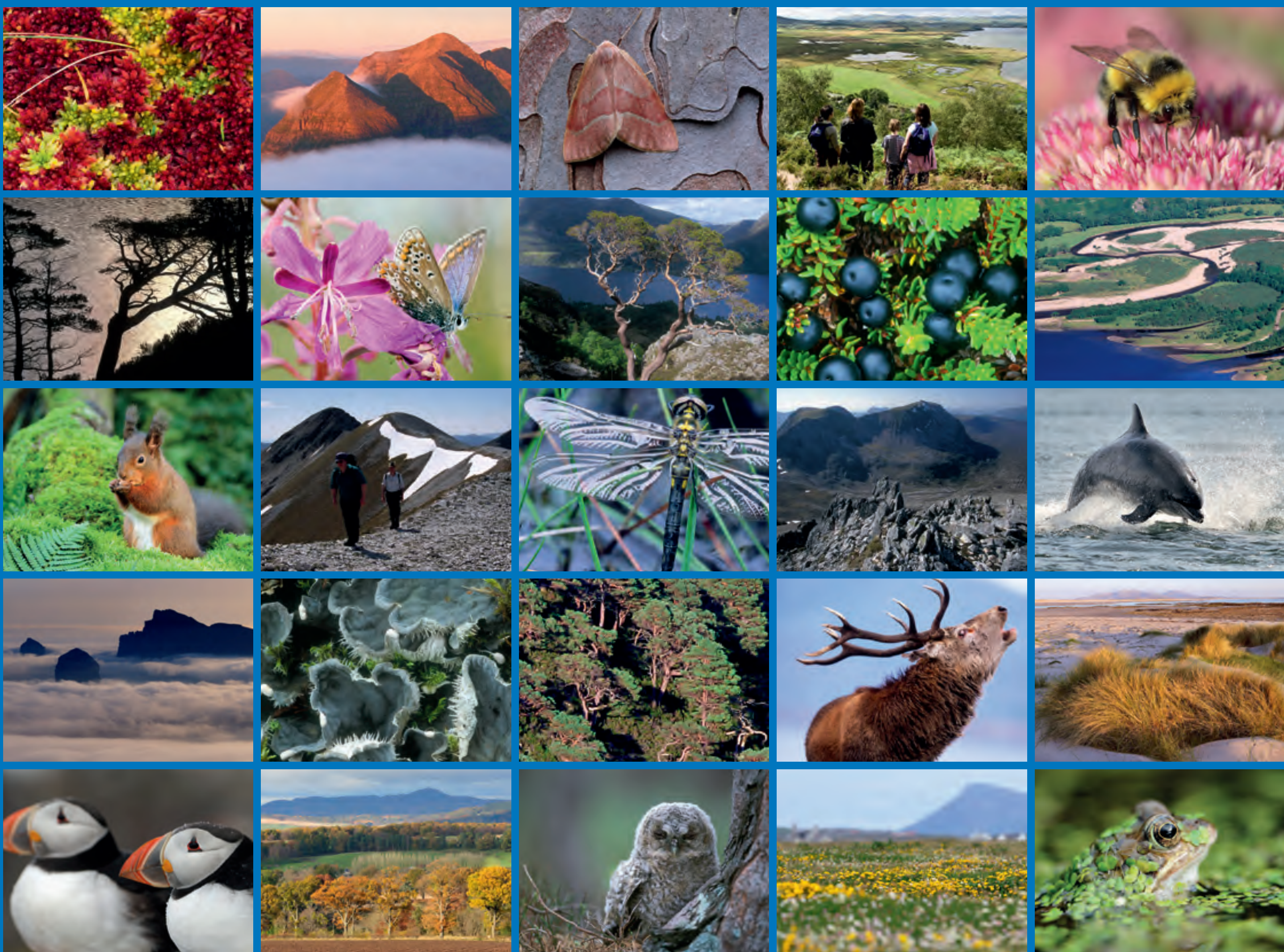
Scottish Natural Heritage
Research Report No. 1038

The distribution and condition of flame shell beds and other Priority Marine Features in Loch Carron Marine Protected Area and adjacent waters



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RESEARCH REPORT

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The distribution and condition of flame shell beds and other Priority Marine Features in Loch Carron Marine Protected Area and adjacent waters

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RESEARCH REPORT

Summary

The distribution and condition of flame shell beds and other Priority Marine Features in Loch Carron Marine Protected Area and adjacent waters

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Keywords

Benthos; biotope; PMF; MPA; protected feature; Annex I; habitat; video; Loch Carron; flame shell; maerl; dredge damage; monitoring

Background

Under the Marine (Scotland) Act 2010, Scottish Ministers can designate an MPA on an urgent basis without publishing notice of their proposals or consulting those likely to be affected. Loch Carron was designated as an MPA in this way on 19 May 2017, following confirmation of damage to sensitive seabed habitats in the area. To manage fisheries activity an urgent Marine Conservation Order (MCO) came into force on 20 May 2017. This prohibits the deployment and use of any mobile fishing gear.

An MPA designated on an urgent basis lasts for a maximum of two years. Normal procedures for protected area designations, including public consultation, need to be undertaken to create (re-designate) an MPA so that it is not time limited. To inform final decisions by Scottish Ministers within the two year timeframe, Marine Scotland asked SNH to undertake a formal assessment of Loch Carron and adjacent waters against the Scottish MPA Selection Guidelines and, subject to the conclusions of the assessment, undertake a public consultation on the case for making an MPA here permanent.

This study reports on a series of field surveys, undertaken from May - September 2017, using drop-down video and diving techniques, designed to inform the MPA assessment process and to establish a baseline against which recovery of the damaged flame shell beds in the outer part of Loch Carron could be assessed.

Main findings

- Three flame shell beds were identified off the islet Sgeir Bhuidhe in outer Loch Carron: Sgeir Bhuidhe East, West and North with respective extents of 7.0, 7.7 and 5.1 ha. An extensive bed was also recorded within Strome Narrows and its western approach channel (194 ha), believed to be the largest known bed in the world. Collectively, the multiple flame shell beds within the MPA constitute 41% of the known extent of the habitat in the UK.

- The Loch Carron flame shell beds are good examples of the habitat, with extensive areas of the seabed exhibiting 50 - 100% coverage by the byssal turf of the bivalve. The density of the *Limaria hians* population and the diversity of the associated epibiotic community was found to be typical of Scottish beds, while the diversity of the infauna found within the turf and underlying sediment was a little lower than the Scottish average.
- Length frequency analysis of the *Limaria hians* population in May 2017 revealed a major mode of 5 - 10 mm individuals, suggesting strong recruitment in 2016. (May was too early to gauge recruitment in 2017).
- A small maerl bed (0.1 ha) was recorded in Strome Narrows. Maerl was also found to be widely scattered amongst the complex system of embayments, skerries and channels between Plockton and Loch Alsh, largely beyond the current boundary of the urgent MPA, with a major bed at Port Luinge (56 ha).
- In terms of live maerl content the Strome Narrows bed (c.30% cover) is fairly typical of Scottish beds, whereas the Port Luinge bed and other beds between Plockton and Loch Alsh, with extensive coverage of around 50%, can be considered amongst the richer Scottish beds. As regards the community supported by the maerl habitat, epibiotic diversity measures obtained at Port Luinge and Strome Narrows are typical of Scottish beds. However, infaunal diversities in both areas are amongst the lowest recorded for Scottish beds.
- Visual evidence of the impact of dredging within the surveyed region of Loch Carron was restricted to the area within an 850 m radius of Sgeir Bhuidhe including the three flame shell beds. There were no indications of any anthropogenic damage to the larger Strome channel flame shell bed.
- The severest form of dredge damage observed consisted of parallel dredge scars composed of narrow lines of stones separated by broader bands of more homogeneous sandy sediment where stones and epibiota had been largely removed. Such damage was predominantly recorded off the flame shell beds in deeper water or at the periphery of the beds where the flame shell habitat was relatively poorly developed.
- Within the flame shell beds around Sgeir Bhuidhe, evidence of damage largely took the form of bands of flattened byssal turf and disaggregated byssal/stone turf matrix, as well as the presence of dead and broken shell material.
- Based on the length of video runs passing through damaged habitat as a proportion of the total length of runs through the flame shell bed, minimum estimates of the spatial extent of damage to the beds were calculated as 8% for the East bed (the best developed bed of the three), 4% for the West bed and 0% for the North bed. The estimates do not take into consideration any recession of the periphery of the beds.
- A non-destructive programme designed to monitor recovery of the flame shell habitat was inaugurated, based on imagery collection and *in situ* measurements of bed condition metrics by divers along permanent transects within dredge tracks and adjacent control areas at three locations within the most severely damaged Sgeir Bhuidhe East bed. Still and video imagery documented clearly visible signs of impact at all sites, supported by the results of statistical analyses of the condition metrics. Recommendations for future monitoring are provided.

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Acknowledgements

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1. INTRODUCTION

1.1 Loch Carron urgent MPA and MCO

Under the Marine (Scotland) Act 2010, Scottish Ministers can designate an MPA on an urgent basis without publishing notice of their proposals or consulting those likely to be affected. Loch Carron was designated as an MPA in this way on 19 May 2017 (Scottish Government, 2017a), following confirmation of damage to sensitive seabed habitats in the area. To manage fisheries activity an urgent Marine Conservation Order (MCO) came into force on 20 May 2017 (Scottish Government, 2017b). This prohibits the deployment and use of any mobile fishing gear (dredges, trawls, and seines etc.). Use of static gear like creels or hand gathering is not affected.

An MPA designated on an urgent basis lasts for a maximum of two years. Normal procedures for protected area designations, including public consultation, need to be undertaken to create (re-designate) an MPA so that it is not time limited. To inform final decisions by Scottish Ministers within the two year timeframe, Marine Scotland has asked SNH to undertake a formal assessment of Loch Carron and adjacent waters against the Scottish MPA Selection Guidelines (Marine Scotland, 2011) and, subject to the conclusions of the assessment, undertake a public consultation on the case for making an MPA here permanent.

The 'urgent' MPA designation followed a combined SNH and Marine Scotland Science (MSS) survey undertaken on 3-5 May 2017 (Scottish Natural Heritage & Marine Scotland Science, 2017). The primary objective of the survey was to corroborate reports from recreational divers of damage to a flame shell (*Limaria hians*) bed in the outer part of the loch. The survey validated these citizen science observations and confirmed that the damage was consistent with scallop dredge impact. Flame shell beds are a Priority Marine Feature (PMF - Scottish Natural Heritage, 2017) and are therefore afforded policy protection through the National Marine Plan. However, no management measures were in place to protect the affected beds and therefore the fishing vessel was operating legally at the time.

The urgent MPA designation and supporting MCO were put in place to support recovery of flame shell beds. The incident triggered a wider review of of PMFs to identify where else fisheries management is needed to ensure there is no significant impact on the most sensitive seabed habitats in Scottish waters (Marine Scotland, 2017). The review focuses on the following eleven features (termed key PMFs in this report) considered particularly sensitive to pressures associated with towed demersal fishing activities:

- Blue mussel beds (subtidal only)
- Cold water coral reefs
- Fan mussel aggregations
- Flame shell beds
- Horse mussel beds
- Maerl beds
- Maerl or coarse shell gravel with burrowing sea cucumbers
- Native oysters
- Northern sea fan and sponge communities
- Seagrass beds
- Serpulid aggregations

1.2 2017 seabed habitats survey programme

To underpin the assessment of the Loch Carron area against the Scottish MPA Selection Guidelines, a phased programme of survey work was implemented over the summer of 2017 to collect detailed, contemporary records on the presence, distribution and qualities of these sensitive seabed habitats.

A further aim was to establish a baseline against which future monitoring of the damaged flame shell beds may be assessed to measure progress towards achieving the stated 'recover' conservation objective.

Drop-down video work in early July informed subsequent, more detailed, diving survey work in late July - August. Both studies encompassed areas outside the current urgent MPA boundary. Follow-up drop-down work was undertaken in late September to help confirm the extent and boundaries of key habitats within the MPA and to confirm the wider distribution of maerl bed habitats in the coastal strip between Plockton and Loch Alsh. The 2017 programme was supplemented by a limited amount of flame shell bed imagery and associated infaunal samples collected in Strome Narrows, Loch Carron, but not fully analysed by SNH in previous years (2008 and 2009).

During the July 2017 drop-down video survey the opportunity was taken to investigate a previously unreported flame shell bed in the Inner Sound, 17 km to the north of Loch Carron.

The results and analysis of all sampling undertaken in 2017, as well as in 2008 and 2009, are presented in this report (see Figure 1 for survey areas) and will inform SNH's assessment of the area against the guidelines and subsequent recommendations regarding the MPA boundary and protected feature complement. The MPA boundary shown throughout this report is that of the urgent May 2017 designation.

1.3 Survey design - review of historic PMF records

1.3.1 Previous surveys

A review of existing data was undertaken to inform the design of the July - September 2017 survey programme. This review considered the Loch Carron MPA, as well as the adjacent region to the north (Loch Kishorn), to the west (outer Loch Carron south to the boundary of the Lochs Duich, Long and Alsh MPA) and inner Loch Carron (Figure 2). Coverage focused on the subtidal benthic environment, although lower shore PMF records (which may be indicative of encroachment into the subtidal) were included.

Knowledge of seabed habitats and species within the area was derived principally from the surveys listed in Table 1. The distribution of sites examined by these surveys is depicted in Figure 2 and the distribution of PMF records in Figure 3, with detail for Strome Narrows in Figure 4. Where mismatches were found between the positional coordinates provided for the locations and the description of the habitat, the plotted position was adjusted where possible.

Prior to 2017 the most extensive survey was the 1985 study by Smith and Hiscock (1985), who examined the epibiota at 13 littoral and 34 sublittoral sites within the area of interest. Four of these sites had previously been examined and described by Smith in 1978 (Smith, 1978). Biotopes have been allocated to the sites in these two studies within Marine Recorder, although the level of descriptive detail available renders some of the ascriptions uncertain. Other early intertidal studies included the 1970-80 SMBA/MBA Great Britain intertidal survey (Powell *et al*., 1980) (5 sites) and the 1974 NCC Loch Carron survey (Nature Conservancy Council, 1974), which included examination of the epibiota at four sites, although neither detailed site data nor biotope ascriptions have been deposited in Marine Recorder. An environmental impact assessment of the construction of the Skye Bridge included surveys of the epibiota at 2 sublittoral and 1 lower shore site in the south-west corner of the area of interest (Scott, 1991).

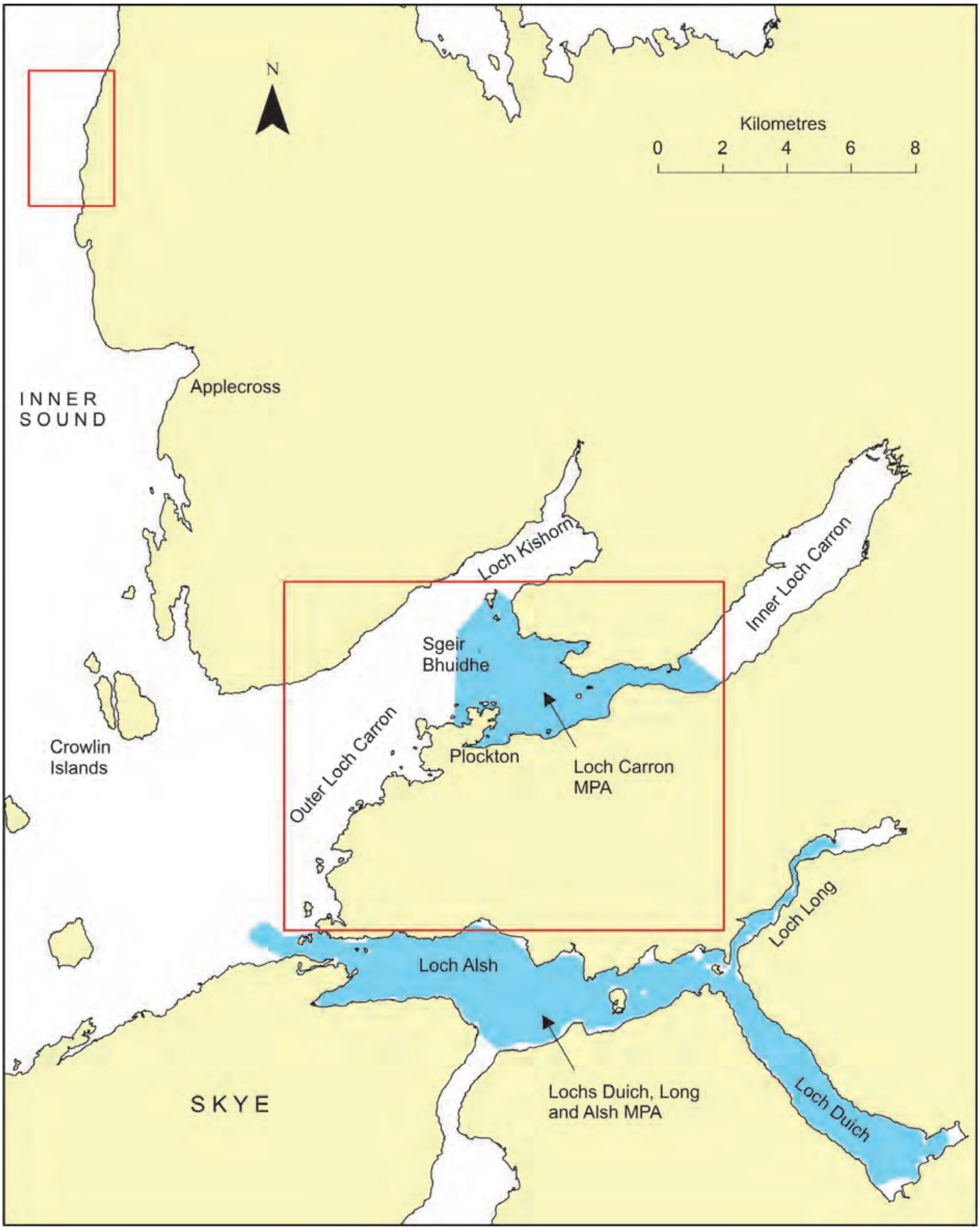

Figure 1. Location of Loch Carron MPA (boundary of the urgent May 2017 designation) and the survey areas examined in this report (red boxes).

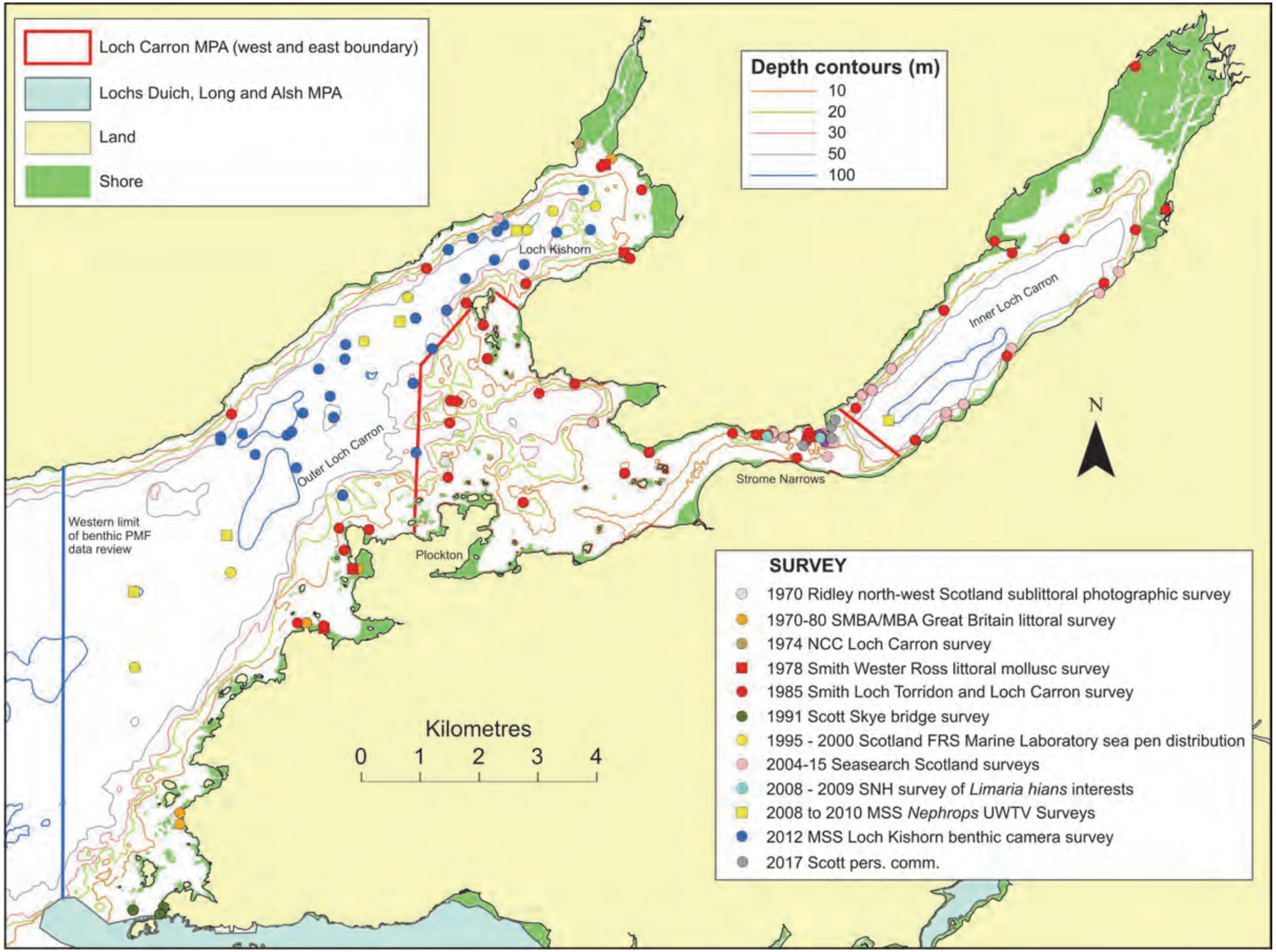

Figure 2. Distribution of previous marine biological survey sites.

Data on the distribution of sea pens in the region is available from analysis of the imagery from the video sled *Nephrops* surveys carried out by MSS (formerly Fisheries Research Services) within inner and outer Loch Carron and in Loch Kishorn (1995 - 2000 Scotland Fisheries Research Services Marine Laboratory sea pen distribution survey and Marine Scotland Science Nephrops UWTV surveys 2008 to 2010). Data from the 2008 to 2010 surveys are not included in Marine Recorder but are available in the Geodatabase of Marine Features in Scotland (GeMS).

As noted in section 1.2, video and still imagery in the region of flame shell beds within Strome Narrows were collected by SNH in 2008 and 2009 (2008 - 2009 SNH survey of *Limaria hians* interests in Loch Alsh and North Strome (Loch Carron)). Faunal data from core and flame shell bed turf samples also collected at these sites in 2009 are provided in ERT (Scotland) Ltd. (2010) and have recently been incorporated into the Marine Recorder database.

A 2012 MSS seabed video survey included 29 sites in Loch Kishorn and outer Loch Carron (2012 MSS Loch Kishorn benthic camera survey). The results have been reported by Moore (2013). Marine Recorder contains 61 Seasearch records collected between 2004 and 2015 at 30 locations within the area of interest, although most are concentrated in Strome Narrows and the adjacent region of inner Loch Carron. Marine Habitat Classification for Britain and Ireland biotope codes have not been assigned for several of these records and this includes a small number of cases where the presence of flame shell and maerl bed habitats have been noted. These latter records have not been incorporated into the GeMS database.

1.3.2 Flame shell beds

Historic flame shell records within Loch Carron are confined to Strome Narrows (Figure 4) and are derived largely from Seasearch records as well as the two sites examined by SNH (reported in ERT (Scotland) Ltd., 2010). It should be noted that null Seasearch records do not necessarily imply the absence of flame shell habitat. Turf coverage has been recorded as attaining 100% locally, and being found down to around 12 m depth, principally off the slipway at North Strome, but also 850 m farther west in Conservation Bay (Port a' Mheirlich).

1.3.3 Maerl beds

Maerl bed records are located principally around Plockton (Figure 3) and off North Strome in the Strome Narrows (Figure 4). The presence of live maerl at the two sites north of Plockton is unknown (sites 9/2 and 9/7 - Smith & Hiscock, 1985). Smith & Hiscock (1985) recorded live maerl between 1 - 11 m depth to the west of Plockton (sites 9/4 and 9/8), although its density is unclear. In the same area Smith (1978) noted the presence of a lower shore spit of mollusc shells and branched *Lithothamnia* sp. (site 16) which has subsequently been referred to a maerl biotope within Marine Recorder. One km south of this site Smith (1978) also recorded gravel and branched living *Lithothamnion* sp. at the bottom of the shore, but this habitat has not been ascribed within Marine Recorder. Smith & Hiscock (1985) subsequently described their 1978 observations in more detail, noting the presence of a maerl bed at least 10 cm thick and extending out, around and past Eilean Sgreabach, accessible by wading.

Scott (1991) recorded a bank of maerl gravel containing some live maerl within a channel west of the Plock of Kyle. This has been ascribed to a maerl biotope within Marine Recorder, although re-examination of the site in 2012 (Moore *et al*., 2013b) revealed only occasional living material.

Table 1. Historic benthic surveys of Loch Carron and Loch Kishorn.

Survey	Reference	Method	Marine Recorder code
1970 Ridley north-west Scotland sublittoral photographic survey	Dipper, 1981	Diving (epibiota)	JNCCMNCR10000063
1970-80 SMBA/MBA Great Britain intertidal survey	Powell *et al*., 1980	Shore	JNCCMNCR10000265
1974 NCC Loch Carron survey	Nature Conservancy Council, 1974	Shore	JNCCMNCR10000087
1978 Smith Wester Ross littoral mollusc survey	Smith, 1978	Shore	JNCCMNCR10000086
1985 Smith Loch Torridon and Loch Carron survey	Smith & Hiscock, 1985	Diving (epibiota) & shore	JNCCMNCR10000053
1991 Scott Skye bridge survey	Scott, 1991	Diving (epibiota) and shore	JNCCMNCR10000290
1995 - 2000 Scotland Fisheries Research Services marine Laboratory sea pen distribution	Unpublished	Benthic sled TV	MRMLN004000000D5
2004 Seasearch Scotland survey Loch Carron, Highland	Unpublished	Diving (epibiota)	MRMCS00900000010
2007 Seasearch Scotland Loch Carron, Highland	Unpublished	Diving (epibiota)	MRMCS00200000059
2008 Seasearch Scotland Loch Carron, Highland	Unpublished	Diving (epibiota)	MRMCS00700000073
Marine Scotland Science Nephrops UWTV surveys 2008 to 2010	Unpublished	Benthic sled TV	N/A
2008 - 2009 SNH survey of Limaria hians interests in Loch Alsh and North Strome (Loch Carron)	ERT (Scotland) Ltd, 2010	Diving (epibiota, infauna)	MRSNH00100000032
2009 Seasearch Scotland Loch Carron, Highland	Unpublished	Diving (epibiota)	MRMCS007000000A1
2010 Seasearch Scotland Loch Carron	Unpublished	Diving (epibiota)	MRMCS007000000B3
2012 MSS Loch Kishorn benthic camera survey	Moore, 2013	Dropdown video	MRSNH01800000029
2013 Seasearch Scotland Loch Carron survey	Unpublished	Diving (epibiota)	MRMCS017000000F4
2015 Seasearch Scotland Loch Carron survey	Unpublished	Diving (epibiota)	MRMCS01700000013
2015 Seasearch Scotland Skye survey	Unpublished	Diving (epibiota)	MRMCS01700000017
2017 Scott pers. comm.	Unpublished	Diving (epibiota)	N/A

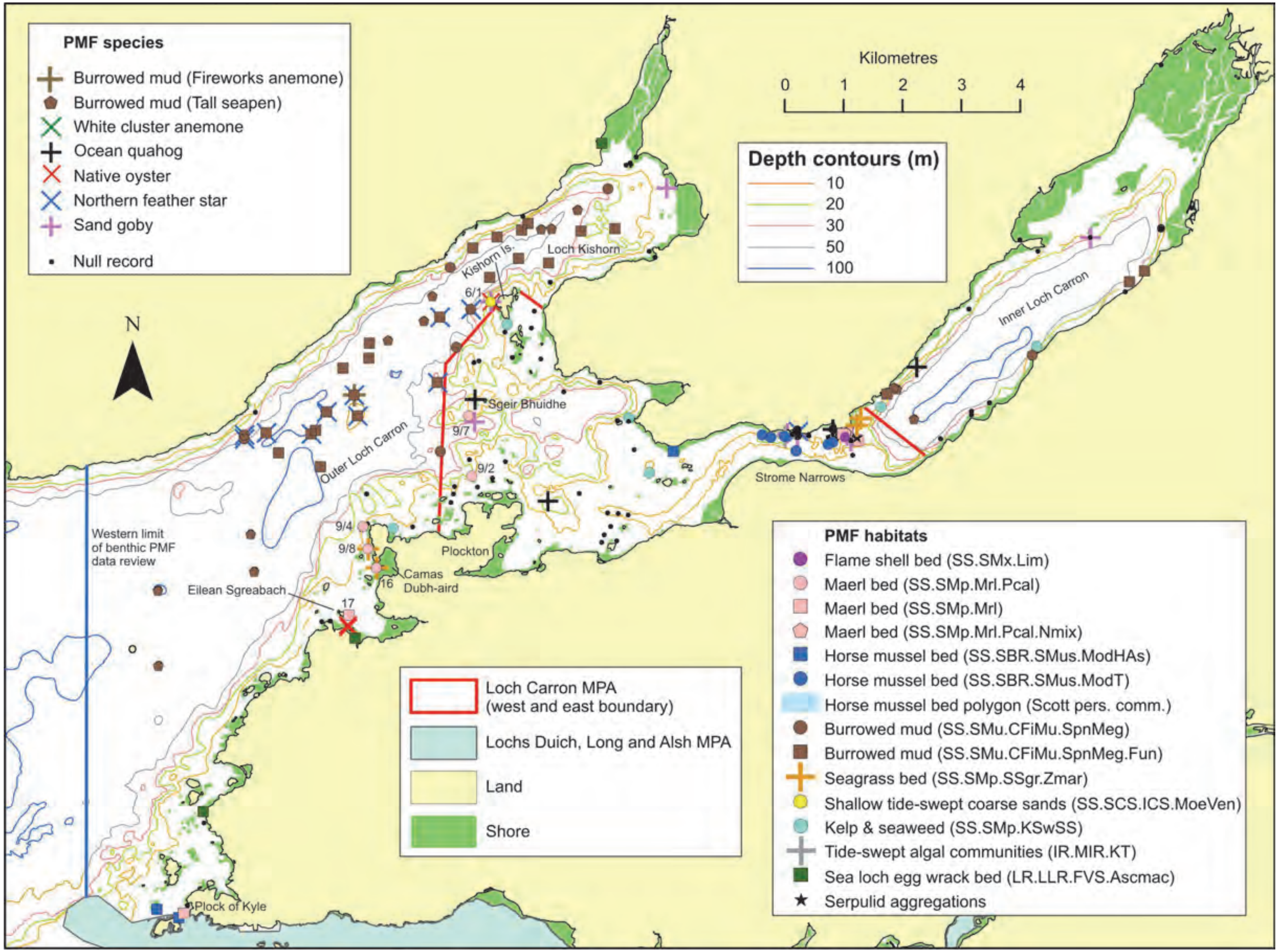

Figure 3. Distribution of historical benthic PMF records in Loch Carron and Loch Kishorn.

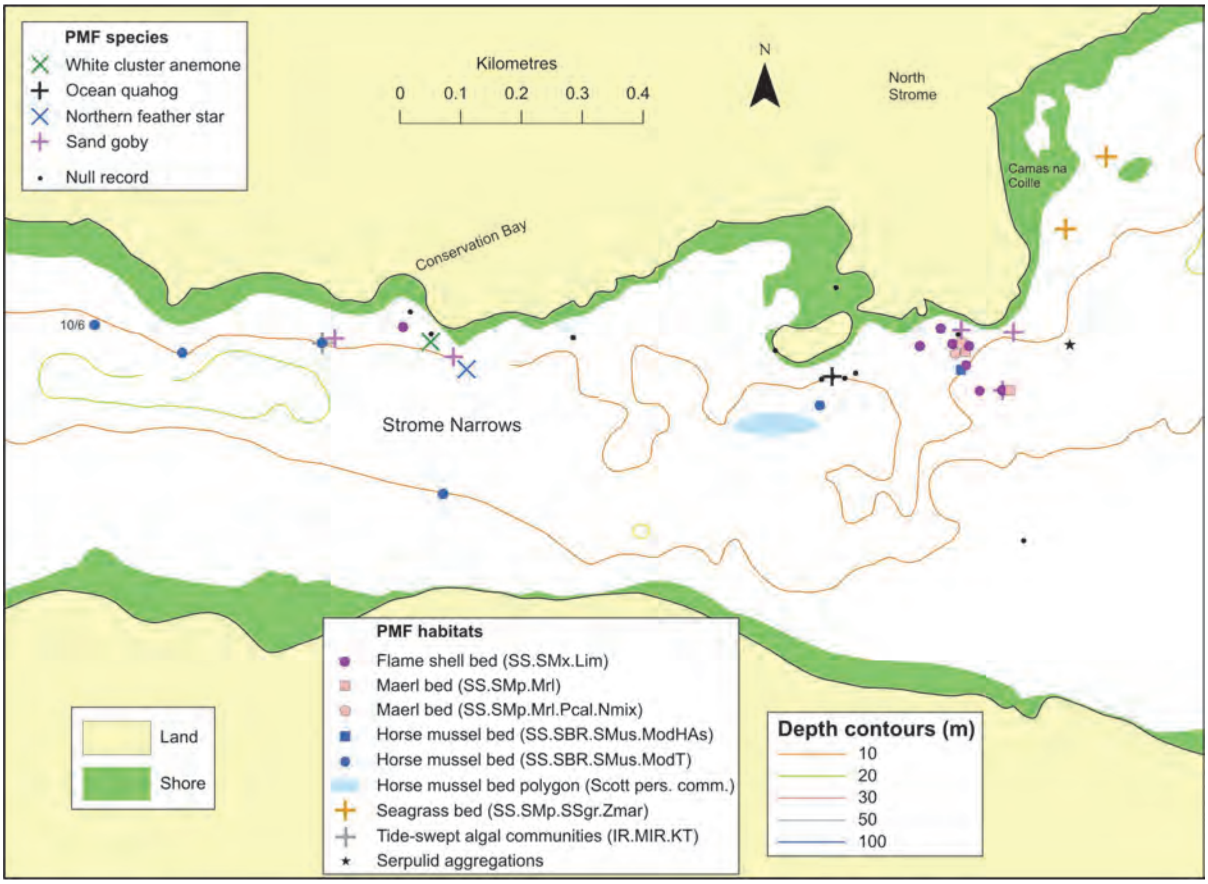

Figure 4. Distribution of historical PMF records in Strome Narrows.

Observations of maerl beds in Strome Narrows are confined to an area off the ferry slip at North Strome and originate from 2007 - 2015 Seasearch records of live maerl. No detailed positional or depth data of the maerl habitat are available, although it would appear that it occurs within a depth range of around 5 - 8 m.

1.3.4 Horse mussel beds

Records of horse mussel (*Modiolus modiolus*) beds are largely confined to Strome Narrows and are derived from surveys at six sites by Smith and Hiscock (1985) and one 2015 Seasearch site. Records originate from surveys extending over a depth range of 0 - 21 m and it appears that the habitat is found locally over a depth range of at least 0 - 18 m, with *Modiolus* density at one site (Smith & Hiscock site 10/6) providing 100% coverage of the seabed. The recorded biotope is mostly **SS.SBR.SMus.ModT**, with records of **SS.SBR.SMus.ModHAs** at 9 - 19 m depth off North Strome and on the lower shore in the western approaches to Strome Narrows, 3 km west of North Strome. The North Strome biotope attribution may be erroneous as only frequent *Modiolus* were noted (2015 Seasearch Scotland Skye survey). Figure 4 includes an indication of the extent of one area previously known to support dense *Modiolus* (Sue Scott, pers. comm.).

Two records derived from Scott (1991) west of the Plock of Kyle and subsequently ascribed to *Modiolus* biotopes in Marine Recorder are doubtful. The position of one is clearly erroneous, as the locational information provided places it in Kyle Akin within the Lochs Duich, Long and Alsh MPA. The description of the second site (Scott, 1991) only mentions the presence of "a few *Modiolus*" at 8.5 m depth.

1.3.5 Seagrass beds

Scott (pers. comm.) has reported a small bed of *Zostera marina* at Camas na Coille to the south-east of North Strome between the 0 and 5 m depth contours (Figure 4). West of Plockton, Smith and Hiscock (1985) recorded *Zostera* in Camas Dubh-aird (site 16), as well as the presence of sparse *Zostera* and maerl 340 m north of this site (site 9/8) at a depth of 1 m.

1.3.6 Native oysters

The presence of oysters was recorded by Smith (1978) at the bottom of the shore in Bagh an t-Srathaidh west of Plockton (site 17) and at the same location again in 1985, although only a single living individual and many dead shells were found (Smith & Hiscock, 1985).

Oysters have also been recorded by diving on a 0 - 17 m deep slope to the west of Kishorn Island (Smith & Hiscock, 1985, site 6/1). The location and depth along the slope, and the abundance, is unknown.

1.3.7 Serpulid aggregations (Figure 5)

The presence of stones supporting dense *Serpula vermicularis* has been reported by Scott (pers. comm.) at the north-east entrance to Strome Narrows. Photographic evidence (Figure 5) suggests the presence of mainly individual tubes, with occasional small clusters of adjacent tubes orientated vertically for a short distance. It is unlikely that further development into reefs is possible in such a tide-swept location as Strome Narrows.

Figure 5. Dense Serpula vermicularis in Strome Narrows (photo by Sue Scott).

1.3.8 Additional PMFs

Burrowed mud is widely distributed in Loch Kishorn and outer Loch Carron, although there are no records of its presence within Loch Carron MPA. Burrowed mud is clearly the predominant sublittoral habitat at depths greater than 50 m in outer Loch Carron and extends into shallower waters in Loch Kishorn (Moore, 2013). The mud is worked by a megafaunal burrowing community dominated by *Nephrops norvegicus* and *Calocaris macandreae* and supports a sea pen fauna dominated by moderately high numbers of *Funiculina quadrangularis* (**SS.SMu.CFiMu.SpnMeg.Fun**). The fireworks anemone *Pachycerianthus multiplicatus* has been recorded at a single site in outer Loch Carron (Moore, 2013). There are a few records of burrowed mud in the inner basin of Loch Carron, including **SS.SMu.CFiMu.SpnMeg** and **SpnMeg.Fun**. The records are largely peripheral, although it is likely that much of the basin below 30 m is floored by burrowed mud.

Burrowed mud records approach to within around 20 m of the Loch Carron MPA at depths below 35 m. It is possible that the habitat is present in >30 m deep tongues extending into the western region of the MPA and in a large >30 m deep basin east of Sgeir Bhuidhe. A single peripheral record lies within this basin (Smith and Hiscock, 1985, site 7/7), which has been ascribed to **SS.SMu.IFiMu.PhiVir** in Marine Recorder, although based on very limited data.

Moore (2013) found the northern feather star *Leptometra celtica* to be widely distributed in outer Loch Carron, being recorded along ten of the 18 video runs analysed, mostly as dense fields associated with mixed substrata of mud and stones. There is a single record of its presence within the MPA, where it was observed to be common in Conservation Bay, Strome Narrows, during a 2015 Seasearch survey.

Sea loch egg wrack beds have been reported at three locations, none of which are in the Loch Carron MPA and only one of which is in the Marine Recorder and GeMS databases. Two of these beds are located between Plockton and the Skye Bridge (Powell *et al*., 1980; Smith & Hiscock, 1985) and one at the head of Loch Kishorn (Nature Conservancy Council, 1974).

Other benthic PMFs with scattered records within the Loch Carron MPA include the following:

- kelp and seaweed communities on sublittoral sediment (**SS.SMp.KSwSS**)
- tide-swept algal communities (**IR.MIR.KT**)
- shallow tide-swept coarse sands with burrowing bivalves (**SS.SCS.ICS.MoeVen**)
- sand goby
- ocean quahog

Pelagic mobile species recorded within the MPA but not depicted in the figures of this report include:

- cod
- ling
- saithe
- whiting
- harbour seal

2. METHODS

This report presents the results and analysis from five surveys within the Loch Carron MPA and adjacent waters, largely carried out in 2017. The details of all surveys are summarised in Table 2 with survey names corresponding to those used in Marine Recorder. Three of the surveys contained distinct survey components that addressed different objectives, used different methodologies, or were carried out in different years. Seven of the survey components provided imagery that underwent detailed analysis as part of the current contract. Imagery details are provided in Table 3.

Table 2. Summary of the surveys forming the subject of this report.

Survey	Survey component	Date	Platform
2008 - 2009 SNH survey of *Limaria hians* interests in Loch Alsh and North Strome (Loch Carron)	2008 diving survey off North Strome	20/02/2008	shore access
	2009 diving survey off North Strome and Conservation Bay	04-06/03/2009	shore access
2017 MSS & SNH Loch Carron benthic habitat survey (May)	MSS drop-down video & grab survey (May)	03-04/05/2017	MRV *Alba na Mara*
	SNH dive survey (May)	03-04/05/2017	RIB *Aphrodite*
	SNH drop-down video survey (May)	05/05/2017	RIB *Aphrodite*
2017 SNH Loch Carron and Inner Sound benthic camera survey (July)	SNH drop-down video survey (July)	02-04/07/2017	FV *Shearwater*
2017 SNH Loch Carron benthic diving survey (July-August)	HWU & SNH benthic habitat diving survey	29/07-04/08/2017	RV *Serpula*
	HWU & SNH *Limaria hians* recovery monitoring survey	29/07-02/08/2018	RV *Serpula*
2017 SNH Loch Carron benthic camera survey (September)	SNH drop-down video survey (September)	27-29/09/2017	FV *Shearwater*

Table 3. Details of the imagery analysed for this report.

Survey component	Video #	Video duration (hours)	Video type	Video resolution	Overlay	Tracking	Stills #
2008 survey off North Strome	1	0.2	SD	720x576	none	no	109
2009 survey off North Strome and Conservation Bay	3	1.0	SD	720x576	none	no	280
MSS drop-down video & grab survey (May)	11	5.4	HD/SD/laser scaling	1440x1080 &720x576	time, position, depth	yes	142
SNH dive survey (May)	73 clips from 12 of 16 dives	2.0	HD (Sony/GoPro)	1920x1080	none	only overlay	737
SNH drop-down video survey (May)	30	1.9	HD (GoPro)/laser scaling	1920x1080	none	no	1182
SNH drop-down video survey (July)	86	11.5	HD/SD	720x480 & 1920x1080	time, position	only overlay	
SNH drop-down video survey (September)	117	11.3	HD/SD	720x480 & 1920x1080	time, position	yes	

2.1 2008 - 2009 SNH survey of *Limaria hians* interests in Loch Alsh and North Strome (Loch Carron)

SNH completed a number of dives at Loch Carron flame shell bed sites in 2008 and 2009 as part of an in-house project to promote the identification of this habitat as a new UK Biodiversity Action Plan Priority Habitat (Joint Nature Conservation Committee, 2008). The current project provided the opportunity to analyse the imagery and associated habitat samples taken, which will supplement knowledge of the distribution and condition of the flame shell habitat and provide some temporal, comparative data. Details of all dives are provided in Table 2.3 (Annex 2). The diving was shore-based and so precise positional data were not recorded. Locations given (see also Figure 9) are therefore approximate.

2.1.1 2008 diving survey off North Strome

Promotional video footage and photos of the flame shell habitat and biota were collected from the bed off North Strome during two dives in February 2008.

2.1.2 2009 diving survey off North Strome and Conservation Bay

Follow-up work in March 2009 entailed the collection of additional underwater video and still imagery during five dives at the North Strome site and two dives c.900 m to the west at a site off Conservation Bay (Port a' Mheirlich). At each site three replicate infaunal core samples

(10 cm diameter and 15 cm depth) were collected from the flame shell habitat for biotic analysis, and three corresponding replicate core samples for particle size analysis. At North Strome triplicate core samples for biota and particle size analysis were also collected in an adjacent area with no *Limaria* turf development. To enhance the collection of larger megafauna, at each site a single turf sample was collected by carefully cutting along the inside edge of a 0.1 m^2 quadrat using a diver's knife and transferring the material to a plastic bag.

The biota core and turf samples were screened using a 0.5 mm mesh and species composition and abundance determined by ERT (Scotland) Ltd, who also measured the length of all contained individuals of *Limaria hians*, and carried out the particle size analysis. The results and methodologies relating to the core and turf samples have already been presented by ERT (Scotland) Ltd. (2010).

2.2 2017 MSS & SNH Loch Carron benthic habitat survey (May)

The primary objective of the work was to corroborate reports by recreational divers highlighting impacts to a flame shell bed off Sgeir Bhuidhe and if possible, to provide commentary regarding the levels of damage. Preliminary results from this survey have already been reported (Scottish Natural Heritage & Marine Scotland Science, 2017). Prior to the survey an indication of the likely distribution of the damaged bed was derived from discussions with local scallop divers (Figure 7). The survey was split into three components.

2.2.1 MSS drop-down video & grab survey (May) (Figures 7 - 8)

Six drop-down video runs (LC-V2 - LC-V7) were carried out throughout the presumed extent of the bed, with an additional short test run (LC-V1) to the east of the bed from the vessel MRV *Alba na Mara* (Figure 7). A further four runs (LC-V8 - LC-V11) were carried out in a reference area of similar mixed substrates and depth approximately 1 km south of Sgeir Bhuidhe (Figure 8). Run durations averaged 32 minutes. Positional and depth data are provided in Table 1.1 (Annex 1). Both SD and HD video were recorded, with an overlay of position, depth and time on the SD footage. Detailed track data at 1 second intervals was also recorded digitally. Interpretation of the imagery was aided by a laser scaling system. Still photographs of the seabed were taken along the video transects at intervals of approximately 1 minute (Figures 7 - 8).

To validate the video footage in areas where divers were not deployed and to enable an assessment of infaunal community composition and *Limaria* size composition on the bed, single grab samples were collected at a total of sixteen sites in both surveyed areas using a 0.1 m^2 Day grab. The grab contents were subsampled for particle size analysis, photographed and then sieved using a 1 mm mesh. The locations are shown in Figures 7 and 8 and tabulated in Table 3.1 (Annex 3).

The imagery was used to describe the nature of the seabed, including evidence of disturbance, in terms of the physical structure and the species assemblages. Species present were, as far as possible, identified and quantified using the semi-quantitative MNCR SACFOR scale (Hiscock, 1996). Biotopes were allocated based on the physical and biological attributes (Connor *et al.*, 2004). Runs traversing a sequence of habitats were split into corresponding segments; with the transition points recorded using the time, position and depth from the overlay data. Video segments are regarded as video samples. Segmentation of runs was not practicable in the case of mosaics of biotopes, in which case all biotopes observed were simply listed. Video samples were also classified according to the Habitats Directive Annex I habitats present (Joint Nature Conservation Committee, 2018). The presence of PMFs was recorded for all video samples.

The biota collected from the grab samples was analysed for species composition and abundance by Precision Marine Survey Ltd (Hull), who also measured the dimensions (length, width and breadth) of specimens of *Limaria hians*, as well as processing the particle size analysis samples. The detailed infaunal species composition and sediment particle size of the grab samples is not considered in this report, but can be found in Allen (2018).

2.2.2 SNH dive survey (May) (Figures 7 - 12)

Three dives were completed on the flame shell bed off Sgeir Bhuidhe in order to examine the condition of the bed and to aid validation of the accuracy of the indicative habitat distribution map. Divers swam on an agreed bearing in an attempt to locate the habitat and depth zone, physical disturbance having been previously reported at a depth of around 15 m close to dive site D01. HD video and still imagery was collected of the pristine flame shell habitat and of evidence of physical disturbance such as dredge tracks and damaged biota.

Eleven spot dives were undertaken to investigate the wider distribution of flame shells and other PMFs in the outer part of the loch system, and another two dives were carried out off the slipway at North Strome to confirm the current status of the flame shell bed there. Imagery was obtained at all dive sites, with video at 12 and still photographs at 8 of the total of 16 sites examined. Location details for the sites are provided in Table 2.1 (Annex 2).

2.2.3 SNH drop-down video survey (May) (Figures 9 - 13)

A programme of near-shore, hand-hauled, drop-down video sampling was undertaken from the SNH RIB *Aphrodite*. Thirty brief drop-down video runs (2-6 minutes duration) were carried out largely within the outer region of the MPA, but with eight sites just beyond the outer margin of the MPA in an area of recorded maerl and seagrass beds. In addition to HD video footage the GoPro camera was programmed to take still images at 5 second intervals. Imagery analysis followed the procedure described in section 2.2.1 except that the position and depth of boundaries between habitats along a video run could not be recorded due to the absence of tracking data. Start and end positions and depths are given in Table 1.1 (Annex 1).

2.3 2017 SNH Loch Carron and Inner Sound benthic camera survey (July) (Figures 9 - 14)

Following a review of the May 2017 results and all previous historical records of PMFs within Loch Carron MPA and adjacent waters (Moore, 2017a), a further set of 86 sites was selected for drop-down video examination by SNH in July 2017 to further knowledge of the distribution of key habitats, with particular emphasis on flame shell and maerl beds. The survey was carried out from the vessel FV *Shearwater* throughout the MPA and extended beyond the south-western boundary to encompass the area of maerl and seagrass bed records in Port Luinge, west of Plockton. Eight sites were located in the Inner Sound to the north of Loch Carron in order to confirm the presence of a flame shell bed there. Video runs averaged 8 minutes duration.

Video analysis followed the procedure described in section 2.2.1 except that the depth of boundaries between habitats along a video run could not be recorded due to the absence of depth data on the video overlay. Positional information was recorded on the overlay but not digitally (see Table 1.1, Annex 1).

It should be noted that whereas the site locations for the May 2017 surveys were informed in part by the indicative flame shell distribution map for the Sgeir Bhuidhe East bed (Figure 7) and by sparse historical maerl bed records, the selection of site locations for subsequent surveys was aided by a cumulative perception of the actual distribution of these key habitats. For that reason the maps illustrating the location of sample sites (Figure 9 - 13) show their position in the context of the currently perceived distribution of the more clearly-defined beds.

2.4 2017 HWU & SNH Loch Carron benthic diving survey (July-August)

2.4.1 HWU & SNH benthic habitat diving survey

2.4.1.1 Drift dive survey (Figures 9 - 12)

Preliminary analysis of the imagery resulting from the May surveys of the Sgeir Bhuidhe flame shell bed indicated the presence of areas where flame shell bed presence was uncertain. Difficulty was also experienced in the identification of PMFs such as flame shell and horse mussel beds in the channel leading into and within Strome Narrows from drop-down video, due to, for example, dense coverage of the seabed by ophiuroids. To facilitate more detailed examination of the seabed, the presence and distribution of key PMFs was also studied by recording observations along 27 diver transects. Divers descended at selected coordinates and drifted or swam along a prescribed bearing for a prescribed distance, aided by mounting the compass on a 1 metre ruler. Distances covered were mostly between 150 - 400 m. Spot records were taken at stations at approximately equal distance intervals along the transect (with a maximum of 10) such that PMF habitat presence and condition could be determined. Divers wore a head-mounted GoPro HD video camera.

Parameters recorded at each station using a *proforma* on a diving slate (Table 4.1, Annex 4) included the following:

- Depth (m)
- Bearing of the towed surface marker buoy (SMB)
- Time (hh:mm:ss)
- *Limaria* nest cover (%)
- *Limaria* nest thickness (cm)
- Live *Limaria* seen (yes/no)
- *Limaria* population density <1/0.1 m^2 (yes/no)
- *Modiolus* density (SACFOR scale)
- Live maerl coverage (%)
- Dead maerl coverage (%)
- Ophiuroid density (SACFOR scale)
- Algal turf coverage (%)
- *Laminaria hyperborea* density (SACFOR scale)
- *Saccharina latissima* density (SACFOR scale)
- Substrate description
- Notes on biota and any other comments

The diver location was recorded by means of a surface GPS logger unit attached to the SMB. A dive watch was synchronised with the GPS unit thus enabling the location of the diver records to be established. Layback was calculated from the depth, as well as the SMB line length and bearing. Station details are provided in Table 4.2 (Annex 4).

Based on the diver records, stations were allocated to key feature biotopes. The methodology was not designed to identify all biotopes, although some non-key biotopes were also recognisable from the data at some stations.

2.4.1.2 MNCR phase 2 surveys

The nature and condition of representative examples of apparently undamaged key PMF habitats was assessed by means of MNCR phase 2 survey (Hiscock, 1996). Surveys were carried out at single sites within two different flame shell beds, one in the inner region of the MPA in Strome Narrows (site FS01) (Figure 9), the other in the outer part of the MPA off Sgeir Bhuidhe (site FS02) (Figure 12). Surveys were also undertaken at two maerl bed sites, one in the sheltered, tide-swept, small bed in Strome Narrows (site ML01) (Figure 9), the other in an extensive bed located in an area of relatively weak tidal currents but more wind exposure at Port Luinge, west of Plockton (site ML02) (Figure 13). Site details are provided in Table 5.1 (Annex 5).

Surveys were conducted along the length of a 25 m transect line within a band 4 m wide. Transect ends were permanently marked with steel pins driven into the seabed, the position and depth at both ends of the transect recorded and the bearing of the transect noted. Two surveyors recorded the presence and SACFOR abundance of epibiota, with collection of material for laboratory analysis where necessary. The transect band was videoed using a hand-held HD video camera. This involved the diver swimming the full distance of the transect belt referencing the transect tape at intervals, recording both wide-angle footage of the habitat and close-up footage of the species. The aim was to retain a visual record of the nature of the habitat, providing material that might supplement the species inventory and aid the subsequent production of a site description. Still photographs of the habitat and associated community were also taken for the same purpose using two digital SLR cameras with wide-angle and macro lenses.

At each site four replicate core samples (10.3 cm diameter to a depth of 20 cm) were collected for analysis of infaunal species composition, abundance and diversity and one 5 cm diameter core for particle size analysis. In accordance with protocols previously employed for these habitats elsewhere, maerl cores were sieved using a 1 mm screen and *Limaria* cores using a 0.5 mm screen, with sievings retained in buffered 5% formalin.

For the maerl sites, replicated 0.25 m^2 quadrats were employed to aid *in situ* assessment of live and dead maerl cover. Ten quadrats were placed randomly (at predefined positions) on each side of the transect line (see Tables 5.10 and 5.11, Annex 5, for quadrat locations). The quadrats were also photographed, providing a permanent record for subsequent analysis if necessary.

The biota collected from the core samples was analysed for species composition and abundance by Precision Marine Survey Ltd (Hull), who also measured the dimensions (length, width and breadth) of specimens of any specimens of *Limaria hians*, as well as processing the particle size analysis samples.

Particle size analysis was carried out by a combination of dry sieving employing a nest of sieves at 0.5 phi intervals and laser particle size analysis of the <1 mm fraction using a Malvern Mastersizer 2000. The data derived from these methods were then used to determine statistical parameters including mean grain size, bulk sediment classes (% silt, sand and gravel), skewness and sorting coefficient using the program Gradistat (Blott & Pye, 2001).

Infaunal diversity measures were calculated using Primer software (Primer-E, Auckland, New Zealand), which was also employed for examination of spatial differences between sites in species composition using non-metric multidimensional scaling (MDS), analysis of similarities (ANOSIM) and similarity percentages (SIMPER).

2.4.2 HWU & SNH Limaria hians recovery monitoring survey

The aim of this study was to examine the impact of dredging on the disturbed Sgeir Bhuidhe East flame shell bed and to establish a baseline for future monitoring of the recovery of the bed.

A non-destructive approach was taken in order to minimise any further damage to the bed. Three widely-separated sites were selected within the recognised polygon of flame shell bed extent (Figure 12, sites M1 - M3). All sites were within areas of dense *Limaria* turf which were known to have undergone localised damage. Sites M1 and M2 were respectively close to May 2017 dive sites D01 and D02, and site M3 was at the position of a dredge track shown by the May 2017 MSS video survey and may represent the damage also identified during SNH dive D03 in May 2017.

At each site an experimental region was selected by diver reconnaissance, where a distinct impacted dredge band was evident in the form of clearly damaged flame shell habitat separating extensive areas of apparently unimpacted *Limaria* turf, and where linear boundaries between the two conditions could be discerned.

At each of the three locations two 10 m long transects were established, with one transect placed within the damaged area (treatment) and another placed in the adjacent undamaged area (control) (transects MxT and MxC). The transects were approximately parallel to the line of the dredge track, which was of the order of 6 - 10 m in width. The ends of the transects were permanently marked by steel pins driven into the sediment, with a measuring tape running between the pins for the duration of the field work. The dredge boundary between the two transects was also permanently marked by inserting four steel pins at intervals of a few metres. Marker pins were labelled with cable ties, with control, treatment and boundary transects supplied with green, red and black ties, respectively. One cable tie was used for the transect start pins, two for the end pins and one to four for the boundary pins.

Both 1 m wide bands on each side of the transect tape were videoed to retain a permanent visual record of the nature and condition of the habitat. Detailed examination of the habitat was carried out within twenty 0.25 m^2 quadrats located at randomised positions along the length of each transect. To enhance representative coverage of the full length of the transect band, quadrat positions followed a stratified, random design, whereby one quadrat position was allotted randomly to each 1 x 1 m box along both sides of the tape (Figure 6). To avoid overlap between quadrats on successive boxes, each 1 x 1 m box was considered to be divided into four possible quadrat positions. Quadrat positions are provided in Tables 6.3 - 6.8 (Annex 6), with the tape constituting the x coordinate and the lateral offset the y coordinate. To supplement *in situ* recording of bed condition, photographs were also taken of each quadrat, including plan and lateral views, as well as overviews of the experimental area including dredge boundaries. Due to an error a mismatch occurred between the quadrat positions assessed by the surveyor and those photographed along transect M1T.

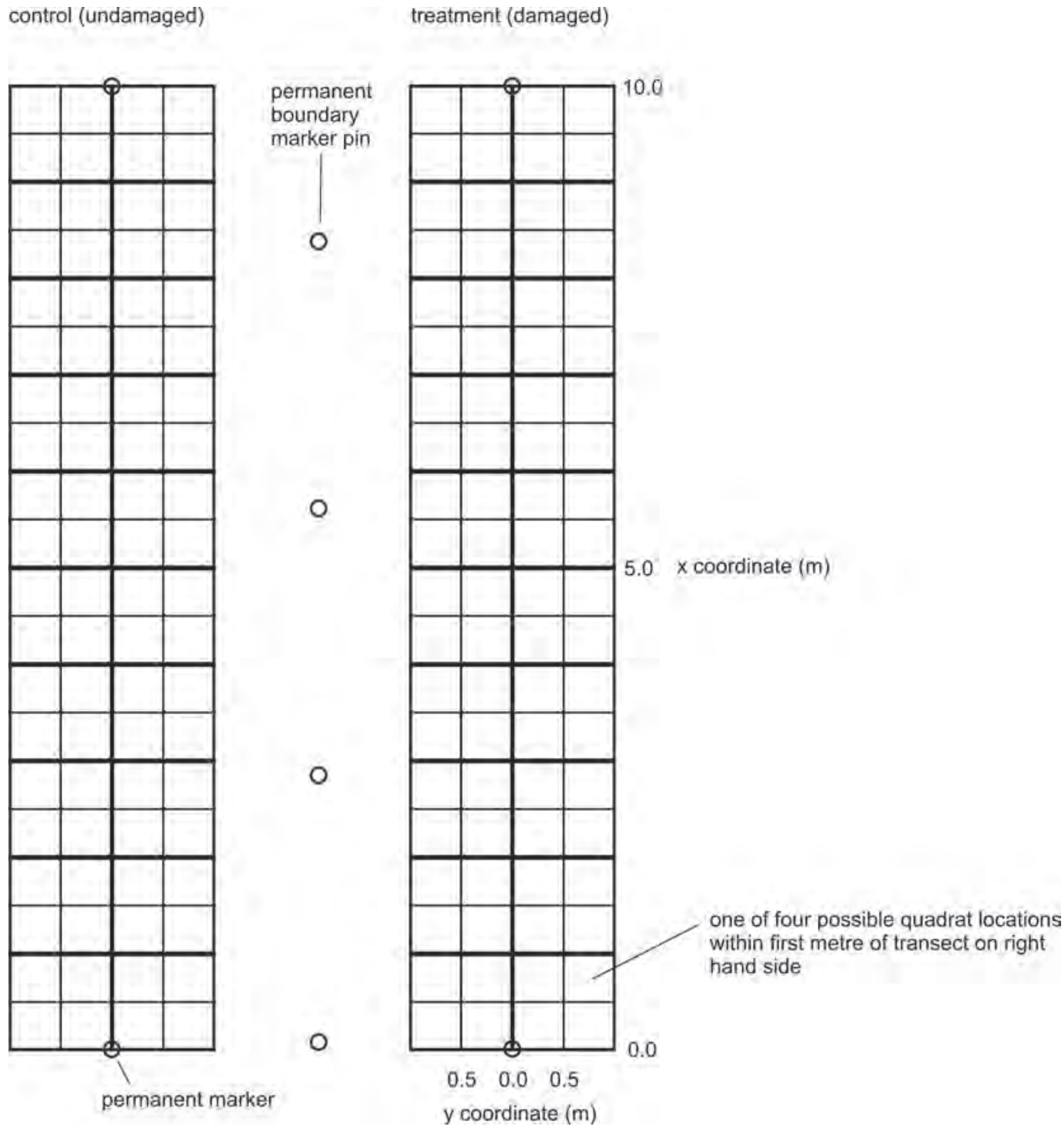

Figure 6. Flame shell bed recovery monitoring transect configuration.

Using a *proforma* on a diving slate (Table 6.1, Annex 6), surveyors recorded the following condition parameters within each quadrat:

- Tape distance
- Offset
- Byssal material present (yes/no)
- Continuous turf present (i.e. >10x10 cm locally) (yes/no)
- Turf cover (%)
- Byssus overtops stones (yes/no)
- Turf/sand mosaic present (i.e. clean sand patches >10x10 cm) (yes/no)
- Gallery apertures visible (yes/no)
- Mean turf thickness (cm)
- *Limaria* seen (yes/no)
- Dead *Limaria* shells visible (yes/no)
- Sharp turf boundary present (yes/no)
- Depth at start and end (m)

Also recorded was an overall estimate of *Limaria* density (>1/0.1 m^2 (yes/no)) > 1 m from the tape for each side of the tape, depth at the start and end of the transect, and the bearing at the start of the transect.

2.5 2017 SNH Loch Carron benthic camera survey (September) (Figures 9 - 13)

Another drop-down video survey was carried out by SNH in September in order to further refine the distribution of key PMF habitats. 117 sites were distributed throughout the MPA, including several aiming to improve knowledge of the distribution and condition of recently identified flame shell beds to the north and west of Sgeir Bhuidhe. Video runs averaged 6 minutes duration. This survey also extended coverage of the complex coastline farther to the south-west of the MPA, with 23 sites located between An Dubh-aird and Loch Alsh.

Video analysis followed the procedure described in section 2.2.1 except that depth was only noted at the start and end of runs preventing depth recording at the boundaries between habitats. Positional information was displayed on the overlay and the track was recorded digitally at intervals of around 24 seconds. Positional and depth data are provided in Table 1.1 (Annex 1).

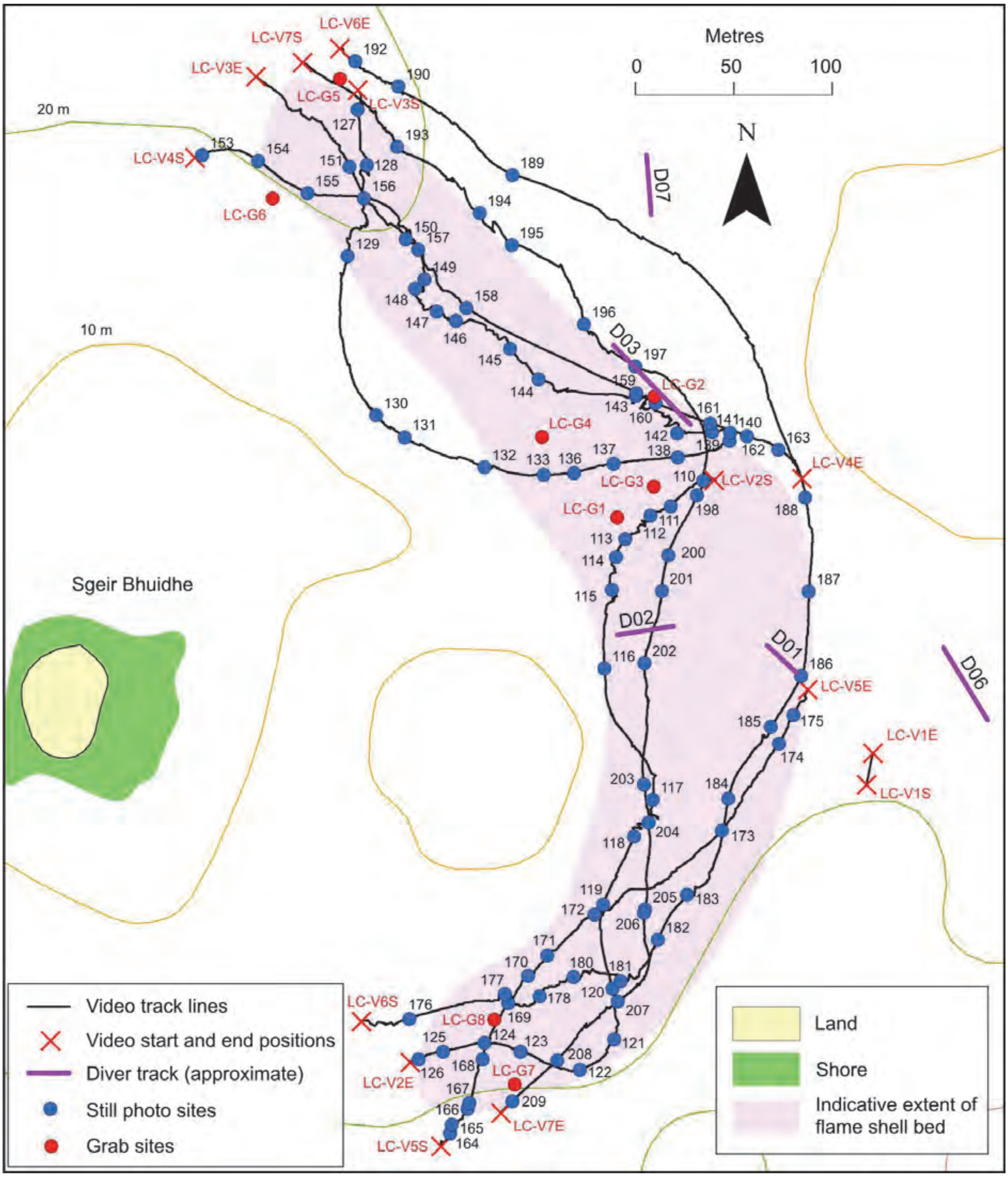

Figure 7. Sample details for the MSS & SNH drop-down video & grab survey (May) off Sgeir Bhuidhe. Also shown are the SNH dive survey (May) dive sites in the same area. Video track line labels indicate the start (suffix 'S') and end (suffix 'E') of the run. Indicative flame shell bed extent in May derived from discussions with local scallop divers.

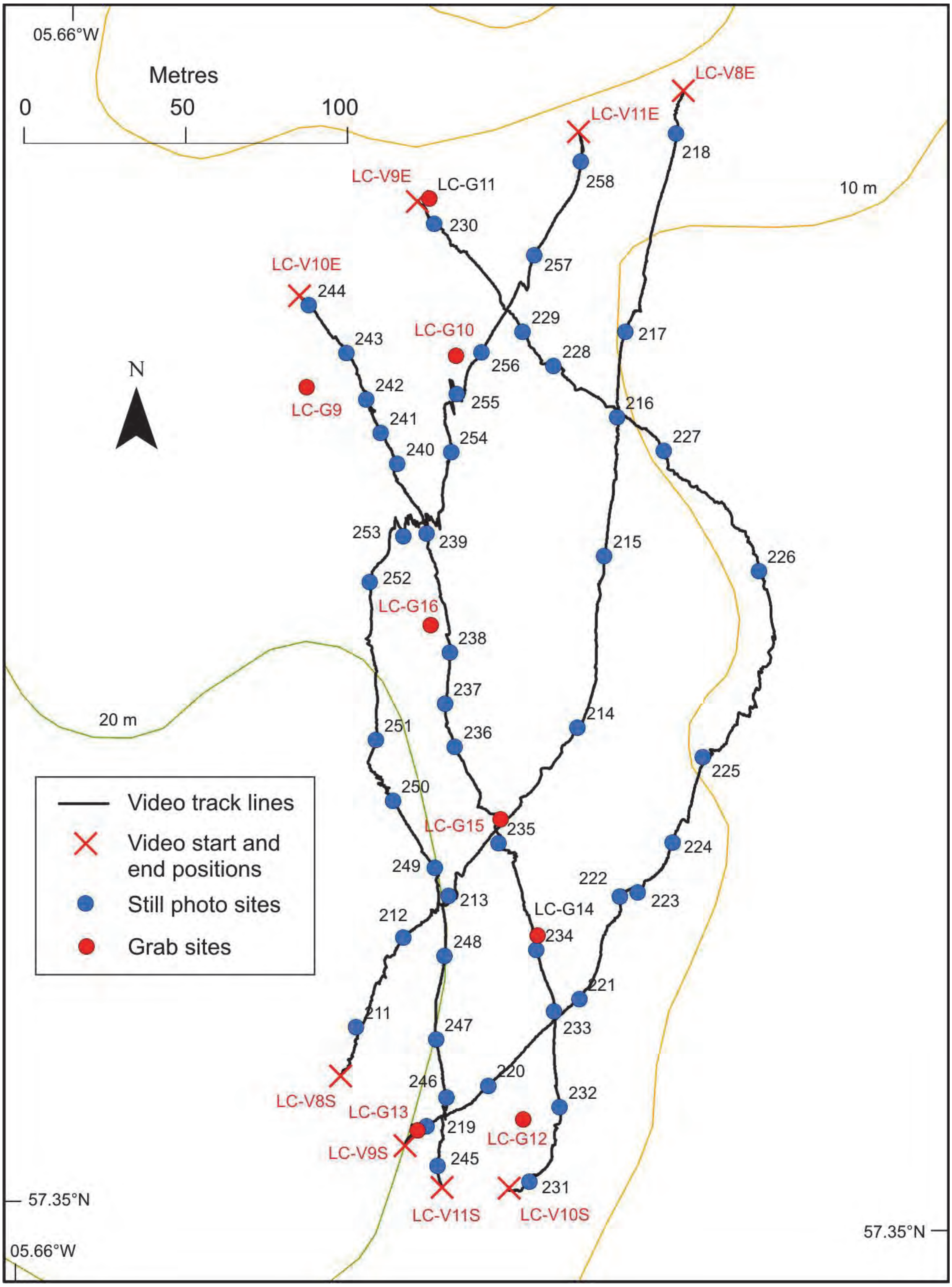

Figure 8. Sample details for the MSS & SNH drop-down video & grab survey (May) in the reference area 1 km south of Sgeir Bhuidhe. Video track line labels indicate the start (suffix 'S') and end (suffix 'E') of the run.

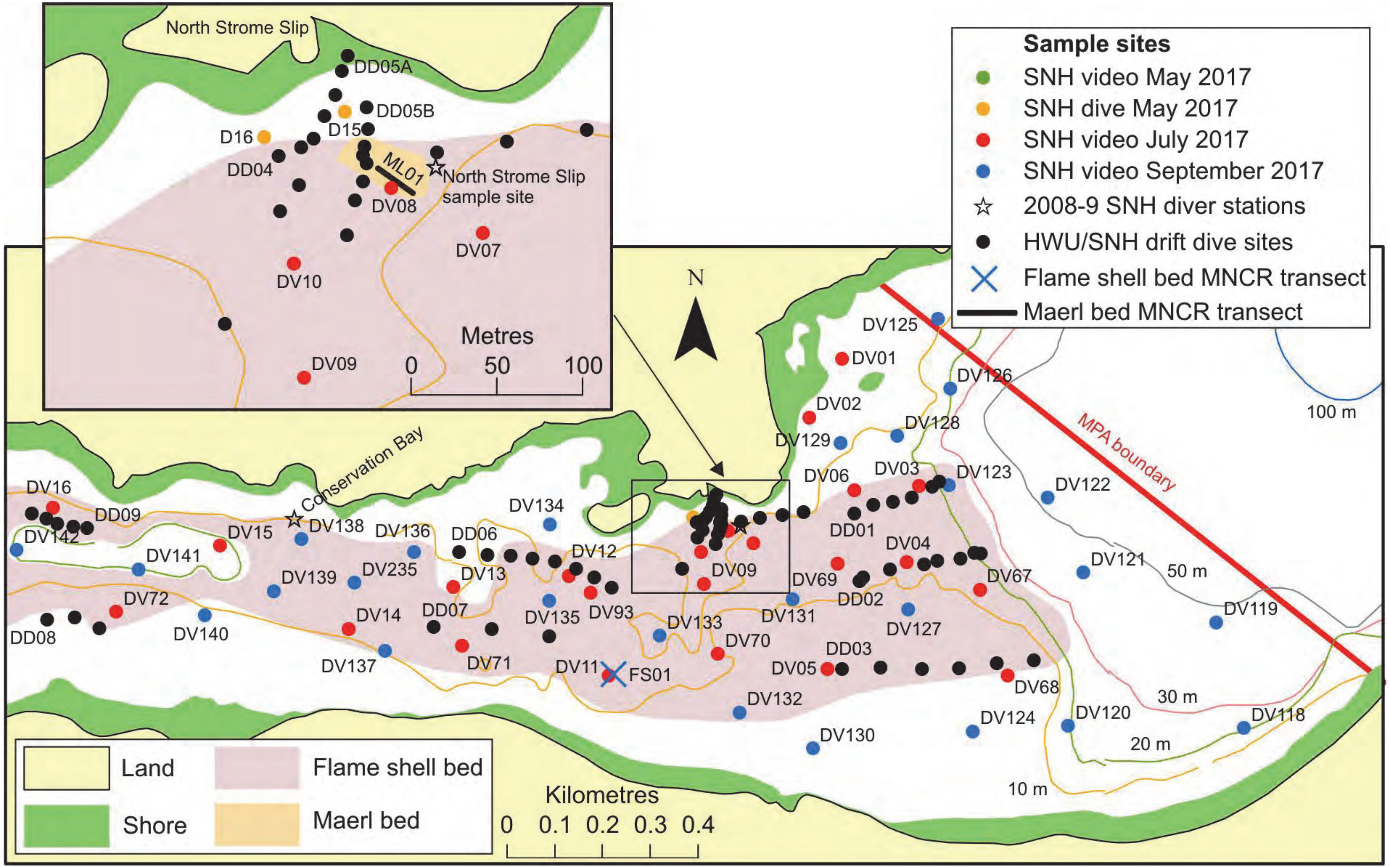

Figure 9. Distribution of all sample sites in the eastern region of Strome Narrows. Only the first station along the HWU/SNH drift dives is labelled.

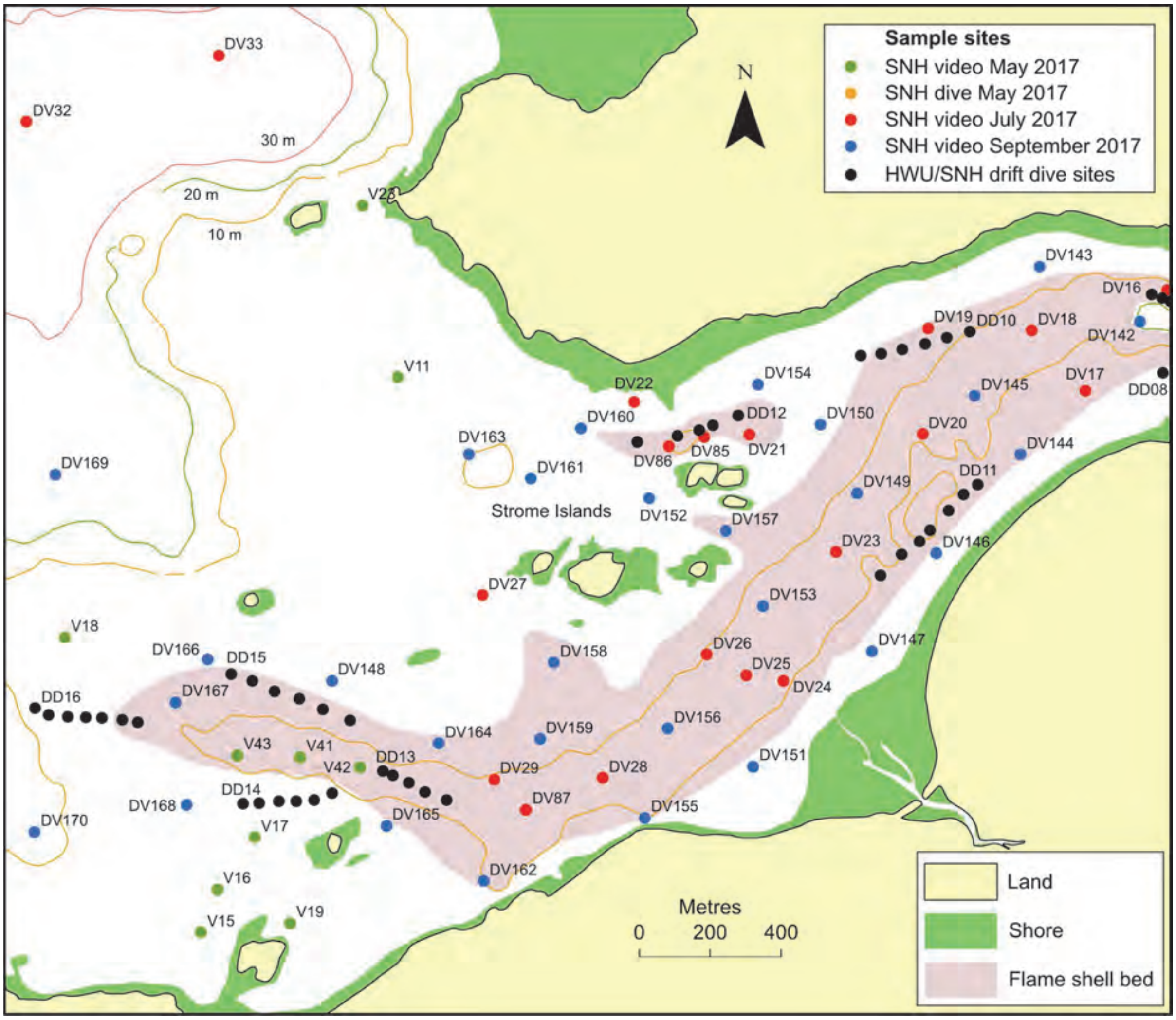

Figure 10. Distribution of all sample sites in the western approaches to Strome Narrows. Only the first station along the HWU/SNH drift dives is labelled.

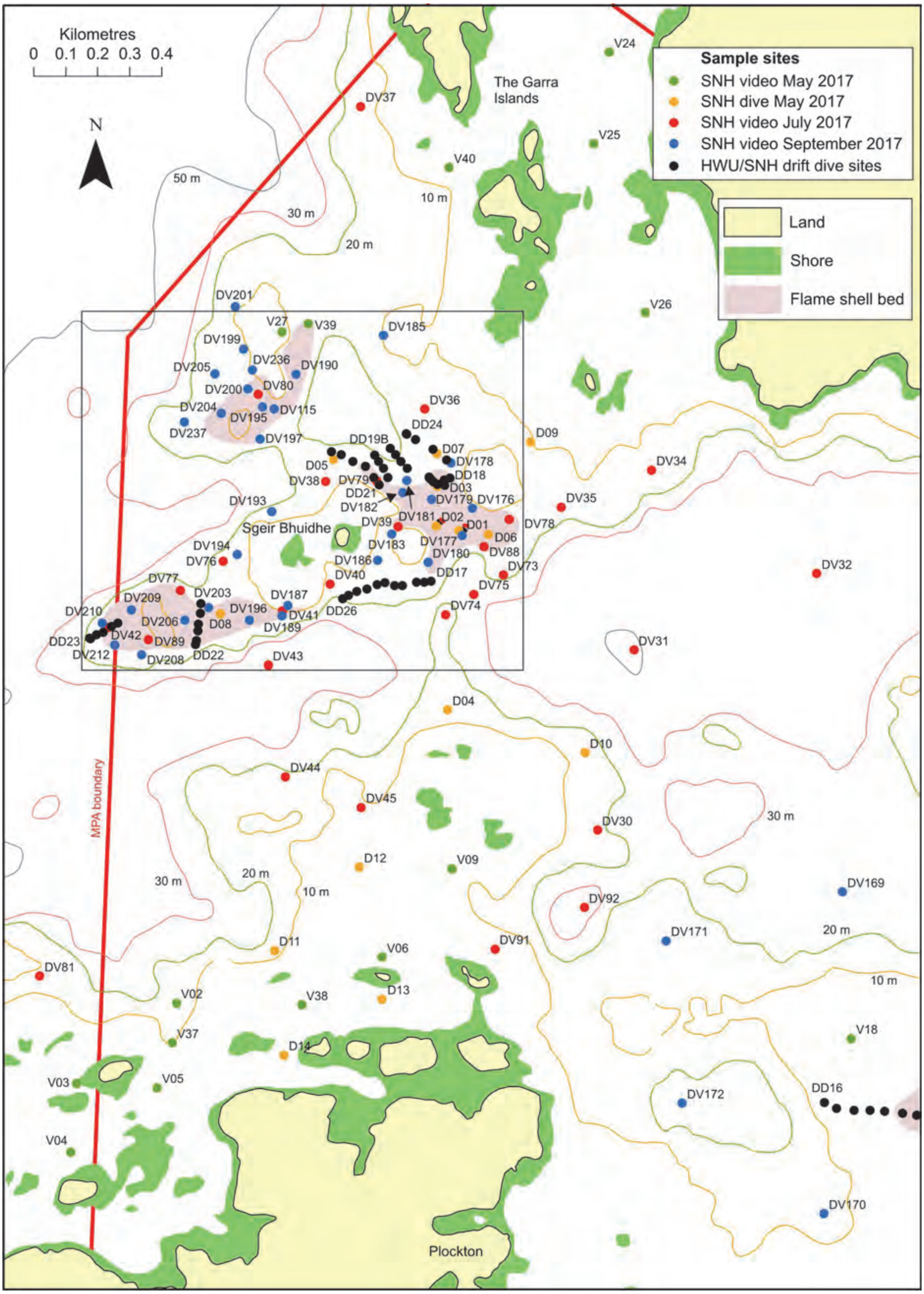

Figure 11. Distribution of all sample sites (except MSS drop-down video & grab survey) to the north of Plockton. Only the first station along the HWU/SNH drift dives is labelled. For inset see Figure 12.

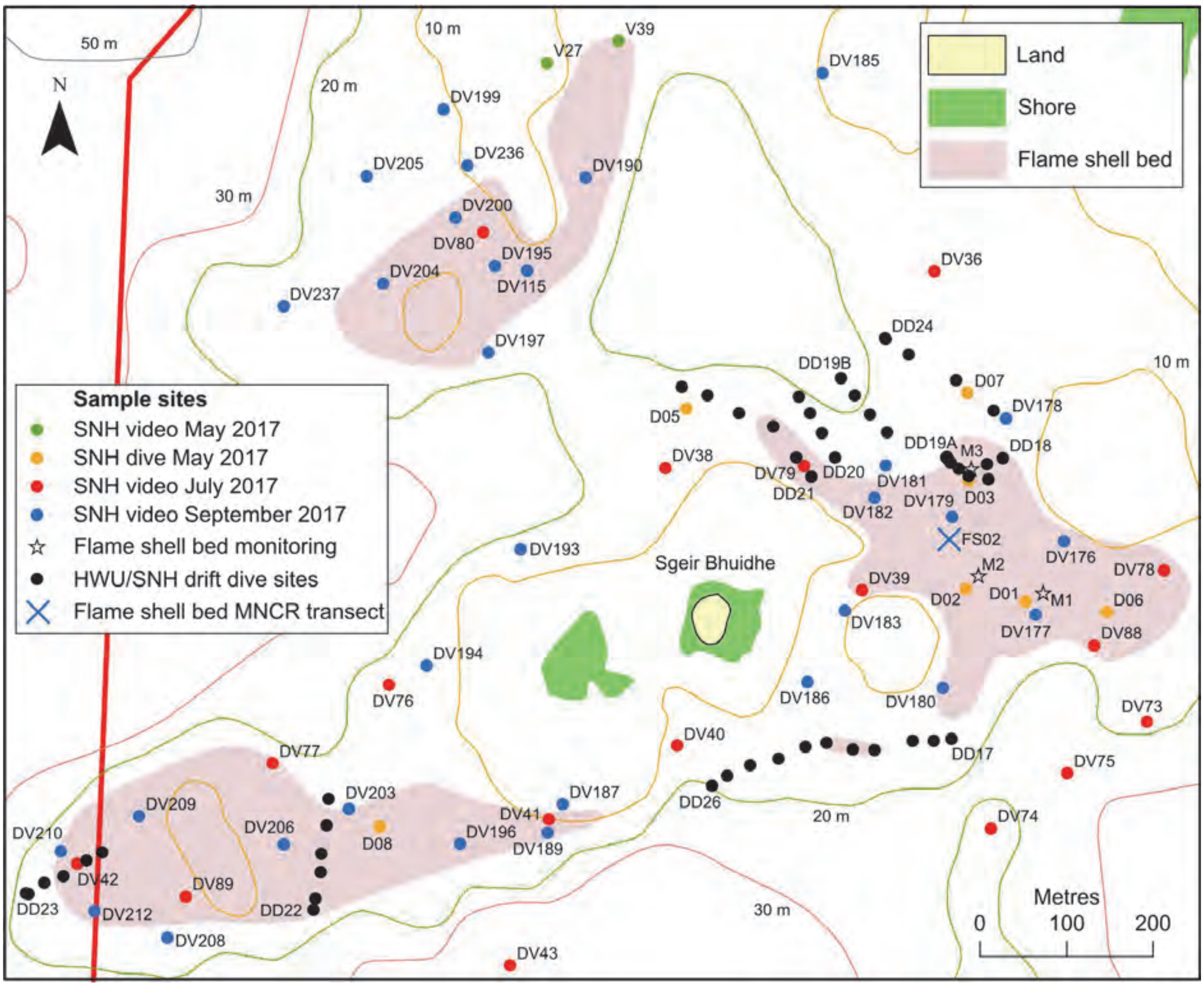

Figure 12. Distribution of all sample sites (except MSS drop-down video & grab survey) around Sgeir Bhuidhe. Only the first station along the HWU/SNH drift dive sites is labelled.

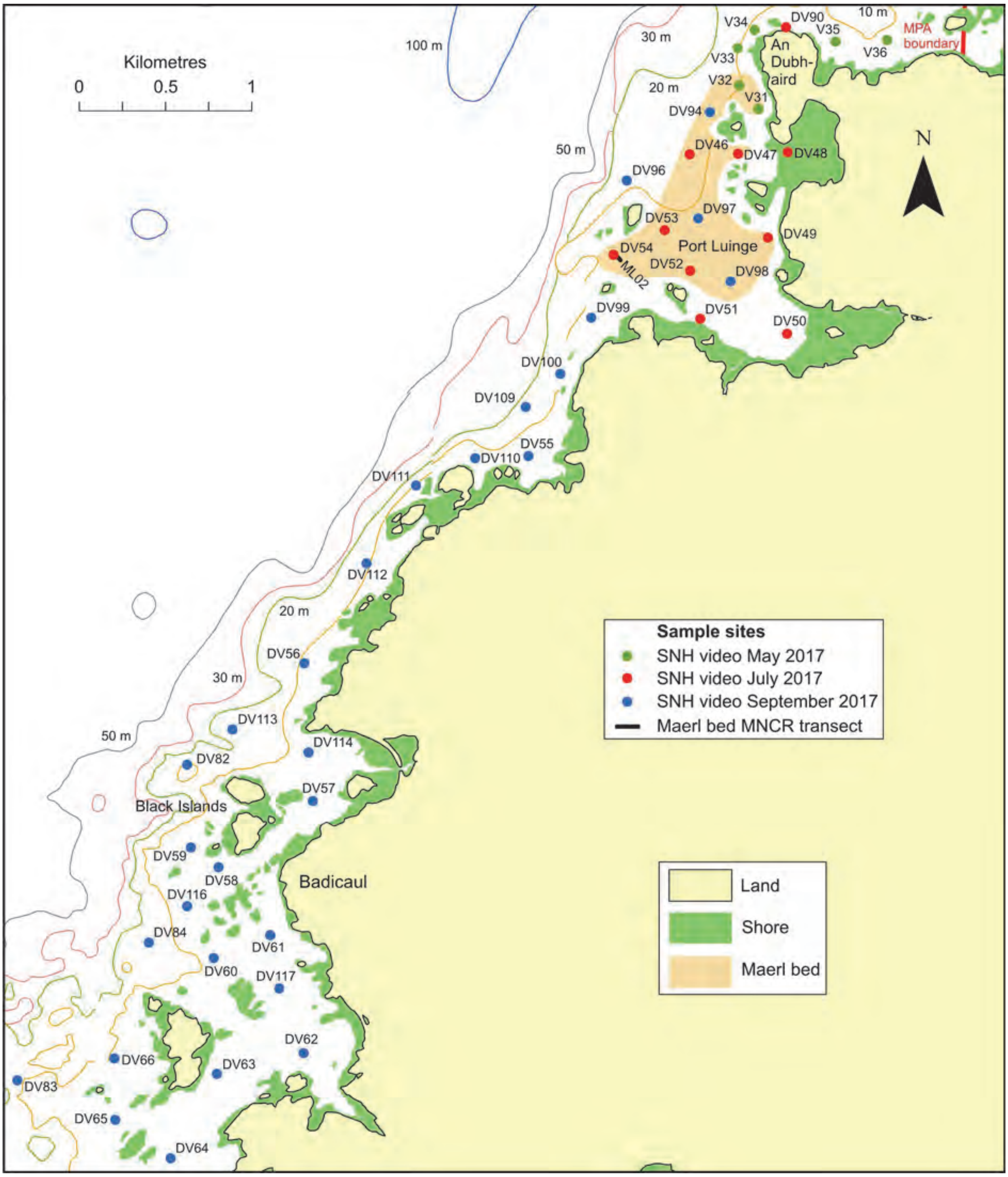

Figure 13. Distribution of all sample sites in the south-western region of the surveyed area.

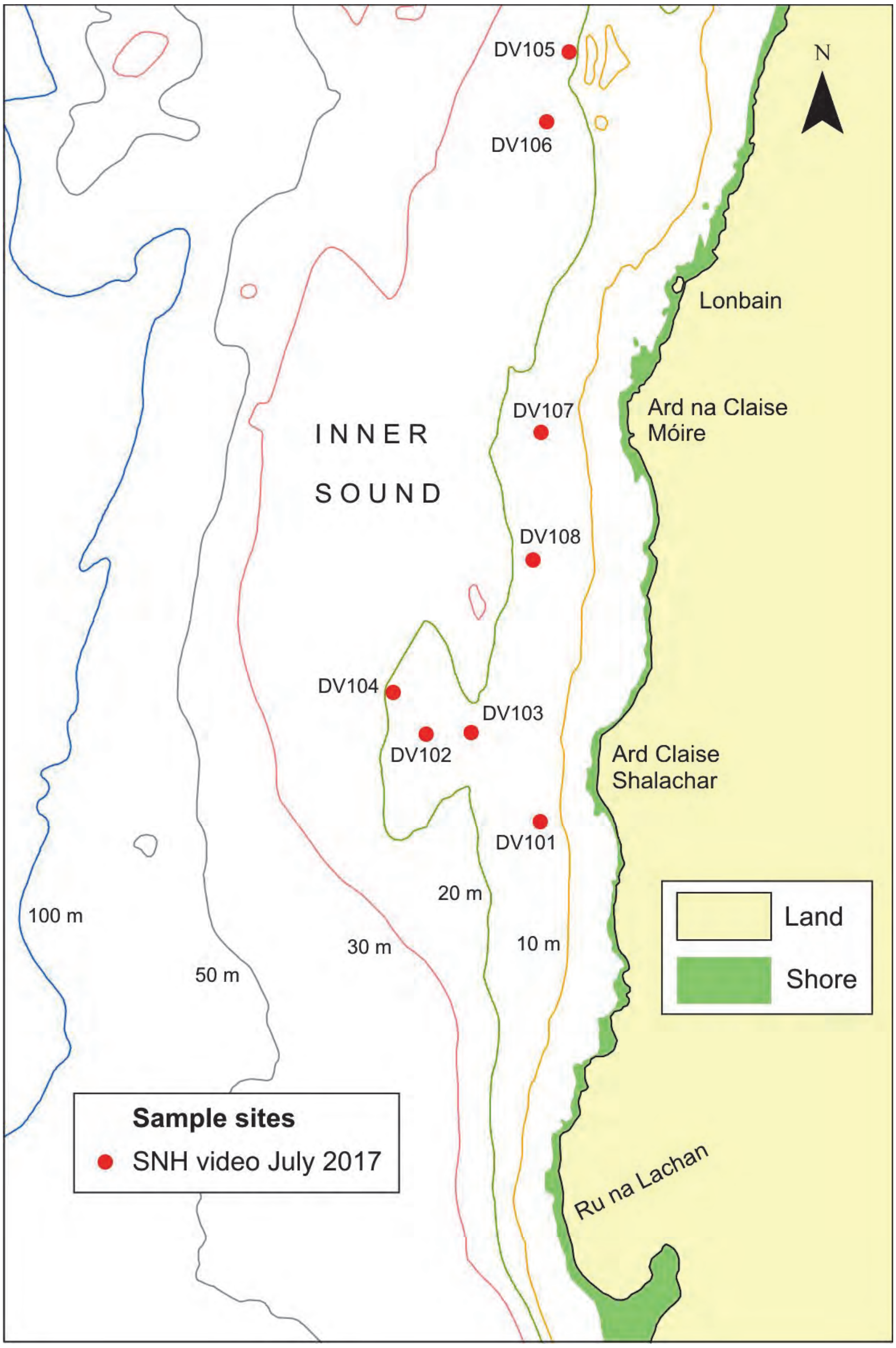

Figure 14. Distribution of all sample sites in the Inner Sound.

3. RESULTS

3.1 Distribution of biotopes (Figures 15 - 21)

All the surveys forming components of this report contributed to the current understanding of biotope distribution in the Loch Carron MPA and adjacent waters, and so the results have been collated here to produce a synthesis of the data sets. The detailed results are presented in Annexes 1 - 4 and illustrated in Figures 15 - 21, which include polygons portraying the current interpretation of the distribution of flame shell and maerl beds, based on the 2017 data. Annex 8 provides an illustrated inventory of all biotopes recorded with a list of the stations where they were found.

Flame shell beds (**SS.SMx.IMx.Lim**) were identified in two regions within the Loch Carron MPA: around the island Sgeir Bhuidhe in outer Loch Carron and in the Strome Narrows channel.

The most extensive flame shell bed lies within Strome Narrows and its western approach channel, covering a distance of around 5.5 km and an area of approximately 194 ha within a recorded depth range of 3 - 23 m (Figures 15 and 16). The predominant substrate consisted of coarse sand with dense pebbles, cobbles and shells bound by a *Limaria hians* byssal turf often forming a mosaic with relatively homogeneous sand patches. Turf coverage was found to vary widely throughout the bed and was often impossible to assess due to occlusion by dense ophiuroids or kelp, but average cover probably lay within the range 30 - 70%, although extensive areas supported coverages of around 100%. The *Limaria* turf supported a red algal turf with hydroids such as *Halecium* spp. and *Kirchenpaueria pinnata* and scattered *Alcyonium digitatum*. Over extensive areas within the bed the red algal turf was replaced by a dense cover of ophiuroids, generally dominated by *Ophiothrix fragilis* but also comprising large numbers of *Ophiocomina nigra* and *Ophiopholis aculeata* (**SS.SMx.CMx.OphMx**). The byssal turf also widely supported tide-swept parks and forests of kelps dominated by *Laminaria hyperborea* (**IR.MIR.KT.XKTX**), sometimes in association with ophiuroid beds.

While the *Limaria hians* bed appeared to occupy most of the seabed below the 5 m depth contour within Strome Narrows and the western entrance channel, a gap in its distribution corresponded with the deepest trough (20 - 30 m depth) within the channel south of Leacanashie. Here, the bed was replaced by dense pebbles supporting high (**SS.SMx.CMx**) or very high (**SS.SMx.CMx.OphMx**) densities of ophiuroids.

At the eastern boundary of the flame shell bed the Strome Narrows channel rapidly deepens as it enters the inner basin of Loch Carron. The slope, floored predominantly by dense pebbles, was found to support a well-developed *Limaria* turf (c.100% cover) to at least 23 m depth, with deeper sample sites (29 - 65 m) supporting large numbers of ophiuroids (**SS.SMx.CMx.OphMx**, **SS.SMx.CMx**). Some evidence of *Limaria* byssal material was also present at some of these deeper sites, although it appears that the *Limaria* bed probably extends down to around the 30 m depth contour.

The *Limaria* bed within Strome Narrows was found to incorporate live horse mussels *Modiolus modiolus* at several sites. The presence of the *Limaria* byssal turf and often dense ophiuroids complicates the identification and density assessment of *Modiolus* and so its presence will have been underestimated during the current studies. The August diving survey presented the best opportunity to assess *Modiolus* density and this resulted in the recording of *Modiolus* at a SACFOR density of Common at three locations and Abundant at one location. These tide-swept records are considered to represent examples of the horse mussel bed biotope **SS.SBR.SMus.ModT**. *Modiolus* was common at two adjacent sample stations (DD03.4 and DD03.5) at a depth of 5.2 - 5.5 m at the south-eastern entrance to

Strome Narrows, at two adjacent stations south of Leacanashie (DD09.1 and DD09.2) at a depth of 14.4 - 15.5 m, and on the opposite side of the channel here at station DD08.3 at a depth of 3.7 m. Abundant *Modiolus* was recorded at a single station (DD12.2) in the channel north of the Strome Islands at a depth of 4.9 m.

A small maerl bed was recorded around 75 m south-east of the North Strome slip at a depth of 7.8 - 8.9 m (Figure 15). Accurate delineation of the bed is limited by the small number of stations located within it, but the coverage is of the order of 0.1 ha. Estimates of cover by live *Phymatolithon calcareum* within the bed varied between 15% and 42%, with a mean of 28%, which together with maerl gravel constituted the predominant substrate, which was thrown into waves in part of the bed, indicating the presence of strong current action. The presence of *Neopentadactyla mixta* and sparsity of an algal turf places the bed close to **SS.SMp.Mrl.Pcal.Nmix**; however, the bed has been ascribed to **SS.SMp.Mrl.Pcal** on account of its shallowness and the presence of scattered kelp plants.

Three *Limaria hians* beds were located around the small island Sgeir Bhuidhe in outer Loch Carron, with beds to the north, east and west of the island, covering areas of respectively 5.1, 7.0 and 7.7 ha approximately, over a depth range of 9.5 - 21.1 m (Figures 17 - 18). The predominant substrate in this region was silty, shelly sand with scattered gravel, pebbles, cobbles and shells, which were bound together by *Limaria* forming a byssal turf. Where this turf dominated coverage of the seabed, it generally formed a mosaic with relatively homogeneous sand patches. Turf coverage was most pronounced on the eastern bed, with coverage estimates averaging 45%, although extensive areas exhibited values from 60 - 100%. The turf habitat was more patchily distributed on the northern and western beds, with coverage estimates averaging 35% in both areas. The matrix of byssus and stones generally supported a turf of filamentous and fine filiform red algae, hydroids such as *Nemertesia ramosa*, *Halecium halecinum* and *Kirchenpaueria pinnata* (particularly well-developed on the eastern bed), and solitary ascidians including *Ascidiella aspersa* and *Corella parallelogramma*.

Small patches of other biotopes were recorded within the delineated Sgeir Bhuidhe *Limaria* beds, mostly in the form of small, often sediment-dusted, bedrock outcrops or scattered boulders and cobbles supporting a mixed kelp park of *Laminaria hyperborea* and *Saccharina latissima* (**IR.HIR.KSed.XKScrR**) or red algal turfs (**IR.HIR.KFaR.FoR**). Particularly on the northern bed, such parks appeared to be largely associated with the stone/byssal *Limaria* turf and have been tentatively assigned to **IR.MIR.KT.XKTX**.

It should be noted that due to the relatively poor clarity of the imagery from the May MSS drop-down video and grab survey, areas just beyond the recognised northern and southern boundaries of the Sgeir Bhuidhe East bed contained several records of possible flame shell habitat, often because of the difficulty in distinguishing between hydroid and byssal turfs (Figure 18). Subsequent sampling in these areas, particularly during the July - August drift dive survey, indicated the general absence of the *Limaria* habitat, apart from sparse nests attaining maximum coverage of 5-10% locally.

Outside the boundaries of the Sgeir Bhuidhe *Limaria* beds the substrate of silty shelly sand with scattered stones and shells continued into deeper water, where the stones were encrusted with pink coralline algae and serpulid worms, with the more conspicuous members of the motile fauna including *Munida rugosa* and *Aequipecten opercularis* (**SS.SMx.CMx**). To the north-west of the northern bed, scattered cobbles and boulders support a mixed park of *Laminaria hyperborea* and *Saccharina latissima* (**IR.HIR.KSed.XKScrR**).

Between Sgeir Bhuidhe and Plockton four of the May 2017 MSS video runs with associated still imagery passed through an area of silty shelly sand with scattered gravel, pebbles, cobbles and shells, sloping from a depth of 10 m down to 26 m (Figure 19). Below a depth of 13 - 19 m the biota was similar to that of other circalittoral mixed substrates within Loch Carron (**SS.SMx.CMx**), although augmented by large numbers of *Ophiura albida*. However, above this depth the substrate supported a filamentous red algal turf with *Saccharina latissima* and high numbers of solitary ascidians, particularly *Ascidiella aspersa* and *Corella parallelogramma* (**SS.SMp.KSwSS.LsacR**).

KSwSS biotopes were widely recorded throughout the Loch Carron MPA (Figures 15 - 19) and along the adjacent coastline between Plockton and Loch Alsh (Figure 20), with varying densities of *Saccharina latissima* and algal turfs on sediment with scattered stones, or as mats of loose-lying algae, particularly *Trailliella intricata*, on sand (**SS.SMp.KSwSS.Tra**). Such mats were particularly prevalent in shallow, sheltered embayments between Plockton and Loch Alsh. Kelp parks and forests dominated by *Saccharina latissima* were present within the tide-swept channels around the Strome Islands on gravel (**SS.SMp.KSwSS.LsacR.Gv**) and pebble (**SS.SMp.KSwSS.LsacR.Gv**) substrates, which generally supported a fairly impoverished algal turf flora. The majority of **KSwSS** records within the surveyed area were of *Saccharina latissima* and predominantly filamentous and fine filiform red algal turfs on sandy sediments (**SS.SMp.KSwSS.LsacR.Sa**), although in many of these cases the substrate or biota were considered to deviate significantly from the biotope definition and have consequently been referred to the higher biotope **SS.SMp.KSwSS.LsacR**. In the upper basin of Loch Carron off North Strome (Figure 15) the gravelly sand sediment supported scattered *S. latissima* and a sparse algal turf, with the motile fauna supplemented by occasional to frequent *Psammechinus miliaris* (**SS.SMp.KSwSS.LsacMxVS**).

Maerl was widely recorded along the indented coastline between Plockton and Loch Alsh, with clusters of records in three locations: north of Plockton between Rubha Mòr and Eilean Dubh (Figure 17), at Port Luinge to the west of Plockton (Figure 20), and off Badicaul near the western mouth of Loch Alsh (Figure 20).

The three records north of Plockton show the presence of rich maerl (up to 40% cover of live *Phymatolithon calcareum* with around 55% cover of dead maerl) supporting a turf of mostly bleached red algae and *Saccharina latissima* in the sublittoral fringe over a depth range of 1.1 m above chart datum to 1.5 m below chart datum, but possibly extending to a depth of 5.2 m (**SS.SMp.Mrl.Pcal.R**).

Half of the eight maerl records off Badicaul, located over a depth range of 1.0 - 8.3 m, indicate rich maerl sites with 50 - 75% live *Phymatolithon calcareum*, with the remaining substrate composed largely of dead maerl and maerl gravel. The maerl supports an algal turf of chiefly reds (including filamentous (*Trailliella*-like), filiform and foliose species) and browns (especially *Asperococcus bullosus* and *Dictyota dichotoma*) as well as scattered *Saccharina latissima* and *Chorda filum* (**SS.SMp.Mrl.Pcal.R**).

Whereas the maerl records to the north of Plockton and off Badicaul are interspersed with records of **KSwSS** biotopes, thereby complicating the delineation of maerl beds, within Port Luinge the cluster of 12 contiguous maerl records facilitates the preliminary assessment of maerl bed extent here, estimated to be around 56 ha. The maerl records are distributed over a depth range of 0.2 - 11.6 m and reveal the presence of a rich maerl bed, with abundant (i.e. a coverage of at least 40% and locally 80%) live *Phymatolithon calcareum* at half the sites. The substrate of predominantly live and dead maerl supports an algal turf abundant locally and composed of filamentous red algae, particularly *Trailliella*, which bind the maerl, with other dominant algae including *Asperococcus bullosus*, *Chorda filum* and *Saccharina latissima*, which is locally abundant. Parts of the bed are clothed in a blanket of drift, bleached algae, possibly *Bonnemaisonia asparagoides* (**SS.SMp.Mrl.Pcal.R**).

Of the eight video runs carried out north of Applecross in the Inner Sound, three traversed *Limaria hians* bed habitat at depths of 16.0 - 22.5 m (Figure 21). The substrate largely took the form of byssal bound pebbles and cobbles covering 40 - 75% of the seabed, mosaicked with patches of coarse sand, together with maerl gravel and sparse live maerl at one site. The byssal turf was particularly well-developed at the shallowest station, DV107, where it represented a good example of the biotope **SS.SMx.IMx.Lim**. The byssal matrix supported a red algal turf, abundant at the shallower stations, hydroids such as *Halecium halecinum*, *Kirchenpaueria pinnata* and *Rhizocaulus verticillatus*, and solitary ascidians, particularly *Ascidiella aspersa* and *Corella parallelogramma*. The three *Limaria* bed records have been linked by an indicative distributional polygon with an area of 71 ha., although the density and extent of sampling stations in the area places a considerable degree of uncertainty over the true size of the bed, which could extend as a belt over a much greater length of the coastline.

Live maerl thalli were recorded at five of the eight Inner Sound video stations and exceeded 10% cover at two adjacent sites (Figure 21). At site DV102 at 16.1 - 17.4 m depth the maerl cover was around 20%, concentrated in the troughs of coarse sand waves (**SS.SMp.Mrl.Pcal.Nmix**). In slightly deeper waters (18.1 - 18.4 m) at station DV103 live maerl thalli (around 10% cover) together with coarse sand and maerl gravel were scattered over a substrate of fine sand supporting a sparse visible fauna and flora (**SS.SMp.Mrl.Pcal**). The paucity of maerl bed records precludes assessment of the extent of the habitat in the region but it appears possible that it may extend as a belt inshore of the *Limaria* bed. Moore and Atkinson (2012) recorded the presence of **SS.SMp.Mrl.Pcal.Nmix** at five stations along this coastline from north of Loch Torridon down to Applecross over a distance of 33 km, suggestive of the presence of such a belt. The recording of abundant *Ophiocomina nigra* on a mixed substrate of coarse sand with pebbles and gravel at site DV108 (**SS.SMx.CMx.OphMx**) suggests the presence of significant current action in the area.

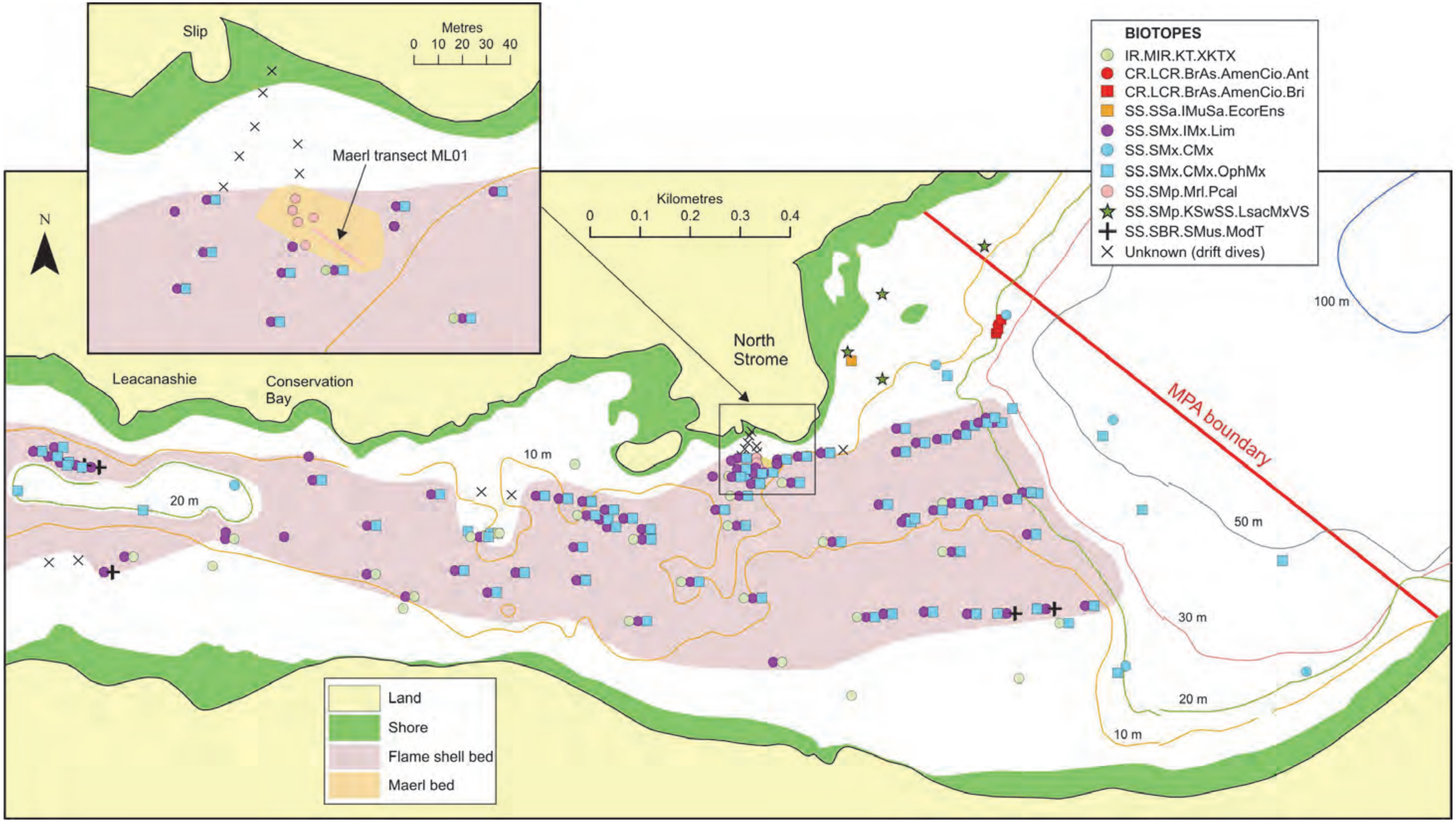

Figure 15. Distribution of biotopes in Strome Narrows.

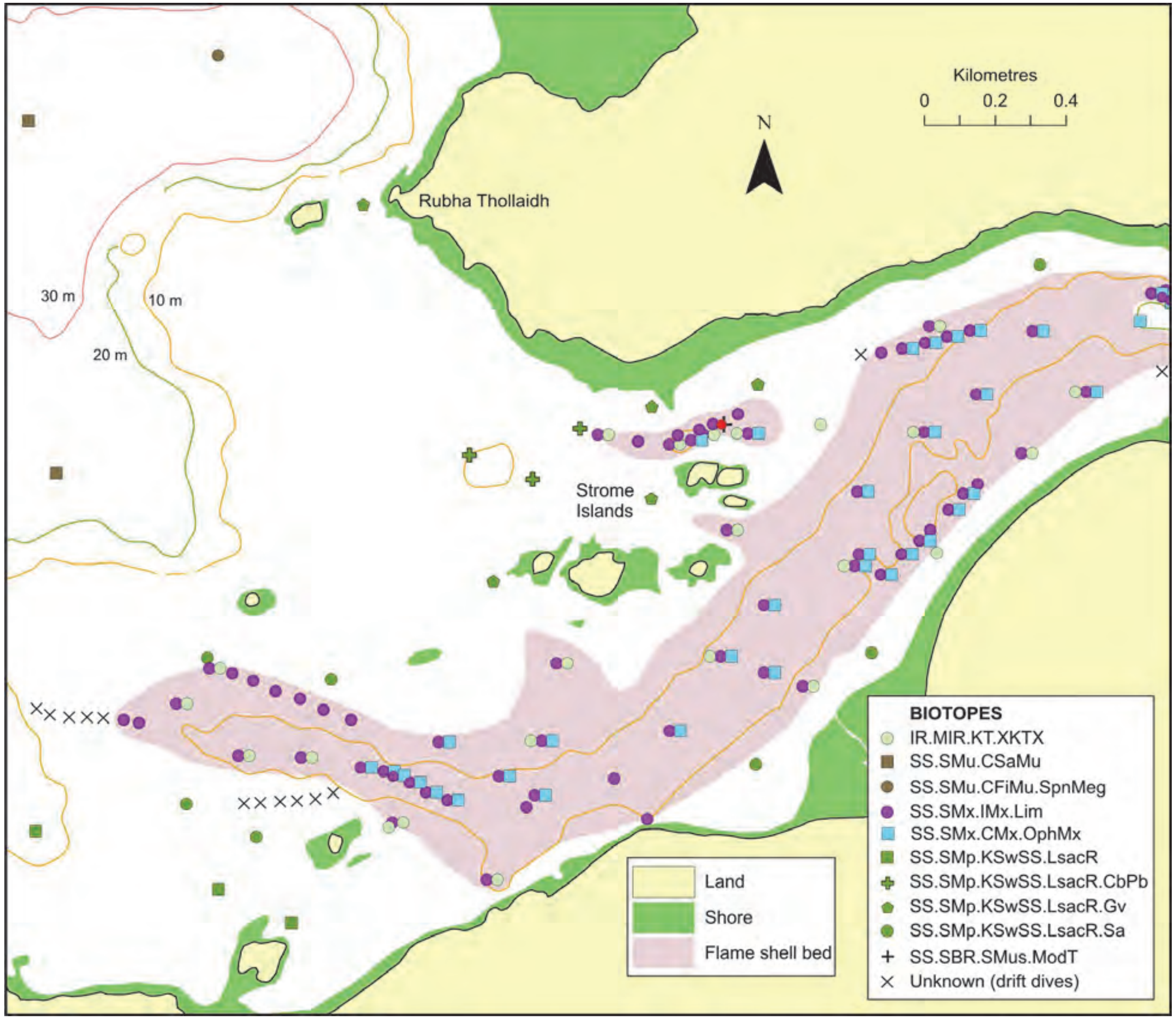

Figure 16. Distribution of biotopes in the western approaches to Strome Narrows.

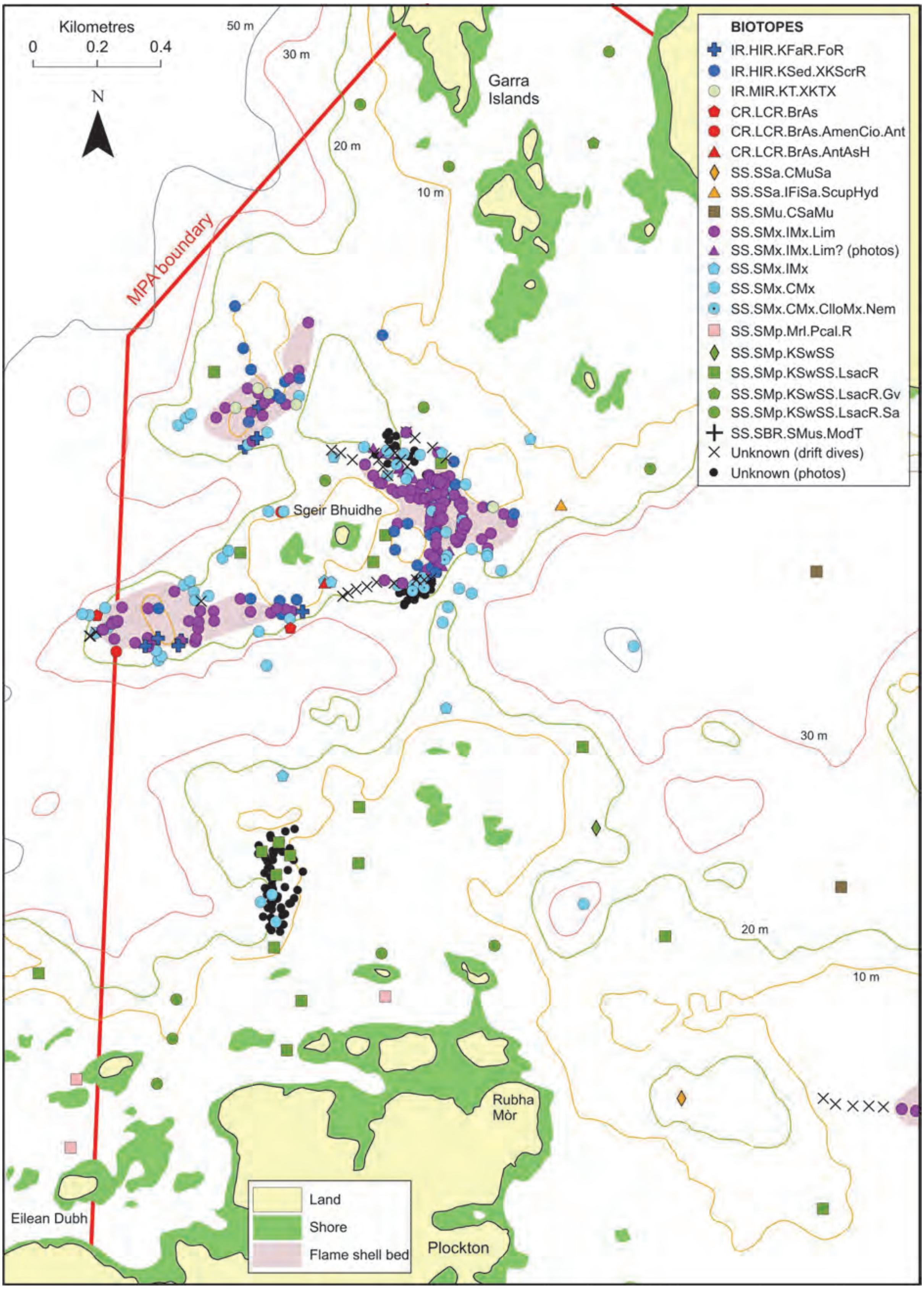

Figure 17. Distribution of biotopes around Sgeir Bhuidhe and in the central region of the surveyed area.

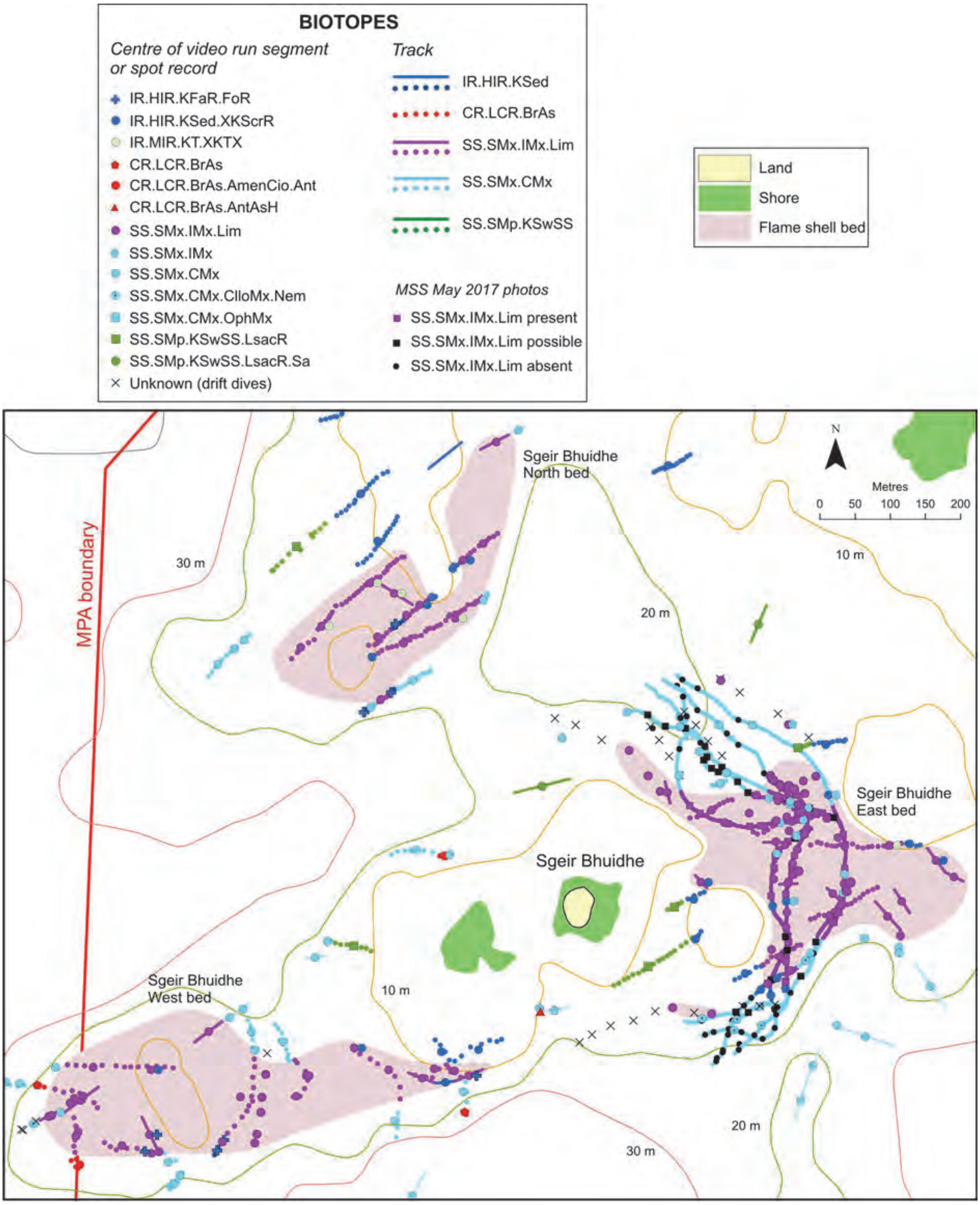

Figure 18. Detail of distribution of biotopes around Sgeir Bhuidhe. For video records the detailed biotope(s) present are represented midway along the track. The track is also coded for the principal biotope but at a higher biotope level, although subsidiary biotopes may also be present.

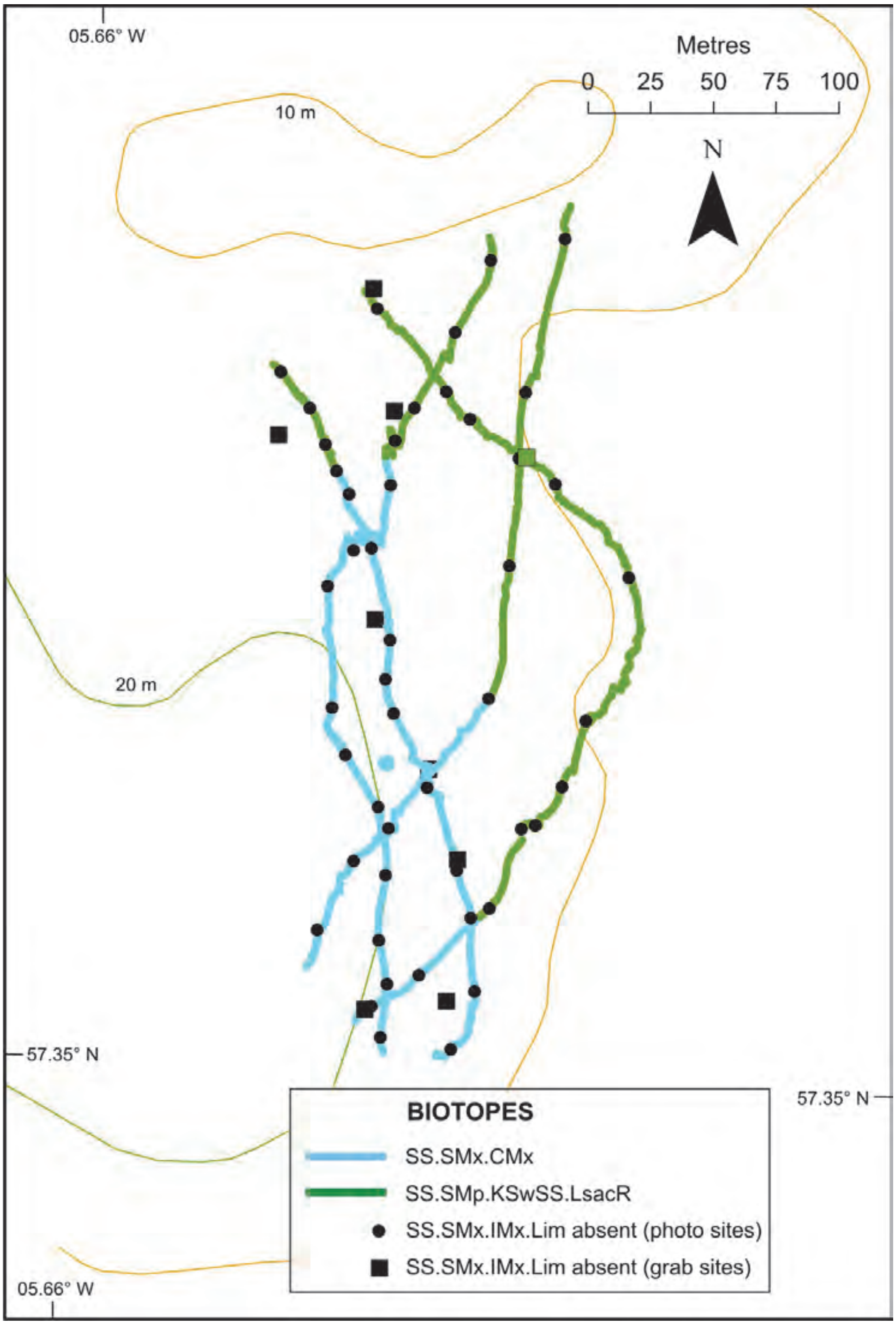

Figure 19. Distribution of biotopes along four video runs in the reference area 1 km south of Sgeir Bhuidhe during the May MSS video and grab survey.

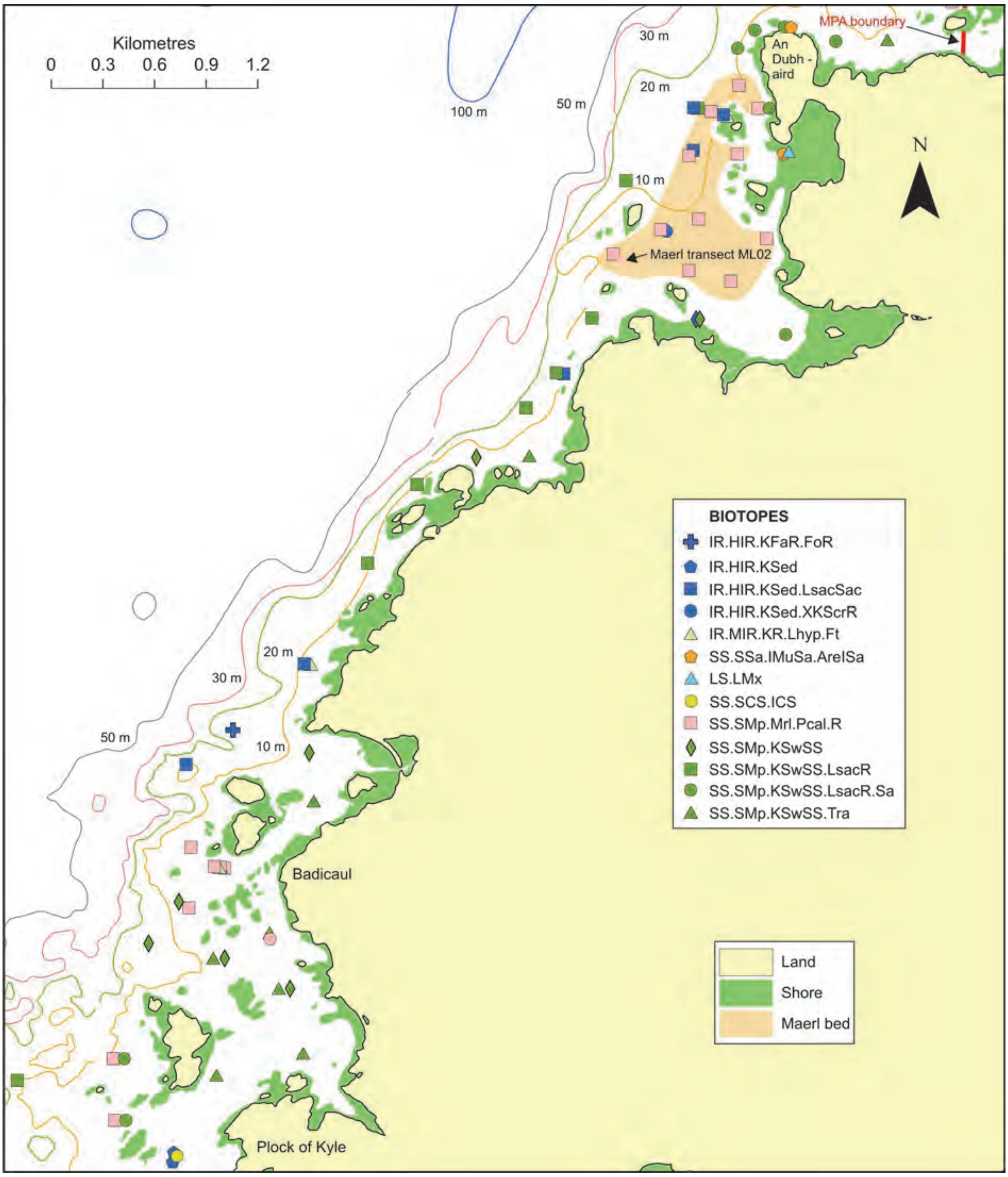

Figure 20. Distribution of biotopes in the south-western region of the surveyed area.

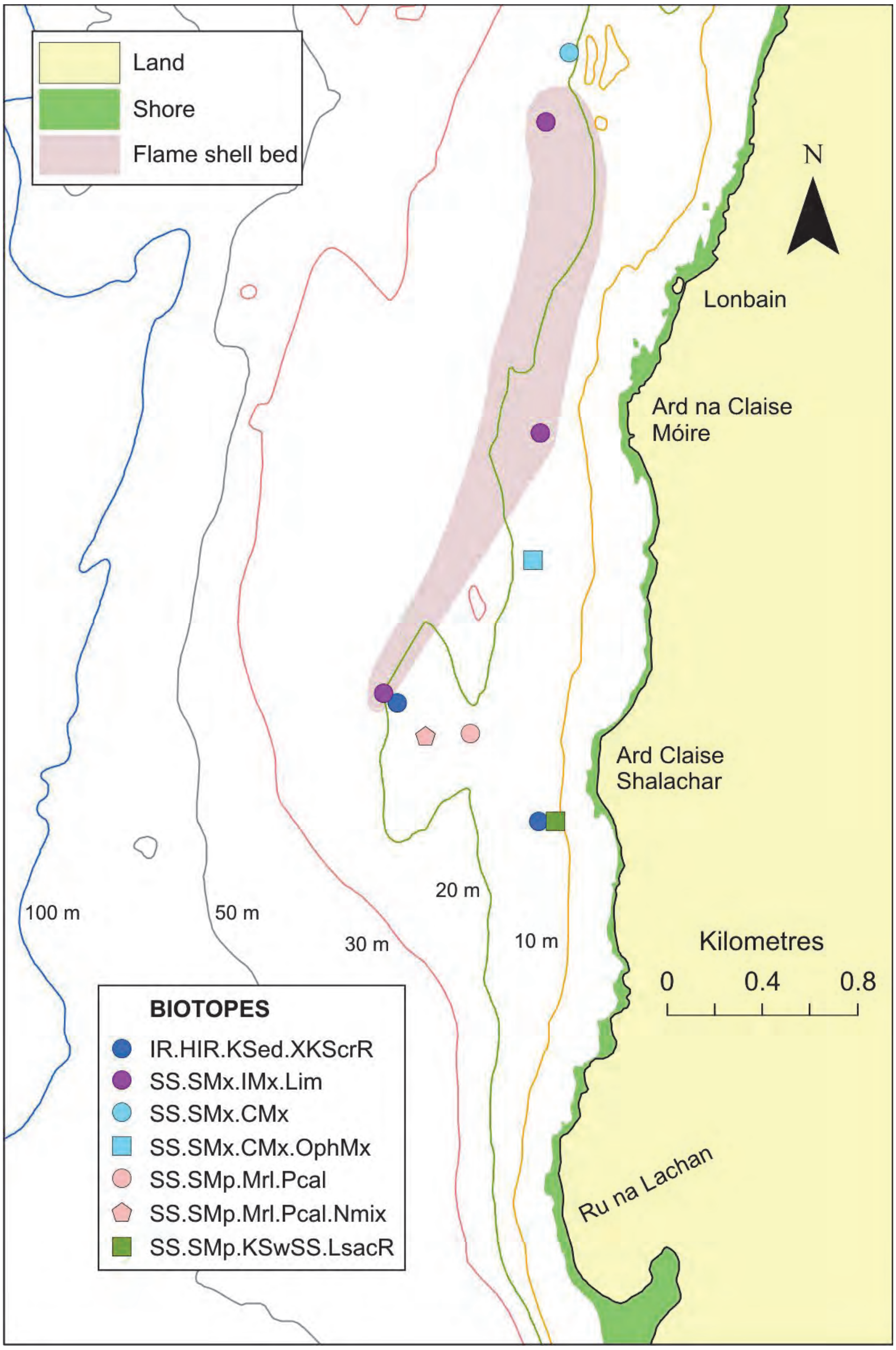

Figure 21. Distribution of biotopes in the Inner Sound.

3.2 Distribution of Priority Marine Features (Figures 22 - 25)

Annex 8 provides an illustrated inventory of all PMFs and the stations where they were recorded.

3.2.1 Key PMFs

Of the list of sensitive seabed habitats identified where further fisheries management may be required to facilitate their conservation (Marine Scotland, 2017), the following features ('key PMFs') were recorded during the 2017 survey work:

- Flame shell beds (currently the only protected feature of the MPA)
- Maerl beds
- Horse mussel beds
- Maerl or coarse shell gravel with burrowing sea cucumbers

Examples of all of these were observed within the Loch Carron MPA, with some also found in adjacent waters and in the Inner Sound.

In addition to the flame shell beds delineated in the Strome Narrows channel (Figure 22), the three beds around Sgeir Bhuidhe (Figure 23) and in the Inner Sound (Figure 25), *Limaria hians* was also recorded in other locations. A single juvenile (2.5 mm long) was recorded within a grab sample (LC-G10) taken from the reference area surveyed by MSS in May 2017 (Figure 8), although photographs taken of the grab contents and sievings revealed no indication of the presence of byssal turf. Juvenile specimens were recorded as occasional (locally frequent) during the MNCR phase 2 survey of the maerl bed at Port Luinge, west of Plockton (Figure 24), and small nests found within the quadrats used to determine maerl cover at the same site (Table 5.11, Annex 5); however, the core samples collected did not retain any individuals. Scattered flame shell nests were also recorded on maerl and at the base of kelp plants in shallow waters to the north of Plockton (D13). Flame shell beds may indeed be present in some of the apparently tide-swept channels in this stretch of the coastline, but there is currently no evidence to support this.

As described in detail in section 3.1, contiguous clusters of maerl biotope records signifying largely unbroken beds were recorded at two locations in Loch Carron (Strome Narrows (Figure 22) and Port Luinge (Figure 24)), with clusters of maerl records interspersed with other habitats at two other locations, between Eilean Dubh and Rubha Mòr, north of Plockton (Figure 23), and off Badicaul near the western mouth of Loch Alsh (Figure 24). Two contiguous records of maerl bed in the Inner Sound (Figure 21) are suggestive of the presence of a coastal belt of the habitat in this region (see section 3.1).

Horse mussels were recorded as common at three locations within Strome Narrows: at the south-eastern entrance, and south of Leacanashie on both sides of a deep basin at the western end of the Narrows (Figure 22). A single record of abundant mussels was located in the channel north of the Strome Islands (Figure 22). At none of these sites did *Modiolus modiolus* appear to represent a habitat former; rather, it tended to be scattered within other dense flame shell or kelp habitats and often amongst dense stones (see Annex 8).

A possible example of the PMF 'Maerl or coarse shell gravel with burrowing sea cucumbers' (**SS.SCS.CCS.Nmix**) was observed inshore of the maerl bed off the Strome North slip (Figure 22). It was one of the habitats observed at the May 2017 SNH dive site D15, where no tracking data was available, so the precise position of the record is unknown. A single individual of the characterising sea cucumber *Neopentadactyla mixta* was observed within an area of long, low megaripples of coarse sand with some shell gravel. Core samples taken in the same locality in 2009 (see Dive 2009_D05 in Table 2.4, Annex 2) were tentatively ascribed to **SS.SCS.ICS**, which is also a possible fit for the 2017 record.

3.2.2 Other PMFs

The following additional PMFs were recorded within the Loch Carron MPA:

- tide-swept algal communities
- kelp & seaweed communities on sublittoral sediment
- burrowed mud
- fan mussel

Tide-swept algal communities in the form of the biotope **IR.MIR.KT.XKTX** were widely recorded throughout the Strome Narrows channel (Figure 22) and to a lesser extent around Sgeir Bhuidhe (Figure 23), although in an atypical form. The habitat is characterised by tide-swept kelp on mixed substrata, but in Loch Carron the kelp are generally supported by the stone/byssal turf of the flame shell bed habitat.

Much of the shallow seabed (<20 m) in the outer region of the MPA, where tidal currents are weak, supports 'kelp and seaweed communities on sublittoral sediment' (i.e. **KSwSS** biotopes with the exception of **SS.SMp.KSwSS.Tra**) (Figure 23). The habitat is also widely present west of the MPA boundary down to Loch Alsh (Figure 24). This habitat is very widely recorded in coastal Scottish waters. The examples observed within the MPA and adjacent waters do not display characteristics, such as high diversity, that suggest they should be considered to merit a high conservation status

Burrowed mud was recorded at a single site (DV33) within the MPA at a depth of 41-43 m, north-west of Rubha Thollaidh (Figure 22). The mud was populated by fairly low numbers of *Nephrops norvegicus* and burrowing shrimps and supported frequent *Pennatula phosphorea* (**SS.SMu.CFiMu.SpnMeg**). Several other sites were located in deeper water but supported only a sparse or no megafaunal burrowing community. The habitat appears poorly developed within the MPA.

The possible presence of the fan mussel, *Atrina fragilis*, was recorded in an area of mixed silty, stony sand at a depth of around 50 m at video site DV31 south-east of Sgeir Bhuidhe (Figure 23). A single specimen of a large, gaping bivalve was observed possibly partially embedded in the sediment (see Annex 8). Visibility was poor but the shell appeared to be orientated at an atypically shallow angle, so the identification of *Atrina* is tentative.

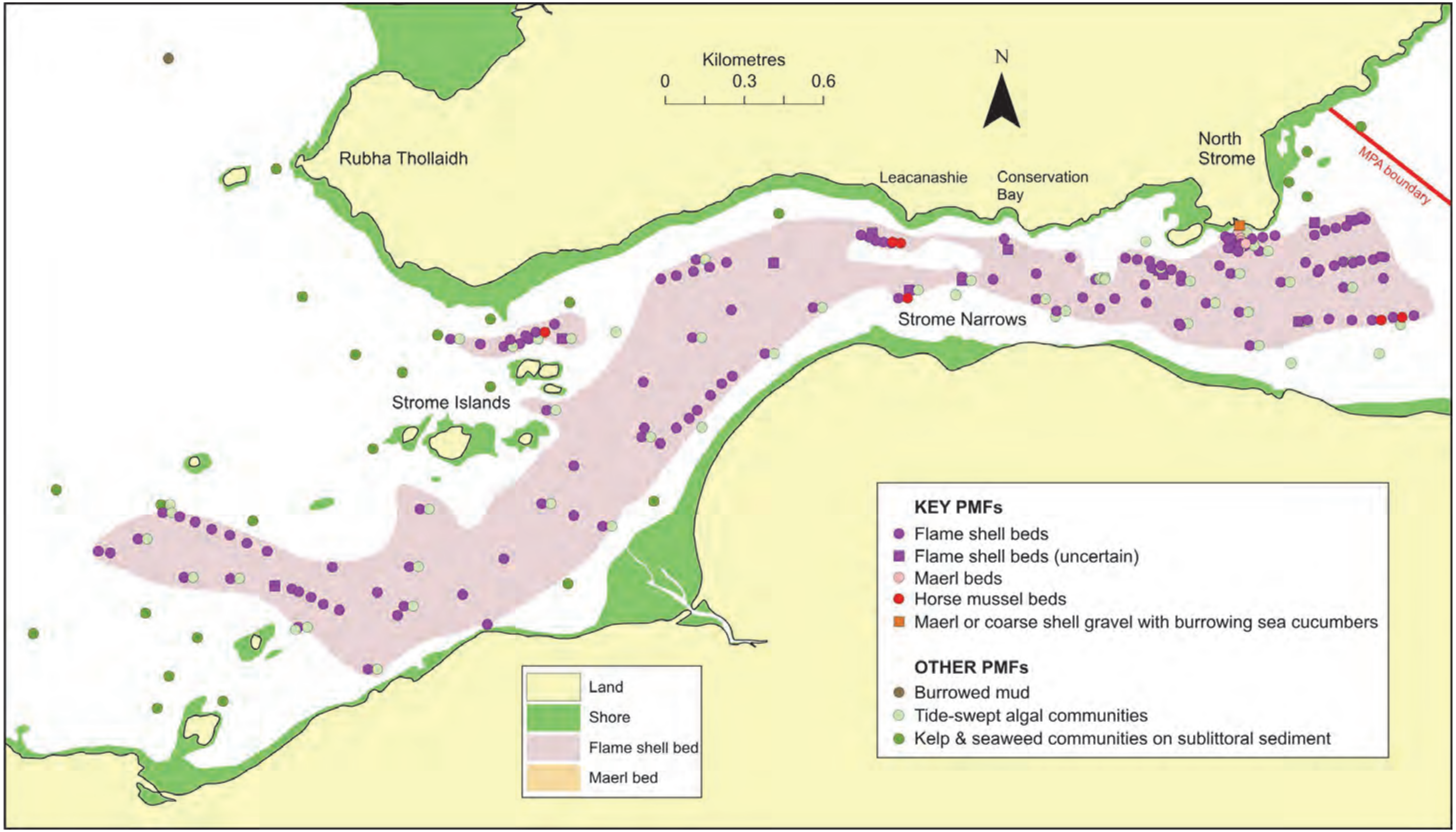

Figure 22. Distribution of Priority Marine Features (PMFs) in Strome Narrows and western approaches.

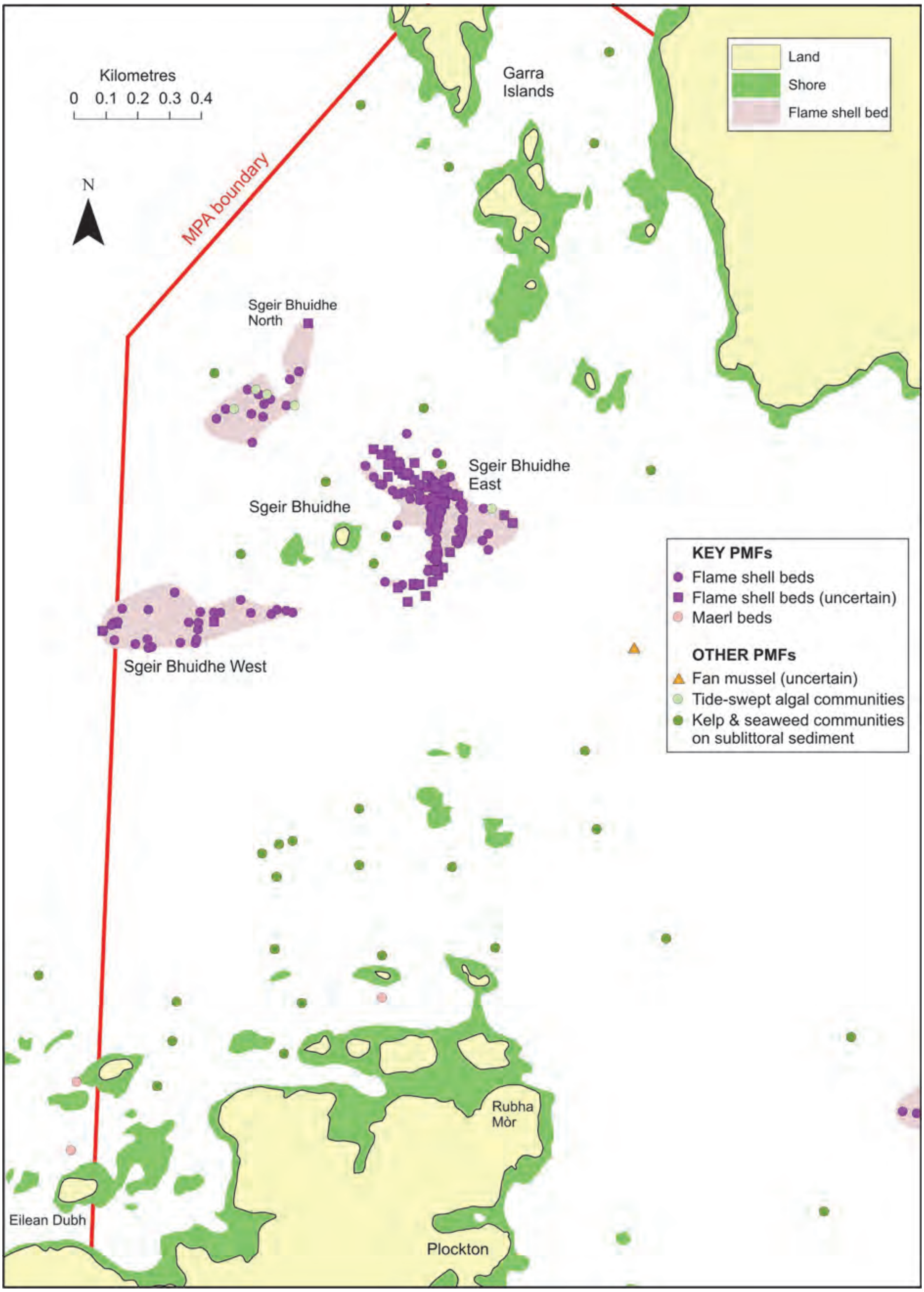

Figure 23. Distribution of Priority Marine Features (PMFs) around Sgeir Bhuidhe and in the central region of the surveyed area.

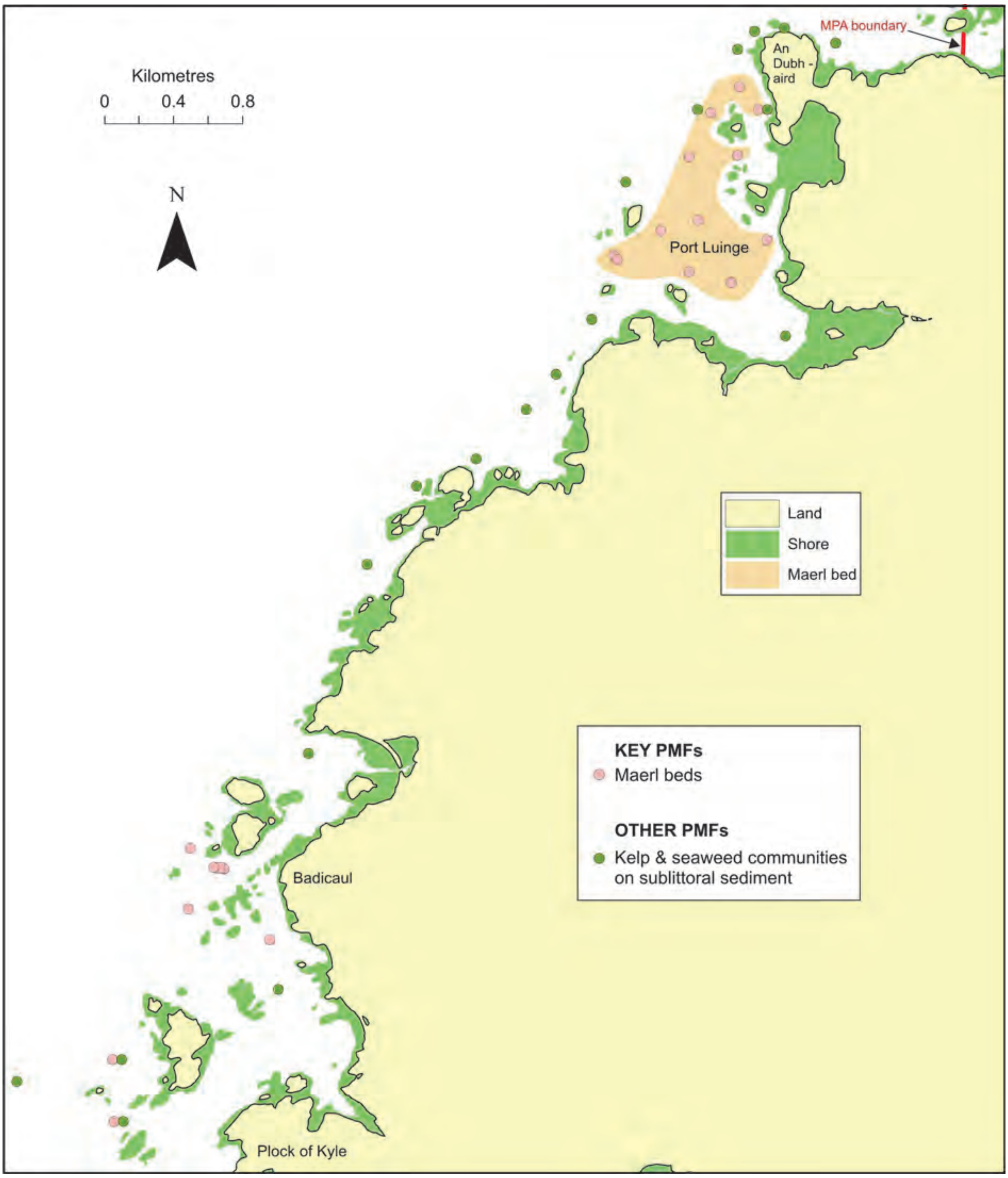

Figure 24. Distribution of Priority Marine Features (PMFs) in the south-western region of the surveyed area.

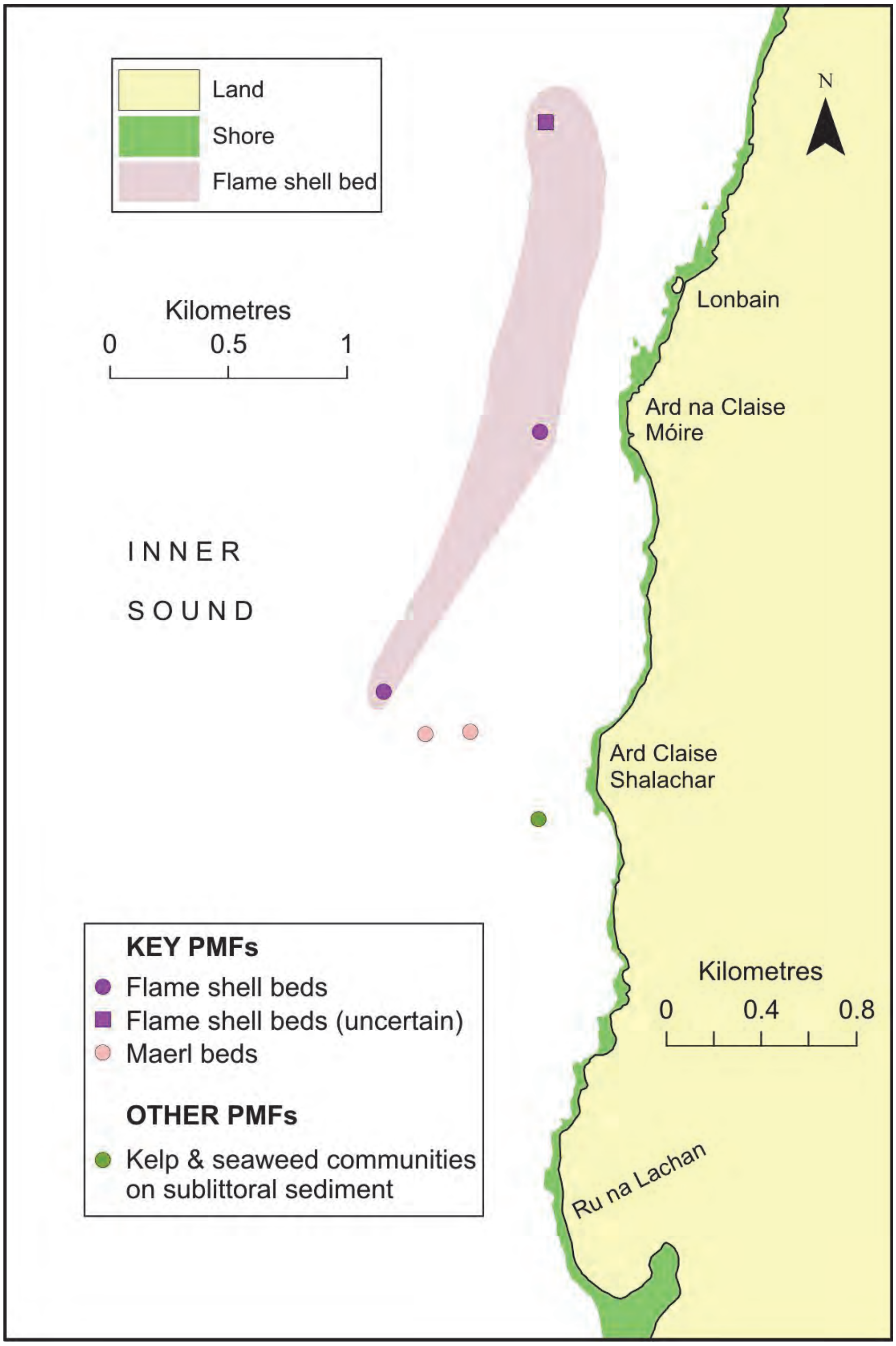

Figure 25. Distribution of Priority Marine Features (PMFs) in the Inner Sound.

3.3 Nature and condition of unimpacted key PMFs

3.3.1 Flame shell beds

This section contains the results of the MNCR phase 2 surveys carried out at flame shell bed sites on the Strome Narrows bed (site FS01) (Figure 9), and on the Sgeir Bhuidhe East bed (site FS02) (Figure 12).

3.3.1.1 Epibiota

At site FS01 the byssal turf formed by abundant *Limaria hians* covered around 90% of the seabed binding together pebbles, cobbles, shells and kelp material and leaving small patches of poorly sorted coarse sand. The byssal turf supported a park of *Laminaria hyperborea*, scattered *Alcyonium digitatum*, and a red algal turf dominated by *Plocamium cartilagineum* and *Dasysiphonia japonica* (both common) and *Bonnemaisonia hamifera* (frequent) (Figure 26). A patchy hydroid turf was dominated by *Halecium halecinum* (common), with occasional *Nemertesia ramosa*. The motile epifaunal community was strongly dominated by abundant *Ophiocomina nigra*, with other major elements (at least frequent) including *Ophiothrix fragilis*, *Echinus esculentus*, *Crossaster papposus* and *Buccinum undatum*. A total of 67 epibiotic taxa was recorded. The surveyed area is considered to represent not only a *Limaria* bed (**SS.SMx.IMx.Lim**), but also an ophiuroid bed (**SS.SMx.CMx.OphMx**) and tide-swept kelp park on mixed substrate (**IR.MIR.KT.XKTX**).

As at the previous site, at FS02 the byssal turf formed by abundant *Limaria hians* and incorporating gravel, pebbles, cobbles and shells covered around 90% of the seabed leaving small patches of silty coarse sand. The byssal turf supported scattered small plants of *Saccharina latissima* and a red algal turf dominated by frequent *Bonnemaisonia hamifera* and *Plocamium cartilagineum*, with sparse *Dasysiphonia japonica* (Figure 27). The hydroid fauna was less developed than at site FS01 but included frequent *Nemertesia ramosa* and sparse *N. antennina* and *Halecium beanii*, while a solitary ascidian fauna was dominated by frequent *Ascidiella aspersa* and occasional *Corella parallelogramma*. Dominant members of the motile epifauna (all at least frequent) included *Echinus esculentus*, *Asterias rubens*, *Antedon* spp., *Aequipecten opercularis*, *Buccinum undatum* and *Munida rugosa*. A total of 61 epibiotic taxa was recorded. The surveyed habitat has been referred to the biotope **SS.SMx.IMx.Lim**.

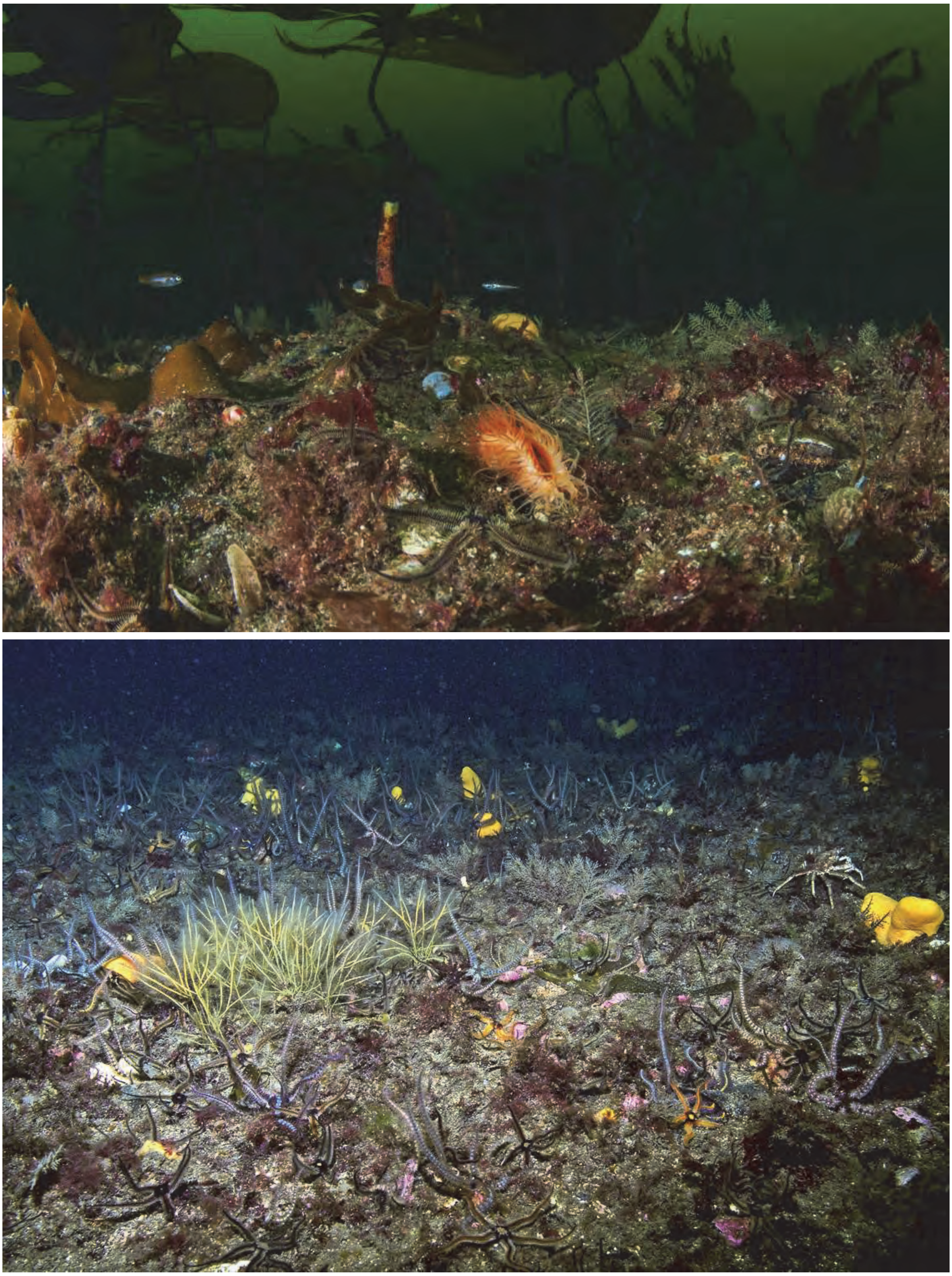

Figure 26. Appearance of the flame shell bed at MNCR survey site FS01.

Figure 27. Appearance of the flame shell bed at MNCR survey site FS02.

3.3.1.2 Infauna

Species abundance data for the four replicate core samples taken at the *Limaria* bed sites are presented in Table 5.3 (Annex 5) and total abundance and diversity measures in Table 5.5 (Annex 5). The latter are summarised in Table 5. Details of the sediment particle size analysis are provided in Tables 5.6 - 5.8 (Annex 5).

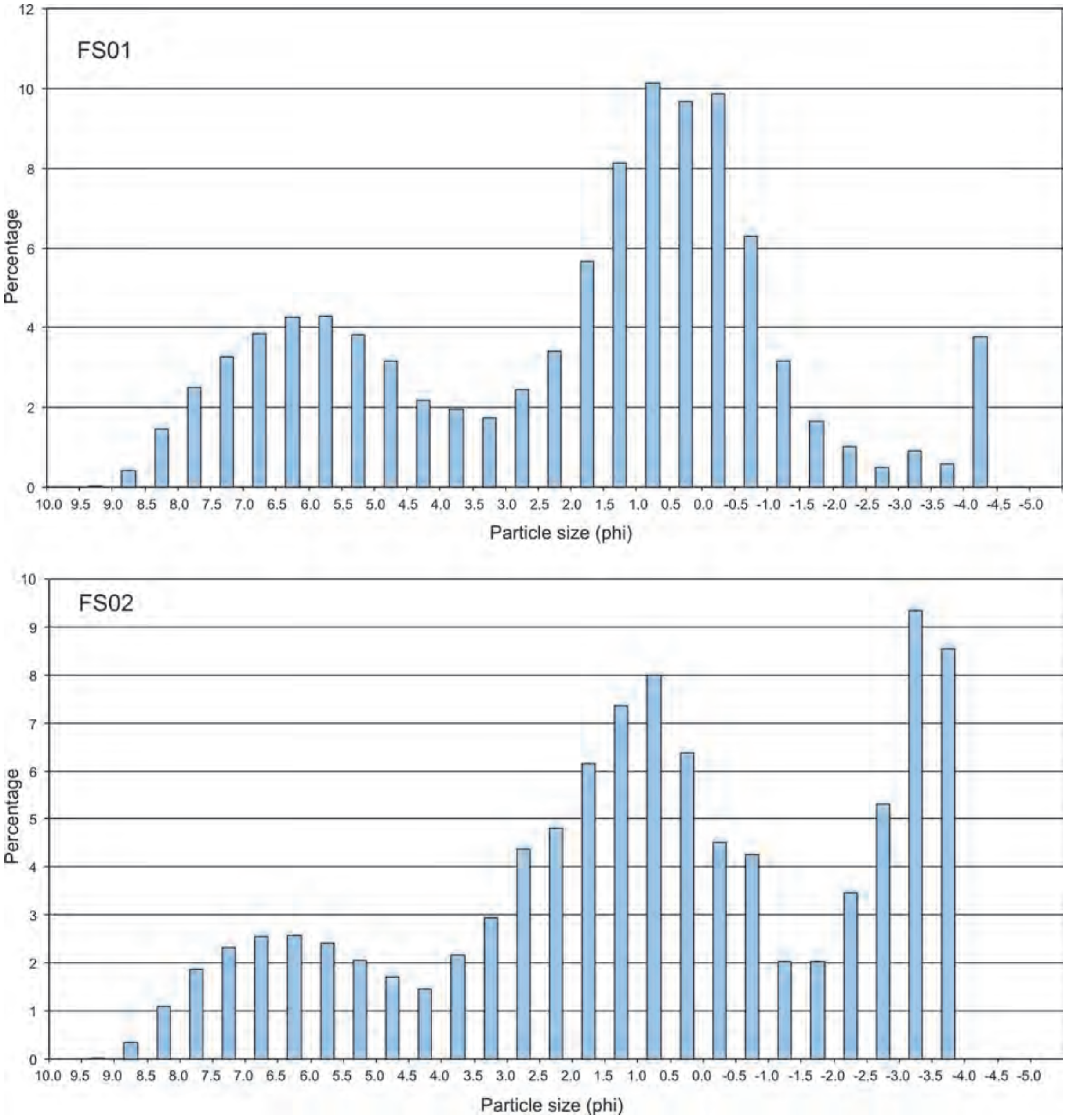

Figure 28. Particle size analysis of sediment from the two flame shell bed MNCR survey sites.

Particle size analysis of the sediment of turfed areas reveals a substrate of gravelly, muddy, coarse sand at site FS01 and a similar but more heterogeneous sediment of muddy sand and gravel at FS02 (Figure 28, Table 5.7 in Annex 5).

The biota recorded in the core samples consisted very largely of faunal taxa with a small number of algae (Table 5.3, Annex 5). Non-metric multidimensional scaling analysis of logged species abundance data (Figure 29) indicated a loose clustering of replicates from the same site, with some separation of the site clusters. ANOSIM analysis confirmed the presence of a significant difference between the composition of the community at the two sites (p = 0.029), although several taxa were amongst the dominants at both sites (Table 4). For example, five taxa were included amongst the top ten most abundant taxa at both sites, viz. *Jasmineira elegans*, Nematoda spp., *Modiolula phaseolina*, *Pholoe inornata* and *Polycirrus* sp. Use of the SIMPER routine within PRIMER reveals that the dominant taxa listed in Table 4 includes the top eleven taxa (emboldened in Table 4) contributing to the difference in community composition between the sites, making up 59% of the difference.

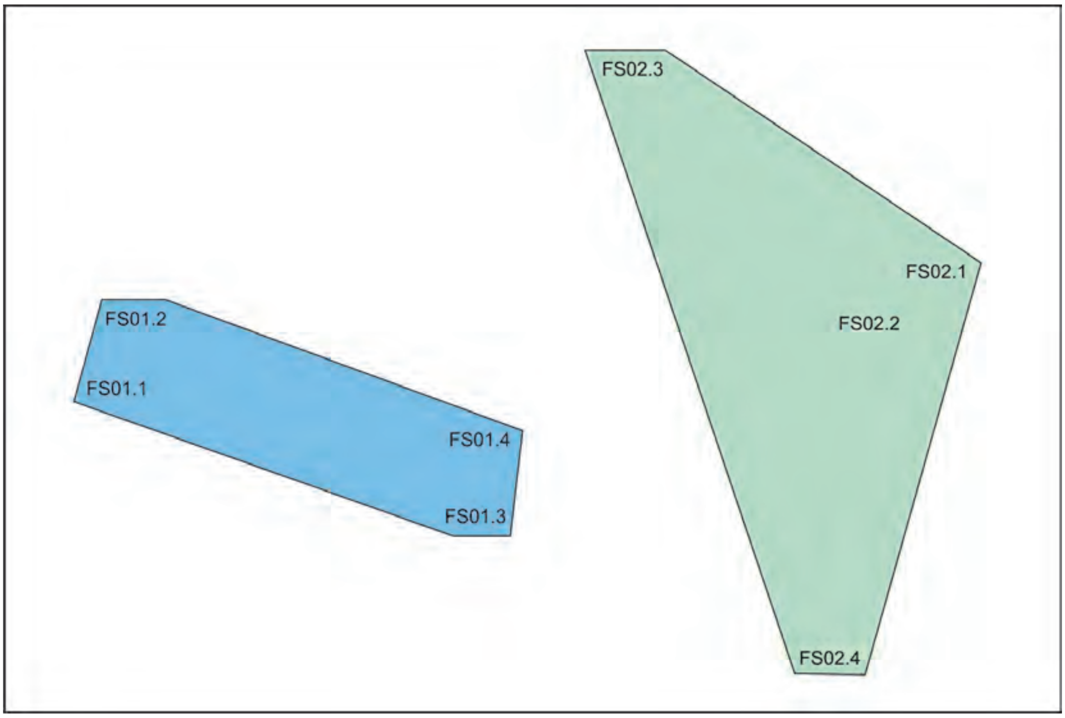

Figure 29. Non-metric multidimensional scaling ordination of faunal species abundance data from four replicate core samples at two Limaria bed transect sites. Replicates are grouped by site. Stress = 0.02.

Table 4. Dominant taxa in flame shell bed infaunal samples showing mean abundance (N) in four replicate 10.3 cm diameter core samples from transects FS01 and FS02. Emboldened taxa represent the top taxa contributing to the difference in faunal composition between the sites.

FS01		**FS02**	
Taxa	N	Taxa	N
Jasmineira elegans	58.0	**Nematoda spp.**	16.5
Nematoda spp.	57.5	***Jasmineira elegans***	16.0
Modiolula phaseolina	20.0	***Golfingia (Golfingia) vulgaris***	9.5
Pholoe inornata	18.0	***Modiolula phaseolina***	6.0
Golfingia (Golfingia) elongata	8.5	***Balanus balanus***	5.5
***Notomastus* sp.**	7.0	***Polycirrus* sp.**	4.5
***Polycirrus* sp.**	6.8	***Pholoe inornata***	4.3
Hiatella arctica	5.3	*Gouldia minima*	4.3
Verruca stroemia	4.8	*Limaria hians*	3.5
***Grania* spp.**	4.5	*Mediomastus fragilis*	3.3

Infaunal taxon richness is similar at both *Limaria* bed transect sites (Table 5), although a *t* test comparison shows mean richness to be significantly higher at FS01 ($p = 0.027$). By contrast mean Shannon-Wiener diversity is higher at FS02 ($p = 0.028$), a consequence of lower evenness at FS01 (see Table 5.5, Annex 5) resulting from high densities of a few species such as *Jasmineira elegans*, *Modiolula phaseolina* and Nematoda spp. Mean faunal abundance at FS01 is double that at FS02 (t test on logged data, $p = 0.001$).

Table 5. Comparison of mean taxon richness (with and without algal taxa), Shannon-Wiener diversity (log_2) and total abundance (with standard error) in four replicate 10.3 cm diameter core samples derived from surveys along the flame shell and maerl bed transects.

Transect	No. all taxa	No. faunal taxa	Total abundance	Diversity (Shannon-Wiener)
FS01	49.00 ± 1.08	47.75 ± 1.31	259.25 ± 19.20	4.098 ± 0.110
FS02	42.75 ± 1.49	42.00 ± 1.47	130.75 ± 4.61	4.678 ± 0.155
ML01	34.00 ± 6.92	32.00 ± 6.88	88.5 ± 24.40	4.208 ± 0.270
ML02	31.00 ± 3.54	28.25 ± 3.35	72.25 ± 10.82	4.103 ± 0.088

3.3.1.3 *Limaria hians* density and population structure

The four cores collected at each of the sites FS01 and FS02 on 03 August 2017 included respectively 11 and 14 individuals of *Limaria hians* (Table 5.3, Annex 5). This equates to mean densities of respectively 330 and 420 individuals/m^2. The four grab samples (LC-G1 - LC-G4) collected more widely on the Sgeir Bhuidhe East bed on 04 May 2017 contained a total of 64 individuals, equivalent to a mean density of 160 individuals/m^2. A lower figure might be expected from grab sampling a stony substrate.

Length frequency analysis of the grab sample individuals revealed a range in length of 3 - 23mm, with the presence of a strong mode at 5-10 mm (Figure 30, Table 3.2 in Annex 3).

The nearest and probably most comparable *Limaria* population whose structure and growth has been studied is that of Loch Creran (Trigg, 2009). Trigg (2009) used a variety of techniques to examine growth including the ageing of individual shells, which yielded the following estimates of length at age: 1 year - 11.7 mm, 2 years - 18.4 mm, 3 years - 23.1

mm, 4 years - 26.4 mm. Spawning occurred in May and June with peak settlement in July and August. Thus, the 5-10 mm mode in Loch Carron probably represents successful recruitment from the previous year.

Length frequency analysis of the core sample individuals revealed a range in length of 3 - 28 mm (Figure 30, Table 5.9 in Annex 5). The sample size is considered to be too small to draw any reliable conclusions on size or age structure. There is some indication of recruitment from earlier in the year, although numbers are low. Sampling may have been too early to catch the bulk of recruitment from the current year. Minchin (1995) recorded settlement to normally occur in August to September in Mulroy Bay, Ireland.

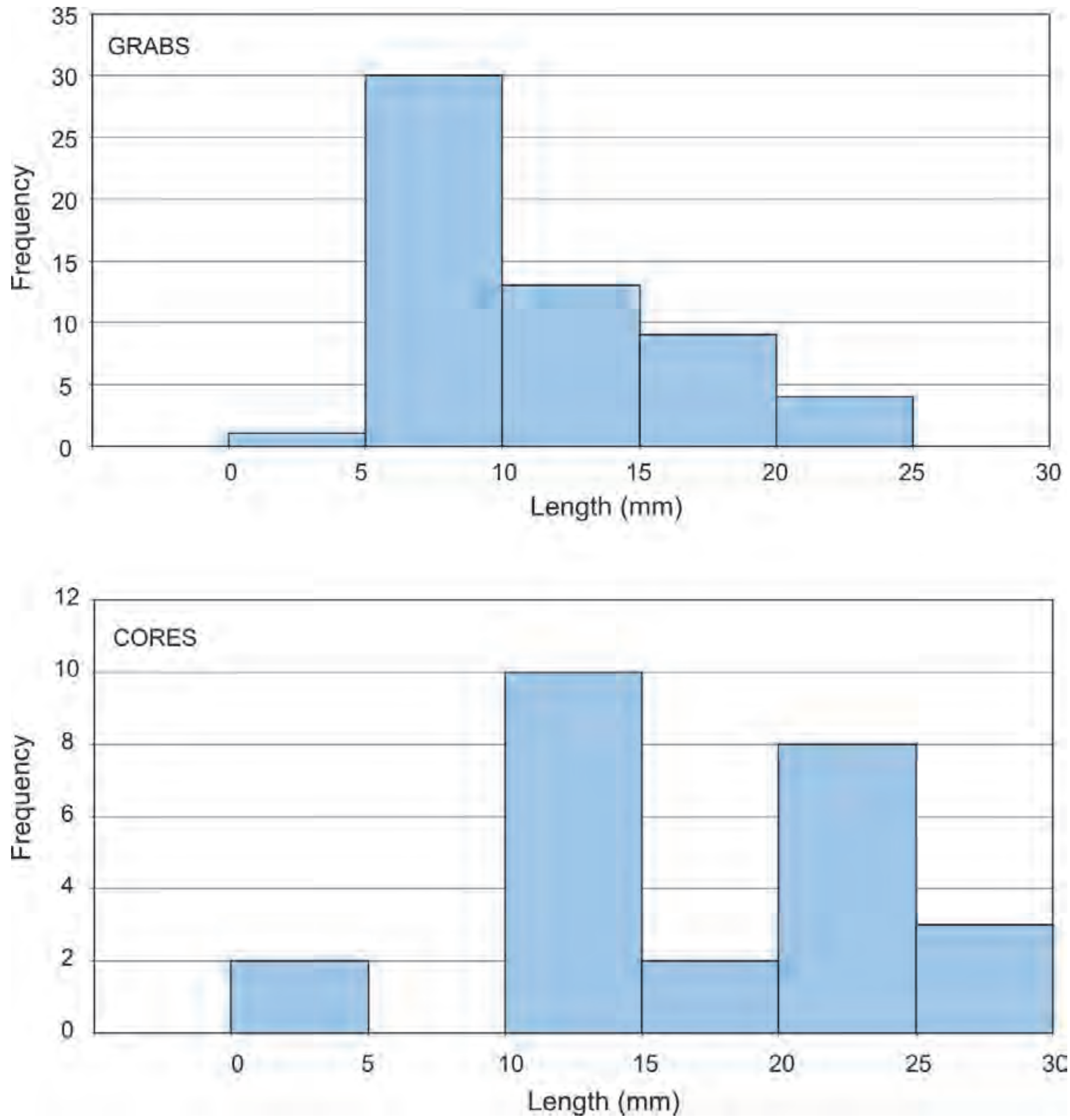

Figure 30. Size frequency analysis of Limaria hians from grab samples from the Sgeir Bhuidhe East flame shell bed (04 May 2017) and from core samples at stations FS01 and FS02 (3 August 2017).

3.3.2 Maerl beds

This section contains the results of the MNCR phase 2 surveys at the two maerl bed sites, ML01 and ML02.

3.3.2.1 Epibiota

The ML01 transect was located within the Strome Narrows maerl bed, 75 m south-east of North Strome jetty at a depth of 7.8 - 8.9 m (Figure 9), and traversed a substrate of maerl formed into current-derived megaripples of approximately 0.3 m in height and 2.0 m in length (Figure 31). Live *Phymatolithon calcareum* covered around 40% of the seabed, with dead and comminuted maerl thalli making up most of the remaining substrate, apart from scattered pebbles (5% but 20% locally in megaripple troughs), cobbles and shells. Apart from the presence of frequent *Laminaria hyperborea*, *Saccharina latissima* and *Chorda filum*, the visual impression was of a fairly impoverished epibiotic community biomass with very sparse erect red algae (including *Dasysiphonia japonica*) and sessile epifauna. Dominant members of the motile fauna included *Ophiocomina nigra* (common), *Asterias rubens*, and *Aequipecten opercularis*, while conspicuous emergent infaunal taxa included frequent *Neopentadactyla mixta* and *Arcopagia crassa*. A total of 80 epibiotic and emergent infaunal taxa was recorded. The surveyed habitat is close to the biotope **SS.SMp.Mrl.Pcal.Nmix** but has been referred to **SS.SMp.Mrl.Pcal** due to the atypical density of kelp and shallow depth.

Estimates of the coverage of live and dead maerl in 20 randomly located quadrats within the transect belt are provided in Table 5.10 (Annex 5). Mean coverage of dead maerl was 46% and live maerl 42%, the latter being very close to the figure of 40% obtained for the transect belt as a whole by the MNCR epibiota surveyor.

The ML02 transect was located in the south-western region of the Port Luinge maerl bed at a depth of 7.2 - 7.4 m (Figure 13). Maerl covered around 90% of the seabed on a substrate of muddy sand, with around 50% coverage of live *Phymatolithon calcareum* (Figure 32). The maerl thalli were bound together by superabundant *Bonnemaisonia hamifera* (*Trailliella* stage) and covered by dense patches of *Saccharina latissima*. Other algal dominants included *Chorda filum* (common), as well as *Plocamium cartilagineum* and *Asperococcus bullosus* (both frequent). *Dasysiphonia japonica* was present at low density. Epifaunal dominants included *Munida rugosa*, *Liocarcinus depurator* and *Ophiura albida* (all frequent), with large numbers of *Steromphala cineraria* and *Aequipecten opercularis* on the fronds of *S. latissima*. The bound maerl also contained *Limaria hians* in places, although apparently largely juveniles and overall at low density (locally frequent). A total of 70 epibiotic taxa was recorded. The surveyed habitat is fairly typical of the biotope **SS.SMp.Mrl.Pcal.R**.

Estimates of the coverage of live and dead maerl in 20 randomly located quadrats within the transect belt are provided in Table 5.11 (Annex 5). Mean coverage of dead maerl was 46% and live maerl 51%, the latter being very close to the figure of 50% obtained for the transect belt as a whole by the MNCR epibiota surveyor.

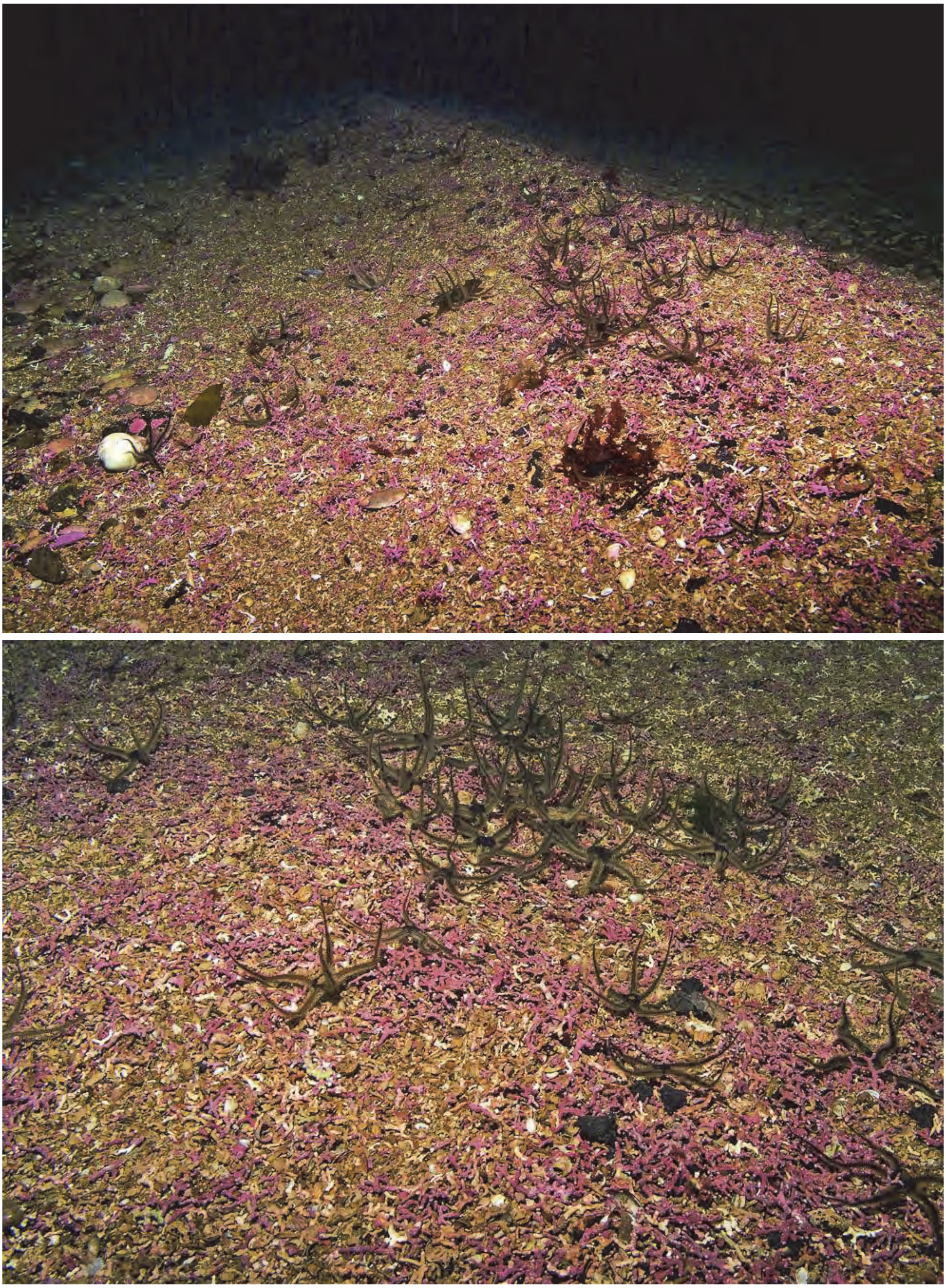

Figure 31. Appearance of the maerl bed at MNCR survey site ML01.

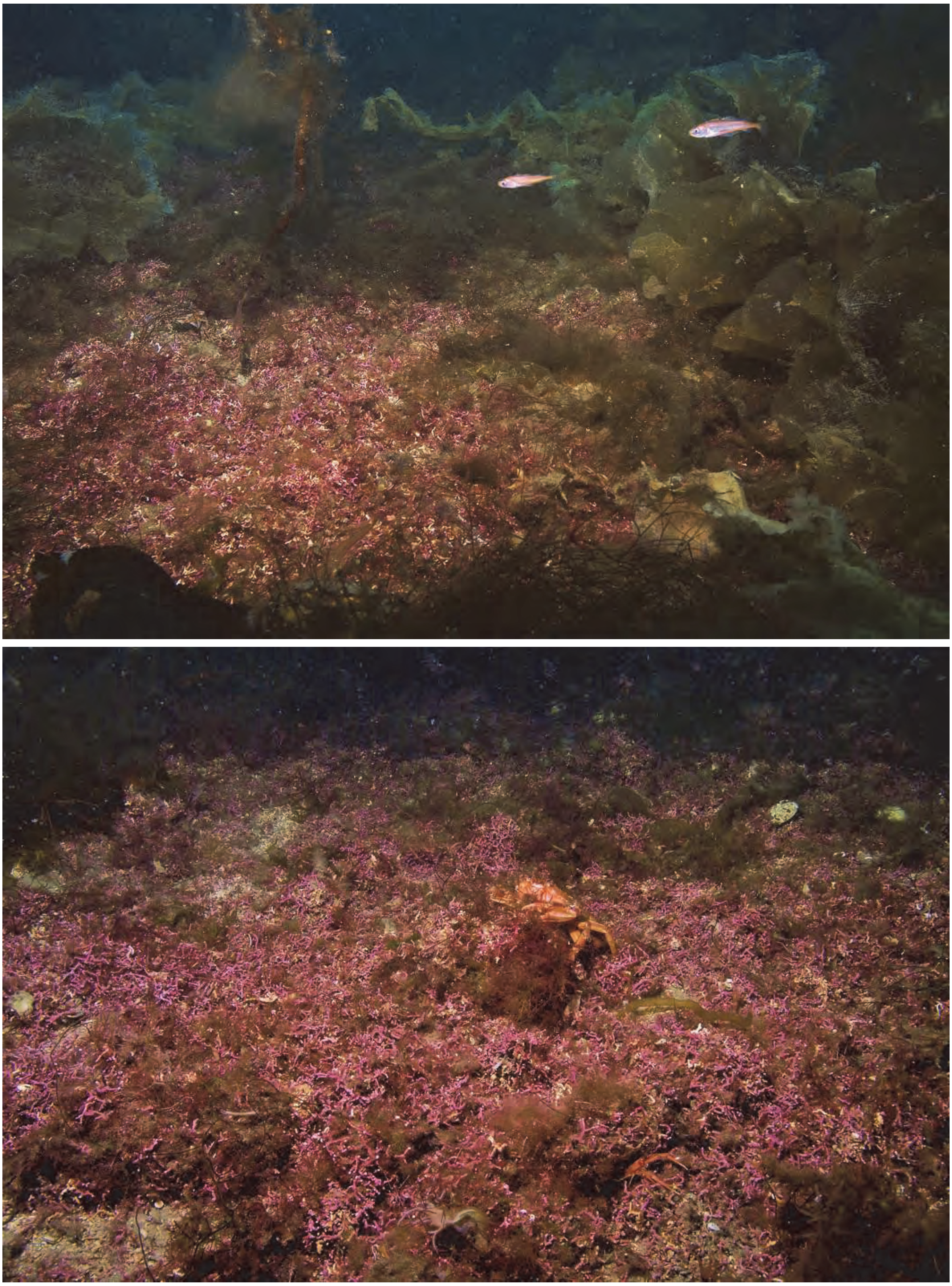

Figure 32. Appearance of the maerl bed at MNCR survey site ML02.

3.3.2.2 Infauna

Species abundance data for the four replicate core samples taken at the maerl bed sites are presented in Table 5.4 (Annex 5) and total abundance and diversity measures in Table 5.5 (Annex 5). The latter are summarised in Table 5. Details of the sediment particle size analysis are provided in Tables 5.6 - 5.8 (Annex 5).

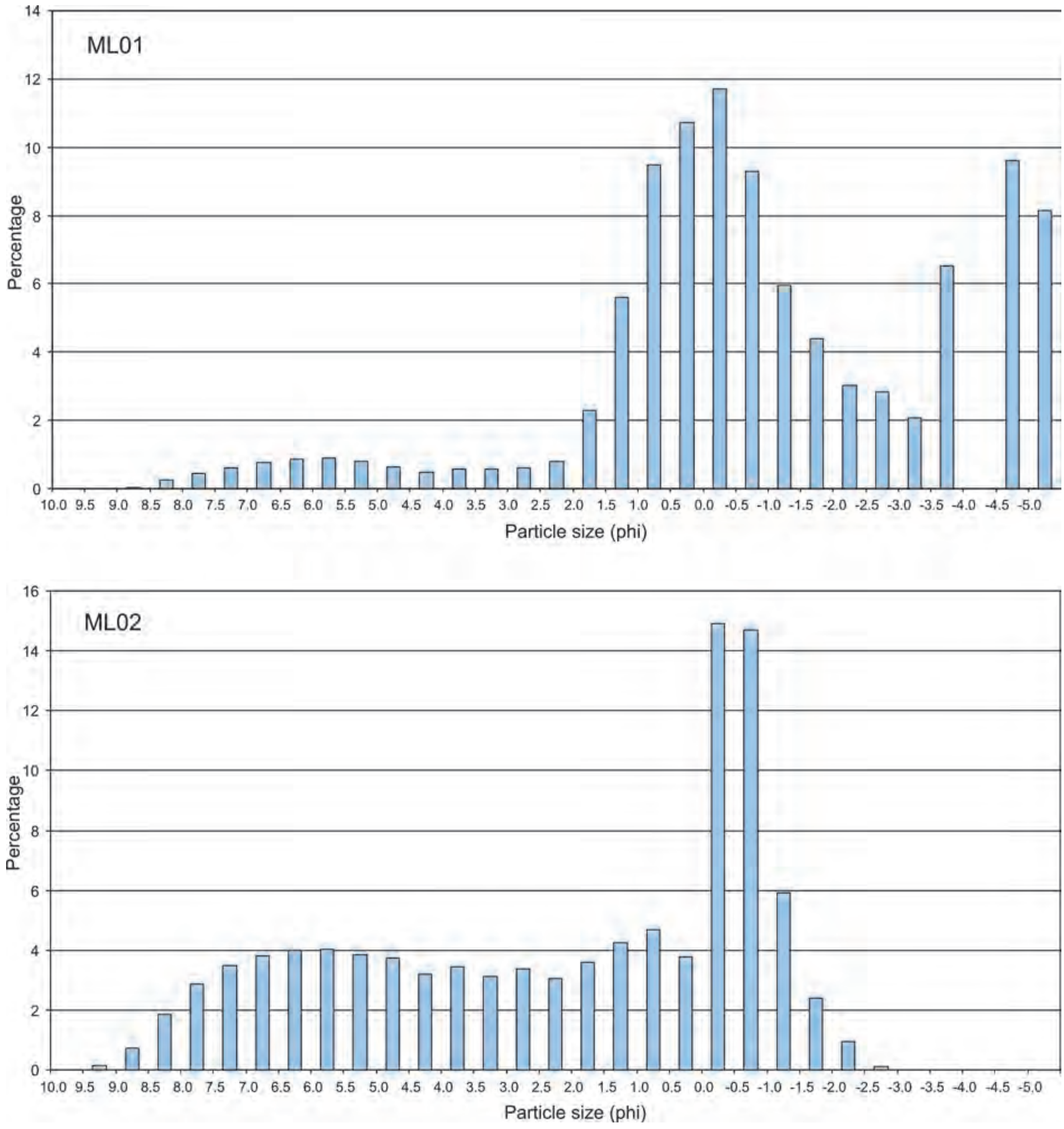

Figure 33. Particle size analysis of sediment from the two maerl bed MNCR survey sites.

Particle size analysis of the core sample collected at site ML01 indicated a sediment of slightly muddy coarse sand and gravel (Figure 33), whereas the sediment at ML02 consisted of poorly sorted gravelly muddy sand (Figure 33).

The biota recorded in the core samples consisted very largely of faunal taxa with a small number of algae (Table 5.4, Annex 5). Non-metric multidimensional scaling analysis of logged species abundance data (Figure 34) showed separate clusters of replicate core samples for the two sites, confirmed by ANOSIM analysis, which revealed a significant difference between the composition of the community at the two sites (p = 0.029).

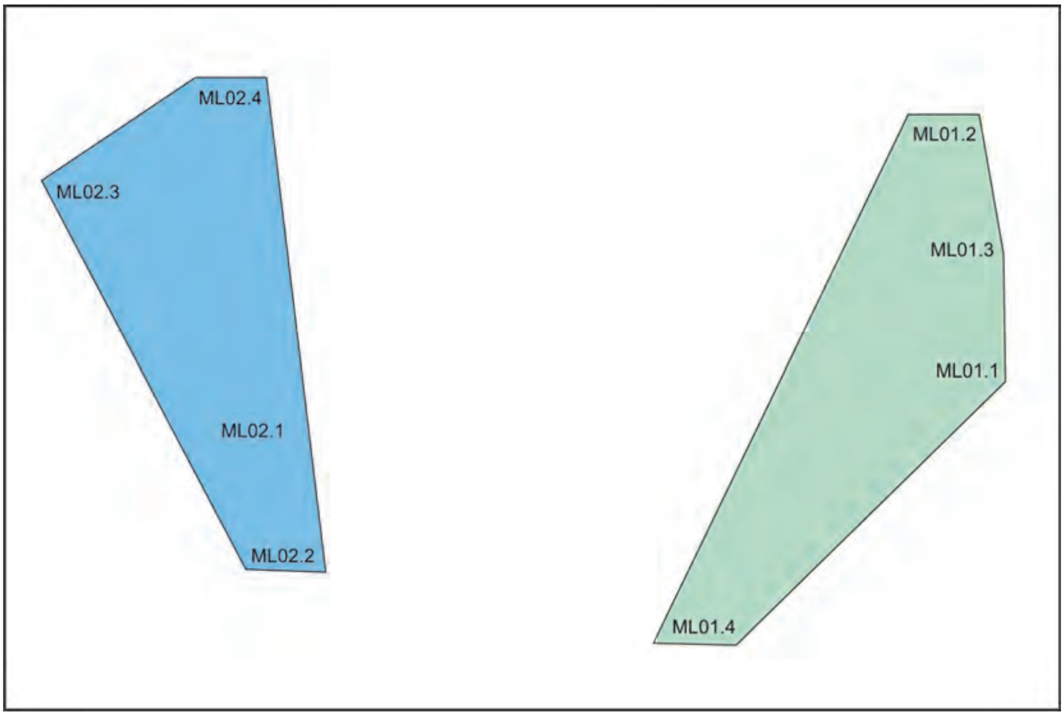

Figure 34. Non-metric multidimensional scaling ordination of faunal species abundance data from four replicate core samples at two maerl bed transect sites. Replicates are grouped by site. Stress = 0.04.

Table 6. Dominant taxa in maerl bed infaunal samples showing mean abundance (N) in four replicate 10.3 cm diameter core samples from transects ML01 and ML02. Emboldened taxa represent the top taxa contributing to the difference in faunal composition between the sites.

ML01		**ML02**	
Taxa	N	Taxa	N
Modiolula phaseolina	11.8	***Kurtiella bidentata***	15.5
Nematoda spp.	10.5	***Gouldia minima***	7.3
Gari tellinella	8.5	***Rissoa parva***	4.8
Limatula gwyni	6.8	***Onoba semicostata***	3.8
Pisione remota	3.8	***Modiolula phaseolina***	3.0
Amphipholis squamata	3.5	***Lekanesphaera rugicauda***	2.8
Golfingia (Golfingia) elongata	3.3	***Lysianassa plumosa***	2.5
Spisula elliptica	2.5	***Cymodoce truncata***	2.3
Leptochiton asellus	2.3	***Alvania beanii***	2.3
Platyhelminthes	1.8	***Polycirrus* sp.**	1.8

There was a marked difference in the dominant fauna at the two sites (Table 6) reflecting the contrasting environmental conditions between the very sheltered, strongly tide-swept site ML01 and the moderately exposed, low current site ML02. Use of the SIMPER routine within PRIMER revealed that the dominant taxa listed in Table 6 includes the top eighteen taxa (emboldened in Table 6) contributing to the difference in community composition between the sites, making up 63% of the difference.

T tests revealed no significant differences between the two sites ML01 and ML02 in terms of mean taxon richness (p = 0.650), Shannon-Wiener diversity (p = 0.730) or total abundance (p = 0.633) (Table 5).

3.4 Flame shell bed recovery monitoring

3.4.1 Quadrat survey

Full details of the records derived within each of the 20 quadrats deployed along each of the control and treatment monitoring transects are provided in Tables 6.3 - 6.8 (Annex 6). These are summarised in Table 7 in terms of the number of quadrats exhibiting the assessed binary feature or mean values for quantitatively assessed features. Differences in binary features between the control and treatment at a site, such as in the presence or absence of byssal material, have been assessed by means of Fisher's exact tests. Differences between the means of quantitative measures have been assessed by means of t tests using arcsin transformed values in the case of byssal turf cover. However, where significant differences in variances occurred (turf thickness at sites M2 and M3), differences in median values have been assessed using the Mann-Whitney U test. One-tailed tests have generally been adopted, as the presence of damage-invoked reductions in the measured parameters are of principal interest. Where the predicted relationship between damage and the measured parameter is unclear (viz. turf cover and the visible presence of living *Limaria hians*) two-tailed tests have been employed.

Although all the treatment transects showed clear visual evidence of physical disturbance (see following section), most of the measured parameters failed to exhibit a consistent response (Table 7). Byssal turf cover was significantly reduced at sites M1 and M3 but slightly higher (though not significantly so) at M2. This may reflect the possibility that flattening and/or redistribution of the byssal turf by dredging could lead to enhanced coverage, although a significant reduction in turf thickness was only recorded at site M1. There was a reduction in the number of quadrats displaying a mosaic of byssal turf and clean sand patches of at least 10 x 10 cm along the treatment transects at all three sites, indicative of some substrate mixing by dredging activity. Dredging also appeared to reduce the sharpness of the turf/sediment boundary at sites M1 and M2, but not significantly so at M3 where very few quadrats exhibited sharp turf boundaries along both control and treatment transects. This may be indicative of the impact of previous widespread dredge activity in the region of M3. Site M3 was alone in exhibiting a significant reduction in the frequency of observable *Limaria* gallery apertures along the treatment transect. On the other hand, very few quadrats contained visible dead *Limaria* shells along either of the M3 transects, whereas there was a marked and significant elevation in the frequency of such shells along the treatment transects at sites M1 and M2. The density of live *Limaria hians* shells was estimated to exceed 1/0.1 m^2 along all the transects apart from the M3 treatment.

Table 7. Summary of data collected along the control (suffix C) and treatment (suffix T) Limaria monitoring transects. Apart from the last parameter (overall assessment), records are derived from observations within 20 quadrats. Probability values (p) indicative of significant differences are highlighted by emboldened text. Red values are derived from 2-tailed tests, the remainder being 1-tailed.

Parameter	M1C	M1T	p	M2C	M2T	p	M3C	M3T	p
Byssal material present (# quadrats)	20	20	1.000	20	20	1.000	20	18	0.244
Continuous turf present locally (# quadrats)	20	20	1.000	20	20	1.000	19	14	**0.046**
Turf cover mean (%)	68.0	50.5	**0.009**	60.8	63.0	0.661	48.3	16.0	**<0.001**
Byssus overtops stones (# quadrats)	20	20	1.000	20	19	0.500	20	16	0.053
Turf/clean sand mosaic (# quadrats)	20	15	**0.024**	20	14	**0.010**	19	4	**<0.001**
Gallery apertures seen (# quadrats)	20	20	1.000	20	20	1.000	20	11	**<0.001**
Mean turf thickness (cm)	8.5	4.4	**<0.001**	8.2	7.6	0.142	3.3	5.0	>0.100
Limaria seen (# quadrats)	0	7	**0.008**	1	3	0.605	0	1	1.000
Dead *Limaria* shells (# quadrats)	1	10	**0.001**	2	15	**<0.001**	2	3	0.500
Sharp turf boundary present (# quadrats)	20	13	**0.004**	20	10	**<0.001**	5	3	0.347
Overall assessment >1 m from tape (one record for each side of transect): *Limaria* density >1/0.1 m^2 (#)	2	2		2	2		2	0	

3.4.2 Visual appearance

A visual distinction between impacted and pristine (or less impacted) *Limaria* habitat was immediately discernible at all monitoring sites. At site M1 the mosaic of homogeneous sand patches interrupted by extensive, sharp-edged byssal turf found beyond the dredge track was replaced within the dredge track by a somewhat flattened and disaggregated turf with the composite stones largely revealed (Figure 35). The appearance at site M2 within and outwith the dredge track was very similar to that at site M1 (Figure 36), although when viewed from a distance indistinct parallel dredge tracks were just discernible in places, with lines of slightly denser and thicker stone and byssal material left between adjacent dredges (Figure 37). At site M3 two levels of apparent habitat disturbance were possibly visible (Figure 38). *Limaria* habitat within the control area had a similar appearance in terms of disaggregation, composite stone visibility and absence of sharply delineated turf as in the dredge impacted areas at sites M1 and M2, whereas the M3 treatment transect ran through an adjacent area of markedly impoverished turf cover. It is possible that both the control and treatment transects at site M3 have suffered from dredge activity, with that in the control area contemporaneous with that experienced at the other monitoring sites, whereas the treatment transect may have suffered from multiple dredge passes, possibly at different times.

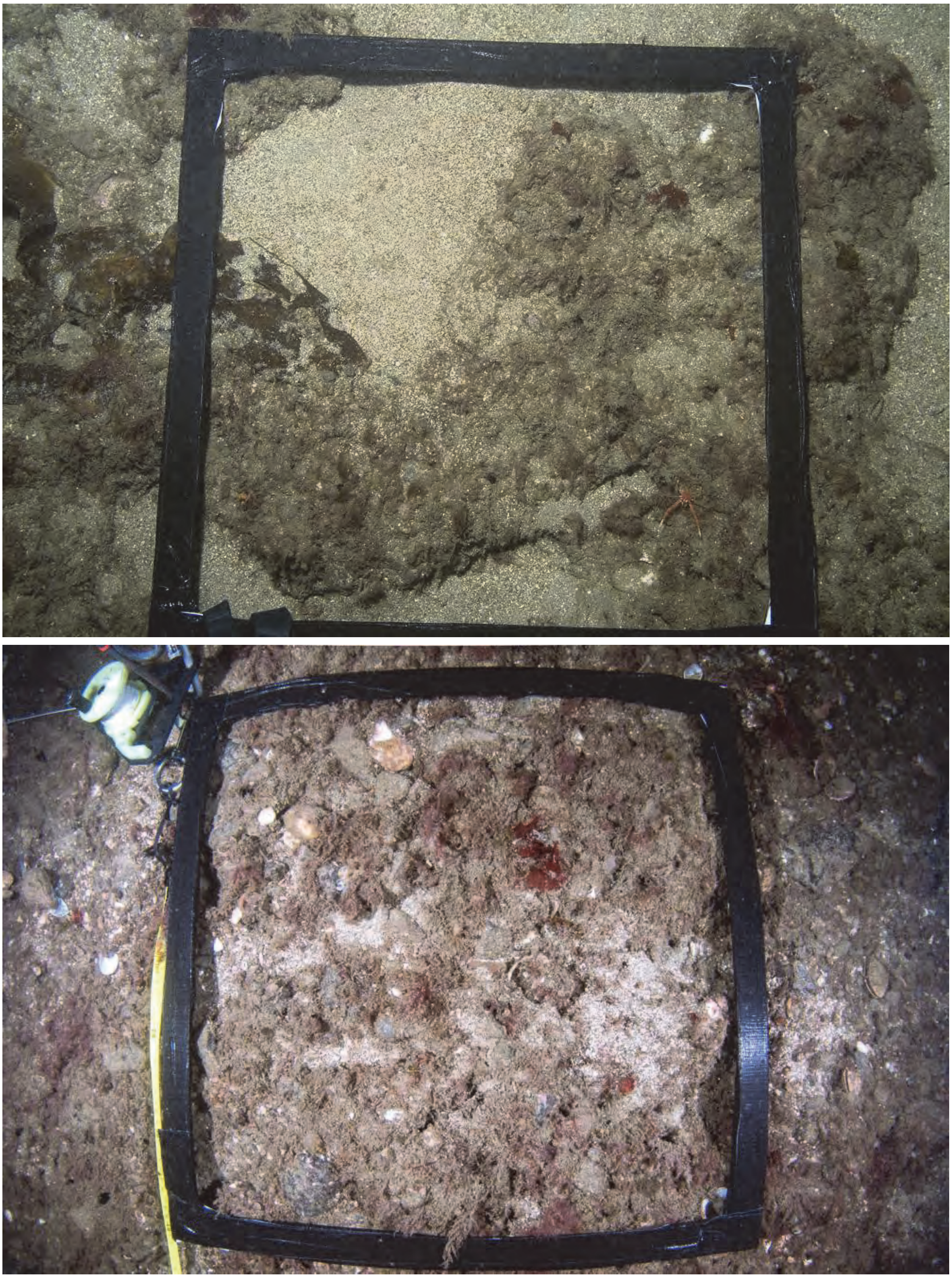

Figure 35. Appearance of the Limaria bed along the control (upper) and treatment (lower) transects at site M1. The photos, showing a 0.25 m^2 quadrat, are indicative of the general appearance of the habitat along the transect.

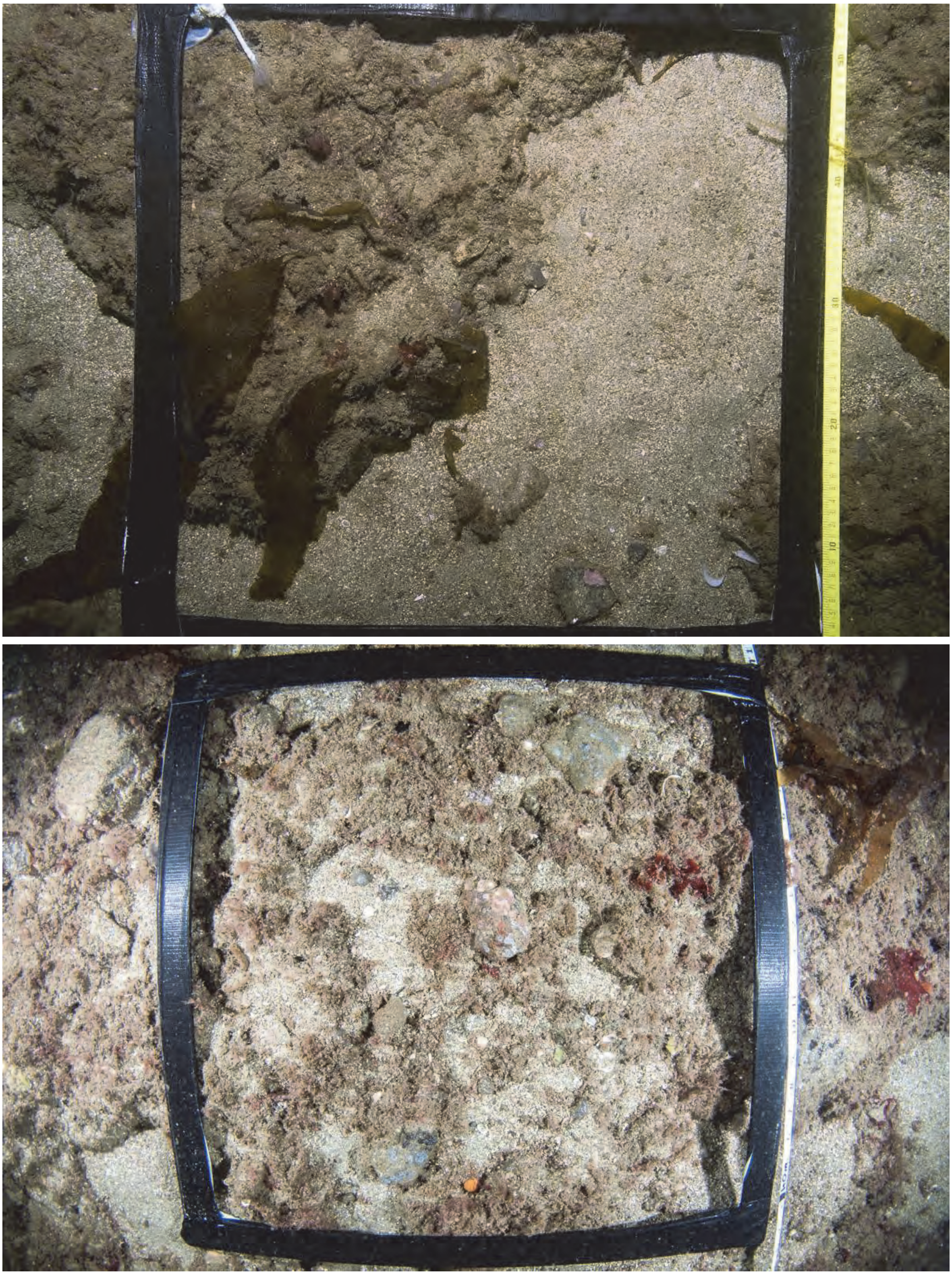

Figure 36. Appearance of the *Limaria* *bed along the control (upper) and treatment (lower) transects at site M2. The photos, showing a 0.25 m^2 quadrat, are indicative of the general appearance of the habitat along the transect.*

Figure 37. Limaria monitoring site M2. Upper photo shows indistinct parallel dredge tracks visible from a distance. Lower photo shows pin marking the transition between undisturbed (north-west) and disturbed (south-east) Limaria habitat.

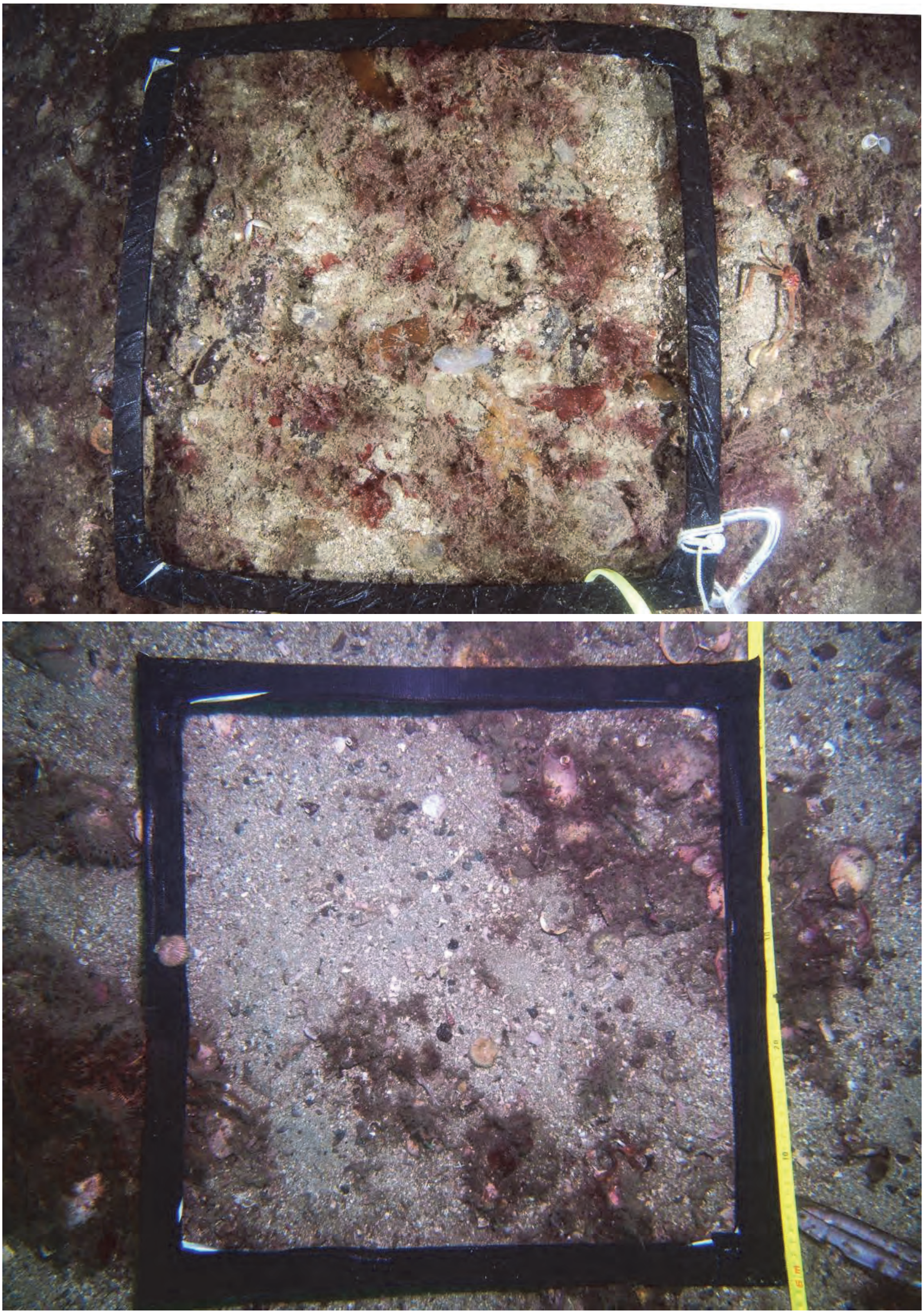

Figure 38. Appearance of the Limaria bed along the control (upper) and treatment (lower) transects at site M3. The photos, showing a 0.25 m^2 quadrat, are indicative of the general appearance of the habitat along the transect.

3.5 Dredge impacts observed throughout Loch Carron

Details of the damage recorded at video and dive sites are provided in Annexes 1 - 4 and depicted in Figures 39 - 44. Visual evidence of the impact of dredging within the surveyed region of Loch Carron was restricted to the area around Sgeir Bhuidhe (within a radius of 850 m), including the three Sgeir Bhuidhe flame shell beds. There were no indications of any anthropogenic damage to the larger Strome channel flame shell bed.

Evidence of damage took several forms:

- Marked dislocation of benthic substrates in the form of distinct series of parallel dredge tracks or scars, each of the order of 0.5 - 1.0 m wide, generally with narrow lines of stones and associated biota separated by broader bands of sandy sediment with relatively sparsely scattered stones (Figure 39A).

- The presence of much damaged biota including smashed bivalve shells (including *Limaria hians*), *Echinus* tests and clean, white (i.e. recently dead) *Limaria* shells (Figure 39B).

- Bacterial mats associated with decomposition of recently dead benthic organisms, particularly *Limaria hians* (Figure 39C).

- Flattened *Limaria* turf and associated biota, such as hydroids (Figure 39D).

- Reduction in *Limaria* byssal turf coverage and sometimes associated *Limaria* gallery apertures (Figure 39E).

- Disaggregation of the *Limaria* byssal turf and stone matrix, generally associated with a mixing of the substrate components leading to a blurring of the otherwise usually sharp delineation between byssal turf margins and adjacent sand patches, as well as an increase in heterogeneity of the sand patches (Figure 39F).

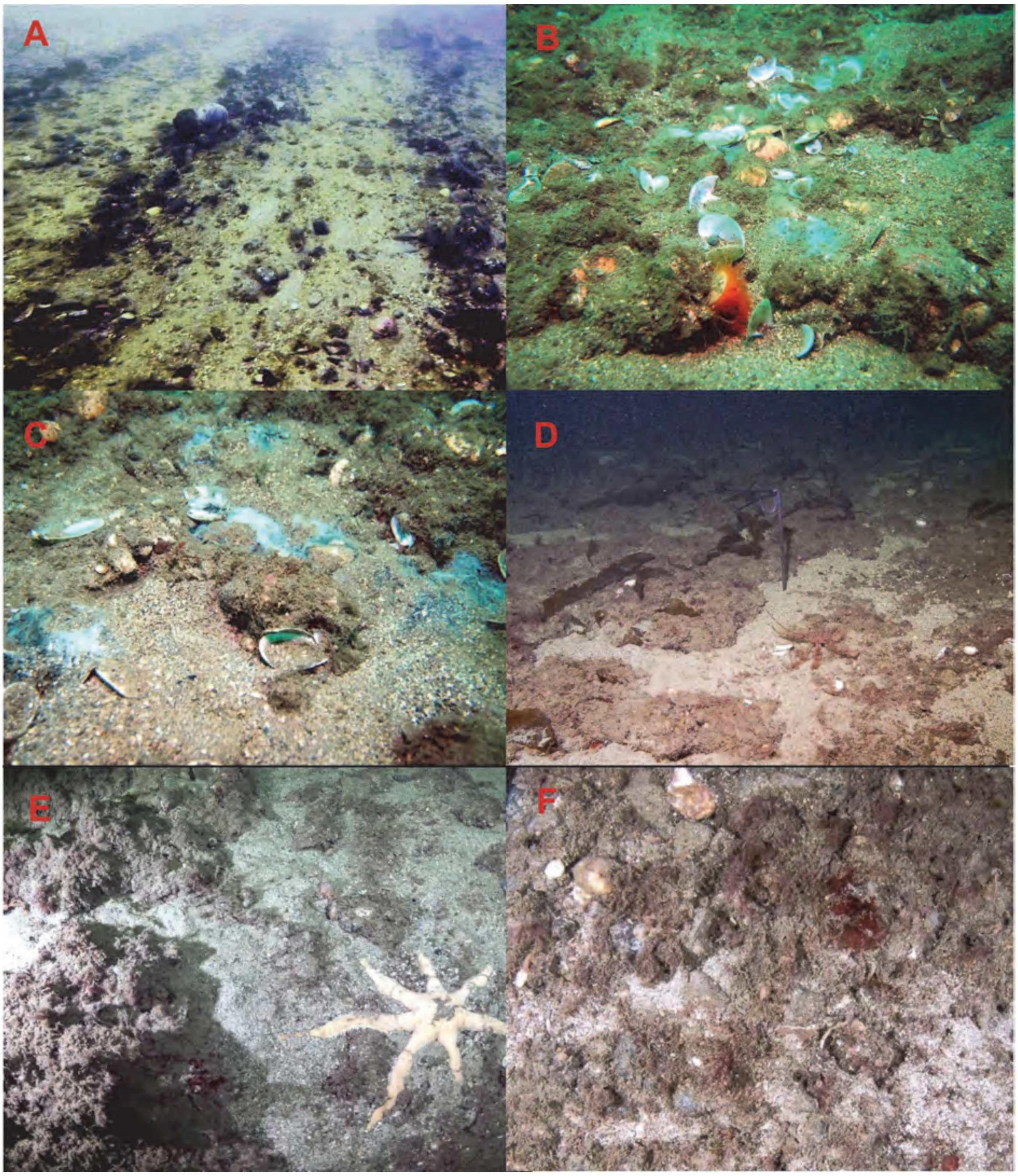

Figure 39. Range of dredge impacts on Sgeir Bhuidhe East flame shell bed. A, parallel dredge scars (site D07); B, dead and broken shell material (site D01); C, bacterial mats (site D01); D, byssal turf flattening to the right of central pin (site M2); E, byssal turf reduction and flattening (site M2); F, byssal turf disaggregation (site M1). See Figures 26 and 27 for comparison with pristine flame shell habitat.

The total of 21 records of parallel dredge scars, generally representing the severest form of observed impact, are summarised in Table 8, with their distribution shown in Figure 40. Video frame grabs illustrating all such records are provided in Annex 7.

Table 8. Records of parallel dredge tracks observed during all 2017 surveys.

Site	Survey	Biotope	*Limaria* damage
M2	HW Jul-Aug monitoring	SS.SMx.IMx.Lim	yes
D02	SNH May dive	SS.SMx.IMx.Lim	yes
D01	SNH May dive	SS.SMx.IMx.Lim	yes
D07	SNH May dive	SS.SMx.IMx	yes
DD22.6	HW Jul-Aug drift dive	Not determined	no
DD26.1	HW Jul-Aug drift dive	Not determined	no
DV115.4	SNH Sep drop-down	SS.SMx.CMx	no
DV206.1	SNH Sep drop-down	SS.SMx.CMx	no
DV208.2	SNH Sep drop-down	SS.SMx.CMx	no
DV209.3	SNH Sep drop-down	SS.SMx.CMx	no
DV210.4	SNH Sep drop-down	SS.SMx.CMx	no
DV237.2	SNH Sep drop-down	SS.SMx.CMx	no
DV42.3	SNH Jul drop-down	SS.SMx.CMx	yes
DV74.1	SNH Jul drop-down	SS.SMx.CMx	no
DV75.1	SNH Jul drop-down	SS.SMx.CMx	no
DV77.3	SNH Jul drop-down	SS.SMx.CMx	no
DV88.3	SNH Jul drop-down	SS.SMx.CMx	yes
LC-V1	MSS May drop-down	SS.SMx.CMx	no
LC-V6.3	MSS May drop-down	SS.SMx.CMx.ClloMx.Nem	possible
LC-V7.1	MSS May drop-down	SS.SMx.CMx	no
V39.1	SNH May drop-down	SS.SMx.CMx	possible

Only four of these records are located within the three Sgeir Bhuidhe flame shell beds. Most were found beyond the perceived boundaries of the beds in deeper water. Eight of the records were assessed as causing certain or likely damage to the *Limaria* habitat, with most of these being just within or beyond the defined boundaries of the beds, in areas of sparse byssal turf (≤10% cover). At these sites the byssal turf appeared to be very largely removed from within the tracks and all such records were assigned to **SS.SMx.CMx** or **IMx** biotopes. Three examples of parallel dredge scars were recorded in areas of dense *Limaria* turf, all within the Sgeir Bhuidhe East bed. The impact of dredging on the *Limaria* habitat appeared to be markedly less severe at all these sites, which were considered to retain adherence to the **SS.SMx.IMx.Lim** biotope. At May dive sites D01 and D02 some flattening, disaggregation and displacement of the stone/byssal matrix was evident, although gallery apertures were still evident; linear scarring was relatively poorly developed and took the form in places of alternating bands of dense and sparser stones and associated byssal material. The clearance of the stone and byssus matrix by the passage of the dredges appeared to be markedly less than that observed at other sites.

The August *Limaria* monitoring survey at site M2 coincided with the coordinates of the start of signs of physical disturbance noted during the May dive survey at site D02. This affords a tentative appraisal of possible short-term temporal trends in the condition of the flame shell bed. As in May, scarring was only evident locally within the damaged area in August. Where present, the apparent growth of byssal material over the intervening three months led to the appearance of more subtle scarring. Over much of the area of damage no distinct scarring was discernible in August. Dead and broken shells including those of *Limaria* were still evident in August, although the bacterial mats associated with decaying organic material were absent.

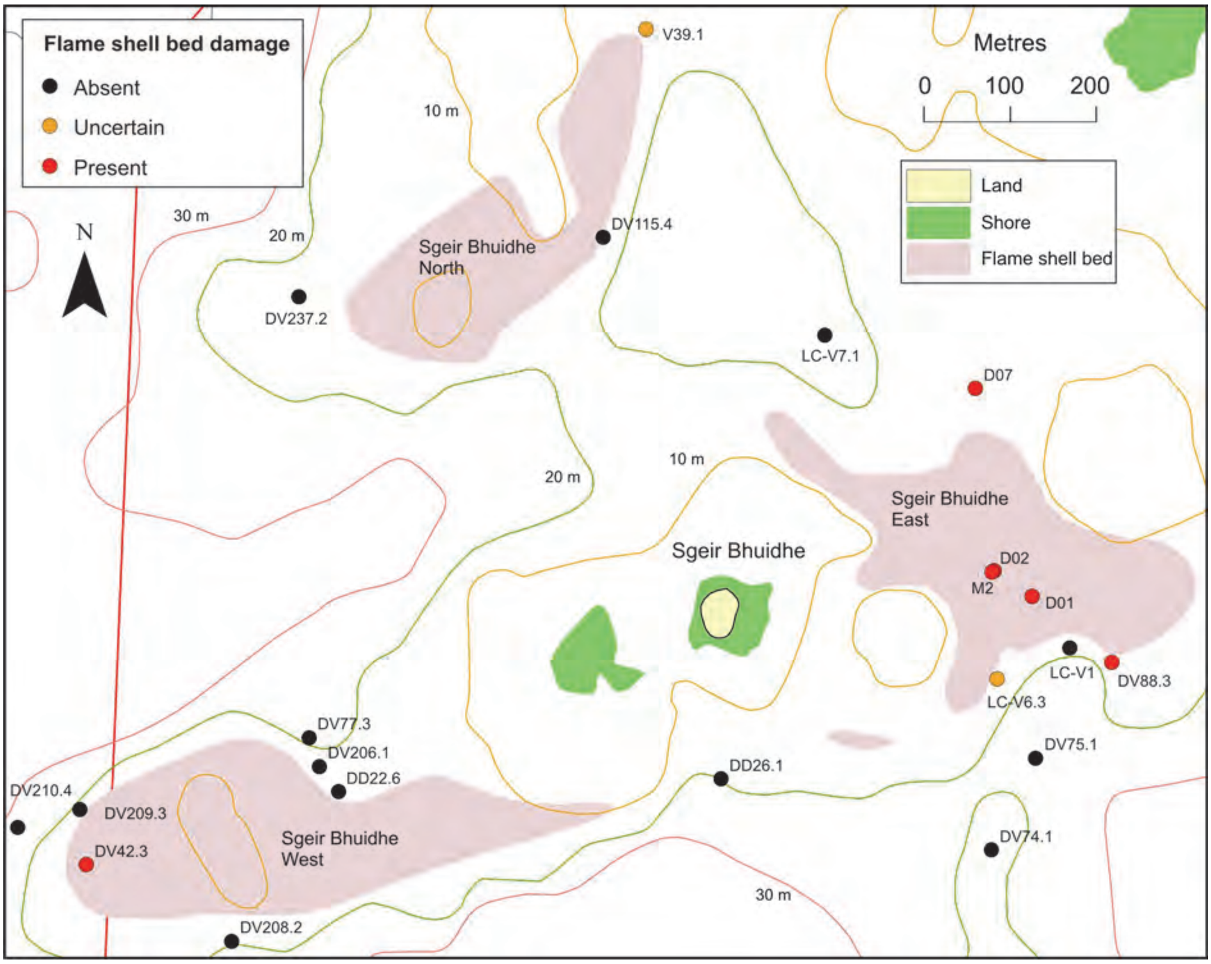

Figure 40. Location of all records of parallel dredge scars with observations of damage to flame shell habitat.

It appears that the degree of physical disturbance of the flame shell bed may be partly dependent upon the density of the stone/byssus turf matrix, with the dredge largely riding over the tightly bound, dense stone matrix of well-developed beds. Dredge tooth penetration is perhaps greater in areas of sparser stones (typical of the margins of the flame shell beds and deeper water), where the dredge will retain some stones and push some to the side, which will augment the parallel lines of stones left.

Over most of the area of the Sgeir Bhuidhe flame shell beds parallel dredge scars were not discernible. Evidence of dredge damage was largely in the form of bands (>5 m wide) of flattened byssus and disaggregated byssal/stone turf matrix, as well as the presence of dead and broken shell material. The presence of such bands was largely detected by the MSS May drop-down video survey (Figures 41 - 42). Due to the difficulty in discerning detail of the habitat during the brief camera passage over the bands, there is often uncertainty regarding the ascription of biotopes to the habitat. Some have been assigned to **SS.SMx.IMx.Lim**, others tentatively to **SS.SMx.CMx**, although closer inspection may reveal that **SS.SMx.IMx.Lim** is often a better fit.

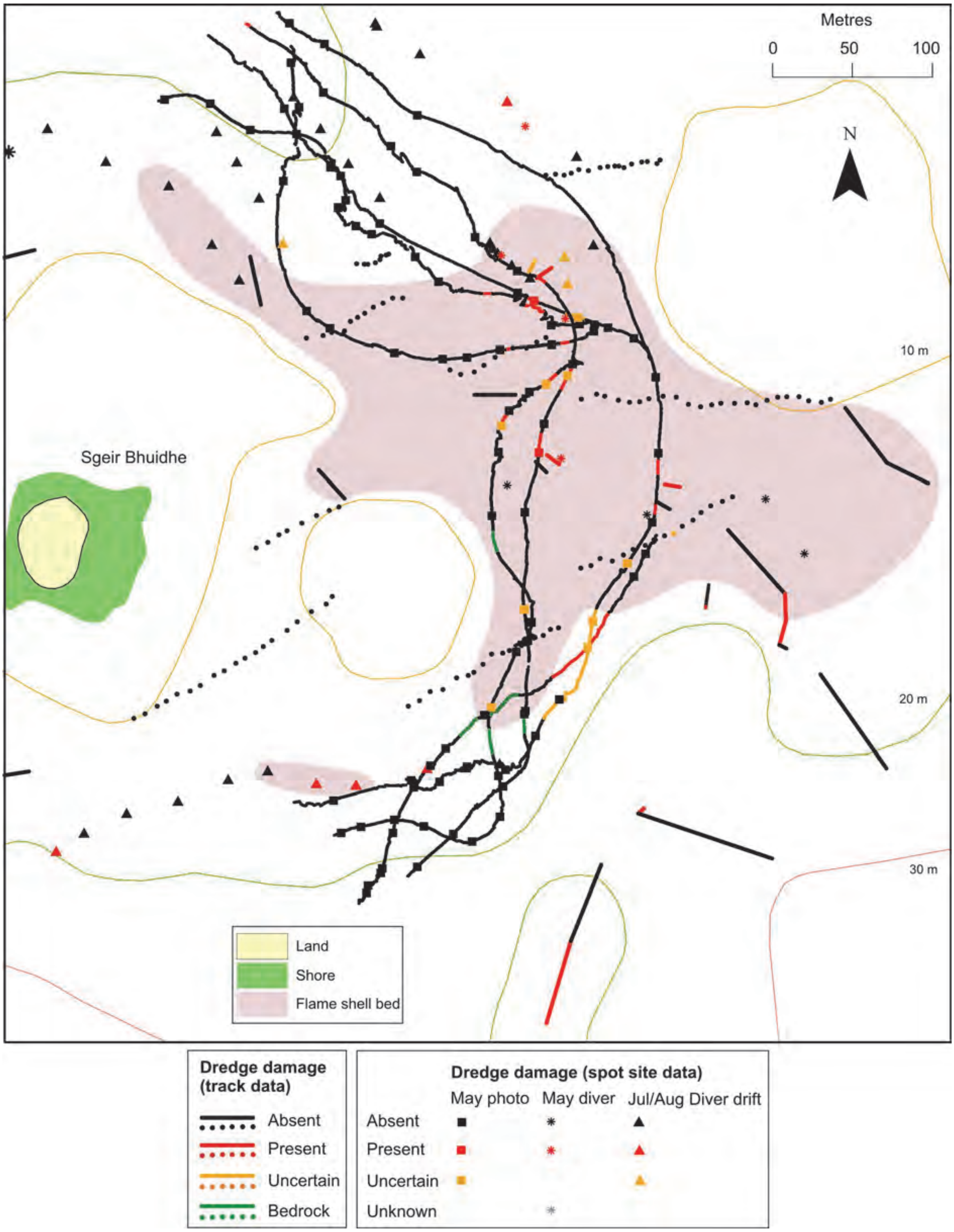

Figure 41. Distribution of observations of dredge damage in the vicinity of the Sgeir Bhuidhe East flame shell bed.

The spatial configuration of damaged flame shell habitat bands identified within the Sgeir Bhuidhe East bed (Figure 42) is probably indicative of the route of several of the dredge tracks through the bed. Three likely routes are indicated in the figure. The identification of additional bands of damaged habitat indicate the presence of more dredging runs through the bed, although the route taken by these is unclear, probably chiefly due to the difficulty in determining the presence of damage, particularly when relatively slight, from the drop-down video footage. Because of this it is likely that the spatial extent of damage to the Sgeir Bhuidhe bed suggested by Figures 41 and 42 is underestimated. However, it is clear that much of the bed remains undamaged by demersal fishing. The Sgeir Bhuidhe West (Figure 43) and Sgeir Bhuidhe North (Figure 44) beds, which support a more patchy flame shell habitat, appear to be less impacted by dredging, although there may be receding of the boundary of both beds locally.

A ballpark estimate of the spatial extent of flame shell bed damage can be derived from the video track data by calculation of the sum of track lengths passing through damaged habitat as a proportion of the total track lengths. This is only valid for the May MSS and July and September SNH drop-down video surveys where detailed track data are available, and the runs were not targeted specifically to pass through damaged or pristine areas. It assumes that video runs are reflective of the bed as a whole, and the approach can only be applied to the area within the currently recognised polygons of flame shell habitat. It is likely to underestimate the extent of damage due to peripheral recession of the beds and the inability to recognise all areas of damage from often unclear video footage. However, the former is likely to occur in areas of sparse habitat, and the latter is unlikely to apply to areas of severe damage. Based on this approach, minimum estimates of the extent of damage to the beds are as follows: Sgeir Bhuidhe East 8% (0.5 ha of 7.0 ha total), Sgeir Bhuidhe West 4% (0.3 ha of 7.7 ha total) and Sgeir Bhuidhe North 0% (0.0 ha of 5.1 ha total).

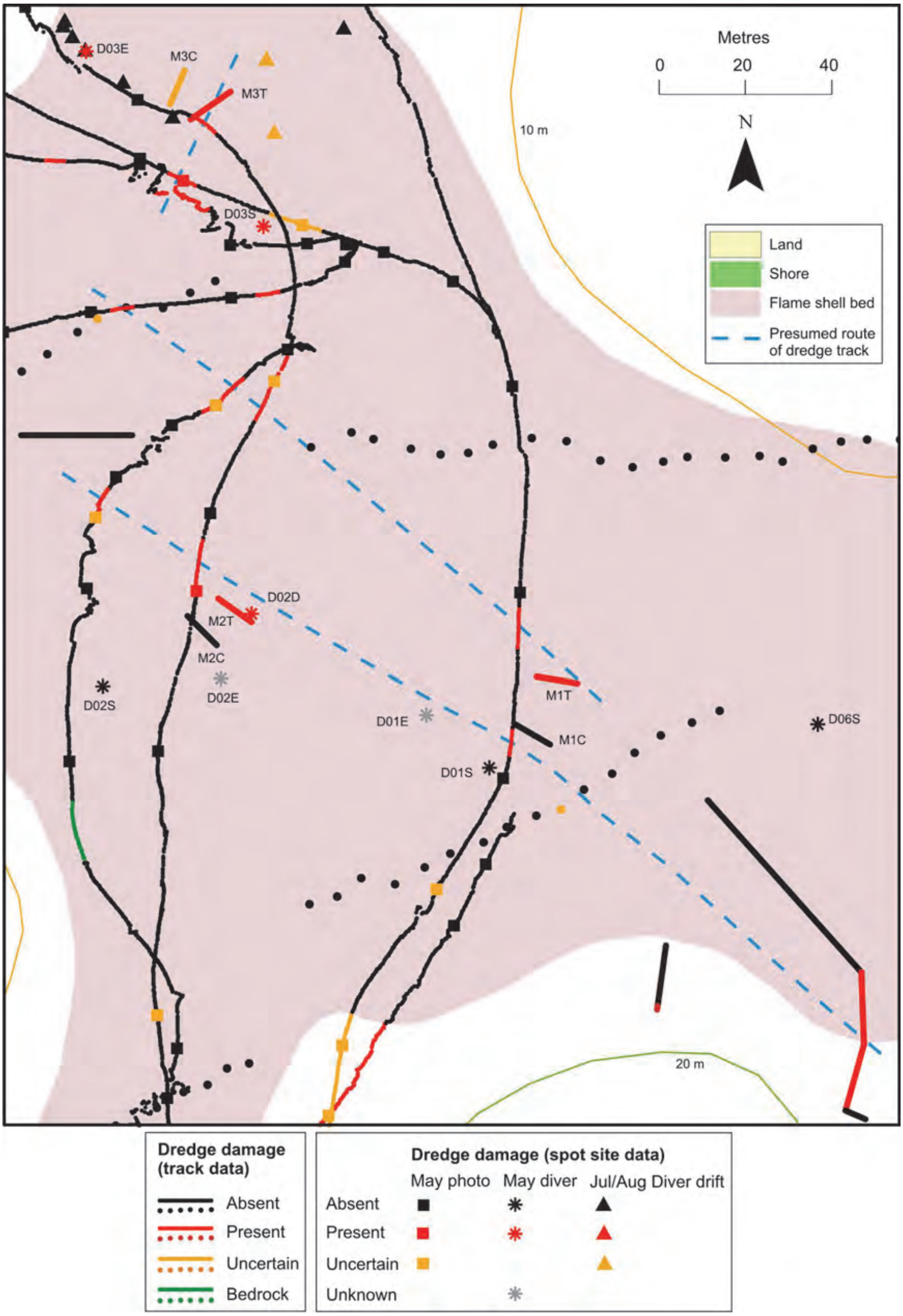

Figure 42. Distribution of observations of dredge damage in the central region of the Sgeir Bhuidhe East flame shell bed, showing some of the presumed dredge track routes. Labels indicate start (e.g. D02S) and end (e.g. D02E) positions of May dives and relevant intermediate positions (D02D), as well as monitoring transects (Mxx).

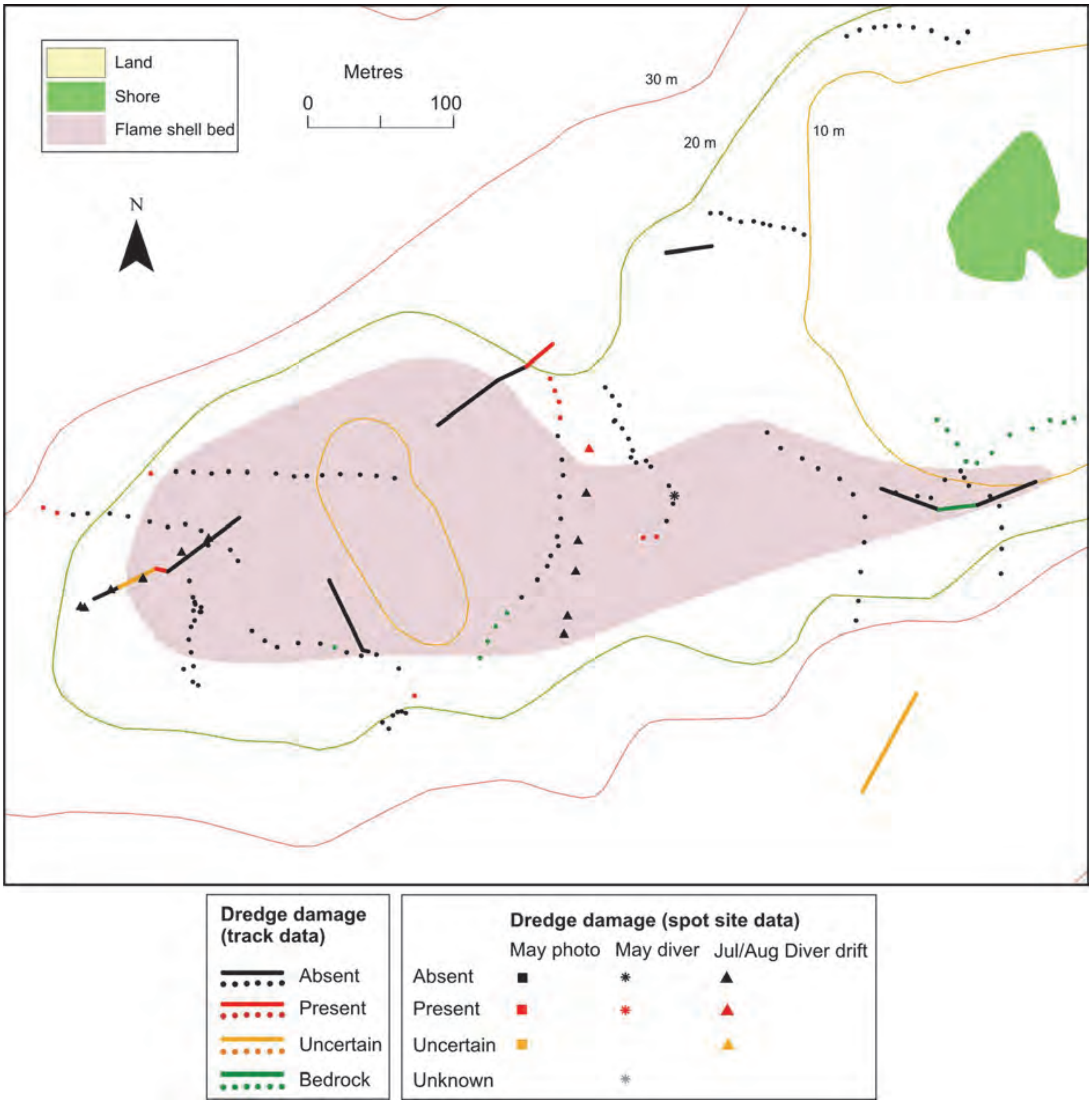

Figure 43. Distribution of observations of dredge damage in the vicinity of the Sgeir Bhuidhe West flame shell bed.

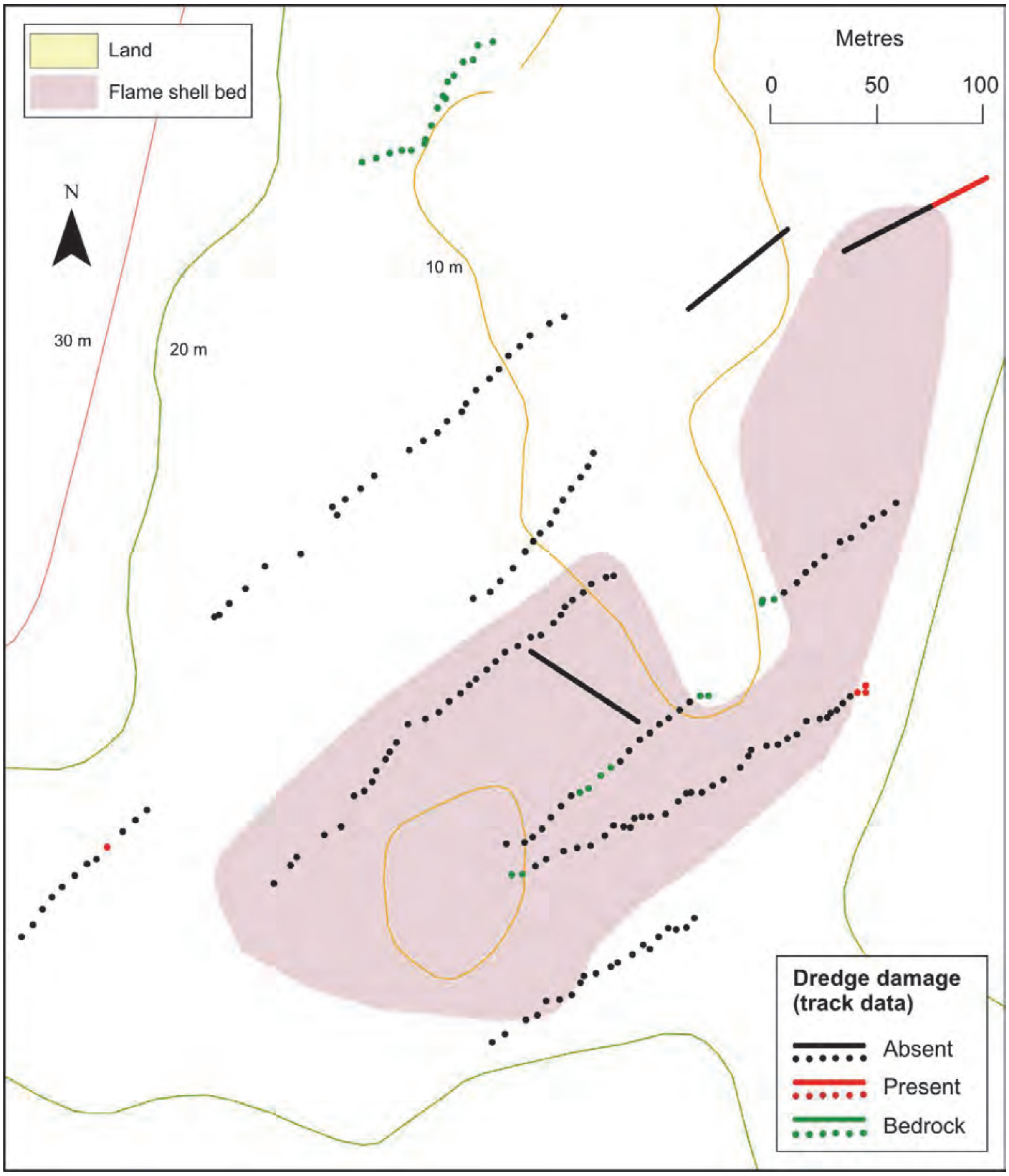

Figure 44. Distribution of observations of dredge damage in the vicinity of the Sgeir Bhuidhe North flame shell bed.

4. DISCUSSION

4.1 Flame shell bed condition

4.1.1 Comparison with other sites

Table 9 (derived largely from Moore *et al*., 2013b) summarises the data derived from 29 surveys carried out at ten Scottish *Limaria* beds. This is believed to include all the major known beds, although additional beds are known to be present in Scapa Flow, Orkney and in Loch Sunart, where they are believed to be small (Howson, 1996; Bates *et al*., 2004; Mercer *et al*., 2007). Recent work failed to confirm the continued presence of reported *Limaria* beds off the Carn Skerries in the Ullapool Approaches and in Little Loch Broom (Moore *et al*., 2011), in the Sound of Jura and Loch Sween (Moore *et al*., 2013a), nor at sites off Shuna Island in Loch Linnhe and in the Lynn of Morvern (Moore *et al*., 2012). Bed comparisons are fraught with difficulties introduced by methodological, temporal and worker variability and the degree of representativeness of the parameter measurement of the bed as a whole. The parameter in which most confidence can be placed is bed extent, although even here significant bare patches may be present within delineated margins.

The 194 ha Strome bed is by far the largest known *Limaria* bed in the UK. and apparently in the world. The Loch Carron beds constitute 41% of the known coverage of the habitat in the UK. The combined estimated coverage of the Loch Carron beds and the adjacent Loch Alsh bed (319 ha in total) represents 61% of the known UK extent of the habitat. It is possible that the Inner Sound bed is also among the larger beds known, although the low sampling intensity here places considerable doubt on the indicative extent estimate of 71 ha.

Table 9 collates available density data for *Limaria* individuals, some of which have been derived from the collection of small core samples. Because of the resultant low numbers of individuals per replicate, no statistical analysis of the data has been attempted. Relatively low densities (<100 m^{-2}) have been recorded from Loch Broom, Conservation Bay (Loch Carron) and Creagan (Loch Creran) and this reflects the sparse byssal material visible at these sample sites. The highest densities (>600 m^{-2}) are known from South Shian (Loch Creran) and Otter Spit (Loch Fyne), although how representative the historical estimate of >700 m^{-2} provided for Otter Spit might be is unknown (Hall-Spencer and Moore, 2000). Most density estimates lie within the range 200 - 500 m^{-2}, which corresponds to the values obtained by the current study for the Loch Carron beds (330 - 420 m^{-2}). The 2017 values are similar to those obtained for the Strome Slip site in 2009 and for the adjacent Loch Alsh sites in 2009 and 2012.

Caution should be exercised in analysing the MNCR phase 2 epibiota data, due to differences in methodology and personnel, and it is clear that there can be high variation in composition and diversity over the area of a bed. Surprisingly low diversities were recorded during the 2006 SCM survey of Laudale Narrows (Mercer *et al*., 2007). However, most of the sites worked involved coring and *Limaria* nest cover measurement as the main tasks of the dive and so relatively little effort may have been expended on the phase 2 survey. Excluding the Laudale 2006 records, the mean number of epibiotic taxa recorded for the remaining studies is 61, with a range of 36 - 78. The Strome Narrows (67) and Sgeir Bhuidhe (61) taxon counts lie within the middle of the range.

Table 9 also includes taxon richness measures from the analysis of core samples of virtually the same size (10 - 11 cm diameter) screened on a 0.5 mm sieve. Not all analyses have included the algal component and so this is excluded from the figures, as are taxa which might lead to duplication of species. Mean taxon richness ranges between 39 and 75, with a mean of 54, which represents high infaunal diversity, similar to that recorded for many maerl beds. The lowest values (Creagan and Laudale Narrows) were recorded at sites exhibiting dense brittlestar populations. Values obtained by the current study for the Loch Carron beds (Strome Narrows - 48, Sgeir Bhuidhe: - 42) appear relatively low, although similar to those recorded previously for Loch Carron.

Table 9. Extent and condition measures for Scottish flame shell *beds.* *†superabundant brittlestars present, ‡derived from core samples, *covered extensive depth range, **updated from Moore (2015, 2017b) and Allen (2014).*

Location	**Year**	**Month**	***Limaria* density (m^{-2})**	**Bed extent (>10% cover) (ha)**	**No. epibiotic taxa (MNCR survey)**	**No. faunal taxa in core (Range)**	**No faunal taxa in core (Mean)**	**Reference**
Loch Broom	1991	May			61			Holt, 1991
Loch Broom	2010	Aug	97	7	57			Moore *et al.*, 2011
Inner Sound, Ross & Cromarty	2017	Jul		71				This report
Conservation Bay (Loch Carron)	2009	Mar	84‡			47-55	50	ERT, 2010
Strome Slip (Loch Carron)	2009	Mar	338‡			45-58	50	ERT, 2010
Strome Narrows (Loch Carron)	2017	Aug	330‡	194	67	44-50	48	This report
Sgeir Bhuidhe (Loch Carron)	2017	Aug	420‡	20	61	39-46	42	This report
Loch Alsh	2012	Aug	275‡	75 (105**)	74-78 47†	44-65	56	Moore *et al.*, 2013
Loch Alsh	2009	Mar	295‡			53-58	55	ERT, 2010
Laudale Narrows (Loch Sunart)	2000	Jul	400	51				Bates *et al.*, 2004
Laudale Narrows site 14 (Loch Sunart)	2006	Jul	300‡		45	50-52	51	Mercer *et al.*, 2007
Laudale Narrows site 15 (Loch Sunart)	2006	Jul	250‡		17†	32-37†	35†	Mercer *et al.*, 2007
Laudale Narrows site 19 (Loch Sunart)	2006	Jul	150‡		18	43-55	49	Mercer *et al.*, 2007
Laudale Narrows site 20 (Loch Sunart)	2006	Jul	200‡		25	64	64	Mercer *et al.*, 2007
Laudale Narrows site 21 (Loch Sunart)	2006	Jul			27			Mercer *et al.*, 2007
Laudale Narrows transect SR09 (Loch Sunart)	2006	Jul			42			Mercer *et al.*, 2007

Table 9 continued.

Location	Year	Month	Limaria density (m^{-2})	Bed extent (>10% cover) (ha)	No. epibiotic taxa (MNCR survey)	No. faunal taxa in core (Range)	No faunal taxa in core (Mean)	Reference
Port Appin (Loch Linnhe)	1989	Jun			55			Connor, 1990
Port Appin (Loch Linnhe)	2006		348					Trigg & Moore, 2009
Port Appin (Loch Linnhe)	2006	Jun	514			54-75	66	Trigg, 2009
Port Appin (Loch Linnhe)	2007	Feb	343			49-74	63	Trigg, 2009
Port Appin (Loch Linnhe)	2011	Aug		3	63			Moore *et al.*, 2012
Shian (Loch Creran)	2006-7	Apr-Mar	476-779					Trigg, 2009
Shian (Loch Creran)	2006	Jun	930‡			60-89	75	Trigg, 2009
Shian (Loch Creran)	2007	Feb	955‡			58-68	63	Trigg, 2009
Shian (Loch Creran)	2012	Sep	612‡	18	66	54-72	63	Moore *et al.*, 2013
Creagan (Loch Creran)	2012	Sep	31‡	0.5	36†	36-42†	39†	Moore *et al.*, 2013
Otter Spit (Loch Fyne)	1988	Aug			70*			Davies, 1989
Otter Spit (Loch Fyne)	2000		>700					Hall-Spencer & Moore, 2000
Otter Spit (Loch Fyne)	2012	Aug	367‡	50	64	45-58	51	Moore *et al.*, 2013

4.1.2 Anthropogenic damage

Minchin (1995) recorded the recovery of a dense flame shell bed in Mulroy Bay, Ireland, where the population had decreased to 1.6% of its former density by 1980. Following the cessation of the use of tributyltin in the bay, full recovery of the bed to its former condition was assessed to have taken place 12 years after intensive settlement of larvae in 1982. By contrast, simulation of the impact of scallop dredging by experimental removal of the byssal turf and raking of the remaining sediment on a flame shell bed off Port Appin, Scotland, produced an estimate of recovery from a passage of a dredger of >100 years if the recorded rate of recovery during the one year of the experiment was typical (Trigg & Moore, 2009). During the experiment recovery largely took the form of growth of byssal material from the periphery of the cleared area, with little or no contribution from larval settlement within the cleared area. The subsequent recorded decline of this major bed from around 40 ha to small pockets covering a total of c.3 ha during the years 2001 - 2011 (Moore *et al.*, 2012) suggests that larval recruitment during the 2006-7 period of the experimental work may have been depressed. A greater contribution from larval recruitment to byssal turf extension at this site could have led to a marked improvement in the predicted recovery rate.

The effect of scallop dredging on benthic ecosystems in general has been recently reviewed by Howarth and Stewart (2014). On the Sgeir Bhuidhe East flame shell bed dredge damage largely took the form of flattening of the byssal turf and some disaggregation of the byssus/stone matrix. At the most intensively studied monitoring sites it was found that significant numbers of *Limaria* managed to persist within the impacted area (at least at two of the three sites) and at site M2 there was some evidence to suggest that the level of dredge scarring may have decreased due to byssal growth over the preceding three months. Given the presence of an extensive area of unimpacted flame shell habitat both in the immediate vicinity around Sgeir Bhuidhe and the nearby presence of extremely large, pristine beds elsewhere in Loch Carron and in Loch Alsh, the potential for larval recruitment would be expected to be high. Thus, it appears likely that the rate of habitat recovery would approximate to that experienced in Mulroy Bay (of the order of 10 years), rather than that predicted by the Port Appin study.

4.1.3 Recovery monitoring

The approach to monitoring the condition of the flame shell habitat was designed to assess recovery from dredge damage in three widely separated locations within the area of well-developed habitat on the Sgeir Bhuidhe East bed, the bed exhibiting the highest byssal turf cover of the Sgeir Bhuidhe beds and also showing the most extensive indications of damage. The breadth of the approach took into consideration financial and temporal constraints and a preference for the adoption of non-destructive sampling.

Temporal comparisons of the video and still imagery, as well as the binary and quantitative parameters recorded within quadrats along the monitoring transects should facilitate an assessment of the degree of recovery of the visual appearance of the habitat. In terms of the frequency of monitoring, given the possibility that recovery may be realised within ten years, it is suggested that suitable timing for a second phase of monitoring may be in around five years post-disturbance.

The potentially deleterious consequences of destructive sampling of the habitat can now be considered within the context of the discovery of the large extent of undamaged flame shell habitat within the Sgeir Bhuidhe and Strome channel beds within the MPA. The current monitoring methodology was not designed to assess all aspects of recovery, and the observational approach introduces an element of subjectivity into parameter measurement. It is therefore suggested that the current monitoring strategy could be supplemented by the collection of quantitative data on the flame shell population, not only to acquire firm, fundamental data on the status of this keystone species within areas of damage in Loch Carron, but also to aid characterisation of the recovery process that may be of potential importance elsewhere in Scottish waters. This might involve the collection of replicate samples of the byssal turf/stone matrix in the vicinity of the existing control and treatment monitoring transects, and subsequent determination of *Limaria* population density. Analysis of the size structure will aid an understanding of the nature of the recovery process, in terms of the importance of juvenile and adult recruitment. Further analysis of the turf samples (or core samples) could involve assessment of community composition and diversity.

The focus of the monitoring approach is currently restricted to partially damaged regions of previously rich flame shall habitat, where the impact of damage can be readily compared with adjacent pristine habitat. However, due to the greater extent to which the physical nature of the substrate has been modified by dredging on the periphery of the beds, with the translocation of stone material leading to the presence of relatively stone-free bands of sand, the timescale for recovery at the edges of the beds may be different. In their experimental study Trigg and Moore (2009) found that *Limaria* byssal turf expansion was promoted by the presence of pebbles. The lower coverage and greater degree of patchiness of the byssal turf on the periphery of the Sgeir Bhuidhe beds renders assessment of recovery a more difficult task. It is considered, however, that the establishment of some degree of monitoring of the habitat would be worthwhile (under the auspices of the Scottish MPA Monitoring Strategy - Scottish Government, 2017c), both in a local context and as an indicative measure of habitat recovery from severe disturbance by dredging elsewhere in Scottish waters. The methodology could range from imagery collection along fixed transects, through *in situ* determination of condition metrics, to analysis of the *Limaria* population and community composition and diversity.

4.1.4 Habitat stability

Demersal fishing activity will be only one factor influencing temporal change in the condition and extent of the flame shell habitat. The long-term persistence of flame shell beds is poorly understood. They are known to persist continuously for at least 28 years, with multiple records of the bed in Laudale Narrows, Loch Sunart between 1987 (Mackinnon & Lumb, 1988) and 2015 (Marine Conservation Society, 2015), of the Port Appin bed in Loch Linnhe spanning the years 1989 (Connor, 1990) to 2015 (Cook, 2016), and of the Otter Spit bed in Loch Fyne between the years 1988 (Davies, 1989) and 2015 (Allen, 2017). Elsewhere records are too infrequent to confirm the continuous presence of beds over a greater timescale, although records of the presence of high densities of *Limaria hians* span 100 years for the Mulroy Bay bed in Ireland (Hart, 1894; Minchin, 1995).

Hall-Spencer and Moore (2000) reported a temporal decline in *Limaria hians* populations off the Isle of Man and in the Clyde, where they have disappeared from several previous strongholds, with scallop dredging identified as the likely cause. Significant regression of the flame shell bed boundary has been recorded at Otter Spit over the period 1999 to 2013 (Moore *et al*., 2013) and at Port Appin between 2001 and 2011 (Moore *et al*., 2012). Scallop dredging is a possible causative factor of the reduction at Otter Spit, where commercial dredging through the bed was observed in 1999 (Hall-Spencer & Moore, 2000), but is unlikely at Port Appin, where there is no known history of dredging and no recorded visual evidence of dredge disturbance of the seabed. However, creel fishing has been observed to take place regularly over the bed by up to two vessels between 2011 and 2017 with the creels and creel lines on retrieval observed to be draped with kelp plants, possibly torn from their anchorage on the flame shell byssal turf (Moore *et al*., 2012). Storm activity is another potential causative factor, possibly acting on the supported kelp plants. Widespread fragmentation of the serpulid reefs of nearby Loch Creran (3 km from the bed) has taken place within a similar time frame (sometime between 2007 and 2013) with storm action a likely cause (Moore & Harries, 2017; Tulbure, 2015). The flame shell habitat in the Strome Narrows channel is very similar to that off Port Appin, with both beds supporting substantial densities of kelp, and so the potential for storm-mediated temporal change within the Loch Carron MPA should be acknowledged.

There is limited evidence for recent expansions of the flame shell habitat in Loch Alsh. Moore *et al.* (2013) identified indications of a temporal pattern of a decline in *Modiolus modiolus* density correlated with an increase in *Limaria hians* density in the Kyle Akin area. In view of the failure, in spite of the high sample intensity, to validate the historic records of very dense *Modiolus* populations in the Strome Narrows channel, and the widespread occurrence of dense *L. hians* in 2017, it is possible that a similar pattern in *Modiolus* and *Limaria* abundance has been taking place in Strome Narrows. There are few detailed historic records of habitats within the 2017 flame shell bed distribution polygon (Figure 46), although Smith (1985) surveyed five such sites (Figures 2, 4). Abundant *M. modiolus* was recorded at all sites (the highest abundance category employed by Smith) but *L. hians* was only recorded at one site, where it was occasional. This may be indicative of an enlargement of the flame shell habitat within the Strome Narrows channel over the 32 year period between 1985 and 2017, although it is possible that due to the cryptic habitat of *L hians*, its occurrence may have been underestimated.

4.2 Maerl bed condition

Table 20 summarises the data derived from 35 surveys carried out at 22 maerl beds around Scottish coasts, and while not exhaustive, it provides a reasonable foundation for assessment of bed quality. As with *Limaria* beds, a component of the difference between survey parameters at the different sites will be introduced by methodological, temporal and worker variability and uncertainty regarding the degree of representativeness of the parameter measurement of the bed as a whole; however, most of the surveys were carried out by the same core surveyors using the same methodologies.

Table 20 records bed extents from 0.1 ha to 67 ha. Considerably larger beds are known within Scottish waters, such as in Wide Firth and Kirkwall Bay, Orkney (1288 ha - cited in Hirst *et al*., 2013) and in the Sound of Barra (907 ha - Harries *et al*., 2007), and in other parts of the UK. such as off the Antrim coast (two beds of c.321 ha and c.172 ha - estimates derived from mapping given in Wilson *et al*., 2007) and in Milford Haven (150 ha - Bunker & Camplin, 2007). However, such large beds are fragmentary with maerl biotopes interspersed with other habitats and with live maerl generally at low overall density. While the Strome Narrows maerl bed (0.1 ha) can certainly be classed as a very small bed, it is likely that the Port Luinge bed in Loch Carron (56 ha) represents a moderate-sized example of a **SS.SMp.Mrl.Pcal.R** maerl bed. It is a coherent component of a wider system of fragmentary maerl beds that extends along the coastline from Plockton to the mouth of Loch Alsh and which may collectively extend to over 100 ha.

The estimate of live maerl cover recorded along the MNCR transect on the Strome Narrows bed (42%) probably overestimates the richness of the bed as a whole; elsewhere live maerl was found to vary between 15% and 35%, with a mean of 28%. This places it within the mid range of Scottish beds (Table 20). On the other hand, the MNCR transect and other estimates of live maerl cover on the Port Luinge bed indicate widespread live coverage of around 50% placing it amongst the richer of the Scottish beds. Similar high levels of live maerl cover were recorded at several stations elsewhere along the coastline between Plockton and Loch Alsh.

As regards community diversity, the records of epibiotic taxon richness at Port Luinge and Strome Narrows (respectively 70 and 80) appear typical of Scottish maerl beds. However, infaunal diversity at these beds in terms of the mean number of taxa per core (respectively 28 and 32), are amongst the lowest recorded for Scottish beds.

Table 20. Extent and condition measures for Scottish maerl *beds.* [†]*superabundant brittlestars present,* [‡]*derived from core samples.*

Location	Site	Year	Month	Cover (%)	Bed extent (ha)	No. epibiotic taxa (MNCR survey)	No. faunal taxa in core (Range)	No faunal taxa in core (Mean)	Reference
Mousa Sound	ML01	2016	Aug	40-50	13	49	28-43	32	Unpublished
North Hascosay, Orkney	NHM1	2012	Sep	40-79	67	45	42-62	53	Hirst *et al*., 2013
Hascosay Sound, Orkney	HM2	2012	Sep	40-79	see above	54	37-73	55	Hirst *et al*., 2013
Summer Isles	ML02	2010	Aug	40		63	33-38	35	Moore *et al*., 2011
Little Loch Broom	ML01	2010	Aug	75	11.8	69	37-65	48	Moore *et al*., 2011
Loch Laxford	ML01	2009	Aug	1-5		54 (109)	19-38	27	Moore *et al*., 2010
Loch Laxford	ML02	2009	Aug	20-30		33	32-50	40	Moore *et al*., 2010
Loch Laxford	ML04	2009	Aug	60-70		36 (58)	14-47	31	Moore *et al*., 2010
Loch Laxford	ML01	2015	Aug	1-5		69	20-30	25	Moore *et al*., 2017
Loch Laxford	ML02	2015	Aug	30-40		51	32-39	37	Moore *et al*., 2017
Loch Laxford	ML04	2015	Aug	20-30		67	27-39	34	Moore *et al*., 2017
Loch Ewe	ML03	2010	Aug	25	60.5	45	20-37	28	Moore *et al*., 2011
Loch Gairloch	ML04	2010	Aug	25	>64	62			Moore *et al*., 2011
Strome Narrows, Loch Carron	ML01	2017	July	42	0.1	80	22-52	32	this survey
Port Luinge, Loch Carron	ML02	2017	Aug	49	56	70	21-37	28	this survey
Arisaig	C6	2003	Aug	20-30		67	29-43	34	Moore *et al*., 2004
Arisaig	O31	2003	Aug	10		40	30-42	36	Moore *et al*., 2004
Arisaig	S6	2003	Sep	25		77	59-80	70	Moore *et al*., 2004
Arisaig	Z59	2003	Sep	20		92	46-72	56	Moore *et al*., 2004
Arisaig	Y10	2003	Sep	50		92	48-55	52	Moore *et al*., 2004
Arisaig	C6	2014	Aug	26		74	25-38	34	Moore *et al*., 2017
Arisaig	O31	2014	Aug	10		47	19-35	30	Moore *et al*., 2017
Arisaig	S6	2014	Aug	59		79	28-49	38	Moore *et al*., 2017
Arisaig	Z59	2014	Aug	5		111	24-40	32	Moore *et al*., 2017
Arisaig	Y10	2014	Aug	39		109	40-58	50	Moore *et al*., 2017

Table 20 continued.

Location	Site	Year	Month	Cover (%)	Bed extent (ha)	No. epibiotic taxa (MNCR survey)	No. faunal taxa in core (Range)	No faunal taxa in core (Mean)	Reference
Loch Maddy	ML01	2004	Jul	>50		88	36-59	47	Moore *et al*., 2006
Loch Maddy	ML02	2004	Jul	60		78	28-52	41	Moore *et al*., 2006
Loch Maddy	ML03	2004	Jul	50		100	30-52	37	Moore *et al*., 2006
Loch Maddy	ML04	2004	Jul	6		46	24-36	29	Moore *et al*., 2006
Loch Maddy	ML01	2015	Jul	27		98	40-60	50	Moore *et al*., 2016
Loch Maddy	ML02	2015	Jul	26		82	40-52	48	Moore *et al*., 2016
Loch Maddy	ML03	2015	Jul	51		90	41-54	48	Moore *et al*., 2016
Loch Maddy	ML04	2015	Jul	3		61	12-23	19	Moore *et al*., 2016
Loch Sween	ML01	2013	Apr	75	2.7	61	44-60	52	Moore *et al*., 2013
Loch Sween	ML02	2013	Apr	90	3.7	44	20-38	31	Moore *et al*., 2013

4.3 Other PMFs

The status of horse mussel beds within the MPA remains uncertain, although all confirmed records are confined to the Strome channel system.

Although the biotope **SS.SBR.SMus.ModT** could be assigned to six records within Strome Narrows and its western approaches on the criterion of *Modiolus* abundance, horse mussel beds were not well developed there. Mussels tended to be either scattered within a flame shell bed or more sparsely distributed (common) beneath a kelp forest. Smith and Hiscock (1985) also recorded horse mussel beds at two of these locations, at one of these sites off Leacanashie noting that the seabed was not visible due to the density of *Modiolus*.

In addition to the records above, *Modiolus* was recorded as frequent at a further three diver sites. The presence of *Modiolus* was more difficult to discern from video sampling due to screening by dense ophiuroids, *Limaria* turf and stones, but it was recorded at a further 12 sites, with at least patches of common or abundant individuals at four sites, including within the historic bed off North Strome indicated by Scott (pers. comm. - Figure 4). During the 2017 survey work there were no observations of beds approaching the 100% cover recorded by Smith and Hiscock (1985) and so a temporal decline in *Modiolus* abundance is possible, although it is clear that it continues to be widely distributed within the Strome region.

Current evidence suggests that the importance of the MPA and adjacent waters in supporting the key PMF 'Maerl or coarse shell gravel with burrowing sea cucumbers' (**SS.SCS.CCS.Nmix**) is low. Only a single tentative record of the habitat was observed and so its likely extent will be small. The abundance of the characterising sea cucumbers appeared low from visual inspection, although they do exhibit sediment withdrawal behaviour.

PMFs recorded during the 2017 surveys but not ranked amongst the key sensitive habitats forming the focus for the programme included tide-swept algal communities, kelp & seaweed communities on sublittoral sediment, burrowed mud and fan mussels. The condition of all these features within the MPA and the adjacent waters examined is not believed to warrant their consideration as protected features.

4.4 Conservation management

Based on current knowledge of the distribution of the protected feature of Loch Carron MPA (flame shell beds), maerl beds, other key PMFs including historical records, and the distribution of areas exhibiting suitable environmental conditions for potential future expansion or remediation of the flame shell feature, target areas have been identified where conservation management can be focussed (Figures 45 - 48).

4.4.1 Flame shell beds

The Strome Narrows bed was recorded over a depth range of 3.0 - 23.4 m in areas of elevated current speed. The target management area embraces the currently known distribution of the bed and the system of channels around the Strome Islands below MLWS (Figure 46). At the eastern entrance to Strome Narrows, although the bed was clearly observed to a depth of 23.4 m, possible *Limaria* byssal material was recorded beneath the dense ophiuroids just beyond the 50 m depth contour. This is close to the eastern boundary of the MPA which has also been selected as the eastern boundary of the target management area.

Around Sgeir Bhuidhe the three flame shell beds are distributed within a depth range of 9.5 - 21.1 m and amongst the islets and shoals where tidal currents are accelerated. The outer margin of the proposed management area broadly follows the 30 m depth contour except to the north-east where the 10 m contour is adopted, as records in this region indicate that the flame shell habitat does not extend north-east as far as the Garra Islands (Figure 47). This outer boundary provides a buffer zone of at least 100 m, which is considered to be sufficient for recovery of any historical marginal recession of the beds and to afford protection from activities causing sediment disturbance adjacent to the beds. The shallow boundary of the target area is defined, for practical reasons, as MLWS.

Small numbers of moorings, largely for local working vessels, are present within the Strome Narrows target area. The main concentration of moorings is in Castle Bay, west of Strome Castle. This shallow (<5 m), sandy-bottomed bay is sheltered from tidal current action and is unlikely to support the flame shell habitat. Moorings off the slips at North Strome and South Strome may lie just outside the flame shell bed, although scattered nests, for example associated with kelp holdfasts, could be present.

4.4.2 Maerl beds

The Strome Narrows target area incorporates the small maerl bed off the North Strome slip (Figure 46). As with the flame shell bed here, a small number of moorings will lie close to the northern margin of this bed.

Maerl is scattered amongst the embayments, skerries and channels between Plockton and Loch Alsh and so the targeted area for conservation management covers this entire stretch of coastline (Figure 48). In 2017 maerl was largely recorded over a depth range of MLWS - 11.6 m. At site V03 north of Plockton maerl was mostly abundant during the video run from a depth of 0.4 m below to 0.2 m above MLWS, although at the shallowest point of the run the seabed was obscured and it may have been absent. The height of two historic lower shore records of maerl west of Plockton (Smith 1978, Smith & Hiscock, 1985) is unknown. The shallow boundary of the target area has been set at MLWS. Based on the known depth range of maerl beds elsewhere in Scottish waters, this shallow boundary should embrace the local maerl beds, although cognizance will need to be taken of potentially perturbatory activities higher on the shores. Although maerl beds may extend to a depth of around 30 m in more exposed locations in Scottish waters, an offshore target boundary of 20 m depth should be sufficient to manage the habitat in Loch Carron. The boundary approximately follows the 20 m depth contour and is contiguous with the Lochs Duich, Long and Alsh MPA.

A small number of moorings are present within embayments south of Badicaul and at Port Luinge, which is also a recognised anchorage. An outfall from Plockton Sewage Treatment Works discharges within or close to the margin of the Port Luinge maerl bed.

4.4.3 Other PMFs

The Strome Narrows conservation target area subsumes all the known and likely horse mussel beds in the MPA and the area of unvalidated historic records of eelgrass beds east of North Strome (Figure 4). The Plockton to Loch Alsh target area includes the sites of historic records of eelgrass beds and native oysters, not validated by the current survey work, but which may still be scattered along the complex coastline here.

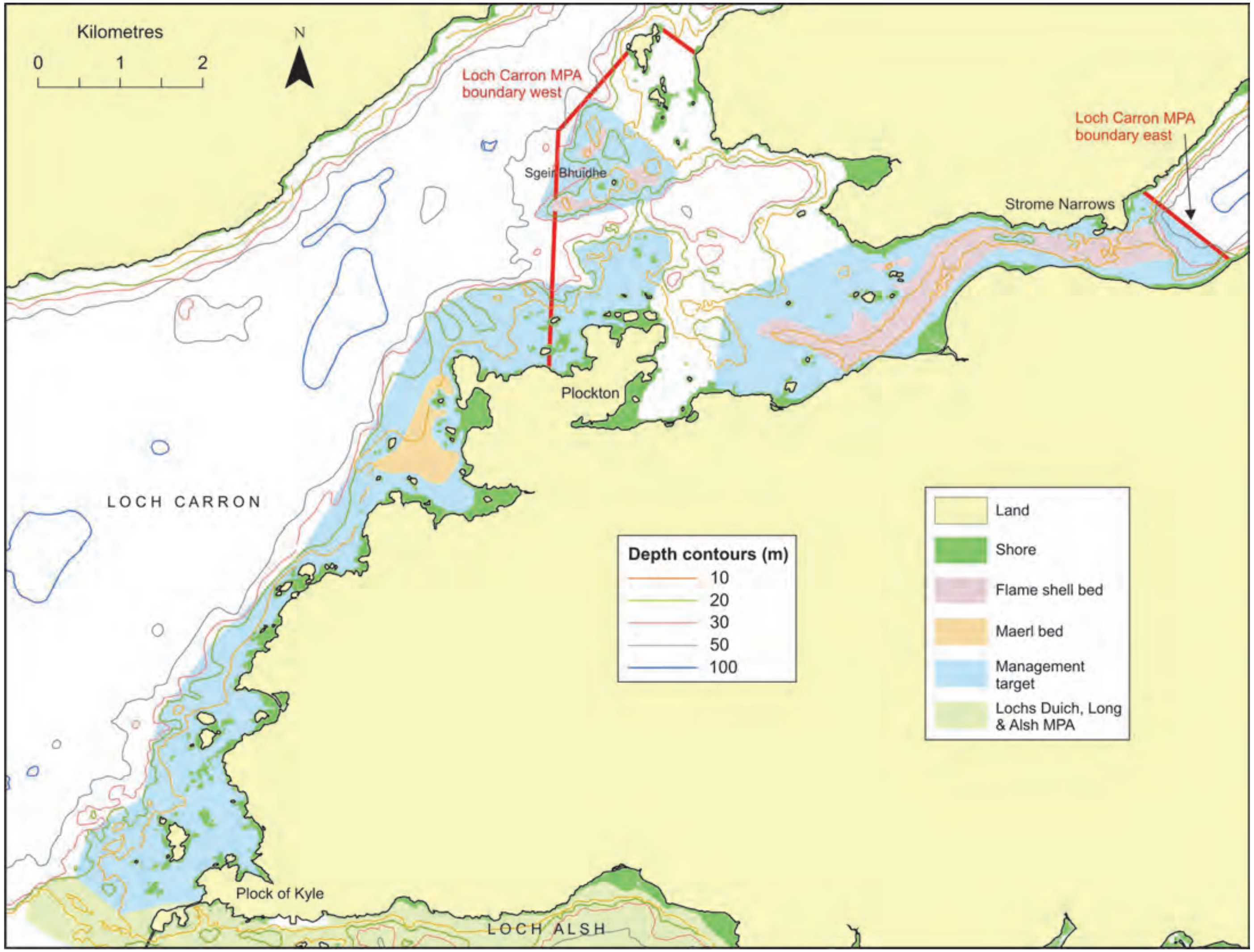

Figure 45. Conservation management target areas in relation to the boundary of the Loch Carron urgent MPA (May 2017 designation) and adjacent waters.

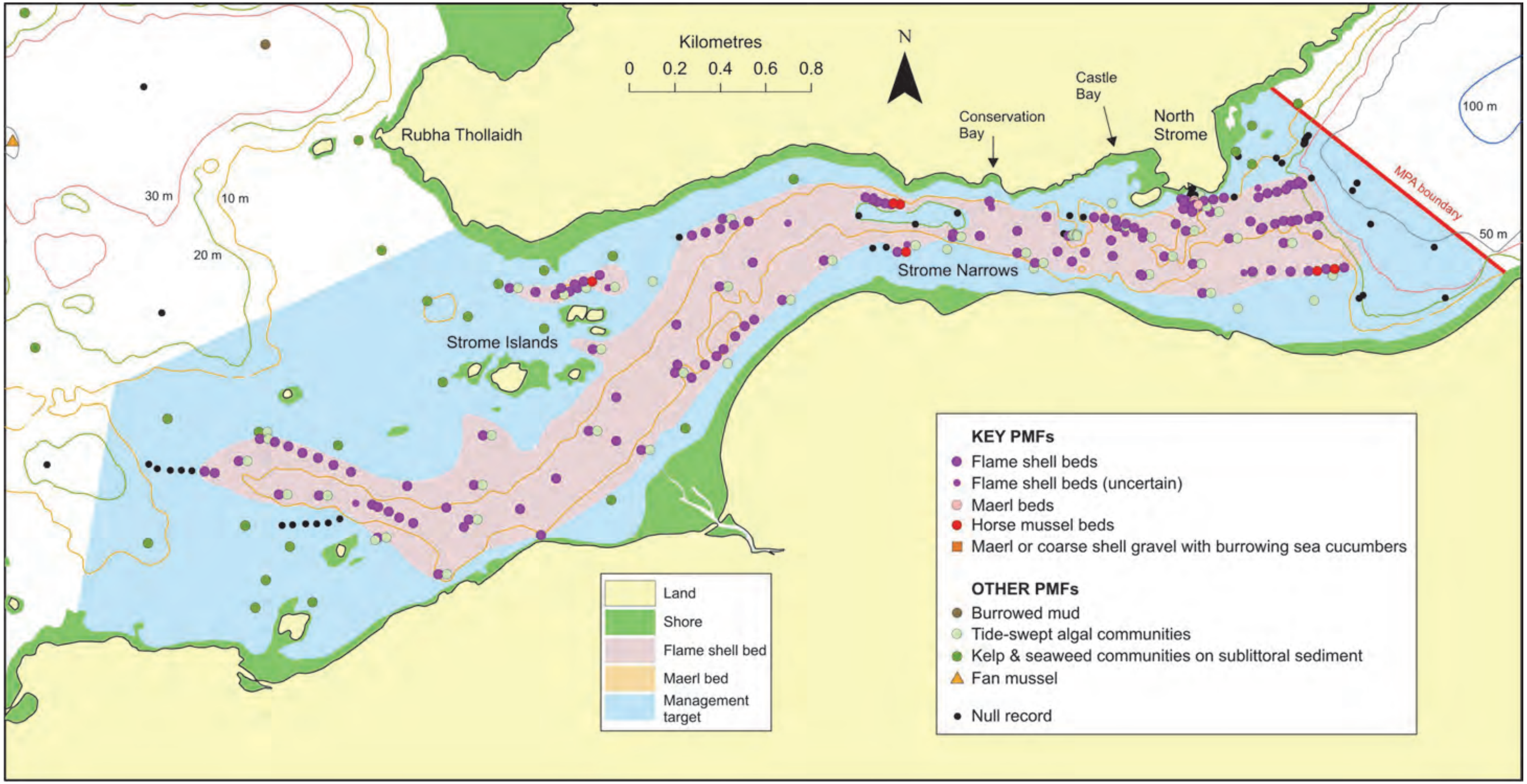

Figure 46. Conservation management target area for Strome Narrows and western approaches, showing distribution of PMF and non-PMF records in relation to the Loch Carron urgent MPA boundary (May 2017 designation).

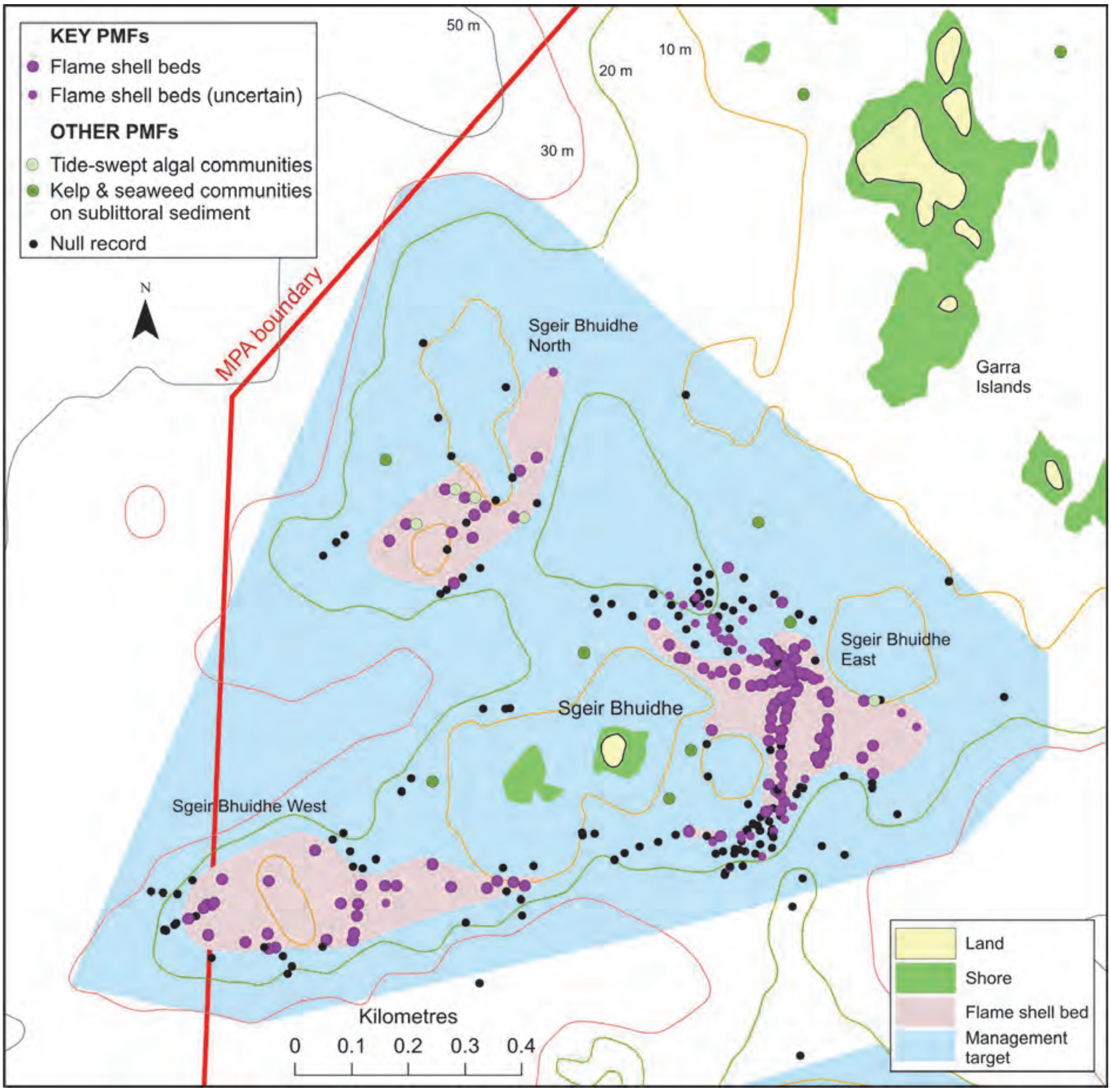

Figure 47. Conservation management target area for the Sgeir Bhuidhe region, showing distribution of PMF and non-PMF records in relation to the Loch Carron urgent MPA boundary (May 2017 designation).

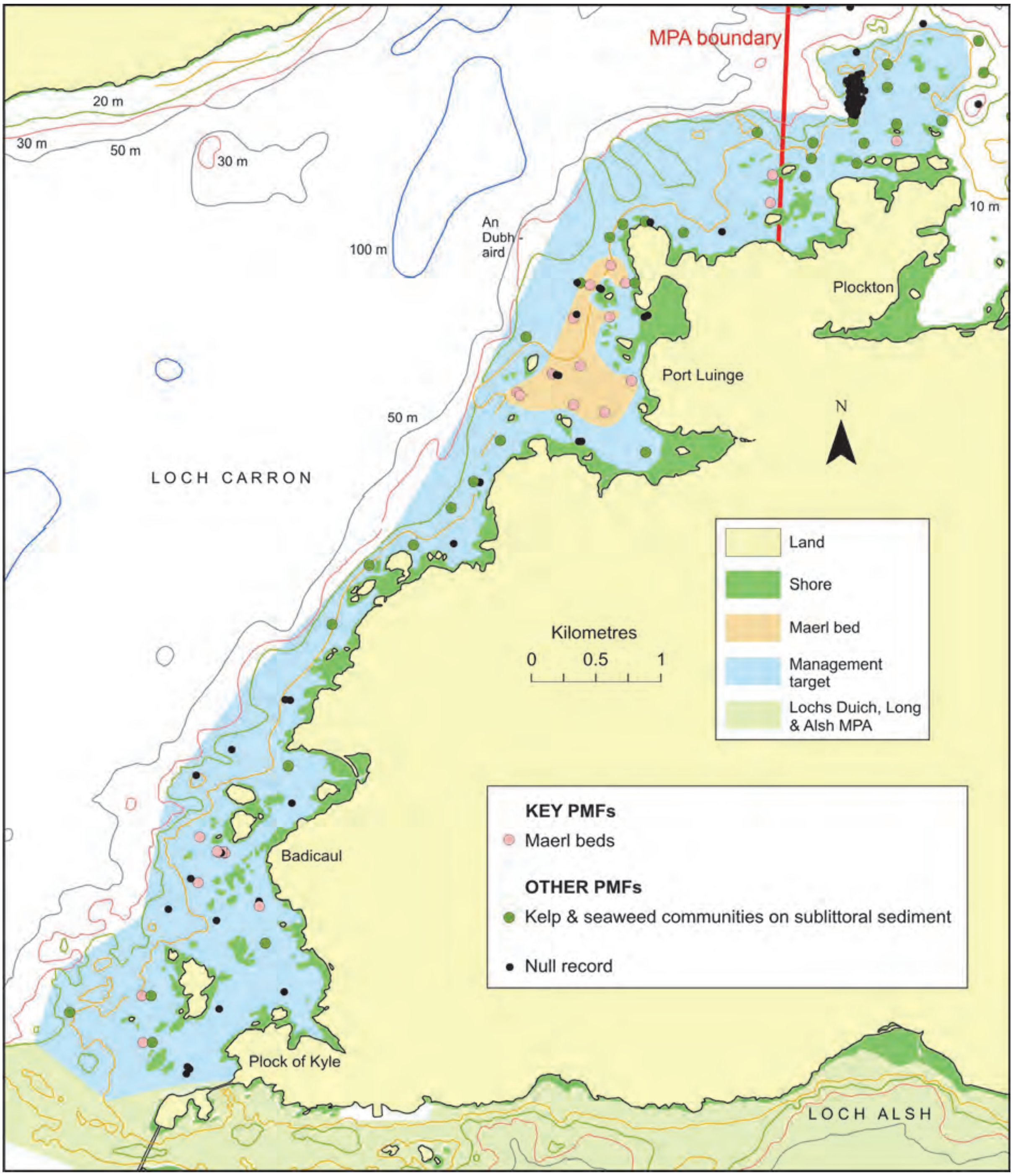

Figure 48. Conservation management target area for the Plockton to Loch Alsh coastal zone, showing distribution of PMF and non-PMF records in relation to the Loch Carron urgent MPA boundary (May 2017 designation).

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ANNEX 1: DROP-DOWN VIDEO SURVEY DATA

Table 1.1. Positional, temporal and depth details for all drop-down video runs recorded during the surveys. Runs have been divided into segments of different habitats. The video sample label contains the site ID suffixed where necessary by the segment number (i.e. SITE.segment#).

Video sample	Survey	Date	Time start (UT)	Time end (UT)	Time code start	Time code end	Start latitude	Start longitude	End latitude	End longitude	Depth BCD start (m)	Depth BCD end (m)
LC-V1	MSS May	03/05/2017	09:22:19	09:24:41	00:00:00	00:02:40	57.360933	-5.648267	57.361233	-5.648150	22.4	20.1
LC-V2.1	MSS May	03/05/2017	09:49:02	09:52:14	00:01:58	00:05:11	57.362450	-5.649567	57.362383	-5.649833	17.2	17.5
LC-V2.2	MSS May	03/05/2017	09:52:14	09:53:27	00:05:11	00:06:25	57.362383	-5.649833	57.362317	-5.650000	17.5	17.4
LC-V2.3	MSS May	03/05/2017	09:53:27	09:55:56	00:06:25	00:08:54	57.362317	-5.650000	57.362150	-5.650333	17.4	16.5
LC-V2.4	MSS May	03/05/2017	09:55:56	09:56:34	00:08:54	00:09:35	57.362150	-5.650333	57.362083	-5.650383	16.5	16.1
LC-V2.5	MSS May	03/05/2017	09:56:34	10:01:33	00:09:35	00:14:30	57.362083	-5.650383	57.361500	-5.650433	16.1	14.7
LC-V2.6	MSS May	03/05/2017	10:01:33	10:02:37	00:14:30	00:15:33	57.361500	-5.650433	57.361383	-5.650383	14.7	14.9
LC-V2.7	MSS May	03/05/2017	10:02:37	10:11:08	00:15:33	00:24:05	57.361383	-5.650383	57.360400	-5.650400	14.9	18.2
LC-V2.8	MSS May	03/05/2017	10:11:08	10:12:23	00:24:05	00:25:22	57.360400	-5.650400	57.360217	-5.650333	18.2	19.5
LC-V2.9	MSS May	03/05/2017	10:12:23	10:22:18	00:25:22	00:35:24	57.360217	-5.650333	57.359750	-5.651967	19.5	21.7
LC-V3.1	MSS May	03/05/2017	11:18:01	11:24:27	00:02:07	00:08:47	57.364183	-5.652717	57.363267	-5.652800	23.6	19.4
LC-V3.2	MSS May	03/05/2017	11:24:27	11:26:14	00:08:47	00:10:34	57.363267	-5.652800	57.362867	-5.652680	19.4	17.1
LC-V3.3	MSS May	03/05/2017	11:26:14	11:33:24	00:10:34	00:17:46	57.362867	-5.652680	57.362517	-5.650350	17.1	18.0
LC-V3.4	MSS May	03/05/2017	11:33:24	11:33:43	00:17:47	00:18:06	57.362517	-5.650350	57.362517	-5.650267	18.0	17.9
LC-V3.5	MSS May	03/05/2017	11:33:43	11:35:24	00:18:06	00:19:46	57.362517	-5.650267	57.362550	-5.649800	17.9	17.2
LC-V3.6	MSS May	03/05/2017	11:35:24	11:35:45	00:19:46	00:20:06	57.362550	-5.649800	57.362567	-5.649717	17.2	17.0
LC-V3.7	MSS May	03/05/2017	11:35:45	11:42:01	00:20:06	00:26:23	57.362567	-5.649717	57.362733	-5.650000	17.0	17.5
LC-V3.8	MSS May	03/05/2017	11:42:01	11:43:20	00:26:23	00:27:40	57.362733	-5.650000	57.362767	-5.650200	17.5	17.8
LC-V3.9	MSS May	03/05/2017	11:43:20	11:45:35	00:27:40	00:29:55	57.362767	-5.650200	57.362817	-5.650550	17.8	18.7
LC-V3.10	MSS May	03/05/2017	11:45:35	11:45:55	00:29:55	00:30:17	57.362817	-5.650550	57.362817	-5.650633	18.7	18.9
LC-V3.11	MSS May	03/05/2017	11:45:55	11:48:00	00:30:17	00:32:22	57.362817	-5.650633	57.362900	-5.651150	18.9	19.7
LC-V3.12	MSS May	03/05/2017	11:48:00	11:55:59	00:32:22	00:40:22	57.362900	-5.651150	57.363350	-5.652100	19.7	21.4
LC-V3.13	MSS May	03/05/2017	11:55:59	12:03:38	00:40:22	00:48:12	57.363350	-5.652100	57.364200	-5.653567	21.4	26.0

Table 1.1 continued

Video sample	Survey	Date	Time start (UT)	Time end (UT)	Time code start	Time code end	Start latitude	Start longitude	End latitude	End longitude	Depth BCD start (m)	Depth BCD end (m)
LC-V4.1	MSS May	03/05/2017	12:22:45	12:23:45	00:02:24	00:03:42	57.363833	-5.654083	57.363867	-5.653950	22.9	23.4
LC-V4.2	MSS May	03/05/2017	12:23:45	12:38:53	00:03:42	00:18:48	57.363867	-5.653950	57.362900	-5.650617	23.4	18.7
LC-V4.3	MSS May	03/05/2017	12:38:53	12:40:08	00:18:48	00:20:04	57.362900	-5.650617	57.362800	-5.650150	18.7	17.5
LC-V4.4	MSS May	03/05/2017	12:40:08	12:40:26	00:20:04	00:20:23	57.362800	-5.650150	57.362783	-5.650033	17.5	17.3
LC-V4.5	MSS May	03/05/2017	12:40:26	12:41:09	00:20:23	00:21:04	57.362783	-5.650033	57.362733	-5.649767	17.3	16.8
LC-V4.6	MSS May	03/05/2017	12:41:09	12:41:40	00:21:04	00:21:36	57.362733	-5.649767	57.362700	-5.649550	16.8	16.5
LC-V4.7	MSS May	03/05/2017	12:41:40	12:43:42	00:21:36	00:23:38	57.362700	-5.649550	57.362483	-5.648867	16.5	15.9
LC-V5.1	MSS May	03/05/2017	12:57:31	13:08:09	00:02:29	00:13:11	57.359367	-5.651683	57.360317	-5.650717	25.1	16.5
LC-V5.2	MSS May	03/05/2017	13:08:09	13:09:29	00:13:11	00:14:32	57.360317	-5.650717	57.360433	-5.650500	16.5	16.4
LC-V5.3	MSS May	03/05/2017	13:09:29	13:10:07	00:14:32	00:15:08	57.360433	-5.650500	57.360467	-5.650400	16.4	16.1
LC-V5.4	MSS May	03/05/2017	13:10:07	13:13:14	00:15:08	00:18:16	57.360467	-5.650400	57.360583	-5.650083	16.1	19.7
LC-V5.5	MSS May	03/05/2017	13:13:14	13:15:05	00:18:16	00:20:06	57.360583	-5.650083	57.360683	-5.649750	19.7	21.1
LC-V5.6	MSS May	03/05/2017	13:15:05	13:18:10	00:20:06	00:23:10	57.360683	-5.649750	57.361050	-5.649200	21.1	20.5
LC-V5.7	MSS May	03/05/2017	13:18:10	13:21:03	00:23:10	00:26:07	57.361050	-5.649200	57.361500	-5.648733	20.5	18.7
LC-V6.1	MSS May	03/05/2017	13:35:50	13:38:49	00:02:07	00:05:20	57.359933	-5.652400	57.360017	-5.651550	19.6	17.6
LC-V6.2	MSS May	03/05/2017	13:38:49	13:49:57	00:05:20	00:16:26	57.360017	-5.651550	57.360450	-5.649833	17.6	21.7
LC-V6.3	MSS May	03/05/2017	13:49:57	13:55:46	00:16:26	00:22:18	57.360450	-5.649833	57.361083	-5.649333	21.7	20.0
LC-V6.4	MSS May	03/05/2017	13:55:46	14:00:18	00:22:18	00:26:47	57.361083	-5.649333	57.361617	-5.648767	20.0	18.2
LC-V6.5	MSS May	03/05/2017	14:00:18	14:00:39	00:26:47	00:27:10	57.361617	-5.648767	57.361683	-5.648750	18.2	18.0
LC-V6.6	MSS May	03/05/2017	14:00:39	14:01:32	00:27:10	00:28:04	57.361683	-5.648750	57.361850	-5.648733	18.0	17.3
LC-V6.7	MSS May	03/05/2017	14:01:32	14:01:58	00:28:04	00:28:27	57.361850	-5.648733	57.361933	-5.648750	17.3	17.0
LC-V6.8	MSS May	03/05/2017	14:01:58	14:06:21	00:28:27	00:32:51	57.361933	-5.648750	57.362767	-5.649100	17.0	14.6
LC-V6.9	MSS May	03/05/2017	14:06:21	14:07:26	00:32:51	00:33:57	57.362767	-5.649100	57.363017	-5.649283	14.6	15.0
LC-V6.10	MSS May	03/05/2017	14:07:26	14:19:34	00:33:57	00:46:04	57.363017	-5.649283	57.364350	-5.652883	15.0	23.8
LC-V7.1	MSS May	03/05/2017	14:30:57	14:43:39	00:02:03	00:14:57	57.364300	-5.653217	57.363083	-5.650633	24.9	18.8
LC-V7.2	MSS May	03/05/2017	14:43:39	14:45:58	00:14:57	00:17:14	57.363083	-5.650633	57.362933	-5.650067	18.8	17.2
LC-V7.3	MSS May	03/05/2017	14:45:58	14:46:20	00:17:14	00:17:37	57.362933	-5.650067	57.362900	-5.649983	17.2	17.0
LC-V7.4	MSS May	03/05/2017	14:46:20	14:46:38	00:17:37	00:17:55	57.362900	-5.649983	57.362867	-5.649917	17.0	16.9

Table 1.1 continued

Video sample	Survey	Date	Time start (UT)	Time end (UT)	Time code start	Time code end	Start latitude	Start longitude	End latitude	End longitude	Depth BCD start (m)	Depth BCD end (m)
LC-V7.5	MSS May	03/05/2017	14:46:38	14:49:14	00:17:55	00:20:31	57.362867	-5.649917	57.362450	-5.649667	16.9	17.5
LC-V7.6	MSS May	03/05/2017	14:49:14	14:49:58	00:20:31	00:21:15	57.362450	-5.649667	57.362300	-5.649783	17.5	17.5
LC-V7.7	MSS May	03/05/2017	14:49:58	14:51:19	00:21:15	00:22:34	57.362300	-5.649783	57.362067	-5.649967	17.5	16.9
LC-V7.8	MSS May	03/05/2017	14:51:19	14:52:09	00:22:34	00:23:26	57.362067	-5.649967	57.361933	-5.649983	16.9	16.6
LC-V7.9	MSS May	03/05/2017	14:52:09	14:55:10	00:23:26	00:26:27	57.361933	-5.649983	57.361600	-5.650117	16.6	15.9
LC-V7.10	MSS May	03/05/2017	14:55:10	14:57:14	00:26:27	00:28:33	57.361600	-5.650117	57.361433	-5.650067	15.9	15.9
LC-V7.11	MSS May	03/05/2017	14:57:14	14:58:02	00:28:33	00:29:19	57.361433	-5.650067	57.361317	-5.650067	15.9	16.0
LC-V7.12	MSS May	03/05/2017	14:58:02	15:00:48	00:29:19	00:32:04	57.361317	-5.650067	57.361050	-5.650067	16.0	17.2
LC-V7.13	MSS May	03/05/2017	15:00:48	15:06:09	00:32:04	00:37:26	57.361050	-5.650067	57.360450	-5.650033	17.2	20.3
LC-V7.14	MSS May	03/05/2017	15:06:09	15:07:02	00:37:26	00:38:19	57.360450	-5.650033	57.360350	-5.650017	20.3	20.8
LC-V7.15	MSS May	03/05/2017	15:07:02	15:15:51	00:38:19	00:47:07	57.360350	-5.650017	57.359533	-5.651183	20.8	23.5
LC-V8.1	MSS May	04/05/2017	09:52:15	10:01:08	00:02:07	00:11:10	57.350467	-5.659717	57.351337	-5.657258	25.8	
LC-V8.2	MSS May	04/05/2017	10:01:08	10:13:24	00:11:10	00:23:51	57.351337	-5.657258	57.353117	-5.656833		13.0
LC-V9.1	MSS May	04/05/2017	12:17:25	12:22:31	00:02:29	00:07:50	57.350167	-5.658050	57.350567	-5.657250	23.7	18.9
LC-V9.2	MSS May	04/05/2017	12:22:31	12:45:34	00:07:50	00:31:06	57.350567	-5.657250	57.352817	-5.658183	18.9	14.1
LC-V10.1	MSS May	04/05/2017	12:57:25	13:19:59	00:01:41	00:24:31	57.350067	-5.657517	57.352150	-5.658300	19.4	19.1
LC-V10.2	MSS May	04/05/2017	13:19:59	13:24:47	00:24:31	00:29:38	57.352150	-5.658300	57.352517	-5.658767	19.1	16.3
LC-V11.1	MSS May	04/05/2017	13:37:11	14:04:00	00:01:56	00:28:53	57.350067	-5.657850	57.352200	-5.657983	22.0	18.3
LC-V11.2	MSS May	04/05/2017	14:04:00	14:13:57	00:28:53	00:39:19	57.352200	-5.657983	57.353017	-5.657367	18.3	13.3
V02	SNH May	05/05/2017	10:32	10:35	00:00:32	00:02:23	57.348030	-5.662780	57.348100	-5.662600	13.6	14.1
V03	SNH May	05/05/2017	10:19	10:21	00:00:12	00:02:16	57.345650	-5.667750	57.345750	-5.667710	-0.5	-1.1
V04	SNH May	05/05/2017	10:10	10:14	00:00:13	00:04:02	57.343730	-5.668270	57.343800	-5.667500	0.9	0.8
V05	SNH May	05/05/2017	10:24	10:26	00:00:11	00:02:12	57.345620	-5.663560	57.345710	-5.663470	0.4	0.5
V06	SNH May	05/05/2017	10:45	10:48	00:00:25	00:04:23	57.349600	-5.652300	57.349570	-5.651840	2.0	1.7
V09	SNH May	05/05/2017	10:52	10:54	00:00:16	00:03:07	57.352170	-5.648670	57.352140	-5.648550	6.4	6.4
V11	SNH May	05/05/2017	12:26	12:29	00:00:09	00:03:19	57.354880	-5.612340	57.354580	-5.612380	3.0	3.2
V15	SNH May	05/05/2017	12:49	12:51	00:00:15	00:02:25	57.340490	-5.620410	57.340470	-5.620710	0.6	0.6
V16	SNH May	05/05/2017	12:44	12:46	00:00:13	00:03:06	57.341590	-5.619680	57.341570	-5.620060	3.7	3.3
V17	SNH May	05/05/2017	13:02	13:05	00:00:10	00:02:48	57.342920	-5.618220	57.342960	-5.618190	3.1	2.7

Table 1.1 continued

Video sample	Survey	Date	Time start (UT)	Time end (UT)	Time code start	Time code end	Start latitude	Start longitude	End latitude	End longitude	Depth BCD start (m)	Depth BCD end (m)
V18	SNH May	05/05/2017	12:35	12:38	00:00:16	00:03:08	57.347950	-5.627240	57.347660	-5.627700	4.0	4.2
V19	SNH May	05/05/2017	12:55	12:58	00:00:27	00:02:35	57.340810	-5.616300	57.340780	-5.616500	1.8	2.2
V23	SNH May	05/05/2017	12:18	12:22	00:00:16	00:03:51	57.359350	-5.614090	57.358730	-5.614570	3.6	2.8
V24	SNH May	05/05/2017	11:27	11:30	00:00:18	00:03:07	57.375430	-5.641910	57.375110	-5.642200	3.5	3.2
V25	SNH May	05/05/2017	11:33	11:35	00:00:11	00:02:20	57.372820	-5.642550	57.372540	-5.642800	0.5	-0.2
V26.1	SNH May	05/05/2017	12:00		00:00:16	00:00:38	57.368130	-5.639610	57.367820	-5.639690	-0.9	
V26.2	SNH May	05/05/2017		12:02	00:00:38	00:02:40	57.368130	-5.639610	57.367820	-5.639690		0.4
V27	SNH May	05/05/2017	11:04	11:08	00:00:19	00:03:59	57.367210	-5.658190	57.366860	-5.658940	10.4	7.4
V31	SNH May	05/05/2017	09:28	09:34	00:00:26	00:06:30	57.337710	-5.685940	57.337920	-5.686290	1.5	2.5
V32	SNH May	05/05/2017	09:38	09:42	00:00:23	00:04:21	57.338950	-5.688200	57.339010	-5.687910	4.8	4.5
V33	SNH May	05/05/2017	09:44	09:47	00:00:16	00:02:56	57.340880	-5.688400	57.340950	-5.688260	8.1	7.6
V34	SNH May	05/05/2017	09:49	09:53	00:00:19	00:04:06	57.341910	-5.687000	57.341880	-5.686500	6.0	6.5
V35	SNH May	05/05/2017	10:01	10:03	00:00:11	00:02:09	57.341470	-5.679120	57.341450	-5.678730	3.2	3.3
V36	SNH May	05/05/2017	10:05	10:07	00:00:20	00:02:06	57.341670	-5.674120	57.341650	-5.673800	7.8	7.3
V37	SNH May	05/05/2017	10:29	10:31	00:00:22	00:02:49	57.346880	-5.662970	57.347010	-5.662660	8.3	8.6
V38	SNH May	05/05/2017	10:38	10:42	00:00:18	00:04:01	57.348150	-5.656420	57.348170	-5.655890	7.1	8.0
V39.1	SNH May	05/05/2017	11:11		00:00:30	00:03:29	57.367460	-5.656650	57.367130	-5.657740	16.8	
V39.2	SNH May	05/05/2017		11:18	00:03:29	00:05:16	57.367460	-5.656650	57.367130	-5.657740		12.3
V40	SNH May	05/05/2017	11:21	11:23	00:00:30	00:02:16	57.371910	-5.650060	57.371790	-5.650290	8.6	8.5
V41	SNH May	05/05/2017	13:07	13:11	00:00:30	00:03:54	57.345010	-5.616410	57.344990	-5.616070	11.4	11.7
V42	SNH May	05/05/2017	13:14	13:17	00:00:33	00:03:47	57.344810	-5.613550	57.344790	-5.613300	13.1	9.6
V43	SNH May	05/05/2017	13:20	13:24	00:00:22	00:04:02	57.345050	-5.619100	57.344920	-5.619250	10.4	9.8
DV01	SNH Jul	02/07/2017	08:52:04	08:56:46	00:00:18	00:05:01	57.360773	-5.549035	57.361157	-5.549478	0.5	0.2
DV02.1	SNH Jul	02/07/2017	08:45:33	08:47:39	00:00:39	00:02:45	57.359670	-5.550120	57.359812	-5.550272	1.8	
DV02.2	SNH Jul	02/07/2017	08:47:39	08:48:37	00:02:45	00:03:43	57.359812	-5.550272	57.360002	-5.550425		0.1
DV03	SNH Jul	02/07/2017	08:00:53	08:06:28	00:00:42	00:06:14	57.358887	-5.546028	57.358438	-5.546637	17.3	14.8
DV04	SNH Jul	02/07/2017	07:51:59	07:57:58	00:00:36	00:06:38	57.357393	-5.546300	57.357110	-5.547100	12.0	10.7
DV05	SNH Jul	02/07/2017	07:44:44	07:48:31	00:01:14	00:05:14	57.355230	-5.549172	57.355078	-5.549628	6.2	6.4
DV06	SNH Jul	02/07/2017	08:36:52	08:42:21	00:01:15	00:06:56	57.358442	-5.549303	57.358672	-5.547925	14.0	15.2

Table 1.1 continued

Video sample	Survey	Date	Time start (UT)	Time end (UT)	Time code start	Time code end	Start latitude	Start longitude	End latitude	End longitude	Depth BCD start (m)	Depth BCD end (m)
DV07	SNH Jul	03/07/2017	16:40:33	16:47:49	00:00:49	00:08:16	57.357397	-5.551653	57.357622	-5.552437	12.5	9.2
DV08.1	SNH Jul	02/07/2017	09:07:18	09:09:58	00:00:23	00:03:02	57.357785	-5.553173	57.357740	-5.553123	7.8	
DV08.2	SNH Jul	02/07/2017	09:09:58	09:13:58	00:03:02	00:07:13	57.357740	-5.553123	57.357607	-5.552762		8.8
DV09	SNH Jul	02/07/2017	06:44:30	06:50:26	00:03:31	00:09:31	57.356688	-5.553130	57.356730	-5.554448	9.9	11.3
DV10	SNH Jul	02/07/2017	09:17:34	09:22:37	00:00:37	00:05:46	57.357888	-5.554265	57.357307	-5.553402	8.8	7.2
DV11	SNH Jul	02/07/2017	07:34:13	07:39:46	00:00:59	00:06:39	57.354873	-5.556748	57.354975	-5.557158	11.2	11.4
DV12.1	SNH Jul	02/07/2017	07:05:26	07:08:47	00:01:09	00:04:33	57.356697	-5.557995	57.356767	-5.558717	12.6	
DV12.2	SNH Jul	02/07/2017	07:08:47	07:10:38	00:04:33	00:06:35	57.356767	-5.558717	57.356803	-5.558887		9.6
DV13.1	SNH Jul	02/07/2017	09:44:31	09:46:48	00:00:44	00:03:03	57.356495	-5.562962	57.356357	-5.562450	11.6	
DV13.2	SNH Jul	02/07/2017	09:46:48	09:47:41	00:03:03	00:03:55	57.356357	-5.562450	57.356315	-5.562188		
DV13.3	SNH Jul	02/07/2017	09:47:41	09:48:29	00:03:55	00:04:45	57.356315	-5.562188	57.356400	-5.561968		
DV13.4	SNH Jul	02/07/2017	09:48:29	09:48:51	00:04:45	00:05:07	57.356400	-5.561968	57.356407	-5.561950		
DV13.5	SNH Jul	02/07/2017	09:48:51	09:49:35	00:05:07	00:06:03	57.356407	-5.561950	57.356418	-5.561488		5.5
DV14	SNH Jul	02/07/2017	09:53:23	09:58:53	00:00:48	00:06:33	57.355570	-5.566417	57.355598	-5.565598	9.5	10.5
DV15	SNH Jul	02/07/2017	10:02:51	10:08:11	00:01:15	00:06:47	57.357110	-5.571128	57.357075	-5.569900	28.4	19.4
DV16	SNH Jul	02/07/2017	10:21:54	10:26:19	00:00:42	00:05:16	57.357783	-5.576365	57.357508	-5.576717	17.3	17.2
DV17	SNH Jul	02/07/2017	10:32:31	10:37:39	00:00:29	00:05:41	57.354787	-5.580435	57.355238	-5.579762	8.2	7.2
DV18	SNH Jul	02/07/2017	10:41:38	10:47:13	00:01:05	00:06:48	57.356438	-5.582827	57.356530	-5.582588	13.1	13.1
DV19	SNH Jul	02/07/2017	11:28:16	11:33:37	00:00:48	00:06:15	57.356403	-5.587998	57.356608	-5.587170	3.7	4.7
DV20	SNH Jul	02/07/2017	11:37:22	11:42:53	00:00:51	00:06:25	57.353758	-5.588250	57.353910	-5.587017	10.7	10.6
DV21	SNH Jul	02/07/2017	11:49:48	11:56:03	00:00:28	00:06:43	57.353805	-5.595688	57.353447	-5.596093	3.2	4.2
DV22	SNH Jul	02/07/2017	12:15:45	12:21:43	00:00:44	00:06:42	57.354392	-5.601077	57.354010	-5.599802	0.0	1.9
DV23.1	SNH Jul	02/07/2017	12:38:11	12:41:42	00:00:56	00:04:33	57.350147	-5.590713	57.350587	-5.590542	11.2	
DV23.2	SNH Jul	02/07/2017	12:41:42	12:43:29	00:04:33	00:06:21	57.350587	-5.590542	57.350777	-5.590387		10.2
DV24	SNH Jul	02/07/2017	12:48:37	12:55:47	00:01:45	00:09:06	57.346537	-5.593308	57.348035	-5.592403	9.2	12.1
DV25	SNH Jul	02/07/2017	13:00:21	13:05:43	00:02:34	00:08:02	57.347380	-5.594795	57.347818	-5.594627	14.1	14.6
DV26	SNH Jul	02/07/2017	13:09:17	13:15:20	00:00:44	00:07:02	57.348392	-5.597018	57.347523	-5.596503	8.1	11.0
DV27	SNH Jul	02/07/2017	12:26:59	12:32:21	00:01:15	00:06:44	57.349228	-5.607768	57.350023	-5.607308	6.3	5.9
DV28	SNH Jul	02/07/2017	13:21:38	13:27:48	00:02:04	00:08:19	57.344673	-5.601393	57.344862	-5.601660	13.0	13.0

Table 1.1 continued

Video sample	Survey	Date	Time start (UT)	Time end (UT)	Time code start	Time code end	Start latitude	Start longitude	End latitude	End longitude	Depth BCD start (m)	Depth BCD end (m)
DV29	SNH Jul	02/07/2017	13:41:50	13:47:56	00:01:57	00:08:05	57.344517	-5.607805	57.344913	-5.606052	13.0	10.0
DV30	SNH Jul	02/07/2017	14:02:14	14:07:48	00:01:13	00:06:50	57.353127	-5.641430	57.353617	-5.640870	16.9	18.9
DV31	SNH Jul	03/07/2017	09:04:40	09:10:31	00:02:02	00:07:53	57.358482	-5.639712	57.358558	-5.639372	50.8	49.5
DV32	SNH Jul	03/07/2017	08:49:45	08:55:31	00:01:24	00:07:06	57.360705	-5.630650	57.360958	-5.629688	43.9	43.8
DV33	SNH Jul	03/07/2017	08:34:02	08:40:02	00:01:33	00:07:19	57.362575	-5.621918	57.362778	-5.620900	42.7	41.4
DV34	SNH Jul	03/07/2017	09:18:00	09:24:41	00:01:01	00:07:50	57.363665	-5.639272	57.363433	-5.638812	14.4	16.3
DV35	SNH Jul	03/07/2017	09:32:00	09:38:08	00:02:45	00:08:48	57.362632	-5.643933	57.362237	-5.643300	14.0	16.4
DV36	SNH Jul	03/07/2017	12:21:35	12:27:15	00:00:44	00:06:28	57.365277	-5.650832	57.364800	-5.651172	12.7	12.9
DV37	SNH Jul	03/07/2017	12:11:10	12:16:54	00:01:49	00:07:32	57.373788	-5.654890	57.373228	-5.654963	14.8	16.7
DV38	SNH Jul	03/07/2017	11:06:50	11:12:58	00:01:01	00:07:15	57.362760	-5.656620	57.362965	-5.655313	13.5	10.9
DV39	SNH Jul	03/07/2017	10:32:20	10:37:52	00:00:47	00:06:25	57.361795	-5.652268	57.361640	-5.651987	10.6	10.6
DV40.1	SNH Jul	03/07/2017	10:44:08	10:46:22	00:00:52	00:03:13	57.360067	-5.655812	57.359978	-5.655835	13.5	
DV40.2	SNH Jul	03/07/2017	10:46:22	10:47:01	00:03:13	00:03:48	57.359978	-5.655835	57.359977	-5.655765		
DV40.3	SNH Jul	03/07/2017	10:47:01	10:50:15	00:03:48	00:07:03	57.359977	-5.655765	57.360042	-5.655158		15.7
DV41.1	SNH Jul	03/07/2017	12:55:23	12:57:54	00:00:41	00:03:13	57.359128	-5.658865	57.359013	-5.658205	12.0	
DV41.2	SNH Jul	03/07/2017	12:57:54	12:59:08	00:03:13	00:04:27	57.359013	-5.658205	57.359050	-5.657755		
DV41.3	SNH Jul	03/07/2017	12:59:08	13:02:00	00:04:27	00:07:24	57.359050	-5.657755	57.359210	-5.657105		11.4
DV42.1	SNH Jul	03/07/2017	13:18:41	13:20:12	00:00:59	00:02:28	57.358260	-5.667805	57.358337	-5.667525	17.3	
DV42.2	SNH Jul	03/07/2017	13:20:12	13:22:09	00:02:28	00:04:27	57.358337	-5.667525	57.358460	-5.667108		
DV42.3	SNH Jul	03/07/2017	13:22:09	13:22:20	00:04:27	00:04:36	57.358460	-5.667108	57.358445	-5.666973		
DV42.4	SNH Jul	03/07/2017	13:22:20	13:25:57	00:04:36	00:08:12	57.358445	-5.666973	57.358792	-5.666182		14.9
DV43	SNH Jul	02/07/2017	14:44:58	14:49:31	00:01:59	00:06:31	57.357257	-5.658943	57.357873	-5.658375	43.0	43.0
DV44	SNH Jul	02/07/2017	14:32:48	14:38:01	00:01:16	00:06:34	57.354202	-5.658123	57.354783	-5.657062	13.9	19.0
DV45	SNH Jul	02/07/2017	14:22:03	14:26:59	00:00:44	00:06:00	57.353242	-5.654253	57.354155	-5.652853	8.9	9.9
DV46.1	SNH Jul	03/07/2017	14:05:26	14:10:35	00:00:38	00:05:47	57.334995	-5.692902	57.335445	-5.692302	11.6	
DV46.2	SNH Jul	03/07/2017	14:10:35	14:11:35	00:05:47	00:06:49	57.335445	-5.692302	57.335565	-5.692173		6.4
DV47	SNH Jul	03/07/2017	14:16:09	14:22:08	00:01:06	00:07:08	57.335175	-5.688288	57.335613	-5.687615	2.3	1.7
DV48.1	SNH Jul	03/07/2017	14:26:11	14:28:03	00:00:21	00:02:11	57.335400	-5.683628	57.335603	-5.683348	-0.7	
DV48.2	SNH Jul	03/07/2017	14:28:03	14:30:59	00:02:11	00:05:07	57.335603	-5.683348	57.335683	-5.682843		-1.1

Table 1.1 continued

Video sample	Survey	Date	Time start (UT)	Time end (UT)	Time code start	Time code end	Start latitude	Start longitude	End latitude	End longitude	Depth BCD start (m)	Depth BCD end (m)
DV49	SNH Jul	03/07/2017	14:38:31	14:45:01	00:00:22	00:06:55	57.331048	-5.685367	57.331063	-5.684240	0.3	0.2
DV50	SNH Jul	03/07/2017	14:50:12	14:52:53	00:00:30	00:03:10	57.326063	-5.682805	57.326125	-5.682423	0.0	-0.1
DV51.1	SNH Jul	03/07/2017	14:58:22	14:59:19	00:01:15	00:02:10	57.326683	-5.691313	57.326718	-5.691335	-0.3	
DV51.2	SNH Jul	03/07/2017	14:59:19	15:03:04	00:02:10	00:05:57	57.326718	-5.691335	57.326702	-5.690623		0.1
DV52	SNH Jul	03/07/2017	15:07:38	15:12:46	00:01:47	00:07:05	57.329223	-5.692725	57.329218	-5.691607	1.5	1.1
DV53.1	SNH Jul	03/07/2017	15:16:02	15:19:16	00:00:39	00:03:55	57.331353	-5.695365	57.331238	-5.694712	2.9	
DV53.2	SNH Jul	03/07/2017	15:19:16	15:20:30	00:03:55	00:05:08	57.331238	-5.694712	57.331227	-5.694307		
DV53.3	SNH Jul	03/07/2017	15:20:30	15:20:56	00:05:08	00:05:45	57.331227	-5.694307	57.331225	-5.694212		1.2
DV54	SNH Jul	03/07/2017	15:25:45	15:30:59	00:00:52	00:06:13	57.329877	-5.700085	57.329962	-5.698940	8.3	6.7
DV55	SNH Sep	27/09/2017	12:01:21	12:06:36	00:01:19	00:06:55	57.318940	-5.706212	57.319567	-5.707522	4.8	7.1
DV56.1	SNH Sep	27/09/2017	10:41:13	10:42:18	00:00:23	00:01:30	57.307917	-5.726990	57.307970	-5.727090	3.0	
DV56.2	SNH Sep	27/09/2017	10:42:18	10:46:29	00:01:30	00:05:54	57.307970	-5.727090	57.307977	-5.728357		11.9
DV57	SNH Sep	27/09/2017	10:11:03	10:16:06	00:01:26	00:06:38	57.300698	-5.726062	57.300937	-5.726532	1.6	1.5
DV58.1	SNH Sep	27/09/2017	09:36:26	09:38:37	00:01:09	00:03:19	57.297083	-5.734378	57.297207	-5.734895	1.0	
DV58.2	SNH Sep	27/09/2017	09:38:37	09:38:57	00:03:19	00:03:40	57.297207	-5.734895	57.297197	-5.735007		
DV58.3	SNH Sep	27/09/2017	09:38:57	09:39:10	00:03:40	00:03:53	57.297197	-5.735007	57.297167	-5.735063		
DV58.4	SNH Sep	27/09/2017	09:39:10	09:39:26	00:03:53	00:04:09	57.297167	-5.735063	57.297168	-5.735128		
DV58.5	SNH Sep	27/09/2017	09:39:26	09:42:06	00:04:09	00:06:49	57.297168	-5.735128	57.297273	-5.736103		2.2
DV59	SNH Sep	27/09/2017	09:44:06	09:48:35	00:00:32	00:04:59	57.297743	-5.737620	57.298595	-5.738295	4.1	5.5
DV60	SNH Sep	27/09/2017	09:03:17	09:08:39	00:00:20	00:05:55	57.292337	-5.734347	57.292530	-5.736405	7.0	7.7
DV61.1	SNH Sep	27/09/2017	08:54:27	08:56:49	00:00:19	00:02:41	57.294025	-5.730040	57.293727	-5.729957	1.7	
DV61.2	SNH Sep	27/09/2017	08:56:49	08:59:55	00:02:41	00:05:51	57.293727	-5.729957	57.293390	-5.729973		4.4
DV62	SNH Sep	27/09/2017	08:36:42	08:41:52	00:00:15	00:05:25	57.287520	-5.725708	57.287825	-5.726960	0.8	2.2
DV63	SNH Sep	27/09/2017	08:26:08	08:31:11	00:00:18	00:05:21	57.286255	-5.734207	57.286442	-5.734958	1.5	2.6
DV64.1	SNH Sep	27/09/2017	08:14:58	08:19:45	00:00:17	00:05:03	57.281453	-5.738852	57.282003	-5.738042	2.0	
DV64.2	SNH Sep	27/09/2017	08:19:45	08:20:07	00:05:03	00:05:25	57.282003	-5.738042	57.282110	-5.738110		
DV64.3	SNH Sep	27/09/2017	08:20:07	08:21:36	00:05:25	00:06:57	57.282110	-5.738110	57.282338	-5.738643		4.0
DV65	SNH Sep	27/09/2017	08:03:27	08:08:56	00:00:21	00:05:53	57.283823	-5.742710	57.283723	-5.745673	2.5	3.5
DV66	SNH Sep	27/09/2017	07:51:05	07:56:38	00:00:54	00:06:25	57.287120	-5.744668	57.286863	-5.744500	8.3	5.9

Table 1.1 continued

Video sample	Survey	Date	Time start (UT)	Time end (UT)	Time code start	Time code end	Start latitude	Start longitude	End latitude	End longitude	Depth BCD start (m)	Depth BCD end (m)
DV67	SNH Jul	02/07/2017	08:10:50	08:16:33	00:01:32	00:07:11	57.356838	-5.543807	57.356668	-5.544502	12.1	9.1
DV68	SNH Jul	02/07/2017	08:19:24	08:24:14	00:00:21	00:05:18	57.355088	-5.543600	57.355265	-5.542327	5.1	5.1
DV69	SNH Jul	02/07/2017	08:28:16	08:33:35	00:00:32	00:05:55	57.357072	-5.548930	57.357298	-5.549288	11.6	13.8
DV70	SNH Jul	02/07/2017	09:25:28	09:30:25	00:00:34	00:05:43	57.355385	-5.553585	57.355450	-5.552745	10.7	9.7
DV71	SNH Jul	02/07/2017	09:34:34	09:40:27	00:00:38	00:06:34	57.355458	-5.562305	57.355222	-5.561667	12.6	11.6
DV72	SNH Jul	02/07/2017	10:12:08	10:17:16	00:00:26	00:05:33	57.355630	-5.574422	57.355828	-5.573732	2.4	5.3
DV73	SNH Jul	03/07/2017	09:43:12	09:49:46	00:01:08	00:07:42	57.360758	-5.646970	57.360247	-5.646248	17.4	21.9
DV74.1	SNH Jul	02/07/2017	14:57:14	15:00:04	00:01:15	00:04:05	57.358743	-5.649678	57.359208	-5.649457	19.0	
DV74.2	SNH Jul	02/07/2017	15:00:04	15:02:55	00:04:05	00:07:19	57.359208	-5.649457	57.359643	-5.649175		19.0
DV75.1	SNH Jul	03/07/2017	10:07:32	10:07:56	00:01:11	00:01:37	57.359967	-5.648752	57.359940	-5.648807	23.0	
DV75.2	SNH Jul	03/07/2017	10:07:56	10:13:55	00:01:37	00:07:33	57.359940	-5.648807	57.359715	-5.647397		22.3
DV76	SNH Jul	03/07/2017	12:45:22	12:50:53	00:00:55	00:06:33	57.360583	-5.660912	57.360532	-5.661430	17.6	20.5
DV77.1	SNH Jul	03/07/2017	13:06:36	13:10:31	00:00:39	00:04:36	57.359415	-5.663955	57.359707	-5.663285	14.0	
DV77.2	SNH Jul	03/07/2017	13:10:31	13:12:19	00:04:36	00:06:23	57.359707	-5.663285	57.359798	-5.662975		
DV77.3	SNH Jul	03/07/2017	13:12:19	13:14:07	00:06:23	00:07:56	57.359798	-5.662975	57.359940	-5.662685		19.9
DV78.1	SNH Jul	03/07/2017	09:55:23	09:59:21	00:00:43	00:04:42	57.362257	-5.646820	57.361958	-5.646367	10.5	
DV78.2	SNH Jul	03/07/2017	09:59:21	10:02:00	00:04:42	00:07:24	57.361958	-5.646367	57.361853	-5.645932		14.7
DV79	SNH Jul	03/07/2017	10:55:36	11:02:07	00:00:52	00:07:31	57.362707	-5.652935	57.362975	-5.653068	13.0	13.6
DV80	SNH Jul	03/07/2017	12:31:40	12:40:16	00:00:31	00:09:09	57.365388	-5.660068	57.365110	-5.659207	11.0	11.1
DV81	SNH Jul	03/07/2017	13:45:02	13:48:21	00:00:44	00:04:03	57.348478	-5.670325	57.348813	-5.669498	9.9	10.2
DV82	SNH Sep	27/09/2017	09:56:19	10:02:47	00:00:49	00:07:32	57.302498	-5.737583	57.302468	-5.739845	13.2	13.0
DV83	SNH Sep	27/09/2017	07:30:54	07:36:05	00:00:47	00:06:09	57.285852	-5.753562	57.285443	-5.753910	14.9	14.6
DV84	SNH Sep	27/09/2017	09:12:45	09:17:12	00:00:44	00:05:22	57.293185	-5.741623	57.292988	-5.741680	17.3	16.7
DV85.1	SNH Jul	02/07/2017	11:58:39	12:01:19	00:00:40	00:03:21	57.353332	-5.598742	57.353463	-5.598317	11.5	
DV85.2	SNH Jul	02/07/2017	12:01:19	12:03:52	00:03:21	00:05:47	57.353463	-5.598317	57.353658	-5.597615		10.4
DV86	SNH Jul	02/07/2017	12:07:53	12:12:27	00:00:56	00:05:34	57.353112	-5.600307	57.353420	-5.598780	7.4	10.4
DV87.1	SNH Jul	02/07/2017	13:32:43	13:35:02	00:01:22	00:03:42	57.343763	-5.605575	57.344183	-5.605590	15.2	
DV87.2	SNH Jul	02/07/2017	13:35:02	13:37:50	00:03:42	00:06:34	57.344183	-5.605590	57.344370	-5.604860		15.0
DV88.1	SNH Jul	03/07/2017	10:20:28	10:23:31	00:01:06	00:04:10	57.361548	-5.647990	57.361203	-5.647373	16.2	

Table 1.1 continued

Video sample	Survey	Date	Time start (UT)	Time end (UT)	Time code start	Time code end	Start latitude	Start longitude	End latitude	End longitude	Depth BCD start (m)	Depth BCD end (m)
DV88.2	SNH Jul	03/07/2017	10:23:31	10:25:07	00:04:10	00:05:45	57.361203	-5.647373	57.361053	-5.647352		
DV88.3	SNH Jul	03/07/2017	10:25:07	10:26:06	00:05:45	00:06:44	57.361053	-5.647352	57.360915	-5.647413		
DV88.4	SNH Jul	03/07/2017	10:26:06	10:26:43	00:06:44	00:07:21	57.360915	-5.647413	57.360898	-5.647335		18.9
DV89.1	SNH Jul	03/07/2017	13:28:02	13:35:37	00:00:34	00:07:39	57.358430	-5.665128	57.358007	-5.664717	12.7	
DV89.2	SNH Jul	03/07/2017	13:35:37	13:36:10	00:07:39	00:08:19	57.358007	-5.664717	57.358002	-5.664647		14.1
DV90.1	SNH Jul	03/07/2017	13:54:34	13:58:44	00:00:31	00:04:41	57.342082	-5.684462	57.342170	-5.683332	-0.1	
DV90.2	SNH Jul	03/07/2017	13:58:44	13:59:25	00:04:41	00:05:43	57.342170	-5.683332	57.342063	-5.683178		2.7
DV91	SNH Jul	03/07/2017	15:42:26	15:49:18	00:00:27	00:07:30	57.349600	-5.646555	57.350260	-5.645837	3.4	7.3
DV92	SNH Jul	03/07/2017	15:54:11	16:00:00	00:02:08	00:07:58	57.350985	-5.641853	57.351423	-5.641433	34.1	33.3
DV93.1	SNH Jul	03/07/2017	16:25:48	16:28:37	00:00:34	00:03:25	57.356288	-5.556517	57.356513	-5.557317	11.1	
DV93.2	SNH Jul	03/07/2017	16:28:37	16:35:37	00:03:25	00:10:26	57.356513	-5.557317	57.356670	-5.558867		12.0
DV94.1	SNH Sep	27/09/2017	13:12:40	13:14:21	00:01:07	00:02:47	57.337267	-5.689040	57.337412	-5.689357	2.6	
DV94.2	SNH Sep	27/09/2017	13:14:21	13:14:51	00:02:47	00:03:17	57.337412	-5.689357	57.337428	-5.689528		
DV94.3	SNH Sep	27/09/2017	13:14:51	13:22:40	00:03:17	00:11:06	57.337428	-5.689528	57.337685	-5.691742		
DV94.4	SNH Sep	27/09/2017	13:22:40	13:24:00	00:11:06	00:12:25	57.337685	-5.691742	57.337700	-5.692153		
DV94.5	SNH Sep	27/09/2017	13:24:00	13:25:43	00:12:25	00:14:08	57.337700	-5.692153	57.337723	-5.692528		6.1
DV96	SNH Sep	27/09/2017	13:02:09	13:08:24	00:00:43	00:07:08	57.333663	-5.697897	57.333907	-5.699302	13.7	16.6
DV97	SNH Sep	27/09/2017	12:53:01	12:58:30	00:00:28	00:06:10	57.331750	-5.690982	57.332130	-5.691982	2.4	6.9
DV98	SNH Sep	27/09/2017	12:42:20	12:47:36	00:00:39	00:06:10	57.328677	-5.687473	57.328843	-5.688697	3.8	
DV99	SNH Sep	27/09/2017	12:32:24	12:36:52	00:00:25	00:05:13	57.326465	-5.700715	57.326627	-5.701947	4.2	5.3
DV100.1	SNH Sep	27/09/2017	12:21:39	12:25:59	00:00:32	00:04:56	57.323548	-5.703282	57.323633	-5.704373	3.0	
DV100.2	SNH Sep	27/09/2017	12:25:59	12:27:59	00:04:56	00:07:24	57.323633	-5.704373	57.323625	-5.704782		7.6
DV101	SNH Jul	04/07/2017	09:51:01	09:58:10	00:00:55	00:08:35	57.487367	-5.875330	57.487440	-5.875168	13.2	12.5
DV102	SNH Jul	04/07/2017	10:04:02	10:08:56	00:00:36	00:05:44	57.490560	-5.883262	57.490357	-5.883650	17.4	16.1
DV103	SNH Jul	04/07/2017	10:12:21	10:14:36	00:00:35	00:03:04	57.490675	-5.880315	57.490567	-5.880277	18.4	18.1
DV104.1	SNH Jul	04/07/2017	10:18:17	10:22:07	00:00:26	00:04:17	57.491685	-5.884895	57.491635	-5.886165	13.1	
DV104.2	SNH Jul	04/07/2017	10:22:07	10:26:50	00:04:17	00:09:06	57.491635	-5.886165	57.492310	-5.886923		19.1
DV105	SNH Jul	04/07/2017	10:43:56	10:48:59	00:00:31	00:05:55	57.516107	-5.874897	57.516833	-5.875918	19.5	22.2
DV106	SNH Jul	04/07/2017	10:53:21	10:58:07	00:00:42	00:05:37	57.513907	-5.876412	57.513727	-5.877228	22.5	21.8

Table 1.1 continued

Video sample	Survey	Date	Time start (UT)	Time end (UT)	Time code start	Time code end	Start latitude	Start longitude	End latitude	End longitude	Depth BCD start (m)	Depth BCD end (m)
DV107	SNH Jul	04/07/2017	11:06:20	11:17:04	00:00:47	00:11:31	57.502598	-5.876232	57.501557	-5.876383	17.9	16.0
DV108	SNH Jul	04/07/2017	11:22:11	11:26:27	00:00:36	00:04:53	57.497433	-5.876477	57.497118	-5.876435	17.8	17.8
DV109	SNH Sep	27/09/2017	12:11:02	12:16:24	00:00:37	00:06:22	57.321637	-5.706680	57.321842	-5.707972	9.3	17.2
DV110	SNH Sep	27/09/2017	11:20:08	11:25:27	00:00:41	00:06:12	57.318790	-5.711762	57.319332	-5.712167	8.7	16.7
DV111	SNH Sep	27/09/2017	11:09:53	11:14:17	00:01:02	00:05:56	57.317538	-5.717160	57.317478	-5.717975	5.8	7.0
DV112	SNH Sep	27/09/2017	10:52:52	10:58:29	00:00:36	00:06:34	57.313145	-5.721358	57.313445	-5.722713	10.2	17.4
DV113	SNH Sep	27/09/2017	10:30:47	10:37:14	00:00:47	00:07:36	57.304378	-5.733368	57.304340	-5.735280	16.9	17.1
DV114	SNH Sep	27/09/2017	10:21:21	10:26:51	00:00:23	00:06:19	57.303353	-5.726277	57.303323	-5.727617	4.8	5.8
DV115.1	SNH Sep	28/09/2017	09:01:55	09:02:47	00:00:35	00:01:28	57.364400	-5.660203	57.364450	-5.660000	10.1	
DV115.2	SNH Sep	28/09/2017	09:02:47	09:08:12	00:01:28	00:06:52	57.364450	-5.660000	57.364787	-5.658737		
DV115.3	SNH Sep	28/09/2017	09:08:12	09:13:45	00:06:52	00:12:26	57.364787	-5.658737	57.365143	-5.657613		
DV115.4	SNH Sep	28/09/2017	09:13:45	09:14:20	00:12:26	00:13:03	57.365143	-5.657613	57.365272	-5.657433		17.9
DV116.1	SNH Sep	27/09/2017	09:23:44	09:29:30	00:00:38	00:06:24	57.294722	-5.737062	57.295268	-5.738767	4.2	
DV116.2	SNH Sep	27/09/2017	09:29:30	09:31:05	00:06:24	00:08:02	57.295268	-5.738767	57.295338	-5.739032		6.4
DV117	SNH Sep	27/09/2017	08:46:25	08:51:19	00:00:17	00:05:10	57.290535	-5.728293	57.291430	-5.729592	3.0	2.8
DV118	SNH Sep	29/09/2017	09:31:31	09:36:34	00:01:24	00:06:31	57.354102	-5.535327	57.354832	-5.534113	16.2	23.9
DV119	SNH Sep	29/09/2017	09:42:46	09:48:42	00:02:04	00:08:02	57.356192	-5.536523	57.356700	-5.534760	41.9	47.9
DV120.1	SNH Sep	29/09/2017	09:20:55	09:26:05	00:00:45	00:05:56	57.354207	-5.541215	57.354440	-5.540733	15.0	
DV120.2	SNH Sep	29/09/2017	09:26:05	09:26:46	00:05:56	00:06:37	57.354440	-5.540733	57.354452	-5.540680		20.0
DV121	SNH Sep	29/09/2017	09:55:32	10:00:21	00:01:57	00:06:46	57.357038	-5.540945	57.357492	-5.539770	30.9	42.8
DV122.1	SNH Sep	29/09/2017	10:05:59	10:08:50	00:01:40	00:04:31	57.358342	-5.541913	57.358767	-5.541590	47.8	
DV122.2	SNH Sep	29/09/2017	10:08:50	10:10:29	00:04:31	00:06:11	57.358767	-5.541590	57.358947	-5.541293		64.8
DV123.1	SNH Sep	29/09/2017	10:15:55	10:21:12	00:00:58	00:06:19	57.358542	-5.545925	57.358915	-5.544903	17.0	
DV123.2	SNH Sep	29/09/2017	10:21:12	10:22:35	00:06:19	00:07:43	57.358915	-5.544903	57.359063	-5.544667		28.7
DV124	SNH Sep	29/09/2017	09:13:43	09:18:34	00:00:32	00:05:24	57.354245	-5.544643	57.354083	-5.543845	3.8	3.5
DV125	SNH Sep	29/09/2017	10:27:32	10:32:56	00:00:50	00:06:17	57.361535	-5.546052	57.362255	-5.545802	9.3	2.7
DV126.1	SNH Sep	29/09/2017	10:38:00	10:38:22	00:01:50	00:02:10	57.360310	-5.545477	57.360332	-5.545390	17.7	
DV126.2	SNH Sep	29/09/2017	10:38:22	10:38:37	00:02:10	00:02:25	57.360332	-5.545390	57.360385	-5.545362		
DV126.3	SNH Sep	29/09/2017	10:38:37	10:39:04	00:02:25	00:02:52	57.360385	-5.545362	57.360445	-5.545363		

Table 1.1 continued

Video sample	Survey	Date	Time start (UT)	Time end (UT)	Time code start	Time code end	Start latitude	Start longitude	End latitude	End longitude	Depth BCD start (m)	Depth BCD end (m)
DV126.4	SNH Sep	29/09/2017	10:39:04	10:39:52	00:02:52	00:03:41	57.360445	-5.545363	57.360537	-5.545392		
DV126.5	SNH Sep	29/09/2017	10:39:52	10:40:58	00:03:41	00:04:45	57.360537	-5.545392	57.360627	-5.545152		
DV126.6	SNH Sep	29/09/2017	10:40:58	10:41:41	00:04:45	00:05:28	57.360627	-5.545152	57.360708	-5.545073		25.7
DV127	SNH Sep	29/09/2017	09:05:53	09:10:32	00:00:50	00:05:32	57.356270	-5.547053	57.356500	-5.546210	7.8	7.9
DV128.1	SNH Sep	29/09/2017	10:46:03	10:48:09	00:01:08	00:03:15	57.359825	-5.547595	57.359625	-5.547192	14.6	
DV128.2	SNH Sep	29/09/2017	10:48:09	10:49:37	00:03:15	00:04:42	57.359625	-5.547192	57.359437	-5.546795		21.6
DV129	SNH Sep	29/09/2017	10:52:54	10:56:37	00:00:32	00:04:17	57.359275	-5.549575	57.359612	-5.548733	7.6	8.6
DV130	SNH Sep	29/09/2017	08:46:06	08:51:41	00:00:22	00:05:58	57.353775	-5.550232	57.353690	-5.549305	6.1	5.2
DV131	SNH Sep	29/09/2017	08:55:30	09:00:33	00:00:47	00:05:54	57.356298	-5.551062	57.356667	-5.550160	9.6	11.1
DV132	SNH Sep	29/09/2017	08:37:27	08:43:06	00:00:34	00:06:16	57.354310	-5.552630	57.354260	-5.552213	7.8	6.7
DV133	SNH Sep	29/09/2017	08:29:34	08:34:40	00:00:32	00:05:42	57.355685	-5.555450	57.355663	-5.555083	9.0	9.8
DV134	SNH Sep	29/09/2017	08:19:51	08:25:22	00:00:32	00:06:04	57.357610	-5.559352	57.357788	-5.559145	8.4	6.7
DV135	SNH Sep	29/09/2017	08:10:47	08:16:31	00:01:04	00:06:54	57.356183	-5.559387	57.356258	-5.558992	18.4	16.0
DV136	SNH Sep	29/09/2017	07:50:28	07:56:03	00:00:31	00:06:27	57.357060	-5.564267	57.357062	-5.563672	13.6	11.7
DV137.1	SNH Sep	29/09/2017	07:59:38	08:01:49	00:00:51	00:03:02	57.354965	-5.564813	57.355040	-5.564712	8.8	
DV137.2	SNH Sep	29/09/2017	08:01:49	08:06:38	00:03:02	00:07:51	57.355040	-5.564712	57.355390	-5.564705		10.8
DV138	SNH Sep	29/09/2017	07:30:19	07:35:31	00:01:43	00:07:06	57.357307	-5.568162	57.357182	-5.567693	14.8	16.1
DV139	SNH Sep	29/09/2017	07:20:58	07:26:19	00:00:55	00:06:31	57.356195	-5.569057	57.356207	-5.568537	14.4	14.7
DV140.1	SNH Sep	29/09/2017	07:03:55	07:13:18	00:01:13	00:10:37	57.355177	-5.571565	57.356078	-5.570698	5.5	
DV140.2	SNH Sep	29/09/2017	07:13:18	07:14:52	00:10:37	00:12:11	57.356078	-5.570698	57.356175	-5.570802		
DV140.3	SNH Sep	29/09/2017	07:14:52	07:17:18	00:12:11	00:14:38	57.356175	-5.570802	57.356322	-5.570698		16.1
DV141	SNH Sep	29/09/2017	06:53:57	06:59:01	00:00:52	00:06:01	57.356605	-5.573718	57.356560	-5.573323	21.0	21.8
DV142	SNH Sep	29/09/2017	06:45:04	06:49:43	00:01:04	00:05:45	57.356865	-5.577538	57.356820	-5.577852	22.8	20.9
DV143	SNH Sep	29/09/2017	06:34:10	06:40:53	00:01:07	00:08:02	57.358255	-5.581990	57.358080	-5.582990	4.2	5.0
DV144	SNH Sep	28/09/2017	16:08:40	16:14:59	00:00:28	00:06:56	57.353418	-5.582737	57.353345	-5.583292	6.9	8.0
DV145	SNH Sep	28/09/2017	16:17:28	16:22:19	00:00:32	00:05:53	57.355035	-5.584693	57.354628	-5.585838	10.8	10.6
DV146	SNH Sep	28/09/2017	15:58:57	16:04:43	00:00:18	00:06:20	57.350835	-5.586647	57.350738	-5.586975	5.3	6.3
DV147	SNH Sep	28/09/2017	15:50:59	15:56:10	00:00:24	00:05:40	57.348083	-5.589738	57.348332	-5.589657	1.8	3.2
DV148	SNH Sep	28/09/2017	13:09:22	13:14:28	00:00:33	00:05:41	57.347230	-5.614977	57.346790	-5.614980	2.3	2.9

Table 1.1 continued

Video sample	Survey	Date	Time start (UT)	Time end (UT)	Time code start	Time code end	Start latitude	Start longitude	End latitude	End longitude	Depth BCD start (m)	Depth BCD end (m)
DV149	SNH Sep	28/09/2017	15:31:47	15:37:13	00:00:58	00:06:39	57.352433	-5.590172	57.352083	-5.591117	11.0	9.9
DV150	SNH Sep	28/09/2017	15:23:34	15:29:00	00:00:20	00:05:45	57.354062	-5.591628	57.353773	-5.593332	3.8	0.6
DV151	SNH Sep	28/09/2017	15:42:50	15:48:05	00:00:21	00:05:54	57.345268	-5.594720	57.345253	-5.595120	3.4	3.8
DV152	SNH Sep	28/09/2017	14:39:28	14:44:28	00:00:25	00:05:23	57.351782	-5.599713	57.352010	-5.600858	2.2	0.7
DV153	SNH Sep	28/09/2017	14:21:55	14:27:09	00:00:37	00:05:55	57.349485	-5.594577	57.349112	-5.595068	11.2	11.1
DV154	SNH Sep	28/09/2017	15:15:04	15:20:26	00:00:23	00:05:54	57.354923	-5.594770	57.354825	-5.596215	1.3	0.9
DV155	SNH Sep	28/09/2017	13:48:21	13:53:16	00:00:42	00:05:34	57.343768	-5.599713	57.343785	-5.600125	10.5	10.1
DV156	SNH Sep	28/09/2017	13:56:21	14:01:24	00:00:51	00:06:00	57.346068	-5.598840	57.346002	-5.599188	13.9	13.5
DV157	SNH Sep	28/09/2017	14:30:23	14:35:45	00:00:30	00:05:53	57.351143	-5.596007	57.351192	-5.597382	4.0	4.2
DV158	SNH Sep	28/09/2017	14:12:34	14:17:43	00:00:39	00:05:49	57.347652	-5.604260	57.347593	-5.604622	5.2	5.2
DV159	SNH Sep	28/09/2017	14:04:44	14:09:43	00:00:33	00:05:31	57.345632	-5.604805	57.345660	-5.605163	5.6	5.2
DV160.1	SNH Sep	28/09/2017	15:05:05	15:05:42	00:00:36	00:01:13	57.353433	-5.602833	57.353473	-5.603007	3.4	
DV160.2	SNH Sep	28/09/2017	15:05:42	15:10:50	00:01:13	00:06:26	57.353473	-5.603007	57.353713	-5.604505		4.7
DV161	SNH Sep	28/09/2017	14:46:55	14:50:18	00:00:23	00:03:51	57.352105	-5.605435	57.352432	-5.606335	6.0	8.9
DV162	SNH Sep	28/09/2017	13:38:21	13:43:56	00:00:34	00:06:10	57.342180	-5.607190	57.341973	-5.607455	10.6	8.2
DV163	SNH Sep	28/09/2017	14:55:43	15:02:12	00:01:20	00:08:03	57.352495	-5.608217	57.353125	-5.609563	11.7	8.5
DV164	SNH Sep	28/09/2017	13:19:08	13:25:12	00:00:23	00:06:27	57.345692	-5.609897	57.345353	-5.609743	3.9	5.6
DV165.1	SNH Sep	28/09/2017	13:28:45	13:29:51	00:00:50	00:02:01	57.343470	-5.611853	57.343412	-5.611845	6.6	
DV165.2	SNH Sep	28/09/2017	13:29:51	13:33:35	00:02:01	00:05:41	57.343412	-5.611845	57.343257	-5.612183		5.1
DV166.1	SNH Sep	28/09/2017	13:00:12	13:05:35	00:01:15	00:06:40	57.347667	-5.620917	57.347187	-5.620700	4.5	
DV166.2	SNH Sep	28/09/2017	13:05:35	13:06:07	00:06:40	00:07:14	57.347187	-5.620700	57.347125	-5.620683		5.8
DV167	SNH Sep	28/09/2017	12:51:54	12:57:36	00:00:33	00:06:22	57.346507	-5.622388	57.345967	-5.621973	7.8	8.9
DV168	SNH Sep	28/09/2017	12:43:17	12:48:39	00:00:26	00:05:50	57.343825	-5.621715	57.343592	-5.621327	5.4	5.3
DV169	SNH Sep	28/09/2017	12:00:13	12:06:02	00:01:22	00:07:18	57.351958	-5.628932	57.351960	-5.627520	21.5	21.5
DV170	SNH Sep	28/09/2017	12:31:55	12:38:24	00:00:40	00:07:12	57.342957	-5.628810	57.342780	-5.628290	14.2	12.2
DV171	SNH Sep	28/09/2017	12:11:59	12:15:31	00:00:51	00:04:24	57.350362	-5.637707	57.350387	-5.636925	17.0	17.4
DV172	SNH Sep	28/09/2017	12:21:38	12:27:09	00:01:05	00:06:36	57.345838	-5.636583	57.345808	-5.635702	22.5	23.4
DV176.1	SNH Sep	28/09/2017	10:09:30	10:15:30	00:00:44	00:06:48	57.362248	-5.649573	57.362242	-5.647947	14.6	
DV176.2	SNH Sep	28/09/2017	10:15:30	10:17:54	00:06:48	00:09:12	57.362242	-5.647947	57.362313	-5.647443		

Table 1.1 continued

Video sample	Survey	Date	Time start (UT)	Time end (UT)	Time code start	Time code end	Start latitude	Start longitude	End latitude	End longitude	Depth BCD start (m)	Depth BCD end (m)
DV176.3	SNH Sep	28/09/2017	10:17:54	10:19:23	00:09:12	00:10:47	57.362313	-5.647443	57.362305	-5.647002		9.9
DV177	SNH Sep	28/09/2017	10:23:34	10:31:12	00:00:55	00:08:43	57.361278	-5.649623	57.361722	-5.647933	14.0	14.4
DV178.1	SNH Sep	28/09/2017	09:32:04	09:34:45	00:00:58	00:03:39	57.363450	-5.650170	57.363508	-5.649738	15.1	
DV178.2	SNH Sep	28/09/2017	09:34:45	09:39:41	00:03:39	00:08:34	57.363508	-5.649738	57.363555	-5.648865		10.1
DV179.1	SNH Sep	28/09/2017	10:00:50	10:03:12	00:00:44	00:03:10	57.362385	-5.650952	57.362537	-5.650437	14.5	
DV179.2	SNH Sep	28/09/2017	10:03:12	10:03:32	00:03:10	00:03:30	57.362537	-5.650437	57.362545	-5.650363		
DV179.3	SNH Sep	28/09/2017	10:03:32	10:05:47	00:03:30	00:05:47	57.362545	-5.650363	57.362647	-5.649938		14.7
DV180.1	SNH Sep	28/09/2017	10:35:55	10:38:35	00:00:58	00:03:41	57.360480	-5.651347	57.360657	-5.650640	10.2	
DV180.2	SNH Sep	28/09/2017	10:38:35	10:42:24	00:03:41	00:07:31	57.360657	-5.650640	57.360947	-5.649727		15.4
DV181	SNH Sep	28/09/2017	09:43:31	09:47:07	00:00:48	00:05:25	57.362948	-5.652013	57.363017	-5.651513	16.0	16.9
DV182	SNH Sep	28/09/2017	09:52:04	09:57:07	00:00:43	00:05:48	57.362477	-5.652455	57.362805	-5.651417	13.7	16.3
DV183.1	SNH Sep	28/09/2017	10:58:36	10:59:41	00:00:36	00:01:43	57.361347	-5.652885	57.361423	-5.652565	9.9	
DV183.2	SNH Sep	28/09/2017	10:59:41	11:01:38	00:01:43	00:03:41	57.361423	-5.652565	57.361573	-5.651992		10.2
DV185	SNH Sep	28/09/2017	09:21:11	09:26:40	00:00:57	00:06:33	57.366897	-5.653740	57.367152	-5.652833	14.1	8.3
DV186.1	SNH Sep	28/09/2017	10:46:55	10:54:18	00:00:40	00:08:09	57.360308	-5.654217	57.360910	-5.652372	12.4	
DV186.2	SNH Sep	28/09/2017	10:54:18	10:55:39	00:08:09	00:09:30	57.360910	-5.652372	57.361053	-5.652023		9.4
DV187.1	SNH Sep	27/09/2017	15:51:58	15:55:00	00:00:39	00:03:41	57.359640	-5.656637	57.359288	-5.657807	8.7	
DV187.2	SNH Sep	27/09/2017	15:55:00	15:57:20	00:03:41	00:06:00	57.359288	-5.657807	57.359105	-5.658695		11.9
DV189.1	SNH Sep	27/09/2017	14:51:09	14:53:26	00:00:36	00:02:56	57.359565	-5.658282	57.359273	-5.657923	7.8	
DV189.2	SNH Sep	27/09/2017	14:53:26	14:55:19	00:02:56	00:04:48	57.359273	-5.657923	57.359092	-5.657610		
DV189.3	SNH Sep	27/09/2017	14:55:19	14:56:48	00:04:48	00:06:17	57.359092	-5.657610	57.358760	-5.657493		
DV189.4	SNH Sep	27/09/2017	14:56:48	14:57:41	00:06:17	00:07:10	57.358760	-5.657493	57.358572	-5.657500		32.9
DV190.1	SNH Sep	28/09/2017	08:21:18	08:22:06	00:00:45	00:01:32	57.365567	-5.658368	57.365633	-5.658187	10.0	
DV190.2	SNH Sep	28/09/2017	08:22:06	08:23:31	00:01:32	00:02:57	57.365633	-5.658187	57.365780	-5.657915		
DV190.3	SNH Sep	28/09/2017	08:23:31	08:26:46	00:02:57	00:06:33	57.365780	-5.657915	57.366082	-5.657250		16.1
DV193.1	SNH Sep	27/09/2017	15:43:18	15:46:56	00:01:08	00:04:47	57.361907	-5.659455	57.361940	-5.658300	24.0	
DV193.2	SNH Sep	27/09/2017	15:46:56	15:47:33	00:04:47	00:05:24	57.361940	-5.658300	57.361917	-5.658128		
DV193.3	SNH Sep	27/09/2017	15:47:33	15:47:55	00:05:24	00:05:47	57.361917	-5.658128	57.361970	-5.658045		18.9
DV194.1	SNH Sep	27/09/2017	15:34:02	15:38:07	00:00:52	00:04:57	57.360683	-5.659777	57.360772	-5.660745	11.9	

Table 1.1 continued

Video sample	Survey	Date	Time start (UT)	Time end (UT)	Time code start	Time code end	Start latitude	Start longitude	End latitude	End longitude	Depth BCD start (m)	Depth BCD end (m)
DV194.2	SNH Sep	27/09/2017	15:38:07	15:39:23	00:04:57	00:06:12	57.360772	-5.660745	57.360777	-5.661048		18.7
DV195.1	SNH Sep	28/09/2017	08:06:54	08:09:12	00:00:52	00:03:09	57.364593	-5.660257	57.364785	-5.659728	12.2	
DV195.2	SNH Sep	28/09/2017	08:09:12	08:10:35	00:03:09	00:04:31	57.364785	-5.659728	57.364938	-5.659438		
DV195.3	SNH Sep	28/09/2017	08:10:35	08:11:38	00:04:31	00:05:34	57.364938	-5.659438	57.365018	-5.659230		
DV195.4	SNH Sep	28/09/2017	08:11:38	08:13:35	00:05:34	00:07:32	57.365018	-5.659230	57.365213	-5.658825		
DV195.5	SNH Sep	28/09/2017	08:13:35	08:14:16	00:07:32	00:08:26	57.365213	-5.658825	57.365242	-5.658660		9.2
DV196.1	SNH Sep	27/09/2017	15:07:49	15:08:39	00:00:30	00:01:21	57.359485	-5.660237	57.359358	-5.660093	12.0	
DV196.2	SNH Sep	27/09/2017	15:08:39	15:12:26	00:01:21	00:05:10	57.359358	-5.660093	57.358778	-5.659108		
DV196.3	SNH Sep	27/09/2017	15:12:26	15:14:16	00:05:10	00:07:02	57.358778	-5.659108	57.358257	-5.659150		30.1
DV197.1	SNH Sep	28/09/2017	08:51:26	08:52:02	00:00:56	00:01:31	57.363698	-5.660323	57.363742	-5.660160	15.8	
DV197.2	SNH Sep	28/09/2017	08:52:02	08:52:46	00:01:31	00:02:15	57.363742	-5.660160	57.363827	-5.660010		
DV197.3	SNH Sep	28/09/2017	08:52:46	08:53:57	00:02:15	00:03:26	57.363827	-5.660010	57.363945	-5.659715		
DV197.4	SNH Sep	28/09/2017	08:53:57	08:54:48	00:03:26	00:04:17	57.363945	-5.659715	57.364018	-5.659535		
DV197.5	SNH Sep	28/09/2017	08:54:48	08:58:25	00:04:17	00:08:07	57.364018	-5.659535	57.364280	-5.658710		17.1
DV199	SNH Sep	28/09/2017	07:26:12	07:31:56	00:00:42	00:06:44	57.366197	-5.661163	57.366808	-5.659873	12.3	8.1
DV200	SNH Sep	28/09/2017	07:55:48	08:03:56	00:00:50	00:08:45	57.365035	-5.661008	57.365703	-5.659433	12.1	9.5
DV201	SNH Sep	28/09/2017	07:16:18	07:21:25	00:00:53	00:06:44	57.367423	-5.661553	57.367943	-5.660552	16.4	11.5
DV203.1	SNH Sep	27/09/2017	15:19:26	15:24:16	00:00:48	00:05:39	57.359670	-5.662055	57.359277	-5.661632	18.1	
DV203.2	SNH Sep	27/09/2017	15:24:16	15:26:27	00:05:39	00:07:50	57.359277	-5.661632	57.358810	-5.661417		
DV203.3	SNH Sep	27/09/2017	15:26:27	15:27:10	00:07:50	00:08:32	57.358810	-5.661417	57.358743	-5.661568		15.1
DV204.1	SNH Sep	28/09/2017	08:32:46	08:35:12	00:01:28	00:03:58	57.364357	-5.662070	57.364677	-5.661528	14.8	
DV204.2	SNH Sep	28/09/2017	08:35:12	08:37:21	00:03:58	00:06:28	57.364677	-5.661528	57.364918	-5.661127		12.6
DV205	SNH Sep	28/09/2017	07:35:49	07:41:15	00:00:43	00:06:34	57.365478	-5.662582	57.366113	-5.661405	17.9	11.9
DV206.1	SNH Sep	27/09/2017	14:25:00	14:27:08	00:00:42	00:02:51	57.359755	-5.662683	57.359395	-5.662522	18.6	
DV206.2	SNH Sep	27/09/2017	14:27:08	14:27:35	00:02:51	00:03:20	57.359395	-5.662522	57.359290	-5.662488		
DV206.3	SNH Sep	27/09/2017	14:27:35	14:33:22	00:03:20	00:09:06	57.359290	-5.662488	57.358200	-5.663133		
DV206.4	SNH Sep	27/09/2017	14:33:22	14:33:37	00:09:06	00:09:19	57.358200	-5.663133	57.358167	-5.663182		
DV206.5	SNH Sep	27/09/2017	14:33:37	14:33:44	00:09:19	00:09:26	57.358167	-5.663182	57.358147	-5.663215		
DV206.6	SNH Sep	27/09/2017	14:33:44	14:34:44	00:09:26	00:10:26	57.358147	-5.663215	57.357950	-5.663390		14.0

Table 1.1 continued

Video sample	Survey	Date	Time start (UT)	Time end (UT)	Time code start	Time code end	Start latitude	Start longitude	End latitude	End longitude	Depth BCD start (m)	Depth BCD end (m)
DV208.1	SNH Sep	27/09/2017	13:56:22	13:58:58	00:01:33	00:04:09	57.357550	-5.664392	57.357643	-5.664212	22.8	
DV208.2	SNH Sep	27/09/2017	13:58:58	13:59:29	00:04:09	00:04:39	57.357643	-5.664212	57.357783	-5.664128		
DV208.3	SNH Sep	27/09/2017	13:59:29	14:00:40	00:04:39	00:05:51	57.357783	-5.664128	57.357967	-5.664783		
DV208.4	SNH Sep	27/09/2017	14:00:40	14:01:13	00:05:51	00:06:24	57.357967	-5.664783	57.357990	-5.664945		
DV208.5	SNH Sep	27/09/2017	14:01:13	14:01:35	00:06:24	00:06:46	57.357990	-5.664945	57.358010	-5.665085		
DV208.6	SNH Sep	27/09/2017	14:01:35	14:04:09	00:06:46	00:09:20	57.358010	-5.665085	57.358120	-5.666042		14.5
DV209.1	SNH Sep	27/09/2017	14:07:30	14:10:28	00:00:33	00:03:32	57.359042	-5.664382	57.359055	-5.665522	11.7	
DV209.2	SNH Sep	27/09/2017	14:10:28	14:14:27	00:03:32	00:07:30	57.359055	-5.665522	57.359040	-5.667115		
DV209.3	SNH Sep	27/09/2017	14:14:27	14:14:49	00:07:30	00:07:52	57.359040	-5.667115	57.359012	-5.667287		19.5
DV210.1	SNH Sep	27/09/2017	13:44:31	13:47:53	00:00:34	00:03:55	57.358498	-5.666090	57.358790	-5.667380	14.1	
DV210.2	SNH Sep	27/09/2017	13:47:53	13:48:48	00:03:55	00:04:51	57.358790	-5.667380	57.358808	-5.667840		
DV210.3	SNH Sep	27/09/2017	13:48:48	13:49:48	00:04:51	00:05:50	57.358808	-5.667840	57.358798	-5.668233		
DV210.4	SNH Sep	27/09/2017	13:49:48	13:50:34	00:05:50	00:06:43	57.358798	-5.668233	57.358828	-5.668540		29.3
DV212.1	SNH Sep	27/09/2017	13:34:27	13:35:42	00:01:06	00:02:28	57.357713	-5.666492	57.357883	-5.666588	17.3	
DV212.2	SNH Sep	27/09/2017	13:35:42	13:41:57	00:02:28	00:08:44	57.357883	-5.666588	57.358433	-5.666722		15.2
DV235	SNH Sep	29/09/2017	07:41:38	07:46:58	00:01:08	00:06:43	57.356427	-5.566295	57.356488	-5.565828	17.0	16.5
DV236	SNH Sep	28/09/2017	07:45:08	07:50:36	00:00:24	00:06:18	57.365590	-5.660565	57.366228	-5.659602	11.8	9.2
DV237.1	SNH Sep	28/09/2017	08:41:51	08:44:57	00:00:48	00:03:56	57.364083	-5.664067	57.364418	-5.663425	17.3	
DV237.2	SNH Sep	28/09/2017	08:44:57	08:45:40	00:03:56	00:04:38	57.364418	-5.663425	57.364507	-5.663297		
DV237.3	SNH Sep	28/09/2017	08:45:40	08:47:12	00:04:38	00:06:24	57.364507	-5.663297	57.364660	-5.662968		17.1

Table 1.2. Physical and biological descriptions of habitats recorded during all drop-down video surveys. PMF and Annex 1 habitat codes are defined in Tables 1.3 and 1.4 below. Evidence of dredge damage indicated by Y (yes), N (no) or P (possible), with red font signifying damage to flame shell habitat and blue font signifying possible damage to flame shell habitat. Uncertain biotope assignments are italicized. Video sample labels correspond to those in Table 1.1.

Video sample	**Substrate**	**Biota**	**Biotopes**	**PMFs**	**Annex1**	**Dredge damage**
LC-V1	Poorly sorted silty, shelly, sand (66%) with gravel (15%), pebbles (15%), cobbles (2%), shells (2%)	Stones support sparse hydroids (O), encrusting pink coralline algae (R) and serpulid worms (F). *Aequipecten opercularis* (C, Crinoidea spp. (F), *Asterias rubens* (F). Creel line and creel present. Dredge tracks at start of run.	SS.SMx.CMx		SB:MX	Y
LC-V2.1	Poorly sorted silty, shelly, medium - coarse sand (c.30% visible) with stones largely integrated into *Limaria* nests	Well-developed, undisturbed *Limaria hians* bed, around 65% cover - initially 50% becoming 100% over large area. Byssal turf supports filamentous red algal turf (C), foliose red algae (R), hydroid turf (A) including *Halecium halecinum* (C, locally), *Rhizocaulus verticillatus* (P) and *Nemertesia ramosa* (F). *Suberites carnosus* (P), *Munida rugosa* (P), *Aequipecten opercularis* (F), Crinoidea spp. (F), *Marthasterias glacialis* (P), *Echinus esculentus* (C), solitary ascidians (P). Pink coralline algae (R).	SS.SMx.IMx.Lim	FS	SB:MX	N
LC-V2.2	Densely scattered pebbles (60%), cobbles (10%), gravel (10%) and shells (5%) on silty, shelly sand (15%)	Probably dredge damaged *Limaria* bed with flattened byssal material and broken shells (including *Limaria hians*) and *Echinus* tests. Stones support hydroids (F) including *Halecium halecinum* (F) and filamentous (F) and foliose (R) red algae. *Munida rugosa* (P), *Galathea* sp. (P), *Buccinum undatum* (P), *Aequipecten opercularis* (P), *Pecten maximus* (P), Crinoidea spp. (O), *Echinus esculentus* (O).	SS.SMx.CMx	FS?	SB:MX	Y
LC-V2.3	Poorly sorted silty, shelly, medium - coarse sand (c.25% visible) with stones largely integrated into *Limaria* nests	Well-developed, undisturbed *Limaria hians* bed with around 75% cover. Byssal turf supports filamentous red algal turf (C), foliose red algae (R), hydroid turf (A) including *Halecium halecinum* (C) and *Nemertesia ramosa* (F). *Aequipecten opercularis* (O), Crinoidea spp. (F), *Porania pulvillus* (P), Echinus esculentus (C), *Thyonidium drummondi*? (P), *Corella parallelogramma* (locally C). Pink coralline algae (R).	SS.SMx.IMx.Lim	FS	SB:MX	N

Table 1.2 continued

Video sample	Substrate	Biota	Biotopes	PMFs	Annex1	Dredge damage
LC-V2.4	Densely scattered pebbles (60%), cobbles (15%), gravel (10%) and shells (5%) on silty, shelly sand (10%)	Dredge damaged *Limaria* bed with flattened byssal material and broken shells (including *Limaria hians*). Stones support hydroids (O) including *Halecium halecinum* (P) and filamentous red algae (F). *Buccinum undatum* (P), *Aequipecten opercularis* (P), Crinoidea spp. (O), *Echinus esculentus* (O). One small persistent patch of *Limaria hians* turf (P) close to end of run (on photo 0114 but atypical of run segment).	SS.SMx.CMx	FS?	SB:MX	Y
LC-V2.5	Poorly sorted silty, shelly, medium - coarse sand (c.40% visible) with stones largely integrated into *Limaria* nests	Well-developed, undisturbed *Limaria hians* bed, around 60% cover but becoming much patchier towards end of run. Byssal turf supports filamentous red algal turf (A), foliose red algae (R), hydroid turf (C) including *Halecium halecinum* (C) and *Nemertesia ramosa* (F). *Munida rugosa* (P), *Hyas araneus* (P), Brachyura sp. (P), *Buccinum undatum* (P), *Aequipecten opercularis* (O), Crinoidea spp. (F) including *Antedon bifida* (P), *Ophiura albida* (locally C), *Asterias rubens* (F), *Luidia ciliaris* (P), *Echinus esculentus* (C), Pink coralline algae (R), *Laminaria hyperborea* (O, but F towards end of run).	SS.SMx.IMx.Lim	FS	SB:MX	N
LC-V2.6	Sand-dusted bedrock outcrop	Fairly dense park of *Laminaria hyperborea* (C) supporting *Ciona intestinalis* (P), *Calliostoma zizyphinum* (P) and Crinoidea spp. (F). Rock apparently supporting little epibiota, apart from dense *Echinus esculentus* (C).	IR.HIR.KSed.XKScrR		RF:BR	N
LC-V2.7	Poorly sorted silty, shelly, sand with highly variable amounts of gravel, pebbles and cobbles (pebbles and cobbles locally c.50%) and scattered boulders (2%)	Apparently mostly patchy *Limaria hians* bed (overall around 50% cover) with no distinct evidence of dredge damage. Byssal turf supports filamentous red algal turf (C, locally A), foliose red algae (R), hydroid turf (A) including *Halecium halecinum* (locally A). *Modiolus modiolus* (P), *Aequipecten opercularis* (F), *Antedon* spp. (F), *Asterias rubens* (F), *Solaster endeca* (P), *Crossaster papposus* (P), *Luidia ciliaris* (P), *Echinus esculentus* (C), solitary ascidians (P) including *Ciona intestinalis* (P). Stones with pink coralline algae (R), serpulid worms (F locally) and supporting *Saccharina latissima* (R) and *Laminaria hyperborea* (locally F).	SS.SMx.IMx.Lim	FS	SB:MX	N
LC-V2.8	Sand-dusted bedrock (98%) with small patches of silty sand (2%)	Sparse park of *Laminaria hyperborea* (O). Rock apparently supporting little epibiota, apart from hydroids (R), *Metridium dianthus* (R), *Antedon* spp. (O), *Echinus esculentus* (C) and encrusting pink coralline algae (O).	IR.HIR.KSed.XKScrR		RF:BR	N

Table 1.2 continued

Video sample	**Substrate**	**Biota**	**Biotopes**	**PMFs**	**Annex1**	**Dredge damage**
LC-V2.9	Poorly sorted silty, shelly, sand (c. 56%) with highly variable amounts of gravel (c.15%), pebbles (c.20%), cobbles (c.5%), shells (c.2%) and boulders (2%)	Stones support patchy hydroid turf (F) including *Halecium halecinum* and *Rhizocaulus verticillatus*?, encrusting pink coralline algae (R), serpulid worms (F) and filamentous red algae (R). Sediment with *Cerianthus lloydii* (C locally) and *Lanice conchilega* (P). *Aequipecten opercularis* (F), Crinoidea spp. (F) including *Antedon* spp. (P), *Luidia ciliaris* (P), *Porania pulvillus* (P), *Ophiura albida* (C locally), *Echinus esculentus* (F), *Corella parallelogramma* (P), drift kelp (P). Creel lines present.	SS.SMx.CMx.CllοMx.Nem		SB:MX	N
LC-V3.1	Mixed substrate of silty shellly sand (15%), gravel (25%, pebbles (40%), cobbles (15%) and shells (5%)	Stones supporting dense hydroid turf (A), pink coralline algae (R) and serpulid worms (F) including *Spirobranchus* spp. (P). *Munida rugosa* (P), Brachyura sp. (P), *Aequipecten opercularis* (C), *Pecten maximus* (P), Crinoidea spp. (P), *Crossaster papposus* (P), *Asterias rubens* (O), *Porania pulvillus* (R), *Luidia ciliaris* (O), *Echinus esculentus* (C), *Ascidia mentula* (P).	SS.SMx.CMx		SB:MX	N
LC-V3.2	Mixed substrate of silty shellly sand (40%) with gravel, pebbles, cobbles and shells, largely obscured by biota	Stones supporting dense hydroid turf (A) and pink coralline algae (P). *Aequipecten opercularis* (P), Crinoidea spp. (P), *Asterias rubens* (O), *Echinus esculentus* (C). No photographs available. *Limaria hians* possibly present but difficult to distinguish between hydroid turf on stones and byssal turf.	SS.SMx.CMx	FS?	SB:MX	N
LC-V3.3	Poorly sorted silty, shelly, medium - coarse sand (c.40% visible) with gravel, pebbles, shells and cobbles largely integrated into *Limaria* nests	Run covers apparently largely undisturbed *LImaria* byssal turf (c.50% overall but 100% locally. Byssal turf supports filamentous red algal turf (C), foliose red algae (R), hydroid turf (A) including *Halecium halecinum* (C), *Nemertesia ramosa* (P) and *Rhizocaulus verticillatus* (locally A). *Suberites sp.* (P), *Munida rugosa* (P), *Buccinum undatum* (P), *Gibbula* sp. (P), *Pecten maximus* (P), *Aequipecten opercularis* (P), Crinoidea spp. (F), *Asterias rubens* (F), *Crossaster papposus* (O), *Ophiura albida* (P), *Echinus esculentus* (C), solitary ascidians (P). Stones encrusted by pink coralline algae (R) and serpulid worms (P). Kelp - probably drift (P).	SS.SMx.IMx.Lim	FS	SB:MX	N
LC-V3.4	Apparently dense pebbles (60%) with much dead shell (10%), gravel (perhaps 10%), cobbles (5%) and sand (15%)	Fairly sharp transition to pebbles supporting turf of possibly hydroids and/or byssal material. *Aequipecten opercularis*? (P). Probable area of dredge damage, with much white shell material. Poor visibility.	SS.SMx.CMx	FS?	SB:MX	Y

Table 1.2 continued

Video sample	Substrate	Biota	Biotopes	PMFs	Annex1	Dredge damage
LC-V3.5	Poorly sorted silty, shelly sand (25%); remaining substrate covered by *Limaria* turf	Run covers apparently largely undisturbed *LImaria* byssal turf (c.75% overall). Byssal turf supports filamentous red algal turf (C), foliose red algae (R), hydroid turf (A) including *Halecium halecinum* (C locally). *Munida rugosa* (P), *Aequipecten opercularis* (P), Crinoidea spp. (P), *Asterias rubens* (P), *Crossaster papposus* (P), *Porania pulvillus* (P), *Echinus esculentus* (C), solitary ascidians (P).	SS.SMx.IMx.Lim	FS	SB:MX	N
LC-V3.6	Apparently dense pebbles (60%) with shells (5%), gravel (perhaps 10%), cobbles (5%) and sand (20%)	Fairly sharp transition to pebbles supporting turf of possibly hydroids and/or byssal material. *Aequipecten opercularis*? (P). Probable area of dredge damage, with much white shell material. Poor visibility.	SS.SMx.CMx	FS?	SB:MX	Y
LC-V3.7	Poorly sorted silty, shelly sand (50%); remaining substrate covered by *Limaria* turf	Run covers apparently largely undisturbed *LImaria* byssal turf (c.50% overall but locally only scattered nests of c. 10%). Byssal turf supports filamentous red algal turf (A), hydroid turf (A) including *Halecium halecinum* (C locally), *Nemertesia ramosa* (P) and *Rhizocaulus verticillatus* (P). *Alcyonium digitatum (*R), Paguridae sp. (P), *Aequipecten opercularis* (F), Crinoidea spp. (F), *Asterias rubens* (O), *Marthasterias glacialis* (P), *Crossaster papposus* (P), *Echinus esculentus* (C), *Laminaria hyperborea* (O).	SS.SMx.IMx.Lim	FS	SB:MX	N
LC-V3.8	Poorly sorted silty, shelly sand (50%) with scattered pebbles (25%), cobbles (10%), gravel (10%) and shells (5%)	Apparently area of flattened Limaria turf and broken shell material including *Limaria hians*. Hydroids (P), *Aequipecten opercularis* (F), Crinoidea spp. (F), *Asterias rubens* (P), *Echinus esculentus* (P). Probably dredge damaged.	SS.SMx.CMx	FS?	SB:MX	Y
LC-V3.9	Poorly sorted silty, shelly sand (50%); remaining substrate covered by *Limaria* turf	Overall around 50% cover by undisturbed *Limaria hians* turf, but c.30% initially, rising to around 90% locally towards end of sector, with sharp boundary at end. Byssal turf and stones support hydroid turf (P) including *Nemertesia ramosa* (P) and *Rhizocaulus verticillatus* (P), and Corella parallelogramma (P). *Cerianthus lloydii* (P), *Aequipecten opercularis* (F), Crinoidea spp. (F), pink encrusting coralline algae (R).	SS.SMx.IMx.Lim	FS	SB:MX	N

Table 1.2 continued

Video sample	Substrate	Biota	Biotopes	PMFs	Annex1	Dredge damage
LC-V3.10	Poorly sorted silty, shelly sand (45%) with scattered pebbles (40%), gravel (10%) and shells (5%)	Apparently area of flattened *Limaria* turf and broken shell material. *Buccinum undatum* (P), *Aequipecten opercularis* (F), *Asterias rubens* (P), *Echinus esculentus* (C). Probably dredge damaged.	SS.SMx.CMx	FS?	SB:MX	Y
LC-V3.11	Poorly sorted silty, shelly sand (55%) with scattered gravel (10%); remaining substrate covered by *Limaria* turf	Overall around 35% cover by undisturbed *Limaria hians* turf. Byssal turf and stones support hydroid turf (P) including *Nemertesia ramosa* (P) and *Halecium halecinum* (P), and *Corella parallelogramma* (locally C). *Aequipecten opercularis* (F), Crinoidea spp. (P), *Asterias rubens* (F), *Crossaster papposus* (P), *Henricia* sp. (P), *Echinus esculentus* (C), pink encrusting coralline algae (R). Difficult to identify boundary between this and following sector.	SS.SMx.IMx.Lim	FS	SB:MX	N
LC-V3.12	Silty, shelly sand (25%) with pebbles (50%), gravel (15%), cobbles (5%), shells (5%) and boulders (<1%)	Stones supporting hydroid turf (A) including *Halecium halecinum* (P), *Nemertesia ramosa* (P) and *Rhizocaulus verticillatus* (P). Possibly patchy *Limaria hians* turf also present but hydroid turf makes assessment of *Limaria* presence or extent difficult. Stones encrusted with pink coralline algae (R) and serpulid worms (F). *Lanice conchilega* (P), *Munida rugosa* (P), *Aequipecten opercularis* (F, locally C), *Pecten maximus* (P), Crinoidea spp. (F), *Asterias rubens* (O), *Crossaster papposus* (O), *Luidia ciliaris* (P), *Porania pulvillus* (R), *Ophiothrix fragilis*? (P), *Echinus esculentus* (C), solitary ascidians (P) including *Corella parallelogramma* (P). Because of dense hydroid turf, difficult to identify boundary between this and preceding sector. *Limaria hians nests* may be present.	SS.SMx.CMx	FS?	SB:MX	N
LC-V3.13	Silty, shelly sand (35%) with pebbles (30%), gravel (20%), cobbles (10%) and shells (5%), becoming sandier towards end of run	Stones supporting hydroid turf (C) including *Halecium halecinum* (P), *Balanus* sp. (P), pink coralline algae (R) and serpulid worms (F). *Lanice conchilega* (P), *Cancer pagurus* (P), *Aequipecten opercularis* (F, locally C), Crinoidea spp. (O-F), *Crossaster papposus* (F), *Solaster endeca* (O), *Asterias rubens* (O), *Echinus esculentus* (C).	SS.SMx.CMx		SB:MX	N
LC-V4.1	Silty, shelly sand (65%) with pebbles (10%), gravel (10%), cobbles (10%) and shells (5%)	Stones supporting hydroid turf (C) including *Halecium halecinum* (P) and *Rhizocaulus verticillata* (P), *Balanus* balanus (P), pink coralline algae (R) and serpulid worms (F). *Pecten maximus* (P), *Aequipecten opercularis* (O), *Ophiura albida* (P).	SS.SMx.CMx		SB:MX	N

Table 1.2 continued

Video sample	Substrate	Biota	Biotopes	PMFs	Annex1	Dredge damage
LC-V4.2	Silty, shelly sand (30%) with pebbles (25%), gravel (15%), cobbles (25%) and shells (5%)	Stones encrusted with pink coralline algae (R) and serpulid worms (F) and support hydroid turf (A) including *Halecium halecinum* (P), *Nemertesia ramosa* (P) and *Rhizocaulus verticillatus* (P). *Munida rugosa* (P), *Pecten maximus* (O), *Aequipecten opercularis* (C), Crinoidea spp. (P), *Asterias rubens* (F), *Crossaster papposus* (F), *Solaster endeca* (O), *Luidia ciliaris* (O), *Porania pulvillus* (R), Ophiothrix fragilis (P), *Echinus esculentus* (C), solitary ascidians (P) including *Corella parallelogramma* (locally C), *Ascidia virginea* (P) and *A. mentula* (P). Scattered *Limaria hians* nests may be present but not clearly discernible. Boundary between this and following sector very difficult to identify due to hydroid turf.	SS.SMx.CMx	FS?	SB:MX	N
LC-V4.3	Silty, shelly sand (c.40% visible) with gravel, pebbles and cobbles largely integrated into *Limaria* nests	Visibility poor but apparently *Limaria hians* turf with cover of around 50% mosaicked with sand. Turf supporting hydroid turf including *Nemertesia ramosa*, as well as sparse foliose and filamentous red algae. *Aequipecten opercularis* (C), *Antedon bifida* (P), *Asterias rubens* (P), *Echinus esculentus* (P), *Corella parallelogramma* (P). Start of sector difficult to identify due to hydroid turf.	SS.SMx.IMx.Lim	FS	SB:MX	N
LC-V4.4	Silty, shelly sand (c.35%) with gravel (20%, pebbles (40%) and shells (5%)	Apparently flattened *Limaria* and hydroid turf with much recently dead (white) *Limaria* shells - presumably dredge damage. *Halecium halecinum* (P), *Aequipecten opercularis* (P), *Echinus esculentus* (C), sparse foliose and filamentous red algae (P).	SS.SMx.CMx	FS?	SB:MX	**Y**
LC-V4.5	Poorly sorted silty, shelly sand (50%); remaining substrate covered by *Limaria* turf	Apparently mosaic of *Limaria hians* byssal turf (c.50%) and sand. Turf supports hydroids. Crinoidea spp. (P), *Asterias rubens* (P) and *Echinus esculentus* (C). Poor visibility.	SS.SMx.IMx.Lim	FS	SB:MX	N
LC-V4.6	Silty, shelly sand (c.60%) with gravel, pebbles, cobbles and shells	Apparently flattened *Limaria* and hydroid turf with some dead (white) *Limaria* shells and small patches of bacterial mat - possibly from dredge damage. *Halecium halecinum* (P), *Ophiura albida* (P), *Corella parallelogramma* (P).	SS.SMx.CMx	FS?	SB:MX	**P**
LC-V4.7	Silty, shelly sand (c.40% visible) with gravel, pebbles and cobbles largely integrated into *Limaria* nests	Apparently mosaic of *Limaria hians* byssal turf (c.35%) and sand. Turf and stones support hydroids (A) including *Halecium halecinum* (P), *Rhizocaulus verticillatus* (P) and *Nemertesia ramosa* (P) and foliose red algae (O). *Antedon bifida* (P), *Asterias rubens* (O), *Ophiura albida* (P) and *Echinus esculentus* (C). Stones and shells encrusted with pink coralline algae (R) and serpulid worms (P). *Laminaria hyperborea* (F).	SS.SMx.IMx.Lim	FS	SB:MX	N

Table 1.2 continued

Video sample	Substrate	Biota	Biotopes	PMFs	Annex1	Dredge damage
LC-V5.1	Silty, shelly sand (60%) with pebbles (20%), gravel (10%), cobbles (5%, locally 30%) and shells (5%); occasional boulders (overall >1% but increasing at end)	Stones encrusted with pink coralline algae (R) and serpulid worms (F) and support hydroid turf (F, locally C) including *Halecium halecinum* (P), *Nemertesia ramosa* (P) and *Rhizocaulus verticillatus* (P), and filamentous red algae (O). *Protanthea simplex*? (R), *Cerianthus lloydii* (C, locally A), *Munida rugosa* (P), *Pecten maximus* (O), *Aequipecten opercularis* (C), Crinoidea spp. (F), *Asterias rubens* (O, *Crossaster papposus* (P), *Solaster endeca* (P), *Luidia ciliaris* (P), *Hippasteria phrygiana* (P), *Ophiothrix fragilis* (P), *Echinus esculentus* (O), *Laminaria hyperborea* (O), patches of bacterial mat.	SS.SMx.CMx.ClloMx.Nem		SB:MX	N
LC-V5.2	Principally sand-dusted bedrock (97%) with sand patches (2%) and boulders (1%, especially initially)	Sparse park of *Laminaria hyperborea* (F) with rock encrusted with pink coralline algae (F) and supporting patchy hydroids (O, locally C) including *Halecium halecinum* (P) and *Alcyonium digitatum* (R). Crinoidea spp. (P), *Echinus esculentus* (C).	IR.HIR.KSed.XKScrR		RF:BR	N
LC-V5.3	Silty, shelly sand (55%) with pebbles (20%), gravel (10%), cobbles (10%) and shells (5%)	Small pocket of sand between bedrock outcrops with stones apparently bound by *Limaria hians* turf and supporting hydroids including *Halecium halecinum* (locally C), filamentous red algae (locally C) and pink coralline algae (R). Crinoidea spp. (F).	SS.SMx.IMx.Lim	FS	SB:MX	N
LC-V5.4	Principally sand-dusted bedrock (97%) with sand patches (2%) and boulders (1%)	Sparse park of *Laminaria hyperborea* (F) with rock encrusted with pink coralline algae (O) and supporting patchy hydroids (O, locally C) including *Halecium halecinum* (P) and *Metridium dianthus* (R). Crinoidea spp. (F), *Ophiura albida* (locally C), *Echinus esculentus* (C).	IR.HIR.KSed.XKScrR		RF:BR	N
LC-V5.5	Apparently mosaic of shelly, silty sand (c. 50%) with aggregations of stones including gravel, pebbles and cobbles; also scattered boulders	Stone patches probably bound by *Limaria hians* byssal turf and supporting dense hydroid turf (A). Crinoidea spp. (F), *Henricia* sp.? (P), *Echinus esculentus* (F).	SS.SMx.IMx.Lim	FS	SB:MX	N

Table 1.2 continued

Video sample	**Substrate**	**Biota**	**Biotopes**	**PMFs**	**Annex1**	**Dredge damage**
LC-V5.6	Scattered gravel (15%), pebbles (30%) and cobbles (15%) on silty, shelly sand (35%) with shell material (c.5%) including *Limaria hians*; boulders (<1%)	Unlike previous section of run, stones not aggregated, and dead *Limaria hians* shells and shell fragments conspicuous - probably suggestive of dredge damage. Stones encrusted with pink coralline algae (R) and serpulid worms (P) and supporting sparse hydroids (R) and *Alcyonium digitatum* (R). Paguridae sp. (P), Polyplacophora sp. (P), *Aequipecten opercularis* (F, locally C), *Pecten maximus* (P), Crinoidea spp. (P), *Asterias rubens* (O), *Echinus esculentus* (F).	SS.SMx.CMx		SB:MX	Y
LC-V5.7	Apparently mosaic of shelly, silty sand (c. 50%) with aggregations of stones bound by *Limaria hians* byssus; scattered boulders	Mosaic of *Limaria hians* bound stones (c.50%) with sand. Stones and turf support hydroid turf (A) including *Halecium halecinum* (locally C) and *Nemertesia antennina* (P), filamentous red algae (locally C) and *Corella parallelogramma* (P). Serpulid worms (P), *Munida rugosa* (P), *Aequipecten opercularis* (C), Crinoidea spp. (F), *Ophiura albida* (C locally), *Asterias rubens* (P), *Solaster endeca* (P), *Echinus esculentus* (C), pink encrusting coralline algae (R).	SS.SMx.IMx.Lim	FS	SB:MX	N
LC-V6.1	Silty, shelly sand (60%) with pebbles (25%), gravel (10%) and shells (5%)	Stones encrusted with pink coralline algae (R) and serpulid worms (F) and support hydroids (P) including *Halecium halecinum* (P). *Cerianthus lloydii* (C, at least locally), *Munida rugosa* (P), *Pecten maximus?* (P), *Aequipecten opercularis* (F), Crinoidea spp. (P), *Asterias rubens* (F), *Solaster endeca* (P), *Echinus esculentus* (F).	SS.SMx.CMx.CllоMx.Nem		SB:MX	N
LC-V6.2	Scattered gravel (15%), pebbles (30%) and cobbles (10%), with boulders (5%, locally denser) on silty, shelly sand (35%) with shells (c.5%). Camera briefly skirts bedrock	Stones encrusted with pink coralline algae (R) and serpulid worms (P) and support hydroids (C) including *Nemertesia ramosa* (P) and *N antennina* (P), *Alcyonium digitatum* (R), foliose (R) and filamentous (locally F) red algae and *Laminaria hyperborea* (O). *Cerianthus lloydii* (C, at least locally), *Munida rugosa* (P), *Calliostoma zizyphinum* (P), *Pecten maximus?* (P), *Aequipecten opercularis* (P), Crinoidea spp. (F), *Luidia ciliaris* (P), *Porania pulvillus* (P), *Echinus esculentus* (O), *Corella parallelogramma* (locally C), *Ciona intestinalis* (P), *Ascidia mentula* (P). *Limaria hians* nests may be present but considered unlikely. Camera crosses creel line.	SS.SMx.CMx.CllоMx.Nem		SB:MX	N

Table 1.2 continued

Video sample	**Substrate**	**Biota**	**Biotopes**	**PMFs**	**Annex1**	**Dredge damage**
LC-V6.3	Silty, shelly sand (50%) with pebbles (25%), gravel (10%), cobbles (5%, locally 30%), boulders (5%, locally 20%) and shells (5%)	Stones encrusted with pink coralline algae (R), serpulid worms (P) and Balanus spp. (P), and support hydroids (F) including *Nemertesia ramosa* (P) and *Halecium halecinum* (P). *Cerianthus lloydii* (C, locally A), *Munida rugosa* (P), Paguridae sp. (P), *Pecten maximus* (P), *Aequipecten opercularis* (F), bivalve siphons (P), Crinoidea spp. (F), *Crossaster papposus* (P), *Luidia ciliaris* (P), *Porania pulvillus* (R), *Ophiura albida* (P), *Echinus esculentus* (F), *Corella parallelogramma* (locally C). Moderate amounts of dead broken shells including *Limaria hians*, and possible signs of linear dredge scars in places, suggests some dredge impact, at least locally.	SS.SMx.CMx.CllоMx.Nem		SB:MX	**P**
LC-V6.4	Mosaic of shelly, silty sand (c. 60%) with aggregations of stones bound by *Limaria hians* byssus	Mosaic of *Limaria hians* bound stones (c.40%) with sand. Stones and turf support hydroid turf (C) including *Halecium halecinum* (locally C), *Nemertesia ramosa* (P) and *N. antennina* (P), filamentous red algae (locally F), foliose red algae (R), *Ascidia mentula* (P) and *Corella parallelogramma* (P). Serpulid worms (P), *Balanus* spp. (P), *Munida rugosa* (P), *Aequipecten opercularis* (F, locally C), *Pecten maximus* (P), Crinoidea spp. (P) including *Antedon bifida* (P), *Ophiura albida* (P), *Ophiothrix fragilis* (P), *Asterias rubens* (P), *Marthasterias glacialis* (P), *Luidia ciliaris* (P), *Porania pulvillus* (R), *Echinus esculentus* (C), pink encrusting coralline algae (R)..	SS.SMx.IMx.Lim	FS	SB:MX	N
LC-V6.5	Pebbles and gravel (c.60%) with sand (c.35%) and shells (5%)	Evidently damaged *Limaria hians* nest habitat - flattened and with stones dispersed, with exposed shell material, although evidence of original mosaic of bound stones and sand patches. *Echinus esculentus* (P), bacterial film? (P).	SS.SMx.CMx	FS?	SB:MX	**Y**
LC-V6.6	Mosaic of shelly, silty sand (c. 4%) with aggregations of stones bound by *Limaria hians* byssus (60%)	Mosaic of *Limaria hians* bound stones (c.60%) with sand. Turf support hydroid turf (A) including *Nemertesia ramosa* (P). *Aequipecten opercularis* (F), *Echinus esculentus* (C).	SS.SMx.IMx.Lim	FS	SB:MX	N
LC-V6.7	Pebbles and gravel (c.60%) with sand (c.35%) and shells (5%)	Evidently damaged *Limaria hians* nest habitat - flattened and with stones dispersed, with exposed shell material, although evidence of original mosaic of bound stones and sand patches. *Echinus esculentus* (P).	SS.SMx.CMx	FS?	SB:MX	**Y**

Table 1.2 continued

Video sample	Substrate	Biota	Biotopes	PMFs	Annex1	Dredge damage
LC-V6.8	Mosaic of shelly, silty sand (c. 40%) with aggregations of stones bound by *Limaria hians* byssus (60%)	Mosaic of *Limaria hians* bound stones (c.60% but large patches with 100%) with sand. Turf showing dense *Limaria* gallery apertures and support hydroid turf (A) including *Nemertesia ramosa* (F) and *Halecium halecinum* (P), and filamentous (locally C) and foliose (R) red algae. *Munida rugosa* (P), *Aequipecten opercularis* (P), *Pecten maximus* (P), Crinoidea spp. (F), *Asterias rubens* (F), *Echinus esculentus* (C), *Corella parallelogramma* (P).	SS.SMx.IMx.Lim	FS	SB:MX	N
LC-V6.9	Mosaic of boulders (40% cover, at least locally) and mixed substrate of sand with scattered gravel, pebbles and cobbles	Boulders with park of *Laminaria hyperborea* (C) and encrusted with pink coralline algae (P); otherwise apparently sparse epibiotic cover, apart from *Echinus esculentus* (C); Crinoidea spp. (P). Mixed substrate with *E. esculentus* (P) and *Luidia ciliaris* (P), with stones supporting hydroids (P) and encrusting pink coralline algae (R).	*IR.HIR.KSed.XK ScrR*, SS.SMx.CMx		SB:MX, RF:ST	N
LC-V6.10	Mixed substrate of silty, shelly sand (15%) with gravel (20%), pebbles (50%), cobbles (10%) and shells (5%)	Stones and shells encrusted with pink coralline algae (O), *Balanus* spp. (P) and serpulid worms (P) and support hydroids (F) including *Rhizocaulus verticillatus* (P) and *Laminaria hyperborea* (O). *Munida rugosa* (P), *Buccinum undatum*? (P), *Pecten maximus* (P), *Aequipecten opercularis* (F, locally C), *Eubranchus tricolor*? (P), Crinoidea spp. (O) including *Antedon* sp. (P), *Ophiura albida* (P), *Ophiothrix fragilis* (P), *Luidia ciliaris* (P), *Asterias rubens* (O), *Crossaster papposus* (O), *Echinus esculentus* (C), *Corella parallelogramma* (P).	SS.SMx.CMx		SB:MX	N
LC-V7.1	Mixed substrate of silty, shelly sand (15%) with gravel (20%), pebbles (50%), cobbles (10%) and shells (5%)	Stones and shells encrusted with pink coralline algae (R), *Balanus* spp. (P) and serpulid worms (F) and support hydroids (F) including *Halecium halecinum* (P) and *Rhizocaulus verticillatus* (P), and Corella parallelogramma (P). *Munida rugosa* (P), *Aequipecten opercularis* (C, locally A), Crinoidea spp. (O), *Ophiura albida* (P), *Luidia ciliaris* (P), *Marthasterias glacialis* (O), *Asterias rubens* (F), *Crossaster papposus* (O), *Porania pulvillus* (R), *Echinus esculentus* (C). Around six parallel dredge tracks near start of run.	SS.SMx.CMx		SB:MX	Y
LC-V7.2	Mosaic of shelly, silty sand (c. 50%) with aggregations of stones bound by *Limaria hians* byssus (50%)	*Limaria hians* turf and stones support hydroid turf (C) including *Halecium halecinum* (P), *Corella parallelogramma* (C locally), and filamentous (O) and foliose (R) red algae. *Munida rugosa* (P), *Aequipecten opercularis* (C), Crinoidea spp. (F), *Asterias rubens* (F), *Marthasterias glacialis* (P), *Luidia ciliaris* (P), *Echinus esculentus* (C), pink coralline algae (R).	SS.SMx.IMx.Lim	FS	SB:MX	*N*

Table 1.2 continued

Video sample	Substrate	Biota	Biotopes	PMFs	Annex1	Dredge damage
LC-V7.3	Mixed substrate of silty, shelly sand (15%) with gravel (20%), pebbles (40%), cobbles (20%) and shells (5%)	Probably area of dredge damaged *Limaria* bed with little clear sign of current bed; broken shell material including possibly *Limaria* (visibility poor); possibly small patches of bacterial film. *Aequipecten opercularis* (P), *Echinus esculentus* (P)	SS.SMx.CMx	FS?	SB:MX	Y
LC-V7.4	Mosaic of shelly, silty sand (c. 25%) with aggregations of stones bound by *Limaria hians* byssus (75%)	Apparently well-developed *Limaria hians* bed with around 75% cover and fairly dense gallery apertures. Hydroid turf (P) including *Nemertesia ramosa* (P), *Aequipecten opercularis* (P), solitary ascidians (P), filamentous red algal turf? (C).	SS.SMx.IMx.Lim	FS	SB:MX	N
LC-V7.5	Mostly silty, shelly sand (90%) with patches of stones and shells bound by *Limaria* byssus	Scattered nests of *Limaria hians* (overall around 10%) becoming more extensive (c. 50%) towrds end of run. Turf supports hydroid turf (P). *Aequipecten opercularis* (P), Crinoidea spp. (O), *Asterias rubens* (O), *Solaster endeca* (P), pink coralline algae (R). *Echinus esculentus* (P).	SS.SMx.IMx.Lim	FS	SB:MX	N
LC-V7.6	Mosaic of shelly, silty sand (c. 25%) with aggregations of stones bound by *Limaria hians* byssus (75%)	Probably area of dredged *Limaria* bed. Typical mosaic appearance but stones generally not occluded by byssus and byssal turd appears flattened. Much dead shell material and possible small patches of bacterial mat. *Limaria hians* turf and stones support hydroid turf (C) including *Nemertesia ramosa* (P), and filamentous (C) and foliose (P) red algae. *Munida rugosa* (P), *Hyas araneus* (P), Crinoidea spp. (P), *Asterias rubens* (F), *Solaster endeca* (P), *Echinus esculentus* (P).	SS.SMx.IMx.Lim	FS?	SB:MX	Y
LC-V7.7	Mosaic of shelly, silty sand (c. 25%) with aggregations of stones bound by *Limaria hians* byssus (75%)	Apparently well-developed *Limaria hians* bed with around 75% cover and fairly dense gallery apertures. Hydroid turf (C) including *Halecium halecinum* (C), *Aequipecten opercularis* (F), Crinoidea spp. (P), *Porania pulvillus* (P), *Echinus esculentus* (C), *Corella parallelgramma* (P), filamentous red algal turf (C), encrusting pink coralline algae (R).	SS.SMx.IMx.Lim	FS	SB:MX	N
LC-V7.8	Shelly, silty sand (c. 25%) with aggregations of stones bound by *Limaria hians* byssus (75%); dead shell material (5%)	Area of dredged *Limaria* bed, once rich. Stones generally not occluded by byssus and byssal turd appears flattened, though some *Limaria* gallery openings evident. Much dead shell material including *Limaria hians*, and patches of bacterial mat. *Limaria hians* turf and stones support hydroid turf (C) including *Halecium halecinum* (C) and *Nemertesia ramosa* (P), and filamentous red algae (C). *Buccinum undatum* (P), *Aequipecten opercularis* (F), Crinoidea spp. (P), *Asterias rubens* (P), *Echinus esculentus* (P).	SS.SMx.IMx.Lim	FS	SB:MX	Y

Table 1.2 continued

Video sample	Substrate	Biota	Biotopes	PMFs	Annex1	Dredge damage
LC-V7.9	Shelly, silty sand (c. 40%) with aggregations of stones bound by *Limaria hians* byssus (60%); boulders (<1%)	Well-developed *Limaria hians* bed with around 50 - 60 % cover and fairly dense gallery apertures. Hydroid turf (C) including *Halecium halecinum* (C), and Nemertesia ramosa (P), *Munida rugosa* (P), *Aequipecten opercularis* (F), *Peten maximus* (P), Crinoidea spp. (P), *Asterias rubens* (P), *Echinus esculentus* (C), filamentous red algal turf (A), foliose red algae (R), encrusting pink coralline algae (R), *Laminaria hyperborea* (R).	SS.SMx.IMx.Lim	FS	SB:MX	N
LC-V7.10	Predominantly sand-dusted bedrock (85%) with patches of poorly sorted, silty, shelly sand (7%) with scattered shells (5%) and boulders (3%)	Park of *Laminaria hyperborea* (F) with rock supporting sparse filamentous (R) and foliose (R) red algae, although possibly localised patches of denser reds, Crinoidea spp. (F), *Ophiura albida* (locally C), *Asterias rubens* (P), *Echinus esculentus* (C)	IR.HIR.KSed.XKScrR, SS.SMx.CMx		RF:BR, SB:MX	N
LC-V7.11	Shelly, silty sand (c. 50%) with aggregations of stones and shells bound by *Limaria hians* byssus (50%); boulders (<1%)	*Limaria hians* bed with around 50 % cover. Crinoidea spp. (P), *Asterias rubens* (P), *Echinus esculentus* (P), *Laminaria hyperborea* (F).	SS.SMx.IMx.Lim	FS	SB:MX	*N*
LC-V7.12	Substrate difficult to discern but apparently scattered boulders, cobbles, pebbles on sand with patches of *Limaria* byssus turf binding some of the substrate	Stones and apparently *Limaria* byssal turf supporting filamentous red algae (C), foliose red algae (R) and *Laminaria hyperborea* (C), with stipes with dense *Antedon* spp. *Asterias rubens* (P), *Echinus esculentus* (C).	SS.SMx.IMx.Lim	FS	SB:MX	N
LC-V7.13	Shelly, silty sand (c. 60%) with aggregations of stones bound by *Limaria hians* byssus (40%); boulders (<1%)	*Limaria hians* bed with around 40 % cover overall but variable. Hydroid turf (P) including *Halecium halecinum* (P), and Nemertesia ramosa (P), *Cerianthus lloydii* (P), Terebellidae *sp. (P), Munida rugosa* (P), *Aequipecten opercularis* (P), *Pecten maximus* (O), Crinoidea spp. (P), *Asterias rubens* (P), *Luidia ciliaris* (P), *Echinus esculentus* (F), filamentous red algal turf (A), encrusting pink coralline algae (R), *Laminaria hyperborea* (F).	SS.SMx.IMx.Lim	FS	SB:MX	N

Table 1.2 continued

Video sample	Substrate	Biota	Biotopes	PMFs	Annex1	Dredge damage
LC-V7.14	Largely sand-dusted bedrock (80%) with scattered boulders and cobbles (10%) towards the end of run on mixed sediment of silty, shelly sand (6%) with gravel (2%) and pebbles (2%)	Rock encrusted with pink coralline algae (O) and supporting low diversity epibiota including *Munida rugosa* (P), Crinoidea spp. (O) and *Echinus esculentus* (C).	IR.HIR.KSed		RF:BR, RF:ST	N
LC-V7.15	Mixed sediment of shelly, silty sand (30%) with scattered gravel (20%), pebbles (30%), cobbles (5%), shells (5%) and boulders (10% but more initially)	Stones and shells encrusted with pink coralline algae (R) and serpulid worms (F) and supporting hydroids (O, initially F) including *Nemertesia ramosa* (R), *Alcyonium digitatum* (R), *Ciona intestinalis* (R) and Corella parallelogramma (P). *Cerianthus lloydii* (C), *Munida rugosa* (P), *Galathea* sp. (P), Paguridae sp. (P), *Aequipecten opercularis* (O), Crinoidea spp. (O, locally F), *Ophiura albida* (locally C), *Solaster endeca* (O), *Echinus esculentus* (O). Abandoned creel line with two creels discernible.	SS.SMx.CMx.CllоMx.Nem		SB:MX	N
LC-V8.1	Silty, shelly sand (63%) with pebbles (15%), gravel (15%), cobbles (2%) and shells (5%), although proportions highly variable	Stones and shells encrusted with pink coralline algae (R) and serpulid worms (F) and supporting sparse foliose red algae (R), filamentous red algae (O) and solitary ascidians (O). *Munida rugosa* (F), Polyplacophora sp. (P), *Gibbula* sp. (P), *Aequipecten opercularis* (O), *Pecten maximus* (R), *Ophiura albida* (F), *Echinus esculentus* (F), *Saccharina latissima* (F, but largely drift material).	SS.SMx.CMx		SB:MX	N
LC-V8.2	Silty, shelly sand (63%) with pebbles (15%), gravel (15%), cobbles (2%) and shells (5%), although proportions highly variable	Stones and shells encrusted with pink coralline algae (R) and serpulid worms (P) and supporting hydroids (P) and a patchy turf of filamentous red algae (C, locally S), *Saccharina latissima* (F towards end of run, but mostly drift previously) and solitary ascidians (C) including *Ascidiella aspersa. Lanice conchilega*? (P), Terebellidae sp. (P), *Inachus* sp. (P), *Liocarcinus depurator* (P), *Cancer pagurus* (P), *Pecten maximus* (P), *Ophiura albida* (A), *Ophiura ophiura*? (P), *Asterias rubens* (F), *Marthasterias glacialis* (P), *Luidia ciliaris* (P), *Echinus esculentus* (F).	SS.SMp.KSwSS.LsacR	KS	SB:KS	N

Table 1.2 continued

Video sample	Substrate	Biota	Biotopes	PMFs	Annex1	Dredge damage
LC-V9.1	Silty, shelly sand (48%) with pebbles (15%), gravel (30%), cobbles (2%) and shells (5%), although proportions highly variable	Stones and shells encrusted with pink coralline algae (R) and supporting sparse foliose (R) and filamentous (O) red algae, *Saccharina latissima* (O, though some drift) and solitary ascidians (O) including *Ascidia mentula?* Polychaete casts (P), *Pecten maximus?* (P), *Ophiura albida* (A), *Asterias rubens* (P), *Echinus esculentus* (F).	SS.SMx.CMx		SB:MX	N
LC-V9.2	Silty, shelly sand (53%) with pebbles (10%), gravel (30%), cobbles (2%), occasional boulders (<1%) and shells (5%), although proportions highly variable	Stones and shells encrusted with pink coralline algae (R), brown algae (R) and serpulid worms (P) and supporting hydroids (O), solitary ascidians (F) including *Ascidia mentula*?, *Ascidiella aspersa*? and *Corella parallelogramma*. Patchy red algal turf of filamentous (A) and foliose (R) forms and *Saccharina latissima* (F, locally C); *Laminaria hyperborea* (R). *Munida rugosa* (P), *Pagurus bernhardus* (P), *Inachus* sp. (P), *Turritella communis* shells (P), *Aequipecten opercularis* (R), *Ophiura albida* (A), *Ophiura ophiura*? (P), *Asterias rubens* (C), *Marthasterias glacialis*? (P), *Luidia ciliaris* (O), *Echinus esculentus* (F).	SS.SMp.KSwSS. LsacR	KS	SB:KS	N
LC-V10.1	Silty, shelly sand (54%) with pebbles (20%), gravel (20%), cobbles (1%) and shells (5%), although proportions highly variable	Stones and shells encrusted with pink coralline algae (R), serpulid worms (F) and supporting hydroids (R), solitary ascidians (O) including *Ascidia mentula*, and sparse filamentous (O, locally F) and foliose (R) red algae; *Ulva* sp. (P, probably drift), *Saccharina latissima* (P, largely drift). Bonelliidae sp. (P), *Munida rugosa* (locally C), *Inachus* sp. (P), Brachyura sp. (P), *Calliostoma zizyphinum* (P), *Turritella communis* shells (P), *Aequipecten opercularis* (F, locally C), *Ophiura albida* (A), *Asterias rubens* (P), *Marthasterias glacialis* (P), *Porania pulvillus* (R), *Henricia* sp.? (R), *Echinus esculentus* (F), *Pholis gunnellus* (P).	SS.SMx.CMx		SB:MX	N
LC-V10.2	Silty, shelly sand (54%) with pebbles (20%), gravel (20%), cobbles (1%) and shells (5%), although proportions highly variable	Stones and shells encrusted with pink coralline algae (R) and serpulid worms (F) and supporting solitary ascidians (C) including *Ascidiella aspersa* and *Corella parallelogramma*. Patchy red algal turf of filamentous (C, locally A) and foliose (R) forms and *Saccharina latissima* (F, possibly largely drift); *Ulva sp.* (R, possibly drift). Infaunal casts (P), *Munida rugosa* (P), *Turritella communis* shells (P), *Aequipecten opercularis* (C), *Ophiura albida* (A), *Asterias rubens* (F), *Luidia ciliaris* (P), *Porania pulvillus* (P), *Echinus esculentus* (F).	SS.SMp.KSwSS. LsacR	KS	SB:KS	N

Table 1.2 continued

Video sample	**Substrate**	**Biota**	**Biotopes**	**PMFs**	**Annex1**	**Dredge damage**
LC-V11.1	Silty, shelly sand (60%) with pebbles (15%), gravel (20%) and shells (5%), although proportions highly variable	Stones and shells encrusted with pink coralline algae (R), serpulid worms (P) and supporting solitary ascidians (O) including *Ascidia mentula, Ascidiella aspersa and Corella paralellogramma*, and sparse filamentous (O) and foliose (R) red algae; *Ulva* sp. (drift), *Saccharina latissima* (P, drift). Caridea sp. (P), *Munida rugosa* (F), *Liocarcinus depurator* (R), Polyplacophora sp. (P), *Gibbula* sp. (P), *Turritella communis* shells (P), *Aequipecten opercularis* (C), *Ophiura albida* (A), *Ophiura ophiura* (P), *Amphiura* sp.? (P), *Asterias rubens* (O), *Marthasterias glacialis* (P), *Porania pulvillus* (R), *Luidia ciliaris* (P), *Echinus esculentus* (F), Triglidae *sp.* (P).	SS.SMx.CMx		SB:MX	N
LC-V11.2	Silty, shelly sand (60%) with pebbles (15%), gravel (20%) and shells (5%), although proportions highly variable	Stones and shells encrusted with pink coralline algae (R) and serpulid worms (P) and supporting hydroids (R), solitary ascidians (C) including *Ascidiella aspersa* and *Ascidia mentula*. Patchy red algal turf of filamentous (A) and foliose (R) forms and *Saccharina latissima* (F, probably largely drift); *Ulva sp.* (R, probably drift). *Suberites* sp. (R), *Cerianthus lloydii* (P), *Lanice conchilega* (P), *Inachus* sp. (P), *Turritella communis* shells (P), *Aequipecten opercularis* (C), *Ophiura albida* (A), *Ophiura ophiura* (P), *Ophiocomina nigra*? (R), *Asterias rubens* (F), *Marthasterias glacialis* (P), *Echinus esculentus* (F).	SS.SMp.KSwSS. LsacR	KS	SB:KS	N
V02	Silty, shelly, fine sand with scattered cobbles (5%), pebbles (5%), gravel (5%) and shells (2%)	Patchy turf of filamentous red algae (A), with stones and shells encrusted with pink coralline algae (R) and serpulid worms (F) and supporting *Ascidiella aspersa* (F). Polychaete casts (P), Bonelliidae sp. (P), *Hyas* sp. (P), *Ophiura* sp. (P), *Asterias rubens* (P).	SS.SMp.KSwSS. LsacR.Sa	KS	SB:KS	N
V03	Live (40%) and dead maerl (55%) on sand (5% showing)	Maerl (40% live) supporting algal turf (C, locally A) of mostly bleached filiform (F) and foliose (O) reds, filamentous reds (P) including *Trailliella*-like balls, with *Ulva* sp. (R), *Fucus serratus* (R), filiform brown algae (O) including sparse *Chorda filum* (P), *Saccharina latissima* (F) and *Laminaria* spp. (locally A). *Inachus* sp. (P), *Steromphala cineraria* (locally F on kelp fronds), *Luidia ciliaris* (P).	SS.SMp.Mrl.Pcal. R	MB	SB:MB	N
V04	Live (40%) and dead maerl (55%) with scattered shells (5%)	Maerl (40% live) supporting algal turf (A, locally S) of mostly bleached, filiform reds (A, locally S) *Trailliella*-like filamentous reds (P), foliose reds (O), *Ulva* sp. (O), with *Saccharina latissima* (C, locally A).	SS.SMp.Mrl.Pcal. R	MB	SB:MB	N

Table 1.2 continued

Video sample	**Substrate**	**Biota**	**Biotopes**	**PMFs**	**Annex1**	**Dredge damage**
V05	Sand (medium and coarse) with scattered gravel (5%), pebbles (3%) and shells (2%) including *Ensis*	Patchy filamentous red algal turf (A) with foliose red algae (R), *Ulva* sp. (F), *Chorda filum* (P) and *Saccharina latissima* (C, locally A). Live *Phymatolithon calcareum* (R, <1%), *Gibbula* sp. (P), *Hyas* sp. (O).	SS.SMp.KSwSS. LsacR.Sa	KS	SB:KS	N
V06	Maerl gravel (20%) and coarse and medium sand (78%) with scattered shells (2%) including *Ensis*	Filamentous red algal turf (A, locally S), with filiform reds (O), browns (O), *Chorda filum* (C, locally), *Dictyota dichotoma* (R), *Ulva* sp. (F), *Saccharina latissima* (C, locally A). *Macropodia* sp. (P), *Hyas* sp. (P), *Asterias rubens* (O).	SS.SMp.KSwSS. LsacR.Sa	KS	SB:KS	N
V09	Coarse sand with scattered pebbles (20%), cobbles (2%) and shells (2%) including *Ensis*	Biota strongly dominated by *Saccharina latissima* (C) and *Echinus esculentus* (C). Pebbles support serpulid worms (C) and pink coralline algae (R) and little else. Foliose red algae (R), *Laminaria hyperborea* (O), *Munida rugosa* (P), Crinoidea sp. (P).	SS.SMp.KSwSS	KS	SB:KS	N
V11	Coarse sand with scattered pebbles (20%), gravel (10%) and shells (5%) including *Ensis*	*Saccharina latissima* (C) supporting *Antedon bifida* (F). Stones and shells with encrusting pink coralline algae (R) and serpulid worms (P) and very sparse foliose red algae (R). *Macropodia* sp. (P), *Cancer pagurus* (P), *Asterias rubens* (P), *Echinus esculentus* (C).	SS.SMp.KSwSS	KS	SB:KS	N
V15	Sand (2%) with cover of maerl gravel (96%) and pebbles (2%).	Maerl gravel supports dense fine filamentous red algal turf (*Trailliella*-like) (S). Low-diversity biota includes scattered filiform red algae (R), filamentous brown algae (R), *Chorda filum* (P), *Saccharina latissima* (O), *Ulva* sp. (O) and Paguridae sp. (P). Live *Phymatolithon calcareum* (R, <1%)	SS.SMp.KSwSS	KS	SB:KS	N
V16	Coarse sand (44%) and maerl gravel (44%) with shells (8%), especially *Ensis*, and pebbles (4%)	Patchy red algal turf (C) including foliose, filiform and filamentous forms, *Desmarestia aculeata*? (R), *Saccharina latissima* (C). *Hyas* sp. (P), *Asterias rubens* (F), sparse live thalli of *Phymatolithon calcareum* (R, <1%).	SS.SMp.KSwSS. LsacR	KS	SB:KS	N
V17	Coarse sand with scattered shells (overall 5% but 40% in patches)	Scattered clumps of predominantly red algae (F) with small patches of shells associated with *Saccharina latissima* (F), *Plocamium cartilagineum*? (locally S) and live *Phymatolithon calcareum* (overall R). *Hyas* sp. (O), *Echinus esculentus* (F).	SS.SMp.KSwSS. LsacR.Sa	KS	SB:KS	N

Table 1.2 continued

Video sample	Substrate	Biota	Biotopes	PMFs	Annex1	Dredge damage
V18	Substrate mostly obscured but apparently largely coarse sand with varying quantities, sometimes dense, of gravel, pebbles and shells	*Saccharina latissima* (A), filamentous red algae (locally C but apparently generally sparse), sparse foliose red algae, *Desmarestia aculeata*? (R). *Steromphala cineraria* (C on kelp fronds), *Mya* sp.? siphons (P), *Modiolus modiolus* (P), *Echinus esculentus* (C).	SS.SMp.KSwSS	KS	SB:KS	N
V19	Sand with highly variable cover of maerl gravel, stone gravel, pebbles and shells (including *Ensis*) and occasional boulders	Patchy red algal turf (C, locally S) dominated by *Trailliella*-like filamentous form (C, locally S) and *Plocamium cartilagineum* (locally C). *Saccharina latissima* (C), Ectocarpaceae sp. (P), *Ulva* sp. (O), sparse live *Phymatolithon calcareum* (R, <1%). *Hyas* sp. (P), *Carcinus maenas* (P), *Asterias rubens* (P), *Echinus esculentus* (F).	SS.SMp.KSwSS. LsacR	KS	SB:KS	N
V23	Sand with cover of gravel, pebbles and shells (up to 100% locally)	Red algal turf (S) dominated by *Trailliella*-like filamentous form (A) and *Plocamium cartilagineum* (A). *Saccharina latissima* (C), *Desmarestia aculeata* (R), *Ulva* sp. (O), pink encrusting coralline algae (O). Crinoidea sp. (F), *Ophiura albida* (P), *Echinus esculentus* (P).	SS.SMp.KSwSS. LsacR.Gv	KS	SB:KS	N
V24	Poorly sorted medium and coarse sand with scattered shells (2%) including *Ensis*	Patchy algal turf (C) dominated by filamentous reds (C), with filiform reds (O), *Ulva* sp. (R), Ectocarpaceae sp. (R) and *Saccharina latissima* (F). *Carcinus maenas* (P).	SS.SMp.KSwSS. LsacR.Sa	KS	SB:KS	N
V25	Sand with cover of pebbles (40%) and shells (5% including *Ensis*), although highly variable	Stones support serpulids (P), dense filamentous red algal turf (S), filiform reds (P), *Ulva* sp. (F) and *Saccharina latissima* (C, A locally). *Carcinus maenas* (P)	SS.SMp.KSwSS. LsacR.Gv	KS	SB:KS	N
V26.1	Largely obscured - probably boulders	*Laminaria digitata*? (A), *Saccharina latissima* (F-C). Understorey of apparently dense red algae and *Ulva* sp.	IR.MIR.KR.Ldig		RF:ST	N
V26.2	Largely obscured but apparently boulders on mixed substrate of sand, gravel and pebbles	Dense forest of *Saccharina latissima* supporting *Steromphala cineraria*. Understorey includes filamentous red algae and *Ulva* sp.	IR.LIR.K.Lsac.Ft		RF:ST	N

Table 1.2 continued

Video sample	**Substrate**	**Biota**	**Biotopes**	**PMFs**	**Annex1**	**Dredge damage**
V27	Partially sand-covered and sand-dusted bedrock with scattered boulders	Rock supports *Saccharina latissima* (C, locally A) and *Laminaria hyperborea* (F, locally C) with apparently fairly sparse red algal understorey (F). *Steromphala cineraria* (P), *Pecten maximus* (P), Crinoidea sp. (P), *Ophiocomina nigra* (locally A), *Luidia ciliaris* (O), *Echinus esculentus* (O).	IR.HIR.KSed.XKScrR		RF:BR	N
V31	Sand (55%) with gravel (25%), pebbles (15%) and shells (5%) concentrated in patches	Patchy algal turf of filamentous reds (A), filiform reds (O) including *Furcellaria lumbricalis* (R) and foliose reds (R), and *Ulva* sp. (O) concentrated in stonier patches, where live *Phymatolithon calcareum* also concentrated (30% locally). *Arenicola marina* (locally C), *Saccharina latissima* (F), serpulids (P), *Hyas* sp. (P).	SS.SMp.Mrl.Pcal.R SS.SMp.KSwSS.LsacR.Sa	MB KS	SB:MB SB:KS	N
V32	Live (35%) and dead (35%) maerl on sand (15%) with scattered shells (7%), gravel (4%) and pebbles (4%)	Live *Phymatolithon calcareum* (A, locally S) supporting red algal turf (A) dominated by filamentous forms (A), with filiform brown algae (O) including *Desmarestia aculeata*? (R), *Ulva* sp. (O) and *Saccharina latissima* (F). Serpulid worms (P), *Carcinus maenas* (P), *Asterias rubens* (F).	SS.SMp.Mrl.Pcal.R	MB	SB:MB	N
V33	Coarse sand (65%) with shell gravel (20%), stone gravel (5%), pebbles (3%) and shells (7%)	Clumps of algal turf (F) dominated by filamentous reds (F) with foliose red algae (R), and *Ascidiella aspersa* (A). *Saccharina latissima* (O), *Ulva* sp. (R). Serpulid worms (F), *Lanice conchilega* (P), *Munida rugosa* (P), *Asterias rubens* (F), *Luidia ciliaris* (P). Live *Phymatolithon calcareum* (R, <1%)	SS.SMp.KSwSS.LsacR.Sa	KS	SB:KS	N
V34	Coarse sand (50%) with shell gravel (20%), stone gravel (15%), pebbles (5%) and shells (10%)	Patchy algal turf, mostly of filamentous and filiform reds (C), with *Ulva* sp. (R) and *Saccharina latissima* (F); live *Phymatolithon calcareum* (locally O, but overall R, <1%), pink encrusting coralline algae (R). Much drift algae. *Anemonia viridis* (P), *Mya* sp.? siphons (P), *Antedon* sp. (P), *Asterias rubens* (P), *Marthasterias glacialis* (P), *Ascidiella aspersa* (R).	SS.SMp.KSwSS.LsacR.Sa	KS	SB:KS	N
V35	Fine-medium sand with sparse pebbles (1%) and shells (1%)	Dense cover of *Trailliella*-like, filamentous red algae (S) with some filiform reds and browns and *Ulva* sp. (F, locally C); *Saccharina latissima* (F). *Lanice conchilega*? (P), *Arenicola marina*? casts (P), *Hyas* sp. (P), *Porania pulvillus* (R), *Ascidiella aspersa* (F).	SS.SMp.KSwSS.LsacR.Sa	KS	SB:KS	N
V36	Silty fine sand with sparse shells (1%) and pebbles (1%)	Mat of filamentous, presumably red, algae (S) with scattered *Saccharina latissima* (F). *Suberites ficus*? (R), *Cerianthus lloydii* (P), *Liocarcinus depurator* (R), *Ascidiella aspersa* (F).	SS.SMp.KSwSS.Tra			N

Table 1.2 continued

Video sample	Substrate	Biota	Biotopes	PMFs	Annex1	Dredge damage
V37	Silty, shelly fine sand with shells (1%), pebbles (1%), shell gravel (1%) and maerl gravel (1%)	Turf of predominantly filamentous red algae (A) with foliose reds (R) and filiform reds (P), *Ulva* sp. (R) and *Saccharina latissima* (O). Encrusting pink coralline algae (R), *Hyas* sp. (P), *Turritella communis* shells (P), *Luidia ciliaris* (P).	SS.SMp.KSwSS.LsacR.Sa	KS	SB:KS	N
V38	Silty sand with scattered shells (25%) and dead maerl (10%)	Patchy cover of *Saccharina latissima* (C, locally A) over turf of filamentous red algae (A) with foliose red algae (O) and *Ulva* sp. (O). *Anemonia viridis* (P), *Antedon* sp. (P), large rhodoliths of live maerl (R, <1%).	SS.SMp.KSwSS.LsacR	KS	SB:KS	N
V39.1	Silty shelly sand with dredge scars in the form of parallel lines of cobbles and pebbles; less disturbed patches with dense scatter of gravel, pebbles, cobbles and shells and occasional boulders	Stones and shells encrusted with serpulid worms (P) and pink coralline algae (R) and supporting hydroids (O) including *Halecium* sp. Empty shells include *Arctica islandica* and *Limaria hians*. *Cancer pagurus* (P), *Pecten maximus* (R), *Aequipecten opercularis* (C), *Ophiura albida* (C locally), *Asterias rubens* (P), *Luidia ciliaris* (P).	SS.SMx.CMx		SB:MX	Y
V39.2	Silty shelly sand (45%) with scattered gravel (15%), pebbles (30%), cobbles (5%), shells (5%) and occasional boulders (<1%)	Stones probably bound together by patchy *Limaria hians* turf (c.15% cover) and supporting serpulid worms (P), encrusting pink coralline algae (R), hydroids (O) including *Halecium* sp., *Nemertesia ramosa* and *Kirchenpaueria pinnata*? and filamentous red algal turf (C). *Virgularia mirabilis* (R), *Turritella communis* shells (P), *Aequipecten opercularis* (C), Crinoidea sp. (P), *Asterias rubens* (P), *Luidia ciliaris* (P), solitary ascidians (F) including *Ascidia mentula*, *Ascidiella aspersa* and *Polycarpa pomaria*, *Laminaria hyperborea* (F).	SS.SMx.IMx.Lim	FS?	SB:MX	N
V40	Coarse sand (68%) with scattered gravel (10%), pebbles (20%), shells (2%) and occasional boulders (<1%)	Patchy turf of filamentous and filiform red algae (A); *Dictyota dichotoma* (R), *Saccharina latissima* (F). *Ophiura albida* (P), *Echinus esculentus* (F).	SS.SMp.KSwSS.LsacR.Sa	KS	SB:KS	N

Table 1.2 continued

Video sample	**Substrate**	**Biota**	**Biotopes**	**PMFs**	**Annex1**	**Dredge damage**
V41	*Limaria* byssal turf (95%), probably containing stones and small sand patches (5%)	Extensive cover (95%) of *Limaria hians* byssal turf with dense gallery apertures. Turf supports filamentous and foliose red algal turf (A), *Alcyonium digitatum* (R), *Halecium* sp. (C), solitary ascidians (O) including *Ascidiella aspersa*? (P) and *Laminaria hyperborea* (F). Paguridae sp. (P), *Buccinum undatum* (P).	SS.SMx.IMx.Lim, IR.MIR.KT.XKTX	FS TS:KS	SB:MX	N
V42	Apparently sand with pebbles and shells	Dense bed of *Ophiothrix fragilis* (S) with *Ophiocomina nigra* (P). *Urticina* sp. (O), *Solaster endeca* (P), *Ciona intestinalis* (P). Stones encrusted with pink coralline algae (P). Beneath ophiuroids probably mosaic of sand and bound pebbles and shells by *Limaria hians* although presence uncertain.	*SS.SMx.IMx.Lim*, SS.SMx.CMx.OphMx	FS?	SB:MX	N
V43	Coarse sand with scattered boulders, cobbles and pebbles (largely obscured)	Substrate largely obscured by byssal turf of *Limaria hians* (c.60% cover) which supports an algal turf of predominantly filamentous reds (S) and, together with the stones, a park of *Laminaria hyperborea* (C). Balanidae sp. (P), *Hyas* sp. (P), *Asterias rubens* (O), *Marthasterias glacialis* (P).	SS.SMx.IMx.Lim, IR.MIR.KT.XKTX	FS TS:KS	SB:MX	N
DV01	Fine sand (80%) with gravel (15% but locally dense) and shells (5%)	Scattered *Saccharina latissima* (F, but locally C) with sparse algal clumps including filamentous browns (O), *Chorda filum* (O), *Desmarestia aculeata*? (R) and drift *Fucus* spp. *Cerianthus lloydii* (F), Terebellidae sp. (P), *Myxicola infundibulum* (R), serpulid worms (F), Paguridae spp. (O), *Gibbula* sp. (P), *Buccinum undatum* (F), *Psammechinus miliaris* (F, locally A).	SS.SMp.KSwSS.LsacMxVS	KS	SB:KS	N
DV02.1	Fine sand (75%) with gravel (15%), pebbles (5%) and shells (5%) including many *Ensis*	Sparse *Saccharina latissima* (O) with very sparse algal clumps including filamentous browns (R) and possibly reds (R). Stones with serpulid worms (F); Paguridae sp. (R), Asteroidea sp. (P), *Psammechinus miliaris* (O), Gobiidae sp. (P), small infaunal mounds (R).	SS.SSa.IMuSa.EcorEns		SB:MS	N
DV02.2	Fine sand (60%) with gravel (30%), pebbles (4%), cobbles (1%) and shells (5%)	Scattered *Saccharina latissima* (F) with stones supporting algal turf of filamentous reds and/or browns (F, locally A), *Chorda filum* (F, locally A), tubular Ulva sp.? (R), *Fucus* spp. (R, probably drift) and serpulid worms (F). *Cerianthus lloydii* (P), *Psammechinus miliaris* (F, locally A).	SS.SMp.KSwSS.LsacMxVS	KS	SB:KS	N

Table 1.2 continued

Video sample	**Substrate**	**Biota**	**Biotopes**	**PMFs**	**Annex1**	**Dredge damage**
DV03	Pebbles and cobbles (around 50% cover) on shelly, gravelly coarse sand	Stones appear to be lightly consolidated by *Limaria* byssus, forming indistinct mosaic with coarse sand, at least in places. Stones encrusted with pink coralline algae (O), cream sponge (P) and serpulid worms (P) and supporting hydroids including *Kirchenpaueria pinnata* (P) and *Nemertesia ramosa* (R), *Alcyonium digitatum*, *Protanthea simplex* (P), solitary ascidians including *Ascidia* sp. (P), green filamentous/filiform algae (R) and foliose red algae (R). Dense ophiuroid bed dominated by *Ophiothrix fragilis* (S) with *Ophiocomina nigra* (locally A) and *Ophiopholis aculeata* (locally A). *Modiolus modiolus* (apparently sparse), *Pecten maximus* (P), *Aequipecten opercularis* (F, locally C), *Asterias rubens* (P), *Antedon* sp. (R), *Echinus esculentus* (C), *Scyliorhinus canicula* (P), *Pholis gunnellus* (P).	*SS.SMx.IMx.Lim*, SS.SMx.CMx.OphMx	FS?	SB:MX	N
DV04	Mosaic of *Limaria* turf containing indeterminate quantities of stones and shells (85%) and shelly coarse sand (15%)	Dense *Limaria hians* bed (overall 85% byssal turf cover), initially 100% cover becoming around 70% cover in second half of run, where it supports park of *Laminaria hyperborea* (overall F, locally C) with *Obelia geniculata* (P) and *Sabella* sp. (P). *Limaria* turf also supports patchy foliose red algal turf (overall F, locally S in second half of run), filamentous red algae (P), hydroids including *Halecium halecinum*, *Halecium* sp., *Nemertesia ramosa* (O) and *Kirchenpaueria pinnata* (P), *Alcyonium digitatum* (R), and solitary ascidians including *Pyura* sp.? (P). Patchy ophiuroid bed dominated by *Ophiothrix fragilis* (S, locally C), with *Ophiocomina nigra* (A, locally C) and *Ophiopholis aculeata* (locally C). *Munida rugosa* (O), *Buccinum undatum* (P), *Aequipecten opercularis* (F), *Antedon* sp. (R), *Crossaster papposus* (O), *Asterias rubens* (P), *Psammechinus miliaris*? (P), *Echinus esculentus* (F), *Scyliorhinus canicula* (P), *Scyliorhinus* egg case (P), encrusting pink coralline algae (R).	SS.SMx.IMx.Lim, SS.SMx.CMx.OphMx, IR.MIR.KT.XKTX	FS TS:KS	SB:MX	N
DV05	Coarse sand and gravel with scattered pebbles, cobbles and shells (proportions unclear)	Stones support forest of *Laminaria hyperborea* (A) with stipes supporting rich foliose algae and fronds with *Obelia geniculata*, *Membranipora membranacea* and *Steromphala cineraria*. Probable patchy turf of *Limaria hians* (possibly attaining c.50% cover locally) beneath red algal turf (A). Also patchy cover of ophiuroids with *Ophiothrix fragilis* (A, locally S) and *Ophiocomina nigra* (A). *Saccharina latissima* (R), *Psammechinus miliaris* (P), *Echinus esculentus* (P).	*SS.SMx.IMx.Lim*, SS.SMx.CMx.OphMx, IR.MIR.KT.XKTX	FS? TS:KS	SB:MX	N

Table 1.2 continued

Video sample	Substrate	Biota	Biotopes	PMFs	Annex1	Dredge damage
DV06	Coarse sand with pebbles (40%) and occasional cobbles (5%)	Stones encrusted with pink coralline algae (O), *Serpula vermicularis* (F) with vertical tubes but not aggregated, and several sponges including orange and yellow forms and *Oscarella* sp.? Stones also support dense *Protanthea simplex* (A), hydroids including *Nemertesia ramosa* (F), *Kirchenpaueria pinnata* (P) and *Halecium halecinum* (P), *Alcyonium digitatum* (O), solitary ascidians including *Corella parallelogramma*, *Ascidia mentula*, *Ascidia* sp., *Polycarpa pomaria*?, *Pyura* sp.? and *Ciona intestinalis*, and foliose red algae (F). Ophiuroid bed with *Ophiothrix fragilis* (S), *Ophiocomina nigra* (locally A) and *Ophiopholis aculeata* (C). *Buccinum undatum*? (P), *Modiolus modiolus* (apparently R), *Aequipecten opercularis* (C), *Ulva* sp. (R, *Enteromorpha* form), *Asterias rubens* (O), *Crossaster papposus* (O), *Henricia* sp.?, *Echinus esculentus* (F), *Zeus faber* (P), *Pholis gunnellus* (P). Possible *Limaria hians* gallery apertures visible.	*SS.SMx.IMx.Lim* SS.SMx.CMx.OphMx	FS?	SB:MX	N
DV07	Coarse sand with gravel (10%) and pebbles (20%) though stones largely covered by byssal turf	*Limaria hians* bed (overall 60% byssal turf cover) supporting park of *Laminaria hyperborea* (overall F, locally C) with *Obelia geniculata* (P), *Electra pilosa* (P) and *Calliostoma ziziphinum* (P). *Limaria* turf also supports red algal turf (A), hydroids including *Halecium halecinum* (P) and *Kirchenpaueria pinnata* (P), *Alcyonium digitatum* (R), and solitary ascidians including *Polycarpa pomaria?* (P). Patchy ophiuroid bed dominated by *Ophiocomina nigra* (A), with *Ophiothrix fragilis* (locally A). *Suberites ficus*? (R), white cushion sponge (P), *Protanthea simplex* (R), *Urticina felina* (O), *Hyas* sp. (P), *Cancer pagurus* (P), *Buccinum undatum* (P), *Aequipecten opercularis* (F), *Crossaster papposus* (O), *Asterias rubens* (F), *Echinus esculentus* (F), *Pholis gunnellus* (P), encrusting pink coralline algae (R).	SS.SMx.IMx.Lim, SS.SMx.CMx.OphMx, IR.MIR.KT.XKTX	FS TS:KS	SB:MX	N
DV08.1	Maerl gravel (56%) with live maerl (30%) and scattered pebbles (10%), cobbles (2%) and shells (2%)	Principally a maerl bed with live *Phymatolithon calcareum* overall c.30% cover (C), although small patches of *Limaria hians* turf but overall sparse (<5%). Scattered plants of *Laminaria hyperborea* (F) and *Saccharina latissima* (O), with sparse foliose (O) and filamentous red algae (R). Stones encrusted with pink (R) and brown (R) algae and serpulid worms (O). Kelp fronds support *Obelia geniculata*. *Aequipecten opercularis* (O), *Ophiocomina nigra* (locally C), *Echinus esculentus* (F).	SS.SMp.Mrl.Pcal	MB	SB:MB	N

Table 1.2 continued

Video sample	**Substrate**	**Biota**	**Biotopes**	**PMFs**	**Annex1**	**Dredge damage**
DV08.2	Coarse sand with pebbles and cobbles largely bound by *Limaria* byssus	*Limaria hians* bed (overall c.80% byssal turf cover) supporting forest of *Laminaria hyperborea* (A) with *Obelia geniculata* (P) and *Steromphala cineraria* (P). *Limaria* turf also supports foliose red algal turf (A), filamentous red algae (O), *Saccharina latissima* (O), *Dictyota dichotoma* (R), hydroids including *Halecium halecinum* (P), *Alcyonium digitatum* (R), and solitary ascidians including *Polycarpa pomaria?* (P). *Munida rugosa* (P), *Pagurus bernhardus* (P), *Ophiocomina nigra* (A), *Asterias rubens* (O), *Echinus esculentus* (F), encrusting pink coralline algae (R).	SS.SMx.IMx.Lim SS.SMx.CMx.OphMxIR.MIR.KT.XKTX	FSTS:KS	SB:MX	N
DV09	Coarse sand with pebbles, cobbles and boulders but stones largely obscured by *Limaria* byssus	*Limaria hians* bed (c.95% byssal turf cover) supporting park of *Laminaria hyperborea* (F, locally C) with stipes densely epiphytised by foliose red algae and with cream cushion sponge (*Halichondria panicea*?). *Limaria* turf also supports foliose red algal turf (A), filamentous red algae (P), hydroids including *Halecium halecinum* (P) and *Kirchenpaueria pinnata* (P), and *Alcyonium digitatum* (O). *Urticina* sp. (locally F), *Pagurus bernhardus* (P), *Hyas* sp. (P), *Buccinum undatum* (O), *Ophiothrix fragilis* (S), *Ophiopholis aculeata* (locally C), *Ophiocomina nigra* (locally A), *Asterias rubens* (P), *Crossaster papposus* (P), *Echinus esculentus* (C), encrusting pink coralline algae (R).	SS.SMx.IMx.Lim, SS.SMx.CMx.OphMx, IR.MIR.KT.XKTX	FS TS:KS	SB:MX	N
DV10	Sand with cover of pebbles, cobbles and boulders with proportions obscured by *Limaria* byssal turf, though boulders dense locally	*Limaria hians* bed (overall c.75% byssal turf cover) supporting forest of *Laminaria hyperborea* (A) with *Obelia geniculata* (P) and *Steromphala cineraria* (P) and rich foliose red algal stipe flora. *Limaria* turf also supports foliose red algal turf (A), filamentous/filiform red algae (O), hydroids (P) and *Alcyonium digitatum* (R). *Ophiocomina nigra* (A), *Ophiothrix fragilis* (locally S), *Ophiopholis aculeata* (locally A), *Urticina* sp. (P), *Liocarcinus* sp.? (P), *Antedon* sp. (R), *Asterias rubens* (O), *Echinus esculentus* (F), *Scyliorhinus canicula* (P), teleost sp. (P), encrusting pink coralline algae (R).	SS.SMx.IMx.Lim, SS.SMx.CMx.OphMx, IR.MIR.KT.XKTX	FS TS:KS	SB:MX	N

Table 1.2 continued

Video sample	Substrate	Biota	Biotopes	PMFs	Annex1	Dredge damage
DV11	Coarse sand with pebbles, cobbles, shells and boulders with proportions obscured by *Limaria* byssal turf	*Limaria hians* bed (overall c.90% byssal turf cover) supporting park of *Laminaria hyperborea* (F) and red algal turf (A) of filamentous/filiform species (A) and foliose species (O), hydroids (P) including *Halecium halecinum* (C) and *Nemertesia ramosa* (O), and *Alcyonium digitatum* (O). *Hyas* sp. (O), *Buccinum undatum* (O), *Ophiocomina nigra* (A), *Ophiothrix fragilis* (P), *Crossaster papposus* (P), *Henricia* sp. (P), *Echinus esculentus* (C), solitary ascidians (P) including *Corella parallelogramma* and *Polycarpa pomaria*?, encrusting pink coralline algae (R). Sparse *Modiolus modiolus* shells present.	SS.SMx.IMx.Lim, SS.SMx.CMx.OphMx, IR.MIR.KT.XKTX	FSTS:KS	SB:MX	N
DV12.1	Coarse sand with pebbles, cobbles, shells and boulders with proportions obscured by epibiota though apparently dense pebbles	Dense ophiuroid bed dominated by *Ophiothrix fragilis* (S) with *Ophiopholis aculeata* (locally A) and *Ophiocomina nigra* (P). Stones encrusted with pink coralline algae and supporting foliose red algal turf (C) and hydroids including *Nemertesia ramosa*, *Halecium halecinum*, *Kirchenpaueria pinnata* and *Rhizocaulus verticillatus*, and *Alcyonium digitatum* (F, locally C). *Urticina* sp. (P), Paguridae sp. (P), *Cancer pagurus* (P), *Hyas* sp. (P), *Echinus esculentus* (C), *Pholis gunnellus* (P). Stones probably bound by *Limaria hians* but no definitive proof of its presence.	*SS.SMx.IMx.Lim*, SS.SMx.CMx.OphMx	FS?	SB:MX	N
DV12.2	Coarse sand with pebbles, cobbles, shells and boulders with proportions largely obscured by *Limaria* byssal turf	*Limaria hians* bed (overall c.80% byssal turf cover) supporting park of *Laminaria hyperborea* (overall F, locally C) with *Obelia geniculata* (P) and foliose red algal stipe flora. *Limaria* turf also supports foliose red algal turf (S), hydroids including *Halecium halecinum* (P), and *Alcyonium digitatum* (F). *Ophiocomina nigra* (A), *Ophiothrix fragilis* (P), *Ophiopholis aculeata* (P), *Asterias rubens* (P), *Echinus esculentus* (F), encrusting pink coralline algae (R).	SS.SMx.IMx.Lim, SS.SMx.CMx.OphMx, IR.MIR.KT.XKTX	FS TS:KS	SB:MX	N
DV13.1	Highly variable mixed substrate, intitially dense pebbles (70%) and cobbles (10%) with shell gravel infill (20%) becoming shell gravel with shells (10%, locally 50% *Modiolus* shell cover)	Ophiuroid bed with *Ophiocomina nigra* (A), *Ophiopholis aculeata* (P) and *Ophiothrix fragilis* (P), although large patches of profuse *O. fragilis* (S). Stones encrusted with pink coralline algae (P) and serpulid worms (C) and supporting foliose red algae (C), *Laminaria hyperborea* (O) and *Alcyonium digitatum* (O). *Echinus esculentus* (C), Many *Modiolus modiolus* shells though no live material observed.	SS.SMx.CMx.OphMx		SB:MX	N

Table 1.2 continued

Video sample	**Substrate**	**Biota**	**Biotopes**	**PMFs**	**Annex1**	**Dredge damage**
DV13.2	Coarse sand (15%) with dense cover by pebbles (75%) and cobbles (8%) and scattered shells (2%) including *Modiolus modiolus*	Stones encrusted with pink coralline algae (O) and serpulid worms (C) and support park of *Laminaria hyperborea* (C). Patchy cover of *Limaria hians* byssal turf (c. 30%). Stones and byssal turf also support hydroids (P) including *Nemertesia ramosa*, *Kirchenpaueria pinnata* and *Halecium halecinum*, *Alcyonium digitatum* (O), solitary ascidians including *Pyura* sp.? (P) and foliose red algae (C). *Pagurus bernhardus* (P), *Ophiothrix fragilis* (P), *Ophiocomina nigra* (A) and *Ophiopholis aculeata* (P). *Asterias rubens* (P), *Crossaster papposus* (P), *Echinus esculentus* (O).	SS.SMx.IMx.Lim, SS.SMx.CMx.OphMx, IR.MIR.KT.XKTX	FSTS:KS	SB:MX	N
DV13.3	Bedrock reef	Rock encrusted with pink coralline algae (C) and supporting patchy forest of *Laminaria hyperborea* (C, locally A) with stipes epiphytised by foliose red algae. Rock surface supports *Alcyonium digitatum* (C, locally A on more vertical faces) and sparse foliose red algae (O). *Crossaster papposus* (P), *Echinus esculentus* (C).	IR.MIR.KT.XKT	TS:KS	RF:BR	N
DV13.4	Coarse sand (15%) with dense cover by pebbles (75%) and cobbles (8%) and scattered shells (2%) including *Modiolus modiolus*	Stones encrusted with pink coralline algae (O) and serpulid worms (C) and support forest of *Laminaria hyperborea* (A) and foliose red algae (C). Possible patches of *Limaria hians* byssal turf. *Ophiocomina nigra* (A), *Echinus esculentus* (P).	SS.SMx.CMx.OphMx, IR.MIR.KT.XKTX	TS:KS	SB:MX	N
DV13.5	Bedrock reef	Rock encrusted with pink coralline algae (F, locally C) and supporting forest of *Laminaria hyperborea* (A) with stipes epiphytised by foliose red algae. Rock surface supports *Alcyonium digitatum* (O, locally A on more vertical faces initially) and sparse foliose red algae (O). *Echinus esculentus* (C).	IR.MIR.KT.XKT	TS:KS	RF:BR	N
DV14	Coarse sand (15%) with dense cover by pebbles (75%) and cobbles (8%) and scattered shells (2%) including *Modiolus modiolus*	Stones encrusted with pink coralline algae (O) and support forest of *Laminaria hyperborea* (A) with *Obelia geniculata* (P) and *Membranipora membranacea* (P), and foliose red algae (C, locally A). Patchy *Limaria hians* byssal turf (overall c. 50% cover). Hydroids (P) including *Halecium halecinum* (locally C), *Alcyonium digitatum* (R), *Hyas* sp. (P), *Asterias rubens* (O), *Echinus esculentus* (C), *Chorda filum*? (P).	SS.SMx.IMx.Lim, IR.MIR.KT.XKTX	FS TS:KS	SB:MX	N

Table 1.2 continued

Video sample	Substrate	Biota	Biotopes	PMFs	Annex1	Dredge damage
DV15	Mixed substrate of dense pebbles (74%) with gravel (10%), shells (5%) including many *Modiolus modiolus*, cobbles (10%) and boulders (1%)	Stones encrusted with pink coralline algae (R) and serpulid worms (C) including *Sprobranchus* spp. (locally A) and support hydroids (locally C) mainly short form but also *Kirchenpaueria pinnata* (R), *Alcyonium digitatum* (F, locally C) and solitary ascidians (P). Paguridae sp. (P), *Munida rugosa* (O), *Hyas* sp. (P), *Crossaster papposus* (F), *Asterias rubens* (P), *Ophiocomina nigra* (C), *Ophiothrix fragilis* (locally C), *Ophiopholis aculeata* (locally C), *Echinus esculentus* (C).	SS.SMx.CMx		SB:MX	N
DV16	Dense pebbles (60%) and cobbles (25%) on gravelly (5%) sand (5%) with shells (5%) including *Modiolus modiolus*	Dense ophiuroid bed dominated by *Ophiothrix fragilis* (S) with *Ophiopholis aculeata* (locally A) and *Ophiocomina nigra* (locally C). Stones encrusted with pink coralline algae (O) and serpulid worms (P) and supporting sparse foliose red alge (R) and hydroids including *Kirchenpaueria pinnata*, and *Alcyonium digitatum* (C). *Urticina* sp. (P), *Hyas* sp. (P), *Buccinum undatum* (R), *Asterias rubens* (O), *Crossaster papposus (P), Echinus esculentus* (C), *Psammechinus miliaris* (P), solitary ascidians (P) including *Ascidia virginea* (P), *Pholis gunnellus* (P). Stones bound at least in places by *Limaria hians* byssus but no indication of extent of cover. *Modiolus modiolus* (C locally but overall abundance unclear).	*SS.SMx.IMx.Lim*, SS.SMx.CMx.OphMx	FS?	SB:MX	N
DV17	Substrate largely obscured by *Limaria* turf but small patches of coarse sand visible with pebbles, cobbles and shells	*Limaria hians* bed with turf (c.90%) consolidating much kelp material, pebbles and shells and supporting *Laminaria hyperborea* forest (A) with *Saccharina latissima* (O), hydroids including *Halecium* sp. (P) and red algal understorey (C). Kelp supports foliose red algal stipe flora, as well as *Obelia geniculata* and *Membranipora membranacea* on the fronds. *Ophiocomina nigra* (A), *Echinus esculentus* (F), *Scyliorhinus canicula* (P).	SS.SMx.IMx.Lim, SS.SMx.CMx.OphMx, IR.MIR.KT.XKTX	FS TS:KS	SB:MX	N
DV18	Substrate largely obscured by *Limaria* turf but apparently pebbles, cobbles and shells with some gravelly sand	Dense ophiuroid bed dominated by *Ophiothrix fragilis* (S) with *Ophiopholis aculeata* (locally A) and *Ophiocomina nigra* (locally A). Stones encrusted with pink coralline algae (R) and supporting foliose red alge (F), *Oscarella* sp.? (R) and hydroids (P) including *Kirchenpaueria pinnata*, *Halecium halecinum* and *Rhizocaulus verticillatus*?, A*lcyonium digitatum* (O) and *Protanthea simplex* (R). *Asterias rubens* (O), *Echinus esculentus* (F), solitary ascidians (P) including *Ascidia mentula*, *Ascidia* sp. and *Pyura* sp.? *Modiolus modiolus* (P but overall abundance unclear). Substrate of stones and shells appears bound together, probaly by *Limaria hians* byssal turf.	*SS.SMx.IMx.Lim*, SS.SMx.CMx.OphMx	FS?	SB:MX	N

Table 1.2 continued

Video sample	**Substrate**	**Biota**	**Biotopes**	**PMFs**	**Annex1**	**Dredge damage**
DV19	Silty coarse sand and shell gravel with pebbles and shells (including *Modiolus). Limaria* turf and kelp largely obscure determination of proportions	Mixed kelp forest of *Laminaria hyperborea* (A) and *Saccharina latissima* (F) with stipes supporting rich foliose red algae and fronds with *Steromphala cineraria*, *Obelia geniculata*, *Membranipora membranacea* and *Electra pilosa*. *Limaria* turf present but coverage unclear, although >10%. Turf supports red algal turf (F) and includes some live *Modiolus modiolus* (P), though density unclear. *Marthasterias glacialis* (P), *Echinus esculentus* (P), *Ascidia virginea* (P), *Desmarestia aculeata* (R).	SS.SMx.IMx.Lim, IR.MIR.KT.XKTX	FSTS: KS	SB:MX	N
DV20	Gravelly sand with probably dense pebbles, cobbles and shells, though largely obscured by dense *Limaria* turf	*Limaria hians* bed with turf (c.95%) and stones supporting *Laminaria hyperborea* park (F) with hydroids (P) including *Halecium halecinum* and *Rhizocaulus verticillatus*?, *Alcyonium digitatum* (R) and red algal turf (C, locally S). Patchy ophiuroid bed with *Ophiothrix fragilis* dominant for much of run (S), as well as *Ophiocomina nigra* (loally A) and *Ophiopholis aculeata* (locally A). *Urticina* sp. (P), *Pagurus bernhardus* (P), *Buccinum undatum* (P), *Crossaster papposus* (O), *Echinus esculentus* (P), *Scyliorhinus* egg cases (P), *Pholis gunnellus* (P), teleost sp. (P), pink encrusting coralline algae (R).	SS.SMx.IMx.Lim, SS.SMx.CMx.OphMx, IR.MIR.KT.XKTX	FS TS:KS	SB:MX	N
DV21	Substrate largely obscured but apparently coarse sand with dense cover of pebbles(c.60%), as well as cobbles, shells (including *Modiolus*) and boulders	Stones encrusted with pink coralline algae (O) and support mixed kelp forest of *Laminaria hyperborea* (A) with rich foliose red algal stipe flora and *Obelia geniculata* (P), *Steromphala cineraria* (P) and *Membranipora membranacea* (P), and *Saccharina latissima* (F). Sparse understorey of foliose red algae (O). Patchy *Limaria hians* byssal turf (100% cover in patches with well-developed byssal apertures, but overall coverage unknown but apparently much lower). *Hyas* sp. (P), *Asterias rubens* (P), *Ophiocomina nigra* (A), *Ophiothrix fragilis* (P), *Echinus esculentus* (C).	SS.SMx.IMx.Lim, SS.SMx.CMx.OphMx, IR.MIR.KT.XKTX	FS? TS:KS	SB:MX	N

Table 1.2 continued

Video sample	Substrate	Biota	Biotopes	PMFs	Annex1	Dredge damage
DV22	Sand (30%) with dense scatter of gravel (34%), pebbles (24%), cobbles (5%), boulders (<1%) and shells (7%) including many *Ensis*. Proportions varying greatly along run	Stones encrusted with serpulid worms (P) including *Sprobranchus* spp. and support park of *Saccharina latissima* (C), *Alaria esculenta* (O, locally F) and *Chorda filum* (C, locally A), and patchy algal turf including *Ulva lactuca*? (O, locally C), *Ulva* sp. (O, locally F - *Enteromorpha* form), filamentous/filiform brown algae (O) including *Desmarestia aculeata* (O), and filamentous/filiform red algae (R, becoming locally A towards end of run). Kelp fronds support *Obelia geniculata* (P), *Steromphala cineraria* (P), *Electra pilosa* (P) and *Membranipora membranacea* (P), Paguridae sp. (P), *Hyas* sp. (P), *Aequipecten opercularis* (R), *Echinus esculentus* (F), sparse maerl thalli (R, <1% cover). *Fucus serratus* (locally C) is present at the start of the run in an area of biotope transition at the bottom of the shore.	SS.SMp.KSwSS. LsacR.Gv	KS	SB:KS	N
DV23.1	Mosaic of coarse sand (30%) and *Limaria* turf (70%), the latter containing unknown amounts of shells and pebbles	*Limaria hians* bed with turf cover increasing along run (overall c.70%) forming distinct mosaic with coarse sand patches. Stones encrusted with pink coralline algae (R). Turf supports turf of red algae (A) and hydroids (P) including *Halecium halecinum*, *Alcyonium digitatum* (R), *Pyura* sp.? and park of *Laminaria hyperborea* with stipes epiphytised with foliose red algae. *Buccinum undatum* (O), *Crossaster papposus* (P), *Echinus esculentus* (F), *Ophiocomina nigra* (A), *Ophiothrix fragilis* (P).	SS.SMx.IMx.Lim, SS.SMx.CMx.OphMx, IR.MIR.KT.XKTX	FS TS:KS	SB:MX	N
DV23.2	Mosaic of coarse sand (10%) and gravel (10%) patches with *Limaria* turf (80%) containing unknown amounts of pebbles, cobbles and shells	*Limaria hians* bed with dense cover of *Ophiothrix fragilis* (S), as well as *Ophiocomina nigra* (P) and *Ophiopholis aculeata* (P). Turf supports red algal turf (F), *Urticina* sp. (P), *Alcyonium digitatum* (R) and hydroids (P) including *Halecium halecinum*. *Crossaster papposus* (P), *Laminaria hyperborea* (O), encrusting pink coralline algae (R).	SS.SMx.IMx.Lim, SS.SMx.CMx.OphMx	FS	SB:MX	N
DV24	Coarse sand with scattered gravel, pebbles, shells, cobbles and occasional boulders becoming mosaic of coarse sand patches and *Limaria* turf consolidating the stones	*Limaria* turf increasing from around 20% to 80% cover (overall c.60%) and with stones supporting *Laminaria hyperborea* park (F, locally C) with *Membranipora membranacea* (P), *Obelia geniculata* (P) and *Calliostoma zizyphinum* (P) and foliose red algal stipe flora. *Limaria* turf with red algal turf (overall A), hydroids (F) including *Halecium halecinum* and *Kirchenpaueria pinnata*, *Alcyonium digitatum* (R, locally O). White cushion sponge (P), *Munida rugosa* (P), *Hyas* sp. (P), *Ophiocomina nigra* (R, locally C), *Asterias rubens* (O), *Echinus esculentus* (C), *Ascidia virginea* (P), *Pyura* sp.? (P), pink coralline encrusting algae (R), *Dictyota dichotoma* (R).	SS.SMx.IMx.Lim, IR.MIR.KT.XKTX	FSTS:KS	SB:MX	N

Table 1.2 continued

Video sample	**Substrate**	**Biota**	**Biotopes**	**PMFs**	**Annex1**	**Dredge damage**
DV25	Mosaic of coarse sand patches patches (35%) with *Limaria* turf (65%) containing dense but unknown amounts of pebbles, cobbles and shells	*Limaria hians* bed with around 65% byssal cover and supporting ophiuroid bed dominated by *Ophiothrix fragilis* (S), with *Ophiocomina nigra* (A) and *Ophiopholis aculeata* (locally A). Red algal turf (F), hydroids (P) including *Halecium halecinum* and *Rhizocaulus verticillatus*?, *Alcyonium digitatum* (O), *Urticina* sp. (O), *Munida rugosa* (P), *Hyas araneus* (P), *Marthasterias glacialis* (O), *Crossaster papposus* (O), *Echinus esculentus* (F).	SS.SMx.IMx.Lim, SS.SMx.CMx.OphMx	FS	SB:MX	N
DV26	*Limaria* turf (75%) binding pebbles, cobbles, shell and algal material, with small patches of predominantly coarse sand (25%)	*Laminaria hyperborea* park (F overall, but C initially) with kelp supporting rich foliose red algal stipe flora and *Obelia geniculata* (P), *Steromphala cineraria* (P) and *Membranipora membranacea* (P); *Saccharina latissima* (O). *Limaria hians* turf (75%) with red algal turf (C overall, but initially A declining to F), *Ulva* sp. (R - *Enteromorpha* form), *Desmarestia aculeata* (R) and *Urticina* sp. (P). Dense ophiuroids, initially largely *Ophiocomina nigra* (A overall) switching to mainly *Ophiothrix fragilis* (S locally) and *Ophiopholis aculeata* (locally A). *Cancer pagurus* (P), *Crossaster papposus* (O), *Asterias rubens* (P), *Echinus esculentus* (F), pink encrusting coralline algae (R).	SS.SMx.IMx.Lim, SS.SMx.CMx.OphMx, IR.MIR.KT.XKTX	FS TS:KS	SB:MX	N
DV27	Coarse sand (40%) with gravel (38%), pebbles (15%), cobbles (5%) and shells (2% including *Ensis*)	Dense *Saccharina latissima* (A) supporting dense *Obelia geniculata* (P), *Gibbula* sp. (P), *Electra pilosa* (P) and *Membranipora membranacea* (P). Stones encrusted with pink coralline algae (R) and serpulid worms (P) and with sparse algal turf of filamentous reds (O) and filiform reds (R). *Hyas araneus* (P), *Aequipecten opercularis* (R), *Antedon* sp. (R), *Asterias rubens* (P), *Ophiocomina nigra* (R), *Echinus esculentus* (F).	SS.SMp.KSwSS.LsacR.Gv	KS	SB:KS	N
DV28	*Limaria* turf (65%) binding pebbles, cobbles and shell, with patches of coarse sand (35%)	*Limaria hians* bed with turf cover c.65%) forming distinct mosaic with coarse sand patches. Stones encrusted with pink coralline algae (R). Turf supports turf of red algae (A), yellow cushion sponge (R), and hydroids (C) including *Halecium halecinum* (C) and *Nemertesia ramosa* (O), *Alcyonium digitatum* (R), *Ascidiella aspersa* (F locally) and scattered *Laminaria hyperborea* (O) with *Obelia geniculata*. *Munida rugosa* (P), *Hyas araneus* (P), *Buccinum undatum* (P), *Crossaster papposus* (P), *Echinus esculentus* (F), *Ophiocomina nigra* (O, locally A), Gobiidae sp. (P), *Pholis gunnellus* (P).	SS.SMx.IMx.Lim	FS	SB:MX	N

Table 1.2 continued

Video sample	Substrate	Biota	Biotopes	PMFs	Annex1	Dredge damage
DV29	Substrate largely occluded by ophiuroids but apparently dense pebbles with some cobbles and small patches of coarse sand	Largely dense ophiuroid bed dominated by *Ophiothrix fragilis* (S) with *Ophiocomina nigra* (A) and *Ophiopholis aculeata* (locally A), but large patch dominated by *O. nigra* (A, locally S). *Limaria hians* turf beneath ophiuroids, distinct in places, but unclear for much of run - probably around 50% cover overall. *Alcyonium digitatum* (R), *Urticina* sp. (O), *Hyas* sp. (P), *Crossaster papposus* (F), *Echinus esculentus* (F), pink encrusting coralline algae (R), *Laminaria hyperborea* (O) with *Obelia geniculata* (P).	SS.SMx.IMx.Lim, SS.SMx.CMx.OphMx	FS	SB:MX	N
DV30	Silty, shelly sand (79%) with scattered pebbles (10%), gravel (10%) and shells (1%), although proportions variable	Stones encrusted with serpulid worms (O) and pink coralline algae (R) and supporting sparse hydroids (R). Patchy red algal turf of short filamentous reds (C) and foliose reds (R), although varying in cover over run; *Dictyota dichotoma* (R). Paguridae sp. (P), *Munida rugosa* (F), *Inachus* sp. (O), *Aequipecten opercularis* (C), *Asterias rubens* (P), *Marthasterias glacialis* (P), *Echinus esculentus* (O), *Ascidiella aspers*a (P). *Turritella communis* shells (locally C) and sparse *Modiolus* shells; infaunal holes in sediment (P). Some broken shell material suggests the possibility of demersal fishing damage.	SS.SMp.KSwSS	KS	SB:KS	P
DV31	Silty shelly sand (36%) with pebbles (50%), gravel (10%, cobbles (2%) and shells (2%)	Stones encrusted with serpulid worms (F) and yellow sponge (R) and supporting hydroids (O, locally F) including *Halecium* sp. *Lanice conchilega* (R), *Munida rugosa* (F), *Aequipecten opercularis* (C), *Crossaster paposus* (P), *Porania pulvillus* (O), *Luidia ciliaris* (F), *Echinus esculentus* (P). Possible *Atrina fragilis* at 00:04:57 and 00:05:21 (same individual) although atypical orientation of shell	SS.SMx.CMx	AF?	SB:MX	N
DV32	Cohesive muddy fine sand or possibly sandy mud with sparsely scattered shells (2%) and pebbles (<1%)	Sediment with small infaunal holes and mounds and sparse megafaunal burrows. Hydroids (R), *Lanice conchilega* (R), Bonnellidae sp. (F), Paguridae sp. (R), *Munida rugosa* (F), *Asterias rubens* (P), *Porania pulvillus* (R), teleost sp. (P). Scattered algal detritus, especially kelp.	SS.SMu.CSaMu			N
DV33	Soft mud	Fairly lightly burrowed by megafauna including *Nephrops norvegicus* (F, I animal seen), *Calocaris macandreae*? (O) and *Jaxea nocturna*? (P). *Pennatula phosphorea* (F), Bonellidae sp. (P), *Munida rugosa* (F), Paguridae sp. (R), *Turritella communis* (F), *Arctica islandica* shells (P).	SS.SMu.CFiMu.SpnMeg	BM:SB		N

Table 1.2 continued

Video sample	**Substrate**	**Biota**	**Biotopes**	**PMFs**	**Annex1**	**Dredge damage**
DV34	Silty shelly sand (70%) with scattered gravel (10%), pebbles (15%), cobbles (3%) and shells (2%)	Sparse *Saccharina latissima* (O) with patchy red algal turf (S), as well as *Desmarestia aculeata* (O), *Dictyota dichotoma* (R) and *Ulva lactuca*? (R). Stones encrusted with pink coralline algae (R), serpulids (P) and *Balanus* spp. (P) and support hydroids including *Nemertesia ramosa* (F) and *Halecium* sp. (P), *Ascidiella aspersa* (F) and *Ascidia virginea* (P). *Virgularia mirabilis* (R), *Munida rugosa* (F), *Cancer pagurus* (P), *Aequipecten opercularis* (O), *Antedon* sp. (R), *Asterias rubens* (P), *Luidia ciliaris* (O), *Echinus esculentus* (F). *Limaria hians* may be present but no distinct indication of it.	SS.SMp.KSwSS. LsacR.Sa	KS	SB:KS	N
DV35	Medium sand (79%) with scattered gravel (10%), pebbles (5%), shells (5%) and cobbles (1%)	Stones and shells encrusted with serpulid worms (P) and pink coralline algae (R) and support sparse filamentous red algae (R) and hydroids (O increasing to C at end of run) including *Nemertesia ramosa* (locally F) and *Rhizocaulus verticillatus* (locally F). Sparse *Laminaria hyperborea* (R) and *Saccharina latissima* (R) and *Desmarestia sp.* (R), possibly drift. *Virgularia mirabilis* (O), Paguridae sp. (R), *Munida rugosa* (O, locally F), *Aequipecten opercularis* (O), *Pecten maximus* (R), *Antedon* spp. (F), *Asterias rubens* (O), *Porania pulvillus* (O), *Ophiura* sp. (P), *Echinus esculentus* (P), *Ascidiella aspersa*, live maerl (R - <1%). *Arctica islandica* and *Ensis* shells (R).	SS.SSa.IFiSa.ScupHyd		SB:GS	N
DV36	Poorly sorted sand (75%) with gravel (10%), pebbles (10%), shells (3%), cobbles (2%) and boulders (<1%)	Patchy algal turf dominated by filamentous and filiform reds (S) with foliose reds (R), *Desmarestia* sp. (R), juvenile *Saccharina latissima* (O) and *Laminaria hyperborea* (R). Stones encrusted with pink coralline algae (R) and support hydroids including *Nemertesia ramosa* (F) and *Halecium* sp. (P), and *Corella parallelogramma* (R). *Virgularia mirabilis* (O), *Munida rugosa* (P), *Hyas araneus* (P), *Aequipecten opercularis* (O), *Antedon* spp. (F), *Asterias rubens* (O), *Crossaster papposus* (O), *Luidia ciliaris* (P), *Ophiura albida* (locally C), *Echinus esculentus* (F).	SS.SMp.KSwSS. LsacR.Sa	KS	SB:KS	N

Table 1.2 continued

Video sample	Substrate	Biota	Biotopes	PMFs	Annex1	Dredge damage
DV37	Silty shelly sand (67%) with scattered gravel (15%), pebbles (10%), cobbles (5%), shells (3%) and boulders (<1%). Stone cover highly variable and dense in places	Stones and shells encrusted with serpulid worms (P) including *Spirobranchus* spp. and *Serpula vermicularis*, *Balanus* spp. (P) and pink coralline algae (R). Patchy red algal turf (C, locally A) dominated by filamentous forms (C) with foliose species (R); *Saccharina latissima* (O) with *Obelia geniculata* (P). Stones support hydroids (O) including *Kirchenpaueria pinnata* (R). *Toxisarcon alba* (P), *Suberites ficus*? (R), *Virgularia mirabilis* (R), Paguridae spp. (R), *Munida rugosa* (F), *Hyas araneus* (P), *Carcinus maenas* (R), *Aequipecten opercularis* (R), *Antedon* spp. (O), *Luidia ciliaris* (P), *Echinus esculentus* (F), *Ascidiella aspersa* (F), *Ascidia virginea* (P), *Ascidia mentula* (P), *Corella parallelogramma* (locally F). *Arctica islandica* and *Turritella communis* shells (P).	SS.SMp.KSwSS. LsacR.Sa	KS	SB:KS	N
DV38	Shelly medium sand (69%) with varying proportions of gravel (15%), pebbles (10%), shells (5%) and cobbles (1%).	Patchy algal turf decreasing along run, dominated by filamentous red algae (F, locally A initially), with foliose red algae (R), *Desmarestia* viridis (locally O), *D. aculeata* (R) and *Dictyota dichotoma* (R). *Saccharina latissima* (F) with *Obelia geniculata* (P), *Membranipora membranacea* (P), *Steromphala cineraria* (P) and *Gibbula* sp. (P). *Virgularia mirabilis* (R), *Buccinum undatum* (P), *Antedon* spp. (F, locally C), *Asterias rubens* (P), *Ophiura albida* (C, locally A), *Echinus esculentus* (F), shoal of small teleosts (P). *Turritella communis*, *Arctica islandica* and *Ensis* shells.	SS.SMp.KSwSS. LsacR.Sa	KS	SB:KS	N
DV39	Shelly coarse sand (60%) with scattered gravel, pebbles, cobbles and shells (including *Ensis*), partly consolidated by *Limaria* byssal turf so proportions unclear	Stones encrusted with pink coralline algae (R) and serpulid worms (P) and in part forming distinct patches consolidated by *Limaria hians* byssal turf (c.15% cover overall). Patches support algal turf with filamentous reds F-C), foliose reds (R), *Desmarestia viridis* (O, locally F), *D. aculeata*? (R) and *D ligulata*? (R). Mixed kelp park of *Laminaria hyperborea* (F) and *Saccharina latissima* (F) supporting *Obelia geniculata* (P), *Membranipora membranacea* and *Gibbula* sp. (P). *Munida rugosa* (P), *Hyas araneus* (P), *Aequipecten opercularis* (P), *Antedon* sp. (P), *Asterias rubens* (O), *Solaster endeca* (P), *Ophiura* sp. (locally C), *Echinus esculentus* (F), *Ascidiella aspersa* (P).	SS.SMx.IMx.Lim*I R.HIR.KSed.XKS crR*	FS	SB:MX	N
DV40.1	Poorly sorted shelly sand with gravel (30%), shells (10% including many *Ensis*) and pebbles (5%)	Stones and shells encrusted with pink coralline algae (R) and serpulid worms (P) and supporting sparse filamentous red (R) and foliose red (R) algae. *Chaetopterus variopedatus* (O), *Munida rugosa* (P), *Aequipecten opercularis* (F), *Luidia ciliaris* (F), *Ophiura albida* (locally C), *Echinus esculentus* (P), small teleosts (P).	SS.SMx.IMx		SB:MX	N

Table 1.2 continued

Video sample	Substrate	Biota	Biotopes	PMFs	Annex1	Dredge damage
DV40.2	Sand-dusted bedrock (100%)	Rock mostly supporting turf of hydroids (C) and red algae (F), with dense patches of *Ciona intestinalis* (overall C) and *Corella parallelogramma* (F). *Asterias rubens* (P), *Porania pulvillus* (P), *Echinus esculentus* (F), *Laminaria hyperborea* (O), *Saccharina latissima* (O).	CR.LCR.BrAs.AntAsH		RF:BR	N
DV40.3	Poorly sorted shelly sand with gravel (30%), shells (10% including many *Ensis*) and pebbles (5%)	Stones and shells encrusted with pink coralline algae (R) and serpulid worms (P) and supporting sparse filamentous red algae (R), *Dictyota dichotoma* (R), *Desmarestia* spp. (R) and hydroids (O). *Virgularia mirabilis* (O), *Cerianthus lloydii* (R), *Munida rugosa* (O), *Inachus* sp. (P), *Pecten maximus* (P), *Ophiura albida* (locally C), *Echinus esculentus* (F), *Ascidiella aspersa* (O), small teleosts (P), live maerl thalli (R - <1%), *Saccharina latissima* (O).	SS.SMx.IMx		SB:MX	N
DV41.1	Mosaic of coarse sand patches (50%) with scattered boulders and small bedrock outcrops and *Limaria hians* turf patches incorporating stones	Mosaic of sand and largely red algal turf dominated by filiform species (possibly *Bonnemaisonia asparagoides*), with foliose reds (R) and brown algae including *Desmarestia* spp. (P), *Saccharina latissima* (F) and *Laminaria hyperborea* (O) supporting *Alcyonium digitatum* (R) and dense *Obelia geniculata* (P), as well as hydroid turf including *Nemertesia ramosa* (P). Algal and hydroid turf present on both stones and *Limaria hians* byssal turf which possibly covers c.40% of the seabed in patches. *Antedon* spp. (F), *Asterias rubens* (O), *Luidia ciliaris* (O), *Echinus esculentus* (F), *Ascidia virginea* (P), small teleosts (P).	SS.SMx.IMx.Lim	FS	SB:MX	N
DV41.2	Sand-dusted bedrock (98%) with small pockets of coarse sand (2%)	Rock encrusted with pink coralline algae (O) and supports park of *Laminaria hyperborea* (F) with dense *Obelia geniculata*, and juvenile *Saccharina latissima* (F). Patchy algal turf of filiform reds (C, probably mainly *Bonnemaisonia asparagoides*) and *Desmarestia* spp. (O, locally F - probably chiefly *D. viridis* with some *D. ligulata*). *Munida rugos*a (P), *Antedon* spp. (F), *Luidia ciliaris* (O), *Porania pulvillus* (O), *Echinus esculentus* (F).	IR.HIR.KSed.XKScrR		RF:BR	N

Table 1.2 continued

Video sample	Substrate	Biota	Biotopes	PMFs	Annex1	Dredge damage
DV41.3	Patches of poorly sorted coarse sand and gravel with pebbles and shells,and scattered cobbles, boulders and sand-dusted bedrock outcrops	Bedrock and stones encrusted with pink coralline algae (R), brown algae (P), serpulid worms (P) and *Balanus* spp. (P) and supporting algal and hydroid turf. Algal turf predominantly filiform reds (C, locally A - probably *Bonnemaisonia asparagoides*), with foliose reds (R), *Dictyota dichotoma* (R), as well as sparse *Laminaria hyperborea* (R) and juvenile *Saccharina latissima* (R). Hydroids include *Rhizocaulus verticillatus* (locally C), *Nemertesia ramosa* (locally F) and *Halecium halecinum* (P). *Virgularia mirabilis* (locally C), *Cerianthus lloydii* (locally C), *Lanice conchilega* (P), *Aequipecten opercularis* (R), *Antedon* spp. (F, locally C), *Asterias rubens* (O), *Luidia ciliaris* (O), *Porania pulvillus* (R), *Ophiura albida* (locally A), *Echinus esculentus* (O), *Clavelina lepadiformis* (R), *Corella parallelogramma* (F, locally C), *Ascidia virginea* (P), *Ciona intestinalis* (P). Patches of *Limaria hians* nests in the mixed sediment areas; coverage uncertain, although faunal and algal turf/sand mosaic suggests possibly c.40% locally.	SS.SMx.IMx.Lim, *IR.HIR.KFaR.FoR*	FS	RF:BR SB:MX	N
DV42.1	Silty shelly sand (50%) with scattered gravel (25%), pebbles (14%), cobbles (7%), boulders (2%) and shells (2%)	Stones encrusted with serpulid worms (C), *Balanus* spp. (P) and pink coralline algae (R) and with thin hydroid turf (F) including *Halecium halecinum* and *Nemertesia ramosa* and solitary ascidians (O) including *Ascidia virginea* and *Ciona intestinalis*?. Paguridae sp. (R), *Munida rugosa* (F), *Aequipecten opercularis* (F), *Luidia ciliaris* (P), small teleosts (P), foliose red algae (R). *Arctica islandica* shells (P).	SS.SMx.CMx		SB:MX	N
DV42.2	Silty shelly sand (41%) with scattered gravel (25%), pebbles (20%), cobbles (10%), boulders (2%) and shells (2%)	Stones encrusted with serpulid worms (P), *Balanus* spp. (P) and pink coralline algae (R) and with hydroid turf (F) including *Halecium halecinum* and *Nemertesia ramosa,* red algal turf (F), and solitary ascidians (O) including *Corella parallelogramma*. *Munida rugosa* (O), *Aequipecten opercularis* (C), *Porania pulvillus* (R), *Ophiothrix fragilis* (R), small teleosts (P), *Laminaria hyperborea*? (R). Small patches of stones consolidated by *Limaria hians* turf, low coverage, possibly <10%. Broken shells, possibly indicative of dredge damage.	SS.SMx.IMx.Lim	FS?	SB:MX	**P**
DV42.3	Parallel lines of pebbles and cobbles, with intervening lines of sand with scattered pebbles, cobbles and shell material	No close-up imagery but clearly at least three dredge tracks with stones supporting turf of hydroids? and algae? *Asterias rubens* (P).	SS.SMx.CMx		SB:MX	**Y**

Table 1.2 continued

Video sample	**Substrate**	**Biota**	**Biotopes**	**PMFs**	**Annex1**	**Dredge damage**
DV42.4	Very mixed substrate of shelly sand with shell and stone gravel, pebbles, cobbles and shells with small patches of consolidated pebbles and shells covering around 45% of seabed	Consolidated patches of pebbles and shells probably formed by *Limaria hians*. Patches support turf of hydroids (F) including *Halecium halecinum* and *Nemertesia ramosa*, and predominantly filamentous red algal turf (F, locally A), as well as soliary ascidians (C) particularly clumps of *Ascidiella aspersa* (F, locally C) and *Corella parallelogramma* (F, locally C). *Virgularia mirabilis* (R), *Protula tubularia*? (R), *Munida rugosa* (P), *Hyas* sp. (P), *Aequipecten opercularis* (C), *Asterias rubens* (O), *Luidia ciliaris* (O), *Ophiura albida* (locally C), *Echinus esculentus* (F), small teleosts (P). Pink encrusting coralline algae (R), *Laminaria hyperborea* (R).	*SS.SMx.IMx.Lim*	FS?	SB:MX	N
DV43	Silty sand (58%) with scattered gravel (10%), pebbles (25%), cobbles (2%) and shells (5%). Much broken shell material, especially scallops	Stones and shells with serpulid worms (F) and hydroids (O). Paguridae sp. (P), *Munida rugosa* (F, locally C), *Pecten maximus* (R), *Aequipecten opercularis* (F), *Porania pulvillus* (R), *Luidia ciliaris* (P), *Solaster endeca* (O), *Echinus esculentus* (P), drift algae (P). Broken scallops suggest possible dredge damage, but not recently	SS.SMx.CMx		SB:MX	P
DV44	Very mixed substrate of coarse sand (33%) with gravel (35%), pebbles (20%), cobbles (2%), boulders (<1%) and shells (10%)	Stones and shells encrusted with pink coralline algae (R), brown algae (P), *Balanus* spp. (P) and serpulid worms (P) and supporting patchy red algal turf dominated by filiform/filamentous species (F, locally C) and foliose forms (R), and hydroids (F) including *Nemertesia ramosa* (F); *Laminaria hyperborea*? (R), *Ulva lactuca*? (R). *Toxisarcon alba* (P), *Munida rugosa* (P), *Macropodia* sp. (P), *Aequipecten opercularis* (C), *Antedon* spp. (O), *Asterias rubens* (O), *Porania pulvillus* (R), *Luidia ciliaris* (P), *Ophiura albida* (C), *Echinus esculentus* (O), solitary ascidians (F) including *Corella parallelogramma* (F).	SS.SMx.IMx		SB:MX	N
DV45	Visible areas of coarse sand (64%) with gravel (15%), pebbles (10%, locally 40%), cobbles (1%) and shells (10% including *Ensis*), though mostly obscured by kelp	Patchy forest of *Saccharina latissima* (A) supporting dense *Obelia geniculata* (P), *Membranipora membranacea* (P), *Steromphala cineraria* (P) and *Antedon* spp. (F). Stones and shells encrusted with serpulid worms (P) and pink coralline algae (R). Algal understorey mostly sparse, with *Dictyota dichotoma* (R) and *Desmarestia* spp. (R), although red algal turf (locally A) develops at end of run. *Ophiura albida* (P), *Echinus esculentus* (O).	SS.SMp.KSwSS. LsacR	KS	SB:KS	N

Table 1.2 continued

Video sample	Substrate	Biota	Biotopes	PMFs	Annex1	Dredge damage
DV46.1	Silty fine sand (20%) with dead maerl (74%), live maerl (3%) and shells (3%) where substrate visible	Live *Phymatolithon calcareum* around 3% cover overall, although patches attain c.10% (F). Extensive coverage of dead maerl supporting predominantly *Trailliella*-like filamentous red algal turf (S), with filiform reds (O) and foliose reds (O), *Dictota dichotoma* (R), *Ulva* lactuca? (R) and *Saccharina latissima* (F) with *Obelia geniculata. Suberites* sp.? (R), serpulid worms (P), *Hyas araneus* (O), *Inachus* sp. (P), *Carcinus maenas* (P), *Liocarcinus* sp.? (P), *Antedon* sp. (R), *Crossaster papposus* (P), *Ophiura albida* (locally C), *Ascidiella aspersa* (F).	SS.SMp.Mrl.Pcal.R	MB	SB:MB	N
DV46.2	Probably sand-scoured bedrock (95%) with clump of boulders (5%)	Rock encrusted with pink coralline algae (O), brown algae (P) and *Balanus* spp. (P) and supporting *Saccharina latissima* (C) with dense patches of *Obelia geniculata* (P) and an understorey of filiform/filamentous red algae (A). *Antedon* spp. (P), *Marthasterias glacialis* (F), *Echinus esculentus* (C).	IR.HIR.KSed.LsacSac		RF:BR	N
DV47	Live maerl (overall 50%), dead broken maerl (45%), shells (5%)	*Phymatolithon calcareum* overall around 50% cover (A) but reaching c.80% towards end of run. Maerl bound by short patchy turf of bleached filamentous red algae (probably *Trailliella*) and supporting *Calliblepharis jubata* (R), *Asperococcus bullosus* (F), *Dictyota dichotoma* (O), *Desmarestia* spp. (R), *Ulva lactuca*? (R), *Chorda filum* (C) and *Saccharina latissima* (F). Maerl bed covered over a large area with dense drift algae, probably bleached *Bonnemaisonia asparagoides*. Paguridae sp. (P), *Carcinus maenas* (P), *Asterias rubens* (P).	SS.SMp.Mrl.Pcal.R	MB	SB:MB	N
DV48.1	Rippled fine sand with scattered shell gravel (5%), maerl gravel (2%), pebbles (2%) and shells (4%) including *Ensis*	Stones and shells support tufts of Ectocarpaceae sp. (O) and small filiform brown algae (O), as well as *Chorda filum* (O). Live maerl thalli (R, <1%), small *Chelidonichthys lucerna*? (P). Long vertical tube of *Sabella* sp. (R) suggests depth may be deeper than lower recorded depth of 0.7 m above chart datum (i.e. c.MLWS).	SS.SSa.IMuSa		SB:MS	N
DV48.2	Poorly sorted sand (30%) with shell and stone gravel (25%), shells (2%), maerl gravel (10%), and pebbles (33%). Cobbles (<1%), boulders (<1%)	Stones and shells support serpulid worms (C) and tufts of Ectocarpaceae sp. (O), fiamentous red algae (R), small filiform brown algae (R), *Fucus serratus* (O) and *Chorda filum* (O). *Carcinus maenas* (R), *Gibbula* sp. (R), *Littorina littorea*? (R), live maerl thalli (R, <1%).	LS.LMx			N

Table 1.2 continued

Video sample	Substrate	Biota	Biotopes	PMFs	Annex1	Dredge damage
DV49	Largely dead maerl/maerl gravel (55%) with maerl sand (19%), small fine sand patches (1%), live maerl (20%), shells (5%)	Maerl bed with live maerl density variable but overall c.20% (C). Many thalli densely-branched, relatively large, subglobular, probably mostly *Phymatolithon calcareum*, but some encrusting hedgehog thalli of *Lithothamnion glaciale* may be present. Maerl supports a patchy turf of bleached filamentous red algae (C, possibly *Trailliella*), as well as *Saccharina latissima* (F) with *Obelia geniculata* (P) and *Steromphala cineraria* (P), *Asperococcus bullosus* (O), *Chorda filum* (F, locally A), Ectocarpaceae sp. (P), *Ulva lactuca*? (R), *Furcellaria lumbricalis* (R) and large amounts of possibly bleached, drift *Bonnemaisonia asparagoides* with dense small prosobranchs (locally A). Shells encrusted with serpulid worms including *Spirobranchus* spp. (P). *Carcinus maenas* (O), *Gibbula* sp. (P), small teleosts (P) including *Pomatoschistus pictus* (P).	SS.SMp.Mrl.Pcal.R	MB	SB:MB	N
DV50	Fine sand (94%) with scattered gravel (3%), pebbles (2%) and shells (1%)	Around 70% cover of sand by probably loose mat of algae (possibly mainly bleached *Bonnemaisonia asparagoides*); also *Saccharina latissima* (F) with *Obelia geniculata* (P), *Chorda filum* (C), Ectocarpaceae sp. (O), *Fucus vesiculosus* (R), *Asperococcus bullosus* (O) and *Furcellaria lumbricalis*. *Sabella pavonina* (C), *Carcinus maenas* (P) solitary ascidians (P).	SS.SMp.KSwSS.LsacR.Sa	KS	SB:KS	N
DV51.1	Bedrock (mainly) and boulders, apparently sand-dusted	Rock with dense cover of balls of filamentous red algae (S, possibly *Trailiella*), although the extent to which it is attached is uknown. Scattered *Chondrus crispus* (F - possibly *Mastocarpus stellatus*) and *Furcellaria lumbricalis* (O). Bleached large filiform/filamentous red alga, possibly *Bonnemaisonia asparagoides* (O). *Halidrys siliquosa* (O), *Saccharina latissima* (O) and *Laminaria hyperborea* (R) may be attached in adjacent sedimentary habitat. Highest patch of rock supporting dense *Fucus serratus* (S) and Balanidae sp. (locally A) but patch too small for biotope assignment.	IR.HIR.KSed.ProtAhn		RF:BR	N

Table 1.2 continued

Video sample	Substrate	Biota	Biotopes	PMFs	Annex1	Dredge damage
DV51.2	Poorly sorted sand (60%) with gravel (30%), pebbles (5%) and shells (5% including *Ensis*). Dense kelp occludes substrate locally, possibly cobbles, boulders or bedrock patches.	Sediment with dense cover of balls of filamentous red algae (S, possibly *Trailiella*), much of which appears to be unattached. Scattered *Chondrus crispus* (R - possibly *Mastocarpus stellatus*), *Ulva lactuca*? (O) and *Furcellaria lumbricalis* (O), *Asperococcus bullosus* (O), and bleached large filiform/filamentous red alga, possibly *Bonnemaisonia asparagoides* (F). Much of this material may be unattached. Patches of *Saccharina latissima* (F, locally A), *Laminaria hyperborea* (F, locally A) with *Obelia geniculata* (P), *Halidrys siliquosa* (O) and *F. lumbricalis* (O) presumably associated with stone and/or bedrock patches. *Chorda filum* (C), serpulid worms (P), *Carcinus maenas* (P), Brachyura sp. (P), scattered live maerl thalli (overall R, <1%).	SS.SMp.KSwSS			N
DV52	Coarse maerl sand (20%), maerl gravel (20%), stone gravel (5%), pebbles (5%), live maerl (40%), shells (10%) including *Ensis*	Patchy maerl bed with sparse live *Phymatolithon calcareum* at start (c.3%) and in patch at end, but reaching around 80% cover locally (overall 40%, A). Maerl supports bleached filamentous red algae (C, possibly *Trailliella*), *Chondrus crispus* (R), *Furcellaria limbricalis*? (R), *Asperococcus bullosus* (F), *Dictyota dichotoma* (R), *Leathesia difformis*? (R), filamentous/filiform brown and possibly red algae (O), *Ulva lactuca*? (O, locally F), as well as patches of probably drift, bleached, filiform red algae (possibly *Bonnemaisonia asparagoides*) with dense small prosobranchs (locally A). *Chorda filum* (C), *Saccharina latissima* (O). Shells encrusted with serpulid worms (F) including *Spirobranchus* spp. *Carcinus maenas* (F), *Asterias rubens* (P), *Pomatoschistus pictus* (P).	SS.SMp.Mrl.Pcal.R	MB	SB:MB	N
DV53.1	Maerl gravel (30%, live maerl (65%), shells (5%)	Maerl bed with live *Phymatolithon calcareum* (c.65%, A). Maerl supports bleached filamentous red algae (A, possibly *Trailliella*), *Phyllophoira crispa* (R), *Asperococcus bullosus* (F), *Dictyota dichotoma* (R), *Ulva lactuca*? (R), as well as patches of probably drift, bleached, filiform red algae (possibly *Bonnemaisonia asparagoides*). *Chorda filum* (C), *Saccharaina latissima* (A) with *Obelia geniculata* (P), *Steromphala cineraria* (P) and *Electra pilosa* (P).	SS.SMp.Mrl.Pcal.R	MB	SB:MB	N
DV53.2	Rock, probably mostly bedrock	Mixed kelp forest strongly dominated by *Laminaria hyperborea* (A), with *Saccharina latissima* (F). Fronds with *Obelia geniculata* (P) and *Steromphala cineraria* (P) and stipes with red algae and Ectocarpaceae sp. (P). Rock barely visible; encrusted with pink coralline algae (P) and apparently supporting sparse algal understorey, with *Ulva lactuca*? (P) and filamentous/filiform red algae (P). Small teleosts (P).	IR.HIR.KSed.XKScrR		RF:BR	N

Table 1.2 continued

Video sample	Substrate	Biota	Biotopes	PMFs	Annex1	Dredge damage
DV53.3	Unknown. Completely covered by kelp	*Saccharina latissima* (S) with *Obelia geniculata* (P), *Ulva lactuca*? (P), *Carcinus maenas* (P).	Unknown			N
DV54	Maerl gravel (45%), live maerl (40%), patches of silty sand (10%), shells (5%) including *Ensis*	Live *Phymatolithon calcareum* (40%, A). Maerl supports and bound by *Trailliella* (S), with *Plocamium cartilagineum* (F), *Calliblepharis jubata* (R), bleached filiform algae (P, probably drift), *Saccharina latissima* (F) with dense *Obelia geniculata* (P), *Asperococcus bullosus* (F), *Dictyota dichotoma* (O), *Desmarestia aculeata* (P), filiform browns indet. (P), *Chorda filum* (F), *Ulva lactuca*? (R). Shells with serpulid worms. *Munida rugosa* (P), *Necora puber* (P), *Liocarcinus* sp. (P), *Asterias rubens* (P), *Marthasterias glacialis* (O), *Luidia ciliaris* (O), *Ophiura albida* (P), Gobiidae sp. (P).	SS.SMp.Mrl.Pcal.R	MB	SB:MB	N
DV55	Coarse sand (83%) with gravel (10%) and shells (7%) including *Ensis*	Around 75% cover of sediment by loose algae, particularly *Trailliella intricata* balls (S), with a variety of other species including *Furcellaria lumbricalis*? (P), *Asperococcus bullosus* (F), *Chorda filum* (P) and *Ulva lactuca*? (P). *Saccharina latissima* (O, locally A) which may be functional. Serpulid worms (R), Paguridae sp. (P), *Liocarcinus* sp. (R), *Steromphala cineraria* (P), small pectiniid sp. (P), *Ophiura albida* (P), *Diplosoma listerianum*? (R), *Ascidiella aspersa* (R), small teleosts (P).	SS.SMp.KSwSS.Tra			N
DV56.1	Sand-dusted bedrock	Forest of *Laminaria hyperborea* (A) supporting dense *Membranipora membranacea* (C); *Saccharina latissima* (P). Understorey of red algae (C). *Echinus esculentus* (P), small teleosts (P).	IR.MIR.KR.Lhyp.Ft		RF:BR	N
DV56.2	Sand-dusted bedrock (20%) and boulders (30%) and cobbles (30%) with pockets of coarse sand (10%) and gravel (10%)	*Saccharina latissima* forest (A) and in deeper water park (F) supporting *Steromphala cineraria* (P), *Electra pilosa* (P) and clumps of *Antedon* spp. (locally A). Rock encrusted with pink coralline algae (R), brown algae (P) and *Balanus* spp. (P) and supporting red algal turf (C, locally A) dominated by filamentous and fine filiform species; *Desmarestia* spp. (R). *Liocarcinus depurator* (P), *Asterias rubens* (P), *Crossaster papposus* (P), *Echinus esculentus* (O), small teleosts (P).	IR.HIR.KSed.LsacSac		RF:BR RF:ST	N
DV57	Substrate largely occluded but small clear patches indicate medium sand (88%) with gravel (10%) and shells (2%) including *Ensis*	Loose mat (80%) of *Trailliella intricata* balls (S) and a variety of other drift algae. *Anemonia viridis* (O), *Carcinus maenas* (P), *Asterias rubens* (P), *Diplosoma listerianum*? (R), Gobiidae spp. (P), very sparse live maerl thalli (R, <1%).	SS.SMp.KSwSS.Tra			N

Table 1.2 continued

Video sample	Substrate	Biota	Biotopes	PMFs	Annex1	Dredge damage
DV58.1	Live maerl (50%), dead maerl/maerl gravel (45%), shells (5%) including *Ensis*	Maerl bed with live *Phymatolithon calcareum* c.50% cover (A) and supporting patchy turf of filamentous, foliose and filiform algae (C) including *Dictyota dichotoma* (P), *Asperococcus bullosus* (P), *Chorda filum* (F), *Saccharina latissima* (O), *Ulva* sp. (R, *Enteromorpha* form) and *Ulva lactuca*? (R). *Carcinus maenas* (P), *Liocarcinus depurator* (O), small teleost (P).	SS.SMp.Mrl.Pcal.R	MB	SB:MB	N
DV58.2	Obscured but presumably rock	Forest of *Laminaria hyperborea* (A) supporting dense *Membranipora membranacea* (C) and *Steromphala cineraria* (P); *Saccharina latissima* (O at edges).	IR.MIR.KR.Lhyp.Ft		RF:BR?	N
DV58.3	Substrate almost completely obscured but maerl (including live material) visible at edge) and possibly elsewhere	Possibly maerl bed with almost complete cover of algae, predominantly filiform species (S), with *Asperococcus bullosus* (F), *Saccharina latissima* (O) and *Ulva lactuca*? (O). Small patch of live maerl visible at boundary with subsequent biotope and possible sight of maerl midway along run segment.	SS.SMp.Mrl.Pcal.R	MB?	SB:MB?	N
DV58.4	Bedrock	Forest of *Laminaria hyperborea* (A) supporting dense *Membranipora membranacea* (C); *Saccharina latissima* (P), *Carcinus maenas* (P). Understorey of red algae (C).	IR.MIR.KR.Lhyp.Ft		RF:BR	N
DV58.5	Live maerl (75%), dead maerl/maerl gravel (20%), shells (5%) including *Ensis*	Dense maerl bed with live *Phymatolithon calcareum* c.75% cover (A, locally S) and supporting patchy turf of filamentous, foliose and filiform algae (C, locally A) including *Chondrus crispus* (R), filamentous reds (P), *Furcellaria lumbricalis*? (R), *Dictyota dichotoma* (F, locally A), *Asperococcus bullosus* (O), *Chorda filum* (P), *Saccharina latissima* (O), and *Ulva lactuca*? (O). Shells encrusted with serpulid worms (P). *Asterias rubens* (P), *Diplosoma listerianum*? (R).	SS.SMp.Mrl.Pcal.R	MB	SB:MB	N
DV59	Live maerl (50%), dead maerl/maerl gravel (40%), fine sand (5%), shells (5%) including *Ensis*	Maerl bed with live *Phymatolithon calcareum* c.50% cover (A) and supporting patchy turf of filamentous, foliose and filiform algae (C, locally A) including filamentous reds (P), *Dictyota dichotoma* (F, locally A), *Desmarestia aculeata* (P), *Asperococcus bullosus* (O), *Chorda filum* (C, locally A) and *Saccharina latissima* (F) with *Electra pilosa* (P). *Cancer pagurus* (P), *Necora puber* (P), *Asterias rubens* (P), *Luidia ciliaris* (O), *Diplosoma listerianum*? (R), solitary ascidians (O) including *Ascidiella* sp.? (P).	SS.SMp.Mrl.Pcal.R	MB	SB:MB	N

Table 1.2 continued

Video sample	Substrate	Biota	Biotopes	PMFs	Annex1	Dredge damage
DV60	Substrate largely obscured but visible patches (15%) apparently of silty fine sand with variable cover of coarse sand and maerl gravel. Scattered shells including *Ensis*	Loose mat (85%) of predominantly *Trailliella intricata* balls, with other algae, especially *Ulva lactuca*?; scattered *Saccharina latisima* (F) but also dense patches (locally A). *Anemonia viridis* (P), *Carcinus maenas?* (P), *Liocarcinus* sp. (P), Gobiidae sp. (P). Sparse maerl thalli scattered on algal mat, of which <1% (R) is living. Patches of algal mat with white bacterial film.	SS.SMp.KSwSS. Tra, SS.SMp.KSwSS		SB:KS	N
DV61.1	Substrate largely obscured but visible patches (5%) of sand with scattered maerl gravel and shells including *Ensis*	Loose mat (95%) of mostly filamentous algae including *Trailliella intricata* balls and a variety of other drift algae, particularly *Asperococcus bullosus* and *Ulva lactuca*?; some possibly functional *Chorda filum* (O) and *Saccharina latisima* (O). *Carcinus maenas* (P), sparse live maerl thalli (R, <1%).	SS.SMp.KSwSS. Tra			N
DV61.2	Substrate largely obscured but visible patches (10%) of sand (95%) with scattered shells (5%) including *Ensis*	Loose mat (90%) of variety of algae including *Trailliella intricata* balls, *Asperococcus bullosus* and *Ulva lactuca*?; some possibly functional *Chorda filum* (O) and *Saccharina latisima* (F) with *Anemonia viridis* (P). *Hyas araneus* (P), *Carcinus maenas?* (P), small teleosts (P). Patchy live *Phymatolithon calcareum* visible (overall c. 15%, F).	SS.SMp.Mrl.Pcal	MB	SB:MB	N
DV62	Substrate largely obscured but small visible patches (5%) of fine-medium sand (98%) with maerl gravel (2%)	Loose mat (95%) of *Trailliella intricata* balls and a variety of other drift algae, particularly *Asperococcus bullosus* and *Ulva lactuca*?; some apparently functional *Chorda filum* (O). *Arenicola marina* (P), *Cancer pagurus*? (P), *Carcinus maenas* (P), *Henricia sp.* (F).	SS.SMp.KSwSS. Tra			N
DV63	Medium sand with scattered shells (10%) including *Ensis*	Loose mat of *Trailliella intricata* balls (S) and a variety of other drift algae (c.75% cover); *Saccharina latissima* (O), some possibly functional. *Cerianthus lloydii* emergent tubes? (P), Paguridae sp. (R), *Asterias rubens* (F), *Marthasterias glacialis* (P), Gobiidae spp. (P), sparse live thalli of *Phymatolithon calcareum* (R, c.1%).	SS.SMp.KSwSS. Tra			N

Table 1.2 continued

Video sample	Substrate	Biota	Biotopes	PMFs	Annex1	Dredge damage
DV64.1	Substrate largely obscured by kelp but apparently dense boulders and cobbles with patches of sparser stones scattered on coarse sand, and patches of dense gravel and pebbles	Mixed kelp forest dominated by *Saccharina latissima* supporting *Electra pilosa* and *Steromphala cineraria*, with *Saccorhiza polyschides* (P) and dense patches of *Laminaria hyperborea* and/or *S. polyschides* (locally A) with fronds supporting dense *Membranipora membranacea* and filamentous red algae (possibly *Callithamnion tetricum*). Understorey generally obscured but areas of pebbles with dense filamentous red algae (locally A) and *Ulva lactuca*? (locally A). Stones encrusted with pink coralline algae and brown algae. *Echinus esculentus* (P), juvenile gadoids (P).	IR.HIR.KSed		RF:ST	N
DV64.2	Gravel with some coarse sand	Sparse clumps of red algae (O), live maerl (R, <1%), *Lanice conchilega*? (P).	SS.SCS.ICS		SB:GS	N
DV64.3	Substrate largely obscured by kelp but boulders and scattered stones on sand present; initially dense gravel with pebbles and some cobbles	Mixed kelp forest dominated by *Laminaria hyperborea* and/or *S. polyschides* (A) with fronds supporting dense *Membranipora membranacea* and filamentous red algae (possibly *Callithamnion tetricum*); *Saccharina latissima* (P). Understorey generally obscured but initially in transitional region below the dense kelp, the pebbles support turf of filamentous or fine filiform red algae (locally C). *Echinus esculentus* (P).	IR.HIR.KSed		RF:ST	N
DV65	Patchy substrate but largely coarse sand (60%) with scattered shells including *Ensis*. Patches of denser shells associated with coarser sediment including stone, shell and maerl gravel, pebbles and live maerl; proportions highly variable	Patchy maerl bed with live *Phymatolithon calcareum* sparse over large areas (<5%, R), but denser in patches (possibly c.20% overall, in patches (C) but reaching c.50% (A) locally). Scattered *Saccharina latissima* (F, locally A), *Laminaria hyperborea* (O), and very patchy red algal turf (locally A in maerl patches) including *Trailliella*-like filamentous reds, filform reds including *Scinaia interrupta*, *Corallina officinalis* (R) and *Gracilaria* sp.?, and fairly sparse foliose species. Brown algae include *Chorda filum* (locally A), *Desmarestia* sp. (R) and *Dictyota dichotoma* (P); *Ulva lactuca*? (R). *Cerianthus lloydii* (locally C), *Cancer pagurus* (P), Gobiidae sp. (P).	SS.SMp.Mrl.Pcal.R, *SS.SMp.KSwSS.LsacR.Sa*	MB KS	SB:MB SB:KS	N

Table 1.2 continued

Video sample	Substrate	Biota	Biotopes	PMFs	Annex1	Dredge damage
DV66	Mixed sand (55%) (fine sand with much coarse sand, probably largely comminuted maerl), maerl (10%) and stone (10%) gravel, live maerl (5%) and shells (15%) including *Ensis*, and pebbles (5%), much of the shells and stones in aggregations	Patchy maerl bed with live *Phymatolithon calcareum* generally sparse (c.5%, O), but denser in patches (locally 10-20%, F - possibly greater), particularly in association with shell/stone patches. Stones and shells encrusted with pink coralline algae (R) and serpulid worms (P). Patchy red algal turf (C, locally A) including *Plocamium cartilagineum* (P), *Polyides rotundus*? (R) and *Scinaia interrupta* (R), as well as *Saccharina latissima* (F), *Chorda filum* (O), *Desmarestia* spp. (R), *Dictyota dichotoma* (R) and *Ulva lactuca*? (R). *Lanice conchilega* (P), *Macropodia* sp. (P), *Necora puber* (P), *Luidia ciliaris* (P), *Astropecten irregularis* (P), *Ophiura albida* (P), solitary ascidians (P) including *Corella parallelogramma* (P), Gobiidae sp. (P).	SS.SMp.Mrl.Pcal.R, SS.SMp.KSwSS.LsacR.Sa	MB KS	SB:MB SB:KS	N
DV67	Apart from small pockets of coarse sand and gravel (1%) and isolated boulder (>1%), substrate largely occluded by biota, although dense pebbles and cobbles, at least during first half of run	*Limaria hians* bed probably present throughout run, although *Limaria* turf and gallery apertures only clearly visible during second half of run, where 100% over large area. Dense ophiuroid bed dominated by *Ophiothrix fragilis* (S), with *Ophiocomina nigra* (A) and *Ophiopholis aculeata* (P). Turf supports red algal turf (F) and sparse *Laminaria hyperborea* (O, locally F) with *Gibbula* sp. (P), hydroids including *Nemertesia ramosa* (O), *Kirchenpaueria pinnata* (P), *Halecium* sp. and *H. halecinum* (locally C), *Alcyonium digitatum* (R) and solitary ascidians (F) including *Ascidia* sp. (P) and *Pyura* sp.? (P). *Suberites* sp.? (R), *Urticina* sp. (R), *Protula tubularia* (P), Paguridae sp. (P), *Buccinum undatum* (O), *Aequipecten opercularis* (P), *Asterias rubens* (O), *Psammechinus miliaris* (O), *Echinus esculentus* (F). Stones encrusted with pink coralline algae (locally O).	SS.SMx.IMx.Lim, SS.SMx.CMx.OphMx	FS	SB:MX	N
DV68	Mixed substrate of coarse sand (40%) with gravel (20%), pebbles (30%), shells (5%) including sparse *Modiolus modiolus*, and cobbles (5%). Visibility poor so proportions uncertain.	Forest of *Laminaria hyperborea* (A) with *Saccharina latissima* (R), the former supporting foliose red algae on stipes and sparse *Obelia geniculata*, *Membranipora membranacea* and *Steromphala cineraria* on fronds. Understorey of foliose red algae (F) and *Dictyota dichotoma* (F), with stones and shells encrusted with pink coralline algae (R). Dense ophiuroids dominated by *Ophiocomina nigra* (A) with *Ophiothrix fragilis* (locally A) - these species also on kelp fronds. *Asterias rubens* (P), *Crossaster papposus* (P), *Echinus esculentus* (P).	SS.SMx.CMx.OphMx, IR.MIR.KT.XKTX	TS:KS	SB:MX	N

Table 1.2 continued

Video sample	Substrate	Biota	Biotopes	PMFs	Annex1	Dredge damage
DV69	Coarse sand with gravel, pebbles and cobbles, although substrate widely obscured by biotic turf. In places consolidated stone patches forming mosaic with sand, elsewhere substrate more mixed	Variable *Limaria hians* consolidated substrate along run. Initially around 35% but probably diminishing before increasing in later part of run with distinct signs of byssus and gallery apertures. Overall cover perhaps around 30%. Turf of foliose red algae (A) and hydroids (C) including *Nemertesia ramosa*, *Kirchenpaueria pinnata*, *Halecium halecinum* and *Rhizocaulus verticillatus*. Encrusting sponges (R), *Alcyonium digitatum* (R), *Protanthea simplex* (locally C), *Urticina* sp. (R), *Inachus* sp.? (P), *Polyplacophora* sp. (P), *Buccinum undatum* (P), *Aequipecten opercularis* (C), *Asterias rubens* (P), *Solaster endeca* (P), *Echinus esculentus* (O), *Ophiothrix fragilis* (A, locally S), *Ophiocomina nigra* (A), solitary ascidians (P) including *Corella parallelogramma* (P), *Laminaria hyperborea* (O) with *Obelia geniculata* (P). Stones encrusted with pink coralline algae (O) and brown algae (P).	SS.SMx.IMx.Lim, SS.SMx.CMx.OphMx	FS	SB:MX	N
DV70	Substrate largely obscured by biotic turf but patches of coarse sand with turf probably consolidating chiefly pebbles with some cobbles and shells	Pebbles encrusted with pink coralline algae (R). Well-formed *Limaria hians* turf covering around 95% of seabed. Turf supports park of *Laminaria hyperborea* (C) with stipes well-epiphytised with foliose red algae, red algal turf (A) with *Plocamium cartilagineum* (locally S), hydroids (C) including *Nemertesia ramosa* (F) and *Halecium halecinum* (P), *Alcyonium digitatum* (O). *Urticina* sp. (O), *Hyas* sp. (P), *Carcinus maenas (R), Buccinum undatum* (P), *Modiolus modiolus* (R), *Pagurus bernhardus* (P), *Ophiothrix fragilis* (A, locally S), *Ophiocomina nigra* (A), *Echinus esculentus* (F), *Pholis gunnellus* (P).	SS.SMx.IMx.Lim, SS.SMx.CMx.OphMx, IR.MIR.KT.XKTX	FS TS:KS	SB:MX	N
DV71	Substrate largely obscured by biota but apparently mainly dense pebbles, with some shells and cobbles and small patches of coarse sand and gravel	Although clear signs of *Limaria* byssus and gallery apertures sparse, the substrate is probably consolidated by *Limaria hians* for much of the run. Pebbles encrusted with pink coralline algae (O). Foliose red algal turf (A), hydroids (C) including *Halecium halecinum* (P), *Kirchenpaueria pinnata* (P) and *Rhizocaulus verticillatus* (P), *Alcyonium digitatum* (C). *Hyas* sp. (P), *Buccinum undatum* (P), *Modiolus modiolus* (R) and sparse empty shells, *Asterias rubens* (P), *Crossaster papposus* (P), *Henricia* sp. (R), *Ophiothrix fragilis* (S), *Ophiocomina nigra* (C, locally A), *Echinus esculentus* (F), solitary ascidians (P) including *Pyura* sp.?, *Laminaria hyperborea* (O).	SS.SMx.IMx.Lim, SS.SMx.CMx.OphMx	FS	SB:MX	N

Table 1.2 continued

Video sample	Substrate	Biota	Biotopes	PMFs	Annex1	Dredge damage
DV72	Mixed substrate of pebbles (65%) with coarse sand (5%), gravel (15%), cobbles (10%), shells (5%) including *Modiolus*, and boulders (<10% but largely obscured)	Mixed kelp forest of *Laminaria hyperborea* (A) supporting foliose red algal stipe flora and fronds with *Obelia geniculata* (P), *Membranipora membranacea* (P) and *Steromphala cineraria* (P), *Saccharina latissima* (F, locally C) and *Alaria esculenta* (P initially). Stones encrusted with serpulid worms (C) including *Spirobranchus* spp. (P), pink coralline algae (R), brown algae (P) and support sparse foliose red algae (O) and *Desmarestia* spp. (R). Stones bound together by *Limaria hians* byssus and showing signs of gallery apertures around holdfasts of kelp, although extent of *Limaria* habitat unknown but probably <25%. *Asterias rubens* (P), *Ophiocomina nigra* (P), *Psammechinus miliaris* (P), *Echinus esculentus* (C).	*SS.SMx.IMx.Lim*, IR.MIR.KT.XKTX	FS?TS:KS	SB:MX	N
DV73	Silty shelly sand (52%) with scattered gravel (10%), pebbles (25%), cobbles (8%), shells (2%) and boulders (3%)	Stones encrusted with pink coralline algae (R), brown algae (P), serpulids (C) including *Spirobranchus* spp. (P), *Balanus* spp. (P) and *Parasmittina trispinosa*? (R), and supporting hydroids patches (F) including *Nemertesia ramosa* and *Rhizocaulus verticillatus*, *Alcyonium digitatum* (R), *Urticina* sp. (R) and solitary ascidians (R) including *Ascidia* sp.. *Chaetopterus variopedatus* (R), *Lanice conchilega* (P), *Munida rugosa* (F), *Hyas* sp. (P), *Inachus* sp.? (P), *Cancer pagurus* (O), *Aequipecten opercularis* (C), *Pecten maximus* (P), *Antedon* spp. (F), *Asterias rubens* (P), *Crossaster papposus* (P), *Solaster endeca* (P), *Echinus esculentus* (O), shoal of juvenile gadoids (P), *Raja clavata* (P).	SS.SMx.CMx		SB:MX	N
DV74.1	Dredged substrate with parallel lines of pebbles, cobbles and shells with intervening silty shell sand with sparsely scattered gravel and pebbles. Overall: sand (70%), gravel (8%), pebbles (15%), cobbles (5%), shells (2%)	Stones encrusted with pink coralline algae (R), brown algae (P), serpulids (F) and a yellow sponge (R), and supporting hydroid patches (O) including *Halecium* sp. *Munida rugosa* (F locally), *Gibbula* sp. (P), *Aequipecten opercularis* (F), *Antedon* spp. (F), *Asterias rubens* (P), *Porania pulvillus* (R), *Ophiothrix fragilis* (R), *Ophiura albida* (P), *Echinus esculentus* (P).	SS.SMx.CMx		SB:MX	Y

Table 1.2 continued

Video sample	Substrate	Biota	Biotopes	PMFs	Annex1	Dredge damage
DV74.2	Mixed substrate of silty shell sand (30%) with densely scattered pebbles (38%), gravel (15%), shells (2%), cobbles (10%) and boulders (5%)	Stones encrusted with pink coralline algae (R), brown algae (P), serpulids (F) and supporting hydroid patches (O) including *Halecium* sp. and *Rhizocaulus verticillatus*, *Alcyonium digitatum* (R), Anomiidae sp. (P) and *Polycarpa pomaria*? (R). *Chaetopterus variopedatus*? (R), *Munida rugosa* (F), *Aequipecten opercularis* (F), *Antedon* spp. (F, locally C), *Crossaster papposus* (O), *Solaster endeca* (P), *Luidia ciliaris* (P), *Porania pulvillus* (R), *Ophiothrix fragilis* (S locally on boulder tops), juvenile gadoids (P).	SS.SMx.CMx		SB:MX	N
DV75.1	Dredged substrate with parallel lines of pebbles, cobbles and shells with intervening silty shell sand with sparsely scattered gravel and pebbles. Overall: sand (70%), gravel (8%), pebbles (15%), cobbles (5%), shells (2%)	No close-up imagery, so little detail discernible. *Aequipecten opercularis* (C), *Echinus esculentus* (P). Dredge tracks cross at start of run	SS.SMx.CMx		SB:MX	Y
DV75.2	Mixed substrate of silty shell sand (20%) with densely scattered pebbles (40%), gravel (15%), shells (2%), cobbles (13%) and boulders (10%). Proportions vary along run with denser cobbles and boulders locally	Stones encrusted with pink coralline algae (R), brown algae (P), serpulids (F) including *Spirobranchus* spp., and supporting hydroid patches (F) including *Rhizocaulus verticillatus*, *Nemertesia ramosa*, *Kirchenpaueria pinnata* and *Sertularia* sp.. Also solitary acidians (F) including *Corella parallelogramma*, *Ascidia mentula*? and *Pyura* sp.?. *Munida rugosa* (F), *Liocarcinus* sp. (P), *Buccinum undatum*? (P), Anomiidae sp. (P), *Pecten maximus* (P), *Aequipecten opercularis* (C, locally A), *Antedon* spp. (O, locally F), *Asterias rubens* (P), *Crossaster papposus* (P), *Luidia ciliaris* (O), *Ophiothrix fragilis* (R), *Echinus esculentus* (O), small teleosts (P).	SS.SMx.CMx		SB:MX	N

Table 1.2 continued

Video sample	Substrate	Biota	Biotopes	PMFs	Annex1	Dredge damage
DV76	Mixed substrate of silty shell sand (20%) with densely scattered pebbles (40%), gravel (27%), shells (3%), cobbles (10%) and boulders (<1%)	Stones encrusted with pink coralline algae (R), brown algae (P), serpulids (F) including tall vertical tubes of *Protula tubularia* (R) and possible small aggregation of small tubes (at 00:03:53), and supporting hydroid patches (O) and solitary acidians (F) including *Corella parallelogramma* (F) and *Ascidia viginea*?. *Munida rugosa* (F), *Cancer pagurus* (P), *Turritella communis* shells (P), *Pecten maximus* (P), *Aequipecten opercularis* (C), *Asterias rubens* (O), *Henricia* sp. (R), *Echinus esculentus* (O), small teleosts (P). Very sparse algae including foliose (R) and filamentous (R) reds and *Dictyota dichotoma* (R). Small infaunal holes/burrows (R).	SS.SMx.CMx		SB:MX	N
DV77.1	Mixed substrate of silty shell sand (25%) with pebbles (40%), gravel (27%), shells (3%), cobbles (5%) and boulders (<1%)	Intitially well-defined *Limaria* bed with mosaic of coarse sand and byssus-consolidated stone clumps, which become less distinct with increasing depth (turf overall c.35% cover, initially c.50%). Clumps support turf of filamentous/filiform red algae (C, locally A) and foliose red algae (O) and hydroids (C) including *Halecium* sp., *Nemertesia ramosa* (locally F) and *Kirchenpaueria pinnata* (P), the turf diminishing with depth. Also solitary ascidians (C, locally A) including *Ascidiella aspersa* (C, locally A), *Corella parallelogramma* (C) and *Ascidia mentula* (P). Stones encrusted with pink coralline algae (R), serpulid worms (P) including *Spirobranchus* spp. and probably *Serpula vermicularis*, and a cream cushion sponge (R). *Munida rugosa* (F), *Liocarcinus depurator* (R), *Cancer pagurus* (P), *Pecten maximus* (P), *Aequipecten opercularis* (F), *Asterias rubens* (O), *Echinus esculentus* (O), small *Laminaria hyperborea* (O).	SS.SMx.IMx.Lim	FS	SB:MX	N
DV77.2	Mixed substrate of silty shell sand (25%) with pebbles (40%), gravel (27%), shells (3%) and cobbles (5%)	Small patches of stones which may represent *Limaria* nests but sparse. Stones support hydroids (O) and solitary ascidians (F) including *Corella parallelogramma* and *Ascidia mentula*, and are encrusted with pink coralline algae (R) and serpulid worms (C) including *Serpula vermicularis* (P). *Munida rugosa* (F), *Inachus* sp.? (P), *Pecten maximus*? (P), *Aequipecten opercularis* (A), *Luidia ciliaris* (P), small teleosts (P).	SS.SMx.CMx		SB:MX	N

Table 1.2 continued

Video sample	**Substrate**	**Biota**	**Biotopes**	**PMFs**	**Annex1**	**Dredge damage**
DV77.3	Dredged substrate with parallel lines of pebbles, cobbles and shells with intervening silty shell sand with sparsely scattered gravel, pebbles and shells. Overall: sand (70%), gravel (8%), pebbles (15%), cobbles (5%), shells (2%)	Stones encrusted with pink coralline algae (R), brown algae (P), *Balanus* spp. (P) and serpulid worms (C) and supporting sparse hydroids (O). Paguridae sp. (P), *Munida rugosa* (F), *Aequipecten opercularis* (C), *Asterias rubens* (P).	SS.SMx.CMx		SB:MX	Y
DV78.1	Coarse sand (60%) with pebbles (17%), gravel (10%), shells (7%) including *Ensis*, cobbles (5%) and boulders (1%). In places forming indistinct mosaic of sand patches and consolidated clumps of stones and shells.	Park of *Laminaria hyperborea* (F) and juvenile *Saccharina latiissima* on sand-scoured cobbles and boulders. Stipes support foliose red algae and locally dense aggregations of *Antedon* spp.; fronds with *Obelia geniculata* and *Membranipora membranacea*. Stones encrusted with pink coralline algae (R), *Balanus* spp. (P), *Parasmittina trispinosa* (R) and serpulid worms (P) including *Spirobranchus* spp. Clumps of stones and shells probably consolidated by *Limaria hians* covering perhaps c.10% of seabed and supporting red algal turf of filamentous/filiform species (C) and foliose species (O), as well as hydroids (F) including *Nemertesia ramosa* and *Rhizocaulus verticillatus*. *Munida rugosa* (P), *Antedon* spp. (C), *Asterias rubens* (F), *Luidia ciliaris* (O), *Ophiura* sp. (P), *Echinus esculentus* (O).	*SS.SMx.IMx.Lim*, IR.HIR.KSed.XKScrR	FS?	SB:MX	N
DV78.2	Coarse sand (68%) with pebbles (10%), gravel (10%), shells (10%) including *Ensis*, and cobbles (2%). In places forming indistinct mosaic of sand patches and consolidated clumps of stones and shells.	Stones encrusted with pink coralline algae (R) and serpulid worms (P). Clumps of stones and shells probably consolidated by *Limaria hians* covering perhaps c.10% of seabed and supporting red algal turf of filamentous/filiform species (C) and foliose species (R), as well as hydroids (F) including *Nemertesia ramosa* and *Rhizocaulus verticillatus*, and solitary ascidians (O) including *Corella parallelogramma* (P) and *Ascidiella aspersa* (P). *Aequipecten opercularis* (O), *Antedon* spp. (F), *Asterias rubens* (O), *Ophiura albida* (P), *Laminaria hyperborea* (O) with *Obelia geniculata* (P).	*SS.SMx.IMx.Lim*	FS?	SB:MX	N

Table 1.2 continued

Video sample	Substrate	Biota	Biotopes	PMFs	Annex1	Dredge damage
DV79	Mosaic of coarse gravelly sand with scattered pebbles and shells (including *Ensis*) and small clumps of consolidated pebbles, cobbles and shells (largely obscured so proportions unclear)	Stone and shell clumps will be consolidated by *Limaria hians* (c.15% cover) and support dense hydroid turf (C) including *Rhizocaulus verticillatus*, *Nemertesia ramosa* and *Halecium halecinum*, algal turf dominated by filamentous/filiform reds (F) and foliose reds (R), and *Corella parallelogramma* (O). *Munida rugosa* (O), *Hyas araneus* (P), *Inachus* sp. (P), *Cancer pagurus* (P), *Antedon* spp. (O), *Asterias rubens* (O), *Crossaster papposus* (O), *Luidia ciliaris* (O), *Ophiothrix fragilis* (R), *Echinus esculentus* (P), small teleosts (P), *Laminaria hyperborea* (O) with *Obelia geniculata*, *Desmarestia* spp. (R) and juvenile *Saccharina latissima* (F). Stones and shells encrusted by pink coralline algae (R), brown algae (P) and serpulid worms (F).	SS.SMx.IMx.Lim	FS	SB:MX	N
DV80	Heterogeneous substrate varying along run but basically silty sand and gravel with scattered pebbles, cobbles and shells, consolidated in patches, with region of maerl gravel on silty fine sand	Patchy *Limaria hians* bed (overall c.40% cover) supporting algal turf dominated by filamentous/filiform reds (C, locally A) including probably *Bonnemaisonia asparagoides*, foliose reds (R), *Desmarestia* spp. (R) including *D. ligulata*, and *Dictyota dichotoma* (R), hydroids (F) including *Nemertesia ramosa* and *Halecium halecinum*, and solitary ascidians (F) including *Ascidiella aspersa* (F, locally C) and *Corella parallelogramma* (O). *Chaetopterus variopedatus* (P), *Munida rugosa* (O), *Hyas sp.* (P), *Pecten maximus* (P), *Aequipecten opercularis* (F, locally C), *Antedon* spp. (O), *Asterias rubens* (F), *Luidia ciliaris* (P), *Ophiura albida* (P), *Echinus esculentus* (O), small teleosts (P). Kelp park of *Laminaria hyperborea* (F) with dense *Obelia geniculata*, and *Saccharina latissima* (F,locally C). Stones and shells encrusted by pink coralline algae (R), orange sponge (R) and serpulid worms (P).	SS.SMx.IMx.Lim, *IR.MIR.KT.XKTX*	FS TS:KS	SB:MX	N
DV81	Silty shelly sand (40%) with scattered gravel (15%), pebbles (25%), cobbles (10%), boulders (5%) and shells (5%) including *Ensis*. Substrate often obscured so proportions very approximate	Patchy algal turf dominated by filamentous and filiform reds (A) with foliose reds (R) and filiform browns (P). Park of *Saccharina latissima* (C, locally F) supporting *Obelia geniculata*, *Membranipora membranacea* and *Antedon* spp. (O, locally F). Stones and shells encrusted with pink coralline algae (R), brown algae (P), *Balanus* spp. (P) and serpulid worms (P) including *Spirobranchus* spp. Paguridae sp.? (P), *Munida rugosa* (P), *Asterias rubens* (P), clumps of *Ascidiella aspersa* (C overall), small teleost sp. (P).	SS.SMp.KSwSS. LsacR	KS	SB:KS	N

Table 1.2 continued

Video sample	Substrate	Biota	Biotopes	PMFs	Annex1	Dredge damage
DV82	Highly heterogeneous seabed with coarse sand and shell gravel (c.35%) with scattered cobbles, boulders and bedrock, much of it possibly with thin veneer of sand.	Rock encrusted with pink coralline algae (R, locally F), brown algae (P), serpulid worms (C) and *Balanus* spp. (P) and supporting patchy red algal turf (C, locally A) in places dominated by foliose algae, elsewhere by filamentous species, and mixed kelps dominated by *Saccharina latissima* (F, locally C) with *Electra pilosa* (P), *Membranipora membranacea* (P) and *Antedon* spp. (locally A); *Laminaria hyperborea* (P). *Munida rugosa* (P), *Cancer pagurus* (P), *Necora puber* (P), *Pecten maximus* (P), *Asterias rubens* (P), *Porania pulvillus* (P), *Luidia ciliaris* (F), *Ophiura albida* (P), *Echinus esculentus* (F).	IR.HIR.KSed.LsacSac		RF:BR RF:ST	N
DV83	Silty shelly sand (74%) with scattered shell and stone gravel (15%), pebbles (5%), cobbles (1%) and shells (5%) including *Ensis*	Patchy turf of mostly filamentous red algae (A) with filiform (P) and foliose (R) reds, diminishing along run. Other algae include *Saccharina latissima* (F, but possibly drift in part) with *Steromphala cineraria*, and *Desmarestia* sp. (R, possibly drift). Stones and shells encrusted with pink coralline algae (R), brown algae (P) and serpulid worms (P). *Lanice conchilega* (P), *Inachus* sp. (R), *Cancer pagurus* (P), *Luidia ciliaris* (O), *Ophiura albida* (C), *Ophiura ophiura* (R), *Echinus esculentus* (P), *Callionymus* sp.? (P), small teleost sp. (P).	SS.SMp.KSwSS.LsacR	KS	SB:KS	N
DV84	Silty shelly sand (88%) with shell gravel (5%) and scattered shells (5%), pebbles (2%) and cobbles (<1%)	Turf of filamentous red algae (A, locally A), much of which may be loose, foliose red algae (R) and scattered *Saccharina latissima* (O). Stones encrusted with pick coralline algae (R). *Turritella communis* and possbly *Arctica islandica* shells (P), *Toxisarcon alba* (P), yellow sponge (P), *Ophiura albida* (C locally), juvenile gadoid sp. (P).	SS.SMp.KSwSS		SB:KS	N
DV85.1	Substrate largely obscured by biotic turf but apparently mostly dense pebbles and cobbles with some shells including *Modiolus*, with small patches of coarse sand	Stones encrusted with pink coralline algae (R) and serpulid worms (P) and consolidated by turf of *Limaria hians* (c.90% cover) which in turn supports turf of foliose red algae (A) with some filamentous red algae (P) and hydroids (P) including *Halecium halecinum*; *Alcyonium digitatum* (O). Paguridae sp. (P), *Hyas araneus* (P), *Aequipecten opercularis* (P), *Asterias rubens* (P), *Crossaster papposus* (F), *Marthasterias glacialis* (O), *Ophiocomina nigra* (A), *Echinus esculentus* (C), *Laminaria hyperborea* (O). Several *Modiolus modiolus* emergent from the turf (up to 2 per 0.1m2 observed) but observations too infrequent to gauge abundance.	SS.SMx.IMx.Lim, SS.SMx.CMx.OphMx	FS	SB:MX	N

Table 1.2 continued

Video sample	Substrate	Biota	Biotopes	PMFs	Annex1	Dredge damage
DV85.2	Substrate almost completely obscured by biotic turf but apparently mostly dense pebbles and cobbles with some shells including *Modiolus*	Stones encrusted with pink coralline algae (R) and serpulid worms (P) and consolidated by turf of *Limaria hians* (c.95% cover) which in turn supports turf of foliose red algae (A) with some filamentous red algae (P), hydroids (P) including *Halecium halecinum* and sponges including *Sycon ciliatum* (P) and *Leucosolenia* sp. (P); *Alcyonium digitatum* (R). *Necora puber* (P), *Cancer pagurus* (P), *Asterias rubens* (O), *Ophiocomina nigra* (R), *Echinus esculentus* (C), *Laminaria hyperborea* (C, locally A) supporting *Obelia geniculata*, *Membranipora membranacea* and *Gibbula* sp., *Saccharina latissima* (R). Sparse live *Modiolus modiolus* emergent from the turf but observations too infrequent to gauge abundance.	SS.SMx.IMx.Lim, IR.MIR.KT.XKTX	FSTS: KS	SB:MX	N
DV86	Substrate almost completely obscured by biotic turf incorporating much kelp material, but apparently mostly dense pebbles and cobbles with some shells including *Modiolus*; small pockets of coarse sand	Stones encrusted with pink coralline algae (R) and serpulid worms (P) and consolidated by turf of *Limaria hians* (c.95% cover) which in turn supports turf of filamentous and foliose red algae (A) and forest and park of chiefly *Laminaria hyperborea* (C, locally A) supporting *Obelia geniculata*, *Membranipora membranacea*, *Gibbula* sp. and foliose red algal stipe flora, with *Saccharina latissima* (R) and *Saccorhiza polyschides* (R). *Asterias rubens* (O), *Marthasterias glacialis* (P), *Ophiocomina nigra* (C, locally A), *Ophiothrix fragilis* (R), *Echinus esculentus* (C). Several *Modiolus modiolus* emergent from the turf (up to 2 per 0.1m^2 observed) but observations too infrequent to gauge abundance.	SS.SMx.IMx.Lim, IR.MIR.KT.XKTX	FS TS:KS	SB:MX	N
DV87.1	Mosaic of coarse sand (25%) with *Limaria* turf consolidating pebbles, cobbles and shells - proportions unknown	Classic mosaic of *Limaria hians* turf (75% cover) with small patches of coarse sand. Stones encrusted with pink coralline algae (R), an encrusting yellow/white sponge and *Balanus* spp. (R). *Limaria* turf supports filamentous and foliose red algal turf (C) and hydroid turf (A) including *Nemertesia ramosa* (F), *Halecium* spp. (C) including *H. halecinum*, and *Kirchenpaueria pinnata* (P), *Alcyonium digitatum* (R), and colonial (P) and solitary (F) ascidians including *Corella parallelogramma* (F) and *Pyura* sp.? (P). Paguridae sp. (P), *Munida rugosa* (P), *Hyas araneus* (P), *Ophiothrix fragilis* (R), *Crossaster papposus* (O), *Ophiocomina nigra* (R), *Echinus esculentus* (F), *Pholis gunnellus* (P).	SS.SMx.IMx.Lim	FS	SB:MX	N

Table 1.2 continued

Video sample	Substrate	Biota	Biotopes	PMFs	Annex1	Dredge damage
DV87.2	Mosaic of coarse sand and gravel (25%) with dense ophiuroid bed largely obscuring substrate of *Limaria* turf apparently binding gravel, pebbles, cobbles and shells - proportions unknown	Mosaic of dense ophiuroid bed and sandy gravel with ophiuroids almost certainly covering *Limaria hians* bed (c.75% cover). Ophiuroids strongly dominated by *Ophiothrix fragilis* (S), with *Ophiocomina nigra* (A). *Alcyonium digitatum* (R), *Urticina* sp. (R), *Hyas araneus* (P), *Crossaster papposus* (C), *Echinus esculentus* (C), pink encrusting coralline algae (R), foliose red algae (O).	SS.SMx.IMx.Lim, SS.SMx.CMx.OphMx	FS	SB:MX	N
DV88.1	Mosaic of silty sand (35%) with *Limaria* turf consolidating pebbles, cobbles and shells - proportions unknown	Stones encrusted with pink coralline algae (R), *Balanus* spp. (P) and serpulid worms (P) and consolidated by *Limaria hians* byssus (c.65% cover) supporting turf of filamentous and foliose red algae (C), hydroids (F-C) including *Nemertesia ramosa* (F), *Halecium* spp. (P) and *Kirchenpaueria pinnata* (P), and solitary ascidians (F) including *Corella parallelogramma* (F), *Ascidiella aspersa* (P) and *Polycarpa* sp.? (P), and colonial ascidians? (P). Paguridae spp. (P), *Munida rugosa* (F), *Aequipecten opercularis* (F), *Antedon* spp. (P), *Asterias rubens* (O), *Ophiothrix fragilis* (R), *Echinus esculentus* (C).	SS.SMx.IMx.Lim	FS	SB:MX	N
DV88.2	Indistinct mosaic of silty gravelly (10%) sand (30%) with patches of gravel (10%), pebbles (35%), cobbles (5%) and shells (10%)	Appears to be dredge-flattened *Limaria* bed with spreading out of byssal-bound patches of stones and shells. Many dead and broken shells including those of *Limaria hians*, although byssai gallery apertures still visible. Turf cover possibly of the order of 20%. Start and end of this region indistinct. Stones encrusted with pink coralline algae (R), serpulid worms (P) and *Balanus* spp. (P)) and supporting turf of filamentous and foliose red algae (C), hydroids (P) including *Nemertesia ramosa* (F) and *Kirchenpaueria pinnata* (P), and solitary ascidians (P) including *Corella parallelogramma*. *Lanice conchilega* (P), *Pagurus prideaux* with *Adamsia carciniopados* (P), *Munida rugosa* (F), *Aequipecten opercularis* (C), *Antedon* spp. (P), *Ophiothrix fragilis* (R), *Echinus esculentus* (P), small teleost sp. (P).	SS.SMx.IMx.Lim	FS	SB:MX	Y

Table 1.2 continued

Video sample	Substrate	Biota	Biotopes	PMFs	Annex1	Dredge damage
DV88.3	Silty shelly sand (55%) with scattered gravel (20%), pebbles (15%), cobbles (5%) and shells (5%). Stones and shells concentrated in linear dredge tracks at start of run sector	Dredge impacted *Limaria* bed, with presence of dead *Limaria* shells but no good indication of current *Limaria hians* population. Stones encrusted with pink coralline algae (R) and serpulid worms (P) and supporting sparse hydroids (O) and foliose red algae (R). *Munida rugosa* (P), *Pecten maximus* (P), *Aequipecten opercularis* (C), *Solaster endeca* (P), *Echinus esculentus* (O). Start and end of region indistinct.	SS.SMx.CMx		SB:MX	Y
DV88.4	Silty shelly sand (55%) with scattered gravel (20%), pebbles (15%), cobbles (5%) and shells (5%)	Stones encrusted with pink coralline algae (R), yellow sponge (R) and serpulid worms (P) including *Spirobranchus* spp., and supporting sparse hydroids (O) including *Halecium* sp. (P). *Munida rugosa* (P), *Aequipecten opercularis* (C), *Asterias rubens* (P), *Solaster endeca* (P). Start of region indistinct.	SS.SMx.CMx		SB:MX	N
DV89.1	Mix of sand-dusted bedrock outcrops (25%), boulders (30%) and cobbles (5%), between which are patches of silty coarse sand (20%). Biotic turf mosaic on sand probably supported by clumps of underlying gravel, pebbles, cobbles and shells.	Rock surfaces encrusted with pink coralline algae (R), serpulid worms (R) and *Balanus* spp. (R) and support turf of red algae (C, locally A) including *Bonnemaisonia asparagoides*? (C) and foliose species (R) and hydroids (F, locally A) including *Nemertesia ramosa* (O, locally F), *Kirchenpaueria pinnata* and *Halecium* spp., and solitary ascidians (F) including *Corella parallelogramma* (P), *Ascidiella aspersa* (locally C) and *Pyura* sp.? (P). Fairly sparse mixed kelps including juvenile *Saccharina latissima* (O) and *Laminaria hyperborea* (O, locally F) supporting *Obelia geniculata* (P). *Munida rugosa* (P), *Calliostoma zizyphinum* (P), *Buccinum undatum* (P), *Aequipecten opercularis* (R), *Antedon* spp. (F, locally C), *Asterias rubens* (O), *Porania pulvillus* (R), *Luidia ciliaris* (P), *Ophiothrix fragilis* (R), *Ophiura albida* (P), *Echinus esculentus* (F), shoal of small gadoids (P). Patchy *Limaria hians* turf at base of boulders and bedrock (and possibly on rock), as well as forming mosaic within sand patches, possibly covering around 20% of seabed.	SS.SMx.IMx.Lim, *IR.HIR.KFaR.FoR*	FS	RF:BR RF:ST SB:MX	N

Table 1.2 continued

Video sample	Substrate	Biota	Biotopes	PMFs	Annex1	Dredge damage
DV89.2	Mosaic of silty coarse sand (50%) with scattered shells (5%) and biotic turf (45%) overlying unknown substrate, presumably stones and shells	Mosaic of *Limaria hians* turf (45%) and coarse sand, with turf supporting turf of red algae including *Bonnemaisonia asparagoides* (A) and filamentous (P) and foliose (R) species, as well as juvenile *Saccharina latissima* (O). Hydroids (C) including *Halecium* spp. *Munida rugosa* (P), *Antedon* spp. (O), *Echinus esculentus* (P), small teleosts (P).	SS.SMx.IMx.Lim	FS	SB:MX	N
DV90.1	Fine sand with scatter of shell gravel (15%), pebbles (2%) and shells (2%), especially *Ensis*. Dense kelp covers substrate locally, presumably patches of stones and shells or possibly rock	Initially dense but patchy *Saccharina latissima* (locally A) supporting *Obelia geniculata* and *Membranipora membranacea*, with *Laminaria hyperborea* (R), *Chorda filum* (A) and understorey of red algae (P), *Ulva lactuca*? (P) and *Fucus serratus* (at least some of which possibly drift material). Barer sediment areas with *Chorda filum* (C, locally A) and tufts of algae (F), particularly Ectocarpaceae sp. (O, locally F), filiform brown algae (P) and possibly bleached filiform/filamentous red algae (P). *Cerianthus lloydii* (O), *Carcinus maenas* (O), Gobiidae sp. (P).	SS.SMp.KSwSS. LsacR.Sa	KS	SB:KS	N
DV90.2	Silty fine sand (97%) with scattered shells (3%) including *Ensis*	Scattered algal clumps (F) including Ectocarpaceae sp. (P) and filiform browns and possibly filiform and filamentous reds (P); *Chorda filum* (C). *Arenicola marina* (C), small Triglidae sp. (P), diatom film (C).	SS.SSa.IMuSa.A reISa		SB:MS	N
DV91	Silty sand (70%) with gravel (10%) and scattered pebbles (15%) and shells (5%) including *Ensis*; denser stones and shells locally	Dense patches of *Saccharina latissima* (C, locally A) supporting *Obelia geniculata*, *Electra pilosa*, *Membranipora membranacea* and *Antedon* spp. interrupted by sand patches with turf of dense *Trailiella*-like filamentous reds (C, locally A), filiform reds (O), *Dictyota dichotoma* (O, locally A), *Asperococcus bullosus* (R), *Desmarestia* spp. (R); *Chorda filum* (locally A). Stones encrusted with serpulid worms including *Spirobranchus* spp. (P), pink coralline (R) and brown algae (P). *Asterias rubens* (O), *Echinus esculentus* (F), *Pomatoschistus pictus* (P). Live maerl thalli (R, <1%)	SS.SMp.KSwSS. LsacR.Sa	KS	SB:KS	N
DV92	Poorly sorted sily sand with dense pebble and cobble cover diminishing over run to scattered gravel, pebbles and cobbles	Stones encrusted with serpulid worma (C) and *Balanus* spp. (P) and supporting sparse hydroids (R). Dense patches of drift algae, principally *Saccharina latissima*, supporting *Munida rugosa* (F), *Liocarcinus depurator* (O) and *Macropodia* sp.? (P). *Aequipecten opercularis* (O), *Antedon* spp. (R), *Luidia ciliaris* (F), *Porania pulvillus* (P), *Echinus esculentus* (F), *Pholis gunnellus* (P).	SS.SMx.CMx		SB:MX	N

Table 1.2 continued

Video sample	Substrate	Biota	Biotopes	PMFs	Annex1	Dredge damage
DV93.1	Consolidated pebbles, cobbles and shells with scattered boulders and small patches of coarse sand. Much of substrate obscured by biotic turf and ophiuroids	*Limaria hians* bed (possibly c.60% byssal turf cover) supporting foliose red algal turf (A), hydroids including *Nemertesia ramosa* (P), *Alcyonium digitatum* (F) and *Corella parallelogramma* (P). *Ophiocomina nigra* (A), *Ophiothrix fragilis* (S), *Crossaster papposus* (P), *Echinus esculentus* (O), encrusting pink coralline algae (R). Boulders support park of *Laminaria hyperborea* (F, locally C).	SS.SMx.IMx.Lim, SS.SMx.CMx.OphMx, IR.MIR.KT.XKTX	FS TS:KS	SB:MX	N
DV93.2	Apparently dense pebbles with gravel, cobbles and shells, with proportions obscured by epibiota. Small patches of coarse sand (8%)	Dense ophiuroid bed dominated by *Ophiothrix fragilis* (S) with *Ophiopholis aculeata* (A) and *Ophiocomina nigra* (A). Stones encrusted with pink coralline algae (O) and supporting foliose red algal turf (C) and hydroids including *Nemertesia ramosa*, *Halecium halecinum*, *Rhizocaulus verticillatus* and *Kirchenpaueria pinnata*, bryozoans (R) and *Alcyonium digitatum* (F). *Crossaster papposus* (P), *Asterias rubens* (P), *Echinus esculentus* (C), *Pyura* sp.? (P). Stones probably bound by *Limaria hians* with occasional sight of byssal threads and gallery apertures. A few live *Modiolus modiolus* discernible (up to 2 per $0.1m^2$) and dead shells present, but abundance cannot be determined and insufficient evidence for *Modiolus* biotope.	*SS.SMx.IMx.Lim*, SS.SMx.CMx.OphMx	FS?	SB:MX	N
DV94.1	Bedrock	Forest of *Laminaria hyperborea* (A) with *Membranipora membranacea* (F); small *Saccharina latissima* patches (O). *Echinus esculentus* (P), juvenile gadoid sp. (P). Rock with filamentous red algal turf (C).	IR.MIR.KR.Lhyp.Ft		RF:BR	N
DV94.2	Sand-dusted bedrock	Forest of *Saccharina latissima* (A) with *Membranipora membranacea* (F); *Laminaria hyperborea* (O). *Echinus esculentus* (P). Rock with filamentous red algal turf (C).	IR.HIR.KSed.LsacSac		RF:BR	N

Table 1.2 continued

Video sample	Substrate	Biota	Biotopes	PMFs	Annex1	Dredge damage
DV94.3	Fine sand (5%) with cover of coarse sand (20%) and dead (20%) and live (40%) maerl, with gravel (5%), pebbles (2%) and shells (8%) including *Ensis*	Maerl bed of *Phymatolithon calcareum* with reducing cover with depth (c.40% - A overall, c.80% - S locally). *Saccharina latissima* (F, locally A) with *Steromphala cineraria*, *Membranipora membranacea* and *Antedon* spp. (locally C). Maerl supports filamentous red algal turf (F, locally A), foliose red algae (R), *Asperococcus bullosus* (O), *Desmarestia aculeata* (O), *Ulva lactuca*? (R, locally F) and *Chorda filum* (C). *Arenicola marina* (R), *Macropodia* sp. (P), *Carcinus maenas* (R), *Pecten maximus* (R), *Antedon* spp. (C on kelp), *Asterias rubens* (O), *Echinus esculentus* R), *Diplosoma listerianum*? (R), *Ascidiella aspersa* (locally F), *Raja clavata* (P), Gobiidae sp. (P), juvenile gadoid sp. (P).	SS.SMp.Mrl.Pcal.R	MB	SB:MB	N
DV94.4	Silty fine sand (7%) with cover of coarse sand (60%) and dead (5%) and live (1%) maerl, with gravel (20%), pebbles (2%) and shells (5%) including *Ensis*	Sparse live maerl thalli decreasing along run (overall c.1% - R). Turf of filamentous red algae (A) with *Desmarestia aculeata* (R) and *Saccharina latissima* (F) supporting *Antedon* spp. (locally C). *Hyas* sp. (P), *Carcinus maenas* (R), *Asterias rubens* (P), *Ascidiella aspersa* (locally F), *Ascidia mentula*? (P), *Pomatoschistus pictus* (P).	SS.SMp.KSwSS.LsacR	KS	SB:KS	N
DV94.5	Sand-dusted bedrock (95%) and boulders (5%)	Park of *Saccharina latissima* (C) supporting *Steromphala cineraria*, *Membranipora membranacea*, *Electra pilosa* and *Antedon* spp. (locally C). Rock encrusted with pink coralline algae (R) and supporting filamentous red algal turf (A) with filiform red algae (R).	IR.HIR.KSed.LsacSac		RF:BR	N
DV96	Mixed substrate of silty shelly sand (46%) with shell and stone gravel (25%), shells (12%) including *Ensis*, pebbles (15%), cobbles (2%) and boulders (<1%)	Red algal turf dominated by filamentous species (C, locally A), with *Phyllophora crispa*? (F) and filiform reds (R): *Saccharina latissima* (O). Stones and shells encrusted with pink coralline algae (R), brown algae (P), yellow sponge (R), serpulid worms (P) and *Balanus* spp. (P). Paguridae sp. (P), *Munida rugosa* (R), *Liocarcinus depurator* (R), *Aequipecten opercularis*? (R), *Marthasterias glacialis* (P), *Porania pulvillus* (R), *Ophiura* sp. (C), *Ascidiella aspersa* (C), *Pomatoschistus pictus* (P).	SS.SMp.KSwSS.LsacR	KS	SB:KS	N

Table 1.2 continued

Video sample	Substrate	Biota	Biotopes	PMFs	Annex1	Dredge damage
DV97	Much of seabed obscured by kelp. Visible areas of live (35%) and dead (30%) maerl, coarse sand (29%), shells (5%) including *Ensis*, and pebbles (1%)	Maerl bed of large thalli of *Phymatolithon calcareum* with variable density (c.35% - C overall, c.60% - A locally), covered in extensive areas by *Saccharina latissima* (C, locally S) with *Steromphala cineraria* and *Electra pilosa*. Maerl supports short filamentous red algal turf (F-C), foliose red algae (R), *Furcellaria lumbricalis*? (R), *Asperococcus bullosus* (F), *Ulva lactuca*? (R) and *Chorda filum* (C). *Macropodia* sp. (P), *Pecten maximus* (R), *Antedon* spp. (C on kelp), *Marthasterias glacialis* (P), *Asterias rubens* (P), small teleost spp. (P) including juvenile gadoid sp.	SS.SMp.Mrl.Pcal.R	MB	SB:MB	N
DV98	Substrate largely obscured but small unobstructed patches of fine sand with variable cover of dead maerl (up to 75%) and pebbles (5%)	Apparently a maerl bed, although maerl largely obscured by algae, most of which appears loose, dominated by bleached *Phyllophora crispa*? (S), with *Asperococcus bullosus* (F, locally C), *Chorda filum* (R) and *Ulva lactuca*? (F, locally A); *Saccharina latissima* (C, locally A). Large thalli of live *Phymatolithon calcareum* emerging in places through drift algae (locally c. 20% visible - C; overall possibly c. 10% - F). *Arenicola marina* (locally F), Paguridae sp. (P), *Carcinus maenas* (P), *Liocarcinus* sp. (P), *Crossaster papposus* (P), *Echinus esculentus* (R), *Ascidiella aspersa* (P), *Diplosoma listerianum*? (R), juvenile gadoid sp. (P).	SS.SMp.Mrl.Pcal.R	MB	SB:MB	N
DV99	Mixture of maerl gravel, stone gravel and coarse sand (including comminuted maerl) with proportions variable and difficult to determine (92%), shells including Ensis (7%), pebbles (1%)	Sediment with algal cover of around 60%, some of which is likely to be loose. Cover includes filamentous reds (C), foliose reds (R), filiform reds/browns (A) including *Chorda filum* (C, locally A), *Asperococcus bullosus* (F, locally A), *Ulva lactuca*? (R, locally F); *Saccharina latissima* (F). Serpulid worms on shells (P), *Hyas* sp. (P), *Liocarcinus* spp. (P) including *L. depurator, Asterias rubens* (P), *Ophiura* sp. (P), *Ascidiella aspersa* (locally F), *Raja clavata* (P), *Spinachia spinachia* (P), Gobiidae spp. (P) including *Pomatoschistus pictus*.	SS.SMp.KSwSS.LsacR	KS	SB:KS	N
DV100.1	Sand-dusted bedrock (30%) and boulders (35%) and cobbles (25%), with patches of sparser stones on gravel (5%) and coarse sand (5%)	Rock supports *Saccharina latissima* (A, but F locally on bedrock) and *Laminaria hyperborea* (R). Understorey of filamentous red algae (C, locally abundant), filiform algae (P) including *Desmarestia aculeata* (P), and foliose reds (R). In more sedimentary areas *Chorda filum* (P) and *Halidrys siliquosa* (R). Rock encrusted with pink coralline algae (R), yellow sponge (R), serpulid worms (P) and *Balanus* spp. (P). *Anemonia viridis* (P), *Hyas* sp.? (P), *Echinus esculentus* (F), small teleost sp. (P).	IR.HIR.KSed.LsacSac		RF:BR RF:ST	N

Table 1.2 continued

Video sample	Substrate	Biota	Biotopes	PMFs	Annex1	Dredge damage
DV100.2	Coarse sand (65%) with shell and stone gravel (15%), shells including *Ensis* (5%), pebbles (10%), cobbles (5%)	Stones and shells encrusted with pink coralline algae (R), brown algae (P), serpulid worms (P) and *Balanus* spp. (P) and support patchy algal turf of filamentous reds (C), foliose reds (R), *Asperococcus bullosus* (locally O), *Desmarestia aculeata* (O, F locally); *Saccharina latissima* (F) with *Anemonia viridis*, *Steromphala cineraria* and *Membranipora membranacea*. *Munida rugosa* (P), *Macropodia* sp. (P), *Liocarcinus* sp. (P), *Raja clavata* (P), small teleost spp. (P) including *Pomatoschistus pictus*.	SS.SMp.KSwSS. LsacR	KS	SB:KS	N
DV101	Scattered boulders (5%) on sand (48%) with scattered gravel (15 %), pebbles (25%), cobbles (2%) and shells (5%)	Boulders support mixed kelp park of *Laminaria hyperborea* (F) and *Saccharina latissima* (F) with understorey of filamentous and filiform red algae (C, locally A) and *Dictyota dichotoma* (P). Sandy areas with *Saccharina latissima* park (F, locally C) and patches of filamentous and filiform red algae (F) and *Desmarestia* spp. (R). Stones encrusted with serpulid worms (P), *Balanus* spp. (P) and pink coralline algae (R). *Hyas* sp. (P), *Cancer pagurus* (O), *Aequipecten opercularis* (P), *Antedon* spp. (R), *Luidia ciliaris* (O), *Ophiocomina nigra* (C in first half of run), *Ophiura albida* (P), *Echinus esculentus* (F).	IR.HIR.KSed.XK ScrR, SS.SMp.KSwSS. LsacR	KS	SB:KS	N
DV102	Waves of coarse sand (55%) with live maerl (20%), maerl gravel (15%), stone gravel (<1%) and scattered cobbles (1%) and boulders (1%). Shells (8%) largely concentrated in wave troughs	Live *Phymatolithon calcareum* (C, c.20%) largely concentrated in wave troughs. Very sparse erect algae on maerl and sediment but scattered boulders and cobbles support *Laminaria hyperborea* (F) with *Obelia geniculata* (P), and *Saccharina latissima* (O), red algal turf (locally A), *Dictyota dichotoma* (R) and hydroids (R) including *Kirchenpaueria pinnata*? (P) with stipes with aggregations of *Antedon* spp. (F, locally S). *Munida rugosa* (R), *Liocarcinus depurator* (R), *Pecten maximus* (P), *Asterias rubens* (O), *Luidia ciliaris* (O), *Neopentadactyla mixta*? (P, 1 visible), small teleosts (P).	SS.SMp.Mrl.Pcal. Nmix	MB	SB:MB	N
DV103	Fine sand (45%) with surface scatter of coarse sand (24%), maerl gravel (5%), shell gravel (10%), live maerl (10%), pebbles (1%), cobbles (<1%) and shells (5%) including *Ensis*	Scattered live thalli of *Phymatolithon calcareum* (c.10%, F) and sparse erect algae including filamentous reds (O), foliose reds (R), *Asperococcus* sp. (R), filamentous brown (R), juvenile *Saccharina latissima* (R) and *Ulva lactuca*? (R). Stones encrusted with serpulid worms (R) and *Balanus* spp. (R). Hydroids (R) including *Nemertesia ramosa*, Sabellidae sp.? (R), *Antedon* spp. (R), solitary ascidians (O) including *Ascidiella aspersa* (O), juvenile gadoid sp. (P).	SS.SMp.Mrl.Pcal	MB	SB:MB	N

Table 1.2 continued

Video sample	Substrate	Biota	Biotopes	PMFs	Annex1	Dredge damage
DV104.1	Bedrock patches (35%) and densely scattered boulders (40%) and cobbles (20%) on coarse sand (5%)	Rock encrusted with pink coralline algae (locally A), brown algae (P), a yellow sponge (R, locally O) and *Spirobranchus* spp. (locally C) and supports park of *Laminaria hyperborea* (C) with sparse *Obelia geniculata* (P) and *Steromphala cineraria* (P), and *Antedon* spp. (P) on stipes. Rock appears sand-scoured and has patchy turf of principally short filamentous red algae (F-C, A locally), with turf seemingly low-diversity. Hydroids (R), *Asterias rubens* (R), *Luidia ciliaris* (R), *Ophiura* sp. (locally C), *Echinus esculentus* (C), *Clavelina lepadiformis* (R), small teleosts (P). Scattered live maerl thalli on coarse sand (R, <1%).	IR.HIR.KSed.XK ScrR		RF:BR RF:ST	N
DV104.2	Initially mosaic of biotic turf covered pebbles and cobbles with occasional boulders and small patches of coarse sand with sediment patches becoming more indistinct and more mixed (coarse sand with gravel including live and dead maerl) with depth	Stones encrusted with pink coralline algae (R), serpulid worms (P) and *Balanus* spp. (P) and very largely consolidated by *Limaria hians* turf (initially c.60% declining during run to c.40%). Turf and stones support red algal turf (A) intially dominated by filamentous reds and subsequently by filiform and foliose forms. Hydroids (C) with *Halecium* spp. including *H. halecinum*, and *Kirchenpaueria pinnata* (P), solitary ascidians (C) including *Ascidiella aspersa* (C initially), *Corella parallelogramma* (P), *Ciona intestinalis* (P), and *Ascidia mentula*? (P). *Munida rugosa* (O), *Aequipecten opercularis* (R), *Antedon* spp. (F), *Marthasterias glacialis* (P), *Luidia ciliaris* (P), *Porania pulvillus* (R), *Ophiocomina nigra* (C initially), *Ophiura albida* (P), *Echinus esculentus* (P), small teleosts (P), sparse live *Phymatolithon calcareum* (<1%, R). *Laminaria hyperborea* (R).	SS.SMx.IMx.Lim	FS	SB:MX	N
DV105	Scattered boulders (10%), cobbles (10%), shells (5%) and pebbles (15%) on mixed sediment of coarse sand (30%) and gravel (30%)	Stones encrusted with pink coralline algae (P), brown algae (P), yellow sponge (R), *Balanus* spp. (P) and serpulid worms including *Spirobranchus* (locally A) and supporting hydroids (F) including *Halecium halecinum* (P), patches of *Alcyonidium diaphanum* (R, locally S), solitary ascidians including *Corella parallelogramma* (R) and patches of red algal turf (overall O, but locally A on boulders). *Chaetopterus variopedatus*? (P), Terebellidae sp. (P), *Munida rugosa* (R), *Pecten maximus* (P), *Aequipecten opercularis* (O), small Pectiniidae sp. (P), *Antedon* spp. (overall R, but dense clumps), *Marthasterias glacialis* (O), *Luidia ciliaris* (O), *Porania pulvillus* (O), *Ophiura* sp. (P), *Echinus esculentus* (F), *Callionymus* sp. (P), small teleosts (P), *Laminaria hyperborea* (R).	SS.SMx.CMx		SB:MX	N

Table 1.2 continued

Video sample	Substrate	Biota	Biotopes	PMFs	Annex1	Dredge damage
DV106	Very mixed substrate. Predominantly mosaic of raised, clumped pebbles, cobbles and shells (55%) with intervening lower patches of mainly mixed sand (15%), maerl gravel (18%) and live maerl (5%). Scattered boulders (5%) and cobbles (2%)	Raised patches of stones and shells apparently bound by *Limaria hians* byssal turf (c.55% cover). Stones encrusted with pink coralline algae (P), brown algae (P), yellow sponge (R), *Balanus* spp. (C locally) and serpulid worms (P) including *Spirobranchus*. Hydroids (F) including *Halecium* spp. (P) and *Kirchenpaueria pinnata* (P), solitary ascidians including *Corella parallelogramma* (F, locally C) and *Ascidia virginea* (P), and fairly sparse filamentous (O) and foliose (R) red algae. *Sycon ciliatum*? (P), *Cancer pagurus* (O), *Aequipecten opercularis* (P), *Antedon* spp. (R), *Marthasterias glacialis* (O), *Asterias rubens* (P), *Luidia ciliaris* (O), *Porania pulvillus* (R), *Henricia* sp. (R), *Ophiocomina nigra* (R), *Ophiura albida* (P), *Echinus esculentus* (F), small teleosts (P), live *Phymatolithon calcareum* (c.5%, O).	*SS.SMx.IMx.Lim*	FS?	SB:MX	N
DV107	Substrate largely obscured by biotic turf but apparently mostly dense pebbles, gravel and cobbles with some shells (75%), with small coarse sand patches (25%) and scattered boulders (<1%)	Well-formed *Limaria hians* bed (75%) with byssus binding stones and shells and supporting dense turf of chiefly filiform and filamentous red algae (A), with foliose red algae (O), *Saccharina latissima* sporelings (F), *Dictyota dichotoma* (R) and *Desmarestia* sp. (R). Other sessile species are hydroids (C locally) include *Halecium* spp. (P) including *H. halecinum*, *Kirchenpaueria pinnata* (P) and *Rhizocaulus verticillatus* (P), and solitary ascidians (C) including *Ascidiella aspersa* (C). *Munida rugosa* (P), *Cancer pagurus* (O), *Aequipecten opercularis* (P), *Antedon* spp. (R), *Marthasterias glacialis* (F, locally C), *Asterias rubens* (O), *Porania pulvillus* (R), *Ophiocomina nigra* (locally C), *Echinus esculentus* (O), juvenile gadoids (P). Stones encrusted with pink coralline algae (R), serpulid worms (P) and *Balanus* spp. (P).	SS.SMx.IMx.Lim	FS	SB:MX	N
DV108	Coarse sand (38%) with shell and stone gravel (20%), pebbles (30%), cobbles (5%) and shells (7%)	Stones and shells encrusted with pink coralline algae (R), brown algae (P), yellow sponge (R), serpulid worms (C) including *Spirobranchus* spp. (P) and *Balanus* spp. (R), and supporting sparse hydroids (R) and red algal tufts (O) including foliose (R) and filamentous/filiform species (O), and *Ulva lactuca*? (R, possibly drift). *Chaetopterus variopedatus*? (R), *Liocarcinus* sp.? (R), *Asterias rubens* (P), *Crossaster papposus* (P), *Luidia ciliaris* (O), *Ophiocomina nigra* (A), *Echinus esculentus* (O), *Ascidia mentula*? (R). Sparse live thalli of *Phymatolithon calcareum* (R, <1%).	SS.SMx.CMx.OphMx		SB:MX	N

Table 1.2 continued

Video sample	Substrate	Biota	Biotopes	PMFs	Annex1	Dredge damage
DV109	Mixed substrate of silty shelly sand (58%) with shell and stone gravel (25%), shells (5%) including *Arctica islandica*, pebbles (10%) and cobbles (2%)	Red algal turf dominated by filamentous species (A), with foliose reds (F) including *Phyllophora crispa*? (P); *Desmarestia* sp. (R), *Saccharina latissima* (O) with *Steromphala cineraria* (P). Stones and shells encrusted with pink coralline algae (R), serpulid worms (P) and *Balanus* spp. (P). *Liocarcinus depurator* (R), small pectiniid sp. (P), *Luidia ciliaris* (P), *Antedon* spp. (R), *Ophiura albida* (C), *Ascidiella aspersa* (F), *Ascidia mentula* (P).	SS.SMp.KSwSS. LsacR	KS	SB:KS	N
DV110	Silty shelly sand (83%) with shell gravel (10%) and shells (7%) including *Ensis* and *Turritella communis*	Patchy filamentous red algal turf (A), most of which is probably unattached. Drift *Chorda filum* and *Saccharina latissima*. Paguridae sp. (P), *Munida rugosa* (R), *Inachus* sp. (P), *Marthasterias glacialis* (P), *Porania pulvillus* (R), *Henricia* sp. (R), *Ophiura* sp. (P), solitary ascidians (R), teleost sp. (P).	SS.SMp.KSwSS	KS	SB:KS	N
DV111	Coarse sand (65%) with shell and stone gravel (20%, much higher in patches), shells including *Ensis* and large broken shell material (10%), pebbles (5%), cobbles (<1%) and small bedrock patch (<1%)	Patchy algal turf (C, locally A), some of which is probably unattached, principally of filamentous and filiform red algae (C) including some foliose species such as *Phyllophora crispa* (R); *Desmarestia* spp. (O), *Dictyota dichotoma* (R), *Asperococcus bullosus* (R), *Chorda filum* (F), *Saccharina latissima* (O, locally A), *Ulva lactuca*? (R). Stones and shells encrusted with pink coralline algae (R), serpulid worms (P) and *Balanus* spp. (P). *Chaetopterus variopedatus*? (P), *Lanice conchilega* (P), Paguridae sp. (P), *Marthasterias glacialis* (O), *Crossaster papposus* (P), *Steromphala cineraria* (P), *Diplosoma listerianum*? (R), Gobiidae sp. (P).	SS.SMp.KSwSS. LsacR	KS	SB:KS	N
DV112	Mixed substrate of heterogeneous sand (30%) with gravel (45%), shells including *Ensis* and large broken shell material (15%), pebbles (5%), cobbles (5%) and boulders (<1%)	Red algal turf (A, locally C) principally of filamentous and fine filiform species (A) with foliose species (O); *Desmarestia* spp. (R), *Saccharina latissima* (O, but probably drift material) supporting *Steromphala cineraria*, *Electra pilosa* and *Antedon* spp. Stones and shells encrusted with pink coralline algae (R) and serpulid worms (P). *Toxisarcon alba* (P), *Anemonia viridis* (R), Terebellidae sp. (P), *Cancer pagurus* (O), *Pecten maximus* (P), *Luidia ciliaris* (P), *Amphiura* sp. (locally C), *Ophiura albida* (P), Gobiidae sp. (P), juvenile gadoid sp. (P).	SS.SMp.KSwSS. LsacR	KS	SB:KS	N

Table 1.2 continued

Video sample	Substrate	Biota	Biotopes	PMFs	Annex1	Dredge damage
DV113	Scattered cobbles (17%), boulders (13%) and sand-scoured bedrock outcrops (5%) on silty shelly sand (35%) with gravel (15%) and pebbles (15%)	Stones and bedrock encrusted with pink coralline algae (R), brown algae (P) and serpulid worms (P) and supporting red algal turf dominated by filamentous/fine filiform species (A, locally S), with foliose species (O, locally A), *Saccharina latissima* (R), hydroids (R) and solitary ascidians (P) including *Ascidia mentula*. *Tubulanus* sp. (P), *Munida rugosa* (locally F), *Cancer pagurus* (P), small pectiniids (P), Crinoidea spp. (R), *Asterias rubens* (P), *Marthasterias glacialis* (O), *Luidia ciliaris* (O), *Porania pulvillus* (R), *Ophiura albida* (locally C), *Echinus esculentus* (F), small teleost spp. (P).	IR.HIR.KFaR.FoR		RF:BR	N
DV114	Medium sand (83%) with scattered shell and stone gravel (15%), maerl gravel (<1%) and shells (2%) including *Ensis*	Patchy algal cover, much of which appears to be composed of loose material, but some is attached. *Trailliella intricata* balls (A, locally S), *Asperococcus bullosus* (F), *Chorda filum* (P), *Desmarestia aculeata* (R), *Saccharina latissima* (F, locally A), *Ulva lactuca*? (O). *Anemonia viridis* (P), *Lanice conchilega* (P), Paguridae sp. (P), *Macropodia* sp. (P), *Liocarcinus* sp. (P), *Asterias rubens* (O), *Marthasterias glacialis* (P), solitary ascidians (P), *Diplosoma listerianum*? (R), teleost sp. (P), Gobiidae spp. (P).	SS.SMp.KSwSS	KS	SB:KS	N
DV115.1	Silted bedrock (100%)	Mixed kelp park of *Saccharina latisssima* (F) and *Laminaria hyperborea* (F) with fronds supporting *Membranipora membranacea*. Silted rock encrusted with pink coralline algae (R) and *Spirobranchus* spp. (C) and supporting red algal turf of filamentous/fine filiform species (A) and foliose species (R), and solitary ascidians (F) including *Corella parallelogramma* (P) and *Ascidiella aspersa*? (P). *Necora puber* (P), *Aequipecten opercularis* (O), small pectinnid sp. (P), *Antedon* spp. (O), *Asterias rubens* (P), *Ophiura albida* (locally C).	IR.HIR.KSed.XKScrR		RF:BR	N

Table 1.2 continued

Video sample	Substrate	Biota	Biotopes	PMFs	Annex1	Dredge damage
DV115.2	Mosaic of silty, shelly sand (c.50%) locally with some dead maerl, with byssal consolidated stones and shells (c.50%)	*Limaria hians* bed (c.50% cover) mosaicked with sand; well-formed in later half of run segment and attaining around 70% cover locally, more diffuse in earlier part of run. Stones and turf support algal turf dominated by filamentous/filiform reds (C, locally A) and foliose reds (O), with sparse *Laminaria hyperborea* (O), hydroids (O) including *Nemertesia ramosa* (P), and solitary ascidians (C, locally A) including *Ascidia mentula*, *Ascidiella aspersa* and *Corella parallelogramma* (locally A). *Virgularia mirabilis* (P), *Munida rugosa* (F), *Inachus* sp. (F), *Cancer pagurus* (P), small pectiniid sp. (P), *Aequipecten opercularis* (C), *Arctica islandica* shells (P), *Antedon* spp. (O), *Asterias rubens* (O), *Luidia ciliaris* (P), *Ophiura albida* (C locally), *Echinus esculentus* (P). Stones encrusted by pink coralline algae (R), brown algae (P), orange sponge (R) and serpulid worms (P).	SS.SMx.IMx.Lim	FS	SB:MX	N
DV115.3	Mosaic of silty, shelly sand (c.50%) locally with some dead maerl, with byssal consolidated stones and shells (c.40%) and scattered boulders (10%)	Mostly well-formed *Limaria hians* bed (c.40% cover) mosaicked with sand. Stones and turf support algal turf dominated by filamentous/filiform reds (C) and foliose reds (O), with park of *Laminaria hyperborea* (C) with *Membranipora membranacea, Antedon* spp, hydroids (O), and solitary ascidians (C, locally A) including *Ascidia mentula*, *A. virginea*, *Ascidiella aspersa* (locally A), *Ciona intestinalis* and *Corella parallelogramma*. *Haliclona* sp.? (R), Paguridae sp. (P), *Munida rugosa* (F), *Buccinum undatum* (P), *Aequipecten opercularis* (F), *Antedon* spp. (O), *Crossaster papposus* (O), *Asterias rubens* (F), *Luidia ciliaris* (P), *Ophiura albida* (C locally), *Echinus esculentus* (O), juvenile gadoid sp. (P). Stones encrusted by pink coralline algae (R) and serpulid worms (P) including *Spirobranchus* spp.	SS.SMx.IMx.Lim, *IR.MIR.KT.XKTX*	FS TS:KS	SB:MX RF:ST	N
DV115.4	Parallel lines of pebbles, cobbles and gravel separated by silty shelly sand with sparse pebbles, gravel and shells. Overall, silty shelly sand (55%) with gravel (15%), shells (5%), pebbles (20%), cobbles (5%)	Dredge tracks. Stones encrusted with pink coralline algae (R) and serpulid worms (P) and supporting sparse hydroids (R). *Munida rugosa* (P), *Aequipecten opercularis* (C), *Asterias rubens* (P), juvenile gadoid sp. (P). Dredge tracks distinct in long shot at end of HD video but not in SD video which ends slightly earlier.	SS.SMx.CMx		SB:MX	Y

Table 1.2 continued

Video sample	Substrate	Biota	Biotopes	PMFs	Annex1	Dredge damage
DV116.1	Silty fine sand (2%) with cover of live (50%) and dead (43%) maerl and shells (5%) including *Ensis*	Maerl bed with live *Phymatolithon calcareum* c.50% cover (A) and supporting turf of *Trailliella*-like filamentous red algae (A), foliose red algae (O) including *Phyllophora crispa*?, brown algae including *Dictyota dichotoma* (P), *Asperococcus bullosus* (F), *Desmarestia aculeata* (O, locally F), *Chorda filum* (F) and *Saccharina latissima* (O), and *Ulva lactuca*? (R). *Amphilectus fucorum*? (R), serpulid worms (P), Paguridae sp. (P), *Carcinus maenas* (P), *Steromphala cineraria* (P), solitary ascidians (P), *Diplosoma listerianum*? (R).	SS.SMp.Mrl.Pcal.R	MB	SB:MB	N
DV116.2	Coarse sand (88%) with gravel (10%) and scattered shells (2%) including *Ensis*	Patches of apparently mostly loose algae including filamentous reds (F, locally C), *Ulva lactuca*? (R), *Desmarestia* spp. (P) and *Saccharina latissima* (O, but large patches where locally A). Live maerl (R, <1%).	SS.SMp.KSwSS		SB:KS	N
DV117	Substrate largely obscured but visible patches (10%) of poorly mixed sand (95%) with scattered shells (5%)	Loose mat (90%) of *Trailliella intricata* balls (S) and a variety of other drift algae. Patches of dense *Saccharina latiissima* (locally A) towards the end of the run are apparently of largely functional plants. Brachyura sp. (P), *Asterias rubens* (P), *Marthasterias glacialis* (P), very sparse live maerl thalli (R, <1%).	SS.SMp.KSwSS.Tra, SS.SMp.KSwSS	KS	SB:KS	N
DV118	Mixed substrate of pebbles (48%) and gravel (10%) with shells (2%) and cobbles (10%) on silty, shelly sand (30%); boulders (<1%)	*Ophiothrix fragilis* (C). Stones encrusted with pink coralline algae (R), brown algae (P), red algae (R), cream sponge? (R) and serpulid worms (P) including *Serpula vermicularis* (P) and *Spirobranchus* spp. (P). *Munida rugosa* (F), *Hyas araneus* (P), *Aequipecten opercularis* (C), *Crossaster papposus* (O), *Asterias rubens* (P), *Solaster endeca* (P), *Echinus esculentus* (F), solitary ascidians (P) including *Corella parallelogramma*, *Saccharina latissima* (R), foliose red algae (R), small teleost spp. (P).	SS.SMx.CMx		SB:MX	N
DV119	Mixed and variable substrate. Overall, silty, shelly sand (18%) with pebbles (40%) and gravel (10%), shells (2%) and cobbles (30%); boulders (<1%)	Fairly thin ophiuroid bed with *Ophiothrix fragilis* (A), *Ophiopholis aculeata* (C) and *Ophiocomina nigra* (locally C). Stones encrusted with cream sponge? (P) and serpulid worms (C) including *Serpula vermicularis*? (P) and *Spirobranchus* spp. (P) and supporting sparse hydroids (R) and *Neocrania anomala* (locally C). *Chaetopterus variopedatus*? (R), *Munida rugosa* (R), Paguridae spp. (P), *Aequipecten opercularis* (O, locally F), *Crossaster papposus* (O), *Echinus esculentus* (F).	SS.SMx.CMx.OphMx		SB:MX	N

Table 1.2 continued

Video sample	Substrate	Biota	Biotopes	PMFs	Annex1	Dredge damage
DV120.1	Dense pebbles (65%) and gravel (10%) with shells (2%) including *Modiolus modiolus*, and cobbles (5%) on silty coarse sand (18%)	Ophiuroid bed strongly dominated by *Ophiothrix fragilis* (A) with *Ophiocomina nigra* (C). Stones encrusted with pink coralline algae (R), brown algae (P) and serpulid worms (P) including *Spirobranchus* spp. (P) and supporting very sparse foliose red algae (R). *Munida rugosa* (R), *Hyas araneus* (P), *Aequipecten opercularis* (C), *Asterias rubens* (O), *Crossaster papposus* (O), *Henricia* sp. (R), *Echinus esculentus* (C), , *Pyura* sp.? (R), juvenile gadoid sp. (P).	SS.SMx.CMx.OphMx		SB:MX	N
DV120.2	Dense pebbles (65%) and gravel (10%) with shells (2%) including *Modiolus modiolus*, and cobbles (5%) on silty coarse sand (18%)	*Ophiothrix fragilis* (F) and *Ophiocomina nigra* (C). Stones encrusted with pink coralline algae (R), brown algae (P) and serpulid worms (P). *Aequipecten opercularis* (C), *Echinus esculentus* (F).	SS.SMx.CMx		SB:MX	N
DV121	Dense pebbles (70%), cobbles (15%) and boulders (<1%) on coarse sand (10%) and gravel (5%)	Ophiuroid bed with *Ophiothrix fragilis* (A), *Ophiopholis aculeata* (A) and *Ophiocomina nigra* (A). Stones encrusted with cream/yellow sponge? (P), *Balanus* spp. (P) and serpulid worms (C) including *Spirobranchus* spp. (P). *Protanthea simplex* (R, locally C), *Chaetopterus variopedatus* (P), *Lanice conchilega* (P), *Aequipecten opercularis* (F), Crinoidea sp. (R), *Asterias rubens* (P), *Crossaster papposus* (O), *Porania pulvillus* (R), *Echinus esculentus* (C).	SS.SMx.CMx.OphMx		SB:MX	N
DV122.1	Dense pebbles (70%), cobbles (10%) and shells (2%) on coarse sand (10%) and gravel (8%)	Ophiuroid bed with *Ophiothrix fragilis* (A), *Ophiopholis aculeata* (A) and *Ophiocomina nigra* (A, locally C). Stones encrusted with *Balanus* spp. (R) and serpulid worms (C) including *Spirobranchus* spp. (P). *Chaetopterus variopedatus* (P), *Munida rugosa* (P), *Aequipecten opercularis* (F), *Asterias rubens* (P), *Crossaster papposus* (O), *Echinus esculentus* (F), small teleost sp. (P). Sparse byssal threads possibly present, perhaps those of *Limaria hians*. Biotope boundary with following biotope indistinct	SS.SMx.CMx.OphMx		SB:MX	N
DV122.2	Dense pebbles (68%), cobbles (5%) and shells (2%) including *Modiolus modiolus* on silty, coarse sand (10%) and gravel (15%)	Transitional margin of ophiuroid bed with *Ophiothrix fragilis* (C), *Ophiopholis aculeata* (C), *Ophiocomina nigra* (C, locally F) and *Ophiura albida* (P). Stones encrusted with yellow/cream sponge? (R) and serpulid worms (C). *Alcyonium digitatum* (R), *Munida rugosa* (P), *Aequipecten opercularis* (F), *Echinus esculentus* (F).	SS.SMx.CMx		SB:MX	N

Table 1.2 continued

Video sample	Substrate	Biota	Biotopes	PMFs	Annex1	Dredge damage
DV123.1	Dense pebbles (65%), cobbles (10%) and shells (5%) including *Modiolus modiolus* forming mosaic with small patches of coarse sand (15%) and gravel (5%)	Ophiuroid bed dominated by *Ophiothrix fragilis* (S) with *Ophiopholis aculeata* (A) and *Ophiocomina nigra* (A). Stones and shells encrusted with pink coralline algae (R), yellow sponge (R) and serpulid worms (P) and support sparse hydroids (O), *Alcyonium digitatum* (R), *Protanthea simplex* (R) and solitary ascidians (P) including *Ascidia mentula*? (P). Paguridae sp. (P), *Aequipecten opercularis* (F), *Crossaster papposus* (O), *Asterias rubens* (P), *Echinus esculentus* (C), small *Saccharina latissima* (R). Live *Modiolus modiolus* present (2 seen) but apparently fairly sparse. Nature of mosaic and clear presence of byssal matrix occasionally discernible indicates *Limaria hians* bed, although coverage not determinable and boundary between this and following biotope indistinct.	SS.SMx.IMx.Lim, SS.SMx.CMx.OphMx	FS	SB:MX	N
DV123.2	Dense pebbles (65%) with cobbles (10%) and shells (5%) including *Modiolus modiolus and* coarse sand (15%) and gravel (5%)	Ophiuroid bed dominated by *Ophiothrix fragilis* (S) with *Ophiopholis aculeata* (A) and *Ophiocomina nigra* (A). Stones encrusted with pink coralline algae (R), yellow sponge (R) and serpulid worms (P). *Aequipecten opercularis* (O), *Echinus esculentus* (F-C). Presence of byssal matrix visible at end of run (00:07:35) indicates some *Limaria hians* probably present but not appearing to represent a bed.	SS.SMx.CMx.OphMx		SB:MX	N
DV124	Dense pebbles (58%) and gravel (15%) with shells (2%), cobbles (5%) and boulders (<1%) on coarse sand (20%)	Patchy mixed kelp forest of *Saccharina latissima* (C, locally A) and *Laminaria hyperborea* (C) with foliose red algal stipe flora and *Membranipora membranacea* (P) and *Gibbula* spp. (P) on fronds, although some plants are unattached. Stones encrusted with pink coralline algae (R), brown algae (P) and serpulid worms and support sparse foliose red algae (R). *Asterias rubens* (P), small clumps of *Ophiothrix fragilis* (locally S), *Ophiocomina nigra* (locally C), *Echinus esculentus* (P), *Psammechinus miliaris* (P), Gobiesocidae sp. (clingfish, P).	IR.MIR.KT.XKTX	TS:KS		N
DV125	Silty, shelly, fine sand (55%) with scattered gravel (15%), pebbles (15%), cobbles (10%) and boulders (5%); proportions highly variable along run	Scattered *Saccharina latissima* (F, locally C) with no algal turf evident. Stones encrusted with pink coralline algae (R) and serpulid worms (P). *Pecten maximus*? (R), *Aequipecten opercularis* (F), *Antedon* spp. (F), *Crossaster papposus* (P), *Asterias rubens* (P), *Psammechinus miliaris* (O), *Echinus esculentus* (F), cape-form *Laminaria hyperborea*? (P). Pair of narrow undersea cables.	SS.SMp.KSwSS.LsacMxVS	KS	SB:KS	N

Table 1.2 continued

Video sample	Substrate	Biota	Biotopes	PMFs	Annex1	Dredge damage
DV126.1	Silty sand (40%) with boulders (30%) and cobbles (30%)	Stones encrusted with pink coralline algae (O). *Ophiothrix fragilis* (A), *Antedon* spp. (C), *Crossaster papposus* (P), solitary ascidians (P).	CR.LCR.BrAs.AmenCio.Bri		RF:ST	N
DV126.2	Silt-dusted bedrock	Rock encrusted with pink coralline algae (F) and serpulid worms (F). *Aequipecten opercularis* (R), *Ophiocomina nigra* (R), *Antedon* spp. (F), *Echinus esculentus* (P).	CR.LCR.BrAs.AmenCio.Ant		RF:BR	N
DV126.3	Silty, shelly sand (40%) with boulders (17%) and cobbles (30%) as well as gravel (5%), pebbles (5%) and shells (3%)	Stones encrusted with pink coralline algae (O) and serpulid worms (P). *Aequipecten opercularis* (F), *Ophiothrix fragilis* (A), *Ophiocomina nigra* (A), *Antedon* spp. (C), *Solaster endeca* (P), solitary ascidians (P) including *Ciona intestinalis* (locally A), teleost sp. (P).	CR.LCR.BrAs.AmenCio.Bri		RF:ST	N
DV126.4	Silt-dusted bedrock (95%) and small channel with boulders (5%)	Rock encrusted with pink coralline algae (F) and serpulid worms (P). *Aequipecten opercularis* (R), *Ophiocomina nigra* (F), patch of *Ophiothrix fragilis* (locally S) *Antedon* spp. (F), *Echinus esculentus* (F), solitary ascidians (R).	CR.LCR.BrAs.AmenCio.Ant		RF:BR	N
DV126.5	Silty, shelly sand (50%) with boulders (10%) and cobbles (30%) as well as gravel (4%), pebbles (5%) and shells (1%)	Stones encrusted with pink coralline algae (O) and serpulid worms (P). *Aequipecten opercularis* (P), *Ophiothrix fragilis* (A), *Ophiocomina nigra* (locally A), *Antedon* spp. (C), *Solaster endeca* (P), *Echinus esculentus* (F), small teleost sp. (P).	CR.LCR.BrAs.AmenCio.Bri		RF:ST	N
DV126.6	Muddy, shelly sand (55%) with scattered gravel (5%), pebbles (20%), cobbles (15%) and boulders (5%)	Stones encrusted with pink coralline algae (R) and serpulid worms (P). *Toxisarcon alba*? (P), *Aequipecten opercularis* (O), *Ophiothrix fragilis* (C), *Ophiocomina nigra* (C), *Antedon* spp. (F), *Echinus esculentus* (P), *Ascidia mentula*? (P).	SS.SMx.CMx		SB:MX	N
DV127	*Limaria* turf (90%) with small patches of coarse sand (10%)	Well-formed *Limaria hians* bed with turf covering around 90% of seabed and supporting park of *Laminaria hyperborea* (C) with foliose red algal stipe flora, as well as *Obelia geniculata*, *Steromphala cineraria* (P) and *Membranipora membranacea* (locally C). Byssal turf incorporating stones with pink coralline encrusting algae and kelp material and supporting short red algal turf (C), hydroids (R) and A*lcyonium digitatum* (R). *Cancer pagurus* (P), *Buccinum undatum* (P), *Aequipecten opercularis* (R), *Crossaster papposus* (P), *Asterias rubens* (P), *Ophiocomina nigra* (A), *Ophiothrix fragilis* (S locally), *Echinus esculentus* (O).	SS.SMx.IMx.Lim, SS.SMx.CMx.OphMx, IR.MIR.KT.XKTX	FS TS:KS	SB:MX	N

Table 1.2 continued

Video sample	Substrate	Biota	Biotopes	PMFs	Annex1	Dredge damage
DV128.1	Slightly silty, shelly, fine-medium sand with scattered cobbles (<1%), boulders (<1%) and pebbles (overall 35% but becoming denser along run); cable	Stones encrusted with pink coralline algae (R) and serpulid worms (P). *Aequipecten opercularis* (F), *Crossaster papposus* (P), *Asterias rubens* (P), *Echinus esculentus* (F), *Saccharina latissima* (R).	SS.SMx.CMx		SB:MX	N
DV128.2	Dense pebbles (65%) with gravel (10%), cobbles (5%) and boulders (<1%) on silty, shelly sand (20%). Cable, ropes and fish box?	Patchy ophiuroid bed dominated by *Ophiothrix fragilis* (A, locally S) with *Ophiocomina nigra* (locally A). Stones encrusted with pink coralline algae (R), brown algae (P) and serpulid worms (P). *Aequipecten opercularis* (O), *Asterias rubens* (P), *Crossaster papposus* (O), *Henricia* sp. (R), *Echinus esculentus* (P).	SS.SMx.CMx.OphMx		SB:MX	N
DV129	Slightly silty, shelly, fine-medium sand (70%) with scattered gravel (3%), shells (2%), pebbles (20%), cobbles (3%) and boulders (2%)	Scattered *Saccharina latissima* (F, locally C) supporting *Gibbula* sp. (P); sparse red algal turf (R); *Laminaria hyperborea* (P). Stones encrusted with pink coralline algae (R) and serpulid worms (P) and apparently bound together in small patches particularly around kelp holdfasts, with byssal threads indicating the presence of sparse *Limaria hians* nests (<10% cover). *Munida rugosa* (R), *Hyas* sp. (P), Polyplacophora sp. (P), *Aequipecten opercularis* (O), clumps of *Antedon* spp. (P), *Crossaster papposus* (P), *Asterias rubens* (P), *Ophiocomina nigra* (R), *Psammechinus miliaris* (O), *Echinus esculentus* (O), shoal of small teleosts (P).	SS.SMp.KSwSS.LsacMxVS	KS	SB:KS	N
DV130	Coarse sand (50%) and gravel (20%) with scattered pebbles (20%), shells (5%), cobbles (5%) and boulders (<1%)	Thin forest of *Laminaria hyperborea* (C) supporting foliose red algal stipe flora, and *Obelia geniculata* (P), *Membranipora membranacea* (P), *Calliostoma zizyphinum* (P) and *Steromphala cineraria* (P); *Saccharina latissima* (F). Stones encrusted with pink coralline algae (R) and serpulid worms (P) and support patchy red algal turf (O, locally C). *Electra pilosa* (R), *Antedon* spp. (P), *Asterias rubens* (O), *Echinus esculentus* (O), juvenile gadoid sp. (P), Gobiidae sp. (P). Small *Limaria* nests possibly present around holdfasts of some kelp plants.	IR.MIR.KT.XKTX	TS:KS		N

Table 1.2 continued

Video sample	Substrate	Biota	Biotopes	PMFs	Annex1	Dredge damage
DV131	*Limaria* turf (90%) with small patches of coarse sand (10%)	Well-formed *Limaria hians* bed with turf covering around 90% of seabed and supporting park of *Laminaria hyperborea* (C) with foliose red algal stipe flora, as well as *Obelia geniculata* and *Membranipora membranacea* (P). Byssal turf supporting short red algal turf (C), hydroids (O) including *Nemertesia ramosa* (P) and A*lcyonium digitatum* (R). *Urticina* sp.? (R), *Buccinum undatum* (O), *Aequipecten opercularis* (R), *Asterias rubens* (O), *Ophiocomina nigra* (A), *Ophiothrix fragilis* (A locally), *Echinus esculentus* (F), solitary ascidians (P) including *Ascidia mentula*? (P), *Scyliorhinus canicula* (P).	SS.SMx.IMx.Lim, SS.SMx.CMx.OphMx, IR.MIR.KT.XKTX	FSTS:KS	SB:MX	N
DV132	Mosaic of coarse sand (50%) and LImaria byssal bound stones and shells (50%); boulders (<1%)	*Limaria hians* turf covering around 50% of seabed and supporting forest of *Laminaria hyperborea* (A) with foliose red algal stipe flora, as well as *Obelia geniculata*, *Steromphala cineraria* (P) and *Membranipora membranacea* (C locally). Stones encrusted with pink coralline algae (R), brown algae and serpulid worms (R). *Limaria* turf with foliose red algal turf (C). *Hyas* sp. (P), *Echinus esculentus* (F), shoal of small fish (P).	SS.SMx.IMx.Lim, IR.MIR.KT.XKTX	FS TS:KS	SB:MX	N
DV133	Almost complete cover by *Limaria* turf with occasional pebbles, cobbles and boulders emergent	Well-formed *Limaria hians* bed with turf covering around 98% of seabed and supporting park of *Laminaria hyperborea* (C) with foliose red algal stipe flora, as well as hydroids including *Obelia geniculata*, and *Membranipora membranacea* (P). Stones encrusted with pink coralline algae (R) and serpulid worms (R) and supporting *Alcyonium digitatum* (O). *Limaria* turf with occasional hydroids and short filamentous/fine filiform red algal turf (C). *Urticina* sp. (R), Paguridae spp. (P) including *Pagurus bernhardus*? (P), *Buccinum undatum*? (P), *Asterias rubens* (O), *Ophiocomina nigra* (A), *Ophiothrix fragilis* (P), *Echinus esculentus* (F),solitary ascidians (R), juvenile gadoid sp. (P).	SS.SMx.IMx.Lim, SS.SMx.CMx.OphMx, IR.MIR.KT.XKTX	FS TS:KS	SB:MX	N
DV134	Coarse sand (35%) and gravel (15%) with scattered pebbles (35%), shells (2%), cobbles (5%) and boulders (8%)	Thin forest of *Laminaria hyperborea* (C) supporting foliose red algal stipe flora, and *Obelia geniculata* (P), *Membranipora membranacea* (locally C) and *Gibbula* sp. (P). Stones encrusted with pink coralline algae (R) and serpulid worms (P) and support sparse foliose red algae (R). *Pagurus bernhardus*? (P), *Ophiocomina nigra* (R), *Echinus esculentus* (C). Small patches of *Limaria* bound stones apparently present around holdfasts of some kelp plants.	IR.MIR.KT.XKTX	TS:KS		N

Table 1.2 continued

Video sample	**Substrate**	**Biota**	**Biotopes**	**PMFs**	**Annex1**	**Dredge damage**
DV135	Dense pebbles with shells including *Modiolus modiolus* and *Limaria hians*, and cobbles, with small patches and larger channels of coarse sand and gravel. Proportions difficult to determine due to coverage by ophiuroids	Dense ophiuroid bed dominated by *Ophiothrix fragilis* (S) and *Ophiopholis aculeata* (locally S) with *Ophiocomina nigra* (locally A). Hydroids (O), *Alcyonium digitatum* (F), *Urticina* sp. (R), *Hyas* sp. (P), *Aequipecten opercularis* (R), *Crossaster papposus* (F), *Asterias rubens* (O), *Echinus esculentus* (C). Meshwork of *Limaria hians* byssal threads and gallery apertures visible at times throughout run, although extent of coverage by *Limaria* bed difficult to determine. Stones encrusted with pink coralline algae (R) and serpulid worms (P).	SS.SMx.IMx.Lim, SS.SMx.CMx.OphMx	FS	SB:MX	N
DV136	Dense pebbles (70%), shells (5%) including *Modiolus modiolus*, and cobbles (5%) with patches of coarse sand (15%) and gravel (5%)	Stones and shells bound with *Limaria hians* byssal turf occupying c.50% of seabed in second half of run and probably present in first half, although more occluded by epibiota. Stones encrusted with pink coralline algae (R), brown algae (P) and serpulid worms (P) and supporting foliose red algal turf (C), hydroids (F), including *Halecium* sp. (P), and solitary ascidians (F) including *Corella parallelogramma* (P) and *Ascidiella aspersa* (P). Dense ophiuroid bed for much of run dominated by *Ophiothrix fragilis* (S) with *Ophiocomina nigra* (A) and *Ophiopholis aculeata* (locally A initially). *Alcyonium digitatum* (C), Paguridae spp. (P), *Hyas araneus* (O), *Cancer pagurus* (O), *Crossaster papposus* (F), *Asterias rubens* (P), *Echinus esculentus* (F), *Laminaria hyperborea* (O) with *Obelia geniculata* (P).	SS.SMx.IMx.Lim, SS.SMx.CMx.OphMx	FS	SB:MX	N
DV137.1	Mixed substrate of dense pebbles (70%) and gravel (10%) with coarse sand (15%) and shells (5%)	Park of *Laminaria hyperborea* (F) supporting foliose red algal stipe flora, and hydroids (P) including *Obelia geniculata* (P), *Membranipora membranacea* (P), *Calliostoma zizyphinum* (P) and *Antedon* spp. (P). Stones encrusted with pink coralline algae (R) and serpulid worms (C) and support filiform red algal turf (C). *Asterias rubens* (P), *Crossaster papposus* (P), solitary ascidians (R). Patches of *Limaria* bound stones possibly present but apparently sparse	IR.MIR.KT.XKTX	TS:KS		N

Table 1.2 continued

Video sample	Substrate	Biota	Biotopes	PMFs	Annex1	Dredge damage
DV137.2	Initially mixed substrate of dense pebbles (65%) and gravel (10%) with coarse sand (15%), cobbles (5%) and shells (5%) but in later half of run segment substrate occluded by *Limaria* turf	Park of *Laminaria hyperborea* (C) supporting *Obelia geniculata*, *Gibbula* sp. and *Membranipora membranacea (*C locally), as well as foliose red algae and hydroids on stipes. Stones encrusted with pink coralline algae (R), brown algae (P) and serpulid worms (C) and support filiform red algal turf (C initially but declining thereafter) and hydroids (O). Initially small patches of *Limaria hians* bound stones, but becoming almost continuous turf consolidating stones, shells and kelp material towards the end of the run. *Alcyonium digitatum* (R), *Hyas* sp. (P), *Necora puber* (R), *Pecten maximus* (R), *Echinus esculentus* (C), small teleost spp. (R). Start of *Limaria hians* biotope unclear.	SS.SMx.IMx.Lim, IR.MIR.KT.XKTX	FSTS: KS	SB:MX	N
DV138	Dense pebbles with shells including *Modiolus modiolus*, cobbles, gravel and coarse sand, although proportions obscured by brittlestars	Dense ophiuroid bed dominated by *Ophiothrix fragilis* (S) and *Ophiopholis aculeata* (A) with *Ophiocomina nigra* (locally A). *Alcyonium digitatum* (F), *Urticina* sp. (R), *Hyas* sp. (P), *Buccinum undatum* (P), *Crossaster papposus* (O), *Asterias rubens* (O), *Echinus esculentus* (C), *Pholis gunnellus* (P). Meshwork of byssal threads occasionally visible and probably a *Limaria hians* bed. Stones encrusted with pink coralline algae (R), brown algae (P) and serpulid worms (P) and supporting sparse hydroids (P) and *Ciona intestinalis* (P).	*SS.SMx.IMx.Lim*, SS.SMx.CMx.OphMx	FS?	SB:MX	N
DV139	Dense pebbles (70%), gravel (10%), shells (5%) and cobbles (10%) with patches of coarse sand (5%),	Stones encrusted with pink coralline algae (O), brown algae (P), red algae (R), *Balanus* spp. (P) and serpulid worms (C) and support sparse foliose red algal turf (O), *Alcyonium digitatum* (F) and hydroids (C) including *Halecium* sp. (P), *Sertularia* sp. (P) and *Rhizocaulus verticillatus* (P); the stones are bound by byssal threads forming a *Limaria hians* bed covering perhaps 80% of the seabed, although may be much less. *Urticina* sp. (R), Paguridae spp. (P), *Galathea* sp. (P), *Munida rugosa* (P), *Hyas araneus* (P), *Cancer pagurus* (P), *Steromphala cineraria* (P), *Buccinum undatum* (P), *Aequipecten opercularis* (R), *Crossaster papposus* (P), *Asterias rubens* (P), *Henricia* sp. (R), *Ophiothrix fragilis* (R), *Ophiocomina nigra* (R), *Echinus esculentus* (C, locally A), *Ciona intestinalis* (P), *Pholis gunnellus* (P).	SS.SMx.IMx.Lim	FS	SB:MX	N

Table 1.2 continued

Video sample	Substrate	Biota	Biotopes	PMFs	Annex1	Dredge damage
DV140.1	Dense pebbles (55%) and gravel (20%) with coarse sand (15%), shells (5%) and cobbles (5%)	Mixed kelp including *Saccharina latissima* (locally C) supporting *Electra pilosa*, and *Laminaria hyperborea* (C, locally A) suppporting foliose red algal stipe flora and *Obelia geniculata*, *Membranipora membranacea* (locally C) and *Calliostoma zizyphinum*? on fronds. Stones encrusted with pink coralline algae (R), brown algae (P) and serpulid worms (C) and support red algal turf (O, but A locally). *Hyas araneus* (P), *Liocarcinus* sp. (P), *Crossaster papposus* (P), *Asterias rubens* (F), *Echinus esculentus* (C), small teleost spp. (P) including Gadidae sp. (P), Gobiidae sp. (P) and *Spinachia spinachia* (P). Biotope boundary unclear due to infrequent view of seabed	IR.MIR.KT.XKTX	TS:KS		N
DV140.2	Dense pebbles (55%) and gravel (20%) with coarse sand (15%), shells (5%) and cobbles (5%)	Park of *Laminaria hyperborea* (C) supporting *Obelia geniculata* and *Membranipora membranacea*. Stones encrusted with pink coralline algae (R), brown algae (P) and serpulid worms (C) and support sparse red algal turf (O); the stones can be seen to be consolidated by fine byssal threads, presumably those of *Limaria hians*, in places, although the percentage cover cannot be determined. *Asterias rubens* (P), *Echinus esculentus* (C), *Scyliorhinus* sp. (P).	*SS.SMx.IMx.Lim*, IR.MIR.KT.XKTX	FS? TS:KS	SB:MX	N
DV140.3	Dense pebbles (70%) and gravel (15%) with coarse sand (5%), shells (5%) and cobbles (5%)	Stones encrusted with pink coralline algae (R), brown algae (P) and serpulid worms (C) and support sparse red algal turf (O), *Alcyonium digitatum* (O) and hydroids (C) including *Halecium* sp. (P); the stones are bound by byssal threads forming a *Limaria hians* bed covering perhaps 95% of the seabed, although may be much less. *Munida rugosa* (P), *Hyas araneus* (P), *Henricia* sp. (R), *Echinus esculentus* (C), *Corella parallelogramma* (P), small *Laminaria hyperborea* (O).	SS.SMx.IMx.Lim	FS	SB:MX	N
DV141	Dense pebbles (80%) and cobbles (20%)	Dense ophiuroid bed dominated by *Ophiothrix fragilis* (S), with *Ophiopholis aculeata* (A) and *Ophiocomina nigra* (A). Stones encrusted with pink coralline algae (F) and serpulid worms (P) including *Spirobranchus* spp. and supporting *Alcyonium digitatum* (F) and hydroids (F) including *Sertularia* sp. *Urticina* sp. (R), *Buccinum undatum* (P), *Crossaster papposus* (O), *Asterias rubens* (P), *Echinus esculentus* (C), *Pholis gunnellus* (P).	SS.SMx.CMx.OphMx		SB:MX	N

Table 1.2 continued

Video sample	Substrate	Biota	Biotopes	PMFs	Annex1	Dredge damage
DV142	Substrate largely obscured but apparently dense pebbles (50%), and shells (5%) including *Modiolus modiolus* on sand and gravel	Dense ophiuroid bed dominated by *Ophiothrix fragilis* (S) and *Ophiopholis aculeata* (S) with *Ophiocomina nigra* (A). *Alcyonium digitatum* (O), *Protanthea simplex* (R), Paguridae spp. (P), *Hyas araneus* (R), *Crossaster papposus* (F), *Echinus esculentus* (F), *Pholis gunnellus* (P). Meshwork of byssal threads visibly at one point, so *Limaria hians* may be present but apparently not a Limaria bed.	SS.SMx.CMx.OphMx		SB:MX	N
DV143	Barely visible; scattered gravel (10%) and pebbles (15%) on sand	Almost complete cover by kelp of which much is drift material including *Sacchariana latissima* (A) supporting *Electra pilosa* and *Steromphala cineraria*, *Laminaria hyperborea* (R, probably all drift) supporting *Obelia geniculata* and *Membranipora membranacea*, and *Saccorhiza polyschides* (R, drift). *Hyas araneus* (P), *Antedon* spp. (R), *Asterias rubens* (P), *Echinus esculentus* (P), teleost spp. (P).	SS.SMp.KSwSS.LsacR.Sa	KS	SB:KS	N
DV144	Largely *Limaria hians* bed (c.70%) of byssal consolidated stones, shells and kelp material, with patches of sand and gravel (30% but initially greater)	Kelp forest of *Laminaria hyperborea* (A) with foliose red algal stipe flora and *Obelia geniculata, Membranipora membranacea* (C) and *Gibbula* spp. (P) on the fronds. The kelp is supported by a *Limaria hians* bed of consolidated stones, shells and kelp frond material (c.70%) supporting a turf of filamentous and fine filiform red algae (A), with the stones encrusted with pink coralline algae (R). *Hyas araneus* (P), *Asterias rubens* (O), *Echinus esculentus* (C), Gaididae sp. (P).	SS.SMx.IMx.Lim, IR.MIR.KT.XKTX	FS TS:KS	SB:MX	N
DV145	*Limaria* byssal bound pebbles, cobbles and shells (95%) with small patches of coarse sand (5%)	Dense ophiuroid bed dominated by *Ophiothrix fragilis* (S over large areas), *Ophiopholis aculeata* (S locally) and *Ophiocomina nigra* (A, alone over large areas), on top of *Limaria hians* bed (c.95% cover), also supporting *solitary ascidians* (R), hydroids (R) including *Halecium* sp. and *Sertularia* sp., foliose red algae (R) and encrusting pink coralline algae (R), with filamentous red algae (locally C-A) where ophiuroid cover reduced. *Urticina* sp. (O), *Alcyonium digitatum* (R), *Hyas araneus* (R), *Crossaster papposus* (P), *Porania pulvillus* (R), *Echinus esculentus* (F), *Pholis gunnellus* (P), *Laminaria hyperborea* (O) with *Obelia geniculata, Membranipora membranacea* and foliose red algal stipe flora.	SS.SMx.IMx.Lim, SS.SMx.CMx.OphMx	FS	SB:MX	N

Table 1.2 continued

Video sample	Substrate	Biota	Biotopes	PMFs	Annex1	Dredge damage
DV146	Coarse sand (60%) with gravel (25%), pebbles (10%), cobbles (2%) and shells (3%) including *Ensis*	Patchy mixed kelp forest with *Saccharina latissima* (C) and *Laminaria hyperborea* (C) supporting foliose red algal epiphytes and *Obelia geniculata*, *Gibbula* spp. including *G. cineraria*, *Membranipora membranacea* and *Antedon* spp. (P). Stones encrusted with pink coralline algae (R), brown algae (P) and serpulid worms (P) but with little or no algal turf evident. *Carcinus maenas* (P), *Asterias rubens* (O), *Echinus esculentus* (C), small teleost spp. (P) including Gadidae sp. (P).	IR.MIR.KT.XKTX	TS:KS		N
DV147	Sand (55%) with scattered gravel (35%), pebbles (7%) and shells (3%) including *Ensis*	Patchy kelp forest of *Saccharina latissima* (C, locally A) supporting *Gibbula* spp. (P) and *Antedon* spp. (F). Stones encrusted with pink coralline algae (R) and with patchy turf of filamentous red algae (locally A): *Desmarestia aculeata* (R), *Chorda filum* (O), *Ulva lactuca*? (R). Paguridae sp. (P), *Carcinus maenas*? (P), *Liocarcinus* spp. (P), *Echinus esculentus* (C), small teleost spp. (P).	SS.SMp.KSwSS.LsacR.Sa	KS	SB:KS	N
DV148	Coarse sand (90%) with scattered shells (10%) including dense *Ensis*	Patchy forest of *Saccharina latissima* (A) apparently supported by *Ensis* shells, the latter encrusted by serpulid worms (P). Very sparse understorey includes filiform red algae (R), filamentous browns (R) and *Desmarestia* sp. (R). Kelp supports *Gibbula* sp., small pectiniids and *Ophiocomina nigra* (F). *Echinus esculentus* (P), Gobiidae sp. (P).	SS.SMp.KSwSS.LsacR.Sa	KS	SB:KS	N
DV149	*Limaria* byssal bound pebbles, cobbles and shells (90%) with small patches of coarse sand (10%)	Dense ophiuroid bed dominated by *Ophiothrix fragilis* (S) and *Ophiopholis aculeata* (S) with *Ophiocomina nigra* (A), on top of *Limaria hians* bed (c.90% cover), also supporting *Ascidiella aspersa*? (P), foliose red algae (R) and encrusting pink coralline algae (R). *Urticina* sp. (R), *Alcyonium digitatum* (R), *Buccinum undatum* (R), *Crossaster papposus* (F), *Echinus esculentus* (F), *Psammechinus miliaris* (R), *Laminaria hyperborea* (O) with *Obelia geniculata* and foliose red algal stipe flora.	SS.SMx.IMx.Lim, SS.SMx.CMx.OphMx	FS	SB:MX	N
DV150	Mixed substrate of sand, gravel, pebbles and scattered cobbles and shells. Proportions highly variable but pebbles and gravel dense in places.	Mixed kelp of *Saccharina latissima* (C, locally A) and *Laminaria hyperborea* (C, locally A), with stipes epiphytised with foliose red algae and fronds with *Obelia geniculata*, *Gibbula* sp., *G. cineraria*, *Membranipora membranacea* (locally C), *Electra pilosa* and *Ophiocomina nigra*. Stones encrusted with pink coralline algae (R), brown algae (P) and serpulid worms (P) and supporting sparse erect red algae (R) and *Ulva lactuca*? (R). *Hyas* sp. (P), *Echinus esculentus* (F).	IR.MIR.KT.XKTX	TS:KS		N

Table 1.2 continued

Video sample	Substrate	Biota	Biotopes	PMFs	Annex1	Dredge damage
DV151	Medium sand (73%) with scattered gravel (5%) and pebbles (20%) and shells (2%) including *Ensis*; occasional cobbles and boulders	Patchy kelp forest dominated by *Saccharina latissima* (A). Kelp supports *Electra pilosa* and *Membranipora membranacea*. Stones encrusted with pink coralline algae (R) and serpulid worms (P) and with patchy turf of filamentous red algae (locally A) and foliose red algae (R); *Ulva lactuca*? (R), *Chorda filum* (R). Paguridae sp. (P), *Asterias rubens* (O), *Echinus esculentus* (F), *Trisopterus* sp. juveniles (P).	SS.SMp.KSwSS. LsacR.Sa	KS	SB:KS	N
DV152	Coarse sand (45%) and gravel (45%) with scattered pebbles (5%), shells (5%) including *Ensis*; cobbles and boulders also present but probably largely hidden by kelp	Patchy kelp forest dominated by *Sacchraina latissima* (A) with *Laminaria hyperborea* (O) and *Alaria esculenta* (R). Kelp supports *Steromphala cineraria*, *Gibbula* sp., *Electra pilosa* and *Membranipora membranacea*. Fairly sparse understorey of filiform (O) and filamentous (O) red algae, *Dictyota dichotoma*? (R) and *Ulva lactuca*? (R); encrusting pink coralline algae (R) on stones. *Hyas araneus* (P), *Necora puber* (P), *Liocarcinus* sp.? (P), *Asterias rubens* (O), *Ophiocomina nigra* (locally C), *Echinus esculentus* (C), juvenile *Trisopterus* sp. (P). Bedrock with kelp in view at end of run as camera rises.	SS.SMp.KSwSS. LsacR.Gv	KS	SB:KS	N
DV153	Mosaic of coarse sand (30%) with *Limaria* byssal bound pebbles, cobbles and shells (70%) including *Modiolus*	Dense ophiuroid bed dominated by *Ophiothrix fragilis* (S) with *Ophiocomina nigra* (A) and *Ophiopholis aculeata* (A), on top of *Limaria hians* bed, also supporting *Ciona intestinalis* (P) and encrusting pink coralline algae (R). *Buccinum undatum?* (R), *Asterias rubens* (O), *Crossaster papposus* (O), *Echinus esculentus* (F), *Laminaria hyperborea* (O).	SS.SMx.IMx.Lim, SS.SMx.CMx.Op hMx	FS	SB:MX	N
DV154	Sand (30%) with dense scatter of gravel (34%), pebbles (24%), cobbles (5%), boulders (<1%) and shells (7%) including many *Ensis*. Proportions varying greatly along run	Stones encrusted with pink corraline algae (R), brown algae (P) and serpulid worms (P) including *Sprobranchus* spp. and support park of *Saccharina latissima* (C) and *Alaria esculenta* (R, locally O), and patchy algal turf including *Ulva lactuca*? (O, locally C), *Desmarestia aculeata* (R) and filamentous red algae (locally A). Kelp fronds support *Gibbula* spp. including *G. cineraria* (P). *Cerianthus lloydii* (R), *Hyas araneus* (O), *Carcinus maenas* (P), *Crossaster papposus* (P), *Echinus esculentus* (C).	SS.SMp.KSwSS. LsacR.Gv	KS	SB:KS	N

Table 1.2 continued

Video sample	Substrate	Biota	Biotopes	PMFs	Annex1	Dredge damage
DV155	Mixed substrate of coarse sand (35%) with gravel (25%), pebbles (25%), shells (15%) including many *Ensis*, and cobbles (<1%); patches of shells and stones bound by *Limaria* byssus	Small patches of *Limaria hians* nests possibly covering around 15% of seabed, probably present throughout run, although presence uncertain initially. Stones and shells encrusted with pink coralline algae (R) and serpulid worms (P) and supporting red algal turf of filamentous and filiform species (A) and foliose species (R), hydroids (O) including *Nemertesia ramosa*, and solitary ascidians (C) including *Corella parallelogramma* (F) and *Ascidiella aspersa* (F). Paguridae sp. (P), *Pagurus bernhardus* (R), *Carcinus maenas* (R), *Liocarcinus* sp. (R), *Pecten maximus* (R), *Crossaster papposus* (O), *Echinus esculentus* (O), small teleosts (P), *Laminaria hyperborea* (O) with *Obelia geniculata* (P) and *Membranipora membranacea* (P).	SS.SMx.IMx.Lim	FS	SB:MX	N
DV156	Fine-scale mosaic of coarse sand (35%) with *Limaria* byssal bound pebbles, cobbles and shells (65%)	Dense ophiuroid bed dominated by *Ophiothrix fragilis* (S) and *Ophiocomina nigra* (A) with *Ophiopholis aculeata* (P), on top of *Limaria hians* bed, also supporting solitary ascidians (P) and encrusting pink coralline algae (R). *Urticina* sp. (R), Paguridae sp. (R), *Hyas araneus* (R), *Buccinum undatum* (R), *Aequipecten opercularis* (R), *Crossaster papposus* (P), *Echinus esculentus* (F), *Pholis gunnellus* (P).	SS.SMx.IMx.Lim, SS.SMx.CMx.OphMx	FS	SB:MX	N
DV157	Apparently largely *Limaria hians* bed (c.65%) of byssal consolidated stones, shells and kelp material, with patches of sand and gravel and initially dense shells and pebbles	Kelp forest of *Laminaria hyperborea* (A) with foliose red algal stipe flora and *Obelia geniculata, Membranipora membranacea* (C) and *Gibbula* sp. (P) on the fronds. The kelp is supported by a *Limaria hians* bed of consolidated stones, shells and kelp frond material (c.65%) with the stones encrusted with pink coralline algae (R) and serpulid worms including *Spirobranchus* spp. (P). *Asterias rubens* (O), *Crossaster papposus* (P), *Ophiocomina nigra* (A), *Echinus esculentus* (C).	SS.SMx.IMx.Lim, IR.MIR.KT.XKTX	FS TS:KS	SB:MX	N
DV158	Coarse sand (63%) with scattered pebbles (10%) and cobbles (2%) and patches of *Limaria* byssal bound stones, shells and kelp material (c.25%)	MIxed kelp forest of *Saccharina latissima* (F, locally A) and *Laminaria hyperborea* (C, locally A) supporting foliose red algal stipe flora and *Obelia geniculata*, *Membranipora membranacea* (F) and *Gibbula* sp. Patches of *Limaria hians* bed (perhaps c.25% cover) support sparse red algal turf (P), encrusting pink coralline algae (R) and serpulid worms (P). *Hyas araneus* (P), *Asterias rubens* (O), *Crossaster papposus* (P), *Ophiocomina nigra* (C, locally A), *Echinus esculentus* (C), small teleost spp. (P) including juvenile *Trisopterus* sp. and Gobiidae sp.	SS.SMx.IMx.Lim, *IR.MIR.KT.XKTX*	FS TS:KS	SB:MX	N

Table 1.2 continued

Video sample	Substrate	Biota	Biotopes	PMFs	Annex1	Dredge damage
DV159	Mosaic of coarse sand (35%) with *Limaria* byssus bound patches of pebbles, cobbles, shells and kelp material (65%)	Kelp forest of *Saccharina latissima* (O) and *Laminaria hyperborea* (A) with foliose red algal stipe flora and *Obelia geniculata, Membranipora membranacea* (C) and *Gibbula* sp. (P) on the fronds. The kelp is supported by a *Limaria hians* bed of consolidated stones, shells and kelp frond material (c.65%) with the stones encrusted with pink coralline algae (R) and supporting a red algal turf of predominantly filamentous and filiform species (C). *Asterias rubens* (P), *Ophiocomina nigra* (A), *Ophiothrix fragilis* (locally S in small patches), *Echinus esculentus* (F), *Scyliorhinus canicula* (P), small teleost sp. (P).	SS.SMx.IMx.Lim, SS.SMx.CMx.OphMx, IR.MIR.KT.XKTX	FSTS: KS	SB:MX	N
DV160.1	Initially large patch of scattered gravel, pebbles and shells on sand followed by apparently fairly continuous area of *Limaria* byssus consolidated stones, shells and kelp material amongst dense kelp	Patchy *Limaria hians* bed with apparently high percentage cover of bed amongst an area of dense kelp (locally perhaps c.90%), although coverage in adjacent area, visible as camera descends, clearly very low or zero. Mixed kelp of *Saccharina latissima* (C) and *Laminaria hyperborea* (C), with stipes epiphytised wit foliose red algae and fronds with *Obelia geniculata*, *Steromphala cineraria*, *Membranipora membranacea* and *Electra pilosa*. *Echinus esculentus* (P). Boundary between this and following habitat along video run unclear due to presence of dense kelp.	SS.SMx.IMx.Lim, *IR.MIR.KT.XKTX*	FS TS:KS	SB:MX	N
DV160.2	Dense pebbles (60%) with gravel (8%), cobbles (5%) and shells (2%) including *Ensis* on sand (25%)	Patchy kelp forest dominated by *Saccharina latissima* (A) with *Laminaria hyperborea* (F). Kelp supports *Obelia geniculata*, *Steromphala cineraria*, *Electra pilosa* and *Membranipora membranacea*. Stones encrusted with pink coralline algae (R), brown algae (P) and serpulid worms (C, locally A) including *Spirobranchus* spp. and with patchy turf of short filamentous red algae (locally A in more open areas) and foliose red algae (R); *Ulva lactuca*? (R). Brachyura sp. (P), *Antedon* spp. (R), *Echinus esculentus* (C), small teleost spp. (P) including Gobiidae spp. (P).	SS.SMp.KSwSS.LsacR.CbPb	KS	SB:KS	N
DV161	Dense pebbles (65%) with cobbles (8%) and shells (2%) on sand (25%)	Patchy kelp forest dominated by *Saccharina latissima* (A) with *Laminaria hyperborea* (O). Kelp supports *Obelia geniculata*, *Steromphala cineraria* and *Membranipora membranacea*. Stones encrusted with pink coralline algae (R), brown algae (P) and serpulid worms (C, locally A) including *Spirobranchus* spp. and with no evidence of algal turf. *Hyas araneus* (P), *Asterias rubens* (P), *Echinus esculentus* (C), small teleost spp. (P) including juvenile gadoid sp. (P).	SS.SMp.KSwSS.LsacR.CbPb	KS	SB:KS	N

Table 1.2 continued

Video sample	**Substrate**	**Biota**	**Biotopes**	**PMFs**	**Annex1**	**Dredge damage**
DV162	Mosaic of mixed sandy substrate (50%) with *Limaria* byssus bound patches of pebbles (30%, cobbles (10%) and shells (10%)	Patchy kelp forest of *Saccharina latissima* (A) with *Electra pilosa* and *Diplosoma listerianum*? (R), and *Laminaria hyperborea* (O) with *Obelia geniculata* and *Membranipora membranacea*. Beneath the kelp is a patchy *Limaria hians* bed of consolidated stones and shells (c.50%) encrusted with pink coralline algae (R) and serpulid worms (P), and supporting a red algal turf of predominantly filamentous and filiform species (A); foliose red algae (O). *Hyas araneus* (P), *Liocarcinus* sp. (P), *Carcinus maenas* (P), *Antedon* spp. (locally C), *Asterias rubens* (P), *Echinus esculentus* (F), *Scyliorhinus canicula* (P), juvenile *Trisopterus* sp. (P). Run seems to end where *Limaria* bed ends, with different habitat (kelp park on sand) visible in the distance as the camera is retrieved.	SS.SMx.IMx.Lim, IR.MIR.KT.XKTX	FSTS: KS	SB:MX	N
DV163	Dense pebbles (60%) with gravel (5%), cobbles (8%), boulders (<1%) and shells (2%) including *Ensis* on sand (25%)	Scattered kelp plants, much of which may be drift material, including *Saccharina latissima* (F), *Laminaria hyperborea* (R) and *Saccorhiza polyschides* (R, drift). Kelp supports *Steromphala cineraria*. Stones encrusted with pink coralline algae (R), brown algae (P), red algae and serpulid worms (C) including *Spirobranchus* spp. and with possibly sparse clumps of red algae (R). *Munida rugosa* (R), *Necora puber* (R), *Liocarcinus depurator* (R), *Pecten maximus* (P), *Aequipecten opercularis* (C), *Antedon* spp. (O), *Marthasterias glacialis* (P), *Echinus esculentus* (C), juvenile gadoid sp. (P).	SS.SMp.KSwSS. LsacR.CbPb	KS	SB:KS	N
DV164	Mosaic of coarse sand (65%, locally with scattered gravel, pebbles and cobbles), with *Limaria* byssal bound gravel, pebbles, shells and cobbles, proportions obscured by *Limaria* turf	Dense ophiuroid bed dominated by *Ophiothrix fragilis* (S) with *Ophiocomina nigra* (A). For the most part the bed is supported by a patchy *Limaria hians* bed (overall around 35% cover but greater locally) which also supports a filamentous red algal turf (C) at the end of the run, just before a kelp forest visible on retrieval of the camera, but not included here. Stones encrusted with pink coralline algae (R). *Aequipecten opercularis* (P), *Asterias rubens* (O), *Crossaster papposus* (O), *Echinus esculentus* (F), small teleost sp. (P), *Pholis gunnellus* (P), *Laminaria hyperborea* (O), *Saccharina latissima* (R).	SS.SMx.IMx.Lim, SS.SMx.CMx.OphMx	FS	SB:MX	N

Table 1.2 continued

Video sample	**Substrate**	**Biota**	**Biotopes**	**PMFs**	**Annex1**	**Dredge damage**
DV165.1	Mosaic of coarse sand (c.50%) and *Limaria* byssal bound kelp debris, stones and shells, proportions obscured by *Limaria* turf. *Ensis* shells (P)	Patchy *Limaria hians* bed (perhaps occupying around 50% cover but extent largely obscured by kelp). *Laminaria hyperborea* forest (A) with stipes epiphytised by foliose red algae and fronds with dense *Membranipora membranacea* (C) and *Obelia geniculata* (P). *Asterias rubens* (P), *Echinus esculentus* (P), juvenile gadoid sp. (P). Kelp hides boundary of *Limaria* habitat which may extend significantly into the following video run segment.	SS.SMx.IMx.Lim, IR.MIR.KT.XKTX	FSTS: KS	SB:MX	N
DV165.2	Coarse sand with scattered gravel, pebbles, shells, cobbles and boulders, varying in cover and proportions and largely obscured by kelp	Mixed kelp forest of *Laminaria hyperborea* (locally A) supporting foliose red algal stipe flora and *Obelia geniculata*, *Steromphala cineraria* and *Membranipora membranacea* (C), *Saccharina latissima* (locally C) supporting *Electra pilosa*, and *Saccorhiza polyschides* (P). Stones encrusted with pink coralline algae (R) and serpulid worms (P) and with sparse red algal turf of foliose (R) and filamentous (O) species. *Antedon* spp. (locally C on kelp), *Asterias rubens* (P), *Echinus esculentus* (P), juvenile *Trisopterus* sp. (P).	IR.MIR.KT.XKTX	TS:KS		N
DV166.1	Coarse sand (74%) with scattered gravel (5% but much denser locally), pebbles (10%), shells (1%) including *Ensis*, and cobbles (10%), although substrate mostly obscured by kelp	Forest of *Saccharina latissima* (A) and *Laminaria hyperborea* (O) with kelp supporting *Gibula cineraria* and *Calliostoma zizyphinum*. Understorey largely obscured, although at leasty sparse clumps of *Limaria hians* bed present (<10%). Stones encrusted with pink coralline algae (R), brown algae (P) and serpulid worms (P). Paguridae sp. (P), *Hyas* sp. (P), *Liocarcinus depurator* (P), *Asterias rubens* (P), *Ophiocomina nigra* (R), *Echinus esculentus* (F), small teleost spp. (P) including juvenile Gadidae sp.	SS.SMp.KSwSS. LsacR.Sa	KS	SB:KS	N
DV166.2	Mosaic of medium-coarse sand (60%) with *Limaria* byssal bound stones and shells (around 40% but limited visibility), proportions obscured by *Limaria* turf.	Patchy forest of *Saccharina latissima* (A) and *Laminaria hyperborea* (F) with kelp supporting *Obelia geniculata*. Patchy *Limaria hians* bed beneath kelp (around 40% cover but very limited area visible). *Echinus esculentus* (C). Habitat boundary with preceding habitat uncertain due to dense kelp	SS.SMx.IMx.Lim, *IR.MIR.KT.XKTX*	FS TS:KS	SB:MX	N

Table 1.2 continued

Video sample	Substrate	Biota	Biotopes	PMFs	Annex1	Dredge damage
DV167	Mosaic of coarse sand (50%, locally with scattered gravel and pebbles), with *Limaria* byssal bound gravel, pebbles, shells and cobbles, proportions obscured by *Limaria* turf	Largely well-developed *Limaria hians* bed with byssal turf covering overall around 50% of seabed. Turf and stone matrix supports pink encrusting coralline algae (R), serpulid worms (P), and filamentous/filiform red algae (A) and foliose red algae (R), as well as forest of *Laminaria hyperborea* (A) supporting a rich foliose red algal stipe flora and a frond biota including profuse *Membranipora membranacea* (C) and *Obelia geniculata* (P). *Pecten maximus* (P), *Solaster endeca* (P), *Asterias rubens* (P), *Echinus esculentus* (O), solitary ascidians (P), small teleost spp. including juvenile gadoid sp. (P).	SS.SMx.IMx.Lim, *IR.MIR.KT.XKTX*	FSTS: KS	SB:MX	N
DV168	Medium sand (84%) with scattered gravel (5%), pebbles (5%), shells (5%) including many *Ensis*, and cobbles (1%)	Sediment with patchy cover of filamentous/fine filiform red algal turf (locally A), with *Saccharina latissima* (C, locally A) supporting *Obelia geniculata*, *Steromphala cineraria*, *Electra pilosa* and *Antedon* spp. (C, locally A), and *Desmarestia aculeata* (R). Stones encrusted with pink coralline algae (R) and serpulid worms (P). *Pagurus bernhardus* (P), *Macropodia* sp. (P), *Asterias rubens* (P), *Echinus esculentus* (O), Gobiidae spp. (P) including *Pomatoschistus pictus*, juvenile gadoid sp.	SS.SMp.KSwSS. LsacR.Sa	KS	SB:KS	N
DV169	Muddy sand (80%) with scattered shells (5%) including *Turritella communis*, gravel (7%), pebbles (8%) and cobbles (<1%)	Sparse, small megafaunal burrows and small mounds, with *Pennatula phosphorea* (R). Stones encrusted with pink coralline algae (R) and serpulid worms (P). *Toxisarcon alba*? (P), *Lanice conchilega* (O), *Munida rugosa* (F), *Liocarcinus depurator* (R), *Cancer pagurus* (P), *Turritella communis* (F), *Aequipecten opercularis* (O), *Luidia ciliaris* (P), *Porania pulvillus* (R), *Ophiura* sp. (locally C), *Echinus esculensis* (F), solitary ascidians (O) including *Ascidia mentula*, small gadoid sp. (P).	SS.SMu.CSaMu			N
DV170	Silty shelly sand (73%) with scattered gravel (5%), pebbles (10%), cobbles (2%) and shells (10%) including *Ensis*	Sediment with cover of filamentous/fine filiform red algal turf (A, locally S), with *Saccharina latissima* (O, but locally A); *Laminaria hyperborea* (R, probably drift); *Desmarestia* sp. (R), *Chorda filum* (O, but possibly drift), *Ulva lactuca*? (R, possibly drift). Stones encrusted with pink coralline algae (R) and serpulid worms (P). *Orange cushion? sponge (R), Munida rugosa* (O), *Hyas* sp. (P), *Macropodia* sp. (P), *Turritella communis* shells (P, some occupied by Paguridae sp.), *Pecten maximus*? (R), *Aequipecten opercularis* (P), *Echinus esculentus* (O), juvenile gadoid sp. (P), small infaunal holes and sediment mounds.	SS.SMp.KSwSS. LsacR	KS	SB:KS	N

Table 1.2 continued

Video sample	Substrate	Biota	Biotopes	PMFs	Annex1	Dredge damage
DV171	Silty, shelly sand (82%) with scattered gravel (5%), pebbles (10%), cobbles (<1%) and shells (3%)	Sediment with patchy cover of filamentous/fine filiform red algal turf (C, locally A); *Saccharina latissima* (R, but probably drift). Stones encrusted with pink coralline algae (R), serpulid worms (P) and *Balanus* spp. (P). *Toxisarcon alba* (P), *Munida rugosa* (P), *Inachus* sp. (P), *Pecten maximus* (R), *Aequipecten opercularis* (C), *Ophiura albida* (C), *Echinus esculentus* (F), small sediment mounds.	SS.SMp.KSwSS. LsacR	KS	SB:KS	N
DV172	Muddy sand (75%) with scattered shells (20%) and pebbles (5%)	Sediment with patchy cover of short filamentous/fine filiform red algal turf or mat (O overall but with dense patches where S), the material appearing to be unattached; *Saccharina latissima* (O, but drift). *Turritella communis* shells widespread and small patches where S, although mostly dead; some occupied by pagurids, others possibly with *T. communis*. Bonellidae sp.? (P), *Munida rugosa* (O), *Hyas araneus* (R), *Aequipecten opercularis* (O), *Echinus esculentus* (O), small teleost spp. including gadoid sp. (P). The video run is located within a depression and is probably acting as a sink for drift material.	SS.SSa.CMuSa			N
DV176.1	Mosaic of medium-coase sand (35%) with *Limaria* byssal bound gravel, pebbles, shells and some cobbles, proportions obscured by *Limaria* turf	Well-developed *Limaria hians* bed with byssal turf covering overall around 65% of seabed, although varying locally between 50% and 90%. Turf and stone matrix supports pink encrusting coralline algae (R), serpulid worms (P), hydroids (density unclear) including *Nemertesia ramosa* and *Halecium halecinum*, and filamentous red algae (density unclear) and foliose red algae (R). Paguridae sp. (P), *Munida rugosa* (F), *Inachus* sp. (P), *Buccinum undatum* (O), *Pecten maximus* (O), *Antedon* spp. (F, locally C), *Asterias rubens* (O), *Echinus esculentus* (F), solitary ascidians (F) including *Corella parallelogramma* and *Ascidia virginea*?, *Laminaria hyperborea* (O).	SS.SMx.IMx.Lim	FS	SB:MX	N

Table 1.2 continued

Video sample	Substrate	Biota	Biotopes	PMFs	Annex1	Dredge damage
DV176.2	Silty, poorly sorted, medium and coarse sand with scattered shells including *Ensis,* pebbles and cobbles, and patches of *Limaria hians* consolidated aggregations of stones and shells (25%); scattered boulders (10%)	*Limaria hians* bed patches covering around 25% of seabed. Patchy red algal turf of filamentous and filiform species (C) and foliose species (R). Mixed kelp park of *Saccharina latissima* (O) and *Laminaria hyperborea* (F) supporting *Obelia geniculata*, *Membranipora membranacea*, *Antedon* spp. and *Ascidiella aspersa*. *Cancer pagurus* (P), *Pecten maximus* (P), *Echinus esculentus* (C), solitary ascidians (P) including *Corella parallelogramma*, encrusting pink coralline algae (R).	SS.SMx.IMx.Lim, *IR.MIR.KT.XKTX*	FS TS:KS	SB:MX RF:ST	N
DV176.3	Coarse sand (50%) with boulders (30%), cobbles (9%), pebbles (5%), gravel (5%) and shells (1%) including *Ensis*	Boulders encrusted with pink coralline algae (O), brown algae (P) and serpulid worms (F), and support park of *Saccharina latissima* (O) and *Laminaria hyperborea* (C) with *Obelia geniculata*, *Gibbula* sp., *Calliostoma zizyphinum*, small pectiniid sp., *Membranipora membranacea* and *Antedon* spp. (C). *Munida rugosa* (P), *Cancer pagurus* (P), *Buccinum undatum* (P), *Asterias rubens* (P), *Ophiura albida* (P), *Echinus esculentus* (C), solitary ascidians (P).	IR.HIR.KSed.XK ScrR		RF:ST	N
DV177	Mosaic of silty, shelly, medium-coase sand (50%) with *Limaria* byssal bound gravel, pebbles, shells and cobbles, proportions obscured by *Limaria* turf; sparse boulders	Mostly well-developed *Limaria hians* bed with byssal turf covering overall around 50% of seabed, although less in places. Turf partially flattened and disaggregated locally (00:05:16 - 00:05:53 or 10:27:46 - 10:28:23 UT). Turf and stone matrix supports pink encrusting coralline algae (R), serpulid worms (P), hydroids (density unclear) including *Nemertesia ramosa*, and filamentous/fine filiform red algae (density unclear, probably F-C) and foliose red algae (R). *Munida rugosa* (F), *Buccinum undatum* (O), *Pecten maximus* (O), *Aequipecten opercularis* (C), *Antedon* spp. (F), *Solaster endeca* (P), *Asterias rubens* (O), *Luidia ciliaris* (P), *Echinus esculentus* (C), solitary ascidians (unclear but probably F-C) including *Corella parallelogramma* and *Ascidiella aspersa*, small teleost sp. (P).	SS.SMx.IMx.Lim	FS	SB:MX	Y

Table 1.2 continued

Video sample	Substrate	Biota	Biotopes	PMFs	Annex1	Dredge damage
DV178.1	Silty shelly sand (50%) with gravel (20%), pebbles (23%) and scattered cobbles (2%) and shells (5%)	Stones encrusted with pink coralline algae (R), serpulid worms (P) and *Balanus* spp. (P), and supporting red algal turf of filamentous/fine filiform species (A) and foliose species (O), hydroids (O) and sparse *Saccharina latissima* (R) and possibly small *Laminaria hyperborea* (R). *Munida rugosa* (P), *Buccinum undatum* (P), *Aequipecten opercularis* (O), *Antedon* spp. (F), *Crossaster papposus* (P), *Marthasterias glacialis* (P), *Asterias rubens* (O), *Luidia ciliaris* (P), *Ophiura albida* (locally C), *Echinus esculentus* (O), juvenile gadoid sp. (P).	SS.SMp.KSwSS. LsacR	KS	SB:KS	N
DV178.2	Silty, shelly sand (45%) with gravel (15%), pebbles (17%) and scattered cobbles (10%), boulders (10%) and shells (3%)	Stones encrusted with pink coralline algae (R) and serpulid worms (P), and supporting red algal turf of filamentous/fine filiform species (C, locally A), and park of *Saccharina latissima* (F) and *Laminaria hyperborea* (F) with *Membranipora membranacea*, *Steromphala cineraria*.and *Antedon* spp. (C). *Buccinum undatum* (P), *Asterias rubens* (P), *Ophiura albida* (locally A), *Echinus esculentus* (F), juvenile gadoid sp. (P).	IR.HIR.KSed.XK ScrR			N
DV179.1	Mosaic of silty, medium-coase sand (20%) with *Limaria* byssal bound gravel, pebbles, shells and some cobbles, proportions obscured by *Limaria* turf	Well-developed *Limaria hians* bed with byssal turf covering around 80% of seabed. Turf and stones support pink encrusting coralline algae (R), hydroids (density unclear) and filamentous red algae (desnity unclear) and foliose red algae (R). *Munida rugosa* (P), *Inachus* sp. (P), *Buccinum undatum* (P), *Pecten maximus* (R), *Aequipecten opercularis* (F), *Antedon* spp. (F), *Crossaster papposus* (P), *Asterias rubens* (O), *Echinus esculentus* (F, locally C), solitary ascidians (P).	SS.SMx.IMx.Lim	FS	SB:MX	N
DV179.2	Indistinct mosaic of silty, medium-coase sand (15%) with *Limaria* byssal bound gravel, pebbles, shells and some cobbles, proportions obscured by *Limaria* turf	*Limaria hians* bed (c.85% cover) with many distinct gallery apertures; however, in comparison with bed to either side of run segment, the boundary between turf and sand is less distinct and stones more visible indicative of reduced byssal density and possibly some disaggregation of byssal/stone matrix. *Balanus* spp. (P), *Munida rugosa* (P), *Aequipecten opercularis* (P), *Antedon* spp. (F), pink coralline algae (R).	SS.SMx.IMx.Lim	FS	SB:MX	**P**

Table 1.2 continued

Video sample	Substrate	Biota	Biotopes	PMFs	Annex1	Dredge damage
DV179.3	Mosaic of silty, medium-coase sand (35%) with *Limaria* byssal bound gravel, pebbles, shells and some cobbles, proportions obscured by *Limaria* turf	Well-developed *Limaria hians* bed with byssal turf covering around 65% of seabed overall, although reducing to c.25% at end of run segment. Stones support pink encrusting coralline algae (R), serpulid worms (P), hydroids (P) including *Nemertesia ramosa* and *Kirchenpaueria pinnata*, and possibly filamentous red algae (density unclear) and foliose red algae (R). *Munida rugosa* (F), *Inachus* sp. (P), *Cancer pagurus* (O), *Buccinum undatum* (P), *Aequipecten opercularis* (F), *Antedon* spp. (F), *Asterias rubens* (P), *Henricia* sp. (R), *Porania pulvillus* (R), *Echinus esculentus* (F), solitary ascidians (P).	SS.SMx.IMx.Lim	FS	SB:MX	N
DV180.1	Poorly mixed, silty, shelly sand (50%) with scattered gravel (8%), pebbles (10), cobbles (10%), boulders (20%) and shells (2%)	Stones encrusted with pink coralline algae (R) and serpulid worms (P), and support park of *Saccharina latissima* (O, locally F) and *Laminaria hyperborea* (C) with *Obelia geniculata*, *Gibbula* sp., *Membranipora membranacea* and *Antedon* spp. *Buccinum undatum?* (P), *Asterias rubens* (P), *Ophiura albida* (C locally), *Echinus esculentus* (C), small gadoid sp. (P). Patchy turf of filamentous/fine filiform red algae on sediment (C locally). Habitat margin ill-defined.	IR.HIR.KSed.XKScrR		RF:ST	N
DV180.2	Mosaic of silty, shelly sand (50%), locally with scattered gravel and pebbles), with *Limaria* byssal bound gravel, pebbles, shells and cobbles, proportions obscured by *Limaria* turf; sparse boulders	*Limaria hians* bed with byssal turf covering overall around 50% of seabed, although less in places and increasing to around 70% towards end of run segment. Turf and stone matrix supports pink encrusting coralline algae (R), serpulid worms (P), hydroids (density unclear), and filamentous/fine filiform red algae (C) and foliose red algae (R). *Balanus* spp. (P), Paguridae sp. (P), *Munida rugosa* (F), *Buccinum undatum* (P), *Pecten maximus* (P), *Aequipecten opercularis* (O), *Antedon* spp. (O), *Asterias rubens* (O), *Luidia ciliaris* (P), *Ophiura albida* (locally C), *Echinus esculentus* (F), solitary ascidians (F) including *Corella parallelogramma*, *Ascidia mentula* and *Ascidiella aspersa*? Habitat margin ill-defined with *Laminaria hyperborea* (locally F) at start of run segment.	SS.SMx.IMx.Lim	FS	SB:MX	N
DV181	Silty, shelly sand (40%) with gravel (10%), pebbles (30%), cobbles (15%) and shells (5%)	Stones encrusted with pink coralline algae (R), brown algae (P), red algae (R) and serpulid worms (P) and supporting sparse red algae (O), hydroids (F) and solitary ascidians (F) including *Ascidia mentula* (P). *Toxisarcon alba* (P), *Munida rugosa* (F), *Buccinum undatum* (P), *Pecten maximus* (P), *Antedon* spp. (C), *Asterias rubens* (F), *Solaster endeca* (R), *Luidia cilaris* (P), *Ophiothrix fragilis* (R), *Echinus esculentus* (C).	SS.SMx.CMx		SB:MX	N

Table 1.2 continued

Video sample	Substrate	Biota	Biotopes	PMFs	Annex1	Dredge damage
DV182	Mosaic of silty, shelly sand (c.40%) with byssal consolidated stones and shells (c.60%) including *Ensis*	*Limaria hians* bed (c.40% cover overall) mosaicked with sand; well-formed in much of run segment and attaining around 60% cover locally, more diffuse in later part of run. Stones and turf support fairly sparse algal turf of filamentous/filiform reds (O) and foliose reds (R), with sparse small kelp plants (R), hydroids (F) including *Halecium halecinum* (P), and solitary ascidians (C) including *Ascidia mentula* and *Corella parallelogramma*. *Lanice conchilega* (P), *Munida rugosa* (F), *Cancer pagurus* (P), *Pecten maximus* (P), *Aequipecten opercularis* (F), *Antedon* spp. (F, locally C), *Crossaster papposus* (P), *Asterias rubens* (O), *Luidia ciliaris* (P), *Ophiothrix fragilis* (R), *Echinus esculentus* (F, locally C), small teleost sp. (R). Stones encrusted by pink coralline algae (R), *Balanus* spp. (P) and serpulid worms (P).	SS.SMx.IMx.Lim	FS	SB:MX	N
DV183.1	Poorly mixed, silty, shelly sand (74%) with scattered gravel (15%), pebbles (5%), cobbles (1%) and shells (5%) although substrate largely obscured by algal turf	Stones and shells encrusted with pink coralline algae (R) and serpulid worms (P). Red algal turf on sediment with filamentous/fine filiform reds (A, locally S) and foliose reds (R); *Saccharina latissima* (O) with small pectiniid sp. (P). *Pecten maximus* (P), *Luidia ciliaris* (P), *Ophiura* albida (C).	SS.SMp.KSwSS.LsacR	KS	SB:KS	N
DV183.2	Sand (60%) with scattered gravel (5%), pebbles (10%), cobbles (15%), boulders (5%) and shells (5%)	Stones encrusted with pink coralline algae (R), *Balanus* spp. (P) and serpulid worms (P), and supporting mixed kelp park of *Saccharina latissima* (C) and *Laminaria hyperborea* (F) with *Membranipora membranacea* (P). Fairly sparse filamentous/fine filiform red algal turf (O-F). *Pecten maximus* (P), *Antedon* spp. (F), *Asterias rubens* (P), *Luidia ciliaris* (P), *Ophiura* albida (C), *Echinus esculentus* (C).	IR.HIR.KSed.XKScrR			N
DV185	Mixed substrate of slightly silty, shelly sand (40%) with gravel (20%), pebbles (20%) and scattered cobbles (8%), boulders (8%) and shells (4%)	Stones encrusted with pink coralline algae (R), brown algae (P) and serpulid worms (P) and supporting patches of red algae (F, locally A), and mixed kelp park of *Saccharina latissima* (F, locally A) and *Laminaria hyperborea* (F) with *Obelia geniculata*, *Steromphala cineraria* and small pectiniid sp. *Munida rugosa* (P), *Antedon* sp. (O), *Asterias rubens* (P), *Porania pulvillus* (R), *Ophiura albida* (locally C), *Echinus esculentus* (C), solitary ascidians (F).	IR.HIR.KSed.XKScrR			N

Table 1.2 continued

Video sample	Substrate	Biota	Biotopes	PMFs	Annex1	Dredge damage
DV186.1	Poorly mixed, silty, shelly sand (70%) with scattered gravel (15%), pebbles (8%), cobbles (2%), boulders (<1%) and shells (5%) including *Ensis*	Sediment covered by patchy red algal turf of mostly filamentous/fine filiform species (A) and foliose species (R) with *Saccharina latissima* (O, locally F), *Laminaria hyperborea* (R) and *Desmarestia* sp. (R). Stones encrusted with pink coralline algae (R), red algae (R) serpulid worms, *Balanus* spp. (R) and *Suberites ficus*? (R) and supporting hydroids (P) including *Halecium halecinum*, and solitary ascidians (A) including *Ascidiella aspersa* (A), *Ascidia mentula* (P) and *Corella parallelogramma* (locally C). *Chaetopterus variopedatus*? (R), *Lanice conchilega* (P), *Munida rugosa* (P), *Inachus* sp. (P), *Necora puber* (R), *Buccinum undatum* (P), *Pecten maximus* (O), *Aequipecten opercularis* (P), *Arctica islandica* shells (P), *Luidia ciliaris* (P), *Asterias rubens* (F), *Ophiura albida* (C), *Echinus esculentus* (O)	SS.SMp.KSwSS. LsacR	KS	SB:KS	N
DV186.2	Sand (57%) with scattered gravel (10%), pebbles (8%), cobbles (10%), boulders (10%) and shells (5%) including *Ensis*	Stones encrusted with pink coralline algae (R) and supporting mixed kelp park of *Saccharina latissima* (F) and *Laminaria hyperborea* (F) with sparse understorey of filamentous/fine filiform red algae (O-F) and foliose red algae (R). *Steromphala cineraria* (P), *Antedon* spp. (P), *Ophiura albida* (P), *Echinus esculentus* (C).	IR.HIR.KSed.XK ScrR		RF:ST	N
DV187.1	Substrate often obscured by kelp but apparently patchy seabed of sand-dusted bedrock outcrops (c.70%), boulders (15%) and mixed sandy gravelly patches including dead and live maerl	Only small patch of live *Phymatolithon calcareum* discernible (reaching around 5% cover (O) locally with dead maerl on silty fine sand. Maerl bed could possibly be present. Habitat largely of patchy *Laminaria hyperborea* forest (A) with kelp supporting *Membranipora membranacea* (locally C), *Steromphala cineraria* (P) and *Antedon* spp. (C, locally A) and foliose red algal stipe flora. Understorey of mostly filamentous and filiform red algae (C, locally A). *Necora puber* (P), *Asterias rubens* (O), *Echinus esculentus* (P). *Limaria hians* nests may be present.	IR.HIR.KSed.XK ScrR		RF:BR	N
DV187.2	Mosaic of silty shelly sand (c.50%) with byssal consolidated stones and shells (c.50%)	Well-formed *Limaria hians* bed (c.50% cover). Stones and turf support algal turf dominated by filamentous/filiform reds (C) and foliose reds (R), with filiform browns (R), sparse *Laminaria hyperborea* (O) and *Saccharina latissima* (O), and solitary ascidians (P) including *Ascidia virginea* (P). *Munida rugosa* (P), *Antedon* spp. (F), *Asterias rubens* (O), *Ophiura albida* (P), *Echinus esculentus* (O). Stones encrusted by pink coralline algae (R) and serpulid worms (P).	SS.SMx.IMx.Lim	FS	SB:MX	N

Table 1.2 continued

Video sample	Substrate	Biota	Biotopes	PMFs	Annex1	Dredge damage
DV189.1	Sand-dusted bedrock (65%) and boulders (25%) and patches of medium-coarse sand (9%) with scattered shells (1%)	Rock encrusted with pink coralline algae (R) and supports sparse algal turf of filamentous/fine filiform species (O, locally C) and mixed kelp park of *Saccharina latissima* (F) and *Laminaria hyperborea* (C) supporting *Calliostoma zizyphinum* (P), small pectiniids (P) and *Membranipora membranacea* (P) on fronds and *Antedon* spp. (C) and red algae (P) on stipes. *Asterias rubens* (O), *Porania puylvillus* (R), *Echinus esculentus* (C).	IR.HIR.KSed.XK ScrR		RF:BR	N
DV189.2	Mosaic of sand (60%) with byssal consolidated stones and shells (40%) including *Ensis*; sparsely scattered boulders (<1%). Sand mixed with gravel and pebbles towards end of run segment	Initially well-formed *Limaria hians* bed/sand mosaic with stone/turf matrix covering c.50% of seabed, diminishing to c.10% (overall c.40%). Stones and turf support hydroids (P), algal turf dominated by filamentous/filiform reds (C) and foliose reds (R) and *Laminaria hyperborea* (O). *Munida rugosa* (P), *Buccinum undatum* (P), *Pecten maximus*? (P), *Antedon* spp. (C), *Luidia ciliaris* (P), *Ophiura* sp. (P), *Echinus esculentus* (O). Stones encrusted with pink coralline algae (R), brown algae (P), serpulid worms (P) and *Balanus* spp. (P).	SS.SMx.IMx.Lim	FS	SB:MX	N
DV189.3	Heterogeneous sand (50%) with scattered gravel (25%), pebbles (15%), cobbles (5%) and shells (5%) including *Ensis*	Stones encrusted with pink coralline algae (R), brown algae (P), serpulid worms (P) and *Balanus* spp. (P) and supporting sparse hydroids (R). *Lanice conchilega* (P), *Antedon* spp. (F), *Asterias rubens* (O), *Porania pulvillus* (R), *Echinus esculentus* (O).	SS.SMx.CMx		SB:MX	N
DV189.4	Sediment-dusted bedrock (95%), sand pockets (5%)	Visibility poor. Rock encrusted with pink coralline algae (R) and serpulid worms (F) and appears to support sparse solitary ascidians (P) and Crinoidea spp. (P). *Echinus esculentus* (O), shoal of juvenile gadoids (P).	CR.LCR.BrAs		RF:BR	N
DV190.1	Sediment-dusted bedrock (98%) and dense boulders at end (2%)	Kelp park of *Laminaria hyperborea* (F) supporting *Membranipora membranacea* (P) and *Antedon* spp. (P), and *Saccharina latissima* (O). Rock encrusted with pink coralline algae (R), serpulid worms (C) and *Balaus* spp. (P), and supports red algal turf (C) of filamentous/fine filiform species (C) and foliose species (R), and solitary ascidians (F) including *Ascidiella aspersa* (P) and *Corella parallelogramma* (P). *Ophiura albida* (locally C), Triglidae sp.? (P).	IR.HIR.KSed.XK ScrR		RF:BR	N

Table 1.2 continued

Video sample	Substrate	Biota	Biotopes	PMFs	Annex1	Dredge damage
DV190.2	Silty, shelly sand (50%) forming mosaic with *Limaria* bound patches of stones and shells (40%) with scattered cobbles (5%) and boulders (5%)	Fairly loosely-defined *Limaria hians* bed/sand mosaic with nest material covering c.40% overall. Cobbles and boulders support park of *Laminaria hyperborea* with *Membranipora membranacea* and *Antedon* spp. *Limaria* turf supports red algal turf of filamentous/fine filiform species (C) and foliose species (R), and solitary ascidians (P) including *Ascidiella aspersa* and *Corella paralelogramma*. *Munida rugosa* (P), *Asterias rubens* (P). Stones and shells encrusted with pink coralline algae (R) and serpulid worms (P).	SS.SMx.IMx.Lim, *IR.HIR.KSed.XKScrR*	FS	SB:MX	N
DV190.3	Silty, shelly sand (40%) with scattered gravel, pebbles, cobbles and shells with patches consolidated by *Limaria*	Very patchy *Limaria hians* bed, locally in well defined mosaic with sand, elsewhere in scattered small patches, sometimes ill-defined (overall c.30% cover). *Limaria* turf supports red algal turf of filamentous/fine filiform species (C) and foliose species (O), and solitary ascidians (C) including *Corella parallelogramma* and *Ascidia mentula*. Stones encrusted with pink coralline algae (R) and serpulid worms including *Serpula vermicularis*. *Munida rugosa* (F), *Cancer pagurus* (P), *Aequipecten opercularis* (C), *Asterias rubens* (P), *Luidia ciliaris* (P), *Henricia* sp. (P), *Echinus esculentus* (P), juvenile gadoid sp. (P), *Laminaria hyperborea* (O) with *Antedon* spp. Discarded steel box-frame material scattered over seabed at end of HD video (00:06:29) but not on SD video.	SS.SMx.IMx.Lim	FS	SB:MX	N
DV193.1	Heterogeneous silty sand (60%) with scattered gravel (15%), pebbles (15%), cobbles (5%) and shells (5%) including *Ensis*; boulders (<1%)	Stones encrusted with pink coralline algae (R) and serpulid worms. *Munida rugosa* (F), *Aequipecten opercularis* (F), *Arctica islandica* shells (P), *Antedon* spp. (O), *Asterias rubens* (P), *Luidia ciliaris* (P), *Echinus esculentus* (O).	SS.SMx.CMx		SB:MX	N
DV193.2	Sediment-dusted bedrock (99%) and boulders (1%)	Rock encrusted with brown algae (P) and pink coralline algae (R) and supporting solitary ascidians (F) including *Ciona intestinalis* (F, locally A) and sparse hydroids (R). *Munida rugosa* (R), *Necora puber* (R), *Antedon* spp. (F), *Echinus esculentus* (F).	CR.LCR.BrAs.AmenCio.Ant		RF:BR	N

Table 1.2 continued

Video sample	Substrate	Biota	Biotopes	PMFs	Annex1	Dredge damage
DV193.3	Heterogeneous silty sand (60%) with scattered gravel (15%), pebbles (15%), cobbles (5%) and shells (5%) including *Ensis*; boulders (<1%)	Stones encrusted with pink coralline algae (R) and serpulid worms. *Toxisarcon alba*? (P), *Munida rugosa* (P), *Aequipecten opercularis* (P), *Asterias rubens* (P).	SS.SMx.CMx		SB:MX	N
DV194.1	Silty shelly sand sand (40%) with scattered gravel (25%), pebbles (28%), cobbles (5%) and shells (2%); boulders (<1%)	Stones encrusted with pink coralline algae (R), brown algae (P) and serpulid worms (P) and supporting patchy turf of filamentous/fine filiform red algae (C) and foliose red algae (R), solitary ascidians (F, locally C) including *Ascidiella aspersa*, and occasional *Saccharina latissima* and *Laminaria hyperborea*. *Munida rugosa* (P), *Pecten maximus* (P), *Aequipecten opercularis* (F, locally C), small pectiniidae spp. (P), *Antedon* spp. (O), *Asterias rubens* (F), *Ophiura albida* (locally C), *Echinus esculentus* (O).	SS.SMp.KSwSS. LsacR	KS	SB:KS	N
DV194.2	Mixed substrate of silty shelly sand (35%) with gravel (30%), shells (5%), pebbles (23%), cobbles (7%)	Stones encrusted with pink coralline algae (R) and serpulid worms (P) and supporting sparse foliose red algae (R) and solitary ascidians (F) including *Ascidia mentula* and *Ascidiella aspersa*. *Munida rugosa* (F), *Aequipecten opercularis* (C), *Antedon* spp. (O), *Asterias rubens* (O), *Ophiura albida* (P).	SS.SMx.CMx		SB:MX	N
DV195.1	Silty, shelly sand (50%) forming mosaic with *Limaria* bound patches of stones and shells (50%)	Mostly well-formed *Limaria hians* bed/sand mosaic with nest material covering c.50%. *Limaria* turf supports red algal turf of filamentous/fine filiform species (A) and foliose species (R), hydroids (P) and solitary ascidians (C, locally A) including *Ascidiella aspersa* (P), *Corella paralelogramma* (C) and *Ascidia mentula* (P). *Munida rugosa* (P), Paguridae sp. (P), *Inachus* sp. (P), *Aequipecten opercularis* (C), *Antedon* spp. (O), *Luidia ciliaris* (O), *Ophiura albida* (locally C), *Callionymus* sp.? (P), *Laminaria hyperborea* (R). Stones and shells encrusted with pink coralline algae (R) and serpulid worms (P).	SS.SMx.IMx.Lim	FS	SB:MX	N

Table 1.2 continued

Video sample	**Substrate**	**Biota**	**Biotopes**	**PMFs**	**Annex1**	**Dredge damage**
DV195.2	Sediment-dusted bedrock (99%) with small pockets of silty, shelly sand (1%)	Rock encrusted with pink coralline algae (R), brown algae (P) and serpulid worms (F), and supports algal turf of filamentous/fine filiform species (C) and sparse *Saccharina latissima* (R) and *Laminaria hyperborea* (O) and solitary ascidians (P) including *Ascidiella aspersa* (locally C) and *Corella parallelogramma* (P). *Urticina* sp. (P), *Inachus* sp. (P), *Buccinum undatum* (P), *Aequipecten opercularis* (R), *Antedon* spp. (F), *Ophiura albida* (P), *Echinus esculentus* (O).	IR.HIR.KFaR.Fo R		RF:BR	N
DV195.3	Silty, shelly sand (50%) forming mosaic with *Limaria* bound patches of stones and shells (50%)	Mostly well-formed *Limaria hians* bed/sand mosaic with nest material covering c.50%. *Limaria* turf supports red algal turf of filamentous/fine filiform species (A) and foliose species (R), hydroids (P) including *Nemertesia ramosa* (P), and solitary ascidians (C, locally A) including *Ascidiella aspersa* (locally C) and *Corella paralelogramma* (P). *Munida rugosa* (P), *Inachus* sp. (P), *Pecten maximus* (P), *Aequipecten opercularis* (F), *Antedon* spp. (O), *Echinus esculentus* (P), *Laminaria hyperborea* (O). Stones and shells encrusted with pink coralline algae (R) and serpulid worms (P).	SS.SMx.IMx.Lim	FS	SB:MX	N
DV195.4	Silty, shelly sand (40%) forming mosaic with *Limaria* bound patches of stones and shells (40%) with increasing amounts of scattered cobbles (10%) and boulders (10%)	Fairly poorly defined *Limaria hians* bed/sand mosaic with nest material covering c.40% overall. Cobbles and boulders support park of *Laminaria hyperborea* with *Membranipora membranacea* and *Antedon* spp.. *Limaria* turf supports red algal turf of filamentous/fine filiform species (C) and foliose species (O), and solitary ascidians (P) including *Ascidiella aspersa* and *Corella paralelogramma*. Paguridae sp. (P), *Munida rugosa* (F), Aequipecten opercularis (F), *Asterias rubens* (P), juvenile gadoid sp. (P). Stones and shells encrusted with pink coralline algae (R) and serpulid worms (P).	SS.SMx.IMx.Lim, *IR.HIR.KSed.XK ScrR*	FS	SB:MX	N
DV195.5	Sediment-dusted bedrock (99%) with dense boulders initially (1%)	Kelp park of *Laminaria hyperborea* (C) supporting *Membranipora membranacea* (P), *Steromphala cineraria* (P), small pectiniids (P, *Antedon* spp. (P) and solitary ascidians (P). Rock encrusted with pink coralline algae (R) and serpulid worms (C), and supports sparse red algal turf (O) of filamentous species and solitary ascidians (P) including *Ciona intestinalis* (P). *Ophiura albida* (locally C), *Echinus esculentus* (C).	IR.HIR.KSed.XK ScrR		RF:BR	N

Table 1.2 continued

Video sample	**Substrate**	**Biota**	**Biotopes**	**PMFs**	**Annex1**	**Dredge damage**
DV196.1	Mosaic of sand (50%) with byssal consolidated stones and shells (25%) and scattered sand-dusted boulders (25%)	Boulders encrusted with pink coralline algae (R) and support sparse foliose red algae (R) and mixed kelp park of *Saccharina latissima* (O) and *Laminaria hyperborea* (F) supporting *Steromphala cineraria* (P), *Membranipora membranacea* (P), *Antedon* spp. (P) and *Ascidiella aspersa* (P) and *Corella parallelogramma* (P). *Limaria hians* turf binding stone patches between boulders (c.25% cover). *Urticina* sp. (P), *Buccinum undatum* (P), *Asterias rubens* (P), *Echinus esculentus* (F), small teleost spp. (P) including juvenile gadoids (P).	SS.SMx.IMx.Lim, *IR.HIR.KSed.XK ScrR*	FS	SB:MX RF:ST	N
DV196.2	Mosaic of sand (53%) with byssal consolidated pebbles, cobbles and shells (45%) and scattered boulders (2%)	*Limaria hians* bed with turf covering around 45% of seabed overall, diminishing along run. Scattered boulders and turf support *Saccharina latissima* (O) and *Laminaria hyperborea* (F) and red algal turf (C) of filamentous/fine filiform species (C) and foliose species (R), and hydroids (P). Stones encrusted with pink coralline algae (R), brown algae (P) and serpulid worms (P). Paguridae sp. with *Suberites domuncula* (P), *Munida rugosa* (P), *Cancer pagurus* (P), *Antedon* spp. (F), *Asterias rubens* (O), *Luidia ciliaris* (P), *Echinus esculentus* (O), solitary ascidians (C) including *Ascidiella aspersa* and *Corella parallelogramma*, small teleost sp. (P).	SS.SMx.IMx.Lim	FS	SB:MX	N
DV196.3	Silty shelly sand sand (50%) with scattered gravel (15%), pebbles (30%) and shells (5%) including *Ensis*	Stones encrusted with pink coralline algae (R), brown algae (P) and serpulid worms (P). *Steromphala cineraria* (P), *Munida rugosa* (P), *Asterias rubens* (O), *Luidia ciliaris* (P), *Echinus esculentus* (F).	SS.SMx.CMx		SB:MX	N
DV197.1	Sediment-dusted bedrock (99%), sand pockets (1%)	Rock encrusted with pink coralline algae (R) and supporting algal turf of filamentous/fine filiform species (C) and sparse hydroids (P). *Antedon* spp. (O), *Ophiura albida* (P), *Echinus esculentus* (O).	IR.HIR.KFaR.Fo R		RF:BR	N
DV197.2	Silty, shelly sand (60%) with scattered gravel (10%), pebbles (15%), cobbles (10%), boulders (2%) and shells (3%)	Stones encrusted with pink coralline algae (R) and serpulid worms (P) and supporting sparse patches of red algae (O). *Munida rugosa* (F), *Inachus* sp. (P), *Pecten maximus* (P), *Aequipecten opercularis* (P), *Echinus esculentus* (O).	SS.SMx.CMx		SB:MX	N

Table 1.2 continued

Video sample	Substrate	Biota	Biotopes	PMFs	Annex1	Dredge damage
DV197.3	Silty, shelly sand (55%) with scattered gravel (10%), pebbles (15%), cobbles (12%), boulders (5%) and shells (3%)	Scattered patches of consolidated stones (*Limaria hians* nests) covering around 10% of seabed. Stones encrusted with pink coralline algae (R) and serpulid worms (P) and supporting sparse pacthes of red algal turf (F), hydroids and *Ascidia virginea* (P). *Munida rugosa* (F), *Pecten maximus* (P), *Aequipecten opercularis* (F), *Antedon* spp. (P), *Echinus esculentus* (O).	SS.SMx.IMx.Lim	FS	SB:MX	N
DV197.4	Sediment-dusted bedrock (90%), with boulders (5%) and sand patches (5%)	Rock encrusted with pink coralline algae (R) and supporting algal turf of filamentous/fine filiform species (C), foliose reds (R), hydroids (O) and solitary ascidians (O) including *Ciona intestinalis*?. *Munida rugosa* (F), *Cancer pagurus* (P), *Aequipecten opercularis* (O), *Antedon* spp. (F), *Luidia ciliaris* (P), *Echinus esculentus* (F).	IR.HIR.KFaR.Fo R		RF:BR	N
DV197.5	Mixed substrate of silty, shelly sand sand (30%) with gravel (30%), pebbles (30%), cobbles (5%) and shells (5%)	Stones encrusted with pink coralline algae (R), brown algae (P) and serpulid worms (P) and supporting very sparse patches of red algae (R), hydroids (O) including *Halecium* sp. (P), and *Ascidia mentula* (O). Bonellidae sp. (P), *Munida rugosa* (F), *Buccinum undatum* (P), *Pecten maximus* (P), *Aequipecten opercularis* (C), *Antedon* sp. (R), *Asterias rubens* (P), *Luidia ciliaris* (P), *Ophiura albida* (P), *Echinus esculentus* (P).	SS.SMx.CMx		SB:MX	N
DV199	Small bedrock outcrops and scattered boulders and cobbles on mixed substrate of silty shelly sand with gravel, shells and pebbles. Proportions unclear	Kelp park and forest of *Laminaria hyperborea* (C) and *Saccharina latissima* (F, locally A) with fronds supporting *Membranipora mambranacea* (P), *Steromphala cineraria* (P) and solitary ascidians (P). Stones encrusted with pink coralline algae (R) and serpulid worms (P), and support red algal turf (F, locally C) including filamentous and foliose species and solitary ascidians (C) including *Ascidiella aspersa* (P) and *Corella parallelogramma* (P). *Munida rugosa* (F), *Inachus* sp. (P), *Aequipecten opercularis* (C), *Antedon* spp. (F, locally C), *Asterias rubens* (F), *Ophiura albida* (locally C), *Echinus esculentus* (P), juvenile gadoid sp. (P).	IR.HIR.KSed.XK ScrR			N

Table 1.2 continued

Video sample	Substrate	Biota	Biotopes	PMFs	Annex1	Dredge damage
DV200	Silty, shelly sand with scattered gravel, pebbles and shells forming mosaic with *Limaria* bound patches of stones and shells in places, elsewhere substrate more mixed with scattered boulders and cobbles and locally with dead maerl	Well-formed *Limaria hians* bed/sand mosaic in places with nest material covering up to 50%, elsewhere more patchy (c.40% overall). Turf supports mixed kelp park of *Saccharina latissima* (F, locally C) and *Laminaria hyperborea* (F), although kelp sparse initially. Kelp with serpulid worms, small pectiniids, *Membranipora membranacea* and *Antedon* spp. *Limaria* turf supports red algal turf of filamentous/fine filiform species (A, locally O) and foliose species (R), and solitary ascidians (C, locally A) including *Ascidiella aspersa* (C), *Corella paralelogramma* (C) and *Ascidia virginea* (P). Paguridae sp. (P), *Liocarcinus* sp. (P), *Buccinum undatum* (P), *Pecten maximus*? (P), *Aequipecten opercularis* (C), *Asterias rubens* (F), *Ophiura albida* (locally C), *Echinus esculentus* (O), Triglidae sp.? (P), juvenile gadoid sp. (P). Stones encrusted with pink coralline algae (R) and serpulid worms (P).	SS.SMx.IMx.Lim, *IR.MIR.KT.XKTX*	FSTS: KS	SB:MX	N
DV201	Scattered boulders (10%) and cobbles (10%) on mixed substrate of silty shelly sand (35%) with gravel (20%), shells (5%) and pebbles (20%)	Kelp park of *Laminaria hyperborea* (F, locally C) and *Saccharina latissima* (P) with fronds supporting *Membranipora mambranacea* (P) and *Steromphala cineraria* (P). Stones encrusted with pink coralline algae (R) and serpulid worms (P) including *Spirobranchus* spp. (P), and support red algal turf of filamentous and fine filiform species (F, locally C) and foliose species (O), sparse hydroids (P), and rich solitary ascidian fauna (C, locally A) including *Ascidiella aspersa* (C, locally A), *Ascidia mentula* (P), *Ascidia virginea* (P), *Corella parallelogramma* (P) and *Ciona intestinalis* (P). *Munida rugosa* (F), small pectiniid species (P), *Modiolus modiolus* (R), *Aequipecten opercularis* (F), *Antedon* spp. (O), *Asterias rubens* (O), *Luidia ciliaris* (P), *Ophiothrix fragilis* (R), *Ophiura albida* (P), *Echinus esculentus* (O), juvenile gadoid sp. (P).	IR.HIR.KSed.XK ScrR		RF:BR	N
DV203.1	Silty shelly sand sand (40%) with scattered gravel (18%), pebbles (35%), cobbles (5%) and shells (2%)	Stones encrusted with pink coralline algae (R), brown algae (P) and serpulid worms (P) and supporting filamentous/fine filiform red algae (O), hydroids (R) and solitary ascidians (C) including *Ascidia mentula*, *A.virginea* and *Pyura* sp.?. *Munida rugosa* (F), *Aequipecten opercularis* (C), *Antedon* sp. (R), *Asterias rubens* (O), *Solaster endeca* (P), *Crossaster papposus* (P), *Luidia ciliaris* (P), *Echinus esculentus* (O), small teleost spp. (P) including juvenile gadoid sp. (P). Small patches of consolidated stones and shells, presumably *Limaria hians* nests, but coverage only reaching c.5% towards end of run segment. Creel line and pot.	SS.SMx.CMx		SB:MX	N

Table 1.2 continued

Video sample	Substrate	Biota	Biotopes	PMFs	Annex1	Dredge damage
DV203.2	Mosaic of silty sand (60%) with byssal consolidated pebbles, cobbles and shells (40%) and scattered boulders (<1%)	*Limaria hians* bed with turf covering around 40% of seabed. Turf supports *Laminaria hyperborea* (R) and red algal turf (F) of filamentous/fine filiform species (F) and foliose species (R), and solitary ascidians (C) including *Ascidia mentula* and *A. virginea*. Stones encrusted with pink coralline algae (R) and serpulid worms (P). *Munida rugosa* (F), *Pecten maximus* (P), *Aequipecten opercularis* (C), *Antedon* spp. (F), *Asterias rubens* (O), *Porania pulvillus* (R), *Echinus esculentus* (O).	SS.SMx.IMx.Lim	FS	SB:MX	N
DV203.3	Indistinct mosaic of silty sand (40%) with patches of pebbles, cobbles and shells and byssal material (c.60%) and scattered boulder (<1%)	Appearance of *Limaria hians* bed flattened and partially disaggregated by dredging, with broken shell material. *Limaria hians* probably still present. Stones encrusted with pink coralline algae (R) and serpulid worms (P) and supporting solitary ascidians (P) including *Corella parallelogramma*. *Munida rugosa* (P), *Antedon* sp. (P), *Crossaster papposus* (P), *Ophiura albida* (P), *Echinus esculentus* (O), small teleost sp. (P).	SS.SMx.IMx.Lim	FS?	SB:MX	Y
DV204.1	Silty, shelly sand (35%) with scattered gravel, pebbles, cobbles and shells with patches consolidated by *Limaria*	Patchy *Limaria hians* bed, generally ill-defined (overall c.25% cover). *Limaria* turf and stones support red algal turf of filamentous/fine filiform species (A) and foliose species (R), hydroids (O) and solitary ascidians (A) including *Corella parallelogramma* (locally C) and *Ascidiella aspersa* (A). Stones encrusted with pink coralline algae (R) and serpulid worms. *Munida rugosa* (F), *Inachus* sp. (P), *Aequipecten opercularis* (C), Sepiolidae sp. (P), *Asterias rubens* (O), *Ophiura albida* (locally C), *Echinus esculentus* (O), juvenile gadoid sp. (P), *Saccharina latissima*? (O), *Laminaria hyperborea?* (O) with *Antedon* spp. and *Membranipora membranacea*.	SS.SMx.IMx.Lim	FS	SB:MX	N
DV204.2	Silty, shelly sand (35%) with scattered gravel, pebbles, cobbles and shells with patches consolidated by *Limaria*	Park of silted *Laminaria hyperborea* (F) supporting *Antedon* spp., *Membranipora mwmbranacea* and *Corella parallelogramma*. Beneath the kelp a patchy *Limaria hians* bed, generally ill-defined (overall c.25% cover). *Limaria* turf and stones support red algal turf of filamentous/fine filiform species (A) and foliose species (R) and solitary ascidians (A) including *Corella parallelogramma* (locally C), *Ascidia mentula* (P), *A.virginea* (P) and *Ascidiella aspersa* (A). Stones encrusted with pink coralline algae (R) and serpulid worms. Paguridae sp. (P), *Munida rugosa* (F), *Liocarcinus* sp. (P), *Aequipecten opercularis* (C), *Asterias rubens* (O), *Porania pulvillus* (R), juvenile gadoid sp. (P).	SS.SMx.IMx.Lim, *IR.MIR.KT.XKTX*	FSTS: KS	SB:MX RF:ST	N

Table 1.2 continued

Video sample	Substrate	Biota	Biotopes	PMFs	Annex1	Dredge damage
DV205	Mixed substrate of silty sand (25%) with dead maerl (30%), stone and shell gravel (15%), pebbles (20%), cobbles (2%) and shells (8%)	Stones encrusted with pink coralline algae (R), red algae (P) and serpulid worms (P) including *Spirobranchus* spp. (P) and supporting turf of filamentous and fine filiform red algae (A) and foliose red algae (R), hydroids (R), solitary ascidians (F) including *Ascidiella aspersa* and *Corella parallelogramma*, and *Saccharina latissima* (R, possibly drift) and *Laminaria hyperborea* (R). *Virgularia mirabilis* (F), *Chaetopterus variopedatus*? (P), *Munida rugosa* (F), *Aequipecten opercularis* (C), *Antedon* spp. (R), *Asterias rubens* (F), *Luidia ciliaris* (P), *Henricia* sp. (R), *Ophiura albida* (C locally A), live maerl thalli (R, <1%).	SS.SMp.KSwSS.LsacR	KS	SB:KS	N
DV206.1	Parallel lines of pebbles, cobbles and gravel separated by silty shelly sand with sparse pebbles, gravel and shells. Overall, silty shelly sand (65%) with gravel (10%), shells (5%), pebbles (15%), cobbles (5%)	Dredge tracks. Stones encrusted with pink coralline algae (R) and serpulid worms (P). *Munida rugosa* (P), *Pecten maximus* (P), *Aequipecten opercularis* (C), *Asterias rubens* (F, locally C), small teleosts (P), live maerl thalli (R, <1%).	SS.SMx.CMx		SB:MX	Y
DV206.2	Silty shelly sand (30%) with gravel (25%), shells (5%), pebbles (35%) and cobbles (5%)	Stones encrusted with pink coralline algae (R) and serpulid worms (P). *Aequipecten opercularis* (C), *Echinus esculentus* (P), *Ascidia mentula*? (P).	SS.SMx.CMx		SB:MX	N

Table 1.2 continued

Video sample	Substrate	Biota	Biotopes	PMFs	Annex1	Dredge damage
DV206.3	Mosaic of silty shelly sand with scattered gravel and stones (c.64%) with byssal consolidated pebbles, cobbles and shells (consolidated turf overall c.35% with underlying substrate obscured by byssal turf so proportions unclear); mosaic ill-defined initially; scattered boulders (1%) and small bedrock outcrops (<1%)	Fairly well-formed *Limaria hians* turf (c.35% cover overall but initially fairly sparse patches (perhaps 10%) rising to around 50%). Stones and turf support hydroids (O), algal turf dominated by filamentous/filiform reds (F) and foliose reds (R), and solitary ascidians (P) including *Corella parallelogramma* (P), *Ascidiella aspersa* (P) and *Ascidia mentula*? (P) and *Clavelina lepadiformis*? (P). *Munida rugosa* (P), *Inachus* sp. (P), *Aequipecten opercularis* (C), *Asterias rubens* (P), *Porania pulvillus* (R), *Luidia ciliaris* (P), *Echinus esculentus* (F). Stones encrusted by pink coralline algae (R), serpulid worms (P) and *Balanus* spp. (P), live maerl thalli (R, <1%, but c.1% locally)	SS.SMx.IMx.Lim	FS	SB:MX	N
DV206.4	Sediment-dusted bedrock (100%)	Rock encrusted with pink coralline algae (R), brown algae (P), serpulid worms (P) and *Balanus* spp. (P) and supporting algal turf of filamentous/fine filiform species (A). Solitary ascidians (F) including *Ascidia virginea*? (P). *Aequipecten opercularis* (R), Crinoidea sp. (R).	IR.HIR.KFaR.Fo R		RF:BR	N
DV206.5	Mosaic of sand (65%) with byssal consolidated stones and shells (35%)	Poor visibility but clearly *Limaria hians* bed mosaic (35% cover) with sand.	SS.SMx.IMx.Lim	FS	SB:MX	N
DV206.6	Sediment-dusted bedrock (99%), small sand pockets (1%)	Visibility generally poor. Rock encrusted with pink coralline algae (R) and supports algal turf of filamentous/fine filiform species (A) and sparse hydroids (P). Solitary ascidians (P) including *Ascidia virginea*? (P). *Buccinum undatum* (P), Crinoidea sp. (P), *Crossaster papposus* (P), *Asterias rubens* (P), *Porania pulvillus* (R), *Echinus esculentus* (F), *Laminaria hyperborea* (R).	IR.HIR.KFaR.Fo R		RF:BR	N
DV208.1	Silty shelly sand (40%) with gravel (20%), shells (5%), pebbles (23%), cobbles (10%) and boulders (2%)	Stones encrusted with pink coralline algae (R), serpulid worms (P) and *Balanus* spp. (P) and supporting hydroids (R) and solitary ascidians (O) including *Ascidia virginea* (P) and *A. mentula* (P). Paguridae sp. (P), *Munida rugosa* (P), *Pecten maximus*? (P), *Aequipecten opercularis* (F), *Asterias rubens* (P), *Luidia ciliaris* (P), *Porania pulvillus* (R), *Echinus esculentus* (O), juvenile gadoid sp. (P).	SS.SMx.CMx		SB:MX	N

Table 1.2 continued

Video sample	Substrate	Biota	Biotopes	PMFs	Annex1	Dredge damage
DV208.2	Parallel lines of pebbles and cobbles separated by silty sand with sparser pebbles and shells. Overall, silty shelly sand (40%) with gravel (20%), shells (5%), pebbles (25%), cobbles (10%)	Dredge tracks. Poor visibility. *Echinus esculentus* (F), *Ascidia mentula* (P).	SS.SMx.CMx		SB:MX	Y
DV208.3	Silty shelly sand (40%) with gravel (20%), shells (5%), pebbles (25%), cobbles (10%) and boulders (<1%)	Stones encrusted with pink coralline algae (R), brown algae (P), serpulid worms (P) and *Balanus* spp. (P) and supporting foliose red algae (R), hydroids (O) and solitary ascidians (O) including *Ascidia virginea* (P). *Munida rugosa* (P), *Pecten maximus*? (P), *Aequipecten opercularis* (P), Crinoidea sp. (R), *Echinus esculentus* (F).	SS.SMx.CMx		SB:MX	N
DV208.4	Mosaic of aggregations of *Limaria*-bound pebbles, cobbles and shells (40%) with silty sand (60%) and scattered boulders (<1%)	Poor visibility from fast camera speed but evidently *Limaria hians* bed mosaic of bound stones and shells (40%) with silty sand. *Munida rugosa* (P), *Antedon* spp. (O), *Luidia ciliaris* (P)	SS.SMx.IMx.Lim	FS	SB:MX	N
DV208.5	Sediment-dusted bedrock (99%) with small channels of sand (1%)	Visibility poor. Rock supports short red algal turf (A). *Antedon* spp. (F), *Porania pulvillus* (R), *Echinus esculentus* (O), solitary ascidians (O).	IR.HIR.KFaR.FoR		RF:BR	N
DV208.6	Mosaic of aggregations of *Limaria*-bound pebbles, cobbles and shells (40%) with silty sand (58%) and scattered boulders (2%)	Poor visibility from fast camera speed but clearly *Limaria hians* bed mosaic of turf-bound pebbles, cobbles and shells (40%) with silty sand. Stones encrusted with pink coralline algae (R), brown algae (P), serpulid worms (P) and *Balanus* spp. (P). Red algal turf (F-C), small *Laminaria hyperborea* (F), *Aequipecten opercularis* (O), *Pecten maximus* (P), *Antedon* spp. (O), *Asterias rubens* (O), *Luidia ciliaris* (O), *Echinus esculentus* (F), solitary ascidians (C) including *Ascidiella aspersa* (C, at least locally)	SS.SMx.IMx.Lim	FS	SB:MX	N

Table 1.2 continued

Video sample	Substrate	Biota	Biotopes	PMFs	Annex1	Dredge damage
DV209.1	Mosaic of *Limaria* bound stones (40%) and silty sand (40%) with scatter of sediment-dusted boulders (15%) and cobbles (5%)	Boulders and cobbles encrusted with pink coralline algae (R), serpulid worms (P) and *Balanus* spp. (P) and support park of small *Laminaria hyperborea* (F) with *Membranipora membranacea* (P) and *Antedon* spp. (C), and *Saccharina latissima* (O), with short red algal turf (C) dominated by filamentous/fine filiform species (C). *Munida rugosa* (P), *Asterias rubens* (O), *Porania pulvillus* (R), *Marthasterias glacialis* (P), *Luidia ciliaris* (O), *Echinus esculentus* (F), solitary ascidians (C) including *Ascidiella aspersa* (locally C) and *Ciona intestinalis* (P). *Limaria hians* bound stones covering around 40% of seabed.	SS.SMx.IMx.Lim, IR.HIR.KSed.XK ScrR	FS	SB:MX RF:ST	N
DV209.2	Mosaic of silty shelly sand (50%) with byssal consolidated pebbles, cobbles and shells (consolidated turf overall c.45% with underlying substrate obscured by byssal turf so proportions unclear); scattered boulders (4%) and small bedrock outcrops (1%)	Mostly well-formed *Limaria hians* turf (c.45% cover overall but becoming sparse towards end of run sector) supporting hydroids (P) including *Nemertesia ramosa* (P), algal turf dominated by filamentous/filiform reds (C) and foliose reds (O), and solitary ascidians (C) including *Ascidiella aspersa* (P). *Munida rugosa* (F), *Pecten maximus* (P), *Aequipecten opercularis* (F, locally C), *Antedon* spp. (P), *Asterias rubens* (O), *Porania pulvillus* (R), *Luidia ciliaris* (O), *Echinus esculentus* (O), small teleost sp. (P), *Laminaria hyperborea* (O). Stones and shells encrusted by pink coralline algae (R), serpulid worms (P) including *Spirobranchus* spp. (P), and *Balanus* spp. (P).	SS.SMx.IMx.Lim	FS	SB:MX	N
DV209.3	Faintly recognisable parallel lines of pebbles and cobbles separated by silty sand with sparser stones and shells. Overall, silty shelly sand (45%) with gravel (10%), shells (5%), pebbles (30%), cobbles (10%), boulders (<1%)	Presumably old, hence barely discernible dredge tracks. Poor visibility. *Aequipecten opercularis (F), Luidia ciliaris (P), Porania pulvillus (P), Echinus esculentus* (F), *solitary ascidians* (P).	SS.SMx.CMx		SB:MX	Y

Table 1.2 continued

Video sample	**Substrate**	**Biota**	**Biotopes**	**PMFs**	**Annex1**	**Dredge damage**
DV210.1	Mosaic of aggregations of *Limaria*-bound pebbles, cobbles and shells (30%) with silty shelly sand with sparser but varying quantities of scattered stones and shells (70%)	Patches of *Limaria hians* bound stones and shells with some evidence of byssal threads (c.30% cover). Stones encrusted with pink coralline algae (R), serpulid worms (P) including *Spirobranchus* spp. (P) and *Balanus balanus* (P) and supporting turf of filamentous, fine filiform and foliose red algae (F, locally C), *Desmarestia aculeata* (R), hydroids (R), and solitary ascidians (C, locally A) including *Ascidia mentula* (P), *Ascidiella aspersa* (C) *Pyura* sp.? (P). *Cancer pagurus* (P), Brachyura sp. (P), *Aequipecten opercularis* (C), *Luidia ciliaris* (P), *Asterias rubens* (F), *Ophiura albida* (locally C), *Echinus esculentus* (F).	SS.SMx.IMx.Lim	FS	SB:MX	N
DV210.2	Silted bedrock (20%) and boulders (40%) and cobbles (20%) on silty sand (15%) with scattered pebbles (5%)	Rock encrusted with pink coralline algae (R), serpulid worms (F) and *Balanus* spp. (P) and supporting very sparse foliose algae (R) hydroids (R, locally A) and solitary ascidians (P) including *Ascidia virginea* (P). *Munida rugosa* (P), *Aequipecten opercularis* (R), *Antedon* sp. (R), *Asterias rubens* (P), *Luidia ciliaris* (O), *Echinus esculentus* (F).	CR.LCR.BrAs		RF:BR RF:ST	N
DV210.3	Mixed substrate of silty shelly sand (40%) with gravel (18%), shells (5%), pebbles (27%), cobbles (7%) and boulders (3%)	Stones encrusted with pink coralline algae (R) and serpulid worms (P) and supporting solitary ascidians (F) including *Ascidia virginea* (P). *Munida rugosa* (F), *Aequipecten opercularis* (F), *Luidia ciliaris* (P).	SS.SMx.CMx		SB:MX	N
DV210.4	Parallel lines of pebbles and cobbles separated by relatively stone-free silty sand; occasional boulders	Dredge tracks. No close-up imagery. *Luidia ciliaris* (O), *Echinus esculentus* (R).	SS.SMx.CMx		SB:MX	Y
DV212.1	Silt-dusted bedrock (95%) with boulders (5%)	Rock encrusted with pink coralline algae (R), brown algae (P) and *Balanus balanus* (P) and supporting filamentous/fine filiform red algal turf (locally A) and ascidians, particularly *Ciona intestinalis* (locally F) and *Ascidia mentula* (P). Paguridae sp. (P), *Munida rugosa* (P), *Antedon* spp. (F), *Luidia ciliaris* (O), *Echinus esculentus* (P).	CR.LCR.BrAs.AmenCio.Ant		RF:BR	N

Table 1.2 continued

Video sample	Substrate	Biota	Biotopes	PMFs	Annex1	Dredge damage
DV212.2	Mosaic of aggregations of *Limaria*-bound pebbles (15%), cobbles (15%) and shells (3%) with silty shelly sand (45%) with scattered gravel (10%), pebbles (5%) and shells (2%). Scattered boulders (1%) and small bedrock outcrop (1%) initially	Patches of *Limaria hians* bound stones and shells with some evidence of byssal threads (c.33% cover). Stones encrusted with pink coralline algae (R), brown algae (P), serpulid worms (C) including *Spirobranchus* spp. (P) and *Balanus balanus* (P) and supporting turf of filamentous, fine filiform and foliose red algae (F, locally C), *Saccharina latissima* (R) and small *Laminaria hyperborea* (F), as well as hydroids (R) including *Kirchenpaueria pinnata*, and solitary ascidians (C) including *Ascidia mentula*, *Ascidia virginea*?, *Ascidiella aspersa*, *Corella parallelogramma* and *Ciona intestinalis*. *Toxisarcon alba* (P), *Munida rugosa* (F), *Buccinum undatum* (P), *Aequipecten opercularis* (C), *Antedon* spp. (O), *Luidia ciliaris* (P), *Asterias rubens* (P), *Marthasterias glacialis* (P), *Ophiura albida* (P).	SS.SMx.IMx.Lim	FS	SB:MX	N
DV235	Dense pebbles (65%) with coarse sand (5%), gravel (15%), shells (5%) including *Modiolus modiolus*, and cobbles (10%)	Dense ophiuroid bed dominated by *Ophiothrix fragilis* (S) with *Ophiopholis aculeata* (P) and *Ophiocomina nigra* (A). *Alcyonium digitatum* (C), *Urticina* sp. (R), Paguridae sp. (P), *Hyas araneus* (P), *Crossaster papposus* (O), *Asterias rubens* (P), *Marthasterias glacialis* (P), *Henricia* sp. (R), *Echinus esculentus* (C), *Pholis gunnellus* (P). *Limaria hians* byssal turf visible in places, although percentage cover cannot be determined. Stones encrusted with pink coralline algae (R), brown algae (P) and serpulid worms (P) and supporting sparse foliose red algae (R), hydroids (F) including *Halecium halecinum* (P), *Sertularia* sp. (P) and *Rhizocaulua verticillatus* (P), and *Corella parallelogramma* (P).	SS.SMx.IMx.Lim, SS.SMx.CMx.OphMx	FS	SB:MX	N
DV236	Scattered boulders (20%) and cobbles (20%) on mixed substrate of silty sand (20%) with gravel (10%), shells (5%) and pebbles (25%)	Kelp park of *Laminaria hyperborea* (C) and *Saccharina latissima* (O) supporting *Membranipora mambranacea* (P), *Electra pilosa* (P), *Steromphala cineraria* (P), small pectiniid spp. (P), *Antedon* spp. (P) and *Corella parallelogramma* (P). Stones encrusted with pink coralline algae (R) and serpulid worms (P) including *Spirobranchus* spp. (P), and support fairly sparse red algal turf of filamentous/fine filiform (F) including and foliose (O) species, *Dictyota dichotoma* (P) and solitary ascidians (F-C) including *Ascidiella aspersa* (P) and *Corella parallelogramma* (P). *Munida rugosa* (P), *Carcinus maenas*? (P), *Buccinum undatum* (P), *Aequipecten opercularis* (C), *Antedon* spp. (F, locally C), *Crossaster papposus* (P), *Asterias rubens* (O), *Ophiura albida* (locally C), *Echinus esculentus* (F), juvenile gadoid sp. (P).	IR.HIR.KSed.XKScrR			N

Table 1.2 continued

Video sample	Substrate	Biota	Biotopes	PMFs	Annex1	Dredge damage
DV237.1	Mixed substrate of silty, shelly sand sand (35%) with gravel (25%), pebbles (28%), cobbles (7%) and shells (5%); boulders (<1%)	Stones encrusted with pink coralline algae (R), brown algae (P), serpulid worms (P) and *Balanus* spp. (P) and supporting sparse patches of red algae (O) and solitary ascidians (C, locally A) including *Ascidiella aspersa (C)*, *Ascidia mentula* and *A. virginea* (P). *Munida rugosa* (F), *Pecten maximus* (F), *Aequipecten opercularis* (C), *Antedon* spp. (O), *Asterias rubens* (P), *Ophiura albida* (locally C), *Echinus esculentus* (O).	SS.SMx.CMx		SB:MX	N
DV237.2	Mixed substrate of silty, shelly sand sand (35%) with gravel (25%), pebbles (28%), cobbles (7%) and shells (5%); pebbles and cobbles concentrated into parallel lines representing dredge tracks	Stones encrusted with pink coralline algae (R) and serpulid worms (P) and supporting very sparse patches of red algae (R) and solitary ascidians (F). *Aequipecten opercularis* (C), *Asterias rubens* (O), small teleost sp. (P).	SS.SMx.CMx		SB:MX	Y
DV237.3	Mixed substrate of silty, shelly sand sand (25%) with gravel (30%), pebbles (30%), cobbles (10%) and shells (5%)	Stones encrusted with pink coralline algae (R) and serpulid worms (P) and supporting very sparse patches of red algae (R) and solitary ascidians (F) including *Ascidia mentula* (P). Paguridae sp. (P), *Munida rugosa* (F), *Aequipecten opercularis* (C), *Asterias rubens* (O), *Ophiura albida* (C), *Echinus esculentus* (O).	SS.SMx.CMx		SB:MX	N

Table 1.3. PMF codes used in the tables of this report.

Code	PMF	Component biotope/species	Biotope code
AF	Fan mussel	*Atrina fragilis*	
BM:SB	Burrowed mud	Seapens and burrowing megafauna in circalittoral fine mud	SS.SMu.CFiMu.SpnMeg
FS	Flame shell beds	*Limaria hians* beds in tide-swept sublittoral muddy mixed sediment	SS.SMx.IMx.Lim
HM:TS	Horse mussel beds	*Modiolus modiolus* beds with hydroids and red seaweeds on tide-swept circalittoral mixed substrata	SS.SBR.SMus.ModT
KS	Kelp and seaweed communities on sublittoral sediment	Kelp and seaweed communities on sublittoral sediment	SS.SMp.KSwSS (except KSwSS.Tra & KSwSS.FilG
MB	Maerl beds	Maerl beds	SS.SMp.Mrl
MC	Maerl or coarse shell gravel with burrowing sea cucumbers	*Neopentadactyla mixta* in circalittoral shell gravel or coarse sand	SS.SCSCCS.Nmix
TS:KS	Tide-swept algal communities	Kelp and seaweed communities in tide-swept sheltered conditions	IR.MIR.KT

Table 1.4. Annex 1 habitat codes used in the tables of this report.

Code	Annex I habitat	Sub-type
RF:BR	Reefs	Bedrock
RF:ST	Reefs	Stony
RF:BH	Reefs	Biogenic (Horse mussel beds)
SB:GS	Sandbanks which are slightly covered by sea water all the time	Gravelly and clean sands
SB:MS	Sandbanks which are slightly covered by sea water all the time	Muddy sands
SB:MX	Sandbanks which are slightly covered by sea water all the time	Mixed sediments
SB:MB	Sandbanks which are slightly covered by sea water all the time	Sandbank feature (Maerl beds)
SB:KS	Sandbanks which are slightly covered by sea water all the time	Sandbank feature (Kelp and seaweed)

Table 1.5. Details of photographic still images collected along the MSS May 2017 drop-down video runs. The table shows the corresponding HD video time code, as well as indications of the presence of flame shell bed habitat and damage by demersal gear.

Image	Video run	Latitude	Longitude	Date	Time (UT)	Video time code	Flame shell bed	Damage
110	LC_V2	57.362450	-5.649670	03/05/2017	09:50:53	00:03:46	Yes	No
111	LC_V2	57.362328	-5.649938	03/05/2017	09:52:57	00:05:50	Possible	Possible
112	LC_V2	57.362283	-5.650105	03/05/2017	09:54:11	00:07:04	Yes	No
113	LC_V2	57.362172	-5.650312	03/05/2017	09:55:39	00:08:32	Yes	No
114	LC_V2	57.362087	-5.650383	03/05/2017	09:56:34	00:09:27	Yes	Possible
115	LC_V2	57.361938	-5.650407	03/05/2017	09:57:57	00:10:50	Yes	No
116	LC_V2	57.361578	-5.650447	03/05/2017	10:00:53	00:13:46	Yes	No
117	LC_V2	57.360990	-5.649992	03/05/2017	10:06:12	00:19:05	Yes	No
118	LC_V2	57.360820	-5.650142	03/05/2017	10:07:45	00:20:38	No	No
119	LC_V2	57.360502	-5.650377	03/05/2017	10:10:19	00:23:12	Possible	Possible
120	LC_V2	57.360122	-5.650273	03/05/2017	10:13:02	00:25:55	No	No
121	LC_V2	57.359893	-5.650242	03/05/2017	10:14:24	00:27:17	No	No
122	LC_V2	57.359748	-5.650523	03/05/2017	10:15:56	00:28:49	No	No
123	LC_V2	57.359822	-5.651027	03/05/2017	10:18:12	00:31:05	No	No
124	LC_V2	57.359853	-5.651335	03/05/2017	10:19:40	00:32:33	No	No
125	LC_V2	57.359808	-5.651683	03/05/2017	10:21:12	00:34:05	No	No
126	LC_V2	57.359768	-5.651887	03/05/2017	10:22:02	00:34:55	No	No
127	LC_V3	57.364075	-5.652717	03/05/2017	11:18:56	00:03:15	No	No
128	LC_V3	57.363827	-5.652617	03/05/2017	11:20:47	00:05:06	No	No
129	LC_V3	57.363408	-5.652752	03/05/2017	11:23:46	00:08:05	No	No
130	LC_V3	57.362688	-5.652457	03/05/2017	11:27:18	00:11:37	Yes	No
131	LC_V3	57.362595	-5.652208	03/05/2017	11:28:12	00:12:31	Yes	No
132	LC_V3	57.362473	-5.651525	03/05/2017	11:30:09	00:14:28	Yes	No
133	LC_V3	57.362448	-5.651022	03/05/2017	11:31:28	00:15:47	Yes	No
136	LC_V3	57.362463	-5.650768	03/05/2017	11:32:09	00:16:28	Yes	No
137	LC_V3	57.362512	-5.650433	03/05/2017	11:33:10	00:17:29	Yes	No
138	LC_V3	57.362553	-5.649895	03/05/2017	11:35:03	00:19:22	Yes	No
139	LC_V3	57.362637	-5.649463	03/05/2017	11:37:23	00:21:42	Yes	No
140	LC_V3	57.362673	-5.649462	03/05/2017	11:38:31	00:22:50	Yes	No
141	LC_V3	57.362672	-5.649613	03/05/2017	11:39:38	00:23:57	Yes	No
142	LC_V3	57.362662	-5.649907	03/05/2017	11:40:55	00:25:14	Yes	No
143	LC_V3	57.362823	-5.650267	03/05/2017	11:44:14	00:28:33	Possible	No
144	LC_V3	57.362882	-5.651095	03/05/2017	11:47:44	00:32:03	Possible	No
145	LC_V3	57.363015	-5.651350	03/05/2017	11:49:09	00:33:28	Possible	No
146	LC_V3	57.363132	-5.651813	03/05/2017	11:51:23	00:35:42	Possible	No
147	LC_V3	57.363173	-5.651978	03/05/2017	11:52:14	00:36:33	Possible	No
148	LC_V3	57.363272	-5.652170	03/05/2017	11:53:59	00:38:18	Possible	No
149	LC_V3	57.363315	-5.652095	03/05/2017	11:55:36	00:39:55	Possible	No
150	LC_V3	57.363495	-5.652265	03/05/2017	11:57:34	00:41:53	No	No
151	LC_V3	57.363817	-5.652767	03/05/2017	12:00:16	00:44:35	No	No
153	LC_V4	57.363842	-5.654015	03/05/2017	12:23:18	00:03:11	No	No
154	LC_V4	57.363827	-5.653540	03/05/2017	12:26:05	00:05:58	Possible	No
155	LC_V4	57.363688	-5.653113	03/05/2017	12:28:20	00:08:13	Possible	No

Table 1.5 continued

Image	Video run	Latitude	Longitude	Date	Time_UT	Video time code	Flame shell bed	Damage
156	LC_V4	57.363675	-5.652630	03/05/2017	12:30:23	00:10:16	Possible	No
157	LC_V4	57.363450	-5.652158	03/05/2017	12:32:58	00:12:51	Possible	No
158	LC_V4	57.363192	-5.651730	03/05/2017	12:35:23	00:15:16	Possible	No
159	LC_V4	57.362835	-5.650267	03/05/2017	12:39:50	00:19:43	Yes	No
160	LC_V4	57.362793	-5.650098	03/05/2017	12:40:17	00:20:10	Possible	Yes
161	LC_V4	57.362710	-5.649632	03/05/2017	12:41:29	00:21:22	Possible	Possible
162	LC_V4	57.362660	-5.649315	03/05/2017	12:42:16	00:22:09	Yes	No
163	LC_V4	57.362605	-5.649045	03/05/2017	12:42:58	00:22:51	Possible	No
164	LC_V5	57.359437	-5.651597	03/05/2017	12:58:21	00:03:16	No	No
165	LC_V5	57.359477	-5.651585	03/05/2017	12:58:48	00:03:47	No	No
166	LC_V5	57.359552	-5.651457	03/05/2017	13:00:38	00:05:37	No	No
167	LC_V5	57.359578	-5.651443	03/05/2017	13:01:03	00:06:02	No	No
168	LC_V5	57.359780	-5.651345	03/05/2017	13:03:17	00:08:16	No	No
169	LC_V5	57.360037	-5.651147	03/05/2017	13:05:37	00:10:36	No	No
170	LC_V5	57.360165	-5.650987	03/05/2017	13:06:49	00:11:48	No	No
171	LC_V5	57.360262	-5.650833	03/05/2017	13:07:40	00:12:39	No	No
172	LC_V5	57.360457	-5.650447	03/05/2017	13:09:50	00:14:49	Possible	No
173	LC_V5	57.360863	-5.649398	03/05/2017	13:16:53	00:21:52	No	Possible
174	LC_V5	57.361268	-5.648945	03/05/2017	13:19:32	00:24:31	Yes	No
175	LC_V5	57.361398	-5.648833	03/05/2017	13:20:23	00:25:22	Yes	No
176	LC_V6	57.359948	-5.651980	03/05/2017	13:37:17	00:03:46	No	No
177	LC_V6	57.360078	-5.651180	03/05/2017	13:40:07	00:06:36	Possible	No
178	LC_V6	57.360075	-5.650885	03/05/2017	13:42:00	00:08:29	Possible	No
180	LC_V6	57.360167	-5.650605	03/05/2017	13:44:22	00:10:51	No	No
181	LC_V6	57.360158	-5.650203	03/05/2017	13:46:41	00:13:10	No	No
182	LC_V6	57.360352	-5.649905	03/05/2017	13:49:10	00:15:39	No	No
183	LC_V6	57.360563	-5.649673	03/05/2017	13:51:10	00:17:39	Possible	No
184	LC_V6	57.361010	-5.649357	03/05/2017	13:55:16	00:21:45	Possible	Possible
185	LC_V6	57.361342	-5.649018	03/05/2017	13:58:13	00:24:42	Possible	Possible
186	LC_V6	57.361578	-5.648778	03/05/2017	14:00:02	00:26:31	Yes	No
187	LC_V6	57.361965	-5.648742	03/05/2017	14:02:08	00:28:37	Yes	No
188	LC_V6	57.362392	-5.648802	03/05/2017	14:04:17	00:30:46	Yes	No
189	LC_V6	57.363808	-5.651385	03/05/2017	14:14:18	00:40:47	No	No
190	LC_V6	57.364188	-5.652378	03/05/2017	14:17:37	00:44:06	No	No
192	LC_V6	57.364295	-5.652752	03/05/2017	14:19:03	00:45:32	No	No
193	LC_V7	57.363915	-5.652368	03/05/2017	14:34:41	00:06:01	No	No
194	LC_V7	57.363628	-5.651648	03/05/2017	14:38:17	00:09:34	No	No
195	LC_V7	57.363488	-5.651368	03/05/2017	14:39:44	00:11:01	No	No
196	LC_V7	57.363140	-5.650732	03/05/2017	14:43:04	00:14:21	No	No
197	LC_V7	57.362957	-5.650285	03/05/2017	14:45:05	00:16:22	Yes	No
198	LC_V7	57.362383	-5.649718	03/05/2017	14:49:32	00:20:49	Yes	Possible
200	LC_V7	57.362105	-5.649943	03/05/2017	14:51:00	00:22:17	Yes	No
201	LC_V7	57.361942	-5.649985	03/05/2017	14:52:00	00:23:17	Yes	Yes
202	LC_V7	57.361607	-5.650108	03/05/2017	14:55:01	00:26:18	Yes	No
203	LC_V7	57.361058	-5.650073	03/05/2017	15:00:36	00:31:53	Possible	Possible
204	LC_V7	57.360887	-5.650022	03/05/2017	15:02:19	00:33:36	Possible	No

Table 1.5 continued

Image	Video run	Latitude	Longitude	Date	Time_UT	Video time code	Flame shell bed	Damage
205	LC_V7	57.360490	-5.650022	03/05/2017	15:05:26	00:36:43	Yes	No
206	LC_V7	57.360473	-5.650032	03/05/2017	15:05:56	00:37:13	Yes	No
207	LC_V7	57.360063	-5.650223	03/05/2017	15:10:33	00:41:50	No	No
208	LC_V7	57.359788	-5.650718	03/05/2017	15:13:21	00:44:38	No	No
209	LC_V7	57.359593	-5.651080	03/05/2017	15:15:15	00:46:32	No	No
211	LC_V8	57.350500	-5.658322	04/05/2017	09:53:30	00:03:39	No	No
212	LC_V8	57.350753	-5.658097	04/05/2017	09:55:58	00:06:04	No	No
213	LC_V8	57.350875	-5.657873	04/05/2017	09:57:42	00:07:48	No	No
214	LC_V8	57.351355	-5.657245	04/05/2017	10:01:13	00:11:19	No	No
215	LC_V8	57.351833	-5.657142	04/05/2017	10:04:39	00:14:44	No	No
216	LC_V8	57.352220	-5.657105	04/05/2017	10:07:22	00:17:27	No	No
217	LC_V8	57.352458	-5.657078	04/05/2017	10:09:30	00:19:34	No	No
218	LC_V8	57.353012	-5.656857	04/05/2017	10:12:41	00:22:45	No	No
219	LC_V9	57.350233	-5.657940	04/05/2017	12:18:29	00:03:48	No	No
220	LC_V9	57.350353	-5.657632	04/05/2017	12:20:26	00:05:45	No	No
221	LC_V9	57.350602	-5.657182	04/05/2017	12:23:02	00:08:21	No	No
222	LC_V9	57.350890	-5.656993	04/05/2017	12:25:09	00:10:28	No	No
223	LC_V9	57.350905	-5.656903	04/05/2017	12:25:44	00:11:03	No	No
224	LC_V9	57.351047	-5.656735	04/05/2017	12:28:03	00:13:22	No	No
225	LC_V9	57.351287	-5.656595	04/05/2017	12:30:07	00:15:26	No	No
226	LC_V9	57.351807	-5.656347	04/05/2017	12:34:25	00:19:44	No	No
227	LC_V9	57.352132	-5.656857	04/05/2017	12:37:22	00:22:41	No	No
228	LC_V9	57.352355	-5.657440	04/05/2017	12:40:39	00:25:58	No	No
229	LC_V9	57.352448	-5.657605	04/05/2017	12:41:50	00:27:09	No	No
230	LC_V9	57.352737	-5.658082	04/05/2017	12:44:41	00:30:00	No	No
231	LC_V10	57.350090	-5.657402	04/05/2017	12:58:25	00:03:01	No	No
232	LC_V10	57.350302	-5.657260	04/05/2017	13:01:16	00:05:52	No	No
233	LC_V10	57.350565	-5.657307	04/05/2017	13:03:28	00:08:04	No	No
234	LC_V10	57.350733	-5.657410	04/05/2017	13:04:46	00:09:22	No	No
235	LC_V10	57.351025	-5.657628	04/05/2017	13:07:02	00:11:38	No	No
236	LC_V10	57.351288	-5.657870	04/05/2017	13:09:51	00:14:27	No	No
237	LC_V10	57.351408	-5.657930	04/05/2017	13:10:57	00:15:33	No	No
238	LC_V10	57.351550	-5.657915	04/05/2017	13:12:19	00:16:55	No	No
239	LC_V10	57.351877	-5.658058	04/05/2017	13:14:44	00:19:20	No	No
240	LC_V10	57.352067	-5.658222	04/05/2017	13:17:53	00:22:29	No	No
241	LC_V10	57.352150	-5.658312	04/05/2017	13:20:06	00:24:42	No	No
242	LC_V10	57.352242	-5.658392	04/05/2017	13:21:07	00:25:43	No	No
243	LC_V10	57.352370	-5.658505	04/05/2017	13:22:37	00:27:13	No	No
244	LC_V10	57.352498	-5.658707	04/05/2017	13:24:15	00:28:51	No	No
245	LC_V11	57.350125	-5.657873	04/05/2017	13:37:58	00:02:50	No	No
246	LC_V11	57.350315	-5.657843	04/05/2017	13:40:52	00:05:44	No	No
247	LC_V11	57.350473	-5.657908	04/05/2017	13:42:36	00:07:28	No	No
248	LC_V11	57.350707	-5.657880	04/05/2017	13:44:48	00:09:40	No	No
249	LC_V11	57.350950	-5.657948	04/05/2017	13:46:35	00:11:27	No	No
250	LC_V11	57.351133	-5.658177	04/05/2017	13:48:14	00:13:06	No	No
251	LC_V11	57.351300	-5.658277	04/05/2017	13:50:21	00:15:13	No	No
252	LC_V11	57.351735	-5.658338	04/05/2017	13:53:49	00:18:41	No	No

Table 1.5 continued

Image	Video run	Latitude	Longitude	Date	Time_UT	Video time code	Flame shell bed	Damage
253	LC_V11	57.351867	-5.658177	04/05/2017	13:56:35	00:21:27	No	No
254	LC_V11	57.352105	-5.657948	04/05/2017	14:01:46	00:26:38	No	No
255	LC_V11	57.352267	-5.657932	04/05/2017	14:05:52	00:30:44	No	No
256	LC_V11	57.352385	-5.657812	04/05/2017	14:07:56	00:32:48	No	No
257	LC_V11	57.352662	-5.657560	04/05/2017	14:10:05	00:34:57	No	No
258	LC_V11	57.352925	-5.657342	04/05/2017	14:12:31	00:37:23	No	No

ANNEX 2: SNH DIVING SURVEY DATA

Table 2.1. Positional, temporal and depth details, as well as imagery analysed, for the SNH May 2017 dive survey.

Site	Date	Start latitude	Start longitude	End latitude	End longitude	Maximum depth BCD (m)	Imagery analysed
D01	03/05/2017	57.361590	-5.648820	57.361710	-5.649080	15.3	00397.MTS-00413.MTS [17 clips - 00:14:09]; DSC00359.JPG-DSC00378.JPG; P5030006.JPG-P5030109.JPG [113 stills]
D02	03/05/2017	57.361730	-5.650350	57.361780	-5.649880	15.1	00415.MTS-00434.MTS [19 clips - 00:11:30]; P5030111.JPG-P5030139.JPG [25 stills]
D03	03/05/2017	57.362700	-5.649800	57.363050	-5.650480	15.1	00438.MTS-00441.MTS [4 clips - 00:28:27]; BDJ6717.JPG-BDJ6871.JPG [152 stills]
D04	04/05/2017	57.356620	-5.649170	57.356620	-5.649170	13.6	GOPR0802.MP4 [1 clip - 00:04:56]
D05	04/05/2017	57.363510	-5.655620	57.363510	-5.655620	16.6	GOPR7490.MP4-GOPR7492.MP4 [3 clips - 00:07:24]
D06	04/05/2017	57.361730	-5.647590	57.361410	-5.647190	15.3	GOPR7495.MP4-GOPR7497.MP4 [3 clips - 00:03:17]
D07	04/05/2017	57.363920	-5.650260	57.363650	-5.650200	13.5	GOPR7494.MP4 [1 clip - 00:08:02]
D08	04/05/2017	57.359050	-5.661200	57.359050	-5.661200	14.6	GOPR7483.MP4-GOPR7487.MP4 [3 clips - 00:05:22]
D09	04/05/2017	57.364370	-5.645720	57.364080	-5.645010	10.0	GOPR7498.MP4-GOPR7499.MP4 [2 clips - 00:06:15]
D10	04/05/2017	57.355520	-5.642070	57.355610	-5.641770	13.7	GOPR7500.MP4 [1 clip - 00:10:26]
D11	04/05/2017	57.349690	-5.657350	57.349610	-5.658010	18.1	P5040144.JPG-P5040209.JPG [66 stills]; NO VIDEO - STILLS ONLY
D12	04/05/2017	57.352100	-5.653450	57.352100	-5.653450	5.1	GOPR7501.MP4-GOPR7510.MP4 [10 clips - 00:06:49]
D13	04/05/2017	57.348400	-5.651980	57.348400	-5.651980	1.5	BDJ6893.JPG-BDJ6971.JPG [79 stills]; NO VIDEO - STILLS ONLY
D14	04/05/2017	57.346720	-5.656990	57.346720	-5.656990	1.0	P5040210.JPG-P5040215.JPG [6 stills]; NO VIDEO - STILLS ONLY
D15.1	04/05/2017	57.358360	-5.553770	57.357870	-5.553100	8.0	GOPR7511.MP4 [1 clip - 00:00:00 - 00:02:18; P5040216.JPG-P5040231.JPG,
D15.2	04/05/2017	57.358360	-5.553770	57.357870	-5.553100	8.0	GOPR7511.MP4 [1 clip - 00:02:18 - 00:06:17; P5040232.JPG-P5040255.JPG, BDJ6973.JPG-BDJ7023.JPG
D15.3	04/05/2017	57.358360	-5.553770	57.357870	-5.553100	8.0	GOPR7512.MP4-GOPR7519.MP4 [8 clips - 00::06:25]; P5040256.JPG-P5040298.JPG; BDJ7024-.JPG-BDJ7080.JPG
D16	04/05/2017	57.358360	-5.553770	57.357570	-5.554650	9.0	P5040001.JPG-P5040048.JPG [41 stills]; P5040330.JPG-P5040354.JPG [25 stills]

Table 2.2. Physical and biological descriptions of habitats recorded during the SNH May 2017 survey. PMF and Annex 1 habitat codes are defined in Tables 1.3 and 1.4 above. Evidence of dredge damage indicated by Y (yes), no (N) or P (possible), with red font signifying damage to flame shell habitat. Uncertain biotope assignments are italicized. Site labels correspond to those in Table 2.1.

Site	**Substrate**	**Biota**	**Biotopes**	**Annex1**	**PMFs**	**Dredge damage**
D01	Shelly, silty, medium sand (88%) with gravel (5%), pebbles (5%) and sparse cobbles (1%) and boulders (1%)	Mosaic of *Limaria hians* byssal turf (65%) and bare sand patches. *Limaria* turf supports hydroid turf (A) including *Halecium halecinum* (C) and *Nemertesia ramosa* (P), as well as *Alcyonium digitatum* (R), *Suberites carnosus* (P), *Corella parallelogramma* (P) and filamentous (F) and foliose (R) red algae. Motile taxa include *Aphrodita aculeata* (P), *Munida rugosa* (P), *Hyas* sp. (P), *Buccinum undatum* (F), *Aequipecten opercularis* (F), *Pecten maximus* (P), *Antedon* spp. (O), *Ophiocomina nigra* (P), *Asterias rubens* (P) and *Echinus esculentus* (C). Sediment fauna includes *Cerianthus lloydii* (P) and bivalve siphons (P). Stones encrusted with *Balanus* sp. (R). Large area shows indications of dredge damage with *Limaria* turf flattened and in part displaced, including evidence of linear scarring. At least larger hydroids are also flattened and dense dead *Limaria* shells and some broken *Echinus* tests present, with patches of bacterial mat on the sediment. Some parts of disturbed area, however, show indications of *Limaria* gallery apertures and live *Limaria* on the surface, as well as *B. undatum* (locally C), *H. halecium*, *N. ramosa*, *Hyas* sp. and *S. carnosus* (P).	SS.SMx.IMx.Lim	SB:MX	FS	Y

Table 2.2 continued

Site	Substrate	Biota	Biotopes	Annex1	PMFs	Dredge damage
D02	Shelly, silty, medium sand (89%) with gravel (5%), pebbles (5%) and sparse cobbles (1%) and boulders (<1%)	Mosaic of *Limaria hians* byssal turf (varying from around 35% to 70%) and bare sand patches. *Limaria* turf supports hydroid turf (A) including *Halecium halecinum* (A), *Nemertesia ramosa* (F) and possibly *N. antennina* (P), solitary ascidians (F) including *Corella parallelogramma* (P), *Ascidia mentula*? (P) and *Ascidiella aspersa*?, and filamentous (A) and foliose (R) red algae. Sparse kelp (*Laminaria hyperborea*?) present. Motile taxa include *Munida rugosa* (P), *Inachus* sp. (P), *Buccinum undatum* (P), *Aequipecten opercularis* (F), *Coryphella lineata* (P), *Antedon* spp. (F), *Asterias rubens* (F) and *Echinus esculentus* (C). Sediment fauna includes bivalve siphons (P). Stones encrusted with *Balanus* sp. (R). Large area shows indications of dredge damage with *Limaria* turf flattened and diffused and showing evidence of linear scarring, with alternating parallel lines of dense and sparse byssal turf material (e.g. video clip 00425.mts). At some locations there is a clear linear boundary between healthy and disturbed byssal turf material (e.g. 00:00:16 in video 00430.mts). In disturbed areas dense dead *Limaria* shells present, with patches of *bacterial mat* on the sediment. Some parts of disturbed areas, however, show indications of *Limaria* gallery apertures and live *Limaria* on the surface, as well as *B. undatum*, *H. halecium*, *N. ramosa*, *Hyas* sp., *Antedon* spp. and *E. esculentus*.	SS.SMx.IMx.Lim	SB:MX	FS	Y

Table 2.2 continued

Site	Substrate	Biota	Biotopes	Annex1	PMFs	Dredge damage
D03	Shelly, silty, medium sand with gravel (10%), pebbles (20%), cobbles (20%, locally 50%), boulders (<1%)	Initially small *Limaria* turf patches (10 - 20%) exhibiting signs of dredge damage, becoming mosaic of *Limaria* turf (50 - 90%) with sand, then disturbed area of flattened, fragmented turf material with exposed cobbles and pebbles. Undamaged area with byssal turf supporting hydroid turf (A) including *Halecium halecinum* (locally A), *Nemertesia ramosa* (F) and *Kirchenpaueria pinnata* (P), solitary ascidians (F) including *Corella parallelogramma* (P) and *Ascidiella aspersa*? (P), and filamentous (C) and foliose (O) red algae. Sparse kelp (*Laminaria hyperborea*? and *Saccharina latissima*?) present. Motile taxa include *Munida rugosa* (F), *Inachus* sp. (P), *Hyas* sp. (P), *Buccinum undatum* (P), *Aequipecten opercularis* (F, locally C), *Pecten maximus* (P), *Coryphella lineata* (P), *Antedon* sp. (F) including *A. bifida* (P), *Asterias rubens* (F), *Marthasterias glacialis* (P), *Henricia* sp. (P), *Solaster endeca* (O) and *Echinus esculentus* (C). Sediment fauna includes *Virgularia mirabilis* (locally C), *Lanice conchilega* (P) and bivalve siphons (P). Stones encrusted with *Balanus* sp. (R). Some parts of disturbed areas show indications of *Limaria* gallery apertures and live *Limaria* visible, as well as *B. undatum*, *N. ramosa*, *Inachus* sp., *Antedon* spp. and *E. esculentus*, but negative effects include dense dead *Limaria* shells and broken tests of *E. esculentus* and small patches of bacterial mat.	SS.SMx.IMx.Lim	SB:MX	FS	Y
D04	Silty, shelly medium sand (60%) with fairly dense scatter of pebbles (30%), and gravel (5%), cobbles (5%) and boulders (<1%)	Stones support serpulid worms (F), hydroids (F) and sparse *Laminaria hyperborea* (F). Sediment with dense *Cerianthus lloydii* (C) and *Lanice conchilega* (O). *Munida rugosa* (O), Paguridae sp. (R), *Calliostoma zizyphinum* (R), *Pecten maximus* (P), *Antedon* spp. (F), *Luidia ciliaris* (P), *Ophiura albida* (C), *Echinus esculentus* (P).	*SS.SMx.IMx*	SB:MX		N

Table 2.2 continued

Site	Substrate	Biota	Biotopes	Annex1	PMFs	Dredge damage
D05	Silty, shelly medium sand (62%) with fairly dense scatter of pebbles (20%) and gravel (10%); cobbles (5%), boulders (<1%), shells (3%)	Stones support serpulid worms (F), hydroids (C) and sparse *Laminaria hyperborea* (F). *Munida rugosa* (P), *Pecten maximus* (O), *Antedon* spp. (P), *Solaster endeca (F), Asterias rubens (F), Echinus esculentus* (F).	*SS.SMx.IMx*	SB:MX		N
D06	Shelly, silty, medium sand (45%) with gravel (10%), pebbles (25%), cobbles (15%) and shells (5%)	Mosaic of *Limaria* turf binding stones (c. 50% cover overall) and relatively stone-free sand patches, becoming more mixed turf, stones and sand towards the end. Turf supports hydroid turf (C) including *Nemertesia ramosa* (F), *Halecium halecinum* (P) and *Kirchenpaueria pinnata* (P). *Alcyonium digitatum* (R), *Munida rugosa* (P), *Pecten maximus* (P), *Asterias rubens* (F), *Echinus esculentus* (F), *Laminaria hyperborea* (O).	SS.SMx.IMx.Lim	SB:MX	FS	N
D07	Shelly, silty, medium sand (50%) with gravel (15%), pebbles (25%), cobbles (5%), boulders (<1%) and shells (5%)	Apparently fairly sparse *Limaria* with scattered nests locally covering possibly 5 - 10% of seabed. Turf patches apparently support filamentous red algae (locally C). Sessile biota includes fairly sparse hydroids including *Nemertesia ramosa* (O), *Balanus* spp. (P), serpulid worms (F) and *Laminaria hyperborea* (O). *Aequipecten opercularis* (O), *Antedon* spp. (F), *Ophiura albida* (locally C), *Asterias rubens* (O), *Marthasterias glacialis* (P), *Solaster endeca* (P), *Luidia ciliaris* (P), *Echinus esculentus* (F). Sharp delineation between patchy *Limaria* habitat and distinct dredge impact (at 00:01:27 on video GOPR7494) in the form of parallel bands of sand with sparsely scattered gravel and pebbles separated by narrow lines of dense pebbles, gravel and cobbles. At least five parallel dredge tracks.	*SS.SMx.IMx.Lim*, SS.SMx.IMx	SB:MX	FS	**Y**

Table 2.2 continued

Site	Substrate	Biota	Biotopes	Annex1	PMFs	Dredge damage
D08	Shelly, silty sand with scattered boulders (10%) and cobbles (15%)	Mosaic of *Limaria* turf (c. 35%), sand, boulders and cobbles. Stones support sparse *Laminaria hyperborea* (F), serpulid worms (O) and clumps of *Antedon* spp. (F, locally C). Turf and stones support foliose (R) and filamentous (locally C) red algae, hydroid turf (locally A) including *Halecium halecinum* (P) and *Kirchenpaueria pinnata* (P), solitary ascidians (F) including *Corella parallelogramma* (P), *Ascidiella aspersa*? (P) and *Ascidia virginea*? (P). *Munida rugosa* (O), *Aequipecten opercularis* (F), *Ophiura* sp. (P), *Asterias rubens* (P), *Echinus esculentus* (F).	SS.SMx.IMx.Lim	SB:MX	FS	N
D09	Shelly, gravelly sand with much broken and whole shells (10%), especially *Ensis*	Shells support pink corraline algae (R), serpulid worms (O) and sparse hydroids (O) including *Halecium halecinum* (P), and fairly sparse clumps of algae (O) including filamentous (O) and foliose (R) red algae and *Desmarestia* sp. (R); *Laminaria hyperborea* (F), *Saccharina latissima*? (R). *Cerianthus lloydii* (locally F), *Cancer pagurus* (P), bivalve siphons (P), *Antedon* spp. (O, locally F), *Ophiura ophiura* (F), *Ophiura albida* (P), *Asterias rubens* (F, locally C), *Marthasterias glacialis* (P), *Luidia ciliaris* (P), *Echinus esculentus* (O), *Ascidiella aspersa* (R). Area possibly disturbed by demersal fishing with some broken shells but no clear evidence of recent activity.	*SS.SMx.IMx*	SB:MX		P
D10	Shelly, silty sand (74%) with scattered boulders (<1%), cobbles (1%), pebbles (10%), gravel (10) and shells (5%)	Stones encrusted with pink coralline algae (R) and serpulid worms (F) including *Spirobranchus* spp. (P), and supporting kelp park (F, locally C) including *Saccharina latisima* (P) and *Laminaria hyperborea* (P). Algal turf (A, locally S) dominated by filamentous reds (A, locally S), with *Desmarestia* sp. (R). *Lanice conchilega* (P), *Munida rugosa* (O), *Hyas* sp. (P), *Inachus* sp. (P), *Cancer pagurus* (P), *Calliostoma zizyphinum* (P), *Buccinum undatum* (P), *Aequipecten opercularis* (F, locally C), *Pecten maximus* (R), *Antedon* spp. (F), *Ophiura albida* (C, locally A), *Asterias rubens* (O), *Luidia ciliaris* (O), *Solaster endeca* (P), *Porania pulvillus* (R), *Echinus esculentus* (O), *Ciona intestinalis* (R).	SS.SMp.KSwSS.LsacR	SB:KS	KS	N

Table 2.2 continued

Site	**Substrate**	**Biota**	**Biotopes**	**Annex1**	**PMFs**	**Dredge damage**
D11	Muddy or silty shelly sand with scattered pebbles, gravel and shells	Stones encrusted with pink coralline algae and serpulid worms including *Serpula vermiculais* (P). Algal turf (A, locally S) dominated by filamentous reds (A, locally S), with *Plocamium cartilagineum* (P) and other foliose reds (P). *Galathea* sp. (P), *Hyas* araneus (P), *Inachus* sp. (P), *Cancer pagurus* (P), *Ophiura albida* (C, locally A), *Ophiura ophiura* (P), *Asterias rubens* (P), *Luidia ciliaris* (P), *Porania pulvillus* (P), *Corella parallelogramma* (P), *Ascidiella aspersa* (P).	SS.SMp.KSwSS.LsacR	SB:KS	KS	N
D12	Dense pebbles (60%) and gravel (20%), with cobbles (3%) and shells (2%) on sand	Dense but patchy *Saccharina latissima* (A) with stones supporting encrusting biota of serpulid worms (F), pink (R) and brown (R) algae and very sparse filamentous (R) and foliose (R) red algae and *Desmarestia aculeata* (R). Very sparse thalli of live maerl (R, <1%). *Pecten maximus* (P), *Aequipecten opercularis* (P), *Ophiura* sp. (P), *Asterias rubens* (P), *Echinus esculentus* (F), *Lophius piscatorius* (P).	*SS.SMp.KSwSS.LsacR*	SB:KS	KS	N
D13	Maerl on sand	Close-up photos only, so abundance estimates difficult. Sand covered by fairly dense but largely dead maerl with live *Phymatolithon calcareum* <10% cover at least locally. Maerl supports dense filamentous red algal turf (*Trailliella* - like, probably A), as well as *Plocamium cartilagineum* (P), *Corallina officinalis* (P), *Furcellaria lumbricalis/Polyides rotundus*, *Ulva lactuca*? (P) and *Dictyota dichotoma* (P); Laminariaceae sp. (P). Paguridae sp. (P), *Hyas* sp. (P), *Antedon bifida* (P), *Ophiura albida* (P), *Ophiothrix fragilis* (P), *Pomatoschistus pictus* (P). *Limaria hians* present but abundance unknown. Maerl bed does not appear thick enough to support significant *Limaria* abundance.	SS.SMp.Mrl.Pcal.R	SB:MB	MB	N
D14	Mixed sediment of sand with much maerl and shell gravel	Close-up photos only, so abundance estimates difficult. Scattered large live maerl thalli (probably R). Filamentous, *Trailliella*-like, red algae (A-S at least locally), *Ulva lactuca*? (P), *Lanice conchilega* (P), *Asterias rubens* (P).	SS.SMp.KSwSS.LsacR	SB:KS	KS	N

Table 2.2 continued

Site	**Substrate**	**Biota**	**Biotopes**	**Annex1**	**PMFs**	**Dredge damage**
D15.1	Scattered boulders, cobbles and bedrock patches emerging from coarse sand, with large patches of coarse sand with shell gravel in long, shallow waves	Rock will be sand-scoured and supports *Laminaria hyperborea* (C) and *Saccharina latissima* (P) with *L. hyperborea* stipes supporting dense foliose red algae including *Delesseria sanguinea* and probably *Cryptopleura ramosa*. *Lanice conchilega* (P), *Neopentadactyla mixta* (P), *Callionymus* sp. (P).	IR.HIR.KSed.XKScrR, *SS.SCS.CCS.Nmix*	RF:STSB:GS	MC?	N
D15.2	Coarse sand and maerl gravel	*Limaria hians* bed (100% cover over extensive area) supporting *Laminaria hyperborea* forest (A) and foliose (locally F) and filamentous (locally F) red algae with some kelp stipes heavily epiphytised by foliose red algae, including *Delesseria sanguinea*. *Tubulanus* sp. (P), Paguridae sp. (P), *Hyas araneus* (P), *Calliostoma zizyphinum* (P), *Steromphala cineraria* (P), *Buccinum undatum* (P), *Aequipecten opercularis* (P), *Henricia* sp. (P), *Ophiocomina nigra* (C, locally A), *Echinus esculentus* (F), *Neopentadactyla mixta* (P), *Pomatoschistus pictus* (P), live maerl thalli (R overall).	SS.SMx.IMx.Lim, IR.MIR.KT.XKTX	SB:GS	FS	N
D15.3	Maerl gravel (53%), live maerl (30%), pebbles (15%), cobbles (2%), boulders (<1%)	*Phymatolihon calcareum* maerl bed with live thalli overall around 30% cover (C). Stones encrusted with serpulid worms (F) including *Spirobranchus* spp., brown (R) and pink coralline algae O). *Laminaria hyperborea* (C), *Saccharina latissima* (O), generally sparse filamentous and foliose red algae (R). *Urticina felina* (P), Paguridae sp. (P), *Hyas araneus* (P), *Pecten maximus* (P), *Asterias rubens* (P), *Crossaster papposus* (P), *Ophiocomina nigra* (C, locally A), *Echinus esculentus* (F), *Neopentadactyla mixta* (P), *Pomatoschistus pictus* (P), *Callionymus* sp. (P). *Limaria hians* (P but abundance unknown).	SS.SMp.Mrl.Pcal	SB:MB	MB	N

Table 2.2 continued

Site	Substrate	Biota	Biotopes	Annex1	PMFs	Dredge damage
D16	Areas of coarse sand and shell and maerl gravel with varying amounts of stone gravel and pebbles	Photos only so abundance estimates difficult. Patchy *Limaria hians* bed. Apparently fairly sparse flora of filamentous and foliose red algae including *Phycodrys rubens*, and *Laminaria hyperborea*. Infauna includes bivalve molluscs (siphons visible), *Lanice conchilega*, *Neopentadactyla mixta* and *Thyonidium drummondi*? *Anemonia viridis*, *Urticina* sp., *Galathea squamifera*, Paguridae sp., *Trivia monacha*, *Buccinum undatum* eggs, *Pecten maximus*, Doridacea sp., Crinoidea sp., *Ophiocomina nigra* (locally A), *Echinus esculentus*, *Pyura microcosmus*?, *Polycarpa pomaria*?, *Scyliorhinus canicula*, *Myoxocephalus scorpius*. Live maerl present but abundance indeterminable.	SS.SMx.IMx.Lim	SB:MX	FS	N

Table 2.3. Positional, temporal and depth details for the SNH 2008 and 2009 dive surveys in Strome Narrows. Also shown is the imagery analysed and the benthic samples collected.

Site name (this report)	Sample name (Marine Recorder)	Date	Dive codes	Latitude	Longitude	Maximum depth BCD (m)	Depth cores BCD (m)	Imagery analysed	Samples collected
Conservation Bay	CB *Limaria* interest 2009	04/03/2009	2009_D01, 2009_D02	57.357660	-5.568090	11.5	9.4	S-LCARR-0309-01.DV [1 clip - 00:00:00 - 00:06:45]; DSCF1475-DSCF1488.JPG [7 stills]; DSCF0183-DSCF0867.JPG [28 stills]	3 x biotic cores, 3 x PSA cores, 1 x *Limaria* byssal turf sample
North Strome Slip	NS *Limaria* interest 2008	20/02/2008	2008_D01, 2008_D02	57.357840	-5.552540	11.5		S-LCARR-0208-01.DV [1 clip - 00:00:00 - 00:11:06]; DSCF0290.JPG & DSCF0497-DSCF0625.JPG [80 stills]; DSCF0655.JPG & DSCF0292-DSCF0333.JPG [29 stills]	No samples
North Strome Slip	NS non-*Limaria* interest 2009	05/03/2009	2009_D05	57.357840	-5.552540	8.1	7.3	DSCF0873.JPG [1 still]	3 x biotic cores, 3 x PSA cores
North Strome Slip	NS *Limaria* interest 2009	05-06/03/2009	2009_D03, 2009_D04, 2009_D06, 2009_D07	57.357840	-5.552540	11.4	7.5	S-LCARR-0309-01.DV [1 clip - 00:06:45 - 00:28:50] with associated stills DSC_5370.JPG & DSCF1534 - DSCF1550.JPG [42 stills]. S-LCARR-0309-02.DV [1 clip - 00:00:00 - 00:29:32] with associated stills DSC_5420 - DSC_5497.JPG [68 stills]. DSC_5502 - DSC_5602.JPG & DSCF0882 - DSCF0949.JPG [106 stills]. DSCF1495 - DSCF1529.JPG [27 stills]	3 x biotic cores, 3 x PSA cores, 1 x *Limaria* byssal turf sample

Table 2.4. Physical and biological descriptions of habitats recorded during the SNH 2008 and 2009 surveys. PMF and Annex 1 habitat codes are defined in Tables 1.3 and 1.4 above. Uncertain biotope assignments are italicized. Site labels correspond to those in Table 2.3.

Sample name (Marine Recorder)	**Substrate**	**Epibiota**	**Core and turf biota**	**Biotopes**	**Annex 1**	**PMFs**
CB *Limaria* interest 2009	Mixed substrate of dense pebbles and some cobbles and shells (including *Modiolus modiolus*) on silty sand and gravel	Patchy *Limaria hians* bed with some *Limaria* exposed. Byssal turf binds stones and algal material and supports a patchy red algal turf (locally A) of largely foliose species including *Phycodrys rubens* (P). Stones encrusted with pick coralline algae (O), brown algae (P) and serpulid worms (P). Turf also supports park of *Laminaria hyperborea* (F), with *Saccharina latissima* (P). Sessile fauna includes hydroids (O), *Protanthea simplex* (P), *Modiolus modiolus* (P) and colonial (P) and solitary ascidians (P) such as *Ascidia virginea* and *Polycarpa pomaria*. Motile fauna dominated by ophiuroids including *Ophiocomina nigra* (A, locally S) and *Ophiopholis aculeata* (P). Other motile species include *Galathea* sp., Paguridae spp. including *Pagurus bernhardus*, *Hyas araneus*, *Liocarcinus depurator*, *Necora puber*, *Buccinum undatum* (with eggs), *Calliostoma zizyphinum*, *Polycera faeroensis*, *Pecten maximus*, *Asterias rubens*?, *Crossaster papposus*, *Echinus esculentus*, small teleosts. The turf at the site of core and turf collection appears poorly developed, being thin and patchily distributed, leaving most of the constituent pebbles exposed.	All cores taken in flame shell habitat. Two of the three cores contain *Limaria hians*, but all three cluster very closely together in MDS analysis (ERT, 2009), hence all referred to SS.SMx.IMx.Lim. *Limaria* turf sample contains 3 *Limaria hians*.	SS.SMx.IMx.Lim, SS.SMx.CMx.OphMx, IR.MIR.KT.XKTX	SB:MX	FS TS:KS

Table 2.4 continued

Sample name (Marine Recorder)	**Substrate**	**Epibiota**	**Core and turf biota**	**Biotopes**	**Annex 1**	**PMFs**
NS *Limaria* interest 2008	*Limaria hians* byssal turf incorporating pebbles and shells covers much of the seabed with mosaicked patches of gravel and coarse sand	For much of dive well-developed *Limaria hians* turf around 100% cover integrating pebbles, algal material and shells and supporting patches of *Laminaria hyperborea* park (locally F). Turf declines to around 50% in later part of dive; some *Limaria* exposed. Stones encrusted with pink coralline algae and serpulid worms. Turf supports red algal turf (C locally), *Alcyonium digitatum* (R, locally F), *Protanthea simplex* (C, locally A), and solitary ascidians including *Ciona intestinalis* (locally C), *Ascidia virginea* (P), *Corella parallelogramma* (P) and *Polycarpa pomaria*? (P). Sessile biota includes *Myxilla incrustans* (R), *Halecium halecinum* (P), *Cereus pedunculatus* (P), *Anemonia viridis* (P), *Metridium senile* (P), *Urticina* spp. (F) including *U. eques*, *Myxicola infundibulum* (P) and *Sabella pavonina* (locally F). Motile fauna includes *Galathea* sp. (P), *Munida rugosa* (P), *Hyas araneus* (P), *Necora puber* (P), *Steromphala cineraria* (P), *Doris pseudoargus*? (P), *Ophiocomina nigra* (A), *Ophiothrix fragilis* (P), *Antedon bifida* (R), *Asterias rubens* (P), *Crossaster papposus* (P), *Marthasterias glacialis* (P), *Echinus esculentus* (O), *Psammechinus miliaris* (P), *Pomatoschistus pictus* (P) and *Taurulus bubalis* (P). *Phymatolithon calcareum* thalli (R, <1%). Depth gauge on video indicates depth at start of *Limaria* bed footage around 10.5 m CD and around 8.5 m CD at end.		SS.SMx.IMx.Lim, SS.SMx.CMx.OphMx, IR.MIR.KT.XKTX	SB:MX	FS TS:KS

Table 2.4 continued

Sample name (Marine Recorder)	**Substrate**	**Epibiota**	**Core and turf biota**	**Biotopes**	**Annex 1**	**PMFs**
NS non-*Limaria* interest 2009	Gravel and coarse sand	Imagery too dark to be informative.	First two cores in gravelly coarse sand, third core in coarse sand. Diver notes that first two cores are from maerl, third from coarse loose sediment. However, maerl unrecorded in all three cores, hence possibly dead maerl gravel present. All three cores with *Glycera lapidum* and venerid bivalves, and first and third cores with *Spisula elliptica*, all characteristic of certain SS.SCS.ICS biotopes. Tide-swept conditions, coarse sediment and shallow depth also suggestive of SS.SCS.ICS. However, at least first two cores could be from SS.SMp.Mrl.Pcal.	*SS.SCS.ICS*	SB:GS	

Table 2.4 continued

Sample name (Marine Recorder)	Substrate	Epibiota	Core and turf biota	Biotopes	Annex 1	PMFs
NS *Limaria* interest 2009	Highly variable throughout dives. See biota description	Video S-CARR-0309-01 and associated stills show initially coarse sand with scattered cobbles and boulders supporting *Laminaria hyperborea* (C locally) to c. 00:09:43. Some still images suggest that some of this may be a live maerl bed. Some patches of *Laminaria* underlain by *Limaria* turf incorporating much kelp material. Then onto maerl gravel with scattered pebbles and cobbles with live maerl at least 30% cover in places, locally in association with patches of *Limaria* turf; dense *Protanthea simplex* (C-A). From c. 00:17:47 mostly *Limaria* turf binding algal material including live maerl and supporting red algal turf (C); *P. simplex* (A), *Ophiocomina nigra* (A). The density and extent of live maerl cannot be determined due to general absence of lighting, but stills suggest dense live maerl may be present here. Towards the end of the run the *Limaria* turf becomes patchier and consolidates patches of maerl, pebbles and cobbles and forms a mosaic with maerl gravel and scattered pebbles. Other taxa observed: *Urticina* spp., *Hyas araneus*, *Buccinum undatum*, *Chlamys varia*?, *Antedon* sp., *Asterias rubens*, *Crossaster papposus*, *Echinus esculentus*, *Psammechinus miliaris*, *Pomatoschistus pictus*, *Gobiusculus flavescens*, *Pollachius* sp.? Video S-LCARR-0309-02 and associated stills show initially gravel and possibly coarse sand moving quickly onto *Limaria hians* byssal turf supporting patchy *Laminaria hyperborea* park (F, locally C). The turf is well-developed and binds much algal material and gravel and covers c. 95% of seabed over much of dive, very thick in places (at least 15 cm), and with small patches of gravel. Byssal turf supports red algal turf (C), hydroids (O) including *Halecium halecinum*, *Alcyonium digitatum* (R, locally F), *Protanthea simplex* (C, locally A), *Urticina* spp. (F) including *U. eques*, *Sabella pavonina* (F locally) and solitary ascidians	All cores and turf sample taken in flame shell habitat. All cores and turf sample contain *Limaria hians* and cluster closely together in MDS analysis (ERT, 2009), hence all referred to SS.SMx.IMx.Lim.	SS.SMx.IMx.Lim, SS.SMp.Mrl.Pcal, SS.SMx.CMx.OphMx, IR.MIR.KT.XKTX, *SS.SCS.ICS*	SB:MB SB:MX SB:GS	FS MB TS:KS

Table 2.4 continued

Sample name (Marine Recorder)	Substrate	Epibiota	Core and turf biota	Biotopes	Annex 1	PMFs
		including *Ciona intestinalis* and *Polycarpa pomaria*, and live maerl (R). Motile species include *Galathea* sp., Paguridae sp., *Hyas araneus*, Polyplacophora sp., *Chlamys varia*?, *Tritonia hombergi*, *Antedon* sp. (R), *Asterias rubens*, *Marthasterias glacialis*, *Crossaster papposus*, *Ophiocomina nigra* (C, locally A), *Ophiura albida* (on gravel), *Echinus esculentus* (F), Gobiidae spp. including *Gobiusculus flavescens*, *Myoxocephalus scorpius*?.Additional taxa recorded in stills DSCF0882 - DSCF0949.JPG and DSCF1495 - DSCF1529.JPG include *Solaster endeca, Pandalus montagui* and *Taurulus bubalis* (on *Limaria* bed), and dense patch of *Saccharina latissima* with *Saccorhiza polyschides* on boulders on coarse sand.				

ANNEX 3: MSS 2017 GRAB SURVEY DATA

Table 3.1. Location and depth of 0.1 m^2 grab samples with evidence of flame shell habitat and number of retained Limaria hians and unidentified Limaria juveniles.

Grab	Latitude	Longitude	Date	Depth BCD (m)	Flame shell habitat	*Limaria hians*	*Limaria* juvenile indet.
LC-G1	57.362268	-5.650388	04/05/2017	17.6	yes	26	
LC-G2	57.362822	-5.650110	04/05/2017	17.5	yes	7	3
LC-G3	57.362415	-5.650087	04/05/2017	17.5	yes	18	1
LC-G4	57.362622	-5.651050	04/05/2017	18.4	yes	8	1
LC-G5	57.364212	-5.652873	04/05/2017	24.4	no		
LC-G6	57.363658	-5.653405	04/05/2017	22.3	no		
LC-G7	57.359670	-5.651065	04/05/2017	22.2	no		
LC-G8	57.359960	-5.651258	04/05/2017	18.2	no		
LC-G9	57.352270	-5.658703	04/05/2017	18.4	no		
LC-G10	57.352373	-5.657943	04/05/2017	17.4	no	1	
LC-G11	57.352807	-5.658112	04/05/2017	14.4	no		
LC-G12	57.350263	-5.657445	04/05/2017	20.4	no		
LC-G13	57.350222	-5.657985	04/05/2017	24.4	no		
LC-G14	57.350773	-5.657408	04/05/2017	21.4	no		
LC-G15	57.351092	-5.657622	04/05/2017	22.4	no		
LC-G16	57.351622	-5.658018	04/05/2017	22.4	no		

*Table 3.2. Dimensions of Limaria hians individuals sampled by grab. *only one shell present.*

Grab	Length (mm)	Width (mm)	Breadth (mm)
LC-G1	23	19	35
	14	11	24
	13	12	23
	17	13	31
	18	19	32
	15	14	27
	13	10	23
	14	10	20
	14	13	28
	13	9	24
	7	5	14
	6	4	12
	5	3	11
	6	4	13
	7	5	15
	5	3	12
	10	5	20
	5	5	12
	5	2	10
	5	3	11
	8	3	16
	20	8	28
	7	3	14
	6	3	13
	17*	-	32
	10*	-	16
LC-G2	13	11	25
	8	7	16
	18	14	29
	16	13	30
	6	4	13
	5	3	10
	7	4	13

Grab	Length (mm)	Width (mm)	Breadth (mm)
LC-G3	21	15	3
	17*	-	29
	13	3	12
	7	9	19
	18*	-	31
	14	13	24
	6	9	17
	12	4	12
	7	4	15
	7	5	19
	5	3	13
	5	2	13
	7	5	14
	5	5	12
	3	1	7
	7	12	21
	5	4	9
	6	6	15
LC-G4	17	13	3
	20	17	32
	10	1	23
	7	5	16
	7	5	15
	5	3	13
LC-G10	2.5	2	3.5

ANNEX 4: DRIFT DIVE SURVEY DATA

Table 4.1. Diver recording form. Form continued on reverse side of slate for sites 6 - 10.

Transect: Course: Diver: Date: SMB length:

Site	1	2	3	4	5
Depth (m)					
SMB bearing					
Time (hh:mm:ss)					
Lim nest cover (%)					
Nest thickness (cm)					
Limaria seen (Y/N)					
Density <1/0.1m^2 (Y/N)					
Modiolus SACFOR					
Live maerl (%)					
Dead maerl (%)					
Ophiuroids (SACFOR)					
Algal turf (%)					
Lam hyp SACFOR					
Sac lat SACFOR					
Substrate					
Comments/biota notes					

Table 4.2. Diver drift survey sampling details and Limaria data collected. Y = yes, N = no, OH = SMB overhead. Surveyors are BJ (Ben James), DH (Dan Harries), GS (Graham Saunders), KT (Kieran Tulbure), LK (Lisa Kamphausen, RC (Rob Cook), RH (Rob Harbour).

Site	Date	Latitude	Longitude	Course (°M)	SMB length (m)	SMB bearing (°M)	Time (UT)	Depth BCD (m)	Surv-eyor	*Limaria* cover (%)	Nest thickness (cm)	*Limaria* present	*Limaria* SACFORN N to F
DD01.1	03/08/2017	57.358140	-5.548588	70	25	70	12:09:53	14.3	RH	90	7	Y	N
DD01.2	03/08/2017	57.358318	-5.547945	70	25	90	12:15:55	15.1	RH	90	10	Y	N
DD01.3	03/08/2017	57.358390	-5.547252	70	25	90	12:21:06	15.4	RH	90	10	Y	N
DD01.4	03/08/2017	57.358492	-5.546597	70	25	90	12:26:00	15.6	RH	70	15	Y	N
DD01.5	03/08/2017	57.358709	-5.545905	70	25	90	12:32:45	16.3	RH	80	10	Y	N
DD01.6	03/08/2017	57.358809	-5.545658	70	25	OH	12:37:10	18.5	RH	80	6	Y	N
DD02.1	03/08/2017	57.356882	-5.548313	90	25	90	13:25:49	12.1	KT	20	9	Y	N
DD02.2	03/08/2017	57.356949	-5.548190	90	25	90	13:30:18	12.1	KT	100	15	Y	N
DD02.3	03/08/2017	57.357115	-5.547286	90	25	90	13:36:57	11.5	KT	95	30	Y	N
DD02.4	03/08/2017	57.357238	-5.546098	90	25	90	13:47:38	10.7	KT	85	23	Y	N
DD02.5	03/08/2017	57.357311	-5.545645	90	25	90	13:50:03	12.1	KT	100	20	Y	N
DD02.6	03/08/2017	57.357369	-5.544829	90	25	90	13:55:35	13.1	KT	75	20	Y	N
DD02.7	03/08/2017	57.357482	-5.544131	90	25	90	14:02:13	16.8	KT	90	18	Y	N
DD02.8	03/08/2017	57.357493	-5.544354	90	25	90	14:04:22	23.4	KT	100	?	Y	N
DD03.1	03/08/2017	57.355220	-5.548815	95	15	100	12:26:15	6.6	DH	50	4	Y	N
DD03.2	03/08/2017	57.355282	-5.547469	95	15	100	12:33:30	6.2	DH	30	3	Y	Y
DD03.3	03/08/2017	57.355273	-5.546038	95	15	90	12:42:00	5.2	DH	20	4	Y	Y
DD03.4	03/08/2017	57.355316	-5.544734	95	15	90	12:51:00	5.5	DH	30	4	Y	N
DD03.5	03/08/2017	57.355423	-5.543434	95	15	90	12:58:40	5.2	DH	10	3	Y	Y
DD03.6	03/08/2017	57.355508	-5.542133	95	15	90	13:06:00	5.9	DH	10	3	Y	Y
DD04.1	03/08/2017	57.357868	-5.554062	90	19	OH	13:52:36	8.9	GS	90	3	Y	N
DD04.2	03/08/2017	57.357890	-5.553248	90	19	OH	14:00:30	7.8	GS	0	0	N	Y
DD04.3	03/08/2017	57.357920	-5.552533	90	19	OH	14:13:15	8.3	GS	100	5	Y	N

Table 4.2 continued

Site	Date	Latitude	Longitude	Course (°M)	SMB length (m)	SMB bearing (°M)	Time (UT)	Depth BCD (m)	Surv-eyor	*Limaria* cover (%)	Nest thickness (cm)	*Limaria* present	*Limaria* SACFORN N to F
DD04.4	03/08/2017	57.357990	-5.551862	90	19	OH	14:18:33	11.8	GS	100	4	Y	N
DD04.5	03/08/2017	57.358067	-5.551090	90	19	OH	14:25:50	12.4	GS	93	4	Y	N
DD04.6	03/08/2017	57.358136	-5.550366	90	19	OH	14:35:00	10.9	GS	0	0	N	Y
DD05A.1	02/08/2017	57.358408	-5.553427	180	15	180	15:00:34	5.5	RH	0	0	N	Y
DD05A.2	02/08/2017	57.358325	-5.553483	180	15	180	15:06:00	5.1	RH	0	0	N	Y
DD05A.3	02/08/2017	57.358198	-5.553532	180	15	180	15:10:00	6.5	RH	0	0	N	Y
DD05A.4	02/08/2017	57.358086	-5.553631	180	15	180	15:13:00	7.8	RH	0	0	N	Y
DD05A.5	02/08/2017	57.357968	-5.553733	180	15	180	15:17:23	8.3	RH	0	0	N	Y
DD05A.6	02/08/2017	57.357919	-5.553845	180	15	180	15:20:30	8.9	RH	80	10	Y	N
DD05A.7	02/08/2017	57.357721	-5.553855	180	15	180	15:28:08	7.7	RH	80	10	Y	N
DD05A.8	02/08/2017	57.357581	-5.554026	180	15	180	15:32:50	7.9	RH	90	15	Y	N
DD05A.9	02/08/2017	57.356981	-5.554518	180	15	180	15:39:35	11.0	RH	100	10	Y	N
DD05B.1	03/08/2017	57.358140	-5.553229	180	17	OH	16:10:00	7.1	DH	0	0	N	Y
DD05B.2	03/08/2017	57.358027	-5.553210	180	17	OH	16:15:00	7.4	DH	8	5	Y	Y
DD05B.3	03/08/2017	57.357934	-5.553232	180	17	OH	16:19:20	8.1	DH	8	3	Y	Y
DD05B.4	03/08/2017	57.357847	-5.553209	180	17	OH	16:24:50	8.3	DH	0	0	N	Y
DD05B.5	03/08/2017	57.357755	-5.553239	180	17	OH	16:29:50	8.5	DH	10	5	Y	Y
DD05B.6	03/08/2017	57.357654	-5.553308	180	17	OH	16:35:45	9.0	DH	90	7	Y	N
DD05B.7	03/08/2017	57.357470	-5.553369	180	17	OH	16:40:40	9.6	DH	90	5	Y	N
DD06.1	03/08/2017	57.357144	-5.562297	105	25	100	15:37:40	9.7	RH	0	0	N	Y
DD06.2	03/08/2017	57.357108	-5.561308	105	25	100	15:44:00	8.5	RH	0	0	N	Y
DD06.3	03/08/2017	57.357103	-5.560495	105	25	100	15:49:00	11.9	RH	80	5	Y	N
DD06.4	03/08/2017	57.357076	-5.559738	105	25	100	15:53:56	11.8	RH	80	7	Y	N
DD06.5	03/08/2017	57.357037	-5.558941	105	25	90	16:00:36	10.8	RH	90	7	Y	N
DD06.6	03/08/2017	57.356903	-5.558195	105	25	60	16:07:12	9.7	RH	100	10	Y	N

Table 4.2 continued

Site	Date	Latitude	Longitude	Course (°M)	SMB length (m)	SMB bearing (°M)	Time (UT)	Depth BCD (m)	Surv-eyor	*Limaria* cover (%)	Nest thickness (cm)	*Limaria* present	*Limaria* SACFORN N to F
DD06.7	03/08/2017	57.356757	-5.557553	105	25	60	16:13:36	13.3	RH	60	20	Y	N
DD06.8	03/08/2017	57.356580	-5.556939	105	25	60	16:19:13	11.7	RH	70	15	Y	N
DD07.1	03/08/2017	57.355710	-5.563090	100	15	OH	15:00:50	12.0	RC	90	10	Y	N
DD07.2	03/08/2017	57.355711	-5.561072	100	15	OH	15:06:20	13.0	RC	70	8	Y	N
DD07.3	03/08/2017	57.355621	-5.559049	100	15	OH	15:11:50	13.5	RC	70	6	Y	N
DD08.1	04/08/2017	57.355580	-5.576569	95	15	30	11:37:53	6.4	RH	0	0	N	Y
DD08.2	04/08/2017	57.355640	-5.575598	95	15	40	11:43:18	5.8	RH	0	0	N	Y
DD08.3	04/08/2017	57.355446	-5.574734	95	15	OH	11:56:50	3.7	RH	10	?	Y	?
DD09.1	04/08/2017	57.357322	-5.575297	295	25	295	10:47:47	14.4	KT	40	8	Y	N
DD09.2	04/08/2017	57.357342	-5.575788	295	25	295	11:01:06	15.5	KT	60	12	Y	N
DD09.3	04/08/2017	57.357391	-5.576328	295	25	295	11:11:30	16.7	KT	35	11	Y	N
DD09.4	04/08/2017	57.357480	-5.576715	295	25	295	11:21:21	17.2	KT	60	10	Y	N
DD09.5	04/08/2017	57.357558	-5.577224	295	25	295	11:27:37	16.1	KT	55	11	Y	N
DD10.1	04/08/2017	57.356444	-5.585663	260	20	270	09:38:00	10.1	DH	80	8	Y	N
DD10.2	04/08/2017	57.356267	-5.586732	260	20	260	09:46:00	9.1	DH	80	7	Y	N
DD10.3	04/08/2017	57.356092	-5.587728	260	20	260	09:52:30	8.4	DH	80	7	Y	N
DD10.4	04/08/2017	57.355929	-5.588807	260	20	260	10:00:00	6.4	DH	55	6	Y	N
DD10.5	04/08/2017	57.355798	-5.589776	260	20	250	10:07:00	4.4	DH	25	4	Y	Y
DD10.6	04/08/2017	57.355723	-5.590723	260	20	245	10:15:40	3.0	DH	0	0	N	Y
DD11.1	04/08/2017	57.352571	-5.585016	220	15	OH	09:12:00	8.2	GS	80	5	Y	N
DD11.2	04/08/2017	57.352308	-5.585686	220	15	OH	09:22:00	8.4	GS	90	3	Y	N
DD11.3	04/08/2017	57.351887	-5.586347	220	15	OH	09:31:00	9.1	GS	85	3	Y	N
DD11.4	04/08/2017	57.351361	-5.587166	220	15	OH	09:40:00	9.6	GS	50	3	Y	N
DD11.5	04/08/2017	57.351075	-5.587643	220	15	OH	09:48:30	9.4	GS	85	3	Y	N
DD11.6	04/08/2017	57.350723	-5.588453	220	15	OH	09:58:00	9.7	GS	60	3	Y	N

Table 4.2 continued

Site	Date	Latitude	Longitude	Course (°M)	SMB length (m)	SMB bearing (°M)	Time (UT)	Depth BCD (m)	Surv-eyor	*Limaria* cover (%)	Nest thickness (cm)	*Limaria* present	*Limaria* SACFORN N to F
DD11.7	04/08/2017	57.350179	-5.589409	220	15	OH	10:06:00	10.2	GS	90	3	Y	N
DD12.1	04/08/2017	57.354101	-5.596369	255	15	237	08:20:30	2.7	RC	20	5	Y	N
DD12.2	04/08/2017	57.353818	-5.597537	255	15	236	08:28:18	4.9	RC	80	8	Y	N
DD12.3	04/08/2017	57.353680	-5.598166	255	15	257	08:31:34	7.4	RC	90	7	Y	N
DD12.4	04/08/2017	57.353519	-5.599154	255	15	257	08:38:35	5.4	RC	95	10	Y	N
DD12.5	04/08/2017	57.353329	-5.601026	255	15	246	08:45:28	3.6	RC	80	5	Y	N
DD13.1	02/08/2017	57.344730	-5.612350	105	25	98	12:53:00	14.3	LK	75	6	Y	N
DD13.2	02/08/2017	57.344631	-5.611881	105	25	88	12:58:38	13.8	LK	100	6	Y	N
DD13.3	02/08/2017	57.344476	-5.611102	105	25	84	13:05:16	15.2	LK	95	8	Y	N
DD13.4	02/08/2017	57.344248	-5.610327	105	25	80	13:12:20	13.7	LK	100	8	Y	N
DD13.5	02/08/2017	57.344066	-5.609298	105	25	97	13:20:20	12.0	LK	70	8	Y	N
DD14.1	02/08/2017	57.343783	-5.618840	80	12	OH	12:39:59	6.2	RH	0	0	N	Y
DD14.2	02/08/2017	57.343811	-5.618071	80	12	OH	12:45:11	6.1	RH	0	0	N	Y
DD14.3	02/08/2017	57.343872	-5.617140	80	12	OH	12:51:15	5.8	RH	0	0	N	Y
DD14.4	02/08/2017	57.343898	-5.616350	80	12	OH	12:55:56	4.7	RH	0	0	N	Y
DD14.5	02/08/2017	57.343951	-5.615500	80	12	OH	12:59:30	5.1	RH	0	0	N	Y
DD14.6	02/08/2017	57.344135	-5.614670	80	12	OH	13:03:41	6.3	RH	0	0	N	Y
DD15.1	02/08/2017	57.347048	-5.619607	105	12	OH	11:33:00	5.9	DH	20	5	Y	N
DD15.2	02/08/2017	57.346894	-5.618614	105	12	OH	11:41:15	6.2	DH	30	5	Y	N
DD15.3	02/08/2017	57.346652	-5.617543	105	12	OH	11:49:30	6.7	DH	10	7	Y	N
DD15.4	02/08/2017	57.346487	-5.616397	105	12	OH	11:56:15	6.9	DH	20	7	Y	N
DD15.5	02/08/2017	57.346231	-5.615274	105	12	OH	12:02:20	7.8	DH	30	5	Y	Y
DD15.6	02/08/2017	57.345988	-5.613977	105	12	OH	12:08:30	7.8	DH	25	5	Y	N
DD16.1	02/08/2017	57.345984	-5.628737	96	15	OH	11:22:16	9.3	KT	0	0	N	Y
DD16.2	02/08/2017	57.345829	-5.628094	96	15	OH	11:31:30	9.2	KT	0	0	N	Y

Table 4.2 continued

Site	Date	Latitude	Longitude	Course (°M)	SMB length (m)	SMB bearing (°M)	Time (UT)	Depth BCD (m)	Surv-eyor	*Limaria* cover (%)	Nest thickness (cm)	*Limaria* present	*Limaria* SACFORN N to F
DD16.3	02/08/2017	57.345795	-5.627171	96	15	OH	11:38:18	9.6	KT	0	0	N	Y
DD16.4	02/08/2017	57.345808	-5.626341	96	15	OH	11:46:03	8.5	KT	0	0	N	Y
DD16.5	02/08/2017	57.345797	-5.625585	96	15	OH	11:53:04	8.9	KT	0	0	N	Y
DD16.6	02/08/2017	57.345769	-5.624632	96	15	OH	11:59:03	16.2	KT	35	6	Y	Y
DD16.7	02/08/2017	57.345727	-5.623897	96	15	OH	12:07:04	16.1	KT	40	12	Y	N
DD17.1	31/07/2017	57.360193	-5.650270	245	25	OH	16:33:40	17.3	RC	0	0	N	Y
DD17.2	31/07/2017	57.360163	-5.650618	245	25	OH	16:38:00	15.9	RC	0	0	N	Y
DD17.3	31/07/2017	57.360153	-5.651023	245	25	OH	16:41:30	14.7	RC	8	3	Y	N
DD17.4	31/07/2017	57.360041	-5.651752	245	25	OH	16:49:30	15.3	RC	40	4	Y	N
DD17.5	31/07/2017	57.360042	-5.652166	245	25	OH	16:54:00	15.1	RC	1	0	Y	Y
DD18.1	31/07/2017	57.363125	-5.649505	?	25	OH	14:31:06	13.2	BJ	10	5	Y	Y
DD18.2	31/07/2017	57.363054	-5.649797	?	25	OH	14:42:13	14.2	BJ	25	8	Y	N
DD18.3	31/07/2017	57.362902	-5.649756	?	25	OH	14:52:47	13.9	BJ	18	8	Y	Y
DD19A.1	31/07/2017	57.363106	-5.650583	320	28	150	14:07:16	16.8	RH	50	10	Y	N
DD19A.2	31/07/2017	57.363117	-5.650578	320	28	150	14:14:16	16.5	RH	30	15	Y	N
DD19A.3	31/07/2017	57.363085	-5.650547	320	28	150	14:23:16	16.3	RH	50	10	Y	N
DD19A.4	31/07/2017	57.363058	-5.650496	320	28	150	14:26:42	16.0	RH	30	10	Y	N
DD19A.5	31/07/2017	57.362994	-5.650345	320	28	150	14:30:36	15.7	RH	30	15	Y	N
DD19A.6	31/07/2017	57.362926	-5.650149	320	28	150	14:36:06	15.6	RH	85	10	Y	N
DD19B.1	01/08/2017	57.363888	-5.652678	140	30	OH	12:29:45	20.3	LK	0	0	N	Y
DD19B.2	01/08/2017	57.363716	-5.652389	140	30	OH	12:36:15	19.3	LK	0	0	N	Y
DD19B.3	01/08/2017	57.363524	-5.652084	140	30	OH	12:43:36	18.6	LK	0	0	N	Y
DD19B.4	01/08/2017	57.363342	-5.651741	140	30	OH	12:49:20	17.9	LK	0	0	N	Y
DD20.1	31/07/2017	57.363065	-5.652729	320	25	340	15:34:39	16.1	LK	0	0	N	Y
DD20.2	31/07/2017	57.363312	-5.652995	320	25	330	15:45:40	17.5	LK	0	0	N	Y

Table 4.2 continued

Site	Date	Latitude	Longitude	Course (°M)	SMB length (m)	SMB bearing (°M)	Time (UT)	Depth BCD (m)	Surv-eyor	*Limaria* cover (%)	Nest thickness (cm)	*Limaria* present	*Limaria* SACFORN N to F
DD20.3	31/07/2017	57.363509	-5.653242	320	25	330	15:50:56	18.6	LK	0	0	N	Y
DD20.4	31/07/2017	57.363676	-5.653467	320	25	330	15:55:25	19.7	LK	0	0	N	Y
DD21.1	31/07/2017	57.362852	-5.653169	300	22	OH	15:22:15	13.3	DH	15	4	Y	Y
DD21.2	31/07/2017	57.363045	-5.653470	300	22	OH	15:30:00	13.7	DH	15	6	Y	Y
DD21.3	31/07/2017	57.363360	-5.653938	300	22	OH	15:37:00	14.8	DH	10	4	Y	Y
DD21.4	31/07/2017	57.363482	-5.654605	300	22	OH	15:43:40	14.6	DH	0	0	N	Y
DD21.5	31/07/2017	57.363656	-5.655226	300	22	OH	15:50:20	16.4	DH	0	0	N	Y
DD21.6	31/07/2017	57.363732	-5.655723	300	22	OH	15:55:50	17.7	DH	0	0	N	Y
DD22.1	01/08/2017	57.358164	-5.662423	0	25	OH	14:22:32	18.7	RH	50	10	Y	N
DD22.2	01/08/2017	57.358276	-5.662388	0	25	OH	14:26:23	17.4	RH	30	10	Y	N
DD22.3	01/08/2017	57.358553	-5.662314	0	25	OH	14:31:05	17.4	RH	30	15	Y	N
DD22.4	01/08/2017	57.358744	-5.662304	0	25	OH	14:38:09	17.6	RH	20	10	Y	N
DD22.5	01/08/2017	57.359039	-5.662227	0	25	OH	14:42:34	18.4	RH	40	10	Y	N
DD22.6	01/08/2017	57.359316	-5.662218	0	25	OH	14:47:06	19.0	RH	0	0	N	Y
DD23.1	01/08/2017	57.358216	-5.667956	63	25	OH	15:18:10	20.1	KT	0	0	N	Y
DD23.2	01/08/2017	57.358210	-5.667909	63	25	OH	15:26:36	17.9	KT	0	0	N	Y
DD23.3	01/08/2017	57.358329	-5.667613	63	25	OH	15:32:40	16.6	KT	0	0	N	Y
DD23.4	01/08/2017	57.358407	-5.667250	63	25	OH	15:38:25	15.9	KT	25	9	Y	Y
DD23.5	01/08/2017	57.358579	-5.666825	63	25	OH	15:46:30	15.9	KT	10	8	N	Y
DD23.6	01/08/2017	57.358671	-5.666523	63	25	OH	15:53:46	15.3	KT	20	10	N	Y
DD24.1	01/08/2017	57.364320	-5.651858	125	25	OH	12:19:04	16.7	BJ	0	0	N	Y
DD24.2	01/08/2017	57.364304	-5.651842	125	25	OH	12:25:07	16.3	BJ	10	5	Y	Y
DD24.3	01/08/2017	57.364156	-5.651383	125	25	OH	12:31:28	15.4	BJ	5	5	Y	Y
DD24.4	01/08/2017	57.363909	-5.650456	125	25	OH	12:42:21	14.3	BJ	<5	5	Y	Y
DD24.5	01/08/2017	57.363614	-5.649713	125	25	OH	12:53:52	12.8	BJ	<1	0	Y	Y

Table 4.2 continued

Site	Date	Latitude	Longitude	Course (°M)	SMB length (m)	SMB bearing (°M)	Time (UT)	Depth BCD (m)	Surv-eyor	*Limaria* cover (%)	Nest thickness (cm)	*Limaria* present	*Limaria* SACFORN N to F
DD26.1	01/08/2017	57.359607	-5.654841	90	25	OH	13:24:00	22.1	RC	0	0	N	Y
DD26.2	01/08/2017	57.359714	-5.654560	90	25	OH	13:29:50	19.5	RC	0	0	N	Y
DD26.3	01/08/2017	57.359835	-5.654124	90	25	OH	13:33:50	17.2	RC	5	1	Y	Y
DD26.4	01/08/2017	57.359915	-5.653594	90	25	OH	13:37:40	16.0	RC	8	1	Y	Y
DD26.5	01/08/2017	57.360046	-5.653083	90	25	OH	13:42:20	12.2	RC	0	0	N	Y
DD26.6	01/08/2017	57.360102	-5.652676	90	25	OH	13:45:40	14.6	RC	60	3	Y	N

Table 4.3. Diver drift survey habitat data collected, including evidence of dredge damage. Y = yes, N = no, P = possible.

Site	*Modiolus* SACFORN	Live maerl cover (%)	Dead maerl cover (%)	Brittlestar SACFORN	Algal turf cover (%)	*Laminaria hyperborea* SACFORN	*Saccharina latissima* SACFORN	Substrate	Biotopes	Dam-age
DD01.1	N	0	0	S	0	N	N	Coarse sand	SS.SMx.IMx.Lim, SS.SMx.CMx.OphMx	N
DD01.2	N	0	0	S	0	N	N	Coarse sand	SS.SMx.IMx.Lim, SS.SMx.CMx.OphMx	N
DD01.3	N	0	0	S	0	N	N	Coarse sand	SS.SMx.IMx.Lim, SS.SMx.CMx.OphMx	N
DD01.4	N	0	0	S	0	N	N	Coarse sand	SS.SMx.IMx.Lim, SS.SMx.CMx.OphMx	N
DD01.5	N	0	0	S	0	N	N	Coarse sand	SS.SMx.IMx.Lim, SS.SMx.CMx.OphMx	N
DD01.6	N	0	0	S	0	N	N	Coarse sand	SS.SMx.IMx.Lim, SS.SMx.CMx.OphMx	N
DD02.1	N	0	0	S	15	A	N	Coarse sand with shells	SS.SMx.IMx.Lim, SS.SMx.CMx.OphMx	N
DD02.2	N	0	0	S	85	C	N	Coarse sand with shells	SS.SMx.IMx.Lim, SS.SMx.CMx.OphMx	N
DD02.3	N	0	0	S	75	P	N	Coarse sand with shells	SS.SMx.IMx.Lim, SS.SMx.CMx.OphMx	N
DD02.4	N	0	0	S	30	N	N	Coarse sand with shells	SS.SMx.IMx.Lim, SS.SMx.CMx.OphMx	N
DD02.5	N	0	0	S	40	N	N	Coarse sand with shells	SS.SMx.IMx.Lim, SS.SMx.CMx.OphMx	N
DD02.6	N	0	0	S	40	P	N	Coarse sand with shells	SS.SMx.IMx.Lim, SS.SMx.CMx.OphMx	N
DD02.7	N	0	0	S	50	N	N	Coarse sand with shells	SS.SMx.IMx.Lim, SS.SMx.CMx.OphMx	N

Table 4.3 continued

Site	*Modiolus* SACFORN	Live maerl cover (%)	Dead maerl cover (%)	Brittlestar SACFORN	Algal turf cover (%)	*Laminaria hyperborea* SACFORN	*Saccharina latissima* SACFORN	Substrate	Biotopes	Dam-age
DD02.8	N	0	0	S	50	N	N	Coarse sand with shells	SS.SMx.IMx.Lim, SS.SMx.CMx.OphMx	N
DD03.1	N	0	0	A	5?	A	N	Coarse sand with pebbles (10-20%)	SS.SMx.IMx.Lim, SS.SMx.CMx.OphMx	N
DD03.2	N	0	0	A	5?	A	N	Coarse sand & gravel with pebbles (10-20%)	SS.SMx.IMx.Lim, SS.SMx.CMx.OphMx	N
DD03.3	F	0	0	A	5?	A	N	Coarse sand with pebbles (10-20%)	SS.SMx.IMx.Lim, SS.SMx.CMx.OphMx	N
DD03.4	C	0	0	A	40	A	N	Coarse sand with pebbles (10-20%)	SS.SMx.IMx.Lim, SS.SBR.SMus.ModT, SS.SMx.CMx.OphMx	N
DD03.5	C	0	0	A	30	A	N	Coarse sand with pebbles (10-20%)	SS.SMx.IMx.Lim, SS.SBR.SMus.ModT, SS.SMx.CMx.OphMx	N
DD03.6	F	0	0	A	30	A	N	Coarse sand with pebbles & cobbles (30-40%)	SS.SMx.IMx.Lim, SS.SMx.CMx.OphMx	N
DD04.1	N	0	0	C	20	A	N	Shell gravel	SS.SMx.IMx.Lim	N
DD04.2	N	15	85	P	20	P	A	Maerl gravel	SS.SMp.Mrl.Pcal	N
DD04.3	N	0	0	A	30	A	N	Shelly mud	SS.SMx.IMx.Lim, SS.SMx.CMx.OphMx	N
DD04.4	N	0	0	A	50	P	N	Muddy sand	SS.SMx.IMx.Lim, SS.SMx.CMx.OphMx	N
DD04.5	N	0	0	A	60	N	N	Shell gravel	SS.SMx.IMx.Lim, SS.SMx.CMx.OphMx	N
DD04.6	N	0	0	A	0	A	N	Bedrock		N
DD05A.1	N	0	0	N	10	N	A	Coarse sand		N
DD05A.2	N	0	0	N	20	C	A	Coarse sand		N
DD05A.3	N	0	0	N	0	A	A	Gravel, coarse sand, stones		N

Table 4.3 continued

Site	*Modiolus* SACFORN	Live maerl cover (%)	Dead maerl cover (%)	Brittlestar SACFORN	Algal turf cover (%)	*Laminaria hyperborea* SACFORN	*Saccharina latissima* SACFORN	Substrate	Biotopes	Dam-age
DD05A.4	N	0	0	N	0	N	A	Coarse sand		N
DD05A.5	N	0	0	C	0	N	S	Pebbles, gravel, rocks		N
DD05A.6	N	0	0	S	30	A	N	Gravel, coarse sand, stones	SS.SMx.IMx.Lim, SS.SMx.CMx.OphMx	N
DD05A.7	N	0	0	S	20	S	N	Gravel, coarse sand, stones	SS.SMx.IMx.Lim, SS.SMx.CMx.OphMx	N
DD05A.8	N	0	0	S	0	N	N	Gravel, coarse sand, stones	SS.SMx.IMx.Lim, SS.SMx.CMx.OphMx	N
DD05A.9	N	0	0	S	0	C	N	Gravel, coarse sand, stones	SS.SMx.IMx.Lim, SS.SMx.CMx.OphMx	N
DD05B.1	N	0	0	N	10	P	P	Medium / coarse sand with pebbles (5%)		N
DD05B.2	N	0	1	F	5-10	C	F	Medium / coarse sand with pebbles (5%)		N
DD05B.3	N	20	10	F	5-10	C	C	Maerl gravel with pebbles	SS.SMp.Mrl.Pcal	N
DD05B.4	N	35	15	F	1-5	C	C	Maerl gravel with pebbles (10-20%)	SS.SMp.Mrl.Pcal	N
DD05B.5	N	8	20	F	5-10	C	C	Maerl gravel with pebbles (20-30%)	SS.SMx.IMx.Lim	N
DD05B.6	N	0	0	A	1-5	A	F	*Limaria* nest cover	SS.SMx.IMx.Lim, SS.SMx.CMx.OphMx	N
DD05B.7	N	0	0	A	1-5	A	F	*Limaria* nest cover	SS.SMx.IMx.Lim, SS.SMx.CMx.OphMx	N
DD06.1	N	0	0	A	30	A	N	Rock		N
DD06.2	N	0	0	S	40	A	N	Rock, coarse sand		N
DD06.3	N	0	0	S	20	S	N	Coarse sand	SS.SMx.IMx.Lim, SS.SMx.CMx.OphMx	N
DD06.4	N	0	0	S	50	C	N	Coarse sand	SS.SMx.IMx.Lim, SS.SMx.CMx.OphMx	N

Table 4.3 continued

Site	*Modiolus* SACFORN	Live maerl cover (%)	Dead maerl cover (%)	Brittlestar SACFORN	Algal turf cover (%)	*Laminaria hyperborea* SACFORN	*Saccharina latissima* SACFORN	Substrate	Biotopes	Dam-age
DD06.5	N	0	0	S	30	C	N	Coarse sand	SS.SMx.IMx.Lim, SS.SMx.CMx.OphMx	N
DD06.6	N	0	0	S	60	A	N	Coarse sand	SS.SMx.IMx.Lim, SS.SMx.CMx.OphMx	N
DD06.7	N	0	0	S	60	F	N	Rock, coarse sand	SS.SMx.IMx.Lim, SS.SMx.CMx.OphMx	N
DD06.8	N	0	0	S	70	F	N	Coarse sand	SS.SMx.IMx.Lim, SS.SMx.CMx.OphMx	N
DD07.1	N	0	0	S	20	N	N	Coarse sand with shells	SS.SMx.IMx.Lim, SS.SMx.CMx.OphMx	N
DD07.2	N	0	0	S	10	O	N	Coarse sand with shells	SS.SMx.IMx.Lim, SS.SMx.CMx.OphMx	N
DD07.3	N	0	0	S	10	O	N	Coarse sand with shells	SS.SMx.IMx.Lim, SS.SMx.CMx.OphMx	N
DD08.1	N	0	0	N	0	A	F	Gravel, shells, pebbles		N
DD08.2	N	0	0	N	0	A	N	Gravel, shells, pebbles		N
DD08.3	C	0	0	C	20	C	A	Pebbles and *Modiolus*	SS.SMx.IMx.Lim, SS.SBR.SMus.ModT	N
DD09.1	C	0	0	S	35	N	N	Silty coarse sand	SS.SMx.IMx.Lim, SS.SBR.SMus.ModT, SS.SMx.CMx.OphMx	N
DD09.2	C	0	0	S	45	N	N	Silty coarse sand	SS.SMx.IMx.Lim, SS.SBR.SMus.ModT, SS.SMx.CMx.OphMx	N
DD09.3	P	0	0	S	20	N	N	Silty coarse sand	SS.SMx.IMx.Lim, SS.SMx.CMx.OphMx	N
DD09.4	P	0	0	S	10	N	N	Silty coarse sand	SS.SMx.IMx.Lim, SS.SMx.CMx.OphMx	N

Table 4.3 continued

Site	***Modiolus* SACFORN**	**Live maerl cover (%)**	**Dead maerl cover (%)**	**Brittlestar SACFORN**	**Algal turf cover (%)**	***Laminaria hyperborea* SACFORN**	***Saccharina latissima* SACFORN**	**Substrate**	**Biotopes**	**Dam-age**
DD09.5	P	0	0	S	10	N	N	Silty coarse sand	SS.SMx.IMx.Lim, SS.SMx.CMx.OphMx	N
DD10.1	N	0	0	S	1-5	F	N	*Limaria* nest cover - patches of medium sand with shells & pebbles (5%)	SS.SMx.IMx.Lim, SS.SMx.CMx.OphMx	N
DD10.2	N	0	0	S	1-5	F	N	*Limaria* nest cover - patches of medium sand with shells & pebbles (5%)	SS.SMx.IMx.Lim, SS.SMx.CMx.OphMx	N
DD10.3	N	0	0	S	1-5	C	N	*Limaria* nest cover - patches of medium sand with shells & pebbles (5%)	SS.SMx.IMx.Lim, SS.SMx.CMx.OphMx	N
DD10.4	N	0	0	A	5-10	A	C	Coarse sand with pebbles (1-5%)	SS.SMx.IMx.Lim, SS.SMx.CMx.OphMx	N
DD10.5	F	0	0	C	10	A	C	Scattered cobbles on pebbly sand below kelp canopy	SS.SMx.IMx.Lim	N
DD10.6	N	0	0	N	35	N	C	Medium sand with pebbles (20-30%)		N
DD11.1	N	0	0	C	50	A	O	Muddy coarse sand	SS.SMx.IMx.Lim	N
DD11.2	N	0	0	A	50	A	N	Muddy gravel	SS.SMx.IMx.Lim, SS.SMx.CMx.OphMx	N
DD11.3	N	0	0	A	80	A	N	Muddy gravel	SS.SMx.IMx.Lim, SS.SMx.CMx.OphMx	N
DD11.4	N	0	0	C	70	A	O	Muddy gravel	SS.SMx.IMx.Lim	N
DD11.5	N	0	0	A	70	A	C	Muddy shell gravel	SS.SMx.IMx.Lim, SS.SMx.CMx.OphMx	N

Table 4.3 continued

Site	***Modiolus* SACFORN**	**Live maerl cover (%)**	**Dead maerl cover (%)**	**Brittlestar SACFORN**	**Algal turf cover (%)**	***Laminaria hyperborea* SACFORN**	***Saccharina latissima* SACFORN**	**Substrate**	**Biotopes**	**Dam-age**
DD11.6	N	0	0	A	50	A	N	Muddy shell gravel	SS.SMx.IMx.Lim, SS.SMx.CMx.OphMx	N
DD11.7	N	0	0	A	60	A	N	Muddy cobbles	SS.SMx.IMx.Lim, SS.SMx.CMx.OphMx	N
DD12.1	N	0	0	C	0	C	S	Pebbles and gravel	SS.SMx.IMx.Lim	N
DD12.2	A	0	0	A	5	C	S	Pebbles, gravel and sand	SS.SMx.IMx.Lim, SS.SBR.SMus.ModT	N
DD12.3	F	0	0	C	20	A	N	Shelly sand and gravel	SS.SMx.IMx.Lim	N
DD12.4	F	0	0	F	20	C	N	Shelly sand and gravel	SS.SMx.IMx.Lim	N
DD12.5	N	0	0	C	60	A	C	Cobbles and shelly sand	SS.SMx.IMx.Lim	N
DD13.1	N	0	0	S	0	N	N	Mud and shell gravel	SS.SMx.IMx.Lim, SS.SMx.CMx.OphMx	N
DD13.2	N	0	0	S	50	S	N	Mud and shell gravel, boulders	SS.SMx.IMx.Lim, SS.SMx.CMx.OphMx	N
DD13.3	N	0	0	S	30	O	N	Shell gravel	SS.SMx.IMx.Lim, SS.SMx.CMx.OphMx	N
DD13.4	N	0	0	A	30	N	N	Shell gravel	SS.SMx.IMx.Lim, SS.SMx.CMx.OphMx	N
DD13.5	N	0	0	S	0	O	N	Shell gravel	SS.SMx.IMx.Lim, SS.SMx.CMx.OphMx	N
DD14.1	N	0	0	N	30	N	A	gravel, shells		N
DD14.2	N	0	0	N	60	N	A	gravel, shells		N
DD14.3	N	0	0	N	90	N	A	gravel, shells		N
DD14.4	N	0	0	N	60	N	A	gravel		N
DD14.5	N	0	0	A	90	S	S	Rock		N
DD14.6	N	0	0	C	90	S	N	Rock, coarse sand		N
DD15.1	N	0	0	C	1-5	A	A	Medium sand with pebbles (10%) & gravel	SS.SMx.IMx.Lim	N

Table 4.3 continued

Site	*Modiolus* SACFORN	Live maerl cover (%)	Dead maerl cover (%)	Brittlestar SACFORN	Algal turf cover (%)	*Laminaria hyperborea* SACFORN	*Saccharina latissima* SACFORN	Substrate	Biotopes	Dam-age
DD15.2	N	0	0	C	1	C	A	Medium sand with pebbles (5%) & gravel	SS.SMx.IMx.Lim	N
DD15.3	N	0	0	F	1-5	C	C	Medium sand with pebbles (5%) & gravel	SS.SMx.IMx.Lim	N
DD15.4	N	0	0	F	1-5	C	C	Medium sand with pebbles (5%) & gravel	SS.SMx.IMx.Lim	N
DD15.5	N	0	0	C	1-5	C	C	Medium sand with pebbles (5%) & gravel	SS.SMx.IMx.Lim	N
DD15.6	N	0	0	C	1-5	C	C	Medium sand with pebbles (5%) & gravel	SS.SMx.IMx.Lim	N
DD16.1	N	0	0	N	30	S	A	Silty coarse sand, shells, pebbles, rocks		N
DD16.2	N	0	0	N	70	S	N	Silty coarse sand, shells, pebbles		N
DD16.3	N	0	0	N	90	S	N	Silty coarse sand, shells, pebbles, maerl fragments		N
DD16.4	N	0	0	N	40	S	A	Silty coarse sand, shells, pebbles, maerl fragments		N
DD16.5	N	0	0	N	40	S	A	Silty coarse sand, shells, pebbles, maerl fragments		N
DD16.6	N	0	0	N	40	S	A	Silty coarse sand, shells, pebbles, maerl fragments	SS.SMx.IMx.Lim	N
DD16.7	N	0	0	N	50	S	N	Silty coarse sand, shells, pebbles, maerl fragments	SS.SMx.IMx.Lim	N
DD17.1	N	0	0	N	0	N	N	Boulders with cobbles and coarse sand and gravel		N

Table 4.3 continued

Site	***Modiolus* SACFORN**	**Live maerl cover (%)**	**Dead maerl cover (%)**	**Brittlestar SACFORN**	**Algal turf cover (%)**	***Laminaria hyperborea* SACFORN**	***Saccharina latissima* SACFORN**	**Substrate**	**Biotopes**	**Dam-age**
DD17.2	N	0	0	N	0	N	N	Boulders with cobbles and coarse sand and gravel		N
DD17.3	N	0	0	N	10	N	N	Cobbles, coarse sand and gravel		Y
DD17.4	N	0	0	N	40	F	N	Boulders with cobbles and coarse sand and gravel	SS.SMx.IMx.Lim	Y
DD17.5	N	0	0	N	5	N	N	Coarse sand and gravel with cobbles		Y
DD18.1	N	0	0	N	<5	C	A	Silty coarse, mixed sand with pebbles and gravel and some larger cobbles.	SS.SMx.IMx.Lim	N
DD18.2	N	0	0	N	15	C	C	Shelly sand and pebbles.	SS.SMx.IMx.Lim	P
DD18.3	N	0	0	N	10	N	N	Sandy substrates with gravel and shell debris incl. *Arctica*.	SS.SMx.IMx.Lim	P
DD19A.1	N	0	0	N	10	N	N	Fine gravel 80%, pebbles 10%, shells 10%	SS.SMx.IMx.Lim	N
DD19A.2	N	0	0	N	10	N	N	Fine gravel 80%, pebbles 10%, shells 10%	SS.SMx.IMx.Lim	N
DD19A.3	N	0	0	N	30	N	N	Fine gravel 80%, pebbles 10%, shells 10%	SS.SMx.IMx.Lim	N
DD19A.4	N	0	0	N	10	N	N	Gravel 90%, shells 10%	SS.SMx.IMx.Lim	N
DD19A.5	N	0	0	N	10	N	N	Gravel 90%, shells 10%	SS.SMx.IMx.Lim	N
DD19A.6	N	0	0	N	30	N	N	Gravel 90%, shells 10%	SS.SMx.IMx.Lim	N

Table 4.3 continued

Site	***Modiolus* SACFORN**	**Live maerl cover (%)**	**Dead maerl cover (%)**	**Brittlestar SACFORN**	**Algal turf cover (%)**	***Laminaria hyperborea* SACFORN**	***Saccharina latissima* SACFORN**	**Substrate**	**Biotopes**	**Dam-age**
DD19B.1	N	10	40	N	0	N	N	Maerl and maerl gravel on muddy sand with broken shell and pebbles and cobbles		N
DD19B.2	N	1	2	N	0	N	N	Cobbles and pebbles and shell gravel on muddy sand		N
DD19B.3	N	0	0	N	0	N	N	Cobbles and pebbles on shell gravel and sand (slightly coarser than previous)		N
DD19B.4	N	0	1	N	0	O	N	Dense (almost continuous) cobbles and pebbles with a few boulders		N
DD20.1	N	0	0	N	5	N	N	Shell gravel / sand, with some cobbles and pebbles		P
DD20.2	N	0	0	N	0	N	N	Shelly sand, with some cobbles and pebbles		N
DD20.3	N	0	0	N	0	N	N	Dense cobbles and pebbles on shell gravel		N
DD20.4	N	0	0	N	0	N	N	Dense cobbles and pebbles (almost continuous coverage) on muddy sand		N
DD21.1	N	0	0	N	1-5	F	N	Medium sand with shell fragments (5-10%)	SS.SMx.IMx.Lim	N

Table 4.3 continued

Site	*Modiolus* SACFORN	Live maerl cover (%)	Dead maerl cover (%)	Brittlestar SACFORN	Algal turf cover (%)	*Laminaria hyperborea* SACFORN	*Saccharina latissima* SACFORN	Substrate	Biotopes	Dam-age
DD21.2	N	0	0	N	1-5	F	N	Medium sand with pebbles (1-5%) & shell fragments (1-5%)	SS.SMx.IMx.Lim	N
DD21.3	N	0	0	N	1	F	N	Medium sand with cobbles / pebbles (1-5%) & shell fragments (5-10%)	SS.SMx.IMx.Lim	N
DD21.4	N	0	0	N	1	F	N	Medium sand with cobbles (1-5%) & shell fragments (1-5%)		N
DD21.5	N	0	0	N	<<1	F	N	Medium sand with cobbles (<1%) & shell fragments (1-5%)		N
DD21.6	N	0	0	N	0	P	P	Medium sand with cobbles / pebbles (1-5%) & shell fragments (~1%)		N
DD22.1	N	0	0	N	5	N	N	Stones, course sand, gravel	SS.SMx.IMx.Lim	N
DD22.2	N	0	0	N	5	N	N	Stones, course sand, gravel	SS.SMx.IMx.Lim	N
DD22.3	N	0	0	N	0	N	N	Stones, course sand, gravel	SS.SMx.IMx.Lim	N
DD22.4	N	0	0	N	0	N	N	Stones, course sand, gravel	SS.SMx.IMx.Lim	N
DD22.5	N	0	0	N	0	N	N	Stones, course sand, gravel	SS.SMx.IMx.Lim	N
DD22.6	N	0	0	N	0	N	N	Stones, course sand, gravel		Y
DD23.1	N	0	0	N	0	N	N	Fine sand, shells and rocks		N

Table 4.3 continued

Site	*Modiolus* SACFORN	Live maerl cover (%)	Dead maerl cover (%)	Brittlestar SACFORN	Algal turf cover (%)	*Laminaria hyperborea* SACFORN	*Saccharina latissima* SACFORN	Substrate	Biotopes	Dam-age
DD23.2	N	0	0	N	2	N	N	Fine sand, shells, rocks and boulders		N
DD23.3	N	0	0	C	10	N	N	Fine sand, shells, rocks and boulders		N
DD23.4	N	0	0	N	23	N	A	Fine sand, shells and rocks	SS.SMx.IMx.Lim	N
DD23.5	N	0	0	C	20	S	C	Fine sand, shells and rocks	SS.SMx.IMx.Lim	N
DD23.6	N	0	0	C	25	A	A	Fine sand, shells and rocks	SS.SMx.IMx.Lim	N
DD24.1	N	0	0	N	5	N	N	Silty sand with pebbles and cobbles		N
DD24.2	N	0	0	N	15	N	N	Silty sand with pebbles and cobbles	SS.SMx.IMx.Lim	N
DD24.3	N	0	0	N	35	N	N	Silty sand with pebbles and cobbles		N
DD24.4	N	0	0	N	45	C	C	Silty sand with pebbles and cobbles - kelp park		Y
DD24.5	N	0	0	N	60	A	A	More cobbly with kelp stands		N
DD26.1	N	0	0	N	0	N	N	Cobbles and pebbles with sandy gravel		Y
DD26.2	N	0	0	N	0	N	N	Cobbles and pebbles with sandy gravel		N
DD26.3	N	0	0	N	0	N	N	Cobbles and pebbles with sandy gravel		N
DD26.4	N	0	0	N	10	F	N	Cobbles, pebbles and boulders with sandy gravel		N

Table 4.3 continued

Site	***Modiolus*** **SACFORN**	**Live maerl cover (%)**	**Dead maerl cover (%)**	**Brittlestar SACFORN**	**Algal turf cover (%)**	***Laminaria hyperborea*** **SACFORN**	***Saccharina latissima*** **SACFORN**	**Substrate**	**Biotopes**	**Dam-age**
DD26.5	N	0	0	N	0	C	N	Bedrock		N
DD26.6	N	0	0	N	40	F	N	Cobbles, pebbles and boulders with sandy gravel	SS.SMx.IMx.Lim	N

ANNEX 5: MNCR PHASE 2 SURVEY DATA

Table 5.1. MNCR phase 2 transect details.

Transect	Date	Start latitude	Start longitude	End latitude	End longitude	Bearing (°T)	Start depth BCD (m)	End depth BCD (m)	Biotope
FS01	03/08/2017	57.354890	-5.556650	57.354881	-5.557061	268	11.5	11.8	SS.SMx.IMx.Lim
FS02	01/08/2017	57.362250	-5.650683	57.362259	-5.650256	88	14.8	14.9	SS.SMx.IMx.Lim
ML01	02/08/2017	57.357820	-5.553100	57.357699	-5.552756	123	7.8	8.9	SS.SMp.Mrl.Pcal
ML02	30/07/2017	57.329783	-5.699250	57.329629	-5.698946	133	7.2	7.4	SS.SMp.Mrl.Pcal.R

Table 5.2. SACFOR abundance estimates recorded along the MNCR phase 2 transects. Bracketed entries signify localised abundance values. Nomenclature follows WoRMS (2018).

Taxon	Transect			
	FS01	**FS02**	**ML01**	**ML02**
Sycon ciliatum			R	
Sycon ciliatum?	P			
Leucosolenia sp.	R			
Suberites ficus		R		
Suberites sp.		R		
Amphilectus fucorum?				R
Haliclona (Haliclona) urceolus	R			
Haliclona (Rhizoniera) viscosa?	R			
Porifera sp. 1 orange	R			
Porifera sp. 2 orange	R			
Hydractinia echinata			P	
Eudendrium rameum	P		R	
Hydrozoa sp.	P		R	R
Obelia geniculata	P		O(A)	R
Halecium halecinum	C			
Halecium beanii	P	R		
Sertularia argentea			R	
Sertularella sp.			R	
Abietinaria filicula	P			
Dynamena pumila?	R			
Kirchenpaueria pinnata			R	
Nemertesia antennina		R		
Nemertesia ramosa	O	F(C)	R	
Alcyonium digitatum	O	R		
Actiniaria sp. burrowing			P	
Urticina sp.			O	
Anemonia viridis			P	O
Adamsia palliata		O		
Lineus sp.	P	O		
Chaetopterus variopedatus			O	
Eupolymnia nebulosa			R	O
Lanice conchilega			R	
Spirobranchus triqueter			P	
Spirobranchus spp.		R	P	R
Hydroides sp.?		P	R	
Serpula vermicularis		P		
Spirorbinae spp.				R
Sabella pavonina			R	
Balanus balanus	R	R		
Balanus balanus?				P
Balanus crenatus		R	R	
Pandalus sp.?				F
Galathea sp.		P		
Munida rugosa		F		F
Pagurus bernhardus	F	P	F	O
Pagurus prideaux		O		

Table 5.2 continued

Taxon	Transect			
	FS01	**FS02**	**ML01**	**ML02**
Paguridae sp.	P			
Macropodia sp.	P			O
Inachus sp.		F(O)		
Hyas araneus	P			O
Hyas sp.	F	F(O)	P	
Atelecyclus rotundatus		P		
Carcinus maenas			O	O
Liocarcinus depurator			O	F
Necora puber	P			P
Nymphon brevirostre	P		P	
Polyplacophora sp.			P	
Tectura sp.	P	P	F(C)	R
Trivia monacha				P
Lacuna vincta?				P
Rissoa parva				P
Steromphala cineraria	P		P	F(C)
Gibbula magus			P	R(O)
Gibbula tumida		P	P	
Calliostoma zizyphinum			P	
Tritia sp.		P		
Buccinum undatum	F(C)	F(O)		
Pododesmus patelliformis			R	
Pododesmus patelliformis?				P
Arcopagia crassa			F	
Glycymeris glycymeris			O	
Pecten maximus		O	P	P
Aequipecten opercularis	P	F	F	(A)
Limaria hians	A	A	R	O(F)
Hiatella arctica	P			P
Coryphella sp.?				R
Polycera quadrilineata				R
Crisiidae sp.?	R			
Membranipora membranacea				R
Electra pilosa			P	R
Scrupocellaria sp.				R
Celleporella hyalina	R			
Disporella hispida			P	
Antedon petasus?		P		P
Antedon bifida		P		O
Antedon sp.				
Antedon spp.		F		
Crossaster papposus	F		P	
Marthasterias glacialis				P
Asterias rubens		F	F	
Luidia ciliaris			P	P
Henricia sp.		P		
Ophiura albida				F
Ophiocomina nigra	A		C(F)	

Table 5.2 continued

Taxon	**Transect**			
	FS01	**FS02**	**ML01**	**ML02**
Ophiothrix fragilis	C(A)	O		
Ophiopholis aculeata	F			
Echinus esculentus	C(A)	F(C)	P	
Psammechinus miliaris			P	
Neopentadactyla mixta			F	
Diplosoma listerianum				R
Lissoclinum sp.?	R			
Didemnidae sp.	R			
Polycarpa sp.?	O(F)	P		
Ascidia mentula		P		
Ascidia mentula?			P	
Ascidia virginea	P			
Ascidiella aspersa		F	R	
Ascidiella sp.				O
Ascidiacea sp.	P			
Ascidiacea sp. colonial		P		
Corella parallelogramma	P	O	P	P
Botryllus schlosseri	R			
Scyliorhinus sp.	P			
Scyliorhinus sp. eggs	P			
Trisopterus minutus		P		F
Myoxocephalus scorpius			P	
Taurulus bubalis	P			P
Callionymus sp.			P	
Gobiusculus flavescens				P
Pomatoschistus pictus			P	P
Pholis gunnellus	P	O		P
Foliose red algae		F		
Filamentous red algal turf		A		
Colaconema sp.	P		R	R
Corallina officinalis				R
Phymatolithon calcareum			A	A
Corallinaceae pink crusts	R	R	R	
Peyssonnelia dubyi	R		O	P
Calliblepharis jubata				O
Rhodophyllis divaricata	O	P	R	O
Rhodophyllis sp.		P		
Plocamium cartilagineum	C	F		F
Bonnemaisonia asparagoides		O	R	R
Bonnemaisonia hamifera	F	F	R	S
Gracilariopsis longissima			R	
Cystoclonium purpureum			R	
Polyides rotunda				P
Phyllophora crispa				O
Chylocladia verticillata				O
Lomentaria clavellosa	R		R	
Ceramium sp.		R	R	
Cryptopleura ramosa	P		P	

Table 5.2 continued

Taxon	**Transect**			
	FS01	**FS02**	**ML01**	**ML02**
Antithamnionella spirographidis		R		
Aglaothamnion bipinnatum	R	R	R	
Monosporus pedicellatus		R		
Apoglossum ruscifolium		R		
Delesseria sanguinea			R	
Phycodrys rubens	O	R	O	
Erythroglossum laciniatum		P		
Symphyocladia parasitica	R		R	P
Pterothamnion plumula		R	R	
Compsothamnion gracillimum	O			
Heterosiphonia plumosa	R	R		
Dasysiphonia japonica	C	R	R	R
Vertebrata byssoides	O	O		O
Polysiphonia elongata			R	
Polysiphonia sp.	R			
Ectocarpus siliculosus			R	P
Ectocarpus sp.	P			
Elachista sp.				P
Sphacelaria cirrosa				P
Pseudolithoderma extensum	P		R	
Stilophora tenella				R
Cutleria multifida		R	R	
Asperococcus bullosus				F
Desmarestia aculeata	R			O
Desmarestia ligulata		R		
Desmarestia viridis			O	
Dictyota dichotoma			R	O
Chorda filum			F	C
Saccharina latissima		C	F	A
Laminaria hyperborea	C(A)		F	
Ulva compressa	R		R	
Ulva lactuca				R
Bacillariophyceae colonial sp.		P		

Table 5.3. Abundance of biota recorded in each of four replicate 10.3 cm diameter cores collected from transects at two flame shell bed sites, FS01 and FS02. P = present. Nomenclature follows WoRMS (2018). Data supplied by Precision Marine Survey Ltd.

Taxon	**Replicate**							
	FS01.1	**FS01.2**	**FS01.3**	**FS01.4**	**FS02.1**	**FS02.2**	**FS02.3**	**FS02.4**
Leucosolenia botryoides			P					
Leucosolenia complicata				P		P		
Leucosolenia sp.	P	P					P	
Sycon ciliatum	P		P	P		P	P	P
Cliona celata	P	P						
Porifera sp.			P					
Obelia geniculata			P					
Obelia sp.		P						
Campanulina pumila	P							
Nemertea spp.	2		1		3	3	3	1
Nematoda spp.	73	68	39	50	12	14	12	28
Protodorvillea kefersteini				1				
Lysidice unicornis	1				2			
Lumbrineris aniara/cingulata		1	3	1	2	3	1	
Glycera lapidum agg.	4	3	1	2		1		
Nereimyra punctata		1		2	4	6	1	1
Podarkeopsis capensis		2						
Psamathe fusca			2	1	2		2	
Eunereis longissima								1
Pholoe inornata	21	22	13	16	2	4	8	3
Eteone longa/flava agg.		1	1	2				1
Eumida bahusiensis	5	1						
Eumida sanguinea			1		3	4		2
Nereiphylla rubiginosa						1		
Gattyana cirrhosa							1	
Harmothoe impar					3	6		3
Harmothoe pagenstecheri					2			
Lepidonotus squamatus	1	1		1	1			3
Polynoidae sp.	1							
Sphaerodorum gracilis			1	1			1	
Myrianida prolifera				1				
Exogone naidina						1		
Exogone verugera					2			
Parexogone hebes							2	
Procerastea halleziana			1					
Sphaerosyllis bulbosa				1				
Sphaerosyllis taylori			1					
Syllis amica	3		1	3		1		
Syllis cornuta				1				
Trypanosyllis (Trypanosyllis) coeliaca	1	1						
Galathowenia oculata					1			
Owenia fusiformis						2		P
Jasmineira elegans	64	63	44	61	13	14	31	6
Sabellidae sp. juvenile & damaged				1				
Spirobranchus triqueter	1	2				1		

Table 5.3 continued

Taxon	**Replicate**							
	FS01.1	**FS01.2**	**FS01.3**	**FS01.4**	**FS02.1**	**FS02.2**	**FS02.3**	**FS02.4**
Serpulidae sp.			1					
Aonides paucibranchiata						1		
Dipolydora caulleryi				1				
Dipolydora coeca agg.					3			
Prionospio cirrifera					1	6		1
Prionospio sp. juvenile & damaged	3	5						
Scolelepis bonnieri	1							
Spio decorata	2	2		1				
Spio martinensis				1				
Ampharete lindstroemi						2		
Ampharete sp. juvenile				1				
Chaetozone zetlandica							1	
Cirratulidae sp. damaged						1		
Flabelligera affinis	4	1		1	6	1	3	1
Petta pusilla							1	
Nicolea zostericola	1							
Polycirrus sp.	6	12	5	4	2	7	8	1
Terebellidae sp. juvenile			1			4		
Terebellides stroemii								2
Trichobranchus roseus					1		2	
Mediomastus fragilis		2	2	1	2	4	6	1
Notomastus sp.	7	5	8	8	1	4	1	2
Clymenura sp.	5							
Clymenura sp. juvenile			6	3				
Notoproctus		5						
Paradoneis lyra						2		
Scalibregma celticum	1	1						
Scalibregma inflatum								2
Grania spp.	10		5	3				
Phascolosoma (Phascolosoma) granulatum							2	
Golfingia (Golfingia) elongata	20	9	2	3	1			3
Golfingia (Golfingia) vulgaris vulgaris			5	4	13	6	12	7
Golfingia sp. juvenile				2				
Balanus balanus	5		6	3	4	3	1	14
Verruca stroemia	2	4	10	3				5
Copepoda	4							1
Ampelisca tenuicornis						1		
Microdeutopus sp. female				1				
Phtisica marina					1			
Cressa dubia	2							
Lysianassa ceratina	3							
Photis sp. damaged		1						
Metaphoxus simplex			1					
Amphipoda sp. damaged			P					
Vaunthompsonia cristata	1	1					1	
Nannastacus brevicaudatus	2							
Achaeus cranchii		1						

Table 5.3 continued

Taxon	Replicate							
	FS01.1	FS01.2	FS01.3	FS01.4	FS02.1	FS02.2	FS02.3	FS02.4
Eurynome spinosa						1		
Caridea sp. damaged					1			
Munna kroyeri	1	1						
Mysida sp. damaged						P		
Akanthophoreus gracilis	5							
Ostracoda spp.	1	2		1	1		1	1
Callipallene brevirostris					1		1	
Diaphana minuta								2
Retusa sp. juvenile & damaged			1					
Alvania beanii			1	1	7	3	2	1
Onoba semicostata					1		1	
Pusillina sarsii		1						
Tritia sp. eggs							P	
Brachystomia sp.					1			
Parthenina interstincta	1				2			
Brachystomia scalaris							1	
Ondina diaphana				1	1	1		1
Clelandella miliaris							1	
Gibbula sp. juvenile & damaged			1					
Leptochiton asellus	1	2	2	1	1			1
Hiatella arctica	4	6	7	4	3	2	2	2
Parvicardium pinnulatum	2	2			1	3		
Abra alba							2	
Tellinoidea sp. damaged								1
Limaria hians	3	2	2	4	5	4	4	1
Lucinoma borealis								1
Mya arenaria			2					
Mya truncata		1						
Modiolula phaseolina	17	20	18	25	3	6	9	6
Musculus subpictus	3	5	2	6	1			
Mytiloidea sp. juvenile				2				
Ennucula tenuis					4		2	
Nucula nucleus damaged					1			
Anomia ephippium	2	1	2	1			1	
Anomiidae sp.								1
Aequipecten opercularis				1				
Gouldia minima	1	1	1	1	4	6	2	5
Polititapes rhomboides								3
Timoclea ovata			1	4	3	2	2	1
Kellia suborbicularis			1					
Hemilepton nitidum			1		4			
Kurtiella bidentata	4		4	1		1	1	
Thracia villosiuscula			2	1	1	2		
Bivalvia sp. damaged			1					
Electra pilosa		P	P					
Lichenoporidae		P						
Amphipholis squamata	3	4				1	3	
Ophiocomina nigra								1

Table 5.3 continued

Taxon	Replicate							
	FS01.1	**FS01.2**	**FS01.3**	**FS01.4**	**FS02.1**	**FS02.2**	**FS02.3**	**FS02.4**
Ophiothrix sp. juvenile & damaged				1				
Ophiuroidea sp. juvenile			3	1				
Ascidiella aspersa						1		
Ascidiella scabra				1				
Molgula sp.	4	4					1	
Ascidiacea sp.			4		1			
Ascidiacea sp. juvenile				3				
Lithothamnion spp.		P					P	
Phyllophora sp.		P						
Delesseria sanguinea	P							
Ulva lactuca					P			
Chlorophyta spp.			P	P				P

Table 5.4. Abundance of biota recorded in each of four replicate 10.3 cm diameter cores collected from transects at two maerl bed sites, ML01 and ML02. P = present. Nomenclature follows WoRMS (2018).

Taxon	**Replicate**							
	ML01.1	**ML01.2**	**ML01.3**	**ML01.4**	**ML02.1**	**ML02.2**	**ML02.3**	**ML02.4**
Sycon ciliatum		P	P					
Porifera sp.				P	P			
Platyhelminthes			1	6				
Nemertea spp.				5	2	1		
Nematoda spp.	11	17	11	3	1	2		
Pareurythoe borealis		1						
Euphrosine borealis				1				
Protodorvillea kefersteini				1		1		
Lysidice unicornis					2			1
Lumbrineris aniara/cingulata						1	1	
Arabella iricolor								1
Glycera lapidum agg.	1		1					1
Glycera				1				
Goniada maculata	1							
Gyptis rosea					2			
Hesiospina aurantiaca				1				
Psamathe fusca						1		
Pholoe inornata			2					1
Eulalia viridis				1				
Pseudomystides limbata					1			
Harmothoe impar	1		1	5				
Harmothoe sp. juvenile & damaged			3					
Pisione remota	2	10	3					
Sphaerodorum gracilis				2				
Exogone verugera		1						
Erinaceusyllis erinaceus			1		1			
Sphaerosyllis taylori				6				
Syllis amica		1	1					
Trypanosyllis (Trypanosyllis) coeliaca		1			1			
Branchiomma bombyx			1					
Sabellidae sp. juvenile & damaged			2	1	1			
Hydroides norvegica				3	1	1	2	
Hydroides sp. damaged								1
Spirobranchus lamarcki				1				
Serpulidae spp. juvenile & damaged	1							
Aonides paucibranchiata		1		1		2		
Prionospio fallax				1				
Prionospio sp. juvenile & damaged	1							
Spio decorata					1		1	1
Macrochaeta sp.								1
Ampharetidae sp. juvenile		1						

Table 5.4 continued

Taxon	Replicate							
	ML01.1	ML01.2	ML01.3	ML01.4	ML02.1	ML02.2	ML02.3	ML02.4
Flabelligera affinis			1					
Therochaeta flabellata							1	
Pista cristata					1			
Pista mediterranea								1
Polycirrus sp.		2	1		2	5		
Terebellidae sp. juvenile				1				
Trichobranchus roseus							1	
Capitella sp.						1		
Mediomastus fragilis					1		4	2
Euclymene oerstedii								1
Polygordius lacteus		2						
Grania spp.				1		1		1
Tubificoides pseudogaster agg.							2	
Golfingia (Golfingia) elongata	2	4	2	5				
Golfingia sp. damaged			1					
Golfingiidae sp. juvenile						1		
Amphilochidae sp. damaged			1					
Leptocheirus pectinatus					1			
Dexamine spinosa						1		
Eusirus longipes				1				
Ericthonius brasiliensis					1			
Lysianassa plumosa					4		6	
Socarnes filicornis								1
Lysianassidae sp. damaged			1					
Animoceradocus semiserratus			2	2	3			
Normanion quadrimanus				1				
Harpinia pectinata	1							
Metaphoxus fultoni	1							
Metaphoxus simplex			1					
Urothoe elegans								2
Vaunthompsonia cristata				2	2		1	1
Hippolyte sp.					1			
Conilera cylindracea		1		1				
Eurydice pulchra				1				
Cymodoce truncata				1	1	1	7	
Dynamene bidentata		1						
Lekanesphaera rugicauda						1	5	5
Sphaeromatidae sp. damaged							1	
Cymothoida sp. juvenile				1				
Ostracoda spp.				1				
Callipallene brevirostris				2				
Phoronida							1	1
Retusa truncatula					1			
Alvania beanii				1	4	2	3	
Alvania punctura								4
Onoba aculeus					1			
Onoba semicostata					6	5		4

Table 5.4 continued

Taxon	Replicate							
	ML01.1	**ML01.2**	**ML01.3**	**ML01.4**	**ML02.1**	**ML02.2**	**ML02.3**	**ML02.4**
Pusillina sarsii				2				
Rissoa parva		2			12	1		6
Tectura virginea	1							
Testudinalia testudinalis				1				
Ondina diaphana					1			
Gibbula tumida			3					
Steromphala umbilicalis			1		1			
Callochiton septemvalvis	1							
Boreochiton ruber							1	
Leptochiton asellus	2		3	4				1
Scaphopoda sp. juvenile	1							
Hiatella arctica				1	3			
Parvicardium pinnulatum								3
Gari tellinella	8	3	2	21				1
Limaria hians			1					
Limatula gwyni	10	1	6	10				
Lucinoma borealis						1		
Modiolula phaseolina	3	9	13	22	5	1	4	2
Musculus subpictus							2	2
Mytilus edulis							3	1
Anomia ephippium				1	1	1		
Aequipecten opercularis				3	1			
Chamelea striatula				2				
Clausinella fasciata				2		1		
Dosinia exoleta			1					
Dosinia sp. damaged				1				
Gouldia minima	1			3	7	7	1	14
Timoclea ovata	2	1		3		1		
Spisula elliptica		3	1	6				
Spisula sp. juvenile	1							
Kurtiella bidentata				4	25	9	12	16
Thracia villosiuscula				2	1			
Electra pilosa					P			
Membranipora membranacea				P				
Plagioeciidae sp.	P							
Tubuliporidae sp.	P							
Strongylocentrotus sp. juvenile								1
Leptosynapta decaria						1		
Amphipholis squamata		3	2	9	1	1		
Amphiura filiformis								1
Ophiothrix fragilis juvenile			1					
Ophiura albida							1	
Ophiuroidea sp. juvenile	1			2				
Ascidiacea sp.	2			2				
Ascidiacea sp. juvenile		2						
Corallina sp.								P
Lithothamnion spp.	P							
Phymatolithon calcareum	P	P	P	P	P	P	P	P

Table 5.4 continued

Taxon	Replicate							
	ML01.1	ML01.2	ML01.3	ML01.4	ML02.1	ML02.2	ML02.3	ML02.4
Dilsea carnosa						P		
Plocamium cartilagineum						P		P
Chlorophyta spp.	P		P	P	P			
Filamentous algae indet.						P		P

Table 5.5. Community descriptors for the biota from each of four replicate 10.3 cm diameter cores collected from ransects at flame shell bed sites FS01 and FS02 and maerl bed sites ML01 and ML02. *Diversity indices include the Shannon-Wiener function using loge (H'_e) and log_2 (H'_2) and Pielou's evenness index (J').*

Replicate	Abundance	No. taxa (total)	No. taxa (fauna)	J'	H'_e	H'_2
FS01.1	308	50	49	0.740	2.879	4.153
FS01.2	267	46	44	0.705	2.667	3.847
FS01.3	217	49	48	0.782	3.028	4.368
FS01.4	245	51	50	0.713	2.788	4.023
FS02.1	134	47	46	0.905	3.464	4.997
FS02.2	136	42	42	0.907	3.390	4.891
FS02.3	136	42	41	0.827	3.070	4.429
FS02.4	117	40	39	0.831	3.046	4.394
ML01.1	55	27	24	0.851	2.705	3.903
ML01.2	67	23	22	0.833	2.573	3.712
ML01.3	71	32	30	0.872	2.967	4.281
ML01.4	161	54	52	0.866	3.422	4.936
ML02.1	100	39	37	0.827	2.985	4.306
ML02.2	51	30	26	0.884	2.880	4.155
ML02.3	60	22	21	0.885	2.693	3.885
ML02.4	78	33	29	0.837	2.818	4.065

Table 5.6. Particle size analysis of sediment samples from flame shell bed sites FS01 and FS02 and maerl bed sites ML01 and ML02. Table shows percentage of the total weight of the sample for each size category. Sediment type classification according to Blott & Pye (2001). Data supplied by Precision Marine Survey Ltd.

Sediment type	phi	Site			
		FS01	**FS02**	**ML01**	**ML02**
Cobble	-6.5	0.0000	0.0000	0.0000	0.0000
	-6.0	0.0000	0.0000	0.0000	0.0000
Very Coarse Gravel	-5.5	0.0000	0.0000	0.0000	0.0000
	-5.0	0.0000	0.0000	8.1387	0.0000
Coarse Gravel	-4.5	0.0000	0.0000	9.6154	0.0000
	-4.0	3.7494	0.0000	0.0000	0.0000
Medium Gravel	-3.5	0.5847	8.5411	6.5116	0.0000
	-3.0	0.9069	9.3505	2.0780	0.0000
Fine Gravel	-2.5	0.4981	5.2986	2.8367	0.1231
	-2.0	1.0125	3.4637	3.0100	0.9346
Very Fine Gravel	-1.5	1.6405	2.0209	4.3753	2.3819
	-1.0	3.1484	2.0259	5.9457	5.9153
Very Coarse Sand	-0.5	6.2915	4.2580	9.3006	14.6959
	0.0	9.8703	4.4993	11.7181	14.9186
Coarse Sand	0.5	9.6607	6.3847	10.7151	3.7789
	1.0	10.1316	7.9938	9.4971	4.6875
Medium Sand	1.5	8.1158	7.3641	5.6031	4.2422
	2.0	5.6622	6.1469	2.3004	3.5867
Fine Sand	2.5	3.4084	4.7961	0.7856	3.0491
	3.0	2.4535	4.3622	0.6081	3.3846
Very Fine Sand	3.5	1.7429	2.9353	0.5834	3.1361
	4.0	1.9555	2.1660	0.5747	3.4564
Very Coarse Silt	4.5	2.1567	1.4636	0.4860	3.1820
	5.0	3.1461	1.7131	0.6504	3.7389
Coarse Silt	5.5	3.8122	2.0443	0.8021	3.8465
	6.0	4.2951	2.4082	0.9036	4.0322
Medium Silt	6.5	4.2549	2.5647	0.8684	3.9988
	7.0	3.8480	2.5401	0.7514	3.8147
Fine Silt	7.5	3.2650	2.3331	0.6160	3.4821
	8.0	2.5089	1.8775	0.4599	2.8811
Very Fine Silt	8.5	1.4445	1.1019	0.2387	1.8570
	9.0	0.4191	0.3308	0.0259	0.7436
Clay	9.5	0.0165	0.0156	0.0000	0.1324
	10.0	0.0000	0.0000	0.0000	0.0000
	10.5	0.0000	0.0000	0.0000	0.0000
	11.0	0.0000	0.0000	0.0000	0.0000

Table 5.7. Sediment descriptors for samples from flame shell bed sites FS01 and FS02 and maerl bed sites ML01 and ML02, derived from Gradistat program (Blott & Pye, 2001). Data supplied by Precision Marine Survey Ltd.

Descriptor	**Parameter**	**FS01**	**FS02**	**ML01**	**ML02**
SAMPLE TYPE:		Polymodal, Very Poorly Sorted	Trimodal, Very Poorly Sorted	Trimodal, Very Poorly Sorted	Polymodal, Very Poorly Sorted
TEXTURAL GROUP:		Gravelly Muddy Sand	Muddy Sandy Gravel	Muddy Sandy Gravel	Gravelly Muddy Sand
SEDIMENT NAME:		Very Fine Gravelly Medium Silty Coarse Sand	Medium Silty Sandy Medium Gravel	Coarse Silty Sandy Very Fine Gravel	Very Fine Gravelly Coarse Silty Very Coarse Sand
FOLK AND WARD METHOD (µm)	MEDIAN GRAIN SIZE D_{50} (µm)	450.1	591.89	1500.74	406.6
	MEAN GRAIN SIZE (µm)	223.4	572.20	2602.2	215.4
	SORTING	9.501	12.181	7.46	8.447
	SKEWNESS	-0.323	-0.098	0.176	-0.404
	KURTOSIS	0.874	0.880	1.055	0.678
FOLK AND WARD METHOD (phi)	MEDIAN GRAIN SIZE D_{50} (phi):	1.152	0.757	-0.586	1.298
	MEAN GRAIN SIZE (phi):	2.163	0.805	-1.380	2.215
	SORTING	3.248	3.607	2.900	3.078
	SKEWNESS	0.323	0.098	-0.176	0.404
	KURTOSIS	0.874	0.880	1.055	0.678
FOLK AND WARD METHOD (Description)	MEAN:	Fine Sand	Coarse Sand	Very Fine Gravel	Fine Sand
	SORTING:	Very Poorly Sorted	Very Poorly Sorted	Very Poorly Sorted	Very Poorly Sorted
	SKEWNESS:	Very Fine Skewed	Symmetrical	Coarse Skewed	Very Fine Skewed
	KURTOSIS:	Platykurtic	Platykurtic	Mesokurtic	Platykurtic
BULK GRAIN SIZE	% GRAVEL:	11.541	30.701	42.511	9.355
	% SAND:	59.292	50.906	51.686	58.936
	% MUD:	29.167	18.393	5.802	31.709

Table 5.8. Particle size analysis of sediment samples from flame shell bed sites FS01 and FS02 and maerl bed sites ML01 and ML02. Table shows percentage of the total weight of the sample for size categories employed by Marine Recorder (essentially the Wentworth scale).

		Site			
Sediment type	**phi**	**FS01**	**FS02**	**ML01**	**ML02**
Medium pebble	-3	5.241	17.892	26.344	0.000
Small pebble	-2	1.511	8.762	5.847	1.058
Granule	-1	4.789	4.047	10.321	8.297
Very coarse sand	0	16.162	8.757	21.019	29.614
Coarse sand	1	19.792	14.378	20.212	8.466
Medium sand	2	13.778	13.511	7.904	7.829
Fine sand	3	5.862	9.158	1.394	6.434
Very fine sand	4	3.698	5.101	1.158	6.592
Silt and clay	11	29.167	18.393	5.802	31.709

Table 5.9. Dimensions of Limaria hians individuals sampled by core.

Sample replicate	**Length (mm)**	**Width (mm)**	**Breadth (mm)**
FS01.1	12	10	18
	23	16	33
	22	17	34
FS01.2	25	17	40
	22	16	32
FS01.3	22	19	37
	13	9	21
FS01.4	22	18	35
	27	16	35
	12	8	19
	12	7	17
FS02.1	22	23	37
	28	14	29
	11	10	19
	11	18	17
	4	1	5
FS02.2	24	20	40
	14	11	24
	13	10	22
	3	2	4
FS02.3	11	8	17
	13	12	20
	17	13	27
	22	18	34
FS02.4	17	13	26
ML01.3	16	15	26

Table 5.10. Quadrat (50 x 50 cm) measures of maerl and non-maerl substrates along 25 m x 4 m wide band transects by one recorder (Ben James) at site ML01. Quadrat positioned along the transect using random numbers to the left (Lx) or right (Rx) of the transect tape. Lateral offset shows random, lateral offset from the tape; 1 = contiguous with the tape, 2 = 0.5 m, 3 = 1.0 m, 4 = 1.5 m.

Quadrat	Tape distance (m)	Lateral offset	Live maerl (%)	Dead maerl (%)	Other substrate (%)
L1	1.22	3	65	**20	*15
L2	2.43	4	35	57	8
L3	9.35	2	60	33	7
L4	10.42	1	50	48	2
L5	11.84	3	41	55	4
L6	16.01	2	44	53	3
L7	19.52	3	40	57	3
L8	20.57	1	68	18	14
L9	22.81	1	50	42	8
L10	23.91	1	15	50	35
R1	1.09	3	32	66	2
R2	3.45	1	25	40	35
R3	4.46	2	35	25	40
R4	10.48	4	51	47	2
R5	11.06	2	30	67	3
R6	12.70	2	30	66	4
R7	15.99	2	25	55	20
R8	19.23	2	55	43	2
R9	19.74	3	50	40	10
R10	21.11	2	48	40	12

*this largely encompassed stones and shells.
**this included bleached maerl thalli and maerl gravel but probably also a variable proportion of coarse sand / non-maerl derived sediment, so may over-estimate the real contribution of dead maerl.

Table 5.11. Quadrat (50 x 50 cm) measures of maerl and non-maerl substrates along 25 m x 4 m wide band transects at site ML02. Main recorder: Ben James, with values derived from second recorder (Lisa Kamphausen) in brackets. Quadrat positioned along the transect using random numbers to the left (Lx) or right (Rx) of the transect tape. Lateral offset shows random, lateral offset from the tape; 1 = contiguous with the tape, 2 = 0.5 m, 3 = 1.0 m, 4 = 1.5 m.

Quadrat	Tape distance (m)	Lateral offset	Live maerl (%)	Dead maerl (%)	Other substrate (%)	Comments
L1	0.00	3	64	30	6	
L2	4.13	4	70 (70)	25 (30)	5	
L3	5.22	3	64 (80)	30 (20)	6	
L4	6.04	1	54 (70)	42 (25)	4 (5)	
L5	7.30	2	59 (70)	36 (25)	5 (2)	
L6	8.74	2	26 (60)	60 (40)	14	
L7	14.56	1	60	37	3	
L8	17.36	3	40	60	0	
L9	21.29	2	25	60	15	
L10	22.2	1	38	58	4	
R1	0.37	2	20	66	14	
R2	2.06	3	30	64	6	
R3	5.91	1	56	40	4	2 flame shell nests
R4	6.56	1	44	54	2	2 flame shell nests
R5	13.57	3	54	42	4	
R6	14.92	3	58	40	2	
R7	17.27	1	80	20	0	Flame shells matrix and openings?
R8	18.41	4	26	70	4	Flame shells
R9	20.44	4	38	58	4	Flame shells
R10	23.67	2	75	24	1	Flame shells and nests

ANNEX 6: FLAME SHELL BED RECOVERY MONITORING TRANSECT DATA

Table 6.1. Flame shell bed recovery monitoring transect diver recording form. This form is employed for the left hand side of the transect, with the quadrat labels replaced by R1-R10 for the right hand side. Tape distance (X) and offset (Y) to be taken from Table 3.

Transect:				Diver:						
Quadrat	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10
Tape distance										
Offset										
Byssal material present (Y/N)										
Continuous turf present (i.e. >10x10 cm locally) Y/N										
Turf cover (%)										
Byssus overtops stones (Y/N)										
Turf/sand mosaic (clean sand patches >10x10 cm) (Y/N)										
Gallery apertures (Y/N)										
Mean turf thickness (cm)										
Limaria seen (Y/N)										
Dead *Limaria* shells (Y/N)										
Sharp turf boundary present (Y/N)										
Depth at start and end (m)										
For overall assessment >1 m from tape (one record for each side of transect): *Limaria* density >1/0.1 m^2 (Y/N)										
Transect bearing (from start)										

Table 6.2. Details of flame shell bed recovery monitoring transects. MxC (control), MxT (treatment).

Transect	Date	Start latitude	Start longitude	End latitude	End longitude	Bearing (°T)	Start depth BCD (m)	End depth BCD (m)	Biotope	Surveyors
M1C	30/07/2017	57.361691	-5.648744	57.361651	-5.648604	118	15.9	16.1	SS.SMx.IMx.Lim	Lisa Kamphausen
M1T	30/07/2017	57.361791	-5.648665	57.361780	-5.648508	98	15.4	15.7	SS.SMx.IMx.Lim	Ben James
M2C	02/08/2017	57.361830	-5.649900	57.361888	-5.650017	313	13.9	13.9	SS.SMx.IMx.Lim	Lisa Kamphausen
M2T	02/08/2017	57.361880	-5.649770	57.361927	-5.649902	304	14.3	14.2	SS.SMx.IMx.Lim	Ben James, Rob Cook
M3C	31/07/2017	57.362950	-5.650160	57.363020	-5.650110	18	15.5	15.7	SS.SMx.IMx.Lim	Dan Harries
M3T	31/07/2017	57.362920	-5.650080	57.362980	-5.649930	48	14.3	14.6	SS.SMx.IMx.Lim	Ben James

Table 6.3. Flame shell bed recovery monitoring transect M1C data. The location of the 0.5 x 0.5 m quadrat is given in terms of the distance along the transect tape and the lateral offset from the tape. Y = yes, N = no.

	Quadrat																			
	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10
Distance (m)	0.5	1.0	2.5	3.0	4.0	5.0	6.5	7.5	8.5	9.0	0.0	1.5	2.5	3.5	4.0	5.0	6.0	7.5	8.5	9.5
Offset (m)	0.0	0.0	0.0	0.5	0.0	0.0	0.5	0.0	0.5	0.0	0.0	0.5	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.5
Byssal material present	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Continuous turf present (i.e. >10x10 cm locally)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Turf cover (%)	70	90	60	80	50	60	80	70	85	70	70	50	95	60	80	80	60	30	50	70
Byssus overtops stones	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Turf/sand mosaic (clean sand patches >10x10 cm)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Gallery apertures	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Mean turf thickness (cm)	8	8	8	8	8	10	10	10	7	8	10	8	8	9	8	8	10	8	8	8
***Limaria* seen**	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Dead Limaria shells	N	N	N	N	N	N	N	N	N	N	N	N	N	Y	N	N	N	N	N	N
Sharp turf boundary present	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Overall assessment >1 m from tape (one record for each side of transect): *Limaria* density >1/0.1 m^2	Y										Y									

Table 6.4. Flame shell bed recovery monitoring transect M1T data. The location of the 0.5 x 0.5 m quadrat is given in terms of the distance along the transect tape and the lateral offset from the tape. Y = yes, N = no.

	Quadrat																			
	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10
Distance	0.0	1.0	2.0	3.5	4.0	5.5	6.5	7.5	8.5	9.0	0.0	1.0	2.0	3.0	4.0	5.5	6.0	7.5	8.0	9.5
Offset	0.5	0.5	0.0	0.0	0.5	0.5	0.0	0.0	0.5	0.0	0.5	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.5
Byssal material present	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Continuous turf present (i.e. >10x10 cm locally)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Turf cover (%)	30	60	75	60	45	85	75	60	60	20	40	90	75	45	50	30	40	15	10	45
Byssus overtops stones	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Turf/sand mosaic (clean sand patches >10x10 cm)	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y	N	N	Y	Y	Y	Y	Y	Y	Y
Gallery apertures	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Mean turf thickness (cm)	3	4	4	4	4	6	7.5	5	5	4	4	4	4	6	6	4	4	4	2	4
***Limaria* seen**	N	Y	N	N	Y	N	N	N	N	N	Y	N	N	Y	Y	N	Y	N	Y	N
Dead *Limaria* shells	N	Y	Y	N	N	Y	N	N	N	Y	Y	Y	N	N	Y	N	Y	N	Y	Y
Sharp turf boundary present	N	N	Y	N	Y	Y	Y	Y	Y	N	Y	N	N	Y	Y	Y	N	Y	Y	Y
Overall assessment >1 m from tape (one record for each side of transect): *Limaria* density >1/0.1 m^2	Y										Y									

Table 6.5. Flame shell bed recovery monitoring transect M2C data. The location of the 0.5 x 0.5 m quadrat is given in terms of the distance along the transect tape and the lateral offset from the tape. Y = yes, N = no.

	Quadrat																			
	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10
Distance	0.0	1.0	2.0	3.5	4.5	5.0	6.0	7.0	8.5	9.0	0.5	1.5	2.0	3.0	4.0	5.5	6.5	7.0	8.5	9.5
Offset	0.0	0.0	0.5	0.5	0.5	0.0	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.5	0.5	0.0
Byssal material present	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Continuous turf present (i.e. >10x10 cm locally)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Turf cover (%)	60	85	50	75	50	60	50	90	50	65	75	50	15	50	75	65	65	70	75	40
Byssus overtops stones	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Turf/sand mosaic (clean sand patches >10x10 cm)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Gallery apertures	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Mean turf thickness (cm)	8	7	8	9	8	10	7	8	7	8	10	9	10	8	8	7	8	7	8	9
***Limaria* seen**	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Dead *Limaria* shells	N	N	N	N	N	N	N	N	N	N	N	N	N	Y	N	N	N	N	N	Y
Sharp turf boundary present	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Overall assessment >1 m from tape (one record for each side of transect): *Limaria* density >1/0.1 m^2	Y										Y									

Table 6.6. Flame shell bed recovery monitoring transect M2T data. The location of the 0.5 x 0.5 m quadrat is given in terms of the distance along the transect tape and the lateral offset from the tape. Y = yes, N = no.

	Quadrat																			
	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10
Distance	0.0	1.0	2.5	3.5	4.5	5.5	6.5	7.0	8.0	9.0	0.0	1.0	2.0	3.5	4.0	5.5	6.0	7.5	8.0	9.0
Offset	0.5	0.0	0.5	0.5	0.0	0.5	0.5	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.5	0.5	0.5	0.5
Byssal material present	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Continuous turf present (i.e. >10x10 cm locally)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Turf cover (%)	50	55	65	60	40	55	55	20	65	80	65	80	70	85	90	90	40	90	85	20
Byssus overtops stones	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Turf/sand mosaic (clean sand patches >10x10 cm)	Y	N	Y	Y	N	Y	N	Y	Y	N	Y	Y	Y	Y	N	Y	Y	N	Y	Y
Gallery apertures	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Mean turf thickness (cm)	8	6	8	10	6	10	8	10	8	6	10	8	8	6	10	5	6	8	7	4
***Limaria* seen**	N	N	Y	Y	N	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Dead *Limaria* shells	N	Y	Y	Y	Y	Y	Y	N	Y	Y	N	Y	Y	N	N	Y	Y	Y	Y	Y
Sharp turf boundary present	Y	Y	N	Y	N	Y	Y	Y	Y	N	Y	Y	N	N	Y	N	N	N	N	N
Overall assessment >1 m from tape (one record for each side of transect): *Limaria* density >1/0.1 m^2	Y										Y									

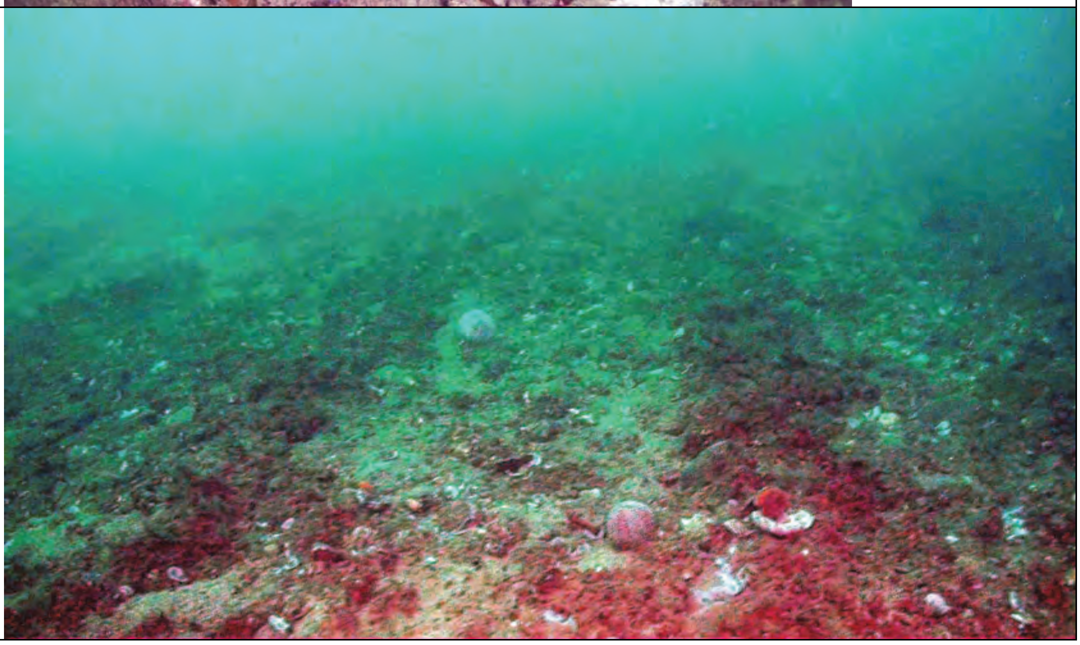
Table 6.7. Flame shell bed recovery monitoring transect M3C data. The location of the 0.5 x 0.5 m quadrat is given in terms of the distance along the transect tape and the lateral offset from the tape. Y = yes, N = no.

	Quadrat																			
	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10
Distance	0	1.5	2.5	3	4.5	5.5	6	7	8	9.5	0.5	1.5	2.5	3.5	4	5	6.5	7.5	8.5	9.5
Offset	0	0	0.5	0	0	0.5	0	0.5	0.5	0	0.5	0.5	0.5	0.5	0	0.5	0.5	0.5	0.5	0
Byssal material present	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Continuous turf present (i.e. >10x10 cm locally)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y
Turf cover (%)	90	75	60	75	50	70	80	25	40	30	90	10	15	20	85	20	30	20	40	40
Byssus overtops stones	Y	Y	Y	Y	*Y	Y	Y	*Y	*Y	*Y	Y	*Y	*Y	*Y	Y	*Y	*Y	*Y	*Y	*Y
Turf/sand mosaic (clean sand patches >10x10 cm)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y
Gallery apertures	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Mean turf thickness (cm)	5	4	4	4	3	3	4	3	3	3	3	3	3	3	3	3	3	3	3	3
***Limaria* seen**	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Dead *Limaria* shells	N	N	N	N	Y	N	N	N	N	N	N	N	N	N	N	N	Y	N	N	N
Sharp turf boundary present	Y	Y	N	N	N	N	N	N	Y	Y	N	N	N	N	Y	N	N	N	N	N
Overall assessment >1 m from tape (one record for each side of transect): *Limaria* density >1/0.1 m^2	Y										Y									

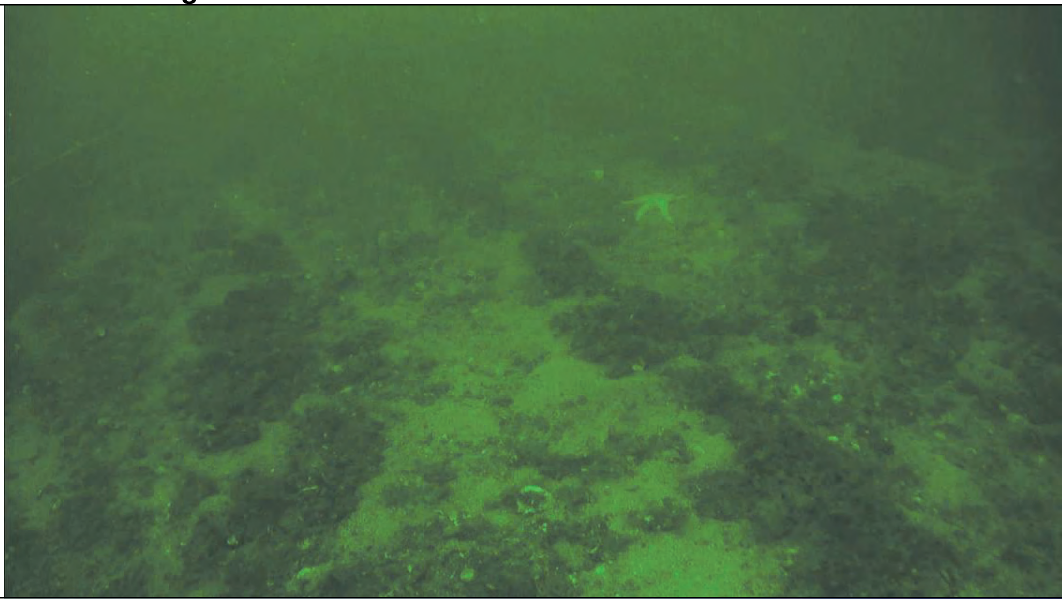
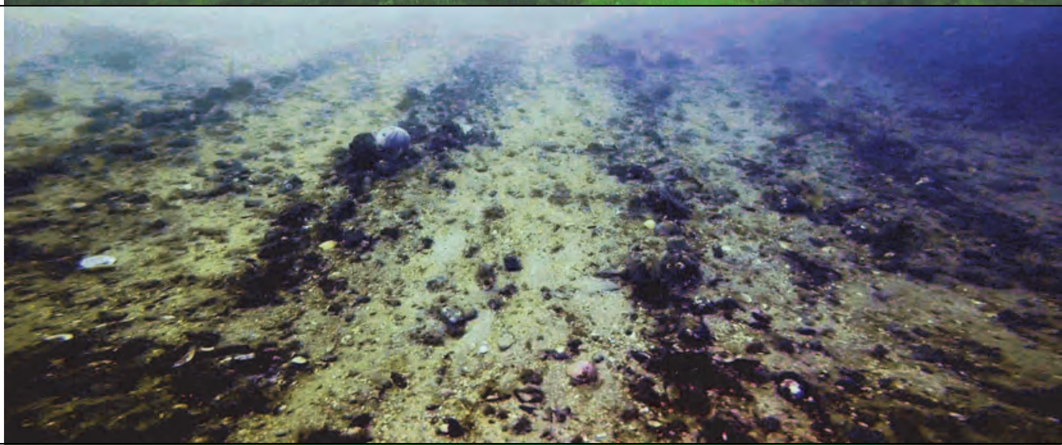
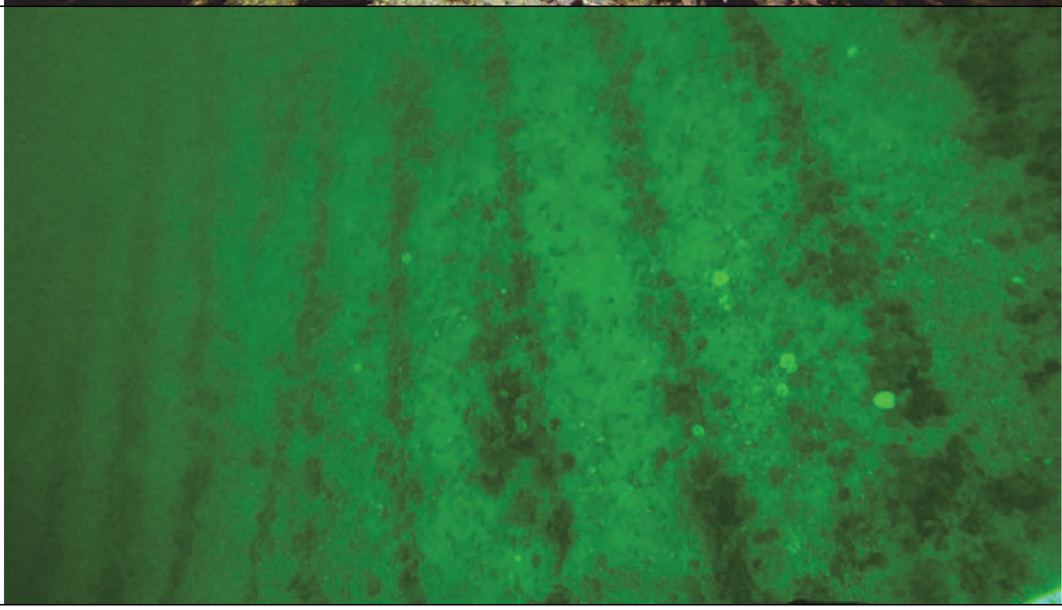
Table 6.8. Flame shell bed recovery monitoring transect M3T data. The location of the 0.5 x 0.5 m quadrat is given in terms of the distance along the transect tape and the lateral offset from the tape. Y = yes, N = no.

	Quadrat																			
	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10
Distance	0.0	1.0	2.5	3.0	4.5	5.0	6.0	7.0	8.0	9.5	0.0	1.0	2.0	3.0	4.0	5.5	6.5	7.0	8.5	9.0
Offset	0.0	0.5	0.0	0.0	0.5	0.5	0.0	0.5	0.5	0.0	0.0	0.0	0.0	0.5	0.5	0.5	0.0	0.5	0.5	0.0
Byssal material present	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y
Continuous turf present (i.e. >10x10 cm locally)	N	N	Y	Y	Y	Y	Y	N	Y	Y	N	N	Y	Y	N	Y	Y	Y	Y	Y
Turf cover (%)	3	<1	15	10	35	25	15	2	20	40	0	2	20	45	2	25	10	10	20	20
Byssus overtops stones	N	N	Y	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y
Turf/sand mosaic (clean sand patches >10x10 cm)	N	N	N	N	N	N	N	N	N	N	N	N	Y	N	N	Y	N	N	Y	Y
Gallery apertures	N	N	Y	N	Y	Y	Y	N	Y	Y	N	N	Y	Y	N	Y	N	N	Y	Y
Mean turf thickness (cm)	2	0	7	5	8	7	6	0	6	10	0	3	7	5	4	7	5	5	8	5
***Limaria* seen**	N	N	N	N	N	N	N	N	N	N	N	N	N	Y	N	N	N	N	N	N
Dead *Limaria* shells	N	N	N	N	Y	Y	N	N	N	N	N	N	N	N	N	Y	N	N	N	N
Sharp turf boundary present	N	N	N	N	N	N	N	N	N	N	N	N	Y	N	N	Y	N	N	N	Y
Overall assessment >1 m from tape (one record for each side of transect): *Limaria* density >1/0.1 m^2	N										N									

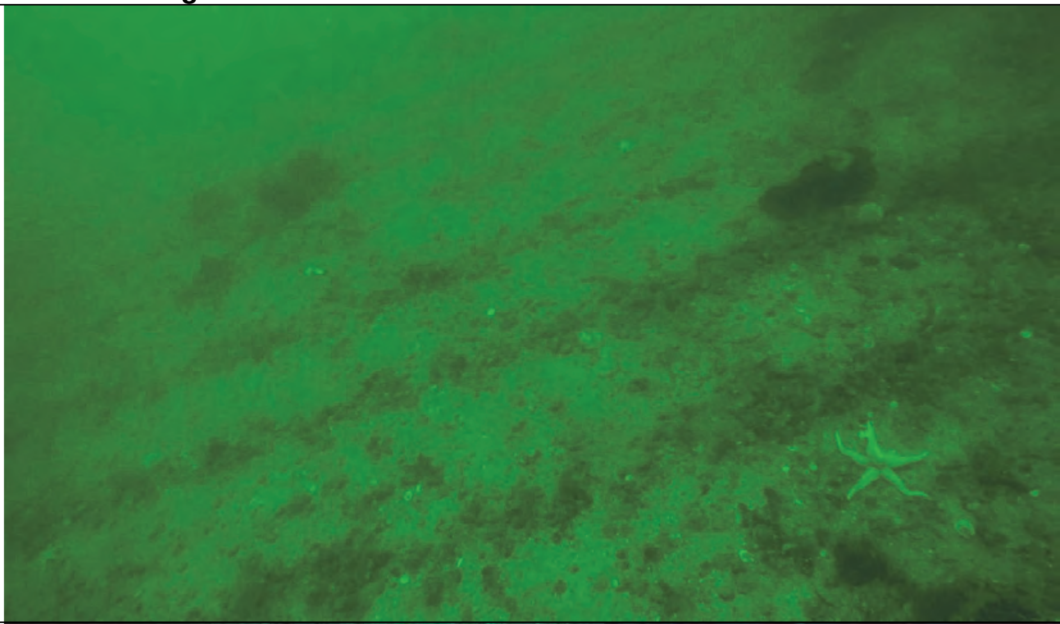
ANNEX 7: INVENTORY OF ALL LOCATIONS EXHIBITING UNEQUIVOCAL SIGNS OF PARALLEL DREDGE TRACKS. TOGETHER WITH VIDEO FRAME GRAB IMAGE

Site	Video frame grab
M2	
D02	

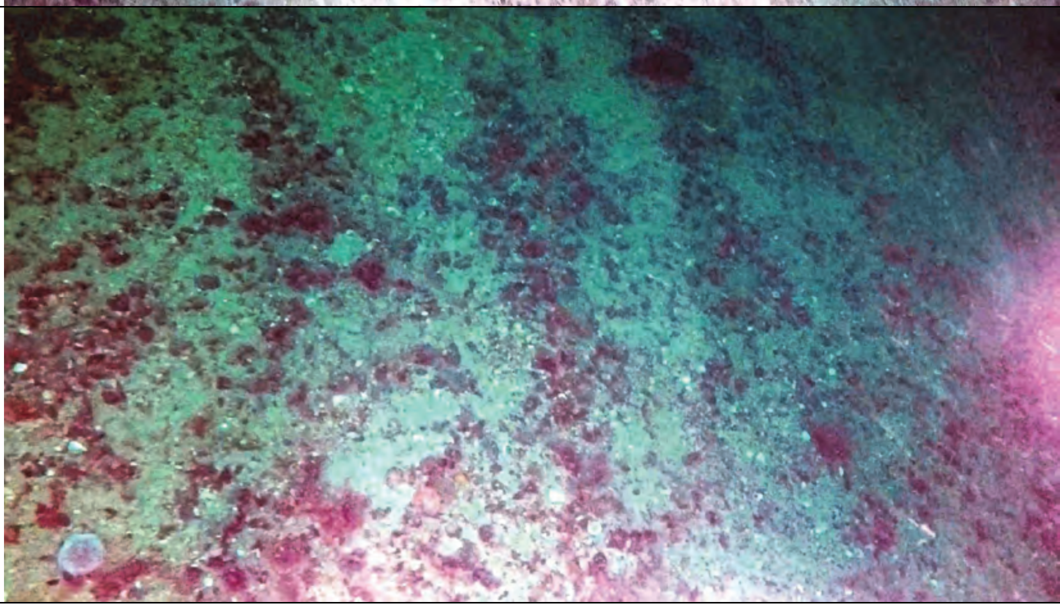
Annex 7 continued

Site	Video frame grab
D01	
D07	
DD22.6	

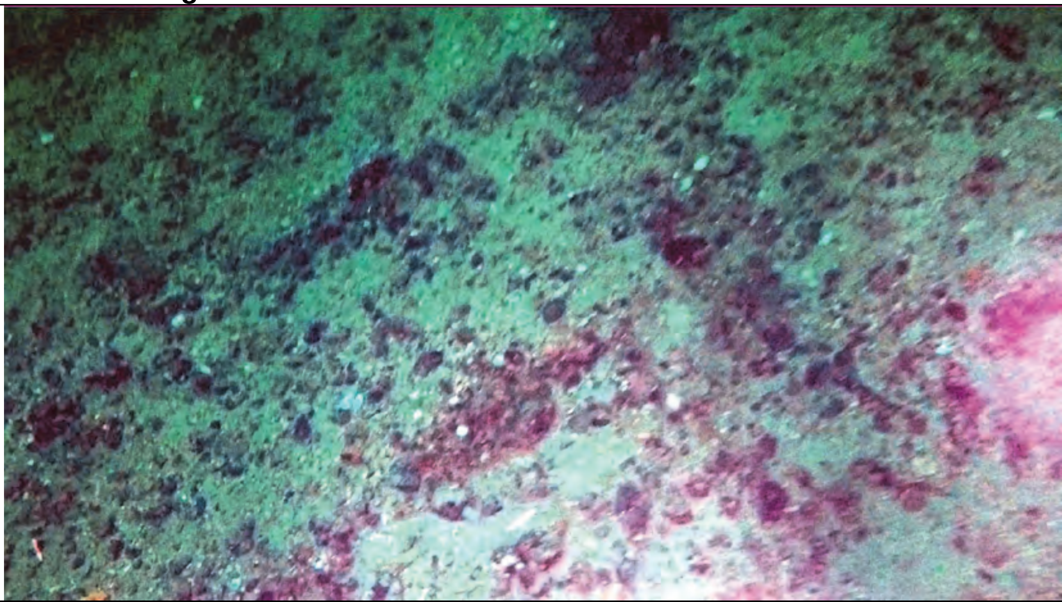
Annex 7 continued

Site	Video frame grab
DD26.1	
DV115.4	

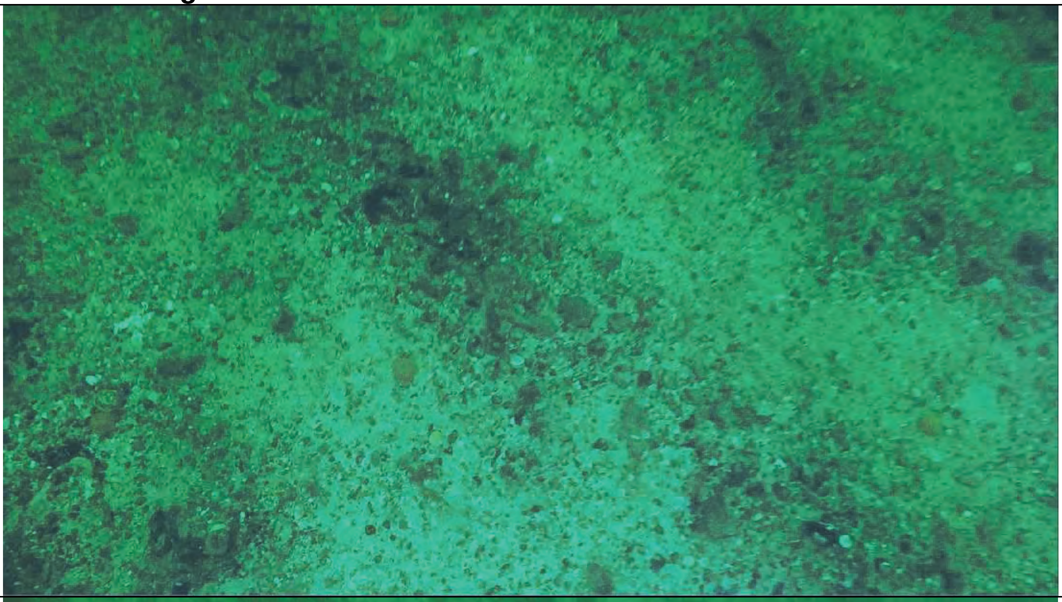
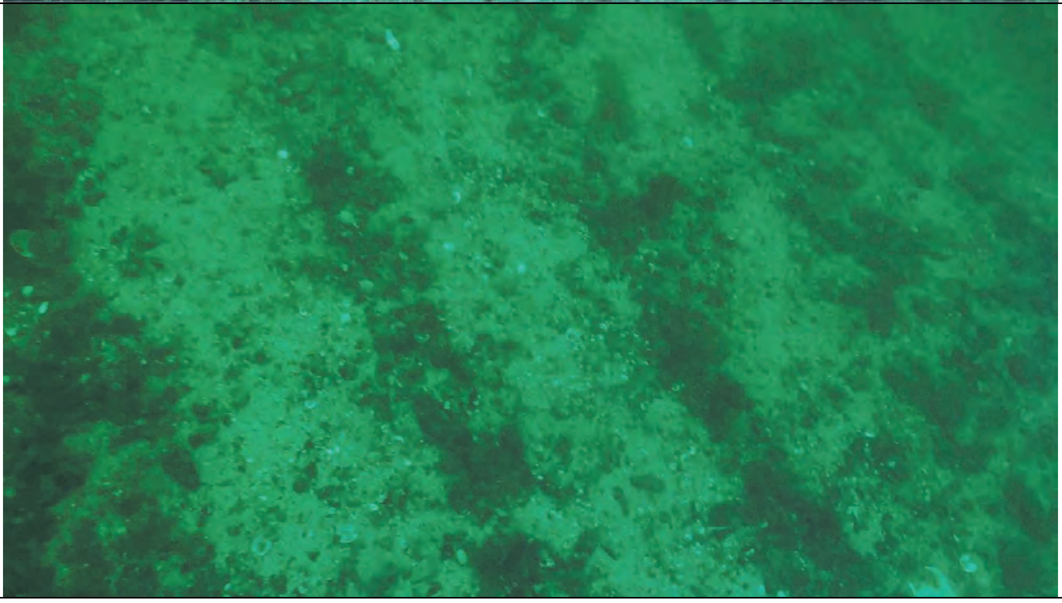
Annex 7 continued

Site	Video frame grab
DV206.1	
DV208.2	

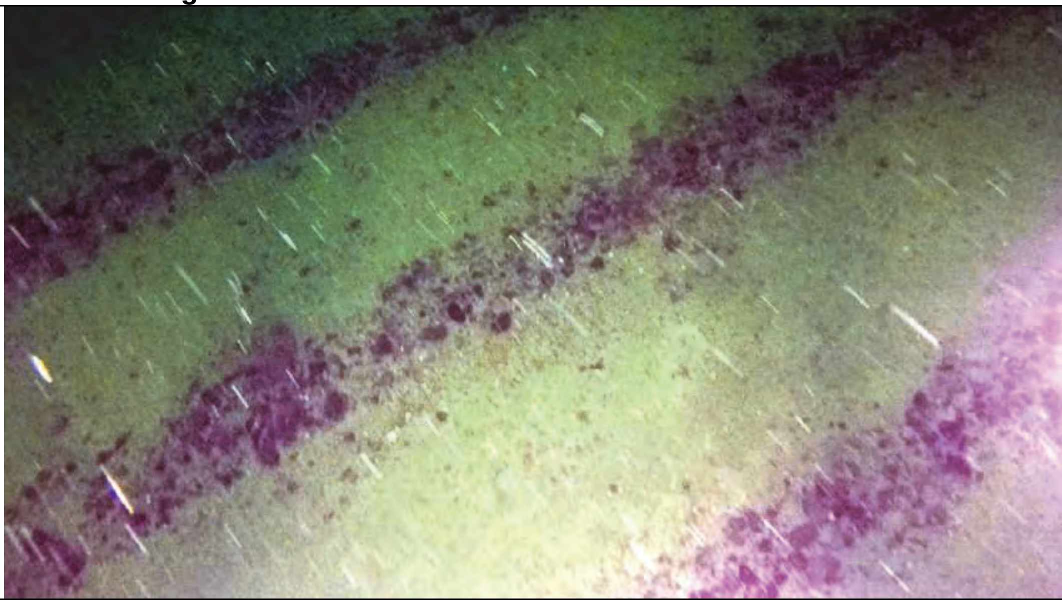
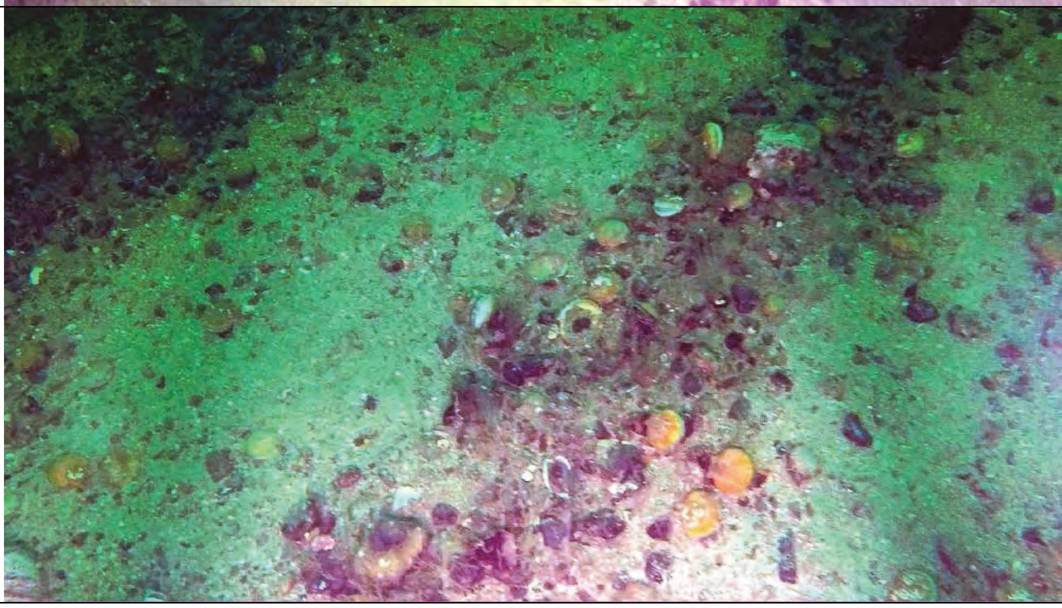
Annex 7 continued

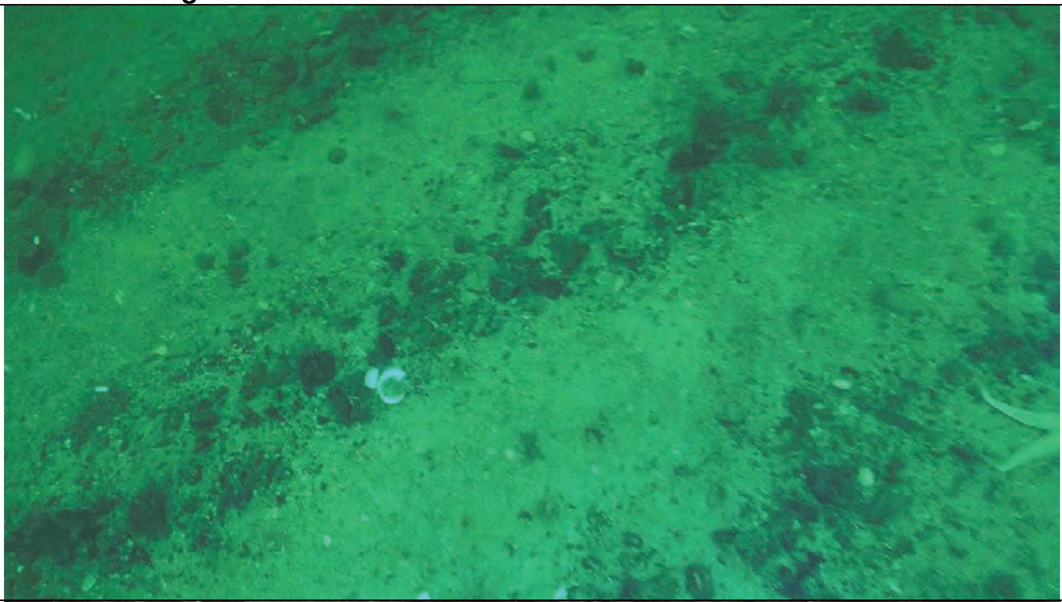
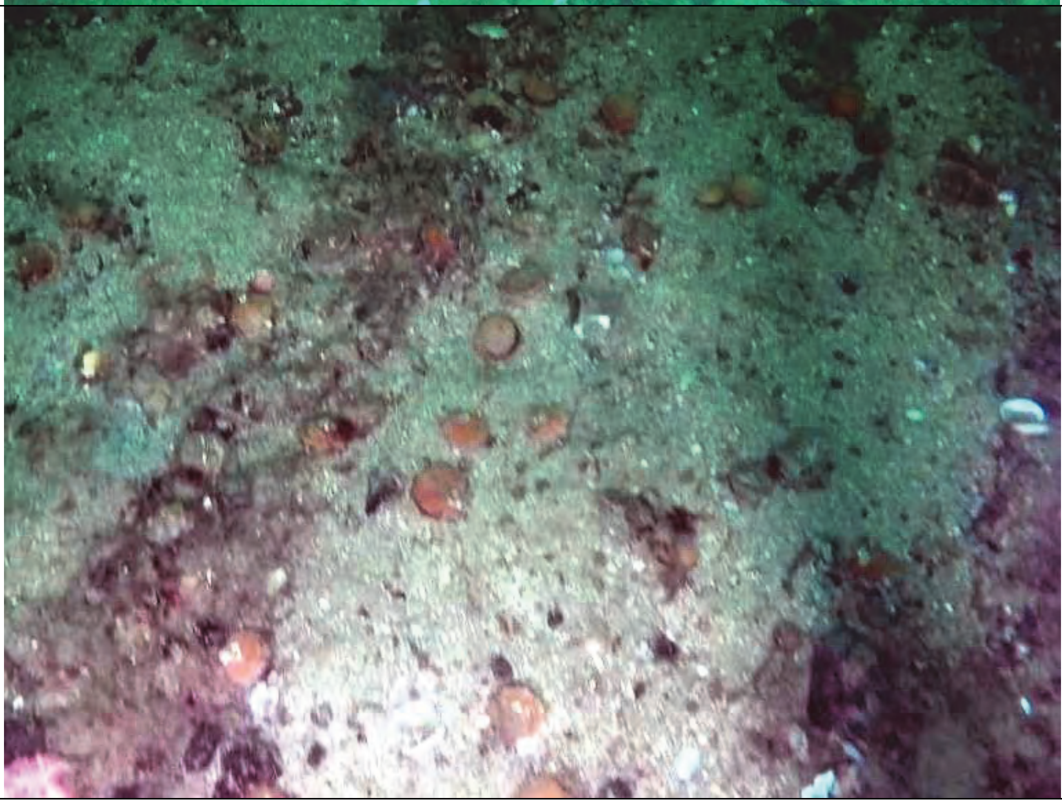
Site	Video frame grab
DV209.3	
DV210.4	

Annex 7 continued

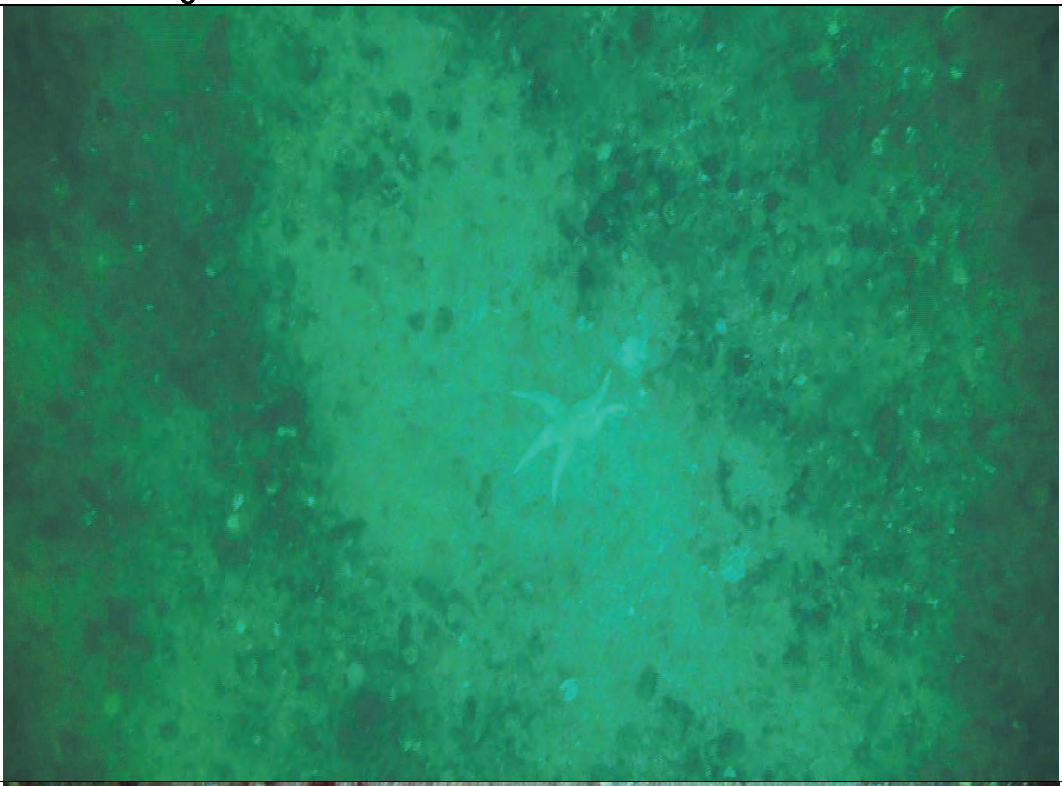
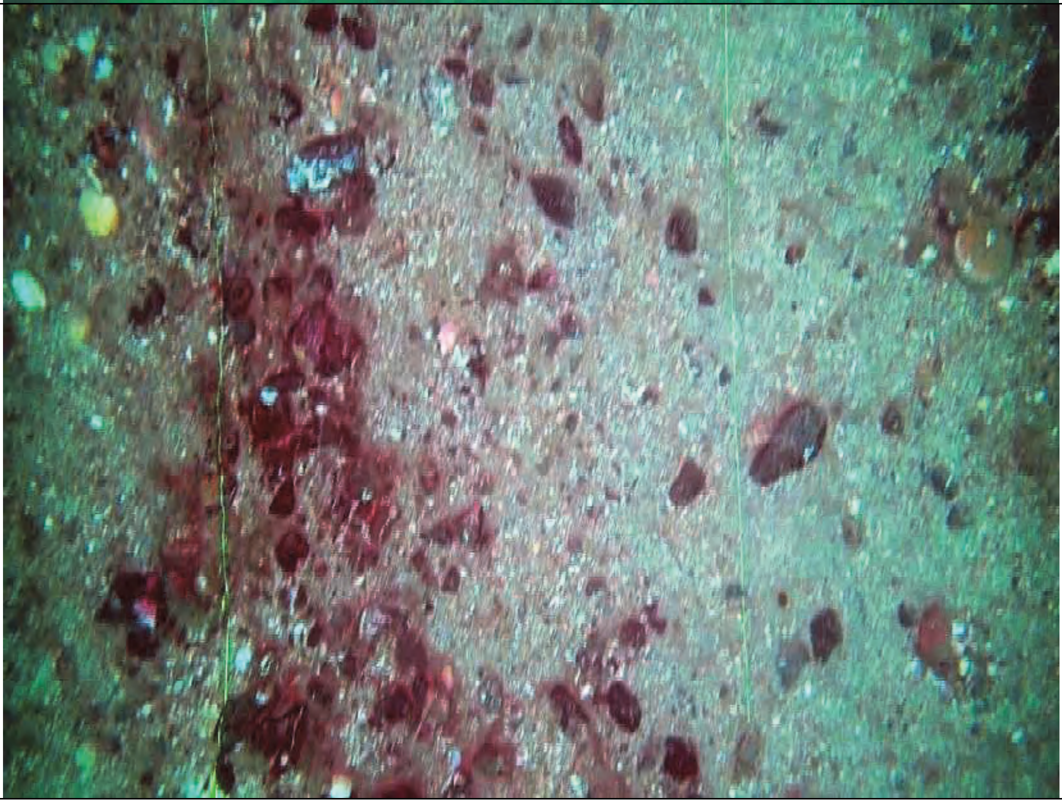
Site	Video frame grab
DV237.2	
DV42.3	

Annex 7 continued

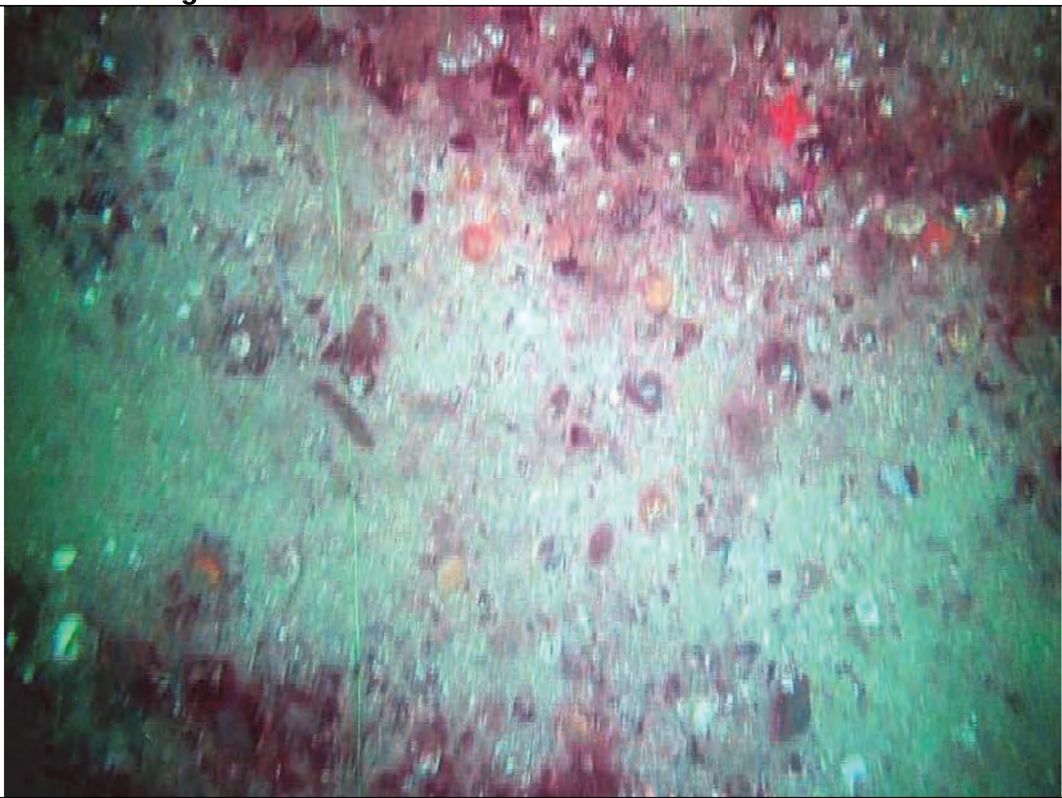
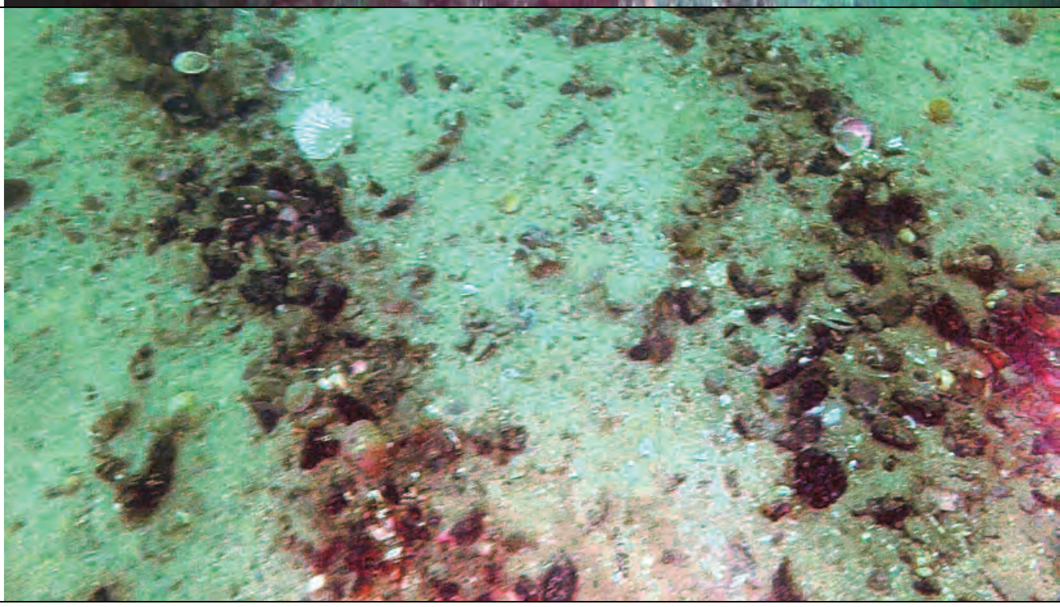
Site	Video frame grab
DV74.1	
DV75.1	

Site	Video frame grab
DV77.3	
DV88.3	

Annex 7 continued

Site	Video frame grab
LC_V1	
LC-V6.3	

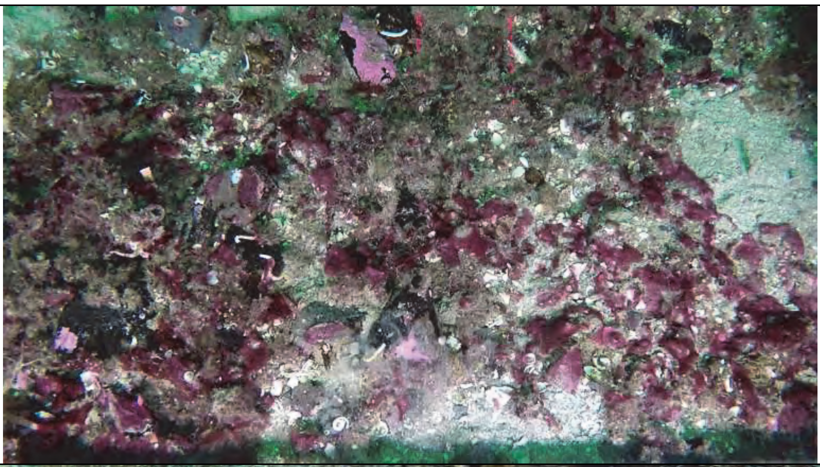
Annex 7 continued

Site	Video frame grab
LC-V7.1	
V39.1	

ANNEX 8: INVENTORY OF BIOTOPES AND PMFS RECORDED WITH SITES OF OCCURRENCE AND ILLUSTRATIVE VIDEO FRAME GRAB. BIOTOPE CODES AND SPECIES IN RED ARE PMFS. ITALICIZED SITES INDICATE PROVENANCE OF IMAGE. SEE CONNOR *ET AL*. (2004) FOR FULL BIOTOPE DESCRIPTION

<table>
<tr><td>IR.HIR.KFaR.FoR

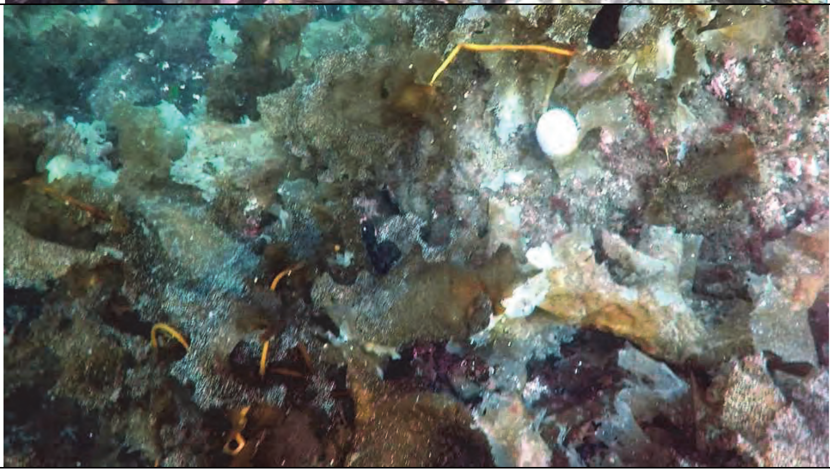
Foliose red seaweeds on exposed lower infralittoral rock

DV89.1, DV113, DV195.2, DV197.1, DV197.4, DV206.4, DV206.6, DV208.5, DV41.3</td><td></td></tr>
<tr><td>IR.HIR.KSed

Sand or gravel-affected or disturbed kelp and seaweed communities

DV64.1, DV64.3, LC-V7.14</td><td></td></tr>
<tr><td>IR.HIR.KSed.LsacSac

Laminaria saccharina and/or Saccorhiza polyschides on exposed infralittoral rock

DV46.2, DV56.2, DV82, DV94.2, DV94.5, DV100.1</td><td></td></tr>
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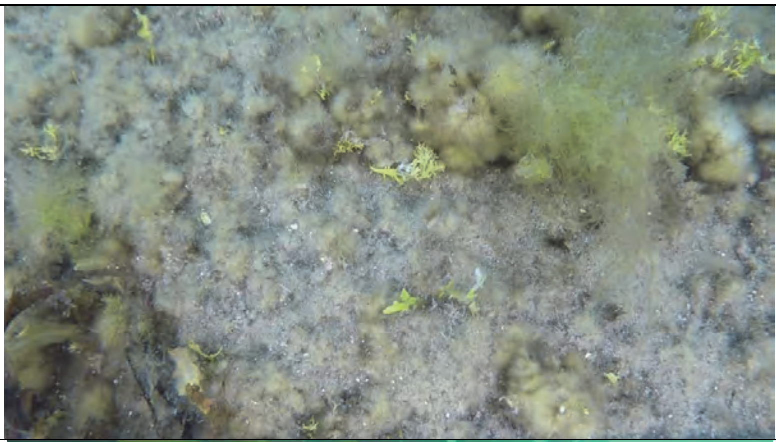
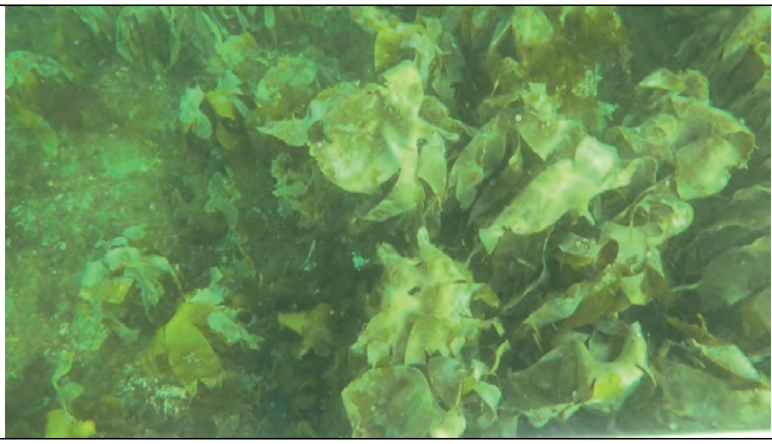
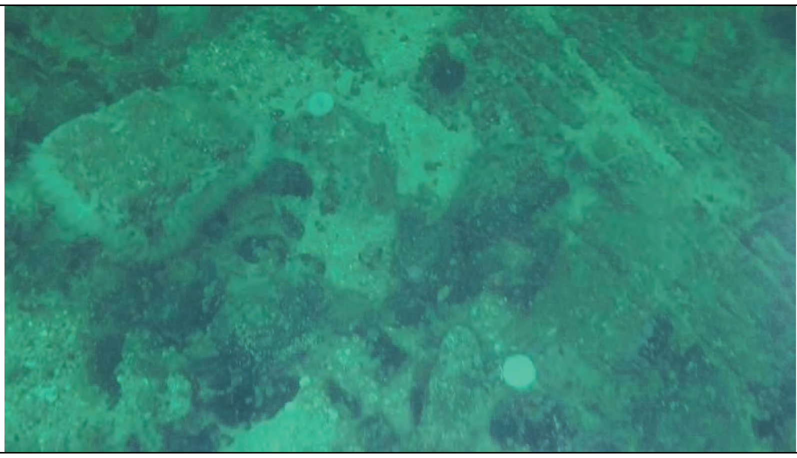
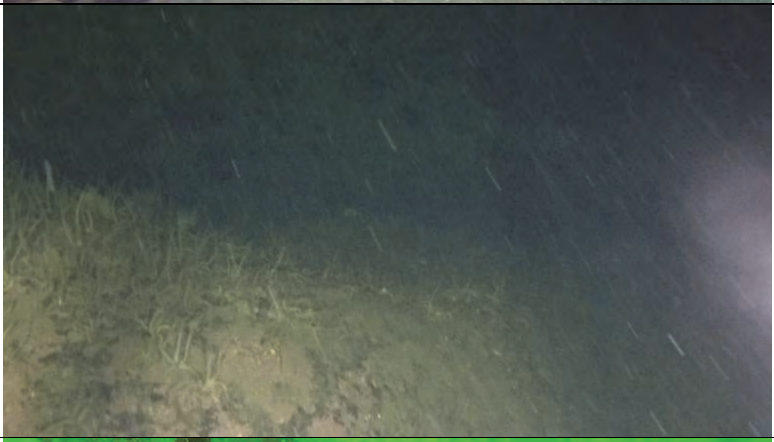
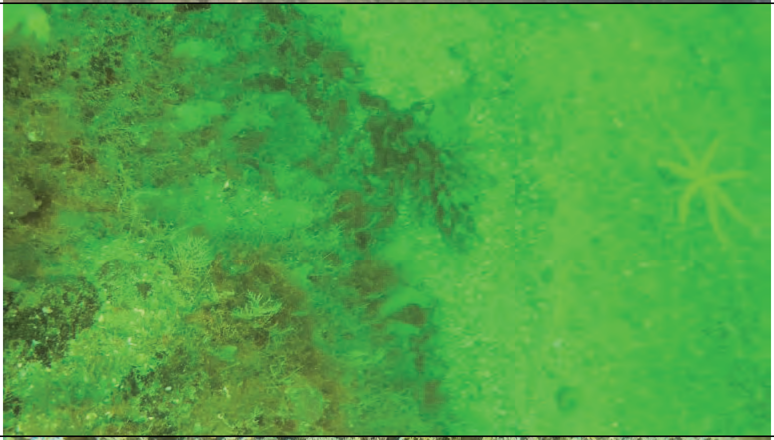
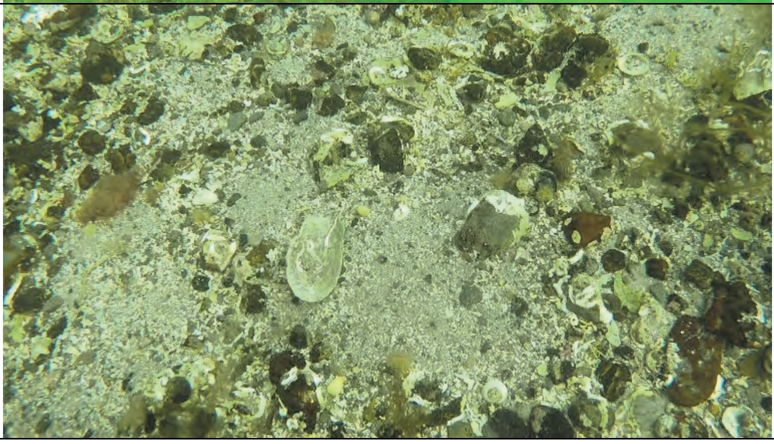
Annex 8 continued

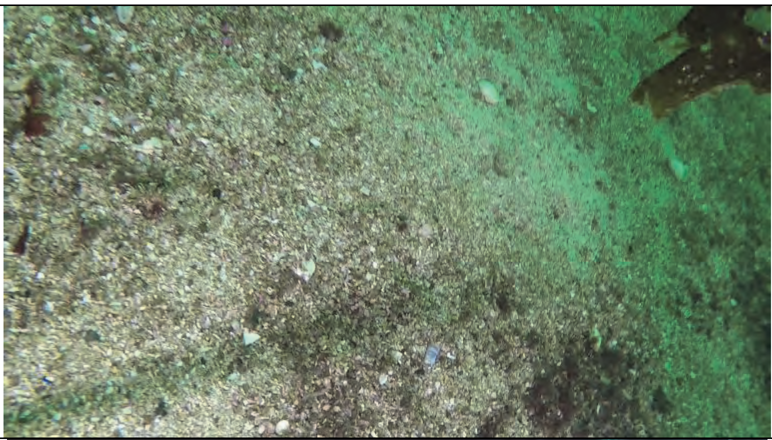
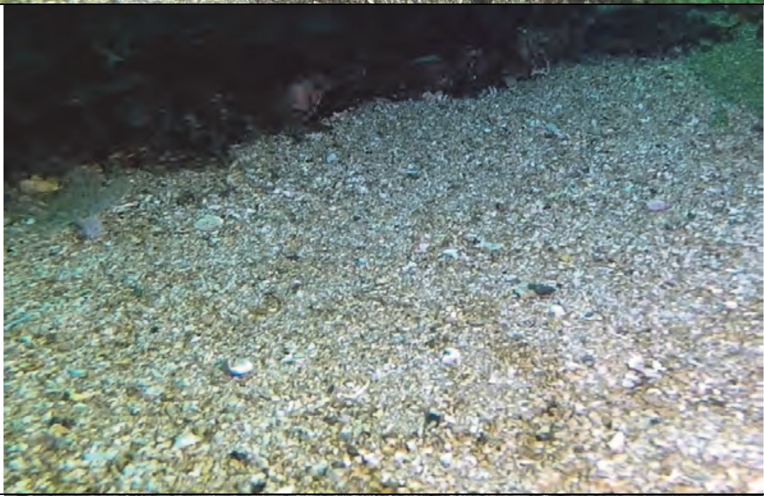
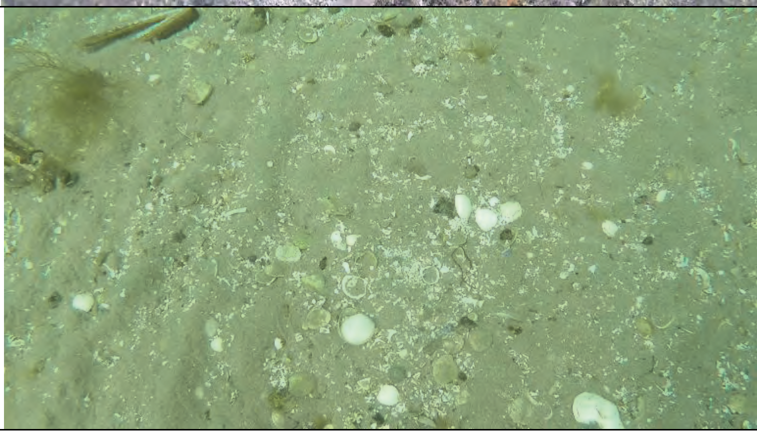
IR.HIR.KSed.ProtAhn *Polyides rotundus*, *Ahnfeltia plicata* and *Chondrus crispus* on sand-covered infralittoral rock *DV51.1*	
IR.HIR.KSed.XKScrR Mixed kelps with scour-tolerant and opportunistic foliose red seaweeds on scoured or sand-covered infralittoral rock *D15.1*, DV39, DV41.2, DV53.2, DV78.1, DV101, DV104.1, DV115.1, DV176.3, DV178.2, DV180.1, DV183.2, DV185, DV186.2, DV187.1, DV189.1, DV190.1, DV190.2, DV195.4, DV195.5, DV196.1, DV199, DV201, DV209.1, DV236, LC-V2.6, LC-V2.8, LC-V5.2, LC-V5.4, LC-V6.9, LC-V7.10	
IR.MIR.KR.Lhyp.Ft *Laminaria hyperborea* forest and foliose red seaweeds on moderately exposed upper infralittoral rock *DV56.1*, DV58.2, DV58.4, DV94.1	

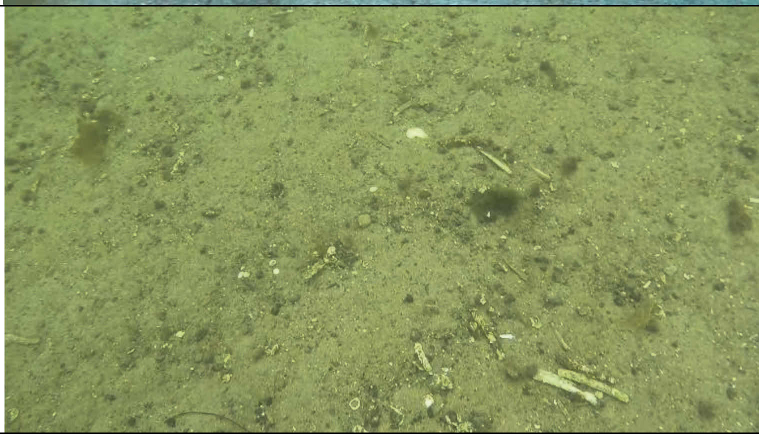
IR.MIR.KT.XKT Mixed kelp with foliose red seaweeds, sponges and ascidians on sheltered, tide-swept infralittoral rock *DV13.3*, DV13.5	
IR.MIR.KT.XKTX Mixed kelp and red seaweeds on infralittoral boulders, cobbles and gravel in tidal rapids Conservation Bay, D15.2, DV04, *DV05*, DV07, DV08.2, DV09, DV10, DV11, DV12.2, DV13.2, DV13.4, DV14, DV17, DV19, DV20, DV21, DV23.1, DV24, DV26, DV68, DV70, DV72, DV80, DV85.2, DV86, DV93.1, DV115.3, DV124, DV127, DV130, DV131, DV132, DV133, DV134, DV137.1, DV137.2, DV140.1, DV140.2, DV144, DV146, DV150, DV157, DV158, DV159, DV160.1, DV162, DV165.1, DV165.2, DV166.2, DV167, DV176.2, DV200, DV204.2, North Strome Slip, V41, V43	
CR.LCR.BrAs Brachiopods and ascidians DV189.4, *DV210.2*	

Annex 8 continued

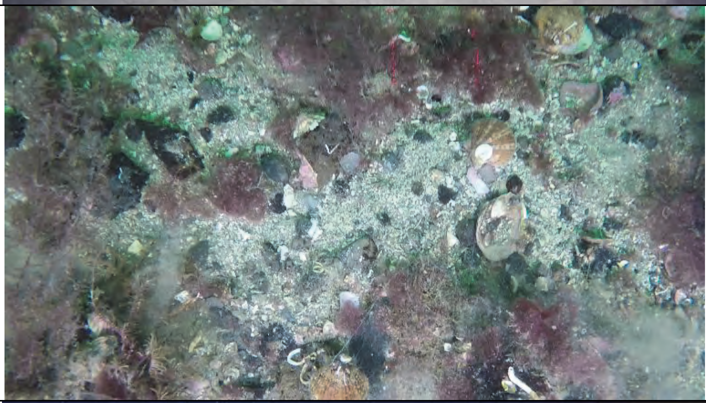
CR.LCR.BrAs.AmenCio.Ant Solitary ascidians, including *Ascidia mentula* and *Ciona intestinalis* with *Antedon* spp. on wave-sheltered circalittoral rock DV126.2, *DV126.4*, DV193.2, DV212.1	
CR.LCR.BrAs.AmenCio.Bri Dense brittlestars with sparse *Ascidia mentula* and *Ciona intestinalis* on sheltered circalittoral mixed substrata DV126.1, DV126.3, *DV126.5*	
CR.LCR.BrAs.AntAsH *Antedon* spp., solitary ascidians and fine hydroids on sheltered circalittoral rock *DV40.2*	
LS.LMx Littoral mixed sediment *DV48.2*	

Annex 8 continued

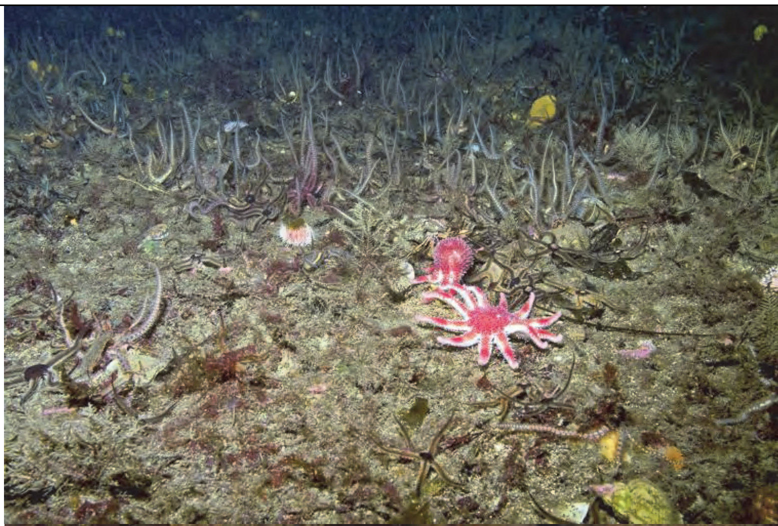
SS.SCS.ICS Infralittoral coarse sediment *DV64.2*, North Strome Slip	
SS.SCS.CCS.Nmix *Neopentadactyla mixta* in circalittoral shell gravel or coarse sand *D15.1* Note *N. mixta* near left margin	
SS.IFiSa.ScupHyd *Sertularia cupressina* and *Hydrallmania falcata* on tide-swept sublittoral sand with cobbles or pebbles *DV35*	
SS.SSa.IMuSa Infralittoral muddy sand *DV48.1*	

SS.SSa.IMuSa.ArelSa *Arenicola marina* in infralittoral fine sand or muddy sand *DV90.2*	
SS.SSa.IMuSa.EcorEns *Echinocardium cordatum* and *Ensis* spp. in lower shore and shallow sublittoral slightly muddy fine sand *DV02.1*	
SS.SSa.CMuSa Circalittoral muddy sand *DV172*	
SS.SMu.CSaMu Circalittoral sandy mud *DV32*, DV169	

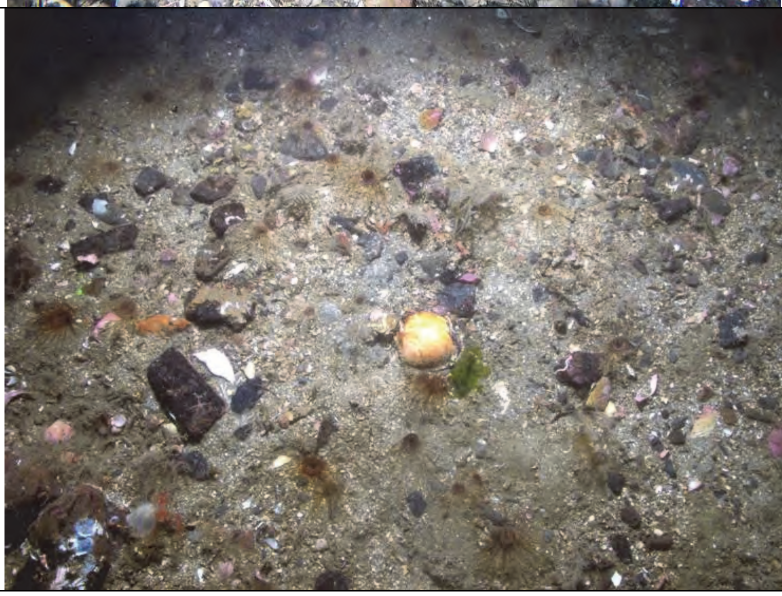
Annex 8 continued

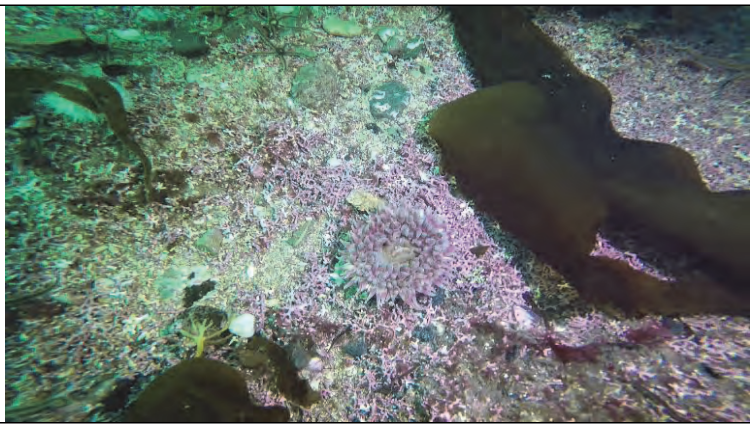
SS.SMu.CFiMu.SpnMeg Seapens and burrowing megafauna in circalittoral fine mud *DV33*	
SS.SMx.IMx Infralittoral mixed sediment D04, D05, D07, D09, DV40.1, DV40.3, *DV44*	
SS.SMx.IMx.Lim *Limaria hians* beds in tide-swept sublittoral muddy mixed sediment Conservation Bay, D01, D02, D03, D06, D07, D08, D15.2, D16, DD01.1, DD01.2, DD01.3, DD01.4, DD01.5, DD01.6, DD02.1, DD02.2, DD02.3, DD02.4, DD02.5, DD02.6, DD02.7, DD02.8, DD03.1, DD03.2, DD03.3, DD03.4, DD03.5, DD03.6, DD04.1, DD04.3, DD04.4, DD04.5, DD05A.6, DD05A.7, DD05A.8, DD05A.9, DD05B.5, DD05B.6, DD05B.7, DD06.3, DD06.4, DD06.5, DD06.6, DD06.7, DD06.8, DD07.1, DD07.2, DD07.3, DD08.3, DD09.1, DD09.2, DD09.3, DD09.4, DD09.5, DD10.1, DD10.2, DD10.3, DD10.4, DD10.5, DD11.1, DD11.2, DD11.3, DD11.4, DD11.5, DD11.6, DD11.7, DD12.1, DD12.2, DD12.3, DD12.4, DD12.5, DD13.1, DD13.2, DD13.3, DD13.4, DD13.5, DD15.1,	

Annex 8 continued

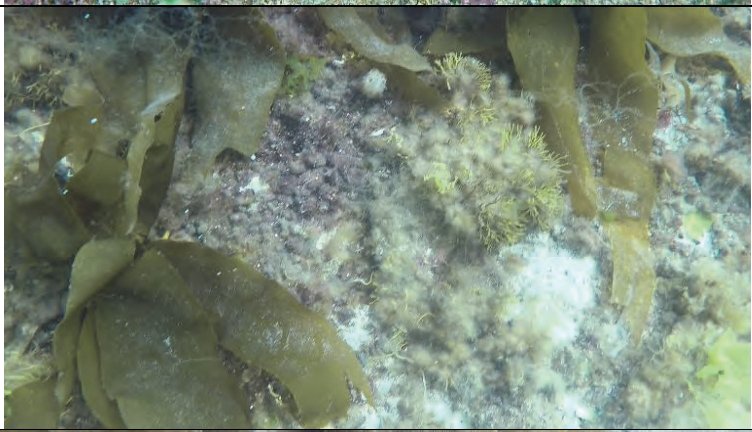
DD15.2, DD15.3, DD15.4, DD15.5, DD15.6, DD16.6, DD16.7, DD17.4, DD18.1, DD18.2, DD18.3, DD19A.1, DD19A.2, DD19A.3, DD19A.4, DD19A.5, DD19A.6, DD21.1, DD21.2, DD21.3, DD22.1, DD22.2, DD22.3, DD22.4, DD22.5, DD23.4, DD23.5, DD23.6, DD24.2, DD26.6, DV03, DV04, DV05, DV06, DV07, DV08.2, DV09, DV10, DV11, DV12.1, DV12.2, DV13.2, DV14, DV16, DV160.1, DV162, DV164, DV165.1, DV166.2, DV167, DV17, DV18, DV19, DV20, DV21, DV23.1, DV23.2, DV24, DV25, DV26, DV28, DV29, DV39, DV41.1, DV41.3, DV42.2, DV42.4, DV67, DV69, DV70, DV71, DV72, DV77.1, DV78.1, DV78.2, DV79, DV80, DV85.1, DV85.2, DV86, DV87.1, DV87.2, DV88.1, DV88.2, DV89.1, DV89.2, DV93.1, DV93.2, DV104.2, DV106, DV107, DV115.2, DV115.3, DV123.1, DV127, DV131, DV132, DV133, DV135, DV136, DV137.2, DV138, DV139, DV140.2, DV140.3, DV144, DV145, DV149, DV153, DV155, DV156, DV157, DV158, DV159, DV176.1, DV176.2, DV177, DV179.1, DV179.2, DV179.3, DV180.2, DV182, DV187.2, DV189.2, DV190.2, DV190.3, DV195.1, DV195.3, DV195.4, DV196.1, DV196.2, DV197.3, DV200, DV203.2, DV203.3, DV204.1, DV204.2, DV206.3, DV206.5, DV208.4, DV208.6, DV209.1, DV209.2, DV210.1, DV212.2, DV235, *FS01*, FS02, LC-G1, LC-G2, LC-G3, LC-G4, LC-V2.1, LC-V2.3, LC-V2.5, LC-V2.7, LC-V3.11, LC-V3.3, LC-V3.5, LC-V3.7, LC-V3.9, LC-V4.3, LC-V4.5, LC-V4.7, LC-V5.3, LC-V5.5, LC-V5.7, LC-V6.4, LC-V6.6, LC-V6.8, LC-V7.11, LC-V7.12, LC-V7.13, LC-V7.2, LC-V7.4, LC-V7.5, LC-V7.6, LC-V7.7, LC-V7.8, LC-V7.9, M1C, M1T, M2C, M2T, M3C, M3T, North Strome Slip, V39.2, V41, V42, V43	  

Annex 8 continued

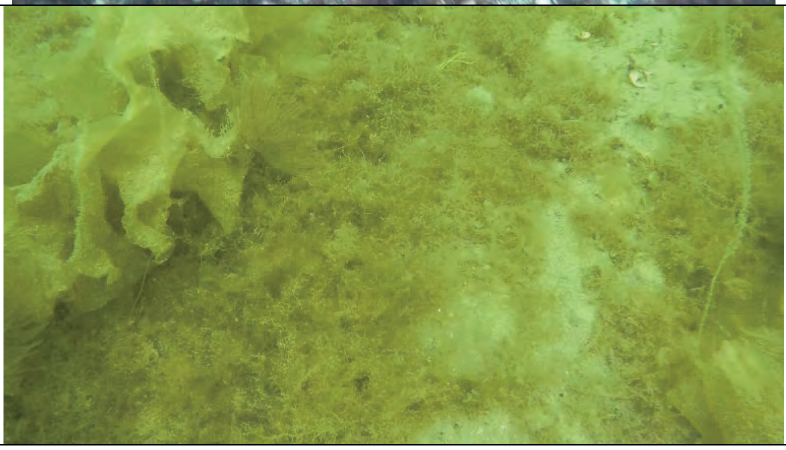
SS.SMx.CMx Circalittoral mixed sediment *DV15*, DV31, DV42.1, DV42.3, DV43, DV73, DV74.1, DV74.2, DV75.1, DV75.2, DV76, DV77.2, DV77.3, DV88.3, DV88.4, DV92, DV105, DV115.4, DV118, DV120.2, DV122.2, DV126.6, DV128.1, DV181, DV189.3, DV193.1, DV193.3, DV194.2, DV196.3, DV197.2, DV197.5, DV203.1, DV206.1, DV206.2, DV208.1, DV208.2, DV208.3, DV209.3, DV210.3, DV210.4, DV237.1, DV237.2, DV237.3, LC-V1, LC-V2.2, LC-V2.4, LC-V3.1, LC-V3.10, LC-V3.12, LC-V3.13, LC-V3.2, LC-V3.4, LC-V3.6, LC-V3.8, LC-V4.1, LC-V4.2, LC-V4.4, LC-V4.6, LC-V5.6, LC-V6.5, LC-V6.7, LC-V6.9, LC-V6.10, LC-V7.1, LC-V7.10, LC-V7.3, LC-V8.1, LC-V9.1, LC-V10.1, LC-V11.1, V39.1	 
SS.SMx.CMx.ClloMx.Nem *Cerianthus lloydii* with *Nemertesia* spp. and other hydroids in circalittoral muddy mixed sediment *LC-V2.9*, LC-V5.1, LC-V6.1, LC-V6.2, LC-V6.3, LC-V7.15	

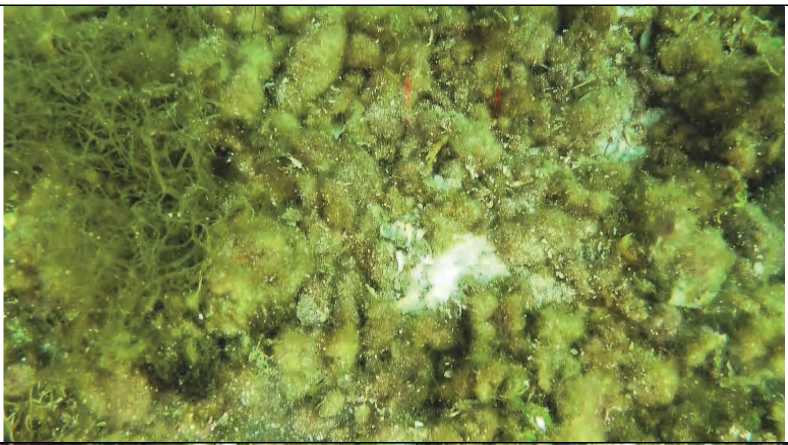
SS.SMx.CMx.OphMx *Ophiothrix fragilis* and/or *Ophiocomina nigra* brittlestar beds on sublittoral mixed sediment Conservation Bay, DD01.1, DD01.2, DD01.3, DD01.4, DD01.5, DD01.6, DD02.1, DD02.2, DD02.3, DD02.4, DD02.5, DD02.6, DD02.7, DD02.8, DD03.1, DD03.2, DD03.3, DD03.4, DD03.5, DD03.6, DD04.3, DD04.4, DD04.5, DD05A.6, DD05A.7, DD05A.8, DD05A.9, DD05B.6, DD05B.7, DD06.3, DD06.4, DD06.5, DD06.6, DD06.7, DD06.8, DD07.1, DD07.2, DD07.3, DD09.1, DD09.2, DD09.3, DD09.4, DD09.5, DD10.1, DD10.2, DD10.3, DD10.4, DD11.2, DD11.3, DD11.5, DD11.6, DD11.7, DD13.1, DD13.2, DD13.3, DD13.4, DD13.5, *DV03*, DV04, DV05, DV06, DV07, DV08.2, DV09, DV10, DV11, DV12.1, DV12.2, DV13.1, DV13.2, DV13.4, DV16, DV17, DV18, DV20, DV21, DV23.1, DV23.2, DV235, DV25, DV26, DV29, DV67, DV68, DV69, DV70, DV71, DV85.1, DV87.2, DV93.1, DV93.2, DV108, DV119, DV120.1, DV121, DV122.1, DV123.1, DV123.2, DV127, DV128.2, DV131, DV133, DV135, DV136, DV138, DV141, DV142, DV145, DV149, DV153, DV156, DV159, DV164, North Strome Slip, V42	
SS.SMp.Mrl.Pcal *Phymatolithon calcareum* maerl beds in infralittoral clean gravel or coarse sand *D15.3*, DD04.2, DD05B.3, DD05B.4, DV08.1, DV61.2, DV103, ML01, North Strome Slip	

Annex 8 continued

SS.SMp.Mrl.Pcal.R *Phymatolithon calcareum* maerl beds with red seaweeds in shallow infralittoral clean gravel or coarse sand D13, DV46.1, DV47, DV49, DV52, DV53.1, DV54, DV58.1, DV58.3, DV58.5, DV59, DV65, DV66, DV94.3, DV97, DV98, DV116.1, *ML02*, V03, V04, V31, V32	
SS.SMp.Mrl.Pcal.Nmix *Phymatolithon calcareum* maerl beds with *Neopentadactyla mixta* and other echinoderms in deeper infralittoral clean gravel or coarse sand *DV102*	
SS.SMp.KSwSS Kelp and seaweed communities on sublittoral sediment DV30, *DV51.2*, DV60, DV84, DV110, DV114, DV116.2, DV117	
SS.SMp.KSwSS.LsacMxVS *Laminaria saccharina* with *Psammechinus miliaris* and/or *Modiolus modiolus* on variable salinity infralittoral mixed sediment *DV01*, DV02.2, DV125, DV129	

Annex 8 continued

SS.SMp.KSwSS.LsacR *Laminaria saccharina* and red seaweeds on infralittoral sediments D10, D11, D12, D14, DV45, DV81, *DV83*, DV94.4, DV96, DV99, DV100.2, DV101, DV109, DV111, DV112, DV170, DV171, DV178.1, DV183.1, DV186.1, DV194.1, DV205, LC-V8.2, LC-V9.2, LC-V10.2, LC-V11.2, V16, V19, V38	
SS.SMp.KSwSS.LsacR.CbPb Red seaweeds and kelps on tide-swept mobile infralittoral cobbles and pebbles *DV160.2*, DV161, DV163	
SS.SMp.KSwSS.LsacR.Gv *Laminaria saccharina* and robust red algae on infralittoral gravel and pebbles DV22, DV27, DV152, DV154, *V23*, V25	
SS.SMp.KSwSS.LsacR.Sa *Laminaria saccharina* and filamentous red algae on infralittoral sand DV34, DV36, DV37, DV38, *DV50*, DV65, DV66, DV90.1, DV91, DV143, DV147, DV148, DV151, DV166.1, DV168, V02, V05, V06, V17, V24, V31, V33, V34, V35, V37, V40	

SS.SMp.KSwSS.Tra Mats of *Trailliella* on infralittoral muddy gravel DV55, *DV57*, DV60, DV61.1, DV62, DV63, DV117, V36	
SS.SBR.SMus.ModT *Modiolus modiolus* beds with hydroids and red seaweeds on tide-swept circalittoral mixed substrata DD03.4, DD03.5, DD08.3, DD09.1, DD09.2, *DD12.2*	
Fan mussel *Atrina fragils* *DV31* (uncertain record)	

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