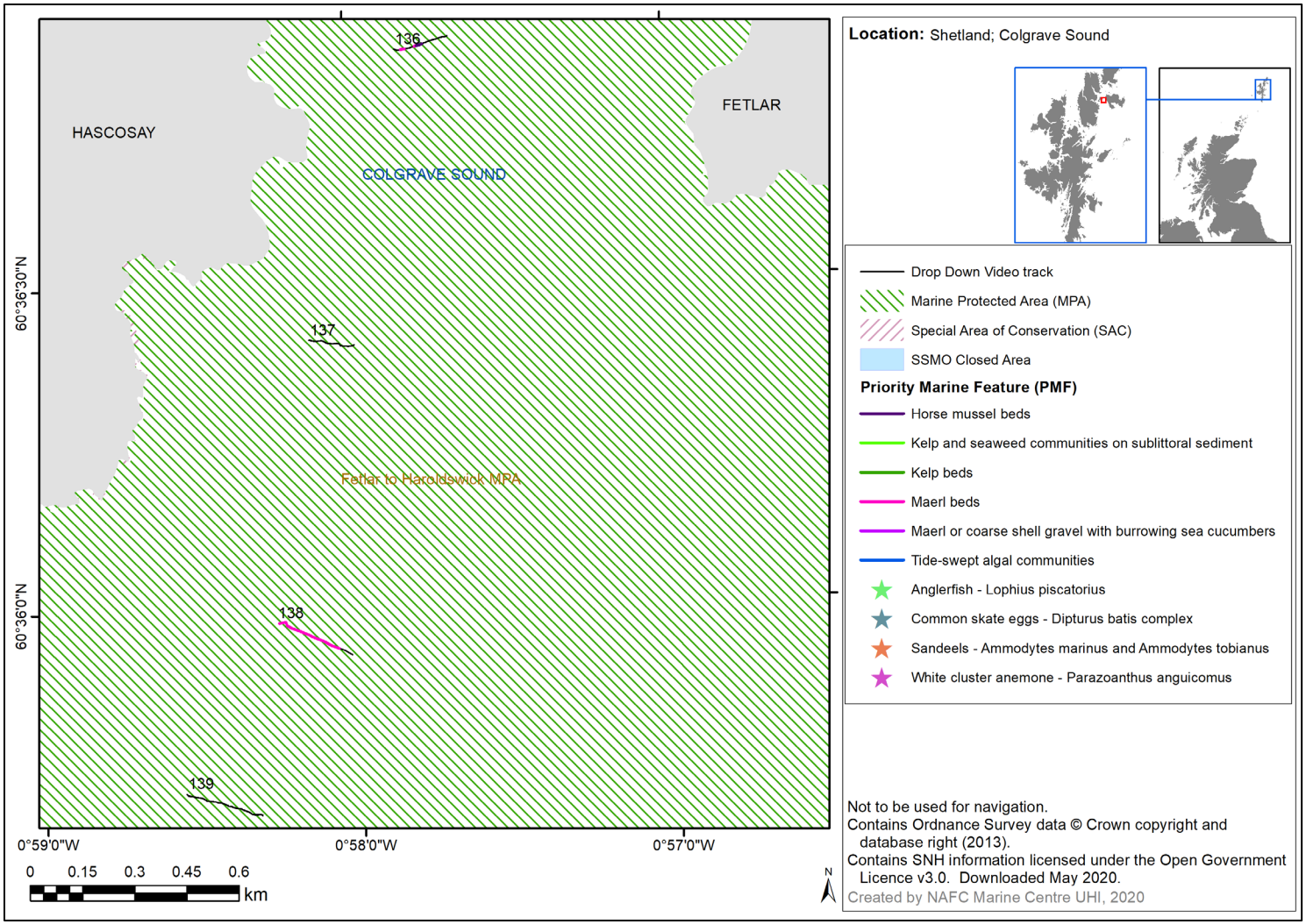


Figure 65: Priority Marine Features (PMF) identified from 2019 surveys and their corresponding drop down video tows (tow numbers shown) in Colgrave Sound, with protected areas shown.

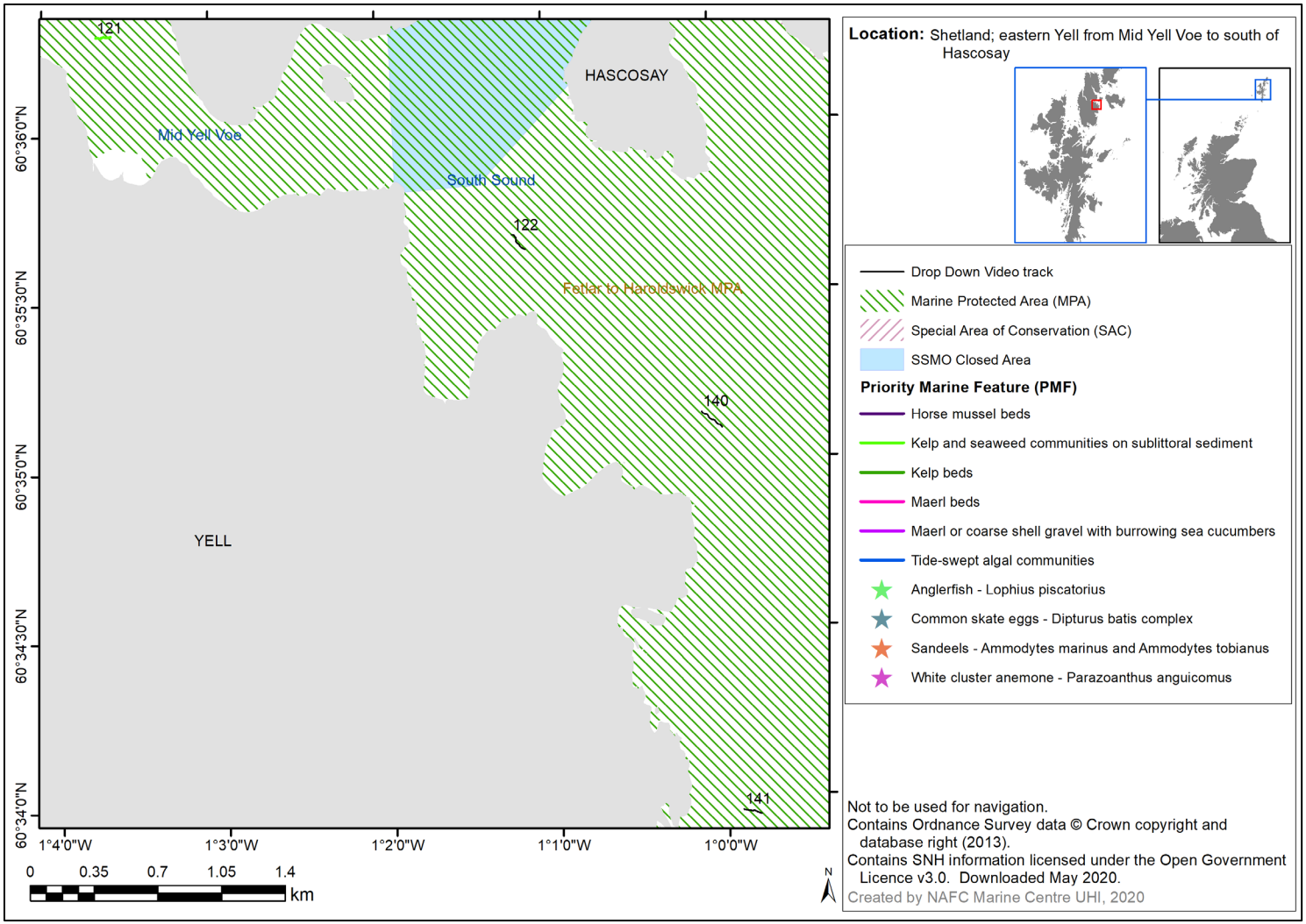


Figure 66: Priority Marine Features (PMF) identified from 2019 surveys and their corresponding drop down video tows (tow numbers shown) from Mid Yell Voe and the east Yell coast, with protected areas shown.

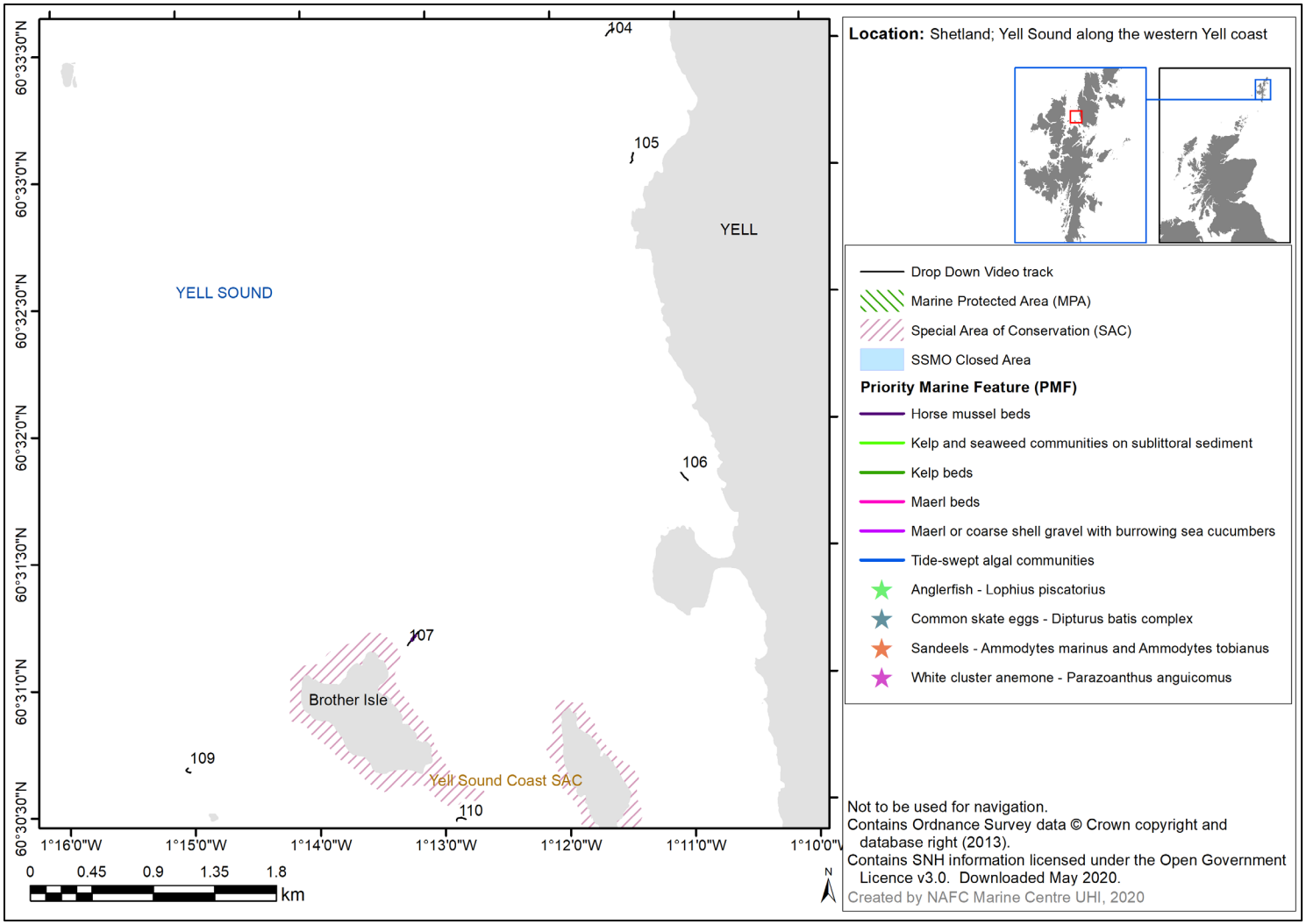


Figure 67: Priority Marine Features (PMF) identified from 2019 surveys and their corresponding drop down video tows (tow numbers shown) in eastern Yell Sound and around Brother Isle, with protected areas shown.

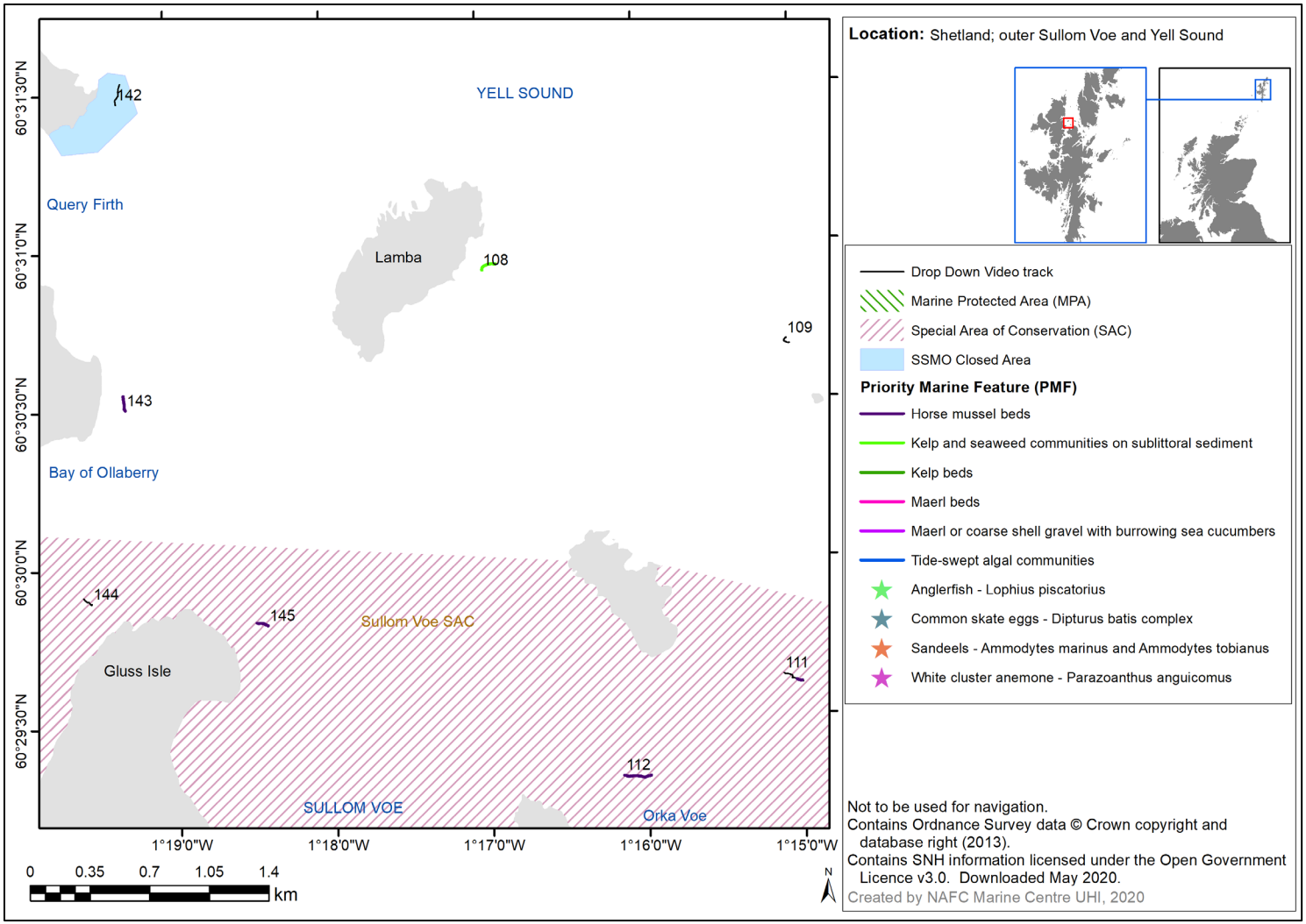


Figure 68: Priority Marine Features (PMF) identified from 2019 surveys and their corresponding drop down video tows (tow numbers shown) in western Yell Sound and outer Sullom Voe, with protected areas shown.

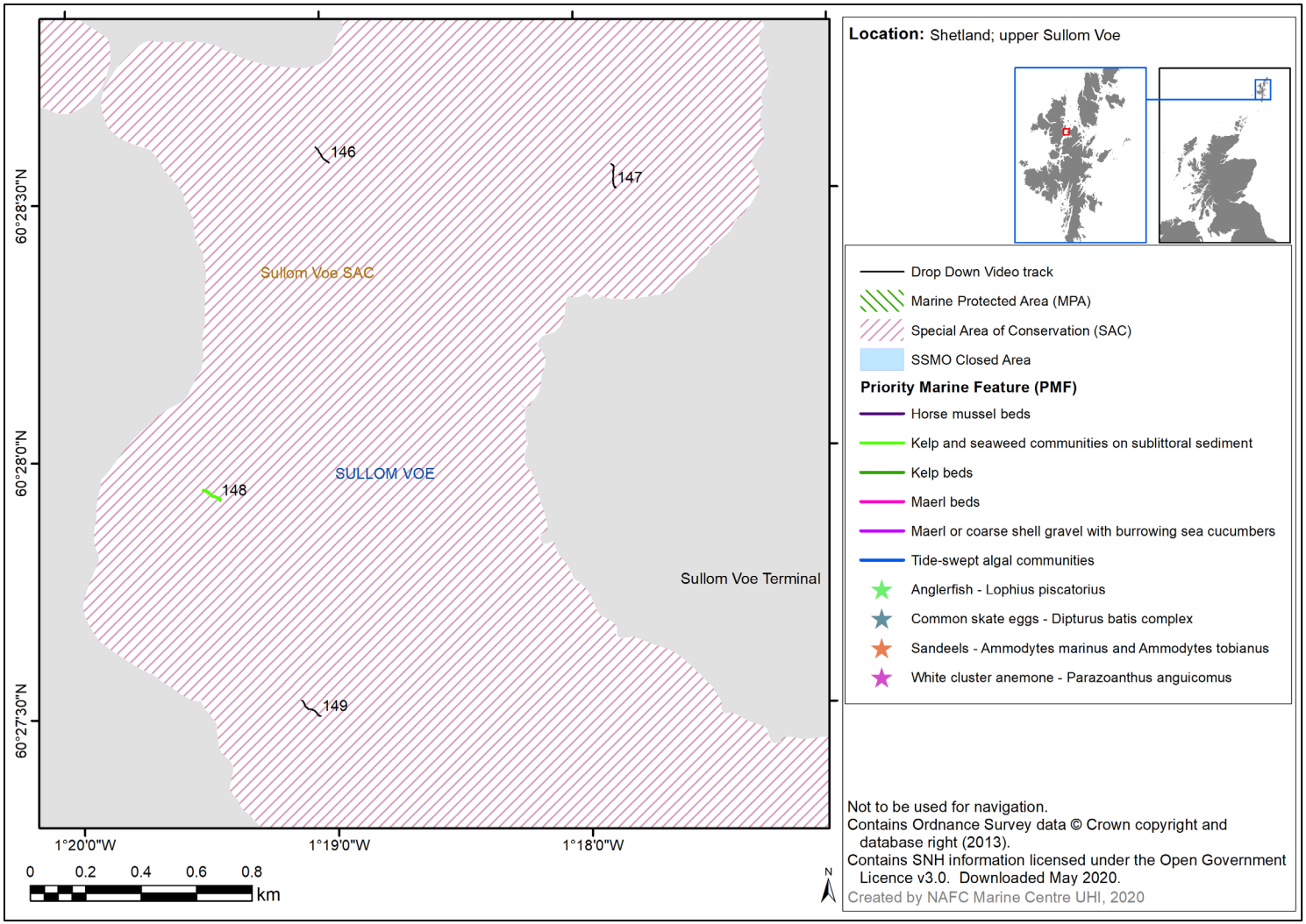


Figure 69: Priority Marine Features (PMF) identified from 2019 surveys and their corresponding drop down video tows (tow numbers shown) in upper Sullom Voe, with protected areas shown.

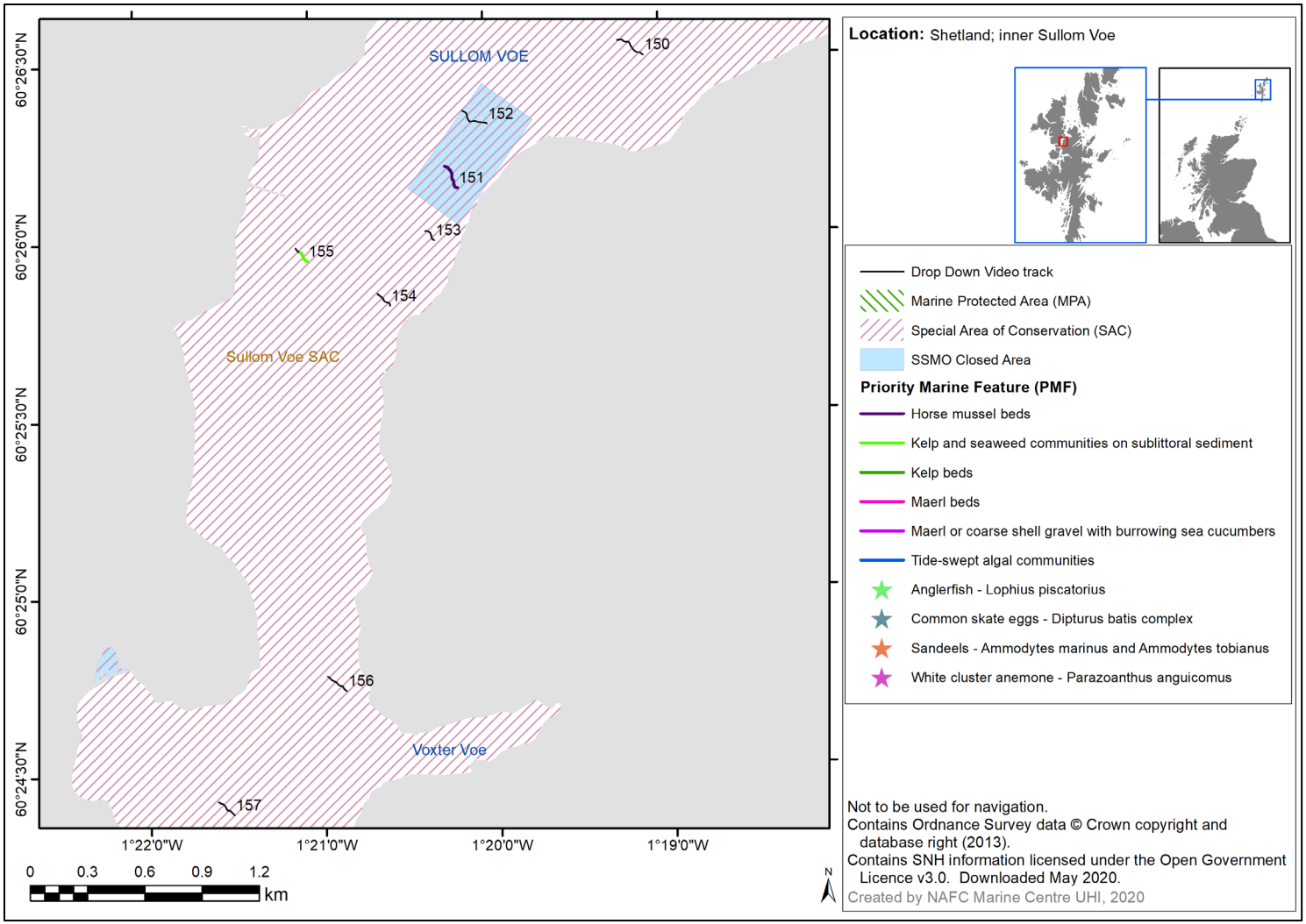


Figure 70: Priority Marine Features (PMF) identified from 2019 surveys and their corresponding drop down video tows (tow numbers shown) in inner Sullom Voe, with protected areas shown.

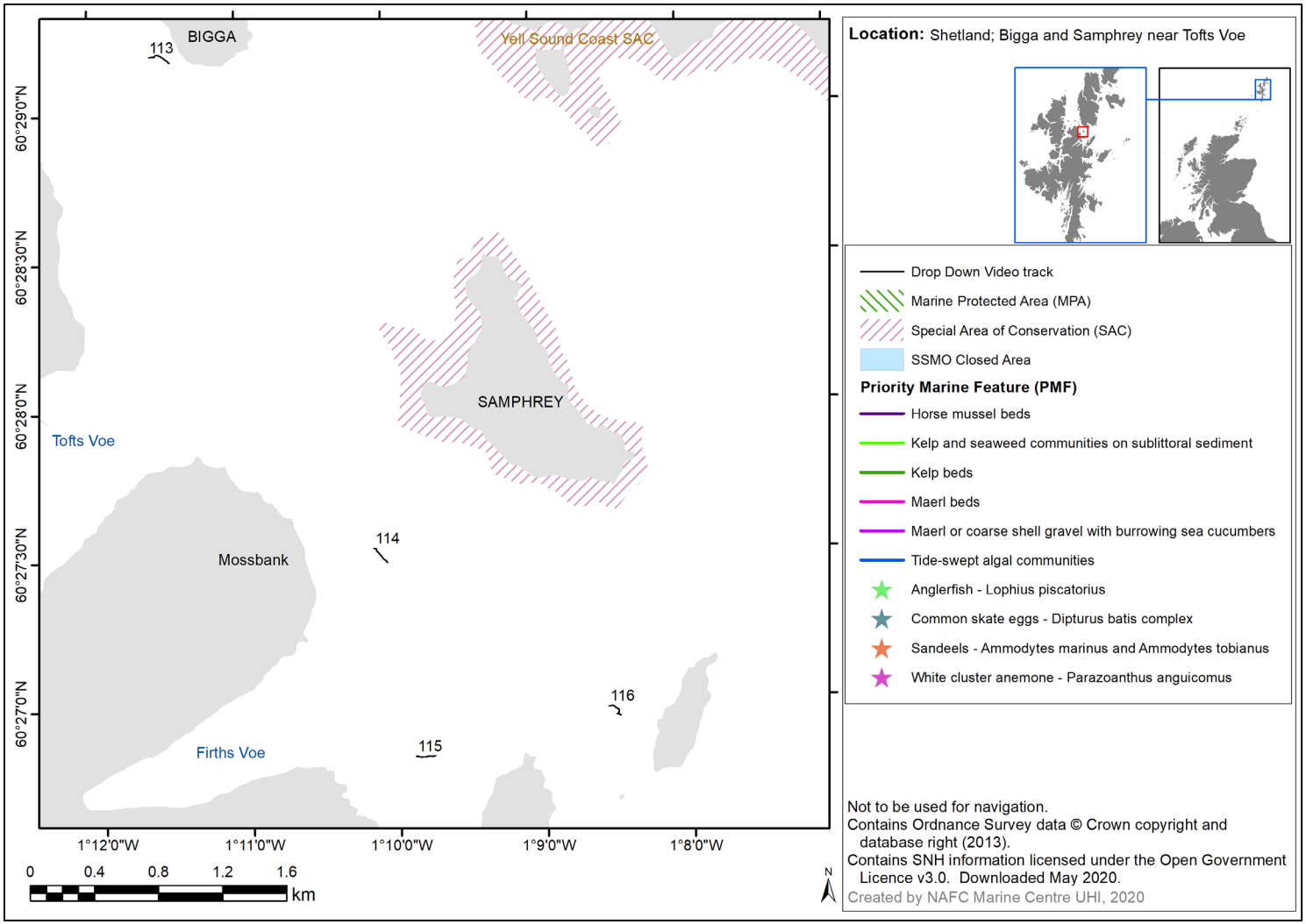


Figure 71: Priority Marine Features (PMF) identified from 2019 surveys and their corresponding drop down video tows (tow numbers shown) at the southeast entrance to Yell Sound, with protected areas shown.

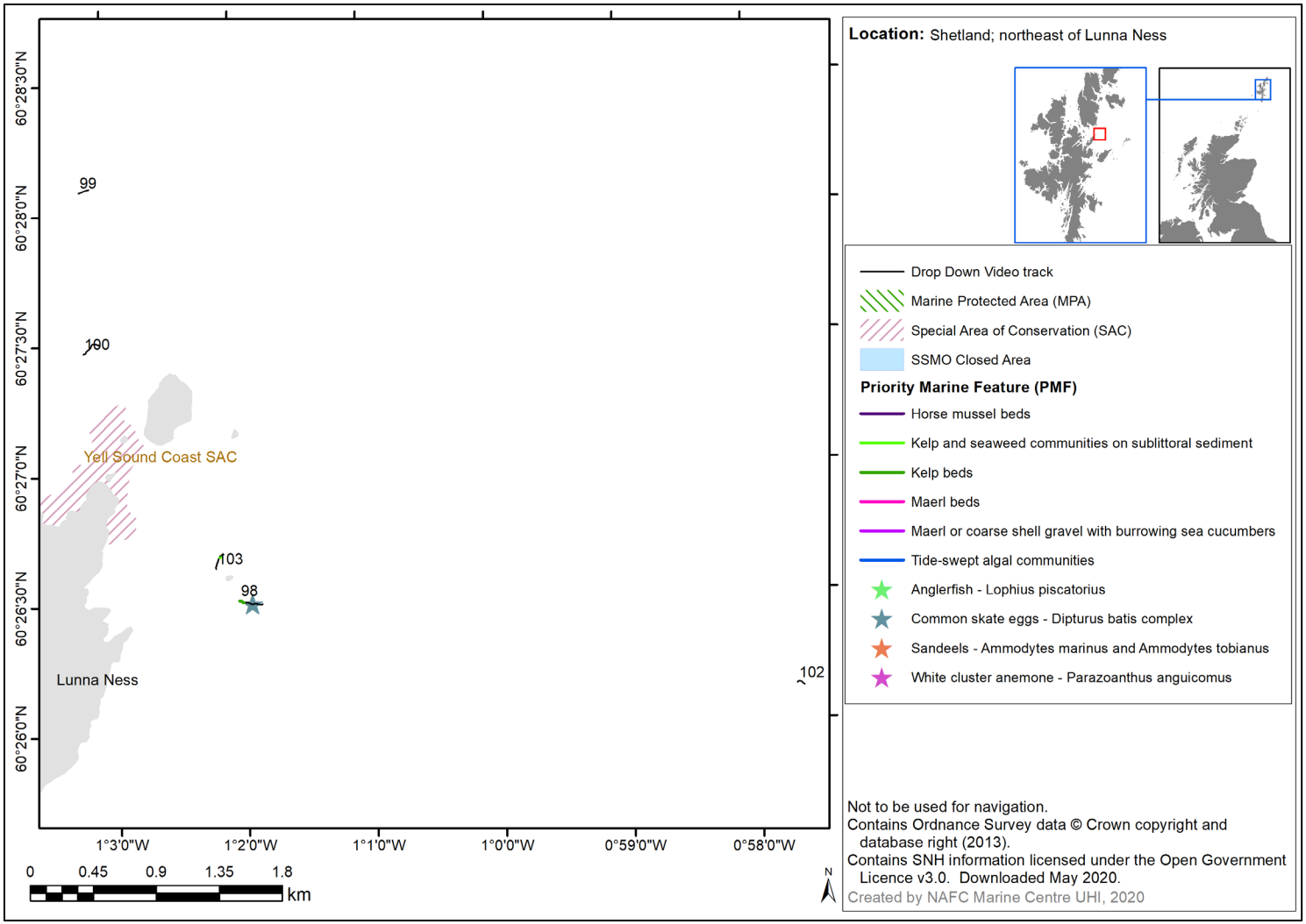


Figure 72 :Priority Marine Features (PMF) identified from 2019 surveys and their corresponding drop down video tows (tow numbers shown) northeast of Lunna Ness, with protected areas shown.

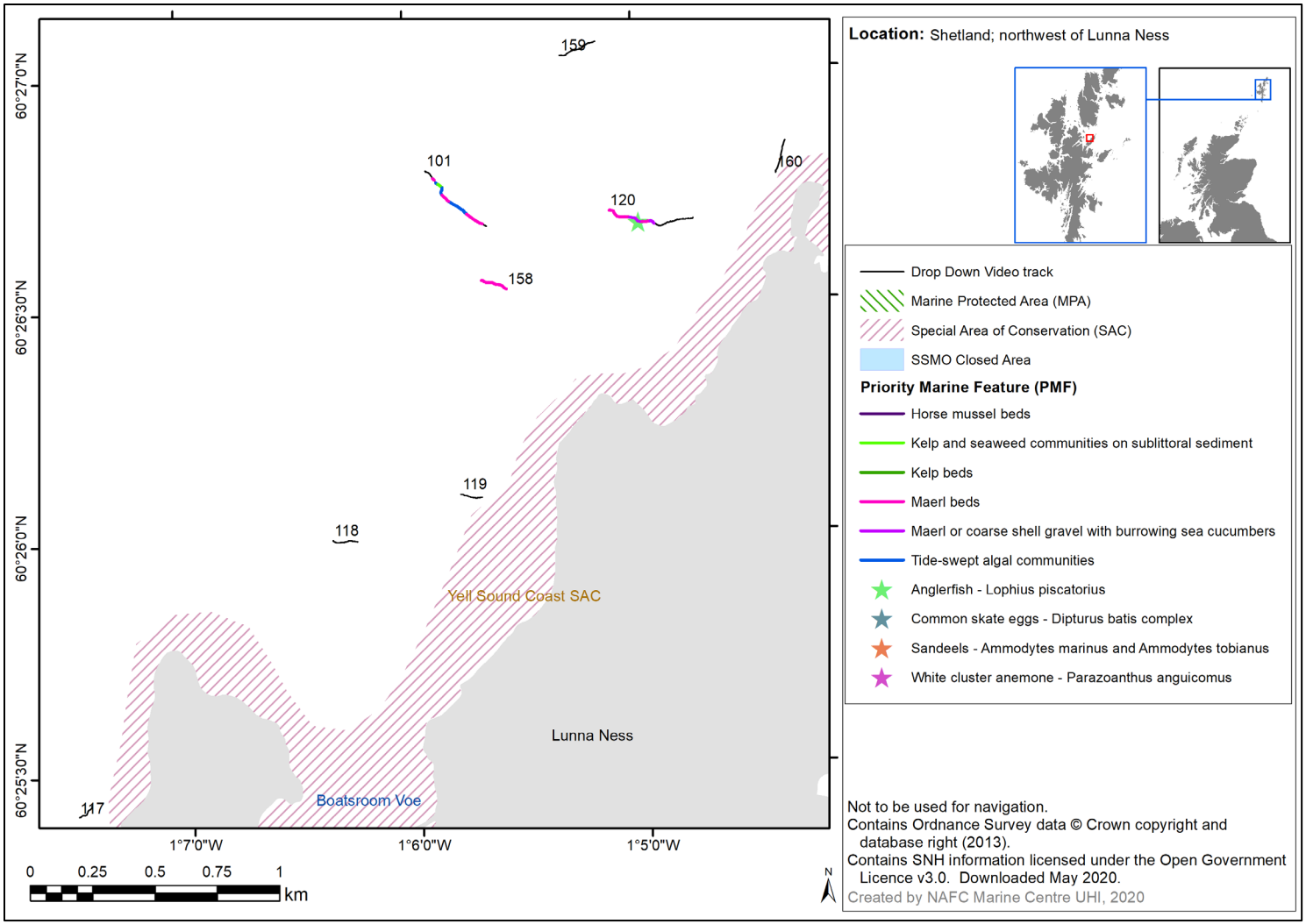


Figure 73: Priority Marine Features (PMF) identified from 2019 surveys and their corresponding drop down video tows (tow numbers shown) northwest of Lunna Ness, with protected areas shown.

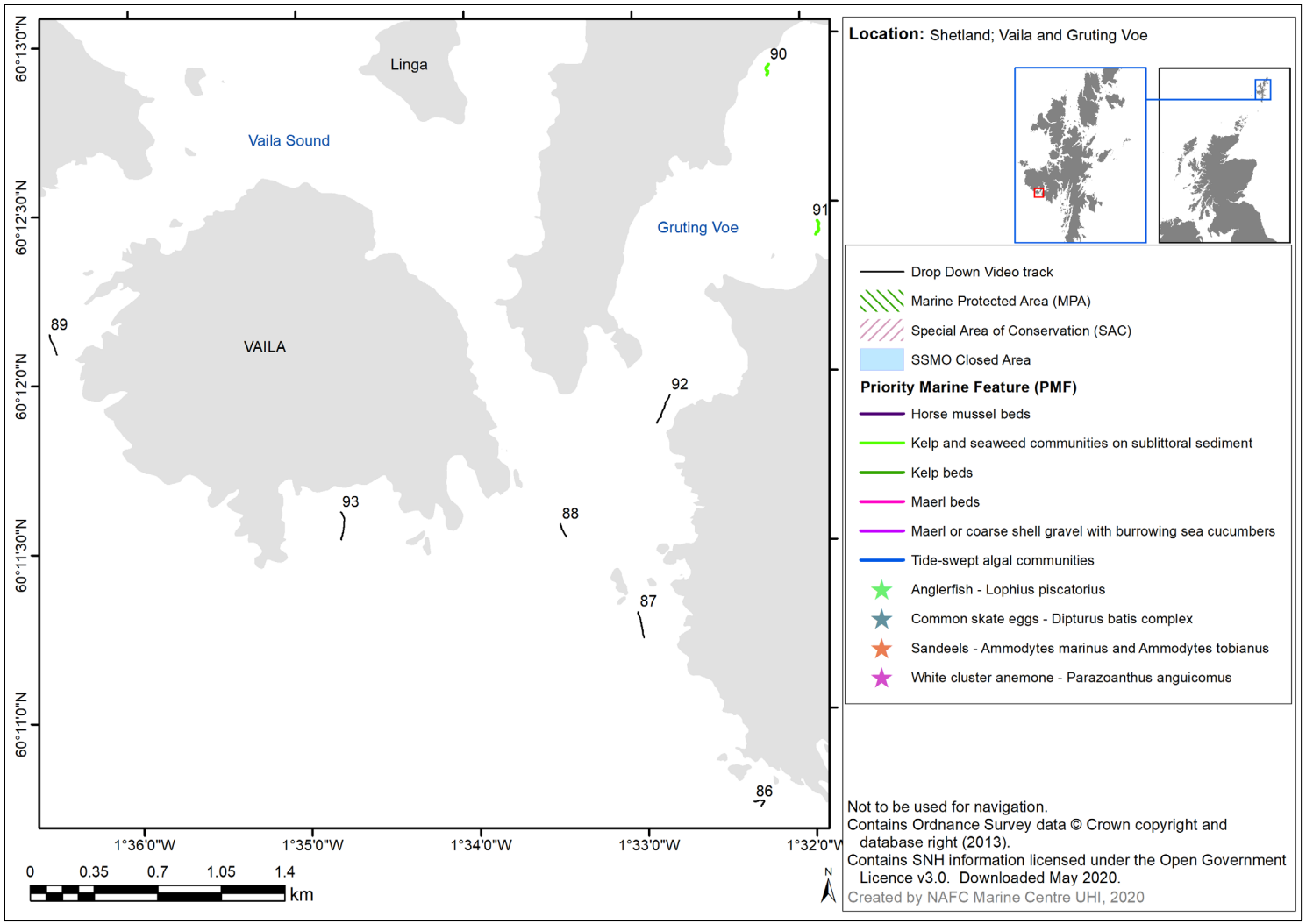


Figure 74: Priority Marine Features (PMF) identified from 2019 surveys and their corresponding drop down video tows (tow numbers shown) around Gruting Voe and Vaila, with protected areas shown.

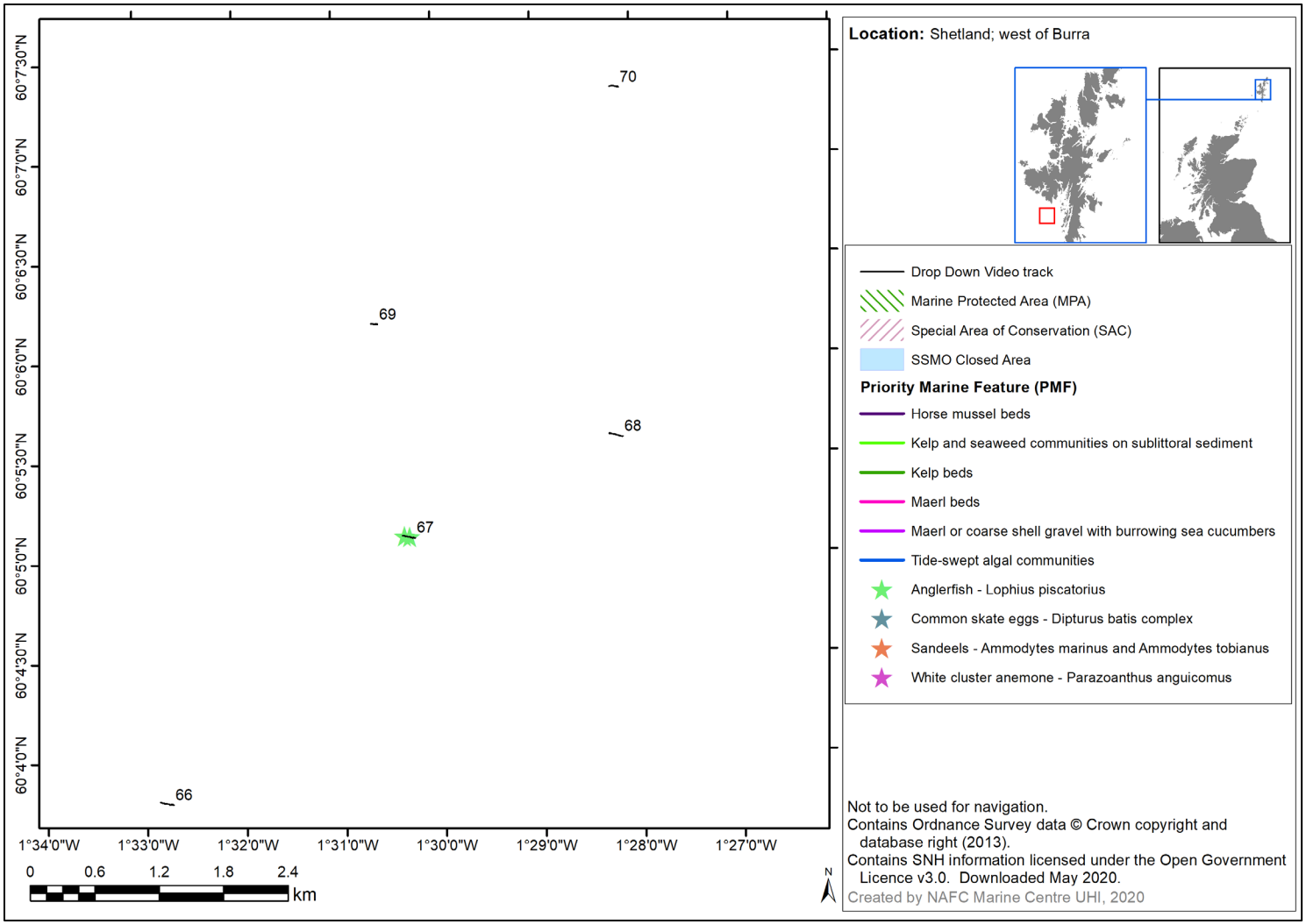


Figure 75: Priority Marine Features (PMF) identified from 2019 surveys and their corresponding drop down video tows (tow numbers shown) offshore to the west of Burra.

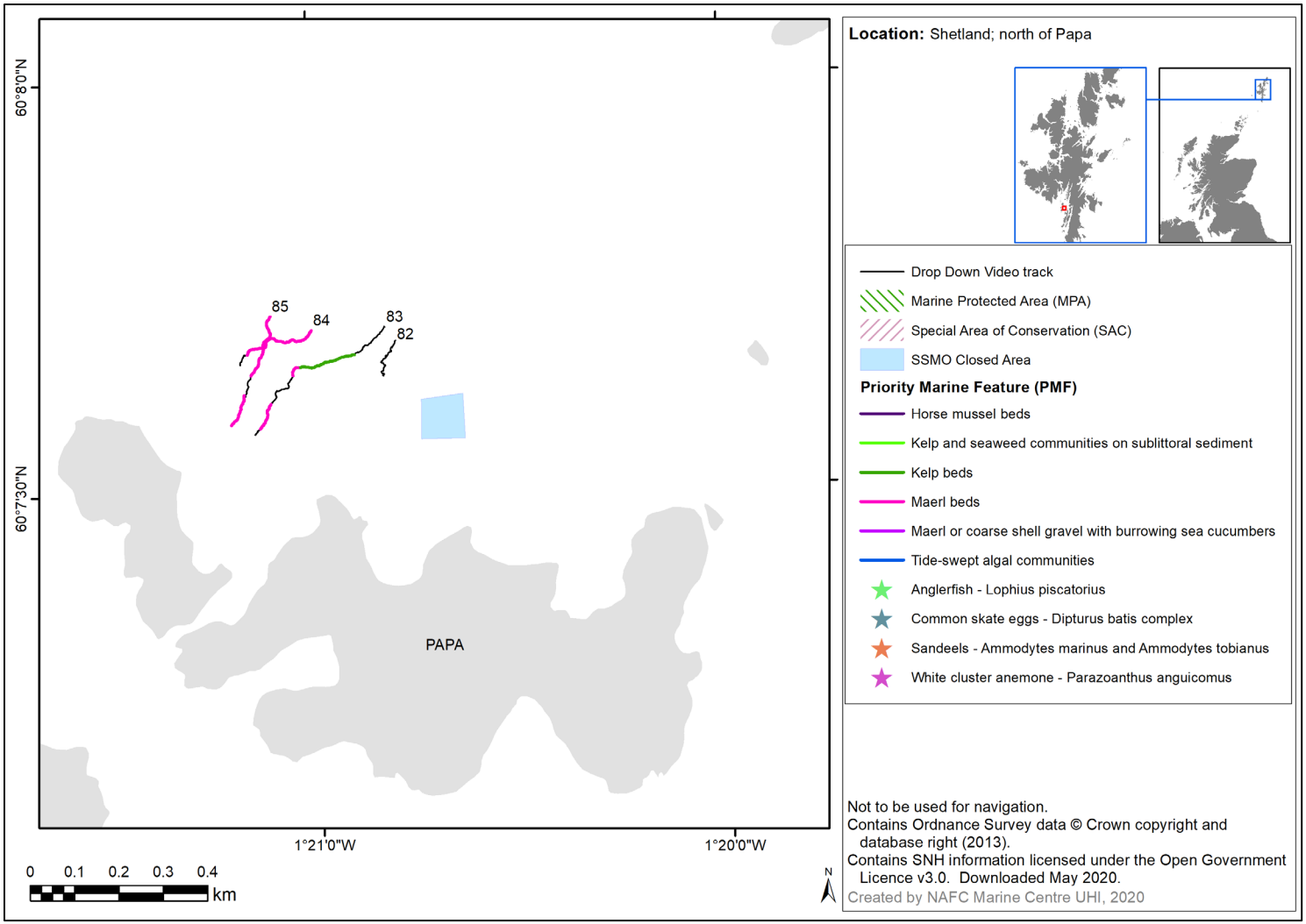


Figure 76: Priority Marine Features (PMF) identified from 2019 surveys and their corresponding drop down video tows (tow numbers shown) north of Papa, with protected areas shown.

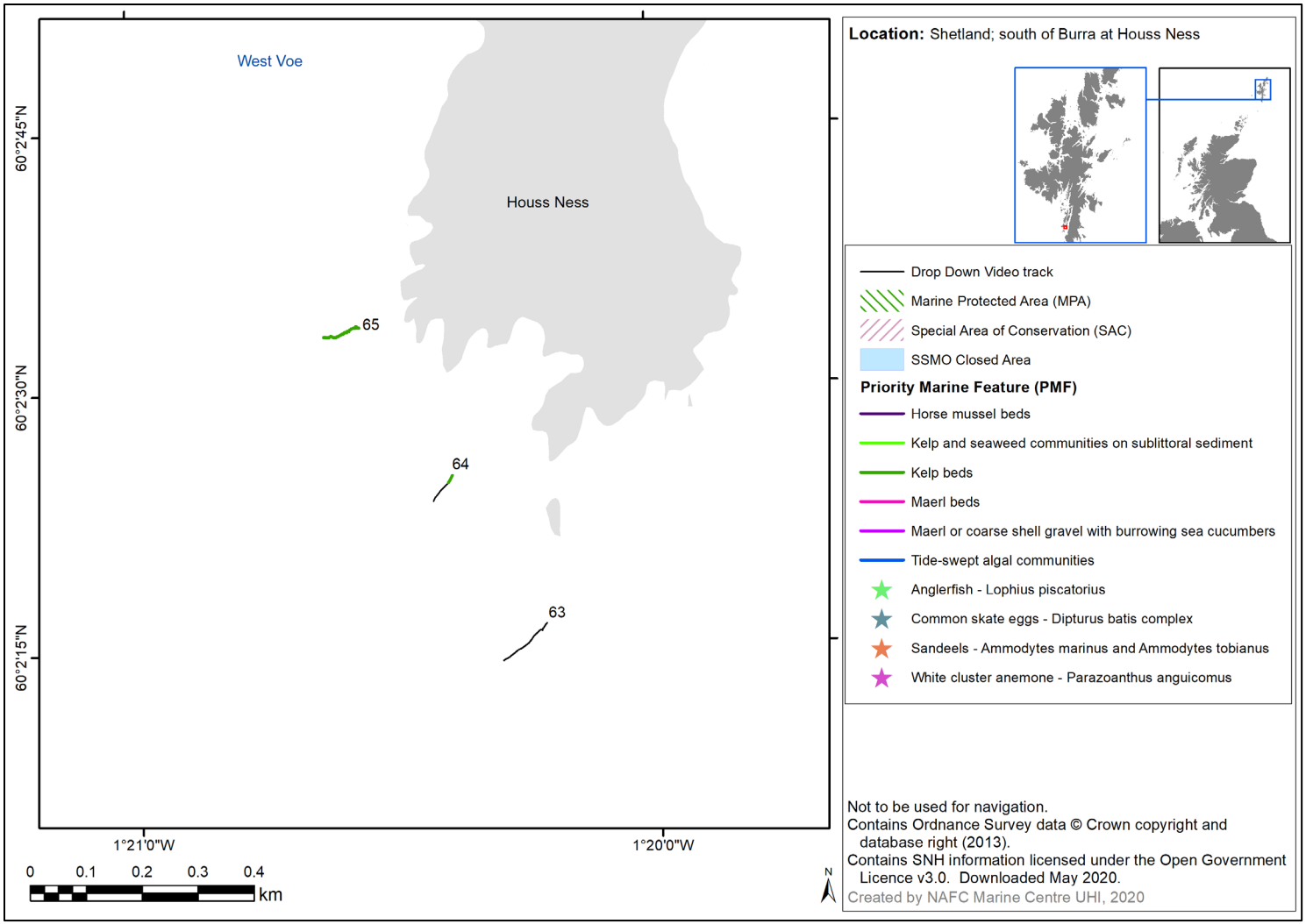


Figure 77: Priority Marine Features (PMF) identified from 2019 surveys and their corresponding drop down video tows (tow numbers shown) south of Burra.

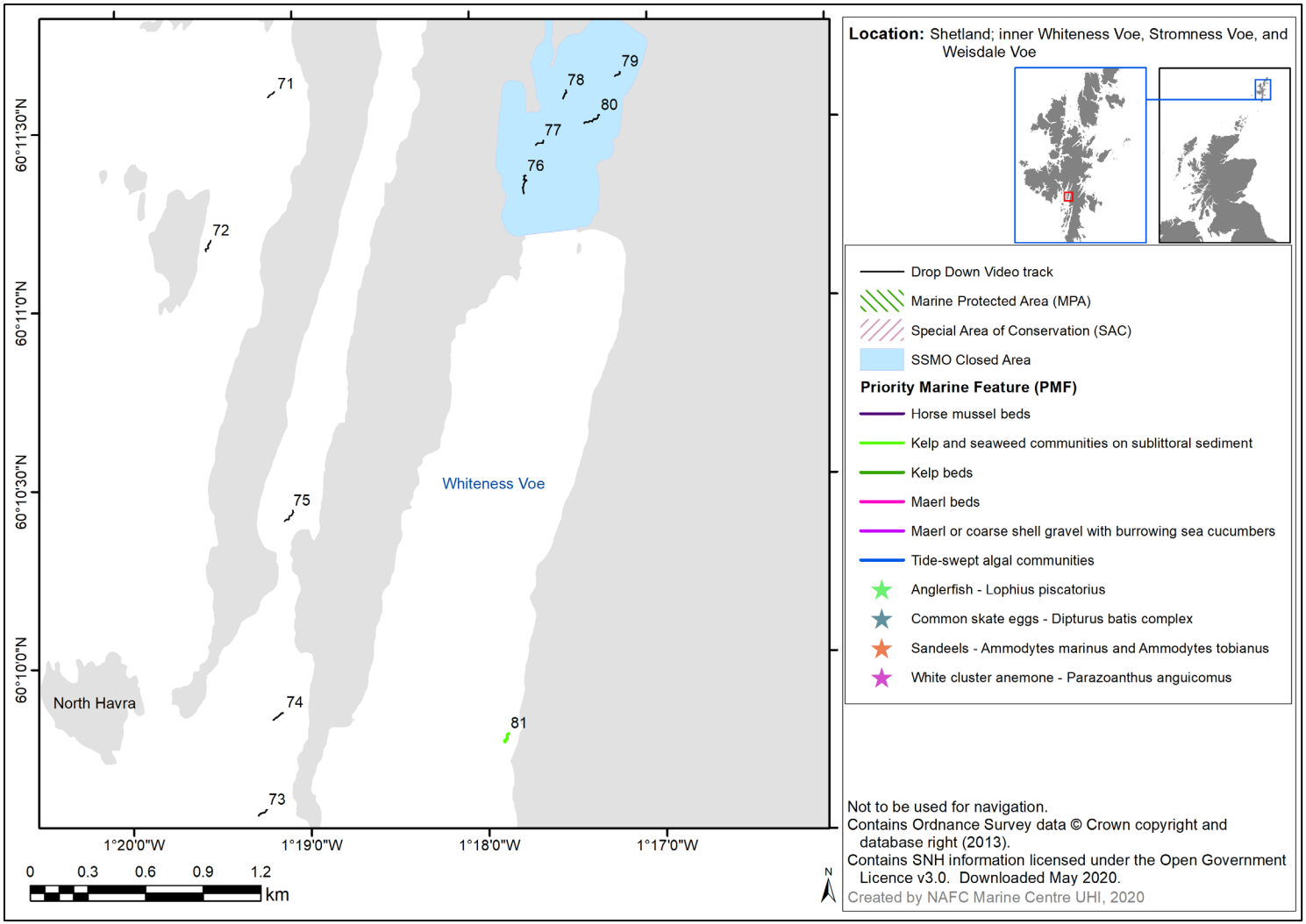


Figure 78: Priority Marine Features (PMF) identified from 2019 surveys and their corresponding drop down video tows (tow numbers shown) in, and to the west of, Whiteness Voe, with protected areas shown.

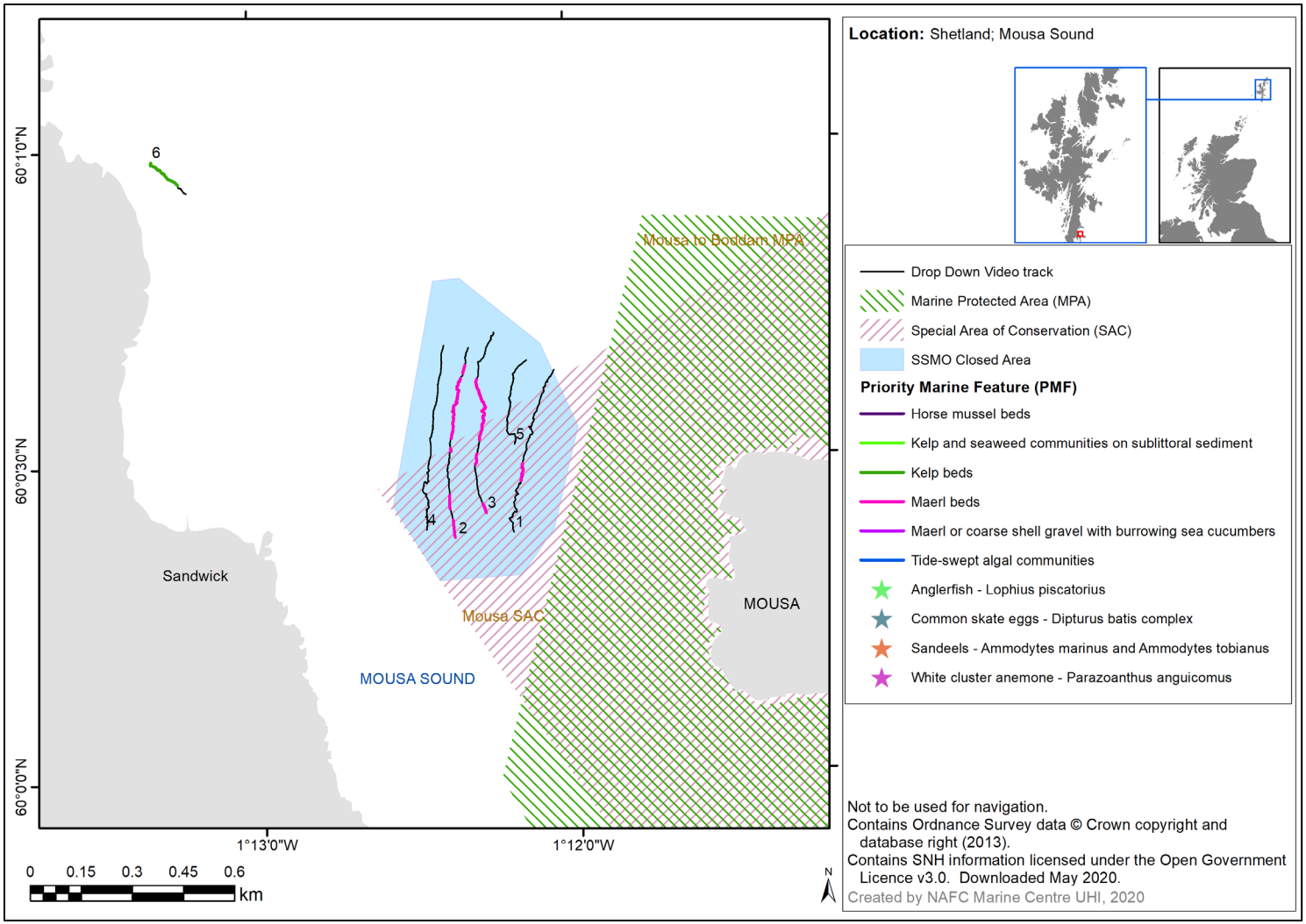


Figure 79: Priority Marine Features (PMF) identified from 2019 surveys and their corresponding drop down video tows (tow numbers shown) in Mousa Sound and north of Mousa Sound, with protected areas shown.

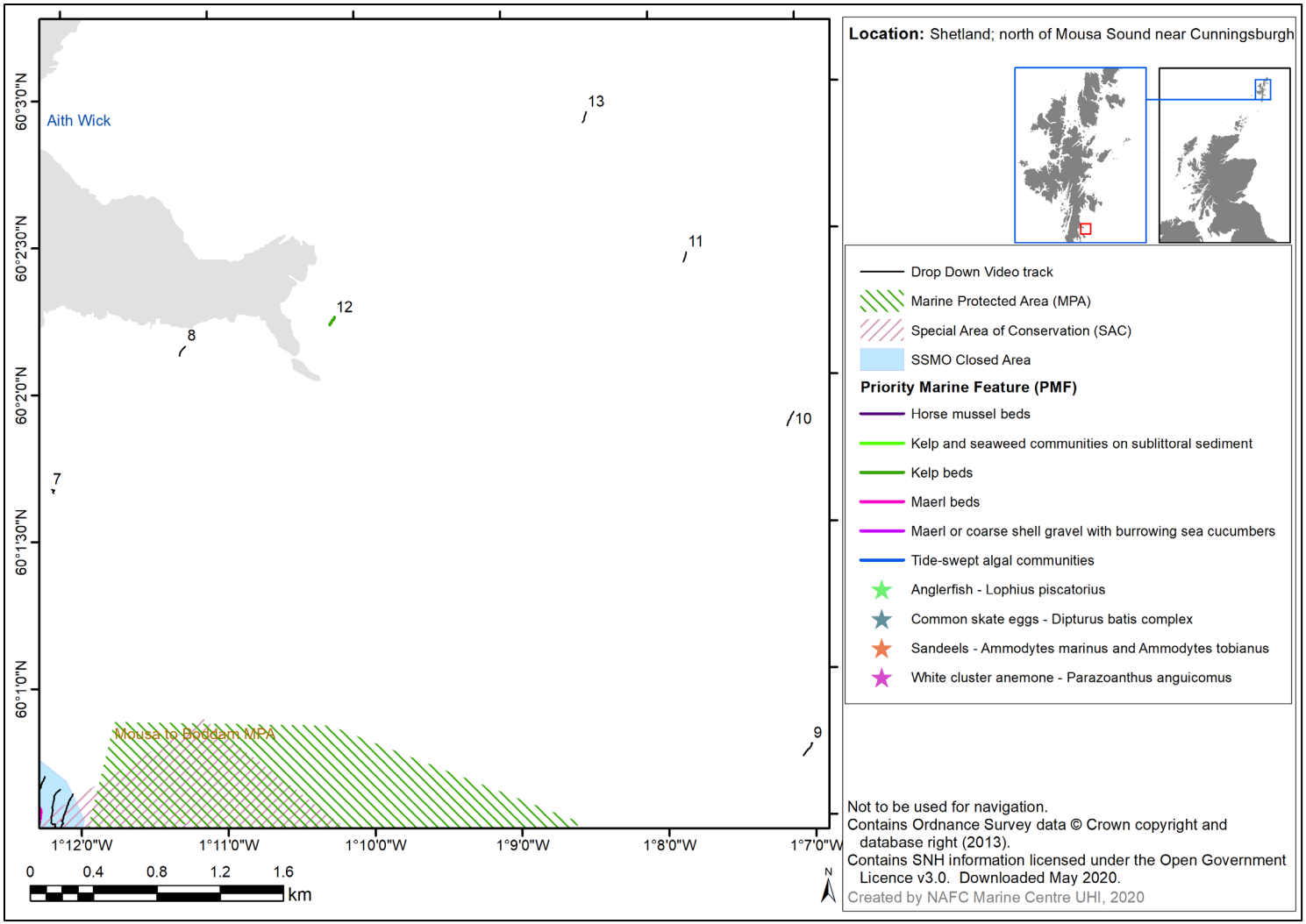


Figure 80: Priority Marine Features (PMF) identified from 2019 surveys and their corresponding drop down video tows (tow numbers shown) to the east of Aith Wick and Cunningsburgh, with protected areas shown.

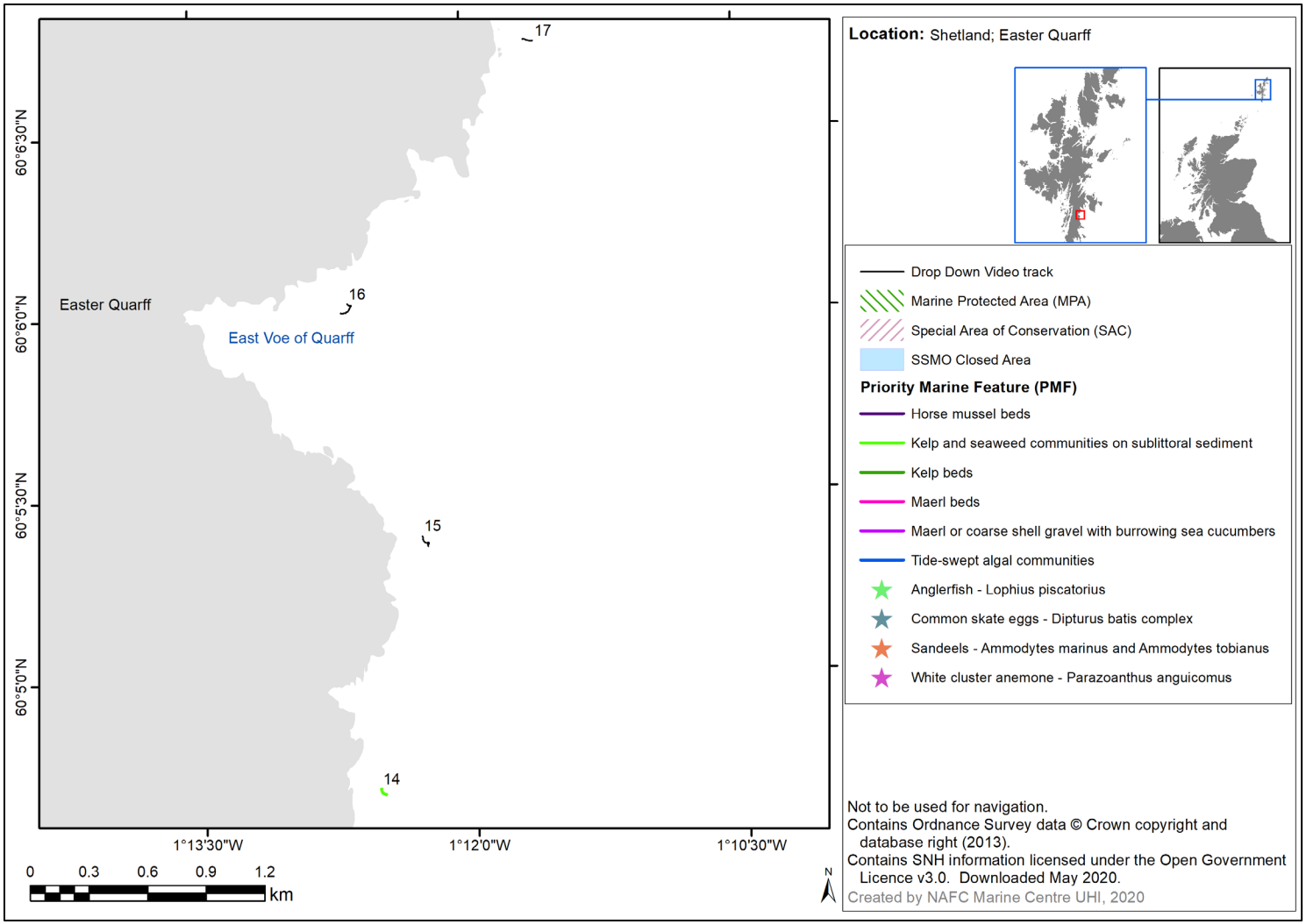


Figure 81: Priority Marine Features (PMF) identified from 2019 surveys and their corresponding drop down video tows (tow numbers shown) in the vicinity of East Voe of Quarff.

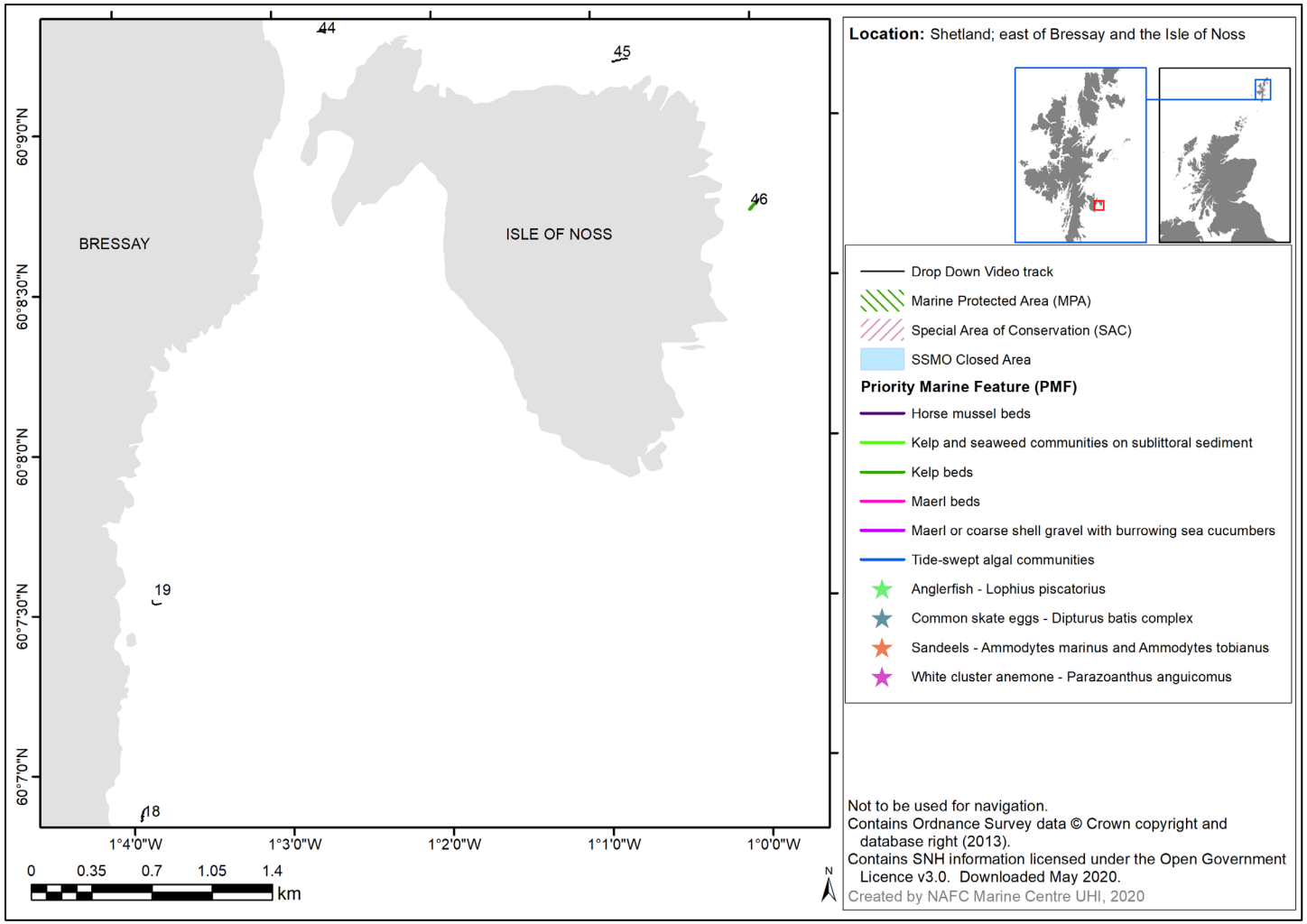


Figure 82: Priority Marine Features (PMF) identified from 2019 surveys and their corresponding drop down video tows (tow numbers shown) to the west of Bressay and around the Isle of Noss.

Summary of priority marine features across all survey areas

Across all the survey areas, eight priority marine feature (PMF) habitats from 413 tows were observed; with six PMF habitats observed in Inner Sound on 85 tows, six PMF habitats in Islay and Jura from 144 locations, five PMF habitats in Orkney from 118 locations, and five PMF habitats in Shetland at 66 locations (Table 2).

Two low or limited mobility PMF species were observed on 106 tows (the northern sea fan and white cluster anemones), 74 in Inner Sound, 32 in Islay and Jura, and no observations in Orkney or Shetland. Two mobile PMF species (angler fish and sandeel) and two mobile PMF species' eggs (common skate and herring) were observed during the surveys on 11 tows, three in Inner Sound on four tows, two in Islay and Jura on two tows, one in Orkney, and two in Shetland on five tows (Table 2).

Table 2

Summary of drop down video tows where the presence of Priority Marine Features (PMFs) were recorded within the four survey regions. Values in brackets show the PMF constituent biotope and sub-biotope totals (Tyler-Walters et al., 2016).

Priority Marine Feature (PMF)	Inner Sound	Islay and Jura	Orkney	Shetland
Habitats				
Kelp beds	**6**	**25**	**25**	**21**
IR.HIR.KFaR.LhypR.Pk			(2)	
IR.HIR.KFaR.LhypR.Ft		(2)	(2)	
IR.HIR.KFaR.LhypR			(3)	
IR.MIR.KR.Lhyp.GzPk	(2)			(9)
IR.MIR.KR.Lhyp.GzFt				(3)
IR.MIR.KR.Lhyp.Pk	(2)	(3)		
IR.MIR.KR.Lhyp.Ft		(3)	(5)	(1)
IR.MIR.KR.LhypTX.Ft		(6)	(3)	(2)
IR.MIR.KR.LhypTX.Pk		(5)	(6)	(2)
IR.MIR.KR.LhypT.Pk			(1)	
IR.MIR.KR.LhypT.Ft				(1)
IR.MIR.KT	(2)	(5)		
IR.MIR.KT.XKTX		(1)	(3)	(3)

Kelp and seaweed communities on sublittoral sediments	**8**	**60**	**45**	**19**
SS.SMp.KSwSS	(8)	(24)	(12)	(10)
SS.SMp.KSwSS.LsacCho		(1)		
SS.SMp.KSwSS.LsacR		(3)	(3)	(7)
SS.SMp.KSwSS.LsacR.CbPb		(9)	(1)	
SS.SMp.KSwSS.LsacR.Gv		(1)		
SS.SMp.KSwSS.LsacR.Mu		(2)	(1)	
SS.SMp.KSwSS.Pcri		(20)	(28)	(2)
Burrowed mud	**20**	**25**	**2**	**0**
SS.SMu.CFiMu.MegMax	(7)	(17)	(1)	
SS.SMu.CFiMu.SpnMeg	(5)	(7)	(1)	
SS.SMu.CFiMu.SpnMeg.Fun	(4)			
Firework anemone, *Pachycerianthus multiplicatus*	(4)	(1)		
Maerl beds				
SS.SMp.Mrl	**13**	**10**	**25**	**16**
Maerl or coarse shell gravel with burrowing cucumbers				
SS.SCS.CCS.Nmix	5	3		2
Flame shell beds				
SS.SMx.IMx.Lim	**33**		**7**	
Horse mussel beds			**14**	**8**
SS.SBR.SMus.ModHAs			(13)	(1)
SS.SBR.SMus.ModT			(1)	(7)
Northern sea fan and sponge communities		**21**		
CR.HCR.XFa.SwiLgAs		(12)		
CR.MCR.EcCr.CarSwi		(7)		
CR.MCR.EcCr.CarSwi.LgAs		(2)		
Low or limited mobility species				
Northern feather star, *Leptometra celtica*	74	26		
White cluster anemone, *Parazoanthus anguicomus*		6		
Mobile species				

Skate eggs, *Dipturus intermedia* (count)	1(4)	1		1 (3)
Sand eels, *Ammodytes* spp.	1	1	1	
Atlantic herring eggs, *Clupea harengus*	2			
Anglerfish (monkfish), *Lophius piscatorius*				4

Discussion

Priority Marine Features (PMFs) were observed within each region surveyed, with observations both within and outside of designated sites (e.g. SACs or MPAs), and some tows showing these extending beyond the boundaries of the MPAs for which they are protected features. Within MPAs and SACs, some of these PMF records widen the knowledge of protected features within these sites e.g. Fetlar to Haroldswick MPA and Loch Sween SAC. A small number of observations of eggs of the PMF species common skate (*Dipturus spp.)* were recorded from Inner Sound, Islay and Jura, and from Shetland. The skate eggs were recorded on boulder slopes on each occurrence. The records from Islay and Jura were just outside the boundary of the MPA for this species (Loch Sunart to the Sound of Jura MPA). Combined with existing data these observations may help to further our knowledge of this species' reproductive behaviour.

A number of tows showed evidence of human impact, including broken shells and maerl gravels with high proportions of dead and broken maerl. Marine litter was noted at a number of tows and, on two occasions, at levels sufficient to pose a direct entanglement risk to marine life such as cetaceans and elasmobranchs (Tows 127 and 137 in inner and outer Loch na Beiste, Inner Sound and Tow172 in Orkney). A number of tows in Shetland showed levels of organic enrichment, indicated by a layer of organic material on the sediment surface, potentially due to adjacent finfish aquaculture sites.

Challenges exist when trying to identify flame shell nests from video footage (see section on "Problems encountered and limitations" below) and it is possible that flame shell beds may be under-recorded using drop down video footage alone. Maerl 'clumps' (sometimes associated with flame shell nests, see methods) were also observed at one locality in Shetland and may warrant future investigation. If caused by flame shells, the relatively low abundance (<10%) noted would not qualify as a bed. Nonetheless, if

present, it would represent the furthest north flame shell nest to have been found in the UK.

Northern sea fan (*Swiftia pallida*) records were limited to Islay and Jura and the surveys also provided new records for the white cluster anemone (*Parazoanthus anguicomus*). The northern feather star (*Leptometra celtica*) was found at a relatively large number of tows on the west coast of Scotland (Inner Sound and Islay and Jura). At some localities, high densities were observed on bedrock and on mixed substratum (see also additional information in "Suggested new biotopes" below). However, in Islay and Jura species' abundance was most commonly recorded as 'Occasional', with only five tows recorded as 'Frequent'. In contrast, in Inner Sound it was also recorded as 'Common', 'Abundant', and 'Super abundant'. Caution is required when recording *Leptometra celtica,* as high-quality footage is required to ensure crinoid species are distinguished accurately. On rock habitats *L. celtica* and *Antedon* spp, were observed to occur concurrently, whilst on mixed substrate, which account for a higher proportion of the observations in Inner Sound, *Leptometra celtica* was observed as the only and dominate fauna. In the latter environment it was easier to detect characteristic behavioural features of *L. celtica,* which can be used to distinguish the species from large *Antedon spp.*

The anglerfish (*Lophius piscatorius*), a mobile PMF species, was only recorded in Shetland.

Horse mussel beds were encountered in Shetland where horse mussels were observed on bedrock at a number of locations. They also occurred in moderate densities in voes and sounds, but not at densities to be classified as a bed (see section on "Suggested new biotopes").

Seaweed communities in Shetland seemed to be noticeably influenced by wave action, with several tows dominated by fast growing species such as *Saccharina latissima*.

Problems encountered and limitations

In order to effectively determine accurate biotope codes, it is necessary that an initial assignation of sediment types is carried out. Visual assessment and categorisation of sediment types, compared to laboratory particle size analysis, is likely to create some inaccuracy, despite quality control. Visual assessments assume a homogenous sediment type. It was evident that in some footage, primarily due to the action of

burrowing fauna, that thin overlays of sediment may be present over a different sediment type (both coarse and finer sediments). In these situations it was difficult to accurately categorise the sediment type solely through visual means. Supporting data from grabs would have allowed for more accurate categorisation.

Identification to species level from imagery is often not possible, particularly for algae, hydroid and bryozoan species. For red algal species in kelp beds this affects the capacity to distinguish between biotopes.

Some species which define biotopes, such as the sea cucumber, *Neopentadactyla mixta*, are not always readily observed in DDV analysis. This affects the level to which the biotope can be distinguished. In this instance, where maerl gravel with the sea cucumber are a PMF (SS.SCS.CCS.Nmix), it may lead to under recording of the habitat.

Due to the highly tidal nature of some of the locations surveyed resulting in difficulties regulating camera speed over the seabed, and subsequent effects on footage quality, in a small number of cases it was not always possible to quantify species observed. Where this occurred, it was clearly noted in Appendix 1 – Physical and biological descriptions of the survey sites. During the surveys, a weighted line was attached to the DDV frame to assist in camera depth positioning. At some of these tidal locations the weight caught onto seaweed, leading to the camera lens being obscured. On other occasions, where the weight dragged on the seabed minor localised abrasion of fauna occurred, making the footage less suitable for promotional purposes. In addition, in a small number of cases, bubbles on the lens caused problems, with the camera focusing on the bubbles rather than the seabed. It was felt that methods to reduce this could be examined, for instance the use of mask demisters might reduce bubble adherence. In a small number of cases the footage was not considered suitable for biotope coding for these reasons.

Flame shell beds were observed in Inner Sound and Orkney. Where flame shells were covered with epifauna or epiphytes, determining the presence of a bed was challenging from DDV footage alone. This was particularly apparent in Orkney where beds occurred under loose lying red algae. In addition, maerl ‘clumps’ were observed within maerl habitats in Orkney and Shetland, outside of areas where flame shells had previously been recorded, therefore, it was not possible to determine whether these related to flame shell nests or beds.

Vessel tow tracks are a crucial element of determining the degree of habitat extent. This survey provided two sources of tow track data, through a hand-held GPS unit housed in the vessel's wheelhouse, and via a GPS receiver connected with the Standard Definition (SD) DDV feed. Positions from the latter could only be extracted manually from the camera system used and had therefore to be used as a backup to the hand-held GPS. It was evident that there was significant interference, either through the wheelhouse itself or from other electronic equipment aboard, with the hand-held GPS, and the position information was also found to drop out. This meant that 45% of the tow tracks had to be re-calculated through manual extraction of positions from the SD feed. Ideally, the camera system itself should enable recording and download of track data from its GPS. Where a hand-held unit has to be used, positioning the unit outside to get better satellite signal, combined with regular checks that positional information is being recorded and, if available, a map display of the vessel's position would improve accuracy. Reducing the recording frequency of the GPS unit would also have improved the usability of the data. The recording frequency from this work was set very high at a second interval. Such a high recording frequency provided very detailed positional data but also provided pitch and roll information of the vessel which was displayed as loops of varying sizes in the vessel track. This looping created issues in the processing of the GIS information creating doubt on the quality of the positional data.

Suggested new biotopes

While undertaking the analysis, habitats were observed that did not readily fit the existing biotope classifications.

Leptometra celtica aggregations on mixed substrate - The northern feather star, *Leptometra celtica*, was found on both bedrock and on mixed substrate. At some localities it was recorded as abundant and super abundant and the main conspicuous epifauna. Currently, there is no biotope that specifically includes or is defined by *Leptometra celtica* and it was felt that its high abundances at some sites warranted a distinct and separate biotope code. This may further aid the conservation of this species.

Aequipecten opercularis on mixed sediments - the queen scallop, *Aequipecten opercularis*, was observed at high levels at some sites (super abundant and abundant) and it was felt could warrant an additional biotope classification.

Maerl on muddy sediments - maerl overlying muddy habitats does not readily fit the current maerl bed definitions that are normally used within Scotland. Although all maerl habitats were only categorised to maerl bed (SS.SMp.Mrl) it was felt that this habitat may benefit from an additional biotope Level 5 categorisation.

Sparse horse mussels on mixed substrate - horse mussels, *Modiolus modiolus*, were observed as dominant fauna at some locations but at densities (Frequent, F or Occasional, O) that did not qualify as a horse mussel bed. It was felt that these habitats would benefit from an additional biotope code to avoid the misclassification of these habitats into beds,.

Horse mussels on bedrock - horse mussels, were observed on bedrock at a number of sites within Shetland, both on the rock and in very small sand pockets on the rock, as well as in adjacent gullies. This habitat was observed at a number of sites but does not currently fit any biotope code (either for a mussel bed or a bedrock habitat).

Circalittoral mobile sand with sparse fauna - at a number of exposed locations circalittoral fine sand was observed to be faunally sparse, particularly in Shetland and Orkney. While grab samples may reveal the presence of infaunal communities, it was felt that a separate Level 5 category of faunally sparse fine sand could be considered (as per SS.SSa.IFiSa.IMoSa).

The sea pen, *Virgularia mirabilis*, was recorded at high levels as the dominant fauna on infralittoral and circalittoral muddy sand and sandy mud habitats, often the dominant epifauna. These observations and habitats did not all readily fit into an existing biotope beyond Level 4.

Brittlestars, *Ophiura* spp., were recorded as the dominant epifauna at several sites but did not fit any classification beyond Level 4. It is acknowledged that in sediment communities, biotope defining fauna may be infaunal, but given the prevalence of this epifaunal community an assessment of the biotope(s) it associates with may assist in Level 5 classification via DDV, or highlight the need for an additional habitat within Level 5.

References

ERT (Scotland) Ltd. 2006 Site Condition Monitoring: surveys of lagoons in the Vadills Lagoon Special Area of Conservation, July–August 2003. Scottish Natural Heritage Commissioned Report No. 209 (ROAME No. F02AA409c).

Howson, C & Mercer, T. 2012. Video Survey for the Sound of Islay Cable Route. Client – Scottish Power Renewables.

Hirst, N. E., Kamphausen, L. M., Cook, R. L., Porter, J. S. and Sanderson, W. G. 2013. Distribution and status of proposed protected features in the Fetlar to Haroldswick MPA proposal. Scottish Natural Heritage. (Commissioned Report No. 599). pp. 125.

JNCC 2015 The Marine Habitat Classification for Britain and Ireland Version 15.03. [30/04/2020]. Available from: https://mhc.jncc.gov.uk/

Kamphausen, L. 2019. SNH Orkney PMF validation dive survey. 4-5 Oct 2019. Field Report. Scottish Natural Heritage.

Turner, J.A., Hitchin, R., Verling, E., van Rein, H. 2016. Epibiota remote monitoring from digital imagery: Interpretation guidelines. NMBAQ

Shelmerdine, R. L. and Mouat, B. 2018. Mapping features to the southeast of the Papa Stour SAC. NAFC Marine Centre report. pp. 45

Shelmerdine, R. L., Stone, D., Leslie, B. and Robinson, M. 2014. Implications of defining fisheries closed areas based on predicted habitats in Shetland: a proactive and precautionary approach. *Marine Policy*, **43**: 184-199.

Shelmerdine, R. L., Robinson, M., Johnson, A., Leslie, B., Stone, D. and Tait, L. 2013. Assessment of the appropriateness of areas closed to protect priority marine features from scallop dredging around Shetland. NAFC Marine Centre. NAFC Marine Centre Report. pp. 166.

Tyler-Walters H., James, B., Carruthers, M. (eds.), Wilding, C., Durkin, O., Lacey, C., Philpott, E., Adams, L., Chaniotis, P.D., Wilkes, P.T.V., Seeley, R., Neilly, M., Dargie, J.

& Crawford-Avis, O.T. 2016. Descriptions of Scottish Priority Marine Features (PMFs). *Scottish Natural Heritage Commissioned Report No. 406*.

Appendix 1

Physical and biological descriptions of the survey sites

Table 1

Physical and biological descriptions of the survey sites in Inner Sound. HB= PMF habitat, LS= PMF low mobility species, MS= PMF mobile species MSE= PMF mobile species eggs.

Site ID	Substrate	Biota	Biotope	PMF
InnerSound_001.1	cobbles and pebbles	*Laminaria hyperborea* (O), *Crossaster papposus* (R), *Marthasterias glacialis* (R), *Hyas* sp. (R)	SS.SMp.KSwSS	**HB**
InnerSound_001.2	Coarse sand and gravel with shell occasional boulder	*Limaria hians* nest 80% cover (S), continuous, *Laminaria hyperborea* (O) on top of nests, *Pecten maximus* (R)	SS.SMx.IMx.Lim	**HB**
InnerSound_001.3	Vertical bedrock	*Laminaria hyperborea* (A), encrusting coralline algae (C), red algae (F), *Echinus esculentus* (O), *Crenilabrus melops* (O)	IR.MIR.KR.LhypVt	

InnerSound_002	Coarse sand and gravel with shell occasional boulder	*Limaria hians* nest 80% cover, continuous, *Laminaria hyperborea* (O) on top of nests, *Crossaster papposus* (F), *Urticina felina* (F)	SS.SMx.IMx.Lim	**HB**
InnerSound_003	Coarse sand and gravel with shell	*Limaria hians* nest 80% cover, continuous, *Laminaria hyperborea* (F) on top of nests, red algae on kelp stipes (F), *Crossaster papposus* (O), *Urticina felina* (F), *Asterias rubens* (O), *Hyas araneus* (O)	SS.SMx.IMx.Lim	**HB**
InnerSound_004	Coarse sand and gravel with shell, difficult to distinguish substrate Limaria nests very dense	*Limaria hians* nest 90% cover, continuous, *Laminaria hyperborea* (F) on top of nests, red algae on kelp stipes (F), *Crossaster papposus* (O), *Urticina felina* (F), *Hyas araneus* (O), Hydroid sp (C), *Echinus esculentus* (O), *Henricia oculata* (R)	SS.SMx.IMx.Lim	**HB**
InnerSound_005.1	Sandy shell with stones and boulders	*Laminaria hyperborea* (F), Echinus esculentus (R)	SS.SMp.KSwSS	**HB**

InnerSound_005.2	Sandy shell with stones and boulders	*Laminaria hyperborea* (O), *Ophiocomina nigra* (A)	SS.SMx.IMx	
InnerSound_005.3	Coarse sand and gravel with shell, difficult to distinguish substrate Limaria nests very dense	*Limaria hians* nest 80% cover, continuous, *Laminaria hyperborea* (O) on top of nests, red algae on kelp stipes (F), *Crossaster papposus* (O), *Urticina felina* (F), *Hyas araneus* (O), Hydroid sp. (C), *Echinus esculentus* (O), *Asterias rubens* (F), *Ophiocomina nigra* (A), *Ophiothrix fragilis* (S) changed from *Ophiocomina nigra* to *Ophiothrix fragilis* 06:64 and then back to *Ophiocomina nigra* 08:00, red algae turf (C), *Necora puber* (R), *Cancer Pagurus* (O), *Luidia ciliaris* (F),	SS.SMx.IMx.Lim	**HB**
InnerSound_006	Coarse sand and gravel with shell, difficult to distinguish	*Limaria hians* nest 80% cover, *Crossaster papposus* (O), *Urticina felina* (F), *Hyas araneus* (O), Hydroid sp. (C),	SS.SMx.IMx.Lim	**HB**

	substrate Limaria nests very dense	*Echinus esculentus* (O), *Asterias rubens* (F), *Ophiocomina nigra* (A) mixed with *Ophiothrix fragilis* (S) red algae turf (C), *Luidia ciliaris* (F), *Alcyonium digitatum* (R)		
InnerSound_007	Coarse sand and gravel with shell, difficult to distinguish substrate Limaria nests very dense	*Limaria hians* nest 80% cover, *Crossaster papposus* (O), *Urticina felina* (O), *Hyas araneus* (O), Hydroid sp. (C), *Echinus esculentus* (F), *Asterias rubens* (F), *Ophiocomina nigra* (A) mixed with *Ophiothrix fragilis* (S) red algae turf (O), *Luidia ciliaris* (F), *Alcyonium digitatum* (R)	SS.SMx.IMx.Lim	**HB**
InnerSound_008	Coarse sand gravel with boulders with Limaria nests from 21 seconds between turning into dense Limaria nests	*Limaria hians* nest 80% cover, *Laminaria hyperborea* (C) up to 3:39 *Crossaster papposus* (O), *Urticina felina* (O), *Hyas araneus* (O), Hydroid sp. (C), *Echinus esculentus* (O), *Asterias rubens* (F), *Ophiocomina nigra* (A) 5:08 mixed with *Ophiothrix fragilis*	SS.SMx.IMx.Lim	**HB**

		(S) at 5:54 red algae turf (O), *Luidia ciliaris* (F), *Alcyonium digitatum* (R), *Antedon* sp. (C) up to 3:30, *Necora puber* (R), *Marthasterias glacialis* (R)	
InnerSound_009	Shelly sand with occasional boulders after 60 seconds occasional cobbles and stones	kelp on boulders first 60 seconds *Laminaria hyperborea*? (O), *Ophiura albida* (C), *Echinus esculentus* (F), *Pecten maximus* (O), drift algae (F), *Ensis* sp? burrows (F)	SS.SMx.IMx
InnerSound_010	Shelly sand with stones and cobbles	*Spirobranchus triqueter* (O) on the stones, *Munida rugosa* (C), encrusting coralline algae (O), *Pecten maximus* (F), *Lanice conchilega* (O)	SS.SMx.CMx
InnerSound_011	Shelly sand with stones turning into cobbles and boulder with shelly sand at 4 minutes	*Porania pulvillus* (F), *Luidia ciliaris* (O), *Echinus esculentus* (F), *Asterias rubens* (O), *Antedon* sp. (F) on the boulders, encrusting coralline algae (O) on boulders, *Pecten maximus* (O)	SS.SMx.CMx

InnerSound_012	Shelly coarse sand, stones and cobbles	*Marthasterias glacialis* (O), *Echinus esculentus* (O), encrusting coralline algae (O) on boulders, *Ophiura albida* (C), burrows in sediment *Ensis* sp? (F), *Lanice conchilega* (R), *Pagurus bernhardus* (R), *Ascidiella aspersa*? (O), *Aequipecten opercularis* (O)	SS.SMx.CMx
InnerSound_013	Bedrock with boulders and cobbles with shelly sand patches, turning into stones with shelly sand to muddy sand	*Antedon* sp. (F) on boulders, *Echinus esculentus* (O), encrusting coralline algae (O) on boulders, *Pagurus bernhardus* (F), *Ascidiella aspersa*? (O), *Diazona violacea* (O) on boulders, *Ascidiella virginea*(F), *Luidia ciliaris* (O), *Porania pulvillus* (O), *Munida rugosa* (F), *Scyliorhinus canicula* egg case (R)	SS.SMx.CMx
InnerSound_014	shelly sand with cobbles turning into	*Antedon* sp. (O) on boulders, *Echinus esculentus* (O), encrusting coralline algae (O)	SS.SMx.CMx

	shelly sand with stones	on cobbles and stones, *Ascidiella aspersa*? (O) *Munida rugosa* (F), *Asterias rubens* (R), *Lanice conchilega* (R), *Aequipecten opercularis* (O), *Pecten maximus* (R), *Cerianthus lloydii* (R)		
InnerSound_015	Muddy sand, with occasional boulder turning into more stone/cobble with shelly sand	*Modiolus modiolus* (F) clumps?, difficult to distinguish live from dead shell, potential *Limaria hians* nest? (F), at the start of the run up to 2 minutes, small burrows (O) between the clumps, filamentous red algae (F) on the clumps, *Leptometra celtica* (C), *Marthasterias glacialis* (O), *Nemertesia ramosa* (O), *Munida rugosa* (F), *Porania pulvillus* (F), *Henricia oculata* (F), *Echinus esculentus* (F), *Luidia ciliaris* (O), *Inachus dorsettensis* (R), *Ensis* (R), *Buccinum undatum* eggs (R), *Aequipecten*	SS.SMx.CMx	**LS**

		opercularis (C), *Pecten maximus* (F)		
InnerSound_016	Muddy sand with stones at the end of the run	*Cerianthus lloydii* (C), small burrows (F), *Ophiura albida* (F), *Ascidiella aspersa* (C), algal turf (F), *Inachus dorsettensis* (O)	SS.SMx.CMx.ClloMx	
InnerSound_017	Muddy sand with shell, stones and cobbles	*Pecten maximus* (O), *Munida rugosa* (C), *Luidia ciliaris* (F)	SS.SMx.CMx	
InnerSound_018	Muddy sand with shell and stones	*Pecten maximus* (O), *Munida rugosa* (O), *Luidia ciliaris* (C), *Ophiura albida* (F), *Ophiura ophiura* (O), *Antedon* sp. (O), *Pagurus bernhardus* (O), *Liocarcinus depurator* (R), *Aequipecten opercularis* (F), *Echinus esculentus* (O)	SS.SMx.CMx	
InnerSound_019.1	Muddy sand with shell and stones	red filamentous algal turf (A) *Modiolus modiolus* (R), *Luidia ciliaris* (C), *Nemertesia ramosa* (O), seabed looks clumpy, there is potential for *Limaria hians* nests ? (F)	SS.SMp.KSwSS	**HB**

InnerSound_019.2	Muddy sand with shell and stones	*Munida rugosa* (C), *Luidia ciliaris* (C), *Ophiura albida* (F), *Antedon* sp. (F), *Aequipecten opercularis* (A), *Asterias rubens* (O), *Suberites carnosus* (R), *Porania pulvillus* (R), *Nemertesia ramosa* (O), Hydroids (O)	SS.SMx.CMx	
InnerSound_020	Muddy sand with shell and stones turning into boulders and stones from 6 minutes	red filamentous algal turf (A) but becomes patchy as the run gets deeper until 6 minutes, *Modiolus modiolus* (O), *Munida rugosa* (C), *Luidia ciliaris* (F), *Ophiura albida* (F), *Antedon* sp. (F), *Aequipecten opercularis* (F), encrusting coralline algae (F) on stones and boulders, *Ciona intestinalis* (F) on boulders, *Buccinum undatum* eggs (O) on boulders, *Asterias rubens* (O), *Echinus esculentus* (O), *Aphrodita aculeata* (R), small burrows (F), *Saccharina latissima* (R)	SS.SMp.KSwSS	**HB**

InnerSound_021	Mud with some shell	Small burrows (F), large burrows (F), *Munida rugosa* (R), *Buccinum undatum* (R)	SS.SMu.CFiMu.MegMax	**HB**
InnerSound_022	Muddy sand, with boulders and stones (6 minutes) towards the end of the run	dead maerl 40% (C) with live patches of maerl (O), large burrows (F), small burrows (C), *Saccharina latissima* (F), often attached to clumps of live maerl, *Cerianthus lloydii* (F), *Metridium senile* (R), attached to boulders 6 minutes into the run, *Echinus esculentus* (O), *Marthasterias glacialis* (F), *Pecten maximus* (R)	SS.SMx.IMx	
InnerSound_023.1	Sandy shell with stones and boulders	*Ophiura albida* (F), *Ophiocomina nigra* (F), *Aequipecten opercularis* (F), *Echinus esculentus* (O), *Luidia ciliaris* (F), *Porania pulvillus* (R), red algae on boulders (F), *Alcyonium digitatum* (R), *Leptometra celtica* (R)	SS.SMx.CMx	**LS**

InnerSound_023.2	Muddy sand maerl gravel	*Limaria hians* nest 35% cover, patchy nests not continuous, some dead maerl in nest material, *Saccharina latissima* (F), *Aequipecten opercularis* (F), *Marthasterias glacialis* (F), *Henricia oculata* (R), *Leptometra celtica* (O)	SS.SMx.IMx.Lim	**HB, LS**
InnerSound_024	Mearl (60%), sandy mud (40%)	live maerl 60% (A), *Ophiocomina nigra* (F), *Saccharina latissima* (C)	SS.SMp.Mrl	**HB**
InnerSound_025		Not possible to analyse quality too low		
InnerSound_026	Muddy sand with occasional boulders	*Pecten maximus* (R), red algal turf (C), *Saccharina latissima* (O), *Ophiura albida* (F), *Echinus esculentus* (O), *Marthasterias glacialis* (O). Video quality very poor.	SS.SMp.KSwSS	**HB**
InnerSound_027.1	Mud with some shell	*Virgularia mirabilis* (C), large burrows (3-15cm) (C), small burrow (1-3cm) (F), *Pecten maximus* (O), *Cerianthus lloydii* (F), *Munida rugosa* (O)	SS.SMu.CFiMu.SpnMeg	**HB**

InnerSound_027.2	Mud with some shell, stones and boulders	*Leptometra celtica* (F), *Saccharina latissima* (O), red algal turf (F), *Echinus esculentus* (O), *Asterias rubens* (O), *Henricia oculata* (R), *Suberites carnosus* (R)	SS.SMx.CMx	**LS**
InnerSound_028	Sandy shell with stones and boulders	*Echinus esculentus* (F), *Pecten maximus* (F), *Metridium senile* (O) on boulders, encrusting coralline algae (O) on rocks, *Antedon* sp. (F), *Leptometra celtica* (O), *Marthasterias glacialis* (O), *Luidia ciliaris* (O), *Ophiura ophiura* (F), *Porania pulvillus* (R), *Pagurus bernhardus* (F), *Cancer Pagurus* (R), *Munida rugosa* (O), *Lanice conchilega* (R)	SS.SMx.CMx	**LS**
InnerSound_029	Sandy mud with shell and stones	*Echinus esculentus* (O), encrusting coralline algae (O) on stones, *Leptometra celtica* (O), *Porania pulvillus* (R), *Pagurus bernhardus* (O), *Munida rugosa* (C), solitary	SS.SMx.CMx	**LS**

		ascidian (O), *Aequipecten opercularis* (R)		
InnerSound_030	Mud	*Virgularia mirabilis* (F), large burrows (3-15cm) (C), small burrow (1-3cm) (F)	SS.SMu.CFiMu.SpnMeg	**HB**
InnerSound_031	Mud with shell, stones and cobbles	*Ophiura albida* (R), *Aequipecten opercularis* (O), *Echinus esculentus* (O), filamentous red algal on stones (F), *Ophiura ophiura* (F), *Munida rugosa* (F), *Pecten maximus* (O), *Suberites carnosus* (R), *Inachus dorsettensis* (O), *Leptometra celtica* (O)	SS.SMp.KSwSS	**HB, LS**
InnerSound_032	Muddy sand with occasional cobbles to frequent cobbles towards the end fo the run	*Laminaria hyperborea* (F) on the cobbles, parchment tubes in in the sediment at beginning of run (F), *Echinus esculentus* (F) on cobbles and kelp, *Antedon* sp. (F) on kelp stipes, algal turf on stones and shell (F), *Luidia ciliaris* (O)	SS.SMp.KSwSS	**HB**

InnerSound_033	Sandy mud with shell and stones and cobbles towards the end of the run coarse sand & shell	*Aequipecten opercularis* (C) at the start of the run, red algal turf on shell and stones (C), *Munida rugosa* (O), *Suberites carnosus* (O), *Modiolus modiolus* (F) 04:44 onwards difficult to tell live from dead due to being covered in red algal turf (C), *Laminaria hyperborea* (F) towards end of run, *Antedon* sp. (F) on kelp, *Asterias rubens* (F), *Marthasterias glacialis* (C), *Echinus esculentus* (F), *Hyas araneus* (O), Potential patches of *Limaria hians* but not possible to determine with certainty or quantify	SS.SMp.KSwSS	**HB**
InnerSound_034.1	Mud with shell towards the end of the run	small worm casts (O), *Cerianthus lloydii* (O), small burrows (O), filamentous red algae turf on shell (F), lots of dead shell *Modiolus modiolus* and *Turritella communis* just	SS.SMu.CFiMu	

		before muddy slope, *Leptometra celtica* (R)		
InnerSound_034.2	Mud/muddy slope with boulders and shell and flattens out at the top	*Aequipecten opercularis* (R), red algal turf on shell (C), *Laminaria hyperborea* (R) *Leptometra celtica* (F) on boulders, solitary tunicate (F), *Echinus esculentus* (O), barnacles on the boulders (F), Macropodia rostrata (O), *Henricia oculata* (O)	SS.SMp.KSwSS	**HB, LS**
InnerSound_035.1	Mud	large burrows (C), small burrows (C), *Cerianthus lloydii* (O)	SS.SMu.CFiMu.MegMax	**HB**
InnerSound_035.2	Mud with shell and boulders	*Pecten maximus* (F), *Munida rugosa* (O), *Marthasterias glacialis* (C), *Luidia ciliaris* (O), *Ophiura albida* (O), filamentous red algae turf (O), *Modiolus modiolus*? (O)	SS.SMx.CMx	
InnerSound_036	Coarse gravel shell with stones and boulders	*Munida rugosa* (O), *Marthasterias glacialis* (F), *Echinus esculentus* (F), *Antedon* sp. (F) on boulders, encrusting bryozoan (R) on	SS.SMx.CMx	

		boulders, encrusting coralline algae (F) on boulders, *Suberites carnosus* (R), *Spirobranchus triqueter* (F) on boulders, drift kelp (F)	
InnerSound_037	Muddy sand with shell, stones and occasional cobbles	*Munida rugosa* (O), *Marthasterias glacialis* (O), encrusting coralline algae (R) on boulders, small burrows (C), *Porania pulvillus* (R), *Ophiura albida* (O), *Pecten maximus* (O), *Henricia oculata* (O), drift kelp (O)	SS.SMx.CMx
InnerSound_038	Stones with coarse gravel/shell occasional cobble	encrusting coralline algae (C) on stones, *Porania pulvillus* (O), *Henricia oculata* (O), *Echinus esculentus* (O), *Spirobranchus triqueter* (F) on stones, *Antedon* sp. (F)	SS.SMx.CMx
InnerSound_039	Coarse shell (empty razor shells (C))/sand with occasional stones	encrusting coralline algae (C) on shell and stones, *Porania pulvillus* (R), Hydroids sp. (F) on stones and shell, *Nemertesia sp.* (O), *Antedon* sp. (R), *Ophiura albida* (O)	SS.SMx.CMx

InnerSound_040	Coarse gravel/shell with stones and occasional cobble/boulders towards end of run	encrusting coralline algae (C) on shell and stones, *Porania pulvillus* (F), Hydroids sp. (F) on stones and shell, *Leptometra celtica* (A), *Echinus esculentus* (O), *Luidia ciliaris* (R), *Marthasterias glacialis* (R), *Asterias rubens* (R), *Munida rugosa* (O), *Pecten maximus* (F) towards end of run, *Pagurus prideaux* (R), *Lanice conchilega* (R), *Spirobranchus triqueter* (F) on stones and shell	SS.SMx.CMx	**LS**
InnerSound_041	Coarse gravel/shell with stones and occasional cobble/boulders towards end of run	*Porania pulvillus* (F), *Echinus esculentus* (O), *Luidia ciliaris* (R), *Munida rugosa* (C), *Pecten maximus* (O), barnacles on cobbles (F), *Crossaster papposus* (R), *Lanice conchilega* (R), *Buccinum undatum* (O), *Ascidiella virginea*(F)	SS.SMx.CMx	

InnerSound_042	Coarse gravel/shell with stones and cobbles/boulders.	*Porania pulvillus* (F), *Echinus esculentus* (O), *Munida rugosa* (O), *Pecten maximus* (O), barnacles on boulders (O), encrusting coralline algae (C) on stones, cobbles & boulders, *Pecten maximus* (O), *Antedon* sp. (C) towards end of run, *Ophiura albida* (O) towards end of run, *Leptometra celtica* on boulders (F)	SS.SMx.CMx	**LS**
InnerSound_043.1	Fine sand with shell sand waves	*Ophiura albida* (C) on sediment, *Asterias rubens* (R)	SS.SSa.CFiSa	
InnerSound_043.2	Bedrock and boulders with sand patches	*Asterias rubens* (R), *Echinus esculentus* (F) on boulders, encrusting coralline algae (C) on boulders, *Antedon* sp. (F) on boulders,	CR.MCR.EcCr.FaAlCr	
InnerSound_043.3	Fine sand with shell sand waves	*Ophiura albida* (C) on sediment, *Pecten maximus* (R)	SS.SSa.CFiSa	
InnerSound_043.4	Bedrock and boulders with sand patches	*Asterias rubens* (R), *Echinus esculentus* (F) on boulders, encrusting coralline algae (C)	CR.MCR.EcCr.FaAlCr	

		on boulders, *Antedon* sp. (F) on boulders,	
InnerSound_044	Bedrock and boulders with sand patches	*Echinus esculentus* (F), encrusting coralline algae (C)	CR.MCR.EcCr.FaAlCr
InnerSound_045.1	Bedrock and boulders with sand patches	*Echinus esculentus* (F), encrusting coralline algae (C)	CR.MCR.EcCr.FaAlCr
InnerSound_045.2	Maerl gravel	live maerl 5% (O), but patchy, dead maerl (70%), *Porania pulvillus* (R)	SS.SCS.CCS
InnerSound_046	Bedrock and boulders with sand patches	*Laminaria hyperborea* (O), *Antedon* sp. (F), *Porania pulvillus* (F), *Echinus esculentus* (F), *Desmarestia* sp. (R), filamentous red algae (F), encrusting coralline algae (F), *Munida rugosa* (O), *Pholis gunnellus* (O)	CR.MCR.EcCr.FaAlCr
InnerSound_047.1	Sand with shell, stones and cobles	*Pecten maximus* (O), *Antedon* sp. (O), *Luidia ciliaris* (O), *Ophiura albida* (O), *Suberites carnosus* (R)	SS.SMx.CMx

InnerSound_047.2	Bedrock with boulders some sand patches	*Asterias rubens* (R), *Echinus esculentus* (O), encrusting coralline algae (C), *Leptometra celtica* (O), *Munida rugosa* (O)	CR.MCR.EcCr.FaAlCr	**LS**
InnerSound_048.1	Bedrock with boulders some sand patches	*Asterias rubens* (R), *Echinus esculentus* (O), encrusting coralline algae (C), *Leptometra celtica* (C), *Porania pulvillus* (O), *Marthasterias glacialis* (O), *Solaster endeca* (R), *Crossaster papposus* (R), *Pecten maximus* (O) sand patches amongst boulders	CR.MCR.EcCr.FaAlCr	**LS**
InnerSound_048.2	Mud	*Pachycerianthus multiplicatus* (R) 00:05:59, *Virgularia mirabilis* (O), large burrows (C), *Munida rugosa* (F)	SS.SMu.CFiMu.SpnMeg	**HB, LS**
InnerSound_049.1	Bedrock with boulders	*Asterias rubens* (O), *Echinus esculentus* (F), encrusting coralline algae (C), *Leptometra celtica* (F), *Porania pulvillus* (F), solitary tunicate (O), *Ascidiella*	CR.MCR.EcCr.FaAlCr	**LS**

		virginea(O), encrusting bryozoan (F), filamentous red algae (F)		
InnerSound_049.2	Mud with shell on top	large burrows (C), small burrows (F),	SS.SMu.CFiMu	
InnerSound_050.1	Muddy sand with shell on top	large burrows (C), *Pecten maximus* (O), *Luidia ciliaris* (O), small burrows (F)	SS.SMu.CSaMu	
InnerSound_050.2	Muddy sand with stones and boulders	*Echinus esculentus* (O), encrusting coralline algae (F), *Porania pulvillus* (O), *Pecten maximus* (F)	SS.SMx.CMx	
InnerSound_050.3	Muddy sand with shell on top	*Ophiura albida* (O), *Ophiura ophiura* (F)	SS.SSa.CMuSa	
InnerSound_051.1		Not possible to anaylise		
InnerSound_051.2	fine mud	large burrows (C), small burrows (C), *Virgularia mirabilis* (O), *Nephrops norvegicus* (F)	SS.SMu.CFiMu.MegMax	**HB**
InnerSound_052	Boulders with stones patches of sand	*Echinus esculentus* (F), *Porania pulvillus* (O), *Marthasterias glacialis* (O), red algae (F), encrusting coralline algae (F), *Asterias rubens* (O)	CR.MCR.EcCr.FaAlCr	

InnerSound_053	Muddy sand with shell	*Echinus esculentus* (O), *Virgularia mirabilis* (R), small burrows (F), *Saccharina latissima* (O), fine algae mat over sediment (C)	SS.SSa.CMuSa
InnerSound_054	Muddy sand with occasional boulders	*Cerianthus lloydii* (C), small burrows (F), *Ophiura ophiura* (R), filamentous brown algal turf (F), *Marthasterias glacialis* (R), *Saccharina latissima* (O) on boulders or small shell/stones, small worm casts (F)	SS.SSa.CMuSa
InnerSound_055	Mud with patches of boulders and stones, occasional cobble	*Ciona intestinalis* (O), *Ascidiella virginea*(O), *Echinus esculentus* (O), shoal of small fish (R), *Caryophyllia smithii* (F) on boulders, *Asterias rubens* (R), large burrows (F) towards end of run	SS.SMu.CFiMu
InnerSound_056	Mud, a patch of boulders at the start of run	*Echinus esculentus* (R), large burrows (C), *Munida rugosa* (F)	SS.SMu.CFiMu

InnerSound_057.1	Bedrock and boulders	*Laminaria hyperborea* (A), encrusting coralline algae (C), red algae (C), *Echinus esculentus* (F), *Cliona celata* (R), *Henricia oculata* (R), *Asterias rubens* (O), *Diazona violacea* (R)	IR.MIR.KR.Lhyp.Pk	**HB**
InnerSound_057.2	Bedrock and boulders	encrusting coralline algae (C), *Echinus esculentus* (F), *Asterias rubens* (R), *Diazona violacea* (O), *Ascidia mentula* (F), *Marthasterias glacialis* (O)	CR.MCR.EcCr.FaAlCr	
InnerSound_057.3	Muddy sand 20%, cobbles and stones 80%	encrusting coralline algae (C), *Echinus esculentus* (F), *Solaster endeca* (R), *Ascidia mentula* (O), *Marthasterias glacialis* (O), *Porania pulvillus* (O)	SS.SMx.CMx	
InnerSound_058	Fine mud	large burrows (C), small burrows (F), *Munida rugosa* (O), *Virgularia mirabilis* (O), *Pennatula phosphorea* (R)	SS.SMu.CFiMu.MegMax	**HB**
InnerSound_059	Sandy mud	small burrows (C), *Ophiura ophiura* (F), *Ophiura albida* (F), *Pecten maximus* (O),	SS.SMu.CSaMu	

		Munida rugosa (O), large burrows (C) towards end of the run		
InnerSound_060	Sandy mud	small burrows (C), *Munida rugosa* (O), large burrows (O)	SS.SMu.CSaMu	
InnerSound_061	Bedrock and boulders	Kelp park becomes sparse with depth *Laminaria hyperborea* (C) and becomes (F) towards end of run, encrusting coralline algae (C), red algae sp. (F) on stipes and on rock, *Asterias rubens* (O), *Marthasterias glacialis* (F), *Porania pulvillus* (O), *Echinus esculentus* (O)	IR.MIR.KR.Lhyp.Pk	**HB**
InnerSound_062	Mud	*Pennatula phosphorea* (F), *Funiculina quadrangularis* (O), *Cerianthus lloydii* (O), *Munida rugosa* (F), *Pagurus prideaux* (R), small burrows (C), large burrows (F), *Aequipecten opercularis* (R)	SS.SMu.CFiMu.SpnMeg.Fun	**HB**
InnerSound_063.1	Bedrock and boulders with patchy sand	*Saccharina latissima* (C), encrusting coralline algae (C), *Echinus esculentus* (O),	IR.LIR.K.Lsac.Pk	

		Antedon sp. (O), *Ophiura albida* (O) on sand patches between rock, live maerl 30% (C) on patches between boulders 10% dead maerl (F)		
InnerSound_063.2	Sand shell and maerl gravel	*Limaria hians* 30% cover, patchy with live maerl (F) incorporated into nest, *Limaria hians* nests become sparse towards end of run (F), *Pecten maximus* (O), *Echinus esculentus* (O), *Marthasterias glacialis* (O)	SS.SMx.IMx.Lim	**HB**
InnerSound_064	Muddy sand	red filamentous algae patches (C) on sediment, *Luidia ciliaris* (O), *Echinus esculentus* (O), *Ophiura ophiura* (F), *Pecten maximus* (O), *Echiura* sp. (R)	SS.SSa.IMuSa	
InnerSound_065	Muddy sand	red filamentous algae patches (C) on sediment, *Luidia ciliaris* (O), *Echinus esculentus* (O), *Ophiura albida* (F), *Pecten maximus* (O), *Echiura* sp. (O), *Desmarestia* spp. (O)	SS.SSa.IMuSa	

InnerSound_066	Coarse sand, shell with maerl	live maerl 10-20% (F) patchy throughout, dead maerl 10-20% (F), maerl is clumped 00:42 to 01:19 and 5:00 to 9:40 *Limaria hians* nest (F) ? *Asterias rubens* (O), *Luidia ciliaris* (O), *Echinus esculentus* (O), *Porania pulvillus* (O), *Pecten maximus* (O)	SS.SMp.Mrl	**HB**
InnerSound_67.1	Coarse sand, shell with maerl	*Limaria hians* 75% cover nests, covered with red algae, with 20% dead maerl gravel, 5% living (R), live and dead maerl incorporated into nests. *Pecten maximus* (O), *Asterias rubens* (O), Brittle stars (S), *Ascidiella aspersa* (F)	SS.SMx.IMx.Lim	**HB**
InnerSound_67.2	Coarse sand, shell with maerl	*Limaria hians* 5% nest cover, over dead maerl and living maerl (5), 90% dead maerl cover, 5% living maerl. *Desmarestia* sp. (O), *Ophiura* sp. (C), *Leptometra celtica* (R), *Marthasterias glacialis* (R)	SS.SCS.CCS	**LS**

InnerSound_068.1	Bedrock with coarse sand patches	sparse *Laminaria hyperborea* (O) on bed rock, filamentous red algae (O), brown filamentous algae (O), red foliose algae (O), *Asterias rubens* (O), *Antedon* sp. on *Laminaria hyperborea* (F), *Marthasterias glacialis* (O), *Echinus esculentus* (O)	IR.MIR.KR	**HB**
InnerSound_068.2	Mearl gravel with shell	Sparse live patches of maerl 5-9% (O) incorporated in *Limaria hians* nests, *Limaria hians* nests 50% to 70%, *Saccharina latissima* (R), *Luidia ciliaris* (O), *Marthasterias glacialis* (O)	SS.SMx.IMx.Lim	**HB**
InnerSound_069.1	Mearl gravel with shell	Sparse patches of live maerl 5-9% (O), *Desmarestia* sp. (F) on shells, *Saccharina latissima* (R) growing on shells, *Echinus esculentus* (O)	SS.SCS.ICS	
InnerSound_069.2	Bedrock, boulders, cobbles and sand patches	*Laminaria hyperborea* (O), sparse, *Antedon* sp. (F) on kelp and boulders, *Echinus esculentus* (O), filamentous	IR.MIR.KR	**HB**

		red algae (F), encrusting coralline algae (F), *Marthasterias glacialis* (O), *Pecten maximus* (O) on sand patches between boulders	
InnerSound_070	Boulders, cobbles and stones on coarse sand with shell	*Echinus esculentus* (O), filamentous red algae (F) on stones and boulders, *Marthasterias glacialis* (O), *Pecten maximus* (O), *Munida rugosa* (O), *Pagurus bernhardus* (O), *Asterias rubens* (O), *Marthasterias glacialis* (O)	SS.SMx.CMx
InnerSound_071.1	Cobbles and stones on sandy mud	*Marthasterias glacialis* (O), *Pecten maximus* (F), *Munida rugosa* (C), *Echinus esculentus* (O), *Antedon* sp. (O), *Aequipecten opercularis* (F), *Ascidiella virginea* (F), *Pennatula phosphorea* (R), *Lanice conchilega* (O) towards end of run, *Echiura* sp. (R)	SS.SMx.CMx
InnerSound_071.2	Muddy sand	*Munida rugosa* (O), *Aequipecten opercularis* (O),	SS.SSa.CMuSa

		Ascidiella virginea(O, *Lanice conchilega* (O)		
InnerSound_072	Stones and cobbles on sand with shell	*Marthasterias glacialis* (O), *Pecten maximus* (F), *Munida rugosa* (O), *Echinus esculentus* (O), *Aequipecten opercularis* (F), *Echiura* sp. (R), *Asterias rubens* (O), *Virgularia mirabilis* (R), *Leptometra celtica* (R)	SS.SMx.CMx	**LS**
InnerSound_073	Sand with shell, stones and occasional cobble	*Pecten maximus* (O), *Munida rugosa* (O), *Echinus esculentus* (O), *Aequipecten opercularis* (F), *Lanice conchilega* (R), *Pagurus bernhardus* (O)	SS.SMx.CMx	
InnerSound_074	Sand with shell, stones and occasional cobble or boulder	*Munida rugosa* (O), *Echinus esculentus* (O), *Porania pulvillus* (O), *Eledone cirrhosa* (R)	SS.SMx.CMx	
InnerSound_075.1	Bedrock and boulders with sand patches and a thin layer of sand on bedrock	*Echinus esculentus* (O), red filamentous algae (O), encrusting coralline algae (O), *Antedon* sp. (O), *Asterias*	CR.MCR	**LS**

		rubens (O), solitary tunicate (O), *Leptometra celtica* (O)		
InnerSound_075.2	Sand shell with stones, with cobbles and boulders	*Leptometra celtica* (F), solitary tunicate (O), red coralline algae (O), *Antedon* sp. (O), *Pecten maximus* (O), *Munida rugosa* (O), *Ophiopholis aculeata* (C) amongst boulders 04:12, red filamentous algae (O)	SS.SMx.CMx	**LS**
InnerSound_076.1	Sand with shell on top	*Ophiura albida* (C), *Lanice conchilega* (R)	SS.SSa.CFiSa	
InnerSound_076.2	Boulders and cobbles with sand patches	*Echinus esculentus* (F), *Luidia ciliaris* (O), encrusting coralline algae (F)	CR.MCR	
InnerSound_076.3	Sand with shell on top	*Ophiura albida* (C), *Lanice conchilega* (O), *Echinus esculentus* (O), *Pecten maximus* (O),	SS.SSa.CFiSa	
InnerSound_077.1	Sand with shell, stones and occasional cobble	*Leptometra celtica* (O), solitary tunicate (O), encrusting coralline algae (O), *Aequipecten opercularis* (F), *Munida rugosa* (O), *Echinus esculentus* (O), *Porania*	SS.SMx.CMx	**LS**

		pulvillus (O), small burrows (F), *Lanice conchilega* (R)		
InnerSound_077.2	Bedrock and boulders	*Diazona violacea* (R), *Marthasterias glacialis* (O), *Munida rugosa* (O), encrusting coralline algae (F), *Echinus esculentus* (O), *Asterias rubens* (O), silty boulder, bedrock steep vertical at times slope	CR.LCR	
InnerSound_078.1	Sand with shell and occasional stones	*Ophiura ophiura* (O), *Ophiura albida* (C), some drift kelp towards the end of the run	SS.SCS.CCS	
InnerSound_078.2	Sand with shell and cobbles	*Echinus esculentus* (O), encrusting coralline algae (O)	SS.SMx.CMx	
InnerSound_079.1	Mearl sandy mud	live maerl 35% (C) locally (A) in patches, dead maerl 20% (C), clumping of live maerl with solitary ascidians attached *Ascidia virginea*? (C) potential *Limaria hians* nests?, *Antedon* sp. (C) and red foliose algae (C), *Pecten maximus* (O), *Aequipecten*	SS.SMp.Mrl	**HB, LS**

		opercularis (O), *Luidia ciliaris* (O), *Leptometra celtica* (F)		
InnerSound_079.2	Bedrock and boulders with sand patches	encrusting coralline algae (F), *Leptometra celtica*(F), *Porania pulvillus* (F), red filamentous algae (F), *Echinus esculentus* (O)	CR.MCR	
InnerSound_080.1	Bedrock and boulders	*Leptometra celtica* (C), *Antedon* sp. (F), *Porania pulvillus* (O), encrusting red algae (C)	CR.MCR	**LS**
InnerSound_080.2	Mearl on sandy mud	Mearl 50% live (A), clumped in places, dead maerl 10% (F), *Aequipecten opercularis* (O)	SS.SMp.Mrl	**HB**
InnerSound_080.3	Bedrock, boulders and cobles with sandy patches	*Leptometra celtica* (F), *Antedon* sp. (C), *Echinus esculentus* (O), encrusting coralline algae (C), *Porania pulvillus* (O), *Diazona violacea* (R), live maerl on sand patches between boulders (O), *Munida rugosa* (O)	CR.MCR	**LS**
InnerSound_080.4	Muddy sand with shell, some cobbles	*Ascidiella virginea*(F), *Munida rugosa* (F), *Luidia ciliaris* (O),	SS.SSa.CMuSa	

	and stone as it moves off bedrock onto muddy sand	small burrows (F), *Porania pulvillus* (R)	
InnerSound_081.1	Bedrock and boulders with some sand patches	*Limaria hians* nests (C) ? 00:23 to 00:33 and 1:09 to 1:13 in between bed rock, filamentous red algae (F), *Antedon* sp. (F), *Porania pulvillus* (O), *Urticina felina* (O), *Marthasterias glacialis* (O), *Echinus esculentus* (O), *Ophiocomina nigra* (O) in one patch	CR.MCR
InnerSound_081.2	Vertical bedrock	*Laminaria hyperborea* (F), *Antedon* sp. (F) on kelp stipes, *Luidia ciliaris* (R) on ledge, *Urticina felina* (R), *Echinus esculentus* (F), red filamentous algae (O), encrusting coralline algae (O)	IR.MIR.KR.LhypVt
InnerSound_082.1	Sand/gravel with stones and shell	faunally sparse	SS.SCS.CCS
InnerSound_082.2	Bedrock and boulders with sand patches	*Echinus esculentus* (O), encrusting coralline algae (C), *Munida rugosa* (O), *Porania*	CR.MCR

		pulvillus (O), *Axinella infundibuliformis* (O) on vertical bed rock		
InnerSound_082.3	Muddy sand	large burrows (C), small burrows (F)	SS.SSa.CMuSa	
InnerSound_083.1	Bedrock and boulders with sand patches and some cobbles	*Antedon* sp. (O) on boulders, filamentous red algae on rock (F),	CR.MCR	
InnerSound_083.2	Mearl gravel	Mearl gravel at times clumped with holes in clump, either burrows or *Limaria hians* nests? *Asterias rubens* (O), *Luidia ciliaris* (O), *Aequipecten opercularis* (O)	SS.SCS.CCS	
InnerSound_084	Bedrock and boulders with some sand patches	*Laminaria hyperborea* (F), *Echinus esculentus* (F), encrusting coralline algae (C), *Antedon* sp. (O) on stipes, filamentous red algae (O)	IR.MIR.KR.Lhyp.GzPk	**HB**
InnerSound_085	Bedrock and boulders with some coarse patches of sand	*Laminaria hyperborea* (F), *Echinus esculentus* (F), encrusting coralline algae (C), *Antedon* sp. (F) on stipes, filamentous red algae (F),	IR.MIR.KR.Lhyp.GzPk	**HB**

		Porania pulvillus (O), *Luidia ciliaris* (F), *Urticina felina* (O)		
InnerSound_086.1	boulders/ bedrock (80%) coarse sand (20%)	faunally sparse bed rock silt, *Leptometra celtica* (O), red algae tufts (F), encrusting bryozoan (F) encrusting pink algae (C), *Echinus esculentus* (C), *Luidia ciliaris* (R), *Antedon* sp. (F)	CR.MCR.EcCr.FaAlCr	**LS**
InnerSound_086.2	Limaria beds (80%) with patches of mixed sediment	dense *Limaria hians* nests 80% cover, maerl fragments in nests, *Aequipecten opercularis* (F), red algae turf (F), *Porania pulvillus* (F)	SS.SMx.IMx.Lim	**HB**
InnerSound_086.3	boulders/ bedrock (80%) coarse sand (20%)	faunally sparse bed rock silt, *Echinus esculentus* (C)	CR.MCR.EcCr.FaAlCr	
InnerSound_086.4	maerl (50%) and muddy sand (50%)	maerl- living 25% (C), dead 25%, rocks, *Cancer Pagurus* (O), *Aequipecten opercularis* (F), *Porania pulvillus* (F), *Leptometra celtica* (R), potential clumps of *Limaria hians* (O) e.g. 00:04:24, 00:06:04, 08:05	SS.SMp.Mrl	**HB, LS**

InnerSound_086.5	maerl (50%) and muddy sand (50%)	maerl- living 25% (C), dead 25%, rocks, *Cancer Pagurus*, Limaria clumps(O), locally (C) at 09:00, 09:20, *Pecten maximus* (O)	SS.SMp.Mrl	**HB**
InnerSound_086.6	bed rock	faunally sparse, encrusting algae, *Leptometra celtica* (R)	CR.MCR.EcCr.FaAlCr	**LS**
InnerSound_086.7	bed rock with patches of sediment	faunally sparse, encrusting algae (C), *Leptometra celtica* (O), *Echinus esculentus* (C), *Antedon* sp. (F), *Balanus crenatus* (O)	CR.MCR.EcCr.FaAlCr	**LS**
InnerSound_086.8	mixed sediment	*Limaria hians* nests 15% flame shell nests, 5% live maerl, 80% dead maerl, *Aequipecten opercularis* (F), *Luidia ciliaris* (O)	SS.SMx.IMx.Lim	**HB**
InnerSound_086.9	bed rock with patches of sediment	faunally sparse, filamentous red algae (A), *Echinus esculentus* (C), *Balanus crenatus* (C)	CR.MCR.EcCr.FaAlCr	
InnerSound_87.1	fine sand with broken shell	Faunally sparse, *Ophiura* sp. (A), *Lanice conchilega* (F), *Echinus esculentus* (R)	SS.Ssa.CFiSa	

InnerSound_87.2	fine sand with stones and shells	Accumulations of dead algae on sediment surface. Faunally sparse. *Luidia ciliaris* (R)	SS.SMx.CMx	
InnerSound_88	sandy mud, occasional stones	*Ophiura* sp. (C), *Toxisarcon alba* (R), *Turritella communis* (A), *Amphiura* sp. (O), *Echinus esculentus* (O)	SS.SMu.CSaMu	
InnerSound_89	fine sand, occasional stones and shell	*Aequipecten opercularis* (S), red algae (A), *Leptometra celtica* (O)	SS.SSa.IFiSa	**LS**
InnerSound_90	coarse sand with shell and stones	*Aequipecten opercularis* (S), red algae (A), *Leptometra celtica* (O)	SS.SMx.CMx	**LS**
InnerSound_91	coarse sand with shell and stones	Relatively faunally sparse, *Cerianthus lloydii* (O), *Virgularia mirabilis* (O), *Pecten maximus* (O), *Syngnathus* sp. (R), *Leptometra celtica* (O), *Ophiura albida* (O), *Lanice conchilega* (O), *Aequipecten opercularis* (O), *Spirobranchus triqueter* (F)	SS.SMx.CMx	**LS**
InnerSound_092	coarse sand with shell and stones	Relatively faunally sparse, *Cerianthus lloydii* (F), locally	SS.SMx.CMx.ClloMx	**LS**

		(S), *Ophiura albida* (F), locally (A), *Asterias rubens* (F), *Luidia ciliaris* (F), *Leptometra celtica* (O), *Lanice conchilega* (F)		
InnerSound_093.1	Limaria bed (80%) with patches of mixed sediment	*Limaria hians* nests 100% cover, overlaid with *Ophiothrix fragilis* (S), *Ophiocomina nigra* (A) *Luidia ciliaris* (F), *Marthasterias glacialis* (F), *Urticina eques* (O), *Asterias rubens* (O)	SS.SMx.IMx.Lim	**HB**
InnerSound_093.2	Limaria bed (80%) with patches of mixed sediment	*Limaria hians* nests 80% cover individual visible 00:00:05, *Ophiocomina nigra* (A) *Luidia ciliaris* (F), *Marthasterias glacialis* (F), hydroids (A), *Porania pulvillus* (F), *Urticina eques* (O), *Asterias rubens* (F)	SS.SMx.IMx.Lim	**HB**
InnerSound_094.1	Limaria beds (80%) with sand	*Limaria hians* nests 80% cover, *Luidia ciliaris* (F), *Cancer Pagurus* (A), *Marthasterias glacialis* (F), hydroids (A), *Porania pulvillus*	SS.SMx.IMx.Lim	**HB**

		(F), *Antedon* sp. (C), *Urticina eques* (O), *Asterias rubens* (F) rubbish at 04:50- tyres		
InnerSound_094.2	boulders (80%), course shell sand (20%)	Encrusting pink algae (C), encrusting bryozoan (C), *Echinus esculentus* (C), *Antedon* sp. (A), *Ophiocomina nigra* (A),	CR.MCR.EcCr.FaAlCr	
InnerSound_094.3	coarse sand (80%) stones (20%)	*Ophiocomina nigra* (A), *Luidia ciliaris* (F), *Asterias rubens* (C), *Echinus esculentus* (F), *Antedon sp.* (A)	SS.SMx.CMx.OphMx	
InnerSound_094.4	bedrock (90%) coarse sand (10%)	*Laminaria hyperborea* (F), Encrusting pink algae (C), encrusting bryozoan (C), *Echinus esculentus* (C), *Antedon* sp. (A), *Ophiocomina nigra* (A),	CR.MCR.EcCr.FaAlCr.Bri	
InnerSound_095.1	coarse shell sand (80%), stones and pebbles (20%)	Possible patches of *Limaria hians* nests <5%, *Antedon* sp. (F), *Echinus esculentus* (F), *Spirobranchus triqueter* (A)	SS.SMx.CMx	
InnerSound_095.2	Limaria bed (100%) with sand	*Limaria hians* nests 100% cover, *Urticina eques* (F),	SS.SMx.IMx.Lim	**HB**

		Marthasterias glacialis (C), *Antedon* sp. (F) *Ophiocomina nigra* (A), *Crossaster papposus* (R), *Porania pulvillus* (F), *Luidia ciliaris* (O)		
InnerSound_096.1	shell sand with occasional stones	*Ophiocomina nigra* (O), *Antedon sp.* (F), *Spirobranchus triqueter* (C), *Luidia ciliaris* (F), *Echinus esculentus* (F), *Cancer Pagurus* (O), *Asterias rubens* (O), *Urticina sp.* (O), *Marthasterias glacialis* (F) Potential Limaria hians nests in the first 30 seconds	SS.SMx.CMx	
InnerSound_096.2	Limaria hians bed (100%)	*Limaria hians* nests 100% cover, *Ophiocomina nigra* (A), locally (S), hydroids (S), *Nemertesia antennina* (C), *Echinus esculentus* (F),*Cancer Pagurus* (O), *Antedon* sp. (F)	SS.SMx.IMx.Lim	**HB**
InnerSound_097	Limaria hians bed (99%) with shell sand (1%)	*Limaria hians* nests 99% cover, *Ophiocomina nigra* (A), locally (S), hydroids (S),	SS.SMx.IMx.Lim	**HB**

		Nemertesia antennina (C), *Antedon* sp. (C), *Echinus esculentus* (F), *Marthasterias glacialis* (F), *Porania pulvillus* (F), *Munida rugosa* (F), *Urticina eques* (R), *Cancer pagurus* (O), *Crossaster papposus* (R)		
InnerSound_098	Limaria hians bed (99%) with shell sand (1%)	*Limaria hians* nests 99% cover, *Ophiocomina nigra* (S) hydroids (S), *Echinus esculentus* (F), *Antedon* sp. (O), *Leptometra celtica* (F), *Luidia ciliaris* (O)	SS.SMx.IMx.Lim	**HB, LS**
InnerSound_099	Limaria hians bed (95%) with shell sand (5%)	*Limaria hians* nests 95% cover, *Ophiothrix fragilis* (S), *Ophiocomina nigra* (A) hydroids (S), *Luidia ciliaris* (A), *Echinus esculentus* (F), *Marthasterias glacialis* (F),	SS.SMx.IMx.Lim	**HB**
InnerSound_100	Limaria hians bed (95%) with shell sand (5%)	*Limaria hians* nests 95% cover, *Nemertesia ramosa* (O), *Luidia ciliaris* (A), *Asterias rubens* (C), *Echinus esculentus* (F), *Marthasterias*	SS.SMx.IMx.Lim	**HB**

		glacialis (C), *Antedon* sp. (O), *Porania pulvillus* (F), *Munida rugosa* (F), *Pecten maximus* (O)		
InnerSound_101	Limaria hians bed (95%) with shell sand (5%)	*Limaria hians* nests 95% cover, *Nemertesia ramosa* (O), *Luidia ciliaris* (A), *Asterias rubens* (C), *Echinus esculentus* (F). *Leptometra celtica* (F), *Porania pulvillus* (F), *Munida rugosa* (F)	SS.SMx.IMx.Lim	**HB, LS**
InnerSound_102	Limaria hians bed (95%) with shell sand (5%)	*Limaria hians* nests 95% cover, *Ophiothrix fragilis* (S), *Ophiocomina nigra* (S), *Luidia ciliaris* (A), *Asterias rubens* (C), *Echinus esculentus* (F). *O. fragilis* gives way to *O. nigra* at 04:28, rock intrusion with *Laminaria hyperborea* (F) at 05:53 to 08:20	SS.SMx.IMx.Lim	**HB**
InnerSound_103	Limaria hians bed (95%) with shell sand (5%)	*Limaria hians* nests 95% cover, *Ophiothrix fragilis* (S), *Ophiocomina nigra* (S), *Luidia ciliaris* (A), *Asterias rubens* (C), *Echinus esculentus* (F)	SS.SMx.IMx.Lim	**HB**

InnerSound_104.1	fine sand (30%) and stones (20%), Limaria hians nests (50%)	*Limaria hians* nests 50% cover (individual visible 00:02:54), *Ophiothrix fragilis* (A), *Ophiocomina nigra* (A), *Luidia ciliaris* (F), *Asterias rubens* (C), *Echinus esculentus* (F), hydroid turf (C), *Nemertesia antennina* (F), *Rhizocaulus verticillatus* (O), *Pleurobranchus membranaceus* (R), *Leptometra celtica* (O)	SS.SMx.IMx.Lim	**HB, LS**
InnerSound_104.2	mixed sediment, muddy sand with rocks	*Ophiothrix fragilis* (A) *Ophiocomina nigra* (A), *Luidia ciliaris* (F), *Asterias rubens* (C), *Echinus esculentus* (F), *Leptometra celtica* (C), *Cancer Pagurus* (O)	SS.SMx.CMx.OphMx	**LS**
InnerSound_104.3	muddy sand with cobbles, rocks and small boulders	*Ophiothrix fragilis* (O), *Ophiocomina nigra* (O), *Luidia ciliaris* (F), *Echinus esculentus* (F), *Leptometra celtica* (A), *Cancer Pagurus* (O), *Asterias rubens* (C), *Spirobranchus triqueter* (A),	SS.SMx.CMx	**LS**

		Ascidiella virginea(F), *Diazona violacea (F)*		
InnerSound_105.1	Limaria nest (40%), sand and mud, pebbles	*Limaria hians* nests 50% cover, *Ophiothrix fragilis* (F), *Echinus esculentus* (F), *Leptometra celtica* (F), hydroid turf (C), *Nemertesia antennina* (F)	SS.SMx.IMx.Lim	**HB, LS**
InnerSound_105.2a	pebbles and cobbles on sand /gravel	*Balanus crenatus* (F), *Spirobranchus triqueter* (A), hydroid turf (A), *Leptometra celtica* (O),	SS.SCS.CCS.PomB	**LS**
InnerSound_105.2b	Limaria nest (40%), sand and mud, pebbles	*Limaria hians* nests 25% cover, *Ophiothrix fragilis* (F), *Echinus esculentus* (F), *Leptometra celtica* (F), *Urticina eques* (R), hydroid turf (C), *Munida rugosa* (C),	SS.SMx.IMx.Lim	**HB, LS**
InnerSound_105.3	bedrock and boulders	*Spirobranchus triqueter* (A), *Caryophyllia smithii* (F), *Ascidiella virginea*(C), *Ascidia mentula* (C), *Echinus esculentus* (C), *Munida rugosa* (C), *Balanus crenatus* (C), *Leptometra celtica* (F),	CR.LCR.BrAs.AmenCio	**LS**

		sponges (F), encrusting bryozoan (O)		
InnerSound_105.4	pebbles and cobbles on sand /gravel	*Balanus crenatus* (F), *Spirobranchus triqueter* (A), *Leptometra celtica* (A), *Pecten maximus* (F), *Echinus esculentus* (C), *Munida rugosa* (C), *Ascidiella virginea*(C), *Caryophyllia smithii* (F), *Diazona violacea* (C), *Ciona intestinalis* (A), *Ascidia mentula* (C), *Asterias rubens* (O)	SS.SCS.CCS.PomB	**LS**
InnerSound_106.1	Stones, pebbles and shells (85%), silty coarse sand (15%)	*Spirobranchus triqueter* (A), *Diazona violacea* (O), *Ascidiella virginea*(C), *Echinus esculentus* (C), *Munida rugosa* (C), *Lanice conchilega* (F), *Aequipecten opercularis* (O) *Pecten maximus* (F), *Leptometra celtica* (O)	SS.SCS.CCS.PomB	**LS**
InnerSound_106.2	bedrock and boulders	*Balanus crenatus* (A), *Spirobranchus triqueter* (A), *Echinus esculentus* (C),	CR.LCR.BrAs.AmenCio	**LS**

		Caryophyllia smithii (F), *Diazona violacea* (C), *Ciona intestinalis* (A), *Ascidiella virginea*(A), *Ascidia mentula* (C), *Echinus esculentus* (C), *Asterias rubens* (O), *Leptometra celtica* (C)		
InnerSound_107.1	Stones, pebbles and shells (95%), coarse sand (5%)	*Spirobranchus triqueter* (S), *Ascidiella virginea*(F), *Lanice conchilega* (F), *Munida rugosa* (F), *Pecten maximus* (F), *Leptometra celtica* (O)	SS.SCS.CCS.PomB	**LS**
InnerSound_107.2	bedrock	*Spirobranchus triqueter* (A), *Caryophyllia smithii* (F), *Diazona violacea* (C), *Ciona intestinalis* (A), *Ascidiella virginea*(A), *Ascidia mentula* (C), *Echinus esculentus* (C), *Munida rugosa* (C), *Asterias rubens* (O), *Balanus crenatus* (C), *Leptometra celtica* (F)	CR.LCR.BrAs.AmenCio	**LS**
InnerSound_108	Limaria nest (40%), sand and mud, pebbles	*Limaria hians* nests 100% cover made from Modiolus and *Pecten maximus* shells, *Ophiothrix fragilis* (S),	SS.SMx.IMx.Lim	**HB**

		Ophiocomina nigra (A), *Echinus esculentus* (F), *Luidia ciliaris* (C)		
InnerSound_109.1	coarse sand and shell, overlain with stones (10%), muddy sediment evident below sediment surface	*Cerianthus lloydii* (C), *Ophiura albida* (C), *Liocarcinus depurator* (O)	SS.SMx.CMx.ClloMx	
InnerSound_109.2a	Large rocks/ boulders (60%), sand gravel (40%)	Large rocks and boulders (60%) with sand and mixed sediment (40%) Encrusting pink algae (C), *Echinus esculentus* (C), *Antedon* sp. (C), *Asterias rubens* (O)	CR.MCR.EcCr.FaAlCr	
InnerSound_109.2b	Large rocks/ boulders (60%), sand gravel (40%)	Large rocks and boulders (60%) with sand and mixed sediment (40%), No fauna observed on sediment	SS.SMx.CMx	
InnerSound_110.1	Gravel comprising shell and broken maerl (c.5%)	faunally sparse, course gravel with bands of maerl in mega ripples, < 5%, *Neopentadactyla mixta* (O) 00:02:17, 00:02:46, 00:04:53	SS.SCS.CCS.Nmix	**HB**

InnerSound_110.2	Gravel comprising shell and broken maerl (c.10%)	faunally sparse, course gravel with bands of maerl in dunes, 10% live (F), 60% dead, *Astropecten irregularis* (R)	SS.SMp.Mrl	**HB**
InnerSound_110.3	maerl live (20%), dead (70%), gravel (10%), shell (10%)	faunally sparse, maerl in dunes, 20% live (C), 70% dead	SS.SMp.Mrl	**HB**
InnerSound_111.1a	rocks and stones with maerl gravel	Cobbles, pebbles and rocks (70%) with coarse sediment (30%) in-between supporting 10% living maerl (F), 5% dead. *Pecten maximus* (O)	SS.SMp.Mrl	**HB**
InnerSound_111.1b	rocks and stones with maerl gravel	Cobbles, pebbles and rocks (70%) , with coarse sediment (30%). Rocks and cobbles supporting *Spirobranchus triqueter* (A), *Antedon* sp. (A), *Asterias rubens* (A), *Ascidiella aspersa* (C), *Pecten maximus* (O)	SS.SMx.CMx	
InnerSound_111.2	boulders cobbles and with sediment	Pomatoceros tricolour, encrusting pink algae, *Asterias rubens* (A), *Echinus esculentus* (C), *Ascidiella aspersa* (F),	CR.MCR.EcCr.FaAlCr	

InnerSound_112	maerl gravel	Variable proportions of living: dead maerl. Live maerl c.10%, dead maerl 90%. *Asterias rubens* (F), *Cancer Pagurus* (R), *Antedon* sp. (O)	SS.SMp.Mrl	**HB**
InnerSound_113.1	pebbles and maerl	Living maerl 1%, dead maerl 3%, *Laminaria hyperborea* (O), *Saccharina latissima* (O), *Asterias rubens* (F), *Neopentadactyla mixta*? (R) 00:03:40	SS.SCS.CCS.Nmix	**HB**
InnerSound_113.2	Pebbles and maerl	Living maerl 10% (F), dead maerl 50%, *Antedon* sp. (O), *Asterias rubens* (F), *Saccharina latissima* (O), *Neopentadactyla mixta*? (R) 00:03:40, sand eels *Ammodytes* sp. 0534. Rocks 00:06:00	SS.SMp.Mrl	**HB, MS**
InnerSound_113.3	5% living maerl, 90% dead, 5% pebbles	5% living maerl, 90% dead, *Saccharina latissima* (O)	SS.SCS.CCS.Nmix	**HB**
InnerSound_114.1	dead maerl (99%) live maerl (1%)	30% cover fish eggs, arranged in patches of 100% cover to 10%, 99% over dead	SS.SCS.CCS.Nmix	**HB, LS**

		maerl, 1% living *Leptometra celtica* (C)		
InnerSound_114.2	dead maerl (99%) live maerl (1%)	90% cover fish eggs *Clupea harengus*, 99% over dead maerl, 1% living *Leptometra celtica* (S)	SS.SCS.CCS.Nmix	**HB, LS, MSE**
InnerSound_114.3	maerl live (10%) dead (5%) stones (70%) boulders (15%)	<10% living maerl (O), 5% dead, *Leptometra celtica* (A), *Asterias rubens* (A), *Ascidiella aspersa* (C), Pecten maximus (O)	SS.SCS.CCS.Nmix	**HB, LS**
InnerSound_115.1	maerl live (1%), maerl dead (5%), sand (94%)	Faunally sparse, maerl living c. 1% dead c. 5% in steep sand dunes, *Leptometra celtica* (R), *Porania pulvillus* (F), *Cerianthus lloydii* (O), *Pecten maximus* (O), *Lanice conchilega* (F), *Neopentadactyla mixta*? (R) 00:05:10	SS.SCS.CCS.Nmix	**HB, LS**
InnerSound_115.2	maerl live (30%), maerl dead (5%), sand (94%)	Faunally sparse, maerl living c. 30% dead c. 1% living in steep dunes, *Leptometra celtica* (O), fish eggs *Clupea harengus* from 07:11 <5%	SS.SCS.CCS.Nmix	**HB, LS, MSE**

		cover, 08:33 25% cover fish eggs on maerl		
InnerSound_115.3	coarse sand 69%, maerl dead (30%), maerl live (1%)	Faunally sparse, maerl living c. 30% dead 1% living in steep dunes, fish eggs covering maerl in troughs *Clupea harengus*, *Antedon* sp. (F), *Lanice conchilega* (F)	SS.SCS.CCS.Nmix	**HB, MSE**
InnerSound_115.4	coarse sand	95% cover fish eggs *Clupea harengus* over coarse sand, *Marthasterias glacialis* (O), occasional maerl fragments	SS.SCS.CCS	**MSE**
InnerSound_115.5	coarse sand	99% cover fish eggs *Clupea harengus*, *Antedon* sp. (S), *Marthasterias glacialis* (O), *Neopentadactyla mixta* ? (O) 05:55, 07:53	SS.SCS.CCS	**MSE**
InnerSound_115.6	coarse sand, broken shell, maerl	80% cover fish eggs *Clupea harengus*, over course sediment with maerl with broken shell, *Antedon* sp. (S), *Marthasterias glacialis*, *Porania pulvillus* (F), *Neopentadactyla mixta* ?	SS.SCS.CCS.Nmix	**HB, MSE**

		00:50, occasional large rocks with *Antedon* sp. (O)		
InnerSound_115.7	dead maerl (90%), live maerl (5%) coarse sand (5%)	40% cover fish eggs *Clupea harengus*, over course sediment in dunes with dead maerl 90%, 5% living , *Antedon* sp. (A),	SS.SCS.CCS.Nmix	**MSE**
InnerSound_115.8	dead maerl (98%) live maerl (2%)	5% cover fish eggs *Clupea harengus*, over coarse sediment in dunes with dead maerl 98%, 2% living , *Antedon* sp. (C),	SS.SCS.CCS.Nmix	**HB, MSE**
InnerSound_115.9	boulders (90%), maerl live (5%), maerl dead (5%)	maerl gravel (5% living, 5% dead) (R) between rocks covered with *Antedon* sp. (C), *Saccharina latissima* (F)	SS.SCS.CCS.Nmix	**HB**
InnerSound_115.11	sand (90%) with shell (5%), maerl (5%)	Broken shell and patches of maerl covered with fish eggs *Clupea harengus* (90% cover)	SS.SCS.CCS.Nmix	**HB, MSE**
InnerSound_115.12	maerl live (30%), dead (1%), maerl gravel (69%)	Faunally sparse, maerl living c. 30% (C) dead 1% living in steep dunes, large eggs, *Saccharina latissima* (F), *Antedon* (C),	SS.SCS.CCS.Nmix	**HB**

InnerSound_116.1	dead maerl (85%) live maerl (15%)	maerl living c. 15% (F), dead 85%, *Leptometra celtica* (A), *Antedon* sp. (A), *Porania pulvillus* (F)	SS.SMp.Mrl	**HB, LS**
InnerSound_116.2	dead maerl (65%) live maerl (35%)	maerl living c. 35% (C), dead 65%, *Leptometra celtica* (A), *Antedon* sp. (C), *Porania pulvillus* (F), sea cucumber 04:44	SS.SMp.Mrl	**HB, LS**
InnerSound_117	coarse sand , maerl live (<10%)	maerl living c. <10% (O), *Antedon* sp. (C), *Porania pulvillus* (F), sea cucumber 04:44	SS.SCS.CCS.Nmix	**HB**
InnerSound_118.1	Coarse sand	*Cerianthus lloydii* (S), *Cancer Pagurus* (R)	SS.SMx.CMx.ClloMx	
InnerSound_118.2	Muddy sand, gravel comprising shell and broken maerl	Seabed clumps *Limaria hians* nests c. 15% cover, flame shell noted 03:03, *Antedon* sp. (S) , *Asterias rubens* (O), maerl present<5%	SS.SMx.IMx.Lim	**HB**
InnerSound_118.3	Gravel comprising shell and broken maerl	Large clumps of *Limaria hians* nests (50% cover) on small broken maerl, living maerl (<5%), *Antedon* sp. (A), sea cucumber (05:22), *Cancer*	SS.SMx.IMx.Lim	**HB**

		Pagurus (F), *Marthasterias glacialis* (F), *Ophiocomina nigra* (F)		
InnerSound_119.1	maerl (45%) patches of shell and muddy sand	Patchy maerl c. 15% living (F), 30% dead, *Aequipecten opercularis* (C), *Munida rugosa* (O), *Porania pulvillus* (F,) *Pecten maximus* (O), *Leptometra celtica* (O)	SS.SMp.Mrl	**HB, LS**
InnerSound_119.2	sand (90%) with shell and stones	*Turritella communis* (F), *Aequipecten opercularis* (F), *Virgularia mirabilis* (C), *Porania pulvillus* (F)	SS.Ssa.CFiSa	
InnerSound_119.3	sandy mud, broken shell (<5%)	*Turritella communis* (F), *Aequipecten opercularis* (F), *Virgularia mirabilis* (F), *Porania pulvillus* (F), *Munida rugosa* (F), burrows (C) and mounds (F) - broken shell fished?	SS.Smu.CSaMu	
InnerSound_120	Limaria nest (40%), sand and mud, pebbles	*Limaria hians* nests 60% cover made from Modiolus shells, *Ophiothrix fragilis* (S), *Ophiocomina nigra* (A),	SS.SMx.IMx.Lim	**HB**

		Echinus esculentus (F), *Pecten maximus* (F)		
InnerSound_121.1	muddy sand with stones and shell	*Spirobranchus triqueter* (F), *Munida rugosa* (C), *Leptometra celtica* (A), *Pecten maximus* (F)	SS.SMx.CMx	**LS**
InnerSound_121.2	Limaria nest (40%), sand and mud, pebbles	*Limaria hians* nests 40% cover made from Modiolus shells, *Ophiothrix fragilis* (A), solitary ascidians (C), *Leptometra celtica*, (F), *Munida rugosa* (C)	SS.SMx.IMx.Lim	**HB**
InnerSound_122	fine sandy mud	Burrowed mud (C), *Turritella communis* (F), *Aequipecten opercularis* (F), *Munida rugosa* (C), *Leptometra celtica* (C), *Virgularia mirabilis* (F)	SS.SMu.CSaMu	**LS**
InnerSound_123	fine mud occasional stones	Burrowed mud (C), *Turritella communis* (F), *Virgularia mirabilis* (R), *Munida rugosa* (C), *Asterias rubens* (F), *Leptometra celtica* (C)	SS.SMu.CFiMu	**LS**
InnerSound_124.1	rocks and stones with muddy sand	*Spirobranchus triqueter* (A), *Echinus esculentus* (C),	SS.SCS.CCS.PomB	**LS**

		Antedon sp. (F) *Leptometra celtica* (F),		
InnerSound_124.2	silt covered rock	*Spirobranchus triqueter* (A), *Echinus esculentus* (C), *Antedon* sp. (F) *Leptometra celtica* (F), *Asterias rubens* (O), *Munida rugosa* (C), *Diazona violacea* (F)	CR.MCR.EcCr.FaAlCr.Pom	**LS**
InnerSound_124.3	silt covered rock	*Spirobranchus triqueter* (A), *Echinus esculentus* (C), *Antedon* sp. (F) *Leptometra celtica* (F), *Asterias rubens* (O), *Munida rugosa* (C), *Luidia ciliaris* (R)	SS.SCS.CCS.PomB	**LS**
InnerSound_124.4	*Limaria hians* nests comprising horse mussel shells (50%), sand gravel (50%)	*Limaria hians* nests 50% cover, *Ophiothrix fragilis* (A), solitary ascidians (C), *Antedon* sp. (A), *Leptometra celtica* (F), *Munida rugosa* (C)	SS.SMx.IMx.Lim	**HB**
InnerSound_124.5	*Limaria hians* nests comprising horse mussel shells (80%), sand gravel (20%)	*Limaria hians* nests (A) cover, *Ophiothrix fragilis* (A), solitary ascidians (C), *Antedon* sp. (A), *Leptometra celtica* (F), *Munida rugosa* (A)	SS.SMx.IMx.Lim	**HB, LS**

InnerSound_125	fine sandy mud	Burrowed mud (C), *Turritella communis* (F), *Aequipecten opercularis* (C), *Pecten maximus* (O), *Munida rugosa* (C), *Asterias rubens* (O), *Leptometra celtica* (O), *Pachycerianthus multiplicatus* (R) 03:29	SS.SMu.CSaMu	**LS**
InnerSound_126	fine mud occasional stones	Burrowed mud (A), *Turritella communis* (C), *Virgularia mirabilis* (R), *Munida rugosa* (C), *Leptometra celtica* (R), *Nephrops norvegicus* (F), *Asterias rubens* (O). Fishing pressure?	SS.SMu.CFiMu.MegMax	**HB,LS**
InnerSound_127.1	fine mud, occasional shells and stones	Medium sized burrowed mud (A), *Turritella communis* (C), *Funiculina quadrangularis* (C) lost net 00:34	SS.SMu.CFiMu.SpnMeg.Fun	**HB**
InnerSound_127.2	fine mud occasional stones	Burrowed mud (C), *Turritella communis* (F), *Virgularia mirabilis* (R), *Munida rugosa* (C), *Cerianthus lloydii* (C), *Asterias rubens* (O), *Pecten*	SS.SMu.CFiMu.SpnMeg	**HB, LS**

		maximus (F), *Leptometra celtica* (F)		
InnerSound_128	fine mud, occasional shells and stones	Burrowed mud (C), *Turritella communis* (F), *Virgularia mirabilis* (C), *Munida rugosa* (C), *Cancer Pagurus* (R), *Cerianthus lloydii* (C), *Pennatula phosphorea* (O), *Funiculina quadrangularis* (F)	SS.SMu.CFiMu.SpnMeg.Fun	**HB**
InnerSound_129	fine mud, occasional shells and stones	Burrowed mud (A), *Turritella communis* (C), *Virgularia mirabilis* (C), *Munida rugosa* (F), *Pachycerianthus multiplicatus* (R) 05:30, *Funiculina quadrangularis* (O) including two broken individuals- human pressure? Ghost creel	SS.SMu.CFiMu.SpnMeg.Fun	**HB, LS**
InnerSound_130	muddy sand with stones and shell	Faunally very sparse, *Cerianthus lloydii* (F), *Spirobranchus triqueter* (F), *Munida rugosa* (O), *Ascidiella virginea*(O) *Pachycerianthus multiplicatus*? (R) 02:12	SS.SMx.CMx.ClloMx	**LS**

InnerSound_131	Fine mud with broken shell	Faunally sparse. *Cerianthus lloydii* (C), *Munida rugosa* (C), *Turritella* sp (C)	SS.SMx.CMx.ClloMx
InnerSound_132	cobbles and boulders (70), gravel, maerl sand (30%)	Video footage too quick to assist detailed quantification. Sparse kelp park- *Laminaria hyperborea*, *Echinus esculentus* (C), *Marthasterias glacialis* (F) Patches of maerl	IR.MIR.KT
InnerSound_133	cobbles, pebbles and coarse sand	*Spirobranchus triqueter* (A), *Ciona intestinalis* (A), *Ascidiella virginea*(F), *Luidia ciliaris* (O), *Munida rugosa* (C), *Asterias rubens* (O), *Protanthea simplex* (F), *Pecten maximus* (C)	SS.SCS.CCS.PomB
InnerSound_134	cobbles and boulders (90), gravel sand (10%)	Sparse kelp park *Laminaria hyperborea* (F), *Echinus esculentus* (C), *Spirobranchus triqueter* (C),	IR.MIR.KT
InnerSound_135.1	sandy mud with pebbles and cobbles	*Cerianthus lloydii* (A), *Echinus esculentus* (F), *Spirobranchus triqueter* (C), *Munida rugosa* (F)	SS.SMx.CMx.ClloMx

InnerSound_135.2	cobbles and pebbles with sandy mud	Faunally very sparse *Spirobranchus triqueter* (A), *Echinus esculentus* (F)	SS.SCS.CCS.PomB	
InnerSound_136	fine mud	burrowed mud (A), *Turritella communis* (A), *Virgularia mirabilis* (F), *Pennatula phosphorea* (F), *Munida rugosa* (C), *Asterias rubens* (O), *Sagartia troglodytes* (A)	SS.SMu.CFiMu.SpnMeg	**HB**
InnerSound_137.1	sandy mud	Burrowed mud (C), *Turritella communis* (A), *Aequipecten opercularis* (C), *Munida rugosa* (C), *Asterias rubens* (O)	SS.Smu.CSaMu	
InnerSound_137.2	not visible	rubbish and debris	Not possible to analyse but large amounts of rubbish	
InnerSound_138.1	bedrock- silt covered (60%)	*Cancer pagurus* (R), *Echinus esculentus* (C), *Spirobranchus triqueter* (F), *Porania pulvillus* (O), *Munida rugosa* (F), *Leptometra celtica* (F), *Asterias rubens* (O), *Pleurobranchus membranaceus* (R) 01:48 cable	CR.MCR.EcCr.FaAlCr.Pom	**LS**

InnerSound_138.2	muddy sand with stones and broken shell	*Aequipecten opercularis* (F), *Munida rugosa* (C), *Leptometra celtica* (F), *Spirobranchus triqueter* (F), *Ascidiella virginea* (O), *Porania pulvillus* (O), small *Virgularia mirabilis* (F), *Pecten maximus* (O), *Pleurobranchus membranaceus* (O)	SS.SMx.CMx	**LS**
InnerSound_138.3	bedrock- silt covered (60%)	*Aequipecten opercularis* (F), *Munida rugosa* (C), *Leptometra celtica* (F), *Spirobranchus triqueter* (F), *Ascidiella virginea*(O), *Pecten maximus* (O)	SS.SMx.CMx	**LS**
InnerSound_138.4	course sand and stones	*Diazona violacea* (F), *Echinus esculentus* (C), *Spirobranchus triqueter* (S), *Porania pulvillus* (O), *Ascidia mentula* (F), *Antedon* sp. (O), *Leptometra celtica* (A), *Ascidiella virginea* (F)	CR.LCR.BrAs.AntAsH	**LS**
InnerSound_138.5	bedrock with silt	*Aequipecten opercularis* (F), *Munida rugosa* (C), *Leptometra celtica* (A),	SS.SMx.CMx	**LS**

		Spirobranchus triqueter (A), *Ascidiella virginea* (O), *Luidia ciliaris* (R), *Lanice conchilega* (O), *Asterias rubens* (O)		
InnerSound_138.6	bedrock with silt	*Ophiothrix fragilis* (S), *Echinus esculentus* (C), *Spirobranchus triqueter* (A), *Munida rugosa* (C), *Leptometra celtica* (F)	CR.MCR.EcCr.FaAlCr.Bri	**LS**
InnerSound_138.7	No footage	No footage	No footage	
InnerSound_138.8	course sediment with stones and pebbles	*Spirobranchus triqueter* (S), *Leptometra celtica* (A), *Ascidiella virginea* (C), *Luidia ciliaris* (R), *Ophiothrix fragilis* (F), *Munida rugosa* (C), *Ascidia mentula* (F), *Asterias rubens* (O)	SS.SCS.CCS.PomB	**LS**
InnerSound_139.1	sand and gravel with pebbles and stones	*Aequipecten opercularis* (F), *Munida rugosa* (F), *Antedon* sp. (O), *Spirobranchus triqueter* (F), *Ascidiella virginea*(O), *Porania pulvillus* (O), *Ascidia mentula* (O)	SS.SMx.CMx	
InnerSound_139.2	boulders (70%), gravel and sand (30%)	*Asterias rubens* (O), *Diazona violacea* (F), *Echinus esculentus* (O), pink	CR.LCR.BrAs.AmenCio	**LS**

		encrusting algae (O), *Spirobranchus triqueter* (F), *Porania pulvillus* (O), *Munida rugosa* (F), *Pecten maximus* (O), *Ascidia mentula* (F), *Antedon* sp. (O), *Leptometra celtica* (R), *Ascidiella virginea* (F)		
InnerSound_140.1	Bedrock and boulders	Faunally sparse with *Dipturus cf intermedia* eggs count= 4 (00:06,00:07, 00:13), *Luidia ciliaris* (R), *Diazona violacea* (O), *Echinus esculentus* (O), pink encrusting algae (O)	CR.LCR	**MSE**
InnerSound_140.2	sandy mud with large rocks	*Luidia ciliaris* (R), *Diazona violacea* (F), *Echinus esculentus* (O), pink encrusting algae (O), *Spirobranchus triqueter* (F), *Porania pulvillus* (O), *Munida rugosa* (F), *Pecten maximus* (O), *Ascidia mentula* (O), *Antedon* sp. (O), *Ascidiella virginea* (F)	SS.SMx.CMx	

InnerSound_140.3	Bedrock and boulders	silt covered rock, *Munida rugosa* (F), pink encrusting algae (O), *Spirobranchus triqueter* (F), *Ascidiella virginea*(O), *Ascidia mentula* (O), *Antedon* sp. (O), *Leptometra celtica* (F) *Echinus esculentus* (O)	CR.LCR	**LS**
InnerSound_140.4	sandy mud with large rocks	*Luidia ciliaris* (R), *Diazona violacea* (F), *Echinus esculentus* (O), pink encrusting algae (O), *Spirobranchus triqueter* (F), *Porania pulvillus* (O), *Munida rugosa* (F), *Pecten maximus* (O), *Ascidia mentula* (F), *Antedon* sp. (O), *Ascidiella virginea*(F), *Porania pulvillus* (O),	SS.SMx.CMx	
InnerSound_141	Gravel with stones	Faunally very sparse. *Ophiura* sp.(O), *Spirobranchus triqueter* (F), *Porania pulvillus* (O)	SS.SMx.CMx	

InnerSound_142	sandy mud with stones and occasional boulders	Boulders with *Antedon* sp. (F), *Spirobranchus triqueter* (F), *Ascidiella virginea*(O), *Ascidiella aspersa* (O), *Echinus esculentus* (F), *Pecten maximus* (O), *Munida rugosa* (F), *Aequipecten opercularis* (O)	SS.SMx.CMx
InnerSound_143.1	Bedrock and boulders	Faunally sparse with sediment covering red algae, *Ophiura* sp. (F), *Antedon* (F)	CC.MCR
InnerSound_143.2	Mixed sediment with muddy sand, stones and rocks	*Luidia ciliaris* (O), *Spirobranchus triqueter* (F), *Munida rugosa* (F), *Pecten maximus* (O)	SS.SMx.CMx
InnerSound_144.1	course sediment with stones	*Luidia ciliaris* (O), *Asterias rubens* (O), *Pecten maximus* (O), solitary ascidians (O), *Galathea* sp. (O), *Echinus esculentus* (O), *Porania pulvillus* (O)	SS.SCS.CCS
InnerSound_144.2	Bedrock and boulders	sparse fauna with encrusting red algae, silt covered. *Echinus esculentus* (F)	CC.MIR

InnerSound_144.3	muddy sand with stones	Faunally sparse, fished?	SS.SMx.CMx	
InnerSound_145.1	fine sand with stones and gravel	*Ophiura* sp. (F), *Pecten maximus* (O), *Luidia ciliaris* (O), *Echinus esculentus* (O), *Amphipholis squamata* (F), *Cancer Pagurus* (R), *Lanice conchilega* (O)	SS.SMx.Imx	
InnerSound_145.2	fine sand with large stones and gravel	Stones covered with red algae (C), *Nemertesia antennina* (R), *Luidia ciliaris* (O), occasional bed rock 07:21, 08:54- sparse life filamentous red algae,	SS.SMx.Imx	
InnerSound_146.1	Bedrock	sparse fauna with filamentous red algae, silt covered. *Echinus esculentus* (F)	CC.MIR	
InnerSound_146.2	course shell sand with broken shell	*Ophiura* (F), *Pecten maximus* (O), *Astropecten irregularis* (R), *Echinus esculentus* (F)	SS.SCS.ICS	
InnerSound_146.3	Maerl	*Limaria hians* nests potentially on maerl footage poor and short	SS.SMx.IMx.Lim	**HB**

InnerSound_147.1	*Limaria hians* nests comprising muddy sand (30%) maerl (20%)	*Limaria hians* nests c.50% cover comprising maerl. *Luidia ciliaris* (R)	SS.SMx.IMx.Lim	**HB**
InnerSound_147.2	Maerl (50%) with patches of sandy mud (50%)	Living maerl 15% (F), dead maerl (35%), occasional patches of *Limaria hians* nests (01:05- 02:02, individual 06:24), *Cerianthus lloydii* (A), *Porania pulvillus* (O), *Luidia ciliaris* (R)	SS.SMp.Mrl	**HB**
InnerSound_147.3	Dead maerl (50%) with sandy mud (50%)	*Cerianthus lloydii* (A), *Porania pulvillus* (O), bands dead maerl (50%) and muddy sand.	SS.SCS.ICS	
InnerSound_148.1	Bedrock with silt covering	sparse fauna with encrusting pink algae, *Porania pulvillus* (O), *Spirobranchus triqueter* (O)	CC.MCR	
InnerSound_148.2	Fine mud with cobbles, rock and broken shell	*Pecten maximus* (F), *Antedon* sp. (F), *Spirobranchus triqueter* (F), *Echinus esculentus* (O), *Antedon sp.* (O)	SS.SMx.CMx	
InnerSound_148.3	Fine mud with broken shell	very sparse fauna with large burrows (A)- trawled?	SS.SMu.CFiMu.MegMax	**HB**

InnerSound_148.4	Bedrock with silt covering	sparse fauna with encrusting pink algae, *Porania pulvillus* (O), *Spirobranchus triqueter* (F)	CC.MCR	
InnerSound_148.5	Fine mud	Sparse epifauna with large burrows with *Nephrops norvegicus* visible. Trawled?	SS.SMu.CFiMu.MegMax	**HB**
InnerSound_149.1	Maerl with patches of sandy mud	Maerl 30% live (C), 30% dead, red filamentous algae growing on maerl. *Luidia ciliaris* (R)	SS.SMp.Mrl	**HB**
InnerSound_149.2	bedrock with silt	Sparse bedrock with encrusting algae (F), *Echinus esculentus* (O)	CC.MCR	
InnerSound_149.3	Maerl with patches of sandy mud	Maerl 40% live (C), 30% dead, red filamentous algae growing on maerl. *Luidia ciliaris* (R)	SS.SMp.Mrl	**HB**
InnerSound_149.4	bedrock with silt	Sparse bedrock with encrusting algae (F), *Echinus esculentus* (O)	CC.MCR	
InnerSound_149.5	Maerl with patches of sandy mud	Maerl 40% live (C), 30% dead, red filamentous algae growing on maerl. *Lanice conchilega* (O), *Ophiura* sp.	SS.SMp.Mrl	**HB**

		(F), *Turritella communis* (C), *Galathea* sp. (O), *Pecten maximus* (O)	
InnerSound_149.6	bedrock with silt	Sparse bedrock with encrusting algae (F), *Echinus esculentus* (O)	CC.MCR
InnerSound_150.1	Bedrock covered with silt/ sand	Faunally sparse, *Antedon* sp. (F), *Porania pulvillus* (R), *Spirobranchus triqueter* (F)	CC.MCR
InnerSound_150.2	shell sand with rocks and broken maerl	Video footage too quick to assist detailed quantification. Dead maerl cover less than 1 cm in length 30%, *Ophiura* sp., *Porania pulvillus* (R),	SS.SCS.CCS
InnerSound_150.3	shell sand with rocks and broken maerl (80%)	*Lanice conchilega* (O)	SS.SCS.CCS
InnerSound_150.4	sand with shell and gravel	*Ophiura* sp. (F), *Lanice conchilega* (O),	SS.Ssa.CFiSa
InnerSound_151	Sand, gravel and occasional stones	Faunally sparse with *Lanice conchilega* (O), *Pecten maximus* (R), *Ophiura albida* (O), *Spirobranchus triqueter* (O), *Luidia ciliaris* (R), *Marthasterias glacialis* (R)	SS.SCS.CCS

Table 2

Physical and biological descriptions of the survey sites in Islay and Jura. HB= PMF habitat, LS= PMF low mobility species, MS= PMF mobile species MSE= PMF mobile species eggs.

Site ID	Substrate	Biota	Biotope	PMF
JuraIslay_001	Mearl and maerl gravel with shell	live maerl 15% (F) although abundance patchy, dead maerl (25%), *Saccharina latissima* (O)	SS.SMp.Mrl	**HB**
JuraIslay_002	Muddy sand with shell (dead razor shells (C)	*Asterias rubens* (F), *Nemertesia ramosa* (F) on dead shell, *Crossaster papposus* (O), *Ophiura ophiura* (O), *Ophiura albida* (F), *Pecten maximus* (O), bivalve siphons (C), *Echinocardium cordatum* (R)	SS.SSa.CMuSa	
JuraIslay_003	Muddy sand with scattered shell	filamentous patchy brown algal turf on sediment (F), *Liocarcinus depurator* (R), *Ophiura albida* (F), *Arenicola marina* (O)	SS.SSa.CMuSa	
JuraIslay_004.1	Bedrock and boulders	*Laminaria hyperborea* (F), *Saccharina latissima* (F),	IR.MIR.KR	**HB**

		Echinus esculentus (O), *Crossaster papposus* (O), rich faunal and algal turf foliose red algae (F), brown foliose algae (F), *Nemertesia antennina* (C), hydroid sp. (F), bryozoan sp. (F), *Necora puber* (R), *Alcyonium digitatum* (O)	
JuraIslay_004.2	Sand with shell, stones and cobbles and occasional boulder	*Ophiocomina nigra* (A), *Echinus esculentus* (O), *Crossaster papposus* (O), rich faunal and algal turf (A), foliose red algae (F), brown foliose algae (F), *Nemertesia antennina* (C), hydroid sp. (F), bryozoan sp. (F), *Alcyonium digitatum* (O) on boulders, *Clavelina lepadiformis* (O)	SS.SMx.CMx.OphMx
JuraIslay_004.3	Sand with shell, stones and cobbles and occasional boulder	*Echinus esculentus* (O), *Crossaster papposus* (O), rich faunal and algal turf (A), foliose red algae (F), brown foliose algae (F), *Nemertesia antennina* (C), hydroid sp. (F), bryozoan sp. (F), *Alcyonium*	SS.SMx.CMx

		digitatum (O) on boulders, *Clavelina lepadiformis* (O)		
JuraIslay_005	maerl gravel with shell	fragments of live maerl 5% and fragments of dead maerl 5-9%, *Nemertesia antennina* (O), *Crossaster papposus* (O)	SS.SCS.CCS	
JuraIslay_006	Sandy shell fragments, with dead shell, and sand waves	*Buccinum undatum* (R), *Asterias rubens* (F), ghost creel, *Pecten maximus* (R)	SS.SCS.CCS	
JuraIslay_007.1	Mearl with maerl gravel and shell	live maerl 10% to patchy (F), dead maerl 20% (C), *Peachia cylindrica* (R), *Cerianthus lloydii* (F)	SS.SMp.Mrl	**HB**
JuraIslay_007.2	Bedrock and boulders	*Laminaria hyperborea* (C), *Echinus esculentus* (F), foliose red algae (F), brown foliose algae (F),	IR.MIR.KR.Lhyp.Pk	**HB**
JuraIslay_008.1	Bedrock and boulders with sand patches	*Laminaria hyperborea* (C), *Echinus esculentus* (F), foliose red algae (F), brown foliose algae (F)	IR.MIR.KR.Lhyp.Ft	**HB**
JuraIslay_008.2	maerl gravel (99%) with shell	*Asterias rubens* (O), *Neopentadactyla mixta* (C)	SS.SCS.CCS.Nmix	**HB**

JuraIslay_008.3	Bedrock and boulders	*Laminaria hyperborea* (C), *Saccharina latissima* (C) *Echinus esculentus* (F), foliose red algae (F), brown foliose algae (F),	IR.MIR.KR.LhypTX.Ft	**HB**
JuraIslay_009	sandy mud with stones (60%) becoming patchy, sandy mud with patches of stones	*Saccharina latissima* (F) on stones beginning of run, *Cancer Pagurus* (R), *Echinus esculentus* (O), *Pecten maximus* (O), *Asterias rubens* (O), bivalve siphons (F) in the sandy mud patches	SS.SMx.CMx	
JuraIslay_010	maerl gravel with shell	fragments and small patches of live maerl (5%) (R), fishing pressure? *Saccharina latissima* (O), *Asterias rubens* (O)	SS.SCS.CCS	
JuraIslay_011	maerl gravel with shell	fragments and small patches of live maerl (5%) (R), looks to have been fished, *Saccharina latissima* (F), *Asterias rubens* (O)	SS.SCS.CCS	
JuraIslay_012	Mearl with maerl gravel and shell, at	live maerl 15% (F), dead maerl (20%) (C), *Saccharina*	SS.SMp.Mrl	**HB**

	3:00 40% shell, waves	*latissima* (F) towards end of run		
JuraIslay_013.1	Mearl with maerl gravel and shell, waves	live maerl 10% patchy (F), dead maerl (10%) (C), *Saccharina latissima* (O), fished?	SS.SMp.Mrl	**HB**
JuraIslay_013.2	bedrock and boulders with cobble sand patch	*Laminaria hyperborea* (C), *Saccharina latissima* (C) *Echinus esculentus* (F), foliose red algae (F), brown foliose algae (F),	IR.HIR.KFaR.LhypRVt	
JuraIslay_013.3	Mearl gravel with shell	fragments and small patches of live maerl (5%), looks to have been fished	SS.SCS.CCS	
JuraIslay_014	Mearl gravel with shell	*Neopentadactyla mixta* (C), *Asterias rubens* (O), *Urticina felina* (R), egg mass (S), dead maerl (100%)	SS.SCS.CCS.Nmix	**HB**
JuraIslay_015	Mearl gravel with shell	live maerl 10% patchy (F), dead maerl (10%) (C), *Cerianthus lloydii* (O), *Saccharina latissima* (C), *Pecten maximus* (O)	SS.SMp.Mrl	**HB**
JuraIslay_016	Sand gravel with some maerl at	fragments of maerl at beginning of run, egg mass (C)	SS.SMp.KSwSS	**HB**

	beginning of run, and shell	at beginning of run, *Cerianthus lloydii* (O), *Saccharina latissima* (C), *Pecten maximus* (O), *Asterias rubens* (F), *Desmarestia* sp. (O),		
JuraIslay_017.1	Sand gravel, stones and cobbles	*Ophiocomina nigra* (C), *Urticina felina* (O), *Crossaster papposus* (O), *Echinus esculentus* (O)	SS.SMx.CMx.OphMx	
JuraIslay_017.2	Sand gravel, stones and cobbles	*Laminaria hyperborea* (O), *Saccharina latissima* (F) towards end of run, *Echinus esculentus* (F), filamentous red algae (F), *Ophiura albida* (R),	SS.SMx.CMx	
JuraIslay_018.1	Bedrock and boulders	encrusting coralline algae (C), *Alcyonium digitatum* (F), *Echinus esculentus* (F), *Spirobranchus triqueter* (C)	CR.MCR.EcCr.FaAlCr.Pom	
JuraIslay_018.2	Bedrock and boulders	*Laminaria hyperborea* (C), encrusting coralline algae (C), *Alcyonium digitatum* (F), *Echinus esculentus* (C), *Spirobranchus triqueter* (C), filamentous red algae (F)	IR.MIR.KR.LhypTX.Pk	**HB**

JuraIslay_019	Sand gravel with stones 20% and shell 30%	*Asterias rubens* (F), *Saccharina latissima* (O), filamentous red & brown algae (C) on shell and small stones, fragments of maerl towards end of run (O), *Cerianthus lloydii* (O)	SS.SMx.CMx	
JuraIslay_020.1	Bedrock and boulders	red and brown algal turf (C), *Echinus esculentus* (F), *Crossaster papposus* (O),	CR.MCR	
JuraIslay_020.2	Sand gravel, with stones 30% and shell 40%	*Laminaria hyperborea* (F), *Saccharina latissima* (C), brown and red filamentous algae (F), *Pecten maximus* (O)	SS.SMp.KSwSS	**HB**
JuraIslay_021.1	bedrock and boulders	*Laminaria hyperborea* (O), *Echinus esculentus* (F), filamentous red algae (F), foliose red algae (F), encrusting coralline algae (F)	IR.MIR.KR.Lhyp.Pk	**HB**
JuraIslay_021.2	Gravel/small stones	*Saccharina latissima* (C), *Pecten maximus* (O), *Echinus esculentus* (O)	SS.SMp.KSwSS.LsacR	**HB**
JuraIslay_021.3	bedrock and boulders	*Laminaria hyperborea* (O), *Echinus esculentus* (F), filamentous red algae (F),	IR.MIR.KR.Lhyp.Pk	**HB**

		foliose red algae (F), encrusting coralline algae (F)		
JuraIslay_021.4	Gravel/small stones	*Saccharina latissima* (C), *Pecten maximus* (O), *Echinus esculentus* (O)	SS.SMp.KSwSS.LsacR	**HB**
JuraIslay_022	70% stones/ occasional cobble in sand	encrusting coralline algae (F) on stones, *Echinus esculentus* (F), *Spirobranchus triqueter* (C), *Asterias rubens* (O), *Liocarcinus depurator* (R), *Solaster endeca* (R) drift algae (A)	SS.SMx.CMx	
JuraIslay_023	Bedrock and boulders with occasional gravel patch	filamentous brown and red algal turf (F), foliose red seaweeds (C), encrusting bryozoan (F), encrusting coralline algae (C), *Nemertesia antennina* (O), *Nemertesia ramosa* (O), *Spirobranchus triqueter* (F), *Solaster endeca* (R), *Crossaster papposus* (R), *Echinus esculentus* (F), *Cliona celata* (O)	CR.MCR.EcCr.FaAlCr	

JuraIslay_024	Sandy mud, with stones at the beginning of the run, 02:45 shelly patch 70% and shell 30% till 04:21	faunally sparse, *Asterias rubens* (F), *Pecten maximus* (O)	SS.SSa.CMuSa	
JuraIslay_025.1	sand gravel, stones 70%	*Ophiura albida* (F), *Asterias rubens* (O)	SS.SMx.CMx	
JuraIslay_025.2	boulders into vertical bedrock	*Laminaria hyperborea* (A), *Caryophyllia smithii* (F), on boulders at bottom of vertical rock, *Echinus esculentus* (F), encrusting coralline algae (F), *Solaster endeca* (R), *Crossaster papposus* (R), foliose red seaweed (C), *Asterias rubens* (F)	IR.HIR.KFaR.LhypRVt	
JuraIslay_025.3	boulders and bed rock leading to a small vertical rock wall	boulders have *Echinus esculentus* (C), encrusting coralline algae (F), foliose red seaweed (C), *Asterias rubens* (F), vertical rock *Laminaria hyperborea* (A),	IR.MIR.KR.Lhyp.Ft	**HB**

JuraIslay_026	Sandy mud with stones (30%) with shell (5%)	faunally sparse, *Asterias rubens* (F), *Cerianthus lloydii* (O)	SS.SMx.CMx	
JuraIslay_027	Muddy sand with 5% stone and shell	*Arenicola marina* worm casts (F), small worm casts (A), *Asterias rubens* (F), *Liocarcinus depurator* (O), small burrows (C)	SS.SSa.CMuSa	
JuraIslay_028	Gravel and occasional cobbles	*Saccharina latissima* (C), *Asterias rubens* (O), filamentous red algae (O)	SS.SMp.KSwSS.LsacR.Gv	**HB**
JuraIslay_029	Cobbles, boulders and stones in gravel sand	*Laminaria hyperborea* (A), *Saccharina latissima* (F), foliose red algae on stipes of kelp (A), porifera on kelp stipe (C), hydroids on kelp stipe (F), bryozoan on kelp stipes (F)	IR.MIR.KT.XKTX	**HB**
JuraIslay_030	Stones and coarse gravel with cobles tide swept mixed sediment	*Eucratea loricata* (S), *Nemertesia antennina* (F), *Nemertesia ramosa* (F), *Flustra foliacea* (F), *Clavelina lepadiformis* (C), *Solaster endeca* (O), *Crossaster papposus* (C), *Asterias rubens* (F)	SS.SMx.CMx	

JuraIslay_031	Stones and coarse gravel with occasional coble, tide swept mixed sediment	*Eucratea loricata* (F), *Flustra foliacea* (O), *Alcyonidium diaphanum* (C), hydroid and bryozoan turf on stones (A), foliose red algae (F), *Asterias rubens* (O),	SS.SMx.CMx
JuraIslay_032	Muddy sand with some 10 to 20% shell/stone fraction on top	*Cerianthus lloydii* (C), *Liocarcinus depurator* (O), *Asterias rubens* (O), *Munida rugosa* (F), small burrows (F), *Nemertesia ramosa* (O) on stones, *Crossaster papposus* (F)	SS.SMx.CMx.ClloMx
JuraIslay_033	maerl gravel with shell	*Asterias rubens* (O), *Saccharina latissima* (O), *Asterias rubens* (O), filamentous red algae (O), broken dead maerl 25%	SS.SCS.CCS
JuraIslay_034	Fine sand with 10% broken shell	faunally sparse, tide swept	SS.SSa.CFiSa
JuraIslay_035	Fine sand with 10% broken shell, large shell and occasional cobble	*Flustra foliacea* (F) on cobbles and shell, *Urticina felina* (F) on cobbles and shell, *Sagartia elegans* (O), on cobbles or	SS.SSa.CFiSa

		shell, *Asterias rubens* (O), *Crossaster papposus* (O)		
JuraIslay_036	Gravel sand with cobbles and stones	*Laminaria hyperborea* (A), *Saccharina latissima* (F), foliose red algae on stones (A), *Echinus esculentus* (O), *Crossaster papposus* (O)	IR.MIR.KT	**HB**
JuraIslay_037	Fine sand with 5% shell	*Cerianthus lloydii* (O), *Asterias rubens* (O), *Saccharina latissima* (O) on shell, foliose/filamentous red algae on shell (C), tide swept sediment	SS.SSa.CFiSa	
JuraIslay_038	Gravel sand with cobbles and stones	*Laminaria hyperborea* (A), *Saccharina latissima* (F), foliose red algae on stones (A), filamentous red algae on stones (F) *Echinus esculentus* (O), *Asterias rubens* (O)	IR.MIR.KT	**HB**
JuraIslay_039	Muddy sand with 10% shell	*Munida rugosa* (F), *Asterias rubens* (O), worm casts (O), *Crossaster papposus* (O), bivalve siphons (O)	SS.SSa.CMuSa	

JuraIslay_040	Fine sand/sand waves	faunally sparse, detritus material in the troughs of the sand waves	SS.SSa.CFiSa	
JuraIslay_041	Muddy sand with some 5% shell on top	*Munida rugosa* (F), worm casts (O), bivalve siphons (F), *Liocarcinus depurator* (R)	SS.SSa.CMuSa	
JuraIslay_042	Muddy sand/sand ripples	faunally sparse, detritus and silt deposits in troughs of waves	SS.SSa.CMuSa	
JuraIslay_043	Muddy sand with 70-90% shell (Modiolus shell 40%)	faunally sparse, *Asterias rubens* (R),	SS.SMx.CMx	
JuraIslay_044	Shell gravel, waves with shell in the troughs gravel on the waves	*Neopentadactyla mixta* (F) to 01:26, *Asterias rubens* (O), *Alcyonidium diaphanum* (A) from 02:00 onwards, *Pecten maximus* (O), *Crossaster papposus* (O)	SS.SCS.CCS.Nmix	**HB**
JuraIslay_045	Sand, gentle waves	faunally sparse, detritus in the troughs	SS.SSa.CFiSa	
JuraIslay_046	rippled sand with 5% stones occasional cobble	*Asterias rubens* (O), *Liocarcinus depurator* (O), *Urticina felina* (O), *Ophiura albida* (O), worm casts (O),	SS.SSa.CFiSa	

		Agonus cataphractus (R), Callionymus lyra (R)		
JuraIslay_047	rippled sand	faunally sparse, detritus in the troughs	SS.SSa.CFiSa	
JuraIslay_048	rippled sand	faunally sparse, detritus in the troughs, worm cast (C), *Liocarcinus depurator* (R), *Arenicola marina* (F)	SS.SSa.CFiSa	
JuraIslay_049	Cobbles, stones and coarse sand/gravel	*Laminaria hyperborea* (A), foliose red algae on stones (A), foliose red algae on stipes (A)	IR.MIR.KR.LhypTX.Ft	**HB**
JuraIslay_050	Cobbles, stones and coarse sand/gravel	*Laminaria hyperborea* (O) at the beginning of the run, foliose red algae on stones (A), encrusting coralline algae (C), *Echinus esculentus* (F), *Cerianthus lloydii* (R)	SS.SMp.KSwSS	**HB**
JuraIslay_051	Sandy mud with cobbles and stones 20%	*Alcyonidium diaphanum* (A), *Flustra foliacea* (C), *Cerianthus lloydii* (O), *Asterias rubens* (O), *Urticina felina* (R), *Sagartia elegans* (R), *Munida rugosa* (O), *Pagurus bernhardus* (O), *Crossaster papposus* (O),	SS.SMx.CMx	

		Ophiura albida (F), *Capnea sanguinea* (R)		
JuraIslay_052	Fine sand with 5% shell	*Asterias rubens* (O), worm casts (O), *Ophiura albida* (O), *Crossaster papposus* (R)	SS.SSa.CFiSa	
JuraIslay_053	Cobbles, stones and boulders	rich in red seaweeds, hydroids and bryozoan, foliose red seaweeds (S), *Nemertesia antennina* (C), *Flustra foliacea* (C), *Urticina felina* (A), *Asterias rubens* (C), *Sagartia elegans* (F), barnacle covered boulders (C), *Eucratea loricata* (C), *Crossaster papposus* (F)	IR.MIR.KT	**HB**
JuraIslay_054	Cobbles, stones and 50% shell, (30% *Modiolus* shell)	*Laminaria hyperborea* (A) at the start of the run, *Saccharina latissima* (F) towards the end of the run, foliose red algae on stones/shell (F), *Asterias rubens* (O), *Crossaster papposus* (O), *Urticina felina* (O)	SS.SMp.KSwSS	**HB**
JuraIslay_055	Cobbles, stones and maerl gravel	*Laminaria hyperborea* (A), *Saccharina latissima* (F), *Alaria esculenta* (O), foliose red	IR.MIR.KT	**HB**

		algae on cobbles (F), foliose red algae on stipes (F), porifera on stipe (O), *Asterias rubens* (O), *Crossaster papposus* (O), *Echinus esculentus* (O), encrusting coralline algae on stones (F), maerl 10%?		
JuraIslay_056	Cobbles, stones and 60% shell, (30% Modiolus shell)	*Laminaria hyperborea* (F), *Saccharina latissima* (F), *Alaria esculenta* (O), foliose red algae on cobbles/shell (F), *Asterias rubens* (O), encrusting coralline algae on stones (F)	SS.SMp.KSwSS	**HB**
JuraIslay_057	muddy sand with 30% stone and 40% shell	short bryozoan/hydroid turf (F) on stones, *Flustra foliacea* (O), *Asterias rubens* (O), *Crossaster papposus* (O), *Cerianthus lloydii* (O)	SS.SMx.CMx	
JuraIslay_058	muddy sand with 10% stone and 40% broken shell	short bryozoan/hydroid turf (F) on stones, *Flustra foliacea* (O), *Asterias rubens* (O), *Cerianthus lloydii* (F), *Alcyonidium diaphanum* (C), *Sagartiogeton* sp. (R),	SS.SMx.CMx	

JuraIslay_059	muddy sand with 20% shell	short bryozoan/hydroid turf (F) on shell, *Flustra foliacea* (F), *Cerianthus lloydii* (F), *Alcyonidium diaphanum* (F), *Nemertesia antennina* (O)	SS.SMx.CMx
JuraIslay_060	muddy sand with 40% shell	short bryozoan/hydroid turf (F) on shell, *Flustra foliacea* (F), *Cerianthus lloydii* (O), *Ophiura albida* (F), *Ophiura ophiura* (O), *Nemertesia antennina* (O), *Asterias rubens* (O), *Urticina felina* (R), *Pagurus prideaux* (R)	SS.SMx.CMx
JuraIslay_061	muddy sand with 20% shell	short bryozoan/hydroid turf (F) on shell, *Flustra foliacea* (O), *Cerianthus lloydii* (C), *Ophiura albida* (F), *Ophiura ophiura* (O), worm casts (O), *Liocarcinus depurator* (R)	SS.SMx.CMx.CIloMx
JuraIslay_062	muddy sand with 60% shell	short bryozoan/hydroid turf (F) on shell, *Cerianthus lloydii* (O), *Ophiura albida* (F), worm casts (O), *Asterias rubens* (R), *Urticina felina* (O)	SS.SMx.CMx

JuraIslay_063	muddy sand with stones 10% stone 40% shell	short bryozoan/hydroid turf (F) on shell, *Flustra foliacea* (O), *Cerianthus lloydii* (F), *Ophiura albida* (F), *Nemertesia antennina* (O), *Asterias rubens* (O), *Crossaster papposus* (R)	SS.SMx.CMx	
JuraIslay_064	Sand with occasional pebble and shell	*Saccharina latissima* (F), foliose red and brown algae on shell and stone (C), *Desmarestia* sp. (F), *Pecten maximus* (R), *Carcinus maenas* (F)	SS.SMp.KSwSS	**HB**
JuraIslay_065	Mud	*Virgularia mirabilis* (A), *Cerianthus lloydii* (C), *Carcinus maenas* (F), *Liocarcinus depurator* (O), large burrows (C), small burrows (C), *Asterias rubens* (O)	SS.SMu.CFiMu.SpnMeg	**HB**
JuraIslay_066	Muddy sand with 5% stone and shell	*Saccharina latissima* (O), foliose red and brown algae on shell and stone (O), *Desmarestia* sp. (O), *Carcinus maenas* (F), *Liocarcinus depurator* (O), worm casts (F)	SS.SMp.KSwSS	**HB**

JuraIslay_067	Muddy sand	*Virgularia mirabilis* (A), *Cerianthus lloydii* (O), small burrows (C), *Suberites carnosus* (R), *Cliona celata* (R)	SS.SMu.IFiMu.PhiVir	
JuraIslay_068	Muddy sand with 5% stone and shell	*Saccharina latissima* (R), foliose red and brown algae on shell and stone (C), *Desmarestia* sp. (O), *Liocarcinus depurator* (R), worm casts (F), *Virgularia mirabilis* (R)	SS.SMu.IFiMu	
JuraIslay_069	Cobbles, stones and gravel	*Laminaria hyperborea* (O), *Saccharina latissima* (F), foliose red and brown algae (A), *Asterias rubens* (F), *Echinus esculentus* (O), encrusting coralline algae on stones (O), *Alcyonidium diaphanum* (O), *Clavelina lepadiformis* (F)	SS.SMp.KSwSS	**HB**
JuraIslay_070	muddy sand, with 20% stones and 40% shell	short bryozoan/hydroid turf (F), *Alcyonidium diaphanum* (C), *Flustra foliacea* (F), *Cerianthus lloydii* (O), *Asterias rubens* (F), *Urticina felina* (O), *Liocarcinus*	SS.SMx.CMx	

		depurator (F), *Pagurus bernhardus* (O), *Crossaster papposus* (F), bivalve siphons (F), foliose red algae (F)		
JuraIslay_071	Gravel/stones 70% with shell 5% and occasional cobble	short bryozoan/hydroid turf (F) attached to stones, *Alcyonidium diaphanum* (R), *Flustra foliacea* (R), *Asterias rubens* (R), *Urticina felina* (O), *Pagurus bernhardus* (R), *Crossaster papposus* (O), drift algae (O)	SS.SCS.CCS	
JuraIslay_072	Shell 60%, gravel (25%), fine sand (15%)	*Saccharina latissima* (A), foliose red algae (A), encrusting coralline algae on shell/stones (F), hydroid sp. (O)	SS.SMp.KSwSS	**HB**
JuraIslay_073	Shell 90% (Modiolus shell). Gravel	shell plain faunally sparse, *Laminaria hyperborea* (O), *Saccharina latissima* (O), foliose red algae (O), *Asterias rubens* (O), *Crossaster papposus* (O)	SS.SMx.CMx	
JuraIslay_074	Shell 80% gravel	*Laminaria hyperborea* (F), *Saccharina latissima* (F), *Alaria*	SS.SMp.KSwSS	**HB**

		esculenta (F), foliose red algae on cobbles/shell (F), *Asterias rubens* (O), encrusting coralline algae on stones (F), hydroid/bryozoan (O)		
JuraIslay_075	Gravel/stones with (F) cobbles towards end of the run	*Laminaria hyperborea* (F), *Saccharina latissima* (A), *Saccorhiza polyschides* (F), foliose red and brown algae (S), *Asterias rubens* (A) towards end of run, encrusting coralline algae on stones (F), hydroid/bryozoan (O), *Crossaster papposus* (O), *Echinus esculentus* (O), *Aplysia punctata* (F), *Necora puber* (O), barnacle covered cobble (F) towards end of run	SS.SMp.KSwSS.LsacR.CbPb	**HB**
JuraIslay_076	Stones and coarse gravel with cobles tide swept mixed sediment	dense bryozoan/hydroid turf (A) throughout run, foliose red algae (F), *Saccharina latissima* (O) at beginning of run, *Eucratea loricata* (S), *Nemertesia antennina* (C), *Flustra foliacea* (C), *Clavelina*	SS.SMx.CMx	

		lepadiformis (C), *Solaster endeca* (F), *Crossaster papposus* (F), *Asterias rubens* (F), *Urticina felina* (F)		
JuraIslay_077	Gravel/stones and cobbles	foliose red algae (A), *Laminaria hyperborea* (A), *Saccharina latissima* (F), bryozoan/hydroid sp. (F), *Nemertesia antennina* (C), *Nemertesia ramosa* (F), *Flustra foliacea* (F), *Crossaster papposus* (O), *Asterias rubens* (C), *Urticina felina* (C), *Alcyonidium diaphanum* (O), encrusting coralline algae (C) on stones, *Echinus esculentus* (O)	SS.SMp.KSwSS.LsacR.CbPb	**HB**
JuraIslay_078	Coarse sand, cobbles and boulders	tow too fast, faunally sparse, *Urticina felina* (C)	SS.SMx.CMx	
JuraIslay_079	Bedrock, boulders, cobbles and gravel	foliose red algae (A), *Laminaria hyperborea* (A), *Saccharina latissima* (O), *Alaria esculenta* (O), *Crossaster papposus* (O),	IR.MIR.KR.LhypTX.Pk	**HB**

		Asterias rubens (F), *Urticina felina* (F), encrusting coralline algae (C) on stones, barnacles on cobbles (S), *Necora puber* (O)		
JuraIslay_080	Coarse mobile sand with cobbles 10% and (O) boulder	foliose red algae (F) on cobbles, *Laminaria hyperborea* (F) on cobbles, *Urticina felina* (O) on cobbles, sand faunally sparse	SS.SSa.IFiSa.IMoSa	
JuraIslay_081.1	Mearl gravel with patchy pebbles and cobbles	live maerl c.50% (ranging from 40% to 60%) (A), dead maerl 10% (F), foliose red algae (A), *Laminaria hyperborea* (A), *Saccharina latissima* (A), filamentous brown and red algae (F) on cobbles, *Ulva* sp. (O) on cobbles, *Desmarestia* sp. (F),	SS.SMp.Mrl	**HB**
JuraIslay_081.2	Gravel with pebbles	foliose red algae (F), *Laminaria hyperborea* (A), *Saccharina latissima* (A), *Desmarestia* sp. (F), *Alaria esculenta* (R)	SS.SMp.KSwSS	**HB**
JuraIslay_082.1	Gravel with pebbles and (O) cobbles	foliose red algae (F), *Laminaria hyperborea* (A), *Saccharina*	SS.SMp.KSwSS	**HB**

		latissima (A), *Alaria esculenta* (F), encrusting coralline algae (C) on stones		
JuraIslay_082.2	Mearl gravel with patchy pebbles and cobbles	live maerl c. 50% (A), dead maerl 10% (F), foliose red algae (F), *Laminaria hyperborea* (A), *Saccharina latissima* (A), *Alaria esculenta* (F), *Echinus esculentus* (F), *Crossaster papposus* (O)	SS.SMp.Mrl	**HB**
JuraIslay_083	Cobbles, pebbles and gravel	foliose red algae (C), *Laminaria hyperborea* (A), *Saccharina latissima* (F), *Alaria esculenta* (O), encrusting coralline algae (A) on stones, *Echinus esculentus* (F), *Urticina felina* (O), *Sagartia elegans* (R),	IR.MIR.KR.LhypTX.Ft	**HB**
JuraIslay_084	Coarse sand with cobbles and pebbles	foliose red algae (C), *Laminaria hyperborea* (A), *Saccharina latissima* (A), *Desmarestia* sp. (F), encrusting coralline algae (A) on stones, *Crossaster papposus* (O)	IR.MIR.KR.LhypTX.Ft	**HB**

JuraIslay_085.1	Cobbles, pebbles and boulders	foliose red algae (F), *Laminaria hyperborea* (F), *Saccharina latissima* (O), *Desmarestia* sp. (O), encrusting coralline algae (A) on stones, *Crossaster papposus* (O), *Urticina felina* (O)	IR.MIR.KR.LhypTX.Pk	**HB**
JuraIslay_085.2	Cobbles, pebbles and boulders	foliose red algae (A), *Laminaria hyperborea* (A), encrusting coralline algae (A), *Echinus esculentus* (F)	IR.MIR.KR.LhypTX.Ft	**HB**
JuraIslay_086	Cobbles and pebbles with boulders	foliose red algae (A), porifera (A), encrusting coralline algae (C), hydroid/bryozoan (C), *Alcyonium digitatum* (C), *Urticina felina* (F), *Sagartia elegans* (F), *Crossaster papposus* (F), *Echinus esculentus* (F), *Asterias rubens* (F), *Necora puber* (O)	SS.SMp.KSwSS.LsacR.CbPb	**HB**
JuraIslay_087	Boulders and cobbles	orange encrusting porifera (A), *Flustra foliacea* (C), *Urticina felina* (A), *Crossaster papposus* (C), *Asterias rubens* (A), hydroid/bryozoan sp. (C),	CR.HCR.XFa	

		Alcyonium digitatum (F), encrusting coralline algae (C), barnacles on boulders (A), *Clavelina lepadiformis* (F), *Henricia oculata* (O), *Tubularia indivisa* (R)		
JuraIslay_088	Gravel with pebbles	foliose red algae (A), *Laminaria hyperborea* (A), *Saccharina latissima* (A), *Alaria esculenta* (F), *Desmarestia* sp. (F), encrusting coralline algae (A), *Echinus esculentus* (O)	SS.SMp.KSwSS.LsacR.CbPb	**HB**
JuraIslay_089	Cobbles, pebbles and boulders	foliose red algae (A), *Laminaria hyperborea* (A), encrusting coralline algae (F) on stones, *Echinus esculentus* (F), *Urticina felina* (C), *Asterias rubens* (F), *Crossaster papposus* (F), *Nemertesia antennina* (F), *Balanus balanus* (A)	SS.SMp.KSwSS.LsacR.CbPb	**HB**
JuraIslay_090.1	Mearl gravel with patchy pebbles and cobbles	live maerl c. 50% (range 40% to 70%) (A), dead maerl 10% (F), foliose red algae (C),	SS.SMp.Mrl	**HB**

		Laminaria hyperborea (A), *Saccharina latissima* (F), foliose red algae (F), *Desmarestia* sp. (F),		
JuraIslay_090.2	Gravel with cobbles and pebbles	foliose red algae (F), *Laminaria hyperborea* (A), *Saccharina latissima* (F), *Desmarestia* sp. (F), encrusting coralline algae (F) on stones, *Echinus esculentus* (O), *Asterias rubens* (O), *Crossaster papposus* (O)	SS.SMp.KSwSS	**HB**
JuraIslay_091	Gravel with pebbles, cobbles and boulders	foliose red algae (A), *Laminaria hyperborea* (A), *Desmarestia* sp. (F), encrusting coralline algae (A) on stones, *Crossaster papposus* (F), *Echinus esculentus* (F)	IR.MIR.KR.LhypTX.Ft	**HB**
JuraIslay_092.1	Gravel turning into pebbles, cobbles and occasional boulder	transition between kelp park and faunal turf, foliose red algae (F), *Laminaria hyperborea* (F), *Desmarestia* sp. (O), encrusting coralline algae (A) on stones, *Asterias*	IR.MIR.KR.LhypTX.Pk	**HB**

		rubens (F), *Flustra foliacea* (F), *Hydrallmania falcata* (F), *Sertularia* sp. (F), *Halecium halecium* (F), *Cancer pagurus* (O), *Echinus esculentus* (F)		
JuraIslay_092.2	Cobbles and occasional boulder	*Asterias rubens* (F), *Flustra foliacea* (F), *Hydrallmania falcata* (C), *Sertularia* sp. (F), *Halecium halecium* (F), *Echinus esculentus* (F), *Eucratea loricata* (C), *Ophiocomina nigra* (C)	CR.HCR.XFa	
JuraIslay_093	Bedrock and boulders with some gravel patches	foliose red algae (A), *Laminaria hyperborea* (S), encrusting coralline algae (A) *Echinus esculentus* (F), *Sagartia elegans* (O), *Palmaria palmata* (F) on stipes, foliose red algae on stipes (A), porifera (F) on stipes, *Obelia geniculata* on fronds (A),	IR.MIR.KR.Lhyp.Ft	**HB**
JuraIslay_094	Cobbles	tow too fast, *Urticina felina* (C), *Flustra foliacea* (F)	SS.SCS.CCS	
JuraIslay_095	Gravel, stones and boulders	foliose red algae (A), *Laminaria hyperborea* (S),	IR.MIR.KR.LhypTX.Pk	**HB**

		Saccharina latissima (F), encrusting coralline algae (A) *Echinus esculentus* (F), *Dictyota dichotoma* (F), *Desmarestia* spp. (O), towards end of tow less kelp, Hydroid sp. *Halecium halecium* (F), *Nemertesia ramosa* (F), *Nemertesia antennina* (F), *Crossaster papposus* (F), *Munida rugosa* (O), *Ophiocomina nigra* (C) towards end of run		
JuraIslay_096	Silts boulders with mud gravel in between	On the boulders: *Caryophyllia smithii* (F), porifera (F), *Aglaophenia tubulifera* (O), *Halecium halecium* (O), *Nemertesia ramosa* (F), barnacle covered cobbles (C), *Leptometra celtica* (F) beginning of tow, *Echinus esculentus* (F), on the gravel mud: *Munida rugosa* (C), *Pecten maximus* (C), *Cerianthus lloydii* (F),	SS.SMx.CMx	**LC**

		Crossaster papposus (O), *Solaster endeca* (R), *Ophiura albida* (F)		
JuraIslay_097	Gravel/silty sand with cobbles	foliose red algae (A), *Saccharina latissima* (F), encrusting coralline algae (F) *Dictyota dichotoma* (F), *Desmarestia* spp. (F), *Delesseria sanguinea* (F), filamentous brown and red algae (F), *Asterias rubens* (O)	SS.SMp.KSwSS	**HB**
JuraIslay_098	Mearl (50%) gravel (40%) with stone patches 10%	Live maerl c.30% (range 20 to 40%) (C), dead maerl 20% (C), *Saccharina latissima* (C), *Desmarestia* sp. (F), *Asterias rubens* (O), difficult to see towards end of run, kelp caught on camera covering a lot of the view, looks like it runs out onto boulder slope from about 03:56	SS.SMp.Mrl	**HB**
JuraIslay_099	Gravel sand with cobbles and stones	foliose red algae (A), *Laminaria hyperborea* (F), *Saccharina latissima* (F), *Dictyota dichotoma* (A),	SS.SMp.KSwSS	**HB**

		Desmarestia spp. (F), *Delesseria sanguinea* (F), filamentous brown and red algae (F), *Asterias rubens* (F), *Echinus esculentus* (F)		
JuraIslay_100	Muddy sand with (F) cobbles	red algae growing on cobbles (F), *Nemertesia antennina* (F) on cobbles, *Clavelina lepadiformis* (C) on cobbles and small shell, *Ophiura ophiura* (C), *Ophiura albida* (F), *Pagurus prideaux* (R), *Cerianthus lloydii* (F), small burrows (C), *Asterias rubens* (O)	SS.SMu.CSaMu	
JuraIslay_101	Muddy sand with shell 10% and cobbles 10%	red algae growing on cobbles (F), *Clavelina lepadiformis* (F) on cobbles and small shell, *Cerianthus lloydii* (F), *Asterias rubens* (F), *Echinus esculentus* (F), *Liocarcinus depurator* (R), *Eledone cirrhosa* (O)	SS.SMx.CMx	
JuraIslay_102	Muddy sand with stones and cobbles 30%	maerl fragments (R), foliose red algae (A), *Saccharina latissima* (C), *Dictyota*	SS.SMp.KSwSS	**HB**

		dichotoma (A), *Desmarestia* spp. (F), *Echinus esculentus* (O), *Ophiura* sp. (O)		
JuraIslay_103.1	Mearl gravel in muddy sand	Mearl c. 12% (10 to 15%) live (F), dead maerl 10% (F), foliose red algae (A), *Saccharina latissima* (C), *Dictyota dichotoma* (A), *Desmarestia* sp. (F), *Ulva* sp. (O), *Echinus esculentus* (O)	SS.SMp.Mrl	**HB**
JuraIslay_103.2	Gravel in muddy sand	foliose red algae (A), *Saccharina latissima* (C), *Dictyota dichotoma* (A), *Desmarestia* spp. (F), *Echinus esculentus* (O), *Virgularia mirabilis* (C) from 04:32	SS.SMp.KSwSS	**HB**
JuraIslay_104	Muddy sand with shell 20% and pebbles 30%	foliose red algae (C), *Saccharina latissima* (O), *Dictyota dichotoma* (A), *Desmarestia* spp. (F), *Clavelina lepadiformis* (C), *Cerianthus lloydii* (C), *Asterias rubens* (O), *Echinus esculentus* (O)	SS.SMp.KSwSS	**HB**

JuraIslay_105	Muddy sand with shell 10% and cobbles 30% and (O) boulders	foliose red algae (F) increasing to (C) towards end of run, *Saccharina latissima* (O) towards end of run, *Clavelina lepadiformis* (A), *Cerianthus lloydii* (C), *Echinus esculentus* (O), *Crossaster papposus* (O), *Liocarcinus depurator* (O), Hydroid sp. turf on cobbles (C), barnacles on boulders (C), *Antedon* sp. (O), *Cancer Pagurus* (O), *Cerianthus lloydii* (F), *Ophiura albida* (O), *Echiura* sp. (O)	SS.SMx.CMx	
JuraIslay_106	Cobbles, pebble and gravel	dense algae turf, foliose red algae (A), *Saccharina latissima* (A) *Laminaria hyperborea* (A) towards end of run, *Dictyota dichotoma* (A), *Desmarestia* sp. (C), *Asterias rubens* (F), *Echinus esculentus* (F), *Crossaster papposus* (O), *Obelia* sp. on fronds (A)	SS.SMp.KSwSS.LsacR.CbPb	**HB**

JuraIslay_107	Shell 50 to 70% (Modiolus shell) and stone gravel	faunally sparse, two *Urticina felina* (O)	SS.SMx.CMx
JuraIslay_108	Muddy sand with shell 10%	foliose red algae (F) growing on shell, *Ophiura ophiura* (C), *Pagurus bernhardus* (O), *Ophiura albida* (O),	SS.SSa.CMuSa
JuraIslay_109	Shell 70% (*Modiolus* shell) and gravel	faunally sparse, one *Urticina felina* (R)	SS.SMx.CMx
JuraIslay_110	Muddy sand with stones/shell and occasional large boulder	*Caryophyllia smithii* (O), porifera (F), *Nemertesia ramosa* (F), *Echinus esculentus* (F), *Asterias rubens* (F), *Solaster endeca* (R), *Ophiura albida* (F), *Ophiura ophiura* (C), *Suberites carnosus* (O), *Pagurus prideaux* (R), *Antedon* sp. (R), *Halecium halecium* (R), *Liocarcinus depurator* (R), *Henricia oculata* (R)	SS.SMx.CMx
JuraIslay_111	Muddy sand with shell 5% cobble and pebbles 20%	hydroid/bryozoan fine turf on cobbles (F), *Nemertesia ramosa* (F), *Asterias rubens* (F), *Pagurus bernhardus* (R),	SS.SMx.CMx

		Ophiura ophiura (R), *Virgularia mirabilis* (R), *Cerianthus lloydii* (C)		
JuraIslay_112	muddy sand with 20% shell and (F) cobble	hydroid/bryozoan fine turf on cobbles (F), *Nemertesia ramosa* (O), *Pagurus bernhardus* (C), *Ophiura ophiura* (C), *Ophiura albida* (C), *Crossaster papposus* (R), *Leptometra celtica* (R),	SS.SSa.CMuSa	**LS**
JuraIslay_113	muddy sand with 50 to 60% shell and (O) cobble	faunally sparse	SS.SSa.CMuSa	
JuraIslay_114	muddy sand with 20% shell and (O) cobble	foliose red algae (A), *Saccharina latissima* (C), *Desmarestia* spp. (F), *Ulva* sp. (C),	SS.SMp.KSwSS.LsacR.Mu	**HB**
JuraIslay_115	shelly 70% sand with cobbles 30% and boulders 20%	rich faunal turf with (F) red foliose algae, *Clavelina lepadiformis* (A), *Nemertesia ramosa* (C), *Nemertesia antennina* (C), *Kirchenpaueria pinnata* (C), hydroid/bryozoan turf (C), *Urticina felina* (F),	SS.SMx.CMx	

		porifera sp. (F), *Echinus esculentus* (F)		
JuraIslay_116	Mud	large burrows (A), small burrows (A), *Munida rugosa* (R), *Cerianthus lloydii* (R), *Virgularia mirabilis* (R), *Scyliorhinus canicula* (R)	SS.SMu.CFiMu.MegMax	**HB**
JuraIslay_117	Mud	large burrows (A), small burrows (A), *Cerianthus lloydii* (R), *Nephrops norvegicus* (O), *Asterias rubens* (R), mysids following camera lights (A), *Sabella pavonina* (F) and *Caryophyllia smithii* (F), on two to three boulders near end of run	SS.SMu.CFiMu.MegMax	**HB**
JuraIslay_118	muddy gravel with occasional cobble or boulder at the beginning of the run	*Asterias rubens* (O), *Nemertesia ramosa* (O) on boulders, *Caryophyllia smithii* (O) on boulders, *Alcyonium digitatum* (O) on boulders, *Alcyonidium diaphanum* (O), *Pecten maximus* (O), *Munida rugosa* (R), *Pagurus*	SS.SMx.CMx	

		bernhardus (O), *Ophiura albida* (O)		
JuraIslay_119.1	bedrock and boulders with coarse shelly sand	*Antedon* sp. (A) on rocks and boulders, *Nemertesia antennina* (C), *Clavelina lepadiformis* (O), *Caryophyllia smithii* (O), foliose red algae (C), *Laminaria hyperborea* (O), *Cancer Pagurus* (R)	IR.MIR.KT	**HB**
JuraIslay_119.2	Mixed sediment, muddy sand (20%) with pebbles (80%)	*Saccharina latissima* (O), red algae (C), *Antedon* sp. (O), *Ophiura* sp. (O), *Leptometra celtica* (O)	SS.SMx.CMx	**LS**
JuraIslay_119.3	sand scoured bedrock	*Antedon* sp. (A) on rocks and boulders, *Nemertesia ramosa* (C), *Leptometra celtica* (F), *Clavelina lepadiformis* (O), *Diazona violacea* (O), *Securiflustra securifrons* (F) on rocks, bryozoan turf (F), *Balanus balanus* (F)	CR.HCR.Xfa	**LS**
JuraIslay_120.1	bedrock and boulders	bedrock and boulders at start of run, and drops down a stepped wall to a boulder bedrock bottom, *Tubularia*	CR.HCR.FaT.CTub	

		indivisa (A), *Antedon* sp. (O), *Nemertesia ramosa* (C), foliose red algae (F) at start of run, encrusting coralline algae (A), *Flustra foliacea* (F), hydroid/bryozoan turf (C)	
JuraIslay_120.2	Gravel sand with cobbles and stones	*Alcyonium digitatum* (A), *Echinus esculentus* (F), *Asterias rubens* (O), *Crossaster papposus* (O), *HydrallImania falcata* (C), *Flustra foliacea* (F), *Nemertesia ramosa* (C), *Nemertesia antennina* (F), hydroid/bryozoan turf (C), *Caryophyllia smithii* (F), *Eucratea loricata* (C), *Munida rugosa* (O), *Ascidiella virginea* (O), *Alcyonium digitatum* (F), sponge (O)	SS.SMx.CMx.FluHyd
JuraIslay_121.1	bedrock and boulders	*Antedon* sp. (F), *Nemertesia ramosa* (F), foliose red algae (F) at start of run, encrusting coralline algae (F), *Flustra foliacea* (F), hydroid/bryozoan	CR.HCR.FaT.CTub

		turf (C), *Alcyonium digitatum* (F), *Echinus esculentus* (F), *Crossaster papposus* (O), *Sagartia elegans* (O), *Tubularia indivisa* (A), *Hydrallmania falcata* (F), *Aglaophenia tubulifera* (C),	
JuraIslay_121.2	mixed sediment of cobbles, pebbles and stones	*Hydrallmania falcata* (F), *Flustra foliacea* (F), *Spirobranchus triqueter (F), Balanus balanus (F), Antedon sp.* (F), *Sagartia elegans* (O), dense hydroid turf (C) including *Sertularella gayi (F), Aglaophenia tubulifera* (F) video speed makes identification and quantification difficult	SS.SMx.CMx.FluHyd
JuraIslay_122	muddy gravel with occasional cobble/boulder	*Pecten maximus* (O), *Ophiocomina nigra* (C), *Ophiura albida* (F), *Ophiothrix fragilis* (F) around or on boulders, encrusting coralline algae on stones (C), *Asterias rubens* (O), *Neopentadactyla*	SS.SMx.CMx

		mixta (R), hydroids/bryozoan turf (F) on cobbles and boulders	
JuraIslay_123.1	muddy gravel with cobbles 30% and boulders and intrusions of bedrock	*Nemertesia ramosa* (C), *Nemertesia antennina* (F), *Antedon* sp. (A) on cobbles and boulders, *Securiflustra securifrons* (C), *Flustra foliacea* (C), hydroid/bryozoan turf (C), *Caryophyllia smithii* (F), *Eucratea loricata* (F), *Munida rugosa* (F), *Ascidiella virginea* (F), *Halecium halecium* (O), *Aglaophenia tubulifera* (C), porifera (F), *Urticina felina* (F), *Crossaster papposus* (F), *Clavelina lepadiformis* (O), *Ascidiella virginea*(C), *Solaster endeca* (R), *Echinus esculentus* (O), *Pecten maximus* (F), *Asterias rubens* (O), *Alcyonidium diaphanum* (F)	SS.SMx.CMx
JuraIslay_123.2	Bedrock	*Caryophyllia smithii* (F), *Antedon* sp. (A), *Leptometra*	CR.HCR.XFa

		celtica (O), *Securiflustra securifrons* (C), hydroid/bryozoan turf (C) including *Eucratea loricata* (F), *Halecium halecium* (O), *Aglaophenia tubulifera* (C), porifera (F), *Clavelina lepadiformis* (O), *Ascidiella virginea* (F), *Asterias rubens* (O)	
JuraIslay_124	Cobbles, boulders and bedrock with muddy gravel in between	*Nemertesia ramosa* (F), *Nemertesia antennina* (C), *Antedon* sp. (O), *Securiflustra securifrons* (F), *Flustra foliacea* (F), hydroid/bryozoan turf (C), *Caryophyllia smithii* (F), *Eucratea loricata* (F), *Munida rugosa* (F), *Ascidiella virginea* (F), *Halecium halecium* (O), *Aglaophenia tubulifera* (C), porifera (F), *Amphilectus fucorum* (F), *Alcyonium digitatum* (C), *Crossaster papposus* (F), *Echinus esculentus* (O), *Asterias*	CR.MCR.EcCr.CarSp

		rubens (O), *Alcyonidium diaphanum* (O), *Hydrallmania falcata* (F), *Abietinaria abietina* (F), *Crossaster papposus* (O), *Porania pulvillus* (R)	
JuraIslay_125	Gravelly shell with cobbles	*Nemertesia ramosa* (F), *Nemertesia antennina* (F), *Flustra foliacea* (F), hydroid/bryozoan turf (C), *Ophiura albida* (O), *Eucratea loricata* (F), *Munida rugosa* (O), *Aglaophenia tubulifera* (C), *Crossaster papposus* (O), *Sertularia* argentea (O), *Echinus esculentus* (O), *Abietinaria abietina* (O), *Luidia ciliaris* (R), *Asterias rubens* (O), encrusting coralline algae (F) on stones, *Suberites carnosus* (O)	SS.SMx.CMx
JuraIslay_126	Cobbles, boulders and bedrock with muddy gravel in-between	*Tubularia indivisa* (A), *Nemertesia ramosa* (F), *Nemertesia antennina* (C), *Antedon* sp. (O), *Flustra foliacea* (C), hydroid/bryozoan	CR.HCR.Xfa

		turf (C), *Caryophyllia smithii* (C), *Eucratea loricata* (F), *Munida rugosa* (F), *Ascidiella virginea* (F), *Halecium halecium* (O), *Aglaophenia tubulifera* (C), porifera (F), *Alcyonium digitatum* (C), *Crossaster papposus* (C), *Echinus esculentus* (F), *Asterias rubens* (F), *Hydrallmania falcata* (F), *Abietinaria abietina* (F), *Sertularia* sp. (C), *Cancer Pagurus* (O), *Henricia oculata* (O), *Urticina felina* (O), *Diazona violacea* (R), *Marthasterias glacialis* (R), *Parasmittina trispinosa* (C), *Alcyonidium diaphanum* (F)	
JuraIslay_127.1	Cobbles, boulders and bedrock with muddy gravel in-between	*Securiflustra securifrons* (C), *Nemertesia ramosa* (F), *Nemertesia antennina* (C), *Raspailia hispida* (O), *Axinella infundibuliformis* (C), *Swiftia pallida* (A) on wall and some	CR.HCR.XFa.SwiLgAs

		boulders at bottom of wall, *Asterias rubens* (O), *Caryophyllia smithii* (A), *Aglaophenia tubulifera* (C), *Parasmittina trispinosa* (F), *Eucratea loricata* (C), *Halecium halecium* (F), *Echinus esculentus* (F)	
JuraIslay_127.2	Muddy gravel with stones and occasional boulder	*Securiflustra securifrons* (F), *Nemertesia ramosa* (F), *Nemertesia antennina* (F), *Aglaophenia tubulifera* (F), *Eucratea loricata* (F), *Halecium halecium* (F), *Echinus esculentus* (F), *Pecten maximus* (O), *Marthasterias glacialis* (O), *Abietinaria abietina* (F)	SS.SMx.CMx
JuraIslay_127.3	Cobbles, boulders and bedrock with muddy gravel in-between	*Securiflustra securifrons* (C), *Nemertesia ramosa* (F), *Nemertesia antennina* (C), *Axinella infundibuliformis* (F), porifera (F), *Swiftia pallida* (O), *Caryophyllia smithii* (A), *Aglaophenia tubulifera* (F),	CR.HCR.Xfa

		Parasmittina trispinosa (F), *Eucratea loricata* (C), *Halecium halecium* (F), *Echinus esculentus* (F), *Antedon* sp. (F), *Diazona violacea* (F)	
JuraIslay_128	Gravel with cobbles and boulders at beginning of run turning into gravel without cobbles and boulders	*Securiflustra securifrons* (F), *Nemertesia ramosa* (F), *Nemertesia antennina* (F), *Caryophyllia smithii* (O), *Aglaophenia tubulifera* (F), *Parasmittina trispinosa* (F), *Eucratea loricata* (O), *Halecium halecium* (O), *Echinus esculentus* (F), *Pecten maximus* (F), *Munida rugosa* (A), *Asterias rubens* (O), *Luidia ciliaris* (R), encrusting coralline algae (O)	SS.SMx.CMx
JuraIslay_129	Sandy gravel with cobbles	*Hydrallmania falcata* (C), *Flustra foliacea* (C), hydroid/bryozoan turf (C), *Eucratea loricata* (C), *Munida rugosa* (F), *Sertularia sp.* (F), *Echinus esculentus* (F),	SS.SMx.CMx.FluHyd

		Asterias rubens (O), *Crossaster papposus* (O), *Spirobranchus triqueter* (C) on cobbles	
JuraIslay_130.1	Gravel sand	*Ophiura albida* (F), *Asterias rubens* (F), *Antedon* sp. (O), barnacles on rocks (A), *Alcyonidium diaphanum* (F)	SS.SMx.CMx
JuraIslay_130.2	Bedrock and boulders, several short vertical walls	*Hydrallmania falcata* (C), hydroid/bryozoan turf (C), *Eucratea loricata* (C), *Munida rugosa* (F), *Sertularia* sp. (C), *Abietinaria abietina* (F), *Halecium halecium* (F), *Aglaophenia tubulifera* (C), *Nemertesia ramosa* (F), *Nemertesia antennina* (C), *Caryophyllia smithii* (C), *Echinus esculentus* (F), *Asterias rubens* (O), *Crossaster papposus* (O), *Munida rugosa* (F), *Diazona violacea* (F), *Axinella infundibuliformis* (F), *Cliona*	CR.HCR.Xfa

		celata (F), porifera (F), *Ascidiella virginea* (F)		
JuraIslay_131	bedrock wall adjacent to boulders on mixed sediment	dense hydroid and bryozoan covering, *Caryophyllia smithii* (F) , *Cliona celata* (O), *Alcyonium digitatum* (F), *Leptometra celtica* (F), *Antedon* sp. (F), *Munida rugosa* (O), *Diazona violacea* (F), *Alcyonidium* sp. (O), *Eucratea loricata* (C), *Flustra foliacea* (F), *Hydrallmania falcata* (O), Halecium sp. (O), *Haliclona oculata* (O), *Diazona violacea* (O), *Nemertesia antennina* (O)	CR.MCR.EcCr.FaAlCr	**LS**
JuraIslay_132.1	pebbles and stones (95%) mud	*Swiftia pallida* (R), *Alcyonidium* sp. (O), *Pecten maximus* (O)	SS.SCS.CCS	
JuraIslay_132.2	large boulders (60%) course muddy sediment with stones (40%)	*Caryophyllia smithii* (C) *Swiftia pallida* (C), *Haliclona oculata* (O), *Axinella infundibuliformis* (O), *Polymastia boletiformis* (O), *Suberites sp*. (O), *Leptometra celtica* (F), *Munida*	CR.MCR.EcCr.CarSwi	**HB, LS**

		rugosa (O), *Diazona violacea* (F), *Amphilectus fucorum* (F), *Antedon* sp. (O), *Alcyonidium* sp. (O), *Eucratea loricata* (C), *Flustra foliacea* (F), *Hydrallmania falcata* (F),		
JuraIslay_132.3	coarse sand with stones	*Alcyonidium* sp. (O)	SS.SCS.CCS	
JuraIslay_132.4	large boulders (60%) course muddy sediment with stones (40%)	*Caryophyllia smithii* (C) *Swiftia pallida* (C), *Leptometra celtica* (F), *Munida rugosa* (O), *Antedon* sp. (O), *Eucratea loricata* (C)	CR.MCR.EcCr.CarSwi	**HB, LS**
JuraIslay_133.1	bedrock wall with intrusions of muddy substrate	*Caryophyllia smithii* (C) *Swiftia pallida* (A), *Axinella infundibuliformis* (F), *Polymastia boletiformis* (O), *Suberites sp*. (O), *Leptometra celtica* (O), *Munida rugosa* (O), *Diazona violacea* (A), *Amphilectus fucorum* (F), *Echinus esculentus* (O)	CR.HCR.XFa.SwiLgAs	**HB, LS**
JuraIslay_133.2	pebbles and stones (95%) mud	*Ascidiella virginea* (F), *Ophiura albania* (O), *Clavelina*	SS.SCS.CCS	

		lepadiformis (O), *Suberites sp.*(F)		
JuraIslay_134	bedrock with patches of pebbles and rocks	*Caryophyllia smithii* (C) *Swiftia pallida* (F) becoming (C), *Haliclona oculata* (O), *Axinella infundibuliformis* (O), *Polymastia boletiformis* (O), *Suberites sp*. (O), *Leptometra celtica* (F), *Munida rugosa* (O), *Diazona violacea* (F), *Amphilectus fucorum* (F), *Antedon* sp. (O), *Ascidiella virginea* (O), *Alcyonidium* sp. (O), *Eucratea loricata* (O), *Halecium halecium* (O)	CR.HCR.XFa.SwiLgAs	**HB, LS**
JuraIslay_135.1	muddy sediment with stones (85%)	*Pecten maximus* (C), *Leptometra celtica* (O), *Alcyonidium* (R), *Capnea sanguinea* (R), solitary ascidians (O)	SS.SMx.CMx	**LS**
JuraIslay_135.2			no footage	
JuraIslay_136.1	cohesive fine mud	Burrows (A) and mounds, *Caryophyllia smithii* (O) *Swiftia pallida* (F), *Suberites sp*. (O)	SS.SMu.CFiMu.MegMax	**HB**

JuraIslay_136.2	sandy cohesive mud, rock patches 5%	Bivalve burrows (A) rock patches with *Caryophyllia smithii* (O) *Swiftia pallida* (F), *Suberites sp*. (O), *Clavelina lepadiformis* (O), *Diazona violacea* (O),	SS.SMu.CSaMu	
JuraIslay_136.3	bedrock wall with intrusions of muddy substrate	*Caryophyllia smithii* (C) *Swiftia pallida* (C), *Haliclona oculata* (O), *Axinella infundibuliformis* (O), *Polymastia boletiformis* (O), *Suberites sp*. (O), *Leptometra celtica* (O), *Munida rugosa* (O), *Diazona violacea* (O), *Amphilectus fucorum* (O)	CR.HCR.XFa.SwiLgAs	**HB, LS**
JuraIslay_136.4	sandy cohesive mud, rock patches 5%	Bivalve burrows (A) rock patches with *Caryophyllia smithii* (O) *Swiftia pallida* (O), *Suberites sp*. (O)	SS.SMu.CSaMu	
JuraIslay_136.5	bedrock wall with intrusions of muddy substrate	*Caryophyllia smithii* (C) *Swiftia pallida* (C), *Haliclona oculata* (O), *Axinella infundibuliformis* (O), *Polymastia boletiformis* (O), *Suberites sp*. (O), *Leptometra celtica* (O), *Munida*	CR.HCR.XFa.SwiLgAs	**HB, LS**

		rugosa (O), *Diazona violacea* (O), *Amphilectus fucorum* (O)		
JuraIslay_136.6	sandy cohesive mud	Bivalve burrows (A)	SS.SMu.CSaMu	
JuraIslay_137.1	bedrock wall meeting muddy substrate	*Caryophyllia smithii* (F) *Swiftia pallida* (C), *Clavelina lepadiformis* (F), *Diazona violacea* (F), *Asterias rubens* (O), *Echinus esculentus* (O), *Munida rugosa* (R)	CR.HCR.XFa.SwiLgAs	**HB**
JuraIslay_137.2	bedrock wall with intrusions of muddy substrate	*Caryophyllia smithii* (C) *Swiftia pallida* (C), *Clavelina lepadiformis* (F), *Diazona violacea* (F), *Ascidia mentula* (O), *Haliclona oculata* (O), *Axinella infundibuliformis* (O), *Securiflustra securifrons* (O), *Leptometra celtica* (O), *Munida rugosa* (O), *Amphilectus fucorum* (O). Muddy substrate with bivalve siphons	CR.HCR.XFa.SwiLgAs	**HB, LS**
JuraIslay_138.1	mud sand	bivalve siphons (A)	SS.SMu.CSaMu	
JuraIslay_138.2	bedrock wall meeting muddy substrate	*Caryophyllia smithii* (C) *Swiftia pallida* (C), *Clavelina lepadiformis* (F), *Diazona violacea* (F), *Asterias rubens*	CR.HCR.XFa.SwiLgAs	**HB, LS**

		(O), *Echinus esculentus* (O), *Munida rugosa* (R), *Amphilectus fucorum* (O), *Securiflustra securifrons* (O), *Leptometra celtica* (O)		
JuraIslay_138.3	muddy with patches of small rock	*Pecten maximus (C), stones supporting Swiftia pallida (O), Clavelina lepadiformis (F), Diazona violacea (F), Asterias rubens (O), Echinus esculentus (O), Munida rugosa (R), Amphilectus fucorum (O), Securiflustra securifrons (O), Leptometra celtica (O)*	SS.SMx.CMx	**LS**
JuraIslay_138.4	sandy cohesive mud	Burrows (C) *Pecten maximus* (O), *Virgularia mirabilis* (R), *Cerianthus lloydii* (R), *Ophiura* sp. (R),	SS.SMu.CSaMu	
JuraIslay_139		not possible to analyse		
JuraIslay_140	pebbles and cobbles	*Flustra foliacea* (F), *Hydrallmania falcata* (F), *Alcyonium digitatum* (O), *Luidia ciliaris* (O), *Urticina felina* (O), *Asterias rubens* (O)	SS.SMx.CMx.FluHyd	

JuraIslay_141	large boulders	*Alcyonium digitatum* (F), *Securiflustra securifrons* (O), *Nemertesia antennina* (F), *Nemertesia ramosa* (O), *Sertularia* cupressina (F), encrusting bryozoans (O), red foliose algae (O), *Pachymatisma johnstonia* (O), *Actinothoe sphyrodeta* (O), *Parazoanthus anguicomus* (F) 0015, 0029, 0032, 0046, 0125,0153, 0157, 0209, 0319, 0330, 0345, 0357, 0405, 0410, 0417, 0425	CR.HCR.XFa	**LS**
JuraIslay_142a	cobbles and pebbles (50%), course sediment (50%)	Mosaic: *Flustra foliacea* (F), *Hydrallmania falcata* (F), *Alcyonium digitatum* (F), *Echinus esculentus* (F), *Securiflustra securifrons* (F), *Nemertesia antennina* (F), *Sertularia* cupressina (A), *Ophiothrix fragilis* (A), *Ophiocomina nigra* (A), *Luidia ciliaris* (O),	SS.SMx.CMx.FluHyd	

JuraIslay_142b	cobbles and pebbles (50%), course sediment (50%)	Mosaic: *Flustra foliacea* (F), *Hydrallmania falcata* (F), *Alcyonium digitatum* (F), *Echinus esculentus* (F), *Securiflustra securifrons* (F), *Nemertesia antennina* (F), *Sertularia* cupressina (A), *Nemertesia antennina* (F), *Ophiothrix fragilis* (A), *Ophiocomina nigra* (A), *Luidia ciliaris* (O),	SS.SMx.CMx.OphMx
JuraIslay_143	bedrock with sand covering (90%)	*Alcyonium digitatum* (F), *Echinus esculentus* (F), *Securiflustra securifrons* (F), *Nemertesia antennina* (F), *Sertularia* cupressina (A),	CR.MCR.EcCr.FaAlCr.Sec
JuraIslay_144	bedrock (80%) patches of gravel (20%)	*Tubularia indivisa* (A), *Alcyonium digitatum* (F), *Myxilla incrustans* (O), *Pachymatisma johnstonia* (O), *Sertularia* cupressina (A), *Asterias rubens* (O), *Actinothoe sphyrodeta* (O), *Nemertesia antennina* (F), *Nemertesia ramosa* (F)	CR.HCR.FaT.CTub

JuraIslay_145	Bedrock	*Tubularia indivisa* (A), *Alcyonium digitatum* (O), red seaweed (O), *Botryllus schlosseri* (F), *Myxilla incrustans* (O), *Pachymatisma johnstonia* (O), *Sertularia* cupressina (A), *Asterias rubens* (O), *Urticina felina* (O), *Actinothoe sphyrodeta* (O)	CR.HCR.FaT.CTub	
JuraIslay_146	Bedrock	*Laminaria hyperborea* (A), *Obelia* on kelp fronds (C), *Phycodrys rubens* (A), *Tubularia indivisa* (F), *Botryllus schlosseri* (F)	IR.HIR.KFaR.LhypR.Ft	**HB**
JuraIslay_147	Bedrock	*Alcyonium digitatum* (F), *Tubularia indivisa* (C), *Sertularia* sp. (A), *Hydrallmania falcata* (C), *Asterias rubens* (F)	CR.HCR.XFa	
JuraIslay_148.1	Bedrock	*Nemertesia antennina* (C), *Tubularia indivisa* (C), Corynactis viridis (O), *Securiflustra securifrons* (F), *Alcyonium digitatum* (O), *Asterias rubens* (F)	CR.HCR.FaT.CTub	

JuraIslay_148.2	Bedrock	*Alcyonium digitatum* (A), *Tubularia indivisa* (C), *Sertularia* argentea (O), *Asterias rubens* (F), *Nemertesia antennina* (C), *Pachymatisma johnstonia* (O)	CR.HCR.FaT.CTub.Adig	
JuraIslay_149	bedrock patches of sediment (10%)	*Phycodrys rubens* (C), *Odonthalia deta* (C), *Tubularia indivisa* (F), *Botryllus schlosseri* (F)	IR.HIR.KFaR.FoR	
JuraIslay_150	Bedrock	*Caryophyllia smithii* (A), *Swiftia pallida* (C) locally (A) porifera (F), *Clavelina lepadiformis* (A), *Asterias rubens* (F), *Echinus esculentus* (O), *Spirobranchus triqueter* (C), *Hydrallmania falcata* (C), *Abietinaria abietina* (F), *Eucratea loricata* (F), *Securiflustra securifrons* (F), *Diazona violacea* (F), *Amphilectus fucorum* (O), *Leptometra celtica* (O), *Parazoanthus anguicomus* (O) 0251, 0318, 0359	CR.HCR.XFa.SwiLgAs	**HB, LS**

JuraIslay_151	fine mud	burrows (C), *Virgularia mirabilis* (F), *Turritella communis* (F), *Asterias rubens* (F), *Pecten maximus* (O), *Sagartiogeton undatus* (F)	SS.SMu.CFiMu.SpnMeg	**HB**
JuraIslay_152	fine mud	burrows (C), *Virgularia mirabilis* (F), *Turritella communis* (C), *Asterias rubens* (F), *Pecten maximus* (O), diatom film	SS.SMu.CFiMu.SpnMeg	**HB**
JuraIslay_153	cobbles and pebbles, muddy sand	Folious and filamentous red algae (C), *Dictyota dichotoma* (O), *Desmarestia* spp. (O) *Saccharina latissima* (O), *Leptometra celtica* (O), *Nemertesia antennina* (F), *Nemertesia ramosa* (F), *Asterias rubens* (O), *Spirobranchus triqueter* (O), *Ophiocomina nigra* (O), *Ophiopholis aculeata* (O), *Munida rugosa* (O), *Ophiothrix fragilis* (O), *Luidia ciliaris* (R),	SS.SMp.KSwSS.LsacR.CbPb	**HB, LS**
JuraIslay_154.1	Bedrock	*Ophiothrix fragilis* (A), *Ophiocomina nigra* (F),	CR.MCR.EcCr.CarSp.Bri	

		Spirobranchus triqueter (A), *Caryophyllia smithii* (A), *Hydrallmania falcata* (C), *Echinus esculentus* (O), *Crossaster papposus* (R), bryozoan turf (A), *Echinus esculentus* (F), brachiopods (O)		
JuraIslay_154.2	large rocks, boulders, cobbles	*Caryophyllia smithii* (A) *Nemertesia antennina* (C), *Nemertesia ramosa* (F), *Amphilectus fucorum* (O), *Halecium halecium* (O), *Diazona violacea* (O), *Parasmittina trispinosa* (F), *Alcyonidium* digitatum (F), *Sabella pavonina* (F), *Cancer Pagurus* (R)	CR.MCR.EcCr.CarSp	
JuraIslay_154.3	Bedrock	*Caryophyllia smithii* (C) *Swiftia pallida* (F), *Nemertesia antennina* (F), porifera (F), *Diazona violacea* (F), *Asterias rubens* (F), *Echinus esculentus* (O), *Spirobranchus triqueter* (C), *Balanus crenatus* (F)	CR.HCR.XFa.SwiLgAs	**HB**

JuraIslay_155	mud with frequent broken shell	*Virgularia mirabilis* (F), *Nephrops norvegicus* (F), burrows (C), *Asterias rubens* (F)	SS.SMu.CFiMu.SpnMeg	**HB**
JuraIslay_156		*Spirobranchus triqueter (A), Leptometra celtica (O), Pecten maximus (R), Suberites sp. (R), Cerianthus lloydii (O), Munida rugosa (F)*	SS.SMx.CMx	**LS**
JuraIslay_157	sand mud with occasional shell	***Virgularia mirabilis* (O) locally (F), *Asterias rubens* (F), *Cerianthus lloydii* (F), large mounds (C) *Ophiura* sp. (F), *Amphiura* sp. (O)**	SS.SMu.CSaMu	
JuraIslay_158	mud with frequent broken shell	*Pennatula phosphorea* (O) 0039, 0134, *Virgularia mirabilis* (F), *Liocarcinus depurator* (O), *Cerianthus lloydii* (F), large mounds (C)	SS.SMu.CFiMu.SpnMeg	**HB**
JuraIslay_159	mud with frequent broken shell	*Virgularia mirabilis* (O), *Asterias rubens* (F), *Cerianthus lloydii* (C), *Liocarcinus depurator* (O), *Ophiura* sp. (O), *Leptometra celtica* (O), *Lanice conchilega*	SS.SMx.CMx.ClloMx	**LS**

		(O), *Ascidiella aspersa* (F), fished?		
JuraIslay_160	mud with occasional broken shell	*Amphiura filiformis* (C), *Virgularia mirabilis* (F), *Asterias rubens* (F), *Cerianthus lloydii* (A), *Liocarcinus depurator* (O), *Ophiura* sp. (O), *Leptometra celtica* (O), *Lanice conchilega* (O), *Sagartiogeton undatus* (O)	SS.SMx.CMx.ClloMx	**LS**
JuraIslay_161	cohesive sandy mud	*Amphiura filiformis* (S), *Virgularia mirabilis* (F), *Asterias rubens* (F), *Cerianthus lloydii* (O), holothurian (F), *Liocarcinus depurator* (O), *Ascidiella aspersa* (O), *Suberites sp*. (O), *Pennatula phosphorea* (R) 0351, *Aequipecten opercularis* (O), *Ophiura* sp. (O), *Leptometra celtica* (O),	SS.SMu.CSaMu.AfilNten	**LS**
JuraIslay_162	cohesive sandy mud	*Amphiura filiformis* (S), *Virgularia mirabilis* (F), *Asterias rubens* (F), *Cerianthus lloydii* (O),	SS.SMu.CSaMu.AfilNten	

		holothurian (O), *Liocarcinus depurator* (O), *Ascidiella aspersa* (F)		
JuraIslay_163	cohesive fine mud	**Burrows (A) and mounds, *Asterias rubens* (O), *Virgularia mirabilis*** (F), *Ophiura* sp. (C), *Cerianthus lloydii* (R)	SS.SMu.CFiMu.MegMax	**HB**
JuraIslay_164	boulders and bedrock, patches of sediment (20%)	*Caryophyllia smithii* (A) *Swiftia pallida* (F) locally (C), *Nemertesia antennina* (O), *Nemertesia ramosa* (O), *Amphilectus fucorum* (O), *Halecium halecium* (O), *Diazona violacea* (F), *Clavelina lepadiformis* (O), *Securiflustra securifrons* (O), Coral worm (F), *Leptometra celtica* (O), *Dipturus intermedia* egg 05:21	CR.HCR.XFa.SwiLgAs	**HB, LS, MSE**
JuraIslay_165.1	stones, cobbles, pebbles and course sediment	**Filamentous and foliose red seaweed (C), brown algae (F), *Ophiura* sp. (A), *Ophiothrix fragilis* (F), *Spirobranchus triqueter* (C), *Pecten maximus*(R), *Cancer***	SS.SMp.KSwSS.LsacR.CbPb	**HB**

		***Pagurus* (R), *Octopus* vulgaris (R), *Saccharina latissima* (O), fine hydroid turf (C), encrusting red algae (F),**		
JuraIslay_165.2	rock (80%) patches of course sediment (20%)	*Laminaria hyperborea* (A), filamentous red algae (C), *Echinus esculentus* (F), *Ophiura* sp. (C), *Diazona violacea* (O)	IR.HIR.KFaR.LhypR.Ft	**HB**
JuraIslay_166.1	silt covered bedrock	*Caryophyllia smithii* (A) *Swiftia pallida* (C) , *Asterias rubens* (F) *Leptometra celtica* (O), *Amphilectus fucorum* (O), *Diazona violacea* (O)	CR.MCR.EcCr.CarSwi.LgAs	**HB, LS**
JuraIslay_166.2	coarse sand, shell and pebbles	*Pecten maximus* (O), Cerianthus smithii (O), *Solaster endeca* (R)	SS.SCS.CCS	
JuraIslay_166.3	silt covered bedrock	*Caryophyllia smithii* (C) *Swiftia pallida* (C) locally (A), *Leptometra celtica* (O), *Nemertesia antennina* (O), *Axinella infundibuliformis* (R), *Nemertesia ramosa* (O), *Amphilectus fucorum* (F),	CR.MCR.EcCr.CarSwi.LgAs	**HB, LS**

		Halecium halecium (O), *Diazona violacea* (F), *Clavelina lepadiformis* (O), *Suberites fiscus* (O)		
JuraIslay_167	muddy sand	faunally sparse *Ophiura* sp. (C)	SS.SSa.CMuSa	
JuraIslay_168	cohesive fine mud	Burrows (A) and mounds, *Asterias rubens* (O), *Pennatula phosphorea* (R)	SS.SMu.CFiMu.MegMax	**HB**
JuraIslay_169	silt covered bedrock	*Caryophyllia smithii* (C) *Swiftia pallida* (C) locally (A), *Nemertesia antennina* (F), *Axinella infundibuliformis* (O), *Nemertesia ramosa* (F), *Ophiura* sp. (C), *Amphilectus fucorum* (F), *Halecium halecium* (F), *Diazona violacea* (F), *Clavelina lepadiformis* (O), *Ascidia mentula* (R), *Securiflustra securifrons* (F)	CR.HCR.XFa.SwiLgAs	**HB**
JuraIslay_170	sandy mud with stones	*Ophiura* sp. (C), *Pagurus* sp. (O)	SS.SSa.CMuSa	
JuraIslay_171	cohesive fine mud	Burrows (A) and mounds, Nephrops (O), *Asterias rubens* (O)	SS.SMu.CFiMu.MegMax	**HB**

JuraIslay_172	mixed sediment with boulders (20%)	*Leptometra celtica* (C), *Munida rugosa* (F), *Eucratea loricata* (F), *Aglaophenia tubulifera* (O), encrusting bryozoans (C)	SS.SMx.CMx	**LS**
JuraIslay_173.1	muddy sand	*Asterias rubens* (O), *Munida rugosa* (F), *Halecium halecium* (F), *Ascidiella virginea* (O), *Luidia ciliaris* (R), *Caryophyllia smithii* (O), *Nemertesia antennina* (F), *Nemertesia ramosa* (F), *Leptometra celtica* (O)	SS.SSa.CMuSa	**LS**
JuraIslay_173.2	silt covered rock	*Alcyonium digitatum* (O), bryozoans (A), *Alcyonidium diaphanum* (O), hydroids (F), *Nemertesia antennina* (F), *Axinella infundibuliformis* (O), *Nemertesia ramosa* (F), *Munida rugosa* (O), *Amphilectus fucorum* (F), *Halecium halecium* (F), *Leptometra celtica* (O), *Echinus esculentus* (F),	CR.MCR.EcCr.FaAlCr	**LS**
JuraIslay_174	muddy sand	*Halecium halecium* (F), *Pecten maximus* (O), *Luidia ciliaris*	SS.SSa.CMuSa	**LS**

		(R), *Caryophyllia smithii* (O) *Nemertesia antennina* (F), *Nemertesia ramosa* (F), *Leptometra celtica* (O)		
JuraIslay_175	silt covered rocks and boulders	*Halecium halecium* (F), *Caryophyllia smithii* (C) bryozoans (A), *Alcyonidium diaphanum* (O), *Alcyonium digitatum* (F), *Nemertesia antennina* (F), *Nemertesia ramosa* (F), *Cellaria* sp. (C), *Amphilectus fucorum* (O), *Axinella infundibuliformis* (O), *Porella compressor* (O), *Leptometra celtica* (O), *Diazona violacea* (O), *Ophiura* sp. (F)	CR.MCR.EcCr	**LS**
JuraIslay_176	silt covered rocks and boulders	*Halecium halecium* (F), *Caryophyllia smithii* (C) bryozoans (A), *Alcyonidium diaphanum* (O), *Alcyonium digitatum* (F), hydroids (A), *Nemertesia antennina* (F), *Nemertesia ramosa* (F), *Cellaria* sp. (C), *Cancer*	CR.MCR.EcCr.CarSp	**LS**

		Pagurus (R), *Pecten maximus* (R), *Amphilectus fucorum* (O), *Axinella infundibuliformis* (O), *Porella compressor* (O), *Leptometra celtica* (O), *Diazona violacea* (O)		
JuraIslay_177	cohesive sandy mud	Burrows (A) and mounds (C), *Pagurus bernhardus* with *Hydractinia echinata* (R), *Nemertesia antennina* (O), *Munida rugosa* (O), *Sabella pavonina* (O), *Alcyonidium diaphanum* (O),	SS.SMu.CSaMu	
JuraIslay_178	cohesive fine mud	Burrows (A) and mounds (C), *Pagurus bernhardus* with *Hydractinia echinata* (R), *Nemertesia antennina* (O), *Virgularia mirabilis* (R), *Munida rugosa* (O)	SS.SMu.CFiMu.MegMax	**HB**
JuraIslay_179	silt and pebbles covered bedrock	*Caryophyllia smithii* (C) *Securiflustra securifrons* (C), *Alcyonidium diaphanum* (O), *Nemertesia antennina* (F), *Nemertesia ramosa* (F), *Ophiura* sp. (C), *Amphilectus*	CR.MCR.EcCr.CarSp	

		fucorum (F), *Halecium halecium* (F),		
JuraIslay_180.1	mud with stones and rocks	*Nemertesia antennina* (F), *Nemertesia ramosa* (F), *Alcyonidium diaphanum* (O), *Pecten maximus* (O)	SS.SMx.CMx	
JuraIslay_180.2	silt covered bedrock	*Caryophyllia smithii* (C) *Swiftia pallida* (C) locally (A), *Alcyonium digitatum* (F), bryozoans (A), *Alcyonidium diaphanum* (O), hydroids (F), *Nemertesia antennina* (F), *Axinella infundibuliformis* (O), Alcyonium glomeratum (0625) (R), *Munida rugosa* (O), *Nemertesia ramosa* (F), *Ophiura* sp. (C), *Amphilectus fucorum* (F), *Epizoanthus couchii* (R), *Halecium halecium* (F),	CR.MCR.EcCr.CarSwi	**HB**
JuraIslay_181.1	silt covered rocks and boulders	foliose red seaweed (A), *Halecium halecium* (F), *Caryophyllia smithii* (C) Swiftia pallida? (R), bryozoans (A), *Alcyonidium diaphanum* (O),	IR.HIR.KFaR.FoR	

		hydroids (A), *Nemertesia antennina* (F), *Nemertesia ramosa* (F), *Antinonthea sphyrodeta var venusta* (O),		
JuraIslay_181.2	silt covered bedrock	*Caryophyllia smithii* (C) *Swiftia pallida* (A), *Alcyonium digitatum* (F), bryozoans (A), *Alcyonidium diaphanum* (O), *Porella compressor* (O), hydroids (A), *Nemertesia antennina* (F), *Antinonthea sphyrodeta var venusta* (O)	CR.MCR.EcCr.CarSwi	**HB**
JuraIslay_182	cohesive fine mud	Burrows (A) and mounds (C), *Cerianthus lloydii* (R), spiral eggs masses (F)	SS.SMu.CFiMu.MegMax	**HB**
JuraIslay_183	sandy mud	Burrows (C) *Pagurus bernhardus* with *Hydractinia echinata* (O), *Nephrops norvegicus* (O), *Munida rugosa* (F), *Pecten maximus* (R)	SS.SMu.CSaMu	
JuraIslay_184.1	silt covered bedrock (80%) fine mud (20%)	*Caryophyllia smithii* (C) *Swiftia pallida* (C), *Alcyonium digitatum* (F), bryozoans (A), hydroids (A), *Nemertesia antennina* (F), *Alcyonidium* sp.	CR.MCR.EcCr.CarSwi	**HB, LS**

		(F), *Halecium halecium* (F), *Parazoanthus anguicomus* 0104 0107 0110 0131 (O)		
JuraIslay_184.2	sandy mud with stones and shell (5%)	*Nemertesia antennina* (F), *Alcyonidium* sp. (F), *Halecium halecium* (F), *Leptometra celtica* (R), hydroids (O), *Ophiura* sp. (F), *Parazoanthus anguicomus* 0312 (O), *Peachia cylindrica* (R)	SS.SMx.CMx	**LS**
JuraIslay_185.1	silt covered bedrock	*Caryophyllia smithii* (C) *Swiftia pallida* (C), *Alcyonium digitatum* (F), bryozoans (A), hydroids (A), *Virgularia mirabilis* (F), *Nemertesia antennina* (F), *Parazoanthus anguicomus* (O) 0114, 0117, 0126	CR.MCR.EcCr.CarSwi	**HB, LS**
JuraIslay_185.2	sandy mud	*Virgularia mirabilis* (F), *Ophiura* (C), *Cerianthus lloydii* (C)	SS.SMu.CSaMu.VirOphPmax	
JuraIslay_185.3	silt covered bedrock (80%) fine mud (20%)	*Caryophyllia smithii* (C) *Swiftia pallida* (C), *Alcyonium digitatum* (F), bryozoans (A), hydroids (A), *Nemertesia antennina* (F), *Alcyonidium* sp.	CR.MCR.EcCr.CarSwi	**HB, LS**

		(F), *Halecium halecium* (F), *Leptometra celtica* (R), *Epizoanthus couchii*? 0346 (R), *Ophiura* sp. (C), *Parazoanthus anguicomus* 0510 0517 (O)		
JuraIslay_186	fine mud	deeply borrowed mud (A). Brittle stars (C)	SS.SMu.CFiMu.MegMax	**HB**
JuraIslay_187.1	sandy mud with stones and shell (30%)	Burrows and mounds (C) , *Saccharina latissima* (O), *Chorda filum* (C), filamentous red and green algae (F), *Ulva* sp. (O), *Munida rugosa* (R)	SS.SMp.KSwSS.LsacR	**HB**
JuraIslay_187.2	sandy mud with stones	Folious and filamentous red algae (R), *Nemertesia antennina* (O), *Asterias rubens* (O), *Lanice conchilega* (O), *Munida rugosa* (R)	SS.SMx.IMx	
JuraIslay_188	sandy mud	Burrows and mounds (C) , *Saccharina latissima* (O), *Chorda filum* (C), filamentous red and green algae (F), *Desmarestia* (C), *Ulva* sp. (O), *Asperococcus bullosus* (O), *Virgularia mirabilis* (C)	SS.SMp.KSwSS.LsacCho	**HB**

JuraIslay_189	mud with shell	Burrows and mounds (F) , *Saccharina latissima* (O), filamentous red and green algae (A), *Desmarestia* (C), *Ulva* sp. (O), *Asperococcus bullosus* (O),	SS.SMp.KSwSS.LsacR.Mu	**HB**
JuraIslay_190	fine cohesive mud	Burrows and mounds (A) *Virgularia mirabilis* (A), *Asterias rubens* (F), silt covered filamentous red + green algae (C), *Ascidiella aspersa* (F), *Liocarcinus depurator* (O). Dead seapens	SS.SMp.KSwSS	**HB**
JuraIslay_191	fine cohesive mud	Burrows and mounds (A) *Virgularia mirabilis* (A), *Asterias rubens* (F), silt covered filamentous red algae (O), *Ascidiella aspersa* (F), *Liocarcinus depurator* (O)	SS.SMu.IFiMu.PhiVir	
JuraIslay_192	fine cohesive mud	Burrows and mounds (C) *Virgularia mirabilis* (A), *Asterias rubens* (F), *Pagurus bernhardus* with *Hydractinia echinata* (R), silt covered red	SS.SMu.IFiMu	

		algae (O), *Ascidiella aspersa* (F)		
JuraIslay_193	fine cohesive mud	Burrows and mounds (C) *Virgularia mirabilis* (A), *Cerianthus lloydii* (R)	SS.SMu.IFiMu	
JuraIslay_194	fine cohesive mud	Burrows and mounds (C) *Virgularia mirabilis* (A), *Asterias rubens* (F), *Pagurus bernhardus* with *Hydractinia echinata* (R), silt covered red algae (O), *Ascidiella aspersa* (F)	SS.SMu.IFiMu	
JuraIslay_195	fine cohesive mud	Burrows and mounds (C) *Virgularia mirabilis* (A), *Nephrops norvegicus* (F), *Pachycerianthus multiplicatus* (O)- 0218 and 0232, *Asterias rubens* (F), *Cerianthus lloydii* (R)	SS.SMu.CFiMu.SpnMeg	**HB, LS**
JuraIslay_196.1	stones and pebbles (90%) with sand (10%)	Folious and filamentous red algae (C), kelp (O), *Nemertesia antennina* (F), *Nemertesia ramosa* (F), *Hydrallmania falcata* (F), *Asterias rubens* (F),	SS.SMp.KSwSS.LsacR.CbPb	**HB**

		Spirobranchus triqueter (F), encrusting red algae (F), turf bryozoans (C), *Ophiocomina nigra* (F),	
JuraIslay_196.2	course gravel (5%), stones and pebbles (95%)	*Ophiocomina nigra* (A) *Spirobranchus triqueter* (A), *Crossaster papposus* (O), hydroid turf (F), *Echinus esculentus* (F),	SS.SMx.CMx.OphMx
JuraIslay_196.3	large and medium stones and pebbles (90%) with sand (10%)	*Ophiocomina nigra* (C) *Spirobranchus triqueter* (C), *Crossaster papposus* (O), hydroid turf (F),	SS.SMx.CMx
JuraIslay_196.4	stones and pebbles (90%) with sand (10%)	*Spirobranchus triqueter* (C), *Ophiocomina nigra* (F) *Crossaster papposus* (O), hydroid turf (F), *Ophiura* sp. (O)	SS.SCS.CCS.PomB
JuraIslay_196.5	stones and pebbles (90%) large rocks (10%)	*Hydrallmania falcata* (F), *Asterias rubens* (F), *Nemertesia antennina* (F), *Nemertesia ramosa* (F), *Halecium halecium* (O), *Sertularia* sp. (O), hydroid and bryozoan turf (C),	SS.SMx.CMx

		Spirobranchus triqueter (F), encrusting red algae (C), *Echinus esculentus* (O), *Crossaster papposus* (O)	
JuraIslay_197	stones and pebbles (90%) with sand (10%)	*Flustra foliacea* (F), *Hydrallmania falcata* (F), *Asterias rubens* (F), *Nemertesia antennina* (F), *Nemertesia ramosa* (F), *Halecium halecium* (F), hydroid turf (C), *Spirobranchus triqueter* (F), encrusting red algae (C), encrusting bryozoans (O), *Ophiocomina nigra* (A), *Echinus esculentus* (F). Bivalves? 00:03:29-00:05:23 *Limaria hians*?	SS.SMx.CMx.FluHyd
JuraIslay_198	course gravel (5%), stones and pebbles (95%)	*Ophiocomina nigra* (A) *Spirobranchus triqueter* (A), *Ophiura* sp. (O), *Crossaster papposus* (O), *Alcyonium digitatum* (O), *Alcyonidium diaphanum* (O), *Hydrallmania falcata* (F), hydroid turf (C), *Echinus esculentus* (F),	SS.SMx.CMx.OphMx

		Botryllus schlosseri (R), *Ascidiella virginea* (F)	
JuraIslay_199	course gravel (5%), stones and pebbles (95%)	*Ophiothrix fragilis* (S), *Ophiocomina nigra* (A) *Spirobranchus triqueter* (F), *Ophiura* sp. (O), *Crossaster papposus* (O), *Alcyonium digitatum* (O), *Alcyonidium diaphanum* (O), *Hydrallmania falcata* (F)	SS.SMx.CMx.OphMx
JuraIslay_200	course gravel (50%), pebbles (50%)	*Ophiothrix fragilis* (S), *Ophiocomina nigra* (F) *Spirobranchus triqueter* (F), *Ophiura* sp. (F), *Crossaster papposus* (O), *Alcyonium digitatum* (F), *Alcyonidium diaphanum* (F)	SS.SMx.CMx.OphMx
JuraIslay_201.1	shelly course sediment (95%), large broken shells (5%), occasional rocks	Faunally very sparse mobile sediment. *Spirobranchus triqueter* (F), *Ophiura* sp. (O), *Asterias rubens* (O), hydroid (O)	SS.SMx.CMx
JuraIslay_201.2	cobbles and pebbles	*Spirobranchus triqueter* (A), *Ophiura* sp. (F), *Ophiocomina*	SS.SCS.CCS.PomB

		nigra (F), *Crossaster papposus* (O)	
JuraIslay_202	shelly course sediment (95%), stones (5%)	*Alcyonium digitatum* (F), *Hydrallmania falcata* (F), *Asterias rubens* (O), *Ophiura* sp. (C), *Nemertesia ramosa* (F), *Echinus esculentus* (O), *Alcyonidium diaphanum* (F), *Spirobranchus triqueter* (F), encrusting red algae (O), hydroids (F), encrusting bryozoans (O), *Ophiocomina nigra* (F), *Crossaster papposus* (R)	SS.SMx.CMx
JuraIslay_203	stones and pebbles (90%) with sand (10%)	*Flustra foliacea* (F), *Hydrallmania falcata* (F), *Asterias rubens* (F), *Ophiura* sp. (O), *Nemertesia antennina* (F), *Nemertesia ramosa* (F), *Echinus esculentus* (O), *Alcyonidium diaphanum* (F), *Urticina eques* (O), *Spirobranchus triqueter* (F), encrusting red algae (C),	SS.SMx.CMx.FluHyd

		hydroids (C), encrusting bryozoans (F)		
JuraIslay_204.1	small stones and pebbles and shell	*Alcyonidium diaphanum* (F), *Crossaster papposus* (O), *Flustra foliacea* (F), *Asterias rubens* (O)	SS.SMx.CMx	
JuraIslay_204.2	fine sand (90%), occasional stones (10%)	*Alcyonidium diaphanum* (F), *Urticina eques* (O)	SS.SSa.CFiSa	
JuraIslay_204.3	fine sand (80%) with stones	*Spirobranchus triqueter* (F), barnacles (F)	SS.SMx.CMx	
JuraIslay_205	sand and gravel with stones and pebbles	Faunally sparse. *Alcyonium digitatum* (F), *Asterias rubens* (C), encrusting red algae (F), *Nemertesia antennina* (F), *Alcyonidium diaphanum* (F)	SS.SMx.CMx	
JuraIslay_206	rocks and small boulders	*Echinus esculentus* (F), foliose red algae (C), *Saccharina latissima* (F), hydroids (C), *Hydrallmania falcata* (O), *Alcyonium digitatum* (F),	SS.SMp.KSwSS.LsacR	
JuraIslay_206	small stones, pebbles	Faunally sparse encrusting red algae (C), hydroids (C),	SS.SMp.KSwSS	**HB**
JuraIslay_207	muddy sand with stones and shell	Faunally sparse, filamentous and foliose red algae (F), *Ulva*	SS.SMp.KSwSS	**HB**

		sp. (O), Bugula sp. (O), hydroids (F), *Turritella communis* (F), *Clavelina lepadiformis* (O), *Alcyonidium* sp. (O)		
JuraIslay_208	muddy sand with stones	Faunally sparse. *Asterias rubens* (O), *Liocarcinus depurator* (F), *Astropecten irregularis* (R), *Cerianthus lloydii* (O), *Turritella communis* (A)	SS.SMx.CMx	
JuraIslay_209.1	stones, pebbles and course gravel	*Saccharina latissima* (O), foliose red algae (F), hydroid and bryozoan turf (C), *Nemertesia sp.* (F), *Ophiura albida* (O), *Flustra foliacea* (F), *Sagartia elegans* (O), *Crossaster papposus* (O), *Asterias rubens* (O), *Sertularia* sp. (O), *Alcyonidium* sp. (C)	SS.SMp.KSwSS	**HB**
JuraIslay_209.2	maerl (15%), shell and gravel	Faunally sparse. Sand eels *Ammodytes* sp. 0749, *Asterias rubens* (O)	SS.SCS.CCS	**MS**

JuraIslay_210.1	bedrock and boulders with coarse sand (30%)	*Saccharina latissima* (C) *Laminaria hyperborea* (C) *Desmarestia aculeata* (F), understorey of foliose seaweeds (C), *Botryllus schlosseri* (O), hydroid and bryozoan turf (F). Sediment includes maerl fragments (R)	IR.HIR.KSed.XKScrR
JuraIslay_210.2	bedrock and boulders with coarse sand (60%)	*Saccharina latissima* (C) *Laminaria hyperborea* (C) *Desmarestia aculeata* (F), understorey of foliose seaweeds (A), hydroid and bryozoan turf (C), *Nemertesia sp.* (F)	IR.HIR.KFaR.FoR
JuraIslay_210.3	bedrock and boulders with coarse sand (H0%)	hydroid and bryozoan turf (C), *Nemertesia sp.* (C), *Flustra foliacea* (F), *Sagartia elegans* (O), *Crossaster papposus* (O)	CR.HCR.XFa
JuraIslay_210.4	stones, pebbles and course gravel	hydroid and bryozoan turf (C), *Nemertesia sp.* (C), *Flustra foliacea* (F), *Sagartia elegans* (O), *Crossaster papposus* (O)	SS.SMx.CMx

JuraIslay_211	sandy mud with stones and shell (5%)	Burrows (A) and mounds (C), *Liocarcinus depurator* (O), *Asterias rubens* (C), *Cerianthus lloydii* (F), *Amphiura filiformis* (O), *Aequipecten opercularis* (F), *Pecten maximus* (O)	SS.SMu.CSaMu	
JuraIslay_212	cohesive fine mud	*Virgularia mirabilis* (A), Burrows (A) and mounds (C), *Liocarcinus depurator* (O), *Asterias rubens* (O), *Cerianthus lloydii* (O), *Sagartiogeton undatus* (O)	SS.SMu.CFiMu.SpnMeg	**HB**
JuraIslay_213	cohesive fine mud	Burrows (A) and mounds (C), *Liocarcinus depurator* (O), *Asterias rubens* (O), *Cerianthus lloydii* (O), *Amphiura filiformis* (O), *Nephrops norvegicus* (F)	SS.SMu.CFiMu.MegMax	**HB**
JuraIslay_214	cohesive fine mud	Burrows (A) and mounds (C), *Liocarcinus depurator* (O), *Asterias rubens* (O), *Cerianthus lloydii* (R), *Amphiura filiformis* (O)	SS.SMu.CFiMu.MegMax	**HB**

JuraIslay_215	cohesive fine mud	Burrows (A) and mounds (C), *Liocarcinus depurator* (O), *Asterias rubens* (O), *Nemertesia sp.* (O)	SS.SMu.CFiMu.MegMax	**HB**
JuraIslay_216	cohesive fine mud	Burrows (A) and mounds (C), *Liocarcinus depurator* (O), *Asterias rubens* (O)	SS.SMu.CFiMu.MegMax	**HB**
JuraIslay_217	cohesive fine mud	Burrows (A) and mounds (C), *Liocarcinus depurator* (F), *Asterias rubens* (O), *Amphiura filiformis* (O)	SS.SMu.CFiMu.MegMax	**HB**
JuraIslay_218.1	cohesive fine mud	Burrows (A) and mounds (C), *Liocarcinus depurator* (F), *Asterias rubens* (O)	SS.SMu.CFiMu.MegMax	**HB**
JuraIslay_218.2	cohesive sandy mud	*Amphiura filiformis* (A), *Asterias rubens* (A), *hydroids (C), Liocarcinus depurator (F), Burrows (A) and mounds (C)*	SS.SMu.CSaMu.AfilMysAnit	
JuraIslay_219	cohesive sandy mud	*Amphiura filiformis* (A), *Asterias rubens* (A), *hydroids (C), Liocarcinus depurator (F), Burrows (A) and mounds (C)*	SS.SMu.CSaMu.AfilMysAnit	
JuraIslay_220	cohesive sandy mud	*Amphiura filiformis* (S), *Asterias rubens* (A), *hydroids (C), Virgularia mirabilis (F),*	SS.SMu.CSaMu.AfilMysAnit	

JuraIslay_221	cohesive sandy mud	*Liocarcinus depurator (F), Burrows (A) and mounds (C) Amphiura filiformis* (S), *Asterias rubens* (A), *Liocarcinus depurator (F), Asterias rubens (O),* Burrows (A) and mounds (C), *Nephrops norvegicus (F),*	SS.SMu.CSaMu.AfilMysAnit	
JuraIslay_222	cohesive fine mud	Burrows (A) and mounds (C), *Liocarcinus depurator* (F), *Asterias rubens* (O), *Ascidiella aspersa* (O), *Nemertesia ramosa* (F), *Amphiura filiformis* (O)	SS.SMu.CFiMu.MegMax	**HB**
JuraIslay_223	cohesive fine mud	Burrows (A) and mounds (C), *Nephrops norvegicus* (F), *Liocarcinus depurator* (F), *Asterias rubens* (O)	SS.SMu.CFiMu.MegMax	**HB**
JuraIslay_224.1	cohesive sandy mud with stones (<5%)	*Ascidiella aspersa* (A) hydroids (F), *Nemertesia ramosa* (O), *Liocarcinus depurator* (F), *Asterias rubens* (C), filamentous red algae (O)	SS.SMp.KSwSS	**HB**

JuraIslay_224.2	mud and sand, gravel and stone covering (80%)	*Ascidiella aspersa* (A) hydroids (F), *Nemertesia ramosa* (O), *Liocarcinus depurator* (F), *Asterias rubens* (C), *Asperococcus bullosus* (F), red and brown filamentous algae (C)	SS.SMp.KSwSS	**HB**
JuraIslay_225.1	cohesive sandy mud	*Amphiura filiformis* (S), *Asterias rubens* (A)	SS.SMu.CSaMu.AfilMysAnit	
JuraIslay_225.2	cohesive sandy mud with stones (<5%)	*Crossaster papposus* (R), *Ascidiella aspersa* (A), hydroids (C), *Nemertesia ramosa* (F), *Asterias rubens* (C), *Cancer pagurus* (R)	SS.SMx.CMx	
JuraIslay_225.3	silt covered rock	*Ascidiella aspersa* (A), hydroids (C), *Nemertesia ramosa* (F), *Liocarcinus depurator* (O), *Asterias rubens* (C), *Cancer pagurus* (R), pink encrusting algae (F)	CR.LCR.BrAs	
JuraIslay_225.4	cohesive sandy mud	*Ascidiella aspersa* (A), hydroids (C), *Asterias rubens* (C), *Amphiura filiformis* (F)	SS.SMu.CSaMu	
JuraIslay_225.5	silt covered bedrock	*Ascidiella aspersa* (A) becoming (S), hydroids (C),	CR.LCR.BrAs	

	Nemertesia ramosa (F), *Liocarcinus depurator* (C), *Asterias rubens* (C), *Cancer pagurus* (R), *Echinus esculentus* (R) pink encrusting algae (F), *Crossaster papposus* (R), sediment anoxic in patches becoming increasingly common

Table 3

Physical and biological descriptions of the survey sites in Orkney. HB= PMF habitat, LS= PMF low mobility species, MS= PMF mobile species MSE= PMF mobile species eggs

Site ID	Substrate	Biota	Biotope	PMF
Orkney_001	Boulders (40%) with cobbles, rocks and course sediment (60%)	Mosaic- *Parasmittina trispinosa* (C), *Spirobranchus triqueter* (C), *Caryophyllia smithii* (O), *Echinus esculentus* (O)	CR.MCR.EcCr.FaAlCr	
Orkney_001	Boulders (40%) with cobbles, rocks and course sediment (60%)	Mosaic- *Parasmittina trispinosa* (O), *Spirobranchus triqueter* (C), *Pecten maximus* (O), *Munida rugosa* (O) between the cobbles, *Echinus esculentus* (O)	SS.SCS.CCS.PomB	
Orkney_002	Muddy sand	worm casts *Arenicola marina*? (O), parchment tubes (O), *Corystes cassivelaunus* (O), teleost (R) sparse life on the sediment surface, small sand waves and lots of small bits floating algae on and just above the surface of sediment.	SS.Ssa.CMuSa	
Orkney_003	Shelly sand with small stones, sand waves	Very little life visible, *Flustra foliacea* (R), some bits were	SS.SCS.CCS	

	and stones in the troughs	loose and could have been deposited there through tidal movement.	
Orkney_004	Muddy sand	worm casts *Arenicola marina* ?(O), parchment tubes (O), *Pagurus prideaux* (O), *Ophiura ophiura* (O), *Corystes cassivelaunus* (R), *Atelecyclus rotundatus* (R), small sand waves and lots of small bits floating algae and *Flustra foliacea* on and just above the surface of sediment.	SS.Ssa.CMuSa
Orkney_005	Coarse shelly sand, sand waves with shell in the troughs	Faunally sparse	SS.SCS.CCS
Orkney_006	Coarse sand with pebbles, with pebbles and occasional cobble becoming more dominant towards the end of the run.	Bryozoan crust (C), *Spirobranchus triqueter* (C), *Flustra foliacea* (C), hydroids (C), *Urticina felina* (O). Drift speed limits species identification	SS.SMx.CMx
Orkney_007	Coarse sand with pebbles and occasional cobble	Bryozoan crust (O), *Spirobranchus triqueter* (F), *Flustra foliacea* (C), hydroids (C),	SS.SCS.CCS.PomB

	towards the end of the run.	*Alcyonium digitatum* (O), *Ophiocomina nigra* (C) *Luidia ciliaris* (O), *Crossaster papposus* (R)		
Orkney_008	Coarse sand with pebbles, with larger cobble becoming more frequent towards the end of the run	Bryozoan crust (O), *Spirobranchus triqueter* (F), *Flustra foliacea* (C), *Alcyonium digitatum* (R), *Ophiocomina nigra* (A) at the beginning of the run but becoming (O) by the end. *Luidia ciliaris* (R), larger boulders towards end of the run with *Flustra foliacea* on the top	SS.SCS.CCS.PomB	
Orkney_009	Muddy sand	*Amphiura brachiata* (A), *Astropecten irregularis* (R), *Cancer Pagurus* (R), *Pagurus bernhardus* (R)	SS.SSa.CMuSa.AbraAirr	
Orkney_010	Maerl, and sand with scattered shells	Maerl live 15% (F), 50% dead, sand waves with maerl on the side of the waves and in the troughs, relatively consistent throughout the run	SS.SMp.Mrl	**HB**
Orkney_011	Shelly sand with small stones, consistent throughout run	One large cobble with *Flustra foliacea* (R) and a single *Pagurus* sp. (R).	SS.SCS.CCS	

Orkney_012.1	Bed rock	*Laminaria hyperborea* (A) with red seaweeds (A) on stipes and understory as well as encrusting coralline algae (A) on the bed rock	IR.HIR.KFaR.LhypR.Ft	**HB**
Orkney_012.2	Bed rock with boulders with sand in between	*Laminaria hyperborea* (C) becomes more sparse and smaller plants with increasing depth, red seaweeds on stipes and understory as well as encrusting coralline algae on the boulders and bed rock	IR.HIR.KFaR.LhypR.Pk	**HB**
Orkney_013	Bed rock with boulders, with sand in between	Barnacles (C) on boulders the first half of the run, with *Polyclinum aurantium* (A) on rocks from approximately the second half of the tow as sand on bed rock increases. *Flustra foliacea* (C), *Ophiothrix fragilis* (C), *Urticina felina* (O), *Crossaster papposus* (O), encrusting coralline algae (C)	CR.HCR.XFa.FluCoAs.Paur	
Orkney_014	Bedrock with sand pockets	Sand scored rock with dwarf kelps *Saccharina latissima* (O), *Laminaria hyperborea* (O) small	CR.MCR.EcCr.FaAlCr	

		plants, red seaweed (F), *Urticina felina* (F), *Alcyonium digitatum* (C), *Flustra foliacea* (F), sparse kelp park, tidal swept over rugged bedrock	
Orkney_015	Mixed sediment, sand with stones and large boulders	*Flustra foliacea* (A) on many of the larger boulders, encrusting coralline algae (C), *Alcyonium digitatum* (F), encrusting bryozoan (C), *Urticina felina* (F), *Echinus esculentus* (R)	CR.MCR.EcCr.FaAlCr.Flu
Orkney_016	Sand	Faunally sparse, *Pagurus* sp. (R)	SS.SSa.CFiSa
Orkney_017	Shelly coarse sand, sand waves and shell in the troughs	Faunally sparse	SS.SCS.CCS
Orkney_018	Hard packed sand and pebbles with shell	Faunally sparse *Urticina felina* (O), *Asterias rubens* (R), *Crossaster papposus* (R)	SS.SMx.CMx
Orkney_019	Cobbles, large boulders and bed rock	Faunal turf present on boulders, *Ophiopholis aculeata* (A), *Ophiocomina nigra* (F), encrusting coralline algae (C), encrusting bryozoan (F), *Alcyonium digitatum* (F), *Flustra foliacea* (O), *Urticina felina* (R),	CR.MCR.EcCr.FaAlCr.Adig

		Crossaster papposus (F), *Luidia ciliaris* (F), *Porania pulvillus* (O), *Echinus esculentus* (F), *Parasmittina trispinosa* (F), *Spirobranchus triqueter* (C), *Urticina felina* (O)		
Orkney_020.1	Cobbles, large boulders and bed rock with sand patches between.	*Alcyonium digitatum* (S), *Securiflustra securifrons*? (A), encrusting coralline algae (A), yellow sponge (R), *Echinus esculentus* (F), *Crossaster papposus* (F), *Marthasterias glacialis* (R)	CR.MCR.EcCr.FaAlCr.Sec	
Orkney_020.2	Cobbles, large boulders and bed rock with sand patches between.	*Laminaria hyperborea* (C), encrusting coralline algae (A), *Alcyonium digitatum* (C) on the vertical sides of large boulders with kelp plants on top, *Flustra foliacea* (C), *Echinus esculentus* (O), *Crossaster papposus* (R)	IR.MIR.KR.LhypT.Pk	**HB**
Orkney_021	Bedrock, with sand quickly turns into pebbles, cobbles, large boulders on sand/shell	Encrusting coralline algae (A), encrusting bryozoan (C), *Echinus esculentus* (O), *Crossaster papposus* (O), *Urticina felina* (R)	CR.MCR.EcCr.FaAlCr	

Orkney_022	Sand	Faunally sparse	SS.SSa.CFiSa	
Orkney_023	Sand	Faunally sparse, *Ophiura ophiura* (O)	SS.SSa.CFiSa	
Orkney_024	Shelly coarse sand with shell	Faunally sparse, *Ophiura ophiura* (R), *Atelecyclus rotundatus* (R)	SS.SSa.CFiSa	
Orkney_025	Sand	Faunally sparse, *Ophiura ophiura* (R), *Liocarcinus depurator* (R), parchment tube (R), teleost (R)	SS.SSa.CFiSa	
Orkney_026	Boulders and cobles with shelly sand in between.	*Laminaria hyperborea* (F), red seaweeds (C), *Delesseria sanguinea* (C), encrusting coralline algae (C), *Saccharina latissima* (R), *Asterias rubens* (R), *Echinus esculentus* (R), *Porania pulvillus* (R), *Urticina felina* (R)	IR.MIR.KR.LhypTX.Pk	**HB**
Orkney_027	Muddy sand	*Amphiura* brachiata (A), *Asterias rubens* (R), *Ophiura* sp. (C), drift algae (A)	SS.SSa.CMuSa.AbraAirr	
Orkney_028	Muddy sand	*Amphiura* brachiata (A), *Pagurus bernhardus* (R), *Ophiura ophiura* (O), drift algae (A), *Cerianthus lloydii* (O)	SS.SSa.CMuSa.AbraAirr	

Orkney_029	Muddy sand with shell, sand waves with shell in the troughs	bivalve siphon (R), *Pecten maximus* (R), *Cerianthus lloydii* (R), sand eel *Ammodytes* (R)	SS.SSa.CFiSa	**MS**
Orkney_030.1	Bed rock and large boulders	*Laminaria hyperborea* (A), red seaweeds (C), *Delesseria sanguinea* (C), encrusting red algae (C), encrusting coralline algae (C), *Echinus esculentus* (R), *Urticina felina* (R)	IR.MIR.KR.Lhyp.Ft	**HB**
Orkney_030.2	Boulders and cobles with shelly sand in between.	*Laminaria hyperborea* (C), red seaweeds (C), *Delesseria sanguinea* (C), encrusting red algae (C), encrusting coralline algae (C)	IR.MIR.KR.LhypTX.Pk	**HB**
Orkney_031	Cobbles and pebbles with occasional large rock/boulder	*Ophiothrix fragilis* (A) at the start of the run becoming (S) 3:14. *Ophiocomina nigra* (C), *Alcyonium digitatum* (C), hydroid sp. (C), *Luidia ciliaris* (R), *Crossaster papposus* (R), *Pecten maximus* (R), *Echinus esculentus* (R)	SS.SMx.CMx.OphMx	
Orkney_032	Coarse shelly sand	Faunally sparse, loose *Flustra foliacea* in the troughs of the sand waves.	SS.SSa.CFiSa	

Orkney_033	Bedrock with boulders and sand pockets	*Alcyonium digitatum* (A), *Flustra foliacea* (A), encrusting coralline algae (A), Porifera (R), *Echinus esculentus* (F), *Crossaster papposus* (F), *Luidia ciliaris* (R), Porifera (O)	CR.MCR.EcCr.FaAlCr
Orkney_034	Bedrock with sand pockets	*Alcyonium digitatum* (C), *Flustra foliacea* (A), *Polyclinum aurantium* (A) encrusting coralline algae (A), *Echinus esculentus* (F), *Crossaster papposus* (O), *Urticina felina* (F), *Asterias rubens* (O), *Luidia ciliaris* (R)	CR.HCR.XFa.FluCoAs.Paur
Orkney_035	Bedrock with large boulders	Dense short faunal turf, video moving too fast to analyse in any detail *Alcyonium digitatum* (C), *Urticina felina* (C) porifera (C), tunicates (C), *Echinus esculentus* (C)	CR.MCR.EcCr.FaAlCr
Orkney_036	Tide swept bedrock ridges, with cobles in between	Dense short faunal turf, video moving too fast to analyse in any detail *Alcyonium digitatum* (C), red algae (F) porifera (F), tunicates sp. (C), *Echinus*	CR.MCR.EcCr.FaAlCr

		esculentus (C), bryozoan sp. (C) *Crossaster papposus* (O)		
Orkney_037	Bedrock with occasional large boulders, small gullies in the bed rock	*Laminaria hyperborea* (A), red seaweeds (A), *Delesseria sanguinea* (C), encrusting red algae (A), encrusting coralline algae (A), *Echinus esculentus* (O),	IR.MIR.KR.Lhyp.Ft	**HB**
Orkney_038	Bedrock and occasional boulders and cobbles	*Alcyonium digitatum* (F), *Flustra foliacea* (R), encrusting coralline algae (F), *Echinus esculentus* (R), *Crossaster papposus* (R), *Urticina felina* (R), *Marthasterias glacialis* (R), porifera (R), *Ophiothrix fragilis* (R) but only in the last 15 seconds of the run	CR.MCR.EcCr.FaAlCr.Pom	
Orkney_039	Bedrock with vertical slopes	*Alcyonium digitatum* (F), red algae (F) *Echinus esculentus* (O), this biotope is the transition to kelp park	CR.MCR.EcCr.FaAlCr	
Orkney_039	Bedrock with occasional boulders and vertical walls	*Laminaria hyperborea* (A), red seaweeds (A), encrusting red algae (A), encrusting coralline algae (A), *Alcyonium digitatum* (A) on vertical walls, porifera (F),	IR.HIR.KFaR.LhypR.Pk	**HB**

		hydroid sp. (O), *Echinus esculentus* (O), towards end of run, kelp park becomes very sparse.		
Orkney_040	Bedrock	*Laminaria hyperborea* (A), red seaweeds (A), encrusting red algae (A), encrusting coralline algae (A)	IR.MIR.KR.Lhyp.Ft	**HB**
Orkney_041	Bedrock	*Laminaria hyperborea* (A), red seaweeds (A), encrusting red algae (A), encrusting coralline algae (A), *Echinus esculentus* (R)	IR.MIR.KR.Lhyp.Ft	**HB**
Orkney_042	Bedrock	*Laminaria hyperborea* (A), red seaweeds (A), encrusting red algae (A), encrusting coralline algae (A), *Echinus esculentus* (R)	IR.MIR.KR.Lhyp.Ft	**HB**
Orkney_043	Bedrock	*Ophiothrix fragilis* (A), Ophiothrix nigra (A) *Alcyonium digitatum* (F), *Flustra foliacea* (C), encrusting coralline algae (C), Porifera (R), *Echinus esculentus* (O), *Crossaster papposus* (O), *Luidia ciliaris* (R), *Urticina felina* (O)	CR.MCR.EcCr.FaAlCr.Bri	
Orkney_044	Bedrock ridges with sand in between and	Ophiothrix nigra (C) *Alcyonium digitatum* (F), *Echinus esculentus*	CR.MCR.EcCr.FaAlCr.Adig	

	patchy sand on bedrock	(O), *Crossaster papposus* (R), *Luidia ciliaris* (R), *Spirobranchus triqueter* (A), *Urticina felina* (F), *Marthasterias glacialis* (R)	
Orkney_045	Bedrock with patches of coarse sand on top	*Alcyonium digitatum* (F), *Flustra foliacea* (A), *Polyclinum aurantium* (A) encrusting coralline algae (A), *Aplidium punctum* (F), *Echinus esculentus* (O), *Crossaster papposus* (O), *Urticina felina* (F), *Asterias rubens* (R)	CR.HCR.XFa.FluCoAs.Paur
Orkney_046	Bedrock with patches of coarse sand on top	*Alcyonium digitatum* (A), *Flustra foliacea* (C), *Polyclinum aurantium* (F), *Securiflustra securifrons* (O) encrusting coralline algae (O), *Aplidium punctum* (F), *Echinus esculentus* (F), *Crossaster papposus* (O), *Urticina felina* (F), *Asterias rubens* (R), *Sagartia elegans* (O), hydroid sp. (F), bryozoan sp. (F)	CR.HCR.XFa.FluCoAs.Paur
Orkney_047	Bedrock with patches of coarse sand on top	*Alcyonium digitatum* (A), *Flustra foliacea* (C), *Polyclinum aurantium* (C), *Securiflustra*	CR.HCR.XFa.FluCoAs.Paur

		securifrons (O) encrusting coralline algae (R), *Aplidium punctum* (C), *Echinus esculentus* (F), *Crossaster papposus* (O), *Urticina felina* (C), *Asterias rubens* (F), *Sagartia elegans* (F), hydroid sp. (C), bryozoan sp. (C), porifera (R)		
Orkney_048	Bedrock, with ridges and patches of sand on top	*Alcyonium digitatum* (C), *Polyclinum aurantium* (C), red algae (A), *Aplidium punctum* (C), *Urticina felina* (C), *Asterias rubens* (O), *Sagartia elegans* (F), hydroid sp. (A), bryozoan sp. (A), porifera (C), *Octopus* (R) dense faunal turf, camera moving fast	CR.HCR.XFa	
Orkney_049	Muddy sand	*Amphiura* brachiata (A), *Ophiura ophiura* (C), drift algae (A), Seagrass blades (F), Scophthalmidae (R), *Asterias rubens* (R)	SS.SSa.CMuSa.AbraAirr	
Orkney_050	Muddy sand with shell and small stones and the occasional rocky protrusion	Algae attached to the small stones, *Saccharina latissima* (F), *Ulva* sp. (F), filamentous brown algae (F), red algae sp. (F),	SS.SMp.KSwSS.LsacR.Mu	**HB**

		Laminaria hyperborea (R) on rocky outcrop, *Cerianthus lloydii* (R)		
Orkney_051	Mixed substrate-circalittoral rock with shell gravel	Epifauna community on rocks and sediment, *Securiflustra securifrons* (F), *Sertularia* sp. (F), *Alcyonium digitatum* (O), *Asterias rubens* (O), *Ophiothrix fragilis* (C)	CR.MCR.EcCr.FaAlCr.Sec	
Orkney_052	Boulders with mixed course sediment between rocks	*Laminaria hyperborea* (A), *Saccharina latissima* (O) stipes covered with red algae. Faunal difficult to quantify due to dense canopy. *Echinus esculentus* (P)	IR.MIR.KR.LhypTX.Ft	**HB**
Orkney_053.1	Boulders, large cobbles and pockets of gravel	*Laminaria hyperborea* park (C) with red algae (A) and encrusting red algae on rocks, echinoderms including *Asterias rubens* (O), *Echinus esculentus* (C), *Urticina felina* (O), *Flustra foliacea*	IR.MIR.KR.LhypTX.Pk	**HB**
Orkney_053.2	Mobile clean sand occasional rocks	Faunally sparse sediment, small number of rocks with seaweed (*Laminaria hyperborea* (O) and barnacles	SS.SSa.IFiSa.IMoSa	

Orkney_054	Mixed substrate with coarse sand, gravel and peddles.	*Ophiocomina nigra* (A), *Ophiothrix fragilis* (O), *Luidia ciliaris* (O), *Urticina felina* (O), *Balanus crenatus* (O) *Laminaria hyperborea* (O), Maerl (R), *Lanice conchilega* (O), *Alcyonium digitatum* (O), *Flustra foliacea* (R)	SS.SMp.KSwSS.LsacR	**LS**
Orkney_055	Mixed stones and boulders with shell gravel	*Flustra foliacea* (F), *Hydrallmania falcata* (O) encrusting pink algae, *Alcyonium digitatum* (O), *Crossaster papposus* (R), *Asterias rubens* (R), *Urticina felina* (O), *Echinus esculentus* (F), *Sagartia elegans* (R), *Ophiothrix fragilis* (O)	SS.SMx.CMx.FluHyd	
Orkney_056.1	Maerl overlaying muddy sand	maerl c. 50% living cover (A), dead 10%. Maerl covered in red filamentous algae until 03:36 where it becomes less fouled. *Asterias rubens* (O), *Luidia ciliaris* (O)	SS.SMp.Mrl	**HB**
Orkney_056.2	small stones, pebbles and sand	Video footage to fast to allow detailed analysis. *Laminaria hyperborea*, *Saccharina latissima*, maerl (R)	SS.SMx.Imx	

Orkney_057.1	Irregular pebbles and cobbles on shingle	Limited signs of life, *Urticina felina* (O), *Crossaster papposus* (R), *Asterias rubens* (O), *Flustra foliacea* (O)	SS.SMx.CMx
Orkney_057.2	Irregular pebbles and cobbles on shingle	Individual *Modiolus modiolus* (A) 10-99m2, *Urticina felina* (O), *Echinus esculentus* (O), *Asterias rubens* (O), *Flustra foliacea* (R)	SS.SBR.SMus
Orkney_057.3	pebbles and cobbles on shingle	Limited signs of life, *Urticina felina* (O), *Crossaster papposus* (R), *Asterias rubens* (O), *Flustra foliacea* (R), *Modiolus modiolus* (R)	SS.SMx.CMx
Orkney_058	fine sand with some stone and large amounts of shell	Limited signs of life Ophiothrix nigra (R), *Asterias rubens* (R)	SS.SMx.CMx
Orkney_059	Shell gravel with 100% covering of large broken shell	Limited signs of life *Ophiothrix fragilis* (R), *Flustra foliacea* (F), *Crossaster papposus* (R), *Echinus esculentus* (O)	SS.SMx.CMx
Orkney_060	Maerl overlaying sand or gravel	maerl c. living cover 5% with c.95% dead cover (C), red algae and seaweeds such as *Saccharina latissima* (O), *Ulva* sp. (O) .	SS.SCS.CCS

Orkney_061	Fine sand occasional small stones	Faunally sparse sediment with occasional seaweeds e.g. *Saccharina latissima*, *Desmarestia* sp. however it is difficult to determine whether some seaweed is drift seaweed or is attached	SS.SSa.IFiSa.IMoSa	
Orkney_062a	Maerl on mixed sediment including, stones, boulders	Maerl with c. 30% live cover (C) 20% dead, boulders supporting red algae and seaweeds such as *Laminaria hyperborea* (F), *Saccharina latissima* (O) to form a sparse kelp park	IR.MIR.KT.XKTX	**HB**
Orkney_062b	Maerl on mixed sediment including, stones, boulders	Maerl with c. 30% live cover (C) 20% dead, boulders supporting red algae and seaweeds such as *Laminaria hyperborea* (F), *Saccharina latissima* (O) to form a sparse kelp park	SS.SMp.Mrl	**HB**
Orkney_063	Sand, pebbles and stones	Kelp park *Saccharina latissima* (F), *Laminaria hyperborea* (O), *Ulva* sp. (F), *Desmarestia* sp. (F), *Lanice conchilega* (O), with brown and red seaweeds between the canopy	SS.SMp.KSwSS.LsacR	**HB**

Orkney_064	Sand, pebbles and stones	Kelp park *Saccharina latissima*(O), *Laminaria hyperborea* (O), with areas of brown and red seaweeds (C), *Lanice conchilega* (C), *Sabella pavonina* (O), *Urticina felina* (R), Ophiothrix nigra (R)	SS.SMp.KSwSS.LsacR	**HB**
Orkney_065	Boulders and cobbles with sand	Kelp park, *Laminaria hyperborea* (O), with rocks covered with filamentous red seaweeds (A), *Lanice conchilega* (O), *Sabella pavonina*(O), *Ophiothrix fragilis* (A), *Spirobranchus triqueter* (O)	SS.SMp.KSwSS.LsacR.CbPb	**HB**
Orkney_066	Boulders and cobbles with sand	Dense kelp forest with *Laminaria hyperborea*, *Saccharina latissima*, with an under-storey and stipe flora of foliose seaweeds. Kelp park density prevents identification of species under canopy	IR.MIR.KR.LhypTX.Ft	**HB**
Orkney_067	Large boulders and cobbles with sand grave;	Kelp park, *Laminaria hyperborea* (F), with rocks covered with filamentous red seaweeds (A), *Ophiothrix fragilis* (A), *Asterias rubens* (R)	IR.MIR.KR.LhypTX.Pk	**HB**

Orkney_068	Maerl on mixed sediment including, stones, boulders	**Maerl live c.65% cover (A) dead 10%. Cobbles supporting red algae and seaweeds such as *Laminaria hyperborea* (F), *Saccharina latissima* (O) to form a sparse kelp park. *Ophiocomina nigra* (C), *Ophiothrix fragilis* (C), *Asterias rubens* (F), *Echinus esculentus* (F)**	SS.SMp.Mrl	**HB**
Orkney_069	shell gravel with sand with some stone and large amounts of shell	Limited signs of life expect calcareous algae covering rocks, single *Urticina felina* (R), maerl (R)	SS.SMx.ImMx	
Orkney_070.1a	Large boulders and cobbles with sand grave;	Kelp park- *Saccharina latissima* (F), *Laminaria hyperborea* (O), with rocks covered with red seaweeds (A) maerl replacing sand/ gravel component of this habitat	IR.MIR.KT.XKTX	**HB**
Orkney_070.1b	Maerl on mixed sediment including, stones, boulders	maerl c.50% cover (A) with high proportion of living maerl	SS.SMp.Mrl	**HB**

Orkney_070.2	Maerl gravel with small sand patches	maerl with c.15% live cover (F) 80% dead. *Asterias rubens* (R), *Urticina felina* (R)	SS.SMp.Mrl	**HB**
Orkney_071	Sand with overlay of maerl	Thin maerl overlay c. 5-10% living cover (O) 5% dead, *Urticina felina* (O), *Saccharina latissima* (O). Video footage very poor	SS.SSa.CMuSa	
Orkney_072.1	Maerl gravel with small sand patches	maerl 15% live cover, 80% dead, *Saccharina latissima* (O), *Capnea sanguinea* (R)	SS.SMp.Mrl	**HB**
Orkney_72.2	Clean sand with small amounts of maerl	Faunally sparse, maerl c.5-10% dead cover with c. 1% living cover (R), *Saccharina latissima* (O), *Ulva* sp. (O)	SS.SSa.IFiSa.IMoSa	
Orkney_073	Maerl gravel with small sand patches	Maerl with c. 15% living cover (F), 70% dead cover large thalli, *Asterias rubens* (R), *Urticina felina* (R)	SS.SMp.Mrl	**HB**
Orkney_074	Maerl gravel with peddles and cobbles	Maerl c.50% living cover (A), *Laminaria hyperborea* park (F), *Saccharina latissima* (F)	SS.SMp.Mrl	**HB**
Orkney_075	Maerl gravel	Maerl c. 5-10% living cover (O), 20% dead, *Saccharina latissima* (F), *Desmarestia* (O)	SS.SCS.CCS	

Orkney_076	Mixed muddy sand overlaid with maerl	Dense *Sabella pavonina* (A), *Lanice conchilega* (C), *Liocarcinus depurator* (R), *Buccinum undatum* (R), *Cerianthus lloydii* (O), sponge Suberites fiscus? (F), *Virgularia mirabilis* (O), *Modiolus modiolus* (R), *Nemertesia sp.* (O) overlaid with maerl c. 10% living cover (O), red algae	SS.SMx.IMx.SpavSpAn
Orkney_077	mixed muddy sediment	*Lanice conchilega* (O), *Cerianthus lloydii* (O), maerl (R), buried bivalves (O), *Rhizocaulus verticillatus* (O)	SS.SMx.CMx
Orkney_078	Muddy sand with some broken shell	*Amphiura* brachiata(C), *Sabella pavonina* (A), *Lanice conchilega* (F), *Cerianthus lloydii* (O), sponge Suberites fiscus? (R), *Virgularia mirabilis* (F), Turritella sp. Shells (C), Arctica islandica (R), *Nemertesia antennina* (O)	SS.SSa.CMuSa.AbraAirr
Orkney_079	Maerl overlaid with shell and pebbles	maerl with very low proportion of living maerl c. 5-10% living cover (O) dead 20%, *Lanice conchilega* (O), *Saccharina latissima* (O)	SS.SCS.CCS

Orkney_080a	Bed rock and boulders with maerl covered sediment between rocks	*Laminaria hyperborea* (C), *Saccharina latissima* (F), *Desmarestia* sp. (O) covered rocks with epiphytic algae, bryozoans and hydroids. Sediment in-between rocks with covering of maerl	IR.MIR.KT.XKTX	**HB**
Orkney_80b	Maerl and sand between bedrock and large stone	Maerl c. 50% (A) 30% dead, Maerl present between bedrock and large stones, *Ophiocomina nigra* (F), red algae on small stones	SS.SMp.Mrl	**HB**
Orkney_81	Bed rock and boulders with small amounts of sediment between rocks and large stones	*Laminaria hyperborea* (A) covered rocks with epiphytic algae, bryozoans and hydroids. Faunal turf difficult to discern between dense canopy.	IR.HIR.KFaR.LhypR.Ft	**HB**
Orkney_82	Bed rock and boulders with small amounts of sediment between rocks and large stones	*Laminaria hyperborea* (A) covered rocks with epiphytic algae, bryozoans and hydroids. Faunal turf difficult to discern between dense canopy.	IR.HIR.KFaR.LhypR.Ft	**HB**
Orkney_83	Bed rock and boulders with small amounts of sediment between	*Laminaria hyperborea* (A) covered rocks with epiphytic algae, bryozoans and hydroids	IR.MIR.KR.LhypTX.Ft	**HB**

	rocks and large stones	(e.g. Obelia), sponges e.g. Halichondria panicea on stipes. Faunal turf difficult to discern between dense canopy echinoderms including *Echinus esculentus*, *Crossaster papposus*.	
Orkney_84	Bedrock with a covering of mobile sand	Dense epifauna dominated by *Urticina felina* (A) in bands within rock cracks, barnacles (S), sponge, colonial sea squirts and short bryozoan turf dominating away from sand scour. *Sagartia elegans* (O), *Asterias rubens* (F), with hydroids (C), Halichondria panicea, *Alcyonium digitatum* (R). Nemertesia antennae (O) also present	CR.MCR.EcCr.UrtScr
Orkney_85	Mixed substrate with coarse sand, gravel and peddles. Thick covering of broken shell	Echinoderm dominated with dense beds of *Ophiothrix fragilis* (S), *Asterias rubens* (O), *Luidia ciliaris* (O), *Urticina felina* (O)	SS.SMx.CMx.OphMx

Orkney_86	Mobile clean sand (95%) with bedrock outcrops	Sparse fauna with rocky outcrops 01:17 to 03:25 on rocky outcrops hydroid Thuiara thuja (S), barnacles (A), *Urticina felina* (O), evidence of lost rope and small floats (00:00:25)	SS.Ssa.IFiSa.IMoSa
Orkney_87	Bedrock with evidence of sand scour	Dominated by *Urticina felina* (S), turf of bryozoans, hydroids, sponges and sea squirts. *Alcyonium digitatum* (C), *Asterias rubens* (F)	CR.MCR.EcCr.UrtScr
Orkney_88	Bedrock with a covering of mobile sand	Dense epifauna dominated by *Urticina felina* (A) at sand gully or rock crack edges with hydroids (C), *Alcyonium digitatum* (O), *Alcyonidium diaphanum* (F). Sponge, colonial sea squirts and short bryozoan turf dominating away from sand scour. *Cliona celata* (R), *Asterias rubens* (F)	CR.MCR.EcCr.UrtScr
Orkney_89	Clean sand with occasional pebbles	Sparse fauna with algae occurring on small pebbles e.g. *Saccharina latissima* (F), *Ulva* sp. (O).	SS.SSa.IFiSa.IMoSa

Orkney_90	Bedrock with occasional sand patches between rocks or in cracks	Video footage speed makes biota identification and quantification limited to PA. *Alcyonium digitatum* (P), sponge, *Balanus crenatus* (P), sponges, hydroid and bryozoan turf. *Echinus esculentus* (P)	CR.HCR.XFa	
Orkney_91	Bedrock and boulders interspersed with sand	Rocks with *Alcyonium digitatum* (A), encrusting red algae (F) and *Spirobranchus triqueter* (F), sponges Halichondria panicea (O) , *Ophiothrix fragilis* (O), *Echinus esculentus* (C) sea squirts (O), *Ophiocomina nigra* (A) dominates sediment and smaller rock outcrops. Serpulid worms (O)	SS.SMx.CMx.OphMx	
Orkney_92	Bed rock with occasional small pockets of sediment	*Laminaria hyperborea* (A) forest with dense red algae community on stipes and rock. *Echinus esculentus* (F), encrusting red algae (C). One small patch c. 1m2 of sediment was noted at 0329 which contained maerl (O)	IR.HIR.KFaR.LhypR.Ft	**HB**

Orkney_93	Fine sand with occasional pebbles	Faunally sparse sediment with diatom film. Algae attached to small pebbles including *Saccharina latissima* (F). Some evidence of infauna including *Arenicola marina* (O),	SS.Ssa.IFiSa	
Orkney_94	Mixed substrate with coarse sand, gravel and peddles. Thick covering of broken shell	Echinoderm dominated with dense beds of *Ophiocomina nigra* (A), *Ophiothrix fragilis* (O), *Asterias rubens* (O), *Luidia ciliaris* (O)	SS.SMx.CMx	
Orkney_95	Bedrock with a covering of mobile sand	Dominated by *Urticina felina* (A), hydroids (C) including *Alcyonidium* sp. (F) and short bryozoan turf, *Asterias rubens* (F)	CR.MCR.EcCr.UrtScr	
Orkney_96	Bedrock with occasional large cobbles and pockets of gravel	*Laminaria hyperborea* park (C) with red algae (A) and echinoderms including *Asterias rubens* (F), *Echinus esculentus* (C),	IR.HIR.KFaR.LhypR	**HB**
Orkney_97	Mobile clean sand	Faunally sparse with occasional maerl nodules (R), *Astropecten irregularis* (R), Henricia sp. (R)	SS.SSa.IFiSa.IMoSa	
Orkney_98	Maerl gravel with sand	Maerl c. 25% live cover (C) 25% dead, although with maerl	SS.SMp.Mrl	**HB**

		abundance varying in bands from O to S. *Saccharina latissima* (F), *Desmarestia* sp. (O), *Urticina felina* (O)	
Orkney_99	Coarse sand with shell	Faunally sparse with *Pagurus* sp. (O), *Flustra foliacea* (O)	SS.SCS.CCS
Orkney_100	Mixed stones and boulders with shell gravel	*Flustra foliacea* (F), encrusting pink algae (O) bryozoans (O), *Hydrallmania falcata* (O), *Ophiothrix fragilis* (O), *Ophiocomina nigra* (O), *Alcyonium digitatum* (R), *Crossaster papposus* (R), *Asterias rubens* (R), *Urticina felina* (O), Cliona celata? (R)	SS.SMx.CMx.FluHyd
Orkney_101	Gravel sand, small stone, broken shell occasional rocks	Faunally sparse, *Asterias rubens* (R), *Flustra foliacea* (R), *Echinus esculentus* (R)	SS.SCS.CCS
Orkney_102	Mixed stones and boulders with shell gravel	*Flustra foliacea* (C), encrusting pink algae and bryozoans, *Alcyonium digitatum* (O), *Crossaster papposus* (R), *Asterias rubens* (R), *Urticina felina* (O), *Cliona celata*? (O) ,	SS.SMx.CMx.FluHyd

Orkney_103	Gravel sand, small stones covered with broken shell	Almost completely devoid of signs of life, *Lanice conchilega* (R), *Flustra foliacea* (R)	SS.SCS.CCS
Orkney_104	Gravel sand, small stones with broken shell	Almost completely devoid of signs of life, hermit crab (R), *Buccinum undatum* (R)	SS.SCS.CCS
Orkney_105	Gravel sand with occasional stones and broken shell	Almost completely devoid of signs of life, *Urticina felina* (R)	SS.SCS.CCS
Orkney_106	Mixed substrate with sand gravel, shells and stones	Sparse fauna with *Flustra foliacea* (C), *Hydrallmania falcata* (O), *Ophiothrix fragilis* (O), *Alcyonium digitatum* (R), *Crossaster papposus* (R), *Asterias rubens* (R), *Urticina felina* (O), *Modiolus modiolus* (O)	SS.SMx.CMx.FluHyd
Orkney_107	Mixed substrate with sand gravel, cobbles and pebbles	Sparse fauna with *Spirobranchus triqueter* (C), encrusting pink algae, *Flustra foliacea* (C), *Crossaster papposus* (R), *Asterias rubens* (R), *Urticina felina* (O), *Modiolus modiolus* (O), *Echinus esculentus* (O)	SS.SCS.CCS.PomB

Orkney_108.1	Maerl, gravel and sand with scattered shells	Maerl 40% live (A) 10% dead, *Ascidiella aspersa* (C), *Aequipecten opercularis* (R), *Saccharina latissima* (F), *Lanice conchilega* (O)	SS.SMp.Mrl	**HB**
Orkney_108.2	Maerl, gravel and sand with scattered shells	maerl 25% (C), *Ascidiella aspersa* (C), *Aequipecten opercularis* (R), *Saccharina latissima* (F)	SS.SMp.Mrl	**HB**
Orkney_108.3	Maerl, gravel and sand with scattered shells	maerl 30% (C) live 10% dead, *Ascidiella aspersa* (C), *Aequipecten opercularis* (R), *Saccharina latissima* (F), *Lanice conchilega* (O)	SS.SMp.Mrl	**HB**
Orkney_109	Maerl, gravel and sand with scattered shells and stones	Maerl c.40% live (A) 10% dead, however patchy along the transect, ranging from 80% cover (S) to 20% cover (C), *Ascidiella aspersa* (C), *Saccharina latissima* (F), *Lanice conchilega* (R)	SS.SMp.Mrl	**HB**
Orkney_110	Maerl, gravel and sand with scattered shells	Maerl with very varied abundance, ranging from 5% to 30% cover c.15% (F) e.g. 00:00:54, limited epifauna,	SS.SMp.Mrl	**HB**

		including *Asterias rubens* (R), *Lanice conchilega* (R), *Buccinum undatum* (R), *Saccharina latissima* (F)		
Orkney_111	Cobbles and shell gravel	*Modiolus modiolus* as individuals and small clumps ~3 (F), *Ophiothrix fragilis* (A), *Flustra foliacea* Varying abundance (F-C), *Luidia ciliaris* (R), *Urticina felina* (O), *Echinus esculentus* (O), Hydroids (O), *Ophiocomina nigra* (F)	SS.SBR.SMus.ModT	**HB**
Orkney_112	Shell gravel with 100% covering of large broken shell	Complete sediment covering of large broken shells, extremely faunally sparse, with only *Flustra foliacea* (F)	SS.SCS.CCS	
Orkney_113	Mixed substrate with shell gravel and circalittoral rock	Rich epifauna community on rocks and sediment, *Flustra foliacea* (C), *Hydrallmania falcata* (C), *Alcyonium digitatum* (C), *Crossaster papposus* (O), *Asterias rubens* (O), *Urticina felina* (O)	SS.SMx.CMx.FluHyd	
Orkney_114	Muddy mixed substrate with	Abundant signs of infaunal polychaete and bivalve species,	SS.SSa.CMuSa	

	epifauna on shell on small stones	*Cerianthus lloydii*? (A), clumps of *Ascidiella aspersa* (C) and hydroids - including Halecium beanii (O), *Rhizocaulus verticillatus* (O), *Nemertesia ramosa* (O), *Nemertesia antennina* (O), *Pleurobranchus membranaceus* and eggs (A), *Liocarcinus depurator* (R)		
Orkney_115	Fine gravelly sand	Rich fauna dominated by *Lanice conchilega* (S), intermixed with *Sabella pavonina* (C), *Cerianthus lloydii* (C), Myxicola infundibulum (C), *Corystes cassivelaunus* (R). *Ascidiella aspersa* (C),associated with seaweed clumps, ID not possible due to strobe failure.	SS.SCS.ICS.SLan	
Orkney_116	Fine sand with patches of maerl (<5%)	maerl forming a thin and patchy overlay on c. 5% living at the beginning of the tow (R) faunally sparse	SS.SSa.IFiSa.IMoSa	
Orkney_117	Maerl with shell sand	maerl live c.25% (C), dead 10%. *Pleurobranchus membranaceus* and eggs (O), *Nemertesia sp.* (O)	SS.SMp.Mrl	**HB**

Orkney_118	Sandy mud with shell	Infaunal worm casts and burrows visible with *Lanice conchilega* (C), with large clumps of *Ascidiella aspersa* (C) (patches of (S)), algae present throughout	SS.SMu.ISaMu	
Orkney_119	Sandy mud with shell	Dominated by *Lanice conchilega* (A), worm casts, intermixed with *Sabella pavonina* (O), *Cerianthus lloydii* (C), *Ascidiella aspersa* individuals and clumps (C) , fine red seaweed clumps, ID not possible due to strobe failure.	SS.SCS.ICS.SLan	
Orkney_120	Maerl with shell sand	maerl c.30% live cover (C) however patchy along the transect, ranging from 80% cover (S) to 15% cover (F), *Ascidiella aspersa* large clumps ~1m2 (C), ranging from (S) to (O), *Lanice conchilega* (O), *Nemertesia sp.* (O)	SS.SMp.Mrl	**HB**
Orkney_121	Mearl with shells	Maerl clearly visible for the first 30 seconds maerl c. 40% living (A). Algae attached to the shells, *Saccharina latissima* (A), bubbles on the lens, video focusing on	SS.SMp.Mrl	**HB**

		bubbles and lens covered by kelp.		
Orkney_122	Sand with shell and some small stone patches, occasional cobble with fragments of dead maerl	Algae attached to the small stones/shell, *Saccharina latissima* (F), Halidrys siliquosa (O), brown algae (F), red algae sp. (F), *Laminaria hyperborea* (O), drift algae (C), dead maerl (R)	SS.SMp.KSwSS	**HB**
Orkney_123	sand with occasional fragment of dead maerl	Faunally sparse, occasional fragment of dead maerl.	SS.SSa.IFiSa.IMoSa	
Orkney_124	Mearl with coarse sand and shell	Maerl live cover c. 30% (C), 70% dead , *Saccharina latissima* (A) growing on shells, *Ulva* sp. (F) consistent throughout the run	SS.SMp.Mrl	**HB**
Orkney_125	Coarse shell/sand with pebbles and cobbles	*Laminaria hyperborea* (A) red algae (C), encrusting coralline algae (F), small *Metridium senile* (A), *Flustra foliacea* (F), *Echinus esculentus* (O), *Crossaster papposus* (O), *Urticina felina* (F), hydroids sp. (O), bryozoan sp. (O)	IR.MIR.KR.LhypTX.Pk	**HB**

Orkney_126a	Coarse shell/sand/maerl between pebbles, cobbles and boulders	*Laminaria hyperborea* (A) red algae (C), encrusting coralline algae (F), *Delesseria sanguinea* (C), red algae (C), *Echinus esculentus* (O), *Obelia geniculata* (O) on kelp fronds, Membranipora membranacea (R) on kelp fronds	IR.MIR.KR.LhypTX.Pk	**HB**
Orkney_126b	Coarse shell/sand/maerl between pebbles, cobbles and boulders	Maerl 30% living (C), *Laminaria hyperborea* (A) red algae (C), encrusting coralline algae (F), *Delesseria sanguinea* (C), red algae (C), *Echinus esculentus* (O), *Obelia geniculata* (O) on kelp fronds, Membranipora membranacea (R) on kelp fronds,	SS.SMp.Mrl	**HB**
Orkney_127	Mearl with shell	Maerl live c. 30% (C) dead 50%, *Laminaria hyperborea* (R), *Saccharina latissima* (R) red algae (R), *Urticina felina* (R), *Luidia ciliaris* (R)	SS.SMp.Mrl	**HB**
Orkney_128	Muddy sand with broken shell	faunally sparse parchment tube (R), *Cerianthus lloydii* (R)	SS.SSa.CMuSa	
Orkney_129	Mearl with shell	Maerl c. 5% live cover (R) and c.60% dead cover with *Laminaria*	SS.SCS.CCS	

		hyperborea (R), *Saccharina latissima* (R) red algae (R), hydroid sp. (R), *Luidia ciliaris* (R), *Echinus esculentus* (R), *Ophiocomina nigra* (F) in the last 60 seconds of the run	
Orkney_130	Muddy sand	*Amphiura* brachiata (A), drift algae (R), faunally sparse on the surface	SS.SSa.CMuSa.AbraAirr
Orkney_131	Muddy sand	*Amphiura* brachiata (A), drift algae (R), *Cerianthus lloydii* (R), worm cast *Arenicola marina*? (C), faunally sparse on the surface	SS.SSa.CMuSa.AbraAirr
Orkney_132	Muddy sand, with shell and small stones	fragments of dead maerl (R), *Pecten maximus* (R), *Astropecten irregularis* (R), *Pholis gunnellus* (R), *Urticina felina* (R), *Eledone cirrhosa* (R), *Nemertesia antennina* (O)	SS.SMx.CMx
Orkney_133	Muddy sand, with shell and small stones	dead maerl on the surface 30% (C), *Urticina felina* (R), *Aphrodita aculeata* (R), *Liocarcinus depurator* (F)	SS.SMx.CMx
Orkney_134	Muddy sand, with shell and small stones	dead maerl on the surface 25% (C) cover with c. 1% living (R),	SS.SMx.CMx

		Urticina felina (R), *Henricia oculata* (R), *Asterias rubens* (R), *Spirobranchus triqueter* (C), *Luidia ciliaris* (R)	
Orkney_135	Muddy sand, with shell, stones and cobbles	dead maerl on the surface 20% (C), *Urticina felina* (R), *Spatangus purpureus* (R), *Spirobranchus triqueter* (C) on stones and shell, *Pagurus bernhardus* (R), *Astropecten irregularis* (R), *Hyas araneus* (R), *Liocarcinus depurator* (R)	SS.SMx.CMx
Orkney_136	Muddy sand, with shell and stones	*Liocarcinus depurator* (R), *Munida rugosa* (F), *Cerianthus lloydii* (O), *Aequipecten opercularis* (F), *Pecten maximus* (R), *Echinus esculentus* (F), *Buccinum undatum* (R), *Echiura* sp. (R)	SS.SMx.CMx
Orkney_137	Muddy sand with shell and stones	*Cerianthus lloydii* (F), *Aequipecten opercularis* (F), *Echinus esculentus (*F), *Modiolus modiolus* (3-15cm SACFOR) (O), *Luidia ciliaris* (R), small burrows in sediment (O), large patches of	SS.SMp.KSwSS.Pcri

		red algae *Phyllophora crispa* aggregated together possible *Limaria hians nests* (F)	
Orkney_138	Muddy sand with shell	*Cerianthus lloydii* (F), *Aequipecten opercularis* (F), *Psolus phantapus* (R), *Modiolus modiolus* (3-15cm SACFOR) (O), small burrows in sediment (O), bivalve siphons (R), *Ophiura ophiura* (R), *Caryophyllia smithii* (R) *Pagurus* sp. (R)	SS.SMx.CMx
Orkney_139	Muddy sand with shell	*Cerianthus lloydii* (R), *Aequipecten opercularis* (F), *Modiolus modiolus* (3-15cm SACFOR) (R), small burrows in sediment (O), *Ophiura ophiura* (R), *Pagurus* sp. (R), Goneplax rhomboides (R), *Henricia oculata* (R)	SS.SMx.CMx
Orkney_140	Muddy sand with shell	*Cerianthus lloydii* (R), *Aequipecten opercularis* (F), *Echinus esculentus* (F), *Modiolus modiolus* (3-15cm SACFOR) (O), *Luidia ciliaris* (R), *Pagurus bernhardus* (R), *Asterias rubens*	SS.SMx.CMx

		(R), *Henricia oculata* (R), *Hyas araneus* (R), *Inachus dorsettensis (R),* small burrows in sediment (O), large patches of *Phyllophora crispa* aggregated together possible *Limaria hians nests* (O)	
Orkney_141	Muddy sand with shell	*Cerianthus lloydii* (R), *Aequipecten opercularis* (F), *Echinus esculentus* (F), *Modiolus modiolus* (3-15cm SACFOR) (O), *Solaster endeca* (R), *Hyas araneus* (R), small burrows in sediment (F), bivalve siphons (R), Holothuroidea (R)	SS.SMp.KSwSS.Pcri
Orkney_142	Muddy sand with shell	*Cerianthus lloydii* (R), *Aequipecten opercularis* (F), *Echinus esculentus* (F), *Modiolus modiolus* (3-15cm SACFOR) (F), small burrows in sediment (O), *Ophiura ophiura* (C), *Caryophyllia smithii* (F), *Astropecten irregularis* (R), *Luidia ciliaris* (R), *Liocarcinus* sp. (R), *Pecten maximus* (R)	SS.SMu.CSaMu

Orkney_143	Muddy sand with shell	*Cerianthus lloydii* (O), *Aequipecten opercularis* (F), *Echinus esculentus* (F), *Modiolus modiolus* (3-15cm SACFOR) (F), small burrows in sediment (O), *Ophiura ophiura* (F), *Caryophyllia smithii* (O), *Luidia ciliaris* (R), *Liocarcinus depurator*. (R), *Pagurus bernhardus* (R)	SS.SMu.CSaMu
Orkney_144	Muddy sand with shell and patches of cobbles	*Cerianthus lloydii* (F), *Aequipecten opercularis* (R), *Echinus esculentus* (O), *Modiolus modiolus* (3-15cm SACFOR) (F), *Hyas araneus* (R), small burrows in sediment (O), bivalve siphons (O), *Pagurus bernhardus* (R)	SS.SMx.CMx
Orkney_145	Muddy sand with shell	*Cerianthus lloydii* (F), *Aequipecten opercularis* (R), *Echinus esculentus* (F), *Modiolus modiolus* (3-15cm SACFOR) (C), *Hyas araneus* (R), small burrows in sediment (O), bivalve siphons (F), *Asterias rubens* (R), *Ophiura ophiura* (R), *Pagurus bernhardus* (R), *Ophiothrix fragilis* (R),	SS.SMx.CMx

		Liocarcinus depurator (R), *Munida rugosa* (R), *Buccinum undatum* (R), *Psolus phantapus* (R).		
Orkney_146	Muddy sand with shell	*Modiolus modiolus* (3-15cm SACFOR) (A) clumping, *Aequipecten opercularis* (R), *Pagurus bernhardus* (R), *Ophiothrix fragilis* (A) dense aggregations at the beginning of the run and becoming mainly *Ophiocomina nigra* (C) towards the end of the run, *Luidia ciliaris* (A)	SS.SBR.SMus.ModHAs	**HB**
Orkney_147	Muddy sand with shell	*Modiolus modiolus* (3-15cm SACFOR) (A) clumping locally (C), *Aequipecten opercularis* (F), *Ophiothrix fragilis* (F) with the clumps of *Modiolus modiolus*, *Luidia ciliaris* (O) *Psolus phantapus* (R), *Liocarcinus depurator* (R) *Echinus esculentus* (F)	SS.SBR.SMus.ModHAs	**HB**
Orkney_148	Muddy sand with shell	*Modiolus modiolus* (3-15cm SACFOR) (A) clumping locally	SS.SBR.SMus.ModHAs	**HB**

		(C), *Aequipecten opercularis* (F), *Ophiothrix fragilis* (F) with the clumps of *Modiolus modiolus*, *Psolus phantapus* (R), *Echinus esculentus* (F), *Luidia ciliaris* (O), *Crossaster papposus* (R), bivalve siphons (F), *Hyas araneus* (R)		
Orkney_149	Muddy sand with shell	*Modiolus modiolus* 10-99m2 (A) clumping locally (C), *Aequipecten opercularis* (F), *Ophiothrix fragilis* (F) with the clumps of *Modiolus modiolus*, *Luidia ciliaris* (F) *Psolus phantapus* (F), *Echinus esculentus* (F), *Crossaster papposus* (O) bivalve siphons (F), *Hyas araneus* (O), *Munida rugosa* (O), *Cancer Pagurus* (O), *Liocarcinus depurator* (O), *Solaster endeca* (O), *Nemertesia ramosa* (O), hydroid sp. attached to shell (C), *Pholis gunnellus* (F)	SS.SBR.SMus.ModHAs	**HB**
Orkney_150	Muddy sand with shell	*Modiolus modiolus* 10-99m2 (A) clumping locally (C), *Aequipecten opercularis* (O), *Ophiothrix fragilis* (C) with the clumps of *Modiolus*	SS.SBR.SMus.ModHAs	**HB**

		modiolus, *Luidia ciliaris* (F), *Cucumaria frondosa* (F), *Echinus esculentus* (F), *Crossaster papposus* (O) bivalve (C), *Hyas araneus* (O), *Munida rugosa* (O), *Liocarcinus depurator* (O), *Nemertesia ramosa* (O), hydroid/bryozoan sp. attached to shell (C), *Necora puber* (O), *Buccinum undatum* (F), *Pecten maximus* (O)		
Orkney_151	Coarse sand with small stones and shell	*Desmarestia* sp. (O), *Saccharina latissima* (O), filamentous brown algae (F) all seaweeds growing on small stones or shell, *Cerianthus lloydii* (O), *Obelia geniculata* (O)	SS.SMp.KSwSS	**HB**
Orkney_152	Bedrock with boulders	*Alcyonium digitatum* (S), *Spirobranchus triqueter* (C), *Flustra foliacea* (O), *Securiflustra securifrons* (O), *Echinus esculentus* (F), *Urticina felina* (O), *Asterias rubens* (F), hydroid sp. (F), bryozoan sp. (F), *Nemertesia antennina* (O),	CR.MCR.EcCr.FaAlCr.Adig	

		Spirobranchus triqueter (C), Labrus bimaculatus (O), *Porania pulvillus* (O), *Henricia oculata* (O), *Ophiopholis aculeata* (C) at the beginning of the run amongst rocks and boulders, *Ophiocomina nigra* (O) at the end of the run, Porifera (F) including Halichondria panicea		
Orkney_153	Cobbles and pebbles potentially on bedrock (difficult to see due to brittlestars)	*Alcyonium digitatum* (C), *Flustra foliacea* (O) difficult to see due to brittlestars, *Echinus esculentus* (O), *Spirobranchus triqueter* (C), *Luidia ciliaris* (O), *Ophiothrix fragilis* (S)	SS.SMx.CMx.OphMx	
Orkney_154	Coarse sand, shell and small stones with maerl	maerl live c.20% (C), dead maerl 30% cover but very patchy, *Echinus esculentus* (R)	SS.SMp.Mrl	**HB**
Orkney_155	Coarse sand, shell and small stones with maerl	maerl live c.20% (C) dead maerl 60%, *Echinus esculentus* (R), *Lanice conchilega* (R), *Saccharina latissima* (R), hydroids (O), *Desmarestia* sp. (O)	SS.SMp.Mrl	**HB**

Orkney_156.1	Coarse sand with cobbles and stones	*Echinus esculentus* (O), *Lanice conchilega* (R), *Pecten maximus* (O), hydroids (F), *Nemertesia ramosa* (O), *Lanice conchilega* (R), foliose red algae (O), *Desmarestia* sp. (O), encrusting coralline algae (F), *Lanice conchilega* (R), *Spirorbis spirorbis* (F), *Spirobranchus triqueter* (F), *Balanus balanus* (C), filamentous red algae (O)	SS.SMx.IMx	
Orkney_156.2	Coarse sand, shell and small stones with maerl	maerl live c.20% (C) dead maerl 40%, *Echinus esculentus* (O), *Lanice conchilega* (R), *Pecten maximus* (O), *Luidia ciliaris* (O), *Nemertesia ramosa* (O), *Lanice conchilega* (R), *Saccharina latissima* (R), red filamentous algae (O) hydroids (F)	SS.SMp.Mrl	**HB**
Orkney_157	Muddy sand with occasional shell and stone	Faunally sparse, *Asterias rubens* (R), *Cerianthus lloydii* (O), *Desmarestia* sp. (O), filamentous algae (O), *Ophiura ophiura* (R), *Cerianthus lloydii* (O)	SS.SSa.IMuSa	

Orkney_158	maerl gravel and broken shell and sand	very patchy maerl bed- live c.10% (F), dead 60%. Covering of red and green algae sp. (A) and dead shell. *Cerianthus lloydii* (C), *Lanice conchilega* (F). Strobe failure made estimates challenging	SS.SMp.Mrl	**HB**
Orkney_159	mixed sediment- fine sand with patches of shell and stones	***Cerianthus lloydii* (C), *Lanice conchilega* (C), *Aequipecten opercularis* (O), patches of algae- *Phyllophora crispa*? (O), filamentous red algae (O), *Saccharina latissima* (O), *Desmarestia*** sp. (O), *Asterias rubens* (O)	SS.SMp.KSwSS	**HB**
Orkney_160	mixed sediment- muddy sand with coarse sand, gravel and small stones	*Cerianthus lloydii* (C), infaunal burrows and mounds (C), *Aequipecten opercularis* (O), patches of algae- *Phyllophora crispa*? (O) and filamentous red algae (C), *Asterias rubens* (O), *Rhizocaulus verticillatus* (F)	SS.SMx.CMx.CIloMx	
Orkney_161	stones, muddy sand and shell	red algae covering stones and sediment surface *Phyllophora crispa*? (O) filamentous red algae	SS.SMp.KSwSS	**HB**

		(C), *Cerianthus lloydii* (O), *Pagurus* sp. (O)		
Orkney_162	fine muddy sand with occasional stones	green and red algae on occasional stones (O), *Cerianthus lloydii* (O), *Turritella communis* (F), *Ascidiella aspersa* (R), *Amalosoma eddystonense* (O)	SS.SSa.IMuSa	
Orkney_163.1	maerl gravel and broken shell	**maerl- live 30% (C), dead 70% covering of filamentous red and green algae sp. (A), *Asterias rubens* (F), *Desmarestia* sp. (F), *Echinus esculentus* (F)**	SS.SMp.Mrl	**HB**
Orkney_163.2	large stones with sand and gravel	***Desmarestia* sp. (C), *Echinus esculentus* (O), footage quality prevents algae ID.**	SS.SMp.KSwSS	**HB**
Orkney_164	muddy sand and gravel with stones and shell	Loose lying mats of red algae *Phyllophora crispa*? (O) filamentous red algae c.20 % (C), *Liocarcinus depurator* (R), *Asterias rubens* (O), *Rhizocaulus verticillatus* (F)	SS.SMp.KSwSS	**HB**
Orkney_165	mixed sediment- mud with shell and stones	silt covered red algae mats *Phyllophora crispa*? (~20%	SS.SMp.KSwSS.Pcri	**HB**

		cover), filamentous red algae (5%) (R), *Liocarcinus depurator* (R), *Echinus esculentus* (R), *Turritella communis* (F). 0347 *Limaria hians* nests, covered with red algae *Phyllophora crispa*. There is not sufficient evidence that the bed extent is adequate to warrant its own biotope code.		
Orkney_166	mixed sediment- mud with gravel, broken shell small and large (<10 cover), algae mats (c. 20%).	silt covered red algae mats *Phyllophora crispa*? (~20% cover), filamentous red algae (7%) (O), *Cerianthus lloydii* (O), *Lanice conchilega* (O), *Liocarcinus depurator* (R), *Asterias rubens* (O), *Echinus esculentus* (R)	SS.SMp.KSwSS.Pcri	**HB**
Orkney_167	muddy sand and occasional stones and shells	Loose lying mats of red algae *Phyllophora crispa*? cover c.30 (C) with patches of mud and shell, *Cerianthus lloydii* (F), *Asterias rubens* (O), *Luidia ciliaris* (R)	SS.SMp.KSwSS.Pcri	**HB**

Orkney_168	muddy sand and occasional stones and shells	Loose lying mats of red algae *Phyllophora crispa*? cover c.20 (C) with patches of faunally sparse shelly sand	SS.SMp.KSwSS.Pcri	**HB**
Orkney_169a	muddy sand and occasional stones and shells	Mosaic: Loose lying mats of red algae *Phyllophora crispa*? cover c.20 (C) with small patches of mud, *Asterias rubens* (R), *Lanice conchilega* (R)	SS.SMp.KSwSS.Pcri	**HB**
Orkney_169b	muddy sand and occasional stones and shells	Mosaic: On sediment patches *Cerianthus lloydii* (F), infaunal burrows and mounds (F), *Asterias rubens* (O), *Astropecten irregularis* (R)	SS.SMx.CMx.ClloMx	
Orkney_170	Muddy sand and occasional stones	Loose lying mats of red algae *Phyllophora crispa*? cover c.15 (F) with small patches of mud, *Asterias rubens* (R), evidence of infaunal burrows in mud (C)	SS.SMp.KSwSS.Pcri	**HB**
Orkney_171	muddy sand and gravel with stones and shell	Loose lying mats of red algae *Phyllophora crispa*? (O) filamentous red algae? c.20 % (C), *Cerianthus lloydii* (C), *Asterias rubens* (O)	SS.SMp.KSwSS	**HB**

Orkney_172	muddy sand and gravel with stones and shell	*Limaria hians* nests c.30% cover, covered with red algae *Phyllophora crispa*? and filamentous red algae, hydroids, video footage poor due to drift speed. Nests clearly visible 00:02:20	SS.SMx.IMx.Lim	**HB**
Orkney_173	Mixed sediment, muddy sand with shell and stones	*Cerianthus lloydii* (C) burrowing polychaetes (F), algae mats of *Phyllophora crispa*? cover (C) other filamentous algae (10%) (F), *Ascidiella aspersa* (F), *Modiolus modiolus* (F), *Asterias rubens* (O),	SS.SMp.KSwSS	**HB**
Orkney_174	mixed sediment- muddy sand with coarse sand, gravel and small stones	*Cerianthus lloydii* (C), *Echinus esculentus* (O), infaunal burrows and mounds (C), *Aequipecten opercularis* (F), patches of algae- ID not possible due to video quality (F)	SS.SMx.CMx.CIloMx	
Orkney_175	mixed sediment- mud with coarse sand, gravel and small stones	*Cerianthus lloydii* (C), *Echinus esculentus* (O), *Turritella communis* (A), *Caryophyllia smithii* (O), infaunal burrows and	SS.SMx.CMx.CIloMx	

		mounds (C), *Aequipecten operecularis* (C)		
Orkney_176	mixed sediment- mud with coarse sand, gravel and small stones	*Cerianthus lloydii* (F), *Echinus esculentus* (O), *Turritella communis* (A), *Caryophyllia smithii* (F), bivalve siphons (F), *Aequipecten operecularis* (F)	SS.SMx.CMx.CIloMx	
Orkney_177.1	mud and occasional stones, almost complete covering of algae	Loose lying mats of red algae *Phyllophora crispa*? cover c.100% (S)	SS.SMp.KSwSS.Pcri	**HB**
Orkney_177.2	mud with a covering of gravel and stones (80% cover)	Sparse fauna, *Phyllophora crispa*? (O), evidence of borrows (O), *Luidia ciliaris* (R)	SS.SMx.Imx	
Orkney_177.3	mud and occasional stones, almost complete covering of algae	Loose lying mats of red algae *Phyllophora crispa*? cover c.95 (S) with small patches of mud	SS.SMp.KSwSS.Pcri	**HB**
Orkney_178	Mixed sediment, mud (c. 60%) with stones, gravel shell covering (40%)	*Cerianthus lloydii* (C), *Virgularia mirabilis* (O), *Pecten maximus* (R), *Aequipecten operecularis* (F), Turritella sp. (F), *Echinus esculentus* (F), patches of *Phyllophora crispa*? (R), large burrows (C) and mounds (C)	SS.SMx.CMx.CIloMx	

Orkney_179	Mixed sediment, sand with shell and stones	Numerous broken bottles and ceramics, muddy sediment with worm casts and burrows (C), *Phyllophora crispa*? cover c.40% (A), *Saccharina latissima* (O), *Amalosoma eddystonense* (R)	SS.SMp.KSwSS.Pcri	**HB**
Orkney_180	Mixed sediment, sand with shell and stones	*Cerianthus lloydii* (C) burrowing polychaetes (A), filamentous algae mat patchy cover c.10% (F), *Ulva* sp. (O), *Saccharina latissima* (O)	SS.SMp.KSwSS	**HB**
Orkney_181	Mixed sediment-muddy sand overlain with pebbles and gravel	*Cerianthus lloydii* (C) burrowing polychaetes (A), Loose lying mats of filamentous red algae patchy cover c.10% (F)	SS.SMx.CMx.CIloMx	
Orkney_182.1	complete cover of algae	Loose lying mats of red algae *Phyllophora crispa*? cover c.100 (S)	SS.SMp.KSwSS.Pcri	**HB**
Orkney_182.2	Mud with occasional stones	Infaunal communities evident through burrows and mounds (A), surface overlain with patches of red algae *Phyllophora crispa*? (F)	SS.SMu.IFiMu	
Orkney_182.3	complete cover of algae	Loose lying mats of red algae *Phyllophora crispa*? cover c.100 (S)	SS.SMp.KSwSS.Pcri	**HB**

Orkney_183.1	Mixed sediment- muddy sand overlain with pebbles and gravel	*Cerianthus lloydii* (F), *Echinus esculentus* (F), burrowing polychaetes (A), Loose lying mats of red algae *Phyllophora crispa*? patchy cover c.5% (F) although large patches with 100% cover occur (S).	SS.SMx.CMx.CIloMx	
Orkney_183.2	mixed sediment- muddy sand with stones and gravel overlain with patches of algae	Loose lying mats of red algae *Phyllophora crispa*? patchy cover c.50 (A), worm borrows and casts (C), *Cerianthus lloydii* (O),	SS.SMp.KSwSS.Pcri	**HB**
Orkney_184	mixed sediment with stones	Dense covering of filamentous algae (S) - 90% cover with filamentous green algae (S), *Ulva* sp. (F), *Ascidiella aspersa* (F), *Lanice conchilega* (O), *Luidia ciliaris* (R), *Cerianthus lloydii* (O)	SS.SMp.KSwSS	**HB**
Orkney_185	Mixed sediment- mud with gravel, shell and small stones	*Virgularia mirabilis* (A), *Pecten maximus* (O), *Aequipecten opercularis* (F), *Cerianthus lloydii* (C), hydroids including *Nemertesia ramosa* (O)	SS.Smu.CSaMu.VirOphPmax.HAS	
Orkney_186	Fine muddy sand with gravel and stones	Medium and small burrows (A), *Cerianthus lloydii* (C), *Echinus*	SS.SMx.CMx.CIloMx	

		esculentus (O), barnacles (C), *Caryophyllia smithii* (O), Turretella sp. (A), *Aequipecten opercularis* (F), *Asterias rubens* (F), *Echinus esculentus* (O), *Luidia ciliaris* (O),		
Orkney_187.1	mixed sediment-muddy sand with stones and gravel overlain with patches of algae	Loose lying mats of red algae *Phyllophora crispa*? patchy cover c.15% (F), worm borrows and casts (A), *Cerianthus lloydii* (R), *Liocarcinus depurator* (O), *Aequipecten opercularis* (F), *Arenicola marina*?, *Echinus esculentus* (F), *Ophiura* sp. (O), *Virgularia mirabilis* (R)	SS.SMp.KSwSS.Pcri	**HB**
Orkney_187.2	Fine muddy sand	*Ophiothrix fragilis* dominated sediment (S), *Echinus esculentus* (O)	SS.SMx.CMx.OphMx	
Orkney_188	fine mud	Deep borrows and mounds (crustacea or fish) (A) and small burrows (A), *Cerianthus lloydii* (O), *Turritella communis* shells (Not possible to determine whether alive) (A), *Echinus esculentus* (F), *Aequipecten*	SS.SMu.CSaMu.VirOphPmax	

		opercularis (F), *Virgularia mirabilis* (A), *Ophiura* sp. (F)		
Orkney_189	fine sand and mud	Small and medium sized borrows (A), *Cerianthus lloydii* (O), *Pecten maximus* (R), *Echinus esculentus* (O), *Aequipecten opercularis* (O), *Ophiura* sp. (O), *Nemertesia ramosa* (O), *Hyas* sp. (O)	SS.Smu.CSaMu	
Orkney_190.1	fine mud	Deep borrows (crustacea or fish) (A), *Cerianthus lloydii* (O), *Turritella communis* Shells (Not possible to determine whether alive) (S), *Echinus esculentus* (F), *Aequipecten opercularis* (F), *Virgularia mirabilis* (A), *Ophiura* sp. (F)	SS.SMu.CFiMu.SpnMeg	**HB**
Orkney_190.2	sandy mud	borrows (crustacea or fish) (A), *Cerianthus lloydii* (O), *Turritella communis* shells (Not possible to determine whether alive) (S), *Echinus esculentus* (F), *Aequipecten opercularis* (F), *Virgularia mirabilis* (A), *Ophiura* sp. (F)	SS.Smu.CSaMu	

Orkney_191	Mud with occasional stones	Worm borrows and casts (A), *Cerianthus lloydii* (R), *Turritella communis* shells (Not possible to determine whether alive) (S), *Echinus esculentus* (F), *Aequipecten opercularis* (F)	SS.Smu.CSaMu	
Orkney_192	Muddy sand covered with algae mat (40% cover)	Loose lying mats of red algae *Phyllophora crispa*? patchy cover c.40% (F), worm borrows and casts (A), *Cerianthus lloydii* (R), *Turritella communis* shells (Not possible to determine whether alive) (F), *Arenicola marina* (O), *Echinus esculentus* (F)	SS.SMp.KSwSS	**HB**
Orkney_193	Muddy sand covered with algae mat (30% cover)	Loose lying mats of red algae *Phyllophora crispa*? patchy cover c.20% (F), worm borrows and casts (A), *Cerianthus lloydii* (R), *Turritella communis* shells (Not possible to determine whether alive) (A), *Arenicola marina*?, *Echinus esculentus* (F), *Asterias rubens* (O), solitary sea squirts (O)	SS.SMp.KSwSS	**HB**

Orkney_194	muddy sand with broken scallop shell	Faunally sparse, patches of green algae, *Pagurus* sp. (O).	SS.Ssa	
Orkney_195	muddy sand with algae patches (40%)	*Limaria hians* nests c.30% cover. Loose lying mats of red algae *Phyllophora crispa*? And filamentous red algae c.40% cover. *Asterias rubens* (F), *Aequipecten opercularis* (F). Maerl within algae mat, not possible to quantify but not thought to represent a bed.	SS.SMx.IMx.Lim	**HB**
Orkney_196	muddy sand with algae patches and evidence of maerl	*Limaria hians* nests c.30% cover. Loose lying mats of red algae *Phyllophora crispa*? And filamentous red algae c.40% cover. *Asterias rubens* (F), *Aequipecten opercularis* (F). Maerl within algae mat, not possible to quantify but not thought to represent a bed.	SS.SMx.IMx.Lim	**HB**
Orkney_197	muddy sand and gravel with a covering of broken shell (60%), and algae mat (40%).	*Limaria hians* nests c.30% cover with Loose lying mats of filamentous red algae c.40% cover (C) most stable algae observed between 01:16 and	SS.SMx.IMx.Lim	**HB**

		01:50 02:20-02:40. Hydroids but estimated abundance is not possible due to footage quality. *Asterias rubens* (F), *Aequipecten opercularis* (F)		
Orkney_198	muddy sand and gravel with a covering of broken shell (60%), and algae mat (40%).	*Limaria hians* nests c.30% cover with loose lying mats of red algae *Phyllophora crispa*? c.40% cover (C) Hydroids but estimated abundance is not possible due to footage quality. *Asterias rubens* (F), *Aequipecten opercularis* (F), maerl observed with a patchy abundance and incorporated into algae c. <10% but may be more abundant under algae covering.	SS.SMx.IMx.Lim	**HB**
Orkney_199.1	muddy sand and gravel with a covering of broken shell (75%), and algae mat (25%).	*Limaria hians* nests c. 20% cover with loose lying mats of red algae *Phyllophora crispa*? c.25% cover (C) Hydroids but estimated abundance is not possible due to footage quality. *Asterias rubens* (F), *Aequipecten opercularis* (F)	SS.SMx.IMx.Lim	**HB**
Orkney_199.2	muddy sand and gravel with a covering	Loose lying mats of red algae *Phyllophora crispa*? c.40% cover	SS.SMp.KSwSS.Pcri	**HB**

	of broken shell (60%), and algae mat (40%).	(C) Hydroids but estimated abundance is not possible due to footage quality. *Asterias rubens* (F), *Aequipecten opercularis* (F), maerl observed with a patchy abundance and incorporated into algae c. <10% Possible *Limaria hians* associated habitat but no evidence observed		
Orkney_200	muddy mixed sediment with shell and gravel	Filamentous algae, loose lying red algae (<5%) cover), worm borrows *Cerianthus lloydii* (A), *Luidia ciliaris* (O), *Lanice conchilega*, *Aequipecten opercularis*, hydroids. Video footage poor, prevents quantification.	SS.SMx.CMx.ClloMx	
Orkney_201.1	muddy sand and gravel with a covering of broken shell (85%), and algae mat (15%).	Loose lying mats of red algae *Phyllophora crispa*? c.15% cover (C) Hydroids but estimated abundance is not possible due to footage quality. *Asterias rubens* (F), barnacles covering shells (C), *Echinus esculentus* (F), *Aequipecten opercularis* (F),	SS.SMp.KSwSS.Pcri	**HB**

		Luidia ciliaris (F). This type of habitat has been observed to be suitable for *Limaria hians*, but no evidence was noted in this station		
Orkney_201.2	muddy sand and gravel with a covering of broken shell (85%), and algae mat (15%).	Loose lying mats of red algae *Phyllophora crispa*? c.25% cover (C) Hydroids but estimated abundance is not possible due to footage quality. *Asterias rubens* (F), *Aequipecten opercularis* (F), Possible *Limaria hians* nests, with an individual noted at 00:35-00:42 strongest evidence of nests. 0054 individual noted 02:20 to 04:45 maerl patches, sometimes incorporated in algae clumps.	SS.SMp.KSwSS.Pcri	**HB**
Orkney_202.1	muddy sand and gravel with a covering of broken shell (75%), and algae mat (25%).	Loose lying mats of red algae *Phyllophora crispa*? c.25% cover (C) Hydroids but estimated abundance is not possible due to footage quality. *Asterias rubens* (F), barnacles covering shells (C), *Echinus esculentus* (F),	SS.SMp.KSwSS.Pcri	**HB**

		Aequipecten opercularis (F), *Luidia ciliaris* (F).		
Orkney_202.2	muddy sand and gravel with a covering of broken shell (75%), and algae mat (25%).	*Limaria hians* nests are noted, 03:03, 03:45-0400 (80% cover), 04:19-06:22 c. 30% patches with the algae mats compacted and clear 'holes', Loose lying mats of red algae *Phyllophora crispa*? c.25% cover (C) Hydroids but estimated abundance is not possible due to footage quality. *Asterias rubens* (F), barnacles covering shells (C), *Echinus esculentus* (F), *Aequipecten opercularis* (F), *Luidia ciliaris* (F).	SS.SMx.IMx.Lim	**HB**
Orkney_203	muddy sand and gravel with a covering of broken shell (75%), and algae mat (25%).	Loose lying mats of red algae *Phyllophora crispa*? c.25% cover (C) within which there is evidence of horse mussels. Visible *Modiolus modiolus* 1-9 per 10m2 (F), however more may be present but covered by algae. *Clavelina lepadiformis*, hydroids and are also noted in the algae mats but estimated abundance is	SS.SMp.KSwSS.Pcri	**HB**

		not possible due to footage quality. *Asterias rubens* (F), barnacles covering shells (C), *Echinus esculentus* (F), *Aequipecten opercularis* (F), *Luidia ciliaris* (F). From 00:05:20 - 00:05:27 in the algae mats are more compacted which have been associated with Limaria fragilis nests c. 30% cover (C), *Asterias rubens* (O)		
Orkney_204	muddy sand and gravel with a covering of broken shell (75%), and seaweed (25%).	Loose lying mats of red algae *Phyllophora crispa*? c.25% cover (C) within which there is evidence of horse mussels. Visible *Modiolus modiolus* 1-9m2 (C), however more may be present but covered by algae. *Clavelina lepadiformis*, hydroids and *Ophiothrix fragilis* are also noted in the algae mats but estimated abundance is not possible due to footage quality. *Asterias rubens* (F), barnacles covering shells (C), *Echinus esculentus* (F),	SS.SMp.KSwSS.Pcri	**HB**

		Aequipecten opercularis (F). From 00:05:20 - 00:05:27 in the algae mats are more compacted which have been associated with *Limaria hians* nests c. 30% cover (C) not enough evidence to class extent as a bed, *Asterias rubens* (O)		
Orkney_205	muddy sand, gravel and shell.	Loose lying mats of red algae *Phyllophora crispa*? (C) which in places appear as compacted mats which have been associated with *Limaria hians*, *Clavelina lepadiformis* (O), *Asterias rubens* (O)	SS.SMp.KSwSS.Pcri	**HB**
Orkney_206	muddy sand, gravel and shell.	Loose lying mats of red algae *Phyllophora crispa*? (C) Luidia (R), *Clavelina lepadiformis* (O)	SS.SMp.KSwSS.Pcri	**HB**
Orkney_207	muddy sand, gravel and shell.	Loose lying mats of red algae *Phyllophora crispa*? (F) *Echinus esculentus* (O), *Asterias rubens* (R) *Modiolus modiolus* (O)	SS.SMp.KSwSS.Pcri	**HB**
Orkney_208	muddy sand, gravel and shell.	Loose lying mats of red algae *Phyllophora crispa*? (F) *Luidia ciliaris* (R), *Clavelina lepadiformis*	SS.SMp.KSwSS.Pcri	**HB**

		(O). *Limaria hians* nests may be present at this site (e.g. 0549) but footage not sufficient to determine presence or extent.		
Orkney_209	muddy sand, gravel and shell.	Loose lying mats of red algae *Phyllophora crispa*? (F) *Luidia ciliaris* (R), *Clavelina lepadiformis* (O)	SS.SMp.KSwSS.Pcri	**HB**
Orkney_210	muddy sand, gravel and shell.	Loose lying mats of red algae *Phyllophora crispa*? (F) with a patchy abundance with some maerl incorporated into the clumps (R). *Arenicola marina*? Worm casts (F), *Cerianthus lloydii* (O), *Metridium senile* (R)	SS.SMp.KSwSS.Pcri	**HB**
Orkney_211	muddy sand, gravel and shell.	Loose lying mats of red algae *Phyllophora crispa*? (F) with a patchy abundance with some maerl incorporated into the clumps (R). *Arenicola marina*? Worm casts (F), *Cerianthus lloydii* (O), *Nemertesia ramosa* (R)	SS.SMp.KSwSS.Pcri	**HB**
Orkney_212	muddy sand, gravel and shell.	Loose lying mats of red algae *Phyllophora crispa*? (F) with a	SS.SMp.KSwSS.Pcri	**HB**

		patchy abundance with some maerl incorporated into the clumps (R). *Arenicola marina*? Worm casts (F), *Echinus esculentus* (O), *Pagurus sp.* (O), *Cerianthus lloydii* (O),		
Orkney_213	muddy sand	*Cerianthus lloydii* (C), *Echinus esculentus* (F), *Pagurus* sp. (O), *Asterias rubens* (F),	SS.SMx.CMx.ClloMx	
Orkney_214	Maerl	Maerl with c. 70% living cover (A), occasional *Saccharina latissima* (F) and *Laminaria hyperborea* (F), small red and brown algae on maerl surface. Analysis hindered by kelp blocking video.]	SS.SMp.Mrl	**HB**
Orkney_215	Mixed sediment- mud with pebbles	Larger clumps (10+) *Modiolus modiolus* 10-99m2 (A) locally (S) often covered with *Ophiothrix fragilis* (S), Ophiocomina nigra (F), *Echinus esculentus* (C), *Luidia ciliaris* (C), *Ascidiella aspersa* (O), *Asterias rubens* (F), *Urticina felina* (R)	SS.SBR.SMus.ModHAs	**HB**

Orkney_216	Mixed sediment- mud with pebbles	Larger clumps (10+) *Modiolus modiolus* 10-99m2 (A) locally (S) often covered with *Ophiothrix fragilis* (S), Ophiocomina nigra (A), *Echinus esculentus* (C), *Luidia ciliaris* (C), *Ascidiella aspersa* (O), *Asterias rubens* (F)	SS.SBR.SMus.ModHAs	**HB**
Orkney_217	Mixed sediment- mud with pebbles	Larger clumps (10+) *Modiolus modiolus* 10-99m2 (A) locally (S) often covered with *Ophiothrix fragilis* (S), Ophiocomina nigra (A), *Echinus esculentus* (C), hydroids (O) *Aequipecten opercularis* (O), *Luidia ciliaris* (C)	SS.SBR.SMus.ModHAs	**HB**
Orkney_218	Mixed sediment- mud with pebbles	Larger clumps (10+) *Modiolus modiolus* 10-99m2 (A) locally (S) often covered with *Ophiothrix fragilis* (S), *Hyas araneus* (O), *Echinus esculentus* (C), *Liocarcinus depurator* (O), hydroids (O) *Aequipecten opercularis* (O), *Luidia ciliaris* (C)	SS.SBR.SMus.ModHAs	**HB**
Orkney_219	Mixed sediment- mud with pebbles	*Modiolus modiolus* (A) locally (C) forming clumps and individuals 10-99m2 . *Hyas araneus* (O),	SS.SBR.SMus.ModHAs	**HB**

		Echinus esculentus (C), (R), *Liocarcinus depurator* (C), *Buccinum undatum* (O), hydroids (O), *Aequipecten opercularis* (F), Platichthys flesus? (R), *Ophiothrix fragilis* (C), *Luidia ciliaris* (R), *Solaster endeca* (R). Ophiocomina nigra (C), *Nemertesia ramosa* (O), *Pagurus* sp. (O)		
Orkney_220	Mixed sediment- mud with pebbles	*Modiolus modiolus* (A) forming clumps and individuals 10-99m2 . *Echinus esculentus* (C), *Liocarcinus depurator* (C), *Buccinum undatum* (O), hydroids (O) *Aequipecten opercularis* (O), Flounder (R), *Ophiothrix fragilis* (C), *Luidia ciliaris* (R), Ophiocomina nigra (A),	SS.SBR.SMus.ModHAs	**HB**
Orkney_221	Mixed sediment- mud with pebbles	*Modiolus modiolus* (A) forming clumps and individuals locally (C) 10-99m2 . *Hyas araneus* (O), *Echinus esculentus* (F), *Liocarcinus depurator* (C), *Buccinum undatum* (O), hydroids	SS.SBR.SMus.ModHAs	**HB**

		(O) *Aequipecten opercularis* (O), Flounder (R), *Ophiothrix fragilis* (A), *Luidia ciliaris* (R), *Solaster endeca* (R). Ophiocomina nigra (O)		
Orkney_222.1	Mixed sediment- mud with pebbles	*Modiolus modiolus* (A) locally (C) forming clumps and individuals 10-99m2. *Hyas araneus* (O), *Pagurus bernhardus* (O), *Echinus esculentus* (F), burrowing sea cucumbers (R), *Liocarcinus depurator* (R), *Pholis gunnellus* (R), *Lanice conchilega* (O), *Caryophyllia smithii* (O), *Buccinum undatum* (O), hydroids (O) *Aequipecten opercularis* (O), *Aphrodita aculeata* (R), *Taurulus bubalis* (R)	SS.SBR.SMus.ModHAs	**HB**
Orkney_222.2	Mixed sediment- mud with pebbles	*Modiolus modiolus* (F) individuals. *Echinus esculentus* (F), *Hyas araneus* (O), *Cancer Pagurus* (R), buried bivalves (F), *Pagurus* sp. (O), *Balanus crenatus* (O), *Aequipecten*	SS.SMx.CMx	

		opercularis (O), *Nemertesia ramosa* (R)	
Orkney_222.3	Mixed sediment- mud with pebbles	*Modiolus modiolus* (O) individuals. *Echinus esculentus* (F), *Hyas araneus* (O), buried bivalves (F), *Pagurus* sp. (O), *Pecten maximus* (O), *Porania pulvillus* (O)	SS.Smu.CSaMu
Orkney_223	Circalittoral sandy mud	Burrowed sediment (C), *Liocarcinus depurator* (F), *Pecten maximus* (O), *Luidia ciliaris* (R)	SS.SMu.CSaMu
Orkney_224	Circalittoral sandy mud with rocks (<1%)	Burrowed sediment (C), *Liocarcinus depurator* (F), *Pecten maximus* (O), *Echinus esculentus* (O), *Munida rugosa* (O), *Luidia ciliaris* (R), *Nemertesia antennina* (O)	SS.SMu.CSaMu
Orkney_225	Circalittoral sandy mud	Burrowed sediment (C), *Lanice conchilega* (mosaic varying between A and C), *Liocarcinus depurator* (F), *Pecten maximus* (O)	SS.SMu.CSaMu
Orkney_226	Circalittoral sandy mud	Burrowed infralittoral sediment- diatoms and algae (not ID due to light and strobe failure), with	SS.SMu.CSaMu

		Turritella communis (O), *Cerianthus lloydii* (C), *Lanice conchilega* (F)		
Orkney_227	Circalittoral sandy mud	Burrowed mud with *Nephrops norvegicus* (C), *Turritella communis* (F), *Virgularia mirabilis* 02:04, 02:10 (O), *Liocarcinus depurator* (O), *Cerianthus lloydii* (O)	SS.SMu.CSaMu	
Orkney_228	Circalittoral fine mud	Burrowed mud (C), mounds (C) *Turritella communis* (C), *Virgularia mirabilis* 01:21, 01:27, 05:04 (F), *Liocarcinus depurator* (O), *Cerianthus lloydii* (R)	SS.SMu.CFiMu.MegMax	**HB**

Table 4

Physical and biological descriptions of the survey sites in Shetland. HB= PMF habitat, LS= PMF low mobility species, MS= PMF mobile species MSE= PMF mobile species eggs

Site ID	Substrate	Biota	Biotope	PMF
Shetland_001.1	Cobbles and boulders	*Echinus esculentus* (F), *Alcyonium digitatum* (A), encrusting coralline algae (A), hydroid sp. (F), foliose red algae (O)	CR.MCR.EcCr.FaAlCr	
Shetland_001.1	Coarse sand	*Echinus esculentus* (O), *Luidia ciliaris* (O), 01:13 patches of live maerl 5% (O), *Pecten maximus* (O), *Astropecten irregularis* (O),	SS.SCS.CCS	
Shetland_001.2	Bedrock and boulders	*Echinus esculentus* (F), *Alcyonium digitatum* (A), encrusting coralline algae (A), hydroid sp. (F), *Kirchenpaueria pinnata* (F), encrusting red algae (F), *Luidia ciliaris* (O), *Ophiocomina nigra* (F), *Modiolus modiolus* (F), juvenile teleost (A)	CR.MCR.EcCr.FaAlCr	
Shetland_001.3	Cobbles and boulders	*Echinus esculentus* (F), *Alcyonium digitatum* (A), encrusting coralline algae (A), encrusting red algae (F), *Luidia ciliaris* (O), *Ophiocomina nigra* (A),	CR.MCR.EcCr.FaAlCr	

Shetland_001.3	Coarse sand	*Modiolus modiolus* (F)	SS.SCS.CCS	
Shetland_001.4	Bedrock and boulders	*Echinus esculentus* (F), *Luidia ciliaris* (F), *Alcyonium digitatum* (A), encrusting coralline algae (A) *Ophiocomina nigra* (A), *Parasmittina trispinosa* (F) on rocks, *Asterias rubens* (O), juvenile teleost (A), *Modiolus modiolus* (F)	CR.MCR.EcCr.FaAlCr	
Shetland_001.5	Cobbles and boulders	*Echinus esculentus* (F), *Luidia ciliaris* (F), *Alcyonium digitatum* (A), encrusting coralline algae (A), *Ophiocomina nigra* (A), *Crossaster papposus* (O), juvenile teleost (A)	CR.MCR.EcCr.FaAlCr	
Shetland_001.5	Coarse sand	*Modiolus modiolus* (F), *Ophiocomina nigra* (A)	SS.SCS.CCS	
Shetland_001.6	Mearl gravel between cobbles and boulders	live maerl 25% cover (C) occurring between rocks and boulders	SS.SMp.Mrl	**HB**
Shetland_001.6	Cobbles and boulders	*Echinus esculentus* (F), *Luidia ciliaris* (F), *Alcyonium digitatum* (A), encrusting coralline algae (A), *Ophiocomina nigra* (A), *Crossaster papposus* (O), juvenile teleost (A)	CR.MCR.EcCr.FaAlCr	
Shetland_001.7	Cobbles and boulders	*Echinus esculentus* (F), *Luidia ciliaris* (F), *Alcyonium digitatum* (A), encrusting coralline algae (A), *Ophiocomina nigra*	CR.MCR.EcCr.FaAlCr	

		(A), *Urticina felina* (F), juvenile teleost (A),	
Shetland_001.7	Coarse sand	patches of live maerl 5% (O), *Modiolus modiolus* (O)	SS.SCS.CCS
Shetland_001.8	Bedrock and cobbles with patches of sand on top	*Echinus esculentus* (F), *Luidia ciliaris* (F), *Alcyonium digitatum* (A), encrusting coralline algae (A), *Ophiocomina nigra* (A), juvenile teleost (A), *Modiolus modiolus* (F)	CR.MCR.EcCr.FaAlCr
Shetland_001.9	Cobbles and boulders	*Echinus esculentus* (F), *Alcyonium digitatum* (A), encrusting coralline algae (A), encrusting red algae (F), *Ophiocomina nigra* (A), juvenile teleost (A), *Modiolus modiolus* (F), *Urticina felina* (F), hydroid sp. (F), *Halecium halecium* (F)	CR.MCR.EcCr.FaAlCr
Shetland_1.9	Coarse sand	*Luidia ciliaris* (C), *Modiolus modiolus* (F)	SS.SCS.CCS
Shetland_1.11	Coarse sand (80%) with shell 20%	faunally sparse *Ophiocomina nigra* (F) in the troughs with shell	SS.SCS.CCS
Shetland_1.12	Bedrock and boulders	*Echinus esculentus* (F), *Alcyonium digitatum* (A), encrusting coralline algae (A), encrusting red algae (F), *Ophiocomina nigra* (A), juvenile teleost	CR.MCR.EcCr.FaAlCr

		(A), *Modiolus modiolus* (C), *Urticina felina* (F), hydroid sp. (F),		
Shetland_1.13a	Cobbles and boulders	*Echinus esculentus* (F), *Alcyonium digitatum* (A), encrusting coralline algae (A), encrusting red algae (F), *Ophiocomina nigra* (A), juvenile teleost (A), *Urticina felina* (F), hydroid sp. (F), *Halecium halecium* (F), *Parasmittina trispinosa* (A), *Asterias rubens* (O),	SS.SCS.CCS	
Shetland_1.13b	Coarse sand	*Modiolus modiolus* (C), *Crossaster papposus* (O)	CR.MCR.EcCr.FaAlCr	
Shetland_1.14a	Cobbles and boulders	*Echinus esculentus* (F), *Alcyonium digitatum* (A), encrusting coralline algae (A), encrusting red algae (F), *Ophiocomina nigra* (A), juvenile teleost (A), *Urticina felina* (F), hydroid sp. (F), *Halecium halecium* (F), *Crossaster papposus* (O), *Luidia ciliaris* (O)	CR.MCR.EcCr.FaAlCr	
Shetland_1.14b	Coarse sand	*Lanice conchilega* (O)	SS.SCS.CCS	
Shetland_002.1	Coarse sand with maerl	live maerl from 30% (C), *Pecten maximus* (F), *Echinus esculentus* (O)	SS.SMp.Mrl	**HB**
Shetland_002.2	Cobbles and boulders with intrusions of	*Echinus esculentus* (C), *Luidia ciliaris* (F), *Alcyonium digitatum* (A), encrusting	CR.MCR.EcCr.FaAlCr	

	bedrock with patches of coarse sand	coralline algae (A), *Marthasterias glacialis* (O), *Urticina felina* (O)		
Shetland_002.3	Coarse sand with maerl	live maerl from 30% (C), *Pecten maximus* (C), hydroid sp. (F), *Ophiocomina nigra* (O)	SS.SMp.Mrl	**HB**
Shetland_002.4	Cobbles and boulders with intrusions of bedrock with patches of coarse sand	*Echinus esculentus* (F), *Luidia ciliaris* (F), *Alcyonium digitatum* (A), encrusting coralline algae (A) on rocks, *Ophiocomina nigra* (A), *Ophiopholis aculeata* (F), *Asterias rubens* (O), *Crossaster papposus* (O), *Modiolus modiolus* (C)	CR.MCR.EcCr.FaAlCr	
Shetland_002.5a	Cobbles and boulders	*Mosaic: Echinus esculentus* (F), *Luidia ciliaris* (F), *Alcyonium digitatum* (A), encrusting coralline algae (A) on rocks, *Ophiocomina nigra* (A), *Ophiopholis aculeata* (F), *Asterias rubens* (O), *Crossaster papposus* (O), *Modiolus modiolus* (C)	CR.MCR.EcCr.FaAlCr	
Shetland_002.5b	Coarse sand	Mosaic: Maerl patches at the end of the run	SS.SCS.CCS	
Shetland_002.6	Coarse sand with maerl, cobble	live maerl from 10% to 40% (A), patchy in troughs, hydroids sp. (F), *Luidia ciliaris* (O), *Ophiocomina nigra* (O)	SS.SMp.Mrl	**HB**

Shetland_002.7a	Cobbles and boulders	*Echinus esculentus* (C), *Luidia ciliaris* (F), *Alcyonium digitatum* (A), encrusting coralline algae (A), *Ophiocomina nigra* (F), *Modiolus modiolus* (O), juvenile teleost (A), hydroid sp. (F), *Crossaster papposus* (O)	CR.MCR.EcCr.FaAlCr	
Shetland_002.7b	Coarse sand	fragments of maerl 5% (O)	SS.SCS.CCS	
Shetland_002.8	fine sand with 5% shell/cobble	hydroids sp. (F), *Ophiocomina nigra* (O), *Echinus esculentus* (O), fragments of maerl (O)	SS.SSa.CFiSa	
Shetland_002.9	Coarse sand with maerl and shell 20% in troughs	live maerl 25% (C), patchy in troughs, *Pecten maximus* (F), *Asterias rubens* (O) *Luidia ciliaris* (O), *Crossaster papposus* (O), *Astropecten irregularis* (O)	SS.SMp.Mrl	**HB**
Shetland_002.11a	Cobbles and boulders	*Echinus esculentus* (C), *Alcyonium digitatum* (A), encrusting coralline algae (A), *Ophiocomina nigra* (F), juvenile teleost (A), hydroid sp. (F), *Asterias rubens* (O)	CR.MCR.EcCr.FaAlCr	
Shetland_002b.11	Coarse sand with maerl and shell 20% in troughs	live maerl from 25% (C), patchy in troughs	SS.SMp.Mrl	**HB**
Shetland_002.12	Coarse sand with maerl	live maerl from 25% (C), patchy in troughs	SS.SMp.Mrl	**HB**

Shetland_002.13a	Cobbles and boulders	*Echinus esculentus* (F), *Luidia ciliaris* (F), *Alcyonium digitatum* (A) on rocks, encrusting coralline algae (A) on rocks, *Ophiocomina nigra* (A), *Asterias rubens* (O), *Crossaster papposus* (O), *Modiolus modiolus* (C), *Parasmittina trispinosa* (F), hydroid sp. (F)	CR.MCR.EcCr.FaAlCr	
Shetland_002.13b	Coarse sand	*Ophiocomina nigra* (F), *Modiolus modiolus* (F)	SS.SCS.CCS	
Shetland_003.1	Coarse sand with maerl, sand waves	live maerl c.30% (C), patchy in troughs	SS.SMp.Mrl	**HB**
Shetland_003.2	Cobbles and boulders with patches of coarse sand	*Echinus esculentus* (F), *Luidia ciliaris* (F), *Alcyonium digitatum* (A), encrusting coralline algae (A), *Ophiocomina nigra* (A), *Asterias rubens* (O), *Crossaster papposus* (O),	CR.MCR.EcCr.FaAlCr	
Shetland_003.3	Cobbles and boulders	*Echinus esculentus* (C), *Luidia ciliaris* (O), *Alcyonium digitatum* (F), encrusting coralline algae (A), *Ophiocomina nigra* (F), *Asterias rubens* (O), *Crossaster papposus* (O), hydroid sp. (F), red filamentous algae (F)	CR.MCR.EcCr.FaAlCr	
Shetland_003.3	coarse sand	fragments of maerl (O)	SS.SCS.CCS	

Shetland_003.4	Bedrock, boulders and cobbles	*Echinus esculentus* (C), *Luidia ciliaris* (F), *Alcyonium digitatum* (A), encrusting coralline algae (A), *Ophiocomina nigra* (F), *Asterias rubens* (O), *Crossaster papposus* (O), *Modiolus modiolus* (F), *Porania pulvillus* (O), *Urticina felina* (O)	CR.MCR.EcCr.FaAlCr	
Shetland_003.5	Coarse sand with maerl, sand waves	live maerl from c.30% (C), patchy in troughs, *Ophiocomina nigra* (F), *Pecten maximus* (O)	SS.SMp.Mrl	**HB**
Shetland_003.6	Cobbles and boulders with patches of coarse sand	*Echinus esculentus* (C), *Luidia ciliaris* (F), *Alcyonium digitatum* (A), encrusting coralline algae (A), *Ophiocomina nigra* (F), *Asterias rubens* (O), *Crossaster papposus* (O), *Modiolus modiolus* (C), *Urticina felina* (O)	CR.MCR.EcCr.FaAlCr	
Shetland_003.7a	Bedrock, cobbles and boulders	*Echinus esculentus* (C), *Luidia ciliaris* (F), *Alcyonium digitatum* (A), encrusting coralline algae (A), *Ophiocomina nigra* (F), *Crossaster papposus* (O), *Modiolus modiolus* (C), *Urticina felina* (O), hydroids sp. (C), *Parasmittina trispinosa* (F),	CR.MCR.EcCr.FaAlCr	
Shetland_003.7b	Coarse sand	fragments of maerl (O)	SS.SCS.CCS	

Shetland_003.8a	Coarse sand with maerl and shell, sand waves	Mosaic: live maerl from 35% (C), patchy in troughs	SS.SMp.Mrl	**HB**
Shetland_003.8b	Cobbles and boulders	*Echinus esculentus* (F), *Luidia ciliaris* (F), *Alcyonium digitatum* (F), encrusting coralline algae (F), *Ophiocomina nigra* (F), *Crossaster papposus* (O), *Modiolus modiolus* (O), *Urticina felina* (O), hydroids sp. (C)	CR.MCR.EcCr.FaAlCr	
Shetland_003.9	Coarse sand with maerl, sand waves	live maerl 40% (A) patchy in troughs, *Asterias rubens* (O), *Ophiocomina nigra* (F)	SS.SMp.Mrl	**HB**
Shetland_003.11	Cobbles and boulders with intrusions of bedrock with patches of coarse sand	*Echinus esculentus* (C), *Luidia ciliaris* (F), *Alcyonium digitatum* (A), encrusting coralline algae (A), *Ophiocomina nigra* (A), *Asterias rubens* (O), *Crossaster papposus* (O), *Modiolus modiolus* (C), hydroids sp. (F)	CR.MCR.EcCr.FaAlCr	
Shetland_003.12	Coarse sand with occasional cobble	Fragments and small patches of live maerl (O), *Ophiocomina nigra* (F),	SS.SCS.CCS	
Shetland_003.13b	Bedrock, boulders and cobbles	Mosaic: *Echinus esculentus* (C), *Luidia ciliaris* (F), *Alcyonium digitatum* (A), encrusting coralline algae (A), *Ophiocomina nigra* (A), *Asterias rubens* (O), *Crossaster papposus* (O), hydroids sp. (F), *Urticina felina* (O)	CR.MCR.EcCr.FaAlCr	

Shetland_003.13a	Coarse sand	Mosaic: Fragments and small patches of live maerl (O), *Ophiocomina nigra* (F), *Modiolus modiolus* (A)	SS.SCS.CCS
Shetland_004.1	Cobbles and boulders with intrusions of bedrock with patches of coarse sand	*Echinus esculentus* (F), *Luidia ciliaris* (F), *Alcyonium digitatum* (A) on rocks, encrusting coralline algae (A) on rocks, *Ophiocomina nigra* (F), *Asterias rubens* (O), *Crossaster papposus* (O),	CR.MCR.EcCr.FaAlCr
Shetland_004.2	Coarse sand with stones	faunally sparse, fragments of maerl (O), *Ophiocomina nigra* (O), *Pecten maximus* (F), hydroid sp. (F), 03:26 5 or 6 cobbles with *Echinus esculentus* (F), *Alcyonium digitatum* (A), encrusting coralline algae (A), hydroids sp. (F), *Urticina felina* (O)	SS.SCS.CCS
Shetland_004.3	Cobbles and boulders with intrusions of bedrock with patches of coarse sand	*Echinus esculentus* (F), *Luidia ciliaris* (F), *Alcyonium digitatum* (A), encrusting coralline algae (A) on rocks, *Ophiocomina nigra* (A), *Asterias rubens* (O), *Crossaster papposus* (O), *Modiolus modiolus* clumps (C), *Parasmittina trispinosa* (O), *Porania pulvillus* (O)	CR.MCR.EcCr.FaAlCr
Shetland_004.4	Cobbles and boulders with intrusions of bedrock with patches of coarse sand	*Echinus esculentus* (F), *Luidia ciliaris* (F), *Alcyonium digitatum* (A), encrusting coralline algae (A), *Ophiocomina nigra*	CR.MCR.EcCr.FaAlCr

		(A), *Modiolus modiolus* (O), *Parasmittina trispinosa* (F), encrusting red algae (F)	
Shetland_004.5	Coarse sand with shell in the troughs	faunally sparse, fragments of maerl (O), hydroids (O), *Ophiocomina nigra* (F), cobbles and boulders @ 02:30 *Echinus esculentus* (F), *Alcyonium digitatum* (F), encrusting coralline algae (F), *Ophiocomina nigra* (C)	SS.SCS.CCS
Shetland_004.6	Coarse sand with occasional cobbles	faunally sparse, fragments of live maerl with small patches (O), *Pecten maximus* (O), *Modiolus modiolus* (O), *Crossaster papposus* (O), occasional cobble or boulders *Urticina felina* (O), *Echinus esculentus* (F), *Alcyonium digitatum* (F), encrusting coralline algae (F), *Ophiocomina nigra* (F)	SS.SCS.CCS
Shetland_004.7	Bedrock with boulders and cobbles and sand patches laying on top	*Echinus esculentus* (F), *Luidia ciliaris* (F), *Alcyonium digitatum* (A) on rocks, encrusting coralline algae (A), *Ophiocomina nigra* (A), *Modiolus modiolus* clumps between rocks (F), red filamentous algae (F), *Pecten maximus* (O), *Crossaster papposus* (O)	CR.MCR.EcCr.FaAlCr
Shetland_004.8	Bedrock with boulders and cobbles	*Echinus esculentus* (F), *Luidia ciliaris* (F), *Alcyonium digitatum* (F), encrusting	CR.MCR.EcCr.FaAlCr

		coralline algae (A), hydroids sp. (C), *Modiolus modiolus* (F), *Pecten maximus* (O), *Crossaster papposus* (O)	
Shetland_004.8	Coarse sand with stones and shell	*Ophiocomina nigra* (F)	SS.SCS.CCS
Shetland_004.9	Coarse sand with stones and shell	*Ophiocomina nigra* (F), *Asterias rubens* (O)	SS.SCS.CCS
Shetland_004.9	Bedrock with boulders and cobbles	*Alcyonium digitatum* (O), *Ophiocomina nigra* (F), hydroids (O),	CR.MCR.EcCr.FaAlCr
Shetland_004.11	Coarse sand	fragments of live maerl (O) with some patches towards the end of run 5 to 9% (O), *Ophiocomina nigra* (F), hydroids (F), *Pecten maximus* (O), *Urticina felina* (O), *Spatangus purpureus* (O)	SS.SCS.CCS
Shetland_004.12	Bedrock with boulders and cobbles	*Echinus esculentus* (F), *Alcyonium digitatum* (F), encrusting coralline algae (A), *Crossaster papposus* (O)	CR.MCR.EcCr.FaAlCr
Shetland_005.1	Bedrock, cobbles and boulders with patches of coarse sand laid on top	*Echinus esculentus* (O), *Alcyonium digitatum* (A), encrusting coralline algae (A), *Ophiocomina nigra* (A), *Modiolus modiolus* clumps between rocks (F), *Crossaster papposus* (O), hydroids (F) on stones, *Parasmittina trispinosa* (F)	CR.MCR.EcCr.FaAlCr

Shetland_005.2	Coarse sand	Mosaic: *Pecten maximus* (F), fragments of live maerl (O), *Crossaster papposus* (O), *Ophiocomina nigra* (A)	SS.SCS.CCS
Shetland_005.2	pebbles, cobbles and boulders	Mosaic: hydroid (A)- *Halecium halecium*? (A), *Parasmittina trispinosa* (F), *Alcyonium digitatum* (F), foliose red algae (O), boulders 3:17 to 3:34, *Echinus esculentus* (F), encrusting coralline algae (F)	CR.MCR.EcCr.FaAlCr
Shetland_005.3	Coarse sand with shell and cobble/stone	fragments of live maerl (O), *Crossaster papposus* (O), *Ophiocomina nigra* (F), hydroids (F), *Halecium halecium*? (F), 05:52 boulder *Alcyonium digitatum* (O)	SS.SCS.CCS
Shetland_005.4	Bedrock, boulders and cobbles with patches of coarse sand laid on top	*Echinus esculentus* (F), *Alcyonium digitatum* (A), encrusting coralline algae (A), *Ophiocomina nigra* (A), *Modiolus modiolus* clumps between rocks (F), *Crossaster papposus* (O), *Parasmittina trispinosa* (A), *Luidia ciliaris* (O)	CR.MCR.EcCr.FaAlCr
Shetland_005.5a	Bedrock, cobbles and boulders	Mosaic: *Echinus esculentus* (F), *Alcyonium digitatum* (A), encrusting coralline algae (A), *Ophiocomina nigra* (A), *Modiolus modiolus* clumps between rocks (F), *Parasmittina trispinosa* (F)	CR.MCR.EcCr.FaAlCr

Shetland_005.5b	Coarse sand	Mosaic: *Pecten maximus* (O)	SS.SCS.CCS	
Shetland_005.6a	Bedrock, cobbles and boulders	Mosaic*: Echinus esculentus* (F), *Alcyonium digitatum* (A), encrusting coralline algae (A), *Ophiocomina nigra* (A), *Modiolus modiolus* clumps between rocks (F), *Parasmittina trispinosa* (F)	CR.MCR.EcCr.FaAlCr	
Shetland_005.6b	Coarse sand	Mosaic: *Ophiocomina nigra* (F)	SS.SCS.CCS	
Shetland_005.7a	Coarse sand	hydroids (A)- *Halecium halecium* ? (A), *Pecten maximus* (O), *Solaster endeca* (O)	SS.SCS.CCS	
Shetland_005.7b	Bedrock, cobbles and boulders	*Echinus esculentus* (F), *Alcyonium digitatum* (C), encrusting coralline algae (F), *Ophiocomina nigra* (A), *Modiolus modiolus* (O), *Parasmittina trispinosa* (C)	CR.MCR.EcCr.FaAlCr	
Shetland_5.8a	Bedrock, cobbles and boulders	*Echinus esculentus* (F), *Alcyonium digitatum* (C), encrusting coralline algae (A), *Ophiocomina nigra* (A), *Modiolus modiolus* clumps between rocks (F), *Parasmittina trispinosa* (F), hydroids (A), *Halecium halecium* ? (A),	CR.MCR.EcCr.FaAlCr	
Shetland_5.8b	Coarse sand	*Ophiocomina nigra* (F), *Pecten maximus* (O)	SS.SCS.CCS	
Shetland_006.1	Bedrock with occasional boulders	*Laminaria hyperborea* (F) in sparse patches, *Saccharina latissima* (F) in	IR.MIR.KR.Lhyp.GzPk	**HB**

		sparse patches, *Echinus esculentus* (A), *Crossaster papposus* (O), *Alcyonium digitatum* (O) on vertical rock, *Metridium senile* (O) on vertical rock, encrusting coralline algae (A), red encrusting algae (F), *Desmarestia* sp. (O), *Asterias rubens* (O), *Modiolus modiolus* (O) on ledges on rock, *Ophiocomina nigra* (O), shoals of small teleost (A)	
Shetland_006.2	Bedrock	*Echinus esculentus* (F), *Modiolus modiolus* (F), *Ophiothrix fragilis* (F), *Ophiocomina nigra* (O), *Metridium senile* (O), *Alcyonium digitatum* (F), encrusting red and coralline algae (F)	CR.MCR.EcCr.FaAlCr
Shetland_006.3	Coarse sediment with frequent pebble/cobble	*Urticina felina* (O), *Echinus esculentus* (O), *Modiolus modiolus* (F), *Ophiothrix fragilis* (F)	SS.SMx.CMx
Shetland_006.4	Bedrock with sandy patches	*Ophiothrix fragilis* (A), *Modiolus modiolus* clumps on the rock ledges (C), *Echinus esculentus* (C), *Marthasterias glacialis* (O), shoals of small teleost (A)	CR.MCR.EcCr.FaAlCr.Bri
Shetland_007	Sand	faunally sparse	SS.SSa.CFiSa
Shetland_008.1	Bedrock with occasional boulders	*Echinus esculentus* (A), *Asterias rubens* (F), encrusting coralline algae (A),	CR.MCR.EcCr.FaAlCr

Shetland_008.2	Sand	encrusting red algae (A), *Caryophyllia smithii* (F), *Parasmittina trispinosa* (F) faunally sparse	SS.SSa.CFiSa
Shetland_009	Bedrock with sand patches towards end of run	*Caryophyllia smithii* (A), *Parasmittina trispinosa* (F), *Nemertesia ramosa* (O), *Henricia oculata* (O), *Porania pulvillus* (F), *Pecten maximus* (O) towards end of run, porifera (F), *Abietinaria abietina* (F), *Munida rugosa* (O), *Modiolus modiolus* (O) on rock at beginning of run, *Ophiopholis aculeata* (F), *Spirobranchus triqueter* (C)	CR.MCR.EcCr.FaAlCr.Car
Shetland_010.1	Sandy mud	*Virgularia mirabilis* (C), *Luidia ciliaris* (F), *Solaster endeca* (O), *Pecten maximus* (F)	SS.SMu.CSaMu
Shetland_010.2	Sand (20%) with 80% shell occasional cobble	*Crossaster papposus* (O), *Modiolus modiolus* clumps (F)	SS.SMx.CMx
Shetland_010.3	Cobbles	*Crossaster papposus* (O), *Solaster endeca* (O), *Echinus esculentus* (O), *Pecten maximus* (F), *Modiolus modiolus* clumps (F), hydroid sp. (O), *Spirobranchus triqueter* (A)	CR.MCR.EcCr.FaAlCr
Shetland_010.4	Sandy with stones and cobbles	*Pecten maximus* (F), *Modiolus modiolus* (F), *Stichastrella rosea* (O)	SS.SMx.CMx

Shetland_011	Bedrock	*Ophiothrix fragilis* (S), *Echinus esculentus* (C), *Luidia ciliaris* (F)	CR.MCR.EcCr.FaAlCr.Bri	
Shetland_012	Bedrock	*Laminaria hyperborea* (F) in sparse patches, *Saccharina latissima* (F) in sparse patches, *Echinus esculentus* (A), *Crossaster papposus* (O), *Alcyonium digitatum* (O) on vertical rock, encrusting coralline algae (A), red encrusting algae (A), *Desmarestia* sp. (O),	IR.MIR.KR.Lhyp.GzPk	**HB**
Shetland_013	Bedrock	*Caryophyllia smithii* (A), *Parasmittina trispinosa* (F), *Henricia oculata* (O), *Porania pulvillus* (F), *Spirobranchus triqueter* (O), *Echinus esculentus* (A), encrusting coralline algae (A)	CR.MCR.EcCr.FaAlCr.Car	
Shetland_014.1	Pebbles	foliose red and brown seaweed (A), *Laminaria hyperborea* (O), *Saccharina latissima* (O), *Alaria esculenta* (O), *Echinus esculentus* (O)	SS.SMp.KSwSS	**HB**
Shetland_014.2	Pebbles	*Ophiothrix fragilis* (C), *Echinus esculentus* (O), *Asterias rubens* (O), *Ophiocomina nigra* (F) towards end of run	SS.SCS.ICS.SSh	
Shetland_015.1	Bedrock	*Laminaria hyperborea* (F) in sparse patches, *Saccharina latissima* (F) in sparse patches, *Saccorhiza polyschides*	IR.HIR.KSed.XKScrR	

		(O), *Echinus esculentus* (A), encrusting coralline algae (A), red encrusting algae (A), *Desmarestia* sp. (C),	
Shetland_015.2	Bedrock	*Caryophyllia smithii* (A), *Henricia oculata* (O), *Porania pulvillus* (F), *Echinus esculentus* (C), encrusting coralline algae (A), encrusting red algae (A), *Asterias rubens* (C), *Solaster endeca* (O), *Clavelina lepadiformis* (F)	CR.MCR.EcCr.FaAlCr.Car
Shetland_016	Bedrock	*Ophiothrix fragilis* (C) locally (A), *Echinus esculentus* (C), *Asterias rubens* (C), *Ophiocomina nigra* (F), *Crossaster papposus* (O), *Caryophyllia smithii* (O), *Urticina felina* (O), encrusting coralline algae (A), encrusting red algae (A)	CR.MCR.EcCr.FaAlCr
Shetland_017	Large boulders with bedrock	Boulders tops: *Laminaria hyperborea* (F), *Saccharina latissima* (F), foliose red and brown algae (F), *Desmarestia* sp. (F), *Echinus esculentus* (A), encrusting coralline algae (A), red encrusting algae (A), *Crossaster papposus* (O), *Asterias rubens* (O)	IR.HIR.KSed
Shetland_018	Large boulders with bedrock	Boulders tops: *Saccharina latissima* (F), foliose red and brown algae (F), encrusting coralline algae (A), red	CR.MCR.EcCr.FaAlCr

		encrusting algae (A), Boulder sides: *Echinus esculentus* (A), *Alcyonium digitatum* (O), *Antedon* sp. (F), *Parasmittina trispinosa* (F), *Spirobranchus triqueter* (F)	
Shetland_019.1	Bedrock	*Laminaria hyperborea* (F), *Saccharina latissima* (C), *Desmarestia* sp. (F), *Echinus esculentus* (A), encrusting coralline algae (A), red encrusting algae (A),	IR.HIR.KSed.LsacSac
Shetland_019.2	Bedrock and boulders	*Echinus esculentus* (A), encrusting coralline algae (A), red encrusting algae (A), *Caryophyllia smithii* (F), *Metridium senile* (O)	CR.MCR.EcCr.FaAlCr
Shetland_020	Muddy sand (90%) with 10% shell	*Ophiothrix fragilis* (O), *Echinus esculentus* (O), *Solaster endeca* (O), *Ophiocomina nigra* (F) towards end of run, *Ophiura ophiura* (C), *Pecten maximus* (O)	SS.SSa.CMuSa
Shetland_021	Muddy sand (85%) with 10% shell and 5% stone	*Solaster endeca* (O), *Ophiocomina nigra* (O), *Ophiura ophiura* (A), *Pecten maximus* (O), *Asterias rubens* (O), *Echinus esculentus* (O)	SS.SSa.CMuSa

Shetland_022	Muddy sand (70-90%) with patchy stones 10 to 30% stone	*Solaster endeca* (O), *Ophiura ophiura* (A), *Pecten maximus* (O), *Echinus esculentus* (F), drift kelp (C), encrusting coralline algae on stones (C), *Buccinum undatum* (R), *Virgularia mirabilis* (F) towards end of run	SS.SSa.CMuSa	
Shetland_023	Stones and cobles on coarse sand	*Laminaria hyperborea* (C), *Saccharina latissima* (C), *Echinus esculentus* (C), encrusting coralline algae (A) on stones, *Pecten maximus* (C), *Crossaster papposus* (O)	SS.SMp.KSwSS	**HB**
Shetland_024	Stones and cobles on sand	*Solaster endeca* (O), *Ophiura ophiura* (C) towards end of run, *Pecten maximus* (C), *Echinus esculentus* (C), drift kelp (F), encrusting coralline algae on stones (C), *Ophiocomina nigra* (F), *Asterias rubens* (O), *Modiolus modiolus* (O)	SS.SMx.CMx	
Shetland_025.1	Sand with cobbles and stones	*Ophiura ophiura* (F), *Pecten maximus* (O), *Echinus esculentus* (C), encrusting coralline algae on stones (C), *Ophiocomina nigra* (F), *Ophiothrix fragilis* (C) transition from mixed sediments to bedrock, *Modiolus modiolus* (F)	SS.SMx.CMx	

Shetland_025.2	bedrock and boulders with patches of coarse sand	*Ophiothrix fragilis* (A), *Modiolus modiolus* (F), encrusting coralline algae (A), *Echinus esculentus* (F), *Crossaster papposus* (O)	CR.MCR.EcCr.FaAlCr.Bri	
Shetland_025.3	Sand with cobbles and stones	*Ophiura ophiura* (C), *Pecten maximus* (F), *Echinus esculentus* (O), encrusting coralline algae on stones (C), *Ophiothrix fragilis* (O), *Modiolus modiolus* (O), *Spatangus purpureus* (O)	SS.SMx.CMx	
Shetland_025.4	bedrock and boulders with patches of coarse sand	*Ophiothrix fragilis* (A), *Ophiocomina nigra* (O), encrusting coralline algae (A), *Modiolus modiolus* (F), *Echinus esculentus* (F)	CR.MCR.EcCr.FaAlCr.Bri	
Shetland_025.5	Sand with shell 10%	*Ophiura ophiura* (C), *Echinus esculentus* (O), *Ophiocomina nigra* (O), *Spatangus purpureus* (O)	SS.SCS.CCS	
Shetland_026	Sand with shell 60% and bedrock intrusions throughout tow	*Ophiothrix fragilis* (C), encrusting coralline algae (A) and foliose red algae (A) on rock, *Modiolus modiolus* (F), *Echinus esculentus* (A), *Saccharina latissima* (O),	SS.SMx.CMx	
Shetland_027.1	Mearl grave (25%) with shell 10%	live maerl 25% (C), *Saccharina latissima* (F), *Echinus esculentus* (F)	SS.SMp.Mrl	**HB**

Shetland_027.2	Bedrock	*Saccharina latissima* (A), *Echinus esculentus* (A), encrusting coralline algae (A)	IR.LIR.K.Lsac.Gz	
Shetland_028.1	Mearl gravel with shell 10%	live maerl 20% (C), *Saccharina latissima* (F), *Echinus esculentus* (F)	SS.SMp.Mrl	**HB**
Shetland_028.2	Coarse sand with 50% shell	*Saccharina latissima* (F), *Echinus esculentus* (F), *Asterias rubens* (O)	SS.SMx.CMx	
Shetland_029	Sand/gravel (60%) with shell (Turritella communis) 40%	*Echinus esculentus* (O), drift kelp (F), *Pecten maximus* (O), *Astropecten irregularis* (F), *Pagurus bernhardus* (F), *Modiolus modiolus* (O) to (F) at the end of the run	SS.SMx.CMx	
Shetland_030	Muddy sand/gravel (50-70%) with shell (turritella shells) 30% to 50%	*Echinus esculentus* (F), *Saccharina latissima* (F), *Pecten maximus* (O), *Astropecten irregularis* (F), *Pagurus bernhardus* (F), *Modiolus modiolus* (O), *Liocarcinus depurator* (O), *Asterias rubens* (C), *Marthasterias glacialis* (O)	SS.SMx.CMx	
Shetland_031	Fine sand	*Arenicola marina* worm casts (C), *Astropecten irregularis* (F), drift algae (A), fine filamentous algae matt on surface of sediment (A)	SS.Ssa.IMuSa.AreISa	
Shetland_032	pebbles, cobbles and occasional boulder	*Ophiothrix fragilis* (F), *Ophiocomina nigra* (F), encrusting coralline algae (C), *Echinus esculentus* (F), *Crossaster*	SS.SCS.CCS.PomB	

		papposus (R), *Solaster endeca* (R), *Spirobranchus triqueter* (C), *Balanus balanus* (O), red coralline algae (O)		
Shetland_033.1	Bedrock and boulders	*Saccharina latissima* (A), *Echinus esculentus* (A), encrusting coralline algae (A), *Crossaster papposus* (R)	IR.LIR.K.Lsac.Gz	
Shetland_033.2	Bedrock	*Laminaria hyperborea* (C) *Saccharina latissima* (O), *Echinus esculentus* (A), encrusting coralline algae (F), foliose red and brown algae (A)	IR.MIR.KR.Lhyp.Ft	**HB**
Shetland_034.1	Cobbles and occasional boulder	*Ophiothrix fragilis* (A), *Ophiocomina nigra* (F), encrusting coralline algae (C), *Echinus esculentus* (F), *Crossaster papposus* (R), *Solaster endeca* (R), *Parasmittina trispinosa* (C)	SS.SMx.CMx.OphMx	
Shetland_034.2	Cobbles, boulders and bedrock	*Ophiothrix fragilis* (O), *Ophiocomina nigra* (O), encrusting coralline algae (C), *Echinus esculentus* (C), *Crossaster papposus* (R), *Solaster endeca* (R), *Parasmittina trispinosa* (C), red foliose algae (A), hydroid sp. (F)	IR.HIR.KFaR.FoR	
Shetland_035	Cobbles, boulders and bedrock	*Ophiopholis aculeata* (A), *Ophiothrix fragilis* (O) encrusting coralline algae (C), *Echinus esculentus* (C), *Crossaster*	CR.MCR.EcCr.FaAlCr.Bri	

		papposus (O), *Asterias rubens* (F), *Modiolus modiolus* (R)		
Shetland_036	Muddy sand with 30% shell	Faunally sparse, *Echinus esculentus* (R), *Asterias rubens* (R)	SS.SSa.CMuSa	
Shetland_037	Circalittoral coarse sediment	*Ophiocomina nigra* (C), encrusting coralline algae (F), *Echinus esculentus* (F), *Pecten maximus* (R), *Asterias rubens* (O), *Modiolus modiolus* (O)	SS.SCS.CCS	
Shetland_038	Faunal and algal crusts on exposed to moderately wave-exposed circalittoral rock	encrusting coralline algae (C), *Echinus esculentus* (C), *Asterias rubens* (C), *Parasmittina trispinosa* (C), *Spirobranchus triqueter* (C), *Caryophyllia smithii* (F), *Marthasterias glacialis* (R), *Porania pulvillus* (F)	CR.MCR.EcCr.FaAlCr	
Shetland_039	Circalittoral coarse sediment	*Ophiura ophiura* (C)	SS.SCS.CCS	
Shetland_040	Grazed *Laminaria hyperborea* forest with coralline crusts on upper infralittoral rock	*Laminaria hyperborea* (A), *Echinus esculentus* (A), encrusting coralline algae (A), encrusting red algae (A), foliose red algae (F)	IR.MIR.KR.Lhyp.GzFt	**HB**
Shetland_041	Faunal and algal crusts on exposed to moderately wave-exposed circalittoral rock	encrusting coralline algae (C), *Echinus esculentus* (C), *Asterias rubens* (C), *Parasmittina trispinosa* (C), *Spirobranchus triqueter* (C), *Caryophyllia smithii* (F), *Ophiocomina nigra* (C),	CR.MCR.EcCr.FaAlCr	

		Ophiopholis aculeata (F), clumps of *Modiolus modiolus* (F) in cracks on ledges on the bedrock		
Shetland_042 a/b	bedrock (60%) with sand (40%) in gullies	*Mosaic: Laminaria hyperborea* (O) at beginning of run, *Strongylocentrotus droebachiensis* (R), *Echinus esculentus* (F), *Caryophyllia smithii* (O)/ *Modiolus modiolus* (C) forming clumps on sediment, in sand gullies and bedrock surface. Red foliose algae (F), *Echinus esculentus* (F), *Pecten maximus* (O)	CR.MCR.EcCr.FaAlCr /SS.SBR.SMus.ModT	**HB**
Shetland_043	Bedrock and occasional gully with sand	*Laminaria hyperborea* (A), *Saccharina latissima* (F), *Echinus esculentus* (C), encrusting coralline algae (A), encrusting red algae (A), foliose red and brown algae (F)	IR.HIR.KSed.LsacSac	
Shetland_044	Rippled sand	Faunally sparse	SS.SSa.IFiSa.IMoSa	
Shetland_045	Bedrock and large boulders with sand patches	*Alcyonium digitatum* (C), *Asterias rubens* (C), *Echinus esculentus* (C), encrusting coralline algae (A), teleost (F)	CR.MCR.EcCr.FaAlCr	
Shetland_046.1	Bedrock and occasional gully with sand	*Laminaria hyperborea* (F), *Alaria esculenta* (C) on top of boulders, *Echinus esculentus* (C), encrusting coralline algae (C),	IR.MIR.KR.Lhyp.GzPk	**HB**

Shetland_046.2	Bedrock and large boulders with sand patches	*Echinus esculentus* (C), encrusting coralline algae (C), red algae crust (C) on top of boulders	CR.MCR.EcCr.FaAlCr	
Shetland_047	Bedrock and large boulders	*Laminaria hyperborea* (C), *Echinus esculentus* (C), encrusting coralline algae (C), red encrusting algae (F), foliose red seaweed (F), *Crossaster papposus* (O), *Solaster endeca* (O)	IR.MIR.KR.Lhyp.GzPk	**HB**
Shetland_048	Bedrock and large boulders	Clumps of *Modiolus modiolus* (F) in cracks on ledges on the bedrock, *Echinus esculentus* (C), *Caryophyllia smithii* (O), encrusting coralline algae (C), red encrusting algae (F), *Alcyonium digitatum* (C), *Asterias rubens* (F), *Ophiocomina nigra* (F), *Ophiothrix fragilis* (O), juvenile teleost (C)	CR.MCR.EcCr.FaAlCr	
Shetland_049	Sand	*Ophiocomina nigra* (F), *Ophiura ophiura* (F), *Pecten maximus* (R), bivalve siphons (F), drift algae (F), *Pagurus bernhardus* (F)	SS.SSa.CFiSa	
Shetland_050	Sand with 5% shell and increases to 60% for the last 20 seconds of the run	*Ophiocomina nigra* (O), *Ophiura ophiura* (O), *Pecten maximus* (O), *Pagurus bernhardus* (F), *Asterias rubens* (F), *Echinus esculentus* (O), *Luidia ciliaris* (R)	SS.SSa.CFiSa	

Shetland_051	Muddy sand with 10% shell	*Ophiura ophiura* (F), *Pecten maximus* (F), *Pagurus bernhardus* (F), *Asterias rubens* (F), *Echinus esculentus* (F), drift algae (F)	SS.SSa.CMuSa	
Shetland_052.1	Pebbles, cobbles with sand	*Ophiocomina nigra* (A), *Echinus esculentus* (F), *Crossaster papposus* (O)	SS.SMx.CMx.OphMx	
Shetland_052.2	Bedrock	*Ophiocomina nigra* (C), *Echinus esculentus* (C), *Alcyonium digitatum* (A), encrusting coralline algae (C), *Crossaster papposus* (O)	CR.MCR.EcCr.AdigVt	
Shetland_052.3	Pebbles, cobbles with sand	*Ophiopholis aculeata* (A), *Ophiothrix fragilis* (O), *Ophiocomina nigra* (F), *Echinus esculentus* (F), *Alcyonium digitatum* (O), encrusting coralline algae (F) on stones, *Crossaster papposus* (C), *Asterias rubens* (F), *Urticina felina* (O), *Modiolus modiolus* (O)	SS.SMx.CMx.OphMx	
Shetland_053.1	Bedrock and boulders	*Laminaria hyperborea* (F), *Echinus esculentus* (A), encrusting coralline algae (A), red encrusting algae (F), foliose red seaweed (F), *Desmarestia* spp. (A), *Asterias rubens* (O)	IR.MIR.KR.Lhyp.GzPk	**HB**
Shetland_053.2	Bedrock and boulders	*Alcyonium digitatum* (A), *Asterias rubens* (O), *Echinus esculentus* (A), encrusting	CR.MCR.EcCr.FaAlCr	

		coralline algae (A), *Crossaster papposus* (O)		
Shetland_054	Sand with pebbles 20%	*Saccharina latissima* (C), *Echinus esculentus* (O), *Pecten maximus* (O), *Ophiura ophiura* (F)	SS.SMp.KSwSS	**HB**
Shetland_055.1	Bedrock and boulders	*Laminaria hyperborea* (O), *Echinus esculentus* (A), encrusting coralline algae (A), red encrusting algae (F), foliose red seaweed (F), *Desmarestia* spp. (A), *Alcyonium digitatum* (A), *Asterias rubens* (F), *Luidia ciliaris* (O), *Crossaster papposus* (O), *Solaster endeca* (O)	CR.MCR.EcCr.FaAlCr	
Shetland_055.2	Sand with pebbles 60%	*Saccharina latissima* (C), *Echinus esculentus* (O), foliose red algae (C), *Flustra foliacea* (C), *Luidia ciliaris* (O), fragments of maerl towards end of run with patches of maerl at the very end of the run (O)	SS.SMp.KSwSS.LsacR	**HB**
Shetland_056.1	Cobbles, pebbles and sand	*Saccharina latissima* (C), *Echinus esculentus* (O), encrusting coralline algae (A), *Asterias rubens* (O)	SS.SMp.KSwSS.LsacR	**HB**
Shetland_056.2	coarse sand	Fragments of maerl (O), *Asterias rubens* (O)	SS.SCS.CCS	

Shetland_056.3	transition from coarse sand to pebbles, then to cobbles at end of run	*Saccharina latissima* (F), *Echinus esculentus* (O), foliose red algae (F), *Flustra foliacea* (F), *Urticina felina* (O), encrusting coralline algae (F), *Alcyonium digitatum* (C) towards end of run, *Crossaster papposus* (O)	SS.SMp.KSwSS.LsacR	**HB**
Shetland_057.1	bedrock and boulders with patches of coarse sand	*Laminaria hyperborea* (F), *Echinus esculentus* (A), encrusting coralline algae (A), red encrusting algae (F), foliose red seaweed (F), *Desmarestia* spp. (A), live maerl patches between the bed rock (F)	IR.HIR.KSed.XKScrR	
Shetland_057.2	Cobbles, pebbles and sand	*Saccharina latissima* (A), *Alaria esculenta* (F), encrusting coralline algae (A), red encrusting algae (F), foliose red seaweed (A), *Desmarestia* spp. (A), *Dictyota dichotoma* (F), *Echinus esculentus* (F), *Porania pulvillus* (O)	SS.SMp.KSwSS.LsacR	**HB**
Shetland_058	Cobbles, pebbles and sand	Mearl at start of run c.5-10% (O), *Saccharina latissima* (A), *Alaria esculenta* (F), *Laminaria hyperborea* (O), encrusting coralline algae (A), foliose red seaweed (F), *Desmarestia* spp. (F), *Dictyota dichotoma* (F), *Echinus*	SS.SMp.KSwSS.LsacR	**HB**

		esculentus (F), *Asterias rubens* (O), *Cancer Pagurus* (O)		
Shetland_059	Muddy sand and shell 70%	*Ophiothrix fragilis* (F), *Ophiocomina nigra* (F), *Echinus esculentus* (F), *Asterias rubens* (O)	SS.SMx.CMx	
Shetland_060	bedrock and boulders with patches of coarse sand	*Ophiocomina nigra* (F), *Modiolus modiolus* (F) to (A) from 3 mins to end of run, encrusting coralline algae (A), *Echinus esculentus* (A), *Asterias rubens* (O), *Alcyonium digitatum* (F), *Urticina felina* (O), *Crossaster papposus* (O), shoals of juvenile teleost (A)	CR.MCR.EcCr.FaAlCr	
Shetland_061.1	bedrock and boulders with patches of coarse sand	*Laminaria hyperborea* (A), *Echinus esculentus* (A), encrusting coralline algae (A), red encrusting algae (F), foliose red seaweed (F), *Desmarestia* spp. (A), *Alcyonium digitatum* (F) on the vertical sides of boulders	IR.MIR.KR.Lhyp.GzPk	**HB**
Shetland_061.2	bedrock and boulders with patches of coarse sand	*Alcyonium digitatum* (A), *Asterias rubens* (O), *Echinus esculentus* (A), encrusting coralline algae (A), *Crossaster papposus* (O)	CR.MCR.EcCr.FaAlCr	
Shetland_062	bedrock, boulders and cobles with patches of coarse sand	*Ophiothrix fragilis* (A), *Ophiocomina nigra* (F), *Alcyonium digitatum* (C), *Asterias rubens* (F), *Echinus esculentus*	CR.MCR.EcCr.FaAlCr.Bri	

		(C), encrusting coralline algae (C), *Crossaster papposus* (F), *Luidia ciliaris* (F), *Cancer Pagurus* (O), *Porania pulvillus* (O), *Urticina felina* (O)		
Shetland_063	sand	faunally sparse	SS.SSa.CFiSa	
Shetland_064.1	bedrock, boulders and cobles with patches of coarse sand	*Laminaria hyperborea* (F), *Echinus esculentus* (A) , encrusting coralline algae (A), red encrusting algae (F), *Delesseria sanguinea* (F), *Antedon* sp. (F) on side of boulders, *Caryophyllia smithii* (O), *Urticina felina* (O), *Cancer Pagurus* (O), *Ophiothrix fragilis* (F), *Ophiocomina nigra* (O), *Asterias rubens* (F), *Modiolus modiolus* (O)	IR.MIR.KR.Lhyp.GzPk	**HB**
Shetland_064.2	sand	faunally sparse	SS.SSa.CFiSa	
Shetland_065	bedrock, boulders and cobles with patches of coarse sand	*Laminaria hyperborea* (F) becomes very sparse by the end of the run, *Echinus esculentus* (F) , encrusting coralline algae (A), red encrusting algae (F), foliose red algae (F), *Antedon* sp. (F) on side of boulders, *Asterias rubens* (O), *Ophiura albida* (O) on sand patch between bedrock, *Solaster endeca* (O), *Marthasterias glacialis* (O)	IR.MIR.KR.Lhyp.GzPk	**HB**

Shetland_066	Muddy sand	*Pennatula phosphorea* (O), *Pagurus bernhardus* (O), small burrows (C), worm casts (F), *Stichastrella rosea* (R)	SS.SMu.CSaMu	
Shetland_067.1	Muddy sand with pebble and cobbles	*Lophius piscatorius* (O), *Pecten maximus* (O), *Luidia ciliaris* (O), *Porania pulvillus* (O), *Ophiocomina nigra* (O), *Ascidiella virginea*(O), *Crossaster papposus* (O), *Nemertesia ramosa* (R), *Pagurus bernhardus* (O),	SS.SMx.CMx	**MS**
Shetland_067.2	Bedrock and boulders	*Lophius piscatorius* (R), *Porania pulvillus* (O), *Echinus esculentus* (O), *Crossaster papposus* (O), *Munida rugosa* (C),	CR.LCR	**MS**
Shetland_067.3	Muddy sand with pebble and cobbles	*Axinella infundibuliformis* (R), *Porania pulvillus* (R), *Parasmittina trispinosa* (F), *Psolus phantapus* (R)	SS.SMx.CMx	
Shetland_068.1	Muddy sand with pebble and cobbles	*Pecten maximus* (O), *Stichastrella rosea* (O), *Luidia ciliaris* (O), *Ophiocomina nigra* (O), *Porania pulvillus* (O), *Solaster endeca* (O)	SS.SMx.CMx	
Shetland_068.2	Muddy sand	Faunally sparse, *Modiolus modiolus* (R)	SS.SMu.CSaMu	
Shetland_068.3	Bedrock and boulders	*Luidia ciliaris* (O), *Asterias rubens* (O), *Porania pulvillus* (F), *Solaster endeca* (O), *Munida rugosa* (F)	CR.MCR.EcCr.FaAlCr	

Shetland_068.4	Muddy sand	Faunally sparse. *Spatangus purpureus* (R)	SS.SMu.CSaMu
Shetland_068.5	Muddy sand with cobbles and pebbles	*Neopentadactyla mixta* (R), *Stichastrella rosea* (O), *Porania pulvillus* (F), *Solaster endeca* (O), *Asterias rubens* (O), *Echinus esculentus* (O), *Axinella infundibuliformis* (O), *Ascidiella virginea*(F), *Crossaster papposus* (O), *Nemertesia ramosa* (R), *Munida rugosa* (C), *Luidia ciliaris* (O), *Spirobranchus triqueter* (A), *Parasmittina trispinosa* (C), *Ophiothrix fragilis* (F), *Omalosecosa ramulosa* (F)	SS.SMx.CMx
Shetland_069	Muddy sand with pebbles and cobbles and intrusions of bedrock	*Stichastrella rosea* (F), *Caryophyllia smithii* (O), *Luidia ciliaris* (O), *Porania pulvillus* (F), *Asterias rubens* (O), *Echinus esculentus* (O), *Ascidiella virginea*(O), *Crossaster papposus* (O), *Nemertesia ramosa* (R), *Munida rugosa* (F), *Pecten maximus* (F), *Ophiothrix fragilis* (O), *Omalosecosa ramulosa* (F), *Buccinum undatum* (R)	SS.SMx.CMx
Shetland_070	bedrock	*Stichastrella rosea* (F), *Luidia ciliaris* (O), *Porania pulvillus* (F), *Asterias rubens* (O), *Echinus esculentus* (F), *Ascidiella*	CR.MCR.EcCr.CarSp.Bri

		virginea (O), *Crossaster papposus* (O), Hydroid sp. (O), *Munida rugosa* (O), *Spirobranchus triqueter* (A), *Parasmittina trispinosa* (C), *Ophiopholis aculeata* (C), *Ophiocomina nigra* (O), *Caryophyllia smithii* (O), encrusting coralline algae (O)	
Shetland_071	muddy sand	*Ophiura ophiura* (C), *Astropecten irregularis* (O), *Pagurus bernhardus* (O), *Asterias rubens* (O), *Aequipecten opercularis* (O), small burrows towards end of run (O)	SS.SSa.CMuSa
Shetland_072	Muddy sand with shell 30% and stones 20%	*Astropecten irregularis* (O), *Pecten maximus* (F), *Crossaster papposus* (O), *Asterias rubens* (O), *Echinus esculentus* (F), *Antedon* sp. (R), *Cerianthus lloydii* (R), *Modiolus modiolus* (R), Ascidian sp. (O)	SS.SMx.CMx
Shetland_073	muddy sand	*Echinus esculentus* (O), *Pecten maximus* (F), *Asterias rubens* (F), *Pagurus bernhardus* (O), *Liocarcinus depurator* (O)	SS.SSa.CMuSa
Shetland_074	muddy sand with patchy shell 60% and overlaying silt	drift algae (A), *Ophiura albida* (O), *Pagurus bernhardus* (F), *Hyas araneus* (O), *Astropecten irregularis* (O), *Echinus*	SS.SMx.CMx

		esculentus (O). Silt (organic) overlay from adjacent fish farm?	
Shetland_075	sand with gravel and shell 50 to 100% patches	*Pecten maximus* (F), *Hyas araneus* (O), *Carcinus maenas* (F), bivalve siphons (F) when camera dropped onto sediment holes appeared, *Pagurus bernhardus* (F), *Echinus esculentus* (F)	SS.SMx.CMx
Shetland_076	fine mud	*Arenicola marina* worm casts (A), *Carcinus maenas* (R), *Hyas araneus* (R), *Ophiura albida* (O), large burrows (F), small burrows (F)	SS.SMu.IFiMu.Are
Shetland_077	fine mud	*Arenicola marina* worm casts (C), *Ascidiella aspersa* (O), *Ophiura* sp. (O), large burrows (F), small burrows (F), drift kelp (F)	SS.SMu.IFiMu.Are
Shetland_078	fine mud	*Arenicola marina* worm casts (F), *Ascidiella aspersa* (O), *Ophiura* sp. (O), large burrows (O), small burrows (O), *Pagurus bernhardus* (O)	SS.SMu.IFiMu.Are
Shetland_079	fine mud	*Arenicola marina* worm casts (C), *Ascidiella aspersa* (O), *Ophiura* sp. (O), large burrows (O), small burrows (O), *Pagurus bernhardus* (O)	SS.SMu.IFiMu.Are
Shetland_080	fine mud	*Arenicola marina* worm casts (C), *Ascidiella aspersa* (O), *Ophiura* sp. (O),	SS.SMu.IFiMu.Are

		large burrows (F), small burrows (F), *Pagurus bernhardus* (O), drift kelp (O)		
Shetland_081	coarse sand	Faunally sparse. *Astropecten irregularis* (O), *Echinus esculentus* (O), fish larvae (C), *Saccharina latissima* (R)	SS.SMp.KSwSS	**HB**
Shetland_082.1	course sediment with organic enrichment	Layer of organic enrichment, dead maerl c.5%, *Astropecten irregularis* (O), *Pecten maximus* (O)	SS.SCS.CCS	
Shetland_082.2	course sediment with organic enrichment, maerl c.15%	Maerl live (5%) (R), dead c.10%, clear damage from historic organic enrichment	SS.SCS.CCS	
Shetland_083.1	course sediment with maerl (5%) and broken shells (5%), organic enrichment 50%	Maerl dead (5%) some live (R), *Echinus esculentus* (R), *Turritella communis* (O)	SS.SCS.CCS	
Shetland_083.2	course sediment with maerl dead (20%) and broken shells (5%), organic enrichment 30%	Maerl dead (20%) some live? (R), *Saccharina latissima* (R), *Echinus esculentus* (R), *Turritella communis* (O)	SS.SCS.CCS	
Shetland_083.3	course sediment with maerl dead (20%) and broken shells (5%), organic enrichment 30%	Maerl dead (40%) some live? (R), *Saccharina latissima* (R), *Echinus esculentus* (R), *Turritella communis* (O)	SS.SCS.CCS	
Shetland_083.4	course sediment with maerl dead (5%) and	Maerl dead (5%) live < 5% (R), *Saccharina latissima* (R), *Echinus*	SS.SCS.CCS	

	broken shells (5%), organic enrichment 10%	*esculentus* (R), *Turritella communis* (O), *Asterias rubens* (R)		
Shetland_083.5	Large boulders, sand in between boulders (5%)	*Echinus esculentus* (F), *Asterias rubens* (O), encrusting red algae (30%), fish larvae (C), *Saccharina latissima* (O), *Laminaria hyperborea* (C)	IR.MIR.KR.LhypTX.Ft	**HB**
Shetland_083.6	Large boulders, sand in between boulders (5%)	*Echinus esculentus* (F), *Asterias rubens* (O), encrusting red algae (60%), *Laminaria hyperborea* (C), *Gibbula* sp. (O)	IR.MIR.KR.LhypTX.Ft	**HB**
Shetland_083.7	maerl megaripple	Maerl (20%) alive (C), dead (80%),	SS.SMp.Mrl	**HB**
Shetland_083.8	dead maerl megaripple	Maerl (5%) alive (C), dead (95%), *Echinus esculentus* (F)	SS.SCS.CCS	
Shetland_083.9	Large boulder and small boulders	*Echinus esculentus* (F), *Asterias rubens* (O), encrusting red algae (60%), *Saccorhiza polyschides* (O), *Laminaria hyperborea* (F), *Gibbula* sp. (O)	IR.HIR.KSed.LsacSac	
Shetland_083.11	maerl megaripple, broken shell	Maerl (25%) alive (C), dead (75%), *Desmarestia* sp. (O), *Cancer Pagurus* R), *Asterias rubens* (O),	SS.SMp.Mrl	**HB**
Shetland_083.12	coarse sand with maerl (<5%)	Maerl (5%) live (R), *Echinus esculentus* (O), *Asterias rubens* (F)	SS.SCS.CCS	
Shetland_084.1	maerl	Maerl (25%) live (C), dead (75%), *Saccharina latissima* (O), *Desmarestia*	SS.SMp.Mrl	**HB**

		sp. (O), *Pecten maximus* (O), *Saccorhiza polyschides* (O)		
Shetland_084.2	maerl megaripple	Maerl (15%) live (F), dead (85%), *Saccharina latissima* (O), *Desmarestia* sp. (O), *Pecten maximus* (O), *Saccorhiza polyschides* (O)	SS.SMp.Mrl	**HB**
Shetland_084.3	maerl	Maerl (25%) live (C), dead (75%), *Saccharina latissima* (O), *Desmarestia* sp. (O), *Pecten maximus* (O), *Saccorhiza polyschides* (O)	SS.SMp.Mrl	**HB**
Shetland_084.4	maerl	Maerl (45%) live (A) locally (S), dead (55%), *Saccharina latissima* (O), *Desmarestia* sp. (O) , *Pecten maximus* (O), *Saccorhiza polyschides* (O)	SS.SMp.Mrl	**HB**
Shetland_084.5	maerl megaripple	Maerl (30%) live (C) locally (S), dead (70%), *Saccharina latissima* (O), *Desmarestia* sp. (O), *Pecten maximus* (O), *Saccorhiza polyschides* (O)	SS.SMp.Mrl	**HB**
Shetland_084.6	maerl	Maerl (40%) alive (A), dead (60%), *Saccharina latissima* (O), *Desmarestia* sp. (O), *Pecten maximus* (O), *Saccorhiza polyschides* (O)	SS.SMp.Mrl	**HB**
Shetland_084.7	maerl megaripple	Maerl (25%) alive (C), dead (70%), *Saccharina latissima* (O), *Desmarestia*	SS.SMp.Mrl	**HB**

		sp. (O), *Pecten maximus* (O), *Saccorhiza polyschides* (O)		
Shetland_084.8	maerl (15%) and course sediment	Maerl (10%) alive (F), dead (5%), *Saccharina latissima* (O), *Desmarestia* sp. (O), *Pecten maximus* (O), *Saccorhiza polyschides* (O), *Asterias rubens* (O), *Echinus esculentus* (F)	SS.SMp.Mrl	**HB**
Shetland_084.9	course sediment with maerl (5%) and broken shells (25%)	Maerl (5%) live, *Saccharina latissima* (O), *Desmarestia* sp. (O), *Pecten maximus* (O), *Saccorhiza polyschides* (O), *Asterias rubens* (O), *Luidia ciliaris* (O)	SS.SCS.CCS	
Shetland_084.11	maerl megaripple with course sediment	Maerl live (20%) (C), maerl dead (50%), *Saccharina latissima* (O), *Desmarestia* sp. (O), *Pecten maximus* (O), *Saccorhiza polyschides* (O)	SS.SMp.Mrl	**HB**
Shetland_84.12	maerl megaripple	Maerl live (40%) (A) locally (S), dead (60%), *Saccharina latissima* (O), *Desmarestia* sp. (C), *Pecten maximus* (O), *Saccorhiza polyschides* (O), *Luidia ciliaris* (O)	SS.SMp.Mrl	**HB**
Shetland_085.1	maerl	Maerl (50%) alive (A) locally (S), dead (50%), *Saccharina latissima* (O), *Desmarestia* sp. (O), *Pecten maximus* (O), *Saccorhiza polyschides* (O)	SS.SMp.Mrl	**HB**

Shetland_085.2	maerl megaripple	Maerl (25%) live (C), dead (75%), *Saccharina latissima* (O), *Desmarestia* sp. (O), *Pecten maximus* (O), *Saccorhiza polyschides* (O), foliose red algae (O)	SS.SMp.Mrl	**HB**
Shetland_085.3	maerl with dead shell and coarse sand	Maerl (15%) live (F), dead (50%), *Saccharina latissima* (O), *Desmarestia* sp. (O), *Pecten maximus* (O), *Saccorhiza polyschides* (O), *Echinus esculentus* (F), *Luidia ciliaris* (R), *Asterias rubens* (O)	SS.SMp.Mrl	**HB**
Shetland_085.4	Large boulders, sand in-between boulders (5%)	*Saccorhiza polyschides* (C), *Laminaria hyperborea* (O), *Echinus esculentus* (C), foliose red algae (O), encrusting red algae (A), *Gibbula* sp. (C), *Asterias rubens* (O)	IR.HIR.KSed.LsacSac	
Shetland_086	cobbles, boulders and bedrock. Patches of course sediment (<5%)	*Ophiothrix fragilis* (S), *Ophiocomina nigra* (A), *Echinus esculentus* (F), *Alcyonium digitatum* (F), *Spirobranchus triqueter* (O), *Crossaster papposus* (O), fish larvae (S), *Urticina felina* (O), *Hyas* sp. (O), *Solaster endeca* (O), *Ophiopholis aculeata* (C)	CR.MCR.EcCr.FaAlCr.Bri	
Shetland_087.1	bedrock with patches of cobbles	*Ophiothrix fragilis* (C), *Ophiocomina nigra* (A), *Echinus esculentus* (F),	CR.MCR.EcCr.FaAlCr.Bri	

		Alcyonium digitatum (R), *Spirobranchus triqueter* (C), *Crossaster papposus* (O), fish larvae (S), *Urticina felina* (O)		
Shetland_087.2	pebbles and cobbles	*Ophiothrix fragilis* (A), *Ophiocomina nigra* (C), *Echinus esculentus* (F), *Asterias rubens* (O), *Luidia ciliaris* (O), *Modiolus modiolus* (F), encrusting red algae (F), fish larvae (C), *Spirobranchus triqueter* (C), *Crossaster papposus* (O), *Urticina felina* (R)	SS.SMx.CMx.OphMx	
Shetland_088	fine sand	*Ophiura ophiura* (C), *Asterias rubens* (R)	SS.SSa.CFiSa	
Shetland_089	pebbles and cobbles with sand	*Ophiothrix fragilis* (S), *Ophiocomina nigra* (F), *Echinus esculentus* (F), *Asterias rubens* (O), *Luidia ciliaris* (O), fish larvae (S)	SS.SMx.CMx.OphMx	
Shetland_090	muddy sand with course sediment	Silt covered filamentous algae (C), *Liocarcinus depurator* (R), *Turritella communis* (C), *Astropecten irregularis* (O), *Hyas* sp. (O), *Ascidiella aspersa* (O), *Spirobranchus triqueter* (C), *Crossaster papposus* (O), rock outcrop 0114- *Alcyonium digitatum* (O)	SS.SMp.KSwSS	**HB**
Shetland_091	course sediment with occasional stones	Filamentous algae (C), *Saccharina latissima* (R), *Desmarestia* sp. (R),	SS.SMp.KSwSS	**HB**

		Liocarcinus depurator (R), *Turritella communis* (C), *Astropecten irregularis* (O), *Pecten maximus* (R), *Hyas* sp. (O), *Ascidiella aspersa* (O)	
Shetland_092	fine sand, rock outcrops (<1%)	*Ophiura ophiura* (C), *Modiolus modiolus* (R), *Urticina felina* (O), *Echinus esculentus* (O)	SS.SSa.CFiSa
Shetland_093.1	bedrock	*Saccorhiza polyschides* (C), *Laminaria hyperborea* (O), *Echinus esculentus* (C), foliose red algae (O)	IR.HIR.KSed.LsacSac
Shetland_093.2	bedrock	Faunally sparse. *Echinus esculentus* (C), *Alcyonium digitatum* (F), encrusting pink algae (S), fish larvae (S)	CR.MCR.EcCr.FaAlCr.Pom
Shetland_093.3	cobbles and pebbles	Faunally sparse *Echinus esculentus* (O), fish larvae (S)	SS.SCS.CCS
Shetland_093.4	bedrock with patches of cobbles	*Ophiocomina nigra* (S), *Echinus esculentus* (F),	CR.MCR.EcCr.FaAlCr.Bri
Shetland_093.5	pebbles and cobbles with sand	*Ophiothrix fragilis* (F), *Ophiocomina nigra* (C), *Echinus esculentus* (F), *Ophiura ophiura* (O), *Echinus esculentus* (O)	SS.SMx.CMx.OphMx
Shetland_093.6	bedrock with patches of cobbles	*Ophiothrix fragilis* (S), *Ophiocomina nigra* (F), *Echinus esculentus* (F),	CR.MCR.EcCr.FaAlCr.Bri
Shetland_094	bedrock	*Caryophyllia smithii* (F), *Echinus esculentus* (C), *Parasmittina trispinosa*	CR.MCR.EcCr.FaAlCr.Car

		(F), encrusting pink algae (A), *Spirobranchus triqueter* (C), *Crossaster papposus* (O), *Luidia ciliaris* (O), *Asterias rubens* (F), fish larvae (A), *Alcyonium digitatum* (O)	
Shetland_095	bedrock	*Alcyonium digitatum* (O), *Echinus esculentus* (C), encrusting red algae (90%), *Ophiopholis aculeata* (O), *Porania pulvillus* (O), *Solaster endeca* (O), *Asterias rubens* (O), *Hyas* sp. (O), *Crossaster papposus* (O), *Ophiocomina nigra* (O), fish larvae (S)	CR.MCR.EcCr.FaAlCr
Shetland_096.1	bedrock	*Caryophyllia smithii* (F), *Echinus esculentus* (C), *Parasmittina trispinosa* (F), encrusting pink algae (F), *Spirobranchus triqueter* (O), *Ophiopholis aculeata* (O), *Crossaster papposus* (O), *Luidia ciliaris* (O),	CR.MCR.EcCr.FaAlCr.Car
Shetland_096.2	cobbles and pebbles with course sediment	*Spirobranchus triqueter* (F), *Octopus* sp. (R), hydroids (O)	SS.SCS.CCS.PomB
Shetland_096.3	bedrock	*Caryophyllia smithii* (F), *Echinus esculentus* (C), *Parasmittina trispinosa* (F), encrusting pink algae (F), *Spirobranchus triqueter* (O), *Crossaster*	CR.MCR.EcCr.FaAlCr.Car

		papposus (O), *Luidia ciliaris* (O), *Asterias rubens* (F), fish larvae (F)	
Shetland_097.1	fine sand	*Echinus esculentus* (F)	SS.SSa.CFiSa
Shetland_097.2	rocks and boulders on course sediment	*Caryophyllia smithii* (C), *Echinus esculentus* (F), *Parasmittina trispinosa* (O), encrusting pink algae (O), *Spirobranchus triqueter* (O), *Ophiopholis aculeata* (O)	CR.MCR.EcCr.FaAlCr.Car
Shetland_097.3	bedrock outcrop	*Caryophyllia smithii* (C), *Echinus esculentus* (C), *Parasmittina trispinosa* (F), encrusting pink algae (O), *Spirobranchus triqueter* (O), *Ophiopholis aculeata* (O), *Crossaster papposus* (O), *Luidia ciliaris* (O), *Alcyonium digitatum* (R)	CR.MCR.EcCr.FaAlCr.Car
Shetland_097.4	rocks and boulders on course sediment	*Caryophyllia smithii* (F), *Echinus esculentus* (F), *Parasmittina trispinosa* (O), encrusting pink algae (O), *Spirobranchus triqueter* (O), *Ophiopholis aculeata* (O), *Crossaster papposus* (O), *Luidia ciliaris* (O), *Alcyonium digitatum* (R)	CR.MCR.EcCr.FaAlCr.Car
Shetland_097.5	bedrock outcrop	*Caryophyllia smithii* (C), *Echinus esculentus* (C), *Parasmittina trispinosa*	CR.MCR.EcCr.FaAlCr.Car

		(F), encrusting pink algae (O), *Spirobranchus triqueter* (O), *Ophiopholis aculeata* (O), *Crossaster papposus* (O), *Luidia ciliaris* (O), *Alcyonium digitatum* (R)		
Shetland_097.6	rocks and boulders on course sediment	*Echinus esculentus* (F), *Parasmittina trispinosa* (O), encrusting pink algae (O), *Spirobranchus triqueter* (F), *Ophiopholis aculeata* (O), *Crossaster papposus* (O), *Luidia ciliaris* (O), *Alcyonium digitatum* (R), *Scyliorhinus canicula* (R)	CR.MCR.EcCr.FaAlCr.Pom	
Shetland_098.1	bedrock	*Laminaria hyperborea* (S), *Saccharina latissima* (O), *Echinus esculentus* (C), *Asterias rubens* (O), foliose red algae on stipes (C)	IR.MIR.KR.LhypT.Ft	**HB**
Shetland_098.2	bedrock	*Saccharina latissima* (C), *Echinus esculentus* (C), *Asterias rubens* (O), foliose red algae on stipes (C), *Solaster endeca* (O), *Labrus bergylta* (O), *Scyliorhinus canicula* (R),	IR.HIR.KSed.LsacSac	
Shetland_098.3	bed rock with small patches of sediment and sand scour	Faunally sparse *Echinus esculentus* (C), encrusting pink algae (O), *Porania pulvillus* (F), *Parasmittina trispinosa* (O), *Asterias rubens* (O), *Dipturus intermedia* eggs (0328, 0336) (O), *Labrus bergylta*	CR.MCR.EcCr.FaAlCr	**MSE**

		(O), *Labrus mixtus* (O), *Cancer Pagurus* (R)	
Shetland_098.4	course sediment with rocks	*Pecten maximus* (C), *Luidia ciliaris* (O)	SS.SCS.CCS
Shetland_099	mixed course sediment overlaid with broken shell	*Alcyonidium* sp. (O), *Alcyonium digitatum* (O), *Nemertesia ramosa* (O), *Neopentadactyla mixta* (R), *Octopus vulgaris* (R), hydroids (F)	SS.SCS.CCS
Shetland_100.1	mixed course sediment with rocks	*Flustra foliacea* (C), *Ophiothrix fragilis* (O), *Ophiocomina nigra* (F), *Echinus esculentus* (F), *Crossaster papposus* (O), *Alcyonium digitatum* (C), *Asterias rubens* (O, encrusting red algae (O), *Parasmittina trispinosa* (O), *Luidia ciliaris* (O)	SS.SMx.CMx.FluHyd
Shetland_100.2	mixed course sediment with rocks	*Ophiothrix fragilis* (S), *Ophiocomina nigra* (F), *Echinus esculentus* (F), *Crossaster papposus* (O), *Alcyonium digitatum* (F), *Asterias rubens* (O, encrusting red algae (O), *Parasmittina trispinosa* (O), *Luidia ciliaris* (O)	SS.SMx.CMx.OphMx
Shetland_101.1	mixed course sediment with rocks	*Ophiocomina nigra* (A), *Pecten maximus* (F), *Flustra foliacea* (C), *Balanus balanus* (C), *Echinus esculentus* (F),	SS.SMx.CMx.OphMx

		Crossaster papposus (O), *Luidia ciliaris* (O), maerl (R)		
Shetland_101.2	maerl with rocks	Maerl (40%) live (A) dead (30%), *Echinus esculentus* (F), *Crossaster papposus* (O),	SS.SMp.Mrl	**HB**
Shetland_101.3	mixed course sediment with rocks	*Echinus esculentus* (O), maerl (R)	SS.SCS.CCS	
Shetland_101.4	boulders with course sediment and maerl patches	*Laminaria hyperborea* (C), *Saccharina latissima* (C), *Echinus esculentus* (C), *Asterias rubens* (O), encrusting red algae (O), maerl (F)	IR.MIR.KT.XKTX	**HB**
Shetland_101.5	boulders with course sediment and maerl patches	*Laminaria hyperborea* (C), *Saccharina latissima* (C), *Echinus esculentus* (C), *Asterias rubens* (O), encrusting red algae (O), maerl (F)	SS.SMp.KSwSS.LsacR	**HB**
Shetland_101.6	boulders with course sediment and maerl patches	*Laminaria hyperborea* (C), *Saccharina latissima* (C), *Echinus esculentus* (C), *Asterias rubens* (O), encrusting red algae (O), maerl (F)	IR.MIR.KT.XKTX	**HB**
Shetland_101.7a	rocks with course sediment and maerl patches	Mosaic: *Laminaria hyperborea* (O), *Saccharina latissima* (F), *Desmarestia* sp. (O), *Echinus esculentus* (C), *Asterias rubens* (O), encrusting red algae (O), maerl (F), *Pecten maximus* (O)	SS.SMp.KSwSS	**HB**

Shetland_101.7b	maerl with occasional rocks	Mosaic: Maerl (30%) alive (C) dead (30%), *Saccharina latissima* (F), *Desmarestia* sp. (O), *Laminaria hyperborea* (O) *Echinus esculentus* (F), *Crossaster papposus* (O),	SS.SMp.Mrl	**HB**
Shetland_101.8	boulders with course sediment and maerl patches	*Laminaria hyperborea* (C), *Saccharina latissima* (C), *Echinus esculentus* (C), *Asterias rubens* (O), encrusting red algae (O), maerl (O)	IR.MIR.KT.XKTX	**HB**
Shetland_101.9	maerl with course sediment	Maerl (30%) alive (C) dead (30%), *Saccharina latissima* (O), *Desmarestia* sp. (O), *Pecten maximus* (O)	SS.SMp.Mrl	**HB**
Shetland_101.11	maerl with course sediment	Maerl (15%) alive (F), dead (30%), *Saccharina latissima* (O), *Desmarestia* sp. (O), *Pecten maximus* (O)	SS.SMp.Mrl	**HB**
Shetland_101.12	maerl with course sediment	Maerl (5%) alive (O), dead (30%), *Saccharina latissima* (O), *Desmarestia* sp. (O), *Pecten maximus* (O)	SS.SCS.CCS	
Shetland_102	fine sand- muddy sand	*Pecten maximus* (C), *Aequipecten opercularis* (C), *Ophiura ophiura* (O), *Asterias rubens* (O), *Pagurus prideaux* with *Adamsia palliata* (O)	SS.SSa.CMuSa	
Shetland_103.1	bed rock with small patches of sediment and sand scour	*Laminaria hyperborea* (C), *Saccharina latissima* (C), *Echinus esculentus* (C),	IR.HIR.KSed.XKScrR	

		Asterias rubens (O), encrusting red algae (O)		
Shetland_103.2	fine sand with occasional shells and stones	Faunally sparse	SS.SSa.IFiSa.IMoSa	
Shetland_103.3	bed rock with small patches of sediment and sand scour	Faunally sparse *Echinus esculentus* (C), encrusting pink algae (O), *Porania pulvillus* (R), *Parasmittina trispinosa* (O)	CR.MCR.EcCr.FaAlCr	
Shetland_103.4	course sediment with stones and rocks	*Saccharina latissima* (C), *Echinus esculentus* (O), *Spirobranchus triqueter* (O), squid eggs (R)	SS.SMp.KSwSS	**HB**
Shetland_103.5	bed rock with small patches of sediment and sand scour	Faunally sparse. *Echinus esculentus* (C), encrusting pink algae (O), *Porania pulvillus* (R), *Parasmittina trispinosa* (O), *Asterias rubens* (O)	CR.MCR.EcCr.FaAlCr	
Shetland_103.6	fine sand with occasional shells and stones	Faunally sparse	SS.SSa.IFiSa.IMoSa	
Shetland_104	fine sand with occasional shells and stones	*Saccharina latissima* (R), *Desmarestia* sp. (O), *Pecten maximus* (R), *Neptunea antiqua* (O), *Buccinum undatum* (O), *Ophiura ophiura* (R), *Modiolus modiolus* (R), *Alcyonidium* sp. (R), *Cerianthus lloydii* (R)	SS.SSa.IFiSa.IMoSa	

Shetland_105	fine sand with occasional shells and stones	*Saccharina latissima* (R), *Desmarestia* sp. (O), *Pecten maximus* (R), *Neptunea antiqua* (O), *Buccinum undatum* (O), *Ophiura ophiura* (R)	SS.SSa.IFiSa.IMoSa	
Shetland_106	fine sand with occasional shells (mostly *Ensis* sp.)	*Cancer Pagurus* (R), flat fish ID uncertain (R), *Desmarestia* sp. (O)	SS.SSa.IFiSa.IMoSa	
Shetland_107.1	bed rock with small patches of sediment and sand scour	*Laminaria hyperborea* (C), *Saccharina latissima* (O), *Echinus esculentus* (C), *Asterias rubens* (O), foliose red algae (O), encrusting red algae (10%),	IR.HIR.KSed.XKScrR	
Shetland_107.2	bed rock with patches of sediment	*Ophiocomina nigra* (A), *Echinus esculentus* (C), *Crossaster papposus* (O), *Alcyonium digitatum* (R),	CR.MCR.EcCr.FaAlCr.Bri	
Shetland_107.3	course sediment and stones	*Modiolus modiolus* (C), *Ophiocomina nigra* (A), *Asterias rubens* (O), *Octopus vulgaris* (R), *Echinus esculentus* (F), hydroids (O), foliose red algae (O)	SS.SBR.SMus.ModT	**HB**
Shetland_107.4	bed rock with small patches of sediment (<5%)	*Alcyonium digitatum* (F), *Echinus esculentus* (C), encrusting red algae (40%), *Ophiopholis aculeata* (F), *Ophiothrix fragilis* (F) locally (S), *Cliona celata* (R), *Modiolus modiolus* (O) on sediment patch locally (A)	CR.MCR.EcCr.FaAlCr.Pom	

Shetland_107.5	course sediment and stones	*Modiolus modiolus* (A), *Ophiothrix fragilis* (A) locally (S), *Asterias rubens* (O), *Octopus vulgaris* (R), *Echinus esculentus* (F), hydroids (O), foliose red algae (O)	SS.SBR.SMus.ModT	**HB**
Shetland_107.6	bed rock with patches of sediment	*Ophiocomina nigra* (A), *Ophiothrix fragilis* (F) locally (S), *Pecten maximus* (F), *Echinus esculentus* (C), *Crossaster papposus* (O), *Alcyonium digitatum* (R), *Luidia ciliaris* (O), *Modiolus modiolus* (F) locally A	CR.MCR.EcCr.FaAlCr.Bri	
Shetland_107.7	course sediment and stones	*Ophiocomina nigra* (A), *Pecten maximus* (F), *Echinus esculentus* (C), *Crossaster papposus* (O), *Alcyonium digitatum* (R), *Luidia ciliaris* (O), *Asterias rubens* (O), holothurian (O)	SS.SMx.CMx.OphMx	
Shetland_108	fine-coarse sand with occasional stones and rocks	*Laminaria hyperborea* (R), *Saccharina latissima* (C), *Urticina felina* (R), *Pecten maximus* (R), *Modiolus modiolus* (O) locally (C) 0245, *Echinus esculentus* (C), *Asterias rubens* (O), foliose red algae (O), encrusting red algae (20%), dwarf foliose red algae (O), *Desmarestia* sp. (O)	SS.SMp.KSwSS	**HB**

Shetland_109	bed rock with small patches of sediment and sand scour	*Laminaria hyperborea* (C), *Saccharina latissima* (O), *Alaria esculenta* (R), *Echinus esculentus* (C), *Asterias rubens* (O), foliose red algae (O), encrusting red algae (20%),	IR.HIR.KSed.XKScrR	
Shetland_110	cobbles and boulders with small patches of sediment (<25%)	*Laminaria hyperborea* (C), *Saccharina latissima* (O), *Echinus esculentus* (C), *Asterias rubens* (O), foliose red algae (O), encrusting red algae (20%), *Ophiothrix fragilis* (C), *Luidia ciliaris* (O), *Modiolus modiolus* (R), *Urticina felina* (O)	IR.HIR.KSed.XKScrR	
Shetland_111.1	course sediment and stones and shells	encrusting red algae (O), *Spirobranchus triqueter* (A), *Echinus esculentus* (O), *Asterias rubens* (O), *Lanice conchilega* (R), *Luidia ciliaris* (R), *Modiolus modiolus* (R), *Ophiocomina nigra* (F), *Urticina felina* (O)	SS.SCS.CCS.PomB	
Shetland_111.2	course sediment and stones	*Modiolus modiolus* (C) locally (A), *Ophiothrix fragilis* (C) locally (S), *Porania pulvillus* (O), *Asterias rubens* (O), *Crossaster papposus* (O), *Pecten maximus* (R), hydroids (O), *Ophiopholis aculeata* (O), fishing pressure?	SS.SBR.SMus.ModT	**HB**

Shetland_111.3	rock dump covering pipeline	*Ophiothrix fragilis* (S), *Spirobranchus triqueter* (C), *Echinus esculentus* (C)	CR.MCR.EcCr.FaAlCr.Bri	
Shetland_112	course sediment and stones	*Modiolus modiolus* (C) locally (A), *Ophiothrix fragilis* (O), *Echinus esculentus* (F), *Asterias rubens* (F), *Crossaster papposus* (O), *Pecten maximus* (R), hydroids (O), foliose red algae (O) locally (C), encrusting red algae (C), *Ophiopholis aculeata* (O), fishing pressure?	SS.SBR.SMus.ModT	**HB**
Shetland_113	bed rock with small patches of sediment (15%)	encrusting red algae (40%), *Echinus esculentus* (C), *Spirobranchus triqueter* (O), *Asterias rubens* (O), *Luidia ciliaris* (O), *Solaster endeca* (O), *Crossaster papposus* (O), *Ophiopholis aculeata* (C), *Ophiothrix fragilis* (F), *Ophiocomina nigra* (F), *Parasmittina trispinosa* (O), *Urticina felina* (R), *Modiolus modiolus* (R), *Laminaria hyperborea* (O)	SS.SMx.CMx.OphMx	
Shetland_114.1	bed rock with small patches of sediment (15%)	*Alcyonium digitatum* (C), *Spirobranchus triqueter* (O), *Echinus esculentus* (C), *Asterias rubens* (F), hydroids (F), encrusting red algae (40%), *Crossaster papposus* (O), *Ophiopholis aculeata* (F),	CR.MCR.EcCr.FaAlCr.Adig	

		Ophiothrix fragilis (O), *Ophiocomina nigra* (O), *Parasmittina trispinosa* (O)	
Shetland_114.2	bed rock with small patches of sediment (15%)	*Ophiothrix fragilis* (A), *Ophiocomina nigra* (C), *Echinus esculentus* (F), *Crossaster papposus* (O), *Alcyonium digitatum* (O), *Asterias rubens* (O, encrusting red algae (O), *Parasmittina trispinosa* (O)	SS.SMx.CMx.OphMx
Shetland_115	course sediment and stones	*Ophiocomina nigra* (A), *Ophiothrix fragilis* (F), *Echinus esculentus* (O), *Crossaster papposus* (O), *Alcyonium digitatum* (R), *Luidia ciliaris* (O), *Asterias rubens* (O), holothurian (O)	SS.SMx.CMx.OphMx
Shetland_116	course sediment and stones	*Ophiothrix fragilis* (S), *Ophiocomina nigra* (F), *Echinus esculentus* (F), *Crossaster papposus* (O), *Alcyonium digitatum* (R), *Luidia ciliaris* (O), *Asterias rubens* (O), holothurian (O)	SS.SMx.CMx.OphMx
Shetland_117	muddy sand	*Ophiura ophiura* (F), *Asterias rubens* (O), *Arenicola marina* (F), *Pecten maximus* (O), *Cerianthus lloydii* (R)	SS.SSa.CMuSa
Shetland_118.1	cobbles and pebbles with course sediment	Faunally sparse. *Saccharina latissima* (O), *Ulva* sp. (O), *Echinus esculentus* (O), *Asterias rubens* (O), *Spirobranchus triqueter* (O), *Pecten maximus* (O)	SS.SMx.CMx

Shetland_118.2	fine sand	*Ophiura ophiura* (F), *Asterias rubens* (O), *Arenicola marina* (O)	SS.SSa.CFiSa	
Shetland_119.1	course sediment (99%), patches of stones	Faunally sparse. *Saccharina latissima* (O), *Ulva* sp. (O), *Echinus esculentus* (R)	SS.SCS.ICS	
Shetland_119.2	-	-	Un-useable	
Shetland_120.1	maerl (20% L 30% dead), coarse sediment	maerl c.20% live (C), 30% dead, *Asterias rubens* (O), *Pecten maximus* (F), *Ophiocomina nigra* (F), *Echinus esculentus* (O), *Crossaster papposus* (O), *Luidia ciliaris* (O), *Neopentadactyla mixta* (R)	SS.SMp.Mrl	**HB**
Shetland_120.2	maerl (10% L 40% dead), coarse sediment	maerl c.10% live (F) 40% dead, *Asterias rubens*, (O), *Pecten maximus* (F), *Ophiocomina nigra* (O), *Echinus esculentus* (O), *Crossaster papposus* (O), *Luidia ciliaris* (O), *Neopentadactyla mixta* (R), *Lophius piscatorius* (R)	SS.SCS.CCS.Nmix	**HB, MS**
Shetland_120.3	maerl (20% L 30% dead), coarse sediment	maerl c.20% live (C), 30% dead, *Asterias rubens* (O), *Pecten maximus* (F), *Ophiocomina nigra* (F), *Echinus esculentus* (O), *Crossaster papposus* (O), *Luidia ciliaris* (O), *Neopentadactyla mixta* (R)	SS.SMp.Mrl	**HB**

Shetland_120.4	maerl (10% L 40% dead), coarse sediment	maerl c.10% live (F), 40% dead, *Asterias rubens* (O), *Pecten maximus* (F), *Ophiocomina nigra* (O), *Echinus esculentus* (O), *Crossaster papposus* (O), *Luidia ciliaris* (O), *Neopentadactyla mixta* (R), *Porania pulvillus* (O)	SS.SCS.CCS.Nmix	**HB**
Shetland_120.5	coarse sediment (80%), stones and cobbles (20%)	maerl c.5% live (O) 40% dead, *Asterias rubens* (O), *Pecten maximus* (R), *Ophiocomina nigra* (O), *Echinus esculentus* (O), *Crossaster papposus* (O), *Luidia ciliaris* (O), *Porania pulvillus* (O)	SS.SCS.CCS	
Shetland_120.6	bed rock with small patches of sediment (c.35%)	*Ophiocomina nigra* (O), *Echinus esculentus* (C), *Crossaster papposus* (O), *Asterias rubens* (O), *Porania pulvillus* (O), *Saccharina latissima* (O), encrusting red algae (F), bryozoan crust (O)	CR.MCR.EcCr.FaAlCr.Bri	
Shetland_121	Mud	**loose-lying cover of algae *Phyllophora crispa* (C), *Pecten maximus* (F), *Aequipecten opercularis* (F), large patches of filamentous algae (C), *Ophiothrix fragilis* (F) patches (A), *Arenicola marina* (O),**	SS.SMp.KSwSS.Pcri	**HB**

		***Pagurus bernhardus* with *Hydractinia echinata* (R)**		
Shetland_122	irregular cobbles and pebbles with shell gravel	*Spirobranchus triqueter* (O), *Echinus esculentus* (C), *Asterias rubens* (F), encrusting red algae (50%), *Clavelina lepadiformis* (O), *Luidia ciliaris* (O), maerl (R), *Urticina felina* (R), *Ophiothrix fragilis* (F) locally (S), *Ophiocomina nigra* (O), *Saccharina latissima* (R)	SS.SCS.CCS.PomB	
Shetland_123	bed rock with small patches of sediment (<5%)	*Alcyonium digitatum* (A), *Spirobranchus triqueter* (O), *Echinus esculentus* (C), *Asterias rubens* (F), hydroids (F), encrusting red algae (20%),	CR.MCR.EcCr.FaAlCr.Adig	
Shetland_124	fine sand (80%) with rocks and boulders	Faunally sparse fine sand. Boulders supporting *Saccharina latissima* (F), *Laminaria hyperborea* (F), *Desmarestia aculeata* (O), *Echinus esculentus* (F), *Ophiothrix fragilis* (O), *Ophiocomina nigra* (R), *Asterias rubens* (O), *Luidia ciliaris* (O), *Chorda filum* (O), *Fucus serratus* (R), *Gibbula* sp. (F), red foliose algae (O), encrusting red algae (O)	IR.MIR.KR.LhypTX.Pk	**HB**
Shetland_125.1	bed rock with small patches of sediment (<25%)	*Laminaria hyperborea* (C), *Saccharina latissima* (O), *Ophiothrix fragilis* (A),	IR.MIR.KR.LhypTX.Pk	**HB**

		Echinus esculentus (C), *Asterias rubens* (O), *Luidia ciliaris* (F)		
Shetland_125.2	bed rock with small patches of sediment (<25%)	*Ophiothrix fragilis* (S), *Ophiocomina nigra* (O), *Alcyonium digitatum* (O), *Echinus esculentus* (C), *Crossaster papposus* (O), *Asterias rubens* (O), *Porania pulvillus* (O)	CR.MCR.EcCr.FaAlCr.Bri	
Shetland_126	bed rock with small patches of sediment (<25%)	*Laminaria hyperborea* (C), *Saccharina latissima* (O), *Cystoseira* sp. (O), *Alcyonium digitatum* (O), *Echinus esculentus* (C), *Asterias rubens* (O), foliose red algae (O), encrusting red algae (20%), *Ophiothrix fragilis* (C), *Antedon* sp. (O), *Luidia ciliaris* (C)	IR.HIR.KSed.XKScrR	
Shetland_127	bed rock with small patches of sediment (<5%)	*Alcyonium digitatum* (A), *Spirobranchus triqueter* (O), *Echinus esculentus* (C), *Asterias rubens* (F), hydroids (F), encrusting red algae (20%),	CR.MCR.EcCr.FaAlCr.Adig	
Shetland_128.1	maerl (20% L 80% dead)	maerl occurring in bands c.15-20% live (F) and 75-80% dead, *Asterias rubens* (O), *Pecten maximus* (O), *Ophiothrix fragilis* (O), *Ophiocomina nigra* (F), *Saccharina latissima* (O), *Echinus esculentus* (O)	SS.SMp.Mrl	**HB**

Shetland_128.2	maerl (2% L 90% dead), course sediment (8%)	Dead maerl (80%), living maerl (R), *Asterias rubens* (O), *Ophiocomina nigra* (C), *Saccharina latissima* (O), *Echinus esculentus* (O), *Pecten maximus* (O), *Neopentadactyla mixta* (R)	SS.SCS.CCS.Nmix	**HB**
Shetland_128.3	course sediment and stones	*Saccharina latissima* (C), *Laminaria hyperborea* (R), *Echinus esculentus* (F), *Gibbula* sp. (F), encrusting red algae (C), *Asterias rubens* (O)	SS.SMp.KSwSS.LsacR	**HB**
Shetland_129	boulders and bedrock with sand patches	*Laminaria hyperborea* (C), *Echinus esculentus* (F), *Antedon* sp. (O), encrusting red algae (C), *Gibbula* sp. (F)	IR.MIR.KR.Lhyp.GzFt	**HB**
Shetland_130.1	bed rock (50%) with patches of course sediment (50%)	*Saccharina latissima* (O), *Laminaria hyperborea* (R), *Echinus esculentus* (F), *Ophiothrix fragilis* (O), *Modiolus modiolus* (O), *Ophiocomina nigra* (O), *Gibbula* sp. (O)	IR.HIR.KSed.LsacSac	
Shetland_130.2	fine sand	faunally sparse. *Pecten maximus* (R), *Pleuronectes platessa* (R), *Echinus esculentus* (R)	SS.SSa.IFiSa.IMoSa	
Shetland_131.1	course sediment and dead shell (25% cover)	maerl occurring in bands c.25% (C) dead (10%), *Asterias rubens* (O), *Echinus esculentus* (O)	SS.SMp.Mrl	**HB**

Shetland_131.2	course sediment and dead shell (20% cover)	maerl occurring in bands c.20% (C), dead (<5%) *Asterias rubens* (O), *Echinus esculentus* (O)	SS.SMp.Mrl	**HB**
Shetland_131.3	course sediment and dead shell (20% cover)	maerl occurring in bands c.15% (F), dead (<5%) *Asterias rubens* (O), *Pecten maximus* (O)	SS.SMp.Mrl	**HB**
Shetland_131.4	course sediment with accumulation of broken shells	sparse maerl (5%) (O) very localised patches of (F), *Asterias rubens* (O)	SS.SCS.CCS	
Shetland_132.1	course sediment with accumulation of broken shells	Coarse sand with increasing maerl fragment across tow. From sparse dead maerl increasing to (5%) (O) at 0800, *Asterias rubens* (O)	SS.SCS.CCS	
Shetland_132.2	course sediment and shell	maerl occurring in bands c.20% (C), dead (30%) live maerl locally (A), *Asterias rubens* (O), *Ophiura ophiura* (R), *Echinus esculentus* (O)	SS.SMp.Mrl	**HB**
Shetland_133	course sediment with stones and shell	*Ophiothrix fragilis* (S), *Modiolus modiolus* (R), *Ophiocomina nigra* (O), *Echinus esculentus* (O), *Crossaster papposus* (O), *Strongylocentrotus droebachiensis* (O), *Asterias rubens* (O)	SS.SMx.CMx.OphMx	
Shetland_134.1	fine sand, dead maerl <2%	sparse fauna *Ophiura* sp. (R), *Saccharina latissima* (O), *Ulva* sp. (O), *Desmarestia* sp. (O).	SS.SSa.IFiSa.IMoSa	

Shetland_134.2	course sediment and stones	maerl occurring in bands c.30% (C), dead (70%) live maerl locally (S), *Ophiocomina nigra* (O), *Ophiothrix fragilis* (O) patches (S) *Strongylocentrotus droebachiensis* (C), *Luidia ciliaris* (R), *Echinus esculentus* (O), *Saccharina latissima* (O), *Ulva* sp. (O), *Desmarestia* sp. (O). Bed extends beyond tow	SS.SMp.Mrl	**HB**
Shetland_135	course sediment with accumulation of broken shells	sparse maerl (5%) (O) very localised patches of (F), dead maerl broken into very small fragments (50%), *Pecten maximus* (R), *Ophiocomina nigra* (F), *Asterias rubens* (O), *Luidia ciliaris* (R)	SS.SCS.CCS	
Shetland_136.1	course sediment with stones and shell	*Ophiothrix fragilis* (S) locally (A), *Modiolus modiolus* (O), *Ophiocomina nigra* (F), *Echinus esculentus* (F), *Crossaster papposus* (R), *Alcyonium digitatum* (R), *Strongylocentrotus droebachiensis* (C)	SS.SMx.CMx.OphMx	
Shetland_136.2	course sediment and stones	dense maerl beds with living maerl occurring in bands c.20% (C), *Ophiocomina nigra* (F) patches of (C), *Ophiothrix fragilis* (A), patches of (S), *Strongylocentrotus droebachiensis* (C),	SS.SMp.Mrl	**HB**

Shetland_136.3	course sediment and stones	*Ophiothrix fragilis* (S) locally (A), *Modiolus modiolus* (F), *Ophiocomina nigra* (F), *Echinus esculentus* (F), *Crossaster papposus* (R), *Alcyonium digitatum* (R), *Strongylocentrotus droebachiensis* (C), *Abietinaria abietina* (O), encrusting red algae (A), *Urticina felina* (R)	SS.SMx.CMx.OphMx	
Shetland_136.4	course sediment and stones	maerl occurring in bands c.20% (C), *Ophiocomina nigra* (F) patches of (C), *Ophiothrix fragilis* (A), patches of (S), *Modiolus modiolus* (O), *Strongylocentrotus droebachiensis* (C), *Luidia ciliaris* (R), *Echinus esculentus* (O)	SS.SMp.Mrl	**HB**
Shetland_136.5	course sediment and stones	*Ophiothrix fragilis* (S) locally (A), *Modiolus modiolus* (C), *Ophiocomina nigra* (F), *Echinus esculentus* (F), *Asterias rubens* (F), *Urticina felina* (R), *Alcyonium digitatum* (O), *Strongylocentrotus droebachiensis* (C)	SS.SBR.SMus.ModT	**HB**
Shetland_136.6	course sediment and stones	*Ophiothrix fragilis* (O), *Modiolus modiolus* (O), *Ophiocomina nigra* (O), *Echinus esculentus* (F), *Asterias rubens*	SS.SMx.CMx	

		(F), *Urticina felina* (R), *Alcyonium digitatum* (O), maerl fragments - live (R) <5%, *Neopentadactyla mixta* (R)		
Shetland_137	sandy mud with stones and shell	*Ophiothrix fragilis* (S) locally (A), *Modiolus modiolus* (F), patches of (C) but rarely forming clumps of more than 2 individuals. *Ophiocomina nigra* (F), *Echinus esculentus* (F), *Crossaster papposus* (R), *Alcyonium digitatum* (O)	SS.SMx.CMx.OphMx	
Shetland_138.1	course sediment	dense maerl beds with living maerl occurring in bands c.30% (C), *Pecten maximus* (R), *Ophiocomina nigra* (F) patches of (C), *Ophiothrix fragilis* (C) patches of (S), *Asterias rubens* (O), *Astropecten irregularis* (R), *Spatangus purpureus* (O), *Cancer Pagurus* (R), *Echinus esculentus* (R), *Luidia ciliaris* (O)	SS.SMp.Mrl	**HB**
Shetland_138.2	stones and shells on coarse sediment	*Luidia ciliaris* (R), *Echinus esculentus* (F), *Ophiocomina nigra* (C), *Porania pulvillus* (R)	SS.SMx.CMx	
Shetland_139	course sediment	sparse maerl (5%) (O), *Pecten maximus* (R), *Ophiocomina nigra* (F) patches of (C), *Ophiothrix fragilis* (F), patches of (S), *Asterias rubens* (O), *Astropecten*	SS.SCS.CCS	

		irregularis (R), *Spatangus purpureus* (O), Odd clumps from 0217 becoming more frequent from 0510, 0902 common *Limaria hians*?		
Shetland_140	coarse shell sand with stones and shell	Faunally sparse, *Pagurus* sp. (R), *Pecten maximus* (R), *Echinus esculentus* (R)	SS.SCS.CCS	
Shetland_141.1	coarse sand with stones and shell	Faunally sparse, *Ophiocomina nigra* (F), *Echinus esculentus* (O), *Pecten maximus* (O), encrusting bryozoan (O)	SS.SCS.CCS	
Shetland_141.2	fine sand	Faunally sparse	SS.SSa.CFiSa	
Shetland_141.3	coarse sand with stones and shell	Faunally sparse	SS.SCS.CCS	
Shetland_142	muddy sand with stones and shell	*Modiolus modiolus* (O), *Ophiura* sp. (O), *Pecten maximus* (O), fish larvae (A), *Cerianthus lloydii* (F), *Asterias rubens* (F), *Luidia ciliaris* (R), *Astropecten irregularis* (R)	SS.SMx.CMx.ClloModHo	
Shetland_143	sandy mud with stones and shell	*Modiolus modiolus* (A), *Ophiocomina nigra* (A), *Echinus esculentus* (F), *Pecten maximus* (O), hydroid (R), juvenile fish (F), *Porania pulvillus* (R), *Saccharina latissima* (O)	SS.SBR.SMus.ModT	**HB**

Shetland_144	irregularly sized large cobbles and pebbles (20%) muddy sand (80%), thick layer of silt (90%)	*Modiolus modiolus* (O), *Echinus esculentus* (O), *Pecten maximus* (R), *Marthasterias glacialis* (R), *Ophiura ophiura* (F), small gadoids (O)	SS.SMx.CMx	
Shetland_145	sandy mud with stones and shell	*Modiolus modiolus* (C), patches of (A), *Ophiothrix fragilis* (A), *Ophiopholis aculeata* (O), *Ophiocomina nigra* (O) *Echinus esculentus* (O), *Liocarcinus depurator* (R), *Asterias rubens* (O), *Kirchenpaueria pinnata*? (R), patches of red seaweed (O)	SS.SBR.SMus.ModT	**HB**
Shetland_146	sandy mud with stones and shell	*Virgularia mirabilis* (S), *Turritella communis* (C), *Astropecten irregularis* (O), *Cerianthus lloydii* (O), *Echinus esculentus* (O), *Liocarcinus depurator* (R), *Pecten maximus* (R)	SS.SMu.CSaMu.VirOphPmax	
Shetland_147	sandy mud with stones and shell	*Virgularia mirabilis* (S), *Turritella communis* (F), *Astropecten irregularis* (O), *Cerianthus lloydii* (O), *Echinus esculentus* (O), *Liocarcinus depurator* (R), *Pecten maximus* (R)	SS.SMu.CSaMu	
Shetland_148	muddy gravel	Continuous bed of filamentous algae (S), *Virgularia mirabilis* (F) locally (A),	SS.SMp.KSwSS	**HB**

		Turritella communis (C), *Ophiura ophiura* (A)		
Shetland_149	fine sand with occasional stones and shell	*Astropecten irregularis* (O), filamentous red algae (O), *Echinus esculentus* (O), *Saccharina latissima* (O)	SS.SSa.IFiSa	
Shetland_150	sandy mud with stones and shell	*Virgularia mirabilis* (F) locally (A), *Turritella communis* (S), *Pecten maximus* (R), *Modiolus modiolus* (R), *Hyas* sp. (R), *Astropecten irregularis* (R), *Aequipecten opercularis* (O), *Cerianthus lloydii* (O), *Pagurus* sp. (O), *Phyllophora crispa* (R)	SS.SMu.CSaMu	
Shetland_151	sandy mud with stones and shell	*Modiolus modiolus* (C), patches of (F) small clumps 2-5 individuals. *Ophiothrix fragilis* (C), *Ophiopholis aculeata* (C), *Ophiocomina nigra* (O) *Echinus esculentus* (O), *Crossaster papposus* (R), *Liocarcinus depurator* (R), *Aequipecten opercularis* (F), *Turritella communis* (C), *Kirchenpaueria pinnata* (R), *Nemertesia antennina* (R), *Nemertesia ramosa* (R)	SS.SBR.SMus.ModHAs	**HB**
Shetland_152	sandy mud with stones and shell	*Ophiothrix fragilis* (A) locally (S), *Modiolus modiolus* (F), patches of (C) but rarely forming clumps of more than 2	SS.SMx.CMx.OphMx	

		individuals. *Ophiocomina nigra* (C) locally (A), *Echinus esculentus* (F), *Astropecten irregularis* (O), *Crossaster papposus* (R), *Liocarcinus depurator* (R), *Aequipecten opercularis* (F)	
Shetland_153.1	sandy mud with stones and shell	*Modiolus modiolus* (F) locally (C) primarily individuals and some small clumps, *Ophiura ophiura* (R), *Pecten maximus* (R), *Ophiothrix fragilis* (C), *Aequipecten opercularis* (F), *Turritella communis* (F), *Pagurus* sp. (F), *Hyas* sp. (R), *Crossaster papposus* (R), *Astropecten irregularis* (O)	SS.SMu.CSaMu
Shetland_153.2	sandy mud with stones and shell	*Virgularia mirabilis* (C) locally (A) and *Ophiura* spp. (A), *Astropecten irregularis* (O), *Turritella communis* (C)	SS.SMu.CSaMu.VirOphPmax
Shetland_154.1	sandy mud with stones and shell	*Modiolus modiolus* (F) locally (C) primarily individuals and some small clumps, *Ophiura ophiura* (R), *Pecten maximus* (R), *Ophiothrix fragilis* (C), *Aequipecten opercularis* (F), *Turritella communis* (F)	SS.SMu.CSaMu
Shetland_154.2	sandy mud with stones and shell	*Virgularia mirabilis* (F) locally (A), *Ophiura ophiura* (A) *Pecten maximus* (R), *Modiolus modiolus* (R), *Hyas* sp.	SS.SMu.CSaMu.VirOphPmax

		(R), *Astropecten irregularis* (R), *Ophiothrix fragilis* (O), *Aequipecten opercularis* (O), *Cerianthus lloydii* (O), *Pagurus* sp. (O)		
Shetland_155.1	muddy sand with stones	loose-lying mats of *Phyllophora crispa* (A), *Modiolus modiolus* (F), *Aequipecten opercularis* (C), *Ophiocomina nigra* (C), *Turritella communis* (F), *Asterias rubens* (O)	SS.SMp.KSwSS.Pcri	**HB**
Shetland_155.2	-	-	Not possible to analyse due to kelp in from of camera	
Shetland_156	irregularly sized large cobbles and pebbles (20%) muddy sand (80%), thick layer of silt (90%) aquaculture?	*Aequipecten opercularis* (C), *Echinus esculentus* (O), *Nemertesia antennina* (R), *Nemertesia ramosa* (R), *Liocarcinus depurator* (R), *Ophiothrix fragilis* (O), *Aphrodita aculeata* (R), *Astropecten irregularis* (R), *Turritella communis* (C). Layer of silt, aquaculture derived?, *Modiolus modiolus* (O)	SS.SMx.CMx	
Shetland_157	sandy mud	*Ophiura ophiura* (C), *Asterias rubens* (F), *Hyas* sp. (R)	SS.SMu.CSaMu	
Shetland_158	course sediment live maerl (35%) dead maerl 5%	maerl live (35%) (C) dead maerl 5%, *Pecten maximus* (O), *Ophiocomina nigra* (R), *Echinus esculentus* (O), *Porania*	SS.SMp.Mrl	**HB**

		pulvillus (R), *Saccharina latissima* (O), *Crossaster papposus* (R)	
Shetland_159a	bedrock (70%), coarse sand (30%)	*Saccharina latissima* (A), *Laminaria hyperborea* (R), encrusting red algae (A)	IR.HIR.KSed.LsacSac
Shetland_15b	bedrock (70%), coarse sand (30%)	**encrusting red algae (A), *Echinus esculentus* (O), *Asterias rubens* (O), *Urticina felina* (R), *Antedon* sp. (O), *Flustra foliacea* (O), encrusting sponge (O), *Clavelina lepadiformis* (R)**	CR.MCR.EcCr.FaAlCr
Shetland_160	irregularly sized large rocks, cobbles and pebbles (70%) with coarse sand (30%), bedrock / boulder patches	*Ophiothrix fragilis* (A) locally (S), *Ophiocomina nigra* (A) locally (S), *Echinus esculentus* (F), *Alcyonium digitatum* (F), *Asterias rubens* (O), *Saccharina latissima* (R), *Lanice conchilega* (O), *Thuiaria thuja* (R), *Luidia ciliaris* (R)	SS.SMx.CMx.OphMx
Shetland_161	course -fine sand with pebbles and shells	Faunally sparse. *Asterias rubens* (R), *Pecten maximus* (R), *Spirobranchus triqueter* (R), *Ophiura* sp. (R)	SS.SCS.CCS
Shetland_162	course sediment with pebbles and shells	Faunally sparse *Spirobranchus triqueter* (F), *Luidia ciliaris* (R), *Asterias rubens* (O), *Pecten maximus* (R), *Porania pulvillus* (O), *Neopentadactyla mixta*? (R)	SS.SCS.CCS

Shetland_163	course shell sand with boulders and rocks	*Flustra foliacea* (F), *Hydrallmania falcata* (O), *Spirobranchus triqueter* (O), *Urticina felina* (R), *Porania pulvillus* (O), *Pecten maximus* (R), *Ophiura* sp. (R), *Asterias rubens* (O), clumps of hydroids (O), maerl fragments in sediment (R), *Saccharina latissima* (O), small gadoids (F)	SS.SMx.CMx.FluHyd	
Shetland_164	course shell sand	Faunally very sparse *Pagurus prideaux* with *Adamsia palliata* (O), live maerl fragments (R)	SS.SCS.CCS	
Shetland_165.1	bedrock with sand (10%)	*Laminaria hyperborea* (A), *Saccharina latissima* (O), encrusting red coralline algae (A), *Echinus esculentus* (F)	IR.MIR.KR.Lhyp.GzFt	**HB**
Shetland_165.2	bedrock with sand patches (20%)	*Laminaria hyperborea* (F), encrusting red algae (A), *Echinus esculentus* (F)	IR.MIR.KR.Lhyp.GzPk	**HB**
Shetland_166.1	course shell sand with small amounts of living maerl (5%)	maerl (5%), *Pecten maximus* (O), *Ophiura* sp. (O), *Echinus esculentus* (O), *Lophius piscatorius* (R)	SS.SCS.CCS	
Shetland_166.2	bedrock with sand (10%)	encrusting red algae (S), encrusting sponge (F), *Echinus esculentus* (F), *Luidia ciliaris* (R)	CR.MCR.EcCr.FaAlCr	**MS**
Shetland_167	irregularly sized large rocks, cobbles and	*Ophiothrix fragilis* (F), *Ophiocomina nigra* (A), *Echinus esculentus* (F), encrusting red coralline algae (A),	SS.SMx.CMx.OphMx	

	pebbles (80%) with coarse sand (20%)	*Alcyonium digitatum* (R), *Asterias rubens* (O), *Alaria esculenta* (F), *Desmarestia* sp. (O), foliose red algae (O)		
Shetland_168	shell sand with large shells covering 85% of sediment surface	*Ophiothrix fragilis* (S), *Ophiocomina nigra* (C), *Echinus esculentus* (F)	SS.SMx.CMx.OphMx	
Shetland_169	shell sand with large shells covering 85% of sediment surface	*Ophiothrix fragilis* (A) patches of (S), *Ophiocomina nigra* (C), *Echinus esculentus* (F)	SS.SMx.CMx.OphMx	
Shetland_170	irregularly sized large cobbles and pebbles (90%) on sand (10%)	Faunally sparse. *Flustra foliacea* (O), *Ophiothrix fragilis* (F), *Ophiocomina nigra* (O), *Echinus esculentus* (O), *Asterias rubens* (O), *Ophiura* sp. (O), *Spirobranchus triqueter* (F), encrusting red coralline algae (C), *Porania pulvillus* (O)	SS.SMx.CMx	-
Shetland_171	shell sand with large shells covering 85% of sediment surface	Faunally sparse. *Ophiothrix fragilis* (O), *Ophiocomina nigra* (O), *Echinus esculentus* (O), *Asterias rubens* (O), *Ophiura* sp. (O), *Luidia ciliaris* (R), *Urticina felina* (R), *Spirobranchus triqueter* (F)	SS.SCS.CCS	
Shetland_172	irregularly sized cobbles and pebbles (80%) on sand (20%)	*Ophiothrix fragilis* (A) locally (S), *Ophiocomina nigra* (C) patches of (A),	SS.SMx.CMx.OphMx	

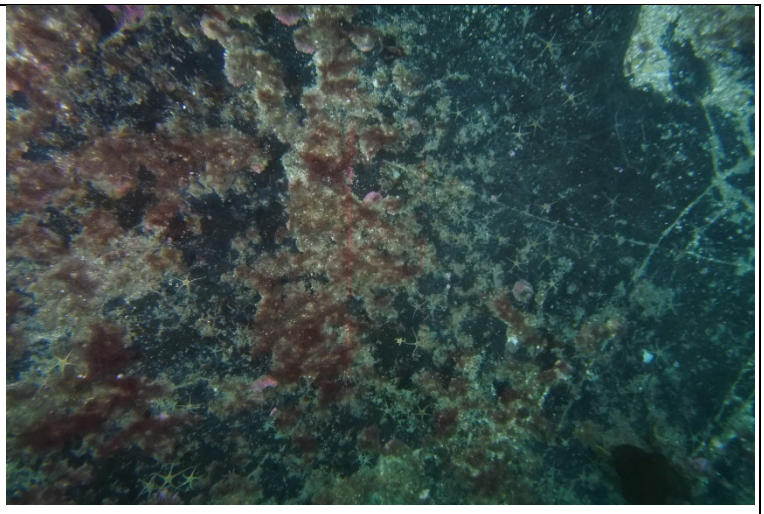
		Echinus esculentus (F), encrusting red coralline algae (F), *Ophiura* sp. (O)	
Shetland_173	irregularly sized cobbles and pebbles (90%) on sand (10%)	*Ophiothrix fragilis* (A) patches of (S), *Ophiocomina nigra* (C) patches of (A), *Echinus esculentus* (F), encrusting red coralline algae (F), *Ophiura* sp. (O), *Astropecten irregularis* (R), *Solaster endeca* (R)	SS.SMx.CMx.OphMx
Shetland_174	sandy mud with a covering of shell on sediment surface (15%)	*Ophiura ophiura* (A), *Pecten maximus* (F), *Virgularia mirabilis* (F), *Turritella communis* (A)	SS.SMu.CSaMu.VirOphPmax
Shetland_175.1	bedrock	Bedrock topped with *Saccharina latissima* (F), mostly barren under canopy with patches of red foliose seaweed (F), encrusting red coralline algae (C), *Echinus esculentus* (C), *Alcyonium digitatum* of rock sides (O), juvenile gadoid fish (C)	IR.HIR.KSed.LsacSac
Shetland_175.2	bedrock, coarse sand (2%)	Vertical bands of bed rock, very faunally sparse. *Alcyonium digitatum* (O), *Echinus esculentus* (F), patches of red algae (O), encrusting red coralline algae (A), patches of *Modiolus modiolus* in small crevices (F), small gadoids (C), *Asterias rubens* (O), *Gibbula* sp. (F)	CR.MCR.EcCr.FaAlCr

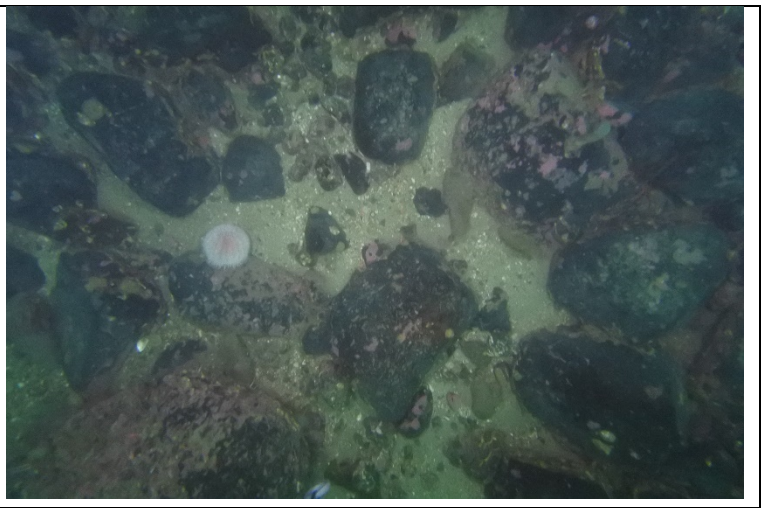
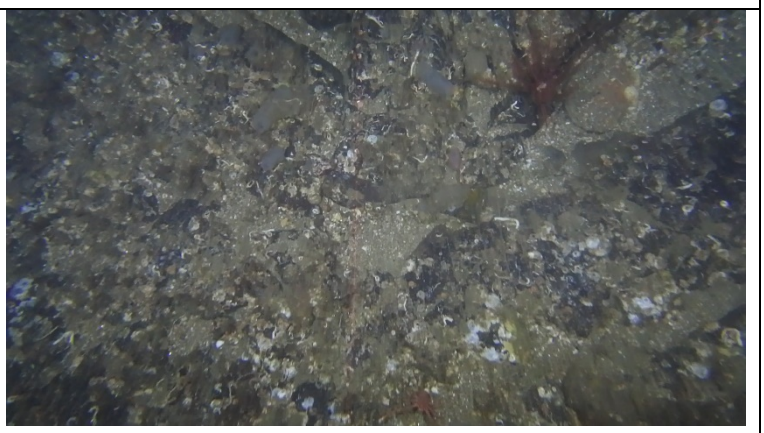
Appendix 2

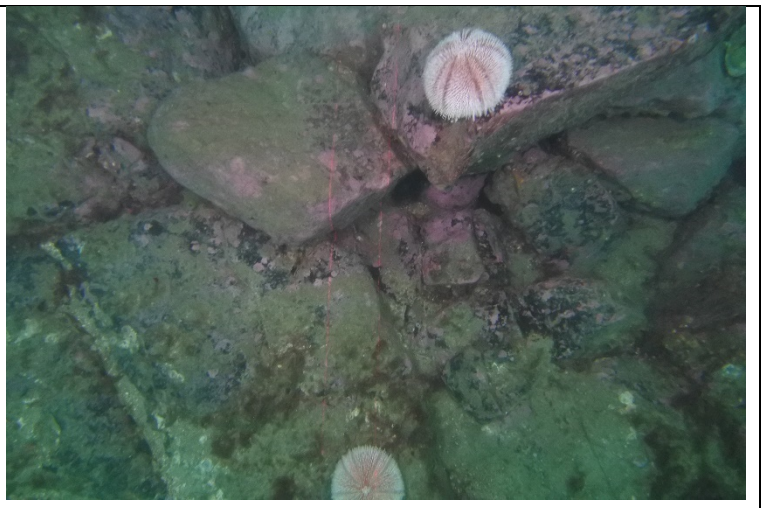
Biotopes and example images

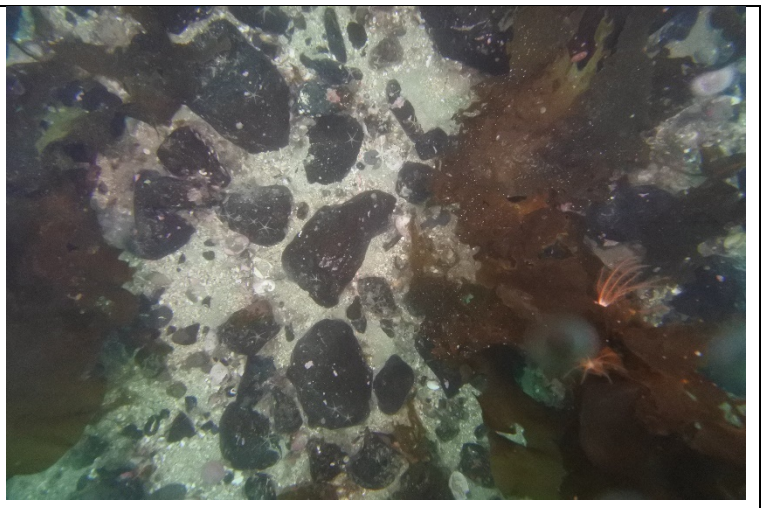
Example images to illustrate each biotope identified within survey areas. Location image taken from shown in **bold**. Where still images were not available screen grabs have been taken.

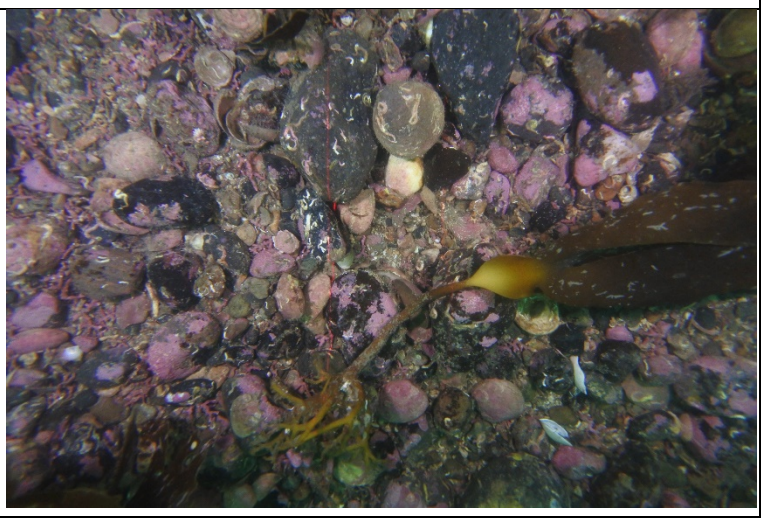
Inner Sound biotopes and example images

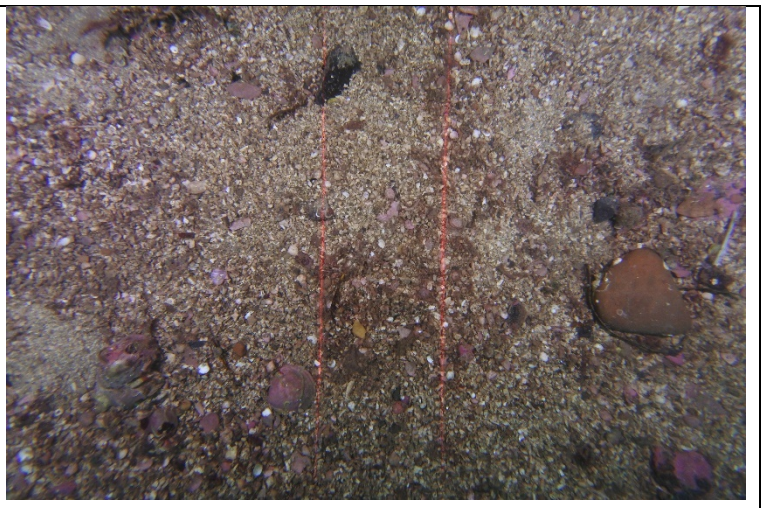
CR.MCR Moderate energy circalittoral rock Inner Sound stations 75.1, 76.2, 79.2, 80.1, 80.3, **81.1,** 82.2, 83.1, 143.1, 148.1, 148.4, 149.2, 149.4, 149.6, 150.1 Image DSC_2272	
IR.MIR Moderate energy infralittoral rock Inner Sound stations 144.2, **146.1** Image screengrab SGstn_146	

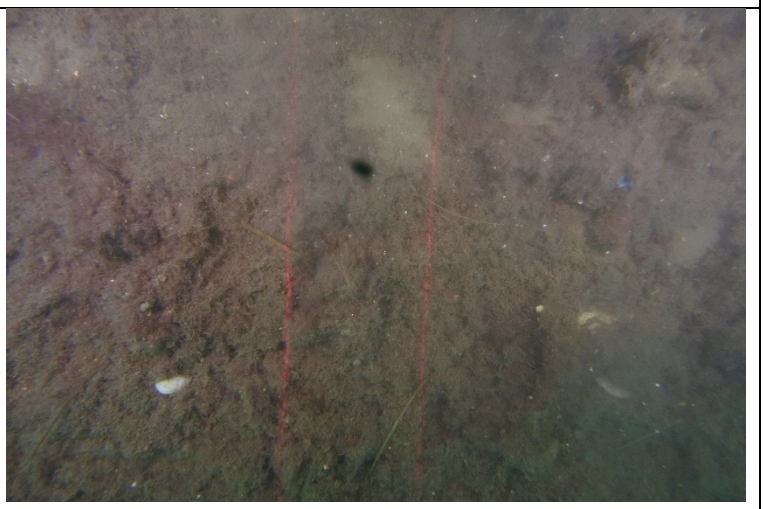
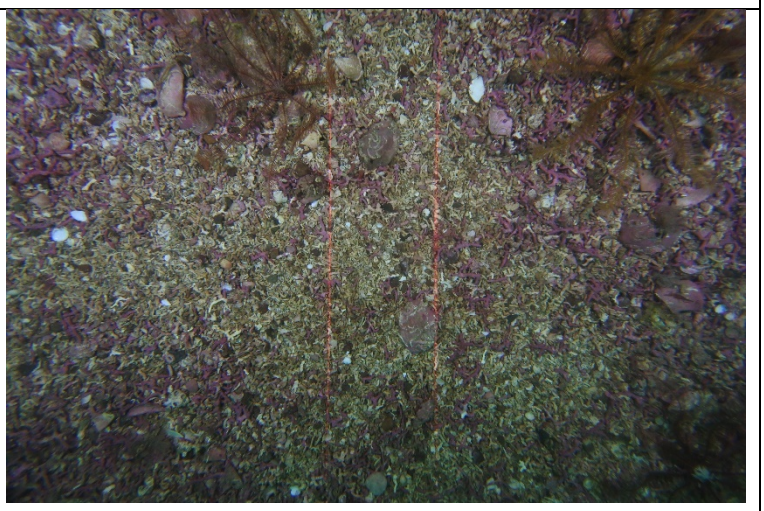
CR.LCR Low energy circalittoral rock Inner sound Stations 77.2, **140.1**, 140.3 Image DSC_2414	
CR.LCR.BrAs.AmenCio Solitary ascidians, including *Ascidia mentula* and *Ciona intestinalis*, on wave-sheltered circalittoral rock Stations 105.3, 106.2, 107.2, 139.2 Image screen grab SGstn_105	
CR.LCR.BrAs.AntAsH *Antedon* spp., solitary ascidians and fine hydroids on sheltered circalittoral rock Inner Sound station 138.4 Image Screengrab SGstn_138	

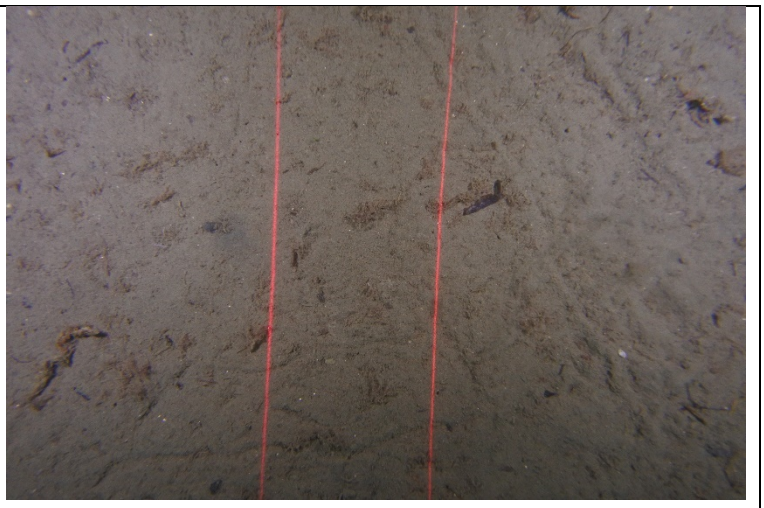
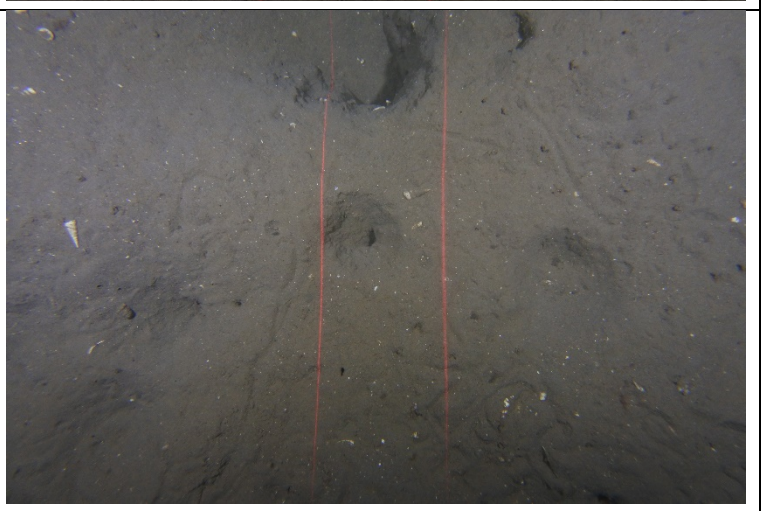
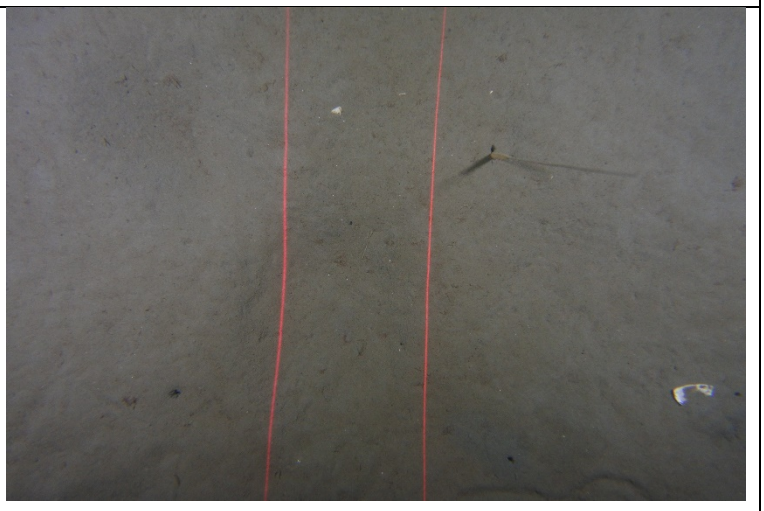
CR.MCR.EcCr.FaAlCr Faunal and algal crusts on exposed to moderately wave-exposed circalittoral rock Inner Sound stations 43.2, **43.4**, 44, 45.1, 46, 47.2, 48.1, 49.1, 52, 57.2, 86, 94.2, 109.2, 112.2 Image DSC_2617	
CR.MCR.EcCr.FaAlCr.Bri Brittlestars on faunal and algal encrusted exposed to moderately wave-exposed circalittoral rock Inner Sound stations 094.4, **138.6** Image DSC_2734	
CR.MCR.EcCr.FaAlCr.Pom Faunal and algal crusts with *Pomatoceros triqueter* and sparse *Alcyonium digitatum* on exposed to moderately wave-exposed circalittoral rock Stations 124.2, **138.1**, 138.8 Image DSC_2704	

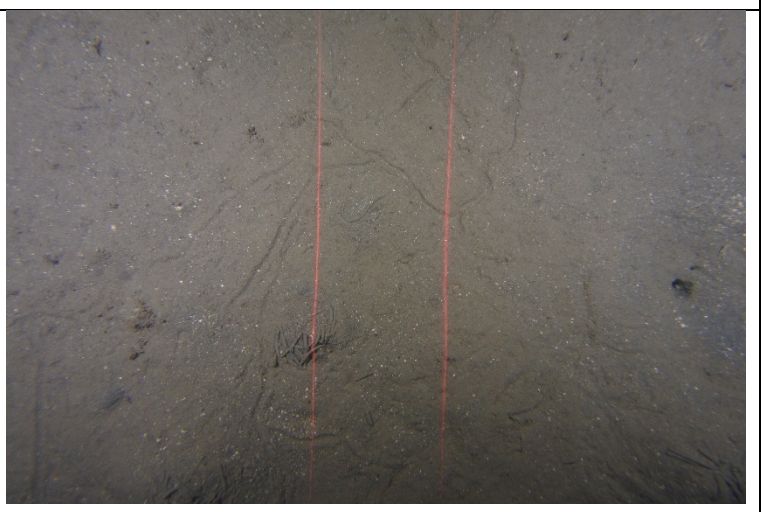
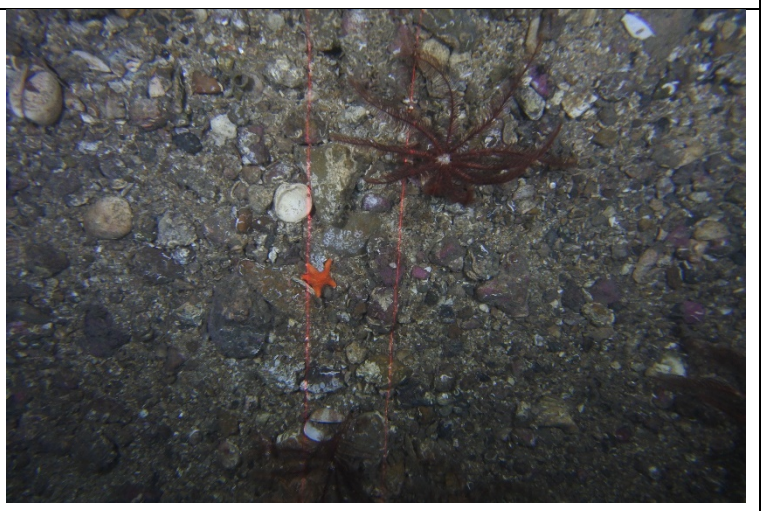
IR.LIR.K.Lsac.Pk *Laminaria saccharina* park on very sheltered lower infralittoral rock Inner Sound: Station 63.1 Image DSC_1929	
IR.MIR.KR Kelp and red seaweeds (moderate energy infralittoral rock) Inner Sound Stations 68.1, **69.2** Image DSC_2082	
IR.MIR.KR.Lhyp.GzPk Grazed *Laminaria hyperborea* park with coralline crusts on lower infralittoral rock Inner Sound stations **84**, 85 Image DSC_2305	

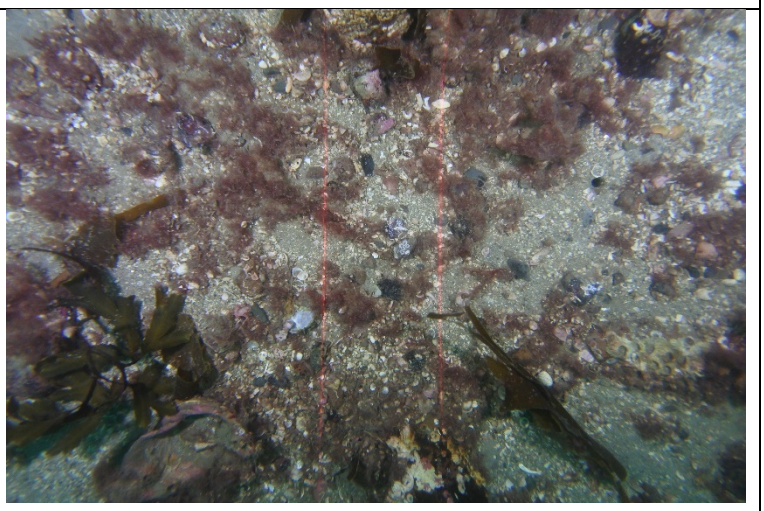
IR.MIR.KR.Lhyp.Pk *Laminaria hyperborea* park and foliose red seaweeds on moderately exposed lower infralittoral rock Inner Sound stations **57.1**, 61 Image DSC_1990	
IR.MIR.KR.LhypVt *Laminaria hyperborea* on moderately exposed vertical rock Inner Sound stations **1.3**, 81.2 DSC_2402	
IR.MIR.KT Kelp and seaweed communities in tide-swept sheltered conditions Inner Sound stations **132**, 134 Image DSC_2615	

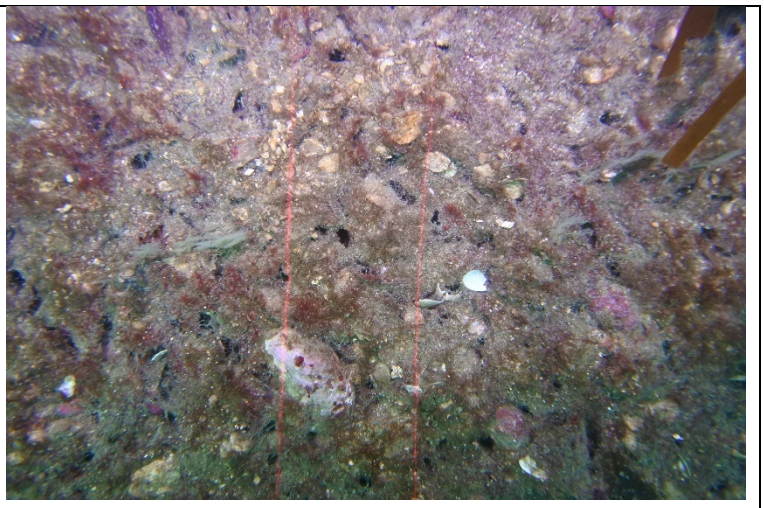
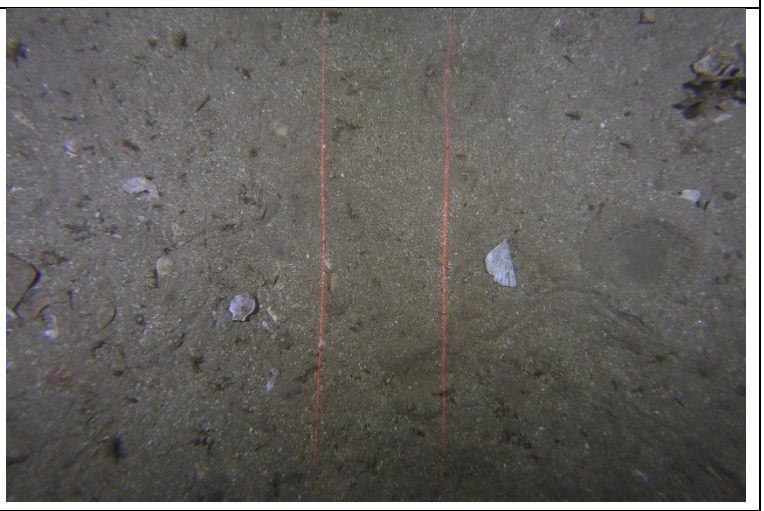
SS.SCS.CCS Circalittoral coarse sediment Inner Sound stations 45.2, 67.2, 78.1, 82.1, 115, 144, 150.2, 150.3, **151** Image DSC_2632	
SS.SCS.CCS.Nmix *Neopentadactyla mixta* in circalittoral shell gravel or coarse sand Inner Sound stations **110.1,** 113.1, 113.3, 114.1, 114.2, 114.3, 115, 117 Image screengrab SGStn_110	
SS.SCS.CCS.PomB *Pomatoceros triqueter* with barnacles and bryozoan crusts on unstable circalittoral cobbles and pebbles Stations 105.2, 105.4, **106.1**, 107.1, 124.1, 124.3, 133, 135.2, 138 Image DSC_2734	

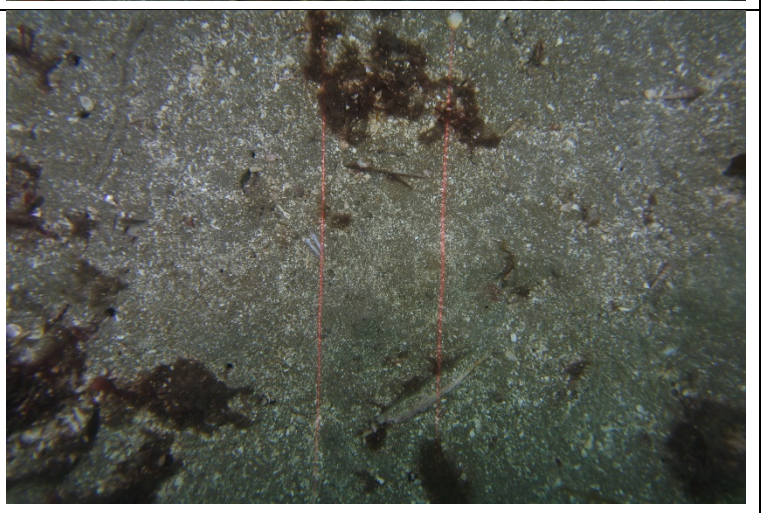
SS.SCS.ICS Infralittoral coarse sediment Stations 69.1, **146.2**, 147.3 Image DSC_2560	
SS.SMp.KSwSS Kelp and seaweed communities on sublittoral sediment Stations 1.1, 5.1, 19.1, 20, **26**, 32, 33, 34.2 Image DSC_2562	
SS.SMp.MrI Maerl beds Stations 24, 66, 79.1, 80.2, 86, 110.1, 110.2, 111.1, 112, 113.2, 116.1, **116.2**, 119.1, 147.2, 149.1, 149.3, 149.5 Image DSC_2623	

SS.SMu.CFiMu Circalittoral fine mud Stations **34.1**, 49.2, 55, 56, 123 Image DSC_2445	
SS.SMu.CFiMu.MegMax Burrowing megafauna and *Maxmuelleria lankesteri* in circalittoral mud Stations 21, 35.1, 51.2, 58, 126, **148.3**, 148.5 Image DSC_2594	
SS.SMu.CFiMu.SpnMeg Seapens and burrowing megafauna in circalittoral fine mud Stations 27.1, **30**, 48.2, 127.2, 136 Image DSC_2637	

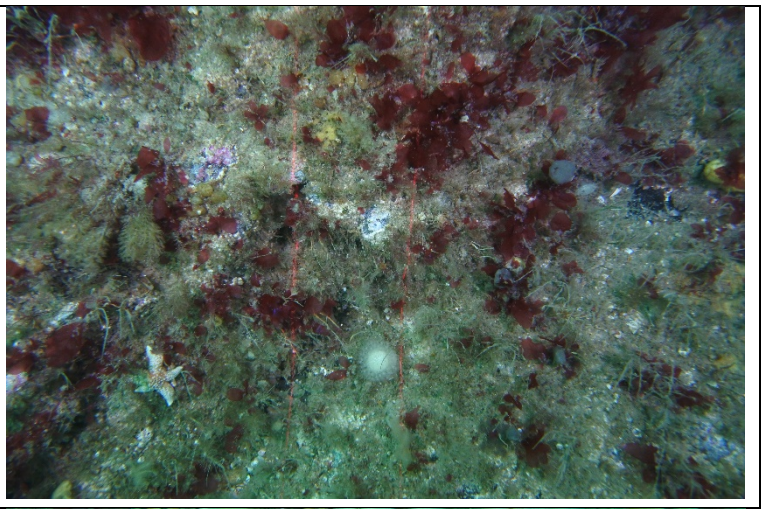
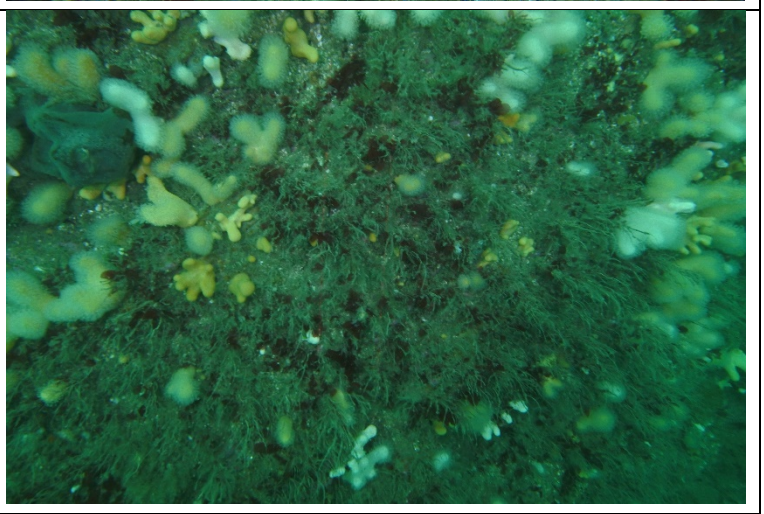
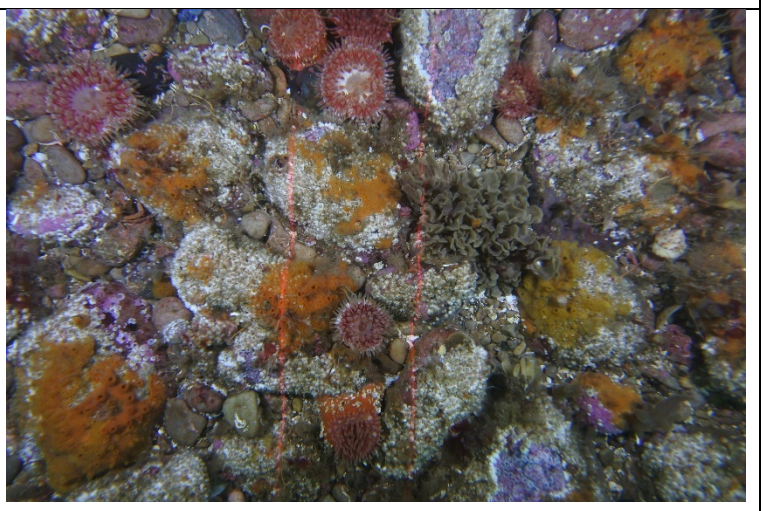
SS.SMu.CFiMu.SpnMeg.Fun Seapens, including *Funiculina quadrangularis*, and burrowing megafauna in undisturbed circalittoral fine mud Stations **62**, 127.1, 128, 129 Image DSC_1925	
SS.SMu.CSaMu Circalittoral sandy mud Stations 31, 50.1, **59**, 60, 88, 119.3, 122, 125, 137.1 Image DSC_2024	
SS.SMx.CMx Circalittoral mixed sediment Stations 10, 11, 12, 13, 14, 15, 17, 18, 19.2, 231, 27.2, 28, 29, 35.2, 36-42, **40**, 47.1, 50.2, 57.3, 70, 71.1, 72, 73, 74, 75.2, 77.1, 78.2, 87.2, 90, 91, 95.1, 96.1, 104.3, 109.2, 111.1, 121.1, 138, 139, 140, 141, 142, 143, 144, 148 Image DSC_2565	

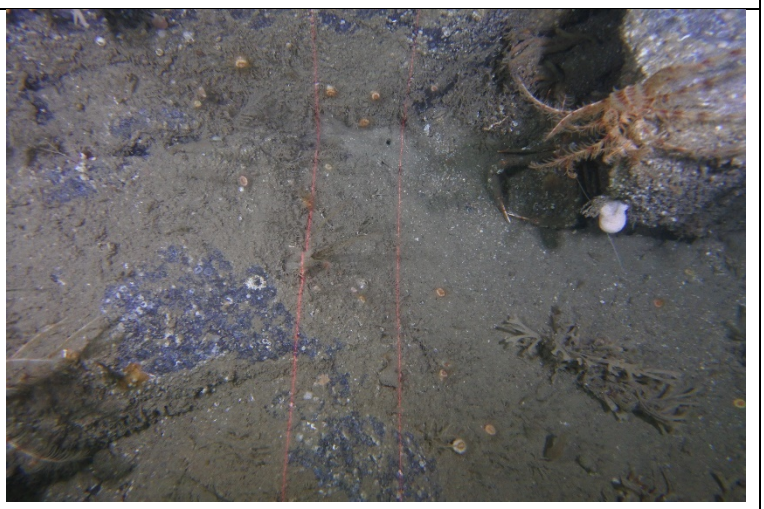
SS.SMx.CMx.CIloMx *Cerianthus lloydii* and other burrowing anemones in circalittoral muddy mixed sediment Stations 109.1, **118.1**, 130, 131, 135.1 Image DSC_2647	
SS.SMx.CMx.OphMx *Ophiothrix fragilis* and/or *Ophiocomina nigra* brittlestar beds on sublittoral mixed sediment Stations 104.2 Image DSC_2700	
SS.SMx.IMx Infralittoral mixed sediment Stations 145.1, **145.2** Image DSC_2537	

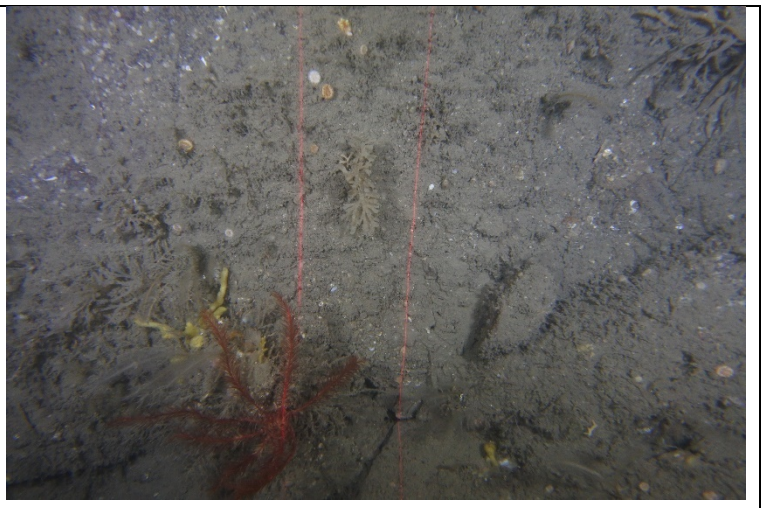
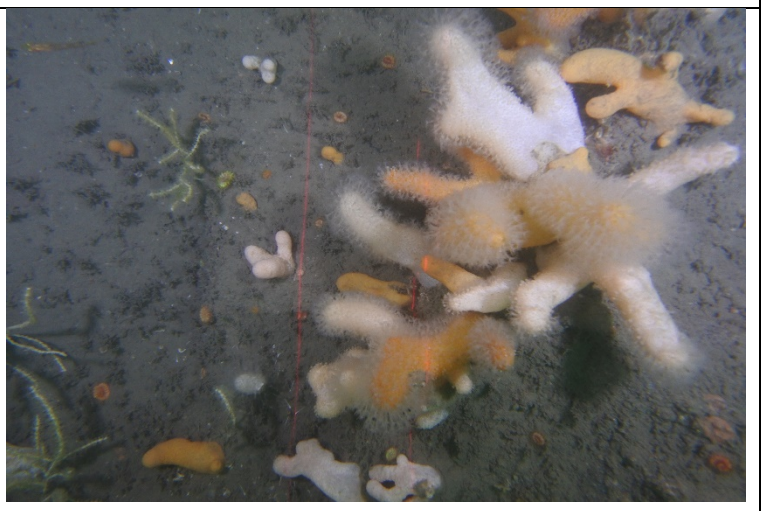
SS.SMx.IMx.Lim *Limaria hians* beds in tide-swept sublittoral muddy mixed sediment Stations 1.2, 2, **3**, 4, 5.3, 6-8, 23.2, 63.2, 67.1, 68.2, 86, 93.1, 93.2, 94.1, 95.2, 96.2, 97-103, 104.1, 105.1, 105.2, 108, 118.2, 118.3, 120, 121.2, 124.4, 124.5, 148.3, 147.1 Image DSC_2421	
SS.SSa.CFiSa Circalittoral fine sand Stations **119.2**, 150.4 Image DSC_2860	
SS.SSa.CMuSa Circalittoral muddy sand Stations **50.3**, 53, 54, 71.2, 80.4, 82.3 Image DSC_1888	

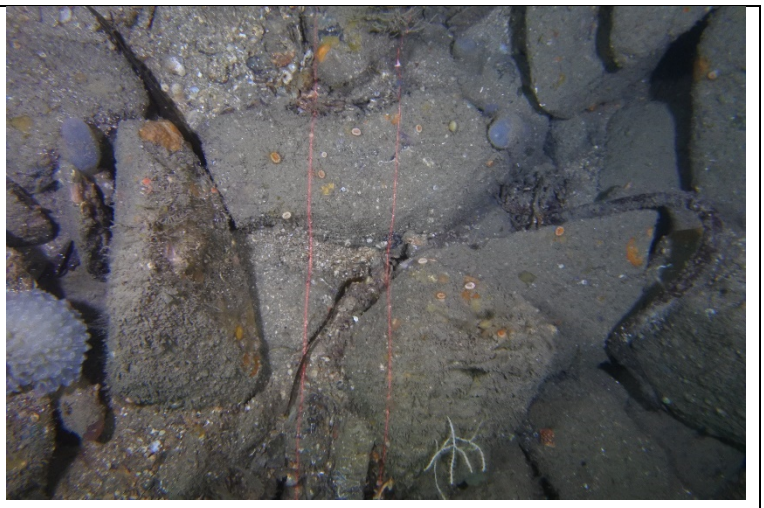
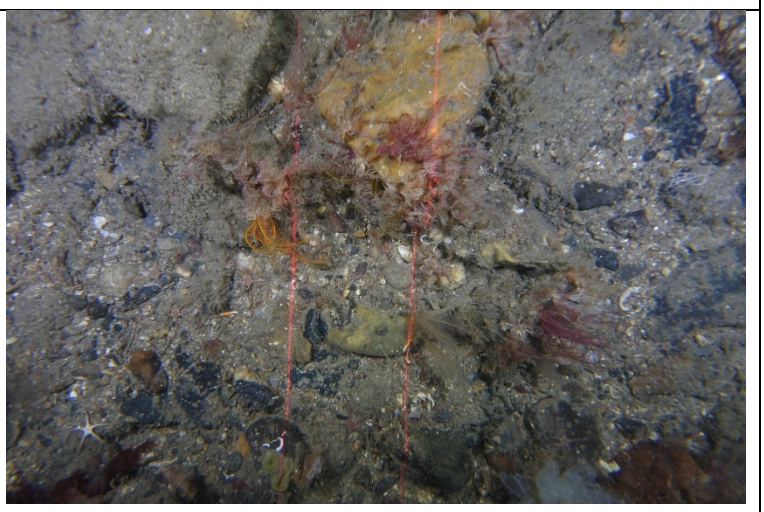
SS.SSa.IFiSa Infralittoral fine sand Stations **89** Image DSC_2402	
SS.SSa.IMuSa Infralittoral muddy sand Stations **64**, 65 Image DSC_1975	

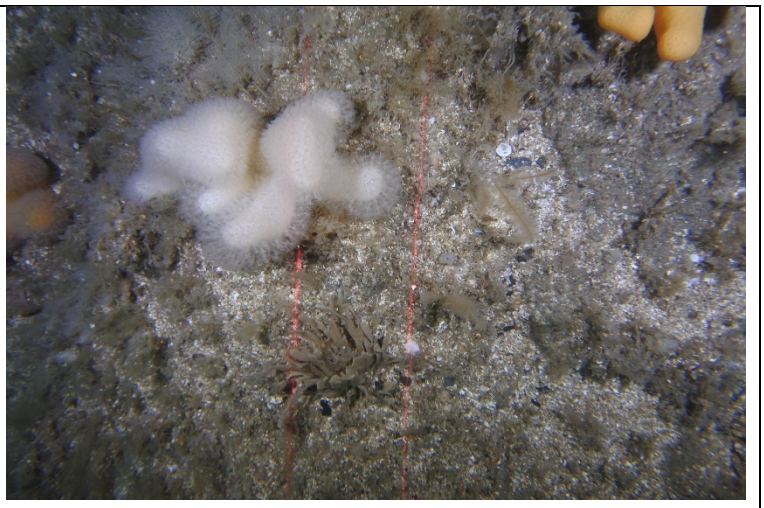
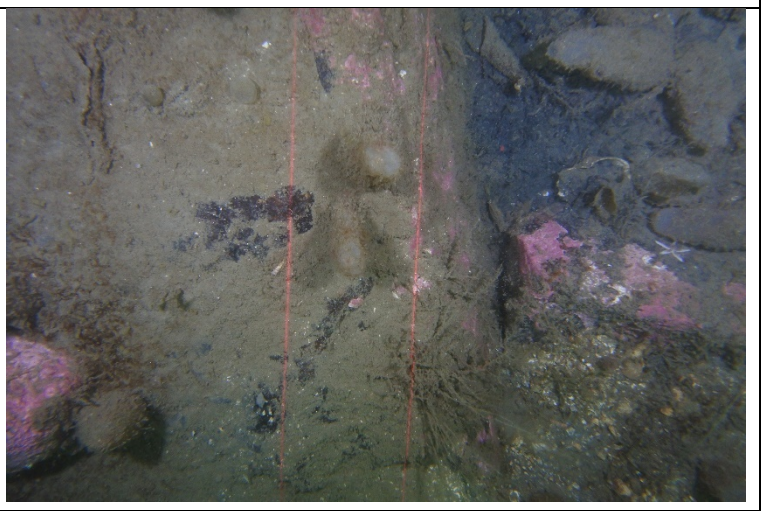
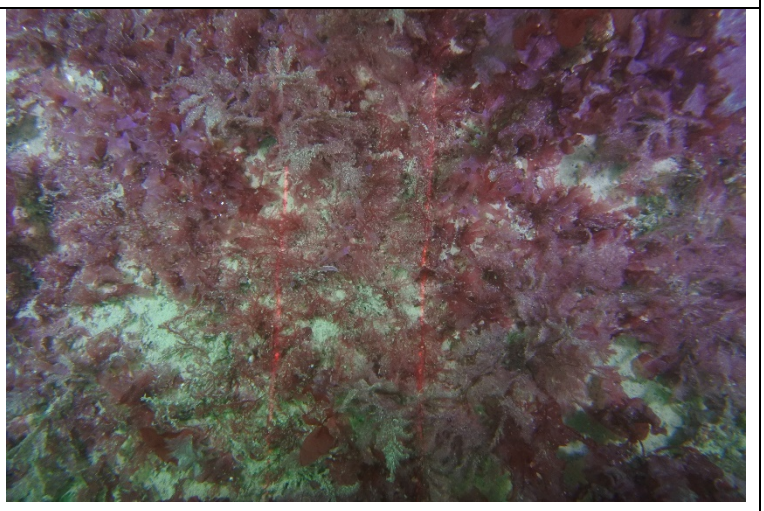
Jura and Islay biotopes example images

CR.HCR.FaT.Ctub *Tubularia indivisa* on tide-swept circalittoral rock Stations 120.1, 121.1, 144, **145**, 148.1 Image DSC_5160	
CR.HCR.FaT.CTub.Adig *Alcyonium digitatum* with dense *Tubularia indivisa* and anemones on strongly tide-swept circalittoral rock Station **148.2** Image DSC_5201	
CR.HCR.XFa Mixed faunal turf communities Stations **87**, 92.2, 119.3, 123.2, 126, 127.3, 130.2, 141, 147, 210.3 Image DSC_4666	

CR.HCR.XFa.SwiLgAs Mixed turf of hydroids and large ascidians with S*wiftia pallida* and *Caryophyllia smithii* on weakly tide-swept circalittoral rock Stations 127.1, 133.1, 134, 136.3, 136.5, 137.1, 137.2, 138.2, 150, 154.3, 164, **169** Image DSC_5175	
CC.MCR Moderate energy circalittoral rock Stations **20.1** Image screengrab SGStn_20.1	
CR.MCR.EcCr Echinoderms and crustose communities Station **175** Image DSC_5246	

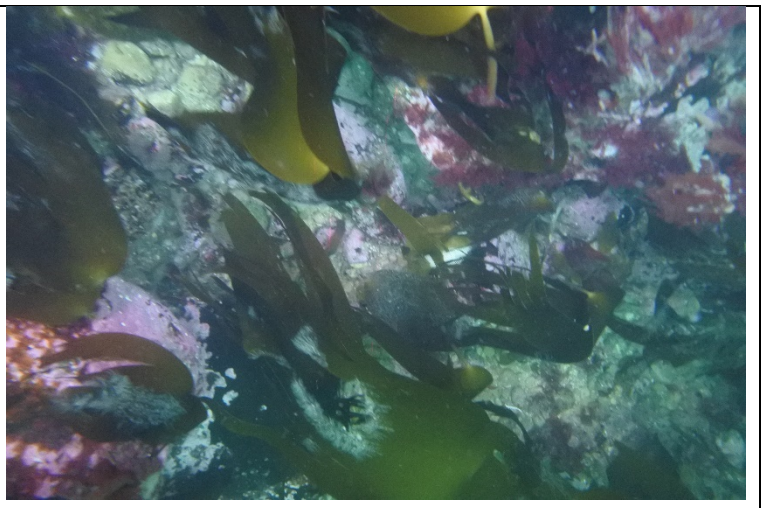
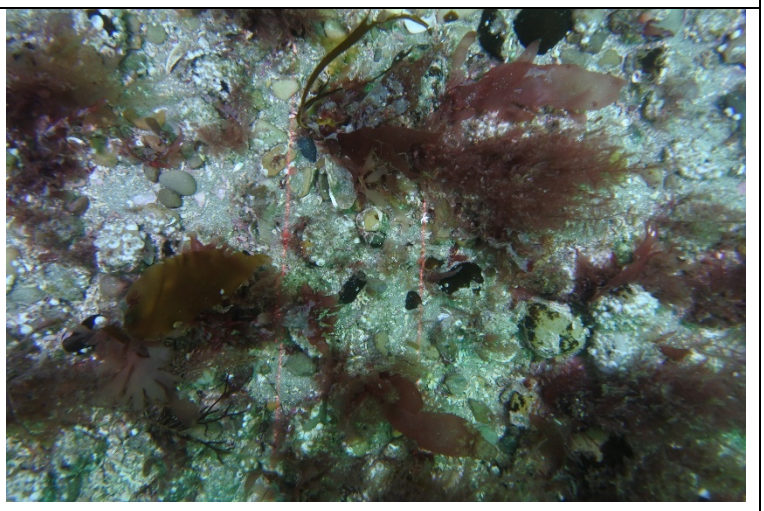
CR.MCR.EcCr.CarSp *Caryophyllia smithii*, sponges and crustose communities on wave-exposed circalittoral rock Station 124, 154.2, **176** Image DSC_5268	
CR.MCR.EcCr.CarSp.Bri Brittlestars overlying coralline crusts, *Parasmittina trispinosa* and *Caryophyllia smithii* on wave-exposed circalittoral rock Station **154.1** Image DSC_5271	
CR.MCR.EcCr.CarSwi *Caryophyllia smithii* and *Swiftia pallida* on circalittoral rock Stations **180.2**, 181.2, 184.1, 185.1, 185.3 Image DSC_5315	

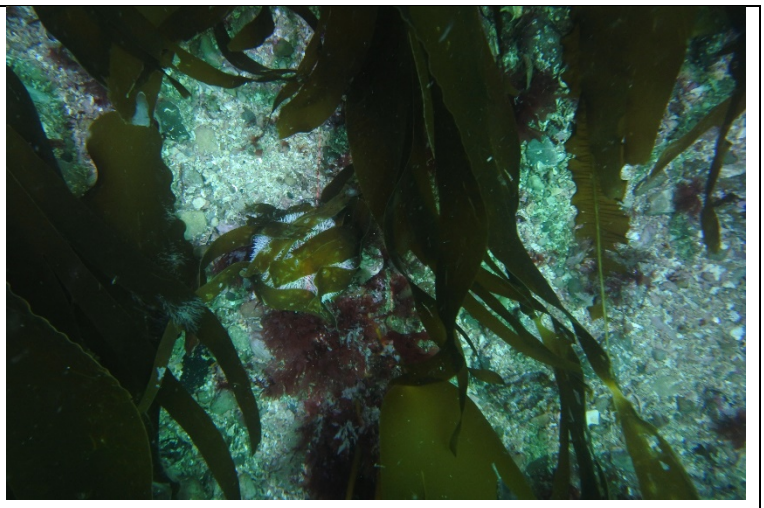
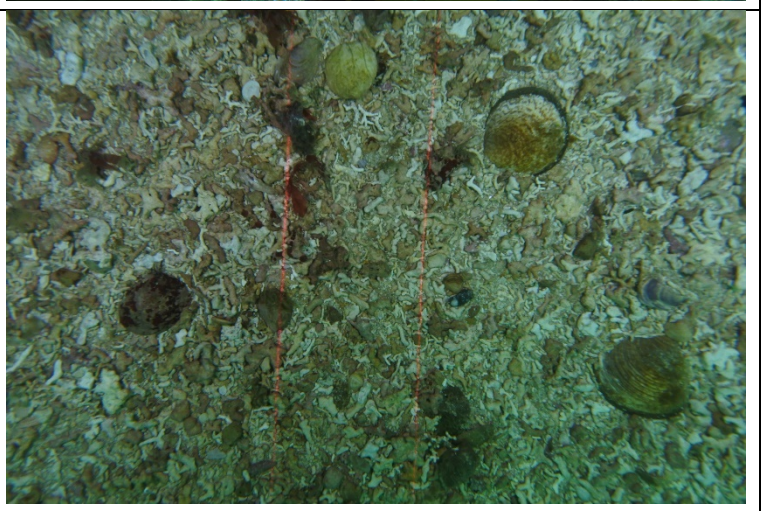
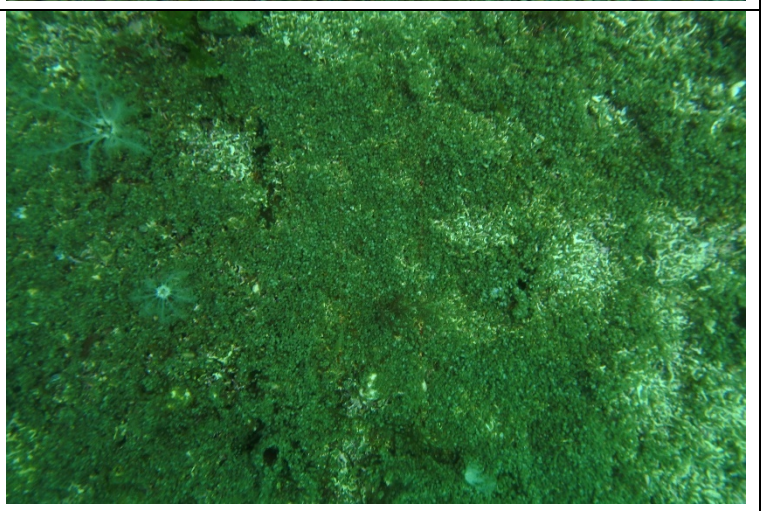
CR.MCR.EcCr.CarSwi.LgAs *Caryophyllia smithii*, *Swiftia pallida* and large solitary ascidians on exposed or moderately exposed circalittoral rock Station **166.1**, 166.3 Image DSC_5120	
CR.MCR.EcCr.FaAlCr Faunal and algal crusts on exposed to moderately wave-exposed circalittoral rock Stations 23, **131**, 173.2 Image DSC_5288	
CR.MCR.EcCr.FaAlCr.Pom Faunal and algal crusts with *Pomatoceros triqueter* and sparse *Alcyonium digitatum* on exposed to moderately wave-exposed circalittoral rock Station **18.1** Image DSC_3706	

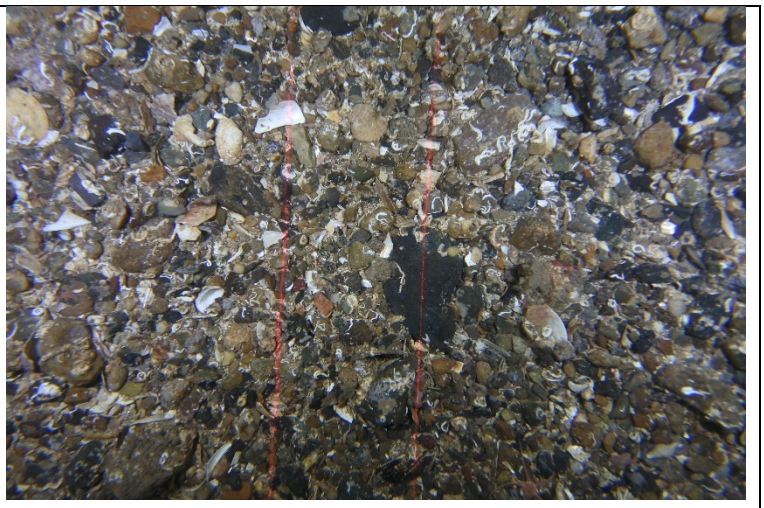
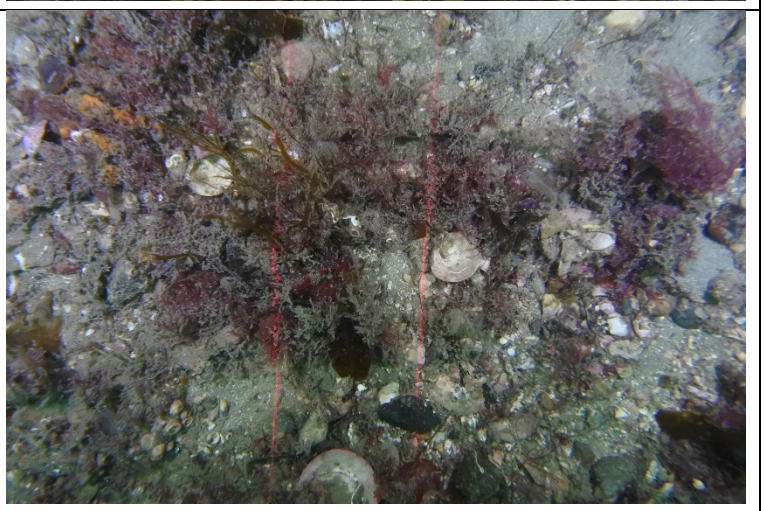
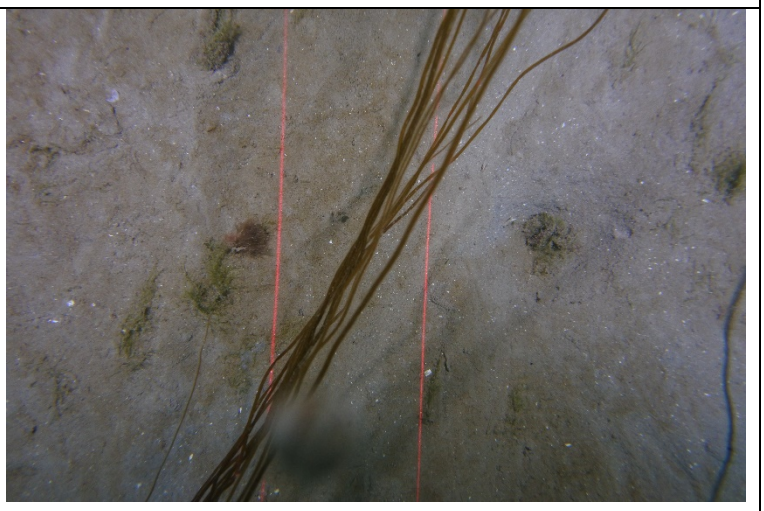
CR.MCR.EcCr.FaAlCr.Sec *Alcyonium digitatum* with *Securiflustra securifrons* on tide-swept moderately wave-exposed circalittoral rock Station **143** Image DSC_5145	
CR.LCR.BrAs Brachiopod and ascidian communities Stations 225.3, **225.5** Image DSC_5597	
IR.HIR.KFaR.FoR Foliose red seaweeds on exposed lower infralittoral rock Stations 149, **181.1**, 206, 210.2 Image DSC_5325	

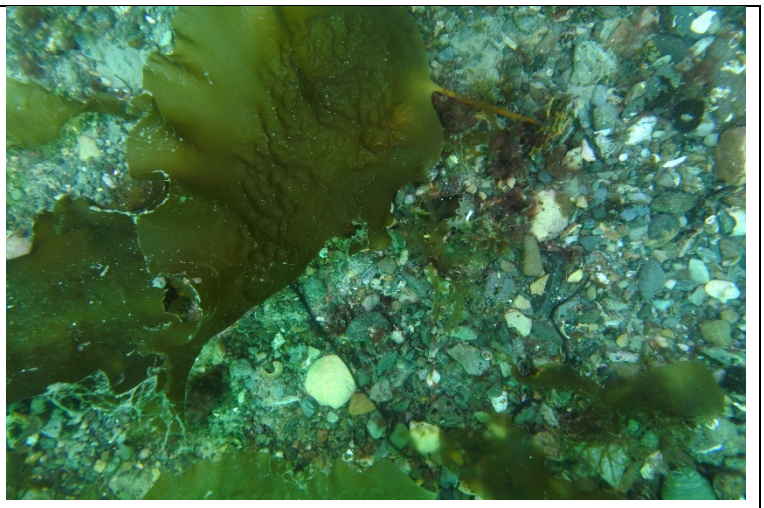
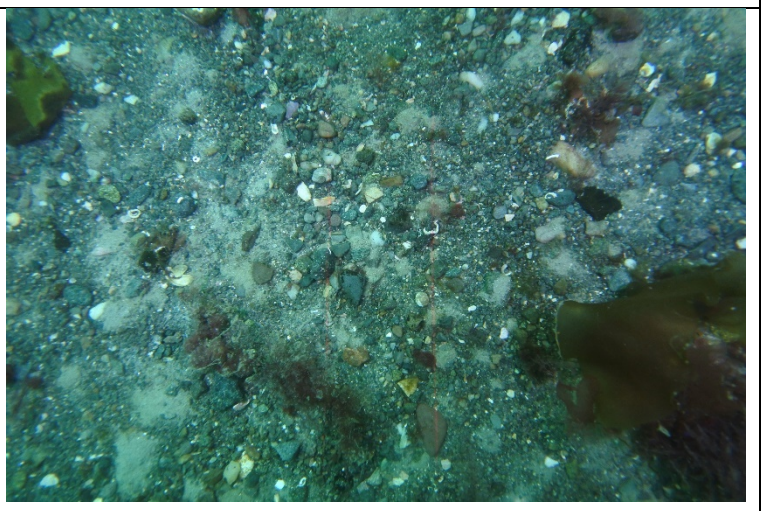
IR.HIR.KFaR.LhypR.Ft *Laminaria hyperborea* forest with dense foliose red seaweeds on exposed upper infralittoral rock Station **146**, 165.2 Image DSC_5175	
IR.HIR.KFaR.LhypRVt *Laminaria hyperborea* and red seaweeds on exposed vertical rock Stations **13.2**, 25.2 Image screengrab SGstn_13	
IR.HIR.KSed.XKScrR Mixed kelps with scour-tolerant and opportunistic foliose red seaweeds on scoured or sand-covered infralittoral rock Station **210.1** Image DSC_5493	

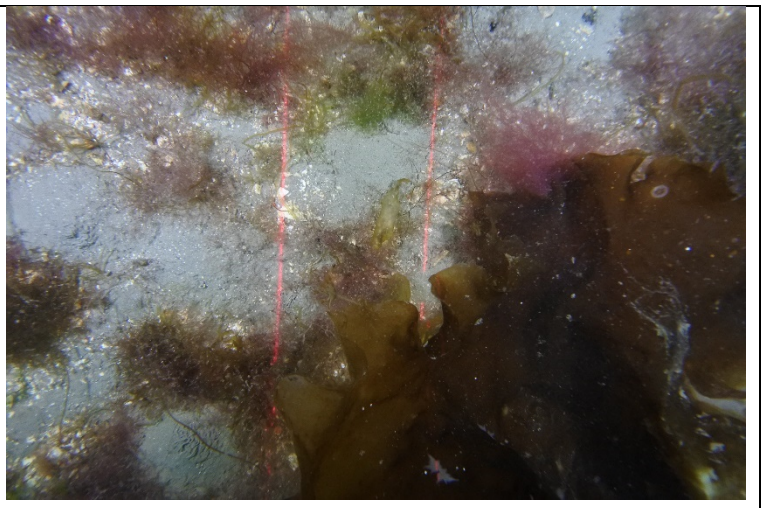
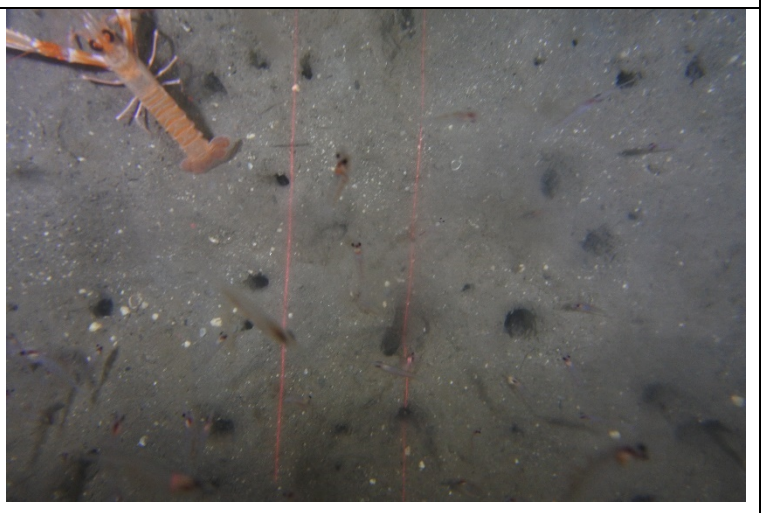
IR.MIR.KR Kelp and red seaweeds (moderate energy infralittoral rock) Station 4.1 Image DSC_3470	
IR.MIR.KR.Lhyp.Ft *Laminaria hyperborea* forest and foliose red seaweeds on moderately exposed upper infralittoral rock Stations 8.1, 25.3, **93** Image DSC_4769	
IR.MIR.KR.Lhyp.Pk *Laminaria hyperborea* park and foliose red seaweeds on moderately exposed lower infralittoral rock Station 7.2, 21.1, **21.3** Image DSC_3747	

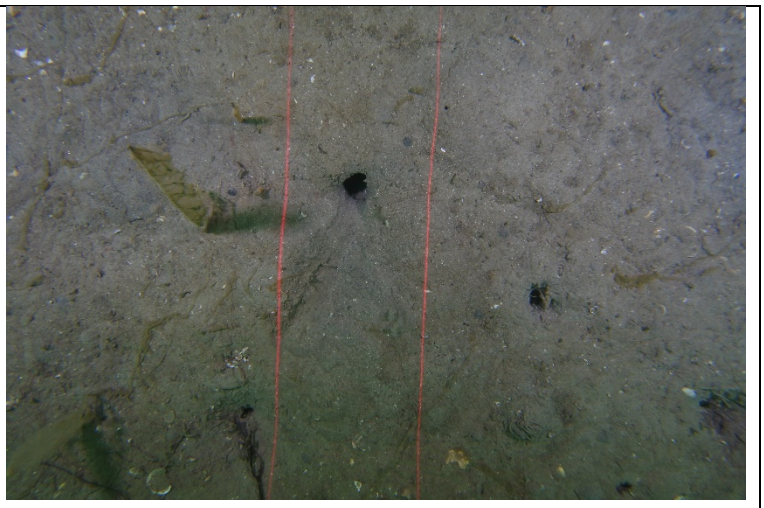
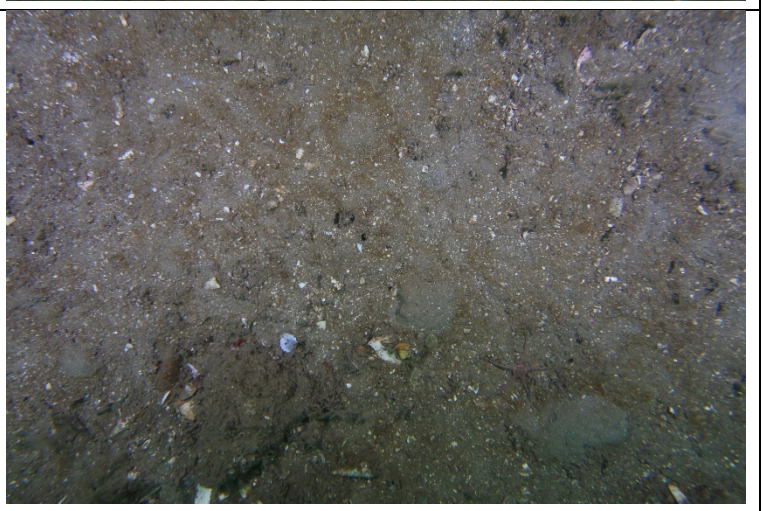
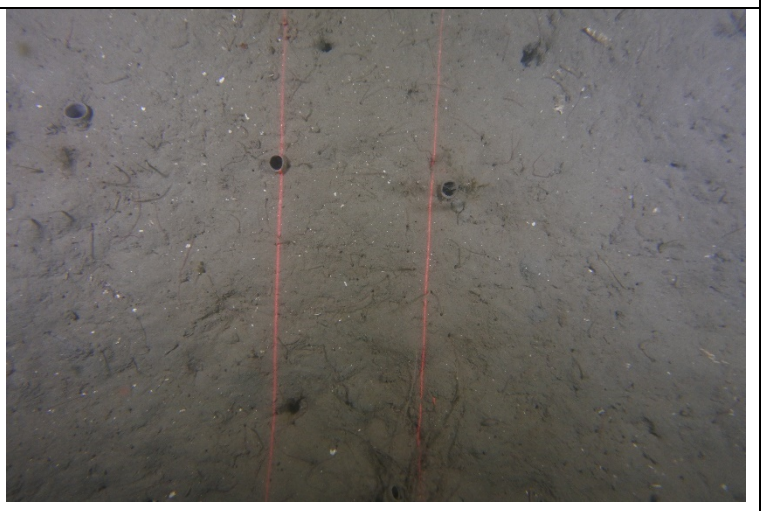
IR.MIR.KR.LhypTX.Ft *Laminaria hyperborea* forest and foliose red seaweeds on tide-swept upper infralittoral mixed substrata Stations 8.3, 49, 83, 84, **85.2**, 91 Image DSC_4634	
IR.MIR.KR.LhypTX.Pk *Laminaria hyperborea* park and foliose red seaweeds on tide-swept lower infralittoral mixed substrata Stations 18.2, **79**, 85.1, 92.1, 95 Image DSC_4547	
IR.MIR.KT Kelp and seaweed communities in tide-swept sheltered conditions Stations **36**, 38, 53, 55, 119.1 Image DSC_3868	

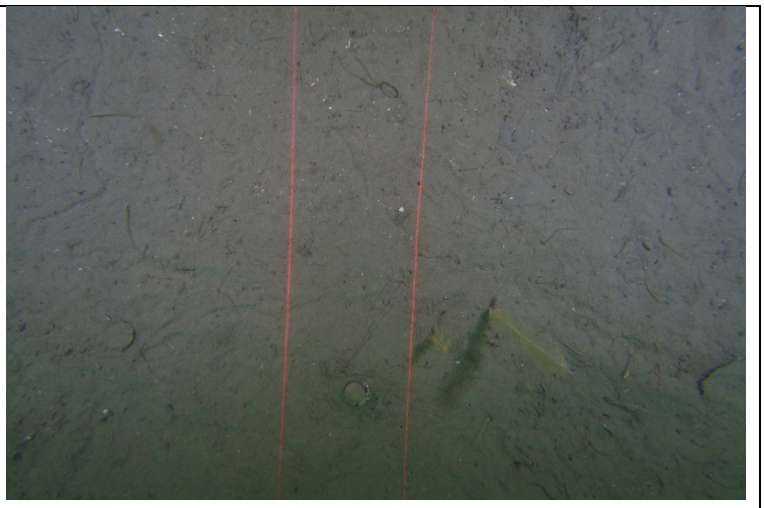
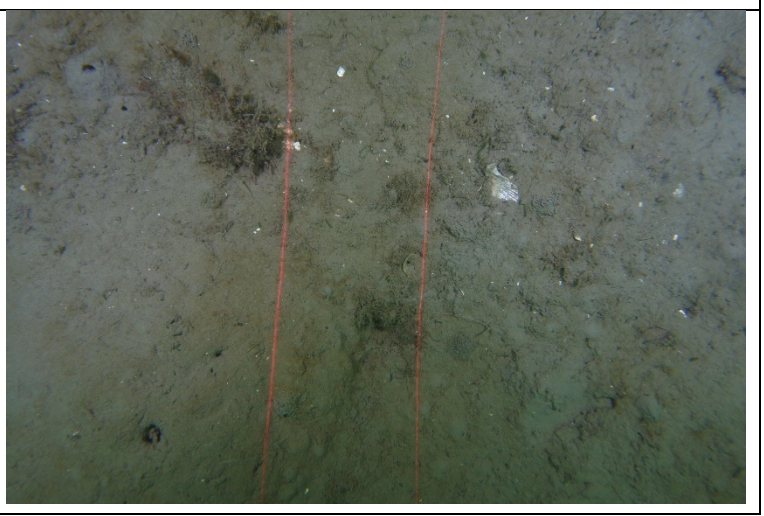
IR.MIR.KT.XKTX Mixed kelp and red seaweeds on infralittoral boulders, cobbles and gravel in tidal rapids Station **29** Image DSC_3753	
SS.SCS.CCS Circalittoral coarse sediment Stations 5, 6, 10, 11, 13.3, **33**, 71, 94, 132.1, 132.3, 133.2, 166.2, 209.2 Image DSC_3820	
SS.SCS.CCS.Nmix *Neopentadactyla mixta* in circalittoral shell gravel or coarse sand Stations 8.2, **14**, 44 Image DSC_3643	

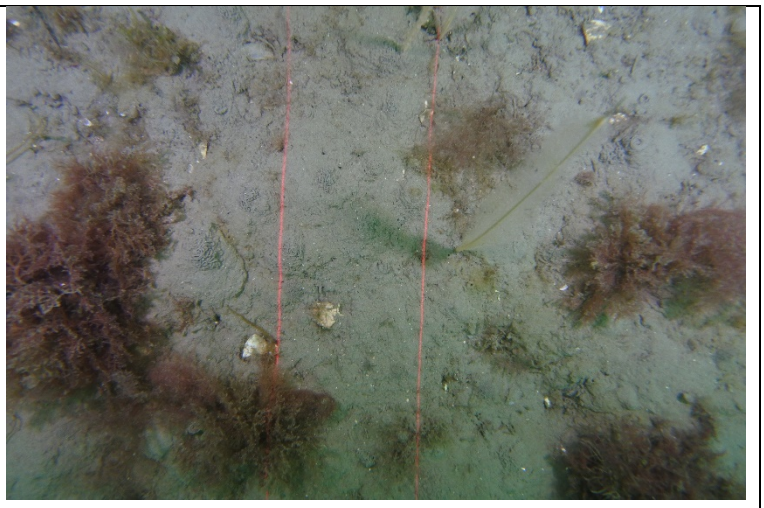
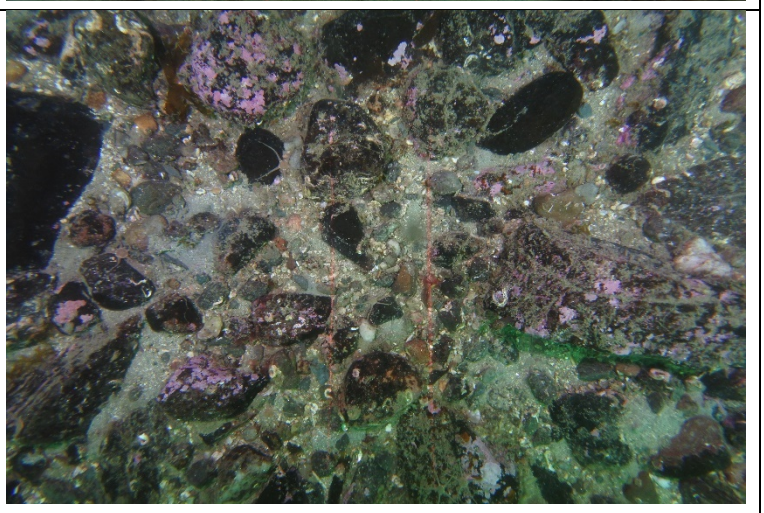
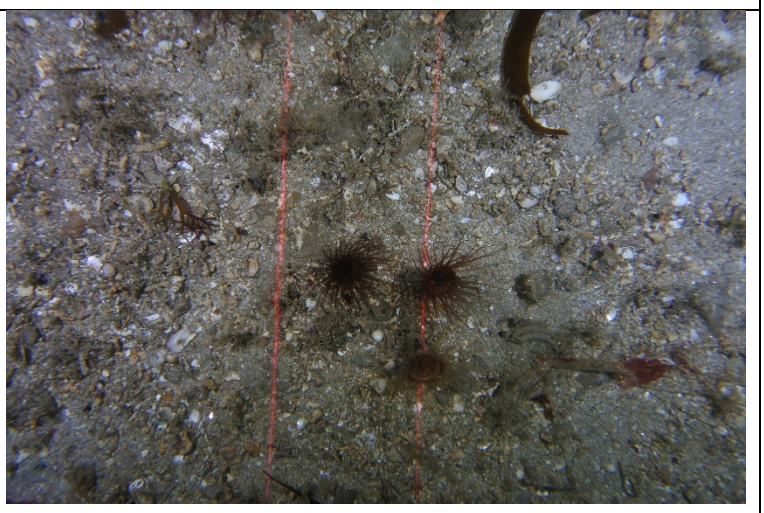
SS.SCS.CCS.PomB *Pomatoceros triqueter* with barnacles and bryozoan crusts on unstable circalittoral cobbles and pebbles Stations 196.4, **201.2** Image DSC_5382	
SS.SMp.KSwSS Kelp and seaweed communities on sublittoral sediment Stations **207**, 209.1, 224.1, 224.2 Image DSC_5462	
SS.SMp.KSwSS.LsacCho *Laminaria saccharina* and *Chorda filum* on sheltered upper infralittoral muddy sediment Station **188** Image DSC_5223	

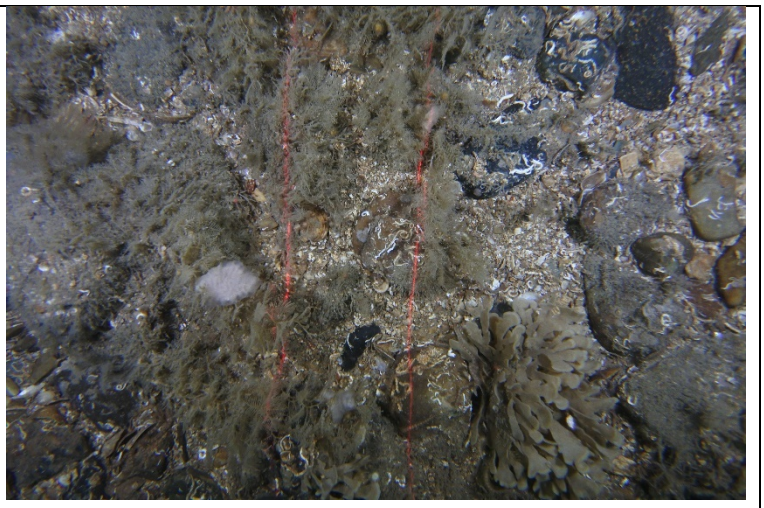
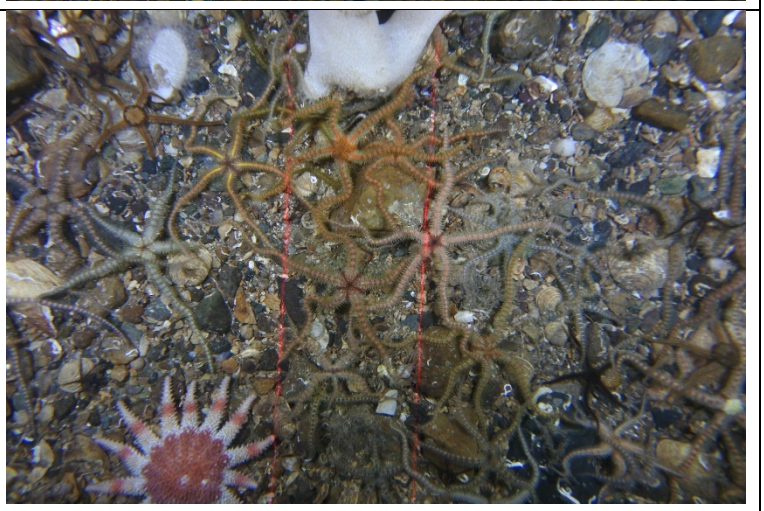
SS.SMp.KSwSS.LsacR *Laminaria saccharina* and red seaweeds on infralittoral sediments Station **21.2**, 21.4, 187.1, 206 Image DSC_3757	
SS.SMp.KSwSS.LsacR.CbPb Red seaweeds and kelps on tide-swept mobile infralittoral cobbles and pebbles Stations **75**, 77, 86, 88, 89, 106, 153, 165.1, 196.1 Image DSC_4507	
SS.SMp.KSwSS.LsacR.Gv *Laminaria saccharina* and robust red algae on infralittoral gravel and pebbles Station **28** Image DSC_3848	

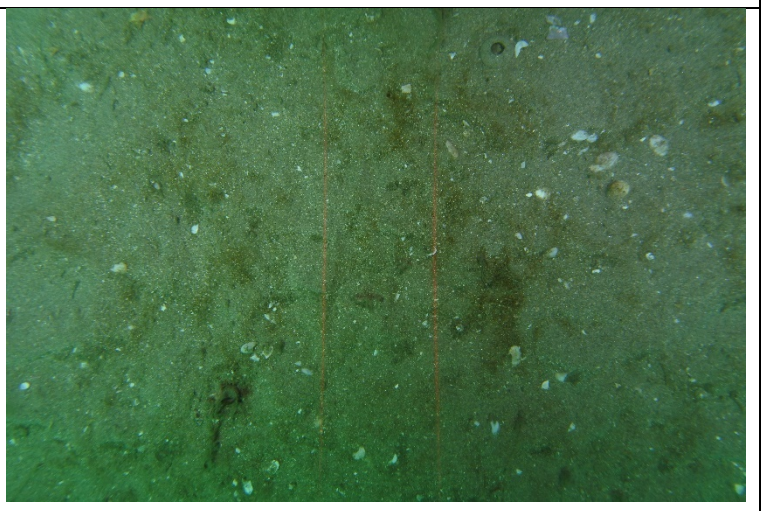
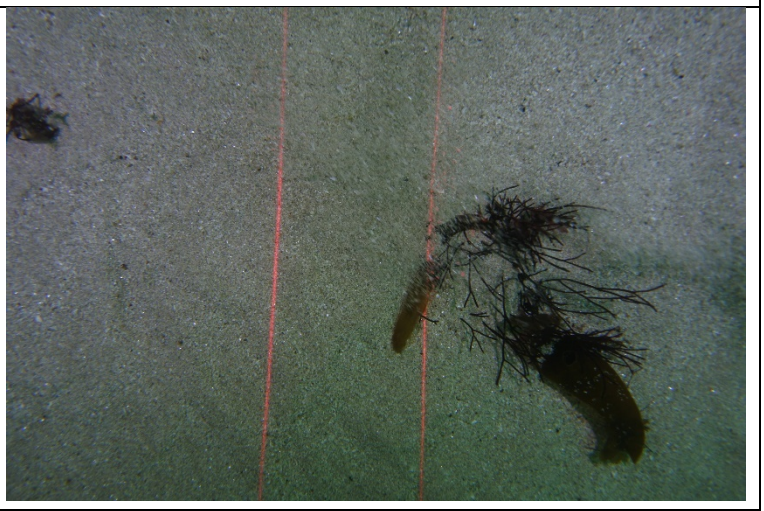
SS.SMp.KSwSS.LsacR.Mu *Laminaria saccharina* with red and brown seaweeds on lower infralittoral muddy mixed sediment Stations 114, **189** Image DSC_5236	
SS.SMp.Mrl Maerl beds Stations **81.1**, 82.2, 90.1, 98, 103.1 Image DSC_4567	
SS.SMu.CFiMu.MegMax Burrowing megafauna and *Maxmuelleria lankesteri* in circalittoral mud Stations 116, **117**, 136.1, 163, 168, 171, 178, 182, 186, 213-217, 218.1, 222, 223 Image DSC_5102	

SS.SMu.CFiMu.SpnMeg Seapens and burrowing megafauna in circalittoral fine mud Station **65**, 151, 52, 155, 158, 195, 212 Image DSC_4328	
SS.SMu.CSaMu Circalittoral sandy mud Stations **100**, 136.2, 136.4, 138.1, 138.4, 157, 177, 183, 211, 225.4 Image DSC_4874	
SS.SMu.CSaMu.AfilMysAnit *Amphiura filiformis*, *Mysella bidentata* and *Abra nitida* in circalittoral sandy mud Stations 218.2, 219, **220**, 221, 225.1 Image DSC_5555	

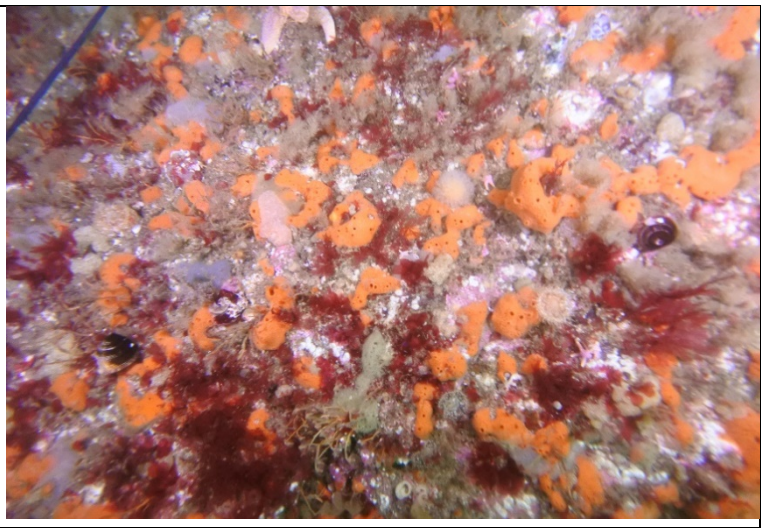
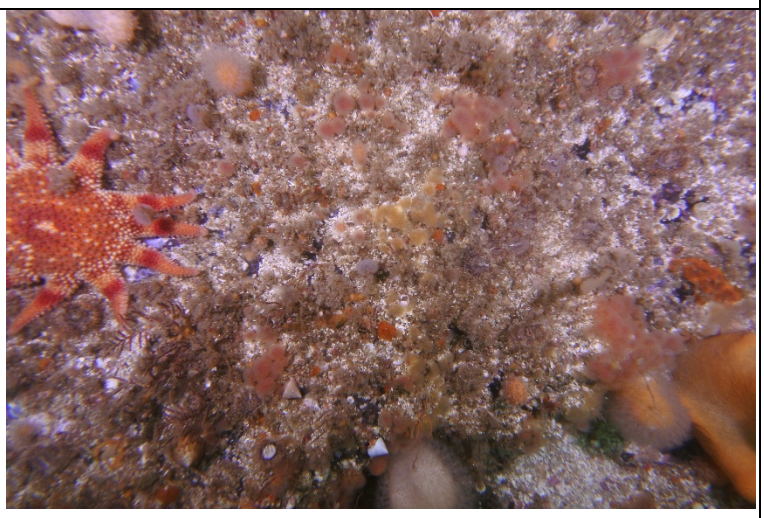
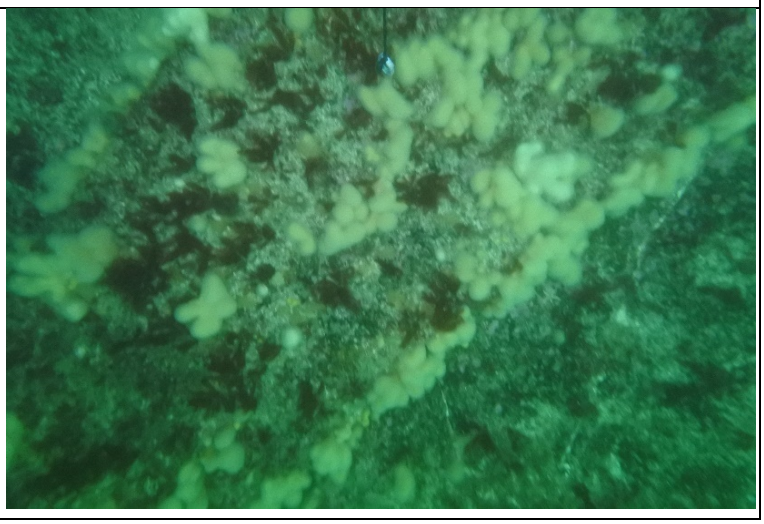
SS.SMu.CSaMu.AfilNten *Amphiura filiformis* and *Nuculoma tenuis* in circalittoral and offshore sandy mud Stations **161**, 162 Image DSC_5345	
SS.SMu.CSaMu.VirOphPmax *Virgularia mirabilis* and *Ophiura* spp. with *Pecten maximus* on circalittoral sandy or shelly mud Station 185.2 Image screengrab SGSt_185	
SS.SMu.IFiMu Infralittoral fine mud Station 68, 192-**194** Image DSC_5283	

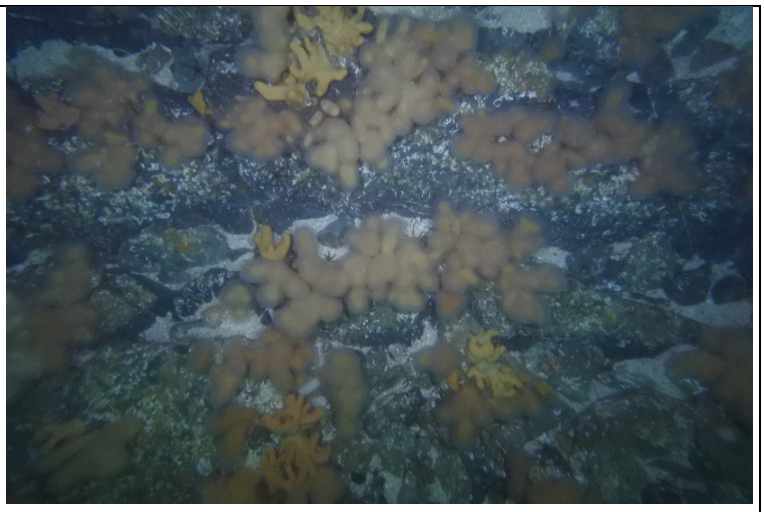
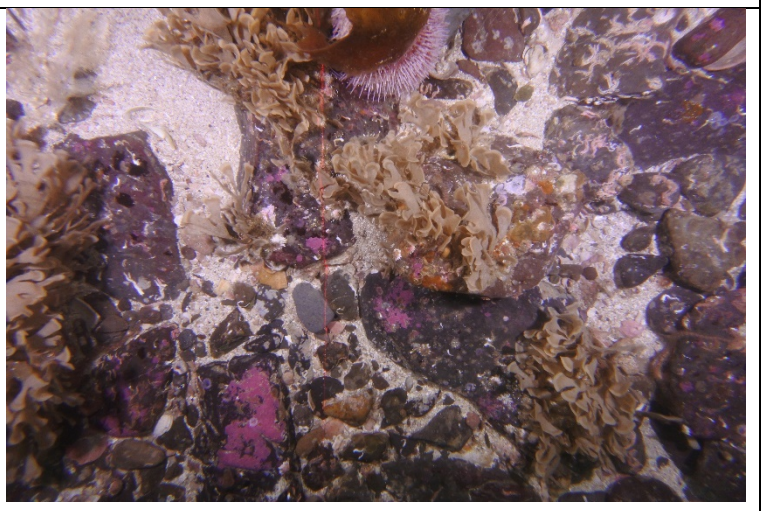
SS.SMu.IFiMu.PhiVir *Philine aperta* and *Virgularia mirabilis* in soft stable infralittoral mud Stations 67, **191** Image DSC_5253	
SS.SMx.CMx Circalittoral mixed sediment Stations 4.2, 9, 17.2, 19, 22, **25.1**, 26, 30, 31, 43, 51, 57-60, 62, 63, 70, 73, 76, 78, 96, 101, 105, 107, 109-111, 115, 118, 119.2, 122, 123.2, 125, 127.2, 128, 130.1, 135.1, 138.3, 156, 172, 180.1, 184.2, 196.3, 196.5, 201.1, 202, 204.1, 204.3, 205, 208, 210.4, 225.2 Image DSC_3806	
SS.SMx.CMx.CIloMx *Cerianthus lloydii* and other burrowing anemones in circalittoral muddy mixed sediment Stations **32**, 61, 159, 160 Image DSC_3800	

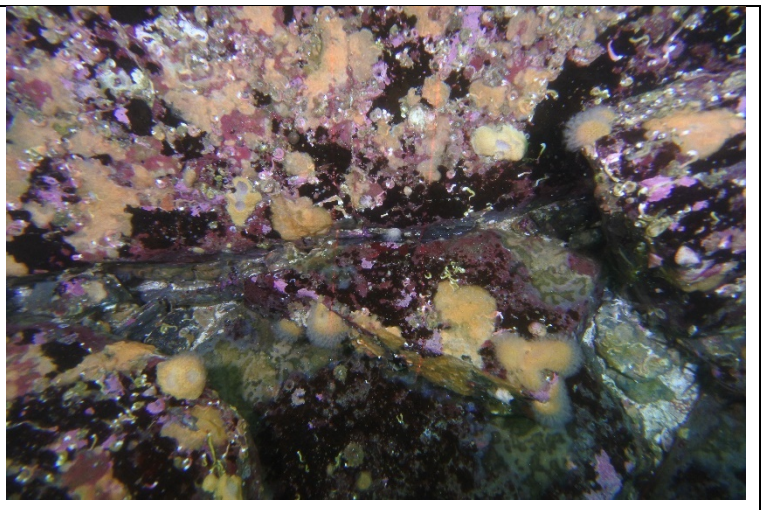
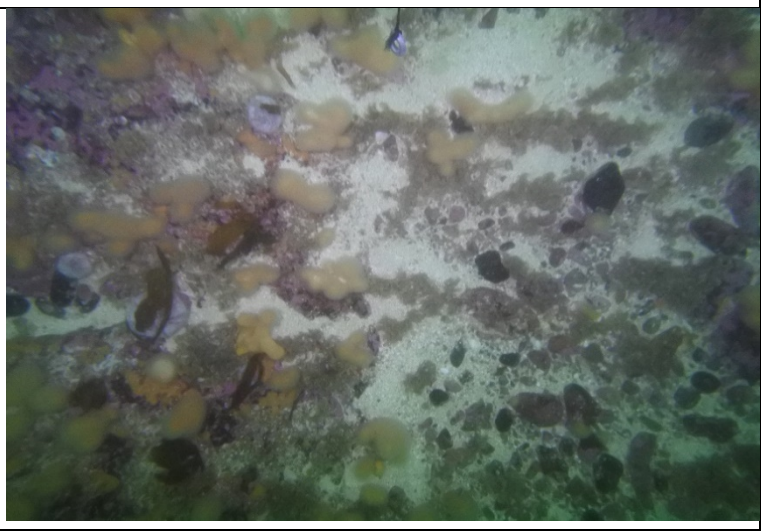
SS.SMx.CMx.FluHyd *Flustra foliacea* and *Hydrallmania falcata* on tide-swept circalittoral mixed sediment Stations 120.2, 121.2, **129**, 140, 142, 197, 203 Image DSC_2566	
SS.SMx.CMx.OphMx *Ophiothrix fragilis* and/or *Ophiocomina nigra* brittlestar beds on sublittoral mixed sediment Stations 17.1, 142, 196.2, 198, **199**, 200 Image DSC_5348	
SS.SMx.IMx Infralittoral mixed sediment Station **187.2** Image DSC_5214	

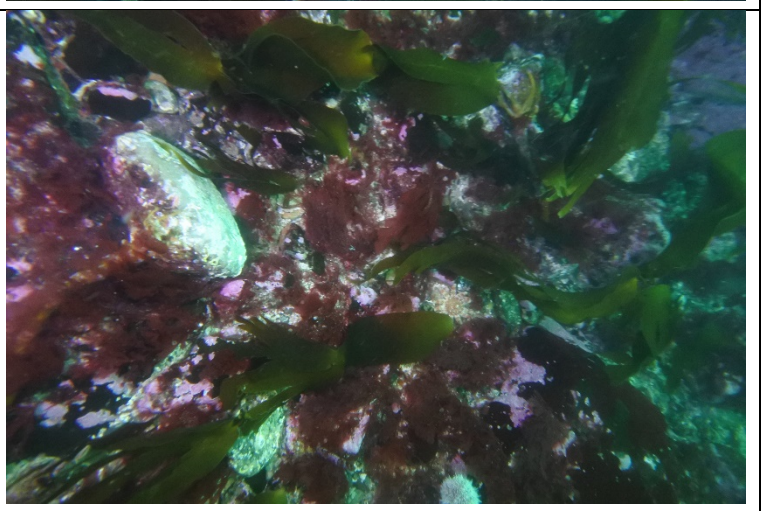
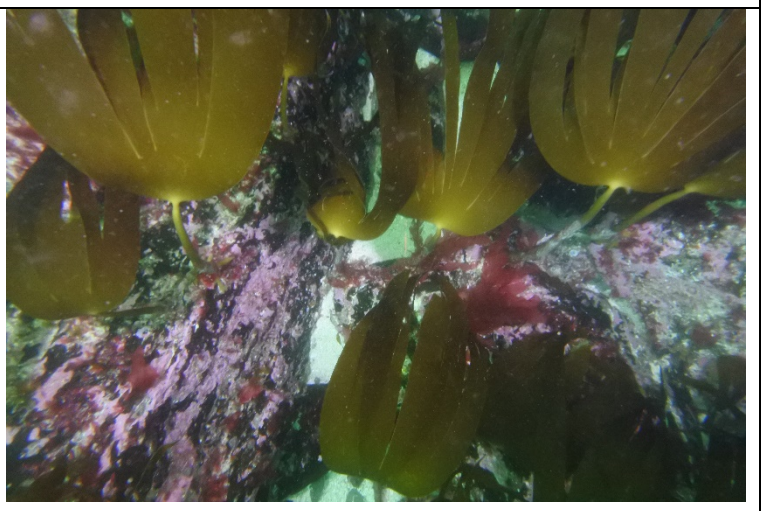
SS.SSa.CFiSa Circalittoral fine sand Stations **34**, 35, 37, 40, 45-48, 52, 204.2 Image DSC_3836	
SS.SSa.CMuSa Circalittoral muddy sand Stations 2, **3**, 24, 27, 39, 41, 108, 112, 113, 167, 170, 173.1, 174 Image DSC_3463	
SS.SSa.IFiSa Infralittoral fine sand Station **80** Image DSC_4560	

Orkney biotopes and example images

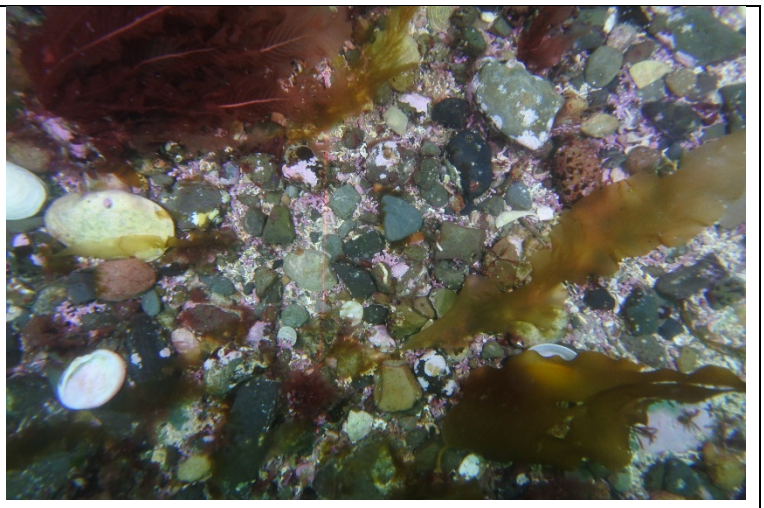
CR.HCR.XFa Mixed faunal turf communities Stations **48**, 90 Image DSC_2701	
R.HCR.XFa.FluCoAs.Paur *Polyclinum aurantium* and *Flustra foliacea* on sand-scoured tide-swept moderately wave-exposed circalittoral rock Stations 13, 34, 45, **46**, 47 Image DSC_2677	
CR.MCR.EcCr.FaAlCr Faunal and algal crusts on exposed to moderately wave-exposed circalittoral rock Stations 1, 14, 21, 33, 35, 36, **39.1** Image DSC_2568	

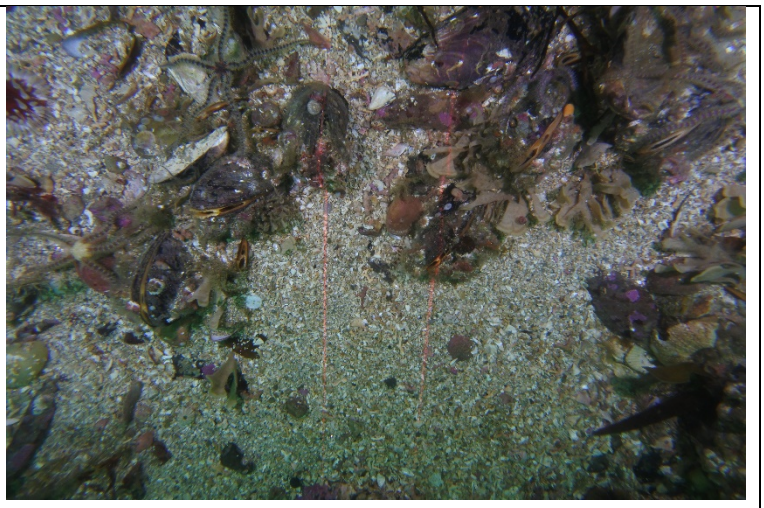
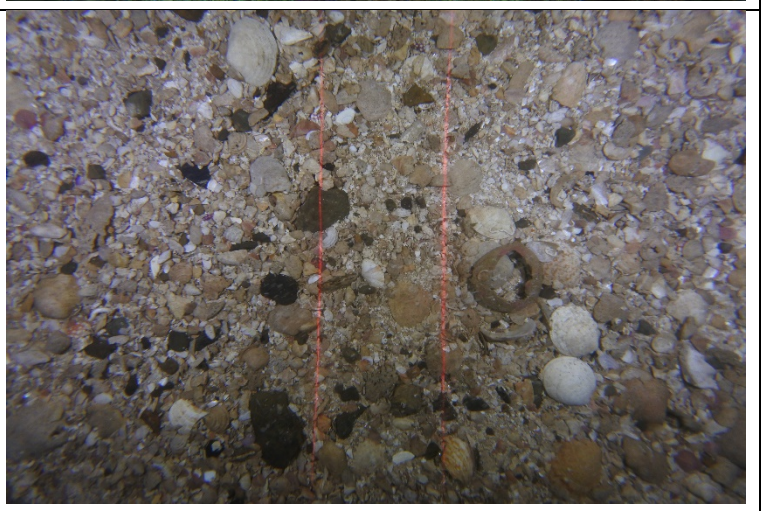
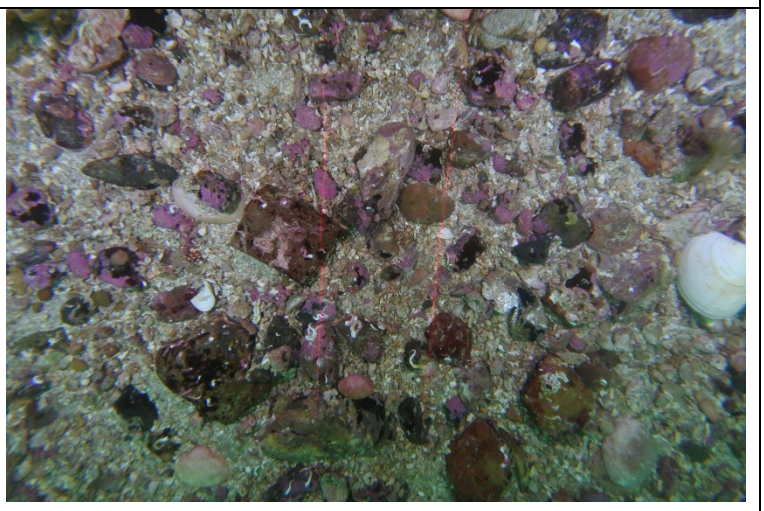
CR.MCR.EcCr.FaAlCr.Adig *Alcyonium digitatum*, *Pomatoceros triqueter*, algal and bryozoan crusts on wave-exposed circalittoral rock Stations 19, **44**, 152 Image DSC_2633	
CR.MCR.EcCr.FaAlCr.Bri Brittlestars on faunal and algal encrusted exposed to moderately wave-exposed circalittoral rock Station **43** Image DSC_2620	
CR.MCR.EcCr.FaAlCr.Flu *Flustra foliacea* on slightly scoured silty circalittoral rock Station **15** Image DSC_2497	

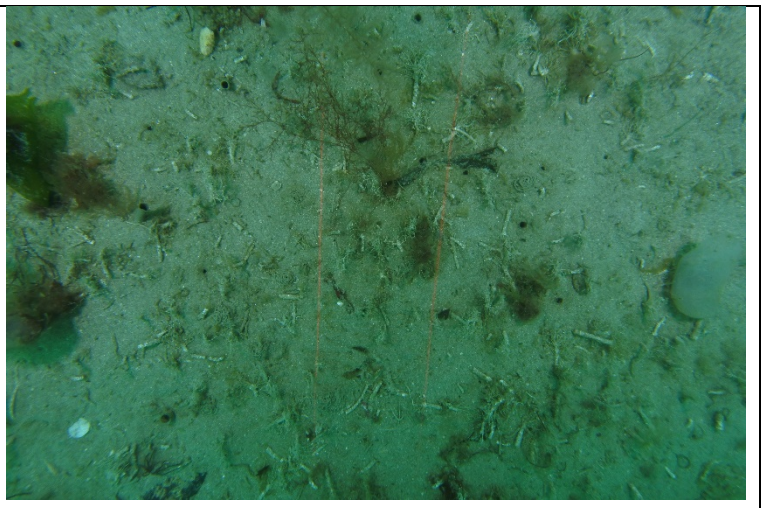
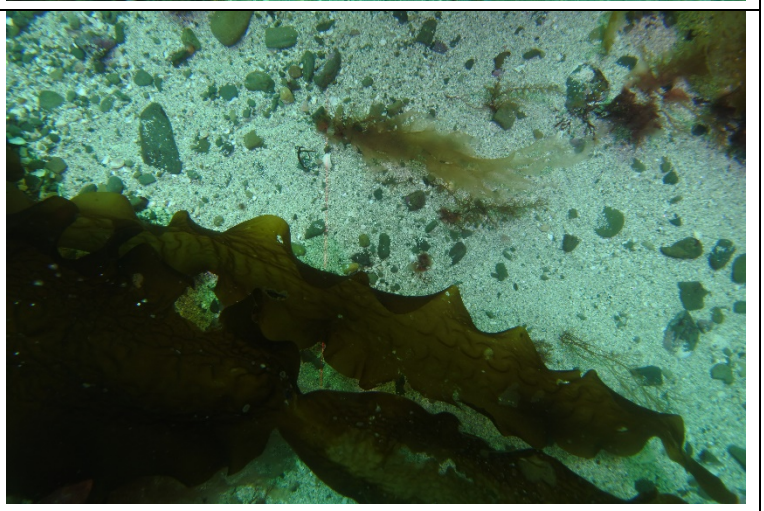
CR.MCR.EcCr.FaAlCr.Pom Faunal and algal crusts with *Pomatoceros triqueter* and sparse *Alcyonium digitatum* on exposed to moderately wave-exposed circalittoral rock Station **38** Image DSC_2559	
CR.MCR.EcCr.FaAlCr.Sec *Alcyonium digitatum* with *Securiflustra securifrons* on tide-swept moderately wave-exposed circalittoral rock Stations **20.1**, 51 Image DSC_2546	
CR.MCR.EcCr.UrtSc *Urticina felina* and sand-tolerant fauna on sand-scoured or covered circalittoral rock Stations 84, 87, 88, **95** Image DSC_3024	

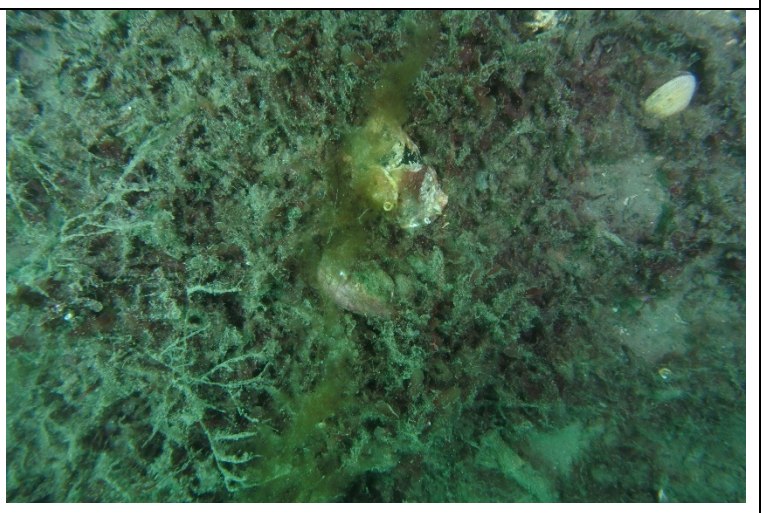
IR.HIR.KFaR.LhypR.Ft *Laminaria hyperborea* forest with dense foliose red seaweeds on exposed upper infralittoral rock Stations 81, 82, **92** Image DSC_2992	
IR.HIR.KFaR.LhypR.Pk *Laminaria hyperborea* park with dense foliose red seaweeds on exposed upper infralittoral rock Stations 12.2, 39, **96** Image DSC_3031	
IR.MIR.KR.Lhyp.Ft *Laminaria hyperborea* forest and foliose red seaweeds on moderately exposed upper infralittoral rock Stations **30**, 37, 40, 41, 42 Image DSC_2436	

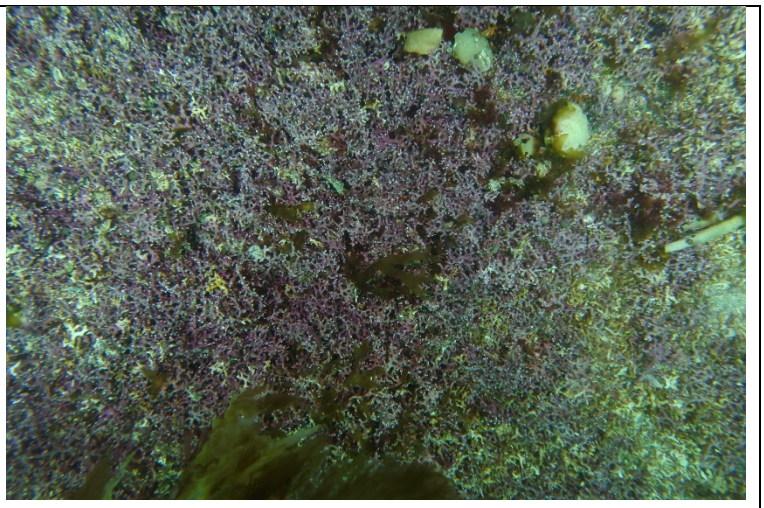
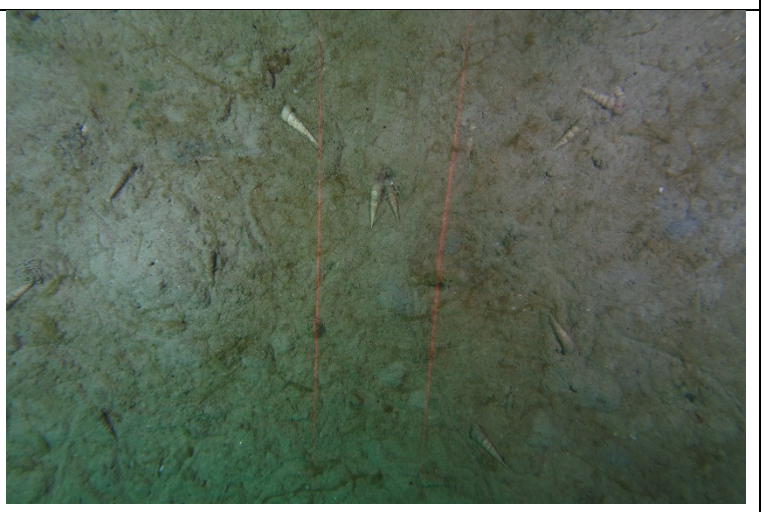
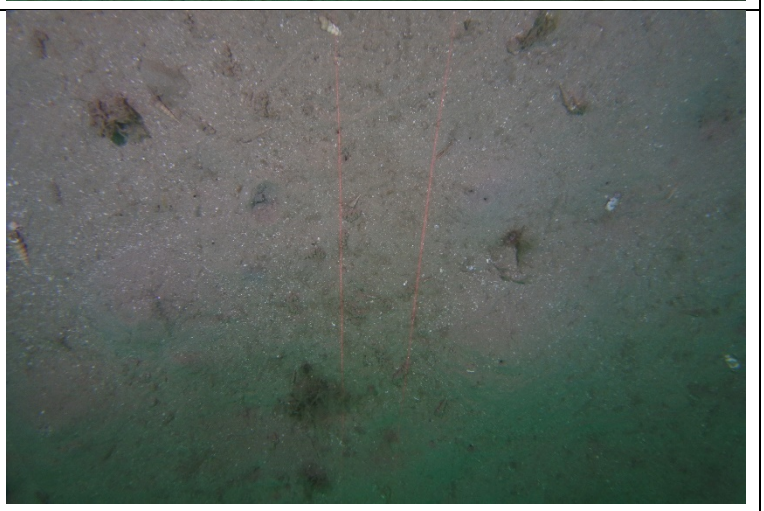
IR.MIR.KR.LhypT.Pk *Laminaria hyperborea* park with hydroids, bryozoans and sponges on tide-swept lower infralittoral rock Stations **20.2** Image DSC_2554	
IR.MIR.KR.LhypTX.Ft *Laminaria hyperborea* forest and foliose red seaweeds on tide-swept upper infralittoral mixed substrata Station **66**, 83 Image DSC_2983	
IR.MIR.KR.LhypTX.Pk *Laminaria hyperborea* park and foliose red seaweeds on tide-swept lower infralittoral mixed substrata Stations 26, 30, 53.1, 67, **125**, 126 Image DSC_2872	

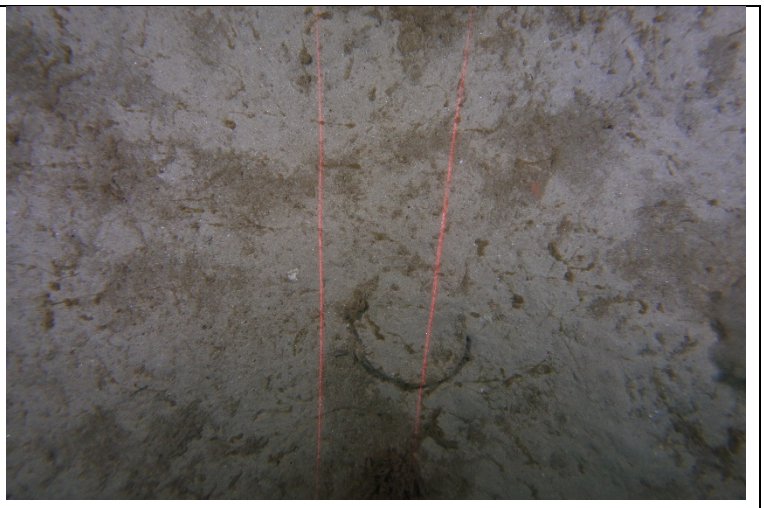
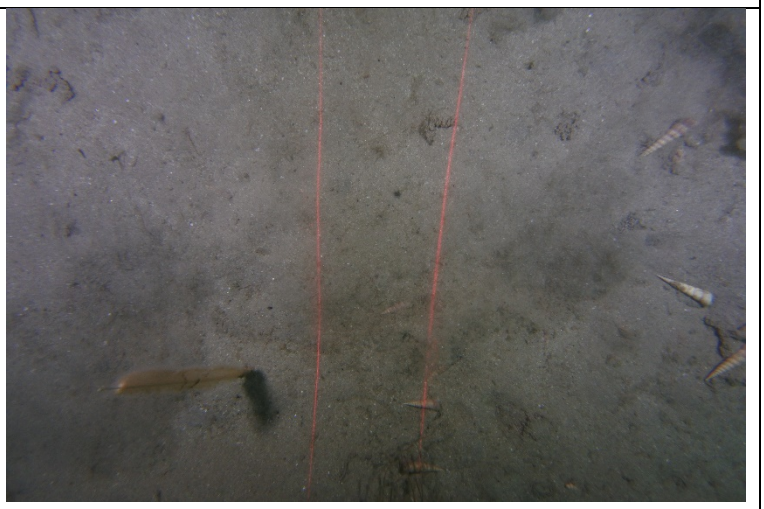
IR.MIR.KT.XKTX Mixed kelp and red seaweeds on infralittoral boulders, cobbles and gravel in tidal rapids Stations 62, **70.1**, 80 Image DSC_3051	
SS.SBR.SMus Sublittoral mussel beds Station **57.2** Image DSC_2826	
SS.SBR.SMus.ModHAs *Modiolus modiolus* beds with fine hydroids and large solitary ascidians on very sheltered circalittoral mixed substrata Stations 146, 147, 148, **149**, 150, 215-221, 222.1 Image DSC_3195	

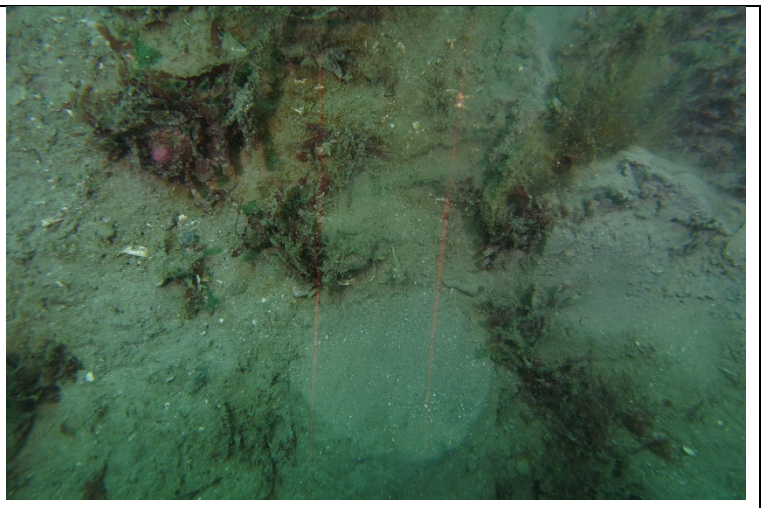
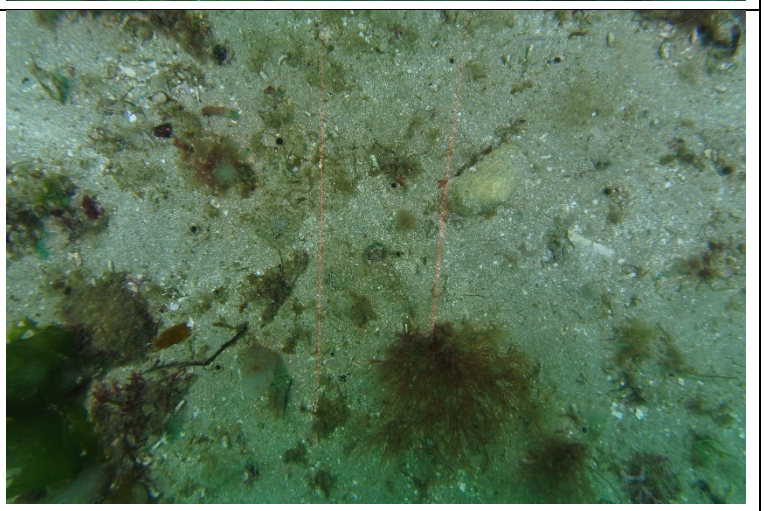
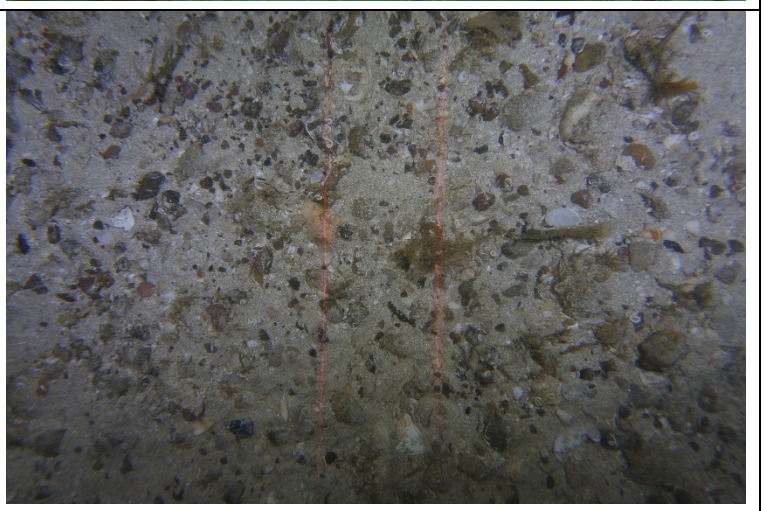
SS.SBR.SMus.ModT *Modiolus modiolus* beds with hydroids and red seaweeds on tide-swept circalittoral mixed substrata Station **111** Image DSC_2932	
SS.SCS.CCS Circalittoral coarse sediment Stations 3, 5, **11**, 17, 60, 75, 79, 99, 101, 103, 104, 105, 112, 129 Image DSC_2432	
SS.SCS.CCS.PomB *Pomatoceros triqueter* with barnacles and bryozoan crusts on unstable circalittoral cobbles and pebbles Stations 7, 8, **107** Image DSC_2859	

SS.SCS.ICS.SLan Dense *Lanice conchilega* and other polychaetes in tide-swept infralittoral sand and mixed gravelly sand Stations 115, **119** Image DSC_3084	
SS.SMp.KSwSS Kelp and seaweed communities on sublittoral sediment Stations 122, 151, 159, **161**, 163.2, 164, 171, 173, 180, 184, 192, 193 Image DSC_3187	
SS.SMp.KSwSS.LsacR *Laminaria saccharina* and red seaweeds on infralittoral sediments Stations 54, **63**, 64 Image DSC_2939	

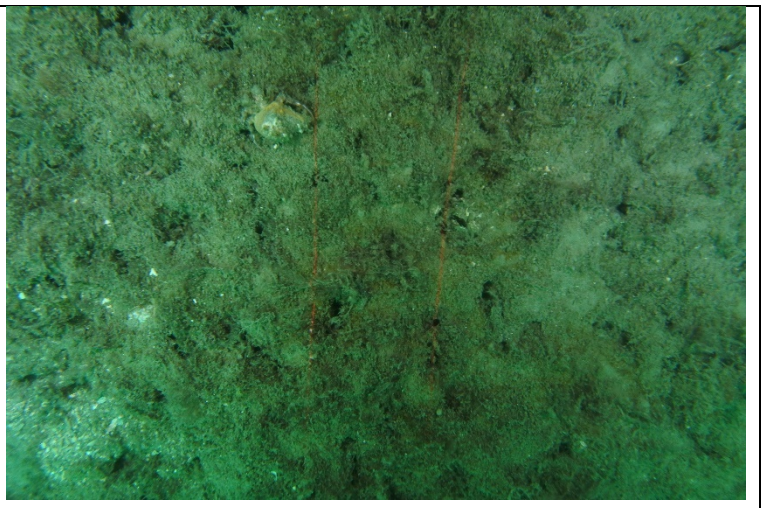
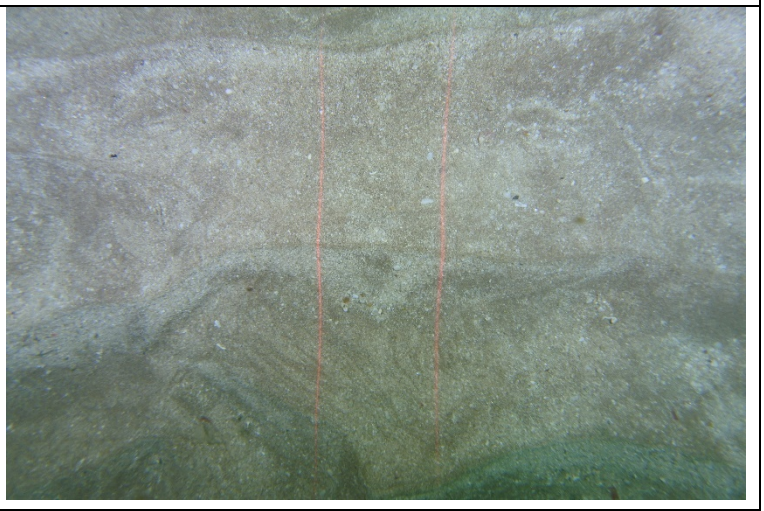
SS.SMp.KSwSS.LsacR.CbPb Red seaweeds and kelps on tide-swept mobile infralittoral cobbles and pebbles Station **65** Image DSC_2970	
SS.SMp.KSwSS.LsacR.Mu *Laminaria saccharina* with red and brown seaweeds on lower infralittoral muddy mixed sediment Station **50** Image DSC_2736	
SS.SMp.KSwSS.Pcri Loose-lying mats of *Phyllophora crispa* on infralittoral muddy sediment Stations 137, 140, 165-**170**, 177.1, 177.3, 179, 182.1, 182.3, 183.2, 187.1, 199.2, 201, 202.1, 203-212 Image DSC_3341	

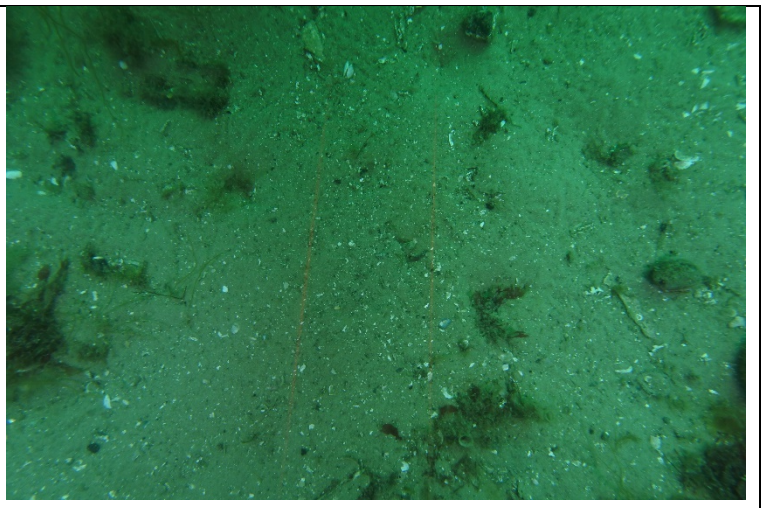
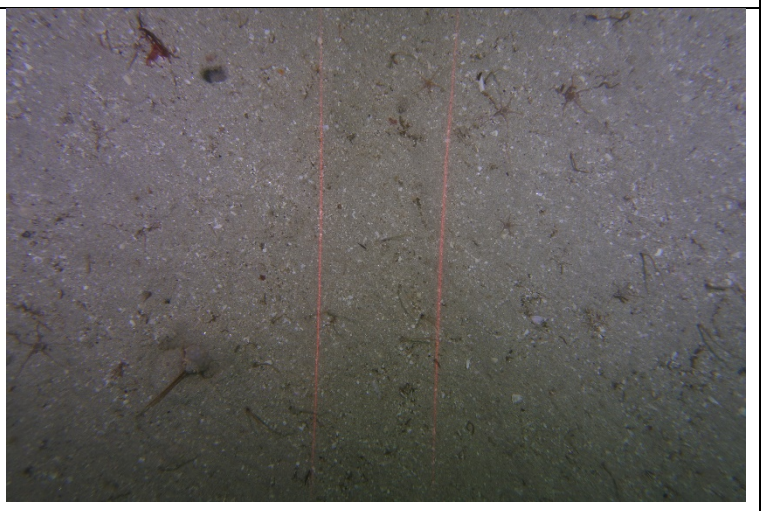
SS.SMp.Mrl Maerl beds Stations 10, 56, 62, 68, 70.1, 70.2, 72.1, 73, 74, 80, 98, 108.1-101.3, 109, 110, 117, 120, 121, 124, 126, 127, 154, 155, 156.2, 158, 163.1, **214** Image DSC_3196	
SS.SMu.CFiMu.MegMax Burrowing megafauna and *Maxmuelleria lankesteri* in circalittoral mud Station **228** Image DSC_3491	
SS.Smu.CFiMu.SpnMeg Seapens and burrowing megafauna in circalittoral fine mud Station **190.1** Image DSC_3046	

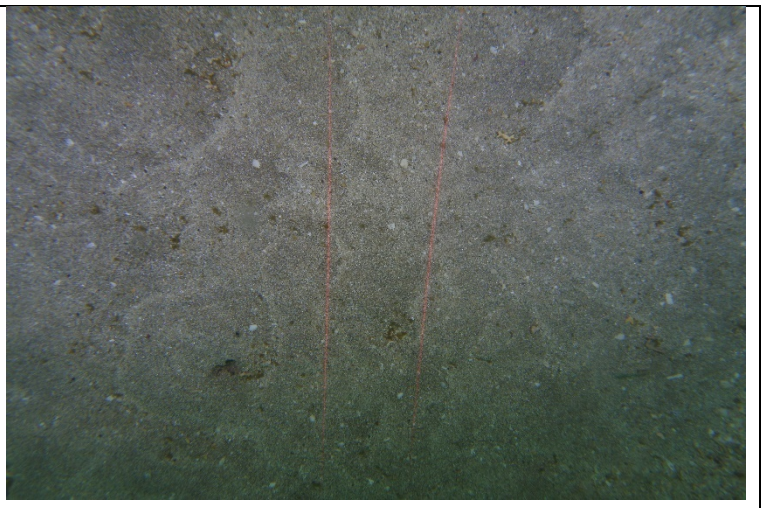
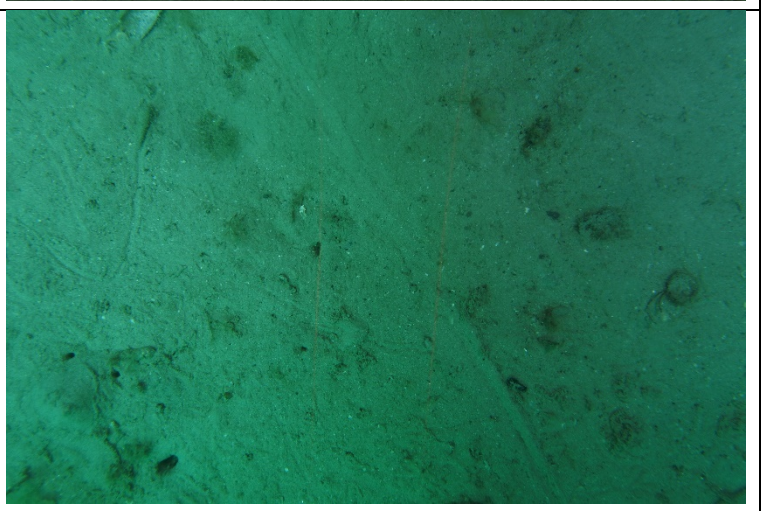
SS.Smu.CSaMu Circalittoral sandy mud Stations 142, 189, 190.2, 191, 222.2, **223**-227 Image DSC_3418	
SS.SMu.CSaMu.VirOphPmax Virgularia mirabilis and Ophiura spp. with Pecten maximus on circalittoral sandy or shelly mud Station **188** Image DSC_3018	
SS.Smu.CSaMu.VirOphPmax.HAS *Virgularia mirabilis* and *Ophiura* spp. with *Pecten maximus*, hydroids and ascidians on circalittoral sandy or shelly mud with stones Station **185** Image DSC_3583	

SS.SMu.IFiMu Infralittoral fine mud Station **182.2** Image DSC_3528	
SS.SMu.IsaMu Infralittoral sandy mud Station **118** Image DSC_3069	
SS.SMx.CMx Circalittoral mixed sediment Stations **6**, 18, 29, 57.1, 57.3, 58, 59, 77, 94, 132-136, 138, 139, 141, 144, 145, 222.2 Image DSC_2505	

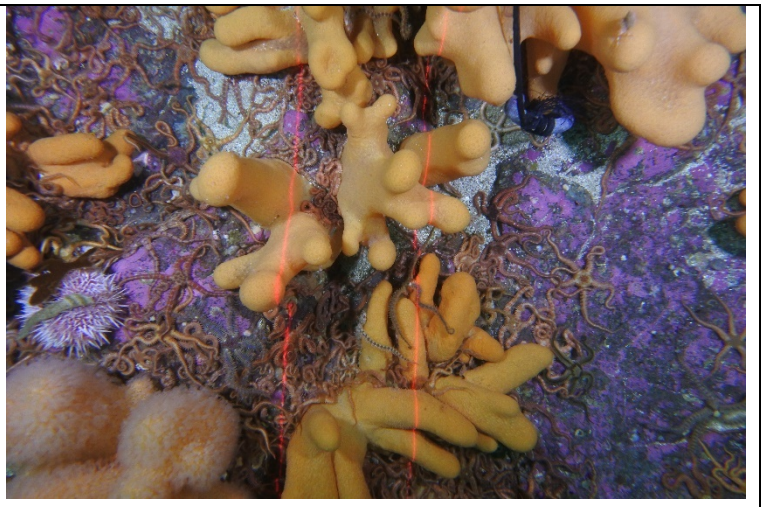
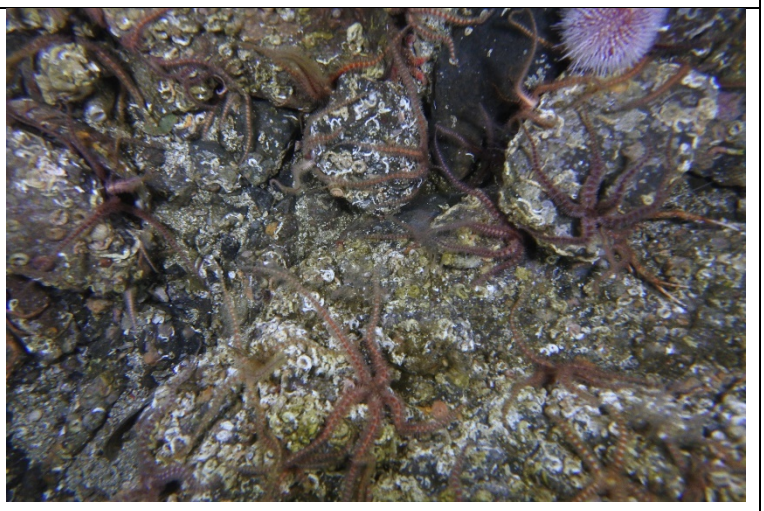
SS.SMx.CMx.FluHyd *Flustra foliacea* and *Hydrallmania falcata* on tide-swept circalittoral mixed sediment Stations 55, 100, 102, 106, **113** Image DSC_2978	
SS.SMx.CMx.OphMx *Ophiothrix fragilis* and/or *Ophiocomina nigra* brittlestar beds on sublittoral mixed sediment Stations 85, 91, **153**, 187.2 Image DSC_3043	
SS.SMx.Imx Infralittoral mixed sediment Stations 56.2, 69, **156.1**, 177.2 Image DSC_3093	

SS.SMx.IMx.Lim *Limaria hians* beds in tide-swept sublittoral muddy mixed sediment Stations 172, 195-198, 199.1, **202.2** Image DSC_3253	
SS.SMx.IMx.SpavSpAn *Sabella pavonina* with sponges and anemones on infralittoral mixed sediment Station **76** Image DSC_2769	
SS.SSa.CFiSa Circalittoral fine sand Stations 16, **22**-25, 29, 32 Image DSC_2584	

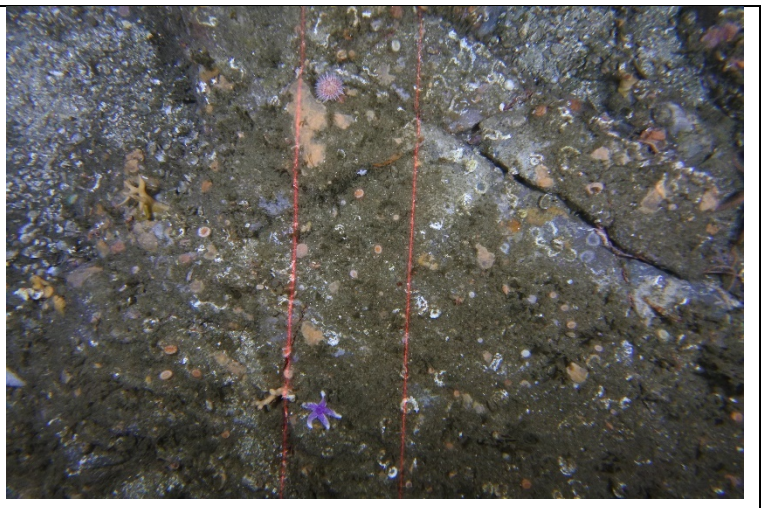
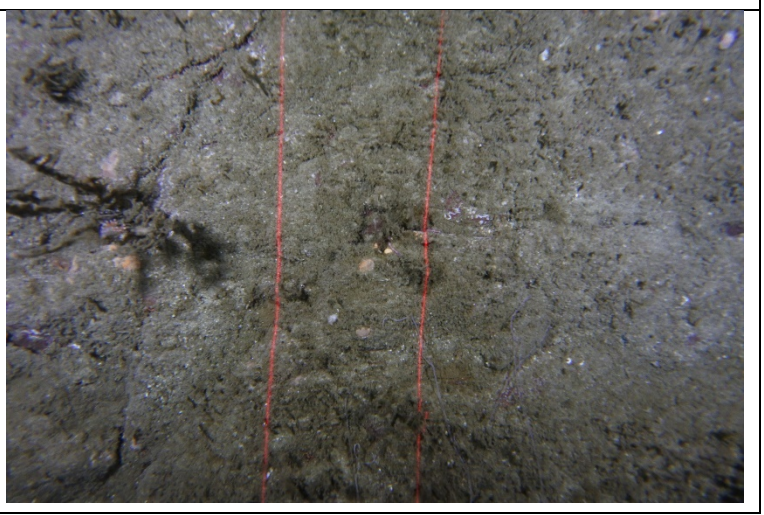
SS.SSa.CMuSa Circalittoral muddy sand Stations 71, 114, 128, **194** Image DSC_3095	
SS.SSa.CMuSa.AbraAirr *Amphiura brachiata* with *Astropecten irregularis* and other echinoderms in circalittoral muddy sand Stations 9, **27**, 28, 49, 78, 130, 131 Image DSC_2643	
SS.Ssa.IFiSa Infralittoral fine sand Station **93** Image DSC_2998	

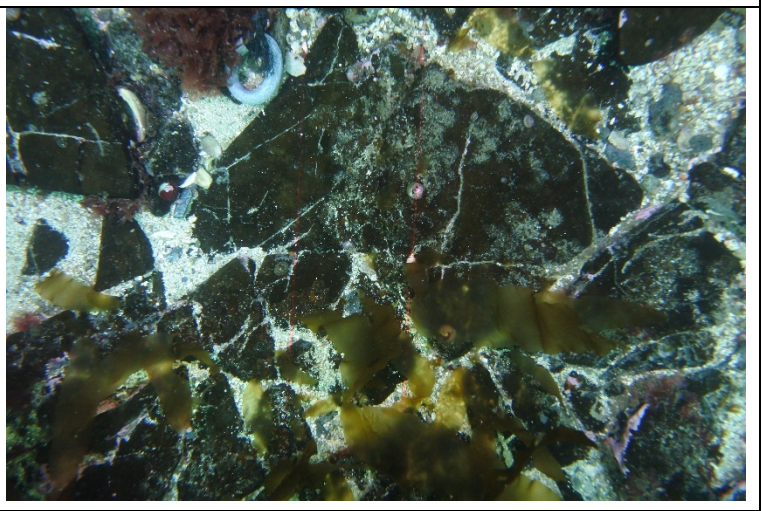
SS.SSa.IFiSa.IMoSa Infralittoral mobile clean sand with sparse fauna Stations 53.2, 61, 72.2, 86, 89, **97**, 116, 124 Image DSC_3041	
SS.SSa.IMuSa Infralittoral muddy sand Stations 157, **162** Image DSC_3193	

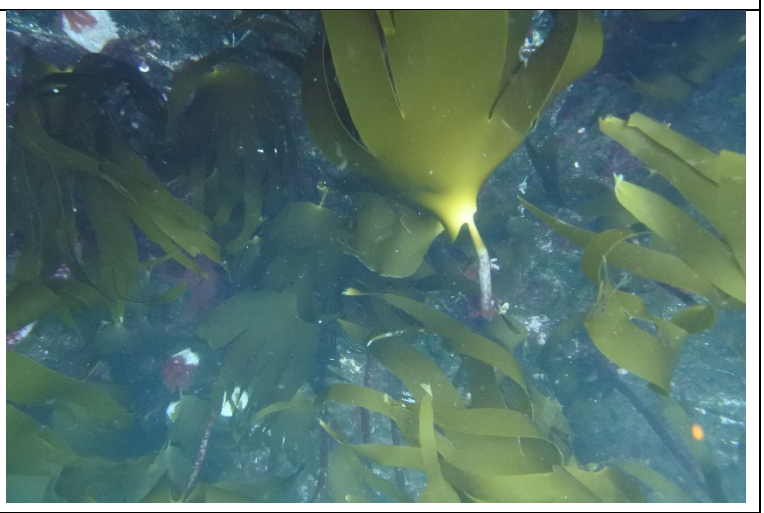
Shetland biotopes and example images

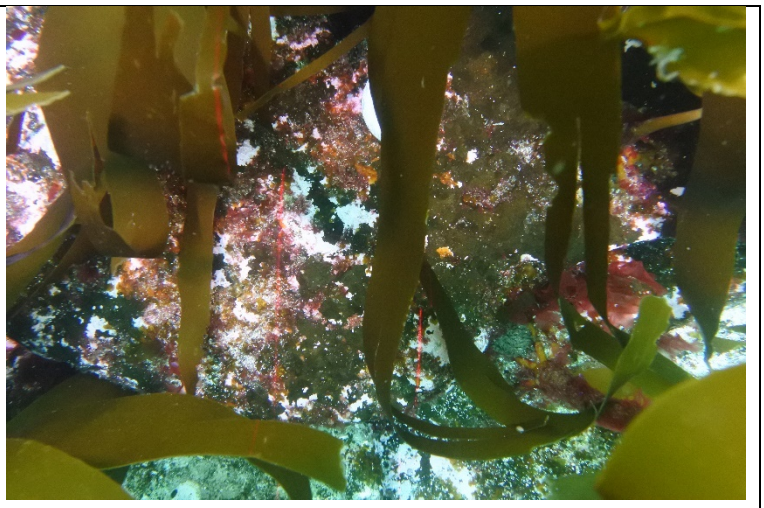
CR.MCR.EcCr.AdigVt *Alcyonium digitatum* and faunal crust communities on vertical circalittoral bedrock Station **52.2** Image DSC_3215	
CR.MCR.EcCr.CarSp.Bri Brittlestars overlying coralline crusts, *Parasmittina trispinosa* and *Caryophyllia smithii* on wave-exposed circalittoral rock Station **70** Image DSC_3562	
CR.MCR.EcCr.FaAlCr Faunal and algal crusts on exposed to moderately wave-exposed circalittoral rock Stations 1.1- 1.9, 1.11-1.13, 2.2, 2.4, 2.5, 2.7, 2.10, 2.12, 3.2- 3.4, 3.6- 3.8, 3.10, 3.12, 4.1, 4.3, 4.4, 4.7-4.9, 4.11, 5.1, 5.2, 5.4-5.8, 6.2, 8.1, 10.3, 16, 18, 19.2, 38, 41, 42, 45, 46.2, 48, 53.2, 55.1,	

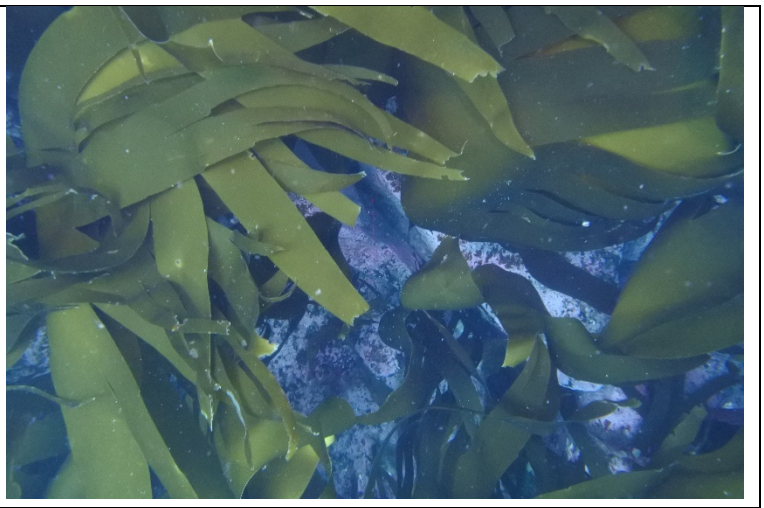
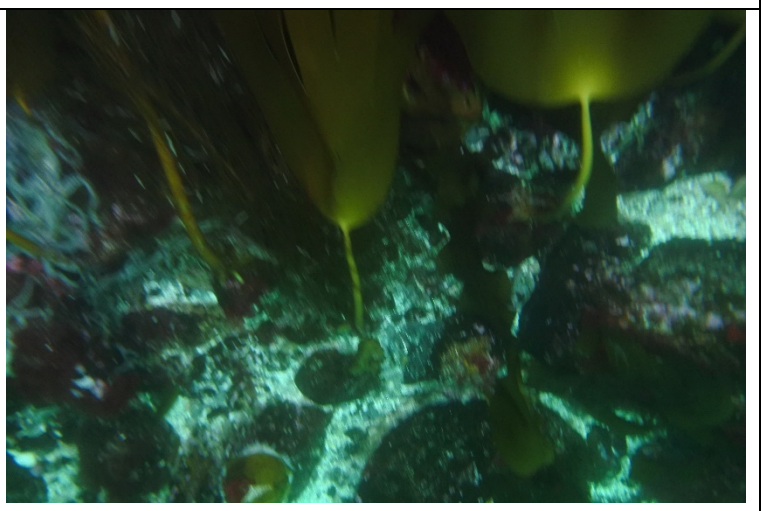
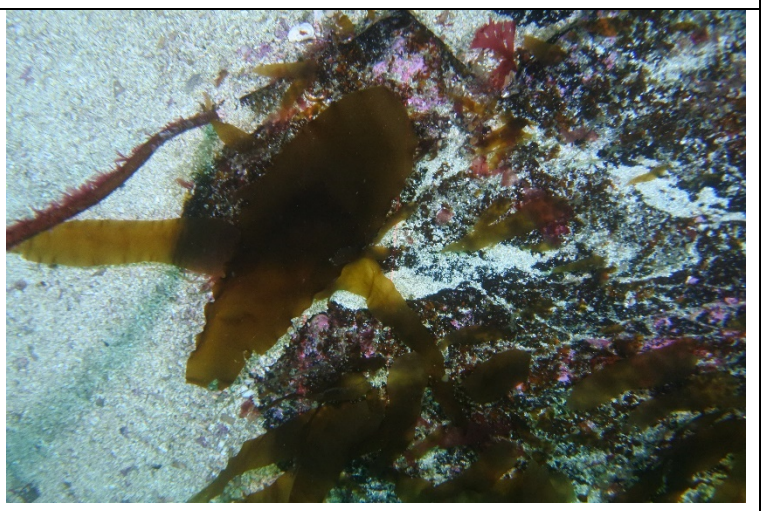
60, 61.2, 68.3, 70, **95**, 98.3, 103.3, 13.5, 159.2, 166.2, 175.2 Image DSC_3593	
CR.MCR.EcCr.FaAlCr.Adig *Alcyonium digitatum*, *Pomatoceros triqueter*, algal and bryozoan crusts on wave-exposed circalittoral rock Stations **114.1**, 123, 127.1 Image DSC_3761	
CR.MCR.EcCr.FaAlCr.Bri Brittlestars on faunal and algal encrusted exposed to moderately wave-exposed circalittoral rock Stations 6.4, **11**, 25.2, 25.4, 35, 2, 86.1, 86.2, 87.1, 93.4, 93.6, 107.2, 107.6, 111.3, 113, 120.6, 125.2 Image DSC_2962	

CR.MCR.EcCr.FaAlCr.Car *Caryophyllia smithii* with faunal and algal crusts on moderately wave-exposed circalittoral rock Stations **9**, 13, 15.2, 94, 96.1, 96.3, 97.2, 97.3, 97.4, 97.5 Image DSC_2922	
CR.MCR.EcCr.FaAlCr.Pom Faunal and algal crusts with *Pomatoceros triqueter* and sparse *Alcyonium digitatum* on exposed to moderately wave-exposed circalittoral rock Stations 93.2, 97,6, **107.4** Image screengrab SGSt_107_4	
CR.LCR Low energy circalittoral rock Station **67.2** Image DSC_3509	

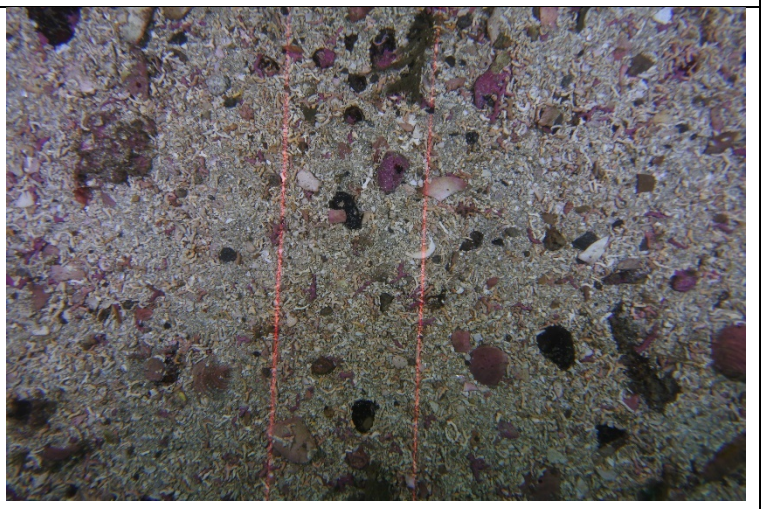
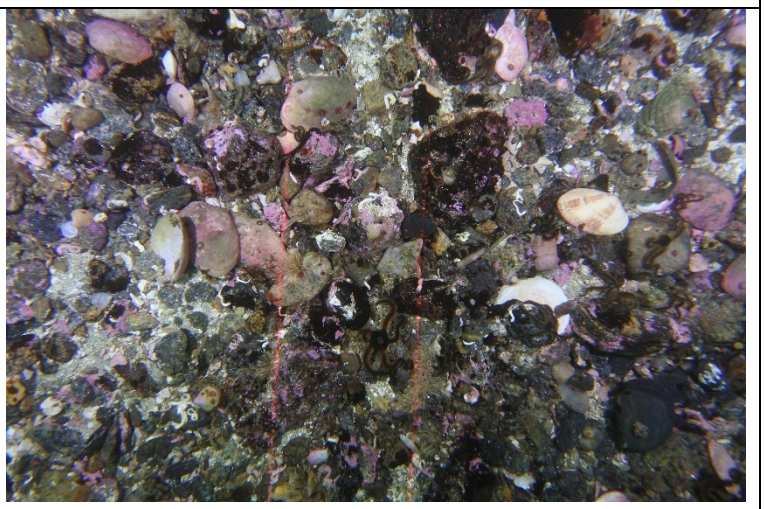
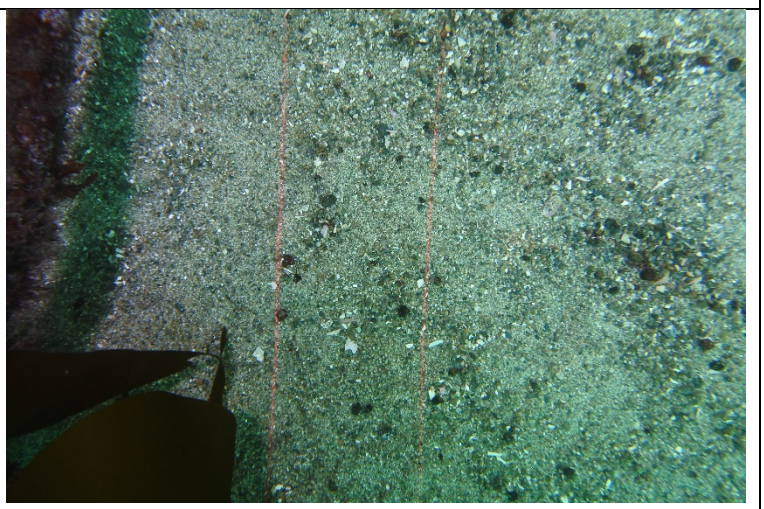
IR.HIR.KFaR.FoR Foliose red seaweeds on exposed lower infralittoral rock Station **34.2** Image DSC_2930	
IR.HIR.KSed Sediment-affected or disturbed kelp and seaweed communities Station **17** Image DSC_3040	
IR.HIR.KSed.LsacSac *Laminaria saccharina* and/or *Saccorhiza polyschides* on exposed infralittoral rock Stations 19.1, 43, 83.9, 85.4, 93.1, 98.2, 130.1, 159.1, **175.1** Image DSC_3890	

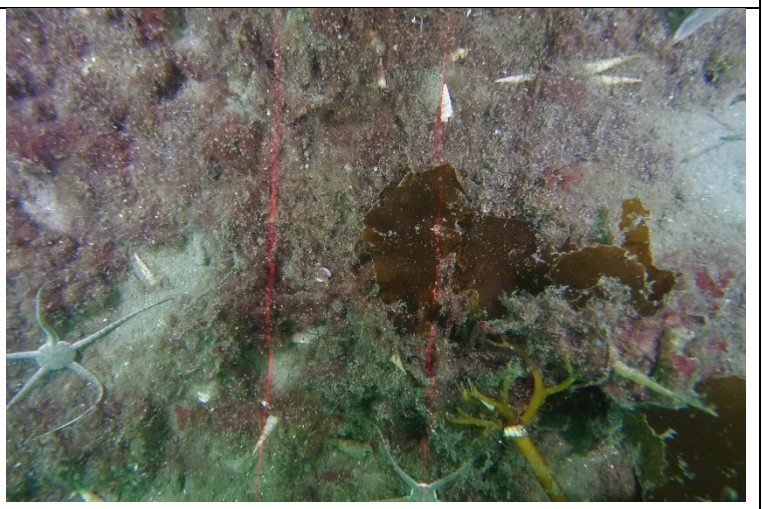
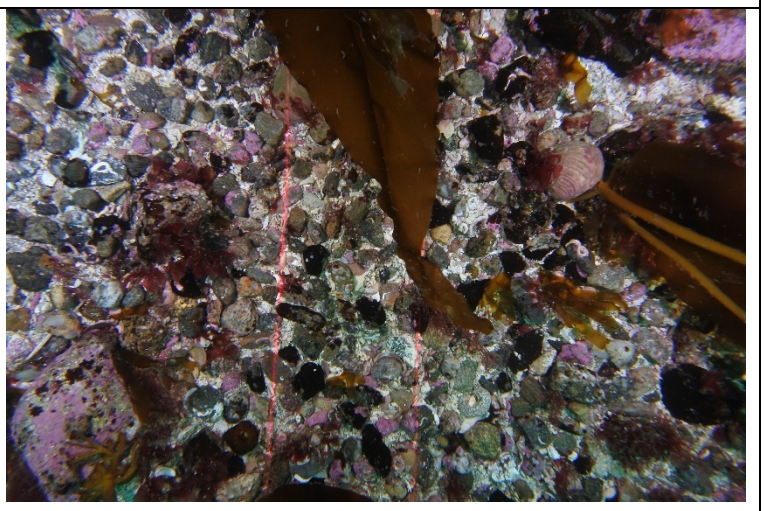
IR.HIR.KSed.XKScrR Mixed kelps with scour-tolerant and opportunistic foliose red seaweeds on scoured or sand-covered infralittoral rock Stations **15.1**, 57.1, 103.1, 107.1, 109, 110, 126 Image DSC_3014	
IR.LIR.K.Lsac.Gz Grazed *Laminaria saccharina* with *Echinus*, brittlestars and coralline crusts on sheltered infralittoral rock Stations 27.2, **33.1** Image DSC_2914	
IR.MIR.KR.Lhyp.Ft *Laminaria hyperborea* forest and foliose red seaweeds on moderately exposed upper infralittoral rock Station **33.2** Image DSC_2918	

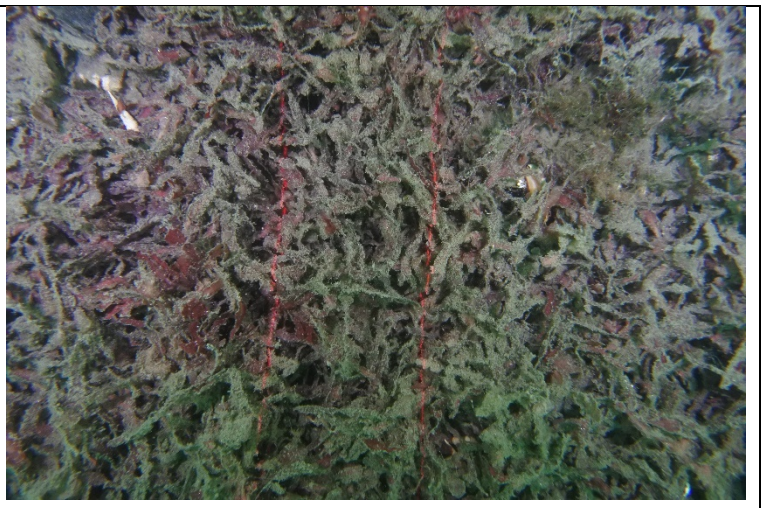
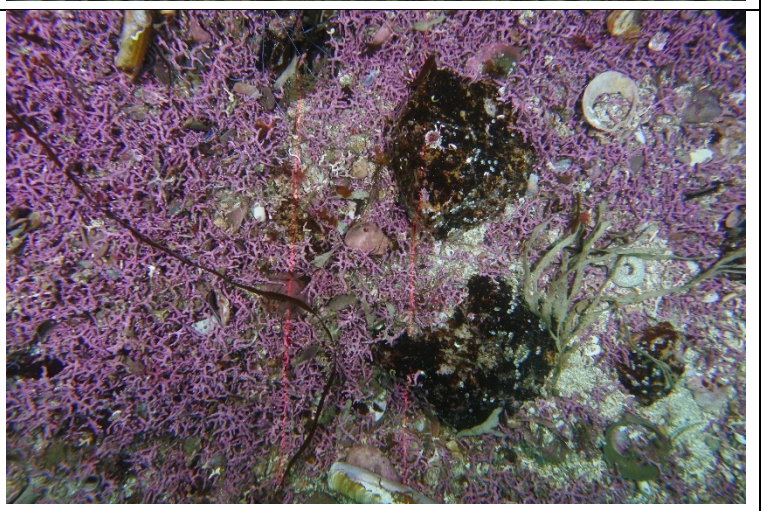
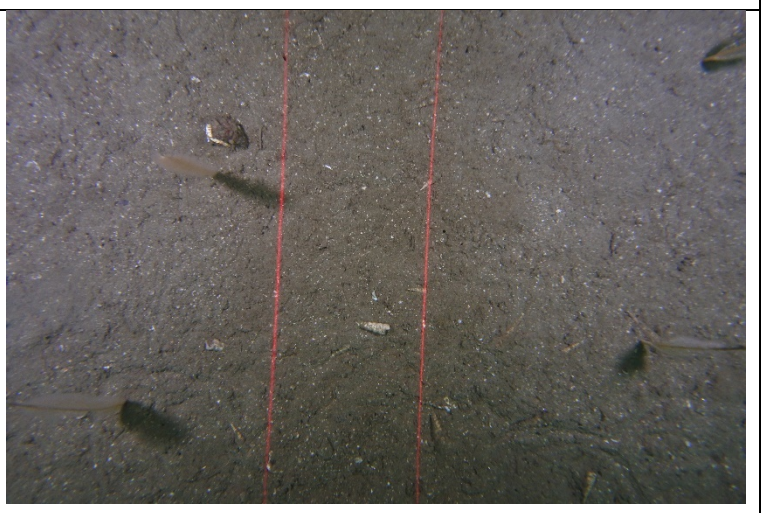
IR.MIR.KR.Lhyp.GzFt Grazed *Laminaria hyperborea* forest with coralline crusts on upper infralittoral rock Stations **40**, 129, 165.1 Image DSC_3021	
IR.MIR.KR.Lhyp.GzPk Grazed *Laminaria hyperborea* park with coralline crusts on lower infralittoral rock Stations 6.1, 12, 46.1, **47**, 53.1, 61.1, 64.1, 65, 165.2 Image DSC_3144	
IR.MIR.KR.LhypT.Ft *Laminaria hyperborea* forest, foliose red seaweeds and a diverse fauna on tide-swept upper infralittoral rock Station **98.1** Image DSC_3642	

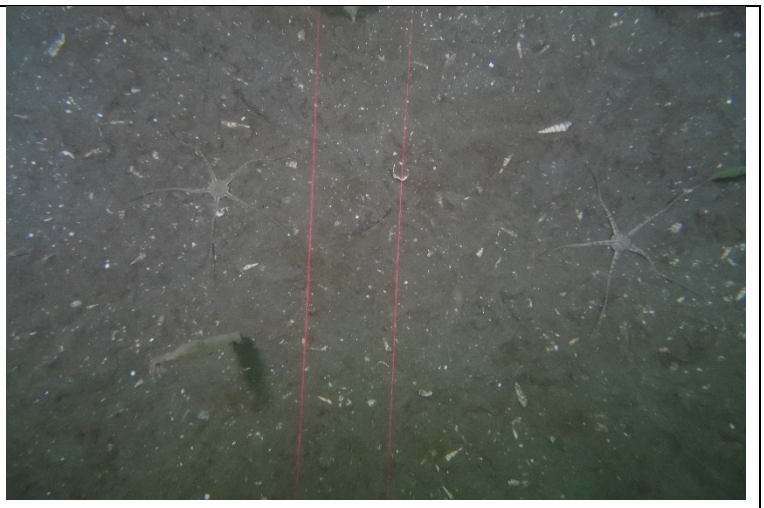
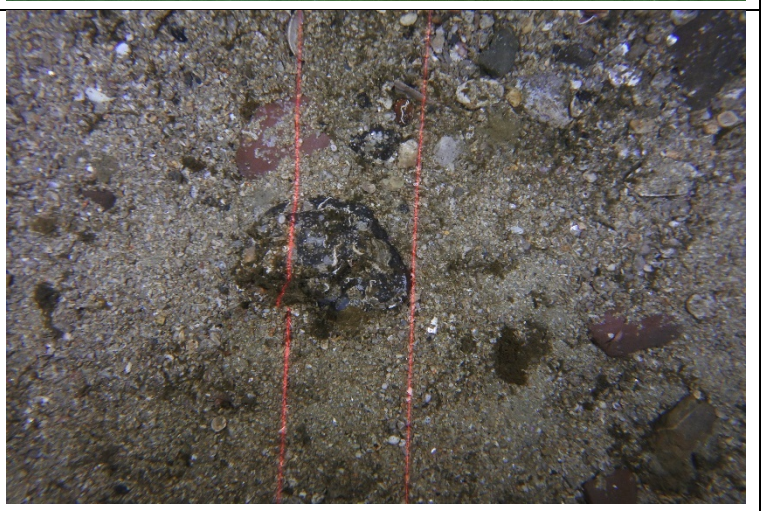
IR.MIR.KR.LhypTX.Ft *Laminaria hyperborea* forest and foliose red seaweeds on tide-swept upper infralittoral mixed substrata Stations **83.5**, 83.6 Image DSC_3616	
IR.MIR.KR.LhypTX.Pk *Laminaria hyperborea* park with hydroids, bryozoans and sponges on tide-swept lower infralittoral rock Station 124, **125.1** Image DSC_3672	
IR.MIR.KT.XKTX Mixed kelp and red seaweeds on infralittoral boulders, cobbles and gravel in tidal rapids Stations **101.4**, 101.6, 101.8 Image DSC_3706	

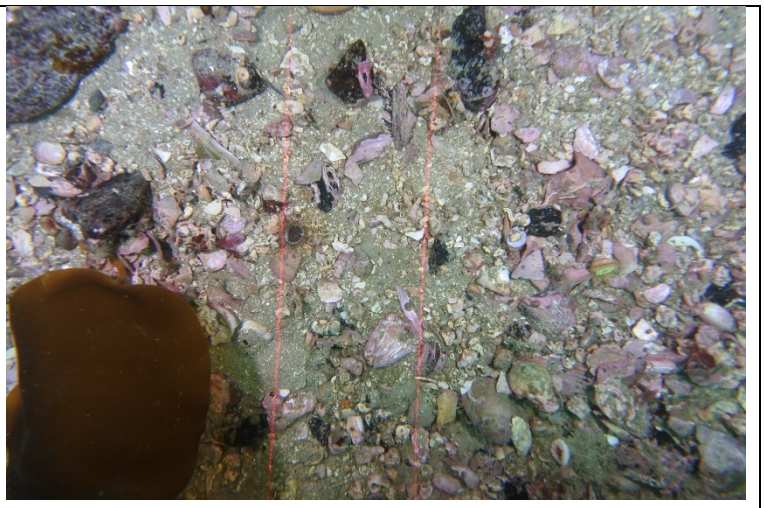
SS.SBR.SMus.ModHAs *Modiolus modiolus* beds with fine hydroids and large solitary ascidians on very sheltered circalittoral mixed substrata Station **151** Image DSC_3763	
SS.SBR.SMus.ModT *Modiolus modiolus* beds with hydroids and red seaweeds on tide-swept circalittoral mixed substrata Stations **42**, 107.3, 107.5, 111.2, 112, 136.5, 143, 145 Image DSC_3054	
SS.SCS.CCS Circalittoral coarse sediment Stations 1.1, 1.3, 1.5, 1.7, 1.9, 1.11, 1.13, 1.14, 2.5, 2.7, 2.12, 3.3, 3.7, 3.11, 3.12, 4.2, 4.5, 4.6, 4.8, 4.9. 4.10, 5.2, 5.3, 5.5, 5.6, 5.7, 5.8, 25.5, 37, 39, 56.2, 82.1, 83.1, 83.2, 83.3, 83.4, 83.8, 83.11, 84.9, 93.3, 98.4, 99, 101.3, 101.11, 120.5, 131.4, 132.1, 135, **139**, 140, 141.1, 141.3, 161, 162, 164, 166.1, 171	

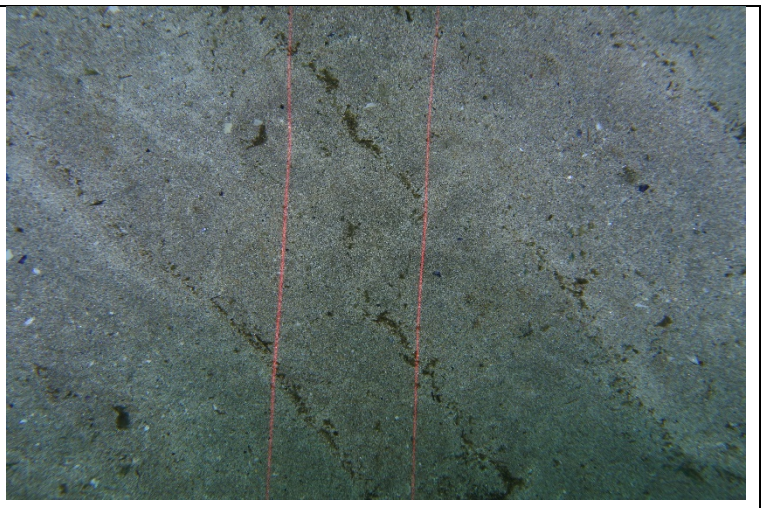
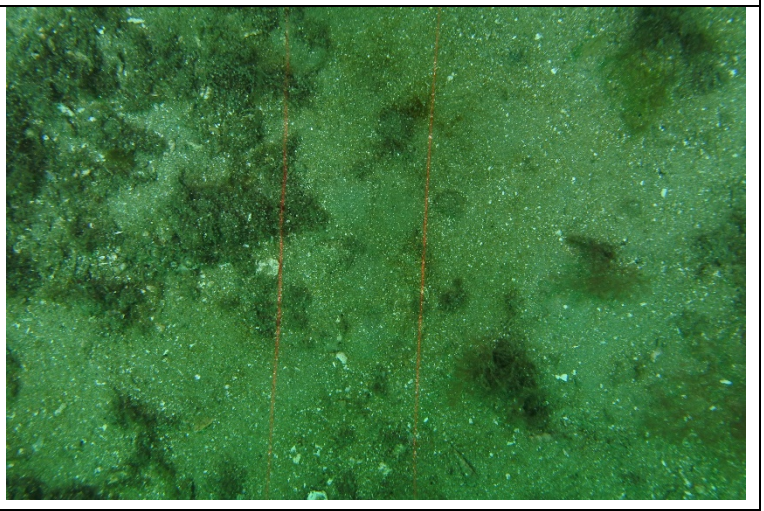
Image DSC_3990	
SS.SCS.CCS.Nmix *Neopentadactyla mixta* in circalittoral shell gravel or coarse sand Stations **120.2**, 120.4, 128.2 Image DSC_3860	
SS.SCS.CCS.PomB *Pomatoceros triqueter* with barnacles and bryozoan crusts on unstable circalittoral cobbles and pebbles Stations 31, 32, 96.2, 111.1, **122** Image DSC_3636	
SS.SCS.ICS Infralittoral coarse sediment Station **119.1** Image DSC_3824	

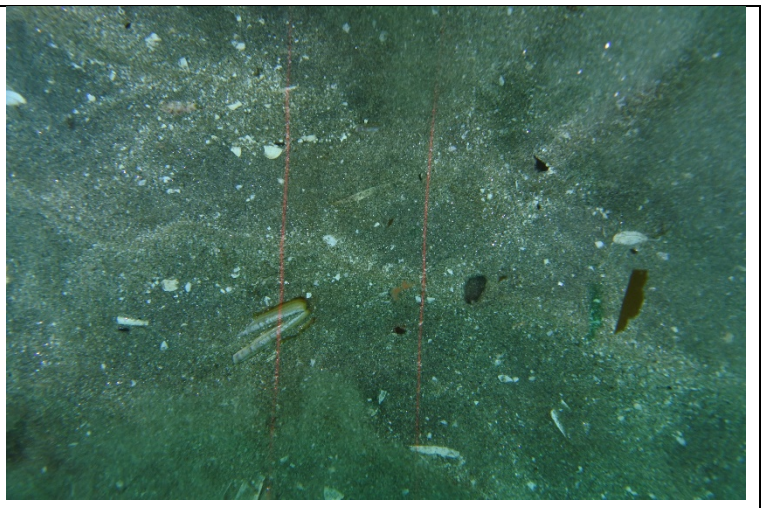
SS.SCS.ICS.SSh Sparse fauna on highly mobile sublittoral shingle (cobbles and pebbles) Station **14.2** Image DSC_3006	
SS.SMp.KSwSS Kelp and seaweed communities on sublittoral sediment Stations 14.1, 23, 54, 81, 90, 91, 101.7, 103.4, 108, **148** Image DSC_3718	
SS.SMp.KSwSS.LsacR *Laminaria saccharina* and red seaweeds on infralittoral sediments Stations 55.2, 56.1, 56.3, 57.2, **58**, 101.5, 128.3 Image DSC_3357	

SS.SMp.KSwSS.Pcri Loose-lying mats of *Phyllophora crispa* on infralittoral muddy sediment Stations 121, **155.1** Image DSC_3800	
SS.SMp.Mrl Maerl beds Stations 1.6, 2.1, 2.3, 2.6, 2.9, 2.11, 3.1, 3.5, 3.8, 3.9, 27.1, 28.1, 83.7, 83.11, 84.1, 84.2, 84.3, 84.4, 84.5, 84.6, 84.7, 84.8, 84.11, 84.11, 85.1, 85.2, **101.2,** 101.7, 101.9, 101.11, 120.1, 128.1, 131.1, 131.2, 131.3, 132.2, 134.2, 136.2, 138.1, 158 Image DSC_3693	
SS.SMu.CSaMu Circalittoral sandy mud Stations 10.1, 66, 68.2, 68.4, **147**, 150, 153.1, 154.1, 157 Image DSC_3712	

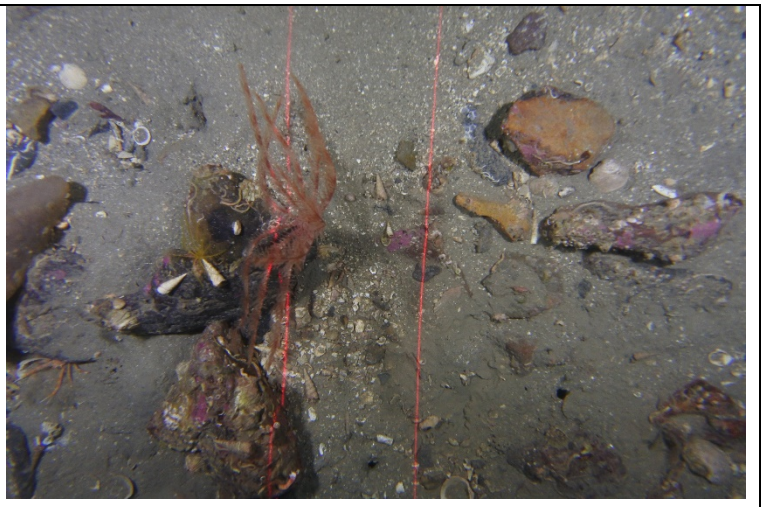
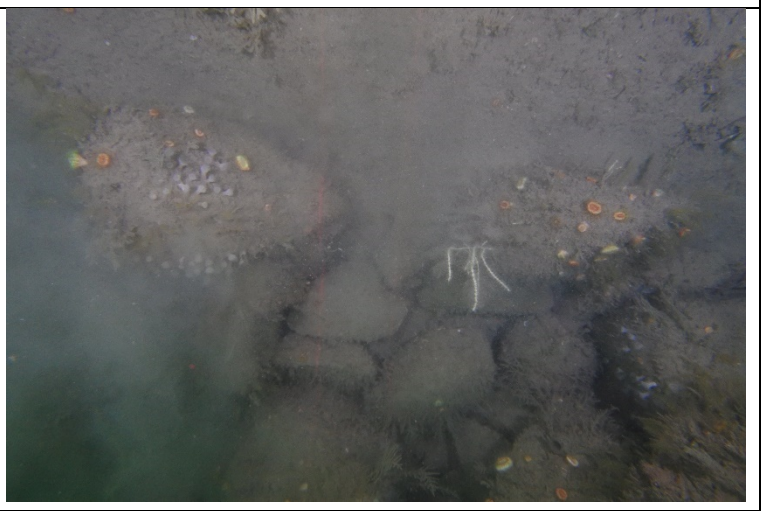
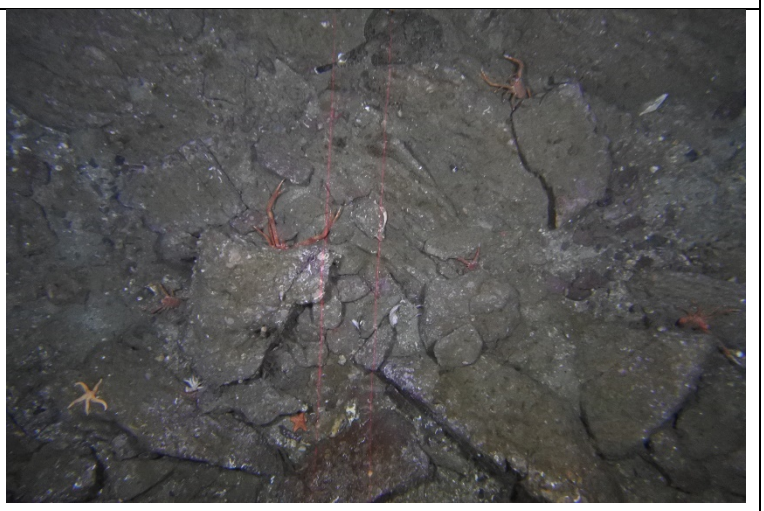
SS.SMu.CSaMu.VirOphPmax *Virgularia mirabilis* and *Ophiura* spp. with *Pecten maximus* on circalittoral sandy or shelly mud Stations 146, **153.2,** 154.2, 174 Image DSC_3782	
SS.SMu.IFiMu.Are *Arenicola marina* in infralittoral mud Stations 76, **77**, 78, 79, 80 Image DSC_3674	
SS.SMx.CMx Circalittoral mixed sediment Stations 6.3, 10.2, **10.4**, 24, 25.1, 25.3, 26, 28.2, 29, 30, 59, 67.1, 68.1, 68.5, 69, 72, 74, 75, 118.1, 136.6, 138.2, 144, 156, 170 Image DSC_2954	

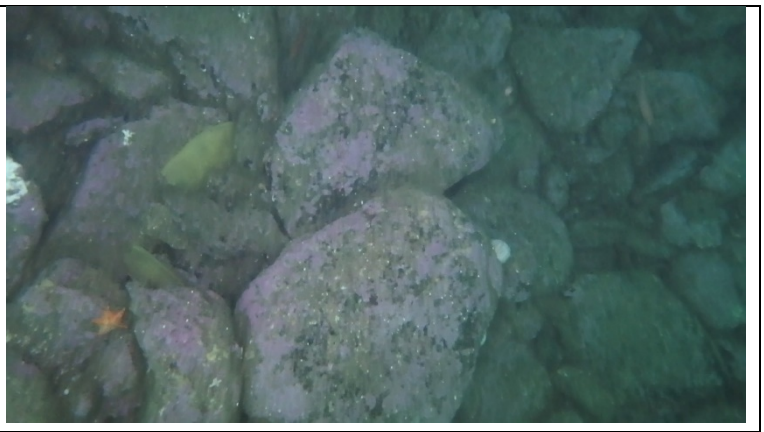
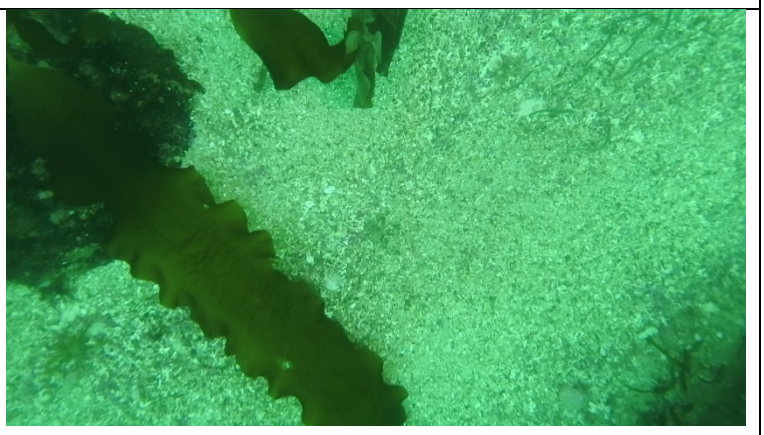
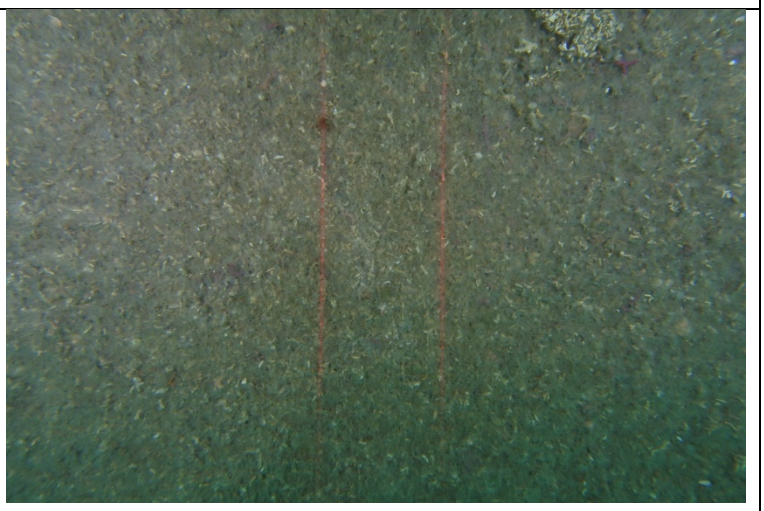
SS.SMx.CMx.CIloMx *Cerianthus lloydii* and other burrowing anemones in circalittoral muddy mixed sediment Station **142** Image DSC_3684	
SS.SMx.CMx.FluHyd *Flustra foliacea* and *Hydrallmania falcata* on tide-swept circalittoral mixed sediment Stations 100.1, **163** Image DSC_3681	
SS.SMx.CMx.OphMx *Ophiothrix fragilis* and/or *Ophiocomina nigra* brittlestar beds on sublittoral mixed sediment Stations 34.1, 52.1, 52.3, 86.1, 87.2, 89, 93.5, 100.2, 101.1, 101.7, 113, 114.2, 115, 116, 133, 136.1, 136.3, 137, 152, 160, 167, 168, 169, **172**, 173 Image DSC_3834	

SS.SSa.CFiSa Circalittoral fine sand Stations 2.8, 2.10, 7, 8.2, 49, 50, 63, 64.2, **88**, 92, 97.1, 118.2, 141.2 Image DSC_3755	
SS.SSa.CMuSa Circalittoral muddy sand Stations 20, 21, 22, 36, 51, 71, 73, 102, **117** Image DSC_3794	
SS.SSa.IFiSa Infralittoral fine sand Station **149** Image DSC_3730	

SS.SSa.IFiSa.IMoSa Infralittoral mobile clean sand with sparse fauna Stations 44, 103.2, 103.6, 104, 105, **106**, 130.2, 134.1 Image DSC_3655	
SS.SSa.IMuSa Infralittoral muddy sand Station **31** Image DSC_2891	

PMF species and exempla images

Northern feather star *Leptometra celtica* Image Inner Sound DSC_2619	
White cluster anemone *Parazoanthus anguicomus* Stations Jura and Islay 141, 150, 184, **185** Image DSC_5374	
Anglerfish *Lophius piscatorius* Stations Shetland 67.1, 67.2, 68.3, 120.2, 166 Image DSC_3510	

Skate eggs *Dipturus intermedia* Stations Inner Sound 140.1, Islay and Jura 164, Shetland 98.3 Image screengrab SGSkate_98	
Sand eels *Ammodytes sp* Stations Inner Sound **113.2**, Islay and Jura 209.2 Image screengrab SGSand_eel_113	
Atlantic Herring *Clupea harengus* eggs Stations Inner Sound **114**, 115 Image DSC_2499	

Appendix 3

Suggested new biotopes

Type of proposal	Suggested new biotope code	Suggested new biotope name	Suggested 'parent' habitat	Biotope description	How the biotope differs from existing biotopes
new biotope	SS.SMx.CMx.Lc	*Leptometra celtica* aggregations on mixed substratum	SS.SMx.CMx	Mixed substratum supporting *Leptometra celtica* on stones, rocks or boulders. *Leptometra celtica* may be the dominant epifauna present. Other filter feeders may also be present, such as the Antedon sp., brittle stars (*Ophiocomina nigra*) and *Spirobranchus triqueter*. The habitat may be otherwise faunally sparse. Mainly recorded on the west coast of Scotland.	No specific biotope which incorporates *Leptometra celtica*, even where it is the only dominant species (Abundant or super abundant)
new biotope	SS.SMx.CMx.Aq	*Aequipecten opercularis* on mixed sediments	SS.SMx.CMx	Mixed substratum supporting dense beds of *Aequipecten opercularis.* *Aequipecten opercularis* may be the dominant fauna present.	No specific biotope for habitats where *Aequipecten opercularis* is a dominant epifaunal species

new biotope	SS.SMx.CMx.Mod	Sparse *Modiolus modiolus* on mixed substrate	SS.SMx.CMx	Muddy mixed substratum supporting *sparse Modiolus modiolus. Modiolus modiolus* only observed as individuals or clumps of up to three individuals. Limited epifauna associated with the *Modiolus modiolus*. Found in sheltered conditions, including Shetland voes.	*Modiolus modiolus* at densities not sufficient to form beds, but with no *Cerianthus lloydii*.
new biotope	SS.SSa.CFiSa.CMoSa	Circalittoral mobile sand with sparse fauna	SS.SSa.CFiSa	Medium to fine sandy sediment in moderate water, on exposed or tide-swept coasts often contains very little infauna due to the mobility of the substratum. This biotope occurs in greater water depth than SS.SSa.IFiSa.IMoSa.	All existing fine sand biotopes suggest fauna present, this biotope is too deep to fit the infralittoral category SS.SSa.IFiSa.IMoSa.
new biotope	CR.MCR.EcCr.FaAlCr.Mod	*Modiolus modiolus* on bedrock	CR.MCR.EcCr.FaAlCr	Bedrock with patches of *Modiolus modiolus* on bedrock or in small (less than 30cm) sand pockets on the rock surface. Rock otherwise supporting faunal and algal crusts including encrusting algae, *Ophiocomina nigra, Alcyonium digitatum, Echinus esculentus*.	*Modiolus modiolus* on bedrock does not currently fit into either a mussel bed classification or a bedrock classification.

Appendix 4

Survey locations

Inner Sound

Start and end times and positions for all Inner Sound stations.

Station ID	Start time	End time	Start position	End position
InnerSound_001	11:42:00	11:45:00	57.276886,-5.755521	57.2778,-5.754842
InnerSound_002	11:53:30	11:58:40	57.27646,-5.754339	57.277528,-5.753414
InnerSound_003	12:04:36	12:10:15	57.276152,-5.751875	57.277107,-5.750159
InnerSound_004	12:16:32	12:26:52	57.277137,-5.7528	57.277141,-5.749953
InnerSound_005	12:45:23	12:54:30	57.27541,-5.737731	57.276005,-5.73315
InnerSound_006	13:00:48	13:10:00	57.275859,-5.731428	57.276912,-5.724625
InnerSound_007	13:19:26	13:27:00	57.276076,-5.729724	57.277279,-5.725432
InnerSound_008	13:35:20	13:43:30	57.275332,-5.724629	57.276665,-5.723411
InnerSound_009	09:56:26	10:01:56	57.306438,-5.885667	57.306935,-5.885453
InnerSound_010	10:07:02	10:12:06	57.306253,-5.883247	57.306649,-5.883309
InnerSound_011	10:19:02	10:24:33	57.307532,-5.879738	57.308341,-5.880957
InnerSound_012	10:43:19	10:49:04	57.305528,-5.888444	57.305526,-5.889025
InnerSound_013	10:57:09	11:03:20	57.303494,-5.887895	57.302776,-5.887056
InnerSound_014	11:10:06	11:16:14	57.304441,-5.891296	57.305024,-5.892109
InnerSound_015	12:33:44	12:43:07	57.3014,-6.031557	57.301062,-6.028846
InnerSound_016	12:49:35	12:55:13	57.297502,-6.037907	57.297996,-6.036351
InnerSound_017	13:00:39	13:06:44	57.296891,-6.03251	57.296943,-6.034629
InnerSound_018	13:16:30	13:21:50	57.296269,-6.036409	57.295823,-6.034298
InnerSound_019	13:29:40	13:35:30	57.295012,-6.037778	57.295389,-6.035714
InnerSound_020	13:43:50	13:53:00	57.294046,-6.038872	57.294386,-6.035981
InnerSound_021	14:01:38	14:05:45	57.291842,-6.036217	57.292099,-6.035007
InnerSound_022	14:13:15	14:21:47	57.288965,-6.033409	57.289805,-6.030414
InnerSound_023	14:28:51	14:35:02	57.287578,-6.039482	57.287551,-6.037349
InnerSound_024	14:39:15	14:41:58	57.287954,-6.035251	57.288001,-6.033909
InnerSound_025	14:44:02	14:46:24	57.288221,-6.035234	57.288274,-6.034348
InnerSound_026	14:51:52	14:58:53	57.288614,-6.02807	57.288598,-6.025435
InnerSound_027	15:05:59	15:15:10	57.293161,-6.024137	57.2934,-6.021486

Station ID	Start time	End time	Start position	End position
InnerSound_028	16:05:33	16:14:41	57.315825,-5.937534	57.315816,-5.934447
InnerSound_029	16:42:37	16:48:59	57.281102,-5.916634	57.281109,-5.917689
InnerSound_030	16:58:27	17:08:24	57.274221,-5.930494	57.274476,-5.929363
InnerSound_031	17:20:01	17:27:45	57.270133,-5.952076	57.270114,-5.952884
InnerSound_032	10:09:01	10:13:28	57.318472,-6.074995	57.318664,-6.073607
InnerSound_033	10:32:05	10:47:12	57.316345,-6.117385	57.316971,-6.113517
InnerSound_034	10:57:19	11:05:12	57.313315,-6.12843	57.314349,-6.127336
InnerSound_035	11:13:07	11:26:02	57.311122,-6.133965	57.313114,-6.129799
InnerSound_036	11:57:15	12:02:25	57.326664,-6.092972	57.32718,-6.091948
InnerSound_037	12:09:25	12:14:45	57.334274,-6.090314	57.334233,-6.092251
InnerSound_038	12:24:45	12:29:52	57.340666,-6.084898	57.340759,-6.082975
InnerSound_039	12:37:18	12:42:25	57.345895,-6.086216	57.346107,-6.084778
InnerSound_040	12:52:00	12:58:22	57.344551,-6.089904	57.345069,-6.091957
InnerSound_041	13:22:55	13:29:09	57.347679,-6.101039	57.348213,-6.099202
InnerSound_042	13:39:32	13:45:35	57.351651,-6.116142	57.351589,-6.11414
InnerSound_043	14:38:00	14:44:47	57.324022,-5.965908	57.324143,-5.963694
InnerSound_044	14:50:33	14:53:03	57.325297,-5.957723	57.325557,-5.956377
InnerSound_045	15:11:43	15:19:30	57.322099,-5.95818	57.322141,-5.955796
InnerSound_046	16:10:07	16:15:43	57.322108,-5.953157	57.322412,-5.951222
InnerSound_047	16:40:36	16:46:00	57.321269,-5.946971	57.321626,-5.94538
InnerSound_048	09:11:03	09:19:28	57.361206,-6.10662	57.36126,-6.103747
InnerSound_049	09:31:44	09:39:46	57.36852,-6.103286	57.368544,-6.100499
InnerSound_050	09:51:04	09:57:50	57.360614,-6.089546	57.360611,-6.087097
InnerSound_051	10:34:45	10:40:45	57.369129,-6.120237	57.369265,-6.118326
InnerSound_052	11:24:10	11:30:02	57.401498,-6.128792	57.402631,-6.130705
InnerSound_053	11:44:42	11:49:57	57.40884,-6.15734	57.409547,-6.155397
InnerSound_054	12:02:00	12:07:10	57.418627,-6.163798	57.419276,-6.163957
InnerSound_055	12:20:30	12:24:10	57.429035,-6.144466	57.429899,-6.144175
InnerSound_056	13:16:50	13:22:35	57.474134,-6.131004	57.474187,-6.132727
InnerSound_057	13:40:05	13:49:14	57.495064,-6.134562	57.494568,-6.132225
InnerSound_058	14:09:45	14:15:00	57.520671,-6.124311	57.521305,-6.12639
InnerSound_059	14:32:34	14:37:50	57.534171,-6.131208	57.534299,-6.129421
InnerSound_060	15:05:04	15:10:08	57.570966,-6.135485	57.570741,-6.134152
InnerSound_061	15:22:25	15:27:50	57.584605,-6.135541	57.584053,-6.134091
InnerSound_062	08:19:55	08:28:56	57.258421,-5.881119	57.25916,-5.881582

Station ID	Start time	End time	Start position	End position
InnerSound_063	08:35:03	08:51:10	57.260103,-5.877213	57.260504,-5.87848
InnerSound_064	08:58:20	09:07:40	57.268501,-5.874301	57.269216,-5.875198
InnerSound_065	09:13:35	09:23:37	57.275358,-5.87637	57.27529,-5.877412
InnerSound_066	09:31:33	09:41:34	57.281494,-5.875948	57.281886,-5.874329
InnerSound_067	09:47:57	09:57:57	57.284068,-5.870256	57.283311,-5.871779
InnerSound_068	10:05:54	10:20:11	57.286805,-5.86671	57.286366,-5.869456
InnerSound_069	10:34:41	10:41:42	57.286822,-5.861658	57.286383,-5.862915
InnerSound_070	10:48:49	10:55:03	57.285274,-5.854563	57.285303,-5.855765
InnerSound_071	11:13:43	11:20:54	57.303146,-5.89706	57.302885,-5.898284
InnerSound_072	11:27:27	11:33:31	57.305289,-5.897648	57.305689,-5.895823
InnerSound_073	11:40:24	11:46:37	57.306629,-5.897661	57.307096,-5.897395
InnerSound_074	11:52:27	11:58:38	57.308604,-5.898727	57.308746,-5.898249
InnerSound_075	12:04:10	12:10:23	57.310831,-5.90165	57.310627,-5.902077
InnerSound_076	12:15:26	12:21:48	57.31181,-5.898057	57.311519,-5.897941
InnerSound_077	12:27:34	12:34:28	57.313752,-5.901344	57.313501,-5.901625
InnerSound_078	12:39:17	12:45:35	57.314998,-5.898269	57.314352,-5.898124
InnerSound_079	13:18:54	13:28:55	57.340092,-5.937164	57.338903,-5.936258
InnerSound_080	13:23:59	13:42:01	57.33726,-5.934858	57.335988,-5.93457
InnerSound_081	13:49:30	13:54:24	57.333335,-5.94346	57.332619,-5.943889
InnerSound_082	14:04:24	14:10:20	57.333882,-5.964031	57.333137,-5.964326
InnerSound_083	14:20:21	14:26:24	57.327523,-5.95063	57.326805,-5.950815
InnerSound_084	14:35:18	14:40:18	57.326702,-5.934152	57.326218,-5.934105
InnerSound_085	14:48:28	14:53:33	57.329823,-5.927017	57.329125,-5.926867
InnerSound_086	15:00:47	15:29:15	57.328072,-5.922122	57.324142,-5.920741
InnerSound_087	15:39:53	15:46:55	57.32412,-5.924896	57.323315,-5.924453
InnerSound_088	16:26:04	16:33:21	57.26957,-5.842153	57.270691,-5.843169
InnerSound_089	16:43:50	16:51:20	57.262342,-5.861015	57.263602,-5.860869
InnerSound_090	09:03:01	09:13:02	57.370361,-5.829196	57.371443,-5.830815
InnerSound_091	09:21:48	09:30:59	57.368337,-5.834734	57.369638,-5.836886
InnerSound_092	09:41:24	09:50:24	57.369075,-5.839792	57.370723,-5.839935
InnerSound_093	11:46:31	12:00:42	57.277113,-5.733649	57.276841,-5.739397
InnerSound_094	12:08:15	12:18:12	57.277827,-5.73072	57.277909,-5.733916
InnerSound_095	12:24:22	12:33:32	57.278466,-5.727126	57.277551,-5.730759
InnerSound_096	12:40:38	12:50:51	57.278507,-5.72944	57.278003,-5.732027
InnerSound_097	14:01:47	14:07:43	57.277878,-5.724805	57.278305,-5.723339

Station ID	Start time	End time	Start position	End position
InnerSound_098	14:14:00	14:23:11	57.277352,-5.723832	57.278393,-5.722714
InnerSound_099	14:29:15	14:39:21	57.276248,-5.722357	57.277102,-5.722195
InnerSound_100	14:44:44	14:54:46	57.277909,-5.713856	57.278547,-5.71319
InnerSound_101	15:00:41	15:03:38	57.27824,-5.710362	57.277751,-5.710156
InnerSound_102	15:09:41	15:19:38	57.275483,-5.713616	57.275538,-5.715977
InnerSound_103	15:24:35	15:30:08	57.274653,-5.709384	57.275493,-5.710415
InnerSound_104	15:36:17	15:46:27	57.272865,-5.708457	57.27092,-5.707631
InnerSound_105	15:55:33	16:05:33	57.278423,-5.69938	57.277569,-5.698157
InnerSound_106	16:14:38	16:20:45	57.278567,-5.697733	57.278103,-5.696915
InnerSound_107	16:28:25	16:36:01	57.27833,-5.695211	57.277848,-5.694069
InnerSound_108	16:59:00	17:08:23	57.274235,-5.709229	57.274447,-5.711216
InnerSound_109	09:26:42	09:32:17	57.728568,-5.794875	57.729127,-5.79484
InnerSound_110	09:57:13	10:06:30	57.749844,-5.824796	57.751575,-5.826184
InnerSound_111	10:18:31	10:28:36	57.770496,-5.818917	57.771927,-5.81922
InnerSound_112	11:21:16	11:31:25	57.683722,-5.803796	57.685443,-5.802799
InnerSound_113	11:44:57	11:55:01	57.668089,-5.813201	57.669098,-5.813313
InnerSound_114	12:10:23	12:29:45	57.661343,-5.824595	57.663991,-5.825248
InnerSound_115	12:41:07	13:23:12	57.654828,-5.820785	57.660304,-5.819236
InnerSound_116	13:35:06	13:40:52	57.665167,-5.831272	57.66635,-5.830455
InnerSound_117	13:53:15	13:59:04	57.652832,-5.82392	57.653543,-5.823962
InnerSound_118	15:51:01	16:00:08	57.45545,-5.8708	57.457063,-5.872732
InnerSound_119	16:05:56	16:16:01	57.457801,-5.876514	57.459624,-5.877002
InnerSound_120	08:31:20	08:40:38	57.273395,-5.711264	57.274867,-5.710268
InnerSound_121	08:47:54	08:57:34	57.272181,-5.706402	57.274726,-5.704284
InnerSound_122	09:11:58	09:18:44	57.264709,-5.718232	57.266031,-5.716063
InnerSound_123	09:26:09	09:32:28	57.265991,-5.713641	57.267582,-5.711034
InnerSound_124	09:40:01	09:54:00	57.270185,-5.708543	57.274769,-5.705417
InnerSound_125	10:13:57	10:19:39	57.264185,-5.711537	57.265921,-5.709906
InnerSound_126	10:31:23	10:37:32	57.264344,-5.705343	57.266088,-5.704659
InnerSound_127	10:53:35	10:58:42	57.264139,-5.721408	57.265268,-5.719165
InnerSound_128	13:11:39	13:20:49	57.265856,-5.650991	57.266525,-5.651601
InnerSound_129	13:30:39	13:39:53	57.268266,-5.657218	57.268858,-5.658708
InnerSound_130	13:47:43	13:54:09	57.267664,-5.664243	57.268059,-5.665132
InnerSound_131	14:02:34	14:08:36	57.26732,-5.670338	57.267477,-5.670605
InnerSound_132	14:41:03	14:46:32	57.269129,-5.58809	57.27017,-5.58488

Station ID	Start time	End time	Start position	End position
InnerSound_133	15:04:05	15:13:07	57.264788,-5.569611	57.266846,-5.568348
InnerSound_134	15:25:13	15:27:46	57.258791,-5.581942	57.259132,-5.58032
InnerSound_135	15:34:06	15:40:32	57.260216,-5.587646	57.260808,-5.586095
InnerSound_136	15:47:40	15:53:40	57.262994,-5.587642	57.263839,-5.586869
InnerSound_137	16:32:58	16:38:36	57.265259,-5.702287	57.265832,-5.7006
InnerSound_138	16:49:05	17:13:54	57.270182,-5.707465	57.272442,-5.698988
InnerSound_139	08:47:16	08:56:22	57.310988,-5.881881	57.312757,-5.881578
InnerSound_140	09:02:35	09:12:37	57.312796,-5.878157	57.314308,-5.876872
InnerSound_141	09:20:16	09:30:19	57.312482,-5.885013	57.31409,-5.887127
InnerSound_142	09:35:16	09:43:07	57.3156,-5.884704	57.317339,-5.885421
InnerSound_143	09:51:56	10:02:04	57.317093,-5.899505	57.319449,-5.899864
InnerSound_144	10:09:55	10:19:58	57.317271,-5.895656	57.318913,-5.897245
InnerSound_145	10:38:53	10:48:54	57.316319,-5.938228	57.318356,-5.940334
InnerSound_146	11:04:02	11:12:35	57.322981,-5.929656	57.325285,-5.930722
InnerSound_147	11:19:36	11:28:50	57.330315,-5.936327	57.332458,-5.937422
InnerSound_148	11:41:30	11:48:43	57.338632,-5.952847	57.340329,-5.952624
InnerSound_149	12:04:33	12:13:53	57.328001,-5.981497	57.328851,-5.979062
InnerSound_150	12:28:52	12:37:06	57.32163,-5.940663	57.323352,-5.939929
InnerSound_151	12:59:18	13:08:26	57.313935,-5.889308	57.314169,-5.887562

Islay and Jura

Start and end times and positions for all Islay and Jura stations.

Station ID	Start time	End time	Start position	End position
JuraIslay_001	09:21:47	09:30:01	55.623878,-6.203427	55.62337,-6.20165
JuraIslay_002	09:41:18	09:46:35	55.607277,-6.201043	55.607635,-6.198913
JuraIslay_003	09:56:22	10:01:28	55.603981,-6.182502	55.604093,-6.180935
JuraIslay_004	10:33:30	10:39:06	55.58229,-6.259784	55.582075,-6.258872
JuraIslay_005	10:52:37	10:58:06	55.59154,-6.228297	55.591654,-6.226451
JuraIslay_006	11:07:00	11:12:19	55.602509,-6.226439	55.60307,-6.227082
JuraIslay_007	11:28:05	11:33:17	55.616279,-6.194653	55.61631,-6.193906
JuraIslay_008	11:40:12	11:49:42	55.619136,-6.1845	55.618506,-6.182403
JuraIslay_009	11:55:13	12:00:27	55.616256,-6.184636	55.616612,-6.183522
JuraIslay_010	12:07:37	12:13:03	55.620254,-6.173828	55.620091,-6.172414

Station ID	Start time	End time	Start position	End position
JuraIslay_011	12:17:13	12:22:36	55.618485,-6.169278	55.618722,-6.168498
JuraIslay_012	12:28:59	12:34:18	55.621931,-6.16592	55.622123,-6.166886
JuraIslay_013	13:03:12	13:08:50	55.616472,-6.164029	55.615605,-6.163856
JuraIslay_014	13:17:04	13:23:42	55.620411,-6.158621	55.620682,-6.15926
JuraIslay_015	13:30:08	13:34:30	55.620981,-6.146684	55.620547,-6.146898
JuraIslay_016	13:39:52	13:45:04	55.618028,-6.154006	55.619002,-6.154722
JuraIslay_017	13:53:13	13:58:25	55.612242,-6.169067	55.611666,-6.168857
JuraIslay_018	14:10:12	14:15:02	55.600927,-6.149037	55.600647,-6.148633
JuraIslay_019	14:27:19	14:32:59	55.614251,-6.134819	55.614669,-6.135535
JuraIslay_020	14:40:27	14:45:57	55.619733,-6.129711	55.620361,-6.129248
JuraIslay_021	14:53:58	14:59:11	55.625963,-6.127262	55.626265,-6.126766
JuraIslay_022	15:05:03	15:10:19	55.629818,-6.11956	55.629808,-6.11838
JuraIslay_023	15:21:18	15:26:27	55.619318,-6.103157	55.619433,-6.102229
JuraIslay_024	15:37:46	15:43:02	55.619327,-6.078571	55.6197,-6.077398
JuraIslay_025	15:52:15	15:57:18	55.629275,-6.075708	55.629543,-6.074092
JuraIslay_026	16:04:43	16:09:55	55.638734,-6.070712	55.638982,-6.069656
JuraIslay_027	16:19:07	16:24:35	55.649741,-6.057145	55.64972,-6.058101
JuraIslay_028	16:30:38	16:35:36	55.649234,-6.067079	55.649463,-6.067445
JuraIslay_029	10:14:52	10:20:16	55.924045,-6.081207	55.923133,-6.081545
JuraIslay_030	10:34:48	10:43:46	55.936478,-6.067821	55.937687,-6.067883
JuraIslay_031	10:50:54	10:56:45	55.942079,-6.063822	55.942585,-6.06353
JuraIslay_032	11:05:55	11:11:33	55.946439,-6.071688	55.946542,-6.072611
JuraIslay_033	11:22:45	11:28:12	55.95227,-6.092107	55.952238,-6.09101
JuraIslay_034	11:37:24	11:41:05	55.956073,-6.109397	55.95625,-6.108868
JuraIslay_035	11:49:33	11:54:40	55.947763,-6.116167	55.947995,-6.115395
JuraIslay_036	12:01:30	12:06:54	55.942393,-6.118337	55.942147,-6.117045
JuraIslay_037	12:17:23	12:22:37	55.944378,-6.143082	55.94495,-6.144007
JuraIslay_038	12:37:20	12:42:34	55.936255,-6.180661	55.936725,-6.181972
JuraIslay_039	13:15:40	13:20:51	55.943289,-6.214685	55.943468,-6.215911
JuraIslay_040	13:32:18	13:36:26	55.945508,-6.237568	55.945543,-6.238799
JuraIslay_041	13:49:45	13:53:47	55.935607,-6.24069	55.935872,-6.241463
JuraIslay_042	14:05:16	14:08:25	55.936632,-6.25673	55.936667,-6.257582
JuraIslay_043	14:21:09	14:30:48	55.927568,-6.272267	55.927948,-6.274087
JuraIslay_044	14:41:50	14:47:07	55.92748,-6.294984	55.927474,-6.297072
JuraIslay_045	15:03:00	15:06:08	55.917398,-6.264632	55.917458,-6.265092

Station ID	Start time	End time	Start position	End position
JuraIslay_046	15:21:10	15:25:17	55.905578,-6.290108	55.90603,-6.29016
JuraIslay_047	15:39:23	15:42:15	55.892193,-6.301052	55.892492,-6.301342
JuraIslay_048	15:53:50	15:56:57	55.898461,-6.274903	55.898787,-6.275065
JuraIslay_049	16:10:03	16:14:14	55.904772,-6.241572	55.905245,-6.241857
JuraIslay_050	16:23:52	16:29:01	55.91667,-6.228183	55.917202,-6.228888
JuraIslay_051	16:45:55	16:51:11	55.940408,-6.199707	55.940875,-6.200228
JuraIslay_052	17:01:01	17:04:15	55.948931,-6.188181	55.949304,-6.188341
JuraIslay_053	07:35:17	07:40:37	55.895518,-6.10523	55.896099,-6.105998
JuraIslay_054	07:49:16	07:55:00	55.904729,-6.115975	55.905075,-6.117106
JuraIslay_055	08:06:12	08:15:26	55.902759,-6.092795	55.903873,-6.090567
JuraIslay_056	08:24:46	08:30:17	55.913532,-6.090115	55.913036,-6.091293
JuraIslay_057	09:03:21	09:08:41	55.962704,-6.122363	55.963138,-6.123187
JuraIslay_058	09:19:32	09:23:51	55.953086,-6.137315	55.953436,-6.137791
JuraIslay_059	09:34:16	09:37:41	55.954748,-6.156971	55.9548,-6.157545
JuraIslay_060	09:54:36	09:59:47	55.959224,-6.193543	55.95954,-6.192734
JuraIslay_061	10:16:13	10:21:28	55.972975,-6.163185	55.973322,-6.163118
JuraIslay_062	10:35:33	10:40:44	55.96018,-6.174365	55.960786,-6.174065
JuraIslay_063	10:53:14	10:58:15	55.967605,-6.149018	55.967638,-6.150117
JuraIslay_064	11:46:18	11:51:22	55.971269,-5.995006	55.972025,-5.995398
JuraIslay_065	12:02:54	12:08:04	55.964013,-5.977095	55.964105,-5.97819
JuraIslay_066	12:16:14	12:21:29	55.959027,-5.96482	55.959343,-5.966087
JuraIslay_067	12:32:49	12:38:03	55.959632,-5.990084	55.959748,-5.991407
JuraIslay_068	12:47:04	12:52:15	55.956131,-6.009217	55.956187,-6.007896
JuraIslay_069	13:05:29	13:10:36	55.953148,-6.045876	55.953171,-6.047413
JuraIslay_070	13:23:14	13:28:24	55.958402,-6.048722	55.958553,-6.04981
JuraIslay_071	13:39:01	13:44:18	55.950156,-6.063348	55.950666,-6.064525
JuraIslay_072	13:55:31	14:01:12	55.941449,-6.088451	55.941854,-6.087649
JuraIslay_073	14:15:27	14:20:44	55.923286,-6.104958	55.923643,-6.105717
JuraIslay_074	14:26:28	14:31:59	55.923638,-6.115402	55.924463,-6.115632
JuraIslay_075	14:50:07	15:00:02	55.931852,-6.066093	55.933712,-6.066499
JuraIslay_076	15:06:40	15:11:51	55.931756,-6.069035	55.932755,-6.068721
JuraIslay_077	15:48:53	15:54:08	55.886924,-6.102488	55.887942,-6.102772
JuraIslay_078	16:10:26	16:12:18	55.874667,-6.104857	55.87595,-6.104893
JuraIslay_079	07:36:22	07:41:40	55.825058,-6.085274	55.825764,-6.085218
JuraIslay_080	07:48:35	07:52:18	55.818925,-6.081147	55.818395,-6.080422

Station ID	Start time	End time	Start position	End position
JuraIslay_081	08:00:50	08:07:03	55.820703,-6.101357	55.82124,-6.101987
JuraIslay_082	08:12:30	08:22:46	55.817162,-6.099362	55.818006,-6.100176
JuraIslay_083	08:27:28	08:33:08	55.814278,-6.09899	55.815039,-6.098342
JuraIslay_084	08:44:28	08:49:17	55.821158,-6.101853	55.822203,-6.101921
JuraIslay_085	08:57:12	09:01:21	55.827215,-6.10147	55.826353,-6.101625
JuraIslay_086	09:11:14	09:16:27	55.812654,-6.092629	55.813734,-6.093243
JuraIslay_087	09:25:02	09:30:28	55.808432,-6.08416	55.807548,-6.083187
JuraIslay_088	09:38:01	09:43:18	55.804044,-6.092811	55.805,-6.093562
JuraIslay_089	09:53:13	09:58:26	55.80019,-6.071802	55.800742,-6.07314
JuraIslay_090	10:07:55	10:13:18	55.792603,-6.085826	55.792241,-6.084679
JuraIslay_091	10:30:51	10:36:02	55.799275,-6.04877	55.799416,-6.050151
JuraIslay_092	10:45:28	10:50:40	55.789827,-6.045382	55.788765,-6.046193
JuraIslay_093	11:07:11	11:12:23	55.783062,-6.068995	55.783543,-6.07015
JuraIslay_094	11:20:25	11:21:41	55.782738,-6.058475	55.782579,-6.057632
JuraIslay_095	11:30:14	11:35:41	55.772685,-6.052818	55.772558,-6.051416
JuraIslay_096	12:11:01	12:16:08	55.786089,-5.963629	55.786502,-5.962411
JuraIslay_097	12:26:12	12:31:22	55.790005,-5.986522	55.790332,-5.986337
JuraIslay_098	12:39:41	12:45:03	55.785086,-5.994595	55.785871,-5.994771
JuraIslay_099	12:58:14	13:05:21	55.789262,-6.000688	55.789122,-6.002063
JuraIslay_100	13:16:21	13:21:30	55.784738,-6.022702	55.785163,-6.023552
JuraIslay_101	13:26:26	13:31:41	55.787577,-6.022433	55.788137,-6.023222
JuraIslay_102	13:36:25	13:41:39	55.789931,-6.017749	55.790551,-6.017642
JuraIslay_103	13:50:07	13:56:26	55.790603,-6.030512	55.790012,-6.029952
JuraIslay_104	14:01:02	14:06:28	55.78769,-6.03216	55.788343,-6.032513
JuraIslay_105	14:13:24	14:18:46	55.784795,-6.029722	55.785337,-6.030402
JuraIslay_106	14:24:39	14:30:07	55.786209,-6.037871	55.786556,-6.03874
JuraIslay_107	15:03:57	15:09:19	55.734956,-5.99395	55.735376,-5.992818
JuraIslay_108	15:27:59	15:33:08	55.74367,-6.033688	55.743872,-6.0348
JuraIslay_109	15:47:24	15:50:34	55.750621,-6.007328	55.7506,-6.008184
JuraIslay_110	09:19:11	09:25:33	55.668983,-6.010053	55.670017,-6.009417
JuraIslay_111	09:44:15	09:50:47	55.692374,-6.018724	55.693372,-6.018686
JuraIslay_112	09:59:56	10:05:10	55.702083,-6.010791	55.702896,-6.010736
JuraIslay_113	10:27:17	10:32:26	55.707628,-5.971397	55.708284,-5.971286
JuraIslay_114	10:55:28	11:00:41	55.707855,-6.028168	55.707435,-6.028485
JuraIslay_115	11:16:02	11:21:17	55.726907,-6.017986	55.727638,-6.018236

Station ID	Start time	End time	Start position	End position
JuraIslay_116	12:55:35	13:04:51	55.827073,-5.806562	55.826152,-5.80708
JuraIslay_117	13:37:13	13:46:23	55.834952,-5.774674	55.835776,-5.774568
JuraIslay_118	08:33:21	08:38:51	56.031159,-5.663062	56.031196,-5.661649
JuraIslay_119	08:47:51	08:53:10	56.030363,-5.655244	56.02988,-5.656804
JuraIslay_120	09:18:06	09:22:36	56.013053,-5.685975	56.014013,-5.685818
JuraIslay_121	09:45:43	09:51:17	55.98933,-5.695458	55.990125,-5.696017
JuraIslay_122	10:08:04	10:13:14	55.974123,-5.700488	55.973348,-5.700565
JuraIslay_123	10:24:30	10:32:48	55.978365,-5.71938	55.978867,-5.719972
JuraIslay_124	10:55:13	11:04:23	55.9925,-5.760749	55.993274,-5.761443
JuraIslay_125	11:26:09	11:34:36	56.023554,-5.764437	56.024706,-5.764748
JuraIslay_126	11:51:31	12:01:16	56.026744,-5.72754	56.027896,-5.725498
JuraIslay_127	12:58:54	13:08:03	56.040664,-5.750642	56.039197,-5.750548
JuraIslay_128	13:25:51	13:29:41	56.057006,-5.740872	56.056233,-5.741345
JuraIslay_129	13:50:45	13:56:03	56.057643,-5.69608	56.058549,-5.696118
JuraIslay_130	14:21:47	14:31:54	56.04364,-5.645751	56.04253,-5.646284
JuraIslay_131	14:50:03	14:55:46	56.053553,-5.632893	56.054114,-5.632925
JuraIslay_132	15:10:05	15:19:15	56.065978,-5.61543	56.065669,-5.616777
JuraIslay_133	15:25:24	15:32:57	56.067431,-5.611372	56.06695,-5.61274
JuraIslay_134	15:44:43	15:53:53	56.073042,-5.608239	56.074538,-5.608133
JuraIslay_135	16:05:30	16:10:01	56.080053,-5.601789	56.080372,-5.600705
JuraIslay_136	16:18:18	16:27:44	56.086608,-5.591359	56.088055,-5.590704
JuraIslay_137	16:36:02	16:44:53	56.091057,-5.586486	56.092014,-5.586082
JuraIslay_138	16:51:16	17:00:26	56.0926,-5.584178	56.093002,-5.583665
JuraIslay_139	07:52:59	07:53:57	56.067578,-5.667526	56.067687,-5.668512
JuraIslay_140	08:19:07	08:25:23	56.065752,-5.713807	56.066545,-5.713829
JuraIslay_141	08:38:26	08:43:49	56.073637,-5.722816	56.074239,-5.722114
JuraIslay_142	08:57:53	09:03:04	56.089048,-5.708252	56.089966,-5.708219
JuraIslay_143	09:16:25	09:21:34	56.095188,-5.696288	56.095723,-5.696621
JuraIslay_144	09:32:18	09:34:51	56.106063,-5.689026	56.106374,-5.688524
JuraIslay_145	09:52:53	09:58:26	56.094101,-5.668555	56.094933,-5.668481
JuraIslay_146	10:13:37	10:19:04	56.084101,-5.662908	56.084808,-5.66197
JuraIslay_147	10:33:20	10:38:36	56.074192,-5.682524	56.074918,-5.683749
JuraIslay_148	10:55:19	11:03:28	56.067078,-5.668179	56.067892,-5.669329
JuraIslay_149	11:25:56	11:31:20	56.093175,-5.639088	56.093849,-5.639933
JuraIslay_150	12:00:00	12:05:27	56.094814,-5.592963	56.095088,-5.592414

Station ID	Start time	End time	Start position	End position
JuraIslay_151	12:34:52	12:40:07	56.096743,-5.579815	56.096323,-5.579835
JuraIslay_152	12:52:34	12:58:02	56.108528,-5.57523	56.108137,-5.575197
JuraIslay_153	13:36:27	13:41:32	56.111587,-5.577803	56.111243,-5.577643
JuraIslay_154	13:50:27	13:57:31	56.114932,-5.584089	56.113629,-5.58411
JuraIslay_155	14:06:34	14:11:51	56.11851,-5.578167	56.118949,-5.577802
JuraIslay_156	14:20:55	14:26:06	56.122455,-5.565141	56.122901,-5.564889
JuraIslay_157	14:35:55	14:40:59	56.129513,-5.560673	56.129042,-5.56097
JuraIslay_158	14:49:18	14:54:29	56.13515,-5.555723	56.134803,-5.556148
JuraIslay_159	15:04:18	15:10:16	56.14333,-5.550094	56.143627,-5.549181
JuraIslay_160	15:21:05	15:26:18	56.152327,-5.53804	56.152317,-5.538822
JuraIslay_161	15:36:38	15:41:06	56.1586,-5.532578	56.15871,-5.531888
JuraIslay_162	15:51:23	15:56:47	56.160002,-5.530334	56.160582,-5.530223
JuraIslay_163	16:09:42	16:13:44	56.169282,-5.534292	56.169193,-5.535005
JuraIslay_164	07:34:47	07:40:10	56.120418,-5.584295	56.12088,-5.585835
JuraIslay_165	07:48:08	07:53:18	56.121998,-5.579713	56.121933,-5.581282
JuraIslay_166	08:03:03	08:16:00	56.125804,-5.577841	56.126683,-5.580718
JuraIslay_167	08:24:44	08:27:59	56.129443,-5.578769	56.129675,-5.579879
JuraIslay_168	08:34:45	08:39:51	56.131232,-5.572949	56.131259,-5.57422
JuraIslay_169	08:52:50	08:58:01	56.125495,-5.588063	56.125491,-5.586679
JuraIslay_170	09:06:05	09:09:19	56.127118,-5.586948	56.12755,-5.587962
JuraIslay_171	09:18:06	09:25:03	56.128997,-5.588418	56.129658,-5.586262
JuraIslay_172	09:33:38	09:39:14	56.128413,-5.59905	56.128725,-5.600715
JuraIslay_173	10:34:01	10:39:42	56.13785,-5.759845	56.137784,-5.7614
JuraIslay_174	10:52:29	11:01:42	56.134651,-5.764626	56.134723,-5.766895
JuraIslay_175	11:14:54	11:23:31	56.129221,-5.77202	56.129473,-5.773781
JuraIslay_176	11:42:03	11:47:12	56.124754,-5.786553	56.124878,-5.787234
JuraIslay_177	12:02:47	12:08:41	56.133563,-5.790803	56.134023,-5.791227
JuraIslay_178	12:36:02	12:42:10	56.138467,-5.788378	56.139135,-5.787953
JuraIslay_179	12:58:53	13:04:23	56.141261,-5.774135	56.141936,-5.773837
JuraIslay_180	14:00:29	14:08:04	56.087629,-5.915844	56.088464,-5.915122
JuraIslay_181	14:16:47	14:25:59	56.091423,-5.92968	56.092108,-5.930098
JuraIslay_182	14:39:49	14:45:27	56.100069,-5.906398	56.10066,-5.906265
JuraIslay_183	14:56:54	15:02:04	56.109779,-5.889628	56.110382,-5.889522
JuraIslay_184	15:17:21	15:21:49	56.120319,-5.873399	56.120754,-5.873309
JuraIslay_185	15:28:58	15:34:43	56.119433,-5.87643	56.120177,-5.876549

Station ID	Start time	End time	Start position	End position
JuraIslay_186	16:04:25	16:09:40	56.127552,-5.799541	56.128252,-5.79933
JuraIslay_187	07:34:32	07:38:29	56.132785,-5.59522	56.132252,-5.59595
JuraIslay_188	07:50:50	07:56:19	56.135791,-5.582512	56.135931,-5.5824
JuraIslay_189	08:04:18	08:09:28	56.141815,-5.567657	56.142235,-5.567482
JuraIslay_190	08:15:59	08:21:00	56.148241,-5.561212	56.14862,-5.56073
JuraIslay_191	08:26:59	08:32:43	56.15237,-5.561233	56.152711,-5.560781
JuraIslay_192	08:39:12	08:42:22	56.155482,-5.549179	56.155843,-5.548924
JuraIslay_193	08:48:07	08:49:22	56.161531,-5.54779	56.161559,-5.54761
JuraIslay_194	08:56:45	09:01:52	56.161058,-5.549625	56.161394,-5.549196
JuraIslay_195	09:08:34	09:13:46	56.166033,-5.543559	56.166053,-5.54251
JuraIslay_196	11:39:20	11:48:30	55.950791,-5.716701	55.951413,-5.717942
JuraIslay_197	11:56:39	12:02:18	55.946163,-5.719022	55.946663,-5.718742
JuraIslay_198	12:08:06	12:13:20	55.94751,-5.719781	55.947877,-5.719315
JuraIslay_199	12:20:42	12:28:27	55.948464,-5.722354	55.949384,-5.721917
JuraIslay_200	12:36:45	12:42:01	55.949978,-5.723707	55.950734,-5.724241
JuraIslay_201	13:08:41	13:13:51	55.949692,-5.721017	55.949812,-5.720122
JuraIslay_202	13:20:16	13:25:32	55.950506,-5.720863	55.950983,-5.720684
JuraIslay_203	13:34:13	13:39:30	55.94192,-5.72052	55.942489,-5.720378
JuraIslay_204	13:44:15	13:49:39	55.940464,-5.722092	55.939789,-5.722774
JuraIslay_205	14:00:39	14:04:36	55.928449,-5.712817	55.928913,-5.712961
JuraIslay_206	14:09:30	14:14:43	55.925566,-5.711509	55.924931,-5.710434
JuraIslay_207	14:21:14	14:26:18	55.92293,-5.698427	55.923268,-5.699386
JuraIslay_208	14:33:15	14:38:29	55.927625,-5.68964	55.927632,-5.68912
JuraIslay_209	14:55:34	15:04:44	55.927355,-5.727176	55.92662,-5.727467
JuraIslay_210	15:09:14	15:18:28	55.923721,-5.731083	55.92281,-5.73037
JuraIslay_211	09:28:37	09:34:25	55.944697,-5.673303	55.945397,-5.672542
JuraIslay_212	09:42:58	09:48:01	55.954071,-5.663564	55.954747,-5.663263
JuraIslay_213	09:54:07	09:59:18	55.955,-5.668489	55.954761,-5.669639
JuraIslay_214	10:08:19	10:13:30	55.960019,-5.665202	55.960081,-5.663883
JuraIslay_215	10:20:27	10:29:33	55.958547,-5.659738	55.959638,-5.659685
JuraIslay_216	10:34:47	10:39:55	55.96018,-5.653593	55.960927,-5.653655
JuraIslay_217	10:46:17	10:51:25	55.963188,-5.661552	55.963823,-5.661057
JuraIslay_218	10:57:59	11:02:09	55.965091,-5.648444	55.96576,-5.648382
JuraIslay_219	11:07:56	11:13:01	55.967017,-5.655367	55.96749,-5.654433
JuraIslay_220	11:17:29	11:22:37	55.968122,-5.650772	55.96873,-5.650211

Station ID	Start time	End time	Start position	End position
JuraIslay_221	11:28:37	11:34:04	55.970262,-5.659048	55.970718,-5.658668
JuraIslay_222	11:42:39	11:47:46	55.967719,-5.641594	55.968446,-5.640748
JuraIslay_223	11:53:46	11:59:27	55.972803,-5.64483	55.97366,-5.644348
JuraIslay_224	12:06:30	12:11:34	55.978302,-5.648576	55.97886,-5.648312
JuraIslay_225	12:16:18	12:25:28	55.976019,-5.651264	55.977019,-5.650548

Orkney

Start and end times and positions for all Orkney stations.

Station ID	Start time	End time	Start position	End position
Orkney_001	12:39:00	12:45:00	59.252258,-2.830013	59.251472,-2.830832
Orkney_002	12:59:00	13:05:00	59.263897,-2.821378	59.263242,-2.822417
Orkney_003	13:25:00	13:31:00	59.280193,-2.867005	59.279983,-2.868087
Orkney_004	13:55:00	14:01:00	59.299075,-2.817207	59.29908,-2.819217
Orkney_005	14:25:00	14:30:00	59.327212,-2.790577	59.327615,-2.793163
Orkney_006	14:51:00	14:57:00	59.354027,-2.780193	59.354943,-2.782735
Orkney_007	15:19:00	15:25:00	59.34872,-2.843583	59.350958,-2.844256
Orkney_008	15:45:00	15:50:00	59.334736,-2.837026	59.335738,-2.838096
Orkney_009	16:16:00	16:22:00	59.314941,-2.899894	59.314943,-2.898483
Orkney_010	16:29:00	16:35:00	59.30894,-2.915201	59.309005,-2.914073
Orkney_011	09:10:00	09:16:00	59.360007,-2.69144	59.360472,-2.693054
Orkney_012	09:34:00	09:44:00	59.358011,-2.634049	59.357551,-2.627117
Orkney_013	09:57:00	10:03:00	59.360434,-2.582867	59.360816,-2.585265
Orkney_014	10:29:00	10:33:00	59.352902,-2.507903	59.352101,-2.505198
Orkney_015	11:24:00	11:30:00	59.327367,-2.635567	59.327665,-2.633083
Orkney_016	11:59:00	12:05:00	59.31819,-2.722199	59.319811,-2.721734
Orkney_017	12:22:00	12:27:00	59.291147,-2.721718	59.292427,-2.721695
Orkney_018	12:50:00	12:55:00	59.284067,-2.679618	59.284926,-2.679825
Orkney_019	13:18:00	13:23:00	59.247929,-2.670638	59.249282,-2.670363
Orkney_020	13:37:00	13:43:00	59.236802,-2.695726	59.234736,-2.696038
Orkney_021	13:59:00	14:06:00	59.247752,-2.7204	59.24699,-2.720467
Orkney_022	14:27:52	14:33:02	59.250674,-2.767402	59.251243,-2.767178
Orkney_023	15:13:42	15:19:00	59.297726,-2.773824	59.298307,-2.772143
Orkney_024	15:48:04	15:53:22	59.309299,-2.850982	59.309484,-2.849807

Station ID	Start time	End time	Start position	End position
Orkney_025	16:05:53	16:11:02	59.315064,-2.869835	59.315093,-2.868726
Orkney_026	16:26:26	16:31:40	59.294862,-2.890465	59.294157,-2.890633
Orkney_027	16:56:03	17:01:33	59.320373,-2.916449	59.320686,-2.916219
Orkney_028	17:09:08	17:14:16	59.318545,-2.934651	59.318982,-2.934861
Orkney_029	07:55:58	08:02:12	59.327434,-2.873363	59.328008,-2.872877
Orkney_030	08:11:24	08:17:30	59.336707,-2.863439	59.336139,-2.86414
Orkney_031	08:37:02	08:43:16	59.361261,-2.837782	59.361832,-2.837855
Orkney_032	09:11:17	09:17:46	59.380872,-2.802345	59.382137,-2.802949
Orkney_033	09:39:21	09:44:55	59.374235,-2.854799	59.375775,-2.854432
Orkney_034	09:54:49	10:00:29	59.383286,-2.863279	59.384038,-2.863105
Orkney_035	10:18:51	10:23:58	59.40003,-2.867089	59.400052,-2.858998
Orkney_036	11:11:45	11:17:07	59.378256,-2.913701	59.379264,-2.910281
Orkney_037	11:27:04	11:32:43	59.366765,-2.915694	59.367662,-2.916124
Orkney_038	11:50:05	11:55:33	59.370775,-2.930312	59.370807,-2.92831
Orkney_039	12:14:16	12:19:44	59.363041,-2.962673	59.364122,-2.959756
Orkney_040	12:37:55	12:42:55	59.346637,-2.987503	59.346275,-2.987797
Orkney_041	12:55:13	13:00:24	59.335697,-3.004575	59.33532,-3.00507
Orkney_042	13:10:25	13:15:44	59.333265,-3.033193	59.333341,-3.034476
Orkney_043	13:26:07	13:31:36	59.342532,-3.035215	59.342095,-3.036242
Orkney_044	13:57:52	14:04:17	59.374258,-3.005343	59.374451,-3.002352
Orkney_045	14:22:39	14:27:15	59.384286,-2.951822	59.38465,-2.949952
Orkney_046	14:39:20	14:44:34	59.379945,-2.924898	59.380175,-2.925917
Orkney_047	14:59:30	15:05:12	59.394322,-2.909198	59.394539,-2.910014
Orkney_048	15:17:32	15:25:12	59.388543,-2.889602	59.387722,-2.89303
Orkney_049	16:43:30	16:48:54	59.330048,-2.92763	59.330403,-2.927739
Orkney_050	16:55:58	17:01:14	59.335614,-2.928149	59.336438,-2.928197
Orkney_051	09:23:05	09:28:20	59.20619,-2.729292	59.206991,-2.727705
Orkney_052	09:36:46	09:43:04	59.21174,-2.706512	59.212017,-2.705987
Orkney_053	09:51:48	09:57:55	59.219374,-2.728603	59.220022,-2.726976
Orkney_054	10:13:04	10:18:21	59.195047,-2.705519	59.196222,-2.707202
Orkney_055	10:31:25	10:36:38	59.191392,-2.738772	59.191113,-2.738052
Orkney_056	10:51:27	10:59:04	59.178011,-2.69836	59.176271,-2.697367
Orkney_057	10:51:27	10:59:04	59.17286,-2.727459	59.171385,-2.725452
Orkney_058	11:23:29	11:29:42	59.162157,-2.717892	59.16333,-2.719119
Orkney_059	11:36:37	11:42:13	59.164339,-2.710849	59.16555,-2.712158

Station ID	Start time	End time	Start position	End position
Orkney_060	11:54:37	12:00:05	59.16374,-2.669502	59.164732,-2.667769
Orkney_061	12:13:36	12:18:45	59.185402,-2.682027	59.18544,-2.682255
Orkney_062	12:31:42	12:37:03	59.180722,-2.643425	59.18141,-2.641478
Orkney_063	12:45:39	12:50:45	59.171163,-2.638985	59.171458,-2.639302
Orkney_064	13:02:09	13:07:29	59.16189,-2.619445	59.16145,-2.61932
Orkney_065	13:20:04	13:25:16	59.168158,-2.588202	59.169014,-2.58804
Orkney_066	13:52:25	13:57:37	59.174927,-2.614266	59.175598,-2.613372
Orkney_067	14:16:37	14:22:50	59.167988,-2.680896	59.168915,-2.680087
Orkney_068	14:41:03	14:48:25	59.157307,-2.740798	59.156205,-2.7383
Orkney_069	14:57:58	15:03:17	59.149397,-2.713923	59.147444,-2.713341
Orkney_070	15:13:25	15:18:49	59.145047,-2.685948	59.144123,-2.68593
Orkney_071	15:35:14	15:40:35	59.113115,-2.687288	59.112182,-2.686782
Orkney_072	15:49:25	15:54:34	59.099595,-2.69286	59.098595,-2.692167
Orkney_073	08:09:03	08:14:15	59.08078,-2.937852	59.081035,-2.936896
Orkney_074	08:58:10	09:03:50	59.087183,-2.907099	59.087976,-2.905153
Orkney_075	09:17:22	09:22:28	59.09403,-2.945512	59.093425,-2.945218
Orkney_076	09:32:59	09:38:36	59.106088,-2.953187	59.106307,-2.95302
Orkney_077	09:47:35	09:52:55	59.107508,-2.932425	59.107828,-2.931706
Orkney_078	09:59:30	10:04:35	59.113633,-2.926058	59.114,-2.925333
Orkney_079	10:14:19	10:19:26	59.10159,-2.91971	59.101929,-2.919084
Orkney_080	10:31:41	10:36:54	59.11165,-2.887974	59.112412,-2.888455
Orkney_081	10:46:29	10:51:34	59.12405,-2.867367	59.125522,-2.868748
Orkney_082	11:05:02	11:10:18	59.131802,-2.904712	59.13219,-2.903462
Orkney_083	11:18:46	11:24:05	59.144443,-2.893122	59.144382,-2.891117
Orkney_084	11:34:47	11:49:58	59.149007,-2.868477	59.149745,-2.870483
Orkney_085	11:56:52	12:01:59	59.159295,-2.896437	59.161295,-2.896242
Orkney_086	12:15:31	12:20:43	59.173175,-2.895391	59.174135,-2.896642
Orkney_087	12:32:45	12:36:45	59.167342,-2.868416	59.168688,-2.869195
Orkney_088	12:50:33	12:55:41	59.175699,-2.841839	59.176894,-2.843511
Orkney_089	13:09:37	13:14:45	59.162858,-2.818123	59.162423,-2.817382
Orkney_090	13:38:03	13:41:13	59.151273,-2.842993	59.149139,-2.841619
Orkney_091	13:56:36	14:01:59	59.145024,-2.797076	59.146235,-2.79724
Orkney_092	14:19:00	14:24:11	59.131615,-2.77813	59.131018,-2.777482
Orkney_093	14:33:26	14:38:28	59.138798,-2.755848	59.138798,-2.755848
Orkney_094	14:53:14	14:58:27	59.11759,-2.741486	59.118022,-2.740068

Station ID	Start time	End time	Start position	End position
Orkney_095	15:22:09	15:27:20	59.105233,-2.801425	59.104516,-2.799528
Orkney_096	15:56:40	16:01:48	59.095575,-2.822743	59.095488,-2.819973
Orkney_097	16:21:22	16:25:06	59.091587,-2.873593	59.091253,-2.873452
Orkney_098	16:35:14	16:40:38	59.101868,-2.8875	59.1011,-2.887298
Orkney_099	08:11:03	08:16:09	59.010694,-2.841947	59.010542,-2.84402
Orkney_100	08:32:38	08:37:46	59.007067,-2.799042	59.008184,-2.800361
Orkney_101	08:52:14	08:57:23	58.997876,-2.774545	58.998667,-2.775915
Orkney_102	09:12:12	09:17:28	59.023134,-2.781446	59.024611,-2.783245
Orkney_103	09:31:10	09:36:19	59.044573,-2.786985	59.046172,-2.787214
Orkney_104	09:47:03	09:52:15	59.04322,-2.810025	59.043382,-2.811037
Orkney_105	10:05:37	10:10:42	59.05956,-2.799868	59.060789,-2.798503
Orkney_106	10:53:06	11:00:12	59.005957,-2.827271	59.006488,-2.830283
Orkney_107	11:09:19	11:16:30	58.998392,-2.819433	58.99919,-2.819895
Orkney_108	11:28:00	11:34:24	58.99158,-2.834888	58.99219,-2.833857
Orkney_109	11:46:23	11:52:40	58.99204,-2.849813	58.992749,-2.850091
Orkney_110	11:58:10	12:03:38	58.996727,-2.851969	58.997125,-2.852633
Orkney_111	12:10:13	12:15:23	59.002473,-2.853242	59.002935,-2.854462
Orkney_112	12:10:14	12:16:00	59.01471,-2.883431	59.015341,-2.884803
Orkney_113	12:41:32	12:48:39	59.009518,-2.890262	59.0103,-2.890177
Orkney_114	13:15:57	13:22:07	59.002928,-2.893158	59.003533,-2.894036
Orkney_115	13:29:00	13:34:25	58.99882,-2.899268	58.999453,-2.899607
Orkney_116	13:44:48	13:50:01	59.00369,-2.880022	59.004154,-2.87959
Orkney_117	13:58:16	14:04:25	58.996262,-2.876257	58.996812,-2.876097
Orkney_118	14:11:58	14:17:21	58.989173,-2.8753	58.989911,-2.875742
Orkney_119	14:26:34	14:31:53	58.985253,-2.871252	58.986025,-2.871698
Orkney_120	14:41:00	14:48:30	58.99199,-2.858383	58.993,-2.858355
Orkney_121	07:50:50	07:53:38	58.941062,-3.27564	58.941633,-3.276128
Orkney_122	08:01:23	08:06:30	58.942328,-3.277163	58.942535,-3.277902
Orkney_123	08:15:16	08:20:23	58.938121,-3.262371	58.938787,-3.263124
Orkney_124	08:31:21	08:36:30	58.933872,-3.263563	58.93473,-3.263823
Orkney_125	08:46:00	08:53:06	58.938009,-3.248277	58.939614,-3.248753
Orkney_126	09:09:40	09:14:57	58.927563,-3.238177	58.928287,-3.238097
Orkney_127	09:22:45	09:28:18	58.92323,-3.249995	58.924002,-3.249487
Orkney_128	09:35:04	09:40:23	58.91965,-3.254439	58.920771,-3.254066
Orkney_129	09:53:56	09:59:11	58.916753,-3.229905	58.917367,-3.230908

Station ID	Start time	End time	Start position	End position
Orkney_130	10:10:20	10:12:24	58.914653,-3.256473	58.915078,-3.256568
Orkney_131	10:26:23	10:29:00	58.916028,-3.261393	58.916292,-3.261132
Orkney_132	10:42:17	10:47:31	58.906973,-3.257997	58.907217,-3.258837
Orkney_133	11:03:05	11:08:30	58.903898,-3.240158	58.90396,-3.24096
Orkney_134	11:21:04	11:26:24	58.907095,-3.227282	58.907247,-3.227817
Orkney_135	11:38:56	11:44:20	58.898764,-3.231342	58.898859,-3.232102
Orkney_136	12:29:38	12:37:52	58.883475,-3.14999	58.884232,-3.150745
Orkney_137	12:48:43	12:56:05	58.887602,-3.138438	58.888185,-3.13865
Orkney_138	13:03:23	13:09:01	58.891483,-3.14777	58.89186,-3.148289
Orkney_139	13:17:18	13:23:36	58.888666,-3.159274	58.889021,-3.159449
Orkney_140	13:32:02	13:39:43	58.885387,-3.171403	58.886415,-3.170809
Orkney_141	13:52:03	13:59:10	58.891514,-3.161835	58.892093,-3.161398
Orkney_142	14:10:02	14:15:18	58.89937,-3.149273	58.899954,-3.148888
Orkney_143	14:23:15	14:28:26	58.903534,-3.147574	58.903864,-3.148246
Orkney_144	14:39:53	14:47:17	58.896833,-3.165116	58.897175,-3.164609
Orkney_145	15:19:39	15:26:09	58.900078,-3.18292	58.89988,-3.181812
Orkney_146	15:37:23	15:43:51	58.888942,-3.175527	58.889603,-3.177085
Orkney_147	15:50:34	15:56:06	58.890417,-3.174652	58.89012,-3.17437
Orkney_148	16:04:18	16:09:39	58.892949,-3.173603	58.89307,-3.171928
Orkney_149	16:19:14	16:26:26	58.893133,-3.177182	58.893482,-3.175402
Orkney_150	16:33:21	16:39:35	58.894322,-3.179565	58.894412,-3.178315
Orkney_151	08:50:57	08:56:07	58.793575,-3.136102	58.79386,-3.136025
Orkney_152	09:09:48	09:15:02	58.79149,-3.108607	58.79192,-3.106954
Orkney_153	09:32:55	09:38:16	58.801533,-3.086922	58.801546,-3.085304
Orkney_154	09:50:00	09:53:38	58.805055,-3.109292	58.804882,-3.111163
Orkney_155	10:04:31	10:09:44	58.807275,-3.13455	58.807063,-3.13415
Orkney_156	10:17:18	10:24:58	58.814732,-3.141444	58.814049,-3.140487
Orkney_157	10:33:49	10:38:59	58.814828,-3.157393	58.815152,-3.157758
Orkney_158	10:45:53	10:51:07	58.822416,-3.151953	58.82278,-3.151491
Orkney_159	11:00:11	11:05:26	58.825949,-3.157124	58.826218,-3.158195
Orkney_160	11:10:59	11:16:18	58.826263,-3.167785	58.82657,-3.167621
Orkney_161	11:20:31	11:26:38	58.829094,-3.167553	58.829627,-3.167229
Orkney_162	11:31:20	11:36:26	58.829658,-3.160752	58.830143,-3.16124
Orkney_163	11:41:27	11:46:46	58.831667,-3.15473	58.831303,-3.156538
Orkney_164	11:54:10	12:00:26	58.829402,-3.174388	58.830042,-3.173763

Station ID	Start time	End time	Start position	End position
Orkney_165	12:05:29	12:13:23	58.829411,-3.181543	58.829785,-3.182099
Orkney_166	12:17:50	12:23:07	58.832318,-3.178093	58.832217,-3.17845
Orkney_167	12:28:25	12:35:28	58.834628,-3.185895	58.83475,-3.186342
Orkney_168	13:04:17	13:09:36	58.835784,-3.183884	58.836419,-3.184757
Orkney_169	13:14:10	13:19:34	58.839311,-3.185786	58.840175,-3.187166
Orkney_170	13:25:08	13:30:12	58.842488,-3.193898	58.843398,-3.194823
Orkney_171	13:36:04	13:41:15	58.843866,-3.184851	58.844759,-3.186104
Orkney_172	13:45:18	13:50:31	58.847017,-3.189657	58.848113,-3.190172
Orkney_173	13:55:30	14:00:43	58.849492,-3.19345	58.850242,-3.193735
Orkney_174	14:05:45	14:10:50	58.854612,-3.192152	58.855295,-3.192318
Orkney_175	14:23:40	14:28:58	58.864347,-3.159815	58.864889,-3.160406
Orkney_176	14:38:21	14:43:27	58.866895,-3.14582	58.867048,-3.14648
Orkney_177	14:52:48	14:57:55	58.864412,-3.128822	58.864448,-3.129633
Orkney_178	15:10:28	15:15:36	58.850178,-3.126672	58.850912,-3.127687
Orkney_179	15:22:28	15:27:37	58.845457,-3.127635	58.845782,-3.128455
Orkney_180	15:32:16	15:37:18	58.842681,-3.131082	58.842572,-3.132559
Orkney_181	15:42:49	15:48:07	58.843907,-3.144018	58.84422,-3.144705
Orkney_182	15:53:42	15:59:15	58.84731,-3.146262	58.847513,-3.147113
Orkney_183	16:05:25	16:10:29	58.851965,-3.145017	58.852113,-3.145963
Orkney_184	16:16:37	16:21:43	58.851782,-3.15601	58.852159,-3.156762
Orkney_185	16:26:45	16:31:51	58.85607,-3.15721	58.8565,-3.157713
Orkney_186	16:39:32	16:44:45	58.857818,-3.145165	58.857895,-3.145893
Orkney_187	08:15:11	08:21:18	58.882367,-3.184878	58.883491,-3.186238
Orkney_188	08:29:44	08:35:16	58.886008,-3.200332	58.886997,-3.201107
Orkney_189	08:45:25	08:50:34	58.890913,-3.21474	58.89188,-3.215331
Orkney_190	09:07:30	09:12:35	58.877912,-3.206607	58.879195,-3.209027
Orkney_191	09:26:36	09:31:49	58.870886,-3.206882	58.871846,-3.207754
Orkney_192	09:40:03	09:45:15	58.86887,-3.211503	58.869442,-3.21118
Orkney_193	09:51:18	09:56:26	58.866442,-3.209589	58.867138,-3.209441
Orkney_194	10:06:24	10:11:31	58.858834,-3.207592	58.859095,-3.208763
Orkney_195	10:29:35	10:35:11	58.852783,-3.18716	58.853477,-3.188723
Orkney_196	10:41:05	10:47:14	58.849341,-3.184414	58.850184,-3.185902
Orkney_197	10:57:07	11:04:10	58.854458,-3.183234	58.855294,-3.185648
Orkney_198	11:09:22	11:14:20	58.85652,-3.187062	58.85711,-3.187833
Orkney_199	11:20:08	11:35:03	58.857081,-3.181532	58.858483,-3.186772

Station ID	Start time	End time	Start position	End position
Orkney_200	12:22:02	12:28:01	58.859032,-3.167362	58.86021,-3.168703
Orkney_201	12:36:48	12:51:12	58.859828,-3.178708	58.861463,-3.186016
Orkney_202	12:58:55	13:06:01	58.863173,-3.175323	58.864483,-3.176135
Orkney_203	13:11:50	13:17:20	58.866181,-3.176403	58.867093,-3.177387
Orkney_204	13:21:53	13:27:21	58.867542,-3.176742	58.868387,-3.177784
Orkney_205	13:32:44	13:38:48	58.867001,-3.181959	58.868021,-3.182183
Orkney_206	13:44:17	13:49:52	58.868859,-3.184914	58.869819,-3.185881
Orkney_207	13:56:19	14:01:54	58.870955,-3.190867	58.87129,-3.191877
Orkney_208	14:12:38	14:19:57	58.868542,-3.17597	58.869572,-3.176963
Orkney_209	14:26:08	14:32:43	58.870692,-3.17698	58.871338,-3.17744
Orkney_210	14:42:25	14:47:31	58.869036,-3.166229	58.869967,-3.166486
Orkney_211	14:56:19	15:04:16	58.870911,-3.183075	58.872074,-3.184691
Orkney_212	15:10:20	15:16:27	58.874711,-3.179415	58.875201,-3.181011
Orkney_213	15:32:14	15:38:11	58.874225,-3.193171	58.874827,-3.193664
Orkney_214	07:49:12	07:57:10	58.92628,-3.26019	58.92776,-3.260995
Orkney_215	08:28:53	08:35:44	58.889957,-3.179345	58.889622,-3.180578
Orkney_216	08:40:38	08:48:24	58.889967,-3.184105	58.889887,-3.185455
Orkney_217	08:52:34	08:57:41	58.89033,-3.185968	58.890593,-3.18517
Orkney_218	09:04:28	09:11:34	58.891528,-3.180708	58.891728,-3.181655
Orkney_219	09:18:37	09:24:47	58.892762,-3.185906	58.89275,-3.18727
Orkney_220	09:30:57	09:38:47	58.891586,-3.193365	58.891695,-3.191572
Orkney_221	09:48:22	09:55:42	58.893631,-3.188346	58.893616,-3.186019
Orkney_222	10:01:45	10:18:13	58.894158,-3.192167	58.894305,-3.198096
Orkney_223	11:12:48	11:17:58	58.843708,-3.053494	58.844139,-3.053967
Orkney_224	11:26:25	11:31:35	58.848488,-3.05264	58.848668,-3.053285
Orkney_225	11:39:43	11:44:55	58.851522,-3.055616	58.852102,-3.056519
Orkney_226	11:51:59	11:57:02	58.851515,-3.065128	58.851599,-3.064434
Orkney_227	12:09:41	12:14:54	58.861256,-3.066849	58.861439,-3.067761
Orkney_228	12:20:40	12:25:47	58.864958,-3.069205	58.865067,-3.070058

Shetland

Start and end times and positions for all Shetland stations.

Station ID	Start time	End time	Start position	End position
Shetland_001	08:45:21	09:05:45	60.006391,-1.20328	60.010648,-1.200947
Shetland_002	09:14:56	09:37:38	60.006288,-1.206383	60.011276,-1.205444
Shetland_003	09:48:38	10:07:34	60.006917,-1.204723	60.011672,-1.204089
Shetland_004	10:16:43	10:45:18	60.006502,-1.207888	60.011353,-1.206747
Shetland_005	10:53:40	11:13:33	60.008707,-1.203136	60.010917,-1.202391
Shetland_006	11:39:23	11:47:05	60.016384,-1.221922	60.015528,-1.220115
Shetland_007	11:59:56	12:05:30	60.02776,-1.202214	60.027968,-1.202428
Shetland_008	12:17:38	12:23:31	60.035863,-1.18682	60.035355,-1.18749
Shetland_009	12:52:00	12:57:46	60.011703,-1.117961	60.012395,-1.116954
Shetland_010	13:17:18	13:26:36	60.03124,-1.117965	60.030442,-1.118738
Shetland_011	13:41:18	13:45:28	60.040447,-1.12964	60.039903,-1.130028
Shetland_012	13:59:05	14:05:00	60.037318,-1.169812	60.03689,-1.170382
Shetland_013	14:19:14	14:24:33	60.048562,-1.140588	60.047963,-1.141027
Shetland_014	14:50:53	14:56:07	60.078257,-1.208947	60.077965,-1.20855
Shetland_015	15:06:04	15:11:40	60.0898,-1.204572	60.089334,-1.204071
Shetland_016	15:21:21	15:27:05	60.100123,-1.21157	60.100546,-1.210932
Shetland_017	15:39:43	15:44:17	60.112413,-1.193235	60.112475,-1.194123
Shetland_018	16:25:51	16:31:26	60.114163,-1.065988	60.114822,-1.065646
Shetland_019	16:41:44	16:47:35	60.125682,-1.064197	60.125514,-1.063297
Shetland_020	07:45:09	07:52:34	60.200232,-1.150333	60.201047,-1.149217
Shetland_021	08:00:00	08:07:05	60.205747,-1.1505	60.20636,-1.150572
Shetland_022	08:18:04	08:26:19	60.201208,-1.164563	60.20147,-1.166373
Shetland_023	08:34:43	08:42:22	60.202252,-1.160892	60.202776,-1.15961
Shetland_024	08:47:01	08:55:23	60.203993,-1.156437	60.203967,-1.157678
Shetland_025	09:01:36	09:14:22	60.206822,-1.154377	60.206423,-1.154138
Shetland_026	09:38:18	09:46:09	60.236786,-1.191679	60.237509,-1.192589
Shetland_027	09:50:09	09:52:58	60.238031,-1.192783	60.238217,-1.192907
Shetland_028	09:55:40	10:01:16	60.237411,-1.194457	60.238105,-1.195215
Shetland_029	10:05:36	10:25:19	60.23914,-1.197935	60.240425,-1.194219
Shetland_030	10:34:49	10:40:13	60.247871,-1.187892	60.248401,-1.187082
Shetland_031	10:54:49	11:00:07	60.238076,-1.158835	60.238252,-1.157681

Station ID	Start time	End time	Start position	End position
Shetland_032	11:13:11	11:18:36	60.240575,-1.142518	60.240847,-1.141779
Shetland_033	11:28:49	11:33:23	60.245209,-1.134886	60.244909,-1.133597
Shetland_034	11:51:29	11:54:32	60.257707,-1.107944	60.257918,-1.1077
Shetland_035	12:14:59	12:20:46	60.257057,-1.058032	60.257364,-1.057858
Shetland_036	13:04:10	13:09:38	60.223535,-1.185858	60.224074,-1.185036
Shetland_037	13:33:33	13:40:35	60.207237,-1.118722	60.207253,-1.117438
Shetland_038	13:53:02	13:58:10	60.213518,-1.087623	60.213448,-1.08649
Shetland_039	14:16:28	14:21:36	60.189997,-1.084779	60.190135,-1.083612
Shetland_040	14:38:55	14:44:08	60.18869,-1.072028	60.18873,-1.071065
Shetland_041	14:53:40	15:02:44	60.180423,-1.069448	60.180575,-1.067513
Shetland_042	15:13:46	15:21:55	60.171038,-1.065917	60.171077,-1.067461
Shetland_043	15:28:56	15:34:17	60.166478,-1.056162	60.166685,-1.056317
Shetland_044	15:50:45	15:55:45	60.155054,-1.045205	60.155077,-1.044406
Shetland_045	16:08:12	16:14:27	60.153029,-1.014458	60.153153,-1.012892
Shetland_046	16:27:46	16:30:50	60.145131,-1.000572	60.145668,-0.999565
Shetland_047	08:10:45	08:16:10	60.27573,-1.095282	60.276305,-1.095507
Shetland_048	08:35:18	08:41:28	60.281601,-1.03731	60.282292,-1.037463
Shetland_049	09:09:56	09:15:04	60.29809,-1.119612	60.298343,-1.118657
Shetland_050	09:36:08	09:41:20	60.30813,-1.076327	60.308473,-1.077905
Shetland_051	10:15:16	10:23:04	60.347522,-1.137267	60.346727,-1.136098
Shetland_052	10:50:37	10:58:51	60.35559,-1.06465	60.354852,-1.064108
Shetland_053	11:08:29	11:17:05	60.354732,-1.068005	60.353577,-1.067133
Shetland_054	11:31:49	11:39:17	60.36284,-1.055947	60.362288,-1.055375
Shetland_055	11:44:43	11:53:27	60.362517,-1.049997	60.361468,-1.050526
Shetland_056	11:59:13	12:16:56	60.36172,-1.048661	60.358306,-1.048216
Shetland_057	12:23:55	12:32:41	60.361066,-1.052337	60.359936,-1.053615
Shetland_058	12:37:25	12:43:21	60.360022,-1.057317	60.359138,-1.057522
Shetland_059	13:33:44	13:38:51	60.326538,-0.979267	60.327363,-0.979805
Shetland_060	14:09:09	14:16:15	60.354355,-0.938412	60.355822,-0.938777
Shetland_061	14:40:15	14:45:31	60.37489,-0.882238	60.373053,-0.882748
Shetland_062	15:04:42	15:09:49	60.392466,-0.867036	60.393501,-0.867811
Shetland_063	08:42:39	08:47:46	60.037272,-1.338353	60.037859,-1.336921
Shetland_064	08:55:13	09:10:26	60.040262,-1.339847	60.039857,-1.340478
Shetland_065	09:07:04	09:14:33	60.042523,-1.343869	60.04266,-1.342738
Shetland_066	10:14:08	10:23:20	60.063091,-1.54568	60.063328,-1.547938

Station ID	Start time	End time	Start position	End position
Shetland_067	10:52:00	11:02:16	60.084985,-1.504257	60.085184,-1.506419
Shetland_068	11:24:51	11:34:59	60.093101,-1.46912	60.093352,-1.471433
Shetland_069	11:55:57	12:01:36	60.102895,-1.509813	60.102957,-1.510947
Shetland_070	12:37:47	12:43:08	60.122299,-1.468593	60.122348,-1.470099
Shetland_071	13:41:13	13:46:34	60.193422,-1.318468	60.19316,-1.319087
Shetland_072	13:54:48	14:03:10	60.186028,-1.325241	60.186538,-1.324767
Shetland_073	14:24:48	14:30:14	60.159609,-1.321673	60.159884,-1.320827
Shetland_074	14:37:53	14:43:45	60.164064,-1.320051	60.164382,-1.319102
Shetland_075	14:56:50	15:07:23	60.173843,-1.317725	60.173342,-1.318495
Shetland_076	15:43:05	15:51:19	60.188359,-1.295275	60.189195,-1.295029
Shetland_077	15:56:29	16:01:17	60.19062,-1.294033	60.19082,-1.293311
Shetland_078	16:09:06	16:14:16	60.192756,-1.291368	60.193146,-1.29105
Shetland_079	16:20:30	16:25:35	60.193746,-1.286465	60.193944,-1.28599
Shetland_080	16:30:37	16:39:40	60.191589,-1.289455	60.191946,-1.287988
Shetland_081	16:59:08	17:05:18	60.162757,-1.298386	60.163164,-1.297957
Shetland_082	08:21:46	08:27:35	60.128034,-1.34665	60.12732,-1.347166
Shetland_083	08:33:40	08:59:16	60.128309,-1.347068	60.126189,-1.352439
Shetland_084	09:06:28	09:26:31	60.128277,-1.350054	60.126387,-1.353396
Shetland_085	09:36:03	09:45:16	60.128575,-1.351713	60.127605,-1.352979
Shetland_086	10:47:01	10:55:10	60.178798,-1.53953	60.178546,-1.538847
Shetland_087	11:06:20	11:13:30	60.188249,-1.55062	60.186972,-1.550105
Shetland_088	11:23:07	11:28:19	60.192041,-1.557557	60.192676,-1.558143
Shetland_089	11:49:37	11:55:18	60.201546,-1.607718	60.202537,-1.608446
Shetland_090	12:37:37	12:42:51	60.214592,-1.53671	60.215126,-1.536518
Shetland_091	12:53:29	12:59:11	60.207386,-1.532042	60.206681,-1.532209
Shetland_092	13:10:36	13:17:38	60.198937,-1.547019	60.197552,-1.548377
Shetland_093	13:31:34	13:38:20	60.1935,-1.579919	60.192131,-1.579912
Shetland_094	10:21:33	10:27:11	60.318786,-0.924049	60.319053,-0.923433
Shetland_095	11:00:55	11:07:26	60.352773,-0.839942	60.353653,-0.840406
Shetland_096	11:36:54	11:44:10	60.393585,-0.799319	60.392816,-0.798499
Shetland_097	12:08:58	12:15:11	60.410654,-0.770451	60.410262,-0.7687
Shetland_098	13:59:42	14:05:45	60.44178,-1.033914	60.441538,-1.030935
Shetland_099	14:29:03	14:34:33	60.468184,-1.053313	60.468404,-1.051986
Shetland_100	14:48:17	14:54:02	60.457856,-1.053282	60.458372,-1.051054
Shetland_101	15:14:44	15:33:35	60.446536,-1.098629	60.444496,-1.094275

Station ID	Start time	End time	Start position	End position
Shetland_102	08:05:34	08:12:45	60.435495,-0.961857	60.435382,-0.960935
Shetland_103	08:42:03	08:48:46	60.443851,-1.036836	60.444797,-1.035832
Shetland_104	10:34:25	10:40:02	60.558756,-1.192586	60.559223,-1.191443
Shetland_105	10:51:05	10:56:18	60.550356,-1.189749	60.551024,-1.189423
Shetland_106	11:15:04	11:20:17	60.529421,-1.183223	60.529945,-1.184146
Shetland_107	11:36:27	11:42:57	60.519075,-1.221226	60.519947,-1.21973
Shetland_108	12:05:42	12:11:02	60.515335,-1.283237	60.515652,-1.281776
Shetland_109	12:27:19	12:33:21	60.511121,-1.250589	60.511378,-1.250917
Shetland_110	12:49:50	12:55:12	60.507437,-1.215289	60.507542,-1.214069
Shetland_111	13:13:38	13:20:26	60.493401,-1.250718	60.493284,-1.249988
Shetland_112	13:30:28	13:38:03	60.488531,-1.266512	60.488565,-1.269378
Shetland_113	14:06:52	14:12:30	60.48657,-1.193112	60.486223,-1.190785
Shetland_114	14:31:26	14:36:40	60.458762,-1.169054	60.457968,-1.167542
Shetland_115	14:46:28	14:51:40	60.447064,-1.164872	60.447068,-1.162709
Shetland_116	15:03:21	15:08:44	60.449054,-1.141524	60.449598,-1.142891
Shetland_117	15:34:04	15:39:26	60.423612,-1.125163	60.424012,-1.124208
Shetland_118	15:52:00	15:57:04	60.433318,-1.106094	60.433262,-1.104298
Shetland_119	16:02:50	16:07:01	60.434867,-1.096682	60.434738,-1.09513
Shetland_120	16:17:44	16:33:00	60.444933,-1.085298	60.444595,-1.079179
Shetland_121	07:50:15	07:55:20	60.604868,-1.061347	60.604908,-1.059868
Shetland_122	08:11:29	08:16:50	60.59457,-1.020233	60.593834,-1.01891
Shetland_123	09:33:01	09:38:48	60.680109,-0.989433	60.681402,-0.989175
Shetland_124	09:48:49	09:54:44	60.695933,-0.991475	60.696692,-0.989603
Shetland_125	10:05:00	10:10:24	60.704598,-0.991603	60.704128,-0.988856
Shetland_126	10:23:19	10:28:57	60.713637,-1.000245	60.714268,-1.0013
Shetland_127	10:47:00	10:52:24	60.691686,-0.982525	60.692601,-0.981221
Shetland_128	11:13:56	11:22:08	60.673088,-0.964009	60.673511,-0.961385
Shetland_129	11:34:04	11:40:12	60.671025,-0.942134	60.670566,-0.940832
Shetland_130	11:52:15	11:55:10	60.667523,-0.910863	60.666995,-0.909825
Shetland_131	12:12:24	12:31:16	60.659285,-0.874127	60.657136,-0.86796
Shetland_132	12:42:35	13:01:23	60.669628,-0.870465	60.668577,-0.862414
Shetland_133	13:30:23	13:35:53	60.649874,-0.945655	60.649561,-0.944492
Shetland_134	13:52:31	13:57:43	60.650089,-0.989556	60.649477,-0.987886
Shetland_135	14:13:10	14:19:21	60.629391,-0.97613	60.629605,-0.972966
Shetland_136	14:32:29	14:39:46	60.614349,-0.964052	60.614653,-0.961234

Station ID	Start time	End time	Start position	End position
Shetland_137	14:49:44	14:55:44	60.606756,-0.966615	60.606908,-0.968976
Shetland_138	15:04:07	15:13:26	60.599635,-0.970978	60.598777,-0.967183
Shetland_139	15:21:54	15:32:00	60.595306,-0.976103	60.594692,-0.972147
Shetland_140	15:46:00	15:53:03	60.5848,-0.999682	60.585606,-1.00169
Shetland_141	16:08:04	16:13:17	60.565957,-0.998657	60.565731,-0.996831
Shetland_142	09:28:54	09:38:11	60.524511,-1.321944	60.525584,-1.321426
Shetland_143	09:51:14	09:57:22	60.508397,-1.321688	60.509171,-1.321892
Shetland_144	10:07:11	10:12:22	60.498262,-1.325743	60.498558,-1.326633
Shetland_145	10:22:09	10:27:25	60.496905,-1.306988	60.49706,-1.30821
Shetland_146	10:50:32	10:56:22	60.476186,-1.316289	60.476689,-1.317155
Shetland_147	11:04:52	11:10:14	60.475129,-1.297502	60.475904,-1.297772
Shetland_148	11:23:04	11:28:11	60.465323,-1.323995	60.465666,-1.3251
Shetland_149	11:36:44	11:41:49	60.458264,-1.317746	60.458782,-1.318973
Shetland_150	12:01:00	12:10:07	60.44168,-1.318162	60.442399,-1.320614
Shetland_151	12:32:49	12:42:02	60.435644,-1.336112	60.436663,-1.337345
Shetland_152	12:17:19	12:26:30	60.438608,-1.333205	60.43925,-1.335496
Shetland_153	12:59:01	13:04:54	60.433198,-1.33848	60.433649,-1.339309
Shetland_154	13:12:39	13:20:40	60.430158,-1.342831	60.430741,-1.344003
Shetland_155	13:28:20	13:34:36	60.43234,-1.350597	60.432965,-1.351692
Shetland_156	13:49:21	13:57:48	60.412115,-1.347837	60.412811,-1.349632
Shetland_157	14:06:48	14:13:41	60.406396,-1.358814	60.40705,-1.360308
Shetland_158	16:05:32	16:11:34	60.442209,-1.092937	60.442545,-1.094743
Shetland_159	16:26:53	16:33:09	60.450568,-1.088597	60.451036,-1.085985
Shetland_160	16:45:27	16:50:37	60.446138,-1.073051	60.447294,-1.072319
Shetland_161	07:50:33	07:55:41	60.389499,-1.088518	60.389795,-1.087399
Shetland_162	08:06:14	08:11:33	60.388513,-1.069981	60.38866,-1.071448
Shetland_163	08:36:52	08:43:09	60.370699,-1.005767	60.370974,-1.004018
Shetland_164	09:00:37	09:06:24	60.380845,-0.976857	60.381274,-0.977419
Shetland_165	09:19:51	09:25:23	60.383236,-0.949191	60.383913,-0.949669
Shetland_166	09:40:50	09:46:43	60.389941,-0.916221	60.390505,-0.916628
Shetland_167	12:19:40	12:24:59	60.365001,-1.019803	60.365501,-1.019209
Shetland_168	12:34:33	12:39:59	60.353621,-1.029008	60.353733,-1.030278
Shetland_169	12:46:15	12:53:59	60.349133,-1.030625	60.349679,-1.029715
Shetland_170	13:07:42	13:13:03	60.355607,-1.050041	60.356629,-1.050009
Shetland_171	13:25:51	13:32:16	60.354636,-1.074904	60.355533,-1.072647

Station ID	Start time	End time	Start position	End position
Shetland_172	13:45:26	13:50:38	60.348877,-1.097773	60.349824,-1.09732
Shetland_173	14:02:32	14:08:13	60.344157,-1.117185	60.343842,-1.118966
Shetland_174	16:23:49	16:27:07	60.34447,-1.143899	60.344804,-1.142909
Shetland_175	15:47:33	15:52:42	60.225213,-1.153213	60.225842,-1.151885

Marine Scotland Science
Marine Laboratory
375 Victoria Road
Aberdeen
AB11 9DB

Copies of this report are available from the Marine Scotland website at
www.gov.scot/marinescotland