

Biological analyses of underwater video footage from Arran, Loch Linnhe, Loch Shell and Loch Seaforth





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COMMISSIONED REPORT

Commissioned Report No. 818

Biological analyses of underwater video footage from Arran, Loch Linnhe, Loch Shell and Loch Seaforth

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This report should be quoted as:

Morris-Webb, E.S. & Stamp, T.S. 2015. Biological analyses of underwater video footage from Arran, Loch Linnhe, Loch Shell and Loch Seaforth. *Scottish Natural Heritage Commissioned Report No. 818*.

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COMMISSIONED REPORT

Summary

Biological analyses of underwater video footage from Arran, Loch Linnhe, Loch Shell and Loch Seaforth

Commissioned Report No. 818

Project No: 15134

Contractor: Marine EcoSol

Year of publication: 2015

Keywords

Seabed imagery; Arran; Linnhe; Shell; Seaforth; Maerl; *Zostera*; seagrass.

Background

Scottish Natural Heritage and the Joint Nature Conservation Committee have generated a focused list of habitats and species to target nature conservation action in Scottish waters - Priority Marine Features (PMFs). The aim of this investigation was to improve knowledge of the occurrence and distribution of species and habitats of recognised conservation importance in Scottish waters, by undertaking marine habitat classification and identifying PMFs, but also taking into consideration other importance measures. This was achieved through the analysis of seabed video and still photographic imagery collected during research cruises around Scotland, in 2014. The imagery collected from three of these areas Lochs Linnhe, Shell and Seaforth was captured by Scottish Environment Protection Agency (SEPA) staff as part of SEPA's work to gauge the health and ecological condition of coastal water bodies. However, through a partnership working agreement SNH accepts the role of analysing the video evidence gathered by SEPA. The material from these three sites is reported here along with imagery from the South Arran Marine Protected Area (MPA). The findings of the work will inform future nature conservation action.

On July 24th, 2014 Scottish Ministers designated the South Arran Marine Protected Area. The conservation objective of the MPA is "*to recover the Maerl beds and to conserve the protected features of the South Arran MPA.*" The 250km² area encompasses a range of protected features including: burrowed mud; kelp and seaweed communities on sublittoral sediments; Maerl beds; Maerl or coarse shell gravel with burrowing sea cucumbers; ocean quahog aggregations; seagrass beds and shallow tide-swept coarse sands with burrowing bivalves. Underwater video footage collected in the area was used to verify the existence of some of these protected features in and around the MPA, validate that they are still living features and inform future management decisions.

Main findings

- In total 12 live maerl biotopes were assigned in the South Arran MPA, with an area North East of the Island of Pladda identified to be the healthiest area of live maerl bed surveyed in 2014.
- Seagrass was found in the sheltered sands of Whiting Bay in South Arran MPA.
- The kelp and seaweed communities on sublittoral sediment biotope complex accounted for 31% of all biotopes recorded in this survey across the South Arran MPA. However,

- rules had to be developed with SNH to minimise inter and intra-surveyor variability in the assignment of this biotope.
- Additional PMFs recorded in low numbers within the South Arran MPA included Anglerfish, Tide-swept algal communities, Kelp Beds and Maerl or coarse shell gravel with burrowing sea cucumbers.
 - 80% of the surveyed habitats in Loch Linnhe were dominated by the burrowed mud PMF habitats comprising **SS.SMu.CFiMu.SpnMeg** and, **SS.SMu.CFiMu.SpnMeg.Fun**.
 - Six sites in Loch Linnhe also had Northern feather star aggregations of *Leptometra celtica*, whilst two further sites had presence of *L. celtica* not considered to be aggregations.
 - Almost 72% of the surveyed habitats in Loch Shell / Sealg was the burrowed mud PMF habitat comprising **SS.SMu.CFiMu.SpnMeg** and **SS.SMu.CFiMu.SpnMeg.Fun**.
 - At the entrance to Loch Shell were the rocky PMF biotopes of *Caryophyllia smithii* and *Swiftia pallida* on circalittoral rock (two instances of **CR.MCR.EcCr.CarSwi** and one of **CR.MCR.EcCr.CarSwi**).
 - Also recorded in the more exposed rocky mouth of Loch Shell was one occurrence of a white cluster anemone aggregation, *Parazoanthus anguicomus*.
 - Almost 85% of the surveyed habitats in Loch Seaforth / Sìophoirt was the burrowed mud PMF habitat of **SS.SMu.CFiMu.SpnMeg** and **SS.SMu.CFiMu.SpnMeg.Fun**.
 - Loch Seaforth was the survey area where most evidence of potential human disturbance was recorded. 60% of samples had some evidence of human disturbance, ranging from dislodged *Funiculina quadrangularis* (which are a sign of disturbance but could also be a natural occurrence), a creel pot, potential drag marks across the seabed and metal wreckage. Little evidence of human disturbance was recorded across the other survey areas.

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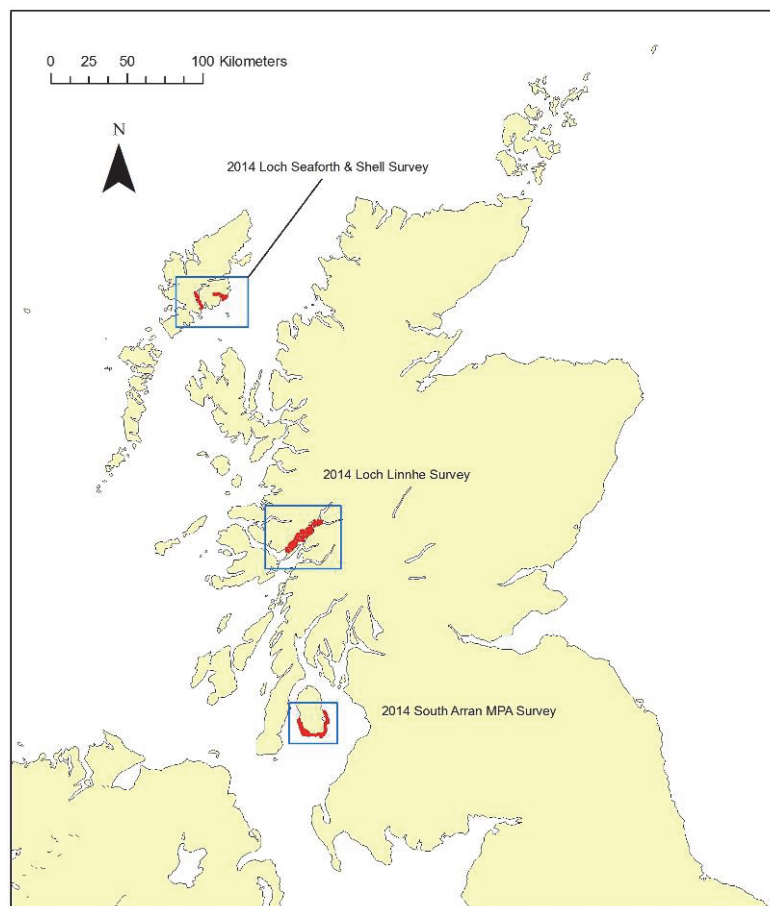
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Acknowledgements

Project Officer Laura Steel and other SNH staff are thanked for their support during the analysis of this video. Thank you also to Marine EcoSol staff Franki Perry, Tom Stamp, and Harry Goudge for long hours of video analysis and Marine Recorder data entry, Dr Christine Howson for starting the Arran video analysis independently and Dr Lin Baldock for independent Quality Assurance of species and biotope identification for this project. SNH and SEPA staff are acknowledged for the collection of seabed imagery analysed here.

1. INTRODUCTION

Scottish Natural Heritage and the Joint Nature Conservation Committee have generated a focused list of habitats and species to target nature conservation action in Scottish waters - Priority Marine Features (PMFs) (SNH, 2014; Tyler-Walters *et al.*, 2012). The aim of this investigation was to improve knowledge of the occurrence and distribution of species and habitats of recognised conservation importance in Scottish waters, by undertaking marine habitat classification and identifying PMFs, but also taking into consideration other importance measures. This was achieved through the analysis of seabed video and still photographic imagery collected during research cruises around Scotland, in 2014. The imagery collected from three of these areas Lochs Linnhe, Shell and Seaforth was captured by Scottish Environment Protection Agency (SEPA) staff utilising the SEPA survey vessel, the Sir John Murray. This underwater video evidence was collected as part of SEPA's work to gauge the health and ecological condition of coastal water bodies. However, through partnership working agreements, SEPA has access to a high definition underwater camera system for the purpose of environmental monitoring, which was custom built by Marine Science Scotland and Scottish Natural Heritage (SNH) specifically for use on SEPA's survey vessel. Additionally this agreement covers the analysis of video footage such that SNH accepts the role of analysing the video evidence gathered. The material from these three sites was passed on to SNH for analysis and so is reported here along with imagery from the South Arran Marine Protected Area (MPA) collected by SNH staff working from another SEPA survey vessel. The findings of the work will inform future nature conservation action.



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Figure 1. Distribution of 2014 South Arran MPA, Loch Linnhe, Loch Shell and Loch Seaforth survey locations (blue boxes) and sites (red dots).

On July 24th, 2014 Scottish Ministers designated the South Arran Marine Protected Area. The conservation objective of the MPA is "to recover the Maerl beds and to conserve the protected features of the South Arran MPA." The 250km² area encompasses a range of protected features including: burrowed mud; kelp and seaweed communities on sublittoral sediments; Maerl beds (Birkett *et al.*, 1998); Maerl or coarse shell gravel with burrowing sea cucumbers; ocean quahog aggregations; seagrass beds and shallow tide-swept coarse sands with burrowing bivalves. Underwater video footage collected in the area was used to verify the existence of some of these protected features in and around the MPA, validate that they are still living features and inform future management decisions.

2. METHODS

Survey details are provided in Table 1. The three surveys conducted by SEPA from the Sir John Murray, were undertaken as part of SEPA's work to gauge the health and ecological condition of coastal water bodies to inform SEPA's work under the Water Framework Directive and not specifically to look for species and habitats of recognised conservation importance. However, the imagery gathered by SEPA was passed to SNH for analysis under a partnership agreement in respect of evidence gathering relating to the Scottish MPAs work.

Standard resolution video was obtained from drop down video tows with time overlay, and where possible high definition GoPro imagery was taken alongside (without time overlay). Due to better quality results, the GoPro video was usually analysed preferentially to the original DDV footage. No stills imagery was taken alongside the video tows. Images provided in the Annexes are screen grabs from video tows. All depths have been converted using Bellfield Tide Plotter to determine tidal rise from the most appropriate secondary port.

Table 1. 2014 survey details.

Survey	Search Area	Organisation	Vessel	Date(s)	No. transects	Site Prefix
South Arran MPA	Arran Holy Isle	SNH	Kelpie	15/09/2014 18/09/2014	30	HI and HIN
South Arran MPA	Clauchlands Point	SNH	Kelpie	19/09/2014	15	CP
South Arran MPA	Drumadoon	SNH	Kelpie	16/09/2014	14	D
South Arran MPA	Iron Rock Ledges	SNH	Kelpie	16/09/2014 17/09/2014	57	IR
South Arran MPA	Pladda	SNH	Kelpie	17/09/2014 18/09/2014	46	PL
South Arran MPA	Whiting Bay	SNH	Kelpie	18/09/2014	15	WB
Loch Linnhe	Loch Linnhe	SEPA	Sir John Murray	23-28/05/2014	81	LLIN
Loch Shell	Loch Shell	SEPA	Sir John Murray	05-06/06/2014	29	LSHE
Loch Seaforth	Loch Seaforth	SEPA	Sir John Murray	07-08/06/2014	32	SEA

Video analysis was undertaken in a style consistent with MNCR Phase II survey (Hiscock, 1996). Video was first split into individual habitats or biotopes where new habitats were either bigger than 25m² (a minimum biotope size) or greater than one minute in length. A first view of the video would include assigning habitat name, substrate composition, characterising biota, sample descriptions and any evidence of human disturbance. On the second view, all species identifiable to a World Register of Marine Species (WoRMS) accepted taxa were recorded and where possible a SACFOR abundance rating was assigned (Hiscock, 1996). As the SACFOR scale was generally developed for search areas over 100m² the assignment of an abundance scale for large mobile fauna is often inappropriate (for instance one anglerfish in an area smaller than 10m² would be Common). Therefore in these instances an assignment of Present was used instead. Presence was also often used for taxa recorded in small tow areas.

Finally a biotope was assigned using the JNCC Marine Habitat Classification guidance (Connor *et al.*, 2004), including where necessary the use of biological and physical comparative tables. The relatively common biotope complex of kelp and seaweed communities on sublittoral sediments (**SS.SMp.KSwSS**), which is also a component biotope for a PMF, raised several quality control questions. Using JNCC biological comparative tables alone would not allow any macroalgae to occur in the biotopes **SS.SMx.IMx** or **SS.SCS.ICS**, instead deferring to the **SS.SMp.KSwSS** biotope complex. However, common sense and experience informs us that kelps and scour tolerant macroalgae can live on shells, pebbles and cobbles in these habitats, and possibly the core records on which the biotopes were defined may have either been from infaunal samples, or for some reason algae may not have been surveyed. Marine EcoSol surveyors in agreement with SNH decided to use a combination approach to this PMF and biotope. If kelp or any other macroalgae was defined as 'Frequent' then the sample may be considered a 'kelp or seaweed community on sublittoral sediment'. Macroalgae may appear as rare or occasional in other infralittoral or even circalittoral sediment biotopes, without forming the 'community' characteristic of this PMF.

Maerl beds and gravels were assigned as per the criteria set out by Moore (2014), and were assigned only in cases where live maerl was suspected to comprise more than 5% of the substrate.

Once both taxa and species were assigned the surveyor decided if there was a good match to any Scottish PMFs (SNH, 2014).

3. RESULTS

The results presented in this section are primarily the presence and distribution of standard JNCC Marine Habitat Classification habitats and biotopes (Connor *et al.*, 2004). Annex 2 presents site location data whilst Annex 3 provides a station summary for each section of tow analysed. Annex 4 provides illustrative images taken from video grabs for each biotope, together with the full biotope title and which stations it was found in throughout the survey. PMF component habitats and species (SNH, 2014) have been highlighted in **red**, and are presented in greater detail in the Discussion (Section 4), and summarised in Annex 1. Annex 5 provides a summary of all associated data files provided to SNH with this report.

3.1 South Arran MPA (Figure 2)

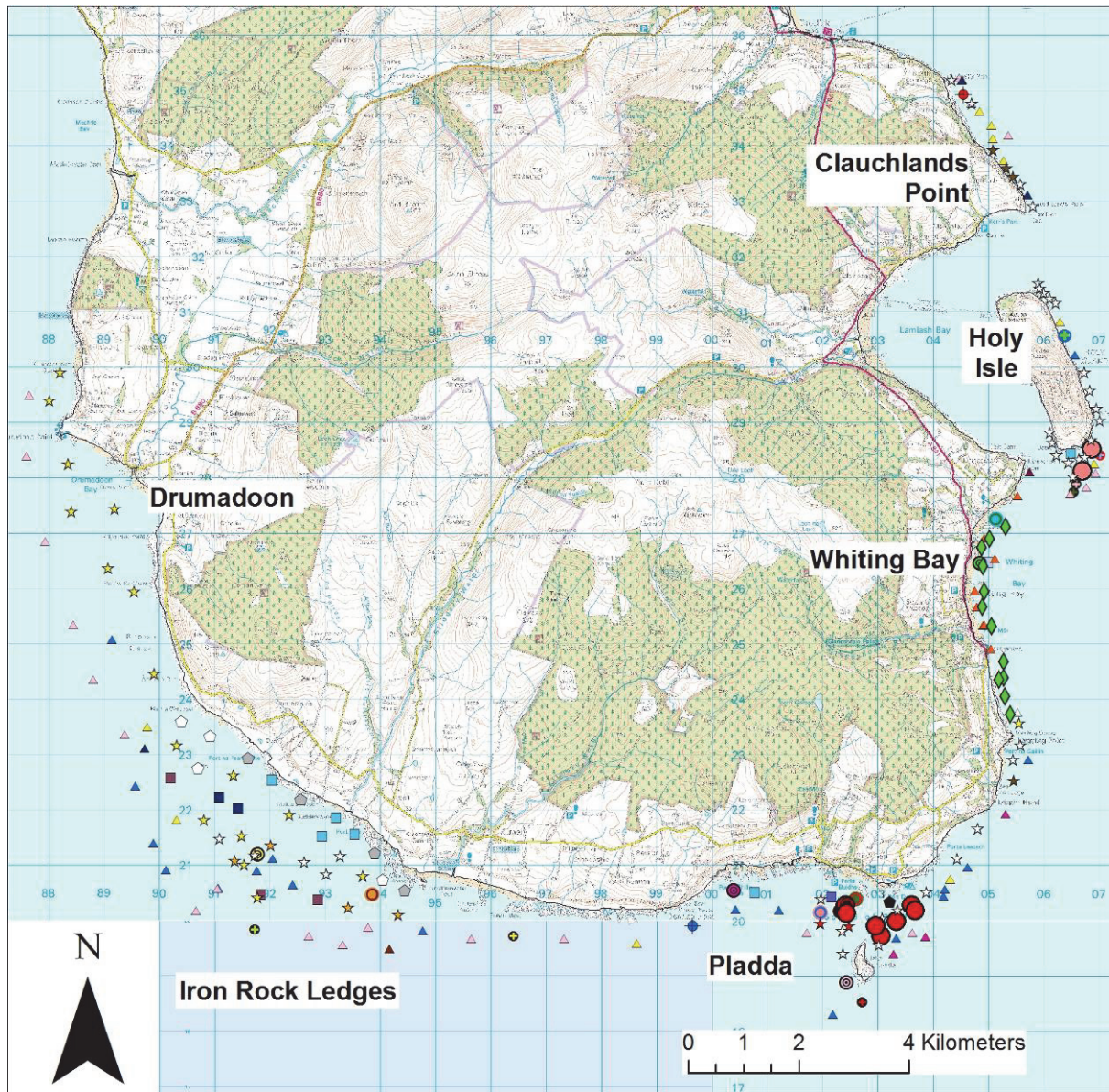
In total 177 tows were undertaken in South Arran MPA (Table 1), from which 198 samples were identified and split for separate analysis and entry into Marine Recorder.

Table 2 and Figure 2a presents all 37 biotopes and biotope complexes found in the 2014 video surveys within the South Arran MPA. Kelp and sediment communities on sublittoral sediments were present in 34.8% of samples (31% of biotope records, as some samples had mosaics comprising two or more biotopes throughout a habitat), with mixed sediments dominating most survey areas. Iron Rock Ledges samples, however, had an equal proportion of infralittoral rock with kelp biotopes and kelp and seaweed on mixed sublittoral sediments. 25% of stations sampled in the Pladda area were infralittoral rock, with almost 19% living maerl biotopes and 33% kelp and seaweed communities on sediments. Whiting Bay was dominated by sublittoral sand and seagrass communities. Biotopes for each area are presented in more detail below, with PMFs discussed further in Section 4.

Figure 2b provides the legend used for all Arran biotopes observed and displayed in Figures 2 - 8. Annex 4 provides a description of each biotope and lists each station it was found in, and Figures 3 - 8 show large scale maps of each of the areas discussed.

Table 2. Number of samples in which each identified biotope and biotope complex was recorded during the 2014 South Arran MPA surveys. Total number of biotope occurrences is more than the total number of samples due to 'mosaics' (where more than one biotope was assigned to one sample). See Table 1 for site survey codes.

		ALL South Arran MPA	HI / HIN	CP	D	IR	PL	WB
Infralittoral Rock	IR.LIR.K.Lsac.Ldig	1						1
	IR.MIR.KR	2				2		
	IR.MIR.KR.Ldig	1				1		
	IR.MIR.KR.Lhyp.Ft	3					3	
	IR.MIR.KR.LhypT	1					1	
	IR.MIR.KR.LhypT.Ft	1					1	
	IR.MIR.KR.LhypTX	4				2	2	
	IR.MIR.KR.LhypTX.Ft	7				6	1	
	IR.HIR.KFaR.FoR	2	1				1	
	IR.HIR.KSed	4				4		
	IR.HIR.KSed.LsacSac	5	2				3	
IR.HIR.KSed.XKScrR	8	1			4	3		
Cirralittoral Rock	CR.LCR.BrAs.AmenCio	1	1					
	CR.LCR.BrAs.AmenCio.Bri	1	1					
	CR.MCR.EcCr	2	1			1		
Coarse Sediments	SS.SCS.ICS	3		2		1		
	SS.SCS.CCS	23	2		1	10	10	
	SS.SCS.CCS.Nmix	1				1		
Sands	SS.SSa.IFiSa	1				1		
	SS.SSa.CMuSa	1				1		
	SS.SSa.IMuSa	3						3
	SS.SSa.IMuSa.AreISa	11						11
Mud	SS.SMu.CSaMu	1		1				
Mixed sediments	SS.SMx.IMx	11	2	5		3	1	
	SS.SMx.CMx	25	5	4	5	9	2	
	SS.SMx.CMx.ClloMx	4					4	
	SS.SMx.CMx.ClloMx.Nem	1						1
	SS.SMx.CMx.OphMx	2	2					
Maerl	SS.SMp.Mrl	1				1		
	SS.SMp.Mrl.Pcal	2	2					
	SS.SMp.Mrl.Pcal.R	9					9	
Kelp and seaweed communities on sediment	SS.SMp.KSwSS	41	17	4		6	12	2
	SS.SMp.KSwSS.LsacR	17			8	8		1
	SS.SMp.KSwSS.LsacR.CbPb	5				5		
	SS.SMp.KSwSS.LsacR.Gv	3					3	
	SS.SMp.KSwSS.LsacR.Sa	4		3			1	
Sea-grass	SS.SMp.SSgr.Zmar	13						13



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Figure 2a. Distribution of observed biotopes (Connor et al., 2004) within the South Arran MPA together. For clear display, stations are represented as start points of habitats only.

MNCR Biotope Codes (non PMF)

- IR.HIR.KSed
- IR.HIR.KSed.LsacSac
- IR.HIR.KSed.XKScrR
- IR.LIR.K.Lsac.Ldig
- IR.MIR.KR
- ▲ SS.SCS.CCS
- ▲ SS.SCS.ICS
- ▲ SS.SMu.CSaMu
- ▲ SS.SMx.CMx
- ▲ SS.SMx.CMx.CloMx
- ▲ SS.SMx.CMx.CloMx.Nem
- ▲ SS.SMx.IMx
- ▲ SS.SSa.IMuSa
- ▲ SS.SSa.IMuSa.ArelSa
- ▲ SS.Ssa.CMuSa

Mosaic Habitats (non PMF)

- ◆ SS.SMx.CMx.CloMx + SS.SCS.CCS
- ◆ SS.SMx.IMx + SS.SMx.CMx
- ◆ IR.HIR.KFaR.FoR + SS.SCS.CCS
- ◆ IR.HIR.KSed.LsacSac + IR.HIR.KFaR.FoR
- ◆ SS.SCS.CCS + CR.MCR.EcCr
- ◆ SS.SMx.CMx + CR.MCR.EcCr
- ◆ SS.SMx.CMx + SS.SCS.CCS
- ◆ SS.SMx.CMx, SS.SMx.CMx.OphMx + CR.LCR.BrAs.AmenCio
- ◆ SS.SMx.CMx.OphMx + CR.LCR.BrAs.AmenCio.Bri

PMF Component Biotope Codes

- IR.MIR.KR.Lhyp.Ft
- ◆ IR.MIR.KR.LhypT.Ft
- ◆ IR.MIR.KR.LhypTX
- ◇ IR.MIR.KR.LhypTX.Ft
- ☆ SS.SMp.KSwSS
- ★ SS.SMp.KSwSS.LsacR
- ★ SS.SMp.KSwSS.LsacR.CbPb
- ★ SS.SMp.KSwSS.LsacR.Gv
- ★ SS.SMp.KSwSS.LsacR.Sa
- SS.SMp.Mrl.Pcal
- SS.SMp.Mrl.Pcal.R
- ◆ SS.SMp.SSgr.Zmar

Mosaic Habitats Containing PMF Component Biotopes

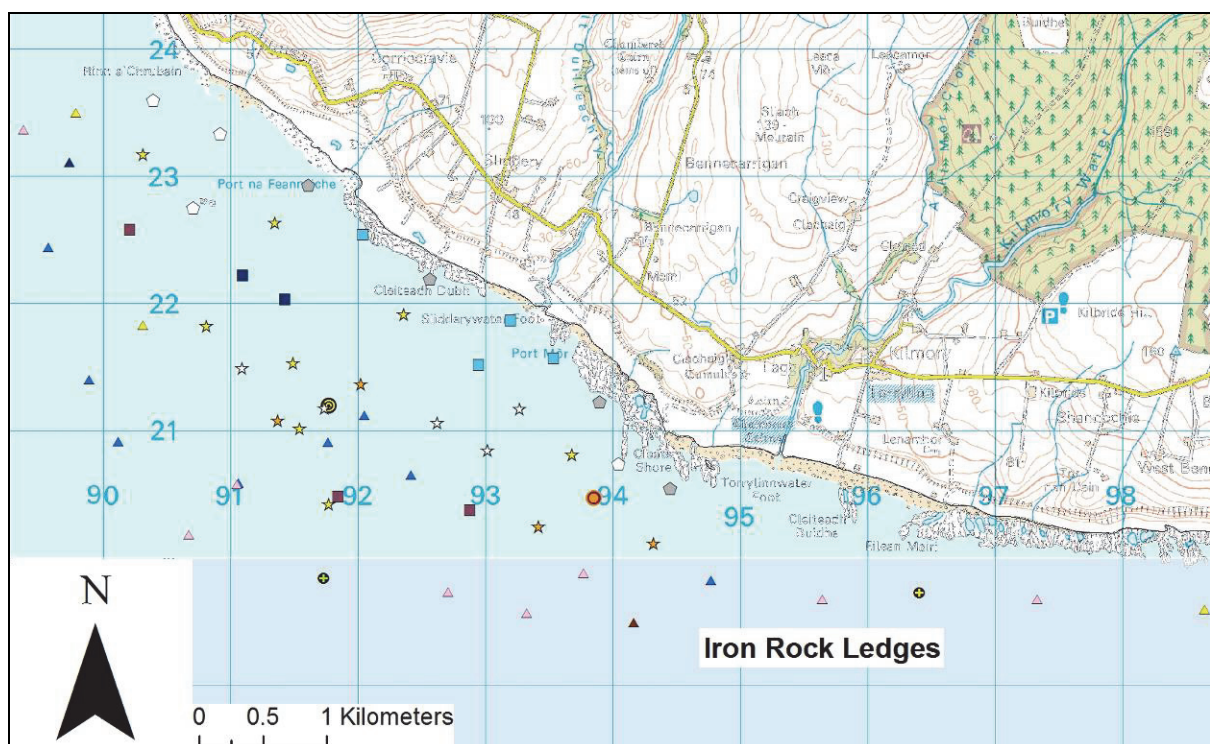
- SS.SMp.SSgr.Zmar, SS.SMp.KSwSS + SS.SSa.IMuSa.ArelSa
- IR.MIR.KR.LhypT + IR.MIR.KR.LhypTX
- SS.SMp.Mrl.Pcal.R + IR.MIR.KR.LhypTX
- SS.SMp.Mrl.Pcal.R + SS.SCS.CCS
- SS.SMp.Mrl + SS.SCS.CCS.Nmix
- IR.MIR.KR.Lhyp.Ft + SS.SMp.KSwSS
- IR.HIR.KSed.XKScrR + SS.SMp.KSwSS
- IR.HIR.Ksed + SS.SMp.KSwSS
- IR.MIR.KR.Lhyp.Ft + IR.HIR.KSed.XKScrR
- IR.MIR.KR.LhypTX.Ft + IR.MIR.KR.Ldig
- SS.SMp.KSwSS + IR.HIR.KSed.LsacSac
- SS.SMp.KSwSS.LsacR.CbPb + SS.SMp.KSwSS
- SS.SMp.KSwSS.LsacR.Gv + IR.HIR.KSed.LsacSac
- SS.SSa.IMuSa.ArelSa + SS.SMp.KSwSS

Figure 2b. Legend of observed biotopes (Connor et al., 2004) within the South Arran MPA together. Biotopes have been separated to highlight those considered PMFs.

In summary the relatively sheltered shallow coasts around the west of Arran (Drumadoon, Figure 3), inshore sheltered areas north west of Iron Rock Ledges (Figure 4), east of Claulchlands Point (Figure 8) and north east Holy Isle (Figure 7) hosted sparse and silty kelp and seaweed communities on subtidal sediment (**SS.SMp.KSwSS.LsacR**). Pebbles, empty shell and cobbles were colonised by silted red fine branching weeds, pink coralline encrusting algae and at least occasional sugar kelp, *Saccharina latissima* as deep as 9.5 m below chart datum (bcd). Sediments were often characterised by the presence of a burrowing sea anemone (probably *Cerianthus lloydii*, usually common or more abundant) and frequently included a high proportion of dead maerl gravel, with less than 5% live maerl (recorded as Melobesioideae as it is difficult to determine species from video).

These macrophyte communities gave way to infralittoral and circalittoral mixed sediments (**SS.SMx.IMx**, 4 - 19 m bcd, and **SS.SMx.CMx**, 12 - 26 m bcd) with a good component of mud and burrowing infauna and more *Cerianthus lloydii*. Poor quality video, particularly from the traditional drop down video system which is not HD, together with lack of scale lasers made it difficult to differentiate between substrates and brown filamentous weeds compared

(**SS.SMp.KSwSS.LsacR**). In the most south westerly facing and therefore most exposed area, the habitats give way to less mud and silt (as it is washed away by tide and wave action) and more sand. Eight examples of tide-swept algal communities (**IR.MIR.KR.LhypTX and TX.Ft**), comprising dense *Laminaria hyperborea* forests with dense and / or diverse red algae understories including *Palmaria palmata* and *Cryptopleura ramosa* on boulders, cobbles and often indeterminable substrates were identified in this area from 0.5 m - 5 m bcd. At the most exposed south western facing tips of shallow sublittoral around the Iron Rock Ledges (four samples), Pladda (three samples, Figure 5) and Holy Isle (one sample, Figure 7) are the scour tolerant communities of opportunistic red seaweeds on scoured infralittoral boulders, cobbles and pebbles (**IR.HIR.KSed.XKScrR**). These communities are characterised by a mix of kelp with scour tolerant algae including *Desmarestia*, *Halidrys siliquosa* (at some, not all, sites) and *Odonthalia dentata*. Under these habitats are kelp and seaweed communities, particularly on cobbles and pebbles (**SS.SMp.KSwSS.LsacR.CbPb**) at five stations, and from approximately 15.5 m bcd circalittoral coarse sands (**SS.SCS.CCS**) with a low mud and silt component.

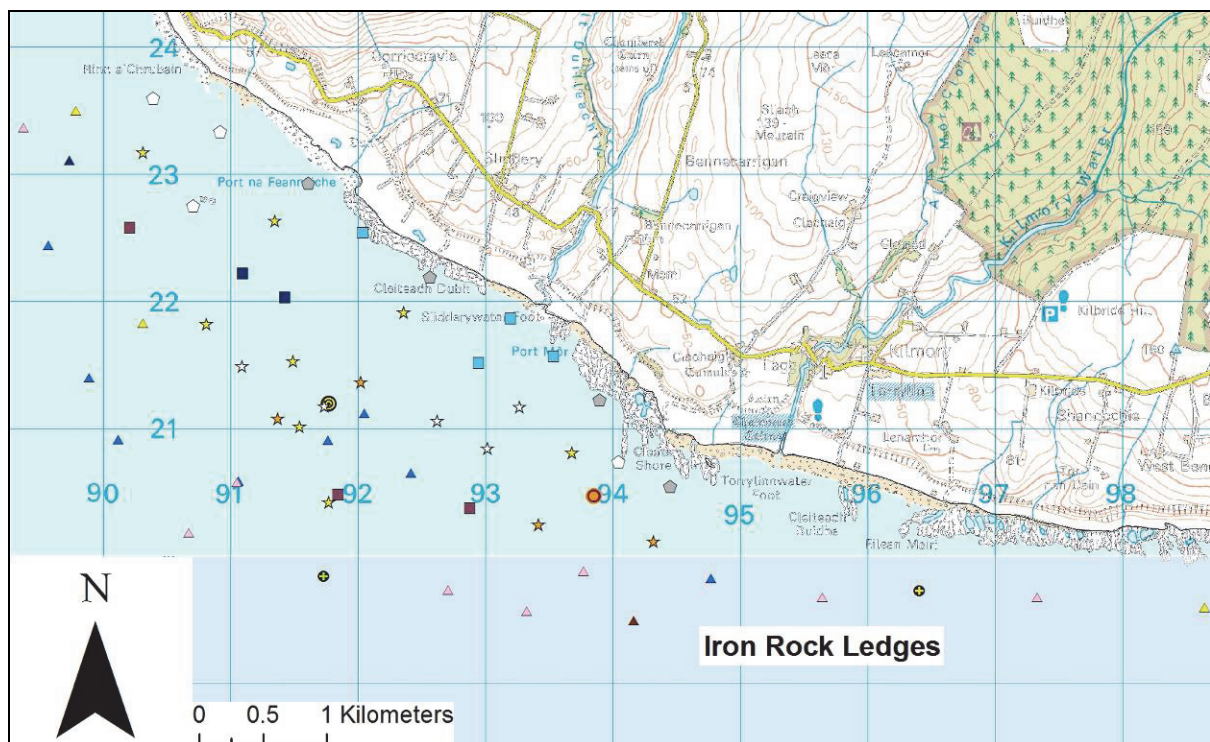


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Figure 4. Distribution of observed biotopes from 2014 surveys around the Iron Rock Ledges search area. For clear display, stations are represented as start points of habitats only. A legend for biotope symbols is provided in Figure 2b.

Amongst the coarse sediments around the Iron Rock Ledges is lots of dead maerl gravel. There was one record of a live maerl bed (**SS.SMp.Mrl**) mosaiced with dead maerl in what seemed to be **SS.SCS.CCS.Nmix** without the *Neopentadactyla mixta* observed (most of the core records for this biotope do not contain this species despite its status as a descriptor; Moore, 2014). However, this station (IR55) was on the cusp of being considered a live bed, with only 5% of the substrate allocated as live maerl. This station is marked in Figure 4 as a yellow 'target' circle, just left of centre in the survey area. These PMFs can be seen more clearly in Figure 12 and are discussed in further detail in Section 4.

(**SS.SMp.KSwSS.LsacR**). In the most south westerly facing and therefore most exposed area, the habitats give way to less mud and silt (as it is washed away by tide and wave action) and more sand. Eight examples of tide-swept algal communities (**IR.MIR.KR.LhypTX and TX.Ft**), comprising dense *Laminaria hyperborea* forests with dense and / or diverse red algae understories including *Palmaria palmata* and *Cryptopleura ramosa* on boulders, cobbles and often indeterminable substrates were identified in this area from 0.5 m - 5 m bcd. At the most exposed south western facing tips of shallow sublittoral around the Iron Rock Ledges (four samples), Pladda (three samples, Figure 5) and Holy Isle (one sample, Figure 7) are the scour tolerant communities of opportunistic red seaweeds on scoured infralittoral boulders, cobbles and pebbles (**IR.HIR.KSed.XKScrR**). These communities are characterised by a mix of kelp with scour tolerant algae including *Desmarestia*, *Halidrys siliquosa* (at some, not all, sites) and *Odonthalia dentata*. Under these habitats are kelp and seaweed communities, particularly on cobbles and pebbles (**SS.SMp.KSwSS.LsacR.CbPb**) at five stations, and from approximately 15.5 m bcd circalittoral coarse sands (**SS.SCS.CCS**) with a low mud and silt component.



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Figure 4. Distribution of observed biotopes from 2014 surveys around the Iron Rock Ledges search area. For clear display, stations are represented as start points of habitats only. A legend for biotope symbols is provided in Figure 2b.

Amongst the coarse sediments around the Iron Rock Ledges is lots of dead maerl gravel. There was one record of a live maerl bed (**SS.SMp.Mrl**) mosaiced with dead maerl in what seemed to be **SS.SCS.CCS.Nmix** without the *Neopentadactyla mixta* observed (most of the core records for this biotope do not contain this species despite its status as a descriptor; Moore, 2014). However, this station (IR55) was on the cusp of being considered a live bed, with only 5% of the substrate allocated as live maerl. This station is marked in Figure 4 as a yellow 'target' circle, just left of centre in the survey area. These PMFs can be seen more clearly in Figure 12 and are discussed in further detail in Section 4.

Moving east along the southern side of Arran (Figure 4) the habitats became more silty and mixed (**SS.SMx.IMx** and **SS.SMx.CMx** up to 25.3 m bcd), with one record of muddy sand directly south of the Iron Rock Ledges (**SS.SSa.CMuSa**) at greater than 24 m bcd (maximum depth recorded 25.7 m bcd).

3.1.3 Pladda (Figure 5)

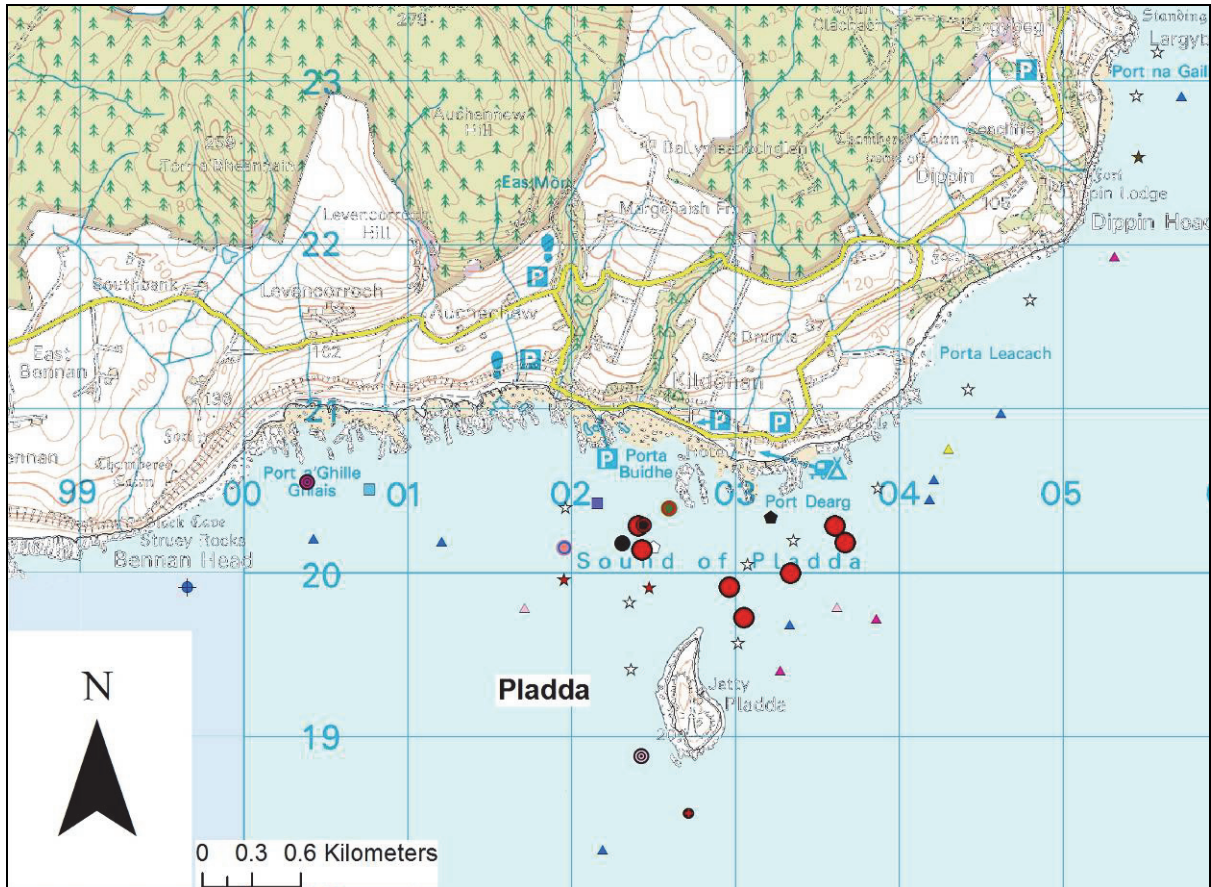
The seabed in this area is predominantly mixed sediments of gravel and dead maerl (30% of allocated biotopes), with boulders and bedrock (26% of records) in shallow water close to the mainland and Island of Pladda. No sand or muds were identified in this survey area.

Along the mainland coast the inshore biotopes on rock and boulders, are dominated by *Laminaria hyperborea* (**IR.MIR.KR.Lhyp.Ft** and, to the east tucked in the channel between Arran and Pladda, **IR.MIR.KR.LhypT.Ft** and **IR.MIR.KR.LhypTX.Ft**). At approximately 8 m bcd the substratum changes to sand and gravel, and there is a zone between the *L. hyperborea* forest (c. 5 m bcd) which is a mixture of gravel and boulders supporting a scoured forest of mixed kelp species, mainly *Saccharina latissima* and *Saccorhiza polyschides*, followed by sand with *Saccharina latissima* and *Saccorhiza polyschides* (**IR.HIR.KSed.LsacSac**) and, in the circalittoral, 15 – 22 m bcd, four stations of the dead maerl gravel (SS.SCS.CCS) with some live maerl and possibly some burrowing sea cucumbers, which would make it potentially SS.SCS.CCS.Nmix or even **SS.SMp.Mri.Pcal.Nmix** (Christine Howson, *pers. comm.*). However, re-analysis of stations coupled with poor quality video meant that it could only be confidently be assigned as SS.SCS.CCS during 2014 surveys.

North east of the Island of Pladda offers good shelter from the south westerly wind and tide, and as such is a perfect habitat for the remaining maerl habitats identified in the 2014 imagery. Using criterion established by Moore (2014) seven stations of the live **SS.SMp.Mri.Pcal.R** biotope were identified (Figure 5), with up to 42% live maerl recorded at PL46. The maximum depth recorded for this biotope was 11.8 m bcd.

The maerl biotope north east of Pladda gave way to infralittoral and circalittoral mixed sediments (**SS.SMx.IMx** and **SS.SMx.CMx**), and in deeper water to 30m bcd, *Cerianthus lloydii* and other burrowing anemones in circalittoral muddy mixed sediment (**SS.SMx.CMx.CIlOMx**).

Moving around the south eastern corner of Arran the sediments become coarser (**SS.SCS.CCS**) with the kelp and seaweeds communities on sediments prevailing in the inshore waters (**SS.SMp.KSwSS**).



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Figure 5. Distribution of observed biotopes from 2014 surveys around the Pladda search area. For clear display, stations are represented as start points of habitats only. A legend for biotope symbols is provided in Figure 2b.

3.1.4 Whiting Bay (Figure 6)

Moving into the sheltered confines of Whiting Bay, the sublittoral sediments become finer than those of the more exposed southern tip of Arran. Infralittoral muddy sand (**SS.SSa.IMuSa**) accounted for almost 44% of allocated biotopes in this survey area, largely characterised by burrowing polychaetes, with ten samples described of *Arenicola marina* in infralittoral fine sand or muddy sand (**SS.SSa.IMuSa.AreISa**). In addition 13 samples (over 40% of allocated biotopes) were defined as subtidal seagrass beds (**SS.SMp.SSgr.Zmar**), displayed in Figure 6 and discussed further in Section 4.



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Figure 6. Distribution of observed biotopes from 2014 surveys around the Whiting Bay search area. For clear display, stations are represented as start points of habitats only. A legend for biotope symbols is provided in Figure 2b.

3.1.5 Holy Isle (Figure 7)

Holy Isle shows a diversity of habitats (Figure 7) within its range of environmental conditions. Largely the island is characterised by a range of kelps and seaweed communities on sublittoral sediments (**SS.SMp.KSwSS**), accounting for almost 46% of allocated biotopes. Sublittoral mixed sediments accounted for a further 24% of records in the area. The seabed at 19 out of 30 stations was found to comprise more than 10% dead maerl, yet only two samples were allocated as the **SS.SMp.Mrl.Pcal** biotope (uncertain), with only 6% of the substrate at these stations estimated to be live maerl. Section 3.1 and 3.1.1 discuss the most exposed habitats found at the southern tip of the Isle. No sand or mud biotopes were identified in this survey area, although 5.4% of records were considered sublittoral coarse sediments (including sand and gravels).



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Figure 7. Distribution of observed biotopes from 2014 surveys around the Arran Holy Isle search area. For clear display, stations are represented as start points of habitats only. A legend for biotope symbols is provided in Figure 2b.

3.1.6 Clauchlands Point (Figure 8)

The most inshore waters surveyed around Clauchlands Point host several varieties of the **SS.SMp.KSwSS** communities (accounting for 36.8% of allocated biotopes), including three records of **SS.SMp.KSwSS.LsacR.Sa**. Sublittoral sand, however, without kelp was not recorded within the survey area, possibly due to lack of survey effort or possibly due to difficulties in assigning sand substrates from video. Although QA of imagery confirms these to be sandier records than other more mixed KSwSS habitats in the area, these records should still be treated with caution. Further north in the search area were the biotopes **SS.SMx.IMx** and **SS.SMx.CMx** in deeper water, together accounting for over 47% of biotope records in the survey area.



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Figure 8. Distribution of observed biotopes from 2014 surveys around the Clauchlands Point search area. For clear display, stations are represented as start points of habitats only. A legend for biotope symbols is provided in Figure 2b.

3.2 Loch Linnhe (Figure 9)

In total 81 tows were undertaken in Loch Linnhe (Table 1), of which three video tows were missing from the DVDs provided. Eighty five samples were identified for separate analysis and entry into Marine Recorder, these are presented below. The samples comprised only eight biotopes in total, dominated by sublittoral burrowed mud. Nothing shallower than 22 m bcd was surveyed, and therefore no infralittoral biotopes were recorded.

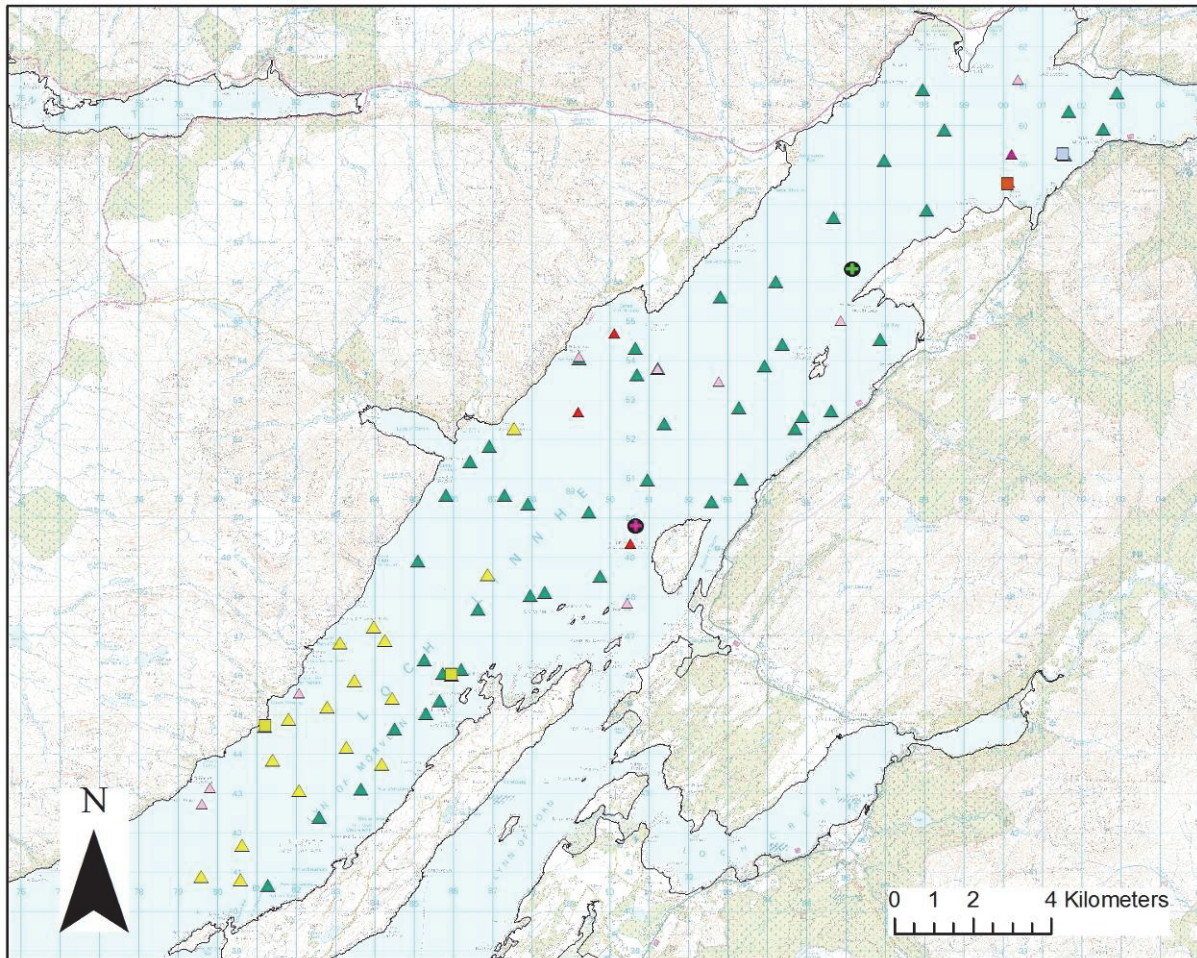
Table 3. Number of samples where each identified biotope and biotope complex was recorded during the 2014 surveys of Lochs Linnhe, Shell and Seaforth.

		Loch Linnhe	Loch Shell	Loch Seaforth
Infralittoral Rock	IR.LIR.K.LhypLsac		1	
Circalittoral Rock	CR.LCR	3	1	2
	CR.LCR.BrAs	1		
	CR.LCR.BrAs.AmenCio			6
	CR.LCR.BrAs.AntAsH	1		
	CR.LCR.BrAs.NeoPro		3	
	CR.MCR		1	
	CR.MCR.EcCr.CarSwi		2	
	CR.MCR.EcCr.CarSwi.LgAs		1	
Mud	SS.SMu.IFiMu		2	
	SS.SMu.CFiMu	3	2	1
	SS.SMu.CFiMu.SpnMeg	17	16	3
	SS.SMu.CFiMu.SpnMeg.Fun	50	5	28
Mixed sediments	SS.SMx.CMx	11	3	3
	SS.SMX.CMx.CIlOMx	1		

Table 3 and Figure 9a presents all the biotopes found on 2014 video surveys within Loch Linnhe. Figure 9b provides the legend used for all Loch biotopes observed and displayed in Figures 9 and 10. Annex 3 summarises the substrate, biota and PMFs in each station. Annex 4 provides a description of each biotope and lists each station it was found in.

Loch Linnhe (Figure 9) is a sheltered Loch fringed by the steeply sloping, heavily silted, fringe bedrock of **CR.LCR** and **CR.LCR.BrAs**, sometimes with the Northern feather star *Leptometra celtica*. The centre of the Loch is dominated by burrowed mud habitats from 22 to 126 m bcd. These are characterised by expanses of **SS.SMu.CFiMu.SpnMeg** towards the mouth and **SS.SMu.CFiMu.SpnMeg.Fun** in the more sheltered parts around and beyond the Island of Lismore where *Funiculina quadrangularis* was more than Frequent. In total the mud with sea pens and burrowing megafauna biotopes account for over 77% of the biotopes assigned in Loch Linnhe (with 57.5% of records allocated to **SS.SMu.CFiMu.SpnMeg.Fun**). Patches of **SS.SMu.CFiMu** were also recorded in this area, where seapens and burrowing megafauna were not evident from video (possibly due to the quality of the video), whilst more mixed muddy habitats **SS.SMx.CMx** were found scattered throughout the Loch. Burrowed mud is discussed more in the PMF part of the discussion in Section 4.2. Two stations from the deepest part of the Loch surveyed, west of the island of

Lismore in the mouth of the Loch from 126 - 162 m bcd, were characterised by sublittoral muddy mixed sediments (**SS.SMx.CMx**), some with unidentified holothurians.



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Figure 9a. Distribution of observed biotopes from 2014 seabed video in Loch Linnhe. Points represent transect start points. A legend for biotope symbols is provided in Figure 9b.

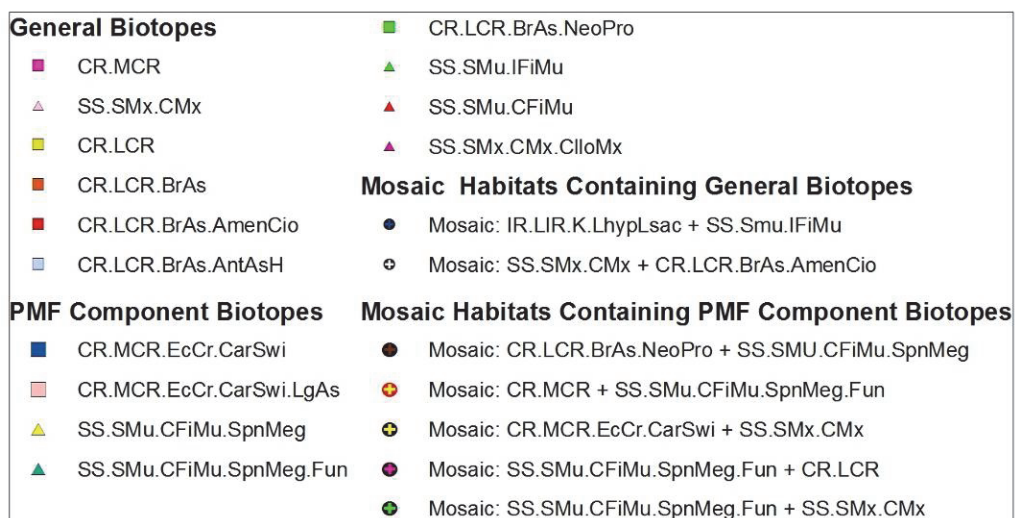


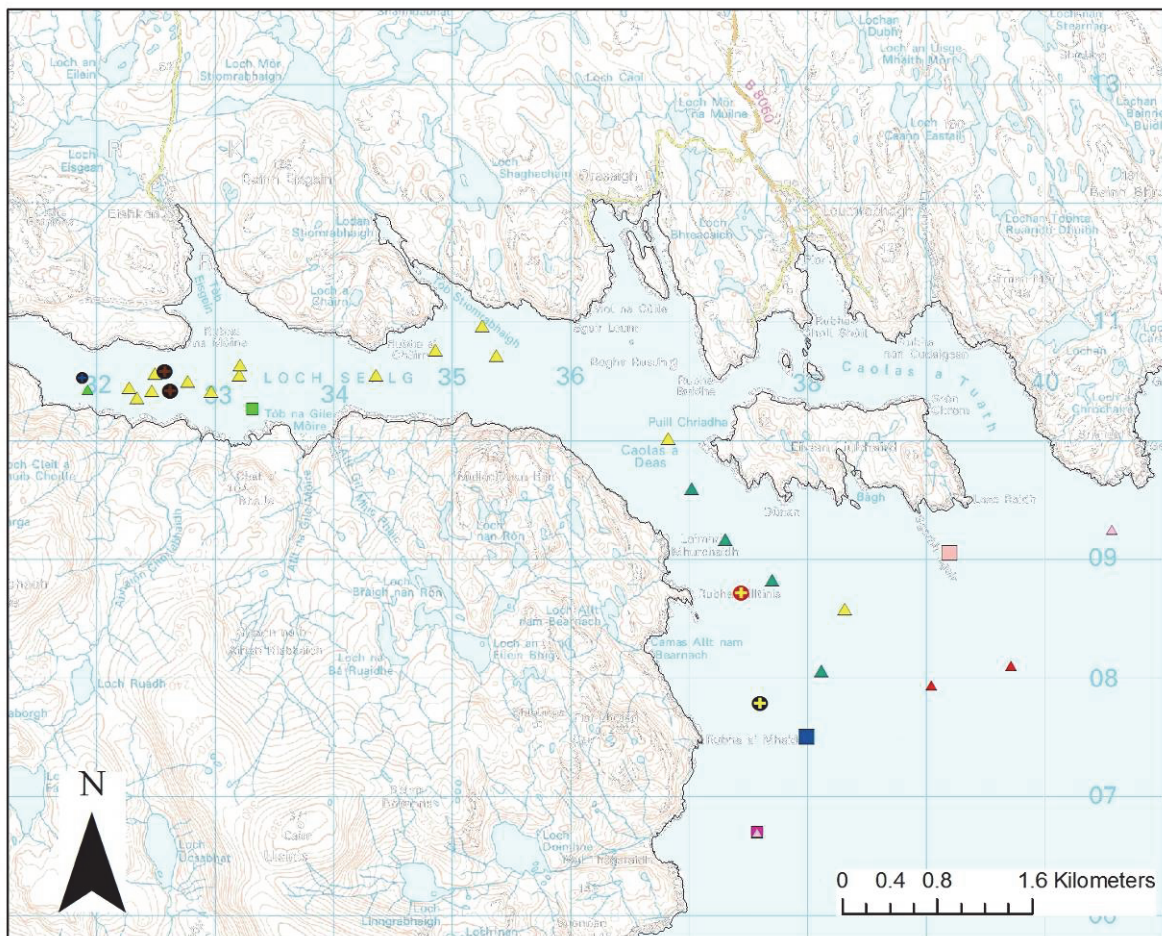
Figure 9b. Legend of biotopes (Connor et al., 2004) observed in Lochs Linnhe, Shell and Seaforth in 2014. Biotopes have been separated to highlight those considered PMFs.

3.3 Loch Shell / Sealg (Figure 10)

In total 29 tows were undertaken in Loch Shell (Table 1), in which 32 samples were identified and split for analysis separately and entry into Marine Recorder. The samples comprised eleven biotopes in total, dominated by sublittoral burrowed mud (Table 3).

Loch Shell (Figure 10) is a sheltered Loch dominated by burrowed mud biotopes **SS.SMu.CFiMu.SpnMeg** and **SS.SMu.CFiMu.SpnMeg.Fun** (56% of the sampled habitats, at 20 - 53 m bcd; these are described in more detail in Section 4.2). In the more exposed mouth of the Loch are muddy habitats without seapens (**SS.SMu.CFiMu**, at 105 - 160 m bcd). Just outside the Loch entrance more rocky and mixed biotopes were identified including **SS.SMx.CMx** (35 m and 57 – 59 m bcd), **CR.MCR** and PMF biotopes of *Caryophyllia smithii* and *Swiftia pallida* on circalittoral rock. There were two stations of **CR.MCR.EcCr.CarSwi** recorded between 24 and 35m bcd, and one with large ascidians, **CR.MCR.EcCr.CarSwi.LgAs**, between 40 - 45 m bcd.

In the sheltered enclaves of the western Loch one infralittoral station, where mixed *Laminaria hyperborea* and *Laminaria saccharina* on sheltered infralittoral rock (**IR.LIR.K.LhypLsac**, 11 m bcd) gave way to infralittoral fine mud (**SS.SMu.IFiMu**) at approximately 12 – 13 m bcd. Also within the western reaches of the Loch low energy circalittoral rock (**CR.LCR**, 43 – 52 m bcd) was recorded at one station, as well as two instances of the typical Loch biotope of *Neocrania anomala* and *Protanthea simplex* on sheltered circalittoral rock (**CR.LCR.BrAs.NeoPro**, approx. 22 - 27.5 m bcd).



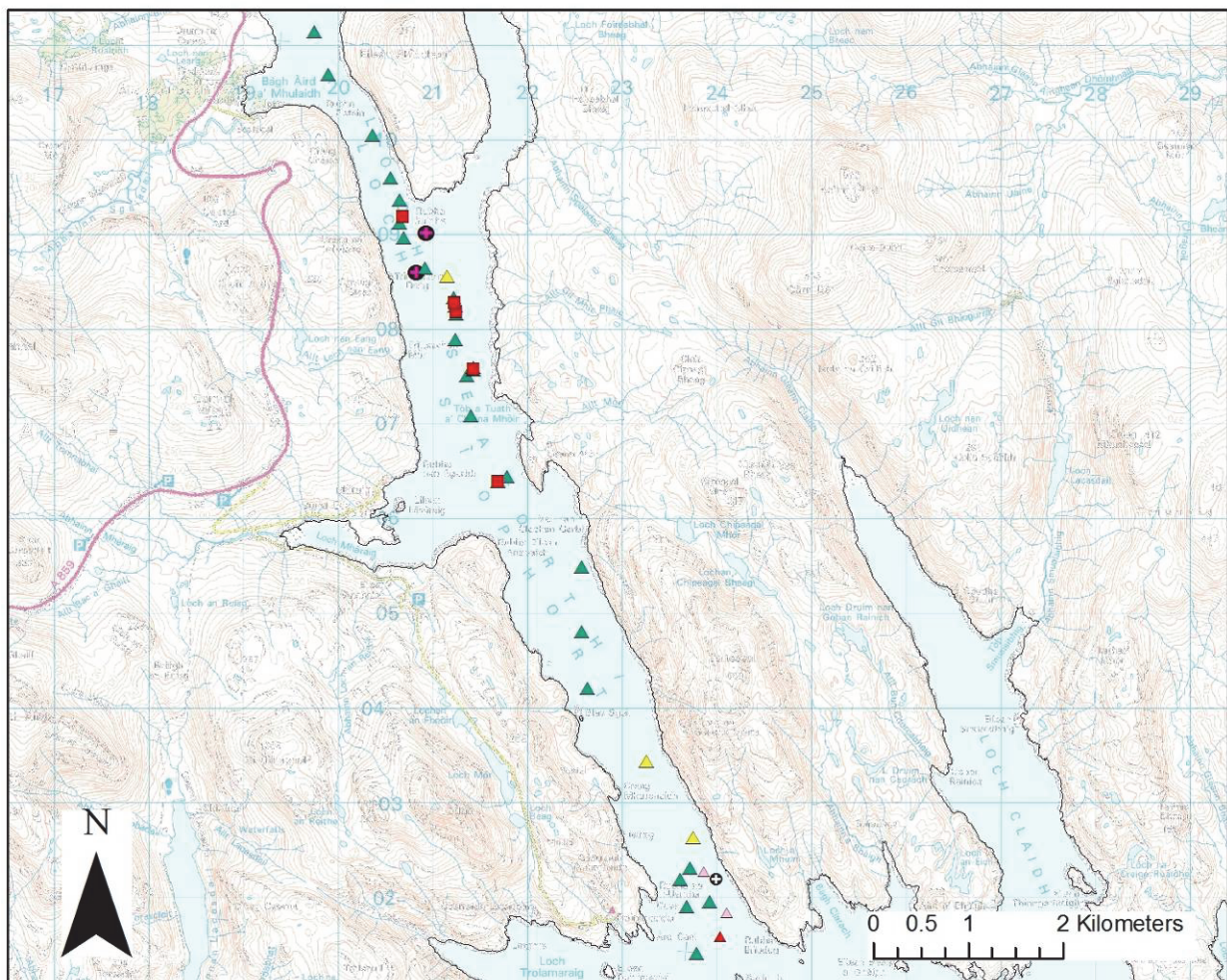
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Figure 10. Distribution of observed biotopes from 2014 seabed video in Loch Shell. Legend is provided in Figure 9b.

3.4 Loch Seaforth / Siophoirt (Figure 11)

In total 32 tows were undertaken in Loch Seaforth (Table 1), in which 40 samples were split for separate analysis and entry into Marine Recorder. The shallowest depth surveyed was 22 m bcd, and as a result no infralittoral biotopes were recorded on the steep sided walls typical of Scottish sea lochs. The samples comprised only six habitats / biotopes in total, dominated by sublittoral burrowed mud (Table 3).

Loch Seaforth (Figure 11) is another sheltered Loch dominated by burrowed mud biotopes, with 31 samples being recorded as either **SS.SMu.CFiMu.SpM** or **SS.SMu.CFiMu.SpM.Fun** (22 - 96 m bcd, accounting for 72% of all allocated biotopes, described in more detail in Section 4.2). One station of **SS.SMu.CFiMu** was recorded at 33 - 35 m bcd in the mouth of the Loch, where no seapens were identified but burrows and tracks were numerous. Three instances of **SS.SMx.CMx** were also recorded in the more exposed mouth of the Loch, between 35 m and 83 m bcd, presumably where tide was starting to wash away the dominant mud component. Scattered throughout the middle section of the sheltered enclaves of the upper Loch there were five records of **CR.LCR.BrAs.AmenCio** (solitary ascidians, including *Ascidia mentula* and *Ciona intestinalis*, on wave-sheltered circalittoral rock, from 29 – 44 m bcd).



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Figure 11. Distribution of observed biotopes from 2014 seabed video in Loch Siophoirt. Legend is provided in Figure 9b.

4. DISCUSSION

This section considers the nature conservation importance of the species and habitats identified in the 2014 Arran and Lochs surveys. Of primary discussion are the Scottish PMFs (SNH, 2014) identified from the video survey and presented in Table 4.

Table 4. Species and biotopes recorded during the surveys of recognised conservation importance and their frequency of occurrence in each survey area. Importance indicators are SBL = Scottish Biodiversity List 3 of Habitats and Species, Osp = OSPAR List of Threatened and/or Declining Species and Habitats, IUCN = IUCN Red List of Threatened Species (2014), PMF = Priority Marine Feature. See Table 1 for survey location codes.

Biotope / species	Importance indicators				Survey area								
	SBL	Osp	IUCN	PMF	CP	D	HI / HIN	IR	PL	WB	LLIN	LSHE	SEA
<i>Lophius piscatorius</i>	•			•	1								
<i>Leptometra celtica</i> agg.				•							6		
<i>Leptometra celtica</i> (present not aggregation)				•							2		
IR.MIR.KR.Lhyp.Ft				•					3				
IR.MIR.KR.LhypT				•					1				
IR.MIR.KR.LhypT.Ft				•					1				
IR.MIR.KR.LhypTX				•				2	2				
IR.MIR.KR.LhypTX.Ft				•				6	1				
CR.MCR.EcCr.CarSwi		•		•								3	
<i>Swiftia pallida</i>				•								4	1
SS.SMp.KSwSS (and all sub biotopes)				•	7	8	17	19	16	3			
SS.SMp.Mrl	•	•		•			2	1	9				
SS.SMp.Mrl.Pcal	•	•		•			2						
SS.SMp.Mrl.Pcal.R	•	•		•					9				
SS.SCS.CCS.Nmix	•	•		•				1					
<i>Phymatolithon calcareum</i> (recorded as Melobesioideae)	•	•			3	1	14	8	17				
SS.SCS.CCS	•					1	2	10	10				
SS.SMp.SSgr.Zmar	•	•		•						13			
SS.SMu.CFiMu.SpnMeg	•			•							17	16	3
SS.SMu.CFiMu.SpnMeg.Fun	•			•							50	5	28
<i>Funiculina quadrangularis</i>	•			•							70	10	34
<i>Pachycerianthus multiplicatus</i>	•			•							20	4	1
SS.SSa.CMuSa	•							1					
SS.SSa.IFiSa	•							1					
<i>Echinus esculentus</i>			•		5	2	9	26	1		10	4	3

4.1 South Arran MPA

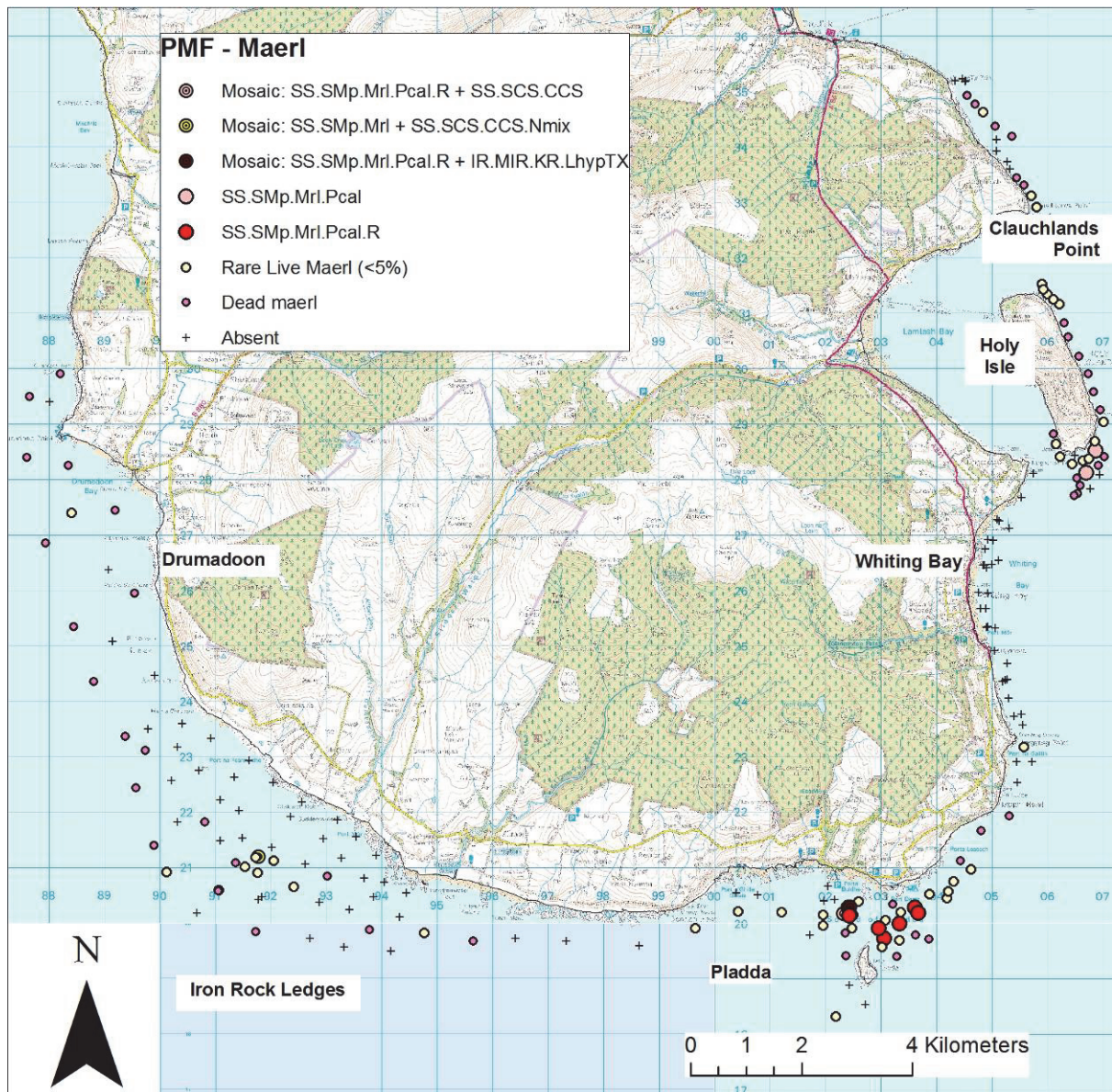
As the conservation objectives in the South Arran MPA relate largely to maerl beds, the following figures present the presence not only of the relevant PMF identified during surveys (as per criteria set out by Moore, 2014), but also displays records of rare (<5%) live maerl, and habitats where no live maerl was identified (Figure 12). Also presented are records of the seagrass bed PMF (Figure 13), kelp and seaweed communities on sublittoral sediments (Figure 14) and all other PMFs identified within the MPA (Figure 15).

4.1.1 Maerl habitats (Figure 12)

During the 2014 South Arran MPA surveys only 12 live maerl biotopes were assigned in the area (Table 2). Assignment of maerl biotopes utilised guidance provided by Moore (2014), where greater than 5% of the sample had to be live maerl before a PMF biotope was assigned. Figure 12 displays these biotopes together with samples within the search area where maerl was absent (94 samples), those containing less than 5% live maerl (43 samples, usually with dead maerl gravel also present) and those with dead maerl gravel (but no live maerl, 49 samples). Due to location and appearance of habitats from video, it is suspected that the maerl species present was *Phymatolithon calcareum*, however as no samples were provided to the contractor, the taxa was recorded as Melobesioideae (both live and dead) in the associated species lists.

The sound of Pladda offers shelter from the south westerly wind and tide, and as such is a perfect habitat for the majority of healthy shallow maerl habitats identified in the 2014 imagery. In this area seven samples of the live **SS.SMp.Mrl.Pcal.R** biotope were identified (Figure 12), with up to 50% live maerl recorded at PL03 and 46% at PL46. The maximum depth recorded for the maerl biotope as a standalone biotope was 11.8 m below chart datum (bcd), recorded at station PL01. However there were also two stations in the Sound of Pladda comprising biotope 'mosaics' of coarse sediments (which may contain *Neopentadactyla mixta*) and **SS.SMp.Mrl.Pcal**. Therefore **SS.SMp.Mrl.Pcal** as a mosaic biotope may occur to a depth of 15.2m bcd, (e.g station PL35). Due to lack of continuously recorded depth data throughout the video tows, there is no certainty that the maerl biotope occurs at the greatest depth, and therefore we cannot presume this maximum depth for **SS.SMp.Mrl.Pcal** biotope in this survey. Similarly, in places where tide-swept algal communities (**IR.MIR.KR.LhypTX**) and **SS.SMp.Mrl.Pcal.R** formed a 'mosaic' biotope, the lack of continuously recorded depth data meant we cannot assume which of these biotopes was found at the greatest depth.

With very few samples lacking records of live maerl, the sound of Pladda is thought to be the healthiest area of live maerl bed surveyed in 2014. As one moves north and east within the search area, there was a decreasing proportion of live maerl, with several samples marked with <5% cover of maerl by Marine EcoSol surveyors, and therefore not assigned as maerl biotopes. A large number of samples were identified containing dead maerl gravel (dark pink circles on Figure 12) around Iron Rock Ledges, Holy Isle and Clachlands Point. The southern tip of Holy Isle had two records of uncertain live bed, **SS.SMp.Mrl**, with just over 5% cover of live maerl suspected from poor quality video. There was also one uncertain record of **SS.SMp.Mrl** (>5% live) amongst a mosaic of habitats with uncertain **SS.SCS.CCS.Nmix** on Iron Rock Ledges (IR_55a).

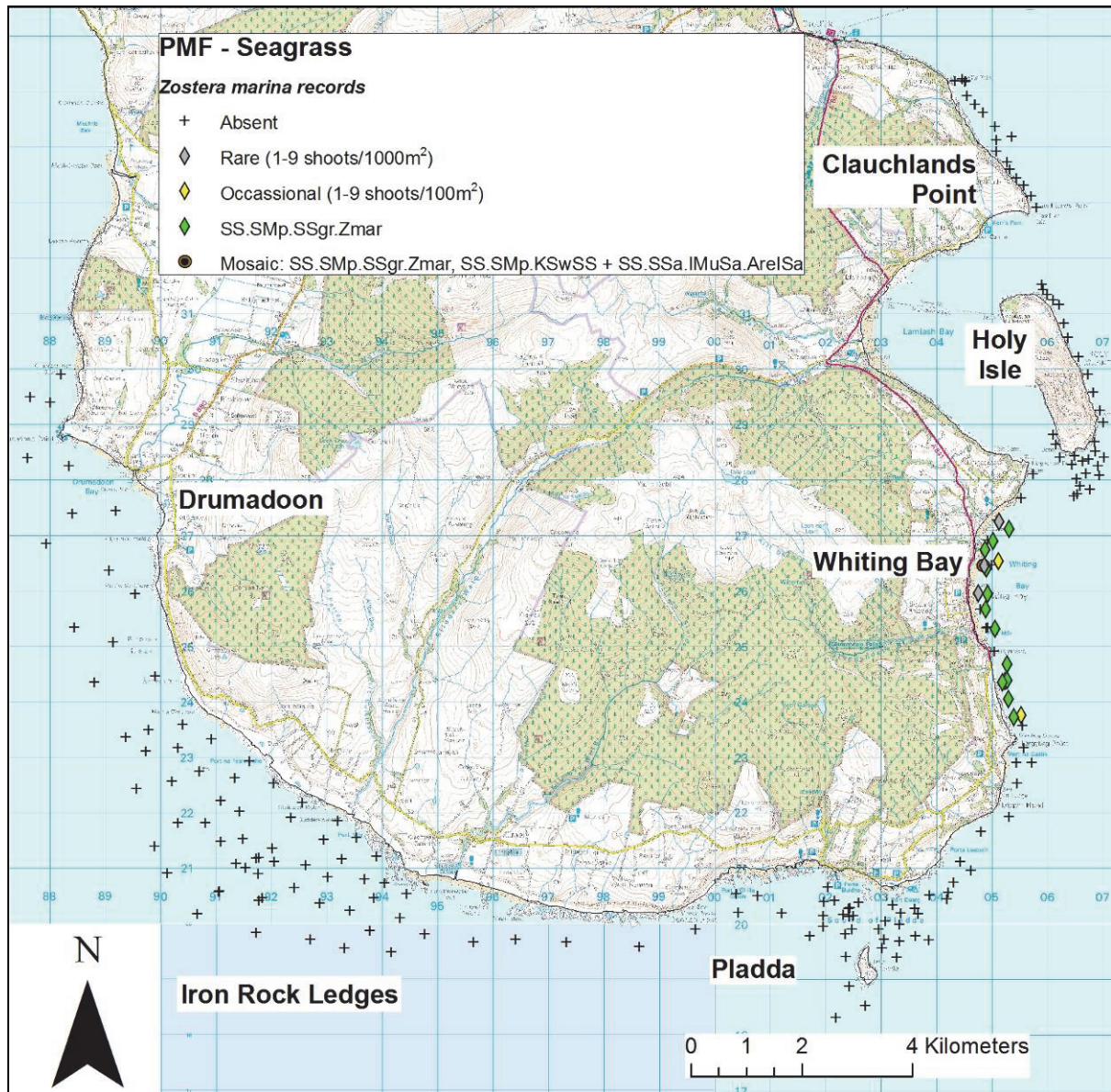


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Figure 12. Stations around South Arran MPA where live maerl biotopes (PMF), rare live maerl and dead maerl gravel were observed, presented with the location of all stations where maerl was not observed. Points represent the start points of the habitats recorded.

4.1.2 Seagrass habitats (Figure 13)

Seagrass was only found on the sheltered shallow sublittoral sands of Whiting Bay. Figure 13 shows the PMF component biotope (**SS.SMp.SSgr.Zmar**) in addition to samples where *Zostera marina* was recorded as rare or occasional, but too infrequent to be considered the priority habitat and those samples where seagrass was absent. In total 13 samples were assigned the seagrass bed PMF habitat, with the deepest records of seagrass bed at approximately 8.5 m bcd in two locations.

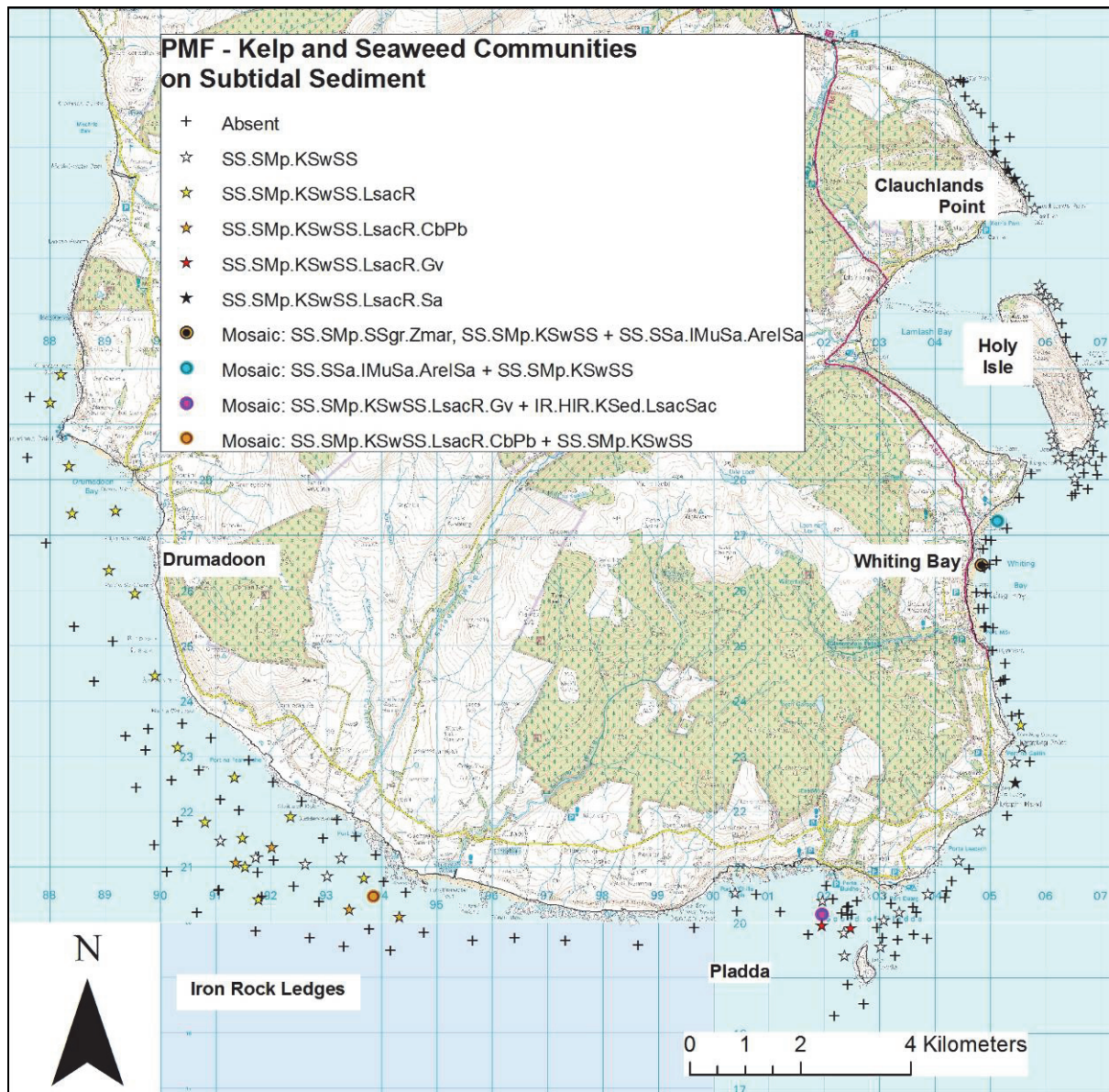


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Figure 13. Stations in and around the Whiting Bay search area where subtidal seagrass *Zostera marina* beds were observed, presented with the location of rare and occasional seagrass (not considered bed) and all stations where seagrass beds were not observed.

4.1.3 Kelp and seaweed communities on sublittoral sediment (Figure 14)

Kelp and seaweed communities on sublittoral sediment were by far the most common PMF habitat observed around the South Arran MPA in 2014. In total 69 stations were assigned variations of the biotope **SS.SMp.KSwSS**, marked as stars on Figure 14. This biotope complex accounted for 31% of all habitats surveyed across the MPA. These habitats seem to form part of the standard 'zonation' around the island, moving from the infralittoral rocky inshore waters to the more mixed and coarse circalittoral sediments offshore (depending on exposure level).



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Figure 14. Stations in and around South Arran MPA where variations of the kelp and seaweed communities on sublittoral sediments biotope (**SS.SMp.KSwSS**) was observed, together with all stations where the biotope was not observed.

However, extensive quality assurance (QA) revealed great intersurveyor variability in the assignment of this biotope. Using JNCC biological comparative tables alone would not allow any macroalgae to occur in the biotopes **SS.SMx.IMx** or **SS.SCS.ICS**. However, common sense and experience informs us that kelps and scour tolerant macroalgae can live on rare shells, pebbles and cobbles in these habitats, and possibly the core records on which the biotopes were defined may have either been from infaunal samples, or for some reason algae may not have been surveyed. As a result, Marine EcoSol surveyors in agreement with SNH decided to use a combination approach to this PMF and biotope. If kelp or any other macroalgae was defined as 'Frequent' then the sample may be considered a 'kelp or seaweed community on sublittoral sediment'. Macroalgae may appear as rare or occasional in other infralittoral or even circalittoral sediment biotopes, without forming a 'community' characteristic of this PMF.

QA also revealed that the assignment of sub-biotopes of **LSacR**, **LSacR.CbPb**, **LSacR.Gv** and **LSacR.Sa** was dependent largely on the cover of algae obscuring the substrate, the surveyors experience level and also the quality of the video (particularly distance from the seabed), and was not necessarily consistent by the same surveyor. As a result, the biotope **SS.SMp.KSwSS** should be used primarily, and the sub-biotopes used for information only. Sub-biotopes and variants have, however, been presented on the maps for information on potentially cobblier, sandier or gravellier habitats for future surveyors.

4.1.4 Other features of conservation interest (Figure 15)

Other PMF habitats identified on the 2014 South Arran MPA survey included:

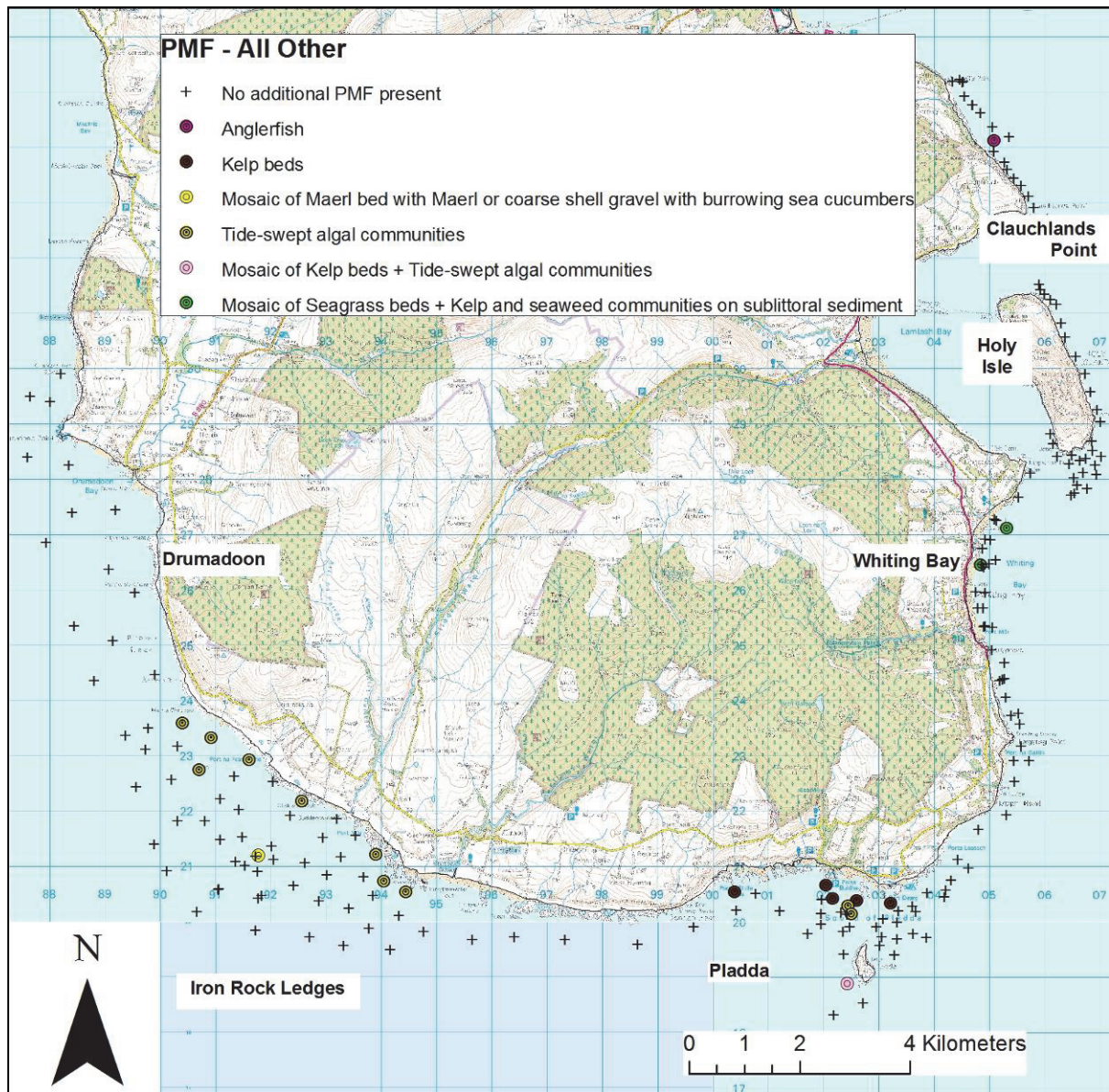
- **Tide-swept algal communities** off Iron Rock Ledges (eight samples of **IR.MIR.KR.LhypTX**);
- **Kelp Beds** in the Pladda search area (four samples of **IR.MIR.KR.LhypTX** or **IR.MIR.KR.Lhyp.Ft**)
- and
- **Maerl or coarse shell gravel** with burrowing sea cucumbers (one station IR55_a, uncertain, **SS.SCS.CCS.Nmix**).

One mobile PMF was identified, a single Anglerfish *Lophius piscatorius* off Claulands point (CP7, Figure 15).

Neither of the PMFs 'Shallow tide swept coarse sands with burrowing bivalves' (**SS.SCS.ICS.MoeVen**) and the Ocean quahog (*Arctica islandica*) were recorded across the site, despite being features of the MPA. Their absence from this survey does not necessarily mean that they are not present in this search area, but instead reflects that they are very hard to identify from video data alone.

4.1.5 Evidence of human impact

Out of 198 samples analysed (individual habitat splits from 177 video tows), evidence of human impact was only noted in five samples. In CP15 there was scattered rusty metal wreckage throughout the tow. In CP19_a there was a piece of rubber plastic, possibly the fender or protective strip from a boat. Pot buoys were identified in IR22 and rope, potentially from a pot, in PL24. One piece of plastic litter was recorded at PL49.

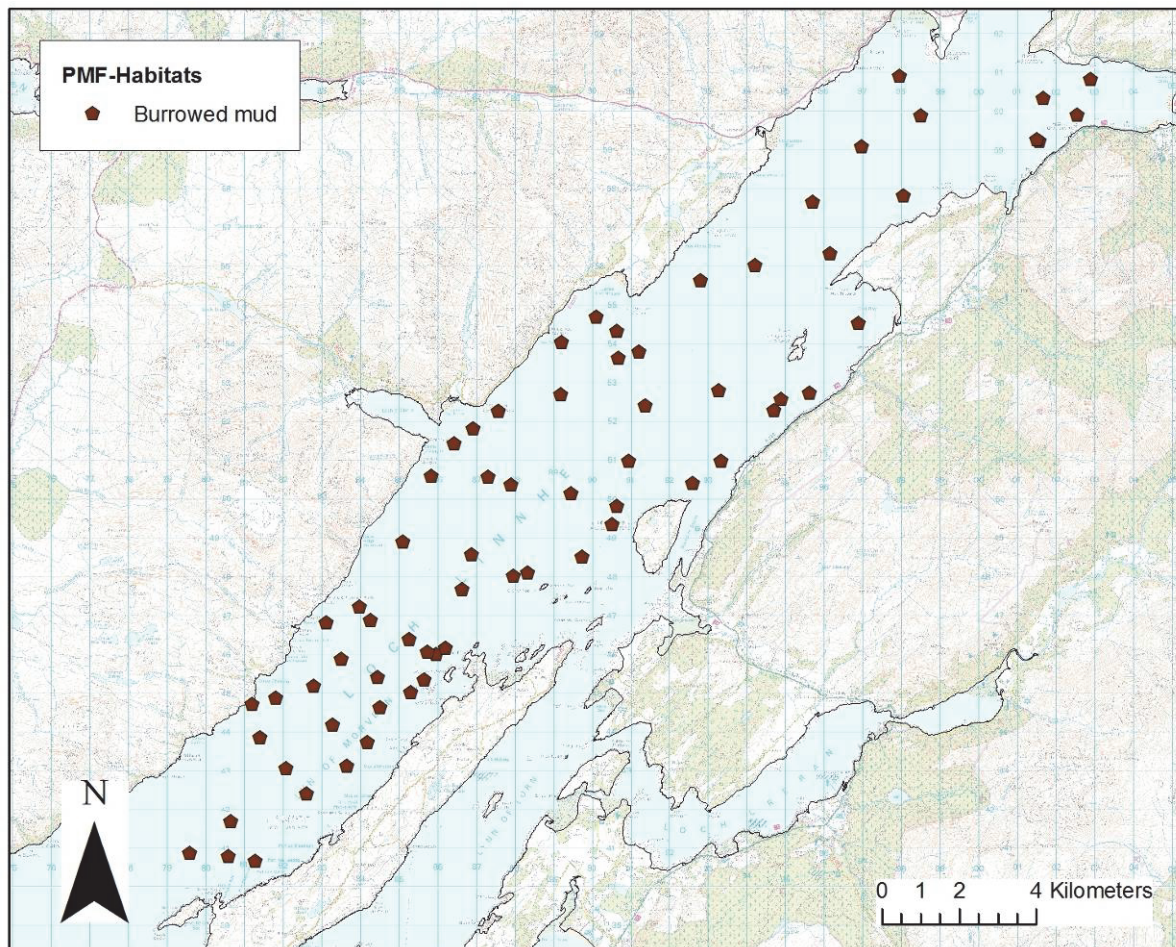


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Figure 15. Stations in and around South Arran MPA where additional PMFs were observed (kelp and seaweed communities on sublittoral sediments, seagrass beds and maerl beds have all been presented in previous Figures).

4.2 Loch Linnhe (Figures 16-19)

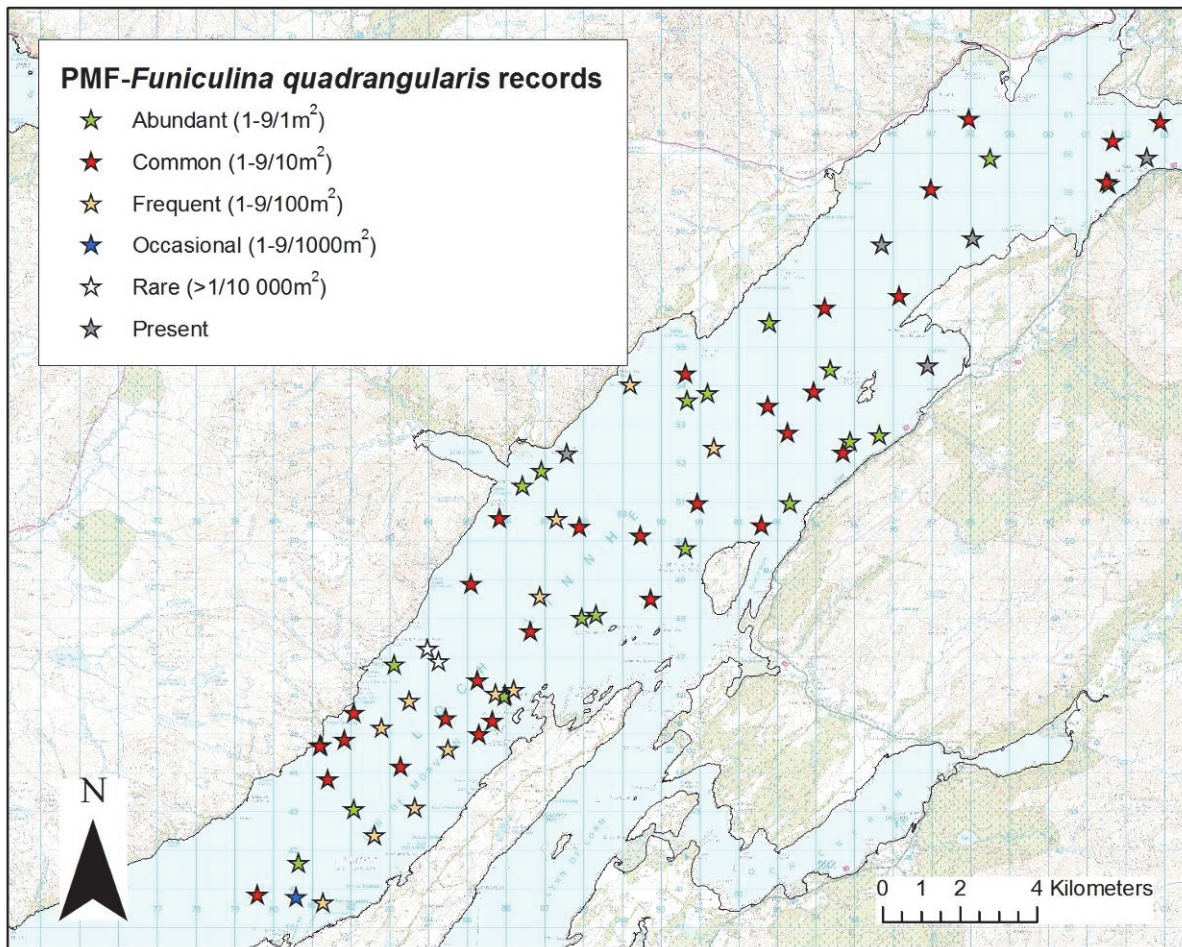
The quality of the Loch Linnhe video was far inferior to that of the South Arran MPA, and therefore there is generally less detail in the biotoping and species lists. However, the Loch sites were generally less diverse in terms of large sessile epifauna and flora than the Arran search areas, and the most common PMF habitat in the Lochs, burrowed mud, was largely assigned with confidence by surveyors. 80% of the surveyed habitats (in 68 of 85 samples) were dominated by the burrowed mud PMF habitat (Figure 16) of **SS.SMu.CFiMu.SpM**eg towards the mouth and **SS.SMu.CFiMu.SpM**eg.**Fun** in the more sheltered parts around and beyond the Island of Lismore (Figure 9).



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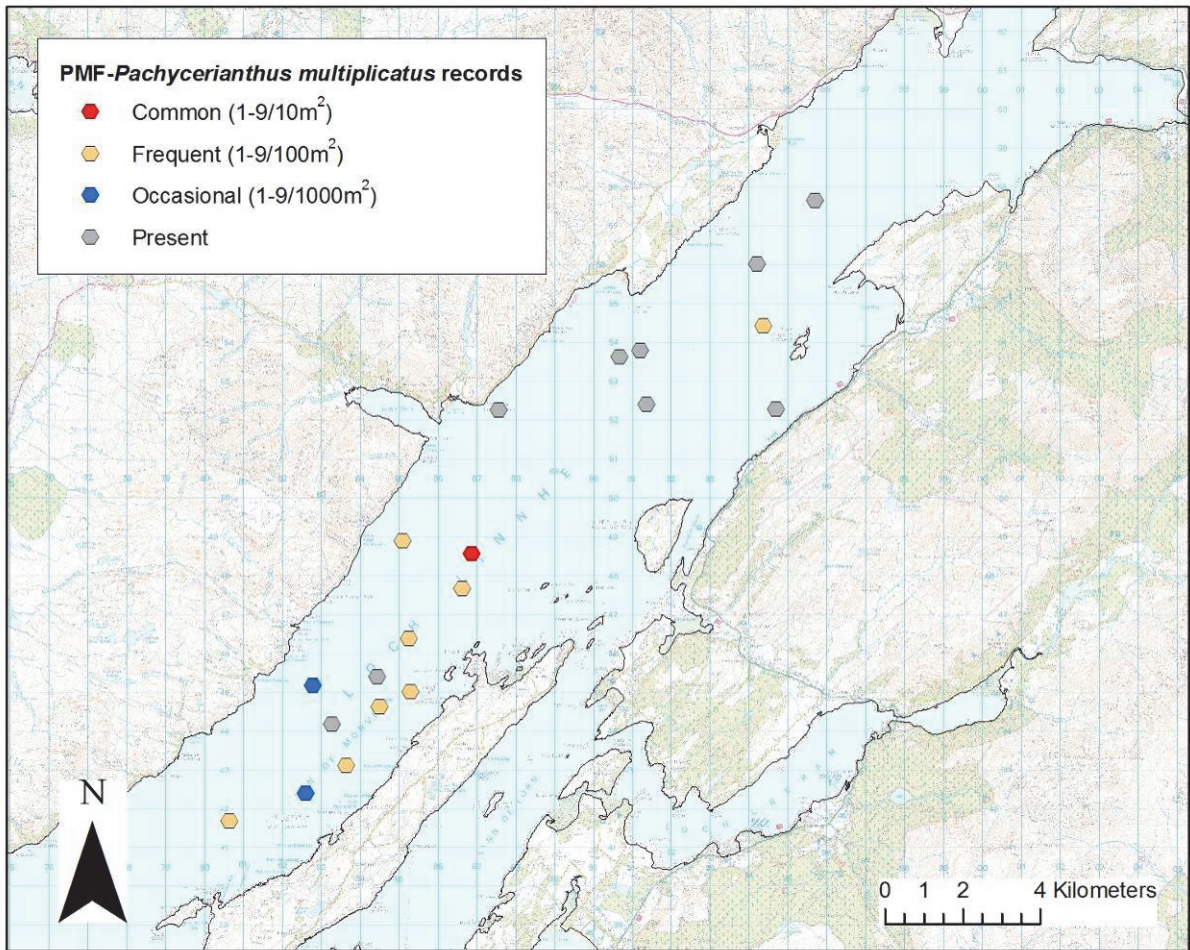
Figure 16. Distribution of PMF habitat (burrowed mud) in Loch Linnhe from 2014 seabed video.

Component species ***Funiculina quadrangularis*** (tall sea pen) and ***Pachycerianthus multiplicatus*** (fireworks anemone) were not present in every instance of the burrowed mud PMF presented in Figure 16. Their specific occurrence and abundance in each habitat have been provided in Figures 17 and 18 respectively. Species were simply recorded as 'Present' either due to poor quality video, often too far from the seabed or heavily silted to gain an appreciation of abundance for the species, or due to a very small area of survey making assignment of abundance on the SACFOR scale unrealistic.



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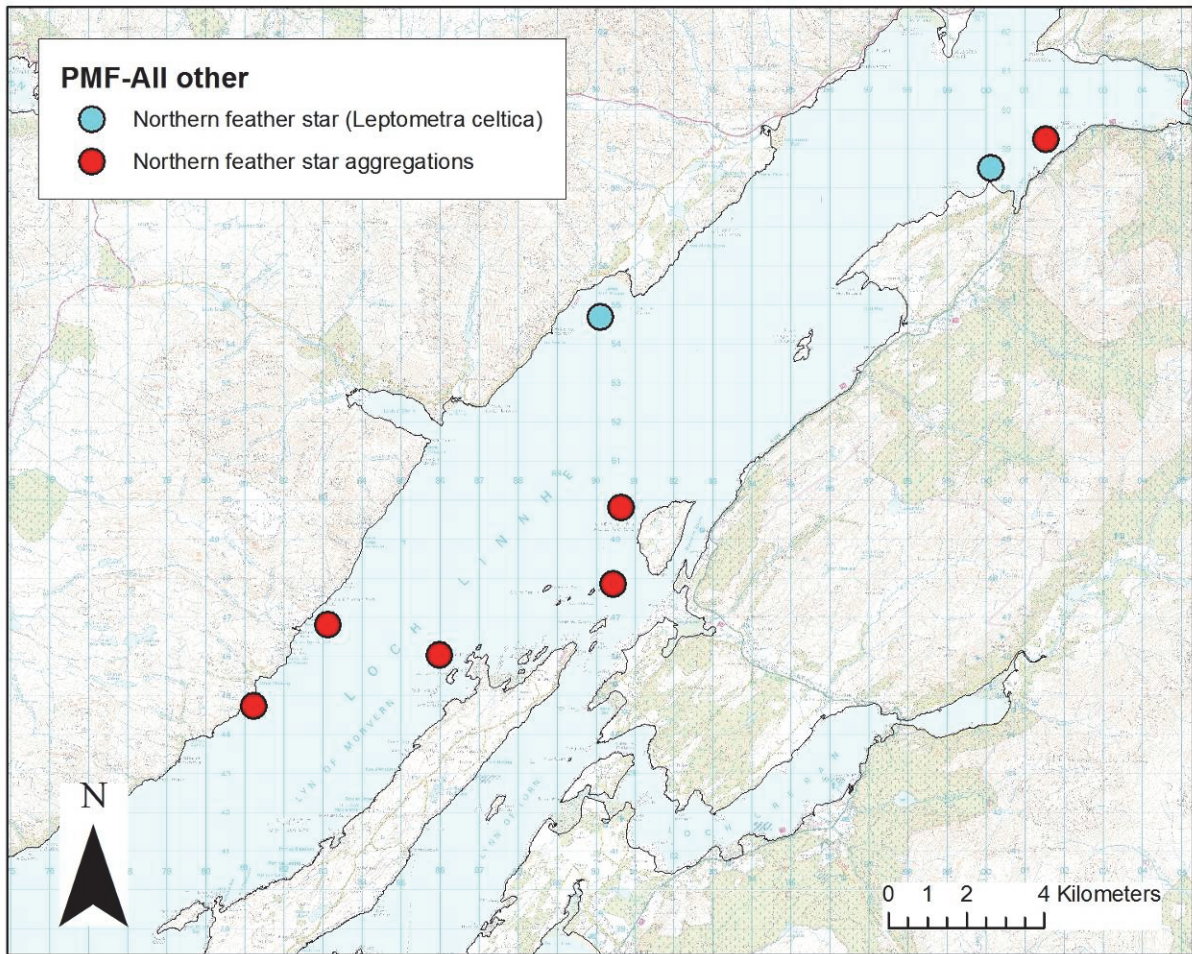
Figure 17. Distribution and abundance of *Funiculina quadrangularis* (tall sea pen), component species of the PMF 'Burrowed Mud' in Loch Linnhe from 2014 seabed video. All sites might be considered the component biotope **SS.SMu.CFiMu.SpMg**. Sites with the species Frequent or more abundant were considered as the PMF component biotope **SS.SMu.CFiMu.SpMg.Fun**.



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Figure 18. Distribution and abundance of *Pachycerianthus multiplicatus* (fireworks anemone), component species of the PMF 'Burrowed Mud' in Loch Linnhe from 2014 seabed video.

Rising from the mud in six samples was silted bedrock covered in **Northern feather star aggregations** of *Leptometra celtica*, whilst two further samples had *L. celtica* but not in high enough densities to be considered aggregations (Figure 19).



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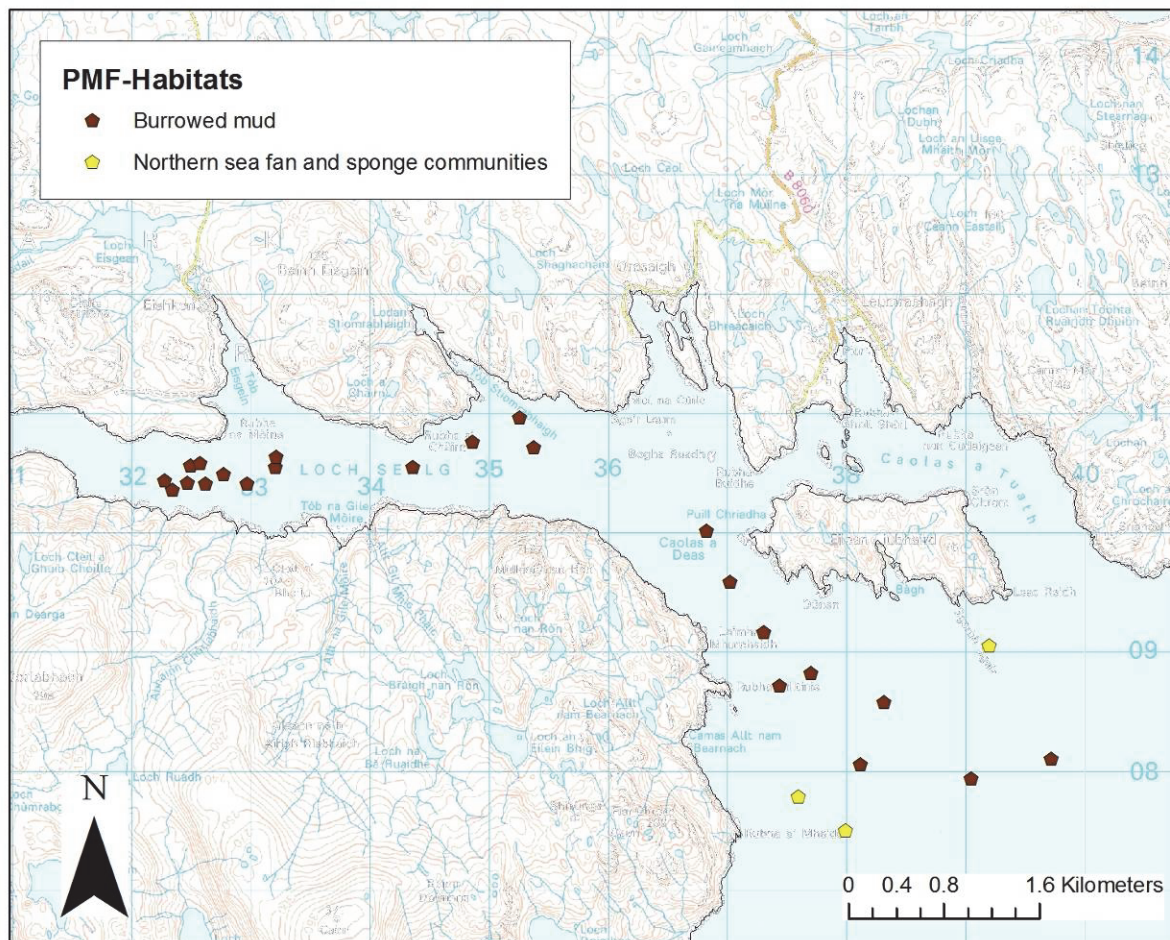
Figure 19. Distribution of the Northern feather star *Leptometra celtica* in low numbers and the PMF '*Leptometra celtica* aggregations' in Loch Linnhe, from 2014 seabed video.

4.2.1 Evidence of human impact

Out of 81 samples surveyed in Loch Linnhe, evidence of human impact was only noted in three samples. In LLIN_0010a and b, North West of the Island of Lismore, there were several dislodged *Funiculina quadrangularis* (tall sea pen) which could be an uncertain sign of disturbance from creels or trawls. In LLIN_0071 in the northern most sheltered point of the Loch, there were suspected trawl marks.

4.3 Loch Shell / Sealg (Figures 20-23)

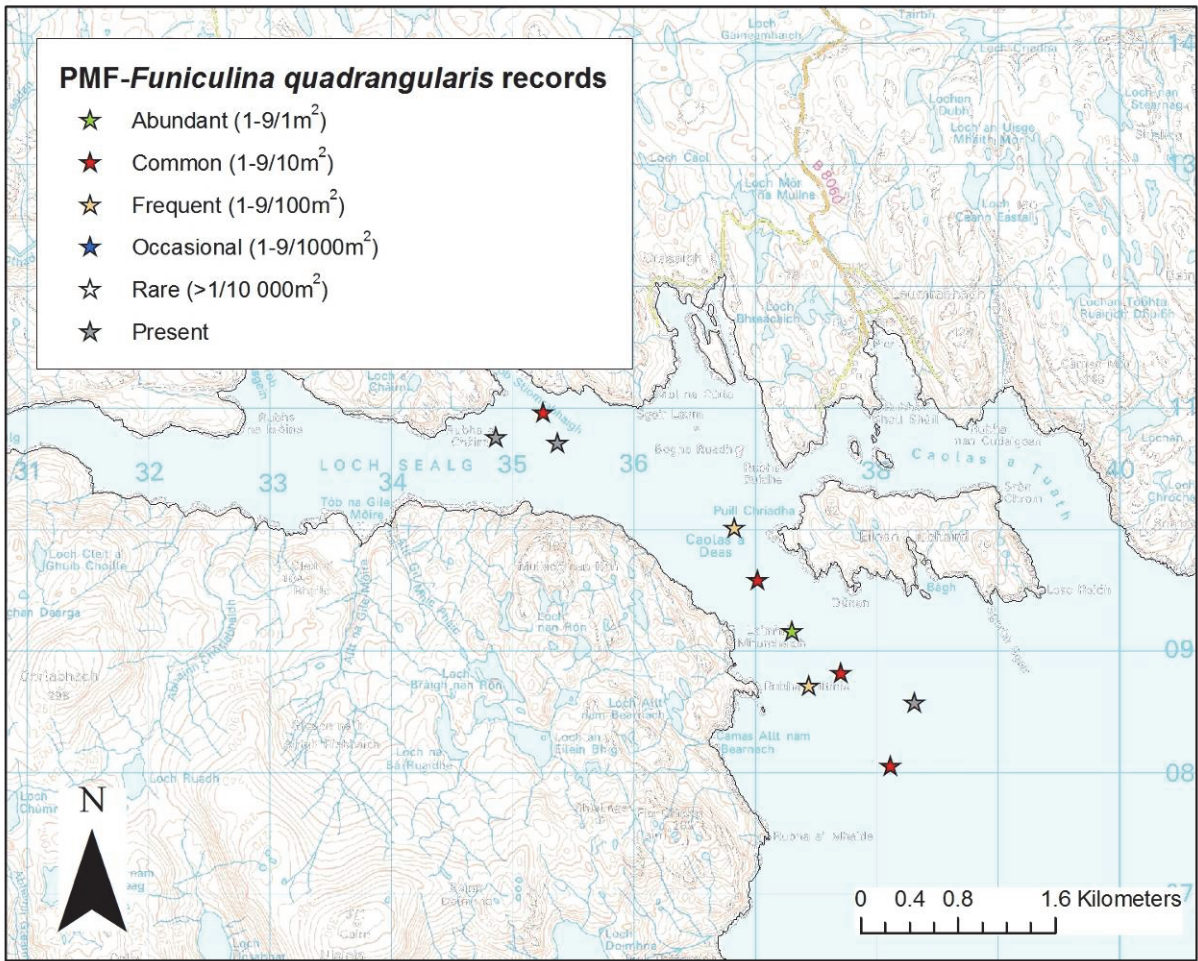
Almost 72% of the surveyed samples (23 of 32 samples, or 57% of allocated biotopes due to some mosaic habitats identified) in Loch Shell were dominated by the burrowed mud PMF habitat (Figure 20, 20 - 53 m bcd) of **SS.SMu.CFiMu.SpnMeg** and **SS.SMu.CFiMu.SpnMeg.Fun** (Figure 10). A much smaller proportion of the *Funiculina quadrangularis* sub-biotope was observed in Loch Shell (accounting for only 13.5% of allocated biotopes) compared to Lochs Linnhe (57.5%) and Seaforth (65.2%). It is possible that this is a true reflection of a relatively lower frequency or distribution of *F. quadrangularis* in Loch Shell compared to the other Lochs, or it could also be due to relative low confidence in silted, fast video footage justifying the more confident assignment of the higher level **SS.SMu.CFiMu.SpnMeg** biotope (accounting for 43.25% of biotope records).



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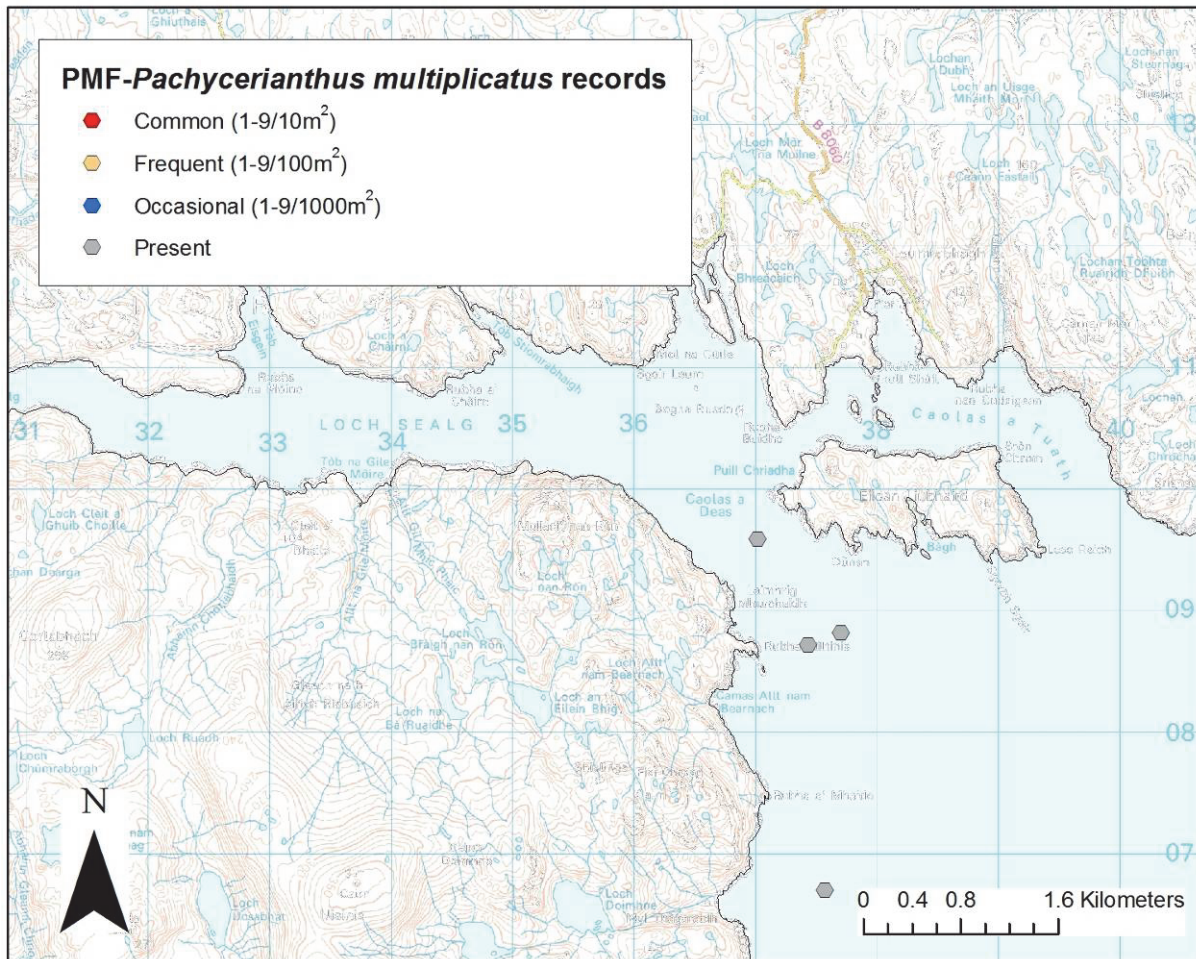
Figure 20. Distribution of PMF habitats, low & limited mobility species and *Swiftia pallida* (component species of PMF Northern sea fan and sponge communities) in Loch Shell from 2014 seabed video.

Component species *Funiculina quadrangularis* (tall sea pen) and *Pachycerianthus multiplicatus* (fireworks anemone) were not present in every instance of the burrowed mud PMF presented in Figure 20. Their specific occurrence and abundance in each habitat have been provided in Figures 21 and 22 respectively. Species were simply recorded as 'Present' either due to poor quality video, often too far from the seabed or heavily silted to gain an appreciation of abundance for the species, or due to a very small area of survey making assignment of abundance on the SACFOR scale unrealistic.



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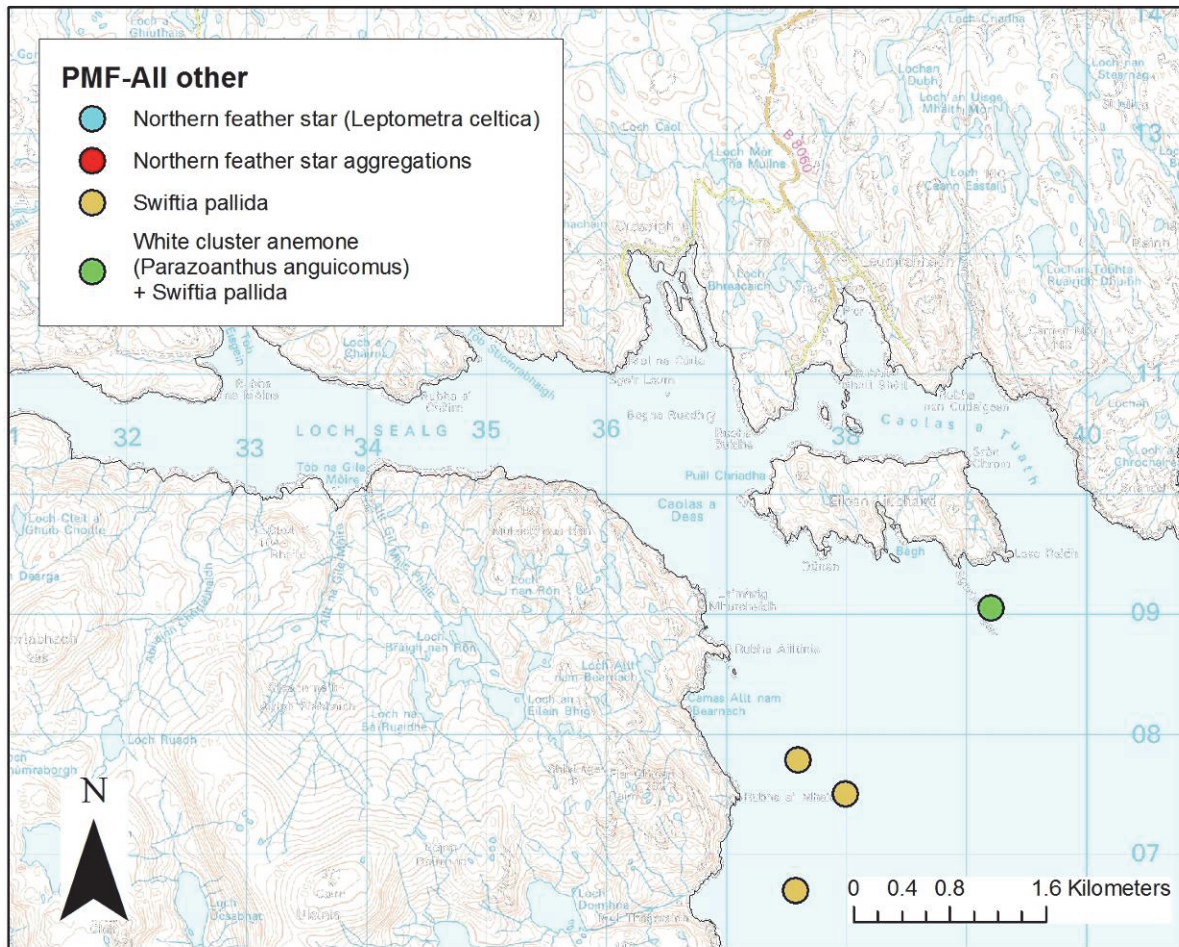
Figure 21. Distribution and abundance of *Funiculina quadrangularis* (tall sea pen), component species of the PMF 'Burrowed Mud' in Loch Shell from 2014 seabed video. All sites might be considered the component biotope **SS.SMu.CFiMu.SpMg**. Sites with the species Frequent or more abundant were considered as the PMF component biotope **SS.SMu.CFiMu.SpMg.Fun**.



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Figure 22. Distribution and abundance of *Pachycerianthus multiplicatus* (fireworks anemone), component species of the PMF 'Burrowed Mud' in Loch Shell from 2014 seabed video.

Just outside the Loch entrance was the rocky PMF habitat of Northern sea fan and sponge communities, comprising *Caryophyllia smithii* and *Swiftia pallida* on circalittoral rock (two instances of **CR.MCR.EcCr.CarSwi** between 24 m and 35 m bcd, and one of **CR.MCR.EcCr.CarSwi.LgAs** with large ascidians between 40 - 45 m bcd). Figure 23 shows these records, with one additional record of *Swiftia pallida* where the associated PMF habitat could not be assigned due to poor quality video, and as a result the habitat was classified at the higher level of **CR.MCR**. Also recorded in the more exposed rocky mouth of the Loch was one occurrence of a white cluster anemone aggregation, *Parazoanthus anguicomus*.



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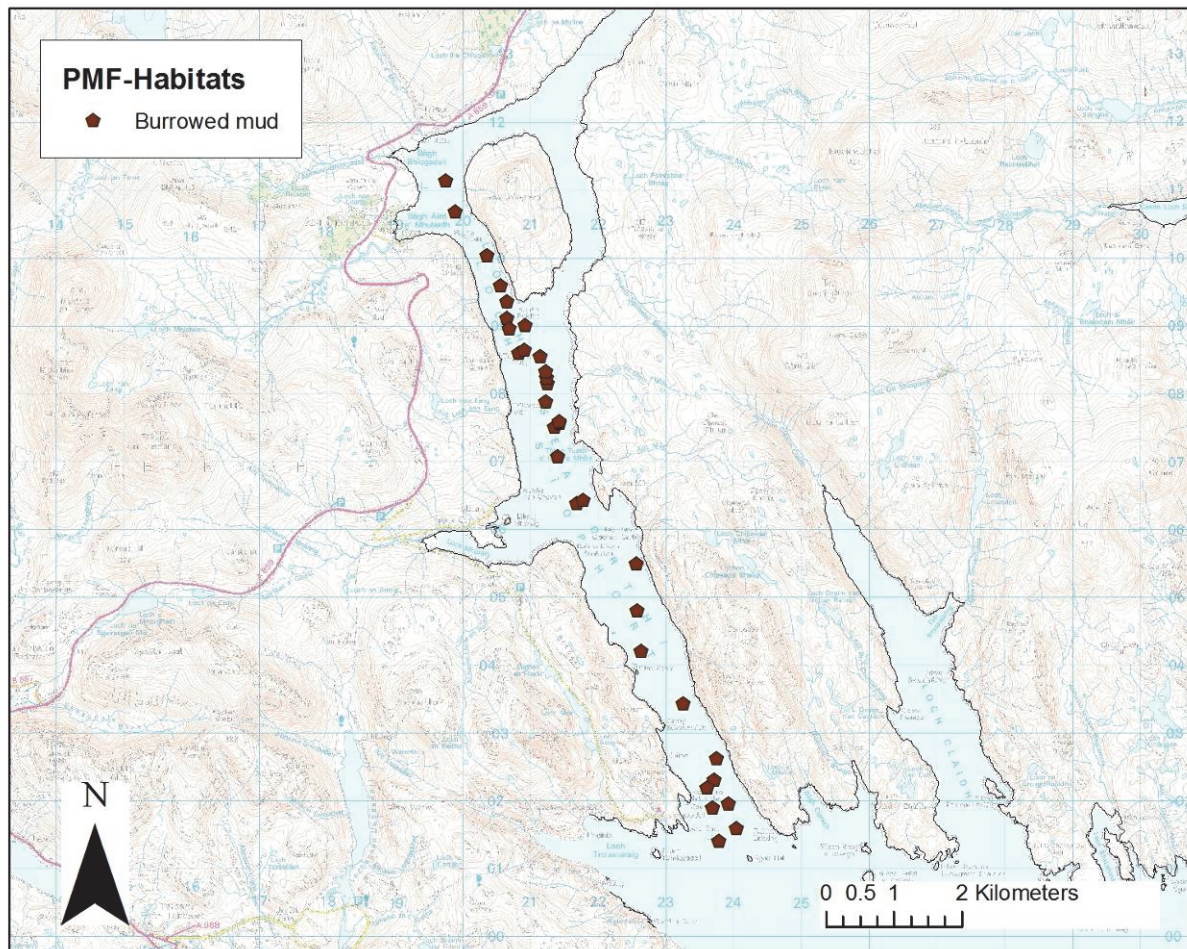
Figure 23. Distribution of PMF low & limited mobility species 'White Cluster anemone' *Parazoanthus anguicomus* aggregations, component species *Swiftia pallida* and the PMF 'Northern sea fan and sponge communities' in Loch Shell from 2014 seabed video.

4.3.1 Evidence of human impact

Out of 32 samples surveyed, evidence of human impact was only noted in five samples. A tyre was seen at LSHELL_001a, one of the most western sites surveyed. Rope was found on the seabed at LSHELL_0021, and a potential 'lost' or 'ghost' creel at LSHELL_0029. There was evidence of dragging across the seabed at LSHELL_14 and several dislodged *F. quadrangularis* at LSHELL_20.

4.4 Loch Seaforth / Siophoirt (Figures 24 & 25)

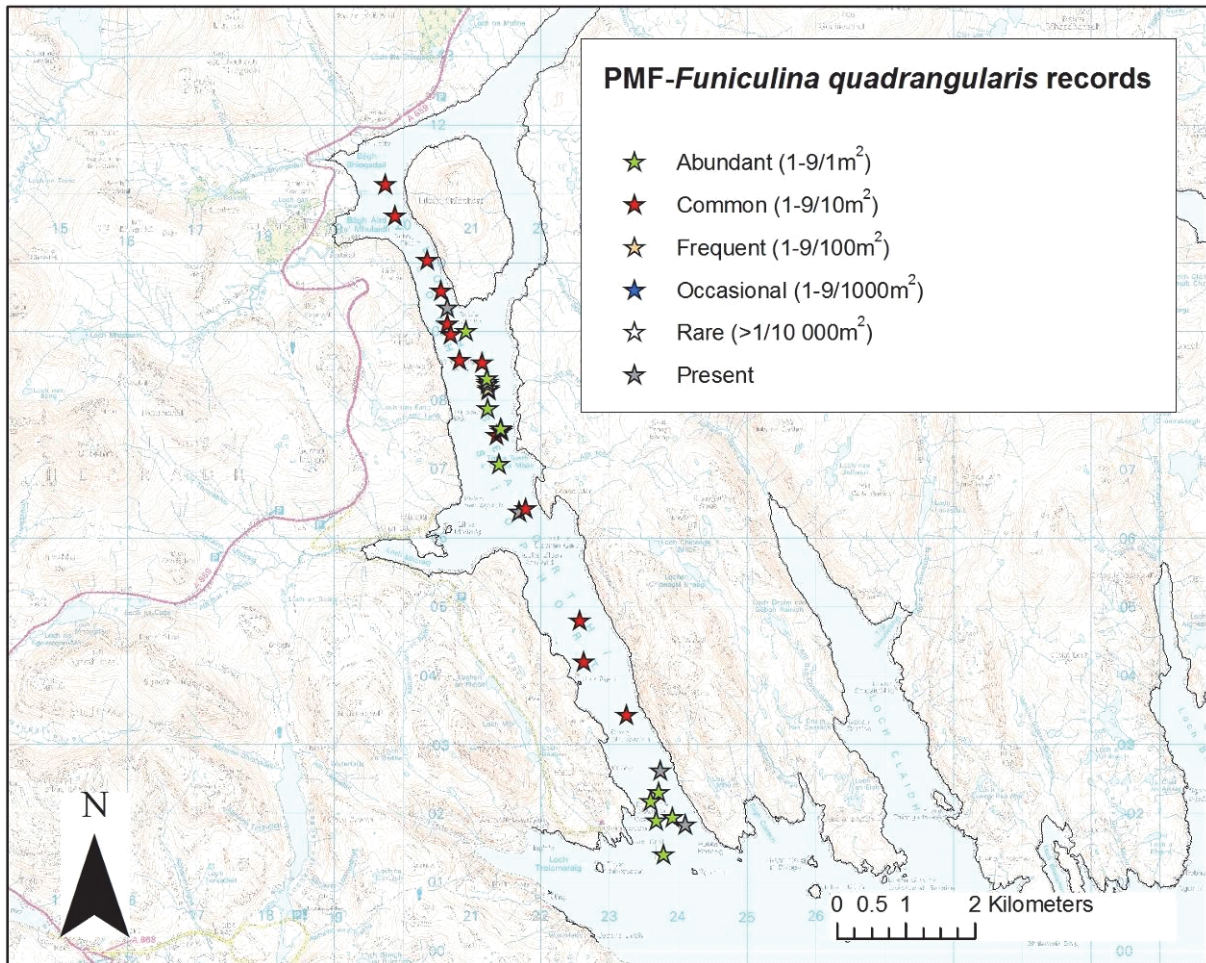
Almost 85% of the surveyed habitats (34 of 40 samples, or 72% of all allocated biotopes due to multiple biotopes assigned in mosaic habitats) in Loch Seaforth were dominated by the burrowed mud PMF habitat (Figure 24, 22 - 96m bcd). **SS.SMu.CFiMu.SpnMeg** accounted for 7% of all biotope records, whilst **SS.SMu.CFiMu.SpnMeg.Fun** accounted for over 65% of allocated biotope records (Figure 12).



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Figure 24. Distribution of the PMF habitat 'burrowed mud' in Loch Seaforth from 2014 seabed video.

Component species ***Funiculina quadrangularis*** (tall sea pen) and ***Pachycerianthus multiplicatus*** (fireworks anemone) were not present in every instance of the burrowed mud PMF presented in Figure 24. The specific occurrence and abundance of ***F. quadrangularis*** in Loch Seaforth has been provided in Figure 25. There was only one record of ***P. multiplicatus*** near the mouth of Loch Seaforth in the 2014 surveys, recorded as 'Present' (either due to poor quality video, often too far from the seabed or heavily silted to gain an appreciation of abundance for the species, or due to a very small area of survey making assignment of abundance on the SACFOR scale unrealistic).



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Figure 25. Distribution and abundance of *Funiculina quadrangularis* (tall sea pen), component species of the PMF 'Burrowed Mud' in Loch Seaforth from 2014 seabed video. All sites might be considered the component biotope **SS.SMu.CFiMu.SpnMeg**. Sites with the species Frequent or more abundant were considered as the PMF component biotope **SS.SMu.CFiMu.SpnMeg.Fun**.

Table 2 and Annex 1 provide summaries of the PMFs present in each Loch. Annex 3 summarises the substrate, biota and PMFs in each station. Annex 4 provides a description of each biotope and lists each station it was found in.

4.4.1 Evidence of human impact

Loch Seaforth was the survey area where most evidence of potential human disturbance was recorded. Out of 40 samples surveyed, evidence of human impact was noted in 24 samples (60%). This ranged from dislodged *Funiculina quadrangularis* at twenty samples, which are a sign of disturbance but could also be a natural occurrence, one sample with a creel pot in it, two stations with potential drag marks across the seabed and one site with metal wreckage.

5. CONCLUSIONS

5.1 South Arran MPA

The 2014 surveys around South Arran MPA identified 37 individual marine habitat classification categories (from level three 'biotope complexes', to level 5 'sub-biotopes'). The kelp and seaweed communities on sublittoral sediment biotope and PMF biotope complex **SS.SMp.KSwSS** accounted for 31% of all biotopes recorded across the South Arran MPA. However, rules had to be developed with SNH to minimise inter and intra-surveyor variability in the assignment of this biotope (see Section 5.3.3 below).

More infralittoral rock communities with kelp (compared to sediment with kelps) were identified in the Pladda and Iron Rock Ledges survey areas. The PMF 'Kelp Beds' were found in the more exposed parts of the Pladda search area (four samples of **IR.MIR.KR.LhypTX** or **IR.MIR.KR.Lhyp.Ft**). Also of interest are eight examples of the 'Tide-swept algal communities' PMF (**IR.MIR.KR.LhypTX**) and an uncertain record of the PMF 'Maerl or coarse shell gravel with burrowing sea cucumbers' (**SS.SCS.CCS.Nmix**), both present in the Iron Rock Ledges survey area.

An area North East of the Island of Pladda was identified to be the healthiest area of live maerl bed (PMF **SS.SMp.Mrl.Pcal.R**) surveyed in 2014, with 12 samples identified across the MPA containing living maerl biotopes. The subtidal seagrass PMF and biotope (**SS.SMp.SSgr.Zmar**) was only found in the sheltered sands of Whiting Bay in South Arran MPA, accounting for 40.6% of biotope records in this survey area.

5.2 Lochs Linnhe, Shell and Seaforth

The 2014 surveys around Lochs Linnhe, Shell and Seaforth found that burrowed mud PMF habitats accounted for over 80%, 72% and 85% (respectively) of all samples surveyed, including both the **SS.SMu.CFiMu.SpnMeg** and **SS.SMu.CFiMu.SpnMeg.Fun** biotopes.

Six sites in Loch Linnhe also had Northern feather star aggregations of *Leptometra celtica*, whilst two further sites had presence of *L. celtica* not considered to be aggregations.

Over 20% of the biotopes allocated in Loch Shell were circalittoral rock, with 8% constituting the PMF biotopes of *Caryophyllia smithii* and *Swiftia pallida* on circalittoral rock (**CR.MCR.EcCr.CarSwi** and **CR.MCR.EcCr.CarSwi**) present in the Loch entrance. Also recorded in the more exposed rocky mouth of Loch Shell was one occurrence of a white cluster anemone aggregation, *Parazoanthus anguicomus*. No additional PMF of interest were noted in Loch Seaforth.

5.3 Limitations

There were three main limitations to the surveyors analysing the 2014 Arran and Lochs data. The first related to quality of imagery itself, the second to the size of video tows and difficulties in assigning SACFOR scale accurately, and the final one to the JNCC Marine Habitat Classification system.

5.3.1 Video quality

Low confidence in marine habitat classification to biotope level was largely due to poor quality imagery. This led to a range of limitations in analysis including being unable to confidently identify component species of PMFs (such as live maerl, or sea pens in video that was too fast or silted, leading to assignment at a higher level of **SS.SMu.CFiMu**, which is not a PMF). The poorer the resolution and quality of lighting in video, the more difficult it is to assign substrates, which leads to inconsistency in the allocation of sublittoral sediment

biotopes (especially **IMx**, **ICS**, **CCS** and **CMx**, as discussed in Section 3.1), not to mention difficulties in differentiating live maerl from gravel. Both quality of analysis and confidence in the data could be increased by addressing the following:

- Diligent surface recording to ensure video and ship recording times are consistent (both in same time zone), correct time and depth recording and correct clapperboards are used for each tow (three surveys were lost due to mistakes in digitisation somewhere, possibly due to mislabelling).
- Towing video at no more than 0.7 knots (ideally 0.5 knots). Slower video tows not only reduces the blur and therefore improves video quality, but also enables more control over the 'flight' of the tow, more time on the seabed rather than mid water, less collisions with the seabed and less siltation of the field of view. This was a particular limitation on Loch surveys.
- Wherever possible add video overlay of positional and depth data (to speed up analysis time).
- If GoPro and DDV are being taken simultaneously, ensure that both are turned on at roughly the same time, so the times are easier to align and convert to GMT / BST. Surveyors were confused as to whether surface recorders had noted the time the video was turned on, entered the water, or hit the seabed.
- Ensure towed video data is accompanied by a dGPS tracked log file so splitting habitats can be done with the best possible accuracy (tracks for Arran data but not for Lochs). Positions of split habitats for Loch's data is approximate, and have been calculated using the speed and overall distance covered by the tow.
- Capturing video in the best possible format and saving them into separate labelled video files (.avi or .MP4). The Lochs data was reduced onto edited DVD with menu files, which may have resulted in some data being lost during digitisation.
- Investing in forward facing, well lit high definition (HD) video (with two good video lights) accompanied by down ward facing HD stills photography with good quality strobes. Stills imagery need not be analysed individually, but instead can simply be used to add confidence to substrate composition and taxa analysis. This would add a small amount of time to analysis, but increase the confidence massively.
- A minimum survey area for biotoping should be 25m². Ideally to assign taxa abundance on the SACFOR scale a minimum area of 100m² should be surveyed.

5.3.2 Scale

The last point regarding the minimum survey area is important for biotopes as it makes it difficult to be certain whether the area we are looking at is a mosaic or a biotope in its own right. In anything less than 100m² large species can only be recorded as a minimum of Frequent. For example, using the SACFOR scale, one *Lophius* in an approximate 40m² tow would be recorded as Frequent, or two *Palinurus* in an area 19m² would be considered Common. As a result, species were recorded as 'Present' from small areas where assignment of abundance on the SACFOR scale was unrealistic. Taxa may also have been considered 'Present' during poor quality video, often too far from the seabed or heavily silted to gain an appreciation of abundance for the species.

5.3.3 Biotopes

The second big limitation in confidence of biotopes relates to inconsistencies within the JNCC Marine Habitat Classification manual (Connor *et al.*, 2004) itself. This became particularly apparent after Quality Assurance (QA) of the most frequently encountered biotope in the South Arran MPA, **SS.SMp.KSwSS**, kelp and seaweed communities on sublittoral sediment, which is also a component biotope for a PMF. Using JNCC biological comparative tables alone would not allow any macroalgae to occur in the biotopes **SS.SMx.IMx** or **SS.SCS.ICS**, instead deferring to the **SS.SMp.KSwSS** biotope complex.

However, common sense and experience informs surveyors that kelps and scour tolerant macroalgae can live on shells, pebbles and cobbles in these habitats, and possibly the core records on which the biotopes were defined may have either been from infaunal samples, or for some reason algae may not have been surveyed. Marine EcoSol surveyors in agreement with SNH decided to use a combination approach to this PMF and biotope. If kelp or any other macroalgae was defined as 'Frequent' then the sample may be considered a 'kelp or seaweed community on sublittoral sediment'. Macroalgae may appear as rare or occasional in other infralittoral or even circalittoral sediment biotopes, without forming the 'community' characteristic of this PMF.

QA also revealed that the assignment of sub-biotopes of **LSacR**, **LSacR.CbPb**, **LSacR.Gv** and **LSacR.Sa** was dependent largely on the cover of algae obscuring the substrate, surveyors experience level and also the quality of the video (particularly distance from seabed), and was not necessarily consistent by the same surveyor. As a result, the biotope **SS.SMp.KSwSS** should be used, and the sub-biotopes should be considered 'uncertain' records sub biotopes.

Overall Marine EcoSol has high confidence in the allocation of PMF and associated biotopes from the 2014 South Arran MPA surveys, although the assignment of sub biotopes has proved to be of lower confidence and their interpretation should be treated with caution. Particular attention was given to potential maerl bed, and only those deemed certain PMF quality were assigned during the survey. Similarly the assignment of burrowed mud biotopes to the stations in Lochs Linnhe, Shell and Seaforth is confident enough for the allocation of PMF status, but the results could be a lot more robust and detailed with the improvements suggested in Section 5.3.1.

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ANNEX 1: PRIORITY MARINE FEATURES (PMF) IDENTIFIED IN THIS REPORT

Samples are sections of video tow split into more than one habitat.

Survey	Search Area	PMF type	PMF title (no of samples)	Component biotopes (04.05) or species	Samples present in
2014 South Arran MPA	Arran Holy Isle	Habitat	Kelp and seaweed communities on sublittoral sediment (17)	SS.SMp.KSwSS	HI01, HI03, HI04, HI14, HI16, HI17, HI18, HI19_15, HI21, HI22, HIN02, HIN03, HIN04, HIN05, HIN06, HINX1, HINX2
			Maerl beds (2)	SS.SMp.Mrl	HI02, HI09
	Clauchlands Point	Mobile species	Anglerfish (1)	<i>Lophius piscatorius</i>	CP7
		Habitat	Kelp and seaweed communities on sublittoral sediment (7)	SS.SMp.KSwSS (including sub biotope.LSacR.Sa)	CP01, CP02, CP10_b,CP15, CP16, CP21, CP5
	Drumadoon	Habitat	Kelp and seaweed communities on sublittoral sediment (8)	SS.SMp.KSwSS (including sub biotope.LSacR)	D06, D07, D08, D09, D10, D11, D12, D14
	Iron Rock Ledges	Habitat	Tide-swept algal communities (8)	IR.MIR.KR.LhypTX	IR21, IR23, IR30, IR33, IR36, IR39, IR42, IR53
			Kelp and seaweed communities on sublittoral sediment (18)	SS.SMp.KSwSS	IR01, IR02, IR03, IR05, IR06, IR08, IR11, IR12, IR14, IR15, IR16, IR18, IR20, IR32, IR38, IR52, IR54, IR55_b
			Maerl beds (1)	SS.SMp.Mrl	IR55_a
			Maerl or coarse shell gravel with burrowing sea cucumbers (1)	SS.SCS.CCS.Nmix	IR55_a
	Pladda	Habitat	Kelp beds (5)	IR.MIR.KR.LhypT IR.MIR.KR.Lhyp.Ft	PL04, PL23 PL13, PL15, PL43
			Tide-swept algal communities (3)	IR.MIR.KR.LhypTX IR.MIR.KR.LhypTX.Ft	PL03, PL15, PL37a
			Kelp and seaweed communities on sublittoral sediment (16)	SS.SMp.KSwSS (including sub biotopes .LsacR.Sa; .LSacR.Gv)	PL02, PL06, X_PL08, PL09, PL10, PL20, PL13, PL14, PL20, PL24, PL25, PL31, PL33, PL40, PL44, PL45, PL49
			Maerl beds (9)	SS.SMp.Mrl SS.SMp.Pcal.R	PL01, PL03, PL05, PL19, PL34, PL35, PL37b, PL41, PL46
	Whiting Bay	Habitat	Kelp and seaweed communities on sublittoral sediment (3)	SS.SMp.KSwSS (including sub biotope .LSacR)	WB01_a, WB03_c, WB11

Survey	Search Area	PMF type	PMF title (no of samples)	Component biotopes (04.05) or species	Samples present in
			Seagrass beds (13)	SS.SMp.SSgr.Zmar	WB01_a, WB01_b, WB02_b, WB03_b, WB04_b, WB05_b, WB06_b, WB07_b, WB08_b, WB09_b, WB10, WB12, WB14_c
2014 Loch Linnhe Survey	Loch Linnhe	Habitat	Burrowed mud (68)	SS.SMu.CFiMu.SpnMeg, SS.Smu.CFiMu.SpnMeg.Fun, <i>Pachycerianthus multiplicatus</i> (fireworks anemone), <i>Funiculina quadrangularis</i> (tall sea pen)	LLIN_0001, LLIN_0003, LLIN_0004, LLIN_0005, LLIN_0006, LLIN_0007, LLIN_0008, LLIN_0009, LLIN_0010_b, LLIN_0011, LLIN_0012, LLIN_0013, LLIN_0014, LLIN_0015, LLIN_0016, LLIN_0017, LLIN_0018, LLIN_0020, LLIN_0021, LLIN_0022, LLIN_0023, LLIN_0026_B, LLIN_0027, LLIN_0028, LLIN_0029, LLIN_0031, LLIN_0032, LLIN_0033, LLIN_0034, LLIN_0035, LLIN_0036, LLIN_0037, LLIN_0038, LLIN_0039, LLIN_0040, LLIN_0041, LLIN_0042, LLIN_0043, LLIN_0044, LLIN_0045, LLIN_0046, LLIN_0047, LLIN_0048_A, LLIN_0049, LLIN_0050, LLIN_0051_A, LLIN_0055, LLIN_0056, LLIN_0057, LLIN_0058, LLIN_0059, LLIN_0060, LLIN_0061, LLIN_0062, LLIN_0063, LLIN_0065, LLIN_0066, LLIN_0067, LLIN_0068,

Survey	Search Area	PMF type	PMF title (no of samples)	Component biotopes (04.05) or species	Samples present in
					LLIN_0069, LLIN_0070, LLIN_0071, LLIN_0072, LLIN_0074, LLIN_0075, LLIN_0076 LLIN_0077_a, LLIN_0077_c
2014 Loch Shell Sealg Survey	Loch Shell	Habitat	Northern sea fan and sponge communities (3)	CR.MCR.EcCr.CarSwi, CR.MCR.EcCr.CarSwi.LgAs, <i>Swiftia pallida</i>	LSHELL_0021, LSHELL_0022, LSHELL_0025
			Burrowed mud (23)	SS.SMu.CFiMu.SpnMeg, SS.Smu.CFiMu.SpnMeg.Fun, <i>Funiculina quadrangularis</i> (tall sea pen)	LSHELL_0002, LSHELL_0003, LSHELL_0004, LSHELL_0005, LSHELL_0006, LSHELL_0007, LSHELL_0008, LSHELL_0009_a,
			Burrowed mud (Contd.)		LSHELL_0010, LSHELL_0011, LSHELL_0012, LSHELL_0013, LSHELL_0014, LSHELL_0015, LSHELL_0016, LSHELL_0017, LSHELL_0018, LSHELL_0019, LSHELL_0020, LSHELL_0023, LSHELL_0024, LSHELL_0027, LSHELL_0028
2014 Loch Seaforth Siophoirt Survey	Loch Seaforth	Habitat	Burrowed mud (34)	SS.SMu.CFiMu.SpnMeg, SS.Smu.CFiMu.SpnMeg.Fun, <i>Pachycerianthus multiplicatus</i> (fireworks anemone), <i>Funiculina quadrangularis</i> (tall sea pen)	SEA_0001, SEA_0002, SEA_0003, SEA_0005, SEA_0006, SEA_0007, SEA_0008, SEA_0009, SEA_0010, SEA_0011, SEA_0012, SEA_0013, SEA_0014, SEA_0015, SEA_0016_b, SEA_0017, SEA_0018, SEA_0019, SEA_0020, SEA_0021, SEA_0022_a, SEA_0022_c, SEA_0022_e, SEA_0023, SEA_0024, SEA_0025_a, SEA_0025_c, SEA_0026, SEA_0027, SEA_0028_b, SEA_0029, SEA_0030, SEA_0031, SEA_0032

ANNEX 2: POSITIONAL AND TEMPORAL DETAILS OF VIDEO SEQUENCES RECORDED DURING THE SURVEYS

Where there is more than one entry for a site, this reflects splitting of the video run amongst different habitat types. Start and end positions of split Arran tows have been taken from the position at the nearest time in the ship log of the GPS track. Positions of split habitats for Loch's data are approximate, and have been calculated using the time into the video, the known drift speed and overall distance covered by the tow. n/r = not recorded. * = video missing from DVDs therefore not analysed, presented in the current report or entered into MR.

Survey	Search Area	Sample Ref	Date	Start - Lat	Start - Long	End - Lat	End - Long	Depth (m) BCD Upper	Depth (m) BCD Lower	StartTime	EndTime
2014 South Arran MPA	Clauchlands Point	CP01	19/09/2014	55.5557	-5.0862	55.5555	-5.0858	11.9	11.93	10:49	10:52
2014 South Arran MPA	Clauchlands Point	CP02	19/09/2014	55.5511	-5.0801	55.5508	-5.0803	13.01	7.01	11:07	11:12
2014 South Arran MPA	Clauchlands Point	CP09	19/09/2014	55.5661	-5.0966	55.5658	-5.0971	8.67	10.65	09:52	09:58
2014 South Arran MPA	Clauchlands Point	CP10_a	19/09/2014	55.5674	-5.0989	55.5674	-5.0990	15	22.6	09:40	09:44
2014 South Arran MPA	Clauchlands Point	CP10_b	19/09/2014	55.5674	-5.0990	55.5668	-5.1000	3.6	15	09:44	09:50
2014 South Arran MPA	Clauchlands Point	CP11	19/09/2014	55.5688	-5.1015	55.5685	-5.1021	6.6	21.59	09:33	09:38
2014 South Arran MPA	Clauchlands Point	CP14	19/09/2014	55.5639	-5.0929	55.5633	-5.0933	16.71	18.69	10:01	10:08
2014 South Arran MPA	Clauchlands Point	CP15	19/09/2014	55.5571	-5.0883	55.5566	-5.0878	7.9	12.87	10:42	10:47
2014 South Arran MPA	Clauchlands Point	CP16	19/09/2014	55.5547	-5.0841	55.5545	-5.0840	13.93	13.95	10:54	10:58
2014 South Arran MPA	Clauchlands Point	CP18	19/09/2014	55.5529	-5.0818	55.5525	-5.0816	10.98	12.98	11:01	11:05
2014 South Arran MPA	Clauchlands Point	CP19_a	19/09/2014	55.5711	-5.1019	55.5714	-5.1029	22.54	27.54	09:14	09:16
2014 South Arran MPA	Clauchlands Point	CP19_b	19/09/2014	55.5714	-5.1029	55.5709	-5.1022	12.54	22.54	09:16	09:19
2014 South Arran MPA	Clauchlands Point	CP19_c	19/09/2014	55.5709	-5.1022	55.5705	-5.1035	6.55	12.55	09:19	09:23
2014 South Arran MPA	Clauchlands Point	CP21	19/09/2014	55.5711	-5.1051	55.5711	-5.1054	4.56	4.57	09:25	09:30
2014 South Arran MPA	Clauchlands Point	CP4	19/09/2014	55.5582	-5.0891	55.5577	-5.0887	14.85	17.85	10:36	10:40
2014 South Arran MPA	Clauchlands Point	CP5	19/09/2014	55.5599	-5.0922	55.5594	-5.0920	5.82	10.8	10:28	10:33
2014 South Arran MPA	Clauchlands Point	CP6	19/09/2014	55.5624	-5.0881	55.5619	-5.0882	18.73	19.73	10:11	10:15
2014 South Arran MPA	Clauchlands Point	CP7	19/09/2014	55.5618	-5.0925	55.5612	-5.0923	10.75	11.78	10:19	10:25
2014 South Arran MPA	Drumadoon	D01	16/09/2014	55.4674	-5.3425	55.4674	-5.3422	21.78	21.98	12:10	12:14
2014 South Arran MPA	Drumadoon	D02	16/09/2014	55.4761	-5.3491	55.4758	-5.3492	21.84	21.98	11:52	11:57
2014 South Arran MPA	Drumadoon	D03	16/09/2014	55.4894	-5.3582	55.4889	-5.3579	22.94	22.97	11:23	11:28
2014 South Arran MPA	Drumadoon	D04	16/09/2014	55.5031	-5.3647	55.5025	-5.3645	15.93	15.98	10:45	10:51

Survey	Search Area	Sample Ref	Date	Start - Lat	Start - Long	End - Lat	End - Long	Depth (m) BCD Upper	Depth (m) BCD Lower	StartTime	EndTime
2014 South Arran MPA	Drumadoon	D05	16/09/2014	55.5130	-5.3648	55.5123	-5.3646	24.92	25.97	10:35	10:40
2014 South Arran MPA	Drumadoon	D06	16/09/2014	55.5169	-5.3564	55.5164	-5.3570	6.88	6.94	10:18	10:23
2014 South Arran MPA	Drumadoon	D07	16/09/2014	55.5123	-5.3589	55.5118	-5.3588	7.9	7.96	10:26	10:31
2014 South Arran MPA	Drumadoon	D08	16/09/2014	55.5021	-5.3527	55.5021	-5.3527	7.94	7.98	10:55	10:59
2014 South Arran MPA	Drumadoon	D09	16/09/2014	55.4953	-5.3389	55.4947	-5.3385	6.96	6.96	11:12	11:17
2014 South Arran MPA	Drumadoon	D10	16/09/2014	55.4820	-5.3322	55.4818	-5.3319	8.98	9.88	11:42	11:47
2014 South Arran MPA	Drumadoon	D11	16/09/2014	55.4688	-5.3253	55.4689	-5.3252	4.73	4.98	12:20	12:25
2014 South Arran MPA	Drumadoon	D12	16/09/2014	55.4944	-5.3512	55.4939	-5.3507	7.96	10.98	11:03	11:08
2014 South Arran MPA	Drumadoon	D13	16/09/2014	55.4739	-5.3378	55.4739	-5.3373	13.8	14.98	12:01	12:06
2014 South Arran MPA	Drumadoon	D14	16/09/2014	55.4856	-5.3399	55.4852	-5.3390	12.98	13.92	11:33	11:39
2014 South Arran MPA	Arran Holy Isle	HI01	15/09/2014	55.5105	-5.0638	55.5102	-5.0643	7.13	8.12	16:08	16:13
2014 South Arran MPA	Arran Holy Isle	HI02	15/09/2014	55.5122	-5.0603	55.5117	-5.0605	7.15	7.16	15:58	16:04
2014 South Arran MPA	Arran Holy Isle	HI03	15/09/2014	55.5169	-5.0584	55.5165	-5.0591	3.21	7.19	15:42	15:49
2014 South Arran MPA	Arran Holy Isle	HI04	15/09/2014	55.5188	-5.0594	55.5185	-5.0594	7.23	7.25	15:33	15:39
2014 South Arran MPA	Arran Holy Isle	HI09	15/09/2014	55.5086	-5.0627	55.5077	-5.0627	10.14	10.16	17:12	17:18
2014 South Arran MPA	Arran Holy Isle	HI10	15/09/2014	55.5098	-5.0594	55.5091	-5.0595	18.13	19.14	17:06	17:10
2014 South Arran MPA	Arran Holy Isle	HI11	15/09/2014	55.5083	-5.0589	55.5074	-5.0592	22.11	24.12	16:58	17:02
2014 South Arran MPA	Arran Holy Isle	HI12	15/09/2014	55.5059	-5.0612	55.5052	-5.0615	22.1	24.11	16:48	16:53
2014 South Arran MPA	Arran Holy Isle	HI13	15/09/2014	55.5051	-5.0649	55.5043	-5.0649	17.1	20.1	16:40	16:45
2014 South Arran MPA	Arran Holy Isle	HI14	15/09/2014	55.5109	-5.0702	55.5104	-5.0700	4.11	10.1	16:22	16:27
2014 South Arran MPA	Arran Holy Isle	HI15	15/09/2014	55.5112	-5.0662	55.5110	-5.0661	2.12	4.11	16:15	16:20
2014 South Arran MPA	Arran Holy Isle	HI16	15/09/2014	55.5136	-5.0606	55.5132	-5.0603	5.16	5.17	15:51	15:56
2014 South Arran MPA	Arran Holy Isle	HI17	15/09/2014	55.5129	-5.0717	55.5118	-5.0715	7.17	9.19	17:22	17:27
2014 South Arran MPA	Arran Holy Isle	HI18	15/09/2014	55.5146	-5.0725	55.5136	-5.0722	6.23	7.21	17:30	17:35
2014 South Arran MPA	Arran Holy Isle	HI19_15	15/09/2014	55.5075	-5.0652	55.5071	-5.0655	9.1		16:31	16:36
2014 South Arran MPA	Arran Holy Isle	HI19_18	18/09/2014	55.5047	-5.0658	55.5045	-5.0657	19.2	20.67	15:46	15:50
2014 South Arran MPA	Arran Holy Isle	HI20	18/09/2014	55.5064	-5.0641	55.5061	-5.0642	10.17	11.68	15:55	16:00

Survey	Search Area	Sample Ref	Date	Start - Lat	Start - Long	End - Lat	End - Long	Depth (m) BCD Upper	Depth (m) BCD Lower	StartTime	EndTime
2014 South Arran MPA	Arran Holy Isle	HI21	18/09/2014	55.5098	-5.0667	55.5094	-5.0669	7.13	10.68	16:04	16:10
2014 South Arran MPA	Arran Holy Isle	HI22	18/09/2014	55.5108	-5.0621	55.5101	-5.0619	7.08	8.69	16:13	16:19
2014 South Arran MPA	Arran Holy Isle	HI23	18/09/2014	55.5113	-5.0577	55.5107	-5.0572	13.03	15.69	16:21	16:26
2014 South Arran MPA	Arran Holy Isle	HIN01	15/09/2014	55.5326	-5.0709	55.5324	-5.0707	4.42	9.44	14:51	14:56
2014 South Arran MPA	Arran Holy Isle	HIN02	15/09/2014	55.5356	-5.0723	55.5349	-5.0722	4.47	4.5	14:42	14:47
2014 South Arran MPA	Arran Holy Isle	HIN03	15/09/2014	55.5371	-5.0759	55.5370	-5.0753	4.53	4.56	14:33	14:38
2014 South Arran MPA	Arran Holy Isle	HIN04	15/09/2014	55.5387	-5.0776	55.5381	-5.0775	4.59	4.63	14:24	14:29
2014 South Arran MPA	Arran Holy Isle	HIN05	15/09/2014	55.5217	-5.0616	55.5216	-5.0614	4.25	4.27	15:26	15:31
2014 South Arran MPA	Arran Holy Isle	HIN06	15/09/2014	55.5245	-5.0633	55.5244	-5.0631	6.29	6.31	15:18	15:23
2014 South Arran MPA	Arran Holy Isle	HIN07	15/09/2014	55.5274	-5.0663	55.5271	-5.0661	5.34	11.36	15:09	15:14
2014 South Arran MPA	Arran Holy Isle	HIN08	15/09/2014	55.5304	-5.0695	55.5301	-5.0691	10.39	12.39	15:00	15:01
2014 South Arran MPA	Arran Holy Isle	HINX1	18/09/2014	55.5363	-5.0742	55.5358	-5.0742	4.7	4.96	16:37	16:42
2014 South Arran MPA	Arran Holy Isle	HINX2	18/09/2014	55.5378	-5.0771	55.5374	-5.0774	4.7	4.91	16:46	16:52
2014 South Arran MPA	Iron Rock Ledges	IR01	16/09/2014	55.4391	-5.2997	55.4389	-5.2991	12.37	13.38	16:29	16:34
2014 South Arran MPA	Iron Rock Ledges	IR02	16/09/2014	55.4432	-5.2981	55.4429	-5.2977	7.67	10.65	15:18	15:23
2014 South Arran MPA	Iron Rock Ledges	IR03	16/09/2014	55.4333	-5.2929	55.4333	-5.2924	7.59	9.59	15:32	15:37
2014 South Arran MPA	Iron Rock Ledges	IR04	16/09/2014	55.4377	-5.2933	55.4376	-5.2929	17.42	18.44	16:11	16:17
2014 South Arran MPA	Iron Rock Ledges	IR05	16/09/2014	55.4419	-5.2896	55.4417	-5.2887	13.45	13.47	16:02	16:07
2014 South Arran MPA	Iron Rock Ledges	IR06	16/09/2014	55.4470	-5.2847	55.4468	-5.2842	7.5	8.5	15:53	15:58
2014 South Arran MPA	Iron Rock Ledges	IR07	16/09/2014	55.4357	-5.2828	55.4354	-5.2824	17.27	18.23	17:16	17:20
2014 South Arran MPA	Iron Rock Ledges	IR08	16/09/2014	55.4394	-5.2799	55.4392	-5.2796	12.27	13.19	17:23	17:28
2014 South Arran MPA	Iron Rock Ledges	IR09	16/09/2014	55.4436	-5.2751	55.4433	-5.2744	7.27	8.16	17:31	17:36
2014 South Arran MPA	Iron Rock Ledges	IR10	17/09/2014	55.4334	-5.2754	55.4330	-5.2776	13.62	15.53	10:32	10:38
2014 South Arran MPA	Iron Rock Ledges	IR11	17/09/2014	55.4377	-5.2736	55.4373	-5.2750	10.66	11.55	10:43	10:48
2014 South Arran MPA	Iron Rock Ledges	IR12	17/09/2014	55.4407	-5.2698	55.4401	-5.2710	6.7	6.57	10:52	10:57
2014 South Arran MPA	Iron Rock Ledges	IR13	17/09/2014	55.4263	-5.2677	55.4258	-5.2690	23.79	24.7	11:44	11:48
2014 South Arran MPA	Iron Rock Ledges	IR14	17/09/2014	55.4325	-5.2667	55.4321	-5.2681	12.79	14.68	11:36	11:40

Survey	Search Area	Sample Ref	Date	Start - Lat	Start - Long	End - Lat	End - Long	Depth (m) BCD Upper	Depth (m) BCD Lower	StartTime	EndTime
2014 South Arran MPA	Iron Rock Ledges	IR15	17/09/2014	55.4376	-5.2630	55.4372	-5.2642	7.77	7.66	11:23	11:27
2014 South Arran MPA	Iron Rock Ledges	IR16	16/09/2014	55.4426	-5.3044	55.4424	-5.3039	12.72	13.68	15:10	15:16
2014 South Arran MPA	Iron Rock Ledges	IR17	16/09/2014	55.4476	-5.2995	55.4475	-5.2989	6.62	6.64	15:25	15:29
2014 South Arran MPA	Iron Rock Ledges	IR18	16/09/2014	55.4455	-5.3091	55.4454	-5.3087	10.78	10.89	14:36	14:41
2014 South Arran MPA	Iron Rock Ledges	IR19	16/09/2014	55.4491	-5.3049	55.4489	-5.3045	4.98	7.8	14:25	14:30
2014 South Arran MPA	Iron Rock Ledges	IR20	16/09/2014	55.4530	-5.3012	55.4529	-5.3015	7.01	7.82	14:17	14:23
2014 South Arran MPA	Iron Rock Ledges	IR21	16/09/2014	55.4557	-5.2973	55.4557	-5.2966	2.04		14:11	14:15
2014 South Arran MPA	Iron Rock Ledges	IR22	16/09/2014	55.4524	-5.2902	55.4522	-5.2900	4.57	5.56	15:39	15:43
2014 South Arran MPA	Iron Rock Ledges	IR23	16/09/2014	55.4495	-5.2817	55.4494	-5.2810	0.52	2.53	15:47	15:51
2014 South Arran MPA	Iron Rock Ledges	IR24	17/09/2014	55.4469	-5.2714	55.4465	-5.2718	2.73	3.6	11:01	
2014 South Arran MPA	Iron Rock Ledges	IR25	17/09/2014	55.4443	-5.2659	55.4437	-5.2666	3.74	3.62	11:09	11:14
2014 South Arran MPA	Iron Rock Ledges	IR30	17/09/2014	55.4414	-5.2599	55.4409	-5.2603	1.76	1.64	11:16	11:20
2014 South Arran MPA	Iron Rock Ledges	IR31	17/09/2014	55.4293	-5.2609	55.4289	-5.2622	19.79	20.71	11:52	11:57
2014 South Arran MPA	Iron Rock Ledges	IR32	17/09/2014	55.4346	-5.2601	55.4341	-5.2613	7.79	10.73	12:00	12:05
2014 South Arran MPA	Iron Rock Ledges	IR33	17/09/2014	55.4371	-5.2572	55.4366	-5.2585	3.79	2.74	12:07	12:12
2014 South Arran MPA	Iron Rock Ledges	IR34	16/09/2014	55.4587	-5.3329	55.4589	-5.3329	19.5	19.97	12:56	13:01
2014 South Arran MPA	Iron Rock Ledges	IR35	16/09/2014	55.4601	-5.3265	55.4602	-5.3265	13.96	14.47	13:05	13:10
2014 South Arran MPA	Iron Rock Ledges	IR36	16/09/2014	55.4612	-5.3170	55.4612	-5.3170	0.41	0.95	13:14	13:17
2014 South Arran MPA	Iron Rock Ledges	IR37	16/09/2014	55.4566	-5.3270	55.4568	-5.3270	13.26	13.92	13:36	13:41
2014 South Arran MPA	Iron Rock Ledges	IR38	16/09/2014	55.4574	-5.3180	55.4574	-5.3182	4.32	5.93	13:29	13:33
2014 South Arran MPA	Iron Rock Ledges	IR39	16/09/2014	55.4591	-5.3085	55.4590	-5.3082	2.38	2.94	13:20	13:25
2014 South Arran MPA	Iron Rock Ledges	IR40	16/09/2014	55.4505	-5.3291	55.4506	-5.3292	20.23	21.9	13:45	13:50
2014 South Arran MPA	Iron Rock Ledges	IR41	16/09/2014	55.4520	-5.3191	55.4521	-5.3188	11.16	11.88	13:54	13:59
2014 South Arran MPA	Iron Rock Ledges	IR42	16/09/2014	55.4538	-5.3114	55.4537	-5.3110	2.1	2.86	14:01	14:06
2014 South Arran MPA	Iron Rock Ledges	IR43	16/09/2014	55.4453	-5.3169	55.4453	-5.3169	16.86	17.75	14:44	14:49
2014 South Arran MPA	Iron Rock Ledges	IR44	16/09/2014	55.4413	-5.3233	55.4414	-5.3230	17.8	18.73	14:52	14:58
2014 South Arran MPA	Iron Rock Ledges	IR45	16/09/2014	55.4370	-5.3193	55.4372	-5.3189	16.75	17.7	15:01	15:06

Survey	Search Area	Sample Ref	Date	Start - Lat	Start - Long	End - Lat	End - Long	Depth (m) BCD Upper	Depth (m) BCD Lower	StartTime	EndTime
2014 South Arran MPA	Iron Rock Ledges	IR46	16/09/2014	55.4307	-5.3100	55.4306	-5.3097	24.31	25.32	16:46	16:51
2014 South Arran MPA	Iron Rock Ledges	IR47	16/09/2014	55.4281	-5.2931	55.4278	-5.2927	21.29	22.29	16:57	17:02
2014 South Arran MPA	Iron Rock Ledges	IR48	17/09/2014	55.4275	-5.2776	55.4272	-5.2788	24.57	23.5	10:22	10:26
2014 South Arran MPA	Iron Rock Ledges	IR49_a	16/09/2014	55.4345	-5.3042	extract positions from this track	extract positions from this track	18.34	19.35	16:38	16:40
2014 South Arran MPA	Iron Rock Ledges	IR49_b	16/09/2014	extract positions from this track	extract positions from this track	55.4345	-5.3042	18.34	19.35	16:40	16:42
2014 South Arran MPA	Iron Rock Ledges	IR50	16/09/2014	55.4339	-5.2918	55.4335	-5.2914	14.28	15.26	17:07	17:12
2014 South Arran MPA	Iron Rock Ledges	IR51	17/09/2014	55.4260	-5.2545	55.4254	-5.2556	24.68	25.77	12:57	13:02
2014 South Arran MPA	Iron Rock Ledges	IR52	17/09/2014	55.4316	-5.2525	55.4311	-5.2532	12.77	12.76	12:23	12:26
2014 South Arran MPA	Iron Rock Ledges	IR53	17/09/2014	55.4355	-5.2507	55.4351	-5.2518	3.78	4.75	12:16	12:20
2014 South Arran MPA	Iron Rock Ledges	IR54	16/09/2014	55.4386	-5.2969	55.4383	-5.2964	12.4	14.41	16:20	16:26
2014 South Arran MPA	Iron Rock Ledges	IR55_a	17/09/2014	55.4403	-5.2934	55.4401	-5.2940	14.45	12.45	09:57	10:01
2014 South Arran MPA	Iron Rock Ledges	IR55_b	17/09/2014	55.4401	-5.2940	55.4397	-5.2953	14.45	12.45	10:01	10:04
2014 South Arran MPA	Iron Rock Ledges	IR56	17/09/2014	55.4397	-5.2890	55.4394	-5.2906	15.5	16.47	10:10	10:15
2014 South Arran MPA	Iron Rock Ledges	IR57	17/09/2014	55.4292	-5.2451	55.4286	-5.2465	15.64	16.78	13:06	13:12
2014 South Arran MPA	Iron Rock Ledges	IR58	17/09/2014	55.4283	-5.2312	55.4275	-5.2324	17.61	18.78	13:17	13:22
2014 South Arran MPA	Iron Rock Ledges	IR59	17/09/2014	55.4290	-5.2192	55.4285	-5.2202	15.57	16.79	13:27	13:32
2014 South Arran MPA	Iron Rock Ledges	IR60	17/09/2014	55.4289	-5.2046	55.4287	-5.2048	15.52	15.79	13:36	13:41
2014 South Arran MPA	Iron Rock Ledges	IR61	17/09/2014	55.4288	-5.1838	55.4288	-5.1840	15.5	15.79	13:45	13:50
2014 South Arran MPA	Pladda	PL01	17/09/2014	55.4342	-5.1100	55.4333	-5.1108	8.7	11.78	16:23	16:28
2014 South Arran MPA	Pladda	PL02	17/09/2014	55.4347	-5.1142	55.4339	-5.1146	4.66	6.78	16:31	16:37
2014 South Arran MPA	Pladda	PL03	17/09/2014	55.4365	-5.1244	55.4357	-5.1254	7	9.9	15:05	15:11
2014 South Arran MPA	Pladda	PL04	17/09/2014	55.4398	-5.1309	55.4391	-5.1314	6	7.9	14:58	15:02
2014 South Arran MPA	Pladda	PL05	17/09/2014	55.4317	-5.1143	55.4309	-5.1157	6.75	7.79	16:14	16:19
2014 South Arran MPA	Pladda	PL06	17/09/2014	55.4303	-5.1148	55.4296	-5.1162	7.79	7.82	15:58	16:03

Survey	Search Area	Sample Ref	Date	Start - Lat	Start - Long	End - Lat	End - Long	Depth (m) BCD Upper	Depth (m) BCD Lower	StartTime	EndTime
2014 South Arran MPA	Pladda	PL07	17/09/2014	55.4289	-5.1105	55.4280	-5.1122	15.79	17.86	15:50	15:54
2014 South Arran MPA	Pladda	PL08	17/09/2014	55.4323	-5.1254	55.4317	-5.1264	10	11.8	15:14	15:19
2014 South Arran MPA	Pladda	PL09	17/09/2014	55.4373	-5.1320	55.4366	-5.1324	9	10.0	14:51	14:55
2014 South Arran MPA	Pladda	PL10	17/09/2014	55.4334	-5.1318	55.4323	-5.1325	15	16.0	14:42	14:48
2014 South Arran MPA	Pladda	PL11	17/09/2014	55.4352	-5.1437	55.4342	-5.1442	15	17.1	14:25	14:31
2014 South Arran MPA	Pladda	PL12	17/09/2014	55.4378	-5.1509	55.4373	-5.1516	9	10.1	14:17	14:22
2014 South Arran MPA	Pladda	PL13	17/09/2014	55.4381	-5.1570	55.4377	-5.1574	5	6.1	14:11	14:15
2014 South Arran MPA	Pladda	PL14	17/09/2014	55.4286	-5.1250	55.4278	-5.1263	11	11.8	15:21	15:26
2014 South Arran MPA	Pladda	PL15	17/09/2014	55.4239	-5.1236	55.4224	-5.1239	8	10.8	15:29	15:34
2014 South Arran MPA	Pladda	PL16	17/09/2014	55.4187	-5.1269	55.4173	-5.1265	21	22.7	15:38	15:43
2014 South Arran MPA	Pladda	PL17	17/09/2014	55.4325	-5.1054	55.4313	-5.1068	22.6	22.76	16:49	16:55
2014 South Arran MPA	Pladda	PL18	17/09/2014	55.4315	-5.1099	55.4303	-5.1114	12.77	13.79	16:06	16:11
2014 South Arran MPA	Pladda	PL19	18/09/2014	55.4369	-5.1059	55.4361	-5.1079	8.07	8.52	11:38	11:43
2014 South Arran MPA	Pladda	PL20	18/09/2014	55.4392	-5.1020	55.4383	-5.1031	9.15	10.61	12:05	12:09
2014 South Arran MPA	Pladda	PL23	17/09/2014	55.4373	-5.1122	55.4366	-5.1129	2.62	3.77	16:42	16:45
2014 South Arran MPA	Pladda	PL24	18/09/2014	55.4448	-5.0937	55.4437	-5.0946	10.23	10.67	12:26	12:32
2014 South Arran MPA	Pladda	PL25	18/09/2014	55.4498	-5.0881	55.4492	-5.0884	8.26	8.7	13:02	13:06
2014 South Arran MPA	Pladda	PL26	18/09/2014	55.4435	-5.0904	55.4424	-5.0909	13.2	13.65	12:20	12:24
2014 South Arran MPA	Pladda	PL27	17/09/2014	55.4320	-5.1680	55.4316	-5.1683	16	17.2	13:55	14:00
2014 South Arran MPA	Pladda	PL28	17/09/2014	55.4350	-5.1561	55.4343	-5.1567	15	16.2	14:03	14:08
2014 South Arran MPA	Pladda	PL29	17/09/2014	55.4317	-5.1354	55.4308	-5.1361	18	19.0	14:35	14:40
2014 South Arran MPA	Pladda	PL30	18/09/2014	55.4524	-5.0802	55.4514	-5.0801	20.7	25.28	13:10	13:14
2014 South Arran MPA	Pladda	PL31	18/09/2014	55.4579	-5.0783	55.4567	-5.0784	9.7	10.31	13:18	13:23
2014 South Arran MPA	Pladda	PL32	18/09/2014	55.4613	-5.0744	55.4603	-5.0743	12.34	13.69	13:26	13:30
2014 South Arran MPA	Pladda	PL33	18/09/2014	55.4637	-5.0769	55.4624	-5.0767	8.36	8.68	13:33	13:38
2014 South Arran MPA	Pladda	PL34	18/09/2014	55.4365	-5.1249	55.4362	-5.1268	8	8.3	10:04	10:18
2014 South Arran MPA	Pladda	PL35	18/09/2014	55.4355	-5.1263	55.4336	-5.1314	11	15.2	09:44	09:59

Survey	Search Area	Sample Ref	Date	Start - Lat	Start - Long	End - Lat	End - Long	Depth (m) BCD Upper	Depth (m) BCD Lower	StartTime	EndTime
2014 South Arran MPA	Pladda	PL36	18/09/2014	55.4376	-5.1289	55.4371	-5.1303	9	9.2	09:35	09:41
2014 South Arran MPA	Pladda	PL37a	18/09/2014	55.4353	-5.1233	55.4352	-5.1244	8	10.3	10:21	10:24
2014 South Arran MPA	Pladda	PL37b	18/09/2014	55.4352	-5.1244	55.4349	-5.1263	8	10.3	10:24	10:24
2014 South Arran MPA	Pladda	PL38	18/09/2014	55.4209	-5.1188	55.4197	-5.1210	8	16.5	10:49	10:53
2014 South Arran MPA	Pladda	PL40	18/09/2014	55.4361	-5.1099	55.4352	-5.1111	6.99	8.34	11:00	11:04
2014 South Arran MPA	Pladda	PL41	18/09/2014	55.4360	-5.1049	55.4349	-5.1066	10.46		11:23	11:28
2014 South Arran MPA	Pladda	PL42	18/09/2014	55.4387	-5.0969	55.4375	-5.0984	15.59	18.12	11:56	12:01
2014 South Arran MPA	Pladda	PL43	18/09/2014	55.4375	-5.1220	55.4369	-5.1247	5	7.3	10:11	10:18
2014 South Arran MPA	Pladda	PL44	18/09/2014	55.4332	-5.1236	55.4324	-5.1253	10	11.4	10:30	10:35
2014 South Arran MPA	Pladda	PL45	18/09/2014	55.4351	-5.1320	55.4345	-5.1347	12.4	13.0	10:38	10:42
2014 South Arran MPA	Pladda	PL46	18/09/2014	55.4333	-5.1159	55.4309	-5.1159	6.01	8.39	11:07	11:19
2014 South Arran MPA	Pladda	PL47	18/09/2014	55.4320	-5.1015	55.4325	-5.1023	28.09	29.56	11:49	11:51
2014 South Arran MPA	Pladda	PL48_a	18/09/2014	55.4415	-5.0953	55.4398	-5.0966	14.18	14.63	12:12	12:14
2014 South Arran MPA	Pladda	PL48_b	18/09/2014	55.4398	-5.0966	55.4403	-5.0961	14.18	14.63	12:14	12:17
2014 South Arran MPA	Pladda	PL49	18/09/2014	55.4613	-5.0787	55.4601	-5.0790	6.67	7.39	13:40	13:44
2014 South Arran MPA	Whiting Bay	WB01_a	18/09/2014	55.4928	-5.0909	55.4925	-5.0898	1.45	5.59	14:53	14:56
2014 South Arran MPA	Whiting Bay	WB01_b	18/09/2014	55.4925	-5.0898	55.4929	-5.0904	1.45	5.59	14:56	14:58
2014 South Arran MPA	Whiting Bay	WB01_c	18/09/2014	55.4929	-5.0904	55.4930	-5.0880	1.45	5.59	14:58	14:59
2014 South Arran MPA	Whiting Bay	WB02_a	18/09/2014	55.4969	-5.0898	55.4969	-5.0882	0.36	5.62	15:12	15:14
2014 South Arran MPA	Whiting Bay	WB02_b	18/09/2014	55.4969	-5.0882	55.4971	-5.0864	0.36	5.62	15:14	15:18
2014 South Arran MPA	Whiting Bay	WB03_a	18/09/2014	55.5003	-5.0875	55.4990	-5.0839	0.32	5.63	15:21	15:23
2014 South Arran MPA	Whiting Bay	WB03_b	18/09/2014	55.4990	-5.0839	55.5001	-5.0868	0.32	5.63	15:23	15:26
2014 South Arran MPA	Whiting Bay	WB03_c	18/09/2014	55.5001	-5.0868	55.4998	-5.0841	0.32	5.63	15:26	15:27
2014 South Arran MPA	Whiting Bay	WB04_a	18/09/2014	55.4884	-5.0918	55.4883	-5.0892	0.47	4.57	14:46	14:48
2014 South Arran MPA	Whiting Bay	WB04_b	18/09/2014	55.4883	-5.0892	55.4887	-5.0894	0.47	4.57	14:48	14:50
2014 South Arran MPA	Whiting Bay	WB05_a	18/09/2014	55.4858	-5.0911	55.4858	-5.0896	0.51	5.56	14:39	14:42
2014 South Arran MPA	Whiting Bay	WB05_b	18/09/2014	55.4858	-5.0896	55.4862	-5.0895	0.51	5.56	14:42	14:43

Survey	Search Area	Sample Ref	Date	Start - Lat	Start - Long	End - Lat	End - Long	Depth (m) BCD Upper	Depth (m) BCD Lower	StartTime	EndTime
2014 South Arran MPA	Whiting Bay	WB06_a	18/09/2014	55.4828	-5.0892	55.4828	-5.0865	0.52	7.54	14:33	14:35
2014 South Arran MPA	Whiting Bay	WB06_b	18/09/2014	55.4828	-5.0865	55.4829	-5.0887	0.52	7.54	14:35	14:35
2014 South Arran MPA	Whiting Bay	WB06_c	18/09/2014	55.4829	-5.0887	55.4832	-5.0876	0.52	7.54	14:35	14:37
2014 South Arran MPA	Whiting Bay	WB07_a	18/09/2014	55.4791	-5.0865	55.4772	-5.0827	0.54	8.52	14:27	14:28
2014 South Arran MPA	Whiting Bay	WB07_b	18/09/2014	55.4772	-5.0827	55.4793	-5.0849	0.54	8.52	14:28	14:30
2014 South Arran MPA	Whiting Bay	WB08_A	18/09/2014	55.4743	-5.0831	55.4745	-5.0824	0.58	6.5	14:20	14:21
2014 South Arran MPA	Whiting Bay	WB08_B	18/09/2014	55.4745	-5.0824	55.4757	-5.0845	0.58	6.5	14:21	14:23
2014 South Arran MPA	Whiting Bay	WB09_A	18/09/2014	55.4690	-5.0782	55.4715	-5.0820	0.61	6.46	14:07	14:09
2014 South Arran MPA	Whiting Bay	WB09_B	18/09/2014	55.4715	-5.0820	55.4717	-5.0819	0.61	6.46	14:09	14:12
2014 South Arran MPA	Whiting Bay	WB10	18/09/2014	55.4686	-5.0802	55.4691	-5.0780	1.63	8.43	13:58	14:03
2014 South Arran MPA	Whiting Bay	WB11	18/09/2014	55.4672	-5.0776	55.4662	-5.0773	4.41	4.66	13:48	13:52
2014 South Arran MPA	Whiting Bay	WB12	18/09/2014	55.4741	-5.0838	55.4745	-5.0823	0.59	6.48	14:15	14:18
2014 South Arran MPA	Whiting Bay	WB14_A	18/09/2014	55.4930	-5.0883	55.4937	-5.0865	0.4	5.61	15:02	15:03
2014 South Arran MPA	Whiting Bay	WB14_B	18/09/2014	55.4937	-5.0865	55.4954	-5.0904	0.4	5.61	15:02	15:08
2014 South Arran MPA	Whiting Bay	WB14_C	18/09/2014	55.4954	-5.0904	55.4954	-5.0897	0.4	5.61	15:02	15:08
2014 South Arran MPA	Whiting Bay	WB15	18/09/2014	55.5041	-5.0808	55.5040	-5.0791	0.29	10.65	15:30	15:34
2014 South Arran MPA	Whiting Bay	WB16	18/09/2014	55.5080	-5.0777	55.5081	-5.0776	13.25	15.66	15:37	15:41
2014 Loch Linnhe	Loch Linnhe	LLIN_0001	23/05/2014	56.50805	-5.56735	56.50653	-5.57050	89.1	96.6	08:17	08:23
2014 Loch Linnhe	Loch Linnhe	LLIN_0002*	23/05/2014	56.50717	-5.55575	56.50652	-5.55737	42.7	44.6	08:34	08:37
2014 Loch Linnhe	Loch Linnhe	LLIN_0003	23/05/2014	56.50717	-5.55575	56.50652	-5.55737	42.7	44.6	08:34	08:37
2014 Loch Linnhe	Loch Linnhe	LLIN_0004	23/05/2014	56.52333	-5.53597	56.52198	-5.53815	62.9	62.7	09:03	09:08
2014 Loch Linnhe	Loch Linnhe	LLIN_0005	23/05/2014	56.53023	-5.51953	56.52903	-5.52078	54.7	56.5	09:20	09:25
2014 Loch Linnhe	Loch Linnhe	LLIN_0006	23/05/2014	56.53602	-5.51140	56.53478	-5.51240	56.6	56.5	09:33	09:38
2014 Loch Linnhe	Loch Linnhe	LLIN_0007	23/05/2014	56.54425	-5.50697	56.54308	-5.50783	59.4	59	09:52	09:57
2014 Loch Linnhe	Loch Linnhe	LLIN_0008	23/05/2014	56.54807	-5.49413	56.54738	-5.49398	70.1	67.4	10:08	10:13
2014 Loch Linnhe	Loch Linnhe	LLIN_0009	23/05/2014	56.55123	-5.48892	56.55042	-5.48890	79	78.9	10:21	10:26
2014 Loch Linnhe	Loch Linnhe	LLIN_0010_a	23/05/2014	56.55745	-5.48428	56.55715	-5.48438	109.5	112.1	10:34	10:36

Survey	Search Area	Sample Ref	Date	Start - Lat	Start - Long	End - Lat	End - Long	Depth (m) BCD Upper	Depth (m) BCD Lower	StartTime	EndTime
2014 Loch Linnhe	Loch Linnhe	LLIN_0010_b	23/05/2014	56.55715	-5.48438	56.55665	-5.48462	109.5	112.1	10:36	10:39
2014 Loch Linnhe	Loch Linnhe	LLIN_0011	23/05/2014	56.55868	-5.48060	56.55803	-5.48038	115.1	43.1	10:45	10:51
2014 Loch Linnhe	Loch Linnhe	LLIN_0012	23/05/2014	56.55755	-5.48807	56.55673	-5.48840	115	114.7	10:59	11:05
2014 Loch Linnhe	Loch Linnhe	LLIN_0013	23/05/2014	56.56040	-5.49592	56.55950	-5.49677	95.7	97.2	11:14	11:19
2014 Loch Linnhe	Loch Linnhe	LLIN_0014	23/05/2014	56.56433	-5.51273	56.56298	-5.51495	94.5	94.3	11:30	11:37
2014 Loch Linnhe	Loch Linnhe	LLIN_0015	23/05/2014	56.56727	-5.51772	56.56598	-5.51983	90.6	87.6	11:48	11:53
2014 Loch Linnhe	Loch Linnhe	LLIN_0016	23/05/2014	56.56322	-5.53115	56.56170	-5.53322	61.9	53.7	12:02	12:08
2014 Loch Linnhe	Loch Linnhe	LLIN_0017	23/05/2014	56.55488	-5.52428	56.55352	-5.52542	80.6	83.3	12:18	12:23
2014 Loch Linnhe	Loch Linnhe	LLIN_0018	23/05/2014	56.54838	-5.53513	56.54667	-5.53615	88.2	82	12:31	12:36
2014 Loch Linnhe	Loch Linnhe	LLIN_0019	23/05/2014	56.55150	-5.54702	56.54997	-5.54828	53.4	91.9	12:45	12:50
2014 Loch Linnhe	Loch Linnhe	LLIN_0020	23/05/2014	56.54522	-5.55067	56.54362	-5.55245	113.6	113.4	12:58	13:03
2014 Loch Linnhe	Loch Linnhe	LLIN_0021	23/05/2014	56.53582	-5.55660	56.53438	-5.55808	83.1	79.2	13:14	13:19
2014 Loch Linnhe	Loch Linnhe	LLIN_0022	23/05/2014	56.50832	-5.58365	56.50723	-5.58495	113.5	126.9	08:15	08:20
2014 Loch Linnhe	Loch Linnhe	LLIN_0023	24/05/2014	56.51600	-5.56715	56.51483	-5.56875	82.8	84.5	08:34	08:40
2014 Loch Linnhe	Loch Linnhe	LLIN_0024	24/05/2014	56.52498	-5.58463	56.52402	-5.58628	160.1	162.2	08:52	08:59
2014 Loch Linnhe	Loch Linnhe	LLIN_0025	24/05/2014	56.52877	-5.58192	56.52817	-5.58305	126.8	122.7	09:11	09:16
2014 Loch Linnhe	Loch Linnhe	LLIN_0026_A	24/05/2014	56.54355	-5.56020	56.54335	-5.56058	57.4	55.6	09:34	09:36
2014 Loch Linnhe	Loch Linnhe	LLIN_0026_B	24/05/2014	56.54335	-5.56058	56.54312	-5.56103	57.4	55.6	09:36	09:39
2014 Loch Linnhe	Loch Linnhe	LLIN_0027	24/05/2014	56.52908	-5.54497	56.52840	-5.54625	64.3	62.3	09:59	10:04
2014 Loch Linnhe	Loch Linnhe	LLIN_0028	24/05/2014	56.53962	-5.52633	56.53883	-5.52800	61.5	61.7	10:16	10:23
2014 Loch Linnhe	Loch Linnhe	LLIN_0029	24/05/2014	56.55127	-5.50840	56.55098	-5.50885	70.3	71.1	10:35	10:42
2014 Loch Linnhe	Loch Linnhe	LLIN_0030	26/05/2014	56.40977	-5.41133	56.57582	-5.41325	39.7	37.6	08:04	08:11
2014 Loch Linnhe	Loch Linnhe	LLIN_0031	26/05/2014	56.58925	-5.41315	56.58823	-5.41362	63.9	64.4	08:22	08:27
2014 Loch Linnhe	Loch Linnhe	LLIN_0032	26/05/2014	56.59345	-5.41162	56.59248	-5.41233	34.2	44.5	08:34	08:40
2014 Loch Linnhe	Loch Linnhe	LLIN_0033	26/05/2014	56.58143	-5.42522	56.58052	-5.42610	57.8	55.8	08:48	08:53
2014 Loch Linnhe	Loch Linnhe	LLIN_0034	26/05/2014	56.57715	-5.44762	56.57617	-5.44917	36.9	28	09:02	09:08
2014 Loch Linnhe	Loch Linnhe	LLIN_0035	26/05/2014	56.57623	-5.45358	56.57532	-5.45457	39.2	38.8	09:12	09:17

Survey	Search Area	Sample Ref	Date	Start - Lat	Start - Long	End - Lat	End - Long	Depth (m) BCD Upper	Depth (m) BCD Lower	StartTime	EndTime
2014 Loch Linnhe	Loch Linnhe	LLIN_0036	26/05/2014	56.57253	-5.47480	56.57160	-5.47577	96.9	98.6	09:29	09:34
2014 Loch Linnhe	Loch Linnhe	LLIN_0037	26/05/2014	56.58062	-5.47170	56.58008	-5.47258	98.9	99.8	09:44	09:49
2014 Loch Linnhe	Loch Linnhe	LLIN_0038	26/05/2014	56.58278	-5.50073	56.58217	-5.50198	75.3	84.1	10:01	10:06
2014 Loch Linnhe	Loch Linnhe	LLIN_0039	26/05/2014	56.59825	-5.49038	56.59802	-5.49143	53.1	52.5	10:22	10:28
2014 Loch Linnhe	Loch Linnhe	LLIN_0040	26/05/2014	56.60612	-5.48118	56.60625	-5.48222	33.1	35	10:37	10:41
2014 Loch Linnhe	Loch Linnhe	LLIN_0041	26/05/2014	56.60987	-5.47367	56.60985	-5.47452	28	26.5	10:48	10:53
2014 Loch Linnhe	Loch Linnhe	LLIN_0042	26/05/2014	56.61413	-5.46353	56.61448	-5.46422	53.6	48.9	11:03	11:08
2014 Loch Linnhe	Loch Linnhe	LLIN_0043	26/05/2014	56.59722	-5.45638	56.59645	-5.45780	75.6	85.3	11:22	11:28
2014 Loch Linnhe	Loch Linnhe	LLIN_0044	26/05/2014	56.59593	-5.43093	56.59612	-5.43143	77.1	76.8	11:41	11:46
2014 Loch Linnhe	Loch Linnhe	LLIN_0045	26/05/2014	56.60407	-5.40763	56.60422	-5.40755	69.2	68.9	11:58	12:03
2014 Loch Linnhe	Loch Linnhe	LLIN_0046	26/05/2014	56.61707	-5.40183	56.61685	-5.40475	78.9	78.4	12:14	12:19
2014 Loch Linnhe	Loch Linnhe	LLIN_0047	26/05/2014	56.61875	-5.43738	56.61828	-5.43755	49.9	50.7	13:18	13:24
2014 Loch Linnhe	Loch Linnhe	LLIN_0048_A	26/05/2014	56.63083	-5.43823	56.63143	-5.43813	33.6	22.4	13:33	13:37
2014 Loch Linnhe	Loch Linnhe	LLIN_0048_B	26/05/2014	56.63143	-5.43813	56.63170	-5.43810	33.6	22.4	13:37	13:39
2014 Loch Linnhe	Loch Linnhe	LLIN_0049	26/05/2014	56.63712	-5.42400	56.63713	-5.42360	26.6	26.7	13:47	13:53
2014 Loch Linnhe	Loch Linnhe	LLIN_0050	26/05/2014	56.63397	-5.41510	56.63338	-5.41508	23.7	22.9	13:59	14:04
2014 Loch Linnhe	Loch Linnhe	LLIN_0051_A	26/05/2014	56.62957	-5.40560	56.62893	-5.40448	25.5	34.9	14:10	14:16
2014 Loch Linnhe	Loch Linnhe	LLIN_0051_B	26/05/2014	56.62957	-5.40560	56.62893	-5.40448	25.5	34.9	14:10	14:16
2014 Loch Linnhe	Loch Linnhe	LLIN_0052	26/05/2014	56.62737	-5.37985	56.62733	-5.37930	57.6	49.7	14:25	14:30
2014 Loch Linnhe	Loch Linnhe	LLIN_0053	26/05/2014	56.63653	-5.35437	56.63712	-5.35473	35.9	37	14:42	14:47
2014 Loch Linnhe	Loch Linnhe	LLIN_0054	26/05/2014	56.63125	-5.36117	56.63153	-5.36083	31.6	30.4	14:54	14:59
2014 Loch Linnhe	Loch Linnhe	LLIN_0055	26/05/2014	56.62185	-5.33270	56.62233	-5.33177	32.7	32.1	15:13	15:18
2014 Loch Linnhe	Loch Linnhe	LLIN_0056	26/05/2014	56.62018	-5.34468	56.62068	-5.34488	43.7	47	15:26	15:31
2014 Loch Linnhe	Loch Linnhe	LLIN_0057	26/05/2014	56.61743	-5.34758	56.61743	-5.34658	43.2	42.1	15:38	15:43
2014 Loch Linnhe	Loch Linnhe	LLIN_0058	26/05/2014	56.62145	-5.37103	56.62175	-5.37165	57.9	58.5	15:54	16
2014 Loch Linnhe	Loch Linnhe	LLIN_0059	26/05/2014	56.60517	-5.36880	56.60537	-5.36790	32.2	33.1	16:10	16:16
2014 Loch Linnhe	Loch Linnhe	LLIN_0060	26/05/2014	56.59970	-5.38033	56.59990	-5.38013	34.3	32.3	16:23	16:28

Survey	Search Area	Sample Ref	Date	Start - Lat	Start - Long	End - Lat	End - Long	Depth (m) BCD Upper	Depth (m) BCD Lower	StartTime	EndTime
2014 Loch Linnhe	Loch Linnhe	LLIN_0061	27/05/2014	56.59883	-5.46618	56.59793	-5.46825	71.2	76.8	08:50	08:56
2014 Loch Linnhe	Loch Linnhe	LLIN_0062	27/05/2014	56.62785	-5.41398	56.62700	-5.41533	27.3	27.8	09:29	09:35
2014 Loch Linnhe	Loch Linnhe	LLIN_0063	27/05/2014	56.63862	-5.31383	56.63818	-5.31382	29.4	30	10:33	10:38
2014 Loch Linnhe	Loch Linnhe	LLIN_0064	27/05/2014	56.64267	-5.33065	56.64150	-5.33198	25.8	25	10:46	10:55
2014 Loch Linnhe	Loch Linnhe	LLIN_0065	27/05/2014	56.65443	-5.32693	56.65357	-5.32855	52.8	54	11:08	11:14
2014 Loch Linnhe	Loch Linnhe	LLIN_0066	27/05/2014	56.65077	-5.35825	56.64993	-5.35972	82.7	83.5	11:24	11:30
2014 Loch Linnhe	Loch Linnhe	LLIN_0067	27/05/2014	56.64665	-5.38093	56.64598	-5.38258	45.6	36.9	11:39	11:47
2014 Loch Linnhe	Loch Linnhe	LLIN_0068	27/05/2014	56.66605	-5.33558	56.66543	-5.33692	71.1	72.2	12:07	12:12
2014 Loch Linnhe	Loch Linnhe	LLIN_0069	27/05/2014	56.67952	-5.31583	56.67947	-5.31688	57.3	57.8	12:59	13:05
2014 Loch Linnhe	Loch Linnhe	LLIN_0070	27/05/2014	56.69613	-5.30148	56.69623	-5.30085	38.9	37.1	13:18	13:24
2014 Loch Linnhe	Loch Linnhe	LLIN_0071	27/05/2014	56.68722	-5.29152	56.68653	-5.29265	37	35.2	13:32	13:36
2014 Loch Linnhe	Loch Linnhe	LLIN_0072	27/05/2014	56.66865	-5.29727	56.66833	-5.29718	62.2	62.5	13:49	13:54
2014 Loch Linnhe	Loch Linnhe	LLIN_0073	28/05/2014	56.68240	-5.26313	56.68142	-5.26428	21	22	09:03	09:08
2014 Loch Linnhe	Loch Linnhe	LLIN_0074	28/05/2014	56.69270	-5.24025	56.69210	-5.24172	23	23	09:37	09:44
2014 Loch Linnhe	Loch Linnhe	LLIN_0075	28/05/2014	56.69752	-5.22068	56.69758	-5.22133	29.4	28.9	09:56	10:03
2014 Loch Linnhe	Loch Linnhe	LLIN_0076	28/05/2014	56.68917	-5.22563	56.68887	-5.22602	42.6	42.3	10:24	10:29
2014 Loch Linnhe	Loch Linnhe	LLIN_0077_a	28/05/2014	56.68272	-5.24123	56.68297	-5.24185	37.2	31.9	10:37	10:43
2014 Loch Linnhe	Loch Linnhe	LLIN_0077_b	28/05/2014	56.68297	-5.24185	56.68310	-5.24220	37.2	31.9	10:43	10:45
2014 Loch Linnhe	Loch Linnhe	LLIN_0077_c	28/05/2014	56.68310	-5.24220	56.68318	-5.24242	37.2	31.9	10:45	10:47
2014 Loch Linnhe	Loch Linnhe	LLIN_0078_a	28/05/2014	56.67600	-5.26367	56.67568	-5.26408	24.5	30.4	10:56	10:58
2014 Loch Linnhe	Loch Linnhe	LLIN_0078_b	28/05/2014	56.67568	-5.26408	56.67510	-5.26560	24.5	30.4	10:56	11:09
2014 Loch Linnhe	Loch Linnhe	LLIN_0079	28/05/2014	56.69960	-5.26187	56.69800	-5.26285	35.5	46.5	12:24	12:28
2014 Loch Linnhe	Loch Linnhe	LLIN_0080*	28/05/2014	56.68437	-5.28773	56.68247	-5.28920	28	38.7	13:23	13:28
2014 Loch Linnhe	Loch Linnhe	LLIN_0081*	28/05/2014	56.68570	-5.29423	56.68418	-5.29652	31	64	13:34	13:40
2014 Loch Shell Sealg	Loch Shell	LSHELL_0001_a	05/06/2014	58.00278	-6.53997	58.00194	-6.53913	11	12.76	10:00	10:05
2014 Loch Shell Sealg	Loch Shell	LSHELL_0001_b	05/06/2014	58.00194	-6.53913	58.00172	-6.53877	11	12.76	10:05	10:07
2014 Loch Shell Sealg	Loch Shell	LSHELL_0002	05/06/2014	58.00223	-6.53320	58.00312	-6.53283	20.3	20.3	10:13	10:19

Survey	Search Area	Sample Ref	Date	Start - Lat	Start - Long	End - Lat	End - Long	Depth (m) BCD Upper	Depth (m) BCD Lower	StartTime	EndTime
2014 Loch Shell Sealg	Loch Shell	LSHELL_0003	05/06/2014	58.00348	-6.52973	58.00333	-6.52963	26	n/r	10:24	10:30
2014 Loch Shell Sealg	Loch Shell	LSHELL_0004	05/06/2014	58.00217	-6.52998	58.00157	-6.52988	25.4	26.4	10:34	10:38
2014 Loch Shell Sealg	Loch Shell	LSHELL_0005	05/06/2014	58.00370	-6.52842	58.00328	-6.52908	27	27.6	10:44	10:50
2014 Loch Shell Sealg	Loch Shell	LSHELL_0006	05/06/2014	58.00222	-6.52742	58.00158	-6.52807	21.4	26	10:53	11:00
2014 Loch Shell Sealg	Loch Shell	LSHELL_0007	05/06/2014	58.00302	-6.52490	58.00280	-6.52567	28.6	27.6	11:04	11:11
2014 Loch Shell Sealg	Loch Shell	LSHELL_0008	05/06/2014	58.00240	-6.52155	58.00162	-6.52133	27.5	25.6	11:17	11:23
2014 Loch Shell Sealg	Loch Shell	LSHELL_0009_a	05/06/2014	58.00153	-6.53198	58.00100	-6.51560	26.8	22.31	11:29	11:32
2014 Loch Shell Sealg	Loch Shell	LSHELL_0009_b	05/06/2014	58.00127	-6.51546	58.00100	-6.51560	n/r	n/r	11:32	11:35
2014 Loch Shell Sealg	Loch Shell	LSHELL_0010	05/06/2014	58.00377	-6.51762	58.00312	-6.51762	33	33	11:55	11:59
2014 Loch Shell Sealg	Loch Shell	LSHELL_0011	05/06/2014	58.00455	-6.51762	58.00390	-6.50445	45.2	42.6	12:07	12:12
2014 Loch Shell Sealg	Loch Shell	LSHELL_0012	05/06/2014	58.00448	-6.49817	58.00388	-6.49850	49.3	45.2	12:26	12:31
2014 Loch Shell Sealg	Loch Shell	LSHELL_0013	05/06/2014	58.00663	-6.48995	58.00587	-6.48997	40.6	41.3	12:37	12:42
2014 Loch Shell Sealg	Loch Shell	LSHELL_0014	05/06/2014	58.00872	-6.48355	58.00840	-6.48378	38	38.9	12:49	12:54
2014 Loch Shell Sealg	Loch Shell	LSHELL_0015	05/06/2014	58.00653	-6.48130	58.00577	-6.48195	43.3	42.2	13:30	13:36
2014 Loch Shell Sealg	Loch Shell	LSHELL_0016	05/06/2014	58.00113	-6.45602	58.00030	-6.45635	43	44.7	13:49	13:53
2014 Loch Shell Sealg	Loch Shell	LSHELL_0017	05/06/2014	57.99745	-6.45223	57.99653	-6.45235	53.5	40.3	14:01	14:05
2014 Loch Shell Sealg	Loch Shell	LSHELL_0018	05/06/2014	57.99383	-6.44697	57.99307	-6.44703	30.4	41.3	14:12	14:17
2014 Loch Shell Sealg	Loch Shell	LSHELL_0019	05/06/2014	57.98990	-6.44423	57.98897	-6.44458	52.7	43.7	14:22	14:30
2014 Loch Shell Sealg	Loch Shell	LSHELL_0020	05/06/2014	57.99098	-6.43987	57.98997	-6.44118	50.4	51.4	14:38	14:45
2014 Loch Shell Sealg	Loch Shell	LSHELL_0021	05/06/2014	57.98165	-6.44053	57.98037	-6.44193	24	30.8	14:52	14:59
2014 Loch Shell Sealg	Loch Shell	LSHELL_0022	05/06/2014	57.97935	-6.43355	57.97807	-6.43483	26.5	34.3	15:06	15:12
2014 Loch Shell Sealg	Loch Shell	LSHELL_0023	05/06/2014	57.98438	-6.43207	57.98358	-6.43355	49.1	46.9	15:27	15:32
2014 Loch Shell Sealg	Loch Shell	LSHELL_0024	05/06/2014	57.98915	-6.42932	57.98822	-6.43015	33.1	31.8	15:38	15:43
2014 Loch Shell Sealg	Loch Shell	LSHELL_0025	05/06/2014	57.99392	-6.41490	57.99203	-6.41638	40.4	44.7	15:56	16:04
2014 Loch Shell Sealg	Loch Shell	LSHELL_0026_a	06/06/2014	57.97190	-6.43968	57.97255	-6.43890	57.2	59	08:50	09:00
2014 Loch Shell Sealg	Loch Shell	LSHELL_0026_b	06/06/2014	57.97190	-6.43968	57.97255	-6.43890	57.2	59	08:50	09:00
2014 Loch Shell Sealg	Loch Shell	LSHELL_0027	06/06/2014	57.98385	-6.41625	57.98445	-6.41557	105.9	108.3	09:18	09:25

Survey	Search Area	Sample Ref	Date	Start - Lat	Start - Long	End - Lat	End - Long	Depth (m) BCD Upper	Depth (m) BCD Lower	StartTime	EndTime
2014 Loch Shell Sealg	Loch Shell	LSHELL_0028	06/06/2014	57.98572	-6.40508	57.98633	-6.40457	154.6	158.5	09:35	09:41
2014 Loch Shell Sealg	Loch Shell	LSHELL_0029	06/06/2014	57.99650	-6.39198	57.99682	-6.39087	34.2	36.3	09:52	09:57
2014 Loch Seaforth Siophoirt	Loch Seaforth	SEA_0001	07/06/2014	57.92712	-6.66795	57.92722	-6.66800	93.0	95.9	15:25	15:30
2014 Loch Seaforth Siophoirt	Loch Seaforth	SEA_0002	07/06/2014	57.92427	-6.66805	57.92423	-6.66788	79.3	80.5	15:39	15:45
2014 Loch Seaforth Siophoirt	Loch Seaforth	SEA_0003	07/06/2014	57.92305	-6.66977	57.92288	-6.66985	60.2	n/r	15:52	16:00
2014 Loch Seaforth Siophoirt	Loch Seaforth	SEA_0004	07/06/2014	57.92400	-6.66555	57.92405	-6.66488	79.5	83.9	16:06	16:12
2014 Loch Seaforth Siophoirt	Loch Seaforth	SEA_0005	07/06/2014	57.92055	-6.66815	57.92038	-6.66840	60.7	60.9	16:19	16:25
2014 Loch Seaforth Siophoirt	Loch Seaforth	SEA_0006	07/06/2014	57.92342	-6.66325	57.92343	-6.66263	35.4	45.0	16:31	16:38
2014 Loch Seaforth Siophoirt	Loch Seaforth	SEA_0007	07/06/2014	57.92115	-6.66420	57.92097	-6.66375	49.0	49.4	16:44	16:51
2014 Loch Seaforth Siophoirt	Loch Seaforth	SEA_0008	07/06/2014	57.92032	-6.66098	57.92005	-6.66055	45.8	46.1	16:55	17:00
2014 Loch Seaforth Siophoirt	Loch Seaforth	SEA_0009	07/06/2014	57.91798	-6.66183	57.91777	-6.66152	33.4	34.6	17:06	17:12
2014 Loch Seaforth Siophoirt	Loch Seaforth	SEA_0010	07/06/2014	57.91623	-6.66583	57.91593	-6.66588	43.7	44.0	17:17	17:23
2014 Loch Seaforth Siophoirt	Loch Seaforth	SEA_0011	08/06/2014	58.00082	-6.74530	58.00180	-6.74562	27.5	n/r	08:30	08:35
2014 Loch Seaforth Siophoirt	Loch Seaforth	SEA_0012	08/06/2014	57.99682	-6.74233	57.99775	-6.74315	29.1	35.0	08:42	08:48
2014 Loch Seaforth Siophoirt	Loch Seaforth	SEA_0013	08/06/2014	57.99137	-6.73370	57.99282	-6.73508	54.2	58.8	08:57	09:04
2014 Loch Seaforth Siophoirt	Loch Seaforth	SEA_0014	08/06/2014	57.98752	-6.72988	57.98862	-6.73070	35.3	46.2	09:17	09:22
2014 Loch Seaforth Siophoirt	Loch Seaforth	SEA_0015	08/06/2014	57.98542	-6.72802	Creel	Creel	39.8	Creel	09:31	09:33
2014 Loch Seaforth Siophoirt	Loch Seaforth	SEA_0016_a	08/06/2014	57.98392	-6.72717	57.98330	-6.72770	29.3	42.7	09:41	09:44
2014 Loch Seaforth Siophoirt	Loch Seaforth	SEA_0016_b	08/06/2014	57.98330	-6.72770	57.98487	-6.72832	29.3	42.7	09:44	09:46

Survey	Search Area	Sample Ref	Date	Start - Lat	Start - Long	End - Lat	End - Long	Depth (m) BCD Upper	Depth (m) BCD Lower	StartTime	EndTime
2014 Loch Seaforth Siophoirt	Loch Seaforth	SEA_0017	08/06/2014	57.98190	-6.72680	57.98287	-6.72760	37.7	42.7	10:11	10:15
2014 Loch Seaforth Siophoirt	Loch Seaforth	SEA_0018	08/06/2014	57.98250	-6.72297	57.98352	-6.72365	22.7	n/r	10:21	10:25
2014 Loch Seaforth Siophoirt	Loch Seaforth	SEA_0019	08/06/2014	57.97870	-6.72413	57.98003	-6.72510	34.1	36.6	10:34	10:39
2014 Loch Seaforth Siophoirt	Loch Seaforth	SEA_0020	08/06/2014	57.97918	-6.72268	57.98037	-6.72350	34.5	36.3	10:46	10:51
2014 Loch Seaforth Siophoirt	Loch Seaforth	SEA_0021	08/06/2014	57.97853	-6.71863	57.97973	-6.71938	33.6	38.0	10:57	11:01
2014 Loch Seaforth Siophoirt	Loch Seaforth	SEA_0022_a	08/06/2014	57.97503	-6.71648	57.97525	-6.71657	37.8	43.9	11:11	11:12
2014 Loch Seaforth Siophoirt	Loch Seaforth	SEA_0022_b	08/06/2014	57.97525	-6.71657	57.97578	-6.71680	37.8	43.9	11:12	11:13
2014 Loch Seaforth Siophoirt	Loch Seaforth	SEA_0022_c	08/06/2014	57.97578	-6.71680	57.97632	-6.71710	37.8	43.9	11:13	11:14
2014 Loch Seaforth Siophoirt	Loch Seaforth	SEA_0022_d	08/06/2014	57.97632	-6.71710	57.97655	-6.71709	37.8	43.9	11:14	11:15
2014 Loch Seaforth Siophoirt	Loch Seaforth	SEA_0022_e	08/06/2014	57.97655	-6.71709	57.97665	-6.71713	37.8	43.9	11:15	11:16
2014 Loch Seaforth Siophoirt	Loch Seaforth	SEA_0023	08/06/2014	57.97262	-6.71642	57.97420	-6.71730	42.6	42.6	11:23	11:29
2014 Loch Seaforth Siophoirt	Loch Seaforth	SEA_0024	08/06/2014	57.96930	-6.71382	57.97065	-6.71437	44.9	49.0	11:38	11:42
2014 Loch Seaforth Siophoirt	Loch Seaforth	SEA_0025_a	08/06/2014	57.96987	-6.71270	57.96999	-6.71275	36.7	38.9	13:03	13:03
2014 Loch Seaforth Siophoirt	Loch Seaforth	SEA_0025_b	08/06/2014	57.96999	-6.71275	57.97012	-6.71279	36.7	38.9	13:03	13:04
2014 Loch Seaforth Siophoirt	Loch Seaforth	SEA_0025_c	08/06/2014	57.97012	-6.71279	57.97113	-6.71318	36.7	38.9	13:04	13:07
2014 Loch Seaforth Siophoirt	Loch Seaforth	SEA_0026	08/06/2014	57.96552	-6.71267	57.96697	-6.71338	48.2	52.3	13:17	13:22
2014 Loch Seaforth Siophoirt	Loch Seaforth	SEA_0027	08/06/2014	57.95948	-6.70697	57.96092	-6.70793	53.5	60.3	13:30	13:36
2014 Loch Seaforth Siophoirt	Loch Seaforth	SEA_0028_a	08/06/2014	57.95948	-6.70697	57.95998	-6.70549	38.4	40.4	13:42	13:46
2014 Loch Seaforth Siophoirt	Loch Seaforth	SEA_0028_b	08/06/2014	57.95998	-6.70549	57.96048	-6.70397	38.4	40.4	13:46	13:50

Survey	Search Area	Sample Ref	Date	Start - Lat	Start - Long	End - Lat	End - Long	Depth (m) BCD Upper	Depth (m) BCD Lower	StartTime	EndTime
2014 Loch Seaforth Siophoirt	Loch Seaforth	SEA_0029	08/06/2014	57.95200	-57.1186	57.95067	-6.69212	46.6	49.9	14:00	14:05
2014 Loch Seaforth Siophoirt	Loch Seaforth	SEA_0030	08/06/2014	57.94585	-57.1125	57.94712	-6.69098	61.4	61.5	14:14	14:19
2014 Loch Seaforth Siophoirt	Loch Seaforth	SEA_0031	08/06/2014	57.94052	-57.1071	57.94172	-6.68998	48.3	56.0	14:28	14:34
2014 Loch Seaforth Siophoirt	Loch Seaforth	SEA_0032	08/06/2014	57.93402	-57.1006	57.93535	-6.67773	79.5	86.2	14:45	14:50

ANNEX 3: PHYSICAL AND BIOLOGICAL DESCRIPTIONS OF THE SURVEY SITES. SITE ID CODES CORRESPOND WITH THOSE IN ANNEX 2

PMF codes are used as follows: Habitats - BM (burrowed mud), MB (Maerl beds), KB (Kelp beds), KSS (Kelp and Seaweed communities on sublittoral sediment), NSFSC (Northern feather star and sponge communities), SG (Seagrass beds), TSA (Tide swept algal communities); Low & Limited Mobility Species: NFSA (Northern Feather star, *Leptometra celtica*, aggregations), WCA (White cluster anemone, *Parazoanthus anguicomus*, aggregations); SPECIES - AI (*Arctica islandica*), FQ (*Funiculina quadrangularis*), LA (*Leptometra celtica* aggregations), LP (*Lophius piscatorius*), PM (*Pachycerianthus multiplicatus*), SwP (*Swifita pallida*).

Sample Ref	Substrate, Depth and Notes (numbers in brackets represent % cover)	Biota	Biotope	PMF Habitats	PMF Component species
CP01	Infralittoral coarse sediments of sand (70%), maerl gravel (1%), shell gravel (24%), shell (1%) and mud (4%). Approx 11.9m bcd. HD Go Pro footage analysed.	Sparse fauna with sediments characterised by <i>Cerianthus lloydii</i> (C), <i>Asciidiella aspersa</i> (C) with a covering of red filamentous algae (O), hydroid turf (R), <i>Chorda filum</i> (C) and <i>Saccharina latissima</i> (R). Mobile epifauna listed in associated species list in dataset.	SS.SMp.KSwSS.LsacR.Sa	KSS	
CP02	Infralittoral coarse sediments of maerl gravel (75%), stone gravel (14%), shell (10%), cobbles (1%) and mud (1%). Approx 7 - 13m bcd. HD Go Pro footage analysed, but very fast.	Sediments characterised by <i>Saccharina latissima</i> (F), <i>Cerianthus lloydii</i> (A), <i>Asciidiella aspersa</i> (C) with a covering of red filamentous algae (C) and <i>Sciniaia</i> (C). Less than 1% live maerl. Mobile epifauna listed in associated species list in dataset.	SS.SMp.KSwSS	KSS	
CP09	Infralittoral mixed sediments comprising sand (45%), dead Maerl gravel (20%), live maerl (1%), shell (20%), and stone gravel (1%), shell gravel (4%) and mud (5%). Approx 8.7 - 10.7m bcd. HD GoPro footage analysed.	Sediments dominated by <i>Cerianthus lloydii</i> (A), <i>Asciidiella aspersa</i> (C) and filamentous brown algae (C), with <5% live maerl. <i>Saccharina latissima</i> very sparse (O) throughout sample.	SS.SMx.IMx		
CP10_a	Circalittoral mixed sediments dominated by mud (40%), sand (30%), gravel (20%), shell and pebbles (5% each) in deeper water at the start of the tow. Empty shell content increased gradually throughout the tow, to over 80% of the substrate from 3:40mins into the habitat. 22.6- approx 15m bcd. HD GoPro footage analysed.	Muddy gravels characterised by <i>Cerianthus lloydii</i> (A) and <i>Asciidiella aspersa</i> (F). As the habitat became less shelly and shallower, a couple of <i>Saccharina latissima</i> plants starting to appear, with broken holdfasts drifting throughout the sample. Mobile epifauna included <i>Liocarcinus</i> , <i>Munida rugosa</i> , <i>Necora puber</i> (all O) and <i>Porania</i> (F).	SS.SMx.CMx		
CP10_b	Infralittoral muddy empty shell (100% at start) giving away to over 70% dead Maerl gravel and more coarse sediments towards	Brown filamentous matt algae consolidating shell and dead Maerl gravel (possibly off colour <i>Trilliella</i> (A) with <i>Saccharina latissima</i> (F), red	SS.SMp.KSwSS	KSS	

Sample Ref	Substrate, Depth and Notes (numbers in brackets represent % cover)	Biota	Biotope	PMF Habitats	PMF Component species
	the end of the habitat. Approx 15 -3.6 m bcd. HD GoPro footage analysed.	filamentous or fine branching algae (O) and <i>Chorda</i> (P). Gravel dominated by <i>Cerianthus lloydii</i> (F) and <i>Asciadiella aspersa</i> (C), with <i>Marthasterias glacialis</i> (C) amongst other mobile epifauna (presented in species list). Maerl very broken, with no live maerl seen, although coralline crusts present on shell and gravel in places.			
CP11	Tow dominated by circalittoral muddy (10%) empty shell (35% including <i>Ensis</i>) and gravel (shell, 20%; stone 20%, dead Maerl 4%) with an increasing sand component (10%) and rare pebbles (1%). As tow became increasingly shallow, an increasing percentage of infralittoral sand and maerl gravel (which was less than the last minute of video). 6.6 - 21.5m bcd. HD GoPro footage analysed.	Very sparse epifauna throughout tow. <i>Cerianthus lloydii</i> , <i>Chaetopterus</i> and <i>Asciadiella aspersa</i> (all F). Last minute of tow becoming more macrophyte dominated community of <i>Saccharina latissima</i> (O overall, F towards end) and fine branching / filamentous reds. Rare large mobile epifauna.	SS.SMx.IMx SS.SMx.CMx		
CP14	Infralittoral mixed muddy gravels comprising shell gravel (35%), dead Maerl gravel (5%), mud (20%), sand (20%), pebble (19%) and empty shell (1%). Approx 16.7-18.7m bcd. HD GoPro footage analysed.	Sediments dominated by <i>Cerianthus lloydii</i> (C), <i>Asciadiella aspersa</i> (F) and <i>Saccharina latissima</i> very sparse (O) throughout sample. Mobile epifauna included <i>Porania puvillus</i> (F), Paguridae (O), <i>Aequipecten</i> (F), <i>Henricia</i> (O), <i>Asterias rubens</i> (P) and others listed in species list. Rare unidentified large burrows, possibly <i>Nephrops</i> .	SS.SMx.IMx		
CP15	Infralittoral coarse sediments of sand (50%), stone gravel (5%), shell gravel (20%), shell (5%), pebbles (5%), metal wreckage (10%) and mud (5%). Approx 7.9 - 12.9m bcd. HD Go Pro footage analysed.	Sparse fauna with sediments characterised by <i>Cerianthus lloydii</i> (C), <i>Chaetopterus</i> (F), <i>Asciadiella aspersa</i> (F) with a covering of red filamentous algae (F), hydroid turf (O), <i>Chorda filum</i> (F) and <i>Saccharina latissima</i> (R). Mobile epifauna listed in associated species list in dataset.	SS.SMp.KSwSS.LsacR.Sa	KSS	
CP16	Infralittoral coarse sediments of sand (19%), maerl gravel (39%), stone gravel (20%), mud (19%), shell (5%), pebbles (1%) and cobbles (1%). Approx 13.9m bcd. Poor quality DDV analysed.	Sediments characterised by <i>Cerianthus lloydii</i> (A), <i>Asciadiella aspersa</i> (C) with a covering of red filamentous algae (F), hydroid turf (R) and <i>Saccharina latissima</i> (R). Mobile epifauna listed in associated species list in dataset.	SS.SMp.KSwSS	KSS	
CP18	Infralittoral coarse sediments of sand (25%), shell gravel (45%), dead Maerl	Sediments characterised by <i>Cerianthus lloydii</i> (A), <i>Asciadiella aspersa</i> (F) with a covering of	SS.SCS.ICS		

Sample Ref	Substrate, Depth and Notes (numbers in brackets represent % cover)	Biota	Biotope	PMF Habitats	PMF Component species
	gravel (4%), stone gravel (10%), mud (5%), shell (5%), pebbles (4%) and boulders (1%). Approx 10.9 - 12.9m bcd. HD Go Pro footage analysed, but very fast.	red filamentous algae (F) and hydroid and bryozoan turf (R). Mobile epifauna listed in associated species list in dataset.			
CP19_a	Circalittoral sandy mud from approximately 22.5 - 27.5m bcd. Mud (75%), sand (20%), pebbles (3%), pebbles (1%) and cobbles (1%). HD GoPro footage analysed, with habitat from 03:49 minutes on GoPro (when it reaches the seabed) to 05:27. Positions and depths not accurate due to no overlay and limited track data.	<i>Munida rugosa</i> and <i>Turritella communis</i> (F) on sediment, with lots of burrows present in mud, and <i>Asciidiella aspersa</i> (C) clumping on bits of shell or pebble. Bryozoan crusts and serpulids (probably <i>Spirobranchus</i>) on larger pebbles and cobbles. <i>Porania</i> and Paguriidae occasional.	SS.SMu.CSaMu		
CP19_b	Circalittoral mixed sediments from approximately 12.5 - 22.5m bcd. Mud (40%), sand (20%), pebbles (15%), gravel (14%), shell (5%), one bedrock outcrop (5%) and cobbles (1%). Decreasing mud content towards end of habitat, with increasing gravel and shell component. HD GoPro footage analysed, with habitat from 05:28 minutes on GoPro to 09:34. Positions and depths not accurate due to no overlay and limited track data.	<i>Munida rugosa</i> , <i>Cerianthus lloydii</i> and <i>Chaetopterus</i> tubes (all F) on sediment and <i>Asciidiella aspersa</i> (C) clumping on bits of shell or pebble. Some fine red branching / filamentous algae (R) and <i>Saccharina latissima</i> (R), possibly drift. A selection of mobile fauna presented in species list, and unidentified burrows present.	SS.SMx.CMx		
CP19_c	Infralittoral mixed sediments dominated by sands and gravels from approximately 6.5 - 12.5m bcd. Mud (20%), sand (45%), gravel (25%), shell (9%) and one boulder (1%). Decreasing mud content towards end of habitat, with increasing gravel and shell component. HD GoPro footage analysed, with habitat from 09:35 minutes on GoPro to 12:51. Positions and depths not accurate due to no overlay and limited track data.	<i>Cerianthus lloydii</i> and <i>Chaetopterus</i> tubes (both F) on sediment and <i>Asciidiella aspersa</i> (A) clumping on bits of shell. An increasing component of fine red branching / filamentous algae (O) and <i>Saccharina latissima</i> (R) as tow comes to the end. A selection of mobile fauna presented in species list. Unidentified burrows and mounds present.	SS.SCS.ICS		
CP21	Infralittoral sand (80%) and gravel (10%) with pebbles (5%) and shell (5%) at approximately 4.5m bcd. HD GoPro footage analysed.	Macrophyte dominated community of <i>Chorda filum</i> (F), <i>Saccharina latissima</i> (F), scour tolerant red branching algae (<i>Gracilaria?</i> O) and fine branching / filamentous reds (F). <i>Asciidiella aspersa</i> (A) and small asteroids common.	SS.SMp.KSwSS	KSS	

CP4	Infralittoral coarse sediments of sand (40%), stone gravel (25%), shell gravel (15%), shell (10%), cobbles (5%) and mud (5%). Approx 14.8-17.8m bcd. HD Go Pro footage analysed.	Sparse fauna with sediments characterised by <i>Cerianthus lloydii</i> (C), <i>Chaetopterus</i> (O) with a covering of brown filamentous algae (O), hydroid turf (F), bryozoan turf (O) and <i>Saccharina latissima</i> (only 13 plants across tow). Mobile epifauna listed in associated species list in dataset.	SS.SMx.IMx		
CP5	Infralittoral coarse sediments of sand (50%), shell gravel (30%), shell (10%) and stone gravel (10%). Approx 5.8-10.8m bcd. HD Go Pro footage analysed.	Sparse fauna with sediments characterised by <i>Cerianthus lloydii</i> (F), <i>Chaetopterus</i> (F) with a covering of brown filamentous algae (C), <i>Chorda filum</i> (F) and an increasing number of <i>Saccharina latissima</i> towards end of tow (R overall). Mobile epifauna listed in associated species list in dataset.	SS.SMp.KSwSS.LsacR.Sa	KSS	
CP6	Circalittoral mixed muddy gravel comprising mud (35%), sand (25%) shell gravel (25%), empty shell (5%), pebbles (5%) and cobbles (5%). 18.7 - 19.7m bcd. Limited analysis of substrate and fauna as video was too high from seabed. HD GoPro footage analysed.	<i>Cerianthus lloydii</i> (C) in sediment with coralline algae crusts (R), <i>Nemertesia antennina</i> (F) and an erect branching bryozoan (probably <i>Omalosecosa ramulosa</i> , F) on pebbles and cobbles. <i>Saccharina latissima</i> present but probably drifting weed. Lots of burrows and mounds present. Other mobile epifauna listed in associated species list.	SS.SMx.CMx		
CP7	Infralittoral mixed muddy gravels comprising sand (53%), stone gravel (15%), shell gravel (10%), mud (5%), pebble (10%), empty shell (5%), cobbles (1%) and rare boulders (1%). Approx 10.7-11.8m bcd. HD GoPro footage analysed.	Sediments dominated by <i>Cerianthus lloydii</i> (A), <i>Ascidella aspersa</i> (A), <i>Nemertesia antennina</i> (F) and sparse <i>Saccharina latissima</i> (O) throughout sample. Mobile epifauna included <i>Porania puvillus</i> (F), <i>Henricia</i> (O), <i>Asterias rubens</i> and <i>Cancer pagurus</i> (F) amongst others listed in species list. Occasional bivalve siphons present. One Anglerfish <i>Lophius piscatorius</i> .	SS.SMx.IMx	LP	
D01	Circalittoral mixed sediment at 21m. Silty (5%) shell gravel (50%) with whole shell and large fragments (40%), dead Maerl gravel (5%). Approx depth: 21.78- 21.98m bcd.	Coarse mixed sediment with broken shell burrow and tubes, sparse fauna of <i>Chaetopterus</i> , Serpulidae, <i>Cerianthus lloydii</i> , Asteroidea. A scatter of dead maerl in sediment.	SS.SMx.CMx		
D02	Circalittoral mixed sediment at 21m. Slightly silty (3%) shell (72%) and dead Maerl (3%) gravel waves with large shell fragments (22%). Approx depth: 21.84- 21.98m bcd.	Coarse mixed sediment with a few burrows and tubes. Very sparse visible fauna.	SS.SMx.CMx		
D03	Circalittoral silty mixed sediment at 22m bcd of sand (47%) with shell (20%) and stone (20%) gravel and scattered dead	Coarse sediment with sparse fauna of <i>Cerianthus lloydii</i> , Asteroidea and Polychaete burrows.	SS.SMx.CMx		

	Maerl (1%), pebbles (1%) and cobbles (1%). Approx depth: 22.94- 22.97m bcd.				
D04	Circalittoral silty (5%) shell (35%), stone (10%) and dead Maerl 30%) gravel with broken shell (20%). Approx depth 16m bcd.	Gravel sediment with common <i>Cerianthus lloydii</i> and bivalve siphons.	SS.SMx.CMx		
D05	Upper circalittoral silty (5%), gravelly (5%) sand (59%) with many large shell fragments (30%, scattered maerl gravel (2%). Many burrows and holes. Approx depth: 25m bcd.	Silty sand with large shell fragments. Many burrows. <i>Cerianthus lloydii</i> frequent.	SS.SMx.CMx		
D06	Infralittoral mixed coarse sediment 7m bcd dominated by <i>Saccharina latissima</i> and a range of red and brown algae. Sandy (30%) sediment with large shell fragments (69%) and rare maerl gravel (1%). Approx depth: 6.88- 6.94m bcd.	Dominated by <i>Saccharina latissima</i> with a range of other red and brown algae.	SS.SMp.KSwSS.LsacR	KSS	
D07	Infralittoral burrowed coarse sediment (at 7m bcd) of sand (50%), large shell fragments (12%), pebbles (8%), shell gravel (25%) and stone gravel (5%). Dense <i>Saccharina latissima</i> with a range of foliose and filamentous red algae. Approx depth: 7.9- 7.96m bcd.	Dominated by <i>Saccharina latissima</i> with a range of foliose and filamentous red algae.	SS.SMp.KSwSS.LsacR	KSS	
D08	Infralittoral mixed boulders, cobbles and pebbles at 8m bcd. Impossible to judge composition because of dense cover of <i>Saccharina latissima</i> with other brown and filamentous red algae.. Approx depth: 7.94- 7.98m bcd.	Dominated by <i>Saccharina latissima</i> with a range of foliose and filamentous red algae.	SS.SMp.KSwSS.LsacR	KSS	
D09	Infralittoral pebbles (60%) and gravel (30%) with sand (9%) and sparse maerl gravel (1%) at 7m bcd dominated by <i>Saccharina latissima</i> and filamentous red and brown algae.. Approx depth: 6.96- 6.96m bcd.	Dominated by <i>Saccharina latissima</i> with a range of filamentous red algae.	SS.SMp.KSwSS.LsacR	KSS	
D10	Infralittoral kelp and red seaweed community on boulders (20%), cobbles (5%) pebbles (20%), large shell fragments (2%) and gravel (47%) with scattered maerl fragments (3%) at 9m bcd.. Approx depth: 8.98- 9.88m bcd.	Dominated by <i>Saccharina latissima</i> with a range of filamentous red algae.	SS.SMp.KSwSS.LsacR	KSS	
D11	Infralittoral kelp and red seaweeds on boulders (10%) with pebbles (75%) and large shell fragments (5%) and gravel	Dominated by <i>Saccharina latissima</i> with <i>Odonthalia dentata</i> and <i>Desmarestia</i> sp.	SS.SMp.KSwSS.LsacR	KSS	

	(10%)at 8m bcd.. Approx depth: 4.73-4.98m bcd.				
D12	Infralittoral kelp and red seaweeds on boulders (20%) with shell (15%) and Maerl (15%) gravel, pebbles (5%) and large shell fragments (5%) in a sand (40%) matrix at 8-11m bcd.. Approx depth: 7.96- 10.98m bcd.	Dominated by <i>Saccharina latissima</i> with filamentous red algae and <i>Desmarestia</i> sp. Fragments of live maerl were noted but because of cover of kelp it was not possible to assess cover.	SS.SMp.KSwSS.LsacR	KSS	
D13	Biological zone: Circalittoral. Cobbles_64to256mm (1%), Pebbles_16to64mm (24%), Shells Empty (5%), Gravel_Stone_4to16mm (25%), Gravel_Shell_4to16mm (25%), Sand (20%). Video analysis from: Drop camera. Depth: 13.8-14.98 m BCD.	Sparse biota, typified by coralline encrusting (O) algae on pebbles and encrusting serpulid worms.	SS.SCS.CCS		
D14	Biological zone: Infralittoral. Cobbles_64to256mm (1%), Pebbles_16to64mm (34%), Gravel_Stone_4to16mm (30%), Gravel_Shell_4to16mm (30%), Sand_Coarse_1to4mm (5%). Video analysis from: Drop Camera. Depth: 13.92-12.98 m BCD.	Pebbles dominated by filamentous red weeds, coralline crusts and <i>Saccharina latissima</i> . Occasional patches of indet. hydrozoa observed.	SS.SMp.KSwSS.LsacR	KSS	
HI01	Infralittoral silted bedrock and small boulders (30%) and coarse sediments (70%, comprising maerl gravel, coarse sand, pebbles and shell). 7-8m BCD. Video taken from drop video (not GoPro).	Silted kelp forest (<i>Saccharina latissima</i> , S, with bryozoan crusts, C, <i>Gibbula</i> , P, and small indefinable starfish), <i>Desmarestia</i> (R), <i>Palmaria</i> (R) and red foliose and branching algae (F). <i>Marthasterias</i> (F), <i>Echinus</i> (R), and small asteroids Frequent. Some maerl present between boulders, bedrock and sediments, recorded as Melobesioideae (impossible to determine species or live or dead from video). Encrusting Corallinaceae Rare.	SS.SMp.KSwSS IR.HIR.KSed.LsacSac	KSS	
HI02	Infralittoral Maerl bed (> 80% cover, some live, but unable to assign accurate proportion live and dead from video) with shells. 7m bcd. Video taken from drop video (not GoPro).	maerl gravel bed (mainly dead) with <i>Saccharina latissima</i> (F), <i>Desmarestia</i> (F), Rare <i>Laminaria hyperborea</i> and <i>Scinia</i> (F) amongst other occasional algae. Regular evidence of burrowing infauna, including a burrowing anemone (<i>Cerianthus lloydii</i> ?, C), and epifauna comprising <i>Ascidella aspersa</i> (C), small asteroids (O), <i>Pecten maximus</i> (O), and one <i>Echinus</i> and <i>Marthasterias</i> observed over tow. <i>Neopentadactyla mixta</i> not possible to see from poor quality video, but the correct	SS.SMp.Mrl.Pcal	MB	

		habitat.			
HI03	Infralittoral maerl gravel (approx 75% cover, less than 5% live, therefore not a Maerl Bed, but very difficult to ascertain from video) with pebbles 15%, and shells 10%. Video taken from drop video (not GoPro). 3-7m bcd.	Maerl gravel (mainly dead) characterised by <i>Saccharina latissima</i> (A), <i>Desmarestia</i> (C), <i>Scinaia</i> (F) and <i>Phyllophora crista</i> (R), amongst other occasional red algae including coralline crusts on pebbles (O). Other characterising epifauna included <i>Chaetopterus</i> (?) tubes (F) burrowing anemone (<i>Cerianthus lloydii</i> ?, O), and epifauna comprising <i>Ascidiella aspersa</i> (F), <i>Marthasterias glacialis</i> (C), <i>Asterias rubens</i> (C), <i>Pecten maximus</i> (P).	SS.SMp.KSwSS	KSS	
HI04	Infralittoral coarse sediments of sand (95%) and shell (5%) with dead <i>Ensis</i> shells. Approx 7m BCD. Video taken from drop video (not GoPro).	<i>Saccharina latissima</i> (F) with filamentous red algae (O), <i>Ascidiella aspersa</i> (C) and <i>Chaetopterus</i> tubes (F). Other epifauna present in low numbers included in species list.	SS.SMp.KSwSS	KSS	
HI09	Infralittoral Maerl bed (> 95% cover, some live, but unable to assign accurate proportion live and dead from video) with shells. 10m bcd. Video taken from drop video (not GoPro).	Maerl gravel bed (mainly dead) with filamentous red algae (O) and hydroid turf (F), <i>Saccharina latissima</i> (R) and <i>Scinaia</i> (C) amongst other occasional algae. Regular evidence of burrows and burrowing anemones (<i>Cerianthus lloydii</i> ?, C), and epifauna comprising <i>Ascidiella aspersa</i> (F), <i>Marthasterias</i> (F), <i>Henricia</i> (O), one <i>Pecten maximus</i> and <i>Necora puber</i> observed over tow.	SS.SMp.Mrl.Pcal	MB	
HI10	Infralittoral mixed ground at approx 18-19m bcd, with poorly sorted sands, shell, gravel and dead maerl gravel (9%), and occasional cobbles and pebbles. Video taken from drop video (not GoPro).	<i>Saccharina latissima</i> (O), <i>Ascidiella aspersa</i> (C) and <i>Chaetopterus</i> tubes (F) and a variety of starfish (C). Unidentifiable burrows frequent. Other epifauna present in low numbers included in species list, but difficult to assign taxa due to poor quality and high speed of video.	SS.SMx.IMx		
HI11	Circalittoral mixed sediments dominated by muddy sand, shells and rare cobbles and boulders, at 22-24m bcd. Imagery followed a fishing vessel as it towed / dredged.	Occasional signs of life evident, but video quality very poor. Rare hydroid and bryozoan turf, bivalve siphons, burrowing sea anemones (Cerianthidae, O), and only <i>Aequipecten opercularis</i> and <i>Porania puvillus</i> observed. Some drift <i>Saccharina latissima</i> present, but thought to be drift weed.	SS.SMx.CMx		
HI12	Circalittoral mixed sediments dominated by muddy sand, pebbles, shells and rare cobbles, at 22-24m bcd.	Occasional hydroid and bryozoan turf, regular large burrows and signs of excavation, <i>Munida rugosa</i> (O), burrowing sea anemones (Cerianthidae, F), <i>Aequipecten opercularis</i> (F)	SS.SMx.CMx		

		and <i>Porania puvillus</i> (O) observed, amongst others. Some drift <i>Saccharina latissima</i> present, but thought to be drift weed.			
HI13	Circolittoral mixed sediment, from 17-20m bcd. More gravel (including <5% dead Maerl) and sand than mud, forming a veneer over scoured bedrock, and at the base of large boulders and / or bedrock outcrops.	Sediments with brittlestars forming patchy beds (A) in places, with <i>Aequipecten opercularis</i> (F), <i>Ascidella aspersa</i> (F) and Cerianthiidae burrowing anemones (O). Sediment inundated bedrock scoured with coralline algae (F), and silted boulders dominated by <i>Ciona intestinalis</i> (C) on rock edges. Dead maerl present in sediment sometimes in large pieces, but no live maerl seen.	SS.SMx.CMx SS.SMx.CMx.OphMx CR.LCR.BrAs.AmenCio		
HI14	Infralittoral maerl bed (> 95% cover, some live, but unable to assign accurate proportion live and dead from video) with over 20% shells. 4-10m bcd. Video taken from drop video (not GoPro).	Maerl gravel bed (mainly dead) with <i>Saccharina latissima</i> (C), brown filamentous algae (C) and <i>Scinaia</i> (C) and <i>Ulva</i> (F). Gravel characterised by burrowing anemone (<i>Cerianthus lloydii</i> ?, C), and dominated by a diversity of starfish including <i>Asterias rubens</i> (C), <i>Luidia ciliaris</i> (F) and <i>Crossaster papposus</i> (F). Additional fauna available in species list.	SS.SMp.KSwSS	KSS	
HI15	Infralittoral kelp forest on coralline encrusted scoured cobbles and boulders.	<i>Laminaria hyperborea</i> (C) with some sporelings at start of tow (O) and <i>Saccharina latissima</i> (A). Coralline algae crusts frequent on cobbles and boulders, and <i>Palmaria palmata</i> (C) on stipes of <i>Laminaria</i> . A diversity of other weed unidentifiable to species from video, including <i>Odonthalia</i> (F), <i>Ulva</i> (O), <i>Desmarestia</i> (C), <i>Dictyota</i> (O) and <i>Cryptopleura ramosa</i> (O). Little mobile fauna evident. The XKScrR is not considered a 'Kelp bed' PMF.	IR.HIR.KSed.XKScrR		
HI16	Infralittoral maerl bed (approx 70% cover, some live) with shells and cobbles, fringed by scoured cobble reef with kelp. 5m bcd.	Maerl gravel bed (mainly dead) with <i>Saccharina latissima</i> (A), <i>Desmarestia</i> (C) and <i>Scinaia</i> (C) amongst other algae. Large bushy filamentous red algae (F) may be <i>Heterosiphonia japonica</i> , but difficult to identify from video. Regular small asteroids (F) and <i>Chaetopterus</i> tubes (C).	SS.SMp.KSwSS IR.HIR.KSed.LsacSac	KSS	
HI17	Infralittoral maerl bed (> 70% cover, some live, but unable to assign accurate proportion live and dead from video) with shells. 7-9m bcd. Video taken from drop	Maerl gravel bed (mainly dead) with <i>Saccharina latissima</i> (A), <i>Desmarestia</i> (C), <i>Scinaia</i> (C) and filamentous red algae (possibly <i>Heterosiphonia japonica</i> , F) amongst	SS.SMp.KSwSS	KSS	

	video (not GoPro).	other occasional algae. Regular evidence of burrows and burrowing anemones (<i>Cerianthus lloydii</i> ?, C), and epifauna comprising <i>Echinus</i> (F), <i>Ascidiella aspersa</i> (F), <i>Marthasterias</i> (C), <i>Henricia</i> (O), <i>Pecten maximus</i> (F) and a diversity of asteroids.			
HI18	Infralittoral sediments, 6-7m bcd. Including dead maerl gravel (80%), shell (10%), pebbles and rare cobbles. Imagery too fast for good analysis (no GoPro).	Maerl gravel bed (no live maerl seen) with <i>Saccharina latissima</i> (A), <i>Desmarestia</i> (C), <i>Chorda filum</i> (C), <i>Scinaia</i> (F) and filamentous red algae (possibly <i>Heterosiphonia japonica</i> or <i>Bonnemasonia</i> , C) amongst other occasional algae. Dense kelp cover meant understorey and sediments rarely visible, so sparse epifauna evident with the exception of <i>Echinus</i> (F), and asteroids (F), which were indetermined due to poor video quality.	SS.SMp.KSwSS	KSS	
HI19_15	Infralittoral sediments comprising 75% dead Maerl with pebbles and shell, and 10% boulders at 9m bcd. Little, or no, live maerl.	Maerl gravel bed (dead) with <i>Saccharina latissima</i> (A), silted fine branching red algae (C), <i>Desmarestia</i> (C), potential <i>Heterosiphonia japonica</i> or <i>Bonnemasonia</i> (F), <i>Scinaia</i> (F) and <i>Ulva</i> (F). Gravel characterised by burrowing anemone (<i>Cerianthus lloydii</i> ?, F), whilst boulders were covered in hydroids (<i>Sertularella gayi</i> , O), <i>Antedon bifida</i> (C) and tunicates (<i>Ciona intestinalis</i> , F, and <i>Ascidiella aspersa</i> , C).	SS.SMp.KSwSS	KSS	
HI19_18	Circalittoral muddy mixed sediments, comprising mud (40%), gravel (35%), pebbles (4%), dead maerl gravel (<1%), shell and fragmented shell (10%) and a fine sand constituent. 19-20.5m bcd. GoPro HD video analysed.	Characterised by <i>Cerianthus lloydii</i> (C) and <i>Asterias rubens</i> (C), with bryozoan and hydroid turf on small pebbles, shell and cobbles. Ophiurids occasional, together with frequent <i>Ascidiella aspersa</i> , <i>Gobidae</i> , <i>Buccinum undatum</i> and <i>Henricia</i> .	SS.SMX.CMx		
HI20	Lower infralittoral boulders (40%) with coarse sediments between boulders comprising pebbles and gravel, sand with a little mud. 10-11.7m bcd. GoPro HD video analysed.	Characterised by fine red seaweed (possibly <i>Heterosiphonia japonica</i> , A) and <i>Ciona intestinalis</i> (A), some Laminarid sporelings (F) and other red weeds. Bryozoan and hydroid turf on small boulders, together with frequent <i>Ascidia virginea</i> and <i>Ascidiella aspersa</i> , and occasional <i>Corella parallelogramma</i> . More species listed in species list.	IR.HIR.KFaR.FoR SS.SCS.CCS		
HI21	Maerl gravel (79%) with shell (11%) and pebble (10%), 7-10.6m bcd. GoPro HD video analysed.	Maerl gravel (dead) characterised by <i>Saccharina latissima</i> (A), <i>Scinaia</i> (C), red filamentous algae (F), amongst other	SS.SMp.KSwSS	KSS	

		occasional red algae including coralline crusts on pebbles and dead shell (R) and filamentous red mats (O) towards end of video. Other characterising epifauna comprising <i>Cerianthus lloydii</i> (C), <i>Marthasterias glacialis</i> (C), and other asteroids. More species available in species list.			
HI22	Maerl gravel (75%) with shell (15%) and pebble (9%), 7-8.7m bcd. GoPro HD video analysed.	Maerl gravel (dead) characterised by <i>Saccharina latissima</i> , <i>Desmarestia</i> and <i>Scinaia</i> (all C), and <i>Cerianthus lloydii</i> (C) in gravel. Also present was a diversity of echinoderms and rare to occasional other algae. Less than 1% live maerl. More species available in species list.	SS.SMp.KSwSS	KSS	
HI23	Mixed sediments comprising dead maerl gravel (30%), shell gravel (30%) and shell (4%) with occasional patches of coralline encrusted exposed bedrock and boulders. 13-15m bcd. GoPro HD video analysed, but too fast and far from seabed for good analysis.	Maerl gravel (dead) covered in Superabundant brittlestars (<i>Ophiocomina nigra</i> at least abundant) and <i>Cerianthus lloydii</i> (C). Where bedrock and boulders were exposed there was a veneer of coralline algae (O), common <i>Alcyonium digitatum</i> and <i>Ciona intestinalis</i> and rare <i>Suberites carnosus</i> . More species available in species list. A patch of 40seconds towards the end of the video had occasional brittlestars and the maerl gravel exposed.	SS.SMx.CMx.OphMx CR.LCR.BrAs.AmenCio.Bri		
HIN01	Infralittoral mixed sediment, at least 50% of which is pebbles with approx 20% gravel, 4-9m bcd.	Pebbles dominated by <i>Ascidella aspersa</i> (with other tunicates occasional), and common <i>Antedon bifida</i> , <i>Marthasterias glacialis</i> , <i>Pecten maximus</i> . <i>Saccharina latissima</i> (O) present in low numbers, but the habitat was not a macrophyte dominated community.	SS.SMx.IMx		
HIN02	Infralittoral maerl gravel (approx 70% cover, less than 5% live, therefore not a Maerl Bed, but very difficult to ascertain from video) with shells 25%. Video taken from drop video (not GoPro). Approx 4.5m bcd.	Maerl gravel (mainly dead) characterised by <i>Saccharina latissima</i> (A), <i>Chorda filum</i> (C) red filamentous algae (C), possibly <i>Heterosiphonia japonica</i> or another fine branching red alga (C), <i>Desmarestia</i> (F) and <i>Scinaia</i> (F) amongst other occasional red algae including coralline crusts on pebbles (O). Other characterising epifauna included <i>Chaetopterus</i> (?) tubes (F) burrowing anemone (<i>Cerianthus lloydii</i> ?, F), and epifauna comprising <i>Ascidella aspersa</i> (A), <i>Marthasterias glacialis</i> (F) and other asteroids.	SS.SMp.KSwSS	KSS	

HIN03	Infralittoral maerl gravel (approx 80% cover, less than 5% live, therefore not a Maerl Bed) with shells 15%. Video taken from drop video (not GoPro). Approx 4.5m bcd.	Maerl gravel (dead) characterised by <i>Saccharina latissima</i> (A), <i>Chorda filum</i> (A) red filamentous algae (F), <i>Desmarestia</i> (F) and <i>Ulva</i> (F) amongst other occasional red algae including coralline crusts on pebbles and dead shell(O). Other characterising epifauna comprising <i>Asciidiella aspersa</i> (A), <i>Marthasterias glacialis</i> (C), <i>Luidia ciliaris</i> (C) and other asteroids.	SS.SMp.KSwSS	KSS	
HIN04	Infralittoral maerl gravel (approx 60% cover, less than 1% live, therefore not a Maerl Bed) with shells 30% (100% dead shell cover in places). Video taken from drop video (not GoPro), often too far from seabed. Approx 4.5m bcd.	Characterised by <i>Saccharina latissima</i> (C), <i>Chorda filum</i> (A), <i>Sciniaia</i> (F), and an unusually high abundance of large starfish including <i>Asterias rubens</i> (A), <i>Luidia ciliaris</i> (C), <i>Marthasterias glacialis</i> (C) in addition to other species. Other characterising epifauna comprising <i>Asciidiella aspersa</i> (A). One dislodged live <i>Limaria hians</i> clear from video (01:06-01:08), recorded only as present. High number of asteroids and shell gives the impression this is a live bivalve bed. However, unlikely to be SS.SMx.IMx.Lim as other characterising species are absent from habitat.	SS.SMp.KSwSS	KSS	
HIN05	Infralittoral sand (60%) and shell (15%) with dead <i>Ensis</i> shells and pebbles (25%) and 5% gravel. Approx 4-4.5m BCD. Video taken from drop video (not GoPro).	<i>Saccharina latissima</i> (C), <i>Chorda filum</i> (C) and <i>Desmarestia</i> (C) with filamentous red algae (F). <i>Polyides</i> / <i>FurCellaria</i> common (recorded as Gigartinales). Diverse flora and fauna including <i>Asciidiella aspersa</i> (A) a selection of common asteroids, and a selection of large mobile fauna for which only one was seen (therefore recorded as present over a small survey area). Other epifauna present in low numbers included in species list.	SS.SMp.KSwSS	KSS	
HIN06	Infralittoral gravel (35%), dead Maerl (10%), sand (20%) and shell (25%) with dead <i>Ensis</i> shells and pebbles (5%). Approx 6.35m BCD. Video taken from drop video (not GoPro), very poor quality for assigning substrates and taxa.	<i>Saccharina latissima</i> (A), <i>Chorda filum</i> (F) and with fine red branching algae (possibly <i>Brongiatella</i> , C) and <i>Sciniaia</i> (O). Burrowing sea anemones <i>Cerianthus lloydii</i> (?) common, <i>Asciidiella aspersa</i> (F), <i>Astropecten irregularis</i> (F) together with a selection of common asteroids, and a selection of large mobile fauna for which only one was seen (therefore recorded as present over a small survey area). Other epifauna present in low numbers included in species list, and identification of	SS.SMp.KSwSS	KSS	

		taxa limited by poor resolution video.			
HIN07	Circalittoral gravel (25%), dead Maerl (20%), sand (40%) and shell (5%) with dead <i>Ensis</i> shells and pebbles (10%). Approx 5-11.5m BCD. Video taken from drop video (not GoPro), very poor quality for assigning substrates and taxa.	Video resolution too poor for confident assignment of species. Rare algae present including filamentous / finely branching reds (R) and brown filamentous algae (R), and <i>Chorda filum</i> which may have been driftweed (R). Gravels characterised by burrowing sea anemones <i>Cerianthus lloydii</i> (?) common, unidentified common tubes and burrows, <i>Chaetopterus</i> tubes (F), and bryozoan / hydroid turf on large pebbles (R). Good habitat for <i>Neopentadactyla mixta</i> , but resolution not good enough to assign species with confidence. Other epifauna present in low numbers included in species list, and identification of taxa limited by poor resolution video.	SS.SCS.CCS		
HIN08	50 seconds of large and very large angular boulders covered in silted coralline algae, giving way to mixed sediments (60% coarse sand and gravel, with some pebbles and mud). Approx 10.4 - 12.4m m BCD. Video taken from drop video (not GoPro)	Boulders covered with crustose coralline algae (C), bryozoan crusts (O), Serpulids (probably <i>Spirobranchus</i> , R) and <i>Echinus</i> (C), with hydroid turf (O) on smaller boulders and edges of overhangs. Mixed sediments containing burrowing anemones (<i>Cerianthus lloydii</i> ? C), <i>Chaetopterus</i> (F) and <i>Luidia ciliaris</i> (F) amongst other mobile epifauna.	SS.SMx.CMx CR.MCR.EcCr		
HINX1	maerl gravel (75%) with shell (20%) and pebble (1%), 4.5-4.9m bcd. At end of video moved onto more mixed boulder ground with superabundant <i>Saccharina latissima</i> . Drop vid analysed (no GoPro).	maerl gravel (less than 1% live) characterised by <i>Saccharina latissima</i> (A), <i>Chorda filum</i> (C), <i>Dilsea carnosa</i> (F), red (F) and brown (O) filamentous and fine branching algae and <i>Scinaia</i> (O). <i>Asciidiella aspersa</i> (C), <i>Marthasterias glacialis</i> (C) and small unidentified shoaling fish (F). More species available in species list.	SS.SMp.KSwSS	KSS	
HINX2	maerl gravel (70%) with little communiton (Maerl structure still very well formed) with shell (30%), 4.7-4.9m bcd. Drop vid analysed (no GoPro).	maerl gravel (less than 1% live) characterised by <i>Saccharina latissima</i> (C), <i>Chorda filum</i> (A), <i>Ulva</i> (F) and red (F) and brown (O) filamentous and fine branching algae and <i>Scinaia</i> (O). <i>Asciidiella aspersa</i> (A), <i>Asterias rubens</i> (C), <i>Marthasterias glacialis</i> (C) and small unidentified shoaling fish (F). More species available in species list.	SS.SMp.KSwSS	KSS	
IR01	Lower infralittoral coarse sediments with dead Maerl (1%) mixed into the gravel.	Dead Maerl (R) present. Filamentous Rhodophytes (C) are the dominant flora with	SS.SMp.KSwSS.LsacR.CbPb	KSS	

	Boulders (25%), cobbles (30%), pebbles (30%), gravel (9%), shell gravel (2%), shell (1%), and sand (2%). Approx 12.37 - 13.38m BCD.	foliose rhodophytes (R), <i>Saccharina latissima</i> (R), and <i>Laminaria</i> sporelings (R). Pisces (P), and Asteroidea (P) are the main mobile species. Additional information available in species list.			
IR02	Infralittoral sediments. Boulders (40%), Cobbles (30%), Pebbles (20%), Gravel (5%), Shell gravel (3%), Shell (2%). 7.67 - 10.65m BCD.	<i>Saccharina latissima</i> (A) and <i>Laminaria hyperborea</i> (C) dominate with an understory of filamentous Rhodophytes. Shoals of small unidentified Pisces (P) seen 50 seconds into video. Additional information available in species list.	SS.SMp.KSwSS.LsacR	KSS	
IR03	Upper infralittoral coarse sediments dominated by boulders (25%) cobbles (20%) and pebbles (35%). With gravel (10%), shell gravel (3%) shell (1%) sand (3%) and mud (3%). Approx 7.59 - 9.59m BCD.	<i>Saccharina latissima</i> (C) with <i>Laminaria hypoborea</i> (C). Coralline algae crusts (C) on cobbles and boulders. A diversity of other red and brown weed unidentifiable to species level. Pisces (P) present as mobile species. With <i>Chaetopterus</i> (O) in the softer sediment between boulders. Additional information available in species list.	SS.SMp.KSwSS.LsacR	KSS	
IR04	Lower infralittoral mixed sediments. maerl gravel, forming ridges with large sediment particles in the ridge troughs. Live Maerl (2%), dead Maerl (22%) boulders (7%), cobbles (19%), pebbles (15%), gravel (20%), shell gravel (7%), shell (3%), sand (2%), and mud (3%). Approx 17.42 - 18.44m BCD.	Live Maerl (R) and dead Maerl (22%) creating ridges. Many unidentifiable burrows in the sediment below the Maerl. Corallinaceae (F) and Serpulidae (O) found on larger sediment fractions in wave troughs. Addition information available in species list.	SS.SCS.CCS		
IR05	Infralittoral mixed sediment with small boulders. Boulders (10%), cobbles (30%), pebbles (25%), gravel (25%), shell gravel (2%), sand (3%), and mud (3%). Approx 13.45 - 13.47m BCD.	Flora dominated by filamentous (A) and foliose (F) Rhodophytes. <i>Saccharina latissima</i> (R) and <i>Laminariaceae</i> sporelings (R). Attached to the Rhodophytes were unidentifiable Ascidiars (C). Asteriodia (P). Additional information available in species list.	SS.SMp.KSwSS.LsacR.CbPb	KSS	
IR06	Infralittoral coarse sediment . Boulders (20%) Cobbles (45%), Pebbles (15%), Gravel (10%), Shell gravel (5%), Shell (2%), Sand (3%). Approx 7.5 - 6.5 BCD.	<i>Saccharina latissima</i> (C) with <i>Laminaria hypoborea</i> (R) and <i>Laminaria</i> sporelings (R). Coralline algae crusts (A) on cobbles and boulders. A diversity of other red and brown weed unidentifiable to species level. Pisces (P) present as mobile species. Additional information available in species list.	SS.SMp.KSwSS.LsacR	KSS	
IR07	Circalittoral coarse sediment with dead Maerl (18%) live maerl (1%). Pebbles (30%) gravel (40%), shell gravel (4%), shell	Live Maerl (R) and dead Maerl (F). Serpulidae (O), Corallinaceae (O), and a few mobile species. Appeared to be quite a lot of fine	SS.SCS.CCS		

	(2%), and sand (3%). Approx 17.27 - 18.23m BCD.	sediment settled on top of the substrata. Additional information available in species list.			
IR08	Infralittoral mixed sediment with boulders (6%), cobbles (10%), pebbles (54%), gravel (18%), shell gravel (2%), shell (2%), sand (3%), and mud (5%). Approx 12.27 - 13.19m BCD.	Infralittoral silted <i>Saccharina latissima</i> (C) with epiphytic <i>Obelia</i> (O) and encrusting Bryozoans (O). Filamentous Rhodophytes (A), Acidiacea (O). With some mobile species, Asteroidea (P). Additional fauna available in species list.	SS.SMp.KSwSS	KSS	
IR09	Upper infralittoral coarse sediments appearing in irregular patches with boulders (15%) cobbles (20%) pebbles (25%) gravel (36%), shell gravel (2%), and shell (2%). Approx 7.26 - 8.16m BCD.	Mixed kelps creating a forest. <i>Laminaria hyperborea</i> (C) and <i>Saccharina latissima</i> (C). A dense flora was present, with associated epifauna. Asteroidea (P) and Pisces (P) were the dominating mobile species. Additional information available in species list.	IR.HIR.KSed.XKScrR		
IR10	Infralittoral rock. boulders (25%), cobbles (40%), pebbles (10%), gravel (10%), sand (12%) and mud (3%). Substrate silted. Lower infralittoral. Approx 15.53m BCD. GoPro imagery.	No Maerl. High number of echinoderms. <i>Echinus esculentus</i> (C), Asteroidea (C), <i>Luidia ciliaris</i> (F), <i>Porania pulvillus</i> (F). Alot of small Pisces (C). Fine filamentous weed dominating the substrate (S) with <i>Laminariaceae</i> sporelings (R). No other <i>Laminariaceae</i> present. Additional fauna available in species list.	IR.HIR.KSed		
IR11	Boulders (1%), Cobbles (30%), Pebbles (30%), Gravel (19%), Shell gravel (5%), Shell (1%), Sand (10%), Mud (3%), Dead Maerl (1%). Approx 11.55m BCD. GoPro imagery.	Dead Maerl. Silted <i>Saccharina latissima</i> (A), Filamentous Rhodophytes (C), Foliose Rhodophytes (F), and Branching Rhodophytes (R). Corallinaceae (F), and Serpulidae (O) growing epiphytically on pebbles and cobbles. Mobile fauna including Pisces (C) and Echinoderm species. Additional fauna available in species list.	SS.SMp.KSwSS	KSS	
IR12	Boulders (1%), cobbles (25%), pebbles (35%), gravel (27%), shell gravel (1%), shell (1%), sand (10%). Approx 6.7m BCD. GoPro imagery	No Maerl. <i>Saccharina latissima</i> (A) and <i>Laminaria hypoborea</i> (O) are the dominant species of kelp. With large quantities of filamentous (A), foliose (F) and branching (O) Rhodophytes. Phaeophyceae also recorded. High numbers of juvenile fish. Occasional Echinoderms. Additional fauna available in species list.	SS.SMp.KSwSS	KSS	
IR13	Mixed circalittoral sediment with a high percentage of mud. Boulders (1%), cobbles (2%), pebbles (5%), gravel (10%), shell gravel (2%), shell (3%), sand (2%) and mud (67%). Approx 23.79 - 24.7m BCD. GoPro imagery.	A number of unidentifiable burrows within the sediment. Actiniaria (P) also found on the sediment. On larger sediment types Hydroid (O) and Bryozoan (O) turf present. Pectiniaria (P) Asteroidea (P) contribute to mobile fauna. Additional information available in the species	SS.SMX.CMx		

		list.			
IR14	Boulders (25%), cobbles (25%), pebbles (15%), gravel (25%), shell gravel (2%), shell (2%), sand (2%) and mud (4%). Approx 12.79 - 14.68m BCD. GoPro imagery.	Dominated by filamentous Rhodophytes (S) with Ascidiacea (F) growing epiphytically. Other flora present. Echinoderms are common. Additional information available in the species list.	SS.SMp.KSwSS.LsacR.CbPb	KSS	
IR15	Due to the high flora cover in the habitat recording of substrate components may have a high level of error. Boulders (2%), cobbles (15%), pebbles (55%), gravel (40%), shell gravel (2%), shell (2%), sand (2%) and mud (2%). Approx 7.77 - 7.66m BCD. GoPro imagery.	<i>Saccharina latissima</i> (C) and <i>Laminaria hyperborea</i> (F) create a dense canopy with a number of other algae growing epiphytically and below the canopy. <i>Chaetopterus</i> (P) tubes found with in the sediment. Asteroidea (P), Pisces (P) and <i>Echinus</i> (P) make up the mobile species community. Additional information available in the species list.	SS.SMp.KSwSS.LsacR	KSS	
IR16	Infralittoral rock. No Maerl. cobbles (35%), pebbles (35%), gravel (20%), shell gravel (5%), shell (7%), sand (7%), mud (3%). 12.72 - 13.68m BCD.	Filamentous Rhodophytes (A) with <i>Saccharina latissima</i> (C) and <i>Laminaria</i> sporelings (P). <i>Asciidiella apersa</i> (F) seen growing on Rhodophytes. Pisces (P), <i>Echinus</i> (P), and Asteroidea (P). Additional information available in species list.	IR.HIR.KSed SS.SMp.KSwSS	KSS	
IR17	Upper infralittoral boulders and coarse sediment. Boulders (30%) Cobbles (30%), Pebbles (20%), Gravel (15%), Shell gravel (3%), Shell (1%), Sand (1%). Approx 6.64 - 6.62 BCD.	<i>Laminaria hyperborea</i> (A), with <i>Saccharina latissima</i> (F). Coralline algae crusts (C) on cobbles and boulders. A diversity of other red weed unidentifiable to species level. <i>Echinus</i> (P) and Pisces (P) present as mobile species. Additional information available in species list.	IR.MIR.KR		
IR18	Mixed sediment in the lower infralittoral. Possible dead Maerl (2%) in the gravel. Boulders (2%), Cobbles (35%), Pebbles (30%), Gravel (10%), Shell gravel (2%), Shell (2%), Sand (4%), Mud (5%). 10.89 - 10.78m BCD.	Possible dead Maerl (R) in the gravel. Filamentous Rhodophytes (A) with <i>Saccharina latissima</i> (C). Pisces (P), <i>Echinus</i> (P), and Asteroidea (P). Additional information available in species list.	SS.SMp.KSwSS.LsacR	KSS	
IR19	Infralittoral mixed sediment. No Maerl. Boulders (5%), Cobbles (30%), Pebbles (20%), Gravel (15%), Shell gravel (15%), Shell (5%), Sand (5%), Mud (5%). 4.98 - 7.8m BCD.	Dense <i>Laminaria hyperborea</i> (C), <i>Saccharina latissima</i> (C). With encrusting Bryozoans (O). Mobile speices include Asteroidea (P) and Pisces (P). Additional information available in species list.	IR.MIR.KR		
IR20	Coarse sediment containing Boulders (25%), Cobbles (40%), Pebbles (15%) and Gravel (10%), Sand (10%). Approx 7.01 - 7.82m BCD.	Dense <i>Saccharina latissima</i> (A), and <i>Laminaria hyperborea</i> (P). Both with and <i>Obelia</i> (O), and Bryozoa turf (O) epifauna. Rhodophytes present in a number of different forms. Asteroidea and Pisces also present. Additional information available in species list.	SS.SMp.KSwSS.LsacR	KSS	

IR21	Upper infralittoral boulders and coarse sediment becoming finer coarse sediment towards the end of the transect. Boulders (5%) Cobbles (35%), Pebbles (10%), Gravel (8%), Shell gravel (10%), Shell (2%), Sand (30%). Approx 2.04 -2.84m BCD.	Dense <i>Laminaria hyperborea</i> (A) forest with associated epifauna; Indeterminate encrusting Bryozoan (F), filamentous Chlorophytes (R) and filamentous Rhodophytes (A). Pisces (P) and Asteroidea (P). Additional information available in species list.	IR.MIR.KR.LhypTX.Ft IR.MIR.KR.Ldig	TSA	
IR22	Upper infralittoral coarse sediments appearing in irregular patches with boulders (8%) cobbles (25%) pebbles (20%) gravel (30%), shell gravel (5%) shell (2%) and sand (10%). Approx 4.57 - 5.56m BCD.	Kelp forest comprised of <i>Laminaria hyperborea</i> (C) and <i>Saccharina latissima</i> (C). Filamentous Rhodophytes (C) and other red and brown weeds, Hydroid turfs and Bryozoan crusts unidentifiable to species level. Additional information available in species list.	IR.HIR.KSed.XKScrR		
IR23	Upper infralittoral coarse sediments covered in dense kelp forest making it impossible to get an accurate impression of the sediment composition. From sediment visible in video it appears to be dominated by boulders (25%) cobbles (20%) and pebbles (35%). With gravel (20%). Approx 0.52 - 2.53m BCD.	Dense <i>Laminaria hyperborea</i> (A) forest. With distinctive species of Rhodophyte growing epiphytically and in the understory. <i>Chondrus crispus</i> (R) and <i>Palmaria palmata</i> (O). Additional information available in species list.	IR.MIR.KR.LhypTX	TSA	
IR24	Infralittoral bedrock and/ or boulders covered in coralline red algae and kelp. Unable to see substrate due to kelp canopy. Rough substrate analysis found bedrock / large boulders (~20%), cobbles (5%), pebbles (50%), stone gravel (10%), sand (10%) and shell gravel (5%). 2.7 - 3.6m bcd. HD GoPro video analysed.	Sand scoured mobile cobbles and pebbles covered in coralline algae (O). Bedrock, boulders and cobbles characterised by <i>Laminaria hyperborea</i> (C), <i>Saccharina latissima</i> (F) and <i>Saccorhiza polyschidesi</i> (P) with <i>Desmarestia</i> and <i>Halidrys siliquosa</i> both common. Various red algae and echinoderms in the understory, including <i>Palmaria palmata</i> (O), <i>Odonthalia dentata</i> (R) and common filamentous and fine branching reds (C).	IR.HIR.KSed.XKScrR		
IR25	Due to the high flora cover in the habitat recording of substrate components may have a high level of error. Boulders (5%), cobbles (40%), pebbles (35%), gravel (15%), shell gravel (2%), shell (5%), sand (1%). Approx 3.74 - 3.6m BCD. GoPro imagery.	<i>Desmarestia</i> (C) with epiphytic filamentous rhodophytes (F), <i>Laminaria hyperborea</i> (C) and <i>Saccharina latissima</i> (F) dominate the flora cover with a number of other species. Additional species available in Video matrix_SACFOR.	IR.HIR.KSed.XKScrR		
IR30	Due to the high flora cover in the habitat recording of substrate components may have a high level of error. Boulders (5%), cobbles (55%), pebbles (15%), gravel (5%), shell gravel (2%), shell (1%), sand (12%).	Dense <i>Laminaria hyperborea</i> (A) forest with associated epifauna; Indeterminate encrusting Bryozoan (O), flat Chlorophytes (R) and filamentous Rhodophytes (F). Asteroidea (P). Additional information available in species list.	IR.MIR.KR.LhypTX.Ft SS.Ssa.IFiSa	TSA	

	Approx 1.76 - 1.64m BCD. GoPro imagery.				
IR31	Lower infralittoral mixed sediment with a high percentage of mud. Dead Maerl (1%) boulders (2%), cobbles (5%), pebbles (30%), gravel (15%), shell gravel (2%), shell (2%), sand (10%) and mud (33%). Approx 19.79 - 20.71m BCD. GoPro imagery.	A number of unidentifiable burrows within the sediment. Dead Maerl (R) found within the sediment. On larger sediment types Hydroid (O) and Bryozoan (O) turf present. Pectiniaria (P) Asteroidea (P), <i>Marthasterias glacialis</i> (P), and other Echinoderms contribute to mobile fauna. Additional information available in the species list.	SS.SMX.CMx		
IR32	A highly patchy and poorly mixed selection of coarse sediments. Towards the start of the tow the sediment contains a majority of cobbles and pebbles, which fades into larger boulders for 30 secs. This then fades to coarse gravel and then back to being dominated by cobbles and pebbles. Approx 7.79 - 10.73m BCD. GoPro imagery.	<i>Saccharina latissima</i> (A) with <i>Laminaria hyperborea</i> (F), <i>Desmarestia</i> (C), filamentous Rhodophytes, as well as other algae species. Corallinaceae (C) found on boulders, cobbles and pebbles. Pisces (P), <i>Echinus</i> (P) and Asteroidea (P) contributed to the mobile fauna on the transect. Additional information available in the species list.	SS.SMp.KSwSS.LsacR.CbPb SS.SMp.KSwSS	KSS	
IR33	Due to the high flora cover in the habitat recording of substrate components may have a high level of error. Boulders (5%), cobbles (35%), pebbles (35%), and gravel (25%) Approx 3.79 - 2.74m BCD. GoPro imagery.	Dense <i>Laminaria hyperborea</i> (A) and <i>Saccorhiza polyschides</i> (P) forest with <i>Saccharina latissima</i> (R). Difficult to see the understorey, but several species of Rhodophyte and flat Chlorophytes growing epiphytically. <i>Palmaria palmata</i> (O). <i>Echinus</i> (P) and Pisces (P). Additional information available in species list.	IR.MIR.KR.LhypTX.Ft	TSA	
IR34	Circalittoral mixed sediments. Dead Maerl (5%) Boulders (2%), Cobbles (30%), Pebbles (29%), Gravel (15%), Shell gravel (2%), Shell (2%), Sand (5%), Mud (10%), Dead Maerl (5%). Approx 19.5 - 19.97m BCD.	Dead Maerl (R) comprised part of the gravel. Serpulidae (C). Cerianthidae (O). Decapod (P). A high number of burrows in the sediment. Additional information available in species list.	SS.SMx.CMx		
IR35	Lower infralittoral mixed sediment. No Maerl. Boulders (15%), Cobbles (35%), Pebbles (33%), Gravel (10%), Shell gravel (5%), Shell (2%), Sand (5%), Mud (10%). Approx 14.47 - 13.96m BCD.	Filamentous Rhodophytes (C), Corallinaceae (O) and Hydroid turf (F) growing epiphytically on larger sediment particles. Pisces (P) along with some Echinoderms. Additional information available in species list.	SS.SMx.IMx		
IR36	The density of <i>Laminaria hyperborea</i> meant that it was impossible to get a true idea of the sediment composition. From the sediment visible in the video, the composition is as follows; Boulders (5%), Cobbles (40%), Pebbles (40%), Gravel (10%), Shell gravel (1%), Shell (1%), Sand	Dense <i>Laminaria hyperborea</i> forest (S), epiphytes growing on this species include <i>Palmaria palmata</i> (F), <i>Plocamium</i> (F), <i>Obelia</i> (F), and Bryozoa turf (F) as well as other algae species. The video was too far from the sediment surface to be able to analyse the understory species. Additional information	IR.MIR.KR.LhypTX.Ft	TSA	

	(1%), Mud (2%). Approx 0.41-0.95m BCD.	available in species list.			
IR37	Lower infralittoral gravel sediment. Dead maerl gravel. Cobbles (10%), Pebbles (20%), Gravel (40%), Shell gravel (5%), Shell (2%), Sand (3%). Approx 13.26 - 13.96m BCD.	Dead Maerl (C) forming waves roughly 40cm in lengths. Few <i>Saccharina latissima</i> (C) covered with Bryozoa crust (R). Also a small number of <i>Laminaria</i> sporelings (C). Serpulidae (F) covered the pebbles and cobbles. Additional information available in species list.	SS.SCS.ICS		
IR38	The density of <i>Saccharina latissima</i> meant it was impossible to get a true idea of the sediment composition. Upper infralittoral coarse sediment. Boulders (10%), Cobbles (30%), Pebbles (37%), Gravel (20%), Shell gravel (1%), Shell (1%), Sand (1%). Approx 4.32 - 5.93m BCD.	Dense <i>Saccharina latissima</i> (A), and Common <i>Laminaria hyperborea</i> . Both with and <i>Obelia</i> (O), and Bryozoa turf (O) epifauna. Rhodophytes and Phaeophytes present in a number of different forms. Asteroidea and Pisces also present. Additional information available in species list.	SS.SMp.KSwSS.LsacR	KSS	
IR39	The density of <i>Laminaria hyperborea</i> meant that it was impossible to get a true idea of the sediment composition. From the sediment visible in the video, the composition is as follows; Boulders (40%), Cobbles (20%), Pebbles (20%), Gravel (5%), Shell gravel (5%), Shell (5%), Sand (2%), Mud (3%). Approx 0.41-0.95m BCD.	Dense <i>Laminaria hyperborea</i> forest (S), epiphytes growing on this species include <i>Palmaria palmata</i> (F), <i>Obelia</i> (A), and Hydrozoa turf (C) as well as other algae species. Many small Pisces (F) and Echinoderm (P). The video was too far from the sediment surface to be able to analyse the understorey species. Additional information available in species list.	IR.MIR.KR.LhypTX.Ft	TSA	
IR40	Circalittoral coarse sediment. Dead Maerl (25%), Cobbles (2%), Pebbles (25%), Gravel (23%), Shell gravel (2%), Shell (2%), Sand (13%), Mud (1%). 20.23 - 21.9m BCD.	Dead Maerl (C) forming waves roughly 40cm in lengths. Serpulidae (O) covering the pebbles and cobbles. Many unidentifiable burrows in the sediment. Additional information available in species list.	SS.SCS.CCS		
IR41	Lower infralittoral rock. No Maerl. Boulders (15%), cobbles (35%), pebbles (20%), gravel (15%), shell gravel (2%), shell (2%), sand (8%), mud (3%). Approx 11.16- 11.88m BCD.	Rhodophytes dominating the flora with <i>Saccharina latissima</i> (C). Corallinaceae (C) found on large substrata. Mobiles species included Perciformes (C) Asteroidea (F) and <i>Echinus</i> (P). Additional information available in species list.	IR.HIR.KSed		
IR42	The density of <i>Laminaria hyperborea</i> and distance of video meant it was impossible to get a true idea of the sediment composition. From the sediment visible in the video, the composition is as follows; Boulders (45%), Cobbles (30%), Pebbles (15%), Gravel (2%), Shell gravel (2%), Shell (2%), Sand (4%). Approx 2.1 -2.86m BCD.	Dense <i>Laminaria hyperborea</i> forest (A), epiphytes growing on this species include <i>Obelia</i> (R), and Encrusting Bryozoans (C) as well as other algae species. A few small Pisces (P). The video was too far from the sediment surface to be able to analyse the understory species. Additional information available in species list.	IR.MIR.KR.LhypTX.Ft	TSA	

IR43	Mixed sediment in the lower infralittoral. Boulders (2%), Cobbles (35%), Pebbles (30%), Gravel (10%), Shell gravel (2%), Shell (2%), Sand (4%), Mud (5%). 16.86 - 17.75m BCD.	No Maerl. Due to small survey area all of the species were recorded as present. Small amounts of filamentous Rhodophytes. Corallinaceae, and Hydroid and Bryozoan turfs on larger sediment particles. Unidentifiable burrows present. Additional information available in species list.	SS.SMx.IMx		
IR44	Coarse sediment forming waves ~ 40cm wide. Dead Maerl (35%) with potential live maerl but none confirmed. Cobbles (2%), Pebbles (8%), Gravel (25%), Shell gravel (10%), Shell (13%), Sand (1%), Mud (5%). 17.8 - 18.73m BCD.	Dead Maerl with potential live maerl. Mobile species included <i>Pecten maximus</i> (O) and Asteroidea (P). Additional information available in species list.	SS.SCS.CCS		
IR45	Coarse sediment forming waves ~ 30cm wide. Dead Maerl (40%) live maerl (1%). Cobbles (10%), Pebbles (15%), Gravel (15%), Shell gravel (7%), Shell (3%), Sand (5%), Mud (5%). 16.75 - 17.7m BCD.	Dead maerl (C) with a small amount live maerl (R). <i>Cerianthus lloydii</i> (C), <i>Chaetopterus</i> (P) and a large number of unidentifiable burrows. Additional information available in species list.	SS.SCS.CCS		
IR46	Mixed sediment with a high percentage of mud and sand, with a number of empty shells. Pebbles (1%), gravel (5%), shell gravel (5%), shell (10%), sand (50%) and mud (29%). Approx 24.31 - 25.32m BCD.	No maerl. Sparse fauna, likely to be a greater number of species living infaunally due to the percentage of mud and sand. Serpulidae (O) growing on pebbles. <i>Cerianthus</i> (F). Additional information available in species list.	SS.SMx.CMx		
IR47	Biotope mosaic. Dead Maerl (16%), boulders (1%), cobbles (17%), pebbles (30%), gravel (20%), shell (2%), sand (4%) and mud (10%). Approx 21.29 - 22.29m BCD.	Low number of unidentified burrows. Dead maerl (F), Hydroid (O) and Bryozoan (turf). With a few mobile species. Additional information available in species list.	SS.SMx.CMx SS.SCS.CCS		
IR48	Cobbles (10%), Pebbles (30%), Gravel (23%), Shell gravel (5%), Empty Shells (1%), Sand (10%) and Mud (20%). Larger sediment particles become more common towards the end of the transect. Approx 23.5m BCD. GoPro imagery	No maerl. High number of burrows in sediment. <i>Cerianthus lloydii</i> (R), few <i>Nemertesia</i> (O). Larger sediment particles with Balanoidea (R) and Corallinaceae (R). Mobile fauna included Echinoderms and Crustaceans. Additional fauna available in species list.	SS.SMx.CMx		
IR49_a	Lower infralittoral gravel with dead Maerl (20%) and live maerl (1%) in ridges with larger sediments in ridge troughs. Boulders (3%), cobbles (17%), pebbles (10%), gravel (30%), shell gravel (2%), shell (2%), sand (2%) and mud (3%). Approx 18.43 - 19.35m BCD.	This biotope could be recorded as SS.SCS.CCS.Nmix except for the lack of <i>Neopentadactyla mixta</i> . Dead maerl (C) with a small amount live maerl (R). <i>Chaetopterus</i> (P) and a number of unidentifiable burrows. Additional information available in species list.	SS.SCS.CCS		
IR49_b	Lower infralittoral mixed sediments with dead Maerl (4%). Boulders (1%), cobbles	Corallinaceae (F) and Hydroid (O) and Bryozoan (O) turf growing on pebbles, cobbles	SS.SMx.CMx		

	(17%), pebbles (50%), gravel (14%), shell gravel (2%), shell (2%), sand (2%) and mud (4%). Approx 18.43 - 19.35m BCD.	and boulders. Dead Maerl (R) in between the larger sediment particles. Additional information available in species list.			
IR50	Infralittoral rock. Boulders (20%), cobbles (35%), pebbles (15%) gravel (20%), shell gravel (3%), shell (2%), and sand (5%). Approx 14.28 - 15.26m BCD.	Filamentous Rhodophytes (A). Ascidiacea (F) seen growing on Rhodophytes. Pisces (P), <i>Echinus</i> (P), and Asteroidea (P). Unable to confirm whether there was Maerl in the gravel between larger sediment particles. Additional information available in species list.	IR.HIR.Ksed		
IR51	Circalittoral sediments dominated by sand. Pebbles (1%), gravel (2%), shell gravel (2%), shell (5%), sand (85%) and mud (5%). Approx 24.68 - 25.77m BCD. GoPro imagery.	Strong evidence for infaunal community from tracks, casts, and burrows, but uncertain to which Phyla these belong. Barnacles (R) Hydroids (O) and Bryozoans (O) growing on pebbles, gravel and shells. Mobile fauna included Gobiesociformes (O), <i>Liocarcinus</i> (O), and Asteroidea (P). Additional information available in species list.	SS.Ssa.CMuSa		
IR52	Infralittoral coarse sediments with no Maerl. Boulders (10%), cobbles (50%), pebbles (20%), gravel (10%), shell gravel (2%), shell (2%), sand (3%) and mud (3%). Approx 12.77 - 12.76m BCD. GoPro imagery.	Filamentous Rhodophytes (C) are the dominant flora with foliose rhodophytes (R), <i>Saccharina latissima</i> (R), and <i>Laminaria</i> sporelings (R). Pisces (P) including <i>Labrus mixtus</i> (P), Asteroidea (P), and <i>Echinus</i> (P) are the main mobile species. Additional information available in species list.	SS.SMp.KSwSS.LsacR.CbPb	KSS	
IR53	Due to the high flora cover in the habitat recording of substrate components may have a high level of error. Boulders (20%), cobbles (35%), pebbles (40%), and gravel (5%) Approx 3.78 - 4.75m BCD. GoPro imagery.	Dense <i>Laminaria hyperborea</i> (A) forest. With distinctive species of Rhodophyte and flat Chlorophytes growing epiphytically and in the understory. <i>Palmaria palmata</i> (O) and <i>Cryptopleura ramosa</i> (O). <i>Echinus</i> (P) and Pisces (P). Additional information available in species list.	IR.MIR.KR.LhypTX	TSA	
IR54	Lower infralittoral coarse sediments with Maerl in sporadic patches. Live Maerl (1%), dead Maerl (5%) boulders (10%), cobbles (30%), pebbles (20%), gravel (20%), shell gravel (5%), shell (1%), sand (5%), and mud (3%). Approx 12.4 - 14.41m BCD.	Maerl present. Possible to be more maerl, but unable to determine from the video. Flora dominated by <i>Saccharina latissima</i> (F), <i>Laminariaceae</i> sporelings (O) and Rhodophytes (C). Dead Maerl (O) and live maerl (R) in the gravel component of the sediment. Additional information available in species list.	SS.SMp.KSwSS.LsacR	KSS	
IR55_a	Infralittoral Maerl bed (5 % live, 50% dead) with pebbles, gravel and shells as remainder. Approx 14.45m BCD. GoPro imagery.	Live Maerl bed (A), dead maerl (O) forming ridges. Very little biota on the ridge crests. Ridge trough containing bivalve shells and larger sediment particles on which Filamentous	SS.SMp.Mrl.Pcal SS.SCS.CCS.Nmix	MB, MG	

		Phaeophyceae, hydroids, bryozoans and calcareous algae were growing. Few mobile invertebrate species including Echinoderms, and Decapods. Additional fauna available in species list.			
IR55_b	Substrate dominated by boulders (25%) cobbles (35%) and pebbles (20%). The remainder of sediment being composed of gravel (5%), shell gravel (1%), live maerl (1%) dead Maerl (3%) and sand (10%). Approx. 12.45m BCD. GoPro imagery.	Infralittoral silted <i>Saccharina latissima</i> epiphytic Hydroids and encrusting Bryozoans. Live maerl (R), dead mearl (R), Hydrozoa (F), filamentous Phaeophyceae (S), Acidiacea (F). With some mobile species, <i>Echinus esculentus</i> (C), and Asteroidea (C). Additional fauna available in species list.	SS.SMp.KSwSS	KSS	
IR56	Gravel (15%), dead Maerl (28%), live maerl (2%), Sand (5%) create ripples with a wave length of ~ 30cm. In wave troughs cobbles (30%) and pebbles (18%). Boulders (2%) rare. Less maerl gravel and larger sediment particles towards the end of the tow. Thought to be SS.SCS.CCS.Nmix but no <i>Neopentadactyla mixta</i> seen in the video, therefore left as SS.SCS.CCS Approx 16.47m BCD. GoPro imagery.	Live maerl (R) important sediment component. Filamenous Rhodophytes (C), Rhodophyte crusts (O), and Serpulidae (O), Hydrozoa turf (O) all growing as epiphytes on large sediment particles. Mobile species include <i>Marthasterias gracialis</i> (F), and other Echinoderms and Pisces (P). Unidentifiable burrows (P) snapshot obtained. Additional fauna available in species list.	SS.SCS.CCS		
IR57	Circalittoral coarse sediment with dead Maerl (22%) and live maerl (3%) forming waves. More live maerl in the wave troughs. Boulders (2%), cobbles (25%), pebbles (13%), gravel (25%), shell gravel (2%), shell (2%), and sand (1%). Approx 15.64 - 16.78m BCD. GoPro imagery analysed until the battery ran out.	This transect could possibly be recorded as SS.SCS.CCS.Nmix but there was no <i>Neopentadactyla</i> seen within the video. Dead maerl (C) and live maerl (R) found in the gravel. Hydroids (O), Bryozoans (F), Corallinaceae (F), filamentous Rhodophytes (R) and foliose Rhodophytes (R) were growing on the larger sediment types. A number of Echinoderms and Crustaceans were seen moving over the substrate. Additional information available in species list.	SS.SCS.CCS		
IR58	Circalittoral mixed sediment with dead Maerl (4%). Cobbles (10%), pebbles (39%), gravel (25%), shell gravel (3%), shell (5%), sand (10%) and mud (4%). Approx 17.61 - 18.78m BCD.	Unidentifiable burrows within the sediment. Dead maerl (R) found within the gravel. Larger sediment types were covered in Corallinaceae (F), Bryozoans (O), Hydroids (C) and Serpulidae (F), Ascidiacea (O). Echinoderms were the main mobile species. Additional information available in species list.	SS.SMX.CMx		
IR59	Mosaic of biotopes. Alternating between Rock and coarse sediment. The following percentages are not evenly distributed	Boulders covered with encrusting Bryozoans (A) and Hydroids (A). Substrate heavily grazed by <i>Echinus</i> (C), all animal turf is very	SS.SCS.CCS CR.MCR.EcCr		

	throughout the transect. Boulders (40%), cobbles (10%), pebbles (10%), gravel (30%), shell gravel (2%), shell (2%), sand (4%), and mud (2%). Approx 15.57 - 16.79m BCD.	short. Some large starfish present inbetween boulders. In the coarse sediment biotope <i>Asciidiella aspersa</i> (A), foliose Rhodophytes (O) and Hydroid (A) and Bryozoan (A) turf are found. Large Echinoderms and Pisces (F) were the dominant mobile species. Additional information available in species list.			
IR60	Circalittoral mixed sediment. Cobbles (10%), pebbles (35%), gravel (40%), shell gravel (5%), shell (3%), sand (4%), and mud (3%). Approx 15.52 - 15.59 m BCD. GoPro Imagery.	Mixed sediments with a high diversity. Sediment dominated by Hydroids (A), Bryozoans (A), with filamentous (F) and foliose (O) Rhodophytes. A large number of Echinoderms and some Pisces and Crustaceans representing the mobile species. Additional information available in species list.	SS.SMX.CMx		
IR61	Mixed sediments on the edge of the lower infralittoral. Cobbles (15%), pebbles (30%), gravel (35%), shell gravel (5%), shell (5%), sand (7%), and mud (3%). Approx 15.5 - 15.79 m BCD. GoPro Imagery.	Mixed sediment with Hydroids (C), Bryozoans (C), foliose (O) and filamentous (O) Rhodophytes, Corallinaceae (O), and Balanoidea (R) covering much of the substrate. Larger organisms included <i>Asciidiella aspersa</i> (F), and a number of Echinoderms. Additional information available in species list.	SS.SMX.IMx		
PL01	Infralittoral live Maerl bed (average 15%), dead maerl gravel (60%), shells (15% including <i>Ensis</i>), pebbles, cobbles and stone gravel (5% each) at 8.7 - 11.8m bcd. Low resolution DDV analysed, but adequate to see live maerl.	Live maerl overall frequent with bivalve siphons evident (at least frequent, possibly <i>Lutraria</i> or <i>Ensis</i>). Dominant flora of <i>Saccharina latissima</i> (A), <i>Desmarestia</i> (C) and <i>Scinaia</i> (F). A diverse range of species including fine filamentous red algae (F), <i>Dilsea</i> (O) and <i>Kallymenia reniformis</i> (? , O). <i>Asciidiella aspersa</i> (C) on <i>Desmarestia</i> and in maerl, <i>Alcyonium diaphanum</i> (O) and a range of mobile epifauna including frequent <i>Crossaster papposus</i> and <i>Marthasterias glacialis</i> . More species in species list.	SS.SMp.Mrl.Pcal.R	MB	
PL02	Small section of mixed kelps on boulders at the start of the tow (less than 30seconds) where it was impossible to assign substrate composition. Most of the tow was infralittoral sediments, 4.6 - 8.6m bcd, comprising stone gravel (50%), dead maerl gravel (9% cover), less than 1% live maerl, with shells (10%), pebbles (10%), cobbles (10%) and sand (10%). Analysis of poor resolution DDV video (no HD available).	Initial kelp forest of <i>Laminaria hyperborea</i> (A at start, F overall) and <i>Saccharina latissima</i> (P) on boulders with coralline algae (F) at start of tow. Most of tow stone and maerl gravel characterised by <i>Saccharina latissima</i> (C), <i>Desmarestia</i> (C), <i>Scinaia</i> (C), <i>Palmaria palmata</i> (F) and <i>Ulva</i> (F) amongst other red algae including coralline crusts on pebbles and dead shell (R) and rare live maerl. Other characterising epifauna comprising <i>Cerianthus</i>	IR.HIR.KSed.XKScrR SS.SMp.KSwSS	KSS	

		<i>lloydii</i> (F) and an diversity of red foliose and filamentous weeds.			
PL03	Infralittoral live maerl bed (50%), with shells (20%), rock (5%), cobble (5%) and pebbles (5%) and mixed kelp canopy, from 7.7m to 9m BCD. Video quality poor, but biotope good fit.	Live maerl abundance in nice examples of 'medallions', with some dead maerl gravel and empty shells and a diverse selection of weeds on mixed ground including <i>Laminaria hyperborea</i> (C), <i>Saccharina latissima</i> (C), <i>Desmarestia</i> (F), <i>Dictyota</i> (R), <i>Scinaia</i> (R), <i>Plocamium</i> (R), <i>Cryptopleura ramosa</i> (R), and unidentified ascidians (F). Other species including mobile epifauna detailed in species list.	IR.MIR.KR.LhypTX SS.SMp.Mrl.Pcal.R	MB	
PL04	Infralittoral live maerl bed (50%), with shells (20%), rock (5%), cobble (5%) and pebbles (5%) and mixed kelp canopy, from 7.7m to 9m BCD. Video quality poor, but biotope good fit.	Live maerl abundance in nice examples of 'medallions', with some dead maerl gravel and empty shells and a diverse selection of weeds on mixed ground including <i>Laminaria hyperborea</i> (C), <i>Saccharina latissima</i> (C), <i>Desmarestia</i> (F), <i>Dictyota</i> (R), <i>Scinaia</i> (R), <i>Plocamium</i> (R), <i>Cryptopleura ramosa</i> (R), and unidentified ascidians (F). Other species including mobile epifauna detailed in species list.	IR.MIR.KR.LhypTX; SS.SMp.Mrl.Pcal.R	KB	
PL05	Infralittoral live Maerl bed (average 20%), dead maerl gravel (50%), shells (14% including <i>Ensis</i>), pebbles (5%), cobbles (1%) and stone gravel (10%), with less live gravel and more stone gravel towards end of tow. 6.7 - 7.8m bcd. Low resolution DDV analysed, but adequate to see live maerl.	Live maerl overall common, with bivalve siphons evident (at least frequent, possibly <i>Lutraria</i> or <i>Ensis</i>). Dominant flora of <i>Saccharina latissima</i> (A), <i>Desmarestia</i> (C) and <i>Scinaia</i> (F). A diverse range of species including fine filamentous red algae (F), <i>Dilsea</i> (O), <i>Phyllophora</i> (R) and <i>Kallymenia reniformis</i> (? , R). <i>Asciidiella aspersa</i> (C) on <i>Desmarestia</i> and in maerl, <i>Chaetopterus</i> tubes (F) and <i>Cerianthus lloydii</i> (O), and a range of mobile epifauna including frequent <i>Crossaster papposus</i> and <i>Marthasterias glacialis</i> . More species in species list.	SS.SMp.Mrl.Pcal.R	MB	
PL06	Infralittoral maerl gravel (approx 39% cover, less than 1% live, with most very well broken into gravel), sand (20%), stone gravel (20%) with shells (15%), pebbles (4%) and mud (1%). Approx 7.8m bcd. DDV video analysed (no HD imagery available).	Maerl gravel (dead) and sand characterised by kelp park comprising <i>Saccharina latissima</i> (F), <i>Desmarestia</i> (C), <i>Scinaia</i> (F) and <i>Ulva</i> (F) amongst other occasional red algae including coralline crusts on pebbles and dead shell (R). Other characterising epifauna comprising <i>Asciidiella aspersa</i> (F) on silted kelp, and <i>Cerianthus lloydii</i> (O) with a variety of	SS.SMp.KSwSS	KSS	

		asteroids. Foraminiferan <i>Toxisarcon</i> may be present, but uncertain.			
PL07	Circalittoral mixed muddy gravel comprising mud (40%), Sand (10%) dead maerl gravel (15%), empty shell (10%), pebbles (15%), stone gravel (5%) and cobbles (5%). 15.8 - 17.8m bcd. Limited analysis of substrate and fauna due to poor imagery quality from DDV (no GoPro) and video moving very fast.	Epifauna dominated by <i>Cerianthus lloydii</i> (A), <i>Ascidella aspersa</i> (O) and <i>Porania</i> (F) with bivalve siphons, some bryozoans on cobbles and other species in species list.	SS.SMx.CMx.CIlloMx		
PL08	Infralittoral sediments with cobble (30%), pebble (29%), sand (23%), stone and shell gravel (15%), from 10m to 11.8m BCD. Biotope good fit.	Abundant <i>Saccharina latissima</i> and <i>Laminaria</i> sporelings (R) with <i>Palmaria palmata</i> (R), <i>Scinia</i> (R), red filamentous algae (O) including potential <i>Heterosiphonia japonica</i> (R). Other epifauna includes hydroids (R), ascidians (F), <i>Asterias rubens</i> (O) and <i>Echinus</i> (F) amongst others which are detailed further in the associated species list.	SS.SMp.KSwSS	KSS	
PL09	Infralittoral cobble (20%), pebbles (20%), sand (29%) and gravel (30%), from 9m to 10m BCD. Biotope good fit.	Habitat dominated by <i>Saccharina latissima</i> (C) with diverse algal assemblage comprising Corallinaceae (R), potential <i>Heterosiphonia japonica</i> (R), <i>Desmarestia</i> (O), <i>Saccorhiza polyschides</i> (R), <i>Laminaria hyperborea</i> (O), <i>Delesseria</i> (R), <i>Odonthalia</i> (R) and other Rhodophyta (O). Epifauna included hydroids (R), <i>Chaetopterus</i> (O), <i>Echinus</i> (F), Ascidiacea (O), and various Bryozoan mats and Asteroidea species.	SS.SMp.KSwSS	KSS	
PL10	Infralittoral sediments from 15-16m bcd comprising pebbles (24%) and cobbles (10%) on gravel (40%, less than 1% of which was live maerl) and sand (20%). Biotope good fit. Go Pro video analysed.	Habitat characterised by <i>Saccharina latissima</i> (C), Rhodophyta (O), <i>Marthasterias</i> (F), Corallinaceae (R), <i>Scinia</i> (R) and hydroids (R) with presence of mobile epifauna including <i>Echinus</i> , <i>B.undatum</i> , <i>Liocarcinus depurator</i> . Other species listed within the associated species list.	SS.SMp.KSwSS.LsacR.Gv	KSS	
PL11	Upper circalittoral dead maerl gravel waves (84%), with dead bivalve shell in troughs (8%), pebbles (2%) and stone gravel (5%), from 15m to 17.1m BCD. HD GO Pro video analysed.	Dominated by fauna on waves of gravels including <i>Abietinaria</i> (R) and other hydroids (R), <i>Asterias rubens</i> (C), <i>Marthasterias glacialis</i> (F), Corallinaceae (O). Some algae present, but may not be attached including <i>Saccharina latissima</i> (R) and potential <i>Heterosiphonia japonica</i> (R), less than 1% live maerl present and <i>Liocarcinus depurator</i> .	SS.SCS.CCS	MB (Dead)	

		Possible Holothurians, although indistinguishable from other biota due to poor quality video. Biotope may be SS.SCS.CCS.Nmix (<i>Neopentadactyla mixta</i> in circalittoral shell gravel or coarse sand).			
PL12	Infralittoral rock (20% small boulders, 20% cobbles) interspersed with pebbles (15%), empty shell (5%) sand (20%) and gravel (20%), from 9m to 10.1m BCD. Biotope uncertain fit due to substrate variation.	Characterised by <i>Saccharina latissima</i> (C), but with potential <i>Heterosiphonia japonica</i> dominating in places (F, recorded as fine unidentified Rhodophyta). Biota also included <i>H. plumosa</i> (O), <i>Desmarestia</i> (O), <i>Saccorhiza polyschides</i> (O), <i>Echinus</i> (F), <i>Odonthalia</i> (R), Corallinaceae (R) and other species listed in the associated taxa list.	IR.HIR.KSed.XKScrR		
PL13	Infralittoral bedrock (5%), boulders (15%) and sediments with cobble (20%), pebbles (15%), sand (20%) and gravel 20%), from 5m to 6.1m BCD. Biotope good fit. HD Go Pro analysed.	<i>Laminaria hyperborea</i> forest (S) dominated this habitat, with <i>Saccharina latissima</i> (R), <i>Saccorhiza</i> (R), <i>Desmarestia</i> (O), <i>Dilsea</i> (O). <i>Echinus</i> , small fish (C), <i>Asterias</i> (F) and other asteroids were also present. More <i>Laminaria hyperborea</i> at the start and end of tow (possibly on bedrock), interspersed with areas of more mixed kelp on mixed sediments.	IR.MIR.KR.Lhyp.Ft; SS.SMp.KSwSS	KSS	
PL14	Infralittoral gravels (35%), cobbles (15%), pebbles (15%) and boulders (10%) with interstitial sand (24%), from 11m to 11.8m BCD. Gravel patches, possibly maerl/maerl gravel, but distinction impossible due to inadequate quality of video (no HD / Go Pro available) and kelp canopy overlaying the habitat.	Dominated by <i>Saccharina latissima</i> (S), Rhodophyta (possibly <i>Heterosiphonia japonica</i> , F), Corallinaceae (O), <i>Desmarestia</i> (F), <i>Membranipora</i> (O), and <i>Dilsea</i> (R). <i>Asterias</i> , Serpulidae, <i>Echinus</i> , <i>Marthasterias</i> and <i>Porania</i> all detailed within the associated species list,. Potential live maerl, but impossible to tell this from canopy layer overlaying sediments and under canopy species.	SS.SMp.KSwSS	KSS	
PL15	Infralittoral rock habitat with seabed largely obscured by dense kelp canopy, with more kelp on sediments towards the end of tow. Very difficult to assess substrates. Cobble (15%), pebbles (15%), boulders and /or bedrock (40%) and gravel (18%) and sand (10%), from 8m to 10.8m BCD. Biotope uncertain fit due to poor quality of video (no HD / Go Pro available).	Mixed kelp forest dominated by <i>Laminaria hyperborea</i> (A) and <i>Saccharina latissima</i> (C) with an associated community of <i>Saccorhiza polyschides</i> (C), Porifera (P), Rhodophyta, <i>Asterias rubens</i> (F), Corallineaceae (O), <i>Echinus</i> (C). <i>S. polyschides</i> and <i>L. hyperborea</i> dominant in top part of slope; <i>S. latissima</i> lower down where presumably substratum less rocky with more cobbles/pebbles in gravel.	IR.MIR.KR.LhypT; IR.MIR.KR.LhypTX	KB	
PL16	Circalittoral dead maerl gravel (73%), cobbles (10%) and pebbles (5%) from 21m to 22.7m BCD. Biotope good fit, but no HD	Faunal assemblage dominated by <i>Cerianthus</i> (A), with hydroids (F), Ascidians (C), and <i>Chaetopterus</i> (F), and regular asteroids	SS.SCS.CCS	MB (Dead)	

	footage available so identification of live maerl limited by poor video quality.	including <i>Porania</i> (F) and <i>Crossaster</i> (F). Also present were Corallinaceae (O), <i>Luidia</i> (P), <i>Marthasterias</i> (P), <i>Securiflustra</i> (R) and <i>Flustra</i> (F). Possible Holothurians and potentially more live maerl (currently only 1% recorded), both indistinguishable due to poor video quality.			
PL17	Circalittoral mixed substrates, bordering on sandy muds comprising mud (40%, Sand (15%) dead maerl gravel (15%), shell gravel (10%), empty shell (10%), pebbles (9%) and cobbles (1%). 22.6 - 22.7m bcd. Limited analysis of substrate and fauna due to poor imagery quality from DDV (no GoPro) and video moving very fast.	Epifauna dominated by <i>Cerianthus lloydii</i> (A), <i>Porania</i> (F), and <i>Turritella communis</i> (O), with some bryozoans on cobbles and other species in species list. Two <i>Virgularia mirabilis</i> evident at the end of the tow, although could have been more across survey but not identified due to poor imagery. Tracks, burrows, and mounds common and drift <i>Saccharina</i> and fucoid present. Maybe alternative biotope of SS.SMu.CSaMu, but thought to be too gravelly.	SS.SMx.CMx		
PL18	Upper circalittoral / lower infralittoral waves of dead maerl gravel (39%), live gravel (1%) and stone gravel (39%), with empty shell (20%) and pebbles (10%) in troughs. From 12.8 - 13.8m bcd. Could possibly be the SS.SCS.CC.Nmix biotope, but no <i>Neopentadactyla</i> could be identified from video. DDV video analysed (no HD imagery available).	Less than 1% of substrate composition of live maerl. Shell and pebbles crusted in coralline algae (F) in troughs between dead maerl waves appeared to be live maerl but was corallineacea on shell and stone gravel. <i>Porania puvillus</i> (F), <i>Cerianthus lloydii</i> (C), <i>Marthasterias glacialis</i> (C), and <i>Asterias rubens</i> (C) amongst other species including unidentified mounds and burrows. <i>Saccharina latissima</i> present but rare.	SS.SCS.CCS		
PL19	Infralittoral poor live maerl bed (average 5-10%), dead maerl gravel (75%), and shells (15% including <i>Ensis</i>) at 8 - 8.5m bcd. HD GoPro video used, but much too fast for robust detailed analysis.	Live maerl occasional across tow, but frequent or rare in places. Dominant flora of <i>Saccharina latissima</i> (F) and <i>Sciniaia</i> (C). A diverse range of species including <i>Cerianthus lloydii</i> (? O) in maerl gravel and fine filamentous red algae (F), but identification of diversity of species and abundance limited by speed of video.	SS.SMp.Mri.Pcal.R	MB	
PL20	Infralittoral maerl gravel (approx 85% cover, less than 1% live, with most very well broken into gravel) forming waves of dead Maerl with shells 10% and 5% pebbles in troughs. Analysis of GoPro HD footage. Approx 9 - 10.6m bcd.	Maerl gravel (dead) characterised by sparse kelp comprising <i>Saccharina latissima</i> (O), <i>Desmarestia</i> (F), <i>Sciniaia</i> (F) amongst other occasional red algae including coralline crusts on pebbles and dead shell (R). Other characterising epifauna comprising bivalve siphons, <i>Cerianthus lloydii</i> (O) and <i>Marthasterias glacialis</i> (C).	SS.SMp.KSwSS	KSS	

PL23	Infralittoral bedrock and/ or boulders covered in coralline red algae and kelp. Unable to see substrate due to kelp canopy. 2.6 - 3.77m bcd. Limited analysis of substrate and fauna due to poor imagery quality from DDV (no GoPro) and video moving very fast.	Dominant cover of <i>Laminaria hyperborea</i> (S) and coralline algae on rocks below (C). <i>Palmaria palmata</i> (F) and <i>Cryptopleura</i> (O) amongst other unidentifiable epiflora on kelp stipes, with <i>Membranipora membranacea</i> (F) and <i>Obelia</i> (O) on fronds.	IR.MIR.KR.LhypT.Ft	KB	
PL24	Infralittoral poorly sorted coarse sediments of stone gravel (35%), empty shell (5%), pebbles (20%) and sand (40%), from 10.2 - 10.6m bcd.. Video taken HD GoPro, but footage too far from seabed for thorough analysis.	Habitat characterised by <i>Saccharina latissima</i> (C) and fine red branching algae (<i>Heterosiphonia plumosa</i> type, C) and <i>Desmarestia</i> (F), and coralline crusts on stone gravel (F). Epifauna dominated by <i>Asciidiella aspersa</i> (C). Several other species listed in species list.	SS.SMp.KSwSS	KSS	
PL25	Infralittoral poorly sorted coarse sediments of stone gravel (20%), shell gravel (10%), dead maerl gravel (4%), pebbles (5%), small boulders (1%) and sand (60%), from 8.2 - 8.7m bcd. Video taken HD GoPro, but footage too far from seabed for thorough analysis.	Habitat characterised by <i>Saccharina latissima</i> (A) and fine red branching algae and <i>Desmarestia</i> (F) and coralline crusts on stone gravel and boulders (O). A good understory of a variety of red algae including <i>Odonthalia dentata</i> , <i>Heterosiphonia plumosa</i> , <i>Dilsea carnosa</i> (all O), <i>Delesseria sanguinea</i> (R) and others. Epifauna dominated by <i>Asciidiella aspersa</i> (A) and bryozoans on seaweed. Several other species listed in species list.	SS.SMp.KSwSS	KSS	
PL26	Circalittoral gravel (9%), dead maerl (80%), sand shell (5%) with dead <i>Ensis</i> shells (10%) and pebbles (1%). Approx 13.2 - 13.6m BCD. Video taken HD GoPro, but footage too fast for detailed analysis. Could possibly be the SS.SCS.CC.Nmix biotope, but not <i>Neopentadactyla</i> could be identified from video.	Less than 4% average substrate composition was live maerl (Frequent in very local patches towards the end of the tow, but can be confused with coralline algae on shell). Primarily dead maerl gravel characterised by <i>Cerianthus lloydii</i> (C), <i>Asterias rubens</i> (F), coralline algae on stone gravel and shells (O) and sparse other fauna. <i>Saccharina latissima</i> present but rare. Red algal matts present in small patches (R), as were burrows and mounds.	SS.SCS.CCS		
PL27	Mosaic of circalittoral mixed and coarse sediments. Overall stone, shell and maerl gravel (54%), with cobbles (5%), pebbles (20%), sand (5%), empty shells (5%) and a mud portion (1%), from 16.2m to 17m BCD. Increasingly coarse gravels towards end of tow. Good quality Go Pro video analysed, but often too far from seabed.	Faunal assemblage dominated by <i>Cerianthus</i> (S), <i>Chaetopterus</i> (F), hydroids (O) and bryozoan turf (R); with <i>Marthasterias</i> (C) Ascidians (F) and <i>Nemertesia antennina</i> (F). Also present are <i>Turritella</i> (P), <i>Porania</i> (O), Corallinaceae (O), <i>Inachus</i> (P), <i>Cancer pagurus</i> (F) amongst others (listed in species list). Live maerl present (1%) but not many	SS.SMx.CMx.CIlOmx; SS.SCS.CCS	MB (Dead)	

	Biotopes a good fit.	'twiglets' present. Lots of coralline crusting algae on shells and pebbles, which could easily be confused for live maerl.			
PL28	Circalittoral waves of maerl gravel (81%), with empty bivalve shells (10%), cobbles (1%) and pebbles (5%) in troughs from 15m to 16.2m BCD. Biotope good fit. HD GoPro video analysed.	Characterised by Corallinaceae crusts on pebbles and shell (F), dead maerl gravel with less than 1% live maerl, <i>Chaetopterus</i> tubes (P), bivalve siphons (R) and lots of dead bivalves, rare algae and hydroids and high numbers of <i>Asterias rubens</i> (C, possibly eating underlying bivalves). Other biota included <i>Cancer</i> (F), <i>Luidia</i> (F) and <i>Marthasterias</i> (F, detailed in full associated species list).	SS.SCS.CCS	MB (Dead)	
PL29	Upper Circalittoral silty mixed sediments of sandy (15%) mud (30%) with cobbles (15%), pebbles (15%) and gravel (20%), from 18m to 19m BCD. Increasingly mixed (less muddy) towards end of tow, possibly moving more into a Cilo biotope. Biotope uncertain fit due to camera frequently being too fast or far above seabed for detailed analysis.	Characterised by sparse Hydroids (R), <i>Saccharina latissima</i> (R), clumps of Rhodophycota (R fine branching, possibly <i>Heterosiphona japonica</i>) on rare small boulders and cobbles, Corallinaceae crusts (O) and Serpulids (R) on pebbles, Ascidiaceae (O, probably <i>Asciidiella aspersa</i>), Balanoidea (R), asteroids including <i>Asterias rubens</i> (F) and <i>Marthasterias</i> (F). Burrowing anemones, Cerianthidae present, but difficult to assign abundance due to fast video.	SS.SMx.CMx		
PL30	Circalittoral muddy sand, comprising sand (60%), mud (20%), shell gravel, maerl gravel, pebbles and empty shells (5% each). 20.7 - 25.3m bcd. Video taken HD GoPro, but footage too far from seabed for thorough analysis.	<i>Cerianthus lloydii</i> (A) and other burrows in muddy sand. <i>Nemertesia antennina</i> (F), <i>Nemertesia ramosa</i> (O), <i>Cellaria</i> (R) and other fine feathery hydroids present on shells and pebbles, and Porifera (R) on hydroids. A lot of <i>Saccharina latissima</i> (eight plants, common) drift weed present, although strongly suspected that this is drift weed.	SS.SMx.CMx.CiloMx		
PL31	Infralittoral poorly sorted coarse sediments of gravelly sand, comprising sand (65%), shell gravel (20%), empty shell (10% including <i>Ensis</i>) and pebbles (5%). 9.7 - 10.3m bcd. Video taken HD GoPro, but footage too far from seabed for thorough analysis.	Habitat characterised by very sparse algae, <i>Saccharina latissima</i> (O) and red filamentous, branching and foliose algae (R). Epifauna dominated by <i>Cerianthus lloydii</i> (C) and other unidentified burrows in sediment, small hydroids (R) and <i>Nemertesia</i> (O) on shell and pebbles, and <i>Asciidiella aspersa</i> (A) on seaweed. Several other species listed in species list.	SS.SMp.KSwSS.LsacR.Sa	KSS	
PL32	Poorly sorted coarse sediments of gravelly sand, comprising sand (64%), shell gravel (20%), empty shell (15% including <i>Ensis</i>)	Characterised by <i>Cerianthus lloydii</i> (A) and other unidentified burrows in sediment, small hydroids (O), <i>Nemertesia antennina</i> (F) and	SS.SCS.CCS		

	and pebbles (1%). 12.3 13.7m bcd. Video taken HD GoPro, but footage too far from seabed for thorough analysis.	<i>Asciidiella aspersa</i> (F) on shell. Drift fucoids and several drifting <i>Saccharina latissima</i> (R) seen, but thought to be unattached. Several other species listed in species list.			
PL33	Infralittoral poorly sediments in patches of sand dominated (70%,) at the beginning and end, to stone gravel (70%) and dead Maerl (20%) dominated in the middle. From 8.3 - 8.7m bcd. Video taken HD GoPro, but footage too far from seabed for thorough analysis.	Habitat characterised by <i>Saccharina latissima</i> (F) from O to C on gravelier substrates), <i>Scinaia</i> (F), and various red alga (R to O). <i>Cerianthus lloydii</i> (C) in sediments, <i>Asterias rubens</i> (F), coralline algae on stone gravel and shells (O) and sparse other fauna. Drifting seagrass at start of tow.	SS.SMp.KSwSS	KSS	
PL34	Infralittoral maerl bed (20% live, 56% dead) with empty shells (10%), from 8m to 8.3m BCD. Biotope good fit. HD Go Pro video analysed.	Habitat characterised by 20% live maerl (C, greater in some places forming healthy 'medallions') with empty bivalves, covered with frequent kelp and seaweed including <i>Saccharina latissima</i> (C), <i>Desmarestia</i> (C), <i>Dilsea</i> (R) and <i>Scinaia</i> (O) amongst other rare algae. Epifauna including ascidians (O), <i>Marthasterias</i> (F) and <i>Echinus</i> (P).	SS.SMp.Mrl.Pcal.R	MB	
PL35	Infralittoral habitat mosaic comprising dead maerl (70%), and live maerl (7%) and coarse sediment (11%), with pebbles (5%) and empty shell (5%), from 11m to 15.2m BCD. Gravel ripples with empty shells in troughs. Biotopes good fit. HD Go Pro video analysed.	Habitat characterised by presence of live maerl (approx 7%, O, overall, but up to 20%, C, medallions and twiglets in places). Also characterised by presence of <i>Saccharina latissima</i> on shell and cobble (F), coralline crusts on pebbles and shell (O) and Rhodophyta in and on gravel (including <i>Scinaia</i> O and potential <i>Heterosiphonia japonica</i> , R), with <i>Marthasterias</i> (F), <i>Asterias</i> and other mobile epifauna detailed in species list.	SS.SMp.Mrl.Pcal.R	MB	
PL36	Scoured infralittoral boulder (70%) and cobble (11%) habitat inundated with sand and gravels (17%), from 9m to 9.2m BCD. Due to cover of kelp it is very hard to distinguish substratum. Biotope adequate fit. HD Go Pro video analysed.	<i>Saccharina latissima</i> , <i>Desmarestia aculeata</i> , <i>Delesseria</i> , coralline crusts, <i>Saccorhiza</i> , <i>Echinus</i> , <i>Asterias</i> , red algae, <i>Spirobranchus</i> , <i>Marthasterias</i> , small fish F, <i>Laminaria hyperborea</i> .	IR.HIR.KSed.LsacSac		
PL37a	Infralittoral rock habitat (60% bedrock and boulders), inundated with coarse sediments including dead maerl gravel (10%), from 8m to 10.3m BCD. Difficult to distinguish substratum and percentage of live maerl and many algae species due to kelp cover of habitat and speed of video. HD Go Pro video analysed.	Habitat dominated by <i>Saccharina latissima</i> (A) with mixed kelps of <i>Saccorhiza</i> (P) and <i>Laminaria hyperborea</i> (R), with Bryozoan mats, <i>Obelia</i> (R), <i>Desmarestia</i> (F) and coralline crusts (F) on rock, and various red seaweeds on stipes and as understory (including <i>Palmaria</i> , <i>Odonthalia</i>). <i>Echinus</i> common amongst kelp. Rare live maerl in	IR.HIR.KSed.XKScrR; IR.MIR.KR.LhypTX.Ft	TSA	

		gravel at base of reef, in between boulders and in increasing abundance at start and end of habitat.			
PL37b	Infralittoral dead maerl (44%) with shell gravel (15S%), pebbles (20%) and empty bivalve shells (20%), from 8m to 10.3m BCD. Biotope of low confidence due to low percentage of live maerl present.	Habitat characterised by maerl gravel (44% dead, 20% live = C), burrowing bivalve siphons (R), <i>Scinaia</i> (F), <i>Saccharina latissima</i> (O) with frequent <i>Marthasterias</i> and other small Asteroidea.	SS.SMp.Mrl.Pcal.R	MB	
PL38	Infralittoral rock comprising boulders (20%), cobble (30%), pebbles (20%), gravel (15%), sand (10%) and empty shell (5%), from 8m to 16.5m BSL. HD Go Pro video analysed, but often poor quality as too fast and too far from seabed.	Habitat characterised by <i>Saccharina latissima</i> (A), <i>Saccorhiza polyschides</i> (R), red branching and filamentous weeds (and potential <i>Heterosiphonia japonica</i> , O), Corallinaceae crusts on gravel and pebbles (O) and <i>Dictyota</i> (R). Epifauna of <i>Echinus</i> (C), <i>Alcyonidium diaphanum</i> (F), Ascidiacea (F), <i>Antedon bifida</i> (F), <i>Flustra foliacea</i> (R), <i>Nemertesia antennina</i> (O), <i>Amphilectus fucorum</i> (R) and <i>Cerianthus lloydii</i> (O).	IR.HIR.KSed.LsacSac; IR.HIR.KFaR.FoR	KB	
PL40	Infralittoral maerl gravel (approx 79% cover, less than 1% live, with most very well broken into gravel) with shells 15% and 5% pebbles. Analysis of GoPro HD footage. Approx 6.9 - 8.3m bcd.	Maerl gravel (dead) characterised by kelp park comprising <i>Saccharina latissima</i> , <i>Saccorhiza polyschides</i> , <i>Desmarestia</i> , <i>Scinaia</i> and <i>Ulva</i> (all Frequent) amongst other occasional red algae including coralline crusts on pebbles and dead shell (R). Other characterising epifauna comprising <i>Asciidiella aspersa</i> (F) on silted kelp, and <i>Cerianthus lloydii</i> frequent with small asteroids on sediment.	SS.SMp.KSwSS	KSS	
PL41	Infralittoral live maerl bed (average 12%), dead maerl gravel (58%), shells (25% including <i>Ensis</i>) and pebbles (5%) at 10.5m bcd. HD GoPro video used, but much too fast for robust detailed analysis.	Live maerl frequent across tow, but occasional or rare in places, with bivalve siphons evident (possibly <i>Lutraria</i> or <i>Ensis</i>). Dominant flora of <i>Saccharina latissima</i> (F) and <i>Scinaia</i> (C). A diverse range of species including <i>Desmarestia</i> (F) and fine filamentous red algae (O), with identification limited by speed of video. <i>Asciidiella aspersa</i> (C) on kelp and in Maerl, and a range of mobile epifauna including frequent. More species in species list.	SS.SMp.Mrl.Pcal.R	MB	
PL42	Upper circalittoral / lower infralittoral waves of dead maerl gravel (85%) and empty shell (15%) from 15.5 - 18m bcd. Go Pro HD video analysed, but footage too fast for detailed analysis. Could possibly be the	Generally very sparse of large epifauna. Less than 3% of substrate composition was live maerl, with <i>Porania puvillus</i> (C), <i>Cerianthus lloydii</i> (C), <i>Marthasterias glacialis</i> (C), rare fine hydroid turf and few other species including	SS.SCS.CCS		

	SS.SCS.CC.Nmix biotope, but not <i>Neopentadactyla</i> could be identified from video.	unidentified mounds and burrows. <i>Saccharina latissima</i> present but rare.			
PL43	Infralittoral boulders, cobbles and pebbles (35%) with kelp forest, interspersed with gravels dominated by dead maerl (33%) and sand (10%), particularly towards the end of the tow. From 5m to 7.3m BCD. Substratum and kelp understory difficult to distinguish due to presence of kelp forest. Biotope good fit. HD Go Pro video analysed.	Infralittoral rock dominated by <i>Laminaria hyperborea</i> (S) forest, with <i>Palmaria</i> (P), <i>Membranipora</i> (O), <i>Echinus</i> (F) and coralline algae (R). Gravels and coarse sediments towards end of tow characterised by <i>Halidryis</i> (O), <i>Saccharina</i> (O), <i>Desmarestia</i> (O) and <i>Scinaia</i> (R). Increasing amount of live maerl towards end of tow, but still rare overall. More species detailed in species list.	IR.MIR.KR.Lhyp.Ft IR.HIR.KSed.XKScrR	KB	
PL44	Infralittoral live maerl (4%) and dead maerl (51%) with other gravels (15%) and lots of empty bivalve shells (15%), pebbles (5%), cobble (5%) from 10m to 11.4m BCD. Biotope good fit, although less than 5% live maerl so unlikely to be considered a 'maerl bed' PMF. HD Go Pro video analysed.	Characterised by <i>Saccharina latissima</i> (A), <i>Desmarestia</i> (O) and <i>Scinaia</i> (F), with live maerl rare, frequent in places, but not extensive enough to be considered bed. Also ascidians (O), small asteroids (F), <i>Echinus</i> (F), unidentified foliose red algae (R) and coralline crusts on shells and pebbles (R).	SS.SMp.KSwSS.LsacR.Gv	KSS	
PL45	Infralittoral boulders, cobbles and pebbles (35%), dead maerl gravel (15%), other gravels (40%) and sand (5%), from 12.4m to 13m BCD. Boulders increasing in number in the second half of the tow. Biotopes good fit. HD Go Pro video analysed.	Habitat characterised by <i>Saccharina latissima</i> (A) with <i>Desmarestia</i> (R) and various red weeds including coralline red crusts, fine red algae (possibly <i>Heterosiphonia japonica</i> , O), <i>Deflesseria</i> (R), <i>Odonthalia</i> (R), <i>Scinaia</i> (R) amongst others. Also present were ascidians (O), <i>Asterias</i> (F), <i>Echinus</i> , <i>Marthasterias</i> , <i>Chaetopterus</i> , hydroids (R), <i>Crossaster</i> and <i>Luidia</i> .	SS.SMp.KSwSS.LsacR.Gv; IR.HIR.KSed.LsacSac	KSS	
PL46	Infralittoral live maerl bed (average 40%), dead maerl gravel (20%), shells (30% including <i>Ensis</i>), pebbles and stone gravel (5% each) at 6 - 8.4m bcd. Live maerl cover decreasing towards end of sample, with increasing component of stone gravel at the end of the tow. HD GoPro video used.	Live maerl common, abundant in places, with bivalve siphons evident (possibly <i>Lutraria</i> or <i>Ensis</i>). Dominant flora of <i>Saccharina latissima</i> (C, A towards end of video) and <i>Scinaia</i> (C). A diverse range of species including <i>Brongiartella</i> (F), <i>Desmarestia</i> (O), fine filamentous red algae (F, including possibly <i>Heterosiphonia japonica</i> , O). <i>Asciella aspersa</i> (C) on kelp and in maerl, and a range of mobile epifauna including frequent <i>Luidia ciliaris</i> , <i>Marthasterias glacialis</i> , <i>Asterias rubens</i> and <i>Cancer pagurus</i> . More species in species list.	SS.SMp.Mrl.Pcal.R	MB	
PL47	Circalittoral mixed sediments dominated by mud and fine sand (>75%) with gravel	Epifauna dominated by <i>Cerianthus lloydii</i> (C), <i>Turritella communis</i> (C), and <i>Arenicola marina</i>	SS.SMx.CMx.CiloMx		

	(maerl and shell, 20%), empty shells (4%) and cobbles (<1%), 28 - 19.5m bcd. No GoPro so imagery very poor and too fast for good substrate analysis.	casts (F), with some bryozoans on cobbles and <i>Porania</i> (O). Other species in species list. Tracks, burrows, bivalve siphons and drift fucoids present.			
PL48_a	Infralittoral mixed ground at approx 14.1 - 14.6m bcd, with poorly sorted pebbles (20%), stone gravel (35%) and dead maerl gravel (30%) with patches of muddy sand and rare medium and large sized boulders. Video analysed was GoPro, often too far from seabed for good analysis.	Pebbles, boulders and stone gravel dominated by fine branching red algae (C), with rare <i>Saccharina latissima</i> (F). <i>Asciidiella aspersa</i> (O) and <i>Ciona intestinalis</i> (S) and frequent <i>Marthasterias glacialis</i> characterising the epifauna.	SS.SMx.IMx		
PL48_b	Lower infralittoral / Circalittoral gravel (10%), dead Maerl (70%), sand (10%) and shell (5%) with dead <i>Ensis</i> shells and pebbles (5%). Approx 14.1-14.6m BCD. Video taken HD GoPro, but footage too fast for detailed analysis. Could possibly be the SS.SCS.CC.Nmix biotope, but not <i>Neopentadactyla</i> could be identified from video.	Less than 3% average substrate composition was live maerl (increasing from Rare at start of habitat to Frequent in very local patches towards the end of the tow). Primarily dead maerl gravel characterised by <i>Cerianthus lloydii</i> (A), <i>Asterias rubens</i> (C) and sparse other fauna. <i>Saccharina latissima</i> present but rare.	SS.SCS.CCS		
PL49	Infralittoral poorly sorted coarse sediments of shell gravel (10%), cobbles (4%), empty shell (15%) and sand (70%) with silt (1% mud), from 6.6 - 7.4m bcd. Video taken HD GoPro, but footage too far from seabed for thorough analysis.	Habitat characterised by <i>Saccharina latissima</i> (C) and fine red branching algae (O) and <i>Desmarestia</i> (C). A good understory of a variety of algae including <i>Dilsea carnosa</i> (O), <i>Delesseria sanguinea</i> (R), <i>Dictyopteris membranacea</i> (O) and others. Epifauna dominated by <i>Asciidiella aspersa</i> (C) and bryozoans on seaweed. Several other species listed in species list.	SS.SMp.KSwSS	KSS	
WB01_a	Slightly muddy (5%) sand (70%) with shell gravel (15%) and shells (10%). Video analysis from GoPro footage of good quality.	Infralittoral mosaic sand habitat with patches of <i>Zostera</i> (O) on sand, patches of <i>Saccharina latissima</i> (O), filamentous Phaeophyceae (F) and Rhodophyta (O) amongst areas of sand with and <i>Arenicola marina</i> (C) and Asteriidae (F).	SS.SMp.SSgr.Zmar SS.SMp.KSwSS SS.SSa.IMuSa.AreISa	SG, KSS	
WB01_b	Slightly muddy (5%) sand (70%) with shell gravel (15%) and shells (10%). Video analysis from GoPro footage of good quality.	Infralittoral <i>Zostera</i> bed on sand characterised by <i>Zostera</i> (S), filamentous Phaeophyceae (F) and Rhodophyta (F), <i>Saccharina latissima</i> (R) and Asteriidae (F).	SS.SMp.SSgr.Zmar	SG	
WB01_c	Slightly muddy (5%) sand (70%) with shell gravel (15%) and shells (10%). Video analysis from GoPro footage of good quality.	Infralittoral sand habitat characterised by Asteriidae (F), <i>Cerianthus lloydii</i> (O), <i>Arenicola marina</i> (O), <i>Zostera</i> (R), <i>Saccharina latissima</i> (R) & filamentous Rhodophyta (R).	SS.SSa.IMuSa		

WB02_a	Muddy (10) sand (75) with shell gravel (10) and shells (5) at 0.3 to 5.6 metres BCD. Video analysis from GoPro footage of good quality. Biotope is a good fit.	Characterised by <i>Arenicola marina</i> (C), <i>Luidia ciliaris</i> (P) & Asteriidae (P).	SS.SSa.IMuSa.AreISa		
WB02_b	Muddy (10) sand (75) with shell gravel (10) and shells (5) at 0.3 to 5.6 metres BCD. Last half minute of video had no <i>Zostera</i> but was too small an area to split into a separate habitat. Video analysis from GoPro footage of good quality. Biotope is a good fit.	Characterised by <i>Zostera</i> (A), filamentous Phaeophyceae (F) and Rhodophyta (F), <i>Saccharina latissima</i> (R) and Asteriidae (F).	SS.SMp.SSgr.Zmar	SG	
WB03_a	Muddy (20) sand (65) with shell gravel (10) and shells (5) at 0.3 to 5.6 metres BCD. Video analysis from GoPro footage of poor quality. Biotope fit is certain.	Characterised by <i>Arenicola marina</i> (C), <i>Cerianthus lloydii</i> (O) & Asteriidae (P).	SS.SSa.IMuSa.AreISa		
WB03_b	Muddy (20) sand (65) with shell gravel (10) and shells (5) at 0.3 to 5.6 metres BCD. Video analysis from GoPro footage of poor quality. Biotope fit is certain.	Patchy <i>Zostera</i> bed with kelps and red seaweeds characterised by <i>Zostera</i> (A), filamentous Rhodophyta (F), <i>Saccharina latissima</i> (F), <i>Asterias rubens</i> (F) & Asteriidae (F).	SS.SMp.SSgr.Zmar	SG, KSS	
WB03_c	Muddy (20) sand (65) with shell gravel (10) and shells (5) at 0.3 to 5.6 metres BCD. Video analysis from GoPro footage of poor quality. Biotope fit is uncertain - this might be a macrophyte dominated sediment habitat but it is impossible to know if the seaweed is attached or drift weed.	Characterised by Asteriidae (F), <i>Arenicola marina</i> (F), <i>Asterias rubens</i> (O), <i>Zostera</i> (R), <i>Saccharina latissima</i> (R) & filamentous Rhodophyta (R).	SS.SSa.IMuSa.AreISa SS.SMp.KSwSS	KSS	
WB04_a	Muddy (10) sand (75) with shell gravel (10) and shells (5) at 0.5 to 4.6 metres BCD. Video analysis from GoPro footage of good quality. Biotope fit is certain.	Characterised by <i>Arenicola marina</i> (C), <i>Asterias rubens</i> (O) & <i>Carcinus maenas</i> (P).	SS.SSa.IMuSa.AreISa		
WB04_b	Muddy (10) sand (75) with shell gravel (10) and shells (5) at 0.5 to 4.6 metres BCD. Video analysis from GoPro footage of good quality. Biotope fit is certain.	Patchy <i>Zostera</i> bed with kelps and red seaweeds characterised by <i>Zostera</i> (A), filamentous Rhodophyta (O), <i>Saccharina latissima</i> (F) & Asteriidae (F).	SS.SMp.SSgr.Zmar	SG	
WB05_a	Muddy (10) sand (75) with shell gravel (10) and shells (5) at 0.5 to 5.6 metres BCD. Video analysis from GoPro footage of good quality. Biotope fit is certain.	Characterised by <i>Arenicola marina</i> (C).	SS.SSa.IMuSa.AreISa		
WB05_b	Muddy (10) sand (75) with shell gravel (10) and shells (5) at 0.5 to 5.6 metres BCD. Video analysis from GoPro footage of good	<i>Zostera</i> bed with kelp and red filamentous seaweeds characterised by <i>Zostera</i> (A), filamentous Phaeophyceae (C) & Rhodophyta	SS.SMp.SSgr.Zmar	SG	

	quality. Biotope fit is certain.	(O), <i>Arenicola marina</i> (F) & <i>Saccharina latissima</i> (R).			
WB06_a	Muddy (10) sand (75) with shell gravel (10) and shells (5) at 0.5 to 7.5 metres BCD. Video analysis from GoPro footage of good quality. Biotope fit is certain.	Characterised by <i>Arenicola marina</i> (C) & diatom film, or a fine filamentous Phaeophyceae or Rhodophyta indet. (C).	SS.SSa.IMuSa.AreISa		
WB06_b	Muddy (10) sand (75) with shell gravel (10) and shells (5) at 0.5 to 7.5 metres BCD. Video analysis from GoPro footage of good quality. Biotope fit is certain.	<i>Zostera</i> bed with red and brown filamentous seaweeds (or diatom film) characterised by <i>Zostera</i> (A), filamentous Phaeophyceae (C), <i>Arenicola marina</i> (C) & <i>Saccharina latissima</i> (R).	SS.SMp.SSgr.Zmar	SG	
WB06_c	Muddy (10) sand (75) with shell gravel (10) and shells (5) at 0.5 to 7.5 metres BCD. Video analysis from GoPro footage of good quality. Biotope fit is certain.	Characterised by <i>Arenicola marina</i> (C) & diatom film, or a fine filamentous Phaeophyceae or Rhodophyta indet. (C).	SS.SSa.IMuSa.AreISa		
WB07_a	Muddy (10) sand (75) with shell gravel (10) and shells (5) at 0.5 to 8.5 metres BCD. Video analysis from GoPro footage of good quality. Biotope is a good fit.	Characterised by <i>Arenicola marina</i> (C), <i>Luidia ciliaris</i> (P) & Asteriidae (P).	SS.SSa.IMuSa.AreISa		
WB07_b	Muddy (10) sand (75) with shell gravel (10) and shells (5) at 0.5 to 8.5 metres BCD. Last half minute of video had no <i>Zostera</i> but was too small an area to split into a separate habitat. Video analysis from GoPro footage of good quality. Biotope is a good fit.	Characterised by <i>Zostera</i> (A), filamentous Phaeophyceae (F) and Rhodophyta (F), <i>Saccharina latissima</i> (R) and Asteriidae (F).	SS.SMp.SSgr.Zmar	SG	
WB08_A	Biological zone: Infralittoral. Pebbles_16to64mm (1%), Gravel_Stone_4to16mm (1%), Gravel_Shell_4to16mm (1%), Sand (77%), Mud_lessthan0_063mm (20%). Video analysis from: Go Pro. Depth: 0.58-6.5 m BCD.	Epibiota sparse, however the sediment is pitted with numerous burrows and signs of life. One patch of <i>Zostera marina</i> (O) was present however this was not large enough to typify the whole habitat.	SS.SSa.IMuSa		
WB08_B	Biological zone: Infralittoral. Pebbles_16to64mm (1%), Gravel_Stone_4to16mm (1%), Gravel_Shell_4to16mm (1%), Sand (77%), Mud_lessthan0_063mm (20%). Video analysis from: Go Pro. Depth: 0.58-6.5 m BCD.	<i>Zostera marina</i> bed (S) with small unidentified Asteriidea (C), patches of filamentous red seaweeds (O) and <i>Pagurus</i> (O).	SS.SMp.SSgr.Zmar	SG	
WB09_A	Biological zone: Infralittoral. Gravel_Shell_4to16mm (1%), Sand (98%), Mud_lessthan0_063mm (1%). Video	Sediment is pitted with occasional burrows and signs of life.	SS.SSa.IMuSa		

	analysis from: Go Pro. Depth: 0.61-6.46 m BCD.				
WB09_B	Biological zone: Infralittoral. Gravel_Shell_4to16mm (1%), Sand (98%), Mud_lessthan0_063mm (1%). Video analysis from: Go Pro. Depth: 0.61-6.46 m BCD.	Patchy <i>Zostera marina</i> (S) bed which has caught patches of filamentous red seaweeds (O) and <i>Saccharina latissima</i> (O).	SS.SMp.SSgr.Zmar	SG	
WB10	Biological zone: Infralittoral. Cobbles_64to256mm (1%), Shells_Empty (1%), Gravel_Stone_4to16mm (5%), Gravel_Shell_4to16mm (5%), Sand (87%), Mud_lessthan0_063mm (1%). Video analysis from: Go Pro. Depth: 1.63-8.43 m BCD.	Dense <i>Zostera marina</i> (A) bed with filamentous red seaweeds, both attached (C) and as drift weed caught in the <i>Zostera marina</i> bed.	SS.SMp.SSgr.Zmar	SG	
WB11	Biological zone: Infralittoral. Additional notes: Lots of dead <i>Ensis</i> shells. Pebbles_16to64mm (5%), Shells_Empty (5%), Gravel_Stone_4to16mm (20%), Gravel_Shell_4to16mm (30%), Sand (40%). Video analysis from: Go Pro and Drop camera. Depth: 4.66-4.41 m BCD.	<i>Saccharina latissima</i> (C) with filamentous red (C) and green seaweeds (O).	SS.SMp.KSwSS.LsacR	KSS	
WB12	Biological zone: Infralittoral. Shells_Empty (5%), Gravel_Stone_4to16mm (1%), Gravel_Shell_4to16mm (1%), Sand_Fine_0_063to0_25mm (78%), Mud_lessthan0_063mm (15%). Video analysis from: Go Pro. Depth: 0.59-6.48 m BCD.	<i>Zostera marina</i> bed (S) with small filamentous red seaweeds (F) and <i>Saccharina latissima</i> (O).	SS.SMp.SSgr.Zmar	SG	
WB14_A	Biological zone: Infralittoral. Bedrock (5%), Cobbles_64to256mm (33%), Pebbles_16to64mm (35%), Gravel_Stone_4to16mm (1%), Gravel_Shell_4to16mm (1%), Sand (25%). Video analysis from: Go Pro. Depth: 0.4-5.61 m BCD.	Mixed seaweed community with <i>Saccharina latissima</i> (C), <i>Laminaria digitata</i> (F), <i>Chondrus crispus</i> (C), and mixed filamentous red seaweeds (C).	IR.LIR.K.Lsac.Ldig		
WB14_B	Biological zone: Infralittoral. Pebbles_16to64mm (1%), Gravel_Stone_4to16mm (1%), Gravel_Shell_4to16mm (1%), Sand_Fine_0_063to0_25mm (97%). Video analysis from: Go Pro. Depth: 0.4-5.61 m BCD.	Sparse biota visible, numerous burrows and signs of life present in the sediment including common <i>Arenicola</i> spp. casts.	SS.SSa.IMuSa.AreISa		

WB14_C	Biological zone: Infralittoral. Pebbles_16to64mm (1%), Shells_Empty (1%), Gravel_Stone_4to16mm (5%), Gravel_Shell_4to16mm (5%), Sand_Fine_0_063to0_25mm (88%). Video analysis from: Go Pro. Depth: 0.4-5.61 m BCD.	<i>Zostera marina</i> (A), with filamentous red seaweed (C) and <i>Saccharina latissima</i> (C).	SS.SMp.SSgr.Zmar	SG	
WB15	Biological zone: Infralittoral. Pebbles_16to64mm (1%), Shells_Empty (5%), Gravel_Stone_4to16mm (5%), Gravel_Shell_4to16mm (5%), Sand (83%), Mud_lessthan0_063mm (1%). Video analysis from: Go Pro. Depth: 0.29-10.65 m BCD.	Numerous signs of life and burrows within the sediment. <i>Arenicola</i> spp. casts (A) with filamentous Rhodophyta (F) and <i>Chorda filum</i> (P) on occasional pebbles and shell.	SS.SSa.IMuSa.AreISa		
WB16	Biological zone: Circalittoral. Pebbles_16to64mm (1%), Shells_Empty (24%), Gravel_Stone_4to16mm (10%), Gravel_Shell_4to16mm (10%), Sand (20%), Mud_lessthan0_063mm (35%). Video analysis from: Go Pro. Depth: 13.25-15.66 m BCD.	<i>Asciidiella aspersa</i> (C) and Hydrozoa turf (C) attached to shells and gravel, which lies upon muddy mixed sediments. The sediments are characterised by Cerianthidae (C).	SS.SMx.CMx.CIlOmx.Nem		
LLIN_0001	Fine mud with burrows and tracks. 100% Mud. Approx 89.1 - 96.6m bcd.	Burrow evidence shows presence of high level of bioturbating organisms within the sediment. Two species of seapens present. <i>Virgularia mirabilis</i> (F) and <i>Funiculina quadrangularis</i> (O). Burrows with distinctive arch entrances have been recorded as Crustacea (O). <i>Nephrops norvegicus</i> (O). Tracks are found on the sediment surface throughout the video.	SS.Smu.CFiMu.SpnMeg.	BM	FQ
LLIN_0002*	Video missing, not surveyed.	Video missing, not surveyed.	Video missing, not surveyed.	Video missing, not surveyed.	Video missing, not surveyed.
LLIN_0003	Fine mud. 100% Mud. Approx 42.7 - 44.6m bcd.	Burrow evidence shows presence of high level of bioturbating organisms within the sediment. Three species of seapens present. <i>Virgularia mirabilis</i> (C) <i>Pennatula phosphorea</i> (R) and <i>Funiculina quadrangularis</i> (F). Burrows with distinctive arch entrances have been recorded as Crustacea (O). Tracks are found on the sediment surface throughout the video.	SS.Smu.CFiMu.SpnMeg.Fun.	BM	FQ
LLIN_0004	Fine mud. 100% Mud. Approx 62.9 - 62.7m bcd.	Burrow evidence shows presence of high level of bioturbating organisms within the sediment.	SS.Smu.CFiMu.SpnMeg.Fun.	BM	FQ, PM

		Three species of seapens present. <i>Virgularia mirabilis</i> (F), <i>Pennatula phosphorea</i> (F), and <i>Funiculina quadrangularis</i> (C). <i>Nephrops norvegicus</i> (O). <i>Pachycerianthus multiplicatus</i> (O). Burrows with distinctive arch entrances have been recorded as Crustacea (F). Tracks are found on the sediment surface throughout the video. Quite a number of dead Seapens in this transect.			
LLIN_0005	Fine mud. 100% Mud. Approx 54.7 - 56.5m bcd.	Burrow evidence shows presence of high level of bioturbating organisms within the sediment. Three species of seapens present. <i>Virgularia mirabilis</i> (C), <i>Pennatula phosphorea</i> (O), and <i>Funiculina quadrangularis</i> (F). <i>Nephrops norvegicus</i> (F). <i>Pachycerianthus multiplicatus</i> (F). Burrows with distinctive arch entrances have been recorded as Crustacea (O). Tracks are found on the sediment surface throughout the video. Quite a number of dead Seapens in this transect.	SS.Smu.CFiMu.SpnMeg.Fun.	BM	FQ, PM
LLIN_0006	Fine mud with burrows and tracks. 100% Mud. Approx 56.6 - 56.5m bcd.	Burrow evidence shows presence of high level of bioturbating organisms within the sediment. Two species of seapens present. <i>Virgularia mirabilis</i> (C) and <i>Pennatula phosphorea</i> (F). Burrows with distinctive arch entrances have been recorded as Crustacea (F). Tracks are found on the sediment surface throughout the video.	SS.Smu.CFiMu.SpnMeg.	BM	
LLIN_0007	Fine mud. 100% Mud. Approx 59.4 - 59m bcd.	Burrow evidence shows presence of high level of bioturbating organisms within the sediment. Three species of seapens present. <i>Virgularia mirabilis</i> (F), <i>Pennatula phosphorea</i> (O), and <i>Funiculina quadrangularis</i> (F). <i>Nephrops norvegicus</i> (F). <i>Pachycerianthus multiplicatus</i> (F). Burrows with distinctive arch entrances have been recorded as Crustacea (F). Tracks are found on the sediment surface throughout the video.	SS.Smu.CFiMu.SpnMeg.Fun.	BM	FQ, PM
LLIN_0008	Fine mud with <1% shell fragments. Shell gravel: 1. Mud: 99. Approx 70.1 - 67.4m bcd.	Burrow evidence shows presence of high level of bioturbating organisms within the sediment. Three species of seapens present. <i>Virgularia mirabilis</i> (F), <i>Pennatula phosphorea</i> (O), and <i>Funiculina quadrangularis</i> (C). <i>Nephrops</i>	SS.Smu.CFiMu.SpnMeg.Fun.	BM	FQ, PM

		<i>norvegicus</i> (F). <i>Pachycerianthus multiplicatus</i> (F). Burrows with distinctive arch entrances have been recorded as Crustacea (C). Tracks are found on the sediment surface throughout the video.			
LLIN_0009	Fine mud. 100% Mud. Approx 79 - 78.9m bcd.	Burrow evidence shows presence of high level of bioturbating organisms within the sediment. Three species of seapens present. <i>Virgularia mirabilis</i> (F), <i>Pennatula phosphorea</i> (O), and <i>Funiculina quadrangularis</i> (C). <i>Nephrops norvegicus</i> (F). <i>Pachycerianthus multiplicatus</i> (F). Burrows with distinctive arch entrances have been recorded as Crustacea (C). Tracks are found on the sediment surface throughout the video.	SS.Smu.CFiMu.SpnMeg.Fun.	BM	FQ, PM
LLIN_0010_a	Heavily silted circalittoral bedrock (85%), Cobbles: 4, and Mud: 11. Approx 0.5 - 17.5m bcd.	Extremely silty bedrock, abundant <i>Leptometra celtica</i> , with <i>Caryophyllia</i> , scattered tunicates and sponges. Common <i>Munida rugosa</i> . <i>Funiculina quadrangularis</i> also present (P).	CR.LCR.	NFSA	FQ
LLIN_0010_b	Circalittoral soft muddy sediment comprising (%) Empty shell: 1 and Mud: 99. Approx 0.5 - 22.5m bcd.	Circalittoral soft muddy sediment with tracks & common burrows & dense <i>Funiculina</i> including small individuals.	SS.SMmu.CFiMu.SpnMeg.Fun.	BM	FQ
LLIN_0011	Fine mud. Shell gravel: 1. Mud: 99. Approx 115.1 - 43.1m bcd.	Burrow evidence shows presence of high level of bioturbating organisms within the sediment. Three species of seapens present. <i>Virgularia mirabilis</i> (F), <i>Pennatula phosphorea</i> (O), and <i>Funiculina quadrangularis</i> (F). <i>Nephrops norvegicus</i> (F). Burrows with distinctive arch entrances have been recorded as Crustacea (C). Tracks are found on the sediment surface throughout the video. At 02:30 within the video an organism is seen attached to a <i>Funiculina quadrangularis</i> . Video quality does not allow for identification. However, <i>Asteronyx loveni</i> is known to cling to this Seapen.	SS.Smu.CFiMu.SpnMeg.Fun.	BM	FQ
LLIN_0012	Fine mud (100%) Approx 115 - 114.7m bcd.	Burrow evidence shows presence of high level of bioturbating organisms within the sediment. Two species of seapens present. <i>Virgularia mirabilis</i> (O) and <i>Funiculina quadrangularis</i> (F). <i>Nephrops norvegicus</i> (O). Burrows with distinctive arch entrances have been recorded as Crustacea (O). <i>Saccharina latissima</i> drifting (P). Tracks are found on the sediment surface	SS.Smu.CFiMu.SpnMeg.Fun.	BM	FQ

		throughout the video.			
LLIN_0013	Fine mud (100%). Approx 95.7 - 97.2m bcd.	Burrow evidence shows presence of high level of bioturbating organisms within the sediment. Two species of seapens present. <i>Virgularia mirabilis</i> (R) and <i>Funiculina quadrangularis</i> (C). <i>Nephrops norvegicus</i> (R). Burrows with distinctive arch entrances have been recorded as Crustacea (O). Tracks are found on the sediment surface throughout the video.	SS.Smu.CFiMu.SpnMeg.Fun.	BM	FQ
LLIN_0014	Fine mud (100%). Approx 94.5 - 94.3m bcd.	Burrow evidence shows presence of high level of bioturbating organisms within the sediment. Very little fauna. One species of seapen present. <i>Funiculina quadrangularis</i> (R). <i>Nephrops norvegicus</i> (R). Burrows with distinctive arch entrances have been recorded as Crustacea (R). Tracks are found on the sediment surface throughout the video.	SS.Smu.CFiMu.SpnMeg.	BM	FQ
LLIN_0015	Fine mud (100%). Approx 90.6 - 87.6m bcd.	Burrow evidence shows presence of high level of bioturbating organisms within the sediment. Very little fauna. One species of seapen present. <i>Funiculina quadrangularis</i> (R). <i>Nephrops norvegicus</i> (R). Burrows with distinctive arch entrances have been recorded as Crustacea (R). Tracks are found on the sediment surface throughout the video.	SS.Smu.CFiMu.SpnMeg.	BM	FQ
LLIN_0016	Circalittoral muddy sediment comprising (%) Pebbles: 5. Empty shell: 5. Stone gravel: 5. Shell gravel: 5. Mud: 80. Approx 61.9 - 53.7m bcd.	Circalittoral mud with abundant unidentifiable burrows (recorded as Crustacea burrows), with <i>Funiculata quadrangulis</i> (A) and <i>Leptometra celtica</i> (C).	SS.SMx.CFiMu.SpnMeg.	BM, NFSA	FQ
LLIN_0017	Circalittoral mud (100%). Approx 80.6 - 83.3m bcd.	Circalittoral mud with abundant unidentifiable burrows (recorded as Crustacea burrows) and <i>Funiculata quadrangulis</i> (F) and <i>Nephrops norvegicus</i> (F).	SS.SMx.CFiMu.SpnMeg.	BM	FQ
LLIN_0018	Circalittoral mud (100%). Approx 88.2 - 82m bcd.	Circalittoral mud with abundant unidentifiable burrows (recorded as Crustacea burrows), <i>Funiculata quadrangulis</i> (F) and <i>Nephrops norvegicus</i> (O), Pisces (F), and <i>Pachycerianthus multiplicatus</i> (O).	SS.SMx.CFiMu.SpnMeg.	BM	FQ, PM
LLIN_0019	Circalittoral mixed sediments comprising (%) Boulders: 10. Cobbles: 1. Pebbles: 5. Empty shell: 5. Stone gravel: 5. Shell gravel: 5. Mud: 69. Approx 53.4 - 91.9m bcd.	Circalittoral mixed sediments with a high proportion of mud. Sediment community dominated by <i>Funiculina quadrangularis</i> (C) and <i>Nephrops norvegicus</i> (C). Small boulders and cobbles are typified by an identified	SS.SMx.CMx.		

		hydrozoa (F) and bryozoa (O) turf.			
LLIN_0020	Circolittoral mud (100%). Approx 113.6 - 113.4m bcd.	Circolittoral mud with abundant unidentifiable burrows (recorded as Crustacea burrows) and <i>Funiculina quadrangularis</i> (C).	SS.SMu.CFiMu.SpMmeg.	BM	FQ
LLIN_0021	Circolittoral mud (100%). Approx 83.1 - 79.2m bcd.	Circolittoral mud with abundant unidentifiable burrows (recorded as Crustacea burrows) and <i>Funiculina quadrangularis</i> (C).	SS.SMu.CFiMu.SpMmeg.	BM	FQ
LLIN_0022	Circolittoral muddy sediments comprising (%) Cobbles: 1. Pebbles: 1. Empty shell: 1. Stone gravel: 1. Shell gravel: 1. Mud: 95. Approx 113.5 - 126.9m bcd.	Circolittoral mud with abundant unidentifiable burrows (recorded as Crustacea burrows), <i>Nephrops norvegicus</i> (C) and <i>Funiculina quadrangularis</i> (C).	SS.SMu.CFiMu.SpMmeg.	BM	FQ
LLIN_0023	Circolittoral mud (100%). Approx 82.8 - 84.5m bcd.	Circolittoral mud with abundant identifiable burrows (recorded as Crustacea burrows). <i>Funiculina quadrangularis</i> (A) plus other common burrowing cnidarians.	SS.SMu.CFiMu.SpMmeg.	BM	FQ, PM
LLIN_0024	Circolittoral mixed sediments comprising (%) Boulders: 1. Cobbles: 5. Pebbles: 5. Empty shell: 5. Stone gravel: 5. Shell gravel: 5. Mud: 74. Approx 160.1 - 162.2m bcd.	Very poor video quality. Rock surfaces occasionally colonised by hydrozoa turf (O), <i>Pennatula phosphorea</i> (O) occasionally observed in areas of sediment between pebbles and cobbles.	SS.SMx.CMx.		
LLIN_0025	Circolittoral mixed sediments comprising (%) Boulders: 1. Cobbles: 5. Pebbles: 5. Empty shell: 5. Stone gravel: 5. Shell gravel: 5. Mud: 74. Approx 126.8 - 122.7m bcd.	Unidentifiable holothurians (F), Paguridae (F) and Asteroidea (F).	SS.SMx.CMx.		
LLIN_0026_A	Steeply sloping silted circolittoral bedrock and boulders (Bedrock 60%, Boulders: 20%, Mud: 30%). Approx 57.4 - 55.6m bcd.	Rock surfaces dominated by <i>Leptometra celtica</i> (A), other unidentifiable asteroidea (F) observed with actiniaria (F), and <i>Galathea</i> (F).	CR.LCR.	NFSA	
LLIN_0026_B	Circolittoral muddy sediments comprising (%) Empty shell: 1. Stone gravel: 1. Shell gravel: 1. Mud: 97. Approx 57.4 - 55.6m bcd.	Mud with common burrows (recorded as Crustacea burrows), <i>Funiculina quadrangularis</i> (C) and <i>Nephrops norvegicus</i> (C).	SS.SMu.CFiMu.SpMmeg.	BM	FQ
LLIN_0027	Circolittoral muddy sediments comprising (%) quadrangularis Empty shell: 1. Stone gravel: 1. Shell gravel: 1. Mud: 97. Approx 64.3 - 62.3m bcd.	Mud with common burrows (recorded as Crustacea burrows), <i>Funiculina quadrangularis</i> (A), Pisces (C) and <i>Pennatula phosphorea</i> (F).	SS.SMu.CFiMu.SpMmeg.	BM	FQ
LLIN_0028	Circolittoral muddy sediments comprising (%) Empty shell: 1. Stone gravel: 1. Shell gravel: 1. Mud: 97. Approx 61.5 - 61.7m bcd.	Mud with common burrows (recorded as Crustacea burrows), and the sea pens <i>Funiculina quadrangularis</i> (A). Other species observed include <i>Pennatula phosphorea</i> (F) and <i>Pachycerianthus multiplicatus</i> (P) and unidentified Actiniaria (O).	SS.SMu.CFiMu.SpMmeg.	BM	FQ, PM

LLIN_0029	Circolittoral muddy sediments comprising (%) Empty shell: 1. Stone gravel: 1. Shell gravel: 1. Mud: 97. Approx 70.3 - 71.1m bcd.	Mud with abundant burrows (recorded as Crustacea burrows), and the sea pens <i>Funiculina quadrangularis</i> (C), Other species observed include <i>Pachycerianthus multiplicatus</i> (P), <i>Nephrops norvegicus</i> (F), unidentified Asteroidea (P) and Pisces (O).	SS.SMu.CFiMu.SpnMeg.	BM	FQ, PM
LLIN_0030	Circolittoral mixed sediments comprising (%) . Boulders: 1. Cobbles: 5. Pebbles: 10. Stone gravel: 1. Shell gravel: 1. Mud: 82. Approx 39.7 - 37.6m bcd.	Mixed sediments with Galatheoidea (F), and an unidentifiable hydrozoa turf (F) on boulders/cobbles and pebbles.	SS.SMx.CMx.	NFSA	
LLIN_0031	Circolittoral burrowed mud (100%). Approx 63.9 - 64.4m bcd.	Circolittoral burrowed mud with <i>Nephrops norvegicus</i> (C). Lots of drift weed is also present in the tow, and is even caught and towed by the camera sled at points.	SS.SMu.CFiMu.	BM	FQ
LLIN_0032	Circolittoral mud with mosaiced with low energy circolittoral rock Boulders: 15 (%). Cobbles: 10. Pebbles: 5. Empty shell: 5. Stone gravel: 5. Shell gravel: 5. Mud: 55. Approx 34.2 - 44.5m bcd.	Mosaic of two habitats. Habitat one - circolittoral mud with the sea pens <i>Funiculina quadrangularis</i> (A) and numerous unidentifiable burrows (recorded as Crustacea burrows). Habitat two - Low energy circolittoral rock with <i>Leptometra celtica</i> (A), hydrozoa turf (C), <i>Munida</i> spp. (F) and unidentified porifera (F).	SS.SMu.CFiMu.SpnMeg.Fun and CR.LCR.	BM, NFSA	FQ
LLIN_0033	Circolittoral burrowed mud (100%), approx 57.8 - 55.8m bcd.	Circolittoral burrowed mud with sea pens <i>Funiculina quadrangularis</i> (C) and <i>Nephrops norvegicus</i> (F).	SS.SMu.CFiMu.SpnMeg.Fun.	BM	FQ
LLIN_0034	Circolittoral burrowed muddy sediments comprising (%) Empty shell: 5. Shell gravel: 5. Mud: 90. Approx 36.9 - 28m bcd.	Circolittoral burrowed mud with the sea pens <i>Funiculina quadrangularis</i> (A), <i>Virgularia mirabilis</i> (C) and <i>Pennatula phosphorea</i> (C).	SS.SMu.CFiMu.SpnMeg.Fun.	BM	FQ
LLIN_0035	Circolittoral burrowed mud. 100% Mud. Approx 39.2 - 38.8m bcd.	Circolittoral burrowed mud with the sea pens <i>Funiculina quadrangularis</i> (A) and <i>Pennatula phosphorea</i> (C).	SS.SMu.CFiMu.SpnMeg.Fun.	BM	FQ
LLIN_0036	Circolittoral burrowed mud. 100% Mud. Approx 96.9 - 98.6m bcd.	Circolittoral burrowed mud with the sea pens <i>Funiculina quadrangularis</i> (C) and <i>Pachycerianthus multiplicatus</i> (F).	SS.SMu.CFiMu.SpnMeg.Fun.	BM	FQ, PM
LLIN_0037	Circolittoral burrowed mud (100%), approx 98.9 - 99.8m bcd.	Circolittoral burrowed mud with <i>Pachycerianthus multiplicatus</i> (C) and <i>Funiculina quadrangularis</i> (F).	SS.SMu.CFiMu.SpnMeg.	BM	FQ, PM
LLIN_0038	Circolittoral burrowed mud. 100% Mud. Approx 75.3 - 84.1m bcd.	Circolittoral burrowed mud with <i>Funiculina quadrangularis</i> (C), <i>Nephrops norvegicus</i> (F) and <i>Pachycerianthus multiplicatus</i> (F) and unidentified fish (F).	SS.SMu.CFiMu.SpnMeg.Fun.	BM	FQ, PM
LLIN_0039	Circolittoral burrowed mud. 100% Mud. Approx 53.1 - 52.5m bcd.	Circolittoral burrowed mud with <i>Funiculina quadrangularis</i> (C), and <i>Munida</i> spp. (F)	SS.SMu.CFiMu.SpnMeg.Fun.	BM	FQ

		<i>Nephrops norvegicus</i> (O).			
LLIN_0040	Circa littoral burrowed mud. Cobbles: 1. Stone gravel: 1. Shell gravel: 1. Mud: 97. Approx 33.1 - 35m bcd.	Circa littoral mud with numerous unidentifiable burrows (recorded as Crustacea burrows), <i>Funiculina quadrangularis</i> (A) and <i>Munida</i> spp. (F).	SS.SMu.CFiMu.SpnMeg.Fun.	BM	FQ
LLIN_0041	Circa littoral burrowed mud. Cobbles: 1. Pebbles: 5. Stone gravel: 1. Shell gravel: 1. Mud: 92. Approx 28 - 26.5m bcd.	Circa littoral mud with numerous unidentifiable burrows (recorded as Crustacea burrows), <i>Funiculina quadrangularis</i> (A) and <i>Munida</i> (O). Unidentified Porifera (O) encountered on occasional pebbles/cobbles.	SS.SMu.CFiMu.SpnMeg.Fun.	BM	FQ
LLIN_0042	Circa littoral burrowed mud (100%). Approx 53.6 - 48.9m bcd.	Circa littoral mud with numerous unidentifiable burrows (recorded as Crustacea burrows). Sparse epibiota was observed throughout tow. A small number of unidentified fish (F) were encountered with <i>Funiculina quadrangularis</i> (P), <i>Pennatula phosphorea</i> (P) and <i>Pachycerianthus multiplicatus</i> (P)	SS.SMu.CFiMu.SpnMeg.	BM	FQ, PM
LLIN_0043	Circa littoral burrowed mud. Stone gravel: 1. Shell gravel: 1. Mud: 98. Approx 75.6 - 85.3m bcd.	Circa littoral mud with numerous unidentified burrows (recorded as Crustacea burrows), <i>Funiculina quadrangularis</i> (C) and unidentified fish (O).	SS.SMu.CFiMu.SpnMeg.Fun.	BM	FQ
LLIN_0044	Circa littoral burrowed mud (100%). Approx 77.1 - 76.8m bcd.	Circa littoral mud with numerous unidentified burrows (recorded as Crustacea burrows), <i>Funiculina quadrangularis</i> (C) and 2 unidentified fish (P).	SS.SMu.CFiMu.SpnMeg.Fun.	BM	FQ
LLIN_0045	Circa littoral burrowed mud. 100% Mud. Approx 69.2 - 68.9m bcd.	Circa littoral mud with numerous unidentified burrows (recorded as Crustacea burrows), <i>Funiculina quadrangularis</i> (C) and <i>Pennatula phosphorea</i> (P).	SS.SMu.CFiMu.SpnMeg.Fun.	BM	FQ
LLIN_0046	Circa littoral burrowed mud. 100% Mud. Approx 78.9 - 78.4m bcd.	Circa littoral mud with numerous unidentified burrows (recorded as Crustacea burrows), <i>Funiculina quadrangularis</i> (F) and <i>Pachycerianthus multiplicatus</i> (P). Occasional unidentifiable fish (O) are seen swimming across the field of view.	SS.SMu.CFiMu.SpnMeg.Fun.	BM	FQ, PM
LLIN_0047	Circa littoral burrowed mud with sparse observable epibiota 100% Mud. Approx 49.9 - 50.7m bcd.	Circa littoral mud with numerous unidentified burrows (recorded as Crustacea burrows). Sparse epibiota was observed throughout tow, with only occasional <i>Nephrops norvegicus</i> (O) emerging/retracting from/into burrows (recorded as Crustacea burrows).	SS.SMu.CFiMu.	BM	
LLIN_0048_A	Circa littoral burrowed mud (100%) Approx 33.6 - 22.4m bcd.	Circa littoral mud with numerous unidentified burrows (recorded as Crustacea burrows).	SS.SMu.CFiMu.SpnMeg.Fun.	BM	FQ

		Sparse epibiota was observed throughout tow, with frequent <i>Funiculina quadrangularis</i> (F), and occasional <i>Munida</i> spp. (O) and a single <i>Asterias rubens</i> (P).			
LLIN_0048_B	Circalittoral mixed sediments comprising (%) Boulders: 10. Cobbles: 5. Pebbles: 5. Stone gravel: 1. Shell gravel: 1. Mud: 78. Approx 33.6 - 22.4m bcd.	Circalittoral mixed sediments with sparse epibiota. Occasional porifera (O) and porifera (branching) (O), plus hydrozoa turf (O) observed on rock surfaces.	SS.SMx.CMx.		
LLIN_0049	Circalittoral burrowed mud comprising (%) Shell gravel: 1. Mud: 99. Approx 26.6 - 26.7m bcd.	Circalittoral mud with numerous burrows (recorded as Crustacea burrows) and sparse observable biota. A single <i>Pachycerianthus multiplicatus</i> (P).	SS.SMu.CFiMu.	BM, NFS	PM
LLIN_0050	Circalittoral burrowed muddy sediments comprising (%) Stone gravel: 5. Shell gravel: 1. Mud: 94. Approx 23.7 - 22.9m bcd.	Circalittoral mud with numerous burrows (recorded as Crustacea burrows) and the sea pens <i>Funiculina quadrangularis</i> (C) and <i>Virgularia mirabilis</i> (C). Unidentified asteriodes (F) and ophiuroidea (F) where also observed with other fauna.	SS.SMu.CFiMu.SpnMeg.Fun.	BM	FQ
LLIN_0051_A	Circalittoral burrowed muddy sediments comprising (%) Shell gravel: 5. Mud: 95. Approx 25.5 - 34.9m bcd.	Circalittoral mud with numerous burrows (recorded as Crustacea burrows) and <i>Funiculina quadrangularis</i> (A), <i>Pachycerianthus multiplicatus</i> (P), and <i>Pennatula phosphorea</i> (P).	SS.SMu.CFiMu.SpnMeg.Fun.	BM	FQ, PM
LLIN_0051_B	Circalittoral mixed sediments comprising (%) Boulders: 10. Cobbles: 10. Pebbles: 5. Empty shell: 5. Stone gravel: 5. Shell gravel: 5. Mud: 60. Approx 25.5 - 34.9m bcd.	Circalittoral mixed sediments. On rock surfaces an occasional faunal community was observed. The community was typified by hydrozoa (F), Porifera (O), Porifera branching (O) and Ascideacea (O).	SS.SMx.CMx.		
LLIN_0052	Circalittoral mixed sediments comprising (%) Pebbles: 30. Empty shell: 1. Stone gravel: 10. Shell gravel: 10. Mud: 49. Approx 57.6 - 49.7m bcd.	Circalittoral mixed sediments with <i>Munida</i> (F) but generally sparse fauna. A small patch of Circalittoral mud with (%) (C) was observed before the predominant mixed sediment habitat.	SS.SMx.CMx.		FQ
LLIN_0053	Circalittoral muddy mixed sediments comprising (%) Pebbles: 10. Empty shell: 1. Stone gravel: 5. Shell gravel: 5. Mud: 79. Approx 35.9 - 37m bcd.	Circalittoral muddy mixed sediments with <i>Funiculina quadrangularis</i> (A). Frequent <i>Pachycerianthus multiplicatus</i> (F), <i>Munida</i> spp. (F) and <i>Solaster endeca</i> (F).	SS.SMu.CFiMu.SpnMeg.Fun.		FQ, PM
LLIN_0054	Circalittoral mud with (%) Boulders: 5. Cobbles: 5. Pebbles: 5. Empty shell: 1. Stone gravel: 5. Shell gravel: 5. Mud: 74. Approx 31.6 - 30.4m bcd.	Circalittoral muddy mixed sediments with <i>Funiculina quadrangularis</i> (C). Frequent <i>Munida</i> spp. (F), <i>Echinus esculentus</i> (F). Occasional rock surfaces are colonised by an unidentified hydrozoa turf (R), Ascidiens (R) and corraline encrusting algae (R).	SS.SMu.CFiMu.SpnMeg.Fun.		FQ

LLIN_0055	Circalittoral mud with (%) Empty shell: 1. Stone gravel: 5. Shell gravel: 5. Mud: 89. Approx 32.7 - 32.1m bcd.	Circalittoral mud with numerous unidentified burrows (recorded as Crustacea burrows) and <i>Funiculina quadrangularis</i> (A), <i>Pennatula phosphorea</i> (C) and Asteroidea (C).	SS.SMu.CFiMu.SpnMeg.Fun.	BM	FQ
LLIN_0056	Circalittoral burrowed mud. 100% Mud. Approx 43.7 - 47m bcd.	Circalittoral mud with numerous unidentified burrows (recorded as Crustacea burrows) and <i>Funiculina quadrangularis</i> (A).	SS.SMu.CFiMu.SpnMeg.Fun.	BM	FQ
LLIN_0057	Circalittoral burrowed mud. 100% Mud. Approx 43.2 - 42.1m bcd.	Circalittoral mud with numerous unidentified burrows (recorded as Crustacea burrows) and <i>Funiculina quadrangularis</i> (C). Other fauna observed include <i>Pachycerianthus multiplicatus</i> (P), <i>Pennatula phosphorea</i> (F) and <i>Munida</i> spp. (O).	SS.SMu.CFiMu.SpnMeg.Fun.	BM	FQ, PM
LLIN_0058	Circalittoral burrowed mud. 100% Mud. Approx 57.9 - 58.5m bcd.	Circalittoral mud with numerous unidentifiable burrows (recorded as Crustacea burrows) and <i>Funiculina quadrangularis</i> (C).	SS.SMu.CFiMu.SpnMeg.Fun.	BM	FQ
LLIN_0059	Circalittoral burrowed mud. Empty shell: 1. Shell gravel: 5. Mud: 94. Approx 32.2 - 33.1m bcd.	Circalittoral mud with numerous unidentifiable burrows (recorded as Crustacea burrows) and <i>Funiculina quadrangularis</i> (A) and <i>Pennatula phosphorea</i> (C).	SS.SMu.CFiMu.SpnMeg.Fun.	BM	FQ
LLIN_0060	Circalittoral burrowed muddy sediments comprising (%) Empty shell: 1. Stone gravel: 5. Shell gravel: 5. Mud: 89. Approx 34.3 - 32.3m bcd.	Circalittoral mud with numerous unidentifiable burrows (recorded as Crustacea burrows) and <i>Funiculina quadrangularis</i> (C) and <i>Pennatula phosphorea</i> (F), with occasional <i>Munida</i> (O).	SS.SMu.CFiMu.SpnMeg.Fun.	BM	FQ
LLIN_0061	Circalittoral burrowed mud. Stone gravel: 1. Shell gravel: 1. Mud: 98. Approx 71.2 - 76.8m bcd.	Circalittoral mud with numerous unidentifiable burrows (recorded as Crustacea burrows) and <i>Funiculina quadrangularis</i> (F).	SS.SMu.CFiMu.SpnMeg.Fun.	BM	FQ
LLIN_0062	Circalittoral burrowed mud with <i>Funiculina quadrangularis</i> and Asteroidea Stone gravel: 1. Shell gravel: 5. Mud: 94. Approx 27.3 - 27.8m bcd.	Circalittoral mud with numerous unidentifiable burrows (recorded as Crustacea burrows) and seapens - <i>Funiculina quadrangularis</i> (A) and <i>Pennatula phosphorea</i> (F). Common unidentified Asteroidea (C) and a single <i>Pachycerianthus multiplicatus</i> (P).	SS.SMu.CFiMu.SpnMeg.Fun.	BM	FQ, PM
LLIN_0063	Circalittoral burrowed mud. 100% Mud. Approx 29.4 - 30m bcd.	Circalittoral mud with numerous unidentifiable burrows (recorded as Crustacea burrows) and <i>Funiculina quadrangularis</i> (P).	SS.SMu.CFiMu.SpnMeg.Fun.	BM	FQ
LLIN_0064	Circalittoral mixed sediments comprising (%) Boulders: 5. Cobbles: 10. Pebbles: 10. Stone gravel: 5. Shell gravel: 5. Mud: 65. Approx 25.8 - 25m bcd.	Circalittoral mixed sediments typified by small boulders, cobbles embedded in gravelly mud. The rock surfaces were typified by <i>Alcyonium digitatum</i> (C), a hydroid turf (F), ascidians (F) and unidentified asteroidea (F). Frequent <i>Echinus esculentus</i> (F) also frequent throughout tow.	SS.SMX.CMx.		

LLIN_0065	Circolittoral burrowed mud , with a patch of mixed sediments comprising (%) Boulders: 1. Cobbles: 5. Pebbles: 5. Stone gravel: 1. Shell gravel: 1. Mud: 87. Approx 52.8 - 54m bcd.	Circolittoral mud with numerous unidentifiable burrows (recorded as Crustacea burrows) and <i>Funiculina quadrangularis</i> (C). A patch of circolittoral mixed sediments was present, however not long enough to be classed as a seperate habitat. The rock surfaces were colonised by a faunal community of hydrozoa (F), and Porifera (O).	SS.SMu.CFiMu.SpnMeg.Fun and SS.SMx.CMx.	BM	FQ
LLIN_0066	Circolittoral burrowed mud. 100% Mud. Approx 82.7 - 83.5m bcd.	Circolittoral mud with numerous unidentifiable burrows (recorded as Crustacea burrows) and <i>Funiculina quadrangularis</i> (C). A single <i>Pachycerianthus multiplicatus</i> (P) and fish (P) was observed.	SS.SMu.CFiMu.SpnMeg.Fun.	BM	FQ, PM
LLIN_0067	Circolittoral burrowed mud. Pebbles: 5. Stone gravel: 5. Shell gravel: 5. Mud: 85. Approx 0.5 - 63m bcd.	Circolittoral mud with numerous unidentifiable burrows (recorded as Crustacea burrows) and seapens - <i>Funiculina quadrangularis</i> (A) and <i>Pennatula phosphorea</i> (F). <i>Munida</i> spp. (F) and <i>Nephrops norvegicus</i> (O) also observed.	SS.SMu.CFiMu.SpnMeg.Fun.	BM	FQ
LLIN_0068	Circolittoral burrowed mud. Shell gravel: 1. Mud: 99. Approx 71.1 - 72.2m bcd.	Circolittoral mud with numerous unidentifiable burrows (recorded as Crustacea burrows), <i>Funiculina quadrangularis</i> (P), <i>Pachycerianthus multiplicatus</i> (P) and unidentified fish (P).	SS.SMu.CFiMu.SpnMeg.Fun.	BM	FQ, PM
LLIN_0069	Circolittoral burrowed mud. Shell gravel: 1. Mud: 99. Approx 57.3 - 57.8m bcd.	Circolittoral mud with numerous unidentifiable burrows (recorded as Crustacea burrows), <i>Funiculina quadrangularis</i> (C) and unidentified fish (O).	SS.SMu.CFiMu.SpnMeg.Fun.	BM	FQ
LLIN_0070	Circolittoral burrowed mud. Shell gravel: 1. Mud: 99. Approx 38.9 - 37.1m bcd.	Circolittoral mud with numerous unidentifiable burrows (recorded as Crustacea burrows), <i>Funiculina quadrangularis</i> (C).	SS.SMu.CFiMu.SpnMeg.Fun.	BM	FQ
LLIN_0071	Circolittoral burrowed mud. Empty shell: 1. Shell gravel: 1. Mud: 98. Approx 37 - 35.2m bcd.	Circolittoral mud with numerous unidentifiable burrows (recorded as Crustacea burrows) and sea pens - <i>Funiculina quadrangularis</i> (A), and <i>Pennatula phosphorea</i> (F). Unidentified Asteroidea (P) and Pisces (P) observed.	SS.SMu.CFiMu.SpnMeg.Fun.	BM	FQ
LLIN_0072	Circolittoral burrowed mud. Empty shell: 1. Stone gravel: 1. Shell gravel: 1. Mud: 97. Approx 62.2 - 62.5m bcd.	Circolittoral mud with numerous unidentifiable burrows (recorded as Crustacea burrows), <i>Funiculina quadrangularis</i> (P) and unidentified Pisces (P).	SS.SMu.CFiMu.SpnMeg.Fun.	BM	FQ
LLIN_0073	Circolittoral mixed sediment with <i>Cerianthus</i> spp. Pebbles: 10. Empty shell: 5. Stone gravel: 15. Shell gravel: 15. Mud: 55. Approx 21 - 22m bcd.	Circolittoral mixed sediment with <i>Cerianthus</i> spp. (F), occasional Asteroidea (O) and Paguridae (P). Unidentifiable hydrozoa was observed on occasional pebbles.	SS.SMX.CMx.CIloMx.		

LLIN_0074	Circolittoral burrowed mud. Stone gravel: 1. Shell gravel: 1. Mud: 98. Approx 23 - 23m bcd.	Circolittoral mud with numerous unidentifiable burrows (recorded as Crustacea burrows), <i>Funiculina quadrangularis</i> (C) and <i>Munida</i> (O).	SS.SMu.CFiMu.SpnMeg.Fun.	BM	FQ
LLIN_0075	Circolittoral burrowed mud. Empty shell: 1. Stone gravel: 1. Shell gravel: 1. Mud: 97. Approx 29.4 - 28.9m bcd.	Circolittoral mud with numerous unidentifiable burrows (recorded as Crustacea burrows), <i>Funiculina quadrangularis</i> (C) and other sparse fauna. Occasional drift weed observed throughout tow.	SS.SMu.CFiMu.SpnMeg.Fun.	BM	FQ
LLIN_0076	Circolittoral burrowed mud. Empty shell: 1. Stone gravel: 1. Shell gravel: 1. Mud: 97. Approx 42.6 - 42.3m bcd.	Circolittoral mud with numerous unidentifiable burrows (recorded as Crustacea burrows), <i>Funiculina quadrangularis</i> (P) and other sparse fauna.	SS.SMu.CFiMu.SpnMeg.Fun.	BM	FQ
LLIN_0077_a	Circolittoral burrowed mud. Pebbles: 5. Empty shell: 5. Stone gravel: 5. Shell gravel: 5. Mud: 80. Approx 37.2 - 31.9m bcd.	Circolittoral mud with numerous unidentifiable burrows (recorded as Crustacea burrows), <i>Funiculina quadrangularis</i> (A) and other sparse fauna. At the start of the tow was an area of SS.SMx.CMx, with a sparse coverage of serpulid worms (R) and hydroid (R) + bryozoan (R) turf, this area was however not large enough to be classed as a separate habitat.	SS.SMu.CFiMu.SpnMeg.Fun.	BM	FQ
LLIN_0077_b	Low energy highly silted circolittoral rock comprising (%) Bedrock: 44. Boulders: 10. Cobbles: 5. Pebbles: 1. Stone gravel: 5. Shell gravel: 5. Mud: 30. Approx 37.2 - 31.9m bcd.	Low energy highly silted circolittoral rock dominated by unidentified Ascidians (A) and <i>Leptometra celtica</i> (A). Asteroidea (F) and <i>Munida</i> (F) also frequent.	CR.LCR.BrAs.AntAsH.	NFSA	
LLIN_0077_c	Circolittoral burrowed mud. Empty shell: 1. Stone gravel: 1. Shell gravel: 5. Mud: 93. Approx 37.2 - 31.9m bcd.	Circolittoral mud with numerous unidentifiable burrows (recorded as Crustacea burrows) and <i>Funiculina quadrangularis</i> (C).	SS.SMu.CFiMu.SpnMeg.Fun.	BM	FQ
LLIN_0078_a	Circolittoral mixed sediments with a mixed faunal turf Boulders: 1. Cobbles: 1. Pebbles: 20. Empty shell: 5. Stone gravel: 15. Shell gravel: 15. Mud: 43. Approx 24.5 - 30.4m bcd.	Circolittoral mixed sediments with a mixed faunal turf dominated by <i>Alcyonium digitatum</i> (C), plus a hydrozoa (F) and bryozoa (F) turf.	SS.SMX.CMx.		
LLIN_0078_b	Circolittoral silted bedrock reef comprising (%) Bedrock: 60. Boulders: 5. Cobbles: 5. Pebbles: 5. Empty shell: 1. Stone gravel: 5. Shell gravel: 5. Mud: 14. Approx 24.5 - 30.4m bcd.	Circolittoral silted bedrock reef dominated by Corallinaceae crusts (C) which later fades in to a diverse faunal turf of Bryozoa (C). Hydrozoa (C) and Ascidians (C).	CR.LCR.BrAs.	NFS	
LLIN_0079	Circolittoral mixed sediments. Bedrock: 60. Pebbles: 10. Empty shell: 1. Stone gravel: 5. Shell gravel: 5. Mud: 79. Approx 35.5 - 46.5m bcd.	Circolittoral mixed sediments with a faunal turf. Due to the poor quality of the video identification of the epi biota is largely uncertain. Visible fauna include <i>Echinus esculentus</i> (F), Asteriidae (P) and <i>Munida</i> (P).	SS.SMX.CMx.		

LLIN_0080*	Video missing, not surveyed.	Video missing, not surveyed.	Video missing, not surveyed.	Video missing, not surveyed.	Video missing, not surveyed.
LLIN_0081*	Video missing, not surveyed.	Video missing, not surveyed.	Video missing, not surveyed.	Video missing, not surveyed.	Video missing, not surveyed.
LSHELL_0001_a	A mosaic of infralittoral boulders and soft sediment comprising (%) Boulders: 80. Cobbles: 5. Shell gravel: 2. Sand: 23. Mud: 20. Approx 11 - 12.76m bcd.	Biota of <i>Saccharina latissima</i> with foliose and filamentous algae. Many starfish and <i>Asciidiella</i> can be distinguished.	IR.LIR.K.LhypLsac and SS.SMu.IFiMu.		
LSHELL_0001_b	Infralittoral soft, muddy, bioturbated sediment with scattered shell fragments comprising (%) Empty shell: 1. Shell gravel: 1. Mud: 98. Approx 11 - 12.76m bcd.	A few Asterozoa and Ascidiidae.	SS.SMu.IFiMu.		
LSHELL_0002	Circalittoral soft, burrowed, muddy sediment comprising (%) Empty shell: 1. Shell gravel: 3. Mud: 96. Approx 20.3 - 20.3m bcd.	<i>Pennatula phosphorea</i> and many starfish, and many large burrows.	SS.SMu.CFiMu.SpnMeg.	BM	
LSHELL_0003	Circalittoral soft, burrowed, muddy sediment comprising (%) Empty shell: 1. Shell gravel: 1. Mud: 98. Approx 26 - m bcd.	<i>Pennatula phosphorea</i> and starfish with many large burrows and tracks.	SS.SMu.CFiMu.SpnMeg.	BM	
LSHELL_0004	Circalittoral soft, burrowed 100% Mud. Approx 25.4 - 26.4m bcd.	Common <i>Virgularia mirabilis</i> in mud with many large burrows and tracks	SS.SMu.CFiMu.SpnMeg.	BM	
LSHELL_0005	Circalittoral soft, burrowed, muddy sediment comprising (%) Boulders: 10. Cobbles: 5. Empty shell: 1. Shell gravel: 1. Mud: 83. Approx 27 - 27.6m bcd.	Boulders and cobbles on sediment at the start of the tow with typical sea loch rock fauna: <i>Protanthea</i> , <i>Cliona intestinalis</i> and brittle stars. Most of tow bioturbated mud with various burrows, scattered starfish and <i>Pennatula phosphorea</i> .	CR.LCR.BrAs.NeoPro and SS.SMu.CFiMu.SpnMeg.	BM	
LSHELL_0006	Mosaic of two circalittoral biotopes: soft, burrowed, muddy sediment and scattered boulders. Comprising (%) Boulders: 36. Empty shell: 1. Mud: 75. Approx 21.4 - 26m bcd.	Boulders supporting typical sea loch fauna <i>Protanthea simplex</i> and brittle stars, surrounded by soft, muddy sediment with burrows and tracks and scattered <i>Pennatula phosphorea</i> .	SS.SMu.CFiMu.SpnMeg and CR.LCR.BrAs.NeoPro.	BM	
LSHELL_0007	Circalittoral soft, burrowed. 100% Mud. Approx 28.6 - 27.6m bcd.	Visible fauna in mud of <i>Virgularia mirabilis</i> and gobies, with many burrows, tracks and mounds.	SS.SMu.CFiMu.SpnMeg.	BM	
LSHELL_0008	Circalittoral soft, burrowed 100% Mud. Approx 27.5 - 25.6m bcd.	Visible fauna in mud of <i>Virgularia mirabilis</i> and gobies, with many burrows, tracks and	SS.SMu.CFiMu.SpnMeg.	BM	

		mounds.			
LSHELL_0009_a	Circalittoral soft, burrowed, muddy sediment comprising (%) Shell gravel: 2. Mud: 98. Approx 26.8 - 22.31m bcd.	Visible fauna in mud of <i>Pennatula phosphorea</i> and <i>Asterias rubens</i> with many burrows and tracks.	SS.SMU.CFiMu.SpnMeg.	BM	
LSHELL_0009_b	A mosaic of circalittoral soft, burrowed, muddy sediment and outcrops of bedrock. Comprising (%) Bedrock: 15. Shell gravel: 2. Mud: 83. Approx - m bcd.	Bedrock with <i>Ophiothrix fragilis</i> and <i>Protanthea simplex</i> and encrusting coralline algae. Muddy sediment with only a few <i>Asteroidea</i> visible.	CR.LCR.BrAs.NeoPro.		
LSHELL_0010	Circalittoral soft, burrowed, muddy sediment with limited fauna visible. 100% Mud. Approx 33 - 33m bcd.	Visible fauna in mud of <i>Pennatula phosphorea</i> and gobies with burrows.	SS.SMU.CFiMu.SpnMeg.	BM	
LSHELL_0011	Circalittoral soft, burrowed, muddy sediment with limited fauna visible. 100% Mud. Approx 45.2 - 42.6m bcd.	Visible fauna in mud of <i>Pennatula phosphorea</i> and gobies with burrows.	SS.SMU.CFiMu.SpnMeg.	BM	
LSHELL_0012	Circalittoral soft, burrowed, muddy sediment with limited fauna visible. 100% Mud. Approx 49.3 - 45.2m bcd.	Visible fauna in mud of <i>Pennatula phosphorea</i> and gobies with burrows.	SS.SMU.CFiMu.SpnMeg.	BM	
LSHELL_0013	Circalittoral soft, burrowed, muddy sediment with burrows and seapens common. 100% Mud. Approx 40.6 - 41.3m bcd.	<i>Pennatula phosphorea</i> common and two <i>Funiculina quadrangularis</i> . <i>Nephrops</i> burrows.	SS.SMU.CFiMu.SpnMeg.	BM	FQ
LSHELL_0014	Circalittoral soft, burrowed, muddy sediment with burrows and seapens common. 100% Mud. Approx 38 - 38.9m bcd.	<i>Pennatula phosphorea</i> common and four <i>Funiculina quadrangularis</i> . <i>Nephrops</i> burrows.	SS.SMU.CFiMu.SpnMeg.	BM	FQ
LSHELL_0015	Circalittoral soft, burrowed 100% Mud. Approx 43.3 - 42.2m bcd.	<i>Pennatula phosphorea</i> common and four <i>Funiculina quadrangularis</i> . <i>Nephrops</i> burrows.	SS.SMU.CFiMu.SpnMeg.	BM	FQ
LSHELL_0016	Circalittoral soft, burrowed, muddy sediment. 100% Mud. Approx 43 - 44.7m bcd.	Three <i>Funiculina quadrangularis</i> . <i>Nephrops</i> burrows and many others.	SS.SMU.CFiMu.SpnMeg.	BM	FQ
LSHELL_0017	Circalittoral soft, burrowed 100% Mud. Approx 53.5 - 40.3m bcd.	Common <i>Funiculina quadrangularis</i> . <i>Nephrops</i> burrows and many others.	SS.SMu.CFiMu.SpnMeg.Fun.	BM	FQ
LSHELL_0018	Circalittoral soft, burrowed. 100% Mud. Approx 30.4 - 41.3m bcd.	Common <i>Funiculina quadrangularis</i> and frequent <i>Pennatula phosphorea</i> . <i>Nephrops</i> burrows and many others.	SS.SMu.CFiMu.SpnMeg.Fun.	BM	FQ
LSHELL_0019	Circalittoral soft, burrowed, muddy sediment. 100% Mud. Approx 52.7 - 43.7m bcd.	soft, burrowed, muddy sediment with frequent <i>Funiculina quadrangularis</i> . <i>Nephrops</i> burrows and many others. Tracks in the sediment. Very short section at start of tow with silty, bedrock ledges with <i>Protanthea simplex</i> and possible <i>Caryophyllia smithii</i> .	CR.LCR and SS.SMu.CFiMu.SpnMeg.Fun.	BM	FQ

LSHELL_0020	Circalittoral soft, burrowed, muddy sediment. 100% Mud. Approx 50.4 - 51.4m bcd.	Common <i>Funiculina quadrangularis</i> . <i>Nephrops</i> burrows and many other burrows and tracks. Several dislodged <i>Funiculina</i> lying on sediment surface.	SS.SMu.CFiMu.SpnMeg.Fun.	BM	FQ
LSHELL_0021	Circalittoral boulders and cobbles surrounded by muddy, mixed sediment of shell and stone gravel. Boulders: 30. Cobbles: 10. Pebbles: 5. Stone gravel: 20. Shell gravel: 15. Mud: 30. Approx 24 - 30.8m bcd.	Biota includes <i>Swiftia pallida</i> , starfish, <i>Echinus esculentus</i> and encrusting coralline algae. Additional epifauna present but unidentifiable.	CR.MCR.EcCr.CarSwi and SS.SMx.CMx.	NSFSC?	SwP
LSHELL_0022	Upper and lower circalittoral rugged bedrock reef with fissures and ledges. All heavily silted and with sediment on rock in places. Bedrock: 53. Boulders: 10. Empty shell: 1. Stone gravel: 14. Sand: 12. Mud: 10. Approx 26.5 - 34.3m bcd.	Foliose red algae at start of tow. Hydroid turf with sponges, <i>Caryophyllia</i> and <i>Swiftia</i> present later in tow.	CR.MCR.EcCr.CarSwi.	NSFSC	SwP
LSHELL_0023	Circalittoral soft, burrowed, muddy sediment. 100% Mud. Approx 49.1 - 46.9m bcd.	Tracks and common <i>Funiculina quadrangularis</i> . <i>Nephrops</i> burrows and many others.	SS.SMu.CFiMu.SpnMeg.Fun.	BM	FQ
LSHELL_0024	Circalittoral soft, burrowed, muddy sediment. 100% Mud. Approx 33.1 - 31.8m bcd.	Soft, burrowed, muddy sediment with a few seapens	SS.SMU.CFiMu.SpnMeg.	BM	
LSHELL_0025	Circalittoral silty boulders and rugged bedrock ledges. Bedrock: 60. Boulders: 5. Cobbles: 5. Stone gravel: 10. Shell gravel: 10. Mud: 10. Approx 40.4 - 44.7m bcd.	Sparse epifauna dominated by <i>Caryophyllia smithii</i> . Scattered sponges, hydroids and <i>Swiftia pallida</i> . <i>Parazoanthus anguicomus</i> also present (P).	CR.MCR.EcCr.CarSwi.LgAs.	NSFSC, WCA	SwP
LSHELL_0026_a	Circalittoral large boulders in mixed muddy sediment. Boulders: 20. Cobbles: 15. Pebbles: 10. Empty shell: 2. Stone gravel: 20. Shell gravel: 3. Mud: 30. Approx 57.2 - 59m bcd.	Epifauna includes possible <i>Tubularia</i> , <i>Swiftia</i> and branching bryozoa. Quality too poor to identify with confidence.	CR.MCR.		SwP
LSHELL_0026_b	Circalittoral mixed muddy sediment no fauna recorded. Cobbles: 5. Pebbles: 30. Stone gravel: 25. Shell gravel: 5. Mud: 35. Approx 57.2 - 59m bcd.	Sparse epifauna. Quality too poor to identify epifauna.	SS.SMx.CMx.		
LSHELL_0027	Circalittoral soft, burrowed, muddy sediment Boulders: 1. Mud: 99. Approx 105.9 - 108.3m bcd.	<i>Nephrops</i> the only visible fauna but many other burrows also present.	SS.SMu.CFiMu.	BM	
LSHELL_0028	Circalittoral soft, burrowed, muddy sediment with tracks Pebbles: 1. Empty shell: 1. Mud: 98. Approx 154.6 - 158.5m bcd.	<i>Nephrops</i> the only visible fauna but many other burrows and tracks also present.	SS.SMu.CFiMu.	BM	

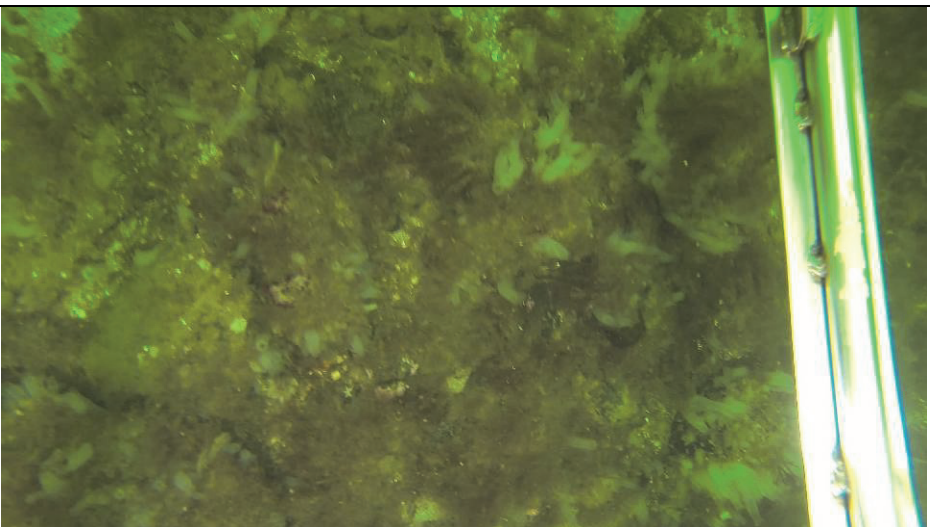

LSHELL_0029	Circolittoral muddy, mixed substrate with faunal turf and scattered boulders. Boulders: 5. Cobbles: 5. Pebbles: 25. Stone gravel: 35. Shell gravel: 10. Mud: 20. Approx 34.2 - 36.3m bcd.	Faunal turf on mixed sediments and scattered boulders. Video quality too poor identify nature of epifauna.	SS.SMx.CMx.		
SEA_0001	Circolittoral soft muddy sediment comprising (%) Shell gravel: 8. Mud: 92. Approx 93 - 95.9m bcd.	Many abundant burrows and tracks.	SS.SMu.CFiMu.SpnMeg.	BM	PM
SEA_0002	Circolittoral soft muddy sediment comprising (%) Shell gravel: 3. Mud: 97. Approx 79.3 - 80.5m bcd.	Abundant burrows and seapens (both <i>Pennatula phosphorea</i> , P, and <i>Funiculina quadrangularis</i> , A).	SS.SMu.CFiMu.SpnMeg.Fun.	BM	FQ
SEA_0003	Circolittoral soft 100% Mud. Approx 60.2 - m bcd.	Soft muddy sediment with tracks, abundant burrows and seapens (both <i>Pennatula phosphorea</i> , C, and <i>Funiculina quadrangularis</i> , A).	SS.SMu.CFiMu.SpnMeg.Fun.	BM	FQ
SEA_0004	Circolittoral mixed muddy sediment comprising (%) Pebbles: 15. Empty shell: 1. Stone gravel: 20. Shell gravel: 30. Sand: 10. Mud: 24. Approx 79.5 - 83.9m bcd.	Abundant burrows and many free-living <i>Caryophyllia smithii</i> v <i>clavus</i> , little other fauna visible.	SS.SMx.CMx.		
SEA_0005	Circolittoral soft muddy sediment comprising (%) Shell gravel: 1. Mud: 99. Approx 60.7 - 60.9m bcd.	Tracks and abundant burrows and three species of seapen.	SS.SMu.CFiMu.SpnMeg.Fun.	BM	FQ
SEA_0006	Circolittoral soft muddy mixed sediment comprising (%) Bedrock:15. Boulders: 2. Cobbles: 2. Pebbles: 5. Empty shell: 1. Stone gravel: 15. Shell gravel: 20. Sand: 10. Mud: 30. Approx 35.4 - 45m bcd. Start of tow with a series of silty bedrock ledges with solitary tunicates and hydroid turf.	Tracks and small abundant burrows. Start of tow with a series of silty bedrock ledges with solitary tunicates and hydroid turf.	SS.SMx.CMx and CR.LCR.BrAs.AmenCio.	BM	
SEA_0007	Circolittoral soft muddy sediment comprising (%) Shell gravel: 2. Mud: 98. Approx 49 - 49.4m bcd.	Tracks and abundant burrows and three species of seapens	SS.SMu.CFiMu.SpnMeg.Fun.	BM	FQ
SEA_0008	Circolittoral mixed, muddy sediment comprising (%) Boulders: 2. Cobbles: 2. Pebbles: 3. Empty shell: 1. Live Modiolus: 10. Stone gravel: 10. Mud: 72. Approx 45.8 - 46.1m bcd.	Abundant burrows and tracks and a sparse fauna of <i>Munida rugosa</i> , Asteroidea and a few <i>Funiculina quadrangularis</i> .	SS.SMx.CMx.	BM	FQ
SEA_0009	Circolittoral mixed, muddy sediment comprising (%) Pebbles: 1. Stone gravel: 15. Shell gravel: 15. Mud: 69. Approx 33.4 - 34.6m bcd.	Abundant burrows and tracks and a sparse visible fauna. Ectocarpaceae common.	SS.SMu.CFiMu.	BM	
SEA_0010	Circolittoral soft muddy sediment comprising (%) Shell gravel: 2. Mud: 98.	Tracks and abundant burrows and three species of seapens. Many dislodged small	SS.SMu.CFiMu.SpnMeg.Fun.	BM	FQ

	Approx 43.7 - 44m bcd.	<i>Funiculina quadrangularis</i> .			
SEA_0011	Circalittoral soft muddy sediment comprising (%) Cobbles: 1. Pebbles: 1. Empty shell: 1. Live Modiolus: 2. Mud: 95. Approx 27.5 - m bcd.	Tracks and abundant burrows and common <i>Pennatula phosphorea</i> and <i>Funiculina quadrangularis</i> . Several dislodged, small <i>Funiculina</i> .	SS.SMu.CFiMu.SpnMeg.Fun.	BM	FQ
SEA_0012	Circalittoral soft 100% Mud. Approx 29.1 - 35m bcd.	Tracks, abundant burrows. <i>Pennatula phosphorea</i> and <i>Funiculina</i> common, fewer crustacean abundant burrows.	SS.SMu.CFiMu.SpnMeg.Fun.	BM	FQ
SEA_0013	Circalittoral soft 100% Mud. Approx 54.2 - 58.8m bcd.	Tracks and abundant burrows. <i>Pennatula</i> frequent and <i>Funiculina</i> common. Fewer crustacean abundant burrows.	SS.SMu.CFiMu.SpnMeg.Fun.	BM	FQ
SEA_0014	Circalittoral soft 100% Mud. Approx 35.3 - 46.2m bcd.	Tracks, abundant burrows. <i>Pennatula</i> frequent and <i>Funiculina</i> common. Fewer crustacean abundant burrows than other Seaforth samples.	SS.SMu.CFiMu.SpnMeg.Fun.	BM	FQ
SEA_0015	Circalittoral soft muddy sediment comprising (%) Boulders: 1. Stone gravel: 1. Mud: 98. Approx 39m bcd.	Tracks & abundant burrows. <i>Funiculina</i> present. A number of <i>Funiculina</i> dislodged onto seabed.	SS.SMu.CFiMu.SpnMeg.Fun.	BM	FQ
SEA_0016_a	Circalittoral boulders surrounded by soft, muddy sediment comprising (%) Boulders: 60. Empty shell: 1. Stone gravel: 10. Shell gravel: 5. Mud: 44. Approx 29.3 - 42.7m bcd.	Boulders dominated by <i>Ciona intestinalis</i> . surrounded by soft, muddy sediment.	CR.LCR.BrAs.AmenCio.		
SEA_0016_b	Circalittoral soft muddy sediment comprising (%) Empty shell: 1. Shell gravel: 5. Mud: 94. Approx 29.3 - 42.7m bcd.	Tracks & abundant burrows. <i>Funiculina</i> common	SS.SMu.CFiMu.SpnMeg.Fun.	BM	FQ
SEA_0017	Circalittoral soft 100% Mud. Approx 37.7 - 42.7m bcd.	Tracks & abundant burrows. <i>Funiculina</i> common, <i>Pennatula phosphorea</i> frequent. Scattered crustacean abundant burrows. Several dislodged <i>Funiculina</i> lying on sediment.	SS.SMu.CFiMu.SpnMeg.Fun.	BM	FQ
SEA_0018	Mosaic circalittoral boulders in muddy sediment, soft muddy sediment comprising (%) Boulders: 20. Cobbles: 10. Pebbles: 5. Empty shell: 2. Stone gravel: 15. Shell gravel: 15. Mud: 38. Approx 22.7 - m bcd.	Boulders with limited epibiota. Soft muddy sediment with abundant burrows and <i>Funiculina quadrangularis</i> , many dislodged and lying on sediment.	SS.SMu.CFiMu.SpnMeg.Fun and CR.LCR.	BM	FQ
SEA_0019	Circalittoral soft muddy sediment comprising (%) Boulders: 2. Cobbles: 2. Pebbles: 2. Empty shell: 1. Shell gravel: 5. Mud: 88. Approx 34.1 - 36.6m bcd.	<i>Funiculina</i> and crustacean abundant burrows and tracks common. A few boulders with Metridium. A number of dislodged <i>Funiculina</i> lying on sediment.	SS.SMu.CFiMu.SpnMeg.Fun and CR.LCR.	BM	FQ

SEA_0020	Circolittoral soft muddy sediment comprising (%) Empty shell: 1. Shell gravel: 1. Mud: 98. Approx 34.5 - 36.3m bcd.	Tracks & abundant burrows. <i>Funiculina</i> common, <i>Pennatula</i> frequent, <i>Asterias rubens</i> common.	SS.SMu.CFiMu.SpnMeg.Fun.	BM	FQ
SEA_0021	Circolittoral soft muddy sediment comprising (%) Empty shell: 1. Mud: 99. Approx 33.6 - 38m bcd.	Tracks & abundant burrows. <i>Pennatula</i> and Asteriidae frequent. Several dislodged <i>Funiculina</i> lying on seabed.	SS.SMu.CFiMu.SpnMeg.	BM	FQ
SEA_0022_a	Circolittoral soft muddy sediment comprising (%) Empty shell: 1. Mud: 99. Approx 37.8 - 43.9m bcd.	Tracks & abundant burrows. <i>Funiculina</i> abundant	SS.SMu.CFiMu.SpnMeg.Fun.	BM	FQ
SEA_0022_b	Circolittoral cobbles and boulders comprising (%) Boulders: 75. Cobbles: 10. Pebbles: 10. Empty shell: 3. Mud: 17. Approx 37.8 - 43.9m bcd.	Cobbles and boulders with dense solitary ascidians and Corallinaceae, very silty and embedded in muddy sediment.	CR.LCR.BrAs.AmenCio.		
SEA_0022_c	Circolittoral soft muddy sediment comprising (%) Empty shell: 1. Mud: 99. Approx 37.8 - 43.9m bcd.	Tracks & abundant burrows. <i>Funiculina</i> abundant	SS.SMu.CFiMu.SpnMeg.Fun.	BM	FQ
SEA_0022_d	Circolittoral boulders comprising (%) Boulders: 90. Cobbles: 10. Pebbles: 10. Empty shell: 3. Stone gravel: 5. Mud: 12. Approx 37.8 - 43.9m bcd.	Boulders with solitary ascidians and encrusting algae.	CR.LCR.BrAs.AmenCio.		
SEA_0022_e	Circolittoral soft muddy sediment comprising (%) Empty shell: 1. Mud: 99. Approx 37.8 - 43.9m bcd.	Tracks & abundant burrows. <i>Funiculina</i> abundant	SS.SMu.CFiMu.SpnMeg.Fun.	BM	FQ
SEA_0023	Circolittoral soft 100% Mud. Approx 42.6 - 42.6m bcd.	Tracks & abundant burrows. <i>Funiculina</i> abundant	SS.SMu.CFiMu.SpnMeg.Fun.	BM	FQ
SEA_0024	Circolittoral soft 100% Mud. Approx 44.9 - 49m bcd.	Tracks & abundant burrows. <i>Funiculina</i> & <i>Pennatula</i> common	SS.SMu.CFiMu.SpnMeg.Fun.	BM	FQ
SEA_0025_a	Circolittoral soft 100% Mud. Approx 36.7 - 38.9m bcd.	Tracks & abundant burrows. <i>Funiculina</i> abundant & <i>Pennatula</i> common	SS.SMu.CFiMu.SpnMeg.Fun.	BM	FQ
SEA_0025_b	Circolittoral cobbles and boulders comprising (%) Boulders: 60. Cobbles: 10. Pebbles: 5. Empty shell: 1. Mud: 39. Approx 36.7 - 38.9m bcd.	Cobbles and boulders with dense solitary ascidians and Corallinaceae, very silty and embedded in muddy sediment.	CR.LCR.BrAs.AmenCio.		
SEA_0025_c	Circolittoral soft muddy sediment with tracks & abundant burrows. <i>Funiculina</i> & <i>Pennatula</i> Empty shell: 1. Mud: 99. Approx 36.7 - 38.9m bcd.	Tracks & abundant burrows. <i>Funiculina</i> abundant & <i>Pennatula</i> common	SS.SMu.CFiMu.SpnMeg.Fun.	BM	FQ
SEA_0026	Circolittoral soft 100% Mud. Approx 48.2 - 52.3m bcd.	<i>Funiculina</i> abundant & <i>Pennatula</i> frequent with abundant burrows in mud.	SS.SMu.CFiMu.SpnMeg.Fun.	BM	FQ
SEA_0027	Circolittoral soft 100% Mud. Approx 53.5 - 60.3m bcd.	<i>Funiculina</i> common & <i>Pennatula</i> frequent with abundant burrows in mud.	SS.SMu.CFiMu.SpnMeg.Fun.	BM	FQ

SEA_0028_a	Circa littoral very silty bedrock ledges (Bedrock 100%). Approx 38.4 - 40.4m bcd.	Very silty bedrock ledges with dense solitary ascidians, Corallinaceae and <i>Caryophyllia</i>	CR.LCR.BrAs.AmenCio.		
SEA_0028_b	Circa littoral soft muddy sediment comprising (%) Boulders: 1. Empty shell: 2. Mud: 97. Approx 38.4 - 40.4m bcd.	Mud with burrows and <i>Funiculina</i> common. A small boulder with <i>Ciona</i> , <i>Caryophyllia</i> and Corallinaceae	SS.SMu.CFiMu.SpMmeg.Fun.	BM	FQ
SEA_0029	Circa littoral soft 100% Mud. Approx 46.6 - 49.9m bcd.	<i>Funiculina</i> common & <i>Pennatula</i> frequent with abundant burrows in mud.	SS.SMu.CFiMu.SpMmeg.Fun.	BM	FQ
SEA_0030	Circa littoral soft 100% Mud. Approx 61.4 - 61.5m bcd.	Burrows and <i>Funiculina</i> common. Rajidae present (not identified to species level).	SS.SMu.CFiMu.SpMmeg.Fun.	BM	FQ
SEA_0031	Circa littoral soft muddy sediment comprising (%) Bedrock: 5. Boulders: 5. Mud: 90. Approx 48.3 - 56m bcd.	<i>Funiculina</i> common in mud with burrows & tracks. Very silty bedrock and boulders with tunicates and hydroid turf in patches.	SS.SMu.CFiMu.SpMmeg.Fun.	BM	FQ
SEA_0032	Circa littoral soft 100% Mud. Approx 79.5 - 86.2m bcd.	<i>Nephrops</i> common in mud and <i>Funiculina</i> present but sparse. Many burrows & tracks.	SS.SMu.CFiMu.SpMmeg.	BM	FQ

ANNEX 4A: BIOTOPES RECORDED IN SOUTH ARRAN MPA TOGETHER WITH SITES OF OCCURRENCE AND ILLUSTRATIVE VIDEO FRAME GRAB. BIOTOPE CODES AND SPECIES IN RED ARE PMFS. ITALICISED SITES INDICATE PROVENANCE OF IMAGE. SEE CONNOR *ET AL.* (2004) FOR FULL BIOTOPE DESCRIPTIONS

<p>IR.HIR.KFaR.FoR: Foliose red seaweeds on exposed lower infralittoral rock</p> <p>HI20</p> <p>PL38</p>	
<p>IR.HIR.KSed: Sediment-affected or disturbed seaweed communities</p> <p>IR10, IR16, IR41, IR50</p>	

IR.HIR.KSed.LsacSac:
Laminaria Saccharina and/or
Saccorhiza polyschides on
exposed infralittoral rock

HI01, HI16

PL36, PL38, PL45



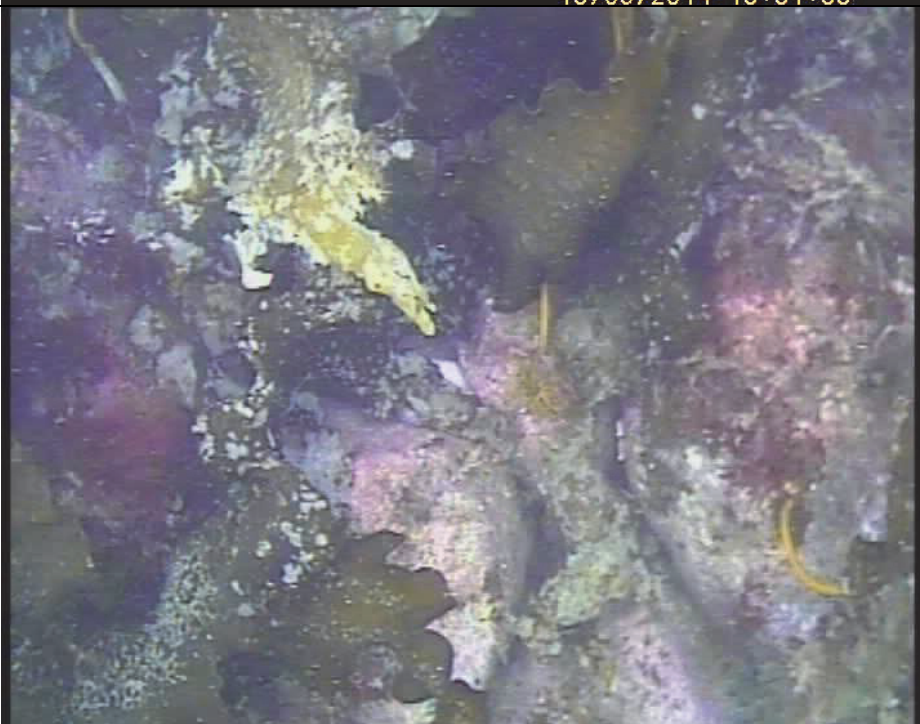
15/09/2014 15:51:53

IR.HIR.KSed.XKScrR:
Mixed kelps with scour-tolerant
and opportunistic foliose red
seaweeds on scoured or sand-
covered infralittoral rock

HI15,

IR22, IR24, IR25

PL02, PL12, PL43



15/09/2014 16:17:54

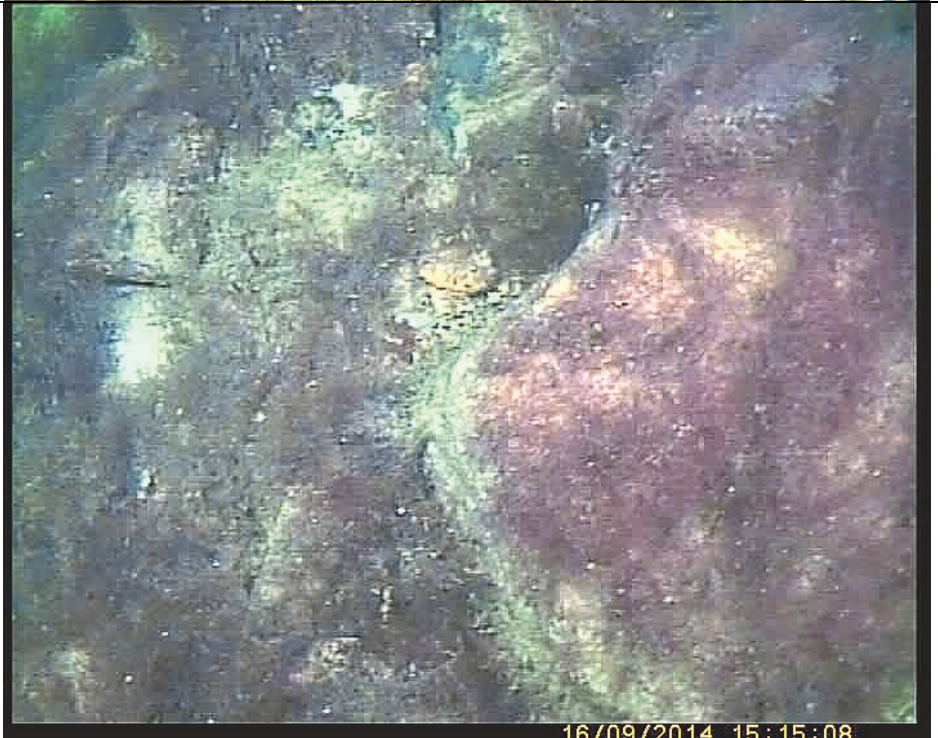
IR.LIR.K.Lsac.Ldig:
Laminaria Saccharina and
Laminaria digitata on sheltered
sublittoral fringe rock

WB14_a



IR.MIR.KR:
Kelp and red seaweeds
(moderate energy infralittoral
rock)

IR17, IR19



IR.MIR.KR.Ldig:
Laminaria digitata on
moderately exposed sublittoral
fringe rock

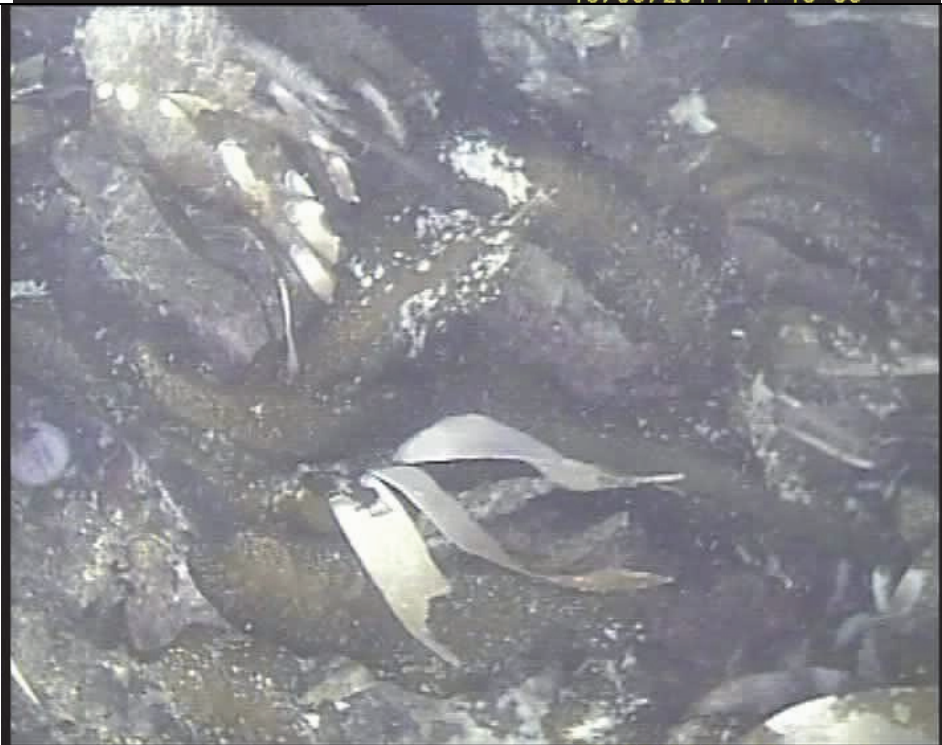
IR21



16/09/2014 14:15:39

IR.MIR.KR.LhypT:
Laminaria hyperborea on tide-
swept, infralittoral rock

PL15



17/09/2014 15:30:26

IR.MIR.KR.Lhyp.Ft:
Laminaria hyperborea forest
and foliose red seaweeds on
moderately exposed upper
infralittoral rock

PL04, PL13, PL43



IR.MIR.KR.LhypT.Ft:
Laminaria hyperborea forest,
foliose red seaweeds and a
diverse fauna on tide-swept
upper infralittoral rock

PL23



IR.MIR.KR.LhypTX:

Laminaria hyperborea on tide-swept infralittoral mixed substrata

IR23, IR53

PL03, PL15



IR.MIR.KR.LhypTX.Ft:

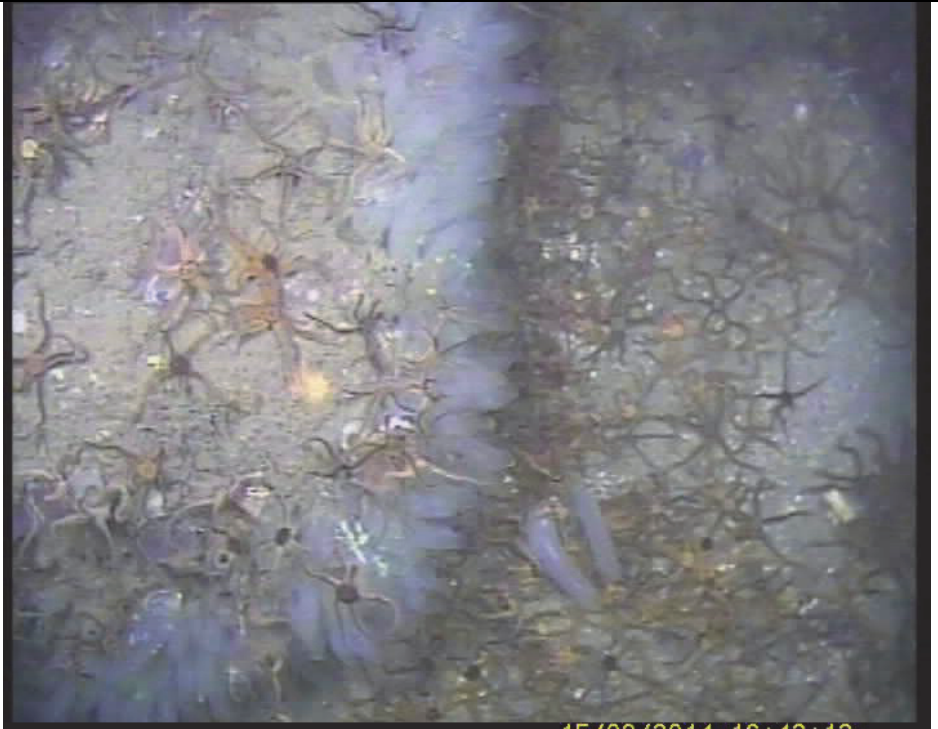
Laminaria hyperborea forest and foliose red seaweeds on tide-swept upper infralittoral mixed substrata

IR21, IR30, IR33, IR36, IR39, IR42, PL37a



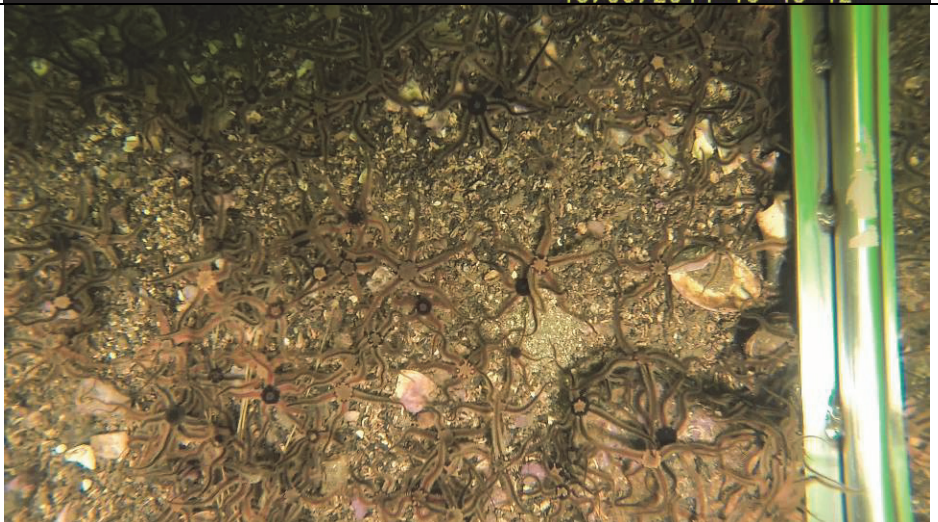
CR.LCR.BrAs.AmenCio:
Solitary ascidians, including
Ascidia mentula and *Ciona*
intestinalis, on wave-sheltered
circalittoral rock

HI13



CR.LCR.BrAs.AmenCio.Bri:
Dense brittlestars with sparse
Ascidia mentula and *Ciona*
intestinalis on sheltered
circalittoral mixed substrata

HI23



CR.MCR.EcCr:
Echinoderms and crustose communities

HIN08, IR59



15/09/2014 15:02:16

SS.SCS.CCS:
Circalittoral coarse sediment




HI20

IR47, IR56

PL27, PL35



15/09/2014 15:11:50

<p>SS.SCS.CCS.Nmix: <i>Neopentadactyla mixta</i> in circalittoral shell gravel or coarse sand</p> <p>IR55_a</p>	
<p>SS.SCS.ICS: Infralittoral coarse sediment</p> <p>CP18, CP19_c</p> <p>IR37</p>	
<p>SS.SMu.CSaMu: Circalittoral sandy mud</p> <p>CP19_a</p>	

SS.SMx.CMx:

Circalittoral mixed sediment

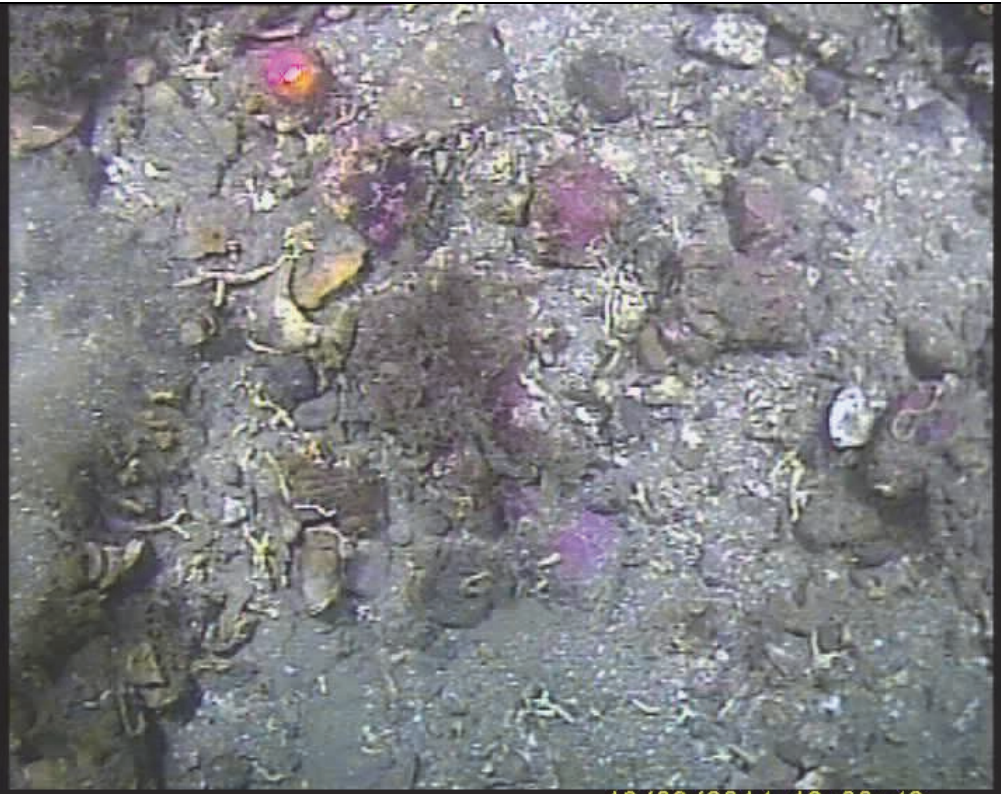
CP10_a, CP11, CP19_b, CP6,

D01, D02, D03, D04, D05,

HI11, HI12, HI13, HI19_18,
HIN08

IR34, IR46, IR47, IR48,
IR49_b, IR58, IR60, IR13, IR31

PL17, PL29

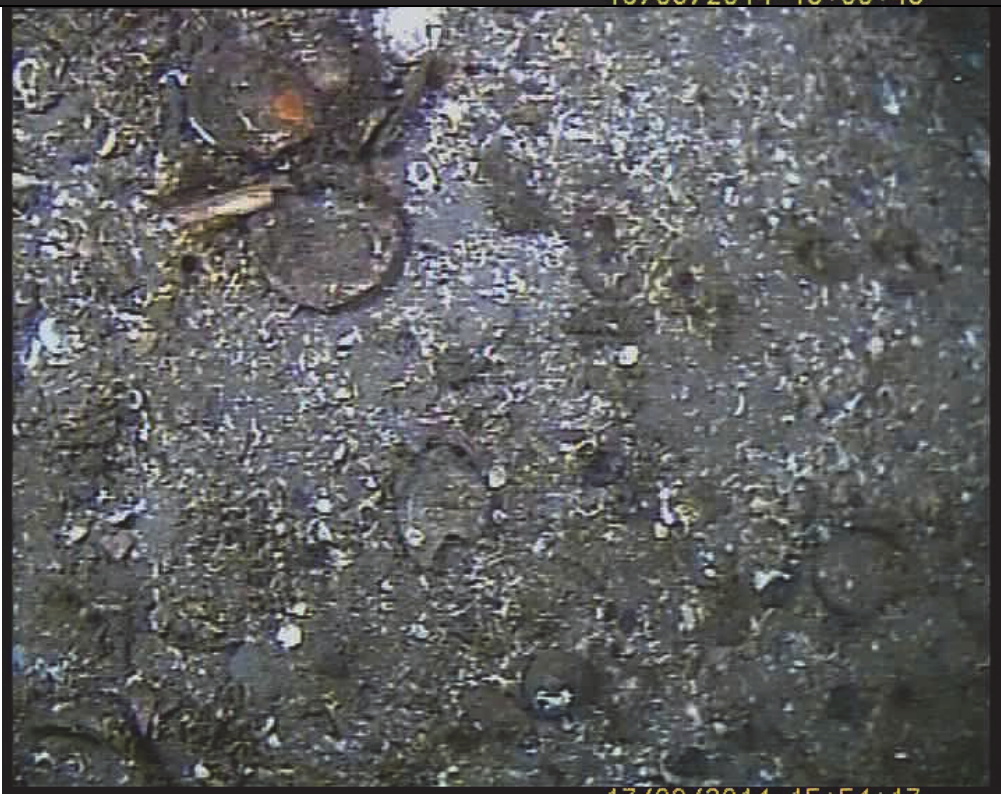


16/09/2014 13:00:48

SS.SMx.CMx.CiloMx:

Cerianthus lloydii and other
burrowing anemones in
circalittoral muddy mixed
sediment

PL07, PL29, PL30, PL47



17/09/2014 15:54:17

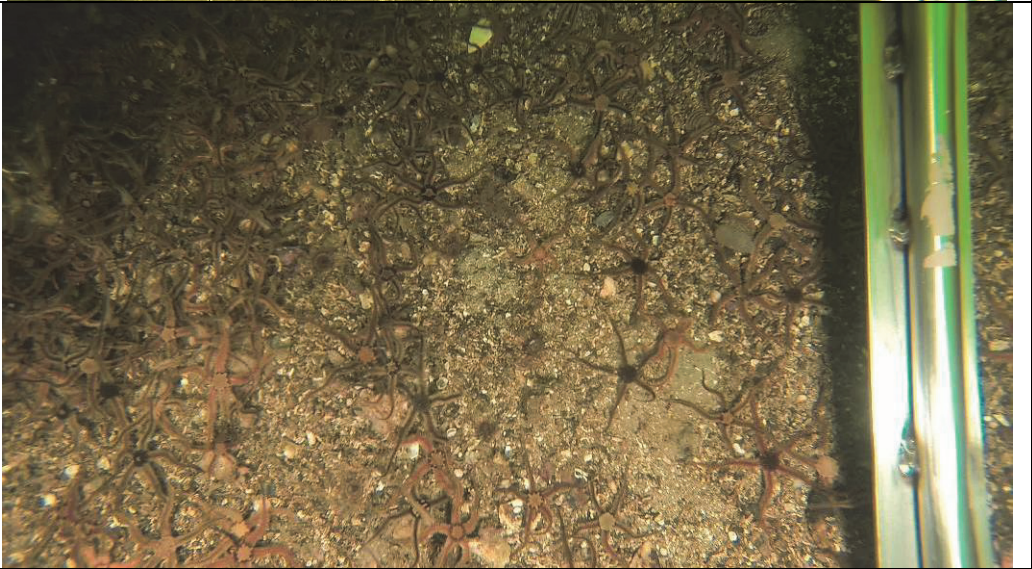
SS.SMx.CMx.CIlOmx.Nem:
Cerianthus lloydii with
Nemertesia spp. and other
hydroids in circalittoral muddy
mixed sediment

WB16



SS.SMx.CMx.OphMx:
Ophiothrix fragilis and/or
Ophiocomina nigra brittlestar
beds on sublittoral mixed
sediment

HI23



SS.SMx.IMx:

Infralittoral mixed sediment

CP09, CP11, CP14, CP4, CP7

HI10, HIN01

IR35, IR43, IR61,

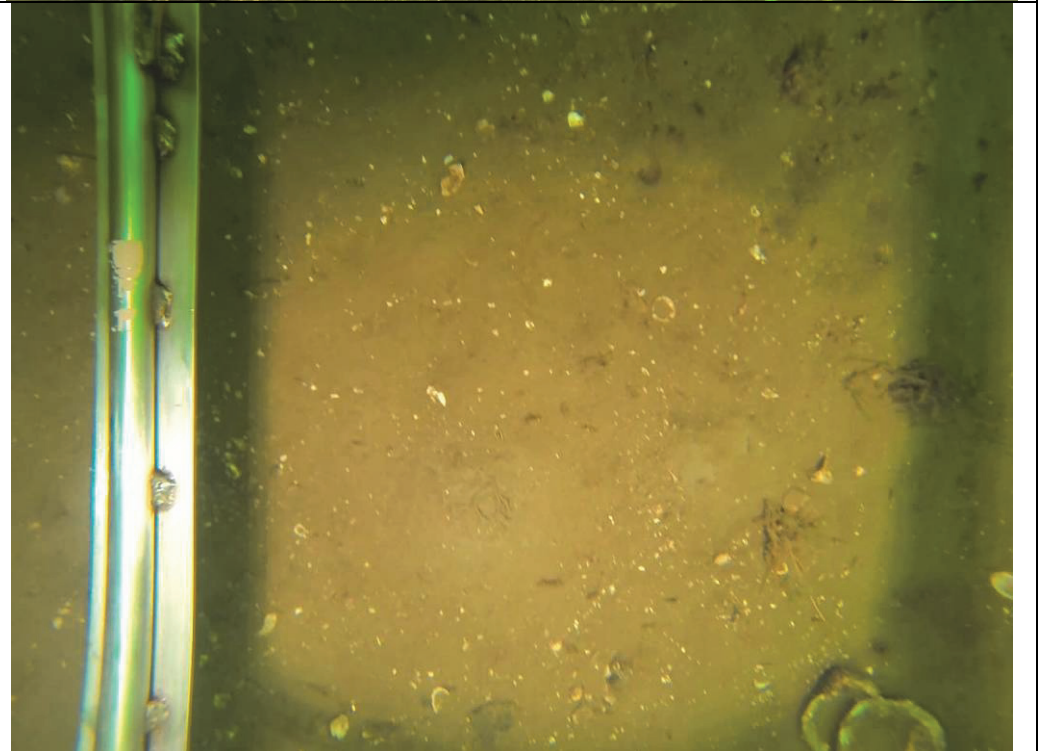
PL48_a



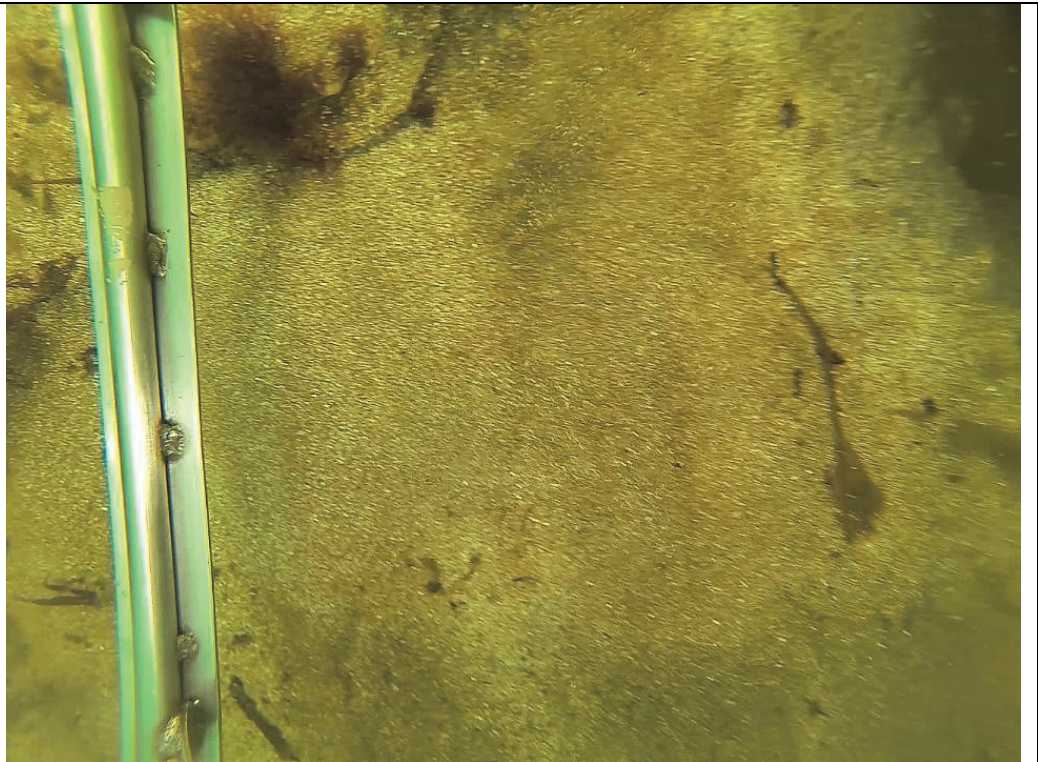
SS.SSa.CMuSa:

Circalittoral muddy sand

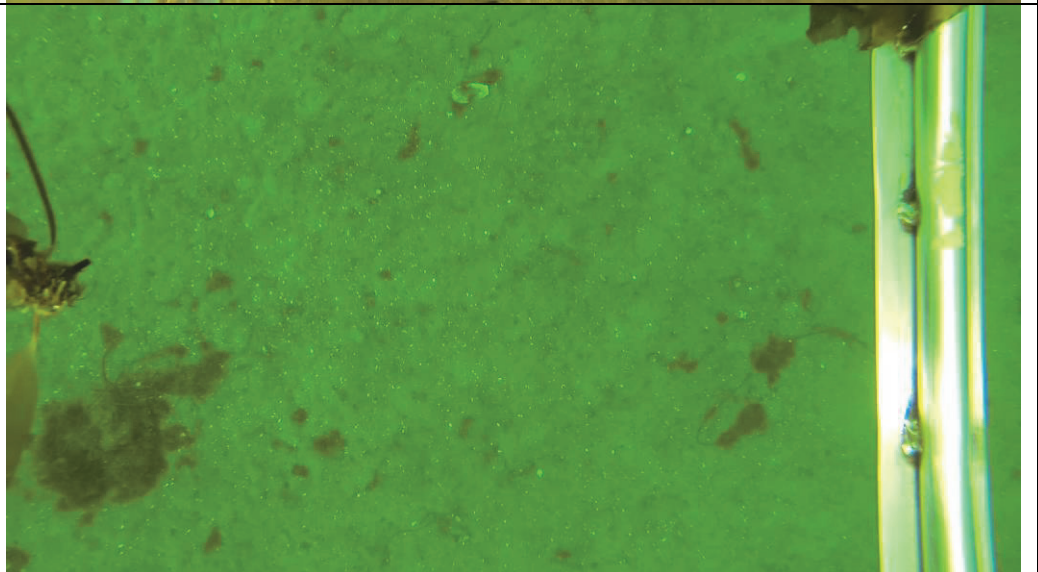
IR51



SS.SSa.IFiSa:
Infralittoral fine sand
IR30

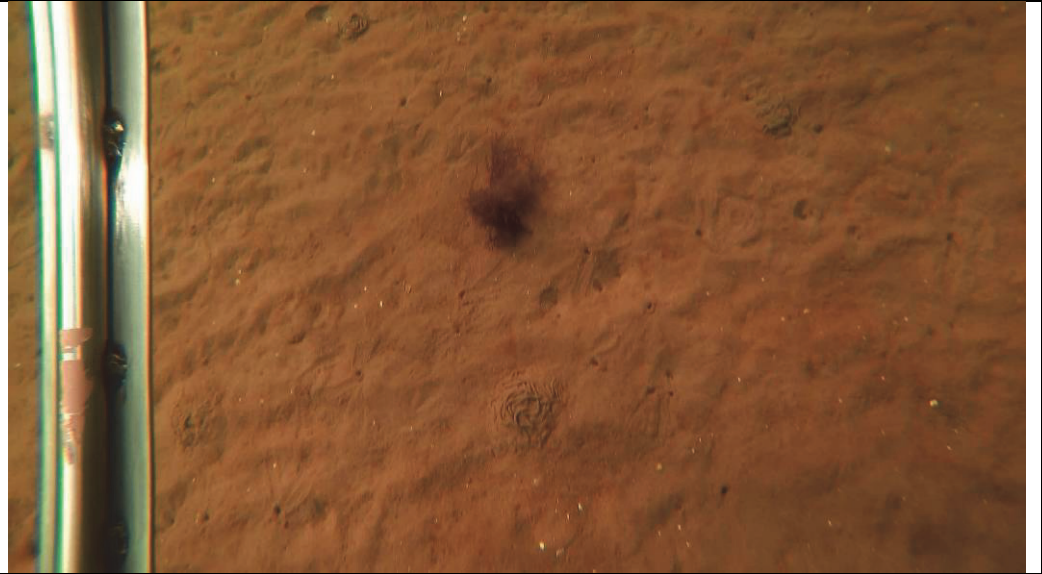


SS.SSa.IMuSa:
Infralittoral muddy sand
WB01_c, WB08_a, WB09_a



SS.SSa.IMuSa.AreISa :
Arenicola marina in infralittoral
fine sand or muddy sand

WB01_a, WB02_a, WB03_a,
WB03_c, WB04_a, WB05_a,
WB06_a, WB06_c, WB07_a,
WB14_b, WB15



SS.SMp.KSwSS:
Kelp and seaweed
communities on sublittoral
sediment

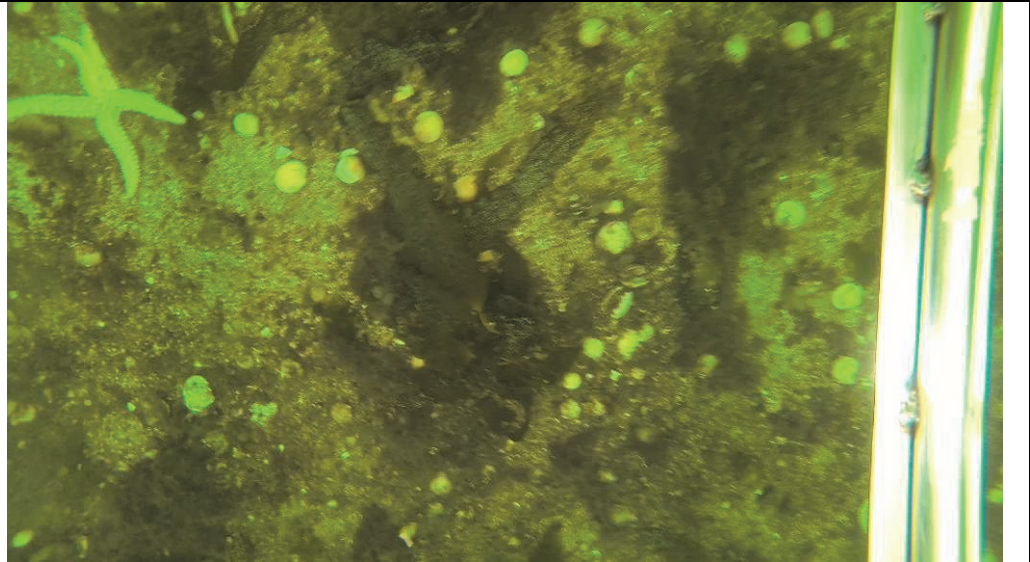
CP02, CP10_b, CP16, CP21,

HI01, HI03, HI04, HI14, HI16,
HI17, HI18, HI19_15, HI21,
HI22, HIN02, HIN03, HIN04,
HIN05, HIN06, HINX1, HINX2,

IR08, IR11, IR12, IR16, IR32,
IR55_b,

PL02, PL06, PL20, PL24,
PL25, PL33, PL40, PL49, PL13

WB07, WB01_a, WB03_c



SS.SMp.KSwSS.LsacR:
Laminaria Saccharina and red seaweeds on infralittoral sediments

D06, D07, D08, D09, D10,
D11, D12, D14,

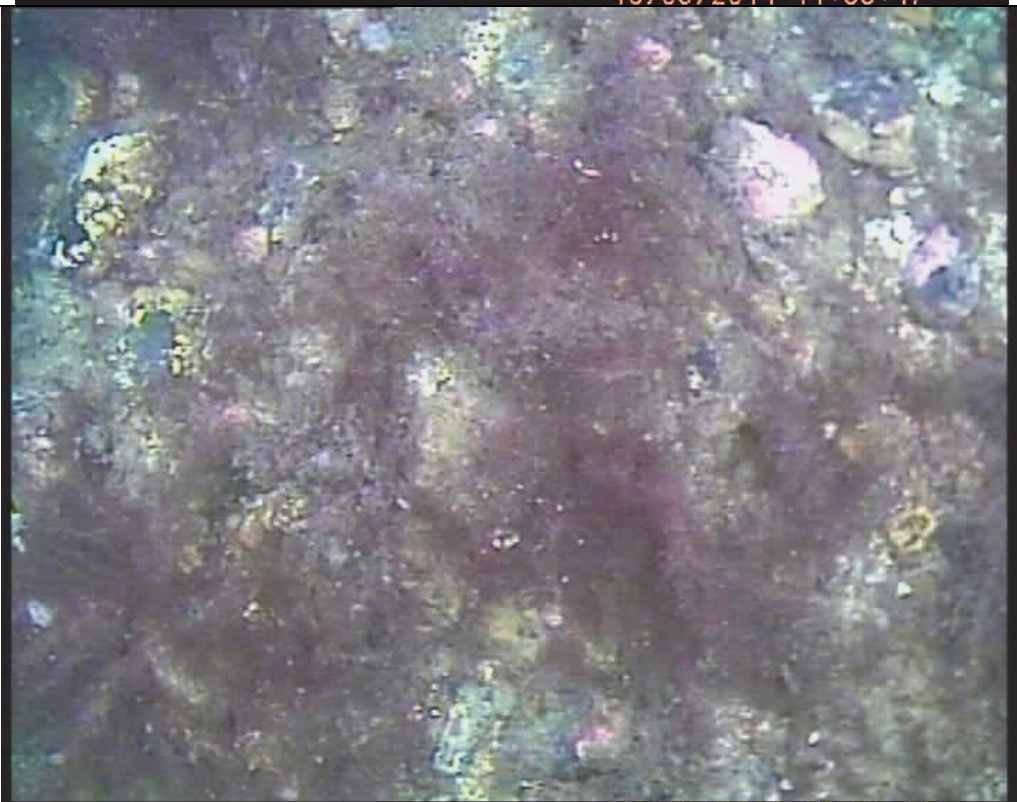
IR02, IR03, IR06, IR15, IR18,
IR20, IR38, IR54

WB11



SS.SMp.KSwSS.LsacR.CbPb:
Red seaweeds and kelps on tide-swept mobile infralittoral cobbles and pebbles.

IR01, IR05, IR14, IR32, IR52



SS.SMp.KSwSS.LsacR.Gv:
Laminaria Saccharina and
robust red algae on infralittoral
gravel and pebbles

PL10, PL44, PL45



SS.SMp.KSwSS.LsacR.Sa:
Laminaria Saccharina and
filamentous red algae on
infralittoral sand

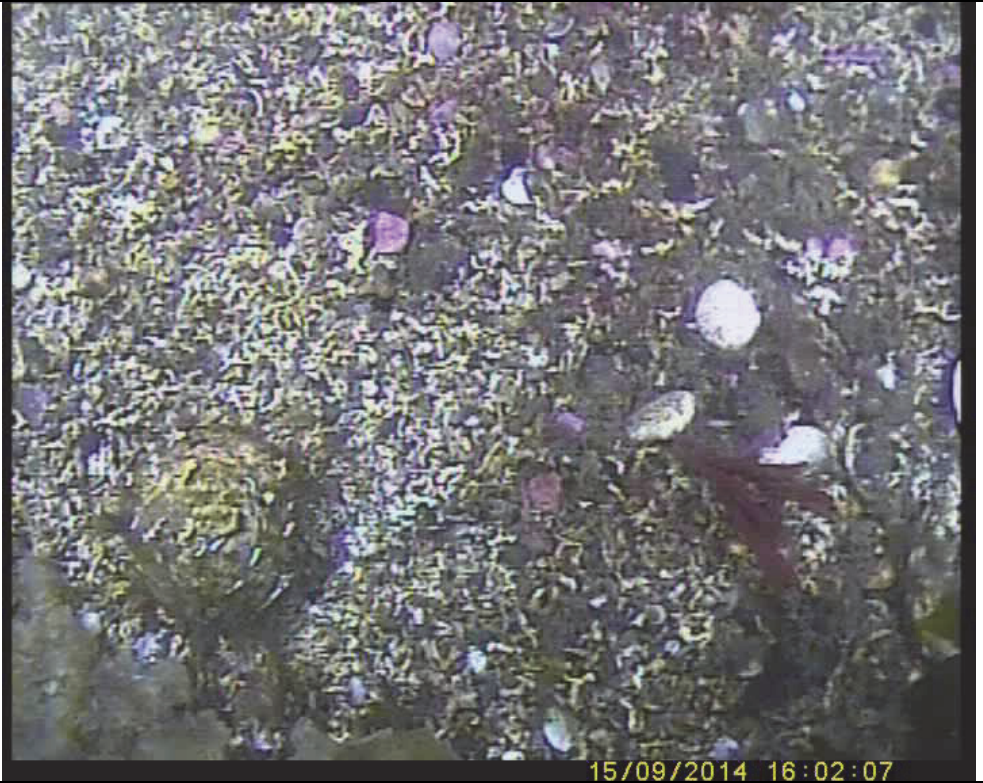
CP01, CP15, CP5, PL31



SS.SMp.Mrl.Pcal:

Phymatolithon calcareum
Maerl beds in infralittoral clean
gravel or coarse sand

HI02, HI09, IR55_a



SS.SMp.Mrl.Pcal.R:

Phymatolithon calcareum
Maerl beds with red seaweeds
in shallow infralittoral clean
gravel or coarse sand

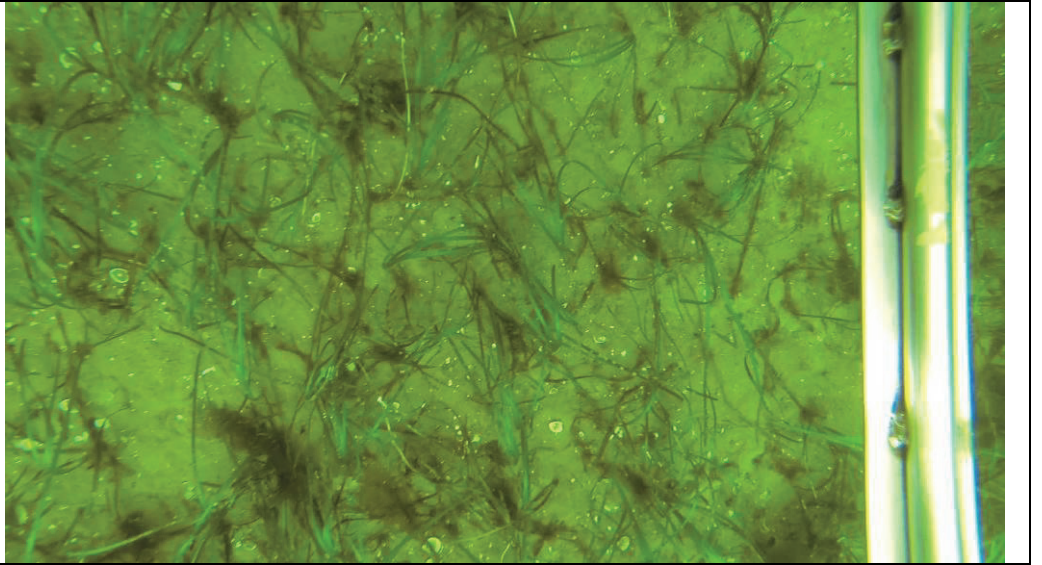
PL01, PL03, PL05, PL19,
PL34, PL35, PL37b, PL41,
PL46





SS.SMp.SSgr.Zmar:

Zostera marina/angustifolia
beds on lower shore or
infralittoral clean or muddy
sand

WB01_a, WB01_b, WB02_b,
WB03_b, WB04_b, WB05_b,
WB07_b, WB08_b, WB09_b,
WB10, WB12, WB14_c,
WB06_b



ANNEX 4B: BIOTOPES RECORDED IN LOCHS LINNHE, SHELL AND SEAFORTH TOGETHER WITH SITES OF OCCURRENCE AND ILLUSTRATIVE VIDEO FRAME GRAB. BIOTOPE CODES AND SPECIES IN RED ARE PMFS. SEE CONNOR *ET AL.* (2004) FOR FULL BIOTOPE DESCRIPTIONS

<p>CR.LCR: Low energy circalittoral rock.</p> <p>LLIN_0010_a, LLIN_0026_A, LSHELL_0019, LLIN_0032, SEA_0018, SEA_0019</p>	
<p>CR.LCR.BrAs: Brachiopod and ascidian communities.</p> <p>LLIN_0078_b</p>	

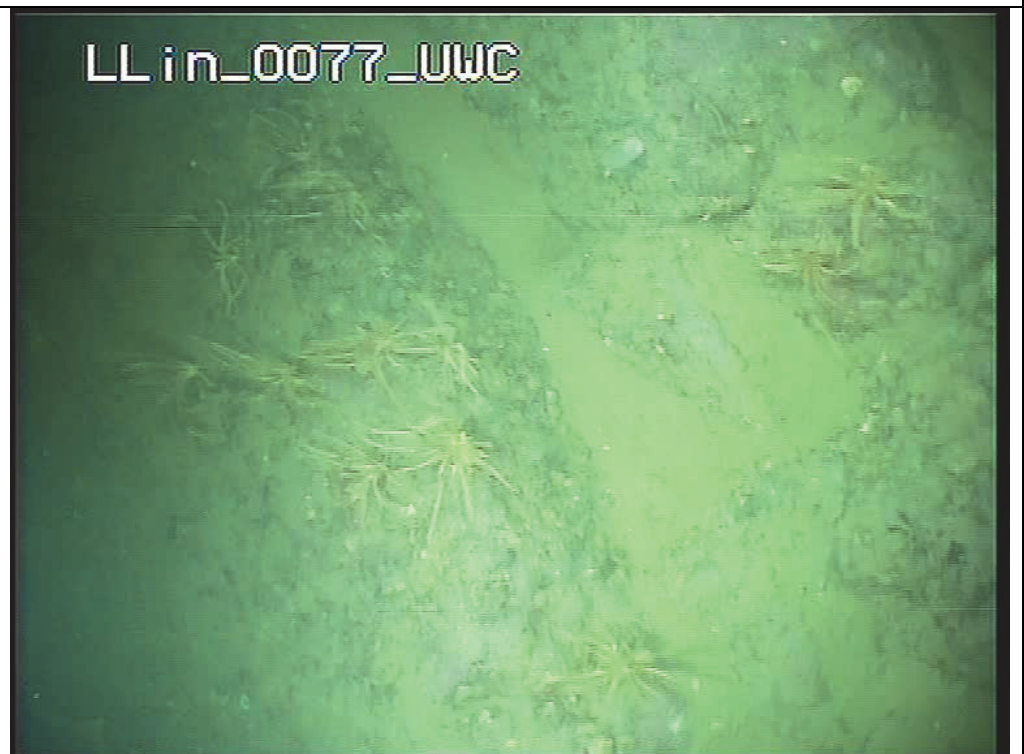
CR.LCR.BrAs.AmenCio:
Solitary ascidians, including *Ascidia mentula* and *Ciona intestinalis*, on wave-sheltered circalittoral rock.

SEA_006, SEA_0016_a,
SEA_0022_b, SEA_0022_d,
SEA_0025_b, SEA_0028_a



CR.LCR.BrAs.AntAsh:
Antedon spp., solitary ascidians and fine hydroids on sheltered circalittoral rock.

LLIN_0077_b



CR.LCR.BrAs.NeoPro:
Neocrania anomala and
Protanthea simplex on sheltered
circalittoral rock.

LSHELL_0005, LSHELL_0006,
LSHELL_0009_b



(example is a mosaic of CR.LCR.BrAs.NeoPro & SS.SMU.CFiMu.SpNMeg)

CR.MCR:
Moderate energy circalittoral
rock.

LSHELL_0026_a



CR.MCR.EcCr.CarSwi:
Caryophyllia smithii and *Swiftia pallida* on circalittoral rock.

LSHELL_0021, LSHELL_0022



CR.MCR.EcCr.CarSwi.LgAs:
Caryophyllia smithii, *Swiftia pallida* and large solitary ascidians on exposed or moderately exposed circalittoral rock.

LSHELL_0021,
LSHELL_0025



IR.LIR.K.LhypLsac:

Mixed *Laminaria hyperborea* and *Laminaria Saccharina* on sheltered infralittoral rock.



SS.SMu.CFiMu:

Circalittoral fine mud.

LLIN_0031, LLIN_0047,
LLIN_0049,
LSHELL_0027, LSHELL_0028,
SEA_0009



SS.SMu.CFiMu.SpnMeg:

Seapens and burrowing megafauna in circalittoral fine mud.

LLIN_0001, LLIN_0006,
LLIN_0014, LLIN_0015,
LLIN_0016, LLIN_0017,
LLIN_0018, LLIN_0020,
LLIN_0021, LLIN_0022,
LLIN_0023, LLIN_0026_B,
LLIN_0027, LLIN_0028,
LLIN_0029, LLIN_0037,
LLIN_0042,

LSHELL_0002, LSHELL_0003,
LSHELL_0004, LSHELL_0005,
LSHELL_0006, LSHELL_0007,
LSHELL_0008,
LSHELL_0009_a,
LSHELL_0010, LSHELL_0011,
LSHELL_0012, LSHELL_0013,
LSHELL_0014, LSHELL_0015,
LSHELL_0016, LSHELL_0024,

SEA_0001, SEA_0021,
SEA_0032



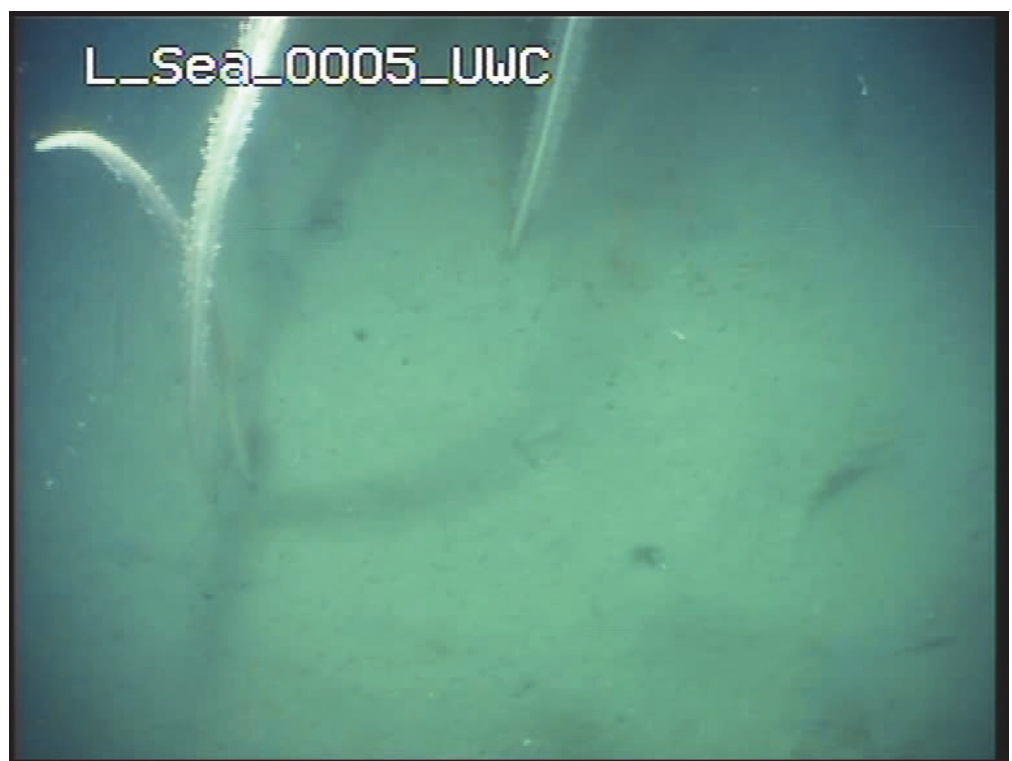
SS.Smu.CFiMu.SpnMeg.Fun:

Seapens, including *Funiculina quadrangularis*, and burrowing megafauna in undisturbed circalittoral fine mud.

LLIN_0003, LLIN_0004,
LLIN_0005, LLIN_0007,
LLIN_0008, LLIN_0009,
LLIN_0010_b, LLIN_0011,
LLIN_0012, LLIN_0013,
LLIN_0032, LLIN_0033,
LLIN_0034, LLIN_0035,
LLIN_0036, LLIN_0038,
LLIN_0039, LLIN_0040,
LLIN_0041, LLIN_0043,
LLIN_0044, LLIN_0045,
LLIN_0046, LLIN_0048_A,
LLIN_0050, LLIN_0051_A,
LLIN_0053, LLIN_0054,
LLIN_0055, LLIN_0056,
LLIN_0057, LLIN_0058,
LLIN_0059, LLIN_0060,
LLIN_0061, LLIN_0062,
LLIN_0063, LLIN_0065,
LLIN_0066, LLIN_0067,
LLIN_0068, LLIN_0069,
LLIN_0070, LLIN_0071,
LLIN_0072, LLIN_0074,
LLIN_0075, LLIN_0076,
LLIN_0077_a, LLIN_077_c,

LSHELL_0017, LSHELL_0018,
LSHELL_0019, LSHELL_0020,
LSHELL_0023,

SEA_0002, SEA_0003,
SEA_0005, SEA_0007,
SEA_0010, SEA_0011,
SEA_0012, SEA_0013,
SEA_0014, SEA_0015,
SEA_0016_b, SEA_0017,
SEA_0018, SEA_0019,
SEA_0020, SEA_0022_a,
SEA_0022_cSEA_0022_e,
SEA_0023, SEA_0024,
SEA_0025_a, SEA_0025_c,
SEA_0026, SEA_0027,
SEA_0028_b, SEA_0029,
SEA_0030, SEA_0031



SS.SMu.IFiMu:
Infralittoral fine mud.

LSHELL_0001_a,
LSHELL_0001_b



SS.SMx.CMx:
Circalittoral mixed sediment.

LLIN_0019, LLIN_0024,
LLIN_0025, LLIN_0030,
LLIN_0048_B, LLIN_0051_B,
LLIN_0052, LLIN_0064,
LLIN_0065, LLIN_0078_a,
LLIN_0079,

LSHELL_0021,
LSHELL_0026_b,
LSHELL_0029,

SEA_0004, SEA_0006,
SEA_0008



SS.SMX.CMx.CloMx:
Cerianthus lloydii and other
burrowing anemones in
circalittoral muddy mixed
sediment.

LLIN_0073



ANNEX 5: DATA ARCHIVE DETAIL

The following files have been provided to SNH on an SNH external hard drive as part of the final delivery of the SNH 'Biological analyses of underwater video footage from Arran, Loch Linnhe, Loch Shell and Loch Seaforth' work package

README Letter of completion to SNH.pdf

1. REPORTING:

20150828 SNH Arran and Lochs video report FINAL.doc

20150828 SNH Arran and Lochs video report FINAL.pdf

2. DATA FILES:

Marine Recorder:

20150828 SNH Lochs & Arran NBN Data.mdb

20150828 SNH Lochs & Arran Snapshot.mdb

Excel Spreadsheets:

20150828 Arran Data and Appendices_Final Dataset for SNH.xls

20150413_Lochs Data and Appendices_Final Dataset for SNH.xlsx

3. GIS:

Final Arran GIS.zip

2014 South Arran MPA Survey

Readme Arran GIS.docx

20150824 SNH Arran PMF and Biotope GIS.mxd

SNH_Arran_Biotopes_PMF_UpdatedFinal.shp

20150824_Arran_Biotopes_PMF.lyr

20150824_Arran_MNCR_Biotopes_excl_PMF.lyr

20150824_PMF - KSwSS.lyr

20150824_PMF_All Other PMF.lyr

20150824_PMF_Maerl.lyr

20150824_PMF_Seagrass.lyr

20150824_Updated_SNH_Arran_Biotopes_PMF.dbf

2014 Loch Linnhe Survey, 2014 Loch Shell Sealg Survey, 2014 Loch Seaforth Siophoirt Survey

Readme Lochs GIS.docx

20140220 SNH Loch biotope and PMF GIS.mxd

2015024_SNH_loch.shp

Biotope Map.lyr

PMF-All other.lyr

PMF-Funiculina quadrangularis records.lyr

PMF-Habitats.lyr

PMF-Pachycerianthus multiplicatus records.lyr

2014 Loch Maps For report.zip

4. IMAGERY:

SNH provided Marine EcoSol with all data digital forma on hard drive, which is returned in full with this final data pack. Also included is a collection of species of images and an associated excel catalogue (for internal use only):

Images exported during analysis, split into the following folders:

- 1 Biotope images
- 2 Evidence of Human impact
- Phyla folders (images of typical species identified on survey, used for QA to ensure consistency between surveyors)

Detail of each of the images provided is summarised in:

20150828_SNH Arran & Lochs SpeciesBiotopeRefCollection.xlsx (for internal use only)

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© Scottish Natural Heritage 2015
ISBN: 978-1-78391-219-3

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