

Skerries and Causeway Survey 2006-2009

A Survey Report from the Nationally Important Marine Features Project



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Skerries and Causeway Survey 2006 — 2009

A Survey Report from the Nationally
Important Marine Features Project

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The opinions expressed in this report do not necessarily reflect the current opinion or policy of the Northern Ireland Environment Agency.

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1. Introduction

Skerries and Causeway proposed European Special Area of Conservation (SAC) is sited on the north coast of Northern Ireland. It is the eastern part of a 30km wide embayment that has the Inishowen peninsular to its west and Benbane Head to its east. The site is influenced oceanographically and biologically both by the warming North Atlantic Drift and by the strong tidal currents that flow through the North Channel to and from the Irish Sea. It is subject to considerable wave action being open to the Atlantic to the north-west, but is relatively sheltered from other prevailing swells and includes areas of relative shelter such as behind the Skerries islands. The site is predominantly marine although there are significant influxes of freshwater, from the River Bann to the west and the River Bush to the east, which can influence the immediate coastal areas.

The Skerries area is located between the Islay front (to the North-west) and a salinity front to the east which separates the southern Malin shelf waters from the North Channel of the Irish Sea. This results in warmer water temperatures than the Irish coast east of Benbane Head (Gowen *et al.* 1998). The Northern Ireland Sublittoral Survey (Erwin *et al.* 1986,1990) recognised the Skerries as an area of biological importance, it is the only area in which many species with a south-western distribution occur within Northern Ireland.

The purpose of this project was to provide information on species and habitats present in the proposed SAC, more detailed information on substrate is provided in Clements *et al.* (2010). The proposed SAC is bounded by Portstewart Point to the west and Bengore Head to the east with a northern limit just north of the Ridges (Figure 1). The project combines data from the Sublittoral Survey Northern Ireland project, a survey which targeted Northern Ireland Priority Species (Goodwin *et al.* 2011a), with more recent dives undertaken as part of the Nationally Important Marine Features (NIMF) project (2009-ongoing). One of the aims of the NIMF project was to investigate features of interest identified from multibeam bathymetric charts of the north coast of Northern Ireland produced as a result of the Joint Irish Bathymetric Survey (JIBS) project (<http://www.marine.ie/home/services/surveys/seabed/JIBS.htm>). This used multibeam sonar to produce high resolution bathymetric and seabed type maps of the 3 nautical mile coastal strip westward from Torr Head, around Rathlin Island and extending to Inishtrahull Island off Donegal, excluding the harbour sections of Lough Foyle. Data is currently processed to a horizontal resolution of 1m and vertical resolution of 1cm, although with additional processing increased horizontal resolution is likely to be possible. This sort of high resolution bathymetric data has not been previously available: the existing charts of most of the coastline of Northern Ireland are Victorian in vintage and compiled from leadline soundings with sextant positioning. An overview of the bathymetry of the Skerries area is shown in Figure 2.

Abbreviations used in the report

CEDaR - Centre for Environmental Data and Recording.

JIBS - Joint Irish Bathymetric Survey

JNCC - Joint Nature Conservation Committee

NICP - Northern Ireland Conservation Priority Species (listed under Northern Ireland Biodiversity Strategy).

NIEA - Northern Ireland Environment Agency

NIMF - Nationally Important Marine Features - a partnership marine survey project between NIEA and National Museums Northern Ireland. 2009-ongoing.

SAC - European Special Area of Conservation

SOCC - Northern Ireland Species of Conservation Concern (listed under Northern Ireland Biodiversity Strategy).

SSNI - Sublittoral Survey Northern Ireland project. A partnership project between National Museums and NIEA which surveyed NICP species.

UK BAP Species - Species listed as a UK Biodiversity Action Priority

Species abundances are listed according to the JNCC SACFOR scale (see Hiscock 1996):

S - Super abundant, A- abundant, C- Common, F-Frequent, O- Occasional, R- Rare.

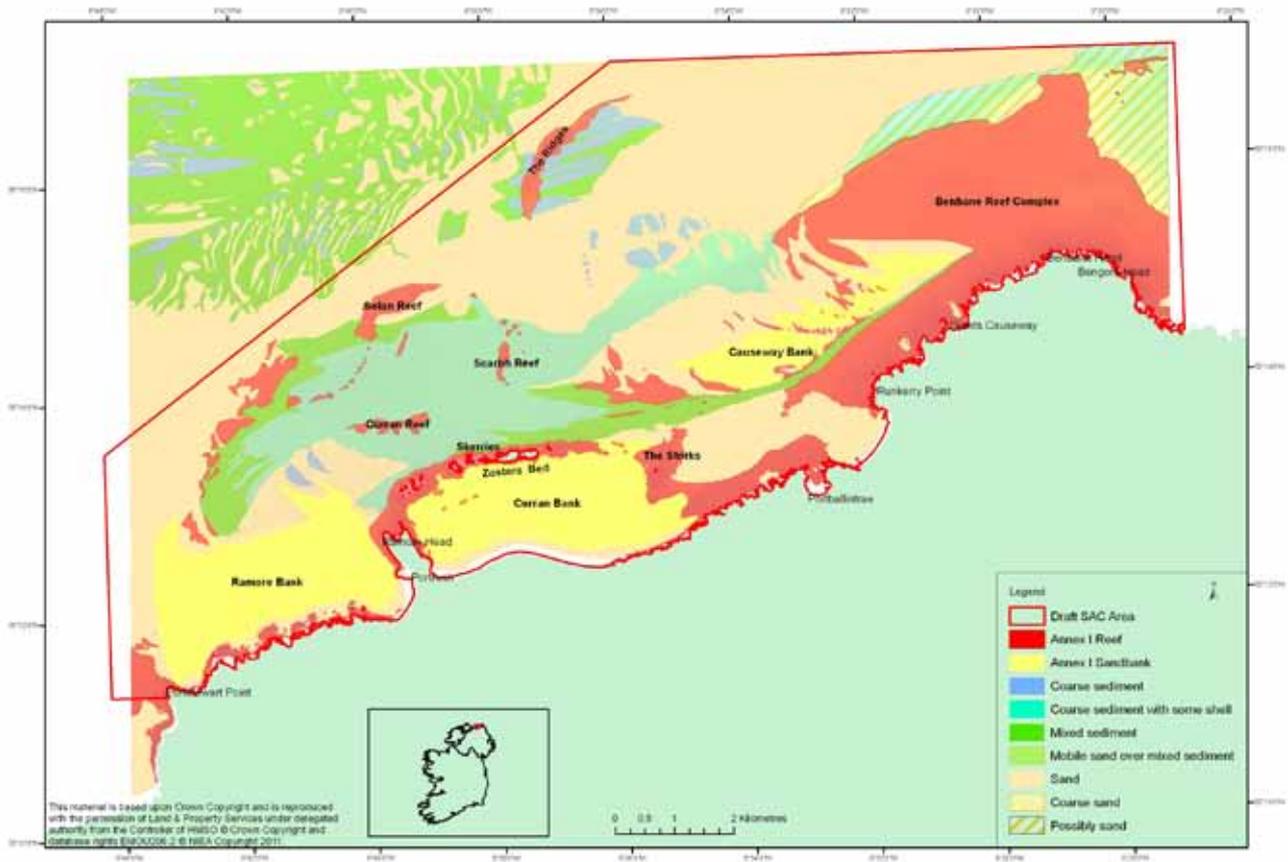


Figure 1 - The boundary of the proposed Skerries and Causeway Special Area of Conservation (SAC) showing the presence of substrate types.

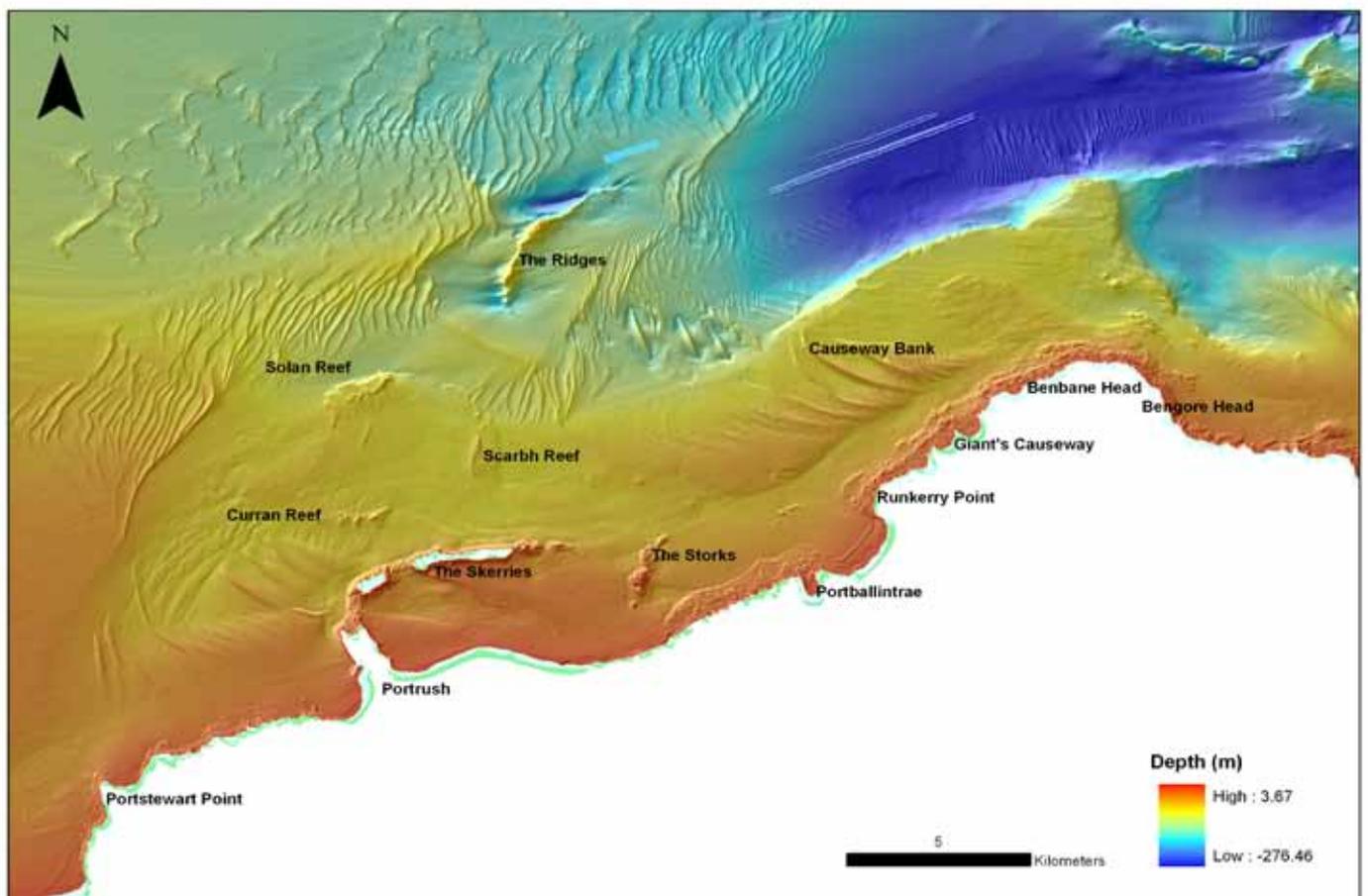


Figure 2 - Bathymetry of the Skerries and Causeway area. Bathymetric information from the JIBS project.

2. Methodology

The areas were surveyed by SCUBA diving. Approximately 30 minutes was spent recording. Conspicuous flora and fauna was noted and specimens were collected when *in situ* identification was not possible. A JNCC phase 2 sublittoral habitat form was completed to give record of species and habitats at the site and on most dives photos and/or video was also taken. A pair of divers were deployed on all dives. This report combines data collected during the Sublittoral Survey Northern Ireland project 2006-2008, a survey targeting Northern Ireland Conservation Priority Species (see (Goodwin *et al.* 2011a); and the results of additional fieldwork in 2009 and 2010 targeting features indicated from JIBS data.

Divers were experienced field biologists with good knowledge of *in situ* identification. Surveyors were Claire Goodwin, Bernard Picton (Ulster Museum), Joe Breen, Hugh Edwards, Trevor Harrison, Ronnie Snyder (Northern Ireland Environment Agency), Paulo Pizzolla (JNCC), and Lin Baldock, Jen Jones, and Anne Marie Mahon (External Contractors). Each dive is given a unique reference number to which all data are linked. This is the date backwards (to assist sorting in databases) followed by the number of the dive on the day. For example the third dive on the 1st of June 2009 would be 090601/03. Tidal range has not been corrected to chart datum, apart from some of the Seasearch dives (indicated by BCD (below chart datum) in text). Tidal range for Portrush, the closest port, is small, under 2m. As variation is likely to be less than that encountered in the course of the dive, it was decided that correction was not necessary.

Additional data from the Seasearch project was also used. Seasearch is a project in which volunteers carry out marine diving surveys. Recording is at two levels of detail: 'Observer' which can be carried out with little training and does not contain detailed habitat and species information; and 'Surveyor' which is equivalent to a JNCC Phase 2 form. The data is from surveys of the Skerries area undertaken between 2006 and 2009 (see Goodwin 2007, 2008, 2009). Naturally the surveyors undertaking this recording are not as experienced as the professional survey team. However, quality of the data is ensured as it is validated whilst being entered into Marine Recorder and recorders are trained to only record species which they are confident in identifying. The project is a cost-effective way of supplementing professional survey records and here provides useful additional habitat information.

All data has been entered into the 'Marine Recorder' database and is publicly available through the Centre for Ecological Data and Recording (CEDaR) at National Museums Northern Ireland. Additional information and photographs of species from the NIMF and SSNI projects are held in a Microsoft Access database, copies are held by NIEA and National Museums. Species Records were supplemented with data from the Northern Ireland Sublittoral Survey. A table of dives is given in Appendix 2.

3. Results

In total 105 different sites were surveyed these are described in Appendix 1. These are largely within the boundary of the proposed SAC. Sites 1-2 (on the Tun's Bank) and 102-105 (around Carrick-a-Rede Island) are outside the boundary but have been included here because they provide information on mobile sand and sea cave habitats which are similar to those inside the proposed SAC.

3.1 Habitat Types – Key Biotopes

Biotopes were allocated in accordance with JNCC guidelines (Connor *et al.* 2004). It was only possible to allocate biotopes to JNCC phase 2 forms and Seasearch 'Surveyor' data as Seasearch 'Observer' data does not contain enough substrate information. Habitat descriptions and substrate and species information from the JNCC records were used to classify sites. Where available photographs and video were used to aid in classification. As the majority of the data was collected during the SSNI project the main focus of recording was species and many sites did not have detailed habitat descriptions. In these cases biotopes were allocated from substrate and species information on the form.

The majority of the sites had already been allocated biotopes by Clements *et al.* (2010). There are some minor discrepancies between their allocations and those given here. However, these can mostly be attributed to the fact that for SSNI dives were often recorded on a single JNCC phase 2 form. This met the purposes of the SSNI project which was recording species presence. However, often the record represents several biotopes and these can be hard to distinguish from the amalgamated information. During the NIMF project

each habitat was recorded on a separate form and it is recommended that this practice is continued in the future. An additional factor which sometimes makes determination difficult is that on rocky substrates, the boundaries between adjacent biotopes merge. Consequently either biotope could be allocated depending on the weight given to particular characteristics.

Biotope type for each dive is given in Appendix 1 and 2. Species composition for each biotope recorded is given in Appendix 3.

3.1.1 Bedrock

Bedrock is an important component of this area with Annex I Reef habitat being a primary reason for the selection of the proposed Skerries SAC (see NIEA, 2011). The area contains sites with a variety of exposures, the majority of the area is high energy, being exposed to strong tidal streams and waves, especially to the north of the Skerries. However, some areas are more sheltered such as bays on the north side of the Skerries, which are slightly protected from the prevailing wind, and sites on the Storks. Bedrock is divided into circalittoral and littoral biotopes with the distinction falling around 20-22m. This is deeper than many other areas of the Northern Ireland coast which may be attributed to low suspended solids in the water mass which result in greater light penetration, allowing algae to grow at greater depths.

3.1.2 Infralittoral Rock

A variety of infralittoral biotopes are present. Infralittoral sites were not the target of the surveys as the majority of the sampling aimed to search for NI priority invertebrate species which involved mainly diving in circalittoral depths. The records that are present are mainly from Seasearch dives or habitats recorded during a short portion of the dive, consequently data was limited and determining biotopes in some cases was problematic, as noted by Clements *et al.* (2010).

In the shallow sublittoral fringe IR.HIR.KFaR.Ala.Ldig (*Alaria esculenta* and *Laminaria digitata* on exposed sublittoral fringe bedrock) was recorded. This often occurs in very shallow water above *Laminaria hyperborea* kelp forest. There are not many records but the shallow depth range in which it is present were not often surveyed.

Many of the infralittoral sites can be classified as IR.HIR.KFaR.LhypR.Ft (*Laminaria hyperborea* kelp forest with an understorey of dense foliose red algae on exposed upper infralittoral rock) which, as the kelp becomes sparser with depth turn into kelp park (IR.HIR.KFaR.LhypR.Pk). The forest biotope is categorised by dense *Laminaria hyperborea* kelp with a dense turf of foliose red algae such as *Delesseria sanguinea*, *Callophyllis laciniata*, *Odonthalia dentata* and *Plocamium cartilagineum*. Some invertebrate species such as *Asterias rubens*, *Calliostoma zizyphinum* and *Gibbula cineraria* are present. In the deeper waters the kelp thins and the kelp park biotope becomes dominant. Here red foliose algae are common and brown algae such as *Dictyota dichotoma* may also be present in moderate to high abundances. More circalittoral fauna such as the cup coral *Caryophyllia smithii*, the boring sponge *Cliona celata* and the jewel anemone *Corynactis viridis* may be present. The biotope IR.HIR.KFaR.LhypFa (*Laminaria hyperborea* kelp forest with a faunal cushion (sponges and polyclinids) and foliose red seaweeds on very exposed upper infralittoral rock) can be present on exposed rock which is subjected to a greater degree of wave exposure. This is characterised by a more conspicuous encrusting fauna including sponges and anemones. It was not recorded here but may be present.

Some sites are less wave exposed, including areas of the Storks and a sheltered bay on to the north of the Skerries. Here moderately exposed *Laminaria hyperborea* forest (IR.MIR.KR.Lhyp.Ft) and park (IR.MIR.KR.Lhyp.Pk) is present. These differ from the more exposed biotopes above by having a lower diversity of cushion forming species and increased coralline algae and bryozoan crusts giving the areas a generally poorer, grazed appearance. In moderately exposed areas which are strongly tideswept *Laminaria hyperborea* park with red algae and a rich fauna of sponges, colonial ascidians and bryozoans (IR.MIR.KR.LhypT.Pk) occurs. This biotope was recorded from north-west of the Giant's causeway and near the Storks.

Below the kelp zone the bedrock becomes dominated by foliose red algae (IR.HIR.KFaR.FoR), at some

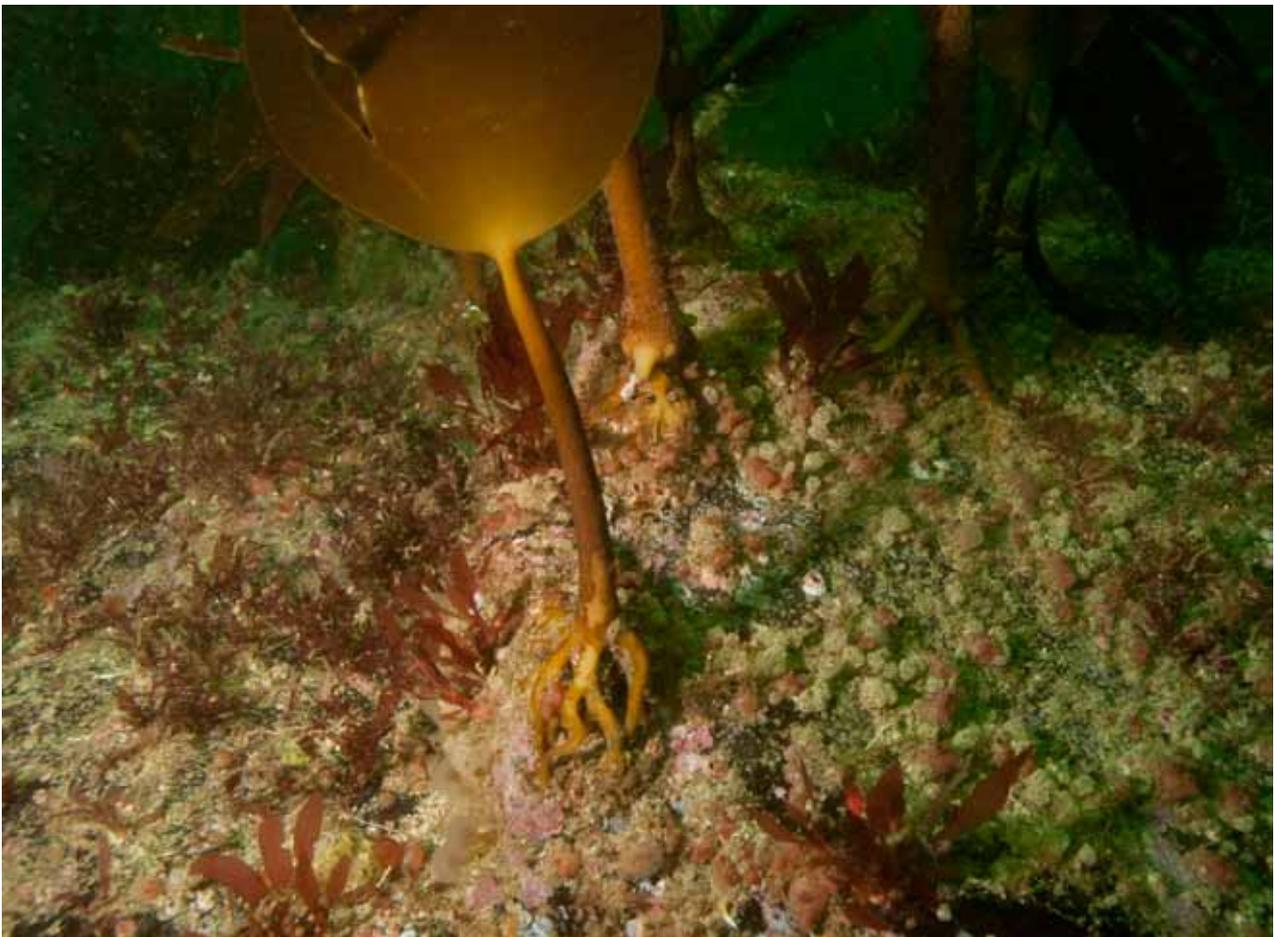


Figure 3. IR.MIR.KFaR.LhypT.Pk. Strongly tideswept *Laminaria hyperborea* park with red alage and a rich fauna of sponges, colonial ascidians and bryozoans. Site 93, North-west of Giant's Causeway.

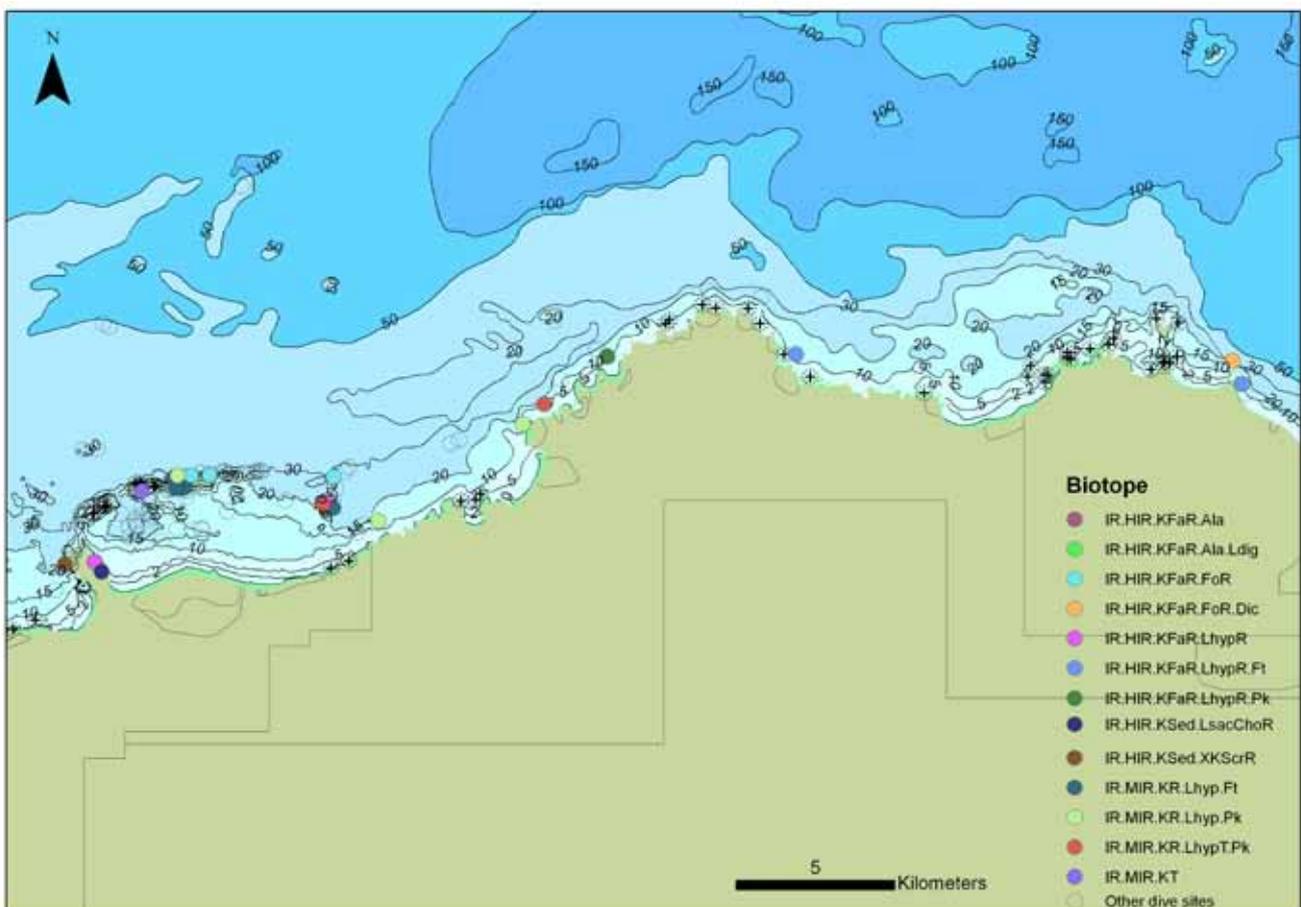


Figure 4. Infralittoral rock biotopes recorded from the survey area.

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sites other species were abundant such as the brown algae *Dictyota dichotoma* (forming the biotope IR.HIR.KFaR.FoR.Dic).

Areas of boulders and cobbles with kelp and other algae were recorded at some sites. The biotope IR.HIR.KSed.LsacChoR (*Saccharina latissima* (formerly *Laminaria saccharina*), *Chorda filum* and dense red seaweeds on shallow boulders or cobbles) was present at the Blue Pool, IR.HIR.KSed.XKScrR (Mixed kelps with scour-tolerant and opportunistic foliose red seaweeds on scoured infralittoral rock) was recorded from Ramore Head. These biotopes are undoubtedly present at additional sites. However, as for other infralittoral areas, they were not extensively surveyed.

3.1.3 Caves and surge gullies

Some areas of surge impacted rock were recorded. The caves east of Carrick-a-Rede rope bridge (Site 105) contained the biotopes IR.FIR.SG.CrSpAsAn (Anemones including *Corynactis viridis*, crustose sponges and colonial ascidians on very exposed or wave surged vertical infralittoral rock) and IR.FIR.SG.FoSwwCC (Foliose seaweeds and coralline crusts in surge gully entrances).

Shallow areas of rock on other areas of the Skerries are also subject to high wave exposure. The biotope IR.FIR.SG.CrSpAsDenB (Crustose sponges and colonial ascidians with *Dendrodoa grossularia* on wave-surged infralittoral rock) was recorded from site 69, north-east of Large Skerrie.

Shallow wave exposed areas were not often surveyed, very calm weather is required, particularly for sea caves, for diving to be safe. It is likely these and other surge biotopes are present in sea caves along the north coast.

3.1.4 Circalittoral Rock

The majority of circalittoral bedrock around the Skerries is categorised as exposed, with some areas of moderately exposed bedrock occurring on the Storks and in the bay on the north wall of Large Skerrie.

CR.HCR.XFa.ByErSp (Bryozoan turf and erect sponges on tide-swept circalittoral rock)

This biotope is characterised by a bryozoan turf with erect sponges and anemones. Bryozoans present included *Flustra foliacea*, *Bugula plumosa* and *Crisia* sp. however, they are not as dominant as in the CR.HCR.XFa.FluCoAs biotopes. Sponge species including *Pachymatisma johnstonia*, *Polymastia boletiformis*, *Axinella* species, *Raspailia hispida*, *R. ramosa*, *Stelligera rigida* and *S. stuposa* are present but they are less dominant than in the CR.HCR.DpSp.var biotope. Anemones and soft corals include *Alcyonium digitatum*, *Sagartia elegans*, *Actinothoe sphyrodeta* and *Caryophyllia smithii*. At some sites the sub-biotope CR.HCR.XFa.ByErSp.DysAct (mixed turf of bryozoans and erect sponges with *Dysidea fragilis* and *Actinothoe sphyrodeta*) was recorded. This has a greater abundance of sponges and frequent *Actinothoe sphyrodeta*.

CR.HCR.XFa.SpAnVt (Sponges and anemones on vertical circalittoral bedrock) is found on vertical to overhanging sites. A mixed faunal turf of hydroids and bryozoans (including *Nemertesia antennina*, *Tubularia indivisa*, *Halecium halecinum* and crisiid turf) is present and a diverse range of sponges. Anthozoans such as *Alcyonium digitatum*, *Caryophyllia smithii* and *Metridium senile* are common.

CR.HCR.DpSp.var (Deep Sponge Communities)

This biotope typically occurs on deep (commonly below 30m) wave-exposed bedrock subject to negligible tidal streams. The sponge component of the biotope is the most striking feature. The biotope currently in the JNCC classification scheme is characterised by the presence of *Phakellia ventilabrum* which is rare in Northern Ireland's waters. However, as noted from other areas of the Northern Ireland coast such as the Maidens (Goodwin *et al.* 2011b) biotopes dominated by other sponges do occur here and new sub-biotopes should probably be designated. In this area this sponge biotope occurs in shallower water (18-26m). The diversity of sponges is notable. See Clements *et al.* (2010) for a full discussion. We have kept the biotopes assigned by Clements *et al.* (2010) for these sites. However, it is possible that they could also be classified as CR.HCR.XFa.ByErSp and further investigation of characterising species may be required. They differ from both the description in Connor *et al.* (2004) and those sites on the Maidens (Goodwin *et al.* 2011b) in being

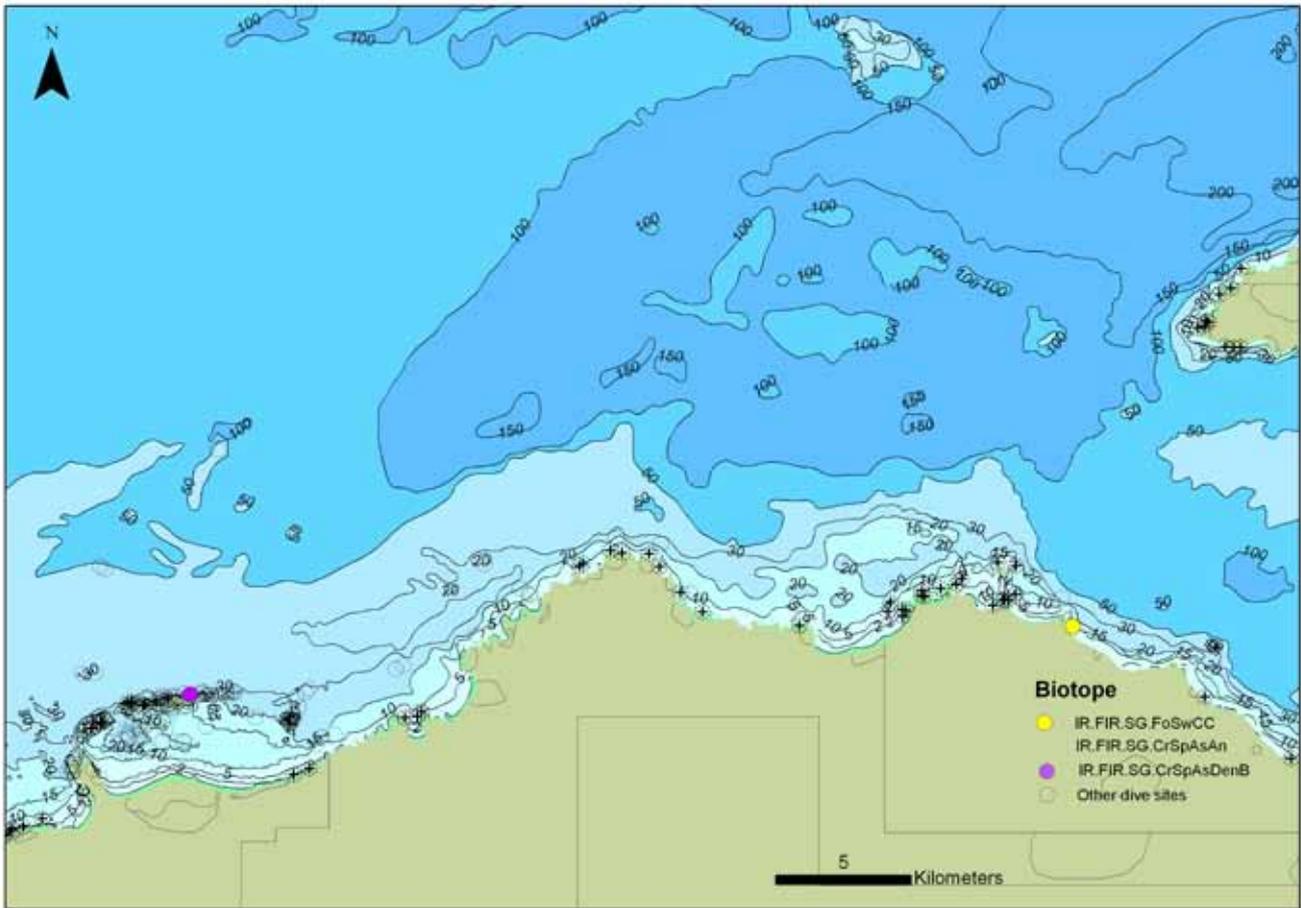


Figure 5 - Cave and surge gully biotopes in the survey area.

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Figure 6 - IR.FIR.SG.CrSpAsAn Anemones including *Corynactis viridis*, crustose sponges and colonial ascidians on very exposed or wave surged vertical infralittoral rock. Site 105, Caves east of Carrick-a-Rede.

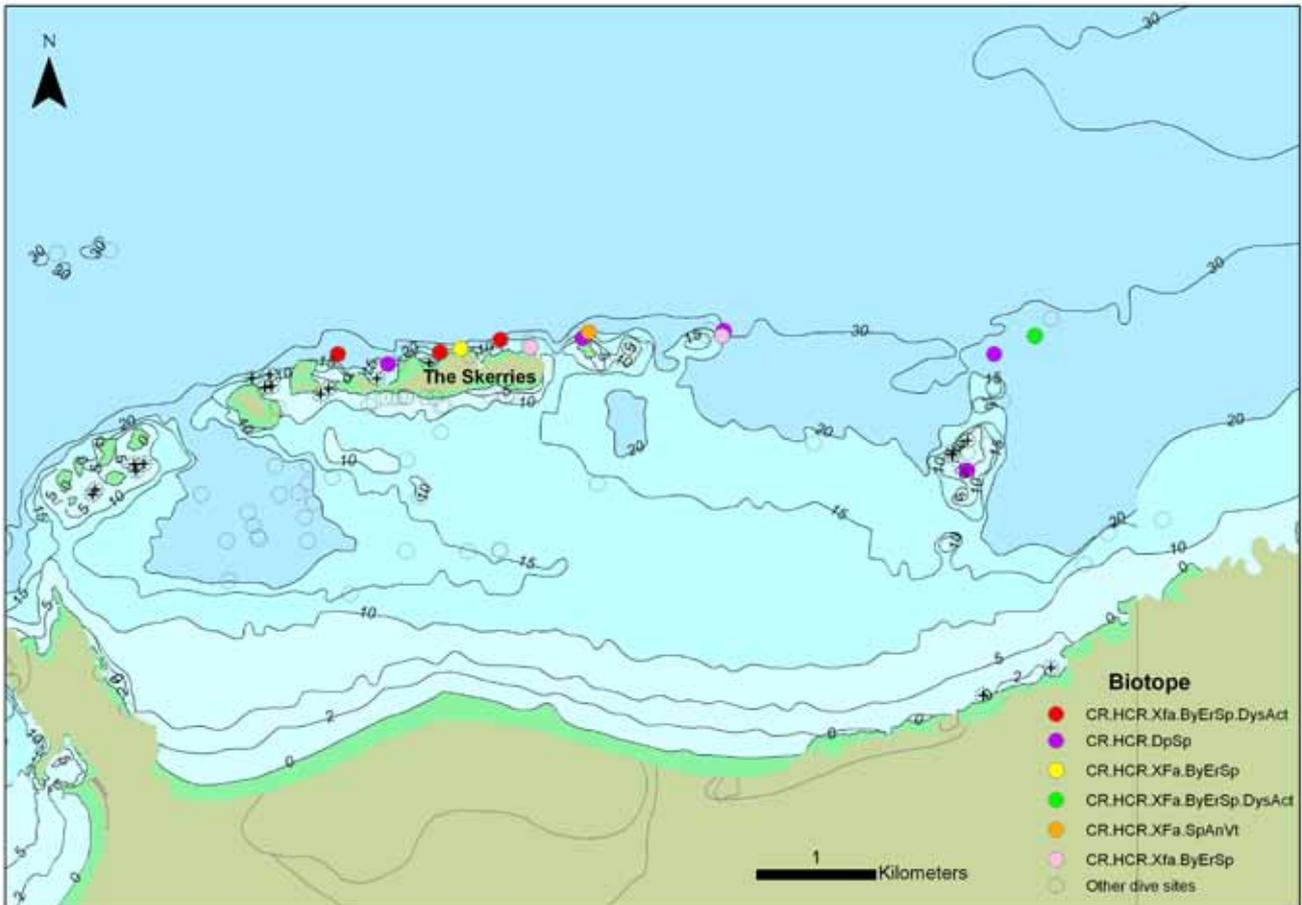


Figure 7 - Sponge biotopes in the survey area

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Figure 8 - CR.HCR.XFa.ByErSp.DysAct (mixed turf of bryozoans and erect sponges with *Dysidea fragilis* and *Actinothoe sphyrodeta*). The dominant bryozoan here is *Flustra foliacea*. Site 85, Reef north of the Storks.

more wave and tide exposed.

CR.HCR.XFa.FluCoAs (*Flustra foliacea* and colonial ascidians on tide-swept moderately wave-exposed circalittoral rock).

This biotope and its sub-biotopes are the most dominant in the Skerries and Causeway area, being found throughout the study site. It typically occurs on the upper faces of circalittoral bedrock or boulders. It is subject to scour by adjacent sediment and as a consequence it is dominated by the scour tolerant bryozoan *Flustra foliacea* (Super-abundant to Common). It is the abundance of *F. foliacea* which primarily distinguishes this biotope from CR.HCR.ByErSp; *F. foliacea* may be present but typically is less than Frequent in abundance. These two biotopes often merge into one another when the bedrock becomes more elevated and hence less subject to scour. In Connor *et al.* (2004) it is stated that the cup coral *Caryophyllia smithii* is absent in the CR.HCR.XFa.FluCoAs biotope. This may be because the biotope has largely been reported from the east coast of England where this species is not present. However, *C. smithii* is so common across the whole of the north coast area that it would seem not to be a useful characterising species.

CR.HVR.XFa.FluCoAs.SmAs (*Flustra foliacea*, small solitary and colonial ascidians on tide-swept circalittoral bedrock or boulders).

Dominated by *F. foliacea* with a high abundance of small solitary and colonial ascidians. The bedrock is frequently covered in a fine layer of sand. Species recorded here included the ascidians *Aplidium nordmanni*, *Aplidium punctum*, *Botryllus schlosseri*, *Ciona intestinalis*, *Clavelina lepadiformis*, *Dendrodoa grossularia*, *Morchellium argus*, *Polycarpa scuba*, *Pycnoclavella aurilucens*, *Pycnoclavella stolonialis*, *Pyura microcosmus*, *Polyclinum aurantium*, *Sidnyum turbinatum*, and *Synoicum incrustatum*.

CR.HCR.XFa.FluCoAs.Syn (*Synoicum incrustatum* and *Flustra foliacea* on sand scoured tide-swept circalittoral bedrock and boulders). (Proposed biotope variant)

In some areas the understory of ascidians is dominated by the ascidian *Synoicum incrustatum*. We support the view of Clements *et al.* (2010) that this merits the designation of a new biotope variant. This would be analogous to the HCR.XFa.FluCoAs.Paur (*Flustra foliacea* with *Polyclinum aurantium*) biotope in which the ascidian *Polyclinum aurantium* dominates the rock surface.

In this biotope *Synoicum incrustatum* is present at high abundances (typically greater than Frequent) and may carpet areas of bedrock, often incorporating sand grains into its surface. This biotope is extremely characteristic of the north coast of Northern Ireland and is not found elsewhere in the province. *Synoicum incrustatum* does not appear to be frequently recorded in the UK and it is possible that the biotope is also rare nationally. However, the species has probably been misidentified as it was omitted from Millar's synopsis of British Ascidiaceans (Connor, 1989). Whilst *Synoicum incrustatum* is present in the sub-biotope CH.HCR.FluCoAs.SmAs it is only Occasional in abundance and is incorporated into a mixed turf of ascidians, it is not visually dominant as it is in this biotope.

CR.HCR.XFa.FluCoAs.X (*Flustra foliacea* and colonial ascidians on tide-swept exposed circalittoral mixed substrata).

This is similar to the above biotopes but occurs on mixed substrates of boulder, cobble and pebble.

Moderately Exposed Bedrock

Some areas are less wave exposed, these include bays on the north side of the Skerries, where the western sides of the bay provide some shelter from the prevailing winds, and areas of the Storks, where some shelter is provided by the outlying Skerries. In these moderately exposed areas echinoderms and algal crusts dominate and sites often have a sparse, grazed appearance.

CR.MCR.EcCr.CarSp (*Caryophyllia smithii*, sponges and crustose communities on wave-exposed circalittoral rock).

This biotope is characterised by a sparse fauna, appearing grazed, with cup coral *Caryophyllia smithii*, dead man's fingers *Alcyonium digitatum* and occasional common urchins *Echinus esculentus*. There are large growths of the sponges *Pachymatisma johnstonia* and *Cliona celata* and isolated clumps of hydroids

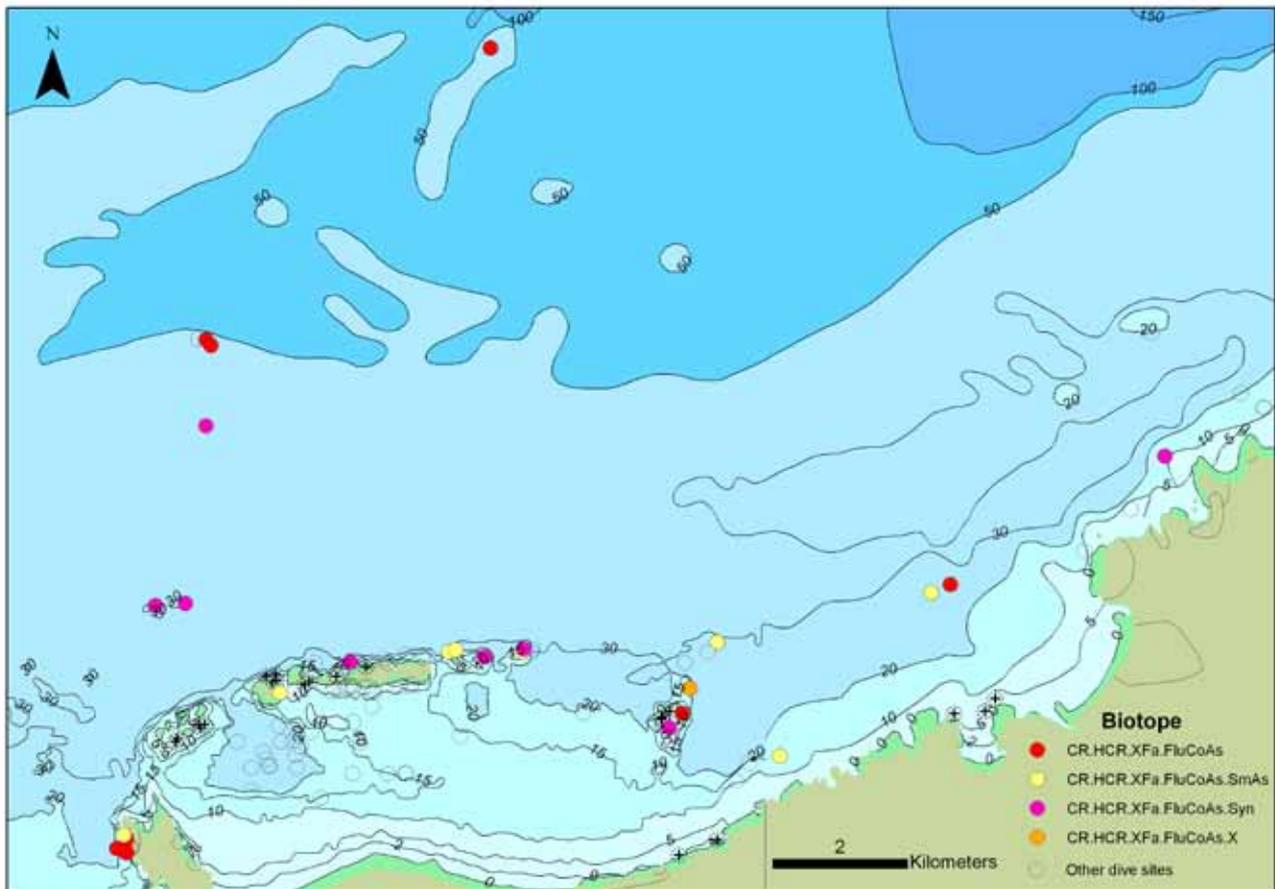


Figure 9. Colonial ascidian biotopes in the survey area.

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Figure 10. CR.HCR.XFa.FluCoAs. (*Flustra foliacea* and colonial ascidians on tide-swept moderately wave-exposed circalittoral rock). Site 8, Ramore Head, Portrush.



Figure 11. CR.HCR.XFa.FluCoAs (Flustra foliacea and colonial ascidians on tide-swept moderately wave-exposed circular littoral rock). Site 14, Curran Reef.



Figure 12. CRHCRXFaFluCoAsSyn (*Synoicum incrustatum* and *Flustra foliacea* on sand scoured tide-swept circular littoral bedrock and boulders). Site 95, Offshore of Giant's Causeway. The ascidian *Synoicum incrustatum* is dominant.

including *Nemertesia antennina*.

CR.MCR.EcCr.CarSp.PenPcom (*Caryophyllia smithii* and sponges with *Pentapora foliacea*, *Porella compressa* and crustose communities on wave-exposed circalittoral rock).

This sub-biotope is distinguished by a sparse but diverse fauna containing large specimens of *Pentapora fascialis* var. *foliacea*. Other notable species include echinoderms including the sea cucumber *Holothuria forskali*. The majority of records of this variant are from the west coast of Ireland (Connor *et al.* 2004). *Pentapora fascialis* var. *foliacea* is a UK BAP and NISP species and consequently these areas are of high conservation importance.

CR.MCR.EcCr.FaAlCr.Sec (*Alcyonium digitatum* with *Securiflustra securifrons* on tide-swept moderately wave-exposed circalittoral rock).

In this variant the rock is dominated by *Alcyonium digitatum* and the bryozoan *Securiflustra securifrons*. The rock in-between these species appears fairly sparse and grazed, the urchin *Echinus esculentus* is frequent.

CR.MCR.EcCr.UrtScr (*Urticina felina* and sand-tolerant fauna on sand-scoured or covered circalittoral rock).

This biotope occurs on tide-swept rock adjacent to mobile sand and gravel, typically in gullies and on cobbles in sand. It is characterised by scour tolerant robust species. The most dominant species is the dahlia anemone *Urticina felina* and the sponge *Ciocalypta penicillus* is also characteristic. This biotope is often not recorded as a separate entity as it is frequently only a small area of rock at the sediment interface. It was noted from Solan reef (site 17), but may also be present at other sites and have been recorded as part of the adjacent biotope.

3.1.5 Sediment Biotopes

The survey predominantly focused on rocky habitats as these are more accurately surveyed by diving. Classification of sediment habitats requires the sample of infauna which is not possible on a general diving habitat survey. However, the habitats on the inside of the Skerries have been reasonably well surveyed.

SS.SMp.KSwSS.LsacR (*Saccharina latissima* and red seaweeds on infralittoral sediments).

This biotope was recorded on the south side of the Skerries in up to approximately 16m depth. Pebbles and cobbles were present on a sand substrate with *Saccharina latissima* and red foliose algae attached to them in varying proportions. The recording of species was often not detailed enough to determine biotope variants, frequently these sites were surveyed during drift dives. The variant SS.SMp.KSwSS.LsacR.Sa (*Saccharina latissima* and filamentous red algae on infralittoral sand is likely to be present). Algal species recorded include the brown algae *Dictyota dichotoma*, *Sporochnus pedunculatus*, *Desmarestia aculeata*, *Arthrocladia villosa*, *Chorda filum*, *Laminaria hyperborea*, *Saccharina latissima*, *Saccorhiza polyschides*, *Halidrys siliquosa* and the red algae *Heterosiphonia plumosa*, *Odonthalia dentata*, *Polysiphonia* sp., *Scinaia* sp., *Palmaria palmata*, *Dilsea carnosa*, *Callophyllis laciniata*, *Gracilaria* sp., *Gracilaria gracilis*, *Polyides rotundus*, *Plocamium cartilagineum*, *Furcellaria lumbricalis*, *Calliblepharis ciliata*, *Rhodymenia* sp., *Acrosorium venulosum*, *Apoglossum ruscifolium*, *Cryptopleura ramosa* and *Delesseria sanguinea*. Sparse fauna is present on the sand between pebbles and cobbles including the anemones *Cerianthus lloydii* and *Urticina felina*.

SS.SMp.SSgr.Zmar (*Zostera marina/angustifolia* beds on lower shore or infralittoral clean or muddy sand).

A small area of *Zostera marina* seagrass bed is present on the south of Large Skerrie (sites 52,55,56,57,58,59). The depth range of the bed is between approximately 5 and 9 metres and it is on a sand substrate. In shallow water above this *Laminaria hyperborea* kelp forest on bedrock is present and in adjacent deeper water sand, cobbles and pebbles with mixed seaweed (SS.SMp.KSwSS.LsacR). The bed has not been extensively surveyed and its exact size is currently unknown. It would therefore merit further survey to provide information on the extent and density of the seagrass. In addition to seagrass a variety of red and brown algae are present (see Appendix 3 for species list), many of these are also present in the

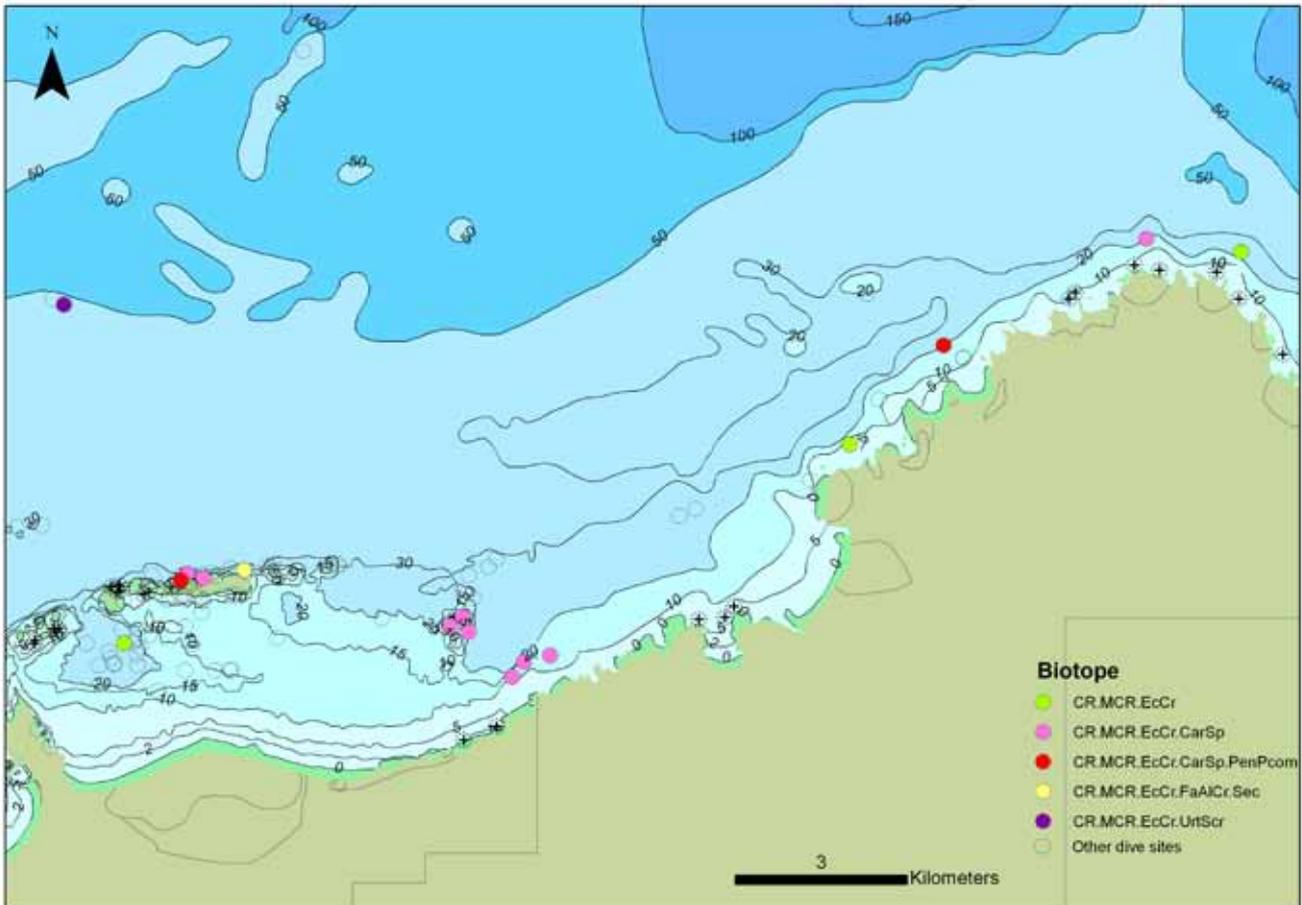


Figure 13. Moderately exposed bedrock biotopes.

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Figure 14. CR.MCR.EcCr (Echinoderms and crustose communities). Bedrock covered in pink encrusting algae and the anemone *Actinothoe sphyrodeta* and crevice with sea cucumbers (*Pawsonia saxicola* and *Aslia lefevrei*). Site 93, North-west of Giant's Causeway.



Figure 15. CR.MCR.EcCr.CarSp (*Caryophyllia smithii*, sponges and crustose communities on wave-exposed circalittoral rock). Site 79, The Storks



Figure 16. CR.MCR.EcCr.CarSp (*Caryophyllia smithii*, sponges and crustose communities on wave-exposed circalittoral rock). Site 88, Dunluce Reef. Large individuals of the boring sponge *Cliona celata* are frequently present in this biotope.

seaweed habitat in adjacent deeper water. Animal species present include parchment worms *Chaetopterus variopedatus*, sand mason worms *Lanice conchilega*, funnel worms *Myxicola infundibulum* and *Megalomma vesiculosum*, anemones including the burrowing anemone *Cerianthus lloydii*, *Peachia cylindrica* and the dahlia anemone *Urticina felina*. A variety of mobile species such as crustaceans and lobsters are also present.

Much of Broad Sound and the area immediately south of the Skerries is composed of the two following biotopes.

SS.SMx.CMx.FluHyd (*Flustra foliacea* and *Hydrallmania falcata* on tide-swept circalittoral mixed sediment).

This biotope consists of a mixed substrate of small boulders, cobbles, pebbles, gravel and sand exposed to moderate to strong tidal streams. It is characterised by the bryozoan *Flustra foliacea* and the hydroid *Hydrallmania falcata* but lesser amounts of other hydroids, such as *Sertularia argentea*, *Nemertesia ramosa* and *N. antennina* may also be present. In the Skerries site the hydroids *Halecium halecinum*, *Halecium muricatum*, *Nemertesia antennina*, *Nemertesia ramosa*, *Plumularia setacea*, *Hydrallmania falcata*, *Sertularella gayi*, *Sertularella polyzonias*, *Sertularia argentea*, *Sertularia cupressina* and *Rhizocaulus verticillatus* were recorded. A variety of bryozoans were present: *Alcyonidium diaphanum*, *Vesicularia spinosa*, *Cellepora pumicosa*, *Flustra foliacea*, *Securiflustra securifrons*, *Bugula flabellata*, *Bugula plumosa* and *Eucratea loricata*, the latter at much lower densities than in the SS.SMx.CMx.EucHyd biotope. The soft coral *Alcyonium digitatum* can be abundant, particularly in areas with a greater proportion of cobbles and small boulders. In the sand and in between stones anemones such as *Cerianthus lloydii*, *Urticina felina* and *Peachia cylindrica* may be found. In shallow areas scour tolerant red algae may also be present.

SS.SMx.CMx.EucHyd (*Eucratea loricata* and *Hydrallmania falcata* on tide-swept circalittoral mixed sediment) – Proposed biotope

This biotope is similar in substrate and species composition to the above. However, it is dominated by the bryozoan *Eucratea loricata* rather than *Flustra foliacea*. We agree with Clements *et al.* (2010) that this represents a distinct biotope. It is possible that some of the Seasearch sites currently categorised as SS.SMx.CMx.FluHyd should be this biotope but the presence of *Eucratea loricata* may not have been recorded by inexperienced surveyors.

SS.SMx.CMx.OphMx (*Ophiothrix fragilis* and/or *Ophicomina nigra* brittlestar beds on sublittoral mixed sediment).

Dense *Ophiothrix fragilis* and *Ophicomina nigra* brittlestar beds have been recorded from the area south of the Skerries on dives 060823/05 and 060824/04. However, the records were made in the middle of drift dives for which only the entry and exit points are recorded, therefore the exact location of these is not known and it was not possible to divide the species records from the dive to characterise this biotope.

SS.SSa.IFiSa.IMoSa (Infralittoral mobile clean sand with sparse fauna)

SS.SSa.CfiSa (Circalittoral fine sand), SS.SCS.CCS (Sublittoral Coarse Sediment)

As noted by Clements *et al.* (2010) the majority of the Skerries area (62.7km²) has a sand substrate. Only a few sand sites were surveyed by diving, the majority of fauna in these areas is infaunal and is better surveyed by remote methods such as grabbing and dredging. Mobile sand and coarse sediment biotopes were identified from sites south of the Skerries and the Tun's bank, one site (site 94) on the large sand and gravel ripples of the causeway bank was also surveyed. Mainly mobile species were recorded at these mobile sand areas, these included the masked crab *Corystes cassivelaunus* (a SOCC).

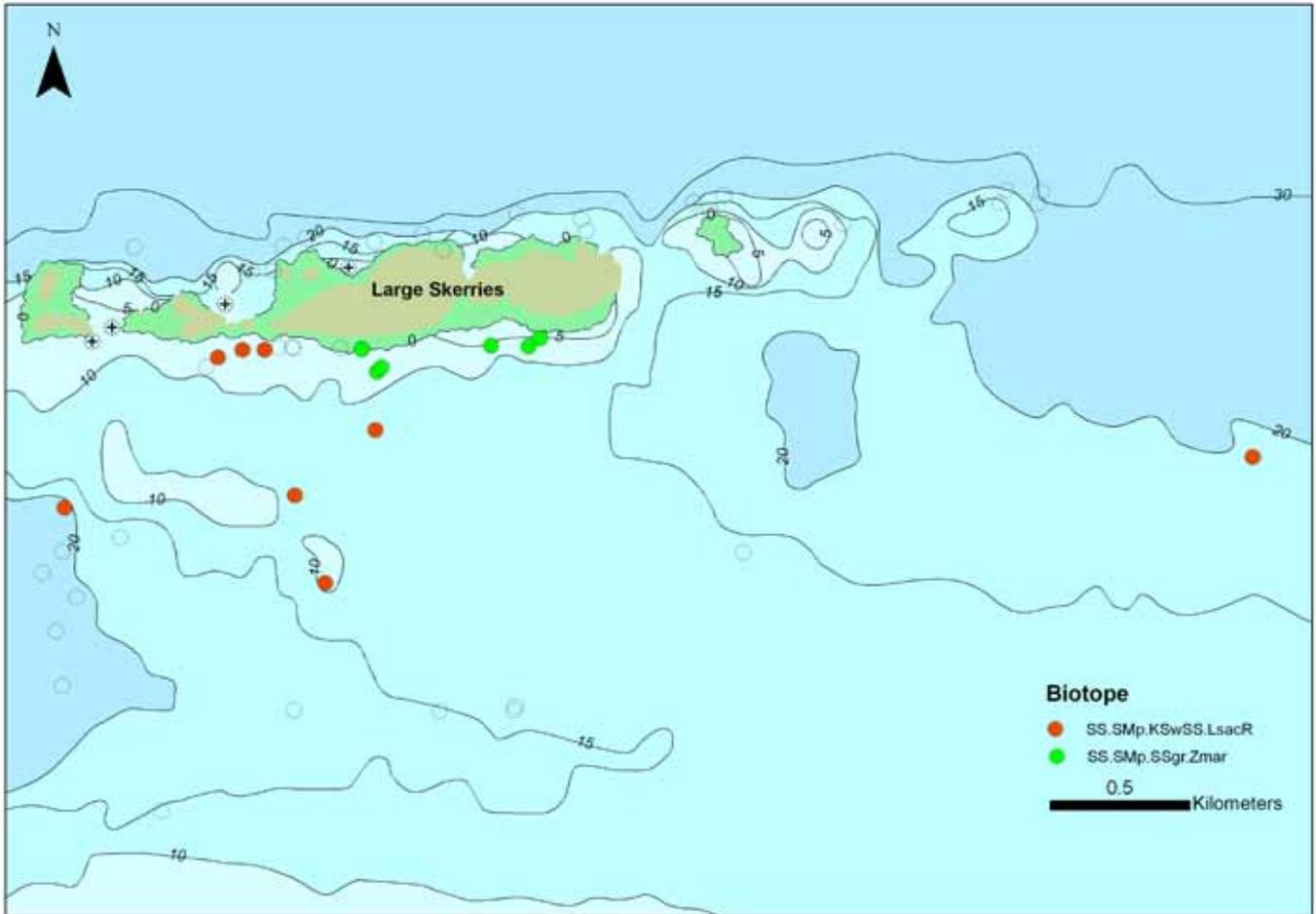


Figure 17. Seagrass and Seaweed on sediment biotopes in the survey area.

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Figure 18. SS.SMp.KSwSS.LsacR (*Saccharina latissima* and red seaweeds on infralittoral sediments). South of Large Skerrie.

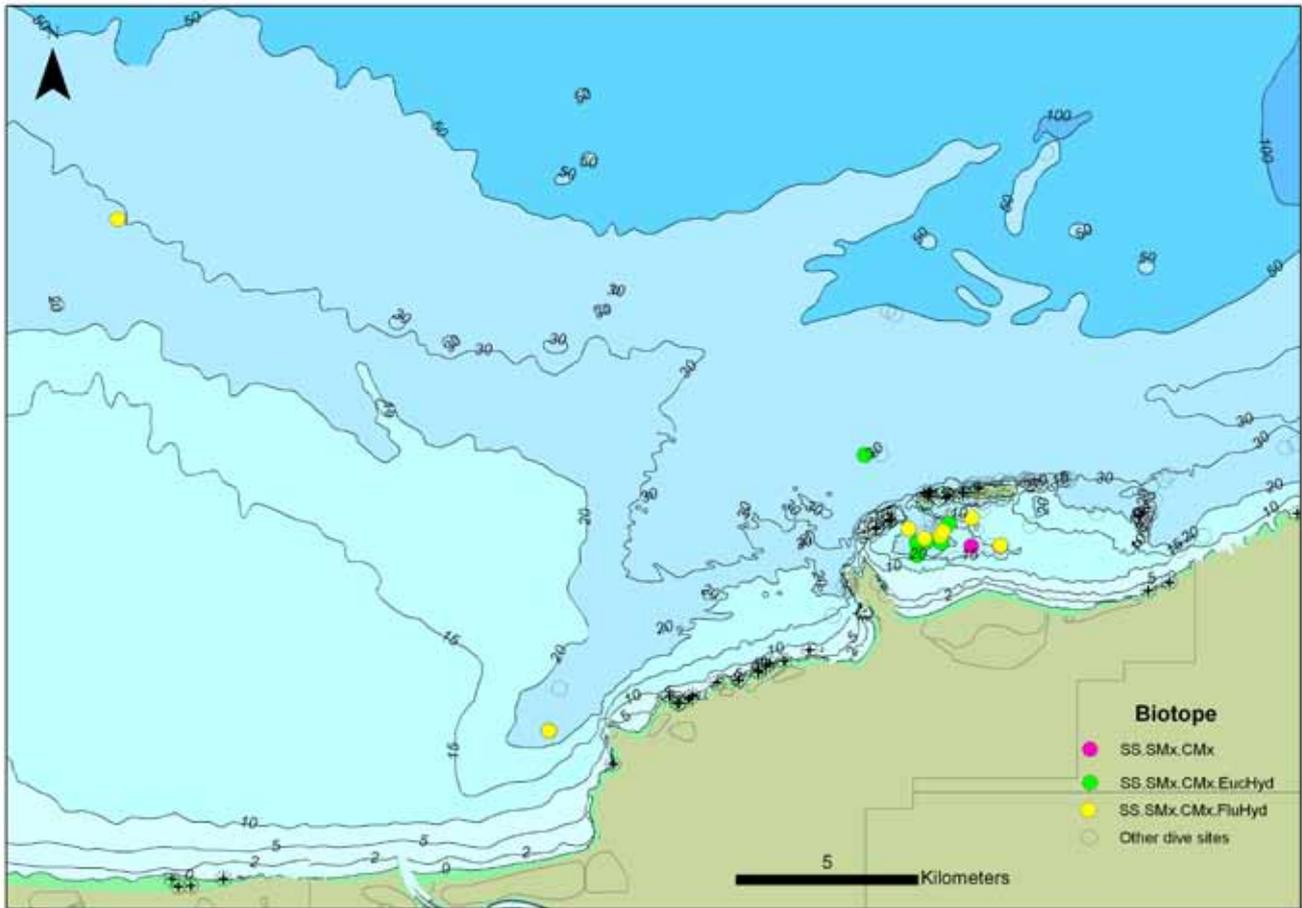


Figure 19. *Flustra foliacea* on coarse sediment biotopes.

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Figure 20. SS.SMx.CMx.EucHyd (*Eucratea loricata* and *Hydrallmania falcata* on tide-swept circalittoral mixed sediment) Site 32 , South of Little Skerrie.



Figure 21. SS.SMx.CMx.EucHyd (*Eucratea loricata* and *Hydrallmania falcata* on tide-swept circalittoral mixed sediment) in Broad Sound. Spiny spider crab *Maja brachydactyla* in centre of image.



Figure 22. SS.SMx.CMx.EucHyd (*Eucratea loricata* and *Hydrallmania falcata* on tide-swept circalittoral mixed sediment) in Broad Sound. The bryozoan *Eucratea loricata* which characterises this biotope dominates the bottom left corner of the image.

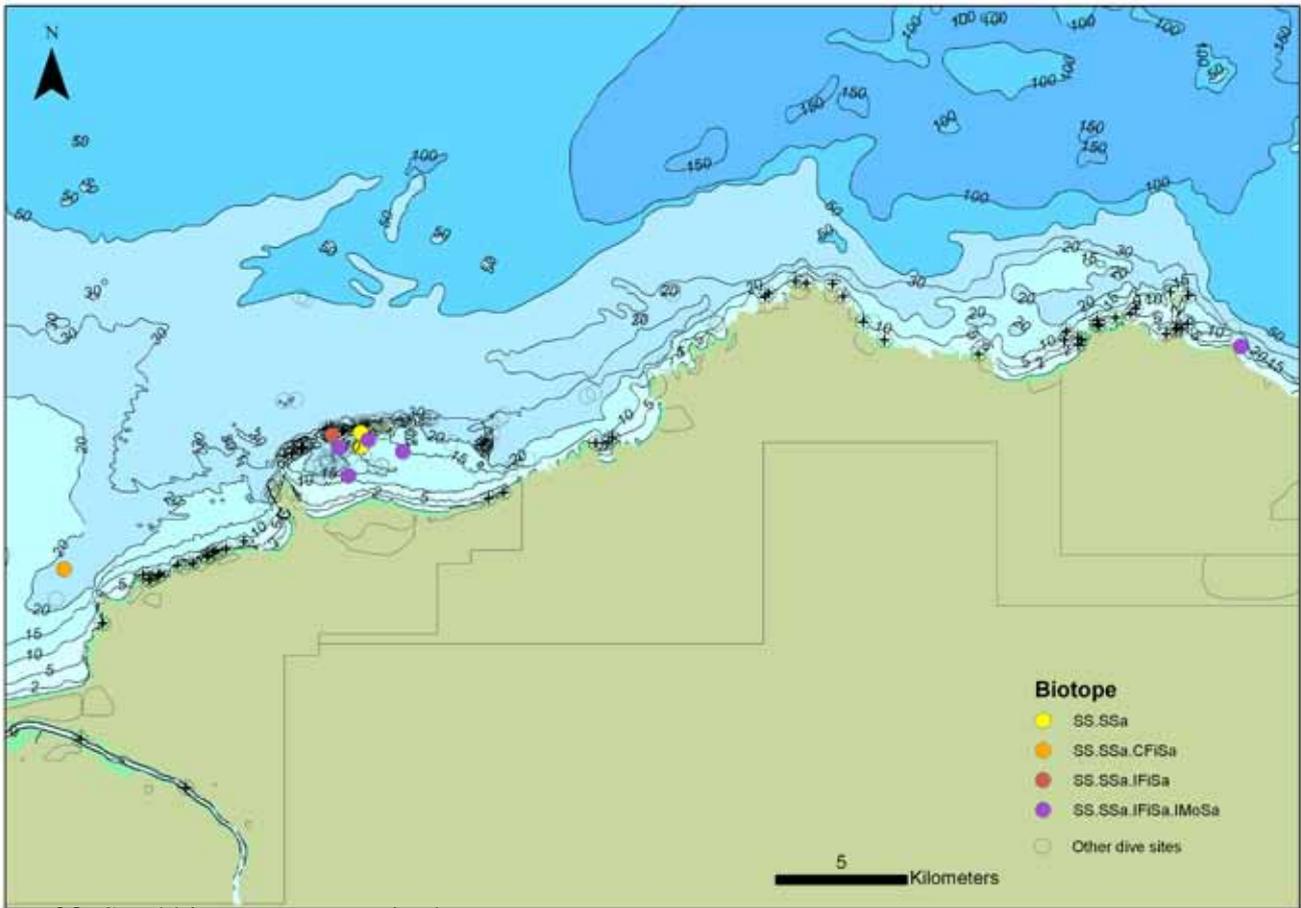


Figure 23. Sand biotopes present in the survey area.

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Figure 24. SS.Ssa.IFiSa.IMoSa (Infralittoral mobile clean sand with sparse fauna). Site 43, Inside Skerries. The masked crab *Corystes cassivelaunus* is visible.

3.2 Habitats of Conservation Importance

3.2.1 Features of European interest:

Annex I Reef - Bedrock and Stony Reef

The Skerries reef area has been recognised as being an area of conservation importance since the Northern Ireland Sublittoral Survey (Erwin *et al.* 1986). The reefs in this area include a diversity of reef type and community structure: bedrock and stony reefs; flat, sloping and terraced bedrock reef; vertical reef including 30m high sublittoral cliffs; silt covered and sand scoured reef; coastal shallow infralittoral reefs and reefs that are five miles from the coast and extend to over 90m deep. The varied reef types and conditions in this area support a number of rare and priority species.

Much of the reef in this area is sand scoured reef (which is an unusual type of reef in a Northern Ireland context). There is consequently a close relationship between the reef and the adjacent sediments: as well as the sand scoured areas of reef and stony reef, there are also large areas of bedrock reef that have a thick veneer of sediment, but still support bedrock epifauna (attached to the bedrock but growing up through the sediment), and conversely, there are also areas of coarse and mixed sediments that support epifauna communities more reminiscent of the reef habitat.

Stony reefs, such as the boulder slopes off of the Giant's Causeway and the Storks, have important sponge and ascidian communities and are also a stronghold for other species of conservation importance including *Pentapora fascialis* var. *foliacea*, a UK BAP and NICP species.

Annex 1 Reef – Modiolus Beds

The Skerries is one of four places in Northern Ireland from which there are records of horse mussel (*Modiolus modiolus*) biogenic reefs, the others being Strangford Lough, Carlingford Lough and the outside of the Ards Peninsula (Erwin *et al.* 1986, 1990). The Skerries beds were last surveyed in 1985, but at that time were in good condition; clumps of *M. modiolus* with a rich epifauna were recorded. We resurveyed this area, however no *M. modiolus* clumps were found, although dead *M. modiolus* shells were present and were dense at some sites. A few scattered live *M. modiolus* were recorded from Seasearch dives in Broad Sound during 2006. Figure 25 shows entry points for survey dives but many dives in this area were drift dives and a therefore large area was covered. The bed is relatively small and cover is patchy, therefore there is a slight

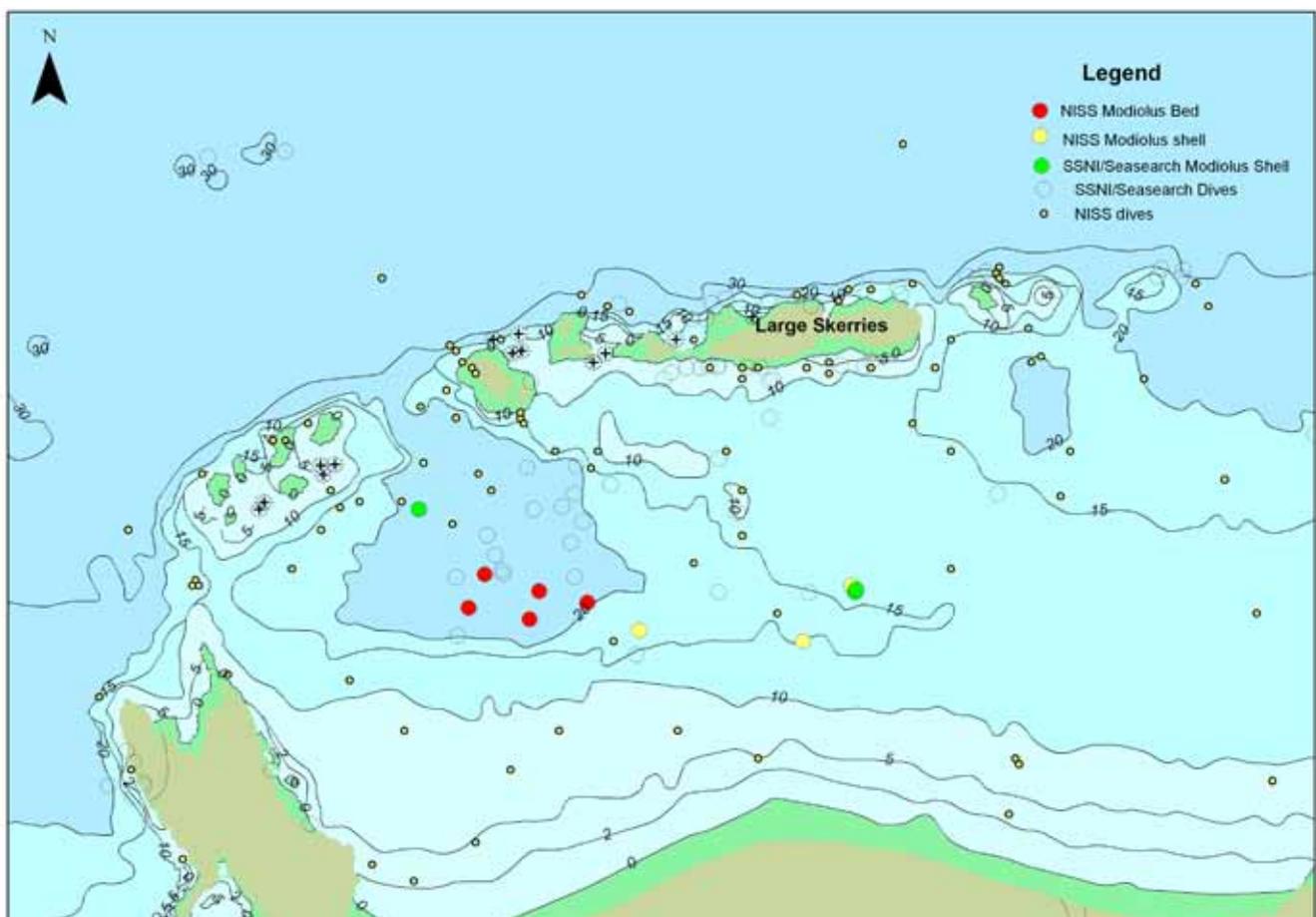


Figure 25. Distribution of *Modiolus* beds and significant proportions of dead *Modiolus* shell.

possibility that the bed was missed, particularly if it has reduced in size. Consequently additional survey dives in this area are recommended. Locals have reported that this area had been extensively dredged since the NISS and these claims should be investigated (see Goodwin *et al.* 2011a).

Annex I Sandbanks which are slightly covered by sea water all the time

In both the area shallower than 20m, and in the deeper flanks and sand waves, there is a diversity of sandbank type and communities in a relatively small area. Within the Broad Sound there are relatively stable areas of coarse sediment. Just south of the Skerries there is an area of eelgrass *Zostera marina* in fine sand. There are also large areas of mobile sand waves in much of the area, these have a relatively poor fauna but provide an important habitat for sand eels which are characteristic of this type of sandbank.

Annex I Submerged or partial submerged sea caves

Much of the Skerries and Causeway coastline is characterised by rocky cliffs and these have numerous sea caves (perhaps 40 in total), many of them with both submerged and partially submerged elements. There are also an unknown number of fully submerged sea caves including one swim-through tunnel through the Large Skerrie Island.

From the limited data currently available, it is apparent that the sea caves exhibit a wide variety of size, shape, water depth, rock type (including basalt, Ulster White Limestone, and Waterloo mudstone), and aspects relative to the predominant wave surges and tides. The SOCC anemone *Parazoanthus anguicomus* has been recorded from caves near to Carrick-a-Rede rope bridge (Site 105) and it is likely that this species and the SOCC sponges *Stelletta grubii* and *Stryphnus ponderosus* also occur within the proposed SAC area; they favour caves and overhanging bedrock and have been recorded on other areas of the north coast such as Ballintoy and Rathlin Island.

3.2.2. UK Biodiversity Action Priority Habitats

Subtidal Sands and Gravels

This priority habitat encompasses a wide range of substrates from fine sand to gravel with cobbles and pebbles such as the SS.SMx.CMx.FluHyd biotope south of the Skerries. Much of the Skerries area could be categorised as this habitat. Inshore sands and gravels can be important nursery grounds for juvenile commercial species such as flatfishes and bass (BRIG 2008).

Subtidal chalk

Cretaceous Ulster white limestone outcrops occur on the shore along the north coast and are present in the proposed SAC from Dunluce castle to Portrush (Clements *et al.* 2010). Some limestone reefs are present underwater for example Dunluce reef (sites 87-89), off the Giant's Causeway (site 93), and the Storks (sites 79-83). More examples are likely to be found in this area with further survey.

Seagrass Beds

One small *Zostera marina* seagrass bed is present south of Large Skerrie (sites 52,55,56,57,58,59). Much of the open north coast of Northern Ireland is too exposed to allow the establishment of seagrass beds but Large Skerrie shelters this site from the prevailing winds and tides.

Fragile Sponge and Anthozoan Communities on Rocky Habitats

There are good examples of this habitat on many of the rocky reefs, particularly on vertical faces which are less sand scoured than the low reefs where CR.HCR.FluCoAs biotopes tend to dominate. The biotopes CR.HCR.XFa.ByErSp.DysAct, CR.HCR.XFa.ByErSp, CR.HCR.XFa.SpAnVt and CR.HCR.DpSp.var can all be categorised as this.

Tide-swept Channels

In the UK Biodiversity Action Plan review in 2007 this habitat was expanded and will be eventually renamed 'Tide-swept communities'. The resulting habitat will encompass broader and deeper channels with strong currents rather than a much more restricted definition of very shallow channels with very rapid water

movement (BRIG, 2008). This includes channels up to 2km wide including areas between headlands. The area south of the Skerries is exposed to tidal streams of up to 6 knots and consequently can be categorised as a tide-swept channel. It has a rich fauna of hydroids and bryozoans – see biotopes SS.SMx.CMx.EucHyd, and SS.SMx.CMx.FluHyd above.

3.3 Species

A species list for the Skerries is given in Appendix 4. Species lists are taken from the Marine Recorder database held by CEDaR. This includes data from the Northern Ireland Sublittoral Survey and Seasearch surveys as well as this project. It was noted during the Northern Ireland Sublittoral Survey (Erwin *et al.* 1986, 1990) that the Skerries were an important site as many species with a south-western distribution have their only Northern Ireland outposts in this area: the sea cucumber *Holothuria forskali*, and the red algae *Drachiella heterocarpa* (formerly *Myriogramme heterocarpum*) and *Rhodymenia holmesii* were all frequently reported. This is the result of the influence of the North Atlantic Drift current and salinity fronts. The Islay front (to the North-west) and a salinity front to the east which separates the southern Malin shelf waters from the North Channel of the Irish Sea, result in warmer water temperatures than the Irish coast east of Benbane Head (Gowen *et al.* 1998). Warmer water species noted in the course of this survey include the spiny spider crab *Maja brachydactyla*, the red blenny *Parablennius ruber* and the sponge *Ciocalypa penicillus*.

Several species of Northern Ireland Conservation Priority and Species of Conservation Concern are present and are detailed below. These include two UK BAP invertebrate species: the stalked jellyfish *Haliclystus auricula* and the crawfish *Palinurus elephas*. The UK BAP species *Atrina fragilis* is possibly present, given the number of dead shells found south of the Skerries. Many other fish and cetacean UK BAP species are present but not covered in this report which focused on benthic species.

Northern Ireland Conservation Priority Species, Species of Conservation Concern and other species of note present.

As the nature of the survey was benthic and fish are not likely to have been completely recorded only species of particular note are mentioned here.

Annelida– Annelid Worms

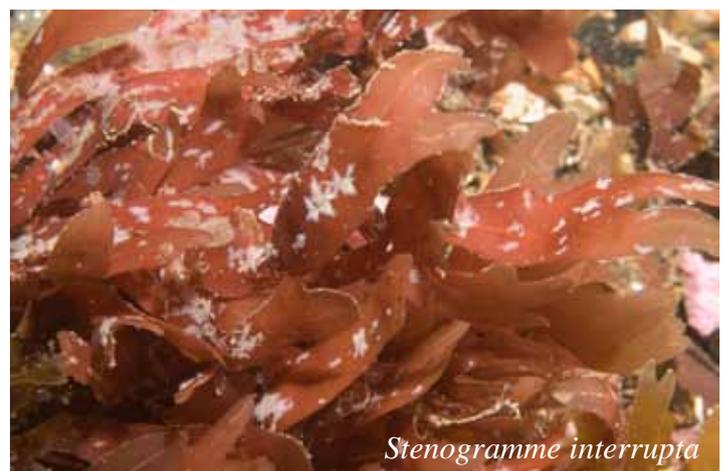
Sabellaria spinulosa Leuckart, 1849 - Honeycomb worm (NICP)

This species can form dense subtidal aggregations which create reefs several centimetres thick raised above the surrounding seabed. These persist for many years and form a stable hard substrate on otherwise mobile sediment, enabling a wide range of epibenthic and crevice fauna to become established. These reefs are a UK BAP habitat. *Sabellaria spinulosa* reefs are mentioned in the Northern Ireland Sublittoral Survey report which noted 'Low lying pitted bedrock outcrops from mobile sand off Magilligan Strand in 23-29m. The rock, probably of limestone, and accompanying boulders, are colonised by the reef building calcareous tube worm *Sabellaria*'. Sites at which *Sabellaria spinulosa* was previously recorded during NISS, around the Londonderry coast, were resurveyed (dives 070802/03, Site 4 and 070802/04, Site 2). *Sabellaria spinulosa* was recorded at one site (dive 070802/04, Site 2). It was recorded as Frequent but was present as an encrusting patch rather than a true reef form (Goodwin *et al.* 2011a).

Rhodophycota – Red Algae

Stenogramme interrupta (C Agardh) Montagne ex Harvey (SOCC)

Sublittoral species which may be frequent in Northern Ireland, Northern Ireland is the Irish stronghold for this species (Morton 2007d). One NISS record from south side of Little Skerrie.



Stenogramme interrupta

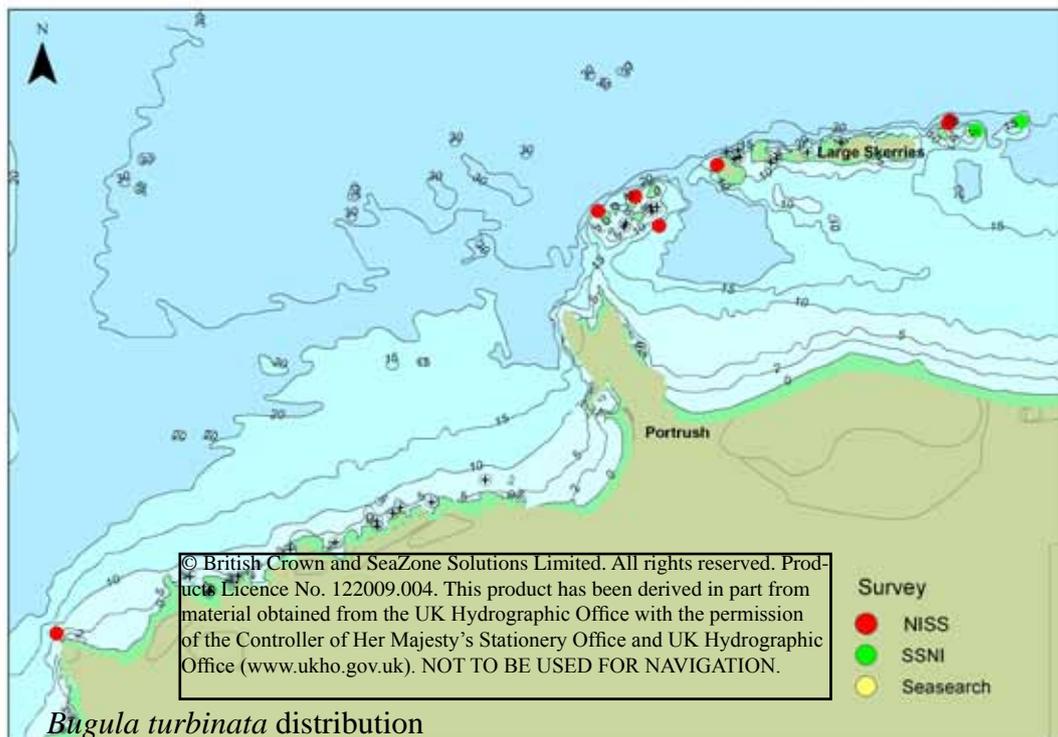
Bryozoa - Bryozoans

Bugula turbinata Alder, 1857 (SOCC)

There are several NISS records from the Skerries and two SSNI records from Black Rock. Recorded during SSNI from Limestone and Hadd Rock in Strangford Lough, there are also NISS records from Strangford. This is a southern species, reaching up to the Clyde on the west coast of Britain (Hayward & Ryland 1998).



Bugula turbinata



Bugula turbinata distribution

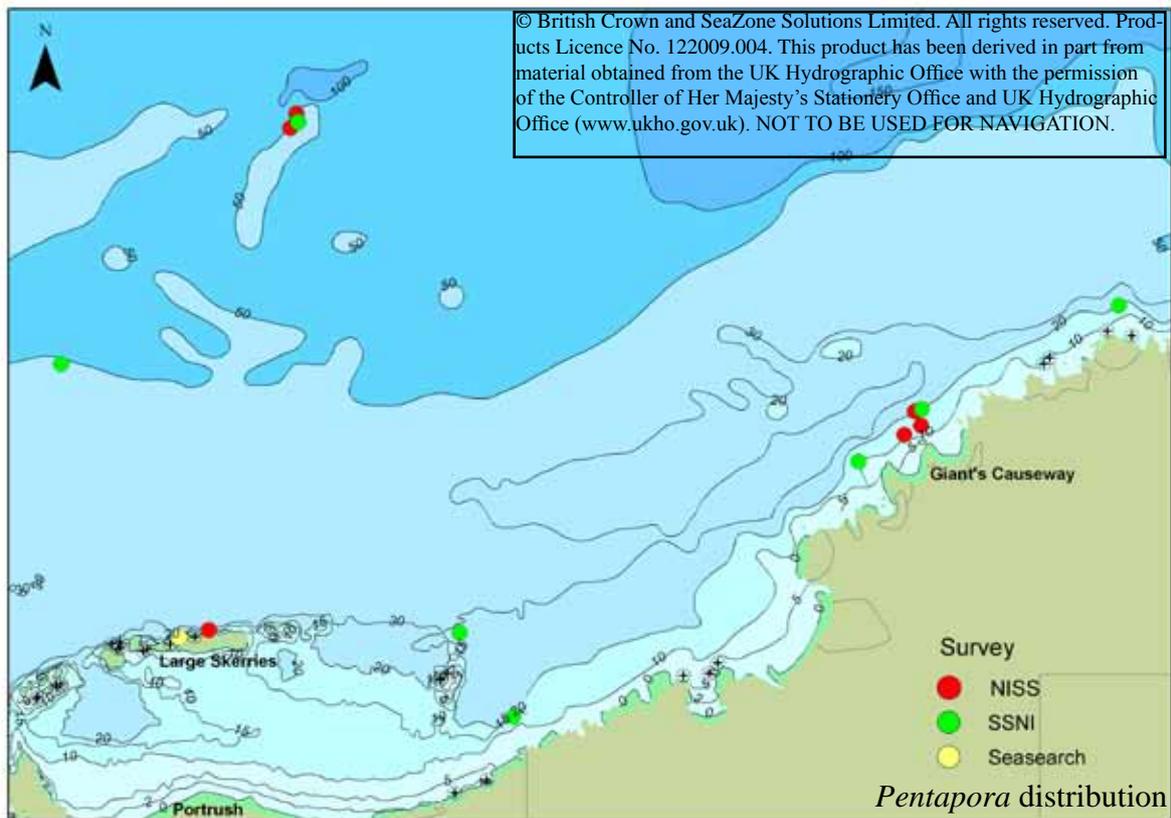
Pentapora fascialis var. *foliacea* (Pallas 1766) - Ross Coral or Potato Crisp Bryozoan (NICP)(UKBAP)

This area appears to be a stronghold for this species in Northern Ireland. This species is an important component of the CR.MCR.EcCr.CarSp.PenPcom biotope (*Caryophyllia smithii* and sponges with *Pentapora foliacea*, *Porella compressa* and crustose communities on wave-exposed circalittoral rock) which was recorded at the bay north of Large Skerrie (Site 62, Seasearch 26/08/06 3A) and the Giant's Causeway (Site 96, 100412/01).

Most Northern Ireland records are from the north coast of Northern Ireland (Rathlin Island, the Skerries and offshore of the Giant's Causeway (Goodwin *et al.* 2011a). On the east coast of Northern Ireland one record was made during NISS from Pinnacle east of the Maidens (dive 850801/02) but no recent records have been made from this area. This species is common on the southern coast of the British Isles, but becomes much rarer towards the north.



Pentapora



Cnidaria – Sea anemones, corals and hydroids
***Parazoanthus anguicomus* (Norman, 1868) - The white trumpet anemone (SOCC)**

The species was only recorded from one site, the Caves east of Carrick-a-Rede Rope Bridge (Site 105, Seasearch 07/09/08 NI8/082).

It is found at scattered locations around Scotland and in deep water around northern Europe, south to Lundy Island and Brittany. Most early previous Northern Ireland records were from Rathlin with only two from the Maidens (NISS). The species was recently recorded at many sites on the Maidens during SSNI and the 2008 surveys (Goodwin *et al.* 2011b).



***Haliclystus auricula* (Rathke, 1806) - Kaleidoscope jellyfish (NICP) (UKBAP)**

This species was recently designated a UK BAP species and is therefore a recent addition to the Northern Ireland priority list. It was formerly reported in high numbers on shores in south-west England but is now rarely seen, indicating a possible conservation issue (JNCC 2010). It is recorded on all coasts of Britain and Ireland and is associated with seaweed and seagrass habitats in the inter-tidal and shallow subtidal zones. It is inconspicuous and may be under-recorded. It was recorded from the caves east of Carrick-a-Rede (Site 105, Seasearch 07/09/2008 NI8/082), Bengore Head (NISS) and south of Large Skerrie (Site 52 Seasearch 27/08/06 5E, Site 55 060821/03 and Site 57 060821/01).

***Halecium plumosum* Hincks 1868 (NICP)**

This species was recorded during NISS from two sites in Northern Ireland, Lochgarry off Rathlin Island, County Antrim and Russell Rock, Maidens. During SSNI *H. plumosum* was recorded from all coasts of Rathlin (Lochgarry, White Cliffs, Picton's Reef, Illancarragh Bay), the Skerries, from Russell's Rock on the Maidens, Carlingford Lough and from two sites in Strangford Lough. At several of these sites it was common. In view of these findings it cannot be classified as rare in Northern Ireland and its removal from the NICP species list was recommended (Goodwin *et al.* 2011a). There are a few scattered records from the Skerries area.

*Halecium plumosum***Crustacea – Crabs and lobsters.*****Atelecyclus rotundatus* (Olivi, 1792) – Circular crab (NICP)**

Four NISS records from sand areas south of the Skerries. Not recorded on the recent surveys but few dives were made on these habitats. This species is present in sand and gravel habitats on all Northern Ireland coasts but is not common.

***Corystes cassivelaunus* (Pennant, 1777) - Masked Crab (SOCC)**

This species was frequently recorded from the sand habitats inside of the Skerries during NISS. It has recently been recorded from this area from Tun's Bank and a further record was made from inside the Skerries (Site 43, 100610/01). It can be fairly common in mobile sandy areas and the lack of records during recent dive surveys may be attributed to the fact that these were not often surveyed.

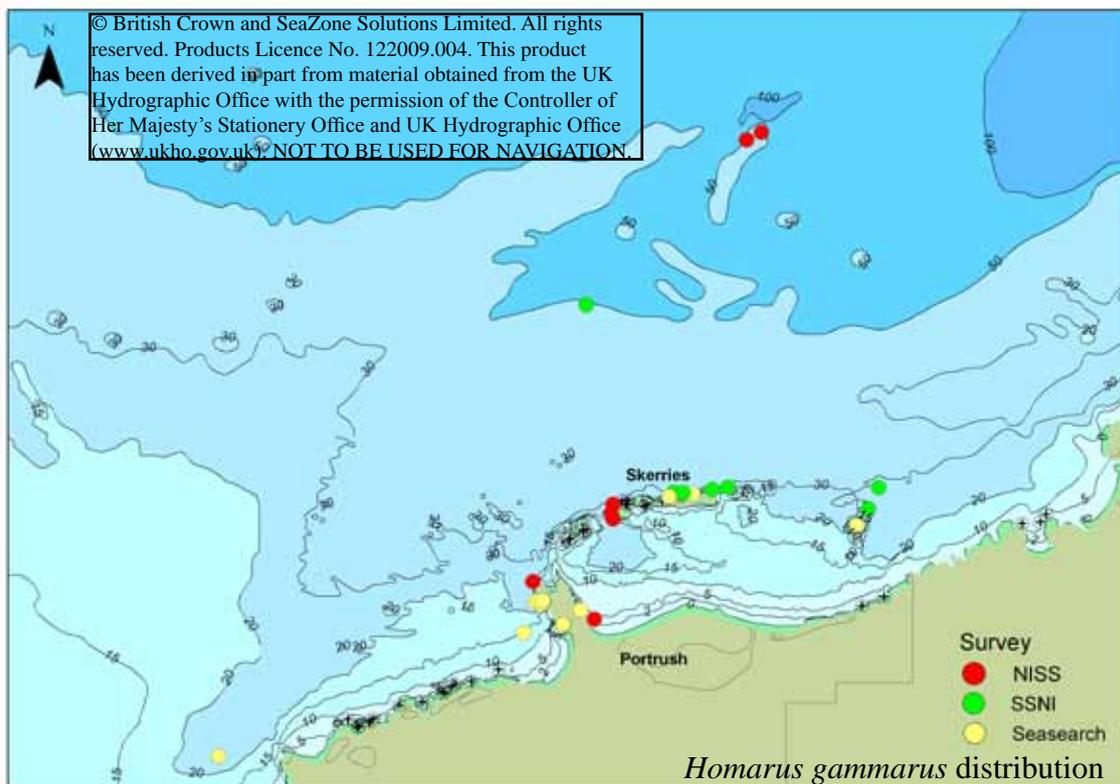
*Corystes cassivelaunus*

***Homarus gammarus* (Linnaeus, 1758) - Lobster (SOCC)**

This species is frequent on the reefs in the Skerries area. There is a lobster potting fishery.



Homarus gammarus

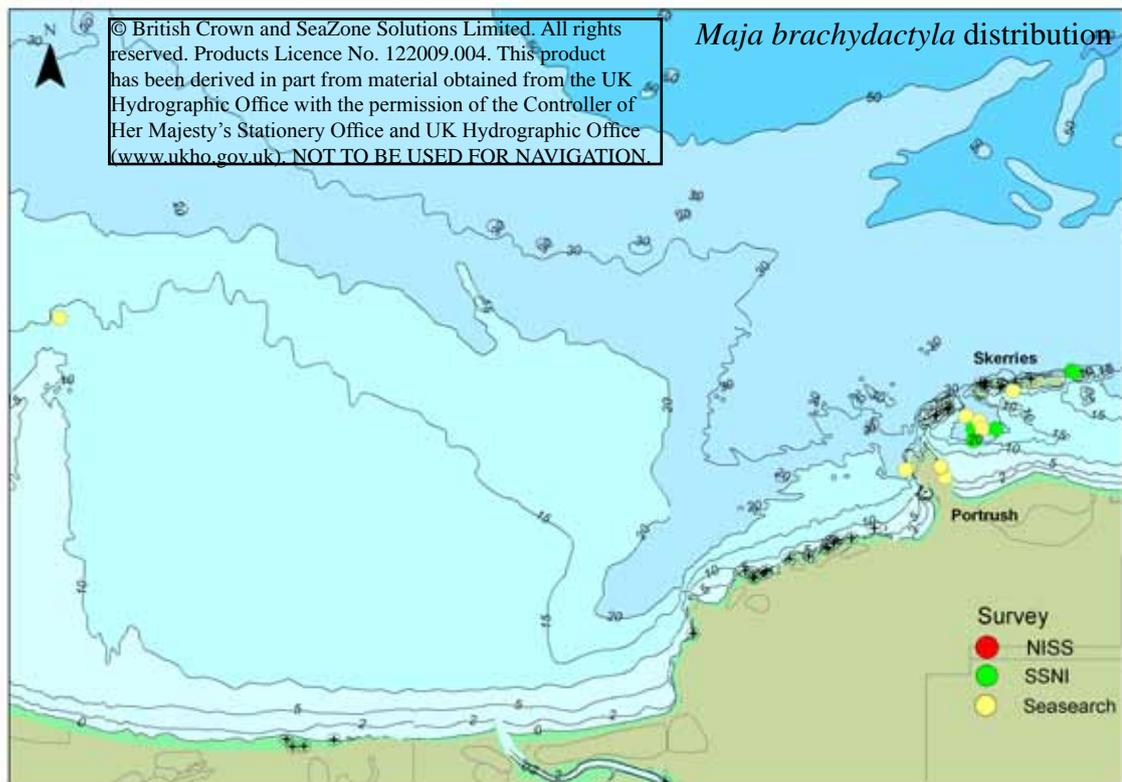


***Maja brachydactyla* Balss, 1922 - Spiny spider crab**

This species was formerly synonymised with *Maja squinado*, which is now thought to be restricted to the Mediterranean (Neumann 1988). It is a southern species. It had not been previously recorded from Northern Ireland but is relatively widespread on the west coast of Ireland with records from Mayo around to Wexford (Picton & Costello 1998). During SSNI five records were made from the Skerries. During the same period, additional records from Northern Ireland were made on Seasearch dives from the Skerries and the Tun's Bank at the mouth of the Foyle (Goodwin 2007b; Goodwin 2008a). The species has recently been reported from Red Bay on a Seasearch dive and from Larne Lough (NIEA/AFBI 2011).



Maja brachydactyla



***Munida rugosa* (Fabricius, 1775) - Long Clawed Squat Lobster (NICP)**

This species has shown a substantial decline since the 1990s, especially in Strangford Lough, possibly due to increased fishery landings (Edwards 2002). *Munida rugosa* has been landed by fishermen on a largely opportunistic scale, which has been attributed to a possible overlap in habitats, principally at boundaries between the mud substratum of *Nephrops norvegicus* and the gravel substratum of *Munida* species (Pothanikat 2005). This fishery is a potential threat to the species. Not frequently recorded by dive surveys in this area – the only record is from the Ridges, north of the Skerries (25/7/85).



***Palinurus elephas* (Fabricius, 1787) – Crawfish (NICP) (UK BAP)**

Crawfish are declining in all areas of Britain and Ireland, principally due to fishing (see Goodwin *et al.* 2011a for discussion). Historically crawfish have been recorded from rocky areas of the Northern Ireland coast including Rathlin Island, Kinbane Head in County Antrim and Shamrock Pinnacle offshore from Rathlin Island. During SSNI one record was made from this area from north-west of Black Rock (Site 71, 060822/02).



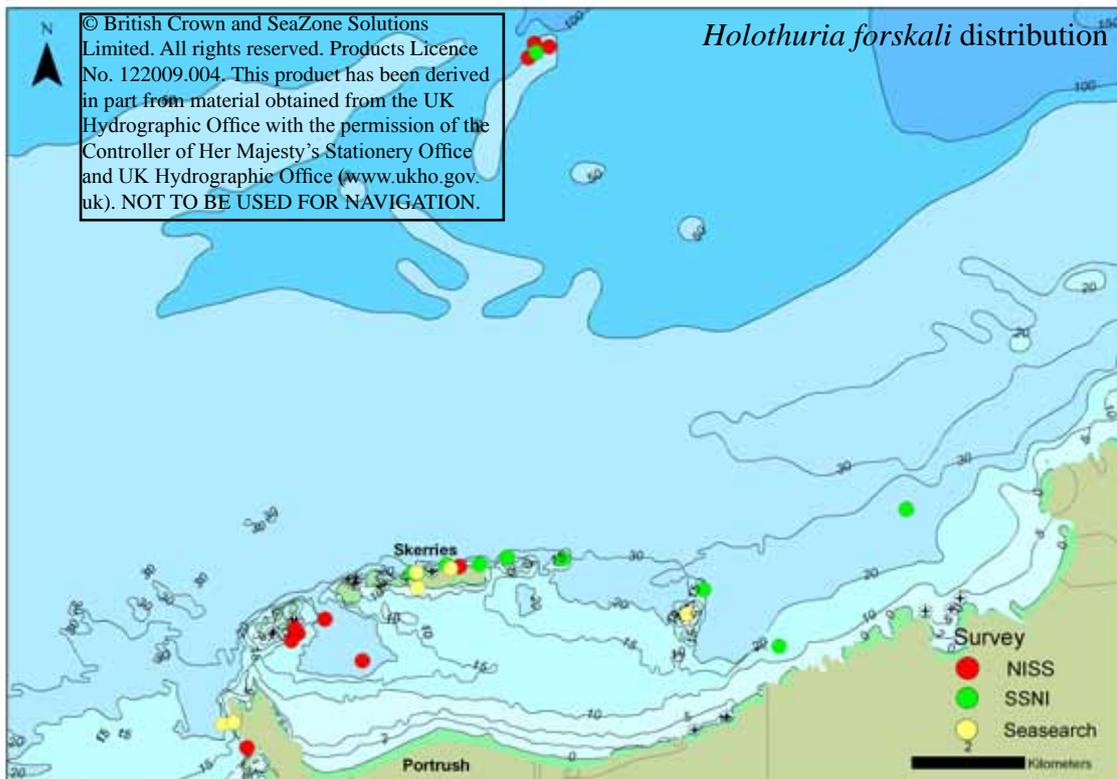
Echinodermata – Starfish and Sea Cucumbers

***Holothuria forskali* Chiaje, 1841 – Cotton spinner sea cucumber**

The Skerries region is the only locality in Northern Ireland in which this species occurs. There are several records from both the NISS and more recent dive surveys (SSNI, NIMF, Seasearch). It has a south western distribution and is common on the west coast of Ireland (Picton & Costello 1998).



Holothuria forskali (picture taken in Mayo)

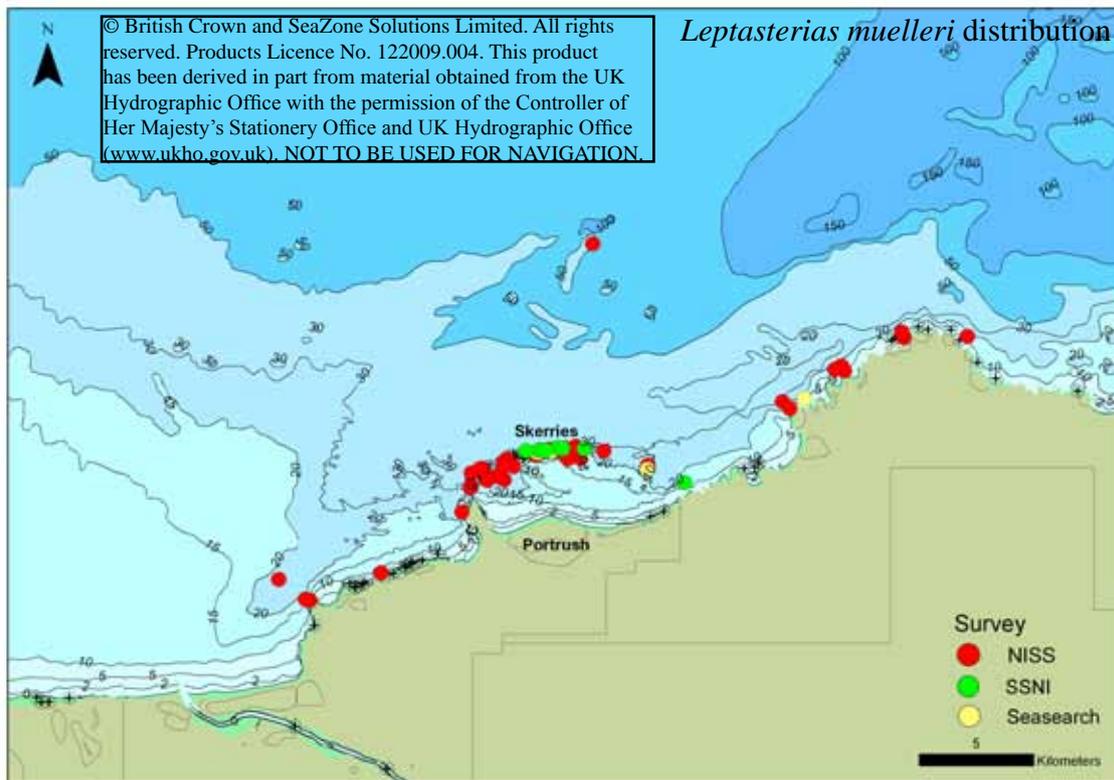


***Leptasterias muelleri* (M Sars, 1846) - Northern starfish (SOCC)**

This is a northern species at the southern extent of its range in the British Isles. The majority of UK records are from Northern Ireland and western Scotland (Goodwin *et al.* 2011a). It could be expected to decline with climate change but currently is widespread on Northern Ireland coasts. Several records from the Skerries area.



Leptasterias muelleri



Luidia sarsi Duben & Koren, 1846 (SOCC)

One specimen recorded from this area from inside the Skerries (Site 37, Seasearch 05/11/06 9C). Two other records during SSNI from the White Cliffs on Rathlin and Red Bay. There are two previous records, from the White Cliffs, Rathlin and Glenarm Bay (B.E. Picton) (Goodwin *et al.* 2011a). Lives on muddy sand, recorded from all round the British Isles (Southward & Campbell 2006). Its habitat makes it vulnerable to damage from dredging. There are few previous Irish records - it was recorded from Cork, Kerry and Donegal during the BioMar survey (Picton & Costello 1998). It has a more northerly distribution than the similar seven armed starfish *Luidia ciliaris*, occurring from Norway to the Mediterranean but in deep colder water in the south.



Solaster endeca (Linnaeus, 1771) – the Northern sunstar (NICP)

One record from NE Bengore Head (NISS). Only one record of this species was made during SSNI, from NW of McLaughlin Rock in Strangford (070724/01). This is a large conspicuous species and can readily be recognised in the field. It is surprising the SSNI made so few observations of this species, and it may have decreased significantly since the 1980s. Its distribution should be monitored in the future as it may be a good indicator for climate change (Goodwin *et al.* 2011a).



Mollusca - Molluscs***Atrina fragilis* (Pennant, 1777) - Fan mussel (NICP, UK BAP)**

No records of live specimens were made during recent dive surveys of the Skerries but there were several records of dead shells including one small clean shell, presumably from a recently dead young individual. This indicates they are likely to be present in the mixed ground habitats (biotopes SS.SMx.CMx.FluHyd and SS.SMx.CMx.EucHyd) inside the Skerries. However, because of the variable nature of this habitat they are difficult to spot on diving surveys. Only known recently from off the north coast of Northern Ireland during a trawling survey for the queen scallop *Aequipecten opercularis* in 1971, close to and west of Rathlin Island to Magilligan, in depths to 64m+ and off Rathlin Island in 2007 (SSNI). Shells have been found on Portstewart, Downhill and Magilligan strands. There are several other historical records from the North Coast (Goodwin *et al.* 2011a).

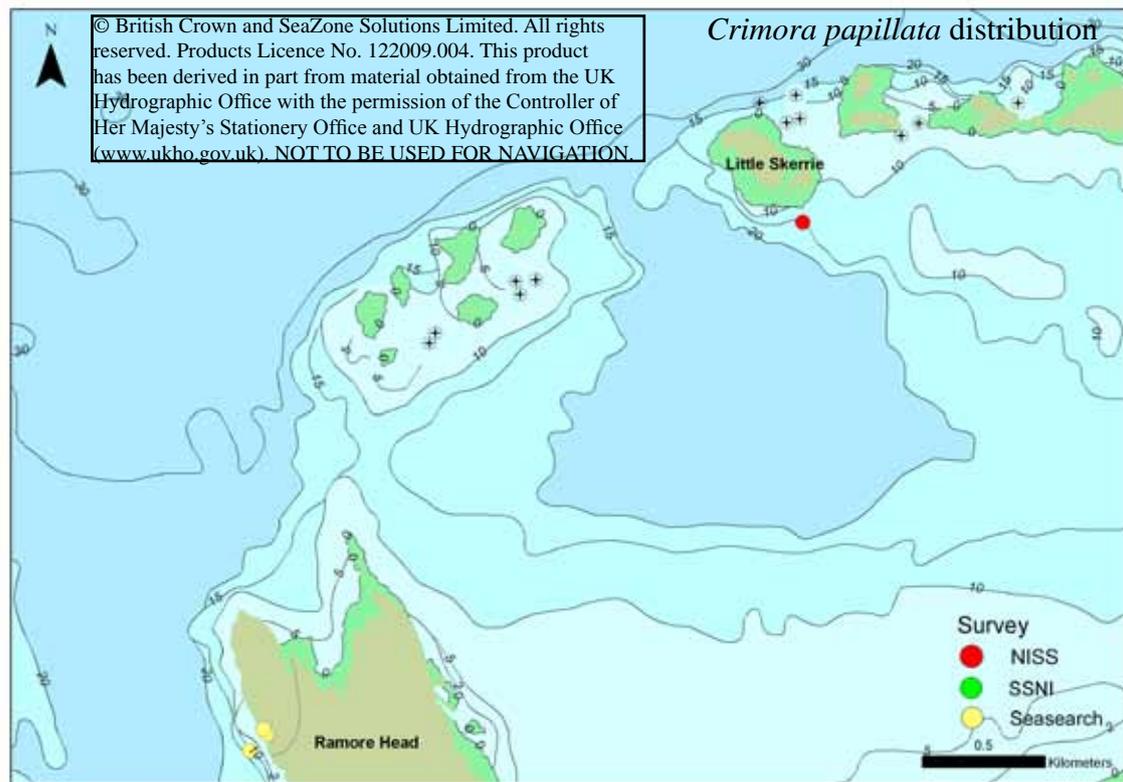
*Atrina fragilis* (Rathlin Island)***Chlamys varia* (Linnaeus, 1758) - Variegated scallop (NICP)**

This species is a priority in Northern Ireland as it has declined significantly with the destruction of the horse mussel (*Modiolus modiolus*) beds which are its major habitat (Goodwin *et al.* 2011a). The majority of Northern Ireland records are from Strangford Lough but there are scattered records from elsewhere. It has been recorded from this area from North of Black Rock (NISS, 03/07/84).

***Crimora papillata* Alder & Hancock, 1862**

This species has a south-western distribution with records from south-west England, Wales and the west coasts of Ireland and Scotland. It is known more widely from the Mediterranean and the Atlantic coasts of France and Portugal. It feeds on the bryozoans *Chartella papyracea*, *Flustra foliacea* and *Securiflustra securifrons* (Picton & Morrow, 1994). There was one record from the Skerries during NISS (05/08/82) and further records were made in 2008 and 2009 from the west side of Ramore Head (Site 8 Seasearch 23/08/09 NI9/055, Site 7 31/05/09 NI9/069 and Site 11 15/06/08 NI8/045, 35, 36). All the recent records were associated with *Flustra foliacea*. On one dive 8 specimens were seen on a single colony (NI9/055). Records were also made from Rathlin during SSNI.

*Crimora papillata*



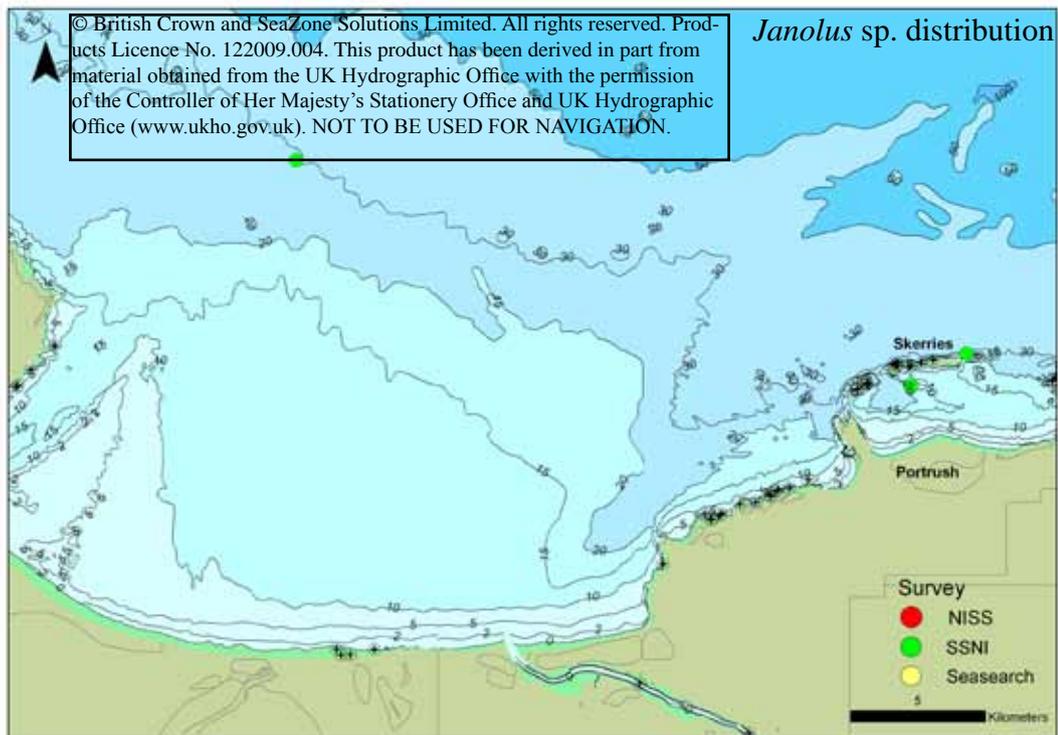
***Eubranchus doriae* (Trinchese, 1874) - a nudibranch mollusc (NICP)**

This species was recorded from the Skerries during NISS (24/07/1985). There is one other Northern Ireland record from Fair Head (Goodwin *et al.* 2011a). There are few records for this species but it appears to be widespread around the southern and western coasts of British Isles: records from Lundy Island, Sussex, Mulroy Bay in County Donegal and St Kilda (Goodwin *et al.* 2011a).

***Janolus* sp. nov. a nudibranch mollusc**

This was recorded three times, from SE of little Skerrie (Site 34, 060821/04), from North-west of Black Rock (Site 71, 060822/02) and from North-east of the Foyle entry marker (Site 2, 070802/04). It had previously been recognised as a probable new species after being first recorded from St Kilda (Picton & Morrow 1994). However, at this time there was not enough material to properly describe it. It differs from the common *Janolus cristatus* (del Chiaje, 1841) in that the cerata (back projections) are slightly roughened, there are white rings round the tips of the cerata rather than solid white ends and it has no dark line of digestive tract running up the cerata.





***Jorunna* sp. nov. A. a nudibranch mollusc - Spotty Jorunna**

Records were made of this species, presumed to be a new species, North of the Storcks on the Skerries (Site 84, 060823/04). It has also been recorded from NE Maiden and Russell's Rock in the Maidens and Damicornis Bay, Duncan's Bay and Picton Reef on Rathlin. It appears to feed on the sponge *Haliclona urceolus*. It is in the process of being described.



***Modiolus modiolus* (Linnaeus, 1758) - horse mussel (NICP)**

The Skerries is one of four places in Northern Ireland from which there are records of horse mussel (*Modiolus modiolus*) biogenic reefs, the others being Strangford Lough, Carlingford Lough and the outside of the Ards Peninsula (Erwin *et al.* 1986, 1990). The Skerries beds were last surveyed in 1985, but at that time were in good condition; clumps of *M. modiolus* with a rich epifauna were recorded. We resurveyed this area, however no *M. modiolus* clumps were found, although dead *M. modiolus* shells were dense at some sites and a few scattered live individuals were present (see section on sites of conservation importance for further information).



***Okenia elegans* (Leuckart, 1828) – Yellow skirt sea slug**

One NISS record from Skerries roadstead (1985), one from 2007 (Site 76, 2nd Pinnacle east of Black Rock) and two from 2010 (Site 86 north-east of the Storks and Site 90 Bushmills Bay). This distinctive sea slug is rare in the British Isles. It has been recorded in the British Isles from scattered localities in SW England, Skomer Island and neighbouring Pembrokeshire, Bardsey Island in North Wales, the Saltees in County Wexford, St Kilda, Strangford Lough and the Skerries in Portrush (Ellis 1995, Goodwin 2008, Moore 2002, Picton & Morrow 1994, Rudman 2007). It feeds on the ascidian *Polycarpa rustica* and may sometimes be seen with just its gills emerging from the test of the ascidian. It is known more widely from the Mediterranean and the Bay of Biscay. It has recently also been recorded elsewhere in Northern Ireland from Rathlin Island and the Maidens.



Okenia elegans

***Pecten maximus* (Linnaeus, 1758) - King Scallop (SOCC)**

This species is common, particularly on the east and southeast coasts of Northern Ireland. Wild stocks of the king scallop are thought to be declining, mainly due to overfishing and damage to the benthic communities which act as nursery grounds (Nunn 2007). A few scattered records were made but the habitats on which it occurs are not likely to have been surveyed extensively by these diving surveys.



Pecten maximus

***Rostanga rubra* (Risso, 1818)**

One record (1985) from Large Skerrie. *R. rubra* has been found around the Orkneys and at St. Abbs Head on the North Sea coast as well as on the south and west coasts of the British Isles. Further distribution from Norway south to the Mediterranean. Normally occurs on the shore – feeds on *Ophlitaspongia* and *Microciona* species (Picton & Morrow, 1994).



Rostanga rubra

***Simnia patula* (Pennant 1777) Egg Cowrie (SOCC)**

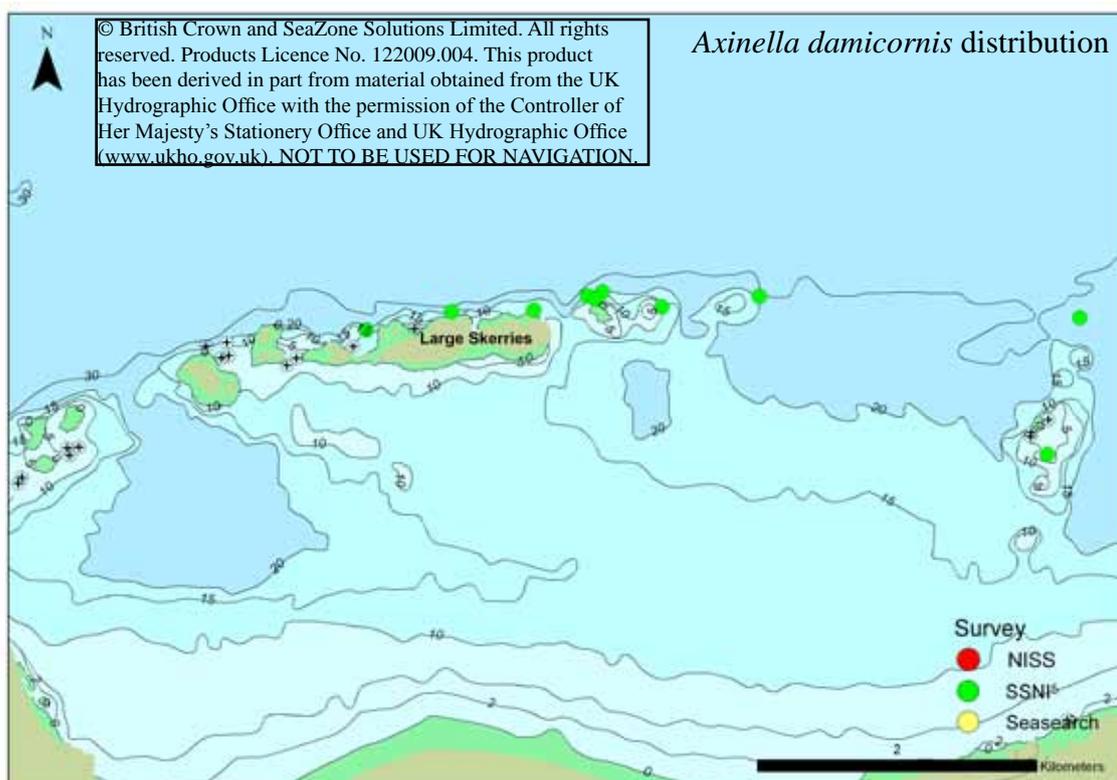
Previously recorded from Northern Ireland from the Skerries, Rathlin Island, Shamrock Pinnacle (NW Rathlin) and Strangford Lough (Picton & Costello 1994; CEDaR). Fairly widespread on west coast of Ireland. Recorded from North-east of Black Rock (Site 72, 060823/03) and North of the Storks (Site 84, 060823/04), there are also two records from NISS from north of the Skerries (28/06/1979 and 13/06/1979).



Simnia patula

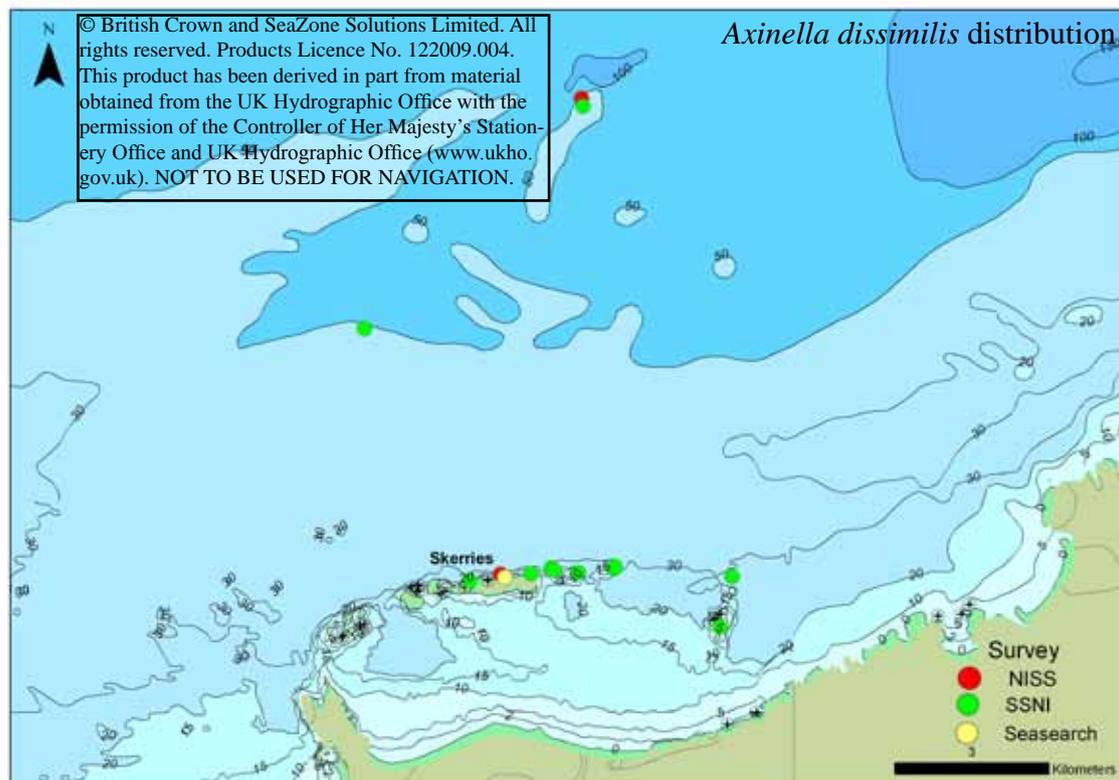
Porifera - Sponges***Axinella damicornis* (Esper, 1794) – crumpled duster sponge**

During SSNI this species was recorded from several locations on the Skerries (Site 66, 060823/01, Site 73 060822/01, Site 71 060822/02, Site 60 060822/03, Site 84 060823/04, Site 72 060823/03, Site 70 060823/02, Site 78 060825/03, Site 74 070803/01, Site 80 100423/02). Prior to 2005 there were only Northern Ireland records for this species from Rathlin Island, Damicornis Bay (also known as O'Byrne Bay) (three from August 1989 and 850906/02); and two from the Skerries (870412/01 N of Large Skerrie, 870606/01 NW of Little Skerries). During the 2005 BSP funded 'Sponge Biodiversity of Rathlin Island' project (Picton & Goodwin 2007a, b) it was noted that on Rathlin Island it was common in, but almost confined to, Damicornis Bay. It was also recorded from the north wall. During SSNI it was recorded from Damicornis Bay, the White Cliffs, Picton's Reef on the east coast and two sites on the north wall on Rathlin. This species is a southern species: uncommon on the west coast of the British Isles and the Atlantic coasts of France, common in the Mediterranean. There are records from Scilly Isles, Channel Isles, Wales (Pembrokeshire and Bardsey Island (Moore 2002), Devon and Lundy in UK. It is possible that the increase in abundance in Northern Ireland is related to climate change (Goodwin *et al.* 2011a).

*Axinella damicornis*

***Axinella dissimilis* (Bowerbank, 1866) (SOCC)**

Recorded from several sites around the Skerries during SSNI (Site 71 060822/02, Site 60 060822/03, Site 72 060823/03, Site 70 060823/02, Site 84 060823/04, Site 78 060825/03, Site 74 070803/01, Site 67 24/9/6 Seasearch 6B, Site 77 060825/01, Site 80 100423/02, Site 16 100423/03, Site 18 100422/01). There are previous records from the Skerries from the Ridges (26/07/85) and North of Large Skerrie (24/07/85). This sponge has a southern distribution and is consequently not very common in Northern Ireland. There are recent records from south-west Britain as far as Anglesey and along the west coast of Ireland around to Rathlin and on the west coast of Scotland (Goodwin *et al.* 2011a). There are recent Northern Ireland records from Rathlin and the Maidens, the increase in the number of records and the record from the Maidens, an area in which this species had previously not been recorded, may indicate that the species is increasing its range with climate change.

*Axinella dissimilis****Ciocalypta penicillus* Bowerbank, 1864**

This species has a south-western distribution in the British Isles with records from south-west England, Wales, west coast of Scotland and the west coast of Ireland (Ackers *et al.* 2007). It occurs on sand or gravel, its basal cushion is buried but its conical papillae are visible. It was recorded from the Solan Reef (Site 16 and 17 100611/01, 100423/04). These are the first records for Northern Ireland apart from a single record for Carlingford Lough in 1984 (NISS 840604/01).

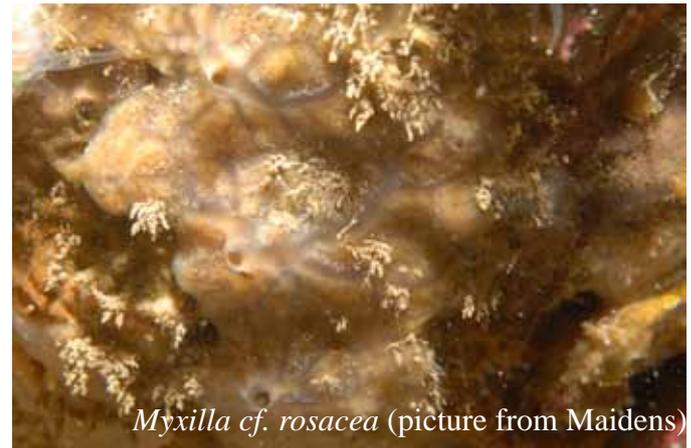
*Ciocalypta penicillus*

***Iophon hyndmani* (Bowerbank, 1858) – a sponge (SOCC)**

This was formerly a priority species as it was thought to be mainly associated with horse mussel (*Modiolus modiolus*) beds in Strangford Lough. It has since been found to be reasonably common on Rathlin, the Maidens and the Skerries, so the Northern Ireland populations of this species are not threatened, despite the habitat loss in Strangford Lough.

*Iophon hyndmani****Myxilla cf. rosacea* (Lieberkühn, 1859) – a sponge (SOCC)**

One specimen was collected from North of the Storks (Site 84, 060823/04). However, as sponges were not systematically sampled it is likely to also be present elsewhere. This sponge is possibly a distinct species from *Myxilla rosacea* which occurs on other areas of the Northern Ireland coast, differing in colouration, surface appearance and the shape of the tornote ends. It is also recorded from Strangford Lough, Rathlin Island and the Maidens (Goodwin *et al.* 2011a).

*Myxilla cf. rosacea* (picture from Maidens)***Stryphnus ponderosus* (Bowerbank, 1866) (SOCC)**

This species was recorded during NISS from Ballintoy. It has not yet been recorded in the SAC area however it favours overhanging and cave habitats and is likely to be present in sea caves along the coast. This species is fairly common on the north wall of Rathlin (Ackers *et al.* 2007; Goodwin *et al.* 2011a). It is not common elsewhere in the British Isles; there are only scattered records from the west coast of Ireland, Wales, the Isle of Man, the Channel Islands and Scotland. It may be rare as a result of its specific habitat preferences. However, targeted sponge sampling in other areas of the UK is needed to give an accurate indication of its distribution.

*Stryphnus ponderosus****Stelletta grubii* Schmidt, 1862 (SOCC)**

There are currently no records from the proposed SAC for this species but there is one record from NISS from Ballintoy. It is also known from Rathlin Island (Goodwin *et al.* 2011a). It is mainly found on vertical or overhanging bedrock and like *Stryphnus ponderosus* may be present in sea caves.

*Stelletta grubii*

Tunicata – Sea squirts***Archidistoma aggregatum* Garstang, 1891 (SOCC)**

One record from NE of the Foyle Entry Marker (070802/04). Also recorded during SSNI from Derginan point and Farganlack point on Rathlin. Found from Plymouth and Salcombe in southern England north to the Irish Sea and North Channel. Probably under-recorded due to its inconspicuous appearance and small size. There are scattered previous Northern Ireland records along the north-east coast from Islandmagee to the Skerries. The Northern Ireland records represent the majority of the Irish populations; in the Republic it is only recorded from Kerry Head and the Saltee Islands (BioMar) (Goodwin *et al.* 2011a).

*Archidistoma aggregatum****Pycnoclavella aurilucens* Garstang, 1891**

Recorded from South of Otter Rocks, Broad Sound (NISS), the Storks and east of Black Rock (SSNI, NIMF). This is a southern species which is very rare in Northern Ireland. However it is frequent in south-west England and on the west coast of Ireland.

*Pycnoclavella aurilucens****Pycnoclavella stolonialis* Pérez-Portela, Goodwin, Picton & Turon, 2010, Pin-head Squirt (NICP).**

This species was recently designated a priority species as Northern Ireland appears to be a stronghold for it in the United Kingdom. Although only recently scientifically described it has been recorded under the common name 'pin-head squirt' since the baseline NISS surveys. There are scattered records around the English and Welsh coasts from Anglesea to the Farne Islands. The stronghold appears to be Northern Ireland with records from several sites including the Skerries (Pérez-Portela, Goodwin, Picton & Turon, 2010). It is a component of the *Flustra foliacea* and colonial ascidian biotope (CR.HCR.FluCoAs). It should be noted that it has not yet been possible to enter this species into Marine Recorder as the name has only just been placed in the directory therefore the records are not, at the time of writing this report, on the database.

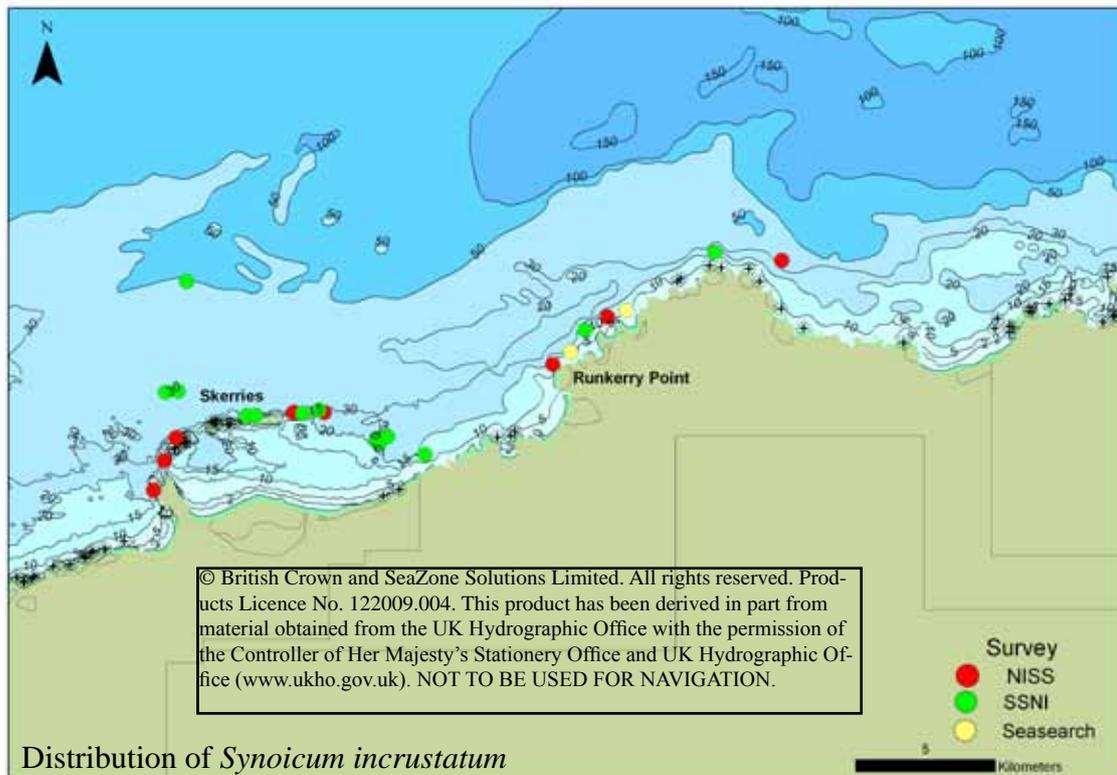
*Pycnoclavella stolonialis*

***Pyura microcosmus* (Savigny, 1816) - a sea squirt (NICP)**

This solitary ascidian is primarily found in Northern Ireland in association with horse mussel (*Modiolus modiolus*) beds in Strangford Lough. However, there are scattered records from elsewhere on the Northern Ireland coast including this area. There is one record from NISS from east of Black Rock (09/08/82).

***Synoicum incrustatum* (M Sars, 1851) (SOCC)**

Several records from this area from SSNI and NIMF. It was also recorded during NISS. Elsewhere in Northern Ireland there are recent records from the Skerries and Duncan's Bay on Rathlin. Previously it was noted that majority of the SSNI Skerries records were from April, despite most of the sampling of this area being later in the year (Goodwin *et al.* 2011a). However, there are recent records from June and August which would indicate that it is not likely to be seasonal. At some sites it forms very dense aggregations, normally on sand scoured bedrock. These typify the proposed CR.HCR. FluCoAs.Syn biotope (Clements *et al.* 2010). This species and sub-biotope are not found in other areas of Northern Ireland and are characteristic of the high energy sand scoured areas of this coast.



Unidentified Polyclinid ascidian - Raspberry sea squirt

This sea squirt is found in kelp forest habitats on Rathlin Island, at the Skerries, Portrush, and in Strangford Lough. It has not been possible to match with any described species.



Sidnyum sp.

Chordata – Fish

Balistes capricus Gmelin, 1789 – Grey trigger fish

One dive record from inside the Skerries. This species used to be rarely recorded in Britain and Ireland with only one or two sightings a year, but since the mid eighties has become fairly common on the southern and western coasts (Dipper 2001). There are several recent records from Wales and Donegal. There have been previous sightings and records from anglers near to the Skerries, with records as far back as 1976, but these are by no means frequent (Goodwin *et al.* 2011a).

Parablennius ruber (Valenciennes, 1836) Red or Portuguese Blenny

During 2006 a record was made on a Seasearch dive of the Red Blenny from the Skerries, Site 67 North of Large Skerrie (Goodwin 2007b). The Ulster Museum held unpublished records of this species dating back as far as the 1980s. As part of SSNI, records were collated and notes provided on field identification characteristics (Goodwin & Picton 2007). The species has recently been revalidated as separate from the tompot blenny *P. gattorugine* and this, together with confusion about the field identification characteristics which distinguish the two species, is likely to have resulted in it being under-recorded. It is a warmer water species, the majority of the records are from south-west coasts of Britain and Ireland. The Skerries are currently the only location in Northern Ireland from which it has been recorded.



Parablennius ruber

3.4 Recommendations for further work

Survey of chalk reef areas

Areas of chalk reef around Dunluce were identified and surveyed (Sites 87-89). There are likely to be other chalk outcrops in this area and these should be identified and surveyed.

Mapping of seagrass bed

The seagrass bed on the inside of Large Skerrie has been dived on several spot dives. However, the edge of the bed has not been mapped and the density has not been measured. This information is needed in order to monitor its conservation status.

Monitoring for climate change

The Skerries area is likely to be the first site in Northern Ireland which south-western species colonise if there are any increases in water temperature. As such it is a useful site for monitoring climate change. A list of key indicator species (e.g. the crab *Maja brachydactyla*, the sponges *Axinella dissimilis* and *Axinella damicornis*, the sea cucumber *Holothuria forskali*) should be monitored both here and in Northern Ireland more generally.

Monitoring of reef habitats

The Skerries has a wide range of reef habitats and these are a primary reason for its selection as a cSAC. Survey work so far has been qualitative and some quantitative surveys and fixed monitoring sites would be useful in monitoring reef health.

Survey for *Atrina fragilis*

Several shells of *Atrina fragilis* were found in the area inside of the Skerries. In view of this it is likely that live individuals may be present. Targeted surveys are likely to be difficult as the varied nature of the substrate will make buried individuals hard to spot. However, its possible presence should be noted and an effort made to search for this species on future surveys.

Taxonomy of Ascidians

An undescribed species of polyclinid ascidian the ‘raspberry ascidian’ was noted. This needs to be formally described, possibly in conjunction with an ascidian expert.

Description and submission of proposed new biotopes.

Three potential new biotopes were noted: CR.HCR.DpSp.var (Deep Sponge Communities), CR.HCR.XFa.FluCoAs.Syn (*Synoicum incrustatum* and *Flustra foliacea* on sand scoured tide-swept circalittoral bedrock and boulders) and SS.SMx.CMx.EucHyd (*Eucratea loricata* and *Hydrallmania falcata* on tide-swept circalittoral mixed sediment). In order to be accepted these need to be formally proposed to JNCC using the designated protocol.

Education

The Skerries are a popular destination for scuba diving within Northern Ireland with both local clubs and commercial operators running dive trips. Currently much of the diving targets a limited number of sites such as the swim-through tunnel in Large Skerrie and the walls on the north side of Large Skerrie. A guide to the marine life and scenic dive sites of this area would be useful in promoting the conservation value of the Skerries area both within this user group and to the wider general public.

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Appendix 1

Description of sites

Dive numbers are given following the site name. Biotopes, where allocated, are given following the description. For sites where data was limited to Seasearch 'Observer' records data was too limited to allocate biotopes.

Site 1 – Tuns Bank 55° 14.00'N, 006° 53.50'W

26/5/7 Seasearch

Fairly level seabed of fine sand (from 12.2-14m surveyed). Large ripples on surface, approximately 15cm apart in a east-west direction. Sand very mobile and highly impacted by wave surge. Very little life apparent. Some crustaceans present including a large spiny spider crab *Maja brachydactyla*.

Site 2 – North-East of Foyle Entry Marker, 55° 15.742'N, 006° 50.652'W

070802/04

Level seabed (32m) of coarse, clean, mobile sand and gravel with scattered small boulders. Little life evident in sand. Boulders thickly encrusted with tunicate-bryozoan turf and encrusting form of *Sabellaria spinulosa* (not reef forming). Unidentified *Janolus* collected on *Scrupocellaria*. *Palio nothus* on *Vesicularia spinosa*.
SS.SMx.FluHyd

Site 3 – Black Rocks, 0.6m north-west Portstewart harbour, 55° 11.369'N, 006° 44.256'W.

26/5/07 Seasearch CW, DG

Slightly sloping mixed seabed (21-24m) of small boulders, cobbles and patches of shelly gravel and sand. Extensively covered in hydroids (mostly *Nemertesia* spp.) and bryozoans (*Flustra foliacea* and *Securiflustra securiflustrans*) with patches of the ascidian *Clavelina lepadiformis*.
SS.SMx.CMx.FluHyd

Site 4 – North-west of Portstewart Point, 55° 11.728'N, 006° 44.094'W

070802/03

Barren sand in small ripples (25m). Brown deposits in ripple valleys. Some crustaceans, but otherwise very little life.
SS.SSa.CFiSa

Site 5 – Ramore Head, Portrush, 55° 12.63'N, 006° 39.79'W

31/05/09 Seasearch, NI9/018

Boulder slope 15-16m. Approximate position as wrong position given on form.

Site 6 – Ramore Head, Portrush, 55° 12.602'N, 006° 39.877'W

15/06/08 Seasearch NI8/043, 046

North facing cobble, pebble and boulder slope from 14.2-29.2m. Short animal turf on boulders and life present in sediment between them. Upper parts of slope with sparse kelp and red algal cover. *Holothuria forskali* and *Maja brachydactyla* recorded; both of these are southern species and rare in Northern Ireland.
IR.HIR.KSed.XKScrR, CR.HCR.XFa.FluCoAs

Site 7 – Ramore Head, Portrush, 55° 12.581'N, 006° 39.745'W

31/05/09 Seasearch NI9/069

Boulder slope of mixed sized boulders - 11.7-16.2m BCD surveyed. Dominant cover red seaweed and short animal turf, including the bryozoans *Flustra foliacea* and *Securiflustra securifrons*, and the colonial ascidian *Clavelina lepadiformis*. The nudibranch *Crimora papillata* was observed on *Flustra foliacea*. This species is a southern species and only rarely recorded in Northern Ireland.
CR.HCR.XFa.FluCoAs

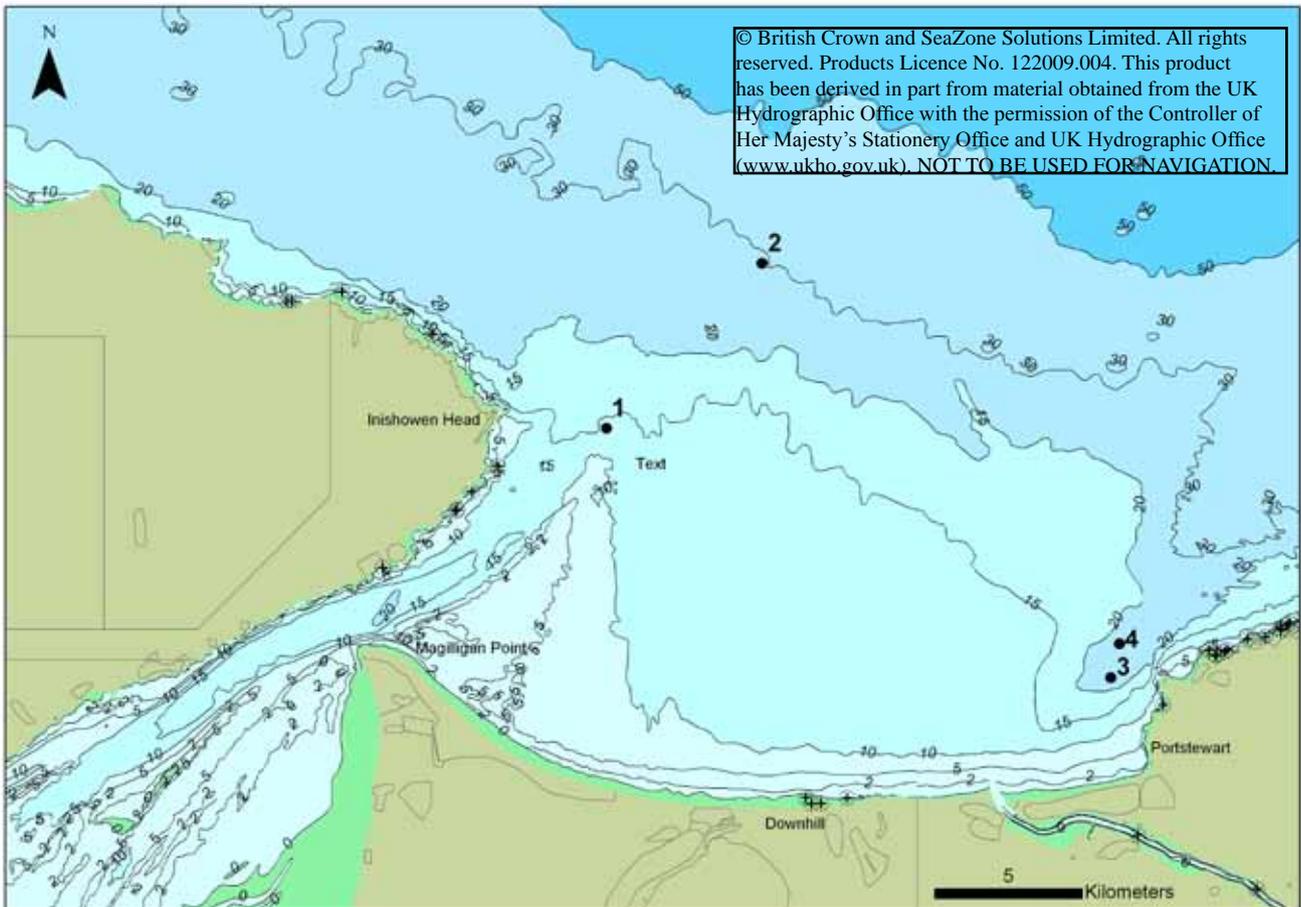


Figure 26. Sites 1-4. Portstewart and Inishowen.

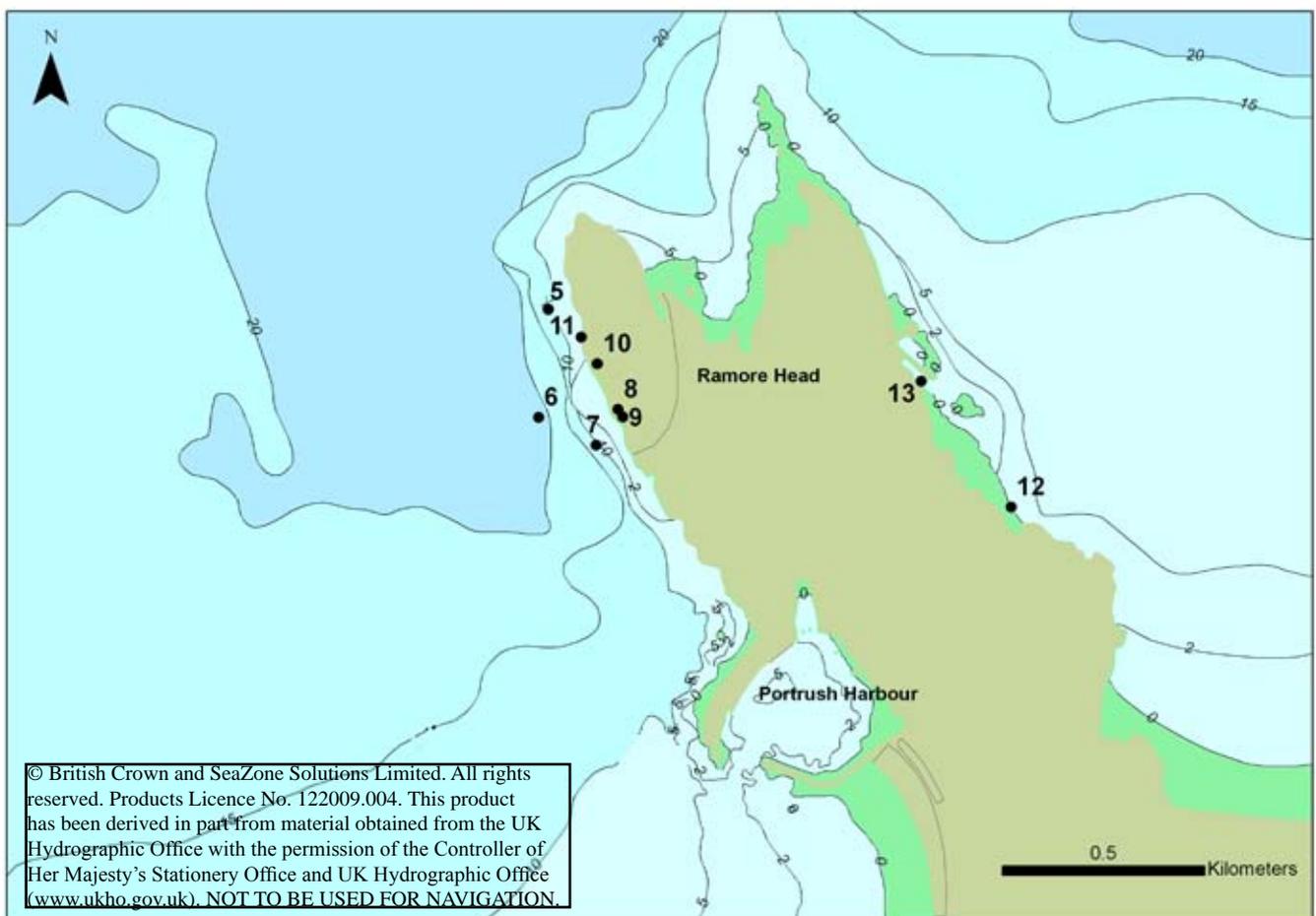


Figure 27. Sites 5-13. Ramore Head, Portrush.

Site 8 – Ramore Head, Portrush, 55° 12.608’N, 006° 39.771’W

23/08/09 Seasearch NI9/055, NI9/059, NI9/061

Slope (approx 45° angle) of mainly small boulders with some large ones and patches of sand, depth surveyed from 8-16.6m. Where slope levelled out sand patches were more frequent. Dominant animal cover *Flustra foliacea*, mixed red seaweeds also present. Approximately eight *Crimora papillata* nudibranchs seen on one clump of *Flustra foliacea*. This species is a southern species and comparatively rare in Northern Ireland.

CR.HCR.XFa.FluCoAs

Site 9 – Ramore Head, Portrush, 55° 12.602’N, 006° 39.765’W

15/06/08 Seasearch NI8/050

Reef and boulder slope from 9.2-17.2m. Kelp park on upper parts of slope, lower parts covered in dense red algae and animal turf. Lobster pots and lines present at site.

Site 10 – Ramore Head, Portrush, 55° 12.643’N, 006° 39.799’W

31/05/09 Seasearch NI9/019

Slope of boulders 15-22.5m (mainly small with occasional very large) with *Alcyonium digitatum*, foliose red algae, *Flustra foliacea*, and barnacles dominant cover. Sparse kelp park on upper part of slope. Occasional very large *Cliona celata*.

CR.HCR.XFa.FluCoAs

Site 11 – Ramore Head, Portrush, 55° 12.602’N, 006° 39.764’W

15/06/08 Seasearch NI8/035, NI8/036, NI8/045

West facing slope of mixed sized boulders, some very large - up to 2m. Slope levelled out at approx 22m. Boulders covered with a dense turf of *Clavelina lepadiformis*, *Securiflustra securifrons*, and *Flustra foliacea*. Above 15m the slope had a dense turf of red seaweeds, however this depth range was not surveyed. A large shoal of juvenile gadoids were seen at the end of the dive. The nudibranch *Crimora papillata* was observed spawning on *Flustra foliacea*. This is a southern species and rarely recorded from Northern Ireland.

CR.HCR.XFa.FluCoAs.SmAs

Site 12 – The Blue Pool, 55° 12.533’N, 006° 39.248’W

07/06/2008 Seasearch NI8/029, 5A, PM KM

Gently sloping rocky reef seabed from 0.5-5.5m BCD. Top of reef covered with seaweed including *Saccharina latissima* and *Chorda filum*. Some large rockmill type holes in reef with cobbles and pebbles in the base of them. Spiny spider crab *Maja brachydactyla* present.

IR.HIR.KSed.LsacChoR

Site 13 – Slipway North of Portrush Countryside Centre, 55° 12.630’N, 006° 39.313’W

27/05/09 NI9/046

Kelp forest on exposed, sand scoured, bedrock (forming steep rocky shore) with occasional cobble filled gullies and sand beyond rocks. Mixed seaweed community on high energy, sand scoured, bedrock. Kelp forest (*Laminaria hyperborea*, *Saccharina latissima* and *Alaria esculenta*) on exposed, sand scoured, bedrock.

IR.HIR.KFaR.FoR.Dic, IR.HIR.KFaR.LhypR, IR.HIR.KFaR.Ala

Site 14 – Curran Reef, 55° 13.727’N, 006° 39.567’W

100608/03

Low bedrock ridge, with top at 31m, base at 35.7m. Some pockets of boulders in shallow gullies. Dominant species *Flustra foliacea*, *Securiflustra securifrons*, and *Alcyonium digitatum*. Some silt. Level plain of cobbles, pebbles, gravel and sand present at base of bedrock. Cobbles covered with *Nemertesia antennina*, other hydroids such as *Rhizocaulus verticillatus* and *Hydrallmania falcata* frequent. *Securiflustra securifrons* and *Eucratea loricata* also present.

CR.HCR.XFa.FluCoAs.Syn, SS.SMx.CMx.EucHyd

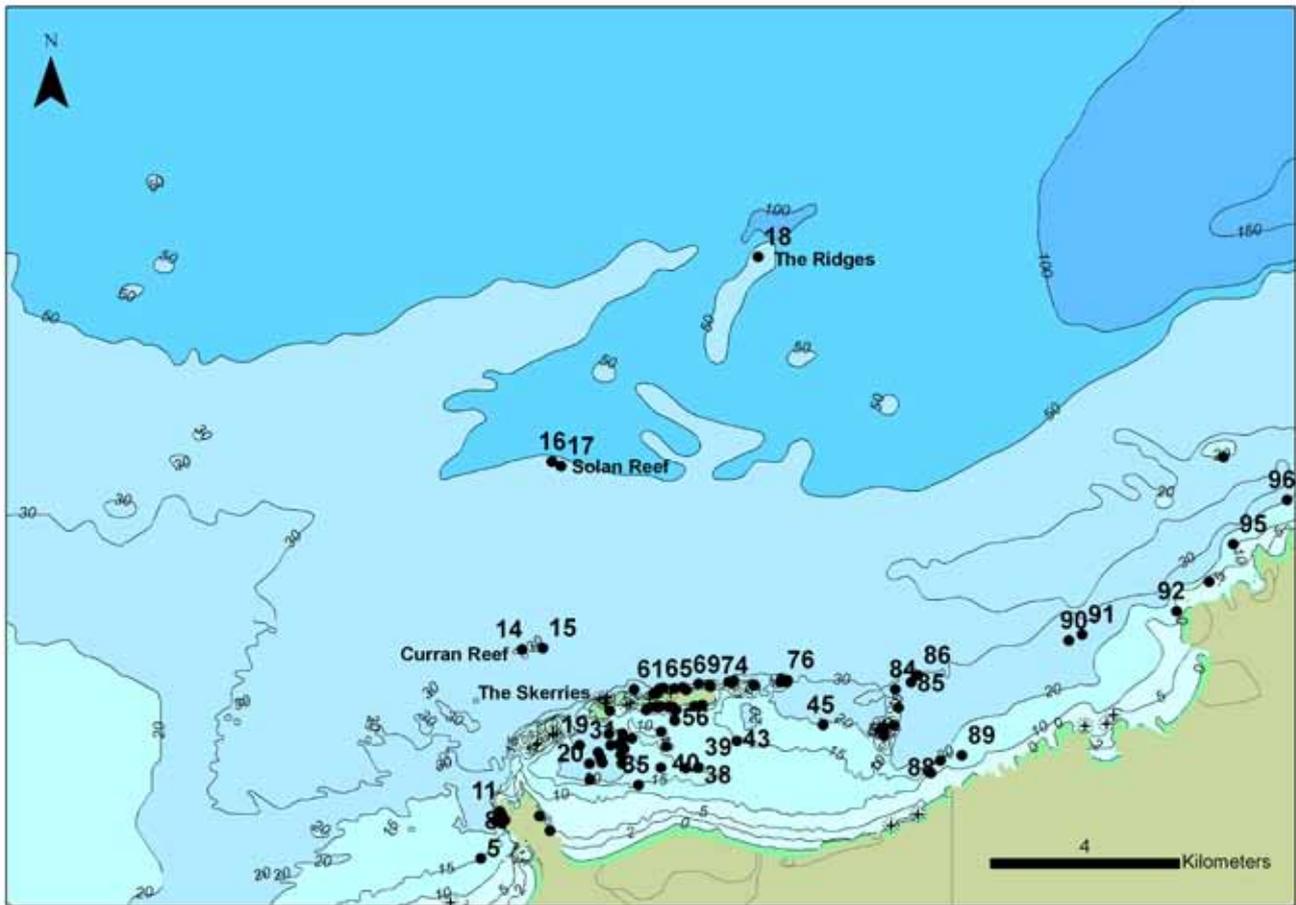


Figure 28. Sites 14-18. Curran Reef, Solan Reef and The Ridges.

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Site 15 –Curran Reef, 55° 13.737'N, 006° 39.328'W

100608/04

Rugged bedrock (28-33m) with considerable amounts of *Alcyonium digitatum*, *Actinothoe sphyrodeta* and *Flustra foliacea*. Boulders present at edges of the rock outcrop. Strong tidal stream influence, but quite heavily silted rock faces.

CR.HCR.XFa.FluCoAs.Syn

Site 16 – South of Solan Reef, 55° 14.56'N, 006° 39.16'W

100423/03, 100423/04

Bedrock and boulder ridge midway between Skerries and the Ridges. Slopes up to 35m from surrounding seabed at 40m. Slope composed of large and small boulders, and square ridges of bedrock (approx. 50cm-1m high), interspersed with sand. Sand in waves present on the top of the reef. Dominant cover *Flustra foliacea*, *Alcyonium digitatum* and *Cliona celata*. Towards the edge of the reef low bedrock ridges overlaid with mobile sand. Dense cover of *Flustra foliacea* with *Alcyonium digitatum*. Some rocks with thick sand cover and polymastid sponges. Single patch of *Ciocalypa penicillus* present. This species is a southern species and here and the Ridges are currently the only Northern Ireland site apart from Carlingford Lough where it is recorded. CR.HCR.XFa.FluCoAs.Syn

Site 17 –Solan Reef, 55° 14.933'N, 006° 39.121'W

100611/01, 100611/02

Low bedrock ridge and a small area of boulders surrounded by fine mobile sand waves (32-34.6m). *Halecium plumosum* and *Eucreatea loricata* present on sand. Bedrock with *Alcyonium digitatum* and *Securiflustra securifrons*, and a lower amount of *Flustra foliacea* (heavily sand scoured). *Ciocalypa penicillus* present at site. This is a southern species and the area around the Skerries is the only area of Northern Ireland apart from Carlingford Lough in which it has been recorded.

CR.HCR.XFa.FluCoAs, CR.MCR.EcCr.UrtScr

Site 18 – The Ridges – 55° 16.314’N, 006° 36.874’W

100422/01, 100422/02

Terraced bedrock with vertical faces approx. 1m high. Some large boulders on flat bedrock. Vertical faces with large patches of *Corynactis viridis*. Horizontal with *Flustra foliacea* and *Alcyonium digitatum* and understory of silt-dwelling ascidians. Some sediment on rock in bedrock troughs with erect sponges and *Nemertesia* spp.. CR.HCR.XFa.FluCoAs

Site 19 – West of Broad Sound, 55° 13.096’N, 006° 39.912’W

05/11/06 Seasearch 8B, 8C,8D,

Coarse, mobile, sand and gravel seabed from 19.2-21.2m. Gravel composed of whole and broken shells, 30% whole shells including *Modiolus modiolus* and oyster shells. Ripples approximately 30cm high present with detritus, drift weed and some litter (sweet wrappers etc) collecting in the troughs. Scattered rounded boulders (about 10% cover) with both tall and short animal turf. Species present included *Eucratea loricata*, *Flustra foliacea*, *Hydrallmania falcata*, and *Lanice conchilega*. Crabs (including *Liocarcinus depurator*, *Necora puber*, and spider crabs) fairly frequent.

SS.SMx.CMx.FluHyd

Site 20 – West of Broad Sound – 55° 12.975’N, 006° 38.796’W

060824/03

Mixed ground seabed of cobbles, gravel and shell. Area of boulders. Dominant animal cover the hydroids *Halecium muricatum*, *Hydrallmania falcata*, *Nemertesia antennina*, and *N.ramosa*. The bryozoan *Eucratea loricata* also common.

SS.SMx,CMx.EucHyd

Site 21 – West of Broad Sound – 55° 12.870’N, 006° 38.790’W

060824/04

Substrate of cobbles, pebbles and shell gravel with occasional large and small boulders. Dominant cover hydroids (*Nemertesia antennina*, *Halecium muricatum* and *Hydrallmania falcata*) and bryozoans (*Eucratea loricata*, *Vesicularia spinosa* and *Alcyonidium diaphanum*). 22-25m.

SS.SMx.CMx.EucHyd

Site 22 – 500m South of Little Skerrie – 55° 13.050’N, 006° 38.700’W

24/09/06 Seasearch 7A

Flat sand and gravel sea bed at 22.4m BCD. Occasional boulders with short animal turf and encrusting pink algae.

Site 23 – 500m South of Little Skerrie – 55° 12.980’N, 006° 38.650’W

24/09/06 Seasearch 7B

Cobble, pebble and gravel seabed with very occasional large boulders from 22.4-23.4m BCD. Abundant hydroids and bryozoans (especially *Eucratea loricata*) attached to pebbles. Pipefish (mainly snake pipefish) and spider crabs present in large numbers.

SS.SMx.CMx.EucHyd

Site 24 – Broad Sound – 55° 12.987’N, 006° 38.654’W

060823/06

Cobble, pebble, shell gravel and coarse sand substrate. Dominant fauna hydroids (*Halecium muricatum*, *Nemertesia antennina*, *Hydrallmania falcata*) and bryozoans (*Eucratea loricata*, *Vesicularia spinosa* and *Flustra foliacea*).

SS.SMx.CMx.EucHyd

Site 25 – 500m South of Large Skerrie – 55° 12.98’N, 006° 38.65’W

24/09/06 Seasearch 7C

Broken shell and gravel seabed with scattered boulders 24m BCD. Lots of life.

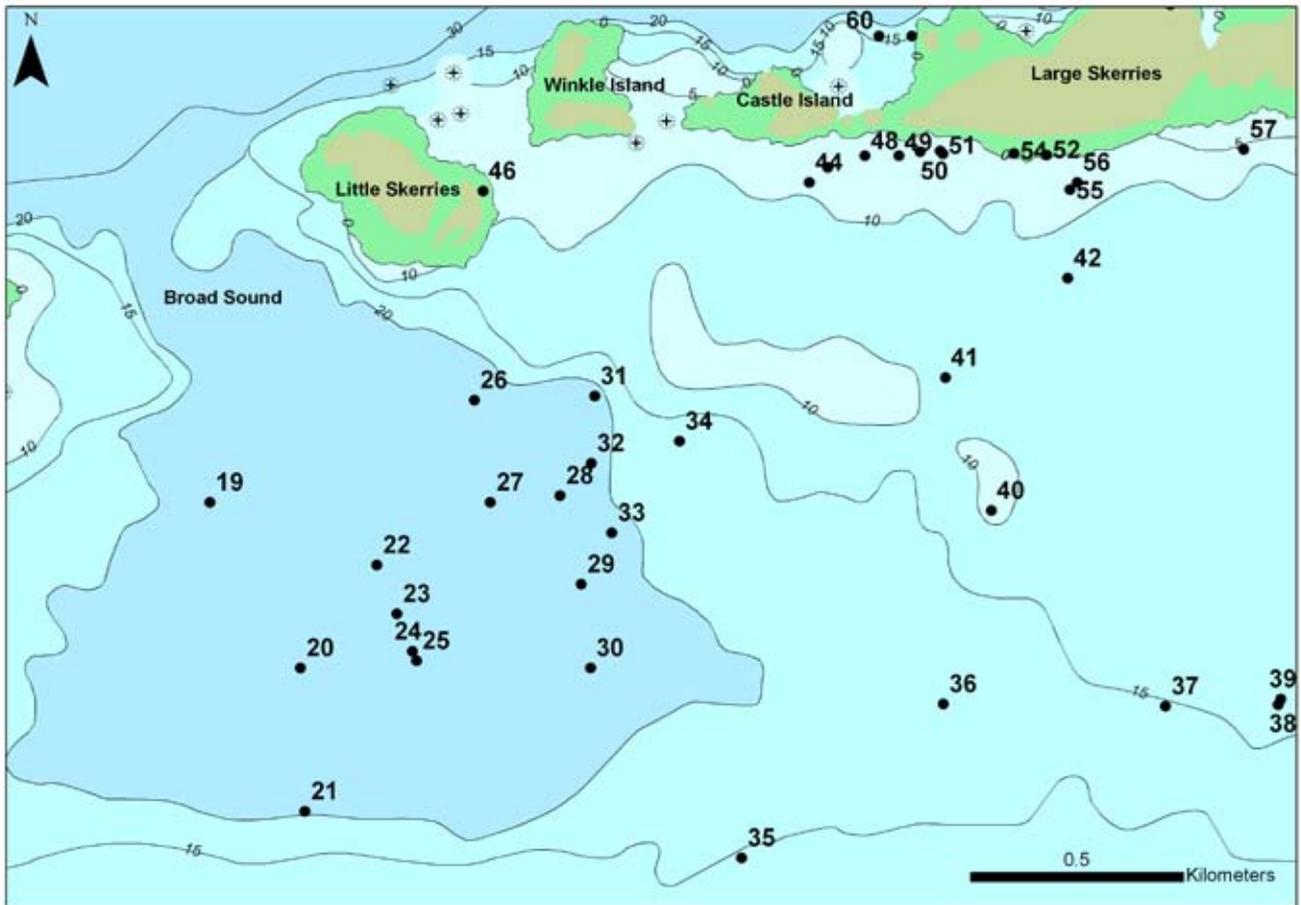


Figure 29. Sites 19-42. South of the Skerries.

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Site 26 – North-east Broad Sound - 55° 13.171'N 006° 38.575'W.

060824/06

Bedrock (40%), Large and small boulders (20%), cobbles and sand. In 24-27m. Dominant fauna hydroids (*Halecium muricatum*, *Hydrallmania falcata* and *Sertularia argentea*) and *Flustra foilacea*.

CR.HCR.XFa

Site 27 – North-east Broad Sound – 55° 13.096'N, 006° 38.556'W

05/11/06 Seasearch 9A

Sand and gravel seabed with scattered rocks and boulders (20-22.8m BCD). Surveyors swam east from entry point and when tide turned drifted west with it. Several species of crab frequent.

CR.MCR.EcCr

Site 28 – South of the Skerries – 55° 13.096'N, 006° 38.912'W

05/11/06 Seasearch 9E

Boulders with animal turf. Coarse sand with lots of fine to coarse shell fragments. Formed in waves up over 10cm high. A lot of swell movement. 14-22m.

CR.HCR.XFa, SS.SCS.CCS

Site 29 – East Broad Sound – 55° 13.036'N, 006° 38.439'W

060821/06

Shell gravel substrate 23-24m with occasional large boulders. Dominant species hydroids (*Halecium muricatum* (common), *Hydrallmania falcata* (frequent)) and bryozoans (occasional *Flustra foilacea*, *Securiflustra securifrons* and *Vesicularia spinosa*). Dead *Atrina fragilis* shell recorded.

SS.SMx.CMx.FluHyd

Site 30. East Broad Sound. 55° 12.975'N, 006° 38.427'W.

060824/01

Shell gravel substrate with occasional whole shells and cobbles. 16-25m. Dominant species *Halecium muricatum* and *Eucratea loricata*. Surveyed on fast drift dive so species list not complete. Dead *Atrina fragilis* shell recorded.

SS.SMx.CMx.EucHyd

Site 31, 300m SE Little Skerrie 55° 13.174'N, 006° 38.422'W

070802/02

Seabed of pebbles and gravel subject to strong tidal streams. Fauna visually dominated by bryozoans (*Eucratea loricata*) and hydroids (*Nemertesia* spp. & *Sertularia argentea*). Encrusting coralline algae on pebbles and dead bivalve shells. In places, seabed paved with dead *Tapes rhomboides* covered in coralline algae, suggesting some stability of the seabed. Seabed of sand waves to 0.8m in height, with sand ripples. Visible fauna very sparse apart from large shoals of *Ammodytes tobianus*. Sand very mobile: coarse rippled sand with scattered dead shell and pebbles 16-17m depth and mega ripples circa 0.5m high.

SS.SMp.KSwSS.LsacR, SS.SSa.IFiSa.IMoSa, SS.SCS.ICCS

Site 32 , South of Little Skerrie 3, 55° 13.161'N, 006° 38.445'W

27/08/06 Seasearch 4A

Surveyed on drift dive covering several habitats: 1) Coarse sand with some cobbles and pebbles 18.4-22.4m BCD. Dominated by hydroids (*Halecium muricatum* and *Nemertesia antennina*) and the bryozoan *Eucratea loricata*. 2) Coarse sand with dead shells and shell gravel, many red weeds. Much of shell *Modiolus modiolus*. Depth surveyed 12.4-18.4m BCD. *Atrina fragilis* shell found. 3) Coarse sand dunes, quite mobile with little life present. Many dead weeds drifting. Depth 8.4-12.4m BCD. SS.SMx.CMx.Euc.Hyd

Site 33, East Broad Sound, 55° 13.074'N, 006° 38.400'W

060821/05

Fine sand with occasional (5%) large boulders. Hydroids (*Halecium muricatum*) and bryozoans (*Vesicularia spinosa*, *Flustra foliacea* and *Securiflustra securifrons*) dominant.

SS.SMx.CMx.FluHyd

Site 34, South-east little Skerrie, 55° 13.141'N, 006° 38.315'W

060821/04

Level (22m) substrate of mainly shell gravel (60%), with some sand and occasional (5%) cobbles. Dominant cover hydroids (*Halecium muricatum*, *Nemertesia antennina*, *Hydrallmania falcata* and *Rhizocaulus verticillatus*) and bryozoans (*Eucratea loricata* and *Vesicularia spinosa*).

SS.SMx.CMx.EucHyd

Site 35, North of Portrush Golf Links, 55° 12.836'N, 006° 38.236'W

090824/01

Long waves of mobile sand (16m depth) with approximately 25% shell gravel. Some intact shells present. Not much sessile life, sand obviously mobile. What little life that was present, was attached to large shell pieces. Some mobile species notably sand/common gobies *Pomatoschistus* spp.

SS.SSa.IFiSa.IMoSa

Site 36, Inside of Skerries 5, 55° 12.928'N, 006° 37.556'W

05/11/06 Seasearch 8E

Sand and gravel with many dead *Modiolus modiolus* shells 17.2-18.7m BCD. An empty fan mussel shell was found (donated by Franklyn Riemann to the Ulster Museum). Surveyed on drift dive so not possible to get much detail on habitats and species. SS.SMx.CMx

Site 37, South of Skerries 3, 55° 12.947'N, 006° 37.699'W

05/11/06 Seasearch 9C, 9B

Shallow sloping seabed, 15.5-22.3m BCD, mainly shell gravel formed from intact *Modiolus modiolus* shells but around 5% boulders. Tall and short animal turf on rocks and growing on shell gravel including *Flustra foliacea* and *Nemertesia antennina*.

Site 38, Inside of Skerries, 55° 12.928'N, 006° 37.556'W

05/11/06 Seasearch 8A

Sand and gravel seabed from 15.6-23.6m BCD. Surveyed on drift dive (drifted approximately 0.5nm SW). Some patches of shell gravel present and a few live *Modiolus modiolus*.

SS.SMx.CMx

Site 39, South of Skerries, 55° 12.957'N, 006° 37.699'W

05/11/06 Seasearch 9D

Bed of dead *Modiolus modiolus* shells from 18-22m, some other shells present for example oysters. Shells large and mainly intact. Little life apparent. Survey completed on drift dive so many smaller species omitted from record.

SS.SMx.CMx.FluHyd

Site 40, 600m south Large Skerrie, 55° 13.090'N, 006° 37.919'W

070802/01

Medium sand with empty shells (some *Modiolus modiolus*), and occasional mixed seaweeds, mainly *Gracilariopsis*. Leading to sand with 1m high, 1.5m wide waves. 10-14m. SS.SMp.KSwSS.LsacR

Site 41, South of Little Skerrie 2, 55° 13.161'N, 006° 38.445'W

27/08/06 Seasearch 4B

Area surveyed on drift dive covering several habitats: 1) Flat cobble and gravel with a high cover of hydroids - *Nemertesia* spp. and *Halecium muricatum*. A few small boulders. Depth from 13.4-21.4m BCD; 2) Sand with a few boulders and cobbles with *Saccharina latissima* attached 10.4-12.4m BCD; 3) Mobile sand in waves with shell debris in gullies. Mostly bivalve shells including many dead *Modiolus modiolus*. Very little life, depth surveyed 10.4-13.4m BCD; 4) Highly mobile sand waves with much drift algae 8.4-10.4m BCD.

SS.SMx.CMx.FluHyd, SS.SMp.KSwSS.LsacR, SS.SSa

Site 42, South of Large Skerrie, 55° 13.204'N, 006° 38.019'W

27/08/06 Seasearch 4D

1) Medium sand with patches of muddy sand and shell/pebbles gravel. Strands of *Saccharina latissima*. Mixed red seaweeds in clumps, both attached to base of kelp, and elsewhere in sand. One piece of live maerl present. 2) Medium sand, no fauna visible except *Liocarcinus depurator* and sand eels. Sand rippled and in waves. 12-13.7m.

SS.SMp.KSwSS.LsacR, SS.SSa.IFiSa.IMoSa

Site 43, Inside of Skerries, 55° 13.124'N, 006° 37.111'W

100610/01

Fine sand, 15-16m, fairly level with small waves (~4cm high) parallel to beach (E to W). Not much epifauna - occasional *Halecium plumosum* attached to shells; the crab *Corystes cassivelaunus* frequent. Empty mollusc shells and visible indications of infauna present.

SS.SSa.IFiSa.IMoSa

Site 44, Inside of Skerries, 55° 13.33'N, 006° 38.15'W

15/06/08 Seasearch NI8/033, NI8/044

Level sandy seabed at 9.4-10.4m BCD, reef with kelp (*Saccharina latissima*, *L.hyperborea* and *Sacchoriza polyschides*) at edge of sand. Many other seaweed species. In shallower water mixed ground seabed with some rocky reef outcrops (3.4-9.4m BCD). Kelp forest and mixed seaweeds, also some short animal turf on bedrock.

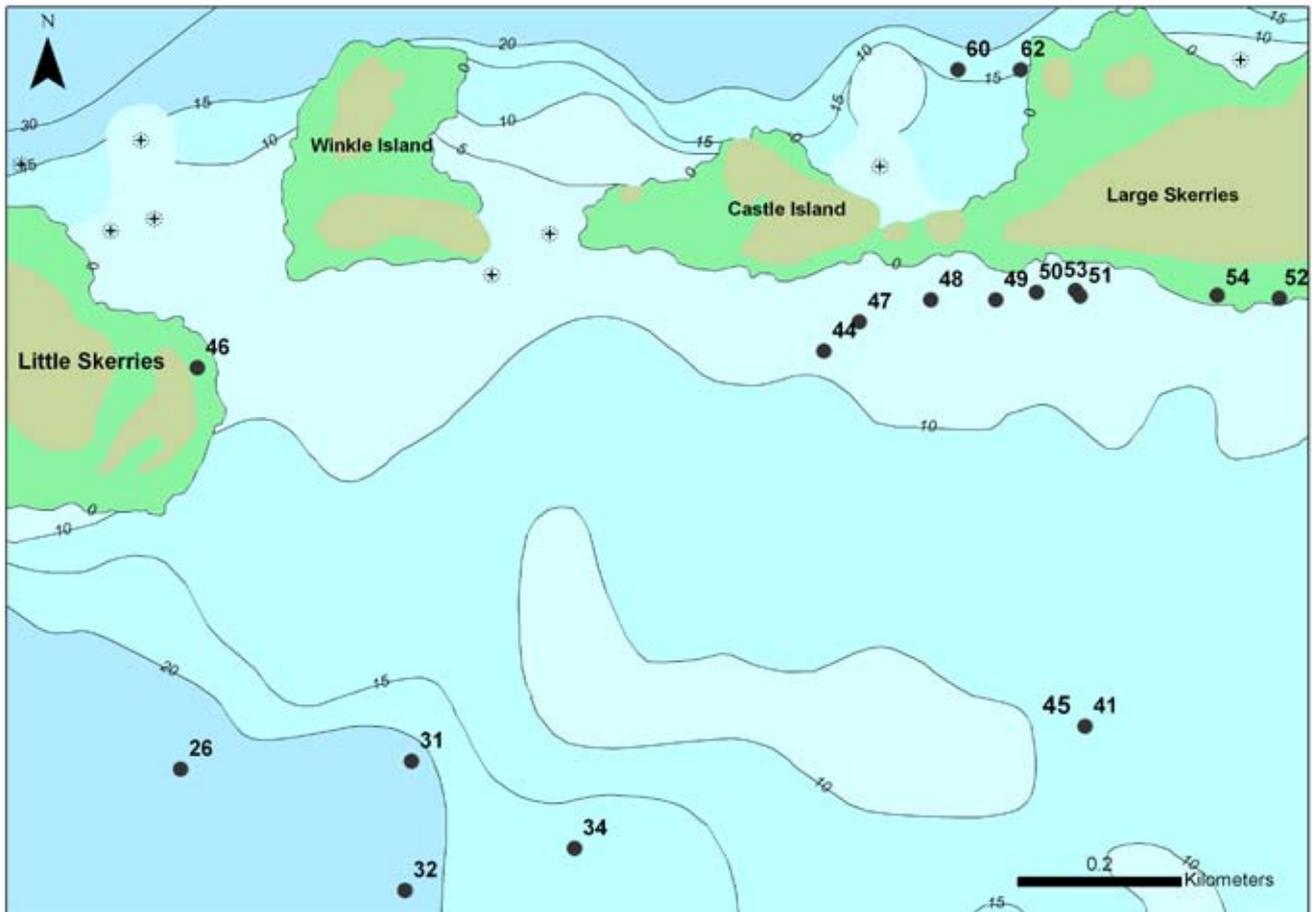


Figure 30. Sites 44-52. South of the Skerries.

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Site 45, South of Little Skerrie, 55° 13.161'N, 006° 38.445'W

27/08/06 Seasearch 4C

Fine sand and gravel, with some coarser areas, some shell fragments. Depth from 7.4-16.4m BCD. Bank 1/2m deep from fairly barren sand/gravel area, which formed dunes and banks, leading down to area with coarser gravel and small boulders with attached kelp and other algae. Pipefish very common. Nudibranchs present on algae. Dive was drift dive over approximately 800m.

SS.SMp.KSwSS.LsacR

Site 46, Inside Castle Island, 55° 13.333'N, 006° 38.150'W

15/06/08 Seasearch NI8/049

1) Sand with boulders. Dominated by *Saccharina latissima*.

2) Fairly barren, tideswept sand with a brown algal mat on the surface. Some *Saccharina latissima*, *Chorda filum* and red seaweeds present. Sand in small waves, some pockets of shell fragments on wave crests.

Tracks in sand from stones with attached weed dragging.

3) Boulders dominated by *Flustra foliacea*, large colonies of *Cliona celata* also present.

IR.MIR.KT, SS.SSa.IFiSa, CR.HCR.XFa.FluCoAs.SmAs

Site 47, South East of Large Skerrie, 55° 13.35'N, 006° 37.85'W

27/08/06 Seasearch 5C

Sand and gravel seabed from 7.8-13.8m BCD. One area of sediment formed into furrows parallel with edge of Skerrie, sea cucumbers (*Thyone* sp.) were present in this area. Scattered boulders with attached algae on flat areas of sediment. Some seagrass present in sediment but fairly rare.

SS.SMp.KSwSS.LsacR

Site 48, South of Large Skerrie, 55° 13.35'N, 006° 37.98'W

23/08/09 Seasearch NI9/063

Sand and shell gravel from 5.2-7.6m BCD. Low ridges of sand with gravel accumulating in the dips. Mixed red and brown algae present with *Saccharina latissima* dominating. Divers swam east along south side of Large Skerrie, approximately 200m, looking for Seagrass (none found).

SS.SMp.KSwSS.LsacR

Site 49, South of Large Skerrie, 55° 13.35'N, 006° 37.980'W

23/08/09 Seasearch NI9/062

Sand with patches of shell gravel and rare boulders. Some worm tubes and anemone burrows in the sand. Mixed seaweeds adhering to larger patches of shell. *Saccharina latissima* attached to boulders. 7-12m.

SS.SMp.KSwSS.LsacR

Site 50, South of Large Skerrie, 55° 13.353'N, 006° 37.953'W

31/05/09 Seasearch NI9/068

1) Dense kelp forest of *Laminaria digitata*, *L. hyperborea*, *Alaria esculenta* and *Sacchoriza polyschides* on bedrock and large boulders. Thinning to kelp park in deeper water. Understorey of mixed red weeds. Depth surveyed from 0.8-14.2 BCD. 2) Fauna on wall and deeper, kelp free, boulders covered in sponges, ascidians and hydroids, with some red algae. Depth surveyed 14.2-17.2m BCD.

IR.HIR.KFaR.FoR, IR.HIR.KFaR.Ala.Ldig

Site 51, South of Large Skerrie, 55° 13.351'N, 006° 37.980'W

23/08/09 Seasearch NI9/058

Kelp forest on bedrock leading onto sand and fine gravel. Depth surveyed 6.4-8.4m BCD.

Site 52, South of Large Skerrie, 55° 13.35'N, 006° 37.85'W,

27/08/06 Seasearch 5A,5B,5C,5D,5E

Zostera marina seagrass bed on fine to medium sand. Banded chink shell *Lacuna vincta* and the stalked jellyfish *Haliclystus auriculata* attached to the seagrass blades. Adjacent habitats include areas of boulder slope (0-5.8m) and fine flat sand with lugworm casts and occasional small boulders with *Sacchoriza polyschides* and *Saccharina latissima* 5.8-7.8m BCD.

SS.SMp.SSgr.Zmar, IR.MIR.KR.Lhyp.Ft, SS.SMp.KSwSS.LsacR

Site 53, Inside Large Skerrie near swim-through, 55° 13.353'N, 006° 37.983'W

31/05/09 Seasearch NI9/020

This site is at the entrance to a swim-through which runs through Large Skerrie. In calm conditions it is possible to exit into a bay on the north side of Large Skerrie and surface there.

1) Bedrock gully leading into swim-through. Swim-through is a vertical narrow slot (oblong shaped) in the bedrock face of Large Skerrie, approximately 1m wide and 2m high. Very surge swept - covered with encrusting pink algae. Not surveyed in depth as very swelly so dangerous to enter swim-through. Depth at base approximately 4m BCD. 2) Very large and large boulders covered in kelp forest (*Laminaria hyperborea*). Understorey of foliose red algae and short animal turf (*Aplidium punctum* occasional). Not surveyed in detail.

3) Fine sand with sparse kelp (*Saccharina latissima*) and foliose red algae. Gently sloping from 6.6-7.6m BCD. Some waves and small pockets of gravel present in wave troughs. Occasional pebbles and empty shells with red weed attached.

IR.MIR.KR.Lhyp.Ft, SS.SSa

Site 54, South of Large Skerrie, 55° 13.351'N, 006° 37.890'W

23/08/09 Seasearch NI9/060

Kelp forest on bedrock 0-8.4m.

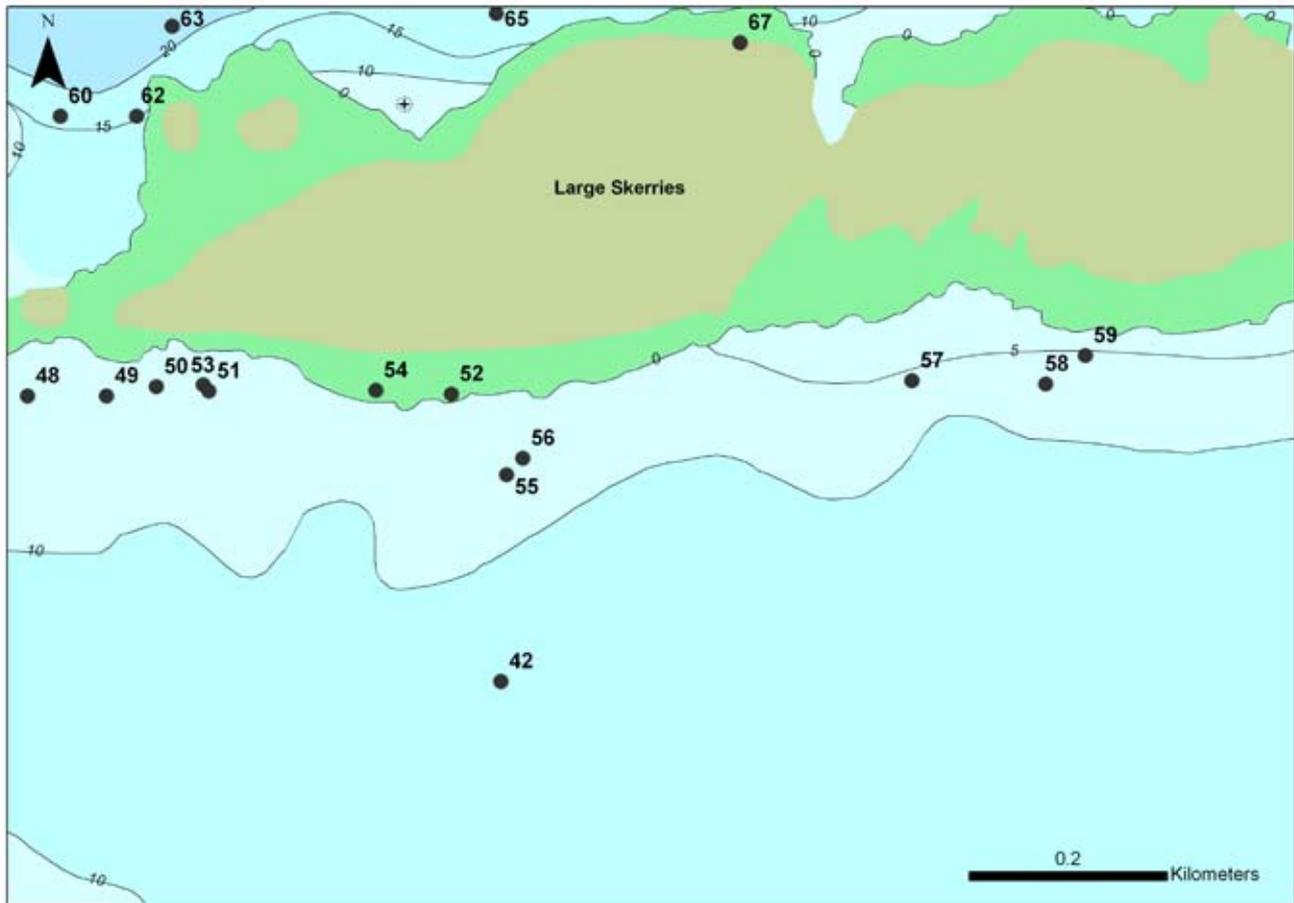


Figure 31. Sites 48-59. South of Large Skerrie.

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Site 55, South of Large Skerrie, 55° 13.325'N, 006° 37.819'W

060821/03

Fine sand (6-10m) with *Zostera marina* seagrass bed.

SS.SMp.SSgr.Zmar

Site 56, South of Large Skerrie, 55° 13.330'N, 006° 37.810'W

090824/02

Zostera marina seagrass bed on sand. Depth 6-8m.

SS.SMp.SSgr.Zmar

Site 57, South coast Large Skerrie, 55° 13.354'N, 006° 37.598'W

060821/01

Zostera marina seagrass bed on fine sand in 8-9.4m.

SS.SMp.SSgr.Zmar

Site 58, South coast Large Skerrie, 55° 13.353'N, 006° 37.525'W

060821/02

Zostera marina seagrass bed on fine sand.

SS.SMp.SSgr.Zmar

Site 59, South Coast Large Skerrie, 55° 13.362'N, 006° 37.504'W

070801/03

Medium sand with *Zostera marina* seagrass bed. 5-9m. *Cerianthus lloydii* in sediment and occasional red seaweeds. Banded chink shell *Lacuna vincta* on *Zostera* fronds.

SS.SMp.SSgr.Zmar

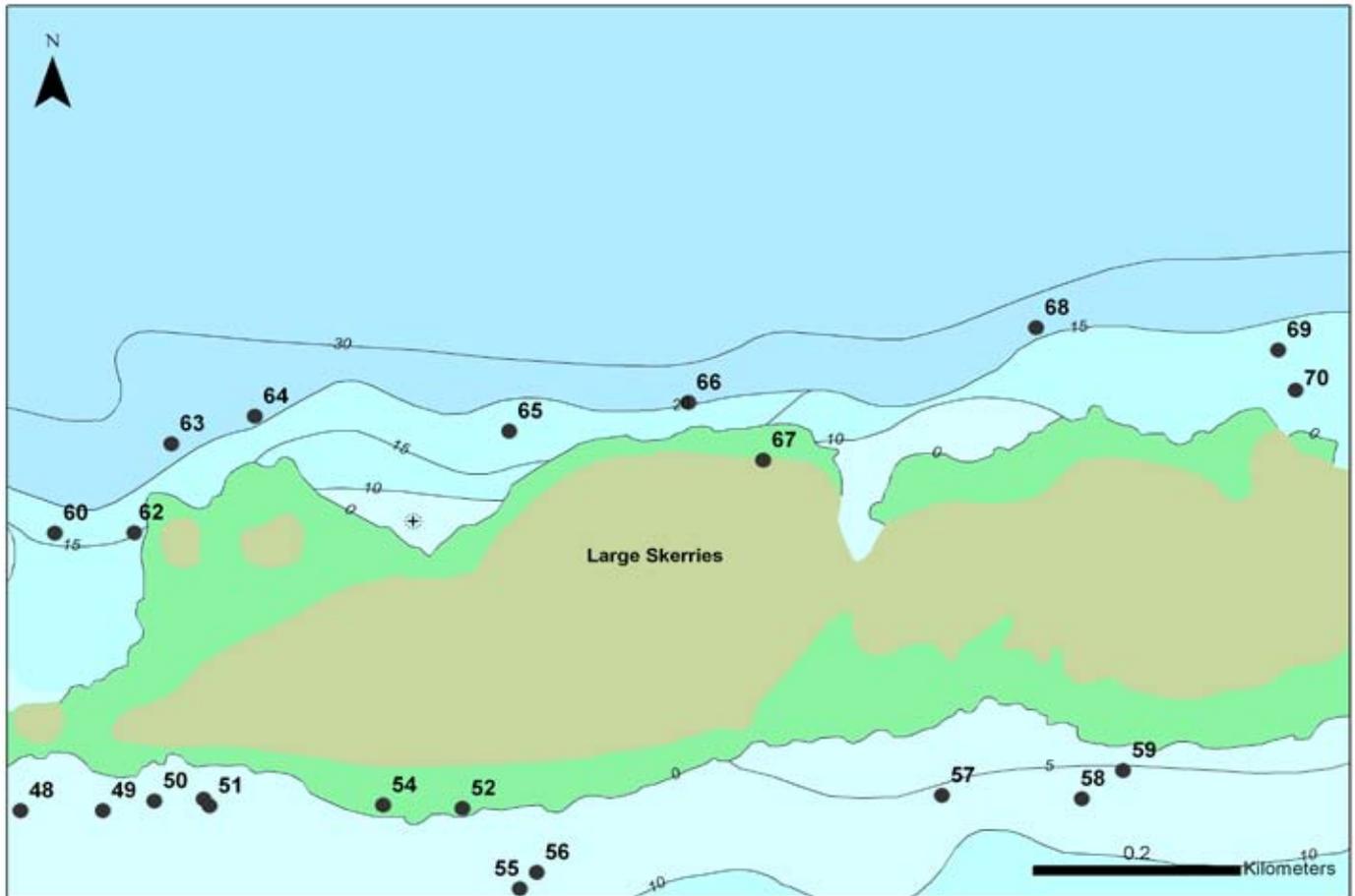


Figure 32. Sites 60-70. North of Large Skerrie.

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Site 60, North-west Large Skerrie, 55° 13.437'N, 006° 38.061'W

060822/03

Bedrock from 16-28m. Dominant fauna *Caryophyllia smithii*, *Alcyonium digitatum*, *Securiflustra securifrons* and erect and encrusting sponges.

CR.HCR.DpSp

Site 61, North of Castle Island, 55° 13.464'N, 006° 38.288'W

070731/03

Small and large boulders with dominant cover of bryozoans, mainly *Flustra foliacea*, *Securiflustra securifrons* and *Cellaria* and Crisiidae species. Frequent *Echinus esculentus* and *Caryophyllia smithii*, with *Aslia lefevrei* in crevices. One *Conger conger* and the 'pinhead' ascidian *Pycnoclavella stolonialis* recorded. 16-18m.

CR.HCR.Xfa.ByErSp.DysAct

Site 62, Bay north of Large Skerrie, 55° 13.437'N, 006° 38.021'W

26/08/06 Seasearch 3A, 2A, 2B

1) Large boulders on almost flat (16-17m) seabed below rock walls. Cover of short animal turf and foliose red algae.

CR.MCR.EcCr.CarSp.PenPcom

2) Steep bedrock walls (9-17m BCD) with short bryozoan and hydroid turf and a variety of 'clean water' sponges and bryozoans - *Pentapora foliacea*, *Polymastia penicillus* and *Cliona celata*. Fissures and crevices in bedrock. CR.MCR.EcCr.CarSp.PenPcom

2) Top of rocky wall at side of bay with kelp forest of *Laminaria hyperborea*. Depth surveyed 4-9m BCD IR.MIR.KR.Lhyp.Ft.

Site 63, North of Large Skerrie, 55° 13.465'N, 006° 38.000'W

070430/01

1) Infralittoral bedrock with many fissures 12-17m. Sparse *Laminaria hyperborea* kelp park and frequent red algae including *Delesseria sanguinea* and *Hypoglossum hypoglossoides*.

IR.HIR.KFaR.LhypR.Pk,

2) Fissured bedrock 12-17m with frequent *Flustra foliacea* and colonial ascidians including *Synoicum incrustatum*.

CR.HCR.XFa.FluCoAs.Syn

Site 64, North-west Large Skerrie, 55° 13.474'N, 006° 37.957'W

060822/04

Vertical and very steep bedrock wall leading onto boulders (14-27m). Rock silted with some crevices and fissures. Dominant fauna the corals *Alcyonium digitatum*, and *Caryophyllia smithii*, the anemone *Actinothoe sphyrodeta*, the bryozoan *Alcyonidium diaphanum*, urchins *Echinus esculentus* and the starfish *Leptasterias muelleri*. *Laminaria hyperborea* kelp park on upper parts of wall.

IR.MIR.KR.Lhyp.Pk

CR.MCR.EcCr.CarSp

Site 65, North-west Large Skerrie, 55° 13.469'N, 006° 37.824'W

070801/01

Steep boulder slope on the north side of the Skerries. Fauna dominated by bryozoans: *Securiflustra securifrons*, *Flustra foliacea* and dense bryozoan turf. Occasional 'pinhead' (*Pycnoclavella stolonialis*) and 'silt' ascidians embedded within the bryozoan turf.

CR.HCR.Xfa.ByErSp.DysAct

Site 66, North Large Skerrie, 55° 13.478'N, 006° 37.731'W

060823/01

Boulder slope from 15-28m (80% very large and 20% small). Cover of *Caryophyllia smithii*, *Alyconium digitatum*, *Actinothoe sphyrodeta*, barnacles and *Flustra foliacea*, *Bugula plumosa* and other bryozoans. *Dendrodoa grossularia* frequent under boulders. Frequent *Echinus esculentus*. Red algae on shallower areas of boulders. Occasional *Axinella damicornis* present.

CR.HCR.XFa.ByErSp

IR.HIR.KFaR.FoR

Site 67, North of Large Skerrie. 55° 13.460'N, 006° 37.693'W

24/09/06 Seasearch 6A, 6B, 6C

Rock reef (North side of Large Skerrie) with some boulders, cobbles and pebbles around base at 18.4m BCD. Boulders of varying size (18.4-19.4m BCD), mainly very large and large but some small present. Kelp forest at top of reef, becoming increasingly animal dominated (tall and short animal turf) with depth. Some areas silted. Red blenny *Parablennius ruber* recorded - first record for Northern Ireland.

CR.MCR.EcCr.CarSp

Site 68, North of Large Skerrie, 55° 13.502'N, 006° 37.549'W

070731/01

Boulders, mainly large, occasional small and very large; dominated by bryozoan cover, mainly *Flustra foliacea* and *Securiflustra securifrons*, with Crisiidae indet. Small patches of medium sand in between. Gentle boulder slope from 32.9m BSL to 27m BSL. Other species present included common *Caryophyllia smithii*, *Alcyonium digitatum* and bryozoan crusts; occasional colonial ascidians including *Polycarpa scuba* and *Morchellium argus*.

CR.HCR.Xfa.ByErSp.DysAct

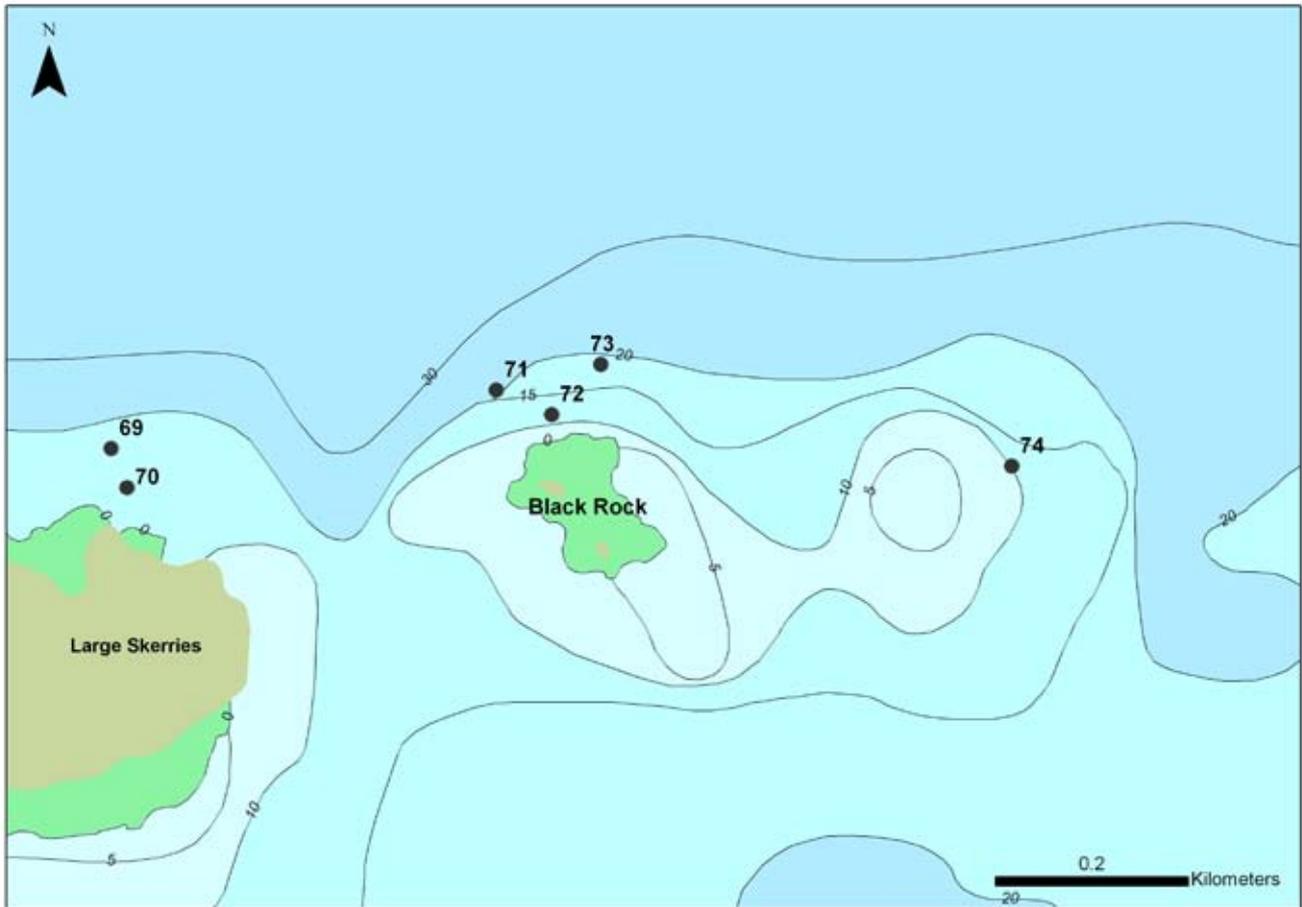


Figure 33. Sites 71-74. Black Rock.

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Site 69, North-east of Large Skerrie, 55° 13.495'N, 006° 37.423'W

070801/02

Vertical bedrock to 18m becoming boulder slope on very large boulders (3-4m). Flat seabed at 30m with sand between medium boulders. Large boulders with abundant *Securiflustra securifrons*. Large vertical rockface from 16-8m covered with *Dendrodoa grossularia* and *Sagartia elegans*.

CR.MCR.EcCr.FaAlCr.Sec

IR.FIR.SG.CrSpAsDenB

Site 70, North-east of Large Skerrie, 55° 13.482'N, 006° 37.414'W

060823/02

Very large (80%) and large (20%) boulders from 16-27m. Dominant cover *Flustra foliacea* and *Securiflustra securifrons* (common), Crisiid bryozoan turf (abundant), *Alcyonium digitatum* (abundant) and *Actinothoe sphyrodeta* (common). Red algae on upper parts of slope.

CR.HCR.XFa.FluCoAs.SmAs

IR.HIR.KFaR.FoR

Site 71, North-west of Black Rock, 55° 13.514'N, 006° 37.207'W

060822/02

Vertical bedrock from 14-25m. Dominant cover *Alcyonium digitatum* (common), *Caryophyllia smithii* (common), *Metridium senile* (occasional), and *Raspailia ramosa* (Frequent), *Axinella damicornis* recorded (rare).

CR.HCR.XFa.SpAnVt

Site 72, North-east of Black Rock, 55° 13.506'N, 006° 37.176'W

060823/03

Bedrock wall from 18-29.5m. Dominant cover *Alcyonium digitatum*, *Sagartia elegans* and *Corynactis viridis* (common) and a variety of erect sponges including *Tethya citrina* (frequent), *Axinella dissimilis*, *Axinella infundibuliformis*, and *Axinella damicornis* (occasional) and encrusting sponges (frequent).
CR.HCR.DpSp.var. (although could possibly be included in CR.HCR.XFa.ByErSp.Sag)

Site 73, North-east of Black Rock, 55° 13.522'N, 006° 37.148'W

060822/01

Vertical bedrock from 14-25m. Dominant cover *Alcyonium digitatum*, *Caryophyllia smithii* (common), *Metridium senile* (occasional) and *Raspailia ramosa* (Frequent).

CR.HCR.XFa.SpAnVt, CR.HCR.XFa.FluCoAs.SmAs

Site 74, 1st Pinnacle east of Black Rock, 55° 13.489'N, 006° 36.918'W

070803/01

Vertical rock face (23-29m) with fissures and crevices, with dominant cover of bryozoan turf, including *Crisia* sp., *Flustra foliacea*, *Securiflustra securifrons* and *Bugula* sp. Occasional sponge crusts and some extensive patches of *Cliona celata*. Rare patch of *Corynactis viridis*, frequent *Actinothoe sphyrodeta* and *Alcyonium digitatum*. Dense areas of the ascidian presently known as the 'red silt' sea squirt.

CR.HCR.XFa.FluCoAs.Syn

Site 75, East of Black Rock, 55° 13.513'N, 006° 36.615'W

060825/02

Bedrock from 20-28m, 50% vertical and 50% upper faces. Dominated by *Flustra foliacea* and *Securiflustra securifrons*, abundant *Dendrodoa grossularia*.

CR.HCR.XFa.FluCoAs.SmAs

Site 76, 2nd Pinnacle East of Black Rock, 55° 13.527'N, 006° 36.603'W

070803/02

Steep sided pinnacle - lower faces surveyed (25m+), although pinnacle ascended to 15m depth. Upper faces less steep. Large boulders at base of bedrock appeared to lead into sand at edge, but not surveyed. Dominant cover *Flustra foliacea*, *Securiflustra securifrons*, *Actinothoe sphyrodeta* and *Caryophyllia smithii* (common), *Alcyonium digitatum* and *Synoicum incrustatum* (frequent).

CR.HCR.XFa.FluCoAs.Syn

Site 77, East of Black Rock, 55° 13.525'N, 006° 36.534'W

060825/01

Steep bedrock ridge with fissures and crevices, 25.4m maximum surveyed. Quite silty. Horizontal faces (20% area) heavily silty with unidentified red ascidian present. Vertical faces dominated by *Actinothoe sphyrodeta* and erect sponges including *Axinella dissimilis*, *Raspailia hispida*, *Stelligera rigida* and *Axinella infundibuliformis*.

CR.HCR.DpSp.var

Site 78, East of Black Rock, 55° 13.512'N, 006° 36.542'W

060825/03

Bedrock from 18-29m. Dominant cover *Caryophyllia smithii*, *Alcyonium digitatum* (common), *Actinothoe sphyrodeta* (frequent), *Flustra foliacea* (frequent), 'red silt' ascidian (common) and erect and encrusting sponges.

CR.HCR.XFa.FluCoAs.SmAs (on vertical faces different biotope likely to be present but not enough information from dive to determine).

Site 79, The Storks, 55° 13.19'N, 006° 35.48'W

100423/01

Vertical bedrock wall from 10-14m with fissures and crevices. Very large angular boulders at base of wall (not surveyed in detail). Cover of *Flustra foliacea*, *Morchellium argus* and *Delesseria sanguinea*.

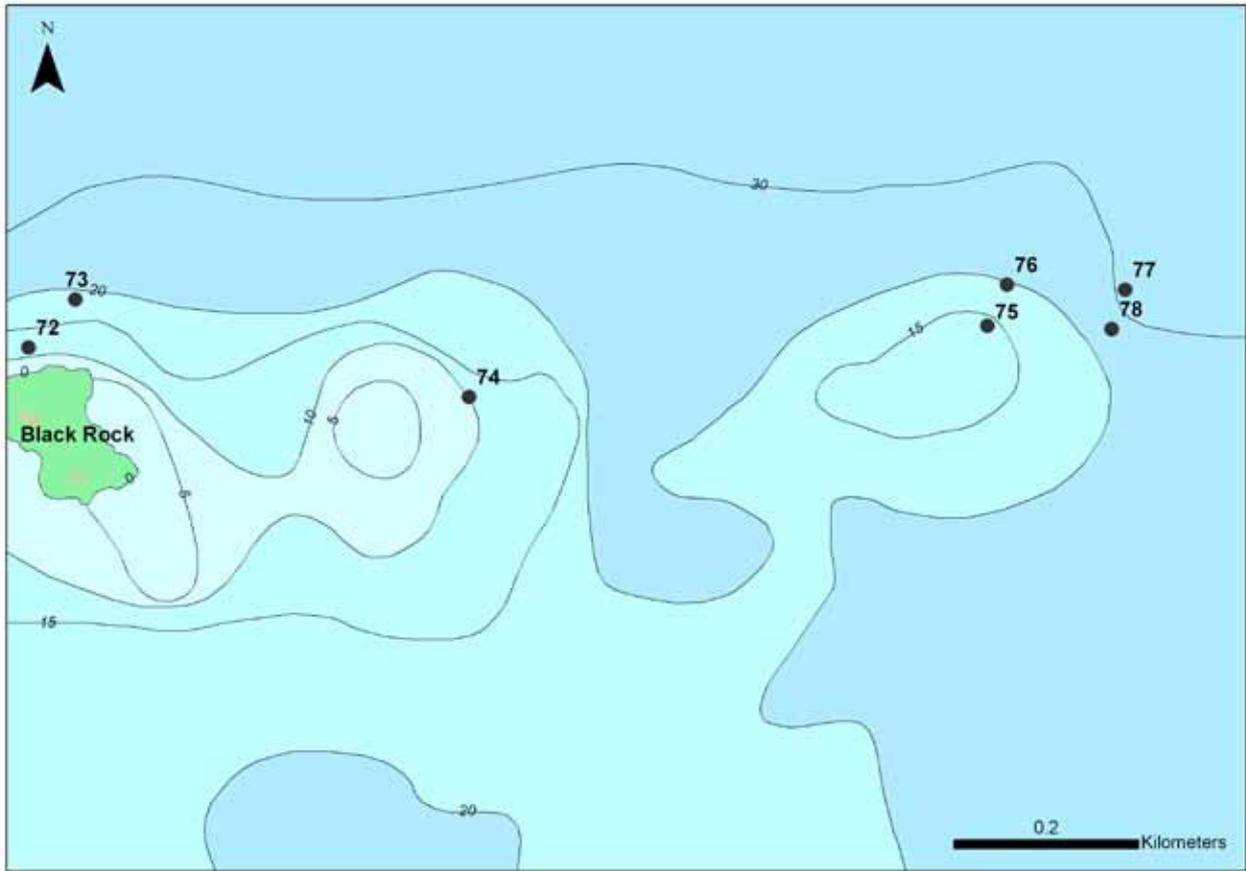


Figure 34. Sites 74-78. East of Black Rock.

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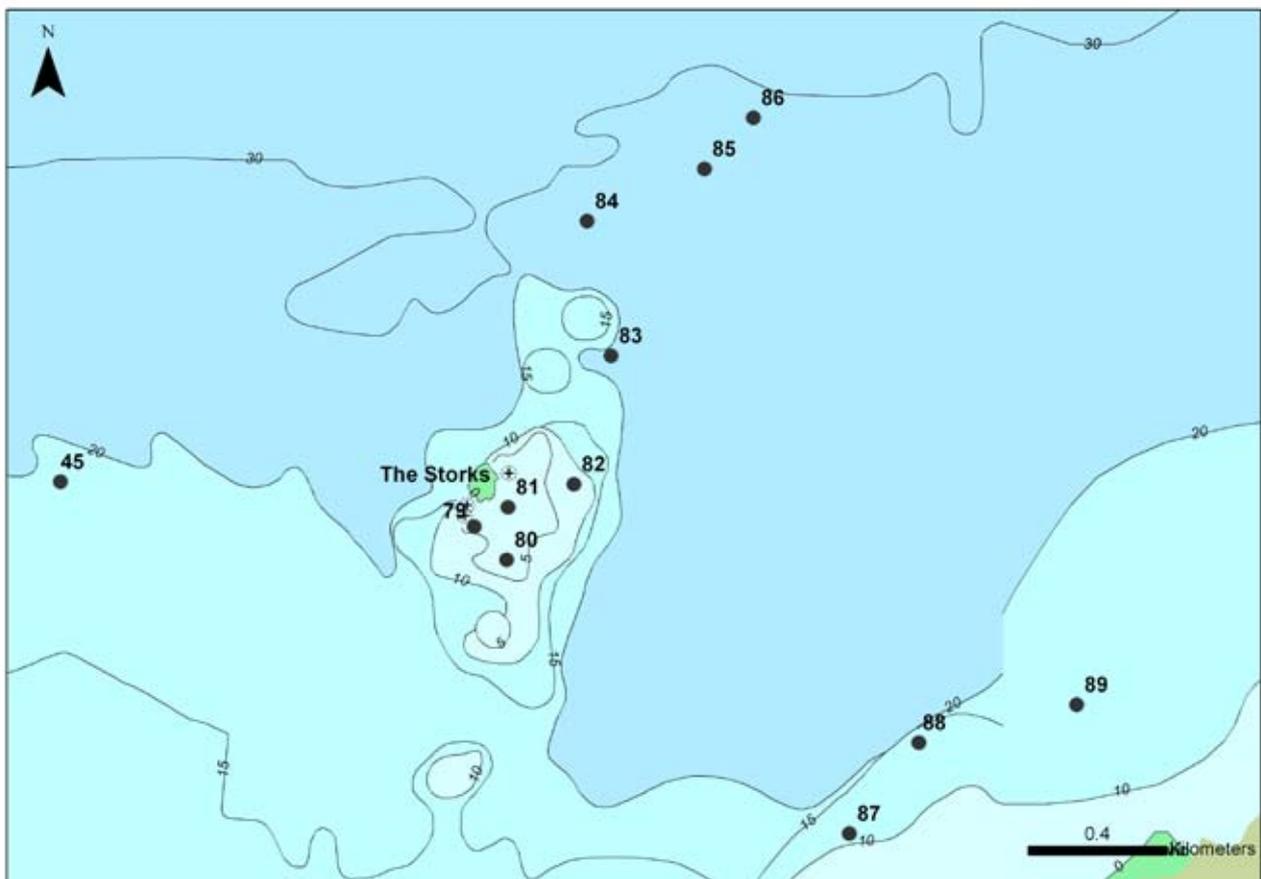


Figure 35. Sites 79-89. The Storks.

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CR.MCR.EcCr.CarSp
IR.MIR.KR.LhypT.Pk

Site 80, The Storks, 55° 13.16'N, 06 35.43'W

100423/02

Steep rock faces and sloping area of bedrock with large boulders. Upper parts of rock ridges at 14m with sparse kelp forest. Vertical faces and overhangs with bryozoans (*Flustra foliacea* (abundant) and *Securiflustra securifrons* (common)) and barnacles, occasional patches and clumps of sponges. Polyclinid ascidians and *Caryophyllia smithii* common. Large cliff at northern end of dive with sandy patch containing *Cerianthus lloydii* at base (18m). Cliff with several *Axinella dissimilis* and *A. damicornis*.

IR.MIR.KR.LhypT.Pk

CR.HCR.XFa.FluCoAs.Syn

CR.HCR.DpSp.var

Site 81, The Storks, 55° 13.207'N, 006° 35.429'W

26/08/06 Seasearch 1A, 1B, 1C

Dense kelp forest (*Laminaria hyperborea*) on bedrock from 2-10m. Small to large boulders with cobbles and pebbles 10.4-18.4m BCD. Short animal turf on boulders. Large number of mobile species, particularly crustaceans.

CR.MCR.EcCr.CarSp

IR.MIR.KR.Lhyp.Ft

Site 82, The Storks, 55° 13.228'N, 006° 35.268'W

100607/01

Slope of boulders which progressed into shallower water than depth surveyed. Boulders were very large at 20m, becoming progressively smaller down the slope. Base of slope at 23.7m led onto a plain of cobbles & pebbles. Whole slope quite silted with fine covering of silt; rock faces appeared scoured. Characterising species were *Alcyonidium diaphanum*, *Flustra foliacea*, *Synoicum incrustatum* & *Morchellium argus*. Some patches of *Dendrodoa grossularia* on boulder overhangs. Many fish (bib, wrasse) on upper parts of slope.

CR.HCR.XFa.FluCoAs

Site 83, The Storks, 55° 13.343'N, 006° 35.267'W

100607/02

Level area of boulders (depth 23m) with a dense cover of *Flustra foliacea*, hydroids and tunicates. Most boulders small, but stable, with spaces beneath the boulders and little silt. Patches of silty gravel between the boulders.

CR.HCR.XFa.FluCoAs.X

Site 84, North of the Storks, 55° 13.464'N, 006° 35.304'W

060823/04

Boulders from 20-23m. Dominated by *Flustra foliacea*, *Crisia*, *Caryophyllia smithii* and *Actinothoe sphyrodeta* (frequent). Red 'silty' ascidian frequent. Area of sponges including *Axinella dissimilis* and *Axinella damicornis*.

IR.HIR.KFaR.FoR

CR.HCR.DpSp.var

Site 85, Reef north of the Storks, 55° 13.511'N, 006° 35.121'W

100610/03

Vertical sided bedrock ridge (20-23m) leading onto slope of small boulders with occasional large and very large ones. Base of slope in 28.8m. This led into ridged sand. Dominant cover *Flustra foliacea*, *Nemertesia antennina* and *Actinothoe sphyrodeta*.

CR.HCR.XFa.ByErSp.DysAct

Site 86, North-east of the Storks, 55° 13.557'N, 006° 35.045'W

100610/02

Extensive flat rock platforms with vertical steps 1m in height. A few boulders on the rock. Flat rock with *Nemertesia antennina*, *Flustra* and *Securiflustra*. Numerous sea squirts in silt, possibly *Dendrodoa grossularia* and *Polycarpa scuba*. Vertical faces with abundant *Caryophyllia smithii* and some sponges.
CR.HCR.XFa.FluCoAs.SmAs

Site 87, Dunluce Reef, 55° 12.914'N, 006° 34.895'W

090825/01

3m high cliff of limestone, very pitted. Limestone rock ledge at base covered with sand with rounded basalt boulders.

CR.MCR.EcCr.CarSp

Site 88, Dunluce Reef, 55° 12.996'N, 006° 34.787'W

090825/02

Steeply sloping bedrock reef (18-21.7m), probably limestone. Some areas of highly pitted limestone, rest smooth and covered with layer of silt. Dominant species *Cliona celata*, red algae and *Nemertesia antennina*. Gentle slope of angular boulders. 19-21m surveyed, but went deeper. Some very large >1.5m, but most small. Patches of sand and pebbles between boulders. Dominant cover encrusting bryozoans and *Nemertesia antennina*. Whole habitat quite sand scoured, life not abundant. One specimen of *Pentapora foliacea*.

CR.MCR.EcCr.CarSp

Site 89, East Dunluce Reef, 55° 13.03'N, 006° 34.54'W

100422/03, 100422/04

Silty angular boulders of varying sizes, 15-17.8m depth surveyed. *Delesseria sanguinea* common, occasional *Flustra foliacea*. Occasional *Laminaria hyperborea* on shallower areas. One limestone outcrop, heavily bored with *Cliona celata*. Some dogfish eggs present on kelp stipe. Adjacent areas of *Flustra foliacea* and foliose red algae scattered on heavily silted fairly flat sloping limestone, giving the superficial appearance of a sediment seabed. Large angular boulders on bedrock with large *Alcyonium digitatum* on top. *Dendrodoa grossularia* in silt on limestone bedrock.

IR.MIR.KR.Lhyp.Pk

CR.MCR.EcCr.CarSp

CR.HCR.XFa.FluCoAs.SmAs

Site 90, North of Bushmills Bay, 55° 13.786'N, 006° 33.322'W

100608/01

Rock pinnacle with large flat top in 22.5m. Sides very steep, dropping to 27m at base. Small gully on top with small boulders. Dominated by *Flustra foliacea* and *Securiflustra securifrons*.

CR.HCR.XFa.FluCoAs.SmAs

Site 91, North of Bushmills Bay, 55° 13.825'N, 006° 33.168'W

100608/02

Low lying bedrock outcrops (27.5m), smoothly rounded and adjacent areas of boulders. Rock surfaces with abundant *Flustra foliacea* and some *Securiflustra securifrons*.

CR.HCR.XFa.FluCoAs

Site 92, Off Runkerry Point, 55° 13.98'N, 006° 32.09'W

100414/04

Silty sparse kelp forest. Early in season, but lots of small *Delesseria sanguinea*. Kelp stipes with occasional *Halichondria panicea* and many epiphytes. Some rugged gullies.

IR.MIR.KR.Lhyp.Pk

Site 93, North-west of Giant's Causeway, 55° 14.174'N, 006° 31.720'W

14/04/07 Seasearch 7A

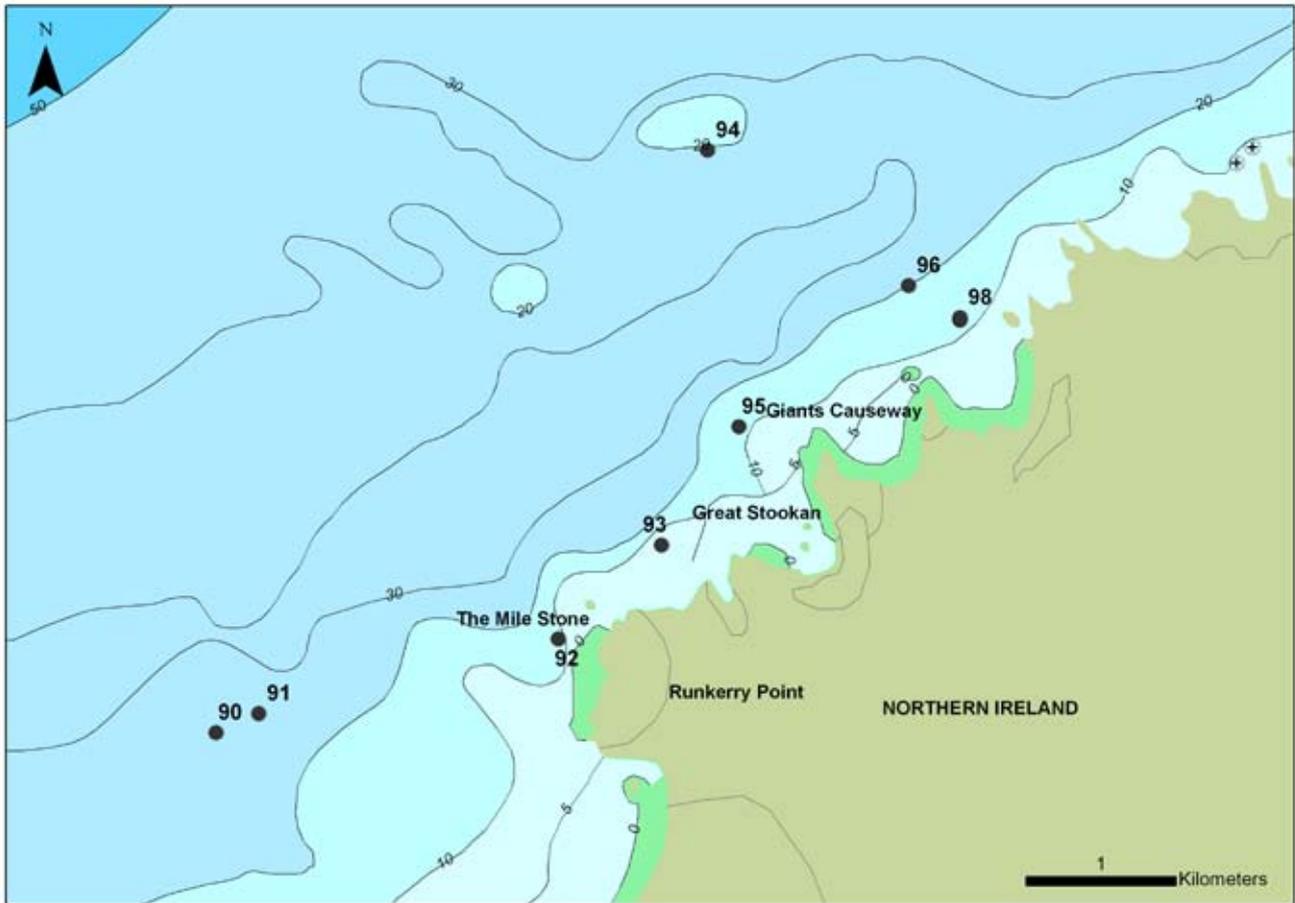


Figure 36. Sites 90-98. Runkerry Point and the Giant's Causeway. © British Crown and SeaZone Solutions Limited. All rights reserved. Products Licence No. 122009.004. This product has been derived in part from material obtained from the UK Hydrographic Office with the permission of the Controller of Her Majesty's Stationery Office and UK Hydrographic Office (www.ukho.gov.uk). NOT TO BE USED FOR NAVIGATION.

Steep limestone bedrock (9-16m). *Laminaria hyperborea* kelp park with rock surface underneath covered in colonial seasquirts (*Synoicum incrustatum*, *Morchellium argus*). Small pockets of coarse sand on ledges. *Haliclona viscosa* very common but odd beige colour rather than usual purpleish hue. Area of vertical bedrock (9-16m). Covered in pink encrusting algae and *Actinothoe sphyrodeta*. One crevice with sea cucumbers (*Pawsonia saxicola* and *Aslia lefevrei*).

CR.MCR.EcCr

IR.MIR.KR.LhypT.Pk

Site 94, Causeway Bank, 55° 14.992'N, 006° 31.554'W

100610/04

Large sand wave rising from 27m to 20m over the course of about 200-300m distance. Very gentle slope with much of the rise accounted for by frequent 'steps' of perhaps 20cm height, clearly visible by the accumulation of shell gravel forming straight lines on the seabed. Single large rise/steep bank of 2m height from about 24m to 22m leading to top of sand wave where the terrain was more pock-marked with sand depressions. Sand ripples throughout. Soft coarse/medium with some fine shell fragments. Several small *Pagurus bernhardus* and a couple of *Echinus esculentus* on top of sand wave.

SS.SCS.CCS

Site 95, Offshore of Giant's Causeway, 55° 14.42'N, 006° 31.44'W

100414/03

Low bedrock ridges (21.5-22.7m surveyed), quite rugged limestone in places. Quite scoured with sand and a thin layer of sand lying over bedrock. A few large boulders. *Synoicum incrustans* abundant. *Flustra foliacea* common and *Alcyonium digitatum* frequent. Some very large pieces of *Cliona celata*; other sponges such as *Polymastia* sp. common.

CR.HCR.XFa.FluCoAs.Syn

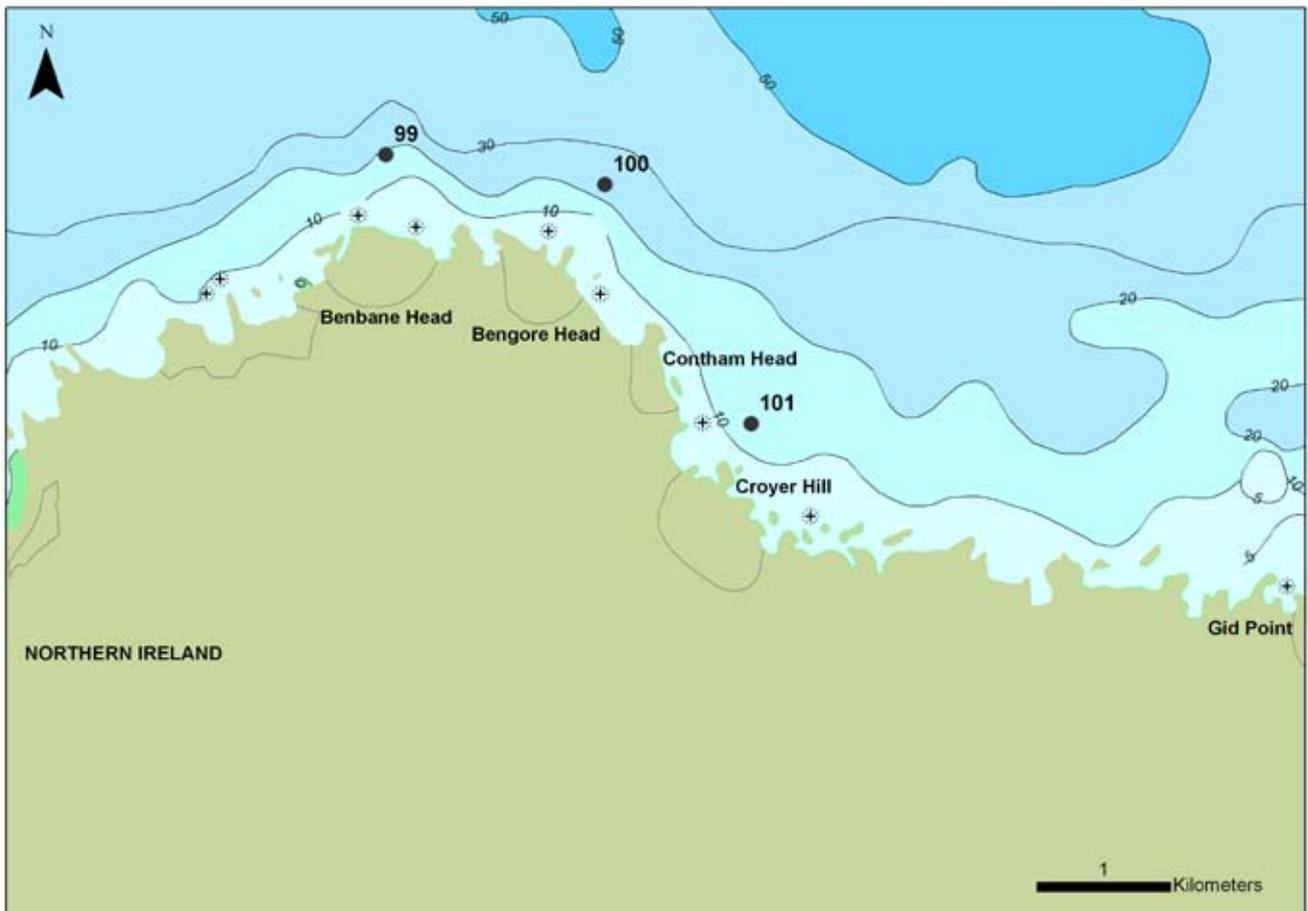


Figure 37. Sites 99-101. Bengore Head.

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Site 96, Offshore of Giant's Causeway, 55° 14.712'N, 006° 30.829'W

100412/01

Small angular boulders (basalt) and cobbles, with small patches between boulders of pebble and shelly coarse sand. *Pentapora foliacea* common. CR.MCR.EcCr.CarSp.PenPcom

Site 97, Offshore of Giant's Causeway, 55° 14.640'N, 006° 30.647'W

14/04/07 Seasearch 2A

Dive just offshore of Giant's Causeway. Seabed composed of large boulders and some bedrock outcrops forming ridges interspersed with patches of sand and gravel. Fairly flat (around 12.7m). Kelp park on boulders together with mixed seaweeds and some short animal turf (many colonial sea squirts). Little life in sediment, appears to be very mobile.

IR.HIR.KFaR.LhypR.Pk

Site 98, Offshore of Giant's Causeway, 55° 14.646'N, 006° 30.647'W

14/04/07 Seasearch DG,TB,ED

Gently sloping seabed from 13.7-16.7m BCD with boulders covered in kelp park and fairly abundant animal life.

Site 99, Bengore Head, 55° 15.29'N, 006° 28.92'W

100414/02

Rugged bedrock in steps (25-29m). Upper surfaces with *Flustra foliacea*. Vertical surfaces with bryozoans, especially *Parasmittina trispinosa* and patches of sponges, mostly *Haliclona viscosa*.

CR.MCR.EcCr.CarSp

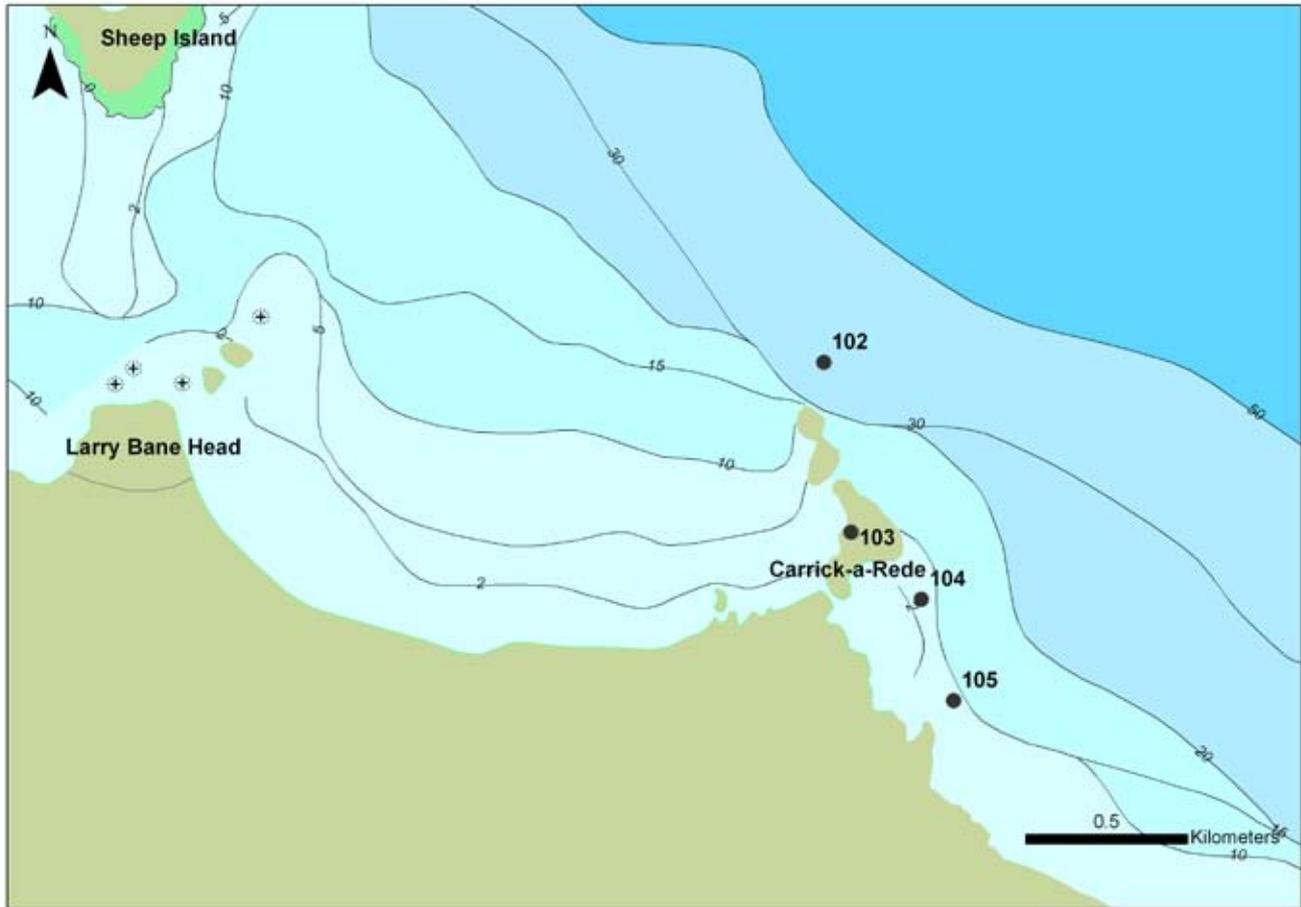


Figure 38. Sites 102-105. Carrick-a-Rede Island.

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Site 100, Bengore Head, 55° 15.22'N, 006° 28.03'W

100414/01

Level seabed of pebbles (black - ?basalt) with occasional small boulders. Not much life apparent. Pebbles scoured. *Ophiura albida* frequent, juvenile *Crossaster papposus*. Occasional boulders relatively bare - occasional *Halecium plumosum* and *Nemertesia antennina*.

CR.MCR.EcCr

Site 101, East of Bengore Head, 55° 14.661'N, 006° 27.436'W

100412/02

Laminaria hyperborea kelp forest with understory of red foliose algae. Substrate mixture of small boulders with cobbles and a small quantity of sand (depth 13-14m). Many seaweeds juvenile and impossible to identify.

IR.HIR.KFaR.LhypR.Ft

Site 102, Carrick-a-Rede Island, West side, 55° 14.598'N, 006° 20.012'W

07/09/08 NI8/081 NI8/080

Slope of large boulders on west side of Carrick-a-Rede Island. Depth surveyed from 18-21m BCD (bottom of slope). Red seaweeds very abundant, particularly *Heterosiphonia plumosa*. Upper parts of slope 9-18m mainly bedrock with *Laminaria hyperborea* kelp forest and park.

IR.HIR.KFaR.FoR.Dic

Site 103, Carrick-a-Rede Island, West side, 55° 14.435'N, 006° 19.907'W

30/06/07 Seasearch 6A-AK

Gently sloping bedrock reef from -4.2-19.2m BCD, slope faces north. Area of sand at base of reef and

another small area at the top of the slope. Upper parts of reef covered in kelp forest, deeper on the slope this thins to kelp park. Four/five catsharks/dogfish (*Scyliorhinus canicula*).

Site 104, Carrick-a-Rede, 55° 14.370'N, 006° 19.850'W

05/08/07 Seasearch 3A, 3B, 3C

Fine rippled mobile sand from 5.2-9.2m BCD. Bedrock cliff from 7.2-12.7m BCD with cobbles and pebbles at its base. Cliff covered in kelp *Laminaria hyperborea* and *Alaria esculenta* forest with understory of red weeds (species rich).

SS.SSa.IFiSa.IMoSa, IR.HIR.KFaR.Ala, IR.HIR.KFaR.LhypR.Ft

Site 105, Caves East of Carrick-a-Rede, 55° 14.273'N, 006° 19 795'W

07/09/08 Seasearch NI8/077, NI8/082

Three north facing seacaves in cliff to east side of Carrick-a-Rede Rope bridge. All three caves surveyed. Caves with steep bedrock walls, large boulders in base of cave interspersed with sand. Shallow - 0.8-4.2m BCD. Vertical bedrock walls of seacave dominated by sponge crusts and anemones (*Actinothoe sphyrodeta* and *Sagartia elegans*). Large boulders in base of cave covered in algae, mainly *Sacchoriza polyschides* and *Alaria esculenta*. Encrusting pink algae also present.

IR.FIR.SG.FoSwCC, IR.FIR.SG.CrSpAsAn

Appendix 2. Survey data used in this report. Organised by site number.

Site Number	Survey Name	Event Name	Marine Recorder Reference	Event Date	Start Position	Min Depth (m SL)	Max Depth (m SL)	Biotope Code	Surveyors
1	2007 Seasearch North Coast	Tuns Bank	CW, DG	26-May-07	55 14.00N, 006 53.50W	-12.5	-12.5	BS	Chris Wood David Goodwin
1	2007 Seasearch North Coast	Tun's Bank	OA, RS	26-May-07	55 14.00N, 006 53.50W	-11.7	-12.2	BS	Orea Anderson Ronnie Snyder
1	2007 Seasearch North Coast	Tuns Bank	AK, CG	26-May-07	55 14.006N, 006 53.500W	-14	-14	BS	Alasdair Kennedy Claire Goodwin
2	2007 SSNI North Coast	NE Foyle entry marker	070802/04	02-Aug-07	55 15.742N, 006 50.652W	-32	-32	SS.SMx.CMx.FluHyd	Bernard Picton Hugh Edwards Lin Baldock
3	2007 Seasearch North Coast	Black Rocks, 0.6 miles NW of Portstewart Harbour	CW, DG	26-May-07	55 11.369N, 006 44.256W	-22	-23.5	SS.SMx.CMx.FluHyd	Chris Wood David Goodwin
3	2007 Seasearch North Coast	Black Rocks, 0.6 miles NW of Portstewart Harbour	OA, RS	26-May-07	55 11.369N, 006 44.256W	-21	-23.9	SS.SMx.CMx.FluHyd	Orea Anderson Ronnie Snyder
3	2007 Seasearch North Coast	Black Rocks, 0.6m N Portstewart	CG, AK	26-May-07	55 11.369N, 006 44.256W	-22	-23.9	SS.SMx.CMx.FluHyd	Alasdair Kennedy Claire Goodwin
4	2007 SSNI North Coast	NW Portstewart Point	070802/03	02-Aug-07	55 11.728N, 006 44.094W	-25	-25	SS.SSa.CFIa	Claire Goodwin Jennifer Jones
5	2009 Seasearch Ramore Head	Ramore Head, Portrush	N19/018	31-May-09	55 12.63N, 006 39.79W	-15.5	-17.5	MS	Jonathan Beattie
6	2008 Seasearch Ramore Head	Ramore Head, Portrush	N18/043, 046	15-Jun-08	55 12.602N 006 39.877W	-15	-30	IR.HIR.KSed.XKScrR	Dearm McClintock Sven Laming
6	2008 Seasearch Ramore Head	Ramore Head, Portrush	N18/043, 046	15-Jun-08	55 12.602N 006 39.877W	-15	-30	CR.HCR.XFa.FluCoAs	Dearm McClintock Sven Laming
7	2009 Seasearch Ramore Head	Ramore Head, Portrush	N19/069	31-May-09	55 12.581N, 006 39.745W	-13	-17.5	CR.HCR.XFa.FluCoAs	Charmaine Blake Stephen McClelland
7	2009 Seasearch Ramore Head	Ramore Head, Portrush	N19/069	31-May-09	55 12.581N, 006 39.745W	-13	-17.5	TAT	Charmaine Blake Stephen McClelland
8	2009 Seasearch Ramore Head	Ramore Head, Portrush	N19/061	23-Aug-09	55 12.608N, 006 39.771	-16	-17.3	CR.HCR.XFa.FluCoAs	Claire Goodwin Frances O'Sullivan
8	2009 Seasearch Ramore Head	Ramore Head, Portrush	N19/055	23-Aug-09	55 12.608N, 006 39.771 W	-10	-15	MS	David Goodwin Stephen McClelland
8	2009 Seasearch Ramore Head	Ramore Head, Portrush	N19/059	23-Aug-09	55 12.608N, 006 39.771 W	-9	-17	MS	Dave Harrison Noel Black
9	2008 Seasearch Ramore Head	Ramore Head, Portrush	N18/050	15-Jun-08	55 12.602N, 006 39.765W	-10	-18	KP	Adrian Marshall Charmaine Blake
10	2009 Seasearch Ramore Head	Ramore Head, Portrush	N19/019	31-May-09	55 12.643N, 006 39.799W	-15	-22.5	CR.HCR.XFa.FluCoAs	Claire Goodwin Sharon Fallows
10	2009 Seasearch Ramore Head	Ramore Head, Portrush	N19/019	31-May-09	55 12.643N, 006 39.799W	-15	-22.5	TAT	Claire Goodwin Sharon Fallows
11	2008 Seasearch Ramore Head	Ramore Head, Portrush	N18/045, 035, 036	15-Jun-08	55 12.602N, 006 39.764W	-17	-22	CR.HCR.XFa.FluCoAs.SmAs	Alasdair Kennedy Claire Goodwin Melvyn Heath

Site Number	Survey Name	Event Name	Marine Recorder Reference	Event Date	Start Position	Min Depth (m SL)	Max Depth (m SL)	Biotope Code	Surveyors
12	2008 Seasearch Ramore Head	The Blue Pool	NI8/029	07-Jun-08	55 12.533N, 006 39.248W	-2	-7	IR.HIR.KSed.L.sacChoR	Daniel O'Neill Ronnie Snyder
12	2007 Seasearch North Coast	The Blue Pool	5A-PM KM	09-Jun-07	55 12.533N, 006 39.248W	-2.5	-7.2	KF	Karen McKinstry Paul Mellwaine
13	2009 Seasearch Ramore Head	Slipway North of Blue Pool Country-side Centre	NI9/046	27-May-09	55 12.379N, 006 39.190W	-1.3	-5.2	SS.SCS.ICS	Charmaine Blake Daniel O'Neill
13	2009 Seasearch Ramore Head	Slipway North of Blue Pool Country-side Centre	NI9/046	27-May-09	55 12.379N, 006 39.190W	-1.3	-5.2	IR.HIR.KFaR.FoR.Dic	Charmaine Blake Daniel O'Neill
13	2009 Seasearch Ramore Head	Slipway North of Blue Pool Country-side Centre	NI9/046	27-May-09	55 12.379N, 006 39.190W	-1.3	-5.2	IR.HIR.KFaR.Ala	Charmaine Blake Daniel O'Neill
13	2009 Seasearch Ramore Head	Slipway North of Blue Pool Country-side Centre	NI9/046	27-May-09	55 12.379N, 006 39.190W	-1.3	-5.2	IR.HIR.KFaR.LhypR	Charmaine Blake Daniel O'Neill
14	2010 SSNI Skerries	Curran Reef	100608/03	08-Jun-10	55 13.727N, 006 39.567W	-32	-35.7	CR.HCR.XFa.FluCoAs.Syn	Claire Goodwin Ronnie Snyder
14	2010 SSNI Skerries	Curran Reef	100608/03	08-Jun-10	55 13.727N, 006 39.567W	-32	-35.7	SS.SMx.CMx.EucHyd	Claire Goodwin Ronnie Snyder
15	2010 SSNI Skerries	Curran Reef	100608/04	08-Jun-10	55 13.737N, 006 39.328W	-28	-33	CR.HCR.XFa.FluCoAs.Syn	Bernard Picton Hugh Edwards
16	2010 SSNI Skerries	South of Solan Reef	100423/04	23-Apr-10	55 14.56N, 006 39.16W	-35	-40	CR.HCR.XFa.FluCoAs.Syn	Bernard Picton Hugh Edwards
16	2010 SSNI Skerries	South of Solan Reef	100423/03	23-Apr-10	55 14.96N, 006 39.16W	-35.7	-38.9	CR.HCR.XFa.FluCoAs.Syn	Claire Goodwin Joe Breen
17	2010 SSNI Skerries	Solan Reef	100611/01	11-Jun-10	55 14.933N, 006 39.121W	-32	-34.6	CR.HCR.XFa.FluCoAs	Bernard Picton Claire Goodwin Hugh Edwards Joe Breen
17	2010 SSNI Skerries	Solan Reef	100611/01	11-Jun-10	55 14.933N, 006 39.121W	-32	-34.6	CR.MCR.EcCr.UrtScr	Bernard Picton Claire Goodwin Hugh Edwards Joe Breen
18	2010 SSNI Skerries	The Ridges, Pottrush	100422/01	22-Apr-10	55 16.31N, 006 36.87W	-32	-34	CR.HCR.XFa.FluCoAs	Claire Goodwin Joe Breen
18	2010 SSNI Skerries	The Ridges, Pottrush	100422/02	22-Apr-10	55 16.31N, 006 36.87W	-33	-36	CR.HCR.XFa.FluCoAs	Bernard Picton Hugh Edwards
19	2006 Seasearch Skerries	West of Broad Sound	8D	05-Nov-06	55 13.096N, 006 38.912W	-21	-22	SS.SMx.CMx.FluHyd	Claire Goodwin Oisín Sweeney
19	2006 Seasearch Skerries	West of Broad Sound	8C	05-Nov-06	55 13.096N, 006 38.912W	-21	-21.3	SLA	Elena Deligianni Thorsten Brabetz
19	2006 Seasearch Skerries	West of Broad Sound	8B	05-Nov-06	55 13.096N, 006 38.912W	-20	-21.9	SAT	David Goodwin Paul Mellwaine
20	2006 SSNI Skerries	West of Broad Sound	060824/03	24-Aug-06	55 12.975N, 006 38.796W			SS.SMx.CMx.EucHyd	Anne Marie Mahon Bernard Picton

Site Number	Survey Name	Event Name	Marine Recorder Reference	Event Date	Start Position	Min Depth (m SL)	Max Depth (m SL)	Biotope Code	Surveyors
21	2006 SSNI Skerries	West of Broad Sound	060824/04	24-Aug-06	55 12.870N, 006 38.790W	-22.7	-24.6	SS.SMx.CMx.EucHyd	Claire Goodwin Jennifer Jones
22	2006 Seasearch Skerries	500m South of Little Skerrie	7A	24-Sep-06	55 13.050N, 006 38.700W	-22	-24	SAT	Jan Coleman Ronnie Snyder
23	2006 Seasearch Skerries	500m South of Little Skerrie	7B	24-Sep-06	55 12.980N, 006 38.650W	-23	-24	SS.SMx.CMx.EucHyd	Brian McIlroy Claire Goodwin Thorsten Brabetz
24	2006 SSNI Skerries	Broad Sound	060823/06	23-Aug-06	55 12.987N, 006 38.654W	-22	-25	SS.SMx.CMx.EucHyd	Bernard Picton Jennifer Jones
25	2006 Seasearch Skerries	500m South of Large Skerrie	7C	24-Sep-06	55 12.98N, 006 38.65W	-24	-25	TAT	David Goodwin Paul McIlwaine
26	2006 SSNI Skerries	North-east Broad Sound	060824/06	24-Aug-06	55 13.171N, 006 38.575W	-24	-27	CR.HCR.XFa	Anne Marie Mahon Bernard Picton
27	2006 Seasearch Skerries	North-east Broad Sound	9A	05-Nov-06	55 13.096N, 006 38.556W	-20	-22.8	CR.MCR.EcCr	Andrew Blight Herbie Dennis
28	2006 Seasearch Skerries	South of the Skerries	9E	05-Nov-06	55 13.096N, 006 38.912W	-14	-22	CR.HCR.XFa	Brian McIlroy Franklyn Riemann
28	2006 Seasearch Skerries	South of the Skerries	9E	05-Nov-06	55 13.096N, 006 38.912W	-14	-22	SS.SCS.CCS	Brian McIlroy Franklyn Riemann
29	2006 SSNI Skerries	East Broad Sound	060821/06	21-Aug-06	55 13.036N, 006 38.439W	-23	-23.9	SS.SMx.CMx.FluHyd	Bernard Picton Jennifer Jones
30	2006 SSNI Skerries	East Broad Sound	060824/01	24-Aug-06	55 12.975N, 006 38.427W	-16	-24.8	SS.SMx.CMx.EucHyd	Claire Goodwin Jennifer Jones
31	2007 SSNI Skerries	300m SE Little Skerrie	070802/02	02-Aug-07	55 13.174N, 006 38.422W	-9	-23	SS.SMp.KSwSS.LsacR	Bernard Picton Hugh Edwards Lin Baldock
31	2007 SSNI Skerries	300m SE Little Skerrie	070802/02	02-Aug-07	55 13.174N, 006 38.422W	-9	-23	SS.SSa.IFiSa.IMoSa	Bernard Picton Hugh Edwards Lin Baldock
31	2007 SSNI Skerries	300m SE Little Skerrie	070802/02	02-Aug-07	55 13.174N, 006 38.422W	-9	-23	SS.SCS.ICS	Bernard Picton Hugh Edwards Lin Baldock
32	2006 Seasearch Skerries	South of Little Skerrie	4A	27-Aug-06	55 13.161N, 006 38.445W	-10	-24	MS	Claire Goodwin David Goodwin
32	2006 Seasearch Skerries	South of Little Skerrie	4A	27-Aug-06	55 13.161N, 006 38.445W	-10	-24	SLA	Claire Goodwin David Goodwin
32	2006 Seasearch Skerries	South of Little Skerrie	4A	27-Aug-06	55 13.161N, 006 38.445W	-10	-24	SLA	Claire Goodwin David Goodwin
33	2006 SSNI Skerries	East Broad Sound	060821/05	21-Aug-06	55 13.074N, 006 38.400W			SS.SMx.CMx.FluHyd	Joe Breen Trevor Harrison
34	2006 SSNI Skerries	South-east Little Skerrie	060821/04	21-Aug-06	55 13.141N, 006 38.315W	-22	-22	SS.SMx.CMx.EucHyd	Anne Marie Mahon Claire Goodwin
35	2009 SSNI Skerries	Skerries Sandbank, North of Portrush Golf Links	090824/01	24-Aug-09	55 12.836N, 006 38.236W	-16	-16.2	SS.SSa.IFiSa.IMoSa	Claire Goodwin Joe Breen

Site Number	Survey Name	Event Name	Marine Recorder Reference	Event Date	Start Poisiton	Min Depth (m SL)	Max Depth (m SL)	Biotope Code	Surveyors
36	2006 Seasearch Skerries	Inside of Skerries	8E	05-Nov-06	55 12.928N, 006 37.556W	-17.5	-19	SS.SMx.CMx	Brian McIlroy Franklyn Riemann
37	2006 Seasearch Skerries	South of Skerries	9C	05-Nov-06	55 12.947N, 006 37.699W	-16	-22.8	SLA	David Goodwin Paul McIlwaine
37	2006 Seasearch Skerries	South of Skerries	9B	05-Nov-06	55 12.947N, 006 37.699W	-17	-22	SLA	Elena Deligianni Thorsten Brabetz
38	2006 Seasearch Skerries	Inside of Skerries	8A	05-Nov-06	55 12.928N, 006 37.556W	-16.2	-24.2	SS.SMx.CMx	Andrew Blight Herbie Dennis
39	2006 Seasearch Skerries	South of Skerries	9D	05-Nov-06	55 12.957N, 006 37.699W	-18	-22	SS.SMx.CMx.FluHyd	Claire Goodwin Oisín Sweeney
40	2007 SSNI Skerries	600m south Large Skerrie	070802/01	02-Aug-07	55 13.090N, 006 37.919W	-10	-14.7	SS.SMp.KSwSS.LsacR	Claire Goodwin Jennifer Jones
41	2006 Seasearch Skerries	South of Little Skerrie 2	4B	27-Aug-06	55 13.161N, 006 38.445W	-10	-23	SS.SMx.CMx.FluHyd	Chris Wood Elena Deligianni
41	2006 Seasearch Skerries	South of Little Skerrie 2	4B	27-Aug-06	55 13.161N, 006 38.445W	-10	-23	SS.SMp.KSwSS.LsacR	Chris Wood Elena Deligianni
41	2006 Seasearch Skerries	South of Little Skerrie 2	4B	27-Aug-06	55 13.161N, 006 38.445W	-10	-23	SS.SSa	Chris Wood Elena Deligianni
41	2006 Seasearch Skerries	South of Little Skerrie 2	4B	27-Aug-06	55 13.161N, 006 38.445W	-10	-23	SS.SSa	Chris Wood Elena Deligianni
42	2006 Seasearch Skerries	South of Large Skerrie	4D	27-Aug-06	55 13.204N, 006 38.019W	-12	-13.7	SS.SMp.KSwSS.LsacR	Graham Day Julia Nunn
42	2006 Seasearch Skerries	South of Large Skerrie	4D	27-Aug-06	55 13.204N, 006 38.019W	-12	-13.7	SS.SSa.IFiSa.IMoSa	Graham Day Julia Nunn
43	2010 SSNI Skerries	Inside Skerries	100610/01	10-Jun-10	55 13.124N, 006 37.111W	-15	-16	SS.SSa.IFiSa.IMoSa	Claire Goodwin Joe Breen
44	2008 Seasearch Ramore Head	Inside Skerries	N18/044	15-Jun-08	55 13.33N, 006 38.15W	-4	-10	KF	Dearn McClintock Sven Laming
44	2008 Seasearch Ramore Head	Inside Skerries	N18/033	15-Jun-08	55 13.33N, 006 38.150W	-10	-11	KF	Adrian Marshall Charmaine Blake
45	2006 Seasearch Skerries	South of Little Skerrie	4C	27-Aug-06	55 13.161N, 006 38.445W	-9	-18	SS.SMp.KSwSS.LsacR	Brian McIlroy Sven Laming
46	2008 Seasearch Ramore Head	Inside Castle Island	N18/049	15-Jun-08	55 13.333N, 006 38.150W	-9	-18	IR.MIR.KT	Alasdair Kennedy Claire Goodwin
46	2008 Seasearch Ramore Head	Inside Castle Island	N18/049	15-Jun-08	55 13.333N, 006 38.150W	-9	-18	SS.SSa.IFiSa	Alasdair Kennedy Claire Goodwin
46	2008 Seasearch Ramore Head	Inside Castle Island	N18/049	15-Jun-08	55 13.333N, 006 38.150W	-9	-18	CR.HCR.XFa.FluCoAs.SmAs	Alasdair Kennedy Claire Goodwin
47	2006 Seasearch Skerries	South-east of Large Skerrie	5C	27-Aug-06	55 13.35N, 006 37.85W	-9	-15	SS.SMp.KSwSS.LsacR	Brian McIlroy Sven Laming
48	2009 Seasearch Ramore Head	South of Large Skerrie	N19/063	23-Aug-09	55 13.35N, 006 37.98W	-6.5	-8.9	SS.SMp.KSwSS.LsacR	Claire Goodwin Frances O'Sullivan

Site Number	Survey Name	Event Name	Marine Recorder Reference	Event Date	Start Position	Min Depth (m SL)	Max Depth (m SL)	Biotope Code	Surveyors
49	2009 Seasearch Ramore Head	South of Large Skerrie	NI9/062	23-Aug-09	55 13.35N, 006 37.980W	-7	-12	SS.SMp.KSwSS.LsacR	David Goodwin
50	2009 Seasearch Ramore Head	South of Large Skerrie	NI9/068	31-May-09	55 13.353N, 006 37.953W	0	-18	IR.HIR.KFaR.FoR	Charmaine Blake Stephen McClelland
50	2009 Seasearch Ramore Head	South of Large Skerrie	NI9/068	31-May-09	55 13.353N, 006 37.953W	0	-18	IR.HIR.KFaR.Ala.Ldig	Charmaine Blake Stephen McClelland
51	2009 Seasearch Ramore Head	South of Large Skerrie	NI9/058	23-Aug-09	55 13.351N, 006 37.980W	-8	-10	KF	Dave Harrison Noel Black
52	2006 Seasearch Skerries	South of Large Skerrie	5A	27-Aug-06	55 13.350N, 006 37.850W	-7	-10	SS.SMp.KSwSS.LsacR	Claire Goodwin David Goodwin
52	2006 Seasearch Skerries	South of Large Skerrie	5B	27-Aug-06	55 13.35N, 006 37.85W	0	-9	SS.SMp.SSgr.Zmar	Chris Wood Elena Deligianni
52	2006 Seasearch Skerries	South of Large Skerrie	5B	27-Aug-06	55 13.35N, 006 37.85W	0	-9	IR.MIR.KR.Lhyp.Ft	Chris Wood Elena Deligianni
52	2006 Seasearch Skerries	South of Large Skerrie	5B	27-Aug-06	55 13.35N, 006 37.85W	0	-9	SS.SMp.KSwSS.LsacR	Chris Wood Elena Deligianni
52	2006 Seasearch Skerries	South of Large Skerrie	5D	27-Aug-06	55 13.35N, 006 37.85W	-6	-9	KP	Mark Glendinning Ruth Brennan
52	2006 Seasearch Skerries	South of Large Skerrie	5E	27-Aug-06	55 13.35N, 006 37.85W	-8	-10.5	SS.SMp.SSgr.Zmar	Graham Day Julia Nunn
52	2006 Seasearch Skerries	South of Large Skerrie	5E	27-Aug-06	55 13.35N, 006 37.85W	-8	-10.5	SS.SMp.KSwSS.LsacR	Graham Day Julia Nunn
53	2009 Seasearch Ramore Head	Inside of Large Skerrie near swim-through	NI9/020	31-May-09	55 13.353N, 006 37.983W	-4	-9	SAT	Claire Goodwin Sharon Fallows
53	2009 Seasearch Ramore Head	Inside of Large Skerrie near swim-through	NI9/020	31-May-09	55 13.353N, 006 37.983W	-4	-9	IR.MIR.KR.Lhyp.Ft	Claire Goodwin Sharon Fallows
53	2009 Seasearch Ramore Head	Inside of Large Skerrie near swim-through	NI9/020	31-May-09	55 13.353N, 006 37.983W	-4	-9	SS.SSa	Claire Goodwin Sharon Fallows
54	2009 Seasearch Ramore Head	South of Large Skerrie	NI9/060	23-Aug-09	55 13.351N, 006 37.890W		-8.4	KF	Brendan Fitzpatrick Michael O'Kane
55	2006 SSNI Skerries	South of Large Skerrie	060821/03	21-Aug-06	55 13.325N, 006 37.819W		-10.6	SS.SMp.SSgr.Zmar	Bernard Picton Jennifer Jones
56	2009 SSNI Skerries	South of Large Skerrie	090824/02	24-Aug-09	55 13.330N, 006 37.810W	-6	-8	SS.SMp.SSgr.Zmar	Hugh Edwards Ronnie Snyder
57	2006 SSNI Skerries	South of Large Skerrie	060821/01	21-Aug-06	55 13.354N, 006 37.598W	-8	-9.4	SS.SMp.SSgr.Zmar	Anne Marie Mahon Claire Goodwin
58	2006 SSNI Skerries	South coast Large Skerrie	060821/02	21-Aug-06	55 13.353N, 006 37.525W			SS.SMp.SSgr.Zmar	Joe Breen Trevor Harrison
59	2007 SSNI Skerries	South coast Large Skerrie	070801/03	01-Aug-07	55 13.362N, 006 37.504W	-5	-9	SS.SMp.SSgr.Zmar	Jennifer Jones Lin Baldock
60	2006 SSNI Skerries	North-west Large Skerrie	060822/03	22-Aug-06	55 13.437N, 006 38.061W	-16	-28	CR.HCR.DpSp	Claire Goodwin Jennifer Jones

Site Number	Survey Name	Event Name	Marine Recorder Reference	Event Date	Start Poisiton	Min Depth (m SL)	Max Depth (m SL)	Biotope Code	Surveyors
61	2007 SSNI Skerries	North of Castle Island	070731/03	31-Jul-07	55 13.464N, 006 38.288W	-22	-23.7	CR..HCR..Xfa.ByErSp.DysAct	Jennifer Jones Lin Baldock
62	2006 Seasearch Skerries	Bay north of Large Skerrie	2A	26-Aug-06	55 13.437N, 006 38.021W	-4	-20	IR..MIR..KR.Lhyp.Ft	Brian McIlroy Sven Laming
62	2006 Seasearch Skerries	Bay north of Large Skerrie	2A	26-Aug-06	55 13.437N, 006 38.021W	-4	-20	CR..MCR..EcCr:CarSp.PenPcom	Brian McIlroy Sven Laming
62	2006 Seasearch Skerries	Bay north of Large Skerrie	2A	26-Aug-06	55 13.437N, 006 38.021W	-4	-20	CR..MCR..EcCr:CarSp.PenPcom	Brian McIlroy Sven Laming
62	2006 Seasearch Skerries	Bay north of Large Skerrie	3A	26-Aug-06	55 13.437N, 006 38.021W	-5	-18	IR..MIR..KR.Lhyp.Ft	Chris Wood Elena Deligianni
62	2006 Seasearch Skerries	Bay north of Large Skerrie	3A	26-Aug-06	55 13.437N, 006 38.021W	-5	-18	CR..MCR..EcCr:CarSp.PenPcom	Chris Wood Elena Deligianni
62	2006 Seasearch Skerries	Bay north of Large Skerrie	3A	26-Aug-06	55 13.437N, 006 38.021W	-5	-18	CR..MCR..EcCr:CarSp.PenPcom	Chris Wood Elena Deligianni
62	2006 Seasearch Skerries	Bay north of Large Skerrie	2B	26-Aug-06	55 13.437N, 006 38.021W	-16	-24	CR..MCR..EcCr:CarSp	David Goodwin Heather Law
63	2007 SSNI Skerries	North of Large Skerrie	070430/01	30-Apr-07	55 13.465N, 006 38.000W	-12	-30	CR..HCR..XFa.FluCoAs.Syn	Bernard Picton Claire Goodwin Joe Breen Paulo Pizzolla
63	2007 SSNI Skerries	North of Large Skerrie	070430/01	30-Apr-07	55 13.465N, 006 38.000W	-12	-30	IR..HIR..KFaR.Lhyp.Rk	Bernard Picton Claire Goodwin Joe Breen Paulo Pizzolla
63	2007 SSNI Skerries	North of Large Skerrie	070430/01	30-Apr-07	55 13.465N, 006 38.000W	-12	-30	CR..HCR..XFa.FluCoAs.Syn	Bernard Picton Claire Goodwin Joe Breen Paulo Pizzolla
64	2006 SSNI Skerries	North-west Large Skerrie	060822/04	22-Aug-06	55 13.474N, 006 37.957W	-14	-27	IR..MIR..KR.Lhyp.Pk	Anne Marie Mahon Bernard Picton Trevor Harrison
64	2006 SSNI Skerries	North-west Large Skerrie	060822/04	22-Aug-06	55 13.474N, 006 37.957W	-14	-27	CR..MCR..EcCr:CarSp	Anne Marie Mahon Bernard Picton Trevor Harrison
65	2007 SSNI Skerries	North-west Large Skerrie	070801/01	01-Aug-07	55 13.469N, 006 37.824W	-22	-24.5	CR..HCR..Xfa.ByErSp.DysAct	Jennifer Jones Lin Baldock
66	2006 SSNI Skerries	North Large Skerrie	060823/01	23-Aug-06	55 13.478N, 006 37.731W	-15	-28	CR..HCR..XFa.ByErSp	Anne Marie Mahon Claire Goodwin
66	2006 SSNI Skerries	North Large Skerrie	060823/01	23-Aug-06	55 13.478N, 006 37.731W	-15	-28	IR..HIR..KFaR.FoR	Anne Marie Mahon Claire Goodwin
67	2006 Seasearch Skerries	North of Large Skerrie	6C	24-Sep-06	55 13.45N, 006 37.69W	-15	-28	TAT	David Goodwin Paul Mellwane
67	2006 Seasearch Skerries	North of Large Skerrie	6B	24-Sep-06	55 13.460N, 006 37.693W	-16	-21	CR..MCR..EcCr:CarSp	Brian McIlroy Claire Goodwin Thorsten Brabetz

Site Number	Survey Name	Event Name	Marine Recorder Reference	Event Date	Start Poisiton	Min Depth (m SL)	Max Depth (m SL)	Biotope Code	Surveyors
67	2006 Seasearch Skerries	North of Large Skerrie	6B	24-Sep-06	55 13.460N, 006 37.693W	-16	-21	KP	Brian McIlroy Claire Goodwin Thorsten Brabetz
67	2006 Seasearch Skerries	North of Large Skerrie	6A	24-Sep-06	55 13.460N, 006 37.693W	-14	-20	KF	Jan Coleman Ronnie Snyder
67	2006 Seasearch Skerries	North of Large Skerrie	6A	24-Sep-06	55 13.460N, 006 37.693W	-14	-20	MS	Jan Coleman Ronnie Snyder
68	2007 SSNI Skerries	North of Large Skerrie	070731/01	31-Jul-07	55 13.502N, 006 37.549W	-27	-33	CR.HCR.XFa.BvErSp.DysAct	Jennifer Jones Lin Baldock
69	2007 SSNI Skerries	North-east Large Skerrie	070801/02	01-Aug-07	55 13.495N, 006 37.423W	-10	-30	CR.MCR.EcCr.FaAlCr.Sec	Hugh Edwards Ronnie Snyder
69	2007 SSNI Skerries	North-east Large Skerrie	070801/02	01-Aug-07	55 13.495N, 006 37.423W	-10	-30	IR.FIR.SG.CrSpAsDenB	Hugh Edwards Ronnie Snyder
70	2006 SSNI Skerries	North-east Large Skerrie	060823/02	23-Aug-06	55 13.482N, 006 37.414W	-16	-27	IR.HIR.KFaR.FoR	Joe Breen Trevor Harrison
70	2006 SSNI Skerries	North-east Large Skerrie	060823/02	23-Aug-06	55 13.482N, 006 37.414W	-16	-27	CR.HCR.XFa.FluCoAs.SmAs	Joe Breen Trevor Harrison
71	2006 SSNI Skerries	North-west of Black Rock	060822/02	22-Aug-06	55 13.514N, 006 37.207W	-18	-29.3	CR.HCR.XFa.SpAnVt	Anne Marie Mahon Bernard Picton Trevor Harrison
72	2006 SSNI Skerries	North-east of Black Rock	060823/03	23-Aug-06	55 13.506N, 006 37.176W	-18	-29.5	CR.HCR.DpSp	Bernard Picton Jennifer Jones
73	2006 SSNI Skerries	North-east of Black Rock	060822/01	22-Aug-06	55 13.522N, 006 37.148W	-14	-27	CR.HCR.XFa.FluCoAs.SmAs	Claire Goodwin Jennifer Jones
73	2006 SSNI Skerries	North-east of Black Rock	060822/01	22-Aug-06	55 13.522N, 006 37.148W	-14	-27	CR.HCR.XFa.SpAnVt	Claire Goodwin Jennifer Jones
74	2007 SSNI Skerries	1st Pinnacle east of Black Rock	070803/01	03-Aug-07	55 13.489N, 006 36.918W	-23	-29	CR.HCR.XFa.FluCoAs.SmAs.Syn	Bernard Picton Jennifer Jones Lin Baldock
75	2006 SSNI Skerries	East of Black Rock	060825/02	25-Aug-06	55 13.513N, 006 36.615W	-20	-28	CR.HCR.XFa.FluCoAs.SmAs	Joe Breen Trevor Harrison
76	2007 SSNI Skerries	2nd Pinnacle east of Black Rock	070803/02	03-Aug-07	55 13.527N, 006 36.603W	-25	-28.1	CR.HCR.XFa.FluCoAs.Syn	Claire Goodwin Hugh Edwards
77	2006 SSNI Skerries	East of Black Rock	060825/01	25-Aug-06	55 13.525N, 006 36.534W		-25.4	CR.HCR.DpSp.var	Anne Marie Mahon Claire Goodwin
78	2006 SSNI Skerries	East of Black Rock	060825/03	25-Aug-06	55 13.512N, 006 36.542W	-18	-29	CR.HCR.XFa.FluCoAs.SmAs	Bernard Picton Jennifer Jones
79	2010 SSNI Skerries	The Storks	100423/01	23-Apr-10	55 13.19N, 006 35.48W	-12	-15.8	CR.MCR.EcCr.CatSp	Claire Goodwin Joe Breen
79	2010 SSNI Skerries	The Storks	100423/01	23-Apr-10	55 13.19N, 006 35.48W	-12	-15.8	IR.MIR.KR.LhypT.Pk	Claire Goodwin Joe Breen
80	2010 SSNI Skerries	The Storks	100423/02	23-Apr-10	55 13.16N, 006 35.43W	-15	-19	CR.HCR.XFa.FluCoAs.Syn	Bernard Picton Hugh Edwards

Site Number	Survey Name	Event Name	Marine Recorder Reference	Event Date	Start Position	Min Depth (m SL)	Max Depth (m SL)	Biotope Code	Surveyors
80	2010 SSNI Skerries	The Storks	100423/02	23-Apr-10	55 13.16N, 006 35.43W	-15	-19	CR.HCR.DpSp.var	Bernard Picton Hugh Edwards
80	2010 SSNI Skerries	The Storks	100423/02	23-Apr-10	55 13.16N, 006 35.43W	-15	-19	IR.MIR.KR.LhypT.Pk	Bernard Picton Hugh Edwards
81	2006 Seasearch Skerries	The Storks	1C	26-Aug-06	55 13.207N, 006 35.429W	-3	-7	IR.MIR.KR.Lhyp.Ft	Graham Day Julia Nunn
81	2006 Seasearch Skerries	The Storks	1B	26-Aug-06	55 13.207N, 006 35.429W	-6	-20	CR.MCR.EcCr.CarSp	David Goodwin Heather Law
81	2006 Seasearch Skerries	The Storks	1B	26-Aug-06	55 13.207N, 006 35.429W	-6	-20	CR.MCR.EcCr.CarSp	David Goodwin Heather Law
81	2006 Seasearch Skerries	The Storks	1A	26-Aug-06	55 13.207N, 006 35.429W	-4	-20	CR.MCR.EcCr.CarSp	Brian McIlroy Sven Laming
81	2006 Seasearch Skerries	The Storks	1A	26-Aug-06	55 13.207N, 006 35.429W	-4	-20	IR.MIR.KR.Lhyp.Ft	Brian McIlroy Sven Laming
82	2010 SSNI Skerries	The Storks	100607/01	07-Jun-10	55 13.228N, 006 39.268W	-20	-23.7	CR.HCR.XFa.FluCoAs	Claire Goodwin Joe Breen
83	2010 SSNI Skerries	The Storks	100607/02	07-Jun-10	55 13.343N, 006 35.267W		-23	CR.HCR.XFa.FluCoAs.X	Bernard Picton Hugh Edwards
84	2006 SSNI Skerries	North of the Storks	060823/04	23-Aug-06	55 13.464N, 006 35.304W	-20	-23	CR.HCR.DpSp.var	Anne Marie Mahon Claire Goodwin
84	2006 SSNI Skerries	North of the Storks	060823/04	23-Aug-06	55 13.464N, 006 35.304W	-20	-23	IR.HIR.KFa.R.FoR	Anne Marie Mahon Claire Goodwin
85	2010 SSNI Skerries	Reef north of the Storks	100610/03	10-Jun-10	55 13.511N, 006 35.121W		-28.4	CR.HCR.XFa.ByErSp.DysAct	Claire Goodwin Joe Breen
86	2010 SSNI Skerries	North-east of the Storks	100610/02	10-Jun-10	55 13.557N, 006 35.045W	-21	-24	CR.HCR.XFa.FluCoAs.SmAs	Bernard Picton Hugh Edwards
87	2009 SSNI Skerries	Dunluce Reef	090825/01	25-Aug-09	55 12.914N, 006 34.895W	-14	-17	CR.MCR.EcCr.CarSp	Hugh Edwards Ronnie Snyder
88	2009 SSNI Skerries	Dunluce Reef	090825/02	25-Aug-09	55 12.996N, 006 34.787W	-18	-21.7	CR.MCR.EcCr.CarSp	Claire Goodwin Joe Breen
88	2009 SSNI Skerries	Dunluce Reef	090825/02	25-Aug-09	55 12.996N, 006 34.787W	-18	-21.7	CR.MCR.EcCr.CarSp	Claire Goodwin Joe Breen
89	2010 SSNI North Coast	East Dunluce Reef	100422/03	22-Apr-10	55 13.03N, 006 34.54W	-15	-17.8	IR.MIR.KR.Lhyp.Pk	Claire Goodwin Joe Breen
89	2010 SSNI North Coast	East Dunluce Reef	100422/03	22-Apr-10	55 13.03N, 006 34.54W	-15	-17.8	CR.MCR.EcCr.CarSp	Claire Goodwin Joe Breen
89	2010 SSNI North Coast	East Dunluce Reef	100422/04	22-Apr-10	55 13.03N, 006 34.54W	-15	-19	CR.HCR.XFa.FluCoAs.SmAs	Bernard Picton Hugh Edwards
90	2010 SSNI Skerries	North of Bushmills Bay	100608/01	08-Jun-10	55 13.786N, 006 33.322W	-22.5	-27.7	CR.HCR.XFa.FluCoAs.SmAs	Claire Goodwin Ronnie Snyder
91	2010 SSNI North Coast	North of Bushmills Bay	100608/02	08-Jun-10	55 13.825N, 006 33.168W		-27.5	CR.HCR.XFa.FluCoAs	Bernard Picton Hugh Edwards

Site Number	Survey Name	Event Name	Marine Recorder Reference	Event Date	Start Position	Min Depth (m SL)	Max Depth (m SL)	Biotope Code	Surveyors
92	2010 SSNI North Coast	Off Runkerry Point	100414/04	14-Apr-10	55 13.98N, 006 32.09W	-10	-15	IR.MIR.KR.Lhyp.Pk	Bernard Picton Hugh Edwards
93	2007 Seasearch North Coast	North-west of Giant's Causeway	7A-SD CG	14-Apr-07	55 14.174N, 006 31.720W	-9	-16	CR.MCR.EcCr	Claire Goodwin Sharon Doake
93	2007 Seasearch North Coast	North-west of Giant's Causeway	7A-SD CG	14-Apr-07	55 14.174N, 006 31.720W	-9	-16	IR.MIR.KR.LhypT.Pk	Claire Goodwin Sharon Doake
94	2010 SSNI North Coast	Causeway Bank	100610/04	10-Jun-10	55 14.992N, 006 31.554W			SS.SCS.CCS	
95	2010 SSNI North Coast	Offshore of Giant's Causeway	100414/03	14-Apr-10	55 14.42N, 006 31.44W	-21.5	-22.7	CR.HCR.XFa.FluCoAs	Claire Goodwin Joe Breen
96	2010 SSNI North Coast	Offshore of Giant's Causeway	100412/01	12-Apr-10	55 14.712N, 006 30.829W	-21	-25	CR.MCR.EcCr.CarSp.PenPoom	Bernard Picton Hugh Edwards
97	2007 Seasearch North Coast	Offshore of Giant's Causeway	2A-SD, CG	14-Apr-07	55 14.640N, 006 30.647W	-12	-13	IR.HIR.KFaR.LhypR.Pk	Claire Goodwin Sharon Doake
98	2007 Seasearch North Coast	Offshore of Giant's Causeway	DG, TB, ED	14-Apr-07	55 14.646N, 006 30.647W	-14	-17	KP	Deirdre Greer Elena Deligianni Thorsten Brabetz
99	2010 SSNI North Coast	Bengore Head	100414/02	14-Apr-10	55 15.29N, 006 28.92W	-25	-29	CR.MCR.EcCr.CarSp	Bernard Picton Hugh Edwards
100	2010 SSNI North Coast	Bengore Head	100414/01	14-Apr-10	55 15.22N, 006 28.03W	-27.5	-28	CR.MCR.EcCr	Claire Goodwin Joe Breen
101	2010 SSNI North Coast	East of Bengore Head	100412/02	12-Apr-10	55 14.661N, 006 27.436W	-13	-14	IR.HIR.KFaR.LhypR.Ft	Claire Goodwin Joe Breen
102	2008 Seasearch Carrick-a-Rede	Carrick-a-Rede Island, West Side	N18/081	07-Sep-08	55 14.598N, 006 20.012W	-19	-22	IR.HIR.KFaR.FoR.Dic	Adrian Marshall Charmaine Blake Claire Goodwin
102	2008 Seasearch Carrick-a-Rede	Carrick-a-Rede Island, West Side	N18/080	07-Sep-08	55 14.598N, 006 20.012W	-10	-25	MS	Alasdair Kennedy Jonathan Beattie
103	2007 Seasearch North Coast	Carrick-a-Rede Island, West Side	6A-AK	30-Jun-07	55 14.435N, 006 19.907W	-5	-20	KF	Alasdair Kennedy
104	2007 Seasearch North Coast	Carrick-a-Rede Rope Bridge	3A-LB GD	05-Aug-07	55 14.370N, 006 19.850W	-6	-13.5	SS.SSa.IFiSa.IMoSa	Graham Day Lin Baldock
104	2007 Seasearch North Coast	Carrick-a-Rede Rope Bridge	3A-LB GD	05-Aug-07	55 14.370N, 006 19.850W	-6	-13.5	IR.HIR.KFaR.Ala	Graham Day Lin Baldock
104	2007 Seasearch North Coast	Carrick-a-Rede Rope Bridge	3A-LB GD	05-Aug-07	55 14.370N, 006 19.850W	-6	-13.5	IR.HIR.KFaR.LhypR.Ft	Graham Day Lin Baldock
104	2007 Seasearch North Coast	Carrick-a-Rede Rope Bridge	3B-PM SD	05-Aug-07	55 14.37N, 006 19.850W	-12	-14.3	KF	Paul McIlwaine Sharon Doake
104	2007 Seasearch North Coast	Carrick-a-Rede Rope Bridge	3C-AK MP	05-Aug-07	55 14.370N, 006 19.850W	-8	-11.2	KF	Alasdair Kennedy Mark Patton
105	2008 Seasearch Carrick-a-Rede	Caves East of Carrick-a-Rede Rope Bridge	N18/082	07-Sep-08	55 14.273N, 006 19.795W	-3	-5	IR.FIR.SG.CrSpAsAn	Adrian Marshall Charmaine Blake Claire Goodwin

Site Number	Survey Name	Event Name	Marine Recorder Reference	Event Date	Start Poisiton	Min Depth (m SL)	Max Depth (m SL)	Biotope Code	Surveyors
105	2008 Seasearch Carrick-a-Rede	Caves East of Carrick-a-Rede Rope Bridge	N18/082	07-Sep-08	55 14.273N, 006 19.795W	-3	-5	IR.FIR.SG.FoSwwCC	Adrian Marshall Charmaine Blake Claire Goodwin
105	2008 Seasearch Carrick-a-Rede	Caves East of Carrick-a-Rede	N18/077	07-Sep-08	55 14.273N, 006 19.795W	0	-5	IR.FIR.SG.FoSwwCC	Alasdair Kennedy Jonathan Beattie
105	2008 Seasearch Carrick-a-Rede	Caves East of Carrick-a-Rede	N18/077	07-Sep-08	55 14.273N, 006 19.795W	0	-5	IR.FIR.SG.CrSpAsAn	Alasdair Kennedy Jonathan Beattie

Appendix 3. Species composition of biotopes.

Species names are largely in accordance with the current Marine Recorder species directory, therefore a few are out of date. Species lists are those recorded at the sites assigned to this biotope and are not complete lists for each biotope, particularly where few sites were assigned.

1. Infralittoral biotopes

Algal Dominated Biotopes

Biotope	IR_HIR_KFaR_Ala_Ldig	IR_HIR_KFaR_FoR	IR_HIR_KFaR_FoR_Dic
No. of dives	1	4	2
Annelida-Polychaeta		<i>Pomatoceros triqueter</i>	<i>Pomatoceros</i> <i>Spirorbis</i>
Arthropoda-		<i>Balanus</i> <i>Balanus crenatus</i> <i>Cancer pagurus</i>	<i>Maja squinado</i> <i>Cancer pagurus</i> <i>Necora puber</i>
Bryozoa-	<i>Membranipora membranacea</i>	<i>Alcyonidium diaphanum</i> <i>Crisia</i> <i>Crisia denticulata</i> <i>Crisia eburnea</i> <i>Crisiidae</i> <i>Pentapora foliacea</i> <i>Parasmittina trispinosa</i> <i>Turbicellepora avicularis</i> <i>Eucratea loricata</i> <i>Membranipora membranacea</i> <i>Electra pilosa</i> <i>Flustra foliacea</i> <i>Securiflustra securifrons</i> <i>Cellaria</i> <i>Cellaria sinuosa</i> <i>Bugula</i> <i>Bugula plumosa</i>	<i>Alcyonidium diaphanum</i> <i>Crisia</i> <i>Membranipora membranacea</i> <i>Electra pilosa</i> <i>Flustra foliacea</i> <i>Securiflustra securifrons</i> <i>Cellaria</i>
Chordata-Ascidiacea	<i>Morchellium argus</i> <i>Clavelina lepadiformis</i> <i>Aplidium punctum</i>	<i>Lissoclinum perforatum</i> <i>Asciella aspersa</i> <i>Ascidia mentula</i> <i>Polycarpa fibrosa</i> <i>Polycarpa pentarhiza</i> <i>Dendrodoa grossularia</i> <i>Botryllus schlosseri</i> <i>Morchellium argus</i> <i>Clavelina lepadiformis</i> <i>Aplidium punctum</i> <i>Didemnidae</i>	<i>Ascidia mentula</i> <i>Botryllus schlosseri</i> <i>Morchellium argus</i> <i>Sidnyum turbinatum</i> <i>Clavelina lepadiformis</i> <i>Aplidium punctum</i>
Chordata-		<i>Trisopterus luscus</i> <i>Trisopterus minutus</i> <i>Conger conger</i> <i>Ctenolabrus rupestris</i> <i>Labrus bergylta</i> <i>Labrus mixtus</i> <i>Parablennius gattorugine</i> <i>Pholis gunnellus</i> <i>Pollachius pollachius</i>	<i>Taurulus bubalis</i> <i>Centrolabrus exoletus</i> <i>Crenilabrus melops</i> <i>Ctenolabrus rupestris</i> <i>Labrus bergylta</i> <i>Gobiusculus flavescens</i> <i>Pomatoschistus minutus</i> <i>Pollachius pollachius</i>
Cnidaria-Anthozoa	<i>Urticina felina</i> <i>Sagartia elegans</i>	<i>Alcyonium digitatum</i> <i>Epizoanthus couchii</i>	<i>Alcyonium digitatum</i> <i>Urticina felina</i>

Biotope	IR_HIR_KFaR_Ala_Ldig	IR_HIR_KFaR_FoR	IR_HIR_KFaR_FoR_Dic
	<i>Actinothoe sphyrodeta</i> <i>Caryophyllia smithii</i>	<i>Urticina felina</i> <i>Sagartia elegans</i> <i>Sagartia troglodytes</i> <i>Actinothoe sphyrodeta</i> <i>Caryophyllia smithii</i>	<i>Sagartia elegans</i> <i>Actinothoe sphyrodeta</i> <i>Caryophyllia smithii</i>
Cnidaria-Hydrozoa	<i>Obelia geniculata</i>	<i>Halecium halecinum</i> <i>Halecium muricatum</i> <i>Nemertesia antennina</i> <i>Nemertesia ramosa</i> <i>Hydrallmania falcata</i> <i>Sertularella polyzonias</i> <i>Sertularella tenella</i> <i>Sertularia argentea</i> <i>Obelia geniculata</i>	<i>Nemertesia antennina</i> <i>Obelia geniculata</i>
Echinodermata-Asteroidea		<i>Henricia</i> <i>Henricia oculata</i> <i>Asterias rubens</i> <i>Leptasterias</i> <i>Marthasterias glacialis</i> <i>Luidia ciliaris</i>	
Echinodermata-Echinoidea	<i>Echinus esculentus</i>	<i>Echinus esculentus</i>	<i>Echinus esculentus</i>
Echinodermata-Holothuroidea		<i>Holothuria forskali</i> <i>Aslia lefevrei</i>	
Echinodermata-Ophiuroidea		<i>Ophiura albida</i>	
Mollusca-Bivalvia		<i>Mytilus edulis</i>	
Mollusca-Gastropoda		<i>Aplysia punctata</i> <i>Doto pinnatifida</i> <i>Goniodoris nodosa</i> <i>Acanthodoris pilosa</i> <i>Polycera faeroensis</i> <i>Polycera quadrilineata</i> <i>Cadlina laevis</i> <i>Jorunna</i> <i>Gibbula cineraria</i> <i>Calliostoma zizyphinum</i> <i>Simnia patula</i> <i>Trivia arctica</i> <i>Hinia incrassata</i>	<i>Helcion pellucidum</i> <i>Calliostoma zizyphinum</i>
Porifera-Calcareia	<i>Leucosolenia</i>	<i>Leucosolenia</i>	
Porifera-Demospongiae	<i>Suberites ficus</i>	<i>Pachymatisma johnstonia</i> <i>Suberites carnosus</i> <i>Polymastia boletiformis</i> <i>Cliona celata</i> <i>Axinella damicornis</i> <i>Axinella infundibuliformis</i> <i>Axinella dissimilis</i> <i>Stelligera rigida</i> <i>Stelligera stiposa</i> <i>Raspailia hispida</i> <i>Raspailia ramosa</i>	<i>Suberites carnosus</i> <i>Suberites ficus</i> <i>Myxilla incrustans</i> <i>Dysidea fragilis</i>

Biotope	IR_HIR_KFaR_Ala_Ldig	IR_HIR_KFaR_FoR	IR_HIR_KFaR_FoR_Dic
		<i>Myxilla cf. rosacea</i> <i>Iophon hyndmani</i> <i>Styloptilon ancoratum</i> <i>Haliclona oculata</i> <i>Haliclona urceolus</i> <i>Haliclona viscosa</i> <i>Dysidea fragilis</i>	
Heterokontophyta-	<i>Desmarestia ligulata</i> <i>Chorda filum</i> <i>Laminaria digitata</i> <i>Laminaria hyperborea</i> <i>Alaria esculenta</i> <i>Saccorhiza polyschides</i>	<i>Dictyota dichotoma</i> <i>Desmarestia ligulata</i> <i>Saccharina latissima</i>	
Rhodophyta-	<i>Nitophyllum punctatum</i> <i>Phycodrys rubens</i> <i>Heterosiphonia plumosa</i> <i>Odonthalia dentata</i> <i>Polysiphonia</i> <i>Palmaria palmata</i> <i>Callophyllis</i> <i>Plocamium cartilagineum</i> <i>Rhodymenia pseudopalmata</i> <i>Ceramium</i> <i>Ptilota gunneri</i> <i>Cryptopleura ramosa</i> <i>Delesseria sanguinea</i> <i>Drachiella spectabilis</i> <i>Hypoglossum hypoglossoides</i> <i>Membranoptera alata</i>	<i>Phycodrys rubens</i> <i>Erythroglossum laciniatum</i> <i>Heterosiphonia plumosa</i> <i>Brongniartella byssoides</i> <i>Odonthalia dentata</i> <i>Naccariaceae</i> <i>Dilsea carnosa</i> <i>Callophyllis laciniata</i> <i>Kallymenia reniformis</i> <i>Meredithia microphylla</i> <i>Corallinaceae</i> <i>Plocamium cartilagineum</i> <i>Calliblepharis ciliata</i> <i>Rhodymenia holmesii</i> <i>Rhodymenia pseudopalmata</i> <i>Rhodymenia ardissoni</i> <i>Acrosorium venulosum</i> <i>Cryptopleura ramosa</i> <i>Delesseria sanguinea</i> <i>Hypoglossum hypoglossoides</i>	<i>Phycodrys rubens</i> <i>Heterosiphonia plumosa</i> <i>Odonthalia dentata</i> <i>Polysiphonia</i> <i>Palmaria palmata</i> <i>Dilsea carnosa</i> <i>Callophyllis</i> <i>Callophyllis laciniata</i>
		<i>Haraldiophyllum bonnemaisonii</i>	

Biotope	IR_HIR_KFaR_LhypR_Ft	IR_HIR_KFaR_LhypR_Pk	IR_HIR_KSed_LsacChoR	IR_HIR_KSed_XKScrR
No. of dives	2	3	1	1
Annelida-Polychaeta	<i>Pomatoceros</i>	<i>Bispira volutacornis</i>		<i>Pomatoceros triqueter</i> <i>Spirorbis spirorbis</i>
Arthropoda-	<i>Galathea</i> <i>Cancer pagurus</i> <i>Necora puber</i>	<i>Balanus crenatus</i> <i>Paguridae</i> <i>Necora puber</i>	<i>Maja squinado</i>	<i>Homarus gammarus</i> <i>Maja squinado</i> <i>Cancer pagurus</i> <i>Necora puber</i>
Bryozoa-	<i>Alcyonidium diaphanum</i> <i>Crisia</i> <i>Membranipora membranacea</i> <i>Electra pilosa</i> <i>Bugula flabellata</i>	<i>Alcyonidium diaphanum</i> <i>Crisia denticulata</i> <i>Parasmittina trispinosa</i> <i>Cellepora</i> <i>Eucratea loricata</i>		<i>Membranipora membranacea</i> <i>Flustra foliacea</i>
		<i>Electra pilosa</i>		

Biotope	IR_HIR_KFaR_LhypR_Ft	IR_HIR_KFaR_LhypR_Pk	IR_HIR_KSed_LsacChoR	IR_HIR_KSed_XKScrR
		<i>Flustra foliacea</i> <i>Securiflustra securifrons</i> <i>Cellaria fistulosa</i> <i>Bugula flabellata</i>		
Chordata-Asciacea	<i>Lissoclinum perforatum</i> <i>Polycarpa</i> <i>Botryllus schlosseri</i> <i>Morchellium argus</i> <i>Clavelina lepadiformis</i> <i>Aplidium nordmanni</i> <i>Aplidium punctum</i> <i>Didemnidae</i>	<i>Lissoclinum perforatum</i> <i>Dendrodoa grossularia</i> <i>Botryllus schlosseri</i> <i>Botrylloides leachi</i> <i>Synoicum incrustatum</i> <i>Morchellium argus</i> <i>Sidnyum turbinatum</i> <i>Clavelina lepadiformis</i> <i>Aplidium punctum</i>	<i>Clavelina lepadiformis</i>	<i>Clavelina lepadiformis</i> <i>Scyliorhinus canicula</i>
Chordata-	<i>Gobiusculus flavescens</i>	<i>Ctenolabrus rupestris</i> <i>Scyliorhinus canicula</i>	<i>Centrolabrus exoletus</i>	<i>Labrus bergylta</i> <i>Pollachius pollachius</i>
Cnidaria-Anthozoa	<i>Alcyonium digitatum</i> <i>Urticina felina</i> <i>Sagartia elegans</i> <i>Actinothoe sphyrodeta</i> <i>Caryophyllia smithii</i>	<i>Alcyonium digitatum</i> <i>Cerianthus lloydii</i> <i>Urticina felina</i> <i>Sagartia elegans</i> <i>Actinothoe sphyrodeta</i> <i>Corynactis viridis</i> <i>Caryophyllia smithii</i>	<i>Actinia equina</i> <i>Urticina felina</i>	<i>Alcyonium digitatum</i> <i>Cerianthus lloydii</i> <i>Sagartia elegans</i>
Cnidaria-Hydrozoa	<i>Obelia geniculata</i>	<i>Halecium halecinum</i> <i>Nemertesia antennina</i> <i>Plumularia setacea</i> <i>Diphasia rosacea</i> <i>Sertularia argentea</i> <i>Obelia geniculata</i>	<i>Obelia</i>	<i>Nemertesia antennina</i>
Echinodermata-Asteroidea	<i>Henricia</i> <i>Asterias rubens</i>	<i>Crossaster papposus</i> <i>Asterias rubens</i> <i>Leptasterias muelleri</i> <i>Marthasterias glacialis</i>		<i>Asterias rubens</i>
Echinodermata-Echinoidea	<i>Echinus esculentus</i>	<i>Echinus esculentus</i>		<i>Echinus esculentus</i>
Echinodermata-Holothuroidea		<i>Ocnus lacteus</i>		<i>Holothuria forskali</i>
Mollusca-Gastropoda	<i>Helcion pellucidum</i> <i>Gibbula cineraria</i> <i>Calliostoma zizyphinum</i>	<i>Tritonia hombergii</i> <i>Acanthodoris pilosa</i> <i>Diaphorodoris luteocincta</i> <i>Polycera faeroensis</i> <i>Cadlina laevis</i> <i>Flabellina pedata</i> <i>Cuthona amoena</i> <i>Gibbula cineraria</i> <i>Calliostoma zizyphinum</i> <i>Trivia</i> <i>Trivia arctica</i> <i>Ocenebra erinacea</i> <i>Hinia incrassata</i>	<i>Aplysia punctata</i> <i>Patellidae</i> <i>Gibbula</i> <i>Buccinum undatum</i>	<i>Calliostoma zizyphinum</i>
Porifera-Calcareia		<i>Leucosolenia complicata</i> <i>Scypha ciliata</i>		
Porifera-Demospongiae	<i>Halichondria panicea</i>	<i>Pachymatisma johnstonia</i> <i>Tethya citrina</i> <i>Polymastia penicillus</i> <i>Sphaerotylus</i>	<i>Cliona</i> <i>Haliclona</i>	<i>Pachymatisma johnstonia</i>
		<i>Cliona</i>		

Biotope	IR_HIR_KFaR_LhypR_Ft	IR_HIR_KFaR_LhypR_Pk	IR_HIR_KSed_LsacChoR	IR_HIR_KSed_XKScrR
		<i>Axinella damicornis</i> <i>Axinella infundibuliformis</i> <i>Axinella dissimilis</i> <i>Stelligera rigida</i> <i>Stelligera stuposa</i> <i>Raspailia hispida</i> <i>Raspailia ramosa</i> <i>Halichondria panicea</i> <i>Myxilla incrustans</i> <i>Hymedesmia paupertas</i> <i>Hymedesmia jecusculum</i> <i>Phorbas fictitius</i> <i>Hemimycale columella</i> <i>Haliclona oculata</i> <i>Haliclona viscosa</i> <i>Dysidea fragilis</i>		
Heterokontophyta-	<i>Dictyota dichotoma</i> <i>Sporocchnus pedunculatus</i> <i>Desmarestia aculeata</i> <i>Laminaria hyperborea</i> <i>Saccharina latissima</i> <i>Saccorhiza polyschides</i> <i>Alaria esculenta</i>	<i>Laminaria hyperborea</i>	<i>Chorda filum</i> <i>Laminaria hyperborea</i> <i>Saccharina latissima</i> <i>Alaria esculenta</i> <i>Enteromorpha</i>	<i>Desmarestia aculeata</i> <i>Laminaria hyperborea</i> <i>Saccharina latissima</i>
Rhodophyta-	<i>Nitophyllum punctatum</i> <i>Phycodryis rubens</i> <i>Heterosiphonia plumosa</i> <i>Brongniartella byssoides</i> <i>Odonthalia dentata</i> <i>Palmaria palmata</i> <i>Callophyllis laciniata</i> <i>Meredithia microphylla</i> <i>Phyllophora pseudoceranoides</i> <i>Plocamium cartilagineum</i> <i>Calliblepharis ciliata</i> <i>Halurus flosculosus</i> <i>Delesseria sanguinea</i> <i>Membranoptera alata</i>	<i>Rhodophycota</i> <i>Odonthalia dentata</i> <i>Dilsea carnosus</i> <i>Plocamium cartilagineum</i> <i>Delesseria sanguinea</i>	<i>Corollina officinalis</i>	
Chlorophyta-	<i>Ulva</i>			
Biotope	IR_MIR_KR_Lhyp_Ft	IR_MIR_KR_Lhyp_Pk	IR_MIR_KR_LhypT_Pk	SS_SMp_KSwSS_LsacR
No. of dives	6	4	2	12
Annelida-Polychaeta				<i>Chaetopterus variopedatus</i> <i>Arenicola marina</i> <i>Lanice conchilega</i> <i>Megalomma vesiculosum</i> <i>Myxicola infundibulum</i>
Arthropoda-	<i>Paguridae</i> <i>Galathea strigosa</i> <i>Cancer pagurus</i>	<i>Balanus crenatus</i> <i>Homarus gammarus</i> <i>Cancer pagurus</i> <i>Necora puber</i>	<i>Galathea</i> <i>Galathea strigosa</i> <i>Necora puber</i>	<i>Paguridae</i> <i>Pagurus bernhardus</i> <i>Pagurus prideaux</i> <i>Macropodia</i> <i>Cancer pagurus</i> <i>Liocarcinus depurator</i> <i>Necora puber</i>
Bryozoa-	<i>Crisia denticulata</i> <i>Parasmittina trispinosa</i> <i>Membranipora membranacea</i>	<i>Alcyonidium diaphanum</i> <i>Crisiidae</i> <i>Parasmittina trispinosa</i>	<i>Alcyonidium diaphanum</i> <i>Flustra foliacea</i> <i>Securiflustra securifrons</i>	<i>Alcyonidium diaphanum</i> <i>Vesicularia spinosa</i> <i>Crisia</i>
	<i>Electra pilosa</i>	<i>Membranipora membranacea</i>		<i>Membranipora membranacea</i>

Biotope	IR_MIR_KR_Lhyp_Ft	IR_MIR_KR_Lhyp_Pk	IR_MIR_KR_LhypT_Pk	SS_SMp_KSwSS_LsacR
	<i>Flustra foliacea</i> <i>Cellaria fistulosa</i>	<i>Electra pilosa</i> <i>Flustra foliacea</i> <i>Securiflustra securifrons</i> <i>Bugula plumosa</i>		<i>Electra pilosa</i> <i>Flustra foliacea</i> <i>Securiflustra securifrons</i>
Chordata-Asciacea	<i>Ascidia mentula</i> <i>Polyclinum aurantium</i> <i>Aplidium punctum</i>	<i>Lissoclinum perforatum</i> <i>Polycarpa pomaria</i> <i>Polycarpa scuba</i> <i>Botryllus schlosseri</i> <i>Polyclinum aurantium</i> <i>Synoicum incrustatum</i> <i>Morchellium argus</i> <i>Aplidium nordmanni</i> <i>Aplidium punctum</i>	<i>Ascidia mentula</i> <i>Dendrodoa grossularia</i> <i>Synoicum incrustatum</i> <i>Morchellium argus</i> <i>Aplidium nordmanni</i>	
Chordata-	<i>Gaidropsarus vulgaris</i> <i>Pollachius pollachius</i> <i>Labrus bergylta</i> <i>Thorogobius ephippiatus</i> <i>Scyliorhinus canicula</i>	<i>Ctenolabrus rupestris</i> <i>Labrus bergylta</i> <i>Labrus mixtus</i> <i>Parablennius gattorugine</i> <i>Thorogobius ephippiatus</i> <i>Phrynorhombus norvegicus</i> <i>Trisopterus luscus</i>	<i>Labrus bergylta</i> <i>Pollachius pollachius</i>	<i>Scyliorhinus canicula</i> <i>Pollachius pollachius</i> <i>Trisopterus luscus</i> <i>Trisopterus minutus</i> <i>Entelurus aequoreus</i> <i>Nerophis lumbriciformis</i> <i>Ctenolabrus rupestris</i> <i>Labrus bergylta</i> <i>Labrus mixtus</i> <i>Ammodytes</i> <i>Callionymus</i> <i>Callionymus lyra</i> <i>Callionymus reticulatus</i> <i>Gobiusculus flavescens</i> <i>Pomatoschistus</i> <i>Pomatoschistus minutus</i> <i>Pleuronectes platessa</i> <i>Raja clavata</i>
Cnidaria-Anthozoa	<i>Metridium senile</i> <i>Caryophyllia smithii</i> <i>Caryophyllia inornata</i>	<i>Alcyonium digitatum</i> <i>Sagartia elegans</i> <i>Actinothoe sphyrodeta</i> <i>Caryophyllia smithii</i>	<i>Alcyonium digitatum</i> <i>Urticina felina</i> <i>Actinothoe sphyrodeta</i> <i>Caryophyllia smithii</i>	<i>Cerianthus lloydii</i> <i>Anemonia viridis</i> <i>Urticina felina</i> <i>Sagartia elegans</i> <i>Sagartia troglodytes</i> <i>Cereus pedunculatus</i> <i>Actinothoe sphyrodeta</i> <i>Adamsia carciniopados</i> <i>Peachia cylindrica</i> <i>Caryophyllia smithii</i>
Cnidaria-Hydrozoa	<i>Nemertesia antennina</i> <i>Obelia geniculata</i>	<i>Tubularia indivisa</i> <i>Halecium halecinum</i> <i>Nemertesia antennina</i> <i>Nemertesia ramosa</i> <i>Diphasia rosacea</i> <i>Sertularella gayi</i> <i>Sertularella polyzonias</i> <i>Sertularia argentea</i> <i>Obelia geniculata</i>	<i>Halecium halecinum</i> <i>Kirchenpaueria pinnata</i> <i>Nemertesia antennina</i> <i>Nemertesia ramosa</i>	<i>Aglaophenia pluma</i> <i>Nemertesia antennina</i> <i>Obelia geniculata</i>
Cnidaria-Scyphozoa				<i>Cyanea capillata</i>
Echinodermata-Asteroidea	<i>Crossaster papposus</i> <i>Henricia</i> <i>Marthasterias glacialis</i>	<i>Crossaster papposus</i> <i>Henricia</i> <i>Henricia oculata</i> <i>Asterias rubens</i> <i>Leptasterias muelleri</i>	<i>Crossaster papposus</i> <i>Henricia</i> <i>Asterias rubens</i> <i>Leptasterias muelleri</i> <i>Marthasterias glacialis</i>	<i>Crossaster papposus</i> <i>Henricia</i> <i>Asterias rubens</i> <i>Leptasterias muelleri</i> <i>Marthasterias glacialis</i>

Biotope	IR_MIR_KR_Lhyp_Ft	IR_MIR_KR_Lhyp_Pk	IR_MIR_KR_LhypT_Pk	SS_SMP_KSwSS_LsacR
		<i>Marthasterias glacialis</i>		
Echinodermata-Echinoidea	<i>Echinus esculentus</i>	<i>Echinus esculentus</i>	<i>Echinus esculentus</i>	<i>Echinus esculentus</i>
Echinodermata-Holothuroidea		<i>Holothuria forskali</i> <i>Pawsonia saxicola</i> <i>Aslia lefevrei</i>		<i>Thyone</i> <i>Luidia ciliaris</i>
Echinodermata-Ophiuroidea				<i>Ophiura albida</i> <i>Ophiura ophiura</i>
Mollusca-Bivalvia				<i>Ensis</i> <i>Arctica islandica</i> <i>Chamelea gallina</i> <i>Hiatella arctica</i>
Mollusca-Gastropoda	<i>Helcion pellucidum</i> <i>Gibbula cineraria</i> <i>Calliostoma zizyphinum</i>	<i>Acanthodoris pilosa</i> <i>Limacia clavigera</i> <i>Cadlina laevis</i> <i>Gibbula cineraria</i> <i>Calliostoma zizyphinum</i> <i>Trivia arctica</i> <i>Ocenebra erinacea</i> <i>Buccinum undatum</i> <i>Hinia reticulata</i>	<i>Acanthodoris pilosa</i> <i>Diaphorodoris luteocincta</i> <i>Calliostoma zizyphinum</i> <i>Ocenebra erinacea</i>	<i>Aplysia punctata</i> <i>Ancula gibbosa</i> <i>Limacia clavigera</i> <i>Polycera faeroensis</i> <i>Polycera quadrilineata</i> <i>Facelina bostoniensis</i> <i>Musculus costulatus</i> <i>Musculus discors</i> <i>Modiolarca tumida</i> <i>Aequipecten opercularis</i> <i>Pecten maximus</i> <i>Jujubinus montagui</i> <i>Gibbula cineraria</i> <i>Calliostoma zizyphinum</i> <i>Tricolia pullus</i> <i>Lacuna parva</i> <i>Rissoa lilacina</i> <i>Rissoa interrupta</i> <i>Onoba semicostata</i> <i>Bittium reticulatum</i> <i>Epitonium clathrus</i> <i>Lamellaria latens</i> <i>Polinices pulchellus</i> <i>Colus gracilis</i> <i>Hinia incrassata</i> <i>Hinia reticulata</i>
Porifera-Calcareia			<i>Clathrina</i>	
Porifera-Demospongiae	<i>Pachymatisma johnstonia</i> <i>Polymastia boletiformis</i> <i>Polymastia penicillus</i> <i>Axinella infundibuliformis</i> <i>Aplysilla sulfurea</i>	<i>Pachymatisma johnstonia</i> <i>Tethya citrina</i> <i>Suberites ficus</i> <i>Polymastia boletiformis</i> <i>Cliona celata</i> <i>Halicnemis</i> <i>Stelligera rigida</i> <i>Stelligera stuposa</i> <i>Raspailia hispida</i> <i>Raspailia ramosa</i> <i>Halichondria bowerbanki</i> <i>Halichondria panicea</i> <i>Amphilectus fucorum</i> <i>Myxilla incrustans</i> <i>Iophon hyndmani</i> <i>Hymedesmia paupertas</i> <i>Phorbas fictitius</i>	<i>Dercitus bucklandi</i> <i>Pachymatisma johnstonia</i> <i>Tethya citrina</i> <i>Polymastia penicillus</i> <i>Cliona celata</i> <i>Axinella infundibuliformis</i> <i>Stelligera rigida</i> <i>Stelligera stuposa</i> <i>Raspailia hispida</i> <i>Myxilla incrustans</i> <i>Hemimycale columella</i> <i>Haliclona cinerea</i> <i>Haliclona viscosa</i> <i>Dysidea fragilis</i>	<i>Suberitidae</i>

Biotope	IR_MIR_KR_Lhyp_Ft	IR_MIR_KR_Lhyp_Pk	IR_MIR_KR_LhypT_Pk	SS_Smp_KSwSS_LsacR
		<i>Microciona</i> <i>Antho involvens</i> <i>Haliclona viscosa</i> <i>Dysidea fragilis</i>		
Heterokontophyta-	<i>Laminaria hyperborea</i> <i>Saccharina latissima</i> <i>Halidrys siliquosa</i>	<i>Dictyota dichotoma</i> <i>Desmarestia ligulata</i> <i>Laminaria hyperborea</i> <i>Halidrys siliquosa</i>	<i>Laminaria hyperborea</i>	<i>Dictyota dichotoma</i> <i>Sporochmus pedunculatus</i> <i>Desmarestia aculeata</i> <i>Arthrocladia villosa</i> <i>Chorda filum</i> <i>Laminaria hyperborea</i> <i>Saccharina latissima</i> <i>Saccorhiza polyschides</i> <i>Halidrys siliquosa</i>
Rhodophyta-	<i>Rhodophycota</i> <i>Heterosiphonia plumosa</i> <i>Odonthalia dentata</i> <i>Palmaria palmata</i> <i>Callophyllis laciniata</i> <i>Corallinaceae</i> <i>Plocamium cartilagineum</i> <i>Delesseria sanguinea</i>	<i>Nitophyllum punctatum</i> <i>Phycodrys rubens</i> <i>Erythrogllossum laciniatum</i> <i>Heterosiphonia plumosa</i> <i>Bonnemaisonia asparagoides</i> <i>Dilsea carnosa</i> <i>Callophyllis laciniata</i> <i>Kallymenia reniformis</i> <i>Meredithia microphylla</i> <i>Corallinaceae</i> <i>Plocamium cartilagineum</i> <i>Calliblepharis ciliata</i> <i>Rhodymenia holmesii</i> <i>Rhodymenia pseudopalmata</i> <i>Rhodymenia ardissonae</i> <i>Pterothamnion plumula</i> <i>Acrosorium venulosum</i> <i>Apoglossum ruscifolium</i> <i>Cryptopleura ramosa</i> <i>Delesseria sanguinea</i> <i>Haraldiophyllum bonnemaisonii</i> <i>Drachiella heterocarpa</i>	<i>Odonthalia dentata</i> <i>Dilsea carnosa</i> <i>Delesseria sanguinea</i>	<i>Rhodophycota</i> <i>Heterosiphonia plumosa</i> <i>Odonthalia dentata</i> <i>Polysiphonia</i> <i>Scinaia</i> <i>Palmaria palmata</i> <i>Dilsea carnosa</i> <i>Callophyllis laciniata</i> <i>Gracilaria</i> <i>Gracilaria gracilis</i> <i>Polyides rotundus</i> <i>Plocamium cartilagineum</i> <i>Furcellaria lumbricalis</i> <i>Calliblepharis ciliata</i> <i>Rhodymenia</i> <i>Acrosorium venulosum</i> <i>Apoglossum ruscifolium</i> <i>Cryptopleura ramosa</i> <i>Delesseria sanguinea</i>
Chlorophyta-				<i>Ulva</i>
Magnoliophyta-				<i>Zostera marina</i>

Surge Gully Biotopes

Biotope	IR_FIR_SG_CrSpAsAn	IR_FIR_SG_CrSpAsDenB	IR_FIR_SG_FoSwCC	IR_HIR_KFaR_Ala
No. of dives	2	1	2	2
Annelida-Polychaeta			<i>Spirorbis spirorbis</i>	<i>Pomatoceros</i>
Arthropoda-	<i>Palaemon serratus</i> <i>Homarus gammarus</i> <i>Cancer pagurus</i> <i>Necora puber</i>	<i>Homarus gammarus</i> <i>Galathea strigosa</i>	<i>Palaemon serratus</i> <i>Homarus gammarus</i> <i>Cancer pagurus</i> <i>Necora puber</i>	<i>Galathea</i> <i>Maja squinado</i> <i>Cancer pagurus</i> <i>Necora puber</i>
Bryozoa-		<i>Flustra foliacea</i>	<i>Membranipora membranacea</i>	<i>Alcyonidium diaphanum</i>

Biotope	IR_FIR_SG_CrSpAsAn	IR_FIR_SG_CrSpAsDenB	IR_FIR_SG_FoSwCC	IR_HIR_KFaR_Ala
		<i>Securiflustra securifrons</i> <i>Scrupocellaria</i> <i>Bugula plumosa</i>	<i>Electra pilosa</i> <i>Bugula plumosa</i>	<i>Crisia</i> <i>Membranipora membranacea</i> <i>Electra pilosa</i> <i>Bugula flabellata</i>
Chordata-Asciidiacea	<i>Lissoclinum perforatum</i> <i>Botryllus schlosseri</i>	<i>Dendrodoa grossularia</i> <i>Morchellium argus</i>	<i>Botryllus schlosseri</i> <i>Clavelina lepadiformis</i>	<i>Polycarpa</i> <i>Botryllus schlosseri</i> <i>Morchellium argus</i> <i>Sidnyum turbinatum</i> <i>Clavelina lepadiformis</i> <i>Aplidium nordmanni</i> <i>Aplidium punctum</i> <i>Didemnidae</i>
Chordata-	<i>Ctenolabrus rupestris</i> <i>Labrus bergylta</i> <i>Labrus mixtus</i> <i>Callionymus lyra</i> <i>Thorogobius ephippiatus</i> <i>Limanda limanda</i> <i>Pollachius pollachius</i>	<i>Labrus bergylta</i> <i>Gadidae</i>	<i>Taurulus bubalis</i> <i>Centrolabrus exoletus</i> <i>Crenilabrus melops</i> <i>Ctenolabrus rupestris</i> <i>Labrus bergylta</i> <i>Labrus mixtus</i> <i>Callionymus lyra</i> <i>Gobiusculus flavescens</i> <i>Pomatoschistus minutus</i> <i>Thorogobius ephippiatus</i> <i>Limanda limanda</i> <i>Pollachius pollachius</i>	<i>Gobiusculus flavescens</i>
Cnidaria-Anthozoa	<i>Alcyonium digitatum</i> <i>Actinia equina</i> <i>Urticina felina</i> <i>Sagartia elegans</i> <i>Actinothoe sphyrodeta</i> <i>Caryophyllia smithii</i>	<i>Alcyonium digitatum</i> <i>Sagartia elegans</i> <i>Actinothoe sphyrodeta</i> <i>Caryophyllia smithii</i>	<i>Parazoanthus anguicomus</i> <i>Actinia equina</i> <i>Urticina felina</i> <i>Sagartia elegans</i> <i>Actinothoe sphyrodeta</i>	<i>Alcyonium digitatum</i> <i>Sagartia elegans</i> <i>Actinothoe sphyrodeta</i> <i>Caryophyllia smithii</i>
Cnidaria-Hydrozoa		<i>Nemertesia antennina</i>	<i>Nemertesia antennina</i> <i>Obelia geniculata</i>	<i>Obelia</i> <i>Obelia geniculata</i>
Cnidaria-Scyphozoa	<i>Cyanea capillata</i>		<i>Cyanea capillata</i>	
Cnidaria-Staurozoa			<i>Haliclystus auricula</i>	
Echinodermata-Asteroidea		<i>Crossaster papposus</i> <i>Leptasterias muelleri</i> <i>Marthasterias glacialis</i>	<i>Asterina gibbosa</i> <i>Asterias rubens</i>	<i>Asterias rubens</i>
Echinodermata-Echinoidea	<i>Echinus esculentus</i>	<i>Echinus esculentus</i>	<i>Echinus esculentus</i>	<i>Echinus esculentus</i>
Echinodermata-Holothuroidea		<i>Aslia lefevrei</i>		
Mollusca-Gastropoda	<i>Patella</i> <i>Calliostoma zizyphinum</i> <i>Littorina littorea</i>	<i>Calliostoma zizyphinum</i>	<i>Patella</i> <i>Patella vulgata</i> <i>Helcion pellucidum</i> <i>Calliostoma zizyphinum</i> <i>Littorina littorea</i>	<i>Patella vulgata</i> <i>Gibbula cineraria</i> <i>Calliostoma zizyphinum</i> <i>Littorina littorea</i>

Biotope	IR_FIR_SG_ CrSpAsAn	IR_FIR_SG_ CrSpAsDenB	IR_FIR_SG_ FoSwCC	IR_HIR_KFaR_Ala
			<i>Nucella lapillus</i>	
Porifera-Calcareo	<i>Grantia compressa</i> <i>Clathrina coriacea</i>			
Porifera-Demospongiae	<i>Pachymatisma johnstonia</i> <i>Suberites ficus</i> <i>Halichondria panicea</i> <i>Amphilectus fucorum</i> <i>Haliclona cinerea</i>	<i>Cliona celata</i> <i>Stelligera rigida</i> <i>Stelligera stuposa</i> <i>Raspailia ramosa</i>	<i>Pachymatisma johnstonia</i> <i>Suberites ficus</i>	
Heterokontophyta-	<i>Laminariales</i>		<i>Desmarestia aculeata</i> <i>Laminariales</i> <i>Laminaria digitata</i> <i>Laminaria hyperborea</i> <i>Saccharina latissima</i> <i>Saccorhiza polyschides</i> <i>Alaria esculenta</i> <i>Ascophyllum nodosum</i> <i>Fucus serratus</i> <i>Fucus vesiculosus</i>	<i>Dictyota dichotoma</i> <i>Sporochnus pedunculatus</i> <i>Desmarestia aculeata</i> <i>Laminaria hyperborea</i> <i>Saccharina latissima</i> <i>Saccorhiza polyschides</i> <i>Alaria esculenta</i> <i>Himanthalia elongata</i> <i>Bifurcaria bifurcata</i> <i>Halidrys siliquosa</i>
Rhodophyta-			<i>Phycodrys rubens</i> <i>Heterosiphonia plumosa</i> <i>Odonthalia dentata</i> <i>Bonnemaisonia asparagoides</i> <i>Palmaria palmata</i> <i>Dilsea carnosa</i> <i>Callophyllis laciniata</i> <i>Corallinaceae</i> <i>Corallina officinalis</i> <i>Phyllophora crispa</i> <i>Phyllophora pseudoceranoides</i> <i>Chondrus crispus</i> <i>Plocamium cartilagineum</i> <i>Furcellaria lumbricalis</i> <i>Calliblepharis ciliata</i> <i>Rhodymenia pseudopalmata</i> <i>Porphyra</i> <i>Halurus flosculosus</i> <i>Halurus equisetifolius</i> <i>Plumaria plumosa</i> <i>Ptilota gunneri</i> <i>Cryptopleura ramosa</i> <i>Delesseria sanguinea</i>	<i>Nitophyllum punctatum</i> <i>Phycodrys rubens</i> <i>Heterosiphonia plumosa</i> <i>Brongniartella byssoides</i> <i>Osmundea pinnatifida</i> <i>Odonthalia dentata</i> <i>Palmaria palmata</i> <i>Dilsea carnosa</i> <i>Callophyllis</i> <i>Callophyllis laciniata</i> <i>Kallymenia reniformis</i> <i>Meredithia microphylla</i> <i>Corallina officinalis</i> <i>Phyllophora pseudoceranoides</i> <i>Chondrus crispus</i> <i>Plocamium cartilagineum</i> <i>Calliblepharis ciliata</i> <i>Calliblepharis jubata</i> <i>Rhodophyllis</i> <i>Rhodymenia pseudopalmata</i> <i>Lomentaria articulata</i> <i>Lomentaria clavellosa</i> <i>Porphyra</i> <i>Halurus flosculosus</i> <i>Acrosorium venulosum</i> <i>Cryptopleura ramosa</i> <i>Delesseria sanguinea</i> <i>Drachiella spectabilis</i> <i>Hypoglossum hypoglossoides</i> <i>Membranoptera alata</i>
Chlorophyta-			<i>Ulva lactuca</i> <i>Cladophora rupestris</i>	<i>Ulva</i> <i>Ulva lactuca</i>

Circalittoral - Sponge dominated

Biotope	CR_HCR_DpSp	CR_HCR_XFa	CR_HCR_XFa_ByErSp_ DysAct	CR_HCR_XFa_ByErSp
No. of dives	5	2	4	3
Annelida-Polychaeta	<i>Pomatoceros</i>	<i>Chaetopterus variopedatus</i> <i>Lanice conchilega</i>	<i>Chaetopterus variopedatus</i> <i>Lanice conchilega</i> <i>Pomatoceros</i>	<i>Pomatoceros triqueter</i>
Arthropoda-	<i>Balanus crenatus</i> <i>Maja squinado</i> <i>Cancer pagurus</i> <i>Necora puber</i> <i>Carcinus maenas</i>	<i>Balanidae</i> <i>Balanus crenatus</i> <i>Pagurus bernhardus</i> <i>Hyas araneus</i> <i>Cancer pagurus</i> <i>Necora puber</i>	<i>Balanus crenatus</i> <i>Homarus gammarus</i> <i>Paguridae</i> <i>Cancer pagurus</i> <i>Necora puber</i>	<i>Balanus</i> <i>Balanus crenatus</i> <i>Cancer pagurus</i>
Bryozoa-	<i>Alcyonidium diaphanum</i> <i>Crisia</i> <i>Crisia denticulata</i> <i>Crisia eburnea</i> <i>Pentapora foliacea</i> <i>Parasmittina trispinosa</i> <i>Turbicellepora avicularis</i> <i>Eucratea loricata</i> <i>Flustra foliacea</i> <i>Securiflustra securifrons</i> <i>Cellaria fistulosa</i> <i>Cellaria sinuosa</i> <i>Scrupocellaria scruposa</i> <i>Bugula flabellata</i> <i>Bugula plumosa</i>	<i>Alcyonidium diaphanum</i> <i>Eucratea loricata</i> <i>Flustra foliacea</i>	<i>Alcyonidium diaphanum</i> <i>Crisia</i> <i>Crisiidae</i> <i>Parasmittina trispinosa</i> <i>Cellepora pumicosa</i> <i>Flustra foliacea</i> <i>Securiflustra securifrons</i> <i>Cellaria fistulosa</i> <i>Scrupocellaria</i> <i>Bugula flabellata</i> <i>Bugula plumosa</i> <i>Crisidia</i>	<i>Alcyonidium diaphanum</i> <i>Crisia</i> <i>Crisia denticulata</i> <i>Crisia eburnea</i> <i>Crisiidae</i> <i>Parasmittina trispinosa</i> <i>Eucratea loricata</i> <i>Membranipora membranacea</i> <i>Electra pilosa</i> <i>Flustra foliacea</i> <i>Securiflustra securifrons</i> <i>Cellaria</i> <i>Cellaria fistulosa</i> <i>Cellaria sinuosa</i> <i>Bugula plumosa</i>
Chordata-Ascidiacea	<i>Ascidia mentula</i> <i>Ascidia virginea</i> <i>Polycarpa fibrosa</i> <i>Polycarpa pentarhiza</i> <i>Polycarpa pomaria</i> <i>Polycarpa scuba</i> <i>Dendrodoa grossularia</i> <i>Botryllus schlosseri</i> <i>Botrylloides leachi</i> <i>Pyura squamulosa</i> <i>Synocicum incrustatum</i> <i>Sidnyum turbinatum</i> <i>Clavelina lepadiformis</i> <i>Aplidium nordmanni</i> <i>Aplidium punctum</i> <i>Didemnidae</i>	<i>Polycarpa fibrosa</i> <i>Taurulus bubalis</i> <i>Dictyota dichotoma</i>	<i>Ascidia mentula</i> <i>Polycarpa pomaria</i> <i>Polycarpa scuba</i> <i>Botryllus schlosseri</i> <i>Molgula</i> <i>Polyclinum aurantium</i> <i>Synocicum incrustatum</i> <i>Morchellium argus</i> <i>Clavelina lepadiformis</i>	<i>Tunicata</i> <i>Pyncoclavella aurilucens</i> <i>Ascidia mentula</i> <i>Polycarpa fibrosa</i> <i>Dendrodoa grossularia</i> <i>Botryllus schlosseri</i> <i>Morchellium argus</i> <i>Didemnidae</i> <i>Didemnum</i>
Chordata-	<i>Scyliorhinus canicula</i> <i>Pollachius pollachius</i> <i>Labrus bergylta</i> <i>Pholis gunnellus</i> <i>Thorogobius ephippiatus</i>		<i>Aplidium nordmanni</i> <i>Aplidium punctum</i> <i>Didemnidae</i> <i>Scyliorhinus canicula</i> <i>Gadidae</i> <i>Conger conger</i> <i>Taurulus bubalis</i> <i>Ctenolabrus rupestris</i> <i>Labrus bergylta</i> <i>Labrus mixtus</i> <i>Parablennius gattorugine</i> <i>Pholis gunnellus</i>	<i>Pollachius pollachius</i> <i>Trisopterus luscus</i> <i>Trisopterus minutus</i> <i>Conger conger</i> <i>Taurulus bubalis</i> <i>Ctenolabrus rupestris</i> <i>Labrus bergylta</i> <i>Labrus mixtus</i> <i>Parablennius gattorugine</i> <i>Thorogobius ephippiatus</i>
Cnidaria-Anthozoa	<i>Alcyonium digitatum</i> <i>Cerianthus lloydii</i> <i>Epizoanthus couchii</i> <i>Urticina felina</i> <i>Metridium senile</i> <i>Sagartia elegans</i> <i>Sagartia troglodytes</i> <i>Actinothoe sphyrodeta</i> <i>Corynactis viridis</i>	<i>Alcyonium digitatum</i> <i>Urticina eques</i> <i>Actinothoe sphyrodeta</i>	<i>Alcyonium digitatum</i> <i>Urticina felina</i> <i>Actinothoe sphyrodeta</i> <i>Caryophyllia smithii</i>	<i>Alcyonium digitatum</i> <i>Sagartia elegans</i> <i>Actinothoe sphyrodeta</i> <i>Caryophyllia smithii</i>

Biotope	CR_HCR_DpSp	CR_HCR_XFa	CR_HCR_XFa_ByErSp_ DysAct	CR_HCR_XFa_ByErSp
No. of dives	5	2	4	3
	<i>Caryophyllia smithii</i>			
Cnidaria-Hydrozoa	<i>Halecium halecinum</i> <i>Halecium muricatum</i> <i>Nemertesia antennina</i> <i>Nemertesia ramosa</i> <i>Plumularia setacea</i> <i>Diphasia rosacea</i> <i>Hydrallmania falcata</i> <i>Sertularella gayi</i> <i>Sertularia argentea</i>	<i>Tubularia indivisa</i> <i>Halecium muricatum</i> <i>Nemertesia antennina</i> <i>Nemertesia ramosa</i> <i>Hydrallmania falcata</i> <i>Sertularia argentea</i>	<i>Halecium muricatum</i> <i>Nemertesia antennina</i> <i>Nemertesia ramosa</i> <i>Abietinaria</i> <i>Sertularia argentea</i> <i>Obelia</i>	<i>Halecium halecinum</i> <i>Halecium muricatum</i> <i>Nemertesia antennina</i> <i>Nemertesia ramosa</i> <i>Hydrallmania falcata</i> <i>Sertularella gayi</i> <i>Sertularella polyzonias</i> <i>Sertularella tenella</i> <i>Sertularia argentea</i> <i>Obelia geniculata</i>
Echinodermata-Asteroidea	<i>Henricia</i> <i>Henricia oculata</i> <i>Asterias rubens</i> <i>Marthasterias glacialis</i> <i>Luidia ciliaris</i>	<i>Crossaster papposus</i> <i>Asterias rubens</i>	<i>Crossaster papposus</i> <i>Henricia</i> <i>Henricia oculata</i> <i>Asterias rubens</i> <i>Leptasterias muelleri</i> <i>Marthasterias glacialis</i>	<i>Henricia</i> <i>Henricia oculata</i> <i>Asterias rubens</i> <i>Marthasterias glacialis</i>
Echinodermata-Crinodea	<i>Antedon bifida</i>			
Echinodermata-Echinoidea	<i>Echinus esculentus</i>	<i>Echinus esculentus</i>	<i>Echinus esculentus</i>	<i>Echinus esculentus</i>
Echinodermata-Holothuroidea	<i>Holothuria forskali</i> <i>Pawsonia saxicola</i> <i>Aslia lefevrei</i> <i>Ocnus lacteus</i> <i>Thyone roscovita</i>		<i>Aslia lefevrei</i>	<i>Holothuria forskali</i> <i>Aslia lefevrei</i>
Echinodermata-Ophiuroidea	<i>Ophiura albida</i>			
Mollusca-Bivalvia		<i>Mytilus edulis</i> <i>Tapes rhomboides</i>	<i>Pecten maximus</i>	
Mollusca-Gastropoda	<i>Aplysia punctata</i> <i>Tritonia hombergii</i> <i>Doto fragilis</i> <i>Doto pinnatifida</i> <i>Goniodoris nodosa</i> <i>Aegires punctilucens</i> <i>Polycera faeroensis</i> <i>Polycera quadrilineata</i> <i>Cadlina laevis</i> <i>Jorunna</i> <i>Janolus cristatus</i> <i>Flabellina pedata</i> <i>Cuthona amoena</i> <i>Facelina auriculata</i> <i>Favorinus branchialis</i> <i>Pododesmus patelliformis</i> <i>Gibbula cineraria</i> <i>Calliostoma zizyphinum</i> <i>Simnia patula</i> <i>Trivia arctica</i> <i>Trivia monacha</i>	<i>Coryphella lineata</i> <i>Eubranchus tricolor</i> <i>Buccinum undatum</i> <i>Colus gracilis</i>	<i>Doto fragilis</i> <i>Doto pinnatifida</i> <i>Goniodoris nodosa</i> <i>Acanthodoris pilosa</i> <i>Diaphorodoris luteocincta</i> <i>Polycera faeroensis</i> <i>Cadlina laevis</i> <i>Cuthona caerulea</i> <i>Anomiidae</i> <i>Gibbula cineraria</i> <i>Calliostoma zizyphinum</i> <i>Trivia monacha</i>	<i>Acanthodoris pilosa</i> <i>Polycera faeroensis</i> <i>Polycera quadrilineata</i> <i>Cadlina laevis</i> <i>Gibbula cineraria</i> <i>Calliostoma zizyphinum</i> <i>Simnia patula</i> <i>Trivia arctica</i> <i>Hinia incrassata</i>
	<i>Hinia incrassata</i>			
Porifera-Calcareia	<i>Leucosolenia complicata</i> <i>Scypha ciliata</i>		<i>Scypha ciliata</i>	
Porifera-Demospongiae	<i>Pachymatisma johnstonia</i> <i>Tethya citrina</i> <i>Suberites carnosus</i> <i>Polymastia</i> <i>Polymastia penicillus</i>	<i>Suberites ficus</i> <i>Cliona celata</i>	<i>Pachymatisma johnstonia</i> <i>Tethya citrina</i> <i>Polymastia boletiformis</i> <i>Cliona celata</i> <i>Axinella infundibuliformis</i>	<i>Pachymatisma johnstonia</i> <i>Tethya citrina</i> <i>Suberites ficus</i> <i>Polymastia boletiformis</i> <i>Cliona celata</i>

Biotope	CR_HCR_DpSp	CR_HCR_XFa	CR_HCR_XFa_ByErSp_	CR_HCR_XFa_ByErSp
No. of dives	5	2	DysAct 4	3
	<i>Sphaerotylus</i> <i>Cliona</i> <i>Cliona celata</i> <i>Axinella damicornis</i> <i>Axinella dissimilis</i> <i>Halicnemis patera</i> <i>Stelligera rigida</i> <i>Stelligera stuposa</i> <i>Paratimea constellata</i> <i>Raspailia hispida</i> <i>Raspailia ramosa</i> <i>Eurypon</i> <i>Eurypon major</i> <i>Halichondria panicea</i> <i>Myxilla incrustans</i> <i>Myxilla cf. rosacea</i> <i>Iophon hyndmani</i> <i>Hymedesmia paupertas</i> <i>Hymedesmia jecusculum</i> <i>Phorbas fictitius</i> <i>Hemimycale columella</i> <i>Clathrina coriacea</i> <i>Plocamionida ambigua</i> <i>Haliclona oculata</i> <i>Haliclona urceolus</i> <i>Haliclona viscosa</i> <i>Dysidea fragilis</i> <i>Halisarca</i>		<i>Stelligera rigida</i> <i>Stelligera stuposa</i> <i>Raspailia ramosa</i> <i>Eurypon</i> <i>Myxilla incrustans</i> <i>Iophon hyndmani</i> <i>Hemimycale columella</i> <i>Antho involvens</i> <i>Haliclona oculata</i> <i>Haliclona viscosa</i> <i>Dysidea fragilis</i>	<i>Axinella damicornis</i> <i>Axinella infundibuliformis</i> <i>Axinella dissimilis</i> <i>Halicnemis</i> <i>Stelligera rigida</i> <i>Stelligera stuposa</i> <i>Raspailia hispida</i> <i>Raspailia ramosa</i> <i>Eurypon</i> <i>Eurypon major</i> <i>Myxilla rosacea</i> <i>Iophon hyndmani</i> <i>Hymedesmia paupertas</i> <i>Hymedesmia jecusculum</i> <i>Phorbas fictitius</i> <i>Styloptilon ancoratum</i> <i>Antho involvens</i> <i>Haliclona viscosa</i> <i>Dysidea fragilis</i>
Heterokontophyta-	<i>Dictyota dichotoma</i>			<i>Dictyota dichotoma</i> <i>Desmarestia ligulata</i> <i>Saccharina latissima</i>
Rhodophyta-	<i>Phycodrys rubens</i> <i>Erythrogllossum laciniatum</i> <i>Heterosiphonia plumosa</i> <i>Callophyllis laciniata</i> <i>Meredithia microphylla</i> <i>Corallinaceae</i> <i>Plocamium cartilagineum</i> <i>Calliblepharis ciliata</i> <i>Rhodymenia holmesii</i> <i>Rhodymenia pseudopalmata</i> <i>Acrosorium venulosum</i> <i>Cryptopleura ramosa</i> <i>Delesseria sanguinea</i> <i>Haraldiophyllum bonnemaisonii</i>		<i>Corallinaceae</i> <i>Plocamium cartilagineum</i> <i>Rhodymenia ardissoni</i> <i>Cryptopleura ramosa</i> <i>Delesseria sanguinea</i> <i>Hypoglossum hypoglossoides</i> <i>Drachiella heterocarpa</i>	<i>Erythrogllossum laciniatum</i> <i>Heterosiphonia plumosa</i> <i>Brongniartella byssoides</i> <i>Odonthalia dentata</i> <i>Naccariaceae</i> <i>Dilsea carnosus</i> <i>Callophyllis laciniata</i> <i>Kallymenia reniformis</i> <i>Meredithia microphylla</i> <i>Corallinaceae</i> <i>Plocamium cartilagineum</i> <i>Calliblepharis ciliata</i> <i>Rhodymenia pseudopalmata</i> <i>Rhodymenia ardissoni</i> <i>Acrosorium venulosum</i> <i>Cryptopleura ramosa</i> <i>Delesseria sanguinea</i> <i>Hypoglossum hypoglossoides</i> <i>Haraldiophyllum bonnemaisonii</i>

Circalittoral biotopes - Ascidian Dominated

Biotope	CR_HCR_XFa_FluCoAs	CR_HCR_XFa_FluCoAs_SmAs	CR_HCR_XFa_FluCoAs_Syn	CR_HCR_XFa_FluCoAs_X
No. of dives	10	9	9	1
Annelida-Polychaeta	<i>Chaetopterus variopedatus</i> <i>Terebellidae</i> <i>Pomatoceros triqueter</i> <i>Spirorbis spirorbis</i>	<i>Bispira volutacornis</i> <i>Pomatoceros triqueter</i>	<i>Chaetopterus variopedatus</i>	
Arthropoda-	<i>Balanidae</i> <i>Pandalus montagui</i> <i>Homarus gammarus</i> <i>Maja squinado</i> <i>Macropodia</i> <i>Cancer pagurus</i> <i>Necora puber</i>	<i>Balanus crenatus</i> <i>Homarus gammarus</i> <i>Palinurus elephas</i> <i>Galathea strigosa</i> <i>Maja squinado</i> <i>Hyas araneus</i> <i>Cancer pagurus</i> <i>Necora puber</i>	<i>Balanus crenatus</i> <i>Cancer pagurus</i> <i>Necora puber</i>	<i>Homarus gammarus</i> <i>Cancer pagurus</i>
Bryozoa-	<i>Alcyonidium diaphanum</i> <i>Crisia denticulata</i> <i>Pentapora foliacea</i> <i>Parasmittina trispinosa</i> <i>Eucratea loricata</i> <i>Membranipora membranacea</i> <i>Flustra foliacea</i> <i>Securiflustra securifrons</i> <i>Bugula</i> <i>Bugula flabellata</i> <i>Bugula plumosa</i>	<i>Disporella hispida</i> <i>Alcyonidium diaphanum</i> <i>Crisia</i> <i>Crisia denticulata</i> <i>Crisia eburnea</i> <i>Crisiidae</i> <i>Parasmittina trispinosa</i> <i>Membranipora membranacea</i> <i>Electra pilosa</i> <i>Flustra foliacea</i> <i>Securiflustra securifrons</i> <i>Cellaria</i> <i>Cellaria fistulosa</i> <i>Cellaria sinuosa</i> <i>Scrupocellaria</i> <i>Bugula flabellata</i> <i>Bugula plumosa</i>	<i>Alcyonidium diaphanum</i> <i>Crisia denticulata</i> <i>Crisia eburnea</i> <i>Crisiidae</i> <i>Pentapora foliacea</i> <i>Parasmittina trispinosa</i> <i>Cellepora pumicosa</i> <i>Eucratea loricata</i> <i>Flustra foliacea</i> <i>Securiflustra</i> <i>Securiflustra securifrons</i> <i>Cellaria</i> <i>Cellaria fistulosa</i> <i>Scrupocellaria</i> <i>Scrupocellaria scruposa</i> <i>Bugula flabellata</i> <i>Bugula plumosa</i> <i>Bugula turbinata</i>	<i>Alcyonidium diaphanum</i> <i>Alcyonidium hirsutum</i> <i>Crisia denticulata</i> <i>Crisia eburnea</i> <i>Parasmittina trispinosa</i> <i>Flustra foliacea</i> <i>Securiflustra securifrons</i> <i>Scrupocellaria scruposa</i> <i>Bugula flabellata</i> <i>Bugula plumosa</i>
Chordata-Ascidiacea	<i>Ascidiacea</i> <i>Ascidia mentula</i> <i>Ascidia virginea</i> <i>Polycarpa scuba</i> <i>Dendrodoa grossularia</i> <i>Botryllus schlosseri</i> <i>Synoicum incrustatum</i> <i>Morchellium argus</i> <i>Clavelina lepadiformis</i> <i>Aplidium nordmanni</i> <i>Aplidium punctum</i>	<i>Ciona intestinalis</i> <i>Pycnoclavella aurilucens</i> <i>Ascidia mentula</i> <i>Polycarpa scuba</i> <i>Dendrodoa grossularia</i> <i>Botryllus schlosseri</i> <i>Pyura microcosmus</i> <i>Polyclinum aurantium</i> <i>Synoicum incrustatum</i> <i>Morchellium argus</i> <i>Pycnoclavella stolonialis</i> <i>Sidnyum turbinatum</i> <i>Clavelina lepadiformis</i> <i>Aplidium nordmanni</i> <i>Aplidium punctum</i>	<i>Ascidiacea</i> <i>Ascidia virginea</i> <i>Polycarpa</i> <i>Polycarpa pomaria</i> <i>Polycarpa scuba</i> <i>Dendrodoa grossularia</i> <i>Botryllus schlosseri</i> <i>Botrylloides leachi</i> <i>Pyura</i> <i>Molgula complanata</i> <i>Synoicum incrustatum</i> <i>Morchellium argus</i> <i>Sidnyum turbinatum</i> <i>Clavelina lepadiformis</i> <i>Aplidium nordmanni</i> <i>Aplidium punctum</i> <i>Didemnidae</i>	<i>Pycnoclavella aurilucens</i> <i>Ascidia mentula</i> <i>Dendrodoa grossularia</i> <i>Botrylloides leachi</i> <i>Synoicum</i> <i>Morchellium argus</i> <i>Sidnyum turbinatum</i> <i>Clavelina lepadiformis</i> <i>Aplidium punctum</i> <i>Didemnum maculosum</i>
			<i>Didemnum</i> <i>Didemnum maculosum</i>	
Chordata-	<i>Scyliorhinus canicula</i> <i>Pollachius pollachius</i> <i>Trisopterus luscus</i> <i>Trisopterus minutus</i> <i>Taurulus bubalis</i>	<i>Scyliorhinus canicula</i> <i>Gadidae</i> <i>Pollachius pollachius</i> <i>Trisopterus luscus</i> <i>Trisopterus minutus</i>	<i>Gadidae</i> <i>Molva molva</i> <i>Trisopterus luscus</i> <i>Trisopterus minutus</i> <i>Conger conger</i>	

Biotope	CR_HCR_XFa_FluCoAs	CR_HCR_XFa_FluCoAs_SmAs	CR_HCR_XFa_FluCoAs_Syn	CR_HCR_XFa_FluCoAs_X
	<i>Centrolabrus exoletus</i> <i>Centrolabrus rupestris</i> <i>Labrus bergylta</i> <i>Labrus mixtus</i> <i>Phrynorhombus norvegicus</i>	<i>Centrolabrus exoletus</i> <i>Crenilabrus melops</i> <i>Ctenolabrus rupestris</i> <i>Labrus bergylta</i> <i>Labrus mixtus</i> <i>Callionymus lyra</i> <i>Callionymus reticulatus</i> <i>Gobiidae</i>	<i>Ctenolabrus rupestris</i> <i>Labrus bergylta</i> <i>Labrus mixtus</i> <i>Pholis gunnellus</i> <i>Thorogobius ephippiatus</i>	
Cnidaria-Anthozoa	<i>Alcyonium digitatum</i> <i>Cerianthus lloydii</i> <i>Urticina felina</i> <i>Sagartia elegans</i> <i>Actinothoe sphyrodeta</i> <i>Corynactis viridis</i> <i>Caryophyllia smithii</i>	<i>Alcyonium digitatum</i> <i>Cerianthus lloydii</i> <i>Urticina felina</i> <i>Metridium senile</i> <i>Sagartia elegans</i> <i>Actinothoe sphyrodeta</i> <i>Corynactis viridis</i> <i>Caryophyllia smithii</i>	<i>Cerianthus lloydii</i> <i>Epizoanthus couchii</i> <i>Urticina felina</i> <i>Sagartia</i> <i>Sagartia elegans</i> <i>Actinothoe sphyrodeta</i> <i>Hormathia coronata</i> <i>Corynactis viridis</i> <i>Caryophyllia smithii</i>	<i>Alcyonium digitatum</i> <i>Caryophyllia smithii</i>
Cnidaria-Hydrozoa	<i>Halecium halecinum</i> <i>Halecium plumosum</i> <i>Antennella secundaria</i> <i>Halopteris catharina</i> <i>Kirchenpaueria pinnata</i> <i>Nemertesia antennina</i> <i>Nemertesia ramosa</i> <i>Sertularia argentea</i> <i>Obelia dichotoma</i>	<i>Eudendrium arbusculum</i> <i>Halecium halecinum</i> <i>Halecium muricatum</i> <i>Halecium plumosum</i> <i>Kirchenpaueria pinnata</i> <i>Nemertesia antennina</i> <i>Nemertesia ramosa</i> <i>Plumularia setacea</i> <i>Diphasia rosacea</i> <i>Hydrallmania falcata</i> <i>Sertularella fusiformis</i> <i>Sertularella gayi</i> <i>Sertularia argentea</i> <i>Obelia geniculata</i>	<i>Tubularia indivisa</i> <i>Tubularia larynx</i> <i>Halecium halecinum</i> <i>Halopteris catharina</i> <i>Nemertesia antennina</i> <i>Nemertesia ramosa</i> <i>Plumularia setacea</i> <i>Diphasia rosacea</i> <i>Hydrallmania falcata</i> <i>Sertularella gaudichaudi</i> <i>Sertularia argentea</i>	<i>Kirchenpaueria pinnata</i> <i>Nemertesia antennina</i>
Echinodermata-Asteroida	<i>Crossaster papposus</i> <i>Asterias rubens</i> <i>Marthasterias glacialis</i> <i>Luidia ciliaris</i>	<i>Crossaster papposus</i> <i>Henricia</i> <i>Henricia oculata</i> <i>Asterias rubens</i> <i>Leptasterias muelleri</i> <i>Luidia ciliaris</i>	<i>Crossaster papposus</i> <i>Henricia</i> <i>Henricia oculata</i> <i>Asterias rubens</i> <i>Leptasterias muelleri</i> <i>Marthasterias glacialis</i>	<i>Henricia oculata</i> <i>Asterias rubens</i>
Echinodermata-Echinoidea	<i>Echinus esculentus</i>	<i>Psammechinus miliaris</i> <i>Echinus esculentus</i>	<i>Echinus esculentus</i>	<i>Echinus esculentus</i> <i>Psammechinus miliaris</i>
Echinodermata-Holothuroidea	<i>Holothuria forskali</i> <i>Aslia lefevrei</i> <i>Thyone roscovita</i>	<i>Holothuria forskali</i> <i>Pawsonia saxicola</i> <i>Aslia lefevrei</i>	<i>Pawsonia saxicola</i> <i>Aslia lefevrei</i> <i>Ocnus lacteus</i>	<i>Holothuria forskali</i> <i>Pawsonia saxicola</i> <i>Aslia lefevrei</i> <i>Thyone roscovita</i>
Echinodermata-Ophiuroidea		<i>Ophiura albida</i>		
Mollusca-Bivalvia		<i>Modiolarca tumida</i> <i>Pododesmus patelliformis</i>		
Mollusca-Gastropoda	<i>Doto</i> <i>Doto maculata</i> <i>Doto pinnatifida</i>	<i>Colpodaspis pusilla</i> <i>Aplysia punctata</i> <i>Doto pinnatifida</i>	<i>Tritonia hombergii</i> <i>Tectura virginea</i> <i>Doto pinnatifida</i>	<i>Doto pinnatifida</i> <i>Goniodoris nodosa</i> <i>Acanthodoris pilosa</i>
	<i>Okenia elegans</i> <i>Acanthodoris pilosa</i> <i>Diaphorodoris luteocincta</i> <i>Crimora papillata</i> <i>Polycera faeroensis</i> <i>Polycera quadrilineata</i> <i>Janolus cristatus</i>	<i>Goniodoris nodosa</i> <i>Okenia elegans</i> <i>Acanthodoris pilosa</i> <i>Diaphorodoris luteocincta</i> <i>Crimora papillata</i> <i>Limacia clavigera</i> <i>Polycera faeroensis</i>	<i>Okenia elegans</i> <i>Ancula gibbosa</i> <i>Acanthodoris pilosa</i> <i>Diaphorodoris luteocincta</i> <i>Polycera faeroensis</i> <i>Cadlina laevis</i> <i>Archidoris pseudoargus</i>	<i>Diaphorodoris luteocincta</i> <i>Polycera faeroensis</i> <i>Cadlina laevis</i> <i>Facelina auriculata</i> <i>Calliostoma zizyphinum</i> <i>Trivia arctica</i>

Biotope	CR_HCR_XFa_FluCoAs	CR_HCR_XFa_FluCoAs_SmAs	CR_HCR_XFa_FluCoAs_Syn	CR_HCR_XFa_FluCoAs_X
	<i>Coryphella lineata</i> <i>Flabellina pedata</i> <i>Facelina bostoniensis</i> <i>Facelina auriculata</i> <i>Favorinus brianus</i> <i>Calliostoma zizyphinum</i> <i>Trivia monacha</i> <i>Ocenebra erinacea</i> <i>Hinia reticulata</i>	<i>Polycera quadrilineata</i> <i>Cadlina laevis</i> <i>Helcion pellucidum</i> <i>Archidoris pseudoargus</i> <i>Janolus</i> <i>Janolus cristatus</i> <i>Coryphella browni</i> <i>Coryphella lineata</i> <i>Flabellina pedata</i> <i>Facelina bostoniensis</i> <i>Facelina auriculata</i> <i>Caloria elegans</i> <i>Aeolidia papillosa</i> <i>Gibbula cineraria</i> <i>Calliostoma zizyphinum</i> <i>Trivia arctica</i> <i>Nucella lapillus</i> <i>Ocenebra erinacea</i>	<i>Janolus cristatus</i> <i>Flabellina pedata</i> <i>Cuthona amoena</i> <i>Favorinus brianus</i> <i>Gibbula tumida</i> <i>Calliostoma zizyphinum</i> <i>Trivia arctica</i> <i>Trivia monacha</i> <i>Trophon truncatus</i> <i>Ocenebra erinacea</i> <i>Hinia incrassata</i>	
Phoronida-	<i>Phoronis hippocrepia</i>			
Porifera-Calcarea	<i>Leucosolenia complicata</i> <i>Scypha ciliata</i>	<i>Scypha ciliata</i>	<i>Leucosolenia complicata</i>	<i>Leucosolenia complicata</i>
Porifera-Demospongiae	<i>Pachymatisma johnstonia</i> <i>Suberites ficus</i> <i>Polymastia boletiformis</i> <i>Cliona celata</i> <i>Axinella dissimilis</i> <i>Stelligera stuposa</i> <i>Raspailia hispida</i> <i>Raspailia ramosa</i> <i>Ciocalypta penicillus</i> <i>Myxilla incrustans</i> <i>Haliclona oculata</i> <i>Haliclona viscosa</i> <i>Dysidea fragilis</i>	<i>Pachymatisma johnstonia</i> <i>Tethya citrina</i> <i>Suberites carnosus</i> <i>Suberites ficus</i> <i>Polymastia boletiformis</i> <i>Polymastia penicillus</i> <i>Cliona celata</i> <i>Axinella damicornis</i> <i>Axinella infundibuliformis</i> <i>Axinella dissimilis</i> <i>Stelligera rigida</i> <i>Stelligera stuposa</i> <i>Paratimea constellata</i> <i>Raspailia hispida</i> <i>Raspailia ramosa</i> <i>Eurypon</i> <i>Eurypon major</i> <i>Myxilla incrustans</i> <i>Phorbas</i> <i>Hemimycale columella</i> <i>Haliclona oculata</i> <i>Haliclona urceolus</i> <i>Dysidea fragilis</i>	<i>Pachymatisma johnstonia</i> <i>Tethya citrina</i> <i>Suberites carnosus</i> <i>Polymastia</i> <i>Polymastia boletiformis</i> <i>Polymastia penicillus</i> <i>Sphaerotylus</i> <i>Cliona</i> <i>Cliona celata</i> <i>Scypha ciliata</i> <i>Axinella damicornis</i> <i>Axinella infundibuliformis</i> <i>Axinella dissimilis</i> <i>Stelligera rigida</i> <i>Stelligera stuposa</i> <i>Raspailia hispida</i> <i>Raspailia ramosa</i> <i>Eurypon major</i> <i>Haliclondria panicea</i> <i>Ciocalypta penicillus</i> <i>Myxilla incrustans</i> <i>Iophon hyndmani</i> <i>Hymedesmia paupertas</i> <i>Hymedesmia jecusculum</i> <i>Phorbas fictitius</i> <i>Hemimycale columella</i> <i>Haliclona oculata</i> <i>Haliclona viscosa</i>	<i>Pachymatisma johnstonia</i> <i>Cliona celata</i> <i>Halichondria bowerbanki</i> <i>Hymeniacion perleve</i> <i>Hymedesmia paupertas</i> <i>Phorbas fictitius</i> <i>Haliclona oculata</i> <i>Haliclona viscosa</i>
Heterokontophyta-	<i>Dictyota dichotoma</i> <i>Desmarestia aculeata</i> <i>Laminaria digitata</i> <i>Laminaria hyperborea</i> <i>Saccharina latissima</i>	<i>Dictyota dichotoma</i> <i>Laminaria hyperborea</i> <i>Saccharina latissima</i> <i>Saccorhiza polyschides</i>	<i>Dysidea fragilis</i>	<i>Laminaria hyperborea</i>

Biotope	CR_HCR_XFa_FluCoAs	CR_HCR_XFa_FluCoAs_SmAs	CR_HCR_XFa_FluCoAs_Syn	CR_HCR_XFa_FluCoAs_X
Rhodophyta-	<i>Rhodophycota</i> <i>Phycodrys rubens</i> <i>Heterosiphonia plumosa</i> <i>Odonthalia dentata</i> <i>Dilsea carnosa</i> <i>Callophyllis</i> <i>Phyllophora crispa</i> <i>Erythrodermis traillii</i> <i>Chondrus crispus</i> <i>Plocamium cartilagineum</i> <i>Rhodymenia pseudopalmata</i> <i>Lomentaria clavellosa</i> <i>Cryptopleura ramosa</i> <i>Delesseria sanguinea</i> <i>Drachiella spectabilis</i> <i>Hypoglossum hypoglossoides</i>	<i>Heterosiphonia plumosa</i> <i>Odonthalia dentata</i> <i>Polysiphonia</i> <i>Palmaria palmata</i> <i>Dilsea</i> <i>Callophyllis laciniata</i> <i>Kallymenia reniformis</i> <i>Chondrus crispus</i> <i>Plocamium cartilagineum</i> <i>Ceramium</i> <i>Porphyra</i> <i>Acrosorium venulosum</i> <i>Cryptopleura ramosa</i> <i>Delesseria sanguinea</i> <i>Drachiella spectabilis</i> <i>Hypoglossum hypoglossoides</i>	<i>Corallinaceae</i> <i>Plocamium cartilagineum</i> <i>Delesseria sanguinea</i>	<i>Rhodymenia pseudopalmata</i> <i>Delesseria sanguinea</i> <i>Hypoglossum hypoglossoides</i>

Ciracittoral Rock - Moderately Exposed Rock

Biotope	CR_MCR_EcCr_CarSp	CR_MCR_EcCr_CarSp_PenPcom	CR_MCR_EcCr_FaAICr_Sec	CR_MCR_EcCr_UrtScr
No. of dives Annelida-Polychaeta Arthropoda-	11 <i>Pomatoceros lamarcki</i> <i>Pomatoceros triqueter</i> <i>Balanidae</i> <i>Balanus crenatus</i> <i>Homarus gammarus</i> <i>Pagurus bernhardus</i> <i>Galathea</i> <i>Galathea strigosa</i> <i>Macropodia</i> <i>Cancer pagurus</i> <i>Necora puber</i>	2 <i>Bispira volutacornis</i> <i>Inachus dorsettensis</i>	1 <i>Homarus gammarus</i> <i>Galathea strigosa</i>	1
Bryozoa-	<i>Alcyonidium diaphanum</i> <i>Crisia</i> <i>Crisia denticulata</i> <i>Pentapora foliacea</i> <i>Parasmittina trispinosa</i> <i>Electra pilosa</i> <i>Flustra foliacea</i> <i>Securiflustra securifrons</i> <i>Bugula plumosa</i>	<i>Alcyonidium diaphanum</i> <i>Crisia</i> <i>Pentapora foliacea</i> <i>Parasmittina trispinosa</i> <i>Schizomavella linearis</i> <i>Flustra foliacea</i> <i>Bugula plumosa</i>	<i>Flustra foliacea</i> <i>Securiflustra securifrons</i> <i>Scrupocellaria</i> <i>Bugula plumosa</i>	<i>Eucratea loricata</i> <i>Flustra foliacea</i> <i>Securiflustra securifrons</i>
Chordata-Asciidiacea	<i>Lissoclinum perforatum</i> <i>Ciona intestinalis</i> <i>Ascidia mentula</i> <i>Polycarpa scuba</i> <i>Dendrodoa grossularia</i>	<i>Ascidia virginea</i> <i>Morchellium argus</i> <i>Aplidium proliferum</i>	<i>Dendrodoa grossularia</i> <i>Morchellium argus</i>	<i>Polycarpa scuba</i>

Biotope	CR_MCR_EcCr_CarSp	CR_MCR_EcCr_CarSp_PenPcom	CR_MCR_EcCr_FaAlCr_Sec	CR_MCR_EcCr_UrtScr
	<i>Botryllus schlosseri</i> <i>Synoicum incrustatum</i> <i>Morchellium argus</i> <i>Aplidium nordmanni</i> <i>Aplidium punctum</i>			
Chordata-	<i>Scyliorhinus canicula</i> <i>Merlangius merlangus</i> <i>Pollachius pollachius</i> <i>Pollachius virens</i> <i>Trisopterus luscus</i> <i>Trisopterus minutus</i> <i>Taurulus bubalis</i> <i>Centrolabrus exoletus</i> <i>Crenilabrus melops</i> <i>Ctenolabrus rupestris</i> <i>Labrus bergylta</i> <i>Labrus mixtus</i> <i>Parablennius gattorugine</i> <i>Gobiusculus flavescens</i> <i>Phrynorhombus norvegicus</i> <i>Phoca vitulina</i> <i>Halichoerus grypus</i>	<i>Scyliorhinus canicula</i> <i>Pollachius pollachius</i> <i>Ctenolabrus rupestris</i> <i>Parablennius gattorugine</i>	<i>Gadidae</i> <i>Labrus bergylta</i>	
Cnidaria-Anthozoa	<i>Alcyonium digitatum</i> <i>Urticina felina</i> <i>Sagartia elegans</i> <i>Actinothoe sphyrodeta</i> <i>Edwardsiella carnea</i> <i>Corynactis viridis</i> <i>Caryophyllia smithii</i>	<i>Alcyonium digitatum</i> <i>Actinothoe sphyrodeta</i> <i>Caryophyllia smithii</i>	<i>Alcyonium digitatum</i> <i>Sagartia elegans</i> <i>Actinothoe sphyrodeta</i> <i>Caryophyllia smithii</i>	<i>Alcyonium digitatum</i> <i>Urticina felina</i>
Cnidaria-Hydrozoa	<i>Tubularia indivisa</i> <i>Halecium halecinum</i> <i>Kirchenpaueria pinnata</i> <i>Nemertesia antennina</i> <i>Nemertesia ramosa</i> <i>Abietinaria abietina</i> <i>Diphasia rosacea</i> <i>Hydrallmania falcata</i> <i>Sertularella gayi</i> <i>Sertularella polyzonias</i> <i>Sertularia argentea</i> <i>Obelia geniculata</i>	<i>Halecium halecinum</i> <i>Nemertesia antennina</i> <i>Nemertesia ramosa</i> <i>Sertularia argentea</i>	<i>Nemertesia antennina</i>	<i>Halecium plumosum</i> <i>Nemertesia antennina</i>
Echinodermata-Asteroidea	<i>Crossaster papposus</i> <i>Henricia</i> <i>Henricia oculata</i> <i>Asterias rubens</i> <i>Leptasterias muelleri</i> <i>Marthasterias glacialis</i>	<i>Crossaster papposus</i> <i>Henricia</i> <i>Asterias rubens</i> <i>Marthasterias glacialis</i>	<i>Crossaster papposus</i> <i>Leptasterias muelleri</i> <i>Marthasterias glacialis</i>	<i>Asterias rubens</i> <i>Luidia ciliaris</i>
Echinodermata-Crinodea				
Echinodermata-Echinoidea	<i>Psammechinus miliaris</i> <i>Echinus esculentus</i>	<i>Echinus esculentus</i>	<i>Echinus esculentus</i>	
Echinodermata-Holothuroidea	<i>Holothuria forskali</i> <i>Pawsonia saxicola</i> <i>Aslia lefevrei</i>	<i>Pawsonia saxicola</i> <i>Aslia lefevrei</i>	<i>Aslia lefevrei</i>	

Biotope	CR_MCR_EcCr_CarSp	CR_MCR_EcCr_CarSp_PenPcom	CR_MCR_EcCr_FaAICr_Sec	CR_MCR_EcCr_UrtScr
Echinodermata-Ophiuroidea		<i>Ophiopholis aculeata</i>		
Mollusca-Gastropoda	<i>Acanthodoris pilosa</i> <i>Diaphorodoris luteocincta</i> <i>Polycera faeroensis</i> <i>Cadlina laevis</i> <i>Archidoris pseudoargus</i> <i>Gibbula cineraria</i> <i>Calliostoma zizyphinum</i> <i>Trivia arctica</i> <i>Trivia monacha</i> <i>Ocenebra erinacea</i> <i>Buccinum undatum</i> <i>Hinia reticulata</i>	<i>Aplysia punctata</i> <i>Acanthodoris pilosa</i> <i>Cadlina laevis</i> <i>Jorunna tomentosa</i> <i>Coryphella lineata</i> <i>Aeolidia papillosa</i> <i>Calliostoma zizyphinum</i> <i>Ocenebra erinacea</i>	<i>Calliostoma zizyphinum</i>	<i>Calliostoma zizyphinum</i>
Porifera-Demospongiae	<i>Pachymatisma johnstonia</i> <i>Tethya citrina</i> <i>Suberites ficus</i> <i>Polymastia boletiformis</i> <i>Polymastia penicillus</i> <i>Cliona</i> <i>Cliona celata</i> <i>Axinella infundibuliformis</i> <i>Axinella dissimilis</i> <i>Halicnemis</i> <i>Stelligera rigida</i> <i>Stelligera stuposa</i> <i>Raspailia hispida</i> <i>Raspailia ramosa</i> <i>Myxilla incrustans</i> <i>Iophonopsis nigricans</i> <i>Iophon hyndmani</i> <i>Hymedesmia paupertas</i> <i>Hymedesmia jecusculum</i> <i>Phorbas fictitius</i> <i>Hemimycale columella</i> <i>Clathrina coriacea</i> <i>Microciona</i> <i>Antho involvens</i> <i>Haliclona oculata</i> <i>Haliclona viscosa</i> <i>Dysidea fragilis</i>	<i>Pachymatisma johnstonia</i> <i>Tethya citrina</i> <i>Suberites carnosus</i> <i>Polymastia boletiformis</i> <i>Polymastia penicillus</i> <i>Cliona celata</i> <i>Stelligera rigida</i> <i>Raspailia ramosa</i> <i>Halichondria bowerbanki</i> <i>Myxilla incrustans</i> <i>Phorbas fictitius</i> <i>Haliclona oculata</i> <i>Dysidea fragilis</i>	<i>Cliona celata</i> <i>Stelligera rigida</i> <i>Stelligera stuposa</i> <i>Raspailia ramosa</i>	<i>Suberites ficus</i> <i>Cliona celata</i> <i>Stelligera stuposa</i> <i>Raspailia ramosa</i> <i>Ciocalypta penicillus</i>
Heterokontophyta-	<i>Dictyota dichotoma</i> <i>Desmarestia ligulata</i> <i>Laminaria hyperborea</i> <i>Saccharina latissima</i>	<i>Dictyota dichotoma</i>		
Rhodophyta-	<i>Rhodophycota</i> <i>Nitophyllum punctatum</i> <i>Phycodrys rubens</i> <i>Erythroglusum laciniatum</i> <i>Heterosiphonia plumosa</i> <i>Odonthalia dentata</i> <i>Bonnemaisonia asparagoides</i> <i>Dilsea carnosus</i>	<i>Rhodophycota</i> <i>Plocamium cartilagineum</i> <i>Calliblepharis ciliata</i> <i>Delesseria sanguinea</i>		

Biotope	CR_MCR_EcCr_CarSp	CR_MCR_EcCr_CarSp_PenPcom	CR_MCR_EcCr_FaAlCr_Sec	CR_MCR_EcCr_UrtScr
	<i>Callophyllis laciniata</i> <i>Kallymenia reniformis</i> <i>Meredithia microphylla</i> <i>Corallinaceae</i> <i>Lithothamnion</i> <i>Plocamium cartilagineum</i> <i>Sphaerococcus coronopifolius</i> <i>Calliblepharis ciliata</i> <i>Rhodymenia holmesii</i> <i>Rhodymenia pseudopalmata</i> <i>Rhodymenia ardissoni</i> <i>Pterothamnion plumula</i> <i>Acrosorium venulosum</i> <i>Apoglossum ruscifolium</i> <i>Cryptopleura ramosa</i> <i>Delesseria sanguinea</i> <i>Haraldiophyllum bonnemaisonii</i> <i>Drachiella heterocarpa</i>			

Sediment Biotopes

Biotope	SS_SMp_SSgr_Zmar	SS_SMx_CMx_EucHyd	SS_SMx_CMx_FluHyd	SS_SSa_IFiSa_IMoSa
No. of dives	11	8	8	5
Annelida-Polychaeta	<i>Chaetopterus variopedatus</i> <i>Arenicola marina</i> <i>Lanice conchilega</i> <i>Megalomma vesiculosum</i> <i>Sabella pavonina</i> <i>Myxicola infundibulum</i>	<i>Chaetopterus variopedatus</i> <i>Lanice conchilega</i> <i>Megalomma vesiculosum</i> <i>Sabella pavonina</i> <i>Pomatoceros</i> <i>Pomatoceros triqueter</i>	<i>Chaetopterus variopedatus</i> <i>Sabellaria spinulosa</i> <i>Lanice conchilega</i> <i>Sabella pavonina</i> <i>Serpulidae</i> <i>Pomatoceros</i> <i>Spirorbis</i>	<i>Lanice conchilega</i> <i>Aphrodita aculeata</i>
Arthropoda-	<i>Pycnogonida</i> <i>Caprellidae</i> <i>Crangon crangon</i> <i>Paguridae</i> <i>Pagurus bernhardus</i> <i>Pagurus prideaux</i> <i>Hyas araneus</i> <i>Liocarcinus</i> <i>Liocarcinus depurator</i> <i>Adamsia carciniopados</i> <i>Inachus</i> <i>Macropodia rostrata</i> <i>Cancer pagurus</i>	<i>Balanidae</i> <i>Balanus</i> <i>Balanus crenatus</i> <i>Spirontocaris spinus</i> <i>Crangon crangon</i> <i>Paguridae</i> <i>Pagurus bernhardus</i> <i>Galathea intermedia</i> <i>Maja brachydactyla</i> <i>Hyas coarctatus</i> <i>Inachus</i> <i>Inachus phalangium</i> <i>Macropodia</i> <i>Macropodia rostrata</i> <i>Eurynome aspera</i> <i>Cancer pagurus</i> <i>Liocarcinus depurator</i> <i>Liocarcinus holsatus</i> <i>Necora puber</i> <i>Liocarcinus pusillus</i>	<i>Balanus crenatus</i> <i>Pandalus montagui</i> <i>Homarus gammarus</i> <i>Paguridae</i> <i>Pagurus bernhardus</i> <i>Pagurus cuanensis</i> <i>Pagurus prideaux</i> <i>Galatheaidae</i> <i>Galathea intermedia</i> <i>Majidae</i> <i>Hyas coarctatus</i> <i>Inachus</i> <i>Inachus phalangium</i> <i>Macropodia</i> <i>Macropodia rostrata</i> <i>Cancer pagurus</i> <i>Liocarcinus depurator</i> <i>Liocarcinus holsatus</i> <i>Necora puber</i> <i>Liocarcinus pusillus</i> <i>Carcinus maenas</i>	<i>Paguridae</i> <i>Pagurus</i> <i>Pagurus bernhardus</i> <i>Corystes cassivelaunus</i> <i>Liocarcinus depurator</i> <i>Necora puber</i>

Biotope	SS_SMp_SSgr_Zmar	SS_SMx_CMx_ EucHyd	SS_SMx_CMx_FluHyd	SS_SSa_IFiSa_IMoSa
Bryozoa-	<i>Crisiidae</i> <i>Membranipora membranacea</i> <i>Electra pilosa</i> <i>Scrupocellaria</i>	<i>Alcyonidium diaphanum</i> <i>Vesicularia spinosa</i> <i>Crisia eburnea</i> <i>Crisiidae</i> <i>Cellepora pumicosa</i> <i>Eucratea loricata</i> <i>Flustra foliacea</i> <i>Securiflustra securifrons</i> <i>Scrupocellaria</i> <i>Scrupocellaria scrupea</i> <i>Scrupocellaria scruposa</i> <i>Bugula flabellata</i> <i>Bugula plumosa</i>	<i>Alcyonidium diaphanum</i> <i>Vesicularia spinosa</i> <i>Cellepora pumicosa</i> <i>Eucratea loricata</i> <i>Flustra foliacea</i> <i>Securiflustra securifrons</i> <i>Scrupocellaria</i> <i>Bugula</i> <i>Bugula flabellata</i> <i>Bugula plumosa</i>	<i>Alcyonidium diaphanum</i> <i>Eucratea loricata</i>
Chordata-Asciadiacea	<i>Botryllus schlosseri</i>	<i>Ascidia mentula</i> <i>Polycarpa fibrosa</i> <i>Dendrodoa grossularia</i> <i>Botryllus schlosseri</i>	<i>Perophora listeri</i> <i>Ascidia</i> <i>Ascidia mentula</i> <i>Polycarpa pomaria</i> <i>Polycarpa scuba</i> <i>Dendrodoa grossularia</i> <i>Botryllus schlosseri</i> <i>Morchellium argus</i> <i>Clavelina lepadiformis</i> <i>Aplidium nordmanni</i> <i>Aplidium punctum</i> <i>Didemnidae</i>	
Chordata-	<i>Pollachius pollachius</i> <i>Nerophis lumbriciformis</i> <i>Entelurus aequoreus</i> <i>Syngnathus acus</i> <i>Taurulus bubalis</i> <i>Ammodytes tobianus</i> <i>Callionymus</i> <i>Callionymus lyra</i> <i>Callionymus reticulatus</i> <i>Eutrigla gurnardus</i> <i>Gobiusculus flavescens</i> <i>Pomatoschistus</i> <i>Pomatoschistus minutus</i> <i>Pomatoschistus pictus</i> <i>Pleuronectidae</i> <i>Limanda limanda</i> <i>Pleuronectes platessa</i> <i>Scyliorhinus canicula</i>	<i>Trisopterus minutus</i> <i>Entelurus aequoreus</i> <i>Nerophis lumbriciformis</i> <i>Syngnathus acus</i> <i>Callionymus</i> <i>Callionymus reticulatus</i> <i>Balistes carolinensis</i> <i>Scyliorhinus canicula</i>	<i>Trisopterus minutus</i> <i>Entelurus aequoreus</i> <i>Agonus cataphractus</i> <i>Pholis gunnellus</i> <i>Ammodytes tobianus</i> <i>Callionymus</i> <i>Callionymus lyra</i> <i>Gobiidae</i> <i>Pomatoschistus</i> <i>Pomatoschistus minutus</i> <i>Limanda limanda</i>	<i>Callionymus</i> <i>Callionymus lyra</i> <i>Pomatoschistus</i> <i>Pleuronectidae</i> <i>Pleuronectes platessa</i> <i>Ammodytes tobianus</i>
Cnidaria-Anthozoa	<i>Cerianthus lloydii</i> <i>Urticina felina</i> <i>Sagartia elegans</i> <i>Sagartiogeton undatus</i> <i>Peachia cylindrica</i> <i>Edwardsia claparedii</i>	<i>Alcyonium digitatum</i> <i>Cerianthus lloydii</i> <i>Urticina felina</i> <i>Urticina felina</i> <i>Urticina eques</i> <i>Sagartia elegans</i> <i>Actinothoe sphyrodeta</i>	<i>Alcyonium digitatum</i> <i>Hydrozoa</i> <i>Cerianthus lloydii</i> <i>Urticina felina</i> <i>Urticina eques</i> <i>Metridium senile</i> <i>Sagartia elegans</i> <i>Sagartia troglodytes</i> <i>Actinothoe sphyrodeta</i> <i>Adamsia carciniopados</i> <i>Peachia cylindrica</i> <i>Caryophyllia smithii</i>	<i>Cerianthus lloydii</i> <i>Halecium plumosum</i>
Cnidaria-Hydrozoa	<i>Hydractinia echinata</i> <i>Aglaophenia pluma</i>	<i>Eudendrium</i> <i>Halecium muricatum</i>	<i>Halecium halecinum</i> <i>Halecium muricatum</i>	<i>Sertularia cupressina</i>

Biotope	SS_SMp_SSGr_Zmar	SS_SMx_CMx_ EucHyd	SS_SMx_CMx_FluHyd	SS_SSa_IFiSa_IMoSa
	<i>Sertularia cupressina</i> <i>Clytia hemisphaerica</i> <i>Obelia geniculata</i>	<i>Halecium muricatum</i> <i>Nemertesia antennina</i> <i>Nemertesia antennina</i> <i>Nemertesia ramosa</i> <i>Plumularia setacea</i> <i>Diphasia rosacea</i> <i>Hydrallmania falcata</i> <i>Sertularella</i> <i>Sertularella gayi</i> <i>Sertularella polyzonias</i> <i>Sertularia argentea</i> <i>Sertularia cupressina</i>	<i>Nemertesia antennina</i> <i>Nemertesia ramosa</i> <i>Plumularia setacea</i> <i>Hydrallmania falcata</i> <i>Sertularella gayi</i> <i>Sertularella polyzonias</i> <i>Sertularia argentea</i> <i>Sertularia cupressina</i> <i>Rhizocaulus verticillatus</i>	
Cnidaria-Scyphozoa			<i>Cyanea capillata</i>	
Cnidaria-Staurozoa	<i>Haliclystus auricula</i>			
Echinodermata-Asteroidea	<i>Asterias rubens</i>	<i>Crossaster papposus</i> <i>Asterias rubens</i> <i>Luidia ciliaris</i>	<i>Crossaster papposus</i> <i>Asterias rubens</i>	<i>Crossaster papposus</i>
Echinodermata-Echinoidea		<i>Echinus esculentus</i>	<i>Echinus esculentus</i>	
Echinodermata-Holothuroidea	<i>Labidoplax digitata</i>		<i>Aslia lefevrei</i> <i>Neopentadactyla mixta</i>	
Echinodermata-Ophiuroidea	<i>Amphiura brachiata</i> <i>Amphiura filiformis</i> <i>Amphipholis squamata</i> <i>Ophiura</i> <i>Ophiura ophiura</i> <i>Ophiura albida</i>	<i>Ophiothrix fragilis</i> <i>Ophiocomina nigra</i> <i>Ophiura albida</i>	<i>Ophiothrix fragilis</i>	
Mollusca-Bivalvia	<i>Lutraria lutraria</i> <i>Arctica islandica</i> <i>Chamelea gallina</i>	<i>Mytilus edulis</i> <i>Modiolus modiolus</i> <i>Aequipecten opercularis</i> <i>Pecten maximus</i> <i>Lutraria lutraria</i> <i>Arctica islandica</i> <i>Circomphalus casina</i> <i>Tapes rhomboides</i>	<i>Mytilus edulis</i> <i>Musculus discors</i>	<i>Arctica islandica</i>
Mollusca-Gastropoda	<i>Aplysia punctata</i> <i>Polycera quadrilineata</i> <i>Helcion pellucidum</i> <i>Facelina bostoniensis</i> <i>Facelina auriculata</i> <i>Gibbula cineraria</i> <i>Lacuna vincta</i> <i>Rissoa</i> <i>Polinices pulchellus</i> <i>Hinia incrassata</i> <i>Hinia reticulata</i> <i>Trivia</i>	<i>Lomanotus marmoratus</i> <i>Doto fragilis</i> <i>Doto hydrallmaniae</i> <i>Doto pinnatifida</i> <i>Goniodoris nodosa</i> <i>Acanthodoris pilosa</i> <i>Janolus</i> <i>Janolus cristatus</i> <i>Coryphella lineata</i> <i>Flabellina pedata</i> <i>Cuthona caerulea</i> <i>Eubbranchus tricolor</i> <i>Gibbula tumida</i> <i>Gibbula cineraria</i> <i>Calliostoma zizyphinum</i> <i>Lamellaria perspicua</i> <i>Euspira catena</i> <i>Polinices pulchellus</i> <i>Ocenebra erinacea</i> <i>Buccinum undatum</i>	<i>Aplysia punctata</i> <i>Doto</i> <i>Doto fragilis</i> <i>Doto pinnatifida</i> <i>Acanthodoris pilosa</i> <i>Palio nothus</i> <i>Janolus</i> <i>Janolus cristatus</i> <i>Coryphella browni</i> <i>Flabellina pedata</i> <i>Cuthona caerulea</i> <i>Eubbranchus tricolor</i> <i>Facelina bostoniensis</i> <i>Favorinus blianus</i> <i>Favorinus branchialis</i> <i>Calliostoma zizyphinum</i> <i>Lacuna crassior</i> <i>Trivia monacha</i> <i>Buccinum undatum</i> <i>Neptunea antiqua</i>	

Biotope	SS_SMp_SSgr_Zmar	SS_SMx_CMx_ EucHyd	SS_SMx_CMx_FluHyd	SS_SSa_IFiSa_IMoSa
		<i>Hinia incrassata</i> <i>Lacuna crassior</i>	<i>Colus</i> <i>Hinia reticulata</i>	
Mollusca-Polyplacophora		<i>Leptochiton asellus</i> <i>Acanthochitona crinita</i>		
Porifera-Calcareia			<i>Scypha ciliata</i>	
Porifera-Demospongiae	<i>Suberites</i> <i>Suberites pagurorum</i>	<i>Suberites</i> <i>Suberites carnosus</i> <i>Suberites ficus</i> <i>Suberites pagurorum</i> <i>Cliona celata</i> <i>Antho involvens</i> <i>Haliclona oculata</i> <i>Haliclona urceolus</i>	<i>Suberites</i> <i>Polymastia boletiformis</i> <i>Cliona celata</i> <i>Raspailia ramosa</i> <i>Haliclona oculata</i>	
Heterokontophyta-	<i>Dictyota dichotoma</i> <i>Sporochnus pedunculatus</i> <i>Desmarestia aculeata</i> <i>Desmarestia ligulata</i> <i>Desmarestia viridis</i> <i>Chorda filum</i> <i>Saccharina latissima</i> <i>Saccorhiza polyschides</i> <i>Halidrys siliquosa</i>	<i>Dictyota dichotoma</i> <i>Desmarestia aculeata</i>		<i>Saccharina latissima</i>
Rhodophyta-	<i>Nitophyllum punctatum</i> <i>Heterosiphonia plumosa</i> <i>Brongniartella byssoides</i> <i>Polysiphonia elongata</i> <i>Dilsea carnosa</i> <i>Callophyllis laciniata</i> <i>Corallinaceae</i> <i>Gracilaria gracilis</i> <i>Ahnfeltia plicata</i> <i>Polyides rotundus</i> <i>Plocamium cartilagineum</i> <i>Rhodomenia holmesii</i> <i>Lomentaria clavellosa</i> <i>Aglaothamnion</i> <i>Ceramium</i> <i>Ceramium pallidum</i> <i>Pterothamnion plumula</i> <i>Acrosorium venulosum</i> <i>Apoglossum ruscifolium</i> <i>Cryptopleura ramosa</i> <i>Hypoglossum</i> <i>hypoglossoides</i> <i>Sphacelaria</i> <i>Membranoptera alata</i>	<i>Nitophyllum punctatum</i> <i>Phycodrys rubens</i> <i>Heterosiphonia plumosa</i> <i>Polysiphonia</i> <i>Corallinaceae</i> <i>Corallina officinalis</i> <i>Plocamium cartilagineum</i> <i>Rhodophyllis divaricata</i> <i>Acrosorium venulosum</i> <i>Cryptopleura ramosa</i> <i>Delesseria sanguinea</i>		<i>Callophyllis laciniata</i> <i>Gracilaria</i>
Chlorophyta-	<i>Ulva</i> <i>Cladophora</i>			
Magnoliophyta-	<i>Zostera marina</i>			

Appendix 4. Species list for the survey area

Species lists are taken from the Marine Recorder database. This includes data from the Northern Ireland Sublittoral Survey and Seasearch surveys as well as this project. Additional sponge species were added from the museum sponge database (some species cannot yet be entered into Marine Recorder as their names are not on the database species lists). Northern Ireland Priority Species are in bold, Northern Ireland Species of Conservation Concern are underlined, those of note but not in either of these two categories are marked with an asterisk.

Annelida– Annelid Worms

Alentia gelatinosa, *Aphrodita aculeata*, *Arenicola marina*, *Bispira volutacornis*, *Chaetopterus variopedatus*, *Eupolymnia nebulosa*, *Filograna*, *Filograna implexa*, *Harmothoe impar*, *Lanice conchilega*, *Lepidonotus squamatus*, *Megalomma vesiculosum*, *Myxicola infundibulum*, *Neoamphitrite figulus*, *Pomatoceros lamarcki*, *Pomatoceros triqueter*, *Sabella pavonina*, *Sabellaria spinulosa*, *Serpulidae*, *Sigalion mathildae*, *Spirorbis*, *Spirorbis spirorbis*,

Bryozoa – Bryozoans

Alcyonidium, *Alcyonidium diaphanum*, *Alcyonidium hirsutum*, *Alcyonidium mytili*, *Amathia lendigera*, *Amphiblestrum auritum*, *Bicellariella ciliata*, *Bowerbankia*, *Bowerbankia pustulosa*, *Bugula*, *Bugula avicularia*, *Bugula flabellata*, *Bugula plumosa*, *Bugula turbinata*, *Caberea ellisii*, *Cellaria*, *Cellaria fistulosa*, *Cellaria sinuosa*, *Cellepora*, *Cellepora pumicosa*, *Celleporina hassallii*, *Crisia*, *Crisia denticulata*, *Crisia eburnea*, *Crisidia cornuta*, *Disporella hispida*, *Electra pilosa*, *Eucretea loricata*, *Flustra foliacea*, *Membranipora membranacea*, *Parasmittina trispinosa*, *Pentapora fascialis* var. *foliacea*, *Phaeostachys spinifera*, *Schizomavella linearis*, *Schizoporella dunkeri*, *Scrupocellaria*, *Scrupocellaria reptans*, *Scrupocellaria scrupea*, *Scrupocellaria scruposa*, *Securiflustra*, *Securiflustra securifrons*, *Turbicellepora avicularis*, *Vesicularia spinosa*, *Walkeria uva*

Algae/plants

Angiospermophyta - Seagrass, tassel weeds, reeds, sea pink & grasses

Zostera marina

Chlorophycota - Green Algae

Chaetomorpha melagonium, *Cladophora rupestris*, *Codium* sp., *Ulva linza*, *Ulva* sp., *Ulva lactuca*.

Chromophycota - Brown Algae

Alaria esculenta, *Arthrocladia villosa*, *Ascophyllum nodosum*, *Bifurcaria bifurcata*, *Chorda filum*, *Desmarestia aculeata*, *Desmarestia ligulata*, *Desmarestia viridis*, *Dictyota dichotoma*, *Fucus serratus*, *Fucus vesiculosus*, *Halidrys siliquosa*, *Halopteris filicina*, *Himantalia elongata*, *Laminaria digitata*, *Laminaria hyperborea*, *Petalonia fascia*, *Saccorhiza polyschides*, *Saccharina latissima* (formerly *Laminaria saccharina*), *Scytosiphon lomentaria*, *Sphacelaria* sp., *Sporochnus pedunculatus*

Rhodophycota - Red Algae

Acrosorium venulosum, *Aglaothamnion*, *Ahnfeltia plicata*, *Antithamnionella spirographidis*, *Apoglossum ruscifolium*, *Bonnemaisonia asparagoides*, *Brongniartella byssoides*, *Calliblepharis ciliata*, *Calliblepharis jubata*, *Callithamnion*, *Callithamnion tetragonum*, *Callophyllis laciniata*, *Ceramium pallidum*, *Chondrus crispus*, *Compsothamnion thuyoides*, *Corallina officinalis*, *Cryptopleura ramosa*, *Delesseria sanguinea*, *Dilsea carnosa*, *Drachiella heterocarpa*, *Drachiella spectabilis*, *Erythrodermis traillii*, *Erythroglossum laciniatum*, *Furcellaria lumbricalis*, *Gracilaria gracilis*, *Halarachnion ligulatum*, *Halurus equisetifolius*, *Halurus flosculus*, *Haraldiophyllum bonnemaisonii*, *Heterosiphonia plumosa*, *Hypoglossum hypoglossoides*, *Kallymenia reniformis*, *Lomentaria articulata*, *Lomentaria clavellosa*, *Lomentaria orcadensis*, *Mastocarpus stellatus*, *Membranoptera alata*, *Meredithia microphylla*, *Nitophyllum punctatum*, *Odonthalia dentata*, *Osmundea pinnatifida*, *Palmaria palmata*, *Phycodryis rubens*, *Phyllophora crispa*, *Phyllophora pseudoceranoides*, *Plocamium cartilagineum*, *Plumaria plumosa*, *Polyides rotundus*, *Polysiphonia* sp., *Polysiphonia elongata*, *Polysiphonia stricta*, *Porphyra* sp., *Pterothamnion plumula*, *Pterosiphonia parasitica*, *Ptilota gunneri*, *Rhodophyllis* sp., *Radicilingua thysanorhizans*, *Rhodophyllis divaricata*, *Rhodymenia ardissoni*, *Rhodymenia delicatula*, *Rhodymenia holmesii*, *Rhodymenia pseudopalmata*, *Schottera nicaeensis*, *Scinaia* sp., *Sphaerococcus coronopifolius*, *Sphondylothamnion*, *Stenogramme interrupta*

Cnidaria**Hexacorallia – Anemones and True Corals**

Actinia equina, *Actinothoe sphyrodeta*, *Adamsia carciniopados*, *Anemonia viridis*, *Caryophyllia smithii*, *Cereus pedunculatus*, *Cerianthus lloydii*, *Corynactis viridis*, *Edwardsia claparedii*, *Edwardsiella carnea*, *Epizoanthus couchii*, *Hormathia coronata*, *Metridium senile*, *Parazoanthus anguicomus*, *Peachia cylindrica*, *Sagartia elegans*, *Sagartia troglodytes*, *Sagartiogeton laceratus*, *Sagartiogeton undatus*, *Urticina eques*, *Urticina felina*

Staurozoa – stalked jellyfish

Craterolophus convolvulus, *Haliclystus auricula*

Scyphozoa – true jellyfish

Aurelia aurita, *Chrysaora hysoscella*, *Clytia hemisphaerica*, *Cyanea capillata*

Octocorallia – Sea pens, sea fans and soft corals

Alcyonium digitatum

Hydrozoa - Hydroids

Abietinaria abietina, *Abietinaria filicula*, *Aglaophenia pluma*, *Amphisbetia operculata*, *Antennella secundaria*, *Bougainvillia ramosa*, *Clytia hemisphaerica*, *Diphasia rosacea*, *Eudendrium arbusculum*, *Eudendrium ramosum*, *Halecium*, *Halecium halecinum*, *Halecium muricatum*, *Halecium plumosum*, *Halopteris catharina*, *Hydractinia echinata*, *Hydrallmania falcata*, *Kirchenpaueria pinnata*, *Kirchenpaueria similis*, *Laomedea flexuosa*, *Leuckartiara octona*, *Nemertesia antennina*, *Nemertesia ramosa*, *Obelia dichotoma*, *Obelia geniculata*, *Obelia longissima*, *Plumularia setacea*, *Rhizocaulus verticillatus*, *Sertularella fusiformis*, *Sertularella gaudichaudi*, *Sertularella gayi*, *Sertularella polyzonias*, *Sertularella rugosa*, *Sertularella tenella*, *Sertularia argentea*, *Sertularia cupressina*, *Tubularia indivisa*, *Tubularia larynx*

Crustacea

Anapagurus hyndmanni, *Atelecyclus rotundatus*, *Balanus sp.*, *Balanus crenatus*, *Cancer pagurus*, *Caprellidae*, *Caprella linearis*, *Carcinus maenas*, *Corystes cassivelaunus*, *Crangon allmanni*, *Crangon crangon*, *Ebalia tuberosa*, *Eurynome aspera*, *Galathea intermedia*, *Galathea squamifera*, *Galathea nexa*, *Galathea strigosa*, *Homarus gammarus*, *Hyale pontica*, *Hyale prevostii*, *Hyas araneus*, *Hyas coarctatus*, *Idotea granulosa*, *Inachus dorsettensis*, *Inachus phalangium*, *Ischyrocerus anguipes*, *Janira maculosa*, *Janiropsis brevimis*, *Jassa falcata*, *Ligia oceanica*, *Liocarcinus depurator*, *Liocarcinus holsatus*, *Liocarcinus pusillus*, *Macropodia sp*, *Macropodia rostrata*, *Macropodia tenuirostris*, *Maera othonis*, *Maja brachydactyla (squinado)**, *Mysidae*, *Munida rugosa*, *Munna kroyeri*, *Necora puber*, *Pagurus bernhardus*, *Pagurus cuanensis*, *Pagurus prideaux*, *Palaemon elegans*, *Palaemon longirostris*, *Pagurus pubescens*, *Palaemon serratus*, *Palinurus elephas*, *Pandalus montagui*, *Parajassa pelagica*, *Parapleustes bicuspis*, *Pilumnus hirtellus*, *Pirimela denticulata*, *Pisidia longicornis*, *Spirontocaris spinus*, *Tritaeta gibbosa*

Echinodermata

Amphipholis squamata, *Amphiura brachiata*, *Amphiura filiformis*, *Antedon bifida*, *Aslia lefevrei*, *Asterias rubens*, *Asterina gibbosa*, *Crossaster papposus*, *Echinocardium cordatum*, *Echinus esculentus*, *Henricia oculata*, *Holothuria forskali*, *Labidoplax digitata*, *Leptasterias*, *Leptasterias muelleri*, *Luidia ciliaris*, *Luidia sarsi*, *Marthasterias glacialis*, *Neopentadactyla mixta*, *Ocnus lacteus*, *Ophiocomina nigra*, *Ophiopholis aculeata*, *Ophiothrix fragilis*, *Ophiura albida*, *Ophiura ophiura*, *Pawsonia saxicola*, *Psammechinus miliaris*, *Solaster endeca*, *Thyone fusus*, *Thyone roscovita*

Mollusca**Pelecypoda – Bivalve Mollusca**

Aequipecten opercularis, *Arctica islandica*, *Chamelea gallina*, *Chlamys distorta*, *Chlamys varia*, *Circomphalus casina*, *Dosinia lupinus*, *Ensis*, *Ensis siliqua*, *Fabulina fabula*, *Glycymeris glycymeris*, *Hiatella arctica*, *Lucinoma borealis*, *Lutraria lutraria*, *Modiolarca tumida*, *Modiolus modiolus*, *Musculus costulatus*, *Musculus discors*, *Mya truncata*, *Mytilus edulis*, *Pecten maximus*, *Pododesmus patelliformis*, *Tapes rhomboides*, *Thracia convexa*, *Thracia phaseolina*

Polyplacophora - Chitons

Lepidochitona cinerea, *Leptochiton asellus*, *Acanthochitona crinita*

Gastropoda – Gastropod shelled molluscs

Aporrhais pespelecani, *Bittium reticulatum*, *Buccinum undatum*, *Calliostoma zizyphinum*, *Colpodaspis pusilla*, *Colus*, *Colus gracilis*, *Emarginula fissura*, *Epitonium clathrus*, *Euspira catena*, *Gibbula*, *Gibbula cineraria*, *Gibbula tumida*, *Helcion pellucidum*, *Hinia incrassata*, *Hinia reticulata*, *Jujubinus montagui*, *Lacuna crassior*, *Lacuna parva*, *Lacuna vineta*, *Lamellaria latens*, *Lamellaria perspicua*, *Littorina littorea*, *Neptunea antiqua*, *Nucella lapillus*, *Ocenebra erinacea*, *Onoba semicostata*, *Osilinus lineatus*, *Patella*, *Patella ulyssiponensis*, *Patella vulgata*, *Polinices pulchellus*, *Rissoa*, *Rissoa interrupta*, *Rissoa lilacina*, *Rissoa parva*, *Simnia patula*, *Tectura testudinalis*, *Tectura virginea*, *Tricolia pullus*, *Trivia arctica*, *Trivia monacha*, *Trophon truncatus*, *Velutina velutina*

Gastropoda - Sea slugs

Acanthodoris pilosa, *Aegires punctilucens*, *Aeolidia papillosa*, *Ancula gibbosa*, *Aplysia punctata*, *Archidoris pseudoargus*, *Cadlina laevis*, *Catriona gymnota*, *Coryphella browni*, *Coryphella gracilis*, *Coryphella lineata*, *Coryphella verrucosa*, *Crimora papillata**, *Cuthona amoena*, *Cuthona caerulea*, *Cuthona rubescens*, *Cuthona viridis*, *Dendronotus frondosus*, *Diaphorodoris luteocincta*, *Doto*, *Doto coronata*, *Doto dunnei*, *Doto eireana*, *Doto fragilis*, *Doto hydrallmaniae*, *Doto maculata*, *Doto millbayana*, *Doto pinnatifida*, *Doto tuberculata*, *Eubranthus doriae*, *Eubranthus exiguus*, *Eubranthus farrani*, *Eubranthus pallidus*, *Eubranthus tricolor*, *Facelina annulicornis*, *Facelina auriculata*, *Facelina bostoniensis*, *Favorinus blianus*, *Favorinus branchialis*, *Flabellina pedata*, *Goniodoris castanea*, *Goniodoris nodosa*, *Janolus sp*.*, *Janolus cristatus*, *Janolus hyalinus*, *Jorunna sp.**, *Jorunna tomentosa*, *Limacia clavigera*, *Lomanotus marmoratus*, *Nudibranchia*, *Okenia elegans*, *Onchidoris bilamellata*, *Onchidoris oblonga*, *Palio nothus*, *Polycera faeroensis*, *Polycera quadrilineata*, *Rostanga rubra*, *Tergipes tergipes*, *Thecacera pennigera*, *Tritonia hombergii*, *Tritonia plebeia*

Cephalopoda – Octopus, squid and cuttlefish

Eledone cirrhosa, *Sepiola atlantica*

Nemertea – Nemertean worms

Lineus longissimus

Phoronida – Horseshoe worms

Phoronis hippocrepia

Mammals

Halichoerus grypus, *Phoca vitulina*

Fish

Agonus cataphractus, *Ammodytes sp.*, *Ammodytes tobianus*, *Balistes carolinensis*, *Callionymus lyra*, *Callionymus reticulatus*, *Centrolabrus exoletus*, *Cetorhinus maximus*, *Conger conger*, *Crenilabrus melops*, *Ctenolabrus rupestris*, *Cyclopterus lumpus*, *Diplecogaster bimaculata*, *Entelurus aequoreus*, *Eutrigla gurnardus*, *Gadus morhua*, *Gaidropsarus vulgaris*, *Gobiusculus flavescens*, *Hyperoplus lanceolatus*, *Labrus bergylta*, *Labrus mixtus*, *Limanda limanda*, *Lipophrys pholis*, *Lophius piscatorius*, *Merlangius merlangus*, *Microstomus kitt*, *Molva molva*, *Nerophis lumbriciformis*, *Parablennius gattorugine*, *Parablennius ruber*, *Pholis gunnellus*, *Phrynorhombus norvegicus*, *Pleuronectes platessa*, *Pollachius pollachius*, *Pollachius virens*, *Pomatoschistus sp.*, *Pomatoschistus minutus*, *Pomatoschistus pictus*, *Raja clavata*, *Raja undulata*, *Reinhardtius hippoglossoides*, *Salmo salar*, *Scomber scombrus*, *Scyliorhinus canicula*, *Scyliorhinus stellaris*, *Squalus acanthias*, *Syngnathus acus*, *Taurulus bubalis*, *Thorogobius ephippiatus*, *Trisopterus*, *Trisopterus luscus*, *Trisopterus minutus*, *Zeugopterus punctatus*

Porifera – Sponges

Amphilectus fucorum, *Antho involvens*, *Aplysilla sulfurea*, *Axinella damicornis*
Axinella dissimilis, *Axinella infundibuliformis*, *Ciocalypta penicillus*, *Clathrina contorta*, *Clathrina coriacea*, *Cliona celata*, *Dercitus bucklandi*, *Dysidea fragilis*, *Eurypon sp.*, *Eurypon major*, *Grantia compressa*, *Halichondria bowerbanki*, *Halichondria panicea*, *Haliclona*, *Haliclona cinerea*, *Haliclona oculata*, *Haliclona urceolus*, *Haliclona viscosa*, *Halicnemia*, *Halicnemia patera*, *Halisarca*, *Hemimycale columella*, *Hymedesmia jecusculum*, *Hymedesmia paupertas*, *Hymeniacidon perleve*, *Iophon hyndmani*, *Iophonopsis nigricans*, *Leucosolenia*, *Leucosolenia botryoides*, *Leucosolenia complicata*, *Mycale rotalis*, *Myxilla fimbriata*, *Myxilla cf. rosacea*, *Myxilla incrustans*, *Myxilla rosacea*, *Pachymatisma johnstonia*, *Paratimea constellata*, *Phorbas*, *Phorbas fictitius*, *Plocamionida ambigua*, *Polymastia*, *Polymastia boletiformis*, *Polymastia penicillus*, *Raspailia hispida*, *Raspailia ramosa*, *Scycon ciliatum*, *Sphaerotylus sp.*, *Stelletta grubii*, *Stelligera rigida*, *Stelligera stuposa*, *Stryphnus ponderosus*, *Styloptilon ancoratum*, *Suberites carnosus*, *Suberites ficus*, *Suberites pagurorum*, *Tethya citrina*

Pycnogonida – Sea spiders

Achelia laevis, *Endeis spinosa*

Tunicata – Sea squirts

Aplidium glabrum, *Aplidium nordmanni*, *Aplidium proliferum*, *Aplidium punctum*, *Archidistoma aggregatum*, *Ascidia conchilega*, *Ascidia mentula*, *Ascidia virginea*, *Ascidiella aspersa*, *Ascidiella scabra*, *Botrylloides leachi*, *Botryllus schlosseri*, *Ciona intestinalis*, *Clavelina lepadiformis*, *Corella parallelogramma*, *Dendrodoa grossularia*, *Didemnidae*, *Didemnum maculosum*, *Diplosoma listerianum*, *Distaplia rosea*, *Lissoclinum perforatum*, *Molgula sp.*, *Molgula citrina*, *Molgula complanata*, *Molgula manhattensis*, *Morchellium argus*, *Perophora listeri*, *Polycarpa fibrosa*, *Polycarpa gracilis*, *Polycarpa pentarhiza*, *Polycarpa pomaria*, *Polycarpa scuba*, *Polyclinum aurantium*, *Pycnoclavella aurilucens*, *Pycnoclavella stolonialis*, *Pyura*, *Pyura microcosmus*, *Pyura squamulosa*, *Sidnyum turbinatum*, *Synoicum sp.*, *Synoicum incrustatum*, *Synoicum pulmonaria*, *Trididemnum cereum*



Our aim is to protect, conserve and promote the natural environment and built heritage for the benefit of present and future generations.

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