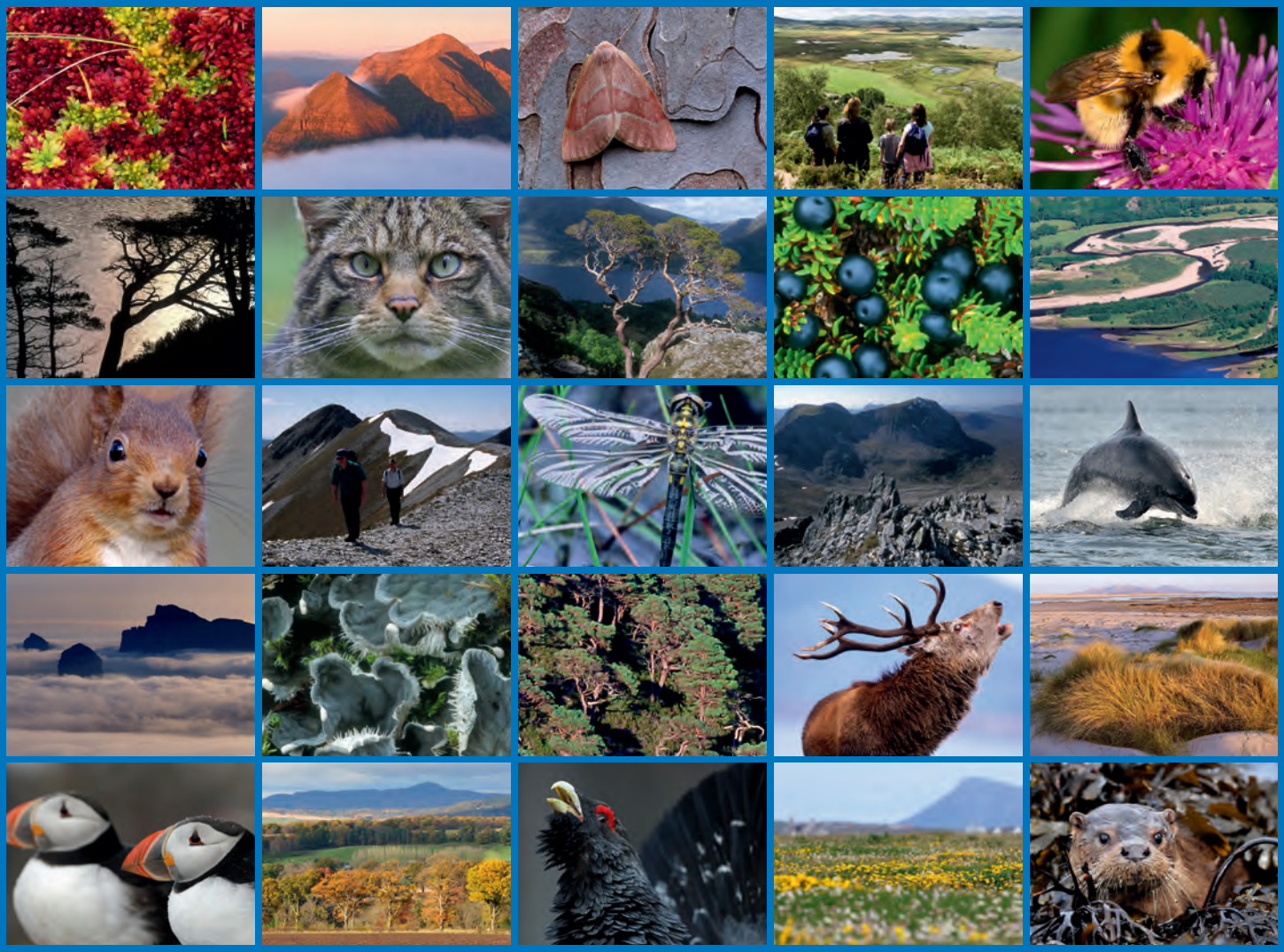
Scottish Natural Heritage
Commissioned Report No. 536

Biological analyses of underwater video from research cruises in the Clyde Sea, Loch Torridon and the Inner Sound, the North Minch, Loch Eriboll and off Orkney



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COMMISSIONED REPORT

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Biological analyses of underwater video from research cruises in the Clyde Sea, Loch Torridon and the Inner Sound, the North Minch, Loch Eriboll and off Orkney

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COMMISSIONED REPORT

Summary

Biological analyses of underwater video from research cruises in the Clyde Sea, Loch Torridon and the Inner Sound, the North Minch, Loch Eriboll and off Orkney

Commissioned Report No. 536

Project No.: 13879

Contractor: Dr Colin Moore

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Background

To help target marine nature conservation in Scotland, SNH and JNCC have generated a focused list of habitats and species of importance in Scottish waters - the Priority Marine Features (PMFs). A subset of these features (termed MPA search features) will drive the identification of Nature Conservation MPAs. The principal aim of the present investigation was to improve knowledge of the occurrence and distribution of species and habitats of recognised conservation importance in Scottish waters, especially PMFs, but also taking into consideration other importance measures. This was to be achieved through the analysis of seabed video and still photographic imagery collected during research cruises around Scotland carried out by various organisations between 2000 and 2012.

Imagery was analysed from nine surveys at 5 locations: off West Mainland Orkney, Loch Eriboll, northeast of the Shiant East Bank in the Minch, Loch Torridon and the adjacent area including the Inner Sound, and Loch Fyne and the Clyde Sea.

Main findings

- No PMFs were recorded at the Orkney location and it was considered that the planned development of wave energy devices at this location would not represent a significant threat to any seabed features of recognised conservation importance.

- The inner part of Loch Eriboll was found to be floored by burrowed mud beyond 30 m depth (**SS.SMu.CFiMu.SpnMeg**), the only PMF recorded here. Apart from *Nephrops norvegicus*, the megafaunal burrowing component was not rich and no sea pens were observed.

- Three PMF biotopes and four PMF species were observed along the three ROV runs in the Minch, including an impoverished deep sponge community (**CR.HCR.DpSp.PhaAxi**) and examples of the burrowed mud biotopes **SS.SMu.CFiMu.SpnMeg** and **SpnMeg.Fun**. Sparse populations of *Funiculina quadrangularis*, *Pennatula phosphorea* and *Pachycerianthus multiplicatus* were recorded in the sediment here and *Swiftia pallida* on scattered stones.

- Ten PMF biotopes and six PMF species were recorded in Loch Torridon and the adjacent Inner Sound area. Burrowed mud was found to be the dominant habitat here, mostly in the form of **SS.SMu.CFiMu.SpnMeg.Fun**, but also as **SpnMeg**, with dense *Funiculina quadrangularis* in places, accompanied by dense *Pennatula phosphorea* in parts of Loch Torridon. Rich burrowing communities of *Nephrops norvegicus* and thalassinidean shrimps occurred in both the Inner Sound and Loch Torridon, with the latter in particular supporting locally high densities of the burrowing fish, *Lesueurigobius friesii* and *Lumpenus lampretaeformis*. *Pachycerianthus multiplicatus* was widely distributed in the muds of the Inner Sound and fields of *Leptometra celtica* on mixed substrates were recorded in both Loch Torridon and the Inner Sound. Maerl beds were present at seven locations, including a rich bed at the head of Loch Torridon (**SS.SMp.Mrl**). The presence of several maerl records spread out along the eastern coastline of the Inner Sound possibly indicates the existence of a very extensive maerl band here (**SS.SMp.Mrl.Pcal.Nmix**). Steep circalittoral rock and boulders along the eastern coast of Rona support dense populations of axinellid sponges and ascidians with sparse *Swiftia pallida* (**CR.HCR.DpSp.PhaAxi**), with a dense *S. pallida* community recorded to the north of Rona (**CR.HCR.XFa.SwiLgAs**).

- Two PMF biotopes, one PMF species and the possible presence of three further species were recorded in Loch Fyne and the Clyde Sea region. Burrowed mud was extensively distributed in Loch Fyne, populated by often dense *Nephrops norvegicus* and thalassinidean shrimps, but generally few sea pens (**SS.SMu.CFiMu.SpnMeg**), with the addition of *Maxmuelleria lankesteri* in the soft mud in the upper loch (**SS.SMu.CFiMu.MegMax**). Uncertain PMF records in Loch Fyne include the possible presence of *Maera loveni* burrows, one specimen of *Atrina fragilis* and *Arctica islandica* aggregations.

- Extensive areas of burrowed mud were distributed around Arran with a fauna similar to most of Loch Fyne (**SS.SMu.CFiMu.SpnMeg**), supplemented by *Maxmuelleria lankesteri* at one site (**SS.SMu.CFiMu.MegMax**). Aggregations of *Arctica islandica* were possibly present at several sites, mainly in inshore sandy muds.

- **SS.SMu.CFiMu.SpnMeg** was the only PMF recorded on the Clyde sill, where it was restricted to a tongue of sandy mud on the eastern side of the surveyed area and generally supported dense *Calocaris macandreae* and *Nephrops norvegicus*.

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ACKNOWLEDGEMENTS

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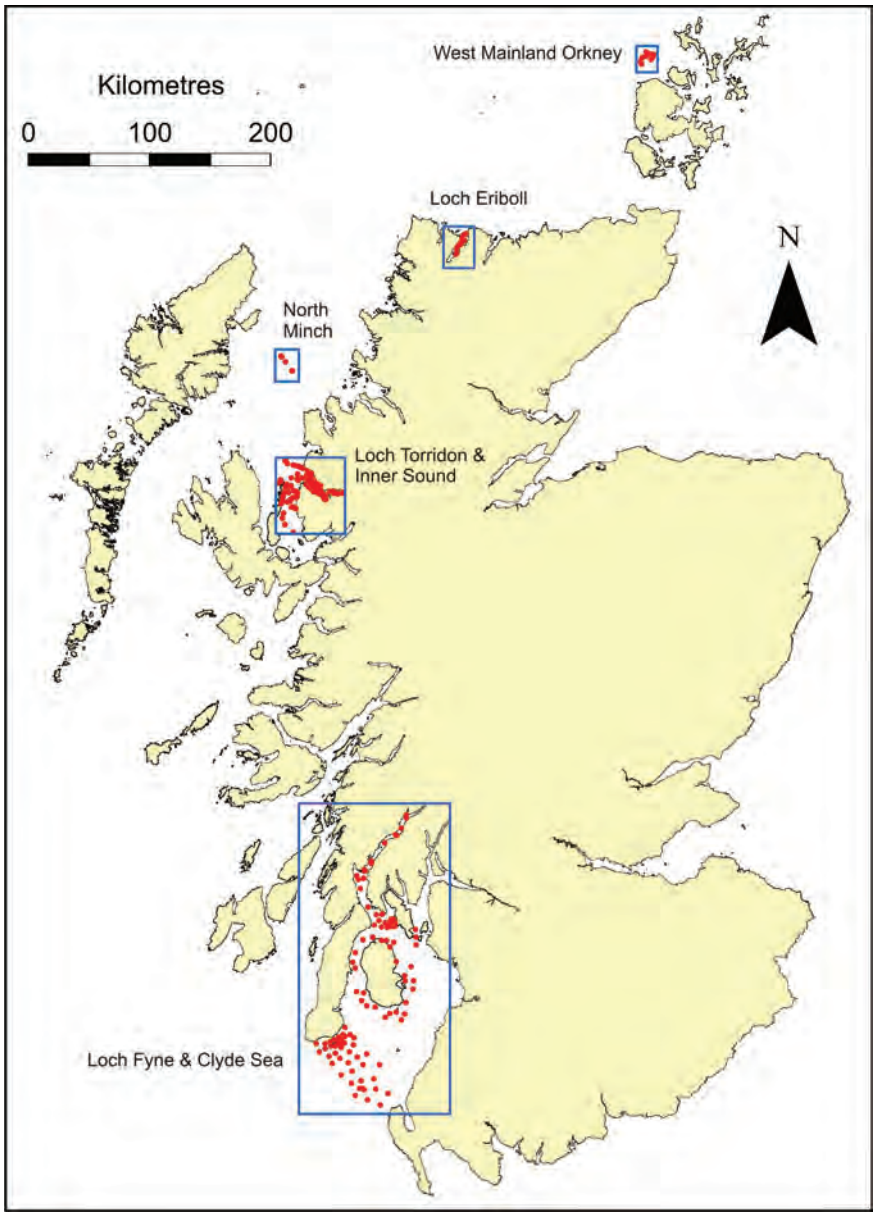
1 INTRODUCTION

The Marine (Scotland) Act 2010 provides a framework which will help balance competing demands on the maritime environment, integrating the economic growth of industry with the need to protect Scotland's seas. Where necessary, suitable conservation measures may be implemented at the wider seas level (e.g. through marine planning), targeted at specific species (e.g. improved protection for seals), or delivered within key locations (e.g. through the identification of new Marine Protected Areas - MPAs). Further details are provided in the Strategy for Marine Nature Conservation in Scotland (Marine Scotland, 2011a).

Figure 1 Distribution of survey locations (blue boxes) and sites (red circles)



To help target action under each of these three pillars, Scottish Natural Heritage (SNH) and the Joint Nature Conservation Committee (JNCC) have generated a focused list of habitats and species of importance in Scottish waters - the Priority Marine Features (PMFs) (SNH, 2011). A subset of these biological features (termed MPA search features) will drive the identification of Nature Conservation MPAs (Marine Scotland, 2011b).

The principal aim of the present investigation was to improve knowledge of the occurrence and distribution of species and habitats of recognised conservation importance in Scottish waters, especially PMFs, but also taking cognisance of other importance measures. This was to be achieved through the analysis of seabed video and still photographic imagery collected during research cruises around Scotland between 2000 and 2012. A further aim was to assess the implications of renewable energy developments on the features of importance, where they occurred in areas likely to experience such developments.

Imagery was analysed from nine surveys carried out by Scottish Natural Heritage (SNH), Marine Scotland Science (MSS), University Marine Biological Station Millport (UMBS), the Scottish Environment Protection Agency (SEPA) and the National Oceanography Centre (NOC) at 5 locations (Figure 1). Survey regions included off West Mainland Orkney, Loch Eriboll, northeast of the Shiant East Bank in the Minch, Loch Torridon and the adjacent area including the Inner Sound, and Loch Fyne and the Clyde Sea.

2 METHODS

Survey details are given in Table 1, which also provides the system of site identification codes employed in this report. Video images were obtained from ROV runs, dropdown video drifts or a towed sledge. For the Orkney and Loch Eriboll surveys the camera frame also carried a digital stills camera, which took vertically-orientated photographs of the seabed at intervals, and a laser scaling system. Track and depth data were provided, except for the Loch Torridon ROV runs, where only the start positions and depths were recorded, with subsequent depth data available from sporadic use of a video overlay system. All depths were converted to depth below chart datum, employing TotalTide software (Admiralty, Taunton) to determine tidal rise at the most appropriate secondary port.

Table 1 Survey details. xx in site codes denotes two alphanumeric characters

Survey	Organisation	Gear	Date	No. sites	Site codes
Loch Torridon 2000	SNH	ROV	02-04/08/2000	35	0/1 - 0/35
Loch Torridon & Inner Sound 2003	SNH	ROV	01-05/09/2003	35	3/1 - 3/35
Loch Torridon & Inner Sound 2004	SNH	ROV	07-11/06/2004	40	4/1 - 4/40
Loch Torridon & Inner Sound 2005	SNH	ROV	09-13/05/2005	10	5/1 - 5/10
Inner Sound BUTEC Range 2005	UMBS	Dropdown & sledge	08-11/02/2005	101	BUTEC xx
North Minch 2011	NOC/SNH	ROV	20/05/2011	3	D7 - D9
West Mainland Orkney 2012	MSS	Dropdown	02/03/2012	10	TV47 - TV56
Loch Eriboll	MSS	Dropdown	08-09/03/2012	14	TV1 - TV13
Loch Fyne & Clyde Sea	SNH/SEPA	Dropdown	12-18/03/2012	108	LFxx (Loch Fyne) IMxx (Inchmarnock ASxx (Arran) KSxx (Kilbrannan Sound CSxx (Clyde Sill)

The images were used to describe the nature of the seabed, 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). Based on the physical and biological attributes, biotopes were allocated (Connor *et al.*, 2004). Runs traversing a sequence of biotopes were split into corresponding segments, with the transition points recorded using the time. Segmentation of runs was not practicable in the case of mosaics of recurring biotopes, in which case all biotopes observed were simply listed.

Runs and run segments were assessed for the presence of PMFs, as well as for the presence of species and habitats of recognised conservation importance according to a number of additional criteria, including citation on the following lists: Species of Conservation Concern (UK Biodiversity Steering Group,1995), IUCN Red List of Threatened Species (lower risk category) (IUCN, 2011), OSPAR List of Threatened and/or Declining Species and Habitats (OSPAR, 2008), UK Biodiversity Action Plan Priority Species (UKBAP, 2007) and Scottish Biodiversity List (SNH, 2010).

Species SACFOR data, habitat descriptions, biotopes, depth and positional data have been incorporated into the Marine Recorder repository.

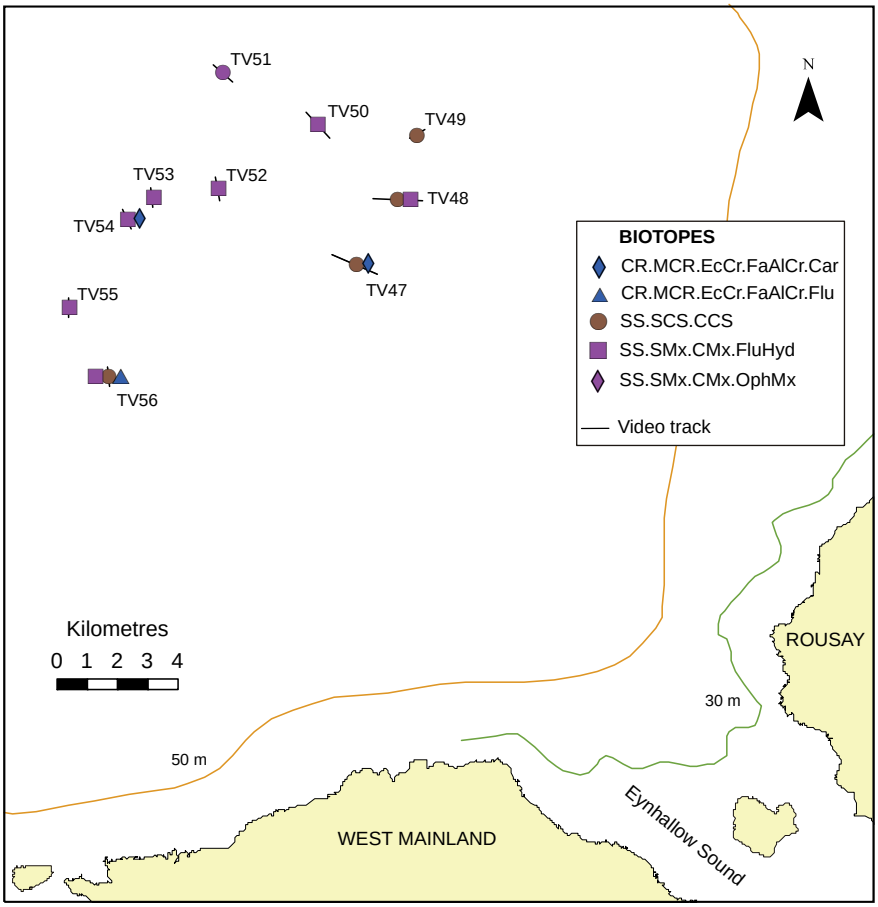
3 RESULTS

The presence and distribution of habitats, biotopes and species in each survey area is summarised in this section, but presented in detail for each site in Appendix 2, with site location data in Appendix 1. In this section PMF biotopes and species are highlighted using red text. Appendix 3 provides an inventory of the biotopes recorded, together with illustrative photographs and lists of their occurrence. For descriptive and practical purposes the Clyde region has been subdivided into three units: Loch Fyne and the adjacent Inchmarnock Water, the coastal area around the Isle of Arran, and the Clyde sill, marking the southern limit of the Clyde Sea.

3.1 West Mainland Orkney (Figure 2)

The survey sites were located off the western entrance to Westray Firth within a narrow depth range of 74 - 82 m. The predominant substrate was scattered pebbles, cobbles and boulders on medium sand, the scoured rock surfaces supporting an encrusting fauna of serpulid worms and bryozoans, together with *Flustra foliacea* and *Polymastia boletiformis*, with a motile fauna dominated by *Luidia ciliaris* and *Echinus esculentus* (**SS.SMx.CMx.FluHyd**). Low-lying bedrock outcrops and areas of dense cobbles and boulders supported a similar encrusting fauna but were characterised by either high numbers of *Caryophyllia smithii* (**CR.MCR.EcCr.FaAlCr.Car**) or by *F. foliacea* (**CR.MCR.EcCr.FaAlCr.Flu**). The three easternmost sites (nearest to Westray Sound) displayed a seabed of coarse sand waves with little life visible, although dense aggregations of the small scallop, *Palliolum* sp., were recorded.

Figure 2 Distribution of biotope records off West Mainland, Orkney



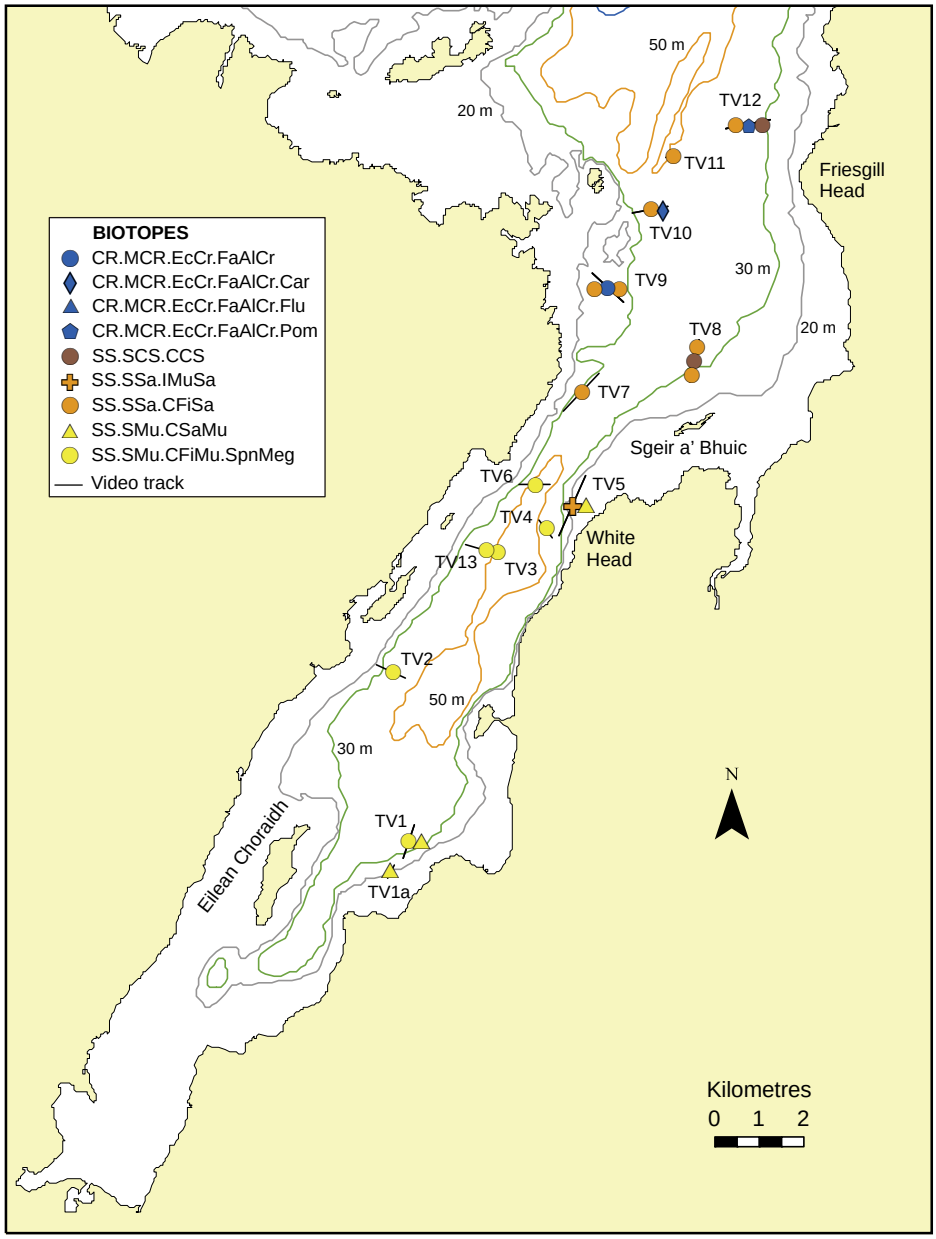
3.2 Loch Eriboll (Figure 3)

The inner part of the loch south of Sgeir a' Bhuic was found to be floored by mud from around 30 m to at least 64 m. The mud was fairly densely penetrated by burrows of *Nephrops norvegicus*, with a somewhat sparse accompanying fauna visible, although dense patches of *Asterias rubens* occurred. Although no sea pens were observed, the biotope has been ascribed to **SS.SMu.CFiMu.SpnMeg**. At a depth of around 30 m the sediment was found to coarsen to a sandy mud supporting sparse small *N. norvegicus* burrows with *Turritella communis*, *Sagartiogeton laceratus* and *Cerianthus lloydii* locally dominant (**SS.SMu.CSaMu**). At around 20 m at one site the sediment further coarsened to a slightly

silty fine sand with a surface scatter of *Ensis* shells but few living forms discernible (**SS.SSa.IMuSa**).

North of Sgeir a' Bhuic the dominant substrate recorded beyond the 30 m contour was rippled fine sand, slightly silty in places, and displaying no, or a very sparse, visible fauna (**SS.SSa.CFiSa**). At two locations at around 30 m depth the seabed was formed into waves of coarse sand with little visible life (**SS.SCS.CCS**). Rocky reef biotopes were recorded at three locations where dense cobbles and boulders and bedrock outcrops were encrusted with pink coralline algae and bryozoans (**CR.MCR.EcCr.FaAlCr**), together with dense *Spirobranchus* at one of the sites (**FaAlCr.Pom**) and *Caryophyllia smithii* (**FaAlCr.Car**) at another.

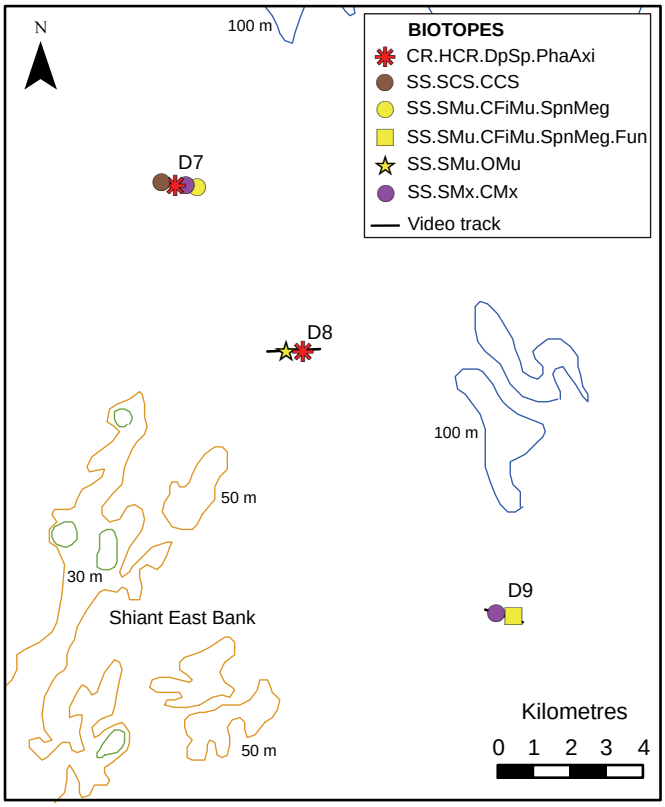
Figure 3 Distribution of biotope records in Loch Eriboll



3.3 North Minch (Figure 4)

ROV runs were carried out at three locations to the northeast of Shiant East Bank. The northernmost run (D7) was largely at depths of around 60 - 70 m, but an initial spot sample was significantly deeper (90 m) revealing a habitat of soft mud supporting *Nephrops norvegicus* burrows (**SS.SMu.CFiMu.SpnMeg**). The run continued westwards with the sediment coarsening and apparently consisting for much of the run as a heterogeneous silty gravelly sand. Initially the sparse fauna may have included small megafaunal burrows (**SS.SMx.CMx**), but the major biotope consisted of the sediment augmented by scattered cobbles and boulders, varying in density, and supporting *Porella compressa* and a sponge fauna dominated by axinellids and *Polymastia boletiformis*. Although the area has been ascribed to the PMF biotope **CR.HCR.DpSp.PhaAxi**, the substratum is atypical and the fauna relatively impoverished. The rocks provided a refuge for occasional *Molva molva*. The run terminated with an area of silty coarse sand waves (**SS.SCS.CCS**) with occasional stones supporting a sparse but similar fauna to the previous zone. A single specimen of *Pachycerianthus multiplicatus* was recorded here.

Figure 4 *Distribution of biotope records in the North Minch. For geographical context see Figure 1*



Run D8 was located 3 km to the southeast of run D7. The substratum was generally difficult to discern but appeared to consist of sandy mud or muddy sand with patches of scattered cobbles and boulders. The muddier areas supported sparse megafaunal mounds and burrows (**SS.SMu.OMu**), whilst the stony areas exhibited an impoverished deep sponge community, similar to that at D7 (**CR.HCR.DpSp.PhaAxi**). Both biotopes included occasional *P. multiplicatus*. 5 km to the southeast of D8, run D9 traversed an area of burrowed mud at 90 - 94 m inhabited by numerous megafaunal burrowers, particularly *N. norvegicus*, but also *Goneplax rhomboides*, and a sparse sea pen fauna of *Funiculina quadrangularis* and *Pennatula phosphorea* (**SS.SMu.CFiMu.SpnMeg.Fun**). With shallowing

of the seabed to 84 m the substratum became more heterogeneous with scattered stones over a generally mixed muddy sediment with gravel and shell material (**SS.SMx.CMx**). The stones supported sparse populations of *P. compressa*, axinellid sponges and *Swiftia pallida*.

3.4 Loch Torridon and Inner Sound (Figures 5, 6)

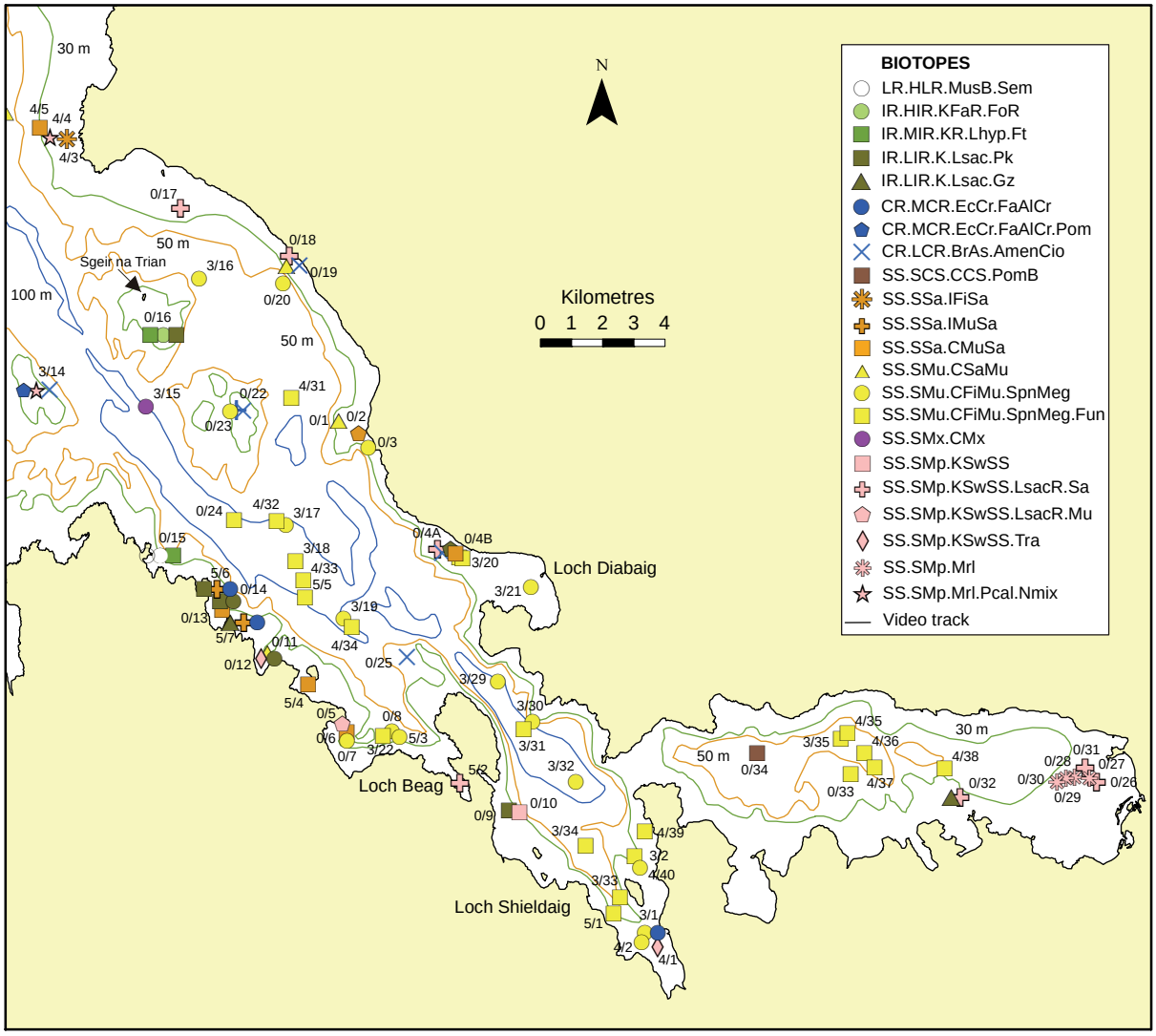
The dominant habitat recorded throughout Loch Torridon was burrowed mud. In the outer loch this appears to floor most of the seabed below the 50 m contour, but in more sheltered regions of the outer loch, such as Loch Beag and Loch Diabaig, the habitat extended to around 30 m. Higher up the loch system burrowed mud extended into shallower waters - 25 m in upper Torridon and 16 m at the head of Loch Shieldaig. In general the mud was found to be inhabited by fairly high densities of megafaunal crustaceans, particularly *Nephrops norvegicus*, *Calocaris macandreae*, *Jaxea nocturna* and *Callianassa subterranea,* with the burrowing fish, *Lesueurigobius friesii* and *Lumpenus lampretaeformis*, widely recorded but in high numbers in upper Torridon and *L. friesii* also frequent in Lochs Shieldaig, Beag and Diabaig. At most sites the mud supported moderate densities of *Funiculina quadrangularis* but high numbers (common - abundant) were observed at a few sites in the outer and upper regions of Loch Torridon, sometimes in association with dense *Pennatula phosphorea*. Most of the burrowed mud habitat is clearly referable to the biotope **SS.SMu.CFiMu.SpnMeg.Fun**, although *Maxmuelleria lankesteri*, characteristic of **MegMax**, was possibly present at low density at a few of these sites. Where *F. quadrangularis* was not observed, the burrowed mud has been ascribed to **SpnMeg**, although in some cases at least, the only distinguishing feature appeared to be the absence, or possibly low density, of *Funiculina*. Dense fields of *Leptometra celtica* were recorded on scattered stones on burrowed mud in areas of accelerated currents in the northern part of Loch Shieldaig, where high numbers of the large motile holothurian, *Mesothuria intestinalis*, were also observed.

In outer Torridon with decreasing depth the burrowed mud was found to grade into circalittoral sandy mud (**SS.SMu.CSaMu**) and muddy sand (**SS.SSa.CMuSa**). Along the northern coastline infralittoral shelly sand supported scattered *Saccharina latissima* and a patchy algal turf (**SS.SMp.KSwSS.LsacR.Sa**), with a similar vegetation also recorded on sand in Lochs Beag, Shieldaig and upper Torridon (**LsacR.Sa**) and on a mixed muddy sediment in Loch Beag (**LsacR.Mu**), all representing fairly low diversity examples of the PMF 'kelp and seaweed communities on sublittoral sediment'. A dense maerl bed was recorded in shallow water (0.4 - 10 m depth) at the head of upper Torridon. Live maerl attained coverage of around 90% and supported a dense but thin algal turf and scattered *S. latissima*. The location of the bed suggests that the dominant maerl species could be either *Phymatolithon calcareum* or *Lithothamnion glaciale* (**SS.SMp.Mrl**).

The Torridon ROV surveys have included few circalittoral reef habitats. Along the southern shoreline of outer Torridon, boulder, cobble and bedrock slopes were found to give way to sediment at around 20 m depth. Rock surfaces appeared bare with large numbers of *Echinus esculentus* grazing surfaces encrusted with coralline algae, bryozoans and serpulid worms (**CR.MCR.EcCr.FaAlCr**). This community was also associated with scattered boulders on mud in Loch Shieldaig. Reef habitats were also present at depths of 17 - 42 m on the banks at the mouth of the loch in the form of bedrock, with vertical cliffs in places, together with boulders and cobbles. Here, the crust community was supplemented by solitary ascidians, especially *Ciona intestinalis* (locally abundant) and *Ascidia mentula* and sparse *Axinella infundibuliformis* (**CR.LCR.BrAs.AmenCio**), together with dense *Antedon* spp. in places (**CR.LCR.BrAs.AmenCio.Ant**). **CR.LCR.BrAs.AmenCio** was also recorded on bedrock, cobbles and boulders off the Ardheslaig Peninsula, where dense solitary ascidians were accompanied by *Diazona violacea* and *A. infundibuliformis*. However, despite the localised numerical richness of ascidians and crinoids, none of these reef sites could be considered to be of high diversity.

Infralittoral habitats have been principally surveyed along the southern coastline of the Torridon system, where boulders and bedrock mostly supported *Saccharina latissima* forests (**IR.LIR.K.Lsac.Ft**) and parks (**IR.LIR.K.Lsac.Pk**), extensively grazed in places (**IR.LIR.K.Lsac.Gz**). Forests of *Laminaria hyperborea* (**IR.MIR.KR.Lhyp.Ft**) were recorded at two sites close to the mouth of the loch, with the richest infralittoral habitats occurring on an exposed reef off Sgeir na Trian. Here, a dense red algal turf coated the rock (**IR.HIR.KFaR.FoR**) and was progressively accompanied by a park of *S. latissima* (**IR.LIR.K.Lsac.Pk**) and forest of *L. hyperborea* (**IR.MIR.KR.Lhyp.Ft**) with decreasing depth.

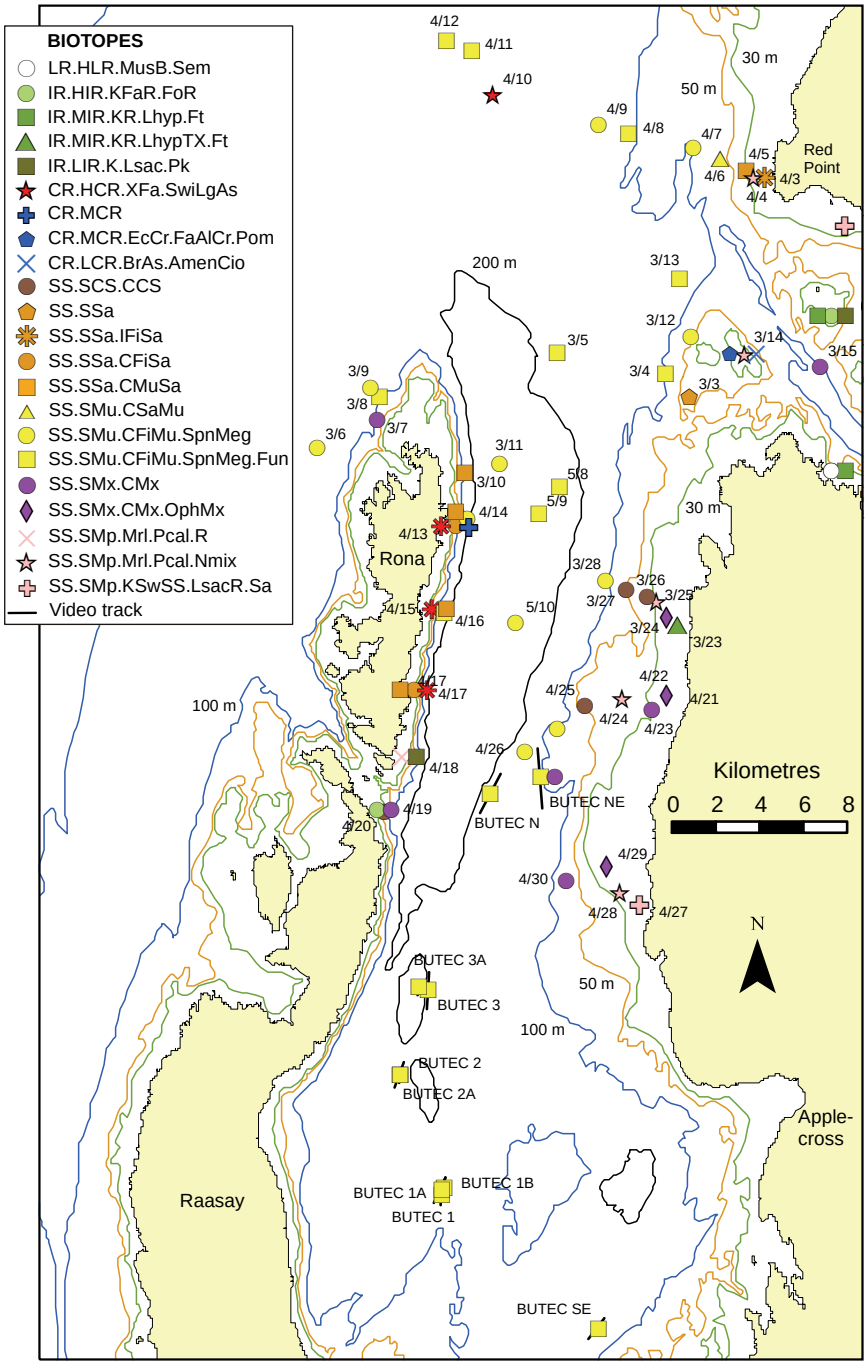
Figure 5 Distribution of biotope records in Loch Torridon



The dominant habitat recorded in the Inner Sound and Sound of Raasay was burrowed mud, which floored most of the seabed below a depth of around 80 m. The principal biotope was **SS.SMu.CFiMu.SpnMeg.Fun** which was associated with soft muds from 115 - 236 m depth. The sediment was generally densely or very densely burrowed by megafaunal crustaceans, especially *Calocaris macandreae*, *Nephrops norvegicus* and *Jaxea nocturna*, with *Lumpenus lampretaeformis* and sparse mounds of *Maxmuelleria lankesteri* also recorded at a few sites. *Funiculina quadrangularis* was generally frequent or occasional, but common at several sites and often supported frequent *Asteronyx loveni*. **SS.SMu.CFiMu.SpnMeg** was recorded on sandy mud and soft mud at depths of 78 - 251 m with the same suite of megafaunal crustaceans, plus *Callianassa subterranea*, with burrow density varying from light to very

dense. Sea pens were only observed at one site, in the form of sparse *Pennatula phosphorea*. *Pachycerianthus multiplicatus* was present in low numbers at several of the burrowed mud sites.

Figure 6 Distribution of biotope records in the Inner Sound region



In shallower water (35 - 99 m) the burrowed mud habitat was found to be replaced by muddy sand supporting sparse megafaunal burrows at most (**SS.SSa.CMuSa**), particularly off the Rona coast, while on the eastern side of the Inner Sound a broad coastal band extending to around 60 m depth was floored by coarse sands (**SS.SCS.CCS**) and mixed coarse sediments (**SS.SMx.CMx**), supporting dense *Ophiocomina nigra* in places (**SS.SMx.CMx.OphMx**). Maerl beds were recorded between depths of 23 - 28 m at 5 locations spread between Red Point to the north of Loch Torridon and down to Applecross,

being present on all transects of ROV stations worked, suggesting the presence of extensive maerl along this 33 km stretch of coast. Live *Phymatolithon calcareum* rhodoliths displayed coverage values of around 10 - 50%, supporting a sparse visible associated community (**SS.SMp.Mrl.Pcal.Nmix**). Maerl was also recorded in slightly shallower water off Rona (19 m), where *P. calcareum* coverage was around 25 - 30% and supported a low diversity algal community dominated by a binding filamentous red form, probably *Trailliella*. This site is considered to represent a fairly poor example of **SS.SMp.Mrl.Pcal.R**.

Steep bedrock, vertical in places, and boulders between 35 - 92 m along the eastern coast of Rona supported dense, but not particularly diverse, populations of ascidians and sponges, particularly *Diazona violacea* (abundant in places), *Ascidia mentula* and axinellid sponges (locally common), including *Axinella infundibuliformis* and *Phakellia ventilabrum* (**CR.HCR.DpSp.PhaAxi**). Sparse *Swiftia pallida* was also recorded here, but dense stands of the species accompanied a similar ascidian and sponge community on silted bedrock, boulders and cobbles at 71 m depth 16 km to the north of Rona (**CR.HCR.XFa.SwiLgAs**).

Two low diversity examples of PMF kelp biotopes were recorded with some uncertainty close inshore on the eastern side of the Inner Sound: patchy algal tufts and occasional *Saccharina latissima* on sand with scattered shells (**SS.SMp.KSwSS.LsacR.Sa**) and a *Laminaria hyperborea* forest on boulders, cobbles and pebbles with a sparse algal understorey (**IR.MIR.KR.LhypTX.Ft**).

Leptometra celtica was recorded at two sites in the channel between Rona and Raasay. At one site it was present in dense patches on infralittoral rock supporting a dense red algal turf (**IR.HIR.KFaR.FoR**) and also occurred sparsely on pebbles and cobbles on sand (**SS.SMx.CMx**), whereas at the other site a dense field of the species was supported by scattered pebbles and cobbles on coarse sand (**SS.SCS.CCS**).

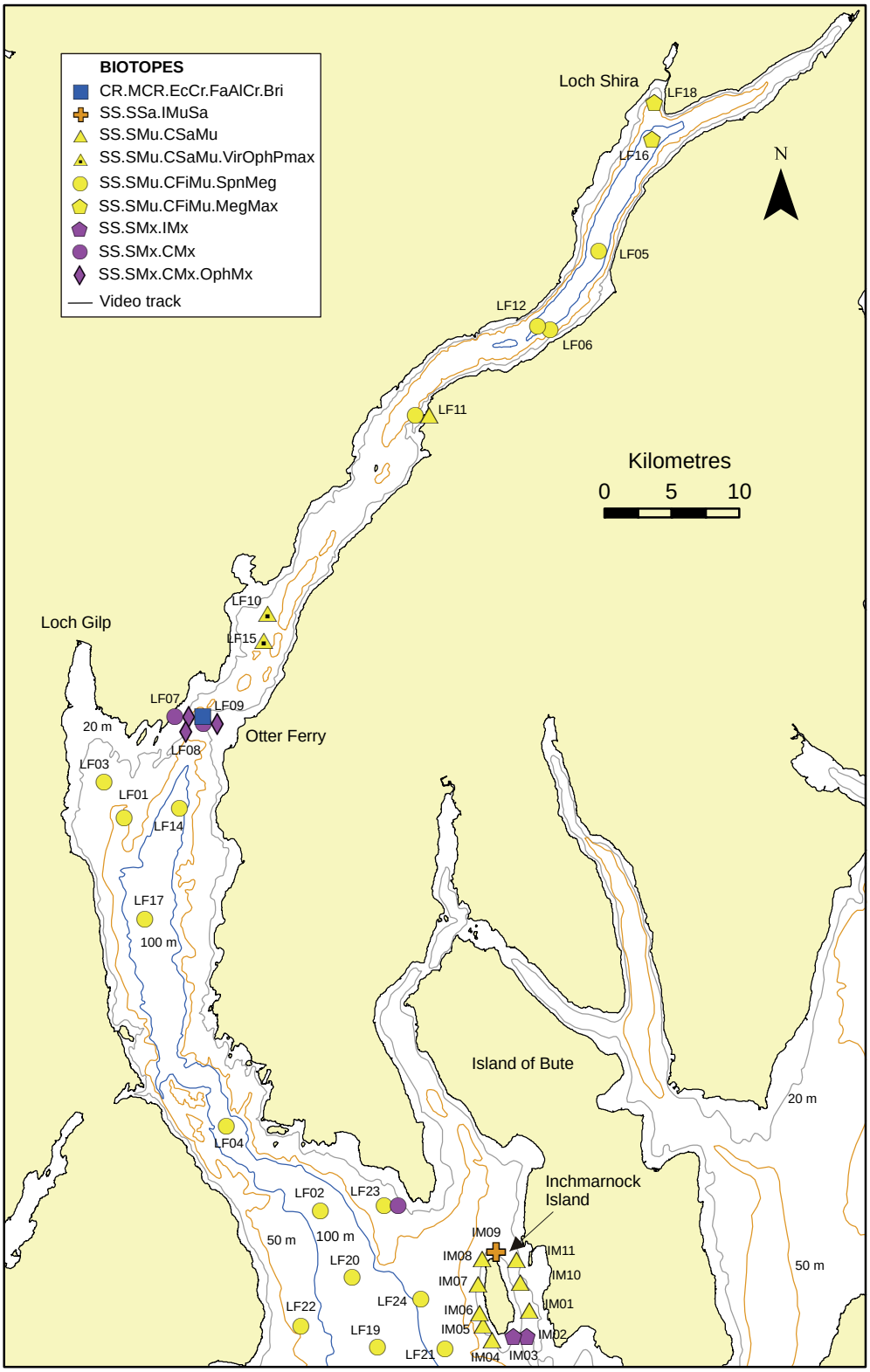
3.5 Loch Fyne and Inchmarnock Water (Figure 7)

Progressing southwards from the head of Loch Fyne, two sites within and just outside Loch Shira at depths of 48 and 117 m exhibited soft muds moderately to densely burrowed by megafaunal crustaceans including *Calocaris macandreae*, *Nephrops norvegicus*, *Callianassa subterranea* and *Jaxea nocturna*, together with *Maxmuelleria lankesteri* (**SS.SMu.CFiMu.MegMax**). Between Shira and Otter Ferry muds between 50 - 136 m harboured a similar megafaunal community. Although *M. lankesteri* was not observed here, the burrows of *Maera loveni* appeared to be present at one of the sites (**SS.SMu.CFiMu.SpnMeg**). Trawl scarring was apparent at one of these four burrowed mud sites. Above a depth of 50 m sandy muds supported very sparse megafaunal burrows and the only sea pens (*Virgularia mirabilis* and possibly *Pennatula phosphorea*) observed in the upper loch, together with *Ophiura* sp. and dense *Arctica*-like siphons at one site (**SS.SMu.CSaMu** and **CSaMu.VirOph**). Mixed substrates of stones on gravelly sand with bedrock outcrops were recorded in tide-swept conditions in the narrows at Otter Ferry. Bedrock and stones supported a low diversity sessile community of encrusting serpulids and coralline algae with sparse *Urticina eques* and *Alcyonium digitatum* (**SS.SMx.CMx**), supplemented in places by dense *Ophiocomina nigra* and *Ophiothrix fragilis* (**SS.SMx.CMx.OphMx**, **CR.MCR.EcCr.FaAlCr.Bri**). A single living specimen of what appeared to be *Atrina fragilis* was observed at site LF07.

Burrowed mud was recorded from 36 - 176 m in lower Loch Fyne and Inchmarnock Water, largely in the form of soft mud dominated by *Calocaris macandreae* and *Nephrops norvegicus*, sometimes in association with *Jaxea nocturna* and *Callianassa subterranea*. Although often high, burrow densities did not, however, attain the levels observed in the Inner Sound. Unlike upper Loch Fyne, sea pens were observed, in the form of fairly sparse *Virgularia mirabilis*, at a few of these burrowed mud sites (**SS.SMu.CFiMu.SpnMeg**).

Aggregations of *Arctica*-like siphons were recorded at site LF03. Trawl scars were observed at three sites in the mouth of Loch Fyne.

Figure 7 Distribution of biotope records in Loch Fyne

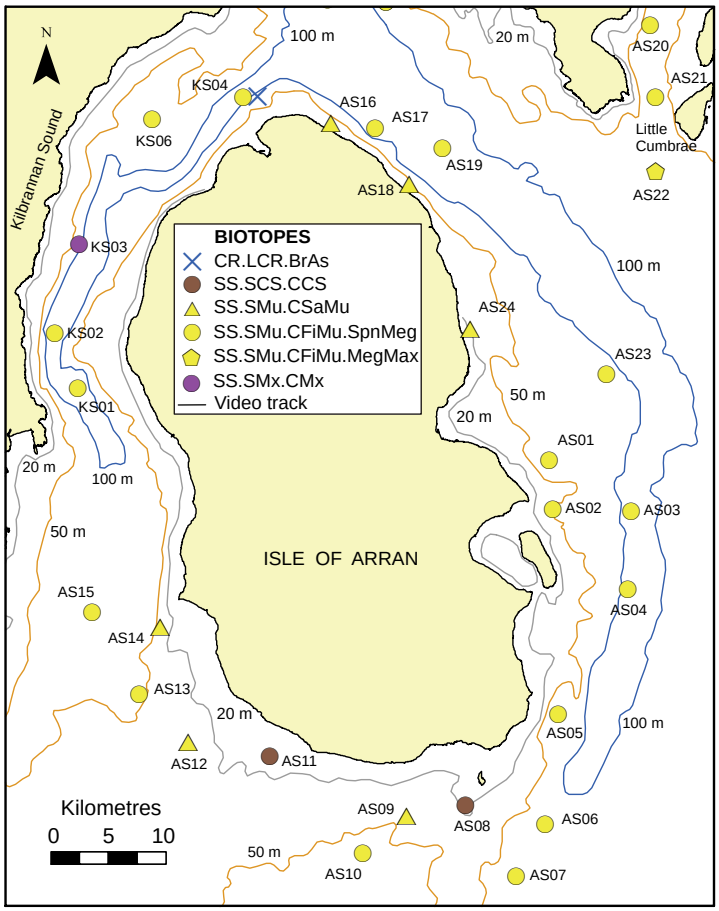


The predominant substrates recorded in shallow water (21 - 37 m) around Inchmarnock Island were sandy mud and cohesive muddy sand with scattered stones and shells. The infauna included mound-forming polychaetes and *Callianassa subterranea*, *Cerianthus lloydii*, *Turritella communis* and probably *Amalosoma eddystonense*, with sparse *Virgularia mirabilis* also present (**SS.SMu.CSaMu**). Possible *Arctica islandica* siphons were observed at one site, although at low density. Mixed substrata of shells and stones on silty sediments were found at two infralittoral sites (12 - 17 m) off the south of the island (**SS.SMx.IMx**), with one of the sites displaying much dead maerl and sparse live rhodoliths of *Phymatolithon calcareum*.

3.6 Arran and Kilbrannan Sound (Figure 8)

Twenty sites were located beyond the 50 m contour at depths of 53 - 168 m, where the seabed was floored by mud or slightly sandy mud. The fauna was characterised by burrowing megafaunal species, dense in places, especially *Calocaris macandreae* and *Nephrops norvegicus*, with *Callianassa subterranea* and possibly *Jaxea nocturna* also recorded. *Virgularia mirabilis* was observed, at fairly low densities, at only four of the sites, and possibly *Pennatula phosphorea* at a fifth site. All these burrowed mud records have been assigned to **SS.SMu.CFiMu.SpnMeg**, apart from one site southwest of Little Cumbrae (AS21), which only differed in the presence of *Maxmuelleria lankesteri* (**SS.SMu.CFiMu.MegMax**). Trawl scars were observed in the mud at nine sites widely distributed around Arran.

Figure 8 Distribution of biotope records around the Isle of Arran

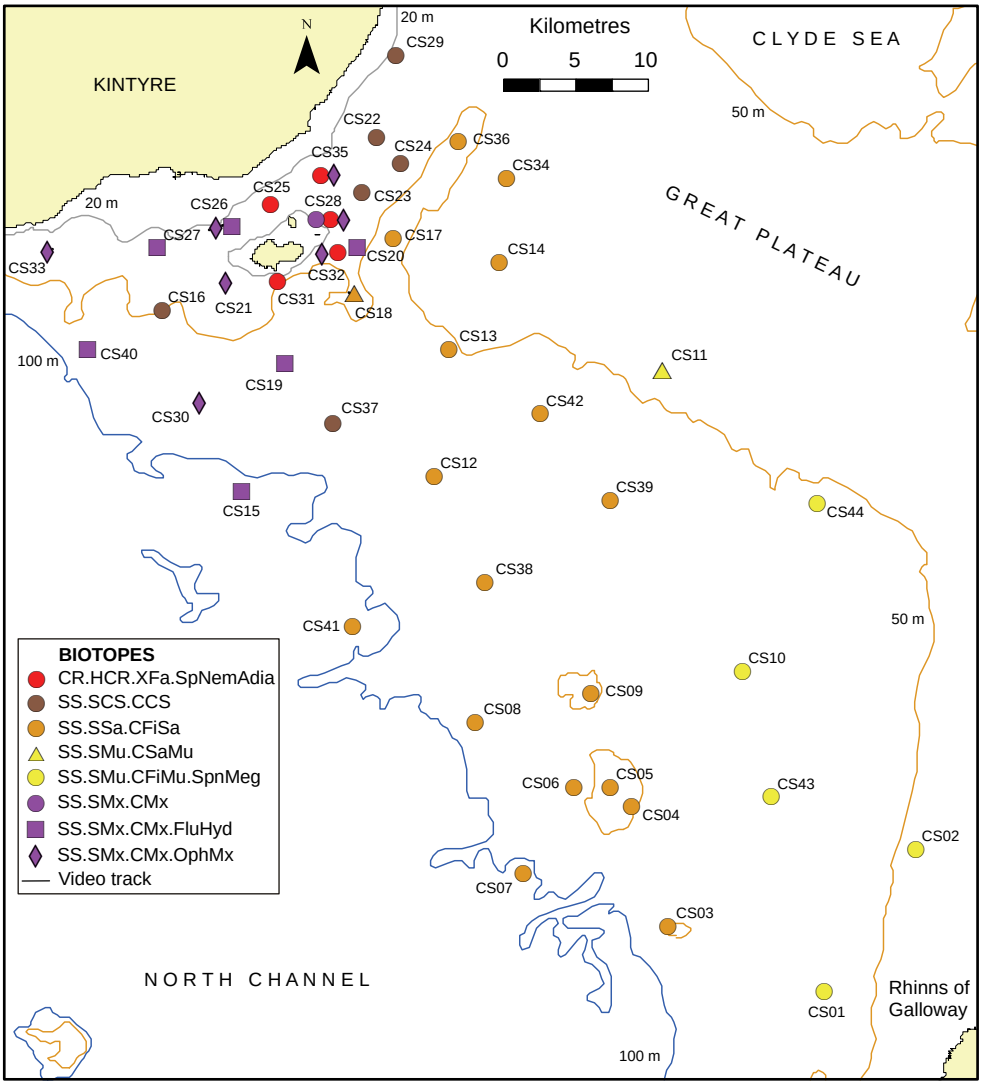


Above the 50 m contour the sediment was found to grade into a firmer, smoother sandy mud and cohesive muddy sand with a corresponding reduction in megafaunal burrowers and a recorded absence of sea pens. The larger burrows of *Nephrops norvegicus* became sparse or absent, with the sediment supporting relatively low densities of smaller megafauna, especially *C. subterranea*. Six sites at depths of 28 - 46 m have been ascribed to **SS.SMu.CSaMu**, although the depth-related gradation in substrate and biota means they lie along a continuum between **SpnMeg** and **CSaMu**. Evidence of the non-megafaunal infaunal community was more apparent at these shallower sites in the form of relatively dense small holes, tubes and casts (probably chiefly produced by polychaetes), and bivalve siphons, resembling those of *Arctica islandica*. Aggregations of such siphons were noted at several of the sandy mud sites and one of the burrowed mud sites. Two sites were located to the south of Arran above the 20 m contour. The video run at AS08, in an area of tidal rips off the island of Pladda, traversed a seabed of mobile coarse sand, gravel, stones and shell material dominated by large echinoderms (**SS.SCS.CCS**). The same biotope was recorded at site AS11 where the sediment was formed into waves of coarse sand, gravel and dead maerl, with the apparent presence of sparse live rhodoliths.

3.7 Clyde Sill (Figure 9)

Survey sites were distributed at the entrance to the Clyde Sea between South Kintyre and the Rhinns of Galloway along the south-western slope of the Great Plateau sill. There is a fairly distinct gradient in habitat type along the sill, with sandy muds on the Galloway side, rippled fine-medium sands in the centre, and coarse and mixed substrate habitats in tide-swept conditions off Kintyre. Sediment at the sandy mud sites, which ranged between depths of 46 and 94 m, displayed rippling and was mostly densely burrowed by *Calocaris macandreae* and *Nephrops norvegicus*, with sparse *Virgularia mirabilis* (**SS.SMu.CFiMu.SpnMeg**). Much of the sill slope was floored by fine or fine-medium sands, often with scattered gravel, shell material and sometimes small stones, at depths of 42 - 109 m. Little visible fauna was evident, with shell and stones supporting sparse hydroid clumps, *Flustra foliacea*, *Urticina felina* and *Alcyonium digitatum*. Off the Kintyre coast medium-coarse sands and gravel at 24 - 94 m also supported little visible life (**SS.SCS.CCS**), except where a surface scatter of pebbles, shells and cobbles provided substrates for sparse hydroids, *F. foliacea* and *U. felina* (**SS.SMx.CMx.FluHyd**), accompanied in places by a cover of dense *Ophiothrix fragilis* and *Ophiocomina nigra* (**SS.SMx.CMx.OphMx**). Over a similar depth range (24 - 73 m) this habitat graded into one of more stable pebbles, cobbles and boulders on coarse sediment with bedrock outcrops, which supported a rich turf of hydroids and bryozoans, including *Nemertesia antennina*, *F. foliacea*, *Securiflustra securifrons* and probably *Bugula* spp., with dense *Alcyonium digitatum* locally. The characteristics of the biotope are mostly closely aligned with **CR.HCR.XFa.SpNemAdia**.

Figure 9 Distribution of biotope records on the Clyde Sill



4 DISCUSSION

This section considers the conservation importance of the species and habitats encountered during the surveys and also serves to summarise the distribution of PMFs. The conservation importance of species and habitats and their occurrence in each of the survey locations is summarised in Table 2. A number of biotopes listed in the lower part of the table fall within broad habitat types included in the UK (UKBAP, 2007) and Scottish (SNH, 2010) priority lists but are generally of wide occurrence. Several non-PMF species are included on the Species of Conservation Concern (UK Biodiversity Steering Group, 1995) and UK and Scottish lists. There were uncertain records of several *Amalosoma eddystonense* at one site off Inchmarnock Island in the Firth of Clyde and *Pleuronectes platessa* in Loch Torridon. *Echinus esculentus* (also on the IUCN Red List of Threatened Species: IUCN, 2011) was widely recorded, often in high abundance, reflecting its status in Scottish waters, whilst sparse *Modiolus modiolus* was observed in the Otter Spit narrows in Loch Fyne. In addition to the maerl beds records in Loch Torridon and the Inner Sound, scattered rhodoliths of *Phymatolithon calcareum* occurred at several additional sites in the Inner Sound and off Inchmarnock Island.

A total of 11 PMF biotopes and 11 PMF species were encountered during the surveys of which 17 represent MPA search features.

The Orkney survey was carried out within a lease area ('Costa Head') for the development of wave energy devices. No PMFs were recorded here. The only habitats and species of recognised conservation importance are mobile coarse sediments (**SS.SCS.CCS**), scoured stones on sand (**SS.SMx.CMx.FluHyd**) and *Echinus esculentus* (Table 2). All are widely distributed around Scotland and the possible localised effects of wave devices resulting from the presence of associated mooring structures and cabling, smothering by disturbed sediment during installation, and reductions in wave energy (Faber Maunsell and Metoc, 2007) could not be considered to represent a significant threat to the conservation of these features.

The only PMF identified in Loch Eriboll was burrowed mud (**SS.SMu.CFiMu.SpnMeg**), present in the inner part of the loch. As noted by Moore (2012) following a more extensive video survey of Loch Eriboll in 2011, the mud does not appear to be a particularly good example of the PMF, with no sea pens recorded and a relative paucity of smaller burrowers, such as thalassinidean shrimps, compared to such regions as Loch Torridon, the Inner Sound and the Clyde.

Three PMF biotopes and four PMF species were recorded along the three ROV runs in the Minch, including an impoverished deep sponge community (**CR.HCR.DpSp.PhaAxi**) supported by scattered stones on sediment at two of the sites, and examples of the burrowed mud biotopes **SS.SMu.CFiMu.SpnMeg** and **SpnMeg.Fun**. In addition to occasional individuals of the component PMF species, *Funiculina quadrangularis* and *Pachycerianthus multiplicatus*, sparse *Swiftia pallida* was also present on scattered stones. The communities recorded here appear typical of those extending over a wide area around the Shiant East Bank (Moore, 2012).

Table 2 *Species and biotopes recorded during the surveys of recognised conservation importance and their frequency of occurrence in each survey location. Locations are WM (West Mainland Orkney), LE (Loch Eriboll), NM (North Minch), LT (Loch Torridon and the Inner Sound), LF (Loch Fyne), AR (Arran) and CS (Clyde Sill). Importance indicators are UK = UK Biodiversity Action Plan Priority Habitats and Species, SBL = Scottish Biodiversity List of Habitats and Species, Osp = OSPAR List of Threatened and/or Declining Species and Habitats, SCC = Species of Conservation Concern, PMF = Priority Marine Feature, SF = MPA Search Feature*

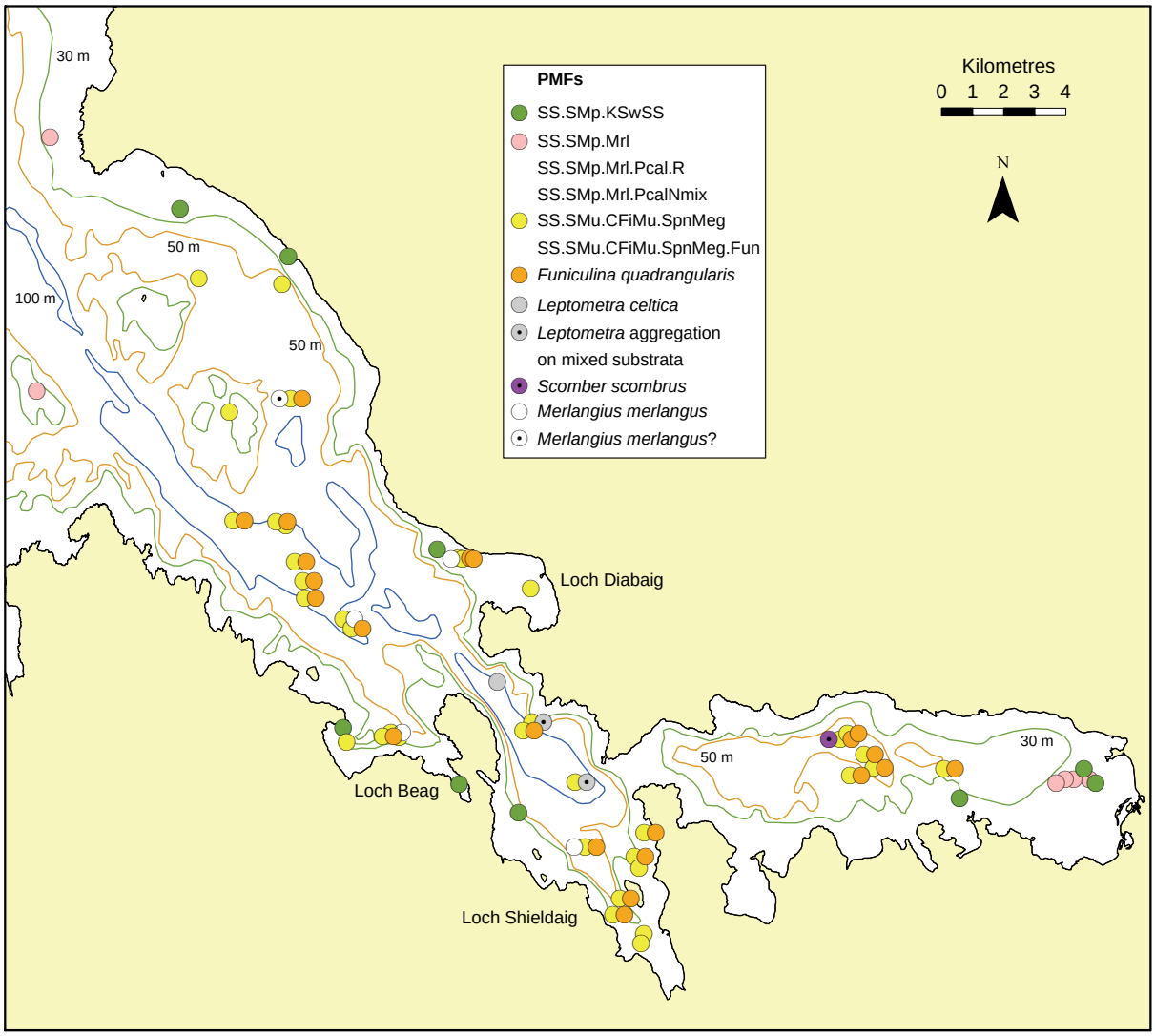
Biotopes/species	**WM**	**LE**	**NM**	**LT**	**LF**	**AR**	**CS**	**UK**	**SBL**	**Osp**	**SCC**	**PMF**	**SF**
CR.HCR.DpSp.PhaAxi			2	3				●	●			●	●
CR.HCR.XFa.SwiLgAs				1				●	●			●	●
IR.MIR.KR.LhypTX.Ft?				1				●	●			●	●
SS.SMp.KSwSS.LsacR.Mu				1				●	●			●	●
SS.SMp.KSwSS.LsacR.Sa				8				●	●			●	●
SS.SMp.Mrl				4						●		●	●
SS.SMp.Mrl.Pcal.Nmix				5						●		●	●
SS.SMp.Mrl.Pcal.R				1						●		●	●
SS.SMu.CFiMu.SpnMeg		6	1	27	16	19	5	●	●	●		●	●
SS.SMu.CFiMu.SpnMeg.Fun			1	42				●	●	●		●	●
SS.SMu.CFiMu.MegMax					2	1		●	●	●		●	●
Funiculina quadrangularis			1	42				●			●	●	●
Swiftia pallida			2	4				●				●	●
Pachycerianthus multiplicatus			2	6								●	●
Maera loveni?					1							●	
Arctica islandica?					1	1						●	
Arctica islandica aggregation?					2	4				●		●	●
Atrina fragilis?					1					●		●	
Leptometra celtica				3								●	
Leptometra celtica aggregation				3								●	●
Ammodytes spp.					1			●	●			●	●
Scomber scombrus				1								●	
Merlangius merlangus				4								●	
Molva molva			1					●	●		●	●	
Amalosoma eddystonense?					1						●		
Modiolus modiolus					1						●		
Echinus esculentus	9	7	2	35	6	1	15				●		
Pleuronectes platessa?				1				●	●		●		
Phymatolithon calcareum				14	1	1		●			●		
SS.SCS.CCS	4	2	1	4		2	6	●	●				
SS.SCS.CCS.PomB				1				●	●				
SS.SSa				2				●	●				
SS.SSa.IFiSa				1				●	●				
SS.SSa.IFiSa.ScupHyd							1	●	●				
SS.SSa.CFiSa				2				●	●				
SS.SSa.CMuSa		6					17	●	●				
SS.SSa.IMuSa		1		2	1			●	●				
SS.SMu.CSaMu		3		4	9	6	1	●	●				
SS.SMu.CSaMu.VirOphPmax					2			●	●				
SS.SMu.OMu			1					●	●				

Table 2 continued

Biotopes/species	WM	LE	NM	LT	LF	AR	CS	UK	SBL	Osp	SCC	PMF	SF
SS.SMx.IMx					2			●					
SS.SMx.CMx.FluHyd	7						6	●	●				
SS.SMx.CMx.OphMx				3	3		7	●	●				
SS.SMp.KSwSS				1				●	●				
SS.SMp.KSwSS.Tra								●	●				

The Loch Torridon and Inner Sound region displayed by far the richest suite of PMFs, amounting to ten biotopes and six species, which will in part be a reflection of the high survey intensity. The predominant habitat in both Loch Torridon and the Inner Sound is burrowed mud supporting a rich burrowing community of *Nephrops norvegicus*, thalassinidean shrimps (exceptionally dense in parts of the Inner Sound) and, particularly in parts of Loch Torridon, *Lesueurigobius friesii* and *Lumpenus lampretaeformis*.

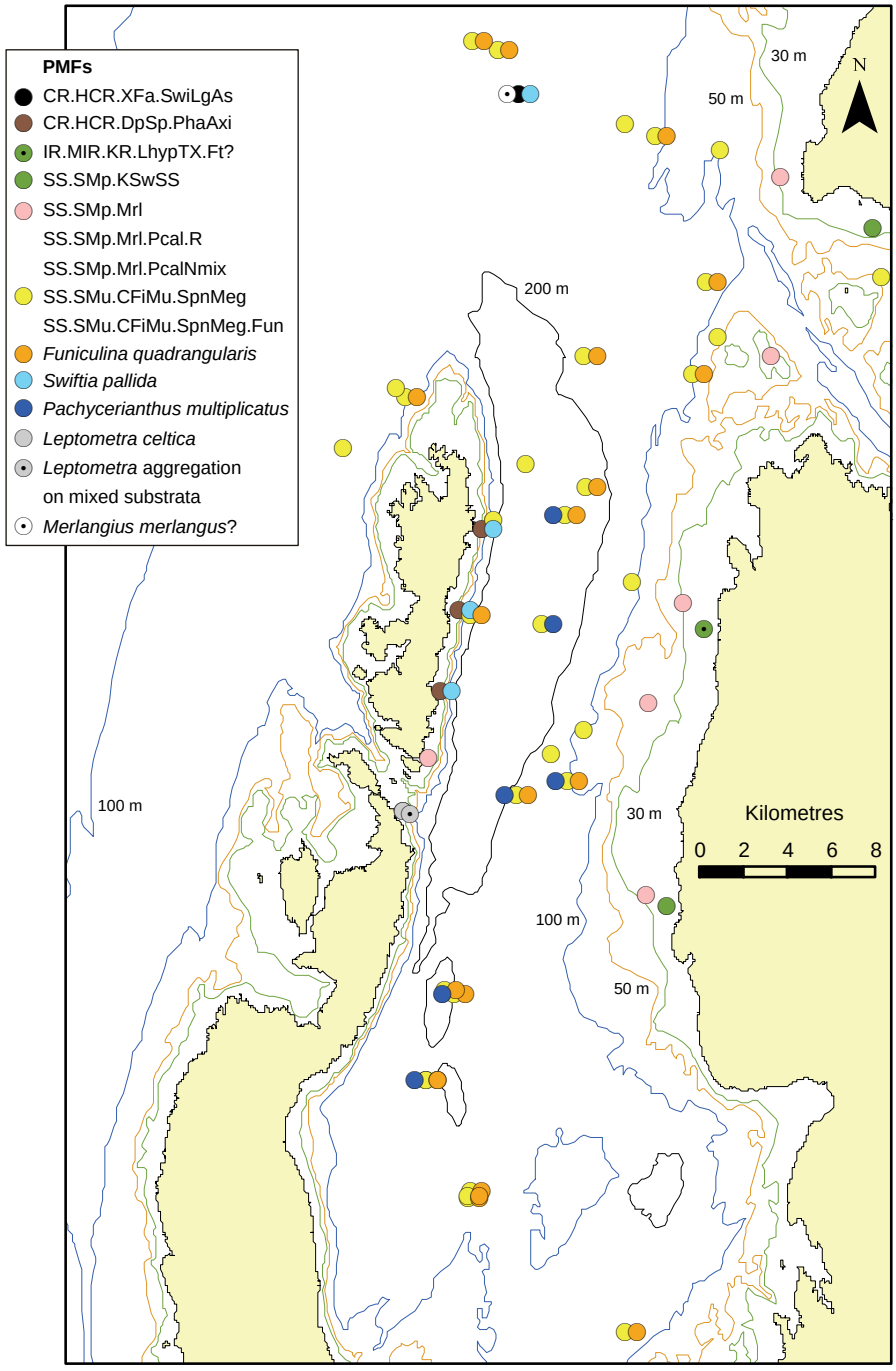
Figure 10 Distribution of PMF records in Loch Torridon



At most sites the mud was populated by *Funiculina quadrangularis* (**SS.SMu.CFiMu.SpnMeg.Fun**), which was dense in places and accompanied by large numbers of *Pennatula phosphorea* in parts of Loch Torridon. *Pachycerianthus multiplicatus*

was widely distributed in the muds of the Inner Sound. *Leptometra celtica* was recorded in two areas of accelerated currents, in outer Loch Shieldaig and in the sound between Rona and Raasay. Dense aggregations of these crinoids on mixed substrates of scattered stones on sediment occurred at both locations. Several of the Inner Sound video samples analysed (prefixed BUTEC) were obtained during a study by Atkinson *et al.* (2006), who also provide a description of the Inner Sound mud communities based on this material.

Figure 11 Distribution of PMF records in the Inner Sound region

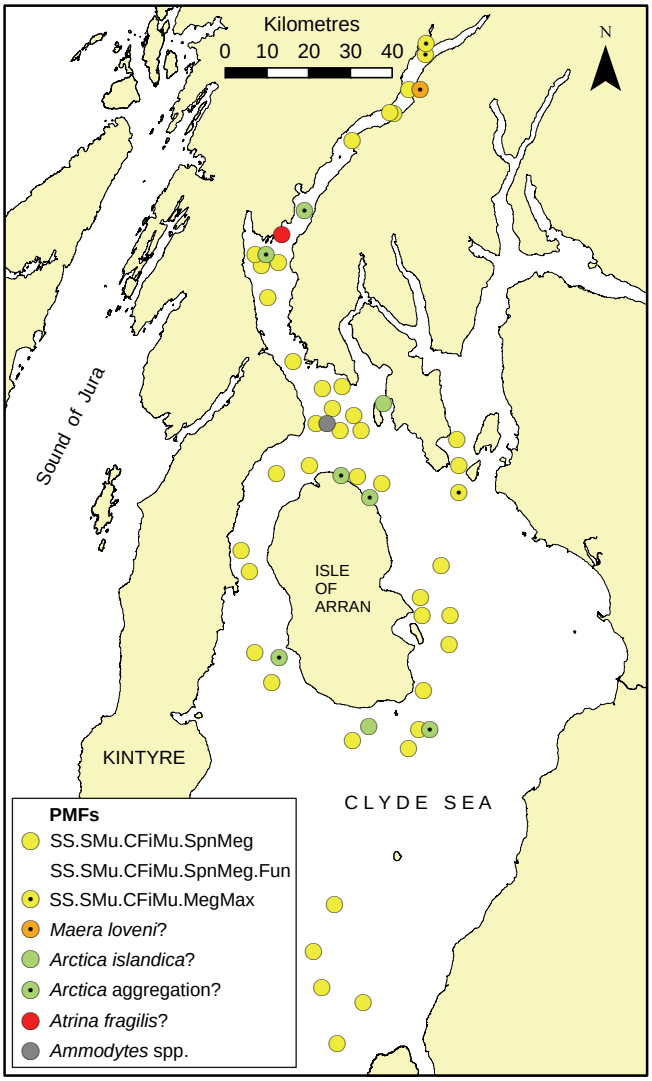


In infralittoral waters kelp and seaweed communities (**SS.SMp.KSwSS.LsacR.Sa** and **LsacR.Mu**) of apparently low diversity occurred at a number of sites around the coastline of Loch Torridon. Maerl was recorded over an extensive area at the head of the loch, with live rhodoliths superabundant locally on silty sand, supporting a thin algal turf (**SS.SMp.Mrl**). A

similar but sparser maerl bed was also noted off the south of Rona (**SS.SMp.Mrl.Pcal.R**). In deeper water maerl supporting a sparse visible community was widely recorded on coarse sediments along the eastern side of the Inner Sound (**SS.SMp.Mrl.Pcal.Nmix**). Moore *et al.* (2011) recently recorded a maerl bed extending southwards from the mouth of Loch Gairloch and maerl also present between Loch Gairloch and Loch Ewe, so it is possible that a maerl band may extend for a considerable distance between Rubha Reidh and Applecross.

Steep circalittoral rock and boulders along the eastern coast of Rona support dense populations of axinellid sponges and ascidians with sparse *Swiftia pallida* (**CR.HCR.DpSp.PhaAxi**). A similar community but with dense *S. pallida* was recorded to the north of Rona (**CR.HCR.XFa.SwiLgAs**).

Figure 12 Distribution of PMF records in Loch Fyne and the Clyde Sea



Loch Fyne and the adjacent Inchmarnock Water displayed two PMF biotopes and possibly three PMF species. Burrowed mud is extensively distributed in the area, populated by often dense *Nephrops norvegicus* and thalassinidean shrimps but generally few sea pens (**SS.SMu.CFiMu.SpnMeg**). There was firm evidence of the presence of *Maxmuelleria lankesteri* in the soft mud in upper Loch Fyne, where it had been previously recorded by Howson and Davies (1991). These records have been assigned to **SS.SMu.CFiMu.MegMax**, although the community appeared otherwise very similar to that

observed elsewhere in the loch. Possible burrows of *Maera loveni* were recorded at one of the Loch Fyne sites, one possible specimen of *Atrina fragilis* in the Otter Spit area, dense *Arctica*-like siphons at two sites and sparse siphons at a third.

Arran is surrounded by extensive areas of burrowed mud with a burrowing crustacean and sea pen fauna similar to that of Loch Fyne (**SS.SMu.CFiMu.SpnMeg**), supplemented by *Maxmuelleria lankesteri* at one site (**SS.SMu.CFiMu.MegMax**). Aggregations of *Arctica islandica* were possibly present at several sites, mainly in inshore sandy muds. **SS.SMu.CFiMu.SpnMeg** was the only PMF recorded on the Clyde sill, where it was restricted to a tongue of sandy mud on the eastern side of the surveyed area and generally supported dense *Calocaris macandreae* and *Nephrops norvegicus* with sparse *Virgularia mirabilis*.

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Appendix 1 *Positional and temporal details of video sequences recorded during the surveys. Where there is more than one entry for a site, this reflects splitting of the video run amongst different habitat types*

Survey	Site ID	Gear	Date	Start latitude	Start longitude	End latitude	End longitude	Depth start (m)	Depth end (m)	Time start	Time end	Media ref code
West Mainland Orkney 2012	TV47	Drop down	02/03/2012	59.22987	-3.24669	59.22720	-3.23330	76.3	74.2	12:21:21	12:42:28	West of Mainland Orkney Disc1
West Mainland Orkney 2012	TV47	Drop down	02/03/2012	59.22987	-3.24669	59.22720	-3.23330	76.3	74.2	12:42:28	12:47:34	West of Mainland Orkney Disc1
West Mainland Orkney 2012	TV48	Drop down	02/03/2012	59.23846	-3.23492	59.23806	-3.22053	75.1	76.1	13:03:23	13:28:34	West of Mainland Orkney Disc1
West Mainland Orkney 2012	TV49	Drop down	02/03/2012	59.24766	-3.22415	59.24876	-3.21952	77.0	77.0	13:44:34	13:59:45	West of Mainland Orkney Disc2
West Mainland Orkney 2012	TV50	Drop down	02/03/2012	59.25153	-3.25452	59.24758	-3.24749	73.9	73.9	14:24:14	14:39:36	West of Mainland Orkney Disc2
West Mainland Orkney 2012	TV51	Drop down	02/03/2012	59.25866	-3.28198	59.25601	-3.27637	81.8	80.8	15:04:14	15:14:26	West of Mainland Orkney Disc2
West Mainland Orkney 2012	TV52	Drop down	02/03/2012	59.24164	-3.28116	59.23813	-3.28017	73.8	75.8	15:34:45	15:45:27	West of Mainland Orkney Disc3
West Mainland Orkney 2012	TV53	Drop down	02/03/2012	59.23996	-3.29990	59.23705	-3.29947	77.8	75.8	16:00:40	16:11:11	West of Mainland Orkney Disc3
West Mainland Orkney 2012	TV54	Drop down	02/03/2012	59.23689	-3.30816	59.23386	-3.30606	78.8	76.8	16:20:55	16:31:41	West of Mainland Orkney Disc3
West Mainland Orkney 2012	TV55	Drop down	02/03/2012	59.22348	-3.32392	59.22068	-3.32393	76.8	77.8	17:13:13	17:23:34	West of Mainland Orkney Disc3
West Mainland Orkney 2012	TV56	Drop down	02/03/2012	59.21312	-3.31310	59.21030	-3.31203	73.8	77.2	17:35:14	17:37:10	West of Mainland Orkney Disc3
West Mainland Orkney 2012	TV56	Drop down	02/03/2012	59.21312	-3.31310	59.21030	-3.31203	73.8	77.2	17:37:10	17:44:11	West of Mainland Orkney Disc3
Loch Eriboll 2012	TV1	Drop down	09/03/2012	58.48681	-4.68152	58.48349	-4.68378	36.1	29.1	15:31:09	15:40:20	Loch Eriboll Disc7
Loch Eriboll 2012	TV1	Drop down	09/03/2012	58.48681	-4.68152	58.48349	-4.68378	36.1	29.1	15:40:20	15:42:35	Loch Eriboll Disc7
Loch Eriboll 2012	TV1a	Drop down	09/03/2012	58.48284	-4.68540	58.48128	-4.68678	25.0	16.0	15:46:15	15:53:22	Loch Eriboll Disc7

Appendix 1 continued

Survey	Site ID	Gear	Date	Start latitude	Start longitude	End latitude	End longitude	Depth start (m)	Depth end (m)	Time start	Time end	Media ref code
Loch Eriboll 2012	TV2	Drop down	09/03/2012	58.50221	-4.68300	58.50352	-4.68880	49.2	27.2	15:00:25	15:15:16	Loch Eriboll Disc7
Loch Eriboll 2012	TV3	Drop down	08/03/2012	58.51537	-4.66378	58.51542	-4.66597	63.6	49.9	13:00:17	13:08:04	Loch Eriboll Disc6
Loch Eriboll 2012	TV4	Drop down	08/03/2012	58.51875	-4.65628	58.51689	-4.65371	49.1	39.3	12:23:06	12:42:34	Loch Eriboll Disc5
Loch Eriboll 2012	TV5	Drop down	08/03/2012	58.52336	-4.64726	58.51704	-4.65233	19.2	32.4	10:35:08	10:54:20	Loch Eriboll Disc5
Loch Eriboll 2012	TV5	Drop down	08/03/2012	58.52336	-4.64726	58.51704	-4.65233	19.2	32.4	10:54:20	10:58:10	Loch Eriboll Disc5
Loch Eriboll 2012	TV6	Drop down	08/03/2012	58.52244	-4.65413	58.52237	-4.66063	53.9	35.6	11:08:51	11:28:56	Loch Eriboll Disc5
Loch Eriboll 2012	TV7	Drop down	08/03/2012	58.53408	-4.64468	58.53016	-4.65139	32.6	33.9	09:58:12	10:18:18	Loch Eriboll Disc4
Loch Eriboll 2012	TV8	Drop down	08/03/2012	58.53761	-4.62452	58.53309	-4.62635	34.0	29.2	09:20:51	09:28:53	Loch Eriboll Disc4
Loch Eriboll 2012	TV8	Drop down	08/03/2012	58.53761	-4.62452	58.53309	-4.62635	34.0	29.2	09:28:53	09:33:16	Loch Eriboll Disc4
Loch Eriboll 2012	TV8	Drop down	08/03/2012	58.53761	-4.62452	58.53309	-4.62635	34.0	29.2	09:33:16	09:40:55	Loch Eriboll Disc4
Loch Eriboll 2012	TV9	Drop down	09/03/2012	58.54145	-4.63946	58.54442	-4.64568	32.7	30.7	13:40:26	13:47:46	Loch Eriboll Disc6
Loch Eriboll 2012	TV9	Drop down	09/03/2012	58.54145	-4.63946	58.54442	-4.64568	32.7	30.7	13:47:46	13:53:13	Loch Eriboll Disc6
Loch Eriboll 2012	TV9	Drop down	09/03/2012	58.54145	-4.63946	58.54442	-4.64568	32.7	30.7	13:53:13	13:58:07	Loch Eriboll Disc6
Loch Eriboll 2012	TV10	Drop down	09/03/2012	58.55140	-4.63071	58.55063	-4.63776	44.2	30.5	13:12:01	13:23:57	Loch Eriboll Disc6
Loch Eriboll 2012	TV10	Drop down	09/03/2012	58.55140	-4.63071	58.55063	-4.63776	44.2	30.5	13:23:57	13:27:12	Loch Eriboll Disc6
Loch Eriboll 2012	TV11	Drop down	08/03/2012	58.55707	-4.62840	58.55649	-4.63105	50.2	49.7	08:34:56	08:40:58	Loch Eriboll Disc4
Loch Eriboll 2012	TV12	Drop down	09/03/2012	58.56037	-4.61051	58.55952	-4.61902	31.7	46.0	12:41:21	12:50:06	Loch Eriboll Disc6
Loch Eriboll 2012	TV12	Drop down	09/03/2012	58.56037	-4.61051	58.55952	-4.61902	31.7	46.0	12:50:06	12:54:19	Loch Eriboll Disc6
Loch Eriboll 2012	TV12	Drop down	09/03/2012	58.56037	-4.61051	58.55952	-4.61902	31.7	46.0	12:54:19	12:56:58	Loch Eriboll Disc6
Loch Eriboll 2012	TV13	Drop down	09/03/2012	58.51505	-4.66378	58.51602	-4.67097	64.1	32.0	14:27:06	14:45:13	Loch Eriboll Disc7
North Minch 2011	D7.1	Drop down	20/05/2011	58.08263	-5.97599	58.08272	-5.97601	89.8	89.8	10:46:39	10:47:36	JC060_43_dive7_tape10
North Minch 2011	D7.2	Drop down	20/05/2011	58.08276	-5.97759	58.08285	-5.97879	65.5	58.1	11:00:46	11:10:20	JC060_43_dive7_tape10
North Minch 2011	D7.2	Drop down	20/05/2011	58.08285	-5.97879	58.08294	-5.97969	58.1	74.0	11:10:20	11:22:18	JC060_43_dive7_tape10
North Minch 2011	D7.3	Drop down	20/05/2011	58.08294	-5.97969	58.08319	-5.98351	74.0	62.1	11:22:19	12:07:51	JC060_43_dive7_tape10
North Minch 2011	D7.3	Drop down	20/05/2011	58.08319	-5.98351	58.08319	-5.98375	62.1	62.3	12:07:51	12:11:03	JC060_43_dive7_tape10
North Minch 2011	D7.4	Drop down	20/05/2011	58.08319	-5.98375	58.08329	-5.98469	62.3	66.4	12:11:04	12:21:22	JC060_43_dive7_tape10
North Minch 2011	D8	Drop down	20/05/2011	58.06130	-5.94471	58.06112	-5.95760	75.7	69.7	13:18:42	14:39:45	JC060_44_dive8_tape11
North Minch 2011	D9	Drop down	20/05/2011	58.02572	-5.89463	58.02651	-5.89832	94.1	90.1	15:56:30	16:29:00	JC060_45_dive9_tape12
North Minch 2011	D9	Drop down	20/05/2011	58.02651	-5.89832	58.02726	-5.90363	90.1	84.4	16:29:00	17:04:07	JC060_45_dive9_tape12

Appendix 1 continued

Survey	Site ID	Gear	Date	Start latitude	Start longitude	End latitude	End longitude	Depth start (m)	Depth end (m)	Time start	Time end	Media ref code
Loch Torridon 2000	0/1	ROV	02/08/2000	57.59867	-5.74483	57.59867	-5.74483	41.6	41.6	13:03:34	13:04:01	R_TORR_0800_1.wmv
Loch Torridon 2000	0/2	ROV	02/08/2000	57.59680	-5.73898	57.59680	-5.73898	17.3	17.3	13:23:43	13:27:08	R_TORR_0800_1.wmv
Loch Torridon 2000	0/3	ROV	02/08/2000	57.59450	-5.73633	57.59450	-5.73633	46.7	46.7	13:38:32	13:39:53	R_TORR_0800_1.wmv
Loch Torridon 2000	0/4	ROV	02/08/2000	57.57883	-5.71617	57.57883	-5.71617	8.1	8.1	14:29:32	14:34:44	R_TORR_0800_1.wmv
Loch Torridon 2000	0/4A	ROV	02/08/2000	57.57817	-5.71483	57.57817	-5.71483	16.2	15.2	14:37:46	14:43:58	R_TORR_0800_1.wmv
Loch Torridon 2000	0/4B	ROV	02/08/2000	57.57750	-5.71000	57.57750	-5.71000	30.8	30.8	14:54:12	15:05:40	R_TORR_0800_1.wmv
Loch Torridon 2000	0/5	ROV	02/08/2000	57.55117	-5.74333	57.55117	-5.74333	6.2	6.2	16:06:27	16:09:32	R_TORR_0800_1.wmv
Loch Torridon 2000	0/6	ROV	02/08/2000	57.55033	-5.74250	57.55033	-5.74250	23.1	23.1	16:15:55	16:20:15	R_TORR_0800_1.wmv
Loch Torridon 2000	0/7	ROV	02/08/2000	57.54900	-5.74233	57.54900	-5.74233	31.4	31.4	16:28:42	16:34:53	R_TORR_0800_1.wmv
Loch Torridon 2000	0/8	ROV	02/08/2000	57.55050	-5.72950	57.55050	-5.72950	40.8	40.8	16:49:41	16:55:03	R_TORR_0800_1.wmv
Loch Torridon 2000	0/9	ROV	02/08/2000	57.53817	-5.69567	57.53817	-5.69567	8.3	8.3	17:18:28	17:23:48	R_TORR_0800_1.wmv
Loch Torridon 2000	0/10	ROV	02/08/2000	57.53800	-5.69267	57.53800	-5.69267	13.7	13.7	17:34:51	17:38:49	R_TORR_0800_2.wmv
Loch Torridon 2000	0/11	ROV	03/08/2000	57.56267	-5.76533	57.56267	-5.76533	29.5	29.5	11:28:56	11:32:45	R_TORR_0800_2.wmv
Loch Torridon 2000	0/12	ROV	03/08/2000	57.56183	-5.76717	57.56183	-5.76717	3.3	3.3	11:39:11	11:40:57	R_TORR_0800_2.wmv
Loch Torridon 2000	0/12	ROV	03/08/2000	57.56183	-5.76717	57.56183	-5.76717	3.3	1.3	11:40:57	11:46:19	R_TORR_0800_2.wmv
Loch Torridon 2000	0/13	ROV	03/08/2000	57.56933	-5.77850	57.56933	-5.77850	24.1	24.1	12:04:13	12:07:09	R_TORR_0800_2.wmv
Loch Torridon 2000	0/14	ROV	03/08/2000	57.57067	-5.77900	57.57067	-5.77900	5.8	3.8	12:12:33	12:17:43	R_TORR_0800_2.wmv
Loch Torridon 2000	0/14	ROV	03/08/2000	57.57067	-5.77900	57.57067	-5.77900	3.8	3.8	12:17:43	12:19:33	R_TORR_0800_2.wmv
Loch Torridon 2000	0/15	ROV	03/08/2000	57.57783	-5.79633	57.57783	-5.79633	7.2	-2.7	12:39:07	12:43:42	R_TORR_0800_2.wmv
Loch Torridon 2000	0/15	ROV	03/08/2000	57.57783	-5.79633	57.57783	-5.79633	-2.7	-2.7	12:43:42	12:46:07	R_TORR_0800_2.wmv
Loch Torridon 2000	0/16	ROV	03/08/2000	57.61200	-5.79550	57.61200	-5.79550	12.8	10.4	13:15:59	13:19:32	R_TORR_0800_2.wmv
Loch Torridon 2000	0/16	ROV	03/08/2000	57.61200	-5.79550	57.61200	-5.79550	10.4	8.9	13:19:32	13:19:59	R_TORR_0800_2.wmv
Loch Torridon 2000	0/16	ROV	03/08/2000	57.61200	-5.79550	57.61200	-5.79550	8.9	7.9	13:19:59	13:21:59	R_TORR_0800_2.wmv
Loch Torridon 2000	0/17	ROV	03/08/2000	57.63167	-5.79050	57.63167	-5.79050	9.4	9.4	13:43:19	13:49:19	R_TORR_0800_2.wmv
Loch Torridon 2000	0/18	ROV	03/08/2000	57.62433	-5.75917	57.62433	-5.75917	3.0	3.0	14:36:15	14:44:15	R_TORR_0800_2.wmv
Loch Torridon 2000	0/19	ROV	03/08/2000	57.62267	-5.75983	57.62267	-5.75983	39.8	39.8	14:49:57	14:55:57	R_TORR_0800_2.wmv
Loch Torridon 2000	0/20	ROV	03/08/2000	57.61997	-5.76100	57.61997	-5.76100	69.1	69.1	15:13:27	15:21:27	R_TORR_0800_3.wmv
Loch Torridon 2000	0/22	ROV	03/08/2000	57.60033	-5.77417	57.60033	-5.77417	17.2	24.3	15:49:07	16:00:32	R_TORR_0800_3.wmv
Loch Torridon 2000	0/23	ROV	03/08/2000	57.60017	-5.77617	57.60017	-5.77617	51.8	41.8	16:16:19	16:25:19	R_TORR_0800_3.wmv

Appendix 1 continued

Survey	Site ID	Gear	Date	Start latitude	Start longitude	End latitude	End longitude	Depth start (m)	Depth end (m)	Time start	Time end	Media ref code
Loch Torridon 2000	0/23	ROV	03/08/2000	57.60017	-5.77617	57.60017	-5.77617	41.8	35.8	16:25:19	16:32:19	R_TORR_0800_3.wmv
Loch Torridon 2000	0/24	ROV	03/08/2000	57.58330	-5.77513	57.58330	-5.77513	134.9	134.9	17:08:19	17:18:19	R_TORR_0800_3.wmv
Loch Torridon 2000	0/25	ROV	03/08/2000	57.56205	-5.72502	57.56205	-5.72502	28.6	28.6	17:53:25	18:06:25	R_TORR_0800_3.wmv
Loch Torridon 2000	0/26	ROV	04/08/2000	57.54323	-5.52778	57.54323	-5.52778	0.4	0.4	09:41:10	09:48:10	R_TORR_0800_4.wmv
Loch Torridon 2000	0/27	ROV	04/08/2000	57.54267	-5.52580	57.54267	-5.52580	2.0	2.0	09:52:57	09:54:57	R_TORR_0800_4.wmv
Loch Torridon 2000	0/28	ROV	04/08/2000	57.54327	-5.53225	57.54327	-5.53225	2.5	2.5	10:09:47	10:15:47	R_TORR_0800_4.wmv
Loch Torridon 2000	0/29	ROV	04/08/2000	57.54323	-5.53465	57.54323	-5.53465	2.8	2.8	10:28:10	10:32:10	R_TORR_0800_4.wmv
Loch Torridon 2000	0/30	ROV	04/08/2000	57.54253	-5.53730	57.54253	-5.53730	9.8	9.8	10:37:04	10:41:04	R_TORR_0800_4.wmv
Loch Torridon 2000	0/31	ROV	04/08/2000	57.54483	-5.52925	57.54483	-5.52925	2.4	2.4	10:57:20	10:59:20	R_TORR_0800_4.wmv
Loch Torridon 2000	0/32	ROV	04/08/2000	57.54018	-5.56518	57.54018	-5.56518	6.0	5.5	11:42:13	11:44:26	R_TORR_0800_4.wmv
Loch Torridon 2000	0/32	ROV	04/08/2000	57.54018	-5.56518	57.54018	-5.56518	5.5	3.8	11:44:26	11:47:13	R_TORR_0800_4.wmv
Loch Torridon 2000	0/33	ROV	04/08/2000	57.54382	-5.59687	57.54382	-5.59687	24.8	24.8	12:04:18	12:15:33	R_TORR_0800_4.wmv
Loch Torridon 2000	0/34	ROV	04/08/2000	57.54712	-5.62393	57.54712	-5.62393	88.5	88.5	12:33:37	12:37:37	R_TORR_0800_4.wmv
Loch Torridon & Inner Sound 2003	3/1	ROV	01/09/2003	57.51912	-5.65642	57.51912	-5.65642	20.1	21.9	16:08:53	16:20:20	R-TORR-0903-1
Loch Torridon & Inner Sound 2003	3/2	ROV	01/09/2003	57.53110	-5.65927	57.53110	-5.65927	31.7	31.7	16:34:09	16:49:41	R-TORR-0903-1
Loch Torridon & Inner Sound 2003	3/3	ROV	02/09/2003	57.59405	-5.85435	57.59405	-5.85435	50.6	50.6	10:30:13	10:35:59	R-TORR-0903-1
Loch Torridon & Inner Sound 2003	3/4	ROV	02/09/2003	57.59933	-5.86405	57.59933	-5.86405	115.4	115.4	10:59:35	11:04:02	R-TORR-0903-1
Loch Torridon & Inner Sound 2003	3/5	ROV	02/09/2003	57.60360	-5.90853	57.60360	-5.90853	157.9	157.9	11:45:36	11:50:49	R-TORR-0903-1
Loch Torridon & Inner Sound 2003	3/6	ROV	02/09/2003	57.58302	-6.00783	57.58302	-6.00783	130.7	130.7	12:43:49	12:50:44	R-TORR-0903-1
Loch Torridon & Inner Sound 2003	3/7	ROV	02/09/2003	57.58905	-5.98333	57.58905	-5.98333	96.9	96.9	13:19:23	13:30:13	R-TORR-0903-2
Loch Torridon & Inner Sound 2003	3/8	ROV	02/09/2003	57.59420	-5.98287	57.59420	-5.98287	110.7	110.7	13:54:49	14:00:59	R-TORR-0903-2

Appendix 1 continued

Survey	Site ID	Gear	Date	Start latitude	Start longitude	End latitude	End longitude	Depth start (m)	Depth end (m)	Time start	Time end	Media ref code
Loch Torridon & Inner Sound 2003	3/9	ROV	02/09/2003	57.59630	-5.98582	57.59630	-5.98582	136.4	136.4	14:34:14	14:41:14	R-TORR-0903-2
Loch Torridon & Inner Sound 2003	3/10	ROV	02/09/2003	57.57702	-5.94717	57.57702	-5.94717	76.2	76.2	15:16:24	15:29:24	R-TORR-0903-2
Loch Torridon & Inner Sound 2003	3/11	ROV	02/09/2003	57.57917	-5.93327	57.57917	-5.93327	250.6	250.6	15:58:03	16:11:03	R-TORR-0903-2
Loch Torridon & Inner Sound 2003	3/12	ROV	03/09/2003	57.60758	-5.85382	57.60758	-5.85382	78.3	78.3	10:20:33	10:26:33	R-TORR-0903-2
Loch Torridon & Inner Sound 2003	3/13	ROV	03/09/2003	57.61990	-5.85825	57.61990	-5.85825	124.2	124.2	10:41:00	10:48:50	R-TORR-0903-3
Loch Torridon & Inner Sound 2003	3/14	ROV	03/09/2003	57.60350	-5.83198	57.60350	-5.83198	26.7	26.7	11:47:00	11:49:20	R-TORR-0903-3
Loch Torridon & Inner Sound 2003	3/14	ROV	03/09/2003	57.60350	-5.83198	57.60350	-5.83198	26.7	22.8	11:49:20	12:00:54	R-TORR-0903-3
Loch Torridon & Inner Sound 2003	3/15	ROV	03/09/2003	57.60095	-5.80047	57.60095	-5.80047	152.4	147.4	12:20:00	12:27:38	R-TORR-0903-3
Loch Torridon & Inner Sound 2003	3/16	ROV	03/09/2003	57.62080	-5.78512	57.62080	-5.78512	73.6	73.6	13:28:48	13:39:26	R-TORR-0903-3
Loch Torridon & Inner Sound 2003	3/17	ROV	03/09/2003	57.58247	-5.75998	57.58247	-5.75998	126.8	126.8	14:05:24	14:11:05	R-TORR-0903-3
Loch Torridon & Inner Sound 2003	3/18	ROV	03/09/2003	57.57693	-5.75725	57.57693	-5.75725	130.9	130.9	14:25:00	14:33:16	R-TORR-0903-3
Loch Torridon & Inner Sound 2003	3/19	ROV	03/09/2003	57.56800	-5.74337	57.56800	-5.74337	111.3	111.3	15:05:30	15:16:59	R-TORR-0903-4
Loch Torridon & Inner Sound 2003	3/20	ROV	03/09/2003	57.57732	-5.70897	57.57732	-5.70897	34.3	34.3	15:42:47	16:01:47	R-TORR-0903-4
Loch Torridon & Inner Sound 2003	3/21	ROV	03/09/2003	57.57287	-5.68920	57.57287	-5.68920	38.3	38.3	16:19:18	16:31:14	R-TORR-0903-4
Loch Torridon & Inner Sound 2003	3/22	ROV	03/09/2003	57.54988	-5.73195	57.54988	-5.73195	41.7	41.7	16:54:27	17:10:24	R-TORR-0903-4

Appendix 1 continued

Survey	Site ID	Gear	Date	Start latitude	Start longitude	End latitude	End longitude	Depth start (m)	Depth end (m)	Time start	Time end	Media ref code
Loch Torridon & Inner Sound 2003	3/23	ROV	04/09/2003	57.54332	-5.85968	57.54332	-5.85968	7.2	7.2	10:18:31	10:21:26	R-TORR-0903-5
Loch Torridon & Inner Sound 2003	3/24	ROV	04/09/2003	57.54520	-5.86360	57.54520	-5.86360	16.6	16.6	10:28:59	10:35:04	R-TORR-0903-5
Loch Torridon & Inner Sound 2003	3/25	ROV	04/09/2003	57.54868	-5.86808	57.54868	-5.86808	26.9	26.9	10:47:52	10:52:17	R-TORR-0903-5
Loch Torridon & Inner Sound 2003	3/26	ROV	04/09/2003	57.54948	-5.87240	57.54948	-5.87240	36.8	36.8	10:57:27	11:04:55	R-TORR-0903-5
Loch Torridon & Inner Sound 2003	3/27	ROV	04/09/2003	57.55113	-5.88087	57.55113	-5.88087	59.6	59.6	11:19:03	11:25:17	R-TORR-0903-5
Loch Torridon & Inner Sound 2003	3/28	ROV	04/09/2003	57.55340	-5.88940	57.55340	-5.88940	124.9	124.9	11:43:48	11:49:19	R-TORR-0903-5
Loch Torridon & Inner Sound 2003	3/29	ROV	04/09/2003	57.55830	-5.69882	57.55830	-5.69882	119.0	119.0	13:07:15	13:17:45	R-TORR-0903-5
Loch Torridon & Inner Sound 2003	3/30	ROV	04/09/2003	57.55195	-5.68880	57.55195	-5.68880	107.6	107.6	13:43:28	13:58:38	R-TORR-0903-5
Loch Torridon & Inner Sound 2003	3/31	ROV	04/09/2003	57.55077	-5.69135	57.55077	-5.69135	136.7	136.7	14:28:50	14:36:48	R-TORR-0903-6
Loch Torridon & Inner Sound 2003	3/32	ROV	04/09/2003	57.54270	-5.67627	57.54270	-5.67627	132.9	132.9	15:15:04	15:25:14	R-TORR-0903-6
Loch Torridon & Inner Sound 2003	3/33	ROV	04/09/2003	57.52470	-5.66350	57.52470	-5.66350	54.1	54.1	15:46:37	15:56:22	R-TORR-0903-6
Loch Torridon & Inner Sound 2003	3/34	ROV	04/09/2003	57.53267	-5.67337	57.53267	-5.67337	79.6	79.6	16:40:20	16:48:10	R-TORR-0903-6
Loch Torridon & Inner Sound 2003	3/35	ROV	05/09/2003	57.54935	-5.59973	57.54935	-5.59973	67.6	67.6	09:55:59	10:03:59	R-TORR-0903-6
Loch Torridon & Inner Sound 2004	4/1	ROV	07/06/2004	57.51715	-5.65265	57.51715	-5.65265	13.6	13.6	15:23:58	15:29:48	R-TORR-0604-1
Loch Torridon & Inner Sound 2004	4/2	ROV	07/06/2004	57.51770	-5.65723	57.51770	-5.65723	16.3	16.3	15:42:52	15:46:37	R-TORR-0604-1

Appendix 1 continued

Survey	Site ID	Gear	Date	Start latitude	Start longitude	End latitude	End longitude	Depth start (m)	Depth end (m)	Time start	Time end	Media ref code
Loch Torridon & Inner Sound 2004	4/3	ROV	08/06/2004	57.64238	-5.82323	57.64238	-5.82323	13.7	13.7	09:58:34	10:06:32	R-TORR-0604-1
Loch Torridon & Inner Sound 2004	4/4	ROV	08/06/2004	57.64270	-5.82807	57.64270	-5.82807	22.6	22.6	10:18:11	10:26:14	R-TORR-0604-1
Loch Torridon & Inner Sound 2004	4/5	ROV	08/06/2004	57.64410	-5.83107	57.64410	-5.83107	34.6	34.6	10:35:30	10:45:14	R-TORR-0604-1
Loch Torridon & Inner Sound 2004	4/6	ROV	08/06/2004	57.64643	-5.84117	57.64643	-5.84117	73.8	73.8	11:04:16	11:09:35	R-TORR-0604-1
Loch Torridon & Inner Sound 2004	4/7	ROV	08/06/2004	57.64897	-5.85300	57.64897	-5.85300	103.5	103.5	11:32:17	11:44:13	R-TORR-0604-1
Loch Torridon & Inner Sound 2004	4/8	ROV	08/06/2004	57.65210	-5.87947	57.65210	-5.87947	119.8	119.8	12:17:29	12:29:36	R-TORR-0604-1
Loch Torridon & Inner Sound 2004	4/9	ROV	08/06/2004	57.65450	-5.89192	57.65450	-5.89192	156.1	156.1	13:38:20	13:41:35	R-TORR-0604-2
Loch Torridon & Inner Sound 2004	4/10	ROV	08/06/2004	57.66088	-5.93578	57.66088	-5.93578	70.5	70.5	14:14:37	14:28:00	R-TORR-0604-2
Loch Torridon & Inner Sound 2004	4/11	ROV	08/06/2004	57.67055	-5.94472	57.67055	-5.94472	129.0	129.0	14:52:42	14:59:46	R-TORR-0604-2
Loch Torridon & Inner Sound 2004	4/12	ROV	08/06/2004	57.67290	-5.95512	57.67290	-5.95512	139.4	139.4	15:32:31	15:42:11	R-TORR-0604-2
Loch Torridon & Inner Sound 2004	4/13	ROV	09/06/2004	57.56537	-5.95078	57.56537	-5.95078	33.9	33.9	10:18:54	10:20:54	R-TORR-0604-2
Loch Torridon & Inner Sound 2004	4/13	ROV	09/06/2004	57.56537	-5.95078	57.56537	-5.95078	33.9	39.5	10:20:54	10:29:21	R-TORR-0604-2
Loch Torridon & Inner Sound 2004	4/13	ROV	09/06/2004	57.56537	-5.95078	57.56537	-5.95078	39.5	91.7	10:29:21	10:46:22	R-TORR-0604-2
Loch Torridon & Inner Sound 2004	4/13	ROV	09/06/2004	57.56537	-5.95078	57.56537	-5.95078	91.7	98.6	10:46:22	10:50:12	R-TORR-0604-2
Loch Torridon & Inner Sound 2004	4/14	ROV	09/06/2004	57.56690	-5.94623	57.56690	-5.94623	186.5	189.9	11:13:21	11:23:45	R-TORR-0604-3

Appendix 1 continued

Survey	Site ID	Gear	Date	Start latitude	Start longitude	End latitude	End longitude	Depth start (m)	Depth end (m)	Time start	Time end	Media ref code
Loch Torridon & Inner Sound 2004	4/15	ROV	09/06/2004	57.54717	-5.96047	57.54717	-5.96047	49.2	63.2	11:49:43	12:03:03	R-TORR-0604-3
Loch Torridon & Inner Sound 2004	4/15	ROV	09/06/2004	57.54717	-5.96047	57.54717	-5.96047	63.2	65.8	12:03:03	12:06:59	R-TORR-0604-3
Loch Torridon & Inner Sound 2004	4/16	ROV	09/06/2004	57.54603	-5.95533	57.54603	-5.95533	184.0	188.0	13:01:45	13:11:24	R-TORR-0604-3
Loch Torridon & Inner Sound 2004	4/17	ROV	09/06/2004	57.52923	-5.96778	57.52923	-5.96778	28.2	34.5	14:17:46	14:27:37	R-TORR-0604-3
Loch Torridon & Inner Sound 2004	4/17	ROV	09/06/2004	57.52923	-5.96778	57.52923	-5.96778	34.5	60.1	14:27:37	14:36:06	R-TORR-0604-3
Loch Torridon & Inner Sound 2004	4/17	ROV	09/06/2004	57.52923	-5.96778	57.52923	-5.96778	60.1	62.1	14:36:06	14:36:19	R-TORR-0604-3
Loch Torridon & Inner Sound 2004	4/18	ROV	09/06/2004	57.51447	-5.97283	57.51447	-5.97283	18.7	18.7	14:51:38	14:58:31	R-TORR-0604-3
Loch Torridon & Inner Sound 2004	4/18	ROV	09/06/2004	57.51447	-5.97283	57.51447	-5.97283	18.7	16.2	14:58:31	14:59:38	R-TORR-0604-3
Loch Torridon & Inner Sound 2004	4/19	ROV	09/06/2004	57.50207	-5.98010	57.50207	-5.98010	56.6	56.6	15:13:57	15:20:38	R-TORR-0604-4
Loch Torridon & Inner Sound 2004	4/20	ROV	09/06/2004	57.50273	-5.98337	57.50273	-5.98337	21.5	26.5	15:30:46	15:35:55	R-TORR-0604-4
Loch Torridon & Inner Sound 2004	4/20	ROV	09/06/2004	57.50273	-5.98337	57.50273	-5.98337	26.5	30.3	15:35:55	15:39:44	R-TORR-0604-4
Loch Torridon & Inner Sound 2004	4/21	ROV	10/06/2004	57.52767	-5.86328	57.52767	-5.86328	9.1	9.1	10:01:55	10:12:14	R-TORR-0604-4
Loch Torridon & Inner Sound 2004	4/22	ROV	10/06/2004	57.52447	-5.86973	57.52447	-5.86973	29.3	29.3	10:13:00	10:28:00	R-TORR-0604-4
Loch Torridon & Inner Sound 2004	4/23	ROV	10/06/2004	57.52695	-5.88247	57.52695	-5.88247	27.5	27.5	10:30:24	10:35:43	R-TORR-0604-4
Loch Torridon & Inner Sound 2004	4/24	ROV	10/06/2004	57.52553	-5.89787	57.52553	-5.89787	48.9	48.9	10:52:38	10:57:42	R-TORR-0604-4

Appendix 1 continued

Survey	Site ID	Gear	Date	Start latitude	Start longitude	End latitude	End longitude	Depth start (m)	Depth end (m)	Time start	Time end	Media ref code
Loch Torridon & Inner Sound 2004	4/25	ROV	10/06/2004	57.52040	-5.90870	57.52040	-5.90870	82.5	82.5	11:12:41	11:17:13	R-TORR-0604-4
Loch Torridon & Inner Sound 2004	4/26	ROV	10/06/2004	57.51538	-5.92267	57.51538	-5.92267	166.0	166.0	11:33:37	11:43:53	R-TORR-0604-4
Loch Torridon & Inner Sound 2004	4/27	ROV	10/06/2004	57.48147	-5.87528	57.48147	-5.87528	12.9	12.9	12:43:55	12:49:35	R-TORR-0604-5
Loch Torridon & Inner Sound 2004	4/28	ROV	10/06/2004	57.48412	-5.88303	57.48412	-5.88303	23.8	23.8	13:02:00	13:06:43	R-TORR-0604-5
Loch Torridon & Inner Sound 2004	4/29	ROV	10/06/2004	57.48993	-5.88842	57.48993	-5.88842	23.0	23.0	13:20:00	13:26:13	R-TORR-0604-5
Loch Torridon & Inner Sound 2004	4/30	ROV	10/06/2004	57.48678	-5.90523	57.48678	-5.90523	59.2	59.2	13:20:00	13:25:21	R-TORR-0604-5
Loch Torridon & Inner Sound 2004	4/31	ROV	10/06/2004	57.60218	-5.75852	57.60218	-5.75852	92.0	92.0	14:56:00	15:07:33	R-TORR-0604-5
Loch Torridon & Inner Sound 2004	4/32	ROV	10/06/2004	57.58307	-5.76270	57.58307	-5.76270	115.9	115.9	15:31:00	15:41:08	R-TORR-0604-5
Loch Torridon & Inner Sound 2004	4/33	ROV	10/06/2004	57.57397	-5.75502	57.57397	-5.75502	123.1	123.1	16:03:00	16:13:17	R-TORR-0604-5
Loch Torridon & Inner Sound 2004	4/34	ROV	10/06/2004	57.56660	-5.74107	57.56660	-5.74107	105.3	105.3	16:29:00	16:34:50	R-TORR-0604-5
Loch Torridon & Inner Sound 2004	4/35	ROV	11/06/2004	57.55023	-5.59773	57.55023	-5.59773	62.3	62.3	09:42:00	10:01:23	R-TORR-0604-6
Loch Torridon & Inner Sound 2004	4/36	ROV	11/06/2004	57.54703	-5.59292	57.54703	-5.59292	68.4	68.4	10:14:00	10:28:20	R-TORR-0604-6
Loch Torridon & Inner Sound 2004	4/37	ROV	11/06/2004	57.54498	-5.59003	57.54498	-5.59003	60.4	60.4	10:43:00	10:53:49	R-TORR-0604-6
Loch Torridon & Inner Sound 2004	4/38	ROV	11/06/2004	57.54477	-5.56980	57.54477	-5.56980	44.9	44.9	11:16:00	11:31:32	R-TORR-0604-6
Loch Torridon & Inner Sound 2004	4/39	ROV	11/06/2004	57.53487	-5.65637	57.53487	-5.65637	36.4	36.4	12:05:00	12:14:21	R-TORR-0604-7

Appendix 1 continued

Survey	Site ID	Gear	Date	Start latitude	Start longitude	End latitude	End longitude	Depth start (m)	Depth end (m)	Time start	Time end	Media ref code
Loch Torridon & Inner Sound 2004	4/40	ROV	11/06/2004	57.52927	-5.65783	57.52927	-5.65783	26.6	26.6	12:26:00	12:36:24	R-TORR-0604-7
Loch Torridon & Inner Sound 2005	5/1	ROV	10/05/2005	57.52212	-5.66532	57.52212	-5.66532	30.0	30.0	15:00:00	15:11:00	R-TORR-0505-1
Loch Torridon & Inner Sound 2005	5/2	ROV	10/05/2005	57.54238	-5.70988	57.54238	-5.70988	3.0	3.0	12:30:00	12:34:00	R-TORR-0505-1
Loch Torridon & Inner Sound 2005	5/3	ROV	11/05/2005	57.54965	-5.72723	57.54965	-5.72723	41.0	41.0	12:49:00	13:29:00	R-TORR-0505-1
Loch Torridon & Inner Sound 2005	5/4	ROV	11/05/2005	57.55782	-5.75368	57.55782	-5.75368	22.9	22.9	13:50:00	14:13:00	R-TORR-0505-1
Loch Torridon & Inner Sound 2005	5/5	ROV	11/05/2005	57.57128	-5.75453	57.57128	-5.75453	111.4	111.4	14:30:00	15:07:00	R-TORR-0505-2
Loch Torridon & Inner Sound 2005	5/6	ROV	11/05/2005	57.57260	-5.77990	57.57260	-5.77990	19.7		15:22:00	15:25:03	R-TORR-0505-2
Loch Torridon & Inner Sound 2005	5/6	ROV	11/05/2005	57.57260	-5.77990	57.57260	-5.77990			15:25:03	15:28:26	R-TORR-0505-2
Loch Torridon & Inner Sound 2005	5/6	ROV	11/05/2005	57.57260	-5.77990	57.57260	-5.77990			15:28:26	15:57:49	R-TORR-0505-2
Loch Torridon & Inner Sound 2005	5/7	ROV	11/05/2005	57.56735	-5.77217	57.56735	-5.77217	21.0		16:24:00	16:26:28	R-TORR-0505-3
Loch Torridon & Inner Sound 2005	5/7	ROV	11/05/2005	57.56735	-5.77217	57.56735	-5.77217			16:26:28	16:33:09	R-TORR-0505-3
Loch Torridon & Inner Sound 2005	5/7	ROV	11/05/2005	57.56735	-5.77217	57.56735	-5.77217			16:33:09	16:46:06	R-TORR-0505-3
Loch Torridon & Inner Sound 2005	5/8	ROV	12/05/2005	57.57433	-5.90793	57.57433	-5.90793	235.8	235.8	10:38:00	11:30:00	R-TORR-0505-3
Loch Torridon & Inner Sound 2005	5/9	ROV	12/05/2005	57.56808	-5.91642	57.56808	-5.91642	235.9	235.9	11:00:00	11:28:00	R-TORR-0505-4
Loch Torridon & Inner Sound 2005	5/10	ROV	12/05/2005	57.54427	-5.92598	57.54427	-5.92598	243.0	243.0	13:11:00	13:55:00	R-TORR-0505-4

Appendix 1 continued

Survey	Site ID	Gear	Date	Start latitude	Start longitude	End latitude	End longitude	Depth start (m)	Depth end (m)	Time start	Time end	Media ref code
Inner Sound BUTEC Range 2005	BUTEC 1	Sledge	09/02/2005	57.41918	-5.95641	57.41463	-5.95654	154.1	147.1	08:15:41	08:44:31	Video DVD 3 Camera Sledge 9_02_05
Inner Sound BUTEC Range 2005	BUTEC 2	Sledge	09/02/2005	57.44631	-5.97187	57.44071	-5.97563	174.7	151.1	09:25:32	09:53:33	Video DVD 3 Camera Sledge 9_02_05
Inner Sound BUTEC Range 2005	BUTEC 3	Sledge	09/02/2005	57.46644	-5.96107	57.45827	-5.96270	192.6	189.0	10:27:53	11:08:53	Video DVD 4 Camera Sledge 9_02_05
Inner Sound BUTEC Range 2005	BUTEC N	Sledge	11/02/2005	57.51039	-5.93190	57.50164	-5.94083	184.5	183.1	11:42:39	12:26:46	Video DVD 7 Camera Sledge 9_02_05
Inner Sound BUTEC Range 2005	BUTEC SE	Sledge	09/02/2005	57.38949	-5.88914	57.38502	-5.89532	150.3	154.6	15:23:19	15:35:51	Video DVD 6 Camera Sledge 9_02_05
Inner Sound BUTEC Range 2005	BUTEC NE	Sledge	09/02/2005	57.51584	-5.91680	57.50304	-5.91515	136.6	127.7	11:54:07	12:32:02	Video DVD 5 Camera Sledge 9_02_05
Inner Sound BUTEC Range 2005	BUTEC 1A	Sledge	08/02/2005	57.41595	-5.95732	57.42092	-5.95468	155.4	157.4	11:05:18	11:23:55	Video DVD 1 Drop Frame 8_02_05
Inner Sound BUTEC Range 2005	BUTEC 1B	Sledge	08/02/2005	57.41501	-5.95908	57.42076	-5.95473	152.6	157.4	11:38:34	11:56:30	Video DVD 1 Drop Frame 8_02_05
Inner Sound BUTEC Range 2005	BUTEC 3A	Drop down	08/02/2005	57.46148	-5.96658	57.46466	-5.96615	200.6	197.6	15:29:50	15:52:15	Video DVD 2 Drop Frame 8_02_05
Inner Sound BUTEC Range 2005	BUTEC 2A	Drop down	08/02/2005	57.44202	-5.97401	57.44480	-5.97377	151.2	155.6	16:15:53	16:32:42	Video DVD 2 Drop Frame 8_02_05
Loch Fyne	LF01	Drop down	16/03/2012	55.97071	-5.40924	55.97085	-5.40888	55.7	55.7	15:27:00	15:33:00	Clyde DVD5
Loch Fyne	LF02	Drop down	17/03/2012	55.82275	-5.27754	55.82314	-5.27765	153.6	153.6	07:40:00	07:47:00	Clyde DVD6
Loch Fyne	LF03	Drop down	16/03/2012	55.98433	-5.42266	55.98447	-5.42191	36.9	36.9	15:09:00	15:14:00	Clyde DVD5

Appendix 1 continued

Survey	Site ID	Gear	Date	Start latitude	Start longitude	End latitude	End longitude	Depth start (m)	Depth end (m)	Time start	Time end	Media ref code
Loch Fyne	LF04	Drop down	16/03/2012	55.85482	-5.33983	55.85524	-5.34081	171.1	176.1	16:39:00	16:45:00	Clyde DVD5
Loch Fyne	LF05	Drop down	16/03/2012	56.18251	-5.09195	56.18318	-5.09088	136.4	136.4	10:40:00	10:45:00	Clyde DVD5
Loch Fyne	LF06	Drop down	16/03/2012	56.15296	-5.12472	56.15379	-5.12336	78.2	90.2	10:16:00	10:20:00	Clyde DVD5
Loch Fyne	LF07	Drop down	16/03/2012	56.00851	-5.36636	56.00919	-5.36456	25.1	33.1	13:43:00	13:53:00	Clyde DVD5
Loch Fyne	LF07	Drop down	16/03/2012	56.00851	-5.36636	56.00919	-5.36456	25.1	33.1	13:43:00	13:53:00	Clyde DVD5
Loch Fyne	LF08	Drop down	16/03/2012	56.00291	-5.36837	56.00360	-5.36680	22.0	26.0	14:15:00	14:23:00	Clyde DVD5
Loch Fyne	LF09	Drop down	16/03/2012	56.00506	-5.35648	56.00711	-5.35535	19.1	45.1	13:59:00	14:07:00	Clyde DVD5
Loch Fyne	LF10	Drop down	16/03/2012	56.04699	-5.31329	56.04781	-5.31248	42.3	43.3	08:40:00	08:46:00	Clyde DVD5
Loch Fyne	LF11	Drop down	16/03/2012	56.12105	-5.21438	56.12198	-5.21373	50.7	44.7	09:25:00	09:31:00	Clyde DVD5
Loch Fyne	LF11	Drop down	16/03/2012	56.12105	-5.21438	56.12198	-5.21373	50.7	44.7	09:25:00	09:31:00	Clyde DVD5
Loch Fyne	LF12	Drop down	16/03/2012	56.15431	-5.13332	56.15530	-5.13127	109.0	111.0	10:01:00	10:07:00	Clyde DVD5
Loch Fyne	LF14	Drop down	16/03/2012	55.97400	-5.37177	55.97438	-5.37198	115.1	114.1	14:40:00	14:44:00	Clyde DVD5
Loch Fyne	LF15	Drop down	16/03/2012	56.03650	-5.31545	56.03761	-5.31582	44.2	44.2	08:20:00	08:27:00	Clyde DVD5
Loch Fyne	LF16	Drop down	16/03/2012	56.22410	-5.05571	56.22445	-5.05543	116.7	116.7	11:10:00	11:15:00	Clyde DVD5
Loch Fyne	LF17	Drop down	16/03/2012	55.93269	-5.39512	55.93269	-5.39526	146.5	146.5	15:53:00	15:58:00	Clyde DVD5
Loch Fyne	LF18	Drop down	16/03/2012	56.23802	-5.05418	56.23838	-5.05411	49.9	47.9	11:35:00	11:42:00	Clyde DVD5
Loch Fyne	LF19	Drop down	17/03/2012	55.77156	-5.23983	55.77222	-5.23943	160.0	162.0	09:24:00	09:28:00	Clyde DVD6
Loch Fyne	LF20	Drop down	17/03/2012	55.79760	-5.25656	55.79817	-5.25647	160.7	160.7	08:36:00	08:41:00	Clyde DVD6
Loch Fyne	LF21	Drop down	17/03/2012	55.77083	-5.19462	55.77101	-5.19381	79.4	76.4	10:11:00	10:16:00	Clyde DVD6
Loch Fyne	LF22	Drop down	17/03/2012	55.77950	-5.29063	55.77992	-5.29068	82.8	81.9	09:00:00	09:05:00	Clyde DVD6
Loch Fyne	LF23	Drop down	17/03/2012	55.82493	-5.23575	55.82531	-5.23471	36.7	35.7	08:11:00	08:18:00	Clyde DVD6
Loch Fyne	LF23	Drop down	17/03/2012	55.82493	-5.23575	55.82531	-5.23471	36.7	35.7	08:11:00	08:18:00	Clyde DVD6
Loch Fyne	LF24	Drop down	17/03/2012	55.78949	-5.21068	55.78997	-5.20984	95.2	91.2	09:53:00	09:58:00	Clyde DVD6
Inchmarnock	IM01	Drop down	17/03/2012	55.78584	-5.13860	55.78560	-5.13714	37.0	30.1	11:25:00	11:31:00	Clyde DVD6
Inchmarnock	IM02	Drop down	17/03/2012	55.77539	-5.13984	55.77568	-5.13900	13.9	16.9	11:09:00	11:17:00	Clyde DVD6
Inchmarnock	IM03	Drop down	17/03/2012	55.77572	-5.14833	55.77610	-5.14799	14.8	12.3	10:56:00	11:04:00	Clyde DVD6
Inchmarnock	IM04	Drop down	17/03/2012	55.77452	-5.16387	55.77430	-5.16191	26.9	27.9	13:07:00	13:13:00	Clyde DVD6
Inchmarnock	IM05	Drop down	17/03/2012	55.78016	-5.16916	55.77992	-5.16843	24.8	21.8	12:59:00	13:02:00	Clyde DVD6
Inchmarnock	IM06	Drop down	17/03/2012	55.78471	-5.17157	55.78481	-5.17079	32.8	21.8	12:50:00	12:54:00	Clyde DVD6

Appendix 1 continued

Survey	Site ID	Gear	Date	Start latitude	Start longitude	End latitude	End longitude	Depth start (m)	Depth end (m)	Time start	Time end	Media ref code
Inchmarnock	IM07	Drop down	17/03/2012	55.79542	-5.17267	55.79533	-5.17163	24.7	20.7	12:37:00	12:41:00	Clyde DVD6
Inchmarnock	IM08	Drop down	17/03/2012	55.80506	-5.17011	55.80519	-5.16868	28.6	22.6	12:21:00	12:28:00	Clyde DVD6
Inchmarnock	IM09	Drop down	17/03/2012	55.80732	-5.16040	55.80750	-5.15946	18.5	22.5	12:08:00	12:13:00	Clyde DVD6
Inchmarnock	IM10	Drop down	17/03/2012	55.79597	-5.14426	55.79616	-5.14357	32.2	30.2	11:43:00	11:48:00	Clyde DVD6
Inchmarnock	IM11	Drop down	17/03/2012	55.80468	-5.14698	55.80475	-5.14602	27.3	23.4	11:54:00	12:00:00	Clyde DVD6
Arran	AS01	Drop down	12/03/2012	55.56865	-5.06658	55.56791	-5.06642	66.2	67.2	14:15:00	14:25:00	20120312
Arran	AS02	Drop down	12/03/2012	55.54702	-5.06443	55.54688	-5.06234	50.2	66.2	14:40:00	14:50:00	20120312
Arran	AS03	Drop down	18/03/2012	55.54632	-5.00210	55.54578	-5.00233	117.9	117.9	09:48:00	09:52:00	20120318
Arran	AS04	Drop down	18/03/2012	55.51126	-5.00458	55.51082	-5.00482	112.0	113.0	10:18:00	10:22:00	20120318
Arran	AS05	Drop down	12/03/2012	55.45553	-5.05909	55.45544	-5.05939	63.2	63.2	15:31:00	15:37:00	20120312
Arran	AS06	Drop down	18/03/2012	55.40730	-5.06936	55.40693	-5.06990	111.3	111.3	11:07:00	11:13:00	20120318
Arran	AS07	Drop down	18/03/2012	55.38399	-5.09222	55.38380	-5.09182	79.6	78.6	11:40:00	11:46:00	20120318
Arran	AS08	Drop down	12/03/2012	55.41522	-5.12971	55.41539	-5.13364	30.4	24.5	16:10:00	16:15:00	20120312
Arran	AS09	Drop down	12/03/2012	55.41050	-5.17662	55.41063	-5.17934	45.6	45.6	16:27:00	16:34:00	20120312
Arran	AS10	Drop down	12/03/2012	55.39417	-5.21122	55.39393	-5.21325	54.9	53.9	16:56:00	17:02:00	20120312
Arran	AS11	Drop down	12/03/2012	55.43711	-5.28458	55.43763	-5.28553	17.2	17.2	17:26:00	17:31:00	20120312
Arran	AS12	Drop down	15/03/2012	55.44254	-5.34866	55.44394	-5.34885	38.3	36.2	12:54:00	12:59:00	20120315
Arran	AS13	Drop down	15/03/2012	55.46420	-5.38645	55.46559	-5.38677	53.1	56.1	13:15:00	13:19:00	20120315
Arran	AS14	Drop down	15/03/2012	55.49392	-5.36966	55.49559	-5.37089	37.9	39.9	13:38:00	13:44:00	20120315
Arran	AS15	Drop down	15/03/2012	55.50055	-5.42329	55.50179	-5.42403	87.8	89.7	13:59:00	14:04:00	20120315
Arran	AS16	Drop down	17/03/2012	55.71732	-5.23739	55.71727	-5.23629	32.6	36.6	13:44:00	13:50:00	20120317
Arran	AS17	Drop down	17/03/2012	55.71521	-5.20270	55.71540	-5.20192	115.5	115.5	14:02:00	14:07:00	20120317
Arran	AS18	Drop down	17/03/2012	55.69049	-5.17554	55.69045	-5.17526	40.5	42.5	14:25:00	14:29:00	20120317
Arran	AS19	Drop down	17/03/2012	55.70688	-5.15056	55.70673	-5.14928	168.4	168.4	14:43:00	14:47:00	20120317
Arran	AS20	Drop down	17/03/2012	55.76114	-4.98793	55.76059	-4.98688	102.1	102.1	15:41:00	15:47:00	20120317
Arran	AS21	Drop down	17/03/2012	55.72890	-4.98383	55.72926	-4.98262	113.9	111.9	16:11:00	16:18:00	20120317
Arran	AS22	Drop down	17/03/2012	55.69607	-4.98334	55.69624	-4.98253	83.7	83.7	16:37:00	16:44:00	20120317
Arran	AS23	Drop down	18/03/2012	55.60683	-5.02187	55.60628	-5.02094	90.8	89.8	08:20:00	08:26:00	20120318
Arran	AS24	Drop down	18/03/2012	55.62725	-5.12774	55.62618	-5.12830	28.8	27.8	08:55:00	09:03:00	20120318

Appendix 1 continued

Survey	Site ID	Gear	Date	Start latitude	Start longitude	End latitude	End longitude	Depth start (m)	Depth end (m)	Time start	Time end	Media ref code
Kilbrannan Sound	KS01	Drop down	15/03/2012	55.59939	-5.43418	55.60091	-5.43498	141.6	139.6	14:48:00	14:53:00	Clyde DVD4
Kilbrannan Sound	KS02	Drop down	15/03/2012	55.62420	-5.45222	55.62568	-5.45314	139.3	138.3	15:11:00	15:15:00	Clyde DVD4
Kilbrannan Sound	KS03	Drop down	15/03/2012	55.66331	-5.43333	55.66508	-5.43400	95.2	69.2	15:28:00	15:34:00	Clyde DVD4
Kilbrannan Sound	KS04	Drop down	15/03/2012	55.72814	-5.30563	55.73006	-5.30546	120.7	120.7	16:45:00	16:50:00	Clyde DVD4
Kilbrannan Sound	KS04	Drop down	15/03/2012	55.72814	-5.30563	55.73006	-5.30546	120.7	120.7	16:45:00	16:50:00	Clyde DVD4
Kilbrannan Sound	KS06	Drop down	15/03/2012	55.71830	-5.37689	55.72018	-5.37611	78.9	74.9	16:17:00	16:23:00	Clyde DVD4
Clyde Sill	CS01	Drop down	13/03/2012	55.02058	-5.24634	55.02149	-5.24595	93.1	94.1	14:30:00	14:38:00	Clyde DVD2
Clyde Sill	CS02	Drop down	13/03/2012	55.07093	-5.19034	55.07220	-5.18965	47	46	15:03:00	15:07:00	Clyde DVD2
Clyde Sill	CS03	Drop down	13/03/2012	55.04411	-5.34335	55.04442	-5.34309	58.2	57.2	13:58:00	14:02:00	Clyde DVD2
Clyde Sill	CS04	Drop down	14/03/2012	55.08600	-5.36500	55.08634	-5.36377	45.5	50.5	14:26:00	14:31:00	Clyde DVD3
Clyde Sill	CS05	Drop down	14/03/2012	55.09301	-5.37835	55.09318	-5.37766	41.6	41.6	14:16:00	14:18:00	Clyde DVD3
Clyde Sill	CS06	Drop down	14/03/2012	55.09354	-5.39993	55.09362	-5.39933	87.8	81.8	13:54:00	15:58:00	Clyde DVD3
Clyde Sill	CS07	Drop down	13/03/2012	55.06338	-5.43233	55.06275	-5.43166	106.5	105.5	13:22:00	13:25:00	Clyde DVD2
Clyde Sill	CS08	Drop down	13/03/2012	55.11620	-5.46230	55.11546	-5.46082	95.9	93.9	12:40:00	12:43:00	Clyde DVD2
Clyde Sill	CS09	Drop down	14/03/2012	55.12656	-5.39055	55.12649	-5.38886	42	44.9	13:30:00	13:35:00	Clyde DVD3
Clyde Sill	CS10	Drop down	14/03/2012	55.13364	-5.29709	55.13495	-5.29597	65.3	65.3	15:02:00	15:10:00	Clyde DVD3
Clyde Sill	CS11	Drop down	15/03/2012	55.23942	-5.34588	55.24059	-5.34628	48.9	47.9	10:49:00	10:55:00	Clyde DVD4
Clyde Sill	CS12	Drop down	13/03/2012	55.20243	-5.48723	55.20250	-5.48551	76.3	76.3	11:43:00	11:46:00	Clyde DVD2
Clyde Sill	CS13	Drop down	15/03/2012	55.24685	-5.47585	55.24788	-5.47757	52.6	51.6	09:16:00	09:20:00	Clyde DVD4
Clyde Sill	CS14	Drop down	15/03/2012	55.27703	-5.44731	55.27893	-5.44633	43.9	45.9	11:33:00	11:39:00	Clyde DVD4
Clyde Sill	CS15	Drop down	14/03/2012	55.19748	-5.60635	55.19726	-5.60378	112.7	114.7	11:47:00	11:52:00	Clyde DVD3
Clyde Sill	CS16	Drop down	13/03/2012	55.26048	-5.65545	55.26133	-5.65163	64.7	67.7	10:44:00	10:49:00	Clyde DVD2
Clyde Sill	CS17	Drop down	15/03/2012	55.28618	-5.51049	55.28690	-5.51213	62.3	60.3	08:28:00	08:32:00	Clyde DVD4
Clyde Sill	CS18	Drop down	15/03/2012	55.26577	-5.53376	55.26714	-5.53759	45.4	47.4	08:45:00	08:51:00	Clyde DVD4
Clyde Sill	CS19	Drop down	14/03/2012	55.24192	-5.57890	55.24293	-5.57749	77.9	75.9	10:44:00	10:50:00	Clyde DVD3
Clyde Sill	CS20	Drop down	14/03/2012	55.28190	-5.53354	55.28311	-5.53433	46.8	43.8	09:21:00	09:27:00	Clyde DVD3
Clyde Sill	CS21	Drop down	14/03/2012	55.27007	-5.61497	55.27153	-5.61155	38.9	36.9	10:14:00	10:23:00	Clyde DVD3
Clyde Sill	CS22	Drop down	13/03/2012	55.32242	-5.52162	55.32113	-5.52238	35.9	36.9	08:17:00	08:24:00	Clyde DVD2
Clyde Sill	CS23	Drop down	14/03/2012	55.30203	-5.53030	55.30255	-5.53204	37.7	36.7	08:48:00	08:52:00	Clyde DVD3

Appendix 1 continued

Survey	Site ID	Gear	Date	Start latitude	Start longitude	End latitude	End longitude	Depth start (m)	Depth end (m)	Time start	Time end	Media ref code
Clyde Sill	CS24	Drop down	14/03/2012	55.31228	-5.50588	55.31205	-5.50760	31.5	35.6	08:05:00	08:10:00	Clyde DVD3
Clyde Sill	CS25	Drop down	13/03/2012	55.29793	-5.58844	55.29844	-5.58647	35.9	38.9	08:44:00	08:51:00	Clyde DVD2
Clyde Sill	CS26	Drop down	13/03/2012	55.28947	-5.62368	55.29090	-5.61565	24.9	27.9	09:04:00	09:15:00	Clyde DVD2
Clyde Sill	CS27	Drop down	13/03/2012	55.28326	-5.65952	55.28304	-5.65333	24.9	23.9	09:31:00	09:36:00	Clyde DVD2
Clyde Sill	CS28	Drop down	14/03/2012	55.29227	-5.54885	55.29311	-5.55103	29.8	35.8	09:02:00	09:10:00	Clyde DVD3
Clyde Sill	CS28	Drop down	14/03/2012	55.29227	-5.54885	55.29311	-5.55103	29.8	35.8	09:02:00	09:10:00	Clyde DVD3
Clyde Sill	CS28	Drop down	14/03/2012	55.29227	-5.54885	55.29311	-5.55103	29.8	35.8	09:02:00	09:10:00	Clyde DVD3
Clyde Sill	CS29	Drop down	13/03/2012	55.35056	-5.50939	55.34928	-5.50974	36.8	36.8	07:57:00	08:02:00	Clyde DVD2
Clyde Sill	CS30	Drop down	13/03/2012	55.22875	-5.63067	55.22833	-5.62853	74.6		11:09:00	11:10:00	Clyde DVD2
Clyde Sill	CS31	Drop down	14/03/2012	55.27063	-5.58219	55.27209	-5.58169	44.9	23.9	09:57:00	10:01:00	Clyde DVD3
Clyde Sill	CS32	Drop down	14/03/2012	55.28018	-5.55399	55.28188	-5.55434	71.9	72.9	09:37:00	09:42:00	Clyde DVD3
Clyde Sill	CS33	Drop down	13/03/2012	55.28108	-5.72527	55.28220	-5.72039	38.9	31.9	10:04:00	10:09:00	Clyde DVD2
Clyde Sill	CS34	Drop down	15/03/2012	55.30638	-5.44246	55.30840	-5.44125	42.9	44.4	11:53:00	11:58:00	Clyde DVD4
Clyde Sill	CS35	Drop down	14/03/2012	55.30867	-5.55299	55.30817	-5.55832	45.6	48.7	08:25:00	08:35:00	Clyde DVD3
Clyde Sill	CS35	Drop down	14/03/2012	55.30867	-5.55299	55.30817	-5.55832	45.6	48.7	08:25:00	08:35:00	Clyde DVD3
Clyde Sill	CS36	Drop down	15/03/2012	55.31988	-5.47028	55.31997	-5.47149	57.2	55.2	08:00:00	08:02:00	Clyde DVD4
Clyde Sill	CS37	Drop down	14/03/2012	55.22112	-5.54918	55.22176	-5.54874	93.8	92.8	11:09:00	11:13:00	Clyde DVD3
Clyde Sill	CS38	Drop down	13/03/2012	55.16548	-5.45614	55.16520	-5.45380	80	81	12:24:00	12:28:00	Clyde DVD2
Clyde Sill	CS39	Drop down	15/03/2012	55.19362	-5.37748	55.19438	-5.37921	60.8	60.8	10:10:00	10:14:00	Clyde DVD4
Clyde Sill	CS40	Drop down	13/03/2012	55.24812	-5.70114	55.24712	-5.69701	90.8		10:27:00	10:30:00	Clyde DVD2
Clyde Sill	CS41	Drop down	14/03/2012	55.15060	-5.53822	55.15006	-5.53418	109.4	108.4	12:26:00	12:30:00	Clyde DVD3
Clyde Sill	CS42	Drop down	15/03/2012	55.22417	-5.41994	55.22540	-5.42201	59.7	59.7	09:43:00	09:48:00	Clyde DVD4
Clyde Sill	CS43	Drop down	13/03/2012	55.08894	-5.27883	55.09101	-5.27911	74.1	75.1	15:36:00	15:43:00	Clyde DVD2
Clyde Sill	CS44	Drop down	14/03/2012	55.19255	-5.25140	55.19331	-5.25125	53.2	53.2	15:37:00	15:40:00	Clyde DVD3

Appendix 2 *Physical and biological descriptions of the survey sites. Site ID codes correspond with those in Appendix 1. PMF codes used are as follows: habitats - BM (burrowed mud), DS (deep sponge community), KS (kelp and seaweed community on sublittoral sediment), MB (maerl bed), NS (northern sea fan community), TS (tide-swept algal community); species - AA (*Arctica islandica *aggregation), AF (*Atrina fragilis*), AI (*Arctica islandica*), FQ (*Funiculina quadrangularis*), LA (*Leptometra celtica *aggregation on mixed substrata), LC (*Leptometra celtica*), ML (*Maera loveni*), MM (*Molva molva*), PM (*Pachycerianthus multiplicatus*), SE (*Ammodytes *spp.), SP (*Swiftia pallida*), SS (*Scomber scombrus*), WH (*Merlangius merlangus*)*

Site ID	Substrate	Biota	Biotope	PMF
TV47	Waves of coarse sand with gravel, pebbles and shell in troughs	Little life visible except for *Luidia ciliaris* (O) and *Asterias rubens*? (R), although latterly the presence of larger pebbles and cobbles in a transitional area introduces serpulid worms (locally C) and *Polymastia boletiformis* (locally O)	SS.SCS.CCS	
TV47	Mostly dense cobbles and boulders but areas of scattered stones on medium sand	Stones encrusted with serpulid worms (A) and *Parasmittina trispinosa* (R) and supporting *Caryophyllia smithii* (C), *Porella compressa* (P), *Flustra foliacea* (R) and a sponge fauna including *Polymastia boletiformis* (O locally F), *Axinella infundibuliformis*? (R), *Hymedesmia paupertas* (R) and a yellow encrusting form (R). Motile species include *Echinus esculentus* (C), *Stichastrella rosea* (F), *Asterias rubens*? (R), *Luidia ciliaris* (P), *Munida rugosa* (P) and *Raja* sp. (P)	CR.MCR.EcCr.FaAlCr.Car	
TV48	Mostly coarse sand waves with gravel, pebbles and shell concentrated in troughs but also patches of scattered cobbles, pebbles and occasional boulders on medium sand	Coarse sand areas with little visible life apart from some dense patches of *Palliolum* sp. (locally A). Stones in mixed areas support serpulid worms (locally A), *Parasmittina trispinosa* (R), *Caryophyllia smithii* (P), *Flustra foliacea* (locally F), *Alcyonium digitatum* (locally O), *Ascidia mentula* (R), *Alcyonidium diaphanum* (R), *Urticina* spp. (P), *Polymastia boletiformis* (P) and a motile fauna of *Echinus esculentus* (O), Asteroidea spp. (R), *Luidia ciliaris* (P), *Munida rugosa* (P) and *Porania pulvillus* (R)	SS.SCS.CCS SS.SMx.CMx.FluHyd	
TV49	Waves and superimposed ripples of medium-coarse sand with accumulation of gravel, pebbles, shell and occasional cobbles in troughs	Sediment supports patches of *Palliolum* sp. (locally C), *Stichastrella rosea* (R) and Paguridae sp. (R). Stones support serpulid worms (P), *Polymastia boletiformis* (R) and *Alcyonium digitatum* (R)	SS.SCS.CCS	

Appendix 2 continued

Site ID	Substrate	Biota	Biotope	PMF
TV50	Scattered pebbles, cobbles and occasional boulders, dense in places, on medium sand	Stones encrusted with serpulid worms (A) including *Spirobranchus* spp. (P), *Parasmittina trispinosa* (R) and red bryozoans (R) and supporting *Flustra foliacea* (O locally F), *Polymastia boletiformis* (O locally F), hydroids (R), *Urticina felina* (P) and *Caryophyllia smithii* (P). Motile species include *Echinus esculentus* (O), *Porania pulvillus* (R), *Stichastrella rosea* (P), *Crossaster papposus* (P), *Asteroidea* spp. (R), *Luidia ciliaris* (P), *Munida rugosa* (P) and *Pecten maximus* (P)	SS.SMx.CMx.FluHyd	
TV51	Dense pebbles and gravel on sand with occasional cobbles and boulders	Stones densely encrusted with serpulid worms (A), including *Spirobranchus* spp. (P), which strongly dominate the fauna. Other encrusting forms include sparse *Parasmittina trispinosa* (R), red bryozoans (R) and *Hymedesmia paupertas*? (R), with other sessile forms including *Polymastia boletiformis* (O) and a light salmon digitiform sponge? (P). *Flustra foliacea* is present but apparently at very low density (R). *Echinus esculentus* (F), Brachyura sp. (P), *Cancer pagurus* (P), *Luidia ciliaris* (F), *Stichastrella rosea* (P), *Munida rugosa* (P), *Palliolum* sp. (locally F), small *Porania pulvillus* (F), *Colus* sp.? (P)	SS.SMx.CMx	
TV52	Pebbles, cobbles and boulders, dense in places, on medium sand	Stones encrusted with serpulid worms (C) including *Spirobranchus* spp. (P), *Parasmittina trispinosa* (R) and red bryozoans (R) and supporting *Flustra foliacea* (O), *Polymastia boletiformis* (O), *Hymedesmia paupertas*? (R), a light salmon digitiform sponge (P) and *Caryophyllia smithii* (R). Motile species include *Echinus esculentus* (F), *Porania pulvillus* (O), *Stichastrella rosea* (O), Asteroidea spp. (R), *Luidia ciliaris* (F), *Munida rugosa* (P) and *Palliolum* sp. (P)	SS.SMx.CMx.FluHyd	
TV53	Gravel, pebbles, cobbles and boulders, dense in places, on medium sand with possibly small low-lying flat bedrock outcrops	Stones encrusted with serpulid worms (C) including *Spirobranchus* spp. (P), *Parasmittina trispinosa* (R) and red bryozoans (R) and supporting *Flustra foliacea* (O, locally F), *Polymastia boletiformis* (O), *Hymedesmia paupertas*? (R), *Alcyonidium diaphanum* (P) and *Caryophyllia smithii* (F). Motile species include *Echinus esculentus* (F), *Stichastrella rosea* (P), *Luidia ciliaris* (O), *Munida rugosa* (P), *Callionymus lyra* (P) and *Palliolum* sp. (P)	SS.SMx.CMx.FluHyd	

Appendix 2 continued

Site ID	Substrate	Biota	Biotope	PMF
TV54	Pebbles, cobbles and boulders, dense in places, on medium sand, with areas of low-lying sand-scoured flat bedrock	Stones encrusted with serpulid worms (C) including *Spirobranchus* spp. (P), *Parasmittina trispinosa* (R) and red bryozoans (R) and supporting *Flustra foliacea* (O), *Polymastia boletiformis* (O) and hydroids (R). Motile species include *Echinus esculentus* (F), *Porania pulvillus* (R), *Crossaster papposus* (P), *Luidia ciliaris* (O), Gadidae sp. (P), *Munida rugosa* (P) and *Palliolum* sp. (P). Flat bedrock areas appear to support dense serpulid worms (A) and *Caryophyllia smithii* (C), though in the main the biota cannot be clearly discerned	SS.SMx.CMx.FluHyd CR.MCR.EcCr.FaAlCr.Car	
TV55	Gravel, pebbles, cobbles and boulders, dense in places, on medium sand	Stones encrusted with serpulid worms (A) including *Spirobranchus* spp. (P), *Parasmittina trispinosa* (R) and red bryozoans (R) and supporting *Flustra foliacea* (O) and *Polymastia boletiformis* (O). Motile species include *Echinus esculentus* (F), *Porania pulvillus* (O), *Luidia ciliaris* (F), *Stichastrella rosea* (P), *Munida rugosa* (P), *Pecten maximus* (P), *Callionymus lyra* (P), *Ophiura albida* (P) and *Palliolum* sp. (C locally)	SS.SMx.CMx.FluHyd	
TV56	Waves of medium-coarse sand with shell, gravel and pebbles, and latterly cobbles, in troughs	Larger stones encrusted with serpulid worms. *Munida rugosa* (P), *Luidia ciliaris* (P)	SS.SCS.CCS	
TV56	Mostly dense cobbles and boulders but areas of scattered pebbles and cobbles on medium sand	Stones encrusted with serpulid worms (A) including *Spirobranchus* spp. (P), *Parasmittina trispinosa* (R) and red bryozoans (R) and supporting *Caryophyllia smithii* (locally C), *Flustra foliacea* (R?), *Ascidia virginea* (P), *Axinella infundibuliformis*? (R), a yellow encrusting sponge (R) and *Polymastia boletiformis* (R). Motile species include *Echinus esculentus* (F), *Porania pulvillus* (O), *Luidia ciliaris* (F), *Stichastrella rosea* (F), *Munida rugosa* (P) and Teleostei spp. (R)	CR.MCR.EcCr.FaAlCr.Flu SS.SMx.CMx.FluHyd	
TV1	Soft mud	Mud fairly densely burrowed by *Nephrops norvegicus* (C), although mostly small; 1 *N. norvegicus* seen. *Sagartiogeton laceratus* (R) present towards end of run. Teleostei spp. (P)	SS.SMu.CFiMu.SpnMeg	BM
TV1	Sandy mud with some shell gravel and sparsely scattered cobbles	Scattered small *Nephrops norvegicus* burrows. *Turritella communis* (C), *Sagartiogeton laceratus* (F), *Carcinus maenas* (P)	SS.SMu.CSaMu	

Appendix 2 continued

Site ID	Substrate	Biota	Biotope	PMF
TV1a	Sandy mud with some shell gravel, and scattered pebbles towards end	Sparsely scattered small *Nephrops norvegicus* burrows. *Turritella communis* (P), *Sagartiogeton laceratus* (F), *Cerianthus lloydii* (locally C), *Aequipecten opercularis* (O), *Pecten maximus* (O), *Asterias rubens* (P), Asteroida sp. (P), *Metridium senile* (R) on isolated cobble	SS.SMu.CSaMu	
TV2	Soft mud	Mud fairly densely burrowed by *Nephrops norvegicus* (C), although mostly small. *Asterias rubens* (P), Teleostei (P)	SS.SMu.CFiMu.SpnMeg	BM
TV3	Mud	*Nephrops norvegicus* burrows (C). *Turritella communis* (P), *Echinus esculentus* (R)	SS.SMu.CFiMu.SpnMeg	BM
TV4	Mud, posssibly slightly sandy	*Nephrops norvegicus* burrows (C), smaller burrows (P), small mounds and polychaete tubes (P). *Turritella communis* (C), *Asterias rubens* (O but locally A), *Cerianthus lloydii* (R), *Metridium senile* (R), *Echinus esculentus* (O), *Liocarcinus* sp. (R)	SS.SMu.CFiMu.SpnMeg	BM
TV5	Very slightly silty rippled fine sand with scattered shells, especially *Ensis*, occasional small patches of scattered pebbles and cobbles and a dense surface cover of *Ensis* in deeper water	Little life visible. *Asterias rubens* (O), *Ophiura* sp. (P), *Echinus esculentus* (P in stone areas), thin patchy brown diatomaceous film in places	SS.SSa.IMuSa	
TV5	Flat muddy sand or possibly sandy mud	Very sparse burrows, including *Nephrops norvegicus*. *Asterias rubens* (O)	SS.SMu.CSaMu	
TV6	Mud, posssibly slightly sandy	*Nephrops norvegicus* burrows (O, locally F), *Asterias rubens* (O), Teleostei spp. (O), *Callionymus lyra* (R), Brachyura sp. (R), *Crossaster papposus* (P), *Echinus esculentus* (O)	SS.SMu.CFiMu.SpnMeg	BM
TV7	Rippled fine sand with scatter of pebbles, cobbles and small boulders in places	Little surface life visible. *Asterias rubens* (R), *Pecten maximus* (R). Stones support sparse hydroids (R), serpulid worms (R) and pink coralline algae (R)	SS.SSa.CFiSa	

Appendix 2 continued

Site ID	Substrate	Biota	Biotope	PMF
TV8	Rippled slightly silty fine sand	Little visible evidence of life. *Asterias rubens* (R)	SS.SSa.CFiSa	
TV8	Waves of slightly silty coarse sand with shell material in troughs	No life visible	SS.SCS.CCS	
TV8	Rippled slightly silty fine sand	Little visible evidence of life. *Asterias rubens* (R)	SS.SSa.CFiSa	
TV9	Rippled fine sand	Little visible evidence of life. *Asterias rubens* (R), *Solaster endeca* (P)	SS.SSa.CFiSa	
TV9	Extensive bedrock outcrops and boulders and cobbles on sand	Rock encrusted with pink coralline algae (F) and *Parasmittina trispinosa* (R). *Luidia ciliaris* (F), *Echinus esculentus* (F)	CR.MCR.EcCr.FaAlCr	
TV9	Rippled fine sand	Little visible evidence of life. *Asterias rubens/Astropecten irregularis* (R), Teleostei spp. (R)	SS.SSa.CFiSa	
TV10	Rippled fine sand	No life visible	SS.SSa.CFiSa	
TV10	Bedrock outcrops and boulders and cobbles on sand	Rock encrusted with pink coralline algae (O), *Parasmittina trispinosa* (O) and serpulid worms (F) and supporting *Caryophyllia smithii* (C). *Echinus esculentus* (C), *Porella compressa*? (R)	CR.MCR.EcCr.FaAlCr.Car	
TV11	Rippled silty fine sand	No life visible	SS.SSa.CFiSa	
TV12	Mostly dense cobbles and boulders with patches of gravelly coarse sand	Rock encrusted with pink coralline algae (F), *Parasmittina trispinosa* (O), red bryozoans (R) and Spirobranchus spp. (A). *Echinus esculentus* (C), *Asterias rubens* (R)	CR.MCR.EcCr.FaAlCr.Pom	

Appendix 2 continued

Site ID	Substrate	Biota	Biotope	PMF
TV12	Waves of coarse sand with gravel and pebbles concentrated in troughs	No visible fauna apart from sparse serpulid worms on pebbles (R)	SS.SCS.CCS	
TV12	Rippled slightly silty fine sand	No life visible apart from sparse worm tubes (P)	SS.SSa.CFiSa	
TV13	Soft mud	Mud fairly densely burrowed by *Nephrops norvegicus* (C), although mostly small; 2 *N. norvegicus* seen. Patches of *Asterias rubens* (O overall), *Munida rugosa* (P), Teleostei (R)	SS.SMu.CFiMu.SpnMeg	BM
D7.1	Soft mud	*Nephrops norvegicus* burrows present	SS.SMu.CFiMu.SpnMeg	BM
D7.2	Sediment indistinct but probably a silty gravelly sand	Sparse visible life. *Callionymus lyra* (R), *Porania pulvillus* (R), *Pecten maximus*? (R), *Luidia ciliaris* (P) and possibly very sparse small megafaunal burrows	SS.SMx.CMx	
D7.2	Scattered cobbles, increasing in density, on silty gravelly sand	Cobbles support frequent (locally C) *Axinella infundibuliformis/Phakellia ventilabrum*, *Porella compressa* (F), *Polymastia boletiformis* (O), *Ascidia virginea*? (R) and a sparse hydroid turf (O). Motile species include *Echinus esculentus* (F), *Munida rugosa* (F) and *Porania pulvillus* (O)	CR.HCR.DpSp.PhaAxi	DS
D7.3	Scattered cobbles, boulders and pebbles, varying in density, on silty gravelly sand	Cobbles and boulders support a sponge fauna of frequent (locally C) *Axinella infundibuliformis/Phakellia ventilabrum*, *Polymastia boletiformis* (O), *Tetilla zetlandica* (O), yellow encrusting (R) and branching erect (R) forms, and a white digitiform species (R). Other sessile taxa include *Porella compressa* (F), a hydroid turf (O) including *Nemertesia antennina* (R), *Diazona violacea* (O). *Parasmittina trispinosa* (R) and possibly *Swiftia pallida* - but very uncertain (R), Motile species include Echinus *esculentus* (F), *Munida rugosa* (F), *Porania pulvillus* (F), *Luidia ciliaris* (P), *Stichastrella rosea* (O), *Molva molva* (O) and Teleostei spp. (R)	CR.HCR.DpSp.PhaAxi	DS SP MM
D7.3	Waves of silty coarse sand with coarser material in troughs	Little life visible. Possibly one *Munida rugosa* (P)	SS.SCS.CCS	

Appendix 2 continued

Site ID	Substrate	Biota	Biotope	PMF
D7.4	Waves of silty coarse sand and probably gravel, with coarser material in troughs and sparsely scattered cobbles and small boulders	Sediment fauna includes *Pachycerianthus multiplicatus*? (1 seen), Paguridae sp. (R), *Munida rugosa* (R) and *Luidia ciliaris* (P). Larger stones support *Axinella infundibuliformis/Phakellia ventilabrum* (R), *Echinus esculentus* (P), *Porella compressa* (R) and hydroids (R)	SS.SCS.CCS	PM
D8	Sandy mud or muddy sand with scattered pebbles and shells in places and patches of scattered silted cobbles and boulders, dense in places and lying on a coarser, gravelly muddy sediment	Sediment areas exhibiting fairly sparse megafaunal mounds and burrrows including those of *Nephrops norvegicus*, *Pachycerianthus multiplicatus* (O), and with a motile fauna of pagurids (F), particularly *Pagurus prideaux* with *Adamsia carciniopados* (F), Teleostei spp. (O), Pleuronectiformes sp. (P), *Raja* sp. (P), *Callionymus lyra* (R), *Pecten maximus* (R), *Munida rugosa* (P), *Porania pulvillus* (O). Rocks support a sponge fauna including *Axinella infundibuliformis* and probably *Phakellia ventilabrum* (O), *Polymastia boletiformis* (O) and *Tetilla zetlandica* (P) and additional sessile forms including *Porella compressa* (F), a hydroid turf (F), *Parasmittina trispinosa* (R), *Spirobranchus* spp. (P), *Diazona violacea* (O) and *Bolocera tuediae* (R), with *P. multiplicatus* also present between stones (O). The motile fauna includes *Echinus esculentus* (F), *P. pulvillus* (O), *Stichastrella rosea* (O), *Asterias rubens*? (R), Teleostei spp. (O), *M. rugosa* (F) and *Eledone cirrhosa* (P)	SS.SMu.OMu CR.HCR.DpSp.PhaAxi	DS PM
D9	Soft mud	Mud fairly densely burrowed by *Nephrops norvegicus* (C, 11 specimens seen) and by *Goneplax rhomboides* (1 seen) and callianassids (1 seen). *Funiculina quadrangularis* (O), *Pennatula phosphorea* (R), Pleuronectiformes spp. (O), Teleostei spp. (O), *Aequipecten opercularis* (R), *Munida rugosa* (O) and *Pagurus prideaux* with *Adamsia carciniopados* (O). Isolated boulders support hydroids (P) and *Porella compressa* (P)	SS.SMu.CFiMu.SpnMeg.Fun	BM FQ
D9	Generally a muddy sediment with an admixture of gravel and shell and with scattered pebbles, cobbles and boulders but nowhere dense. Some patches of more homogeneous mud	Sparse megafaunal burrows, including *Nephrops norvegicus*, in muddier patches but generally absent. Larger stones support a hydroid turf (locally C), *Porella compressa* (locally C) and very sparse *Axinella infundibuliformis/Phakellia ventilabrum* (R), with *Swiftia pallida* also rare. Motile forms include *Munida rugosa* (O), *Pagurus prideaux* with *Adamsia carciniopados* (O, locally F), *P. bernhardus* (R), Paguridae indet. (R), Pleuronectiformes sp. (R), Teleostei spp. (O), *Porania pulvillus* (O), *Asterias rubens*? (R), *Pecten maximus* (R), *Cancer pagurus* (P), *Buccinum undatum* (O), *Neptunea antiqua* (R) and *Aphrodita aculeata* (R)	SS.SMx.CMx	SP

Appendix 2 continued

Site ID	Substrate	Biota	Biotope	PMF
0/1	Sandy mud or muddy sand with scattered pebbles and cobbles	Stones support a light turf, possibly hydroids	SS.SMu.CSaMu	
0/2	Probably basically fine sand but with a high shell gravel component in places and scattered surface shells (especially *Ensis*), dense in places; crab pits	*Luidia ciliaris* (P), *Cancer pagurus* (P), *Ophiura* sp. (P), *Inachus* sp. (P), Paguridae sp. (P)	SS.SSa	
0/3	Slightly shelly mud	Mud burrowed by *Nephrops norvegicus* (F). *Asterias rubens* (F), *Munida rugosa* (O)	SS.SMu.CFiMu.SpnMeg	
0/4	Heterogeneous coarse sand including shell material and with scattered shells; bedrock outcrops and occasional boulders	Sediment supports *Saccharina latissima* (F), sparse *Chorda filum* (P) and a patchy turf of smaller algae (C) including reds and *Ulva lactuca* (R). Bedrock and boulders with *S. latissima* (C), a richer algal turf (S), *Echinus esculentus* (C) and *Cancer pagurus* (P)	SS.SMp.KSwSS.LsacR.Sa IR.LIR.K.Lsac	KS
0/4A	Muddy sand and bedrock with scattered pebbles, cobbles and boulders, dense in places	Rock surface encrusted with pink coralline algae, *Balanus* spp. and serpulid worms and supporting *Ciona intestinalis* (F, locally A), and a thin turf of hydroids and possibly algae. *Echinus esculentus* (C), *Porania pulvillus* (P), *Asterias rubens* (P)	CR.LCR.BrAs.AmenCio SS.SSa.CMuSa	
0/4B	Soft mud	Mud fairly densely burrowed by *Nephrops norvegicus* (C) and with *Calocaris macandreae* (P) and rich sea pen populations of *Funiculina quadrangularis* (C), *Pennatula phosphorea* (C, locally A) and *Virgularia mirabilis* (F). *Turritella communis* (F), *Asterias rubens* (P)	SS.SMu.CFiMu.SpnMeg.Fun	BM FQ
0/5	Dense pebbles on gravelly muddy sediment	Stones support an algal turf (C) including *Asperococcus bullosus* (R) and sparse *Saccharina latissima* (R), as well as serpulid worms (C). *Asterias rubens* (F)	SS.SMp.KSwSS.LsacR.Mu	KS

Appendix 2 continued

Site ID	Substrate	Biota	Biotope	PMF
0/6	Scattered pebbles on shelly silty sand	Larger stones encrusted with serpulid worms (O). *Asterias rubens* (F), Paguridae sp. (R). Sparse *Saccharina latissima* present but probably drift	SS.SSa.CMuSa	
0/7	Soft mud	Mud fairly densely burrowed by *Nephrops norvegicus* (C). *Asterias rubens* (F), *Lesueurigobius friesii*? (P), *Liocarcinus* sp. (P), algal drift (P)	SS.SMu.CFiMu.SpnMeg	BM
0/8	Soft mud	Mud fairly densely burrowed by *Nephrops norvegicus* (C), with *Lesueurigobius friesii* (F). *Pennatula phosphorea* (F), *Turritella communis* (F), *Asterias rubens* (O), *Liocarcinus* sp. (P), small shoal of *Merlangius merlangus*	SS.SMu.CFiMu.SpnMeg	BM WH
0/9	Scattered boulders and cobbles on mixed silty sand substrate with gravel and pebbles	Park of *Saccharina latissima* (F). Rock sparsely encrusted with serpulid worms (P), pink coralline algae (P) and *Balanus* spp. (P) and supporting sparse patches of algae (P) and ascidians including *Ascidia mentula*? (P). *Echinus esculentus* (C), *Asterias rubens* (F), *Munida rugosa* (P)	IR.LIR.K.Lsac.Pk	
0/10	Scattered pebbles, cobbles and boulders on silty gravelly sand	Stones support occasional *Saccharina latissima*, serpulid worms (P) and a patchy turf of hydroids and probably algae. *Echinus esculentus* (F), *Asterias rubens* (P), *Munida rugosa* (P), Paguridae sp. (P), *Porania pulvillus* (P)	SS.SMp.KSwSS	KS
0/11	Sandy mud with sparsely scattered shells and pebbles	*Munida rugosa* (R), *Echinus esculentus* (R), small shoal of juvenile gadoids. *Saccharina latissima* drift material present	SS.SMu.CSaMu	
0/12	Sand, possibly silty	70% cover of sediment by algal mat with *Chorda filum* (C) and *Ulva lactuca* (P)	SS.SMp.KSwSS.Tra	
0/12	Boulders and possibly bedrock	Dense forest of *Saccharina latissima* (S). Rocks appear well grazed by *Echinus esculentus* (C)	IR.LIR.K.Lsac.Ft	
0/13	Scattered pebbles and cobbles on shelly muddy sand	Stones appear fairly bare; *Ascidia mentula* (P). Motile forms include *Asterias rubens* (P), Paguridae sp. (P) and *Pholis gunnellus* (P)	SS.SSa.CMuSa	
0/14	Scattered boulders on sand	Park of *Saccharina latissima* (F) with rock encrusted with pink coralline algae (P) and serpulid worms (P) and supporting an algal turf (A) including *Asperococcus bullosus* (P). *Echinus esculentus* (locally C)	IR.LIR.K.Lsac.Pk	

Appendix 2 continued

Site ID	Substrate	Biota	Biotope	PMF
0/14	Boulders on sand	Forest of *Saccharina latissima* (A) with rock encrusted with pink coralline algae (P) and serpulid worms (P) and supporting apparently sparse algal patches. *Echinus esculentus* (locally C), *Marthasterias glacialis* (O)	IR.LIR.K.Lsac.Ft	
0/15	Boulders and possibly bedrock	*Saccharina latissima* (A) at bottom of slope with *Echinus esculentus* (C). This appears to grade into a dense forest of *Laminaria hyperborea* (S) with the fronds supporting profuse *Obelia geniculata* (S), although it may be a mixed kelp canopy	IR.LIR.K.Lsac.FtIR.MIR.KR.Lhyp.Ft	
0/15	Near vertical bedrock	Rock encrusted with *Semibalanus balanoides* (A) and supporting a dense green algal band (possibly *Cladophora rupestris* - A); *Himanthalia elongata* present at bottom of zone	LR.HLR.MusB.Sem	
0/16	Bedrock slope with boulders	Rock encrusted with pink coralline algae, *Spirobranchus* spp. and a yellow sponge (R) but also supporting a fairly dense algal turf, principally reds (A). *Echinus esculentus* (C), *Luidia ciliaris* (R), many fish, especially *Labrus mixtus* and small gadoids	IR.HIR.KFaR.FoR	
0/16	Bedrock slope	Frequent *Saccharina latissima* with dense red algal turf (S). *Echinus esculentus* (C)	IR.LIR.K.Lsac.Pk	
0/16	Flat bedrock	Forest of *Laminaria hyperborea* (A) with patchy red algal turf (locally S). *Echinus esculentus* (P), fish shoal (P)	IR.MIR.KR.Lhyp.Ft	
0/17	Firm shelly sand with much shell detritus on surface and large crab pits	Short and patchy algal turf on shell material (C) and occasional *Saccharina latissima*, although the kelp may be all drift material. *Virgularia mirabilis* (F), *Inachus* sp. (P), *Macropodia* sp. (P), *Callionymus* sp. (P)	SS.SMp.KSwSS.LsacR.Sa	KS
0/18	Slightly shelly fine sand with scatted shells including *Ensis* and occasional boulders	Short and patchy algal turf (C) on sediment, including *Asperococcus bullosus*, and sparse *Saccharina latissima (R) attached to boulders; some of turf could be drift*. *Cancer pagurus* (P), *Cerianthus lloydii* (P), *Asterias rubens*? (R), *Echinus esculentus* (R), *Porania pulvillus* (R)	SS.SMp.KSwSS.LsacR.Sa	KS
0/19	Shelly sandy mud, or muddy sand, with small mounds and occasional boulders	Rock encrusted with serpulid worms (C) and pink coralline algae (O) and supporting *Neocrania anomala* (C), a hydroid turf (F) including *Halecium halecinum* (P) and solitary ascidians (R), as well as *Marthasterias glacialis* (P). *Echinus esculentus* (R) and *Asterias rubens* (O) present on sediment	SS.SMu.CSaMu CR.LCR.BrAs	

Appendix 2 continued

Site ID	Substrate	Biota	Biotope	PMF
0/20	Soft mud	Mud fairly densely burrowed by *Nephrops norvegicus* (C) and by smaller megafaunal species including *Callianassa subterranea*? (P). *Virgularia mirabilis* (F), *Pennatula phosphorea* (R), *Asterias rubens* (F), Pleuronectidae sp. (O), Gadidae sp. (P)	SS.SMu.CFiMu.SpnMeg	BM
0/22	Smooth slope of bedrock with scattered boulders giving way to vertical rock face	Much of upward facing bedrock with fairly impoverished community of encrusting species including *Spirobranchus* spp. (C), coralline algae (P) and *Balanus balanus*, with *Ophiura albida* (C) and scattered individuals of *Antedon bifida* (F) but dense patches of crinoids associated with crevices, boulders and vertical faces (locally S). *Luidia ciliaris* (P), *Asterias rubens*? (R), *Echinus esculentus* (P), *Porania pulvillus* (R), large solitary ascidians (F) including *Ascidia virginea* (P) and possibly *Ciona intestinalis* (P)	CR.LCR.BrAs.AmenCio.Ant	
0/23	Mud with shell fragments	Mud extensively burrowed by *Nephrops norvegicus* (C), with *Goneplax rhomboides* and *Lesueurigobius friesii*? also present. *Asterias rubens* (F), *Munida rugosa* (F), Buccinidae sp. (R)	SS.SMu.CFiMu.SpnMeg	BM
0/23	Steep bedrock, vertical in places, with boulders and cobbles at base	Rock encrusted with *Spirobranchus* spp. (C, but A on verticals) and supporting an ascidian fauna including *Ascidia mentula* (P) and *Ciona intestinalis* (locally A on verticals), *Protanthea simplex* (O), *Sabella pavonina* (O) and *Axinella infundibuliformis* (O). Motile species include *Antedon* spp. (O), *Porania pulvillus* (F), *Echinus esculentus* (F), *Munida rugosa* (F) and many gadoids including a shoal of *Trisopterus minutus*	CR.LCR.BrAs.AmenCio	
0/24	Soft mud	Dense *Nephrops norvegicus* burrows (C, possibly A) and smaller burrows (C) including *Jaxea nocturna* (P), *Calocaris macandreae* and *Callianassa subterranea*? (P) and bivalve molluscs (P). *Funiculina quadrangularis* (O), *Sagartiogeton laceratus* (R). Dense *Meganyctiphanes norvegica*? in water column.	SS.SMu.CFiMu.SpnMeg.Fun	BM FQ
0/25	Boulders and cobbles on muddy sand and scattered boulders on smooth bedrock	Rock encrusted with *Spirobranchus* spp. (F, locally A) and pink coralline algae (F) but fauna dominated by large ascidians with *Ciona intestinalis* (C, locally A), *Ascidia virginea*? (locally F) and *Diazona violacea* (O). Rock also supports a sparse hydroid turf (O), *Metridium senile* (O), *Axinella infundibuliformis* (R), *Antedon bifida* (O), *Echinus esculentus* (F), *Asterias rubens* (F), *Munida rugosa* (P). Many fish present including small gadoids, *Labrus mixtus* and *L. bergylta*	CR.LCR.BrAs.AmenCio	
0/26	Largely obscured, but sedimentary	Dense live maerl (S - c.90% cover) supporting a mainly short, thin algal turf (A), probably largely of filamentous reds, and with frequent *Saccharina latissima* and *Chorda filum*. *Gibbula magus*? (P), *Echinus esculentus* (O), *Asterias rubens* (O)	SS.SMp.Mrl	MB

Appendix 2 continued

Site ID	Substrate	Biota	Biotope	PMF
0/27	Fine sand with sparse scatter of shell material, including *Ensis*, and dead maerl	Sand supporting frequent *Arenicola marina* and much *Saccharina latissima* (C) and *Chorda filum* (C)	SS.SMp.KSwSS.LsacR.Sa	KS
0/28	Apparently silty sand	Dense live maerl (S - c.85% cover) formed into clumps, probably by *Trailliella*. The maerl supports an algal turf (A) including *Asperococcus bullosus* (F), and a canopy of *Saccharina latissima* (C)	SS.SMp.Mrl	MB
0/29	Silty sand	Dense live maerl (A - c.40% cover), with c. 10% dead maerl; live maerl formed into clumps, probably by *Trailliella*. The maerl supports an algal turf (A) including *Asperococcus bullosus* (R), and a canopy of *Saccharina latissima* (F). *Echinus esculentus* (O), *Asterias rubens* (O)	SS.SMp.Mrl	MB
0/30	Silty sand	Live maerl (F - c. 15% cover) with around 25% cover dead maerl. Fairly sparse visible algal turf and *Saccharina latissima* (O)	SS.SMp.Mrl	MB
0/31	Fine sand with scattered shells and pebbles	*Saccharina latissima* (C) and scattered algal tufts on sand (O). Scattered live maerl rhodoliths (R). Shoal of small gadoids	SS.SMp.KSwSS.LsacR.Sa	KS
0/32	Silty fine sand with scattered shells (including *Ensis*), boulders and cobbles	*Saccharina latissima* (F) and scattered algal tufts (O). Rock encrusted with *Spirobranchus* spp. (C) and pink coralline algae (O). *Echinus esculentus* (F), *Asterias rubens* (O)	SS.SMp.KSwSS.LsacR.Sa	KS
0/32	Smooth silted low-lying bedrock	Patchy *Saccharina latissima* (overall F but A in places). Rock surface appears bare with sparse encrustations of *Spirobranchus* spp. (P) and probably coralline algae and isolated tufts of algae (R). *Echinus esculentus* (C); shoal of small gadoids	IR.LIR.K.Lsac.Gz	
0/33	Shelly mud with sparsely scattered boulders and cobbles	Mud burrowed by *Nephrops norvegicus* (C) and supporting *Funiculina quadrangularis* (F) and *Pennatula phosphorea* (O), with *Turritella communis* (F), Paguridae spp. (R), *Aequipecten opercularis* (O) and *Asterias rubens* (O). Stones encrusted with serpulid worms (F) and pink coralline algae (F). *Echinus esculentus* (O), *Munida rugosa* (O)	SS.SMu.CFiMu.SpnMeg.Fun	BM FQ
0/34	Dense pebbles on sediment	Pebbles encrusted with serpulid worms (C) including Serpula vermicularis (P). Aequipecten opercularis (F). Dense *Meganyctiphanes norvegica*? in water column	SS.SCS.CCS.PomB	

Appendix 2 continued

Site ID	Substrate	Biota	Biotope	PMF
3/1	Shelly mud with scattered boulders	Mud burrowed by *Nephrops norvegicus* (C); *Lanice conchilega* (R), *Liocarcinus* sp. (R). Boulders encrusted with serpulid worms including *Spirobranchus* spp. (C) and *Serpula vermicularis* (P), and pink coralline algae (O) and with sparse hydroids (R). Motile fauna on and around stone areas include *Munida rugosa* (F), *Asterias rubens* (C), *Echinus esculentus* (P) and gadoids (O)	SS.SMu.CFiMu.SpnMeg CR.MCR.EcCr.FaAlCr	BM
3/2	Soft mud	Rich site fairly densely burrowed by *Nephrops norvegicus* (C, 3 animals seen), as well as by *Lesueurigobius friesii* (F), *Goneplax rhomboides* (P) and possibly *Maxmuelleria lankesteri* (O, e.g. 00:18:43), with dense *Pennatula phosphorea* (C) and *Funiculina quadrangularis* (O). Infauna includes *Amphiura* spp. (A), *Turritella communis* (P), *Sabella pavonina* (R) and terebellid worms (F). Motile epifauna includes *Liocarcinus* sp. (R). Several scrape tracks apparently caused by creels	SS.SMu.CFiMu.SpnMeg.Fun	BM FQ
3/3	Possibly a slightly silty poorly mixed medium sand with scattered pebbles and shells	Surface life sparse and difficult to discern. Frequent small (c. 5 cm diameter) conical sediment mounds	SS.SSa	
3/4	Soft mud	Mud densely burrowed by *Nephrops norvegicus* (C, 9 animals seen); *Funiculina quadrangularis* (O). Dense *Meganyctiphanes norvegica*? in water column	SS.SMu.CFiMu.SpnMeg.Fun	BM FQ
3/5	Soft mud	Mud densely burrowed by *Calocaris macandreae* (C), with other burrows including *Nephrops norvegicus* (C) and *Jaxea nocturna* (P). *Funiculina quadrangularis* is common. Other motile forms include Caridea sp. (O) and *Aequipecten opercularis* (R). Dense *Meganyctiphanes norvegica*? in water column)	SS.SMu.CFiMu.SpnMeg.Fun	BM FQ
3/6	Soft mud	Mud densely burrowed by thalassinidean shrimps (C), including *Calocaris macandreae* and *Jaxea nocturna*, with other burrows including *Nephrops norvegicus* (C, 2 animals seen). Other forms include *Cerianthus lloydii* (R), Caridea sp. (R) and *Cancer pagurus* (P). *Meganyctiphanes norvegica*? in water column	SS.SMu.CFiMu.SpnMeg	BM
3/7	Poorly sorted sandy mud with scattered pebbles, cobbles and shell material	Stones support sparse serpulid worms (P), hydroids (R), *Porania pulvillus* (O) and *Porella compressa* (O). Sediment fauna includes *Cerianthus lloydii* (R), *Munida rugosa* (F), *Callionymus lyra* (O), gadoids (P) and occasional small mounds (c. 5 cm in diameter)	SS.SMx.CMx	

Appendix 2 continued

Site ID	Substrate	Biota	Biotope	PMF
3/8	Shelly mud	Mud moderately densely burrowed by *Nephrops norvegicus* (C, 2 seen) and supports frequent small *Funiculina quadrangularis*. Caridea sp. (O), *Munida rugosa* (R), gadoids (O). *Meganyctiphanes norvegica*? in water column	SS.SMu.CFiMu.SpnMeg.Fun	BM FQ
3/9	Soft mud	Mud fairly densely burrowed by *Nephrops norvegicus* (C) and probably by *Calocaris macandraea* (P) and *Jaxea nocturna* (P). *Pennatula phosphorea* (R), *Sabella pavonina* (R). *Meganyctiphanes norvegica*? in water column	SS.SMu.CFiMu.SpnMeg	BM
3/10	Muddy sand	Sediment with frequent small (c. 5 cm diameter) conical mounds and initially burrows (overall O), some occupied by *Munida rugosa* (overall O, locally F). Sparsely scattered shells support *Porella compressa* (R). *Porania pulvillus* (R), *Liocarcinus* sp. (R), *Callionymus lyra* (R), gadoids (O)	SS.SSa.CMuSa	
3/11	Soft mud	Mud densely burrowed by *Nephrops norvegicus* (C, 1 animal seen) and thalassinidean shrimps (C) including *Calocaris macandreae* and *Jaxea nocturna*. Caridea sp. (O), *Cerianthus lloydii*? (R). *Meganyctiphanes norvegica*? in water column	SS.SMu.CFiMu.SpnMeg	BM
3/12	Sandy mud	Fairly low density of *Nephrops norvegicus* burrows (F) but small (c. 5 cm diameter) conical mounds common. *Pagurus prideaux* with *Adamsia carciniopados* (R), *Porania pulvillus* (R), gadoids (O), bivalve mollusc burrows (P)	SS.SMu.CFiMu.SpnMeg	BM
3/13	Soft mud	Mud densely burrowed by *Calocaris macandreae* (C), with other burrows including *Nephrops norvegicus* (C) and *Jaxea nocturna* (P). *Funiculina quadrangularis* is common; Motile forms include Caridea sp. (O) and Teleostei sp. (O). Dense *Meganyctiphanes norvegica*? in water column)	SS.SMu.CFiMu.SpnMeg.Fun	BM FQ
3/14	Coarse sand and gravel with scattered shells, pebbles, cobbles and occasional boulders	Fairly sparse maerl bed with frequent *Phymatolithon calcareum*; *Pecten maximus* (P). Stones encrusted with serpulid worms, pink coralline algae and *Parasmittina trispinosa*	SS.SMp.Mrl.Pcal.Nmix	MB

Appendix 2 continued

Site ID	Substrate	Biota	Biotope	PMF
3/14	Cobbles and boulders with flat, smooth bedrock	Rock encrusted with *Spirobranchus* spp. (C), pink coralline algae (F) and *Parasmittina trispinosa* (R) and supporting *Echinus esculentus* (C), *Asterias rubens* (F), *Porania pulvillus* (O) and sparse hydroids (R). Stone areas also support a solitary ascidian fauna (F), including *Ciona intestiinalis* (F), *Ascidia mentula* (P) and *A. virginea*, patches of *Antedon* spp. (O, locally C), *Munida rugosa* (F), *Labrus mixtus* (P), small teleosts (P), sponges (R) and *Calliostoma zizyphinum* (P). Bedrock areas are relatively barren in appearance due to high grazing, with sparse ascidians in transitional areas and on small vertical faces (R); Cancer pagurus (P), Pectinidae sp. (R)	CR.LCR.BrAs.AmenCio CR.MCR.EcCr.FaAlCr.Pom	
3/15	Scattered, and mainly silted, pebbles, cobbles and boulders on mud	Stones support a sparse fauna of serpulid worms, hydroid tufts (O) and *Antedon* spp. (O). The mud fauna includes *Munida rugosa* (F), *Pagurus prideaux* with *Adamsia carciniopados* (R), Caridea sp. (R), Terebellidae sp. (F) and small *Funiculina quadrangularis* (P). Dense *Meganyctiphanes norvegica*? in water column	SS.SMx.CMx	
3/16	Mud with shell fragments	Moderately densely burrowed mud with *Nephrops norvegicus* (C, 2 animals seen), *Callianassa subterranea* (F) and possibly sparse *Calocaris macandreae*? (P). *Munida rugosa* (O), *Aequipecten opercularis* (R), *Liocarcinus depurator* (R), gadoids (O), other teleosts (O)	SS.SMu.CFiMu.SpnMeg	BM
3/17	Soft mud	Dense burrows of *Calocaris macandreae* (C-A). Other biota cannot be discerned due to low visibility resulting from abundant *Meganyctiphanes norvegica*? in water column	SS.SMu.CFiMu.SpnMeg	BM
3/18	Soft mud	Dense megafaunal burrows including *Nephrops norvegicus* (C) and thalassinidean shrimps (C), including *Calocaris macandreae* and *Jaxea nocturna*. *Funiculina quadrangularis* (F), *Virgularia mirabilis* (O), gadoids (O). Abundant *Meganyctiphanes norvegica*? in water column	SS.SMu.CFiMu.SpnMeg.Fun	BM FQ
3/19	Soft mud	Dense megafaunal burrows, principally *Calocaris macandreae* (C), but also *Nephrops norvegicus* (P, 1 animal seen). *Pennatula phosphorea* (R), *Trisopterus luscus* (P), *Merlangius merlangus* (O). Abundant *Meganyctiphanes norvegica*? in water column	SS.SMu.CFiMu.SpnMeg	BM WH
3/20	Soft mud	Moderately densely burrowed mud with *Nephrops norvegicus* (C), *Calocaris macandreae* (P) and *Lesueurigobius friesii* (F), and rich sea pen fauna with *Funiculina quadrangularis* (A) and *Pennatula phosphorea* (C). *Turritella communis* (P), *Merlangius merlangus* (P)	SS.SMu.CFiMu.SpnMeg.Fun	BM FQ WH

Appendix 2 continued

Site ID	Substrate	Biota	Biotope	PMF
3/21	Mud or sandy mud	Fairly lightly burrowed mud with *Nephrops norvegicus* (F). *Pennatula phosphorea* (F), *Ophiura ophiura* (C), *Pagurus prideaux* with *Adamsia carciniopados* (F)	SS.SMu.CFiMu.SpnMeg	BM
3/22	Soft mud	Mud fairly densely burrowed by *Nephrops norvegicus* (C), with *Lesueurigobius friesii* (O). Sea pen population represented by *Pennatula phosphorea* (O) and small *Funiculina quadrangularis* (O). *Amphiura* spp. (A), Terbellidae sp. (F), *Chaetopterus variopedatus*? (R), *Turritella communis* (P), Gobiidae sp. (R)	SS.SMu.CFiMu.SpnMeg.Fun	BM FQ
3/23	Boulders, cobbles and pebbles	Forest of *Laminaria hyperborea* (A) supporting *Membranipora membranacea* (F), with *Saccharina latissima* also present (P). Rock surface supports an encrusting community with a sparse algal turf (apparently R). *Echinus esculentus* (C)	IR.MIR.KR.LhypTX.Ft	TS?
3/24	Pebbles, cobbles and boulders on coarse shelly sand	Stones encrusted with serpulid worms and pink coralline algae and supporting a patchy algal turf (O). *Ophiocomina nigra* (C, locally A), *Ophiura albida* (P, locally A), *Echinus esculentus* (C), *Luidia ciliaris* (P), *Crossaster papposus* (P), sparse live maerl rhodoliths (R)	SS.SMx.CMx.OphMx	
3/25	Maerl, gravel and sand with scattered shells and pebbles	*Phymatolithon calcareum* c.20% cover (C), otherwise fairly sparse visible biota. Shells and stones encrusted with pink coralline algae and serpulid worms. *Porania pulvillus* (O), *Inachus* sp. (R), *Phyllophora* sp.? (R), Pectinidae sp. (R), *Luidia ciliaris* (P)	SS.SMp.Mrl.Pcal.Nmix	MB
3/26	Predominantly coarse sand but with scattered boulders, cobbles and pebbles	Stones encrusted with serpulid worms (C), *Balanus balanus* (P) and pink coralline algae (R) and support sparse hydroids (R), *Ascidia mentula* (R) and *Porella compressa* (R). *Luidia ciliaris* (F), *Echinus esculentus* (F), *Munida rugosa* (F), *Porania pulvillus* (P), *Ctenolabrus rupestris* (P) and shoal of gadoids	SS.SCS.CCS	
3/27	Predominantly coarse sand but with scattered boulders, cobbles and pebbles	Stones encrusted with serpulid worms (C) and support sparse hydroids (R) and *Diazona violacea?* (R). *Munida rugosa* (F), *Porania pulvillus* (F), *Melanogrammus aeglefinus* (P)	SS.SCS.CCS	
3/28	Predominantly sandy mud but with scattered silted cobbles and boulders	Mud with sparse burrows including *Nephrops norvegicus* (1 animal seen) and probably thalassinidean shrimps. Stones support serpulid worms (P), *Ascidia virginea* (P), hydroids (R) and *Phakellia ventilabrum* (O). *Munida rugosa* (F), *Porania pulvillus* (O). *Meganyctiphanes norvegica*? in water column	SS.SMu.CFiMu.SpnMeg	BM

Appendix 2 continued

Site ID	Substrate	Biota	Biotope	PMF
3/29	Mud with shell fragments	Mud moderately densely burrowed by *Nephrops norvegicus* (C, 2 animals seen), as well as by *Calocaris macandreae?* (P) and *Callianassa subterranea*? (P) and supporting large numbers of *Mesothuria intestinalis* (C). *Leptometra celtica* (R), Paguridae sp. (R), *Chaetopterus variopedatus*? (R). Dense *Meganyctiphanes norvegica*? in water column	SS.SMu.CFiMu.SpnMeg	LC
3/30	Sandy mud with scattered cobbles, boulders and shells	Mud fairly lightly burrowed by *megafauna including Calocaris macandreae* (F) and *Nephrops norvegicus* (P). Stones are encrusted with serpulid worms, red bryozoans and support dense *Leptometra celtica* (C), including stalked juveniles. *Mesothuria intestinalis* (C), Terebellidae sp. (F), *Munida rugosa* (O), *Aequipecten opercularis* (O), Paguridae sp. (R), *Callionymys lyra* (P), *Neocrania anomala*? (P), hydroids (O). Dense *Meganyctiphanes norvegica*? in water column	SS.SMu.CFiMu.SpnMeg	BM LA
3/31	Soft mud	Mud moderately densely burrowed by *Nephrops norvegicus* (C, 1 animal seen), as well as by *Calocaris macandreae* (P), *Jaxea nocturna* (P) and *Callianassa subterranea*? (P), and supporting *Funiculina quadrangularis* (O), *Pennatula phosphorea* (R), *Mesothuria intestinalis* (C), Spatangidae sp. (P) and terebellid worms (P). Dense *Meganyctiphanes norvegica*? in water column	SS.SMu.CFiMu.SpnMeg.Fun	BM FQ
3/32	Soft mud with scattered cobbles and small boulders	Mud fairly lightly burrowed by *megafauna including Nephrops norvegicus* (P). Stones are encrusted with serpulid worms and support dense *Leptometra celtica* (C). *Mesothuria intestinalis* (P), *Ophiura albida* (locally C), Terebellidae sp. (F), *Munida rugosa* (O), Caridea sp. (P), hydroids (O). Dense *Meganyctiphanes norvegica*? in water column	SS.SMu.CFiMu.SpnMeg	BM LA
3/33	Soft mud	Mud moderately densely burrowed by *Nephrops norvegicus* (C, 1 animal seen), as well as by *Calocaris macandreae* (P), and supporting small *Funiculina quadrangularis* (F)	SS.SMu.CFiMu.SpnMeg.Fun	BM FQ
3/34	Soft mud	Fairly densely burrowed mud by *Nephrops norvegicus* (C), with *Calocaris macandreae* (P), *Jaxea nocturna* (P) and *Callianassa subterranea* (P); frequent *Funiculina quadrangularis*. *Asterias rubens* (P), *Mesothuria intestinalis* (P), *Porania pulvillus* (R), *Melanogrammus aeglefinus* (P) and shoal of *Merlangius merlangus*. *Meganyctiphanes norvegica*? in water column	SS.SMu.CFiMu.SpnMeg.Fun	BM FQ WH

Appendix 2 continued

Site ID	Substrate	Biota	Biotope	PMF
3/35	Very soft mud	Mud moderately densely burrowed by *Nephrops norvegicus* (C), as well as by *Calocaris macandreae* (P) and *Lumpenus lampretaeformis* (P), and supporting small *Funiculina quadrangularis* (F) and *Pennatula phosphorea* (O). Several *Melanogrammus aeglefinus* (P), also *Scomber scombrus* (P). *Meganyctiphanes norvegica*? in water column	SS.SMu.CFiMu.SpnMeg.Fun	BM FQ SS
4/1	Muddy sand	Sediment with around 50% cover by apparently unattached algal mat dominated by filamentous reds (S) with a cover of unattached *Ulva lactuca* (A). *Liocarcinus depurator* (F), Paguridae (P), possibly 1 *Nephrops norvegicus* burrow	SS.SMp.KSwSS.Tra	
4/2	Mud, probably sandy	Sediment with extensive brown diatomaceous film (S) and fairly lightly burrowed by megafauna - largely *Nephrops norvegicus* (F) and supporting frequent *Pennatula phosphorea*. *Turritella communis* (P), drift weed	SS.SMu.CFiMu.SpnMeg	BM
4/3	Shelly medium or possibly fine sand with scattered shells and occasional cobbles	Shells and stones support algal clumps (O), hydroids (R), including *Nemertesia ramosa* and serpulid worms (P). *Cerianthus lloydii* (F), *Liocarcinus depurator* (F), *Carcinus maenas*? (P), *Inachus* sp. (P), *Hyas* sp.? (P), *Luidia ciliaris* (O)	SS.SSa.IFiSa	
4/4	Around 80% maerl with scattered shells, pebbles and cobbles on sand	Live *Phymatolithon calcareum* around 50% cover (A) but with sparse associated community. Stones and shells with serpulid worms (F) and algal tufts (R). *Liocarcinus* spp. (F), Paguridae sp. (R), *Luidia ciliaris* (P), *Inachus* sp. (R), *Lanice conchilega* (O), *Aequipecten opercularis* (R), *Munida rugosa* (R), *Porania pulvillus* (O), *Echinus esculentus* (P), *Atelecyclus rotundatus*? (P)	SS.SMp.Mrl.Pcal.Nmix	MB
4/5	Shelly muddy sand with much scattered pebbles, cobbles and shells	Stones and shells encrusted with serpulid worms (F) and support sparse hydroids (R). Numerous small sediment mounds but sparse visible fauna includes *Luidia ciliaris* (P) and *L. sarsi* (P), *Liocarcinus* sp. (R), *Porania pulvillus* (R), *Chaetopterus variopedatus* (P) and *Callionymus lyra* (R)	SS.SSa.CMuSa	
4/6	Sandy mud	Dense polychaete mounds with casts and *Asterias rubens* (C). Very sparse *Nephrops norvegicus* burrows. *Porania pulvillus* (R)	SS.SMu.CSaMu	
4/7	Soft mud	Mud moderately densely burrowed by *Nephrops norvegicus* (C, 8 animals seen). *Glyptocephalus cynoglossus*? (P)	SS.SMu.CFiMu.SpnMeg	BM

Appendix 2 continued

Site ID	Substrate	Biota	Biotope	PMF
4/8	Soft mud	Mud moderately densely burrowed by *Nephrops norvegicus* (C, 1 animal seen), with *Calocaris macandreae* (P); mounds also present but not clearly seen. Sea pen population includes mostly small *Funiculina quadrangularis* (F, locally C), one with *Asteronyx loveni*, and *Pennatula phosphorea* (O). *Trisopterus minutus*? (P)	SS.SMu.CFiMu.SpnMeg.Fun	BM FQ
4/9	Soft mud	Poor visibility, but abundant burrows, probably both *Calocaris macandreae* and *Nephrops norvegicus*	SS.SMu.CFiMu.SpnMeg	BM
4/10	Silted bedrock with boulders and cobbles, initially scattered on silty gravelly sand	Rock supports dense *Swiftia pallida* (C, locally A) and axinellid sponges (C), with both *Axinella infundibuliformis* and *Phakellia ventilabrum* present, as well as *Iophon nigricans*? (P) and *Polymastia boletiformis* (P). Other sessile forms include *Diazona violacea* (F, locally C), *Porella compressa* (O), serpulid worms (P) and a patchy hydroid turf (F). *Pecten maximus* (R), *Echinus esculentus* (R), *Porania pulvillus* (O), *Ctenolabrus rupestris* (P) and *Merlangius merlangus*? (P)	CR.HCR.XFa.SwiLgAs	NS SP WH?
4/11	Soft mud	Very densely burrowed mud with *Calocaris macandreae* (A) and *Nephrops norvegicus* (C, 6 animals seen). *Funiculina quadrangularis* (O), sparse mounds of *Maxmuelleria lankesteri*? (P), *Trisopterus minutus* (P)	SS.SMu.CFiMu.SpnMeg.Fun	BM FQ
4/12	Soft mud	Very densely burrowed mud with *Calocaris macandreae* (A) and *Nephrops norvegicus* (P, 5 animals seen). *Funiculina quadrangularis* (O), *Virgularia mirabilis* (R), sparse mounds of *Maxmuelleria lankesteri*? (P), *Trisopterus minutus* (P)	SS.SMu.CFiMu.SpnMeg.Fun	BM FQ
4/13	Shelly medium sand with scattered shells, including *Ensis*, and sparse boulders	Sparse visible life includes *Lanice conchilega* (P), *Liocarcinus* sp. (P), *Munida rugosa* (P) and infaunal mounds	SS.SSa.CFiSa	
4/13	Slope of sand-scoured bedrock and boulders with small sand pockets	Fairly bare rock encrusted with *Parasmittina trispinosa* (R) and, at shallower depths, with pink coralline algae (R). Sessile fauna dominated by ascidians with *Ascidia mentula* (F) and *Diazona violacea* (O). *Echinus esculentus* (F), *Porania pulvillus* (O), *Asterias rubens* (F), *Munida rugosa* (O), *Alcyonidium diaphanum* (locally C), *Halecium halecinum* (R), branching erect sponge (R), *Luidia ciliaris* (P), *Parastichopus tremulus* (R)	CR.MCR	

Appendix 2 continued

Site ID	Substrate	Biota	Biotope	PMF
4/13	Steep bedrock, vertical in places	Rock encrusted with serpulid worms (though most appear dead) and *Parasmittina trispinosa* (R) and supporting a rich ascidian and sponge fauna. Ascidians include *Diazona violacea* (C, small colonies locally A), *Clavelina lepadiformis* (R), *Ascidia mentula* (F, locally C) and *A. virginea* (P). Sponges are dominated by axinellids (F, locally C) with both *Axinella infundibuliformis* and *Phakellia ventilabrum* apparently present, as well as *Iophon nigricans*? (P), *Hymedesmia paupertas* (R) and a yellow encrusting form (O). Scattered hydroids (O) include *Nemertesia ramosa* (R) and *Halecium halecinum* (R). Other sessile species include *Swiftia pallida* (R), *Porella compressa* (O), *Alcyonidium diaphanum* (P), *Neocrania anomala* (P) and *Sabella pavonina* (O). Motile forms include *Asterias rubens* (O), *Echinus esculentus* (O), *Porania pulvillus* (O, locally F), *Munida rugosa* (O), *Marthasterias glacialis* (R) and *Henricia* sp. (P)	CR.HCR.DpSp.PhaAxi	DS SP
4/13	Slope of slightly silty fine-medium sand	*Asterias rubens* (F), *Munida rugosa* (F), *Porania pulvillus* (O)	SS.SSa.CMuSa	
4/14	Shelly sandy mud	Fairly sparse burrows of *Nephrops norvegicus* (F) and probably *Calocaris macandreae* and *Callianassa subterranea*. *Mesothuria intestinalis* (F), Caridea sp. (O), *Munida rugosa* (O), *Cerianthus lloydii* (R), burrowing anemone indet. (R), *Asterias rubens* (P). *Meganyctiphanes norvegica*? in water column	SS.SMu.CFiMu.SpnMeg	BM
4/15	Bedrock and cobbles and boulders on silty gravelly sand	Rock encrusted with serpulid worms, pink coralline algae (R) and *Parasmittina trispinosa* (R) and supporting a rich ascidian and sponge fauna. Ascidians include *Diazona violacea* (C, locally A), *Clavelina lepadiformis* (R), *Ascidia mentula* (F, locally C) and *A. virginea* (F). Sponges are dominated by axinellids (C) with both *Axinella infundibuliformis* and *Phakellia ventilabrum* apparently present, as well as *Iophon nigricans*? (F), *Suberites* sp.? (P) and a branching erect form (O). Patchy hydroids (F) include *Halecium halecinum* (P). Other sessile species include *Swiftia pallida* (O), *Porella compressa* (O), *Alcyonidium diaphanum* (P) and *Caryophyllia smithii*? (P). Motile forms include *Asterias rubens* (O), *Echinus esculentus* (F), *Porania pulvillus* (F), *Labrus bergylta* (P), *Ctenolabrus rupestris* (P) and a shoal of *Trisopterus minutus*	CR.HCR.DpSp.PhaAxi	DS SP

Appendix 2 continued

Site ID	Substrate	Biota	Biotope	PMF
4/15	Muddy sand with scattered pebbles	Sparse *Nephrops norvegicus* burrows (F) and occasional small sediment mounds. *Cerianthus lloydii* (O), *Asterias rubens* (F), *Porania pulvillus* (P), *Munida rugosa* (F)	SS.SSa.CMuSa	
4/16	Soft mud with boulder	Densely burrowed mud with *Calocaris macandreae* (C) and *Nephrops norvegicus* (P, 1 animal seen). *Funiculina quadrangularis* (F), *Mesothuria intestinalis* (C), *Trisopterus luscus* (P). Boulder supports hydroid turf, Caridea sp., *Suberites* sp.? and *Porania pulvillus*	SS.SMu.CFiMu.SpnMeg.Fun	BM FQ
4/17	Faintly rippled, shelly fine sand with scattered shells, pebbles and cobbles	*Cerianthus lloydii* (F), *Asterias rubens* (C), *Echinus esculentus* (O), *Porania pulvillus* (O), *Pecten maximus* (R), *Liocarcinus* sp. (R), *Turritella communis* (P), *Cancer pagurus* (P), with stones supporting serpulid worms and hydroids (R). Scattered boulders towards end of run support fauna characteristic of adjoining biotope	SS.SSa.CFiSa	
4/17	Steep bedrock slope, vertical in places, with sand patches and boulder and cobble scree in places	Rock encrusted with serpulid worms and supporting a rich ascidian and sponge fauna. Ascidians include *Diazona violacea* (C), *Ascidia mentula* (C) and *A. virginea* (P). Sponges are dominated by axinellids (F, locally C) with both *Axinella infundibuliformis* and *Phakellia ventilabrum* apparently present, as well as *Iophon nigricans*? (F). Patchy hydroids (F) include *Halecium halecinum* (P). Other sessile species include *Swiftia pallida* (R), *Porella compressa* (P) and *Sabella pavonina* (R). Motile forms include *Asterias rubens* (C, locally A), *Echinus esculentus* (C), *Pecten maximus* (R) and *Porania pulvillus* (O)	CR.HCR.DpSp.PhaAxi	DS SP
4/17	Steep slope of silty? sand with scattered pebbles	Poor visibility	SS.SSa.CMuSa	
4/18	Silty sand with dead maerl, scattered shells, pebbles and cobbles and crab pits	Sediment is partly coated in a brown diatomaceous film (C) and by live *Phymatolithon calcareum* (around 25-30% cover - C). Visibility is poor but the maerl bed does not appear rich, with the maerl appearing to support a low diversity algal community dominated by a binding filamentous red, probably *Trailliella*; drift kelp and *Ulva* are also present. The sediment supports *Cerianthus lloydii* (C, locally A) and *Myxicola infundibulum* (P). *Asterias rubens* (O), Paguridae spp. (P), *Necora puber* (P), *Cancer pagurus* (P), *Pholis gunnellus* (P), *Pecten maximus* (P)	SS.SMp.Mrl.Pcal.R	MB
4/18	Bedrock outcrop	Park of *Saccharina latissima* (C) with red algal understorey (C). *Luidia ciliaris* (P)	IR.LIR.K.Lsac.Pk	

Appendix 2 continued

Site ID	Substrate	Biota	Biotope	PMF
4/19	Initially scattered pebbles and cobbles on coarse sand, then shell gravel	Stones supporting serpulid worms and initially a field of *Leptometra celtica* (locally C). *Porania pulvillus* (R)	SS.SCS.CCS	LA
4/20	Bedrock with sand patches	Dense red algal turf (S) and a patchy hydroid turf including *Nemertesia antennina* (locally A). Turf-free areas are encrusted with serpulid worms, pink coralline algae and *Parasmittina trispinosa* (O) and support patchy dense *Leptometra celtica* (locally C). *Asterias rubens* (C), *Echinus esculentus* (C), *Porania pulvillus* (P)	IR.HIR.KFaR.FoR	LC
4/20	Pebbles and cobbles on coarse sand and shell gravel	Stones encrusted with serpulid worms and pink coralline algae and support a patchy hydroid turf (C locally) and sparse *Leptometra celtica* (R). Scattered live rhodoliths of *Phymatolithon calcareum* (R), *Porania pulvillus* (P), *Asterias rubens* (C), *Eurynome* sp.? (P)	SS.SMx.CMx	LC
4/21	Boulders, cobbles, pebbles and shells on a bed of coarse sand and shell gravel	Mixed kelp park of *Laminaria hyperborea* (F) and *Saccharina latissima* (F) with a dense algal turf of reds and browns (S) apparently dominated by Ectocarpaceae spp. and *Bonnemaisonia asparagoides*, with *Dictyota dichotoma* and *Desmarestia aculeata*. The rock is also encrusted with a brown algal form (A) and *Spirobranchus* spp. (F). Sparse *Phymatolithon calcareum* rhodoliths are present (R, locally O). Most surfaces are coated in abundant *Ophiocomina nigra*, with *Ophiura albida* also present (C). *Echinus esculentus* (R), *Asterias rubens* (P), Paguridae spp. (P), *Luidia ciliaris* (F), *Urticina* sp. (R)	SS.SMx.CMx.OphMx	
4/22	Thin veneer of dead maerl and shell gravel with scattered shells, pebbles and cobbles on a bed of silty sand	Stones and shells encrusted with serpulid worms and pink coralline algae (R) and supporting sparse algal tufts (R) and *Saccharina latissima* (R), *Ascidiella aspersa* (O) and *Ascidia mentula* (R). Scattered live rhodoliths of *Phymatolithon calcareum* (R, locally O). *Porania pulvillus* (O), *Echinus esculentus* (P), *Munida rugosa* (O), *Liocarcinus* sp. (P), *Lanice conchilega* (P)	SS.SMx.CMx	
4/23	Maerl (90% cover) and scattered shells and cobbles on silty sand	Live *Phymatolithon calcareum* with c. 10-20% cover (F). *Galathea intermedia* (P), *Munida rugosa* (O), *Atelecyclus totundatus*? (P), Paguridae sp. (P), *Porania pulvillus* (O), Caridea sp. (P), *Pecten maximus* (P). Stones encrusted with *Spirobranchus* spp. and with sparse hydroid tufts (R)	SS.SMp.Mrl.Pcal.Nmix	MB
4/24	Silty coarse sand and gravel with occasional cobbles	Little life visible, although scattered small infaunal mounds. *Peachia cylindrica* (P), *Porania pulvillus* (O), *Luidia ciliaris* (P), *Pecten maximus* (P), serpulid worms on cobbles	SS.SCS.CCS	

Appendix 2 continued

Site ID	Substrate	Biota	Biotope	PMF
4/25	Shelly sandy mud or possibly muddy sand	Moderate density of burrows by *Nephrops norvegicus* (C, 1 animal seen), *Callianasa subterranea* (F) and *Callionymus lyra* (P)	SS.SMu.CFiMu.SpnMeg	BM
4/26	Soft mud with occasional boulders	Mud densely burrowed by *Calocaris macandreae* (C) and moderately densely by *Nephrops norvegicus* (C). *Mesothuria intestinalis* (O), *Munida rugosa* (R), *Pecten maximus* (R). Boulders support hydroids (R) and *Metridium senile* (R)	SS.SMu.CFiMu.SpnMeg	BM
4/27	Fine sand with scattered shells and shell debris	Shells support scattered tufts (O, locally F) of red and brown algae and *Ulva lactuca*, as well as hydroids (R). *Saccharina latissima* is occasional, although at least the larger plants are unattached. *Ophiocomina nigra* (R), *Arenicola marina* (P), *Liocarcinus* sp. (O), *Cerianthus lloydii* (P), *Pleuronectes platessa*? (P)	SS.SMp.KSwSS.LsacR.Sa	KS
4/28	Megaripples of coarse sand and gravel with maerl and shells in troughs	Live *Phymatolithon calcareum* around 10% cover overall (F), though concentrated in the troughs (locally C). Little other life visible. Shells encrusted with serpulid worms. *Lanice conchilega* (P), *Porania pulvillus* (P), *Liocarcinus* spp. (O)	SS.SMp.Mrl.Pcal.Nmix	MB
4/29	Gravel, coarse sand and maerl with scattered shells and cobbles	A fairly thin bed of *Ophiocomina nigra* (A). Sparse live rhodoliths of *Phymatolithon calcareum (R, possibly O locally).* Shells and stones encrusted with serpulid worms and *Balanus balanus* and with sparse hydroids (R). *Lanice conchilega* (P), *Porania pulvillus* (F), *Liocarcinus* spp. (P), *Luidia ciliaris* (O), *Ascidiella aspersa*? (P), *Atelecyclus rotundatus* (P)	SS.SMx.CMx.OphMx	
4/30	Mixed substrate of pebbles and cobbles on silty gravelly sand	Stones sparsely encrusted with serpulid worms and *Parasmittina trispinosa* and supporting *Diazona violacea* (C), *Ascidia mentula*? (R), *Porella compressa* (O) and patchy hydroids (O). *Munida rugosa* (F), *Luidia ciliaris* (P), *Porania pulvillus* (O)	SS.SMx.CMx	
4/31	Soft mud	Mud moderately densely burrowed by *Nephrops norvegicus* (C) and by *Calocaris macandreae* (F), *Callianassa subterranea* (P), *Jaxea nocturna* (P) and *Lumpenus lampretaeformis* (P). Dense *Funiculina quadrangularis* (C, locally A). Paguridae sp. (R), Pleuronectiformes sp. (P), *Trisopterus minutus*? (P), *Merlangius merlangus*? (P). *Meganyctiphanes norvegica*? in water column	SS.SMu.CFiMu.SpnMeg.Fun	BM FQ WH?
4/32	Soft mud	Mud moderately densely burrowed by crustaceans, with those of *Nephrops norvegicus* (P), *Calocaris macandreae* (P), *Callianassa subterranea* (P) and *Jaxea nocturna* (P). *Funiculina quadrangularis* (F), *Cerianthus lloydii* (R). *Meganyctiphanes norvegica*? in water column	SS.SMu.CFiMu.SpnMeg.Fun	BM FQ

Appendix 2 continued

Site ID	Substrate	Biota	Biotope	PMF
4/33	Soft mud	Mud moderately densely burrowed by crustaceans, with those of *Nephrops norvegicus* (C, 1 animal seen), *Callianassa subterranea* (P), *Jaxea nocturna* (P) and probably *Calocaris macandreae* (P). *Funiculina quadrangularis* (F), *Pennatula phosphorea* (R), infaunal tubes (O), *Trisopterus luscus* (P). *Meganyctiphanes norvegica*? in water column	SS.SMu.CFiMu.SpnMeg.Fun	BM FQ
4/34	Soft mud	Mud moderately densely burrowed by crustaceans, with those of *Nephrops norvegicus* (C, 1 animal seen), *Jaxea nocturna* (P) and probably *Calocaris macandreae* (P). *Funiculina quadrangularis* (O), infaunal tubes (P). *Meganyctiphanes norvegica*? in water column	SS.SMu.CFiMu.SpnMeg.Fun	BM FQ
4/35	Soft mud	Mud moderately densely burrowed by *Nephrops norvegicus* (C, 3 animals seen, one with apparently a large hirudinean), as well as by *Calocaris macandreae* (F), *Jaxea nocturna* (P) and *Lesueurigobius friesii* (P), and supporting *Funiculina quadrangularis* (C) and *Pennatula phosphorea* (O). *Brissopsis lyrifera* tests on surface	SS.SMu.CFiMu.SpnMeg.Fun	BM FQ
4/36	Soft mud with linear creel? furrows	Mud moderately densely burrowed by *Nephrops norvegicus* (C, 1 animal seen), as well as by *Lumpenus lampretaeformis* (F at least locally) and *Lesueurigobius friesii* (P), and supporting *Funiculina quadrangularis* (F) and *Pennatula phosphorea* (O). *Brissopsis lyrifera* tests on surface	SS.SMu.CFiMu.SpnMeg.Fun	BM FQ
4/37	Soft mud	Mud moderately densely burrowed by *Nephrops norvegicus* (C, 1 animal seen), as well as by *Lumpenus lampretaeformis* (P) and *Lesueurigobius friesii* (F), and supporting *Funiculina quadrangularis* (F). *Brissopsis lyrifera* tests on surface	SS.SMu.CFiMu.SpnMeg.Fun	BM FQ
4/38	Soft mud	Fairly lightly burrowed mud, although *Nephrops norvegicis* burrows common (3 animals seen), with *Lesueurigobius friesii* (P). Dense sea pens with *Funiculina quadrangularis* (C, locally A) and *Pennatula phosphorea* (C, including many juveniles). Rich visible infauna with *Amphiura* spp. (A), terebellid worms (F) and *Brissopsis lyrifera*? tests on surface. *Munida rugosa* (R), *Pagurus bernhardus* with Hydractiniidae sp. (R) and *Platichthys flesus*? (P)	SS.SMu.CFiMu.SpnMeg.Fun	BM FQ
4/39	Mud with shell fragments	Mud moderately densely burrowed by *Nephrops norvegicus* (C, 3 animals seen), as well as by *Lesueurigobius friesii* (F), and supporting *Pennatula phosphorea* (O), *Funiculina quadrangularis* (R, possibly dead), *Cerianthus lloydii* (F), *Amphiura* spp. (P) and terebellid worms (P). *Turritella communis* (F), *Munida rugosa* (R),	SS.SMu.CFiMu.SpnMeg.Fun	BM FQ

Appendix 2 continued

Site ID	Substrate	Biota	Biotope	PMF
4/40	Mud with shell fragments	Mud moderately densely burrowed by *Nephrops norvegicus* (C, 1 animal seen), as well as by *Lesueurigobius friesii* (P), and supporting dense *Pennatula phosphorea* (C) and *Turritella communis* (C), as well as *Cerianthus lloydii* (R) and terebellid worms (P)	SS.SMu.CFiMu.SpnMeg	BM
5/1	Fairly firm sandy mud	Mud moderately densely burrowed by *Nephrops norvegicus* (C, 1 animal seen), with fairly sparse smaller megafaunal burrows and many small worm holes. Dense *Pennatula phosphorea* (C) and *Turritella communis* (C), with sparse small *Funiculina quadrangularis* (O). Terebellid worms (P)	SS.SMu.CFiMu.SpnMeg.Fun	BM FQ
5/2	Fine sand, possibly silty, with broken shell	Park of *Saccharina latissima* (F) with an algal turf (of which much could be unattached) of filamentous forms (A) and *Ulva lactuca* (C). *Asterias rubens* (P), *Pecten maximus* (P)	SS.SMp.KSwSS.LsacR.Sa	KS
5/3	Sandy mud with scattered cobbles and pebbles	Mud with moderate density of small megafaunal burrows including those of *Nephrops norvegicus* (P, 1 animal seen) and sparse sea pens (*Pennatula phosphorea* R; *Virgularia mirabilis* or possibly small *Funiculina quadrangularis* R). *Turritella communis* (C), Paguridae sp. (P), *Liocarcinus* sp. (P), *Munida rugosa* (F). Stones support serpulid worms (P) and hydroids (R, locally S)	SS.SMu.CFiMu.SpnMeg	BM
5/4	Muddy sand	Drift kelp and other algae. Sparse life visible. *Luidia ciliaris* (P), *Echinus esculentus* (O), *Metridium senile*? (on plastic bag), Paguridae sp. with *Balanus balanus* (R)	SS.SSa.CMuSa	
5/5	Soft mud	Visibility poor but apparently fairly high density of small megafaunal burrrows including *Nephrops norvegicus* (P, 1 animal seen), *Jaxea nocturna* (P) and *Callianassa subterranea*? (P). *Funiculina quadrangularis* (C) with *Asteronyx loveni* (O), Triglidae sp. (P)	SS.SMu.CFiMu.SpnMeg.Fun	BM FQ
5/6	Slightly muddy sand? with sparsely scattered pebbles, cobbles and shells	*Echinus esculentus* (O). Small *Arenicola marina* mounds possibly present	SS.SSa.IMuSa	
5/6	Boulder, cobble and bedrock slope	Bare-looking rock encrusted with pink coralline algae (P) and supporting Echinus esculentus (C), sparse hydroids (O) and solitary ascidians? (O). Drift kelp present	CR.MCR.EcCr.FaAlCr	

Appendix 2 continued

Site ID	Substrate	Biota	Biotope	PMF
5/6	Bedrock slope with boulder patches	Park of *Saccharina latissima* (F) with dense understorey of red algae (A) and hydroids (A) including *Halecium halecinum* (P). Rock encrusted with pink coralline algae (A, at least locally) and *Parasmittina trispinosa* (R) and supporting sparse ascidians including *Ascidia mentula* (P) and *Clavelina lepadiformis* (P). *Echinus esculentus* (C), *Asterias rubens* (O), *Marthasterias glacialis* (P), *Stichastrella rosea* (P), *Luidia ciliaris* (P), *Porania pulvillus* (R) and *Metridium senile* (R)	IR.LIR.K.Lsac.Pk	
5/7	Fine sand with scattered gravel	*Arenicola marina* mounds? (C), *Echinus esculentus* (F), *Luidia ciliaris* (P), *Asterias rubens* (R). Much drift weed	SS.SSa.IMuSa	
5/7	Cobble and boulder slope	Bare-looking rock encrusted with pink coralline algae (P), *Parasmittina trispinosa* (P) and serpulid worms (P) and supporting *Echinus esculentus* (C), *Asterias rubens* (F) and *Porania pulvillus* (R)	CR.MCR.EcCr.FaAlCr	
5/7	Bedrock slope with patches of boulders and cobbles	Bare-looking rock encrusted with pink coralline algae (P) and serpulid worms (P) and supporting sparse, small *Saccharina latissima* (O, locally F), *Echinus esculentus* (C), *Asterias rubens* (F), hydroids (R), solitary ascidians (R), Labridae sp. (P) and *Metridium senile* (R)	IR.LIR.K.Lsac.Gz	
5/8	Soft mud	Mud with very dense megafaunal burrows (A) including at least those of *Jaxea nocturna* (P) and *Nephrops norvegicus* (P, 4 animals seen). *Funiculina quadrangularis* (F), *Asterias rubens* (R). *Meganyctiphanes norvegica*? in water column	SS.SMu.CFiMu.SpnMeg.Fun	BM FQ
5/9	Soft mud	Mud with very dense megafaunal burrows mostly apparently *Calocaris macandreae* (A), with *Jaxea nocturna?* (P) and *Nephrops norvegicus* (P, 2 animals seen). *Funiculina quadrangularis* (O), *Pachycerianthus multiplicatus* (O), 12-tentacled burrowing/tube anemone (O), Caridea sp. (R). *Meganyctiphanes norvegica*? in water column	SS.SMu.CFiMu.SpnMeg.Fun	BM FQ PM
5/10	Soft mud	Mud with very dense megafaunal burrows (A) including at least *Jaxea nocturna* (P). *Pachycerianthus multiplicatus* (P), *Munida rugosa* (R), 12-tentacled burrowing/tube anemone (O)	SS.SMu.CFiMu.SpnMeg	BM PM

Appendix 2 continued

Site ID	Substrate	Biota	Biotope	PMF
BUTEC 1	Soft mud	Mud densely burrowed by thalassinidean shrimps (C), including *Calocaris macandreae* and *Jaxea nocturna*, with other burrows including *Nephrops norvegicus* (C, 6 animals visible). *Funiculina quadrangularis* is frequent with most specimens supporting 1 or 2 *Asteronyx loveni* (F), also present on mud surface. Other motile forms include Caridea sp. (O), *Porania pulvillus*? (R) and teleosts (O) including *Glyptocephalus cynoglossus*? (R)	SS.SMu.CFiMu.SpnMeg.Fun	BM FQ
BUTEC 2	Soft mud	Mud densely burrowed by thalassinidean shrimps (C), including *Calocaris macandreae* and *Jaxea nocturna*, with other burrows including *Nephrops norvegicus* (C, 20 animals visible). *Funiculina quadrangularis* is common overall with most specimens supporting 1 or 2 *Asteronyx loveni* (F), also present on mud surface; however *Funiculina* is very sparse during second half of run, with several specimens lying flat and probably dead; torpedo wire present here. Other motile forms include Caridea sp. (O), *Porania pulvillus* (R, but locally O in area of flat *Funiculina*), Munida rugosa (R) and teleosts (O) including *Glyptocephalus cynoglossus*? (R) and *Lumpenus lampraetiformis*?	SS.SMu.CFiMu.SpnMeg.Fun	BM FQ
BUTEC 3	Soft mud	Mud densely burrowed by thalassinidean shrimps, including *Calocaris macandreae* (C) and *Jaxea nocturna*? (P), with other burrows including *Nephrops norvegicus* (C, 3 animals visible). *Funiculina quadrangularis* not recorded but presence indicated by *Asteronyx loveni* on mud (R). *Pachycerianthus multiplicatus* (O), *Sabella pavonona* (R), *Pennatula phosphorea* (R). Motile forms include Caridea sp. (O), *Porania pulvillus* (R), *Goneplax rhomboides*? (R) and teleosts (O) including *Glyptocephalus cynoglossus*? (O). Torpedo wire present	SS.SMu.CFiMu.SpnMeg.Fun	BM FQ PM
BUTEC N	Soft mud with creel drag scars	Mud densely burrowed by thalassinidean shrimps (C), including *Calocaris macandreae and Jaxea nocturna*, with other burrows including *Nephrops norvegicus* (C, 14 animals visible); *Maxmuelleria lankesteri* present at low density. *Funiculina quadrangularis* common and supporting *Asteronyx loveni* (F), *Pachycerianthus multiplicatus* (R) and *Sabella pavonona* (R). Motile forms include Caridea sp. (F), *Porania pulvillus* (R - patch near flattened *Funiculina*), *Cancer pagurus* (R), Carcharhiniformes sp. (R) and teleosts (O) including *Glyptocephalus cynoglossus*? (R)	SS.SMu.CFiMu.SpnMeg.Fun	BM FQ PM

Appendix 2 continued

Site ID	Substrate	Biota	Biotope	PMF
BUTEC SE	Soft mud	Mud densely burrowed by thalassinidean shrimps (C), including *Calocaris macandreae* and *Jaxea nocturna*, with other burrows including *Nephrops norvegicus* (C, 1 animal visible). *Funiculina quadrangularis* common and supporting *Asteronyx loveni* (O), *Virgularia mirabilis* possibly present at low density, *Sabella pavonona* (R). Motile forms include Caridea sp. (O) and small teleosts (O)	SS.SMu.CFiMu.SpnMeg.Fun	BM FQ
BUTEC NE	Mud with patches of scattered pebbles, cobbles and boulders on sandy mud	Muddier areas are burrowed by *Nephrops norvegicus* (C, 16 animals visible) and *Calocaris macandreae* (F) with occasional *Funiculina quadrangularis* and possibly *Goneplax rhomboides* (P); small gadoids (R), *Callionymus lyra* (R), *Glyptocephalus cynoglossus*? (R). Stony areas support *Phakellia ventilabrum*? (O), *Neocrania anomala*? (F), *Porania pulvillus* (F), *Munida rugosa* (F), *Pachycerianthus multiplicatus* (R), *Galeus melastomus*? (O), *Echinus esculentus* (R) and a yellow digitiform sponge (R)	SS.SMu.CFiMu.SpnMeg.Fun SS.SMx.CMx	BM FQ PM
BUTEC 1A	Soft mud	Mud densely burrowed by thalassinidean shrimps (C), including *Calocaris macandreae* and *Jaxea nocturna*, with other burrows including *Nephrops norvegicus* (C, 15 animals visible). *Funiculina quadrangularis* is frequent supporting *Asteronyx loveni* (F). Other motile forms include Caridea sp. (R), *Cancer pagurus* (R) and teleosts (R) including small *Glyptocephalus cynoglossus*? (R) and *Lumpenus lampraetiformis*? (R)	SS.SMu.CFiMu.SpnMeg.Fun	BM FQ
BUTEC 1B	Soft mud	Mud densely burrowed by thalassinidean shrimps (C), including *Calocaris macandreae* and *Jaxea nocturna*, with other burrows including *Nephrops norvegicus* (C, 12 animals visible). *Funiculina quadrangularis* is frequent supporting *Asteronyx loveni* (F). Other motile forms include Caridea sp. (R), *Porania pulvillus* (R), Carcharhiniformes sp. (R) and teleosts (R) including small *Glyptocephalus cynoglossus*? (R)	SS.SMu.CFiMu.SpnMeg.Fun	BM FQ
BUTEC 3A	Soft mud	Mud densely burrowed by *Calocaris macandreae* (C), with other burrows including moderate density of *Nephrops norvegicus* (C) and *Jaxea nocturna*? (P). *Funiculina quadrangularis* (O), Caridea sp. (O), *Munida rugosa* (R) and teleosts (O) including small *Glyptocephalus cynoglossus*? (R)	SS.SMu.CFiMu.SpnMeg.Fun	BM FQ

Appendix 2 continued

Site ID	Substrate	Biota	Biotope	PMF
BUTEC 2A	Soft mud	Mud densely burrowed by *Calocaris macandreae* (C), with other burrows including *Nephrops norvegicus* (C, 2 animals visible), *Goneplax rhomboides*? (P) and *Jaxea nocturna*? (P). *Funiculina quadrangularis* occasional with *Asteronyx loveni* (P) on colony and mud surface; *Pachycerianthus multiplicatus* (R). Motile forms include Caridea sp. (R), *Porania pulvillus* (R), and teleosts (O), apparently small gadoids	SS.SMu.CFiMu.SpnMeg.Fun	BM FQ PM
LF01	Flat mud	Mud lightly burrowed by *Nephrops norvegicus* (F) and thalassinidean shrimps including *Calocaris macandreae* (F) and possibly *Callianassa subterranea* (P). Infaunal tubes (P), *Munida rugosa* (R), *Buccinum undatum* (R), *Pseudamussium septemradiatum* (R), *Glyptocephalus cyanoglossus (P)*. *Meganyctiphanes norvegica*? in water column	SS.SMu.CFiMu.SpnMeg	BM
LF02	Soft mud with trawl scars	Mud moderately densely burrowed by *Nephrops norvegicus* (C, 1 animal seen) and *Calocaris macandreae* (F) and possibly *Jaxea nocturna* (P). *Meganyctiphanes norvegica*? in water column	SS.SMu.CFiMu.SpnMeg	BM
LF03	Mud	Mud moderately densely burrowed by *Nephrops norvegicus* (C) and *Calocaris macandreae* (F) and supporting occasional *Virgularia mirabilis*. *Arctica*-like bivalve siphons (locally C), *Asterias rubens* (F), Paguridae sp. (R), small teleosts (R)	SS.SMu.CFiMu.SpnMeg	BM AA?
LF04	Soft mud	Mud moderately densely burrowed by *Calocaris macandreae* (C) and *Nephrops norvegicus* (C). *Glyptocephalus cyanoglossus* (O). *Meganyctiphanes norvegica*? in water column	SS.SMu.CFiMu.SpnMeg	BM
LF05	Mud	Mud moderately densely burrowed by thalassinidean shrimps (C), especially *Calocaris macandreae* and *Jaxea nocturna*, with *Nephrops norvegicus, Callianassa subterranea* and *Maera loveni*? burrows also present. *Pseudamussium septemradiatum* (R), *Aphrodita aculeata* (R), *Enchelyopus cimbrius* (P), Carcharhiniformes sp. (P)	SS.SMu.CFiMu.SpnMeg	BM ML?
LF06	Soft mud with old trawl scars	Mud moderately densely burrowed by *Calocaris macandreae* and *Jaxea nocturna*, with *Nephrops norvegicus* and *Callianassa subterranea*? also present. Paguridae sp. (R)	SS.SMu.CFiMu.SpnMeg	BM

Appendix 2 continued

Site ID	Substrate	Biota	Biotope	PMF
LF07	Scattered pebbles, cobbles, boulders and shells on gravelly sand with bedrock outcrops	Patchy bed of *Ophiocomina nigra* (A) on mixed substrata and bedrock. Mixed areas have stones encrusted with pink coralline algae and serpulid worms and supporting hydroid clumps (O) including *Nemertesia ramosa* (R), crinoids (O), *Urticina eques* (F) and *Alcyonium digitatum* (R) and motile fauna including *Echinus esculentus* (F), *Asterias rubens* (P), *Crossaster papposus* (P), *Solaster endeca* (P), *Luidia ciliaris* (P), *Hyas* sp. (R) and *Aequipecten opercularis* (O). Bedrock outcrops encrusted with pink coralline algae and serpulids and support *U. eques* (P), *Metridium senile* (F) and patches of ascidians (R overall); *E. esculentus* (C), *A. rubens* (P).	SS.SMx.CMx.OphMx CR.MCR.EcCr.FaAlCr.Bri	
LF07	Pebbles and shells on gravelly sand	Stones support occasional hydroid clumps and crinoids (O), while visible infauna includes *Chaetopterus variopedatus*? (P) and possibly a single specimen of *Atrina fragilis* (at 00:08:57). *Asterias rubens* (P), *Crossaster papposus* (P), *Echinus esculentus* (P), *Aequipecten opercularis* (P), Paguridae sp. (P)	SS.SMx.CMx	AF?
LF08	Dense pebbles and scattered cobbles and boulders on gravelly sand	Patchy brittlestar bed with *Ophiothrix fragilis* (A, locally S) and *Ophiocomina nigra* (A). *Echinus esculentus* (F), *Urticina eques* (O), *Luidia cilairis* (O), *Asterias rubens* (P), *Crossaster papposus* (P), *Solaster endeca* (P), *Marthasterias glacialis* (P), *Pecten maximus* (O), *Buccinidae sp.* (P). Stones encrusted with pink coralline algae and serpulid worms	SS.SMx.CMx.OphMx	
LF09	Dense pebbles on gravelly sand	Pebbles encrusted with sparse serpulid worms (F) and initially pink coralline algae and support *Urticina eques* (P), *Alcyonium digitatum* (R) and *Metridium senile* (O). Patches of dense *Ophiothrix fragilis* (locally S). *Echinus esculentus* (F), *Luidia ciliaris* (O), *Marthasterias glacialis* (O), *Crossaster papposus* (P), *Munida rugosa* (F), *Aequipecten opercularis* (R), *Modiolus modiolus* (R)	SS.SMx.CMx SS.SMx.CMx.OphMx	
LF10	Flat sandy mud	Sparse *Virgularia mirabilis* (R) and burrows including small *Nephrops norvegicus*. *Galathea sp.* (P), *Pagurus prideaux* with *Adamsia carciniopados* (O), Paguridae sp. (R), *Turritella communis* (P), *Aporrhais pespelicani*? (R)	SS.SMu.CSaMu.VirOphPmax	
LF11	Sandy mud	Mud fairly lightly burrowed by *Nephrops norvegicus* (C, 6 animals seen) and thalassinidean shrimps. *Munida rugosa* (P), Paguridae sp. (P), Pectinidae sp. (P), bivalve siphons? (P).	SS.SMu.CFiMu.SpnMeg	BM
LF11	Sandy mud with gravel and pebbles	Sparse small burrows. Larger stones support sparse serpulid worms and Actiniaria sp.? (O). *Liocarcinus* sp. (O), *Crossaster papposus* (F), *Solaster endeca* (P), *Asterias rubens* (R), *Munida rugosa* (O)	SS.SMu.CSaMu	

Appendix 2 continued

Site ID	Substrate	Biota	Biotope	PMF
LF12	Soft mud	Mud densely burrowed by *Calocaris macandreae* and *Jaxea nocturna* , with *Nephrops norvegicus* burrows also present. *Asterias rubens* (P), *Glyptocephalus cyanoglossus* (P)	SS.SMu.CFiMu.SpnMeg	BM
LF14	Soft mud	Mud moderately densely burrowed by *Calocaris macandreae* (C) and *Nephrops norvegicus* (C), with possibly *Jaxea nocturna* (P) and *Callianassa subterranea* (P). Caridea sp. (F), *Glyptocephalus cyanoglossus* (P)	SS.SMu.CFiMu.SpnMeg	BM
LF15	Flat sandy mud	Occasional *Virgularia mirabilis* and sparse small burrows and mounds, some of which may be *Callianassa subterranea*. Signs of the infaunal community include emergent tubes and bivalve siphons (locally C) similar to those of *Arctica islandica*. *Munida rugosa* (F), Paguridae sp. (R), *Aporrhais pespelicani* (R), *Alcyonium digitatum* (R), *Echinus esculentus* (R), *Ophiura albida* (P), *Pennatula phosphorea*? (R)	SS.SMu.CSaMu.VirOphPmax	AA?
LF16	Soft mud	Mud densely burrowed by *Calocaris macandreae* (C), with *Nephrops norvegicus*, *Jaxea nocturna* and *Callianassa subterranea* burrows and almost certainly *Maxmuelleria lankesteri* mounds (e.g. 00:03:42) also present. *Pseudamussium septemradiatum* (F)	SS.SMu.CFiMu.MegMax	BM
LF17	Soft mud	Very short coverage but fairly lightly burrowed mud by *Calocaris macandreae* (F) and *Nephrops norvegicus* (P). *Meganyctiphanes norvegica*? in water column	SS.SMu.CFiMu.SpnMeg	BM
LF18	Soft mud	Mud moderately densely burrowed by *Nephrops norvegicus* (C, 3 animals seen) and *Callianassa subterranea* (F), with *Calocaris macandreae* and *Maxmuelleria lankesteri* (see 00:03:13) also present. *Munida rugosa* (F), *Sabella pavonina* tubes (O), *Pseudamussium septemradiatum* (R), *Carcinus maenas*? (R), small teleosts (O)	SS.SMu.CFiMu.MegMax	BM
LF19	Soft mud	Visibility very poor but mud moderately densely burrowed by *Nephrops norvegicus* (C, 1 animal seen) and by thalassinidean shrimps (F-C), including *Calocaris macandreae* (P) and possibly *Jaxea nocturna* (P)	SS.SMu.CFiMu.SpnMeg	BM
LF20	Soft mud	Visibility poor but mud moderately densely burrowed by *Nephrops norvegicus* (C) and by *Calocaris macandreae* (C), *Jaxea nocturna* (P) and probably *Callianassa subterranea* (P)	SS.SMu.CFiMu.SpnMeg	BM
LF21	Soft mud with extensive trawl scarring	Mud moderately densely burrowed by *Nephrops norvegicus* (C) and by thalassinidean shrimps including *Calocaris macandreae* (P) and *Jaxea nocturna*? (P). *Virgularia mirabilis* (R), *Munida rugosa* (R), *Sabella pavonina* tube, Caridea sp. (R). *Meganyctiphanes norvegica*? in water column	SS.SMu.CFiMu.SpnMeg	BM

Appendix 2 continued

Site ID	Substrate	Biota	Biotope	PMF
LF22	Soft mud	Mud moderately densely burrowed by *Nephrops norvegicus* (C, 6 animals seen) and *Calocaris macandreae* (F). *Munida rugosa* R), Caridea sp. (O), *Glyptocephalus cyanoglossus* (P), *Asterias rubens* (R), *Aphrodita aculeata* (R). Shoal of *Ammodytes* sp. and *Meganyctiphanes norvegica*? in water column	SS.SMu.CFiMu.SpnMeg	BM SE
LF23	Sandy mud with gravel, pebbles, cobbles and boulders	Stones sparsely encrusted with pink coralline algae (R) and serpulid worms (F). *Munida rugosa* (F), *Echinus esculentus* (P), *Crossaster papposus* (P), *Marthasterias glacialis* (P), *Porania pulvillus* (R), *Henricia* sp. (R), *Antedon* sp. (R)	SS.SMx.CMx	
LF23	Sandy mud	Mud fairly lightly burrowed by megafauna including *Callianassa subterranea* (F) and *Nephrops norvegicus (P)*. *Munida rugosa* (F), *Aporrhais pespelicani* (R), *Turritella communis* (O), Paguridae sp. (R), emergent infaunal tubes (P)	SS.SMu.CFiMu.SpnMeg	BM
LF24	Soft mud with trawl scars	Mud fairly densely burrowed by *Nephrops norvegicus* (C, 2 animals seen) and *Calocaris macandreae* (C), with Callianassa subterranea (P) and possibly *Jaxea nocturna* (P). *Virgularia mirabilis* (R). *Meganyctiphanes norvegica*? in water column	SS.SMu.CFiMu.SpnMeg	BM
IM01	Mud, probably slightly sandy, with sparsely scattered cobbles and boulders towards the end of the run	Mud with sparse megafaunal burrows, probably mainly *Callianassa subterranea*. *Munida rugosa* (F), *Asterias rubens* (O), infaunal tubes, juvenile Pleuronectiformes sp. (R)	SS.SMu.CSaMu	
IM02	Underlying muddy sediment initially with dense surficial gravel with pebbles and shells, thinning out during run	Shells and stones sparsely encrusted with pink coralline algae (O) and serpulid worms (P). *Porania pulvillus* (R), *Asterias rubens* (P), *Munida rugosa* (R), *Liocarcinus* sp. (R), *Echinus esculentus* (P), *Pecten maximus* (R), *Henricia* sp. (R), *Saccharina latissima* (R), red algae and *Ulva* sp. present but possibly drift	SS.SMx.IMx	
IM03	Scattered shells, pebbles and cobbles with dead maerl on silty sand	Shells and stones sparsely encrusted with pink coralline algae (O) and serpulid worms (F). Scattered live rhodoliths of *Phymatolithon calcareum* (R). *Cerianthus lloydii* (C), *Porania pulvillus* (F), *Asterias rubens* (O)	SS.SMx.IMx	
IM04	Sandy mud with scattered shells and pebbles and possible dredge or trawl scars	Sparse small burrows. Polychaete and probably *Callianassa subterranea* mounds, *Virgularia mirabilis* (F), infaunal tubes, *Myxicola infundibulum* (P), *Turritella communis* (P), *Asterias rubens* (C), *Porania pulvillus* (R), *Liocarcinus depurator* (R), *Diplecogaster bimaculatus* (P)	SS.SMu.CSaMu	

Appendix 2 continued

Site ID	Substrate	Biota	Biotope	PMF
IM05	Muddy sand with scattered gravel, pebbles, cobbles and shells	Infauna includes *Myxicola infundibulum* (P), *Cerianthus lloydii* (P) and constructors of emergent tubes and small sediment mounds. *Munida rugosa* (R), *Porania pulvillus* (O), *Henricia* sp. (R)	SS.SMu.CSaMu	
IM06	Sandy mud with scattered gravel, pebbles and shells and occasional cobbles	Sediment with mounds and very sparse small burrows and possibly a single *Nephrops* burrow. *Cerianthus lloydii* (F), *Liocarcinus depurator* (R), *Munida rugosa* (R), *Porania pulvillus* (R), *Protula tubularia*? (P)	SS.SMu.CSaMu	
IM07	Muddy sand with scattered gravel, pebbles, cobbles and shells with possible old dredge or trawl scars	Sediment with small holes and tubes and very sparse small burrows, as well as small sediment mounds, some with casts. *Amalosoma eddystonense*? (O), *Cerianthus lloydii*? (P), *Asterias rubens* (O), *Munida rugosa* (R), *Porania pulvillus* (R), red algae (R)	SS.SMu.CSaMu	
IM08	Sandy mud with increasing amounts of scattered gravel, pebbles and shells	Mud with very sparse small burrows but many small mounds, mostly probably polychaetes (casts often present) but *Callianassa subterranea* apparently also present. *Virgularia mirabilis* (R), Infauna includes C*erianthus lloydii*? (P) and emergent tubes. *Munida rugosa* (R), *Asterias rubens* (P), *Porania pulvillus* (R), *Turritella communis* (P), *Cancer pagurus* (O) in pits. Stones support sparse serpulid worms and red algae (R)	SS.SMu.CSaMu	
IM09	Slightly shelly fine sand probably with slight silt content; very sparse scatter of shells (including *Ensis*) and cobbles	Little sign of infaunal life apart from emergent tubes. Stones and shells with sparse red algal tufts (R) and *Antedon* sp. (R). *Saccharina latissima* present but apparently all drift. *Asterias rubens* (O), *Marthasterias glacialis* (O), *Porania pulvillus* (R), *Pecten maximus* (R), *Aequipecten opercularis* (R)	SS.SSa.IMuSa	
IM10	Slightly sandy mud	Mud with sparse megafaunal burrows, including small *Nephrops norvegicus* (F) and many small mounds, some with polychaete casts, others probably *Callianassa subterranea*. *Virgularia mirabilis* (R), *Munida rugosa* (R), Paguridae spp. (R), *Turritella communis* (P), *Aporrhais pespelicani* (R), infaunal tubes	SS.SMu.CSaMu	
IM11	Sandy mud with increasing amounts of scattered gravel, pebbles, cobbles and shells and occasional boulders	Mud with sparse small megafaunal burrows and small mounds, some with polychaete casts, others probably *Callianassa subterranea*. Stones bare looking apart from sparse serpulid worms. *Munida rugosa* (R), *Pagurus prideaux* with *Adamsia carciniopados* (R), Paguridae sp. (R), *Turritella communis* (P), infaunal tubes, *Arctica*-like bivalve siphons (R) with dead *Arctica* shells also present	SS.SMu.CSaMu	AI?

Appendix 2 continued

Site ID	Substrate	Biota	Biotope	PMF
AS01	Sandy mud with possible trawl tracks (at 00:03:55)	Mud with variable density of burrows but overall of moderate density with *Nephrops norvegicus* (C, 1 animal seen), *Calocaris macandreae* (F) and possibly *Callianassa subterranea* (P). *Virgularia mirabilis* (O), emergent polychaete tubes (P), *Turritella communis* (O), *Asterias rubens* (O), *Aporrhais pespelicani* (O). *Meganyctiphanes norvegica*? in water column	SS.SMu.CFiMu.SpnMeg	BM
AS02	Sandy mud with scattered shells including *Arctica islandica*	Lightly burrowed mud by *Nephrops norvegicus* (F, 1 specimen seen) and other forms including *Callianassa subterranea*? (F). *Virgularia mirabilis* (O-F). *Asterias rubens* (F), *Turritella communis* (P), *Munida rugosa* (O), Paguridae sp. (R), *Buccinum undatum* (R), *Porania pulvillus* (R). *Meganyctiphanes norvegica*? in water column	SS.SMu.CFiMu.SpnMeg	BM
AS03	Soft mud with trawl scars	Mud fairly densely burrowed by *Calocaris macandreae* (C) and *Nephrops norvegicus* (C), with *Jaxea nocturna* also possibly present	SS.SMu.CFiMu.SpnMeg	BM
AS04	Mud	Mud fairly densely burrowed by *Calocaris macandreae* (C) and *Nephrops norvegicus* (C, 4 animals seen), with possibly *Jaxea nocturna* also present. Caridea sp. (R). *Meganyctiphanes norvegica*? in water column	SS.SMu.CFiMu.SpnMeg	BM
AS05	Sandy mud	Visibility very poor but lightly burrowed mud by *Nephrops norvegicus* (F) and other smaller infauna, with *Turritella communis* (F). Dense *Meganyctiphanes norvegica*? in water column	SS.SMu.CFiMu.SpnMeg	BM
AS06	Sandy mud with sparse scattered shells including *Arctica islandica*	Fairly lightly burrowed mud by *Nephrops norvegicus* (F), *Calocaris macandreae* (F) and other small infauna, with *Arctica*-like bivalve siphons locally F-C. *Turritella* shells present but probably empty. *Asterias rubens* (O), Buccinidae sp. (R), *Pagurus prideaux* with *Adamsia carciniopados* (R). *Meganyctiphanes norvegica*? in water column	SS.SMu.CFiMu.SpnMeg	BM AA?
AS07	Sandy mud	Lightly burrowed mud by *Nephrops norvegicus* (F), *Calocaris macandreae* (P), *Callianassa subterranea*? (P) and other small infauna. *Pennatula phosphorea*? (R), Caridea sp. (R), Teleostei sp. (R). *Turritella* shells present but probably empty. *Meganyctiphanes norvegica*? in water column	SS.SMu.CFiMu.SpnMeg	BM
AS08	Silty coarse sand and shell and stone gravel with pebbles and shells, dense in places	Visible fauna dominated by echinoderms, with *Asterias rubens* (F), *Marthasterias glacialis* (O), *Echinus esculentus* (F), *Porania pulvillus* (O) and *Luidia ciliaris* (P). Sparse hydroid tufts on stones and shells (R)	SS.SCS.CCS	

Appendix 2 continued

Site ID	Substrate	Biota	Biotope	PMF
AS09	Fairly flat plain of sandy mud with sparsely scattered shells including *Turritella* and bivalves	Mud perforated by numerous small holes and with infaunal tubes and bivalve siphons (resembling *Arctica islandica*) and polychaete casts. Megafaunal burrows are present but fairly sparse with *Nephrops norvegicus* (F) and probably thalassinidean shrimps (F). *Ophiura albida* (F, locally A), *Munida rugosa* (O), *Asterias rubens* (O), Paguridae spp. (O), *Buccinum undatum* (R), *Porania pulvillus* (O), small Pleuronectiformes sp. (O), *Luidia ciliaris* (P), Gobiidae spp. (O)	SS.SMu.CSaMu	AI?
AS10	Soft mud	Mud fairly densely burrowed by *Calocaris macandreae* (C) and *Nephrops norvegicus* (C, 9 animals seen), with *Jaxea nocturna* also possibly present. *Virgularia mirabilis*? (O), Teleostei sp. (P)	SS.SMu.CFiMu.SpnMeg	BM
AS11	Waves of slightly silty coarse sand and gravel with much dead maerl, with pebbles and gravel concentrated in troughs, on a bed of fine sand	Apparently sparsely scattered live maerl rhodoliths (R). Some stones encrusted with pink coralline algae (R) and sparse serpulid worms (P)	SS.SCS.CCS	
AS12	Sandy mud with scattered shells (including *Turritella* and possibly *Arctica*) and occasional pebbles, cobbles and boulders	Mud perforated by numerous small holes and with infaunal tubes and polychaete casts. Megafaunal burrows are present but generally small and apparently dominated by *Callianassa subterranea* (C), with *Nephrops norvegicus* very sparse (O). *Turritella communis* (P), *Ophiocomina nigra* (O), *Munida rugosa* (R), *Asterias rubens* (O), Paguridae spp. (R), *Luidia ciliaris* (P)	SS.SMu.CSaMu	
AS13	Slightly sandy mud with scattered pebbles at one point	Mud moderately densely burrowed by *Calocaris macandreae* (C) and *Nephrops norvegicus* (C, 6 animals seen), with *Callianassa subterranea* also present. Emergent polychaete tubes (F), Caridea sp. (P), *Munida rugosa* (R), *Asterias rubens* (P), hydroids (R) on pebbles	SS.SMu.CFiMu.SpnMeg	BM
AS14	Flat plain of sandy mud with sparsely scattered shells (including *Turritella* and *Arctica*), pebbles and occasional cobbles	Mud perforated by small holes and with infaunal tubes and fairly rich bivalve siphons (resembling *Arctica islandica* - C at least locally). Megafaunal burrows are small and fairly sparse, apparently mainly *Callianassa subterranea* (F). *Munida rugosa* (R), *Asterias rubens* (O), *Porania pulvillus* (O), *Turritella communis* (P) and *Aporrhais pespelicani* (R)	SS.SMu.CSaMu	AA?

Appendix 2 continued

Site ID	Substrate	Biota	Biotope	PMF
AS15	Soft mud with trawl tracks (at 00:03:45)	Mud very densely burrowed by *Calocaris macandeae* (C, possibly A) with *Nephrops norvegicus* burrows also present. *Meganyctiphanes norvegica*? in water column	SS.SMu.CFiMu.SpnMeg	BM
AS16	Shelly muddy sand or sandy mud with scattered shells and gravel	Many small sediment mounds apparently both polychaete and *Callianassa subterranea* (F); also infaunal tubes and *Arctica*-like bivalve siphons (locally C). Infauna also includes *Cerianthus lloydii* (F) and *Myxicola infundibulum* (O). *Munida rugosa* (O), *Metridium senile* (R), *Pecten maximus* (R), *Porania pulvillus* (F), *Liocarcinus* sp. (R), *Turritella communis* (F)	SS.SMu.CSaMu	AA?
AS17	Soft mud with trawl scars	Mud fairly densely burrowed by *Calocaris macandreae* (C), *Jaxea nocturna?* and *Nephrops norvegicus* (C). One sea pen present, probably *Virgularia mirabilis* but possibly small *Funiculina quadrangularis* (R). *Meganyctiphanes norvegica*? in water column	SS.SMu.CFiMu.SpnMeg	BM
AS18	Sandy mud with fairly dense scatter of shells including *Arctica*	Small mounds including polychaete and *Callianassa subterranea* (F). Infaunal tubes and *Arctica*-like siphons (C), *Munida rugosa* (F)	SS.SMu.CSaMu	AA?
AS19	Soft mud with trawl scars	Mud fairly densely burrowed by *Nephrops norvegicus* (C, 3 animals seen) and thalassinidean shrimps (C) - *Jaxea nocturna* possibly present but *Jaxea*-like mounds probably result from post-trawl burrow maintenance by *Calocaris macandreae*. Caridea sp. (R)	SS.SMu.CFiMu.SpnMeg	BM
AS20	Soft mud with trawl scars	Mud fairly densely burrowed by thalassinidean shrimps (C - mainly *Calocaris macandreae*) and *Nephrops norvegicus* (C, 1 animal seen). *Asterias rubens* (F), *Liocarcinus* sp.? (R), *Sabella pavonina* (R)	SS.SMu.CFiMu.SpnMeg	BM
AS21	Sandy mud with many shells and occasional boulders	Very poor visibility but burrows of *Nephrops norvegicus* and *Calocaris macandreae*? are present but apparently at low density. *Asterias rubens* (O), *Pagurus prideaux* with *Adamsia carciniopados* (P), Paguridae sp. (P), *Liocarcinus* sp. (P)	SS.SMu.CFiMu.SpnMeg	BM
AS22	Soft mud	Mud densely burrowed by *Calocaris macandreae* (C), with *Nephrops norvegicus* (C, 1 animal seen) and possibly *Jaxea nocturna*. One mound with adjacent proboscis traces of *Maxmuelleria lankesteri* (00:04:02) *Goneplax rhomboides*? (P), *Glyptocephalus cyanoglossus*? (P), *Asterias rubens* (P). *Meganyctiphanes norvegica*? in water column	SS.SMu.CFiMu.MegMax	BM

Appendix 2 continued

Site ID	Substrate	Biota	Biotope	PMF
AS23	Soft mud with trawl scars	Mud densely burrowed by *Calocaris macandreae* (C) and possibly *Jaxea nocturna (P)* and *Nephrops norvegicus* (C)	SS.SMu.CFiMu.SpnMeg	BM
AS24	Cohesive muddy sand with scattered shell material including *Arctica* and much *Turritella*	Small mounds present including polychaete and *Callianassa subterranea* (locally F). *Munida rugosa* (O), *Porania pulvillus* (O), infaunal tubes, *Asterias rubens* (P), Paguridae sp. (R), *Liocarcinus* sp. (R)	SS.SMu.CSaMu	
KS01	Mud with trawl scars	Visibility very poor but apparently mud moderately densely burrowed by *Nephrops norvegicus* (C, 4 animals seen) and *Calocaris macandreae* (P)	SS.SMu.CFiMu.SpnMeg	BM
KS02	Soft mud	Visibility very poor but apparently mud densely burrowed by *Nephrops norvegicus* (C) and *Calocaris macandreae* (C)	SS.SMu.CFiMu.SpnMeg	BM
KS03	Dense pebbles and shell material with occasional cobbles and boulders on sandy mud or muddy sand	Visibility very poor. Very sparse small burrows. *Munida rugosa* (P)	SS.SMx.CMx	
KS04	Sandy mud with scattered pebbles and shell material and occasional boulders	Mud burrowed by *Calocaris macandreae* (F) and sparse *Nephrops norvegicus*. *Sabella pavonina* tube (R), Paguridae sp. (R). Visibility very poor but stones apparently support hydroid turf	SS.SMu.CFiMu.SpnMeg	BM
KS04	Silted boulders and bedrock	Apart from patchy hydroid turf, rock appears to support little life, although visibility very poor	CR.LCR.BrAs	
KS06	Soft mud with trawl scars	Mud densely burrowed by *Calocaris macandreae* (C) and *Nephrops norvegicus* (C, 7 animals seen), with *Virgularia mirabilis* (O). *Sabella pavonina* tube (R), *Asterias rubens* (P), *Glyptocephalus cyanoglossus* (P)	SS.SMu.CFiMu.SpnMeg	BM
CS01	Firm slightly rippled sandy mud with sparsely scattered shells including *Arctica*	Sparse burrows including *Nephrops norvegicus* (F). *Pennatula phosphorea* (R), *Virgularia mirabilis* (R), Galatheidae sp. (R), infaunal tubes (P)	SS.SMu.CFiMu.SpnMeg	BM

Appendix 2 continued

Site ID	Substrate	Biota	Biotope	PMF
CS02	Rippled sandy mud	Poor visibility, but densely burrowed mud, apparently with *Calocaris macandreae* (C) and *Nephrops norvegicus* (P, 1 animal seen). *Virgularia mirabilis* (R), *Asterias rubens* (P)	SS.SMu.CFiMu.SpnMeg	BM
CS03	Visibility poor but rippled fine, or possibly medium, sand	No life discernible	SS.SSa.CFiSa	
CS04	Rippled fine sand with scattered gravel, pebbles and shell and occasional cobbles	Stones support sparse serpulid worms (R), hydroids (R), *Flustra foliacea*? (R), *Metridium senile* (R) and small *Alcyonium digitatum*? (R). *Echinus esculentus* (R), *Asterias rubens* (O), Paguridae sp. (R),	SS.SSa.CFiSa	
CS05	Rippled fine sand, locally with scattered gravel and shells	No visible life	SS.SSa.CFiSa	
CS06	Rippled slightly silty fine sand with sparse scatter of shells	Emergent infaunal (probably polychaete) tubes locally common. Tubes and shells support sparse hydroids (R) including *Nemertesia antennina*?. *Meganyctiphanes norvegica*? in water column	SS.SSa.CFiSa	
CS07	Rippled fine sand	No life discernible	SS.SSa.CFiSa	
CS08	Rippled fine sand with scattered gravel and shell material in places	Sparse visible life. *Ophiura ophiura* (P), *Urticina felina*? (P)	SS.SSa.CFiSa	
CS09	Rippled fine-medium sand with scattered gravel and shells	Sparse visible life including small tufts of hydroids (R) and *Flustra foliacea* (R), and *Urticina felina* (R)	SS.SSa.CFiSa	
CS10	Rippled soft slightly sandy? mud	Mud densely burrowed by *Nephrops norvegicus* (C, 17 animals seen) and *Calocaris macandreae* (C)	SS.SMu.CFiMu.SpnMeg	BM
CS11	Rippled muddy sand	Mud with numerous small holes and infaunal tubes and sparse small *Callianassa*-like burrows and worm casts. Hydroids (R), Paguridae sp. (R), *Asterias rubens* (P), *Alcyonium digitatum* (R), *Pennatula phosphorea* (R), *Pecten maximus* (R), *Sabella pavonina* tube (R), *Ophiura ophiura* (R), *Scyliorhinus* sp. (R), small gadoid (R)	SS.SMu.CSaMu	

Appendix 2 continued

Site ID	Substrate	Biota	Biotope	PMF
CS12	Slightly rippled medium or possibly fine sand with scattered gravel and shell material	No life discernible apart from a single *Urticina felina*	SS.SSa.CFiSa	
CS13	Rippled fine sand with scattered gravel and shell material	Sparse hydroids (R), *Alcyonidium diaphanum*? (R) and *Crossaster papposus* (P)	SS.SSa.CFiSa	
CS14	Rippled fine sand	Hydroids (O), Paguridae sp. (R), *Porania pulvillus*? (R), *Luidia ciliaris* (P), Pectinidae sp. (R)	SS.SSa.CFiSa	
CS15	Dense gravel, pebbles and shells on silty sediment	Stones and shells support serpulid worms (C), hydroid tufts (O) and *Flustra foliacea* (probably O). Paguridae sp. (P), *Urticina felina* (P), *Asterias rubens* (O), *Crossaster papposus* (O), small sabelllids (locally C), *Hyas arenarius* (P)	SS.SMx.CMx.FluHyd	
CS16	Dense gravel, pebbles and shells on medium-coarse sand	Sparse visible fauna apart from serpulid worms (C) on stones and shells, *Urticina felina* (O), *Asterias rubens* (O) and *Palliolum* sp.? (P)	SS.SCS.CCS	
CS17	Rippled fine-medium sand with scattered gravel, pebbles, shells and occasional cobbles	Stones support sparse hydroids (R), *Flustra foliacea* (R) and *Urticina felina* (R)	SS.SSa.CFiSa	
CS18	Basically rippled fine-medium sand with a scatter, dense in places, of gravel, pebbles and cobbles; small patch of boulders and rock outcrop	Visibility very poor. Stones support occasional hydroids and *Flustra foliacea* (R), as well as serpulid worms and *Urticina felina* (R). *Echinus esculentus* (P) and *Spirobranchus* spp. (A) on rock	SS.SSa.IFiSa.ScupHyd	
CS19	Coarse sand, gravel, pebbles and shells with cobbles and occasional boulders	Stones encrusted with serpulid worms (C) and supporting sparse patches of hydroids (O), including *Nemertesia antennina* (R), and *Flustra foliacea* (R). *Urticina felina* (O), *Echinus esculentus* (O), *Crossaster papposus* (O), *Luidia ciliaris* (P), Cottidae sp. (R), *Munida rugosa* (R)	SS.SMx.CMx.FluHyd	

Appendix 2 continued

Site ID	Substrate	Biota	Biotope	PMF
CS20	Mix of pebbles, shells, gravel and sand	Hydroid patches (O, locally F) including *Nemertesia antennina* (R), *Flustra foliacea* (R), *Urticina felina* (O), *Sabella pavonina* tubes (R), *Asterias rubens* (O)	SS.SMx.CMx.FluHyd	
CS21	Pebbles and cobbles on coarse sand	Stones encrusted with serpulids (C) including *Spirobranchus* spp. and supporting a patchy faunal turf of hydroids and bryozoans (O, locally F) including *Flustra foliacea* (R), with *Alcyonium digitatum* (O). Dense brittlestars are present for most of the run with *Ophiothrix fragilis* (A, locally S) and *Ophiocomina nigra* (locally A). *Urticina felina* (F), *Echinus esculentus* (F), *Asterias rubens* (F), *Luidia ciliaris* (F), *Marthasterias glacialis* (P), *Munida rugosa* (P)	SS.SMx.CMx.OphMx	
CS22	Gravel, pebbles and shells becoming pebbles, shells and occasional cobbles on slightly silty coarse sand with shell gravel	Stones encrusted with serpulids and *Balanus* spp. and supporting sparse hydroids (O). Small patches of *Ophiocomina nigra* (locally C, R overall), *Echinus esculentus* (F), *Asterias rubens* (C), Paguridae sp. (R), *Urticina* sp. (R), *Chaetopterus variopedatus*? (P)	SS.SCS.CCS	
CS23	Clean medium sand with much shell material	Little visible life. *Flustra foliacea* (R), *Asterias rubens* (P)	SS.SCS.CCS	
CS24	Clean medium sand, latterly with scatter of gravel and shells	Little visible life. *Asterias rubens/Astropecten irregularis* (O), Paguridae sp. (R)	SS.SCS.CCS	
CS25	Dense cobbles on shell gravel	Cobbles densely encrusted with serpulid worms (A) and *Balanus* spp. (P) and supporting a fairly rich hydroid and bryozoan turf (A) including occasional *Flustra foliacea*. A rich echinoderm fauna includes *Ophiocomina nigra* (C), *Asterias rubens* (C), *Crossaster papposus* (F), *Marthasterias glacialis* (O), *Porania pulvillus* (O), *Luidia ciliaris* (P) and possibly *L. sarsi* (P). *Urticina felina* (F), *Cancer pagurus* (P)	CR.HCR.XFa.SpNemAdia	

Appendix 2 continued

Site ID	Substrate	Biota	Biotope	PMF
CS26	Dense pebbles and cobbles on gravelly sediment	Cobbles encrusted with serpulid worms (C) and pink coralline algae (C) and supporting a hydroid turf (C), including *Sertularia* sp. and *Halecium halecinum*, *Alcyonium digitatum* (F) and sparse *Flustra foliacea (R)*. For most of the run the substratum is coated in a dense blanket of *Ophiothrix fragilis* (S) with *Ophiocomina nigra* (C). *Asterias rubens* (P), *Luidia ciliaris* (P) *Urticina felina* (F), *Echinus esculentus* (F), Cottidae sp. (P). Sections of the run at the start and end have sparser brittle stars	SS.SMx.CMx.OphMx SS.SMx.CMx.FluHyd	
CS27	Dense pebbles and cobbles on coarse sand and gravel	Cobbles encrusted with serpulid worms (C) and pink coralline algae (C) and supporting a hydroid turf (F) and *Alcyonium digitatum* (O, locally F). *Urticina felina* (P), *Echinus esculentus* (F), *Crossaster papposus* (P), *Marthasterias glacialis*? (P)	SS.SMx.CMx.FluHyd	
CS28	Pebbles, cobbles and boulders on gravelly sand with bedrock outcrops	Rock encrusted with serpulids (C) and *Parasmittina trispinosa* (R) and supporting a faunal turf of mixed hydroids and bryozoans (C, locally A) including *Flustra foliacea* (R, locally C), *Nemertesia antennina* (P) and *Halecium halecinum*? (P). *Echinus esculentus* (F), *Asterias rubens* (F), *Crossaster papposus* (O), *Luidia ciliaris* (P), *Cancer pagurus* (P), Zoanthidea sp. (R)	CR.HCR.XFa.SpNemAdia	
CS28	Pebbles and cobbles on gravelly sand	Dense *Ophiocomina nigra* (S) with *Asterias rubens* (P) and *Luidia ciliaris* (P)	SS.SMx.CMx.OphMx	
CS28	Pebbles and cobbles on silty gravelly sand	Stones encrusted with serpulid worms (C), including *Spirobranchus* spp. (P) and support sparse hydroid clumps (R)	SS.SMx.CMx	
CS29	Slightly silty coarse sand, shell gravel and shells	Shells support patchy hydroid tufts (O, locally F). *Echinus esculentus* (O), patches of *Ophiocomina nigra* (locally C, overall R), Paguridae sp. (R), *Porania pulvillus* (R), *Urticina* sp. (R), *Munida rugosa* (R)	SS.SCS.CCS	
CS30	Dense pebbles on sediment	Little discernible due to high current speed. Dense *Ophiothrix fragilis bed* (S). *Urticina felina* (O), *Echinus esculentus* (P)	SS.SMx.CMx.OphMx	
CS31	Mostly pebbles, cobbles and boulders on coarse sand but bedrock outcrops also present	Rock encrusted with serpulids (C) including *Spirobranchus* spp. and supporting a faunal turf of hydroids and bryozoans (A) including *Flustra foliacea* (O, locally F), *Securiflustra securifrons* (P) and *Nemertesia antennina* (P), with *Alcyonium digitatum* (F, locally A). *Urticina felina* (P), *Echinus esculentus* (F), *Asterias rubens* (C), *Luidia ciliaris* (O), *Marthasterias glacialis* (P)	CR.HCR.XFa.SpNemAdia	

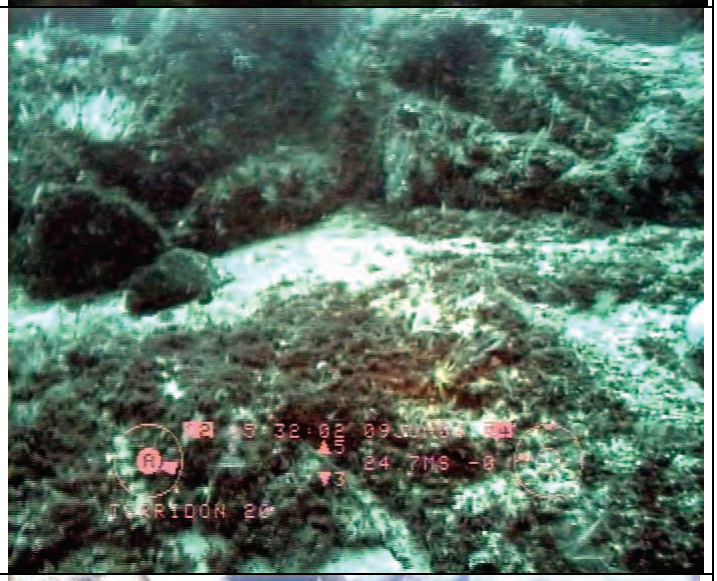
Appendix 2 continued

Site ID	Substrate	Biota	Biotope	PMF
CS32	Mix of pebbles, cobbles, shells, gravel and sand with boulder patch	Rock encrusted with serpulids (C) and supporting a faunal turf of hydroids and bryozoans (C) including *Flustra foliacea* (R, locally O). Dense *Ophiocomina nigra* (A) for most of run but apparently sparse in boulder patch. *Urticina felina* (O), *Munida rugosa* (P), *Echinus esculentus* (P), *Asterias rubens* (C), *Crossaster papposus* (P), *Luidia ciliaris* (F), *Cancer pagurus* (P), Buccinidae sp. (P)	SS.SMx.CMx.OphMx CR.HCR.XFa.SpNemAdia	
CS33	Dense pebbles, cobbles and boulders on coarse sand and gravel	Much of substratum covered by dense *Ophiothrix fragilis* (S). Cobbles encrusted with serpulid worms (C) and *pink coralline algae* (C) and supporting a hydroid turf (C) and *Alcyonium digitatum* (O). *Asterias rubens* (P), *Urticina felina* (F), *Echinus esculentus* (C)	SS.SMx.CMx.OphMx	
CS34	Rippled silty fine sand	Hydroids (O), *Flustra foliacea* (R) and *Alcyonium digitatum* (R), though some may be drift. Sediment with infaunal tubes, sparse small burrows and bivalve siphons (P). *Ophiura* sp. (R)	SS.SSa.CFiSa	
CS35	Pebbles, cobbles and boulders on coarse sand and bedrock outcrop	Rock encrusted with *Spirobranchus* spp. (C), Didemnidae sp. (R) and *Parasmittina trispinoisa* (R) and supporting a rich faunal turf of mixed hydroids and bryozoans (A), including *Flustra foliacea* (R), *Securiflustra securifrons* (P) and probably *Bugula* spp. (P), *Nemertesia antennina* (P) and *Alcyonium digitatum* (C). *Echinus esculentus* (C), *Asterias rubens* (F), *Ophiocomina nigra* (C), *Crossaster papposus* (P), *Marthasterias glacialis*? (P), *Urticina felina* (P), *Munida rugosa* (P)	CR.HCR.XFa.SpNemAdia	
CS35	Pebbles, cobbles and occasional boulders on coarse sand	Rock encrusted with serpulids (C) including *Spirobranchus* spp. and supporting a faunal turf of mixed hydroids and bryozoans (C) and *Alcyonium digitatum* (F). Much of the substrate is covered by dense *Ophiothrix fragilis* (S) with *Ophiocomina nigra* locally common. *Echinus esculentus* (F), *Asterias rubens* (F), *Crossaster papposus* (O), *Luidia ciliaris* (O), *Urticina felina* (O)	SS.SMx.CMx.OphMx	
CS36	Rippled fine-medium sand with occasional cobbles	Stones support sparse *Flustra foliacea* (R) and hydroids (R). Small pectinid (R)	SS.SSa.CFiSa	
CS37	Medium sand with gravel, pebbles and shells	Little life discernible. *Flustra foliacea* (R), Paguridae sp. (R), *Pecten maximus*? (R), small pectinids (R)	SS.SCS.CCS	
CS38	Rippled fine-medium sand	No life discernible	SS.SSa.CFiSa	

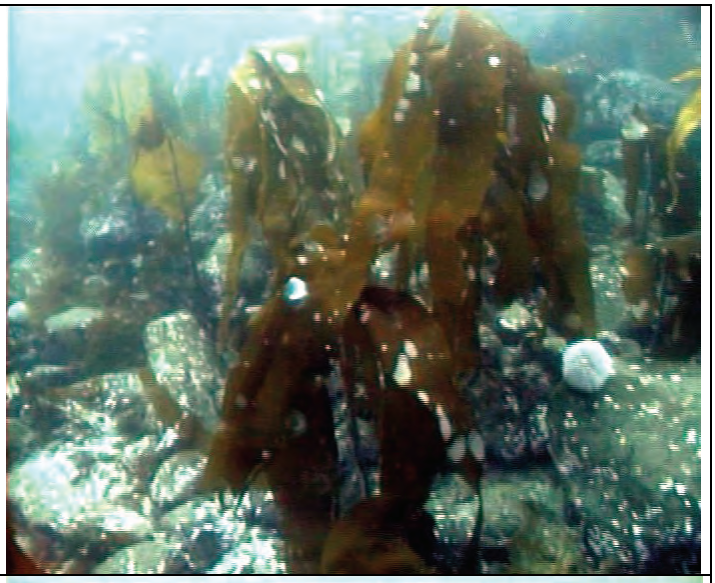
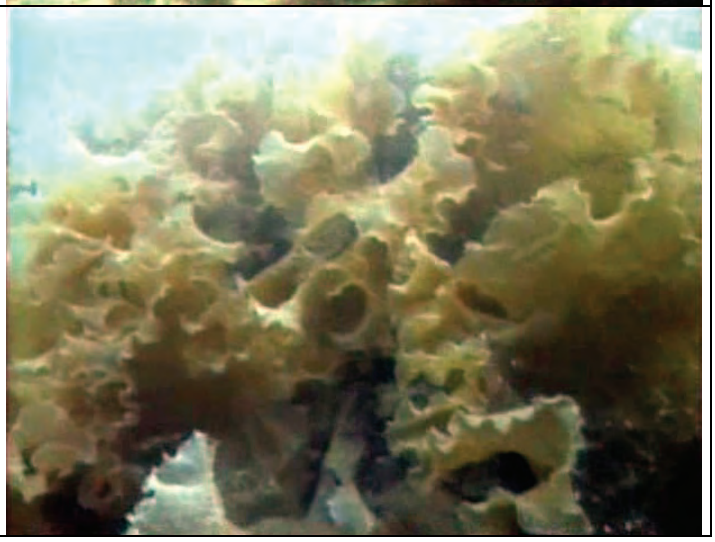
Appendix 2 continued

Site ID	Substrate	Biota	Biotope	PMF
CS39	Rippled fine sand with sparse shells	Sparse infaunal tubes, hydroids (R), *Alcyonium digitatum* (R), *Pagurus prideaux* with *Adamsia carciniopados* (R), Paguridae sp. (R), *Aequipecten opercularis* and juvenile Pleuronectiformes sp.? (R)	SS.SSa.CFiSa	
CS40	Pebbles, cobbles and boulders on coarse sediment	Stones support patchy hydroid turf (C) and *Alcyonium digitatum* (P). *Echinus esculentus* (C), *Urticina felina* (P)	SS.SMx.CMx.FluHyd	
CS41	Rippled fine-medium sand with scattered gravel and shell material	Sparse visible life including small hydroid tufts (R), *Urticina felina* (R) and Paguridae sp. (R)	SS.SSa.CFiSa	
CS42	Rippled fine sand with sparsely scattered shell material	Sparse hydroids (R), *Alcyonium digitatum* (R), Paguridae sp. (R), *Munida rugosa* (R), *Asterias rubens* (P), *Luidia ciliaris* (P), *Aphrodita aculeata* (R) and *Scyliorhinus* sp. (P)	SS.SSa.CFiSa	
CS43	Rippled soft slightly sandy mud	Mud densely burrowed by *Nephrops norvegicus* (C, 7 animals seen) and *Calocaris macandreae* (C) and supporting occasional *Virgularia mirabilis*	SS.SMu.CFiMu.SpnMeg	BM
CS44	Rippled soft slightly sandy? mud	Video out of focus but mud clearly densely burrowed by *Nephrops norvegicus* (C, 3 animals seen) and *Calocaris macandreae* (C)	SS.SMu.CFiMu.SpnMeg	BM

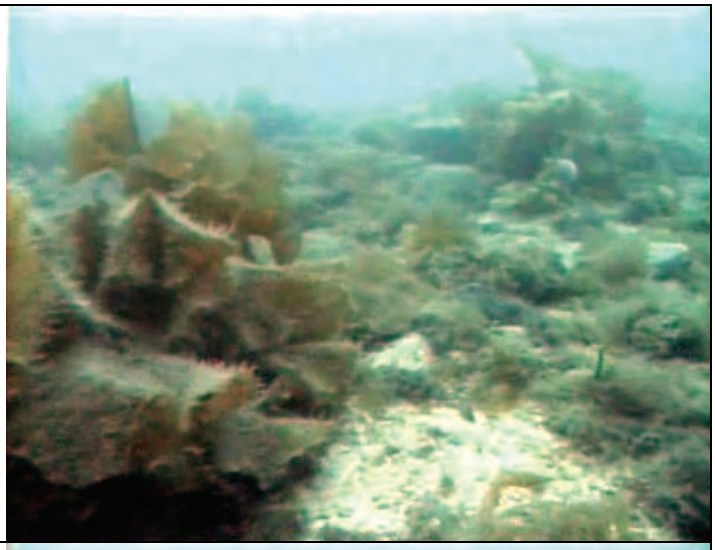
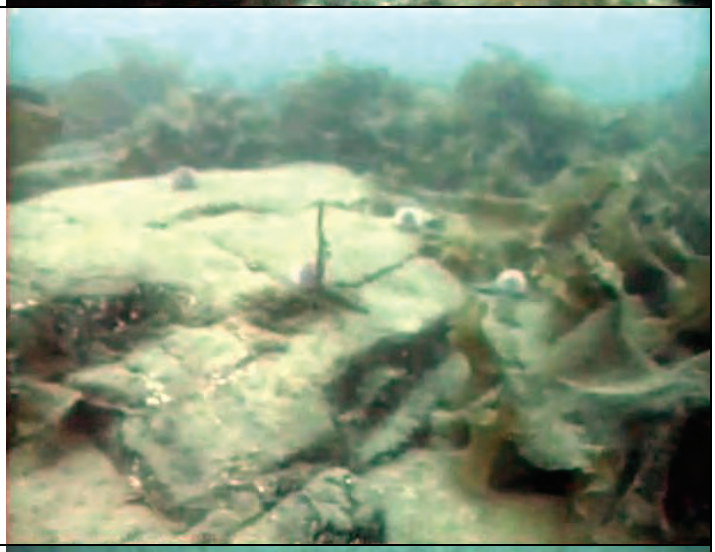
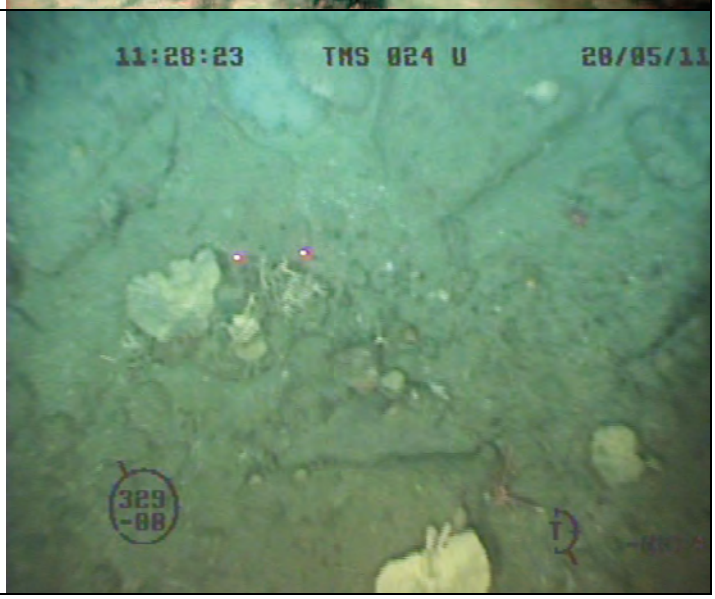
Appendix 3 *Biotopes recorded with sites of occurrence and illustrative photograph or video frame grab. Biotope codes in red are PMFs. Italicised sites indicate provenance of image. See Connor* et al. *(2004) for full biotope description*

LR.HLR.MusB.Sem *Semibalanus balanoides* on exposed to moderately exposed or vertical sheltered eulittoral rock *0/15*	
IR.HIR.KFaR.FoR Foliose red seaweeds on exposed lower infralittoral rock 0/16, *4/20*	
IR.MIR.KR.Lhyp.Ft *Laminaria hyperborea* forest and foliose red seaweeds on moderately exposed upper infralittoral rock *0/15*, 0/16	

Appendix 3 continued

IR.MIR.KR.LhypTX.Ft *Laminaria hyperborea* forest and foliose red seaweeds on tide-swept, upper infralittoral mixed substrata *3/23*?	
IR.LIR.K.Lsac *Laminaria saccharina* on very sheltered infralittoral rock 0/4	
IR.LIR.K.Lsac.Ft *Laminaria saccharina* forest on very sheltered upper infralittoral rock 0/12, 0/14, *0/15*	

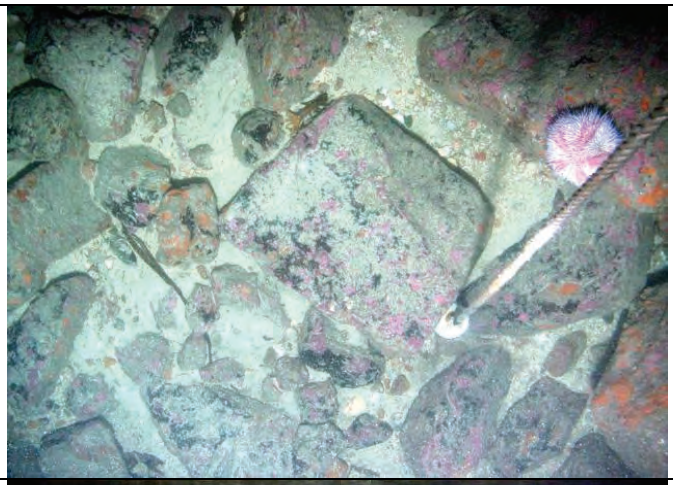
Appendix 3 continued

IR.LIR.K.Lsac.Pk *Laminaria saccharina* park on very sheltered lower infralittoral rock 0/9, *0/14*, 0/16, 4/18, 5/6	
IR.LIR.K.Lsac.Gz Grazed *Laminaria saccharina* with *Echinus*, brittlestars and coralline crusts on sheltered infralittoral rock *0/32*, 5/7	
CR.HCR.DpSp.PhaAxi *Phakellia ventilabrum* and axinellid sponges on deep, wave-exposed circalittoral rock 4/13, *4/15*, 4/17, *D7.2*, D7.3, D8	

Appendix 3 continued

CR.HCR.XFa.SpNemAdia Sparse sponges, *Nemertesia* spp., and *Alcyonidium diaphanum* on circalittoral mixed substrata CS25, CS28, *CS31*, CS32, CS35	
CR.HCR.XFa.SwiLgAs Mixed turf of hydroids and large ascidians with *Swiftia pallida* and *Caryophyllia smithii* on weakly tide-swept circalittoral rock *4/10*	
CR.MCR Moderate energy circalittoral rock *4/13*	

Appendix 3 continued

CR.MCR.EcCr.FaAlCr Faunal and algal crusts on exposed to moderately wave-exposed circalittoral rock 3/1, 5/6, 5/7, *TV9*	
CR.MCR.EcCr.FaAlCr.Bri Brittlestar bed on faunal and algal encrusted, exposed to moderately wave-exposed circalittoral rock *LF07*	
CR.MCR.EcCr.FaAlCr.Car *Caryophyllia smithii* with faunal and algal crusts on moderately wave-exposed circalittoral rock *TV10*, TV47, TV54	

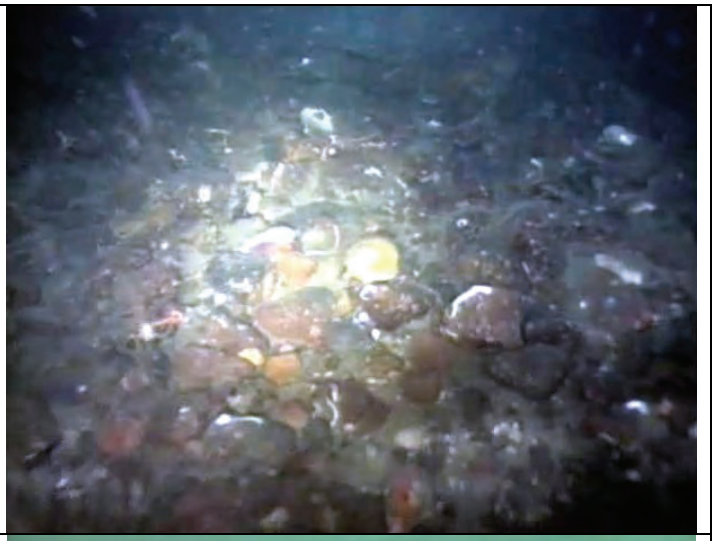
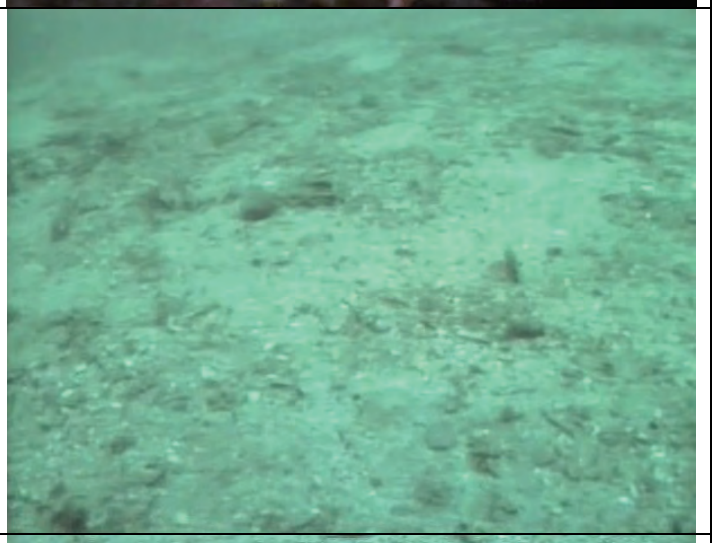
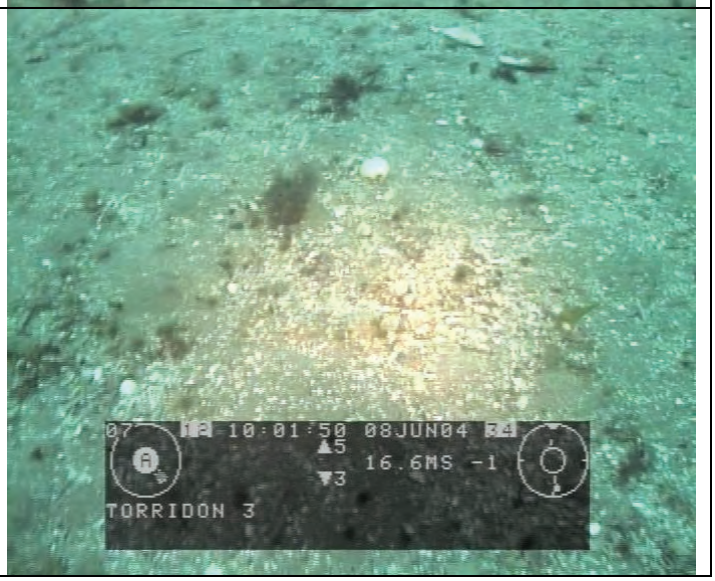
Appendix 3 continued

CR.MCR.EcCr.FaAlCr.Flu *Flustra foliacea* on slightly scoured silty circalittoral rock *TV56*	
CR.MCR.EcCr.FaAlCr.Pom Faunal and algal crusts with *Pomatoceros triqueter* and sparse *Alcyonium digitatum* on exposed to moderately wave-exposed circalittoral rock 3/14, *TV12*	
CR.LCR.BrAs Brachiopods and ascidians *0/19*, KS04	

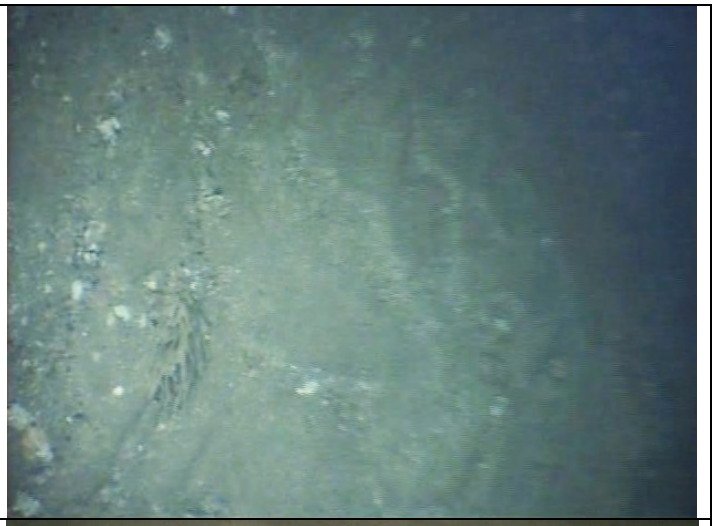
Appendix 3 continued

CR.LCR.BrAs.AmenCio Solitary ascidians, including *Ascidia mentula* and *Ciona intestinalis*, on wave-sheltered circalittoral rock 0/4A, 0/23, *0/25*, 3/14	
CR.LCR.BrAs.AmenCio.Ant Solitary ascidians, including *Ascidia mentula* and *Ciona intestinalis* with *Antedon* spp., on wave-sheltered circalittoral rock *0/22*	
SS.SCS.CCS Circalittoral coarse sediment 3/26, 3/27, 4/19, 4/24, AS08, AS11, CS16, CS22, CS23, CS24, CS29, CS37, D7.3, D7.4, TV12, TV47, *TV48*, TV49, TV56, TV8	

Appendix 3 continued

SS.SCS.CCS.PomB *Pomatoceros triqueter* with barnacles and bryozoan crusts on unstable circalittoral cobbles and pebbles *0/34*	
SS.SSa Sublittoral sands and muddy sands *0/2*, 3/3	
SS.SSa.IFiSa Infralittoral fine sand *4/3*	

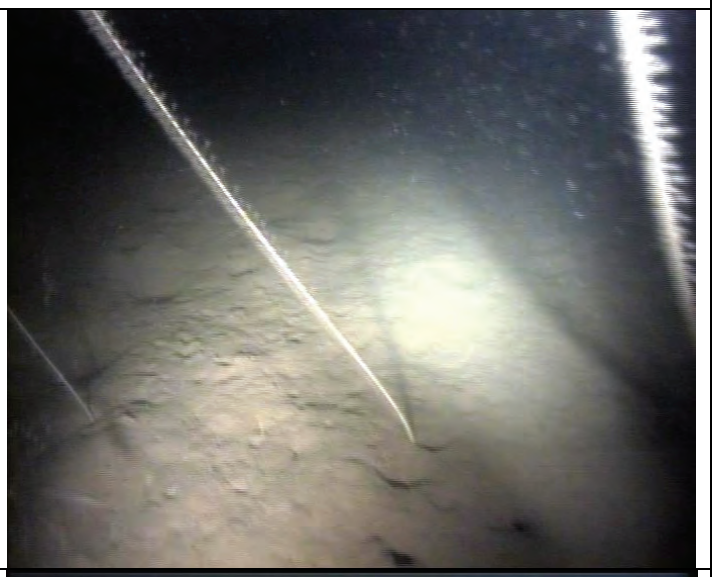
Appendix 3 continued

SS.SSa.IFiSa.ScupHyd *Sertularia cupressina* and *Hydrallmania falcata* on tide-swept sublittoral sand with cobbles or pebbles *CS18*	
SS.SSa.CFiSa Circalittoral fine sand 4/13, 4/17, CS03, CS04, CS05, CS06, CS07, CS08, CS09, CS12, CS13, CS14, CS17, CS34, CS36, CS38, CS39, CS41, CS42, TV10, TV11, *TV12*, TV7, TV8, TV8, TV9, TV9	
SS.SSa.IMuSa Infralittoral muddy sand 5/6, 5/7, IM09, *TV5*	

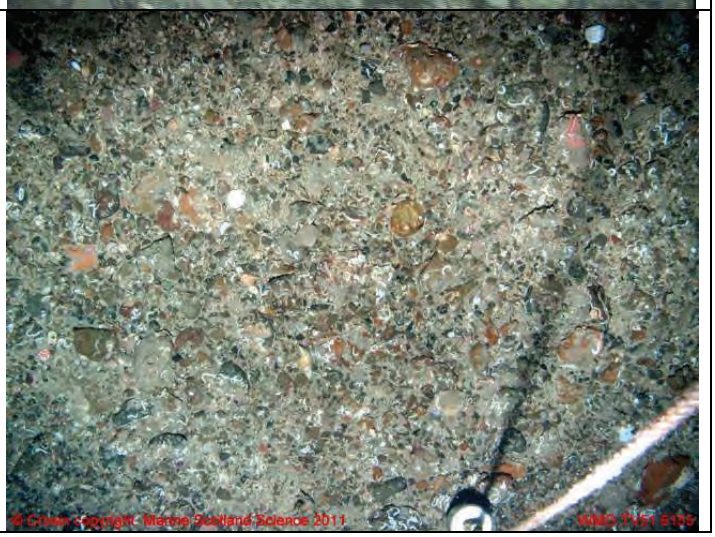
Appendix 3 continued

SS.SSa.CMuSa Circalittoral muddy sand 0/13, 0/4A, 0/6, *3/10*, 4/13, 4/15, 4/17, 4/5, 5/4	
SS.SMu.CSaMu Circalittoral sandy mud 0/1, 0/11, 0/19, 4/6, AS09, AS12, AS14, AS16, AS18, AS24, CS11, *IM01*, IM04, IM05, IM06, IM07, IM08, IM10, IM11, LF11, TV1, TV1a, TV5	
SS.SMu.CSaMu.VirOphPmax *Virgularia mirabilis* and *Ophiura* spp. with Pecten maximus on circalittoral sandy or shelly mud LF10, *LF15*	

Appendix 3 continued

SS.SMu.CFiMu.SpnMeg Sea pens and burrowing megafauna in circalittoral fine mud 0/3, 0/7, 0/8, 0/20, 0/23, 3/1, 3/6, 3/9, 3/11, 3/12, 3/16, 3/17, 3/19, 3/21, 3/28, 3/29, 3/30, 3/32, 4/14, 4/2, 4/7, 4/9, 4/25, 4/26, 4/40, 5/3, 5/10, AS01, AS02, AS03, AS04, AS05, AS06, AS07, AS10, AS13, AS15, AS17, AS19, AS20, AS21, AS23, CS01, CS02, CS10, *CS43*, CS44, D7.1, KS01, KS02, KS04, KS06, LF01, LF02, LF03, LF04, LF05, LF06, LF11, LF12, LF14, LF17, LF19, LF20, LF21, LF22, LF23, LF24, TV1, TV13, TV2, TV3, TV4, TV6	
SS.SMu.CFiMu.SpnMeg.Fun Sea pens, including *Funiculina quadrangularis*, and burrowing megafauna in undisturbed circalittoral fine mud 0/24, 0/33, 0/4B, 3/2, 3/4, 3/5, 3/8, 3/13, 3/18, 3/20, 3/22, 3/31, 3/33, 3/34, 3/35, 4/8, 4/11, 4/12, 4/16, *4/31*, 4/32, 4/33, 4/34, 4/35, 4/36, 4/37, 4/38, 4/39, 5/1, 5/5, 5/8, 5/9, BUTEC 1, BUTEC 1A, BUTEC 1B, BUTEC 2, BUTEC 2A, BUTEC 3, BUTEC 3A, BUTEC N, BUTEC NE, BUTEC SE, D9	
SS.SMu.CFiMu.MegMax Burrowing megafauna and *Maxmuelleria lankesteri* in circalittoral mud AS22, LF16, *LF18*	

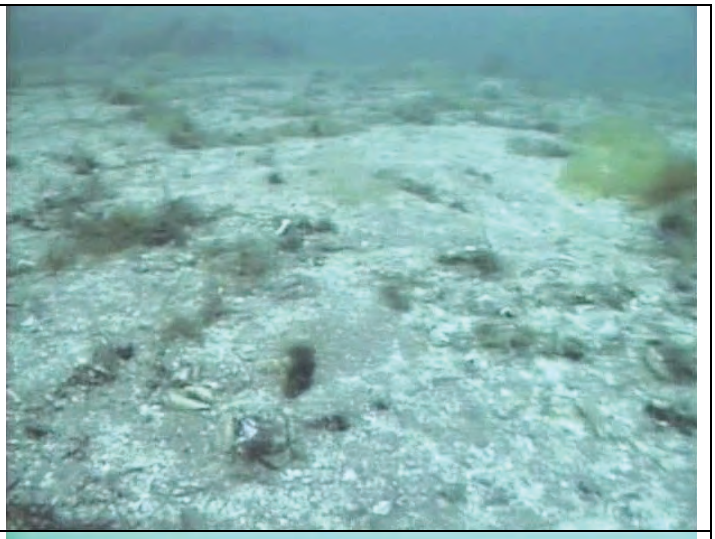
Appendix 3 continued

SS.SMu.OMu Offshore circalittoral mud *D8*	
SS.SMx.IMx Infralittoral mixed sediment *IM02*, IM03	
SS.SMx.CMx Circalittoral mixed sediment 3/7, 3/15, 4/20, 4/22, 4/30, BUTEC NE, CS28, D7.2, D9, KS03, LF07, LF09, LF23, *TV51*	

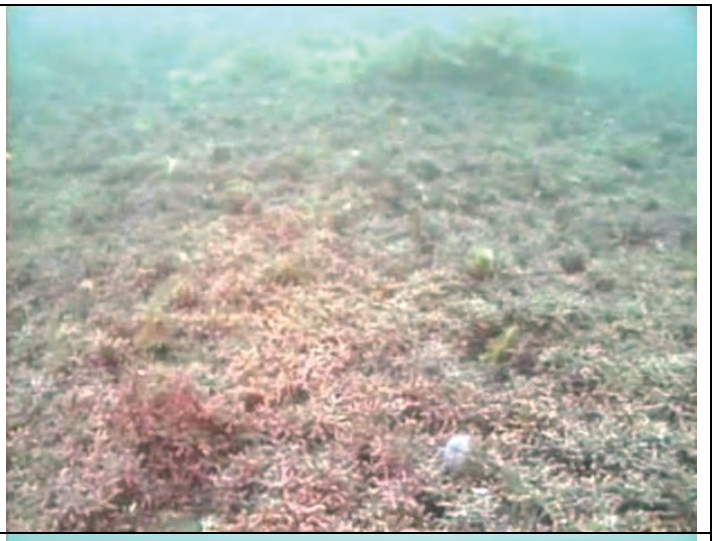
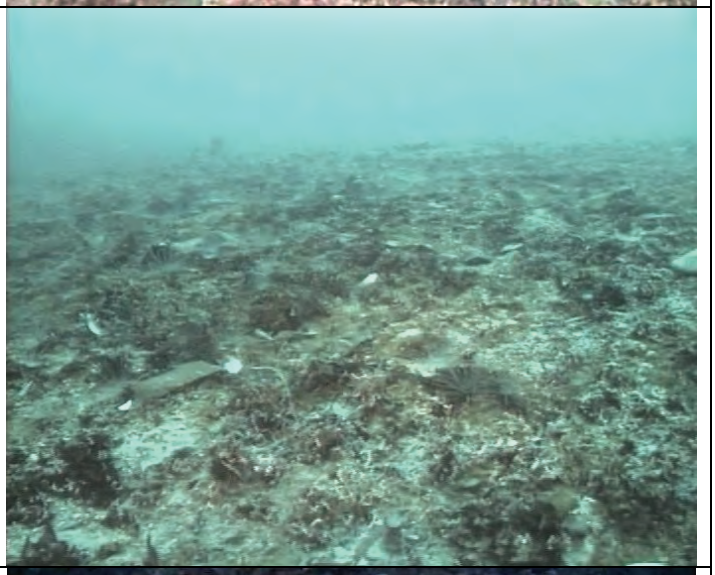
Appendix 3 continued

SS.SMx.CMx.FluHyd *Flustra foliacea* and *Hydrallmania falcata* on tide-swept circalittoral mixed sediment CS15, CS19, CS20, CS26, CS27, CS40, TV48, TV50, TV52, *TV53*, TV54, TV55, TV56	
SS.SMx.CMx.OphMx *Ophiothrix fragilis* and/or *Ophiocomina nigra* brittlestar beds on sublittoral mixed sediment 3/24, 4/21, 4/29, CS21, CS26, CS28, CS30, CS32, CS33, *CS35*, LF07, LF08, LF09	
SS.SMp.KSwSS Kelp and seaweed communities on sublittoral sediment *0/10*	

Appendix 3 continued

SS.SMp.KSwSS.LsacR.Sa *Laminara saccharina* and filamentous red algae on infralittoral sand 0/4, 0/17, *0/18*, 0/27, 0/31, 0/32, 4/27, 5/2	
SS.SMp.KSwSS.LsacR.Mu *Laminaria saccharina* with red and brown seaweeds on lower infralittoral muddy mixed sediment *0/5*	
SS.SMp.KSwSS.Tra Mats of *Trailliella* on infralittoral muddy gravel 0/12, *4/1*	

Appendix 3 continued

SS.SMp.Mrl Maerl beds *0/26*, 0/28, 0/29, 0/30	
SS.SMp.Mrl.Pcal.R *Phymatolithon calcareum* maerl beds with red seaweeds in shallow infralittoral clean gravel or coarse sand *4/18*	
SS.SMp.Mrl.Pcal.Nmix *Phymatolithon calcareum* maerl beds with *Neopentadactyla mixta* and other echinoderms in deeper infralittoral clean gravel or coarse sand 3/14, *3/25*, 4/4, 4/23, 4/28	

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