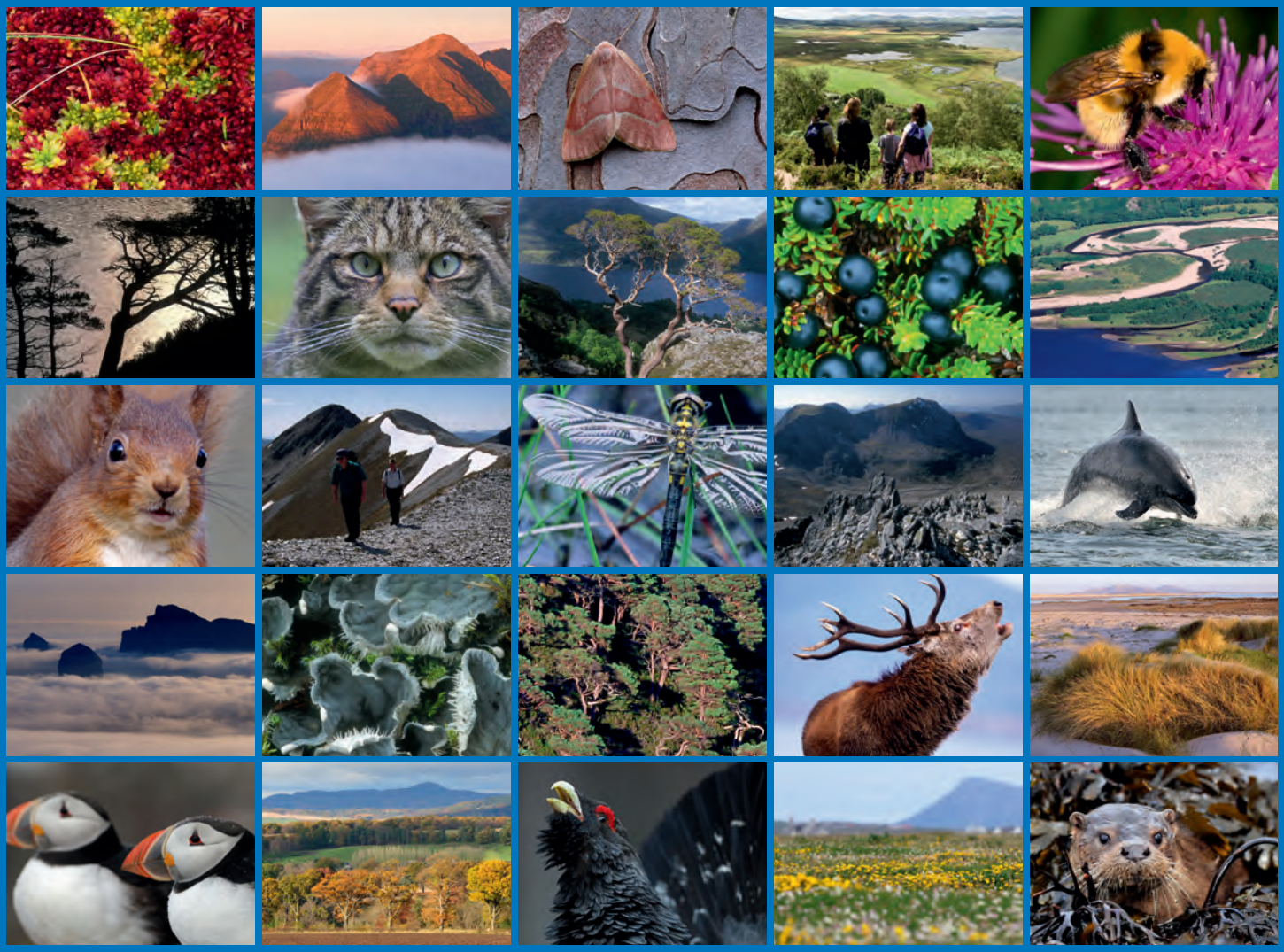
Scottish Natural Heritage
Commissioned Report No. 621

The distribution and condition of proposed protected features within the Loch Sween possible Nature Conservation MPA



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COMMISSIONED REPORT

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The distribution and condition of proposed protected features within the Loch Sween possible Nature Conservation MPA

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COMMISSIONED REPORT

Summary

The distribution and condition of proposed protected features within the Loch Sween possible Nature Conservation MPA

Commissioned Report No. 621
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Background

The Marine (Scotland) Act 2010 and the UK Marine and Coastal Access Act 2009 include new powers for Scottish Ministers to designate Marine Protected Areas (MPAs) around Scotland as part of a range of measures to manage and protect Scotland's seas for current and future generations. Work to identify these MPAs is coordinated through the Scottish MPA Project, a joint project between Marine Scotland, Scottish Natural Heritage (SNH), the Joint Nature Conservation Committee (JNCC) and Historic Scotland.

SNH and JNCC submitted formal advice to Scottish Ministers on the identification of Nature Conservation MPAs in December 2012 (SNH and JNCC, 2012). On the 25 July 2013, the Scottish Government launched a 16-week formal consultation on the full suite of 33 possible Nature Conservation MPAs (pMPAs), noting that a further four MPA search locations remain to be fully evaluated. The pMPAs / MPA search locations were identified on the basis of the presence of key habitats, species and large-scale features of functional importance to Scotland's seas (collectively termed MPA search features - Marine Scotland, 2011). To ensure that the network meets the legislative obligations for MPAs, other features representative of Scotland's seas more generally have also been recommended for formal designation as protected features of these new sites.

The pMPAs on the west coast of Scotland encompass a number of sea lochs, including Loch Sween, which forms the subject of the present investigation. The principal aim of the work was validation of historical records and determination of the current distribution of the MPA search features: burrowed mud, inshore deep mud with burrowing heart urchins and beds of maerl, flame shells and native oysters; as well as assessment of the condition of these features. A further objective was the validation of records of representative sublittoral mud and mixed sediment communities.

Main findings

- Burrowed mud was found to be extensively distributed throughout much of the main channel and upper arms of Loch Sween, dominated by the biotope, **SS.SMu.CFiMu.MegMax**. This covered an area of approximately 660 ha, representing the most extensive known occurrence of the biotope in the British Isles. The Loch Sween habitat is an excellent example of its type, supporting a diverse burrowing megafauna including dense *Maxmuelleria lankesteri*, the main agent in sculpting the seabed into one of unusually high topographic relief.

- The only other burrowed mud biotope recorded was **SS.SMu.CFiMu.SpnMeg**, which had a very limited distribution, only being recorded in Loch na Cille. An historical record of the inshore deep mud biotope, **SS.SMu.CFiMu.BlyrAchi**, was not validated.
- Infralittoral muddy sediments (which form part of the sublittoral mud and mixed sediment communities proposed protected feature) were found to floor much of Linne Mhuirich, as well as being present at the heads of the northern arms of the loch system and in the anchorage at Tayvallich. This low diversity habitat has been assigned principally to the biotope, **SS.SMu.ISaMu.SundAasp**. Another infralittoral muddy biotope, **SS.SMu.ISaMu.MelMagThy**, supporting a much richer infaunal community, appears to be fairly extensively distributed in the deeper but more exposed outer part of Loch Sween.
- Mixed coarse sediments (also part of the sublittoral mud and mixed sediment communities proposed protected feature) extend over much of the seabed in the Sound of Jura, beyond the mouth of Loch Sween. Most sites give the appearance of a low diversity community with stones supporting patches of hydroids and bryozoans (**SS.SMx.CMx.FluHyd**). Historical records of flame shell beds were not validated.
- Maerl beds were mapped at Taynish and Caol Scotnish rapids and estimated to cover 2.7 and 3.7 ha respectively. The Taynish bed exhibited a high live maerl content, chiefly in the form of *Phymatolithon calcareum*, which supported a particularly abundant infaunal community at the time of the survey (**SS.SMp.Mrl.Pcal.R**). The Caol Scotnish bed represented a good example of the biotope, **SS.SMp.Mrl.Lgla**, with a high density of live *Lithothamnion glaciale* thalli of unusually large size.
- The invasive non-native wireweed, *Sargassum muticum*, was found to be widely distributed in Taynish rapids and also present in the main body of Linne Mhuirich.
- *Ostrea edulis* was recorded at all sites examined in relevant parts of the loch, appearing to occur along much of the inshore fringing zone above a depth of 1 m. In comparison to other Scottish sites oyster densities recorded were high (mean 1.89 m^{-2}) and it is concluded that Loch Sween is of national importance in terms of representation of a relatively high quality example of the search feature biotope **SS.SMx.IMx.Ost**.

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1. INTRODUCTION

1.1 Background

Provisions to designate new Marine Protected Areas (MPAs) within Scottish waters have been introduced through the Marine (Scotland) Act 2010 and the UK Marine and Coastal Access Act 2009. Work to identify these MPAs is coordinated through the Scottish MPA Project, a joint project between Marine Scotland, Scottish Natural Heritage (SNH), the Joint Nature Conservation Committee (JNCC) and Historic Scotland.

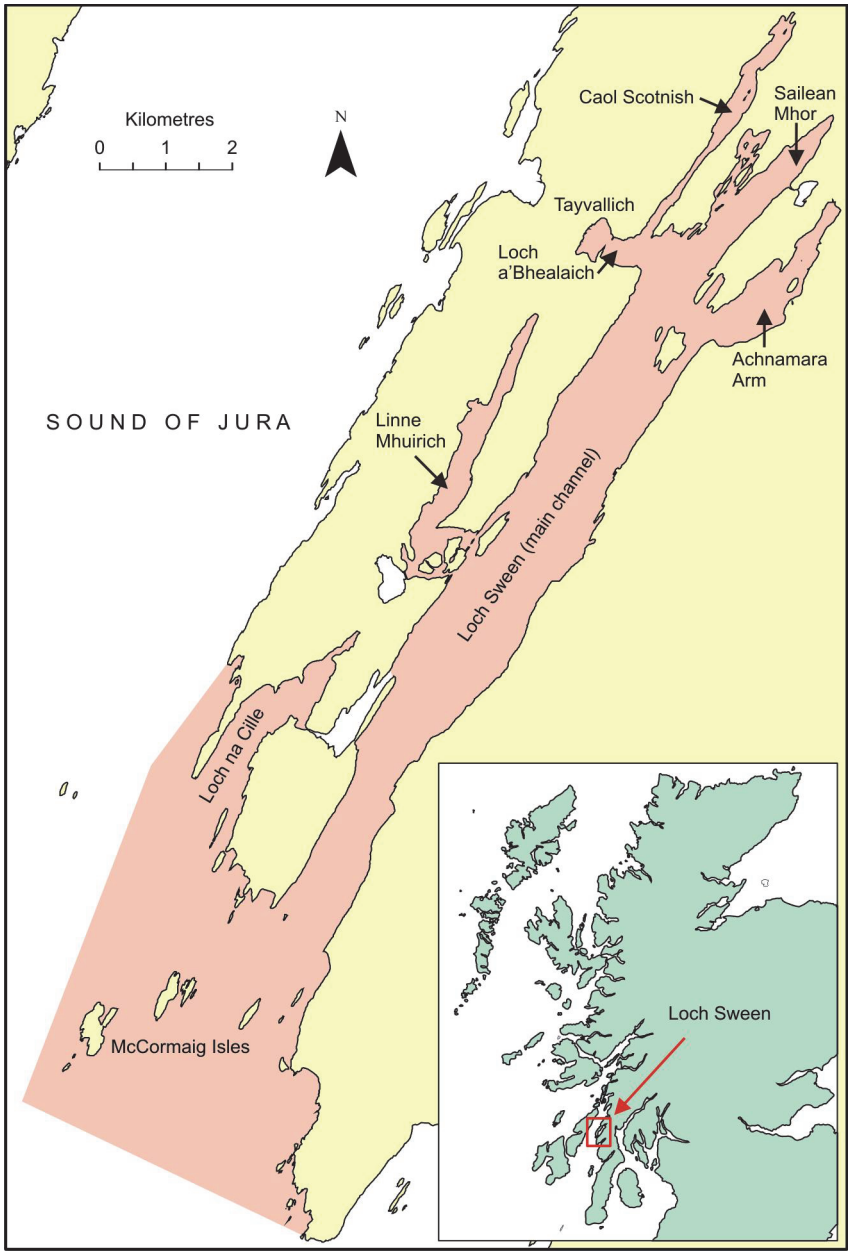

Figure 1. Loch Sween, with survey area (boundary of the possible Nature Conservation MPA) depicted in pink. Inset shows location of the loch. Reproduced by permission of Ordnance Survey on behalf of HMSO. © Crown copyright and database right [2013]. All rights reserved. Ordnance Survey Licence number 100017908.

SNH and JNCC submitted formal advice to Scottish Ministers on the identification of Nature Conservation MPAs in December 2012 (SNH and JNCC, 2012) and the Scottish Government launched a formal consultation on these possible Nature Conservation MPAs (pMPAs) in summer 2013. The pMPAs were identified on the basis of the presence of key habitats, species and large-scale features of functional importance to Scotland's seas (collectively termed MPA search features - see Marine Scotland, 2011 for list). To ensure that the network meets the legislative obligations for MPAs, other features representative of Scotland's seas more generally have also been recommended for formal designation as protected features of these new sites.

The pMPAs encompass a number of sea lochs on the west coast of Scotland, amongst which is Loch Sween, which forms the subject of the present investigation (see Figure 1). The principal aims of the investigation were:

- Validation of historical records and determination of the current distribution of the target MPA search features: burrowed mud, inshore deep mud with burrowing heart urchins and beds of maerl, flame shells and native oysters, as well as the component species *Ostrea edulis.*
- Validation of records of the following additional sublittoral mud and mixed sediment biotope complexes: **SS.SMu.ISaMu**, **SS.SMu.IFiMu**, **SS.SMx.IMx** and **SS.SMx.CMx**. These have been proposed as protected features within the Loch Sween possible MPA in order to enhance inclusion of these representative habitats within the MPA network.
- Assessment of the condition of the targeted proposed protected features.

1.2 Historical records of proposed protected features

Table 10.1 (Appendix 10) summarises the sources of records for the target features and the locations of these records are mapped in Figures 2 - 5. The great majority of records have been incorporated into Marine Recorder and Tables 10.2 and 10.3 (Appendix 10) provide a digest of relevant data from an October 2012 snapshot of the database. Positional and depth data are provided in Table 10.2, however, it was found that many of the positions listed in Marine Recorder and the source reports were misleading, due to errors or resulting from imprecise positional coordinates. Table 10.2 provides the original positional data and, where possible, corrected vales, which are based on textual information and any mapping provided in the reports, as well as assessment of plotted positions on Admiralty charts. Despite this work some misleading feature positions will no doubt remain.

Allen and Birkett (in prep) provide a recent review of the seabed habitats found in Loch Sween and so a detailed textual description here would be superfluous. However, a focused account of the distribution of target features is provided below.

The frequencies of proposed protected feature records for Loch Sween are given in Table 1. This includes sparse records of component species of burrowed mud, although these are probably erroneous. Despite the fairly intensive attention given to Loch Sween by professional marine biologists, there are just two records of *Pachycerianthus multiplicatus*, both by Seasearch volunteers (Seasearch, 2012). These records are tagged as being uncertain in Marine Recorder, and Lumb and Hiscock (1990) noted the presence of particularly large specimens of *Cerianthus lloydii* in Loch Sween "looking rather like small *Pachycerianthus* in their tentacle position". The record of *Funiculina quadrangularis* (included in the GeMS database v2.10 of PMF records (Gillham *et al*., 2011)) from the 1985 NCC Loch Sween sublittoral survey is not mentioned in the corresponding report (Lumb and Hiscock, 1990), but is mentioned in the Marine Recorder site description, which refers to *Nymphon* spp., *Caprella* spp. and *Funiculina* spp. being attached to samples collected from a boulder slope.

Table 1. Frequency of records of the component biotopes and species of the target proposed protected features in Loch Sween. MPA search features in red

Feature	No. records
SS.SMu.ISaMu	1
SS.SMu.ISaMu.Cap	1
SS.SMu.ISaMu.MelMagThy	4
SS.SMu.ISaMu.SundAasp	7
SS.SMu.IFiMu	10
SS.SMu.IFiMu.Are	6
SS.SMu.IFiMu.Beg	7
SS.SMu.IFiMu.PhiVir	11
SS.SMu.CFiMu	19
SS.SMu.CFiMu.BlyrAchi	1
SS.SMu.CFiMu.MegMax	22
SS.SMu.CFiMu.SpnMeg	55
SS.SMx.IMx	12
SS.SMx.IMx.Lim	4
SS.SMx.IMx.Ost	6
SS.SMx.IMx.SpavSpAn	3
SS.SMx.IMx.VsenAsquAps	2
SS.SMx.CMx	12
SS.SMx.CMx.ClloMx	4
SS.SMx.CMx.ClloMx.Nem	13
SS.SMx.CMx.FluHyd	7
SS.SMx.CMx.OphMx	8
SS.SMp.Mrl	13
SS.SMp.Mrl.Lgla	16
SS.SMp.Mrl.Pcal	6
SS.SMp.Mrl.Pcal.R	4
Ostrea edulis	42
Pachycerianthus multiplicatus	2
Funiculina quadrangularis	1

Burrowed mud has been extensively recorded in the upper arms of Loch Sween (Sailean Mhòr and Achnamara Arm), in Loch a'Bhealaich and throughout the inner three quarters of the main channel, as well as in Loch na Cille. The predominant biotope appears to be **SS.SMu.CFiMu.SpnMeg**, although **SS.SMu.CFiMu.MegMax** has been widely recorded, particularly in the upper arms, where it is characterised by often very large mounds of *Maxmuelleria lankesteri* and *Jaxea nocturna* (Atkinson, 1987, 1989). Its presence in Caol Scotnish is much more restricted and here *M. lankesteri* and *J. nocturna* do not form the characteristic mounds, making biotope identification more difficult (Atkinson, 1987). There is a single record of **SS.SMu.CFiMu.BlyrAchi** in the main body of the loch (Lumb and Hiscock, 1990). This is only tentatively assigned to the biotope in Marine Recorder, as it is based merely on the recording of a depauperate fauna consisting of three specimens of *Amphiura chiajei* from a dredge sample of cohesive mud.

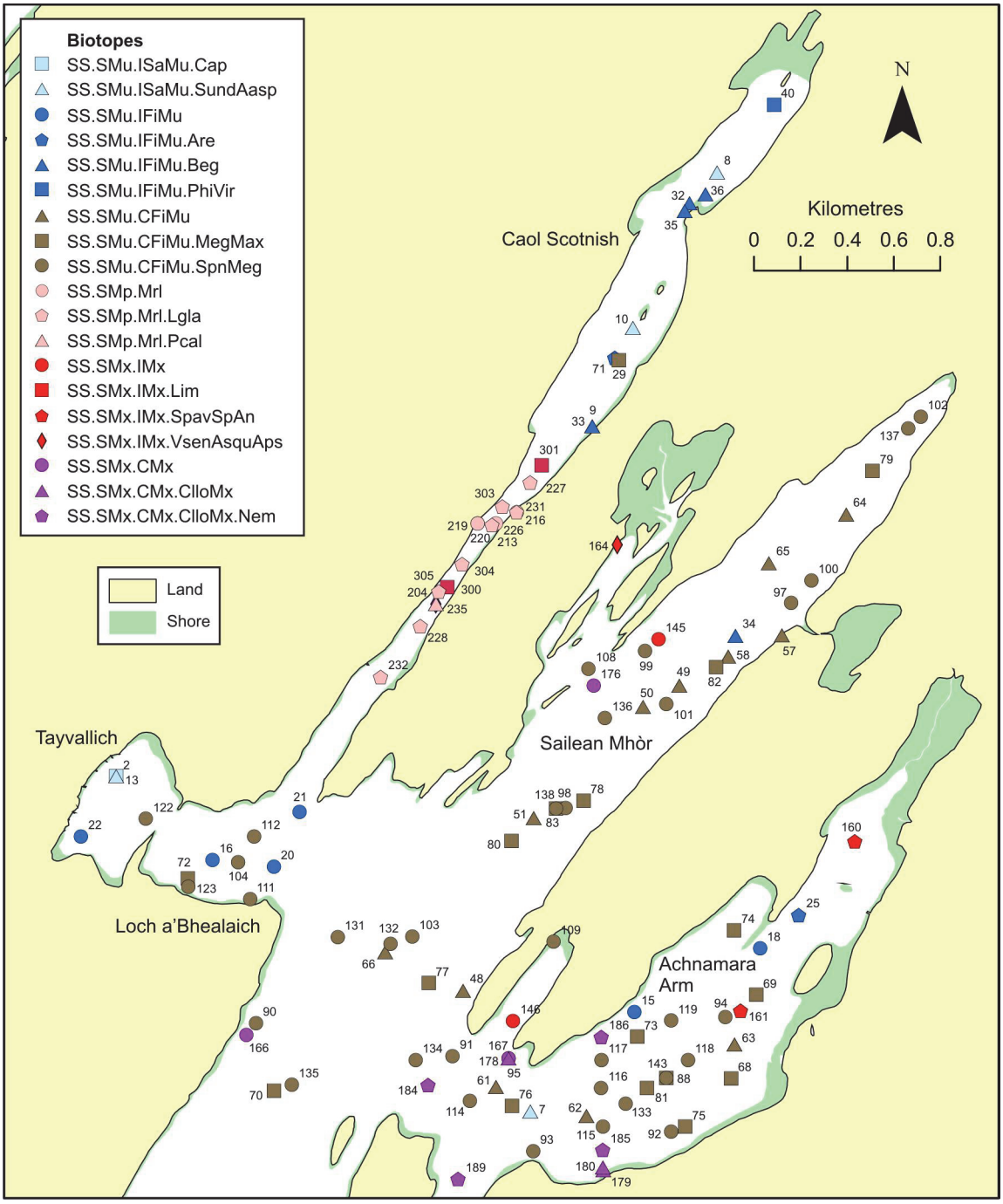

Figure 2. Distribution of target proposed protected feature biotope records in upper Loch Sween. Numbers denote the record code employed in Appendix 10. Reproduced by permission of Ordnance Survey on behalf of HMSO. © Crown copyright and database right [2013]. All rights reserved. Ordnance Survey Licence number 100017908.

Lumb and Hiscock (1990) recorded nests of the flame shell *Limaria hians* in dredge samples from two adjacent sites in the approaches to Loch Sween at 30 - 40 m depth (assigned to the flame shell beds biotope **SS.SMx.IMx.Lim** - an MPA search feature). Although not listed in Marine Recorder or the GeMS database, there are two earlier records of dense *Limaria* in Caol Scotnish narrows, with densities attaining 1500 m^{-2} (Raymont, 1950).

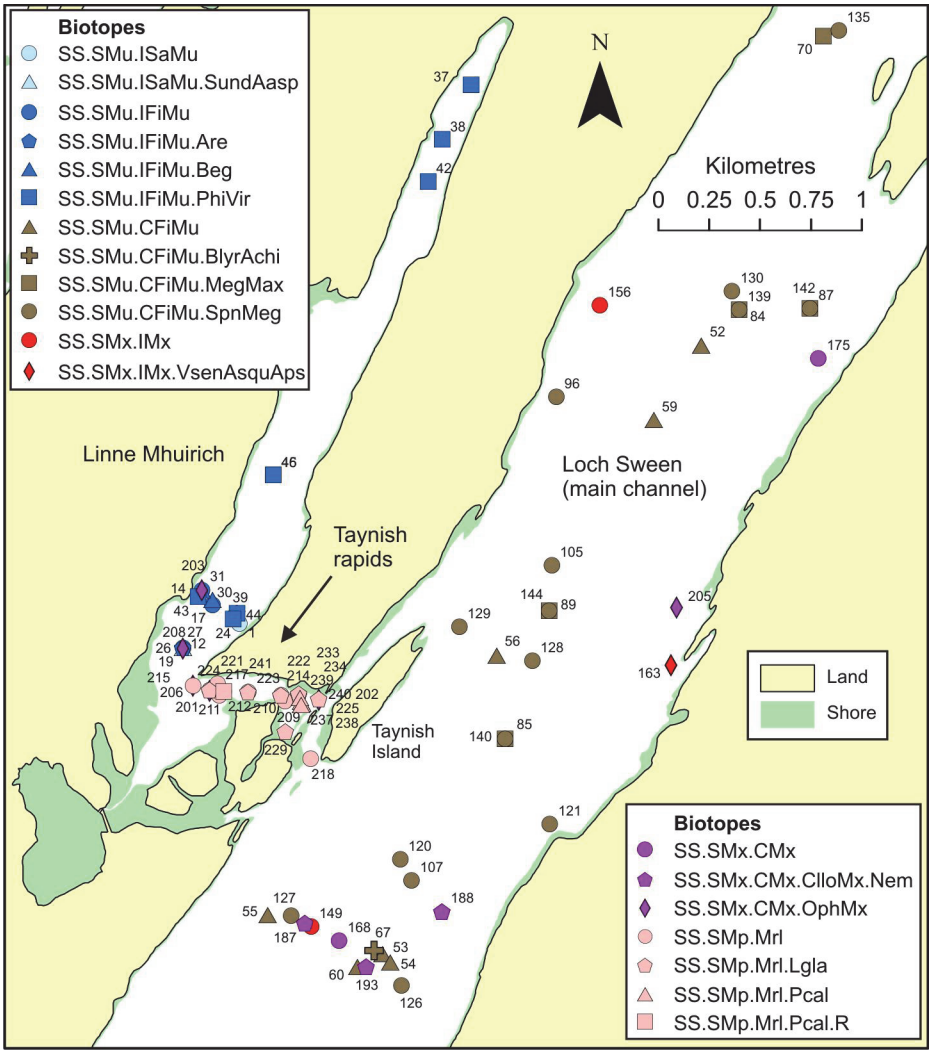

Figure 3. Distribution of target biotope records in central Loch Sween. Numbers denote the record code employed in Appendix 10. Reproduced by permission of Ordnance Survey on behalf of HMSO. © Crown copyright and database right [2013]. All rights reserved. Ordnance Survey Licence number 100017908.

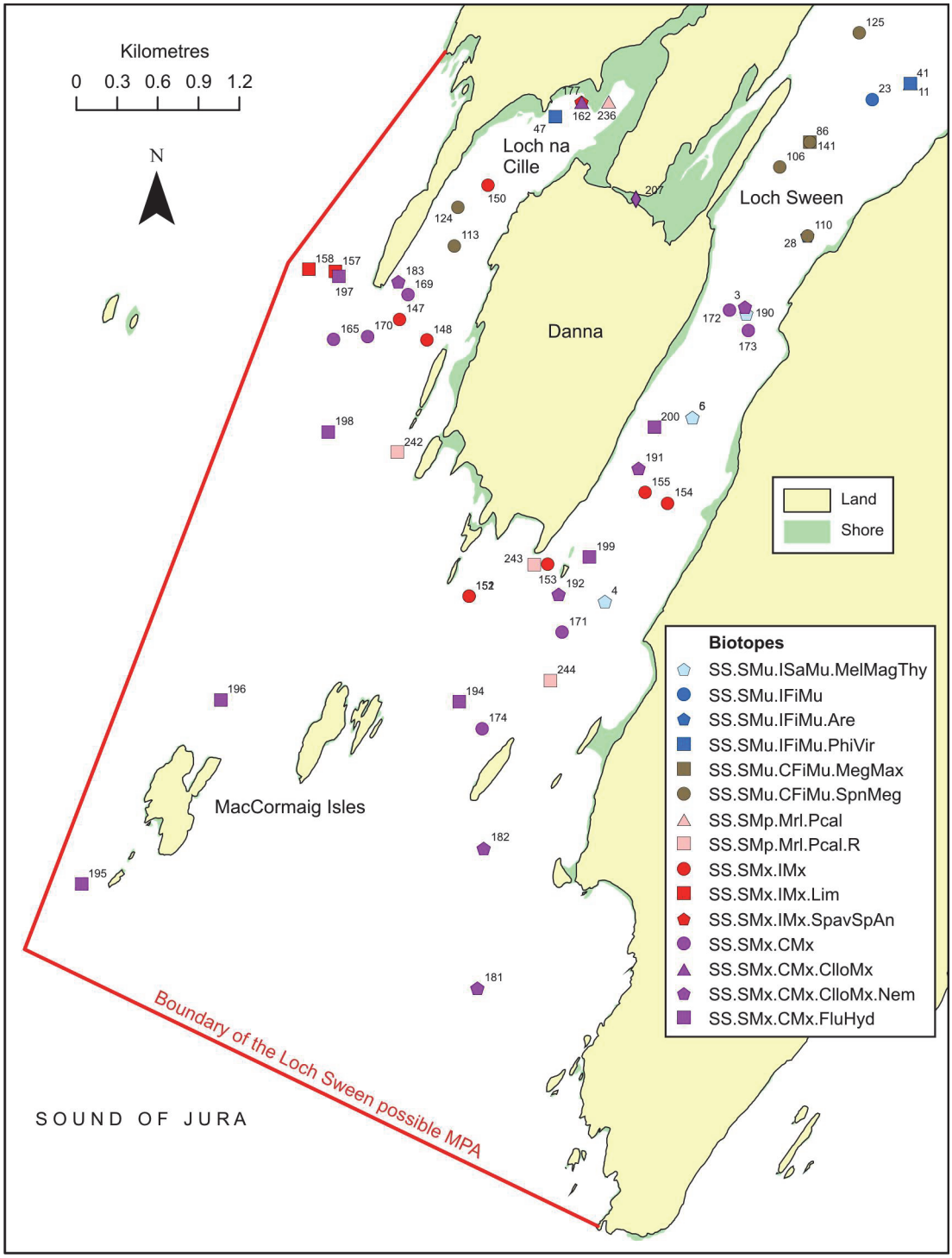

Figure 4. Distribution of target biotope records in outer Loch Sween and Sound of Jura. Numbers denote the record code employed in Appendix 10. Reproduced by permission of Ordnance Survey on behalf of HMSO. © Crown copyright and database right [2013]. All rights reserved. Ordnance Survey Licence number 100017908.

Maerl beds have been recorded in the approaches to Loch Sween and in the narrows of Caol Scotnish and Linne Mhuirich (at Taynish). The record from the head of Loch na Cille (236 in Figure 4) (Lumb and Hiscock, 1990) ascribed to **SS.SMp.Mrl.Pcal**, is based on the presence of only dead maerl material. Patches of maerl were observed at the other three Sween approaches sites (sites 2452, 243 and 244 in Figure 4), in association with coarse

sediment waves at two of them (**SS.SMp.Mrl.Pcal.R**). *Lithothamnion glaciale* was the dominant maerl species recorded in the Caol Scotnish rapids, where records suggest it forms a bed in the deeper, central region of the upper two-thirds of the narrows (**SS.SMp.Mrl.Lgla**). Dr Nick Kamenos and co-workers (e.g. Kamenos *et al*., 2004) have published many papers based on experimental work or collection of material from this bed over the years 2002-11. The record of **SS.SMp.Mrl.Pcal** (from Earll, 1982) appears to be due to an erroneous assignment in Marine Recorder.

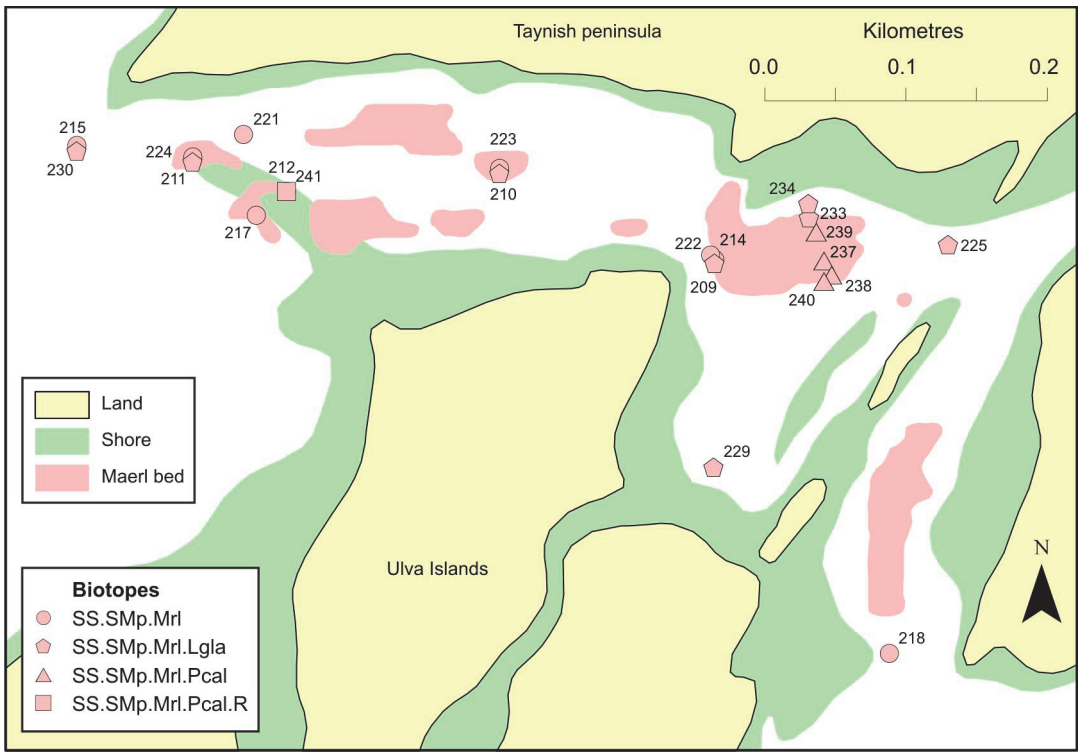

Figure 5. Maerl bed records for the Taynish rapids. Pink polygons represent a digitisation of the sketch of maerl distribution given in Lumb (1986). Numbers denote the record code employed in Appendix 10. Reproduced by permission of Ordnance Survey on behalf of HMSO. © Crown copyright and database right [2013]. All rights reserved. Ordnance Survey Licence number 100017908.

The precise positions of several of the Taynish rapids maerl records are unknown and this can lead to a misleading impression of maerl distribution. However, concentration on the more reliable positional information combined with the habitat distribution sketch presented in Lumb (1986) suggests that, although patchy, maerl is chiefly distributed in three main areas: a western ground (in the vicinity of the spit at the western entrance), a central ground and a south-eastern one (in the seaward entrance channel) (Figure 5). A variety of maerl biotopes has been assigned to the maerl habitats. It is clear that both *Phymatolithon calcareum* and *Lithothamnion glaciale* are present and the former is the dominant maerl-forming species at some sites (**SS.SMp.Mrl.Pcal** and **Pcal.R**). However, whilst unattached thalli of *L. glaciale* have been recorded (and form the basis of some ascriptions to **SS.SMp.Mrl.Lgla**), other records of this biotope appear to be based on the presence of coralline encrusted stones or occasional hedgehog stones.

Marine Recorder records for *Ostrea edulis* are listed in Table 10.4 (Appendix 10). In the interest of protection precise location information has not been included within this report, however this information can be made available for specific requests such as for research. Cited positions were corrected where possible, but the 15 records of Hiscock and Smith

(1986) could not be checked. The last record in the table (542) of abundant oysters is taken from the review of Scottish lagoons by Smith (1984) and is based on previous records. The position cited clearly relates to the location of the oysters and not to specific observations of them.

Records are scattered throughout the Loch Sween system, with high numbers recorded in one area in particular. Some areas have been exploited as a source of oysters (University Marine Biological Station Millport, 2007). Large numbers of old shells were recorded in 1982 (Earll, 1982: site 540), amongst which were live oysters, although an indication of their abundance was not provided.

University Marine Biological Station Millport (2007) carried out detailed density measurements at sites within the Loch Sween system from 2004 to 2005, and Bunker (1999) recorded density along a single transect in January 1999, repeated later in the year by Paisley (1999) (Table 10.5: Appendix 10), who also added a number of oyster records, which have not been incorporated into Marine Recorder (see Table 10.5). In addition to the oyster bed records, there are historical observations of high numbers of oysters (common - abundant) at a further five sites within the Loch Sween system.

Infralittoral fine mud biotopes are widely distributed in the upper arms of the Sween system and in Linne Mhuirich, while there are scattered, sparse records of infralittoral sandy-mud biotopes (Figures 2 - 4). Circalittoral mixed substrates appear to be extensively distributed in the mouth and approaches to Loch Sween, with infralittoral mixed substrates represented by fairly scattered records throughout much of the Sween system.

Records of **SS.SMu.CFiMu** are widely distributed in the upper arms and main body of the loch and, although neither a PMF nor a representative mud or mixed sediment biotope, it is regarded as a target feature for this survey, due to the likelihood that some of these records could be indicative of the presence of burrowed or inshore deep mud habitats.

2. METHODS

Fieldwork was undertaken during two time periods in 2013. Phase 1 of the programme (18th -21st March) involved dropdown video and remote infaunal surveys of the Loch Sween system, apart from Linne Mhuirich. Phase 2 (17th - 23rd April) included principally diving surveys of the maerl, oyster and burrowed mud features of the loch, together with video and infaunal surveys of Linne Mhuirich and limited infaunal sampling elsewhere in the Loch Sween system. A more detailed timetable of fieldwork activities is provided in the survey log (Appendix 12).

2.1 Video survey

Ninety-eight sites were surveyed by dropdown video from *RV Serpula*. Site locations are shown in Figures 6 and 7 and locational details provided in Table 2.1 (Appendix 2).

The video system used consisted of a Panasonic NV-GS150 3 chip digital video camera within a Seapro housing held within a frame and illuminated by twin 100 watt lamps. A 150 m umbilical cable carried the video signal to a Sony Video Walkman for real-time observation and for recording on miniDV tape. At each station the camera was deployed from a drifting vessel for several minutes (generally 3 - 8), noting the times, depths and precise positions at the start and end of the drift using dGPS. These data, as well as brief notes on substrates and biota, were entered onto a *pro forma* (Appendix 1). As many of the sites were for validation of historical records, the *pro forma* also contained target depths and

biotopes, so that the position of the video track could be adjusted where necessary to ensure that similar depths were sampled, taking into account the tidal rise above chart datum.

As Linne Mhuirich was inaccessible to *RV Serpula*, video runs were carried out by diving at six sites in Linne Mhuirich using a hand-held HD video camera (Sony HD Model XR550) (Figure 7, Appendix: Table 2.1).

The video material from each station was processed in the laboratory, with notes being taken on the substrate and the biota present, where possible employing the SACFOR scale of abundance. Biotopes were allocated based on the classification scheme of Connor *et al.* (2004). Stations were also categorised according to the PMFs present.

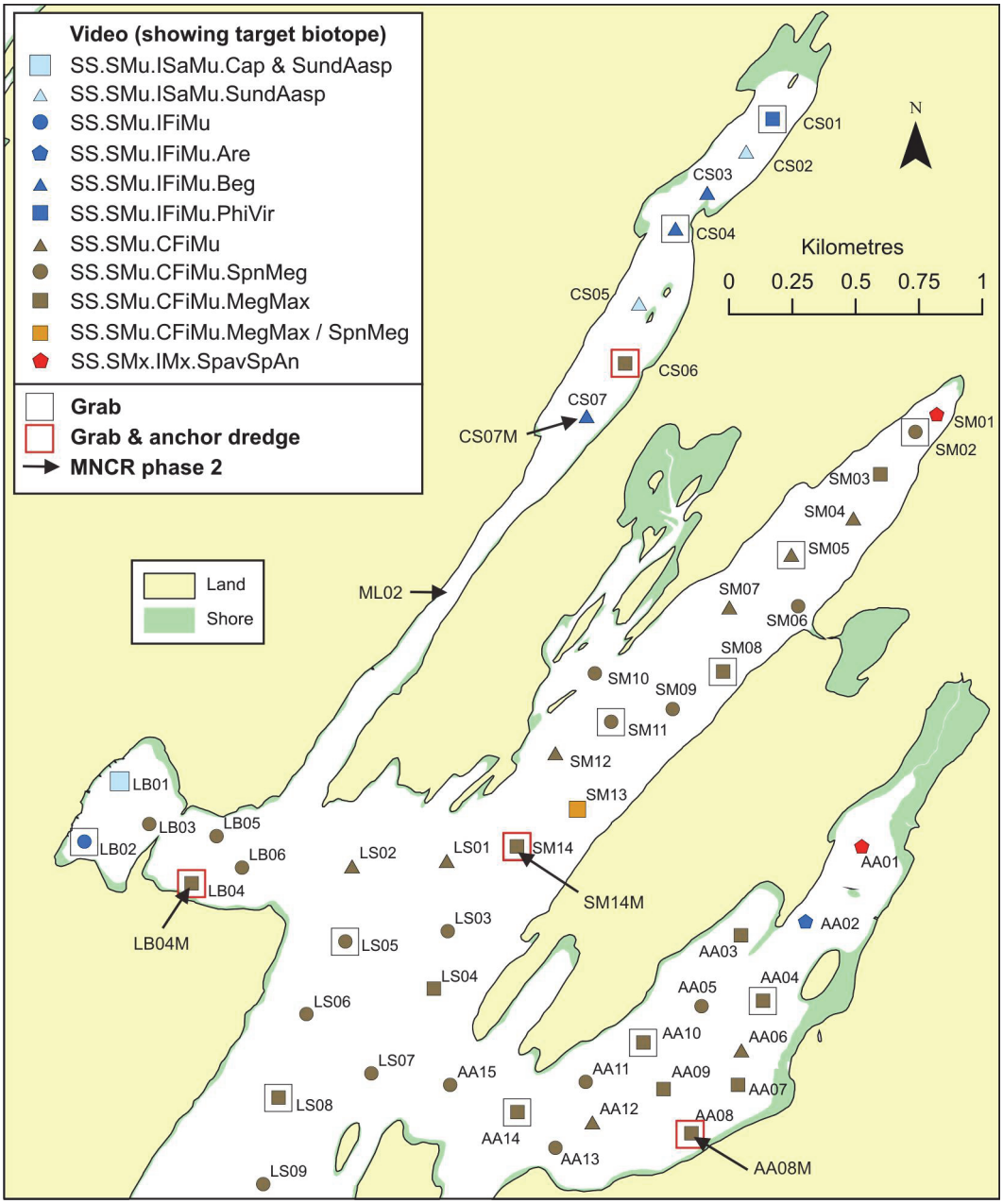

Figure 6. Distribution of sample sites in upper Loch Sween, with target biotopes shown for the video survey. Reproduced by permission of Ordnance Survey on behalf of HMSO. © Crown copyright and database right [2013]. All rights reserved. Ordnance Survey Licence number 100017908.

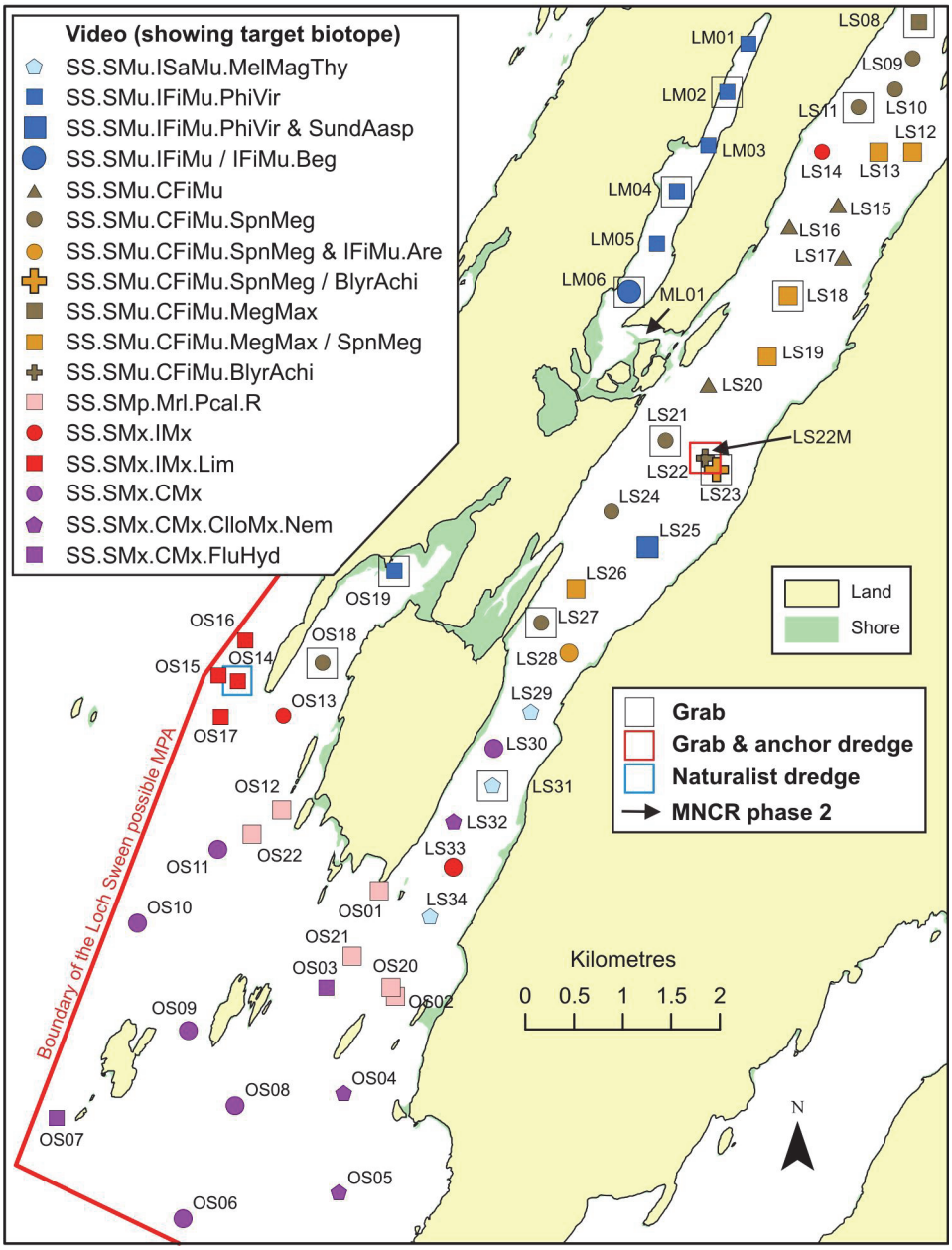

Figure 7. Distribution of sample sites in outer Loch Sween and the Sound of Jura, with target biotopes shown for the video survey. Reproduced by permission of Ordnance Survey on behalf of HMSO. © Crown copyright and database right [2013]. All rights reserved. Ordnance Survey Licence number 100017908.

2.2 Infaunal survey (grab, anchor dredge and naturalist dredge)

To assist in the process of biotope identification and condition assessment, single 0.1 m^2 van Veen grab samples were taken at 25 stations with a c.150 ml subsample taken for particle size analysis and the remaining material sieved on a 1 mm mesh and preserved in buffered 5% formalin. The macrobenthos was subsequently sorted, identified and enumerated by Fugro EMU (Edinburgh). In addition, a further three replicate grab samples were collected at one of the above sites (LS22), where there is a historical record of inshore deep mud (**SS.SMu.CFiMu.BlyrAchi**). This was processed on site for the presence of characterising biota (*Brissopsis lyrifera*, *Amphiura chiajei*). During phase 2 of the survey programme the infauna at a few additional sites (three in Linne Mhuirich and site AA08 in the

Achnamara Arm) were examined using duplicate, pooled mini van Veen grab samples (total area 0.09 m^2), with the contents of a third grab subsampled for particle size analysis. The faunal samples were processed, as described above, by Fugro EMU (Edinburgh). The distribution of grab sites is shown in Figures 6 and 7, with locational details provided in Table 3.1 (Appendix 3).

Sediment samples for grain size analysis were dry sieved using a nest of sieves from 4 to -4 phi at 0.5 phi intervals, following separation and measurement of the silt/clay fraction by puddling the sample of known weight, which had been soaked in sodium hexametaphosphate, through a 63 µm sieve. The sediment grain size parameters, median grain size and phi quartile deviation, were obtained by interpolation of the cumulative weight percentage curves.

One naturalist dredge tow was carried out through an area of historical *Limaria* bed records in the approaches to Loch Sween, to supplement video samples taken at the same location. Single anchor dredge samples were also collected at four sites in areas of historical records of *Maxmuelleria* (Caol Scotnish, Sailean Mhòr, Achnamara Arm and Loch a'Bhealaich), and the material retained on a 10 mm screen examined *in situ* for the presence of burrowing megafauna (Figures 8 and 9, Table 3.1: Appendix 3).

2.3 Diving survey

2.3.1 Burrowed mud MNCR phase 2 survey

MNCR phase 2 surveys were carried out by diving on good examples of the biotope **SS.SMu.CFiMu.MegMax** at locations in Loch a'Bhealaich (LB04M), Sailean Mhòr (SM14M), Achnamara Arm (AA08M) and the main channel of the loch (LS22M) (Figures 6 and 7; Appendix 5: Table 5.1).

The site was marked with a shot line for the duration of the survey and the dGPS position of the line recorded. A 25 m transect line was marked out on the seabed by running out a measuring tape from the base of the shot line. The bearing of the tape from the shot was noted and the depth at both ends of the tape recorded. A band 4 m either side of the tape was surveyed by two divers, who noted the presence, and where possible, estimated the abundance of conspicuous biota, collecting material which needed to be identified in the laboratory. To supplement the real-time visual records and collections, the transect band was videoed using a hand-held digital HD video camera (Canon Legria HF S30) and still photographs taken of the habitat and associated community using two Fuji Finepix S2 Pro digital still cameras with 14 mm wide-angle and 90 mm macro lenses. No infaunal samples were taken, as grab samples for all sites were available from the grab survey (see section 2.2). To aid in identification of megafaunal burrows a 40 cm rod was employed as a probe to investigate burrow configuration.

A brief MNCR phase 2 survey was carried out within an area of approximately 100 m^2 by a single diver at site CS07 (Figure 6) in the upper basin of Caol Scotnish, chiefly to identify the dense megafaunal burrows that had been observed on the dropdown video footage. No imagery or infaunal samples were taken here.

The diver species records and those derived from the study of the collected biota, video footage and still photographs were collated to produce a species list for the transect band with, where possible, SACFOR abundance estimates. Based on the physical and biological data collected, a biotope was subsequently allocated using Connor *et al.* (2004).

2.3.2 Maerl bed surveys

Distribution

The distribution of maerl in the Taynish and Caol Scotnish rapids was determined by diver observations at stations along transects passing across the rapids. Transects were established at approximately 100 m intervals at Caol Scotnish and 50 m intervals at Taynish. At Caol Scotnish divers were deployed at one side of the channel and completed a single transect per dive following a compass bearing and recording observations at stations separated by an estimated 10 m. At Taynish several transects were undertaken per dive with stations along each transect separated by an estimated 20 m. To aid diver location of transects at Taynish, pairs of leading marks were established on the shore, although divers again used a compass bearing to navigate along the transect. Actual positions of stations were derived from towed GPS loggers. At each station the diver recorded the time, which was synchronised with GPS time, together with the GPS float direction and line length, which permitted determination of the GPS logger position, as well as the layback correction. 134 stations were worked at Taynish and 124 at Caol Scotnish (Figures 8 and 9). At each station the following additional data were recorded:

- depth
- boulders (dominant or present)
- cobbles (dominant or present)
- pebbles (dominant or present)
- gravel (dominant or present)
- sand (dominant or present)
- muddy sand (dominant or present)
- mud (dominant or present)
- live maerl (%)
- dead maerl (%)
- *Phymatolithon calcareum* (dominant or present)
- *Lithothamnion glaciale* (dominant or present as nodules - not hedgehog stones)
- *Lithothamnion glaciale* hedgehog stones (present)
- *Ostrea edulis* (SACFORN abundance)

The presence of *Limaria hians*, together with estimates of nest cover and thickness was also recorded for Caol Scotnish.

To characterise the maerl species in Taynish rapids, representative maerl samples were collected for laboratory identification at inner, outer and central locations along the rapids system (respectively stations TE.5, TJ.6 and TR.3 - see Figure 8).

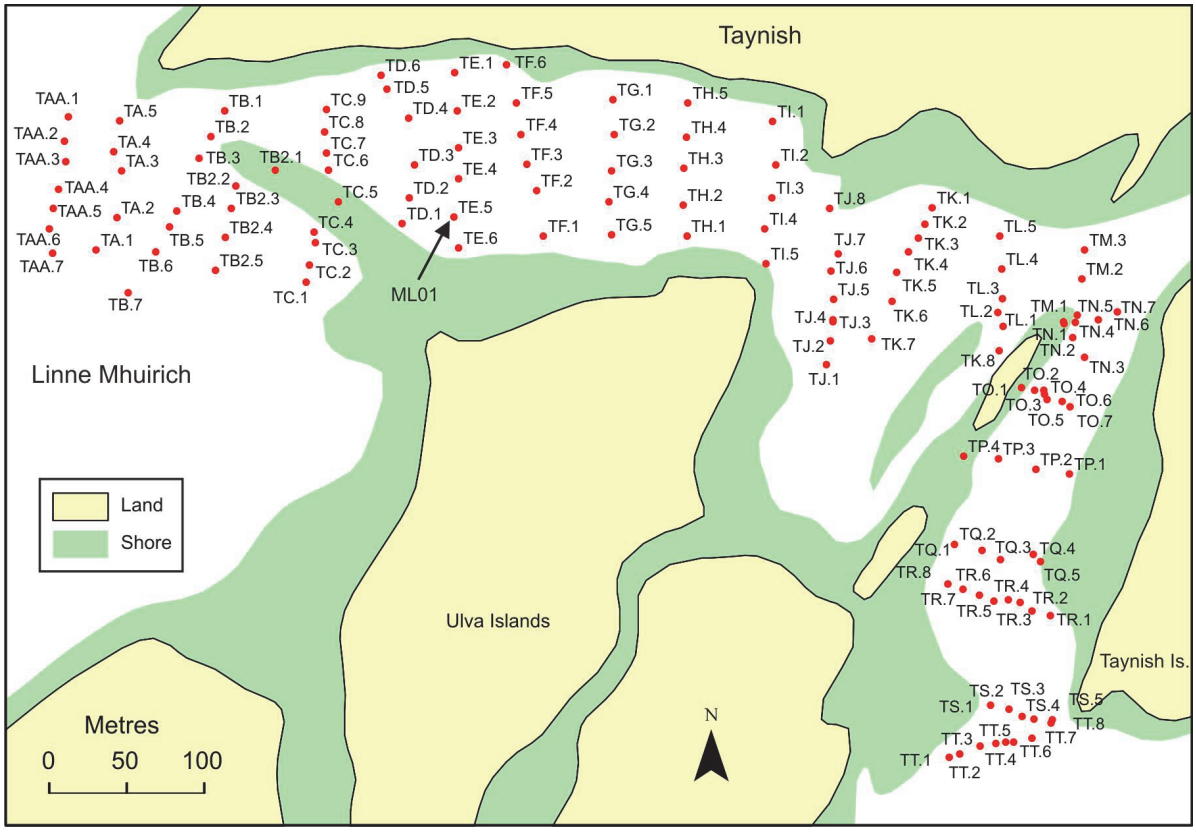

Figure 8. Distribution of sites for maerl mapping survey in Taynish rapids. MNCR phase 2 site (arrowed) also shown. Reproduced by permission of Ordnance Survey on behalf of HMSO. © Crown copyright and database right [2013]. All rights reserved. Ordnance Survey Licence number 100017908.

MNCR phase 2 survey

An MNCR phase 2 survey was carried out by diving at sites representing good examples of the maerl habitat in Taynish rapids (site ML01) and Caol Scotnish rapids (site ML02). The locations are illustrated in Figures 8 and 9, with details provided in Table 5.1 (Appendix 5).

Methodology followed that employed for burrowed mud, except that the survey band was reduced to 2 m either side of the tape, and four replicate cores (10.3 cm diameter to a depth of c.20 cm) were taken for infaunal analysis and one core for particle size analysis, with the infaunal samples sieved using a 1 mm mesh screen. Infaunal samples were subsequently sorted, identified and enumerated by Fugro EMU (Edinburgh).

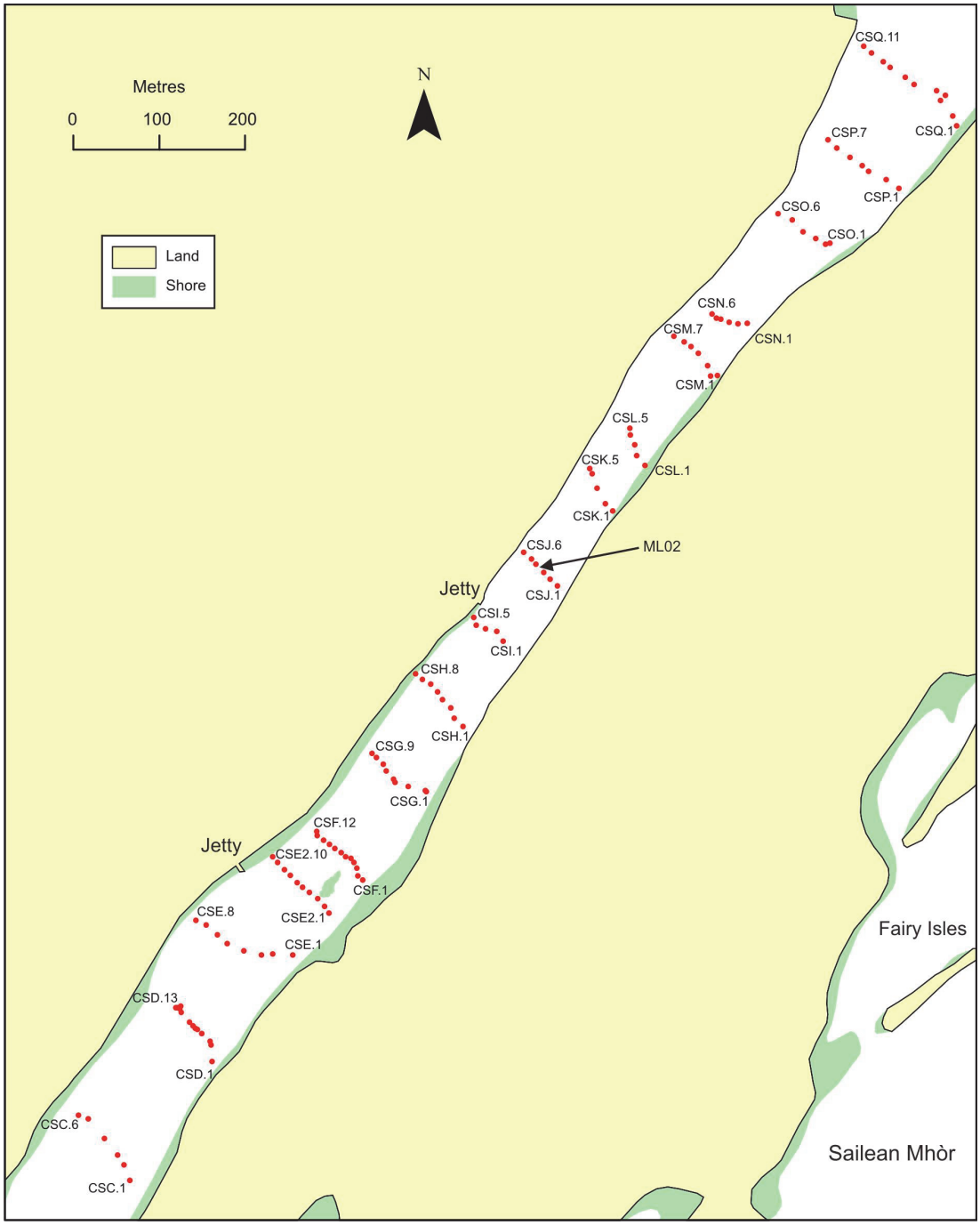

Figure 9. Distribution of sites for maerl mapping survey in Caol Scotnish rapids. MNCR phase 2 site (arrowed) also shown. Reproduced by permission of Ordnance Survey on behalf of HMSO. © Crown copyright and database right [2013]. All rights reserved. Ordnance Survey Licence number 100017908.

2.3.3 Native oyster survey

Oyster density was assessed by diver along 11 transects, several of the locations corresponding with areas of historical surveys (Appendix 6: Table 6.1). Based on target coordinates at each site, the oyster habitat was first located by means of a brief diver search. The oysters present are mainly associated with shallow (<1 m) mixed sandy substrates with stones and sometimes bedrock situated shallower than the muddy sediments covering much of the inlet. The numbers of *Ostrea edulis* were counted under a 1 m rule along a transect

passing through the oyster habitat, approximately parallel to the shore line. The diver aimed to cover a distance of approximately 100 m along a compass bearing, with the exact start and end positions recorded by dGPS. The distance covered was subsequently calculated using the Haversine formula (Sinnott, 1984) and the true bearing of the transect calculated using the software, GPS Utility. A total of 288 oysters were measured for shell height to the nearest millimetre using a ruler.

2.4 Depth determination

There are no detailed published tidal data for Loch Sween, although the tidal range in the main body of the loch is believed to be around 1.6 m (Allen and Birkett, in prep), reducing to 0.67 - 0.85 m in Linne Mhuirich (Millar, 1961). The best Admiralty predictor tidal station is probably T039A, which lies 7 km to the south of Sween and displays a similar tidal range and phasing (R, Bradfield, Antares Charts, pers. comm.). Tidal heights in Loch Sween can be significantly influenced by meterological conditions. In this report depths are given in relation to chart datum using the T039A model for most of the Loch Sween system. For Linne Mhuirich depths have been modified in proportion to the reduction in tidal range, which has been taken as 0.8 m in the main body of this inlet and 1.0 m in Taynish rapids, and a one hour delay in the phasing of the tide has been applied (Curtis, 1979).

3. RESULTS

In this section proposed protected features are highlighted in red text.

3.1 Video survey

SS.SMu.CFiMu.MegMax was found to be the dominant biotope in the main channel of Loch Sween, as well as in the northern branches of Sailean Mhòr, Loch a'Bhealaich and the Achnamara Arm (Figure 10). Inshore of the sill at the mouth of Loch Sween, most of the loch was floored by this biotope, which was recorded from depths of 14 - 32 m in the main channel and from 11 - 24 m in the northern branches. The substrate was generally soft mud with high topographic relief produced by megafaunal mounds and burrows, especially those of *Maxmuelleria lankesteri*, which was recorded as common or abundant (on the SACFORN scale - Hiscock, 1996) at most stations. *Maxmuelleria* was generally accompanied by often dense burrows of *Nephrops norvegicus*, as well as those of the burrrowing shrimps, *Jaxea nocturna* and *Callianassa subterranea*, and at some sites *Calocaris macandreae*. The only sea pen observed throughout the loch system was *Virgularia mirabilis*, which occurred at only 14 of the 58 *Maxmuelleria* sites, generally at low density. The biotope was also recorded in the inner basin of Caol Scotnish at depths of 9 - 15 m, but the large biogenic mounds characteristic of the biotope elsewhere in the loch system were absent here. In general, megafaunal mounds were small and sparse, with *Maxmuelleria lankesteri* present but apparently at low density. *Jaxea nocturna* and *Callianassa subterranea* were also present, with the latter species becoming locally abundant in the firmer sediment and accelerated currents in the vicinity of Caol Scotnish rapids. Throughout the Loch Sween system **SS.SMu.CFiMu.MegMax** is estimated to cover an area of 660 ha.

In shallow waters at the heads of the upper arms of Loch Sween and in the Tayvallich anchorage, burrowed mud gave way to flat muddy sediments at depths of 3 - 12 m. The sediment supported a brown diatomaceous film but a sparse visible fauna, generally including *Ascidiella aspersa* and *Sagartiogeton laceratus*, ascribed to **SS.SMu.ISaMu.SundAasp** (see section 3.2). This biotope also appeared to be widely distributed in Linne Mhuirich, with sandy mud sediments at depths of 1 - 13 m supporting scattered patches of *A. aspersa*, as well as *Sagartiogeton undatus*. Where blackened anaerobic sediment was visible at the sediment/water interface, the biotope, **SS.SMu.IFiMu.Beg**, was recognised. Dense beds of *Zostera marina* were recorded in shallow mud (0.9 - 1.5 m) at two sites at the northern end of the inlet, supporting abundant populations of *Psammechinus miliaris* and *Ophiocomina nigra* (**SS.SMp.SSgr.Zmar**).

In the more exposed outer region of the main channel of Loch Sween the soft mud habitat was replaced by a firm, slightly mixed muddy-sand sediment with shells of *Turritella communis* and scattered stones and shells supporting hydroid clumps (Figure 11). Although the sediment appears somewhat coarser than is typical for the biotope, sites at depths of 12 - 19 m depth in this area have been tentatively ascribed to **SS.SMu.ISaMu.MelMagThy** based on the presence of the characterising taxa in grab material collected in 2013 (see section 3.2) as well as in samples collected here during the 2010 survey by SEPA (Allen and Birkett, in prep). *Virgularia mirabilis* was also present at some of these sites.

The presence of strong tidal currents in the approaches to Loch Sween is reflected in the widespread occurrence of mixed coarse sediments, with coarse sand being accompanied by varying concentrations of gravel, pebbles, cobbles, boulders and shell material. Stones were encrusted with serpulid worms and, in shallower waters, pink coralline algae, and supported patches of hydroids and bryozoans, including *Flustra foliacea* and *Securiflustra securifrons*, and sparse *Alcyonium digitatum* (**SS.SMx.CMx.FluHyd**), with dense *Ophiocomina nigra* at two sites (**SS.SMx.CMx.OphMx**).

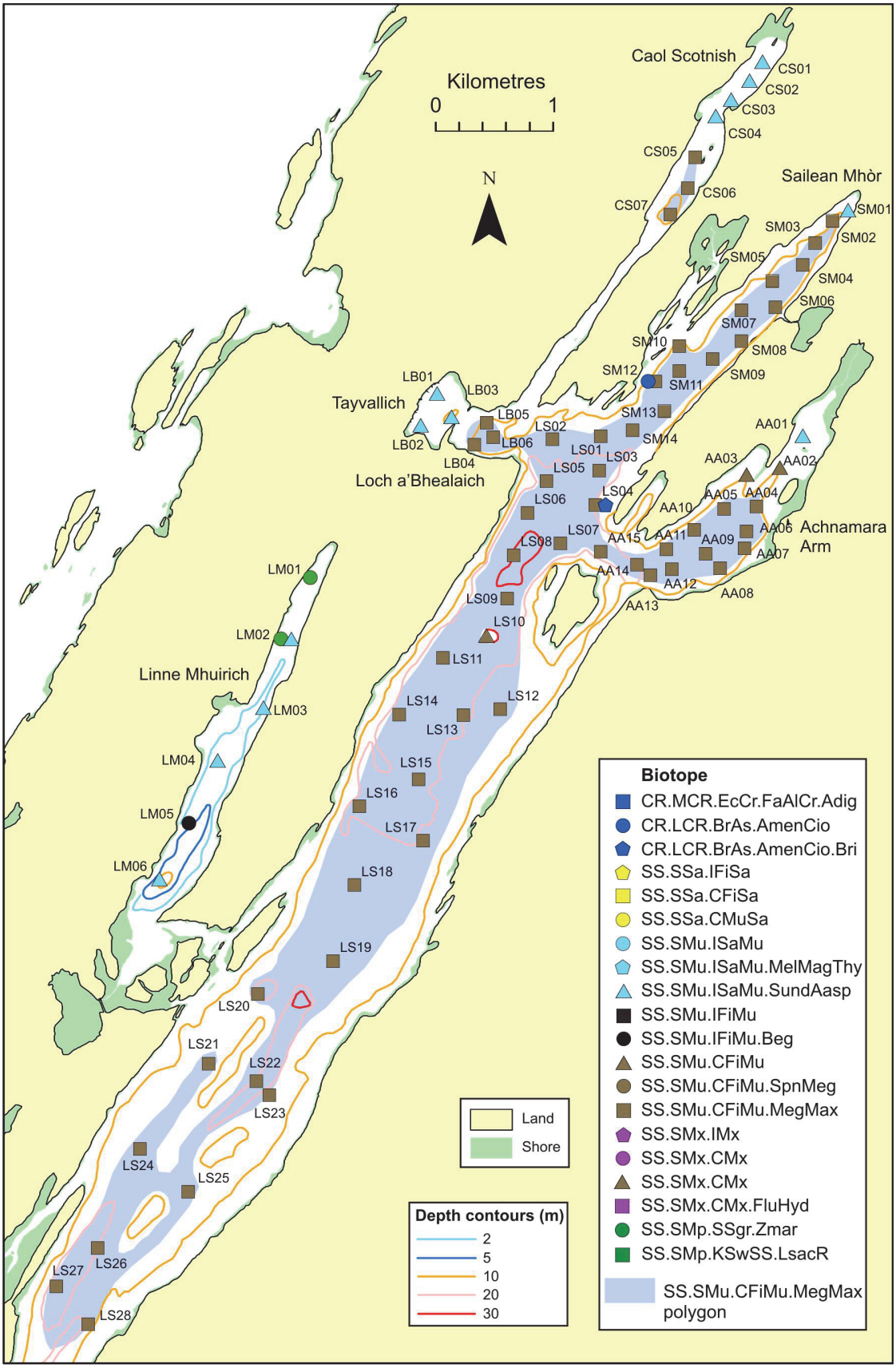

Figure 10. Distribution of biotopes in inner Loch Sween. Reproduced by permission of Ordnance Survey on behalf of HMSO. © Crown copyright and database right [2013]. All rights reserved. Ordnance Survey Licence number 100017908.

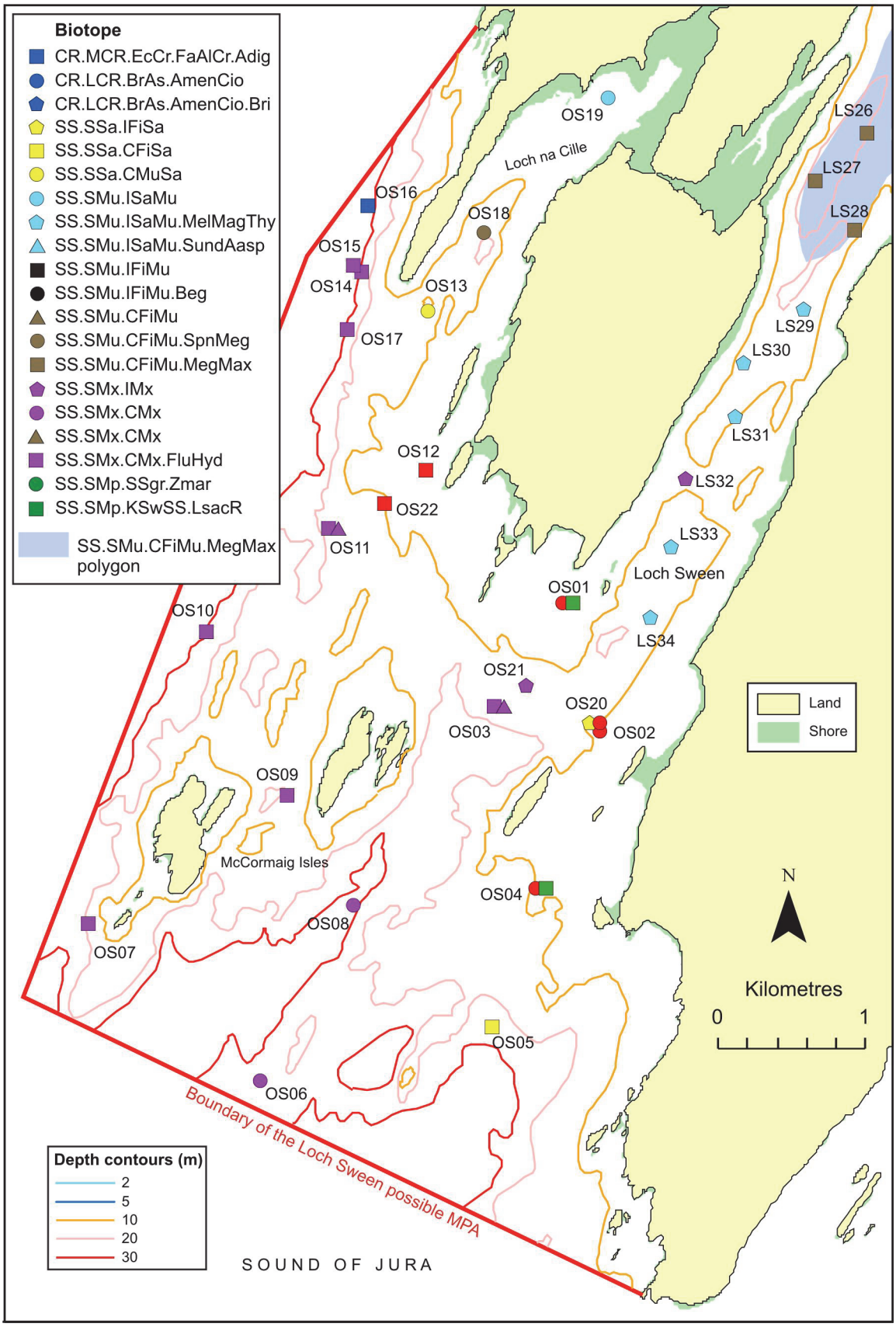

Figure 11. Distribution of biotopes in outer Loch Sween and the Sound of Jura. Reproduced by permission of Ordnance Survey on behalf of HMSO. © Crown copyright and database right [2013]. All rights reserved. Ordnance Survey Licence number 100017908.

Where the erect sessile fauna was very sparse the sites have been ascribed to **SS.SMx.CMx**, except at the shallowest sites (9 - 16 m depth), where stones supported a sparse algal flora including *Saccharina latissima* and *Desmarestia aculeata* (**SS.SMx.IMx**).

At one of the deeper sites (OS16) (33 - 47 m) dense boulders and cobbles supporting an encrusting fauna accompanied by fairly dense *A. digitatum* represented the only reef biotope recognised (**CR.MCR.EcCr.FaAlCr.Adig**).

Mixed kelp parks and forests, varying in dominance by *Laminaria hyperborea* and *Saccharina latissima* were also recorded on mixed substrates of stones on sand along the coastal fringe at depths of 6 - 12 m. The stones appeared scoured and supported a sparse understorey community including encrusting serpulid woms and coralline algae, as well as *Desmarestia aculeata*, and locally *Alaria esculenta* and possibly *Saccorhiza polyschides* (**IR.HIR.KSed.XKScrR**, **IR.HIR.KSed**). Very sparse live rhodoliths of *Phymatolithon calcareum* were recorded at two of these sites. The more sand-dominated areas with scattered *S. latissima* have been tentatively regarded as low diversity examples of **SS.SMp.KSwSS.LsacR**.

Circalittoral mud in Loch na Cille supported low densities of megafaunal burrowers, probably *Callianassa subterranea* and *Calocaris macandreae*, at 17 - 20 m depth (**SS.SMu.CFiMu.SpnMeg**). In shallow water (5 m) at the head of the loch the mud was coated in a diatom film, and exhibited numerous polychaete casts, including those of *Arenicola marina* and probably *Melinna palmata*. The site has been referred to **SS.SMu.ISaMu**, although the presence of *Philine* sp. (as indicated by infaunal data and the existence of characteristic surface tracks) may signify **SS.SMu.IFiMu.PhiVir** (see section 3.2).

3.2 Infaunal survey

Species abundance data are given in Table 3.4 (Appendix 3), with total abundance, diversity and biotope allocations in Table 3.5 (Appendix 3). Granulometric data for the sites are provided in Appendix 3, with Table 3.2 showing summarised descriptors, Table 3.3 raw data and Figure 3.1 cumulative weight curves.

Nineteen of the 29 grab samples were collected from megafaunally-burrowed muddy sediments supporting *Maxmuelleria lankesteri* (**SS.SMu.CFiMu.MegMax**). Multidimensional scaling analysis (MDS) of the logged infaunal species abundance data (Figure 12) shows these samples representing a loose cluster of sites exhibiting sandy mud and mud sediments with silt/clay fractions of 37 - 83%. With the exception of site LS23, infaunal diversity is low (7 - 21 taxa; mean 14), as is abundance (12 - 106 ind./0.1 m^2; mean 48 ind./0.1 m^2). LS23 is a relatively mixed shelly sandy-mud site supporting sparse *M. lankesteri* but richer infaunal diversity (32 taxa) and abundance (176 ind./0.1 m^2) and is only tentatively ascribed to the biotope. Dominant members of the infauna, present at most of these *Maxmuelleria* sites, included *Corbula gibba*, *Amphiura chiajei*, *Hyala vitrea*, *Pholoe baltica*, *Magelona minuta*, *Phoronis* sp., *Abra nitida*, *Melinna palmata*, *Nephtys incisa*, *Abyssoninoe hibernica* and *Oxydromus flexuosus* (Table 3.4, Appendix 3). In general the grab failed to capture the burrowing megafaunal component (as did the anchor dredge at four of the sites), although one specimen of *Jaxea nocturna* was retained at site LS21. The burrowed mud site in Loch na Cille (OS18) differed from most of the *Maxmuelleria* sites in the absence of *Amphiura* spp., *P. baltica*, *Phoronis* sp., *A. hibernica* and *O. flexuosus*, as well as in the strong dominance by *M. palmata* and *Thyasira flexuosa* (**SS.SMu.CFiMu.SpnMeg**).

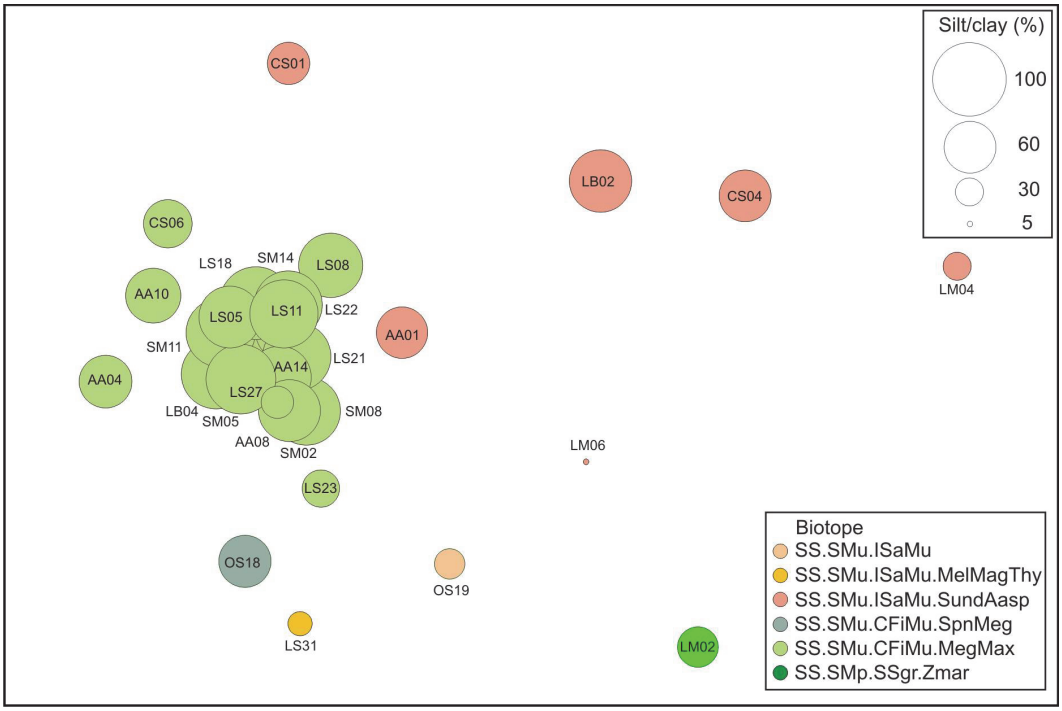

Figure 12. Multidimensional scaling ordination of logged infaunal species abundance data from grab sample sites. G suffix omitted from sample names for brevity. Stress = 0.15

Site LS22 was the location of a previous Marine Recorder record of **SS.SMu.CFiMu.BlyrAchi** (derived from Lumb and Hiscock, 1990). No specimens of the characterising *Brissopsis lyrifera* were present in any of the three grabs taken from here. Several specimens of *Amphiura chiajei* were recorded in the samples but this was a dominant species at most of the **SS.SMu.CFiMu.MegMax** sites (see above), and indeed the overall infaunal composition, including the presence of dense *Maxmuelleria lankesteri* (observed here by video and diving), was typical for the **MegMax** biotope in Loch Sween.

Six shallow sites from Linne Mhuirich, the Tayvallich anchorage, Achnamara Arm and the upper basin of Caol Scotnish have been referred to **SS.SMu.ISaMu.SundAasp** on the basis of the sandy-mud sediment and the presence of *Sagartiogeton* spp. and *Ascidiella aspersa*. The particle size analysis reveals silt/clay fractions of 32 - 71%, apart from site LM06 with 6%. The particle size sample collected from this site was very small and appeared unrepresentative of the true sediment type, based on *in situ* visual evidence. The infaunal community at these sites was impoverished with 2 - 16 taxa present (mean 7) and total abundances of 2 - 46 ind./0.1 m^2 (mean 20 ind./0.1 m^2). Apart from *Nepthys hombergii*, these sites had few infaunal species in common, leading to the wide scatter evident in the MDS plot. In view of the known temporal variability in the appearance of *Philine aperta*, some of these sites could be referable to **SS.SMu.IFiMu.PhiVir**, although only a single individual of *Philine* sp. was retained in the grab sample at one of these sites.

By contrast the grab sample from the *Zostera marina* bed in Linne Mhuirich (site LM02) revealed a much richer community with 42 taxa and 778 ind./0.1 m^2, representing the highest density and second highest diversity of all the grab samples analysed. The fauna was strongly dominated by *Zostera* epibionts, including *Bittium reticulatum*, *Caprella acanthifera*, *Fabricia sabella*, *Microdeutopus versiculatus* and *Salvatoria clavata* (**SS.SMp.SSgr.Zmar**).

LS31 is a shelly muddy sand site (27% silt/clay) from the outer part of the main Loch Sween channel. The infaunal sample exhibited the highest diversity (51 taxa) of all grab samples analysed and a relatively high faunal abundance (258 ind./0.1 m^2). The sample contained several of the characterising taxa of the biotope **SS.SMu.ISaMu.MelMagThy**, to which it has been referred. This includes dominance by *Melinna palmata*, *Phoronis* sp. and *Magelona alleni*, as well as the presence of *Thyasira flexuosa* and *Ampelisca tenuicornis*.

OS19 is a shallow (5 m) sandy-mud site (34% silt/clay) near the head of Loch na Cille. The infauna is richer than that recorded for similar shallow sediments elsewhere in the Loch Sween system, with the grab sample containing 27 taxa and 130 ind./ 0.1m^2. In terms of composition it has affinities with **SS.SMu.ISaMu.MelMagThy** and the nearby burrowed mud site OS18 (**SS.SMu.CFiMu.SpnMeg**) and has been tentatively ascribed to **SS.SMu.ISaMu**, although the presence of *Philine* sp. may indicate **SS.SMu.IFiMu.PhiVir**.

3.3 Diving surveys

3.3.1 Burrowed mud MNCR phase 2 survey

MNCR phase 2 diver surveys were carried out at sites supporting the *Maxmuelleria* burrowed mud habitat (**SS.SMu.CFiMu.MegMax**) in all sections of the Loch Sween system where the habitat occurred (Figures 8, 9; Table 5.1: Appendix 5). Except for Caol Scotnish, the sites represented good examples of the biotope. The typical appearance of this habitat is illustrated in Figure 13. The composition of the biota is detailed in Table 5.2 (Appendix 5) and summarised below.

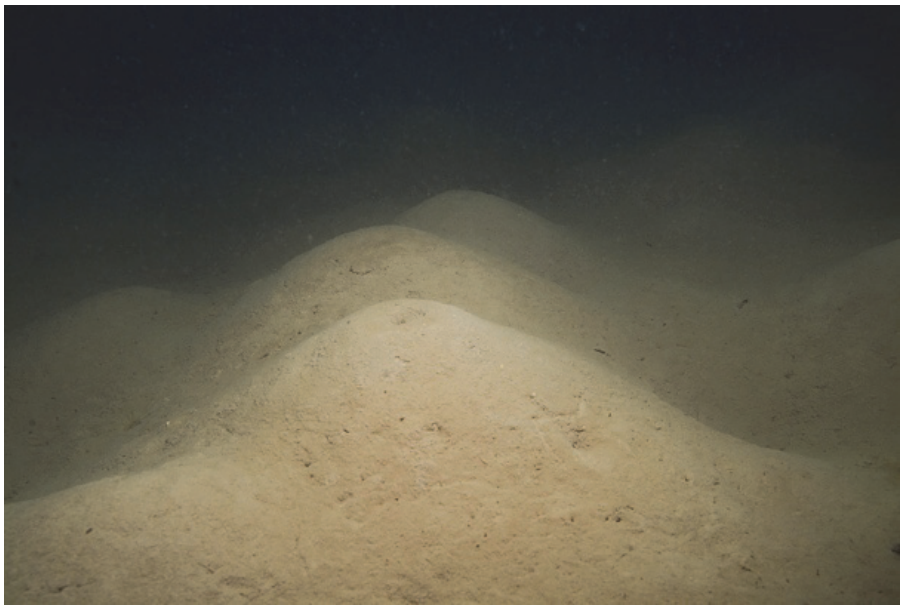

Figure 13. Habitat photo at site SM14M, showing dense Maxmuelleria lankesteri *mounds*

At site AA08M in the Achnamara Arm soft mud at a depth of 16 m supported numerous burrows and mounds of *Maxmuelleria lankesteri* with the latter up to 30 cm wide and 15 cm high with some burrows displaying the distinctive stellate proboscis traces (Figure 14). *Nephrops norvegicus* burrows were common and small burrow apertures (1-3 cm diameter) were present at a density of 1-9 m^{-2}, including those of *Jaxea nocturna*, *Callianassa subterranea* and possibly *Calocaris macandreae*. Small holes in pairs may have been those of *Thracia convexa* and *Upogebia stellata*, with the latter also possibly responsible for triads of holes. Other members of the megafaunal burrowing community included *Gobius niger*

and possibly *Lesueurigobius friesii*. Among the more numerous elements of the epifaunal community were *Asterias rubens*, *Ascidiella aspersa* and *Carcinus maenas*.

Site SM14M in Sailean Mhòr was floored by soft mud at 20 m depth, which exhibited very well-developed biogenic topography largely due to dense *Maxmuelleria lankesteri*, with mounds reaching 60 cm in diameter and 30 cm in height. *Nephrops* burrows were also common. 1-3 cm diameter burrow apertures were present at a density of 10-99 m^{-2} and included *Callianassa subterranea*, *Jaxea nocturna* (Figure 14) and probably *Calocaris macandreae*, with *Gobius niger* also being recorded. Among the other more numerous members of the community were *Virgularia mirabilis*, *Chaetopterus variopedatus*, *Asterias rubens*, *Cerianthus lloydii* and *Oxydromus flexuosus*.

Figure 14. Maxmuelleria lankesteri *proboscis feeding traces at site AA08M (left) and the burrowing shrimp,* Jaxea nocturna*, at site SM14M (right)*

Site LB04M was located in Loch a'Bhealaich at a depth of 13 m. Well burrowed and mounded soft mud was populated by abundant *Maxmuelleria lankesteri*, with mounds up to 60 cm wide and 20 cm high; several inhalent burrow entrances displayed stellate proboscis traces. 1-3 cm diameter burrow apertures were present at a density of 1-9 m^{-2}. Burrowing megafaunal crustaceans included *Nephrops norvegicus*, *Callianassa subterranea*, *Jaxea nocturna* and *Calocaris macandreae*, with small paired holes probably created by *Thracia convexa*. Other conspicuous dominant faunal constituents included *Amphiura chaijei*, *Ophiocten affinis* and *Asterias rubens*.

At site LS22M in the main body of Loch Sween soft mud at 23 - 25 m depth displayed dense burrows of *Nephrops norvegicus* and *Maxmuelleria lankesteri*, with mounds of the latter attaining a diameter of 40 cm and height of 30 cm and one inhalent burrow opening showing distinct proboscis traces. 1-3 cm diameter burrow apertures were present at a density of 10-99 m^{-2} and included those of *Callianassa subterranea*, *Jaxea nocturna* and *Calocaris macandreae*. Other dominant members of the community included *Virgularia mirabilis*, *Chaetopterus variopedatus*, *Asterias rubens* and *Gobius niger*.

Site CS07M was only briefly examined by one diver, with no imagery or infaunal samples collected. The site was located at a depth of 12 - 14 m in the northern approaches to the Caol Scotnish rapids and is consequently subject to stronger tidal currents than the above sites. The sandy-mud sediment was densely worked by *Callianassa subterranea*, accompanied by large numbers of *Ascidiella aspersa* and *Ophiocomina nigra*. Other

dominants included *Asterias rubens*, *Astropecten irregularis*, *Ophiura* sp., *Cerianthus lloydii* and terebellid worms forming low mounds. Although no clear evidence of *Mamuelleria lankesteri* or *Jaxea nocturna* was observed during the dive, burrows of both species were recorded during a dropdown video run passing through the same area (CS07).

The sediment at the four rich *Maxmuelleria* sites where infaunal and sediment samples were collected was very similar, containing 77 - 79% silt/clay and the sites cluster closely together on the MDS plot (Figure 12) indicating similarity in the infaunal composition. However, the samples only contained three species in common, *Corbula gibba*, *Amphiura chiajei* and *Abra nitida*, which together with *Phoronis* sp. and *Magelona minuta*, represent the five most dominant species (Table 3.4: Appendix 3). Infaunal diversity at these sites was low (11 - 15 taxa), as was abundance (20 - 87 ind./ 0.1 m^2).

3.3.2 Maerl surveys

Loch Sween mouth

Of the three historical maerl biotope records in the approaches to Loch Sween, maerl was only recorded during the video survey at two of these sites (OS12, OS20) (Table 2.2: Appendix 2) and only as sparse live rhodoliths (<1% cover) rather than maerl beds.

Taynish rapids

The distribution of live maerl in Taynish rapids as revealed by the diving survey is illustrated in Figure 15, with full details provided in Table 4.1 (Appendix 4). The bed covers an area of 2.7 ha with a mean cover of live maerl of 41% (maximum 90%), although small-scale patchiness was found to be present, resulting in densities dropping below 10% locally within parts of the delimited bed area.

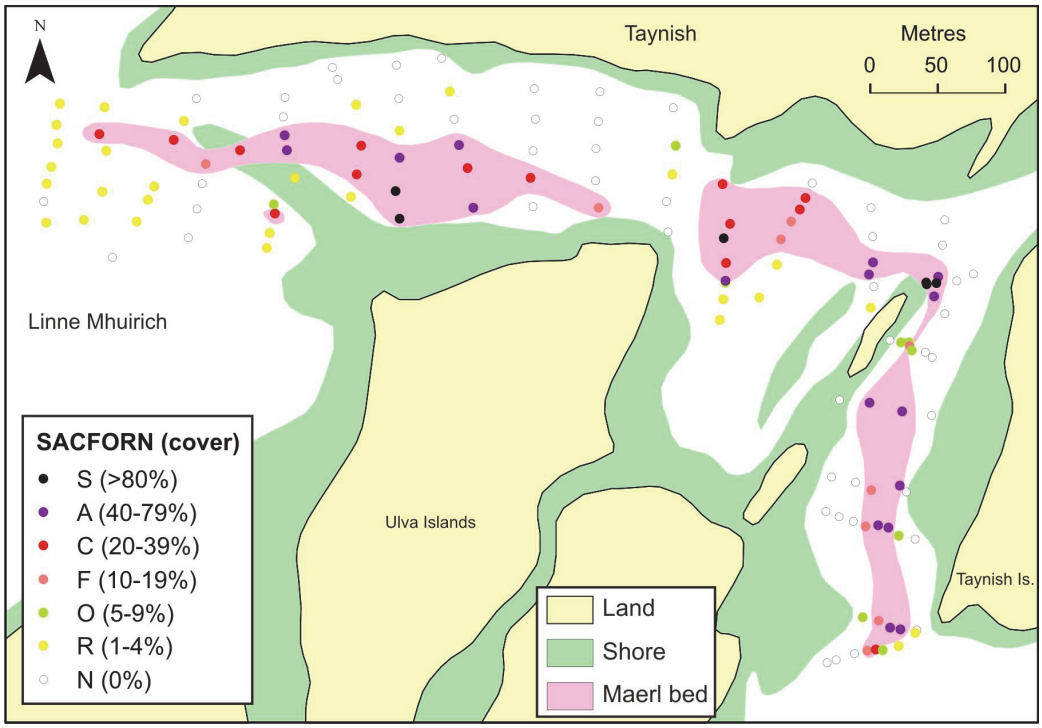

Figure 15. Distribution of live maerl cover (SACFORN scale) in Taynish rapids. The maerl bed polygons delimit coverage ≥10%. Reproduced by permission of Ordnance Survey on behalf of HMSO. © Crown copyright and database right [2013]. All rights reserved. Ordnance Survey Licence number 100017908.

The depth range of the bed was 0.0 - 2.1 m, with sparse maerl also recorded on the shore to a height of 0.3 m above chart datum. The underlying substrate was generally sand (sometimes silty) and/or gravel, often accompanied by varying proportions of pebbles, cobbles and boulders.

The dominant maerl form was twiglets of *Phymatolithon calcareum* (Figure 16), although *Lithothamnion glaciale* was also widely recorded in the form of hedgehog stones. Maerl collections at the three stations representing the inner, central and outer regions of the maerl bed supported the recognition of *P. calcareum* as the dominant maerl species, and the whole bed has been referred to the biotope **SS.SMp.Mrl.Pcal.R**.

Figure 16. Representative maerl thalli of Lithothamnion glaciale *from Caol Scotnish rapids (left) and* Phymatolithon calcareum *from Taynish rapids (right)*

Sargassum muticum was widely distributed throughout the rapids, where it was noted as being occasional (on the SACFOR scale) or just present, at 34 of the 135 sites.

The MNCR phase 2 survey site was located on the southern side of the channel at a depth of 0.1 - 0.3 m (Figure 8; Table 5.1: Appendix 5). The substrate of slightly silty, medium-coarse sand with maerl gravel and scattered pebbles supported typical, unattached, twiglet-shaped thalli of *Phymatolithon calcareum* with a coverage of around 75% and sparse hedgehog pebbles of *Lithothamnion glaciale*. The maerl was largely obscured by an algal blanket dominated by *Corallina officinalis* and a brown algal turf of juvenile *Dictyota dichotoma* supporting juvenile *Leathesia difformis* (Figure 17). Other conspicuous algal forms included *Saccharina latissima* (common) and *Halidrys siliquosa* (frequent), as well as sparse *Colpomenia peregrina* (up to 25 cm in diameter) and *Sargassum muticum* (up to 50 cm in length). The visible fauna was dominated by ophiuroids, with superabundant *Ophiocomina nigra* and abundant *Ophiothrix fragilis*. Smaller forms included dense

Laeospira corallinae on the *Corallina*, and abundant amphipods, particularly caprellids and the tubiculous *Monocorophium sextonae*. A total of 61 epibiotic taxa was recorded (Table 5.2: Appendix 5).

The core samples contained a total of 85 taxa, with a mean of 52 and range of 44 - 60 taxa per core (Appendix 5: Table 5.4). The fauna was strongly dominated numerically by amphipods. All the top five taxa were superabundant amphipods, which included the invasive, non-native *Monocorophium sextonae*, as well as lesser numbers of *Leptocheirus pectinatus*, *Crassicorophium bonellii*, *Microdeutopus versiculatus* and Aoridae spp. (Table 5.3: Appendix 5). Total abundance was very high, with a mean of 1664 ind./0.01 m^2.

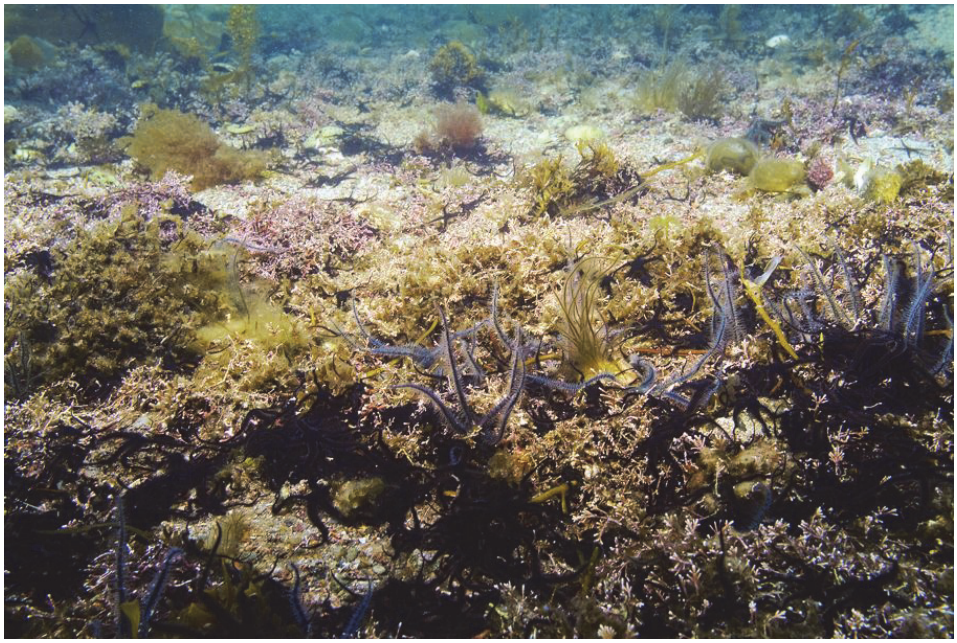

Figure 17. Habitat photo of MNCR phase 2 maerl site ML01 in Taynish rapids

Caol Scotnish rapids

The bed in the Caol Scotnish rapids was less fragmentary than that at Taynish and of higher maerl cover (mean 67%, maximum 95%), with a dense band of maerl running along the centre of the channel for a distance of around 1 km (Figure 18; Table 4.1: Appendix 4), mainly at a depth of 3.4 - 5.2 m but rising to 1.2 m in the vicinity of the shoal and islet at the southern limit of the bed. The maerl bed occupied an area of 3.7 ha and took the form of large rhodoliths of *Lithothamnion glaciale* (Figure 18) overlying a substrate of muddy sand, often with scattered gravel, pebbles and cobbles (**SS.SMp.Mrl.Lgla**). The associated community was dominated by dense ophiuroids, both *Ophiocomina nigra* and *Ophiothrix fragilis* being recorded.

The MNCR phase 2 survey site (ML02) was located close to the centre of the bed at a depth of 4.8 - 4.9 m (Figure 9; Table 5.1: Appendix 5). The substrate of muddy fine sand with maerl gravel and scattered pebbles was densely covered (90%) by a layer (around 10 cm in thickness) of large, living, maerl rhodoliths of *Lithothamnion glaciale*, mostly 5 - 15 cm in length (Figures 18 and 19). The maerl was markedly less epiphytised than at Taynish but supported a light algal turf dominated by *Phyllophora crispa*, with frequent *Saccharina latissima* and *Halidrys siliquosa*. The visible fauna was dominated by dense *Ophiothrix fragilis* and *Ophiocomina nigra*, with *Asterias rubens* and *Echinus esculentus* both common,

and *Monocorophium sextonae* tubes present. A total of 44 taxa (including one microscopic alga) was recorded (Table 5.2: Appendix 5).

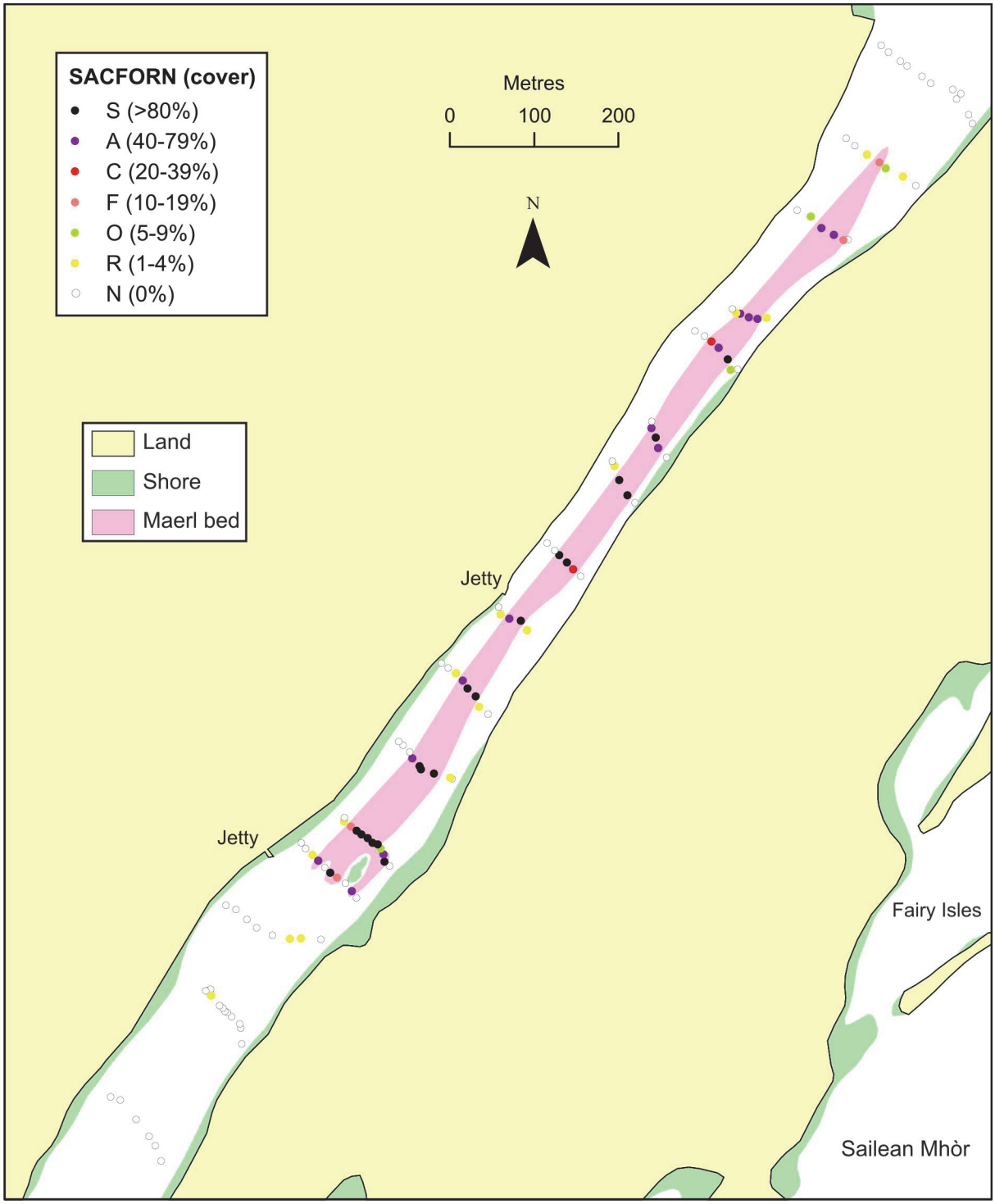

Figure 18. Distribution of live maerl cover (SACFORN scale) in Caol Scotnish rapids. The maerl bed polygons delimit coverage ≥10%. Reproduced by permission of Ordnance Survey on behalf of HMSO. © Crown copyright and database right [2013]. All rights reserved. Ordnance Survey Licence number 100017908.

The core samples contained a total of 68 taxa, with a mean of 31 and range of 20 - 38 taxa per core (Appendix 5: Table 5.4). Total abundance was much lower than at Taynish, with a mean of 180 ind./0.01 m^2 The faunal composition also differed from that at Taynish, particularly in the relative importance of polychaetes, which dominated the community together with amphipods and ophiuroids (Table 5.3: Appendix 5). The infaunal corophiid, *Crassicorophium crassicorne*, was the numerically dominant species, with *Monocorophium sextonae* also recorded as common.

Figure 19. Habitat photo of MNCR phase 2 maerl site ML02 in Caol Scotnish rapids

3.4 *Ostrea edulis*

Ostrea edulis was present at all 11 sites examined, being recorded at depths of 0.1 m above to 1.0 m below chart datum on substrates of bedrock, boulders, cobbles and pebbles, and on mixed gravelly or muddy-sand sediments with stones (Table 6.2: Appendix 6).

The density of *Ostrea edulis* along the 11 transects ranged from 0.23 to 5.82 m^{-2}, with a mean of 1.89 m^{-2} (Table 6.2: Appendix 6).

Shell heights recorded spanned a broad size range from 10 - 140 mm with a mode around 75 - 80 mm (Figure 20). The left-sided skew of the size-frequency distribution is indicative of the presence of a cohort of around 30 - 50 mm individuals, representing the last significant recruitment episode. Based on the age analysis of a small sample of oysters from the Loch Sween system by Prof. Chris Richardson, Bangor (in Bunker, 1999), this cohort is probably aged around 2 - 3 years.

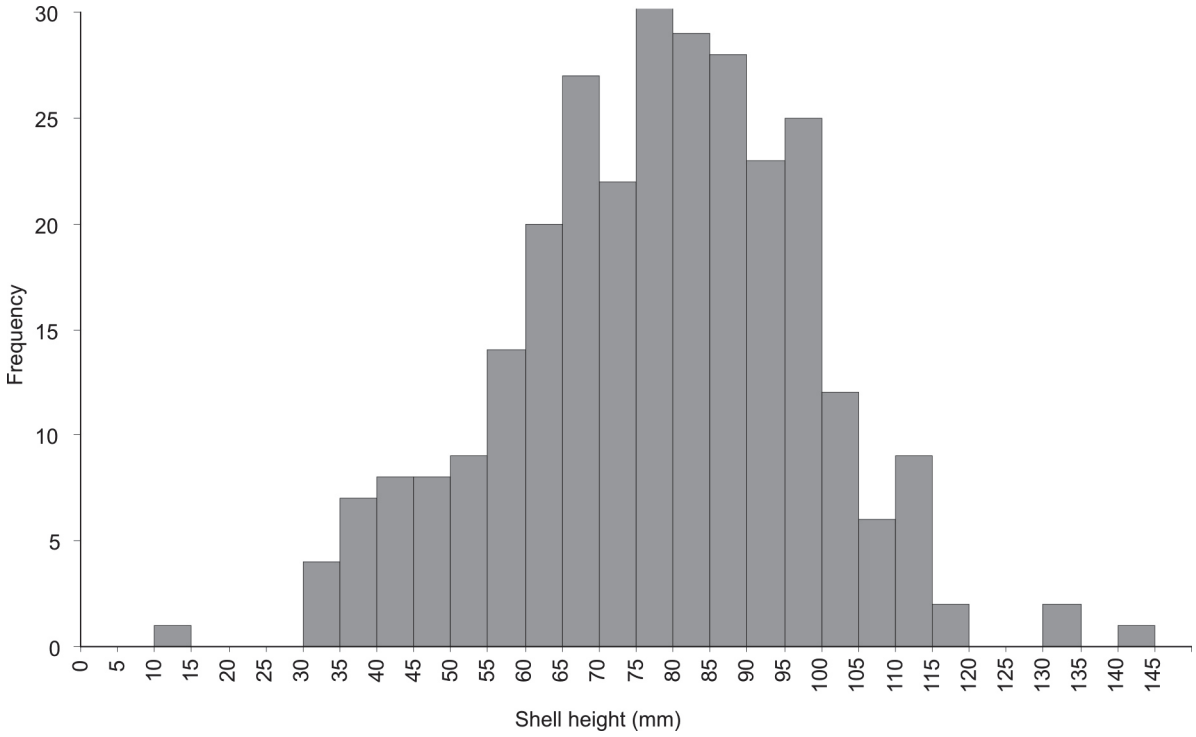

Figure 20. Height frequency distribution of sample of 288 *Ostrea edulis* from the Loch Sween system

4. DISCUSSION

4.1 Burrowed mud

Within the British Isles the biotope **SS.SMu.CFiMu.MegMax** is distributed predominantly in Scottish waters, where it appears to be confined to the west coast (GeMS v.2.10). Scattered records are widely distributed here but the major concentrations, presumably representing the more significant known areas of occurrence; lie within Loch Sween, the Clyde Sea and in the region of the Sound of Canna.

Of the 27 records within the Clyde Sea, 13 are located in Loch Fyne, but most of these show no evidence of the presence of *Maxmuelleria lankesteri*. Most of the Loch Fyne records are derived from the towed video survey of Howson and Davies (1991), who recorded *M. lankesteri* mounds at only three sites and mapped a *Maxmuelleria* habitat ("Soft mud with *Calocaris macandreae* and *Maxmuelleria lankesteri*") in the upper loch in the vicinity of Loch Shira. Eight of their other Loch Fyne records have been subsequently ascribed to **MegMax** in Marine Recorder, presumably based on the presence of the community of burrowing shrimps and *Nephrops norvegicus*. Allen *et al.* (2013) recorded the **MegMax** biotope at two sites in Loch Fyne in 2010 but their criteria for separation of this biotope from **SS.SMu.CFiMu.SpnMeg** were the greater frequency of macrofaunal burrows and fewer sea pens. A 2012 video survey of the loch by Scottish Natural Heritage (not included in GeMS v.2.10) found **SpnMeg** to be widely distributed in the loch, but *Maxmuelleria*-mounded mud (ascribed to **MegMax**) restricted to the area off the mouth of Loch Shira (Moore and Atkinson, 2012). Elsewhere in the Clyde Sea there are two records of **MegMax** based on observations of *Maxmuelleria* mounds in the Kyles of Bute (Holt and Davies, 1991) and 12 records with the apparent absence of *Maxmuelleria* from the 2010 survey by Allen *et al.* (2013).

Howson *et al*. (2012) recorded the presence of **MegMax** at 31 sites in the region of the Sound of Canna in 2010. The criterion used to separate this biotope from other mud habitats was the presence of burowed mud with "modest and variable seapen numbers", although sites supporting *Funiculina quadrangularis* were assigned to **SS.SMu.CFiMu.SpnMeg.Fun**. No indication of the presence of *Maxmuelleria* was recorded.

Distinguishing between burrowed mud biotopes is often difficult. **MegMax** is stated to differ from **SpnMeg** in the reduced number of sea pens and the wider range of megafauna, including the presence of *Maxmuelleria lankesteri* (Connor *et al*., 2004). Unfortunately the diversity of the megafaunal component can be difficult to ascertain reliably from video evidence, and so many records contain little detail of this, although some indication of overall burrow density may be noted (e.g. Allen *et al.*, 2013). Trawling can also influence the benthic topography, thereby obscuring visual evidence of the presence of megafaunal mound-formers, such as *M. lankesteri*, *Jaxea nocturna* and *Callianassa subterranea*. Furthermore, at least the **Fun** variant of the **SpnMeg** biotope can also contain a diverse range of megafauna in association with both dense and sparse sea pens (e.g. in the Inner Sound and Loch Torridon - Moore and Atkinson, 2012).

Although the artificial nature of the biotope classification system will lead to difficulties in the ascription of some records to biotopes, the degree of subjectivity involved could be reduced by regarding *Maxmuelleria* presence as a major distinguishing feature of the biotope. Employing this criterion, the estimated extent of the biotope in Loch Sween (660 ha) represents the most extensive known example in the British Isles. The mapped distribution of the biotope in upper Loch Fyne covers an area of the order of 100 ha (from Howson and Davies, 1991: Figure 2), while the presence of the biotope in the Sound of Canna is regarded as unconfirmed.

Loch Creran may represent a further major site for the biotope, although this is based on very few observations. A broadscale survey of the loch in 1998-9 (Black *et al*., 2000) mapped an area of burrowed mud covering approximately 285 ha in the upper half of the loch, differing from that in the lower loch by the presence of *Maxmuelleria* mounds and the paucity of sea pens. This has subsequently been ascribed to **MegMax** in Marine Recorder. The extent is erroneously given as 469 ha in GeMs v.2.10, this figure being the total extent of burrowed mud in the loch.

Loch Sween represents an excellent example of the **MegMax** biotope. The impressive topography created by the dense, large mounds of *Maxmuelleria lankesteri* extend over a large area, is believed to be unique, and is associated with a diverse burrowing megafauna including *Nephrops norvegicus*, *Calocaris macandreae*, *Callianassa subterranea*, *Jaxea nocturna* and *Gobius niger*, and probably a number of other forms not identified with certainty during the current investigation, including *Upogebia stellata*, *Lesueurigobius friesii* and *Lumpenus lampraetiformis* (see Atkinson, 1987).

4.2 Inshore deep mud

Multiple grab sampling, dropdown video and a diver MNCR phase 2 survey at the site of the historical record of **SS.SMu.CFiMu.BlyrAchi** revealed the presence of a typical example of *Maxmuelleria*- dominated burrowed mud (**SS.SMu.CFiMu.MegMax**). The lack of validation of the inshore deep mud feature is unsurprising in view of the fact that the earlier Marine Recorder record (derived from 1985 observations by Lumb and Hiscock (1990)) was based solely on the presence of several specimens of *Amphiura chiajei* in a dredge sample. No specimens or tests of the characterising urchin, *Brissopsis lyrifera*, were observed throughout the 2013 survey.

4.3 Sublittoral mud and mixed sediment communities

Infralittoral muddy sediments floor much of Linne Mhuirich, Tayvallich harbour and the upper reaches of the northern arms of the loch system. The substrate of sandy-mud, and in places mud, supports a low diversity fauna with *Ascidiella aspersa* and/or *Sagartiogeton* spp. generally among the more dominant conspicuous elements. Given the absence of *Virgularia mirabilis* and the general absence of *Philine aperta*, apart from single specimens in cores from two of the sites, records have tentatively been assigned to **SS.SMu.ISaMu.SundAasp**. Historical records of **SundAasp** exist for Linne Mhuirich and Tayvallich Harbour (Lumb and Hiscock, 1990) but most of the previous records for shallow muddy sediments have been assigned to the biotope complex **SS.SMu.IFiMu**, especially **SS.SMu.IFiMu.PhiVir**. According to Connor *et al.* (2004) **SundAasp** appears to be an impoverished version of **PhiVir**, lacking *P. aperta* and *V. mirabilis*. As *P. aperta* populations are known to be highly temporally variable, it is possible that **SundAasp** is merely a temporal variant of **PhiVir** (Connor *et al*., 2004).

SS.SMu.ISaMu.MelMagThy was tentatively identified from an extensive area in the more exposed outer region of the main Loch Sween channel. This was supported by only limited infaunal data, but this did indicate the presence of a rich infaunal community, both in terms of diversity and abundance. Sparse records of other infralittoral muddy biotopes include **SS.SMu.ISaMu**, **SS.SMu.IFiMu** and **SS.SMu.IFiMu.Beg**.

Mixed coarse sediments extend over much of the seabed in the most exposed region of the surveyed area - in the Sound of Jura beyond the mouths of Loch Sween and Loch na Cille. Stones support a fairly low diversity community of encrusting forms and patches of hydroids and bryozoans, with sites predominantly referred to **SS.SMx.CMx.FluHyd**. Other mixed sediment records include **SS.SMx.CMx.OphMx** (with dense *Ophiocomina nigra*), **SS.SMx.CMx** (with a very sparse erect sessile fauna) and **SS.SMx.IMx** (shallow sites supporting a sparse algal flora).

4.4 Flame shell beds

Despite the inclusion of several dropdown video sites and a naturalist dredge tow in the area of previous records of the *Limaria* biotope, **SS.SMx.IMx.Lim**, in the Sound of Jura (Lumb and Hiscock, 1990), no evidence of the continued presence of *Limaria hians* was revealed. The earlier records were derived from naturalist dredge samples, in which *Limaria* nest material was described as abundant at 30 m and occasional at 40 m depth. How such descriptions relate to nest cover or *Limaria* abundance on the seabed is unknown. Flame shell beds can exhibit a patchy distribution (e.g. Moore *et al*., 2012, 2013) and so pockets of the habitat may still persist in the area. The intensive diving survey of Caol Scotnish also failed to record the presence of *L. hians* at the location of earlier observations of a dense population (Raymont, 1950).

4.5 Maerl

Table 2 summarises biological descriptors of the two Loch Sween maerl beds examined. The beds are small within a UK and Scottish context, where extents can exceed 50 ha (Hall-Spencer *et al*., 2010; Moore *et al*., 2011). Detailed comparisons of condition with other Scottish beds are complicated by methodological differences but some context is provided by studies of 16 other Scottish beds using similar techniques and personnel: five in the Sound of Arisaig (Moore *et al*., 2004), four in Loch Maddy (Moore *et al*., 2006), three in Loch Laxford (Moore *et al*., 2010) and four in the Ullapool Approaches (Moore *et al*., 2011). It should be borne in mind, however, that these surveys took place in summer, whereas Loch Sween was examined in spring. In terms of live maerl density the Sween locations, and especially Caol Scotnish, are amongst the richest of these Scottish beds, most of which displayed cover values below 40%. Epibiotic diversity is moderate at Taynish and low at

Caol Scotnish compared to the other Scottish sites which range from 33 to 109 taxa, although the earlier survey time may have resulted in an underestimation of taxon richness, especially of the algae. Infaunal taxon richness at both Sween sites appears fairly typical for Scottish maerl beds, which range between 54 and 122 taxa within four replicate cores. Infaunal abundance at Caol Scotnish also appears typical, but the mean abundance of 1664 ind./0.01m^2 at Taynish is very high in comparison to the other Scottish sites (72 - 453 ind./ 0.01 m^2), although again this could be influenced by seasonal effects.

Table 2. Summary of condition measures for the maerl beds examined at Taynish and Caol Scotnish. Infaunal data derived from analysis of four replicate 10.3 cm diameter core samples

Condition measure	Taynish	Caol Scotnish
Bed extent (ha)	2.7	3.7
Live maerl cover (bed mean %)	41	67
No. epibiotic taxa	61	44
No. infaunal taxa (mean)	52	31
No. infaunal taxa (range)	44-60	20-38
No. infaunal taxa (total)	85	68
Infaunal mean abundance (ind./0.01m^2)	1664	180
Infaunal abundance range (ind./0.01m^2)	1139-2014	107-256

Although the current evidence suggests that the diversity of the Taynish maerl bed cannot be considered high in relation to other Scottish beds, the maerl is important in contributing to the diversity of habitats and communities present in the rapids area, which has been regarded as being amongst the highest for rapids systems in Britain (Lewis, 1957). It also represents one of the few sites where live maerl extends into the intertidal zone. Diversity values recorded in 2013 for Caol Scotnish were also not high; however, this bed represents a good example of a dense bed of *Lithothamnion glaciale*, populated by very large thalli.

The 2013 survey included the first records of the invasive non-native alga, *Sargassum muticum*, for Loch Sween, where it was observed to be widespread in Taynish rapids and also present in the main body of Linne Mhuirich.

Moore (1980) provided the first confirmed Scottish record for the invasive amphipod, *Monocorophium sextonae*, collected from ascidian tests in 1979. The collection site was the main body of Linne Mhuirich. Previous collections of amphipod material in Taynish rapids in 1969 and 1974 by the same author recorded the related, native, tubiculous form, *Crassicorophium bonellii*, but failed to reveal *M. sextonae*, the higher current speeds being suggested as a possible reason for its absence (Moore, 1980). *Monocorophium sextonae* was the most abundant species found in the 2013 maerl cores from Taynish rapids, being present in extremely high numbers (29284 ind./m^2), although *C. bonellii* is managing to coexist. The two species now also coexist on the Caol Scotnish maerl bed.

4.6 *Ostrea edulis*

Comparisons of oyster densities with historical records for similar locations within the Loch Sween system are shown in Table 3. Densities appear higher than those recorded in 2004-5 (University Marine Biological Station Millport, 2007), which may in part be due to the more extensive sampling of the oyster habitat in the earlier study. It is clear, however, that the Loch Sween system continues to support large numbers of oysters.

Table 3. Summary of density records (no. m^{-2}) for Ostrea edulis *in the Loch Sween system*

Year	Survey	Transect			
		O10	O1	O3+O4	O11
1999	Bunker (1999)	1.3			
1999	Paisley (1999)	0.7			
2004-5	University Marine Biological Station Millport (2007)		0.9	0.5-1.6	0.8
2013	Current	1.3	3.3	2.9-5.8	1.3

Beds of native oysters have only been recorded from three sites in Scotland: Loch Ryan, Loch Scridain and the Loch Sween system (GeMS database v2.10). University Marine Biological Station Millport (2007) have recently carried out oyster density surveys at 15 sites of oyster records distributed within seven locations around Scotland, including the three oyster bed locations, recording densities of 0.15 - 3.50 m^{-2}, with maximum densities at the three locations of 1.65 m^{-2} (Loch Ryan), 3.50 m^{-2} (Loch Scridain) and 1.55 m^{-2} (Loch Sween system). Clearly, the Loch Sween system is of national importance in terms of representation of a relatively high quality example of the **SS.SMx.IMx.Ost** biotope.

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APPENDIX 1: DATA RECORDING FORMS

Appendix 1.1 Drop-down video survey recording form

Loch Sween 2013 video survey *Surveyors:*

Site code	Target MPA search feature:		Target depth (m):
Vessel		**Date**	

Time in			
GPS waypoint in		Latitude & longitude in	
Depth BSL in			

Time out			
GPS waypoint out		Latitude & longitude out	
Depth BSL out			

Substrate notes	
Biological notes & abundance estimates	
Video footage (tape no)	

Appendix 1.2 Pro forma for diver surveying of maerl habitats. D/P = Dominant/Present

Site					
SMB length					
SMB bearing					
Depth					
Time (BST)					
Bedrock (D/P)					
Boulders (D/P)					
Cobbles (D/P)					
Pebbles (D/P)					
Gravel (D/P)					
Sand (D/P)					
Muddy sand (D/P)					
Mud (D/P)					
Live maerl (%)					
Dead maerl (%)					
Phym. calc. (D/P)					
Litho. glac maerl (D/P)					
Litho. glac hedgehog stones (Y/N)					
Ostrea (SACFORN)					
Limaria (%)					
Limaria (SACFORN)					
Comments					

APPENDIX 2: VIDEO SURVEY DATA

Table 2.1 Details of sites and video data collected for the drop-down survey

Site	Date	Latitude in	Long'de in	Latitude out	Long'de out	Depth in (m)	Depth out (m)	Tape ref no.	Video in (m:s)	Video out (m:s)
AA01	19/03/2013	56.02273	-5.57278	56.02243	-5.57290	2.7	3.4	D-SWEEN-0413-4	00:00:00	00:03:03
AA02	19/03/2013	56.02033	-5.57558	56.01988	-5.57610	9.0	9.9	D-SWEEN-0413-4	00:03:03	00:06:37
AA03	19/03/2013	56.01967	-5.58017	56.01925	-5.58050	9.4	10.0	D-SWEEN-0413-4	00:06:37	00:11:16
AA04	19/03/2013	56.01723	-5.57847	56.01693	-5.57913	11.6	12.4	D-SWEEN-0413-4	00:11:16	00:15:41
AA05	19/03/2013	56.01693	-5.58265	56.01660	-5.58372	13.2	13.7	D-SWEEN-0413-4	00:15:41	00:19:47
AA06	19/03/2013	56.01530	-5.57965	56.01500	-5.58040	13.4	13.8	D-SWEEN-0413-4	00:19:47	00:24:52
AA07	19/03/2013	56.01393	-5.57985	56.01372	-5.58057	13.1	13.8	D-SWEEN-0413-4	00:24:52	00:30:36
AA08	19/03/2013	56.01237	-5.58300	56.01212	-5.58382	14.5	14.6	D-SWEEN-0413-4	00:30:36	00:35:54
AA09	19/03/2013	56.01365	-5.58492	56.01300	-5.58602	16.5	17.1	D-SWEEN-0413-4	00:35:54	00:41:31
AA10	19/03/2013	56.01548	-5.58655	56.01477	-5.58773	15.3	16.0	D-SWEEN-0413-4	00:41:31	00:46:35
AA11	19/03/2013	56.01388	-5.59022	56.01318	-5.59148	17.3	18.4	D-SWEEN-0413-4	00:46:35	00:51:29
AA12	19/03/2013	56.01233	-5.58950	56.01175	-5.59055	18.6	18.5	D-SWEEN-0413-4	00:51:29	00:55:55
AA13	19/03/2013	56.01172	-5.59230	56.01130	-5.59355	20.0	20.6	D-SWEEN-0413-5	00:00:00	00:03:59
AA14	19/03/2013	56.01255	-5.59425	56.01198	-5.59540	21.5	22.7	D-SWEEN-0413-5	00:03:59	00:08:44
AA15	19/03/2013	56.01352	-5.59933	56.01282	-5.60028	24.2	20.3	D-SWEEN-0413-5	00:08:44	00:14:26
CS01	19/03/2013	56.05115	-5.58002	56.05090	-5.58047	3.2	3.6	D-SWEEN-0413-6	00:46:19	00:49:51
CS02	19/03/2013	56.04975	-5.58165	56.04935	-5.58215	5.1	5.5	D-SWEEN-0413-6	00:49:51	00:54:24
CS03	19/03/2013	56.04818	-5.58427	56.04792	-5.58437	6.6	5.8	D-SWEEN-0413-6	00:54:24	00:56:10
CS04	19/03/2013	56.04685	-5.58623	56.04660	-5.58642	7.7	7.7	D-SWEEN-0413-6	00:56:10	00:57:55
CS05	19/03/2013	56.04380	-5.58860	56.04327	-5.58920	9.2	9.1	D-SWEEN-0413-7	00:00:00	00:04:32
CS06	19/03/2013	56.04158	-5.58935	56.04073	-5.59017	9.1	9.3	D-SWEEN-0413-7	00:04:32	00:13:56
CS07	19/03/2013	56.03940	-5.59182	56.03877	-5.59223	15.1	12.3	D-SWEEN-0413-7	00:13:56	00:20:15
LB01	20/03/2013	56.02478	-5.62293	56.02473	-5.62288	3.9	4.0	D-SWEEN-0413-9	00:17:23	00:22:12
LB02	20/03/2013	56.02230	-5.62503	56.02227	-5.62503	4.1	4.1	D-SWEEN-0413-9	00:14:59	00:17:23
LB03	20/03/2013	56.02305	-5.62062	56.02302	-5.62102	12.3	9.7	D-SWEEN-0413-9	00:13:49	00:14:59
LB04	20/03/2013	56.02093	-5.61730	56.02097	-5.61788	12.2	11.1	D-SWEEN-0413-9	00:12:21	00:13:49
LB05	20/03/2013	56.02270	-5.61555	56.02262	-5.61652	12.1	12.6	D-SWEEN-0413-9	00:10:01	00:12:21
LB06	19/03/2013	56.02163	-5.61418	56.02155	-5.61587	14.8	13.5	D-SWEEN-0413-7	00:20:15	00:25:33
LM01	17/04/2013	56.01031	-5.63944	56.01040	-5.63914	1.4	1.2	LM01.mp4	00:00:00	00:08:38
LM02	17/04/2013	56.00540	-5.64317	56.00573	-5.64280	1.5	0.9	LM02.mp4	00:00:00	00:07:19
LM03	18/04/2013	56.00042	-5.64521	56.00016	-5.64470	4.2	4.4	LM03.mp4	00:00:00	00:11:28
LM04	18/04/2013	55.99614	-5.65095	55.99614	-5.65095	4.2	4.4	LM04.mp4	00:00:00	00:06:37
LM05	17/04/2013	55.99134	-5.65426	55.99116	-5.65477	4.6	4.8	LM05.mp4	00:00:00	00:09:13
LM06	21/04/2013	55.98679	-5.65825	55.98703	-5.65820	11.8	13.0	LM06.mp4	00:00:00	00:07:01
LS01	19/03/2013	56.02232	-5.60002	56.02160	-5.60080	18.8	19.5	D-SWEEN-0413-5	00:42:25	00:46:35
LS02	19/03/2013	56.02188	-5.60658	56.02133	-5.60738	17.7	18.5	D-SWEEN-0413-5	00:37:12	00:42:25
LS03	19/03/2013	56.01970	-5.59985	56.01902	-5.60103	23.2	23.7	D-SWEEN-0413-5	00:31:59	00:37:12
LS04	19/03/2013	56.01713	-5.60022	56.01635	-5.60138	19.0	25.0	D-SWEEN-0413-5	00:25:56	00:31:59
LS05	19/03/2013	56.01870	-5.60697	56.01808	-5.60815	23.2	23.8	D-SWEEN-0413-5	00:21:33	00:25:56
LS06	19/03/2013	56.01625	-5.60953	56.01560	-5.61048	26.0	26.5	D-SWEEN-0413-5	00:17:49	00:21:33
LS07	19/03/2013	56.01390	-5.60488	56.01347	-5.60575	26.2	26.4	D-SWEEN-0413-5	00:14:26	00:17:49
LS08	18/03/2013	56.01293	-5.61135	56.01238	-5.61198	31.9	30.4	D-SWEEN-0413-3	00:35:22	00:40:13
LS09	18/03/2013	56.00962	-5.61208	56.00903	-5.61252	29.1	28.2	D-SWEEN-0413-3	00:30:25	00:35:21
LS10	18/03/2013	56.00658	-5.61482	56.00615	-5.61517	33.7	35.3	D-SWEEN-0413-3	00:26:17	00:30:25
LS11	18/03/2013	56.00495	-5.62055	56.00428	-5.62103	23.5	23.5	D-SWEEN-0413-3	00:22:05	00:26:17
LS12	18/03/2013	56.00108	-5.61235	56.00062	-5.61298	19.3	19.3	D-SWEEN-0413-3	00:18:11	00:22:05

Table 2.1 continued

Site	Date	Latitude in	Long'de in	Latitude out	Long'de out	Depth in (m)	Depth out (m)	Tape ref no.	Video in (m:s)	Video out (m:s)
LS13	18/03/2013	56.00055	-5.61755	56.00005	-5.61782	22.3	21.8	D-SWEEN-0413-3	00:15:14	00:18:11
LS14	18/03/2013	56.00042	-5.62627	55.99993	-5.62653	22.5	22.4	D-SWEEN-0413-3	00:11:13	00:15:14
LS15	18/03/2013	55.99572	-5.62318	55.99487	-5.62375	22.1	22.0	D-SWEEN-0413-3	00:03:17	00:11:13
LS16	18/03/2013	55.99333	-5.63120	55.99275	-5.63158	21.6	21.3	D-SWEEN-0413-3	00:00:00	00:03:17
LS17	18/03/2013	55.99085	-5.62230	55.99037	-5.62280	20.8	20.8	D-SWEEN-0413-2	00:53:24	00:58:04
LS18	18/03/2013	55.98720	-5.63125	55.98685	-5.63212	20.1	20.1	D-SWEEN-0413-2	00:49:44	00:53:24
LS19	18/03/2013	55.98150	-5.63392	55.98082	-5.63448	19.9	19.7	D-SWEEN-0413-2	00:45:36	00:49:44
LS20	18/03/2013	55.97870	-5.64375	55.97815	-5.64470	22.3	19.9	D-SWEEN-0413-2	00:41:28	00:45:36
LS21	18/03/2013	55.97322	-5.65022	55.97275	-5.65088	20.2	18.6	D-SWEEN-0413-2	00:38:27	00:41:28
LS22	18/03/2013	55.97202	-5.64372	55.97152	-5.64422	22.2	22.2	D-SWEEN-0413-2	00:33:08	00:38:26
LS23	18/03/2013	55.97097	-5.64187	55.97053	-5.64237	18.4	17.9	D-SWEEN-0413-2	00:29:09	00:33:08
LS24	18/03/2013	55.96670	-5.65893	55.96580	-5.65997	15.1	15.0	D-SWEEN-0413-2	00:22:47	00:29:08
LS25	18/03/2013	55.96348	-5.65227	55.96282	-5.65305	12.5	14.1	D-SWEEN-0413-2	00:18:41	00:22:47
LS26	18/03/2013	55.95908	-5.66413	55.95810	-5.66532	19.2	21.0	D-SWEEN-0413-2	00:12:35	00:18:41
LS27	18/03/2013	55.95592	-5.66963	55.95518	-5.67060	26.5	23.4	D-SWEEN-0413-2	00:07:49	00:12:35
LS28	18/03/2013	55.95305	-5.66502	55.95235	-5.66625	15.0	17.2	D-SWEEN-0413-2	00:00:00	00:07:49
LS29	18/03/2013	55.94782	-5.67047	55.94748	-5.67112	16.8	19.2	D-SWEEN-0413-1	00:53:44	00:58:04
LS30	18/03/2013	55.94437	-5.67670	55.94408	-5.67752	18.4	15.6	D-SWEEN-0413-1	00:49:55	00:53:44
LS31	18/03/2013	55.94113	-5.67722	55.94088	-5.67818	12.4	13.1	D-SWEEN-0413-1	00:46:06	00:49:54
LS32	18/03/2013	55.93723	-5.68238	55.93693	-5.68327	9.6	8.7	D-SWEEN-0413-1	00:42:18	00:46:06
LS33	18/03/2013	55.93308	-5.68323	55.93252	-5.68497	15.9	16.8	D-SWEEN-0413-1	00:38:05	00:42:18
LS34	18/03/2013	55.92870	-5.68557	55.92823	-5.68680	15.1	18.7	D-SWEEN-0413-1	00:34:06	00:38:05
OS01	18/03/2013	55.92933	-5.69530	55.92883	-5.69670	7.5	7.7	D-SWEEN-0413-1	00:25:18	00:30:38
OS02	18/03/2013	55.92133	-5.69083	55.92133	-5.69158	8.7	10.0	D-SWEEN-0413-1	00:00:00	00:03:04
OS03	18/03/2013	55.92273	-5.70217	55.92245	-5.70365	20.0	19.8	D-SWEEN-0413-1	00:21:25	00:25:18
OS04	18/03/2013	55.91187	-5.69688	55.91140	-5.69858	10.4	13.3	D-SWEEN-0413-1	00:15:40	00:21:25
OS05	18/03/2013	55.90302	-5.70100	55.90302	-5.70255	26.0	27.0	D-SWEEN-0413-1	00:11:13	00:15:40
OS06	18/03/2013	55.89938	-5.72565	55.89882	-5.72812	26.3	24.6	D-SWEEN-0413-1	00:07:17	00:11:13
OS07	20/03/2013	55.90835	-5.74565	55.90830	-5.74678	18.8	21.8	D-SWEEN-0413-8	00:02:56	00:06:52
OS08	20/03/2013	55.90998	-5.71692	55.91023	-5.71775	33.1	33.3	D-SWEEN-0413-8	00:00:00	00:02:56
OS09	20/03/2013	55.91683	-5.72468	55.91668	-5.72568	19.9	23.2	D-SWEEN-0413-8	00:06:52	00:11:30
OS10	20/03/2013	55.92657	-5.73425	55.92635	-5.73510	28.4	34.8	D-SWEEN-0413-8	00:11:30	00:15:41
OS11	20/03/2013	55.93353	-5.72142	55.93263	-5.72188	18.5	21.3	D-SWEEN-0413-8	00:28:43	00:31:54
OS12	20/03/2013	55.93730	-5.71128	55.93653	-5.71157	6.1	6.8	D-SWEEN-0413-8	00:31:54	00:39:26
OS13	20/03/2013	55.94650	-5.71125	55.94698	-5.71228	12.4	16.9	D-SWEEN-0413-9	00:00:00	00:03:39
OS14	20/03/2013	55.94927	-5.71860	55.94848	-5.72002	28.5	39.6	D-SWEEN-0413-8	00:15:41	00:19:59
OS15	20/03/2013	55.94947	-5.71958	55.94913	-5.72058	37.6	43.1	D-SWEEN-0413-8	00:19:59	00:23:20
OS16	20/03/2013	55.95327	-5.71828	55.95282	-5.71928	33.2	47.3	D-SWEEN-0413-8	00:23:20	00:26:14
OS17	20/03/2013	55.94562	-5.72025	55.94520	-5.72085	32.6	36.4	D-SWEEN-0413-8	00:26:14	00:28:43
OS18	20/03/2013	55.95140	-5.70538	55.95192	-5.70662	19.5	17.3	D-SWEEN-0413-9	00:03:39	00:08:15
OS19	20/03/2013	55.96012	-5.69280	55.96022	-5.69323	4.7	4.8	D-SWEEN-0413-9	00:08:15	00:10:01
OS20	18/03/2013	55.92207	-5.69087	55.92173	-5.69202	11.8	9.4	D-SWEEN-0413-1	00:03:04	00:06:05
OS20	18/03/2013	55.92207	-5.69087	55.92173	-5.69202	11.8	9.4	D-SWEEN-0413-1	00:06:05	00:07:17
OS21	18/03/2013	55.92425	-5.69873	55.92382	-5.70027	13.1	16.4	D-SWEEN-0413-1	00:30:38	00:34:06
OS22	20/03/2013	55.93508	-5.71563	55.93457	-5.71612	9.2	10.7	D-SWEEN-0413-8	00:39:26	00:43:57
SM01	19/03/2013	56.04012	-5.56768	56.03975	-5.56795	6.7	8.4	D-SWEEN-0413-5	00:46:35	00:50:54
SM02	19/03/2013	56.03933	-5.56938	56.03873	-5.57030	11.5	12.8	D-SWEEN-0413-5	00:50:54	00:55:53
SM03	19/03/2013	56.03758	-5.57168	56.03710	-5.57253	14.4	14.4	D-SWEEN-0413-5	00:55:53	00:59:46
SM04	19/03/2013	56.03597	-5.57327	56.03527	-5.57420	15.7	15.6	D-SWEEN-0413-6	00:00:00	00:04:58
SM05	19/03/2013	56.03448	-5.57737	56.03400	-5.57818	14.7	14.8	D-SWEEN-0413-6	00:04:58	00:09:14

Table 2.1 continued

Site	Date	Latitude in	Long'de in	Latitude out	Long'de out	Depth in (m)	Depth out (m)	Tape ref no.	Video in (m:s)	Video out (m:s)
SM06	19/03/2013	56.03252	-5.57692	56.03210	-5.57755	16.6	16.6	D-SWEEN-0413-6	00:09:14	00:13:37
SM07	19/03/2013	56.03232	-5.58140	56.03170	-5.58227	15.5	15.8	D-SWEEN-0413-6	00:13:37	00:17:49
SM08	19/03/2013	56.02983	-5.58128	56.02948	-5.58210	17.1	16.9	D-SWEEN-0413-6	00:17:49	00:21:41
SM09	19/03/2013	56.02845	-5.58505	56.02795	-5.58603	17.8	18.1	D-SWEEN-0413-6	00:21:41	00:27:02
SM10	19/03/2013	56.02922	-5.58980	56.02892	-5.59042	12.3	13.1	D-SWEEN-0413-6	00:27:02	00:30:04
SM11	19/03/2013	56.02747	-5.58943	56.02692	-5.59055	16.3	14.0	D-SWEEN-0413-6	00:30:04	00:34:08
SM12	19/03/2013	56.02653	-5.59290	56.02613	-5.59358	13.4	13.2	D-SWEEN-0413-6	00:34:08	00:36:38
SM12	19/03/2013	56.02653	-5.59290	56.02613	-5.59358	13.4	13.2	D-SWEEN-0413-6	00:36:38	00:36:58
SM13	19/03/2013	56.02427	-5.59147	56.02382	-5.59220	19.9	20.2	D-SWEEN-0413-6	00:36:59	00:40:56
SM14	19/03/2013	56.02283	-5.59550	56.02225	-5.59672	19.2	19.4	D-SWEEN-0413-6	00:40:56	00:46:19

Table 2.2 Substrates, biota, biotopes and proposed protected features (PPFs) recorded during the drop-down video survey. The PPFs include BM (burrowed mud) and SMS (sublittoral mud and mixed sediment communities)

Site	Substrate	Biota	Biotope	PPF
AA01	Flat mud	Faunal tracks, including those of crabs and pagurids and occasional small burrows, possibly *Upogebia stellata*. *Sagartiogeton* sp. (O), Paguridae sp. (P), *Oxydromus flexuosus*? (P), *Thracia convexa* siphon holes?	SS.SMu.ISaMu.SundAasp	SMS
AA02	Fairly flat mud	Mud with diatomaceous cover, faunal tracks and sparse megafaunal burrows, possibly including *Nephrops norvegicus*, and sparse mounds, possibly including terebellids. *Asterias rubens* (P), *Sabella pavonina* tubes? (P)	SS.SMu.CFiMu	
AA03	Flat mud	Mud with diatomaceous cover, faunal tracks and sparse megafaunal burrows, possibly including thalassinidean shrimps. *Asterias rubens* (O), *Aequipecten opercularis* (P), *Sagartiogeton laceratus* (O)	SS.SMu.CFiMu	
AA04	Soft mud	Low biogenic topography with fairly low burrow density including *Maxmuelleria lankesteri* (O), *Callianassa subterranea* (F), *Jaxea nocturna* (P) and probably *Calocaris macandeae* (P). Mud with diatomaceous film, *Asterias rubens* (P) and *Aequipecten opercularis* (P)	SS.SMu.CFiMu.MegMax	BM
AA05	Soft mud	Moderate burrow density including *Callianassa subterranea* (F-C), *Nephrops norvegicus* (P) and probably *Jaxea nocturna* (P) and low density of *Maxmuelleria lankesteri* (P)	SS.SMu.CFiMu.MegMax	BM
AA06	Soft mud	Moderate burrow density including *Callianassa subterranea* (F-C), *Nephrops norvegicus* (P) and probably *Jaxea nocturna* (P). Fairly low density of *Maxmuelleria lankesteri* (O-F) with a few large mounds	SS.SMu.CFiMu.MegMax	BM
AA07	Soft mud	Moderately bioturbated sediment with *Maxmuelleria lankesteri* (C), including large mounds, *Nephrops norvegicus* (C), *Jaxea nocturna* (P), *Callianassa subterranea* and *Calocaris macandreae*. *Ascidiella aspersa* (O), *Asterias rubens* (P), Gobiidae spp. (P), diatomaceous film (P)	SS.SMu.CFiMu.MegMax	BM
AA08	Soft mud	Well bioturbated sediment with dense *Maxmuelleria lankesteri* (C-A) including many large mounds, as well as *Nephrops norvegicus* (C), *Jaxea nocturna* (P), *Callianassa subterranea* (P) and probably low numbers of *Calocaris macandreae* (P). *Asterias rubens* (F), *Ascidiella aspersa* (R), *Carcinus maenas* (R), *Pagurus bernhardus* (R), Gadidae sp. (P), Gobiidae sp. (P)	SS.SMu.CFiMu.MegMax	BM

Table 2.2 continued

Site	Substrate	Biota	Biotope	PPF
AA09	Soft mud	Fairly well bioturbated sediment with *Maxmuelleria lankesteri* (C) including some large mounds, as well as *Nephrops norvegicus* (C), *Jaxea nocturna* (F) and *Callianassa subterranea* (F). *Asterias rubens* (O), Teleostei sp. (P)	SS.SMu.CFiMu.MegMax	BM
AA10	Soft mud	Moderately well burrowed sediment but possibly smoothed by the passage of fishing gear. *Maxmuelleria lankesteri* (F) with relatively small mounds, *Nephrops norvegicus* (P), *Jaxea nocturna* (P) and *Callianassa subterranea* (P), *Calocaris macandreae* (P) *Asterias rubens* (F), Paguridae sp. (R), Gobiidae sp. (P)	SS.SMu.CFiMu.MegMax	BM
AA11	Soft mud	Moderately well burrowed sediment. *Maxmuelleria lankesteri* (F-C) with occasional large mounds, *Nephrops norvegicus* (C), *Jaxea nocturna* (P), *Callianassa subterranea* (P) and *Calocaris macandreae* (P). *Asterias rubens* (F), Teleostei sp. (P)	SS.SMu.CFiMu.MegMax	BM
AA12	Soft mud	Moderately well burrowed sediment. *Maxmuelleria lankesteri* (F, locally C) with large mounds present, *Nephrops norvegicus* (C), *Jaxea nocturna?* (P), *Callianassa subterranea* (P) and *Calocaris macandreae* (P). *Asterias rubens* (F)	SS.SMu.CFiMu.MegMax	BM
AA13	Soft mud	Moderately to low density of megafaunal burrows. *Maxmuelleria lankesteri* (F) with some large mounds present, *Nephrops norvegicus* (P), *Jaxea nocturna* (P), *Callianassa subterranea* (P) and *Calocaris macandreae* (P). *Asterias rubens* (F), *Virgularia mirabilis* (R), *Ascidiella aspersa* (R)	SS.SMu.CFiMu.MegMax	BM
AA14	Soft mud	Moderately well burrowed sediment. *Maxmuelleria lankesteri* (F, locally C) with large mounds present, *Nephrops norvegicus* (C), *Jaxea nocturna* (P), *Callianassa subterranea* (P) and *Calocaris macandreae* (P). *Asterias rubens* (F), *Ascidiella aspersa* (O)	SS.SMu.CFiMu.MegMax	BM
AA15	Soft mud with much surface detrital material	Heavily mounded sediment with *Maxmuelleria lankesteri* (C, locally A) with many large mounds. Also *Nephrops norvegicus* (C), *Jaxea nocturna* (P), *Callianassa subterranea* (P) and probably *Calocaris macandreae* (P). *Asterias rubens* (F), *Ascidiella aspersa* (O)	SS.SMu.CFiMu.MegMax	BM
CS01	Flat mud	Scattered algal and terrestrial debris. Sparse visible fauna including Paguridae spp. (F), *Ascidiella aspersa* (F), *Sagartiogeton laceratus* (P) and possibly *Virgularia mirabilis* (O)	SS.SMu.ISaMu.SundAasp	SMS

CS02	Flat mud	Poor visibility. Sparse visible fauna, although many faunal tracks, probably chiefly those of crabs. Mud with diatomaceous film and supporting occasional *Ascidiella aspersa*, with *Sagartiogeton laceratus* (P) and Paguridae sp.? (P)	SS.SMu.ISaMu.SundAasp	SMS
CS03	Flat mud	Poor visibility. Sparse visible fauna, although many faunal tracks, especially those of crabs and pagurids. Mud with diatomaceous film and supporting frequent *Ascidiella aspersa*, with *Asterias rubens* (P)	SS.SMu.ISaMu.SundAasp	SMS
CS04	Flat mud	Mud with diatomaceous film, occasional small burrows and many tracks, especially those of crabs and pagurids. *Ascidiella aspersa* (C, locally A), *Asterias rubens* (F)	SS.SMu.ISaMu.SundAasp	SMS
CS05	Mud	Lightly bioturbated sediment with fairly sparse small mounds and megafaunal burrows. *Jaxea nocturna* (F), *Callianassa subterranea* (P), sparse *Maxmuelleria lankesteri* (P). *Ascidiella aspersa* (F), *Asterias rubens* (O), *Sagartiogeton laceratus* (O)	SS.SMu.CFiMu.MegMax	BM
CS06	Flat mud	Very lightly bioturbated sediment with fairly sparse small mounds and megafaunal burrows. *Jaxea nocturna* (O), *Callianassa subterranea* (O), sparse *Maxmuelleria lankesteri* (P). *Ascidiella aspersa* (F), *Asterias rubens* (O), *Sagartiogeton laceratus* (O), small teleost (P), *Carcinus maenas*? (R), *Marthasterias glacialis*? (P), *Ophiocomina nigra* (R for most of run but A towards end)	SS.SMu.CFiMu.MegMax	BM
CS07	Sandy mud	Densely burrowed by *Callianassa subterrranea* (A) for much of run, with *Jaxea nocturna* and *Maxmuelleria lankesteri* also present, though apparently at low density. *Ophiocomina nigra* (A), *Ascidiella aspersa* (C), *Asterias rubens* (F), *Astropecten irregularis* (P), *Aequipecten opercularis* (P), Gobiidae spp. (P), *Sagartiogeton laceratus* (P)	SS.SMu.CFiMu.MegMax	BM
LB01	Flat soft mud	Mud with diatomaceous film and sparse small burrows (probably *Upogebia stellata* and possibly *Callianassa subterranea*). Clumps of *Ascidiella aspersa* (F), Paguridae spp. (O), *Asterias rubens* (O)	SS.SMu.ISaMu.SundAasp	SMS
LB02	Flat soft mud	Mud with diatomaceous film and occasional small burrows (probably *Upogebia stellata*). *Sagartiogeton laceratus* (F), *Ciona intestinalis* (P), *Asterias rubens* (P)	SS.SMu.ISaMu.SundAasp	SMS
LB03	Flat soft mud	Mud with extensive diatomaceous film (A) but with otherwise sparse signs of life, apart from crab tracks and *Sagartiogeton laceratus* (O)	SS.SMu.ISaMu.SundAasp	SMS

LB04	Soft mud	Dense megafaunal burrows and mounds including those of *Maxmuelleria lankesteri* (A). Other burrowers include *Jaxea nocturna* (P), *Callianassa subterranea* (P), *Nephrops norvegicus* (P) and probably *Upogebia stellata* (P) and *Thracia convexa* (P), with *Calocaris macandreae* probably present at low density	SS.SMu.CFiMu.MegMax	BM
LB05	Soft mud	Dense megafaunal burrows and mounds dominated by *Maxmuelleria lankesteri* (A). Other burrowers include *Nephrops norvegicus* (P) and *Callianassa subterranea* (P), with *Jaxea nocturna* (P) and *Calocaris macandreae* also possibly present. *Asterias rubens* (P)	SS.SMu.CFiMu.MegMax	BM
LB06	Soft mud with much surface detrital material	Heavily bioturbated sediment with *Maxmuelleria lankesteri* (A), with many large mounds, *Nephrops norvegicus* (P), *Callianassa subterranea* (P) and *Jaxea nocturna* (P). *Asterias rubens* (F)	SS.SMu.CFiMu.MegMax	BM
LM01	Soft mud	Dense bed of *Zostera marina* (A) supporting large numbers of caprellid amphipods (C), with *Sagartiogeton undatus* (F) and *Arenicola marina* (P). Motile forms include *Psammechinus miliaris* (A), *Ophiocomina nigra* (A), *Marthasterias glacialis* (F) and *Henricia* spp. (P)	SS.SMp.SSgr.Zmar	
LM02	Soft mud	Dense but patchy bed of *Zostera marina* (A in bed) with large areas of bare mud. Fauna dominated by *Psammechinus miliaris* (A in bed, O elsewhere) and *Ophiocomina nigra* (A in bed, R elsewhere). *Sagartiogeton undatus* (F), *Asterias rubens* (F), *Arenicola marina* (F), *Marthasterias glacialis* (P in bed), *Astropecten irregularis* (O)	SS.SMp.SSgr.Zmar SS.SMu.ISaMu.SundAasp	SMS
LM03	Very soft jelly-like mud	Visible fauna dominated by scattered dense patches of *Ascidiella aspersa* (C, locally A) supporting large numbers of caprellid amphipods (locally C). *Asterias rubens* (C), *Astropecten irregularis* (R), *Marthasterias glacialis* (P), *Psammechinus miliaris* (R), *Ophiocomina nigra* (R), *Arenicola marina* (R), Paguridae sp. (R), *Macropodia* sp. (R), Crangonidae sp. (P)	SS.SMu.ISaMu.SundAasp	SMS
LM04	Sandy mud	Visible fauna dominated by scattered dense patches of *Ascidiella aspersa* (C, locally A) supporting large numbers of caprellid amphipods (locally C). *Asterias rubens* (F), *Ophiocomina nigra* (R), crab tracks	SS.SMu.ISaMu.SundAasp	SMS
LM05	Anoxic mud with dark reduced sediment patches visible	Very sparse visible fauna including one small patch of *Ascidiella aspersa* (R), *Ophiocomina nigra* (R), *Psammechinus miliaris* (R), *Asterias rubens* (O), Mysidacea sp.? (P), crab tracks	SS.SMu.IFiMu.Beg	

LM06	Sandy mud	Very sparse visible fauna including *Sagartiogeton undatus* (O), *Asterias rubens* (O), *Ophiocomina nigra* (R) and possible sabellid tube (R)	SS.SMu.ISaMu.SundAasp	SMS
LS01	Soft mud with much surface detrital material	Heavily mounded sediment with *Maxmuelleria lankesteri* (C) with many large mounds. Also *Nephrops norvegicus* (P), *Jaxea nocturna* (P) and *Calocaris macandreae?* (P). *Asterias rubens* (F), *Virgularia mirabilis* (O)	SS.SMu.CFiMu.MegMax	BM
LS02	Soft mud with much surface detrital material	Heavily mounded sediment with *Maxmuelleria lankesteri* (C, locally A) with many large mounds. Also *Nephrops norvegicus* (P), *Jaxea nocturna* (F), *Callianassa subterranea* (P) and *Calocaris macandreae* (P). *Asterias rubens* (F), *Gobiidae sp. (P)*	SS.SMu.CFiMu.MegMax	BM
LS03	Soft mud with much surface detrital material	Heavily mounded sediment with *Maxmuelleria lankesteri* (C, locally A) with many large mounds. Also *Nephrops norvegicus* (C), *Jaxea nocturna* (P) and *Callianassa subterranea* (P). *Asterias rubens* (F), *Virgularia mirabilis*? (R)	SS.SMu.CFiMu.MegMax	BM
LS04	Initially sandy mud slope with silted bouders and bedrock outcrops becoming soft mud plain	Mounds and burrows initially sparse but becoming dense on mud plain with many large mounds of *Maxmuelleria lankesteri* (C), as well as *Nephrops norvegicus* (P) and *Callianassa subterranea* (P), and probably *Jaxea nocturna* (P). Rock supports hydroids (C) and patchy dense *Ophiocomina nigra* (S) and *Ophiothrix fragilis* (S), the former spreading onto adjacent sediment. *Asterias rubens* (F)	SS.SMu.CFiMu.MegMax CR.LCR.BrAs.AmenCio.Bri	BM
LS05	Soft mud with much surface detrital material	Well bioturbated sediment with dense *Maxmuelleria lankesteri* (C) including many large mounds, as well as *Nephrops norvegicus* (P), *Jaxea nocturna* (F) and *Callianassa subterranea* (P). *Asterias rubens* (F), Gobiidae spp. (P)	SS.SMu.CFiMu.MegMax	BM
LS06	Soft mud	Sediment with moderate numbers of burrows but low biogenic relief possibly resulting from trawling. *Jaxea nocturna* (F), *Callianassa subterranea*? (P), *Nephrops norvegicus* (P) and fairly low numbers of small *Maxmuelleria lankesteri* mounds (P)	SS.SMu.CFiMu.MegMax	BM
LS07	Soft mud with much surface detrital material	Poor visibility but appears similar to LS06. Low biogenic relief with apparently *Jaxea nocturna* (P) and *Callinianassa subterranea* (P) and possibly small mounds of *Maxmuelleria lankesteri*. *Asterias rubens* (F)	SS.SMu.CFiMu.MegMax	BM

LS08	Mud	Sediment with low numbers of megafaunal burrows and low biogenic relief. Small *Maxmuelleria lankesteri* mounds (F), *Nephrops norvegicus* (P), *Jaxea nocturna*? (P). *Amphiura* spp. (S, at least initially), *Asterias rubens* (F), *Oxydromus flexuousus*? (P), Gobiidae spp. (P), Ascidiacea spp. (P)	SS.SMu.CFiMu.MegMax	BM
LS09	Soft mud with much surface detrital material	Relatively low relief, with *Maxmuelleria lankesteri* (F), *Nephrops norvegicus* (C) and *Jaxea nocturna* (F). *Asterias rubens* (F), *Ascidiella aspersa* (O), Gobiidae spp. (P)	SS.SMu.CFiMu.MegMax	BM
LS10	Soft flat mud	No burrows or mounds. *Oxydromus flexuosus* (A), *Asterias rubens* (F), Pleuronectiformes sp. (P)	SS.SMu.CFiMu	
LS11	Soft mud with much surface detrital material	Well bioturbated sediment with dense *Maxmuelleria lankesteri* (C, locally A) including large mounds, as well as *Nephrops norvegicus* (P) and *Jaxea nocturna?* (P). *Asterias rubens* (O), Gobiidae spp. (P)	SS.SMu.CFiMu.MegMax	BM
LS12	Soft mud with much surface detrital material	Well bioturbated sediment with dense *Maxmuelleria lankesteri* (A) including many large mounds, as well as *Nephrops norvegicus* (P), *Callianassa subterranea* (P) and *Jaxea nocturna* (P). *Asterias rubens* (O), Gobiidae spp. (P)	SS.SMu.CFiMu.MegMax	BM
LS13	Soft mud with much surface detrital material	Well bioturbated sediment with dense *Maxmuelleria lankesteri* (C-A) including many large mounds, as well as *Nephrops norvegicus* (P) and probably *Callianassa subterranea* (P), *Calocaris macandreae* (P) and *Jaxea nocturna* (P). *Asterias rubens* (O), Ascidiacea spp. (P)	SS.SMu.CFiMu.MegMax	BM
LS14	Soft mud with much surface detrital material	Well bioturbated sediment with dense *Maxmuelleria lankesteri* (C-A) including many large mounds, as well as *Nephrops norvegicus* (P), *Callianassa subterranea* (P), and probably *Jaxea nocturna* (P). *Asterias rubens* (P), *Chaetopterus variopedatus* (P)	SS.SMu.CFiMu.MegMax	BM
LS15	Soft mud with much surface detrital material	Well bioturbated sediment with dense *Maxmuelleria lankesteri* (C-A) including many large mounds, as well as *Nephrops norvegicus* (P), *Callianassa subterranea* (P), *Jaxea nocturna* (F) and probably *Calocaris macandreae* (P). *Virgularia mirabilis* (O), *Asterias rubens* (O), Ascidiacea spp. (P)	SS.SMu.CFiMu.MegMax	BM
LS16	Soft mud with much surface detrital material	Well bioturbated sediment with dense *Maxmuelleria lankesteri* (A) including many large mounds, as well as *Nephrops norvegicus* (P) and probably *Callianassa subterranea* (P). *Asterias rubens* (O), *Chaetopterus variopedatus* (P), Teleostei sp. (P)	SS.SMu.CFiMu.MegMax	BM

LS17	Soft mud with much surface detrital material	Well bioturbated sediment with dense *Maxmuelleria lankesteri* (A) including many large mounds, as well as *Nephrops norvegicus* (P), probably *Callianassa subterranea* (P) and possibly *Jaxea nocturna* (P). *Virgularia mirabilis* (R), *Asterias rubens* (F), *Chaetopterus variopedatus* (F), Teleostei sp. (P)	SS.SMu.CFiMu.MegMax	BM
LS18	Soft mud with much surface detrital material	Well bioturbated sediment with dense *Maxmuelleria lankesteri* (A) including large mounds, as well as *Nephrops norvegicus* (P) and *Jaxea nocturna* (P). *Asterias rubens* (F)	SS.SMu.CFiMu.MegMax	BM
LS19	Soft mud with much surface detrital material	Well bioturbated sediment with dense *Maxmuelleria lankesteri* (C-A) including large mounds, as well as *Nephrops norvegicus* (P) and *Callianassa subterranea* (P). *Asterias rubens* (O)	SS.SMu.CFiMu.MegMax	BM
LS20	Sandy mud	Relatively low relief, with Nephrops norvegicus (C) and small mounds, including those of *Maxmuelleria lankesteri* (sparse) and probably *Callianassa subterranea* (P) *and Jaxea nocturna* (P). *Asterias rubens* (F), *Ascidiella aspersa* (F), Gobiidae spp. (P)	SS.SMu.CFiMu.MegMax	BM
LS21	Soft mud	Moderately bioturbated sediment with *Maxmuelleria lankesteri* (C) and *Nephrops norvegicus* (P). *Ascidiella aspersa* (P), *Crossaster papposus* (P), Gobiidae sp. (P), Paguridae sp. (P)	SS.SMu.CFiMu.MegMax	BM
LS22	Soft mud	Well bioturbated sediment with dense *Maxmuelleria lankesteri* (C, locally A) including large mounds, as well as *Nephrops norvegicus* (C), *Jaxea nocturna* (P), *Callianassa subterranea* (P) and probably *Calocaris macandreae* (P). *Virgularia mirabilis* (R), *Chaetopterus variopedatus* (C), *Asterias rubens* (F), *Corella parallelogramma* (R), *Gobius niger*? (P), *Pomatoschistus minutus*? (P)	SS.SMu.CFiMu.MegMax	BM
LS23	Sandy mud	Relatively low relief, with high density of small mounds, possibly largely polychaetes and *Callianassa subterranea*. *Maxmuelleria lankesteri* and *Nephrops norvegicus* present at low density. *Asterias rubens* (F), *Ascidiella aspersa* (F), *Virgularia mirabilis* (R), *Amphiura* spp. (P)	SS.SMu.CFiMu.MegMax	BM
LS24	Soft mud	Relatively low relief, although fairly high density of megafaunal burrowers in places, particularly *Maxmuelleria lankesteri* (F-C) and *Calocaris macandreae* (P), with *Nephrops norvegicus*, *Callianassa subterranea* and probably *Jaxea nocturna* also present. *Asterias rubens* (F), *Chaetopterus variopedatus* (P)	SS.SMu.CFiMu.MegMax	BM

LS25	Soft mud	Initially fairly flat topography but *Maxmuelleria mlankesteri* mounds increasing in density (overall C), with *Nephrops norvegicus* (P), *Calocaris macandreae* (P) and probably *Callianassa subterraneae* (P). *Asterias rubens* (O), *Ascidiella aspersa* (R), *Aequipecten opercularis* (R), *Chaetopterus variopedatus* (P)	SS.SMu.CFiMu.MegMax	BM
LS26	Soft mud	Dense mounds of *Maxmuelleria lankesteri* (A), as well as *Nephrops norvegicus* (P). *Asteris rubens* (O), *Crossaster papposus* (P)	SS.SMu.CFiMu.MegMax	BM
LS27	Mud	Dense mounds of *Maxmuelleria lankesteri* (A) including large ones, as well as *Nephrops norvegicus* (P) and possibly *Callianassa subterranea* (P). *Aequipecten opercularis* (R)	SS.SMu.CFiMu.MegMax	BM
LS28	Sandy mud	Some large mounds of *Maxmuelleria lankesteri* (C) but area of variable topography with flatter areas including evidence of trawling. Other megafaunal burrowers include *Nephrops norvegicus* (P) and probably *Jaxea nocturna* (P), *Callianassa subterranea* (P) and *Calocaris macandreae* (P). *Virgularia mirabilis* (O, locally F), *Aplysia punctata* (P), *Liocarcinus* sp.? (P)	SS.SMu.CFiMu.MegMax	BM
LS29	Muddy sand with shell material	*Lanice conchilega* (F), *Aplysia punctata* (O, locally F), *Asterias rubens* (P), Paguridae sp. (P), *Chaetopterus variopedatus* (P), hydroid clumps (R), *Turritella communis* shells (P but probably unoccupied)	SS.SMu.ISaMu.MelMagThy	SMS
LS30	Slightly silty shelly sand with gravel and pebbles	Shells and stones supporting short sparse hydroid turf (O), serpulid worms (P) and sparse algae including pink coralline crusts (R) and *Saccharina latissima* (R, possibly drift). *Asterias rubens* (P), *Lanice conchilega*? (P), *Turritella communis* shells (P, probably empty)	SS.SMu.ISaMu.MelMagThy	SMS
LS31	Muddy shelly sand with scattered shells and gravel	Shells and stones supporting short sparse hydroid? turf (O). *Aequipecten opercularis* (P), *Turritella communis* shells (P, probably empty)	SS.SMu.ISaMu.MelMagThy	SMS
LS32	Sand with a patchy surface cover of coarse sand, gravel, pebbles and shells	Little life visible. Sparse kelp including *Saccharina latissima* and possibly *Laminaria hyperborea*, probably largely drift, with sparse patches of smaller algae present. *Asterias rubens* (R)	SS.SMx.IMx	SMS

LS33	Muddy shelly sand with scattered shells	*Aplysia punctata* (O, possibly F). Many *Turritella communis* shells, although probably unoccupied. One small patch of apparently small *Virgularia mirabilis* (R overall)	SS.SMu.ISaMu.MelMagThy	SMS
LS34	Slightly silty sand with scatter of coarse sand, gravel, pebbles and occasional cobbles	Stones sparsely encrusted with pink coralline algae (R) and serpulid worms (R). *Virgularia mirabilis* (F), *Aplysia punctata* (P), *Turritella communis* shells (P, at least some probably occuped by hermit crabs)	SS.SMu.ISaMu.MelMagThy	SMS
OS01	Mixed substrate of sand with dense shells, pebbles, gravel and locally cobbles and boulders	Stones support an algal turf dominated by *Desmarestia aculeata* (F) and with scattered plants of *Saccharina latissima* (F) and *Ulva* sp. (R). Cobbles and boulders increase towards the end of the run and are encrusted with pink coralline algae (P) and serpulid worms (P) and support *Laminaria hyperborea* (C, locally A) and *S. latissima* (P). *Echinus esculentus* (P), *Asterias rubens* (F)	IR.HIR.KSed.XKScrR SS.SMp.KSwSS.LsacR	
OS02	Scattered boulders on mixed sandy substrate with pebbles and cobbles	Boulders support *Laminaria hyperborea* (A) and *Saccharina latissima* (P), the former with stipe community including filamentous and foliose red algae including *Phycodrys rubens* (P) and Actiniaria sp. (P), with fronds supporting *Obelia geniculata*, *Calliostoma zizyphinum* and *Asterias rubens*. Boulder surface probably sand-scoured and with sparse encrusting community including pink coralline algae (P) and serpulid worms (P). *Echinus esculentus* (P)	IR.HIR.KSed.XKScrR	
OS03	Mixed substrate of coarse sand with dense pebbles, gravel and locally cobbles and boulders	Stones encrusted with pink coralline algae (O) and serpulid worms (C) and supporting patches of hydroids (O-F) and possibly erect bryozoans (R). *Echinus esculentus* (O), *Asterias rubens* (O), *Ophiocomina nigra* (S over a large area)	SS.SMx.CMx.FluHyd SS.SMx.CMx.OphMx	SMS
OS04	Underlying substrate basically sand but overlain by a scatter, often dense, of coarse sand, gravel, pebbles and shells, with boulders and cobbles locally dense	Stones and shells supporting patchy algal clumps, both red and brown, including *Desmarestia aculeata* (P) and *Odonthalia dentata* (P) and hydroid tufts, including *Sertularia* sp. (P). Areas of boulders and cobbles are probably scoured and support the kelps, *Laminaria hyperborea* (C) and *Saccharina latissima* (locally C), which are also present at low density in the boulder-free areas. Boulders are encrusted with pink coralline and red non-coralline algae. *Asterias rubens* (F), *Marthasterias glacialis*? (P), *Obelia geniculata* (P on kelp fronds), *Echinus esculentus* (C)	IR.HIR.KSed.XKScrR SS.SMp.KSwSS.LsacR	

OS05	Slightly shelly rippled fine sand	Dense shells of *Turritella communis* (C), though many are occupied by hermit crabs. *Asterias rubens* (R), hydroid clumps (R), infaunal polychaete tubes (P)	SS.SSa.CFiSa	
OS06	Sand with admixture of gravel, pebbles and shells and scattered boulders and cobbles	*Lanice conchilega* (C, at least locally), *Marthasterias glacialis* (P), *Asterias rubens* (P). Larger stones encrusted with serpulid worms (P) and *Parasmittina trispinosa* (R)	SS.SMx.CMx	SMS
OS07	Dense pebbles and cobbles and scattered boulders on coarse sand	Stones encrusted with serpulid worms, predominantly *Spirobranchus* spp. (A), and pink coralline algae (F) and supporting a patchy turf of hydroids and bryozoans (F, locally C) including *Flustra foliacea* (R) and *Cellaria* sp. (P), together with sparse foliose red algae (R) and small kelp plants (R). *Echinus esculentus* (F), *Asterias rubens* (P), *Ophiothrix fragilis* (R)	SS.SMx.CMx.FluHyd	SMS
OS08	Mixed substrate of predominantly sand, gravel and pebbles	Stones encrusted with serpulid worms. *Lanice conchilega* (F), otherwise very sparse visible fauna including hydroids (R)	SS.SMx.CMx	SMS
OS09	Dense cobbles and pebbles on coarse sand	Stones encrusted with serpulid worms, predominantly *Spirobranchus* spp. (C), and pink coralline algae (F) and supporting *Alcyonium digitatum* (O) and a patchy turf of hydroids and bryozoans (F, locally C) including *Flustra foliacea* (R) and *Cellaria* sp. (P), *Echinus esculentus* (C), *Asterias rubens* (P)	SS.SMx.CMx.FluHyd	SMS
OS10	Dense cobbles, pebbles and, in places, boulders, with coarse sand infill	Stones encrusted with serpulid worms, predominantly *Spirobranchus* spp. (C), pink coralline algae (F) and *Parasmittina trispinosa* (R), and supporting *Alcyonium digitatum* (R) and a patchy turf of hydroids and bryozoans (C) including *Securiflustra securifrons* (P), *Echinus esculentus* (C), *Asterias rubens* (P), *Munida rugosa* (P), *Ophiothrix fragilis*? (P)	SS.SMx.CMx.FluHyd	SMS
OS11	Mixed substrate of coarse sand, gravel, pebbles and shells	Stones and shells encrusted with serpulid worms (P) and pink coralline algae (P) and supporting patches of hydroids (O) and *Flustra foliacea* (O). *Crossaster papposus* (P), *Asterias rubens* (P). Dense *Ophiocomina nigra* (A) at start of run	SS.SMx.CMx.FluHyd SS.SMx.CMx.OphMx	SMS

OS12	Mixed substrate of dense pebbles, gravel, cobbles and some sand, with boulders	Biota dominated by forest of *Laminaria hyperborea* (A) but also significant quantities of *Saccharina latissima* (P), *Alaria esculenta* (P) and possibly some *Sacchoriza polyschides* (P). *Laminaria* stipes support rich red algal flora and fronds support *Obelia geniculata*, *Membranipora membranacea*, *Polycera quadrilineata* (P), Ectocarpaceae sp.? (P) and *Gibbula cineraria* (P). Stones encrusted with pink coralline algae and serpulid worms but also support an understorey flora of foliose and filamentous red algae (O), including *Odonthalia dentata*, and *Desmarestia aculeata* (P). *Echinus esculentus* (C) and very sparse live rhodoliths of *Phymatolithon calcareum* (R)	IR.HIR.KSed	
OS13	Slightly muddy sand	Much algal debris. Sparse small mounds and burrows present including possibly *Callianassa subterranea* (P) and *Calocaris macandreae* (P). *Asterias rubens* (F), Paguridae sp. (P), *Turritella communis* shells (P, but possibly unoccupied)	SS.SSa.CMuSa	
OS14	Dense cobbles, pebbles and occasional boulders on coarse sand	Stones encrusted with serpulid worms, predominantly *Spirobranchus* spp. (C) and supporting sparse tufts of hydroids and bryozoans (R) including *Flustra foliacea*, *Echinus esculentus* (F), *Asterias rubens* (P)	SS.SMx.CMx.FluHyd	SMS
OS15	Mixed substrate of coarse sand with dense gravel, pebbles and shells with scattered cobbles and boulders	Stones encrusted with serpulid worms (C) and supporting very sparse tufts of hydroids and bryozoans (R) including *Flustra foliacea*, and *Alcyonium digitatum* (R), *Asterias rubens* (P), *Crossaster papposus* (P), Paguridae sp. (P)	SS.SMx.CMx.FluHyd	SMS
OS16	Largely boulders and cobbles and possibly bedrock outcops with small patches of mixed sandy sediment	Stones encrusted with serpulid worms, predominantly *Spirobranchus* spp. (C) and *Parasmittina trispinosa* (R), and supporting *Alcyonium digitatum* (F, locally C) and hydroid patches (O, locally C) including *Abietinaria abietina* (P) and *Sertularia* sp. (P) *Echinus esculentus* (C), *Henricia* sp. (P)	CR.MCR.EcCr.FaAlCr.Adig	
OS17	Pebbles, cobbles and gravel on coarse sand	Stones encrusted with serpulid worms, predominantly *Spirobranchus* spp. (C), and supporting sparse *Alcyonium digitatum* (R) and patches of hydroids (R) and *Flustra foliacea* (R). *Echinus esculentus* (P), *Crossaster papposus* (P), *Lanice conchilega*? (P)	SS.SMx.CMx.FluHyd	SMS

OS18	Flat mud	Sparse burrows including probably *Callianassa subterranea* (P) and *Calocaris macandreae* (P), with small mounds probably those of the former, as well as possibly formed by polychaetes. *Aplysia punctata* (P)	SS.SMu.CFiMu.SpnMeg	BM
OS19	Fairly flat sandy mud	Sediment coated in diatom film (A) and with frequent casts of *Arenicola marina* and numerous (C-A) apparently smaller casts (presumably *Melinna palmata*). *Saccharina latisima* (O). *Philine aperta* possibly present and possibly responsible for the presence of narrow faunal tracks	SS.SMu.ISaMu	SMS
OS20	Medium? sand with scattered coarse sand, gravel, pebbles and shells, especially *Ensis*	Stones support sparse algae including *Saccharina latissima* (O) and *Desmarestia aculeata*? (R), as well as sparse hydroids (P). Infaunal elements include *Lanice conchilega* (P), *Cerianthus lloydii* (P) and possibly *Neopentadactyla mixta* (P), with epibiota including *Aplysia punctata* (P), *Pecten maximus* (P), *Turritella communis* shells (P) and very sparse live rhodoliths of *Phymatolithon calcareum* (R)	SS.SSa.IFiSa	
OS20	Boulders and cobbles on sand	Boulders support *Saccharina latissima* (C), *Laminaria hyperborea* (P) and a sparse understorey community including pink coralline algae (F), serpulid worms (P) and sparse hydroids and algae, including *Desmarestia aculeata* (P). *Asterias rubens* (P), *Marthasterias glacialis* (P)	IR.HIR.KSed.XKScrR	
OS21	Basically shelly sand with varying amounts, sometimes dense, of gravel, pebbles, shells, cobbles and boulders	Larger stones supporting sparse serpulid worms and pink coralline algae and sparse pacthes of algae including *Saccharina latissima* (O) and *Desmarestia aculeata* (R). *Lanice conchilega* (P), *Cerianthus lloydii* (P), *Echinus esculentus* (P), *Asterias rubens* (P)	SS.SMx.IMx	SMS
OS22	Largely cobbles and pebbles with gravel, sand and boulders	Larger stones support forest of *Laminaria hyperborea* (A), accompanied by much *Desmarestia aculeata* (O-F) and *Alaria esculenta* (P). Stones encrusted with pink coralline algae and serpuld worms and support sparse foliose red algae (O). *Echinus esculentus* (C), *Membranipora membranacea* (P)	IR.HIR.KSed	
SM01	Fairly flat mud	Mud with diatomaceous film and scattered debris of anthropogenic (including bottles) and algal or terrestrial origin. *Ascidiella aspersa* (A), *Sagartiogeton laceratus* (F), *Asterias rubens* (P), small teleost (P), sparse low mounds (probably terebellids) and possible emergent polychaete tubes	SS.SMu.ISaMu.SundAasp	SMS

SM02	Soft mud	Moderately well-mounded sediment with *Maxmuelleria lankesteri* (C) including some large mounds. Also *Nephrops norvegicus* (P), *Callianassa subterranea* (P) and possibly *Calocaris macandreae* (O). *Asterias rubens* (F), *Ascidiella aspersa* (F), *Sagartiogeton* sp.? (O)	SS.SMu.CFiMu.MegMax	BM
SM03	Soft mud with much surface detrital material	Heavily mounded and burrowed sediment with *Maxmuelleria lankesteri* (C, locally A) with many large mounds. Also *Nephrops norvegicus* (C), *Jaxea nocturna?* (F), *Callianassa subterranea* (P) and *Calocaris macandreae?* (P). *Asterias rubens* (F),	SS.SMu.CFiMu.MegMax	BM
SM04	Soft mud with much surface detrital material	Heavily mounded and burrowed sediment with *Maxmuelleria lankesteri* (C, locally A), with many large mounds, and *Nephrops norvegicus* (C). Also *Jaxea nocturna?* (P), *Callianassa subterranea* (F) and *Calocaris macandreae?* (P). *Asterias rubens* (F)	SS.SMu.CFiMu.MegMax	BM
SM05	Soft mud with much surface detrital material	Heavily bioturbated sediment with *Maxmuelleria lankesteri* (C, locally A), with many large mounds and distinct feeding traces, and *Nephrops norvegicus* (C). Also *Jaxea nocturna?* (P), *Callianassa subterranea* (P) and *Calocaris macandreae?* (P). *Asterias rubens* (F), *Virgularia mirabilis* (R), *Thracia convexa* siphon holes? (P), Gobiidae sp. (P)	SS.SMu.CFiMu.MegMax	BM
SM06	Soft mud with much surface detrital material	Heavily bioturbated sediment with *Maxmuelleria lankesteri* (C) and *Nephrops norvegicus* (C). Also *Jaxea nocturna?* (P), *Callianassa subterranea* (P) and *Calocaris macandreae* (P). *Asterias rubens* (F)	SS.SMu.CFiMu.MegMax	BM
SM07	Soft mud	Heavily bioturbated sediment with *Maxmuelleria lankesteri* (C) and *Nephrops norvegicus* (C). Also *Jaxea nocturna?* (P), *Callianassa subterranea* (P) and *Calocaris macandreae?* (P). *Asterias rubens* (F), *Virgularia mirabilis* (R)	SS.SMu.CFiMu.MegMax	BM
SM08	Mud	Moderately bioturbated mud with *Maxmuelleria lankesteri* (F) and *Nephrops norvegicus* (C). *Jaxea nocturna?* (P), *Callianassa subterranea* (F) and *Calocaris macandreae (P)*. *Asterias rubens* (F)	SS.SMu.CFiMu.MegMax	BM
SM09	Soft mud with surface detrital material	Moderately bioturbated mud with relatively smooth topography, possibly from fishing activity. *Nephrops norvegicus* (C) with fairly sparse small mounds of *Maxmuelleria lankesteri* (F), as well as *Jaxea nocturna* (P), *Callianassa subterranea* (F) and *Calocaris macandreae? (P)*. *Virgularia mirabilis* (F), *Thracia convexa* siphon holes? (P), *Asterias rubens* (F), *Gobius niger*? (P)	SS.SMu.CFiMu.MegMax	BM

SM10	Soft mud with much surface detrital material	Moderately bioturbated mud with relatively smooth topography. Fairly sparse small *Nephrops norvegicus* burrows (F) and small mounds of *Maxmuelleria lankesteri* (P), as well as *Jaxea nocturna* (P), *Callianassa subterranea* (P) and *Calocaris macandreae? (P)*. *Asterias rubens* (O), *Ascidiella aspersa* (O)	SS.SMu.CFiMu.MegMax	BM
SM11	Soft mud with much surface detrital material and scattered boulders at end of run	Moderately bioturbated mud becoming smooth at end of run. *Maxmuelleria lankesteri* mounds (C for much of run), *Nephrops norvegicus* (P), *Jaxea nocturna* (P), *Callianassa subterranea* (P) and *Calocaris macandreae? (P)*. *Virgularia mirabilis* (F), *Asterias rubens* (F). Boulders support dense *Ascidiella aspersa* (locally A) and *Ophiocomina nigra* (locally A)	SS.SMu.CFiMu.MegMax	BM
SM12	Soft mud	Moderately bioturbated mud becoming smooth towards end of run. *Nephrops norvegicus* (C), *Maxmuelleria lankesteri* mounds (F overall with medium-sized mounds), *Jaxea nocturna?* (P), *Callianassa subterranea* (P) and *Calocaris macandreae* (P). *Asterias rubens* (F). *Ascidiella aspersa* (O)	SS.SMu.CFiMu.MegMax	BM
SM12	Silted bedrock and boulders	Fauna dominated by dense patches of *Ascidiella aspersa* (C, locally S), with other solitary ascidians possibly also present. Pink coralline algae (P), *Asterias rubens* (P), *Ophiocomina nigra* (P)	CR.LCR.BrAs.AmenCio	
SM13	Soft mud with much surface detrital material	Heavily bioturbated sediment with *Maxmuelleria lankesteri* (A), with many large mounds, *Nephrops norvegicus* (P) and *Callianassa subterranea* (P). *Asterias rubens* (F), *Virgularia mirabilis* (R)	SS.SMu.CFiMu.MegMax	BM
SM14	Soft mud with much surface detrital material	Heavily bioturbated sediment with *Maxmuelleria lankesteri* (A), with many large mounds, *Nephrops norvegicus* (C) and *Callianassa subterranea* (P), *Jaxea nocturna* (P) and possibly *Calocaris macandreae* (P). *Asterias rubens* (F), *Virgularia mirabilis* (O, locally F)	SS.SMu.CFiMu.MegMax	BM

APPENDIX 3: GRAB AND DREDGE SURVEY DATA

Table 3.1 Sample details and in situ *characterisation of the sediment for the infaunal grab and dredge survey. PSA = particle size analysis sample taken. Analysis = full laboratory enumeration or* in situ *examination for larger species*

Site	Latitude	Long'de	Depth BCD (m)	Time (BST)	Date	Sediment	Biota	PSA	Anal-ysis	Gear
OS19G	55.96015	-5.69290	4.6	13:52:49	20/03/2013	soft mud		yes	Full	van Veen ($0.1m^2$)
OS18G	55.95160	-5.70587	18.6	14:03:09	20/03/2013	soft mud		yes	Full	van Veen ($0.1m^2$)
LS31G	55.94095	-5.67777	12.8	14:43:15	20/03/2013	shelly sandy mud or muddy sand		yes	Full	van Veen ($0.1m^2$)
LS27G	55.95553	-5.67010	24.7	15:09:05	20/03/2013	soft mud	*Amphiura* spp.	yes	Full	van Veen ($0.1m^2$)
LS21G	55.97298	-5.65030	18.8	15:34:01	20/03/2013	soft mud	*Amphiura* spp., 1 *Jaxea*	yes	Full	van Veen ($0.1m^2$)
LS22G	55.97172	-5.64392	22.8	15:58:39	20/03/2013	soft mud	*Amphiura* spp. - several	yes	Full	van Veen ($0.1m^2$)
LS23G	55.97073	-5.64193	17.5	16:08:43	20/03/2013	slightly sandy shelly mud	*Amphiura* spp. - several	yes	Full	van Veen ($0.1m^2$)
LB02G	56.02228	-5.62502	4.1	08:33:21	21/03/2013	sulphurous soft mud		yes	Full	van Veen ($0.1m^2$)
LB04G	56.02093	-5.61745	11.9	08:42:27	21/03/2013	soft mud	*Amphiura* spp. - several	yes	Full	van Veen ($0.1m^2$)
LS22G1	55.97183	-5.64365	23.2	09:23:04	21/03/2013	soft mud	1 bivalve	no	Full	van Veen ($0.1m^2$)
LS22G2	55.97163	-5.64380	23.7	09:28:44	21/03/2013	soft mud	*Amphiura* spp. - few, *Pectinaria*	no	In situ	van Veen ($0.1m^2$)
LS22G3	55.97173	-5.64390	22.8	09:35:42	21/03/2013	soft mud	*Amphiura* spp.	no	In situ	van Veen ($0.1m^2$)
LS18G	55.98695	-5.63157	20.0	10:09:44	21/03/2013	soft mud	*Amphiura* spp. - several	yes	Full	van Veen ($0.1m^2$)
LS11G	56.00447	-5.62073	23.5	10:33:15	21/03/2013	soft mud	c.12 *Amphiura* spp.	yes	Full	van Veen ($0.1m^2$)

Table 3.1 continued

Site	Latitude	Long'de	Depth BCD (m)	Time (BST)	Date	Sediment	Biota	PSA	Anal-ysis	Gear
LS08G	56.01282	-5.61150	30.9	10:52:52	21/03/2013	soft mud	2 *Echinocardium*, severeral *Amphiura*	yes	Full	van Veen ($0.1m^2$)
LS05G	56.01835	-5.60757	23.4	11:15:33	21/03/2013	soft mud	*Amphiura* spp. - several	yes	Full	van Veen ($0.1m^2$)
AA01G	56.02253	-5.57275	3.4	11:49:14	21/03/2013	soft mud		yes	Full	van Veen ($0.1m^2$)
AA04G	56.01702	-5.57900	12.4	11:58:34	21/03/2013	soft mud		yes	Full	van Veen ($0.1m^2$)
AA10G	56.01527	-5.58697	15.5	12:19:22	21/03/2013	soft mud	2 *Amphiura* spp.	yes	Full	van Veen ($0.1m^2$)
AA14G	56.01213	-5.59482	22.5	12:27:33	21/03/2013	soft mud	*Amphiura* spp. - several	yes	Full	van Veen ($0.1m^2$)
SM02G	56.03895	-5.56977	13.0	12:59:30	21/03/2013	soft mud	*Amphiura* spp., small holothurian	yes	Full	van Veen ($0.1m^2$)
SM05G	56.03425	-5.57778	14.9	13:08:19	21/03/2013	soft mud	*Amphiura* spp. - several	yes	Full	van Veen ($0.1m^2$)
SM08G	56.02963	-5.58168	16.8	13:25:11	21/03/2013	slightly sandy mud	*Amphiura* spp. >10	yes	Full	van Veen ($0.1m^2$)
SM11G	56.02730	-5.58953	16.5	13:46:06	21/03/2013	soft mud	*Amphiura* spp. - several	yes	Full	van Veen ($0.1m^2$)
SM14G	56.02263	-5.59588	19.3	13:54:33	21/03/2013	soft mud	*Amphiura* spp. - several	yes	Full	van Veen ($0.1m^2$)
CS01G	56.05102	-5.58015	3.4	14:40:18	21/03/2013	soft sulphur-ous mud		yes	Full	van Veen ($0.1m^2$)
CS04G	56.04682	-5.58627	7.8	14:55:24	21/03/2013	black sulphur-ous mud		yes	Full	van Veen ($0.1m^2$)
CS06G	56.04127	-5.58940	9.0	15:11:55	21/03/2013	blackish sulphur-ous mud	1 *Astropecten*	yes	Full	van Veen ($0.1m^2$)
AA08G	56.01224	-5.58341	15.5	10:45:00	23/04/2013	soft mud	*Amphiura* spp.	yes	Full	2 x mini van Veen (0.09 m^2)

Table 3.1 continued

Site	Latitude	Long'de	Depth BCD (m)	Time (BST)	Date	Sediment	Biota	PSA	Anal-ysis	Gear
LM02G	56.00535	-5.64284	1.7	16:23:00	18/04/2013	mud		yes	Full	2 x mini van Veen (0.09 m^2)
LM04G	55.99620	-5.65072	4.7	16:49:00	18/04/2013	sandy mud		yes	Full	2 x mini van Veen (0.09 m^2)
LM06G	55.98668	-5.65833	11.7	17:09:00	18/04/2013	muddy sand		yes	Full	2x mini van Veen (0.09 m^2)
OS14N	55.94907	-5.71925	34.1	11:23:48	20/03/2013	stones	no *Limaria*	no	In situ	natur-alist dredge
CS06A	56.04105	-5.58977	8.9	16:02:41	21/03/2013	soft mud	no megafauna	no	In situ	anchor dredge
LB04A	56.02095	-5.61759	12.5	13:15:00	23/04/2013	soft mud	no megafauna	no	In situ	anchor dredge
SM14A	56.02254	-5.59611	19.9	14:05:00	23/04/2013	soft mud	no megafauna	no	In situ	anchor dredge
AA08A	56.01224	-5.58341	15.5	15:10:00	23/04/2013	soft mud	no megafauna	no	In situ	anchor dredge

Table 3.2 Particle size characteristics of sediments sampled for the infaunal grab survey. $MD_{ø}$ = median grain diameter in phi units, Md_{μ} = median grain diameter in microns, $QD_{ø}$ = phi quartile deviation, ND = not determined

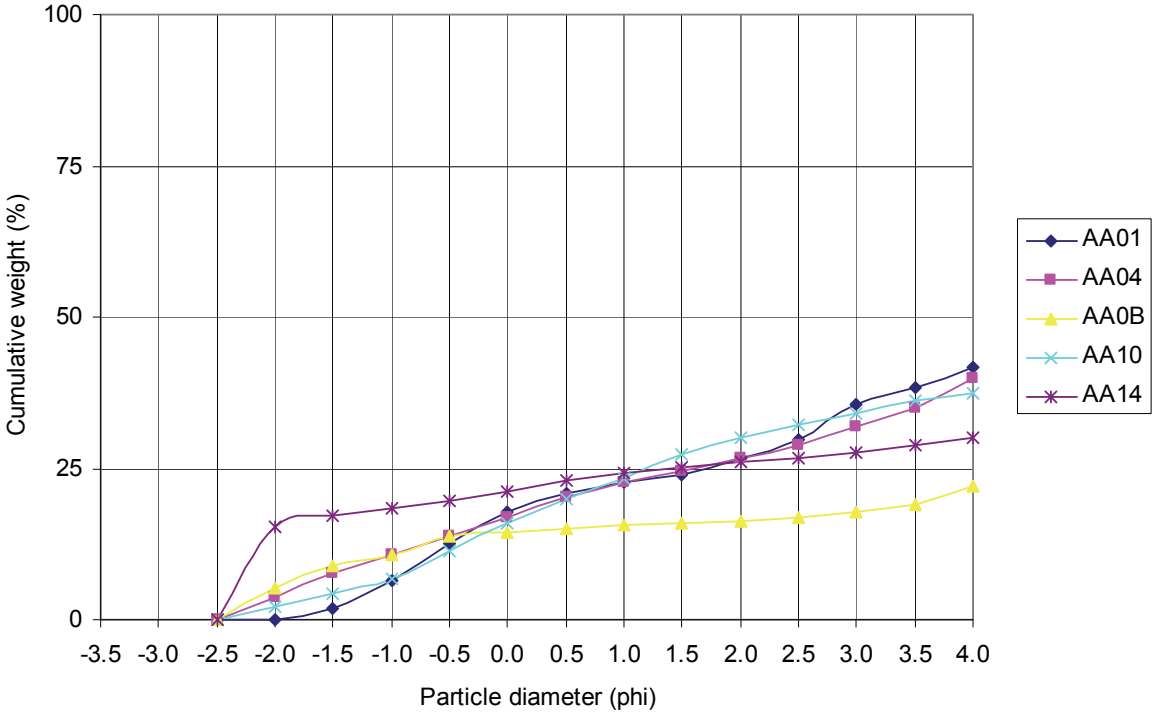
Site	$MD_{ø}$	MD_{μ}	$QD_{ø}$	% silt/clay	% sand	% gravel	% fine sand	% medium sand	% coarse sand
AA01G	>4.00	<63	ND	58.37	41.63	0.00	15.07	8.85	17.72
AA04G	>4.00	<63	ND	60.17	36.03	3.81	13.21	9.63	13.19
AA08G	>4.00	<63	ND	77.84	16.84	5.31	5.77	1.91	9.16
AA10G	>4.00	<63	ND	62.54	35.40	2.06	7.33	14.24	13.82
AA14G	>4.00	<63	ND	69.85	14.91	15.25	4.11	4.94	5.86
CS01G	3.5	88	ND	48.14	38.53	13.32	10.47	7.59	20.47
CS04G	>4.00	<63	ND	59.20	32.54	8.26	7.12	8.87	16.55
CS06G	>4.00	<63	ND	55.08	35.78	9.14	8.45	11.02	16.31
LB02G	>4.00	<63	ND	71.08	27.58	1.34	11.46	5.45	10.68
LB04G	>4.00	<63	ND	79.22	20.78	0.00	8.12	4.25	8.41
LM02G	3.75	74	ND	46.40	53.60	0.00	33.98	12.96	6.66
LM04G	-0.25	1189	ND	31.69	46.84	21.47	6.73	9.82	30.29
LM06G	2.48	179	0.55	6.25	93.75	0.00	65.18	16.90	11.67
LS05G	>4.00	<63	ND	78.82	17.90	3.28	2.09	6.48	9.33
LS08G	>4.00	<63	ND	73.16	26.84	0.00	6.95	10.66	9.24
LS11G	>4.00	<63	ND	67.33	30.45	2.22	4.03	8.11	18.30
LS18G	>4.00	<63	ND	83.16	16.84	0.00	3.89	3.97	8.97
LS21G	>4.00	<63	ND	77.75	22.25	0.00	19.83	1.88	0.53
LS22G	>4.00	<63	ND	77.27	22.73	0.00	15.54	3.46	3.73
LS23G	3.56	85	ND	42.50	57.50	0.00	48.25	7.13	2.12
LS27G	>4.00	<63	ND	71.54	28.46	0.00	14.38	5.35	8.73
LS31G	2.61	164	ND	27.45	64.39	8.16	31.95	18.82	13.62
OS18G	>4.00	<63	ND	59.41	32.81	7.79	23.32	6.62	2.87
OS19G	3.75	72	ND	34.50	65.50	0.00	60.10	3.95	1.45
SM02G	>4.00	<63	ND	70.78	29.22	0.00	6.02	8.40	14.79
SM05G	>4.00	<63	ND	79.35	20.65	0.00	3.53	7.81	9.32
SM08G	3.15	113	ND	36.85	63.15	0.00	48.03	11.56	3.56
SM11G	>4.00	<63	ND	70.42	24.48	5.09	13.63	5.69	5.17
SM14G	>4.00	<63	ND	77.75	15.82	6.42	3.16	4.94	7.73

Table 3.3 Percentage of total sediment sample collected by sieves at 0.5 phi interval mesh sizes for all grab sites

Sieve (phi)	AA 01G	AA 04G	AA 08G	AA 10G	AA 14G	CS 01G	CS 04G	CS 06G	LB 02G	LB 04G	LM 02G	LM 04G	LM 06G	LS 05G	LS 08G
-3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-3.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-2.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-2.0	0.00	3.81	5.31	2.06	15.25	13.32	8.26	9.14	1.34	0.00	0.00	21.47	0.00	3.28	0.00
-1.5	1.70	3.83	3.56	2.23	2.03	6.07	6.00	6.83	3.67	0.00	0.94	9.78	1.78	1.83	0.00
-1.0	4.82	3.01	1.77	2.55	1.11	3.43	3.66	3.04	2.28	2.95	0.91	8.75	3.27	2.03	3.52
-0.5	6.20	3.28	3.12	4.40	1.11	6.81	3.87	3.48	2.44	3.21	2.74	8.01	4.50	2.92	2.97
0.0	5.00	3.06	0.71	4.63	1.61	4.16	3.01	2.96	2.30	2.26	2.07	3.75	2.12	2.54	2.75
0.5	3.21	3.39	0.64	4.01	1.99	2.71	2.56	2.83	1.64	1.75	1.93	3.53	1.36	2.49	3.05
1.0	1.70	2.29	0.46	3.55	1.18	1.36	1.96	2.52	1.06	1.10	2.17	1.80	1.98	1.79	2.56
1.5	1.43	2.01	0.41	3.72	1.00	1.55	2.00	2.79	1.02	0.84	3.48	2.13	4.03	1.35	2.63
2.0	2.51	1.93	0.40	2.96	0.77	1.97	2.35	2.89	1.74	0.56	5.38	2.35	9.53	0.85	2.42
2.5	3.28	2.21	0.62	2.19	0.69	3.21	2.32	2.15	2.55	0.54	6.64	2.68	22.43	0.49	2.33
3.0	5.77	3.01	0.76	1.85	0.84	3.05	2.07	2.75	3.21	1.04	11.67	1.73	30.18	0.45	2.14
3.5	2.85	3.14	1.26	2.03	1.13	2.02	1.36	1.79	3.35	3.00	8.00	0.92	9.73	0.35	1.14
4.0	3.17	4.86	3.14	1.26	1.45	2.19	1.38	1.75	2.34	3.53	7.67	1.40	2.84	0.80	1.33
>4.0	58.37	60.17	77.84	62.54	69.85	48.14	59.20	55.08	71.08	79.22	46.40	31.69	6.25	78.82	73.16

Sieve (phi)	LS 11G	LS 18G	LS 21G	LS 22G	LS 23G	LS 27G	LS 31G	OS 18G	OS 19G	SM 02G	SM 05G	SM 08G	SM 11G	SM 14G
-3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-3.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-2.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-2.0	2.22	0.00	0.00	0.00	0.00	0.00	8.16	7.79	0.00	0.00	0.00	0.00	5.09	6.42
-1.5	3.62	0.00	0.00	0.00	0.00	0.00	3.68	0.00	0.00	0.00	0.00	0.00	1.34	2.99
-1.0	2.70	6.36	0.00	0.00	1.40	1.88	2.86	0.06	0.14	7.20	5.54	1.48	0.71	1.03
-0.5	8.65	1.36	0.15	1.93	0.26	4.00	3.47	1.15	0.55	3.92	1.74	1.05	1.67	1.90
0.0	3.33	1.26	0.38	1.80	0.46	2.85	3.61	1.66	0.76	3.66	2.03	1.03	1.45	1.81
0.5	3.16	1.46	0.50	1.42	0.71	1.69	4.32	1.64	0.96	3.68	2.81	1.18	1.38	1.78
1.0	1.93	1.03	0.41	0.81	0.89	1.24	4.22	1.50	0.82	2.10	2.13	1.60	1.26	1.30
1.5	1.69	0.86	0.49	0.73	1.35	1.36	4.82	1.60	0.94	1.60	1.74	2.71	1.38	1.14
2.0	1.33	0.63	0.48	0.51	4.19	1.05	5.47	1.89	1.24	1.02	1.12	6.06	1.67	0.71
2.5	1.06	0.52	0.45	0.43	9.10	0.74	7.51	1.41	2.00	0.90	0.85	11.50	2.47	0.53
3.0	1.04	0.63	1.70	0.71	16.70	1.13	8.55	3.50	5.88	1.28	0.76	19.73	4.93	0.80
3.5	0.80	0.75	4.53	2.96	13.58	3.54	7.03	6.31	20.27	1.44	0.64	12.08	3.35	0.66
4.0	1.13	1.99	13.15	11.44	8.87	8.96	8.86	12.09	31.95	2.40	1.28	4.72	2.88	1.17
>4.0	67.33	83.16	77.75	77.27	42.50	71.54	27.45	59.41	34.50	70.78	79.35	36.85	70.42	77.75

Figure 3.1 Cumulative weight of sediment retained on sieves at 0.5 phi intervals for all grab sites



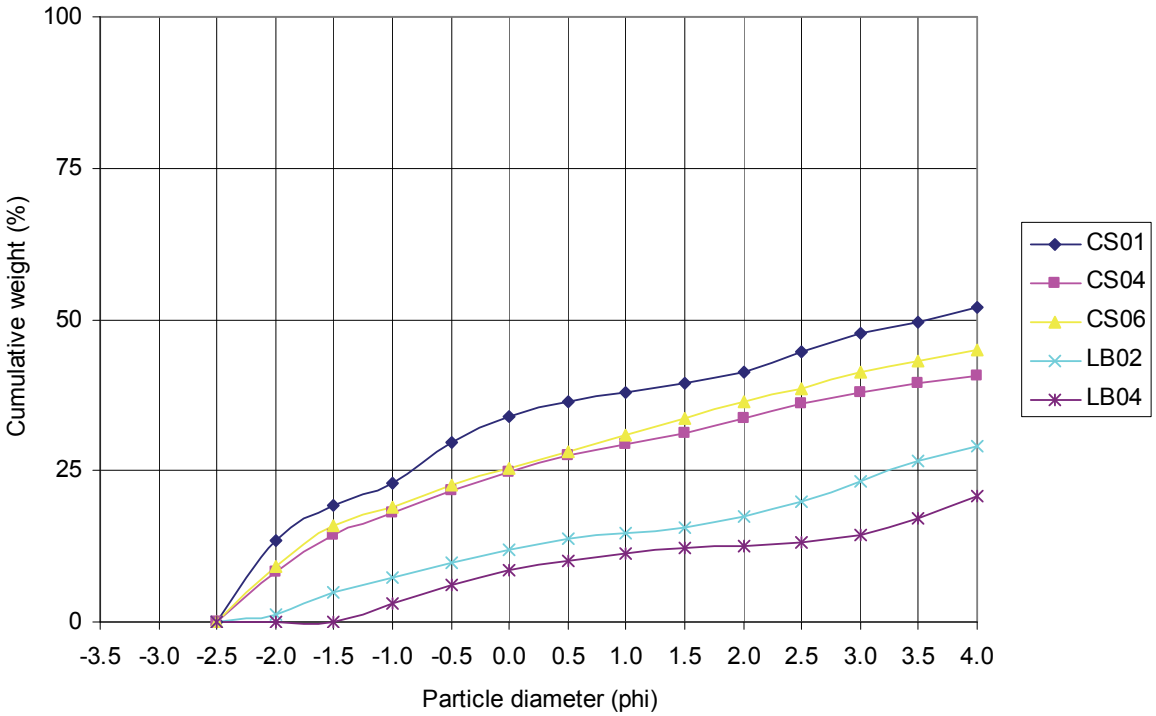
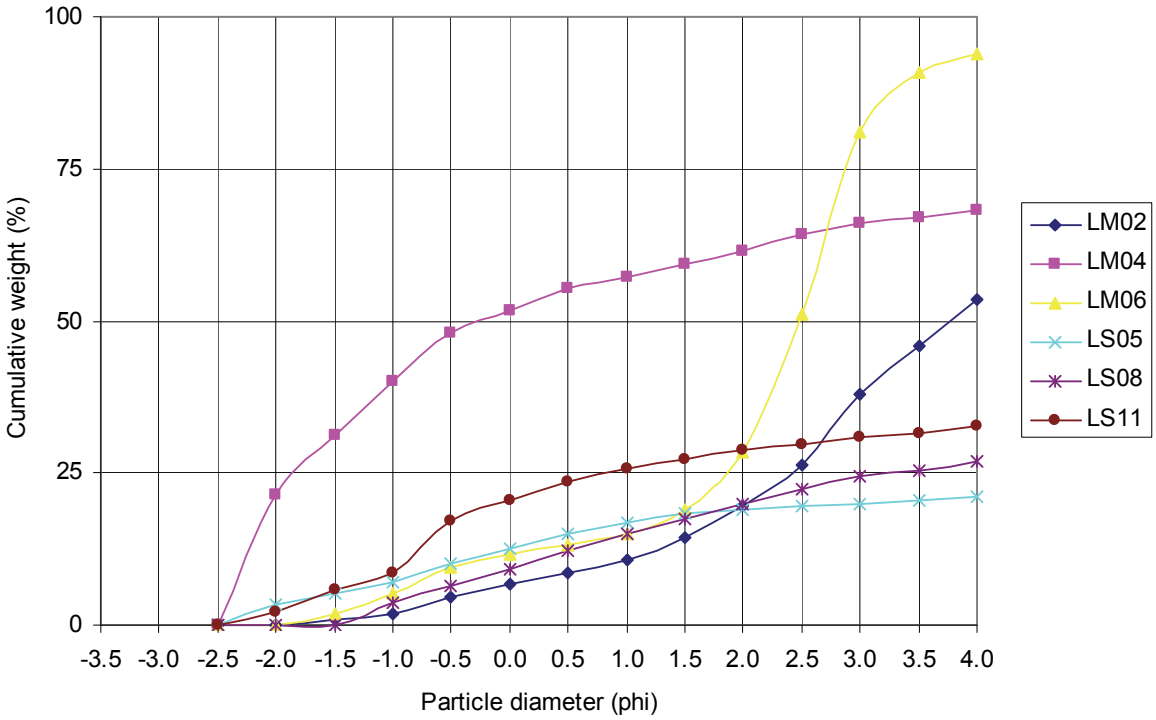


Figure 3.1 continued



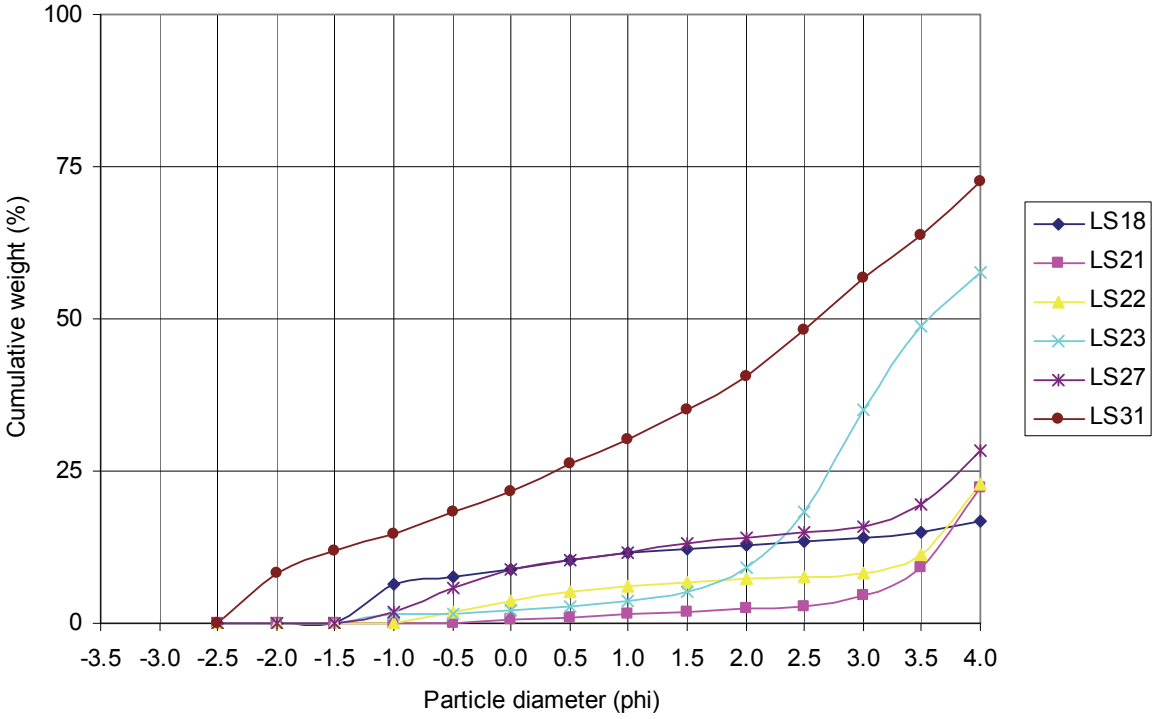


Figure 3.1 continued

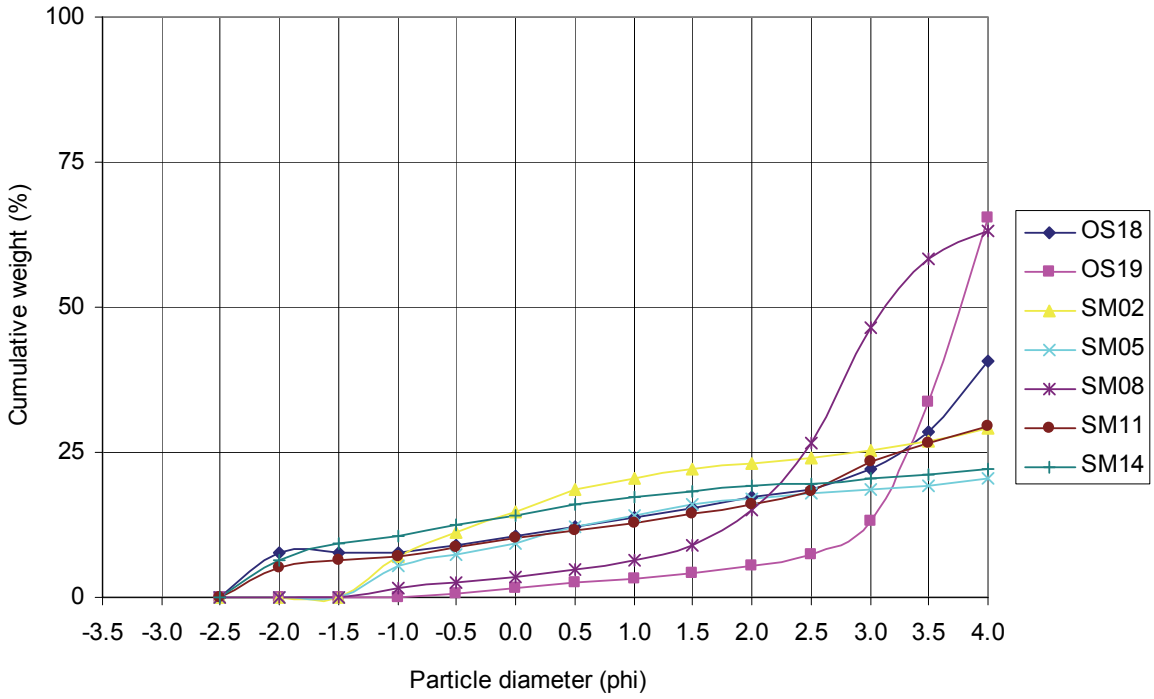


Table 3.4 Abundance of infauna (no./0.1m^2) in all grab samples. G suffix omitted from site names for brevity. Nomenclature follows WoRMS (2013)

Taxon	Site							
	AA01	AA04	AA08	AA10	AA14	CS01	CS04	CS06
Actiniaria spp indet								
Edwardsia claparedii								
Platyhelminthes spp								
Nemertea spp								
Tubulanus polymorphus		1			1			
Nematoda spp								
Golfingia (Golfingia) elongata								
Golfingia (Golfingia) vulgaris vulgaris								
Thysanocardia procera								
Polynoidae spp indet								
Harmothoe fragilis								
Malmgrenia andreapolis								
Pholoe inornata								
Pholoe baltica					2			
Eumida bahusiensis								
Glycera alba	1							
Glycera unicornis								
Goniada maculata								
Sphaerodorum gracilis								
Podarkeopsis capensis								
Oxydromus flexuosus	1		1	2	1			
Syllidia armata								
Eusyllis blomstrandi								
Salvatoria clavata								
Exogone (Exogone) naidina								
Sphaerosyllis taylori								
Alitta virens	1							
Platynereis dumerilii								
Nephtys spp juv	3	1						
Nephtys hombergii							1	
Nephtys incisa		1	3	1				1
Nematonereis unicornis								
Lumbrineridae spp juv								
Lumbrineris cingulata /aniara								
Abyssoninoe hibernica			2		1			
Protodorvillea kefersteini								
Leitoscoloplos mammosus	1							1
Levinsenia gracilis						1		
Aonides oxycephala								
Dipolydora coeca								
Prionospio fallax			1					
Prionospio cf *multibranchiata*	2							
Pseudopolydora cf *paucibranchiata*					1			
Scolelepis korsuni			1					
Spio sp								

Table 3.4 continued

Taxon	Site							
	AA01	**AA04**	**AA08**	**AA10**	**AA14**	**CS01**	**CS04**	**CS06**
Paraspio decorata								
Spiophanes kroyeri								
Magelona alleni								
Magelona minuta	2				3			
Chaetopterus variopedatus								
Chaetozone setosa								
Caulleriella killariensis			1					
Monticellina sp								
Diplocirrus glaucus								
Capitella capitata agg								
Mediomastus fragilis	1							
Notomastus sp		2		1				
Arenicolidae spp juv								
Maldanidae spp juv								
Euclymene lombricoides								
Praxillella affinis								
Rhodine sp								
Polyophthalmus pictus								
Scalibregma inflatum	1	2	2					
Galathowenia oculata								
Pectinariidae spp indet								
Amphictene auricoma					1			
Lagis koreni		3						
Pectinaria (Pectinaria) belgica		1			1			
Ampharetidae sp juv								
Melinna sp juv								
Melinna palmata	1	1	2	1	1			
Ampharete finmarchica								
Terebellides stroemii								
Trichobranchus roseus								
Polycirrus sp								
Fabricia sabella								
Spirobranchus lamarcki								
Spirobranchus triqueter								
Tubificoides swirencoides								
Gammaridea spp juv								
Apherusa bispinosa								
Perioculodes longimanus								
Iphimedia minuta								
Dexamine spinosa								
Dexamine thea								
Ampelisca brevicornis								
Ampelisca diadema								
Ampelisca tenuicornis								
Cheirocratus sp indet female								
Cheirocratus sundevalli								
Othomaera othonis								
Photis longicaudata								

Table 3.4 continued

Taxon	Site							
	AA01	**AA04**	**AA08**	**AA10**	**AA14**	**CS01**	**CS04**	**CS06**
Ischyroceridae sp indet								
Ericthonius sp indet female								
Ericthonius punctatus								
Jassa falcata								
Aoridae spp indet female								
Leptocheirus pectinatus								
Microdeutopus anomalus								
Microdeutopus versiculatus								
Corophium volutator								
Crassicorophium bonellii								
Caprella acanthifera								
Phtisica marina								
Pseudoprotella phasma								
Tanaopsis graciloides								
Vaunthompsonia cristata								
Eudorella emarginata								
Eudorella truncatula								
Diastylis laevis								
Jaxea nocturna								
Leptochiton asellus								
Emarginula sp indet								
Peringia ulvae						4		
Bittium reticulatum								
Hyala vitrea		5		1	6	1		5
Cylichna cylindracea					4			
Philine sp	1	2						1
Berthella plumula								
Nucula nitidosa								
Nucula nucleus								
Lucinoma borealis								
Myrtea spinifera								
Thyasira sp juv								
Thyasira flexuosa								
Kurtiella bidentata	7				1		1	
Cardiidae sp juv								
Parvicardium exiguum								
Phaxas pellucidus								
Abra spp juv			1					
Abra alba								
Abra nitida	1		1		1			2
Dosinia sp juv								
Dosinia exoleta								
Chamelea sp juv	1							
Timoclea ovata								
Mysia undata								
Corbula gibba	1		3	1	5	1		1
Hiatella arctica								
Saxicavella jeffreysi								

Table 3.4 continued

Taxon	Site							
	AA01	**AA04**	**AA08**	**AA10**	**AA14**	**CS01**	**CS04**	**CS06**
Thracia convexa								
Phoronis sp	1	1						
Astropecten irregularis								1
Asterias rubens								
Ophiuroidea spp juv								
Ophiuroidea sp indet								
Ophiocomina nigra								
Amphiura chiajei			2	5	19			
Amphiura filiformis								
Parechinidae sp juv								
Echinocardium cordatum								
Cucumariidae sp juv								
Synaptidae sp indet								
Leptosynapta bergensis								
Chaetognatha sp								

Table 3.4 continued

Taxon	Site							
	LB02	LB04	LM02	LM04	LM06	LS05	LS08	LS11
Actiniaria spp indet								
Edwardsia claparedii								
Platyhelminthes spp			6					
Nemertea spp								
Tubulanus polymorphus		1			3			
Nematoda spp								
Golfingia (Golfingia) elongata								
Golfingia (Golfingia) vulgaris vulgaris								
Thysanocardia procera								
Polynoidae spp indet			1					
Harmothoe fragilis			1					
Malmgrenia andreapolis								
Pholoe inornata			2					
Pholoe baltica						1	8	1
Eumida bahusiensis								
Glycera alba			1		1			
Glycera unicornis						1	2	1
Goniada maculata								
Sphaerodorum gracilis								
Podarkeopsis capensis							1	
Oxydromus flexuosus		1				1		2
Syllidia armata			60					
Eusyllis blomstrandi								
Salvatoria clavata			61					
Exogone (Exogone) naidina			51					
Sphaerosyllis taylori								
Alitta virens								
Platynereis dumerilii			3					
Nephtys spp juv	10		2					4
Nephtys hombergii	7		8	3	1			
Nephtys incisa		2				2		
Nematonereis unicornis								
Lumbrineridae spp juv								
Lumbrineris cingulata /aniara								
Abyssoninoe hibernica						1		
Protodorvillea kefersteini			4		1			
Leitoscoloplos mammosus								
Levinsenia gracilis								
Aonides oxycephala								
Dipolydora coeca								
Prionospio fallax			10					
Prionospio cf *multibranchiata*		4				2		3
Pseudopolydora cf *paucibranchiata*					1	1		
Scolelepis korsuni								1
Spio sp			2					
Paraspio decorata					1			
Spiophanes kroyeri								

Table 3.4 continued

Taxon	Site							
	LB02	**LB04**	**LM02**	**LM04**	**LM06**	**LS05**	**LS08**	**LS11**
Magelona alleni								
Magelona minuta		3				3		2
Chaetopterus variopedatus						1		
Chaetozone setosa						2	1	
Caulleriella killariensis								
Monticellina sp								
Diplocirrus glaucus								
Capitella capitata agg			4		3			
Mediomastus fragilis								
Notomastus sp		1						
Arenicolidae spp juv			2		4			
Maldanidae spp juv								
Euclymene lombricoides								
Praxillella affinis								
Rhodine sp								1
Polyophthalmus pictus			1					
Scalibregma inflatum					7			
Galathowenia oculata								
Pectinariidae spp indet								
Amphictene auricoma								
Lagis koreni								
Pectinaria (Pectinaria) belgica		2						
Ampharetidae sp juv					1			
Melinna sp juv					1			
Melinna palmata		2				1		1
Ampharete finmarchica								
Terebellides stroemii								
Trichobranchus roseus								
Polycirrus sp								
Fabricia sabella			71					
Spirobranchus lamarcki								
Spirobranchus triqueter								
Tubificoides swirencoides								
Gammaridea spp juv			1		1			
Apherusa bispinosa			4					
Perioculodes longimanus			6					
Iphimedia minuta			1					
Dexamine spinosa			4					
Dexamine thea			7					
Ampelisca brevicornis			1					
Ampelisca diadema								
Ampelisca tenuicornis								
Cheirocratus sp indet female			2					
Cheirocratus sundevalli			2					
Othomaera othonis	1							
Photis longicaudata			1					
Ischyroceridae sp indet			1					
Ericthonius sp indet female			60					

Table 3.4 continued

Taxon	Site							
	LB02	**LB04**	**LM02**	**LM04**	**LM06**	**LS05**	**LS08**	**LS11**
Ericthonius punctatus			48					
Jassa falcata								
Aoridae spp indet female			9					
Leptocheirus pectinatus			1					
Microdeutopus anomalus			3					
Microdeutopus versiculatus			64					
Corophium volutator								
Crassicorophium bonellii			24					
Caprella acanthifera			104					
Phtisica marina			12					
Pseudoprotella phasma								
Tanaopsis graciloides								
Vaunthompsonia cristata								
Eudorella emarginata								
Eudorella truncatula		1						
Diastylis laevis								
Jaxea nocturna								
Leptochiton asellus								
Emarginula sp indet								
Peringia ulvae	26						1	
Bittium reticulatum			182	1	1			
Hyala vitrea		1				13	3	3
Cylichna cylindracea						2	1	2
Philine sp	1	1						
Berthella plumula				6				
Nucula nitidosa								
Nucula nucleus								
Lucinoma borealis								
Myrtea spinifera								
Thyasira sp juv								
Thyasira flexuosa								
Kurtiella bidentata	1		1				26	
Cardiidae sp juv			1					
Parvicardium exiguum			1					
Phaxas pellucidus								
Abra spp juv			7		1			
Abra alba			3		2			
Abra nitida		5					1	1
Dosinia sp juv								
Dosinia exoleta								
Chamelea sp juv								
Timoclea ovata								
Mysia undata								
Corbula gibba		8			3	4	15	13
Hiatella arctica								
Saxicavella jeffreysi								
Thracia convexa								
Phoronis sp		2						

Table 3.4 continued

Taxon	Site							
	LB02	**LB04**	**LM02**	**LM04**	**LM06**	**LS05**	**LS08**	**LS11**
Astropecten irregularis								
Asterias rubens			1					
Ophiuroidea spp juv			1					
Ophiuroidea sp indet								
Ophiocomina nigra			7					
Amphiura chiajei		10				17	4	13
Amphiura filiformis							21	
Parechinidae sp juv			9					
Echinocardium cordatum							2	
Cucumariidae sp juv								
Synaptidae sp indet								
Leptosynapta bergensis								
Chaetognatha sp			1					

Table 3.4 continued

Taxon	Site							
	LS18	**LS21**	**LS22**	**LS23**	**LS27**	**LS31**	**OS18**	**OS19**
Actiniaria spp indet							1	
Edwardsia claparedii						1		
Platyhelminthes spp								
Nemertea spp							1	
Tubulanus polymorphus				1			1	
Nematoda spp								1
Golfingia (Golfingia) elongata						1		
Golfingia (Golfingia) vulgaris vulgaris						1		
Thysanocardia procera						4	1	
Polynoidae spp indet								
Harmothoe fragilis								
Malmgrenia andreapolis				1				
Pholoe inornata								
Pholoe baltica	1		1	20	1	5		
Eumida bahusiensis		1						
Glycera alba				1		1		
Glycera unicornis	1	2	1	4				
Goniada maculata						1		
Sphaerodorum gracilis								
Podarkeopsis capensis							1	
Oxydromus flexuosus		1		1				
Syllidia armata								
Eusyllis blomstrandi						2		
Salvatoria clavata								
Exogone (Exogone) naidina								5
Sphaerosyllis taylori								1
Alitta virens								
Platynereis dumerilii								
Nephtys spp juv	2	9	3	6	1	8		36
Nephtys hombergii								7
Nephtys incisa	1	3	3	4	1		2	
Nematonereis unicornis						1		
Lumbrineridae spp juv				2		9		
Lumbrineris cingulata /aniara				3		29		
Abyssoninoe hibernica	1	4		3	2			
Protodorvillea kefersteini								
Leitoscoloplos mammosus						1		8
Levinsenia gracilis			1			2	4	
Aonides oxycephala						34		
Dipolydora coeca						1		
Prionospio fallax								
Prionospio cf *multibranchiata*		2						
Pseudopolydora cf *paucibranchiata*								
Scolelepis korsuni					1			
Spio sp								
Paraspio decorata								
Spiophanes kroyeri		1				1		

Table 3.4 continued

Taxon	Site							
	LS18	**LS21**	**LS22**	**LS23**	**LS27**	**LS31**	**OS18**	**OS19**
Magelona alleni						12		
Magelona minuta			1	1	2		1	
Chaetopterus variopedatus								
Chaetozone setosa			1					
Caulleriella killariensis								
Monticellina sp				1		1		
Diplocirrus glaucus				2		3	2	
Capitella capitata agg								
Mediomastus fragilis						1		
Notomastus sp		1				4	2	1
Arenicolidae spp juv								
Maldanidae spp juv								2
Euclymene lombricoides				1				
Praxillella affinis				11		1		
Rhodine sp								
Polyophthalmus pictus								
Scalibregma inflatum		1				12		
Galathowenia oculata							3	
Pectinariidae spp indet		1		2				
Amphictene auricoma				2		2		
Lagis koreni								
Pectinaria (Pectinaria) belgica								
Ampharetidae sp juv								
Melinna sp juv								
Melinna palmata		1		2	4	38	28	17
Ampharete finmarchica				1		8		
Terebellides stroemii				2		1	2	
Trichobranchus roseus							1	
Polycirrus sp		1	2			2		
Fabricia sabella								
Spirobranchus lamarcki						1		
Spirobranchus triqueter						1		1
Tubificoides swirencoides								8
Gammaridea spp juv								
Apherusa bispinosa								
Perioculodes longimanus								
Iphimedia minuta								
Dexamine spinosa								
Dexamine thea								
Ampelisca brevicornis	2	2						1
Ampelisca diadema						14		
Ampelisca tenuicornis				1		3	2	1
Cheirocratus sp indet female								
Cheirocratus sundevalli						1		
Othomaera othonis								
Photis longicaudata								
Ischyroceridae sp indet								
Ericthonius sp indet female								

Table 3.4 continued

Taxon	Site							
	LS18	LS21	LS22	LS23	LS27	LS31	OS18	OS19
Ericthonius punctatus								
Jassa falcata								5
Aoridae spp indet female				1				
Leptocheirus pectinatus				1				
Microdeutopus anomalus								
Microdeutopus versiculatus								
Corophium volutator							1	1
Crassicorophium bonellii								
Caprella acanthifera								
Phtisica marina						2		
Pseudoprotella phasma						1		
Tanaopsis graciloides				1		1		
Vaunthompsonia cristata								1
Eudorella emarginata						1	1	4
Eudorella truncatula						2	7	2
Diastylis laevis								2
Jaxea nocturna		1						
Leptochiton asellus						2		1
Emarginula sp indet								1
Peringia ulvae							1	
Bittium reticulatum								
Hyala vitrea	2	23	2	1	8	1	5	
Cylichna cylindracea		2			1			
Philine sp								1
Berthella plumula								
Nucula nitidosa							1	
Nucula nucleus						1		
Lucinoma borealis							2	
Myrtea spinifera							1	
Thyasira sp juv					1	2	1	1
Thyasira flexuosa					4	3	10	1
Kurtiella bidentata		8	3	14	3		1	
Cardiidae sp juv								
Parvicardium exiguum								
Phaxas pellucidus						1	1	
Abra spp juv				1	1	2	10	14
Abra alba								
Abra nitida		7	2	1	4	5	1	3
Dosinia sp juv				2			1	
Dosinia exoleta						1		
Chamelea sp juv				1				1
Timoclea ovata						2		
Mysia undata						1		
Corbula gibba	7	9	2		15	4	1	1
Hiatella arctica						1		
Saxicavella jeffreysi					1			
Thracia convexa				1				
Phoronis sp	1	3	12	10	3	17		

Table 3.4 continued

Taxon	Site							
	LS18	**LS21**	**LS22**	**LS23**	**LS27**	**LS31**	**OS18**	**OS19**
Astropecten irregularis								
Asterias rubens								
Ophiuroidea spp juv				5			2	
Ophiuroidea sp indet								1
Ophiocomina nigra								
Amphiura chiajei	15	23	10	11	8			1
Amphiura filiformis				53		1		
Parechinidae sp juv								
Echinocardium cordatum								
Cucumariidae sp juv							1	
Synaptidae sp indet								
Leptosynapta bergensis				1				
Chaetognatha sp								

Table 3.4 continued

Taxon	Site				
	SM02	**SM05**	**SM08**	**SM11**	**SM14**
Actiniaria spp indet					
Edwardsia claparedii					
Platyhelminthes spp					
Nemertea spp					
Tubulanus polymorphus					
Nematoda spp					
Golfingia (Golfingia) elongata					
Golfingia (Golfingia) vulgaris vulgaris					
Thysanocardia procera					
Polynoidae spp indet					
Harmothoe fragilis					
Malmgrenia andreapolis	1				
Pholoe inornata					
Pholoe baltica	2		8	1	1
Eumida bahusiensis					
Glycera alba	1		1		
Glycera unicornis				1	1
Goniada maculata					
Sphaerodorum gracilis					1
Podarkeopsis capensis					
Oxydromus flexuosus				1	
Syllidia armata					
Eusyllis blomstrandi					
Salvatoria clavata					
Exogone (Exogone) naidina					
Sphaerosyllis taylori					
Alitta virens					
Platynereis dumerilii					
Nephtys spp juv		1	1		3
Nephtys hombergii					
Nephtys incisa	1	2		1	
Nematonereis unicornis					
Lumbrineridae spp juv					
Lumbrineris cingulata /aniara					
Abyssoninoe hibernica	2	3	4	2	1
Protodorvillea kefersteini					
Leitoscoloplos mammosus					
Levinsenia gracilis		2	1		
Aonides oxycephala					
Dipolydora coeca					
Prionospio fallax					
Prionospio cf *multibranchiata*					3
Pseudopolydora cf *paucibranchiata*					
Scolelepis korsuni	1				2
Spio sp					
Paraspio decorata					
Spiophanes kroyeri					

Table 3.4 continued

Taxon	Site				
	SM02	**SM05**	**SM08**	**SM11**	**SM14**
Magelona alleni					
Magelona minuta	7	4	3	1	5
Chaetopterus variopedatus					
Chaetozone setosa		5			1
Caulleriella killariensis					
Monticellina sp					
Diplocirrus glaucus					
Capitella capitata agg					
Mediomastus fragilis					
Notomastus sp					
Arenicolidae spp juv					
Maldanidae spp juv					
Euclymene lombricoides					
Praxillella affinis			1		
Rhodine sp					
Polyophthalmus pictus					
Scalibregma inflatum	4		1	1	
Galathowenia oculata					
Pectinariidae spp indet				1	
Amphictene auricoma			1		
Lagis koreni					
Pectinaria (Pectinaria) belgica		2	1		
Ampharetidae sp juv					
Melinna sp juv					
Melinna palmata	8	3	3		
Ampharete finmarchica					
Terebellides stroemii					
Trichobranchus roseus					
Polycirrus sp			1		1
Fabricia sabella					
Spirobranchus lamarcki					
Spirobranchus triqueter					
Tubificoides swirencoides					
Gammaridea spp juv					
Apherusa bispinosa					
Perioculodes longimanus					
Iphimedia minuta					
Dexamine spinosa					
Dexamine thea					
Ampelisca brevicornis		2			
Ampelisca diadema					
Ampelisca tenuicornis			2		
Cheirocratus sp indet female					
Cheirocratus sundevalli					
Othomaera othonis					
Photis longicaudata					
Ischyroceridae sp indet					
Ericthonius sp indet female					

Table 3.4 continued

Taxon	Site				
	SM02	SM05	SM08	SM11	SM14
Ericthonius punctatus					
Jassa falcata					
Aoridae spp indet female					
Leptocheirus pectinatus					
Microdeutopus anomalus					
Microdeutopus versiculatus					
Corophium volutator					
Crassicorophium bonellii					
Caprella acanthifera					
Phtisica marina					
Pseudoprotella phasma					
Tanaopsis graciloides					
Vaunthompsonia cristata					
Eudorella emarginata					
Eudorella truncatula					
Diastylis laevis					
Jaxea nocturna					
Leptochiton asellus					
Emarginula sp indet					
Peringia ulvae					
Bittium reticulatum					
Hyala vitrea	1	2	2	1	5
Cylichna cylindracea					
Philine sp					
Berthella plumula					
Nucula nitidosa					
Nucula nucleus					
Lucinoma borealis					
Myrtea spinifera					
Thyasira sp juv					
Thyasira flexuosa					
Kurtiella bidentata	5		3		
Cardiidae sp juv					
Parvicardium exiguum					
Phaxas pellucidus	1				
Abra spp juv		1			
Abra alba					
Abra nitida	2	1	1	4	1
Dosinia sp juv					
Dosinia exoleta					
Chamelea sp juv					
Timoclea ovata					
Mysia undata					
Corbula gibba	13	19	17	4	47
Hiatella arctica					
Saxicavella jeffreysi					
Thracia convexa					
Phoronis sp			3	1	

Table 3.4 continued

Taxon	Site				
	SM02	**SM05**	**SM08**	**SM11**	**SM14**
Astropecten irregularis					
Asterias rubens					
Ophiuroidea spp juv	1		1		
Ophiuroidea sp indet					
Ophiocomina nigra					
Amphiura chiajei	2	6	14	5	15
Amphiura filiformis	2		15		
Parechinidae sp juv					
Echinocardium cordatum					
Cucumariidae sp juv					
Synaptidae sp indet	1				
Leptosynapta bergensis					
Chaetognatha sp					

Table 3.5 Community descriptors for all grab samples. Diversity indices include the Shannon-Wiener function using log_e (H'_e) and log_2 (H'_2) and Peliou's evenness index (J'). G suffix omitted from site names. Proposed protected features (PPFs) are BM (burrowed mud) and SMS (sublittoral mud and mixed sediment communities)

Site	Abundance (no./0.1m^2)	No. taxa	H'_e	H'_2	J'	PPF	Biotope
AA01	26	16	2.42	3.50	0.91	SMS	SS.SMu.ISaMu.SundAasp
AA04	20	10	2.13	3.07	0.91	BM	SS.SMu.CFiMu.MegMax
AA08	20	11	2.31	3.33	0.94	BM	SS.SMu.CFiMu.MegMax
AA10	12	7	1.70	2.45	0.83	BM	SS.SMu.CFiMu.MegMax
AA14	48	15	2.10	3.03	0.82	BM	SS.SMu.CFiMu.MegMax
CS01	7	4	1.15	1.66	0.71	SMS	SS.SMu.ISaMu.SundAasp
CS04	2	2	0.69	1.00	1.00	SMS	SS.SMu.ISaMu.SundAasp
CS06	12	7	1.70	2.45	0.83	BM	SS.SMu.CFiMu.MegMax
LB02	46	5	0.85	1.23	0.45	SMS	SS.SMu.ISaMu.SundAasp
LB04	44	15	2.37	3.42	0.90	BM	SS.SMu.CFiMu.MegMax
LM02	778	42	2.58	3.72	0.89		SS.SMp.SSgr.Zmar
LM04	9	3	0.94	1.35	0.64	SMS	SS.SMu.ISaMu.SundAasp
LM06	31	14	2.26	3.26	0.91	SMS	SS.SMu.ISaMu.SundAasp
LS05	52	15	2.11	3.04	0.83	BM	SS.SMu.CFiMu.MegMax
LS08	86	13	1.93	2.78	0.81	BM	SS.SMu.CFiMu.MegMax
LS11	48	14	2.02	2.92	0.83	BM	SS.SMu.CFiMu.MegMax
LS18	33	9	1.60	2.30	0.72	BM	SS.SMu.CFiMu.MegMax
LS21	106	21	2.39	3.45	0.87	BM	SS.SMu.CFiMu.MegMax
LS22	44	13	2.13	3.07	0.85	BM	SS.SMu.CFiMu.MegMax
LS23	176	32	2.54	3.67	0.86	BM	SS.SMu.CFiMu.MegMax
LS27	61	15	2.34	3.37	0.89	BM	SS.SMu.CFiMu.MegMax
LS31	258	51	3.06	4.41	0.92	SMS	SS.SMu.ISaMu.MelMagThy
OS18	100	30	2.65	3.82	0.87	BM	SS.SMu.CFiMu.SpnMeg
OS19	130	27	2.68	3.87	0.91	SMS	SS.SMu.ISaMu
SM02	55	17	2.43	3.51	0.90	BM	SS.SMu.CFiMu.MegMax
SM05	53	12	2.09	3.02	0.83	BM	SS.SMu.CFiMu.MegMax
SM08	84	20	2.41	3.47	0.89	BM	SS.SMu.CFiMu.MegMax
SM11	24	13	2.32	3.35	0.92	BM	SS.SMu.CFiMu.MegMax
SM14	87	14	1.55	2.23	0.65	BM	SS.SMu.CFiMu.MegMax

APPENDIX 4: DIVER MPA SEARCH FEATURE DISTRIBUTION SURVEY DATA

Table 4.1 Positional and diver-collected data for all sites examined during maerl bed distribution surveys (D= dominant, P = present)

Site	TA.1	TA.2	TA.3	TA.4	TA.5	TAA.1	TAA.2	TAA.3
Diver	RC	RC	RC	RC	RC	BJ	BJ	BJ
Date	20/04/13	20/04/13	20/04/13	20/04/13	20/04/13	21/04/13	21/04/13	21/04/13
Latitude logger	55.98253	55.98272	55.98299	55.98310	55.98328	55.98329	55.98315	55.98303
Long'de logger	-5.65891	-5.65871	-5.65868	-5.65877	-5.65872	-5.65925	-5.65928	-5.65926
SMB length	1.4	1.2	1.0	1.1	1.0	1.0	1.1	1.2
SMB bearing	0	0	0	0	0	NA	NA	NA
Depth BSL	1.4	1.2	1.0	1.1	1.0	1.0	1.1	1.2
Time (BST)	13:50:14	13:52:08	13:53:44	13:55:02	13:56:26	14:01:28	14:08:10	14:14:23
Latitude site	55.98253	55.98272	55.98299	55.98310	55.98328	55.98329	55.98315	55.98303
Long'de site	-5.65891	-5.65871	-5.65868	-5.65877	-5.65872	-5.65925	-5.65928	-5.65926
Depth BCD (m)	0.9	0.7	0.5	0.6	0.5	0.5	0.6	0.7
Bedrock								
Boulders								
Cobbles	D							
Pebbles	P				P			
Gravel	P				D	P	P	P
Sand	P	D	D	D	D	P	P	D
Muddy sand	D	P	P	P	P	D	D	P
Mud								
Live maerl (%)	<5	<5	<5	20	<5	2	1	<5
Dead maerl (%)	5	20	8	60	10	2	0	<5
Live maerl SAC-FORN	R	R	R	C	R	R	R	R
***Phym. calc*.**	D	D	D	D	D	D	D	D
***Litho. glac*. maerl**								
***Litho. glac*. h'hog stones**								
***Ostrea* SAC-FORN**	N	N	N	N	N	N	N	N
Comments				The maerl was only a small patch ~2m square. Not an extension of the bed.	*Zostera* (O)	Sparse live maerl with shells, *Ophiocomina nigra* and *Chorda filum*	Tiny maerl nodules - small polychaete tubes in sand and with algae, *Ophiocomina nigra, Astropecten* and small burrowing anemones	No maerl - small polychaete tubes in sand and with algae, *Ophiocomina nigra*, *Astropecten* and small burrowing anemones

Table 4.1 continued

Site	TAA.4	TAA.5	TAA.6	TAA.7	TB.1	TB.2	TB.3	TB.4
Diver	BJ	BJ	BJ	BJ	RC	RC	RC	RC
Date	21/04/13	21/04/13	21/04/13	21/04/13	20/04/13	20/04/13	20/04/13	20/04/13
Latitude logger	55.98287	55.98276	55.98264	55.98250	55.98336	55.98321	55.98308	55.98277
Long'de logger	-5.65932	-5.65937	-5.65940	-5.65936	-5.65764	-5.65777	-5.65788	-5.65809
SMB length	1.4	1.6	1.6	1.4	0.1	0.5	0.5	1.0
SMB bearing	NA	NA	NA	NA	0	0	0	0
Depth BSL	1.4	1.6	1.6	1.4	0.1	0.5	0.5	1.0
Time (BST)	14:20:53	14:25:53	14:30:53	14:37:53	13:29:20	13:32:42	13:35:04	13:39:06
Latitude site	55.98287	55.98276	55.98264	55.98250	55.98336	55.98321	55.98308	55.98277
Long'de site	-5.65932	-5.65937	-5.65940	-5.65936	-5.65764	-5.65777	-5.65788	-5.65809
Depth BCD (m)	0.9	1.1	1.1	0.9	-0.4	0.0	0.0	0.5
Bedrock		P	P					
Boulders				D	P			
Cobbles				P	D	P		
Pebbles	P			P	D	D		
Gravel	P	D	P	P	P	P	D	D
Sand	D	D	P	P			P	P
Muddy sand	P	P	D	P				
Mud								
Live maerl (%)	<5	<5	0	<5	0	2	30	2
Dead maerl (%)	<5	0	0	0	2	2	65	80
Live maerl SAC-FORN	R	R	N	R	N	R	C	R
***Phym. calc*.**	D	D		D		D	D	D
***Litho. glac*. maerl**								
***Litho. glac*. h'hog stones**						P		
***Ostrea* SAC-FORN**	N	N	N	N	N	N	N	N
Comments	Plain sand (no worm tubes) with brittlestars and algae. Scattered ascidians and a few live maerl fragments	Gravelly sand with algae, ascidians and scattered fragments of live maerl. Patches of bedrock outcrops	Muddy sand with *Chorda filum* and other algae, brittlestars and anemones. Some bedrock	Boulders amongst muddy sand with shells. *Sargassum* amongst the algae	*Corallina* (A)			

Table 4.1 continued

Site	TB.5	TB.6	TB.7	TB2.1	TB2.2	TB2.3	TB2.4	TB2.5
Diver	RC	RC	RC	BJ	BJ	BJ	BJ	BJ
Date	20/04/13	20/04/13	20/04/13	21/04/13	21/04/13	21/04/13	21/04/13	21/04/13
Latitude logger	55.98268	55.98253	55.98229	-	55.98293	55.98280	55.98263	55.98244
Long'de logger	-5.65816	-5.65829	-5.65856	-	-5.65749	-5.65753	-5.65758	-5.65767
SMB length	1.2	1.4	2.3	0.8	1.0	0.9	1.1	1.2
SMB bearing	0	0	0	NA	NA	NA	NA	NA
Depth BSL	1.2	1.4	2.3	0.8	1.0	0.9	1.1	1.2
Time (BST)	13:40:11	13:41:47	13:44:29	14:50:46	15:04:23	15:11:53	15:17:53	15:25:41
Latitude site	55.98268	55.98253	55.98229	55.98303	55.98293	55.98280	55.98263	55.98244
Long'de site	-5.65816	-5.65829	-5.65856	-5.65709	-5.65749	-5.65753	-5.65758	-5.65767
Depth BCD	0.7	0.9	1.8	0.3	0.5	0.4	0.6	0.7
Bedrock								
Boulders								
Cobbles					P		P	
Pebbles				P	P			
Gravel	D	P				D	P	D
Sand	D	D	P	P	P	D	P	D
Muddy sand		P	D	D	D		D	
Mud								
Live maerl (%)	<5	2	0	20	10	0	0	0
Dead maerl (%)	30	10	2	45	45	0	20	0
Live maerl SAC-FORN	R	R	N	C	F	N	N	N
***Phym. calc*.**	D	D		D	D		D	
***Litho. glac*. maerl**								
***Litho. glac*. h'hog stones**								
***Ostrea* SAC-FORN**	N	N	N	F	N	N	N	N
Comments		*Arenicola* (O)	*Arenicola* (C)	Maerl bed with oysters and assorted algae. *Halidrys* and *Dictoyota. Ophiothrix* and *Ophiocomina.* Shore and edible crabs	Southern edge of the maerl bed with old oyster shells but no live oysters visible. *S. latissima, Chorda filum*, *Halidrys* and *Sargassum*. *Dictoyota. Ophiothrix* within maerl and ascidians	Fine maerl gravel (not considered as dead maerl coverage) and sand with *Ophiocomina* and green and brown algae	Seagrass bed on muddy sand. *Ophiocomina* ahnd *Halidrys. Chorda filum* on muddy sand between stands of seagrass. Scattered rhodoliths of dead maerl	Sandy gravel with *Chorda filum* and some *Sargassum. Ophiocomina nigra*

Table 4.1 continued

Site	TC.1	TC.2	TC.3	TC.4	TC.5	TC.6	TC.7	TC.8
Diver	RC	RC	RC	RC	RC	RC	RC	RC
Date	20/04/13	20/04/13	20/04/13	20/04/13	20/04/13	20/04/13	20/04/13	20/04/13
Latitude logger	55.98239	55.98249	55.98262	55.98268	55.98286	55.98304	55.98314	55.98326
Long'de logger	-5.65673	-5.65670	-5.65665	-5.65667	-5.65643	-5.65654	-5.65657	-5.65660
SMB length	0.8	0.8	1.1	0.2	0.2	1.0	1.1	1.0
SMB bearing	0	0	0	0	0	0	0	0
Depth BSL	0.8	0.8	1.1	0.2	0.2	1.0	1.1	1.0
Time (BST)	13:06:00	13:08:28	13:10:18	13:11:16	13:14:08	13:16:39	13:18:33	13:20:40
Latitude site	55.98239	55.98249	55.98262	55.98268	55.98286	55.98304	55.98314	55.98326
Long'de site	-5.65673	-5.65670	-5.65665	-5.65667	-5.65643	-5.65654	-5.65657	-5.65660
Depth BCD (m)	0.3	0.3	0.6	-0.3	-0.3	0.5	0.6	0.5
Bedrock								
Boulders			D	D	D			P
Cobbles				P	D	P	P	P
Pebbles				P	P	P	P	P
Gravel	D	D	D	D	P	D	D	D
Sand	D							D
Muddy sand	P							
Mud								
Live maerl (%)	1	1	20	5	1	40	40	0
Dead maerl (%)	15	90	80	10	10	50	50	10
Live maerl SAC-FORN	R	R	C	O	R	A	A	N
Phym. calc.	D	D	D	D	D	D	D	
***Litho. glac.* maerl**								
***Litho. glac.* h'hog stones**				P	P			
***Ostrea* SAC-FORN**	N	N	N	N	N	N	N	N
Comments	*Zostera* 90% cover		*Sargassum* (O)	*Halidrys* (S)	*Corallina* (A), *Halidrys* (S)	*L.hyperborea* (O)	*L.hyperborea* (O)	*Corallina* (A)

Table 4.1 continued

Site	TC.9	TD.1	TD.2	TD.3	TD.4	TD.5	TD.6	TE.1
Diver	RC	CM	CM	CM	CM	CM	CM	DH
Date	20/04/13	20/04/13	20/04/13	20/04/13	20/04/13	20/04/13	20/04/13	20/04/13
Latitude logger	55.98339	55.98279	55.98294	55.98313	55.98340	55.98357	55.98360	55.98363
Long'de logger	-5.65659	-5.65576	-5.65570	-5.65567	-5.65574	-5.65597	-5.65604	-5.65528
SMB length	0.5	5.0	5.0	5.0	5.0	5.0	0.6	1.2
SMB bearing	0	0	0	0	0	0	0	0
Depth BSL	0.5	0.6	1.2	1.6	1.4	0.8	0.6	1.2
Time (BST)	13:23:01	12:52:45	12:57:30	13:01:10	13:04:00	13:08:12	13:11:25	10:33:24
Latitude site	55.98339	55.98275	55.98290	55.98309	55.98336	55.98352	55.98360	55.98363
Long'de site	-5.65659	-5.65576	-5.65570	-5.65566	-5.65574	-5.65597	-5.65604	-5.65528
Depth BCD	0.0	0.1	0.7	1.1	0.9	0.3	0.1	0.7
Bedrock								
Boulders	P							
Cobbles	P					P		P
Pebbles	D			P	P	D	D	P
Gravel	D							
Sand		D			D	D		D
Muddy sand			D	D			D	
Mud								
Live maerl (%)	0	<5	35	30	<5	0	0	0
Dead maerl (%)	5	5	10	10	5	5	0	0
Live maerl SAC-FORN	N	R	C	C	R	N	N	N
***Phym. calc*.**		D	D	D	D			
***Litho. glac*. maerl**								
***Litho. glac*. h'hog stones**					P			P
***Ostrea* SAC-FORN**	N	N	N	N	N	N	N	N
Comments	*Corallina* (A), *L. hyperborea* (C)							Hedgehog stones <1%

Table 4.1 continued

Site	TE.2	TE.3	TE.4	TE.5	TE.6	TF.1	TF.2	TF.3
Diver	DH	DH	DH	DH	DH	DH	DH	DH
Date	20/04/13	20/04/13	20/04/13	20/04/13	20/04/13	20/04/13	20/04/13	20/04/13
Latitude logger	55.98341	55.98320	55.98302	55.98280	55.98262	55.98271	55.98297	55.98312
Long'de logger	-5.65524	-5.65521	-5.65520	-5.65523	-5.65517	-5.65430	-5.65439	-5.65450
SMB length	1.3	1.5	1.5	0.6	0.5	0.6	1.4	1.9
SMB bearing	0	0	0	0	0	0	0	0
Depth BSL	1.3	1.5	1.5	0.6	0.5	0.6	1.4	1.9
Time (BST)	10:37:04	10:40:36	10:44:17	10:49:19	10:52:28	11:02:01	11:07:31	11:10:26
Latitude site	55.98341	55.98320	55.98302	55.98280	55.98262	55.98271	55.98297	55.98312
Long'de site	-5.65524	-5.65521	-5.65520	-5.65523	-5.65517	-5.65430	-5.65439	-5.65450
Depth BCD (m)	0.8	1.0	1.0	0.1	0.0	0.1	0.9	1.4
Bedrock								
Boulders	P	D	P				P	P
Cobbles	P	P	P				P	P
Pebbles	P	P	P		P	P	P	P
Gravel	P	P	D	D	D	D	D	D
Sand	D	P	P	P	P	P	P	P
Muddy sand								
Mud								
Live maerl (%)	0	<5	60	80	90	50	30	50
Dead maerl (%)	0	0	10	5	10	10	5	5
Live maerl SAC-FORN	N	R	A	S	S	A	C	A
***Phym. calc*.**		D	D	D	D	D	D	D
***Litho. glac*. maerl**								
***Litho. glac*. h'hog stones**	P	P	P				P	P
***Ostrea* SAC-FORN**	N	N	N	N	N	N	N	N
Comments	Hedgehog stones on boulders. *Sargassum* present.	Hedgehog stones on boulders. *Sargassum* present.	Hedgehog stones <1%. *Sargassum* present.	*Sargassum* present.		Maerl bed continuous between TE.6 and TF.1.	Hedgehog stones 1%. *Sargassum* present.	Hedgehog stones 5%. *Sargassum* present.

Table 4.1 continued

Site	TF.4	TF.5	TF.6	TG.1	TG.2	TG.3	TG.4	TG.5
Diver	DH	DH	DH	DH	DH	DH	DH	DH
Date	20/04/13	20/04/13	20/04/13	20/04/13	20/04/13	20/04/13	20/04/13	20/04/13
Latitude logger	55.98329	55.98347	55.98369	55.98351	55.98331	55.98310	55.98292	55.98273
Long'de logger	-5.65457	-5.65463	-5.65475	-5.65364	-5.65361	-5.65362	-5.65364	-5.65360
SMB length	1.8	1.8	0.9	1.0	1.4	1.7	1.9	0.6
SMB bearing	0	0	0	0	0	0	0	0
Depth BSL	1.8	1.8	0.9	1.0	1.4	1.7	1.9	0.6
Time (BST)	11:13:14	11:16:08	11:19:23	11:32:19	11:36:01	11:39:22	11:42:07	11:45:19
Latitude site	55.98329	55.98347	55.98369	55.98351	55.98331	55.98310	55.98292	55.98273
Long'de site	-5.65457	-5.65463	-5.65475	-5.65364	-5.65361	-5.65362	-5.65364	-5.65360
Depth BCD (m)	1.3	1.3	0.4	0.5	0.9	1.2	1.4	0.1
Bedrock								
Boulders	P	P	P	P	P	D		
Cobbles	P	P	P	P	P	P		
Pebbles	P	P	P	P	P	P	P	
Gravel	P	D	P	P	P	P	D	P
Sand	D	P	D	D	D	P	P	D
Muddy sand								
Mud								
Live maerl (%)	0	<5	0	0	0	0	20	0
Dead maerl (%)	0	0	0	0	0	0	1	0
Live maerl SAC-FORN	N	R	N	N	N	N	C	N
***Phym. calc*.**		D					D	
***Litho. glac*. maerl**								
***Litho. glac*. h'hog stones**	P	P						
***Ostrea* SAC-FORN**	N	N	N	N	N	N	N	N
Comments	Hedgehog stones on boulders <1%. *Sargassum* present.	Hedgehog stones <1%. *Sargassum* present.	*Sargassum* present.	Hedgehog stones on boulders 1%. *Sargassum* present.	Hedgehog stones on boulders 1%. *Sargassum* present.	Hedgehog stones 1%. *Sargassum* present.	Hedgehog stones <1%. *Sargassum* present.	

Table 4.1 continued

Site	TH.1	TH.2	TH.3	TH.4	TH.5	TI.1	TI.2	TI.3
Diver	DH	DH	DH	DH	DH	DH	DH	DH
Date	20/04/13	20/04/13	20/04/13	20/04/13	20/04/13	20/04/13	20/04/13	20/04/13
Latitude logger	55.98274	55.98292	55.98313	55.98331	55.98351	55.98342	55.98317	55.98298
Long'de logger	-5.65282	-5.65287	-5.65288	-5.65286	-5.65286	-5.65198	-5.65193	-5.65196
SMB length	1.0	1.7	1.6	1.3	0.4	0.5	0.7	1.6
SMB bearing	0	0	0	0	0	0	0	0
Depth BSL	1.0	1.7	1.6	1.3	0.4	0.5	0.7	1.6
Time (BST)	11:53:51	11:57:41	12:00:38	12:03:05	12:05:52	12:13:19	12:17:03	12:20:54
Latitude site	55.98274	55.98292	55.98313	55.98331	55.98351	55.98342	55.98317	55.98298
Long'de site	-5.65282	-5.65287	-5.65288	-5.65286	-5.65286	-5.65198	-5.65193	-5.65196
Depth BCD (m)	0.5	1.2	1.1	0.8	-0.1	0.0	0.2	1.1
Bedrock								
Boulders		D	D	P	P	P	P	D
Cobbles		P	P	P	P	P	P	P
Pebbles	P	P	P	D	P		P	P
Gravel	P	P	P	P	D	P	D	P
Sand	D	P	P	P	P	D	P	
Muddy sand								
Mud								
Live maerl (%)	10	0	0	0	0	0	5	1
Dead maerl (%)	1	0	0	0	0	0	1	0
Live maerl SAC-FORN	F	N	N	N	N	N	O	R
***Phym. calc*.**	D						D	
***Litho. glac*. maerl**								D
***Litho. glac*. h'hog stones**								P
***Ostrea* SAC-FORN**	N	N	N	N	N	N	N	N
Comments			*Sargassum* present	*Sargassum* present	*Sargassum* present	*Sargassum* present	*Sargassum* present	Dense *Halidrys*

Table 4.1 continued

Site	TI.4	TI.5	TJ.1	TJ.2	TJ.3	TJ.4	TJ.5	TJ.6
Diver	DH	DH	SH	SH	SH	SH	SH	SH
Date	20/04/13	20/04/13	20/04/13	20/04/13	20/04/13	20/04/13	20/04/13	20/04/13
Latitude logger	55.98280	55.98260	55.98203	55.98217	55.98228	55.98229	55.98241	55.98257
Long'de logger	-5.65202	-5.65199	-5.65133	-5.65130	-5.65128	-5.65128	-5.65128	-5.65132
SMB length	1.6	0.8	0.9	1.3	1.8	1.9	1.5	1.7
SMB bearing	0	0	NA	NA	NA	NA	NA	NA
Depth BSL	1.6	0.8	0.9	1.3	1.8	1.9	1.5	1.7
Time (BST)	12:24:37	12:28:09	10:39:53	10:46:53	10:52:53	10:58:53	11:06:53	11:13:53
Latitude site	55.98280	55.98260	55.98203	55.98217	55.98228	55.98229	55.98241	55.98257
Long'de site	-5.65202	-5.65199	-5.65133	-5.65130	-5.65128	-5.65128	-5.65128	-5.65132
Depth BCD (m)	1.1	0.3	0.4	0.8	1.3	1.4	1.0	1.2
Bedrock		D						
Boulders	D		P	P	P		D	
Cobbles	P	P	P	P	D	D	P	D
Pebbles	P	P	P	P	P	P	P	P
Gravel		P			D	P	P	P
Sand							P	P
Muddy sand			D	D	D	P		
Mud								
Live maerl (%)	0	0	<5	<5	5	70	30	90
Dead maerl (%)	0	0	0	0	0	<5	0	<5
Live maerl SAC-FORN	N	N	R	R	O	A	C	S
Phym. calc.								
***Litho. glac.* maerl**			D	D	D	D		D
***Litho. glac.* h'hog stones**	P	P			Y	Y	y	
***Ostrea* SAC-FORN**	N	N	N	N	N	N	N	N
Comments	Dense *Halidrys*	Dense *Halidrys* & *S. latissima.*	*Halidrys, Codium, O. nigra*, *O.fragilis*, *Corallina,* Hedgehog stones,	*S. latissima*, *Sargassum, O. nigra*, *O.fragilis*, fluffy brown algae, *Corallina*	Hedgehog stones, *Codium, S. latissima*, *Echinus*, *Sargassum*, *O.fragilis*, *O.nigra*	Hedgehog stones, *S. latissima*, *Corallina*, *Asterias*, *O.fragilis*, *O.nigra*	*Halidrys*, *S. latissima*, *Codium*, *Echinus*, *O.fragilis*, *O.nigra*. Hedgehog stones,fluffy reds and brown algae	*Halidrys*, *Sargassum*, *Ulva*, Hedgehog stones, *O.fragilis*, *O.nigra*

Table 4.1 continued

Site	TJ.7	TJ.8	TK.1	TK.2	TK.3	TK.4	TK.5	TK.6
Diver	SH	SH	SH	SH	SH	SH	SH	SH
Date	20/04/13	20/04/13	20/04/13	20/04/13	20/04/13	20/04/13	20/04/13	20/04/13
Latitude logger	55.98267	55.98293	55.98296	55.98286	55.98278	55.98270	55.98258	55.98241
Long'de logger	-5.65125	-5.65136	-5.65030	-5.65037	-5.65043	-5.65053	-5.65064	-5.65068
SMB length	1.6	1.0	1.5	1.4	1.4	1.0	0.5	1.6
SMB bearing	NA	NA	NA	NA	NA	NA	NA	NA
Depth BSL	1.6	1.0	1.5	1.4	1.4	1.0	0.5	1.6
Time (BST)	11:21:53	11:33:53	11:46:53	11:51:53	11:57:53	12:05:53	12:08:53	12:15:53
Latitude site	55.98267	55.98293	55.98296	55.98286	55.98278	55.98270	55.98258	55.98241
Long'de site	-5.65125	-5.65136	-5.65030	-5.65037	-5.65043	-5.65053	-5.65064	-5.65068
Depth BCD (m)	1.1	0.5	1.0	0.9	0.9	0.5	0.0	1.1
Bedrock								
Boulders		P	D	P	P			D
Cobbles	P	P	P	D	P			P
Pebbles	D	D	P	P	P			
Gravel	P	D	P		P	P	P	P
Sand	D	P	P		P			P
Muddy sand								
Mud								
Live maerl (%)	25	25	0	25	20	15	10	<5
Dead maerl (%)	<5	<5	0	10	<5	85	90	25
Live maerl SAC-FORN	C	C	N	C	C	F	F	R
Phym. calc.								
***Litho. glac.* maerl**	D	D		D	D	D	D	D
***Litho. glac.* h'hog stones**	Y			y	y	y		
***Ostrea* SAC-FORN**	N	N	N	N	N	N	N	N
Comments	*Halidrys*, *O.nigra*, *Sargassum*, *Saccharina latissima*, red sponge, hedgehog stones	*Corallina*, *O.nigra*, *S. latissima*	*Lsac. Echinus*, *O.nigra*, *O.fragilis*, *Ulva*, *Codium*	Hedgehog stones, *O.nigra*, *O.fragilis*, *Halidrys, Codium,* Ulva	Hedgehog stones, *Corallina*, *S. latissima*, *O.nigra*, *O.fragilis*, *Sargassum*, orange sponge	*O.nigra*, *Sargassum*, *Ulva, Corallina*, hedghog stones	*O.nigra*, *Sargassum*, *S. latissima*, Laerge bank of maerl	*O.nigra*, *Halidrys*, *S. latissima*, orange sponge, *O.fragilis*

Table 4.1 continued

Site	TK.7	TK.8	TL.1	TL.2	TL.3	TL.4	TL.5	TM.1
Diver	SH	SH	LC	LC	LC	LC	LC	LC
Date	20/04/13	20/04/13	20/04/13	20/04/13	20/04/13	20/04/13	20/04/13	20/04/13
Latitude logger	55.98219	55.98215	55.98229	55.98237	55.98245	55.98262	55.98281	55.98237
Long'de logger	-5.65087	-5.64955	-5.64952	-5.64958	-5.64954	-5.64956	-5.64959	-5.64876
SMB length	2.0	2.4	1.6	1.1	1.0	1.0	1.6	0.5
SMB bearing	NA	NA	NA	NA	NA	NA	NA	NA
Depth BSL	2.0	2.4	1.6	1.1	1.0	1.0	1.6	0.5
Time (BST)	12:25:53	12:46:53	12:57:53	13:02:53	13:06:53	13:14:53	13:23:53	13:39:53
Latitude site	55.98219	55.98215	55.98229	55.98237	55.98245	55.98262	55.98281	55.98237
Long'de site	-5.65087	-5.64955	-5.64952	-5.64958	-5.64954	-5.64956	-5.64959	-5.64876
Depth BCD (m)	1.5	1.9	1.1	0.6	0.5	0.5	1.1	0.0
Bedrock								
Boulders	D		P	P				
Cobbles				P	P	P		
Pebbles			P		P	P		
Gravel	P	P	D			P	D	D
Sand	D	D	P					
Muddy sand		P		D	D			
Mud								
Live maerl (%)	<5	<5	0	40	50	0	0	50
Dead maerl (%)	<5	0	0	20	20	0	0	50
Live maerl SAC-FORN	R	R	N	A	A	N	N	A
***Phym. calc*.**								
***Litho. glac*. maerl**	D	D		D	D			D
***Litho. glac*. h'hog stones**	y			Y				
***Ostrea* SAC-FORN**	N	N	N	N	N	N	N	N
Comments	Hedgehog stones, *O.nigra*, *O.fragilis*, *Ulva*, *Halidrys*	*O.nigra*, *O.fragilis*, ascidians	Sandy gravel, *Echinus*, *Codium*, *Ophiothrix fragilis*	*S. latissima*, *O. nigra,* hedghog stones occasional	*Halidrys*, *O. fragilis*	*Halidrys*, *O. nigra*, *Halidchondria*	*Halidrys* with scatterd hedgehog stones, *O. nigra*	Scattered empty shell, *O.nigra*

Table 4.1 continued

Site	TM.2	TM.3	TN.1	TN.2	TN.3	TN.4	TN.5	TN.6
Diver	LC	LC	MC	MC	MC	MC	MC	MC
Date	20/04/13	20/04/13	21/04/13	21/04/13	21/04/13	21/04/13	21/04/13	21/04/13
Latitude logger	55.98258	55.98275	55.98232	55.98224	55.98213	55.98233	55.98233	55.98235
Long'de logger	-5.64873	-5.64871	-5.64889	-5.64880	-5.64867	-5.64890	-5.64878	-5.64854
SMB length	1.9	1.0	0.8	0.8	1.0	0.8	0.8	1.4
SMB bearing	NA	NA	NA	NA	NA	NA	NA	NA
Depth BSL	1.9	1.0	0.8	0.8	1.0	0.8	0.8	1.4
Time (BST)	13:48:53	13:54:53	15:59:53	16:05:11	16:12:54	16:22:53	16:24:53	16:29:53
Latitude site	55.98258	55.98275	55.98232	55.98224	55.98213	55.98233	55.98233	55.98235
Long'de site	-5.64873	-5.64871	-5.64889	-5.64880	-5.64867	-5.64890	-5.64878	-5.64854
Depth BCD (m)	1.4	0.5	0.3	0.3	0.5	0.3	0.3	0.9
Bedrock								
Boulders	P	P						P
Cobbles	P	P	P		D	P		P
Pebbles	P	P	D		P	D	P	P
Gravel	D	D	P	P	P	P		P
Sand								
Muddy sand								
Mud								
Live maerl (%)	0	0	80	70	0	80	80	0
Dead maerl (%)	0	0	20	30	0	20	20	0
Live maerl SAC-FORN	N	N	S	A	N	S	S	N
***Phym. calc*.**								
***Litho. glac*. maerl**								
***Litho. glac*. h'hog stones**		Yes only a few scattered						
***Ostrea* SAC-FORN**	N	N	N	N	N	N	N	N
Comments	*Halidrys*, *O. nigra*, pink encrusted cobbles	Dense *Halidrys*	Maerl coverage 80%, *S. latissima*, *O. nigra*	Maerl coverage 100%	*Corallina* on cobbles, *Halidrys* canopy, *O nigra*	Restart transect on E bearing. Maerl coverage 80%	Total maerl coverage 90%. *L sac*	*Corallina* on cobbles, *Haladrys* canopy, orange sponges, *O.nigra*

Table 4.1 continued

Site	TN.7	TO.1	TO.2	TO.3	TO.4	TO.5	TO.6	TO.7
Diver	MC	NH	NH	NH	NH	NH	NH	NH
Date	21/04/13	18/4/13	18/4/13	18/4/13	18/4/13	18/4/13	18/4/13	18/4/13
Latitude logger	55.98240	55.98194	55.98194	55.98194	55.98192	55.98190	55.98187	55.98185
Long'de logger	-5.64835	-5.64931	-5.64920	-5.64911	-5.64909	-5.64903	-5.64888	-5.64879
SMB length	1.2	1	2.5	2.5	2.5	2.5	2.5	2.5
SMB bearing	NA	N/A	300	300	330	30	N/A	30
Depth BSL	1.2	1	1.4	1.5	1.7	1.8	1.7	1.4
Time (BST)	16:33:53	12:12:56	12:17:27	12:22:09	12:27:31	12:31:36	12:37:15	12:41:20
Latitude site	55.98240	55.98194	55.98193	55.98193	55.98191	55.98188	55.98187	55.98184
Long'de site	-5.64835	-5.64931	-5.64917	-5.64908	-5.64907	-5.64904	-5.64888	-5.64880
Depth BCD (m)	0.7	0.5	1.0	1.1	1.3	1.4	1.3	1.0
Bedrock		P					P	
Boulders	D	P	P				D	D
Cobbles	P		D	D	P	P	D	P
Pebbles	P		D	D	P	D	P	P
Gravel	P	P	P	P	D	P	P	P
Sand		P	P	P	D			P
Muddy sand								
Mud								
Live maerl (%)	0	0	5	5	10	5	0	0
Dead maerl (%)	0	0	10	10	10	1	0	1
Live maerl SAC-FORN	N	N	O	O	F	O	N	N
***Phym. calc*.**			D	D	D	D		
***Litho. glac*. maerl**								
***Litho. glac*. h'hog stones**			P	P		P		
***Ostrea* SAC-FORN**	N	N	N	N	N	N	N	N
Comments	Boulders with foliose and encrusting red algae. *Halidrys* canopy	Kelp, brown and red algae, ascidians and *O. nigra*, *Halidrys* (A)	<1% encrusting maerl and hedghog stone maerl, mainly cobbles and pebbles. *Halidrys* (A)	<1% encrusting maerl and hedghog stone maerl, abundant. *Halidrys* (A)	Frequent *O. nigra, Halidrys* (A)	Hedgehog and encrusting calcareous algae only. *Halidrys* (A)	Rock coverd with anenomes. *Halidrys* (A)	*Halidrys* (A) and other kelp species dominant, with frequent ascidians and anenomes

Table 4.1 continued

Site	TP.1	TP.2	TP.3	TP.4	TQ.1	TQ.2	TQ.3	TQ.4
Diver	CM	CM	CM	CM	CM	CM	CM	CM
Date	18/4/13	18/4/13	18/4/13	18/4/13	18/4/13	18/4/13	18/4/13	18/4/13
Latitude logger	55.98150	55.98144	55.98149	55.98153	55.98098	55.98097	55.98097	55.98101
Long'de logger	-5.64868	-5.64902	-5.64941	-5.64975	-5.64984	-5.64953	-5.64935	-5.64901
SMB length	8	8	8	8	8	8	8	8
SMB bearing	50	120	120	90	130	110	70	60
Depth BSL	1.3	1.9	2.6	1.2	1.4	2.3	2.5	2
Time (BST)	11:10:00	11:15:30	11:19:10	11:24:00	10:33:05	10:38:00	10:41:40	10:49:00
Latitude site	55.98145	55.98147	55.98152	55.98153	55.98102	55.98099	55.98094	55.98098
Long'de site	-5.64878	-5.64913	-5.64952	-5.64988	-5.64994	-5.64965	-5.64946	-5.64912
Depth BCD (m)	0.8	1.4	2.1	0.7	0.9	1.8	2.0	1.5
Bedrock				D				
Boulders	D	P			D	D	P	
Cobbles					P	P	P	
Pebbles							P	P
Gravel								
Sand					D			
Muddy sand		D	D				D	D
Mud								
Live maerl (%)	0	50	40	0	0	0	15	50
Dead maerl (%)	0	45	50	0	0	0	75	45
Live maerl SAC-FORN	N	A	A	N	N	N	F	A
***Phym. calc*.**		D	D				D	D
***Litho. glac*. maerl**								
***Litho. glac*. h'hog stones**							P	
***Ostrea* SAC-FORN**	N	N	N	N	N	N	N	N
Comments	*Sargassum* on transect				*Sargassum* on transect			

Table 4.1 continued

Site	TQ.5	TR.1	TR.2	TR.3	TR.4	TR.5	TR.6	TR.7
Diver	CM	NH	NH	NH	NH	NH	NH	NH
Date	18/4/13	20/04/13	20/04/13	20/04/13	20/04/13	20/04/13	20/04/13	20/04/13
Latitude logger	55.98098	55.98067	55.98069	55.98074	55.98076	55.98074	55.98077	55.98080
Long'de logger	-5.64893	-5.64897	-5.64913	-5.64925	-5.64938	-5.64953	-5.64968	-5.64985
SMB length	8	5.0	5.0	5.0	5.0	5.0	5.0	5.0
SMB bearing	60	330	350	350	350	350	350	350
Depth BSL	0.9	0.5	0.8	1.2	1.4	1.4	0.5	0.6
Time (BST)	10:54:30	15:18:35	15:20:54	15:24:11	15:26:18	15:28:39	15:32:19	15:35:23
Latitude site	55.98094	55.98063	55.98065	55.98070	55.98071	55.98070	55.98073	55.98076
Long'de site	-5.64904	-5.64892	-5.64911	-5.64924	-5.64936	-5.64951	-5.64966	-5.64983
Depth BCD (m)	0.4	0.0	0.3	0.7	0.9	0.9	0.0	0.1
Bedrock								
Boulders	D	D	D		P	D	D	D
Cobbles		P	P					
Pebbles	P	P	P					
Gravel	P		P	D	D	P	P	P
Sand	D		P	D	D	P	P	P
Muddy sand		P						
Mud								
Live maerl (%)	0	0	5	60	60	10	0	0
Dead maerl (%)	0	0	1	40	40	5	0	0
Live maerl SAC-FORN	N	N	O	A	A	F	N	N
***Phym. calc*.**			D	D	D	D		
***Litho. glac*. maerl**								
***Litho. glac*. h'hog stones**								
***Ostrea* SAC-FORN**	N	N	N	N	N	N	N	N
Comments		Occasional *O.nigra*, *Sargassum,* Frequent *Corallina officinalis* and *Trailliella* clumps	Some encrusting red coralline algae on rock, dominated by algae spp.	Abundant *O. nigra* with lots of dead maerl	Maerl among boulders with abundant *Halidrys* and frequent *O. fragilis*	Some hedgehogs, and abundant *Halidrys*	Dominated by algae amoung boulders with frequent encrusting red algae and sponge	Abundant *Corallina officinalis* and red encrusting coralline algae with frequent *O .fragilis*, and sponge (R)

Table 4.1 continued

Site	TR.8	TS.1	TS.2	TS.3	TS.4	TS.5	TT.1	TT.2
Diver	NH	NH	NH	NH	NH	NH	LK	LK
Date	20/04/13	20/04/13	20/04/13	20/04/13	20/04/13	20/04/13	21/04/13	21/04/13
Latitude logger	55.98083	55.98014	55.98012	55.98008	55.98007	55.98007	55.97979	55.97981
Long'de logger	-5.65002	-5.64952	-5.64933	-5.64919	-5.64906	-5.64888	-5.64991	-5.64980
SMB length	5.0	5.0	5.0	5.0	5.0	5.0	1.3	1.8
SMB bearing	340	350	350	350	350	350	NA	NA
Depth BSL	0.5	1.4	1.7	1.8	1.6	1.1	1.3	1.8
Time (BST)	15:37:23	14:58:37	15:02:42	15:05:53	15:08:14	15:10:34	17:02:53	17:06:53
Latitude site	55.98079	55.98010	55.98008	55.98004	55.98003	55.98003	55.97979	55.97981
Long'de site	-5.64999	-5.64950	-5.64931	-5.64917	-5.64905	-5.64886	-5.64991	-5.64980
Depth BCD (m)	0.0	0.9	1.2	1.3	1.1	0.6	0.8	1.3
Bedrock								
Boulders	P		D			D		P
Cobbles	P						D	D
Pebbles	P	P	P				P	P
Gravel	D	D	P	D	D			
Sand	D	D	P	D	D			P
Muddy sand								P
Mud								
Live maerl (%)	0	5	10	70	50	0	0	0
Dead maerl (%)	0	1	5	20	30	0	0	0
Live maerl SAC-FORN	N	O	F	A	A	N	N	N
Phym. calc.		D	D	D	D			
***Litho. glac.* maerl**								
***Litho. glac.* h'hog stones**								
***Ostrea* SAC-FORN**	N	N	N	N	N	N	N	N
Comments	Abundant *Corallina officinalis*, algae spp, encrusting red algae and occasional *O. fragilis*	Algae (A), *Halidrys*, and *Trailliella* (F), *Corallina officinalis* (F)	Dominated by kelp, *O. fragilis* (O), *Sargassum* (O), Coralline red encrusting algae (F)	Dense classic maerl twiglets with some hedgehogs of possible *Litho .glac*, although maerl was dense locally, travelling between stations it was patchy	Dense classic maerl twiglets with some hedgehogs of possible *Litho. glac*, this time with denser *Halidrys* (C), and *Sargassum* (O)	Dominated by algae sp, especially *Halidrys* with abundant fluffy reds and *Sargassum* (O)	Kelp, *Halidrys, O.nigra*	5% encrusting *Lithothamnion,* Kelp, *Halidrys, O.nigra*

Table 4.1 continued

Site	TT.3	TT.4	TT.5	TT.6	TT.7	TT.8	CSC.1	CSC.2
Diver	LK	LK	LK	LK	LK	LK	LC	LC
Date	21/04/13	21/04/13	21/04/13	21/04/13	21/04/13	21/04/13	19/04/13	19/04/13
Latitude logger	55.97986	55.97988	55.97989	55.97989	55.97992	55.98001	56.02607	56.02623
Long'de logger	-5.64959	-5.64943	-5.64933	-5.64925	-5.64906	-5.64887	-5.60782	-5.60794
SMB length	2.1	2.1	2.3	2.1	1.6	1.3	1.6	3.3
SMB bearing	NA	NA	NA	NA	NA	NA	0	0
Depth BSL	2.1	2.1	2.3	2.1	1.6	1.3	1.6	3.3
Time (BST)	17:11:53	17:15:53	17:20:53	17:23:53	17:29:53	17:34:53	14:54:00	14:58:00
Latitude site	55.97986	55.97988	55.97989	55.97989	55.97992	55.98001	56.02607	56.02623
Long'de site	-5.64959	-5.64943	-5.64933	-5.64925	-5.64906	-5.64887	-5.60782	-5.60794
Depth BCD (m)	1.6	1.6	1.8	1.6	1.1	0.8	1.1	2.8
Bedrock					P	P		
Boulders				P	P	D		
Cobbles				D	D	P		
Pebbles	P			P	P			
Gravel								
Sand	P			P				
Muddy sand	D	D	D		P		D	D
Mud								
Live maerl (%)	0	15	30	5	3	3	0	0
Dead maerl (%)	0	60	65	10	5	5	0	0
Live maerl SAC-FORN	N	F	C	O	R	R	N	N
***Phym. calc*. maerl**								
***Litho. glac*. maerl**								
***Litho. glac*. h'hog stones**								
***Ostrea* SAC-FORN**	N	N	N	N	N	N	N	N
Comments	*O. nigra*, dense algal turf (~5cm)	Maerl with dense algal turf, *O.nigra*	*O.nigra*	Kelp/*Halidrys* on cobbles/bedrock, few bits of maerl in gaps. 75% encrusting *Lithothamnion*, some hedgehogs	Kelp/*Halidrys* on cobbles/bedrock, few bits of maerl in gaps. 75% encrusting *Lithothamnion*	Kelp/*Halidrys* on cobbles/bedrock, few bits of maerl in gaps. 75% encrusting *Lithothamnion*	Sandy mud with brittlestars and ascidians	Sandy mud with brittlestars and ascidians

Table 4.1 continued

Site	CSC.3	CSC.4	CSC.5	CSC.6	CSD.1	CSD.2	CSD.3	CSD.4
Diver	LC	LC	LC	LC	NH	NH	NH	NH
Date	19/04/13	19/04/13	19/04/13	19/04/13	18/04/13	18/04/13	18/04/13	18/04/13
Latitude logger	56.02633	56.02650	56.02670	56.02673	56.02735	56.02746	56.02752	56.02758
Long'de logger	-5.60807	-5.60833	-5.60864	-5.60883	-5.60637	-5.60646	-5.60652	-5.60664
SMB length	3.5	6.9	6.4	4	5	10	10	10
SMB bearing	0	0	0	0	0	210	240	210
Depth BSL	3.5	6.9	6.4	4	5	5.8	6.3	6.7
Time (BST)	15:00:00	15:04:00	15:09:00	15:15:00	16:12:36	16:16:08	16:18:20	16:19:54
Latitude site	56.02633	56.02650	56.02670	56.02673	56.02735	56.02752	56.02756	56.02764
Long'de site	-5.60807	-5.60833	-5.60864	-5.60883	-5.60637	-5.60640	-5.60642	-5.60658
Depth BCD (m)	3.0	6.4	5.9	3.5	4.4	5.2	5.7	6.1
Bedrock								
Boulders								
Cobbles								
Pebbles								
Gravel		P	P	P				
Sand		P						
Muddy sand	D	D	D	D				
Mud					D	D	D	D
Live maerl (%)	0	0	0	0	0	0	0	0
Dead maerl (%)	0	0	0	0	0	0	0	0
Live maerl SAC-FORN	N	N	N	N	N	N	N	N
***Phym. calc*.**								
***Litho. glac*. maerl**								
***Litho. glac*. h'hog stones**								
***Ostrea* SAC-FORN**	N	N	N	N	N	N	N	N
Comments	Sandy mud with brittlestars and ascidians	Sandy mud with brittlestars and ascidians	Sandy mud with brittlestars and ascidians		Occasional ascidians and common brittlestars - *O. nigra*?	Brittlestars - *O. nigra*? and ophiuroid arms sticking out of mud	Occasional ascidians, *Asterias rubens*, andfrequent brittlestars, *O. nigra* and *O. fragilis*	Occasional ascidians, *Asterias rubens*, and frequent brittlestars, *O. nigra*, and *O. fragilis*

Table 4.1 continued

Site	CSD.5	CSD.6	CSD.7	CSD.8	CSD.9	CSD.10	CSD.11	CSD.12
Diver	NH	NH	NH	NH	NH	NH	NH	NH
Date	18/04/13	18/04/13	18/04/13	18/04/13	18/04/13	18/04/13	18/04/13	18/04/13
Latitude logger	56.02762	56.02764	56.02769	56.02771	56.02781	56.02786	56.02786	56.02788
Long'de logger	-5.60672	-5.60675	-5.60682	-5.60686	-5.60702	-5.60710	-5.60710	-5.60711
SMB length	10	10	10	10	10	10	10	10
SMB bearing	210	210	240	210	210	210	240	240
Depth BSL	7.3	8.1	8.3	8.5	8.5	8	7.3	5.7
Time (BST)	16:22:12	16:23:29	16:24:35	16:25:00	16:27:57	16:29:08	16:30:19	16:31:58
Latitude site	56.02768	56.02769	56.02772	56.02775	56.02785	56.02790	56.02789	56.02792
Long'de site	-5.60667	-5.60671	-5.60675	-5.60682	-5.60698	-5.60706	-5.60701	-5.60700
Depth BCD (m)	6.7	7.5	7.7	7.9	7.9	7.4	6.7	5.1
Bedrock								
Boulders								
Cobbles								
Pebbles								
Gravel								
Sand								
Muddy sand								
Mud	D	D	D	D	D	D	D	D
Live maerl (%)	0	0	0	0	<5	0	0	0
Dead maerl (%)	0	0	0	0	0	<5	0	0
Live maerl SAC-FORN	N	N	N	N	R	N	N	N
Phym. calc.								
***Litho. glac.* maerl**					P			
***Litho. glac.* h'hog stones**								
***Ostrea* SAC-FORN**	N	N	N	N	N	N	N	N
Comments	Occasional ascidians, *Asterias rubens*, and frequent brittlestars, *O. nigra*, and *O. fragilis*	Rare algae attached to debris, and rare spherical burrows	Rare algae attached to debris, and rare spherical burrows	Frequent ascidians and rare snakelocks anenomes	Abundant ascidians and *O. nigra*, common *O. fragilis*, *Marthasterias*	Occasional ascidians and brittlesstars (*O. fragilis*, *O. nigra*)	Common brittlestars (*O. fragilis* and *O. nigra*), Rare *Cerianthus lloydii*	Common brittlestars (*O. fragilis* and *O. nigra*), Rare *Cerianthus lloydii*

Table 4.1 continued

Site	CSD.13	CSE.1	CSE.2	CSE.3	CSE.4	CSE.5	CSE.6	CSE.7
Diver	NH	DH	DH	DH	DH	DH	DH	DH
Date	18/04/13	18/04/13	18/04/13	18/04/13	18/04/13	18/04/13	18/04/13	18/04/13
Latitude logger	56.02789	56.02850	56.02854	56.02849	56.02852	56.02859	56.02868	56.02878
Long'de logger	-5.60712	-5.60494	-5.60520	-5.60552	-5.60586	-5.60617	-5.60636	-5.60658
SMB length	5	5	10	5.7	4.7	6.5	6.1	4.7
SMB bearing	240	0	60	0	0	0	0	0
Depth BSL	4.4	5	5.5	5.7	4.7	6.5	6.1	4.7
Time (BST)	16:33:33	16:55:33	16:58:52	17:02:49	17:06:05	17:08:51	17:11:54	17:14:20
Latitude site	56.02790	56.02850	56.02850	56.02849	56.02852	56.02859	56.02868	56.02878
Long'de site	-5.60709	-5.60494	-5.60531	-5.60552	-5.60586	-5.60617	-5.60636	-5.60658
Depth BCD (m)	3.8	4.4	4.9	5.1	4.1	5.9	5.5	4.1
Bedrock					D			
Boulders								
Cobbles								
Pebbles								
Gravel		P	P	P		P		
Sand			D	D		D		
Muddy sand		D					D	
Mud	D				P			D
Live maerl (%)	0	0	<5	<5	0	0	0	0
Dead maerl (%)	0	0	0	<5	0	0	0	0
Live maerl SAC-FORN	N	N	R	R	N	N	N	N
***Phym. calc*.**								
***Litho. glac*. maerl**			D	D				
***Litho. glac*. h'hog stones**								
***Ostrea* SAC-FORN**	N	N	N	N	N	N	N	N
Comments	Abundant *O. fragilis*, occasional *O. nigra*. Occasional ascidians							

Table 4.1 continued

Site	CSE.8	CSE2.1	CSE2.2	CSE2.3	CSE2.4	CSE2.5	CSE2.6	CSE2.7
Diver	DH	DH	DH	DH	DH	DH	DH	DH
Date	18/04/13	19/04/13	19/04/13	19/04/13	19/04/13	19/04/13	19/04/13	19/04/13
Latitude logger	56.02882	56.02895	56.02902	56.02910	56.02916	56.02921	56.02926	56.02933
Long'de logger	-5.60677	-5.60429	-5.60438	-5.60451	-5.60467	-5.60480	-5.60491	-5.60504
SMB length	2	3.6	3.5	1.8	3.8	3.5	1	2.9
SMB bearing	0	0	0	0	0	0	0	0
Depth BSL	2	3.6	3.5	1.8	3.8	3.5	1	2.9
Time (BST)	17:17:07	14:46:27	14:48:45	14:51:20	14:53:15	14:56:43	15:00:36	15:03:15
Latitude site	56.02882	56.02895	56.02902	56.02910	56.02916	56.02921	56.02926	56.02933
Long'de site	-5.60677	-5.60429	-5.60438	-5.60451	-5.60467	-5.60480	-5.60491	-5.60504
Depth BCD (m)	1.4	3.1	3.0	1.3	3.3	3.0	0.5	2.4
Bedrock				D			D	
Boulders								
Cobbles		P						
Pebbles		P	P		P			P
Gravel	P	P	P		P	P		
Sand	D	D	D		D			
Muddy sand	P					D	P	
Mud				P				D
Live maerl (%)	0	0	70	0	10	80	0	40
Dead maerl (%)	0	0	1	0	1	1	0	1
Live maerl SAC-FORN	N	N	A	N	F	S	N	A
***Phym. calc*.**								
***Litho. glac*. maerl**			D		D	D		D
***Litho. glac*. h'hog stones**		P	P		P	P		P
***Ostrea* SAC-FORN**	N	N	N	N	N	N	N	N
Comments								

Table 4.1 continued

Site	CSE2.8	CSE2.9	CSE2.10	CSF.1	CSF.2	CSF.3	CSF.4	CSF.5
Diver	DH	DH	DH	NH	NH	NH	NH	NH
Date	19/04/13	19/04/13	19/04/13	19/04/13	19/04/13	19/04/13	19/04/13	19/04/13
Latitude logger	56.02939	56.02946	56.02952	56.02931	56.02935	56.02943	56.02949	56.02953
Long'de logger	-5.60515	-5.60529	-5.60538	-5.60368	-5.60378	-5.60380	-5.60386	-5.60392
SMB length	2.6	2.2	1.2	2.5	2.4	2.4	2.8	3
SMB bearing	0	0	0	0	0	0	0	0
Depth BSL	2.6	2.2	1.2	2.5	2.4	2.4	2.8	3
Time (BST)	15:06:15	15:08:55	15:11:54	09:09:26	09:13:10	09:18:03	09:21:22	09:23:45
Latitude site	56.02939	56.02946	56.02952	56.02931	56.02935	56.02943	56.02949	56.02953
Long'de site	-5.60515	-5.60529	-5.60538	-5.60368	-5.60378	-5.60380	-5.60386	-5.60392
Depth BCD (m)	2.1	1.7	0.7	1.7	1.6	1.6	2.0	2.2
Bedrock								
Boulders						D	D	
Cobbles								
Pebbles	P	P	P	P		D	P	
Gravel	P	P	P	D	D	P	P	P
Sand				D	D	P	P	P
Muddy sand		D	D		D	P	P	P
Mud	D							
Live maerl (%)	1	0	0	0	85	60	5	90
Dead maerl (%)	0	0	0	5	5	5	5	5
Live maerl SAC-FORN	R	N	N	N	S	A	O	S
***Phym. calc*.**								
***Litho. glac*. maerl**	D			D	D	D	D	D
***Litho. glac*. h'hog stones**	P							
***Ostrea* SAC-FORN**	N	N	N	N	N	N	N	N
Comments				Abundant brittlestars - *O. nigra* and *O. fragilis*. Occasional ascidians	Fluffy brown algae, abundant *O. fragilis*, maerl in clumps	Brown algae, abundant ascidians and fragilis brittlestars	Sponge and ascidians on boulders still with abundant brittlestars	Brittlestars (A), *Asterias*, 1 *Henricia* and occasional fluffy brown algae

Table 4.1 continued

Site	CSF.6	CSF.7	CSF.8	CSF.9	CSF.10	CSF.11	CSF.12	CSG.1
Diver	NH	NH	NH	NH	NH	NH	NH	BJ
Date	19/04/13	19/04/13	19/04/13	19/04/13	19/04/13	19/04/13	19/04/13	19/04/13
Latitude logger	56.02955	56.02959	56.02963	56.02967	56.02971	56.02976	56.02980	56.03026
Long'de logger	-5.60402	-5.60411	-5.60423	-5.60433	-5.60444	-5.60457	-5.60458	-5.60256
SMB length	2.8	2.8	2.5	2.2	2	1.6	1.1	3.4
SMB bearing	0	0	30	50	30	60	60	0
Depth BSL	2.8	2.8	2.5	2.2	2	1.6	1.1	3.4
Time (BST)	09:26:38	09:29:31	09:31:18	09:33:36	09:35:32	09:37:58	09:40:33	09:17:00
Latitude site	56.02955	56.02959	56.02963	56.02967	56.02971	56.02976	56.02980	56.03026
Long'de site	-5.60402	-5.60411	-5.60423	-5.60433	-5.60444	-5.60457	-5.60458	-5.60256
Depth BCD (m)	2.0	2.0	1.7	1.4	1.2	0.9	0.4	2.6
Bedrock				D				
Boulders					D			
Cobbles					P	P	P	
Pebbles					P	P	P	P
Gravel	P	P	P	P	P	D	D	P
Sand	P	P	P	P	P	D	D	P
Muddy sand	P	P	P	P	P	P		D
Mud								
Live maerl (%)	80	85	85	85	10	1	0	0
Dead maerl (%)	5	5	5	5	5	1	0	<5
Live maerl SAC-FORN	S	S	S	S	F	R	N	N
***Phym. calc*.**								
***Litho. glac*. maerl**	D	D	D	D	D	D		
***Litho. glac*. h'hog stones**								
***Ostrea* SAC-FORN**	N	N	N	N	N	N	N	N
Comments	Brittlestars (A), *Asterias*, occasional *Halidrys* and fluffy brown algae	Brittlestars (A), *Asterias,* pink ascidians and occasional *Halidrys* and fluffy brown algae	*O. fragilis* (S), *Asterias*, sponge (R).	*O. fragilis* (S), *Asterias*, sponge (R) and brown fluffy algae (O).	Ascidians (C), *O. fragilis* (S), rare sponge and occasional brown fluffy algae.	Common ascidians, abundant *O. nigra*, and common short fluffy algae	Common ascidians, abundant *O. nigra*, and common short fluffy algae. 1 butterfish	Brittlestars

Table 4.1 continued

Site	CSG.2	CSG.3	CSG.4	CSG.5	CSG.6	CSG.7	CSG.8	CSG.9
Diver	BJ	BJ	BJ	BJ	BJ	BJ	BJ	BJ
Date	19/04/13	19/04/13	19/04/13	19/04/13	19/04/13	19/04/13	19/04/13	19/04/13
Latitude logger	56.03027	56.03031	56.03035	56.03038	56.03046	56.03053	56.03060	56.03064
Long'de logger	-5.60258	-5.60290	-5.60315	-5.60318	-5.60332	-5.60338	-5.60351	-5.60360
SMB length	3.6	3.6	3.3	3.3	3.1	2.8	2.1	1
SMB bearing	0	0	0	0	0	0	0	0
Depth BSL	3.6	3.6	3.3	3.3	3.1	2.8	2.1	1
Time (BST)	09:20:00	09:27:00	09:31:00	09:34:00	09:39:00	09:44:00	09:48:00	09:52:00
Latitude site	56.03027	56.03031	56.03035	56.03038	56.03046	56.03053	56.03060	56.03064
Long'de site	-5.60258	-5.60290	-5.60315	-5.60318	-5.60332	-5.60338	-5.60351	-5.60360
Depth BCD (m)	2.8	2.8	2.5	2.5	2.3	2.0	1.3	0.2
Bedrock								
Boulders								P
Cobbles	P			P		P		
Pebbles	P		P		P	P	P	P
Gravel	P				P	D	D	
Sand	P							
Muddy sand	D	D	D	D	D	D	D	D
Mud								
Live maerl (%)	2	95	90	90	40	0	0	0
Dead maerl (%)	<5	0	2	2	4	0	0	0
Live maerl SAC-FORN	R	S	S	S	A	N	N	N
***Phym. calc*.**								
***Litho. glac*. maerl**	D	D	D	D	D			
***Litho. glac*. h'hog stones**								
***Ostrea* SAC-FORN**	N	N	N	N	N	N	N	N
Comments	Muddy sand with algae	Muddy sand below large maerl hedgehog rodoliths with brittlestars and algae	Muddy sand below maerl	Muddy sand below maerl	Muddy gravel with less maerl coverage	Off maerl bed		Soft and more muddy (didn't split mud in recording sheet).

Table 4.1 continued

Site	CSH.1	CSH.2	CSH.3	CSH.4	CSH.5	CSH.6	CSH.7	CSH.8
Diver	DH	DH	DH	DH	DH	DH	DH	DH
Date	17/04/13	17/04/13	17/04/13	17/04/13	17/04/13	17/04/13	17/04/13	17/04/13
Latitude logger	56.03102	56.03110	56.03119	56.03128	56.03136	56.03145	56.03150	56.03155
Long'de logger	-5.60188	-5.60203	-5.60208	-5.60226	-5.60236	-5.60250	-5.60266	-5.60278
SMB length	8	8	8	8	8	8	8	8
SMB bearing	25	35	55	40	40	30	30	30
Depth BSL	3.7	4.4	4.6	4.7	4.7	4.5	3.4	1.3
Time (BST)	16:37:14	16:40:26	16:43:06	16:46:09	16:48:53	16:52:05	16:54:03	16:56:48
Latitude site	56.03096	56.03104	56.03115	56.03123	56.03131	56.03139	56.03144	56.03149
Long'de site	-5.60192	-5.60209	-5.60216	-5.60232	-5.60242	-5.60255	-5.60271	-5.60284
Depth BCD (m)	3.1	3.8	4.0	4.1	4.1	3.9	2.8	0.7
Bedrock								
Boulders								P
Cobbles								P
Pebbles	P	P	P	P	P	P	P	P
Gravel	P	P	P	P	P	P		
Sand	D	D	P	P	P	P		P
Muddy sand			D	D	D	D	D	
Mud								
Live maerl (%)	0	<5	90	90	70	<5	0	0
Dead maerl (%)	0	0	0	0	0	0	0	0
Live maerl SAC-FORN	N	R	S	S	A	R	N	N
***Phym. calc*.**								
***Litho. glac*. maerl**		D	D	D	D	D		
***Litho. glac*. h'hog stones**								
***Ostrea* SAC-FORN**	N	N	N	N	N	N	N	N
Comments			Station ~4 m from edge of bed		Edge of bed was ~2 m from this station			

Table 4.1 continued

Site	CSI.1	CSI.2	CSI.3	CSI.4	CSI.5	CSJ.1	CSJ.2	CSJ.3
Diver	CM	CM	CM	CM	CM	DH	DH	DH
Date	17/04/13	17/04/13	17/04/13	17/04/13	17/04/13	19/04/13	19/04/13	19/04/13
Latitude logger	56.03189	56.03199	56.03201	56.03205	56.03213	56.03247	56.03254	56.03261
Long'de logger	-5.60115	-5.60127	-5.60149	-5.60165	-5.60169	-5.60025	-5.60039	-5.60052
SMB length	8	8	8	8	8	4.4	5.9	5.2
SMB bearing	70	70	70	70	70	0	0	0
Depth BSL	5.3	5.5	5.4	5.1	4.3	4.4	5.9	5.2
Time (BST)	15:27:10	15:32:36	15:38:50	15:43:20	15:48:00	09:59:25	10:01:36	10:05:29
Latitude site	56.03187	56.03197	56.03199	56.03203	56.03211	56.03247	56.03254	56.03261
Long'de site	-5.60123	-5.60135	-5.60157	-5.60174	-5.60179	-5.60025	-5.60039	-5.60052
Depth BCD (m)	4.8	5.0	4.9	4.6	3.8	3.7	5.2	4.5
Bedrock								
Boulders					P			
Cobbles								
Pebbles	P		P	P			P	P
Gravel			P			P		
Sand	D					D	D	
Muddy sand		D	D	D	D			D
Mud								
Live maerl (%)	3	95	65	1	0	0	30	90
Dead maerl (%)	0	0	0	0	0	0	0	0
Live maerl SAC-FORN	R	S	A	R	N	N	C	S
Phym. calc.								
***Litho. glac.* maerl**	D	D	D	D			D	D
***Litho. glac.* h'hog stones**							P	P
***Ostrea* SAC-FORN**	N	N	N	N	N	N	N	N
Comments	*Ophiocomina nigra* S	*Ophiocomina nigra* S, dead *Limaria* valve	*Ophiocomina nigra* S	*Ophiocomina nigra* S, *Ophiothrix fragilis* A	*Ophiocomina nigra* S			

Table 4.1 continued

Site	CSJ.4	CSJ.5	CSJ.6	CSK.1	CSK.2	CSK.3	CSK.4	CSK.5
Diver	DH	DH	DH	CM	CM	CM	CM	CM
Date	19/04/13	19/04/13	19/04/13	19/04/13	19/04/13	19/04/13	19/04/13	19/04/13
Latitude logger	56.03269	56.03274	56.03281	56.03328	56.03335	56.03351	56.03366	56.03371
Long'de logger	-5.60067	-5.60076	-5.60091	-5.59927	-5.59941	-5.59958	-5.59968	-5.59973
SMB length	5.1	4.8	1.5	2.4	4.6	4.7	4.5	2.1
SMB bearing	0	0	0	0	0	0	0	0
Depth BSL	5.1	4.8	1.5	2.4	4.6	4.7	4.5	2.1
Time (BST)	10:08:32	10:10:56	10:13:40	10:36:20	10:39:45	10:45:25	10:49:40	10:53:48
Latitude site	56.03269	56.03274	56.03281	56.03328	56.03335	56.03351	56.03366	56.03371
Long'de site	-5.60067	-5.60076	-5.60091	-5.59927	-5.59941	-5.59958	-5.59968	-5.59973
Depth BCD (m)	4.4	4.1	0.8	1.8	4.0	4.1	3.9	1.5
Bedrock			D					D
Boulders				D			P	
Cobbles					P	P	P	
Pebbles	P				P	P	P	
Gravel	P							
Sand		D					D	
Muddy sand	D		P		D	D		
Mud								D
Live maerl (%)	90	0	0	0	90	90	<5	0
Dead maerl (%)	<5	0	0	0	0	0	0	0
Live maerl SAC-FORN	S	N	N	N	S	S	R	N
***Phym. calc*.**								
***Litho. glac*. maerl**	D				D	D	D	
***Litho. glac*. h'hog stones**	P							
***Ostrea* SAC-FORN**	N	N	N	N	N	N	N	N
Comments				Boulder slope	*Ophiothrix fragilis* A, *Ophiocomina nigra* S	*Ophiothrix fragilis* A, *Ophiocomina nigra* S	*Ophiocomina nigra* S	Hedgehog spines on bedrock. Mud patches over bedrock

Table 4.1 continued

Site	CSL.1	CSL.2	CSL.3	CSL.4	CSL.5	CSM.1	CSM.2	CSM.3
Diver	SH	SH	SH	SH	SH	RC	RC	RC
Date	19/04/13	19/04/13	19/04/13	19/04/13	19/04/13	19/04/13	19/04/13	19/04/13
Latitude logger	56.03377	56.03387	56.03398	56.03408	56.03415	56.03476	56.03473	56.03484
Long'de logger	-5.59870	-5.59886	-5.59891	-5.59900	-5.59901	-5.59736	-5.59754	-5.59760
SMB length	3.7	4.5	5	5	4.8	5	5	5
SMB bearing	0	0	0	0	0	74	0	0
Depth BSL	3.7	4.5	5	5	4.8	3.4	5	5
Time (BST)	10:31:00	10:38:00	10:44:00	10:50:00	10:55:00	11:13:00	11:15:18	11:20:50
Latitude site	56.03377	56.03387	56.03398	56.03408	56.03415	56.03474	56.03473	56.03484
Long'de site	-5.59870	-5.59886	-5.59891	-5.59900	-5.59901	-5.59741	-5.59754	-5.59760
Depth BCD (m)	2.9	3.8	4.3	4.3	4.1	2.8	4.4	4.4
Bedrock								
Boulders	D					D		
Cobbles		D	D	D		P		
Pebbles	P	P	P	D	P			
Gravel	P					P	P	P
Sand	D					P	D	D
Muddy sand	D	D	D	D	D	P	P	D
Mud								
Live maerl (%)	0	75	80	45	0	0	5	80
Dead maerl (%)	0	<5	<5	<5	0	0	2	15
Live maerl SAC-FORN	N	A	S	A	N	N	O	S
***Phym. calc*.**								
***Litho. glac*. maerl**		D	D	D			D	D
***Litho. glac*. h'hog stones**			P					
***Ostrea* SAC-FORN**	N	N	N	N	N	N	N	N
Comments	Common ascidians, abundant brittlestars, *Marthasterias*	Abdundant brittlestars, photos 392, 391 - SNH Compact Fuji	Abundant brittlestars, ascidians, photo 389 - SNH compact Fuji	Common ascidians, brittlestars, occassional *Sabella*. Photo 388 SNH compact Fuji	Common ascidians, abundant *Ophiocomina*. Photo 387 SNH compact Fuji		Common *Halidrys*	Common *Halidrys*

Table 4.1 continued

Site	CSM.4	CSM.5	CSM.6	CSM.7	CSN.1	CSN.2	CSN.3	CSN.4
Diver	RC	RC	RC	RC	LC	LC	LC	LC
Date	19/04/13	19/04/13	19/04/13	19/04/13	19/04/13	19/04/13	19/04/13	19/04/13
Latitude logger	56.03496	56.03503	56.03508	56.03513	56.03530	56.03529	56.03530	56.03533
Long'de logger	-5.59778	-5.59792	-5.59806	-5.59825	-5.59689	-5.59706	-5.59723	-5.59739
SMB length	5	5	3.3	1.2	3.6	4	4.2	4
SMB bearing	0	0	0	0	0	0	0	0
Depth BSL	5	5	3.3	1.2	3.6	4	4.2	4
Time (BST)	11:22:30	11:25:08	11:28:48	11:31:36	11:31:00	11:35:00	11:38:00	11:43:00
Latitude site	56.03496	56.03503	56.03508	56.03513	56.03530	56.03529	56.03530	56.03533
Long'de site	-5.59778	-5.59792	-5.59806	-5.59825	-5.59689	-5.59706	-5.59723	-5.59739
Depth BCD (m)	4.4	4.4	2.7	0.6	2.9	3.4	3.6	3.4
Bedrock			D					
Boulders			P					
Cobbles		P						
Pebbles		P			P			
Gravel	P	P			P			
Sand	D	D						
Muddy sand	D	P	P		D	D	D	D
Mud				D				
Live maerl (%)	70	20	0	0	2	70	60	70
Dead maerl (%)	25	10	0	0	0	1	5	2
Live maerl SAC-FORN	A	C	N	N	R	A	A	A
***Phym. calc*.**								
***Litho. glac*. maerl**	D	D			D	D	D	D
***Litho. glac*. h'hog stones**		P				P	P	
***Ostrea* SAC-FORN**	N	N	N	N	N	N	N	N
Comments	Common *Halidrys*	Common *Halidrys*	Common *Halidrys*			Brittlestars S	Brittlestars S	Brittlestars S

Table 4.1 continued

Site	CSN.5	CSN.6	CSO.1	CSO.2	CSO.3	CSO.4	CSO.5	CSO.6
Diver	LC	LC	GS	GS	GS	GS	GS	GS
Date	19/04/13	19/04/13	19/04/13	19/04/13	19/04/13	19/04/13	19/04/13	19/04/13
Latitude logger	56.03534	56.03538	56.03617	56.03616	56.03621	56.03628	56.03640	56.03646
Long'de logger	-5.59747	-5.59755	-5.59540	-5.59548	-5.59567	-5.59591	-5.59612	-5.59639
SMB length	4.1	4	4.2	4.5	4.5	4	3.2	2.3
SMB bearing	0	0	0	0	0	0	0	0
Depth BSL	4.1	4	4.2	4.5	4.5	4	3.2	2.3
Time (BST)	11:46:00	11:50:00	11:53:07	11:58:53	12:03:20	12:08:26	12:14:24	12:19:29
Latitude site	56.03534	56.03538	56.03617	56.03616	56.03621	56.03628	56.03640	56.03646
Long'de site	-5.59747	-5.59755	-5.59540	-5.59548	-5.59567	-5.59591	-5.59612	-5.59639
Depth BCD (m)	3.5	3.4	3.6	3.9	3.9	3.4	2.6	1.7
Bedrock								
Boulders		D						D
Cobbles						P	P	P
Pebbles						P	P	
Gravel	P	P						
Sand	P		D					
Muddy sand	D	P	P	D	D	D	D	D
Mud								
Live maerl (%)	2	0	0	10	70	70	5	0
Dead maerl (%)	0	0	0	0	10	10	0	0
Live maerl SAC-FORN	R	N	N	F	A	A	O	N
***Phym. calc*.**								
***Litho. glac*. maerl**	D							
***Litho. glac*. h'hog stones**							P	
***Ostrea* SAC-FORN**	N	N	N	N	N	N	N	N
Comments	Brittlestars S			Dense *Ascidiella* and abundant *Ophiocomina*	Dense *Ascidiella*, *Halidrys* and *Ophiocomina*	Dense *Ascidiella* and *Halidrys*	Dense *Ascidiella* and *Halidrys*	5% cover of hedgehog morph calcareous red algae on boulders

Table 4.1 continued

Site	CSP.1	CSP.2	CSP.3	CSP.4	CSP.5	CSP.6	CSP.7	CSQ.1
Diver	BJ	BJ	BJ	BJ	BJ	BJ	BJ	NH
Date	19/04/13	19/04/13	19/04/13	19/04/13	19/04/13	19/04/13	19/04/13	19/04/13
Latitude logger	56.03677	56.03686	56.03694	56.03700	56.03708	56.03717	56.03725	56.03745
Long'de logger	-5.59415	-5.59439	-5.59473	-5.59485	-5.59509	-5.59534	-5.59551	-5.59311
SMB length	5	8	8.5	8.5	6.8	5.8	4	4.7
SMB bearing	0	0	0	0	0	0	0	0
Depth BSL	5	8	8.5	8.5	6.8	5.8	4	4.7
Time (BST)	12:55:00	12:59:00	13:07:00	13:13:00	13:24:00	13:30:00	13:34:00	12:38:48
Latitude site	56.03677	56.03686	56.03694	56.03700	56.03708	56.03717	56.03725	56.03745
Long'de site	-5.59415	-5.59439	-5.59473	-5.59485	-5.59509	-5.59534	-5.59551	-5.59311
Depth BCD	4.4	7.4	8.0	8.0	6.3	5.3	3.5	4.1
Bedrock	D							
Boulders	D				P			D
Cobbles		P	D	D	P			
Pebbles		P	P	P		P	P	
Gravel	P	P	P	P	P	P	P	
Sand		P	P	P				
Muddy sand	P	D	D	D	D	D	D	P
Mud								
Live maerl (%)	0	<5	5	15	<5	0	0	0
Dead maerl (%)	0	0	<5	<5	0	0	0	0
Live maerl SAC-FORN	N	R	O	F	R	N	N	N
***Phym. calc*.**								
***Litho. glac*. maerl**		D	D	D	D			
***Litho. glac*. h'hog stones**		P	P (~25%)	P(~20%)	P			
***Ostrea* SAC-FORN**	N	N	N	N	N	N	N	N
Comments	Bedrock and boulders on step at edge of drop onto sediment plain across floor of channel. Photos taken	Photos taken	Photos taken. Muddy sand under and around cobbles and hedgehog stones (possible co-dominance)	Photos taken. Between CSP.4 and CSP.5 went up and over a bedrock step of ~1.5m height. Muddy sand under and around cobbles and hedgehog stones	No photos taken. Silty sediments on top of bedrock. A couple of hedgehog stones	Photos taken	Soft silty muddy sand on lower edge of slope (below muddier substrates). Photos taken	Encrusting red algae on boulders, occasional ascidians and rare sponge, and tube worms. Rare squat lobsters

Table 4.1 continued

Site	CSQ.10	CSQ.11	CSQ.2	CSQ.3	CSQ.4	CSQ.5	CSQ.6	CSQ.7
Diver	NH	NH	NH	NH	NH	NH	NH	NH
Date	19/04/13	19/04/13	19/04/13	19/04/13	19/04/13	19/04/13	19/04/13	19/04/13
Latitude logger	56.03814	56.03821	56.03755	56.03770	56.03776	56.03781	56.03784	56.03790
Long'de logger	-5.59475	-5.59493	-5.59327	-5.59347	-5.59353	-5.59371	-5.59397	-5.59411
SMB length	5	5	10	10	15	15	5	5
SMB bearing	180	200	270	240	270	270	210	180
Depth BSL	2.4	1.7	8.8	9.6	9.5	9.1	3.8	1.8
Time (BST)	13:05:36	13:07:09	12:43:13	12:47:23	12:50:12	12:52:43	12:56:54	12:59:49
Latitude site	56.03818	56.03825	56.03755	56.03771	56.03777	56.03781	56.03787	56.03794
Long'de site	-5.59476	-5.59491	-5.59319	-5.59343	-5.59335	-5.59351	-5.59394	-5.59411
Depth BCD	1.9	1.2	8.2	9.0	8.9	8.5	3.2	1.2
Bedrock						D		
Boulders							D	
Cobbles								
Pebbles			P		P			
Gravel			P	P				
Sand			P					
Muddy sand			D	D	D	P	P	
Mud	D	D						D
Live maerl (%)	0	0	0	0	0	0	0	0
Dead maerl (%)	0	0	0	0	0	0	0	0
Live maerl SAC-FORN	N	N	N	N	N	N	N	N
***Phym. calc*.**								
***Litho. glac*. maerl**								
***Litho. glac*. h'hog stones**								
***Ostrea* SAC-FORN**	N	N	N	N	N	N	N	N
Comments	Dominated by abundant *Arenicola* mounds. 1 *L. depurator*, clingfish, occasional terebellids and rare ascidians	Dominated by abundant *Arenicola* mounds., 1 *L. depurator,* common *O. nigra.*	Abundant ascidians and *O. nigra*, rare terebellids	*Aquepecten opercularis* (R), common ascidians, abundant *O. nigra*	Occasion-al mounds (terrebelid tracks), Abundant ascidians and *O. nigra*. Rare *Crossaster*	Sponge and encrust-ing red algae with abundant ascidians and rare squat lobsters	*Halidrys* clumps occasional, common epifaunal algae and, hydroids on fronds abundant ascidians, occasional *Arenicola* mounds	*Asterias* (R), abundant nudi-branchs.

Table 4.1 continued

Site	CSQ.8	CSQ.9
Diver	NH	NH
Date	19/04/13	19/04/13
Latitude logger	56.03800	56.03805
Long'de logger	-5.59440	-5.59455
SMB length	5	5
SMB bearing	180	200
Depth BSL	2.2	2.5
Time (BST)	13:02:39	13:04:01
Latitude site	56.03804	56.03809
Long'de site	-5.59440	-5.59453
Depth BCD (m)	1.7	2.0
Bedrock		
Boulders		
Cobbles		
Pebbles		
Gravel		
Sand		
Muddy sand		
Mud	D	D
Live maerl (%)	0	0
Dead maerl (%)	0	0
Live maerl SAC-FORN	N	N
***Phym. calc*.**		
***Litho. glac*. maerl**		
***Litho. glac*. h'hog stones**		
***Ostrea* SAC-FORN**	N	N
Comments	Frequent *Arenicola*. *Asterias* (R), abundant nudibranchs, rare *Cerianthus loydii*	Dominated by abundant *Arenicola* mounds. 1 *L.depurator*

APPENDIX 5: MNCR PHASE 2 SURVEY DATA

Table 5.1 Site details for MNCR phase 2 dive surveys. Proposed protected features (PPFs) are BM (burrowed mud) and MB (maerl beds)

Site	Date	Time (BST)	Latitude start	Longitude start	Latitude end	Longitude end
LB04M	17/04/2013	10:13-10:48	56.02095	-5.61759	56.02112	-5.61733
SM14M	22/04/2013	09:18-09:57	56.02254	-5.59611	56.02277	-5.59614
AA08M	18/04/2013	13:44-14:28	56.01224	-5.58341	56.01244	-5.58359
LS22M	21/04/2013	09:35-10:08	55.97177	-5.64397	55.97162	-5.64367
ML01	21/04/2013	14:02-15:15	55.98280	-5.65523	55.98278	-5.65483
ML02	22/04/2013	12:20-13:08	56.03265	-5.60060	56.03284	-5.60039
CS07M	19/04/2013	13:41-14:05	56.03877	-5.59223	56.03877	-5.59223

Site	Depth BCD (start) (m)	Depth BCD (end) (m)	Direction (°M)	Surveyors	Biotope	PPF
LB04M	12.5	13.0	45	DH, CM	SS.SMu.CFiMu.MegMax	BM
SM14M	19.9	19.7	0	DH, CM	SS.SMu.CFiMu.MegMax	BM
AA08M	15.5	15.9	338	DH, CM	SS.SMu.CFiMu.MegMax	BM
LS22M	22.7	24.7	135	DH, CM	SS.SMu.CFiMu.MegMax	BM
ML01	0.1	0.3	100	DH, CM	SS.SMp.Mrl.Pcal.R	MB
ML02	4.8	4.9	35	DH, CM	SS.SMp.Mrl.Lgla	MB
CS07M	12.0	13.9	N/A	CM	SS.SMu.CFiMu.MegMax	BM

Table 5.2 SACFOR abundance records for species recorded during MNCR phase 2 surveys. Nomenclature follows WoRMS (2013)

Taxon	**Site**						
	LB04M	**AA08M**	**LS22M**	**SM14M**	**CS07M**	**ML01**	**ML02**
Leuconia nivea						R	
Mycale (Carmia) macilenta						P	
Polymastia boletiformis					P		
Amphilectus fucorum						R	
Amphilectus fucorum?							P
Halichondria (Halichondria) panicea						P	
Obelia dichotoma							P
Hydractinia echinata		P					
Campanulariidae sp.			P				
Bougainvillia sp.			P				
Virgularia mirabilis			O	O			
Cerianthus lloydii	O	P	P	O	O		
Actinia fragacea						O	
Anemonia viridis						F	
Urticina sp						P	
Maxmuelleria lankesteri	A	C	C	A			
Polychaeta casts			P				
Oxydromus flexuosus	P	P	R	O			
Arenicola marina						P	
Chaetopterus variopedatus			F	F		P	P
Terebellidae sp.		P			O		
Sabella pavonina							O
Spirobranchus spp.						F	P
Serpula vermicularis						P	P
Laeospira corallinae						A	
Janua pagenstecheri						P	
Caprellidae (small)						C	
Amphipoda indet.						A	
Monocorophium sextonae						P	P
Crangon sp.	P						
Callianassa subterranea	F	P	P	F	A		
Jaxea nocturna	P	F	P	P			
Calocaris macandreae	F		P				
Calocaris macandreae?		P		P			
Upogebia stellata?		P					
Pagurus bernhardus		P					
Nephrops norvegicus	C	C	C	C			
Carcinus maenas	O	O		P	P	O	O
Liocarcinus depurator	R	P		P			
Cancer pagurus	P						
Callochiton sp.?						P	P
Leptochiton asellus?						P	P
Margarites sp.						O	
Tectura virginea						F	
Littorina littorea						P	

Table 5.2 continued

Taxon	**Site**						
	LB04M	**AA08M**	**LS22M**	**SM14M**	**CS07M**	**ML01**	**ML02**
Testudinalia testudinalis						P	
Gibbula cineraria						O	
Doridacea *sp.* (white)						R	
Flabellina lineata			P				
Polycera quadrilineata							P
Thracia convexa?	P	P					
Monia sp.						P	
Aequipecten opercularis	R						F
Scrupocellaria scruposa			P				
Asterias rubens	F	F	F	C	C	C	C
Leptasterias (Leptasterias) muelleri						P	
Crossaster papposus	P						
Astropecten irregularis	O				F		P
Marthasterias glacialis							F
Crossaster papposus							P
Henricia sp.							P
Ophicomina nigra	R				A	S	S
Ophiocten affinis	F	P					
Ophiura sp.					F		
Amphiura chiajei	C	P	P				
Ophiothrix fragilis						A	S
Echinus esculentus							C
Holothuroidea sp.	R						
Ascidiella aspersa	O	O	P	P	A	P	O
Corella parallelogramma			O				P
Ascidia virginea							F
Ascidia mentula							P
Ciona intestinalis					P		P
Raja sp.					P		
Spinachia spinachia						P	
Pomatoschistus minutus	O	P			P		
Pomatoschistus minutus?			P	P			
Pomatoschistus pictus							P
Gobius niger	P	P	P	P			
Pholis gunnellus							P
Phymatolithon calcareum						A	
Lithothamnion glaciale						P	S
Corallina officinalis						S	R
Chylocladia verticillata						R	P
Bonnemaisonia hamifera						O	R
Chondrus crispus						R	
Phyllophora crispa							C
Corallinaceae pink crust						R	
Peyssonnelia dubyi						R	
Polyides rotunda							R
Ceramium pallidum						R	
Rhodomela confervoides						O	
Polysiphonia sp.						R	

Table 5.2 continued

Taxon	**Site**						
	LB04M	**AA08M**	**LS22M**	**SM14M**	**CS07M**	**ML01**	**ML02**
Polysiphonia elongata						R	O
Neosiphonia harveyi?						R	
Rhodophyceae red crust						P	
Dictyota dichotoma						A	P
Colpomenia peregrina						R	
Sargassum muticum						R	
Saccharina latissima						C	F
Halidrys siliquosa						F	F
Pseudolithoderma extensum						R	
Ectocarpus siliculosus						P	R
Sphacelaria sp.						P	R
Leathesia marina						A	
Chorda filum juv.?						O	
Myriocladia tomentosa?						R	
Asperococcus fistulosus						P	P
Stictyosiphon sp.							P
Cladostephus spongiosus						P	
Cutleria multifida							P
Ulva lactuca						R	
Spongomorpha aeruginosa						R	
Codium tomentosum							R
Ulvella setchellii							P

Table 5.3 Abundance of infauna recorded in each of four replicate 10.3 cm diameter cores taken from maerl beds at Taynish rapids (ML01) and Caol Scotnish (ML02). Nomenclature follows WoRMS (2013)

Taxon	**Site**	**ML01**				**ML02**			
	Replicate	**1**	**2**	**3**	**4**	**1**	**2**	**3**	**4**
Actiniaria spp indet			1						1
Edwardsia claparedii									
Platyhelminthes spp									
Nemertea spp							3	1	
Tubulanus polymorphus									
Cerebratulus sp							1		
Nematoda spp		1	2	2	1				
Sipuncula spp juv				1				1	
Golfingia (Golfingia) elongata									
Golfingia (Golfingia) vulgaris vulgaris									
Thysanocardia procera									
Siboglinum sp					1				
Polynoidae spp juv		2	3		3		1		
Polynoidae spp indet		1	1		4		1		
Harmothoe fragilis							1		
Harmothoe clavigera		1							
Malmgrenia andreapolis									
Harmothoe fernandi?		1							
Pholoe inornata				1	1				
Pholoe baltica			3	4	6			1	1
Phyllodocidae spp juv		1					2		
Eteone longa agg		1			2				
Eulalia sp indet							1		
Eulalia expusilla								1	
Eumida bahusiensis									
Nereiphylla rubiginosa							1		
Glycera alba									
Glycera lapidum agg		1	1	2				1	
Glycera unicornis									
Goniada maculata									
Sphaerodorum gracilis				1					
Podarkeopsis capensis						2			
Psamathe fusca		2	5		7				
Nereimyra punctata						1			
Oxydromus flexuosus									
Syllidia armata			1						
Eurysyllis tuberculata							1		
Syllis gracilis							3		
Syllis garciai?					9				
Trypanosyllis (Trypanosyllis) coeliaca		2		2				1	
Eusyllis blomstrandi									
Salvatoria clavata		10	21	2	1				
Exogone (Exogone) naidina				2		5	4	4	4
Sphaerosyllis hystrix							1		

Table 5.3 continued

Taxon	Site	ML01				ML02			
	Replicate	1	2	3	4	1	2	3	4
Sphaerosyllis taylori		108	106	51	31	1	8		
Alitta virens									
Platynereis dumerilii		3	2	3			1		
Nephtys spp juv							1		
Nephtys hombergii									
Nephtys kersivalensis				1	1	2	2	2	5
Nephtys incisa									
Nematonereis unicornis									
Lumbrineridae spp juv									
Lumbrineris cingulata /aniara									
Abyssoninoe hibernica									
Dorvillea rubrovittata						13	15	13	9
Protodorvillea kefersteini									
Leitoscoloplos mammosus									
Levinsenia gracilis									
Paradoneis lyra									1
Aonides oxycephala					2				
Polydora spp juv							1	1	1
Dipolydora coeca									
Prionospio fallax									
Prionospio cf *multibranchiata*									
Pseudopolydora cf *paucibranchiata*									
Scolelepis korsuni									
Spio sp		13	40	17	14	2		4	2
Paraspio decorata									
Spiophanes kroyeri									
Magelona alleni									
Magelona minuta								1	
Chaetopterus variopedatus									
Chaetozone setosa									
Cirratulus cirratus									1
Caulleriella killariensis									1
Monticellina sp									
Diplocirrus glaucus									
Pherusa plumosa								2	1
Capitella capitata agg		1		1					
Heteromastus filiformis							1		
Mediomastus fragilis		5	6	1	3	2			
Notomastus sp		14	2		29				
Arenicolidae spp juv				2					
Maldanidae spp juv		8	2	4			55	31	32
Euclymene sp A							1		
Euclymene lombricoides									
Euclymene oerstedi								1	
Praxillella affinis									
Rhodine sp									
Polyophthalmus pictus			1						
Scalibregma inflatum									

Table 5.3 continued

Taxon	Site	ML01				ML02			
	Replicate	1	2	3	4	1	2	3	4
Galathowenia oculata							1		
Pectinariidae spp indet									
Amphictene auricoma									
Lagis koreni									
Pectinaria (Pectinaria) belgica									
Ampharetidae sp juv									
Melinna sp juv									
Melinna palmata									
Ampharete finmarchica									
Terebellides stroemii									
Trichobranchus roseus									3
Eupolymnia nebulosa									1
Polycirrus sp									
Sabellidae spp juv							2		1
Fabricia sabella									5
Serpulidae spp indet		3	1	1					
Hydroides elegans				1					
Spirobranchus lamarcki			1	3					
Spirobranchus triqueter		1		2	1		1	1	
Spirorbinae spp		3	30	16					
Tubificoides amplivasatus						3			1
Tubificoides benedii		6	9	1	6				
Tubificoides pseudogaster		3							
Tubificoides swirencoides									
Enchytraeidae spp		1		4	1				
Grania sp					3				
Ostracoda spp			3						
Gammaridea spp juv									
Apherusa bispinosa									
Perioculodes longimanus									
Amphilochus manudens		8		3	5				
Leucothoe spinicarpa		1	7						
Harpinia crenulata		1							
Metaphoxus fultoni		4					1	1	
Lysianassa ceratina		92	43	65	42	3	2	10	4
Orchomenella nana			2						
Socarnes filicornis		14	1	8	12				
Iphimedia minuta									
Liljeborgia pallida		4		2	1				
Dexamine spinosa									
Dexamine thea									
Ampelisca brevicornis									
Ampelisca diadema									
Ampelisca tenuicornis									
Cheirocratus sp indet female		17	13	5	22		2	1	
Cheirocratus sundevalli		6	6	2	13		3	1	1
Othomaera othonis									
Ampithoe rubricata		2	95	1	19				

Table 5.3 continued

Taxon	Site	ML01				ML02			
	Replicate	1	2	3	4	1	2	3	4
Photis longicaudata									
Ischyroceridae sp indet									
Ericthonius sp indet female		9	12	21	25		1		
Ericthonius punctatus		4	4	1	11			1	
Jassa falcata		17	8	59	14				
Aoridae spp indet female		107	74	130	69		5	5	2
Lembos websteri		21	13	48	22				
Leptocheirus pectinatus		222	197	145	90				
Microdeutopus anomalus									
Microdeutopus versiculatus		113	107	144	107	6	7	9	3
Corophiidae spp indet		54	59	56	23	2			1
Corophium volutator									
Crassicorophium bonellii		191	103	99	79		1		2
Crassicorophium crassicorne						11	53	25	35
Monocorophium sextonae		261	338	221	156	8		1	1
Caprella acanthifera		28	14	26	12				
Phtisica marina		3	5						
Pseudoprotella phasma									
Jaera sp			1	17					
Munna sp		25	10	15	7		1		1
Tanaopsis graciloides						4	1	4	
Vaunthompsonia cristata									
Eudorella emarginata									
Eudorella truncatula									
Nannastacus unguiculatus			1						
Diastylis laevis									
Jaxea nocturna									
Leptochiton asellus			1			1			
Emarginula sp indet									
Tectura virginea				3		2			
Margarites helicinus		3							
Peringia ulvae									
Rissoa parva		1						1	
Alvania beanii		1							
Crisilla semistriata							1		
Manzonia crassa		1							
Onoba aculeus		3	3	1					
Bittium reticulatum		5	39	5	11			1	
Odostomia eulimoides		1							
Hyala vitrea									
Cylichna cylindracea									
Philine sp									
Berthella plumula									
Nucula nitidosa									
Nucula nucleus									
Mytilidae spp juv		3	1		1				
Musculus discors		27	3	10				2	
Modiolula phaseolina		1							

Table 5.3 continued

Taxon	Site	ML01				ML02			
	Replicate	1	2	3	4	1	2	3	4
Anomiidae spp juv		1					1		
Monia patelliformis		1							
Lucinoma borealis		3	2	4					
Myrtea spinifera									
Thyasira sp juv									
Thyasira flexuosa									
Hemilepton nitidum		1							
Kurtiella bidentata		8	4	2				1	
Cardiidae sp juv									
Parvicardium exiguum							1		
Phaxas pellucidus									
Abra spp juv				1					
Abra alba									
Abra nitida									
Dosinia sp juv									
Dosinia exoleta									
Tapes sp juv		1							
Polititapes virgineus				1	1				1
Chamelea sp juv									
Timoclea ovata		4	2		1	1	2		1
Mysia undata									
Turtonia minuta		23	6	13	4				
Mya sp juv							2		
Corbula gibba									
Hiatella arctica		6	3	2	1		1	2	
Saxicavella jeffreysi									
Thracia sp juv									1
Thracia convexa									
Thracia villosiuscula					1				
Phoronis sp									
Asteroidea spp juv		7	21	12	15				
Astropecten irregularis									
Asterias rubens		4	2	3	3	1			1
Ophiuroidea spp juv		24	29	24	12	11	3	5	5
Ophiuroidea sp indet									
Ophiothrix fragilis								1	4
Ophiocomina nigra		37	41	33	10	7	6	6	12
Amphiura chiajei									
Amphiura filiformis									
Amphipholis squamata		116	48	51	34	1	9	2	8
Parechinidae sp juv									
Echinocardium cordatum									
Cucumariidae sp juv									
Synaptidae sp indet									
Leptosynapta decaria?							1		
Leptosynapta bergensis									
Leptosynapta cruenta				1					
Chaetognatha sp									

Table 5.4 Community descriptors for all core samples (area 83 cm^2) from MNCR phase 2 maerl *transects. Diversity indices include the Shannon-Wiener function using* log_e (H'_e) and log_2 (H'_2) and Peliou's evenness index (J')

Core	Abundance (no./core)	No. taxa	H'_e	H'_2	J'
ML01.1	1678	60	2.74	3.95	0.68
ML01.2	1559	50	2.60	3.74	0.69
ML01.3	1359	54	2.69	3.88	0.70
ML01.4	949	44	2.80	4.03	0.76
ML02.1	89	20	2.65	3.82	0.88
ML02.2	213	38	2.55	3.69	0.72
ML02.3	145	32	2.78	4.01	0.81
ML02.4	153	32	2.67	3.85	0.78

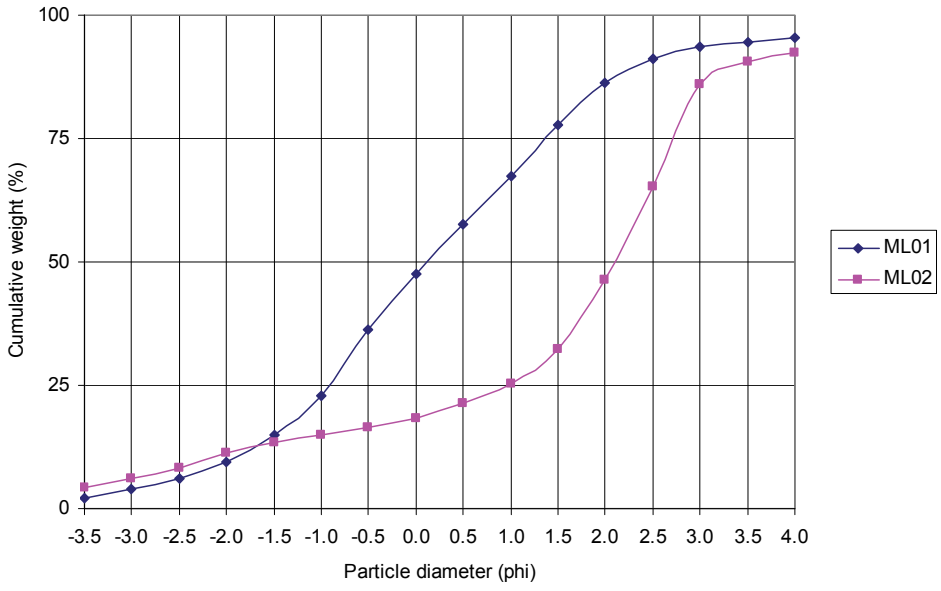
Table 5.5 Particle size characteristics of sediment sampled from MNCR phase 2 maerl *transects. $MD_{ø}$ = median grain diameter in phi units, $Md_{µ}$ = median grain diameter in microns, $QD_{ø}$ = phi quartile deviation*

Site	$MD_{ø}$	$MD_{µ}$	$QD_{ø}$	% silt/clay	% sand	% gravel	% fine sand	% medium sand	% coarse sand
ML01	0.11	927	1.13	4.67	86.01	9.32	9.01	38.72	38.28
ML02	2.10	233	0.88	7.71	81.02	11.27	46.04	27.94	7.03

Table 5.6 Percentage of total sediment sample collected by sieves at 0.5 phi interval mesh sizes for MNCR phase 2 maerl *transect sites*

Sieve (phi)	ML01	ML02
-3.5	2.27	4.40
-3.0	1.77	1.81
-2.5	2.10	2.14
-2.0	3.18	2.91
-1.5	5.49	2.22
-1.0	7.99	1.44
-0.5	13.51	1.51
0.0	11.29	1.87
0.5	10.17	2.98
1.0	9.59	4.14
1.5	10.52	6.92
2.0	8.44	13.90
2.5	4.72	19.14
3.0	2.67	20.72
3.5	0.93	4.58
4.0	0.70	1.61
>4.0	4.67	7.71

Figure 5.1 Cumulative weight of sediment retained on sieves at 0.5 phi intervals for MNCR phase 2 maerl *transect sites*



APPENDIX 6: *OSTREA EDULIS* DATA

Table 6.1 Details (principally location and and temporal data) for oyster transects worked in the Loch Sween system. Divers are MC (Morven Carruthers), LK (Lisa Kamphausen), SH (Suzanne Henderson), BJ (Ben James), LC (Laura Clark), WS (Bill Sanderson)

Tran-sect	Date	Diver	Start time (BST)	End time (BST)	Diver bearing (°M)	Transect length (m)
O1	21/04/2013	MC	11:03	11:38	349	40.3
O2	21/04/2013	LK	09:18	09:52	29	108.9
O3	18/04/2013	SH	13:32	13:53	225	46.8
O4	18/04/2013	SH	10:38	11:16	19	86.2
O5	17/04/2013	BJ	16:01	16:25	200	127
O6	17/04/2013	SH	14:50	15:26	207	81
O7	18/04/2013	LC	09:37	10:06	25	59.7
O8	18/04/2013	BJ	12:31	13:04	212	164.5
O9	18/04/2013	BJ	15:07	15:26	210	90.7
O10	17/04/2013	WS	11:02	11:38	27	84.8
O11	17/04/2013	WS	12:01	12:26	224	108.7

Table 6.2 Depth and biological data for the oyster transects worked in the Loch Sween system.

Tran-sect	Start depth BCD (m)	End depth BCD (m)	Habitat	Oyster count	Oyster density (no. m^{-2})
O1	-0.1	-0.1	Pebbles and cobbles on gravelly sand with algae. Occasional boulders. Patches of sand	134	3.33
O2	1.6	0.6	Patches of bedrock and sandy mud. Oysters often attached to bedrock in clusters of 5-8, with serpulids on them. *Ophiocomina* on rocks and surrounding muddy sand	84	0.77
O3	0.5	1.0	Mainly pebbles, with patchy boulders and cobbles, becoming fewer pebbles at end of transect and more muddy sand but with less dense oysters. Very large empty oyster shells throughout, patchy *Arenicola* towards end. *Ophiocomina*, *Psammechinus*, littorinids, brown algae, *Mya*	136	2.91
O4	0.7		Mainly muddy sand with common dead oyster shells; patchy rocks (with occasional serpulids) and cobbles. Seagrass to seaward side, with some patches in transect. Some patches of soft mud with *Arenicola*. Lots of oysters of all sizes including small. Cockles, one ear scallops, serpulids, ascidians, *Mytilus*, fucoids, green ascidian blobs?, tiny bryozoans all over some boulders, *Asperococcus*, *Codium*	502	5.82
O5	0.6	0.6	Boulders and cobbles demarking lower edge of gentle slope from harder marginal substrates with pebbles and sand and softer *Arenicola* and *Zostera* habitats in deeper water. Shell debris accumulations - ~88cm below SL. Scattered *Mytilus* and freshwater influence. Aggregations of oysters including smallers individuals. Man-made posts in sediment in places. One *Crassostrea* shell and ?one live. Patches of seagrass (?*Z. noltii* in this shallower area before larger *Zostera* plants in deeper part of the loch	170	1.34
O6	0.7	1.0	Lots of boulders and cobbles with fine silt, with patches of muddy sand. *Sargassum*, serpulids, hedgehog stones, occasional dead oyster shells cemented to boulders and in sediment, many housing ascidians, terebellids.	19	0.23
O7	0.5	0.7	Seagrass, oysters, sandy, *Mytilus*, one eared scallops, ascidians, top shells, serpulids, *Ophiocomina*, cobbles, pebbles, and patchy boulders. No oysters at end of transect	98	1.64
O8	0.6		Bedrock and boulder slope with few areas of sediment, then onto seagrass, ascidians and *Mytilus*, spirorbids, littorinids, *Mya*, *Trailliella*?	88	0.53
O9	0.3	0.4	Shallow seagrass bed with scattered oysters, gravel patches, boulders; muddy in deeper water. *Psammechinus*, nudibranch, *Codium*, serpulid reef skeleton	153	1.69
O10	0.5	0.8	Muddy gravel with occasional cobbles. Some *Sargassum*	106	1.25
O11	0.6	0.4	Muddy gravel with small boulders, *Sargassum*, *Codium*	142	1.31

Table 6.3 Heights of Ostrea edulis *(mm) measured along 11 transects in the Loch Sween system*

Transect											
O1	**O2**	**O3**	**O4**	**O5**	**O6**	**O7**	**O8**	**O9**	**O10**	**O10**	**O11**
105	89	65	72	47	78	56	75	36	97	70	91
98	95	46	44	62	52	74	70	72	80	69	78
86	88	80	46	66	90	79	103	94	79	80	64
84	97	70	83	75	76	68	65	87	81	85	75
65	60	62	36	75	84	64	68	92	38	34	59
91	85	55	86	69	83	64	90	68	49	87	76
74	107	69	95	73		85	70	45	79	65	82
88	84	66	67	74		110	76	67	75	70	40
97	49	66	64	79		96	93	80	94	77	74
104	64	56	48	80		76	42	64	99	81	63
98	97	78	81			34	38	60	51	87	52
99	65	55	79			72	39	42	72	61	91
98	107	88	68			10	55	34	57	68	111
89	96	65	85			93	85	72	98	100	100
	95	91	76			86	78	68	33	97	59
	104	85	49			98	86	35	53	89	90
	103	84	65			81	52	92	65	91	116
	110	82	86					55	84	100	60
	40	95	88					56	50	89	91
	110	80	74					76	111	104	75
	119	84	68						61	81	56
	111	96	102						95	65	88
	90	88	44						91	76	94
	54	70	98						79	84	59
	74	53							90	75	59
	94	95							95	80	71
	108								78	104	113
	68								79	70	61
	92								40	100	92
	82								59	84	94
	96								78	112	61
	84								108		64
	79								71		79
	40								100		60
	64								74		88
	82								106		75
	87								112		64
									134		68
									98		50
									140		80
									66		82
									88		86
									39		130

APPENDIX 7: BIOTOPE INVENTORIES

Table 7.1 Proposed protected features recorded during the current survey with illustrative photograph or video frame grab. Italicised sites indicate provenance of image

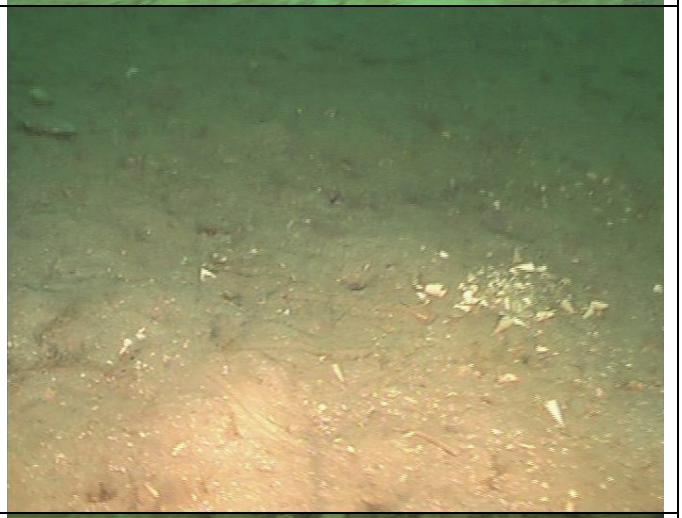
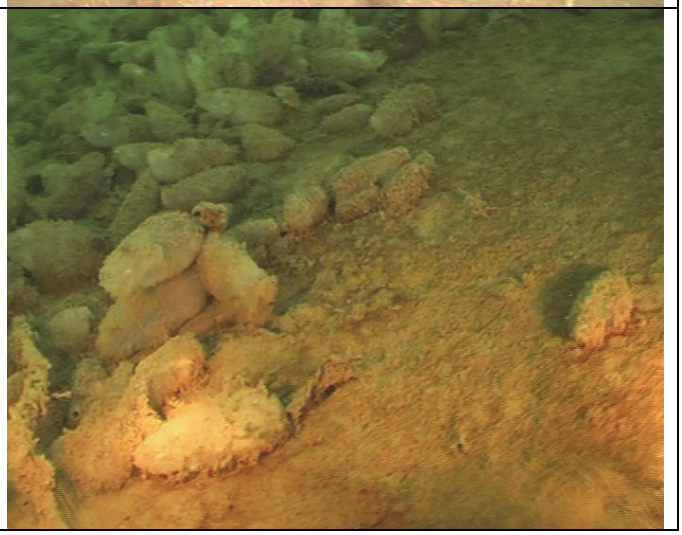
Feature and stes	Photograph
SUBLITTORAL MUD AND MIXED SEDIMENT COMMUNITIES **SS.SMu.ISaMu** (Infralittoral sandy mud) *OS19*	
SUBLITTORAL MUD AND MIXED SEDIMENT COMMUNITIES **SS.SMu.ISaMu.MelMagThy** (*Melinna palmata* with *Magelona* spp. and *Thyasira* spp. in infralittoral sandy mud) *LS29*, LS30, LS31, LS33, LS34	
SUBLITTORAL MUD AND MIXED SEDIMENT COMMUNITIES **SS.SMu.ISaMu.SundAasp** (*Sagartiogeton undatus* and *Ascidiella aspersa* on infralittoral sandy mud) AA01, CS01, CS02, CS03, *CS04*, LB01, LB02, LB03, LM02, LM03, LM04, LM06, SM01	

Table 7.1 continued

Search feature and stes	Photograph
SUBLITTORAL MUD AND MIXED SEDIMENT COMMUNITIES **SS.SMu.IFiMu.Beg** (*Beggiatoa* spp. on anoxic sublittoral mud) *LM05*	
BURROWED MUD **SS.SMu.CFiMu.SpnMeg** (Seapens and burrowing megafauna in circalittoral fine mud) *OS18*	
BURROWED MUD **SS.SMu.CFiMu.MegMax** (Burrowing megafauna and *Maxmuelleria lankesteri* in circalittoral mud) AA04, AA05, AA06, AA07, AA08, AA09, AA10, AA11, AA12, AA13, AA14, AA15, CS05, CS06, CS07, LB04, LB05, LB06, LS01, LS02, LS03, LS04, LS05, LS06, LS07, LS08, LS09, LS11, LS12, LS13, LS14, LS15, LS16, LS17, LS18, LS19, LS20, LS21, LS22, LS23, LS24, LS25, LS26, LS27, LS28, SM02, SM03, SM04, *SM05*, SM06, SM07, SM08, SM09, SM10, SM11, SM12, SM13, SM14, LB04M, SM14M, AA08M, LS22M, CS07M	

Table 7.1 continued

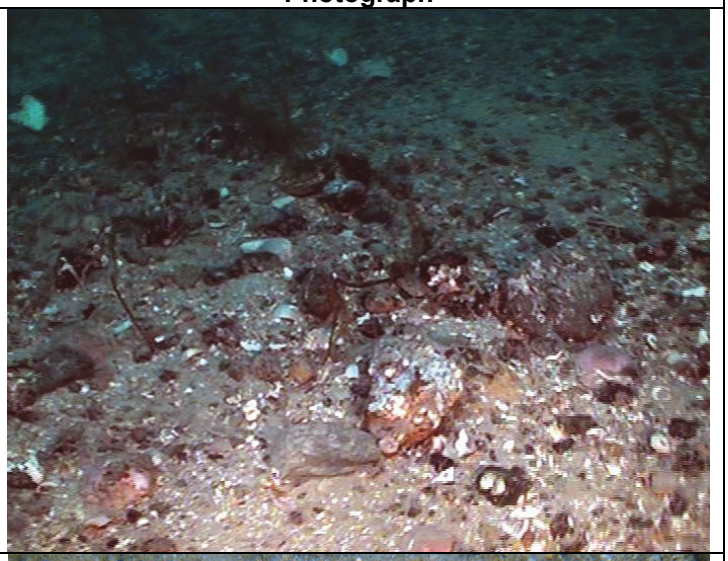
Search feature and stes	Photograph
SUBLITTORAL MUD AND MIXED SEDIMENT COMMUNITIES **SS.SMx.IMx** (Infralittoral mixed sediment) LS32, *OS21*	
NATIVE OYSTERS **SS.SMx.IMx.Ost** (*Ostrea edulis* beds on shallow sublittoral muddy mixed sediment) O1, *O3*, O4, O5, O7, O9, O10, O11	
NATIVE OYSTERS *Ostrea edulis* O1, O2, *O3*, O4, O5, O6, O7, O8, O9, O10, O11, TB2.1	

Table 7.1 continued

Search feature and stes	Photograph
SUBLITTORAL MUD AND MIXED SEDIMENT COMMUNITIES **SS.SMx.CMx** (Circalittoral mixed sediment) OS06, *OS08*	
SUBLITTORAL MUD AND MIXED SEDIMENT COMMUNITIES **SS.SMx.CMx.FluHyd** (*Flustra foliacea* and *Hydrallmania falcata* on tide-swept circalittoral mixed sediment) OS03, OS07, OS09, OS10, *OS11*, OS14, OS15, OS17	
SUBLITTORAL MUD AND MIXED SEDIMENT COMMUNITIES **SS.SMx.CMx.OphMx** (*Ophiothrix fragilis* and/or *Ophiocomina nigra* brittlestar beds on sublittoral mixed sediment *OS03*, OS11	

Table 7.1 continued

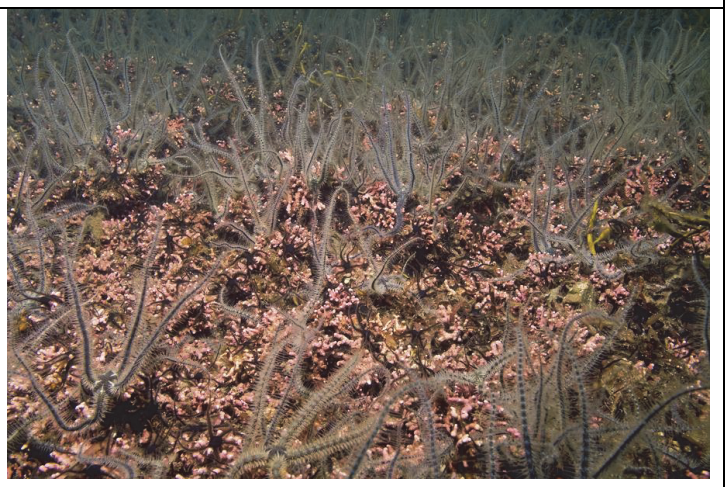
MAERL BEDS **SS.SMp.Mrl.Pcal.R** (*Phymatolithon calcareum* maerl beds with red seaweeds in shallow infralittoral clean gravel or coarse sand) *ML01*, TA.4, TB.3, TB2.1, TB2.2, TC.3, TC.6, TC.7, TD.2, TD.3, TE.4, TE.5, TE.6, TF.1, TF.2, TF.3, TG.4, TH.1, TJ.4, TJ.5, TJ.6, TJ.7, TJ.8, TK.2, TK.3, TK.4, TK.5, TL.2, TL.3, TM.1, TN.1, TN.2, TN.4, TN.5, TO.4, TP.2, TP.3, TQ.3, TQ.4, TR.3, TR.4, TR.5, TS.2, TS.3, TS.4, TT.4, TT.5	
MAERL BEDS **SS.SMp.Mrl.Lgla** (*Lithothamnion glaciale* maerl beds in tide-swept variable salinity infralittoral gravel) CSE2.2, CSE2.4, CSE2.5, CSE2.7, CSF.2, CSF.3, CSF.5, CSF.6, CSF.7, CSF.8, CSF.9, CSF.10, CSG.3, CSG.4, CSG.5, CSG.6, CSH.3, CSH.4, CSH.5, CSI.2, CSI.3, CSJ.2, CSJ.3, CSJ.4, CSK.2, CSK.3, CSL.2, CSL.3, CSL.4, CSM.3, CSM.4, CSM.5, CSN.2, CSN.3, CSN.4, CSO.2, CSO.3, CSO.4, CSP.4, *ML02*	

Table 7.2 Non- proposed protected feature biotopes recorded during the current survey with illustrative photograph or video frame grab. Priority Marine Features (PMFs) highlighted in green. Italicised sites indicate provenance of image.

Biotope and stes	Photograph
IR.HIR.KSed (Sand or gravel-affected or disturbed kelp and seaweed communities) *OS12*, OS22	
IR.HIR.KSed.XKScrR (Mixed kelps with scour-tolerant and opportunistic foliose red seaweeds on scoured or sand-covered infralittoral rock) *OS01*, OS02, OS04, OS20	
CR.MCR.EcCr.FaAlCr.Adig (*Alcyonium digitatum*, *Pomatoceros triqueter*, algal and bryozoan crusts on wave-exposed circalittoral rock) *OS16*	

Table 7.2 continued

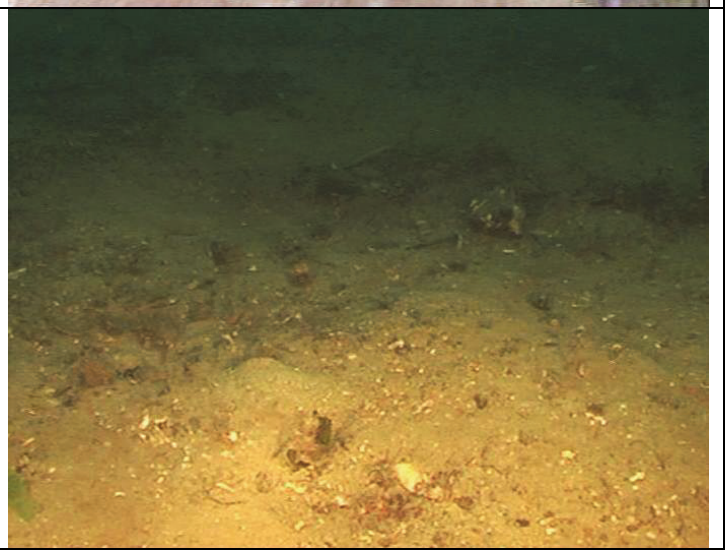
Biotope and stes	Photograph
CR.LCR.BrAs.AmenCio (Solitary ascidians, including *Ascidia mentula* and *Ciona intestinalis*, on wave-sheltered circalittoral rock) *SM12*	
CR.LCR.BrAs.AmenCio.Bri (Dense brittlestars with sparse *Ascidia mentula* and *Ciona intestinalis* on sheltered circalittoral mixed substrata) *LS04*	
SS.SSa.IFiSa (Infralittoral fine sand) *OS20*	

Table 7.2 continued

Biotope and stes	Photograph
SS.SSa.CFiSa (Circalittoral fine sand) *OS05*	
SS.SSa.CMuSa (Circalittoral muddy sand) *OS13*	
SS.SMu.CFiMu (Circalittoral fine mud) AA02, AA03, *LS10*	

Table 7.2 continued

Biotope and stes	Photograph
KELP AND SEAWEED COMMUNITIES ON SUBLITTORAL SEDIMENT **SS.SMp.KSwSS.LsacR** (*Laminaria saccharina* and red seaweeds on infralittoral sediments) *OS01*, OS04	
SEAGRASS BEDS **SS.SMp.SSgr.Zmar** (*Zostera marina/angustifolia* beds on lower shore or infralittoral clean or muddy sand) *LM01*, LM02, O4, O5, O7, O8, O9	

APPENDIX 8: IMAGE LOGS

Table 8.1 Digital still photographic log showing details of photographs taken during the 2013 survey and logged with Scottish Natural Heritage. Files are tifs with the extensions 'tif', apart from surface shots, which are jpegs (extension 'jpg'). All filenames are preceded by the trunk SNH_SWEEN_2013_'. Photographers (Phot) are Graham Saunders (GS)

File name	Date	Site code	Position	Lens	Habitat	Description	Phot
DSCF2429	18/04/2013	AA08M	56.01224 -5.58341	20mm	*Maxmuelleria* burrowed mud	*Maxmuelleria* mounds	GS
DSCF2430	18/04/2013	AA08M	56.01224 -5.58341	20mm	*Maxmuelleria* burrowed mud	*Maxmuelleria* mounds	GS
DSCF2431	18/04/2013	AA08M	56.01224 -5.58341	20mm	*Maxmuelleria* burrowed mud	*Maxmuelleria* mounds	GS
DSCF2432	18/04/2013	AA08M	56.01224 -5.58341	20mm	*Maxmuelleria* burrowed mud	*Maxmuelleria* mounds	GS
DSCF2433	18/04/2013	AA08M	56.01224 -5.58341	20mm	*Maxmuelleria* burrowed mud	*Maxmuelleria* mounds	GS
DSCF2434	18/04/2013	AA08M	56.01224 -5.58341	20mm	*Maxmuelleria* burrowed mud	*Maxmuelleria* mounds	GS
DSCF2435	18/04/2013	AA08M	56.01224 -5.58341	20mm	*Maxmuelleria* burrowed mud	*Maxmuelleria* mounds	GS
DSCF2436	18/04/2013	AA08M	56.01224 -5.58341	20mm	*Maxmuelleria* burrowed mud	*Maxmuelleria* mounds	GS
DSCF2437	18/04/2013	AA08M	56.01224 -5.58341	20mm	*Maxmuelleria* burrowed mud	*Maxmuelleria* mounds	GS
DSCF2438	18/04/2013	AA08M	56.01224 -5.58341	20mm	*Maxmuelleria* burrowed mud	*Maxmuelleria* mounds	GS
DSCF2439	18/04/2013	AA08M	56.01224 -5.58341	20mm	*Maxmuelleria* burrowed mud	*Maxmuelleria* mounds	GS
DSCF2440	18/04/2013	AA08M	56.01224 -5.58341	20mm	*Maxmuelleria* burrowed mud	*Maxmuelleria lankesteri* proboscis trace	GS
DSCF2443	18/04/2013	AA08M	56.01224 -5.58341	20mm	*Maxmuelleria* burrowed mud	*Maxmuelleria lankesteri* proboscis trace	GS
DSCF2444	18/04/2013	AA08M	56.01224 -5.58341	20mm	*Maxmuelleria* burrowed mud	*Maxmuelleria lankesteri* proboscis trace	GS
DSCF2448	18/04/2013	AA08M	56.01224 -5.58341	20mm	*Maxmuelleria* burrowed mud	*Maxmuelleria* mounds	GS
DSCF2449	18/04/2013	AA08M	56.01224 -5.58341	20mm	*Maxmuelleria* burrowed mud	Megafaunal burrows	GS
DSCF3115	18/04/2013	AA08M	56.01224 -5.58341	60mm macro	*Maxmuelleria* burrowed mud	*Oxydromus flexuosus*	GS
DSCF3116	18/04/2013	AA08M	56.01224 -5.58341	60mm macro	*Maxmuelleria* burrowed mud	*Oxydromus flexuosus*	GS
DSCF3118	18/04/2013	AA08M	56.01224 -5.58341	60mm macro	*Maxmuelleria* burrowed mud	*Oxydromus flexuosus*	GS
DSCF3120	18/04/2013	AA08M	56.01224 -5.58341	60mm macro	*Maxmuelleria* burrowed mud	*Cerianthus lloydii*	GS

Table 8.1 continued

File name	Date	Site code	Position	Lens	Habitat	Description	Phot
DSCF3382	23/04/2013	AA08M	56.01224 -5.58341	60mm macro	*Maxmuelleria* burrowed mud	*Maxmuelleria* mound with *Pagurus bernhardus* and *Chaetopterus variopedatus* tube	GS
DSCF3383	23/04/2013	AA08M	56.01224 -5.58341	60mm macro	*Maxmuelleria* burrowed mud	*Maxmuelleria* mound with *Pagurus bernhardus* and *Chaetopterus variopedatus* tube	GS
DSCF3384	23/04/2013	AA08M	56.01224 -5.58341	60mm macro	*Maxmuelleria* burrowed mud	*Maxmuelleria* mound with *Pagurus bernhardus* and *Chaetopterus variopedatus* tube	GS
DSCF3386	23/04/2013	AA08M	56.01224 -5.58341	60mm macro	*Maxmuelleria* burrowed mud	Megafaunal burrow	GS
DSCF3387	23/04/2013	AA08M	56.01224 -5.58341	60mm macro	*Maxmuelleria* burrowed mud	Terebellid tentacles	GS
DSCF3388	23/04/2013	AA08M	56.01224 -5.58341	60mm macro	*Maxmuelleria* burrowed mud	Terebellid tentacles	GS
DSCF3389	23/04/2013	AA08M	56.01224-5.58341	60mm macro	*Maxmuelleria* burrowed mud	Terebellid tentacles	GS
DSCF3390	23/04/2013	AA08M	56.01224 -5.58341	60mm macro	*Maxmuelleria* burrowed mud	Terebellid tentacles	GS
DSCF3391	23/04/2013	AA08M	56.01224 -5.58341	60mm macro	*Maxmuelleria* burrowed mud	Terebellid tentacles	GS
DSCF3392	23/04/2013	AA08M	56.01224 -5.58341	60mm macro	*Maxmuelleria* burrowed mud	Megafaunal burrow	GS
DSCF3393	23/04/2013	AA08M	56.01224 -5.58341	60mm macro	*Maxmuelleria* burrowed mud	Megafaunal burrow	GS
DSCF3394	23/04/2013	AA08M	56.01224 -5.58341	60mm macro	*Maxmuelleria* burrowed mud	*Gobius niger*? In burrow	GS
DSCF3395	23/04/2013	AA08M	56.01224 -5.58341	60mm macro	*Maxmuelleria* burrowed mud	*Gobius niger*? In burrow	GS
DSCF3396	23/04/2013	AA08M	56.01224 -5.58341	60mm macro	*Maxmuelleria* burrowed mud	*Gobius niger*? In burrow	GS
DSCF3397	23/04/2013	AA08M	56.01224 -5.58341	60mm macro	*Maxmuelleria* burrowed mud	*Maxmuelleria lankesteri* proboscis trace?	GS
DSCF3398	23/04/2013	AA08M	56.01224 -5.58341	60mm macro	*Maxmuelleria* burrowed mud	*Maxmuelleria lankesteri* proboscis trace?	GS
DSCF3399	23/04/2013	AA08M	56.01224 -5.58341	60mm macro	*Maxmuelleria* burrowed mud	*Maxmuelleria lankesteri* proboscis trace?	GS
DSCF3400	23/04/2013	AA08M	56.01224 -5.58341	60mm macro	*Maxmuelleria* burrowed mud	Cerianthus lloydii	GS
DSCF3401	23/04/2013	AA08M	56.01224 -5.58341	60mm macro	*Maxmuelleria* burrowed mud	Megafaunal burrow	GS
DSCF3402	23/04/2013	AA08M	56.01224 -5.58341	60mm macro	*Maxmuelleria* burrowed mud	Megafaunal burrow	GS
DSCF3403	23/04/2013	AA08M	56.01224 -5.58341	60mm macro	*Maxmuelleria* burrowed mud	Ascidiella aspersa on mud	GS
DSCF3404	23/04/2013	AA08M	56.01224 -5.58341	60mm macro	*Maxmuelleria* burrowed mud	Megafaunal burrow	GS
DSCF3406	23/04/2013	AA08M	56.01224 -5.58341	60mm macro	*Maxmuelleria* burrowed mud	*Ophiocten affinis*	GS

Table 8.1 continued

File name	Date	Site code	Position	Lens	Habitat	Description	Phot
DSCF3407	23/04/2013	AA08M	56.01224 -5.58341	60mm macro	*Maxmuelleria* burrowed mud	*Ophiocten affinis*	GS
DSCF3409	23/04/2013	AA08M	56.01224 -5.58341	60mm macro	*Maxmuelleria* burrowed mud	Megafaunal mound apex	GS
DSCF3410	23/04/2013	AA08M	56.01224 -5.58341	60mm macro	*Maxmuelleria* burrowed mud	Megafaunal mound apex	GS
DSCF3411	23/04/2013	AA08M	56.01224 -5.58341	60mm macro	*Maxmuelleria* burrowed mud	Megafaunal burrow	GS
DSCF3414	23/04/2013	AA08M	56.01224 -5.58341	60mm macro	*Maxmuelleria* burrowed mud	*Gobius niger*	GS
DSCF3415	23/04/2013	AA08M	56.01224 -5.58341	60mm macro	*Maxmuelleria* burrowed mud	*Gobius niger*	GS
DSCF3416	23/04/2013	AA08M	56.01224 -5.58341	60mm macro	*Maxmuelleria* burrowed mud	*Gobius niger*	GS
DSCF3417	23/04/2013	AA08M	56.01224 -5.58341	60mm macro	*Maxmuelleria* burrowed mud	*Gobius niger*	GS
DSCF3418	23/04/2013	AA08M	56.01224 -5.58341	60mm macro	*Maxmuelleria* burrowed mud	*Gobius niger*	GS
DSCF3420	23/04/2013	AA08M	56.01224 -5.58341	60mm macro	*Maxmuelleria* burrowed mud	*Gobius niger*	GS
DSCF3421	23/04/2013	AA08M	56.01224 -5.58341	60mm macro	*Maxmuelleria* burrowed mud	Megafaunal burrow	GS
DSCF3422	23/04/2013	AA08M	56.01224 -5.58341	60mm macro	*Maxmuelleria* burrowed mud	*Liocarcinus depurator*	GS
DSCF3423	23/04/2013	AA08M	56.01224 -5.58341	60mm macro	*Maxmuelleria* burrowed mud	Megafaunal burrow	GS
DSCF3424	23/04/2013	AA08M	56.01224 -5.58341	60mm macro	*Maxmuelleria* burrowed mud	Megafaunal burrow	GS
DSCF3425	23/04/2013	AA08M	56.01224 -5.58341	60mm macro	*Maxmuelleria* burrowed mud	Megafaunal burrow	GS
DSCF3426	23/04/2013	AA08M	56.01224 -5.58341	60mm macro	*Maxmuelleria* burrowed mud	Megafaunal burrow	GS
DSCF3427	23/04/2013	AA08M	56.01224 -5.58341	60mm macro	*Maxmuelleria* burrowed mud	Megafaunal burrow	GS
DSCF3428	23/04/2013	AA08M	56.01224 -5.58341	60mm macro	*Maxmuelleria* burrowed mud	Megafaunal burrow	GS
DSCF3429	23/04/2013	AA08M	56.01224 -5.58341	60mm macro	*Maxmuelleria* burrowed mud	Megafaunal burrow	GS
DSC_0379	23/04/2013	AA08M	56.01224 -5.58341	17mm Wide-angle	*RV Serpula*	Anchor dredging	GS
DSC_0380	23/04/2013	AA08M	56.01224 -5.58341	17mm Wide-angle	*RV Serpula*	Anchor dredging	GS
DSC_0381	23/04/2013	AA08M	56.01224 -5.58341	17mm Wide-angle	*RV Serpula*	Anchor dredging	GS
DSC_0382	23/04/2013	AA08M	56.01224 -5.58341	17mm Wide-angle	*RV Serpula*	Anchor dredging	GS

Table 8.1 continued

File name	Date	Site code	Position	Lens	Habitat	Description	Phot
DSC_0383	23/04/2013	AA08M	56.01224 -5.58341	17mm Wide-angle	*RV Serpula*	Anchor dredging	GS
DSC_0384	23/04/2013	AA08M	56.01224 -5.58341	17mm Wide-angle	*RV Serpula*	Anchor dredging	GS
DSC_0385	23/04/2013	AA08M	56.01224 -5.58341	17mm Wide-angle	*RV Serpula*	Anchor dredging	GS
DSC_0386	23/04/2013	AA08M	56.01224 -5.58341	17mm Wide-angle	*RV Serpula*	Anchor dredging	GS
DSC_0387	23/04/2013	AA08M	56.01224 -5.58341	17mm Wide-angle	*RV Serpula*	Anchor dredging	GS
DSC_0388	23/04/2013	AA08M	56.01224 -5.58341	17mm Wide-angle	*RV Serpula*	Anchor dredging	GS
DSC_0389	23/04/2013	AA08M	56.01224 -5.58341	17mm Wide-angle	*RV Serpula*	Anchor dredging	GS
DSC_0390	23/04/2013	AA08M	56.01224 -5.58341	17mm Wide-angle	*RV Serpula*	Anchor dredging	GS
DSC_0391	23/04/2013	AA08M	56.01224 -5.58341	17mm Wide-angle	*RV Serpula*	Anchor dredging	GS
DSC_0392	23/04/2013	AA08M	56.01224 -5.58341	17mm Wide-angle	*RV Serpula*	Anchor dredging	GS
DSC_0393	23/04/2013	AA08M	56.01224 -5.58341	17mm Wide-angle	*RV Serpula*	Anchor dredging	GS
DSC_0394	23/04/2013	AA08M	56.01224 -5.58341	17mm Wide-angle	*RV Serpula*	Anchor dredging	GS
DSC_0395	23/04/2013	AA08M	56.01224 -5.58341	17mm Wide-angle	*RV Serpula*	Anchor dredging	GS
DSC_0396	23/04/2013	AA08M	56.01224 -5.58341	17mm Wide-angle	*RV Serpula*	Anchor dredging	GS
DSC_0397	23/04/2013	AA08M	56.01224 -5.58341	17mm Wide-angle	*RV Serpula*	Anchor dredging	GS
DSC_0398	23/04/2013	AA08M	56.01224 -5.58341	17mm Wide-angle	*RV Serpula*	Anchor dredging	GS
DSC_0399	23/04/2013	AA08M	56.01224 -5.58341	17mm Wide-angle	*RV Serpula*	Anchor dredging	GS
DSC_0400	23/04/2013	AA08M	56.01224 -5.58341	17mm Wide-angle	*RV Serpula*	Anchor dredging	GS

Table 8.1 continued

File name	Date	Site code	Position	Lens	Habitat	Description	Phot
DSC_0401	23/04/2013	AA08M	56.01224 -5.58341	17mm Wide-angle	*RV Serpula*	Anchor dredging	GS
DSC_0402	23/04/2013	AA08M	56.01224 -5.58341	17mm Wide-angle	*RV Serpula*	Anchor dredging	GS
DSC_0403	23/04/2013	AA08M	56.01224 -5.58341	17mm Wide-angle	*RV Serpula*	Anchor dredging	GS
DSC_0404	23/04/2013	AA08M	56.01224 -5.58341	17mm Wide-angle	*RV Serpula*	Anchor dredging	GS
DSC_0405	23/04/2013	AA08M	56.01224 -5.58341	17mm Wide-angle	*RV Serpula*	Anchor dredging	GS
DSC_0406	23/04/2013	AA08M	56.01224 -5.58341	17mm Wide-angle	*RV Serpula*	Anchor dredging	GS
DSC_0407	23/04/2013	AA08M	56.01224 -5.58341	17mm Wide-angle	*RV Serpula*	Anchor dredging	GS
DSC_0408	23/04/2013	AA08M	56.01224 -5.58341	17mm Wide-angle	*RV Serpula*	Anchor dredging	GS
DSC_0409	23/04/2013	AA08M	56.01224 -5.58341	17mm Wide-angle	*RV Serpula*	Anchor dredging	GS
DSC_0410	23/04/2013	AA08M	56.01224 -5.58341	17mm Wide-angle	*RV Serpula*	Anchor dredging	GS
DSC_0411	23/04/2013	AA08M	56.01224 -5.58341	17mm Wide-angle	*RV Serpula*	Anchor dredging	GS
DSC_0412	23/04/2013	AA08M	56.01224 -5.58341	17mm Wide-angle	*RV Serpula*	Anchor dredging	GS
DSC_0413	23/04/2013	AA08M	56.01224 -5.58341	17mm Wide-angle	*RV Serpula*	Anchor dredging	GS
DSC_0414	23/04/2013	AA08M	56.01224 -5.58341	17mm Wide-angle	*RV Serpula*	Anchor dredging	GS
DSC_0415	23/04/2013	AA08M	56.01224 -5.58341	17mm Wide-angle	*RV Serpula*	Anchor dredging	GS
DSC_0416	23/04/2013	AA08M	56.01224 -5.58341	17mm Wide-angle	*RV Serpula*	Anchor dredging	GS
DSCF3076	17/04/2013	LB04M	56.02095 -5.61759	60mm macro	*Maxmuelleria* burrowed mud	*Ophiocten affinis*	GS
DSCF3077	17/04/2013	LB04M	56.02095 -5.61759	60mm macro	*Maxmuelleria* burrowed mud	*Ophiocten affinis*	GS
DSCF3078	17/04/2013	LB04M	56.02095 -5.61759	60mm macro	*Maxmuelleria* burrowed mud	*Ophiocten affinis*	GS

Table 8.1 continued

File name	Date	Site code	Position	Lens	Habitat	Description	Phot
DSCF3082	17/04/2013	LB04M	56.02095 -5.61759	60mm macro	*Maxmuelleria* burrowed mud	Juvenile *Asterias rubens*	GS
DSCF3083	17/04/2013	LB04M	56.02095 -5.61759	60mm macro	*Maxmuelleria* burrowed mud	Juvenile *Asterias rubens*	GS
DSCF3084	17/04/2013	LB04M	56.02095 -5.61759	60mm macro	*Maxmuelleria* burrowed mud	*Cerianthus lloydii* tube	GS
DSCF3085	17/04/2013	LB04M	56.02095 -5.61759	60mm macro	*Maxmuelleria* burrowed mud	*Cerianthus lloydii* tube	GS
DSCF3087	17/04/2013	LB04M	56.02095 -5.61759	60mm macro	*Maxmuelleria* burrowed mud	*Cerianthus lloydii* tube	GS
DSCF3088	17/04/2013	LB04M	56.02095 -5.61759	60mm macro	*Maxmuelleria* burrowed mud	*Cerianthus lloydii* tube	GS
DSCF3089	17/04/2013	LB04M	56.02095 -5.61759	60mm macro	*Maxmuelleria* burrowed mud	*Cerianthus lloydii* tube	GS
DSCF3090	17/04/2013	LB04M	56.02095 -5.61759	60mm macro	*Maxmuelleria* burrowed mud	*Cerianthus lloydii* tube	GS
DSCF3091	17/04/2013	LB04M	56.02095 -5.61759	60mm macro	*Maxmuelleria* burrowed mud	*Cerianthus lloydii* tube	GS
DSCF3092	17/04/2013	LB04M	56.02095 -5.61759	60mm macro	*Maxmuelleria* burrowed mud	*Cerianthus lloydii* tube	GS
DSCF3093	17/04/2013	LB04M	56.02095 -5.61759	60mm macro	*Maxmuelleria* burrowed mud	*Cerianthus lloydii* tube	GS
DSCF3094	17/04/2013	LB04M	56.02095 -5.61759	60mm macro	*Maxmuelleria* burrowed mud	*Carcinus maenas*	GS
DSCF3096	17/04/2013	LB04M	56.02095 -5.61759	60mm macro	*Maxmuelleria* burrowed mud	*Cerianthus lloydii*	GS
DSCF3097	17/04/2013	LB04M	56.02095 -5.61759	60mm macro	*Maxmuelleria* burrowed mud	*Ascidiella aspersa* and juvenile *Asterias rubens*	GS
DSCF3098	17/04/2013	LB04M	56.02095 -5.61759	60mm macro	*Maxmuelleria* burrowed mud	Megafaunal burrow	GS
DSCF3099	17/04/2013	LB04M	56.02095 -5.61759	60mm macro	*Maxmuelleria* burrowed mud	Megafaunal burrow	GS
DSCF3101	17/04/2013	LB04M	56.02095 -5.61759	60mm macro	*Maxmuelleria* burrowed mud	*Aequipecten opercularis*	GS
DSCF3102	17/04/2013	LB04M	56.02095 -5.61759	60mm macro	*Maxmuelleria* burrowed mud	*Aequipecten opercularis*	GS
DSCF3103	17/04/2013	LB04M	56.02095 -5.61759	60mm macro	*Maxmuelleria* burrowed mud	*Aequipecten opercularis*	GS
DSCF3104	17/04/2013	LB04M	56.02095 -5.61759	60mm macro	*Maxmuelleria* burrowed mud	*Aequipecten opercularis*	GS
DSCF3105	17/04/2013	LB04M	56.02095 -5.61759	60mm macro	*Maxmuelleria* burrowed mud	*Aequipecten opercularis*	GS
DSCF3106	17/04/2013	LB04M	56.02095 -5.61759	60mm macro	*Maxmuelleria* burrowed mud	*Aequipecten opercularis*	GS
DSCF3107	17/04/2013	LB04M	56.02095 -5.61759	60mm macro	*Maxmuelleria* burrowed mud	*Aequipecten opercularis*	GS
DSCF3108	17/04/2013	LB04M	56.02095 -5.61759	60mm macro	*Maxmuelleria* burrowed mud	*Astropecten irregularis*	GS

Table 8.1 continued

File name	Date	Site code	Position	Lens	Habitat	Description	Phot
DSCF3109	17/04/2013	LB04M	56.02095 -5.61759	60mm macro	*Maxmuelleria* burrowed mud	*Astropecten irregularis*	GS
DSCF3110	17/04/2013	LB04M	56.02095 -5.61759	60mm macro	*Maxmuelleria* burrowed mud	*Astropecten irregularis*	GS
DSCF2401	17/04/2013	LB04M	56.02095 -5.61759	20mm	*Maxmuelleria* burrowed mud	Megafaunal burrows	GS
DSCF2402	17/04/2013	LB04M	56.02095 -5.61759	20mm	*Maxmuelleria* burrowed mud	*Maxmuelleria* mounds	GS
DSCF2403	17/04/2013	LB04M	56.02095 -5.61759	20mm	*Maxmuelleria* burrowed mud	*Maxmuelleria* mounds	GS
DSCF2404	17/04/2013	LB04M	56.02095 -5.61759	20mm	*Maxmuelleria* burrowed mud	Megafaunal burrows	GS
DSCF2405	17/04/2013	LB04M	56.02095 -5.61759	20mm	*Maxmuelleria* burrowed mud	Megafaunal burrows	GS
DSCF2406	17/04/2013	LB04M	56.02095 -5.61759	20mm	*Maxmuelleria* burrowed mud	Megafaunal burrows with *Cerianthus lloydii*	GS
DSCF2408	17/04/2013	LB04M	56.02095 -5.61759	20mm	*Maxmuelleria* burrowed mud	Megafaunal burrows with *Cerianthus lloydii*	GS
DSCF2409	17/04/2013	LB04M	56.02095 -5.61759	20mm	*Maxmuelleria* burrowed mud	*Maxmuelleria* mounds	GS
DSCF2410	17/04/2013	LB04M	56.02095 -5.61759	20mm	*Maxmuelleria* burrowed mud	*Nephrops norvegicus* burrows with *Asterias rubens*	GS
DSCF2411	17/04/2013	LB04M	56.02095 -5.61759	20mm	*Maxmuelleria* burrowed mud	*Cerianthus lloydii*	GS
DSCF2418	17/04/2013	LB04M	56.02095 -5.61759	20mm	*Maxmuelleria* burrowed mud	*Maxmuelleria* mounds	GS
DSCF2419	17/04/2013	LB04M	56.02095 -5.61759	20mm	*Maxmuelleria* burrowed mud	*Maxmuelleria* mounds	GS
DSCF2420	17/04/2013	LB04M	56.02095 -5.61759	20mm	*Maxmuelleria* burrowed mud	*Maxmuelleria* mounds	GS
DSCF2421	17/04/2013	LB04M	56.02095 -5.61759	20mm	*Maxmuelleria* burrowed mud	*Maxmuelleria* mounds	GS
DSCF2422	17/04/2013	LB04M	56.02095 -5.61759	20mm	*Maxmuelleria* burrowed mud	*Maxmuelleria* mounds	GS
DSCF2423	17/04/2013	LB04M	56.02095 -5.61759	20mm	*Maxmuelleria* burrowed mud	*Maxmuelleria* mounds	GS
DSCF2424	17/04/2013	LB04M	56.02095 -5.61759	20mm	*Maxmuelleria* burrowed mud	*Maxmuelleria* mounds	GS
DSCF2425	17/04/2013	LB04M	56.02095 -5.61759	20mm	*Maxmuelleria* burrowed mud	*Maxmuelleria* mounds	GS
DSCF2426	17/04/2013	LB04M	56.02095 -5.61759	20mm	*Maxmuelleria* burrowed mud	*Maxmuelleria* mounds	GS
DSCF2428	17/04/2013	LB04M	56.02095 -5.61759	20mm	*Maxmuelleria* burrowed mud	*Maxmuelleria* mounds	GS
DSCF2451	21/04/2013	LS22M	55.97177 -5.64397	20mm	*Maxmuelleria* burrowed mud	*Maxmuelleria* mounds, *Nephrops* burrow, *Chaetopterus variopedatus* tubes, *Asterias rubens*	GS
DSCF2452	21/04/2013	LS22M	55.97177 -5.64397	20mm	*Maxmuelleria* burrowed mud	*Nephrops* burrow, *Asterias rubens*	GS

Table 8.1 continued

File name	Date	Site code	Position	Lens	Habitat	Description	Phot
DSCF2453	21/04/2013	LS22M	55.97177 -5.64397	20mm	*Maxmuelleria* burrowed mud	*Nephrops* burrow, *Chaetopterus variopedatus* tubes	GS
DSCF2454	21/04/2013	LS22M	55.97177 -5.64397	20mm	*Maxmuelleria* burrowed mud	*Maxmuelleria* mounds, megafaunal burrows. *Chaetopterus variopedatus* tubes, *Asterias rubens, Oxydromus flexuosus*	GS
DSCF2455	21/04/2013	LS22M	55.97177 -5.64397	20mm	*Maxmuelleria* burrowed mud	*M*egafaunal burrows. *Chaetopterus variopedatus* tubes	GS
DSCF2456	21/04/2013	LS22M	55.97177 -5.64397	20mm	*Maxmuelleria* burrowed mud	*Maxmuelleria* mounds, *Chaetopterus variopedatus* tube	GS
DSCF2457	21/04/2013	LS22M	55.97177 -5.64397	20mm	*Maxmuelleria* burrowed mud	*Virgularia* skeleton?	GS
DSCF2459	21/04/2013	LS22M	55.97177 -5.64397	20mm	*Maxmuelleria* burrowed mud	*Virgularia* skeleton?	GS
DSCF2460	21/04/2013	LS22M	55.97177 -5.64397	20mm	*Maxmuelleria* burrowed mud	*Nephrops* burrow, *Chaetopterus variopedatus* tubes. *Corella parallelogramma*	GS
DSCF2462	21/04/2013	LS22M	55.97177 -5.64397	20mm	*Maxmuelleria* burrowed mud	*Nephrops* burrow, *Virgularia mirabilis*	GS
DSCF2463	21/04/2013	LS22M	55.97177 -5.64397	20mm	*Maxmuelleria* burrowed mud	*Virgularia mirabilis*	GS
DSCF2465	21/04/2013	LS22M	55.97177 -5.64397	20mm	*Maxmuelleria* burrowed mud	Mud mounds & burrows. *Cerianthus* tubes, *Asterias. Pomatoschistus* sp.	GS
DSCF2466	21/04/2013	LS22M	55.97177 -5.64397	20mm	*Maxmuelleria* burrowed mud	*Pomatoschistus* minutus, *Chaetopterus variopedatus* tube, megafaunal burrows	GS
DSCF3352	22/04/2013	SM14M	56.02254 -5.59611	60mm macro	*Maxmuelleria* burrowed mud	Megafaunal burrow	GS
DSCF3353	22/04/2013	SM14M	56.02254 -5.59611	60mm macro	*Maxmuelleria* burrowed mud	Megafaunal burrow with *Chaetopterus variopedatus* tube	GS
DSCF3354	22/04/2013	SM14M	56.02254 -5.59611	60mm macro	*Maxmuelleria* burrowed mud	Megafaunal burrow with *Chaetopterus variopedatus* tube	GS
DSCF3355	22/04/2013	SM14M	56.02254 -5.59611	60mm macro	*Maxmuelleria* burrowed mud	*Chaetopterus variopedatus* tube	GS
DSCF3356	22/04/2013	SM14M	56.02254 -5.59611	60mm macro	*Maxmuelleria* burrowed mud	*Oxydromus flexuosus*	GS
DSCF3357	22/04/2013	SM14M	56.02254 -5.59611	60mm macro	*Maxmuelleria* burrowed mud	*Oxydromus flexuosus*	GS
DSCF3358	22/04/2013	SM14M	56.02254 -5.59611	60mm macro	*Maxmuelleria* burrowed mud	*Oxydromus flexuosus*	GS
DSCF3359	22/04/2013	SM14M	56.02254 -5.59611	60mm macro	*Maxmuelleria* burrowed mud	*Oxydromus flexuosus*	GS
DSCF3360	22/04/2013	SM14M	56.02254 -5.59611	60mm macro	*Maxmuelleria* burrowed mud	*Oxydromus flexuosus*	GS
DSCF3362	22/04/2013	SM14M	56.02254 -5.59611	60mm macro	*Maxmuelleria* burrowed mud	*Jaxea nocturna* in burrow	GS
DSCF3363	22/04/2013	SM14M	56.02254 -5.59611	60mm macro	*Maxmuelleria* burrowed mud	*Jaxea nocturna* in burrow	GS

Table 8.1 continued

File name	Date	Site code	Position	Lens	Habitat	Description	Phot
DSCF3364	22/04/2013	SM14M	56.02254 -5.59611	60mm macro	*Maxmuelleria* burrowed mud	*Jaxea nocturna* in burrow (withdrawing)	GS
DSCF3365	22/04/2013	SM14M	56.02254 -5.59611	60mm macro	*Maxmuelleria* burrowed mud	*Jaxea nocturna* in burrow (withdrawing)	GS
DSCF3366	22/04/2013	SM14M	56.02254 -5.59611	60mm macro	*Maxmuelleria* burrowed mud	*Oxydromus flexuosus*	GS
DSCF3367	22/04/2013	SM14M	56.02254 -5.59611	60mm macro	*Maxmuelleria* burrowed mud	*Oxydromus flexuosus*	GS
DSCF3368	22/04/2013	SM14M	56.02254 -5.59611	60mm macro	*Maxmuelleria* burrowed mud	*Oxydromus flexuosus*	GS
DSCF3369	22/04/2013	SM14M	56.02254 -5.59611	60mm macro	*Maxmuelleria* burrowed mud	*Oxydromus flexuosus*	GS
DSCF3370	22/04/2013	SM14M	56.02254 -5.59611	60mm macro	*Maxmuelleria* burrowed mud	*Oxydromus flexuosus*	GS
DSCF3371	22/04/2013	SM14M	56.02254 -5.59611	60mm macro	*Maxmuelleria* burrowed mud	*Oxydromus flexuosus*	GS
DSCF3372	22/04/2013	SM14M	56.02254 -5.59611	60mm macro	*Maxmuelleria* burrowed mud	*Cerianthus lloydii*	GS
DSCF2577	22/04/2013	SM14M	56.02254 -5.59611	20mm	*Maxmuelleria* burrowed mud	*Virgularia mirabilis*	GS
DSCF2579	22/04/2013	SM14M	56.02254 -5.59611	20mm	*Maxmuelleria* burrowed mud	*Virgularia mirabilis* with *Maxmuelleria* mounds and *Nephrops* burrow	GS
DSCF2580	22/04/2013	SM14M	56.02254 -5.59611	20mm	*Maxmuelleria* burrowed mud	*Virgularia mirabilis* with *Maxmuelleria* mounds	GS
DSCF2581	22/04/2013	SM14M	56.02254 -5.59611	20mm	*Maxmuelleria* burrowed mud	*Virgularia mirabilis* with *Maxmuelleria* mounds	GS
DSCF2582	22/04/2013	SM14M	56.02254 -5.59611	20mm	*Maxmuelleria* burrowed mud	Megafaunal burrows, with *Callianassa subteranea* burrow and mound in foreground	GS
DSCF2583	22/04/2013	SM14M	56.02254 -5.59611	20mm	*Maxmuelleria* burrowed mud	*Virgularia mirabilis*	GS
DSCF2584	22/04/2013	SM14M	56.02254 -5.59611	20mm	*Maxmuelleria* burrowed mud	*Virgularia mirabilis*	GS
DSCF2585	22/04/2013	SM14M	56.02254 -5.59611	20mm	*Maxmuelleria* burrowed mud	*Virgularia mirabilis*	GS
DSCF2586	22/04/2013	SM14M	56.02254 -5.59611	20mm	*Maxmuelleria* burrowed mud	*Virgularia mirabilis*	GS
DSCF2587	22/04/2013	SM14M	56.02254 -5.59611	20mm	*Maxmuelleria* burrowed mud	*Virgularia mirabilis*	GS
DSCF2588	22/04/2013	SM14M	56.02254 -5.59611	20mm	*Maxmuelleria* burrowed mud	*Virgularia mirabilis*	GS
DSCF2589	22/04/2013	SM14M	56.02254 -5.59611	20mm	*Maxmuelleria* burrowed mud	*Virgularia mirabilis*	GS
DSCF2590	22/04/2013	SM14M	56.02254 -5.59611	20mm	*Maxmuelleria* burrowed mud	Dense *Maxmuelleria* mounds	GS
DSCF2591	22/04/2013	SM14M	56.02254 -5.59611	20mm	*Maxmuelleria* burrowed mud	Dense *Maxmuelleria* mounds	GS
DSCF2592	22/04/2013	SM14M	56.02254 -5.59611	20mm	*Maxmuelleria* burrowed mud	Dense *Maxmuelleria* mounds	GS

Table 8.1 continued

File name	Date	Site code	Position	Lens	Habitat	Description	Phot
DSCF2593	22/04/2013	SM14M	56.02254 -5.59611	20mm	*Maxmuelleria* burrowed mud	Dense *Maxmuelleria* mounds	GS
DSCF2596	22/04/2013	SM14M	56.02254 -5.59611	20mm	*Maxmuelleria* burrowed mud	*Asterias rubens.*	GS
DSCF2597	22/04/2013	SM14M	56.02254 -5.59611	20mm	*Maxmuelleria* burrowed mud	*Asterias rubens.*	GS
DSCF2598	22/04/2013	SM14M	56.02254 -5.59611	20mm	*Maxmuelleria* burrowed mud	*Virgula mirabilis* with *Maxmuelleria* mounds	GS
DSCF2601	22/04/2013	SM14M	56.02254 -5.59611	20mm	*Maxmuelleria* burrowed mud	Detail of *Maxmuelleria* mound	GS
DSCF2602	22/04/2013	SM14M	56.02254 -5.59611	20mm	*Maxmuelleria* burrowed mud	*Nephrops* burrow	GS
DSCF2603	22/04/2013	SM14M	56.02254 -5.59611	20mm	*Maxmuelleria* burrowed mud	Mud burrow and *Oxydromus flexuosus*	GS
DSCF2604	22/04/2013	SM14M	56.02254 -5.59611	20mm	*Maxmuelleria* burrowed mud	Megafaunal burrows	GS
DSCF2605	22/04/2013	SM14M	56.02254 -5.59611	20mm	*Maxmuelleria* burrowed mud	Megafaunal burrows	GS
DSCF2606	22/04/2013	SM14M	56.02254 -5.59611	20mm	*Maxmuelleria* burrowed mud	*Virgularia mirabilis* with *Maxmuelleria* mounds	GS
DSCF2607	22/04/2013	SM14M	56.02254 -5.59611	20mm	*Maxmuelleria* burrowed mud	Megafaunal burrows and *Maxmuelleria* mounds	GS
DSCF2608	22/04/2013	SM14M	56.02254 -5.59611	20mm	*Maxmuelleria* burrowed mud	Megafaunal burrows	GS
DSCF2609	22/04/2013	SM14M	56.02254 -5.59611	20mm	*Maxmuelleria* burrowed mud	*Nephrops* burrow and *Maxmuelleria* mound	GS
DSCF2610	22/04/2013	SM14M	56.02254 -5.59611	20mm	*Maxmuelleria* burrowed mud	Small *Virgularia mirabilis*	GS
DSCF2612	22/04/2013	SM14M	56.02254 -5.59611	20mm	*Maxmuelleria* burrowed mud	Probably *Callianassa subterranea* mound	GS
DSCF2613	22/04/2013	SM14M	56.02254 -5.59611	20mm	*Maxmuelleria* burrowed mud	Megafaunal burrows	GS
DSCF2616	22/04/2013	SM14M	56.02254 -5.59611	20mm	*Maxmuelleria* burrowed mud	Megafaunal burrows	GS
DSCF2617	22/04/2013	SM14M	56.02254 -5.59611	20mm	*Maxmuelleria* burrowed mud	*Maxmuelleria* mounds	GS
DSCF3127	21/04/2013	ML01	55.98280 -5.65523	60mm macro	*Phymatolithon calcareum* maerl bed	*Ophiocomina nigra*	GS
DSCF3128	21/04/2013	ML01	55.98280 -5.65523	60mm macro	*Phymatolithon calcareum* maerl bed	*Ophiocomina nigra* on *Corallina officinalis*	GS
DSCF3129	21/04/2013	ML01	55.98280 -5.65523	60mm macro	*Phymatolithon calcareum* maerl bed	*Ophiothrix fragilis* on *Corallina officinalis*	GS
DSCF3130	21/04/2013	ML01	55.98280 -5.65523	60mm macro	*Phymatolithon calcareum* maerl bed	*Chaetopterus* tube, *Corallina officinalis* and maerl	GS

Table 8.1 continued

File name	Date	Site code	Position	Lens	Habitat	Description	Phot
DSCF3131	21/04/2013	ML01	55.98280 -5.65523	60mm macro	*Phymatolithon calcareum* maerl bed	*Ophiothrix fragilis* on Corallina *officinalis. Amphilectus fucorum*	GS
DSCF3132	21/04/2013	ML01	55.98280 -5.65523	60mm macro	*Phymatolithon calcareum* maerl bed	*Ophiocomina nigra* on *Laminaria* frond	GS
DSCF3133	21/04/2013	ML01	55.98280 -5.65523	60mm macro	*Phymatolithon calcareum* maerl bed	*Ophiocomina nigra* on *Laminaria* frond	GS
DSCF3135	21/04/2013	ML01	55.98280 -5.65523	60mm macro	*Phymatolithon calcareum* maerl bed	Maerl, *Corallina officinalis. Ophiocomina* arms	GS
DSCF3136	21/04/2013	ML01	55.98280 -5.65523	60mm macro	*Phymatolithon calcareum* maerl bed	*Corallina officinalis, Trailliella ball, Laeospira corallinae*	GS
DSCF3137	21/04/2013	ML01	55.98280 -5.65523	60mm macro	*Phymatolithon calcareum* maerl bed	*Corallina officinalis, Trailliella ball, Laeospira corallinae*	GS
DSCF3138	21/04/2013	ML01	55.98280 -5.65523	60mm macro	*Phymatolithon calcareum* maerl bed	*Corallina officinalis, Trailliella ball, Laeospira corallinae*	GS
DSCF3139	21/04/2013	ML01	55.98280 -5.65523	60mm macro	*Phymatolithon calcareum* maerl bed	*Anemonia virdis, Corallina officinalis*	GS
DSCF3140	21/04/2013	ML01	55.98280 -5.65523	60mm macro	*Phymatolithon calcareum* maerl bed	*Anemonia virdis, Corallina officinalis*	GS
DSCF3141	21/04/2013	ML01	55.98280 -5.65523	60mm macro	*Phymatolithon calcareum* maerl bed	*Anemonia virdis, Corallina officinalis*	GS
DSCF3142	21/04/2013	ML01	55.98280 -5.65523	60mm macro	*Phymatolithon calcareum* maerl bed	*Anemonia virdis, Corallina officinalis*	GS
DSCF3143	21/04/2013	ML01	55.98280 -5.65523	60mm macro	*Phymatolithon calcareum* maerl bed	*Corallina officinalis,* maerl, corophiid? tubes	GS
DSCF3144	21/04/2013	ML01	55.98280 -5.65523	60mm macro	*Phymatolithon calcareum* maerl bed	*Ophiothrix fragilis* and *Ophiocomina nigra* on *Corallina officinalis*	GS
DSCF3145	21/04/2013	ML01	55.98280 -5.65523	60mm macro	*Phymatolithon calcareum* maerl bed	*Ophiothrix fragilis* and *Ophiocomina nigra* on *Corallina officinalis*	GS
DSCF3146	21/04/2013	ML01	55.98280 -5.65523	60mm macro	*Phymatolithon calcareum* maerl bed	*Ophiothrix fragilis* and *Ophiocomina nigra* on *Corallina officinalis*	GS
DSCF3147	21/04/2013	ML01	55.98280 -5.65523	60mm macro	*Phymatolithon calcareum* maerl bed	Juvenile *Chorda filum. Ophiocomina nigra*	GS

Table 8.1 continued

File name	Date	Site code	Position	Lens	Habitat	Description	Phot
DSCF3148	21/04/2013	ML01	55.98280 -5.65523	60mm macro	*Phymatolithon calcareum* maerl bed	*Anemonia virdis*. *Corallina officinalis*	GS
DSCF3152	21/04/2013	ML01	55.98280 -5.65523	60mm macro	*Phymatolithon calcareum* maerl bed	*Anemonia virdis*. *Corallina officinalis*	GS
DSCF3153	21/04/2013	ML01	55.98280 -5.65523	60mm macro	*Phymatolithon calcareum* maerl bed	*Anemonia virdis*. *Corallina officinalis*	GS
DSCF3155	21/04/2013	ML01	55.98280 -5.65523	60mm macro	*Phymatolithon calcareum* maerl bed	*Anemonia virdis*. *Corallina officinalis*	GS
DSCF3157	21/04/2013	ML01	55.98280 -5.65523	60mm macro	*Phymatolithon calcareum* maerl bed	*Gibbula cineraria* on kelp frond	GS
DSCF3158	21/04/2013	ML01	55.98280 -5.65523	60mm macro	*Phymatolithon calcareum* maerl bed	*Ophiocomina nigra* on *Corallina officinalis* and maerl	GS
DSCF3159	21/04/2013	ML01	55.98280 -5.65523	60mm macro	*Phymatolithon calcareum* maerl bed	*Ophiocomina nigra* on *Corallina officinalis* and maerl	GS
DSCF3160	21/04/2013	ML01	55.98280 -5.65523	60mm macro	*Phymatolithon calcareum* maerl bed	*Amphilectus fucorum*, *Corallina officinalis*, *Ophiocomina nigra*	GS
DSCF3161	21/04/2013	ML01	55.98280 -5.65523	60mm macro	*Phymatolithon calcareum* maerl bed	*Corallina officinalis* detail. Unidentified gastropod.	GS
DSCF3162	21/04/2013	ML01	55.98280 -5.65523	60mm macro	*Phymatolithon calcareum* maerl bed	Unidentified nudibranch on *Halidrys siliquosa* and *Corallina officinalis*	GS
DSCF3165	21/04/2013	ML01	55.98280 -5.65523	60mm macro	*Phymatolithon calcareum* maerl bed	Unidentified nudibranch on *Halidrys siliquosa* and *Corallina officinalis*	GS
DSCF3169	21/04/2013	ML01	55.98280 -5.65523	60mm macro	*Phymatolithon calcareum* maerl bed	Unidentified nudibranch on *Halidrys siliquosa* and *Corallina officinalis*	GS
DSCF3170	21/04/2013	ML01	55.98280 -5.65523	60mm macro	*Phymatolithon calcareum* maerl bed	Unidentified nudibranch on *Halidrys siliquosa* and *Corallina officinalis*	GS
DSCF3171	21/04/2013	ML01	55.98280 -5.65523	60mm macro	*Phymatolithon calcareum* maerl bed	Unidentified nudibranch on *Halidrys siliquosa* and *Corallina officinalis*	GS
DSCF3173	21/04/2013	ML01	55.98280 -5.65523	60mm macro	*Phymatolithon calcareum* maerl bed	Exposed bivalve in *Corallina officinalis* and maerl	GS
DSCF3174	21/04/2013	ML01	55.98280 -5.65523	60mm macro	*Phymatolithon calcareum* maerl bed	Exposed bivalve in *Corallina officinalis* and maerl, with *Ophiocomina nigra*	GS

Table 8.1 continued

File name	Date	Site code	Position	Lens	Habitat	Description	Phot
DSCF3176	21/04/2013	ML01	55.98280 -5.65523	60mm macro	*Phymatolithon calcareum* maerl bed	Exposed bivalve in *Corallina officinalis* and maerl, with *Ophiocomina nigra*	GS
DSCF3177	21/04/2013	ML01	55.98280 -5.65523	60mm macro	*Phymatolithon calcareum* maerl bed	*Urticina* sp.	GS
DSCF3179	21/04/2013	ML01	55.98280 -5.65523	60mm macro	*Phymatolithon calcareum* maerl bed	*Urticina* sp.	GS
DSCF3180	21/04/2013	ML01	55.98280 -5.65523	60mm macro	*Phymatolithon calcareum* maerl bed	*Urticina* sp.	GS
DSCF3181	21/04/2013	ML01	55.98280 -5.65523	60mm macro	*Phymatolithon calcareum* maerl bed	*Metidium senile*, *Corallina officinalis*, *Ophiocomina nigra*	GS
DSCF3182	21/04/2013	ML01	55.98280 -5.65523	60mm macro	*Phymatolithon calcareum* maerl bed	*Metidium senile*, *Corallina officinalis*, *Ophiocomina nigra*	GS
DSCF3183	21/04/2013	ML01	55.98280 -5.65523	60mm macro	*Phymatolithon calcareum* maerl bed	*Metidium senile*, *Corallina officinalis*, *Ophiocomina nigra*	GS
DSCF3186	21/04/2013	ML01	55.98280 -5.65523	60mm macro	*Phymatolithon calcareum* maerl bed	*Colpomenia peregrina, Corallina officinalis*, *Ophiocomina nigra*	GS
DSCF3187	21/04/2013	ML01	55.98280 -5.65523	60mm macro	*Phymatolithon calcareum* maerl bed	*Colpomenia peregrina, Corallina officinalis*, *Ophiocomina nigra*	GS
DSCF3188	21/04/2013	ML01	55.98280 -5.65523	60mm macro	*Phymatolithon calcareum* maerl bed	Close-up of *Corallina officinalis* and maerl	GS
DSCF3189	21/04/2013	ML01	55.98280 -5.65523	60mm macro	*Phymatolithon calcareum* maerl bed	Anemonia virdis. *Trailliella* balls, maerl, *Ophiocomina nigra*	GS
DSCF3190	21/04/2013	ML01	55.98280 -5.65523	60mm macro	*Phymatolithon calcareum* maerl bed	Filamentous red algae (possibly drift)	GS
DSCF3192	21/04/2013	ML01	55.98280 -5.65523	60mm macro	*Phymatolithon calcareum* maerl bed	*Anemonia virdis* amongst algal turf on maerl	GS
DSCF3193	21/04/2013	ML01	55.98280 -5.65523	60mm macro	*Phymatolithon calcareum* maerl bed	*Anemonia virdis* amongst algal turf on maerl	GS
DSCF3194	21/04/2013	ML01	55.98280 -5.65523	60mm macro	*Phymatolithon calcareum* maerl bed	*Anemonia virdis* amongst algal turf on maerl	GS
DSCF3195	21/04/2013	ML01	55.98280 -5.65523	60mm macro	*Phymatolithon calcareum* maerl bed	*Anemonia virdis* amongst algal turf on maerl	GS

Table 8.1 continued

File name	Date	Site code	Position	Lens	Habitat	Description	Phot
DSCF3196	21/04/2013	ML01	55.98280 -5.65523	60mm macro	*Phymatolithon calcareum* maerl bed	*Anemonia virdis* amongst algal turf (including *Chylocladia verticillata* and *Trailliella*) on maerl	GS
DSCF3198	21/04/2013	ML01	55.98280 -5.65523	60mm macro	*Phymatolithon calcareum* maerl bed	*Colpomenia peregrina, Corallina officinalis*, *Ophiocomina nigra, Ophiothrix fragilis, Amphilectus fucorum*	GS
DSCF3199	21/04/2013	ML01	55.98280 -5.65523	60mm macro	*Phymatolithon calcareum* maerl bed	*Colpomenia peregrina, Corallina officinalis*, *Ophiocomina nigra, Ophiothrix fragilis, Amphilectus fucorum*	GS
DSCF3202	21/04/2013	ML01	55.98280 -5.65523	60mm macro	*Phymatolithon calcareum* maerl bed	*Ophiocomina nigra, Ophiothrix fragilis*	GS
DSCF3203	21/04/2013	ML01	55.98280 -5.65523	60mm macro	*Phymatolithon calcareum* maerl bed	*Ophiocomina nigra* on kelp frond	GS
DSCF3207	21/04/2013	ML01	55.98280 -5.65523	60mm macro	*Phymatolithon calcareum* maerl bed	*Chaetopterus variopedatus* tube, *Ophiocomina nigra, Ectocarpus* sp.?	GS
DSCF3209	21/04/2013	ML01	55.98280 -5.65523	60mm macro	*Phymatolithon calcareum* maerl bed	*Ophiothrix fragilis* arms in *Halidrys siliquosa*	GS
DSCF3210	21/04/2013	ML01	55.98280 -5.65523	60mm macro	*Phymatolithon calcareum* maerl bed	*Ophiothrix fragilis* arms in *Halidrys siliquosa*	GS
DSCF3211	21/04/2013	ML01	55.98280 -5.65523	60mm macro	*Phymatolithon calcareum* maerl bed	*Ophiothrix fragilis* arms in *Halidrys siliquosa*	GS
DSCF3212	21/04/2013	ML01	55.98280 -5.65523	60mm macro	*Phymatolithon calcareum* maerl bed	Juvenile *Chorda filum,* bivalve mollusc, *Asterias rubens, Ophiocomina nigra, Corallina officinalis*	GS
DSCF3213	21/04/2013	ML01	55.98280 -5.65523	60mm macro	*Phymatolithon calcareum* maerl bed	Juvenile *Chorda filum,* bivalve mollusc, *Asterias rubens, Ophiocomina nigra, Corallina officinalis*	GS
DSCF3214	21/04/2013	ML01	55.98280 -5.65523	60mm macro	*Phymatolithon calcareum* maerl bed	Juvenile *Chorda filum,* bivalve mollusc, *Asterias rubens, Ophiocomina nigra, Corallina officinalis*	GS
DSCF3215	21/04/2013	ML01	55.98280 -5.65523	60mm macro	*Phymatolithon calcareum* maerl bed	*Ophiocomina nigra* on *Sargassum muticum*	GS
DSCF3216	21/04/2013	ML01	55.98280 -5.65523	60mm macro	*Phymatolithon calcareum* maerl bed	*Ophiocomina nigra* on *Sargassum muticum*	GS
DSCF3217	21/04/2013	ML01	55.98280 -5.65523	60mm macro	*Phymatolithon calcareum* maerl bed	*Ophiocomina nigra* on *Sargassum muticum*	GS

Table 8.1 continued

File name	Date	Site code	Position	Lens	Habitat	Description	Phot
DSCF3218	21/04/2013	ML01	55.98280 -5.65523	60mm macro	*Phymatolithon calcareum* maerl bed	*Leptasterias muelleri* on *Corallina officinalis*	GS
DSCF2468	21/04/2013	ML01	55.98280 -5.65523	20mm	*Phymatolithon calcareum* maerl bed	Dense *Corallina officinalis* on maerl with *Halidrys siliquosa*	GS
DSCF2469	21/04/2013	ML01	55.98280 -5.65523	20mm	*Phymatolithon calcareum* maerl bed	Dense algal turf on maerl, with *Corallina officinalis*, *Colpomenia peregrina , Halidrys siliquosa* and juvenile *Dictyota dichotoma*	GS
DSCF2470	21/04/2013	ML01	55.98280 -5.65523	20mm	*Phymatolithon calcareum* maerl bed	Dense *Corallina officinalis* on maerl with *Ophiothrix fragilis*	GS
DSCF2472	21/04/2013	ML01	55.98280 -5.65523	20mm	*Phymatolithon calcareum* maerl bed	Dense *Corallina officinalis* on maerl, with *Ophiocomina nigra*, juvenile *Chorda filum* and *Saccharina latissima*	GS
DSCF2473	21/04/2013	ML01	55.98280 -5.65523	20mm	*Phymatolithon calcareum* maerl bed	*Ophiocomina nigra on maerl bed*	GS
DSCF2474	21/04/2013	ML01	55.98280 -5.65523	20mm	*Phymatolithon calcareum* maerl bed	*Ophiocomina nigra on maerl bed*	GS
DSCF2475	21/04/2013	ML01	55.98280 -5.65523	20mm	*Phymatolithon calcareum* maerl bed	*Ophiocomina nigra* on maerl bed, with *Corallina officinalis* and *Asterias rubens*	GS
DSCF2476	21/04/2013	ML01	55.98280 -5.65523	20mm	*Phymatolithon calcareum* maerl bed	Dense *Corallina officinalis* on maerl, with *Colpomenia peregrina, Chylocladia verticillata,* juvenile *Chorda filum, Amphilectus fucorum, Ophiocomina nigra,* filamentous red algae and *Halidrys siliquosa*	GS
DSCF2477	21/04/2013	ML01	55.98280 -5.65523	20mm	*Phymatolithon calcareum* maerl bed	*Ophiocomina nigra* on *Saccharina latissima*	GS
DSCF2478	21/04/2013	ML01	55.98280 -5.65523	20mm	*Phymatolithon calcareum* maerl bed	Dense *Corallina officinalis* on maerl, with *Ophiocomina nigra, Halidrys siliquosa*	GS
DSCF2479	21/04/2013	ML01	55.98280 -5.65523	20mm	*Phymatolithon calcareum* maerl bed	*Sargassum muticum*	GS
DSCF2480	21/04/2013	ML01	55.98280 -5.65523	20mm	*Phymatolithon calcareum* maerl bed	*Sargassum muticum*	GS
DSCF2481	21/04/2013	ML01	55.98280 -5.65523	20mm	*Phymatolithon calcareum* maerl bed	*Sargassum muticum*	GS
DSCF2482	21/04/2013	ML01	55.98280 -5.65523	20mm	*Phymatolithon calcareum* maerl bed	*Sargassum muticum*	GS

Table 8.1 continued

File name	Date	Site code	Position	Lens	Habitat	Description	Phot
DSCF2483	21/04/2013	ML01	55.98280 -5.65523	20mm	*Phymatolithon calcareum* maerl bed	*Sargassum muticum*	GS
DSCF2484	21/04/2013	ML01	55.98280 -5.65523	20mm	*Phymatolithon calcareum* maerl bed	*Sargassum muticum*	GS
DSCF2485	21/04/2013	ML01	55.98280 -5.65523	20mm	*Phymatolithon calcareum* maerl bed	*Sargassum muticum*	GS
DSCF2486	21/04/2013	ML01	55.98280 -5.65523	20mm	*Phymatolithon calcareum* maerl bed	*Sargassum muticum*	GS
DSCF2487	21/04/2013	ML01	55.98280 -5.65523	20mm	*Phymatolithon calcareum* maerl bed	Dense algal turf on maerl bed, dominated by *Corallina officinalis*, with juvenile *Dictyota dichotoma* and *Leathesia marina*. *Ophiocomina nigra, Halidrys siliquosa*	GS
DSCF2489	21/04/2013	ML01	55.98280 -5.65523	20mm	*Phymatolithon calcareum* maerl bed	Habitat shot of maerl bed, with *Corallina officinalis* and *Saccharina latissima*	GS
DSCF2490	21/04/2013	ML01	55.98280 -5.65523	20mm	*Phymatolithon calcareum* maerl bed	Maerl bed. with *Corallina officinalis, Ophiothrix fragilis,* Ophiocomina nigra, juvenile *Chorda filum,* filamentous algae and *Colpomenia peregrina*	GS
DSCF2491	21/04/2013	ML01	55.98280 -5.65523	20mm	*Phymatolithon calcareum* maerl bed	Maerl bed, with *Saccharina latissima, Corallina officinalis, Ophiothrix fragilis* and *Ophiocomina nigra*	GS
DSCF2492	21/04/2013	ML01	55.98280 -5.65523	20mm	*Phymatolithon calcareum* maerl bed	Habitat shot of maerl bed, with dense *Corallina officinalis*. *Ophiocomina nigra, Halidrys siliquosa*	GS
DSCF2493	21/04/2013	ML01	55.98280 -5.65523	20mm	*Phymatolithon calcareum* maerl bed	Maerl bed, with *Saccharina latissima, Corallina officinalis, Halidrys siliquosa* and *Ophiocomina nigra*	GS
DSCF2494	21/04/2013	ML01	55.98280 -5.65523	20mm	*Phymatolithon calcareum* maerl bed	Maerl bed, with *Saccharina latissima, Corallina officinalis, Halidrys siliquosa* and *Ophiocomina nigra*	GS
DSCF2495	21/04/2013	ML01	55.98280 -5.65523	20mm	*Phymatolithon calcareum* maerl bed	Dense algal turf on maerl, with *Corallina officinalis* and juvenile *Dictyota dichotoma*	GS
DSCF2496	21/04/2013	ML01	55.98280 -5.65523	20mm	*Phymatolithon calcareum* maerl bed	Dense algal turf on maerl, with *Corallina officinalis, Chorda filum* and *Halidrys siliquosa*	GS
DSCF2497	21/04/2013	ML01	55.98280 -5.65523	20mm	*Phymatolithon calcareum* maerl bed	Dense algal turf on maerl bed, dominated by *Corallina officinalis*	GS

Table 8.1 continued

File name	Date	Site code	Position	Lens	Habitat	Description	Phot
DSCF2498	21/04/2013	ML01	55.98280 -5.65523	20mm	*Phymatolithon calcareum* maerl bed	Maerl bed. with *Corallina officinalis, Ophiothrix fragilis,* juvenile *Chorda filum* and *Dictyota dichotoma*	GS
DSCF2499	21/04/2013	ML01	55.98280 -5.65523	20mm	*Phymatolithon calcareum* maerl bed	Maerl bed. with *Corallina officinalis* and juvenile *Chorda filum*	GS
DSCF2500	21/04/2013	ML01	55.98280 -5.65523	20mm	*Phymatolithon calcareum* maerl bed	Maerl bed. with *Corallina officinalis* and juvenile *Chorda filum*	GS
DSCF2501	21/04/2013	ML01	55.98280 -5.65523	20mm	*Phymatolithon calcareum* maerl bed	*Corallina officinalis* with *Ophiothrix fragilis on maerl bed*	GS
DSCF2502	21/04/2013	ML01	55.98280 -5.65523	20mm	*Phymatolithon calcareum* maerl bed	*Sargassum muticum, Halidrys siliquosa* and *Saccharina latissima* on maerl bed	GS
DSCF2503	21/04/2013	ML01	55.98280 -5.65523	20mm	*Phymatolithon calcareum* maerl bed	*Sargassum muticum, Halidrys siliquosa* and *Saccharina latissima* on maerl bed	GS
DSCF2504	21/04/2013	ML01	55.98280 -5.65523	20mm	*Phymatolithon calcareum* maerl bed	Corallina *officinalis* and *Saccharina latissima* on maerl bed	GS
DSCF2505	21/04/2013	ML01	55.98280 -5.65523	20mm	*Phymatolithon calcareum* maerl bed	*Halidrys siliquosa*	GS
DSCF2506	21/04/2013	ML01	55.98280 -5.65523	20mm	*Phymatolithon calcareum* maerl bed	Algal turf dominated by *Corallina officinalis* on maerl bed, with *Dictyota dichotoma*, *Halidrys siliquosa and* filamentous red algae	GS
DSCF2507	21/04/2013	ML01	55.98280 -5.65523	20mm	*Phymatolithon calcareum* maerl bed	Algal turf dominated by *Corallina officinalis* on maerl bed, with *Dictyota dichotoma*, *Halidrys siliquosa and* filamentous red algae	GS
DSCF2508	21/04/2013	ML01	55.98280 -5.65523	20mm	*Phymatolithon calcareum* maerl bed	*Sargassum muticum, Halidrys siliquosa* and *Saccharina latissima* on maerl bed	GS
DSCF2509	21/04/2013	ML01	55.98280 -5.65523	20mm	*Phymatolithon calcareum* maerl bed	*Anemonia viridis* on *Halidrys siliquosa*	GS
DSCF2510	21/04/2013	ML01	55.98280 -5.65523	20mm	*Phymatolithon calcareum* maerl bed	*Anemonia viridis* on *Halidrys siliquosa*	GS
DSCF2511	21/04/2013	ML01	55.98280 -5.65523	20mm	*Phymatolithon calcareum* maerl bed	*Ophiocomina nigra* on *Saccharina latissima*	GS
DSCF2513	21/04/2013	ML01	55.98280 -5.65523	20mm	*Phymatolithon calcareum* maerl bed	*Sargassum muticum, Halidrys siliquosa* and *Saccharina latissima* on maerl bed	GS

Table 8.1 continued

File name	Date	Site code	Position	Lens	Habitat	Description	Phot
DSCF2514	21/04/2013	ML01	55.98280 -5.65523	20mm	*Phymatolithon calcareum* maerl bed	*Sargassum muticum, Halidrys siliquosa* and *Saccharina latissima* on maerl bed	GS
DSCF2515	21/04/2013	ML01	55.98280 -5.65523	20mm	*Phymatolithon calcareum* maerl bed	*Sargassum muticum, Halidrys siliquosa* and *Saccharina latissima* on maerl bed	GS
DSCF3220	22/04/2013	ML02	56.03265 -5.60060	60mm macro	*Lithothamnion glaciale* maerl bed	*Marthasterias glacialis* on maerl. *Ophiothrix fragilis*	GS
DSCF3221	22/04/2013	ML02	56.03265 -5.60060	60mm macro	*Lithothamnion glaciale* maerl bed	*Pectinid* on maerl	GS
DSCF3222	22/04/2013	ML02	56.03265 -5.60060	60mm macro	*Lithothamnion glaciale* maerl bed	*Pectinid* on maerl	GS
DSCF3223	22/04/2013	ML02	56.03265 -5.60060	60mm macro	*Lithothamnion glaciale* maerl bed	*Pectinid* on maerl	GS
DSCF3224	22/04/2013	ML02	56.03265 -5.60060	60mm macro	*Lithothamnion glaciale* maerl bed	*Pectinid* on maerl	GS
DSCF3225	22/04/2013	ML02	56.03265 -5.60060	60mm macro	*Lithothamnion glaciale* maerl bed	*Ascidiella virginea, Ophiocomina nigra, Ascidiella aspersa, Ophiothrix fragilis,* maerl	GS
DSCF3226	22/04/2013	ML02	56.03265 -5.60060	60mm macro	*Lithothamnion glaciale* maerl bed	*Ascidiella virginea, Ophiocomina nigra, Ascidiella aspersa, Ophiothrix fragilis,* maerl	GS
DSCF3227	22/04/2013	ML02	56.03265 -5.60060	60mm macro	*Lithothamnion glaciale* maerl bed	*Ascidiella virginea, Ophiocomina nigra, Ascidiella aspersa, Ophiothrix fragilis,* maerl	GS
DSCF3228	22/04/2013	ML02	56.03265 -5.60060	60mm macro	*Lithothamnion glaciale* maerl bed	*Echinus esculentus, Ophiothrix fragilis, Phyllophora crispa*, maerl	GS
DSCF3229	22/04/2013	ML02	56.03265 -5.60060	60mm macro	*Lithothamnion glaciale* maerl bed	*Ophiocomina nigra* on *Saccharina latissima*	GS
DSCF3230	22/04/2013	ML02	56.03265 -5.60060	60mm macro	*Lithothamnion glaciale* maerl bed	*Ophiocomina nigra* on *Saccharina latissima*	GS
DSCF3231	22/04/2013	ML02	56.03265 -5.60060	60mm macro	*Lithothamnion glaciale* maerl bed	*Ophiocomina nigra* on *Saccharina latissima*	GS
DSCF3232	22/04/2013	ML02	56.03265 -5.60060	60mm macro	*Lithothamnion glaciale* maerl bed	*Ascidia mentula, Ophiocomina nigra,* maerl	GS
DSCF3233	22/04/2013	ML02	56.03265 -5.60060	60mm macro	*Lithothamnion glaciale* maerl bed	*Ascidia mentula, Ophiocomina nigra,* maerl	GS

Table 8.1 continued

File name	Date	Site code	Position	Lens	Habitat	Description	Phot
DSCF3234	22/04/2013	ML02	56.03265 -5.60060	60mm macro	*Lithothamnion glaciale* maerl bed	Maerl, *Ophiocomina nigra*	GS
DSCF3235	22/04/2013	ML02	56.03265 -5.60060	60mm macro	*Lithothamnion glaciale* maerl bed	*Ascidiella aspersa, Ophiothrix fragilis,* maerl	GS
DSCF3236	22/04/2013	ML02	56.03265 -5.60060	60mm macro	*Lithothamnion glaciale* maerl bed	*Ascidiella aspersa, Ophiothrix fragilis,* maerl, *Ophiocomina nigra*	GS
DSCF3237	22/04/2013	ML02	56.03265 -5.60060	60mm macro	*Lithothamnion glaciale* maerl bed	*Marthasterias glacialis* on maerl. *Ophiothrix fragilis, Ophiocomina nigra, Halidrys siliquosa*	GS
DSCF3238	22/04/2013	ML02	56.03265 -5.60060	60mm macro	*Lithothamnion glaciale* maerl bed	Juvenile pectinid, *Ophiocomina nigra, Ophiothrix fragilis,* maerl	GS
DSCF3239	22/04/2013	ML02	56.03265 -5.60060	60mm macro	*Lithothamnion glaciale* maerl bed	Juvenile pectinid, *Ophiocomina nigra, Ophiothrix fragilis,* maerl	GS
DSCF3240	22/04/2013	ML02	56.03265 -5.60060	60mm macro	*Lithothamnion glaciale* maerl bed	*Carcinus maenas* on maerl. *Ophiothrix fragilis, Ophiocomina nigra, Phyllophora crispa*	GS
DSCF3241	22/04/2013	ML02	56.03265 -5.60060	60mm macro	*Lithothamnion glaciale* maerl bed	*Carcinus maenas* on maerl. *Ophiothrix fragilis, Ophiocomina nigra, Phyllophora crispa*	GS
DSCF3242	22/04/2013	ML02	56.03265 -5.60060	60mm macro	*Lithothamnion glaciale* maerl bed	*Carcinus maenas* on maerl. *Ophiothrix fragilis, Ophiocomina nigra, Phyllophora crispa*	GS
DSCF3243	22/04/2013	ML02	56.03265 -5.60060	60mm macro	*Lithothamnion glaciale* maerl bed	*Carcinus maenas* on maerl. *Ophiothrix fragilis, Ophiocomina nigra, Phyllophora crispa*	GS
DSCF3244	22/04/2013	ML02	56.03265 -5.60060	60mm macro	*Lithothamnion glaciale* maerl bed	*Ophiothrix fragilis, Ascidiella virginea,* maerl	GS
DSCF3245	22/04/2013	ML02	56.03265 -5.60060	60mm macro	*Lithothamnion glaciale* maerl bed	*Ophiothrix fragilis, Ascidiella virginea,* maerl	GS
DSCF3246	22/04/2013	ML02	56.03265 -5.60060	60mm macro	*Lithothamnion glaciale* maerl bed	*Ophiothrix fragilis, Ascidiella virginea,* maerl	GS
DSCF3247	22/04/2013	ML02	56.03265 -5.60060	60mm macro	*Lithothamnion glaciale* maerl bed	*Esperiopsis fucorum?* attached to *Halidrys siliquosa*	GS
DSCF3248	22/04/2013	ML02	56.03265 -5.60060	60mm macro	*Lithothamnion glaciale* maerl bed	*Esperiopsis fucorum?* attached to *Halidrys siliquosa*	GS
DSCF3249	22/04/2013	ML02	56.03265 -5.60060	60mm macro	*Lithothamnion glaciale* maerl bed	*Ophiocomina nigra* on maerl	GS

Table 8.1 continued

File name	Date	Site code	Position	Lens	Habitat	Description	Phot
DSCF3250	22/04/2013	ML02	56.03265 -5.60060	60mm macro	*Lithothamnion glaciale* maerl bed	*Ophiocomina nigra* on maerl	GS
DSCF3251	22/04/2013	ML02	56.03265 -5.60060	60mm macro	*Lithothamnion glaciale* maerl bed	*Chaetopterus variopedatus* tube in maerl. *Ophiocomina nigra, Ophiothrix fragilis*	GS
DSCF3252	22/04/2013	ML02	56.03265 -5.60060	60mm macro	*Lithothamnion glaciale* maerl bed	*Chaetopterus variopedatus* tube in maerl. *Ophiocomina nigra, Ophiothrix fragilis*	GS
DSCF3253	22/04/2013	ML02	56.03265 -5.60060	60mm macro	*Lithothamnion glaciale* maerl bed	*Chaetopterus variopedatus* tube in maerl. *Ophiocomina nigra, Ophiothrix fragilis*	GS
DSCF3254	22/04/2013	ML02	56.03265 -5.60060	60mm macro	*Lithothamnion glaciale* maerl bed	*Pomatoschistus pictus*, *Ophiothrix fragilis*	GS
DSCF3255	22/04/2013	ML02	56.03265 -5.60060	60mm macro	*Lithothamnion glaciale* maerl bed	Filamentous red algae, *Ophiocomina nigra*, maerl, *Ophiothrix fragilis*	GS
DSCF3256	22/04/2013	ML02	56.03265 -5.60060	60mm macro	*Lithothamnion glaciale* maerl bed	Filamentous red algae, *Ophiocomina nigra*, maerl, *Ophiothrix fragilis*	GS
DSCF3257	22/04/2013	ML02	56.03265 -5.60060	60mm macro	*Lithothamnion glaciale* maerl bed	Filamentous red algae, *Ophiocomina nigra*, maerl, *Ophiothrix fragilis*	GS
DSCF3258	22/04/2013	ML02	56.03265 -5.60060	60mm macro	*Lithothamnion glaciale* maerl bed	Filamentous red algae, *Ophiocomina nigra*, maerl, *Ophiothrix fragilis*	GS
DSCF3259	22/04/2013	ML02	56.03265 -5.60060	60mm macro	*Lithothamnion glaciale* maerl bed	*Ascidiella virginea*, maerl, *Phyllophora crispa*, *Ophiocomina nigra*	GS
DSCF3260	22/04/2013	ML02	56.03265 -5.60060	60mm macro	*Lithothamnion glaciale* maerl bed	*Ascidiella virginea*, maerl, *Phyllophora crispa*, *Ophiocomina nigra*	GS
DSCF3261	22/04/2013	ML02	56.03265 -5.60060	60mm macro	*Lithothamnion glaciale* maerl bed	*Henricia* sp. on maerl. *Ophiothrix fragilis*	GS
DSCF3262	22/04/2013	ML02	56.03265 -5.60060	60mm macro	*Lithothamnion glaciale* maerl bed	*Henricia* sp. on maerl. *Ophiothrix fragilis*	GS
DSCF3263	22/04/2013	ML02	56.03265 -5.60060	60mm macro	*Lithothamnion glaciale* maerl bed	*Ophiothrix fragilis* on maerl	GS
DSCF3264	22/04/2013	ML02	56.03265 -5.60060	60mm macro	*Lithothamnion glaciale* maerl bed	*Corella parallelogramma* on *Halidrys siliquosa*	GS
DSCF3265	22/04/2013	ML02	56.03265 -5.60060	60mm macro	*Lithothamnion glaciale* maerl bed	*Corella parallelogramma* on *Halidrys siliquosa*	GS

Table 8.1 continued

File name	Date	Site code	Position	Lens	Habitat	Description	Phot
DSCF3266	22/04/2013	ML02	56.03265 -5.60060	60mm macro	*Lithothamnion glaciale* maerl bed	*Ophiocomina nigra* on *Saccharina latissima*	GS
DSCF3267	22/04/2013	ML02	56.03265 -5.60060	60mm macro	*Lithothamnion glaciale* maerl bed	*Ophiocomina nigra* on *Saccharina latissima*	GS
DSCF3268	22/04/2013	ML02	56.03265 -5.60060	60mm macro	*Lithothamnion glaciale* maerl bed	*Chaetopterus variopedatus* tube in maerl. *Ophiocomina nigra, Ophiothrix fragilis*	GS
DSCF3269	22/04/2013	ML02	56.03265 -5.60060	60mm macro	*Lithothamnion glaciale* maerl bed	*Chaetopterus variopedatus* tube in maerl. *Ophiocomina nigra, Ophiothrix fragilis*	GS
DSCF3270	22/04/2013	ML02	56.03265 -5.60060	60mm macro	*Lithothamnion glaciale* maerl bed	*Chaetopterus variopedatus* tube in maerl. *Ophiocomina nigra, Ophiothrix fragilis*	GS
DSCF3271	22/04/2013	ML02	56.03265 -5.60060	60mm macro	*Lithothamnion glaciale* maerl bed	Close-up of *Ophiothrix fragilis*	GS
DSCF3272	22/04/2013	ML02	56.03265 -5.60060	60mm macro	*Lithothamnion glaciale* maerl bed	Close-up of *Ophiothrix fragilis*	GS
DSCF3273	22/04/2013	ML02	56.03265 -5.60060	60mm macro	*Lithothamnion glaciale* maerl bed	*Ophiothrix fragilis* on maerl, *Ophiocomina nigra*	GS
DSCF3274	22/04/2013	ML02	56.03265 -5.60060	60mm macro	*Lithothamnion glaciale* maerl bed	*Ophiothrix fragilis* on maerl, *Ophiocomina nigra*	GS
DSCF3276	22/04/2013	ML02	56.03265 -5.60060	60mm macro	*Lithothamnion glaciale* maerl bed	*Sabella pavonina* on maerl. *Ophiothrix fragilis*	GS
DSCF3277	22/04/2013	ML02	56.03265 -5.60060	60mm macro	*Lithothamnion glaciale* maerl bed	*Sabella pavonina* on maerl. *Ophiothrix fragilis*	GS
DSCF3278	22/04/2013	ML02	56.03265 -5.60060	60mm macro	*Lithothamnion glaciale* maerl bed	*Sabella pavonina* on maerl. *Ophiothrix fragilis*	GS
DSCF3279	22/04/2013	ML02	56.03265 -5.60060	60mm macro	*Lithothamnion glaciale* maerl bed	*Sabella pavonina* on maerl. *Ophiothrix fragilis*	GS
DSCF3280	22/04/2013	ML02	56.03265 -5.60060	60mm macro	*Lithothamnion glaciale* maerl bed	*Sabella pavonina* on maerl. *Ophiothrix fragilis*	GS
DSCF3281	22/04/2013	ML02	56.03265 -5.60060	60mm macro	*Lithothamnion glaciale* maerl bed	*Sabella pavonina* on maerl. *Ophiothrix fragilis*	GS
DSCF3282	22/04/2013	ML02	56.03265 -5.60060	60mm macro	*Lithothamnion glaciale* maerl bed	*Sabella pavonina* on maerl. *Ophiothrix fragilis*	GS

Table 8.1 continued

File name	Date	Site code	Position	Lens	Habitat	Description	Phot
DSCF3283	22/04/2013	ML02	56.03265 -5.60060	60mm macro	*Lithothamnion glaciale* maerl bed	*Sabella pavonina* on maerl. *Ophiothrix fragilis*	GS
DSCF3284	22/04/2013	ML02	56.03265 -5.60060	60mm macro	*Lithothamnion glaciale* maerl bed	*Sabella pavonina* on maerl. *Ophiothrix fragilis*	GS
DSCF3285	22/04/2013	ML02	56.03265 -5.60060	60mm macro	*Lithothamnion glaciale* maerl bed	*Sabella pavonina* on maerl. *Ophiothrix fragilis*	GS
DSCF3286	22/04/2013	ML02	56.03265 -5.60060	60mm macro	*Lithothamnion glaciale* maerl bed	*Sabella pavonina* on maerl. *Ophiothrix fragilis*	GS
DSCF3287	22/04/2013	ML02	56.03265 -5.60060	60mm macro	*Lithothamnion glaciale* maerl bed	*Sabella pavonina* on maerl. *Ophiothrix fragilis*	GS
DSCF3288	22/04/2013	ML02	56.03265 -5.60060	60mm macro	*Lithothamnion glaciale* maerl bed	*Sabella pavonina* on maerl. *Ophiothrix fragilis*	GS
DSCF3289	22/04/2013	ML02	56.03265 -5.60060	60mm macro	*Lithothamnion glaciale* maerl bed	*Sabella pavonina* on maerl. *Ophiothrix fragilis*	GS
DSCF3290	22/04/2013	ML02	56.03265 -5.60060	60mm macro	*Lithothamnion glaciale* maerl bed	*Sabella pavonina* on maerl. *Ophiothrix fragilis*	GS
DSCF3291	22/04/2013	ML02	56.03265 -5.60060	60mm macro	*Lithothamnion glaciale* maerl bed	Close-up of *Sabella pavonina* crown	GS
DSCF3292	22/04/2013	ML02	56.03265 -5.60060	60mm macro	*Lithothamnion glaciale* maerl bed	Close-up of *Sabella pavonina* crown	GS
DSCF3293	22/04/2013	ML02	56.03265 -5.60060	60mm macro	*Lithothamnion glaciale* maerl bed	Close-up of *Sabella pavonina* crown	GS
DSCF3294	22/04/2013	ML02	56.03265 -5.60060	60mm macro	*Lithothamnion glaciale* maerl bed	Close-up of *Sabella pavonina* crown	GS
DSCF3295	22/04/2013	ML02	56.03265 -5.60060	60mm macro	*Lithothamnion glaciale* maerl bed	Close-up of *Sabella pavonina* crown	GS
DSCF3296	22/04/2013	ML02	56.03265 -5.60060	60mm macro	*Lithothamnion glaciale* maerl bed	Close-up of *Sabella pavonina* crown	GS
DSCF3297	22/04/2013	ML02	56.03265 -5.60060	60mm macro	*Lithothamnion glaciale* maerl bed	Close-up of *Sabella pavonina* crown	GS
DSCF3298	22/04/2013	ML02	56.03265 -5.60060	60mm macro	*Lithothamnion glaciale* maerl bed	Close-up of *Sabella pavonina* crown	GS

Table 8.1 continued

File name	Date	Site code	Position	Lens	Habitat	Description	Phot
DSCF3299	22/04/2013	ML02	56.03265 -5.60060	60mm macro	*Lithothamnion glaciale* maerl bed	Close-up of *Sabella pavonina* crown	GS
DSCF3300	22/04/2013	ML02	56.03265 -5.60060	60mm macro	*Lithothamnion glaciale* maerl bed	*Pholis gunnellus,* maerl, *Ophiothrix fragilis*, *Halidrys siliquosa*	GS
DSCF3301	22/04/2013	ML02	56.03265 -5.60060	60mm macro	*Lithothamnion glaciale* maerl bed	*Pholis gunnellus,* maerl, *Ophiothrix fragilis*, *Halidrys siliquosa*	GS
DSCF3303	22/04/2013	ML02	56.03265 -5.60060	60mm macro	*Lithothamnion glaciale* maerl bed	*Pholis gunnellus,* maerl, *Ophiothrix fragilis*, *Halidrys siliquosa*	GS
DSCF3304	22/04/2013	ML02	56.03265 -5.60060	60mm macro	*Lithothamnion glaciale* maerl bed	*Ophiothrix fragilis* on maerl	GS
DSCF3305	22/04/2013	ML02	56.03265 -5.60060	60mm macro	*Lithothamnion glaciale* maerl bed	*Ophiothrix fragilis* on maerl	GS
DSCF3306	22/04/2013	ML02	56.03265 -5.60060	60mm macro	*Lithothamnion glaciale* maerl bed	*Aequipecten opercularis, Ophiothrix fragilis,* maerl, *Halidrys siliquosa*, *Ophiocomina nigra*	GS
DSCF3307	22/04/2013	ML02	56.03265 -5.60060	60mm macro	*Lithothamnion glaciale* maerl bed	*Aequipecten opercularis, Ophiothrix fragilis,* maerl, *Halidrys siliquosa*, *Ophiocomina nigra*	GS
DSCF3308	22/04/2013	ML02	56.03265 -5.60060	60mm macro	*Lithothamnion glaciale* maerl bed	*Aequipecten opercularis,* Ophiothrix fragilis, maerl, Halidrys siliquosa, *Ophiocomina nigra*	GS
DSCF3309	22/04/2013	ML02	56.03265 -5.60060	60mm macro	*Lithothamnion glaciale* maerl bed	*Aequipecten opercularis, Ophiothrix fragilis,* maerl, *Halidrys siliquosa, Ophiocomina nigra*	GS
DSCF3310	22/04/2013	ML02	56.03265 -5.60060	60mm macro	*Lithothamnion glaciale* maerl bed	*Aequipecten opercularis, Ophiothrix fragilis,* maerl, *Halidrys siliquosa, Ophiocomina nigra*	GS
DSCF3311	22/04/2013	ML02	56.03265 -5.60060	60mm macro	*Lithothamnion glaciale* maerl bed	*Aequipecten opercularis, Ophiothrix fragilis,* maerl, *Halidrys siliquosa, Ophiocomina nigra*	GS
DSCF3312	22/04/2013	ML02	56.03265 -5.60060	60mm macro	*Lithothamnion glaciale* maerl bed	*Aequipecten opercularis, Ophiothrix fragilis*, maerl, *Halidrys siliquosa, Ophiocomina nigra*	GS
DSCF3313	22/04/2013	ML02	56.03265 -5.60060	60mm macro	*Lithothamnion glaciale* maerl bed	*Aequipecten opercularis* on maerl, *Halidrys siliquosa*, *Ophiothrix fragilis, Ophiocomina nigra,*	GS
DSCF3314	22/04/2013	ML02	56.03265 -5.60060	60mm macro	*Lithothamnion glaciale* maerl bed	*Aequipecten opercularis* on maerl, *Ophiothrix fragilis, Ophiocomina nigra, Corallina officinalis*	GS
DSCF3315	22/04/2013	ML02	56.03265 -5.60060	60mm macro	*Lithothamnion glaciale* maerl bed	*Aequipecten opercularis* on maerl, *Ophiothrix fragilis, Ophiocomina nigra, Corallina officinalis*	GS

Table 8.1 continued

File name	Date	Site code	Position	Lens	Habitat	Description	Phot
DSCF3316	22/04/2013	ML02	56.03265 -5.60060	60mm macro	*Lithothamnion glaciale* maerl bed	*Aequipecten opercularis* on maerl, *Ophiothrix fragilis, Ophiocomina nigra, Corallina officinalis*	GS
DSCF3317	22/04/2013	ML02	56.03265 -5.60060	60mm macro	*Lithothamnion glaciale* maerl bed	Close-up of *Aequipecten opercularis. Corallina officinalis*, maerl	GS
DSCF3318	22/04/2013	ML02	56.03265 -5.60060	60mm macro	*Lithothamnion glaciale* maerl bed	Close-up of *Aequipecten opercularis. Corallina officinalis*, maerl	GS
DSCF3319	22/04/2013	ML02	56.03265 -5.60060	60mm macro	*Lithothamnion glaciale* maerl bed	Close-up of *Aequipecten opercularis. Corallina officinalis*, maerl	GS
DSCF3320	22/04/2013	ML02	56.03265 -5.60060	60mm macro	*Lithothamnion glaciale* maerl bed	Close-up of *Aequipecten opercularis. Corallina officinalis*, maerl	GS
DSCF3321	22/04/2013	ML02	56.03265 -5.60060	60mm macro	*Lithothamnion glaciale* maerl bed	Close-up of *Aequipecten opercularis. Corallina officinalis*, maerl	GS
DSCF3322	22/04/2013	ML02	56.03265 -5.60060	60mm macro	*Lithothamnion glaciale* maerl bed	Close-up of *Aequipecten opercularis.*	GS
DSCF3323	22/04/2013	ML02	56.03265 -5.60060	60mm macro	*Lithothamnion glaciale* maerl bed	Close-up of *Aequipecten opercularis.*	GS
DSCF3324	22/04/2013	ML02	56.03265 -5.60060	60mm macro	*Lithothamnion glaciale* maerl bed	Close-up of *Aequipecten opercularis. Corallina officinalis*, maerl	GS
DSCF3325	22/04/2013	ML02	56.03265 -5.60060	60mm macro	*Lithothamnion glaciale* maerl bed	*Aequipecten opercularis, Ophiothrix fragilis*, maerl, *Halidrys siliquosa, Ophiocomina nigra*	GS
DSCF3326	22/04/2013	ML02	56.03265 -5.60060	60mm macro	*Lithothamnion glaciale* maerl bed	*Aequipecten opercularis, Ophiothrix fragilis*, maerl, *Halidrys siliquosa, Ophiocomina nigra*	GS
DSCF3327	22/04/2013	ML02	56.03265 -5.60060	60mm macro	*Lithothamnion glaciale* maerl bed	*Aequipecten opercularis, Ophiothrix fragilis*, maerl, *Halidrys siliquosa, Ophiocomina nigra*	GS
DSCF3328	22/04/2013	ML02	56.03265 -5.60060	60mm macro	*Lithothamnion glaciale* maerl bed	*Asterias rubens, Ophiothrix fragilis, Ophiocomina nigra,* maerl	GS
DSCF3329	22/04/2013	ML02	56.03265 -5.60060	60mm macro	*Lithothamnion glaciale* maerl bed	*Ascidiella aspersa* on maerl. *Ophiocomina nigra, Ophiothrix fragilis*	GS
DSCF3330	22/04/2013	ML02	56.03265 -5.60060	60mm macro	*Lithothamnion glaciale* maerl bed	Encrusting *Lithothamnion glaciale* on boulder. *Marthasterias glacialis, Ophiothrix fragilis, Ophiocomina nigra*, maerl	GS
DSCF3331	22/04/2013	ML02	56.03265 -5.60060	60mm macro	*Lithothamnion glaciale* maerl bed	*Ascidiella virginea* on maerl, *Ophiothrix fragilis, Ophiocomina nigra*	GS

Table 8.1 continued

File name	Date	Site code	Position	Lens	Habitat	Description	Phot
DSCF3332	22/04/2013	ML02	56.03265 -5.60060	60mm macro	*Lithothamnion glaciale* maerl bed	*Ascidiella virginea* on maerl, *Ophiothrix fragilis, Ophiocomina nigra*	GS
DSCF3333	22/04/2013	ML02	56.03265 -5.60060	60mm macro	*Lithothamnion glaciale* maerl bed	*Ascidiella virginea* on maerl, *Ophiothrix fragilis, Ophiocomina nigra*	GS
DSCF3334	22/04/2013	ML02	56.03265 -5.60060	60mm macro	*Lithothamnion glaciale* maerl bed	*Echinus esculentus, Ophiothrix fragilis,* maerl, *Ophiothrix fragilis*	GS
DSCF3335	22/04/2013	ML02	56.03265 -5.60060	60mm macro	*Lithothamnion glaciale* maerl bed	*Echinus esculentus, Ophiothrix fragilis,* maerl, *Ophiothrix fragilis, Halidrys siliquosa*	GS
DSCF3336	22/04/2013	ML02	56.03265 -5.60060	60mm macro	*Lithothamnion glaciale* maerl bed	*Aequipecten opercularis, Ophiothrix fragilis*, maerl, *Ophiocomina nigra*	GS
DSCF3338	22/04/2013	ML02	56.03265 -5.60060	60mm macro	*Lithothamnion glaciale* maerl bed	*Ascidiella virginea* on maerl, *Ophiothrix fragilis, Ophiocomina nigra*	GS
DSCF3339	22/04/2013	ML02	56.03265 -5.60060	60mm macro	*Lithothamnion glaciale* maerl bed	*Ascidiella virginea* on maerl, *Ophiothrix fragilis, Ophiocomina nigra*	GS
DSCF3340	22/04/2013	ML02	56.03265 -5.60060	60mm macro	*Lithothamnion glaciale* maerl bed	*Astropecten irregularis,* maerl, *Ophiothrix fragilis, Ophiocomina nigra*	GS
DSCF3341	22/04/2013	ML02	56.03265 -5.60060	60mm macro	*Lithothamnion glaciale* maerl bed	*Astropecten irregularis,* maerl, *Ophiothrix fragilis, Ophiocomina nigra*	GS
DSCF3343	22/04/2013	ML02	56.03265 -5.60060	60mm macro	*Lithothamnion glaciale* maerl bed	*Pomatoschistus pictus*, maerl, *Ophiothrix fragilis, Ophiocomina nigra,* algal debris	GS
DSCF3344	22/04/2013	ML02	56.03265 -5.60060	60mm macro	*Lithothamnion glaciale* maerl bed	*Pomatoschistus pictus*, maerl, *Ophiothrix fragilis, Ophiocomina nigra,* algal debris	GS
DSCF3345	22/04/2013	ML02	56.03265 -5.60060	60mm macro	*Lithothamnion glaciale* maerl bed	*Pomatoschistus pictus* maerl, *Ophiothrix fragilis, Ophiocomina nigra,* algal debris, *Phyllophora crispa*	GS
DSCF3346	22/04/2013	ML02	56.03265 -5.60060	60mm macro	*Lithothamnion glaciale* maerl bed	*Pomatoschistus pictus* maerl, *Ophiothrix fragilis, Ophiocomina nigra,* algal debris, *Phyllophora crispa*	GS
DSCF3347	22/04/2013	ML02	56.03265 -5.60060	60mm macro	*Lithothamnion glaciale* maerl bed	*Pomatoschistus pictus* maerl, *Ophiothrix fragilis, Ophiocomina nigra,* algal debris, *Phyllophora crispa*	GS
DSCF3348	22/04/2013	ML02	56.03265 -5.60060	60mm macro	*Lithothamnion glaciale* maerl bed	*Pomatoschistus pictus* maerl, *Ophiothrix fragilis, Ophiocomina nigra,* algal debris, *Phyllophora crispa*	GS

Table 8.1 continued

File name	Date	Site code	Position	Lens	Habitat	Description	Phot
DSCF3349	22/04/2013	ML02	56.03265 -5.60060	60mm macro	*Lithothamnion glaciale* maerl bed	*Pomatoschistus pictus* maerl, *Ophiothrix fragilis, Ophiocomina nigra,* algal debris, *Phyllophora crispa*	GS
DSCF3350	22/04/2013	ML02	56.03265 -5.60060	60mm macro	*Lithothamnion glaciale* maerl bed	*Pomatoschistus pictus* maerl, *Ophiothrix fragilis, Ophiocomina nigra,* algal debris, *Phyllophora crispa*	GS
DSCF3351	22/04/2013	ML02	56.03265 -5.60060	60mm macro	*Lithothamnion glaciale* maerl bed	*Pomatoschistus pictus* maerl, *Ophiothrix fragilis, Ophiocomina nigra,* algal debris, *Phyllophora crispa*	GS
DSCF2517	22/04/2013	ML02	56.03265 -5.60060	20mm	*Lithothamnion glaciale* maerl bed	Maerl bed, *Ophiothrix fragilis*	GS
DSCF2518	22/04/2013	ML02	56.03265 -5.60060	20mm	*Lithothamnion glaciale* maerl bed	Maerl bed, *Ophiothrix fragilis*	GS
DSCF2519	22/04/2013	ML02	56.03265 -5.60060	20mm	*Lithothamnion glaciale* maerl bed	Maerl bed, *Ophiothrix fragilis, Asterias rubens, Halidrys siliquosa*	GS
DSCF2520	22/04/2013	ML02	56.03265 -5.60060	20mm	*Lithothamnion glaciale* maerl bed	Maerl bed, *Ophiothrix fragilis, Asterias rubens, Halidrys siliquosa*	GS
DSCF2521	22/04/2013	ML02	56.03265 -5.60060	20mm	*Lithothamnion glaciale* maerl bed	Maerl bed, *Ophiothrix fragilis, Halidrys siliquosa*	GS
DSCF2522	22/04/2013	ML02	56.03265 -5.60060	20mm	*Lithothamnion glaciale* maerl bed	Maerl bed, *Ophiothrix fragilis, Halidrys siliquosa*	GS
DSCF2523	22/04/2013	ML02	56.03265 -5.60060	20mm	*Lithothamnion glaciale* maerl bed	Maerl bed, *Ophiothrix fragilis, Ophiocomina nigra, Phyllophora crispa*	GS
DSCF2524	22/04/2013	ML02	56.03265 -5.60060	20mm	*Lithothamnion glaciale* maerl bed	Maerl bed, *Ophiothrix fragilis, Halidrys siliquosa, Ophiocomina nigra*	GS
DSCF2525	22/04/2013	ML02	56.03265 -5.60060	20mm	*Lithothamnion glaciale* maerl bed	Maerl bed, *Ophiothrix fragilis, Halidrys siliquosa, Echinus esculentus*	GS
DSCF2526	22/04/2013	ML02	56.03265 -5.60060	20mm	*Lithothamnion glaciale* maerl bed	Maerl bed, *Ascidiella virginea, Ascidiella aspersa, Ophiothrix fragilis, Halidrys siliquosa, Ophiocomina nigra*	GS
DSCF2527	22/04/2013	ML02	56.03265 -5.60060	20mm	*Lithothamnion glaciale* maerl bed	Maerl bed, *Ascidiella virginea, Ascidiella aspersa, Ophiothrix fragilis, Halidrys siliquosa, Ophiocomina nigra*	GS
DSCF2528	22/04/2013	ML02	56.03265 -5.60060	20mm	*Lithothamnion glaciale* maerl bed	Maerl bed, *Ascidiella virginea, Ascidiella aspersa, Ophiothrix fragilis, Halidrys siliquosa, Ophiocomina nigra*	GS

Table 8.1 continued

File name	Date	Site code	Position	Lens	Habitat	Description	Phot
DSCF2529	22/04/2013	ML02	56.03265 -5.60060	20mm	*Lithothamnion glaciale* maerl bed	Maerl bed, *Ascidiella virginea, Ascidiella aspersa, Ophiothrix fragilis, Halidrys siliquosa, Ophiocomina nigra*	GS
DSCF2531	22/04/2013	ML02	56.03265 -5.60060	20mm	*Lithothamnion glaciale* maerl bed	Maerl bed, *Ascidiella virginea, Ascidiella aspersa, Ophiothrix fragilis, Halidrys siliquosa, Ophiocomina nigra*	GS
DSCF2532	22/04/2013	ML02	56.03265 -5.60060	20mm	*Lithothamnion glaciale* maerl bed	Maerl bed, *Ophiothrix fragilis, Ophiocomina nigra, drift Fucus* sp.	GS
DSCF2533	22/04/2013	ML02	56.03265 -5.60060	20mm	*Lithothamnion glaciale* maerl bed	Video survey diver on maerl bed transect. *Halidrys siliquosa, Ophiothrix fragilis*	GS
DSCF2534	22/04/2013	ML02	56.03265 -5.60060	20mm	*Lithothamnion glaciale* maerl bed	Video survey diver on maerl bed transect. *Halidrys siliquosa, Ophiothrix fragilis*	GS
DSCF2535	22/04/2013	ML02	56.03265 -5.60060	20mm	*Lithothamnion glaciale* maerl bed	Video survey diver on maerl bed transect. *Halidrys siliquosa, Ophiothrix fragilis*	GS
DSCF2536	22/04/2013	ML02	56.03265 -5.60060	20mm	*Lithothamnion glaciale* maerl bed	Maerl bed,*Saccharina latissima, Ophiothrix fragilis, Halidrys siliquosa, Ophiocomina nigra*	GS
DSCF2537	22/04/2013	ML02	56.03265 -5.60060	20mm	*Lithothamnion glaciale* maerl bed	Maerl bed,*Saccharina latissima, Ophiothrix fragilis, Halidrys siliquosa, Ophiocomina nigra*	GS
DSCF2538	22/04/2013	ML02	56.03265 -5.60060	20mm	*Lithothamnion glaciale* maerl bed	Maerl bed,*Saccharina latissima, Ophiothrix fragilis, Halidrys siliquosa, Ophiocomina nigra*	GS
DSCF2539	22/04/2013	ML02	56.03265 -5.60060	20mm	*Lithothamnion glaciale* maerl bed	Maerl bed, *Ophiothrix fragilis, Ophiocomina nigra*	GS
DSCF2540	22/04/2013	ML02	56.03265 -5.60060	20mm	*Lithothamnion glaciale* maerl bed	Maerl bed, *Ophiothrix fragilis, Ophiocomina nigra*	GS
DSCF2541	22/04/2013	ML02	56.03265 -5.60060	20mm	*Lithothamnion glaciale* maerl bed	Maerl bed, *Ophiothrix fragilis, Ophiocomina nigra*	GS
DSCF2542	22/04/2013	ML02	56.03265 -5.60060	20mm	*Lithothamnion glaciale* maerl bed	Maerl bed, *Ophiothrix fragilis, Ophiocomina nigra*	GS
DSCF2543	22/04/2013	ML02	56.03265 -5.60060	20mm	*Lithothamnion glaciale* maerl bed	Maerl bed, *Ophiothrix fragilis, Halidrys siliquosa, Ophiocomina nigra*	GS
DSCF2544	22/04/2013	ML02	56.03265 -5.60060	20mm	*Lithothamnion glaciale* maerl bed	*Echinus esculentus* on maerl bed. *Ophiothrix fragilis, Ophiocomina nigra*	GS
DSCF2545	22/04/2013	ML02	56.03265 -5.60060	20mm	*Lithothamnion glaciale* maerl bed	*Echinus esculentus* on maerl bed. *Ophiothrix fragilis, Ophiocomina nigra*	GS

Table 8.1 continued

File name	Date	Site code	Position	Lens	Habitat	Description	Phot
DSCF2546	22/04/2013	ML02	56.03265 -5.60060	20mm	*Lithothamnion glaciale* maerl bed	*Marthasterias glacialis* on maerl. *Ophiothrix fragilis, Ophiocomina nigra*	GS
DSCF2547	22/04/2013	ML02	56.03265 -5.60060	20mm	*Lithothamnion glaciale* maerl bed	*Marthasterias glacialis* on maerl. *Ophiothrix fragilis, Ophiocomina nigra*	GS
DSCF2548	22/04/2013	ML02	56.03265 -5.60060	20mm	*Lithothamnion glaciale* maerl bed	*Marthasterias glacialis* on maerl. *Ophiothrix fragilis, Ophiocomina nigra*	GS
DSCF2549	22/04/2013	ML02	56.03265 -5.60060	20mm	*Lithothamnion glaciale* maerl bed	*Marthasterias glacialis* on maerl. *Ophiothrix fragilis, Ophiocomina nigra*, *Phyllophora crispa*	GS
DSCF2550	22/04/2013	ML02	56.03265 -5.60060	20mm	*Lithothamnion glaciale* maerl bed	*Marthasterias glacialis* on maerl. *Ophiothrix fragilis, Ophiocomina nigra*, *Phyllophora crispa*	GS
DSCF2551	22/04/2013	ML02	56.03265 -5.60060	20mm	*Lithothamnion glaciale* maerl bed	*Marthasterias glacialis* on maerl. *Ophiothrix fragilis, Ophiocomina nigra*, *Phyllophora crispa*	GS
DSCF2552	22/04/2013	ML02	56.03265 -5.60060	20mm	*Lithothamnion glaciale* maerl bed	*Ascidiella virginea* on maerl, *Ophiothrix fragilis, Ophiocomina nigra*	GS
DSCF2553	22/04/2013	ML02	56.03265 -5.60060	20mm	*Lithothamnion glaciale* maerl bed	Maerl bed. *Saccharina latissima, Ophiothrix fragilis, Ophiocomina nigra*	GS
DSCF2554	22/04/2013	ML02	56.03265 -5.60060	20mm	*Lithothamnion glaciale* maerl bed	Maerl bed. *Ophiothrix fragilis, Ophiocomina nigra, Halidrys siliquosa, Corella parallelogramma*	GS
DSCF2555	22/04/2013	ML02	56.03265 -5.60060	20mm	*Lithothamnion glaciale* maerl bed	Maerl bed. *Ophiothrix fragilis, Ophiocomina nigra, Halidrys siliquosa, Corella parallelogramma*	GS
DSCF2556	22/04/2013	ML02	56.03265 -5.60060	20mm	*Lithothamnion glaciale* maerl bed	Maerl bed. *Ophiothrix fragilis, Ophiocomina nigra, Halidrys siliquosa, Corella parallelogramma*	GS
DSCF2557	22/04/2013	ML02	56.03265 -5.60060	20mm	*Lithothamnion glaciale* maerl bed	Maerl bed. *Ophiothrix fragilis, Ophiocomina nigra, Halidrys siliquosa, Corella parallelogramma*	GS
DSCF2559	22/04/2013	ML02	56.03265 -5.60060	20mm	*Lithothamnion glaciale* maerl bed	Maerl bed. *Ophiothrix fragilis, Ophiocomina nigra, Halidrys siliquosa, Ascidiella aspersa*	GS
DSCF2560	22/04/2013	ML02	56.03265 -5.60060	20mm	*Lithothamnion glaciale* maerl bed	Maerl bed. *Ophiothrix fragilis, Ophiocomina nigra, Halidrys siliquosa, Ascidiella aspersa*	GS
DSCF2561	22/04/2013	ML02	56.03265 -5.60060	20mm	*Lithothamnion glaciale* maerl bed	Maerl bed. *Ophiothrix fragilis, Ophiocomina nigra, Halidrys siliquosa, Ascidiella aspersa, Polysiphonia elongata*	GS

Table 8.1 continued

File name	Date	Site code	Position	Lens	Habitat	Description	Phot
DSCF2562	22/04/2013	ML02	56.03265 -5.60060	20mm	*Lithothamnion glaciale* maerl bed	*Ascidiella virginea* on maerl, *Ophiothrix fragilis, Ophiocomina nigra, Halidrys siliquosa*	GS
DSCF2563	22/04/2013	ML02	56.03265 -5.60060	20mm	*Lithothamnion glaciale* maerl bed	A*equipecten opercularis* on maerl, *Ophiothrix fragilis, Ophiocomina nigra*	GS
DSCF2564	22/04/2013	ML02	56.03265 -5.60060	20mm	*Lithothamnion glaciale* maerl bed	A*equipecten opercularis* on maerl, *Ophiothrix fragilis, Ophiocomina nigra*	GS
DSCF2565	22/04/2013	ML02	56.03265 -5.60060	20mm	*Lithothamnion glaciale* maerl bed	A*equipecten opercularis* on maerl, *Ophiothrix fragilis, Ophiocomina nigra*	GS
DSCF2566	22/04/2013	ML02	56.03265 -5.60060	20mm	*Lithothamnion glaciale* maerl bed	A*equipecten opercularis* on maerl, *Ophiothrix fragilis, Ophiocomina nigra*	GS
DSCF2567	22/04/2013	ML02	56.03265 -5.60060	20mm	*Lithothamnion glaciale* maerl bed	A*equipecten opercularis* on maerl, *Ophiothrix fragilis, Ophiocomina nigra*	GS
DSCF2568	22/04/2013	ML02	56.03265 -5.60060	20mm	*Lithothamnion glaciale* maerl bed	A*equipecten opercularis* on maerl, *Ophiothrix fragilis, Ophiocomina nigra*	GS
DSCF2569	22/04/2013	ML02	56.03265 -5.60060	20mm	*Lithothamnion glaciale* maerl bed	A*equipecten opercularis* on maerl, *Ophiothrix fragilis, Ophiocomina nigra*	GS
DSCF2570	22/04/2013	ML02	56.03265 -5.60060	20mm	*Lithothamnion glaciale* maerl bed	A*equipecten opercularis* on maerl, *Ophiothrix fragilis, Ophiocomina nigra, Halidrys siliquos*	GS
DSCF2571	22/04/2013	ML02	56.03265 -5.60060	20mm	*Lithothamnion glaciale* maerl bed	Video survey diver on maerl bed transect. *Ophiothrix fragilis*	GS
DSCF2572	22/04/2013	ML02	56.03265 -5.60060	20mm	*Lithothamnion glaciale* maerl bed	Video survey diver on maerl bed transect. *Ophiothrix fragilis*	GS
DSCF2573	22/04/2013	ML02	56.03265 -5.60060	20mm	*Lithothamnion glaciale* maerl bed	Video survey diver on maerl bed transect. *Ophiothrix fragilis*	GS
DSCF2574	22/04/2013	ML02	56.03265 -5.60060	20mm	*Lithothamnion glaciale* maerl bed	Video survey diver on maerl bed transect. *Ophiothrix fragilis*	GS
DSCF2575	22/04/2013	ML02	56.03265 -5.60060	20mm	*Lithothamnion glaciale* maerl bed	Video survey diver on maerl bed transect. *Ophiothrix fragilis*	GS
DSCF2576	22/04/2013	ML02	56.03265 -5.60060	20mm	*Lithothamnion glaciale* maerl bed	Video survey diver on maerl bed transect. *Ophiothrix fragilis*	GS

Table 8.2 *Details of video recorded by diver during the MNCR phase 2 surveys. Positional and depth data are given in Table 5.1 (Appendix 5). Details of the video recorded as part of the dropdown video survey are provided in Tables 2.1 and 2.2 (Appendix 2). Photographers: RC (Rob Cook)*

Site	Media	Biotope	Start (mm:ss)	End (mm:ss)	Photographer
AA08M	AA08M.mp4	SS.SMu.CFiMu.MegMax	00:00	18:41	RC
LB04M	LB04M.mp4	SS.SMu.CFiMu.MegMax	00:00	15:15	RC
LS22M	LS22M.mp4	SS.SMu.CFiMu.MegMax	00:00	13:30	RC
SM14M	SM14M.mp4	SS.SMu.CFiMu.MegMax	00:00	10:39	RC
ML01	ML01.mp4	SS.SMp.Mrl.Pcal.R	00:00	17:04	RC
ML02	ML02.mp4	SS.SMp.Mrl.Lgla	00:00	21:16	RC

APPENDIX 9: LOG OF SPECIMENS COLLECTED

Table 9.1 All taxon names follow the nomenclature of WoRMS (2013). MCS code = Marine Conservation Society taxonomic code. Identifiers are Fugro EMU (EMU) and Colin Moore (CM). Location of material includes National Museums of Scotland (NMS), Fugro EMU (EMU) and Heriot-Watt University (HWU). Numbers following the full stop refer to the sample replicate number

MCS code	Taxon	Site	Location	ID
C580	*Leuconia nivea*	ML01	NMS	CM
C5460	*Mycale (Carmia) macilenta*	ML01	NMS	CM
C5960	*Amphilectus fucorum*	ML01	NMS	CM
D7300	*Obelia dichotoma*	ML02	NMS	CM
D11310	Actiniaria spp indet	OS18	NMS	EMU
D13410	*Edwardsia claparedii*	LS31	NMS	EMU
F1	Platyhelminthes spp	LM02	NMS	EMU
G1	Nemertea spp	OS18	NMS	EMU
G460	*Tubulanus polymorphus*	AA04	NMS	EMU
G620	*Cerebratulus* sp	ML02.2	NMS	EMU
HD1	Nematoda spp	OS19	NMS	EMU
L01	Chaetognatha sp	LM02	NMS	EMU
M40	*Siboglinum* sp	OS18	NMS	EMU
N1	Sipuncula spp juv	ML01.4	NMS	EMU
N90	*Golfingia (Golfingia) elongata*	ML02.3	NMS	EMU
N109	*Golfingia (Golfingia) vulgaris vulgaris*	LS31	NMS	EMU
N190	*Thysanocardia procera*	LS31	NMS	EMU
P420	Polynoidae spp juv	ML02.2	NMS	EMU
P420	Polynoidae spp indet	ML02.2	NMS	EMU
P970	*Harmothoe clavigera*	ML01.1	NMS	EMU
P970	*Harmothoe fernandi* ?	ML01.1	NMS	EMU
P1030	*Harmothoe fragilis*	LM02	NMS	EMU
P1160	*Malmgrenia andreapolis*	SM02	NMS	EMU
P1690	*Pholoe inornata*	LM02	NMS	EMU
P1720	*Pholoe baltica*	LS18	NMS	EMU
P2000	Phyllodocidae spp juv	ML02.2	NMS	EMU
P2050	*Eteone longa* agg	ML01.1	NMS	EMU
P2680	*Eulalia* sp indet	ML02.2	NMS	EMU
P2710	*Eulalia expusilla*	ML02.3	NMS	EMU
P2830	*Eumida bahusiensis*	LS21	NMS	EMU
P2960	*Nereiphylla rubiginosa*	ML02.2	NMS	EMU
P4720	*Glycera alba*	AA01	NMS	EMU
P4760	*Glycera lapidum* agg	ML02.3	NMS	EMU
P4790	*Glycera unicornis*	LS18	NMS	EMU
P4930	*Goniada maculata*	LS31	NMS	EMU
P5270	*Sphaerodorum gracilis*	SM14	NMS	EMU
P5410	*Podarkeopsis capensis*	OS18	NMS	EMU
	Psamathe fusca	ML01.1	NMS	EMU
P5630	*Nereimyra punctata*	ML02.1	NMS	EMU
P5680	*Oxydromus flexuosus*	AA01	NMS	EMU
P5830	*Syllidia armata*	LM02	NMS	EMU
P6380	*Eurysyllis tuberculata*	ML02.2	NMS	EMU

Table 9.1 continued

MCS code	Taxon	Site	Location	ID
P6495	*Syllis garciai* ?	ML01.4	NMS	EMU
P6560	*Syllis gracilis*	ML02.2	NMS	EMU
P6610	*Trypanosyllis (Trypanosyllis) coeliaca*	ML02.3	NMS	EMU
P6860	*Eusyllis blomstrandi*	LS31	NMS	EMU
P7350	*Salvatoria clavata*	LM02	NMS	EMU
P7450	*Exogone (Exogone) naidina*	OS19	NMS	EMU
P7530	*Sphaerosyllis hystrix*	ML02.2	NMS	EMU
P7555	*Sphaerosyllis taylori*	OS19	NMS	EMU
P8280	*Alitta virens*	AA01	NMS	EMU
P8490	*Platynereis dumerilii*	LM02	NMS	EMU
P8670	*Nephtys* spp juv	AA01	NMS	EMU
P8710	*Nephtys hombergii*	LB02	NMS	EMU
P8720	*Nephtys kersivalensis*	ML02.1	NMS	EMU
P8740	*Nephtys incisa*	AA04	NMS	EMU
P9910	*Nematonereis unicornis*	LS31	NMS	EMU
P9950	Lumbrineridae spp juv	LS31	NMS	EMU
P9950	*Abyssoninoe hibernica*	LS18	NMS	EMU
P10010	*Lumbrineris cingulata /aniara*	LS31	NMS	EMU
P10620	*Dorvillea rubrovittata*	ML02.1	NMS	EMU
P11040	*Protodorvillea kefersteini*	LM06	NMS	EMU
P11280	*Leitoscoloplos mammosus*	AA01	NMS	EMU
P11790	*Levinsenia gracilis*	CS01	NMS	EMU
P11850	*Paradoneis lyra*	ML02.4	NMS	EMU
P12270	*Aonides oxycephala*	LS31	NMS	EMU
P12700	*Prionospio* cf *multibranchiata*	AA01	NMS	EMU
P12740	*Polydora* spp juv	ML02.2	NMS	EMU
P12760	*Dipolydora coeca*	LS31	NMS	EMU
P13020	*Prionospio fallax*	LM02	NMS	EMU
P13110	*Pseudopolydora* cf *paucibranchiata*	LS05	NMS	EMU
	Scolelepis korsuni	LS11	NMS	EMU
P13330	*Spio* sp	LM02	NMS	EMU
P13350	*Paraspio decorata*	LM06	NMS	EMU
P13440	*Spiophanes kroyeri*	LS21	NMS	EMU
P13620	*Magelona alleni*	LS31	NMS	EMU
P13640	*Magelona minuta*	AA01	NMS	EMU
P13750	*Chaetopterus variopedatus*	LS05	NMS	EMU
P13970	*Caulleriella killariensis*	AA08	NMS	EMU
P14030	*Chaetozone setosa*	LS22	NMS	EMU
P14080	*Cirratulus cirratus*	ML02.4	NMS	EMU
P14300	*Monticellina* sp	LS31	NMS	EMU
P14790	*Diplocirrus glaucus*	OS18	NMS	EMU
P14910	*Pherusa plumosa*	ML02.3	NMS	EMU
P15310	*Capitella capitata* agg	LM06	NMS	EMU
P15530	*Heteromastus filiformis*	ML02.2	NMS	EMU
P15580	*Mediomastus fragilis*	AA01	NMS	EMU
P15620	*Notomastus* sp	AA04	NMS	EMU
P15730	Arenicolidae spp juv	LM06	NMS	EMU
P15910	Maldanidae spp juv	OS19	NMS	EMU

P16290	*Euclymene* sp A	ML02.2	NMS	EMU
P16320	*Euclymene lombricoides*	LS23	NMS	EMU
P16330	*Euclymene oerstedi*	ML02.3	NMS	EMU
P16480	*Praxillella affinis*	SM08	NMS	EMU
P16790	*Rhodine* sp	LS11	NMS	EMU
P17270	*Polyophthalmus pictus*	LM02	NMS	EMU
P17430	*Scalibregma inflatum*	AA01	NMS	EMU
P18280	*Galathowenia oculata*	OS18	NMS	EMU
P18410	Pectinariidae spp indet	LS21	NMS	EMU
P18430	*Amphictene auricoma*	AA14	NMS	EMU
P18540	*Lagis koreni*	AA04	NMS	EMU
P18590	*Pectinaria (Pectinaria) belgica*	LB04	NMS	EMU
P18800	Ampharetidae sp juv	LM06	NMS	EMU
P18820	*Melinna* sp juv	LM06	NMS	EMU
P18860	*Melinna palmata*	AA01	NMS	EMU
P19100	*Ampharete finmarchica*	LS31	NMS	EMU
P19900	*Terebellides stroemii*	OS18	NMS	EMU
P19960	*Trichobranchus roseus*	OS18	NMS	EMU
P20190	*Eupolymnia nebulosa*	ML02.4	NMS	EMU
P21170	*Polycirrus* sp	LS21	NMS	EMU
P21500	Sabellidae spp juv	ML02.2	NMS	EMU
P21930	*Fabricia sabella*	LM02	NMS	EMU
P22720	Serpulidae spp indet	ML01.1	NMS	EMU
P22860	*Hydroides elegans*	ML01.3	NMS	EMU
P23030	*Spirobranchus lamarcki*	LS31	NMS	EMU
P23040	*Spirobranchus triqueter*	OS19	NMS	EMU
P23550	Spirorbinae spp	ML01.1	NMS	EMU
P23660	*Janua pagenstecheri*	ML01	NMS	CM
P24020	*Laeospira corallinae*	ML01	NMS	CM
P24860	*Tubificoides amplivasatus*	ML02.1	NMS	EMU
P24870	*Tubificoides benedii*	ML01.1	NMS	EMU
P24890	*Tubificoides pseudogaster*	ML01.1	NMS	EMU
P24894	*Tubificoides swirencoides*	OS19	NMS	EMU
ZM430	Enchytraeidae spp	ML01.1	NMS	EMU
P26110	*Grania* sp	ML01.4	NMS	EMU
R35180	Ostracoda spp	ML01.2	NMS	EMU
S1670	Gammaridea spp juv	LM06	NMS	EMU
S1710	*Apherusa bispinosa*	LM02	NMS	EMU
S2280	*Perioculodes longimanus*	LM02	NMS	EMU
S2790	*Amphilochus manudens*	ML01.1	NMS	EMU
S3160	*Leucothoe spinicarpa*	ML01.2	NMS	EMU
S4390	*Harpinia crenulata*	ML01.1	NMS	EMU
S4470	*Metaphoxus fultoni*	ML02.2	NMS	EMU
S5090	*Lysianassa ceratina*	ML02.1	NMS	EMU
S5390	*Orchomenella nana*	ML01.2	NMS	EMU
S5571	*Socarnes filicornis*	ML01.1	NMS	EMU
S6260	*Iphimedia minuta*	LM02	NMS	EMU
S6600	*Liljeborgia pallida*	ML01.1	NMS	EMU
S6900	*Dexamine spinosa*	LM02	NMS	EMU
S6910	*Dexamine thea*	LM02	NMS	EMU
S7100	*Ampelisca brevicornis*	LS18	NMS	EMU
S7110	*Ampelisca diadema*	LS31	NMS	EMU

S7200	*Ampelisca tenuicornis*	OS18	NMS	EMU
S8220	*Cheirocratus* sp indet female	LM02	NMS	EMU
S8250	*Cheirocratus sundevalli*	LS31	NMS	EMU
S8530	*Othomaera othonis*	LB02	NMS	EMU
S8800	*Ampithoe rubricata*	ML01.3	NMS	EMU
S9230	*Photis longicaudata*	LM02	NMS	EMU
S9350	Ischyroceridae sp indet	LM02	NMS	EMU
S9410	*Ericthonius* sp indet female	LM02	NMS	EMU
S9440	*Ericthonius punctatus*	LM02	NMS	EMU
S9550	*Jassa falcata*	OS19	NMS	EMU
S9720	Aoridae spp indet female	LS23	NMS	EMU
S9820	*Lembos websteri*	ML01.1	NMS	EMU
S9890	*Leptocheirus pectinatus*	LS23	NMS	EMU
S9960	*Microdeutopus anomalus*	LM02	NMS	EMU
S10010	*Microdeutopus versiculatus*	LM02	NMS	EMU
S10160	Corophiidae spp indet	ML02.1	NMS	EMU
S10220	*Crassicorophium bonellii*	ML02.2	NMS	EMU
S10230	*Crassicorophium crassicorne*	ML02.1	NMS	EMU
S10260	*Monocorophium sextonae*	ML02.1	NMS	EMU
S10260	*Monocorophium sextonae*	ML01	NMS	CM
S10270	*Corophium volutator*	OS18	NMS	EMU
S10720	*Caprella acanthifera*	LM02	NMS	EMU
S10960	*Phtisica marina*	LS31	NMS	EMU
S11010	*Pseudoprotella phasma*	LS31	NMS	EMU
S14730	*Jaera* sp	ML01.3	NMS	EMU
S15050	*Munna* sp	ML02.2	NMS	EMU
S19310	*Tanaopsis graciloides*	LS31	NMS	EMU
S19940	*Vaunthompsonia cristata*	OS19	NMS	EMU
S20210	*Eudorella emarginata*	OS18	NMS	EMU
S20220	*Eudorella truncatula*	LB04	NMS	EMU
S20550	*Nannastacus unguiculatus*	ML01.2	NMS	EMU
S20980	*Diastylis laevis*	OS19	NMS	EMU
S23840	*Jaxea nocturna*	LS21	NMS	EMU
W550	*Leptochiton asellus*	ML01.2	NMS	EMU
W1080	*Emarginula* sp indet	OS19	NMS	EMU
W1260	*Tectura virginea*	ML01.3	NMS	EMU
W1610	*Margarites helicinus*	ML01.1	NMS	EMU
W2720	*Peringia ulvae*	CS01	NMS	EMU
W2850	*Rissoa parva*	ML02.3	NMS	EMU
W3070	*Alvania beanii*	ML01.1	NMS	EMU
W3180	*Crisilla semistriata*	ML02.2	NMS	EMU
W3260	*Manzonia crassa*	ML01.1	NMS	EMU
W3380	*Onoba aculeus*	ML01.1	NMS	EMU
W3600	*Hyala vitrea*	AA04	NMS	EMU
W4550	*Bittium reticulatum*	ML01.1	NMS	EMU
W5540	*Odostomia eulimoides*	ML01.1	NMS	EMU
W9690	*Cylichna cylindracea*	LS21	NMS	EMU
W9770	*Philine* sp	AA01	NMS	EMU
W11130	*Berthella plumula*	LM04	NMS	EMU
W16180	*Nucula nitidosa*	OS18	NMS	EMU
W16190	*Nucula nucleus*	LS31	NMS	EMU
W16480	Mytilidae spp juv	ML01.1	NMS	EMU

W16640	*Musculus discors*	ML01.1	NMS	EMU
W16830	*Modiolula phaseolina*	ML01.1	NMS	EMU
W18130	Anomiidae spp juv	ML01.1	NMS	EMU
W18200	*Monia patelliformis*	ML01.1	NMS	EMU
W18380	*Myrtea spinifera*	OS18	NMS	EMU
W18420	*Lucinoma borealis*	OS18	NMS	EMU
W18500	*Thyasira* sp juv	OS18	NMS	EMU
W18520	*Thyasira flexuosa*	OS18	NMS	EMU
W18800	*Hemilepton nitidum*	ML01.1	NMS	EMU
W19050	*Kurtiella bidentata*	AA01	NMS	EMU
W19750	*Parvicardium exiguum*	LM02	NMS	EMU
W20320	*Phaxas pellucidus*	OS18	NMS	EMU
W21010	*Abra* spp juv	OS18	NMS	EMU
W21020	*Abra alba*	LM02	NMS	EMU
W21040	*Abra nitida*	AA01	NMS	EMU
W21620	*Dosinia* sp juv	OS18	NMS	EMU
W21660	*Dosinia exoleta*	LS31	NMS	EMU
W21690	*Tapes* sp juv	ML01.1	NMS	EMU
W21810	*Polititapes virgineus*	ML01.3	NMS	EMU
W21880	*Chamelea* sp juv	AA01	NMS	EMU
W22010	*Timoclea ovata*	ML01.1	NMS	EMU
W22130	*Mysia undata*	LS31	NMS	EMU
W22180	*Turtonia minuta*	ML01.1	NMS	EMU
W22250	*Mya* sp juv	ML02.2	NMS	EMU
W22390	*Corbula gibba*	AA01	NMS	EMU
W22510	*Hiatella arctica*	LS31	NMS	EMU
W22590	*Saxicavella jeffreysi*	LS27	NMS	EMU
W23480	*Thracia* sp juv	ML02.4	NMS	EMU
W23500	*Thracia convexa*	LS23	NMS	EMU
W23530	*Thracia villosiuscula*	ML01.4	NMS	EMU
ZA30	*Phoronis sp*	AA01	NMS	EMU
ZB310	Asteroidea spp juv	ML01.3	NMS	EMU
ZB410	*Astropecten irregularis*	CS06	NMS	EMU
ZB1900	*Asterias rubens*	LM02	NMS	EMU
ZB2040	Ophiuroidea spp juv	LM02	NMS	EMU
ZB2040	Ophiuroidea sp indet	OS19	NMS	EMU
ZB2350	*Ophiothrix fragilis*	ML02.4	NMS	EMU
ZB2420	*Ophiocomina nigra*	LM02	NMS	EMU
ZB2860	*Amphiura chiajei*	LB04	NMS	EMU
ZB2880	*Amphiura filiformis*	LS08	NMS	EMU
ZB3000	*Amphipholis squamata*	ML02.1	NMS	EMU
ZB3530	Parechinidae sp juv	LM02	NMS	EMU
ZB4070	*Echinocardium cordatum*	LS08	NMS	EMU
ZB4570	Cucumariidae sp juv	OS18	NMS	EMU
ZB5200	Synaptidae sp indet	SM02	NMS	EMU
ZB5240	*Leptosynapta bergensis*	LS23	NMS	EMU
ZB5250	*Leptosynapta cruenta*	ML01.3	NMS	EMU
ZB5253	*Leptosynapta decaria* ?	ML02.2	NMS	EMU
ZM4910	*Phymatolithon calcareum*	ML01	HWU	CM
ZM7400	*Chylocladia verticillata*	ML01	HWU	CM
ZM8235	*Ceramium pallidum*	ML01	HWU	CM
ZM11010	*Polysiphonia* sp	ML01	HWU	CM

ZM11050	*Polysiphonia elongata*	ML01	HWU	CM
ZM11125	*Neosiphonia harveyi*?	ML01	HWU	CM
ZM11450	*Rhodomela confervoides*	ML01	HWU	CM
ZR320	*Ectocarpus siliculosus*	ML01	HWU	CM
ZR2810	*Leathesia marina*	ML01	HWU	CM
ZR3600	*Myriocladia tomentosa*?	ML01	HWU	CM
ZR3890	*Cutleria multifida*	ML02	HWU	CM
ZR4120	*Sphacelaria* sp	ML02	HWU	CM
ZR4390	*Cladostephus spongiosus*	ML01	HWU	CM
ZR5280	*Stictyosiphon* sp	ML02	HWU	CM
ZR5500	*Asperococcus fistulosus*	ML01	HWU	CM
ZR6250	*Chorda filum* juv	ML01	HWU	CM
ZS3160	*Spongomorpha aeruginosa*	ML01	HWU	CM
ZS4220	*Codium tomentosum*	ML02	HWU	CM

APPENDIX 10: HISTORICAL RECORDS OF TARGET FEATURES FOR THE SURVEY AREA

Table 10.1 Sources of records of historical target proposed protected features. Most records are contained within Marine Recorder (MR), with additional souirces listed at the bottom of the table

Year of survey	MR Survey name or survey location	Survey type	Reference	MR survey code
1982	1982 UCS Loch Sween sublittoral survey	Epibiota by diving	Earll, 1982, 1984	JNCCMNCR60000050
1982?	1984 Scottish Saline Lagoons	Epibiota by literature review	Smith, 1984	MRMLN00400000015
1982-5	1982-85 NCC Loch Sween littoral habitats review	Epibiota by literature review	Hiscock and Smith, 1986	JNCCMNCR10000097
1984	1984 Smith Loch Sween mollusc and polychaete littoral survey	Epibiota by littoral recording	Smith, 1985	JNCCMNCR10000081
1984	1984 OPRU Upper Loch Sween littoral survey	Epibiota by littoral recording	Rostron and Hiscock, 1985	JNCCMNCR10000098
1984	1984 NCC/OPRU Loch Sween sublittoral survey	Epibiota by diving	Lumb, 1986	JNCCMNCR10000046
1985	1985 Smith Loch Sween littoral survey	Epibiota by littoral recording	Smith, 1986	JNCCMNCR10000099
1985	1985 NCC Loch Sween sublittoral survey	Epibiota and infauna by diving, dredge and suction sampler	Lumb and Hiscock, 1990	JNCCMNCR10000267
1987	1987 UMBSM Loch Sween burrowing megafauna survey	Burrowing megafauna by diving, hand-operated cores and resin casts	Atkinson, 1987	JNCCMNCR10000065
1990	1990 Loch Sween, Conwy and the Solent Ostrea edulis collection	*Ostrea edulis* sampling	Marine Recorder	MRMLN001000000CF
1999	1999 Monitoring within Linne Mhuirich and Rapids	Epibiota by diving and video and maerl infauna by coring	Bunker, 1999	MRSNH0230000000D
2006	2006 Seasearch Loch Sween	Epibiota by diving	Marine Recorder	MRMCS0020000004B
2008	2008 Seasearch Loch Sween	Epibiota by diving	Marine Recorder	MRMCS0070000006B
2008	2008 SNH Monitoring within Linne Mhuirich and Rapids	Epibiota by diving and video	Allen and Birkett, in prep	MRSNH0230000000E
2010	2010 SNH Loch Sween sub-littoral survey	Epibiota by video, infauna by grab	Allen and Birkett, in prep	MRSNH02300000003
2010	2010 SEPA Loch Sween sub-littoral survey	Infaunal sampling by grab	Allen and Birkett, in prep	MRSNH02300000005

Table 10.1 continued

Year of survey	MR Survey name or survey location	Survey type	Reference	MR survey code
1943-7	Caol Scotnish	Infaunal (grab) and epibenthic (trawl) sampling	Raymont, 1950	N/A
1999	-	Diver recording of serpulid reefs, oysters and Zostera	Paisley, 1999	N/A
2002-3	Caol Scotnish narrows	Monitoring of gadoid fish density using nets and diver counts	Kamenos *et al*., 2004	N/A
2004-5	-	Measurements of *Ostrea edulis* density by diving	UMBSM, 2007	N/A
2012	Seasearch survey of Caol Scotnish rapids	Epibiota by diving	Paisley (pers. comm.)	N/A

Table 10.2 Records of target habitats from October 2012 snapshot of Marine Recorder, with location and depth data (m below chart datum - black text or sea level - red text). Code is the record identifier used in the figures and text of this report. Depth_low=lower boundary, Depth_hi=upper boundary. Both Marine Recorder and corrected positions are given

Code	Sample_Ref	SurveyKey	EventName	Date	Lat	Long	Lat_MR	Long_MR	Depth_low	Depth_hi
1	050.8/5.003	JNCCMNCR60000050	Linne Mhuirich (Loch Sween)	16/05/1982	55.98597	-5.65546	55.98661	-5.65683	-1.0	0.0
2	267.063.001	JNCCMNCR10000267	Off Tayvallich Quay, Loch a'Bhealaich (Loch Sween)	01/09/1985	56.02470	-5.62298	56.02532	-5.62197	-5.5	
3	MRSNH02300000010.01	MRSNH02300000003	Loch Sween Stn 14/2010	22/11/2010	55.94765	-5.67093	55.94765	-5.67093	-16.0	-16.0
4	MRSNH02300000012.01	MRSNH02300000003	Loch Sween Stn 15/2010	22/11/2010	55.92830	-5.68625	55.92830	-5.68625	-16.0	-16.0
5	MRSNH0230000001C.01	MRSNH02300000005	Mid Danna	01/01/2010	55.94067	-5.67679	55.94067	-5.67679	-14.0	-14.0
6	MRSNH02300000021.01	MRSNH02300000006	Mid Danna	01/01/2009	55.94067	-5.67679	55.94067	-5.67679	-16.0	-16.0
7	050.1/6.001	JNCCMNCR60000050	Achnamara Arm (Loch Sween)	09/05/1982	56.01239	-5.59363	56.01239	-5.59363	-20.0	
8	050.12/2.001	JNCCMNCR60000050	Caol Scotnish, opposite Gallchoille in middle (Loch Sween)	20/05/1982	56.04885	-5.58319	56.04890	-5.58401	-6.0	
9	050.12/4.001	JNCCMNCR60000050	Caol Scotnish, salmon cage (Loch Sween)	20/05/1982	56.03888	-5.59112	56.03822	-5.59282	-11.0	
10	050.3/3.001	JNCCMNCR60000050	Caol Scotnish (Loch Sween)	11/05/1982	56.04275	-5.58858	56.04275	-5.58858	-10.0	
11	050.5/8.001	JNCCMNCR60000050	middle, Loch Sween (Loch Sween)	13/05/1982	55.96327	-5.65271	55.96327	-5.65271	-13.0	
12	267.004.004	JNCCMNCR10000267	S Linne Mhuirich (Loch Sween)	26/08/1985	55.98478	-5.65983	55.98548	-5.66154	-1.0	
13	267.063.001	JNCCMNCR10000267	Off Tayvallich Quay, Loch a'Bhealaich (Loch Sween)	01/09/1985	56.02470	-5.62298	56.02532	-5.62197	-5.5	
14	046.029.001	JNCCMNCR10000046	W of deep hole, Linne Mhuirich (Loch Sween)	04/09/1984	55.98737	-5.65851	55.98737	-5.65851		

Table 10.2 continued

Code	Sample_Ref	SurveyKey	EventName	Date	Lat	Long	Lat_MR	Long_MR	Depth_low	Depth_hi
15	050.1/9.001	JNCCMNCR60000050	Achnamara Arm (Loch Sween)	09/05/1982	56.01638	-5.58674	56.01554	-5.58734	-7.5	-5.0
16	050.12/11.001	JNCCMNCR60000050	Caol Scotnish (Loch Sween)	20/05/1982	56.02162	-5.61616	56.02162	-5.61616	-16.0	
17	050.8/5.001	JNCCMNCR60000050	Linne Mhuirich (Loch Sween)	16/05/1982	55.98674	-5.65760	55.98661	-5.65683	-14.0	0.0
18	065.006.001	JNCCMNCR10000065	Opposite Eilean Mhartan, Achnamara Arm (Loch Sween)	23/06/1987	56.01902	-5.57825	56.01941	-5.57807	-8.0	-8.0
19	267.004.001	JNCCMNCR10000267	S Linne Mhuirich (Loch Sween)	26/08/1985	55.98478	-5.65983	55.98548	-5.66154	-4.0	-3.0
20	267.011.003	JNCCMNCR10000267	S of Oib Rocks, Loch a'Bhealaich (Loch Sween)	27/08/1985	56.02146	-5.61191	56.02017	-5.61346	-12.0	-10.0
21	267.013.006	JNCCMNCR10000267	Entrance to Caol Scotnish (Loch Sween)	27/08/1985	56.02359	-5.61029	56.02480	-5.60907	-10.0	-7.0
22	267.062.001	JNCCMNCR10000267	S of quay, Tayvallich, Loch a'Bhealaich (Loch Sween)	01/09/1985	56.02234	-5.62526	56.02178	-5.62003	-5.5	
23	267.135.001	JNCCMNCR10000267	E of Rubha Bhreatanich (Loch Sween)	05/09/1985	55.96212	-5.65715	55.96127	-5.65925	-8.0	-8.0
24	046.030.001	JNCCMNCR10000046	E of deep hole, Linne Mhuirich (Loch Sween)	04/09/1984	55.98643	-5.65568	55.98662	-5.65363		
25	050.1/10.001	JNCCMNCR60000050	Achnamara Arm (Loch Sween)	09/05/1982	56.02034	-5.57567	56.01994	-5.57523	-9.5	
26	267.004.002	JNCCMNCR10000267	S Linne Mhuirich (Loch Sween)	26/08/1985	55.98478	-5.65983	55.98548	-5.66154	-3.0	-2.0
27	267.004.004	JNCCMNCR10000267	S Linne Mhuirich (Loch Sween)	26/08/1985	55.98478	-5.65983	55.98548	-5.66154	-1.0	
28	267.006.002	JNCCMNCR10000267	NE of Castle Sween (Loch Sween)	26/08/1985	55.95297	-5.66410	55.95221	-5.66160	-10.0	-4.0
29	267.008.001	JNCCMNCR10000267	S basin, Caol Scotnish (Loch Sween)	27/08/1985	56.04154	-5.58976	56.04154	-5.58976	-10.0	-10.0
30	046.028.001	JNCCMNCR10000046	Deep hole, Linne Mhuirich (Loch Sween)	04/09/1984	55.98697	-5.65765	55.98739	-5.65771		

Table 10.2 continued

Code	Sample_Ref	SurveyKey	EventName	Date	Lat	Long	Lat_MR	Long_MR	Depth_low	Depth_hi
31	046.029.001	JNCCMNCR10000046	W of deep hole, Linne Mhuirich (Loch Sween)	04/09/1984	55.98737	-5.65851	55.98737	-5.65851		
32	046.033.002	JNCCMNCR10000046	North basin cliff, Caol Scotnish (Loch Sween)	05/09/1984	56.04761	-5.58502	56.04796	-5.58553	-7.0	-5.0
33	050.12/4.001	JNCCMNCR60000050	Caol Scotnish, salmon cage (Loch Sween)	20/05/1982	56.03888	-5.59112	56.03822	-5.59282	-11.0	
34	050.3/1.001	JNCCMNCR60000050	Loch Craiglin (Loch Sween)	11/05/1982	56.03102	-5.58075	56.03102	-5.58075	-5.0	0.0
35	065.001.001	JNCCMNCR10000065	N basin, Caol Scotnish (Loch Sween)	21/06/1987	56.04732	-5.58532	56.04702	-5.58705	-7.0	-7.0
36	267.007.001	JNCCMNCR10000267	N basin cliff, Caol Scotnish (Loch Sween)	27/08/1985	56.04800	-5.58395	56.04796	-5.58553	-10.0	-5.0
37	046.025.003	JNCCMNCR10000046	N of quarry, Linne Mhuirich (Loch Sween)	04/09/1984	56.01009	-5.63887	56.01040	-5.63983	-3.0	0.0
38	046.026.003	JNCCMNCR10000046	Quarry, Linne Mhuirich (Loch Sween)	04/09/1984	56.00763	-5.64099	56.00767	-5.64117		
39	046.030.001	JNCCMNCR10000046	E of deep hole, Linne Mhuirich (Loch Sween)	04/09/1984	55.98643	-5.65568	55.98662	-5.65363		
40	050.12/1.001	JNCCMNCR60000050	Caol Scotnish, head (Loch Sween)	20/05/1982	56.05155	-5.57944	56.05155	-5.57944	-2.0	0.0
41	050.5/8.001	JNCCMNCR60000050	middle, Loch Sween (Loch Sween)	13/05/1982	55.96327	-5.65271	55.96327	-5.65271	-13.0	
42	050.8/3.001	JNCCMNCR60000050	Linne Mhuirich (Loch Sween)	16/05/1982	56.00575	-5.64196	56.00575	-5.64196	-4.0	0.0
43	050.8/5.002	JNCCMNCR60000050	Linne Mhuirich (Loch Sween)	16/05/1982	55.98708	-5.65877	55.98661	-5.65683	-3.0	
44	050.8/5.004	JNCCMNCR60000050	Linne Mhuirich (Loch Sween)	16/05/1982	55.98615	-5.65597	55.98661	-5.65683	-4.0	-1.0
45	050.8/7.001	JNCCMNCR60000050	Linne Mhuirich (Loch Sween)	16/05/1982	55.99257	-5.65326	55.98328	-5.65107	-5.0	
46	050.8/7.002	JNCCMNCR60000050	Linne Mhuirich (Loch Sween)	16/05/1982	55.99257	-5.65326	55.98328	-5.65107	-5.0	
47	267.035.001	JNCCMNCR10000267	Keillbeg jetty, Loch na Cille (Loch Sween)	29/08/1985	55.96018	-5.69437	55.96017	-5.69601	-5.0	0.0

Table 10.2 continued

Code	Sample_Ref	SurveyKey	EventName	Date	Lat	Long	Lat_MR	Long_MR	Depth_low	Depth_hi
48	267.016.004	JNCCMNCR10000267	W of Rubha na Marraidh (Loch Sween)	28/08/1985	56.01695	-5.59858	56.01611	-5.59863	-18.0	-14.0
49	267.120.001	JNCCMNCR10000267	Sailean Mh¢r (Loch Sween)	05/09/1985	56.02904	-5.58447	56.02998	-5.58547	-19.0	-19.0
50	267.121.001	JNCCMNCR10000267	Sailean Mh¢r (Loch Sween)	05/09/1985	56.02814	-5.58690	56.02814	-5.58690	-19.0	-19.0
51	267.122.001	JNCCMNCR10000267	E of Rubha `an Oib (Loch Sween)	05/09/1985	56.02372	-5.59415	56.02437	-5.59298	-16.0	-16.0
52	267.128.001	JNCCMNCR10000267	Central Daltot (Loch Sween)	05/09/1985	55.99899	-5.61998	56.00111	-5.61970	-24.0	-24.0
53	267.130.001	JNCCMNCR10000267	SE Sgeirean a' Mhain (Loch Sween)	05/09/1985	55.97164	-5.64321	55.97071	-5.64411	-27.0	-27.0
54	267.131.001	JNCCMNCR10000267	SE Sgeirean a' Mhain (Loch Sween)	05/09/1985	55.97129	-5.64257	55.97076	-5.64251	-20.0	-20.0
55	267.132.001	JNCCMNCR10000267	NW Sgeirean a' Mhain (Loch Sween)	05/09/1985	55.97317	-5.65236	55.97317	-5.65236	-18.0	-18.0
56	267.134.001	JNCCMNCR10000267	E of Taynish Island (Loch Sween)	05/09/1985	55.98501	-5.63514	55.98360	-5.63410	-20.0	-20.0
57	MRMCS00200000289.02	MRMCS0020000004B	Craiglin Outfall	21/09/2006	56.03111	-5.57755	56.03111	-5.57755	-13.7	-11.7
58	MRSNH02300000002.01	MRSNH02300000003	Loch Sween Stn 0/2010	23/11/2010	56.03023	-5.58119	56.03023	-5.58119	-13.0	-13.0
59	MRSNH02300000006.01	MRSNH02300000003	Loch Sween Stn 4/2010	22/11/2010	55.99562	-5.62351	55.99562	-5.62351	-20.0	-20.0
60	MRSNH0230000000A.01	MRSNH02300000003	Loch Sween Stn 8/2010	22/11/2010	55.97104	-5.64513	55.97104	-5.64513	-24.0	-24.0
61	MRSNH02300000016.01	MRSNH02300000003	Loch Sween Stn 20/2010	22/11/2010	56.01330	-5.59606	56.01330	-5.59606	-17.0	-17.0
62	MRSNH02300000017.01	MRSNH02300000003	Loch Sween Stn 21/2010	22/11/2010	56.01231	-5.58974	56.01231	-5.58974	-16.0	-16.0
63	MRSNH02300000019.01	MRSNH02300000003	Loch Sween Stn 23/2010	22/11/2010	56.01528	-5.57974	56.01528	-5.57974	-11.0	-11.0
64	MRSNH0230000001A.01	MRSNH02300000003	Loch Sween Stn 24/2010	23/11/2010	56.03585	-5.57342	56.03585	-5.57342	-12.0	-12.0
65	MRSNH0230000001F.01	MRSNH02300000005	Craiglin	01/01/2010	56.03386	-5.57862	56.03386	-5.57862	-14.0	-14.0

Table 10.2 continued

Code	Sample_Ref	SurveyKey	EventName	Date	Lat	Long	Lat_MR	Long_MR	Depth_low	Depth_hi
66	MRSNH02300000023.01	MRSNH02300000006	Sron Bheith	01/01/2009	56.01834	-5.60404	56.01834	-5.60404	-16.0	-16.0
67	267.133.001	JNCCMNCR10000267	SE Sgeirean a'Mhain (Loch Sween)	05/09/1985	55.97178	-5.64386	55.97156	-5.64579	-22.0	-22.0
68	050.1/12.001	JNCCMNCR60000050	Achnamara Arm (Loch Sween)	17/05/1982	56.01395	-5.57990	56.01413	-5.58015	-11.0	
69	050.1/13.001	JNCCMNCR60000050	Achnamara Arm (Loch Sween)	20/05/1982	56.01722	-5.57839	56.02075	-5.57819	-11.0	
70	050.5/3.001	JNCCMNCR60000050	middle, Loch Sween (Loch Sween)	13/05/1982	56.01282	-5.61131	56.01328	-5.60944	-31.0	
71	065.002.001	JNCCMNCR10000065	S basin, Caol Scotnish (Loch Sween)	21/06/1987	56.04147	-5.58948	56.04154	-5.58976	-9.0	-9.0
72	065.003.001	JNCCMNCR10000065	S shore, Loch A'Bhealaich (Loch Sween)	22/06/1987	56.02088	-5.61780	56.02093	-5.61834	-13.0	-13.0
73	065.004.001	JNCCMNCR10000065	E of Rubha Cladh Eoin, Achnamara Arm (Loch Sween)	22/06/1987	56.01543	-5.58647	56.01554	-5.58734	-15.0	-15.0
74	065.005.001	JNCCMNCR10000065	Bay NW of Eilean Mhartan, Achnamara Arm (Loch Sween)	23/06/1987	56.01968	-5.58007	56.02026	-5.57975	-9.0	-5.0
75	065.007.001	JNCCMNCR10000065	NE of Ashfield, Achnamara Arm (Loch Sween)	24/06/1987	56.01203	-5.58294	56.01209	-5.58221	-15.0	-15.0
76	065.008.001	JNCCMNCR10000065	Mouth of Achnamara Arm, opposite Rubha Cladh Eoin (Loch Sween)	24/06/1987	56.01259	-5.59491	56.01257	-5.59669	-20.0	-20.0
77	065.009.001	JNCCMNCR10000065	Around pinnacle W of Rubha na Marraidh, Sailean Mh¢r (Loch Sween)	25/06/1987	56.01720	-5.60095	56.01691	-5.60191	-22.0	-16.0
78	065.010.001	JNCCMNCR10000065	E side of Sailean Mh¢r, S of Faery Isles (Loch Sween)	26/06/1987	56.02446	-5.59077	56.02536	-5.58986	-20.0	-19.0
79	065.011.001	JNCCMNCR10000065	Head of Sailean Mh¢r (Loch Sween)	26/06/1987	56.03757	-5.57172	56.03757	-5.57172	-14.0	-14.0

Table 10.2 continued

Code	Sample_Ref	SurveyKey	EventName	Date	Lat	Long	Lat_MR	Long_MR	Depth_low	Depth_hi
80	065.013.001	JNCCMNCR10000065	Mouth of Sailean Mh¢r (Loch Sween)	27/06/1987	56.02279	-5.59564	56.02253	-5.59441	-19.0	-19.0
81	065.014.001	JNCCMNCR10000065	Centre of outer half of Achnamara Arm (Loch Sween)	25/06/1987	56.01347	-5.58568	56.01379	-5.58557	-17.0	-17.0
82	065.015.001	JNCCMNCR10000065	E Sailean Mh¢r, opposite Faery Isles (Loch Sween)	27/06/1987	56.02979	-5.58198	56.03007	-5.58227	-16.0	-11.0
83	MRSNH02300000003.01	MRSNH02300000003	Loch Sween Stn 1/2010	23/11/2010	56.02410	-5.59266	56.02410	-5.59266	-16.0	-16.0
84	MRSNH02300000005.01	MRSNH02300000003	Loch Sween Stn 3/2010	22/11/2010	56.00063	-5.61710	56.00063	-5.61710	-20.0	-20.0
85	MRSNH02300000007.01	MRSNH02300000003	Loch Sween Stn 5/2010	22/11/2010	55.98133	-5.63425	55.98133	-5.63425	-18.0	-18.0
86	MRSNH0230000000E.01	MRSNH02300000003	Loch Sween Stn 12/2010	22/11/2010	55.95917	-5.66429	55.95917	-5.66429	-18.0	-18.0
87	MRSNH02300000015.01	MRSNH02300000003	Loch Sween Stn 19/2010	22/11/2010	56.00080	-5.61155	56.00080	-5.61155	-20.0	-20.0
88	MRSNH02300000018.01	MRSNH02300000003	Loch Sween Stn 22/2010	22/11/2010	56.01389	-5.58436	56.01389	-5.58436	-14.0	-14.0
89	MRSNH02300000020.01	MRSNH02300000006	Surveillance site	01/01/2009	55.98705	-5.63115	55.98705	-5.63115	-14.0	-14.0
90	046.039.003	JNCCMNCR10000046	S of Sr•n Bheith (Loch Sween)	08/09/1984	56.01540	-5.61273	56.01663	-5.61152	-19.0	-19.0
91	050.1/1.001	JNCCMNCR60000050	Achnamara Arm (Loch Sween)	09/05/1982	56.01442	-5.59912	56.01411	-5.59941	-21.0	
92	050.1/3.001	JNCCMNCR60000050	Achnamara Arm (Loch Sween)	09/05/1982	56.01183	-5.58389	56.01491	-5.58439	-17.5	
93	050.1/4.001	JNCCMNCR60000050	Achnamara Arm (Loch Sween)	09/05/1982	56.01087	-5.59333	56.01087	-5.59333	-14.0	
94	050.1/7.001	JNCCMNCR60000050	Achnamara Arm (Loch Sween)	09/05/1982	56.01632	-5.58047	56.01658	-5.57941	-14.0	
95	050.1/8.001	JNCCMNCR60000050	Achnamara Arm (Loch Sween)	09/05/1982	56.01441	-5.59526	56.01441	-5.59526	-13.5	
96	050.10/2.002	JNCCMNCR60000050	Taynish (Loch Sween)	17/05/1982	55.99648	-5.63122	55.99661	-5.63195	-20.0	0.0
97	050.10/4.002	JNCCMNCR60000050	Sailean Mh¢r, near Craiglin (Loch Sween)	20/05/1982	56.03239	-5.57700	56.03201	-5.57763	-15.0	0.0

Table 10.2 continued

Code	Sample_Ref	SurveyKey	EventName	Date	Lat	Long	Lat_MR	Long_MR	Depth_low	Depth_hi
98	050.2/1.001	JNCCMNCR60000050	Sailean Mh¢r (Loch Sween)	10/05/1982	56.02413	-5.59199	56.02413	-5.59199	-18.5	-17.0
99	050.2/4.001	JNCCMNCR60000050	Sailean Mh¢r (Loch Sween)	10/05/1982	56.03030	-5.58694	56.03030	-5.58694	-14.0	
100	050.2/5.001	JNCCMNCR60000050	Sailean Mh¢r (Loch Sween)	10/05/1982	56.03326	-5.57565	56.03394	-5.57604	-17.5	
101	050.2/7.001	JNCCMNCR60000050	Sailean Mh¢r (Loch Sween)	10/05/1982	56.02828	-5.58531	56.02828	-5.58531	-17.5	
102	050.2/8.001	JNCCMNCR60000050	Sailean Mh¢r (Loch Sween)	10/05/1982	56.03973	-5.56855	56.03973	-5.56855	-16.5	
103	050.2/9.001	JNCCMNCR60000050	Sailean Mh¢r (Loch Sween)	10/05/1982	56.01896	-5.60220	56.01995	-5.60268	-24.0	
104	050.5/1.001	JNCCMNCR60000050	upper Loch Sween (Loch Sween)	13/05/1982	56.02158	-5.61439	56.02158	-5.61439	-14.5	
105	050.5/5.001	JNCCMNCR60000050	middle, Loch Sween (Loch Sween)	13/05/1982	55.98908	-5.63108	55.98908	-5.63108	-21.0	
106	050.5/7.001	JNCCMNCR60000050	middle, Loch Sween (Loch Sween)	13/05/1982	55.95742	-5.66770	55.95742	-5.66770	-28.0	
107	050.5/9.001	JNCCMNCR60000050	middle, Loch Sween (Loch Sween)	13/05/1982	55.97494	-5.64114	55.97494	-5.64114	-27.0	
108	065.012.001	JNCCMNCR10000065	Faery (Fairy) Isle approaches, Sailean Mh¢r (Loch Sween)	27/06/1987	56.02953	-5.59077	56.02979	-5.59188	-14.0	-10.0
109	267.020.001	JNCCMNCR10000267	NE Port Lunna, Achnamara Arm (Loch Sween)	28/08/1985	56.01899	-5.59248	56.01899	-5.59248	-7.0	-5.0
110	267.006.002	JNCCMNCR10000267	NE of Castle Sween (Loch Sween)	26/08/1985	55.95297	-5.66410	55.95221	-5.66160	-10.0	-4.0
111	267.011.005	JNCCMNCR10000267	S of Oib Rocks, Loch a'Bhealaich (Loch Sween)	27/08/1985	56.02017	-5.61346	56.02017	-5.61346	-13.0	-7.0
112	267.012.003	JNCCMNCR10000267	W of Oib Rocks, Loch a'Bhealaich (Loch Sween)	27/08/1985	56.02260	-5.61336	56.02102	-5.61514	-14.0	-10.0
113	267.029.001	JNCCMNCR10000267	Deep hole, Loch na Cille (Loch Sween)	29/08/1985	55.95140	-5.70563	55.95177	-5.70643	-20.0	-18.0

Table 10.2 continued

Code	Sample_Ref	SurveyKey	EventName	Date	Lat	Long	Lat_MR	Long_MR	Depth_low	Depth_hi
114	267.039.001	JNCCMNCR10000267	S of Rubha na Marraidh, Achnamara Arm (Loch Sween)	30/08/1985	56.01271	-5.59783	56.01252	-5.59830	-22.0	-17.0
115	267.044.001	JNCCMNCR10000267	N of Ashfield, Achnmara Arm (Loch Sween)	30/08/1985	56.01191	-5.58861	56.01191	-5.58861	-16.0	
116	267.045.001	JNCCMNCR10000267	N of Ashfield, Achnamara Arm (Loch Sween)	30/08/1985	56.01340	-5.58882	56.01280	-5.58869	-17.0	
117	267.046.001	JNCCMNCR10000267	N of Ashfield, Achnamara Arm (Loch Sween)	30/08/1985	56.01447	-5.58887	56.01370	-5.58877	-18.0	
118	267.048.001	JNCCMNCR10000267	Head of basin, Achnamara Arm (Loch Sween)	30/08/1985	56.01460	-5.58292	56.01568	-5.58254	-15.0	-14.0
119	267.049.001	JNCCMNCR10000267	Head of basin, Achnamara Arm (Loch Sween)	30/08/1985	56.01609	-5.58418	56.01653	-5.58422	-15.0	-14.0
120	267.053.001	JNCCMNCR10000267	Pinnacle, Sgeirean a' Mhain (Loch Sween)	31/08/1985	55.97585	-5.64211	55.97331	-5.64756	-19.0	-18.0
121	267.055.001	JNCCMNCR10000267	Rubh 'an Tacair (Loch Sween)	31/08/1985	55.97765	-5.63045	55.97742	-5.63031	-10.0	-7.0
122	267.059.003	JNCCMNCR10000267	Tayvallich entrance, Loch a'Bhealaich (Loch Sween)	01/09/1985	56.02311	-5.62084	56.02267	-5.62011	-12.0	-12.0
123	267.060.001	JNCCMNCR10000267	Loch a'Bhealaich (Loch Sween)	01/09/1985	56.02056	-5.61773	56.02008	-5.61666		-8.0
124	267.065.001	JNCCMNCR10000267	Loch na Cille (Loch Sween)	02/09/1985	55.95394	-5.70541	55.95356	-5.70660	-20.0	-20.0
125	267.077.002	JNCCMNCR10000267	Sill at Sgeir an Duin (Loch Sween)	02/09/1985	55.96650	-5.65898	55.96161	-5.64806	-16.0	-12.0
126	267.102.001	JNCCMNCR10000267	Channel, SE Sgeirean a' Mhain (Loch Sween)	03/09/1985	55.97030	-5.64163	55.97237	-5.64907		-15.0
127	267.103.001	JNCCMNCR10000267	Channel, NW Sgeirean a' Mhain (Loch Sween)	04/09/1985	55.97319	-5.65049	55.97237	-5.64907	-21.0	-12.0
128	267.117.001	JNCCMNCR10000267	N channel & Taynish Island (Loch Sween)	04/09/1985	55.98482	-5.63232	55.98695	-5.64243	-20.0	-4.0
129	267.117.002	JNCCMNCR10000267	N channel & Taynish Island (Loch Sween)	04/09/1985	55.98619	-5.63816	55.98695	-5.64243	-18.0	-5.0

Table 10.2 continued

Code	Sample_Ref	SurveyKey	EventName	Date	Lat	Long	Lat_MR	Long_MR	Depth_low	Depth_hi
130	267.118.001	JNCCMNCR10000267	Channel, Daltot (Loch Sween)	04/09/1985	56.00145	-5.61773	56.00281	-5.62306	-24.0	-15.0
131	267.119.001	JNCCMNCR10000267	Channel, Sr•n Bheith (Loch Sween)	04/09/1985	56.01884	-5.60734	56.01484	-5.61135	-26.0	-24.0
132	267.123.001	JNCCMNCR10000267	E of Sr•n Bheith (Loch Sween)	05/09/1985	56.01866	-5.60368	56.01866	-5.60368	-10.0	-10.0
133	267.124.001	JNCCMNCR10000267	Achnamara Arm (Loch Sween)	05/09/1985	56.01285	-5.58709	56.01285	-5.58709	-10.0	-10.0
134	267.125.001	JNCCMNCR10000267	N Eilean Loain (Loch Sween)	05/09/1985	56.01422	-5.60166	56.01422	-5.60166	-23.0	-23.0
135	267.126.001	JNCCMNCR10000267	Deephole, Cala (Loch Sween)	05/09/1985	56.01309	-5.61011	56.01215	-5.61110	-31.0	-31.0
136	267.136.001	JNCCMNCR10000267	Fairy Isles, Sailean Mh¢r (Loch Sween)	05/09/1985	56.02768	-5.58951	56.02890	-5.59179	-18.0	-17.0
137	267.137.001	JNCCMNCR10000267	Head of Sailean Mh¢r (Loch Sween)	05/09/1985	56.03927	-5.56939	56.03941	-5.57028	-17.0	-17.0
138	MRSNH02300000003.01	MRSNH02300000003	Loch Sween Stn 1/2010	23/11/2010	56.02410	-5.59266	56.02410	-5.59266	-16.0	-16.0
139	MRSNH02300000005.01	MRSNH02300000003	Loch Sween Stn 3/2010	22/11/2010	56.00063	-5.61710	56.00063	-5.61710	-20.0	-20.0
140	MRSNH02300000007.01	MRSNH02300000003	Loch Sween Stn 5/2010	22/11/2010	55.98133	-5.63425	55.98133	-5.63425	-18.0	-18.0
141	MRSNH0230000000E.01	MRSNH02300000003	Loch Sween Stn 12/2010	22/11/2010	55.95917	-5.66429	55.95917	-5.66429	-18.0	-18.0
142	MRSNH02300000015.01	MRSNH02300000003	Loch Sween Stn 19/2010	22/11/2010	56.00080	-5.61155	56.00080	-5.61155	-20.0	-20.0
143	MRSNH02300000018.01	MRSNH02300000003	Loch Sween Stn 22/2010	22/11/2010	56.01389	-5.58436	56.01389	-5.58436	-14.0	-14.0
144	MRSNH02300000020.01	MRSNH02300000006	Surveillance site	01/01/2009	55.98705	-5.63115	55.98705	-5.63115	-14.0	-14.0
145	050.2/3.001	JNCCMNCR60000050	Sailean Mh¢r (Loch Sween)	10/05/1982	56.03077	-5.58603	56.03077	-5.58603	-7.8	
146	267.021.001	JNCCMNCR10000267	SW Port Lunna, Achnamara Arm (Loch Sween)	28/08/1985	56.01585	-5.59505	56.01625	-5.59383	-7.0	-5.0

Table 10.2 continued

Code	Sample_Ref	SurveyKey	EventName	Date	Lat	Long	Lat_MR	Long_MR	Depth_low	Depth_hi
147	267.024.001	JNCCMNCR10000267	Entrance, Loch na Cille (Loch Sween approaches)	29/08/1985	55.94640	-5.71176	55.94535	-5.71062	-13.0	-12.0
148	267.025.001	JNCCMNCR10000267	E of entrance, Loch na Cille (Loch Sween approaches)	29/08/1985	55.94512	-5.70843	55.94455	-5.70734	-10.0	-9.0
149	267.051.002	JNCCMNCR10000267	NW Sgeirean a' Mhain (Loch Sween)	31/08/1985	55.97273	-5.64890	55.97237	-5.64907	-11.0	-9.0
150	267.064.001	JNCCMNCR10000267	Loch na Cille (Loch Sween)	02/09/1985	55.95550	-5.70198	55.95550	-5.70198	-8.5	-8.5
151	267.084.001	JNCCMNCR10000267	SE of Sgeir Dhonncha (Loch Sween approaches)	03/09/1985	55.92829	-5.70231	55.92855	-5.70101	-12.0	-12.0
152	267.085.001	JNCCMNCR10000267	SE of Sgeir Dhonncha (Loch Sween approaches)	03/09/1985	55.92829	-5.70231	55.92855	-5.70101	-13.0	-13.0
153	267.090.001	JNCCMNCR10000267	S of Rubha na Maraich (inshore) (Loch Sween approaches)	03/09/1985	55.93059	-5.69319	55.93059	-5.69319	-8.0	-8.0
154	267.092.001	JNCCMNCR10000267	Sill at Danna Island (Loch Sween)	03/09/1985	55.93495	-5.67937	55.93555	-5.67765	-11.0	-11.0
155	267.094.001	JNCCMNCR10000267	Sill at Danna Island (Loch Sween)	03/09/1985	55.93560	-5.68208	55.93635	-5.68093	-10.0	-6.0
156	267.129.001	JNCCMNCR10000267	W Daltot (Loch Sween)	05/09/1985	56.00059	-5.62810	56.00450	-5.62643	-11.0	-11.0
157	267.070.001	JNCCMNCR10000267	W Rubha na Cille (inshore) (Loch Sween approaches)	02/09/1985	55.94940	-5.71950	55.94954	-5.72064	-30.0	-30.0
158	267.071.001	JNCCMNCR10000267	W Rubha na Cille (offshore) (Loch Sween approaches)	02/09/1985	55.94948	-5.72266	55.94945	-5.72383	-40.0	-40.0
159	046.025.001	JNCCMNCR10000046	N of quarry, Linne Mhuirich (Loch Sween)	04/09/1984	56.01007	-5.63816	56.01040	-5.63983	-3.0	0.0
160	050.1/11.001	JNCCMNCR60000050	Achnamara Arm (Loch Sween)	09/05/1982	56.02327	-5.57200	56.02327	-5.57200	-3.0	
161	050.1/7.001	JNCCMNCR60000050	Achnamara Arm (Loch Sween)	09/05/1982	56.01658	-5.57941	56.01658	-5.57941	-14.0	
162	267.036.002	JNCCMNCR10000267	E of Keillbeg jetty, Loch na Cille (Loch Sween)	29/08/1985	55.96121	-5.69130	55.96121	-5.69130	-2.0	

Table 10.2 continued

Code	Sample_Ref	SurveyKey	EventName	Date	Lat	Long	Lat_MR	Long_MR	Depth_low	Depth_hi
163	097.011.001	JNCCMNCR10000097	Daltot Point (Loch Sween)	24/08/1984	55.98487	-5.62138	55.98487	-5.62138		
164	097.023.007	JNCCMNCR10000097	Faery Isles (Loch Sween)	30/08/1984	56.03437	-5.58909	56.03437	-5.58909		
165	050.4/8.001	JNCCMNCR60000050	Off Keillmore (Loch Sween)	12/05/1982	55.94490	-5.71939	55.94490	-5.71939	-20.5	
166	050.10/3.002	JNCCMNCR60000050	Taynish, north (Loch Sween)	20/05/1982	56.01493	-5.61335	56.01479	-5.61295	-20.0	0.0
167	267.041.001	JNCCMNCR10000267	N entrance to Achnamara Arm (Loch Sween)	30/08/1985	56.01441	-5.59526	56.01441	-5.59526	-16.0	-14.0
168	267.050.003	JNCCMNCR10000267	SE Sgeirean a' Mhain (Loch Sween)	31/08/1985	55.97216	-5.64666	55.97241	-5.64748	-16.0	-14.0
169	267.066.001	JNCCMNCR10000267	Loch na Cille (Loch Sween)	02/09/1985	55.94804	-5.71088	55.94804	-5.71088	-15.0	-12.0
170	267.069.001	JNCCMNCR10000267	S Rubha na Cille (offshore) (Loch Sween approaches)	02/09/1985	55.94520	-5.71542	55.94520	-5.71542	-22.0	-20.0
171	267.087.001	JNCCMNCR10000267	Entrance to loch (Loch Sween approaches)	03/09/1985	55.92615	-5.69117	55.92615	-5.69117	-24.0	-24.0
172	267.095.001	JNCCMNCR10000267	Castle Sween (Loch Sween)	03/09/1985	55.94784	-5.67299	55.94740	-5.67236	-28.0	-16.0
173	267.096.001	JNCCMNCR10000267	Castle Sween (Loch Sween)	03/09/1985	55.94655	-5.67068	55.94655	-5.67068	-28.0	-28.0
174	267.113.001	JNCCMNCR10000267	Offshore Eilean nan Leac (Loch Sween Approaches)	04/09/1985	55.91959	-5.70015	55.91959	-5.70015	-28.0	-28.0
175	267.118.002	JNCCMNCR10000267	Channel, Daltot (Loch Sween)	04/09/1985	55.99863	-5.61073	56.00281	-5.62306	-15.0	-11.0
176	267.136.002	JNCCMNCR10000267	Fairy Isles, Sailean Mh¢r (Loch Sween)	05/09/1985	56.02889	-5.59038	56.02890	-5.59179	-14.0	-11.0
177	267.036.002	JNCCMNCR10000267	E of Keillbeg jetty, Loch na Cille (Loch Sween)	29/08/1985	55.96121	-5.69130	55.96121	-5.69130	-2.0	
178	267.040.003	JNCCMNCR10000267	S entrance to Achnamara Arm (Loch Sween)	30/08/1985	56.01441	-5.59526	56.01441	-5.59526	-20.0	-20.0
179	267.042.002	JNCCMNCR10000267	N of Ashfield, Achnamara Arm (Loch Sween)	30/08/1985	56.01023	-5.58845	56.01011	-5.58844	-6.0	-4.0

Table 10.2 continued

Code	Sample_Ref	SurveyKey	EventName	Date	Lat	Long	Lat_MR	Long_MR	Depth_low	Depth_hi
180	267.042.003	JNCCMNCR10000267	N of Ashfield, Achnamara Arm (Loch Sween)	30/08/1985	56.01035	-5.58850	56.01011	-5.58844	-8.0	-6.0
181	050.6/5.001	JNCCMNCR60000050	outer Loch Sween (Loch Sween)	14/05/1982	55.90243	-5.69948	55.90243	-5.69948	-26.0	
182	050.6/9.001	JNCCMNCR60000050	outer Loch Sween (Loch Sween)	14/05/1982	55.91167	-5.69936	55.89990	-5.69107	-10.0	
183	267.026.001	JNCCMNCR10000267	W of entrance, Loch na Cille (Loch Sween approaches)	29/08/1985	55.94885	-5.71202	55.94973	-5.71425	-16.0	-16.0
184	267.038.001	JNCCMNCR10000267	SW of Rubha na Marraidh, Achnamara Arm (Loch Sween)	30/08/1985	56.01326	-5.60072	56.01333	-5.60158	-24.0	-17.0
185	267.043.001	JNCCMNCR10000267	N of Ashfield, Achnamara Arm (Loch Sween)	30/08/1985	56.01101	-5.58852	56.01101	-5.58852	-19.0	-13.0
186	267.047.001	JNCCMNCR10000267	N of Ashfield, Achnamara Arm (Loch Sween)	30/08/1985	56.01536	-5.58891	56.01549	-5.58894	-13.0	-10.0
187	267.051.001	JNCCMNCR10000267	NW Sgeirean a' Mhain (Loch Sween)	31/08/1985	55.97287	-5.64940	55.97237	-5.64907	-13.0	-11.0
188	267.054.001	JNCCMNCR10000267	Sgeir nan Ron (Loch Sween)	31/08/1985	55.97361	-5.63867	55.97274	-5.63628		-15.0
189	267.057.002	JNCCMNCR10000267	N Eilean Loain Channel (Loch Sween)	01/09/1985	56.00968	-5.59842	56.00979	-5.59965	-15.0	-10.0
190	267.075.001	JNCCMNCR10000267	Castle Sween to Boulder (Loch Sween)	02/09/1985	55.94810	-5.67112	55.94938	-5.66614	-20.0	-10.0
191	267.076.002	JNCCMNCR10000267	Sill E of Danna na Cloiche (Loch Sween)	02/09/1985	55.93715	-5.68294	55.93749	-5.67302	-12.0	-8.0
192	267.100.004	JNCCMNCR10000267	SE of Sgeir Bun an Locha (Loch Sween approaches)	03/09/1985	55.92863	-5.69172	55.92974	-5.69151	-18.0	-14.0
193	267.102.002	JNCCMNCR10000267	Channel, SE Sgeirean a' Mhain (Loch Sween)	03/09/1985	55.97106	-5.64443	55.97237	-5.64907	-26.0	
194	050.4/1.001	JNCCMNCR60000050	Outer Loch Sween (Loch Sween)	12/05/1982	55.92131	-5.70296	55.92158	-5.70274	-20.5	
195	050.4/3.001	JNCCMNCR60000050	Outer Loch Sween/MacCormaig Isles (Loch Sween)	12/05/1982	55.90828	-5.74651	55.90831	-5.74614	-21.0	

Table 10.2 continued

Code	Sample_Ref	SurveyKey	EventName	Date	Lat	Long	Lat_MR	Long_MR	Depth_low	Depth_hi
196	050.4/5.001	JNCCMNCR60000050	Outer Loch Sween (Loch Sween)	12/05/1982	55.92081	-5.73101	55.92081	-5.73101	-24.0	
197	050.4/9.001	JNCCMNCR60000050	Rubha na Cille (Loch Sween)	12/05/1982	55.94908	-5.71909	55.94913	-5.71948	-30.0	-20.0
198	267.072.001	JNCCMNCR10000267	NE Keills Rock (Loch Sween approaches)	02/09/1985	55.93878	-5.71961	55.93878	-5.71961	-15.0	-15.0
199	267.115.001	JNCCMNCR10000267	Off Sgeir Bun an Locha (Loch Sween)	04/09/1985	55.93119	-5.68830	55.93163	-5.68849	-22.0	-17.0
200	267.116.001	JNCCMNCR10000267	Danna Island (Loch Sween)	04/09/1985	55.93994	-5.68127	55.93994	-5.68127	-16.0	-16.0
201	046.019.008	JNCCMNCR10000046	W spit, Linne Mhuirich rapids (Loch Sween)	02/09/1984	55.98309	-5.65746	55.98341	-5.65862	-2.5	0.2
202	046.021.006	JNCCMNCR10000046	E end, Linne Mhuirich rapids (Loch Sween)	03/09/1984	55.98271	-5.64877	55.98289	-5.64894	-10.5	-2.0
203	046.029.001	JNCCMNCR10000046	W of deep hole, Linne Mhuirich (Loch Sween)	04/09/1984	55.98737	-5.65851	55.98737	-5.65851		
204	050.3/2.001	JNCCMNCR60000050	Caol Scotnish (Loch Sween)	11/05/1982	56.03181	-5.60144	56.02848	-5.60620	-5.5	
205	050.5/6.001	JNCCMNCR60000050	middle, Loch Sween (Loch Sween)	13/05/1982	55.98740	-5.62114	55.98740	-5.62114	-8.0	-4.0
206	098.005.001	JNCCMNCR10000098	Taynish Point (Loch Sween)	28/08/1984	55.98317	-5.65889	55.98374	-5.65977		
207	099.001.006	JNCCMNCR10000099	Ceann an t'sailen (Loch Sween)	03/04/1985	55.95495	-5.68446	55.95495	-5.68446		
208	267.004.003	JNCCMNCR10000267	S Linne Mhuirich (Loch Sween)	26/08/1985	55.98478	-5.65983	55.98548	-5.66154		
209	046.017.006	JNCCMNCR10000046	Narrows, Linne Mhuirich Rapids (Loch Sween)	02/09/1984	55.98263	-5.65165	55.98282	-5.65134	-2.0	0.0
210	046.018.006	JNCCMNCR10000046	Third wall, Linne Mhuirich Rapids (Loch Sween)	02/09/1984	55.98310	-5.65410	55.98363	-5.65431	-3.0	
211	046.019.006	JNCCMNCR10000046	W spit, Linne Mhuirich rapids (Loch Sween)	02/09/1984	55.98309	-5.65746	55.98341	-5.65862	-2.5	0.2
212	046.020.006	JNCCMNCR10000046	Linne Mhurich Rapids (Loch Sween)	28/08/1984	55.98293	-5.65649	55.98293	-5.65649		

Table 10.2 continued

Code	Sample_Ref	SurveyKey	EventName	Date	Lat	Long	Lat_MR	Long_MR	Depth_low	Depth_hi
213	050.12/7.001	JNCCMNCR60000050	Caol Scotnish, opposite Scotnish House (Loch Sween)	20/05/1982	56.03501	-5.59752	56.03574	-5.59773	-5.0	
214	050.9/1.001	JNCCMNCR60000050	Linne Mhuirich Rapids (Loch Sween)	16/05/1982	55.98263	-5.65165	55.98263	-5.65165	-5.0	0.0
215	098.005.001	JNCCMNCR10000098	Taynish Point (Loch Sween)	28/08/1984	55.98317	-5.65889	55.98374	-5.65977		
216	098.007.001	JNCCMNCR10000098	E Caol Scotnish narrows (Loch Sween)	29/08/1984	56.03548	-5.59610	56.03874	-5.59351		
217	099.005.001	JNCCMNCR10000099	Sill, Linne Mhuirich Rapids (Loch Sween)	07/05/1985	55.98277	-5.65682	55.97869	-5.64807		
218	267.104.002	JNCCMNCR10000267	S Channel, Taynish Island (Loch Sween)	03/09/1985	55.98014	-5.64945	55.98043	-5.64984		
219	MRMCS00700000383.01	MRMCS0070000006B	Scotnish Narrows	29/04/2008	56.03499	-5.59878	56.03499	-5.59878	-3.7	
220	MRMCS00700000384.01	MRMCS0070000006B	Scotnish Narrows 2	03/05/2008	56.03499	-5.59878	56.03499	-5.59878	-4.2	
221	MRSNH02300000058.03	MRSNH0230000000E	West Rapids Transect	06/02/2008	55.98328	-5.65700	55.98328	-5.65700		
222	046.017.005	JNCCMNCR10000046	Narrows, Linne Mhuirich Rapids (Loch Sween)	02/09/1984	55.98263	-5.65165	55.98282	-5.65134	-2.0	0.0
223	046.018.005	JNCCMNCR10000046	Third wall, Linne Mhuirich Rapids (Loch Sween)	02/09/1984	55.98310	-5.65410	55.98363	-5.65431	-3.0	
224	046.019.005	JNCCMNCR10000046	W spit, Linne Mhuirich rapids (Loch Sween)	02/09/1984	55.98309	-5.65746	55.98341	-5.65862	-2.5	0.2
225	046.021.005	JNCCMNCR10000046	E end, Linne Mhuirich rapids (Loch Sween)	03/09/1984	55.98271	-5.64877	55.98289	-5.64894	-10.5	-2.0
226	046.032.004	JNCCMNCR10000046	Caol Scotnish Narrows (Loch Sween)	05/09/1984	56.03494	-5.59779	56.03503	-5.59718	-4.0	0.5
227	050.12/5.001	JNCCMNCR60000050	Caol Scotnish, top of narrow part (Loch Sween)	20/05/1982	56.03662	-5.59524	56.03662	-5.59524	-6.5	
228	050.12/8.001	JNCCMNCR60000050	Caol Scotnish, between boat house and rocks (Loch Sween)	20/05/1982	56.03093	-5.60245	56.03080	-5.60353	-3.0	

Table 10.2 continued

Code	Sample_Ref	SurveyKey	EventName	Date	Lat	Long	Lat_MR	Long_MR	Depth_low	Depth_hi
229	097.037.006	JNCCMNCR10000097	Linne Mhuirich Rapids (Loch Sween)	07/05/1985	55.98128	-5.65152	55.98128	-5.65152		
230	097.038.005	JNCCMNCR10000097	Taynish Point (Loch Sween)	07/05/1985	55.98374	-5.65977	55.98374	-5.65977		
231	098.007.002	JNCCMNCR10000098	E Caol Scotnish narrows (Loch Sween)	29/08/1984	56.03548	-5.59610	56.03874	-5.59351	-3.0	-2.0
232	267.014.002	JNCCMNCR10000267	S end, Caol Scotnish narrows (Loch Sween)	27/08/1985	56.02892	-5.60503	56.02947	-5.60309	-4.0	-4.0
233	MRSNH02300000056.05	MRSNH0230000000D	East Rapids Transect	27/01/1999	55.98289	-5.65055	55.98289	-5.65055		
234	MRSNH0230000005A.05	MRSNH0230000000E	East Rapids Transect	05/02/2008	55.98298	-5.65056	55.98298	-5.65056		
235	050.3/2.001	JNCCMNCR60000050	Caol Scotnish (Loch Sween)	11/05/1982	56.03181	-5.60144	56.02848	-5.60620	-5.5	
236	267.037.001	JNCCMNCR10000267	Top of Loch na Cille (Loch Sween)	29/08/1985	55.96131	-5.68811	55.96131	-5.68811	0.0	0.0
237	MRSNH02300000056.04	MRSNH0230000000D	East Rapids Transect	27/01/1999	55.98262	-5.65036	55.98262	-5.65036		
238	MRSNH0230000005A.03	MRSNH0230000000E	East Rapids Transect	05/02/2008	55.98253	-5.65027	55.98253	-5.65027		
239	MRSNH0230000005A.04	MRSNH0230000000E	East Rapids Transect	05/02/2008	55.98280	-5.65046	55.98280	-5.65046		
240	MRSNH0230000005B.01	MRSNH0230000000D	Maerl bed core samples	27/01/1999	55.98249	-5.65035	55.98249	-5.65035		
241	046.020.005	JNCCMNCR10000046	Linne Mhurich Rapids (Loch Sween)	28/08/1984	55.98293	-5.65649	55.98293	-5.65649		
242	267.080.003	JNCCMNCR10000267	W Eilean nan Uan (Loch Sween approaches)	02/09/1985	55.93762	-5.71137	55.93638	-5.70976	-8.0	-8.0
243	267.083.002	JNCCMNCR10000267	S of Rubha na Maraich (Loch Sween approaches)	02/09/1985	55.93054	-5.69479	55.93054	-5.69479	-7.5	-7.0
244	267.101.001	JNCCMNCR10000267	Entrance to loch (Loch Sween approaches)	03/09/1985	55.92294	-5.69233	55.92176	-5.68755	-11.0	-6.0

Table 10.3 Records of target habitats from October 2012 snapshot of Marine Recorder, with habitat and biological data. Code is the record identifier used in the figures and text of this report

Code	Sample reference	Description	Biotope code	Qualifier
1	050.8/5.003	East side, next to rapids, with bottom largely cobble supporting some large algae - *L. saccharina, Chorda, Zostera, Ostrea, Codium*, and *Ophiocomina* common, with some *Ophiothrix* present. Where muddy sand present, *Arenicola* was evident. Some large solitary ascidians present. At shallowest, *F. vesiculosus* and *F. serratus* were present. Serpulid tubes, *Eupagurus* and *Leucosolenia botryoides* (?) present.	SS.SMu.ISaMu	Uncertain match; part record
2	267.063.001	Flat, soft mud at 5.5m. Diatom film on the surface. Many very fine tubes visible when mud wafted away - some collected. Worms later identified as *Capitella capitata*. Occasional *Cerianthus, Sagartigeton undatum, Liocarcinus puber, Cancer,* few tiny fish (fry) and Mysids. NOTE: Substratum % data are converted from the original substratum 1-3 scoring system.	SS.SMu.ISaMu.Cap	Uncertain match; whole record
3	MRSNH02300000010.01	Gravelly muddy sand	SS.SMu.ISaMu.MelMagThy	Uncertain match; whole record
4	MRSNH02300000012.01	Gravelly muddy sand	SS.SMu.ISaMu.MelMagThy	Uncertain match; whole record
5	MRSNH0230000001C.01	Gravelly sandy mud	SS.SMu.ISaMu.MelMagThy	Uncertain match; whole record
6	MRSNH02300000021.01	Gravelly sandy mud.	SS.SMu.ISaMu.MelMagThy	Uncertain match; whole record
7	050.1/6.001	Mud, probe depth about 50 cm. A sulphide layer was noted at 1 - 2 cm below the surface. *Ascophyllum nodosum, Laminaria saccharina, Codium* and *Cystoclonium* were all recorded as unattach ed. The mud contained numerous large burrows and mounds. *Ascidiella aspersa, Liocarcinus deperator* and juvenile *Asterias rubens* were recorded from the mud surface, with *Mya truncata, Thracia convexa* and sabellids also noted.	SS.SMu.ISaMu.SundAasp	Uncertain match; whole record
8	050.12/2.001	Soft, black, gooey mud with layer of brown flocculent substance on surface. No *Philine*.	SS.SMu.ISaMu.SundAasp	Uncertain match; whole record

Table 10.3 continued

Code	Sample reference	Description	Biotope code	Qualifier
9	050.12/4.001	The seabed below the salmon cages was covered by a thick, oozy layer of decaying food pellets and faecal matter with white patches of fungus growing on it. The mud beneath this was black, sticky and heavy, with lots of shell fragments. Away from the cages the mud was still sticky, but grey and more silty. Occasional boulders protruded through this. Occasional drift algae; *Bryopsis* recorded on the boulders. Beneath the cages were a few *Ascidiella aspersa*, with *Asterias* feeding on them. A few *Carcinus* were noted, as was 1 *Echinus*. Away from the cages there were larger clusters of *Ascidiella*, with *Marthasterias* as well as *Asterias* and occasional *Ophiothrix* and *Ophiocomina*, *Carcinus* and *Cerianthus*. The boulders supported sponges and tunicates.	SS.SMu.ISaMu.SundAasp	Uncertain match; part record
10	050.3/3.001	Mud, with no shell or gravel. Probe depth around 50 cm. Below mussel rafts. Extensive diatom cover, with occasional foliaceous algae. The mud surface was worked into numerous mounds (probably terebellids) and occasional burrows. *Asterias* (feeding on *Ascidiella*) and *Crangon* were very common. *Ascidiella* was very common on the mussel rafts above. Only a few mussel valves were found below the rafts. No record of *Virgularia*, *Philine* or hydroids.	SS.SMu.ISaMu.SundAasp	Uncertain match; whole record
11	050.5/8.001	Mud only soft to hand depth with shells underneath. Sparse diatom cover on mud surface. Occasional drift algae recorded. Several unidentified small burrows were noted. *Sagartiogeton laceratus* was common, with *Liocarcinus depurator*, *Virgularia*, *Ascidiella aspersa* and terebellids all recorded occasionally. No shrimps were seen.	SS.SMu.ISaMu.SundAasp	Uncertain match; part record
12	267.004.004	From end of transect 3 across to bluff on W shore. Thick *Zostera* on mud with *Arenicola* and *Stilophora* dominant, and *Asperococcus*. Rocky patch *Lithothamnion* covered with *Laminaria saccharina* and some *Chorda* (around the edge of rocks). Also present *Ascidiella* and much *Cladophora* but no *Zostera*. Mud with diatom cover, *Arenicola* and *Ophiocomina nigra* to the end of transect.	SS.SMu.ISaMu.SundAasp	Certain match; part record
13	267.063.001	Flat, soft mud at 5.5m. Diatom film on the surface. Many very fine tubes visible when mud wafted away - some collected. Worms later identified as *Capitella capitata*. Occasional *Cerianthus*, *Sagartigeton undatum, Liocarcinus puber*, *Cancer*, few tiny fish (fry) and Mysids. NOTE: Substratum % data are converted from the original substratum 1-3 scoring system.	SS.SMu.ISaMu.SundAasp	Uncertain match; whole record

Table 10.3 continued

Code	Sample reference	Description	Biotope code	Qualifier
14	046.029.001	A narrow strip of mud was present in shallow water adjacent to the steep bedrock shore. This supported a dense bed of *Z. marina*. Beyond 8 m from the shore the seabed descended as a slope of soft mud. This sediment was colonised by *O. nigra* (A) and some *P. bernhardus*. Patches of diatoms were present. Oxic mud extended down to the level of the thermocline at 5 m below which the sediment was anoxic and apparently devoid of macrofauna.	SS.SMu.IFiMu	Certain match; part record
15	050.1/9.001	A steep slope of silt-covered boulders and bedrock. The boulders were seperated by patches of mud which increased with depth, becoming 100% below 5 m. *Laminaria saccharina* dominated the rock surfaces down th 5 m. *Ascidia mentula* was frequent on rock surfaces, as was *Corella. Pagurus, Cancer, Crossaster* and *Gobiusculus flavescens* were also recorded.	SS.SMu.IFiMu	Certain match; part record
16	050.12/11.001	Very gloopy mud, with burrows and mounds. Shrimps present.	SS.SMu.IFiMu	Certain match; whole record
17	050.8/5.001	Centre, and south end of sea loch, with extremely soft mud with black layer near the surface. Some drift *Laminaria saccharina* and *Zostera* blades. *Crangon* (?) fairly numerous, with a few pale coloured pipefish on the sediment surface - none caught. *Asterias* and *Ophiocomina* found in clumps on sediment (drift from infralittoral?)	SS.SMu.IFiMu	Certain match; whole record
18	065.006.001	Fewer burrows than the other sites, polychaete activity noted. Sediment surface was covered with a diatomaceous film and was well oxygenated at the surface.	SS.SMu.IFiMu	Uncertain match; whole record
19	267.004.001	Whole transect comprised of *Ophiocomina nigra* and *Arenicola* on sandy mud. Close to Taynish shore were clumps of *Stilophora*. Small plants of *Zostera* in bend along shore.	SS.SMu.IFiMu	Uncertain match; whole record
20	267.011.003	Soft mud grey/black. Occasional *Cerianthus*. No burrows. *Asterias* and *Gracilaria* present. NOTE: Substratum % data are converted from the original substratum 1-3 scoring system.	SS.SMu.IFiMu	Certain match; whole record
21	267.013.006	*Gracilaria* has been removed from the species list for this record as more specific related taxa were also present, these are now marked as characterising. 7m, mud plain with occasional embedded algae, *Gracilaria, Polysiphonia elongata, Asterias, Asteropecten*. Some burrows present. Surface with foot prints. See habitat 7. NOTE: Substratum % data are converted from the original substratum 1-3 scoring system.	SS.SMu.IFiMu	Certain match; whole record

Table 10.3 continued

Code	Sample reference	Description	Biotope code	Qualifier
22	267.062.001	Flat, soft mud at 5.5m. Diatom film on the surface. Sparsely colonised with no *Nephrops* burrows. A few hermit crabs with dense Hydractinia on the shells. NOTE: Substratum % data are converted from the original substratum 1-3 scoring system.	SS.SMu.IFiMu	Uncertain match; whole record
23	267.135.001	A sandy mud bed with many shell fragments was present at 8m. Some infaunal polychaetes and one specimen of *Cucumaria elongata* recorded. Raw data sheets muddled. Treat species list with caution. NOTE: Substratum % data are converted from the original substratum 1-3 scoring system.	SS.SMu.IFiMu	Uncertain match; whole record
24	046.030.001	Adjacent to the shore was an excavated area of mud with *Arenicola*-like casts present. Below this was a slightly sloping zone of soft mud with no working apparent and lacking in macrofauna. Below 3 m the mud slope supported *P. aperta* (A) in addition to a large amount of *S. vermicularis* debris, although no live colonies were observed.	SS.SMu.IFiMu.Are	Certain match; part record
25	050.1/10.001	An area of flat, soft mud without shell fragments or pebbles. A sulphide layer was noted. Diatom cover over the mud surface. Drift algae (mainly *L. saccharina* and *Ceramium*). The mud surface had only a few casts (mainly *Arenicola* and terebellids) and no mounds or burrows. Many hermit crab trails could be seen on the surface, with *Ascidiella aspersa* in loose clumps. Juvenile *Asterias* were also recorded.	SS.SMu.IFiMu.Are	Certain match; whole record
26	267.004.002	Start of transect: Cairn 125 degrees, Ulva House 205 degrees, Bluff 327 degrees. End of transect: Cairn 117 degrees, Ulva House 200 degrees, Rocks 014 degrees. Mud and *Ophiocomina nigra* close to shore, and *Arenicola*, dense. *Chorda* on ridge in centre channel with some *Laminaria saccharina* and *Stilophora*. Then more mud with *Arenicola* and *Ophiocomina nigra* to further shore.	SS.SMu.IFiMu.Are	Uncertain match; part record
27	267.004.004	From end of transect 3 across to bluff on W shore. Thick *Zostera* on mud with *Arenicola* and *Stilophora* dominant, and *Asperococcus*. Rocky patch *Lithothamnion* covered with *Laminaria saccharina* and some *Chorda* (around the edge of rocks). Also present *Ascidiella* and much *Cladophora* but no *Zostera*. Mud with diatom cover, *Arenicola* and *Ophiocomina nigra* to the end of transect.	SS.SMu.IFiMu.Are	Uncertain match; part record

Table 10.3 continued

Code	Sample reference	Description	Biotope code	Qualifier
28	*267.006.002*	Gently sloping cohesive mud from 4m-10m bsl, with fine silt layer on top. Surface brown/grey deeper. Firm mud/clay sand on slope with Echiuroid worms feeding on mud. *Arenicola* in sediment - one siphon with *Sagartiogeton lacerata* attached. Soft mud at about 10m bsl with many `volcanoes` with round vertical burrows on top and many shore crab excavations. *Nephrops* burrows common with *Crangon*, gobies and mysids in the entrance. Five point abundance scale used. NOTE: Substratum % data are converted from the original substratum 1-3 scoring system.	*SS.SMu.IFiMu.Are*	*Uncertain match; part record*
29	267.008.001	Sediment plain 10m. Soft mud surface, slightly flocculent but becoming consolidated quickly with depth. Cohesive. Surface brown initially but spatially heterogenous with areas of grey sediment and incipient *Beggiatoa* colonisation present. Sediment anaerobic below surface. Some sediment working, primarily by *Neoamphitrite figulus*, with vertical burrow shafts in the sediment letter identified as belonging to *Jaxea nocturna*. No *Nephrops* or *Goneplax* present. *Arenicola* mounds 1-2m square. Five point abundance scale used.	SS.SMu.IFiMu.Are	Uncertain match; whole record
30	046.028.001	A slightly sloping muddy seabed, anoxic with 80% cover of *Beggiatoa* sp. The surface was very soft with hydrogen sulphide production evident. No epibiota was observed. Rotting fucoid algae were present.	SS.SMu.IFiMu.Beg	Certain match; whole record
31	046.029.001	A narrow strip of mud was present in shallow water adjacent to the steep bedrock shore. This supported a dense bed of *Z. marina*. Beyond 8 m from the shore the seabed descended as a slope of soft mud. This sediment was colonised by O. nigra (A) and some *P. bernhardus*. Patches of diatoms were present. Oxic mud extended down to the level of the thermocline at 5 m below which the sediment was anoxic and apparently devoid of macrofauna.	SS.SMu.IFiMu.Beg	Certain match; part record
32	046.033.002	Substrate of mud in the upper infralittoral, very sheltered from tidal streams and wave action. A slope of soft mud at 5 m, which extended to at least 7 m. The sediment was mottled brown in colour with a few 0.25 m/2 size patches of *Beggiatoa* sp. present. *Sagartiogeton lacerata* was present, in addition to species of ascidian, associated with drift algae fragments.	SS.SMu.IFiMu.Beg	Uncertain match; whole record

Table 10.3 continued

Code	Sample reference	Description	Biotope code	Qualifier
33	050.12/4.001	The seabed below the salmon cages was covered by a thick, oozy layer of decaying food pellets and faecal matter with white patches of fungus growing on it. The mud beneath this was black, sticky and heavy, with lots of shell fragments. Away from the cages the mud was still sticky, but grey and more silty. Occasional boulders protruded through this. Occasional drift algae; *Bryopsis* recorded on the boulders. Beneath the cages were a few *Ascidiella aspersa*, with *Asterias* feeding on them. A few *Carcinus* were noted, as was 1 *Echinus*. Away from the cages there were larger clusters of *Ascidiella*, with *Marthasterias* as well as *Asterias* and occasional *Ophiothrix* and *Ophiocomina, Carcinus* and *Cerianthus*. The boulders supported sponges and tunicates.	SS.SMu.IFiMu.Beg	Certain match; part record
34	050.3/1.001	A very sheltered loch connected to Sailean Mhòr by a very narrow culvert, and with pebbles and a few rocks around the edge. *Zostera marina* abundant to 2 m with large clumps of *Ciona intestinalis* (orange and pale) attached to loose algae. Below 2 m, lots of dead *Zostera* and dead algae, visibility becoming poor and mud very soft. At 5 m black mud with fungus on algal detritus.	SS.SMu.IFiMu.Beg	Certain match; part record
35	065.001.001	*Capitella capitata* has been given a nominal abundance value of Present for this record as in Arev it had no abundance value. Anoxic mud covered with patches of *Beggiatoa*. Some patches of mud were anaerobic at the surface and had diatomaceous cover. No large burrows, though there was some evidence of bioturbidation. Occasional terebellid mounds seen from which tentacles radiated over the mud surface.	SS.SMu.IFiMu.Beg	Certain match; whole record
36	267.007.001	Soft sediment 5-10m bsl. Occasional patches of *Beggiatoa* associated with organic debris. *Ascidiella aspersa* also on debris. Burrowing species - *Sabella*, Terebellidae, *Cerianthus* - present. *Pagarus* common with *Hydractinia* on shells. No *Sagartiogeton* seen. Five point abundance scale used.	SS.SMu.IFiMu.Beg	Uncertain match; whole record
37	046.025.003	Substrate of *Philine* on mud, very sheltered from wave action and tidal streams. A thick cover of diatoms was present on mud in deeper water, which had *Sagartiogeton lacerata* present but no evidence of burrowing communities.	SS.SMu.IFiMu.PhiVir	Uncertain match; whole record
38	046.026.003	Substrate of *Philine* on mud in the upper infralittoral, very sheltered from wave action and tidal streams. *Philine aperta* was abundant together with some *Sagartiogeton lacerata*.	SS.SMu.IFiMu.PhiVir	Certain match; whole record

Table 10.3 continued

Code	Sample reference	Description	Biotope code	Qualifier
39	046.030.001	Adjacent to the shore was an excavated area of mud with *Arenicola*-like casts present. Below this was a slightly sloping zone of soft mud with no working apparent and lacking in macrofauna. Below 3 m the mud slope supported *P. aperta* (A) in addition to a large amount of *S. vermicularis* debris, although no live colonies were observed.	SS.SMu.IFiMu.PhiVir	Certain match; part record
40	050.12/1.001	Soft mud with patches of *F. vesiculosus* and *F. serratus*. *Chorda filum*. Little actually on the mud. *Philine* becoming common by about 3 m. A lot of broken shells and more muddy sand near small rock island.	SS.SMu.IFiMu.PhiVir	Uncertain match; part record
41	050.5/8.001	Mud only soft to hand depth with shells underneath. Sparse diatom cover on mud surface. Occasional drift algae recorded. Several unidentified small burrows were noted. *Sagartiogeton laceratus* was common, with *Liocarcinus depurator*, *Virgularia*, *Ascidiella aspersa* and terebellids all recorded occasionally. No shrimps were seen.	SS.SMu.IFiMu.PhiVir	Uncertain match; part record
42	050.8/3.001	Small boulder/cobble edge with pebbles and coarse shell fragments between, giving way to 'gloopy' sediment. More *Serpula* colonies, fewer *Psammechinus* on both cobbles and sediment, and more *Philine*, than on sites 8/1 and 8/2.	SS.SMu.IFiMu.PhiVir	Certain match; part record
43	050.8/5.002	West, south end of the loch, with very soft mud with black layer. Diatom cover. Drift *Laminaria saccharina*, *Ophiocomina nigra* and *Asterias*, some *Arenicola* casts. *Crangon, Philine* and *Philine* eggs fairly abundant. Some ascidians present.	SS.SMu.IFiMu.PhiVir	Certain match; whole record
44	050.8/5.004	Gentle slope led onto mud/sand and then mud with a flocculent cover 1 cm deep. Benthic diatoms almost certainly abundant - brown surface colouration. *Arenicola* shallow. *Philine* present on mud/sand, but abundant on mud 20 - 50 sq.m. *Crangon* common and large solitary ascidians, with occasional *Chlamys opercularis*. Some *Marthasterias* and *Asterias* were present as well as *Cancer*, *Carcinus* and *Liocarcinus puber*. Thermocline approximately 1 - 2 degrees encountered at 3.5 m depth. *Ciona* present. *Gobius pictus* (?) on sand/mud. General lack of hard substrata at all but shallowest depth. *Cerianthus lloydi* occasional in mud.	SS.SMu.IFiMu.PhiVir	Certain match; whole record
45	050.8/7.001	Very soft, black, smelly mud, with a complete cover of flocculent brown material. *Philine aperta* abundant crawling through the flocculent layer, plus their egg masses.	SS.SMu.IFiMu.PhiVir	Certain match; whole record

Table 10.3 continued

Code	Sample reference	Description	Biotope code	Qualifier
46	050.8/7.002	The soft mud with *Philine* extended close into the east shore to 2 m depth. Here the mud was firmer and thrown up into large mounds by *Arenicola*. Above 1.5 m the mud was overlain by stone and cobble leading up to the beach. Scattered *L. saccharina*, patches of *Zostera*, abundant *Ceramium* sp. and *Chylocladia verticillata* plus *Polysiphonia* sp. Lots of dead shells.	SS.SMu.IFiMu.PhiVir	Certain match; part record
47	267.035.001	*Arenicola* has been removed from the species list for this record as more specific related taxa were also present, these are now marked as characterising. Sheltered upper infralittoral mud plain. Mud soft with cohesive texture. Mud surface layers worked by *Arenicola* and Terebellidae, with excavations by *Carcinus maenas*, and colonised by *Cerianthus lloydii*, *Sagartiogeton* spp., *Sagartia troglodytes* and *Philine aperta*. Occasional patches of *Beggiatoa*. Five point abundance scale used. NOTE: Substratum % data are converted from the original substratum 1-3 scoring system.	SS.SMu.IFiMu.PhiVir	Uncertain match; whole record
48	267.016.004	Gentle mud slope from 14-18m. Some burrows. 14m on - less rocks and small vertical burrows common but no mounds. Two *Echinus* on rock on plain. *Marthasterias* present. Five point abundance scale used. NOTE: Substratum % data are converted from the original substratum 1-3 scoring system.	SS.SMu.CFiMu	Uncertain match; whole record
49	267.120.001	A soft, cohesive mud plain was present at 19m. Large numbers of *Amphiura chiajei* were present. *Glycera rouxii* was occasional. Raw data sheets muddled. Treat species list with caution. NOTE: Substratum % data are converted from the original substratum 1-3 scoring system.	SS.SMu.CFiMu	Certain match; whole record
50	267.121.001	A soft, cohesive mud plain was present at 19m. Large numbers of *Amphiura chiajei* were present. One *Chaetopterus variopedatus* was collected together with mud tube. Raw data sheets muddled. Treat species list with caution. NOTE: Substratum % data are converted from the original substratum 1-3 scoring system.	SS.SMu.CFiMu	Certain match; whole record
51	267.122.001	An area of sandy mud at 16m surrounded by soft mud in deeper water. The sediment contained large amounts of Turritellid fragments and supported a dense population of *Amphiura chiajei*. One specimen of *Abra prismatica* was recorded. *Notomastus latericens* and *Melinna palmata* were recorded from the sediment. Raw data sheets muddled. Treat species list with caution. NOTE: Substratum % data are converted from the original substratum 1-3 scoring system.	SS.SMu.CFiMu	Certain match; whole record

Table 10.3 continued

Code	Sample reference	Description	Biotope code	Qualifier
52	267.128.001	Soft cohesive mud at 24m with little shell debris present. Dense populations of *Amphiura chiajei* present. Small muddy tubes present in the sediment. A large mud tube with *Chaetopterus variopedatus* was sampled. One specimen of *Golfingia elongata* was found. Raw data sheets muddled. Treat species list with caution. NOTE: Substratum % data are converted from the original substratum 1-3 scoring system.	SS.SMu.CFiMu	Certain match; whole record
53	267.130.001	Cohesive mud at 27m. Some fragments of *Chlamys* and *Turritella* shells. *Amphiura chiajei* frequent. Raw data sheets muddled. Treat species list with caution. NOTE: Substratum % data are converted from the original substratum 1-3 scoring system.	SS.SMu.CFiMu	Certain match; whole record
54	267.131.001	*Amphiura* has been removed from the species list for this record as more specific related taxa were also present, these are now marked as characterising. Sandy mud, cohesive, with shell fragments at 20m. Many intact valves present and one specimen of *Arctica islandica* was recorded. A mixture of *Amphiura chiajei* and *Amphiura filiformis* was frequent. Raw data sheets muddled. Treat species list with caution. NOTE: Substratum % data are converted from the original substratum 1-3 scoring system.	SS.SMu.CFiMu	Uncertain match; whole record
55	267.132.001	A cohesive mud sediment at 18m. Shell fragments of *Turritella* and *Arctica islandica* were present. *Amphiura chiajei* was common in sediment. Raw data sheets muddled. Treat species list with caution. NOTE: Substratum % data are converted from the original substratum 1-3 scoring system.	SS.SMu.CFiMu	Certain match; whole record
56	267.134.001	A cohesive mud sediment at 20m. *Amphiura chiajei* was frequent with several polychaete species recorded including *Chaetopterus variopedatus*. Raw data sheets muddled. Treat species list with caution. NOTE: Substratum % data are converted from the original substratum 1-3 scoring system.	SS.SMu.CFiMu	Certain match; whole record
57	MRMCS00200000289.02	Soft mud with nephrops burrows and burrowing brittle stars evident.continued beyond the end of the survey at 14m bsl, after about 5m horiztonal distance beyond the end of the boulders in habitat 1.	SS.SMu.CFiMu	Certain match; whole record
58	MRSNH02300000002.01	Sandy Mud	SS.SMu.CFiMu	Uncertain match; whole record
59	MRSNH02300000006.01	Mud	SS.SMu.CFiMu	Uncertain match; whole record

Table 10.3 continued

Code	Sample reference	Description	Biotope code	Qualifier
60	MRSNH0230000000A.01	Sandy mud	SS.SMu.CFiMu	Uncertain match; part record
61	MRSNH02300000016.01	Sandy mud	SS.SMu.CFiMu	Uncertain match; part record
62	MRSNH02300000017.01	Mud	SS.SMu.CFiMu	Uncertain match; whole record
63	MRSNH02300000019.01	Sandy mud	SS.SMu.CFiMu	Uncertain match; part record
64	MRSNH0230000001A.01	Mud	SS.SMu.CFiMu	Uncertain match; whole record
65	MRSNH0230000001F.01	Mud	SS.SMu.CFiMu	Uncertain match; whole record
66	MRSNH02300000023.01	Mud.	SS.SMu.CFiMu	Uncertain match; whole record
67	267.133.001	A cohesive mud sediment at 22m. Depauperate with only three specimens of *Amphiura chiajei* recorded. NOTE: Substratum % data are converted from the original substratum 1-3 scoring system.	SS.SMu.CFiMu.BlyrAchi	Uncertain match; whole record
68	050.1/12.001	Mud, no record of shell or gravel. *Ascophyllum nodosum, Chylocladia*, and *Laminaria saccharina*; maximum depth of algae 4 - 5 m. Surface of mud broken by terebellid casts. *Crangon* very numerous, and *Maxmuelleria* common. *Liocarcinus depurator* common (adults and portunid juveniles). Large clumps of *Ascidiella aspersa* supported tufts of hydroids.	SS.SMu.CFiMu.MegMax	Certain match; whole record
69	050.1/13.001	Mud, no record of shell or gravel. Surface of mud broken by terebellid casts. *Crangon* very numerous, and *Maxmuelleria* common. *Liocarcinus depurator* common (adults and portunid juveniles). Large clumps of *Ascidiella aspersa* supported tufts of hydroids. *Ascophyllum nodosum*, *Chylocladia* and *Laminaria saccharina*; maximum depth of algae 4 - 5 m.	SS.SMu.CFiMu.MegMax	Certain match; whole record

Table 10.3 continued

Code	Sample reference	Description	Biotope code	Qualifier
70	050.5/3.001	Mud, worked into mounds and burrows. Few other obvious signs of life on the surface, and free of shell debris. Occasional hydroids and worm tubes, including *Chaetopterus* and *Myxicola*. *Cerianthus* and *Calocaris* were also recorded. No algae seen.	SS.SMu.CFiMu.MegMax	Certain match; whole record
71	065.002.001	Highly burrowed muddy sediment which was patchily anoxic a few mm below the surface. Burrows were characteristic of three species: *Callianassa subterranea* (vertical shaft), *Jaxea nocturna* and *Maxmuelleria lankesteri.*	SS.SMu.CFiMu.MegMax	Certain match; whole record
72	065.003.001	Mud substratum dominated by large sediment mounds. Most belonging to *Callianassa subterranea*, though some belonged to *Maxmuelleria lankesteri* and *Jaxea nocturna*. A night dive was also carried out which confirmed that *M. lankesteri* was associated with sediment mounds.	SS.SMu.CFiMu.MegMax	Certain match; whole record
73	065.004.001	Sediment surface was less hummocky than in Loch a'Bhealaich since the density of mound builders was lower (2-3/ sq. m). Visual inspection of the burrows suggested that *Callianessa subterranea* was present in addition to the other mound builders. Mud surface was also covered in small projections which were made by polychaetes. Clear signs of recent trawling were also noted.	SS.SMu.CFiMu.MegMax	Certain match; whole record
74	065.005.001	Muddy substratum with burrows and mounds typical of *Maxmuelleria lankesteri* and *Jaxea nocturna*.	SS.SMu.CFiMu.MegMax	Certain match; whole record
75	065.007.001	Slightly coarser sediment than sites 4 & 14. Site dominated by the thalassinid *Callianassa subterranea*. Night dive also caried out at this site.	SS.SMu.CFiMu.MegMax	Certain match; whole record
76	065.008.001	Most mounds appeared to be associated with the burrows of *Callianassa subterranea.* The sediment surface was also covered in small projections thought to have been made by polychaetes.	SS.SMu.CFiMu.MegMax	Certain match; whole record
77	065.009.001	The sediment here was sandier than any of the other sites (69% sand) and was heavily burrowed by *Calocaris macandreae*, *Nephrops norvegicus* and *Callianassa subterranea*. There were however very few large sediment mounds characteristic of *Jaxea nocturna*.	SS.SMu.CFiMu.MegMax	Certain match; whole record
78	065.010.001	Sediment was variable in consistency. There were large areas where the muddy sediment contained stones and shells (often mussel shells). Other areas appeared cleaner and it is from these cleaner areas than the samples were taken. This sandy-mud deposit was dominated by vertical burrows, probably *Callianassa subterranea*, though the poor visibility lead to some uncertainty.	SS.SMu.CFiMu.MegMax	Certain match; whole record

Table 10.3 continued

Code	Sample reference	Description	Biotope code	Qualifier
79	065.011.001	Some sediment mounds were very large, over 50cm in height and around 1m in diameter at the base. Examination of the mounds suggested that *Maxmuelleria lankesteri* was mainly responsible, but *Jaxea nocturna* was also present.	SS.SMu.CFiMu.MegMax	Certain match; whole record
80	065.013.001	Sediment surface was covered with diatoms and patches of polychaete tubes. The sediment was poorly oxygenated below 5mm. Sediment surface showed many excavations of the mound builders, often over 30cm high. Probably both *Maxmuelleria lankesteri* and *Jaxea nocturna* were present.	SS.SMu.CFiMu.MegMax	Certain match; whole record
81	065.014.001	Site dominated by *Maxmuelleria lankesteri* and *Jaxea nocturna*.	SS.SMu.CFiMu.MegMax	Certain match; whole record
82	065.015.001	Soft mud sediment plain dominated by large mounds (up to 5 per sq.m). Large *Nephrops norvegicus* burrows were present. Sediment plain gave way to a slope of coarser deposit towards the shore. This region contained few burrows, except for a few attributable to *Callianassa subterranea* and *Upogebia stellata.*	SS.SMu.CFiMu.MegMax	Certain match; whole record
83	MRSNH02300000003.01	Mud	SS.SMu.CFiMu.MegMax	Uncertain match; part record
84	MRSNH02300000005.01	Mud	SS.SMu.CFiMu.MegMax	Uncertain match; part record
85	MRSNH02300000007.01	Mud	SS.SMu.CFiMu.MegMax	Uncertain match; part record
86	MRSNH0230000000E.01	Sandy mud	SS.SMu.CFiMu.MegMax	Uncertain match; part record
87	MRSNH02300000015.01	Sandy mud	SS.SMu.CFiMu.MegMax	Uncertain match; part record
88	MRSNH02300000018.01	Mud	SS.SMu.CFiMu.MegMax	Uncertain match; part record
89	MRSNH02300000020.01	Mud.	SS.SMu.CFiMu.MegMax	Uncertain match; part record

Table 10.3 continued

Code	Sample reference	Description	Biotope code	Qualifier
90	046.039.003	Mud plain at base of steep bedrock cliffs, 19 m BCD. Supported populations of *C. crangon, S. lacerata* and *C. lloydii* and *Nephrops* burrows present.	SS.SMu.CFiMu.SpnMeg	Uncertain match; whole record
91	050.1/1.001	Mud, probe depth about 20 cm, with no obvious sulphide layer. Small amounts of shell and small stones. Mud, surface heavily worked, with 1 or 2 burrows per sq.m. Large numbers of faecal pellets present, also many mounds and signs of crab excavations. Sand Goby and *Liocarcinus depurator* on surface, with *Nemertesia ramosa* and *Scrupocellaria* on stones. Many *Turritella* shells. *Amphiura* also present.	SS.SMu.CFiMu.SpnMeg	Uncertain match; whole record
92	050.1/3.001	Deep, thick, sticky mud with diatom cover. Mud surface heavily worked into 'volcanoes'. *Chaetopterus* common, with clumps of hydroids attached to the tubes of these and of *Sabella*. Burrows present, probably of *Goneplax* and *Nephrops*. *Pagurus bernhardus* (with *Hydractinia*) and *Asterias* also common. *Eubranchus pallidus* recorded on 'long' *Obelia*. *Aurelia* common.	SS.SMu.CFiMu.SpnMeg	Uncertain match; whole record
93	050.1/4.001	Very soft mud, with diatom cover, loose *Laminaria saccharina*, some *Polysiphonia*. *Aurelia* common. Mud surface heavily worked into 'volcanoes'. Burrows present, probably of *Goneplax* and *Nephrops*. *Pagurus bernhardus* (with *Hydractinia*) and *Asterias* also common. *Eubranchus pallidus* recorded on 'long' *Obelia*.	SS.SMu.CFiMu.SpnMeg	Uncertain match; whole record
94	050.1/7.001	Mud, with occasional boulders, overlying stones and shell, with the sulphide layer near the surface. Some loose algal debris. Diatom cover. The mud surface was broken by a number of burrows and Sabellid tubes. Numerous shrimps and *Liocarcinus depurator* were recorded. *Asterias* (including juveniles), hydroids and burrowing anemones including *Sagartiogeton laceratus* were also found.	SS.SMu.CFiMu.SpnMeg	Uncertain match; part record
95	050.1/8.001	Mud, worked into numerous mounds and burrows (?*Nephrops*). *Chaetopterus* was recorded with hydroids. *Corella parallelogramma* was seen containing *Musculus*. Foliaceous red algae common in places, especially *Trailliella*. No kelp was recorded.	SS.SMu.CFiMu.SpnMeg	Uncertain match; whole record

Table 10.3 continued

Code	Sample reference	Description	Biotope code	Qualifier
96	050.10/2.002	Small boulders with silt on them, out to soft mud with flocculent surface and holes. Salinity ranged from 32.63 to 33.05 ppt, and temperature from 12.1 to 7.9 degrees centigrade. DEPTH 0.5 m. Distance 7 m. Small boulders with silt on them. *L. saccharina* forest, rocks covered in *Lithothamnia*. *Chorda filum* (F), *Ulva* sp. (F), *Chylocladia verticillata* (F), *Codium* sp. (F), fine 'bleached' *Ceramium* ? (C). *Spirorbis* sp. (C) on kelp and rock, *A. aspersa* (F), *Ophiothrix*, *Ascidia conchilega*, *Electra pilosa*, *Gobiusculus flavescens*. DEPTH 3.5 m. Distance 17 m. Very slight slope of small jumbled boulders and cobbles with a lot of silt on them. Thick *L. saccharina* forest with *Spirobis* sp. abundant on the fronds. *Lithothamnia* abundant. Other algae: *Trailliella* (C), *Chylocladia verticillata* (F), fine filamentous alga (C). Animals: *Ascidiella aspersa* (F), *Chaetopterus* (O), *Pomatoceros*. Underside of boulders: *Eupolymnia nebulosa* (F), *Ascidia conchilega* (C), *Gobiusculus flavescens* (F). DEPTH 8.5 m. Distance 27 m. Fairly steep slope of small rounded jumbled boulders. Bedrock slope at 6.5 - 7.5 m depth. Main cover on boulder and bedrock was *Trailliella* and *Lithothamnia*. Fine alga was also abundant. *Ascidiella aspersa* (F), *Eudendrium rameum* (F), *Crossaster* (1), *Ophiothrix, Cystoclonium* sp. *L. saccharina* began at 6.5 m. DEPTH 9.5 m. Distance 37 m. Slight slope. Scattered boulders and stones on muddy shell sand (firmish). Diatoms on the sediment surface. Rocks had the following on them: *Eudendrium rameum* (F), *Lithothamnia* (F), *Dendrodoa* (F), *Nemertesia ramosa*, *Ascidiella aspersa*, chiton (underside of stone). Also *Astropecten* (1), *Ophiothrix* (1), *Marthasterias*. DEPTH 13 m. Distance 47 m. Slope less than 20 degrees. Some stones present and projecting from silt, these had *Antithamnion plumula* (maximum depth recorded was 13.5m). Some *Chlamys opercularis* (O) and *Nemertesia* (F), *Dendrodoa* (F), *Ascidiella* (O), *Lithothamnia* (O), *Brongniartella byssoides* (O), *Marthasterias, Pomatoceros*, terebellids, chiton, and *Carcinus*. DEPTH 15 m. Distance 57 m. Bedrock ? slope, less than 20 degrees, with silt and shell cover, thick in places - relatively smooth with few fissures or other features. *N. ramosa* (F), and was the only hydroid present. *Dendrodoa* and *Pomatoceros* present. DEPTH 19.5 m. Distance 77 m. Soft mud with flocculent surface. Holes present, 4 cm diameter, but no occupants visible. *Liocarcinus depurator* (F), *Pagurus* (O), *Turritella* shells (C), *Nemertesia antennina* (O) on stones. Brown film on mud surface may have been benthic diatoms.	SS.SMu.CFiMu.SpnMeg	Uncertain match; part record

Table 10.3 continued

Code	Sample reference	Description	Biotope code	Qualifier
97	050.10/4.002	Bedrock and boulder with algae out to mud, fine and gloopy, with *Nephrops* burrows. Salinity ranged from 32.35 to 32.60 ppth, and the temperature from 14.5 to 10.4 degrees centigrade at 15 m depth, compared with 10.0 degrees at 10 m depth, bottom effect? DEPTH 1.5 m. Distance 10 m. *L. saccharina*, bedrock, boulder, algae including odd *L. digitata*. *Halidrys, Codium, Corallina*, under boulders - fauna rich, odd *Tealia felina, Marthasterias Anemonia*, Two-spotted gobies at the surface, *Amphilectus*, and a large Black goby. DEPTH 7 m. Distance 15 m. *L. saccharina* zone began, *Chylocladia*, and *Lithothamnia*. Warmer! DEPTH 10 m. Distance 20 m. Bedrock and boulders. *Lithothamnia, Trailliella*, odd *Ciona*, *Corella, Asterias*. Rich under boulder fauna. DEPTH 14 m. Distance 30 m. Mud, shell, 'hand-in' mud, the rock sand boundary was at 13.5 m. There was *Lithothamnia* on the rock, at the boundary itself (bedrock). Also on the rock was *Dendrodoa*. One urchin was recorded at this depth on the line. No obvious diatom. *O. plicata* on rock. *Suberites*, small. *Balanus* (O), *Chaetopterus*. 10.25 m level of *Trailliella, Corella* zone conspicuous, *Ophiothrix, Botryllus* sp., *Henricia*. DEPTH 16 m. Distance 40 m. Mud (arm deep), fine and gloopy, *Nephrops* burrows, *Virgularia*, mounds, shrimps (? collected in Achnamara Arm).	SS.SMu.CFiMu.SpnMeg	Certain match; part record
98	050.2/1.001	Soft mud (probe depth about 20 cm) over shell gravel, with shell fragments. Diatom cover above 17.5 m, none below. The mud plain at 18.5 m contained many vertical burrows, but no casts or 'volcanoes'. Occasional *Virgularia* and *Sagartiogeton laceratus*; *Astropecten, Ophiura, Myxicola* and *Liocarcinus depurator*. The slope from 17.5 m upwards was without burrows, and with increasing shell fragments, including those of *Pecten. Nemertesia ramosa* was attached to many of these, and *Virgularia* was more frequent.	SS.SMu.CFiMu.SpnMeg	Certain match; part record
99	050.2/4.001	Very soft mud - probe depth 50 cm. Some rocks, and foliaceous red algae. *Amphiura* and *Liocarcinus depurator* were both very common; *Myxicola*, *Astropecten, Virgularia, Cerianthus, Arenicola, Pagurus* and other small ophiuroids were also recorded. On the rocks *Suberites carnosus* was seen, along with *Macropodia* sp., *Ascidiella aspersa* (with *Scytosiphon*), *Hyas, Corella* and hydroids.	SS.SMu.CFiMu.SpnMeg	Uncertain match; whole record
100	050.2/5.001	Soft, 'gloopy' mud, probe depth about 25 cm. Drift *Fucus serratus* and *Codium*. Surface 'busy' with many mounds, casts and vertical burrows. *Virgularia* was common, and *Chaetopterus, Cerianthus, Arenicola, Ophiura* sp., *Chlamys* and *Sygnathus acus* were also recorded.	SS.SMu.CFiMu.SpnMeg	Certain match; whole record

Table 10.3 continued

Code	Sample reference	Description	Biotope code	Qualifier
101	050.2/7.001	Mud which is elbow deep, grey layer. Burrows common.	SS.SMu.CFiMu.SpnMeg	Uncertain match; whole record
102	050.2/8.001	Paguridae has been removed from the species list for this record as more specific related taxa were also present, these are now marked as characterising. Soft grey mud with shell debris (especially from *Chlamys*). Diatom cover over surface; lots of drifting algal debris. Surface heavily worked with a variety of burrows and mounds. *Ascidiella* attached to the drift algae. *Liocarcinus depurator* and *Virgularia* common, but no shrimps or anemones seen. *Suberites* noted on a *Chlamys* opercularis valve.	SS.SMu.CFiMu.SpnMeg	Certain match; whole record
103	050.2/9.001	Soft mud >50 cm probe depth, heavily worked with burrows of *Nephrops* in 'volcanoes' (*Nephrops* observed within). *Virgularia* and crab tracks prominant; *Myxicola* also recorded. *Aurelia* was dense in the water column. No algae recorded.	SS.SMu.CFiMu.SpnMeg	Uncertain match; whole record
104	050.5/1.001	Soft mud with a probe depth >50 cm. Occasional bottles and cans. The surface was heavily worked into mounds, 'volcanoes' and various sized burrows, some of which were seen to be occupied by *Nephrops*. Many small vertical burrows contained an unidentified shrimp. *Cerianthus* was frequent.	SS.SMu.CFiMu.SpnMeg	Certain match; whole record
105	050.5/5.001	*Chaetopterus* has been removed from the species list for this record as more specific related taxa were also present, these are now marked as characterising. Soft mud with shell fragments, probe depth <50 cm. A sulphide layer was present immediately below the surface. Patchy diatom cover on the mud surface. No other algae recorded. Surface heavily worked into mounds and burrows, with much shrimp and crab (especially *Liocarcinus depurator*) activity. *Virgularia*, *Chaetopterus* and *Myxicola* were all common. On close inspection the surface of the sediment was seen to be peppered with small holes - probably of *Phoronis*.	SS.SMu.CFiMu.SpnMeg	Certain match; whole record
106	050.5/7.001	Grey mud with a probe depth >20 cm. *Philine, Chlamys, Liocarcinus depurator* and shrimps all seen, but little activity in the sediment, with few burrows or casts. No ascidians, *Virgularia*, *Cerianthus* or algae recorded.	SS.SMu.CFiMu.SpnMeg	Uncertain match; whole record
107	050.5/9.001	Very soft mud, with no obvious sulphide layer. The surface was broken by numerous small burrows and large mounds. *Liocarcinus depurator* was common, and small *Asterias* were also numerous. There were many tubes, few of which extended far above the surface, some of which were probably *Myxicola*.	SS.SMu.CFiMu.SpnMeg	Uncertain match; whole record

Table 10.3 continued

Code	Sample reference	Description	Biotope code	Qualifier
108	065.012.001	Very soft mud which contained some shell fragments. No large burrows. Terrebellids were present, forming low mounds of sediment.	SS.SMu.CFiMu.SpnMeg	Uncertain match; whole record
109	267.020.001	Soft mud, very little seen. A little *Cystoclonium purpureum* attached to surface a short distance from boulder slope. *Carcinus maenas* and *Liocarcinus depurator* frequently seen on mud. One flatfish seen (flounder?). *Nephrops* burrows seen with one backing into burrow. Patchy distribution about four holes seen initially then three further on (after about 5m swimming), then one more even further on. Round mounds with holes also observed. Boulder in sediment. Covered with silt and abundant *Trailliella. Clavelina, Tethya, Ascidiella* and *Pomatoceros* & occasionally found. Five point abundance scale used. NOTE: Substratum % data are converted from the original substratum 1-3 scoring system.	SS.SMu.CFiMu.SpnMeg	Certain match; part record
110	267.006.002	Gently sloping cohesive mud from 4m-10m bsl, with fine silt layer on top. Surface brown/grey deeper. Firm mud/clay sand on slope with Echiuroid worms feeding on mud. *Arenicola* in sediment - one siphon with *Sagartiogeton lacerata* attached. Soft mud at about 10m bsl with many `volcanoes` with round vertical burrows on top and many shore crab excavations. *Nephrops* burrows common with *Crangon*, gobies and mysids in the entrance. Five point abundance scale used. NOTE: Substratum % data are converted from the original substratum 1-3 scoring system.	SS.SMu.CFiMu.SpnMeg	Certain match; part record
111	267.011.005	Gently sloping mud plain. North end of plain very soft with lots of holes and occasional volcano-like mounds. No *Cerianthus*. Going up from 13m mud contains stones, pebbles and shell fragments. *Gracilaria* and *Ascidiella* on stones with *Trailliella* fuzz. NOTE: Substratum % data are converted from the original substratum 1-3 scoring system.	SS.SMu.CFiMu.SpnMeg	Certain match; part record
112	267.012.003	Deep thick, smooth mud with mounds and burrows. *Crangon*, Nephrops and large gobies (*Gobius niger*) in burrows. 5 point abundance scale used. NOTE: Substratum % data are converted from the original substratum 1-3 scoring system.	SS.SMu.CFiMu.SpnMeg	Uncertain match; whole record

Table 10.3 continued

Code	Sample reference	Description	Biotope code	Qualifier
113	267.029.001	*Virgularia* has been removed from the species list for this record as more specific related taxa were also present, these are now marked as characterising. Basin of soft, cohesive mud, very smooth to the fingers. Possibly some very fine sand present (extremely little). Some small stones present and shells. Deeper sediment consisted of clay. White bacterial surface to sediment present in isolated patches mainly near stranded *Laminaria saccharina*. Bottom of hole, or at least deepest part studied, appeared horizontal. Patches of *Laminaria saccharina* present on the bottom covered in silt. Laminaria saccharina appeared loose but as a small community with other loose algae such as *Desmarestia aculeata*, and *Plocamium cartilagineum*. The sediment in the bottom of the hole supported little in the way of visible surface dwelling creatures. Most occurred beneath surface- evidence given by *Arctica islandica, Ensis* and *Cyprina islandica* shells. Hermit crabs, *Carcinus maenas* and *Liocarcinus depurator* present. On eastern side of hole, at 18m, *Virgularia* was common in patches, on bottom of hole they were present only occasionally. There were three slanting holes- apparently *Nephrops*. Holes of other animals also present. Five point abundance scale used. NOTE: Substratum % data are converted from the original substratum 1-3 scoring system.	SS.SMu.CFiMu.SpnMeg	Certain match; whole record
114	267.039.001	Soft mud with worked appearance - volcanoes, holes, round mounds, *Nephrops* burrows (probably including those of *Callianassa subternea*), depressions. Three *Nephrops* seen in whole dive. Less than one *Nephrops* burrow in site at one time (visibility 2-3m). Mysid shrimps and gobies common. Five point abundance scale used. NOTE: Substratum % data are converted from the original substratum 1-3 scoring system.	SS.SMu.CFiMu.SpnMeg	Certain match; whole record
115	267.044.001	Soft mud with no shell fragments. Very intensively worked surface with volcanoes (which wobble when prodded)- most with vertical holes at the top and 1-2 inches diameter. *Nephrops* burrows common. Shrimps common. No gobies seen. *Liocarcinus depurator* seen. *Virgularia mirabilis* and *Sabella pavonina* preent. NOTE: Substratum % data are converted from the original substratum 1-3 scoring system.	SS.SMu.CFiMu.SpnMeg	Uncertain match; whole record
116	267.045.001	Soft mud with no shell fragmnets. Very intensively worked surface with volcanoes (which wobble when prodded) - most with vertical holes at the top and 1-2inches diameter. *Nephrops* burrows common. Shrimps common. No gobies seen. *Liocarcinus depurator* seen. *Virgularia mirabilis* and *Sabella pavonina* present. NOTE: Substratum % data are converted from the original substratum 1-3 scoring system.	SS.SMu.CFiMu.SpnMeg	Uncertain match; whole record

Table 10.3 continued

Code	Sample reference	Description	Biotope code	Qualifier
117	267.046.001	Soft mud with no shell fragments. Very intensively worked surface with volcanoes (which wobble when prodded) - most with vertical holes at the top and 1-2 inches diameter. *Nephrops* burrows common. Shrimps common. No gobies seen. *Liocarcinus depurator* seen. *Virgularia mirabilis* and *Sabella pavonina* present. NOTE: Substratum % data are converted from the original substratum 1-3 scoring system.	SS.SMu.CFiMu.SpnMeg	Uncertain match; whole record
118	267.048.001	Cicalittoral sediment plain (14-14.5m bcd). Soft mud surface becoming semi-consolidated and cohesive with depth. No small scale working but large scale burrows evident. Density of holes approximately 2-3 per metre square. Bottom uneven with large mounds and pits present. Range of burrows/woking types evident. Gobies and shrimps were frequent.	SS.SMu.CFiMu.SpnMeg	Certain match; whole record
119	267.049.001	Circalittoral sediment plain (14-14.5m bcd). Soft mud surface becoming semi-consolidated and cohesive with depth. No small scale working but large scale burrows evident. Density of holes approximately 2-3 per metre square. Bottom uneven with large mounds and pits present. Range of burrows/working types evident. Gobies and shrimps were frequent.	SS.SMu.CFiMu.SpnMeg	Certain match; whole record
120	267.053.001	Deep mud plain at base of rock with quite a lot of broken shells in it and intact shells on top. Small round vertical burrows common but unable to find what in them. NOTE: Substratum % data are converted from the original substratum 1-3 scoring system.	SS.SMu.CFiMu.SpnMeg	Uncertain match; whole record
121	267.055.001	Mud and shell fragments at 10m with large population of *Amphiura chiajei*, *Cerianthus* and terebellids. Mud black underneath with a layer of brown diatoms. Some small vertical holes. Five point abundance scale used. NOTE: Substratum % data are converted from the original substratum 1-3 scoring system.	SS.SMu.CFiMu.SpnMeg	Uncertain match; whole record
122	267.059.003	*Cerianthus, Nephrops* has been removed from the species list for this record as more specific related taxa were also present, these are now marked as characterising. Below about 12m well worked soft mud with Nephrops bed. *Cerianthus* common (about one per m2). NOTE: Substratum % data are converted from the original substratum 1-3 scoring system.	SS.SMu.CFiMu.SpnMeg	Certain match; whole record
123	267.060.001	*Nephrops* has been given a nominal abundance value of Present for this record as in Arev it had no abundance value. Very shallowly sloping mud/sandy mud with large mounds (6`-9` across) and large burrows (mostly Nephrops). Numerous *Cerianthus, Liocarcinus, Syngnathus* and *Carcinus*. Five point abundance scale used. NOTE: Substratum % data are converted from the original substratum 1-3 scoring system.	SS.SMu.CFiMu.SpnMeg	Uncertain match; whole record

Table 10.3 continued

Code	Sample reference	Description	Biotope code	Qualifier
124	267.065.001	Polychaeta has been removed from the species list for this record as more specific related taxa were also present, these are now marked as characterising. Soft mud at 20m. Polychaete worms present and *Virgularia mirabilis* occasional.	SS.SMu.CFiMu.SpnMeg	Uncertain match; whole record
125	267.077.002	*Nephrops* has been removed from the species list for this record as more specific related taxa were also present, these are now marked as characterising. Mud very soft with no or little shell debris and large numbers of burrows. Most burrows were towards the end of the transect (W side). Here *Nephrops* burrows were about 1 per msq and vertical burrows about 12 per msqu. Several *Nephrops* were seen out of their burrows. The visibility was very poor in these areas. *Sagartiogeton lacerata* only seen in soft mud near end of transect. *Liocarcinus depurator*, *Carcinus maenas*, *Asterias rubens* were recorded generally throughout the dive and *Liocarcinus depurator* was frequent. NOTE: Substratum % data are converted from the original substratum 1-3 scoring system.	SS.SMu.CFiMu.SpnMeg	Uncertain match; whole record
126	267.102.001	*Nephrops* has been removed from the species list for this record as more specific related taxa were also present, these are now marked as characterising. Soft mud. Dense *Nephrops* community, (five per square metre). Varying numbers of *Virgularia*- about about one square metre between 20 and 23m approximately and a dense bed, (20 square metres) in the deeper part of the tow (24-26m). Very little epifauna on this soft mud - occasional asteroids and swimming crabs. Very few *Cerianthus lloydii.* Shells and broken shells sparse, but where these occur they are colonised by *Nemertesia ramosa*. Five point abundance scale used. NOTE: Substratum % data are converted from the original substratum 1-3 scoring system.	SS.SMu.CFiMu.SpnMeg	Certain match; whole record
127	267.103.001	*Nephrops* has been removed from the species list for this record as more specific related taxa were also present, these are now marked as characterising. Soft mud bottom. Many *Nephrops* burrows (up to five square metres). *Virgularia* present, becoming scarcer from SE to NW. Little epifauna on mud (occasional *Liocarcinus*), most epifauna concentrated on loose kelp detritus with concentrations of *Liocarcinus*, some *Hyas* and one *Crossaster* on this. Infrequent *Cerianthus* on NW slope of channel. In shallower water (12-13m), burrows are much smaller, and volcanoes absent - possibly not due to *Nephrops* (possibly *Calocaris*). Five point abundance scale used. NOTE: Substratum % data are converted from the original substratum 1-3 scoring system.	SS.SMu.CFiMu.SpnMeg	Certain match; whole record

Table 10.3 continued

Code	Sample reference	Description	Biotope code	Qualifier
128	267.117.001	*Nephrops* has been removed from the species list for this record as more specific related taxa were also present, these are now marked as characterising. Terebellidae has been given a nominal abundance value of Present for this record as in Arev it had no abundance value. Habitat and fauna fairly uniform over whole of tow from 14m-18m. Mud very soft and smooth with much clay. Sediment worked into volcanos (about 3 msq) and a size range of vertical holes (larger holes about 4 msq). *Nephrops* burrows occurred in patches over the bottom about 2/3/4 square metres. Terebellid tubes also occurred in patches about 3 square metres at most. At 14m on the mud Asterias and *Crossaster* were occasionally observed with drift *Laminaria saccharina* and *Nephrops* burrows. At 20m no *Nephrops* seen (showing patchy distribution). *Liocarcinus depurator* were seen occasionally over the whole of the bottom at twenty metres. *Carcinus maenas* was occasional. Apart from the soft mud with its burrows and mounds nothing was seen on the surface - except the occasional animal mentioned above. Volcanos and a variety of sized vertical holes characterize the area. At 18m the substratum began to change - gradual increase in slope and an increase in broken shells on the surface. NOTE: Substratum % data are converted from the original substratum 1-3 scoring system.	SS.SMu.CFiMu.SpnMeg	Uncertain match; whole record
129	267.117.002	Still soft mud but with gravel beneath surface and broken shells, mainly *Turritella*, on top. *Nephrops* holes at this depth. At 15m amount of broken shells increased on surface *Nemertesia ramosa* occasional on very occasional cobbles. *Asterias* occasional. Occasionally boulders appeared covered in encrusting calcareous algae and *Trailliella* from 13m upwards. This type of habitat continued to 8m. *Liocarcinus puber* rare, *Asterias* frequent, *Crossaster* occasional, *Carcinus* occasional and *Cancer* rare found. From 8-5m *Ascidiella aspersa* (large) present on surface as drift and *Laminaria saccharina*. NOTE: Substratum % data are converted from the original substratum 1-3 scoring system.	SS.SMu.CFiMu.SpnMeg	Uncertain match; part record
130	267.118.001	Very soft mud with a brown/green diatom layer. Extensively worked surface of *Nephrops* burrows (3 per msq) and volcanos (similar density). Vertical shafts were often paired. Volcanos seemed to be larger at deeper depths. Mud tubes common. Burrowing brittle stars abundant - specimens collected were *Amphiura brachiata*. Three *Virgularia* and three *Cerianthus* were recorded along the entire tow over this habitat. Mysid shrimps were especially common in burrow entrances. Epifauna of *Liocarcinus depurator*. Five point abundance scale used. NOTE: Substratum % data are converted from the original substratum 1-3 scoring system.	SS.SMu.CFiMu.SpnMeg	Certain match; whole record

Table 10.3 continued

Code	Sample reference	Description	Biotope code	Qualifier
131	267.119.001	*Nephrops* has been given a nominal abundance value of Present for this record as in Arev it had no abundance value. Soft mud, flocculent on the surface, rapidly becoming clayier in consistency with depth. Whole mud surface thrown into `volcanic' lanscape. Many of the volcanos have single shafts and appear to be produced by terebellid worms. In addition some paired shafts were seen. It is probable that many of these shafts were produced by burrowing shrimps. No obvious difference in density of volcanos during tow. *Nephrops* burrows (average 1 set per 5 metres square) became less frequent (1 per 10 metres square) after the initial 50m and apparently smaller in size also. Lots of *Amphiura/Acrocnida* in the sediment - arms protruding - estimated 1000 per metre? No obvious sign of trawling - unless lower density and smaller size of *Nephrops* into channel is indication. No *Virgularia* or *Cerianthus* seen. Five point abundance scale used. NOTE: Substratum % data are converted from the original substratum 1-3 scoring system.	SS.SMu.CFiMu.SpnMeg	Uncertain match; whole record
132	267.123.001	Soft cohesive mud at 21m with no shell debris present. Dense populations of *Amphiura chiajei* were present. *Chaetopterus variopedatus* and *Cerianthus lloydii* occasional or rare. Raw data sheets muddled. Treat species list with caution. NOTE: Substratum % data are converted from the original substratum 1-3 scoring system.	SS.SMu.CFiMu.SpnMeg	Uncertain match; whole record
133	267.124.001	Soft cohesive mud with dense population of *Amphiura chiajei*. *Maxmulleria lankasteri* also recorded. Raw data sheets muddled. Treat species list with caution. NOTE: Substratum % data are converted from the original substratum 1-3 scoring system.	SS.SMu.CFiMu.SpnMeg	Uncertain match; whole record
134	267.125.001	Soft cohesive mud at 23m. *Amphiura chiajei* was common with a low species diversity recorded from the site. Raw data sheets muddled. Treat species list with caution. NOTE: Substratum % data are converted from the original substratum 1-3 scoring system.	SS.SMu.CFiMu.SpnMeg	Uncertain match; whole record
135	267.126.001	Soft cohesive mud at 31m. Sediment was dominated by *Amphiura chiajei*. Large mud tubes collected, possibly of *Chaetopterus variopedatus* and one specimen of *Abra alba*. Raw data sheets muddled. Treat species list with caution. NOTE: Substratum % data are converted from the original substratum 1-3 scoring system.	SS.SMu.CFiMu.SpnMeg	Uncertain match; whole record

Table 10.3 continued

Code	Sample reference	Description	Biotope code	Qualifier
136	267.136.001	Soft glutinous mud with conical feeding mounds (10-30cm in diameter) and burrows (holes 1-2cm diameter). Mounds frequent (1-3 per metre square), holes abundant (5-10 per metre square) and *Nephrops* burrows (1-5 per metre square). Occasional *Cerianthus lloydii*, *Liocarcinus depurator* and *Amphiura chiajei*. NOTE: Substratum % data are converted from the original substratum 1-3 scoring system.	SS.SMu.CFiMu.SpnMeg	Uncertain match; whole record
137	267.137.001	Soft glutinous mud with many conical feeding mounds and burrows. Burrows mostly of one sort, approximately 1-2cm diameter, 5-10 per metre square. Mounds 10-30cm in diameter, 1-3 per metre square. *Nephrops* burrows 1-5 per metre square. Occasional *Cerianthus lloydii*, *Liocarcinus depurator*, *Amphiura chiajei* NOTE: Substratum % data are converted from the original substratum 1-3 scoring system.	SS.SMu.CFiMu.SpnMeg	Uncertain match; whole record
138	MRSNH02300000003.01	Mud	SS.SMu.CFiMu.SpnMeg	Uncertain match; part record
139	MRSNH02300000005.01	Mud	SS.SMu.CFiMu.SpnMeg	Uncertain match; part record
140	MRSNH02300000007.01	Mud	SS.SMu.CFiMu.SpnMeg	Uncertain match; part record
141	MRSNH0230000000E.01	Sandy mud	SS.SMu.CFiMu.SpnMeg	Uncertain match; part record
142	MRSNH02300000015.01	Sandy mud	SS.SMu.CFiMu.SpnMeg	Uncertain match; part record
143	MRSNH02300000018.01	Mud	SS.SMu.CFiMu.SpnMeg	Uncertain match; part record
144	MRSNH02300000020.01	Mud.	SS.SMu.CFiMu.SpnMeg	Uncertain match; part record

Table 10.3 continued

Code	Sample reference	Description	Biotope code	Qualifier
145	050.2/3.001	Seabed beneath the mussel nets comprised fine, silty sand, with many mussel valves on the surface. A slight sulphide layer was noted. *Laminaria saccharina* and *Codium* in the nets. *Ciona* and *Ascidiella* were observed on the nets. Large *Asterias* and *Crangon* were abundant on the seabed below; *Liocarcinus depurator* and *Ophiocomina nigra* were both common.	SS.SMx.IMx	Uncertain match; whole record
146	267.021.001	Shelly mud sediment. Water clearer than at site 20. *Liocacinus depurator* common, *Cerianthus* occasional, and one small *Nephrops* burrow seen. Mud mainly bare. Mounds and holes also observed. Five point abundance scale used. NOTE: Substratum % data are converted from the original substratum 1-3 scoring system.	SS.SMx.IMx	Certain match; whole record
147	267.024.001	Uniform sediment plain of firm mud with shell debris. Small *Laminaria saccharina* on stones and shells. Very occasional small *Virgularia* (3-4 inches). Occasional mounds and holes of burrowing species *Myxicola*, anenomes and worms. *Arctica islandica* common. Some *Arctica* specimens had been tagged by painting and and growth increments marked.Everything present is very sparse in ones and twos. Five point abundance scale. NOTE: Substratum % data are converted from the original substratum 1-3 scoring system.	SS.SMx.IMx	Uncertain match; whole record
148	267.025.001	Sediment plain - mud with shell gravel very silty. Towards cliff boulders become common and covered with *Laminaria saccharina*. Very occasional *Laminaria hyperborea*. Ends at base of rock wall. No epifaunal records obtained from sediment plain. Five point abundance scale used. NOTE: Substratum % data are converted from the original substratum 1-3 scoring system.	SS.SMx.IMx	Certain match; part record
149	267.051.002	Small stones and boulders on sandy substrate. *Cancer pagarus* very common, some *Liocarcinus depurator*. Large *Marthasterias glacialis* quite common, single *Astropecten irregularis* and occasional large *Echinus*. Towards the island, in slightly shallower water *Chorda* was abundant. Juvenile squat lobster. NOTE: Substratum % data are converted from the original substratum 1-3 scoring system.	SS.SMx.IMx	Certain match; whole record
150	267.064.001	A mixture of silt and shells at 8.5m. Drift *Acrosorium uncinatum* and *Laminaria saccharina* were present. *Ophelina acuminata* was occasional.	SS.SMx.IMx	Uncertain match; whole record

Table 10.3 continued

Code	Sample reference	Description	Biotope code	Qualifier
151	267.084.001	*Laminaria saccharina* has been given a nominal abundance value of Present for this record as in Arev it had no abundance value. A coarse, pebble and gravel seabed at 13m with *Laminaria saccharina* present. *Gibbula cineraria*, *Tectura virginea* and *Pododesmus squamala* abundant with *Tonicella marmorea* frequent. Encrusting bryozoa, including *Celleporella hyalina*, *Membranipora membranacea* and *Electra pilosa* common or abundant. NOTE: Substratum % data are converted from the original substratum 1-3 scoring system.	SS.SMx.IMx	Uncertain match; whole record
152	267.085.001	A seabed of muddy, coarse shell gravel at 13m. *Lepidopleurus asellus* and *Tectura virginea* common. *Aequipecten opercularis* and *Ensis arcuatus* were frequent, with *Clausinella fasciata* common. NOTE: Substratum % data are converted from the original substratum 1-3 scoring system.	SS.SMx.IMx	Uncertain match; whole record
153	267.090.001	A mixture of shell gravel and pebbles, with some maerl, at 8m. *Ensis arcuatus* was dominant, with *Mya truncata*, *Paphia rhomboides* and *Gari tellinella* frequent or common. NOTE: Substratum % data are converted from the original substratum 1-3 scoring system.	SS.SMx.IMx	Certain match; whole record
154	267.092.001	A mixture of muddy sand and gravel, with some stones present at 11m. One specimen of *Thyone raphanus* collected only. NOTE: Substratum % data are converted from the original substratum 1-3 scoring system.	SS.SMx.IMx	Uncertain match; whole record
155	267.094.001	A mixture of cobbles, pebbles and large shell fragments present from 10-16m. The infaunal community included *Lepidonotus clava*, *Flabelligera affinis*, *Ampharete gurneri* and *Timoclea ovata*. *Turritella communis*, with *Phascolion strombi*, was common with a wide range of other gastropod molluscs present. *Ophiocomina nigra* was common. NOTE: Substratum % data are converted from the original substratum 1-3 scoring system.	SS.SMx.IMx	Uncertain match; whole record
156	267.129.001	Shell gravel and small stones at 11m. Large amounts of *Aequipecten* and *Turritella* shell fragments present, some with *Styela coriacea* attached. Raw data sheets muddled. Treat species list with caution. NOTE: Substratum % data are converted from the original substratum 1-3 scoring system.	SS.SMx.IMx	Uncertain match; whole record
157	267.070.001	The seabed at 30m consisted of nests of *Limaria hians*, no stones being collected. Associated with these nests was the commensal polychaete *Flabelligera affinis*. *Antedon bifida* and *Echinus esculentus* were abundant or common, one juvenile of the latter species being recorded.	SS.SMx.IMx.Lim	Certain match; whole record

Table 10.3 continued

Code	Sample reference	Description	Biotope code	Qualifier
158	267.071.001	Offshore from site 70, the seabed at 40m comprised of a mixture of *Limaria hians* nests and stones. Many other mollusc species were present, including *Modiolus modiolous*, *Mya truncata, Musculus discors* and *Hiatella arctica*. *Antedon bifida* was abundant with *Echinus esculentus* and *Asterias rubens* occasional. A moderate diversity of encrusting organisms was present on the stones.	SS.SMx.IMx.Lim	Uncertain match; whole record
159	046.025.001	Substrate of pebbles/cobbles in the upper infralittoral, very sheltered from wave action and tidal streams. A dense cover of '*Lithothamnia*', *Pomatoceros triqueter* and *Serpula vermicularis* was present with *Laminaria saccharina* common. At the lower limit of hard substrata, reefs of *Serpula vermicularis* were present. *Marthasterias glacialis* was observed predating these. Dense beds of *Ostrea edulis* were present on the eastern side together with some *Tapes decussata* and *Chlamys* sp.	SS.SMx.IMx.Ost	Certain match; part record
160	050.1/11.001	A plain of fine mud with a sulphide layer present. The mud surface was pitted with many small (?amphipod) burrows, and broken by *Sabella* tubes supporting hydroids, *Anemonia* and *Ophiocomina nigra*. *Chorda filum* present, also abundant drifting fucoids, *Enteromorpha* and *Codium*.	SS.SMx.IMx.SpavSpAn	Uncertain match; whole record
161	050.1/7.001	Mud, with occasional boulders, overlying stones and shell, with the sulphide layer near the surface. Some loose algal debris. Diatom cover. The mud surface was broken by a number of burrows and Sabellid tubes. Numerous shrimps and *Liocarcinus depurator* were recorded. *Asterias* (including juveniles), hydroids and burrowing anemones including *Sagartiogeton laceratus* were also found.	SS.SMx.IMx.SpavSpAn	Uncertain match; part record
162	267.036.002	*Cerianthus* has been given a nominal abundance value of Present for this record as in Arev it had no abundance value. Sediment plain consisting of a mixture of muddy sand and mud substrates. Former colonised by *Sabella pavonina*, *Pagarus* and occasional *Sagartiogeton* spp. with infaunal polychaetes. Mud with occasional *Arenicola*, *Sagartiogeton* spp., *Cerianthus* and a large amount of *Chaetomorpha* spp. Five point abundance scale used. NOTE: Substratum % data are converted from the original substratum 1-3 scoring system.	SS.SMx.IMx.SpavSpAn	Uncertain match; part record
163	097.011.001	Sheltered gravel shore with *Dosinia exoleta* and *Venerupis senegalensis*. The surface of the gravel was littered with the shells of these two species.	SS.SMx.IMx.VsenAsquAps	Uncertain match; whole record
164	097.023.007	Sheltered underboulder gravel with *Cirratulus cirratus* and *Venerupis senegalensis*.	SS.SMx.IMx.VsenAsquAps	Uncertain match; part record

Table 10.3 continued

Code	Sample reference	Description	Biotope code	Qualifier
165	050.4/8.001	Flat pebble and cobble bottom, with coarse sand and shell remains. *Echinus* was seen grazing on a hydroid turf. No algae recorded.	SS.SMx.CMx	Uncertain match; whole record
166	050.10/3.002	Chorda forest out to muddy sand, was on small angular cobbles, black shell gravel beneath the sand. DEPTH 3 m. Chorda forest. DEPTH 3.5 m. Distance 10 m. *L. saccharina* (dense), *Chylocladia* (dense), *Chorda* (dense), *Lithothamnia* on boulders (F), *Codium* (O), *Ascidiella conchilega*, *A. scabra*. Amphipod tubes on top of the boulders. Lots of two-spotted gobies. DEPTH 6.5 m. Distance 15 m. Large boulders, covered by dense *Chylocladia* and *Trailliella*, also *dense L. saccharina. Lithothamnia* on the boulders. *Chondrus* (O), either *Furcellaria* or *Polyides* (O), Under boulder fauna: *Leucosolenia botryoides*, *Clavelina*, *Sycon*, *Dendrodoa, Ascidia conchilega*, and lots of *Eupolymnia nebulosa*. Terebellid - most of the tentacles in UBF. *Chaetopterus* inbetween the boulders, A*. scabra*, *Corella*, juv. *Asterias*, *Membranipora*, Two-spotted gobies. DEPTH 9.5 m. Distance 20 m. *L. saccharina*, *Trailliella*, *Chylocladia*, *Lithothamnia* covering boulders, juv. *Asterias*, *Spirorbis* on *L. saccharina*, *Chaetopterus* (F), *Clavelina* (1 or 2 groups), *Ascidiella conchilega* under boulders (C), *Marthasterias* (1), *Liocarcinus puber, Inachus* ? DEPTH 13 m. Distance 30 m. Boulders (large 30 cm+), *Trailliella* and hydroid cover. *Chaetopterus, Spirorbis*, algal debris, *Corella* (F). No *Nemertesia*. DEPTH 16 m. Distance 40 m. Larger cobbles, and small boulders, with *Lithothamnia* and *Trailliella*, *Dendrodoa, Chaetopterus*, juv. *Asterias* (1), *Ascidiella aspersa* (O), at 15.5 m 4 Echinus on transect. DEPTH 19 m. Distance 50 m. Cobble and dead algal debris. *Nemertesia ramosa*, *Echinus* (1) on transect, *Pagurus* (without *Hydractinia*), *Lithothamnia* on the cobbles. DEPTH 20 m. Distance 60 m. Muddy sand, lots of small angular cobbles, black shell gravel beneath the sand. *N. ramosa* (most conspicuous but really only frequent), *Myxicola*, *Dendrodoa* on small cobbles, *Pagurus*, *Pomatoceros, Liocarcinus depurator*. *Hyas araneus*. No *Lithothamnia*.	SS.SMx.CMx	Certain match; part record
167	267.041.001	Steep sloping mud with broken shells at 16m. Scattered boulders at top. *Cancer pagurus* found occasionally. NOTE: Substratum % data are converted from the original substratum 1-3 scoring system.	SS.SMx.CMx	Uncertain match; whole record
168	267.050.003	Moderate slope of mud with shell fragments, many cobbles and small stones. No erect algae but cobble surfaces with *Pseudolithoderma, Lithothamnion, Pomatoceros, Serpula*, Chitons, scale worms, and barnacle scars. A few hydroids and *Styela coriacea*.	SS.SMx.CMx	Uncertain match; whole record

Table 10.3 continued

Code	Sample reference	Description	Biotope code	Qualifier
169	267.066.001	Muddy sand with 50% shell content from 12-15m. Several small bivalves present including *Abra nitida, Chamelea gallina* and *Timoclea ovata*. Drift algae present had a large number of molluscs present. *Asterias rubens* and *Psammechinus miliaris* were occasional.	SS.SMx.CMx	Uncertain match; whole record
170	267.069.001	A hard bottom, consisting of coarse shell gravel and stones, was present at 20-22m. A rich *Astarte sulcata* community was present with well devloped cryptofaunal communities on the stones. One *Echinus esculentus* collected. NOTE: Substratum % data are converted from the original substratum 1-3 scoring system.	SS.SMx.CMx	Uncertain match; whole record
171	267.087.001	A hard seabed of pebbles and coarse shell gravel at 24m. A moderate diversity of encrusting organisms was recorded on the stones including *Clathrina coriacea*, *Microciona atrasanguinea* and *Cliona celata* and many species of bryozoan. Erect bryozoans also present. Several *Aequipecten opercularis* were collected. NOTE: Substratum % data are converted from the original substratum 1-3 scoring system.	SS.SMx.CMx	Uncertain match; whole record
172	267.095.001	The seabed from 16-28m was a mixture of muddy and coarse shell gravels. The sediment was dominated by *Turritella communis* and had a low infaunal diversity, with *Lepidonotus squamatus* common. Stones supported a moderate diversity of encrusting bryozoans. *Suberites domuncula* and *Pagarus cuanensis* were recorded as rare. NOTE: Substratum % data are converted from the original substratum 1-3 scoring system.	SS.SMx.CMx	Uncertain match; whole record
173	267.096.001	A seabed of muddy shell gravel was recorded at 28m. The sediment was dominated by *Turritella communis* with several species of encrusting bryozoans recorded on the pebbles present. NOTE: Substratum % data are converted from the original substratum 1-3 scoring system.	SS.SMx.CMx	Certain match; whole record
174	267.113.001	A mixture of pebbles, coarse shell gravel and mud was sampled from the seabed at 28m. The stones supported a high diversity of encrusting bryozoans and some sponges. Few hydroid species were present. *Turritella communis* was abundant and other molluscs present included *Apporhais pespelecani, Nucula* spp., *Clausinella fasciata* and *Timoclea ovata*. *Antedon bifida* was common. Raw data sheets muddles. Treat species list with caution. NOTE: Substratum % data are converted from the original substratum 1-3 scoring system.	SS.SMx.CMx	Uncertain match; whole record

Table 10.3 continued

Code	Sample reference	Description	Biotope code	Qualifier
175	267.118.002	Running at the side of the loch in shallower water down to 15m a not very extensive area of firmer sandy mud with quite a lot of shell debris on surface and whole shells of *Turritella, Arctica* and *Chlamys*. *Nemertesia ramosa* and *Ascidiella aspersa* were occasionally present on these shells. Occasional *Laminaria saccharina* as drift weed. Five point abundance scale used. NOTE: Substratum % data are converted from the original substratum 1-3 scoring system.	SS.SMx.CMx	Uncertain match; whole record
176	267.136.002	Muddy shell gravel. Fairly featureless. *Liocarcinus depurator* more frequent. Hermit crabs (*Pagarus bernhardus*) with *Hydractinia echinata*. Some hydroids. NOTE: Substratum % data are converted from the original substratum 1-3 scoring system.	SS.SMx.CMx	Uncertain match; whole record
177	267.036.002	*Cerianthus* has been given a nominal abundance value of Present for this record as in Arev it had no abundance value. Sediment plain consisting of a mixture of muddy sand and mud substrates. Former colonised by *Sabella pavonina*, *Pagarus* and occasional *Sagartiogeton* spp. with infaunal polychaetes. Mud with occasional *Arenicola, Sagartiogeton* spp., *Cerianthus* and a large amount of *Chaetomorpha* spp. Five point abundance scale used. NOTE: Substratum % data are converted from the original substratum 1-3 scoring system.	SS.SMx.CMx.ClloMx	Uncertain match; part record
178	267.040.003	Cerianthus has been removed from the species list for this record as more specific related taxa were also present, these are now marked as characterising. Mud - thick, shelly mud with clay beneath surface. Very little apparent on surface. *Cerianthus* occasional, plus small and medium sized holes. NOTE: Substratum % data are converted from the original substratum 1-3 scoring system.	SS.SMx.CMx.ClloMx	Uncertain match; whole record
179	267.042.002	Sand in mud with a lot of small gravel on top. No *Laminaria saccharina* but still lots of algal debris - not much attached. Sediment surface worked - mainly by crabs. No burrows obvious. NOTE: Substratum % data are converted from the original substratum 1-3 scoring system.	SS.SMx.CMx.ClloMx	Certain match; whole record
180	267.042.003	Sandy mud with shell debris, softer but still only `hand deep`. No algae. Main species *Cerianthus lloydii* and terebellids. No obvious burrows. NOTE: Substratum % data are converted from the original substratum 1-3 scoring system.	SS.SMx.CMx.ClloMx	Certain match; whole record
181	050.6/5.001	A muddy shell/sand mixture with occasional silty boulders; much broken shell. Signs of scallop dredging. The station was dominated by ophiuroids, especially *Ophiura* sp., <5 sq.m. Small tufts of hydroids attached to the shell and to *Chaetopterus* tubes. *Cerianthus* was common, and one *Metridium* was seen. No algae recorded.	SS.SMx.CMx.ClloMx.Nem	Certain match; whole record

Table 10.3 continued

Code	Sample reference	Description	Biotope code	Qualifier
182	050.6/9.001	A mixed sediment of coarse, rippled sand, with gravel and stones. Some mud. Foliaceous and encrusting red algae. Large *Asterias* and several species of crabs were recorded from this site, as were occasional specimens of *Cucumaria*. A dredge sample was also taken.	SS.SMx.CMx.CIloMx.Nem	Uncertain match; whole record
183	267.026.001	Muddy shell gravel 16m. Characterised by *Pecten*, occasional *Virgularia* and *Gibbula magus*. Other species mostly attached to stones and shells including hydroids, *Ascidia mentula* and *Suberites carnosus*. Algae on shells rock and ascidians. *Rhodophyllis divaricata*, *Gracillaria verrucosa*, and small *Kallymenia reniformis*. Sessile animals on sediment plain were attached to cobbles and shells and each other. Five point abundance scale used. NOTE: Substratum % data are converted from the original substratum 1-3 scoring system.	SS.SMx.CMx.CIloMx.Nem	Certain match; whole record
184	267.038.001	Flat mud at 24m bsl with various features - volcanoes, round mounds, holes, *Nephrops* burrows, `double holes`, depressions - giving very worked appearance. *Nephrops* burrows identified. Small amphipod tubes on mud, also *Chaetopterus variopedatus* tubes with some *Nemertesia ramosa* attached. Mysid shrimps dominant. *Cerianthus* present. Gobies common. Five point abundance scale used. NOTE: Substratum % data are converted from the original substratum 1-3 scoring system.	SS.SMx.CMx.CIloMx.Nem	Uncertain match; whole record
185	267.043.001	Firmish mud (hand deep) with lots of shells and occasional cobbles with very fine *Nemertesia ramosa* attached. A single large boulder with some *Lithothamnion* and *Nemertesia ramosa* - little else. In mud, *Cerianthus lloydii* (rare), gobies, Terebellids and *Liocarcinus depurator* and *Cancer* frequent. NOTE: Substratum % data are converted from the original substratum 1-3 scoring system.	SS.SMx.CMx.CIloMx.Nem	Uncertain match; whole record
186	267.047.001	*Cerianthus, Pecten* has been removed from the species list for this record as more specific related taxa were also present, these are now marked as characterising. Soft shelly mud plain sloping very gradually down. Many dead *Turritella* shells. Not very worked and few species apart from occasional *Cerianthus, Pecten, Carcinus* and *Nemertesia ramosa* attached to stones. NOTE: Substratum % data are converted from the original substratum 1-3 scoring system.	SS.SMx.CMx.CIloMx.Nem	Certain match; whole record
187	267.051.001	Virtually horizontal muddy substrate with a lot of shell debris (particularly *Turritella* but also *Pecten*). *Pomatoceros, Nemertesia ramosa* and *Balanus crenatus* on the shells. Small hermit crabs, occasional *Cerianthus lloydii* and *Liocarcinus depurator*. Live *Pecten*. Depressions with small piles of *Turritella* shells, also small circular holes and worm casts. NOTE: Substratum % data are converted from the original substratum 1-3 scoring system.	SS.SMx.CMx.CIloMx.Nem	Uncertain match; whole record

Table 10.3 continued

Code	Sample reference	Description	Biotope code	Qualifier
188	267.054.001	Soft mud full of stones beneath surface plus some clay. Surface covered with shells, both broken and intact. Some scattered stones with *Trailliella* and encrusting calcaceous algae attached. Craters and a variety of holes in sediment. Small casts also present. Small stones also support *Nemertesia ramosa*, *Pomatoceros* spp. and *Styela coriacea*. Habitat sloped gently with some drifting red algae. Other animals present were *Aequipecten opercularis*, *Liocarcinus puber, Inachus* spp. and *Macropodia rostrata*. Five point abundance scale used. NOTE: Substratum % data are converted from the original substratum 1-3 scoring system.	SS.SMx.CMx.CIloMx.Nem	Certain match; whole record
189	267.057.002	Fine mud stones and shells incorporated. Many more shells on surface and therefore more epifauna. Many holes which might belong to *Mya truncata*, but no siphons seen. *Ophiura albida* more common. *Laminaria saccharina* and *Trailliella* noted as drift algae. *Nemertesia ramosa* on pebbles and stones. Five point abundance scale used. NOTE: Substratum % data are converted from the original substratum 1-3 scoring system.	SS.SMx.CMx.CIloMx.Nem	Certain match; whole record
190	267.075.001	Muddy shell gravel. Soft bottom with large numbers of *Turritella* shells present, *Nemertesia ramosa* present on these. Smooth surface overall with little or no obvious working, although *Pecten* and *Aequipecten* and other bivalve species recorded. Several species of crab and starfish present. Occasional angular cobbles present in shallower water. Occasional boulders present - particularly on the steeper sloping (scoured) side of the channel below Castle Sween. These dominated by *Laminaria saccharina* and *Balanus crenatus*. NOTE: Substratum % data are converted from the original substratum 1-3 scoring system.	SS.SMx.CMx.CIloMx.Nem	Uncertain match; part record
191	267.076.002	Muddy shell gravel - fairly firm with lots of shell debris within and on the surface. *Turritella* shells common, also *Ensis* and *Venerupis senegalensis* shells (both single and double valves, so the animal, quite likely to be nearby). are *Dosinia exoleta* and *Mya truncata* most abundant shells. No siphon holes noticed, but this might be attributable to sledge disturbance and always looking ahead rather than vertically down. *Echinus* occasional, and frequent *Asterias rubens*. One or two *Marthasterias* and *Astropecten*. Burrowing anemones - one *Cerianthus lloydii* seen. Hydroids few, but several colonies of *Nemertesia ramosa* on larger shells and pebbles, along with *Antithamnion* sp.. Whole habitat on western 1/3 of loch very barren and gave the appearance of having been dredged - although no dredge marks were observed. Five point abundance scale used. NOTE: Substratum % data are converted from the original substratum 1-3 scoring system.	SS.SMx.CMx.CIloMx.Nem	Certain match; whole record

Table 10.3 continued

Code	Sample reference	Description	Biotope code	Qualifier
192	267.100.004	Mud with a shelly gravel top. Much softer sediment with a gentle slope. Burrowing animals present include *Cerianthus lloydii*, *Myxicola infundubulum*, and *Nephrops norvegicus*. Patchy distribution of algae eg. *Laminaria saccharina* occurring where pebbles/cobbles present. *Nemertesia ramosa* at 18m while *Nemertesia antenina* occurred at 14m. Five point abundance scale used. NOTE: Substratum % data are converted from the original substratum 1-3 scoring system.	SS.SMx.CMx.ClloMx.Nem	Certain match; whole record
193	267.102.002	Fine mud with a little sand incorporated and more shell fragments and surface shell debris than habitat 1. *Nemertesia ramosa* therefore more dense, but no other hydroid species observed. *Arctica, Turritella, Chlamys* and *Lutraria* shells present. No burrows, volcanoes or *Virgularia* in this habitat. Greater numbers of asteroids (*Asterias* mainly with one or two *Astropecten* and *Henricia*). A dense bed of burrowing ophiuroids, but not sure whether they are *Acrocnida* or *Amphiura*. Five point abundance scale used. NOTE: Substratum % data are converted from the original substratum 1-3 scoring system.	SS.SMx.CMx.ClloMx.Nem	Certain match; whole record
194	050.4/1.001	Shell gravel, pebbles and cobble in a strong tidal stream. No rippling of sediment. Small amount of foliaceous reds. Wide range of species; stones covered with hydroid turf.	SS.SMx.CMx.FluHyd	Uncertain match; whole record
195	050.4/3.001	A cobble and pebble plain exposed to strong tidal steams. *'Lithothamnion'* common, but other algae sparse. The cobbles were covered with clumps of hydroids, and *Pomatoceros* was also common. *Calliostoma* was numerous among the pebbles and on the hydroids. *Echinus* was common. Very few ophiuroids and even fewer sponges. *Polycarpa* and *Munida* both recorded.	SS.SMx.CMx.FluHyd	Certain match; whole record
196	050.4/5.001	*Urticina* has been removed from the species list for this record as more specific related taxa were also present, these are now marked as characterising. A plain of coarse sand with large amounts of shell remains and occasional pebbles. Black muddy sand lay below the surface. The only algae recorded was a non-calcareous encrusting red on the pebbles. Flustra and several hydroids were attached to the shells and pebbles; *Antedon* was also found in these clumps. Arms of *Amphiura* were seen protruding from the substrate in several places. *Tealia eques* was common. *Asterias* were noted feeding over burrows in the substrate but the prey was not identified.	SS.SMx.CMx.FluHyd	Uncertain match; whole record
197	050.4/9.001	A flat seabed with coarse sand and pebbles affected by strong tidal streams (sand was actually being moved at the time of recording). Small *Echinus* numerous, and feeding on a turf of erect hydroids and ascidians. Several large *Pecten* noted. No algae recorded.	SS.SMx.CMx.FluHyd	Uncertain match; whole record

Table 10.3 continued

Code	Sample reference	Description	Biotope code	Qualifier
198	267.072.001	Stones were present at 15m. These supported many cryptofaunal species as well as several species of decapod crustacea. *Lacuna vincta* and *Gibbula cinneraria* were abundant. One specimen of *Pecten maximus* was collected. *Amphipholis squamata* and *Ophiura albida* were recorded, *Antedon bifida* was not.	SS.SMx.CMx.FluHyd	Uncertain match; whole record
199	267.115.001	*Hyas* has been removed from the species list for this record as more specific related taxa were also present, these are now marked as characterising. The seabed from 17-22m was a mixture of muddy, coarse shell gravel and stones. Stones were encrusted with *Pomatoceros triqueter* and *Serpula vermicularis* and several infaunal polychaetes were present. Large populations of decapod crustacean were present with *Palaemon serratus*, *Hyas araneus* and *Hyas coarctatus* common and *Munida bammfica*, *Pisidia longicornis*, *Macropodia tenuirostris* and *Anapagarus hyndmanni* occasional or frequent. *Turritella communis* was abundant in the muddy gravel. Stones also supported large populations of *Tectura virginea*, *Lepidopleurus asellus*, *Pododesmus* spp. and a high density of encrusting bryozoans. Raw data sheets muddled. Treat species list with caution. NOTE: Substratum % data are converted from the original substratum 1-3 scoring system.	SS.SMx.CMx.FluHyd	Uncertain match; whole record
200	267.116.001	The seabed at 16m consisted mainly of shell material. The boring phase of *Cliona celata* was present together with frequent *Pisidia longicornis*. *Nemertesia antennina* was present on the larger shells. Raw data sheets muddled. Treat species list with caution. NOTE: Substratum % data are converted from the original substratum 1-3 scoring system.	SS.SMx.CMx.FluHyd	Uncertain match; whole record
201	046.019.008	Bare gravel on sediment of coarse sand shell/shell gravel, in upper infralittoral semi-exposed to tidal streams. *O. nigra* abundant.	SS.SMx.CMx.OphMx	Uncertain match; whole record
202	046.021.006	Substrate of maerl gravel in the upper infralittoral exposed to tidal streams. Few species, *Ophiocomina nigra* abundant and occasional *Halidrys siliquosa* growing through.	SS.SMx.CMx.OphMx	Uncertain match; whole record
203	046.029.001	A narrow strip of mud was present in shallow water adjacent to the steep bedrock shore. This supported a dense bed of *Z. marina*. Beyond 8 m from the shore the seabed descended as a slope of soft mud. This sediment was colonised by *O. nigra* (A) and some *P. bernhardus*. Patches of diatoms were present. Oxic mud extended down to the level of the thermocline at 5 m below which the sediment was anoxic and apparently devoid of macrofauna.	SS.SMx.CMx.OphMx	Certain match; whole record

Table 10.3 continued

Code	Sample reference	Description	Biotope code	Qualifier
204	050.3/2.001	A mixed bottom of coarse and muddy sands with occasional outcrops of bedrock and small boulders. A muddy area was recorded under the pier. Strong tidal streams sweep the station. *Laminaria saccharina* was found on the boulder slope towards the edge of the site. Both *Chorda* and *Codium* were recorded occasionally. The centre of the channel was dominated by live maerl in large nodules. The base of the boulder slope and edge of the bottom of the channel was dominated by a bed of *Ophiothrix fragilis*, which gave way to *Ophiocomina nigra*, interspersed with *Ascidiella aspersa* in the channel. One area of dense, small tubes (1 cm high and 0.5 cm in diameter) was recorded but not identified. Anaerobic mud could be seen around dead *Mytilis* shells.	SS.SMx.CMx.OphMx	Certain match; part record
205	050.5/6.001	Two horizontal sediment plains (medium fine sand at 5 m, muddy sand and shell at 8 m), seperated by a slope of sediment mixed with shell. Small boulders and cobble were occasionally found on the 5 m plain and slope. Calcareous encrusting red algae recorded on the boulders. The boulders were covered with tunicates and hydroids. The sediment slope was dominated by beds of *Ophiothrix fragilis*, and *Asterias* and *Crossaster* were common. Both sediment plains were dominated by *Ophiocomina nigra*, which was densest at 5 m. *O. fragilis* was also present at this depth. *Asterias* was abundant at 8 m.	SS.SMx.CMx.OphMx	Certain match; whole record
206	098.005.001	The sediment supported dense *Codium* and *Zostera* beds with some maerl noted. There were dense beds of *Ophiocomina nigra* throughout the site. Amongst the maerl *Echinus esculentus*, *Arenicola marina, Ostrea edulis* and *Ascidiella aspersa* were of note. Recorded in the *Zostera* bed were *Halichondria* spp., *Metridium senile*, *Anemonia viridis* and *Diplosoma listerianum*. The boulders and algae in the *Halidrys siliquosa/ Laminaria hyperborea* area supported a wide range of fauna including sponges (particularly *Haliclona* spp.), bryozoans, ascidians - *Ascidiella aspersa* included, *Sagartia elegans*, *Electra pilosa*, *Clavelina lepadiformis*, *Echinus esculentus*, and several fish species - *Ctenolabrus melops*, gobies. [Warning: species list does not tally with description; biotopes assigned on basis of description] NOTE: Substratum % data are converted from the original substratum 1-3 scoring system.	SS.SMx.CMx.OphMx	Uncertain match; part record

Table 10.3 continued

Code	Sample reference	Description	Biotope code	Qualifier
207	099.001.006	Not much faunal diversity - Porifera absent, the only annelid was *Eulalia viridis* eggs. *Ophiothrix fragilis* and *Ophiocomina nigra* abundant with *Asterias rubens* and *Psammechinus miliaris* common. *Mytilus edulis* common. On algae and *Zostera* specimens species were poor with respresentatives from *Skeneopsis* spp., *Omalogyra* spp., *Rissoella* spp. and *Rissoa* spp. only. NOTE: Substratum % data are converted from the original substratum 1-3 scoring system.	SS.SMx.CMx.OphMx	Certain match; whole record
208	267.004.003	Line from Cairn on point following bearing on Ulva House(210 degrees), (start rocks 355 degrees). *Lithothamnion* covered rocks and shell gravel. *Dictyota* and *Ophiocomina nigra* at entrance to rapids. Past the entrance, patchy *Zostera* and *Chorda* and *Ophiocomina nigra* and *Arenicola* on sand. Algal blanket of *Stilophora* and *Asperococcus* etc and decaying algae. *Ophiocomina nigra* becoming less abundant and *Zostera* more dense about half way. Some dark grey mud and white patches from decaying algae in places. Round lumps of *Polyides* algal debris dense in patches. *Zostera* continued almost to shore.	SS.SMx.CMx.OphMx	Certain match; part record
209	046.017.006	Substrate of maerl gravel in the upper infralittoral exposed to tidal streams. Few species, *Ophiocomina nigra* abundant and occasional *Halidrys siliquosa* growing through.	SS.SMp.Mrl	Certain match; whole record
210	046.018.006	Substrate of maerl gravel in the upper infralittoral exposed to tidal streams. Few species, *Ophiocomina nigra* abundant.	SS.SMp.Mrl	Uncertain match; whole record
211	046.019.006	Substrate of maerl gravel in the upper infralittoral, exposed to tidal streams. Few species, *O. nigra* abundant and occasional *H. siliquosa* growing through.	SS.SMp.Mrl	Certain match; whole record
212	046.020.006	Substrate of maerl gravel in upper infralittoral, exposed to tidal streams.	SS.SMp.Mrl	Certain match; whole record
213	050.12/7.001	Maerl bed on muddy sand, supporting *L. saccharina*, *Dictyota dichotoma* and *Ceramium*. Animals included *Ophiocomina nigra*, *Chlamys* and amphipod tubes.	SS.SMp.Mrl	Certain match; whole record

Table 10.3 continued

Code	Sample reference	Description	Biotope code	Qualifier
214	050.9/1.001	Maerl indet has been given a nominal abundance value of Present for this record as in Arev it had no abundance value. The edges of the channel were cobble and small boulders grading into the shore. Further into the channel there was an area of sand and gravel with a cover of *Corallina* and scattered maerl. Small scattered boulders with *Codium* and some sponges especially on the bigger ones. Centre of the channel was of big boulders covered by a forest of *L. hyperborea* and *L. saccharina* with some *Halidrys*. Sides of the boulders were dominated by sponges mainly *Halichondria*, *Amphilectus*, *Hymeniacidon*. Stipes encrusted by *Halichondria*. This covering of maerl between the boulders and in the middle, cobble heavily encrusted with *Lithothamnion*. Some boulders sides were dominated by small *Metridium* and *Amphilectus*. *Amphilectus* also growing attached to *Halidrys*. Red algae common as epiphytes and on tops of boulders. At the inner end of the rapids where the current was only slight, there was a *Zostera* bed (patchy) on medium fine, slightly muddy sand. The sand itself, was dominated totally by a cover of small amphipod tubes built from the sediment grains. These were collected and appear to be *Corophium* sp. There were occasional rocks with *L. saccharina*. Towards the centre of the channel, was a maerl bed made up of very twiggy hard maerl in a layer of about 4 cm deep on top of the sand. Small algae, mainly *Dictyota dichotoma* and *Trailliella* were attached to the maerl. At the edges of the channel here, there were flattish boulders covered in *Ascidiella aspersa*.	SS.SMp.Mrl	Certain match; part record
215	098.005.001	The sediment supported dense *Codium* and *Zostera* beds with some maerl noted. There were dense beds of *Ophiocomina nigra* throughout the site. Amongst the maerl *Echinus esculentus*, *Arenicola marina*, *Ostrea edulis* and *Ascidiella aspersa* were of note. Recorded in the *Zostera* bed were *Halichondria* spp., *Metridium senile*, *Anemonia viridis* and *Diplosoma listerianum*. The boulders and algae in the *Halidrys siliquosa/ Laminaria hyperborea* area supported a wide range of fauna including sponges (particularly *Haliclona* spp.), bryozoans, ascidians - *Ascidiella aspersa* included, *Sagartia elegans*, *Electra pilosa*, *Clavelina lepadiformis*, *Echinus esculentus*, and several fish species - *Ctenolabrus melops*, gobies. [Warning: species list does not tally with description; biotopes assigned on basis of description] NOTE: Substratum % data are converted from the original substratum 1-3 scoring system.	SS.SMp.Mrl	Uncertain match; part record

Table 10.3 continued

Code	Sample reference	Description	Biotope code	Qualifier
216	098.007.001	Surveyed from low water to about 2m BSL. At the bottom of the vertical faces/steep slope were large blocks and boulders. Below this was a shallow slope of sediment continuing downwards. Maerl was present in the centre of the rapids but was too deep (about 3m BSL) for proper survey. Large cover of mainly *Laminaria saccharina* and some *Laminaria hyperborea*. *Chorda filum* was frequent, mostly a bit deeper. Many epiphytes on these including *Chylocladia*, *Griffithsia coralloides*, *Polysiphonia* spp. *Lomentaria clavellosa*, *Mesogloia* and *Electra pilosa*. The vertical walls and some horizontal faces from LW to about 1.5m BSL were covered with a dense fluff of *Trailliella/Flakenbergia*. There were encrusting corallines - large areas. Ascidians, hydroids and anemones over everything. Frequent *Echinus esculentus* and 2-spot gobies, occasional *Codium* and a lot of flocculent filamentous green algae (*Enteromorpha* sp. etc. *Dictyota*) were frequent a bit deeper. Much rotting algal detritus was present. NOTE: Substratum % data are converted from the original substratum 1-3 scoring system.	SS.SMp.Mrl	Certain match; part record
217	099.005.001	Fucaceae has been given a nominal abundance value of Present for this record as in Arev it had no abundance value. Boulders om muddy gravel,*Corallina* gravel and muddy maerl. *Laminaria saccharina* in sublittoral fringe on boulders, fucoids higher on shore. There were elements of the rapids fauna such as a varied and healthy crop of sponges and also Linne Mhuirich communitites such as *OSTREA* and *EUPOLYMNIA*. NOTE: Substratum % data are converted from the original substratum 1-3 scoring system.	SS.SMp.Mrl	Certain match; part record
218	267.104.002	Shell gravel slope giving way to a bed of small broken pieces of live and dead maerl. Many bivalve shells on surface mainly *Ensis* and *Dosinia*. Large areas covered in algal mat of *Antithamnion* sp. and green algae. *Desmarestia* also present. Very little evidence of branchial tentacles of worms, bivalve siphons or anemones. Five point abundance scale used. NOTE: Substratum % data are converted from the original substratum 1-3 scoring system.	SS.SMp.Mrl	Uncertain match; part record
219	MRMCS00700000383.01	Seasearch observation level survey with photographs at Scotnish Narrows 2.5km N of Tagnallich, Caol Scotnish, loch Sween, Argyll and Bute.to max depth 4.3m bsl (3.68m bcd) on an area including a maerl bed. No other details/diagram supplied, other than species list.	SS.SMp.Mrl	Certain match; part record
220	MRMCS00700000384.01	Seasearch observation level survey with photographs at Scotnish Narrows 2.5km N of Tagnallich, Caol Scotnish, loch Sween, Argyll and Bute.to max depth 4.2m bsl (about 3.6m bcd) on an area including a maerl bed. No other details/diagram supplied, other than species list.	SS.SMp.Mrl	Certain match; part record

Table 10.3 continued

Code	Sample reference	Description	Biotope code	Qualifier
221	MRSNH02300000058.03	Maerl bed with cobble and occasional boulder	SS.SMp.Mrl	Certain match; whole record
222	046.017.005	Substrate of maerl in the upper infralittoral, exposed to tidal streams. *Phymatolithon calcareum*, *Lithothamnion glaciale, Ophiocomina nigra* all abundant over this substrate.	SS.SMp.Mrl.Lgla	Certain match; whole record
223	046.018.005	Substrate of maerl in the upper infralittoral, exposed to tidal streams. *Phymatolithon calcareum*, *Lithothamnion glaciale*, *Ophiocomina nigra* all abundant over this substrate.	SS.SMp.Mrl.Lgla	Certain match; whole record
224	046.019.005	Substrate of maerl in the upper infralittoral, exposed to tidal streams. *Phymatolithon calcareum*, *Lithothamnion glaciale*, *Ophiocomina nigra* all abundant over this substrate.	SS.SMp.Mrl.Lgla	Certain match; whole record
225	046.021.005	Substrate of maerl in the upper infralittoral, exposed to tidal streams. *Phymatolithon calcareum*, *Lithothamnion glaciale*, *Ophiocomina nigra,* all abundant over this substrate.	SS.SMp.Mrl.Lgla	Certain match; whole record
226	046.032.004	Substrate of sandy mud in upper infralittoral, semi-exposed to tidal streams. An extensive maerl bed, consisting of free-living and crustose rhodoliths of *Lithothamnion glaciale*, was present on the channel floor on a muddy sand substrate. This supported a very high density of *Ophiocomina nigra*, some *Ophiothrix fragilis* and other species including *Sabella pavonina*. Algal species present included *Dictyota dichotoma*, *Phyllophora crispa*, *Chorda filum* as well as *Scinaia turgida*. At both eastern and western extremities of the maerl bed a narrow belt of sand mud was present supporting a similar but slightly impoverished community.	SS.SMp.Mrl.Lgla	Certain match; whole record
227	050.12/5.001	Stones and pebbles covered with lithothamnion, on muddy sand. Scattered patches of maerl. Seems to be the northern limit of the maerl in this arm of the loch. Many fine filamentous algae attached to the maerl and the stones. *Ophiocomina nigra* abundant.	SS.SMp.Mrl.Lgla	Certain match; whole record
228	050.12/8.001	Thick maerl bed with little sediment between. Occasional *L. saccharina* and frequent *Chorda filum*. *Ophiocomina* common on the maerl and *Ophiothrix* common on the *L. saccharina* and other algae. *Ascidiella aspersa* common in patches.	SS.SMp.Mrl.Lgla	Certain match; whole record

Table 10.3 continued

Code	Sample reference	Description	Biotope code	Qualifier
229	097.037.006	Maerl bed in Linne Mhuirich rapids. Both *Phymatolithon calcareum* and *Lithothamnion glaciale*, with the latter in encrusting and maerl forms. *Dictyota dichotoma* was dense in patches, epiphytic on the maerl. Loose-lying *Corallina* spp. were found with attached *Musculus discors* and *Crenella decussata*.	SS.SMp.Mrl.Lgla	Uncertain match; whole record
230	097.038.005	Maerl bed in Linne Mhuirich rapids. Both *Phymatolithon calcareum* and *Lithothamnion glaciale*, with the latter in encrusting and maerl forms. *Dictyota dichotoma* was dense in patches, epiphytic on the maerl. Loose-lying *Corallina* spp were found with attached *Musculus discors* and *Crenella decussata*.	SS.SMp.Mrl.Lgla	Uncertain match; whole record
231	098.007.002	Dense beds of maerl, mostly with 100% cover of *Dictoyta*. A few clearer areas of maerl. Encrusted stones present. Large maerl nodules to 20cm across. Frequent *Chorda filum*. Also on maerl - *Phyllophora crispa*, *Plocamium*, *Trailliella* and *Falkenbergia*. Main animals on and in maerl were *Ophiocomina nigra*, *Ophiothrix fragilis*, sunstars and amphipods. *Chylocladia* present on debris. NOTE: Substratum % data are converted from the original substratum 1-3 scoring system.	SS.SMp.Mrl.Lgla	Certain match; whole record
232	267.014.002	Flat bottom with live maerl bed (2-3` high) covering bottom of loch. Muddy Amphipod tubes common. *Dictyota dichotoma* common, some *Corallina*, *Chorda* and young *Halidrys* with orange sponge. Colonised by *Ophiocomina nigra* and *Ophiothrix fragilis*. NOTE: Substratum % data are converted from the original substratum 1-3 scoring system.	SS.SMp.Mrl.Lgla	Certain match; whole record
233	MRSNH02300000056.05	Northwest Transect Cobbles with *Lithothamnion glaciale*. The end of the habitat from approximately 85m to 90m grades into habitat 5 with occasional boulders with *Laminaria saccharina* or *Codium* present.	SS.SMp.Mrl.Lgla	Certain match; part record
234	MRSNH0230000005A.05	Cobble and pebbles with maerl including *Lithothamnion glaciale* present as hedgehog stones.	SS.SMp.Mrl.Lgla	Certain match; whole record
235	050.3/2.001	A mixed bottom of coarse and muddy sands with occasional outcrops of bedrock and small boulders. A muddy area was recorded under the pier. Strong tidal streams sweep the station. *Laminaria saccharina* was found on the boulder slope towards the edge of the site. Both *Chorda* and *Codium* were recorded occasionally. The centre of the channel was dominated by live maerl in large nodules. The base of the boulder slope and edge of the bottom of the channel was dominated by a bed of *Ophiothrix fragilis*, which gave way to *Ophiocomina nigra*, interspersed with *Ascidiella aspersa* in the channel. One area of dense, small tubes (1 cm high and 0.5 cm in diameter) was recorded but not identified. Anaerobic mud could be seen around dead *Mytilis* shells.	SS.SMp.Mrl.Pcal	Certain match; part record

Table 10.3 continued

Code	Sample reference	Description	Biotope code	Qualifier
236	267.037.001	Maerl indet, *Cerastoderma edule* has been given a nominal abundance value of Present for this record as in Arev it had no abundance value. 0m chart datum. Wave sheltered beach (but ?exposed to occasional strong wave action). Surface covered in dead maerl sprigs with shell gravel/maerl gravel/ mud deeper in the sediment also. Anaerobic close to sediment surface. *Cerastoderma edule* common on surface. Many *Carcinus* excavations but no infauna seen. No obvious source for maerl so possibly either a relict or fossil bed. Five point abundance scale used. NOTE: Substratum % data are converted from the original substratum 1-3 scoring system.	SS.SMp.Mrl.Pcal	Uncertain match; whole record
237	MRSNH02300000056.04	Mid Transect Maerl Bed (*Phymatolithon calcareum*)	SS.SMp.Mrl.Pcal	Certain match; whole record
238	MRSNH0230000005A.03	Maerl bed with moderate coverage by *Ophiocomina nigra*.	SS.SMp.Mrl.Pcal	Certain match; whole record
239	MRSNH0230000005A.04	Maerl bed with dense coverage by *Ophiocomina nigra*.	SS.SMp.Mrl.Pcal	Certain match; whole record
240	MRSNH0230000005B.01	Core Samples from maerl bed upstream from east rapids survey transect (same biotope as habitat 3 from transect). Infaunal data only - does not include maerl species.	SS.SMp.Mrl.Pcal	Certain match; part record
241	046.020.005	Substrate of maerl on coarse sand/shell gravel in upper infralittoral, exposed to tidal streams.	SS.SMp.Mrl.Pcal.R	Certain match; whole record

Table 10.3 continued

Code	Sample reference	Description	Biotope code	Qualifier
242	267.080.003	*Chondrus* has been removed from the species list for this record as more specific related taxa were also present, these are now marked as characterising. Maerl indet has been given a nominal abundance value of Present for this record as in Arev it had no abundance value. Clean gravel and sand in waves at 1m across, running roughly north-south (longwise). *Phymatolithon calcareum* (maerl) medallion found in patches near boulder/gravel interface and in gravel wave troughs further out. Small stones with encrusting red algae, *Halarachnion* rare and *Chondrus* and *Rhodomela* frequent. Other algae collected were occasional to rare (see species list). N.B. *Gymnogongrus devoniensi* and *Phyllophora trailli* frequent on stones. Supports *Laminaria hyperborea* forest. Five point abundance scale. NOTE: Substratum % data are converted from the original substratum 1-3 scoring system.	SS.SMp.Mrl.Pcal.R	Certain match; whole record
243	267.083.002	Maerl indet has been given a nominal abundance value of Present for this record as in Arev it had no abundance value. Gravel waves about 70 cm across, similar to site 80 but a bit more silty. Maerl in patches by boulder/gravel interface, and maerl, stones and algae in gravel wave troughs. Attached to stones - *Rhodomela*, *Polyides, Gracilaria, Polysiphonia elongata* and encrusting red algae, *Bonnemasonia asparagoides* occasional. Occasional boulders as habitat 1. Mollusc siphons on gravel and many dead shells of *Dosinia* on surface. Many small worms, amphipods and crabs in sample. Five point abundance scale used. NOTE: Substratum % data are converted from the original substratum 1-3 scoring system.	SS.SMp.Mrl.Pcal.R	Certain match; whole record
244	267.101.001	Bedrock outcrops and large boulders semi-exposed to wave action and semi-exposed to tidal streams. Dominated by moderate forest of very large *Laminaria hyperborea* with some *Saccorhiza polyschides*. *Desmarestia viridis* common on kelp. *Chondrus crispus*, *Cystoclonium purpureum* and *Odonthalia dentata* were found on the boulders. *Echinus esculentus* frequent on rocks. Low lying outcrops colonised by *Antedon bifida* (locally common). Maerl patches present. Five point abundance scale used. NOTE: Substratum % data are converted from the original substratum 1-3 scoring system.	SS.SMp.Mrl.Pcal.R	Certain match; part record

Table 10.4 *Records of* Ostrea edulis *from October 2012 snapshot of Marine Recorder (MR). Code is the record identifier used in the figures and text of this report. Depth_low=lower boundary, Depth_hi=upper boundary (m below chart datum). Both Marine Recorder and corrected positions are given*

Code	Survey name	Date	Sample reference	SAC-FORN	Description	Depth_low (m)	Depth_hi (m)
500	1984 Smith Loch Sween mollusc and polychaete littoral survey	27/08/1984	081.013.001	C	Site faces south onto the rapids and comprises a wide open shore, chiefly bouldery, with some rock rib outcrops and patches of sandy gravel. The boulders extended out into the channel. The polychaete fauna was diverse apart from in patches of sandy gravel which had a CIRRATULID community. The fauna of the site was dominated by Porifera and brittlestars. NOTE: Substratum % data are converted from the original substratum 1-3 scoring system.		
501	1984 Smith Loch Sween mollusc and polychaete littoral survey	28/08/1984	081.015.001	A	Open but sheltered. Chiefly gravel, pebbles and cobbles with some boulder areas and long low ribs of bedrock parallel to the shore just below the LW mark. Algae are somewhat sparse except for algal turf on the rocks and larger boulders (lower shore). There are large patches of *Z. marina, F. serratus* is virtually absent. Large populations of bivalves - *Ostrea* edulis on the rock and boulders, *Dosinia* and *Tapes* in the coarse sediments, *Cerastoderma* in the finer parts. Polychaete communities, in the finer sediments, were Cirratulidae, *Arenicola* sp., *Lanice* with a *Sepula*, *Pomatoceros* assemblage on the boulders and rock. NOTE: Substratum % data are converted from the original substratum 1-3 scoring system.		

Code	Survey name	Date	Sample reference	SAC-FORN	Description	Depth_low (m)	Depth_hi (m)
502	1984 Smith Loch Sween mollusc and polychaete littoral survey	26/08/1984	081.016.001	A	Very sheltered with a boulder and muddy gravel shore passing down into *Z. marina* which traps soft mud rich in unicellular animals and nematodes. *F. serratus* absent, *L. saccharina* dominant algae. Several waterlogged wooden oyster rafts colonised by ascidians and *O. edulis*. The quarry tip stones throughout the intertidal and below are grouted with soft anaerobic mud. N of here is sheltered area, muddy and soft. Further N still is some wave action and interitdal communities of *MYTILUS EDULIS* are anchored on pebbles. At head of the loch there is *CERASTODERMA - MYA* - sand. Finer sands had *CAPITELLA* or *ARENICOLA* communities. NOTE: Substratum % data are converted from the original substratum 1-3 scoring system.		
503	1985 Smith Loch Sween littoral survey	03/04/1985	099.001.006	P	Not much faunal diversity - Porifera absent, the only annelid was *Eulalia viridis* eggs. *Ophiothrix fragilis* and *Ophiocomina nigra* abundant with *Asterias rubens* and *Psammechinus miliaris* common. *Mytilus edulis* common. On algae and *Zostera* specimens species were poor with respresentatives from *Skeneopsis* spp., *Omalogyra* spp., *Rissoella* spp. and *Rissoa* spp. only. NOTE: Substratum % data are converted from the original substratum 1-3 scoring system.		

Code	Survey name	Date	Sample reference	SAC-FORN	Description	Depth_low (m)	Depth_hi (m)
504	1985 Smith Loch Sween littoral survey	07/05/1985	099.004.001	P	Boulders on gravel and *Corallina* gravel. Gravel with *Nereis pelagica*, *Jaera albifrons* and brittlestars. *Mytilus edulis* common. Diverse and numerous sponges. Algae supported populations of *Littorina mariae*, *Rissoella diaphana*, *Bittium reticulatum* and *Rissoa interrupta* in particular. NOTE: Substratum % data are converted from the original substratum 1-3 scoring system.		
505	1984 OPRU Upper Loch Sween littoral survey	31/08/1984	098.015.001	P	Smoothish bedrock flattening onto shelf at LWM then steep slope to 4-5m BCD. Flat area with cobbles and pebbles with encrusting red and coralline algae. Larger rocks with *Leathesia* and *Cladophora* spp. Slope down with dense *Laminaria saccharina*, *Chorda filum, Enteromorpha* spp. and ascidians. *Laminaria saccharina* encrusted with spirorbids, *Rissoa membranacea*, *Bittium reticulatum* and *Ascidiella aspersa*. Op*hiocomina fragilis* was frequent under stones. NOTE: Substratum % data are converted from the original substratum 1-3 scoring system.	-4.0	0.0
506	1985 Smith Loch Sween littoral survey	05/07/1985	099.007.001	P	An abundance of algae on site with *Fucus spiralis, Pelvetia canaliculata, Ascophyllum nodosum* and *Fucus serratus* zones. *Mytilus edulis* was also abundant. Some of this algae was as drift. *Zostera*, up to 10cm long, supported healthy communities especially molluscs. Some wooden slats present with ascidian cover including *Ascidiella aspersa*, *Ascidia mentula* and *Ciona intestinalis*. NOTE: Substratum % data are converted from the original substratum 1-3 scoring system.		

Code	Survey name	Date	Sample reference	SAC-FORN	Description	Depth_low (m)	Depth_hi (m)
507	1985 Smith Loch Sween littoral survey	07/05/1985	099.005.001	P	Fucaceae has been given a nominal abundance value of Present for this record as in Arev it had no abundance value. Boulders om muddy gravel,*Corallina* gravel and muddy maerl. *Laminaria saccharina* in sublittoral fringe on boulders, fucoids higher on shore. There were elements of the rapids fauna such as a varied and healthy crop of sponges and also communitites such as *OSTREA* and *EUPOLYMNIA*. NOTE: Substratum % data are converted from the original substratum 1-3 scoring system.		
508	1985 Smith Loch Sween littoral survey	07/05/1985	099.003.001	P	Good diversity and abundance of species. The boulders supported a good mussel - barnacle community with *Mytilus edulis* common, and abundant *Balanus* spp., *Verruca stroemia* and *Chthamalus* spp. Littorinids also abundant. Sponges such as *Leucosolenia* and *Sycon ciliatum* were common and there was a high diversity and abundance of bryozoans and ascidians. Gravel between boulders supported many polychaetes, especially *Arenicola marina* and *Lanice conchilega* and arthropods *Gammarus* spp., brittlestars and amphipods. *Ophiothrix fragilis*, *Ophiocomina nigra* and *Amphipholis squamata* were abundant. NOTE: Substratum % data are converted from the original substratum 1-3 scoring system.		

Code	Survey name	Date	Sample reference	SAC-FORN	Description	Depth_low (m)	Depth_hi (m)
509	1984 OPRU Upper Loch Sween littoral survey	31/08/1984	098.012.001	P	*Cladophora* has been given a nominal abundance value of Present for this record as in Arev it had no abundance value. At low water mud with shell debris and worm casts. Encrusting corallines on stones and shells. Flocculent masses of *Enteromorpha* spp. Shallows bed of *Zostera marina* further out. Not many epiphytes on Zostera - Spirorbids, *Ciona intestinalis*, *Rissoa membranaceous*, *Campanularia angulata* included. A few fucoids present. Masses of *Stilophora* spp. and *Enteromorpha* spp. amongst *Zostera* bases. NOTE: Substratum % data are converted from the original substratum 1-3 scoring system.		
510	1984 OPRU Upper Loch Sween littoral survey	27/08/1984	098.001.004	O	Boulders shore with much algae. High sponge diversity on and under the boulders particularly *Hymeniacidon perleve* and *Halichondria panicea* in large clumps. There were also many anemones on the boulders amongst the algal turf with *Metridium senile* and *Sagartia* elegans most noted. The larger boulders supported *Chthamalus montagui* on the upper levels of the shore and *Balanus balanoides* elsewhere. *Ophiocomina nigra* and *Ascidiella aspersa* were both frequently found on the sides of the boulders. The algae had many epiphytes with *Electra pilosa, Bittium reticulatum* amd *Botrylloides leachii* the most common. Spirorbids were common on the algae and the boulders. NOTE: Substratum % data are converted from the original substratum 1-3 scoring system.		

Code	Survey name	Date	Sample reference	SAC-FORN	Description	Depth_low (m)	Depth_hi (m)
511	1982-85 NCC Loch Sween littoral habitats review	31/08/1985	097.008.004	P	Sheltered low shore boulders, pebbles and gravel with *Fucus serratus* and turf of red algae, sponges, ascidians, bryozoans and anthozoans. The boulders gave way to pebbles and gravel with a wide range of flora and fauna. *Fucus serratus* was the dominant fucoid along with patches of *Ascophyllum nodosum*. *Enteromorpha* sp. covered a lot of the remaining boulder tops. Foliose red algae dominated the understorey along with encrusting coralline. The sublittoral fringe was dominated by *Laminaria saccharina* and *Chorda filum* with many red epiphytes on the kelp blades; *Ceramium rubrum*, *Polysiphonia* spp. and *Laurencia obtusa*. The *Codium* sp. supported good numbers of the opisthobranch *Elysia viridis* along with the brittlestar *Amphipholis squamata* which was present on most algae. The sides of boulders and pebbles had a good covering of algal fronds which reduced dessication allowing strong faunal turfs to exist. Erect bryozoans such as *Scrupocellaria reptans* and *Crisia denticulata* were found along with the barnacle *Semibalanus balanoides* and ascidians, *Ciona intestinalis, Clavelina lepadiformis*, *Sidnyum turbinatum* and *Ascidiella aspersa*. Underboulder communities existed of brittlestars, cushion stars *Asterina gibbosa* and *A. phylactica*, *Mytilus edulis, Pomatoceros triqueter* and *Acmaea* spp. Mysids were seen shoaling in the shallows.		

Code	Survey name	Date	Sample reference	SAC-FORN	Description	Depth_low (m)	Depth_hi (m)
512	1982-85 NCC Loch Sween littoral habitats review	30/08/1985	097.012.004	P	Description given in Marine Recorder as for record 511		
513	1982-85 NCC Loch Sween littoral habitats review	24/08/1984	097.013.004	P	Description given in Marine Recorder as for record 511		
514	1982-85 NCC Loch Sween littoral habitats review	14/05/1982	097.017.004	P	Description given in Marine Recorder as for record 511		
515	1982-85 NCC Loch Sween littoral habitats review	29/08/1984	097.029.004	P	Description given in Marine Recorder as for record 511		
516	1982-85 NCC Loch Sween littoral habitats review	28/08/1984	097.036.004	P	Description given in Marine Recorder as for record 511		
517	1982-85 NCC Loch Sween littoral habitats review	07/05/1985	097.037.005	P	Description given in Marine Recorder as for record 511		

Code	Survey name	Date	Sample reference	SAC-FORN	Description	Depth_low (m)	Depth_hi (m)
518	1982-85 NCC Loch Sween littoral habitats review	07/05/1985	097.038.004	P	Description given in Marine Recorder as for record 511		
519	1982-85 NCC Loch Sween littoral habitats review	05/04/1985	097.041.004	P	Description given in Marine Recorder as for record 511		
520	1982-85 NCC Loch Sween littoral habitats review	28/08/1984	097.052.004	P	Description given in Marine Recorder as for record 511		
521	1982-85 NCC Loch Sween littoral habitats review	20/08/1985	097.058.004	P	Description given in Marine Recorder as for record 511		
522	1982-85 NCC Loch Sween littoral habitats review	05/04/1985	097.062.004	P	Description given in Marine Recorder as for record 511		
523	1982-85 NCC Loch Sween littoral habitats review	18/08/1985	097.069.004	P	Description given in Marine Recorder as for record 511		

Code	Survey name	Date	Sample reference	SAC-FORN	Description	Depth_low (m)	Depth_hi (m)
524	1982-85 NCC Loch Sween littoral habitats review	20/08/1985	097.071.004	P	Description given in Marine Recorder as for record 511		
525	1982-85 NCC Loch Sween littoral habitats review	05/04/1985	097.041.005	P	Sheltered low shore pebbles, gravel and mud with *Zostera marina*. *Psammechinus miliaris* and *Ostrea edulis* were present in the seagrass bed. Dead *O. edulis* shells provided a substratum for *Bittium reticulatum*, *Leucosolenis botryoides, Harmothoe imbricata*, *Lepidochotona cinereus* and *Ascidiella aspersa. Porcellana platycheles* and *Ophiothrix fragilis* dominated the sediment.		
526	1984 NCC/OPRU Loch Sween sublittoral survey	02/09/1984	046.017.005	F	Substrate of maerl in the upper infralittoral, exposed to tidal streams. *Phymatolithon calcareum, Lithothamnion glaciale*, *Ophiocomina nigra* all abundant over this substrate.	-2.0	0.0
527	1984 NCC/OPRU Loch Sween sublittoral survey	02/09/1984	046.018.005	F	Substrate of maerl in the upper infralittoral, exposed to tidal streams. *Phymatolithon calcareum, Lithothamnion glaciale*, *Ophiocomina nigra* all abundant over this substrate.	-3.0	
528	1984 NCC/OPRU Loch Sween sublittoral survey	02/09/1984	046.019.005	F	Substrate of maerl in the upper infralittoral, exposed to tidal streams. *Phymatolithon calcareum, Lithothamnion glaciale*, *Ophiocomina nigra* all abundant over this substrate.	-2.5	0.2

Code	Survey name	Date	Sample reference	SAC-FORN	Description	Depth_low (m)	Depth_hi (m)
529	1984 NCC/OPRU Loch Sween sublittoral survey	02/09/1984	046.019.008	R	Bare gravel on sediment of coarse sand shell/shell gravel, in upper infralittoral semi-exposed to tidal streams. O. nigra abundant.	-2.5	0.2
530	1984 NCC/OPRU Loch Sween sublittoral survey	03/09/1984	046.021.005	F	Substrate of maerl in the upper infralittoral, exposed to tidal streams. *Phymatolithon calcareum, Lithothamnion glaciale*, *Ophiocomina nigra,* all abundant over this substrate.	-10.5	-2.0
531	1984 NCC/OPRU Loch Sween sublittoral survey	04/09/1984	046.026.001	O	Substrate of cobbles/pebbles in the upper infralittoral, very sheltered from tidal streams and wave action. Small boulders were characterised by a cover of *Pomatoceros triqueter*. Reefs of *Serpula vermicularis* were present. Other species present included *Ophiothrix fragilis* and *Ophiocomina nigra.*		
532	1984 NCC/OPRU Loch Sween sublittoral survey	04/09/1984	046.027.001	O	Substrate of cobbles/pebbles in the infralittoral, very sheltered from wave action and tidal streams. Pebbles/cobbles were '*Lithothamnia*' dominated with *Pomatoceros triqueter* and *Serpula vermicularis* common. *Ostrea edulis*, and *Chlamys* sp. were common with *Chaetopteros variopedatus* tubes frequent. A zone of *Serpula* reefs and fragments was present at the base of the slope. Patches of bare sediment and a *Zostera marina* bed were adjacent to the foot of the slope.	-3.0	-1.0
533	1984 NCC/OPRU Loch Sween sublittoral survey	05/09/1984	046.032.002	R	Vertical bedrock in upper infralittoral, sheltered from/semi-exposed to tidal streams. It was dominated by '*Lithothamnia*' overgrown by *Trailliella* and *Laminaria saccharina.*	-4.0	0.5

Code	Survey name	Date	Sample reference	SAC-FORN	Description	Depth_low (m)	Depth_hi (m)
534	1984 NCC/OPRU Loch Sween sublittoral survey	04/09/1984	046.025.001	O	Substrate of pebbles/cobbles in the upper infralittoral, very sheltered from wave action and tidal streams. A dense cover of '*Lithothamnia*', *Pomatoceros triqueter* and *Serpula vermicularis* was present with *Laminaria saccharina* common. At the lower limit of hard substrata, reefs of *Serpula vermicularis* were present. *Marthasterias glacialis* was observed predating these. Dense beds of *Ostrea edulis* were present on the eastern side together with some *Tapes decussata* and *Chlamys* sp.	-3.0	0.0
535	1982 UCS Loch Sween sublittoral survey	16/05/1982	050.8/1.001	P	A shore of small boulders and cobbles under boulder fauna. Giving way to a *Zostera* bed which was thick and healthy and in reproductive state. *Gonothyrea loveni* was abundant on *Zostera*. On the sediment *C. maenas, P. bernhardus* and *Hydractinia* were common. In the sediment *M. arenaria* was common and *A. marina* occassionally found.	-1.5	0.0
536	1982 UCS Loch Sween sublittoral survey	16/05/1982	050.8/2.001	C	Cobble shore with black staining on underside of boulders/cobbles, < or = 20 m in extent. Abrupt line, to very 'gloopy' sediment - a very fine muddy sand lying on the black layer.	-2.0	0.0
537	1982 UCS Loch Sween sublittoral survey	16/05/1982	050.8/3.001	P	Small boulder/cobble edge with pebbles and coarse shell fragments between, giving way to 'gloopy' sediment. More *Serpula* colonies, fewer *Psammechinus* on both cobbles and sediment, and more *Philine*, than on sites 8/1 and 8/2.	-4.0	0.0

Code	Survey name	Date	Sample reference	SAC-FORN	Description	Depth_low (m)	Depth_hi (m)
538	1982 UCS Loch Sween sublittoral survey	16/05/1982	050.8/5.003	C	East side, next to rapids, with bottom largely cobble supporting some large algae - *L. saccharina, Chorda, Zostera, Ostrea, Codium*, and *Ophiocomina* common, with some *Ophiothrix* present. Where muddy sand present, *Arenicola* was evident. Some large solitary ascidians present. At shallowest, *F. vesiculosus* and *F. serratus* were present. Serpulid tubes, *Eupagurus* and *Leucosolenia botryoides* (?) present.	-1.0	0.0

Code	Survey name	Date	Sample reference	SAC-FORN	Description	Depth_low (m)	Depth_hi (m)
539	1982 UCS Loch Sween sublittoral survey	16/05/1982	050.9/1.001	P	Maerl indet has been given a nominal abundance value of Present for this record as in Arev it had no abundance value. The edges of the channel were cobble and small boulders grading into the shore. Further into the channel there was an area of sand and gravel with a cover of *Corallina* and scattered maerl. Small scattered boulders with *Codium* and some sponges especially on the bigger ones. Centre of the channel was of big boulders covered by a forest of *L. hyperborea* and *L. saccharina* with some *Halidrys*. Sides of the boulders were dominated by sponges mainly *Halichondria*, *Amphilectus, Hymeniacidon*. Stipes encrusted by *Halichondria*. This covering of maerl between the boulders and in the middle, cobble heavily encrusted with *Lithothamnion*. Some boulders sides were dominated by small *Metridium* and *Amphilectus*. *Amphilectus* also growing attached to *Halidrys*. Red algae common as epiphytes and on tops of boulders. At the inner end of the rapids where the current was only slight, there was a *Zostera* bed (patchy) on medium fine, slightly muddy sand. The sand itself, was dominated totally by a cover of small amphipod tubes built from the sediment grains. These were collected and appear to be *Corophium* sp. There were occasional rocks with *L. saccharina*. Towards the centre of the channel, was a maerl bed made up of very twiggy hard maerl in a layer of about 4 cm deep on top of the sand. Small algae, mainly *Dictyota dichotoma* and *Trailliella* were attached to the maerl. At the edges of the channel here, there were flattish boulders covered in *Ascidiella aspersa*.	-5.0	0.0

Code	Survey name	Date	Sample reference	SAC-FORN	Description	Depth_low (m)	Depth_hi (m)
540	1982 UCS Loch Sween sublittoral survey	21/05/1982	050.13/2.001	P	Firm, compacted mud overlain by very fine sand. A *Zostera* bed was found about 200 m offshore growing in 1 m depth. Many bivalves were noted in the mud below the sand outside the patches of *Zostera*. A bed of *Echinocardium cordatum* was also found. Closer inshore large numbers of old shells were recorded, among which were some live *Ostrea*. The mud here was very hard and contained large numbers of piddocks.	-5.0	0.0
541	1990 Loch Sween, Conwy and the Solent Ostrea edulis collection	01/01/1990	MRMLN00100000AC3.01	P	Estimated grid reference		
542	1984 Scottish Saline Lagoons	01/01/1984	MRMLN0040000040B.01	A	Note by Colin Moore: Although included in Marine Recorder this record appears not to be a new record of *Ostrea* but a reference to previous records of the species as a whole. The position cited in the report will relate to the overall location and not to any *Ostrea* records.		

Table 10.5 Records of proposed protected features (PPFs) not listed in Marine Recorder. Code is the record identifier used in the figures and text of this report. UMBSM = University Marine Biological Station Millport

Code	Reference	PPF	Date	Site_name	Biota	Latitude	Longitude
300	Raymont, 1950	SS.SMx.IMx.Lim	1943-7	3	*Limaria* density 1500 m^{-2}	56.03244	-5.60062
301	Raymont, 1950	SS.SMx.IMx.Lim	1943-7	L1	Similar community to station 3 (above), with *Limaria* very common	56.03735	-5.59426
303	Seasearch, 2012 and Paisley (pers. comm.)	SS.SMp.Mrl.Lgla	03/11/2012	Caol Scotnish	Close to northern limit of maerl bed	56.03552	-5.59673
304	Seasearch, 2012 and Paisley (pers. comm.)	SS.SMp.Mrl.Lgla	03/11/2012	Caol Scotnish	"Plentiful" maerl at end of dive along Caol Scotnish	56.03351	-5.59950
305	Kamenos *et al*., 2004	SS.SMp.Mrl.Lgla	2002-3	Caol Scotnish	*Lithothamnion glaciale* maerl ground	56.03241	-5.60070
306	Bunker, 1999	SS.SMx.IMx.Ost	28/01/1999	-	*Ostea edulis* 1.3 m^{-2} (range 0-9)	-	-
307	Paisley, 1999	SS.SMx.IMx.Ost	20/11/1999	-	*Ostea edulis* 0.7 m^{-2} (range 0-5)	-	-
308	UMBSM, 2007	SS.SMx.IMx.Ost	2004-5	-	*Ostea edulis* mean density 0.8 m^{-2} (range 0-8)	-	-
309	UMBSM, 2007	SS.SMx.IMx.Ost	2004-5	-	*Ostea edulis* 1.0 m^{-2} (range 0-28)	-	-
310	UMBSM, 2007	SS.SMx.IMx.Ost	23/08/2005	-	*Ostea edulis* 0.9 m^{-2} (range 0-5)	-	-
400	Paisley, 1999	*Ostrea edulis*	06/11/1999	-	Relatively large numbers of live oysters	--	
401	Paisley, 1999	*Ostrea edulis*	06/11/1999	-	*Ostrea edulis* present	-	--
402	Paisley, 1999	*Ostrea edulis*	06/11/1999	-	Live oysters plus some small ones	-	-
403	Paisley, 1999	*Ostrea edulis*	06/11/1999	-	Oysters present	-	-
404	Paisley, 1999	*Ostrea edulis*	06/11/1999	-	*Ostrea edulis* quite common	-	-
405	Paisley, 1999	*Ostrea edulis*	06/11/1999	-	Scattered oysters inshore	-	-
406	Paisley, 1999	*Ostrea edulis*	20/11/1999	-	Oyster present	-	-
407	Paisley, 1999	*Ostrea edulis*	20/11/1999	-	Oyster present	-	-

APPENDIX 11: OVERVIEW OF GIS PROJECT

The project was compiled using ArcGIS Map 9.3 and UTM projection. Coordinates were recorded in WGS84 and retained as WGS84 for all shape files.

Table 11.1 Project, shape and symbology files

File	Content
Sween_2013.mxd	ArcGIS 9.3 map file
additional_PMF_records.shp	historical target PMF records not in Marine Recorder
additional_PMF_records.lyr	symbology file for corresponding shape file
feature_polygons.shp	polygons of maerl and *Maxmuelleria* mud habitat distribution
feature_polygons.lyr	symbology file for corresponding shape file
grab&dredge_data.shp	location and habitat data from grab and dredge survey
grab&dredge_data.lyr	symbology file for corresponding shape file
maerl_data.shp	records from diver observations at sites during maerl bed surveys
maerl_data.lyr	symbology file for corresponding shape file
MNCR_data.shp	location and habitat data for MNCR 2 survey sites
MNCR_data.lyr	symbology file for corresponding shape file
MPA_boundary.shp	seaward limit of survey area
MR_biotope_records.shp	historical records of target habitats for the survey area derived from Marine Recorder
MR_biotope_records.lyr	symbology file for corresponding shape file
MR_Ostrea_records.shp	historical records of *Ostrea edulis* for the survey area derived from Marine Recorder
NR_Land.shp	MHWS Scottish coastline (for context)
oyster_data.shp	location, habitat and oyster density data for oyster transect survey
photolog.shp	digital still image log containing MEDIN standard data
video_data.shp	records of dropdown and diver video surveys
biotope1.lyr	symbology file for "video.data.shp" symbolising first biotope
biotope2.lyr	symbology file for "video.data.shp" symbolising second biotope (offset by a few pixels)
video_tracks.shp	lines linking the start and end points of dropdown and diver video runs

Table 11.2 List of affiliated index, projection and metadata files. Note that the file, Sween_2013_xslttransformation.xml serves as the metadata file for the survey as a whole

Additional_PMF_records.dbf	MR_biotope_records.dbf
Additional_PMF_records.prj	MR_biotope_records.prj
Additional_PMF_records.sbn	MR_biotope_records.sbn
Additional_PMF_records.sbx	MR_biotope_records.sbx
Additional_PMF_records.shx	MR_biotope_records.shx
Additional_PMF_records_xslttransformation.xml	MR_biotope_records_xslttransformation.xml
feature_polygons.dbf	MR_*Ostrea*_records.dbf
feature_polygons.prj	MR_*Ostrea*_records.prj
feature_polygons.sbn	MR_*Ostrea*_records.sbn
feature_polygons.sbx	MR_*Ostrea*_records.sbx
feature_polygons.shp.xml	MR_*Ostrea*_records.shx
feature_polygons.shx	MR_*Ostrea*_records_xslttransformation.xml
feature_polygons_xslttransformation.xml	NR_Land.dbf
grab&dredge_data.dbf	NR_Land.prj
grab&dredge_data.prj	NR_Land.sbn
grab&dredge_data.sbn	NR_Land.sbx
grab&dredge_data.sbx	NR_Land.shx
grab&dredge_data.shx	oyster_data.dbf
grab&dredge_xslttransformation.xml	oyster_data.prj
maerl_data.dbf	oyster_data.sbn
maerl_data.prj	oyster_data.sbx
maerl_data.sbn	oyster_data.shx
maerl_data.sbx	oyster_data_xslttransformation.xml
maerl_data.shx	photolog.dbf
maerl_data_xslttransformation.xml	photolog.prj
MNCR_data.dbf	photolog.sbn
MNCR_data.prj	photolog.sbx
MNCR_data.sbn	photolog.shx
MNCR_data.sbx	photolog_xslttransformation.xml
MNCR_data.shx	Sween_2013_xslttransformation.xml
MNCR_data_xslttransformation.xml	video_data.dbf
MPA_boundary.dbf	video_data.prj
MPA_boundary.prj	video_data.sbn
MPA_boundary.sbn	video_data.sbx
MPA_boundary.sbx	video_data.shx
MPA_boundary.shx	video_data_xslttransformation.xml
MPA_boundary_xslttransformation.xml	video_tracks.dbf
	video_tracks.prj
	video_tracks.sbn
	video_tracks.sbx
	video_tracks.shx
	video_tracks.shp.xml
	video_tracks_xslttransformation.xml

Table 11.3 Fields for shape files with data attributes. Field type shows the code for data type (S=string, N=numeric, D=date), field length and number of decimal places

File name and field	Content	Type
additional_PMF_records.shp		
CODE	site code used in body of current report	N6
REFERENCE	reference for survey	S43
PMF	PMF	S17
DATE_	Date	S12
SITE_NAME	site name used in original data source	S16
BIOTA	biota notes	S73
LATITUDE	WGS84 latitude	N8.5
LONGITUDE	WGS84 longitude	N10.5
feature_polygons.shp		
Id	polygon ID number	N6
Feature	Biotope	S25
Area_hec	area in hectares	N11.4
grab&dredge_data.shp		
SITE	site name	S7
LATITUDE	WGS84 latitude	N12.5
LONGITUDE	WGS84 longitude	N11.5
DEPTH_BCD	depth (m) below chart datum	N11.1
TIME_BST	time (BST)	S10
DATE_	Date	D8
SEDIMENT	field sediment description	S26
PSA_SAMPLE	particle size sample taken?	S13
ANALYSIS	lab or in situ faunal analysis	S9
GEAR	sampling gear	S18
GEAR_INFO	sampling gear details including no. deployments	S29
BIOTOPE	Biotope	S24
PMF	PMF	S5
maerl_data.shp		
SITE	site code	S9
DATE_	Date	D8
LATITUDE	WGS84 latitude	N13.5
LONGITUDE	WGS84 longitude	N13.5
DIVER	Surveyor	S9
DEPTH	depth (m) below chart datum	N9.1
TIME_BST	time (BST)	S10
BEDROCK	bedrock (Present or Dominant)	S9
BOULDERS	boulders (Present or Dominant)	S9
COBBLES	cobbles (Present or Dominant)	S9
PEBBLES	pebbles (Present or Dominant)	S9
GRAVEL	gravel (Present or Dominant)	S9
SAND	sand (Present or Dominant)	S9
MUDDY_SAND	muddy sand (Present or Dominant)	S9
MUD	mud (Present or Dominant)	S9
MAERL_PERC	live maerl percentage cover	S9
DDMRL_PERC	dead maerl percentage cover	S9
MRL_SACFOR	live maerl SACFORN abundance	S10

Table 11.3 continued

File name and field	Content	Type
PHYMATO	*Phymatolithon calcareum* (Present or Dominant)	S9
LITHOTHAM	*Lithothamnion glaciale* (Present or Dominant)	S9
HEDGEHOGS	hedgehog stones Present	S9
OST_SACFOR	*Ostrea edulis* SACFORN abundance	S9
MNCR_data.shp		
SITE	*site code*	S9
DATE_	Date	D8
TIME_BST	*time (BST) of start and end*	S12
LAT_START	WGS84 latitude at start of transect	N11.5
LONG_START	WGS84 longitude at start of transect	N11.5
LAT_END	WGS84 latitude at end of transect	N10.5
LONG_END	WGS84 longitude at end of transect	N11.5
DEPSLSTART	Depth (m BSL) at start of transect	N12.1
DEPSLEND	Depth (m BSL) at end of transect	
RISE	tidal rise (m)	N9.1
DEPCDSTART	Depth (m BCD) at start of transect	N12.1
DEPCDEND	Depth (m BCD) at end of transect	N12.1
DIRECTION	transect direction (degrees magnetic)	N9
SURVEYORS	Surveyors	S12
BIOTOPE	Biotope	S25
MR_biotope_records.shp		
CODE	record code used in report	N5
SURVEYKEY	MR survey key	S22
SURVEYNAME	MR survey name	S69
EVENT_KEY	MR event key	S20
EVENTNAME	MR event name	S64
EVENTREF	MR event reference	S9
EVENTDATE	event date	D8
DERIVEDFRM	source of position	S11
COORDSYSTM	coordinate system	S18
SURVEYORS	Surveyors	S92
USERREF	user site reference	S15
SAMPLE_REF	MR sample reference	S22
SAMPLE_KEY	MR sample key	S20
DATE_	Date	D8
LAT	OSGB latitude	N8.5
LONG	OSGB longitude	N8.5
LATWGS_MR	MR WGS84 latitude	N10.5
LONGWGS_MR	MR WGS84 longitude	N12.5
LATWGS84	WGS84 latitude (modified in case of error)	N12.5
LONGWGS84	WGS84 longitude (modified in case of error)	N12.5
HABITAT	habitat type	S85
DESCRIP1	habitat and community description (part)	S254
DESCRIP2	habitat and community description (continued)	S254
DESCRIP3	habitat and community description (continued)	S254
DESCRIP4	habitat and community description (continued)	S254
BIOTOPE	Biotope	S27
DEP_SL_LOW	height of lower margin above sea level (m)	S12
DEP_SL_HI	height of upper margin above sea level (m)	S11

Table 11.3 continued

File name and field	Content	Type
DEP_CD_LOW	height of lower margin above chart datum (m)	N13.1
DEP_CD_HI	height of upper margin above chart datum (m)	N11.1
DETERMDATE	biotope determination date	D8
ASSESSEDBY	biotope determiner	S13
QUALIFIER	biotope identification qualifier	S35
MR_Ostrea_records.shp		
CODE	record code used in report	N5
SURVEYKEY	MR survey key	S22
SURVEYNAME	MR survey name	S59
EVENT_KEY	MR event key	S20
EVENTNAME	MR event name	S49
EVENTDATE	event date	D8
SAMPLE_REF	MR sample reference	S22
USERREF	user site reference	S17
SURVEYORS	Surveyors	S47
LATWGS84	WGS84 latitude (modified in case of error)	N10.5
LONGWGS84	WGS84 longitude (modified in case of error)	N12.5
LATWGS_MR	MR WGS84 latitude	N12.5
LONGWGS_MR	MR WGS84 longitude	N12.5
SACFORN	SACFORN abundance	S10
PA	Present/absent	S3
HABITAT	habitat type	S91
DESCRIP1	habitat and community description (part)	S254
DESCRIP2	habitat and community description (continued)	S254
DESCRIP3	habitat and community description (continued)	S254
DESCRIP4	habitat and community description (continued)	S254
DESCRIP5	habitat and community description (continued)	S254
DESCRIP6	habitat and community description (continued)	S254
SL_LOWER	height of lower margin above sea level (m)	S9
SL_UPPER	height of upper margin above sea level (m)	S9
CD_LOWER	height of lower margin above chart datum (m)	S10
CD_UPPER	height of upper margin above chart datum (m)	S9
oyster_data.shp		
Transect	transect code	S5
DATE_	Date	D8
DIVER	Surveyor	S5
LAT_START	WGS84 latitude at start of transect	N11.5
LONG_START	WGS84 longitude at start of transect	N13.5
LAT_END	WGS84 latitude at end of transect	N9.5
LONG_END	WGS84 longitude at end of transect	N11.5
LAT_MID	WGS84 latitude at mid point of transect	N9.5
LONG_MID	WGS84 longitude atmid point of transect	N10.5
START_TIME	start time (BST)	S9
END_TIME	end time (BST)	S9
DEPBSL_STA	depth (m BSL) at start of transect	N12.2
DEPBSL_END	depth (m BSL) at end of transect	N12.2
RISE	tidal rise (m)	N5.1
DEPBCD_STA	depth (m BCD) at start of transect	N12.1
DEPBCD_END	depth (m BCD) at end of transect	N13.1

Table 11.3 continued

File name and field	Content	Type
HEADING	diver heading (degrees magnetic)	S8
BEARING_T	actual diver course (degrees true)	N10
BEARING_M	actual diver course (degrees magnetic)	N10
DISTANCE	transect distance (m)	N8.1
HABITAT1	habitat description	S254
HABITAT2	habitat description continued	S254
OYSTERS	number of oysters counted	N8
DENSITY	density (no. per square metre)	N7.2
photolog.shp		
FILENAME	file name	S32
DATE_	date	D8
LOCATION	location	S16
SITE_CODE	site code	S10
LATITUDE	WGS84 latitude	N11.5
LONGITUDE	WGS84 longitude	N9.5
LENS	camera lens	S16
HABITAT	habitat type	S32
DESCRIPTIO	subject description	S200
PHOTOG	photographer	S15
DEPTH__M_	depth (m) below chart datum	N9
WIDTH	photo width (pixels)	N6
HEIGHT	photo height (pixels)	N6
X_RES	X resolution	N6
Y_RES	Y resolution	N6
RES_UNITS	resolution units	S9
video_data.shp		
SITE	site code	S6
DATE_	date	D8
LAT_IN	WGS84 latitude at start	N8.5
LONG_IN	WGS84 longitude at start	N8.5
TIME_IN	time at start (BST)	S8
LAT_OUT	WGS84 latitude at end	N8.5
LONG_OUT	WGS84 longitude at end	N9.5
TIME_OUT	time at end (BST)	S9
DEPTHCDIN	depth (m BCD) at start	N10.1
DEPTHCDOUT	depth (m BCD) at end	N11.1
LAT_MID	WGS84 latitude at mid point	N8.5
LONG_MID	WGS84 longitude atmid point	N10.5
MEDIUM	tape or file identifier	S16
COUNT_STRT	video counter (hh:mm:ss) at start	S10
COUNT_END	video counter (hh:mm:ss) at end	S10
SUBSTRATE	substrate description	S153
BIOTA1	biota description	S254
BIOTA2	biota description continued	S254
BIOTA3	biota description continued	S254
BIOTOPE1	first biotope	S24
BIOTOPE2	second biotope	S24
NOTES	notes, such as biotope ID uncertainty	S120
PMF	PMF	S5

Table 11.3 continued

File name and field	Content	Type
TARGET_BIO	target biotope	S32
video_tracks.shp		
SITE	site code	S6
LAT_IN	WGS84 latitude at start	N8.5
LONG_IN	WGS84 longitude at start	N8.5
LAT_OUT	WGS84 latitude at end	N8.5
LONG_OUT	WGS84 longitude at end	N9.5

APPENDIX 12: SURVEY LOG

Outline of activities during phase 1 (12 - 22 March 2013) and phase 2 (16 - 24 April 2013) of the Loch Sween survey

Code	Personnel
CM	Colin Moore
DH	Dan Harries
GS	Graham Saunders
RC	Rob Cook
NH	Natalie Hirst
JP	Jo Porter
AL	Alastair Lyndon
WS	Bill Sanderson
RG	Rebecca Grieve
LC	Laura Clark
BJ	Ben James
SH	Suzanne Henderson
MC	Morven Carruthers
LK	Lisa Kamphausen

Date	Personnel	Task
12/03/2013	CM, DH	0930 DH and CM load Serpula at Creran and sail to Dunstaffnage to catch tomorrow's ebb tide. DH and CM then travel by car to Tayvallich and leave vehicle for return journey. Return Port Appin 1830.
13/03/2013	CM, DH	0545 CM and DH depart Port Appin and sail Serpula from Dunstaffnage to Tayvallich. Set up dropdown video system. Return to Dunstaffnage by road at 1730. CM and DH then demob to Port Appin and Edinburgh.
17/03/2013	CM, RC, NH	CM mob to Tayvallich from Port Appin, RC and NH from Edinburgh.
18/03/2013	CM, RC, NH	0750 load Serpula and carry out 35 dropdown video sites in Sween approaches and main body of loch. 1806 return Tayvallich. Wind E F5.
19/03/2013	CM, RC, NH	0745 board Serpula. 44 dropdown video sites in three upper arms and in upper section of main body of loch, returning Tayvallich 1730. Prepare new anchor dredge for use. Wind E F5.
20/03/2013	CM, RC, NH	0745 board Serpula. 14 video sites in Sween approaches and Loch na Cille. Naturalist dredge sample on historical *Limaria* site. 2 grabs in Loch na Cille, then 5 grabs in lower part of main Sween channel, then 5 video sites in Loch a'Bhealaich and Taynish harbour. Returned harbour 1800. Unload boat and sample preservation to 1845. Wind E F5-6.
21/03/2013	CM, RC, NH	0745 board Serpula. Load anchor dredge. Grab sampling in upper part of main channel and all three upper arms (18 sites with single grab, 1 site with 3 grabs). Anchor dredge at 1 site in Caol Scotnish where historical record of *Maxmuelleria*. 1700 return Tayvallich harbour. Unload samples and preservation, returning base at 1800. Wind E F5-6.
22/03/2013	CM, RC, NH	Gale force winds (E F8-9) with same forecast for tomorrow. Survey work postponed. Packed gear and loaded vehicles. Demobbed to Edinburgh and Port Appin.
16/04/2013	CM, DH, GS, JP	1000 DH, GS mob from Edinburgh, CM from Port Appin, JP from Dunstaffnage. Set up and launched inflatable in Tayvallich harbour. DH, GS, CM work up dive in Tayvallich, returning accommodation 1830.
16/04/2013	SNH – LC, BJ, SH	08:30 mob from Inverness to Tayvallich. Inflated Arctica within Taynish woods NNR and left on shore for the night.

Appendix 12 continued

Date	Personnel	Task
17/04/2013	DH, CM, GS, JP	0730 Tayvallich harbour. Load Serpula. MNCR 2 survey at mud site LB04M. Trial of maerl transect methodology at Caol Scotnish, carrying out two transects. Return Tayvallich pontoon 1800. 2230 RC and NH arrive.
17/04/2013	SNH – LC, BJ, SH, BS, RG	07:30 Taynish Woods NNR. Inflatable loaded and kit set up. Four transects completed as well as three dives on the drop down video stations within Linnhe Mhurich. Returned to accommodation 18:30
18/04/2013	DH, CM,GS, RC, NH	JP departs for Edinburgh. 0715 Tayvallich harbour, departing mooring at 0812. Carried out 3 maerl transects across Taynish rapids, MNCR 2 survey at mud site AA08M and 2 maerl transects at Caol Scotnish. Returned Tayvallich 1734, unload equipment, returning accommodation 1830. 1845 DH to Ardrishaig for cylinder filling.
18/04/2013	SNH – LC, BJ, SH	07:30 Taynish Woods NNR. Carried out two dives on the drop down video stations, five transects and three grabs within Linnhe Mhurich, Returned to accommodation 18:30
19/04/2013	DH, CM, GS, RC, NH	0730 Tayvallich harbour, departing mooring at 0815. Carried out 14 maerl transects at Caol Scotnish, then megafaunal burrow examination at mud site CS7. Revideo at mud site LB04 attempted but poor visibility. 1600 returned Tayvallich mooring. Evening: data analysis of transect sites and input to GIS to check adequacy of coverage.
19/04/2013	SNH – LC, BJ, SH	07:30 Tayvallich harbour, departing mooring at 08:15 Arctica was used as a tender from Serpula. Carried out three maerl transects within Caol Scotnish. Returned to Tayvallich at 16:00.
20/04/2013	DH, CM, GS, RC, NH	0715 Tayvallich harbour. 0807 depart mooring. Carry out 14 maerl transects across Taynish rapids. 1650 returned Tayvallich. Evening: data analysis of transect sites and input to GIS to check adequacy of coverage. 2230 AL arrived
20/04/2013	SNH – LC, BJ, SH	07:15 Tayvallich harbour. Arcitca was used as a tender from Serpula. Carried out two maerl transects within Taynish rapids. 16:50 returned to Tayvallich.
21/04/2013	DH, CM, GS, RC, NH, AL	0715 Tayvallich harbour. 0815 depart mooring. MNCR 2 survey at mud site LS22M and maerl site ML01 (Taynish rapids). Maerl collection for identification at 3 representative sites (east, west and middle of rapids system). 1946 returned Tayvallich mooring
21/04/2013	SNH – LC, BJ, LK, MC	07:30 Taynish Woods NNR. Launched Arctica and carried out one dive on the final drop down video station and completed the final two transects. Transit round to Taynish rapids where four maerl transects were completed. Arctica driven back to Taynish Woods NNR. 19:30 return to accommodation
22/04/2013	DH, CM, GS, RC, NH, AL	0715 Tayvallich harbour, departing mooring 0815. MNCR 2 survey at mud site SM14M and ML02 (Caol Scotnish). Video at mud site LB04M. 1803 returned Tayvallich mooring
22/04/2013	SNH – LC, BJ, LK, MC	07:15 Tayvallich harbour. Arctica was used as a tender from Serpula. Carried out six dives on the maerl bed within within Caol Scotnish and collected photo's and video. 18:03 Tayvallich mooring
23/04/2013	DH, CM, GS, NH, AL, RC	0800 Tayvallich harbour, departing mooring 0837. Stills photography at mud site AA08M as camera previously faulty. 3 x grab samples at AA08M. Returned Tayvallich to unload diving gear, then anchor dredge samples at mud sites AA08M, SM14M and LB04M. 1547 returned Tayvallich mooring. Unloaded Serpula.
23/04/2013	SNH – LC, BJ, LK, MC	08:00 Tayvallich harbour. Serpula's tender was used to carry out four dives on the maerl bed within Taynish rapids to collect photo's and video.. 15:47 returned to Tayvallich mooring. BJ demob 19:00
24/04/2013	DH, CM, GS, NH, AL	Demob
24/04/2013	SNH – LC, LK, MC	Demob

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