



SEAROVER 2019

Deep Water Reef Habitat & Species Video Analysis

Full Report, May 2020

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Commissioned by Marine Institute, Rinvile, Oranmore, Co. Galway

Acknowledgements

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Executive Summary

General Findings

The survey SeaRover (Sensitive Ecosystem Assessment and ROV Exploration of Reef) 2019 aimed to map the distribution and abundance of Ireland's geogenic and biogenic reef habitat along the Irish continental margin from Porcupine Bank up to the Rockall Bank (Figure 1) with high-definition (HD) camera. The 2019 survey is the last of the three surveys commissioned and jointly funded by the Irish Government and the EU's European Maritime and Fisheries Fund.

This technical report provides a detailed ecological analysis of 52 ROV dives.

The following briefly summaries the findings of this analysis and additional detail available in the subsequent chapters.

Reef/Non-reef

- 13 dives encountered geogenic reef
- 5 dives encountered biogenic reef
- 39 dives hosted neither biogenic nor geogenic reef

Diversity

- 246 putative species were identified from HD video footage supplemented by high resolution imagery (using operational taxonomic unit (OTU) system as it is not always possible to identify fauna to species level)
- 82 OTUs were identified in the most species rich dive (D696/T13)
- 12 OTUs were identified in the least species rich dive (D683/T52)
- 32 OTUs were identified on average from each dive
- 1 OTU was found in more than half of the transects
- 61 OTUs were found in only one transect

Biotopes

- potential biotopes were identified in line with the Marine Habitat Classification for Britain and Ireland (v.15.03), of which:
 - 40 are existing biotopes, un-altered from the MHCBI listing
 - 5 variant biotopes that follow the existing biotope descriptions, but variations of depth zones and substrata were observed

Conservation targets

- 52 dives encountered conservation listed habitats, being either an ICES Vulnerable Marine Ecosystem, and/or an OSPAR Threatened and/or Declining Habitat.
 - 5 coral reefs (*Lophelia pertusa* and *Solenosmilia variabilis*);
 - 17 coral gardens;
 - 8 deep-sea sponge aggregations;
 - 51 mud and sand emergent fauna.
- 4 dives encountered conservation listed species (ICES/IUCN)

- 1 conservation listed species were encountered:
 - 4 dives encountered *Hoplostethus atlanticus* (Orange Roughy)
 - 2 dives encountered *Centrophorus squamosus* (Leafscale Gulfer Shark)

Observations of note

- Two shipwrecks on the NW of the Porcupine Seabight were observed (D670/T20 and D671/T21). Attempts to identify the shipwrecks using the National Monuments Service are presented in this report. Noteworthy, GPS locations are yet to be confirmed and further investigation is required to report the shipwrecks visits to the official authorities.
- In D696/T13, the ROV and science team on watch attempted to circumnavigate a geogenic reef found on a large boulder for potential use in photogrammetry.
- The most epifaunally diverse dive was the D696/T13 at 1200 m depth. The community included many species of sponges and coral gardens (including colonies of *Solenosmilia variabilis*) on hard substrata.

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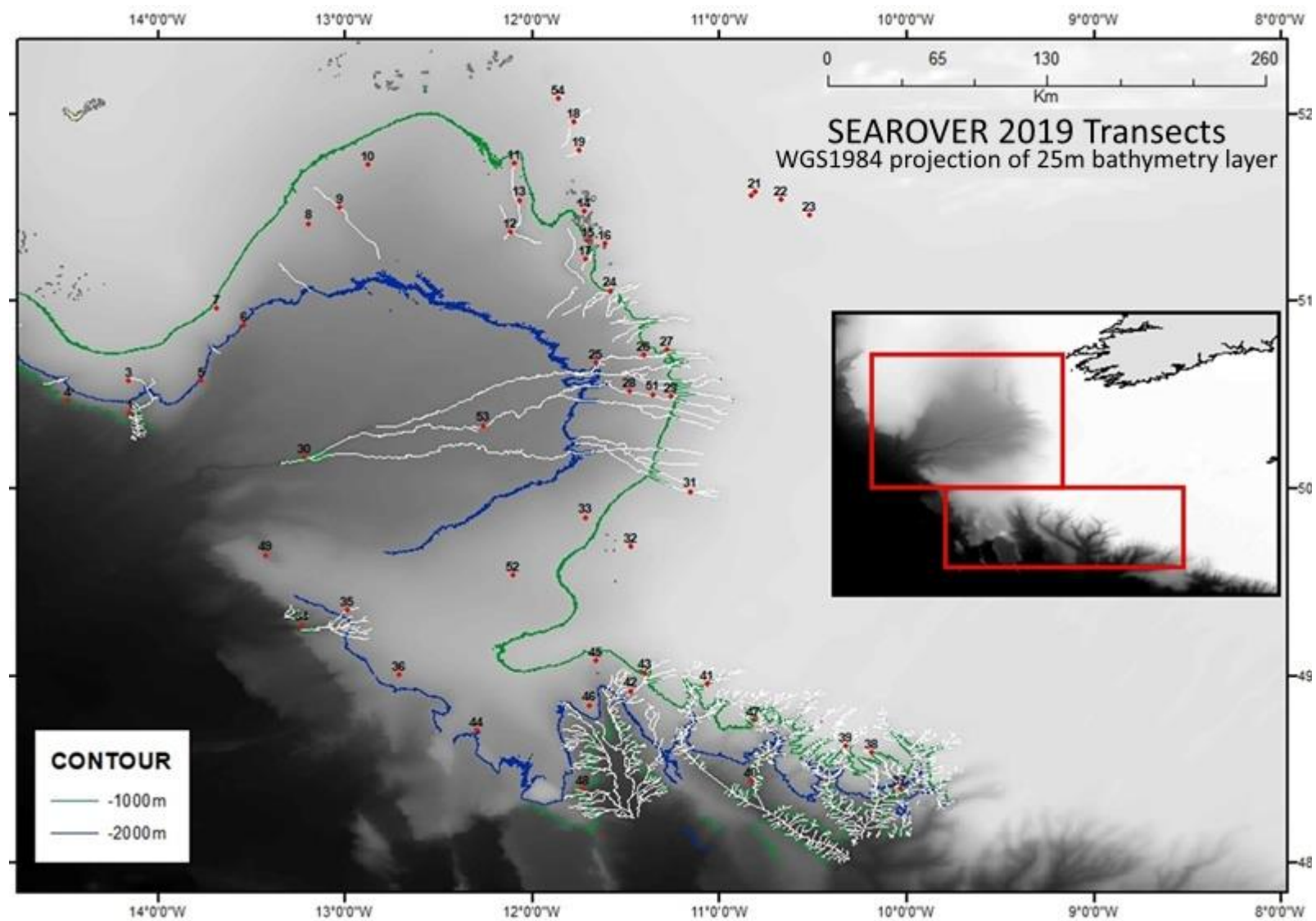


Figure 1 The survey area and locations of dives undertaken during SeaRover 2019. The red dots in the map indicate the mid point location of the ROV dive.

1. Recommendations

1.1 New biotopes

Biotopes were assessed based on the Marine Habitat Classification for Britain and Ireland (MHCBI) (v.15.03) new deep-sea section. However, the video analysis annotated variations to the former and suggestions are included in the subsequent chapters. Nevertheless, the below annotations and suggestions should be re-assessed before officially implementing any variations and additions to the current MHCBI deep sea section. The biotopes assessment was conducted by eye and therefore quantitative investigation should be considered.

1.1.1 Minor variants

Some minor variants of listed biotopes have been annotated throughout the video analysis. Variants of biotopes stem from the existing MHCBI biotope descriptions but differ in depth zones and substrates. The existing classification acknowledges that these are likely to be found and therefore this dataset might fulfil the data gap required to add new biotope variants.

Depth variant biotopes follow existing biotope description, however some assemblages were found in a new depth zone. An example of new depth zone is “Holothurian dominated community on Atlantic upper abyssal mud (M.AtUA.Mu.HolCom) which is already listed, however a similar biotope was found in shallower zones. In total, 4 potential depth zone biotope variants were encountered in this analysis.

The MHCBI also incorporates substrate information into biotope codes, therefore variations of substrate type should be annotated for future inclusion in the classification. These are more tentative suggestions than the depth variants as definitions of “mud”, “sand”, “coarse”, and “mixed” substrates are not always clear cut from video analysis. These suggestions should be reviewed with direct substrate comparisons of similar assemblages. However, only one potential new substrate variant was recorded, as ‘Brachiopod dominated community on Atlantic mid bathyal rock and other hard substrata (M.AtMB.Ro.BraCom), and in SeaRover 2019 analysis this dominant community was found on mud at Atlantic mid bathyal (i.e. in analysis recorded as (var)M.AtMB.Ro.BraCom; (variant of) Brachiopod dominated community on Atlantic mid bathyal rock and other hard substrata).

1.2 Shipwrecks

A brief description of shipwrecks is detailed in the following section. An attempt to identify the shipwrecks surveyed has been carried out. However, the GPS locations provided by National Monuments Service (NMS) is yet to be confirmed and further investigation may be required to report the surveys to the official authorities. Nevertheless, Irish waters host a vast number of shipwrecks (NMS estimates 30 000 wrecks around the island) and surveying these underwater archaeological sites may provide an opportunity to monitor the interaction of the benthic community with anthropogenic disturbances that occurred within a documented timeframe.

In D670 and D671, similar ecological features were recorded. For example, both sites were mostly colonised by white zoanthids and several ophiuroid species. Shoals of pollock were observed frequently during both dives. Sites were encountered at similar depths (~150m) and it is yet unknown when the ships sank. Notably, the shipwrecks offer hard substrata for the local benthic community. Further ecological survey data of surrounding shipwreck sites could allow for a comparative analysis among sites to identify patterns of coral communities and other associated fauna.

SHIPWRECK #1 D670

Wreck Name: Unknown*

Wreck No.: W10412*

DD Latitude: 51.56721*

DD Longitude: -10.82914*

Description: No descriptive details for this record at present.*

*Source: Shipwreck information were found on National Monuments Service: Wreck Viewer ([link](#)).

IMG_9212.jpg



IMG_9212.jpg

Date & Time

09/08/2019 15:09:18

Latitude/ Longitude

51.56737317/-10.8291125

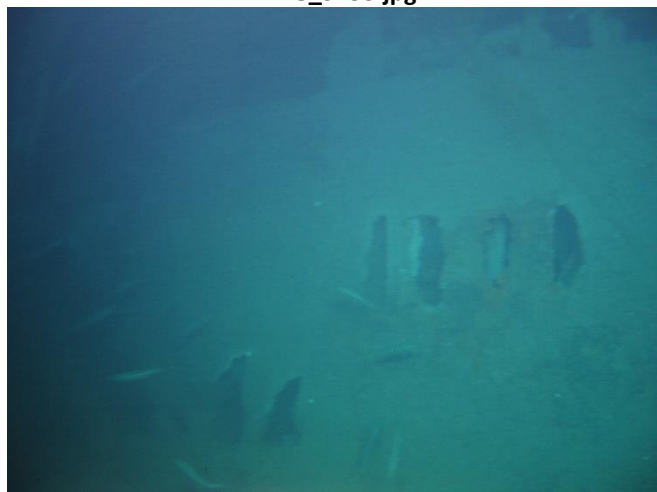
Depth

-152.1m

Ecological description: dense colony of white zoanthids (possibly O.T.U. 122) co-habiting with mobile fauna, such as *Ophiocomina nigra* O.T.U. 1308 and *Ophiothrix fragilis* O.T.U. 451 on shipwreck.

Biotope descriptor: Fouling faunal communities (CR.FCR.FouFa).

IMG_9253.jpg



IMG_9253.jpg

Date & Time

09/08/2019 15:06:22

Latitude/ Longitude

51.56752183/-10.82914333

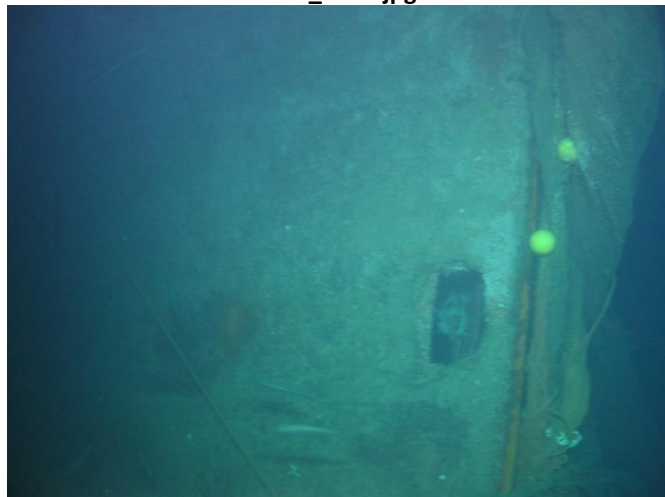
Depth

-153.897m

Ecological description: Shoal of pollock swimming in and around the wreck. Visibility is poor. Notably, a few windows/opening of the wreck are captured in picture.

Biotope descriptor: Fouling faunal communities (CR.FCR.FouFa).

IMG_9259.jpg



IMG_9259.jpg

Date & Time

09/08/2019 15:10:34

Latitude/ Longitude

51.5675945/-10.82912833

Depth

-151.834m

Ecological description: dense aggregation of white zoanthids (possibly O.T.U. 122) living on shipwreck. Fishing nets, buoys and ropes hang from the wreck. Notably a shoal of pollock (*Pollachius pollachius*) O.T.U. 1302 swimming around the artificial structure.

Biotope descriptor: Fouling faunal communities (CR.FCR.FouFa).

SHIPWRECK #2 D671

Wreck Name: Unknown*

Wreck No.: W10411*

Place of Loss: Bolus Head, 38.9 km SW*

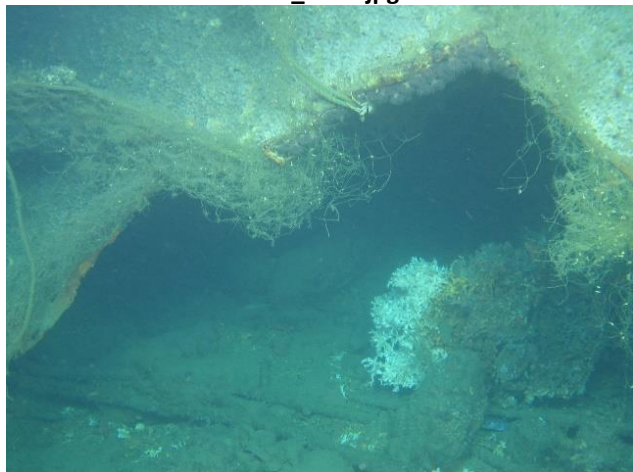
DD Latitude: 51.58657*

DD Longitude: -10.80560*

Description: Wreck surveyed by the Celtic Explorer in 2003 as part of Irish National Seabed Survey. Wreck measures 160m long, 21m in maximum width and lies in 156m of water. GSI Wreck No_122.*

*Source: Shipwreck information were found on National Monuments Service: Wreck Viewer ([link](#)).

IMG_9379.jpg



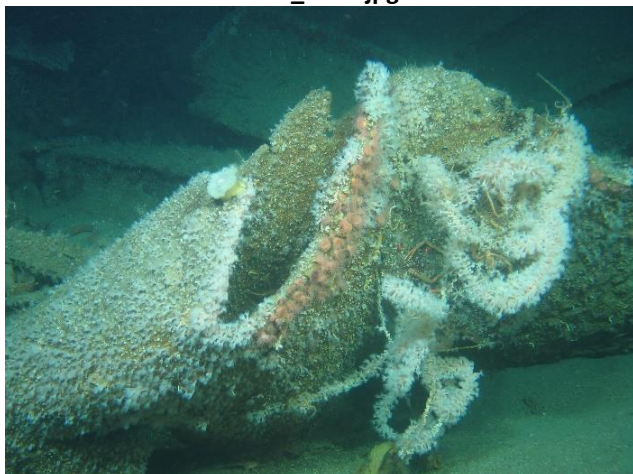
IMG_9379.jpg

Date & Time	09/08/2019 16:43:39
Latitude/ Longitude	51.586299/ -10.80569717
Depth	-149.772

Ecological description: various encrusting species and corals living on shipwreck. Fishing nets and line attached to the wreck.

Biotope descriptor: Fouling faunal communities (CR.FCR.FouFa).

IMG_9411.jpg



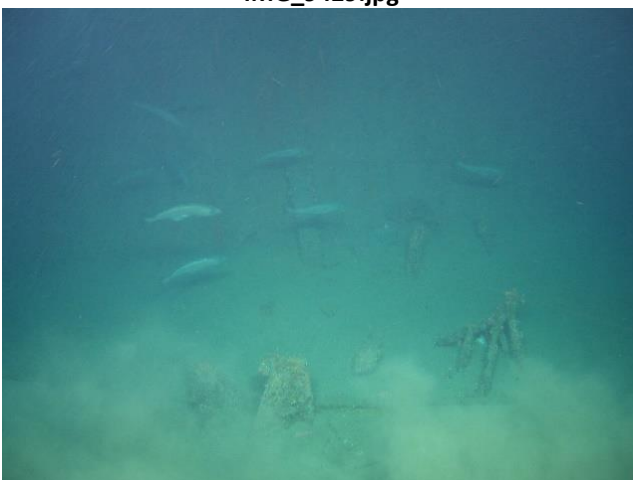
IMG_9411.jpg

Date & Time	09/08/2019 16:38:46
Latitude/ Longitude	51.58614367/ -10.80573167
Depth	-153.246m

Ecological descriptor: dense colony of white zoanthids (possibly O.T.U. 122) and red zoanthids (possibly O.T.U. 586). Scattered sea anemones and squat lobsters.

Biotope descriptor: Fouling faunal communities (CR.FCR.FouFa).

IMG_9429.jpg



IMG_9429.jpg

Date & Time	16:39:01
Latitude/ Longitude	51.586191/ -10.8057175
Depth	-150.252m

Ecological descriptor: Shoal of pollock (*P. pollachius*) swimming in and around the shipwreck.

Biotope descriptor: Fouling faunal communities (CR.FCR.FouFa).

1.3 Future work

The SeaRover scientific expeditions have provided a rich dataset from the North West to the South West of Ireland. In total, three surveys have recorded 13 days 22 hours and 16 minutes of HD video recorded on the seafloor and close to 350 km of seabed surveyed (O'Sullivan, D. pers.comm.). SeaRover 2019 has encountered new species and sampled species that have never been collected before. This extremely rich dataset has great potential to inform numerous additional studies.

Future survey efforts could focus on:

- Physical sampling of taxa commonly observed in video and imagery but not yet positively identified.
- Collecting additional data on hard substrate fauna at depths >2000m as these areas are less well known than shallow hard substrate areas.
- Lorien Knoll, Fangorn Bank, and Edoras Bank in the western extent of Irish waters. These areas in particular offer the best chance of finding more unique geogenic and biogenic reef features due to their depth and offshore location offering a lower chance of impact from fisheries (cited from SeaRover 2017).

1. Introduction

1.1 Background to the project

As part of the European Habitats Directive (EC 92/43/EEC), Ireland is required to promote sustainable conservation management of protected areas and avoid destruction by human activities. The Department of Culture, Heritage and the Gaeltacht (DCHG) identified the protection of offshore reef habitats of high priority to fulfil the Habitats Directive obligations.

The Irish Government and the EU through the European Maritime Fisheries Fund and National Parks and Wildlife Service fund the SeaRover survey (Sensitive Ecosystem Assessment and ROV Exploration of Reef Habitat Survey).

SeaRover 2019 was conducted in August 2019 along the Irish continental shelf, including Porcupine and Rockall Banks. It was the third and last offshore mapping survey of three surveys between 2017 and 2019. The survey used the Marine Institutes' Holland 1 ROV to map deep water reefs and associated habitats using high-resolution bathymetric maps and robotic arms to collect biological specimens for research at NUI Galway and University of Plymouth's Deep Sea Conservation Unit. In addition, the survey collected ground truth data to test published models of habitat suitability for reef and sponge habitat (Ross & Howell, 2013, Ross et al., 2015).

In total, 52 transects were completed, 45 biological specimens, 97 sediment samples and 6 water samples were collected over a 4 week period. Each transect was accompanied by HD footage, high-resolution still images and bathymetric information.

This report presents a biological analysis using HD footage, still images and standard definition footage where necessary. The layout and each phase of the analysis described in the current report follows that of the SeaRover 2017 and SeaRover 2018 report.

The survey undertook further mapping of offshore biogenic and geogenic reefs with the aim of evaluating status and reviewing requirements for conservation and management measures consistent with the Habitats Directive.

2. Methods

The methodology followed the methods used in SeaRover 2017. Each video was reviewed at least twice and was conducted by stopping and starting to ensure that all species were captured and all required details were logged. Digital stills images accompanied the analysis and identification of species, sediments and biotopes.

For each video, dive summary and enhanced OFOP logging files were created. The first viewing was used to annotate a species list and dive summary. The second viewing was used to create the enhanced OFOP file, which included substrate characteristics, geomorphologies and features biotopes and dominant species, reef presence, Annex I reef type, and presence of listed species and habitats. In addition, the second viewing was useful to estimate species abundance based on SACFOR system. Once the second viewing was completed, the enhanced OFOP data were reviewed and a biotope list was added to the dive summary.

2.1 Physical Data



Figure 2 Substrate categories used in this analysis.

2.1.1 Sediment

Substrate analysis was conducted by eye and used as a complementary feature to identify fauna and biotope. Substrata characteristics were recorded during the HD video and still images assessments.

Primary and secondary substrata were logged in order to accurately show the complexity of the biotope. Mosaicked substrata were indicated and given a value of >1 when present. Assessing the extent of co-existing substrata types was conducted by eye and start/end time is provided in the enhanced OFOPs per dive.

N.B. In the absence of physical samples, sand/mud sediments and mixed/coarse biotopes were difficult to reliably distinguish using video data only. Therefore, as suggested in SeaRover 2017, an adapted Wentworth grain size scale was used to help the assessment (**Figure 2**).

2.1.2 Reef type

Reefs can be either biogenic or geogenic in origin. They are defined by Joint Nature Conservation Committee (JNCC) as follows: “biogenic reefs are created by animals themselves, such as *Lophelia pertusa* and *Solenosmilia variabilis*; whereas, geogenic reefs occur where the bedrock or stable boulders and cobbles arise from the surrounding seabed creating a habitat that is colonised by many animals and plants”.

Biogenic and geogenic reefs were recorded. A patch size of 5m x 5m was considered to be a standard minimum area to be considered a biotope (see SeaRover 2017 report). The percentage of reef presence per transect was assessed using HD footage and estimated by eye. Categories of reef presence were assigned on quartiles:

<1%, <25%, 25-50%, <75% and up to 100%.

If biogenic reef was present then an estimate of living and dead reef forming coral was provided. The percentage of living and dead coral reef is provided (**Table 5**). In the current report, living and healthy coral reefs are not defined.

2.1.3 Geomorphology, Features and Annex I habitat types

Geomorphological features were included in the report. Large landscape features (e.g. canyon) were derived from the transect planning process. Annex I habitat categories were recorded and listed in the subsequent chapters.

2.2 Biological Data

2.2.1 Species Lists & SACFOR

Species lists were annotated in the first viewing of the video. A species catalogue was compiled throughout the video analysis phase. The catalogue comprised video image frame grabs, and digital stills images where available. Species identification was undertaken with reference to Howell, Davies & van den Beld (2017, at <http://www.deepseacatalogue.fr/>), the SeaRover 2017 species catalogue, and supplemented with taxonomic literature and expert advice.

As species identification can be problematic, an operational taxonomic unit approach was used throughout, identification was made to the highest taxonomic resolution that could be reliably achieved from image-based data. All identification were quality controlled to minimise observer bias between this analysis, SeaRovers 2018 and the SeaRovers 2017 data.

Species abundance measures were recorded qualitatively throughout the analysis with numerical order and timestamped counts – where necessary – given in the dive excel spreadsheet. Each species was rated based on SACFOR (Superabundant, Abundant, Common, Frequent, Occasional, and Rare) (Figure 6). This method allows rapid estimates of abundance based on percent cover or density of organisms. Throughout the analysis, a ‘conservative’ approach on percentage cover was used, therefore for official reference, re-viewing the HD footage is recommended.

Table 1 SACFOR (Superabundant, Abundant, Common, Frequent, Occasional, and Rare) scale readapted JNCC (see <http://jncc.defra.gov.uk/page-2684> for more info).

% Cover	Growth form		Size of individuals/colonies			Density	
	Crust/Meadow	Massive/Turf	1-3cm	3-15cm	>15cm		
	e.g. encrusting sponges	e.g. Dense large barnacles	e.g. halcampid anemones	e.g. echinoids	e.g. Leiopathes black corals		
>80%	S					>10 000/m ²	>1 per cm ²
40-79%	A	S	S			1000-9999 /m ²	
20-39%	C	A	A	S		100-999/m ²	1-9 per 10 cm ²
10-19%	F	C	C	A	S	10-99/m ²	1-9 per 1m ²
5-9%	O	F	F	C	A	1-9/m ²	
1-5%	R	O	O	F	C	1-9/10m ²	1-9 per 10m ²
<1%		R	R	O	F	1-9/100m ²	
				R	O	1-9/1000m ²	
					R	<1/1000m ²	

2.2.2 Biotopes

All biotopes were logged in line with the Marine Habitat Classification for Britain and Ireland (v.15.03) new deep sea section where possible. Novel biotopes were encountered and biotopes were classified to the highest level possible (sometimes this was only level 3 [substrate]) and potential new assemblages were highlighted and qualitatively described.

Some new biotopes were encountered and were considered clear extensions of existing categories recorded at new depths. E.g.

Existing Biotope:	Variant Logged in SeaRovers 2018:	Potential future biotope:
M.AtUA.Mu	(var) M.AtUA.Mu	M.AtUA.Mu.EreCor
Atlantic upper abyssal mud	(variant of) Atlantic upper abyssal mud	Erect coral field on Atlantic upper abyssal mud

Biotope changes were recorded when patch size was assumed to be 5m x 5m or greater, such as for reef presence.

2.2.3 Listed Habitat Occurrence

One of the main objectives of the offshore reef survey is to identify the presence of habitats and species of conservation concern in Irish waters; therefore a list of such habitats as defined by the Convention for the Protection of the Marine Environment of the North-East Atlantic (OSPAR) and the International Council for the Exploration of the Sea (ICES) that are likely to occur in Irish waters was produced ().

Table 2 A list of habitats of conservation concern likely to be found in Rockall Bank and Porcupine Bank. Listed habitats selected from OSPAR (Convention for the Protection of the Marine Environment of the North-East Atlantic) and ICES (International Council for the Exploration of the Sea).

OSPAR	ICES	ICES SUBCATEGORY
Lophelia pertusa reefs	Cold-water coral reef	Lophelia pertusa/Madrepora oculata reef
Lophelia pertusa reefs	Cold-water coral reef	Solenosmilia variabilis reef
Coral gardens	Coral garden	Hard-bottom coral garden
Coral gardens	Coral garden	Hard-bottom coral garden: hard-bottom gorgonian and black coral gardens
Coral gardens	Coral garden	Hard-bottom coral garden: colonial scleractinians on rocky substrata
Coral gardens	Coral garden	Hard-bottom coral garden: non-reefal scleractinian aggregations
Coral gardens	Coral garden	Hard-bottom coral garden: stylasterid corals on hard substrata
Coral gardens	Coral garden	Soft-bottom coral garden
Coral gardens	Coral garden	Soft-bottom coral garden: soft-bottom gorgonian and black coral gardens
Coral gardens	Coral garden	Soft-bottom coral garden: cup-coral fields

Coral gardens	Coral garden	Soft-bottom coral garden: cauliflower coral fields
Deep sea sponge aggregations	Deep sea sponge aggregations	Soft-bottom sponge aggregations
Deep sea sponge aggregations	Deep sea sponge aggregations	Hard-bottom sponge aggregations
Sea pen and burrowing megafauna communities	Sea pen fields	-
-	Anemone aggregations	Soft-bottom sponge aggregations
-	Anemone aggregations	Hard-bottom sponge aggregations
-	Mud and sand emergent fauna	-
-	Bryozoan patches	-
-	Cold seeps	-
Carbonate mounds	-	-

Four OSPAR listed species (fish and sharks only) are likely to be encountered in deep sea Irish waters.

- Portuguese Dogfish (*Centroscymnus coelolepis*, IUCN Near threatened)
- Gulper Shark (*Centrophorus granulosus*, IUCN Data Deficient)
- Leafscale Gulper Shark (*Centrophorus squamosus*, IUCN Endangered)
- Orange Roughy (*Hoplostethus atlanticus*, IUCN Vulnerable)

2.2.4 Quality Assurance

To ensure the standard of identifications of animals 5% of transects (3 transects) were independently analysed by Dr Kerry Howell. Transects were selected to cover a range of habitats and depths and were as follows: D671_T21, D680_T31, D695_T12. Each transect was reviewed and all taxa observed were noted. Taxa were identified using the species catalogue produced for the project. Taxon lists produced by Ms La Bianca and Dr Howell were then compared for consistency. The results of the QA analysis show minor differences in the number of OTU's recorded between observers (**Table 3**). These differences are largely a result of missed OTUs, but in some cases there are some discrepancies in identification (where observers disagreed on the identification of an animal). Discrepancies in identification only occurred in the most diverse transect (D695_T12). In this transect 1 discrepancy was for a shark species, 1 was for a coral where the two taxa involved are very difficult to distinguish.

The missed OTU's came from a broad range of taxonomic groups. Many were small or cryptic organisms, but not all. Some only appear to have been "missed". This occurred where one observer identified 2 morpho-types and the other observer only 1, e.g. one observer has lumped taxa together, the other has split them apart. Some are likely miss-classifications that are difficult to reconcile as such (for example various morphotypes of lamellate / lobose sponges). Some were straightforward missing observations.

For all transects the combined number of OTU's observed on any one transect was consistently higher than that recorded by a single observer. This suggests lists of OTU's provided in this project are under-estimates of the number of taxa present rather than over estimates. Trends in the number of species between transects remained consistent between observers, as well as when considering only those OTU's in common, or the combined total number of OTU's. With inter-observer agreement at between 64 and 80%, this analysis is at a slightly higher than standard quality level relative to published averages of 43-72% inter-observer agreement (MacLeod, Benfield & Culverhouse 2010). These levels are higher than those achieved in the 2018 analysis undertaken by Howell and La Bianca, but slightly lower than those achieved by Howell and Ross. This is likely due to the length of time all researchers had worked together on image analysis at the time of reporting (>7 years for KH and RR in 2017, <2 years for KH and GLB in 2018, >2 years for KH and GLB in 2019).

Table 3 Quality assurance of species identification between expert analysers.

Transect	Total No. O.T.U		No. O.T.U. in common	Inter-observer agreement	No of discrepancies in ID	No. O.T.U. missed		Combined total no. O.T.U.	Accuracy %	
	KH	GLB				KH	GLB		KH	GLB
D671_T21	19	17	14	64%	0	3	5	22	86	77
D680_T31	37	35	32	80%	0	3	5	40	93	88
D695_T12	63	67	53	74%	2	12	7	72	88	93

2.3 Deliverables

2.3.1 Composite Log

The detailed ecological assessment was incorporated to the enhanced OFOP data sheets per transect and presented in GIS compatible format (Figure 8). In order to achieve this:

- Substrata, geomorphologies/feature, reef types and percentages, Annex I Habitats, biotopes, dominant species and presence of listed species/biotopes were recorded to the final combined excel sheets and aligned to the timestamps and positions.
- Sampling events were recorded.
- Image EXIF data for all dives was extracted using <https://www.sno.phy.queensu.ca/~phil/exiftool/> (as suggested in SeaRover 2017) and summarised in excel format using a MatLab script. The VLOOKUP tool in excel was then used to align each digital stills image using the timestamps.

2.3.2 Dive Summaries

Dive summary reports are provided per dive. Following SeaRover 2017 and SeaRover 2018 reports format, all dives contain:

- Time/location/image/sampling/planning metadata;
- A pair of maps showing planned location and actual track with transitions (derived from the enhanced OFOP files);
- Four annotated representative images per dive displaying biotopes, substrates, species, and geomorphologies considered to be representative of the dive;
- A summary description detailing timings of biotope transitions and the progress/general observations of the dive;
- A physical data summary showing reef percentages, a list of substrates (dominant substrates for the dive are shown in bold), geomorphologies, features, annex I types and pressures encountered per dive;
- A biological data summary showing number of species, species list and SACFOR abundance measures, biotope list and their conservation status, biotope progression with dominant species (numbers aligning to the dive summary numbers in square brackets), and a summary list of the conservation listed habitats and species encountered;
- An area for additional comments regarding the dive if necessary.

Full dive summaries for all dives are presented in ‘Dive summaries’ section 3.2 of this report.

2.3.3 GIS Data

GIS maps were supplied, created from the enhanced OFOP and metadata files. The data provided georeferenced images per transect, including ecological variables such as substrata, geomorphologies, dominant species, biotopes and listed habitats. Also, polyline shapefiles include reef presence, digital stills and pressures.

2.3.4 Pressures

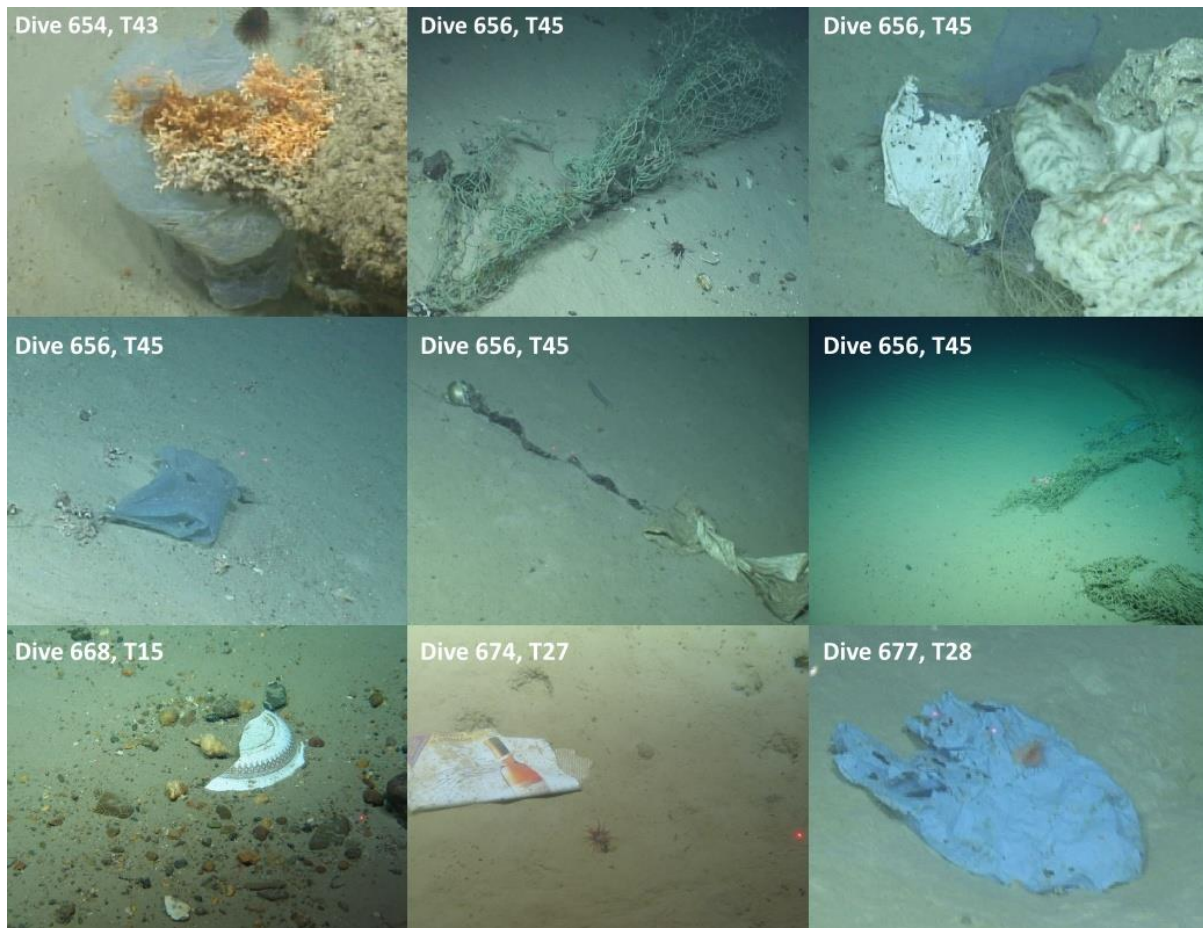


Figure 3 Screenshots of plastic and other anthropogenic pressures found during SeaRover 2019 between 200m and 2500m depth.

One of the additional purposes of this survey was to identify anthropogenic pressures on deep-sea ecosystems. As such all visible anthropogenic impacts were recorded, including fishing gear, trawl marks, litter etc (**Figure 3**). Digital stills images and image grabs were catalogued and recorded in the enhanced OFOPs files.

3. Results

This section includes two deliverables: quick-view metadata and dive summaries.

- Quick-view metadata provide an overview of key ecological variables assigned to each dive.
- Comprehensive dive summaries provide an extensive overview per dive, including physical and biological analyses, metadata, example images, basic maps, and a video time stamped narrative. After quick-view metadata consultation, these provide an in-depth description for each dive.

- A brief summary of Shipwreck ecology provide further description of the most common fouling communities found in two transects at 150m depth located between the Porcupine Seabight and SW Ireland. Basic maps and information from the National Monuments Services are provided.

3.1 Quick-view metadata

The following tables provide an overview of the dives undertaken and their analysis summaries. In this report, a single excel spreadsheet is shown as multiple tables for easy filtering and sorting of data.

Table 4 Time and location metadata for all dives, along with associated image numbers (images stored as IMG_XXXX.jpg and ROV_XX XXX.jpg).

Dive	Transect	Start Date & Time (HD Video)	Start Lat (USBL)	Start Long (USBL)	Start Depth (USBL)	End Date & Time (off Bottom/HD video off)	End Lat (USBL)	End Long (USBL)	End Depth (USBL)	Average Depth	Images
648	37	03/08/2019 12:54	48.393438	-10.035312	-2886.28	03/08/2019 14:40	48.3987037	-10.03230217	-2742.29	-2814.285	IMG_7229.jpg-IMG_7274.jpg
649	38	03/08/2019 20:58	48.58967433	-10.1896835	-968.486	03/08/2019 22:04	48.59244983	-10.1880585	-911.449	-939.9675	IMG_7275.jpg - IMG_7478.jpg
650	39	04/08/2019 00:46	48.621517	-10.32685283	-1189.847	04/08/2019 02:37	48.6234485	-10.33072583	-1085.321	-1137.584	IMG_7479.jpg - IMG_7613.jpg
651	40	04/08/2019 08:55	48.43681	-10.82989033	-3001.39	04/08/2019 10:42	48.4395343	-10.83388033	-2847.412	-2924.401	IMG_7614.jpg - IMG_7785.jpg
652	47	04/08/2019 15:38	48.7619533	-10.81751567	-1109.479	04/08/2019 18:23	48.7674453	-10.82889367	-1069.406	-1089.4425	IMG_7786.jpg - IMG_7932.jpg
653	41	04/08/2019 21:47	48.957015	-11.06604917	-1072.724	04/08/2019 23:07	48.960763	-11.06635767	-971.54	-1022.132	IMG_7901.jpg - IMG_7968.jpg
654	43	05/08/2019 03:01	49.014502	-11.39482633	-1328.638	05/08/2019 05:03	49.0199613	-11.40574283	-1004.4	-1166.519	IMG_7969.jpg - IMG_8145.jpg
655	42	05/08/2019 08:21	48.917028	-11.47025017	-1739.47	05/08/2019 09:49	48.92361367	-11.469798	-1543.592	-1641.531	IMG_8146.jpg - IMG_8376.jpg
656	45	05/08/2019 13:46	49.080921	-11.66259217	-1392.118	05/08/2019 15:30	49.08560633	-11.661393	-1288.129	-1340.1235	IMG_8377.jpg - IMG_8744.jpg
657	46	05/08/2019 19:49	48.841398	-11.69228533	-1518.504	05/08/2019 21:28	48.84814433	-11.695043	-1537.896	-1528.2	IMG_8701.jpg - IMG_8977.jpg
658	48	06/08/2019 03:59	48.395894	-11.73174733	-2982.924	06/08/2019 05:00	48.3992623	-11.73489583	-2913.912	-2948.418	IMG_8901.jpg - ROV_09 130.jpg
659	44	06/08/2019 12:36	48.707859	-12.296708	-1969.522	06/08/2019 13:46	48.7125445	-12.29255883	-1934.264	-1951.893	ROV_09 131.jpg - ROV_09 174.jpg
660	36	06/08/2019 19:10	49.001576	-12.71217967	-1792.018	06/08/2019 21:01	49.0068455	-12.70333817	-1670.694	-1731.356	IMG_9075.jpg - IMG_9402.jpg
661	35	07/08/2019 02:10	49.350086	-12.985622	-1860.862	07/08/2019 03:07	49.3534035	-12.979465	-1849.829	-1855.3455	IMG_9501.jpg - IMG_9598.jpg
662	34	07/08/2019 08:16	49.268874	-13.228627	-2998.004	07/08/2019 10:40	49.27262583	-13.2235105	-2876.6	-2937.302	IMG_9601.jpg - IMG_9900.jpg
663	49	07/08/2019 16:34	49.643898	-13.42481474	-2259.07388	07/08/2019 17:49	49.6376421	-13.42157171	-2215.82739	-2237.4506	IMG_0067.jpg - IMG_0095.jpg
664	30	08/08/2019 00:45	50.167434	-13.21364717	-2898.224	08/08/2019 02:13	50.1726948	-13.20747433	-2781.789	-2840.0065	IMG_7148.jpg - IMG_7219.jpg
665	24	08/08/2019 13:36	51.0547037	-11.5824965	-1137.183	08/08/2019 14:36	51.059528	-11.57887533	-1035.868	-1086.5255	IMG_7201.jpg - IMG_7548.jpg
666	17	08/08/2019 18:04	51.225003	-11.7126667	-1132.458	08/08/2019 19:44	51.234417	-11.710107	-1087.651	-1110.0545	IMG_7550.jpg - IMG_7801.jpg
667	16	08/08/2019 22:20	51.3054577	-11.61485217	-705.916	08/08/2019 23:35	51.3155223	-11.60933883	-624.978	-665.447	IMG_7802.jpg - IMG_7975.jpg
668	15	09/08/2019 01:46	51.3203067	-11.70096117	-874.743	09/08/2019 03:40	51.32982767	-11.7097	-895.066	-884.9045	IMG_7976.jpg - IMG_8410.jpg
669	14	09/08/2019 06:29	51.478064	-11.72394583	-854.249	09/08/2019 08:26	51.49049067	-11.7182775	-914.637	-884.443	IMG_8413.jpg-IMG_9257.jpg
670	20	09/08/2019 14:19	51.5659305	-10.83021083	-155.868	09/08/2019/15:13:17	51.5677273	-10.82914117	-155.943	-155.9055	IMG_9258.jpg - IMG_9293.jpg
671	21	09/08/2019 16:09	51.5851163	-10.80673783	-154.461	09/08/2019 16:44	51.5863047	-10.80569633	-150.582	-152.5215	IMG_9294.jpg - IMG_9477.jpg
672	22	09/08/2019 18:18	51.5431312	-10.67135067	-144.999	09/08/2019 19:45	51.54654867	-10.677928	-143.968	-144.4835	IMG_9478.jpg - IMG_9685.jpg
673	23	09/08/2019 21:32	51.46048767	-10.518507	-139.758	09/08/2019 22:00	51.461041	-10.52308433	-138.793	-139.2755	IMG_9686.jpg - IMG_9847.jpg
674	27	11/08/2019 07:51	50.7409155	-11.27711117	-1096.099	11/08/2019 09:49	50.748582	-11.27038717	-833.943	-965.021	IMG_0001.jpg - IMG_9900.jpg
675	26	11/08/2019 12:47	50.7105875	-11.4022265	-1583.789	11/08/2019 15:26	50.7212725	-11.38843983	-1206.918	-1395.3535	IMG_0007.jpg - IMG_0415.jpg
676	25	11/08/2019 19:03	50.670297	-11.6599515	-1924.431	11/08/2019 20:31	50.6785635	-11.65502433	-1921.706	-1923.0685	IMG_0416.jpg - IMG_0434.jpg
677	28	12/08/2019 00:31	50.5165867	-11.4771975	-1728.293	12/08/2019 02:52	50.5252269	-11.46107817	-1438.873	-1583.583	IMG_0435.jpg - IMG_0656.jpg
678	51	12/08/2019 05:37	50.5002513	-11.35663467	-1431.541	12/08/2019 08:01	50.5124023	-11.33975267	-1202.793	-1317.167	IMG_0657.jpg - IMG_0680.jpg
679	29	12/08/2019 10:34	50.4906585	-11.2557885	-1211.398	12/08/2019 12:51	50.501948	-11.24347733	-1046.786	-1129.092	IMG_0681.jpg - IMG_1204.jpg
680	31	12/08/2019 17:36	49.9822952	-11.1546805	-759.756	12/08/2019 19:07	49.984319	-11.13904517	-676.293	-718.0245	IMG_1201.jpg - IMG_1238.jpg
681	32	12/08/2019 22:37	49.6904628	-11.4737375	-606.916	13/08/2019 00:15	49.6818343	-11.46049467	-573.779	-590.3475	IMG_7147.jpg - IMG_7438.jpg
682	33	13/08/2019 03:31	49.843866	-11.71432617	-1173.583	13/08/2019 05:17	49.855772	-11.70729633	-1169.454	-1171.5185	IMG_7439.jpg - IMG_7460.jpg
683	52	13/08/2019 10:06	49.534544	-12.10620417	-1208.042	13/08/2019 12:03	49.5339882	-12.10530367	-1206.557	-1207.2995	IMG_7401.jpg - IMG_7489.jpg
684	53	13/08/2019 19:41	50.334109	-12.26391867	-2511.013	13/08/2019 20:26	50.3372008	-12.25997517	-2496.655	-2503.834	IMG_7147.jpg - IMG_7152.jpg
685	5	14/08/2019 06:51	50.572518	-13.77267017	-2088.531	14/08/2019 07:53	50.5772392	-13.77671783	-2046.986	-2067.7585	IMG_7153.jpg - IMG_7172.jpg
686	4	14/08/2019 15:49	50.470865	-14.484107	-2964.795	14/08/2019 17:34	50.47795067	-14.4836205	-2609.399	-2787.097	IMG_7147.jpg - IMG_7276.jpg
687	1	14/08/2019 22:46	50.398438	-14.14846933	-2949.211	14/08/2019 23:58	50.4038865	-14.15629167	-2827.64	-2888.4255	IMG_7277.jpg - IMG_7520.jpg
688	3	15/08/2019 04:19	50.574377	-14.15630033	-1494.067	15/08/2019 05:43	50.58509817	-14.154037	-1568.192	-1531.1295	IMG_7521.jpg - IMG_7652.jpg
689	6	15/08/2019 11:21	50.8727273	-13.54085717	-2121.562	15/08/2019 12:45	50.8758888	-13.55021483	-2023.767	-2072.6645	IMG_7601.jpg - IMG_7781.jpg
690	7	15/08/2019 15:39	50.959457	-13.6874445	-1103.552	15/08/2019 17:13	50.9611035	-13.68723267	-1099.086	-1101.319	IMG_7701.jpg - IMG_7780.jpg
691	8	16/08/2019 06:35	51.4134725	-13.19571283	-1294.375	16/08/2019 07:33	51.4157455	-13.2033615	-1282.263	-1288.319	IMG_7707.jpg - IMG_7730.jpg
692	9	16/08/2019 10:58	51.50028	-13.02852717	-1535.397	16/08/2019 12:01	51.5043177	-13.03266983	-1525.445	-1530.421	IMG_7731.jpg - IMG_7860.jpg
693	10	16/08/2019 15:38	51.726886	-12.87785483	-1232.727	16/08/2019 17:31	51.7362225	-12.88220717	-1217.753	-1225.24	IMG_7861.jpg - IMG_7964.jpg
695	12	19/08/2019 05:07	51.371405	-12.11538317	-1618.641	19/08/2019 06:20	51.3761888	-12.11865433	-1511.734	-1565.1875	IMG_7965.jpg - IMG_8200.jpg
696	13	19/08/2019 10:04	51.53800733	-12.071862	-1336.974	19/08/2019 12:00	51.5446427	-12.07900833	-1230.133	-1283.5535	IMG_8201.jpg - IMG_8370.jpg
697	11	19/08/2019 15:02	51.736964	-12.09861033	-1224.43	19/08/2019 16:05	51.7439095	-12.100137	-1214.449	-1219.4395	IMG_7706.jpg - IMG_7773.jpg
698	19	19/08/2019 18:56	51.8068842	-11.75182217	-585.311	19/08/2019 19:35	51.802957	-11.755182	-602.664	-593.9875	IMG_7774.jpg - IMG_7789.jpg
699	18	19/08/2019 21:49	51.9594188	-11.77939533	-615.219	19/08/2019 22:42	51.9630495	-11.77351417	-603.05	-609.1345	IMG_7790.jpg - IMG_7808.jpg
700	54	20/08/2020 01:10	52.08299	-11.86216017	-661.592	20/08/2020 02:28	52.09113617	-11.854489	-643.633	-652.6125	IMG_7809.jpg - IMG_7987.jpg

Table 5 Summary descriptions and reef data per dive. Number of species and percentage reef are both colour coded so that darker colour highlights higher species richness or reef percentages.

Dive	Transect	Average Depth	Number of Species	Summary	% Reef	% Geogenic	% Biogenic
648	37	-2814.285	20	Mainly mud veneered wall and rippled sand sediment on downward slope with mix sparse and scarce epifauna as well as frequent burrows and foraminifera.	0	n/a	n/a
649	38	-939.9675	19	Muddy steep slope with scattered dense Lophelia framework on mud and carbonate mounds.	10	6	4(99% dead)
650	39	-1137.584	42	Mosaic sediments alternate between muddy slope with ophiuroid aggregations and vertical mud veneered carbonate walls hosting mixed soft and stony corals (Acanella arbuscula and Lophelia pertusa)	18	18	n/a
651	40	-2924.401	15	Muddy steep slope with mixed polychaetes and scattered sea pens.	0	n/a	n/a
652	47	-1089.4425	44	Biogenic reef intersperse with muddy upslope, hosting Acanella arbuscula, Aphrocallistes sp and feather stars.	10	2	8 (25-50% living)
653	41	-1022.132	22	Muddy steep slope with scarce epifauna.	9	9	n/a
654	43	-1166.519	49	Muddy slope with scattered carbonate boulders/bedrock. Sea pen fields on muddy upslope towards the end of the dive.	0	n/a	n/a
655	42	-1641.531	18	Muddy slope with scarce epifauna. Excellent imagery of Pennatulacea and Hyalonema.	0	n/a	n/a
656	45	-1340.1235	56	Stalked epifauna on muddy slope with occasional boulders hosting encrusted fauna and bivalves/ascidians on carbonate scarp.	0	n/a	n/a
657	46	-1528.2	30	Muddy slope with sparse and scares epifauna, including white sea cucumbers and cerianthids	0	n/a	n/a
658	48	-2948.418	14	Muddy slope with scarce epifauna with a few pockets of organic fluffy sediments (no visible epifauna living on them).	0	n/a	n/a
659	44	-1951.893	16	Muddy slope with scarce epifauna. Throughout the whole dive, animal tracks and burrows are often encountered on the seafloor.	0	n/a	n/a
660	36	-1731.356	42	Steep slope with occasional large cobbles/boulders with a few epifauna. A colony of sparse Solenosmilia variabilis is encountered living on rock.	0	n/a	n/a
661	35	-1855.3455	21	Muddy slope with scarce epifauna, including Phormosoma placenta and Pelliactis sp. Frequent animal marks (poss echinodermata) and burrows.	0	n/a	n/a
662	34	-2937.302	44	Patches of deep sea sponge aggregations and coral gardens on bedrock. Scattered mud/gravel areas with sparse epifauna	47	47	0
663	49	-2237.45063	30	Rippled sand/muddy/pebble slope with dominant Syringammina fragillissima on soft-bottom and a few lamellate sponges on hard-substrata.	0	n/a	n/a
664	30	-2840.0065	22	Steep muddy/carbonate steep slope with echinoid and pteropod shells. Towards the end of the transect, muddy moderate slope with sparse epifauna.	0	n/a	n/a
665	24	-1086.5255	31	Muddy slope hosting a variety of foraminifera, burrowing fauna, mainly cerianthids, and Pentametrocrinus atlanticus. No major/abrupt biotope transition occur.	0	n/a	n/a
666	17	-1110.0545	38	Mainly rippled sand/mud and pebbles. One patch of Lophelia reef with Aphrocallistes sp.	4	0	4
667	16	-665.447	21	The entire dive presents an uniform species distribution and associated biotope throughout: mainly rippled mud on gentle/moderate slope with abundant Cidaris cidaris aggregations	0	n/a	n/a
668	15	-884.9045	35	Mosaic biotope with predominantly pebble/cobble and mud sediments on moderate slope hosting scattered aggregations of encrusted fauna. Included patches of coral rubble/gravel.	0	n/a	n/a
669	14	-884.443	46	Predominantly coral rubble across the transect. Dense Lophelia/Madrepora reef framework intersperse with Aphrocallistes sp and Pliobothrus towards the end of the video.	71.7	0	71.7
670	20	-155.9055	13	Shipwreck circumnavigation with abundant shoal of pollacks. Dive lasts less than 1 hour.	18	18	n/a
671	21	-152.5215	15	Shipwreck hosting abundant colonies of corals.	59	59	n/a
672	22	-144.4835	35	Soft sediment intersperse with large cobbles and boulders hosting a variety of epifauna forming scattered geogenic reefs.	15	15	0
673	23	-139.2755	29	Notable colony of ophiuroid bed on mud veneered bedrock.	0	n/a	n/a
674	27	-965.021	39	Sea pen fields on moderate muddy slope intersperse with steep soft sediment hosting ophiuroids.	0	n/a	n/a
675	26	-1395.3535	76	Mainly muddy slope. Towards the end of the first video and second video, extended areas of Solenosmilia variabilis reef host many epifauna including isidiidae corals and lamellate sponges.	22	n/a	22
676	25	-1923.0685	35	Muddy slope with sparse epifauna, mainly sea urchins and sea cucumbers. Slope inclination fluctuates across the dive, from moderate to steep.	0	n/a	n/a
677	28	-1583.583	40	Muddy moderate to steep slope with scattered epifauna. Remarkable holothurian aggregations encountered.	0	n/a	n/a
678	51	-1317.167	52	Muddy slope with variant dominant species. Mainly cup coral and sea cucumber fields.	0	n/a	n/a
679	29	-1129.092	63	The sediment is predominantly muddy on gentle/moderate slope with patches of dense brachiopoda aggregations and sparse fields of pebbles/cobbles	0	n/a	n/a
680	31	-718.0245	35	Gentle/moderate muddy slope with dominant burrowing anemones and occasional sea pens	0	n/a	n/a
681	32	-590.3475	17	Predominantly rippled sand and muddy slope with scattered patches of solitary scleractinians and sparse burrowing epifauna. An escarpment recorded.	0	n/a	n/a
682	33	-1171.5185	43	Homogenous biotope of mud and scattered species of sea urchin	0	n/a	n/a
683	52	-1207.2995	12	Dense phoronema aggregation on muddy slope.	0	n/a	n/a
684	53	-2503.834	16	Gentle/moderate muddy slope with mainly sea urchins, starfish and ophiuroids.	0	n/a	n/a
685	5	-2067.7585	23	Stalked crinoids and a few burrows on gentle/moderate slope of soft sediment with sparse echinoids and Anthoptilum	0	n/a	n/a
686	4	-2787.097	30	Predominantly steep muddy slope with patches of bedrock hosting a few sponge species.	0	n/a	n/a
687	1	-2888.4255	13	Moderate muddy slope with scarce epifauna, occasionally holothurians (possibly Benthothuria species), predominantly featureless.	0	n/a	n/a
688	3	-1531.1295	29	Homogenous biotope of muddy moderate slope with sparse echinoids and holothurians.	0	n/a	n/a
689	6	-2072.6645	29	Uniform biotope of gentle/moderate slope with occasional aggregations of echinods.	0	n/a	n/a
690	7	-1101.319	29	Pheronema carpenteri aggregations on muddy slope.	0	0	n/a
691	8	-1288.319	24	Uniform biotope from start to end. Dominant holothurian aggregations on muddy/soft sediment slope.	0	n/a	n/a
692	9	-1530.421	13	Homogenous biotope of gentle/moderate muddy slope with scarce epifauna.	0	n/a	n/a
693	10	-1225.24	35	Uniform biotope of gentle/moderate muddy slope with abundant epifauna throughout, including solitary scleractinians and holothurians.	0	n/a	n/a
695	12	-1565.1875	68	Interspersed geogenic and biogenic reefs across the dive featuring Solenosmilia reefs and deep-sea sponge aggregations on hard substrata and sparse coral rubble on soft sediment.	50	50	0
696	13	-1283.5535	83	Rich geogenic reefs including mud, pebbles fields and boulders hosting various and abundant epifauna	71.68	71.68	0
697	11	-1219.4395	28	Uniform biotope across the dive featuring rippled muddy sand slope hosting sea anemones and sea urchins.	0	n/a	n/a
698	19	-593.9875	16	Rippled sand biotope with sparse epifauna.	0	n/a	n/a
699	18	-609.1345	25	Uniform biotope of muddy moderate slope with scattered epifauna predominantly sea anemones and brisingids.	0	n/a	n/a
700	54	-652.6125	25	Uniform biotope of muddy slope with scattered sea anemones and hermit crabs.	0	n/a	n/a

Table 6 Additional information planned targets, samples collected, pressures observed, and notes per dive.

Dive	Transect	Average Depth	Target Feature(s)	Samples	Pressures	Note
648	37	-2814.285	Depth, Spatial coverage	n/a	1 x telecommunication cable	
649	38	-939.9675	Slope	2 x pushcores	n/a	
650	39	-1137.584	Slope	2 x pushcores	1 x artificial substrate (ship funnel)	
651	40	-2924.401	Slope, depth	1 x Pennatula aculeata, 1 x Sea pen	n/a	
652	47	-1089.4425	No previous data	2 x pushcores, 1 x Swiftia	n/a	
653	41	-1022.132	Slope	2 x pushcores	3 x fishing gear, 1 x plastic sheet	Very poor vision, mostly mud cloud/obscured.
654	43	-1166.519	Slope	2 x pushcores	2 x fishing gear; 2 x rubbish (plastic)	
655	42	-1641.531	Slope	2 x pushcores, 1 x Hyalonema	n/a	
656	45	-1340.1235	Track feature	2 x pushcores; 1 x Pseudanthomastus sp; 1 x Hyalonema	2 x fishing gear; 2 x rubbish (plastic)	
657	46	-1528.2	No previous data	2 x pushcores	n/a	
658	48	-2948.418	Slope, depth	2 x pushcores, 1 x Radicipes sp	1 x rusty man-made object	
659	44	-1951.893	Track feature	2 x pushcores	2 x rubbish	
660	36	-1731.356	Explore feature	2 x pushcores	3 x rubbish	
661	35	-1855.3455	Track feature	2 x pushcores, 2 x Phelliactis sp	1 x ceramic pot, 1 x rusty man-made object (poss ship tank)	
662	34	-2937.302	Depth range	2 x pushcores	1 x glass bottle	
663	49	-2237.45063	No previous data	2 x pushcores	1 x rubbish	
664	30	-2840.0065	No previous data, depth range	n/a	n/a	
665	24	-1086.5255	No previous data	2 x pushcores	1 x rubbish (plasticSheet)	
666	17	-1110.0545		2 x pushcores	n/a	
667	16	-665.447	SAC	2 x pushcores	1 x fishing gear	
668	15	-884.9045	SAC	1 x pushcore	1 x rubbish; 1 x ceramic plate	
669	14	-884.443	SAC	2 x pushcores	n/a	1 x sixgill shark
670	20	-155.9055	Fishing activity via VMS	2 x pushcores	n/a	Shipwreck
671	21	-152.5215	Fishing activity via VMS	2 x pushcores	n/a	Shipwreck
672	22	-144.4835	Fishing activity via VMS	2 x pushcores; 1 x white coral (unknown species)	1 x rubbish; 1 x rope	
673	23	-139.2755	Fishing activity via VMS	n/a	1 x man-made rusty object	
674	27	-965.021		2 x pushcores	1 x rubbish; 1 x long line	
675	26	-1395.3535	Track unexplored feature	2 x pushcores; 1 x Chrysogorgiidae sp1	2 x rubbish	
676	25	-1923.0685	Track unexplored feature	2 x pushcores	n/a	
677	28	-1583.583	Track unexplored feature	2 x pushcores	11 x rubbish	
678	51	-1317.167	Opportunistic transect	2 x pushcores	2 x rubbish; 1 x fishing gear	
679	29	-1129.092	Track unexplored feature	2 x pushcores; 1 x Swiftia	2 x rubbish; 2 x fishing gear	
680	31	-718.0245	Track slope	2 x pushcores	3 x fishing gear	
681	32	-590.3475	Potential feature	2 x pushcores	5 x fishing gears; 1 x unknown pressure	
682	33	-1171.5185	Track shallow ridge	2 x pushcores	1 x glass bottle	
683	52	-1207.2995	Pheronema aggregations	15 x Pheronema carpenteri; 3 x water samples; 3 x pushcores; 1 x Hyalonema	n/a	
684	53	-2503.834	Opportunistic transect	2 x pushcores	1 x rusty barrel	
685	5	-2067.7585	Spatial coverage	2 x pushcores	n/a	
686	4	-2787.097	No previous data	2 x sponge (yellow); 2 x pushcores		
687	1	-2888.4255	Steep slope	2 x pushcores	1 x glass bottle	
688	3	-1531.1295	Ledge	2 x pushcores; 1 x unknown pressure (metal)	1 x unknown pressure (metal)	
689	6	-2072.6645	Slope	2 x pushcores	n/a	
690	7	-1101.319	Ridge	15 x Pheronema carpenteri; 3 x water samples; 3 x pushcores; 1 x Hyalonema	n/a	
691	8	-1288.319	No previous data	2 x pushcores	n/a	
692	9	-1530.421	Ridge	n/a	n/a	
693	10	-1225.24	Slope	2 x pushcores; 1 x sea pen	n/a	
695	12	-1565.1875	Interesting bathy data	2 x pushcores	1 x rubbish	
696	13	-1283.5535	Interesting bathy data	3 x pushcores	2 x rubbish; 2 x fishing gear	
697	11	-1219.4395	Interesting bathy data	3 x pushcores	n/a	
698	19	-593.9875	Track slope feature	2 x pushcores	n/a	
699	18	-609.1345	Track slope feature	2 x pushcores	5 x rubbish; 1 x rusty stick	
700	54	-652.6125	n/a	2 x pushcores		

Table 7 Listed species and habitats per dive.

Dive	Transect	Average Depth	Listed Species	Listed Habitats
648	37	-2814.285	n/a	Mud and sand emergent fauna (ICES)
649	38	-939.9675	n/a	Cold water coral reef (ICES); Lophelia pertusa/Madrepora oculata reef (ICES subcategory); Coral garden (ICES); hard-bottom coral garden: colonial scleractinian on rocky substrata (ICES subcategory); Carbonate mounds (OSPAR); Mud and sand emergent fauna (ICES)
650	39	-1137.584	2 x Hoplostethus atlanticus	Coral garden (ICES), hard-bottom coral garden (ICES subcategory), Mud and sand emergent fauna (ICES)
651	40	-2924.401	n/a	Mud and sand emergent fauna (ICES)
652	47	-1089.4425	n/a	Mud and sand emergent fauna (ICES); Coral garden (ICES/OSPAR); Hard-bottom coral garden (ICES subcategory); soft-bottom coral garden (ICES subcategory); cold water coral reef (ICES/OSPAR); Lophelia pertusa reef (ICES subcategory)
653	41	-1022.132	n/a	Mud and sand emergent fauna (ICES); Coral garden (ICES/OSPAR)
654	43	-1166.519	n/a	Mud and sand emergent fauna (ICES); Carbonate mounds (OSPAR); Coral garden (ICES/OSPAR); Soft-bottom coral garden (ICES subcategory)
655	42	-1641.531	n/a	Mud and sand emergent fauna (ICES)
656	45	-1340.1235	n/a	Mud and sand emergent fauna (ICES)
657	46	-1528.2	n/a	Mud and sand emergent fauna (ICES)
658	48	-2948.418	n/a	Mud and sand emergent fauna (ICES)
659	44	-1951.893	n/a	Mud and sand emergent fauna (ICES)
660	36	-1731.356	n/a	Mud and sand emergent fauna (ICES)
661	35	-1855.3455	n/a	Mud and sand emergent fauna (ICES)
662	34	-2937.302	n/a	Mud and sand emergent fauna (ICES); Deep-sea sponge aggregations (OSPAR/ICES); hard-bottom sponge aggregations (ICES subcategory); Coral gardens (ICES/OSPAR); hard-bottom coral garden (ICES subcategory)
663	49	-2237.45063	n/a	Mud and sand emergent fauna (ICES)
664	30	-2840.0065	n/a	Mud and sand emergent fauna (ICES)
665	24	-1086.5255	n/a	Mud and sand emergent fauna (ICES)
666	17	-1110.0545	n/a	Mud and sand emergent fauna (ICES); Lophelia pertusa reefs (OSPAR); cold water coral reefs (ICES)
667	16	-665.447	n/a	Mud and sand emergent fauna (ICES)
668	15	-884.9045	n/a	Mud and sand emergent fauna (ICES); Coral garden (ICES/OSPAR); soft-bottom coral garden (ICES subcategory)
669	14	-884.443	n/a	Cold-water coral reef (ICES); Lophelia pertusa reefs (ICES subcategory/OSPAR); Madrepora oculata (ICES subcategory); coral gardens (OSPAR/ICES); hard-bottom coral garden: stylasterid corals on hard substrata (ICES subcategory)
670	20	-155.9055	n/a	Mud and sand emergent fauna (ICES); coral garden (ICES/OSPAR); hard-bottom coral garden (ICES subcategory)
671	21	-152.5215	n/a	Mud and sand emergent fauna (ICES); coral garden (ICES/OSPAR); hard-bottom coral garden (ICES subcategory)
672	22	-144.4835	n/a	Mud and sand emergent fauna (ICES); coral gardens (OSPAR/ICES); hard-bottom coral garden (ICES subcategory); deep-sea sponge aggregations (OSPAR/ICES); hard-bottom sponge aggregations (ICES subcategory)
673	23	-139.2755	n/a	Mud and sand emergent fauna (ICES)
674	27	-965.021	n/a	Mud and sand emergent fauna (ICES); anemone aggregations (ICES); soft-bottom anemone aggregations (ICES subcategory); sea-pen and burrowing megafauna communities (OSPAR); seapen fields (ICES)
675	26	-1395.3535	Hoplostethus atlanticus	Mud and sand emergent fauna (ICES); cold-water coral reef (ICES); Solenosmilia variabilis reef (ICES subcategory); sea-pen and burrowing megafauna communities (OSPAR); deep-sea sponge aggregations (OSPAR/ICES).
676	25	-1923.0685	n/a	Mud and sand emergent fauna (ICES)
677	28	-1583.583	n/a	Mud and sand emergent fauna (ICES)
678	51	-1317.167	n/a	Mud and sand emergent fauna (ICES); coral garden (OSPAR/ICES); soft-bottom coral garden: cup-coral fields (ICES subcategory); soft-bottom coral garden: soft-bottom gorgonian and black coral gardens (ICES subcategory)
679	29	-1129.092	n/a	Mud and sand emergent fauna (ICES); coral gardens (OSPAR/ICES); soft-bottom coral garden: soft-bottom gorgonian and black coral gardens (ICES subcategory)
680	31	-718.0245	n/a	Mud and sand emergent fauna (ICES)
681	32	-590.3475	n/a	Mud and sand emergent fauna (ICES); coral garden (ICES/OSPAR); soft-bottom coral garden: cup-coral fields (ICES subcategory)
682	33	-1171.5185	n/a	Mud and sand emergent fauna (ICES)
683	52	-1207.2995	n/a	Mud and sand emergent fauna (ICES); deep-sea sponge aggregations (ICES/OSPAR); soft-bottom sponge aggregations (ICES subcategory)
684	53	-2503.834	n/a	Mud and sand emergent fauna (ICES)
685	5	-2067.7585	n/a	Mud and sand emergent fauna (ICES)
686	4	-2787.097	n/a	Deep-sea sponge aggregations (ICES/OSPAR); mud and sand emergent fauna (ICES)
687	1	-2888.4255	n/a	Mud and sand emergent fauna (ICES)
688	3	-1531.1295	n/a	Mud and sand emergent fauna (ICES)
689	6	-2072.6645	n/a	Mud and sand emergent fauna (ICES)
690	7	-1101.319	n/a	Mud and sand emergent fauna (ICES); deep-sea sponge aggregations (ICES/OSPAR); soft-bottom sponge aggregations (ICES subcategory)
691	8	-1288.319	n/a	Mud and sand emergent fauna (ICES)
692	9	-1530.421	n/a	Mud and sand emergent fauna (ICES)
693	10	-1225.24	n/a	Coral gardens (ICES/OSPAR); soft-bottom coral garden: soft-bottom cup-coral fields (ICES subcategory); mud and sand emergent fauna (ICES)
695	12	-1565.1875	Hoplostethus atlanticus	Deep-sea sponge aggregations (ICES/OSPAR); hard-bottom sponge aggregation (ICES subcategory); coral garden (ICES/OSPAR); hard-bottom coral garden (ICES subcategory); soft-bottom coral garden (ICES subcategory); mud and sand emergent fauna (ICES)
696	13	-1283.5535	Hoplostethus atlanticus	Coral gardens (ICES/OSPAR); hard-bottom coral garden (ICES subcategory); deep-sea sponge aggregations (ICES/OSPAR); mud and sand emergent fauna (ICES)
697	11	-1219.4395	n/a	Mud and sand emergent fauna (ICES)
698	19	-593.9875	n/a	Mud and sand emergent fauna (ICES)
699	18	-609.1345	n/a	Mud and sand emergent fauna (ICES)
700	54	-652.613	n/a	Mud and sand emergent fauna (ICES)

Table 8 List of biotopes encountered that are listed in the Marine Habitat Classification for Britain and Ireland (v.15.3). Depth zones are colour coded.

List of Biotopes observed	Biotope descriptor	Transects
M.AtUB.Mu	Atlantic upper bathyal mud	T18,T54
SS.Ssa	Sublittoral sands and muddy sands	T20,T21
SS.SCS	Sublittoral coarse sediment (unstable cobbles, pebbles, gravels and coarse sands)	T20
CR.FCR.FouFa	Fouling faunal communities	T20,T21
CR.LCR	Low energy circalittoral rock	T22
SS.Smu	Sublittoral cohesive mud and sandy mud communities	T22
M.AtMB.Mu	Atlantic mid bathyal mud	T39, T38,T43,T45,T29,T33,T11
M.AtMB.Mu.BurOph	Burrowing ophiuroid community on Atlantic mid bathyal mud	T39,T27
M.AtMB.Ro	Atlantic mid bathyal rock and other hard substrata	T39,T43,T45,T15,T29,T32
M.AtMB.Ro.MixCor	Mixed cold water coral community on Atlantic mid bathyal rock and other hard substrata	T39, T38,T13
M.AtMB.Mu.InfPol	Mixed infauna dominated by polychaetes in Atlantic mid bathyal mud	T39,T13
M.AtMB.Bi.CorRee	Atlantic mid bathyal cold water coral reef (biogenic structure)	T38
M.AtMB.Ro.MixCor.DisLop	Discrete Lophelia pertusa colonies on Atlantic mid bathyal rock and other hard substrata	T38
M.AtMB.Co.MixCor.DisLop	Discrete Lophelia pertusa colonies on Atlantic mid bathyal coarse sediment	T38,T15
M.AtMB.Mu.XenCom.SyrFra	Syringammina fragilissima field on Atlantic mid bathyal mud	T47,T29
M.AtMB.Mu.XenCom	Xenophyophore dominated community on Atlantic mid bathyal mud	T47,T24
M.AtMB.Mu.CriCom	Crinoid dominated community on Atlantic mid bathyal mud	T47
M.AtMB.Mu.EreCor	Erect coral field on Atlantic mid bathyal mud	T43
M.AtMB.Mu.Spnmeg	Sea pens and burrowing megafauna on Atlantic mid bathyal	T43,T27,T31
M.AtMB.Ro.SpaEnc	Sparse encrusting community on Atlantic mid bathyal rock and other hard substrata	T45, T15,T29
M.AtMB.Mu.BurAne	Burrowing anemone field in Atlantic mid bathyal mud	T24,T27
M.AtMB.Mu.UrcCom	Urchin dominated community on Atlantic mid bathyal mud	T16, T16
M.AtMB.Ro.BarCom	Barnacle dominated community on Atlantic mid bathyal rock and other hard substrata	T15
M.AtMB.Mu.EreCor.AcaArb	Acanella arbuscula assemblage on Atlantic mid bathyal mud	T29
M.AtMB.Sa.SolScl	Solitary scleractinian field on Atlantic mid bathyal sand	T32
M.AtMB.Sa	Atlantic mid bathyal sand	T32,T13,T11,T19
M.AtMB.Mu.DeeSpo.PheCar	Pheronema carpenteri field on Atlantic mid bathyal mud	T52,T07
M.AtMB.Mu.SolScl	Solitary scleractinian field on Atlantic mid bathyal mud	T10
M.AtMB.Mx	Atlantic mid bathyal mixed sediment	T13
M.AtLB.Mu	Atlantic lower bathyal mud	T44, T36,T35,T28,T26,T03,T09
M.AtLB.Ro	Atlantic lower bathyal rock and other hard substrata	T36
M.AtLB.Bi.CorRee	Atlantic lower bathyal cold water coral reef (biogenic structure)	T26
M.AtLB.Bi.CorRee.SolFra	Mixed coral assemblage on Atlantic lower bathyal Solenosmilia reef framework (biogenic structure)	T26
M.AtLB.Mu.EreCor	Erect coral field on Atlantic lower bathyal mud	T26
M.AtLB.Mu.EreCor.AcaArb	Acanella arbuscula assemblage on Atlantic lower bathyal mud	T26,T51
M.AtLB.Mu.InfPol	Mixed infauna dominated by polychaetes in Atlantic lower bathyal mud	T25
M.AtLB.Mu.SolScl	Solitary scleractinian field on Atlantic lower bathyal mud	T51
M.AtUA.Mu	Atlantic upper abyssal mud	T37,T48,T34,T30,T53,T01,T04,T06
M.AtUA.Mu.InfPol	Mixed fauna dominated by polychaetes in Atlantic upper abyssal mud	T37,T40
M.AtUA.Ro	Atlantic upper abyssal rock and other hard substrata	T34,T30
M.AtUA.Mu.UrcCom	Urchin dominated community on Atlantic upper abyssal mud	T53,T06

Table 9 List of variant biotopes (with reference to the deep-sea section of the Marine Habitat Classification for Britain and Ireland (v.15.03)) encountered and the transects where they were found. Colour coded for depth zones.

List of Biotopes observed	Variant	Depth variant	Sediment variant	Species/other variant	Variant details	(parent) biotope descriptor	Transects
(var)M.AtUB.Ro.DeeSpo	y	y			upper abyssal	(variant of)Deep sponge aggregation on Atlantic upper bathyal rock and other hard substrata	T04,T34
(var)M.AtUB.Mu.CriCom	y	y			lower bathyal	(variant of)Crinoid dominated community on Atlantic upper bathyal mud	T05
(var)M.AtMB.Ro.BraCom	y		y		mud	(variant of)Brachiopod dominated community on Atlantic mid bathyal rock and other hard substrata	T29A
(var)M.AtUA.Mu.HolCom	y	y			mid bathyal	(variant of)Holothurian dominated community on Atlantic upper abyssal mud	T08, T10
(var)M.AtUA.Mu.HolCom	y	y			lower bathyal	(variant of)Holothurian dominated community on Atlantic upper abyssal mud	T46, T28, T51, T03

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3.2 Dive summaries

This section provides the dive summary from every dive undertaken on SeaRover 2019. Summaries are ordered by dive number.

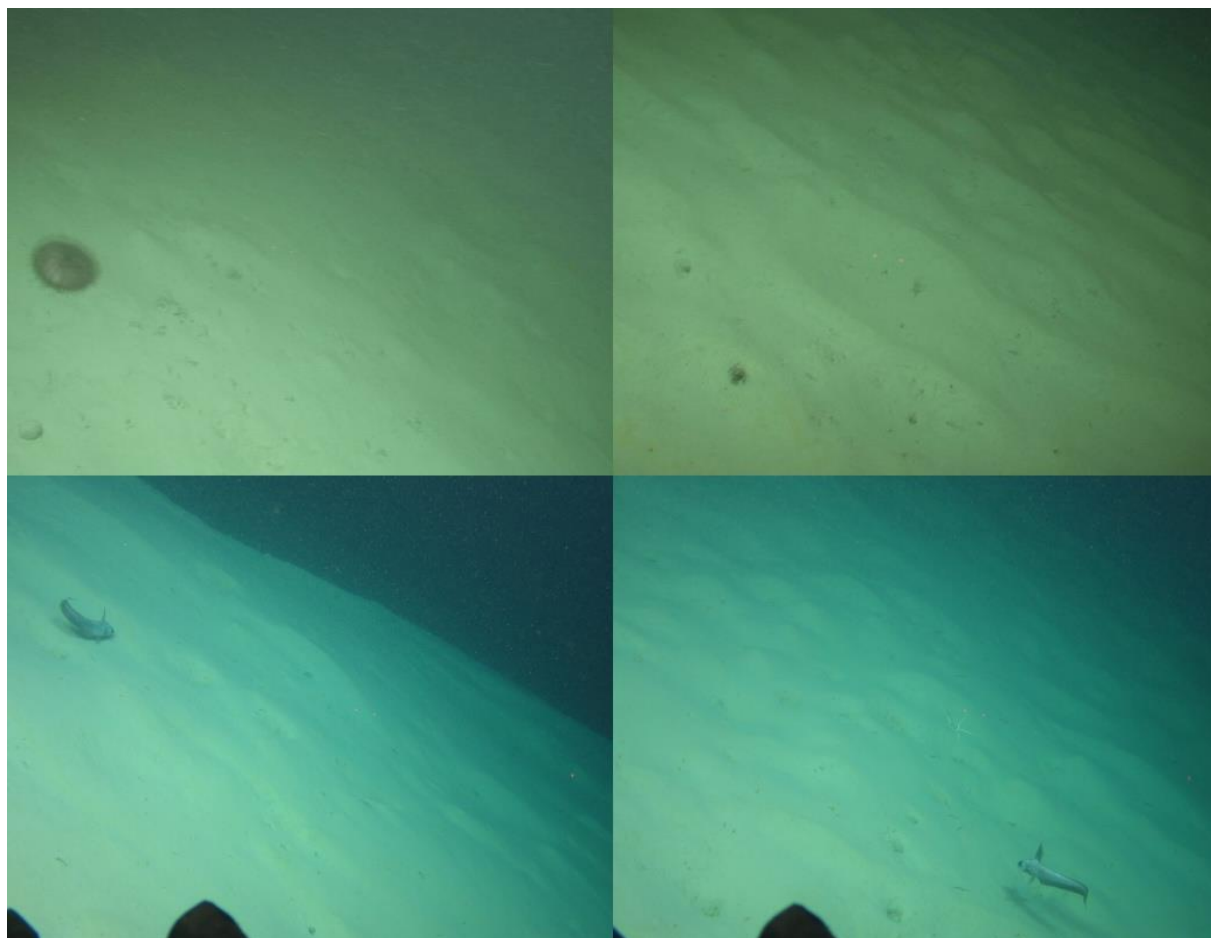
DIVE SUMMARY	
DIVE # 648	TRANSECT # 37

	Start	End
Date & Time	03/08/2019 12:54:32	03/08/2019 14:40:41
Latitude/ Longitude	48.393438/ -10.035312	48.3987037/ -10.03230217
Depth	-2886.28	-2742.29
Images	IMG_7229.jpg - IMG_7274.jpg	
Samples	n/a	

Location	Whittard canyon
Target Features	Depth, Spatial coverage
Depth Range	-2924m



(Images representative of major biotopes, species, and sediments encountered throughout the transect)



Top L. Muddy slope with sparse epifauna including polychaetes burrows. *Hygrosoma* sp. photographed in picture (M.AtUA.Mu.InfPol).

Top R. Rippled mud on steep slope with few sparse epifauna encountered (M.AtUA.Mu).

Bottom L. Mud slope with sparse epifauna. Grenadier (*Coryphaenoides rupestris*) photographed in picture (M.AtUA.Mu).

Bottom R. Mud slope with sparse epifauna. Grenadier (*Coryphaenoides rupestris*) photographed in picture (M.AtUA.Mu).

Summary Description (habitat transitions noted)

START OF HD VIDEO AT 12:54:31/0m. Mainly mud veneered wall and rippled sand sediment on downward slope with mix sparse and scarce epifauna as well as frequent burrows and foraminifera.

[1] Dive starts on very steep/vertical wall with mud veneered. Sparse epifauna. Mainly foraminifera and polychaetes in mud. At times, animal tracks observed. 28m The ROV hovers on the ground/edge of the cliff for imagery. 37m Mud/rippled sand sediment on steep downward slope. 39m Inclined slope, ROV moves upwards. Still sparse and scarce epifauna. Burrows often encountered. 01h25m **[2]** Scattered *Radicipes* sp recorded. 01h36m **[3]** Here no dominant species is observed. Biotope is still mud with sparse epifauna encountered. Long telecommunication cable encountered lying on the sea bed. 01h46m The ROV ready to leave the seafloor to avoid entanglement with the cable. **END OF HD VIDEO AT 14:40:41/01h51m.**

Physical Data

Reef (types can be concurrent)	0%	n/a	
		n/a	n/a
			n/a
Substrates	- Mud		
Geomorphology/Features	- Steep slope, vertical wall		
Annex 1 Types	n/a		
Pressures	Telecommunication cable (01:36:00)		

Biological Data																																																																																							
Number of Species		20																																																																																					
Summary Species List (Operational Taxonomic Unit, Name, Size, SACFOR, presence per habitat transition)																																																																																							
	<table><tr><th>O.T.U</th><th>Species/Taxonomic ID</th><th>Size/Growth</th><th>SACFOR</th></tr><tr><td>1044</td><td>Radicipes sp</td><td>L</td><td>C</td></tr><tr><td>1125</td><td>Hygrosoma sp</td><td>L</td><td>O</td></tr><tr><td>572</td><td>Echinoidea sp5 (Echinothuroidea)</td><td>L</td><td>R</td></tr><tr><td>622</td><td>Halipteris sp</td><td>L</td><td>R</td></tr><tr><td>1012</td><td>Notacanthiformes sp1</td><td>L</td><td>R</td></tr><tr><td>551</td><td>Ophiomusa lymani</td><td>M</td><td>C</td></tr><tr><td>261</td><td>Syringammina fragilissima</td><td>M</td><td>F</td></tr><tr><td>1191</td><td>Pennatulacea sp (submergedAxis)</td><td>M</td><td>O</td></tr><tr><td>1196</td><td>Pennatulacea sp6</td><td>M</td><td>O</td></tr><tr><td>577</td><td>Coryphaenoides guentheri</td><td>M</td><td>R</td></tr><tr><td>566</td><td>Coryphaenoides rupestris</td><td>M</td><td>R</td></tr><tr><td>1106</td><td>Eucarida sp</td><td>M</td><td>R</td></tr><tr><td>1003</td><td>Nezumia aequalis</td><td>M</td><td>R</td></tr><tr><td>1077</td><td>Caridea sp</td><td>S</td><td>R</td></tr><tr><td>2</td><td>Cerianthidae sp1</td><td>S</td><td>R</td></tr><tr><td>445</td><td>Echinus sp1</td><td>S</td><td>R</td></tr><tr><td>1307</td><td>Euryalida</td><td>S</td><td>R</td></tr><tr><td>1144</td><td>Galacantha sp</td><td>S</td><td>R</td></tr><tr><td>1167</td><td>Peniagone sp</td><td>S</td><td>R</td></tr><tr><td>950</td><td>Rhodaliidae sp</td><td>S</td><td>R</td></tr></table>	O.T.U	Species/Taxonomic ID	Size/Growth	SACFOR	1044	Radicipes sp	L	C	1125	Hygrosoma sp	L	O	572	Echinoidea sp5 (Echinothuroidea)	L	R	622	Halipteris sp	L	R	1012	Notacanthiformes sp1	L	R	551	Ophiomusa lymani	M	C	261	Syringammina fragilissima	M	F	1191	Pennatulacea sp (submergedAxis)	M	O	1196	Pennatulacea sp6	M	O	577	Coryphaenoides guentheri	M	R	566	Coryphaenoides rupestris	M	R	1106	Eucarida sp	M	R	1003	Nezumia aequalis	M	R	1077	Caridea sp	S	R	2	Cerianthidae sp1	S	R	445	Echinus sp1	S	R	1307	Euryalida	S	R	1144	Galacantha sp	S	R	1167	Peniagone sp	S	R	950	Rhodaliidae sp	S	R		
O.T.U	Species/Taxonomic ID	Size/Growth	SACFOR																																																																																				
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M.AtUA.Mu.InfPol	Mixed fauna dominated by polychaetes in Atlantic upper abyssal mud	Mud and sand emergent fauna (ICES)																																																																																					
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Biotope progression per habitat transition (# species, dominant/characteristic species)																																																																																							
1	M.AtUA.Mu.InfPol																																																																																						

	Annelida, 261 Syringammina fragilissima
2	M.AtUA.Mu
	1044 Radicipes
3	M.AtUA.Mu
	n/a

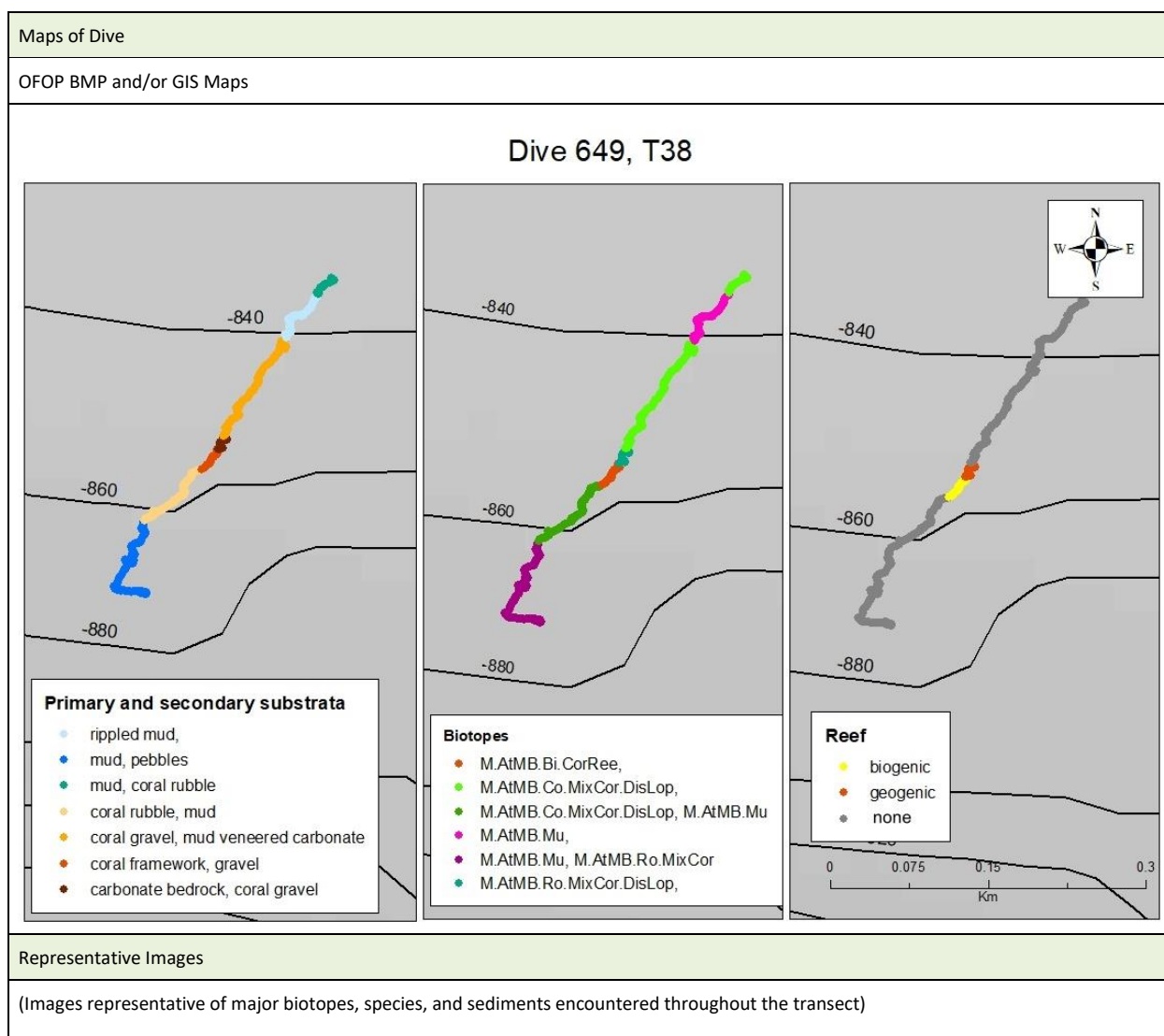
Conservation Targets		
Listed Habitats Encountered		
Name	Authority	
Mud and sand emergent fauna	ICES	
Listed Species Encountered (Fish, Count)		
n/a		OSPAR/IUCN

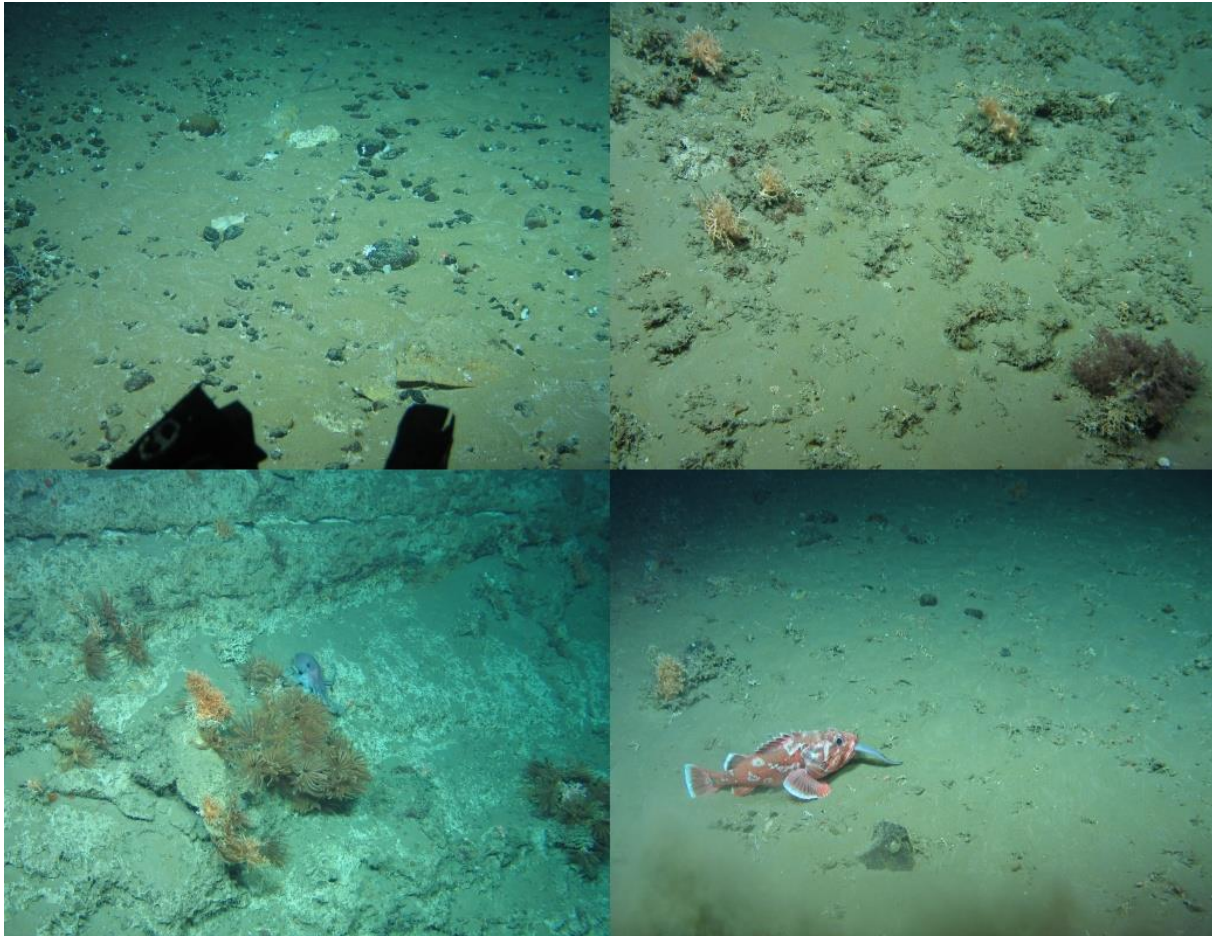
Additional Comments
n/a

DIVE SUMMARY		
DIVE #	649	TRANSECT # 38

	Start	End
Date & Time	03/08/2019 20:58:05	03/08/2019 22:04:08
Latitude/ Longitude	48.58967433/-10.1896835	48.59244983/-10.1880585
Depth	-968.486	-911.449
Images	IMG_7275.jpg - IMG_7478.jpg	
Samples	1 x pushcore A; 1 x pushcore 13	

Location	Whittard canyon
Target Features	Slope
Depth Range	-956m





Top L. Sparse pebbles and small cobbles on coarse sediment hosting sparse colonies of scleractinians (M.AtMB.Mu, M.AtMB.Ro.MixCor).

Top R. Lophelia colonies on coarse sediment hosting various species including Clavulariidae (as in picture) (M.AtMB.Co.MixCor.DisLop, M.AtMB.Mu).

Bottom L. Dense aggregations of *Koehlermetra porrecta* and *Lophelia pertusa* on vertical carbonate (M.AtMB.Ro.MixCor.DisLop).

Bottom R. Sparse Lophelia colonies on coarse sediment with various mobile species encountered. In picture, *Trachyscorpia cristulata* is photographed with a prey in its mouth (M.AtMB.Co.MixCor.DisLop).

Summary Description (habitat transitions noted)

START OF HD VIDEO AT 20:58:04/0m. Muddy steep slope with scattered dense Lophelia framework on mud and carbonate mounds.

[1] The dive starts with a core sample, then aborted. Here mud, sand, pebbles and cobbles on gentle down slope. Sand ripples are covered in barnacle shells/shell hash. 10m ROV stops for imagery of *Clavulariidae* sp. 16m **[2]** Dense coral rubble of possibly *Lophelia pertusa* on gentle muddy/sandy upslope. 29m **[3]** Here dense coral framework hosting with a few epifauna species. 31m **[4]** Biotope changes into carbonate bedrock with colonies of *L.pertusa*/*Madrepora oculata* and *Koehlermetra porrecta*. 35m **[5]** Biotope changes again into coarse sediment with coral rubble and coral gravel. 50m Behavioural note: *Trachyscorpia cristulata* feeding on small eel, possibly *Synaphobranchus kaupii*. 51m ROV stops for imagery of *T.cristulata*. 55m **[6]** Now sediment change into rippled sand/mud with scarce and sparse epifauna. A few scattered boulders and pebbles with colonies of *L.pertusa*. 01h02m **[7]** Rippled sand and scattered colonies of coral rubbles. 01h03m ROV stops for sampling of two pushcores until **END VIDEO 22:04:08/01h07m.**

Physical Data

Reef (types can be concurrent)	10% reef	6% geogenic	
		4% biogenic	1% living
			99% dead
Substrates	- Mud		

	- Rippled mud - Pebbles - Gravel - Coral gravel - Coral rubble - Coral framework - Mud veneered carbonate - Carbonate bedrock
Geomorphology/Features	- Slope - Steep slope
Annex 1 Types	- Coral reef - Pebbles - Carbonate bedrock
Pressures	n/a

Biological Data																																																																																
Number of Species			19																																																																													
Summary Species List (Operational Taxonomic Unit, Name, Size, SACFOR, presence per habitat transition)																																																																																
<table><tr><td>O.T.U</td><td>Species/Taxonomic ID</td><td>Size/Growth</td><td>SACFOR</td></tr><tr><td>1125</td><td>Hygrosoma sp</td><td>L</td><td>O</td></tr><tr><td>1080</td><td>Pseudoanthomastus sp1</td><td>L</td><td>R</td></tr><tr><td>250</td><td>Lophelia pertusa</td><td>L</td><td>A</td></tr><tr><td>211</td><td>Cidaris cidaris</td><td>L</td><td>C</td></tr><tr><td>249</td><td>Lepidion eques</td><td>L</td><td>R</td></tr><tr><td>937</td><td>Graneledone verrucosa</td><td>L</td><td>R</td></tr><tr><td>1216</td><td>Trachyscorpia cristulata</td><td>L</td><td>R</td></tr><tr><td>440</td><td>Synaphobranchus kaupii</td><td>M</td><td>R</td></tr><tr><td>289</td><td>cf Clavulariidae sp</td><td>M</td><td>F</td></tr><tr><td>315</td><td>Koehlermetra porrecta</td><td>M</td><td>F</td></tr><tr><td>339</td><td>Munida tenuimana</td><td>M</td><td>R</td></tr><tr><td>1115</td><td>Pterasteridae sp3</td><td>M</td><td>R</td></tr><tr><td>458</td><td>Pachycerianthus multiplicatus</td><td>M</td><td>R</td></tr><tr><td>608</td><td>Acanthogorgia armata</td><td>M</td><td>R</td></tr><tr><td>207</td><td>Pliobothrus sp</td><td>S</td><td>O</td></tr><tr><td>621</td><td>Hypsogastropoda</td><td>S</td><td>R</td></tr><tr><td>205</td><td>Paguridae sp</td><td>S</td><td>R</td></tr><tr><td>605</td><td>Actiniaria sp20</td><td>S</td><td>R</td></tr></table>					O.T.U	Species/Taxonomic ID	Size/Growth	SACFOR	1125	Hygrosoma sp	L	O	1080	Pseudoanthomastus sp1	L	R	250	Lophelia pertusa	L	A	211	Cidaris cidaris	L	C	249	Lepidion eques	L	R	937	Graneledone verrucosa	L	R	1216	Trachyscorpia cristulata	L	R	440	Synaphobranchus kaupii	M	R	289	cf Clavulariidae sp	M	F	315	Koehlermetra porrecta	M	F	339	Munida tenuimana	M	R	1115	Pterasteridae sp3	M	R	458	Pachycerianthus multiplicatus	M	R	608	Acanthogorgia armata	M	R	207	Pliobothrus sp	S	O	621	Hypsogastropoda	S	R	205	Paguridae sp	S	R	605	Actiniaria sp20	S	R
O.T.U	Species/Taxonomic ID	Size/Growth	SACFOR																																																																													
1125	Hygrosoma sp	L	O																																																																													
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Biotope List (Marine Habitat Classification for Britain & Ireland)																																																																																
Code		Name		Listed																																																																												
M.AtMB.Bi.CorRee		Atlantic mid bathyal cold water coral reef (biogenic structure)		Cold water coral reef (ICES/OSPAR); Lophelia pertusa/Madrepora oculata reef (ICES subcategory)																																																																												
M.AtMB.Mu		Atlantic mid bathyal mud																																																																														
M.AtMB.Ro.MixCor.DisLop		Discrete Lophelia pertusa colonies on Atlantic mid bathyal rock and other hard substrata		Coral garden (ICES/OSPAR); hard-bottom coral garden: colonial scleractinian on rocky substrata (ICES subcategory)																																																																												
M.AtMB.Ro.MixCor		Mixed cold water coral community on Atlantic mid bathyal rock and other hard substrata		Coral garden (ICES/OSPAR); hard-bottom coral garden: colonial scleractinian on rocky substrata (ICES subcategory)																																																																												

M.AtMB.Co.MixCor.DisLop	Discrete Lophelia pertusa colonies on Atlantic mid bathyal coarse sediment	Coral garden (ICES/OSPAR); soft-bottom coral garden (ICES subcategory)
Biotope progression per habitat transition (# species, dominant/characteristic species)		
1	M.AtMB.Mu, M.AtMB.Ro.MixCor	
	207 Pliobothrus sp, 289 Clavulariidae sp	
2	M.AtMB.Co.MixCor.DisLop, M.AtMB.Mu	
	250 Lophelia pertusa, 211 Cidaris cidaris	
3	M.AtMB.Bi.CorRee	
	250 Lophelia pertusa, 251 Madrepora oculata, 211 Cidaris cidaris	
4	M.AtMB.Ro.MixCor.DisLop	
	250 Lophelia pertusa, 251 Madrepora oculata, 315 Koehlermetra porrecta	
5	M.AtMB.Co.MixCor.DisLop	
	250 Lophelia pertusa, 251 Madrepora oculata, 289 cf Clavulariidae sp	
6	M.AtMB.Mu	
	250 Lophelia pertusa, 251 Madrepora oculata, 207 Pliobothrus sp	
7	M.AtMB.Co.MixCor.DisLop	
	250 Lophelia pertusa, 251 Madrepora oculata	

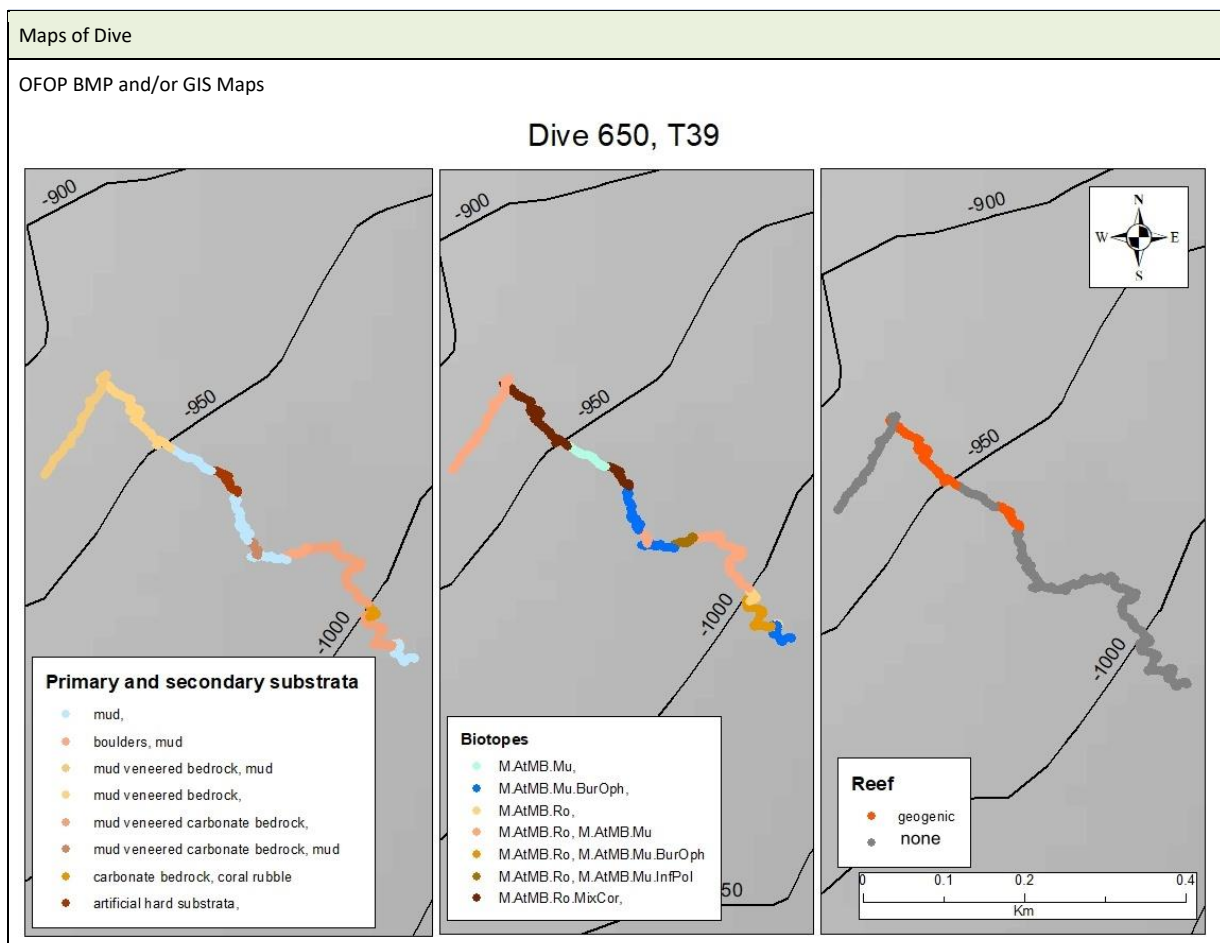
Conservation Targets		
Listed Habitats Encountered		
Name	Authority	
Cold water coral reef	ICES	
Lophelia pertusa/Madrepora oculata reef	ICES subcategory	
Coral garden	ICES/OSPAR	
- hard-bottom coral garden: colonial scleractinian on rocky substrata	ICES subcategory	
- Soft-bottom coral garden		
Carbonate mounds	OSPAR	
Mud and sand emergent fauna	ICES	
Listed Species Encountered (Fish, Count)		
n/a		OSPAR/IUCN

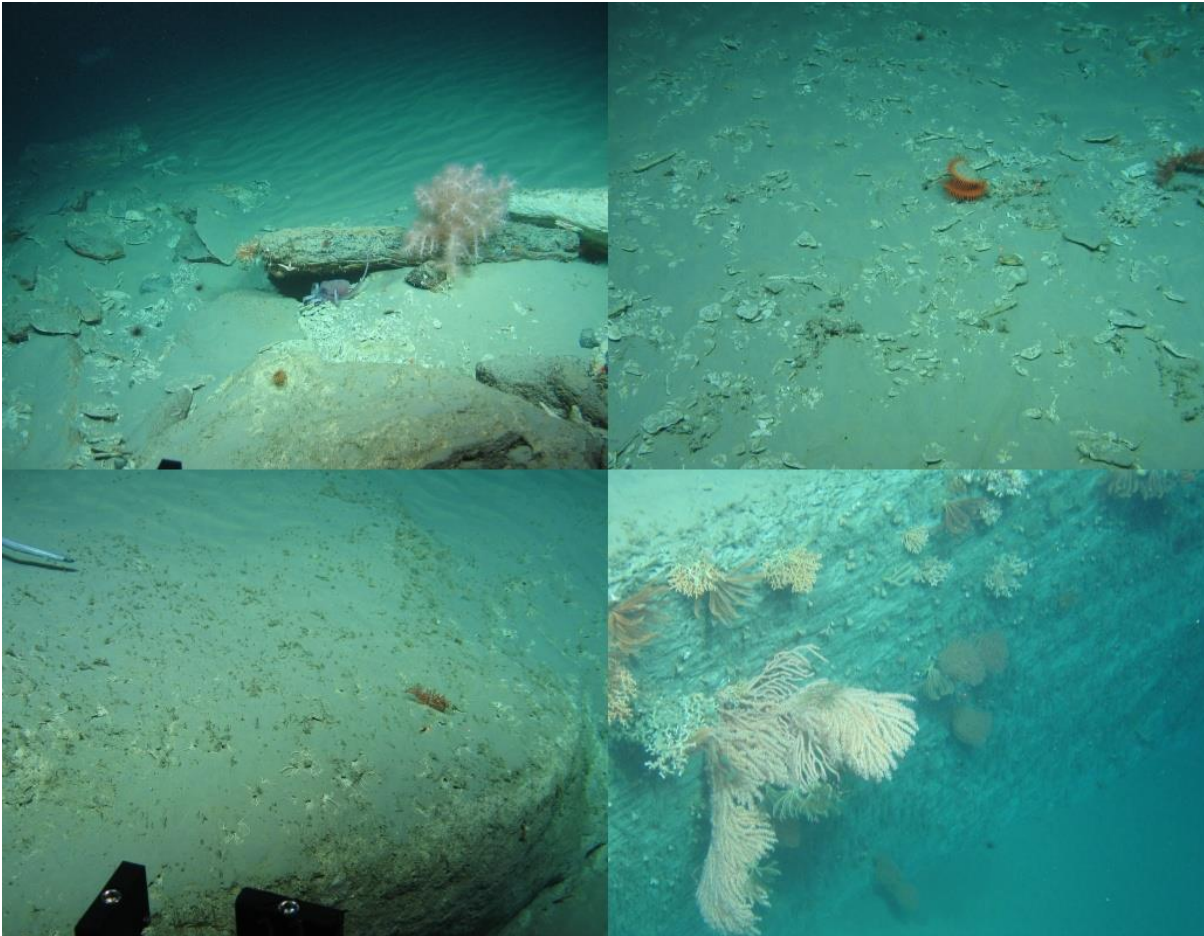
Additional Comments
n/a

DIVE SUMMARY	
DIVE # 650	TRANSECT # 39

	Start	End
Date & Time	04/08/2019 00:46:45	04/08/2019 02:37:19
Latitude/ Longitude	48.621517/-10.32685283	48.6234485/-10.33072583
Depth	-1189.847	-1085.321
Images	IMG_7479.jpg – IMG_7613.jpg	
Samples	1 x pushcore 11; 1 x pushcore (unlabeled)	

Location	Whittard canyon
Target Features	Slope
Depth Range	-1183m



Representative Images	
(Images representative of major biotopes, species, and sediments encountered throughout the transect)	
 Top L. Sparse carbonate boulders and rippled mud sediment on moderate slope (M.AtMB.Ro, M.AtMB.Mu). Top R. Rock and soft sediment host various epifauna, including <i>Phelliactis</i> sp1 and <i>Swiftia</i> (in picture) (M.AtMB.Ro, M.AtMB.Mu). Bottom L. Mud veneered bedrock was commonly recorded in this dive. <i>Synaphobranchus kaupii</i> in picture (M.AtMB.Ro, M.AtMB.Mu). Bottom R. Coral garden on vertical wall. In picture, <i>Lophelia pertusa</i>, <i>Acanella arbuscula</i>, <i>Koehlermetra porrecta</i> and <i>Jasonisis</i> sp (M.AtMB.Ro.MixCor).	
Summary Description (habitat transitions noted)	

START VIDEO AT 00:46:45/0m. Mosaic sediments alternate between muddy slope with ophiuroid aggregations and vertical mud veneered carbonate walls hosting mixed soft and stony corals (respectively *Acanella arbuscula* and *Lophelia pertusa*). [1] Dive starts on steep rippled mud slope with frequent ophiuroids buried in the sediment, possibly *Ophiomusa lymani*. 7m [2] here biotope changes into frequent boulders and muddy sediments with various anemones living on rock and soft sediment. 13m [4] here boulders are not as frequent and mud becomes the predominant biotope hosting ophiuroids and anemones. 14m Orange Roughy observed. 15m Escarpment on slope with sparse and scarce epifauna including ophiuroids and anemones. 17m [4] Here substrata is mainly mud veneered carbonate with ophiuroids and anemones. 28m [5] Now carbonate and coral rubble are the dominant biotopes, with sparse *L. pertusa* and *Paramuricea sp.* [6] 30m Mixed seafloor inclination and substrata made of boulders and hills with vertical walls and flat surfaces hosting scarce epifauna. 42m A few filaments of fishing line at the bottom of vertical wall. 43m Orange Roughy encountered. 43m Bio-filaments present on carbonate wall. 51m ROV stops for imagery of Swiftia. 53m [7] Carbonate bedrock and boulders on steep slope with sparse epifauna, including ceriantharia and anemones. 56m [8] Ophiuroids bed on sediment. 01h00m [9] Vertical walls and scattered large cobbles/boulders with scarce epifauna. 01h08m [10] The seafloor is muddy with a plethora of burrows inhabited by ophiuroids. 01h15m [11] The ROV circumnavigates around a man-made structure which looks like a funnel (ship) – similar to the smokestack or chimney on a ship. A few epifauna species are found attached to this object, including sea cucumbers, ophiuroids, gastropods, crinoids and colonies of scleractinians, and asteroids. 01h18m [12] now muddy upslope with cerianthids and some visible polychaetes. 01h21m [13] vertical mud veneered wall hosts cup corals, *A. arbuscula*, *Koehlermetra porrecta* and *Jasonis sp.* 01h26m The ROV does a 180° turn and hovers again on the vertical wall section where the octocorals were present. ROV stops for core sampling. 01h39m [14] Here mud veneered bedrock intersperse with soft sediment predominate with scarce epifauna. **END AT 02:37:19/02h37m.**

Physical Data			
Reef (types can be concurrent)	18% reef	18% geogenic	
		0% biogenic	n/a
			n/a
Substrates	- Artificial hard substrata - Boulders - Carbonate bedrock - Mud - Mud veneered bedrock - Mud veneered carbonate bedrock		
Geomorphology/Features	- Slope		
Annex 1 Types	- Boulders - Bedrock - Carbonate bedrock		
Pressures	Artificial substrate (ship funnel) (01h15m)		

Biological Data	
Number of Species	42
Summary Species List (Operational Taxonomic Unit, Name, Size, SACFOR, presence per habitat transition)	

O.T.U	Species/Taxonomic ID	Size/Growth	SACFOR
551	Ophiomusa lymani	L	A
349	Mora moro	L	R
1080	Pseudoanthomastus sp1	L	R
937	Graneledone verrucosa	L	R
1022	Gersemia sp3	L	R
988	Zoroaster fulgens	L	R
651	Hoplostethus atlanticus	L	R
249	Lepidion eques	L	O
552	Polyacanthonotus rissoanus	L	R
132	Actinostolidae sp1	L	O
1050	Paramuricea sp	L	R
649	Eknopsis sp	L	R
1017	Teuthida sp1	L	R
1193	Primonoidae sp (unbranching)	L	R
1216	Trachyscorpia cristulata	L	R
547	Stauropathes arctica	L	R
1118	Sagartidae sp6	L	R
563	Neocyttus helgae	L	R
1070	Jasonis sp	L	O
1157	Keratois sp (fine-branching)	L	R
250	Lophelia pertusa	M	F
255	Phelliactis sp	M	F
661	Swiftia	M	F
608	Acanthogorgia armata	M	R
2	Cerianthidae sp1	M	F
440	Synaphobranchus kaupii	M	R
283	Stichopathes cf gravieri	M	R
918	Opisthoteuthis extensa	M	R
315	Koehlermetra porrecta	M	O
1103	Democrinus sp	M	R
585	Acanella arbuscula	M	F
1046	Pennatula aculeata	M	R
458	Pachycerianthis multiplicatus	M	R
1172	Macrouridae sp (cf Coelorynchus)	M	R
1003	Nezumia aequalis	M	R
605	Actiniaria sp20	S	O
445	Echinus sp1	S	R
6	Caryophyllia sp2	S	O
339	Munida tenuimana	S	R
1077	Caridea sp	S	R
1049	cf Psolus sp	S	R
277	Margarites sp1	S	R

Biotope List (Marine Habitat Classification for Britain & Ireland)		
Code	Name	Listed
M.AtMB.Mu	Atlantic mid bathyal mud	
M.AtMB.Mu.BurOph	Burrowing ophiuroid community on Atlantic mid bathyal mud	

M.AtMB.Ro	Atlantic mid bathyal rock and other hard substrata	
M.AtMB.Ro.MixCor	Mixed cold water coral community on Atlantic mid bathyal rock and other hard substrata	Coral garden (ICES/OSPAR); coral garden: hard-bottom coral garden (ICES subcategory)
M.AtMB.Mu.InfPol	Mixed infauna dominated by polychaetes in Atlantic mid bathyal mud	
Biotope progression per habitat transition (# species, dominant/characteristic species)		
1	M.AtMB.Mu.BurOph	
	551 Ophiomusa lymani	
2	M.AtMB.Ro	
	2 Ceriantharia, 132 Actinostolidae sp1, 605 Actiniaria sp20	
3	M.AtMB.Mu.BurOph	
	551 Ophiomusa lymani, 605 Actiniaria sp20	
4	M.AtMB.Ro, M.AtMB.Mu.BurOph	
	551 Ophiomusa lymani, 605 Actiniaria sp20	
5	M.AtMB.Ro	
	250 Lophelia pertusa, 1050 Paramuricea sp	
6	M.AtMB.Ro, M.AtMB.Mu	
	551 Ophiomusa lymani, 605 Actiniaria sp20, 585 Acanella arbuscula	
7	M.AtMB.Ro, M.AtMB.Mu.InfPol	
	Mixed polychaetes	
8	M.AtMB.Mu.BurOph	
	551 Ophiomusa lymani	
9	M.AtMB.Ro, M.AtMB.Mu	
	551 Ophiomusa lymani, 585 Acanella arbuscula, 250 Lophelia pertusa	
10	M.AtMB.Mu.BurOph	
	551 Ophiomusa lymani	
11	M.AtMB.Ro.MixCor	
	250 Lophelia pertusa, 6 Caryophyllia, 315 Koehlermetra porrecta	
12	M.AtMB.Mu	
	1046 Pennatula aculeata, polychaetes	
13	M.AtMB.Ro.MixCor	
	585 Acanella arbuscula, 1070 Jasonisis sp, 315 Koehlermetra porrecta	
14	M.AtMB.Ro, M.AtMB.Mu	

	n/a
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Conservation Targets		
Listed Habitats Encountered		
Name	Authority	
Coral garden hard-bottom coral garden Mud and sand emergent fauna	ICES ICES subcategory ICES	
Listed Species Encountered (Fish, Count)		
<i>Hoplostethus atlanticus</i> (Orange Roughy)	2	OSPAR/ <u>IUCN</u>

Additional Comments
n/a

DIVE SUMMARY	
DIVE # 651	TRANSECT # 40

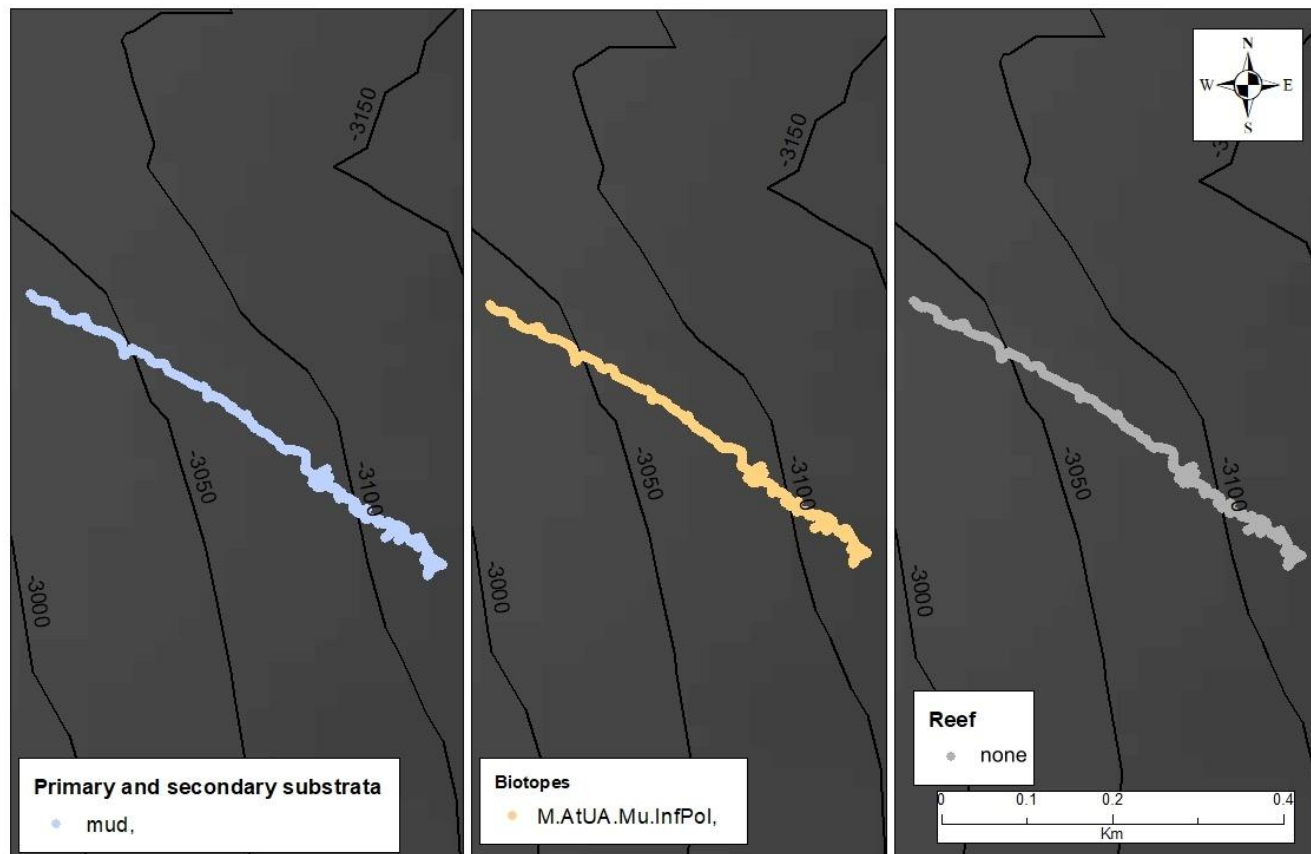
	Start	End
Date & Time	04/08/2019 08:55:05	04/08/2019 10:42:32
Latitude/ Longitude	48.436810/ -10.82989033	48.4395343/ -10.83388033
Depth	-3001.39	-2847.412
Images	IMG_7614.jpg – IMG_7785.jpg	
Samples	1 x <i>Pennatula aculeata</i> 1 x Sea pen	

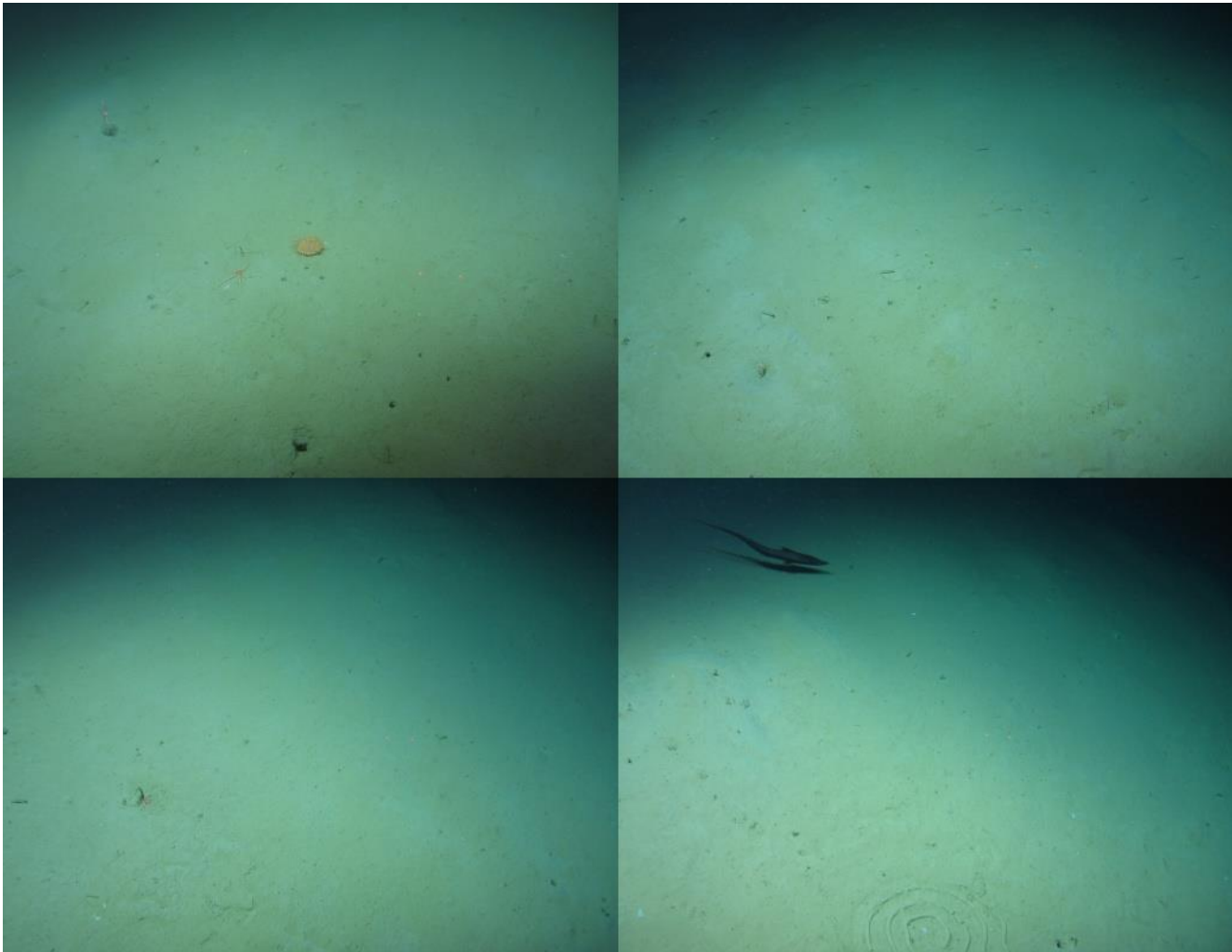
Location	Whittard canyon
Target Features	Slope, depth
Depth Range	-3015m

Maps of Dive

OPOP BMP and/or GIS Maps

Dive 651, T40



Representative Images		
(Images representative of major biotopes, species, and sediments encountered throughout the transect)		
		
Top L. Muddy slope with scattered epifauna. In picture, an orange anemone and ophiuroid (M.AtUA.Mu.InfPol). Top R. Muddy slope with scattered epifauna including burrowing polychaetes (M.AtUA.Mu.InfPol). Bottom L. Muddy slope with scattered epifauna including burrowing polychaetes (M.AtUA.Mu.InfPol). Bottom R. Muddy slope with scattered epifauna including burrowing polychaetes. In picture, <i>Halosauridae sp</i> and spiral-shaped faeces (M.AtUA.Mu.InfPol).		
Summary Description (habitat transitions noted)		
START AT 08:55:05/0m. Muddy steep slope with mixed polychaetes and scattered sea pens. [1] the entire dive is dominated by a single biotope muddy slope with scattered epifauna, including soft corals and anemones, and infauna (e.g. <i>Lanice sp1</i>). 0m ROV stops for pushcore sampling, though aborted for a minor core box issue. 3m Sea cucumber feces observed. 6m ROV stops for core sampling but aborted – same core box issue as at the beginning of the day. 15m vision obscured. 28m vision obscured again. 35m ROV stops for imagery of anemone. 42m ROV stops for sampling anemone. 01h00m ROV stops for sampling <i>Pennatula aculeata</i>. 01:08m ROV stops for sampling sea pen. 01h34m ROV stops for imagery of spiral shaped feces. 01h44m ROV starts its way up to the surface. END AT 10:42:32/01:48.		

Physical Data		
Reef	0% reef	n/a

(types can be concurrent)		n/a	n/a
			n/a
Substrates	- mud		
Geomorphology/Features	- slope		
Annex 1 Types	n/a		
Pressures	n/a		

Biological Data																																																																								
Number of Species			16																																																																					
Summary Species List (Operational Taxonomic Unit, Name, Size, SACFOR, presence per habitat transition)																																																																								
<table><tr><td>O.T.U</td><td>Species/Taxonomic ID</td><td>Size/Growth</td><td>SACFOR</td></tr><tr><td>577</td><td>Coryphaenoides guentheri</td><td>L</td><td>R</td></tr><tr><td>1113</td><td>Halosauridae sp</td><td>L</td><td>R</td></tr><tr><td>551</td><td>Ophiomusa lymani</td><td>L</td><td>F</td></tr><tr><td>1046</td><td>Pennatula aculeata</td><td>L</td><td>R</td></tr><tr><td>1193</td><td>Primnoidae sp (unbranching)</td><td>L</td><td>R</td></tr><tr><td>1080</td><td>Pseudoanthomatus sp1</td><td>L</td><td>R</td></tr><tr><td>442</td><td>Kophobelemnion stelliferum</td><td>L</td><td>O</td></tr><tr><td>605</td><td>Actiniaria sp20</td><td>M</td><td>R</td></tr><tr><td>1077</td><td>Caridea sp</td><td>M</td><td>R</td></tr><tr><td>131</td><td>Crinoidea sp1</td><td>M</td><td>R</td></tr><tr><td>572</td><td>Echinoidea sp5</td><td>M</td><td>R</td></tr><tr><td>1307</td><td>Euryalida</td><td>M</td><td>R</td></tr><tr><td>1167</td><td>Peniagone sp</td><td>M</td><td>O</td></tr><tr><td>261</td><td>Syringammina fragilissima</td><td>M</td><td>R</td></tr><tr><td>262</td><td>Lanice sp1</td><td>S</td><td>O</td></tr><tr><td>1056</td><td>Flabellum sp</td><td>S</td><td>R</td></tr></table>					O.T.U	Species/Taxonomic ID	Size/Growth	SACFOR	577	Coryphaenoides guentheri	L	R	1113	Halosauridae sp	L	R	551	Ophiomusa lymani	L	F	1046	Pennatula aculeata	L	R	1193	Primnoidae sp (unbranching)	L	R	1080	Pseudoanthomatus sp1	L	R	442	Kophobelemnion stelliferum	L	O	605	Actiniaria sp20	M	R	1077	Caridea sp	M	R	131	Crinoidea sp1	M	R	572	Echinoidea sp5	M	R	1307	Euryalida	M	R	1167	Peniagone sp	M	O	261	Syringammina fragilissima	M	R	262	Lanice sp1	S	O	1056	Flabellum sp	S	R
O.T.U	Species/Taxonomic ID	Size/Growth	SACFOR																																																																					
577	Coryphaenoides guentheri	L	R																																																																					
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551	Ophiomusa lymani	L	F																																																																					
1046	Pennatula aculeata	L	R																																																																					
1193	Primnoidae sp (unbranching)	L	R																																																																					
1080	Pseudoanthomatus sp1	L	R																																																																					
442	Kophobelemnion stelliferum	L	O																																																																					
605	Actiniaria sp20	M	R																																																																					
1077	Caridea sp	M	R																																																																					
131	Crinoidea sp1	M	R																																																																					
572	Echinoidea sp5	M	R																																																																					
1307	Euryalida	M	R																																																																					
1167	Peniagone sp	M	O																																																																					
261	Syringammina fragilissima	M	R																																																																					
262	Lanice sp1	S	O																																																																					
1056	Flabellum sp	S	R																																																																					
Biotope List (Marine Habitat Classification for Britain & Ireland)																																																																								
Code	Name		Listed																																																																					
M.AtUA.Mu.InfPol	Mixed infauna dominated by polychaetes in Atlantic upper abyssal mud		Mud and sand emergent fauna (ICES)																																																																					
Biotope progression per habitat transition (# species, dominant/characteristic species)																																																																								
1	M.AtUA.Mu.InfPol																																																																							
	Mixed polychaetes																																																																							

Conservation Targets	
Listed Habitats Encountered	
Name	Authority
Mud and sand emergent fauna	ICES

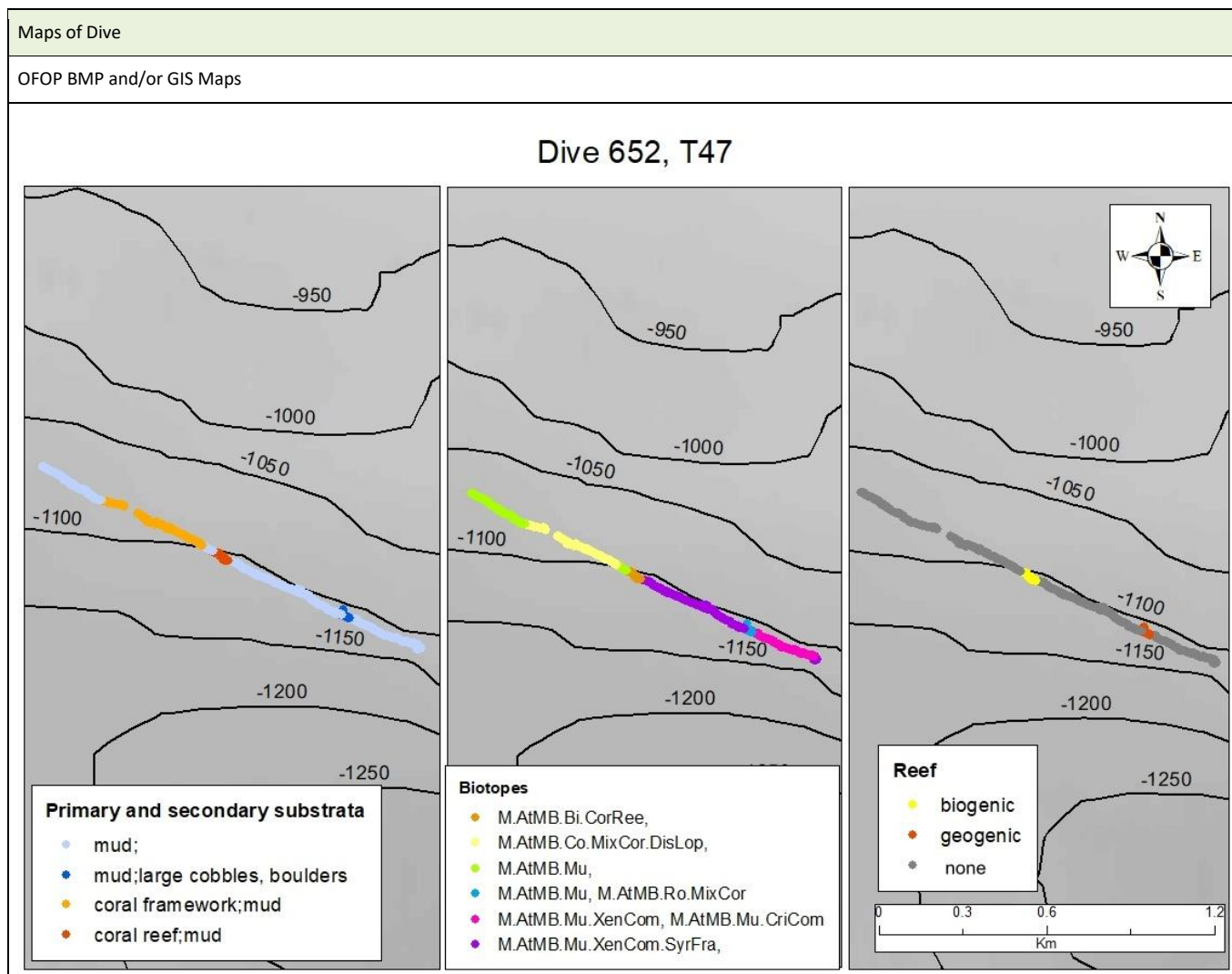
Listed Species Encountered (Fish, Count)		
n/a		OSPAR/IUCN

Additional Comments
n/a

DIVE SUMMARY	
DIVE # 652	TRANSECT # 47

	Start	End
Date & Time	04/08/2019 15:38:17	04/08/2019 18:23:42
Latitude/ Longitude	48.7619533/-10.81751567	48.7674453/-10.82889367
Depth	-1109.479	-1069.406
Images	IMG_7786.jpg – IMG_7932.jpg	
Samples	1 x pushcore 10 1 x pushcore B 1 x Swiftia (possible)	

Location	Whittard canyon
Target Features	No previous data
Depth Range	-1110m



Representative Images

(Images representative of major biotopes, species, and sediments encountered throughout the transect)



Top L. Muddy slope with sparse epifauna (M.AtMB.Mu).

Top R. Lophelia colonies and *Aphrocallistes* sp living on coral framework and mud on moderate/steep slope (M.AtMB.Co.MixCor.DisLop).

Bottom L. Dense Lophelia colonies and *Aphrocallistes* sp living on coral framework and mud on moderate/steep slope (M.AtMB.Co.MixCor.DisLop).

Bottom R. Muddy slope with sparse epifauna. *Opisthoteuthis extensa* in picture (M.AtMB.Mu).

Summary Description (habitat transitions noted)

START VIDEO A AT 15:38:16/0m. Biogenic reef interspersed with muddy upslope, hosting *Acanella arbuscula*, *Aphrocallistes* sp and feather stars. **[1]** The dive starts on muddy slope with dominant *Syringammia fragilissima*. ROV stops for core sampling. 14m **[2]** Sediment is still the same as the first biotope, however epifauna now comprises also *Pentametrocrinus atlanticus* and *Acanella arbuscula*. 30m The dive continues on a gentle/moderate upslope hosting foraminifera fields and *P. atlanticus* aggregations. 33m **[3]** Geogenic reef with Lophelia and *Acanthogorgia armata* on large cobbles. Fishing net observed nearby a boulder. 36m **[4]** Biotope changes into soft sediment with frequent foraminifera. 01h09m **[5]** Here Lophelia colonies (25-50% living) on moderate upslope, hosting many epifauna species including *Aphrocallistes* sp and *Pliobothrus* sp. 01h12m ROV stops for imagery of *Aphrocallistes* sp. 01h23m **[6]** Now rippled sand/mud on moderate/steep slope with frequent foraminifera, sea pens and *A. arbuscula*. 01h28m **[7]** Lophelia reef on coarse sediment. Reef is spread out and 25-50% living. 01h40 ROV stops for imagery of poss Swiftia. Then stops for sampling it. 02h07m **[8]** Muddy slope with scattered epifauna. 02h09m Here Lophelia reef hosting *Aphrocallistes* sp and crinoids. 02h10m **[9]** Again muddy/rippled sand slope with sparse epifauna including Lophelia colonies, foraminifera and feather stars. 02h12m Glass bottle on seafloor. **END VIDEO A AT 17:53:34/02h17m.** **VIDEO B AT 18:00:37/0m [10]** Muddy steep slope with scattered scarce epifauna. 16m ROV stops for imagery of cephalopod *Opisthoteuthis extensa*. 21m Still muddy upslope with scarce epifauna, especially starfish and sea urchins. **VIDEO B ENDS AT 18:23:42/25m37s.**

Physical Data

Reef (types can be concurrent)	10% reef	2% geogenic	
		8% biogenic	25-50% living
			50-75% dead
Substrates	- Mud - Large cobbles, boulders - Coral reef		
Geomorphology/Features	- Slope		
Annex 1 Types	- Coral reef		
Pressures	n/a		

Biological Data				
Number of Species			44	
Summary Species List (Operational Taxonomic Unit, Name, Size, SACFOR, presence per habitat transition)				
	O.T.U	Species/Taxonomic ID	Size/Growth	SACFOR
	250	Lophelia pertusa	L	A
	1006	Actinopterygii sp4	L	R
	1078	Ipnopidae sp	L	R
	289	cf Clavulariidae sp	L	R
	1059	Colossendeis sp	L	R
	307	Gorgonacea sp7	L	R
	249	Lepidion eques	L	R
	1172	Macrouridae sp (cf Coelorhynchus)	L	R
	349	Mora moro	L	R
	918	Opisthoteuthis extensa	L	R
	1114	Pennatulacea (indet)	L	R
	1083	Pennatulacea inflata	L	R
	436	Pentametrocrinus atlanticus	L	R
	1193	Primnoidae sp	L	R
	433	Pseudarchaster sp	L	R
	988	Zoroaster fulgens	L	R
	283	Stichopathes cf gravieri	L	R
	440	Synaphobranchus kaupii	L	R
	1216	Trachyscorpia cristulata	L	R
	261	Syringammina fragilissima	M	A
	315	Koehlermetra porrecta	M	F
	608	Acanthogorgia armata	M	O
	585	Acanella arbuscula	M	R
	264	Aphrocallistes sp	M	R
	1077	Caridea sp	M	R
	263	Porania	M	R
	131	Crinoidea sp1	M	R
	279	Echinoidea sp1	M	R
	1125	Hygrosoma sp	M	R
	458	Pachycerianthus multiplicatus	M	R
	1196	Pennatulacea sp6	M	R
	255	Phelliactis sp	M	R
	555	Phormosoma placenta	M	R
	1118	Sagartidae sp6	M	R
	661	Swiftia	M	R
	605	Actiniaria sp20	S	R
	6	Caryophyllia sp2	S	R
	584	Caryophyllia sp5 (bullseye)	S	R
	559	Echinus acutus	S	R

	1056	Flabellum sp	S	R
	621	Hypsogastropoda	S	R
	1126	Munidopsis sp1	S	R
	205	Paguridae sp	S	R
	207	Pliobothrus sp	S	R

Biotope List (Marine Habitat Classification for Britain & Ireland)		
Code	Name	Listed
M.AtMB.Mu.XenCom.SyrFra	Syringammina fragilissima field on Atlantic mid bathyal mud	Mud and sand emergent fauna (ICES)
M.AtMB.Mu.XenCom	Xenophyophore dominated community on Atlantic mid bathyal mud	Mud and sand emergent fauna (ICES)
M.AtMB.Mu	Atlantic mid bathyal mud	Mud and sand emergent fauna (ICES)
M.AtMB.Ro.MixCor	Mixed cold water coral community on Atlantic mid bathyal rock and other hard substrata	Coral garden (ICES/OSPAR); coral garden: hard-bottom coral garden (ICES subcategory)
M.AtMB.Bi.CorRee	Atlantic mid bathyal cold water coral reef (biogenic structure)	Cold water coral reef (ICES); Lophelia pertusa reef (ICES subcategory)
M.AtMB.Co.MixCor.DisLop	Discrete Lophelia pertusa colonies on Atlantic mid bathyal coarse sediment	Coral garden (ICES/OSPAR); soft-bottom coral garden (ICES subcategory)

Biotope progression per habitat transition (# species, dominant/characteristic species)	
1	M.AtMB.Mu.XenCom.SyrFra
	261 Syringammina fragilissima
2	M.AtMB.Mu.XenCom; M.AtMB.Mu.CriCom
	261 Syringammina fragilissima, 436 Pentametrocrinus atlanticus, 585 Acanella arbuscula
3	M.AtMB.Mu; M.AtMB.Ro.MixCor
	250 Lophelia pertusa, 608 Acanthogorgia armata
4	M.AtMB.Mu.XenCom.SyrFra
	261 Syringammina fragilissima, 436 Pentametrocrinus atlanticus
5	M.AtMB.Bi.CorRee
	250 Lophelia pertusa, 264 Aphrocallistes sp, 207 Pliobothrus sp, 315 Koehlermetra porrecta
6	M.AtMB.Mu
	436 Pentametrocrinus atlanticus
7	M.AtMB.Co.MixCor.DisLop
	250 Lophelia pertusa, 264 Aphrocallistes sp
8	M.AtMB.Mu
	n/a
9	M.AtMB.Co.MixCor.DisLop

	250 <i>Lophelia pertusa</i> , 264 <i>Aphrocallistes</i> sp, 315 <i>Koehlermetra porrecta</i>
10	M.AtMB.Mu
	433 <i>Pseudarchaster</i> sp, 279 <i>Echinoidea</i> sp1

Conservation Targets		
Listed Habitats Encountered		
Name	Authority	
Mud and sand emergent fauna	ICES	
Coral garden	ICES/OSPAR	
- Hard-bottom coral garden	ICES subcategory	
- Soft-bottom coral garden	ICES subcategory	
Cold water coral reef	ICES	
- Lophelia pertusa reef	ICES subcategory	
Listed Species Encountered (Fish, Count)		
n/a		OSPAR/IUCN

Additional Comments
n/a

DIVE SUMMARY	
DIVE # 653	TRANSECT # 41

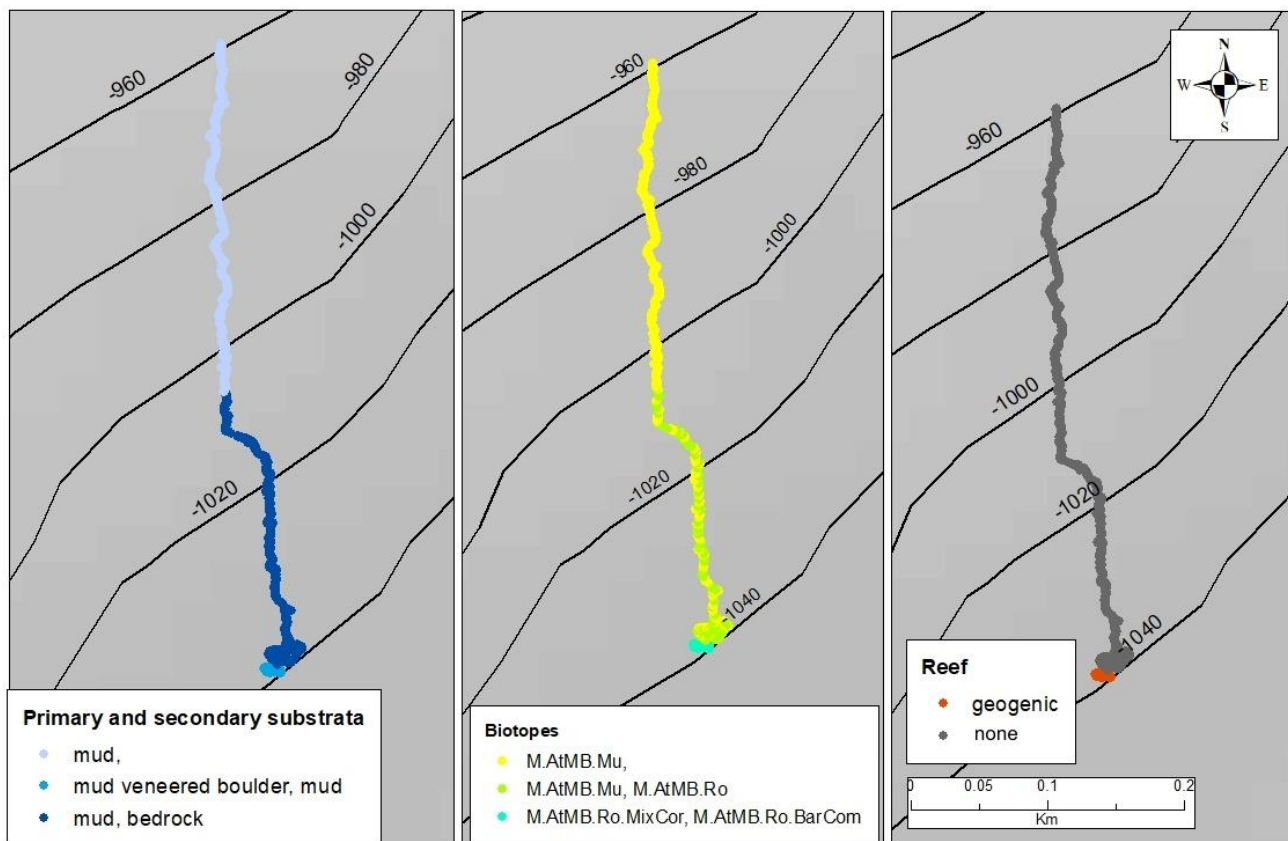
	Start	End
Date & Time	04/08/2019 21:47:33	04/08/2019 23:07:50
Latitude/ Longitude	48.957015/ -11.06604917	48.960763/ -11.06635767
Depth	-1072.724	-971.54
Images	IMG_7901.jpg – IMG_7968.jpg	
Samples	1 x pushcore Q; 1 x pushcore S	

Location	P2
Target Features	Slope
Depth Range	-1078m

Maps of Dive

OFOP BMP and/or GIS Maps

Dive 653, T41



Representative Images

(Images representative of major biotopes, species, and sediments encountered throughout the transect)



Top L. Boulders hosting mixed corals and barnacles. Large fishing net found at the bottom and on top on the boulder (M.AtMB.Ro.MixCor; M.AtMB.Ro.BarCom).

Top R. Carbonate and soft sediment with scarce epifauna (M.AtMB.Mu; M.AtMB.Ro).

Bottom L. Poor visibility. Mainly soft sediment on moderate slope (M.AtMB.Mu).

Bottom R. Soft sediment on steep slope (M.AtMB.Mu).

Summary Description (habitat transitions noted)

START AT 21:47:32/0m. The entire dive is characterized by muddy steep slope with scarce epifauna. Poor vision throughout the dive while the ROV travels up on steep slope/vertical wall.

[1] Large boulder on muddy slope is the first clip of the dive. Fishing net found attached on boulder. Mixed corals and barnacles living on boulder. 5m More fishing gear spotted on the seafloor. 7m [2] Obscured camera, ROV is moving forward towards landing on the seafloor. 9m ROV stops for core samplings. 19m Poor vision throughout the video. 19m boulders and muddy sediment hosting scarce and sparse epifauna including *Swiftia* (poss). 26m Visibility is very poor. 28m Fishing gear at the bottom. 29m White plastic sheet on the sea floor. 40m Poor visibility and scarce epifauna. 45m Obscured camera. Mud cloud. Mud veneered bedrock. 52m [3] Mud and burrows hosting *Ophiomusa lymani*. 55m [4] Ophiuroid are less frequent. Now cerianthids dominant on muddy slope. 1h08m Obscured/mud cloud. 1h16m Obscured vision. 1h21m Obscured. **END AT 23:07:50/01h23m.**

Physical Data			
Reef (types can be concurrent)	9% reef	9% geogenic	
		0% biogenic	n/a
			n/a
Substrates	- Mud - Mud veneered bedrock - Bedrock		
Geomorphology/Features	- Slope		
Annex 1 Types	n/a		
Pressures	- fishing gear - plastic sheet		

Biological Data					
Number of Species		22			
Summary Species List (Operational Taxonomic Unit, Name, Size, SACFOR, presence per habitat transition)					
	O.T.U	Species/Taxonomic ID	Size/Growth	SACFOR	
	1107	cf Anthoptilum sp	L	R	
	82	Cirripedia sp	L	O	
	651	Hoplostethus atlanticus	L	R	
	249	Lepidion eues	L	R	
	250	Lophelia pertusa	L	O	
	273	Lophius piscatorius	L	R	
	1172	Macrouridae sp	L	R	
	349	Mora moro	L	R	
	1003	Nezumia aequalis	L	R	
	551	Ophiomusa lymani	L	R	
	458	Pachycerianthus multiplacatus	L	R	
	304	Paromola cuvieri	L	R	
	1118	Sagartidae sp6	L	R	
	440	Synaphobranchus kaupii	L	R	
	1120	Anthoptilum sp	M	R	
	1114	Pennatulacea sp (indet)	M	R	
	255	Phelliactis sp1	M	R	
	661	Swiftia	M	R	
	605	Actiniaria sp20	S	R	
	1077	Caridea (indet)	S	R	
	6	Caryophyllia sp2	S	R	
	2	Cerianthidae sp1	S	R	
	Biotope List (Marine Habitat Classification for Britain & Ireland)				
	Code	Name		Listed	

M.AtMB.Ro.MixCor	Mixed cold water coral community on Atlantic mid bathyal rock and other hard substrata	Coral garden (ICES/OSPAR)
M.AtMB.Ro.BarCom	Barnacle dominated community on Atlantic mid bathyal rock and other hard substrata	
M.AtMB.Mu	Atlantic mid bathyal mud	Mud and sand emergent fauna (ICES)
M.AtMB.Ro	Atlantic mid bathyal rock and other hard substrata	
Biotope progression per habitat transition (# species, dominant/characteristic species)		
1	M.AtMB.Ro.MixCor; M.AtMB.Ro.BarCom	
	6 Caryophyllia sp, 82 Cirripedia sp, 661 Swiftia	
2	M.AtMB.Mu; M.AtMB.Ro	
	n/a	
3	M.AtMB.Mu	
	551 Ophiomusa lymani	
4	M.AtMB.Mu	
	1069 Ceriantharia	

Conservation Targets		
Listed Habitats Encountered		
Name	Authority	
Mud and sand emergent fauna Coral garden	ICES ICES/OSPAR	
Listed Species Encountered (Fish, Count)		
n/a		OSPAR/IUCN

Additional Comments
n/a

DIVE SUMMARY	
DIVE # 654	TRANSECT # 43

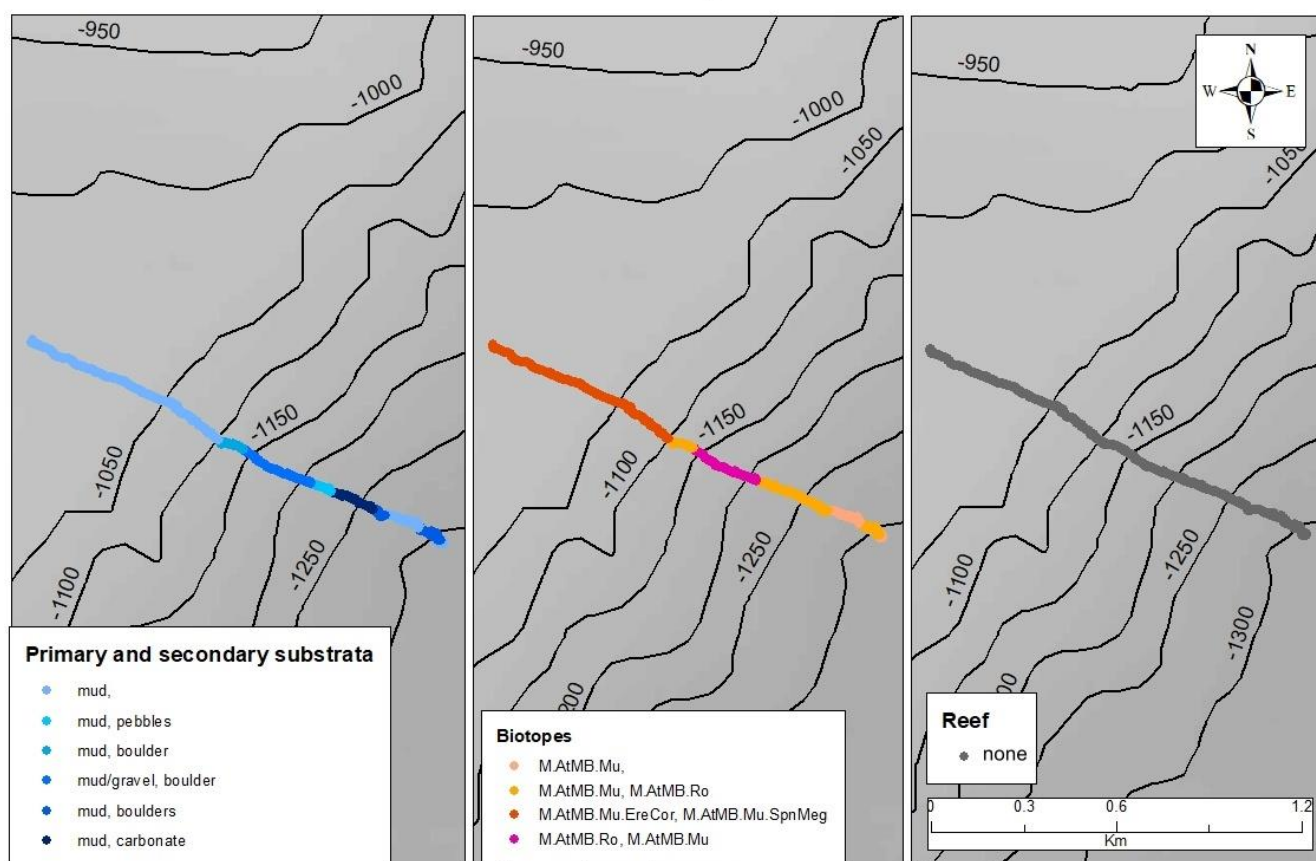
	Start	End
Date & Time	05/08/2019 03:01:04	05/08/2019 05:03:56
Latitude/ Longitude	49.014502/ -11.39482633	49.0199613/ -11.40574283
Depth	-1328.638	-1004.4
Images	IMG_7969.jpg – IMG_8145.jpg	
Samples	1 x pushcore 10 1 x pushcore B	

Location	Whittard canyon
Target Features	Slope
Depth Range	-1318m

Maps of Dive

OPOP BMP and/or GIS Maps

Dive 654, T43



Representative Images

(Images representative of major biotopes, species, and sediments encountered throughout the transect)



Top L. Carbonate boulders. This biotope was encountered a few times in this dive.

Top R. Large cobble hosting *Phelliactis sp1*, *Actinostolidae sp1* and *cf Psolus sp.*

Bottom L. Carbonate bedrock with naturally formed burrows.

Bottom R. Large field of *Pennatula aculeata*, *Acanella arbuscula* and *Pentametrocrinus atlanticus*.

Summary Description (habitat transitions noted)

START AT 03:01:03/0m. Muddy slope with scattered carbonate boulders/bedrock. Sea pen fields on muddy upslope towards the end of the dive.

[1] The dive starts on muddy slope with scarce epifauna. ROV stops for pushcore sampling. 10m [2] Mixed sediment of rock and mud with scattered epifauna, including *Phelliactis sp1*. 11m ROV stops to test the sediment for potential core sampling. 13m Mud veneered carbonate bedrock. 14m Fishing gear. 17m [3] now biotope is predominantly mud hosting holothurians and eels. 19m ROV stops to test the sediment for potential core sampling. 28m [4] Here boulders and muddy sediment host various epifauna of corals, mainly anemones. 28m Plastic sheet on seafloor with boulders and cobbles. 36m [5] Mud and carbonate substrata hosting mainly cerianthids. 39m Ophiuroid legs sticking out of burrows on muddy slope. 40m mud veneered bedrock/vertical wall with scarce epifauna. 45m [6] Here pebbles and soft sediment host scarce epifauna, including ophiuroids. 53m [7] Biotope is now predominantly mud and boulder. *Psolus sp* and anemones inhabit boulders, and ophiuroid on mud. 01h14m [8] Boulder hosts colonies of *Lophelia pertusa* and a few orange anemones, and also, fishing gear and plastic. 1h19m [9] Here biotope is mud with sparse seapens, crinoids and starfish. ROV stops for imagery of *Swiftia* (poss). 1h25m ROV stops for sampling two pushcores. **END AT 05:03:56/02h06m.**

Physical Data			
Reef (types can be concurrent)	0% reef	n/a	
		n/a	n/a
			n/a
Substrates	- Mud - Gravel - Pebbles - Boulders - carbonate		
Geomorphology/Features	- slope		
Annex 1 Types	- Boulders - Pebbles - Carbonate wall		
Pressures	2 x fishing gear 2 x rubbish (plastic)		

Biological Data				
Number of Species			49	
Summary Species List (Operational Taxonomic Unit, Name, Size, SACFOR, presence per habitat transition)				

	1116	Pennatulacea sp6	M	F
	621	Hypsogastropoda	M	R
	608	Acanthogorgia armata	M	R
	315	Koehlermetra porrecta	M	R
	250	Lophelia pertusa	M	O
	551	Ophiomusa lymani	M	F
	1046	Pennatula aculeata	M	A
	131	Crinoidea sp1	M	R
	261	Syringammina fragilissima	M	R
	458	Pachycerianthus multiplicatus	M	R
	605	Actiniaria sp20	S	R
	6	Caryophyllia sp2	S	R
	1049	cf Psolus sp	S	R
	26	Ophiuroidea sp1	S	R
	207	Pliobothrus sp	S	R
	339	Munida tenuimana	S	R

Biotope List (Marine Habitat Classification for Britain & Ireland)		
Code	Name	Listed
M.AtMB.Mu	Atlantic mid bathyal mud	Mud and sand emergent fauna (ICES)
M.AtMB.Ro	Atlantic mid bathyal rock and other hard substrata	
M.AtMB.Mu.EreCor	Erect coral field on Atlantic mid bathyal mud	Mud and sand emergent fauna (ICES); coral garden (ICES/OSPAR); soft-bottom coral garden (ICES subcategory)
M.AtMB.Mu.SpnMeg	Sea pens and burrowing megafauna on Atlantic mid bathyal	Mud and sand emergent fauna (ICES); coral garden (ICES/OSPAR); soft-bottom coral garden (ICES subcategory)

Biotope progression per habitat transition (# species, dominant/characteristic species)	
1	M.AtMB.Mu
	n/a
2	M.AtMB.Mu; M.AtMB.Ro
	255 Phelliactis sp, 1117 Metallogorgia
3	M.AtMB.Mu
	440 Synaphobranchus kaupii, 432 Holothuroidea cf Laetmogone
4	M.AtMB.Mu; M.AtMB.Ro
	605 Actiniaria sp20, 255 Phelliactis sp1
5	M.AtMB.Mu; M.AtMB.Ro
	1069 Ceriantharia
6	M.AtMB.Mu; M.AtMB.Ro
	551 Ophiomusa lymani
7	M.AtMB.Ro; M.AtMB.Mu
	1049 cf Psolus sp, 605 Actiniaria sp20, 551 Ophiomusa lymani

8	M.AtMB.Mu; M.AtMB.Ro
	1069 Ceriantharia, 250 Lophelia pertusa
9	M.AtMB.Mu.EreCor; M.AtMB.Mu.SpnMeg
	988 Zoroaster fulgens, 585 Acanella arbuscula, 1046 Pennatula aculeata, 436 Pentametrocrinus atlanticus

Conservation Targets		
Listed Habitats Encountered		
Name	Authority	
Mud and sand emergent fauna Carbonate mounds Coral garden Soft-bottom coral garden	ICES OSPAR ICES/OSPAR ICES subcategory	
Listed Species Encountered (Fish, Count)		
n/a		OSPAR/IUCN

Additional Comments		
n/a		

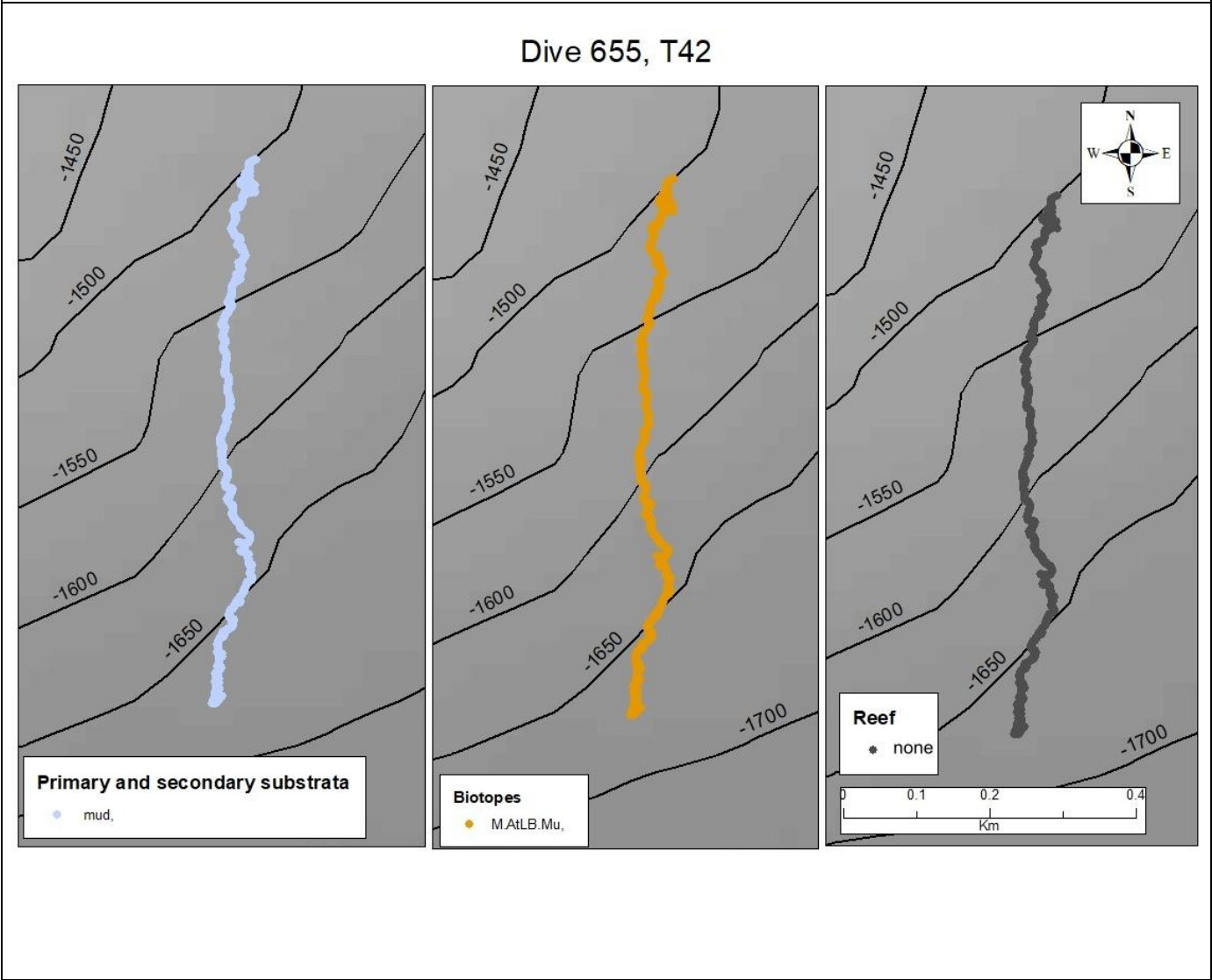
DIVE SUMMARY		
DIVE #	655	TRANSECT # 42

	Start	End
Date & Time	05/08/2019 08:21:14	05/08/2019 09:49:36
Latitude/ Longitude	48.917028/ -11.47025017	48.92361367/ -11.469798
Depth	-1739.47	-1543.592
Images	IMG_8146.jpg – IMG_8376.jpg	
Samples	1 x pushcore #11; 2 x pushcore E	

Location	P2
Target Features	Slope
Depth Range	-1728m

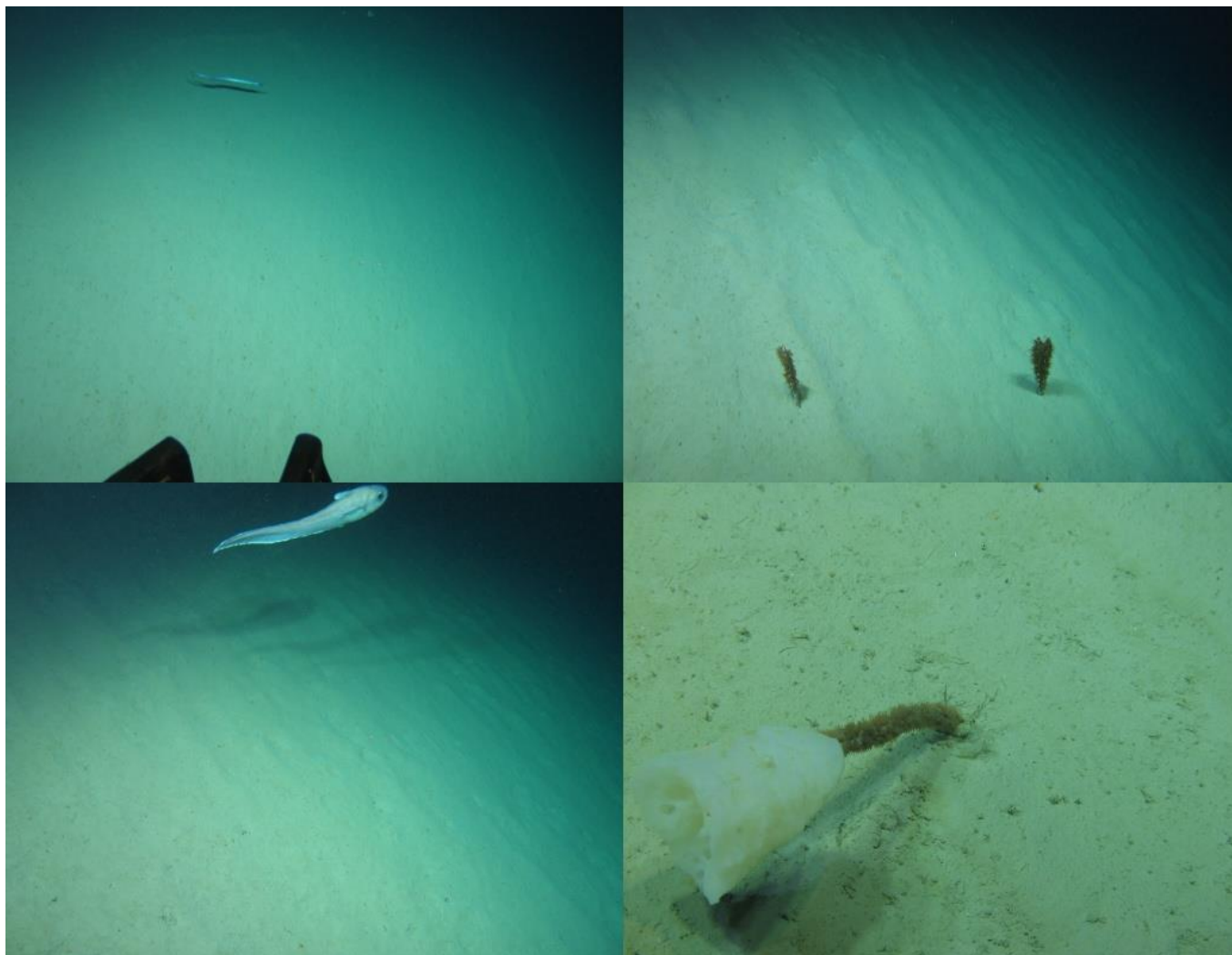
Maps of Dive

OFOP BMP and/or GIS Maps



Representative Images

(Images representative of major biotopes, species, and sediments encountered throughout the transect)



Top L. Muddy slope. Predominant biotope of this dive (M.AtLB.Mu).

Top R. Muddy slope with two seapens, possibly *Kophobelemnnon stelliferum* (M.AtLB.Mu).

Bottom L. Muddy slope. Grenadier (*Coryphaenoides rupestris*) in picture (M.AtLB.Mu).

Bottom R. Muddy slope. Hyalonema sp1 is picture (M.AtLB.Mu).

Summary Description (habitat transitions noted)

START AT 08:21:12/0m. Muddy slope with scarce epifauna. Excellent imagery of Pennatulacea and Hyalonema.

[1] The entire dive is characterized by muddy slope with few epifauna. 1m ROV tests the seafloor for potential core sampling. 3m ROV stops for sampling two pushcores. 17m Here a few boulders with no epifauna. 37m Muddy upslope/very steep slope with scarce epifauna. 56m ROV stops for imagery of Pennatulacea sp (cfKophobelemnidae). 1h20m ROV stops for imagery and sampling of Hyalonema sp. 1h27m Muddy down slope with scarce epifauna.
ENDS AT 09:49:36/01h30m.

Physical Data			
Reef (types can be concurrent)	0% reef	n/a	
		n/a	n/a
			n/a
Substrates	- Mud		
Geomorphology/Features	- Slope		
Annex 1 Types	n/a		
Pressures	n/a		

Biological Data																																																																																																			
Number of Species			18																																																																																																
Summary Species List (Operational Taxonomic Unit, Name, Size, SACFOR, presence per habitat transition)																																																																																																			
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M.AtLB.Mu		Atlantic lower bathyal mud	Mud and sand emergent fauna (ICES)																																																																																																
Biotope progression per habitat transition (# species, dominant/characteristic species)																																																																																																			
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Conservation Targets		
Listed Habitats Encountered		
Name	Authority	
Mud and sand emergent fauna	ICES	
Listed Species Encountered (Fish, Count)		
n/a		OSPAR/IUCN

Additional Comments		
n/a		

DIVE SUMMARY		
DIVE #	656	TRANSECT # 45

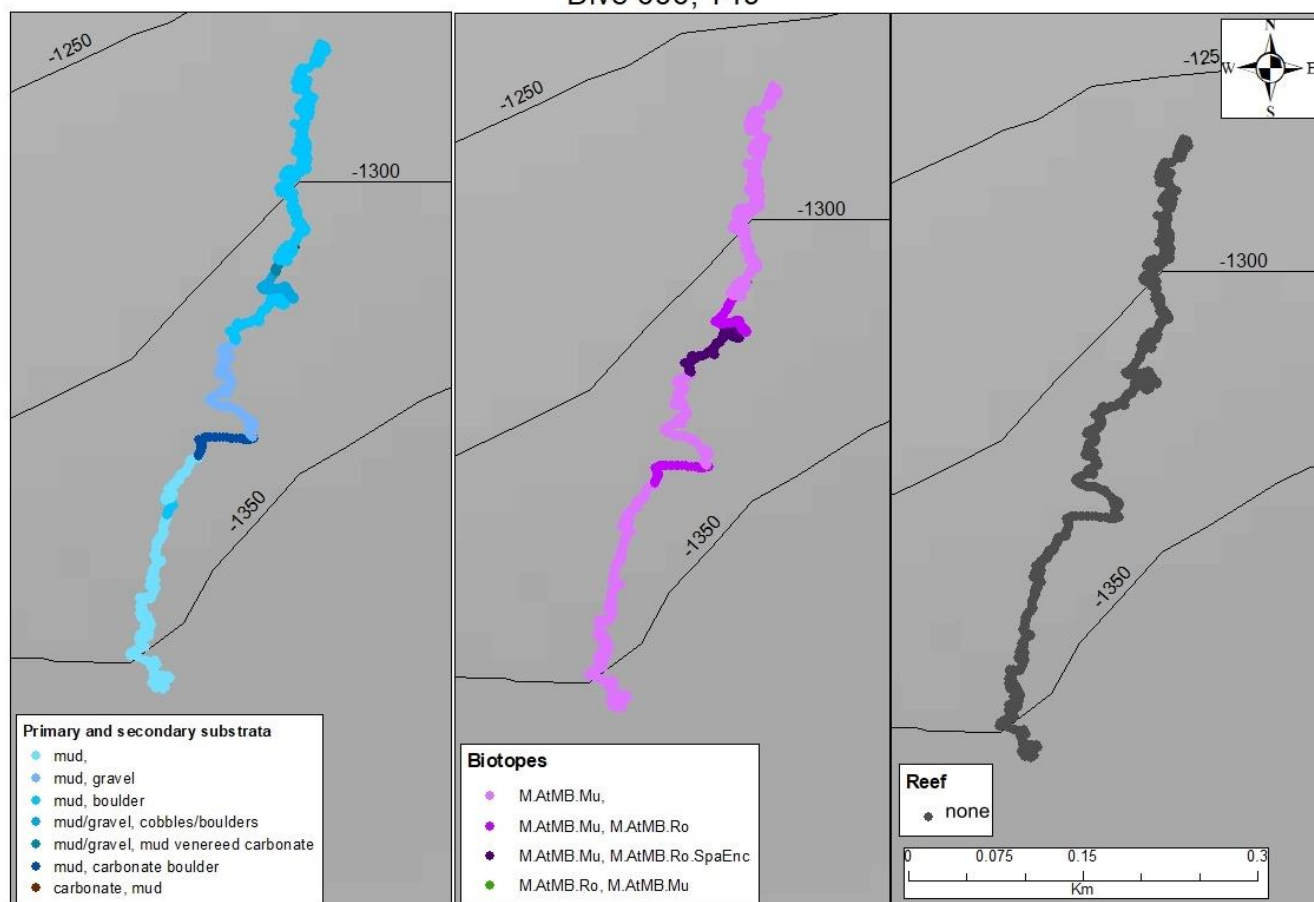
	Start	End
Date & Time	05/08/2019 13:46:01	05/08/2019 15:30:50
Latitude/ Longitude	49.080921/ -11.66259217	49.08560633/ -11.661393
Depth	-1392.118	-1288.129
Images	IMG_8377.jpg – IMG_8744.jpg	
Samples	2 x pushcores; 1 x <i>Pseudoanthomastus</i> sp; 1 x <i>Hyalonema</i> sp	

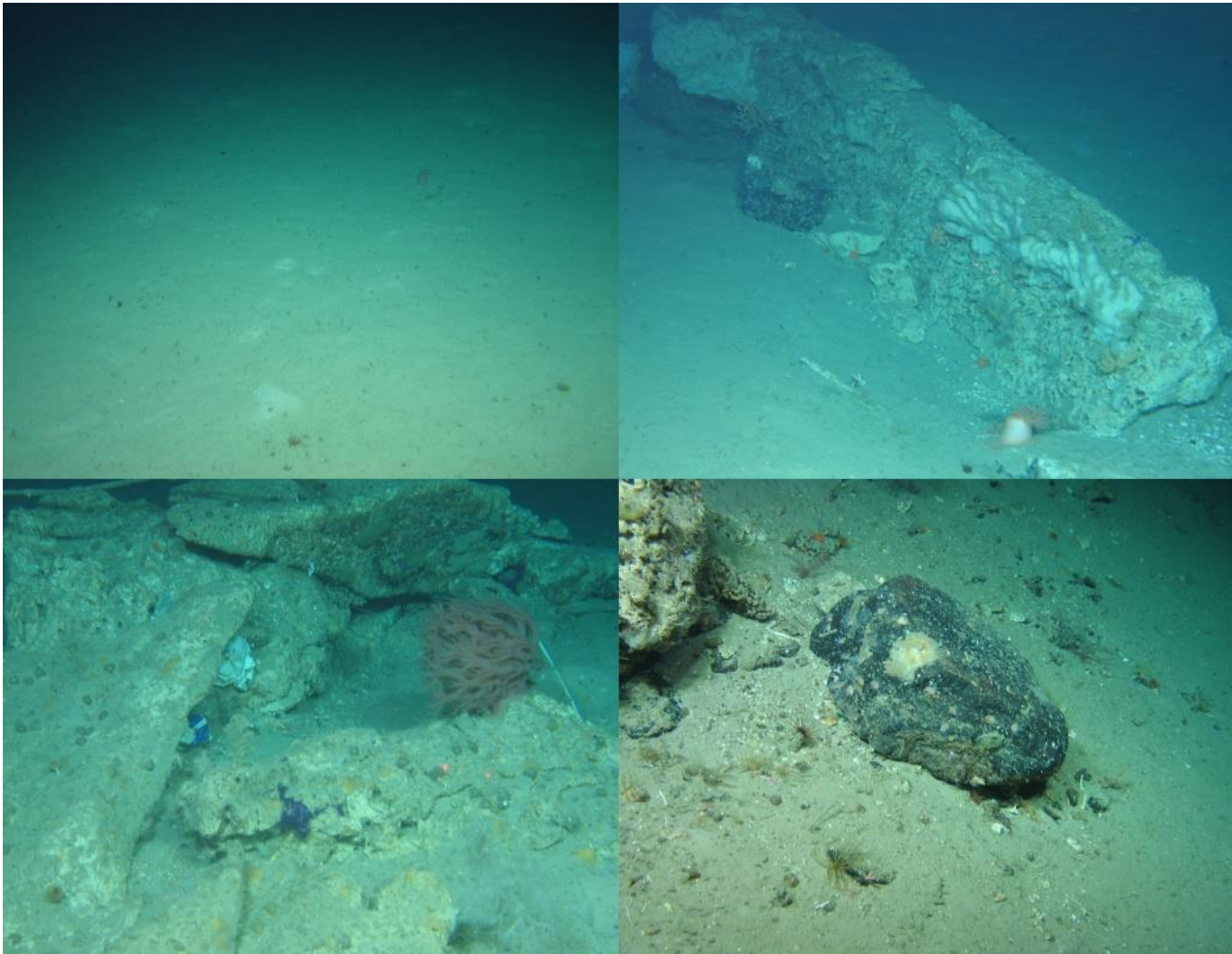
Location	Whittard canyon
Target Features	Track feature
Depth Range	-1394m

Maps of Dive

OPOP BMP and/or GIS Maps

Dive 656, T45



Representative Images		
(Images representative of major biotopes, species, and sediments encountered throughout the transect)		
		
Top L. Muddy slope with scattered epifauna (M.AtMB.Mu). Top R. Carbonate boulder hosting lamellate sponges and encrusting species (M.AtMB.Ro). Bottom L. Mud veneered boulders with scattered epifauna, including Anthomastus and encrusting sponges (M.AtMB.Ro). Bottom R. Boulder with encrusting species including sponges and <i>Psolus</i> sp (M.AtMB.Ro.SpaEnc).		
Summary Description (habitat transitions noted)		
START AT 13:46:00/0m. Stalked epifauna on muddy slope with occasional boulders hosting encrusted fauna and bivalves/ascidians on carbonate scarp. [1] the dive starts on muddy slope with seapens, cerianthids and soft <i>Acanella arbuscula</i>. 1m ROV lands on mud slope, then hits the sea floor and vision is obscured/mud cloud. 3m ROV stops for sampling two pushcores (A and Y). 14m Orange Roughy observed here. 24m [2] Mud and boulders hosting encrusting sponges and anemones. 26m [3] Now biotope changes into soft sediment with no dominant epifauna. Rubbish (grey plastic sheet). 33m [4] Mud and carbonate substrata host various epifauna including lamellate sponges, soft corals and anemones. 34m Here carbonate boulder hosts lamellate sponges, crinoids and octocorals. Next to the boulder, a pile of fishing gear and rubbish encountered. 36m [5] Here sediments are mud and gravel with anemones and crinoids. 39m Poor vision, obscured. 44m rubbish. 49m [6] Biotope changes in mud and boulders hosting solitary scleractinians and <i>Pliobrothus</i> sp. 58m Good quality zoomed-in images of <i>Pseudoanthomastus</i> sp. ROV stops for sampling <i>Pseudoanthomastus</i>. 01h08m fishing gear. 01h10m Obscured vision/mud cloud. 01h12m [7] Now mud/gravel and cobbles dominate. Epifauna comprise crinoids and holothurians. 01h13m rubbish. 01h16m [8] Mud/gravel and mud veneered carbonate hosting crinoids and solitary scleractinians. 01h20m [9] Carbonate and mud are the dominant substrata, with ascidians and mixed corals living on rock. 01h27m ROV stops for imagery and sampling of <i>Hyalonema</i> sp. 01h34m [10] Biotope is mainly mud with scattered boulders hosting seapens, stalked sponges, encrusting sponges and <i>A.arbuscula</i>. END AT 15:30:50/02h05m.		

Physical Data		
Reef	0% reef	n/a

(types can be concurrent)		n/a	n/a
			n/a
Substrates	- Mud - Gravel - Mud veneered carbonate - Cobbles/boulders - Carbonate boulder - Carbonate		
Geomorphology/Features	Slope		
Annex 1 Types	- Cobbles/boulders - Boulders - Carbonate boulders - Carbonate		
Pressures	2 x fishing gears; 2 x rubbish		

Biological Data				
Number of Species		56		
Summary Species List (Operational Taxonomic Unit, Name, Size, SACFOR, presence per habitat transition)				
	O.T.U	Species/Taxonomic ID	Size/Growth	SACFOR
	1	Porifera encrusting sp1	Crust	R
	7	Porifera encrusting sp2	Crust	R
	608	Acanthogorgia armata	L	R
	1047	Actinoscyphiidae sp1 (pink)	L	R
	278	Anthomastus grandiflorus	L	R
	311	Anthothela grandiflora	L	R
	1141	Bathyrinidae sp	L	R
	289	cf Clavulariidae sp	L	R
	1092	cf Histocidaris purpurata (deep)	L	R
	622	Halipteris sp	L	R
	1179	Holothuroidea sp6	L	R
	651	Hoplostethus atlanticus	L	R
	917	Hyalonema sp1	L	R
	1039	Hydrolagus cf affinis	L	R
	1078	Ipnopidae sp	L	R
	442	Kophobelemnon stelliferum	L	R
	1172	Macrouridae sp	L	R
	994	Metallogorgia, Irifogorgia or Cirrhipathes	L	R
	1087	Novodinia sp	L	R
	918	Opisthoteuthis extensa	L	R
	1050	Paramuricea sp	L	R
	1046	Pennatula aculeata	L	F
	1183	Pennatula inflata	L	R
	436	Pentametrocrinus atlanticus	L	R
	255	Phelliactis sp	L	R
	552	Polyacanthonotus rissoanus	L	R
	1080	Pseudoanthomastus sp	L	R
	652	Rajiformes sp1	L	R
	988	Zoroaster fulgens	L	O
	661	Swiftia	L	R
	440	Synaphobranchus kaupii	L	O
	1017	Teuthida sp1	L	R
	446	Trachyrhynchus sp	L	R
	581	Umbellula sp	L	R
	585	Acanella arbuscula	M	R
	132	Actinostolidae sp1	M	R
	20	Ascidacea sp2 (clear)	M	R
	432	Benthogone sp	M	R

	584	Caryophyllia sp5 (bullseye)	M	R
	2	Cerianthidae sp1	M	F
	984	cf Halcampoididae sp	M	O
	211	Cidaris cidaris	M	R
	39	Corallimorphidae sp1	M	O
	131	Crinoidea sp1	M	F
	249	Lepidion eques	M	R
	563	Neocyttus helgae	M	R
	1114	Pennatulacea (indet)	M	R
	1053	Porifera lamellate sp13	Mass	R
	605	Actiniaria sp20	S	O
	1077	Caridea (indet)	S	R
	6	Caryophyllia sp2	S	R
	559	Echinus acutus	S	R
	621	Hypsogastropoda	S	R
	339	Munida tenuimana	S	R
	26	Ophiuroidea sp1	S	R
	207	Pliobrothus sp	S	R

Biotope List (Marine Habitat Classification for Britain & Ireland)		
Code	Name	Listed
M.AtMB.Mu	Atlantic mid bathyal mud	Mud and sand emergent fauna (ICES)
M.AtMB.Ro	Atlantic mid bathyal rock and other hard substrata	
M.AtMB.Ro.SpaEnc	Sparse encrusting community on Atlantic mid bathyal rock and other hard substrata	

Biotope progression per habitat transition (# species, dominant/characteristic species)	
1	M.AtMB.Mu
	1046 Pennatula aculeata, 2 Ceriantharia, 585 Acanella arbuscula
2	M.AtMB.Mu
	1 Porifera encrusting sp1, 132 Actinostolidae sp1, 255 Phelliactis sp
3	M.AtMB.Mu
	1046 Pennatula aculeata, 2 Ceriantharia
4	M.AtMB.Mu; M.AtMB.Ro
	1053 Porifera lamellate sp13, 608 Acanthogorgia cf armata, 605 Actiniaria sp20
5	M.AtMB.Mu
	2 Ceriantharia, 1210 Pentametrocrinidae
6	M.AtMB.Mu; M.AtMB.Ro.SpaEnc
	6 Caryophyllia, 207 Pliobrothus sp
7	M.AtMB.Mu; M.AtMB.Ro
	1141 Bathycrinidae sp, 131 Crinoidea sp1, 432 Holothuroidea cf Laetmogone (purple)
8	M.AtMB.Mu; M.AtMB.Ro

	1141 Bathycrinidae sp, Caryophyllia
9	M.AtMB.Ro; M.AtMB.Mu
	20 Ascidiacea sp2 (clear), 32 Anomiidae sp
10	M.AtMB.Mu
	1083 Pennatulacea sp (thin), 917 Hyalonema sp1, 1 Porifera encrusting sp1, 585 Acanella arbuscula

Conservation Targets		
Listed Habitats Encountered		
Name	Authority	
Mud and sand emergent fauna	ICES	
Listed Species Encountered (Fish, Count)		
1 x <i>Hoplostethus atlanticus</i> (Orange Roughy)		OSPAR/IUCN

Additional Comments	
n/a	

DIVE SUMMARY	
DIVE # 657	TRANSECT # 46

	Start	End
Date & Time	05/08/2019 19:49:41	05/08/2019 21:28:36
Latitude/ Longitude	48.841398/ -11.69228533	48.84814433/ -11.695043
Depth	-1518.504	-1537.896
Images	IMG_8701.jpg – IMG_8977.jpg	
Samples	1 x pushcore 13 1 x pushcore B	

Location	P1
Target Features	No previous data
Depth Range	-1532m

Maps of Dive

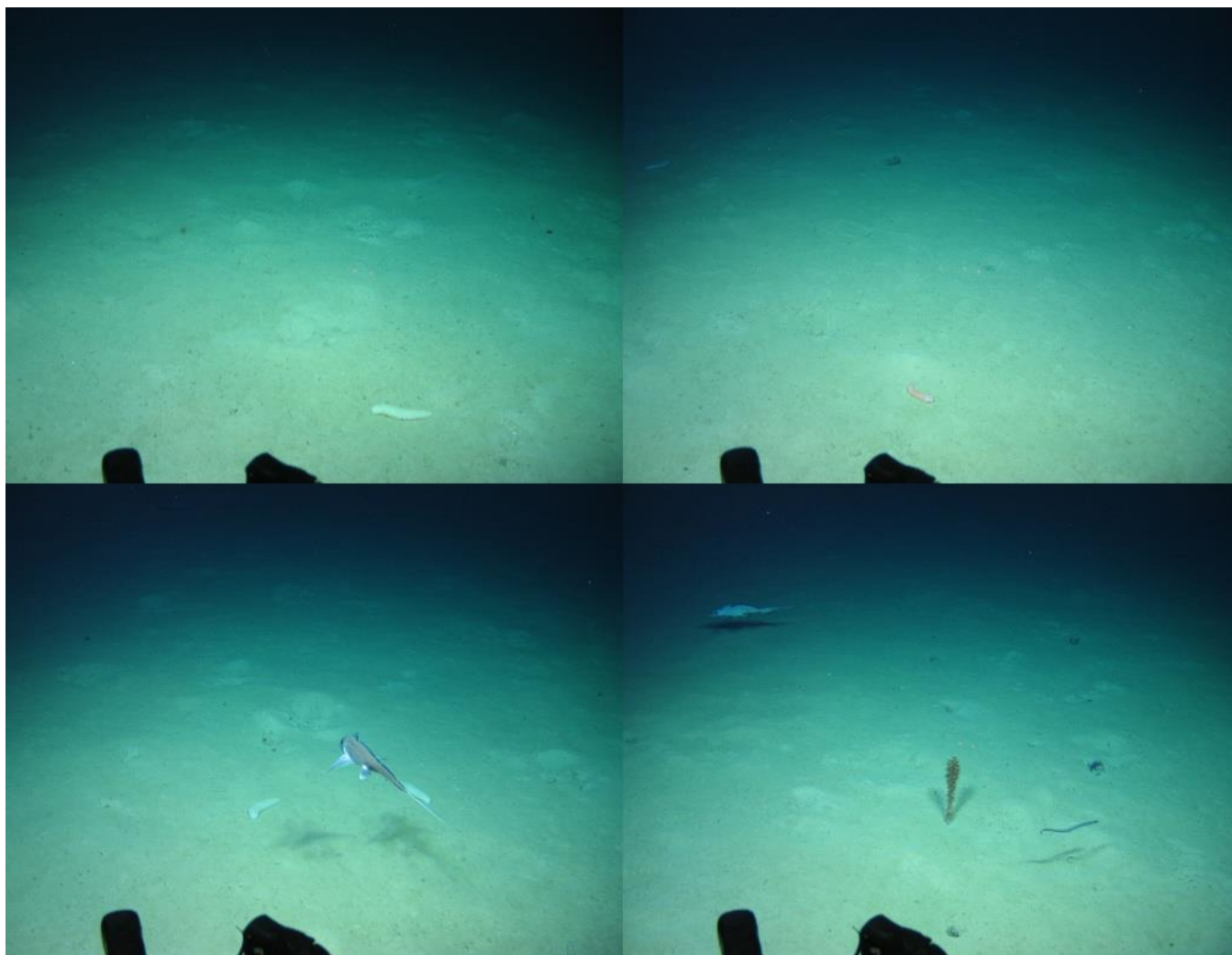
OFOP BMP and/or GIS Maps

Dive 657, T46



Representative Images

(Images representative of major biotopes, species, and sediments encountered throughout the transect)



Top L. Muddy slope hosting white holothurians ((var)M.AtUA.Mu.HolCom).

Top R. Muddy slope hosting white holothurians ((var)M.AtUA.Mu.HolCom).

Bottom L. Muddy slope hosting white holothurians ((var)M.AtUA.Mu.HolCom).

Bottom R. Muddy slope hosting white holothurians and seapens ((var)M.AtUA.Mu.HolCom).

Summary Description (habitat transitions noted)

START AT 19:49:40/0m. Muddy slope with sparse epifauna, including sea cucumbers and cerianthids.

[1] The entire dive is located on muddy slope with sparse epifauna, including sea cucumbers and cerianthids. 1m ROV stops for sampling two pushcores. 01h22m ROV stops for imagery of Hyalonema sp1. 01h26m Some animals tracks and burrows at this point on the seafloor. Burrows appear to be frequent in this section of the dive. **END AT 21:28:36/01h42m.**

Physical Data			
Reef (types can be concurrent)	0% reef	n/a	
		n/a	n/a
			n/a
Substrates	- Mud		
Geomorphology/Features	- Slope		
Annex 1 Types	n/a		
Pressures	n/a		

Biological Data				
Number of Species		30		
Summary Species List (Operational Taxonomic Unit, Name, Size, SACFOR, presence per habitat transition)				
	O.T.U	Species/Taxonomic ID	Size/Growth	SACFOR
	432	Benthogone sp	L	F
	1012	Notacanthiformes sp1	L	R
	988	Zoroaster fulgens	L	R
	1005	Galeus melastomus	L	R
	442	Kophobelemnion stelliferum	L	R
	566	Coryphaenoides rupestris	L	R
	265	Chimera monstrosa	L	R
	936	Harriotta raleighana	L	R
	1074	Alepocephaliformes sp1	L	R
	1078	Ipnopidae sp	L	R
	446	Trachyrhynchus sp	L	R
	552	Polyacanthonotus rissoanus	L	R
	1305	Galeus sp	L	R
	1094	Echinothuroidea sp (purple)	L	R
	917	Hyalonema sp1	L	R
	930	Actinopterygii sp3	M	R
	261	Syringammina fragilissima	M	R
	2	Cerianthidae sp1	S	R
	311	Anthothela grandiflora	S	R
	1120	Anthoptilum sp	S	O
	621	Hypsogastropoda	S	R
	205	Paguridae sp	S	R
	317	Epizoanthus sp1	S	R
	1115	Pterasteridae sp3	S	R
	1066	Adamsia sp (PaguridaeAssoc)	S	R
	2	Cerianthidae sp1	S	R
	131	Crinoidea sp1	S	R
	584	Caryophyllia sp5 (bullseye)	S	R
	605	Actiniaria sp20	S	R
1056	Flabellum sp	S	R	

Biotope List (Marine Habitat Classification for Britain & Ireland)		
Code	Name	Listed

(var)M.AtUA.Mu.HolCom	(variant of)Holothurian dominated community on Atlantic upper abyssal mud	Mud and sand emergent fauna (ICES)
Biotope progression per habitat transition (# species, dominant/characteristic species)		
1	(var)M.AtUA.Mu.HolCom	
	432 Benthogone sp, 2 Ceriantharia	

Conservation Targets		
Listed Habitats Encountered		
Name	Authority	
Mud and sand emergent fauna	ICES	
Listed Species Encountered (Fish, Count)		
n/a		OSPAR/IUCN

Additional Comments		
n/a		

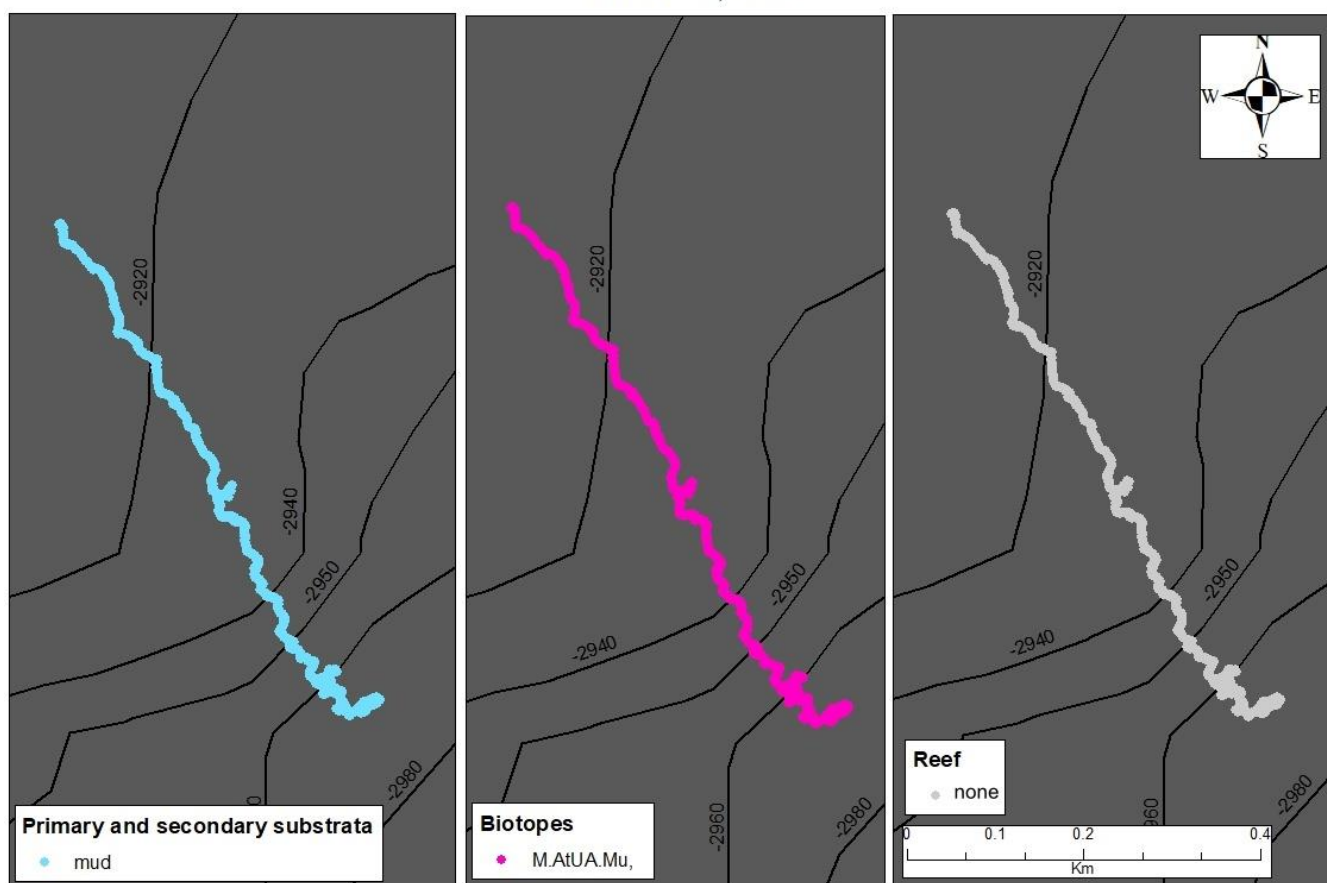
DIVE SUMMARY		
DIVE #	658	TRANSECT # 48

	Start	End
Date & Time	06/08/2019 03:59:13	06/08/2019 05:00:15
Latitude/ Longitude	48.395894/-11.73174733	48.3992623/-11.73489583
Depth	-2982.924	-2913.912
Images	IMG_8901.jpg – ROV_09 130.jpg	
Samples	1 x pushcore 10; 1 x pushcore 69; 1 x <i>Radicipes sp</i>	

Location	P1
Target Features	Slope, depth
Depth Range	-2959m

Maps of Dive
OPOP BMP and/or GIS Maps

Dive 658, T48



Representative Images

(Images representative of major biotopes, species, and sediments encountered throughout the transect)



Top L. Muddy slope with *Radicipes* sp (M.AtUA.Mu).

Top R. Muddy slope with *Coryphaenoides* sp (M.AtUA.Mu).

Bottom L. Muddy slope with *Peniagone* sp (M.AtUA.Mu).

Bottom R. Muddy slope with dead matter (ball-shaped) and an anemone living on it (M.AtUA.Mu).

Summary Description (habitat transitions noted)

START AT 03:59:12/0m. Muddy slope with scarce epifauna with a few pockets of organic fluffy sediments (no visible epifauna living on them). **[1]** ROV lands on muddy slope with scattered pteropod shells. Throughout the whole dive, muddy slope with scarce epifauna with a few pockets of organic fluffy sediments (no visible epifauna living on them). 16m ROV stops for imagery of purple sea cucumber (poss Benthothuria). 19m ROV stops for imagery of orange anemone. 22m ROV stops for sampling *Radicipes* sp. 01h04m ROV stops for imagery and sampling of orange anemone (unsuccessful sampling). While the ROV descends on the seafloor, it provokes mud cloud/vision obscured for a while. 01h18m Rusty man made object on seafloor. 01h21m ROV stops and attempts to sample man-made object (aborted). 01h27m ROV stops for imagery of *Anthomastus grandiflorus*. **ENDS AT 05:00:00/01h33m.**

Physical Data			
Reef (types can be concurrent)	0% reef	n/a	
		n/a	n/a
			n/a
Substrates	- Mud		
Geomorphology/Features	- Slope		
Annex 1 Types	n/a		
Pressures	1 x rusty man-made object		

Biological Data																																																															
Number of Species		14																																																													
Summary Species List (Operational Taxonomic Unit, Name, Size, SACFOR, presence per habitat transition)																																																															
<table><tr><th>O.T.U</th><th>Species/Taxonomic ID</th><th>Size/Growth</th><th>SACFOR</th></tr><tr><td>278</td><td>Anthomastus grandiflorus</td><td>L</td><td>R</td></tr><tr><td>1124</td><td>Benthothuria</td><td>L</td><td>R</td></tr><tr><td>577</td><td>Coryphaenoides guentheri</td><td>L</td><td>R</td></tr><tr><td>1103</td><td>Democrinus sp</td><td>L</td><td>R</td></tr><tr><td>1113</td><td>Halosauridae sp</td><td>L</td><td>R</td></tr><tr><td>1012</td><td>Notacanthiformes sp1</td><td>L</td><td>R</td></tr><tr><td>26</td><td>Ophiuroidea sp1</td><td>L</td><td>R</td></tr><tr><td>1044</td><td>Radicipes sp</td><td>L</td><td>O</td></tr><tr><td>581</td><td>Umbellula sp</td><td>L</td><td>R</td></tr><tr><td>1094</td><td>Echinothuroidea sp (purple)</td><td>M</td><td>R</td></tr><tr><td>551</td><td>Ophiomusa lymani</td><td>M</td><td>O</td></tr><tr><td>605</td><td>Actiniaria sp20</td><td>S</td><td>O</td></tr><tr><td>1167</td><td>Peniagone sp</td><td>S</td><td>R</td></tr><tr><td>458</td><td>Pachycerianthus multiplicatus</td><td>S</td><td>R</td></tr></table>				O.T.U	Species/Taxonomic ID	Size/Growth	SACFOR	278	Anthomastus grandiflorus	L	R	1124	Benthothuria	L	R	577	Coryphaenoides guentheri	L	R	1103	Democrinus sp	L	R	1113	Halosauridae sp	L	R	1012	Notacanthiformes sp1	L	R	26	Ophiuroidea sp1	L	R	1044	Radicipes sp	L	O	581	Umbellula sp	L	R	1094	Echinothuroidea sp (purple)	M	R	551	Ophiomusa lymani	M	O	605	Actiniaria sp20	S	O	1167	Peniagone sp	S	R	458	Pachycerianthus multiplicatus	S	R
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1	M.AtUA.Mu																																																														
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Conservation Targets	
Listed Habitats Encountered	
Name	Authority

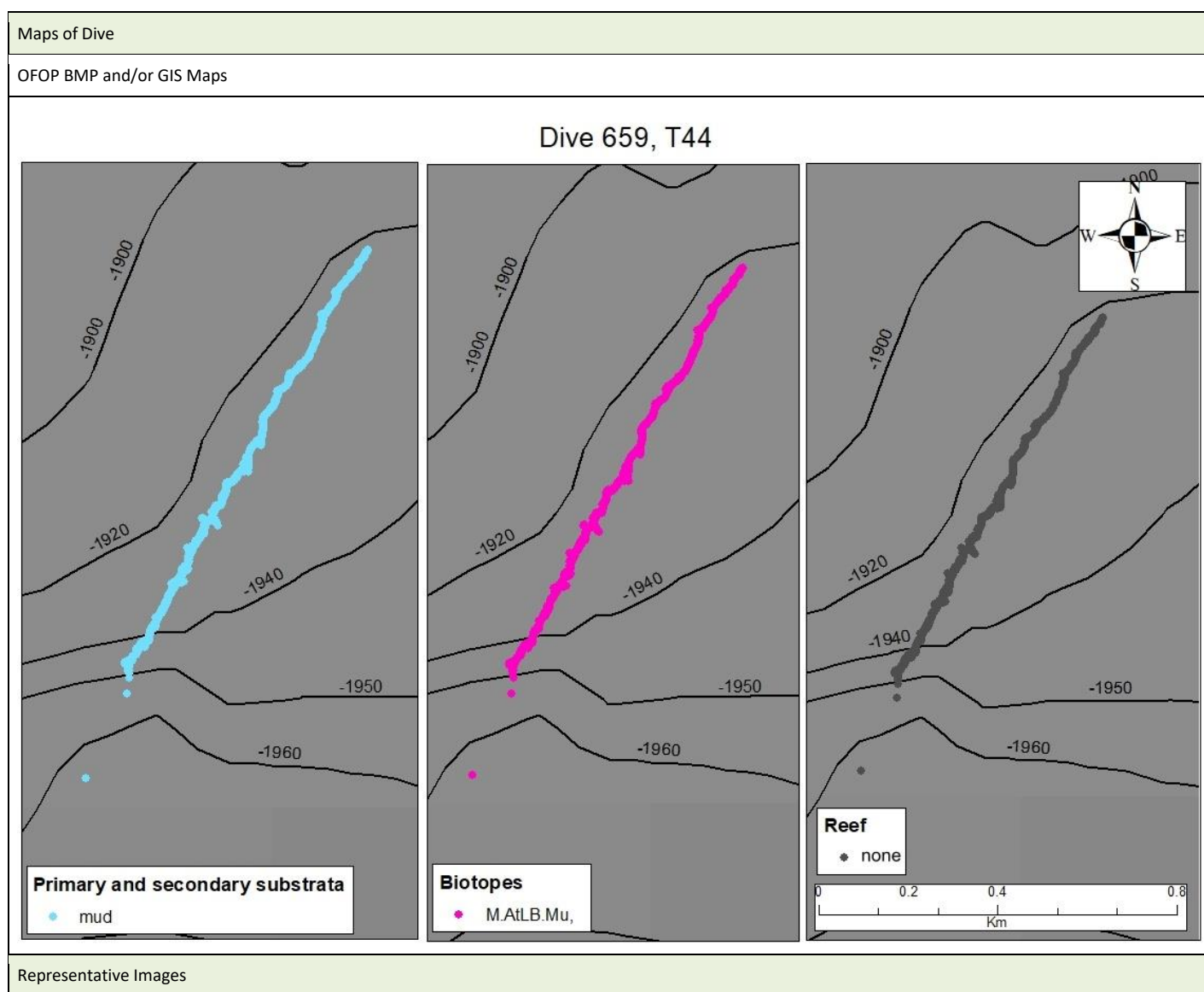
Mud and sand emergent fauna		ICES
Listed Species Encountered (Fish, Count)		
n/a		OSPAR/IUCN

Additional Comments
n/a

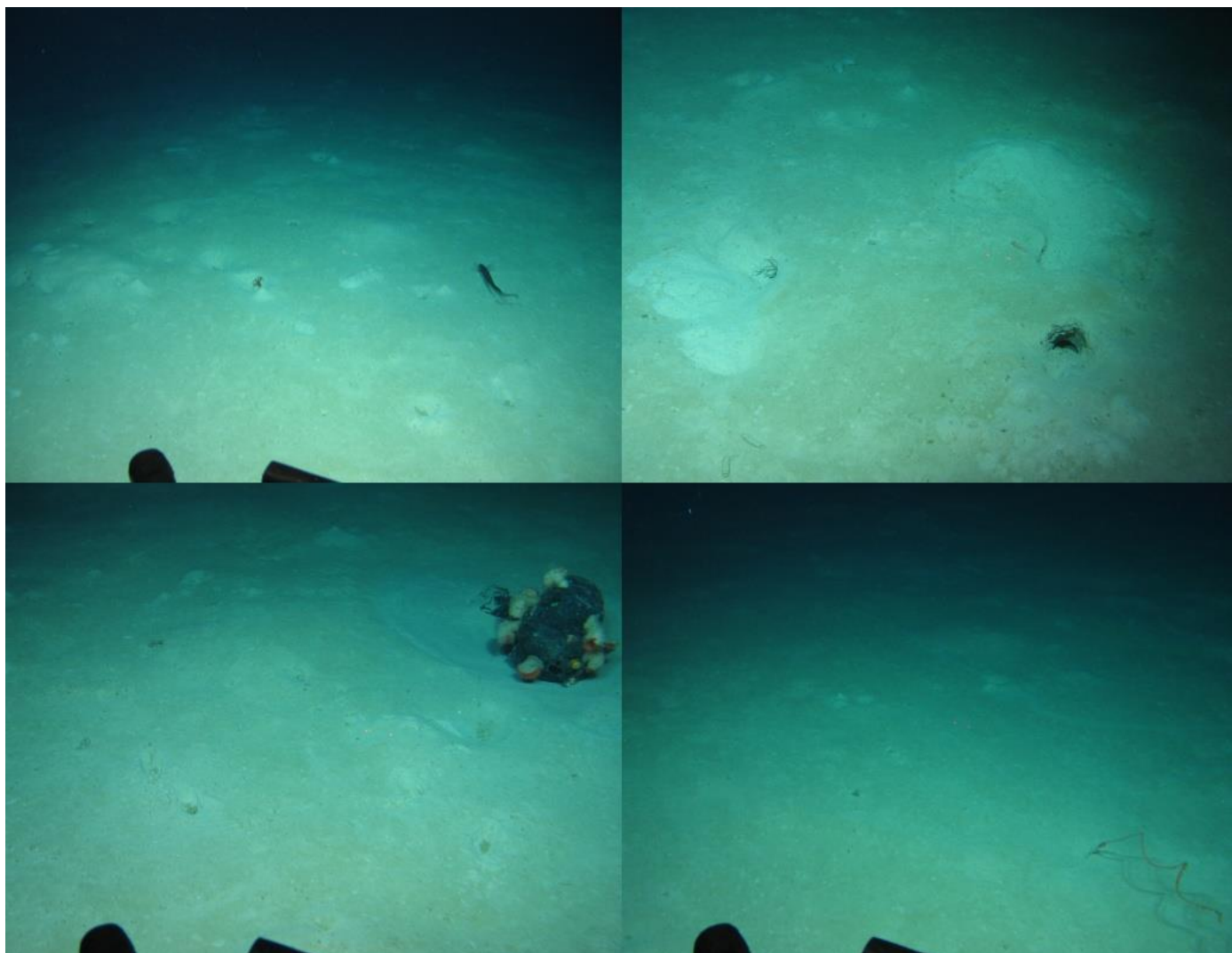
DIVE SUMMARY		
DIVE #	659	TRANSECT # 44

	Start	End
Date & Time	06/08/2019 12:36:54	06/08/2019 13:46:33
Latitude/ Longitude	48.707859/ -12.296708	48.7125445/ -12.29255883
Depth	-1969.522	-1934.264
Images	ROV_09 131.jpg – ROV_09 174.jpg	
Samples	1 x pushcore 11; 1 x pushcore E	

Location	P2
Target Features	Track feature
Depth Range	-1969m



(Images representative of major biotopes, species, and sediments encountered throughout the transect)



Top L. Muddy slope with scarce epifauna (M.AtLB.Mu).

Top R. Muddy slope with scarce epifauna (M.AtLB.Mu).

Bottom L. Muddy slope with large cobble hosting an aggregation of *Phelliactis sp1* (M.AtLB.Mu).

Bottom R. Muddy slope with *Radicipes sp* (M.AtLB.Mu).

Summary Description (habitat transitions noted)

START AT 12:36:54/0m. Muddy slope with scarce epifauna. Animal tracks and burrows are often encountered on the seafloor. **[1]** ROV stops for pushcore sampling (x2). Muddy slope with scarce epifauna. Throughout the whole dive, animal tracks and burrows are often encountered on the seafloor. No dominant species are recorded on this transect. Epifauna encountered was mainly holothurians and pycnogonida. 54m Rubbish. 01h07m rubbish. **END AT 13:46:33/01h11m.**

Physical Data			
Reef (types can be concurrent)	0 % reef	n/a	
		n/a	n/a
			n/a
Substrates	- Mud		
Geomorphology/Features	- Slope		

Annex 1 Types	n/a
Pressures	2 x rubbish

Biological Data

Number of Species	16
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Summary Species List (Operational Taxonomic Unit, Name, Size, SACFOR, presence per habitat transition)

O.T.U	Species/Taxonomic ID	Size/Growth	SACFOR
432	Benthogone sp	L	F
984	cf Halcampoididae sp	L	O
254	Chaceon affinis	L	R
1059	Colossendeis sp	L	R
1113	Halosauridae sp	L	R
1179	Holothuroidea sp6	L	R
1012	Notacanthiformes sp1	L	R
1191	Pennatulacea sp3	L	R
255	Phelliactis sp1	L	R
552	Polyacanthosnotus rissoanus	L	R
1044	Radicipes sp	L	O
1006	Actinopterygii sp4	M	R
278	Anthomastus grandiflorus	M	R
1106	Eucarida sp	M	R
1114	Pennatulacea (indet)	M	R
279	Echinoidea sp1	S	R

Biotope List (Marine Habitat Classification for Britain & Ireland)

Code	Name	Listed
M.AtLB.Mu	Atlantic lower bathyal mud	Mud and sand emergent fauna (ICES)

Biotope progression per habitat transition (# species, dominant/characteristic species)

1	M.AtLB.Mu
	432 Benthogone sp, 984 cf Halcampoididae sp, 1044 Radicipes sp

Conservation Targets

Listed Habitats Encountered

Name	Authority
Mud and sand emergent fauna	ICES

Listed Species Encountered (Fish, Count)

n/a	OSPAR/IUCN
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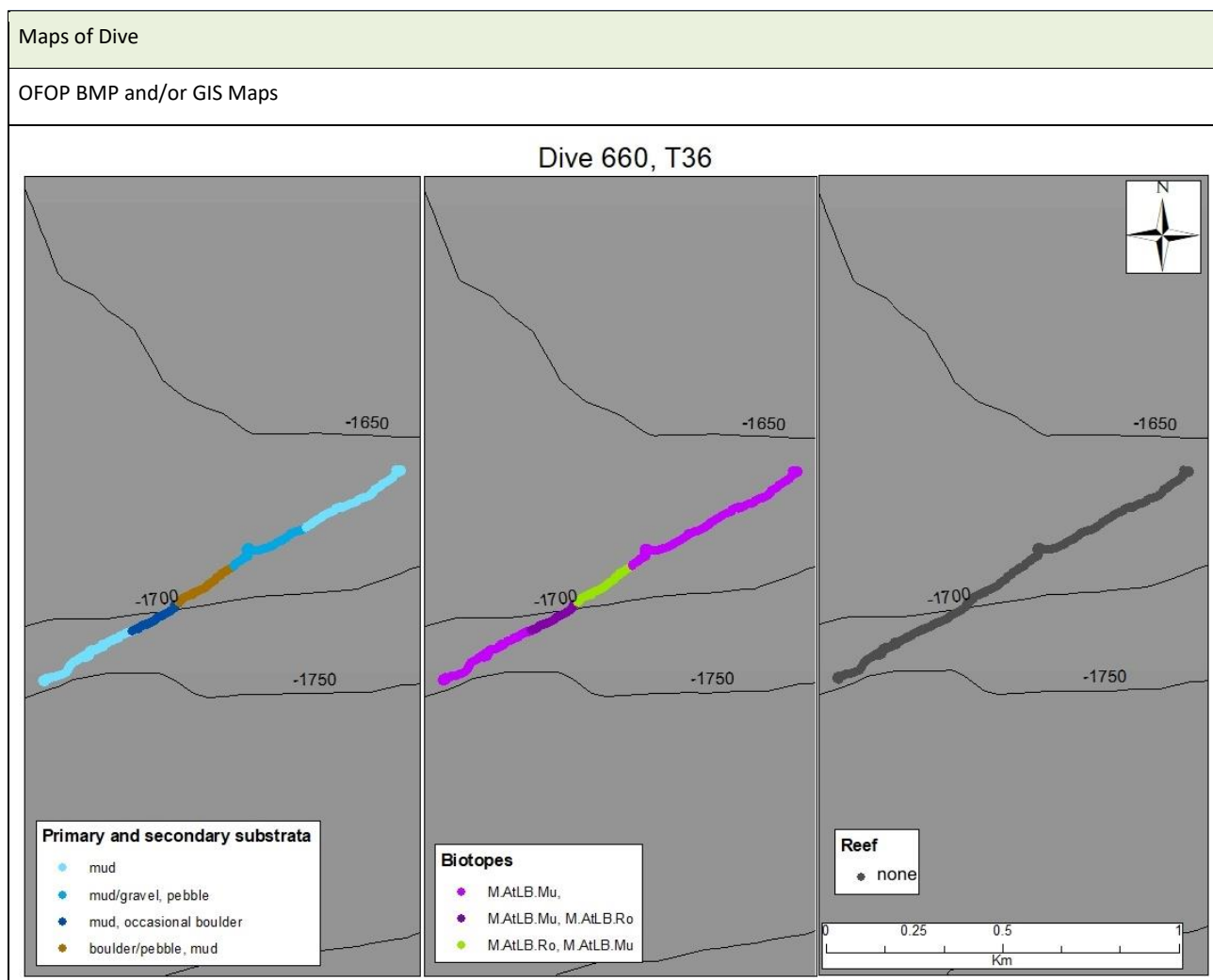
Additional Comments

n/a

DIVE SUMMARY	
DIVE # 660	TRANSECT # 36

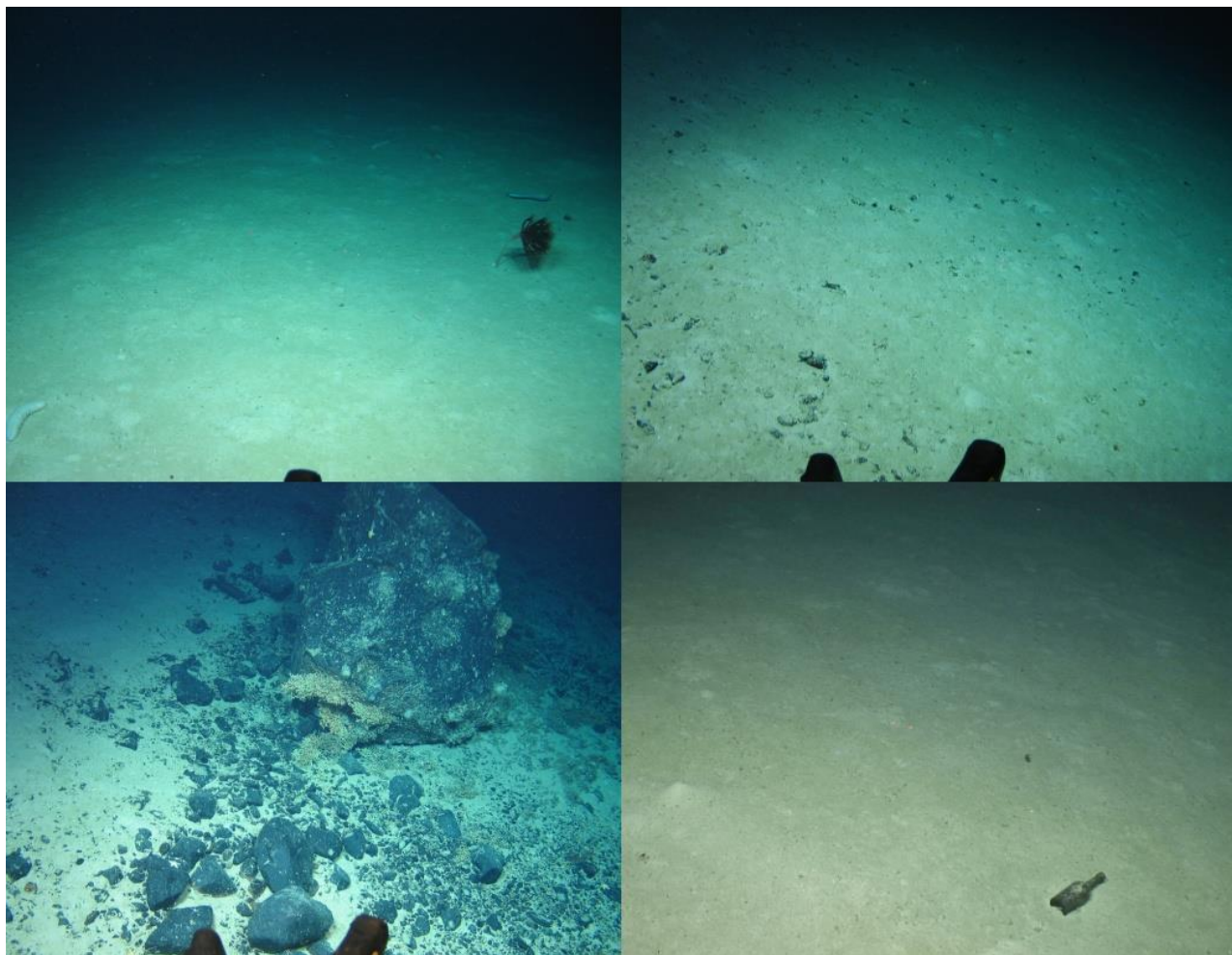
	Start	End
Date & Time	06/08/2019 19:10:22	06/08/2019 21:01:15
Latitude/ Longitude	49.001576/ -12.71217967	49.0068455/ -12.70333817
Depth (m)	-1792.018	-1670.694
Images	IMG_9075.jpg – IMG_9402.jpg	
Samples	2 x pushcores	

Location	P2
Target Features	Explore feature
Depth Range	-1178m



Representative Images

(Images representative of major biotopes, species, and sediments encountered throughout the transect)



Top L. Muddy slope with *Umbellula sp* and *Benthogone sp* (white holothurian) (M.AtLB.Mu).

Top R. Pebbles and mud sediment on moderate slope (M.AtLB.Mu).

Bottom L. Pebbles, cobbles and boulder on slope hosting sparse corals and encrusting sponges (M.AtLB.Ro; M.AtLB.Mu).

Bottom R. Muddy slope with glass bottle ((M.AtLB.Mu).

Summary Description (habitat transitions noted)

START AT 19:10:22/0m. Steep slope with occasional large cobbles/boulders with a few epifauna. A colony of sparse *Solenosmilia variabilis* is encountered living on rock.

[1] 1m ROV lands on muddy slope with scarce epifauna including holothurians. ROV stops for sampling for two pushcores. 6m Rubbish (blue plastic sheet. 19m ROV stops for imagery and sampling of solitary sclearactinian (poss *Flabellum*). 42m large cobble/boulder hosts *Phelliactis sp* and ophiuroids with two plastic sheets next to the boulder. 43m **[2]** Substrata is now mud with occasional boulders inhabited by various species, including *Phelliactis sp1*, encrusting sponges, holothurians and *Umbellula sp*. 48m plastic bottle close to large cobble. 55m **[3]** Boulders and mud host holothurians, in particular *Mesothuria intestinalis*. 01h07m **[4]** substrata is now mud/gravel and pebbles, hosting no dominant species. 01h39m ROV stops for imagery of Clavariidae. 01h43m glass bottle. **ENDS AT 21:01:15/01h49m.**

Physical Data

Reef (types can be concurrent)	0% reef	n/a	
		n/a	n/a
			n/a
Substrates	- Mud - Mud/gravel - Occasional boulder - Pebble - Boulder/pebble		
Geomorphology/Features	- Slope		
Annex 1 Types	n/a		
Pressures	3 x rubbish		

Biological Data			
Number of Species		42	
Summary Species List (Operational Taxonomic Unit, Name, Size, SACFOR, presence per habitat transition)			
</			

	26	Ophiouroidea sp1	S	R
	1049	cf Psolus sp	S	R
	2	Cerianthidae sp1	S	F
	573	Solaster endeca	S	R
	605	Actiniaria sp20	S	R

Biotope List (Marine Habitat Classification for Britain & Ireland)

Code	Name	Listed
M.AtLB.Mu	Atlantic lower bathyal mud	Mud and sand emergent fauna (ICES)
M.AtLB.Ro	Atlantic lower bathyal rock and other hard substrata	

Biotope progression per habitat transition (# species, dominant/characteristic species)

1	M.AtLB.Mu
	432 Benthogone sp, 581 Umbellula sp, 984 cf Halcampoididae sp
2	M.AtLB.Mu; M.AtLB.Ro
	255 Phelliactis sp, 1 Porifera encrusting sp1 white, 432 Benthogone sp, 581 Umbellula sp
3	M.AtLB.Ro; M.AtLB.Mu
	536 Mesothuria intestinalis
4	M.AtLB.Mu
	n/a
5	M.AtLB.Mu
	n/a

Conservation Targets		
Listed Habitats Encountered		
Name	Authority	
Mud and sand emergent fauna	ICES	
Listed Species Encountered (Fish, Count)		
n/a		OSPAR/IUCN

Additional Comments
n/a

DIVE SUMMARY	
DIVE # 661	TRANSECT # 35

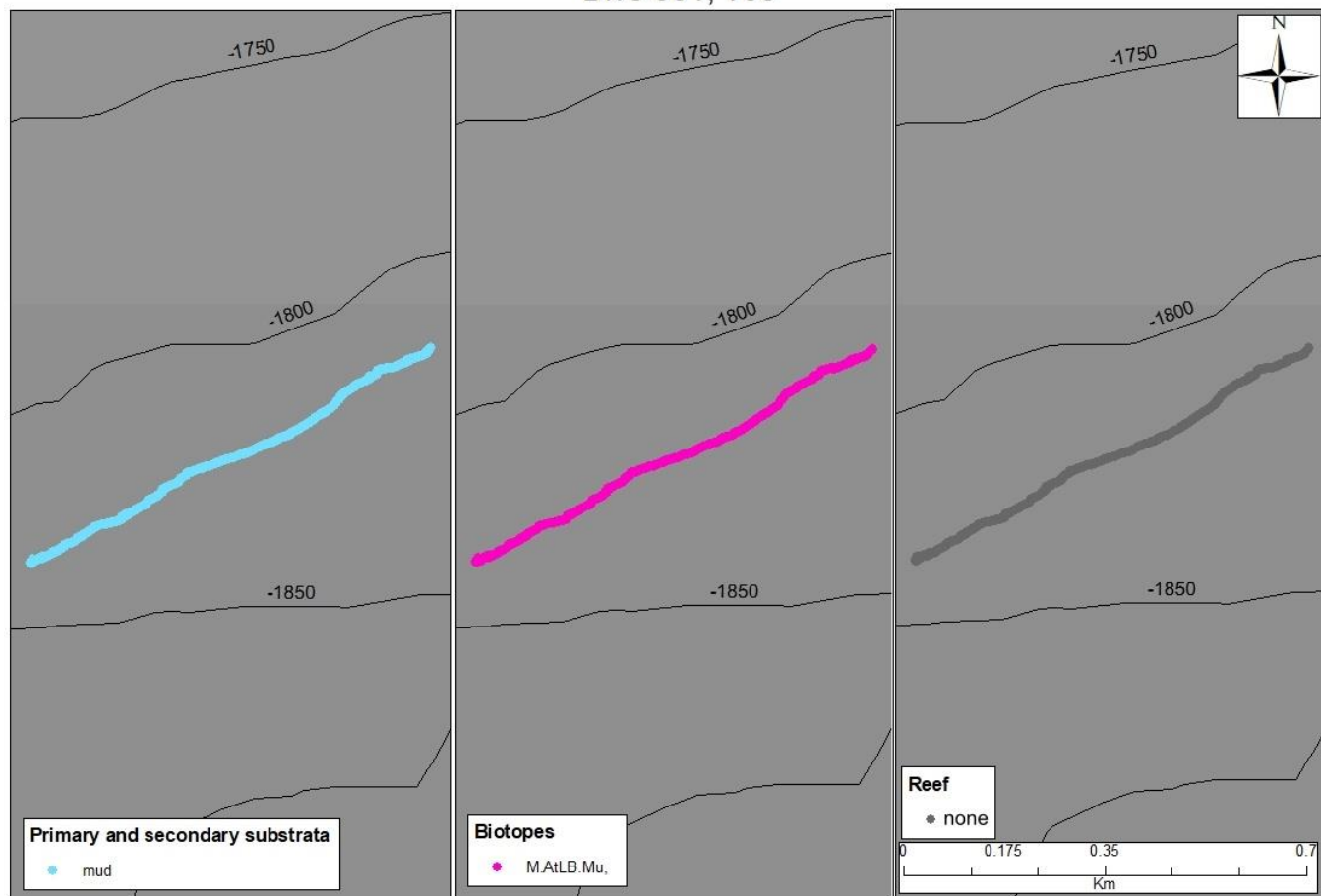
	Start	End
Date & Time	07/08/2019 02:10:50	07/08/2019 03:07:40
Latitude/ Longitude	49.350086/ -12.985622	49.3534035/ -12.979465
Depth	-1860.862	-1849.829
Images	IMG_9501.jpg – IMG_9598.jpg	
Samples	2 x pushcores 2 x <i>Phelliactis</i> sp (attached to ceramic pot)	

Location	P1
Target Features	Track feature
Depth Range	-1865m

Maps of Dive

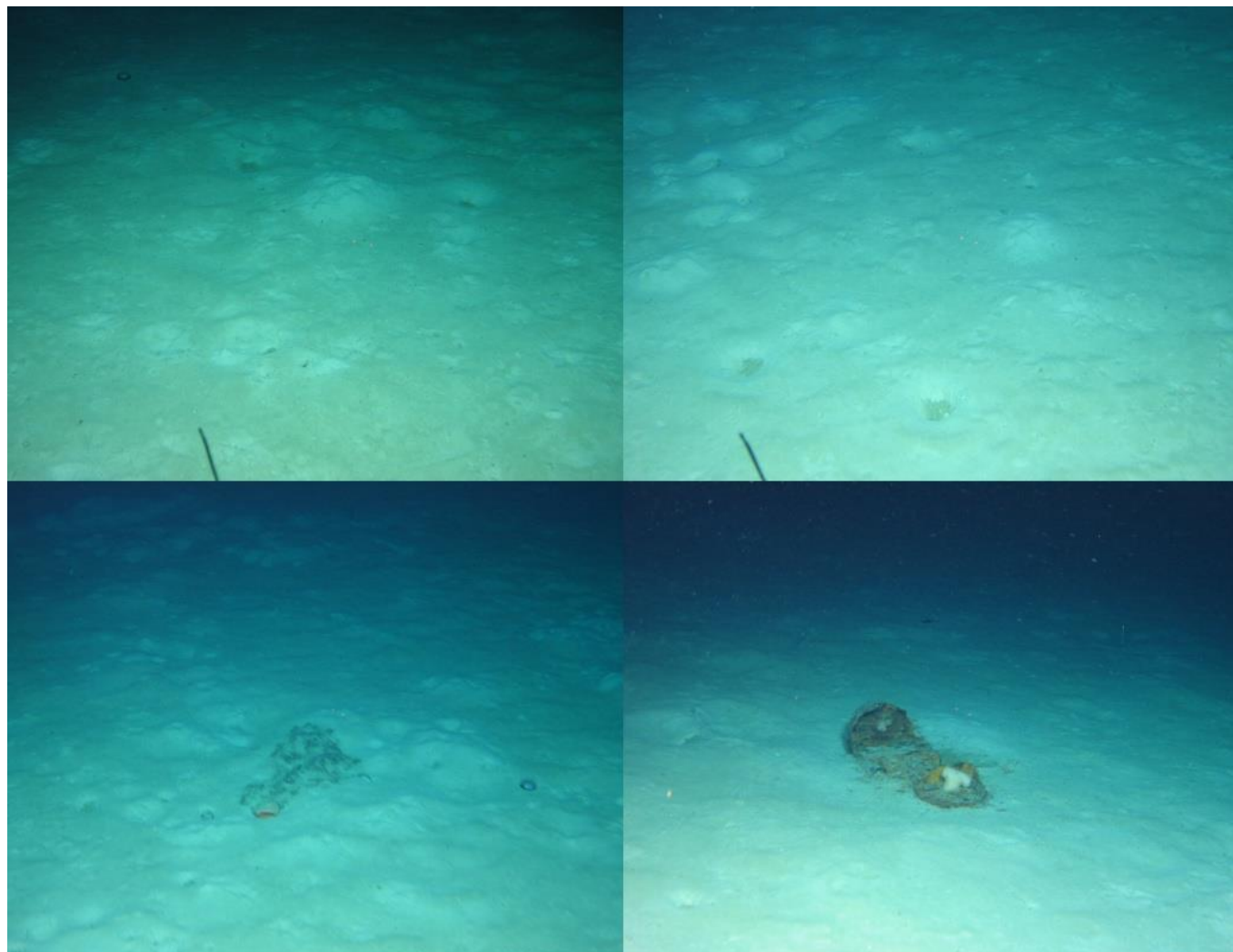
OPOP BMP and/or GIS Maps

Dive 661, T35



Representative Images

(Images representative of major biotopes, species, and sediments encountered throughout the transect)



Top L. Muddy slope with no dominant epifauna (M.AtLB.Mu).

Top R. Muddy slope with no dominant epifauna (M.AtLB.Mu).

Bottom L. Muddy slope with *Phelliactis sp1* (M.AtLB.Mu).

Bottom R. Muddy slope with a large rusty tank hosting *Phelliactis sp1* (M.AtLB.Mu).

Summary Description (habitat transitions noted)

STARTS AT 02:10:50/0m. Muddy slope with scarce epifauna, including *Phormosoma placenta* and *Phelliactis sp*. Frequent animal marks (poss echinodermata) and burrows.

[1] The entire dive is characterized by a single biotope of soft sediment with sparse epifauna. 1m ROV stops for two pushcores sampling. 5m obscured/mud cloud. 17m ROV stops for imagery and sampling of *Phelliactis sp* attached to a ceramic pot. 30m ceramic pot. 01h11m Rusty tank on seafloor with *Phelliactis sp* living on it. **ENDS AT 03:07:40/01h17m.**

Physical Data			
Reef (types can be concurrent)	0% reef	n/a	
		n/a	n/a
			n/a
Substrates	- Mud		
Geomorphology/Features	- Slope		
Annex 1 Types	n/a		
Pressures	1 x ceramic pot 1 x rusty man-made object (poss ship tank)		

Biological Data				
Number of Species		21		
Summary Species List (Operational Taxonomic Unit, Name, Size, SACFOR, presence per habitat transition)				
	O.T.U	Species/Taxonomic ID	Size/Growth	SACFOR
	1172	Macrouridae sp	L	R
	555	Phormosoma placenta	L	F
	984	cf Halcampoididae sp	L	R
	1124	Benthothuria	L	O
	349	Mora moro	L	R
	1059	Colossendeis sp	L	R
	1012	Notacanthiformes sp1	L	R
	440	Synaphobranchus kaupii	L	R
	1115	Pterasteridae sp3	L	R
	432	Benthogone sp	L	R
	577	Coryphaenoides guentheri	L	R
	1060	Pennatulacea sp4	L	R
	255	Phelliactis sp1	M	F
	1102	Munnopsidae sp	M	R
	1126	Munidopsis sp1	M	R
	1075	Porifera cylindrical sp	M	R
	1191	Pennatulacea sp3	M	R
	930	Actinopterygii sp3	M	R
	559	Echinus acutus	S	R
	605	Actiniaria sp20	S	R
	2	Cerianthidae sp1	S	R
	Biotope List (Marine Habitat Classification for Britain & Ireland)			
Code	Name		Listed	
M.AtLB.Mu	Atlantic lower bathyal mud		Mud and sand emergent fauna (ICES)	
Biotope progression per habitat transition (# species, dominant/characteristic species)				

1	M.AtLB.Mu
	555 Phormosoma placenta, 255 Phelliactis sp

Conservation Targets		
Listed Habitats Encountered		
Name	Authority	
Mud and sand emergent fauna	ICES	
Listed Species Encountered (Fish, Count)		
n/a		OSPAR/IUCN

Additional Comments		
n/a		

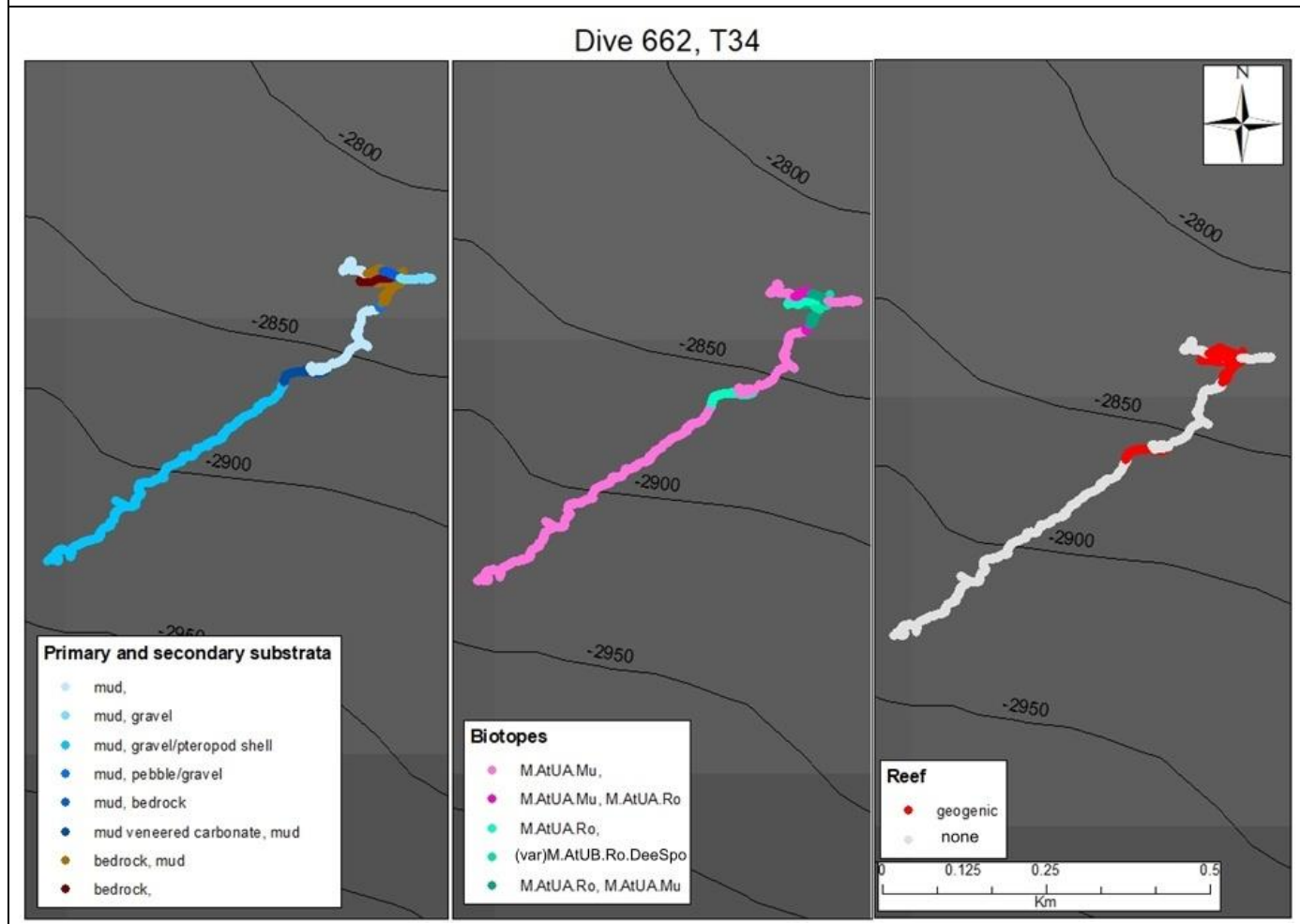
DIVE SUMMARY	
DIVE # 662	TRANSECT # T34

	Start	End
Date & Time	07/08/2019 08:16:28	07/08/2019 10:40:38
Latitude/ Longitude	49.268874/ -13.228627	49.27262583/ -13.2235105
Depth	-2998.004	-2876.6
Images	IMG_0001.jpg – IMG_9900.jpg	
Samples	1 x pushcore 10 1 x pushcore E	

Location	P1
Target Features	Depth range
Depth Range	-2995m

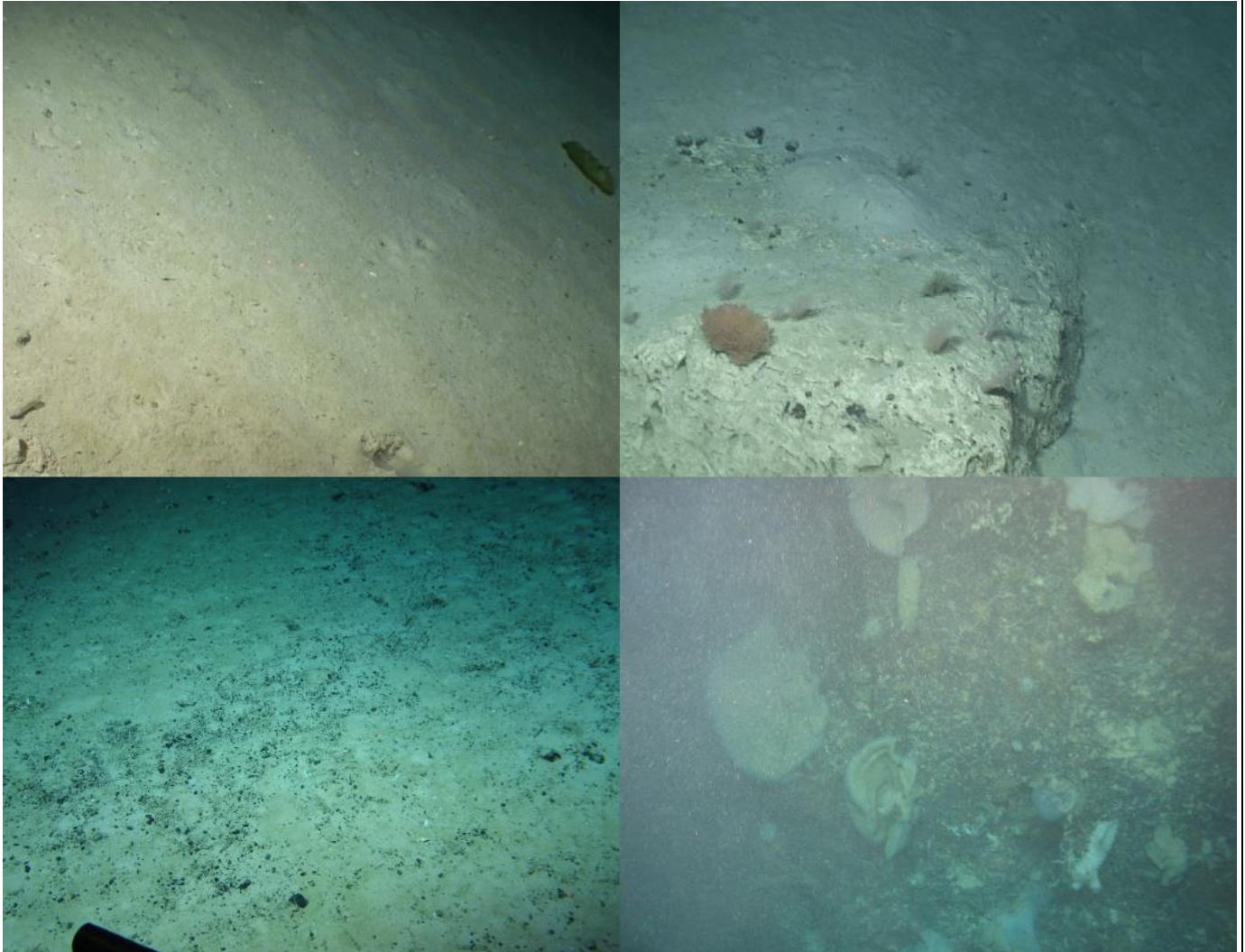
Maps of Dive

OPOP BMP and/or GIS Maps



Representative Images

(Images representative of major biotopes, species, and sediments encountered throughout the transect)



Top L. Muddy slope with yellow holothurian (M.AtUA.Mu).

Top R. Mud veneered carbonate hosting *Chrysogorgiidae* sp and *Stauropathes* sp (M.AtUA.Ro).

Bottom L. Pebbles and mud with no dominant species (M.AtUA.Mu).

Bottom R. Deep-sea sponge aggregation on vertical rocky wall ((var)M.AtUB.Ro.DeeSpo).

Summary Description (habitat transitions noted)

STARTS AT 08:16:27/0m. Patches of deep sea sponge aggregations and coral gardens on bedrock. Scattered mud/gravel areas with sparse epifauna

[1] The dive starts on muddy slope. 1m ROV stops for two pushcores sampling. Steep muddy slope with scarce epifauna with scattered pockets of organic matter. 17m Glass bottle. 23m Here steep muddy slope with some pebbles and scarce epifauna. 24m Muddy slope with pebbles and pteropod hash. Some animal marks. 50m carbonate boulder with inlets hosting a colony of Chrysogorgiidae and a few *Anthomastus grandiflorus*. 55m Here muddy/silty slope with scarce epifauna including Ceriantharia and pteropod shells. Occasional pockets of organic matter. 01h08m Pebble/gravel/mud on gentle/moderate slope with no dominant epifauna. 01h09m Here hard vertical rock with a variety of epifauna living on it; mainly sponges (of various morphologies) and brisingidae. 01h18m mud cloud/ obscured. 01h31m Mud cloud/ obscured. 01h34m ROV stops for imagery of *Jasonis sp* (excellent imagery of closed-up polyps). ROV stops to collect a snap of *Jasonis sp*. 01h46m On this site, deep sea sponge aggregations dominate. Potentially varied species of sponges dominate on the rock. Mainly lamellate, tubular and stalked. Asconema species are present although not abundant. 02h01m ROV is hovering on the edge of large boulder/bedrock with a variety of epifauna including sponge, brisingid and chrysogorgidae. **ENDS AT 10:16:44/02h04m.**

VIDEO B 10:22:31/0m. Obscured vision/mud cloud. 03m Here silty/muddy slope with sparse epifauna. Now the ROV looks towards the edge of the cliff with sponges and brisingids occur. 10m *Leiopathes sp* closed-up. 15m Here biotope changes into muddy steep slope. **ENDS AT 10:40:38/18m.**

Physical Data			
Reef (types can be concurrent)	47% reef	47% geogenic	
		0% biogenic	n/a
			n/a
Substrates	- Mud - Gravel - Gravel/pteropod shell - Pebble/gravel - Bedrock - Mud veneered carbonate		
Geomorphology/Features	- Slope		
Annex 1 Types	- Pebble - Bedrock - Carbonate boulder		
Pressures	1 x glass bottle (17m)		

Biological Data				
Number of Species			44	
Summary Species List (Operational Taxonomic Unit, Name, Size, SACFOR, presence per habitat transition)				

		1044	Radicipes sp	L	R
		574	Stauropathes arctica	L	R
		1208	Stauropathes sp2	L	R
		1212	Stylocordyla borealis	L	R
		1043	Telopathes sp	L	R
		1181	Telopathes sp2 (red)	L	R
		554	Actinernus sp	M	R
		1179	Holothuroidea sp6	M	R
		56	Hydrozoa flat branched	M	R
		442	Kophobelemnon stelliferum	M	R
		1126	Munidopsis sp	M	R
		1183	Pennatula inflata	M	R
		261	Syringammina fragilissima	M	R
		380	Porifera tubular	Mass	O
		605	Actiniaria sp20	S	R
		1066	Adamsia sp	S	O
		591	Ascidacea sp5	S	R
		1077	Caridea (indet)	S	R
		2	Caryophyllia sp	S	R
		2	Cerianthidae sp1	S	R
		1008	Chrysogorgiidae sp1	S	O
		1094	Echinothuroidea sp	S	R
		1144	Galacantha sp	S	O
		205	Paguridae sp	S	O

Biotope List (Marine Habitat Classification for Britain & Ireland)		
Code	Name	Listed
(var)M.AtUB.Ro.DeeSpo	(variant of)Deep sponge aggregation on Atlantic upper bathyal rock and other hard substrata	deep-sea sponge aggregations (OSPAR/ICES); hard-bottom deep sponge aggregation (ICES subcategory)
M.AtUA.Mu	Atlantic upper abyssal mud	Mud and sand emergent fauna (ICES)
M.AtUA.Ro	Atlantic upper abyssal rock and other hard substrata	Coral gardens (OSPAR/ICES); hard-bottom coral garden (ICES subcategory); deep-sea sponge aggregations (OSPAR/ICES); hard-bottom deep sponge aggregation (ICES subcategory)

Biotope progression per habitat transition (# species, dominant/characteristic species)	
1	M.AtUA.Mu
	1170 Benthodytes sp1, 1094 Echinothuroidea sp (purple), 1209 Cirripedia sp2, 551 Ophiomusa lymani
2	M.AtUA.Ro
	1008 Chrysogorgiidae sp1, 591 Ascidacea sp5, 442 Kophobelemnon stelliferum
3	M.AtUA.Mu
	2 Ceriantharia, 278 Anthomastus grandiflorus
4	M.AtUA.Mu; M.AtUA.Ro
	n/a
5	M.AtUA.Ro; M.AtUA.Mu
	380 Porifera tubular, 278 Anthomastus grandiflorus, 558 Porifera cylindrical sp, 274 Brisingidae

6	M.AtUA.Mu
	n/a
7	(var)M.AtUB.Ro.DeeSpo
	558 Porifera cylindrical sp, 1053 Porifera lamellate sp13
8	M.AtUA.Ro
	1157 Keratoisis sp (fineBranching), 274 Brisingidae
9	M.AtUA.Mu
	n/a
10	M.AtUA.Mu; M.AtUA.Ro
	1008 Chrysogorgiidae sp1, 274 Brisingidae, 1070 Jasonisis sp
11	M.AtUA.Ro; M.AtUA.Mu
	274 Brisingidae, 1053 Porifera lamellate sp13
12	M.AtUA.Mu
	1094 Echinothuroidea sp (purple)

Conservation Targets		
Listed Habitats Encountered		
Name	Authority	
Mud and sand emergent fauna Deep-sea sponge aggregations: - hard-bottom sponge aggregations Coral gardens: - hard-bottom coral garden	ICES OSPAR/ICES ICES subcategory OSPAR/ICES ICES subcategory	
Listed Species Encountered (Fish, Count)		
n/a		OSPAR/IUCN

Additional Comments
n/a

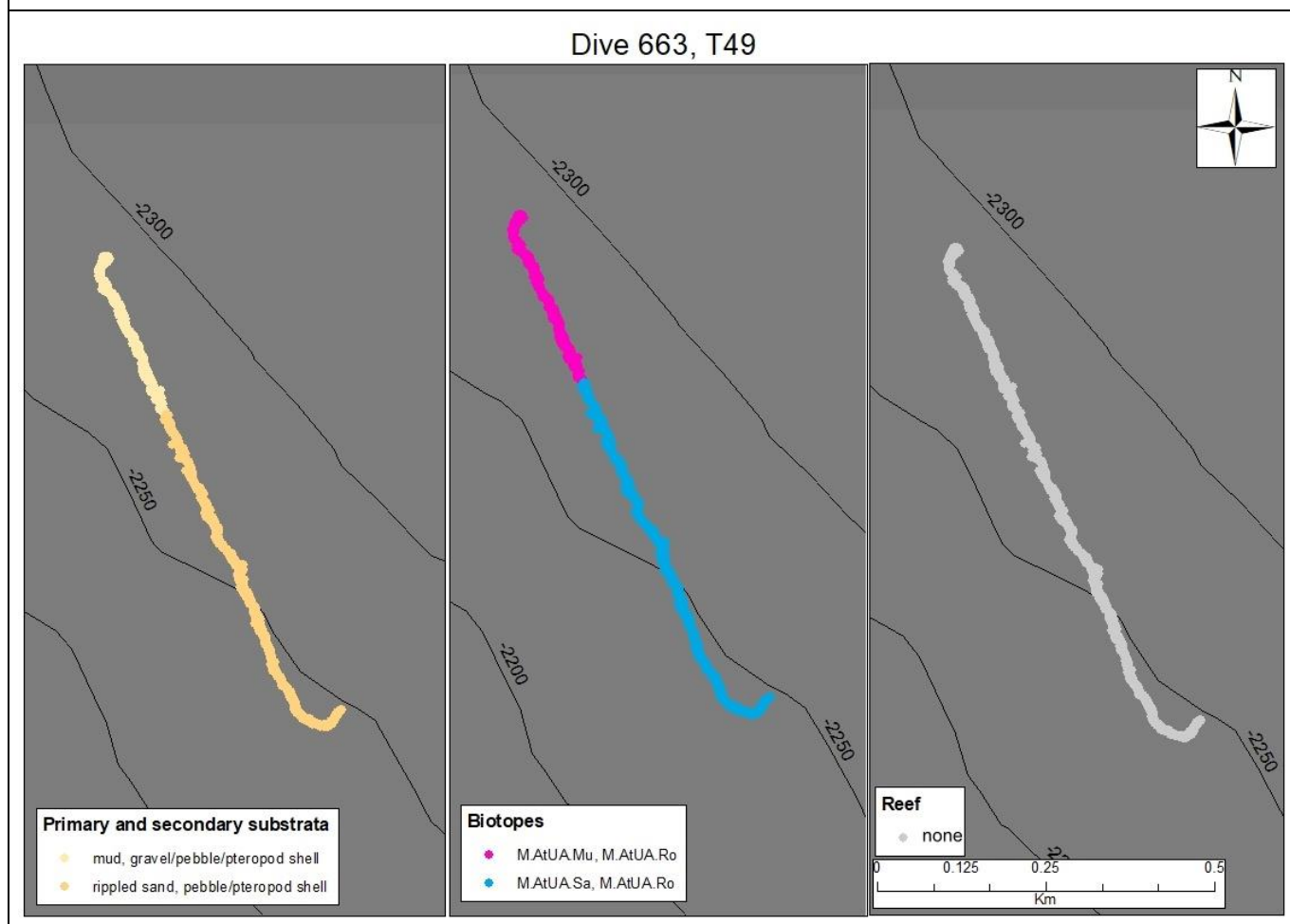
DIVE SUMMARY	
DIVE # 663	TRANSECT # 49

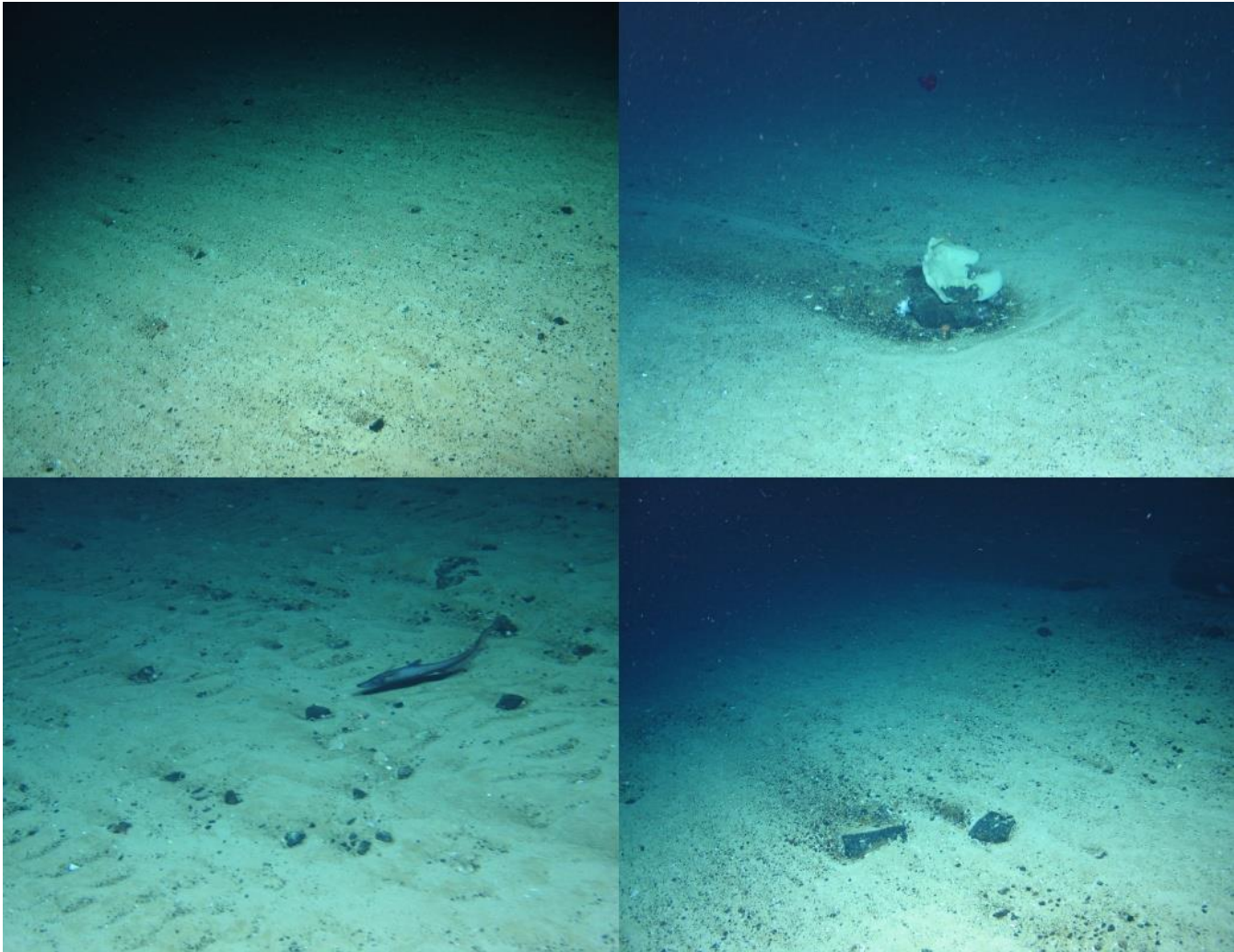
	Start	End
Date & Time	07/08/2019 16:34:00	07/08/2019 17:49:59
Latitude/ Longitude	49.643898/ -13.42481474	49.6376421/ -13.42157171
Depth	-2259.07388	-2215.82739
Images	IMG_0067.jpg – IMG_0095.jpg	
Samples	2 x pushcores	

Location	P1
Target Features	No previous data
Depth Range	-2270m

Maps of Dive

OFOF BMP and/or GIS Maps



Representative Images			
(Images representative of major biotopes, species, and sediments encountered throughout the transect)			
			
Top L. Pebbles and mud on gentle slope (M.AtUA.Mu). Top R. Mud, pebbles and cobbles hosting lamellate sponges and encrusting sponges (M.AtUA.Mu; M.AtUA.Ro). Bottom L. Sand and pebbles on gentle slope with <i>Halosauridae</i> sp (M.AtUA.Sa; M.AtUA.Ro) Bottom R. Sand and pebbles on gentle slope (M.AtUA.Sa; M.AtUA.Ro)			
Summary Description (habitat transitions noted)			
STARTS AT 16:34:00/0m. Rippled sand/muddy/pebble slope with frequent <i>Syringammina fragilissima</i> on soft-bottom and a few lamellate sponges on hard-substrata. [1] ROV stops for sampling two pushcores. Here muddy with gravel/pebbles/pteropod shells. 31m [2] From here, the sediment becomes rippled and sandy with small/medium size pebbles and some small cobbles. Foraminifera dominate on sand and occasionally lamellate sponges are encountered on rock substrata. 47m Rippled sand/silt/mud with gravel and pebbles with few epifauna. 47m Glass jar. The rest of the dive is dominated by foraminifera with sparse epifauna on pebbles/cobbles on muddy/rippled sand/pebbles slope. ENDS AT 17:49:59/01h15m.			

Physical Data			
Reef (types can be concurrent)	0% reef	n/a	
		n/a	n/a

			n/a
Substrates	- Mud - Gravel/pebble/pteropod shell - Rippled sand - Pebble/pteropod		
Geomorphology/Features	- Slope		
Annex 1 Types	- Pebble		
Pressures	1 x glass jar (01h07m)		

Biological Data				
Number of Species		30		
Summary Species List (Operational Taxonomic Unit, Name, Size, SACFOR, presence per habitat transition)				
	O.T.U	Species/Taxonomic ID	Size/Growth	SACFOR
	1	Porifera encrusting sp1 white	Crust	O
	1012	Notacanthiformes sp1	L	R
	551	Ophiomusa lymani	L	R
	577	Coryphaenoides guentheri	L	R
	1141	Bathyrinidae sp	L	R
	554	Actinernus sp	L	R
	1010	Porifera lamellate sp12	L	R
	1106	Eucarida sp	L	R
	278	Anthomastus grandiflorus	L	O
	1144	Galacantha sp	L	R
	1113	Halosauridae sp	L	R
	274	Brisingidae	L	R
	1090	Porifera massive lobose sp32	L	R
	1120	Anthoptilum sp	L	R
	347	Pheronema carpenteri	L	R
	202	Cf Phakellia ventilabrum	L	R
	1078	Ipnopidae sp	L	R
	572	Echinoidea sp5	L	R
	261	Syringammina fragilissima	M	F
	1116	Elpidiidae sp	M	R
	1046	Pennatula aculeata	M	R
	20	Asciacea sp2	M	R
	621	Hypsogastropoda	S	F
	205	Paguridae sp	S	R
	1077	Caridea sp	S	R
	605	Actiniaria sp20	S	R
	930	Actinopterygii sp3	S	R
	1066	Adamsia sp	S	R
	445	Echinus sp	S	R
	26	Ophiuroidea sp1	S	R
	Biotope List (Marine Habitat Classification for Britain & Ireland)			
Code	Name	Listed		

M.AtUA.Mu	Atlantic upper abyssal mud	Mud and sand emergent fauna (ICES)
M.AtUA.Ro	Atlantic upper abyssal rock and other hard substrata	
M.AtUA.Sa	Atlantic upper abyssal sand	Mud and sand emergent fauna (ICES)
Biotope progression per habitat transition (# species, dominant/characteristic species)		
1	M.AtUA.Mu; M.AtUA.Ro	
	261 Syringammina fragilissima, 445 Echinus sp, 551 Ophiomusa lymani	
2	M.AtUA.Sa; M.AtUA.Ro	
	261 Syringammina fragilissima, 1120 Anthoptilum sp	

Conservation Targets		
Listed Habitats Encountered		
Name	Authority	
Mud and sand emergent fauna	ICES	
Listed Species Encountered (Fish, Count)		
n/a		OSPAR/IUCN

Additional Comments		
n/a		

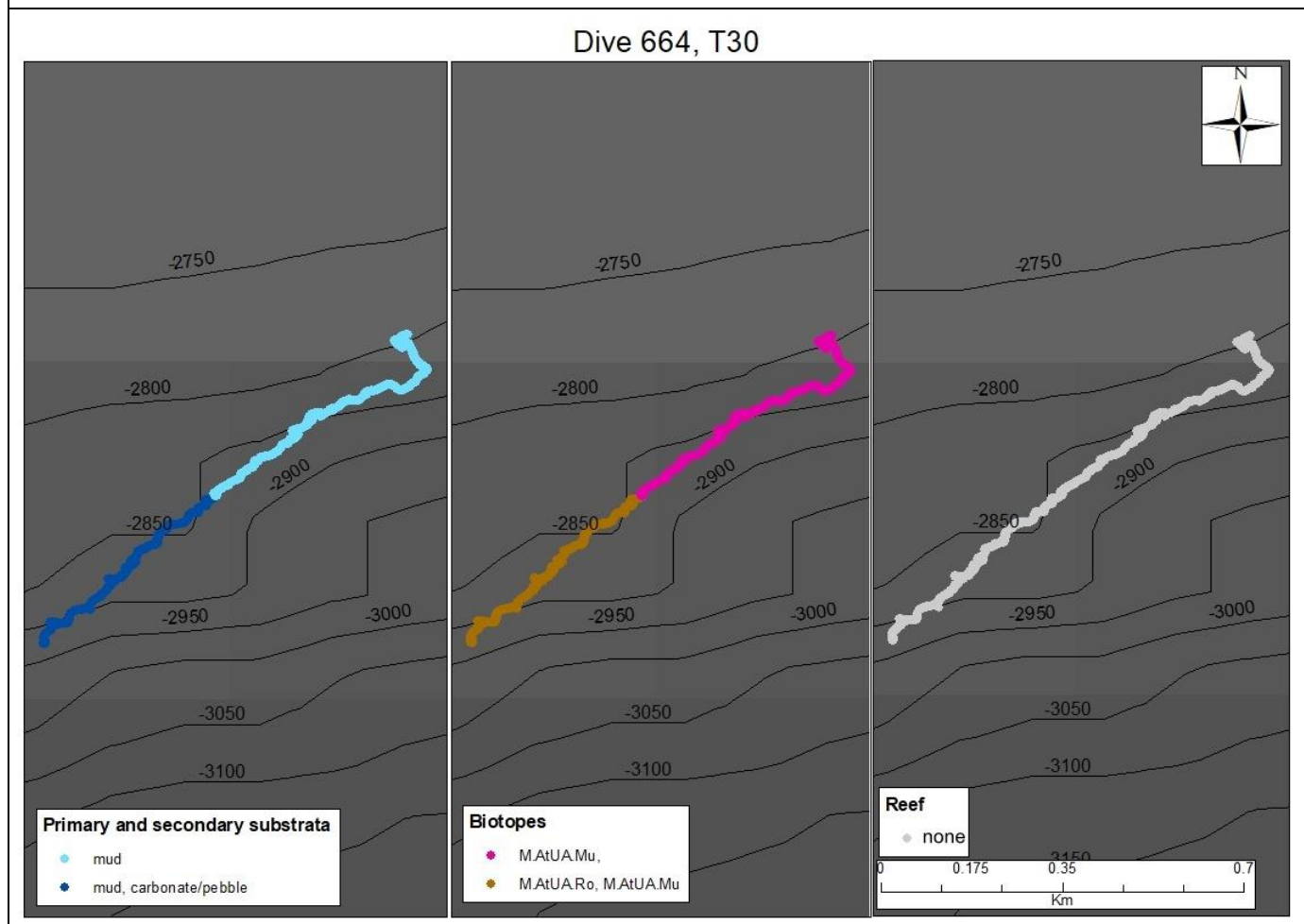
DIVE SUMMARY	
DIVE # 664	TRANSECT # 30

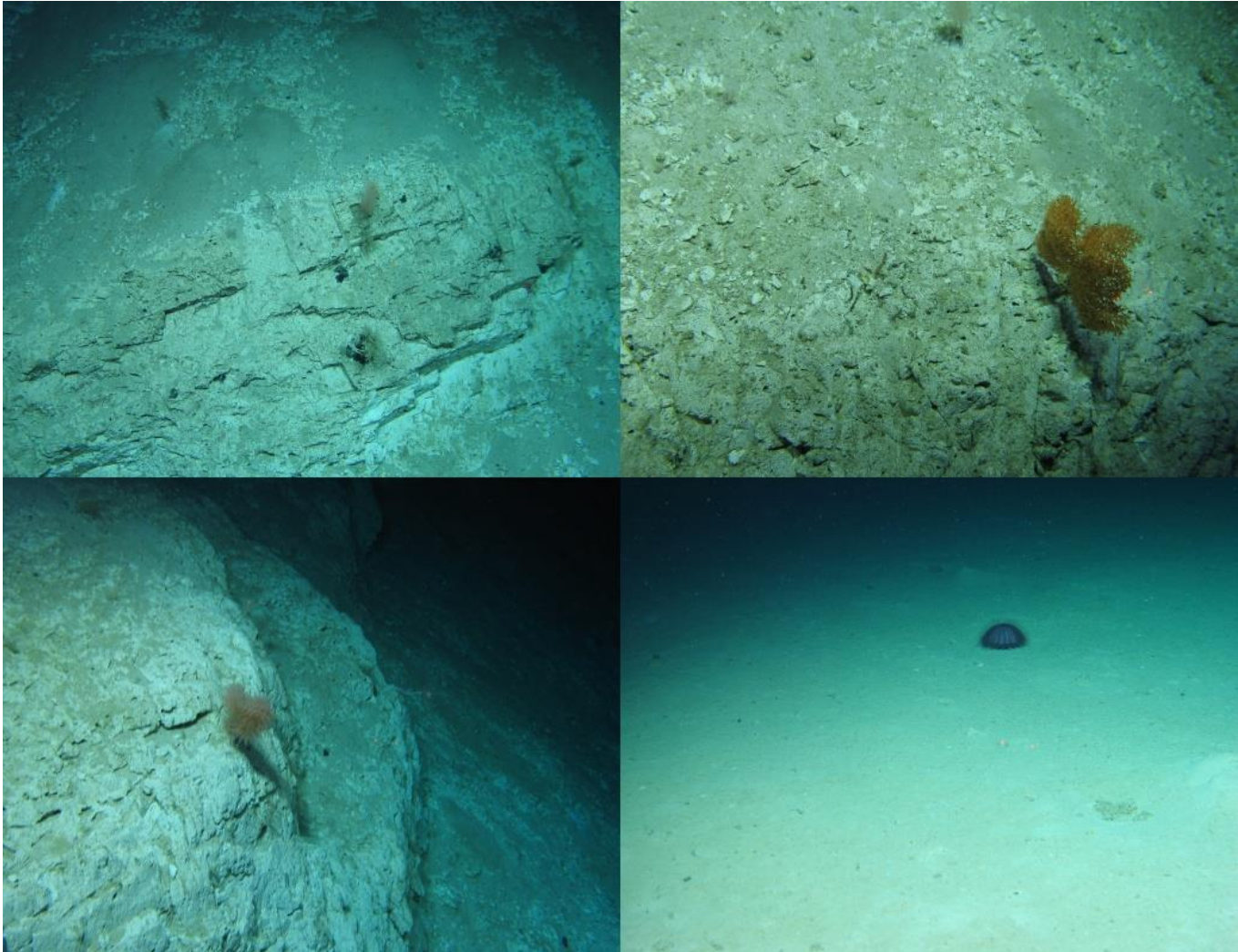
	Start	End
Date & Time	08/08/2019 00:45:04	08/08/2019 02:13:13
Latitude/ Longitude	50.167434/ -13.21364717	50.1726948/ -13.20747433
Depth (m)	-2898.224	-2781.789
Images	IMG_7148.jpg – IMG_7219.jpg	
Samples	n/a	

Location	P1
Target Features	No previous data, depth range
Depth Range	-2992m

Maps of Dive

OFOF BMP and/or GIS Maps



Representative Images		
(Images representative of major biotopes, species, and sediments encountered throughout the transect)		
 Top L. Carbonate wall hosting Chrysogorgiidae. Carbonate rock is encountered frequently in this dive (M.AtUA.Ro; M.AtUA.Mu). Top R. Carbonate wall with <i>Stauropathes</i> sp (M.AtUA.Ro; M.AtUA.Mu). Bottom L. Carbonate hosting Chrysogorgiidae (M.AtUA.Ro; M.AtUA.Mu). Bottom R. Muddy slope with echinoid (M.AtUA.Mu).		
Summary Description (habitat transitions noted)		
STARTS AT 00:45:03/0m. Steep muddy/carbonate steep slope with echinoid and pteropod shells. Towards the end of the transect, muddy moderate slope with sparse epifauna. [1] Here steep muddy/carbonate steep slope with echinoid and pteropod shells. The ROV goes up on the cliff until the slope becomes less steep. And it continues on flatter slope. 10m Steep muddy slope with scarce epifauna. 38m here gullies on steep slope flank. 48m [2] Here the seafloor becomes less steep and 01h04m ROV stops for imagery of <i>Neolithodes grimaldii</i>. 01h11m ROV stops for imagery of <i>Peniagone</i> sp. 01h18m Muddy moderate slope with sparse epifauna. 01h19m obscured/mud cloud. 01h24m Footage of <i>Peniagone</i> sp swimming. 01h24m Obscured/mud cloud. ENDS AT 02:13:13/01h32m.		

Physical Data		
Reef	0% reef	n/a

(types can be concurrent)		n/a	n/a
			n/a
Substrates	- Mud - Carbonate/pebble		
Geomorphology/Features	- Slope		
Annex 1 Types	- Carbonate		
Pressures	n/a		

Biological Data				
Number of Species		23		
Summary Species List (Operational Taxonomic Unit, Name, Size, SACFOR, presence per habitat transition)				
	O.T.U	Species/Taxonomic ID	Size/Growth	SACFOR
	551	Ophiomusa lymani	L	R
	1008	Chrysogorgiidae sp1	L	R
	436	Pentametrocrinus atlanticus	L	R
	988	Zoroaster fulgens	L	R
	1179	Holothuroidea sp6	L	R
	1012	Notacanthiformes sp1	L	R
	1208	Stauropathes sp2	L	R
	1043	Telopathes sp	L	R
	1141	Bathyrinidae sp	L	R
	1143	Ampheraster alaminos	L	R
	566	Coryphaenoides rupestris	L	R
	1094	Echinothuroidea sp	L	R
	1063	Neolithodes grimaldii	L	R
	1167	Peniagone sp	L	R
	1115	Pterasteridae sp3	L	R
	581	Umbellula sp	L	R
	574	Stauropathes arctica	M	R
	1126	Munidopsis sp1	M	R
	1121	Majoidea sp	M	R
	2	Cerianthidae sp1	M	R
	973	Nematocarcinus sp1	M	R
	12	Bolocera tuediae	M	R
	554	Actinernus sp	S	R
	Biotope List (Marine Habitat Classification for Britain & Ireland)			
Code	Name		Listed	
M.AtUA.Ro	Atlantic upper abyssal rock and other hard substrata			
M.AtUA.Mu	Atlantic upper abyssal mud		Mud and sand emergent fauna (ICES)	
Biotope progression per habitat transition (# species, dominant/characteristic species)				
1	M.AtUA.Ro; M.AtUA.Mu			
	305 Leiopathes sp, 1008 Chrysogorgiidae sp1			

2	M.AtUA.Mu; M.AtUA.Ro
	1167 Peniagone sp, 1094 Echinothuroidea sp

Conservation Targets		
Listed Habitats Encountered		
Name	Authority	
Mud and sand emergent fauna	ICES	
Listed Species Encountered (Fish, Count)		
n/a		OSPAR/IUCN

Additional Comments		
n/a		

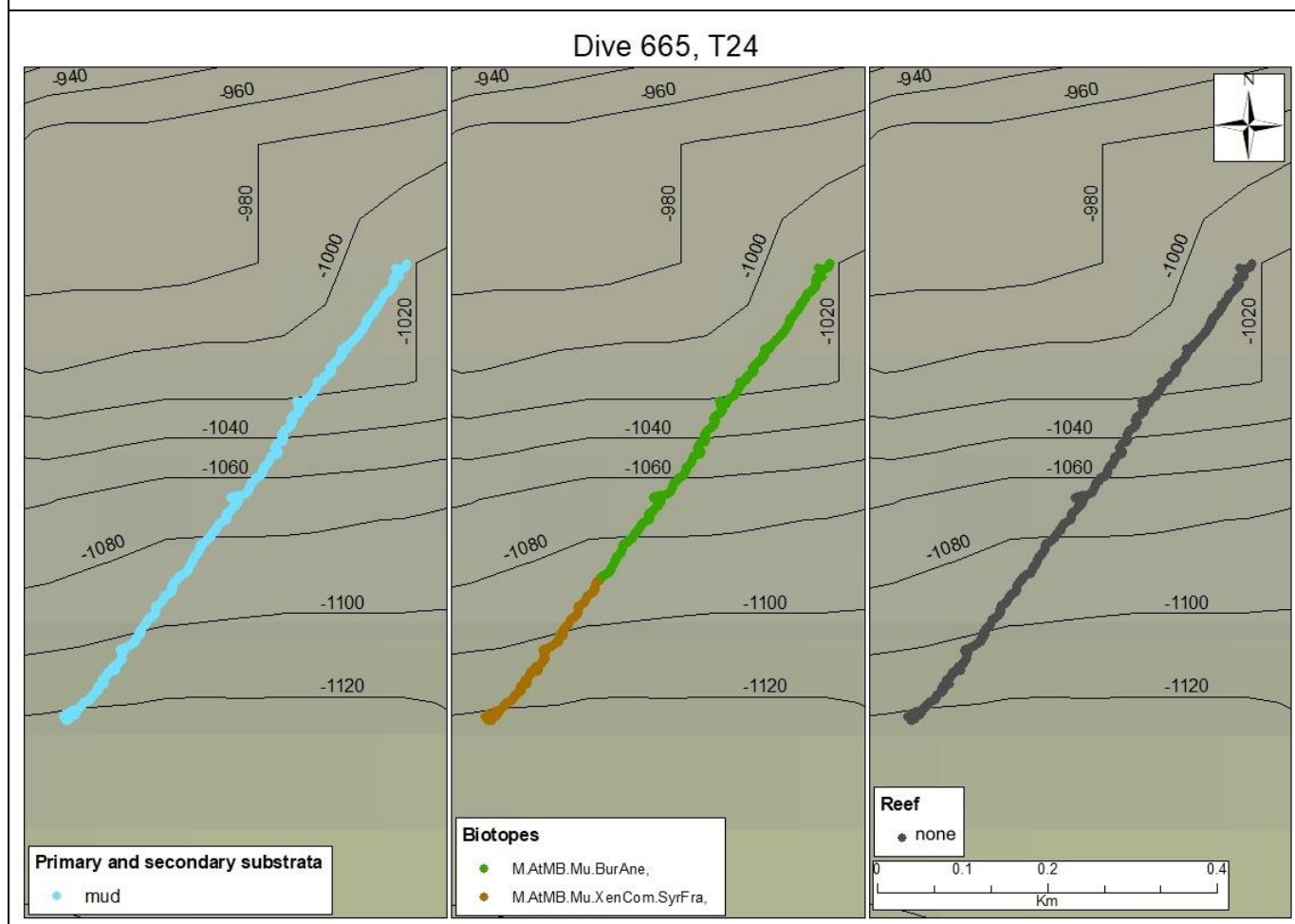
DIVE SUMMARY	
DIVE # 665	TRANSECT # 24

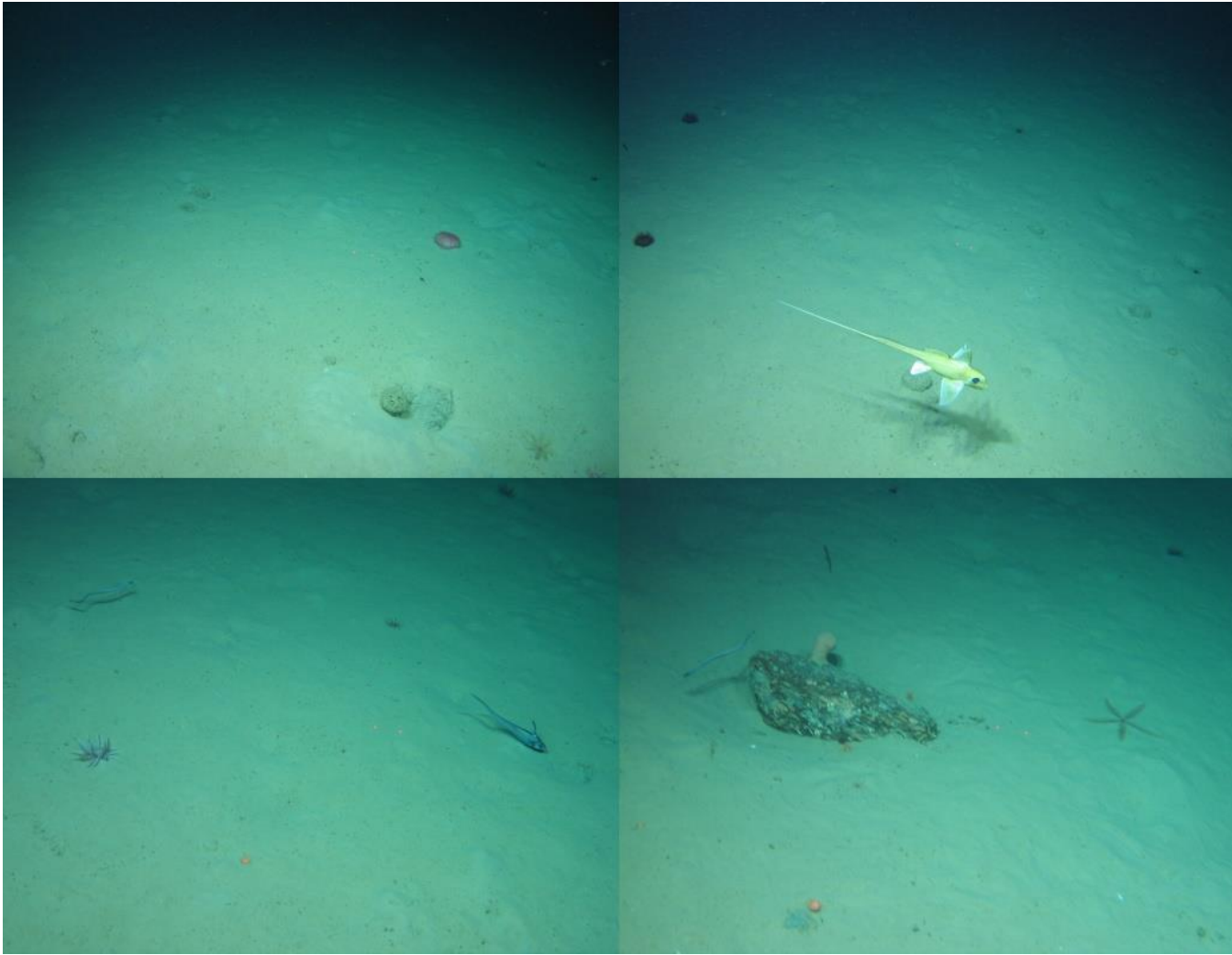
	Start	End
Date & Time	08/08/2019 13:36:48	08/08/2019 14:36:26
Latitude/ Longitude	51.0547037/ -11.5824965	51.059528/ -11.57887533
Depth	-1137.183	-1035.868
Images	IMG_7201.jpg – IMG_7548.jpg	
Samples	2 x pushcores (11 & 13)	

Location	P1
Target Features	No previous data
Depth Range	-1151m

Maps of Dive

OPOP BMP and/or GIS Maps



Representative Images		
(Images representative of major biotopes, species, and sediments encountered throughout the transect)		
 Top L. Muddy slope with sparse epifauna, including echinoids and crinoids Top R. Muddy slope with sparse echinoids and holocephalus <i>Hydrolagus mirabilis</i>. Bottom L. Muddy slope with sparse anemones, grenadiers and eels Bottom R. Muddy slope with scattered cobbles. Crinoids and seapens living on mud; <i>Phelliactis sp1</i> living on rock		
Summary Description (habitat transitions noted)		
STARTS AT 13:36:47/0m. Muddy slope hosting a variety of foraminifera, burrowing fauna, mainly cerianthids, and <i>Pentametrocrinus atlanticus</i>. No major/abrupt biotope transition occur. [1] 1m The first part of the transect, <i>Syringammina fragilissima</i> dominate. 31m [2] The second half of the transect is dominated by cerianthids and <i>P.atlanticus</i>. 34m Birdbeak dogfish shark <i>Deania sp</i> spotted swimming by. 37m plastic sheet. ENDS AT 14:36:21/01h18m.		

Physical Data		
Reef	0 % reef	n/a

(types can be concurrent)		n/a	n/a
			n/a
Substrates	- Mud		
Geomorphology/Features	- Slope		
Annex 1 Types	n/a		
Pressures	1 x rubbish (plastic sheet)		

Biological Data				
Number of Species		31		
Summary Species List (Operational Taxonomic Unit, Name, Size, SACFOR, presence per habitat transition)				
	O.T.U	Species/Taxonomic ID	Size/Growth	SACFOR
	261	Syringammina fragilissima	L	F
	1118	Sagartidae sp6	L	F
	131	Crinoidea sp1	L	O
	279	Echinoidea sp1	L	R
	440	Synaphobranchus kaupii	L	R
	436	Pentametrocrinus atlanticus	L	F
	555	Phormosoma placenta	L	F
	317	Epizoanthus sp1	L	R
	255	Phelliactis sp	L	R
	988	Zoroaster fulgens	L	O
	1024	Hydrolagus mirabilis	L	R
	581	Umbellula sp	L	R
	1074	Alepocephaliformes sp1	L	R
	12	Bolocera tuediae	L	R
	984	cf Halcampoididae sp	L	R
	1003	Nezumia aequalis	L	R
	1179	Holothuroidea sp6	L	R
	249	Lepidion eques	L	R
	585	Acanella arbuscula	L	R
	552	Polyacanthonotus rissoanus	L	R
	1017	Teuthida sp1	L	R
	930	Actinopterygii sp3	L	R
	654	Molva molva	L	R
	1125	Hygrosoma sp	L	R
	349	Mora moro	L	R
	433	Pseudarchaster sp1	L	R
	339	Munida tenuimana	M	R
	1077	Caridea (indet)	M	R
	605	Actiniaria sp20	S	R
	2	Cerianthidae sp1	S	F
205	Paguridae sp	S	R	
Biotope List (Marine Habitat Classification for Britain & Ireland)				
Code	Name	Listed		

M.AtMB.Mu.XenCom.SyrFra	Syringamina fragilissima field on Atlantic mid bathyal mud	Mud and sand emergent fauna (ICES)
M.AtMB.Mu.BurAne	Burrowing anemone field in Atlantic mid bathyal mud	Mud and sand emergent fauna (ICES)
Biotope progression per habitat transition (# species, dominant/characteristic species)		
1	M.AtMB.Mu.XenCom.SyrFra	
	261 Syringamina fragilissima, 555 Phormosoma placenta, 1069 Ceriantharia	
2	M.AtMB.Mu.BurAne	
	555 Phormosoma placenta, 12 Bolocera tuediae; 436 Pentametrocrinus atlanticus	

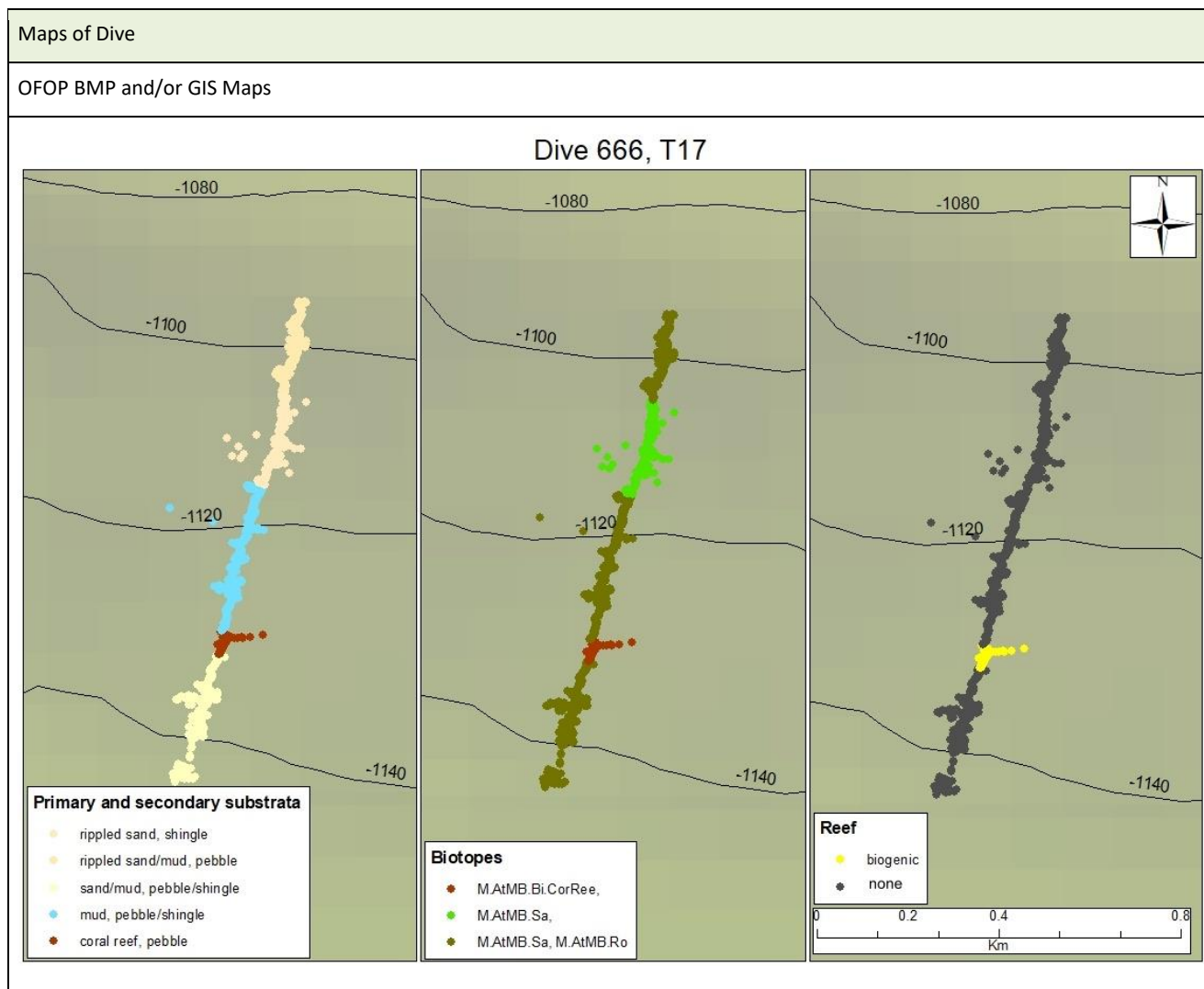
Conservation Targets		
Listed Habitats Encountered		
Name		Authority
Mud and sand emergent fauna		ICES
Listed Species Encountered (Fish, Count)		
n/a		OSPAR/IUCN

Additional Comments		
n/a		

DIVE SUMMARY	
DIVE # 666	TRANSECT # 17

	Start	End
Date & Time	08/08/2019 18:04:18	08/08/2019 19:44:59
Latitude/ Longitude	51.225003/-11.7126667	51.234417/-11.710107
Depth	-1132.458	-1087.651
Images	IMG_7550.jpg – IMG_7801.jpg	
Samples	2 x pushcores	

Location	P3
Target Features	Straddles SAC
Depth Range	-1148m



Representative Images

(Images representative of major biotopes, species, and sediments encountered throughout the transect)



Top L. Mud, boulders and coral rubble host *Aphrocallistes* sp and lamellate sponges

Top R. Rippled sand with sparse epifauna

Bottom L. Sand/mud with sparse epifauna, including echinoids and rays

Bottom R. Sand/mud and pebble on slope hosting *Aphrocallistes* sp

Summary Description (habitat transitions noted)

STARTS AT 18:16:24/0m. Mainly rippled sand/mud and pebbles. One patch of *Lophelia* reef with *Aphrocallistes* sp. **[1]** ROV lands on seafloor and provokes mud cloud/obscured. 15m Obscured/mud cloud. 17m **[2]** Here ROV shows a rich faunal shallow mount with *Aphrocallistes* sp aggregations living on dead *Lophelia* coral reef/biogenic reef. The reef, <1% living, hosts various species, including *Leiopathes* sp, lobose/globose sponges and octocorals *Jasonisis* sp. 20m **[3]** Now the ROV moves on and the biotope becomes sand/mud and pebble fields with few epifauna, mainly sea urchins. 40m **[4]** Here biotope changes into rippled sand on gentle/moderate slope and fewer epifauna species. Ripples are spread evenly in this section of the transect (strong currents are likely to occur here) hosting very few epifauna. 53m **[5]** Here rippled sand and pebble dominate with sparse cobbles. 01h15m rubbish. 01h27m ROV stops for imagery and sampling of poss *Callogorgia verticillata*. 01h33m obscured/mud cloud. **ENDS AT 19:44:59/01h19m.**

N.B. the metadata have some issues, e.g. OFOPs observation data are incomplete – the data stops at 01h19m, although the video continues until 01h44m.

Physical Data			
Reef (types can be concurrent)	4% reef	0% geogenic	
		4% biogenic	<1% living
			>99% dead
Substrates	- Mud - Pebble/shingle - Rippled sand/mud - Sand/mud - Coral reef		
Geomorphology/Features	- Slope		
Annex 1 Types	- Coral reef - Pebble		
Pressures	n/a		

Biological Data				
Number of Species		38		
Summary Species List (Operational Taxonomic Unit, Name, Size, SACFOR, presence per habitat transition)				

	207	Pliobothrus sp	S	R
	586	Zoanthidae sp2	S	R

Biotope List (Marine Habitat Classification for Britain & Ireland)		
Code	Name	Listed
M.AtMB.Sa	Atlantic mid bathyal sand	Mud and sand emergent fauna (ICES)
M.AtMB.Ro	Atlantic mid bathyal rock and other hard substrata	
M.AtMB.Bi.CorRee	Atlantic mid bathyal cold water coral reef (biogenic structure)	<i>Lophelia pertusa</i> reefs (OSPAR); cold water coral reefs (ICES)
Biotope progression per habitat transition (# species, dominant/characteristic species)		
1	M.AtMB.Sa; M.AtMB.Ro	
	445 Echinus sp, 279 Echinoidea sp1	
2	M.AtMB.Bi.CorRee	
	250 Lophelia pertusa, 264 Aphrocallistes sp	
3	M.AtMB.Sa; M.AtMB.Ro	
	445 Echinus sp	
4	M.AtMB.Sa	
	445 Echinus sp	
5	M.AtMB.Sa; M.AtMB.Ro	
	211 Cidaris cidaris, 445 Echinus sp, 250 Lophelia pertusa	

Conservation Targets		
Listed Habitats Encountered		
Name		Authority
Mud and sand emergent fauna <i>Lophelia pertusa</i> reefs Cold water coral reefs		ICES OSPAR ICES
Listed Species Encountered (Fish, Count)		
n/a		OSPAR/IUCN

Additional Comments	
n/a	

DIVE SUMMARY		
DIVE #	667	TRANSECT # 16

	Start	End
Date & Time	08/08/2019 22:20:44	08/08/2019 23:35:54
Latitude/ Longitude	51.3054577/-11.61485217	51.3155223/ -11.60933383
Depth	-705.916	-624.978
Images	IMG_7802.jpg – IMG_7975.jpg	
Samples	2 x pushcores	

Location	P2
Target Features	SAC
Depth Range	-708m

Maps of Dive
OPOP BMP and/or GIS Maps
Dive 667, T16 The figure consists of three side-by-side maps of the same area, showing bathymetry with depth contours at -620, -640, -660, -680, and -700 meters. A cyan line on the left map represents 'rippled mud' (primary and secondary substrata). A magenta line on the middle map represents 'M.AtMB.Mu.UrcCom' (biotopes). A black line on the right map represents 'none' (reef). A scale bar at the bottom right indicates distances from 0 to 0.9 Km, and a north arrow is located in the top right corner of the rightmost map.
Representative Images
(Images representative of major biotopes, species, and sediments encountered throughout the transect)



Top L. Rippled sand with no dominant epifauna (M.AtMB.Mu.UrcCom).

Top R. Rippled sand and pebbles with *Lepidion eques* (M.AtMB.Mu.UrcCom).

Bottom L. Rippled sand with echinoids (M.AtMB.Mu.UrcCom).

Bottom R. Large fishing net on sand/mud (M.AtMB.Mu.UrcCom).

Summary Description (habitat transitions noted)

STARTS AT 22:20:44/0m. The entire dive presents a uniform species distribution and associated biotope throughout: mainly rippled mud on gentle/moderate slope with abundant *Cidaris cidaris* aggregations.

[1] ROV stops for sampling two pushcores. The dive starts on gentle/moderate rippled sandy slope with echinoderms as dominant species phylum. 10m Here, population of very small paguridae recorded co-dominating with *C.cidaris*. 38m Fishing net. 52m Here, fields of *C.cidaris* aggregations on rippled sand slope. 58m *C.cidaris* are now less frequent. **ENDS AT 23:35:54/01h19m.**

Physical Data			
Reef (types can be concurrent)	0% reef	n/a	
		n/a	n/a
			n/a
Substrates	- Rippled mud		
Geomorphology/Features	- Slope		

Annex 1 Types	n/a
Pressures	1 x fishing gear (net)

Biological Data

Number of Species	21
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Summary Species List (Operational Taxonomic Unit, Name, Size, SACFOR, presence per habitat transition)

O.T.U	Species/Taxonomic ID	Size/Growth	SACFOR
265	Chimera monstrosa	L	R
211	Cidaris cidaris	L	C
445	Echinus sp1	L	R
227	Helicolenus dactylopterus	L	R
249	Lepidion eques	L	R
1019	Merlangius merlangus	L	R
654	Molva molva	L	R
1102	Munnopsidae sp	L	R
1003	Nezumia aequalis	L	R
1020	Phycis blennoides	L	R
552	Polyacanthonotus rissoanus	L	R
433	Pseudarchaster sp1	L	R
440	Syphnobranchus kaupii	L	R
446	Trachyrhynchus sp	L	R
1303	Trichiuridae	L	R
930	Actinopterygii sp3	M	R
543	Decapoda sp3	M	R
1077	Caridea sp	S	R
2	Cerianthidae sp1	S	R
621	Hypsogastropoda	S	R
205	Paguridae sp	S	R

Biotope List (Marine Habitat Classification for Britain & Ireland)

Code	Name	Listed
M.AtMB.Mu.UrcCom	Urchin dominated community on Atlantic mid bathyal mud	

Biotope progression per habitat transition (# species, dominant/characteristic species)

1	M.AtMB.Mu.UrcCom
	211 Cidaris cidaris, 445 Echinus sp1

Conservation Targets

Listed Habitats Encountered

Name	Authority
Mud and sand emergent fauna	ICES

Listed Species Encountered (Fish, Count)

n/a		OSPAR/IUCN
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Additional Comments

n/a

DIVE SUMMARY		
DIVE #	668	TRANSECT # 15

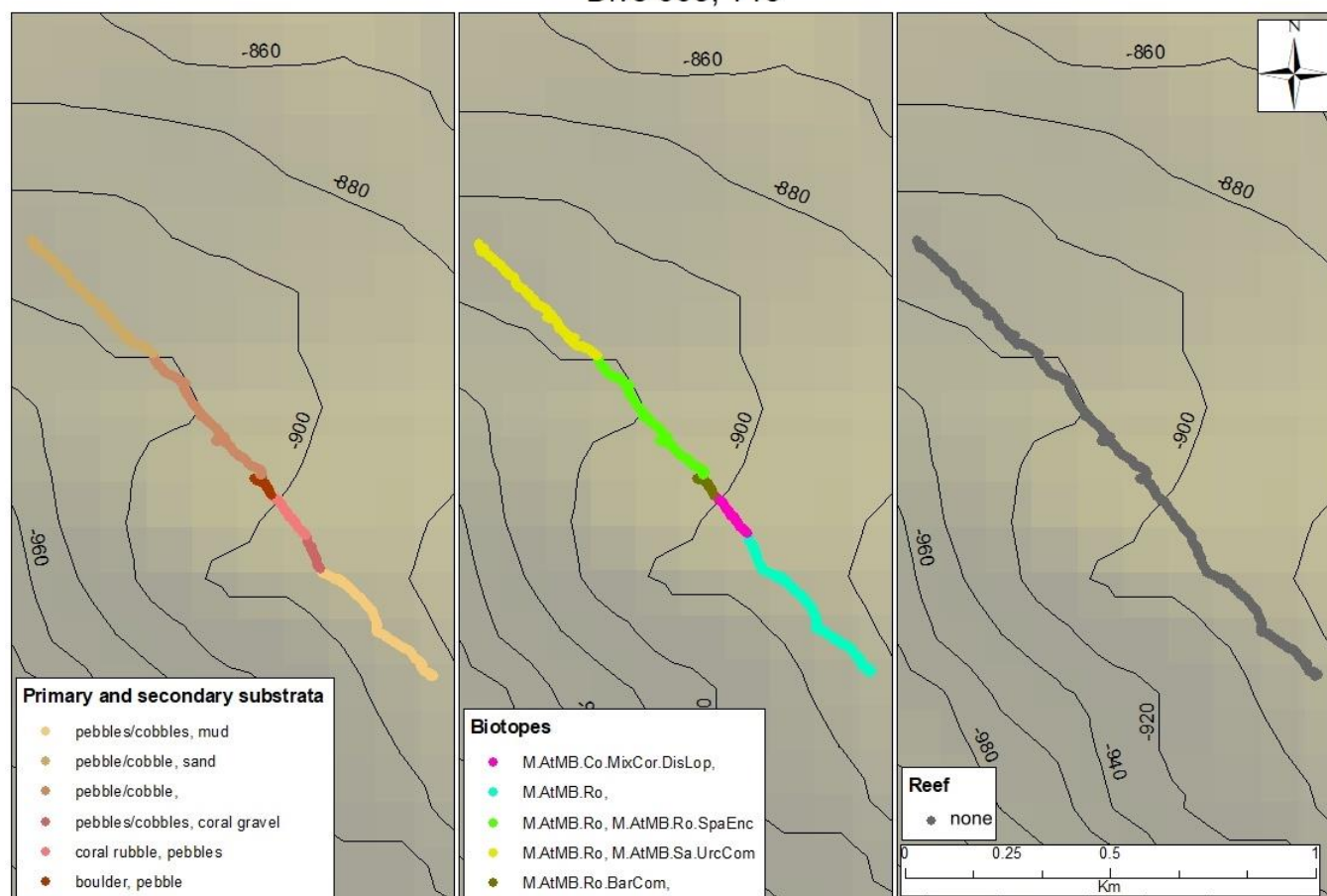
	Start	End
Date & Time	09/08/2019 01:46:28	09/08/2019 03:40:14
Latitude/ Longitude	51.3203067/-11.70096117	51.32982767/-11.7097
Depth	-874.743	-895.066
Images	IMG_7976.jpg – IMG_8410.jpg	
Samples	1 x pushcore	

Location	P1
Target Features	SAC
Depth Range	-901m

Maps of Dive

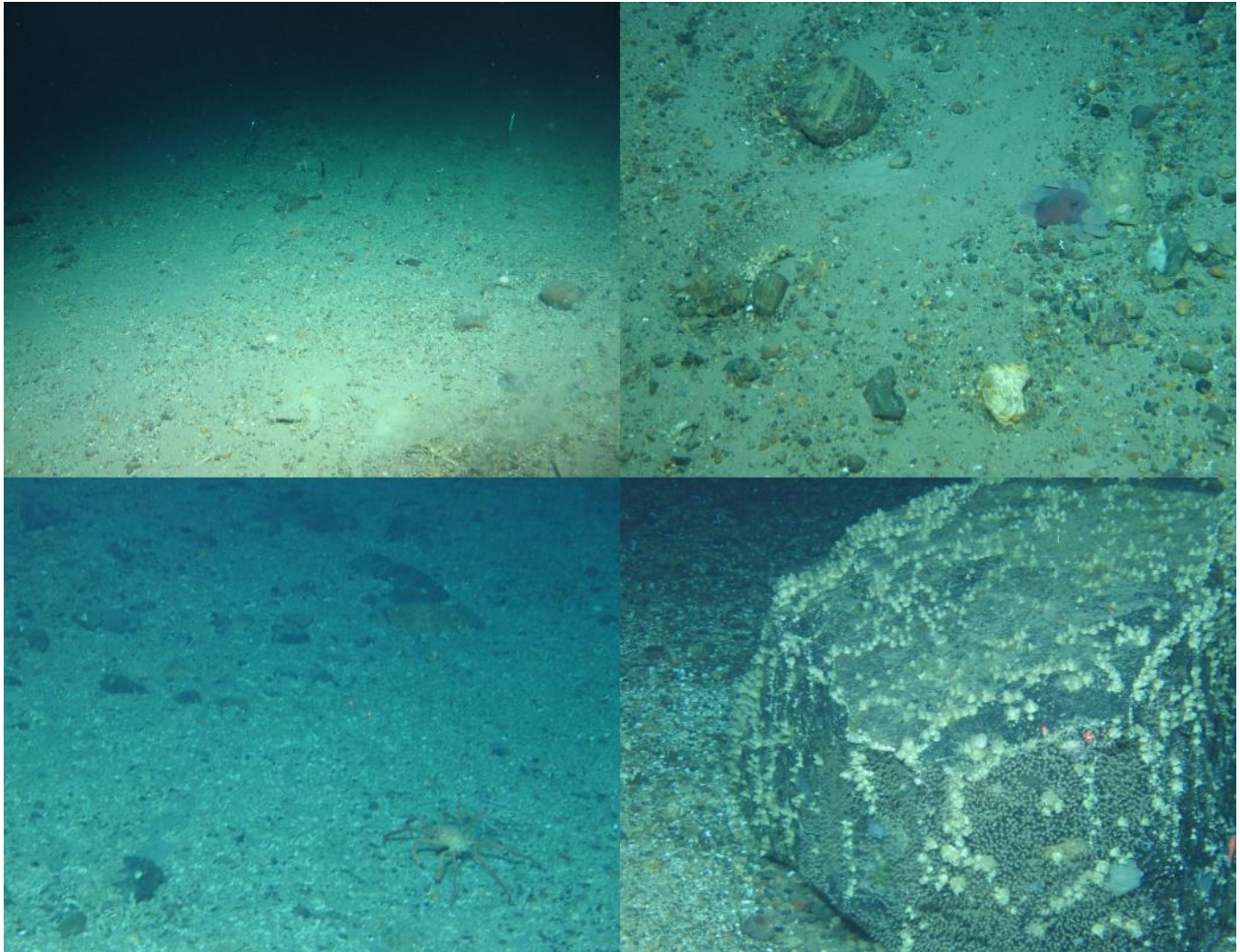
OPOP BMP and/or GIS Maps

Dive 668, T15



Representative Images

(Images representative of major biotopes, species, and sediments encountered throughout the transect)



Top L. Mud, pebbles and cobbles on gentle slope with scattered epifauna (M.AtMB.Ro; M.AtMB.Sa.UrcCom).

Top R. *Muusoctopus johnsonianus* found on mud and pebbles substrata ((M.AtMB.Ro; M.AtMB.Sa.UrcCom).

Bottom L. *Paramola cuvieri* on pebbles and cobbles ((M.AtMB.Ro; M.AtMB.Sa.UrcCom).

Bottom R. Distinct barnacle, zoanthids and encrusting sponge colony on large boulder (M.AtMB.Ro.BarCom).

Summary Description (habitat transitions noted)

STARTS AT 01:46:27/0m. Mosaic biotope with predominantly pebble/cobble and mud sediments on moderate slope hosting scattered aggregations of encrusted fauna. Included patches of coral rubble/gravel.

[1] 1m ROV stops for sampling one pushcore. 07m rubbish. 08m ROV stops for collection of glass bottle. 36m ROV stops imagery of *Muusoctopus johnsonianus*. 46m [2] Coral rubble and coral gravel with sparse pebbles occur in dense patches hosting sparse colonies of *Lophelia pertusa*. 52m [3] coral rubble and pebbles continue to dominate. Pebbles are more abundant than the previous biotope. 01h02m [4] ROV stop for imagery of geogenic reef on large boulder hosting *Cirripedia sp1* and encrusted fauna, mainly encrusting sponges and *cf Psolus sp*. 01h07m [5] Now, ROV continues its dive on gentle/moderate slope with pebble/cobble with scattered aggregations of cidarid urchins and encrusted fauna on cobbles. 01h35m [6] Here, biotope changes slightly, which comprises pebble/cobble fields intersperse with sand patches. 01h41m ceramic plate. ROV stops for collecting ceramic pot. 01h59m ROV stops for sampling a rock. **ENDS AT 03:40:14/02h01m.**

Physical Data			
Reef (types can be concurrent)	0% reef	n/a	
		n/a	n/a
			n/a
Substrates	- Pebble/cobbles - Sand - Mud - Coral gravel - Boulder		

Geomorphology/Features	- Slope
Annex 1 Types	- Pebble/cobble - Boulder/pebble
Pressures	1 x rubbish 1 x ceramic plate

Biological Data

Number of Species	35
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Summary Species List (Operational Taxonomic Unit, Name, Size, SACFOR, presence per habitat transition)

O.T.U	Species/Taxonomic ID	Size/Growth	SACFOR
7	Porifera encrusting sp2	Crust	R
12	Bolocera tuediae	L	R
211	Cidaris cidaris	L	F
317	Epizoanthus sp1	L	R
1005	Galeus melastomus	L	R
249	Lepidion eques	L	R
250	Lophelia pertusa	L	R
251	Madrepora oculata	L	R
349	Mora moro	L	R
1194	Muusoctopus johnsonianus	L	R
1003	Nezumia aequalis	L	R
304	Paromola cuvieri	L	O
255	Phelliactis sp1	L	R
1020	Phycis blennoides	L	R
440	Syphnobranchus kaupii	L	R
1017	Teuthida sp1	L	R
1216	Trachyscorpia cristulata	L	R
1303	Trichiuridae	L	R
289	cf Clavulariidae sp	M	R
445	Echinus sp1	M	R
458	Pachycerianthus multiplicatus	M	R
280	Callogorgia verticillata	M	R
252	Psolus squamata	M	R
988	Zoroaster fulgens	M	R
1077	Caridea sp	S	R
2	Cerianthidae sp1	S	R
1049	cf Psolus sp	S	R
82	Cirripedia sp	S	O
621	Hypsogastropoda	S	R
1126	Munidopsis sp1	S	R
205	Paguridae sp	S	R
207	Pliobothrus sp	S	R
106	Serpulidae sp1	S	R

Biotope List (Marine Habitat Classification for Britain & Ireland)

Code	Name	Listed
M.AtMB.Ro	Atlantic mid bathyal rock and other hard substrata	
M.AtMB.Ro.BarCom	Barnacle dominated community on Atlantic mid bathyal rock and other hard substrata	
M.AtMB.Ro.SpaEnc	Sparse encrusting community on Atlantic mid bathyal rock and other rock substrata	
M.AtMB.Sa.UrcCom	Urchin dominated community on Atlantic mid bathyal sand	Mud and sand emergent fauna (ICES)

M.AtMB.Co.MixCor.DisLop	Discrete Lophelia pertusa colonies on Atlantic mid bathyal coarse sediment	Coral garden (ICES/OSPAR); soft-bottom coral garden (ICES subcategory)
Biotope progression per habitat transition (# species, dominant/characteristic species)		
1	M.AtMB.Ro	
	250 Lophelia pertusa, 211 Cidaris cidaris	
2	M.AtMB.Ro	
	250 Lophelia pertusa	
3	M.AtMB.Co.MixCor.DisLop	
	250 Lophelia pertusa	
4	M.AtMB.Ro.BarCom	
	82 Cirripedia sp, 250 Lophelia pertusa, 7 Porifera encrusting sp2	
5	M.AtMB.Ro; M.AtMB.Ro.SpaEnc	
	211 Cidaris cidaris, 445 Echinus sp1, 82 Cirripedia sp, 1049 cf Psolus sp, 7 Porifera encrusting sp2	
6	M.AtMB.Ro; M.AtMB.Sa.UrcCom	
	211 Cidaris cidaris, 445 Echinus sp1	

Conservation Targets		
Listed Habitats Encountered		
Name	Authority	
Mud and sand emergent fauna Coral garden - soft-bottom coral garden	ICES ICES/OSPAR ICES subcategory	
Listed Species Encountered (Fish, Count)		
n/a		OSPAR/IUCN

Additional Comments		
n/a		

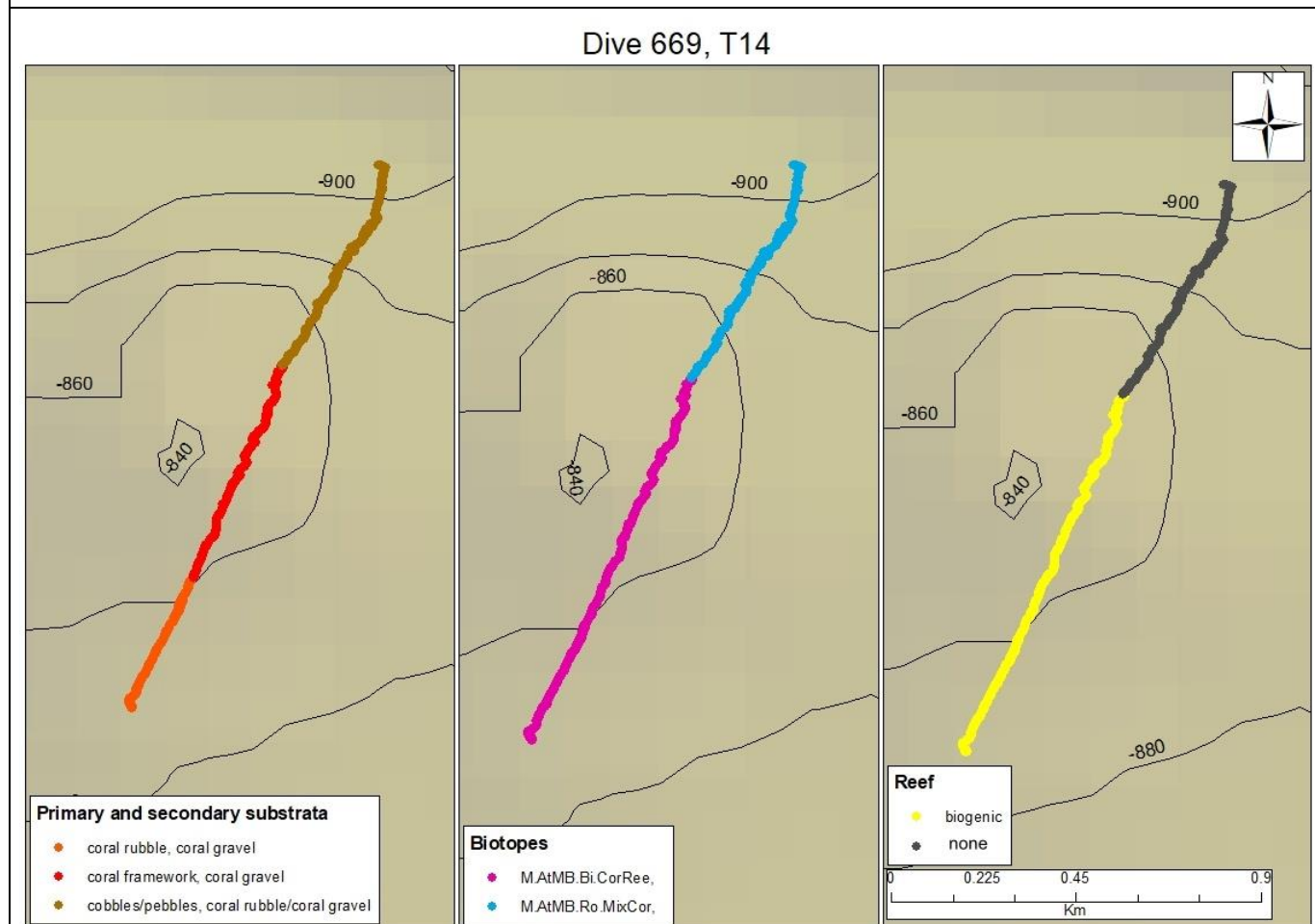
DIVE SUMMARY	
DIVE # 669	TRANSECT # 14

	Start	End
Date & Time	09/08/2019 06:29:39	09/08/2019 08:26:47
Latitude/ Longitude	51.478064/-11.72394583	51.49049067/-11.7182775
Depth	-854.249	-914.637
Images	IMG_8413.jpg-IMG_9257.jpg	
Samples	2 x pushcores	

Location	P1
Target Features	SAC
Depth Range	-864

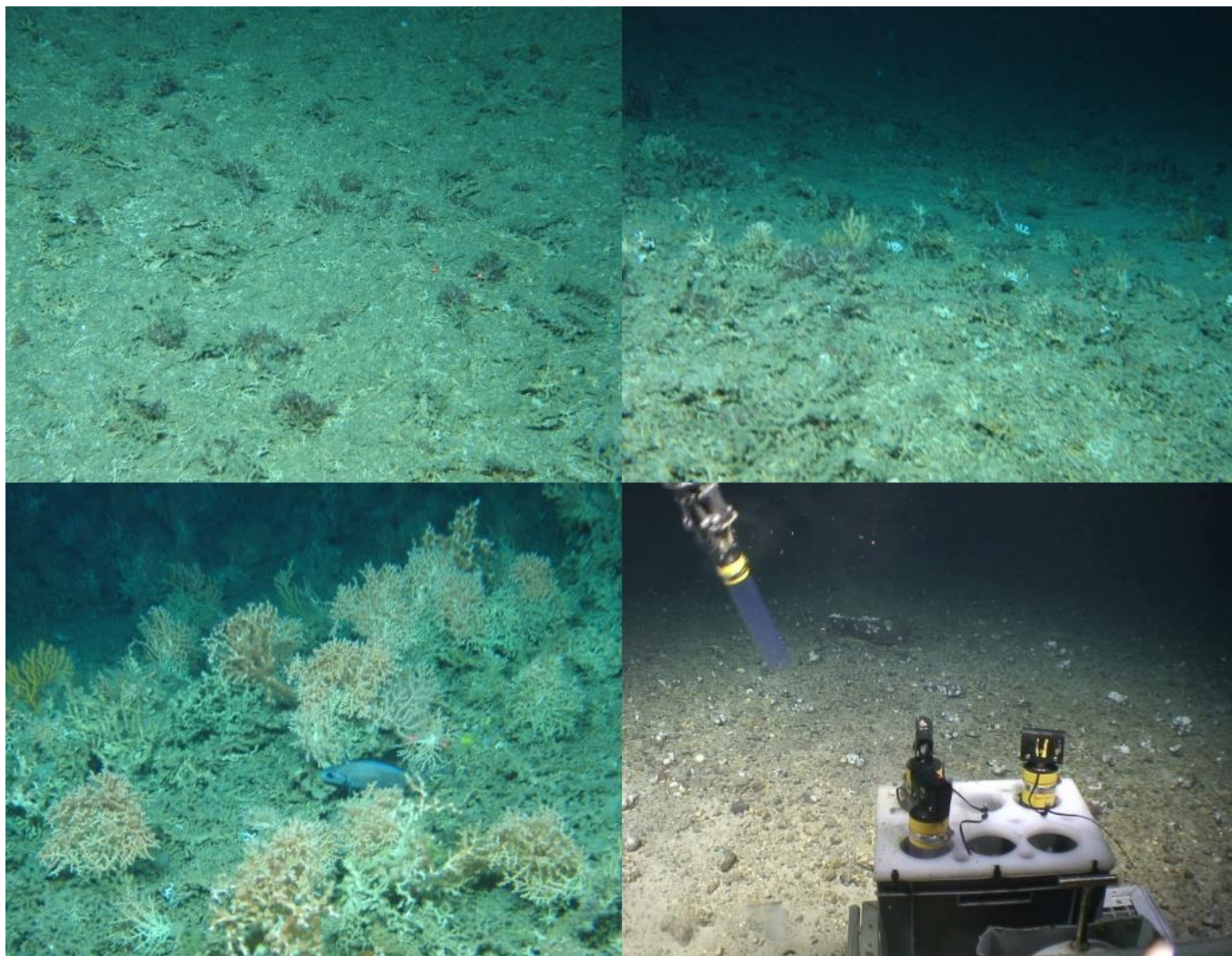
Maps of Dive

OFOP BMP and/or GIS Maps



Representative Images

(Images representative of major biotopes, species, and sediments encountered throughout the transect)



Top L. Coral rubble hosting Clavariidae colonies (M.AtMB.Bi.CorRee).

Top R. Coral rubble and coral framework hosting various epifauna including *Pliobothrus* sp and Clavariidae (M.AtMB.Bi.CorRee).

Bottom L. *Lophelia pertusa* and *Madrepora oculata* reef hosting many epifauna including plexauridae and gorgonocephalus (M.AtMB.Bi.CorRee).

Bottom R. A colony of *Pliobothrus* sp on pebbles and cobbles (M.AtMB.Ro.MixCor).

Summary Description (habitat transitions noted)

STARTS AT 06:29:40/0m. Predominantly coral rubble across the transect. Dense *Lophelia*/*Madrepora* reef framework intersperse with *Aphrocallistes* sp and *Pliobothrus* sp towards the end of the video.

[1] 1m ROV lands on dense biogenic reef (mostly dead). Cf Clavariidae species living on coral rubble with sparse squat lobster (<4cm in body length). 57m

[2] Here coral framework of *Lophelia pertusa* and *Madrepora oculata* reefs hosting a variety of epifauna species, including sparse *Aphrocallistes* sp.

01h34m Now *Aphrocallistes* sp is more abundant in the reef. 01h47m **[3]** Here, the seafloor changes into gravel and cobbles. The topography is slightly hilly. Bluntnose sixgill shark (*Hexanchus griseus*) (species TBC) spotted around coral reef. This species is classified as 'near threatened' in the IUCN Red List.

01h50m Now, we encounter very abundant *Pliobothrus* sp on cobble fields with frequent presence of *Aphrocallistes* sp. 02h12m Still *Pliobothrus* sp recorded frequently on cobble fields. 02h20m ROV stops for core sampling (2 cores). 02h21m Abundant cf *Psolus* sp on cobbles. **ENDS AT 08:26:47/02h28m.**

N.B. Brown/purple fluffy-looking species (cf octocorals fluffiness) encountered abundantly living on coral rubble/gravel for most of the entire transect. cf Clavariidae or cf *Anthothela* sp are possibly the most likely suggestions. However, further expert opinion is necessary. FYI, the ROV does not stop to verify the species characteristics.

Physical Data

Reef (types can be concurrent)	71.70% reef	0% geogenic	
		71.70% biogenic	25% living
			75% dead
Substrates	- Coral gravel - Coral rubble - Coral framework - Cobbles/pebbles		
Geomorphology/Features	- Slope		
Annex 1 Types	- Cobbles/pebbles - Coral reef		
Pressures	n/a		

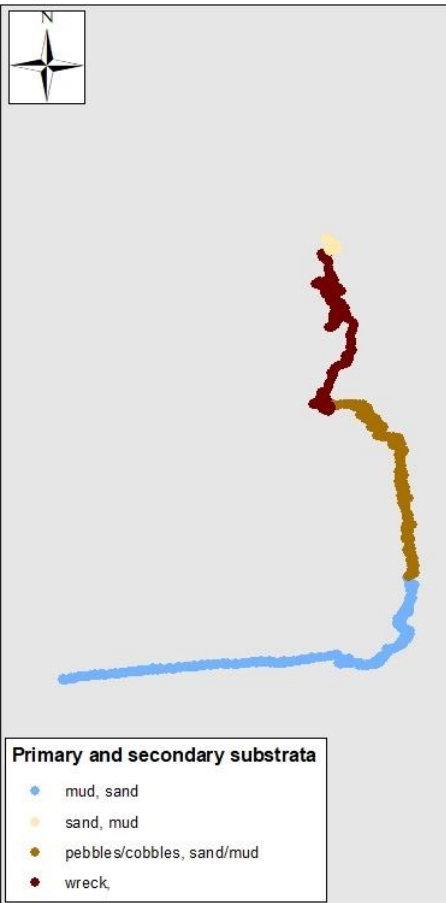
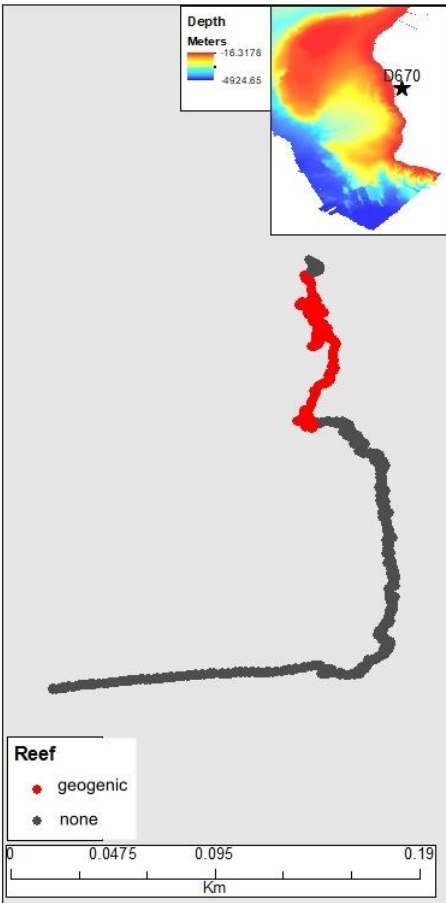
Biological Data			
Number of Species		46	
Summary Species List (Operational Taxonomic Unit, Name, Size, SACFOR, presence per habitat transition)			

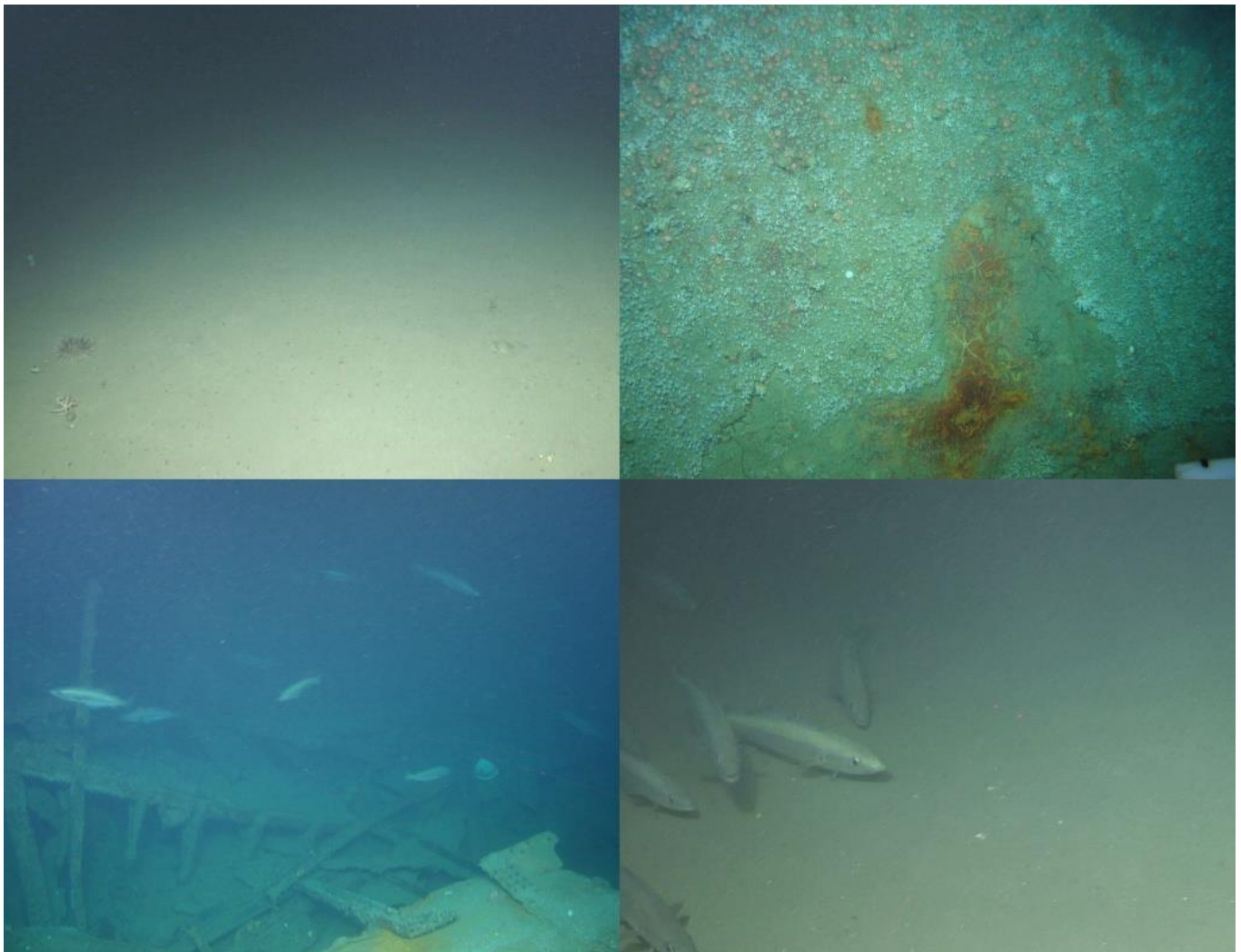
930	Actinopterygii sp3	S	R
2	Cerianthidae sp1	S	R
605	Actiniaria sp20	S	R
6	Caryophyllia sp2	S	R
82	Cirripedia sp	S	R
1049	cf Psolus sp	S	F

Biotope List (Marine Habitat Classification for Britain & Ireland)		
Code	Name	Listed
M.AtMB.Bi.CorRee	Atlantic mid bathyal cold water coral reef (biogenic structure)	Cold-water coral reef (ICES); <i>Lophelia pertusa</i> / <i>Madrepora oculata</i> reefs (ICES subcategory/OSPAR)
M.AtMB.Ro.MixCor	Mixed cold water coral community on Atlantic mid bathyal rock and other hard substrata	Coral gardens (OSPAR/ICES); hard-bottom coral garden: stylasterid corals on hard substrata (ICES subcategory)
Biotope progression per habitat transition (# species, dominant/characteristic species)		
1	M.AtMB.Bi.CorRee	
	250 <i>Lophelia pertusa</i> , 289 cf <i>Clavulariidae</i> sp, 211 <i>Cidaris cidaris</i>	
2	M.AtMB.Bi.CorRee	
	250 <i>Lophelia pertusa</i> , 251 <i>Madrepora oculata</i> , 264 <i>Aphrocallistes</i> sp, 211 <i>Cidaris cidaris</i>	
3	M.AtMB.Ro.MixCor	
	207 <i>Pliobothrus</i> sp, 264 <i>Aphrocallistes</i> sp, 2 <i>Ceriantharia</i> , 1049 cf <i>Psolus</i> sp	

Conservation Targets		
Listed Habitats Encountered		
Name	Authority	
Coral gardens: - hard-bottom coral garden: stylasterid corals on hard substrata Cold-water coral reef: - <i>Lophelia pertusa/Madrepora oculata</i> reefs	OSPAR/ICES ICES subcategory ICES ICES subcategory/OSPAR	
Listed Species Encountered (Fish, Count)		
n/a		OSPAR/IUCN

Additional Comments	
- Spotted 1 x bluntnose sixgill shark (currently under 'near threatened' species in IUCN Red List)	

DIVE SUMMARY		
DIVE #	670	TRANSECT # 20
	Start	End
Date & Time	09/08/2019 14:19:21	09/08/2019/15:13:17
Latitude/ Longitude	51.5659305/-10.83021083	51.5677273/-10.82914117
Depth	-155.868	-155.943
Images	IMG_9201.jpg – IMG_9293.jpg	
Samples	2 x push cores	
Location	P1	
Target Features	Fishing activity via VMS	
Depth Range	-151	
Maps of Dive		
OFOP BMP and/or GIS Maps		
Dive 670, T20  Primary and secondary substrata - mud, sand - sand, mud - pebbles/cobbles, sand/mud - wreck  Biotopes - CR.FCR.FouFa - SS.SCS - SS.Ssa  Depth Meters -16.3178 -4924.65 Reef - geogenic - none 00.04750.0950.19 Km		
Representative Images		
(Images representative of major biotopes, species, and sediments encountered throughout the transect)		



Top L. Muddy slope with anemones and starfish (SS.Ssa).

Top R. Shipwreck colonised by zoanthids, ophiuroids and anemones (CR.FCR.FouFa).

Bottom L. A shoal of pollock swimming in and around the shipwreck (CR.FCR.FouFa).

Bottom R. A few pollock on soft sediment (SS.Ssa).

Summary Description (habitat transitions noted)

STARTS AT 14:19:21/0m. Shipwreck circumnavigation with abundant shoal of pollocks. Dive lasts less than 1 hour.

[1] ROV landed on sandy/muddy/silky seafloor with sparse and scarce epifauna. Encountered mainly burrowing fauna, although visibility is poor at this point. 5m Visibility is poor here. *Ophiomusa lymani* are frequently present in this area. 8m ROV stops. Seafloor is sandy and muddy. The field is covered in fluffy-shaped organic matter (possibly). 2 x pushcores sampled. 28m rubbish/human-made object. 38m **[2]** Dense aggregations of ophiuroids (possibly *Ophiomusa lymani* (orange)). 41m Here, an object that looks like a chain (anchor chain) is encountered. 42m **[3]** Now ROV encounters rusty shipwreck with abundant ophiuroids at the bottom with sparse aggregations of actinia. The shipwreck is covered in zoanthids. Shoal of Pollock swimming in and around the shipwreck. The shipwreck has fishing nets with buoyants attached to the ropes. 51m ROV moves forwards. **[4]** Here seafloor is sandy and muddy with sparse epifauna. Pollocks are still present until **ENDS AT 15:13:17/54m.**

Physical Data			
Reef (types can be concurrent)	18% reef	18% geogenic	
		0% biogenic	n/a
			n/a
Substrates	- Mud - Sand/mud - Sand		

	- Pebbles/cobbles - Wreck
Geomorphology/Features	- Slope - Shipwreck
Annex 1 Types	cobbles
Pressures	n/a

Biological Data	
Number of Species	13
Summary Species List (Operational Taxonomic Unit, Name, Size, SACFOR, presence per habitat transition)	

O.T.U	Species/Taxonomic ID	Size/Growth	SACFOR
551	Ophiomusa lymani	L	O
12	Bolocera tuediae	L	R
198	Stichastrella rosea	L	O
231	Asterias rubens	L	R
458	Pachycerianthus multiplicatus	L	R
254	Chaceon affinis	L	R
1302	Pollachius pollachius	L	O
227	Helicolenus dactylopterus	L	R
1308	Ophiocomina nigra	L	F
255	Phelliactis sp	M	R
499	Actinauge richardi	M	O
586	Zoanthidae sp2	S	A

Biotope List (Marine Habitat Classification for Britain & Ireland)		
Code	Name	Listed
SS.Ssa	Sublittoral sands and muddy sands	Mud and sand emergent fauna (ICES)
SS.SCS	Sublittoral coarse sediment (unstable cobbles, pebbles, gravels and coarse sands)	Mud and sand emergent fauna (ICES)
CR.FCR.FouFa	Fouling faunal communities	Coral garden (ICES/OSPAR); hard-bottom coral garden (ICES subcategory)
SS.Ssa	Sublittoral sands and muddy sands	Mud and sand emergent fauna (ICES)

Biotope progression per habitat transition (# species, dominant/characteristic species)	
1	SS.Ssa
	511 Ophiomusa lymani, 255 Phelliactis sp1
2	SS.SCS
	231 Asterias rubens
3	CR.FCR.FouFa
	1308 Ophiocomina nigra
4	SS.Ssa
	n/a

Conservation Targets

Listed Habitats Encountered		
Name		Authority
Mud and sand emergent fauna Coral garden Hard-bottom coral garden		ICES ICES/OSPAR ICES subcategory
Listed Species Encountered (Fish, Count)		
n/a		OSPAR/IUCN

Additional Comments		
n/a		

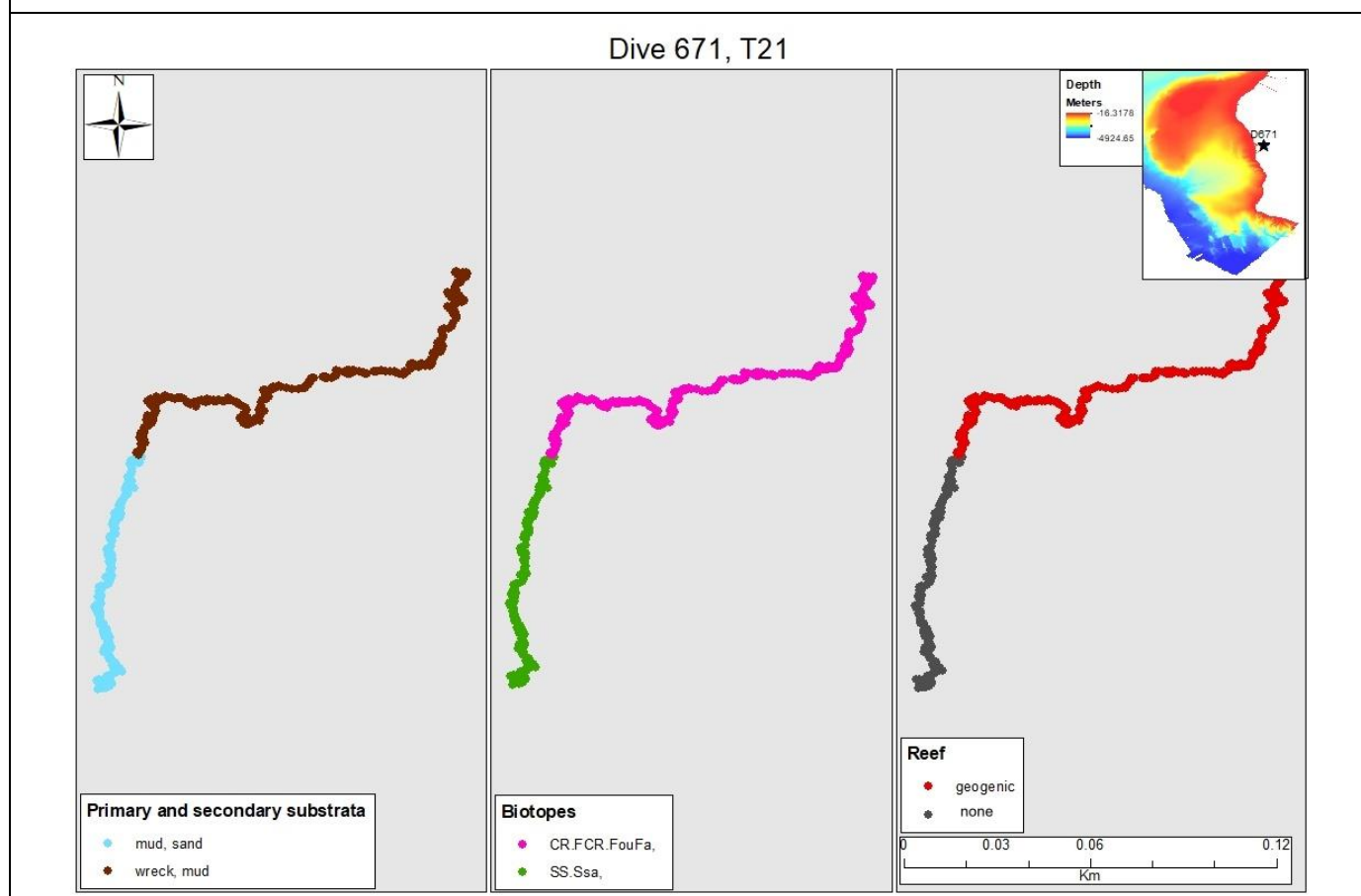
DIVE SUMMARY	
DIVE # 671	TRANSECT # 21

	Start	End
Date & Time	09/08/2019 16:09:39	09/08/2019 16:44:26
Latitude/ Longitude	51.5851163/-10.80673783	51.5863047/ -10.80569633
Depth	-154.461	-150.582
Images	IMG_9294.jpg – IMG_9477.jpg	
Samples	2 x push cores	

Location	P3
Target Features	Fishing activity via VMS
Depth Range	-151m

Maps of Dive

OFOP BMP and/or GIS Maps



Representative Images

(Images representative of major biotopes, species, and sediments encountered throughout the transect)



Top L. Coarse sediment with mud and pebbles hosting a few epifauna species (SS.Ssa).

Top R. *Nemertesia ramosa* living on shipwreck (CR.FCR.FouFa).

Bottom L. A dense colony of white zoanthids living on the shipwreck (CR.FCR.FouFa).

Bottom R. A shoal of pollocks swimming around the shipwreck (CR.FCR.FouFa).

Summary Description (habitat transitions noted)

HD VIDEO STARTS AT 16:09:37/0m. Shipwreck hosting abundant colonies of corals.

[1] 1m ROV stops for pushcore sampling. Organic matter on the seafloor. 17m [2] ropes and anthropogenic litter present with sparse ophiuroids. 18m Here massive fishing net on the sea floor. 18m ROV approaches a shipwreck. The visibility is poor and it is difficult to ID the epifauna living on the side of the shipwreck. 19m A few individuals of fish are encountered, however, not all of them are identifiable due to distance and poor visibility. 22m Here video shows the side of the shipwreck with organic matter (unidentified) attached to the artificial substrata. 23m Abundant shoal of fish (possibly pollocks *Pollachius pollachius*). 24m Now white zoanthids are recorded on the shipwreck. This population is abundant and it co-habits with *Anthipathes dichotoma*. 26m Here several parts of the shipwreck are observed. Ring-shaped objects are on the sea floor next to ropes and fishing gears. Some colonies of *Lophelia* reefs living on large cobbles next to shipwreck. 29m a variety of epifauna was observed on the other side of the shipwreck. On this side, a colony of white zoanthids is observed living on nets and ropes. Several species of fish have been recorded, including small individuals of blackbelly rosefish (*Helicolenus dactylopterus*). 36m Here a white rope. Visibility is poor and hard to identify where the rope is leading to. It is clear that the

rope is attached to the ship and it extends up on the water column. 39m Here a few dead fish are hooked on a fishing net, which hangs over the shipwreck. 41m Visibility is poor and ROV is hovering on top of the shipwreck. **HD VIDEO ENDS AT 16:44:26/43m.**

Physical Data			
Reef (types can be concurrent)	59% reef	59% geogenic	
		0% biogenic	n/a
			n/a
Substrates	- Mud - Sand - Wreck		
Geomorphology/Features	- Slope - Shipwreck		
Annex 1 Types	n/a		
Pressures	n/a		

Biological Data																																																																											
Number of Species		15																																																																									
Summary Species List (Operational Taxonomic Unit, Name, Size, SACFOR, presence per habitat transition)																																																																											
<table><tr><th>O.T.U</th><th>Species/Taxonomic ID</th><th>Size/Growth</th><th>SACFOR</th></tr><tr><td>551</td><td>Ophiomusa lymani</td><td>L</td><td>F</td></tr><tr><td>12</td><td>Bolocera tuediae</td><td>L</td><td>R</td></tr><tr><td>198</td><td>Stichastrella rosea</td><td>L</td><td>R</td></tr><tr><td>227</td><td>Helicolenus dactylopterus</td><td>L</td><td>R</td></tr><tr><td>640</td><td>Ophiuroidea sp10</td><td>L</td><td>R</td></tr><tr><td>1310</td><td>Nemertesia ramosa</td><td>L</td><td>R</td></tr><tr><td>1300</td><td>Homarus gammarus</td><td>L</td><td>R</td></tr><tr><td>1302</td><td>Pollachius pollachius</td><td>L</td><td>R</td></tr><tr><td>250</td><td>Lophelia pertusa</td><td>L</td><td>R</td></tr><tr><td>1121</td><td>Majoidea sp1</td><td>L</td><td>R</td></tr><tr><td>586</td><td>Zoanthidae sp2</td><td>L</td><td>A</td></tr><tr><td>122</td><td>Zoanthidae sp1</td><td>L</td><td>R</td></tr><tr><td>458</td><td>Pachycerianthus multiplicatus</td><td>M</td><td>R</td></tr><tr><td>499</td><td>Actinauge richardi</td><td>M</td><td>O</td></tr><tr><td>1188</td><td>Argentinidae sp1</td><td>S</td><td>R</td></tr><tr><td>6</td><td>Caryophyllia sp2</td><td>S</td><td>F</td></tr><tr><td>262</td><td>Lanice sp1</td><td>S</td><td>R</td></tr></table>				O.T.U	Species/Taxonomic ID	Size/Growth	SACFOR	551	Ophiomusa lymani	L	F	12	Bolocera tuediae	L	R	198	Stichastrella rosea	L	R	227	Helicolenus dactylopterus	L	R	640	Ophiuroidea sp10	L	R	1310	Nemertesia ramosa	L	R	1300	Homarus gammarus	L	R	1302	Pollachius pollachius	L	R	250	Lophelia pertusa	L	R	1121	Majoidea sp1	L	R	586	Zoanthidae sp2	L	A	122	Zoanthidae sp1	L	R	458	Pachycerianthus multiplicatus	M	R	499	Actinauge richardi	M	O	1188	Argentinidae sp1	S	R	6	Caryophyllia sp2	S	F	262	Lanice sp1	S	R
O.T.U	Species/Taxonomic ID	Size/Growth	SACFOR																																																																								
551	Ophiomusa lymani	L	F																																																																								
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Biotope List (Marine Habitat Classification for Britain & Ireland)																																																																											
Code	Name	Listed																																																																									
SS.Ssa	Sublittoral sands and muddy sands	Mud and sand emergent fauna (ICES)																																																																									

CR.FCR.FouFa	Fouling faunal communities	Coral garden (ICES/OSPAR); hard-bottom coral garden (ICES subcategory)
Biotope progression per habitat transition (# species, dominant/characteristic species)		
1	SS.Ssa	
	551 Ophiomusa lymani, 458 Pachycerianthus multiplicatus	
2	CR.FCR.FouFa	
	122 Zoanthidae sp1; 250 Lophelia pertusa; 6 Caryophyllia sp2	

Conservation Targets		
Listed Habitats Encountered		
Name		Authority
Mud and sand emergent fauna Coral garden - hard-bottom coral garden		ICES ICES/OSPAR ICES subcategory
Listed Species Encountered (Fish, Count)		
n/a		OSPAR/IUCN

Additional Comments		
n/a		

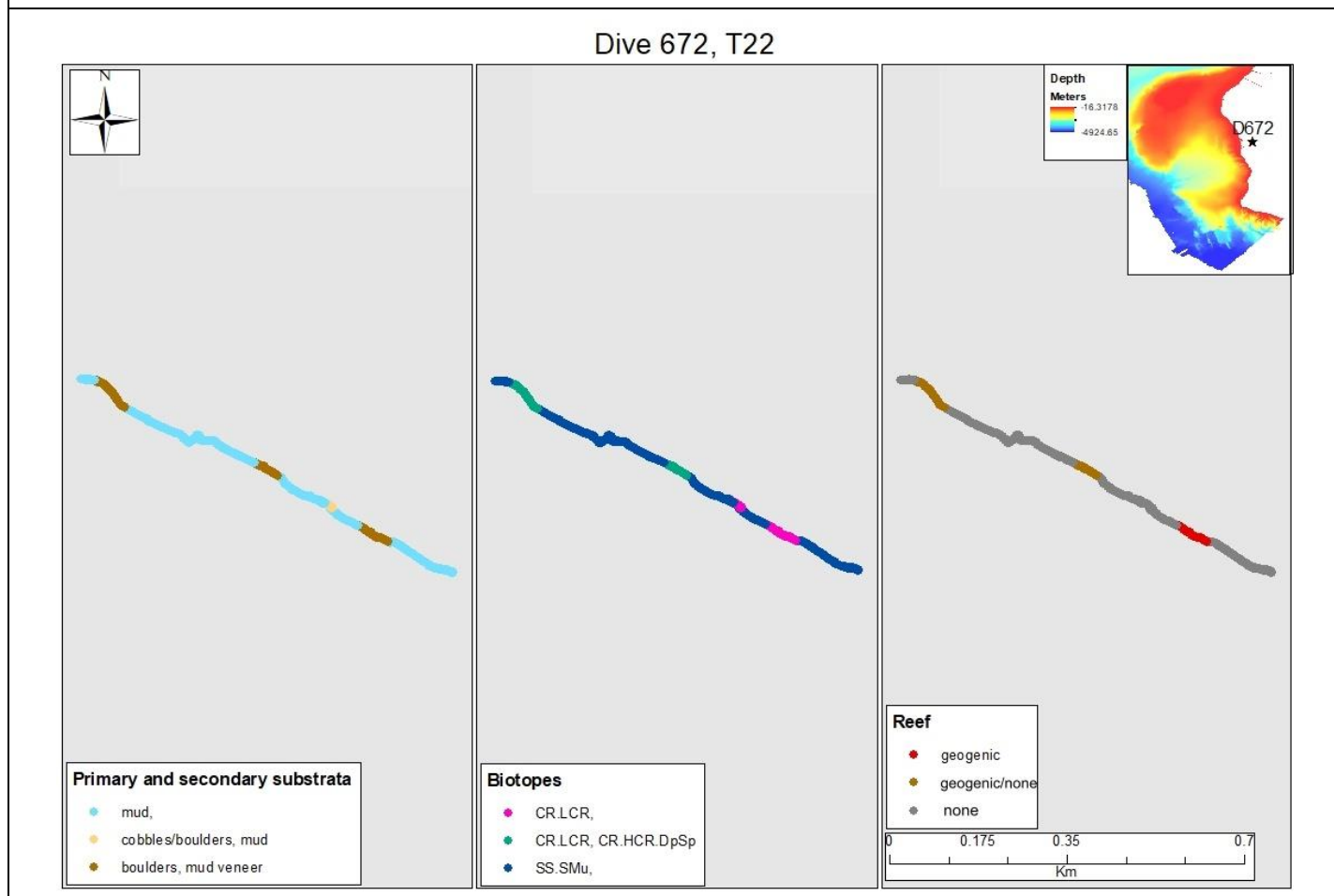
DIVE SUMMARY	
DIVE # 672	TRANSECT # 22

	Start	End
Date & Time	09/08/2019 18:18:52	09/08/2019 19:45:34
Latitude/ Longitude	51.5431312/-10.67135067	51.54654867/ -10.677928
Depth	-144.999	-143.968
Images	IMG_9478.jpg – IMG_9685.jpg	
Samples	2 x push cores 1 x white coral (unknown species)	

Location	P2
Target Features	Fishing activity via VMS
Depth Range	-142m

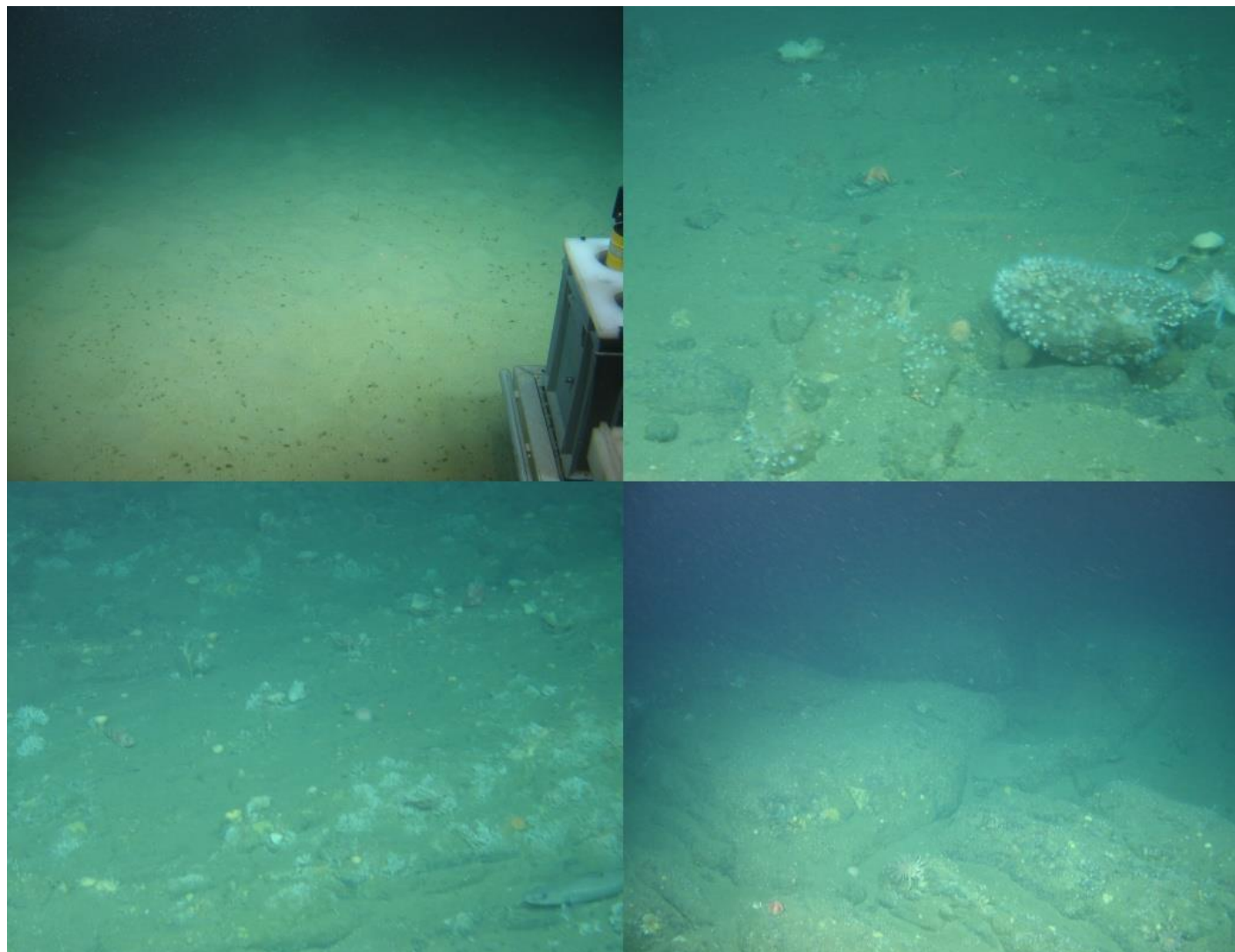
Maps of Dive

OPOP BMP and/or GIS Maps



Representative Images

(Images representative of major biotopes, species, and sediments encountered throughout the transect)



Top L. Muddy slope with sparse infauna species (SS.SMu).

Top R. Boulders, cobbles and mud hosting zoanths and encrusting sponges (CR.LCR).

Bottom L. Cobbles and mud hosting zoanths and encrusting species (CR.LCR).

Bottom R. Encrusting species living on bedrock (CR.LCR).

Summary Description (habitat transitions noted)

(Video A) **STARTS AT 18:18:51/0m.** [1] Soft sediment with scattered epifauna. ROV on the seafloor, sampling a pushcore. Sampling failed. The video A lasts only 6 minutes.

(Video B) **START AT 18:25:27/0m.** Soft sediment intersperse with large cobbles and boulders hosting a variety of epifauna forming scattered geogenic reefs. Marine snow is present throughout the entire dive. The ROV is moving upwards on a moderate slope. Noteworthy, the white balance of the camera is unbalanced and as a result, the visual is shown with a hint of green and yellow, which makes the vision not 100% clear.

[2] Soft sediment with scattered epifauna. 1m ROV samples 2 pushcores. [3] 19m Here mud veneered boulders, scattered bedrock with sparse epifauna. The boulders host abundant sessile fauna, possibly shallow water white corals and sparse starfish species. 24m The boulders host a variety of species including erect sponges and encrusted sponges. [4] 25m Biotope changes into soft sediment with scattered epifauna. [5] 30m dense field of cobbles hosting various erect epifauna including sponges and corals. 31m Here fish population is relatively abundant, mainly small fish (possibly *Argentinidae* sp1 OTU1188). 31m Interesting behavior of three cephalopoda. 32m Dense zoanthid aggregation on large cobble and notable dense aggregation of *Argentinidae* sp1. [6] 35m Here soft sediment again with sparse epifauna. [7] 41m Patch of geogenic reef of corals and sponges on mud veneered boulders. [8] 44m Soft sediment again. 53m ROV stops for imagery of white coral and associated orange ophiuroid species. 57m ROV samples a white coral (unknown species). [9] 01h18m Mud veneered boulders again here with scattered encrusted species. [10] 01h22m Soft sediment again. **END AT 19:45:34/01h24m.**

Physical Data			
Reef (types can be concurrent)	15% reef	15% geogenic	
		0% biogenic	n/a
			n/a
Substrates	- Mud - Mud veneer - Cobbles/boulders - Boulders		
Geomorphology/Features	- Slope		
Annex 1 Types	- Boulders		
Pressures	1 x rubbish (42m) 1 x rope (01:09:55)		

Biological Data				
Number of Species		35		
Summary Species List (Operational Taxonomic Unit, Name, Size, SACFOR, presence per habitat transition)				
	O.T.U	Species/Taxonomic ID	Size/Growth	SACFOR
	58	Porifera encrusting sp15	Crust	O
	1	Porifera encrusting sp1	Crust	R
	9	Porifera encrusting sp3	Crust	R
	231	Asterias rubens	L	F
	273	Lophius piscatorius	L	R
	289	cf Clavulariidae sp	L	O
	198	Stichastrella rosea	L	F
	441	Lepidorhombus boscii	L	R
	112	Bolocera tuediae	L	R
	263	Porania	L	O
	973	Graneledone verrucosa	L	O
	171	Mycale lingua	L	R
	1312	Chelidonichthys cuculus	L	R
	202	Cf Phakellia ventilabrum	L	O
	227	Helicolenus dactylopterus	L	R
	132	Actinostolidae sp1	L	R
	654	Molva molva	L	R
	1126	Munopsis sp	L	R
	1302	Pollachius pollachius	L	R
	127	Tubularia sp2	M	R
	41	Sagartidae sp3	M	O
	451	Ophiothrix fragilis	M	O
	1115	Pterasteridae sp	M	R
	403	Axinella infundibuliformis	M	R
	279	Echinoidea sp1	M	R
	445	Echinus sp1	M	R
	204	Reteporella	M	R
	6	Caryophyllia sp2	S	A
	113	Colus sp2	S	R
	208	Henricia sanguinolenta	S	R

1188	Argentinidae sp1	S	R
903	Hydrozoa sp3	S	R
75	Porifera massive globose sp2	S	F
277	Margarites sp1	S	R
262	Lanice sp1	S	R

Biotope List (Marine Habitat Classification for Britain & Ireland)		
Code	Name	Listed
SS.SMu	Sublittoral cohesive mud and sandy mud communities	Mud and sand emergent fauna (ICES)
CR.LCR	Low energy circalittoral rock	coral gardens (OSPAR/ICES); hard-bottom coral garden (ICES subcategory); deep-sea sponge aggregations (OSPAR/ICES); hard-bottom sponge aggregations (ICES subcategory)

Biotope progression per habitat transition (# species, dominant/characteristic species)	
1	SS.SMu
	n/a
2	SS.SMu
	n/a
3	CR.LCR
	586 Zoanthidae sp2; MissingOTU White sponge
4	SS.SMu
	n/a
5	CR.LCR
	586 Zoanthidae sp2
6	SS.SMu
	n/a
7	CR.LCR
	586 Zoanthidae sp2; MissingOTU White sponge; MissingOTU White coral
8	SS.SMu
	n/a
9	CR.LCR
	586 Zoanthidae sp2; MissingOTU white coral; MissingOTU sponge white
10	SS.SMu
	n/a

Conservation Targets	
Listed Habitats Encountered	
Name	Authority

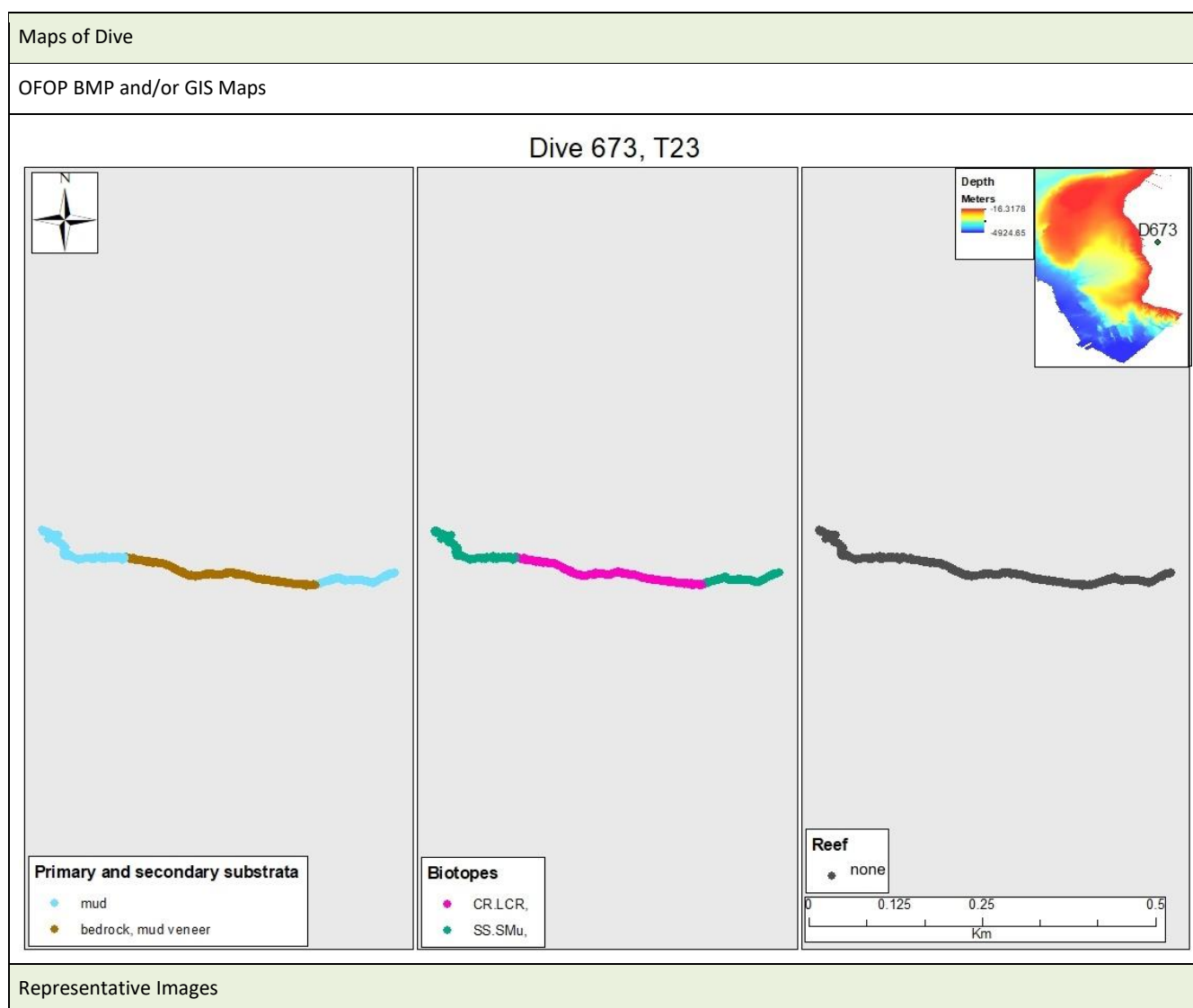
Mud and sand emergent fauna Coral gardens Hard-bottom coral garden Deep-sea sponge aggregations Hard-bottom sponge aggregations	ICES OSPAR/ICES ICES subcategory OSPAR/ICES ICES subcategory
Listed Species Encountered (Fish, Count)	
n/a	OSPAR/IUCN

Additional Comments	
n/a	

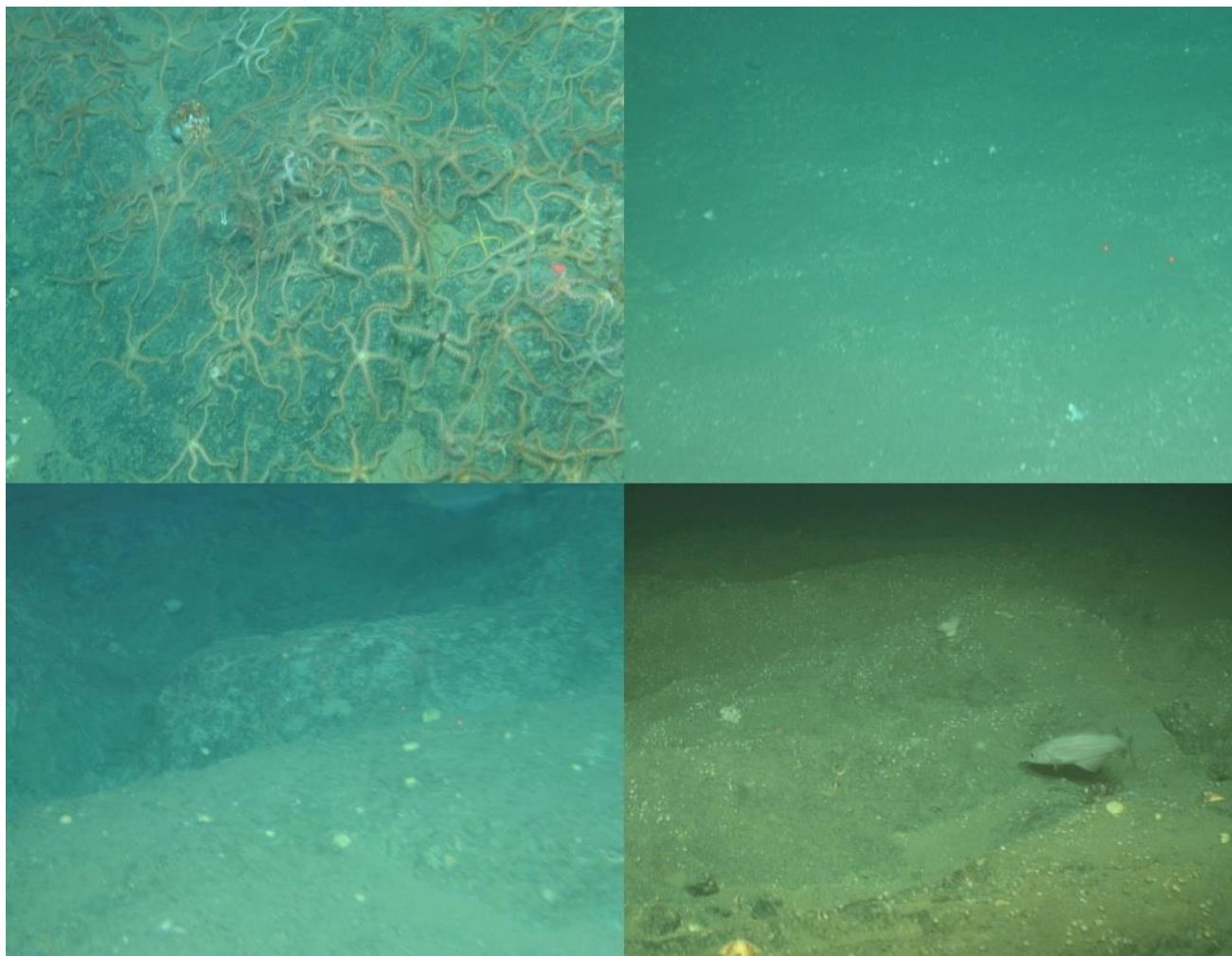
DIVE SUMMARY	
DIVE # 673	TRANSECT # 23

	Start	End
Date & Time	09/08/2019 21:32:07	09/08/2019 22:00:43
Latitude/ Longitude	51.46048767/ -10.518507	51.461041/ -10.52308433
Depth	-139.758	-138.793
Images	IMG_9686.jpg – IMG_9847.jpg	
Samples	n/a	

Location	P1
Target Features	Fishing activity via VMS
Depth Range	-128m



(Images representative of major biotopes, species, and sediments encountered throughout the transect)



Top L. Large aggregation of ophiuroids (*Ophiothrix fragilis*) living on bedrock (CR.LCR).

Top R. Coarse sediment (SS.SMu).

Bottom L. Encrusting sponges living on bedrock (CR.LCR).

Bottom R. Encrusting sponges and starfish living on bedrock (CR.LCR).

Summary Description (habitat transitions noted)

HD VIDEO STARTS AT 21:32:07/0m. Notable colony of orange ophiuroid bed (*Ophiothrix fragilis*) on mud veneered bedrock. No samples.

[1] 1m Soft sediment with scattered epifauna and occasional mobile species, including hermit crabs. Small gastropod shells (>1cm) found on sediment. ROV is moving upwards on moderate hill incline. **[2]** 6m Dense bed of orange ophiuroids (*O. fragilis*) on mud veneered bedrock. Marine snow throughout the dive. 13m Pollack aggregations appear more often. 19m Here substrata continue as mud veneered bedrock with sparse epifauna. Pollack are encountered frequently. 22m Pollack become abundant in this part of the transect. **[3]** 23m Here biotope changes into soft sediment. 28m Fields of cup coral on soft sediment. **HD VIDEO ENDS AT 22:00:43/31m.**

Physical Data

Reef
(types can be concurrent)

0% reef

n/a

n/a

n/a

			n/a
Substrates	- Mud - Mud veneer - Bedrock		
Geomorphology/Features	- Slope		
Annex 1 Types	- bedrock		
Pressures	1 x man-made rusty object (00:16:43)		

Biological Data																																																																																																																							
Number of Species		29																																																																																																																					
Summary Species List (Operational Taxonomic Unit, Name, Size, SACFOR, presence per habitat transition)																																																																																																																							
<table><tr><th>O.T.U</th><th>Species/Taxonomic ID</th><th>Size/Growth</th><th>SACFOR</th></tr><tr><td>198</td><td>Stichastrella rosea</td><td>L</td><td>R</td></tr><tr><td>441</td><td>Lepidorhombus boscii</td><td>L</td><td>R</td></tr><tr><td>1311</td><td>Octopus vulgaris</td><td>L</td><td>R</td></tr><tr><td>227</td><td>Helicolenus dactylopterus</td><td>L</td><td>R</td></tr><tr><td>254</td><td>Chaceon affinis</td><td>L</td><td>R</td></tr><tr><td>1302</td><td>Pollachius pollachius</td><td>L</td><td>F</td></tr><tr><td>1316</td><td>Gadus morhua</td><td>L</td><td>R</td></tr><tr><td>448</td><td>Luidia</td><td>L</td><td>O</td></tr><tr><td>12</td><td>Bolocera tuediae</td><td>L</td><td>R</td></tr><tr><td>131</td><td>Crinoidea sp1</td><td>L</td><td>R</td></tr><tr><td>216</td><td>Heliometra glacialis</td><td>L</td><td>R</td></tr><tr><td>263</td><td>Porania</td><td>L</td><td>R</td></tr><tr><td>75</td><td>Porifera massive globose sp2</td><td>L</td><td>F</td></tr><tr><td>563</td><td>Neocyttus helgae</td><td>L</td><td>R</td></tr><tr><td>1304</td><td>Scyliorhinus canicula</td><td>L</td><td>R</td></tr><tr><td>1188</td><td>Argentinidae sp1</td><td>M</td><td>R</td></tr><tr><td>458</td><td>Pachycerianthus multiplicatus</td><td>M</td><td>R</td></tr><tr><td>433</td><td>Pseudarchaster sp1</td><td>M</td><td>R</td></tr><tr><td>1066</td><td>Adamsia sp1</td><td>M</td><td>R</td></tr><tr><td>1126</td><td>Munidopsis sp</td><td>M</td><td>R</td></tr><tr><td>279</td><td>Echinoidea sp1</td><td>M</td><td>R</td></tr><tr><td>451</td><td>Ophiothrix fragilis</td><td>M</td><td>A</td></tr><tr><td>621</td><td>Hypsogastropoda</td><td>S</td><td>R</td></tr><tr><td>277</td><td>Margarites sp1</td><td>S</td><td>R</td></tr><tr><td>205</td><td>Paguridae sp1</td><td>S</td><td>R</td></tr><tr><td>1047</td><td>Actinoscyphiidae sp1 (pink)</td><td>S</td><td>R</td></tr><tr><td>6</td><td>Caryophyllia sp2</td><td>S</td><td>F</td></tr><tr><td>262</td><td>Lanice sp1</td><td>S</td><td>R</td></tr></table>				O.T.U	Species/Taxonomic ID	Size/Growth	SACFOR	198	Stichastrella rosea	L	R	441	Lepidorhombus boscii	L	R	1311	Octopus vulgaris	L	R	227	Helicolenus dactylopterus	L	R	254	Chaceon affinis	L	R	1302	Pollachius pollachius	L	F	1316	Gadus morhua	L	R	448	Luidia	L	O	12	Bolocera tuediae	L	R	131	Crinoidea sp1	L	R	216	Heliometra glacialis	L	R	263	Porania	L	R	75	Porifera massive globose sp2	L	F	563	Neocyttus helgae	L	R	1304	Scyliorhinus canicula	L	R	1188	Argentinidae sp1	M	R	458	Pachycerianthus multiplicatus	M	R	433	Pseudarchaster sp1	M	R	1066	Adamsia sp1	M	R	1126	Munidopsis sp	M	R	279	Echinoidea sp1	M	R	451	Ophiothrix fragilis	M	A	621	Hypsogastropoda	S	R	277	Margarites sp1	S	R	205	Paguridae sp1	S	R	1047	Actinoscyphiidae sp1 (pink)	S	R	6	Caryophyllia sp2	S	F	262	Lanice sp1	S	R
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Biotope List (Marine Habitat Classification for Britain & Ireland)																																																																																																																							
Code	Name	Listed																																																																																																																					
SS.SMu	Sublittoral cohesive mud and sandy mud communities	Mud and sand emergent fauna (ICES)																																																																																																																					

CR.LCR	Low energy circalittoral rock	
Biotope progression per habitat transition (# species, dominant/characteristic species)		
1	SS.SMu	
	621 Hypsogastropoda	
2	CR.LCR	
	451 Ophiothrix fragilis; 279 Echinoidea sp1	
3	SS.SMu	
	262 Lanice sp1	

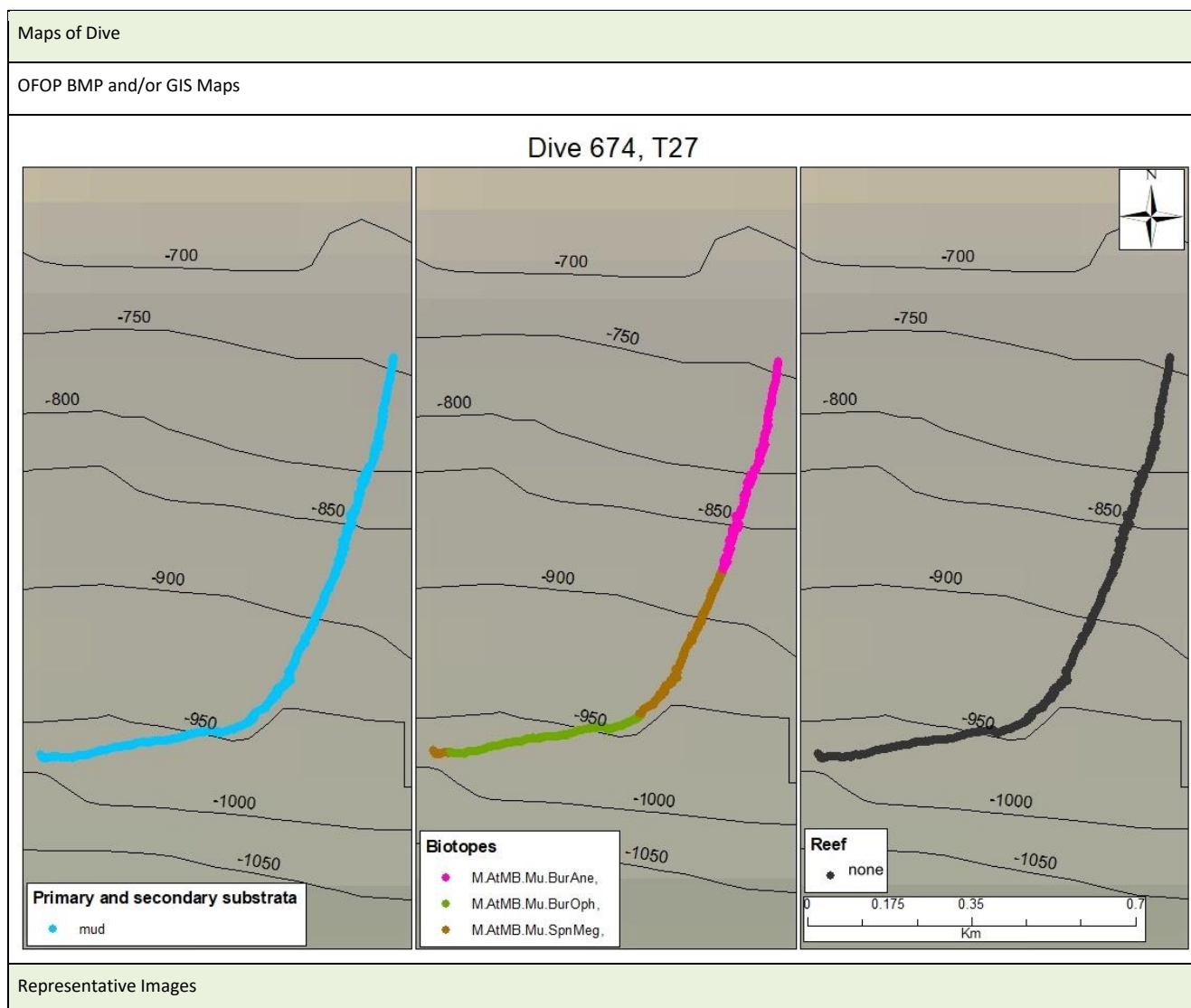
Conservation Targets		
Listed Habitats Encountered		
Name	Authority	
Mud and sand emergent fauna	ICES	
Listed Species Encountered (Fish, Count)		
n/a		OSPAR/IUCN

Additional Comments		
n/a		

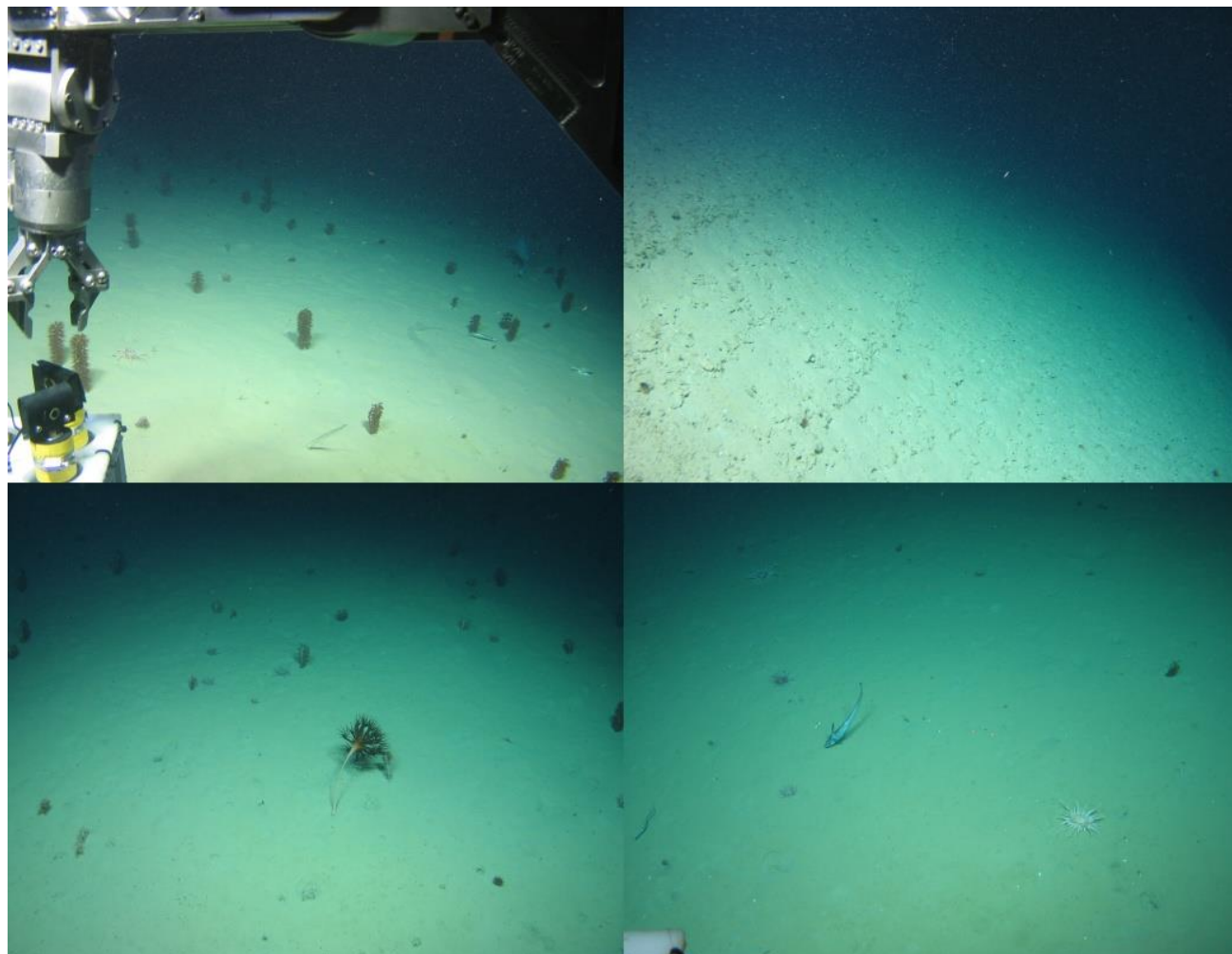
DIVE SUMMARY	
DIVE # 674	TRANSECT # 27

	Start	End
Date & Time	11/08/2019 07:51:33	11/08/2019 09:49:22
Latitude/ Longitude	50.7409155/-11.27711117	50.748582/-11.27038717
Depth	-1096.099	-833.943
Images	IMG_0001.jpg – IMG_9900.jpg	
Samples	2 x push cores	

Location	P1
Target Features	Track unexplored feature
Depth Range	-1068m



(Images representative of major biotopes, species, and sediments encountered throughout the transect)



Top L. *Kophobelemnon stelliferum* field on muddy slope (M.AtMB.Mu.SpnMeg).

Top R. Steep muddy slope (M.AtMB.Mu.BurOph).

Bottom L. *Kophobelemnon stelliferum* field on muddy slope with *Umbellula sp* (M.AtMB.Mu.SpnMeg).

Bottom R. Muddy slope with anemones and a grenadier (*Coryphaenoides rupestris*) (M.AtMB.Mu.BurAne).

Summary Description (habitat transitions noted)

HD VIDEO STARTS AT 07:51:33/0m. Sea pen fields on moderate muddy slope intersperse with steep soft sediment hosting ophiuroids. 0m ROV stops for sampling two push cores. It continues to grab images of Metallogorgia, Irifogorgia or Cirrhipathes. The ROV arm is ready to collect the spiral specimen and the ROV team resigns the sampling. 0-13m **[1]** The dive starts on a sea pen field (*Kophobelemnon stelliferum*) on muddy slope. 13m **[2]** The slope is 45 degrees inclined (left to right) with soft sediment hosting white ophiuroids living in small burrows. The ROV follows the bathymetry going uphill. 33m The slope is very steep now, nearly soft sediment vertical wall. 36m **[3]** Here sea pen fields start again on muddy slope. Other associated species are *Umbellula sp* and *Sagartidae sp3*. 43m ROV stops for imagery of sea pens. 55m Mud cloud/Vision obscured. 56m ROV stops for imagery of sea pens (possibly *K. stelliferum*) and *Sagartidae sp3*. 01h15m Rubbish. 01h18m Mud cloud/ Vision obscured. 01h18m **[4]** Here steep muddy slope with frequent *Sagartidae sp3* and *K.stelliferum*. 01h35m ROV stops for imagery of *Corymorphidae sp*. 01h39m ROV stops for imagery of *Pachycerianthus multiplicatus*. 01h56m Vision obscured/mud cloud. **HD VIDEO ENDS AT 09:49:22/02h03m.**

Physical Data

Reef (types can be concurrent)	0% reef	n/a	
		n/a	n/a
			n/a

Substrates	- Mud
Geomorphology/Features	- Slope
Annex 1 Types	n/a
Pressures	1 x rubbish – wine card box (01:15:26) 1 x long line (01:45:55) 1 x long line (01:55:12)

Biological Data				
Number of Species		39		
Summary Species List (Operational Taxonomic Unit, Name, Size, SACFOR, presence per habitat transition)				
	O.T.U	Species/Taxonomic ID	Size/Growth	SACFOR
	585	Acanella arbuscula	L	R
	4	Actiniaria sp1	L	R
	1047	Actinoscyphiidae sp1	L	R
	1074	Alepocephaliformes sp1	L	R
	235	Bathynectes sp	L	R
	984	cf Halcampoididae sp	L	R
	1204	Corymorphidae sp	L	R
	131	Crinoidea sp1	L	R
	1139	Deania sp	L	R
	317	Epizoanthus sp1	L	R
	937	Graneledone verrucosa	L	R
	1125	Hygrosoma sp	L	R
	442	Kophobelemnnon stelliferum	L	A
	249	Lepidion eques	L	R
	994	Metallogorgia, Irifogorgia or Cirrhipathes	L	R
	1012	Notacanthiformes sp1	L	R
	551	Ophiomusa lymani	L	A
	640	Ophiuroidea sp10	L	R
	458	Pachycerianthus multiplicatus	L	C
	266	Parastichopus tremulus	L	R
	1191	Pennatulacea sp3	L	R
	1020	Phycis blennoides	L	R
	552	Polyacanthonotus rissoanus	L	R
	433	Pseudarchaster sp1	L	R
	1044	Radicipes sp	L	R
	41	Sagartidae sp3	L	R
	988	Zoroaster fulgens	L	R
	1017	Teuthida sp1	L	R
	446	Trachyrhynchus sp	L	R
	1303	Trichiuridae	L	R
	581	Umbellula sp	L	O
	259	Zoarcidae sp1	L	R
	1118	Sagartidae sp	L	R
	621	Hypsogastropoda	M	R
	605	Actiniaria sp20	S	R
	1077	Caridea (indet)	S	R
	2	Cerianthidae sp1	S	R

	<table border="1"> <tr> <td>339</td> <td>Munida tenuimana</td> <td>S</td> <td>R</td> </tr> <tr> <td>205</td> <td>Paguridae sp</td> <td>S</td> <td>R</td> </tr> </table>	339	Munida tenuimana	S	R	205	Paguridae sp	S	R
339	Munida tenuimana	S	R						
205	Paguridae sp	S	R						
Biotope List (Marine Habitat Classification for Britain & Ireland)									
Code	Name	Listed							
M.AtMB.Mu.SpnMeg	Sea pens and burrowing megafauna on Atlantic mid bathyal	Mud and sand emergent fauna (ICES); sea-pen and burrowing megafuna communities (OSPAR); seapen fields (ICES)							
M.AtMB.Mu.BurOph	Burrowing ophiuroid community on Atlantic mid bathyal mud	Mud and sand emergent fauna (ICES)							
M.AtMB.Mu.BurAne	Burrowing anemone field in Atlantic mid bathyal mud	Mud and sand emergent fauna (ICES); anemone aggregations (ICES); soft-bottom anemone aggregations (ICES subcategory); sea-pen and burrowing megafauna communities (OSPAR); seapen fields (ICES)							
Biotope progression per habitat transition (# species, dominant/characteristic species)									
1	M.AtMB.Mu.SpnMeg								
	442 Kophobelemnon stelliferum; 581 Umbellula sp								
2	M.AtMB.Mu.BurOph								
	551 Ophiomusa lymani; 4 Actiniaria sp1								
3	M.AtMB.Mu.SpnMeg								
	442 Kophobelemnon stelliferum; 41 Sagartidae sp3								
4	M.AtMB.Mu.BurAne								
	1118 Sagartidae sp; 41 Sagartidae sp3								
Conservation Targets									
Listed Habitats Encountered									
Name	Authority								
Mud and sand emergent fauna Anemone aggregations - Soft-bottom anemone aggregations Sea-pen and burrowing megafauna communities Seapen fields	ICES ICES ICES subcategory OSPAR ICES								
Listed Species Encountered (Fish, Count)									
n/a	OSPAR/IUCN								
Additional Comments									
n/a									

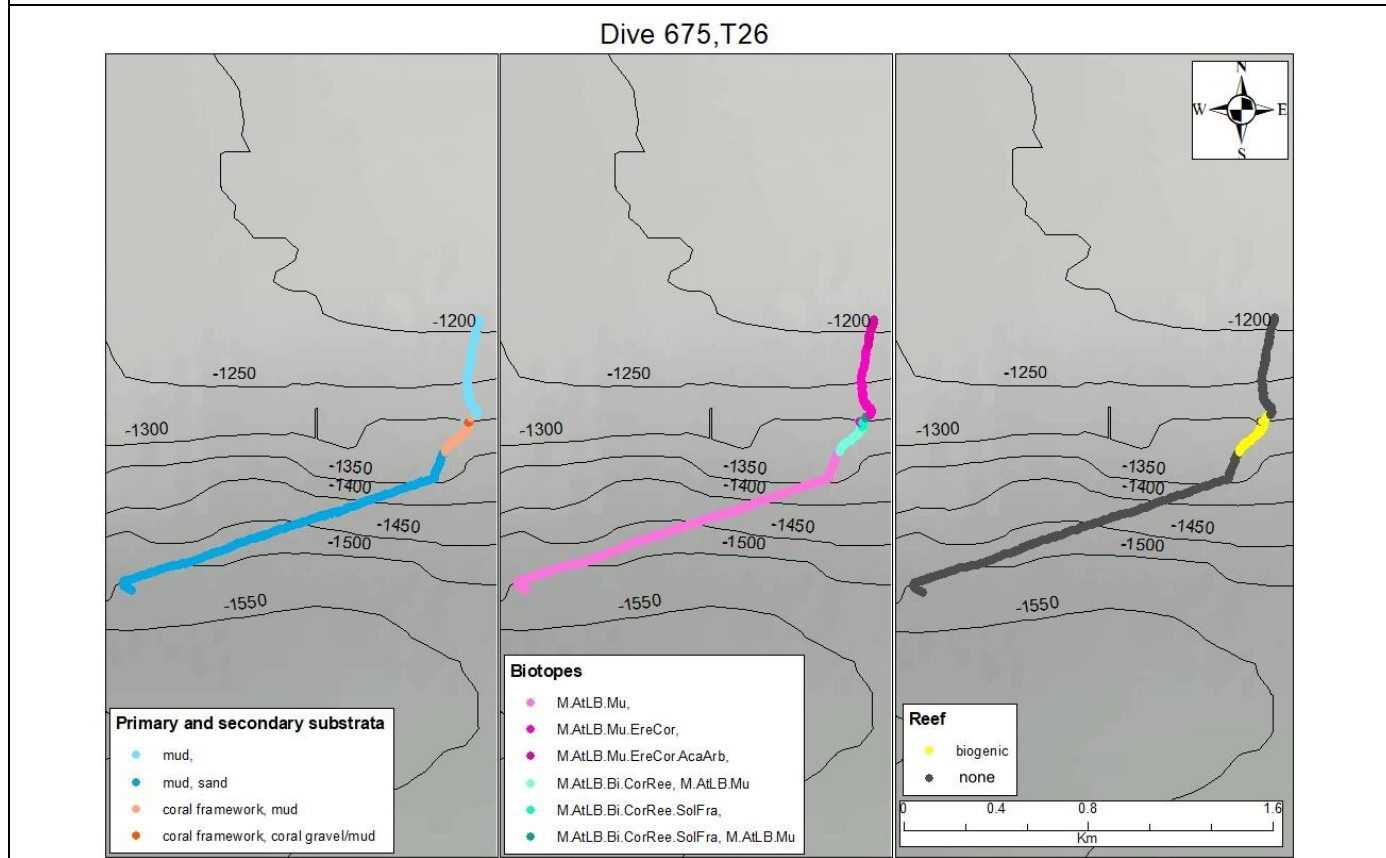
DIVE SUMMARY		
DIVE #	675	TRANSECT # 26

	Start	End
Date & Time	11/08/2019 12:47:30	11/08/2019 15:26:13
Latitude/ Longitude	50.7105875/ -11.4022265	50.7212725/ -11.38843983
Depth	-1583.789	-1206.918
Images	IMG_0007.jpg – IMG_0415.jpg	
Samples	2 x pushcore 1 x Chrysogorgiidae sp1	

Location	P2
Target Features	Track unexplored feature
Depth Range	-1580m

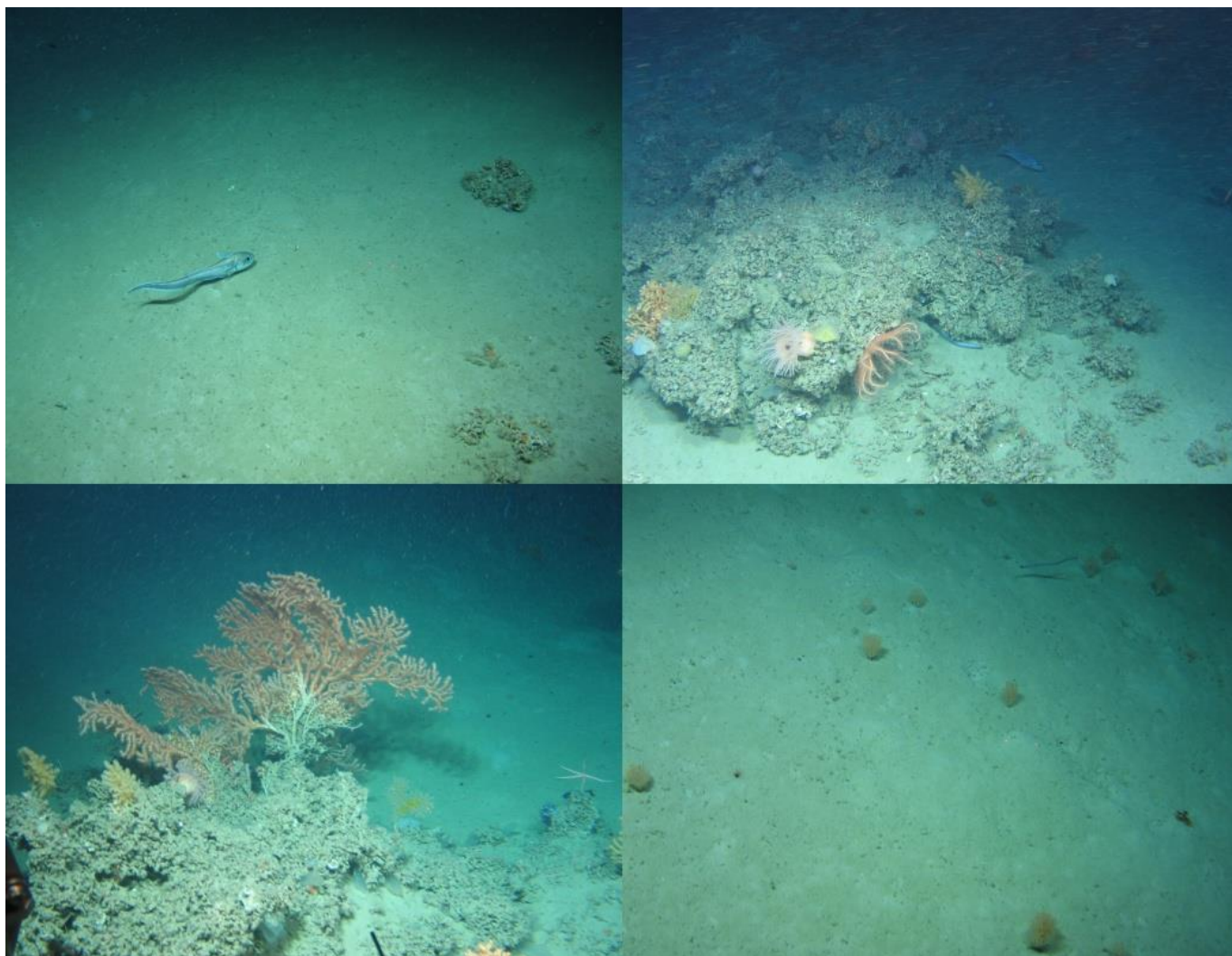
Maps of Dive

OFOF BMP and/or GIS Maps



Representative Images

(Images representative of major biotopes, species, and sediments encountered throughout the transect)



Top L. Muddy slope with a few *Solenosmilia variabilis* colonies and a grenadier (*Coryphaenoides rupestris*) (M.AtLB.Mu).

Top R. Dense *Solenosmilia* reef hosting plexauridae, anemone and brisingidae (M.AtLB.Bi.CorRee.SolFra).

Bottom R. *Solenosmilia* reef inhabited by *Jasonisis* sp, plexauridae and anemones (M.AtLB.Bi.CorRee.SolFra).

Bottom L. *Acanella arbuscula* field on moderate muddy slope (M.AtLB.Mu.EreCor.AcaArb).

Summary Description (habitat transitions noted)

(Video A). **STARTS AT 12:47:30/0m.** Mainly muddy slope. Towards the end of the first video and second video, extended areas of *Solenosmilia variabilis* reef host many epifauna including isidiidae corals and lamellate sponges.

1m ROV is on the seafloor and it samples two pushcores. The dive starts on a moderate inclined slope, mainly muddy sediment with sparse epifauna. 11m A few individuals of orange roughy (*Hoplostethus atlanticus*) spotted on muddy slopes. 47m Here orange roughy is encountered very frequently. 01h26m A few colonies of *Solenosmilia variabilis*. 01h30m Here, *S. variabilis* reef is present and well-spread. A variety of epifauna has been observed, including *Actinostolidae* sp, *Acanthogorgia* sp and *Jasonisis* sp. 5m Encounter of orange roughy (*Hoplostethus atlanticus*). 42m Plastic sheet on sea floor. 48m A population of orange roughy here. 01h30m Rubbish (plastic/can). 01h40m *Solenosmilia variabilis* reef with variety of epifauna living on it, including *Acanthogorgia* sp, glass sponges and *Actinostolidae* sp. 01h48m ROV stops for sampling *Chrysogorgiidae* sp. **ENDS AT 14:39:57/01h52m.**

(Video B). **STARTS AT 14:39:55.** Coral framework area continues here. A variety of epifauna found on coral reef, including *Jasonisis* sp. 13m Here a patchy colony of sea pens encountered and interfere with Ceriantharia. 43m Fields of *Acanella arbuscula* co-habit with foraminifera on muddy slope. **ENDS AT 15:26:13/52m.**

Physical Data			
Reef (types can be concurrent)	22% reef	0% geogenic	
		22% biogenic	<5% living
			95% dead
Substrates	- Mud - Sand - Coral gravel/mud - Coral framework		
Geomorphology/Features	- Slope		
Annex 1 Types	- Coral reef		
Pressures	1 x rubbish (e.g. plastic) (42m) 1 x rubbish (can/plastic) (01h30m)		

Biological Data				
Number of Species		76		
Summary Species List (Operational Taxonomic Unit, Name, Size, SACFOR, presence per habitat transition)				
	O.T.U	Species/Taxonomic ID	Size/Growth	SACFOR
	544	Acanthogorgia granulata	L	R
	554	Actinernus sp	L	R
	930	Actinopterygii sp3	L	R
	1047	Actinoscyphiidae sp1(pink)	L	C
	132	Actinostolidae sp1	L	R
	274	Brisingidae	L	R
	1111	Cataetx laticeps	L	R
	265	Chimaera monstrosa	L	R
	1008	Chrysogorgiidae sp1	L	R
	577	Coryphaenoides guentheri	L	R
	566	Coryphaenoides rupestris	L	R
	131	Crinoidea sp1	L	R
	649	Eknomisis sp	L	R
	317	Epizoanthus sp1	L	R
	1305	Galeus sp	L	R
	937	Graneledone verrucosa	L	R
	622	Halipterus sp	L	R
	936	Harriotta raleighana	L	R
	574	Holothuroidea sp2	L	R
	1179	Holothuroidea sp6	L	R
	651	Hoplostethus atlanticus	L	F
	1039	Hydrolagus cf affinis	L	R
	653	Hydrolagus sp	L	R
	1125	Hygrosoma sp	L	R
	1070	Jasonisis sp	L	C
	315	Koehlermetra porrecta	L	R
	442	Kophobelemnnon stelliferum	L	R
	249	Lepidion eques	L	R
	1194	Muusoctopus johnsonianus	L	R
	563	Neocyttus helgae	L	R
	1063	Neolithodes grimaldii	L	O

1003	Nezumia aequalis	L	R
1012	Notacanthiformes sp1	L	R
551	Ophiomusa lymani	L	R
458	Pachycerianthus multiplicatus	L	R
1050	Paramuricea sp	L	O
1046	Pennatula aculeata	L	R
436	Pentametrocrinus atlanticus	L	R
202	Cf Phakellia ventilabrum	L	C
255	Phelliactis sp	L	R
555	Phormosoma placenta	L	R
552	Polyacanthonotus rissoanus	L	R
1151	Porifera lamellate (hexactinosida)	L	R
1090	Porifera massive lobose sp32	L	R
433	Pseudarchaster sp1	L	R
1115	Pterasteridae sp3	L	R
1047	Actinoscyphiidae sp1 (pink)	L	R
652	Rajiformes sp1	L	R
1118	Sagartidae sp6	L	R
700	Solenosmilia variabilis	L	C
988	Zoroaster fulgens	L	R
440	Synaphobranchus kaupii	L	R
446	Trachyrhynchus sp	L	R
581	Umbellula sp	L	R
988	Zoroaster fulgens	L	R
585	Acanella arbuscula	M	F
608	Acanthogorgia armata	M	F
264	Aphrocallistes sp	M	R
591	Ascidacea sp5	M	C
984	cf Halcampoididae sp	M	R
1059	Colossendeis sp	M	R
1056	Flabellum sp	M	R
1166	Guttigadus latifrons	M	R
75	Porifera massive globose sp2	M	R
261	Syringammina fragilissima	M	R
259	Zoarcidae sp1	M	R
623	Porifera lamellate sp10	Mass	R
605	Actiniaria sp20	S	R
1077	Caridea (indet)	S	R
6	Caryophyllia sp2	S	R
584	Caryophyllia sp5 (bullseye)	S	R
2	Cerianthidae sp1	S	F
1092	cf Histcidaris purpurata (deep)	S	R
1054	Chyrostylidae (indet)	S	R
1209	Cirripedia sp2	S	R
1154	Henricea sp1	S	R
339	Munida tenuimana	S	R

Biotope List (Marine Habitat Classification for Britain & Ireland)

Code	Name	Listed
M.AtLB.Bi.CorRee	Atlantic lower bathyal cold water coral reef (biogenic structure)	Cold-water coral reef (ICES); <i>Solenosmilia variabilis</i> reef (ICES subcategory); deep-sea sponge aggregations (OSPAR/ICES)
M.AtLB.Bi.CorRee.SolFra	Mixed coral assemblage on Atlantic lower bathyal <i>Solenosmilia</i> reef framework (biogenic structure)	Cold-water coral reef (ICES); <i>Solenosmilia variabilis</i> reef (ICES subcategory)

M.AtLB.Mu	Atlantic lower bathyal mud	Mud and sand emergent fauna (ICES)
M.AtLB.Mu.EreCor	Erect coral field on Atlantic lower bathyal mud	Sea-pen and burrowing megafauna communities (OSPAR)
M.AtLB.Mu.EreCor.AcaArb	<i>Acanella arbuscula</i> assemblage on Atlantic lower bathyal mud	Sea-pen and burrowing megafauna communities (OSPAR)
Biotope progression per habitat transition (# species, dominant/characteristic species)		
1	M.AtLB.Mu	
	651 <i>Hoplostethus atlanticus</i>	
2	M.AtLB.Bi.CorRee; M.AtLB.Mu	
	700 <i>Solenosmilia variabilis</i> ; 1063 <i>Neolithodes grimaldii</i> ; 1050 <i>Paramuricea</i> sp	
3	M.AtLB.Bi.CorRee.SolFra	
	700 <i>Solenosmilia variabilis</i> ; 554 <i>Actinernus</i> sp; 591 <i>Asciacea</i> sp2; 608 <i>Acanthogorgia armata</i>	
4	M.AtLB.Mu.EreCor	
	622 <i>Halipteris</i> cf <i>finmarchica</i> ; 317 <i>Epizoanthus</i> sp1 (<i>paguridae</i> Assoc)	
5	M.AtLB.Bi.CorRee.SolFra	
	700 <i>Solenosmilia variabilis</i> ; 1151 <i>Porifera</i> lamellate (<i>hexactinosida</i>); 1050 <i>Paramuricea</i> sp; 132 <i>Actinostolidae</i> sp1; 591 <i>Asciacea</i> sp2	
6	M.AtLB.Bi.CorRee.SolFra; M.AtLB.Mu	
	700 <i>Solenosmilia variabilis</i> ; 1070 <i>Jasonis</i> sp; 1050 <i>Paramuricea</i> sp	
7	M.AtLB.Mu.EreCor	
	2 <i>Ceriantharia</i> ; 442 <i>Kophobelemnion stelliferum</i> ; 188 <i>Araeosoma fenestratum</i>	
8	M.AtLB.Mu.EreCor.AcaArb	
	585 <i>Acanella arbuscula</i> ; 2 <i>Ceriantharia</i> ; 442 <i>Kophobelemnion stelliferum</i> ; 440 <i>Synaphobranchus kaupii</i>	

Conservation Targets	
Listed Habitats Encountered	
Name	Authority
Mud and sand emergent fauna Cold-water coral reef <i>Solenosmilia variabilis</i> reef Sea-pen and burrowing megafauna communities Deep-sea sponge aggregations	ICES ICES ICES subcategory OSPAR OSPAR/ICES
Listed Species Encountered (Fish, Count)	

<i>Hoplostethus atlanticus</i> (Orange Roughy)		OSPAR/IUCN
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Additional Comments
n/a

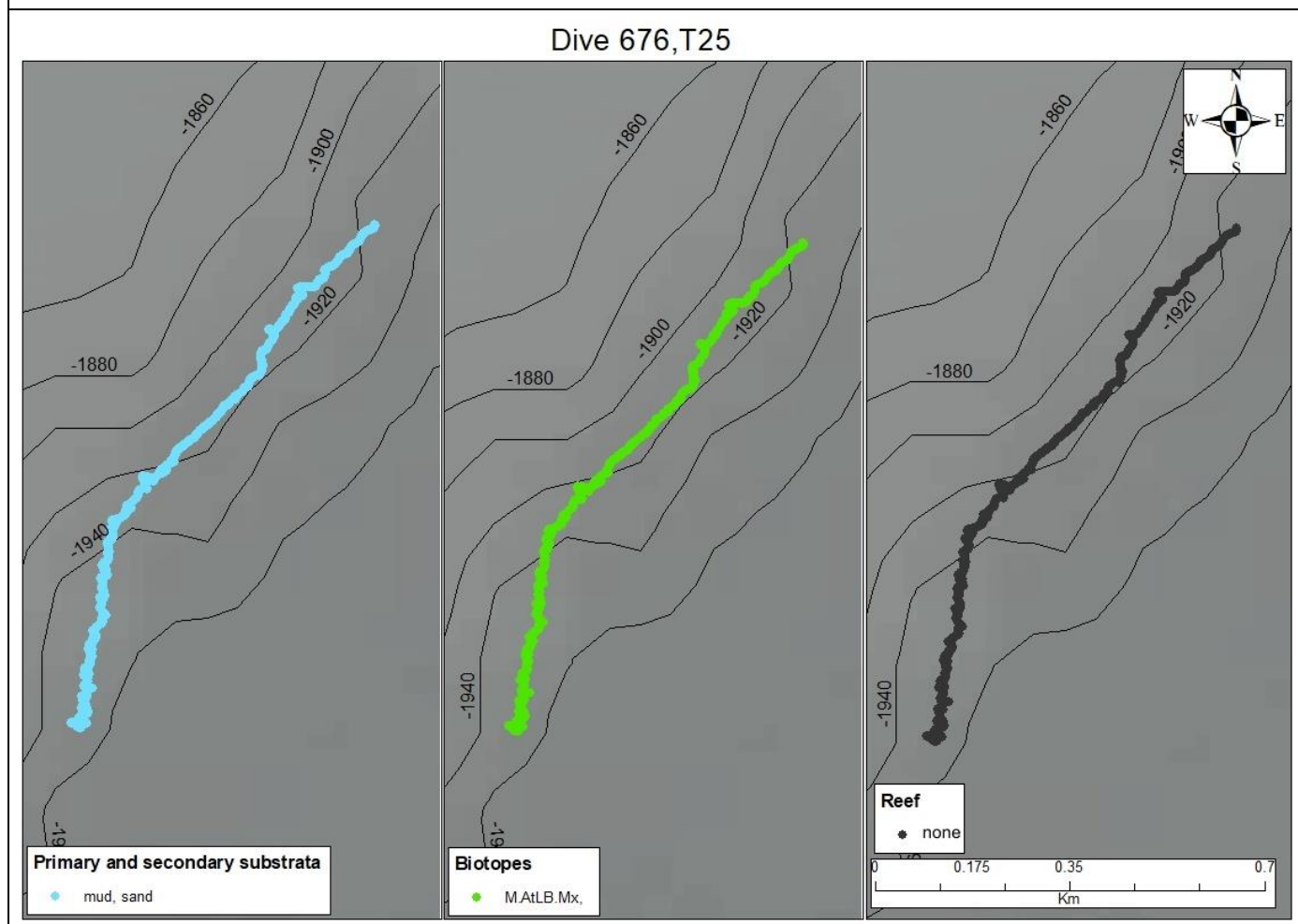
DIVE SUMMARY	
DIVE # 676	TRANSECT # 25

	Start	End
Date & Time	11/08/2019 19:03:27	11/08/2019 20:31:25
Latitude/ Longitude	50.670297/ -11.6599515	50.6785635/-11.65502433
Depth	-1924.431	-1921.706
Images	IMG_0416.jpg – IMG_0434.jpg	
Samples	2 x pushcores	

Location	P1
Target Features	Track unexplored feature
Depth Range	-1956m

Maps of Dive

OPOP BMP and/or GIS Maps



Representative Images			
(Images representative of major biotopes, species, and sediments encountered throughout the transect)			
			
Top L. Mixed sediment slope with no dominant species (M.AtLB.Mu.InfPol). Top R. Mixed sediment slope with large cobble hosting encrusting species (M.AtLB.Mu.InfPol). Bottom L. Sea pen and echinoid on mixed sediment slope (M.AtLB.Mu.InfPol). Bottom R. Halipteris sp on mixed sediment slope (M.AtLB.Mu.InfPol).			
Summary Description (habitat transitions noted)			
STARTS AT 19:03:26/0m. Muddy slope with sparse epifauna, mainly sea urchins and sea cucumbers. Slope inclination fluctuates across the dive, from moderate to steep. 1m ROV stops for sampling two pushcores. Throughout the entire video, the dive is set on muddy slope with sparse epifauna, mainly sea urchins and sea cucumbers. Slope inclination fluctuates across the dive, from moderate to steep. 5m Obscured vision. 7m Scattered animal tracks on muddy slope. 15m Muddy slope continues on moderate/steep slope which host sparse epifauna, including ophiuroids. 21m Fluffy organic matter (cf worm-like tubes) emerging from muddy slope. ENDS AT 20:31:25/01h33m.			

Physical Data			
Reef (types can be concurrent)	0% reef	n/a	
		n/a	n/a

			n/a
Substrates	- Mud - Sand		
Geomorphology/Features	- Slope		
Annex 1 Types	n/a		
Pressures	n/a		

Biological Data																																																																																																																																																			
Number of Species		35																																																																																																																																																	
Summary Species List (Operational Taxonomic Unit, Name, Size, SACFOR, presence per habitat transition)																																																																																																																																																			
	<table><tr><th>O.T.U</th><th>Species/Taxonomic ID</th><th>Size/Growth</th><th>SACFOR</th></tr><tr><td>7</td><td>Porifera encrusting sp2</td><td>Crust</td><td>R</td></tr><tr><td>582</td><td>Actiniaria sp18</td><td>L</td><td>R</td></tr><tr><td>930</td><td>Actinopterygii sp3</td><td>L</td><td>R</td></tr><tr><td>278</td><td>Anthomastus grandiflorus</td><td>L</td><td>R</td></tr><tr><td>1120</td><td>Anthoptilum sp</td><td>L</td><td>R</td></tr><tr><td>1301</td><td>Antimora sp</td><td>L</td><td>R</td></tr><tr><td>1124</td><td>Benthothuria</td><td>L</td><td>R</td></tr><tr><td>432</td><td>Benthogone sp</td><td>L</td><td>R</td></tr><tr><td>211</td><td>Cidaris cidaris</td><td>L</td><td>R</td></tr><tr><td>577</td><td>Coryphaenoides guentheri</td><td>L</td><td>R</td></tr><tr><td>1106</td><td>Eucarida sp</td><td>L</td><td>R</td></tr><tr><td>937</td><td>Graneledone verrucosa</td><td>L</td><td>R</td></tr><tr><td>622</td><td>Halipterus sp</td><td>L</td><td>R</td></tr><tr><td>1113</td><td>Halosauridae sp</td><td>L</td><td>R</td></tr><tr><td>1179</td><td>Holothuroidea sp6</td><td>L</td><td>R</td></tr><tr><td>1012</td><td>Notacanthiformes sp1</td><td>L</td><td>R</td></tr><tr><td>551</td><td>Ophiomusa lymani</td><td>L</td><td>F</td></tr><tr><td>555</td><td>Phormosoma placenta</td><td>L</td><td>R</td></tr><tr><td>552</td><td>Polyacanthonotus rissoanus</td><td>L</td><td>R</td></tr><tr><td>1178</td><td>Porifera globose lobose</td><td>L</td><td>R</td></tr><tr><td>440</td><td>Synaphobranchus kaupii</td><td>L</td><td>R</td></tr><tr><td>261</td><td>Syringammina fragilissima</td><td>L</td><td>R</td></tr><tr><td>581</td><td>Umbellula sp</td><td>L</td><td>O</td></tr><tr><td>585</td><td>Acanella arbuscula</td><td>M</td><td>R</td></tr><tr><td>605</td><td>Actiniaria sp20</td><td>M</td><td>R</td></tr><tr><td>584</td><td>Caryophyllia sp5 (bullseye)</td><td>M</td><td>R</td></tr><tr><td>984</td><td>cf Halcampoididae sp</td><td>M</td><td>R</td></tr><tr><td>1056</td><td>Flabellum sp</td><td>M</td><td>O</td></tr><tr><td>255</td><td>Phelliactis sp</td><td>M</td><td>R</td></tr><tr><td>650</td><td>Asconema sp</td><td>Mass</td><td>R</td></tr><tr><td>1053</td><td>Porifera lamellate sp13</td><td>Mass</td><td>R</td></tr><tr><td>2</td><td>Cerianthidea sp1</td><td>S</td><td>F</td></tr><tr><td>445</td><td>Echinus sp1</td><td>S</td><td>C</td></tr><tr><td>621</td><td>Hypsogastropoda</td><td>S</td><td>R</td></tr><tr><td>1191</td><td>Pennatulacea sp3</td><td>S</td><td>F</td></tr></table>	O.T.U	Species/Taxonomic ID	Size/Growth	SACFOR	7	Porifera encrusting sp2	Crust	R	582	Actiniaria sp18	L	R	930	Actinopterygii sp3	L	R	278	Anthomastus grandiflorus	L	R	1120	Anthoptilum sp	L	R	1301	Antimora sp	L	R	1124	Benthothuria	L	R	432	Benthogone sp	L	R	211	Cidaris cidaris	L	R	577	Coryphaenoides guentheri	L	R	1106	Eucarida sp	L	R	937	Graneledone verrucosa	L	R	622	Halipterus sp	L	R	1113	Halosauridae sp	L	R	1179	Holothuroidea sp6	L	R	1012	Notacanthiformes sp1	L	R	551	Ophiomusa lymani	L	F	555	Phormosoma placenta	L	R	552	Polyacanthonotus rissoanus	L	R	1178	Porifera globose lobose	L	R	440	Synaphobranchus kaupii	L	R	261	Syringammina fragilissima	L	R	581	Umbellula sp	L	O	585	Acanella arbuscula	M	R	605	Actiniaria sp20	M	R	584	Caryophyllia sp5 (bullseye)	M	R	984	cf Halcampoididae sp	M	R	1056	Flabellum sp	M	O	255	Phelliactis sp	M	R	650	Asconema sp	Mass	R	1053	Porifera lamellate sp13	Mass	R	2	Cerianthidea sp1	S	F	445	Echinus sp1	S	C	621	Hypsogastropoda	S	R	1191	Pennatulacea sp3	S	F		
O.T.U	Species/Taxonomic ID	Size/Growth	SACFOR																																																																																																																																																
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1191	Pennatulacea sp3	S	F																																																																																																																																																
Biotope List (Marine Habitat Classification for Britain & Ireland)																																																																																																																																																			

Code	Name	Listed
M.AtLB.Mu.InfPol	Mixed infauna dominated by polychaetes in Atlantic lower bathyal mud	Mud and sand emergent fauna (ICES)
Biotope progression per habitat transition (# species, dominant/characteristic species)		
1	M.AtLB.Mu.InfPol	
	555 Phormosoma placenta; 445 Echinus sp1; 1056 Flabellum sp	

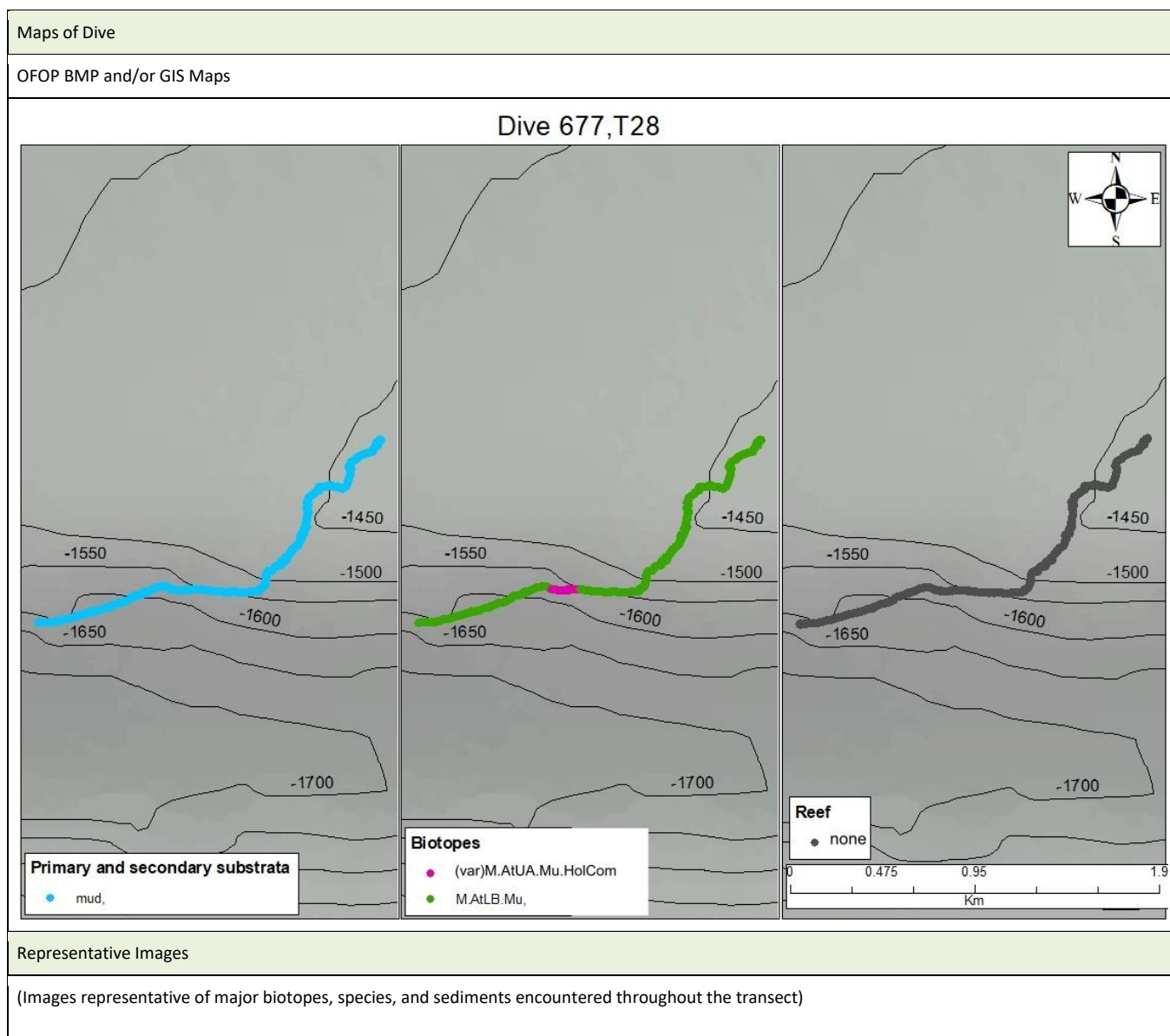
Conservation Targets		
Listed Habitats Encountered		
Name	Authority	
Mud and sand emergent fauna	ICES	
Listed Species Encountered (Fish, Count)		
n/a		OSPAR/IUCN

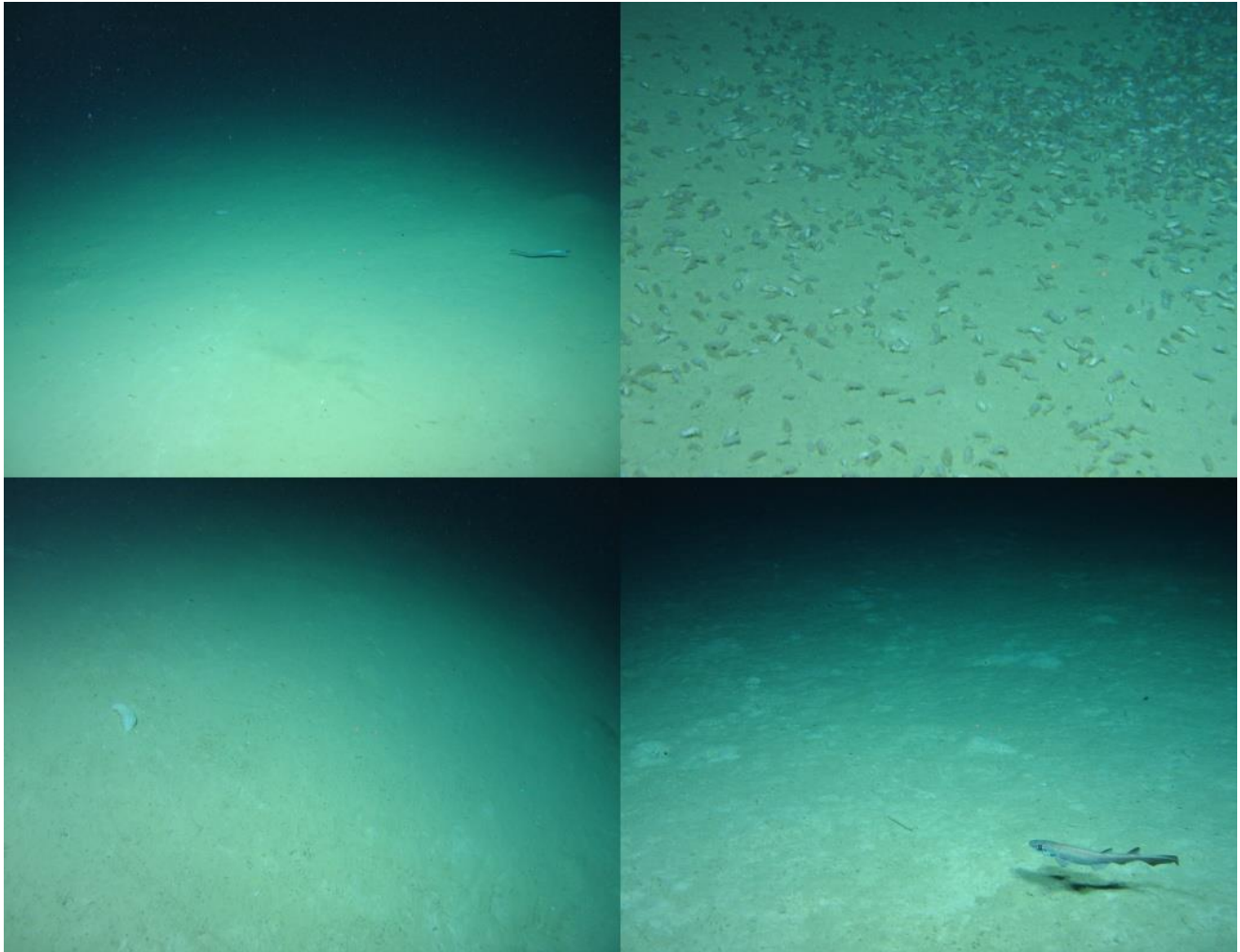
Additional Comments
n/a

DIVE SUMMARY		
DIVE #	677	TRANSECT # 28

	Start	End
Date & Time	12/08/2019 00:31:38	12/08/2019 02:52:28
Latitude/ Longitude	50.5165867/ -11.4771975	50.5252269/ -11.46107817
Depth	-1728.293	-1438.873
Images	IMG_0435.jpg – IMG_0656.jpg	
Samples	2 x pushcores	

Location	P1
Target Features	Track unexplored feature
Depth Range	-1726m





Top L. Muddy slope with cutthroat eel (*Synaphobranchus kaupii*) (M.AtLB.Mu).

Top R. *Elpidiidae* sp aggregation on muddy slope ((var)M.AtUA.Mu.HolCom).

Bottom L. Steep muddy slope with *Benthogone* sp ((var)M.AtUA.Mu.HolCom).

Bottom R. Muddy slope with *Galeus* sp (M.AtLB.Mu).

Summary Description (habitat transitions noted)

STARTS AT 00:31:37/0m. The entire video is filmed on muddy moderate to steep slope with scattered epifauna. Remarkable holothurian aggregations encountered. Plenty of rubbish was found in this dive. 1m ROV stops for sampling two pushcores. 8m Here, muddy slope is covered with many small organisms including small sea cucumbers (<5 cm long). 9m Rubbish. 33m Animal marks on muddy slope. 40m Very blurred image of *Harriotta haeckeli*. 44m Extended aggregation of holothurians with a few *Coryphaenoides rupestris* swimming around. 57m ROV hovers on steep muddy slope. 01h47m Here a dead crustacean is filmed (poss *Neolithodes grimaldii*). **ENDS AT 02:28:24/01h57m.**

STARTS AT 02:28:25/0m. The second video shows the ROV on muddy slope, to validate niskin bottles functionality. 18m ROV tests niskin bottles (successful). Muddy slope for the entire video with a few *Synaphobranchus kaupii* and *Galeus* sp swimming around the ROV. **ENDS AT 02:52:28/23m.**

Physical Data			
Reef (types can be concurrent)	0% reef	n/a	
		n/a	n/a
			n/a
Substrates	- Mud		
Geomorphology/Features	- Slope		

Annex 1 Types	n/a
Pressures	#1) 1 x rubbish (9m) #2) 1 x rubbish – black plastic sheet/mat (11m) #3) 1 x rubbish – plastic sheet and fishing net (17m) #4) 1 x rubbish – plastic sheet (19m) #5) 1 x rubbish – plastic sheet (20m) #6) 1 x rubbish – grey/tinfoil-like sheet (23m) #7) 1 x rubbish – blue plastic sheet (34m) #8) 1 x rubbish – muddy color sheet (36m) #9) 1 x rubbish – white sheet (37m) #10) 1 x rubbish – transparent (38m) #11) 1 x rubbish – glass bottle (01h51m)

Biological Data			
Number of Species		40	
Summary Species List (Operational Taxonomic Unit, Name, Size, SACFOR, presence per habitat transition)			
</			

Biotope List (Marine Habitat Classification for Britain & Ireland)		
Code	Name	Listed
M.AtLB.Mu	Atlantic lower bathyal mud	Mud and sand emergent fauna (ICES)
(var)M.AtUA.Mu.HolCom	(variant of)Holothurian dominated community on Atlantic upper abyssal mud	Mud and sand emergent fauna (ICES)
Biotope progression per habitat transition (# species, dominant/characteristic species)		
1	M.AtLB.Mu	
	n/a	
2	(var)M.AtUA.Mu.HolCom	
	1122 Elpidiidae (indet)	
3	M.AtLB.Mu	
	n/a	
4	M.AtLB.Mu	
	n/a	

Conservation Targets		
Listed Habitats Encountered		
Name		Authority
Mud and sand emergent fauna		ICES
Listed Species Encountered (Fish, Count)		
Centrophorus squamosus Hoplostethus atlanticus	x 1 x 4	OSPAR/IUCN

Additional Comments
n/a

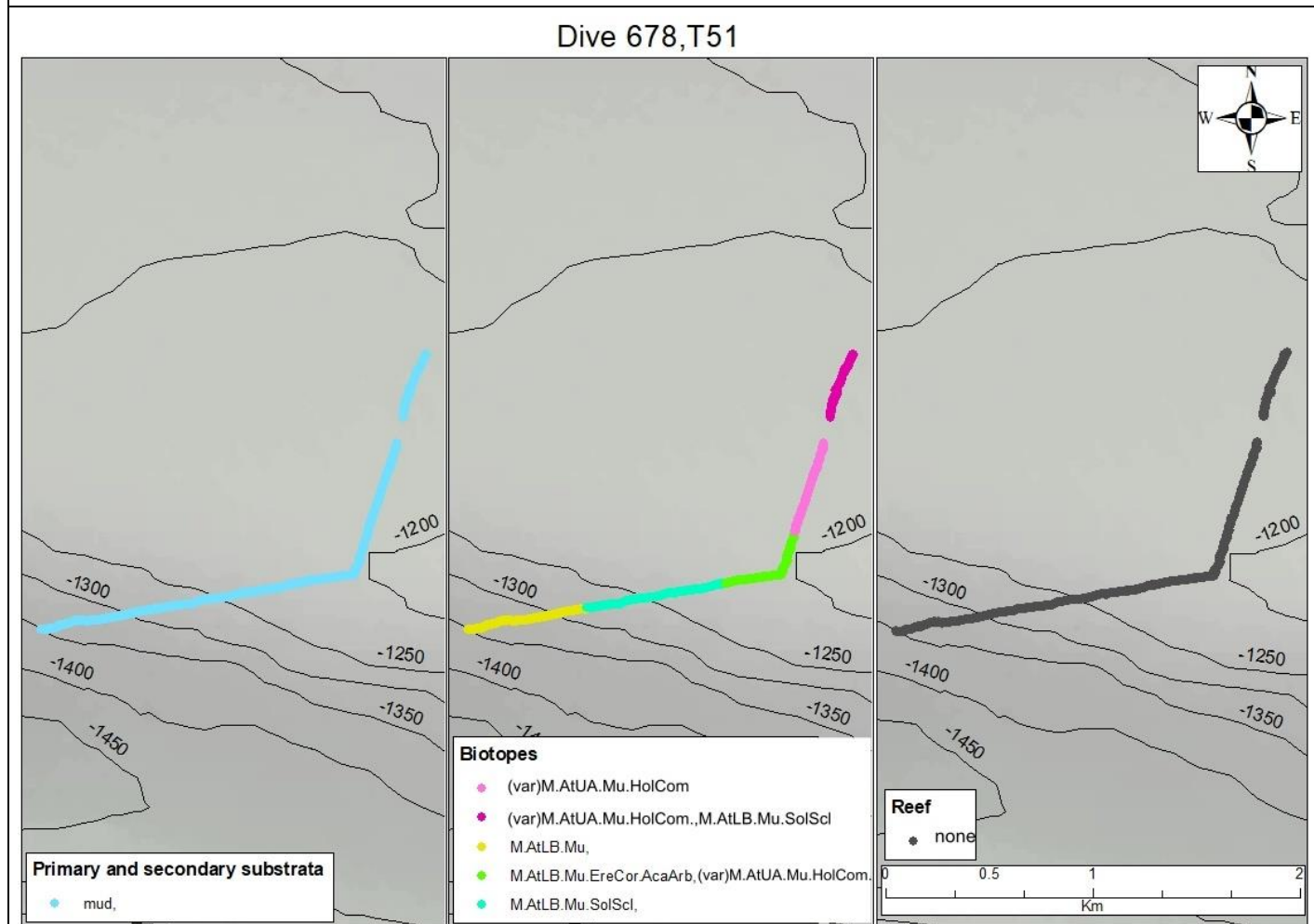
DIVE SUMMARY		
DIVE #	678	TRANSECT # 51

	Start	End
Date & Time	12/08/2019 05:37:50	12/08/2019 08:01:59
Latitude/ Longitude	50.5002513/-11.35663467	50.5124023/-11.33975267
Depth	-1431.541	-1202.793
Images	IMG_0657.jpg – IMG_0680.jpg	
Samples	2 x pushcores	

Location	n/a
Target Features	Opportunistic transect
Depth Range	n/a

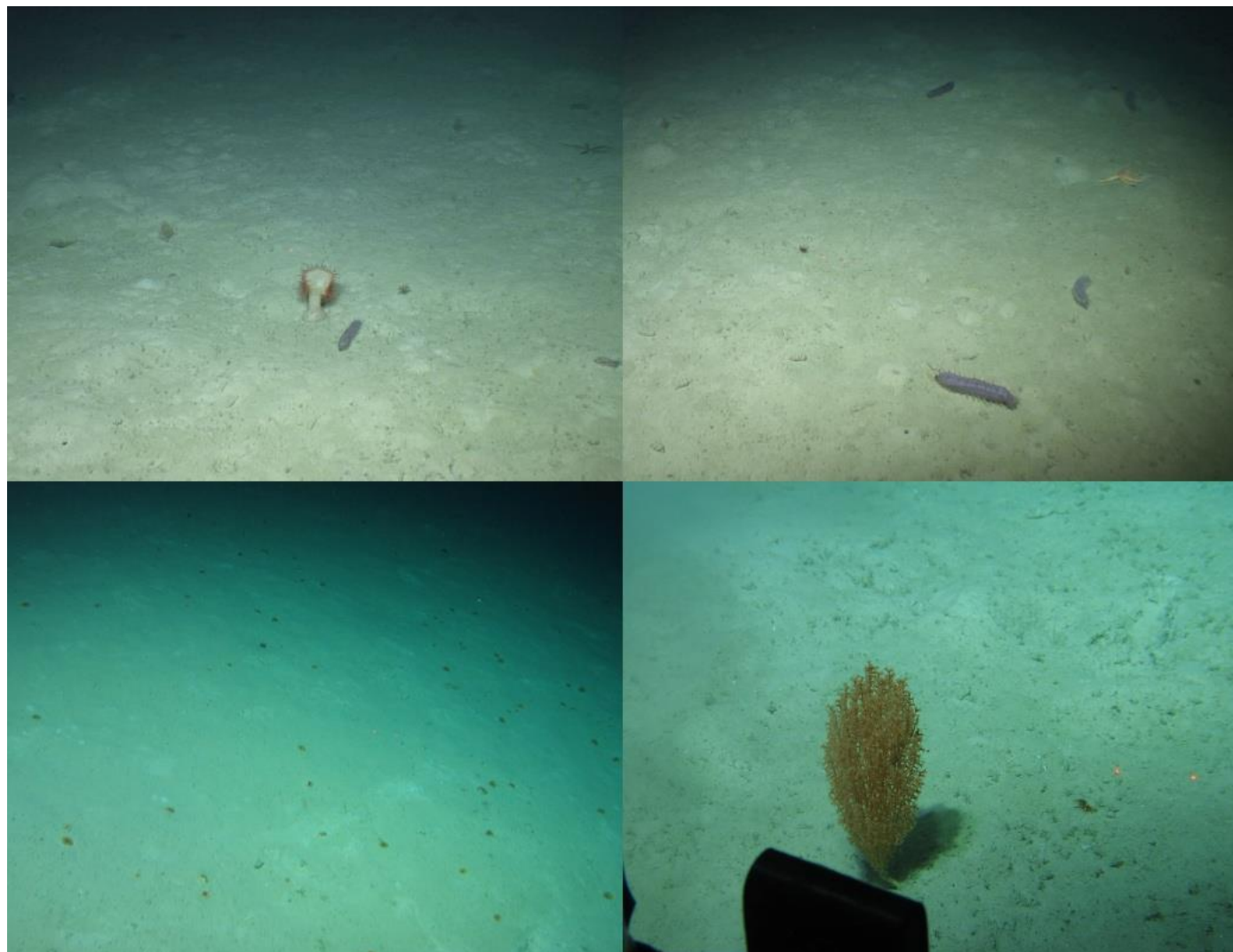
Maps of Dive

OPOP BMP and/or GIS Maps



Representative Images

(Images representative of major biotopes, species, and sediments encountered throughout the transect)



Top L. Muddy slope with holothurians and *Phelliactis sp1*. ((var)M.AtUA.Mu.HolCom).

Top R. Holothurians and starfish on muddy slope ((var)M.AtUA.Mu.HolCom).

Bottom L. Solitary scleractinians field on muddy slope (M.AtLB.Mu.SolScl).

Bottom R. Close-up picture of *Acanella arbuscula* on mud (M.AtLB.Mu.EreCor.AcaArb).

Summary Description (habitat transitions noted)

(video A) **STARTS AT 05:37:50/0m**. Muddy moderate to steep slope with scattered epifauna. Remarkable holothurian aggregations encountered.

[1] The entire dive is set on muddy slope with variant dominant species. Mainly cup coral and sea cucumber fields. ROV samples two pushcores. 11m animal tracks. 24m animal tracks. 29m Here rubbish hosts a colony of corals, however, identification is not possible due to poor visibility. Therefore, only rubbish at this site recorded. 35m Now cup coral fields (unknown species) with scattered sea pens found on moderate muddy slope. 01h00m Here cup corals become less abundant, and *Acanella arbuscula* fields become more abundant. 01h28m from this point Holothuroidea cf *Laetmogone* co-habits with *Pentametrocrinus atlanticus* and *A.arbuscula* until **ENDS AT 07:33:27/02h03m**.

(video B) **STARTS AT 07:43:22/0m**. The second dive shows similar biotopes as in video A. Predominantly sea cucumbers, *P.atlanticus* and *A.arbuscula* on muddy slope. 21m the ROV goes slightly backwards and then stops until **ENDS AT 08:01:59/21m**.

Physical Data

Reef (types can be concurrent)	0 % reef	n/a	
		n/a	n/a
			n/a

Substrates	- Mud
Geomorphology/Features	- Slope
Annex 1 Types	n/a
Pressures	1 x rubbish – white plastic (25m) 1 x rubbish – fishing line (29m) 1 x rubbish – plastic (29m)

Biological Data			
Number of Species		52	
Summary Species List (Operational Taxonomic Unit, Name, Size, SACFOR, presence per habitat transition)			

621	Hypsogastropoda	M	R
12	Bolocera tuediae	M	R
2	Cerianthidae sp1	S	R
499	Actinauge richardi	S	R
6	Caryophyllia sp2	S	A
605	Actiniaria sp20	S	R
1077	Caridea (indet)	S	R

Biotope List (Marine Habitat Classification for Britain & Ireland)		
Code	Name	Listed
M.AtLB.Mu.SolScl	Solitary scleractinian field on Atlantic lower bathyal mud	Coral garden (OSPAR/ICES); soft-bottom coral garden: cup-coral fields (ICES subcategory)
M.AtLB.Mu.EreCor.AcaArb	<i>Acanella arbuscula</i> assemblage on Atlantic lower bathyal mud	Coral garden (OSPAR/ICES); soft-bottom coral garden: soft-bottom gorgonian and black coral gardens (ICES subcategory)
(var)M.AtUA.Mu.HolCom	(variant of) Holothurian dominated community on Atlantic upper abyssal mud	Mud and sand emergent fauna (ICES)

Biotope progression per habitat transition (# species, dominant/characteristic species)	
1	(var)M.AtUA.Mu.HolCom 432 Benthogone sp; 2 Ceriantharia
2	M.AtLB.Mu.SolScl 6 Caryophyllia sp2; 1060 Pennatulacea sp4
3	M.AtLB.Mu.EreCor.AcaArb; (var)M.AtUA.Mu.HolCom 585 Acanella arbuscula; 432 Benthogone sp
4	(var)M.AtUA.Mu.HolCom 432 Benthogone sp; 436 Pentametrocrinus atlanticus; 585 Acanella arbuscula
5	(var)M.AtUA.Mu.HolCom; M.AtLB.Mu.SolScl 432 Benthogone sp; 6 Caryophyllia sp2

Conservation Targets		
Listed Habitats Encountered		
Name		Authority
Mud and sand emergent fauna Coral garden: - soft-bottom coral garden: cup-coral fields - soft-bottom coral garden: soft-bottom gorgonian and black coral gardens		ICES OSPAR/ICES ICES subcategory ICES subcategory
Listed Species Encountered (Fish, Count)		
Centrophorus squamosus		OSPAR/IUCN

Additional Comments
n/a

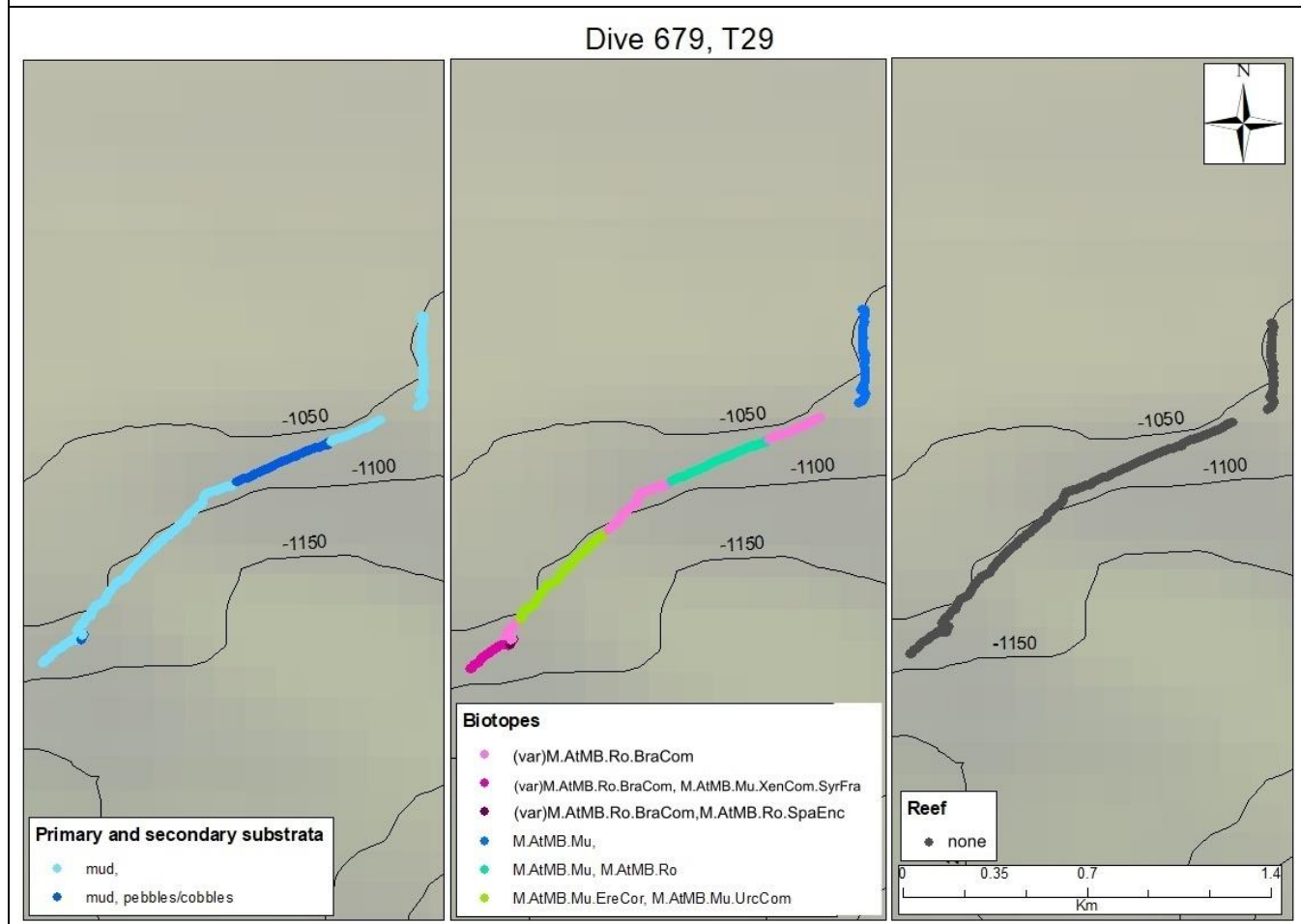
DIVE SUMMARY		
DIVE #	679	TRANSECT # 29

	Start	End
Date & Time	12/08/2019 10:34:20	12/08/2019 12:51:50
Latitude/ Longitude	50.4906585/ -11.2557885	50.501948/-11.24347733
Depth	-1211.398	-1046.786
Images	IMG_0681.jpg – IMG_1204.jpg	
Samples	2 x pushcores 1 x Swiftia (01h35m)	

Location	P2
Target Features	Track unexplored feature
Depth Range	-1195m

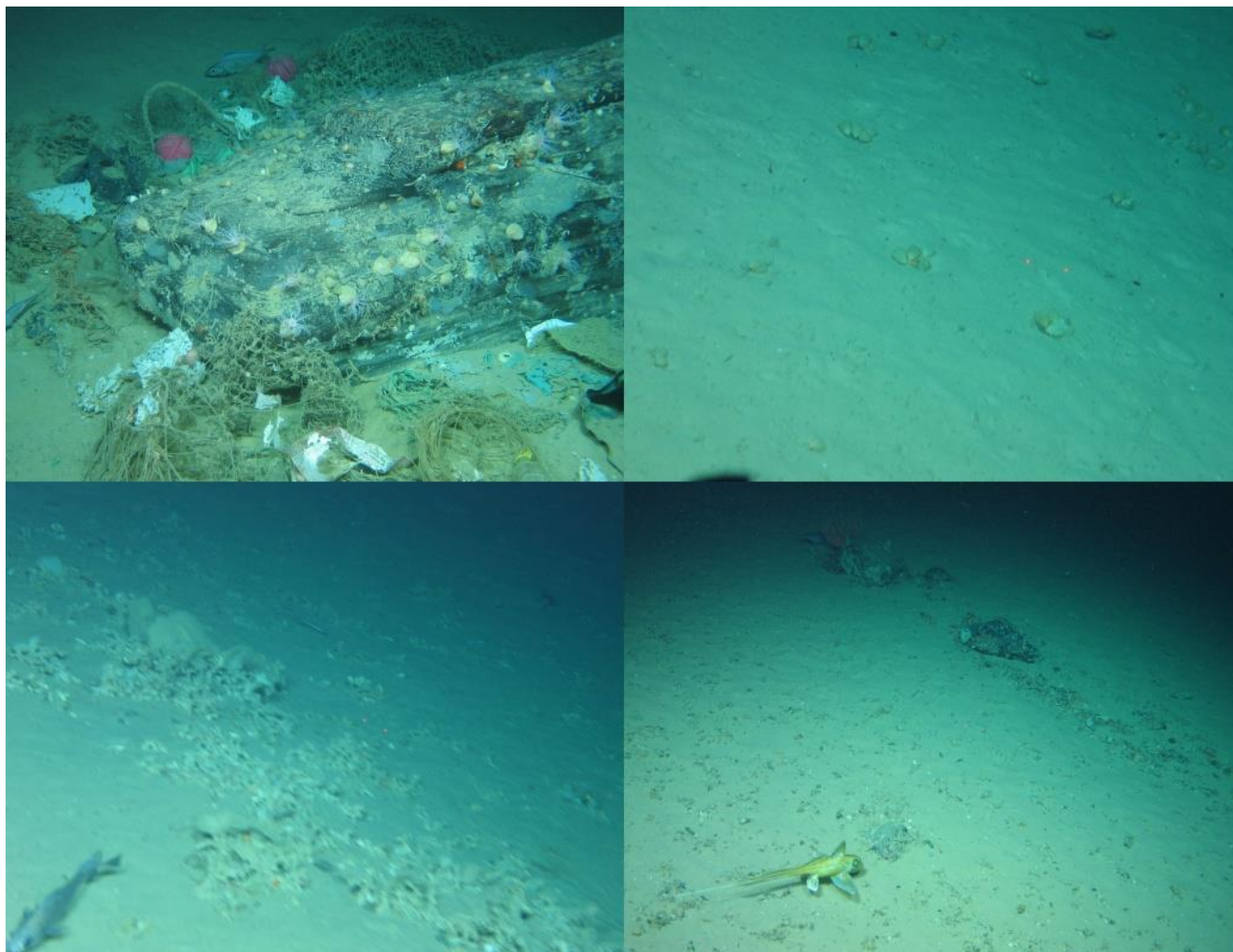
Maps of Dive

OPOP BMP and/or GIS Maps



Representative Images

(Images representative of major biotopes, species, and sediments encountered throughout the transect)



Top L. Encrusting sponges, *Psolus* sp and anemones living on boulder. Notable fishing net and plastic items around the boulder (M.AtMB.Ro).

Top R. Brachiopoda aggregation field on mud ((var)M.AtMB.Ro.BraCom).

Bottom L. Coral rubble and mud hosting sparse epifauna (M.AtMB.Mu).

Bottom R. Coral gravel, mud and pebble inhabited by encrusting species and corals. *Hydrolagus mirabilis* on the left corner of the picture ((var)M.AtMB.Ro.BraCom; M.AtMB.Ro.SpaEnc).

Summary Description (habitat transitions noted)

STARTS AT 10:34:00/0m (video A). The sediment is predominantly muddy on gentle/moderate slope with patches of dense brachiopoda aggregations and sparse fields of pebbles/cobbles.

[1] 1m ROV stops for sampling two pushcores. Seabed shows aggregations of brachiopoda since the beginning of the dive. 16m Dense brachiopod aggregation on muddy moderate slope. 18m Here ROV comes across a large boulder hosting encrusting species and fishing line/nets. 23m Frequent *Zoroaster fulgens* recorded. 24m Brachiopod aggregations continue here on muddy slope. 58m Now brachiopoda sp aggregations start again from this point. 01h09m coral rubble on gentle/moderate muddy slope. 01h31 – 01h36m ROV stops for sampling octocoral (poss Swiftia). **ENDS AT 12:22:18/52m.**

STARTS AT 12:28:19/0m (video B). Short video showing an homogenous biotope featuring mud and sparse epifauna, mainly *Phormosoma placenta* and *Zoroaster fulgens*, on moderate/steep slope. **ENDS AT 12:51:50/24m.**

Physical Data

Reef	0% reef	n/a
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(types can be concurrent)		n/a	n/a
			n/a
Substrates	- Mud - Pebbles/cobbles		
Geomorphology/Features	- Slope		
Annex 1 Types	- Cobbles		
Pressures	1 x rubbish – water bottle and grey plastic (18m-videoA) 1 x rubbish – fishing nets (19m-videoA) 1 x rubbish – fishing nets and lines (01h09m-videoA) 1 x rubbish – plastic (01h27m-videoA)		

Biological Data																																																																																																																																																																
Number of Species		62																																																																																																																																																														
Summary Species List (Operational Taxonomic Unit, Name, Size, SACFOR, presence per habitat transition)																																																																																																																																																																
	<table><tr><th>O.T.U</th><th>Species/Taxonomic ID</th><th>Size/Growth</th><th>SACFOR</th></tr><tr><td>1</td><td>Porifera encrusting sp1</td><td>Crust</td><td>R</td></tr><tr><td>608</td><td>Acanthogorgia armata</td><td>L</td><td>R</td></tr><tr><td>930</td><td>Actinopterygii sp3</td><td>L</td><td>R</td></tr><tr><td>132</td><td>Actinostolidae sp1</td><td>L</td><td>R</td></tr><tr><td>1074</td><td>Alepocephaliformes sp1</td><td>L</td><td>R</td></tr><tr><td>1097</td><td>Aphanopus carbo</td><td>L</td><td>R</td></tr><tr><td>274</td><td>Brisingidae</td><td>L</td><td>R</td></tr><tr><td>211</td><td>Cidaris cidaris</td><td>L</td><td>R</td></tr><tr><td>566</td><td>Coryphaenoides rupestris</td><td>L</td><td>R</td></tr><tr><td>128</td><td>Cottunculus microps</td><td>L</td><td>R</td></tr><tr><td>131</td><td>Crinoidea sp1</td><td>L</td><td>R</td></tr><tr><td>279</td><td>Echinoidea sp1</td><td>L</td><td>R</td></tr><tr><td>1305</td><td>Galeus sp</td><td>L</td><td>R</td></tr><tr><td>1179</td><td>Holothuroidea sp6</td><td>L</td><td>R</td></tr><tr><td>917</td><td>Hyalonema sp1</td><td>L</td><td>R</td></tr><tr><td>1024</td><td>Hydrolagus mirabilis</td><td>L</td><td>R</td></tr><tr><td>442</td><td>Kophobelemnion stelliferum</td><td>L</td><td>F</td></tr><tr><td>249</td><td>Lepidion eques</td><td>L</td><td>R</td></tr><tr><td>349</td><td>Mora moro</td><td>L</td><td>R</td></tr><tr><td>1126</td><td>Munidopsis sp1</td><td>L</td><td>R</td></tr><tr><td>458</td><td>Pachycerianthus multiplacatus</td><td>L</td><td>R</td></tr><tr><td>1183</td><td>Pennatula inflata</td><td>L</td><td>R</td></tr><tr><td>436</td><td>Pentametrocrininus atlanticus</td><td>L</td><td>R</td></tr><tr><td>555</td><td>Phormosoma placenta</td><td>L</td><td>F</td></tr><tr><td>552</td><td>Polyacanthonotus rissoanus</td><td>L</td><td>R</td></tr><tr><td>12</td><td>Bolocera tuediae</td><td>L</td><td>R</td></tr><tr><td>433</td><td>Pseudarchaster sp1</td><td>L</td><td>R</td></tr><tr><td>652</td><td>Rajiformes sp1</td><td>L</td><td>R</td></tr><tr><td>1118</td><td>Sagartidae sp6</td><td>L</td><td>R</td></tr><tr><td>250</td><td>Lophelia pertusa</td><td>L</td><td>R</td></tr><tr><td>988</td><td>Zoroaster fulgens</td><td>L</td><td>C</td></tr><tr><td>661</td><td>Swiftia</td><td>L</td><td>R</td></tr><tr><td>440</td><td>Synaphobranchus kaupii</td><td>L</td><td>R</td></tr><tr><td>261</td><td>Syringammina fragilissima</td><td>L</td><td>R</td></tr><tr><td>1017</td><td>Teuthida sp1</td><td>L</td><td>R</td></tr><tr><td>1017</td><td>Teuthida sp1</td><td>L</td><td>R</td></tr><tr><td>1216</td><td>Trachyscorpia cristulata</td><td>L</td><td>R</td></tr><tr><td>581</td><td>Umbellula sp</td><td>L</td><td>R</td></tr></table>	O.T.U	Species/Taxonomic ID	Size/Growth	SACFOR	1	Porifera encrusting sp1	Crust	R	608	Acanthogorgia armata	L	R	930	Actinopterygii sp3	L	R	132	Actinostolidae sp1	L	R	1074	Alepocephaliformes sp1	L	R	1097	Aphanopus carbo	L	R	274	Brisingidae	L	R	211	Cidaris cidaris	L	R	566	Coryphaenoides rupestris	L	R	128	Cottunculus microps	L	R	131	Crinoidea sp1	L	R	279	Echinoidea sp1	L	R	1305	Galeus sp	L	R	1179	Holothuroidea sp6	L	R	917	Hyalonema sp1	L	R	1024	Hydrolagus mirabilis	L	R	442	Kophobelemnion stelliferum	L	F	249	Lepidion eques	L	R	349	Mora moro	L	R	1126	Munidopsis sp1	L	R	458	Pachycerianthus multiplacatus	L	R	1183	Pennatula inflata	L	R	436	Pentametrocrininus atlanticus	L	R	555	Phormosoma placenta	L	F	552	Polyacanthonotus rissoanus	L	R	12	Bolocera tuediae	L	R	433	Pseudarchaster sp1	L	R	652	Rajiformes sp1	L	R	1118	Sagartidae sp6	L	R	250	Lophelia pertusa	L	R	988	Zoroaster fulgens	L	C	661	Swiftia	L	R	440	Synaphobranchus kaupii	L	R	261	Syringammina fragilissima	L	R	1017	Teuthida sp1	L	R	1017	Teuthida sp1	L	R	1216	Trachyscorpia cristulata	L	R	581	Umbellula sp	L	R			
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581	Umbellula sp	L	R																																																																																																																																																													

	259	Zoarcidae sp1	L	R
	585	Acanella arbuscula	M	F
	980	Actiniaria sp28	M	R
	2	Cerianthidae sp1	M	R
	621	Hypsogastropoda	M	R
	339	Munida tenuimana	M	R
	26	Ophiuroidea sp1	M	R
	640	Ophiuroidea sp10	M	R
	1114	Pennatulacea (indet)	M	R
	255	Phelliactis sp1	M	F
	299	Pterasteridae sp1	M	R
	106	Serpulidae sp1	M	R
	4	Actiniaria sp1	S	R
	605	Actiniaria sp20	S	F
	1066	Adamsia sp	S	R
	34	Brachiopoda sp1	S	A
	1077	Caridea (indet)	S	R
	6	Caryophyllia sp2	S	O
	1049	cf Psolus sp	S	R
	445	Echinus sp	S	R
	317	Epizoanthus sp1	S	R
	100	Ophiactis abyssicola	S	R
	205	Paguridae sp	S	R
	950	Rhodaliidae sp	S	R

Biotope List (Marine Habitat Classification for Britain & Ireland)		
Code	Name	Listed
(var)M.AtMB.Ro.BraCom	(variant of)Brachiopod dominated community on Atlantic mid bathyal rock and other hard substrata	Mud and sand emergent fauna (ICES)
M.AtMB.Mu.XenCom.SyrFra	<i>Syringammina fragilissima</i> field on Atlantic mid bathyal mud	Mud and sand emergent fauna (ICES)
M.AtMB.Ro.SpaEnc	Sparse encrusting community on Atlantic mid bathyal rock and other hard substrata	
M.AtMB.Mu.EreCor	Erect coral field on Atlantic mid bathyal mud	Mud and sand emergent fauna (ICES); coral gardens (OSPAR/ICES); soft-bottom coral garden: soft-bottom gorgonian and black coral gardens (ICES subcategory)
M.AtMB.Mu.UrcCom	Urchin dominated community on Atlantic mid bathyal mud	Mud and sand emergent fauna (ICES)
M.AtMB.Mu	Atlantic mid bathyal mud	Mud and sand emergent fauna (ICES)
M.AtMB.Ro	Atlantic mid bathyal rock and other hard substrata	
Biotope progression per habitat transition (# species, dominant/characteristic species)		

1	(var)M.AtMB.Ro.BraCom; M.AtMB.Mu.XenCom.SyrFra
	34 Brachiopoda; 261 Syringammina fragilissima; 988 Zoroaster fulgens
2	(var)M.AtMB.Ro.BraCom; M.AtMB.Ro.SpaEnc
	34 Brachiopoda; 1049 cf Psolus sp
3	(var)M.AtMB.Ro.BraCom
	34 Brachiopoda
4	M.AtMB.Mu.EreCor; M.AtMB.Mu.UrcCom
	555 Phormosoma placenta; 442 Kophobelemnon stelliferum; 585 Acanella arbuscula
5	(var)M.AtMB.Ro.BraCom
	34 Brachiopoda
6	M.AtMB.Mu; M.AtMB.Ro
	555 Phormosoma placenta; 988 Zoroaster fulgens
7	(var)M.AtMB.Ro.BraCom
	34 Brachiopoda
8	M.AtMB.Mu
	555 Phormosoma placenta; 988 Zoroaster fulgens

Conservation Targets		
Listed Habitats Encountered		
Name		Authority
Mud and sand emergent fauna Coral gardens: - soft-bottom coral garden: soft-bottom gorgonian and black coral gardens		ICES OSPAR/ICES ICES subcategory
Listed Species Encountered (Fish, Count)		
n/a		OSPAR/IUCN

Additional Comments
n/a

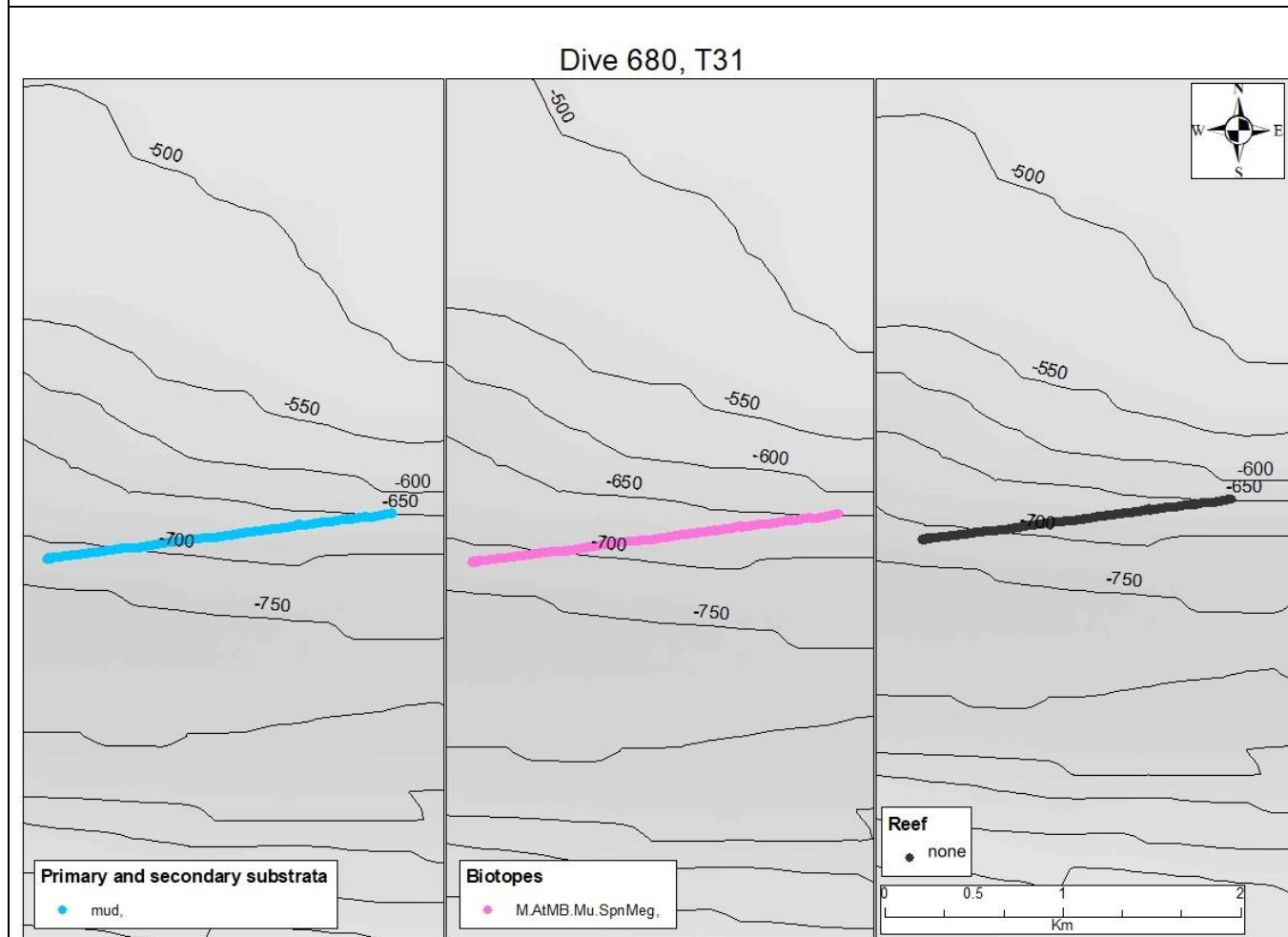
DIVE SUMMARY		
DIVE #	680	TRANSECT # 31

	Start	End
Date & Time	12/08/2019 17:36:24	12/08/2019 19:07:48
Latitude/ Longitude	49.9822952/ -11.1546805	49.984319/ -11.13904517
Depth	-759.756	-676.293
Images	IMG_1201.jpg – IMG_1238.jpg	
Samples	2 x pushcores	

Location	P1
Target Features	Track slope
Depth Range	-755m

Maps of Dive

OPOP BMP and/or GIS Maps



Representative Images

(Images representative of major biotopes, species, and sediments encountered throughout the transect)



Top L. Muddy slope with sparse anemones (M.AtUB.Mu.SpnMeg)

Top R. Fishing net and *Lepidion eques* on mud (M.AtUB.Mu.SpnMeg)

Bottom L. Sea pens and *Bolocera sp* on mud (M.AtUB.Mu.SpnMeg)

Bottom R. *Paromola cuvieri* and barnacles on boulder (M.AtUB.Mu.SpnMeg)

Summary Description (habitat transitions noted)

STARTS AT 17:38:18/0m. The entire dive is set on gentle/moderate muddy slope with dominant burrowing anemones and occasional sea pens. **[1]** 1m ROV stops for sampling 2 pushcores. 4m Here video is obscured/mud cloud. The visibility throughout the dive is poor/murky. 17m Here large fishing net on moderate upslope. 32m Mud cloud. For the rest of the dive, the transect is homogenous with dominant burrowing anemones on muddy slope **ENDS AT 19:07:48/01h33m.**

Physical Data			
Reef (types can be concurrent)	0% reef	n/a	
		n/a	n/a
			n/a
Substrates	- Mud		
Geomorphology/Features	- Slope		

Annex 1 Types	n/a
Pressures	1 x fishing net (17m) 1 x fishing net (01h23m) 1 x fishing line (01h27m)

Biological Data				
Number of Species		35		
Summary Species List (Operational Taxonomic Unit, Name, Size, SACFOR, presence per habitat transition)				
	O.T.U	Species/Taxonomic ID	Size/Growth	SACFOR
	1	Porifera encrusting sp1	Crust	R
	440	Syphanobranchus kaupii	L	R
	41	Sagartidae sp3	L	C
	555	Phormosoma placenta	L	O
	442	Kophobelemnnon stelliferum	L	F
	446	Trachyrhynchus sp	L	R
	458	Pachycerianthus multiplicatus	L	C
	582	Actiniaria sp18	L	R
	1017	Teuthida sp1	L	R
	1003	Nezumia aequalis	L	R
	254	Chaceon affinis	L	O
	249	Lepidion eques	L	R
	1020	Phycis blennoides	L	R
	227	Helicolenus dactylopterus	L	R
	1125	Hygrosoma sp	L	R
	433	Pseudarchaster sp1	L	R
	937	Graneledone verrucosa	L	R
	273	Lophius piscatorius	L	R
	349	Mora moro	L	R
	1005	Galeus melastomus	L	R
	1018	Epigonus telescopus	L	R
	259	Zoarcidae sp1	L	R
	304	Paromola cuvieri	L	R
	235	Bathynectes sp	L	R
	1019	Merlangius merlangus	L	R
	1159	Rajiformes (indet)	L	R
	289	cf Clavulariidae sp	M	R
	499	Actinauge richardi	M	R
	445	Echinus sp	M	R
	1077	Caridea (indet)	S	R
	205	Paguridae sp1	S	R
	621	Hypsogastropoda	S	R
	317	Epizoanthus sp1	S	R
	918	Opisthoteuthis extensa	S	R
2	Cerianthidae sp1	S	R	
Biotope List (Marine Habitat Classification for Britain & Ireland)				
Code	Name	Listed		
M.AtUB.Mu.SpnMeg	Sea pens and burrowing megafauna on Atlantic mid bathyal mud	Mud and sand emergent fauna (ICES)		
Biotope progression per habitat transition (# species, dominant/characteristic species)				

1	M.AtUB.Mu.SpnMeg
	41 Sagartidae sp3; 458 Pachycerianthus multiplicatus; 442 Kophobelemnon stelliferum

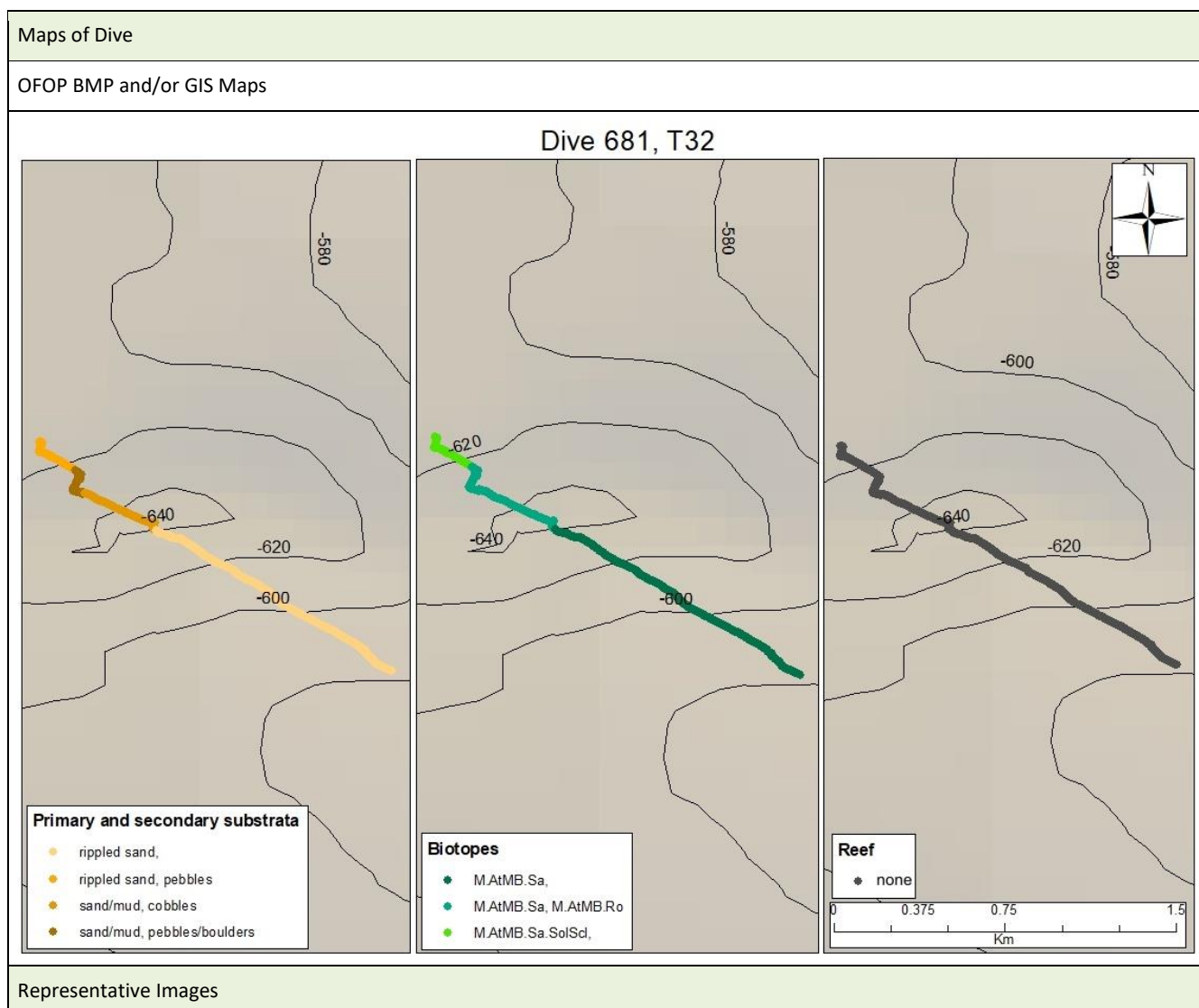
Conservation Targets		
Listed Habitats Encountered		
Name	Authority	
Mud and sand emergent fauna	ICES	
Listed Species Encountered (Fish, Count)		
n/a		OSPAR/IUCN

Additional Comments		
n/a		

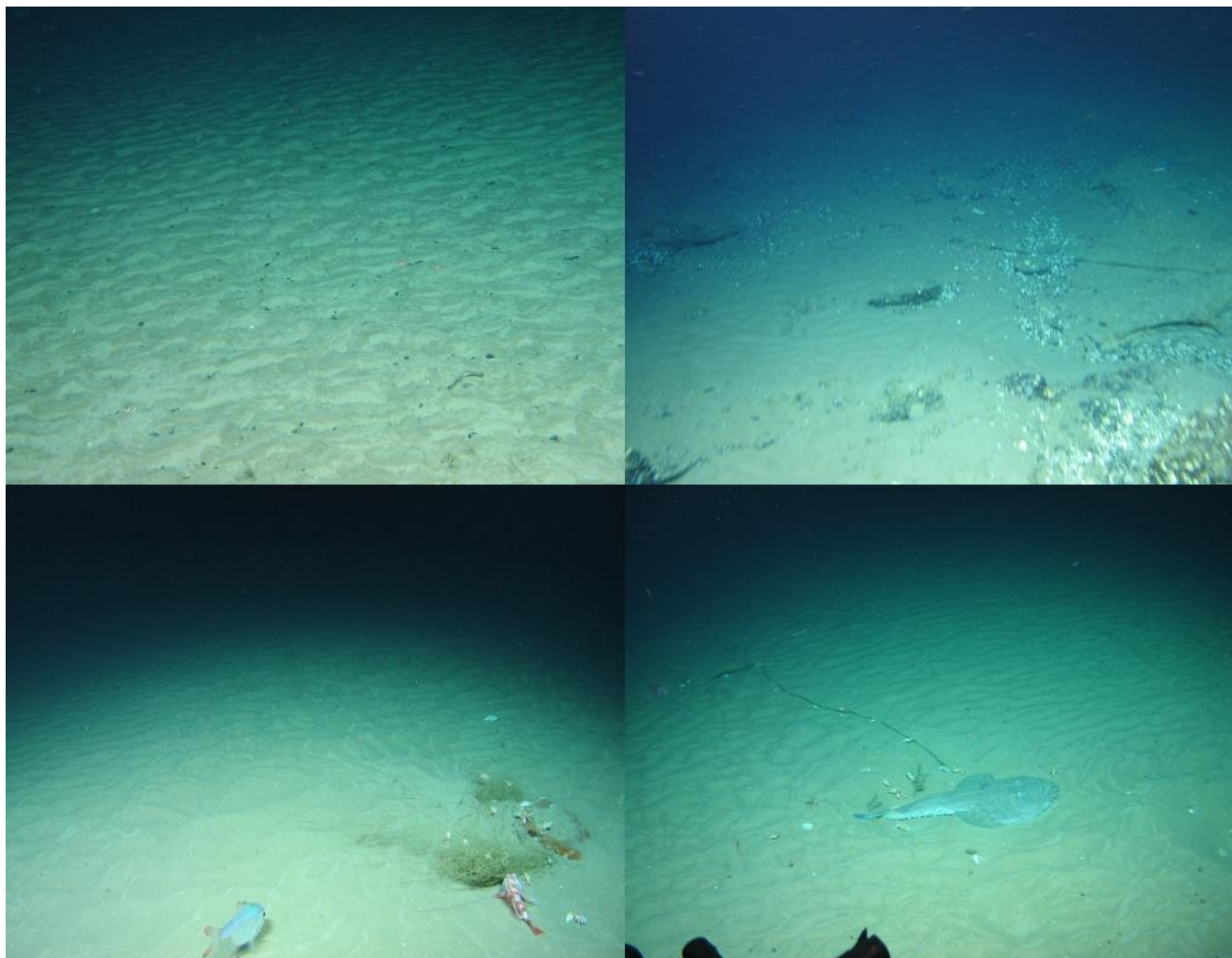
DIVE SUMMARY		
DIVE #	681	TRANSECT # 32

	Start	End
Date & Time	12/08/2019 22:37:16	13/08/2019 00:15:12
Latitude/ Longitude	49.6904628/ -11.4737375	49.6818343/ -11.46049467
Depth	-606.916	-573.779
Images	IMG_7147.jpg – IMG_7438.jpg	
Samples	2 x pushcores	

Location	P1
Target Features	Potential feature
Depth Range	-614m



(Images representative of major biotopes, species, and sediments encountered throughout the transect)



Top L. Rippled sand on steep slope (M.AtMB.Sa)

Top R. Coarse sediment with sparse epifauna and cobbles (M.AtMB.Ro)

Bottom L. Rippled sand with fishing net, *Beryx decadactylus* and *Helicolenus dactylopterus* (M.AtMB.Sa)

Bottom R. Fishing line and *Lophius piscatorius* on rippled sand (M.AtMB.Sa)

Summary Description (habitat transitions noted)

STARTS AT 22:37:16/0m. The dive is predominantly rippled sand and muddy slope with scattered patches of solitary scleractinians and sparse burrowing epifauna.

[1] 8m The tilt of the camera is slightly upwards, which makes the resolution poor and inefficient. 19m Here ROV goes over an escarpment where the seafloor drops down a few meters. 20m Now a rope/pipeline is present hovering on the seafloor (origin unidentified). The ROV goes over the rope on the right and continues for a few meters showing water column. 21m Here more ropes are present. 21-27m the ROV shows only water column. 27m back on the seafloor. Here muddy and pebble fields with scattered epifauna. **ENDS AT 00:15:12/01h42m.**

Physical Data

Reef
(types can be concurrent)

0% reef

n/a

n/a

n/a

			n/a
Substrates	- Rippled sand - Pebbles - Sand/mud - Pebbles/boulders - Cobbles		
Geomorphology/Features	- Slope - Escarpment		
Annex 1 Types	n/a		
Pressures	1 x fishing line (18m) 1 x unknown pressure (38m) 1 x fishing gear (40m) 1 x fishing gear (42m) 1 x fishing gear (52m) 1 x fishing gear (01h03m)		

Biological Data				
Number of Species		17		
Summary Species List (Operational Taxonomic Unit, Name, Size, SACFOR, presence per habitat transition)				
	O.T.U	Species/Taxonomic ID	Size/Growth	SACFOR
	1025	Beryx decadactylus	L	R
	265	Chimera monstrosa	L	R
	211	Cidaris cidaris	L	R
	227	Helicolenus dactylopterus	L	R
	249	Lepidion eques	L	R
	41	Sagartidae sp3	L	R
	988	Zoroaster fulgens	L	R
	1303	Trichiuridae	L	R
	273	Lophius piscatorius	L	R
	458	Pachyceranthus multiplicatus	M	F
	255	Phelliactis sp1	M	R
	1077	Caridea (indet)	S	R
	2	Cerianthidae sp1	S	R
	1056	Flabellum sp	S	R
	621	Hypsogastropoda	S	O
	205	Paguridae sp	S	O
	1174	Pterasteridae sp4	S	R
	Biotope List (Marine Habitat Classification for Britain & Ireland)			
Code	Name		Listed	
M.AtMB.Sa.SolScl	Solitary scleractinian field on Atlantic mid bathyal sand		Mud and sand emergent fauna (ICES); coral garden (ICES/OSPAR); soft-bottom coral garden: cup-coral fields (ICES subcategory)	
M.AtMB.Sa	Atlantic mid bathyal sand		Mud and sand emergent fauna (ICES)	
M.AtMB.Ro	Atlantic mid bathyal rock and other hard substrata			
Biotope progression per habitat transition (# species, dominant/characteristic species)				

1	M.AtMB.Sa.SolScl
	1056 Flabellum sp
2	M.AtMB.Sa; M.AtMB.Ro
	1056 Flabellum sp; 255 Phelliactis sp1
3	M.AtMB.Sa; M.AtMB.Ro
	205 Paguridae; 621 Hypsogastropoda
4	M.AtMB.Sa
	205 Paguridae; 621 Hypsogastropoda

Conservation Targets		
Listed Habitats Encountered		
Name	Authority	
Mud and sand emergent fauna Coral garden: - soft-bottom coral garden: cup-coral fields	ICES ICES/OSPAR ICES subcategory	
Listed Species Encountered (Fish, Count)		
n/a		OSPAR/IUCN

Additional Comments
n/a

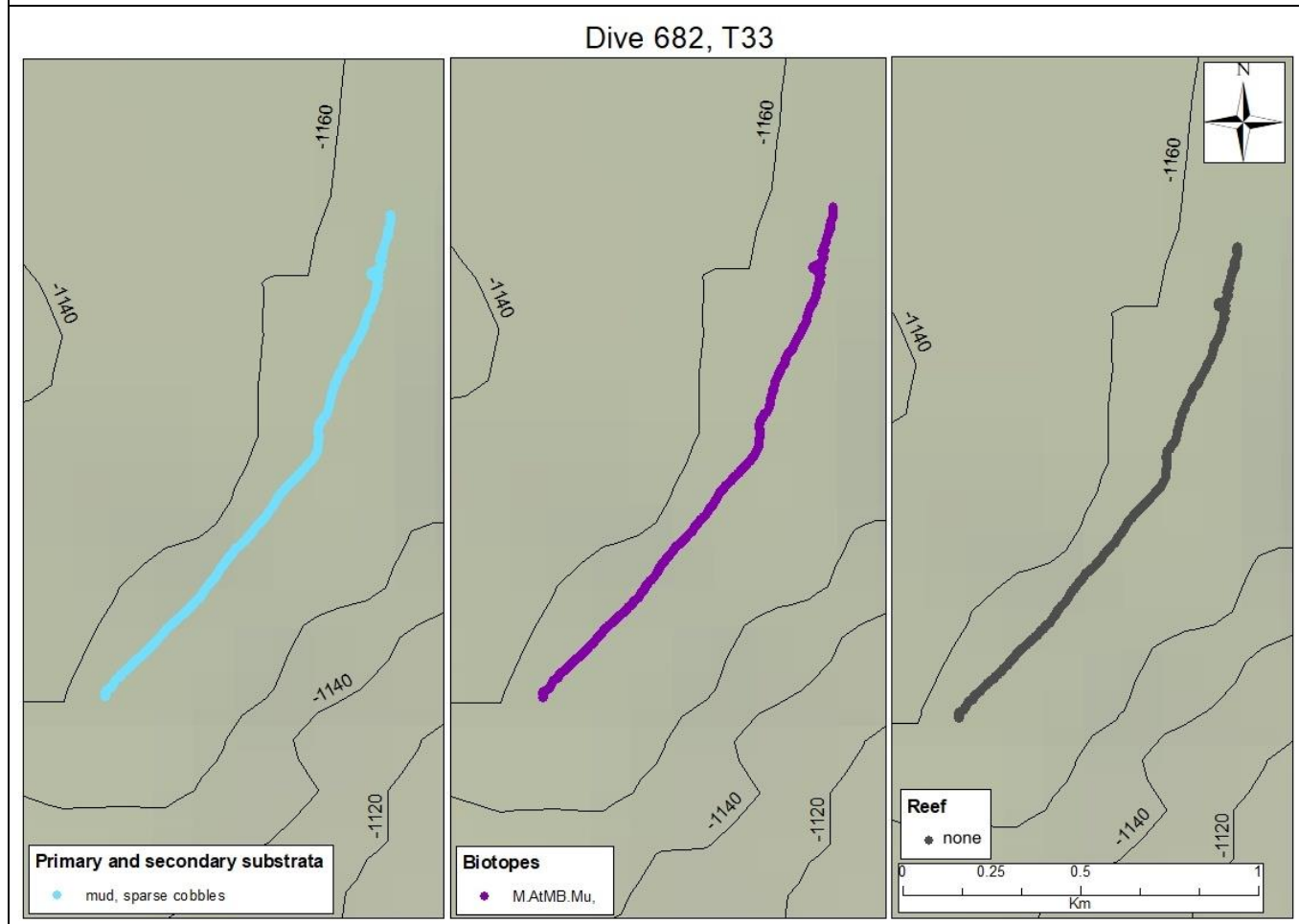
DIVE SUMMARY		
DIVE #	682	TRANSECT # 33

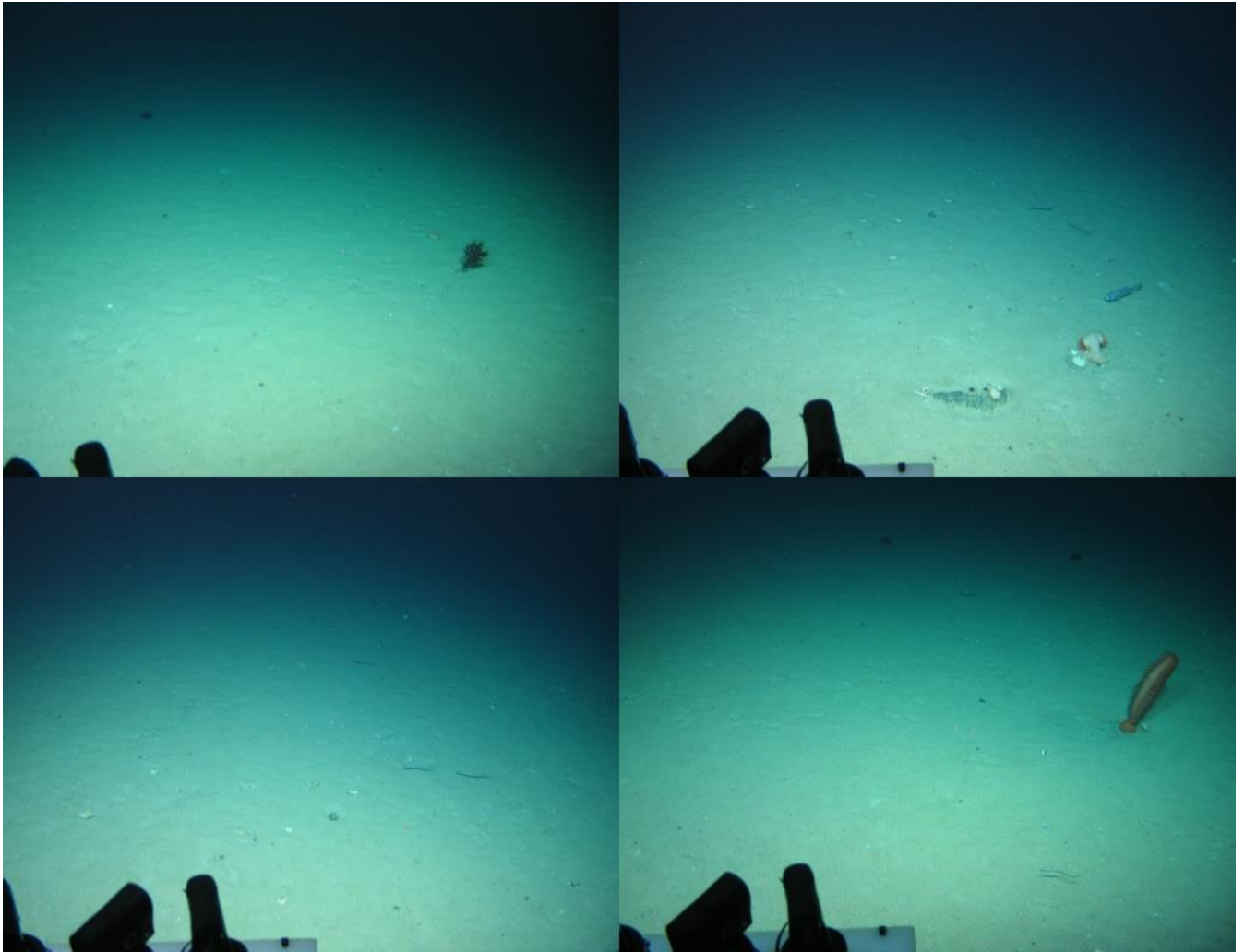
	Start	End
Date & Time	13/08/2019 03:31:38	13/08/2019 05:17:23
Latitude/ Longitude	49.843866/ -11.71432617	49.855772/-11.70729633
Depth	-1173.583	-1169.454
Images	IMG_7439.jpg – IMG_7460.jpg	
Samples	2 x pushcores	

Location	P1
Target Features	Track shallow ridge
Depth Range	-1167m

Maps of Dive

OFOP BMP and/or GIS Maps



Representative Images			
(Images representative of major biotopes, species, and sediments encountered throughout the transect)			
			
Top L. Rippled mud slope with <i>Umbellula sp</i> and anemones (M.AtMB.Mu). Top R. <i>Phelliactis sp1</i> living on cobble (M.AtMB.Mu). Bottom L. Muddy slope with cutthroat eel (<i>Synaphobranchus kaupii</i>) and anemones (M.AtMB.Mu). Bottom R. Muddy slope with <i>Pennatula inflata</i>, anemone and cutthroat eel (<i>Synaphobranchus kaupii</i>) (M.AtMB.Mu).			
Summary Description (habitat transitions noted)			
STARTS AT 03:31:37/0m. The entire dive is set on a homogenous biotope of mud and scattered species of sea urchin. [1] 1m ROV stops for sampling two pushcores. 01h16m Mud cloud. 01h24m ROV stops for imagery and collection of <i>Syringammina fragilissima</i>. 01h35m ROV stops for sampling glass bottle (bottle broke in pieces). 01h46m ROV stops until ENDS AT 05:17:23/01h46m.			

Physical Data			
Reef (types can be concurrent)	0% reef	n/a	
		n/a	n/a
			n/a
Substrates	- Mud - Sparse cobbles		

Geomorphology/Features	- Slope
Annex 1 Types	n/a
Pressures	1 x glass bottle (01h33m)

Biological Data				
Number of Species		43		
Summary Species List (Operational Taxonomic Unit, Name, Size, SACFOR, presence per habitat transition)				
	O.T.U	Species/Taxonomic ID	Size/Growth	SACFOR
	255	Phelliactis sp1	L	R
	1216	Trachyscorpia cristulata	L	R
	440	Synaphobranchus kaupii	L	R
	621	Hypsogastropoda	L	R
	211	Cidaris cidaris	L	R
	988	Zoroaster fulgens	L	R
	132	Actinostolidae sp1	L	R
	279	Echinoidea sp1	L	R
	552	Polyacanthonotus rissoanus	L	R
	930	Actinopterygii sp3	L	R
	1003	Nezumia aequalis	L	R
	1125	Hygrosoma sp	L	R
	436	Pentametrocrinus atlanticus	L	R
	446	Trachyrhynchus sp	L	R
	131	Crinoidea sp1	L	R
	433	Pseudarchaster sp1	L	R
	4	Actiniaria sp1	L	R
	566	Coryphaenoides rupestris	L	R
	1047	Actinoscyphiidae sp1 (pink)	L	R
	555	Phormosoma placenta	L	R
	249	Lepidion eques	L	R
	263	Porania	L	R
	984	cf Halcampoididae sp	L	R
	1078	Ipnopidae sp	L	R
	582	Actiniaria sp18	L	R
	349	Mora moro	L	R
	581	Umbellula sp	L	R
	937	Graneledone verrucosa	L	R
	1024	Hydrolagus mirabilis	L	R
	1025	Beryx decadactylus	L	R
	1017	Teuthida sp1	L	R
	1183	Pennatula inflata	L	R
	458	Pachycerianthus multiplicatus	L	R
	622	Halipteris sp	L	R
	1139	Deania sp	L	R
	640	Ophiuroidea sp10	M	R
	261	Syringammina fragilissima	M	R
	445	Echinus sp	S	O
	2	Cerianthidae sp1	S	R
	1077	Caridea (indet)	S	R

980	Actiniaria sp20	S	R
205	Paguridae sp	S	R
1102	Munnopsidae sp	S	R
Biotope List (Marine Habitat Classification for Britain & Ireland)			
Code	Name	Listed	
M.AtMB.Mu	Atlantic mid bathyal mud	Mud and sand emergent fauna (ICES)	
Biotope progression per habitat transition (# species, dominant/characteristic species)			
1	M.AtMB.Mu		
	445 Echinus sp; 1125 Hygrosoma sp		

Conservation Targets		
Listed Habitats Encountered		
Name		Authority
Mud and sand emergent fauna		ICES
Listed Species Encountered (Fish, Count)		
n/a		OSPAR/IUCN

Additional Comments	
n/a	

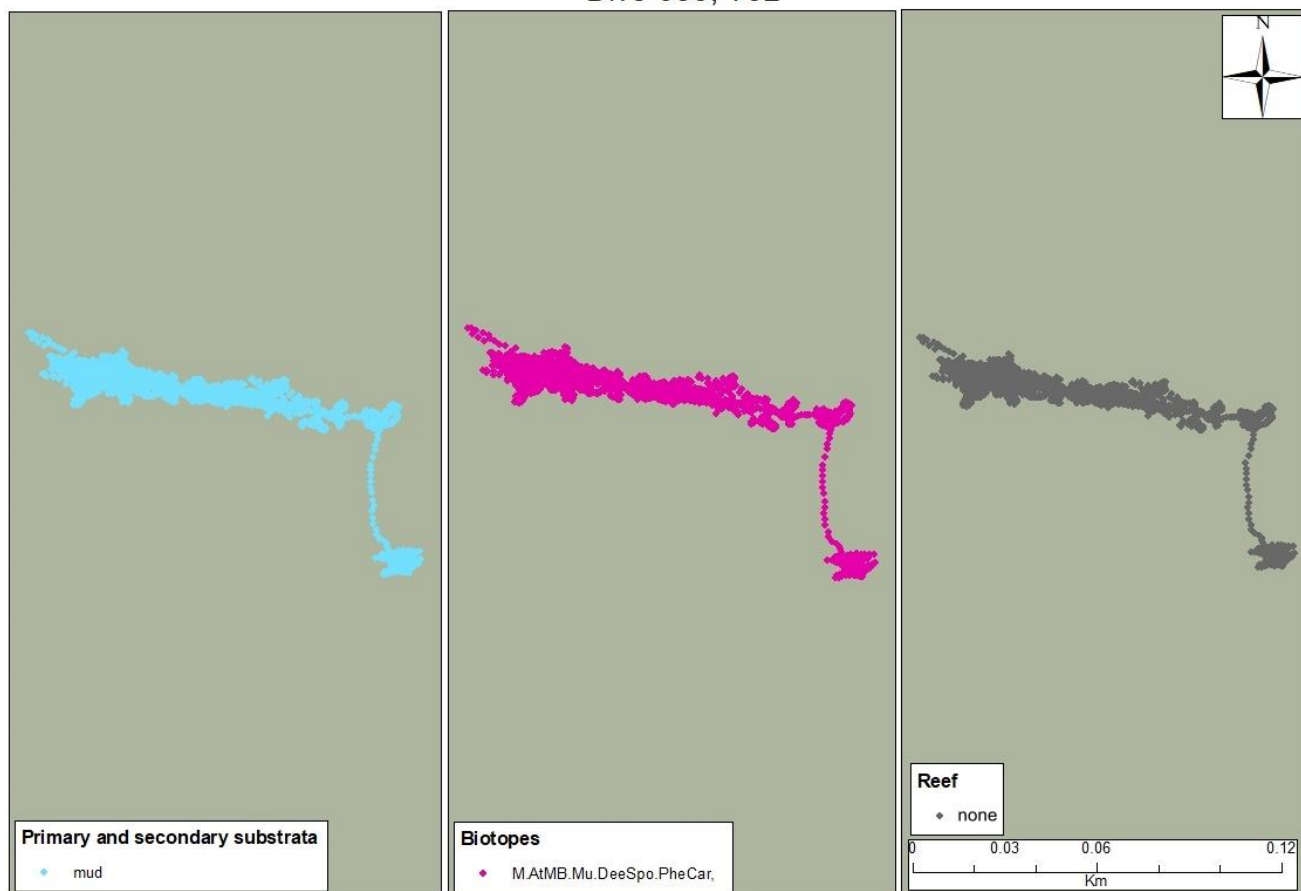
DIVE SUMMARY			
DIVE #	683	TRANSECT #	52

	Start	End
Date & Time	13/08/2019 10:06:39	13/08/2019 12:03:40
Latitude/ Longitude	49.534544/ -12.10620417	49.5339882/ -12.10530367
Depth	-1208.042	-1206.557
Images	IMG_7401.jpg – IMG_7489.jpg	
Samples	15 x <i>Pheronema carpenteri</i> 3 x water samples 3 x pushcores 1 x Hyalonema	

Location	Opportunistic dive
Target Features	Pheronema aggregations
Depth Range	-1207m

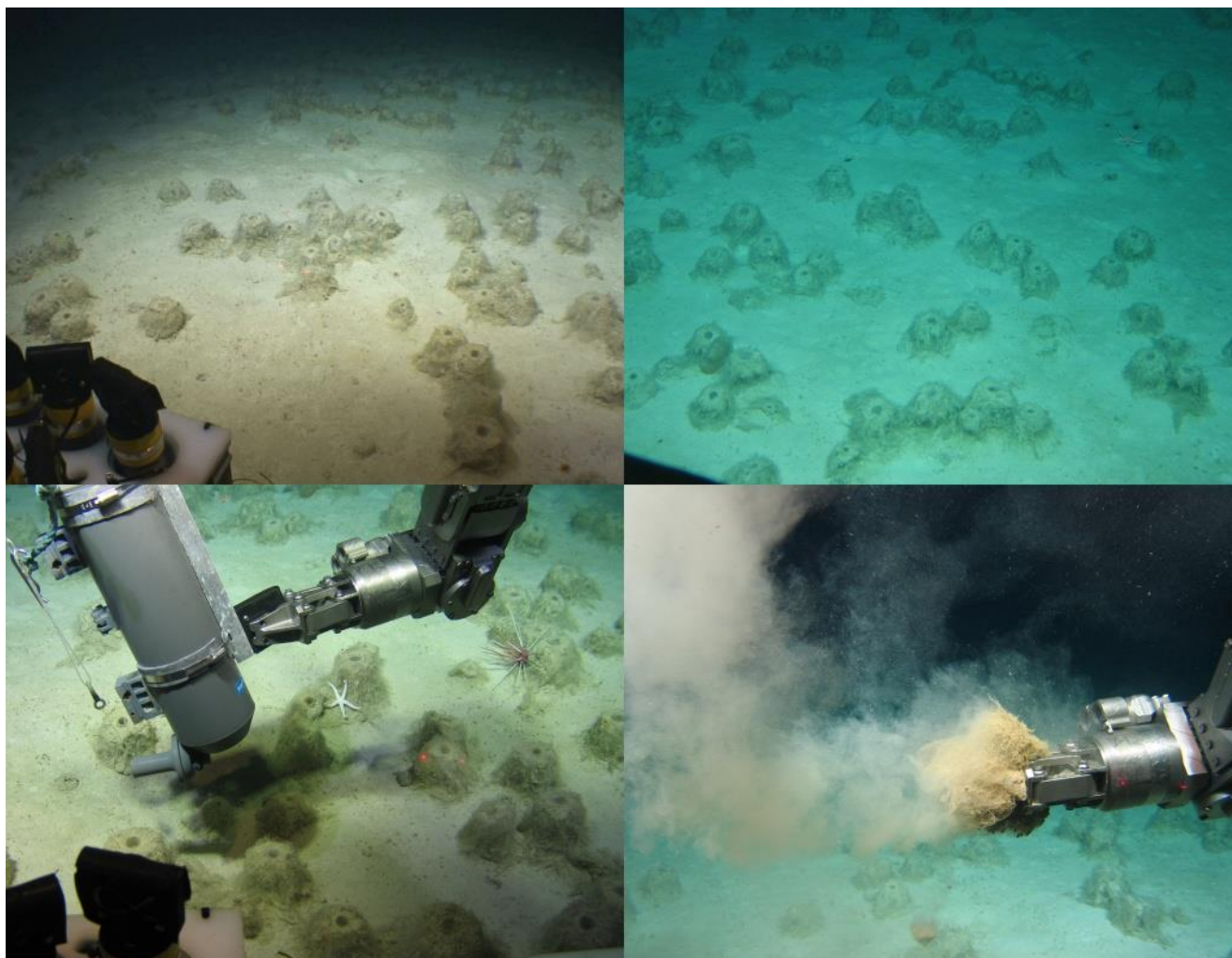
Maps of Dive
OFOF BMP and/or GIS Maps

Dive 683, T52



Representative Images

(Images representative of major biotopes, species, and sediments encountered throughout the transect)



Top L. *Pheronema carpenteri* (or bird's nest sponges) aggregations on muddy slope (M.AtMB.Mu.DeeSpo.PheCar).

Top R. *Pheronema carpenteri* (or bird's nest sponges) aggregations on muddy slope (M.AtMB.Mu.DeeSpo.PheCar).

Bottom L. *Pheronema carpenteri* (or bird's nest sponges) aggregations, starfish and cidarid on muddy slope. ROV samples 1L of water (M.AtMB.Mu.DeeSpo.PheCar).

Bottom R. *Pheronema carpenteri* (or bird's nest sponges) aggregations on muddy slope. ROV samples one specimen of *P. carpenteri* (M.AtMB.Mu.DeeSpo.PheCar).

Summary Description (habitat transitions noted)

STARTS AT 10:06:37/0m. Dense pheronema aggregation on muddy slope.

[1] The dive starts on sponge aggregations fields. The ROV collects 15 pheronema sponges with 3 water and sediment samples (for genetic studies). Several epifauna found nearby and on sponges. Towards the end, the ROV samples one Hyalonema sponge. **ENDS AT 12:03:40/01h55m.**

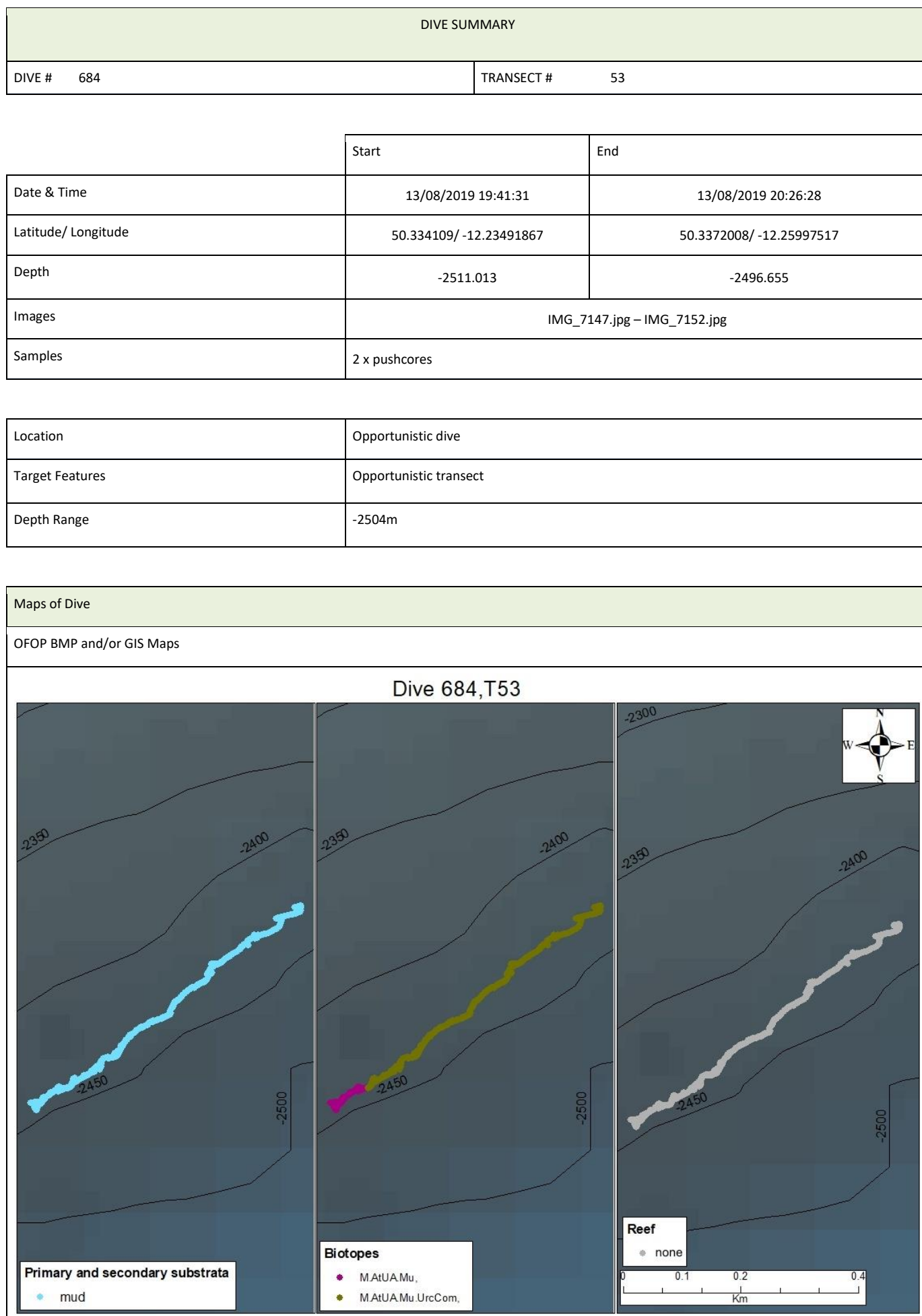
Physical Data			
Reef (types can be concurrent)	0% reef	n/a	
		n/a	n/a
			n/a
Substrates	- Mud		
Geomorphology/Features	- Slope		

Annex 1 Types	n/a
Pressures	n/a

Biological Data																																																			
Number of Species		12																																																	
Summary Species List (Operational Taxonomic Unit, Name, Size, SACFOR, presence per habitat transition)																																																			
<table><tr><th>O.T.U</th><th>Species/Taxonomic ID</th><th>Size/Growth</th><th>SACFOR</th></tr><tr><td>1179</td><td>Holothuroidea sp6</td><td>L</td><td>R</td></tr><tr><td>917</td><td>Hyalonema sp1</td><td>L</td><td>R</td></tr><tr><td>249</td><td>Lepidion eques</td><td>L</td><td>R</td></tr><tr><td>255</td><td>Phelliactis sp1</td><td>L</td><td>R</td></tr><tr><td>347</td><td>Pheronema carpenteri</td><td>L</td><td>S</td></tr><tr><td>1087</td><td>Pseudarchaster sp1</td><td>L</td><td>R</td></tr><tr><td>211</td><td>Cidaris cidaris</td><td>M</td><td>R</td></tr><tr><td>1154</td><td>Henricia sp1</td><td>M</td><td>R</td></tr><tr><td>6</td><td>Caryophyllia sp2</td><td>S</td><td>R</td></tr><tr><td>2</td><td>Cerianthidae sp1</td><td>S</td><td>R</td></tr><tr><td>440</td><td>Synaphobranchus kaupii</td><td>S</td><td>R</td></tr></table>				O.T.U	Species/Taxonomic ID	Size/Growth	SACFOR	1179	Holothuroidea sp6	L	R	917	Hyalonema sp1	L	R	249	Lepidion eques	L	R	255	Phelliactis sp1	L	R	347	Pheronema carpenteri	L	S	1087	Pseudarchaster sp1	L	R	211	Cidaris cidaris	M	R	1154	Henricia sp1	M	R	6	Caryophyllia sp2	S	R	2	Cerianthidae sp1	S	R	440	Synaphobranchus kaupii	S	R
O.T.U	Species/Taxonomic ID	Size/Growth	SACFOR																																																
1179	Holothuroidea sp6	L	R																																																
917	Hyalonema sp1	L	R																																																
249	Lepidion eques	L	R																																																
255	Phelliactis sp1	L	R																																																
347	Pheronema carpenteri	L	S																																																
1087	Pseudarchaster sp1	L	R																																																
211	Cidaris cidaris	M	R																																																
1154	Henricia sp1	M	R																																																
6	Caryophyllia sp2	S	R																																																
2	Cerianthidae sp1	S	R																																																
440	Synaphobranchus kaupii	S	R																																																
Biotope List (Marine Habitat Classification for Britain & Ireland)																																																			
Code	Name	Listed																																																	
M.AtMB.Mu.DeeSpo.PheCar	<i>Pheronema carpenteri</i> field on Atlantic mid bathyal mud	Mud and sand emergent fauna (ICES); deep-sea sponge aggregations (ICES/OSPAR); soft-bottom sponge aggregations (ICES subcategory)																																																	
Biotope progression per habitat transition (# species, dominant/characteristic species)																																																			
1	M.AtMB.Mu.DeeSpo.PheCar																																																		
	347 Pheronema carpenteri																																																		

Conservation Targets		
Listed Habitats Encountered		
Name	Authority	
Mud and sand emergent fauna Deep-sea sponge aggregations: - soft-bottom sponge aggregations	ICES ICES/OSPAR ICES subcategory	
Listed Species Encountered (Fish, Count)		
n/a		OSPAR/IUCN

Additional Comments	
n/a	



Representative Images			
(Images representative of major biotopes, species, and sediments encountered throughout the transect)			
			
Top L. Solitary scleractinian and sea pen on muddy gentle slope (M.AtUA.Mu). Top R. <i>Hymenaster</i> sp and sea pen on muddy slope (M.AtUA.Mu). Bottom L. Rusty man-made barrel on muddy slope inhabited by encrusting species (M.AtUA.Mu). Bottom R. white echinoid field on muddy slope (M.AtUA.Mu.UrcCom).			
Summary Description (habitat transitions noted)			
STARTS AT 19:41:31/0m. The entire dive is set on gentle/moderate muddy slope with mainly sea urchins, starfish and ophiuroids. [1] 1m ROV stops for sampling two pushcores. 13m Here ROV zooms in and shows some fluffy organic matter and pteropod hash on moderate muddy slope. 14m [2] Echinus sp on mud dominates for the rest of the transect. 34m Rusted large barrel (<1m in length). ENDS AT 20:26:28/52m.			

Physical Data			
Reef (types can be concurrent)	0% reef	n/a	
		n/a	n/a
			n/a
Substrates	- Mud		

Geomorphology/Features	- Slope
Annex 1 Types	n/a
Pressures	1 x rusty barrel (34m)

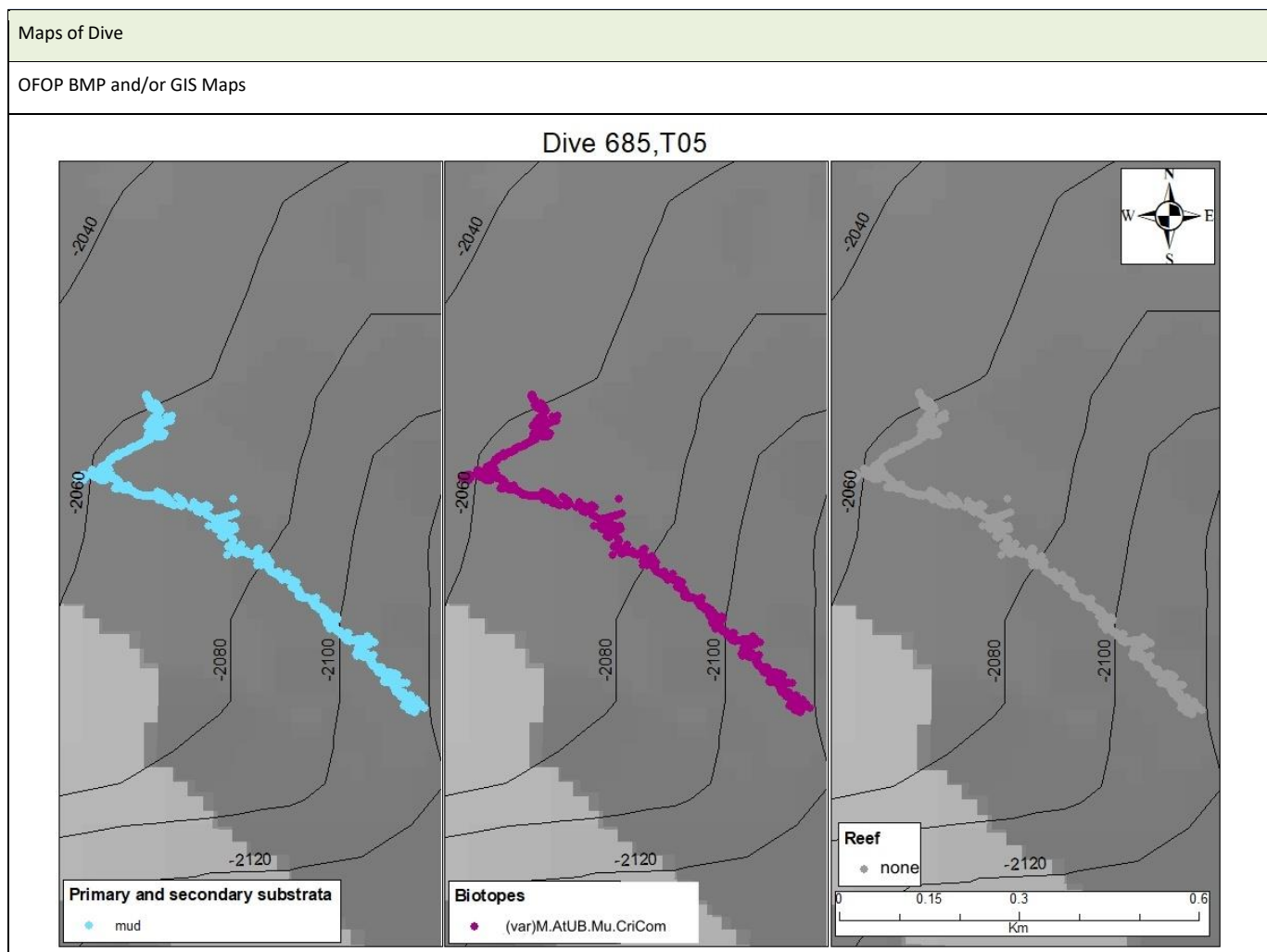
Biological Data				
Number of Species		16		
Summary Species List (Operational Taxonomic Unit, Name, Size, SACFOR, presence per habitat transition)				
	O.T.U.	Species/Taxonomic ID	Size/Growth	SACFOR
	651	Actinopterygii sp3	L	R
	278	Anthomastus grandiflorus	L	F
	577	Coryphaenoides guentheri	L	R
	566	Coryphaenoides rupestris	L	R
	1108	Distichoptilum gracile	L	R
	1113	Halosauridae sp	L	R
	1012	Notacanthiformes sp1	L	R
	551	Ophiomusa lymani	L	R
	1115	Pterasteridae sp3	L	R
	235	Bathynectes sp	S	R
	1077	Caridea (indet)	S	R
	6	Caryophyllia sp2	S	F
	2	Cerianthidae sp1	S	R
	445	Echinus sp	S	C
	1122	Elpidiidae sp (indet)	S	R
	1056	Flabellum sp	S	R
	Biotope List (Marine Habitat Classification for Britain & Ireland)			
Code	Name		Listed	
M.AtUA.Mu	Atlantic upper abyssal mud		Mud and sand emergent fauna (ICES)	
M.AtUA.Mu.UrcCom	Urchin dominated community on Atlantic upper abyssal mud		Mud and sand emergent fauna (ICES)	
Biotope progression per habitat transition (# species, dominant/characteristic species)				
1	M.AtUA.Mu			
	1115 Pterasteridae sp; 278 Anthomastus grandiflorus			
2	M.AtUA.Mu.UrcCom			
	445 Echinus sp; 551 Ophiomusa lymani; 1115 Pterasteridae sp			

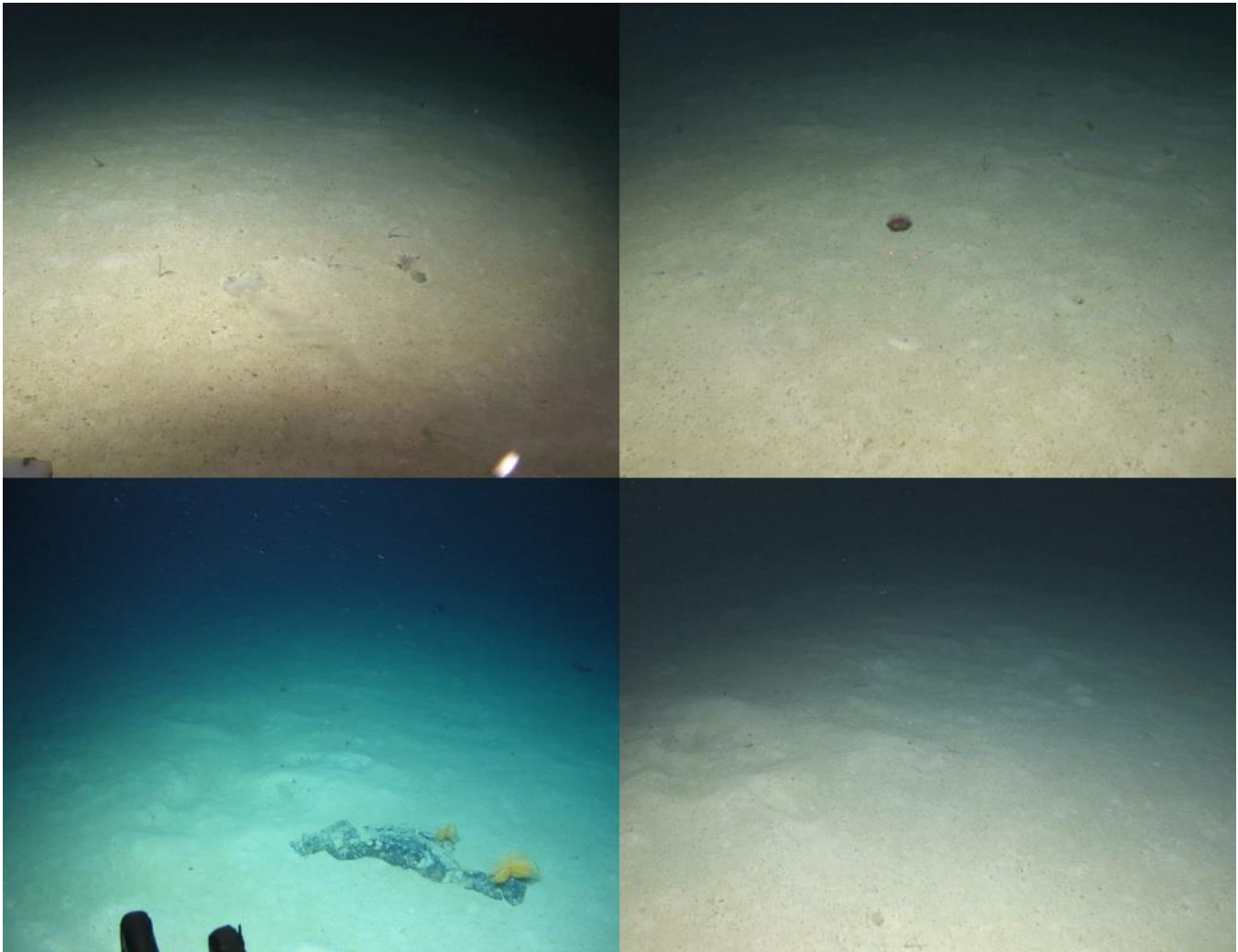
Conservation Targets		
Listed Habitats Encountered		
Name	Authority	
Mud and sand emergent fauna	ICES	
Listed Species Encountered (Fish, Count)		
n/a		OSPAR/IUCN

Additional Comments	
n/a	
DIVE SUMMARY	
DIVE # 685	TRANSECT # 05

	Start	End
Date & Time	14/08/2019 06:51:14	14/08/2019 07:53:17
Latitude/ Longitude	50.572518/ -13.77267017	50.5772392/ -13.77671783
Depth	-2088.531	-2046.986
Images	IMG_7153.jpg – IMG_7172.jpg	
Samples	2 x pushcores	

Location	P2
Target Features	Spatial coverage
Depth Range	-2097m



Representative Images			
(Images representative of major biotopes, species, and sediments encountered throughout the transect)			
			
Top L. <i>Democrinus sp1</i> on muddy slope ((var)M.AtUB.Mu.CriCom). Top R. Sea urchin (<i>Phormosoma placenta</i>) living on mud ((var)M.AtUB.Mu.CriCom). Bottom L. <i>Bathypathes sp1</i> living on boulder ((var)M.AtUB.Mu.CriCom). Bottom R. Soft sediment with sparse stalked crinoids ((var)M.AtUB.Mu.CriCom).			
Summary Description (habitat transitions noted)			
STARTS AT 06:51:12/0m. Stalked crinoids and a few burrows on gentle/moderate slope of soft sediment with sparse echinoids and Anthoptilum. [1] 1m ROV stops for sampling two pushcores. 49m Here a large cobble/small boulder host two individuals of <i>Bathypathes sp.</i> 50m Still same biotope as in the beginning of the video: stalked crinoids and sparse echinoids with occasional <i>Acanella arbuscula</i> until ENDS AT 07:53:17/01:09.			

Physical Data			
Reef (types can be concurrent)	0% reef	n/a	
		n/a	n/a
			n/a
Substrates	- Mud		
Geomorphology/Features	- Slope		

Annex 1 Types	n/a
Pressures	n/a

Biological Data

Number of Species	23
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Summary Species List (Operational Taxonomic Unit, Name, Size, SACFOR, presence per habitat transition)

O.T.U	Species/Taxonomic ID	Size/Growth	SACFOR
582	Actiniaria sp18	L	R
235	Bathynectes sp	L	R
328	Bathypathes sp1	L	R
274	Brisingidae	L	R
1008	Chrysogorgiidae sp1	L	R
566	Coryphaenoides rupestris	L	R
1103	Democrinus sp1	L	C
1108	Distichoptilum gracile	L	R
984	Halcampoididae sp	L	R
574	Holothuroidea sp2	L	R
1125	Hygrosoma sp	L	R
1012	Notacanthiformes sp1	L	R
551	Ophiomusa lymani	L	R
1120	Anthoptilum sp	L	F
255	Phelliactis sp1	L	R
555	Phorsonoma placenta	L	F
552	Polyacanthonotus rissoanus	L	R
433	Pseudarchaster sp	L	R
581	Umbellula sp	L	R
585	Acanella arbuscula	M	O
2	Cerianthidae sp1	S	R
1059	Colossendeis sp	S	R
1056	Flabellum sp	S	R

Biotope List (Marine Habitat Classification for Britain & Ireland)

Code	Name	Listed
(var)M.AtUB.Mu.CriCom	(variant of)Crinoid dominated community on Atlantic upper bathyal mud	Mud and sand emergent fauna (ICES)

Biotope progression per habitat transition (# species, dominant/characteristic species)

1	(var)M.AtUB.Mu.CriCom
	1103 Democrinus sp1; 555 Phormosoma placenta; 1107 Pennatulacea sp5; 585 Acanella arbuscula

Conservation Targets

Listed Habitats Encountered

Name	Authority
Mud and sand emergent fauna	ICES

Listed Species Encountered (Fish, Count)

n/a	OSPAR/IUCN
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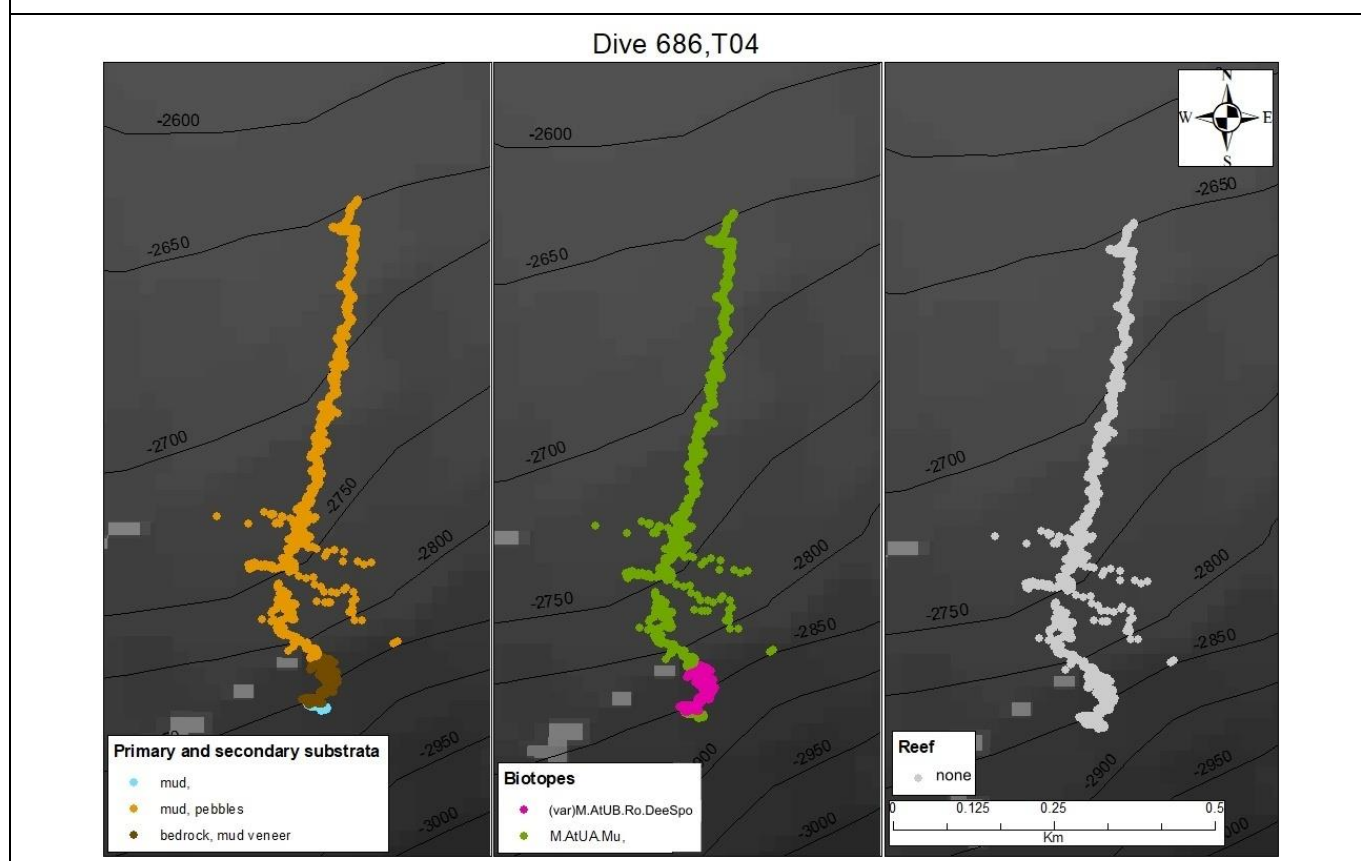
DIVE SUMMARY			
DIVE #	686	TRANSECT #	04

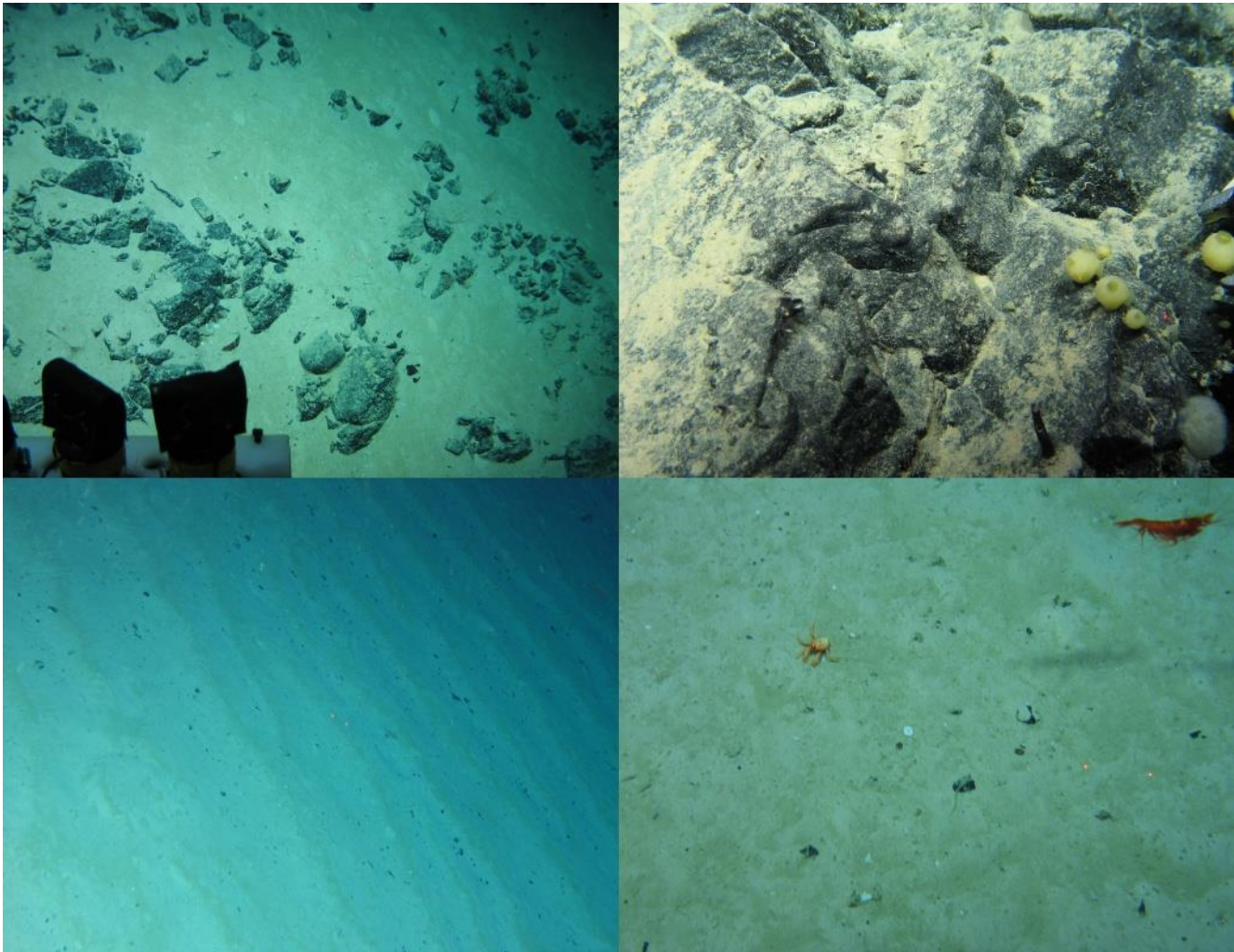
	Start	End
Date & Time	14/08/2019 15:49:55	14/08/2019 17:34:19
Latitude/ Longitude	50.470865/ -14.484107	50.47795067/-14.4836205
Depth	-2964.795	-2609.399
Images	IMG_7147.jpg – IMG_7276.jpg	
Samples	2 x sponge (yellow) 2 x pushcores	

Location	P2
Target Features	No previous data
Depth Range	-2957m

Maps of Dive

OFOF BMP and/or GIS Maps



Representative Images			
(Images representative of major biotopes, species, and sediments encountered throughout the transect)			
			
Top L. Pebbles and cobbles on slope ((var)M.AtUB.Ro.DeoSpo). Top R. Unknown species of possibly porifera and Reteporella (bottom right) living on bedrock. They were found in a dense aggregation at this depth ((var)M.AtUB.Ro.DeoSpo). Bottom L. Rippled soft sediment (M.AtUA.Mu). Bottom R. Eucarida and <i>Galacantha</i> sp living on soft sediment (M.AtUA.Mu).			
Summary Description (habitat transitions noted)			
STARTS AT 15:49:55/0m. Predominantly steep muddy slope with patches of bedrock hosting a few sponge species. [1] The dive starts on mud with scattered boulders. [2] Here mud veneered bedrock with vertical walls hosting yellow porifera (porifera globose sp) and sparse encrusting species.15m ROV stops for sampling porifera globose sp. [3] 28m Here biotope changes into mud slope. 01h40m ROV samples two pushcores. ENDS AT 17:34:19/02h16m.			

Physical Data			
Reef (types can be concurrent)	0% reef	n/a	
		n/a	n/a
			n/a

Substrates	- Mud - Bedrock - Mud veneered - Pebbles
Geomorphology/Features	- Slope
Annex 1 Types	- Bedrock - Pebbles
Pressures	n/a

Biological Data					
Number of Species			30		
Summary Species List (Operational Taxonomic Unit, Name, Size, SACFOR, presence per habitat transition)					
	O.T.U	Species/Taxonomic ID	Size/Growth	SACFOR	
	261	Syringammina fragilissima	L	R	
	1153	Oneirophanta mutabilis	L	R	
	551	Ophiomusa lymani	L	R	
	547	Stauropathes arctica	L	R	
	436	Pentametrocrinus atlanticus	L	R	
	1156	Porifera lamellate sp18	L	O	
	274	Brsingidae	L	R	
	566	Coryphaenoides rupestris	L	R	
	1008	Chrysogorgiidae sp1	L	R	
	585	Acanella arbuscula	L	R	
	1094	Echinothuroidea sp1	L	R	
	1012	Notacanthiformes sp1	L	R	
	1167	Peniagone sp	L	R	
	1113	Halosauridae sp	L	R	
	1103	Democrinus sp1	M	R	
	278	Anthomastus grandiflorus	M	R	
	1116	Elpidiidae sp	M	R	
	1010	Porifera lamellate sp12	M	R	
	628	Holothuroidea sp4	M	R	
	2	Cerianthidae sp1	S	R	
	199	Velatida sp1	S	R	
	1126	Munidopsis sp1	S	R	
	205	Paguridae sp	S	R	
	1309	Porifera globose sp	S	F	
	1049	cf Psolus sp	S	R	
	433	Pseudarchaster sp1	S	R	
	1077	Caridea (indet)	S	R	
	950	Rhodaliidae sp	S	R	
	1144	Galacantha sp	S	R	
	Biotope List (Marine Habitat Classification for Britain & Ireland)				
	Code	Name		Listed	
	M.AtUA.Mu	Atlantic upper abyssal mud		Mud and sand emergent fauna (ICES)	

(var)M.AtUB.Ro.DeeSpo	(variant of)Deep sponge aggregation on Atlantic upper bathyal rock and other hard substrata	Deep-sea sponge aggregations (ICES/OSPAR)
Biotope progression per habitat transition (# species, dominant/characteristic species)		
1	M.AtUA.Mu	
	n/a	
2	(var)M.AtUB.Ro.DeeSpo	
	1178 Porifera globose sp	
3	M.AtUA.Mu	
	n/a	

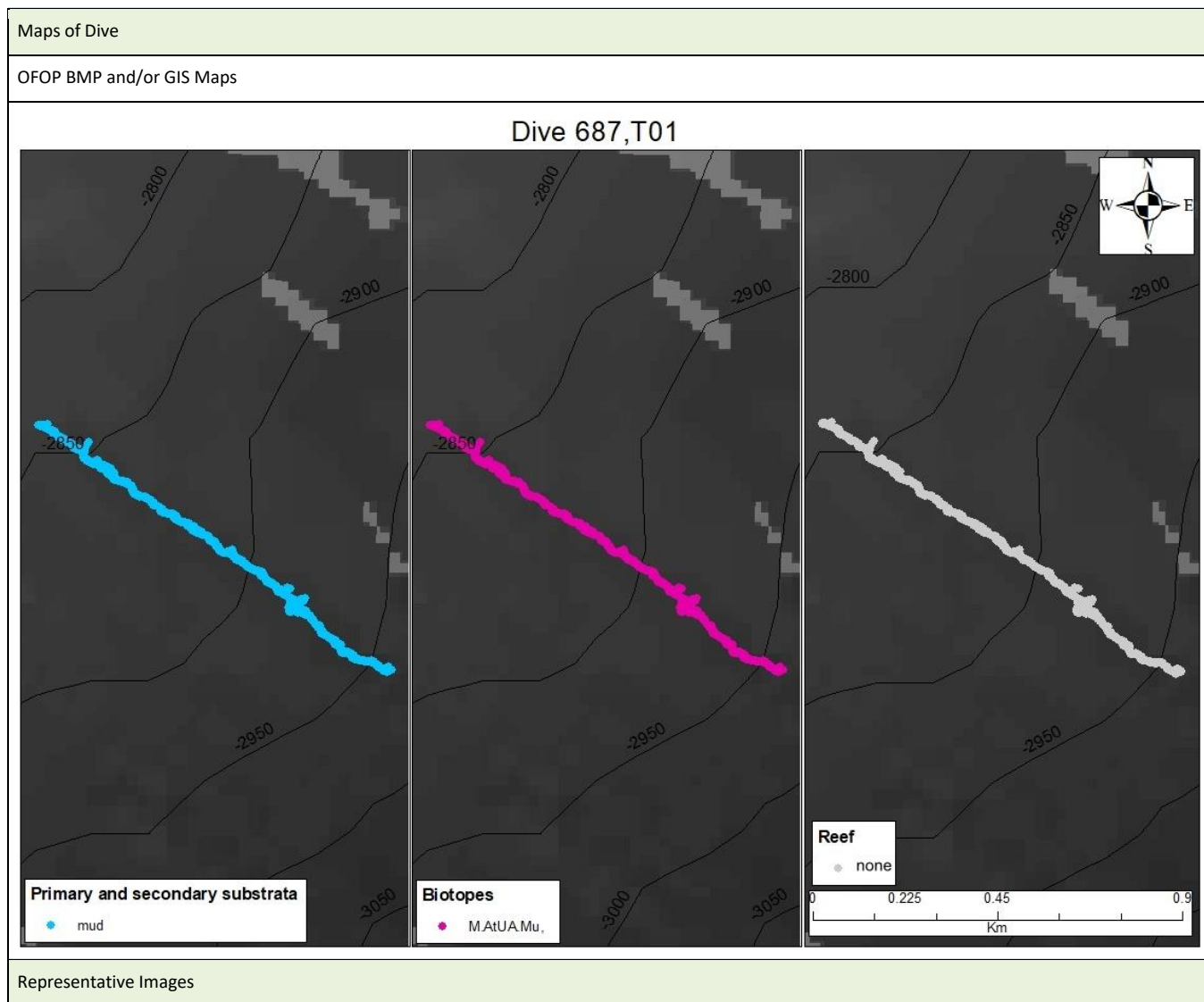
Conservation Targets		
Listed Habitats Encountered		
Name	Authority	
Mud and sand emergent fauna Deep-sea sponge aggregations	ICES ICES/OSPAR	
Listed Species Encountered (Fish, Count)		
n/a		OSPAR/IUCN

Additional Comments		
n/a		

DIVE SUMMARY		
DIVE #	687	TRANSECT # 01

	Start	End
Date & Time	14/08/2019 22:46:32	14/08/2019 23:58:31
Latitude/ Longitude	50.398438/ -14.14846933	50.4038865/ -14.15629167
Depth	-2949.211	-2827.64
Images	IMG_7277.jpg – IMG_7520.jpg	
Samples	2 x pushcores	

Location	P1
Target Features	Steep slope
Depth Range	-2992m



(Images representative of major biotopes, species, and sediments encountered throughout the transect)



Top L. Benthothuria on muddy slope (M.AtUA.Mu).

Top R. *Echinothuroidea sp1* and *Neolithodes grimaldii* living on mud (M.AtUA.Mu).

Bottom L. Possible animal tracks on mud (M.AtUA.Mu).

Bottom R. Grenadier (*Coryphaenoides rupestris*) swimming around muddy slope (M.AtUA.Mu).

Summary Description (habitat transitions noted)

STARTS AT 22:46:32/0m. Deep dive on moderate muddy slope with scarce epifauna, occasionally holothurians (possibly Benthothuria species), predominantly featureless.

[1] 1m ROV stops for two pushcores. Muddy slope with scarce epifauna for the entire dive. 28m ROV stops for collection of glass bottle. Interestingly, occasional sea urchins were encountered in association with (possibly) *Neolithodes grimaldii* (36m, 53m, 01h07m, 01h09m). **ENDS AT 23:58:31/01h11m.**

Physical Data			
Reef (types can be concurrent)	0% reef	n/a	
		n/a	n/a
			n/a
Substrates	- Mud		
Geomorphology/Features	- Slope		
Annex 1 Types	n/a		

Pressures	1 x glass bottle (28m)
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Biological Data

Number of Species	13
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Summary Species List (Operational Taxonomic Unit, Name, Size, SACFOR, presence per habitat transition)

O.T.U	Species/Taxonomic ID	Size/Growth	SACFOR
1124	Benthothuria	L	R
1209	Cirripedia sp2	L	R
577	Coryphaenoides guentheri	L	R
566	Coryphaenoides rupestris	L	R
1094	Echinothuroidea sp1	L	R
1113	Halosauridae sp	L	R
1067	Leucoraja	L	R
1063	Neolithodes grimaldii	L	R
1012	Notacanthiformes sp1	L	R
440	Synaphobranchus kaupii	L	R
605	Actiniaria sp20	S	R
1077	Caridea (indet)	S	R
2	Cerianthidae sp1	S	R

Biotope List (Marine Habitat Classification for Britain & Ireland)

Code	Name	Listed
M.AtUA.Mu	Atlantic upper abyssal mud	Mud and sand emergent fauna (ICES)

Biotope progression per habitat transition (# species, dominant/characteristic species)

1	M.AtUA.Mu
	n/a

Conservation Targets

Listed Habitats Encountered

Name	Authority
Mud and sand emergent fauna	ICES

Listed Species Encountered (Fish, Count)

n/a	OSPAR/IUCN
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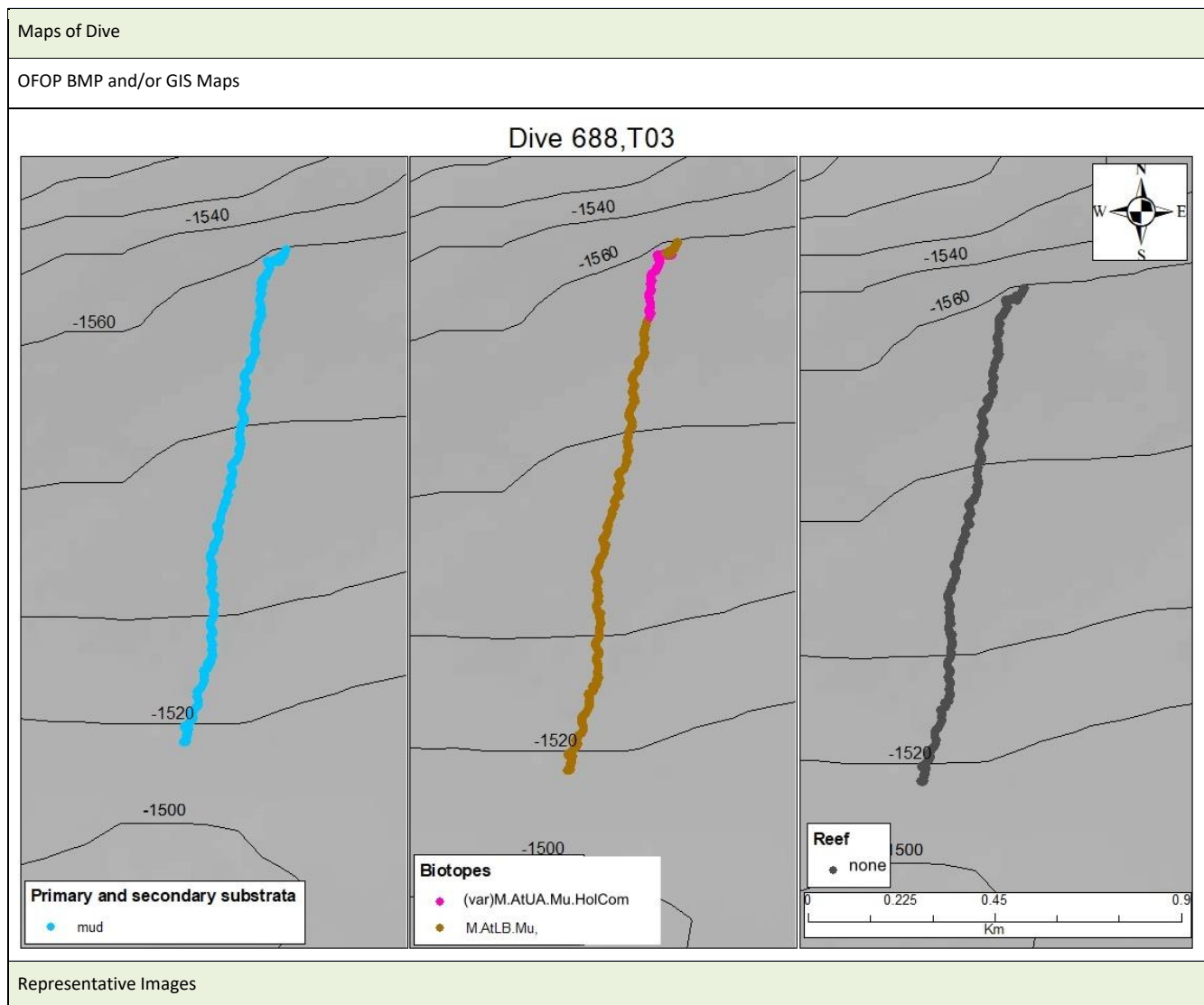
Additional Comments

n/a

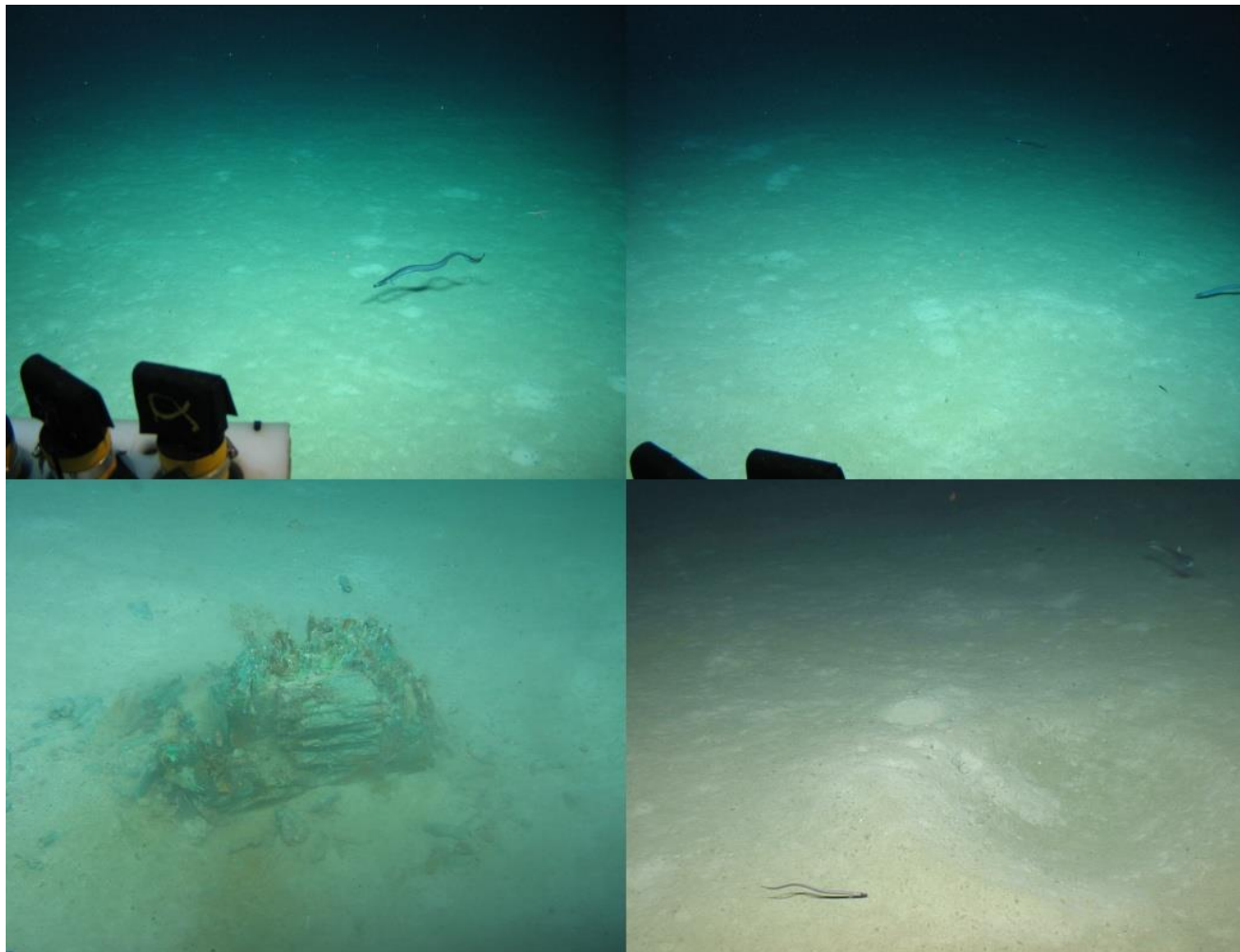
DIVE SUMMARY		
DIVE #	688	TRANSECT # 03

	Start	End
Date & Time	15/08/2019 04:19:08	15/08/2019 05:43:56
Latitude/ Longitude	50.574377/ -14.15630033	50.58509817/ -14.154037
Depth	-1494.067	-1568.192
Images	IMG_7521.jpg – IMG_7652.jpg	
Samples	2 x pushcores 1 x unknown pressure (possibly bullets)	

Location	P1
Target Features	Ledge
Depth Range	-1497m



(Images representative of major biotopes, species, and sediments encountered throughout the transect)



Top L. *Notachantiformes sp1* swimming on muddy slope (M.AtLB.Mu).

Top R. *Synaphobranchus kaupii* on mud (M.AtLB.Mu).

Bottom L. Rusty man-made object on mud (M.AtLB.Mu).

Bottom R. *Synaphobranchus kaupii* on mud (M.AtLB.Mu).

Summary Description (habitat transitions noted)

STARTS AT 04:19:13/0m. The entire dive is set on homogenous biotope of muddy moderate slope with sparse echinoids and holothurians. [1] Muddy slope with scarce epifauna. 1m ROV stops for sampling two pushcores. 01h11m Unknown pressure on muddy slope, possibly bullets. 01h11m – 01h21m ROV stops for imagery and sampling of unidentified pressure. 01h21m [2] Biotopes changes muddy moderate slope with scarce epifauna and scattered *Elpidiidae sp* aggregations. 01h24m ROV stops for imagery of small sea cucumbers aggregations (<1cm). 01h34m Here aggregations of sea cucumbers recorded. 01h35m [3] Muddy slope with scarce epifauna. 01h45m now the ROV films a big burrow of unknown origins (it has a rectangular shape, >1m long and <1m in width). **ENDS AT 05:43:56/01h46m.**

Physical Data			
Reef (types can be concurrent)	0% reef	n/a	
		n/a	n/a
			n/a
Substrates	- Mud		

Geomorphology/Features	- Slope
Annex 1 Types	n/a
Pressures	1 x unknown pressure (01h11m)

Biological Data	
Number of Species	29
Summary Species List (Operational Taxonomic Unit, Name, Size, SACFOR, presence per habitat transition)	

O.T.U	Species/Taxonomic ID	Size/Growth	SACFOR
440	Synaphobranchus kaupii	L	R
930	Actinopterygii sp3	L	R
536	Mesothuria intestinalis	L	R
566	Coryphaenoides rupestris	L	R
1012	Notachantiformes sp1	L	R
132	Actinostolidae sp1	L	R
574	Holothuroidea sp2	L	R
581	Umbellula sp	L	R
1206	Mesothuria sp	L	R
255	Phelliactis sp1	L	R
128	Cottunculus microps	L	R
446	Trachyrhynchus sp	L	R
433	Pseudarchaster sp1	L	R
1064	Isididae sp5	L	R
1078	Ipnopidae sp	L	R
994	Metallogorgia, Irifogorgia or Cirrhipathes	L	R
988	Zoroaster fulgens	M	R
263	Porania	M	R
582	Actiniaria sp18	M	R
1077	Caridea (indet)	S	R
1056	Flabellum sp	S	R
605	Actiniaria sp20	S	R
2	Cerianthidae sp1	S	R
205	Paguridae sp	S	R
317	Epizoanthus sp1	S	R
146	Aphroditidae sp1	S	R
584	Caryophyllia sp5	S	R
26	Ophiuroidea sp1	S	R
1116	Elpidiidae sp	S	R

Biotope List (Marine Habitat Classification for Britain & Ireland)		
Code	Name	Listed
M.AtLB.Mu	Atlantic lower bathyal mud	Mud and sand emergent fauna (ICES)
(var)M.AtUA.Mu.HolCom	(variant of)Holothurian dominated community on Atlantic upper abyssal mud	Mud and sand emergent fauna (ICES)

Biotope progression per habitat transition (# species, dominant/characteristic species)	
1	M.AtLB.Mu
	n/a
2	(var)M.AtUA.Mu.HolCom
	1116 Elpidiidae sp
3	M.AtLB.Mu
	n/a

Conservation Targets		
Listed Habitats Encountered		
Name	Authority	
Mud and sand emergent fauna	ICES	
Listed Species Encountered (Fish, Count)		
n/a		OSPAR/IUCN

Additional Comments
n/a

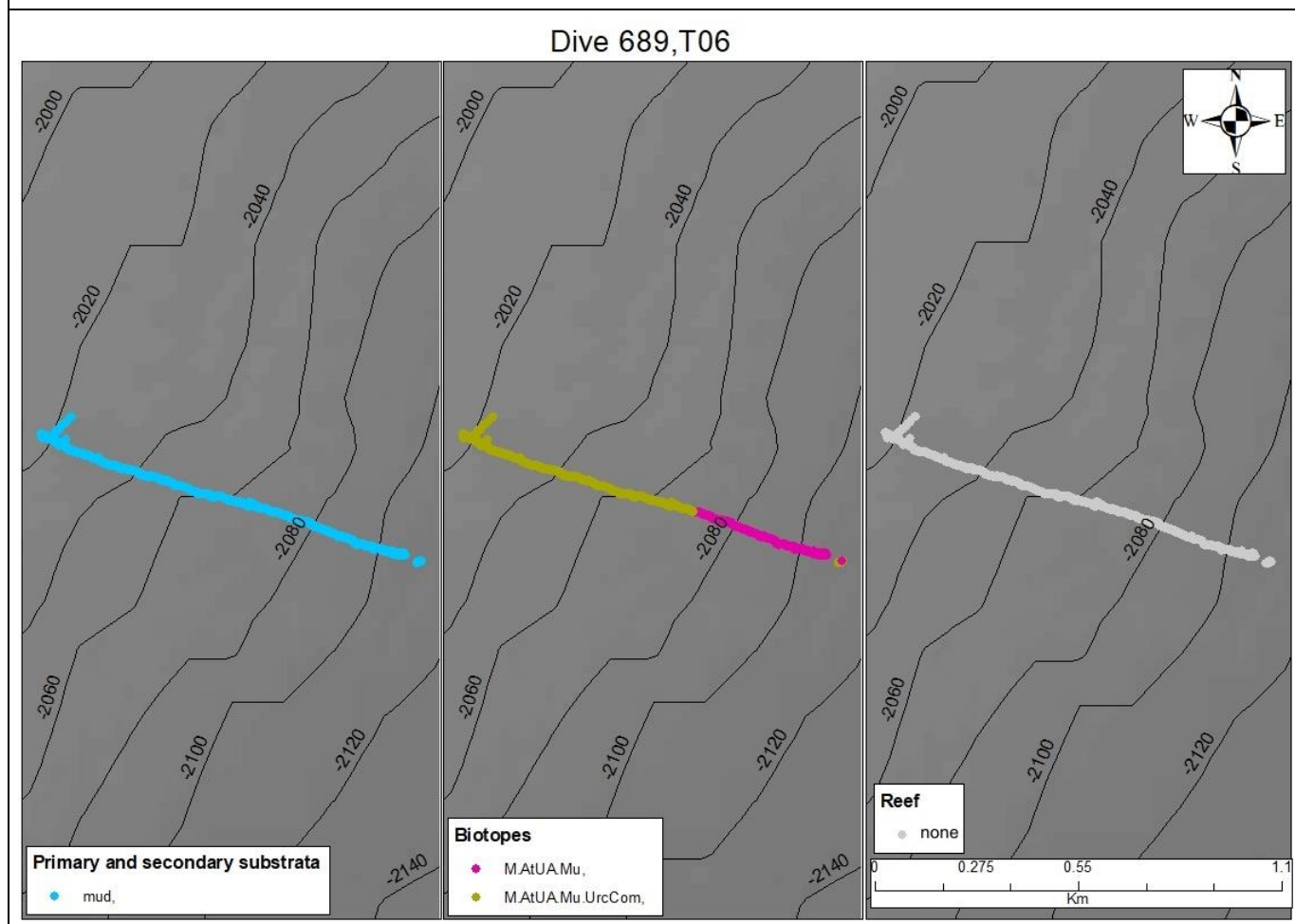
DIVE SUMMARY	
DIVE # 689	TRANSECT # 06

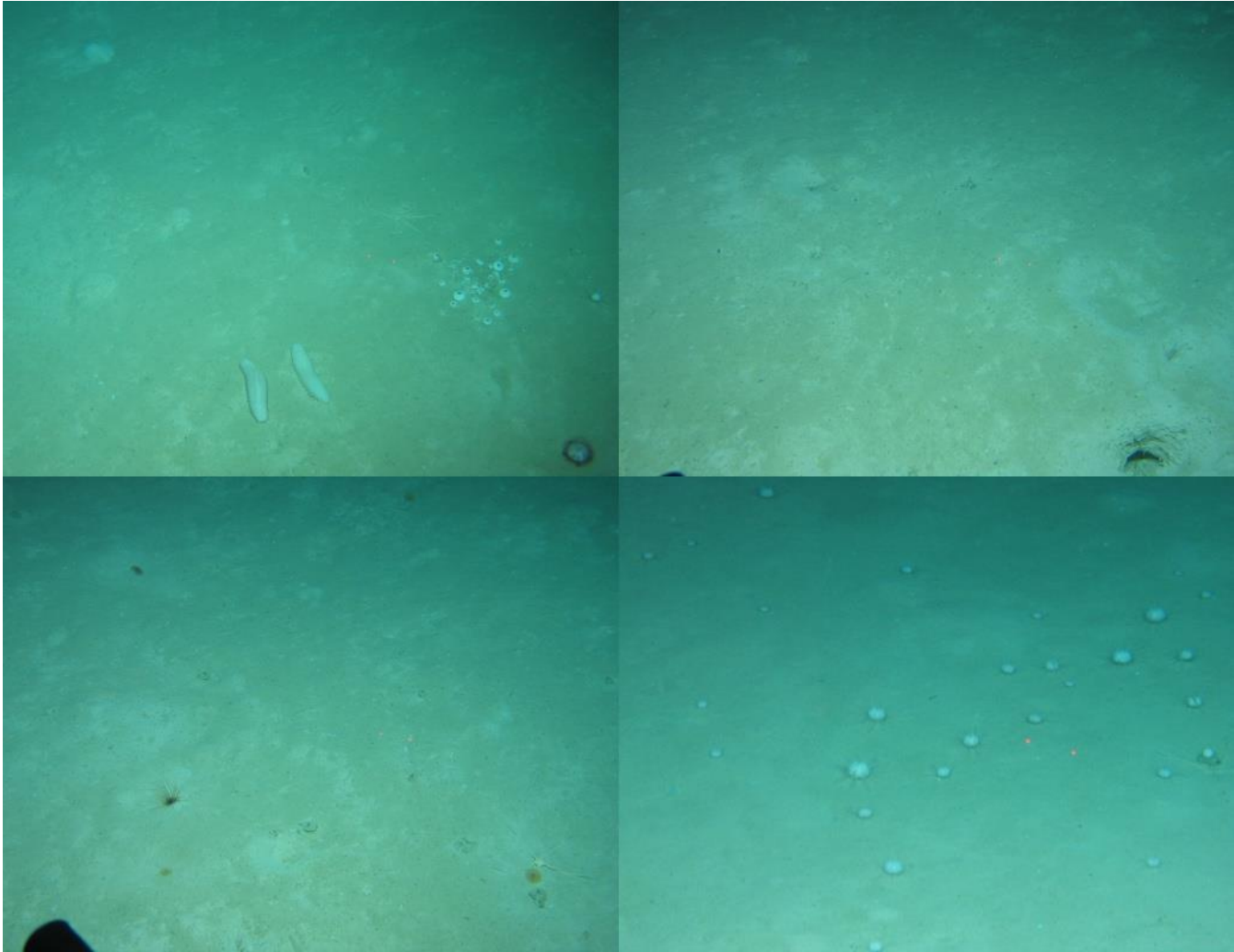
	Start	End
Date & Time	15/08/2019 11:21:49	15/08/2019 12:45:46
Latitude/ Longitude	50.8727273/-13.54085717	50.8758888/-13.55021483
Depth	-2121.562	-2023.767
Images	IMG_7601.jpg – IMG_7781.jpg	
Samples	2 x pushcores	

Location	P1
Target Features	Slope
Depth Range	-2112m

Maps of Dive

OFOP BMP and/or GIS Maps



Representative Images			
(Images representative of major biotopes, species, and sediments encountered throughout the transect)			
			
Top L. Benthothuria and <i>Phormosoma placenta</i> on mud (M.AtUA.Mu.UrcCom). Top R. Soft sediment with burrows (M.AtUA.Mu). Bottom L. Sparse cerianthid and ophiuroid on mud (M.AtUA.Mu). Bottom R. Sea urchin aggregation on mud (M.AtUA.Mu.UrcCom).			
Summary Description (habitat transitions noted)			
STARTS AT 11:21:47/0m. Uniform biotope of gentle/moderate slope with occasional burrows and echinods. [1] 1m ROV stops for sampling 2 pushcores. 10m [2] Sparse epifauna including <i>Ophiomusa lymani</i>, <i>Holothuroidea sp2</i>, Ceriantharia and <i>Echinus sp</i> on mud. 49m [3] Here sea urchin are frequently encountered living on mud. 50m Here aggregations of sea urchins dominate on soft sediment. Muddy slope continues for the rest of the dive. ENDS AT 12:45:46/01h23m.			

Physical Data			
Reef (types can be concurrent)	0% reef	n/a	
		n/a	n/a
			n/a

Substrates	- Mud
Geomorphology/Features	- Slope
Annex 1 Types	n/a
Pressures	n/a

Biological Data																																																																																																																							
Number of Species		29																																																																																																																					
Summary Species List (Operational Taxonomic Unit, Name, Size, SACFOR, presence per habitat transition)																																																																																																																							
	<table><tr><th>O.T.U</th><th>Species/Taxonomic ID</th><th>Size/Growth</th><th>SACFOR</th></tr><tr><td>1</td><td>Porifera encrusting sp1</td><td>Crust</td><td>R</td></tr><tr><td>551</td><td>Ophiomusa lymani</td><td>L</td><td>C</td></tr><tr><td>555</td><td>Phorsonoma placenta</td><td>L</td><td>F</td></tr><tr><td>432</td><td>Benthogone sp</td><td>L</td><td>C</td></tr><tr><td>566</td><td>Coryphaenoides rupestris</td><td>L</td><td>R</td></tr><tr><td>988</td><td>Zoroaster fulgens</td><td>L</td><td>R</td></tr><tr><td>440</td><td>Synaphobranchus kaupii</td><td>L</td><td>R</td></tr><tr><td>255</td><td>Phelliactis sp1</td><td>L</td><td>R</td></tr><tr><td>1174</td><td>Pterasteridae sp4</td><td>L</td><td>R</td></tr><tr><td>254</td><td>Chaceon affinis</td><td>L</td><td>R</td></tr><tr><td>984</td><td>cf Halcampoididae sp</td><td>L</td><td>R</td></tr><tr><td>651</td><td>Actinopterygii sp3</td><td>L</td><td>R</td></tr><tr><td>581</td><td>Umbellula sp</td><td>L</td><td>R</td></tr><tr><td>1046</td><td>Pennatula aculeata</td><td>L</td><td>R</td></tr><tr><td>1301</td><td>Antimora sp</td><td>L</td><td>R</td></tr><tr><td>1078</td><td>Ipnopidae sp</td><td>L</td><td>R</td></tr><tr><td>274</td><td>Brisingidae</td><td>L</td><td>R</td></tr><tr><td>559</td><td>Echinus acutus</td><td>M</td><td>C</td></tr><tr><td>442</td><td>Kophobelemnion stelliferum</td><td>M</td><td>R</td></tr><tr><td>1066</td><td>Adamsia sp</td><td>S</td><td>R</td></tr><tr><td>205</td><td>Paguridae sp</td><td>S</td><td>R</td></tr><tr><td>6</td><td>Caryophyllia</td><td>S</td><td>R</td></tr><tr><td>2</td><td>Cerianthidae sp1</td><td>S</td><td>R</td></tr><tr><td>1114</td><td>Pennatulacea (indet)</td><td>S</td><td>R</td></tr><tr><td>1103</td><td>Democrinus sp</td><td>S</td><td>R</td></tr><tr><td>950</td><td>Rhodaliidae sp</td><td>S</td><td>R</td></tr><tr><td>1106</td><td>Eucarida sp</td><td>S</td><td>R</td></tr><tr><td>1056</td><td>Flabellum sp</td><td>S</td><td>R</td></tr></table>	O.T.U	Species/Taxonomic ID	Size/Growth	SACFOR	1	Porifera encrusting sp1	Crust	R	551	Ophiomusa lymani	L	C	555	Phorsonoma placenta	L	F	432	Benthogone sp	L	C	566	Coryphaenoides rupestris	L	R	988	Zoroaster fulgens	L	R	440	Synaphobranchus kaupii	L	R	255	Phelliactis sp1	L	R	1174	Pterasteridae sp4	L	R	254	Chaceon affinis	L	R	984	cf Halcampoididae sp	L	R	651	Actinopterygii sp3	L	R	581	Umbellula sp	L	R	1046	Pennatula aculeata	L	R	1301	Antimora sp	L	R	1078	Ipnopidae sp	L	R	274	Brisingidae	L	R	559	Echinus acutus	M	C	442	Kophobelemnion stelliferum	M	R	1066	Adamsia sp	S	R	205	Paguridae sp	S	R	6	Caryophyllia	S	R	2	Cerianthidae sp1	S	R	1114	Pennatulacea (indet)	S	R	1103	Democrinus sp	S	R	950	Rhodaliidae sp	S	R	1106	Eucarida sp	S	R	1056	Flabellum sp	S	R		
O.T.U	Species/Taxonomic ID	Size/Growth	SACFOR																																																																																																																				
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440	Synaphobranchus kaupii	L	R																																																																																																																				
255	Phelliactis sp1	L	R																																																																																																																				
1174	Pterasteridae sp4	L	R																																																																																																																				
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651	Actinopterygii sp3	L	R																																																																																																																				
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6	Caryophyllia	S	R																																																																																																																				
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1114	Pennatulacea (indet)	S	R																																																																																																																				
1103	Democrinus sp	S	R																																																																																																																				
950	Rhodaliidae sp	S	R																																																																																																																				
1106	Eucarida sp	S	R																																																																																																																				
1056	Flabellum sp	S	R																																																																																																																				
Biotope List (Marine Habitat Classification for Britain & Ireland)																																																																																																																							
Code	Name	Listed																																																																																																																					
M.AtUA.Mu.UrcCom	Urchin dominated community on Atlantic upper abyssal mud	Mud and sand emergent fauna (ICES)																																																																																																																					
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Biotope progression per habitat transition (# species, dominant/characteristic species)																																																																																																																							
1	M.AtUA.Mu.UrcCom																																																																																																																						

	445 Echinus sp; 551 Ophiomusa lymani
2	M.AtUA.Mu
	551 Ophiomusa lymani; 432 Benthogone sp; 2 Ceriantharia; 445 Echinus sp
3	M.AtUA.Mu.UrcCom
	445 Echinus sp; 551 Ophiomusa lymani; 432 Benthogone sp

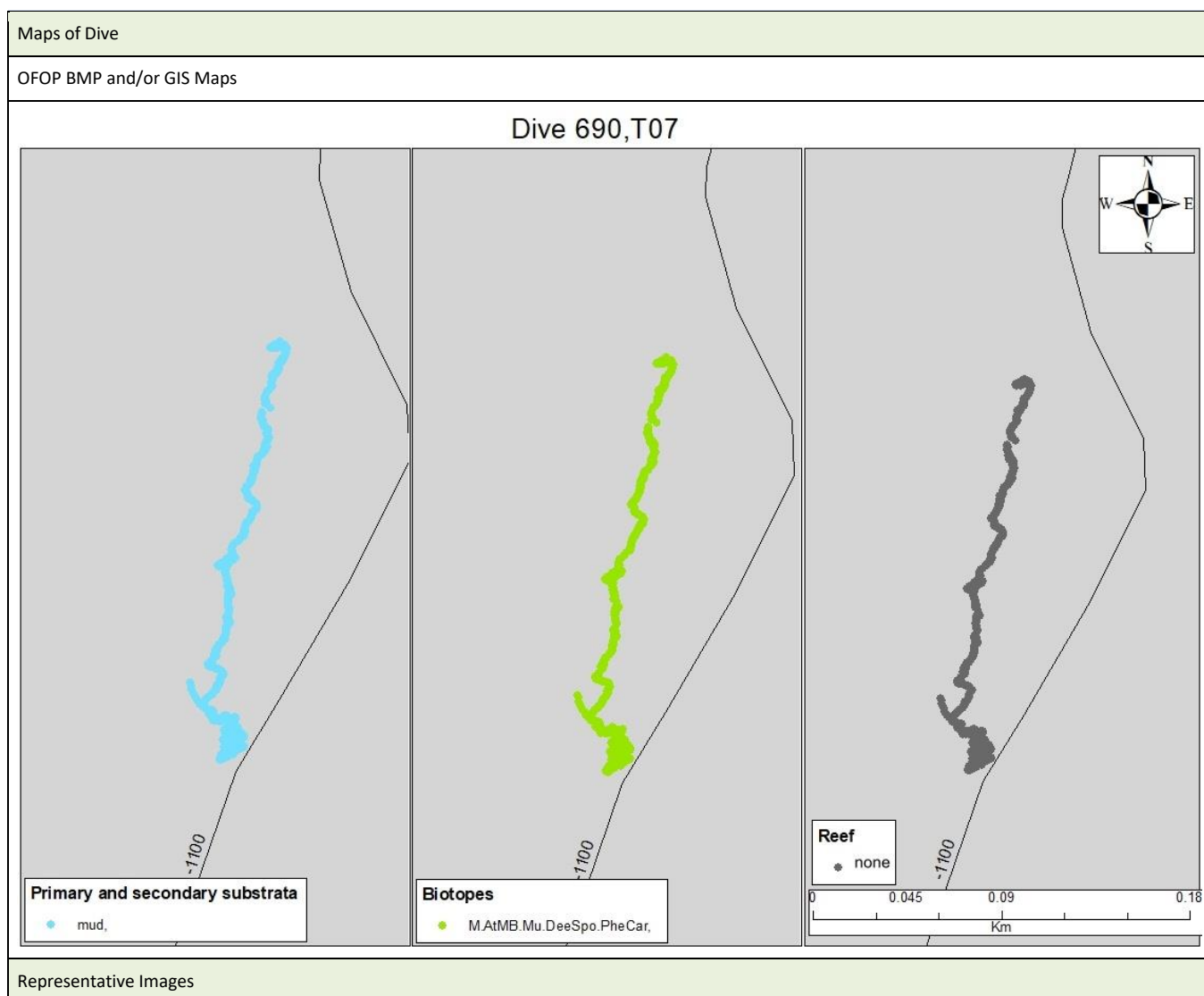
Conservation Targets		
Listed Habitats Encountered		
Name	Authority	
Mud and sand emergent fauna	ICES	
Listed Species Encountered (Fish, Count)		
n/a		OSPAR/IUCN

Additional Comments		
n/a		

DIVE SUMMARY			
DIVE #	690	TRANSECT #	07

	Start	End
Date & Time	15/08/2019 15:39:01	15/08/2019 17:13:54
Latitude/ Longitude	50.959457/ -13.6874445	50.9611035/ -13.68723267
Depth	-1103.552	-1099.086
Images	IMG_7701.jpg – IMG_7780.jpg	
Samples	15 x <i>Pheronema carpenteri</i> 3 x water samples 3 x pushcores 1 x Hyalonema sp1	

Location	P1
Target Features	Ridge
Depth Range	-1100m



Representative Images

(Images representative of major biotopes, species, and sediments encountered throughout the transect)



Top L. *Pheronema carpenteri* (or bird's nest sponges) aggregations on muddy slope (M.AtMB.Mu.DeoSpo.PheCar).

Top R. *Pheronema carpenteri* (or bird's nest sponges) aggregations, *Acanella arbuscula* and *Umbellula sp* on muddy slope (M.AtMB.Mu.DeoSpo.PheCar).

Bottom L. *Pheronema carpenteri* (or bird's nest sponges) aggregations and *Holothuroidea sp6* slope (M.AtMB.Mu.DeoSpo.PheCar).

Bottom R. *Pheronema carpenteri* (or bird's nest sponges) aggregations, *Phelliactis sp1* and *Lepidion eques* on muddy slope (M.AtMB.Mu.DeoSpo.PheCar).

Summary Description (habitat transitions noted)

STARTS AT 15:39:06/0m. *Pheronema carpenteri* aggregations on muddy slope.

[1] The ROV samples 15 sponges with three water samples and three push cores (more details of the samples are recorded in the enhancedOFOP files). 01h21m ROV stops for sampling Hyalonema sp1. **ENDS AT 17:13:54/01h36m.**

Physical Data			
Reef (types can be concurrent)	0% reef	n/a	
		n/a	n/a
			n/a
Substrates	- Mud		
Geomorphology/Features	- Slope		
Annex 1 Types	n/a		

Pressures	n/a
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Biological Data

Number of Species	29
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Summary Species List (Operational Taxonomic Unit, Name, Size, SACFOR, presence per habitat transition)

O.T.U	Species/Taxonomic ID	Size/Growth	SACFOR
585	Acanella arbuscula	L	R
4	Actiniaria sp1	L	R
1008	Chrysogorgiidae sp1	L	R
131	Crinoidea sp1	L	R
1094	Echinothuroidea sp1	L	R
1179	Holothuroidea sp6	L	R
917	Hyalonema sp1	L	R
1024	Hydrolagus mirabilis	L	R
442	Kophobelemnion stelliferum	L	R
249	Lepidion eques	L	R
1046	Pennatula aculeata	L	R
436	Pentametrocrinus atlanticus	L	R
255	Phelliactis sp1	L	R
347	Pheronema carpenteri	L	A
433	Pseudarchaster sp1	L	R
988	Zoroaster fulgens	L	R
582	Actiniaria sp18	M	R
984	cf Halcampoididae sp	M	R
973	Nematocarcinus sp1	M	R
1191	Pennatulacea sp3	M	R
440	Synaphobranchus kaupii	M	R
605	Actiniaria sp20	S	R
591	Ascidacea sp5	S	R
2	Cerianthidae sp1	S	R
621	Hypsogastropoda	S	R
11	Majidae sp1	S	R
1126	Munidopsis sp1	S	R
950	Rhodaliidae sp	S	R
228	Serpulidae sp2	S	R

Biotope List (Marine Habitat Classification for Britain & Ireland)

Code	Name	Listed
M.AtMB.Mu.DeeSpo.PheCar	<i>Pheronema carpenteri</i> field on Atlantic mid bathyal mud	Mud and sand emergent fauna (ICES); deep-sea sponge aggregations (ICES/OSPAR); soft-bottom sponge aggregations (ICES subcategory)

Biotope progression per habitat transition (# species, dominant/characteristic species)

1	M.AtMB.Mu.DeeSpo.PheCar
	347 <i>Pheronema carpenteri</i> ; 585 <i>Acanella arbuscula</i>

Conservation Targets

Listed Habitats Encountered

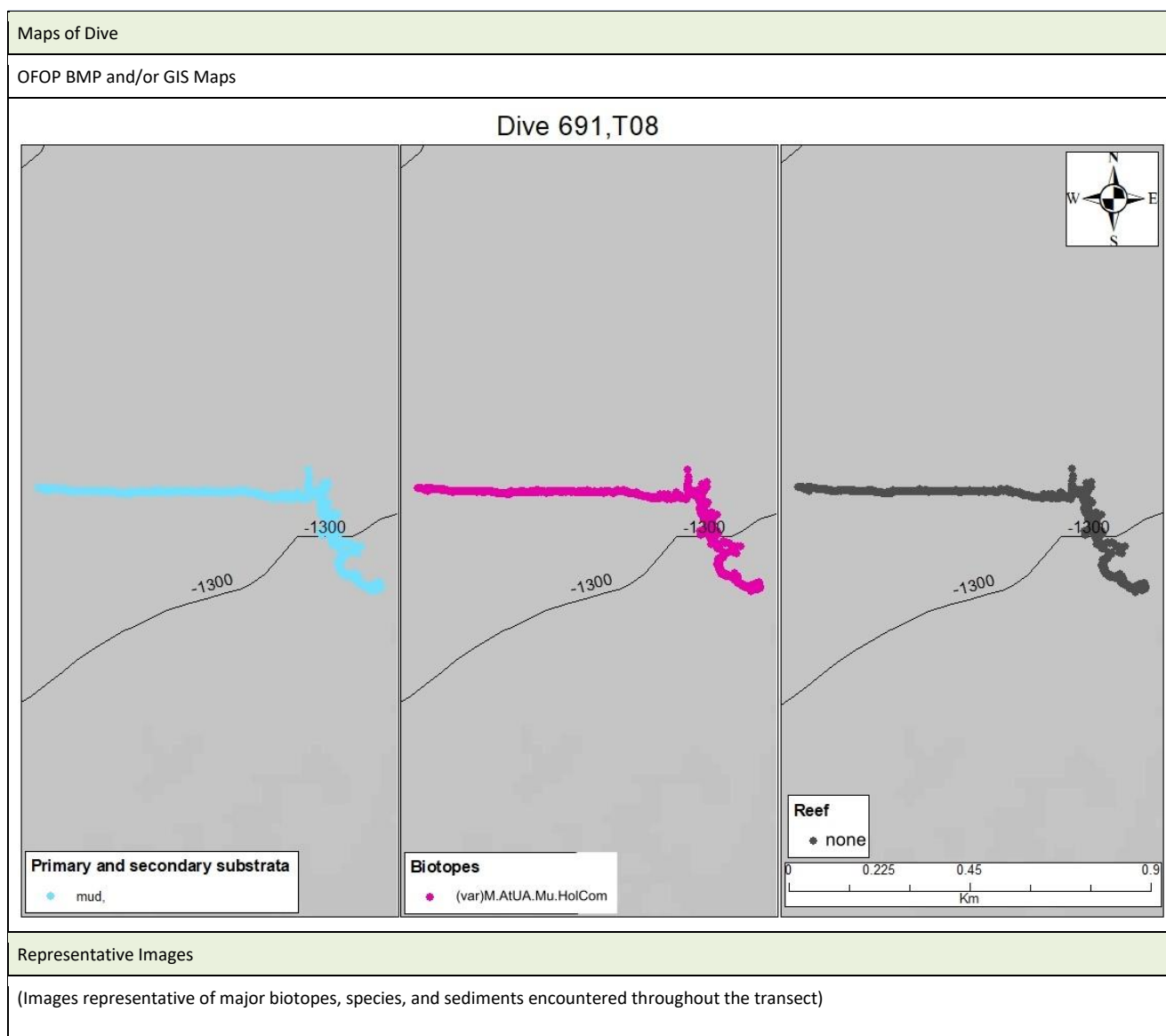
Name	Authority
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Mud and sand emergent fauna Deep-sea sponge aggregations: - soft-bottom sponge aggregations		ICES ICES/OSPAR ICES subcategory
Listed Species Encountered (Fish, Count)		
n/a		OSPAR/IUCN
Additional Comments		
n/a		

DIVE SUMMARY			
DIVE #	691	TRANSECT #	08

	Start	End
Date & Time	16/08/2019 06:35:46	16/08/2019 07:33:09
Latitude/ Longitude	51.4134725/-13.19571283	51.4157455/-13.2033615
Depth	-1294.375	-1282.234
Images	IMG_7707.jpg – IMG_7730.jpg	
Samples	2 x pushcores	

Location	P1
Target Features	No previous data
Depth Range	-1301m





Top L. Barren muddy slope ((var)M.AtUA.Mu.HolCom).

Top R. *Zoroaster fulgens* on muddy slope ((var)M.AtUA.Mu.HolCom).

Bottom L. *Holothuroidea sp6* on muddy slope ((var)M.AtUA.Mu.HolCom).

Bottom R. *Zoroaster fulgens* and *Holothuroidea sp6* on muddy slope ((var)M.AtUA.Mu.HolCom).

Summary Description (habitat transitions noted)

STARTS AT 06:35:46/0m. Uniform biotope from start to end. Dominant holothurian aggregations on muddy/soft sediment slope.
[1] Biotope is predominantly holothurians and *Zoroaster fulgens* on muddy slope. ROV stops for two pushcores. **ENDS AT 07:33:09/01h03m.**

Physical Data

Reef (types can be concurrent)	0% reef	n/a	
		n/a	n/a
			n/a
Substrates	- Mud		
Geomorphology/Features	- Slope		
Annex 1 Types	n/a		
Pressures	n/a		

Biological Data

Number of Species		24		
Summary Species List (Operational Taxonomic Unit, Name, Size, SACFOR, presence per habitat transition)				
	O.T.U	Species/Taxonomic ID	Size/Growth	SACFOR
	651	Actinopterygii sp3	L	R
	274	Brisingidae	L	R
	263	Porania	L	R
	211	Cidaris cidaris	L	R
	566	Coryphaenoides ruspestris	L	R
	1179	Holothuroidea sp6	L	R
	1024	Hydrolagus mirabilis	L	R
	1078	Ipnopidae sp	L	R
	442	Kophobelemnion stelliferum	L	R
	536	Mesothuria intestinalis	L	R
	1194	Muusoctopus johnsonianus	L	R
	255	Phelliactis sp1	L	R
	555	Phorsonoma placenta	L	R
	552	Polyacanthonotus rissoanus	L	R
	988	Zoroaster fulgens	L	R
	446	Trachyrhynchus sp	L	R
	131	Crinoidea sp1	M	R
	605	Actiniaria sp20	S	R
	1077	Caridea (indet)	S	R
	2	Cerianthidae sp1	S	R
	339	Munida tenuimana	S	R
	1191	Pennatulacea sp3	S	R
	440	Synaphobranchus kaupii	S	R
	259	Zoarcidae sp1	S	R
	Biotope List (Marine Habitat Classification for Britain & Ireland)			
Code		Name	Listed	
(var)M.AtUA.Mu.HolCom		(variant of)Holothurian dominated community on Atlantic upper abyssal mud	Mud and sand emergent fauna (ICES)	
Biotope progression per habitat transition (# species, dominant/characteristic species)				
1	(var)M.AtUA.Mu.HolCom			
	1179 Holothuroidea sp6; 988 Zoroaster fulgens			

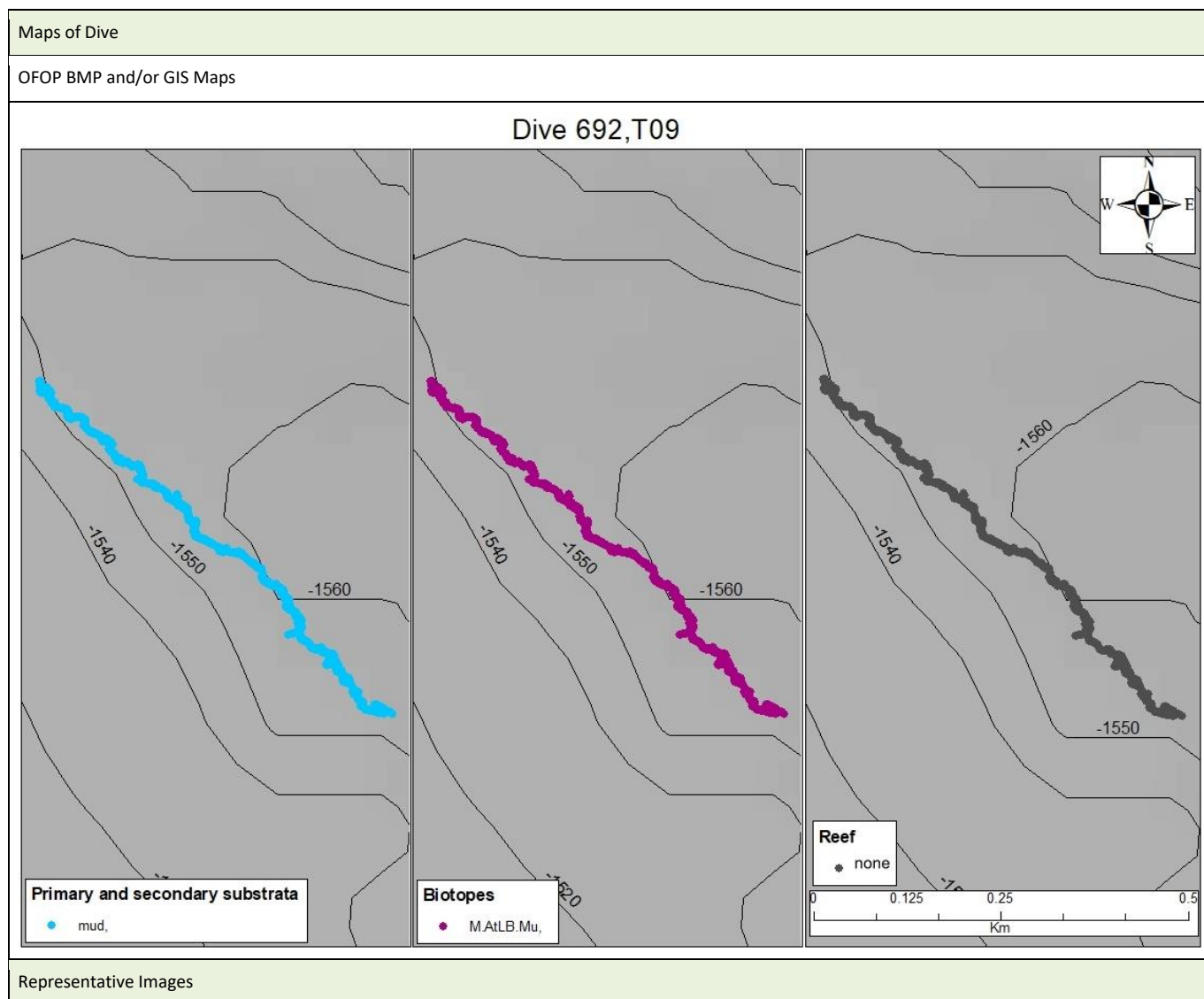
Conservation Targets		
Listed Habitats Encountered		
Name	Authority	
Mud and sand emergent fauna	ICES	
Listed Species Encountered (Fish, Count)		
n/a		OSPAR/IUCN

Additional Comments
n/a

DIVE SUMMARY			
DIVE #	692	TRANSECT #	09

	Start	End
Date & Time	16/08/2019 10:58:56	16/08/2019 12:01:03
Latitude/ Longitude	51.500280/ -13.02852717	51.5043177/-13.03266983
Depth	-1535.397	-1525.445
Images	IMG_7731.jpg – IMG_7860.jpg	
Samples	n/a	

Location	P3
Target Features	Ridge
Depth Range	-1534m



(Images representative of major biotopes, species, and sediments encountered throughout the transect)



Top L. Barren muddy slope with no dominant epifauna (M.AtLB.Mu).

Top R. Barren muddy slope with no dominant epifauna (M.AtLB.Mu).

Bottom L. Barren muddy slope with no dominant epifauna (M.AtLB.Mu).

Bottom R. Barren muddy slope with no dominant epifauna (M.AtLB.Mu).

Summary Description (habitat transitions noted)

STARTS AT 10:58:57/0m. Homogenous biotope of gentle/moderate muddy slope with scarce epifauna.

[1] Biotope is predominantly mud with no dominant epifauna encountered. 18m A few seconds of blurred vision. There was no push core sampling on the video tape. **ENDS AT 12:01:03/01h01m.**

Physical Data			
Reef (types can be concurrent)	0% reef	n/a	
		n/a	n/a
			n/a
Substrates	- Mud		
Geomorphology/Features	- Slope		
Annex 1 Types	n/a		

Pressures	n/a
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Biological Data

Number of Species	13
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Summary Species List (Operational Taxonomic Unit, Name, Size, SACFOR, presence per habitat transition)

O.T.U	Species/Taxonomic ID	Size/Growth	SACFOR
651	Actinopterygii sp3	L	R
1111	Cataetys laticeps	L	R
263	Porania	L	R
566	Coryphaenoides rupestris	L	R
432	Benthogone sp	L	R
442	Kophobelemnion stelliferum	L	R
433	Pseudarchaster sp1	L	R
440	Synaphobranchus kaupii	L	R
446	Trachyrhynchus sp	L	R
988	Zoroaster fulgens	M	R
2	Cerianthidae sp1	S	R
1056	Flabellum sp	S	R
255	Phelliactis sp1	S	R

Biotope List (Marine Habitat Classification for Britain & Ireland)

Code	Name	Listed
M.AtLB.Mu	Atlantic lower bathyal mud	Mud and sand emergent fauna (ICES)

Biotope progression per habitat transition (# species, dominant/characteristic species)

1	M.AtLB.Mu
	n/a

Conservation Targets

Listed Habitats Encountered

Name	Authority
Mud and sand emergent fauna	ICES

Listed Species Encountered (Fish, Count)

n/a		OSPAR/IUCN
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Additional Comments

n/a

DIVE SUMMARY		
DIVE #	693	TRANSECT # 10

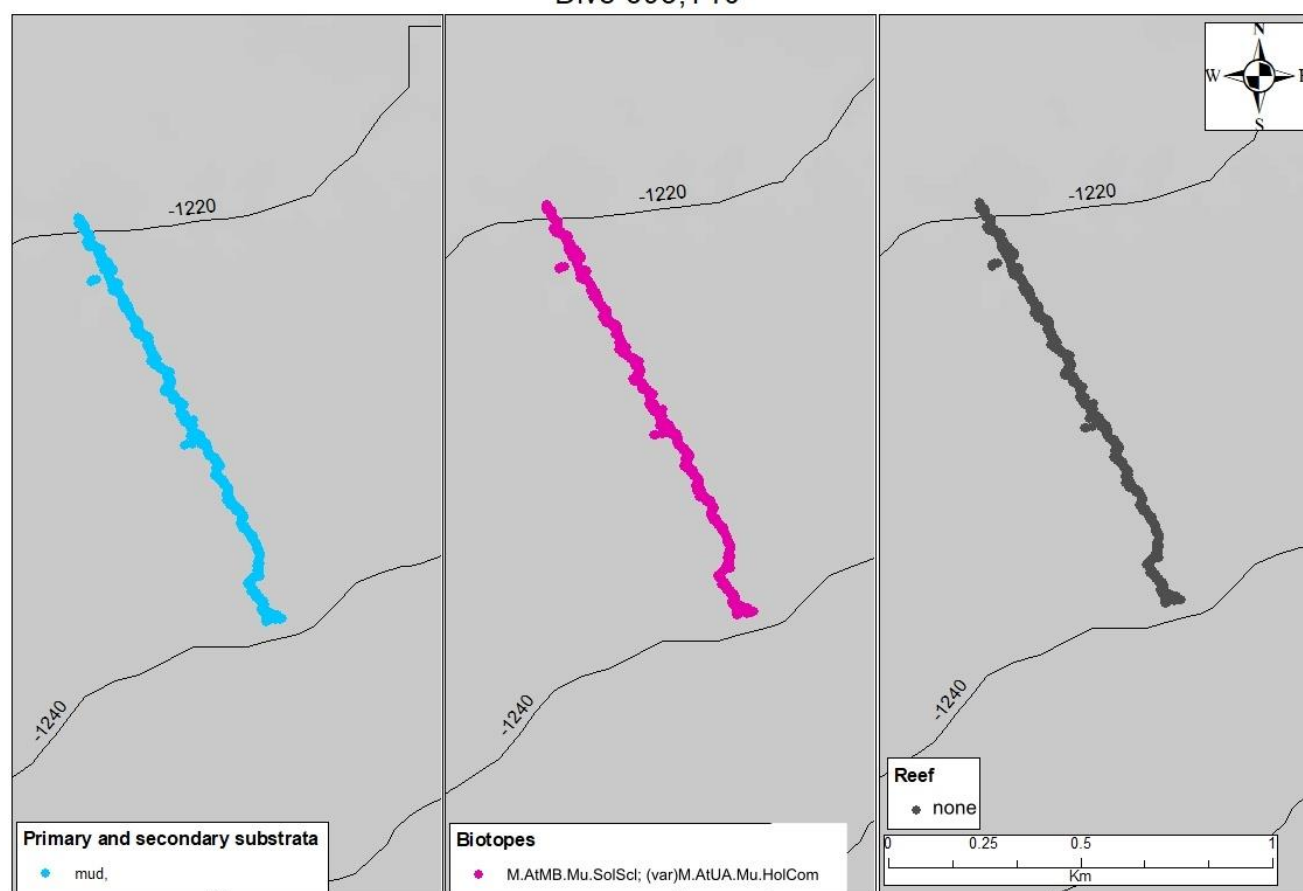
	Start	End
Date & Time	16/08/2019 15:38:01	16/08/2019 17:31:24
Latitude/ Longitude	51.726886/ -12.87785483	51.7362225/-12.88220717
Depth	-1232.727	-1217.753
Images	IMG_7861.jpg – IMG_7964.jpg	
Samples	2 x push cores 1 x sea pen	

Location	P1
Target Features	No previous data
Depth Range	-1242m

Maps of Dive

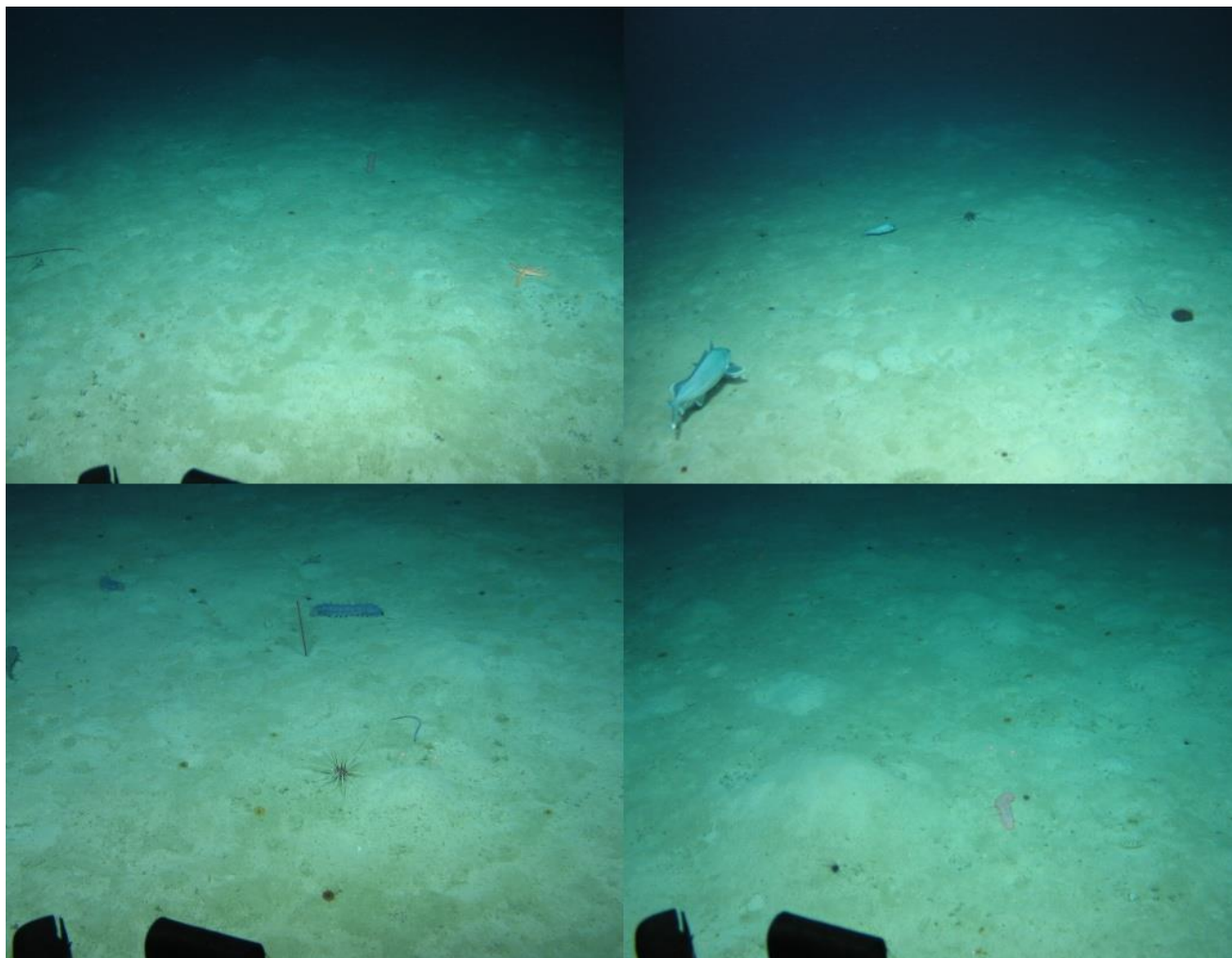
OPOP BMP and/or GIS Maps

Dive 693,T10



Representative Images

(Images representative of major biotopes, species, and sediments encountered throughout the transect)



Top L. *Zoroaster fulgens* on mud (M.AtMB.Mu.SolScl; (var)M.AtUA.Mu.HolCom).

Top R. *Phormosoma placenta* on mud with *Mora moro* and *Lepidion eques* (M.AtMB.Mu.SolScl; (var)M.AtUA.Mu.HolCom).

Bottom L. Cidarid, *Holothuroidea sp6*, sea pen and sparse solitary scleractinians on mud (M.AtMB.Mu.SolScl; (var)M.AtUA.Mu.HolCom).

Bottom R. Holothurian and anemones on mud (M.AtMB.Mu.SolScl; (var)M.AtUA.Mu.HolCom).

Summary Description (habitat transitions noted)

STARTS AT 15:38:01/0m. Uniform biotope of gentle/moderate muddy slope with abundant epifauna throughout, including solitary scleractinians and holothurians.

[1] 1m ROV stops for pushcores. 47m A big burrow (between 1 and 2 m wide) on the soft sediment encountered; origin is unknown. 01h35m ROV stops for imagery and sampling of sea pen. 02h00m Same biotope of cup corals and sea cucumbers on soft sediment until **ENDS AT 17:31:24/02h05m.**

Physical Data			
Reef (types can be concurrent)	0% reef	n/a	
		n/a	n/a
			n/a
Substrates	- Mud		
Geomorphology/Features	- Slope		
Annex 1 Types	n/a		

Pressures	n/a
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Biological Data

Number of Species	35
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Summary Species List (Operational Taxonomic Unit, Name, Size, SACFOR, presence per habitat transition)

O.T.U	Species/Taxonomic ID	Size/Growth	SACFOR
1179	Holothuroidea sp6	L	C
1024	Hydrolagus mirabilis	L	R
1060	Pennatulacea sp4	L	R
433	Pseudarchaster sp1	L	F
552	Polyacanthonotus rissoanus	L	R
555	Phormosoma placenta	L	R
1017	Teuthida sp1	L	R
434	Protophilum sp	L	R
566	Coryphaenoides rupestris	L	R
536	Mesothuria intestinalis	L	R
349	Mora moro	L	R
274	Brisingidae	L	R
436	Pentametrocrinus atlanticus	L	R
963	Holothuroidea sp5	L	R
582	Actiniaria sp18	L	R
261	Syringammina fragilissima	L	R
1191	Pennatulacea sp3	L	R
994	Metallogorgia, Irifogorgia or Cirrhipathes	L	R
937	Graneledone verrucosa	L	R
266	Parastichopus tremulus	L	R
20	Ascidacea sp2	M	R
211	Cidaris cidaris	M	O
131	Crinoidea sp1	M	R
581	Umbellula sp	M	R
584	Caryophyllia sp5	M	R
621	Hypsogastropoda	M	R
6	Caryophyllia sp2	S	A
255	Phelliactis sp1	S	R
339	Munida tenuimana	S	R
605	Actiniaria sp20	S	R
1056	Flabellum sp	S	R
1077	Caridea (indet)	S	R
2	Cerianthidae sp1	S	R
445	Echinus sp	S	R
1102	Munnipsidae sp	S	R

Biotope List (Marine Habitat Classification for Britain & Ireland)

Code	Name	Listed
M.AtMB.Mu.SolScl	Solitary scleractinian field on Atlantic mid bathyal mud	Coral gardens (ICES/OSPAR); soft-bottom coral garden: soft-bottom cup-coral fields (ICES subcategory); mud and sand emergent fauna (ICES)

(var)M.AtUA.Mu.HolCom	(variant of)Holothurian dominated community on Atlantic upper abyssal mud	Mud and sand emergent fauna (ICES)
Biotope progression per habitat transition (# species, dominant/characteristic species)		
1	M.AtMB.Mu.SolSci; (var)M.AtUA.Mu.HolCom	
	6 Caryophyllia sp2; 1179 Holothuroidea sp6	

Conservation Targets		
Listed Habitats Encountered		
Name		Authority
Coral gardens: - soft-bottom coral garden: soft-bottom cup-coral fields Mud and sand emergent fauna (ICES)		ICES/OSPAR ICES subcategory ICES
Listed Species Encountered (Fish, Count)		
n/a		OSPAR/IUCN

Additional Comments		
n/a		

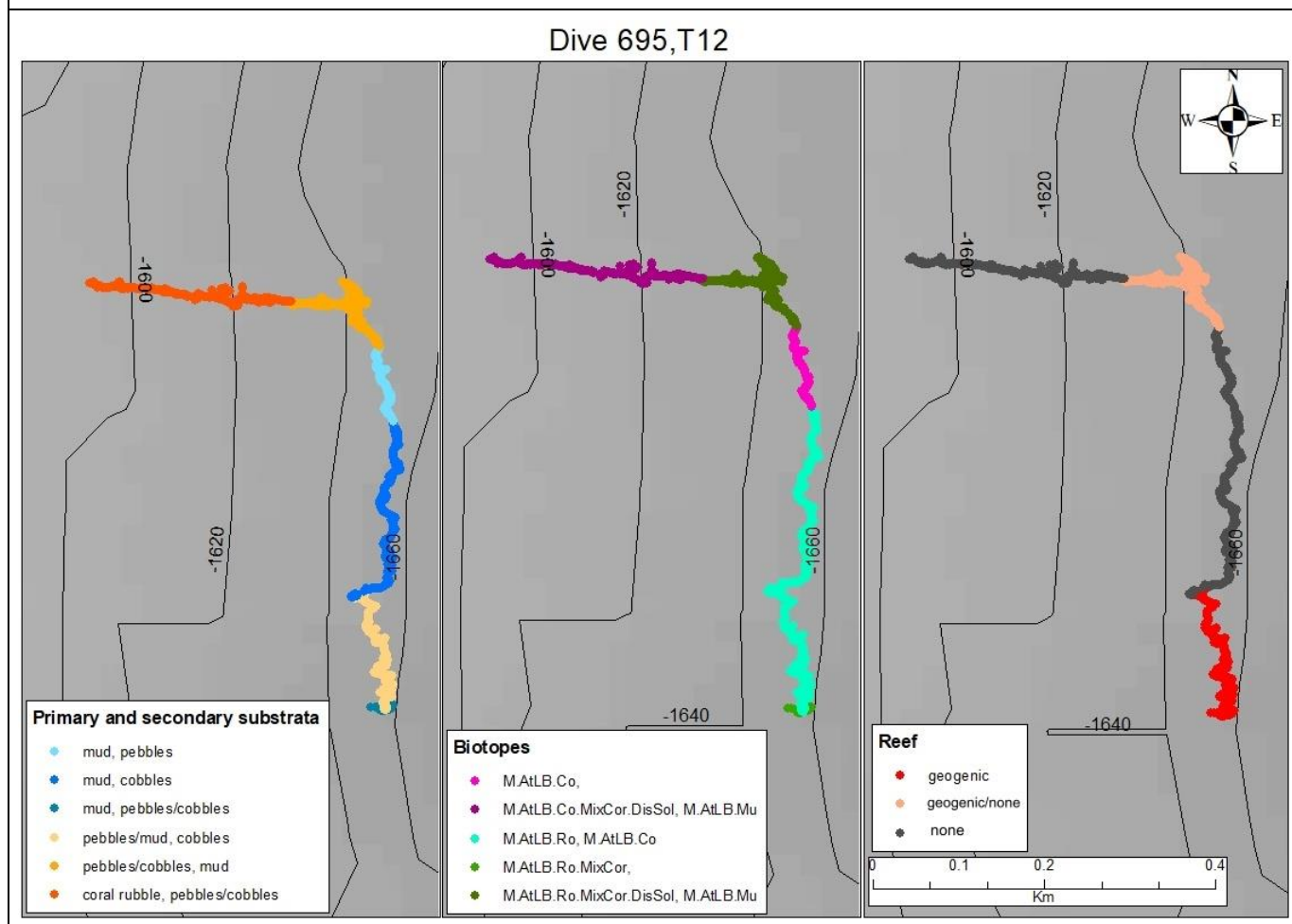
DIVE SUMMARY		
DIVE #	695	TRANSECT # 12

	Start	End
Date & Time	19/08/2019 05:07:56	19/08/2019 06:20:19
Latitude/ Longitude	51.371405/-12.11538317	51.3761888/-12.11865433
Depth	-1618.641	-1511.734
Images	IMG_7965.jpg – IMG_8200.jpg	
Samples	2 x push cores	

Location	P1
Target Features	Interesting bathy data
Depth Range	-1634m

Maps of Dive

OFOF BMP and/or GIS Maps



Representative Images		
(Images representative of major biotopes, species, and sediments encountered throughout the transect)		
		
Top L. Lamellate sponges living on cobbles and coarse sediment (M.AtLB.Ro.MixCor). Top R. Geogenic reefs with <i>Paramuricea</i> sp, erect sponges and encrusting sponges on boulder (M.AtLB.Ro.MixCor). Bottom L. Coarse sediment of mud and gravel with a <i>Squaliformes</i> sp (M.AtLB.Co). Bottom R. <i>Acanthogorgia armata</i> and <i>Paramuricea</i> sp living on coral rubble and coarse sediment (M.AtLB.Co.MixCor.DisSol).		
Summary Description (habitat transitions noted)		
STARTS AT 05:07:56/0m. Interspersed geogenic and biogenic reefs across the dive featuring Solenosmilia reefs and deep-sea sponge aggregations on hard substrata and sparse coral rubble on soft sediment. [1] The dive starts on soft sediment on steep slope with boulder/pebbles and aggregation of corals and sponges. 2m ROV stops for sampling two push cores. 10m [2] Geogenic reef with lamellate sponges, <i>Paramuricea</i> sp and <i>Stichopathes</i> sp living on rock and mud. 13m Mud cloud/ obscured vision for a few seconds. 25m [3] Massive lobose sponges, encrusting sponges, Solenosmilia colonies and <i>Acanthogorgia armata</i> living on mud and cobbles. 42m [4] Here sediment changes into coarse sediment with sparse epifauna including <i>Epizoanthus</i> sp1 and Ceriantharia. 48m [5] Geogenic reefs recorded on frequent boulders with Solenosmilia colonies, solitary scleractinians, Paguridae and <i>Epizoanthus</i> sp1. 58m Obscured vision. 01h02m [6] Coral rubble starts to be consistent and uniform on moderate coarse sediment slope. A few lamellate sponges and encrusted species present on cobbles and boulders. 01h16m Mud cloud/obscured vision. ENDS AT 06:20:19/01h18m.		

Physical Data		
Reef	50% reef	50% geogenic

(types can be concurrent)		0% biogenic	n/a
			n/a
Substrates	- Mud - Pebbles/cobbles - cobbles - Pebbles/mud - Coral rubble		
Geomorphology/Features	- Slope		
Annex 1 Types	- Pebbles - Cobbles		
Pressures	1 x rubbish		

Biological Data				
Number of Species		67		
Summary Species List (Operational Taxonomic Unit, Name, Size, SACFOR, presence per habitat transition)				
	O.T.U	Species/Taxonomic ID	Size/Growth	SACFOR
	800	Blue encrusting porifera	Crust	R
	58	Porifera encrusting sp15	Crust	R
	1	Porifera encrusting sp1	Crust	R
	1305	Galeus sp	L	R
	566	Coryphaenoides ruspestris	L	R
	700	Solenosmilia variabilis	L	R
	202	Cf Phakellia ventilabrum	L	O
	1074	Alepocephaliformes sp1	L	R
	283	Stichopathes cf gravieri	L	F
	1192	Plexauridae sp2	L	R
	1063	Neolithodes grimaldii	L	R
	1179	Holothuroidea sp6	L	R
	1050	Paramuricea sp	L	F
	606	Porifera lamellate sp9	L	F
	1065	Paragorgia sp1	L	F
	1046	Pennatula aculeata	L	R
	653	Hydrolagus sp	L	R
	561	Bathypathes sp2	L	R
	557	Lepidisis sp	L	R
	1008	Chrysogorgiidae sp1	L	R
	585	Acanella arbuscula	L	R
	563	Neocyttus helgae	L	R
	1090	Porifera massive lobose sp32	L	R
	1080	Pseudoanthomastus sp1	L	R
	317	Epizoanthus sp1	L	R
	608	Acanthogorgia armata	L	R
	535	Porifera cup sp2	L	R
	440	Synaphobranchus kaupii	L	R
	649	Eknomisis sp	L	R
	1301	Antimora sp	L	R
	552	Polyacanthonotus rissoanus	L	R
	39	Corallimorphidae sp1	L	R
	569	Squaliformes	L	R
	432	Benthogone sp	L	R
	1078	Ipnopidae sp	L	R
	988	Zoroaster fulgens	L	R
	446	Trachyrhynchus sp	L	R

	622	Halipteris sp	L	R
	574	Stauropathes arctica	L	R
	651	Hoplostethus atlanticus	L	R
	263	Porania	L	R
	573	Solaster endeca	L	R
	433	Pseudarchaster sp1	L	R
	265	Chimera monstrosa	L	R
	442	Kophobelemnion stelliferum	L	R
	128	Cottunculus microps	L	R
	536	Mesothuria intestinalis	L	R
	930	Actinopterygii sp3	L	R
	554	Actinernus sp	M	R
	20	Ascidacea sp2	M	R
	551	Ophiomusa lymani	M	R
	311	Anthothela grandiflora	M	R
	146	Aphroditidae sp1	M	R
	199	Velatida sp1	S	R
	621	Hypsogastropoda	S	R
	2	Cerianthidae sp1	S	R
	605	Actiniaria sp20	S	R
	311	Anthothela grandiflora	S	R
	445	Echinus sp	S	R
	315	Koehlermetra porrecta	S	R
	205	Paguridae sp	S	R
	1307	Euryalida	S	R
	6	Caryophyllia sp2	S	R
	34	Brachiopoda sp1	S	R
	582	Actiniaria sp18	S	R
	1077	Caridea (indet)	S	R
	1156	Porifera lamellate sp18	S	R

Biotope List (Marine Habitat Classification for Britain & Ireland)		
Code	Name	Listed
M.AtLB.Ro.MixCor	Mixed cold water coral community on Atlantic lower bathyal rock and other hard substrata	Deep-sea sponge aggregations (ICES/OSPAR); hard-bottom sponge aggregation (ICES subcategory); coral garden (ICES/OSPAR); hard-bottom coral garden (ICES subcategory)
M.AtLB.Ro	Atlantic lower bathyal rock and other hard substrata	Deep-sea sponge aggregations (ICES/OSPAR); hard-bottom sponge aggregation (ICES subcategory)
M.AtLB.Co	Atlantic lower bathyal coarse sediment	Mud and sand emergent fauna (ICES)
M.AtLB.Ro.MixCor.DisSol	Discrete Solenosmilia variabilis colonies on Atlantic lower bathyal rock and other hard substrata	Coral garden (ICES/OSPAR); hard-bottom coral garden (ICES subcategory)
M.AtLB.Co.MixCor.DisSol	Discrete Solenosmilia variabilis colonies on Atlantic lower bathyal coarse sediment	Coral garden (ICES/OSPAR); soft-bottom coral garden (ICES subcategory)
M.AtLB.Mu	Atlantic lower bathyal mud	Mud and sand emergent fauna (ICES)
Biotope progression per habitat transition (# species, dominant/characteristic species)		

1	M.AtLB.Ro.MixCor
	700 Solenosmilia variabilis; 535 Porifera cup sp2; 58 Porifera encrusting sp15
2	M.AtLB.Ro; M.AtLB.Co
	606 Porifera lamellate sp9; 1050 Paramuricea sp; 283 Stichopathes cf gravieri
3	M.AtLB.Ro; M.AtLB.Co
	611 Porifera massive lobose sp2; 800 blue porifera encrusting; 700 Solenosmilia variabilis; 608 Acanthogorgia armata
4	M.AtLB.Co
	317 Epizoanthus sp1; 2 Ceriantharia
5	M.AtLB.Ro.MixCor.DisSol; M.AtLB.Mu
	700 Solenosmilia variabilis; 205 Paguridae; 317 Epizoanthus sp1; 6 Caryophyllia sp2
6	M.AtLB.Co.MixCor.DisSol; M.AtLB.Mu
	700 Solenosmilia variabilis; 1050 Paramuricea sp; 317 Epizoanthus sp1; 205 Paguridae

Conservation Targets		
Listed Habitats Encountered		
Name		Authority
Deep-sea sponge aggregations: - hard-bottom sponge aggregation Coral garden: - hard-bottom coral garden - soft-bottom coral garden Mud and sand emergent fauna		ICES/OSPAR ICES subcategory ICES/OSPAR ICES subcategory ICES subcategory ICES
Listed Species Encountered (Fish, Count)		
<i>Hoplostethus atlanticus</i> (orange roughy) (37m)	1	OSPAR/IUCN

Additional Comments
n/a

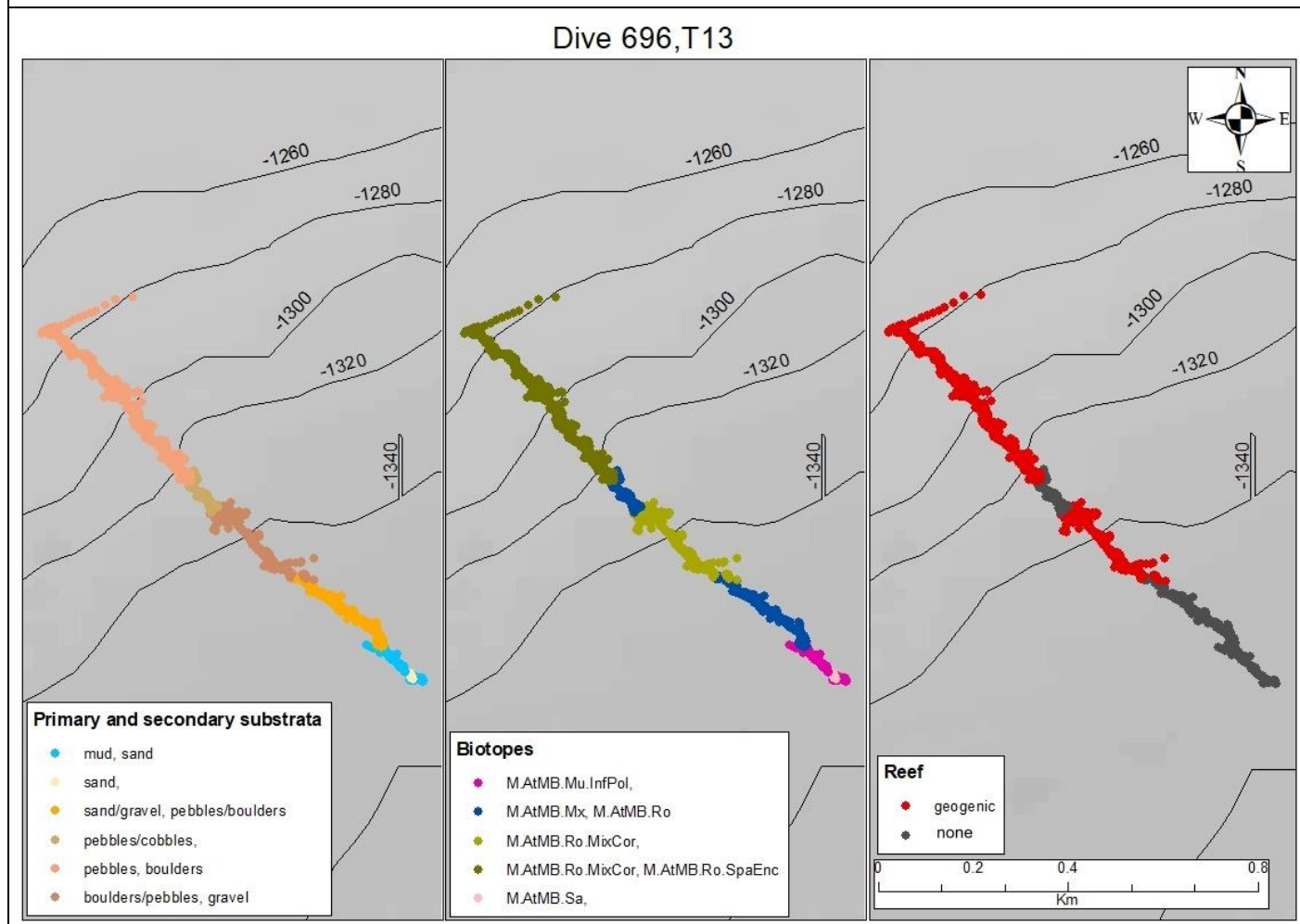
DIVE SUMMARY		
DIVE #	696	TRANSECT # 13

	Start	End
Date & Time	19/08/2019 10:04:05	19/08/2019 12:00:02
Latitude/ Longitude	51.53800733/-12.071862	51.5446427/-12.07900833
Depth	-1336.974	-1230.133
Images	IMG_8201.jpg – IMG_8370.jpg	
Samples	3 x push cores	

Location	P3
Target Features	Interesting bathy feature
Depth Range	-1363m

Maps of Dive

OPOP BMP and/or GIS Maps



Representative Images

(Images representative of major biotopes, species, and sediments encountered throughout the transect)



Top L. Solenosmilia colonies with cup sponges and Brisingidae on boulder. A fishing line is found at the bottom of the boulder (M.AtMB.Ro.MixCor).

Top R. Pebbles and coarse sediment with no dominant epifauna (M.AtMB.Mx).

Bottom L. Geogenic reef with Solenosmilia colonies and massive lobose sponges on boulder. *Coryphaenoides rupestris* and *Lepidion eques* in picture (M.AtMB.Ro.MixCor).

Bottom R. Rich geogenic reef with Solenosmilia colonies *Paramuricea sp* and *Aphrocallistes sp* living on boulder. *Paramuricea sp* is entangled in a black plastic bag (M.AtMB.Ro.MixCor).

Summary Description (habitat transitions noted)

HD VIDEO STARTS AT 10:04:05. Rich geogenic reefs recorded in this transect. The substrata includes mud, pebbles fields and boulders hosting various and abundant epifauna. This transect hosts the most varied porifera species across all dives (SeaRover2019). 1m ROV samples three push cores (the second push core only sampled a small quantity of sediment). 2m **[1]** The dive starts with dense fields of polychaete tubes (possibly *cf Lanice sp*) on mud. 7m **[2]** Here substrata transitions into rippled sand on slope and back again into polychaete tubes fields. 14m **[3]** Now substrata changes into mixed sediment of pebbles and mud with scattered epifauna on moderate slope. 25m **[4]** Sediment very similar to the previous biotope observed, however, boulders appear frequently and host various encrusted species including barnacles and sea anemone. 29m ROV slows down for imagery of encrusting species on boulder (e.g. sponges and barnacles). 31m ROV stops again for imagery of glass sponge (hexactinellid) and gorgonocephalus. 32m **[5]** Here geogenic reefs become more frequent. Boulders host hexactinellid, encrusting sponges and Solenosmilia colonies. 34m ROV stops for imagery of coral gardens and sponge aggregations on boulder. 44m ROV stops for imagery of coral and sponge geogenic reef. 47m ROV circumnavigate a large boulder twice

(clock- and anticlockwise). This footage could be potentially used for photogrammetry. 58m fishing net. 57m [6] Pebble fields intersperse with boulder hosting encrusting species on moderate slope. 01h25m [7] Coral and sponge geogenic reef with abundant *Aphrocallistes* sp. 01h26m Rubbish wrapped around an individual of *Paramuricea placomus*. 01h37m Pebbles intersperse with boulders on moderate slope with abundant epifauna. **HD VIDEO ENDS AT 12:00:02/02:01:27.**

Physical Data			
Reef (types can be concurrent)	71.68% reef	71.68% geogenic	
		0% biogenic	n/a
			n/a
Substrates	- Mud - Sand - Sand/gravel - Pebbles - Pebbles/cobbles - Boulders/pebbles		
Geomorphology/Features	- Slope		
Annex 1 Types	- Pebbles - Cobbles - Boulders		
Pressures	1 x rubbish – black plastic - (09m) 1 x fishing line (32m) 1 x fishing net (58m) 1 x rubbish – black sheet (01h25m)		

Biological Data				
Number of Species		82		
Summary Species List (Operational Taxonomic Unit, Name, Size, SACFOR, presence per habitat transition)				

261	Syringammina fragilissima	L	R
1118	Sagartidae sp6	L	R
566	Coryphaenoides rupestris	L	R
651	Hoplostethus atlanticus	L	R
585	Acanella arbuscula	L	R
274	Brisingidae	L	R
563	Neocyttus helgae	L	R
1090	Porifera massive lobose sp32	L	R
214	Gorgonocephalus sp1	L	R
1151	Porifera lamellate sp17	L	R
433	Pseudarchaster sp1	L	R
700	Solenosmilia variabilis	L	F
608	Acanthogorgia armata	L	O
1064	Isididae sp5	L	R
1315	Porifera encrusting white (unknown)	L	R
1012	Notacanthiformes sp1	L	R
458	Pachycerianthus multiplicatus	L	R
264	Aphrocallistes sp	L	O
311	Anthothela grandiflora	L	R
382	Rajidae sp2	L	R
211	Cidaris cidaris	L	R
650	Porifera massive glosobe sp14	L	R
535	Porifera cup sp2	L	R
657	Stryphnus fortis	L	R
658	Hexadella dedritifera (yellow)	L	R
1053	Porifera lamellate sp13	L	R
1305	Galeus sp	L	R
582	Actiniaria sp18	L	R
1126	Munidopsis sp1	L	R
988	Zoroaster fulgens	L	R
1166	Guttigadus latifrons	L	R
202	Cf Phakellia ventilabrum	L	R
1046	Pennatula aculeata	L	R
1050	Paramuricea sp	L	R
299	Pterasteridae sp1	L	R
289	cf Clavulariidae sp	L	R
124	Porifera cup sp3	L	R
1179	Holothuroidea sp6	M	R
1059	Colossendeis sp	M	R
1120	Anthoptilum sp	M	R
967	Annelida sp5	S	A
205	Paguridae sp	S	R
2	Cerianthidae sp1	S	R
605	Actiniaria sp20	S	R
621	Hypsogastropoda	S	R
1056	Flabellum sp	S	R
1077	Caridea (indet)	S	R
82	Cirripedia sp	S	R
6	Caryophyllia sp2	S	R
106	Serpulidae sp1	S	R
207	Pliobothrus sp	S	O
20	Asciacea sp2	S	R
445	Echinus sp	S	R
11	Majidae sp1	S	R

		339	Munida tenuimana	S	R
		100	Ophiactis abyssicola	S	R
		1049	cf Psolus sp	S	R
		335	Desmophyllum sp1	S	R
		478	Actiniaria sp13	S	R
		34	Brachiopoda sp1	S	F
		100	Ophiactis abyssicola	S	R
		1066	Adamsia sp	S	R
Biotope List (Marine Habitat Classification for Britain & Ireland)					
Code		Name		Listed	
M.AtMB.Mu.InfPol		Mixed infauna dominated by polychaetes in Atlantic mid bathyal mud		Mud and sand emergent fauna (ICES)	
M.AtMB.Sa		Atlantic mid bathyal sand		Mud and sand emergent fauna (ICES)	
M.AtMB.Mx		Atlantic mid bathyal mixed sediment			
M.AtMB.Ro.MixCor		Mixed cold water coral community on Atlantic mid bathyal rock and other hard substrata		Coral gardens (ICES/OSPAR); hard-bottom coral garden (ICES subcategory); deep-sea sponge aggregations (ICES/OSPAR)	
Biotope progression per habitat transition (# species, dominant/characteristic species)					
1	M.AtMB.Mu.InfPol				
	967 Anellidae sp5				
2	M.AtMB.Sa				
	n/a				
3	M.AtMB.Mu.InfPol				
	967 Anellidae sp5				
4	M.AtMB.Mx; M.AtMB.Ro				
	1179 Holothuroidea sp6				
5	M.AtMB.Ro.MixCor				
	700 Solenosmilia variabilis; 535 Porifera cup sp2; 1 Porifera encrusting sp1; 264 Aphrocallistes sp				
6	M.AtMB.Mx; M.AtMB.Ro				
	n/a				
7	M.AtMB.Ro.MixCor; M.AtMB.Ro.SpaEnc				
	82 Cirripedia sp; 650 Porifera massive glosobe sp14; 207 Pliobothrus sp; 700 Solenosmilia variabilis; 264 Aphrocallistes sp; 83 Porifera massive lobose sp6				

Conservation Targets		
Listed Habitats Encountered		
Name		Authority
Mud and sand emergent fauna (ICES) Coral gardens: - hard-bottom coral garden Deep-sea sponge aggregations (ICES/OSPAR)		ICES ICES/OSPAR ICES subcategory ICES/OSPAR
Listed Species Encountered (Fish, Count)		
<i>Hoplostethus atlanticus</i> (25m, 32m, 37m,38m, 39m)	5	OSPAR/IUCN

Additional Comments
Notable geogenic reefs across the transect.

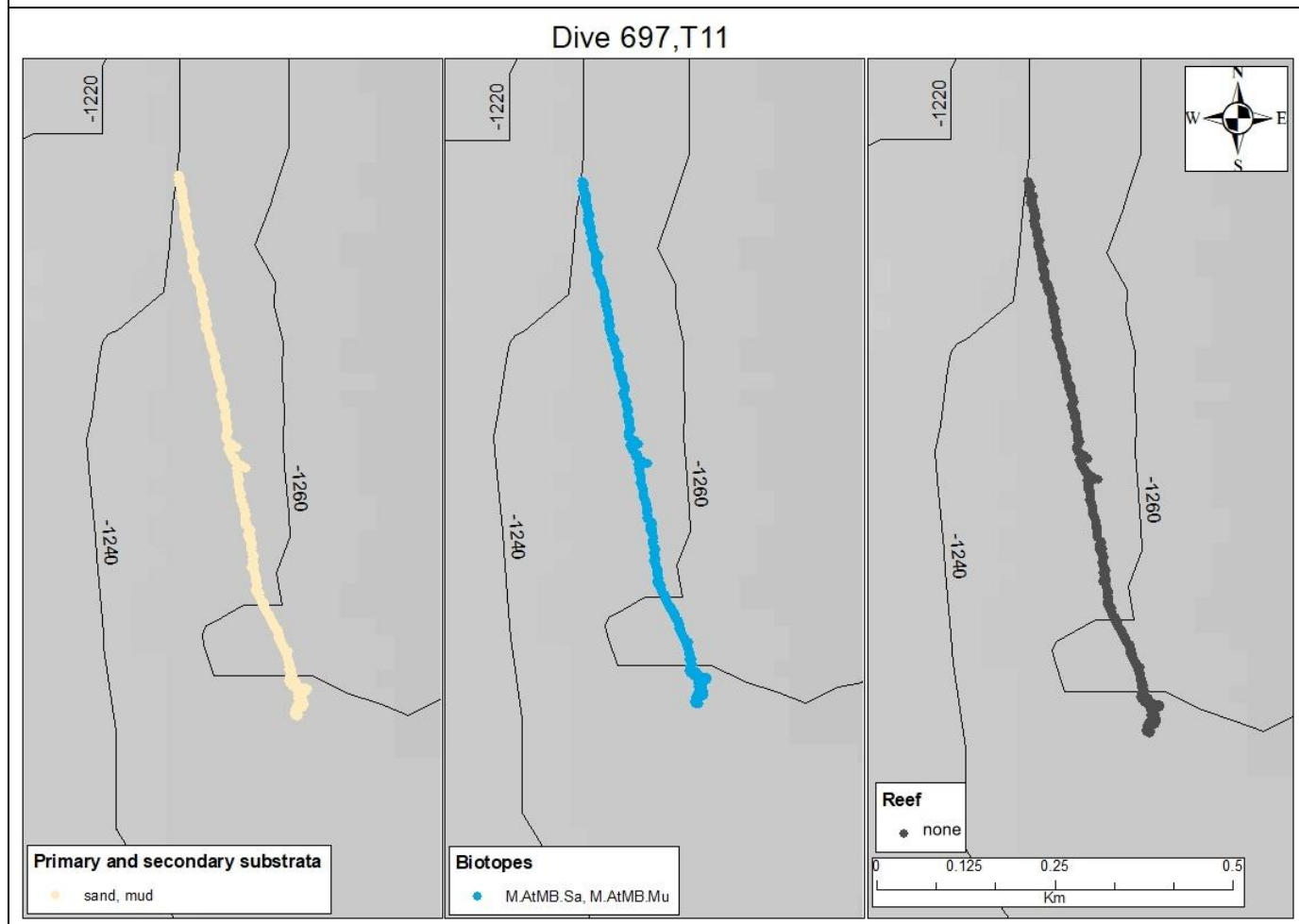
DIVE SUMMARY	
DIVE # 697	TRANSECT # 11

	Start	End
Date & Time	19/08/2019 15:02:40	19/08/2019 16:05:50
Latitude/ Longitude	51.736964/ -12.09861033	51.7439095/ -12.100137
Depth	-1224.43	-1214.449
Images	IMG_7706.jpg – IMG_7773.jpg	
Samples	3 x push cores	

Location	P1
Target Features	Interesting bathy data
Depth Range	-1634m

Maps of Dive

OPOP BMP and/or GIS Maps



Representative Images			
(Images representative of major biotopes, species, and sediments encountered throughout the transect)			
			
Top L. <i>Zoroaster fulgens</i>, sea urchins and cutthroat eel <i>Synaphobranchus kaupii</i> on mud (M.AtMB.Sa; M.AtMB.Mu). Top R. Sea urchins on rippled sand (M.AtMB.Sa; M.AtMB.Mu). Bottom L. <i>Zoroaster fulgens</i> and cutthroat eel <i>Synaphobranchus kaupii</i> on rippled sand (M.AtMB.Sa; M.AtMB.Mu). Bottom R. <i>Zoroaster fulgens</i> and sea urchin on rippled sand (M.AtMB.Sa; M.AtMB.Mu).			
Summary Description (habitat transitions noted)			
HD VIDEO STARTS AT 15:02:40/0m. Uniform biotope across the dive featuring rippled muddy sand slope hosting sea anemones and sea urchins. [1] 1m ROV samples three push cores (one of them was unsuccessful – core lid detached from the core tube). <i>Echinus sp</i> and <i>Zoroaster fulgens</i> are the dominant epifauna found on mud for the entire dive. HD VIDEO ENDS AT 16:05:50/01h14m.			

Physical Data			
Reef (types can be concurrent)	0% reef	n/a	
		n/a	n/a
			n/a
Substrates	- Mud - Sand		

Geomorphology/Features	- Slope
Annex 1 Types	n/a
Pressures	n/a

Biological Data

Number of Species	28
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Summary Species List (Operational Taxonomic Unit, Name, Size, SACFOR, presence per habitat transition)

O.T.U	Species/Taxonomic ID	Size/Growth	SACFOR
1125	Hygrosoma sp	L	O
274	Brisingidae	L	R
440	Synaphobranchus kaupii	L	R
988	Zoroaster fulgens	L	O
1017	Teuthida sp1	L	R
249	Lepidion eques	L	R
1078	Ipnopidea sp	L	R
1003	Nezumia aequalis	L	R
317	Epizoanthus sp1	L	R
1179	Holothuroidea sp6	L	R
433	Pseudarchaster sp1	L	R
566	Coryphaenoides rupestris	L	R
581	Umbellula sp	L	R
446	Trachyrhynchus sp	L	R
937	Graneledone verrucosa	L	R
317	Epizoanthus sp1	L	R
279	Echinoidea sp1	L	R
652	Rajiformes sp1	L	R
382	Rajidae sp2	M	R
131	Crinoidea sp1	M	R
984	cf Halcampoididae sp	M	R
445	Echinus sp1	S	R
1077	Caridea (indet)	S	R
205	Paguridae sp	S	R
621	Hypsogastropoda	S	R
2	Cerianthidae sp1	S	R
1066	Adamsia sp	S	R
973	Nematocarcinus sp1	S	R

Biotope List (Marine Habitat Classification for Britain & Ireland)

Code	Name	Listed
M.AtMB.Sa	Atlantic mid bathyal sand	Mud and sand emergent fauna (ICES)
M.AtMB.Mu	Atlantic mid bathyal mud	Mud and sand emergent fauna (ICES)

Biotope progression per habitat transition (# species, dominant/characteristic species)

1	M.AtMB.Sa; M.AtMB.Mu
	445 Echinus sp1; 988 Zoroaster fulgens

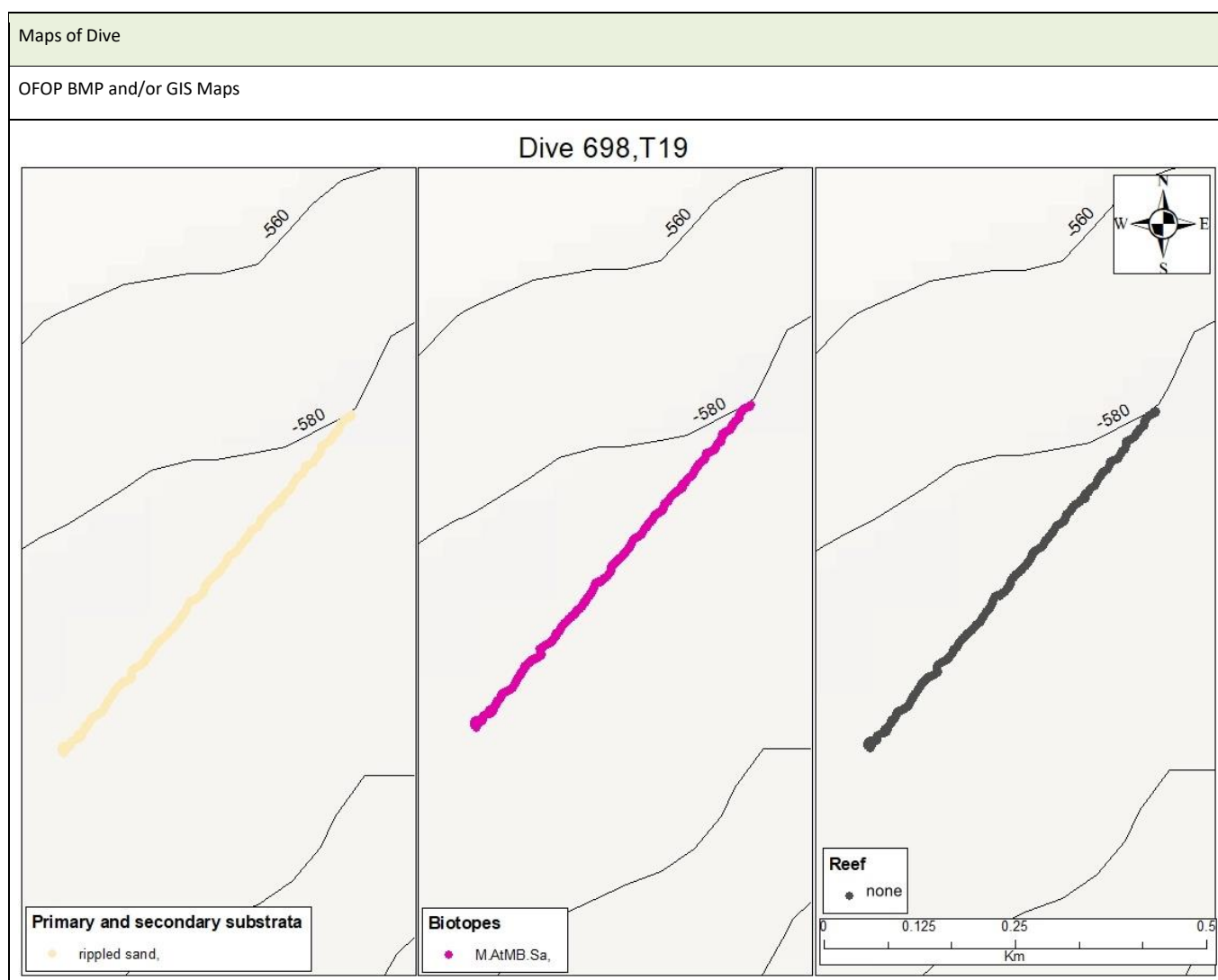
Conservation Targets		
Listed Habitats Encountered		
Name	Authority	
Mud and sand emergent fauna	ICES	
Listed Species Encountered (Fish, Count)		
n/a		OSPAR/IUCN

Additional Comments		
n/a		

DIVE SUMMARY	
DIVE # 698	TRANSECT # 19

	Start	End
Date & Time	19/08/2019 18:56:14	19/08/2019 19:35:20
Latitude/ Longitude	51.8068842/-11.75182217	51.802957/-11.755182
Depth	-585.311	-602.664
Images	IMG_7774.jpg – IMG_7789.jpg	
Samples	2 x push cores	

Location	P3
Target Features	Track slope feature
Depth Range	606m



Representative Images	
(Images representative of major biotopes, species, and sediments encountered throughout the transect)	
	
Top L. Rippled sand with an aggregation of <i>Caridae sp</i> (M.AtMB.Sa). Top R. Boulder and man-made object with crabs and encrusting species living on rock (M.AtMB.Sa). Bottom L. Rippled sand with no dominant epifauna (M.AtMB.Sa). Bottom R. Rippled sand with no dominant epifauna (M.AtMB.Sa).	
Summary Description (habitat transitions noted)	
HD VIDEO STARTS AT 18:56:14/0m. Rippled sand biotope with sparse epifauna. [1] The dive features a homogenous biotope of rippled sand with no dominant epifauna. 31m42s Interesting. An aggregation of shrimps (<i>Caridea</i> indet) found on the first 10 minutes of the transect. HD VIDEO ENDS AT 19:35:20/46m.	

Physical Data			
Reef (types can be concurrent)	0% reef	n/a	
		n/a	n/a
			n/a
Substrates	- Rippled sand		
Geomorphology/Features	- Slope		

Annex 1 Types	n/a
Pressures	n/a

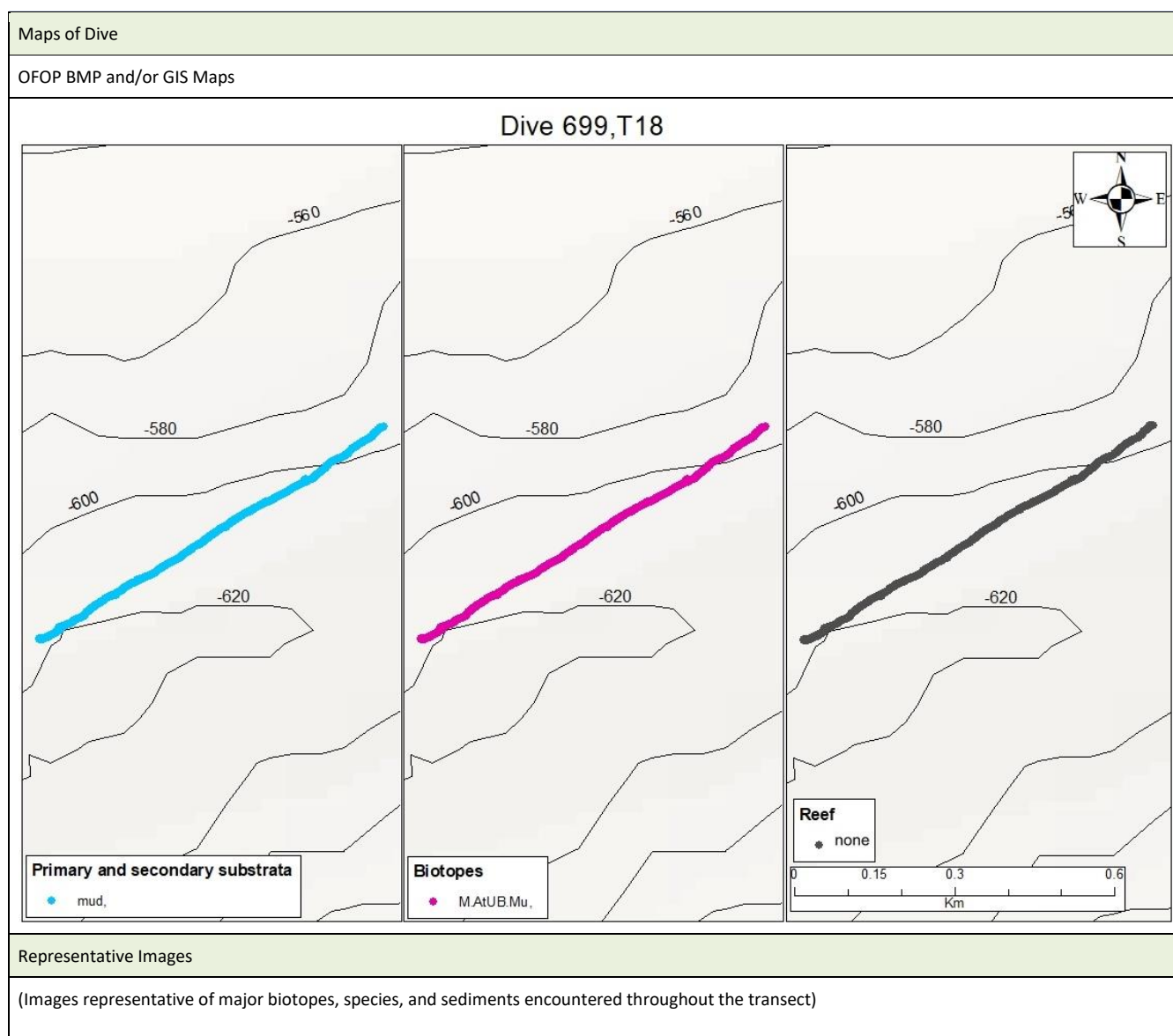
Biological Data				
Number of Species		16		
Summary Species List (Operational Taxonomic Unit, Name, Size, SACFOR, presence per habitat transition)				
	O.T.U	Species/Taxonomic ID	Size/Growth	SACFOR
	1097	Aphanopus carbo	L	R
	1125	Hygrosoma sp	L	R
	963	Holothuroidea sp5	L	R
	304	Paromola cuvieri	L	R
	266	Parastichopus tremulus	L	R
	1020	Phycis blennoides	L	R
	440	Synaphobranchus kaupii	L	R
	1303	Trichiuridae	L	R
	1066	Adamsia sp	M	R
	235	Bathynectes sp	M	R
	1106	Eucarida sp	M	R
	458	Pachycerianthus multiplicatus	M	R
	499	Actinauge richardi	S	R
	1077	Caridea (indet)	S	F
	621	Hypsogastropoda	S	R
	205	Paguridae sp	S	R
	Biotope List (Marine Habitat Classification for Britain & Ireland)			
Code	Name		Listed	
M.AtMB.Sa	Atlantic mid bathyal sand		Mud and sand emergent fauna (ICES)	
Biotope progression per habitat transition (# species, dominant/characteristic species)				
1	M.AtMB.Sa			
	1077 Caridea (indet)			
2	M.AtMB.Sa			
	n/a			

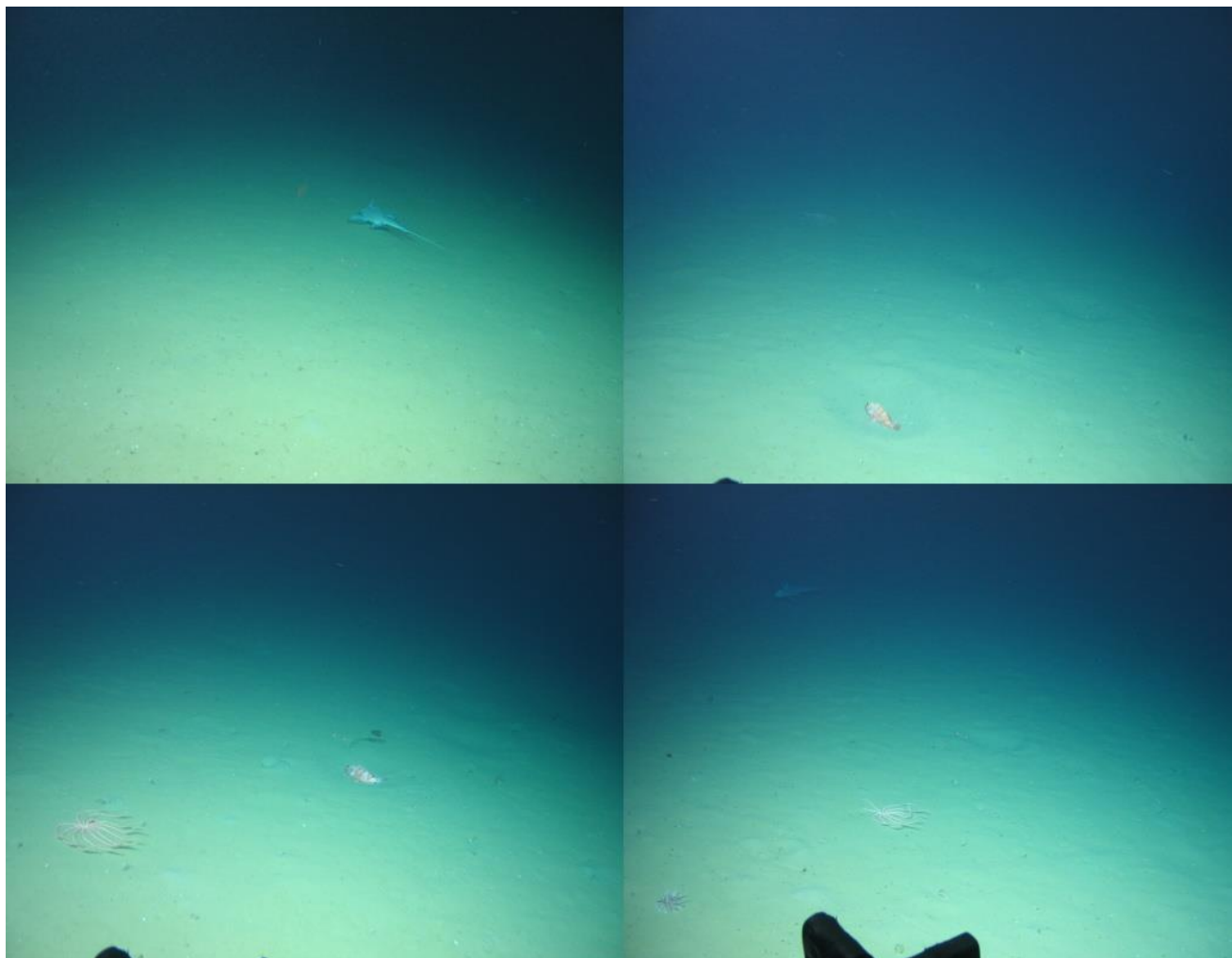
Conservation Targets		
Listed Habitats Encountered		
Name	Authority	
Mud and sand emergent fauna	ICES	
Listed Species Encountered (Fish, Count)		
n/a		OSPAR/IUCN

DIVE SUMMARY	
DIVE # 699	TRANSECT # 18

	Start	End
Date & Time	19/08/2019 21:49:49	19/08/2019 22:42:50
Latitude/ Longitude	51.9594188/-11.77939533	51.9630495/-11.77351417
Depth	-615.219	-603.05
Images	IMG_7790.jpg – IMG_7808.jpg	
Samples	2 x push cores	

Location	P1
Target Features	Track slope feature
Depth Range	-621m





Top L. *Chimaera monstrosa* swimming on muddy slope (M.AtUB.Mu).

Top R. *Helicolenus dactylopterus* on muddy slope (M.AtUB.Mu).

Bottom L. *Helicolenus dactylopterus* and Brisingidae on muddy slope (M.AtUB.Mu).

Bottom R. Brisingidae and anemone on muddy slope (M.AtUB.Mu).

Summary Description (habitat transitions noted)

HD VIDEO STARTS AT 21:49:49/0m. Uniform biotope of muddy moderate slope with scattered epifauna predominantly sea anemones and brisingids. **[1]** At the beginning of the dive, an aggregation of shrimps is observed. ROV samples two push cores at the beginning of the dive. 36m A large angler fish (*Lophius piscatorius*) encountered in association with abundant crustaceans. A few rubbish items recorded. **HD VIDEO ENDS AT 22:42:50/01h03m.**

Physical Data			
Reef (types can be concurrent)	0% reef	n/a	
		n/a	n/a
			n/a
Substrates	- Mud		
Geomorphology/Features	- Slope		
Annex 1 Types	n/a		
Pressures	1 x rubbish (05m) 1 x rubbish (yellow) (16m22s) 1 x rusty stick (17m) 1 x rubbish (17m51s) 1 x rubbish (28m)		

	1 x rubbish (01h01m)
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Biological Data

Number of Species	25
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Summary Species List (Operational Taxonomic Unit, Name, Size, SACFOR, presence per habitat transition)

O.T.U	Species/Taxonomic ID	Size/Growth	SACFOR
1305	Galeus sp	L	R
1097	Aphanopus carbo	L	R
440	Synaphobranchus kaupii	L	R
1019	Merlangius merlangus	L	R
274	Brisingidae	L	F
227	Helicolenus dactylopterus	L	R
265	Chimaera monstrosa	L	R
41	Sagartidae sp3	L	R
654	Molva molva	L	R
235	Bathynectes sp	L	R
1020	Phycis blennoides	L	R
255	Phelliactis sp1	L	R
249	Lepidion eques	L	R
1114	Pennatulacea (indet)	L	R
1196	Pennatulacea sp6	L	R
273	Lophius piscatorius	L	R
581	Umbellula sp	L	R
266	Parastichopus tremulus	L	R
458	Pachycerianthus multiplicatus	M	R
1106	Eucarida sp	M	R
1077	Caridea (indet)	S	R
1066	Adamsia sp	S	R
605	Actiniaria sp20	S	R
205	Paguridae sp	S	R
621	Hypsogastropoda	S	R

Biotope List (Marine Habitat Classification for Britain & Ireland)

Code	Name	Listed
M.AtUB.Mu	Atlantic upper bathyal mud	Mud and sand emergent fauna (ICES)

Biotope progression per habitat transition (# species, dominant/characteristic species)

1	M.AtUB.Mu
	41 Sagartidae sp3; 274 Brisingidae; 458 Pachycerianthus multiplicatus

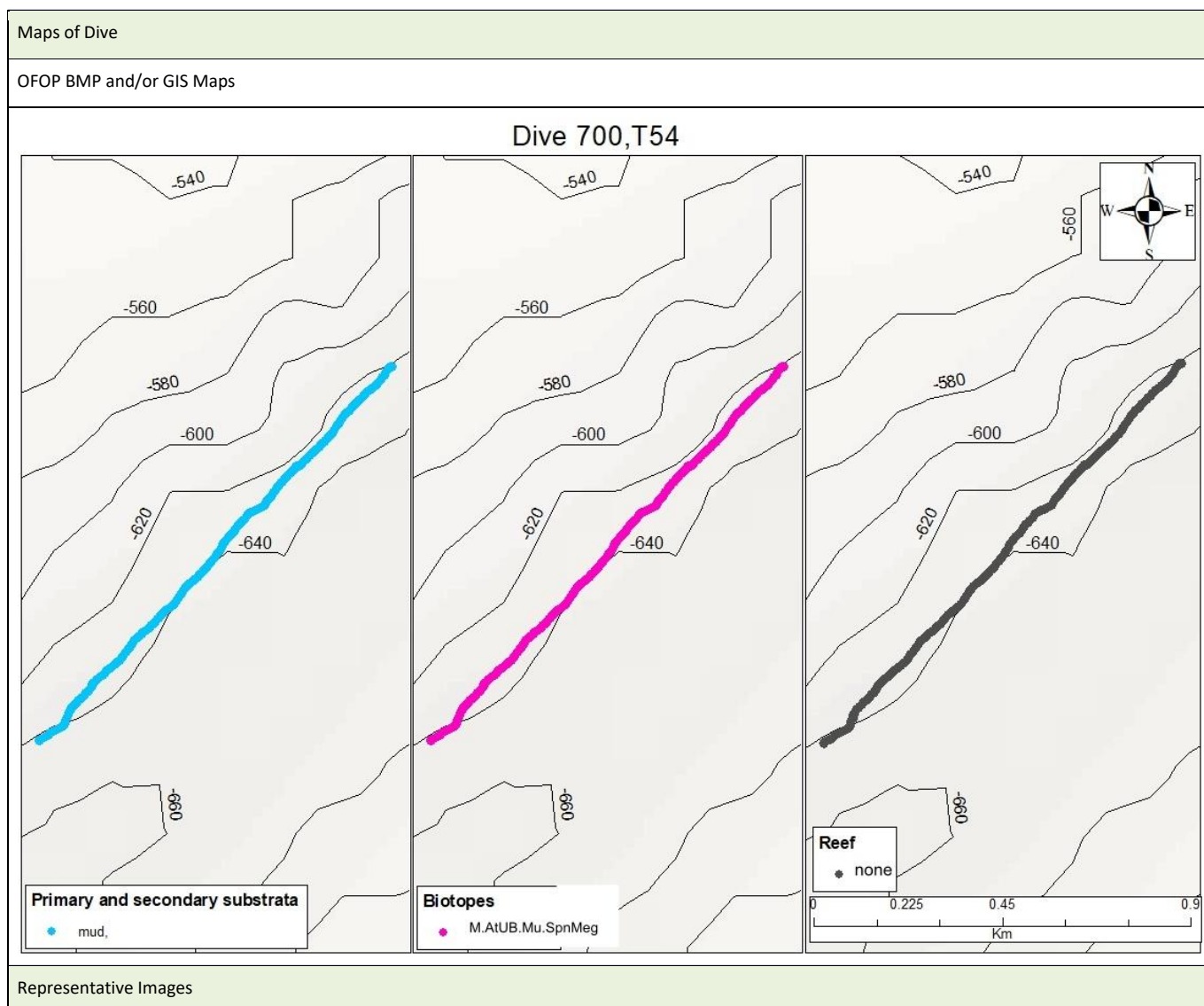
Conservation Targets

Listed Habitats Encountered		
Name		Authority
Mud and sand emergent fauna		ICES
Listed Species Encountered (Fish, Count)		
n/a		OSPAR/IUCN

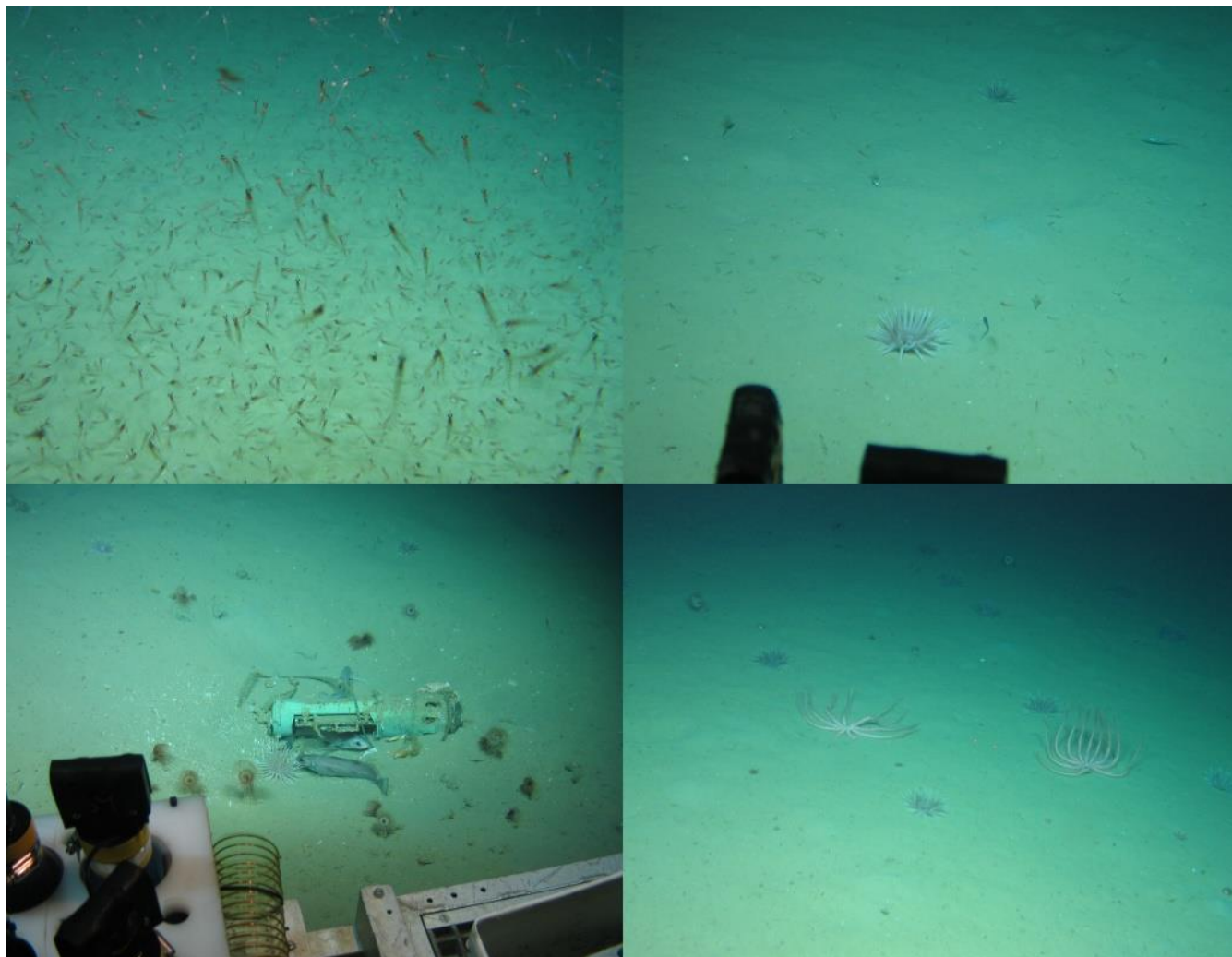
DIVE SUMMARY	
DIVE # 700	TRANSECT # 54

	Start	End
Date & Time	20/08/2020 01:10:12	20/08/2020 02:28:42
Latitude/ Longitude	52.08299/ -11.86216017	52.09113617/ -11.854489
Depth	-661.592	-643.633
Images	IMG_7809.jpg – IMG_7987.jpg	
Samples	2 x push cores	

Location	n/a
Target Features	n/a
Depth Range	n/a



(Images representative of major biotopes, species, and sediments encountered throughout the transect)



Top L. A dense aggregation of shrimp (M.AtUB.Mu.SpnMeg).

Top R. *Sagartidae sp3* and *Synaphobranchus kaupii* on mud slope (M.AtUB.Mu.SpnMeg).

Bottom L. A man-made object on mud surrounded by *Sagartidae sp3*, *Pachycerianthus multiplicatus* and *Lepidion eques* (M.AtUB.Mu.SpnMeg).

Bottom R. Aggregation of *Sagartidae sp3* and Brisingidae on mud (M.AtUB.Mu.SpnMeg).

Summary Description (habitat transitions noted)

HD VIDEO STARTS AT 01:10:12/0m. Uniform biotope of muddy slope with scattered sea anemones and hermit crabs. Small shrimps populated the entire dive and sometimes they obstruct the vision.

[1] 0-7m abundant shrimps in this part of the transect with scattered eels. **[2]** 13m Here small holothurians (<2cm long) fields on muddy slope. 18m Rubbish. 29m Here an aggregation of Paguridae. **[3]** 50m Sea anemones are recorded very frequently in this part of the transect. 52m Large field of *Sagartidae sp3*. 01h12m ROV stops for imagery of *Sagartidae sp3*. 01h16m ROV stops for sampling two push cores. **HD VIDEO ENDS AT 02:28:42/01h20m.**

Physical Data			
Reef (types can be concurrent)	0% reef	n/a	
		n/a	n/a
			n/a
Substrates	- Mud		

Geomorphology/Features	- Slope
Annex 1 Types	n/a
Pressures	1 x rubbish (18m) 1 x long line (53m) 1 x plastic (53m)

Biological Data																																																																																																												
Number of Species			25																																																																																																									
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3	M.AtUB.Mu.SpMmeg
	41 Sagartidae sp3; 499 Actinauge richardi

Conservation Targets		
Listed Habitats Encountered		
Name	Authority	
Mud and sand emergent fauna	ICES	
Listed Species Encountered (Fish, Count)		
n/a		OSPAR/IUCN

Additional Comments		
n/a		

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