

NPWS

**Lough Hyne Nature Reserve and Environs SAC
(site code: 000097)**

**Conservation objectives supporting document -
Marine Habitats**

**Version 1
July 2014**

Introduction

Lough Hyne Nature Reserve and Environs SAC is designated for the marine Annex I qualifying interests of Large shallow inlets and bays, Reefs and Submerged or partially submerged sea caves (Figures 1, 2 and 3). The Annex I habitat Large shallow inlets and bays is a large physiographic feature that may wholly or partly incorporate other Annex I habitats including, Reefs and Sea caves within its area.

Lough Hyne has been the subject of detailed scientific research resulting in a wealth of scientific publications (see Myers et al., 1991). However, for the development of site-specific conservation objectives specific surveys were used to determine the broad physical and biological nature of this site. These include the BioMar surveys in 1993 and 1994 (Picton and Costello, 1997), a dive survey to map the *Zostera* beds in 2007 (MERC, 2007), an internal monitoring report (Little and Trowbridge, 2010) and reef surveys undertaken in 2012 (MERC, 2012). The sediment community complex was determined from doctoral research undertaken within the Lough (Broszeit, 2013).

The distribution and ecology of intertidal or subtidal seacaves has not previously been the subject of scientific investigation in Ireland and the extents of very few individual caves have been mapped in detail. However, in 2012 a sea cave located on a cliff on the south-west coast of Bullock Island was surveyed (MERC, 2012). Imagery from the Department of Communications, Marine and Natural Resources coastal oblique aerial survey was examined for other possible locations of partly submerged seacaves in Lough Hyne Nature Reserve and Environs SAC (Figure 3). There is no additional information available concerning the likely distribution of permanently submerged seacaves in the site at present. Whilst surveys undertaken in the UK indicate the structure and functions of seacaves are largely influenced by hydrodynamic forces and water quality, no such information is yet available for Ireland.

Aspects of the biology and ecology of the Annex I habitats are provided in Section 1. The corresponding site-specific conservation objectives will facilitate Ireland delivering on its surveillance and reporting obligations under the EU Habitats Directive (92/43/EC).

Ireland also has an obligation to ensure that consent decisions concerning operations/activities planned for Natura 2000 sites are informed by an appropriate assessment where the likelihood of such operations or activities having a significant effect on the site cannot be excluded. Further ancillary information concerning the practical application of the site-specific objectives and targets in the completion of such assessments is provided in Section 2.

Section 1

Principal Benthic Communities

Within the Lough Hyne Nature Reserve and Environs SAC six community types are recorded. The Annex I habitats in which they are recorded is presented in table 1 and a description of each community type is given below.

	Habitats		
	Large shallow inlets and bays (1160)	Reefs (1170)	Submerged or partly submerged seacaves (8330)
Muds to mixed sediment with polychaetes, bivalves and oligochaetes community complex	✓		
<i>Zostera</i> -dominated community	✓		
Intertidal reef community complex	✓	✓	
Subtidal reef community complex	✓	✓	
<i>Laminaria</i> -dominated community complex	✓	✓	
Sea cave community complex	✓		✓

Table 1 The community types recorded in Lough Hyne Nature Reserve and Environs SAC and their occurrence in the Annex I habitats for which the site is designated.

Estimated areas of each community type within the Annex I habitats, based on interpolation, are given in the objective targets in Section 2.

The development of a community complex target arises when an area possesses similar abiotic features but records a number of biological communities that are not regarded as being sufficiently stable and/or distinct temporally or spatially to become the focus of conservation efforts. In this case, examination of the available data from Lough Hyne Nature Reserve and Environs identified a number of biological communities whose species composition overlapped significantly. Such biological communities are grouped together into what experts consider are sufficiently stable units (i.e. a complex) for conservation targets.

MUDS TO MIXED SEDIMENT WITH POLYCHAETES, BIVALVES AND OLIGOCHAETES COMMUNITY COMPLEX

This community complex is present where soft sediment occurs within the site; it is recorded in Lough Hyne, in Tranabo Cove and in Tragumna Bay where it extends to the south western extreme of the site (Figure 4). It is largely subtidal but occurs intertidally within Tragumna Bay and on the southern shore of Lough Hyne. It is recorded to depths of 46m.

The substrate is dominated by silt-clay in depositional areas such as the deep basin off the western shore of Lough Hyne; elsewhere the sediment is more mixed.

The distinguishing species of this complex include the polychaetes *Scalibregma inflatum* and *Capitella capitata*, the bivalves *Corbula gibba*, *Kurtiella bidentata* and *Abra nitida* and unidentified nemerteans (Table 2).

Scalibregma inflatum is recorded throughout the lough with high abundances occasionally recorded within the deepest part of the lough; *Kurtiella bidentata* and *Corbula gibba* are also recorded throughout the complex. Nemerteans are recorded in abundance in depths of <20m. Although the polychaete *Capitella capitata* is present in low numbers in the north west and in the Western Trough of the Lough, above 20m, it is abundant elsewhere in the Lough. The bivalve *Abra nitida* and the ophiuroid *Amphiura chiajei* are present throughout the Lough in low to medium abundances while the red alga *Rhodothamniella floridula* is present near its southern shore.

In the Western Trough, where depths reached 46m, the goby *Lesueurigobius friesii* is recorded burrowing into the sediment, the asteroid *Marthasterias glacialis* occurs regularly and the bivalve *Pecten maximus* is occasionally recorded. The crabs *Liocarcinus depurator*, *Cancer maenas* and *Maja brachydactyla* also occur here. The holothurian *Rhabdomolgus ruber* was recorded within the Lough for the first time in 2010; this species has only been recorded in waters off Helgoland, Germany and in the plankton near Cherbourg, France.

Distinguishing species of Muds to mixed sediment with polychaetes, bivalves and oligochaetes community complex	
<i>Scalibregma inflatum</i>	Nemertea indet.
<i>Corbula gibba</i>	<i>Capitella capitata</i>
<i>Kurtiella bidentata</i>	<i>Abra nitida</i>

Table 2 Distinguishing species of Muds to mixed sediment with polychaetes, bivalves and oligochaetes community complex.

It is expected that the infauna within the sediments of Tranabo Cove and Tragumna Bay would host similarly diverse and comparable fauna to those present in the south-east of the

lough; here tanaids, cumaceans and nemerteans are also recorded along with the distinguishing species for the complex.

ZOSTERA-DOMINATED COMMUNITY

This subtidal community, dominated by the seagrass *Zostera marina*, is recorded in Barloge Creek and into the straits at the mouth of Lough Hyne (Figure 4). It is recorded in depths of between 0m and 4m. The substrate is that of mixed sediment and is composed of 30.4% gravel, 36.7% sand and 28.2% silt.

Within this community *Z. marina* is generally recorded as frequent (6 to 11 shoots per m⁻²) to abundant (>12 shoots m⁻²). Three infaunal species were commonly recorded within this community, namely the amphipods *Parametaphoxus fultoni* and *Socarnes erythrophthalmus* and the tanaid *Apseudes talpa*. Other species recorded here include the bivalve *Anomia ephippium* and the crustacean *Aoridae* sp. (Table 3).

Conspicuous species associated with this community include the anthozoans *Anemonia viridis*, the crustaceans *Palaemon serratus*, *Cancer pagurus*, *Liocarcinus depurator*, *Necora puber* and *Macropodia tenuirostris*, the hermit crab *Pagurus bernhardus*. The alga *Ulva lactuca* is frequent in places while *Chorda filum* is rare. The gastropod *Gibbula cineraria* and the polychaete *Lanice conchilega* are also recorded within the complex.

Distinguishing species of the <i>Zostera</i>-dominated community	
<i>Zostera marina</i>	<i>Palaemon serratus</i>
<i>Anemonia viridis</i>	<i>Gobiusculus flavescens</i>
<i>Parametaphoxus fultoni</i>	<i>Macropodia tenuirostris</i>
<i>Socarnes erythrophthalmus</i>	<i>Ulva lactuca</i>
<i>Apseudes talpa</i>	

Table 3 Distinguishing species of the *Zostera*-dominated community.

The invasive seaweed *Sargassum muticum* is recorded here.

INTERTIDAL REEF COMMUNITY COMPLEX

This community is recorded on all shores bar the southern shore of the lough and on Drishane Island in the inner reaches of Tragumna Bay (Figure 4). The substrate is that of gently to more steeply sloping bedrock with pockets of cobble and gravel. The intertidal band of reef within the lough is typically quite narrow due to a combination of a steep shoreline profile and a reduced tidal range.

The species associated with this community are the brown algae, *Pelvetia canaliculata*, *Fucus spiralis*, *Ascophyllum nodosum* and *Fucus vesiculosus*, the barnacles *Chthamalus stellatus*, *C.*

montagui and *Semibalanus balanoides* (Table 4). The limpet *Patella vulgata* and the bivalve *Mytilus edulis* are locally abundant. The gastropods *Peringia ulvae*, *Littorina littorea* and *Gibbula umbilicalis* occur under weed. The green alga *Ulva* sp. is occasionally recorded within the lough mixed with the brown algae *Fucus serratus* and *Himanthalia elongata*. The lichen *Verrucaria maura* is commonly recorded within the lough whilst *Jania rubens* occurs elsewhere within the site. The purple urchin *Paracentrotus lividus* is also recorded here in very low abundances.

The tidal regime within the lough is restricted, 0.7m at neaps and 1.0m at springs compared to 2.5m at neaps and 3.5m at springs in the surrounding open sea. This leads to certain species which are common outside of the lough having a different density within it, e.g. the gastropod *Littorina saxatilis* is less common and the anemone *Actinia equina* is absent, due to this restricted tidal regime.

Species associated with the Intertidal reef community complex	
<i>Pelvetia canaliculata</i>	<i>Semibalanus balanoides</i>
<i>Fucus spiralis</i>	<i>Chthamalus montagui</i>
<i>Ascophyllum nodosum</i>	<i>Patella vulgata</i>
<i>Fucus vesiculosus</i>	<i>Mytilus edulis</i>
<i>Chthamalus stellatus</i>	

Table 4 Species associated with Intertidal reef community complex.

SUBTIDAL REEF COMMUNITY COMPLEX

This community complex is recorded in the narrows between the north and south basins within Lough Hyne and in a small area off its south-eastern shore; outside of the lough it occurs between Bullock Island and Drishane Point, at Carrigathorna and at the southern extreme of the site to the west of Gokane Point (Figure 4).

The exposure regime ranges from sheltered within the lough to exposed reef in the open sea. Outside the lough the substrate is that of flat and sloping bedrock, within the lough the reef is composed of vertical rock walls. It occurs in depths of between 0m and >40m within the lough and between 5m and approximately 20m outside of the lough.

A rich algal community occurs within the lough; at depths <5 m *Apoglossum ruscifolium*, *Corallina officinalis*, *Osmundea oederi* and *Cladophora dalmatica* are recorded while below 15m *Rhodothamniella floridula*, *Erythrogllossum laciniatum*, *Rhodymenia* sp., *Schottera nicaeensis* and *Halopteris filicina* occur.

Within the lough the species associated with this complex are the sponges *Amphilectus fucorum*, *Tethya aurantium*, *Raspailia ramosa*, *Dysidea fragilis* and *Cliona celata* and the ascidians *Ascidia mentula* and *Aplidium punctum* (Table 5). The axinellid sponges *Axinella polypoides* and *A. damicornis*, typical of deeper water, are recorded along some of the more tide swept areas of the lough, especially along its western side. Outside of the lough, at similar depths echinoderms and crustose communities and/or mixed faunal turf communities are recorded.

Species associated with the Subtidal reef community complex	
<i>Amphilectus fucorum</i>	<i>Corynactis viridis</i>
<i>Marthasterias glacialis</i>	<i>Dysidea fragilis</i>
<i>Tethya aurantium</i>	<i>Aplidium punctum</i>
<i>Ascidia mentula</i>	<i>Henricia oculata</i>
<i>Liocarcinus puber</i>	<i>Asterias rubens</i>
<i>Raspailia ramosa</i>	<i>Cliona celata</i>
<i>Gobiusculus flavescens</i>	<i>Cancer pagurus</i>
<i>Caryophyllia smithii</i>	

Table 5 Species associated with Subtidal reef community complex.

The invasive species *Sargassum muticum* is recorded within the lough, also the Pacific oyster *Crassostrea gigas* occurs within the lough as isolated individuals.

LAMINARIA-DOMINATED COMMUNITY COMPLEX

This community is recorded throughout the site in an exposure regime ranging from sheltered to exposed reef (Figure 4). It occurs on a variety of substrates, from flat and sloping bedrock to boulder/cobble fields, at depths of between 0m and 15m.

Dense stands of the kelp species *Saccharina latissima* and *Saccorhiza polyschides* with some *Laminaria digitata* are widely recorded; foliose red algae including *Delesseria sanguinea* and *Phycodrys rubens* also occur here. In some areas it is the kelp species *Saccharina latissima* and *Cystoseira* species which are commonly recorded. Sponges such as *Esperiopsis fucorum* are frequently occur, while *Sycon ciliatum* is often present where the kelp stands are dense (Table 6). Fauna consistent with sediment-affected or disturbed kelp and seaweed communities occur in the more tide swept areas of the lough. A thick bed of mussels is recorded on the floor of the Rapids at the mouth of the lough. *Marthasterias glacialis* is the most common echinoderm in the shallow subtidal. *Echinus esculentus* is recorded in the southeast corner of the Lough.

Outside of the Lough, where exposure is much greater *Laminaria hyperborea* is recorded beneath which the kelp *Saccharina latissima* occurs with cushion fauna and/or foliose red seaweeds.

Species associated with the <i>Laminaria</i> -dominated community complex	
<i>Esperiopsis fucorum</i>	<i>Halidrys siliquosa</i>
<i>Delesseria sanguinea</i>	<i>Saccorhiza polyschides</i>
<i>Saccharina latissima</i>	<i>Halichondria panicea</i>
<i>Calliblepharis ciliata</i>	<i>Dictyota dichotoma</i>
<i>Griffithsia corallinoides</i>	<i>Marthasterias glacialis</i>
<i>Cystoseira</i> sp.	<i>Asciidiella aspersa</i>
<i>Anemonia viridis</i>	<i>Ulva</i> sp.
<i>Sycon ciliatum</i>	

Table 6 Species associated with the *Laminaria*-dominated community complex.

SEA CAVE COMMUNITY COMPLEX

The entrance to the surveyed sea cave is located on a low lying southwest facing cliff on the south west coast of Bullock Island. The geology of Bullock Island is composed of continental redbed facies, sandstone, siltstone and mudstone. The cave is moderately exposed for most of its length.

This community complex is not shown on Figure 4.

The entrance of the cave is 6m in height from floor to roof and 2.5m wide at the base becoming wider (approximately 5m) at mid-height. The cave extends west-east into the cliff face for a total distance of 97m. Approximately 54m of the cave is partially submerged to a depth of approximately 3m; the remainder leading to at the back of the cave is intertidal. The cave floor slopes slightly upwards towards the back and is composed of gravel, cobble and boulders over coarse sand.

Where there is sufficient light penetrating at the cave entrance the brown algae, *Laminaria digitata*, the red alga *Cryptopleura ramosa* and coralline crusts occur. Within the cave the abundance and diversity of characteristic sessile fauna, typical of steeply sloping rock or overhangs, increases. The sponge *Pachymatisma johnstonia* and a bryozoan from the family Crisiidae are abundant while the sponges *Cliona celata* and *Halichondria panacea*, the anthozoans *Urticina felina* and *Caryophyllia smithii*, the brown algae *Laminaria hyperborea*, the red alga *Meredithia microphylla* and the crustacean *Necora puber* are frequently recorded. The cnidarian *Aurelia aurita* is also frequently recorded within the complex.

Species associated with the Sea cave community complex	
<i>Crisiidae</i> indet.	<i>Meredithia microphylla</i>
<i>Pachymatisma johnstonia</i>	<i>Obelia geniculata</i>
<i>Laminaria digitata</i>	<i>Caryophyllia smithii</i>
<i>Urticina felina</i>	<i>Corallinaceae</i>
<i>Laminaria hyperborea</i>	<i>Necora puber</i>
<i>Cliona celata</i>	<i>Aurelia aurita</i>
<i>Cryptopleura ramosa</i>	

Table 6 Species associated with the Sea cave community complex.

Section 2

Appropriate Assessment Notes

Many operations/activities of a particular nature and/or size require the preparation of an environmental impact statement of the likely effects of their planned development. While smaller operations/activities (i.e. sub threshold developments) are not required to prepare such statements, an appropriate assessment and Natura Impact Statement is required to inform the decision-making process in or adjacent to Natura 2000 sites. The purpose of such an assessment is to record in a transparent and reasoned manner the likely effects on a Natura 2000 site of a proposed development. General guidance on the completion of such assessments has been prepared and is available at www.npws.ie.

Annex I Habitats

It is worth considering at the outset that in relation to Annex I habitat structure and function, the extent and quality of all habitats varies considerably in space and time and marine habitats are particularly prone to such variation. Habitats which are varying naturally, i.e. biotic and/or abiotic variables are changing within an envelope of natural variation, must be considered to have favourable conservation condition. Anthropogenic disturbance may be considered significant when it causes a change in biotic and/or abiotic variables in excess of what could reasonably be envisaged under natural processes. The capacity of the habitat to recover from this change is obviously an important consideration (i.e. habitat resilience) thereafter.

This Department has adopted a prioritized approach to conservation of structure and function in marine Annex I habitats.

1. Those communities that are key contributors to overall biodiversity at a site by virtue of their structure and/or function (keystone communities) and their low resilience should be afforded the highest degree of protection and any significant anthropogenic disturbance should be avoided.
2. In relation to the remaining constituent communities that are structurally important (e.g. broad sedimentary communities) within an Annex I marine habitat, there are two considerations.
 - 2.1. Significant anthropogenic disturbance may occur with such intensity and/or frequency as to effectively represent a continuous or ongoing source of disturbance over time and space (e.g. effluent discharge within a given area). Drawing from the principle outlined in the European Commission's Article 17 reporting framework that disturbance of greater than 25% of the area of an Annex I habitat represents unfavourable conservation status, this Department takes the view that licensing of activities likely to cause continuous disturbance of each community type should not exceed an approximate area of 15%. Thereafter, an increasingly cautious approach

is advocated. Prior to any further licensing of this category of activities, an inter-Departmental management review (considering *inter alia* robustness of available scientific knowledge, future site requirements, etc) of the site is recommended.

- 2.2. Some activities may cause significant disturbance but may not necessarily represent a continuous or ongoing source of disturbance over time and space. This may arise for intermittent or episodic activities for which the receiving environment would have some resilience and may be expected to recover within a reasonable timeframe relative to the six-year reporting cycle (as required under Article 17 of the Directive). This Department is satisfied that such activities could be assessed in a context-specific manner giving due consideration to the proposed nature and scale of activities during the reporting cycle and the particular resilience of the receiving habitat in combination with other activities within the designated site.

The following technical clarification is provided in relation to specific conservation objectives and targets for Annex I habitats to facilitate the appropriate assessment process:

Objective **To maintain the favourable conservation condition of Large shallow inlets and bays in Lough Hyne Nature Reserve and Environs SAC, which is defined by the following list of attributes and targets**

Target 1	The permanent habitat area is stable or increasing, subject to natural processes.
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- This habitat also encompasses the Annex I habitats of Reefs and Sea cave community complex. Targets for these habitats should be addressed in their own right.
- This target refers to activities or operations that propose to permanently remove habitat from the site, thereby reducing the permanent amount of habitat area. It does not refer to long or short term disturbance of the biology of a site.
- Early consultation or scoping with the Department in advance of formal application is advisable for such proposals.

Target 2	Maintain the extent of the <i>Zostera</i> -dominated community, subject to natural processes.
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- *Zostera*-dominated community is considered to be a keystone community that is of considerable importance to the overall ecology and biodiversity of a habitat by virtue of its physical complexity, e.g. it serve as important nursery ground for commercial and non-commercial species.
- Any significant anthropogenic disturbance to the extent of this community should be avoided.

- An interpolation of the likely distribution of this community is provided in figure 4. The area given below is based on spatial interpolation and therefore should be considered indicative:

- *Zostera*-dominated community - 3ha

Target 3 Conserve the high quality of *Zostera*-dominated community, subject to natural processes.

- It is important to ensure the quality as well as the extent of the *Zostera*-dominated community is conserved. For example, shoot density can provide an indication of the habitat quality as well as giving information on the habitat complexity and refuge capability; all important components in maintaining the structural and functional integrity of the habitat.
- Within this SAC, the density of *Zostera* in 2007 was estimated to be frequent (6 to 11 shoots per m²) to abundant (>12 shoots m²).
- Any significant anthropogenic disturbance to the quality (i.e. shoot density) of this community should be avoided.

Target 4 Conserve the following community types in a natural condition: Muds to mixed sediment with polychaetes, bivalves and oligochaetes community complex; Intertidal reef community complex, Subtidal reef community complex; *Laminaria*-dominated community complex and Sea cave community complex.

- A semi-quantitative description of the communities has been provided in Section 1.
- An interpolation of their likely distribution is provided in figure 4.
- The estimated areas of these communities given below are based on spatial interpolation and therefore should be considered indicative:
 - Muds to mixed sediment with polychaetes, bivalves and oligochaetes community complex - 177ha
 - Intertidal reef community complex - 1ha
 - Subtidal reef community complex - 12ha
 - *Laminaria*-dominated community complex - 73ha
- Significant continuous or ongoing disturbance of communities should not exceed an approximate area of 15% of the interpolated area of each community type, at which point an inter-Departmental management review is recommended prior to further licensing of such activities.
- Proposed activities or operations that cause significant disturbance to communities but may not necessarily represent a continuous or ongoing source of disturbance over time and space may be assessed in a context-specific manner giving due consideration to the proposed nature and scale of

activities during the reporting cycle and the particular resilience of the receiving habitat in combination with other activities within the designated site.

Objective **To maintain the favourable conservation condition of Reefs in Lough Hyne Nature Reserve and Environs SAC, which is defined by the following list of attributes and targets**

Target 1	The permanent area is stable or increasing, subject to natural processes.
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- The area of this habitat represents the minimum estimated area of reef at this site and underestimates the actual area due to the many areas of sheer and steeply sloping rock within the reef habitat.
- This target refers to activities or operations that propose to permanently remove habitat from the site, thereby reducing the permanent amount of habitat area. It does not refer to long or short term disturbance of the biology of a site.
- Early consultation or scoping with the Department in advance of formal application is advisable for such proposals.

Target 2	The distribution of reefs is stable or increasing, subject to natural processes.
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- The likely distribution of reef habitat in this SAC is indicated in figure 2.
- This target refers to activities or operations that propose to permanently remove reef habitat, thus reducing the range over which this habitat occurs within the site. It does not refer to long or short term disturbance of the biology of reef habitats.
- Early consultation or scoping with the Department in advance of formal application is advisable for such proposals.

Target 3	Conserve the following community types in a natural condition: Intertidal reef community complex, Subtidal reef community complex and <i>Laminaria</i> -dominated community complex.
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- A semi-quantitative description of the communities has been provided in Section 1.
- An interpolation of their likely distribution is provided in figure 4.
- The estimated areas of the communities within the Reefs habitat given below are based on spatial interpolation and therefore should be considered indicative. In addition, as this habitat contains significant areas of sheer and steeply sloping rock, the mapped community extents will be underestimated:
 - Intertidal reef community complex - 1ha
 - Subtidal reef community complex - 12ha
 - *Laminaria*-dominated community complex - 73ha

- This target relates to the structure and function of the reef and therefore it is of relevance to those activities that may cause disturbance to the ecology of the habitat.
- Significant continuous or ongoing disturbance of communities should not exceed an approximate area of 15% of the interpolated area of each community type, at which point an inter-Departmental management review is recommended prior to further licensing of such activities.
- Proposed activities or operations that cause significant disturbance to communities but may not necessarily represent a continuous or ongoing source of disturbance over time and space may be assessed in a context-specific manner giving due consideration to the proposed nature and scale of activities during the reporting cycle and the particular resilience of the receiving habitat in combination with other activities within the designated site.

Objective **To maintain the favourable conservation condition of Submerged or partially submerged sea caves in Lough Hyne Nature Reserve and Environs SAC, which is defined by the following list of attributes and targets**

Target 1	The permanent area of sea caves is stable or increasing, subject to natural processes.
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- The area of this habitat represents the minimum estimated area of sea cave at this site. Only one seacave has been mapped and there may be as yet unknown seacaves at this site.
- This target refers to activities or operations that propose to permanently remove habitat from the site, thereby reducing the permanent amount of habitat area. It does not refer to long or short term disturbance of the biology of a site.
- Early consultation or scoping with the Department in advance of formal application is advisable for such proposals.

Target 2	The distribution of sea caves occurring in the site is stable, subject to natural processes.
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- This target refers to activities or operations that propose to permanently remove sea cave habitat thus reducing the range over which this habitat occurs within the site. It does not refer to long or short term disturbance of the biology of sea cave habitats.
- Early consultation or scoping with the Department in advance of formal application is advisable for such proposals.

Target 3 Conserve the following community type in a natural condition: Sea cave community complex.

- A semi-quantitative description of this community complex has been provided in Section 1.
- The estimated area of this community complex within the Submerged or partially submerged sea caves habitat given below is based on measurements taken at fixed points within the cave; therefore given the irregular shape and the stylised three-dimensional representation of the cave it should be considered indicative.
 - Sea cave community complex - 0.05ha
- This target relates to the structure and function of the reef and therefore it is of relevance to those activities that may cause disturbance to the ecology of the habitat.
- Significant continuous or ongoing disturbance of communities should not exceed an approximate area of 15% of the interpolated area of each community type, at which point an inter-Departmental management review is recommended prior to further licensing of such activities.
- Proposed activities or operations that cause significant disturbance to communities but may not necessarily represent a continuous or ongoing source of disturbance over time and space may be assessed in a context-specific manner giving due consideration to the proposed nature and scale of activities during the reporting cycle and the particular resilience of the receiving habitat in combination with other activities within the designated site.

Target 4 Human activities should occur at levels that do not adversely affect the ecology of sea caves at the site.

- This target relates to proposed activities or operations that may result in the deterioration of key resources (e.g. water quality) that are likely to drive or influence community structure of sea caves in the site. In the absence of complete knowledge on these elements in this site, such considerations should be assessed where appropriate on a case-by-case basis.

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Figure 1. Extent of Large shallow inlets and bays in Lough Hyne Nature Reserve and Environs SAC

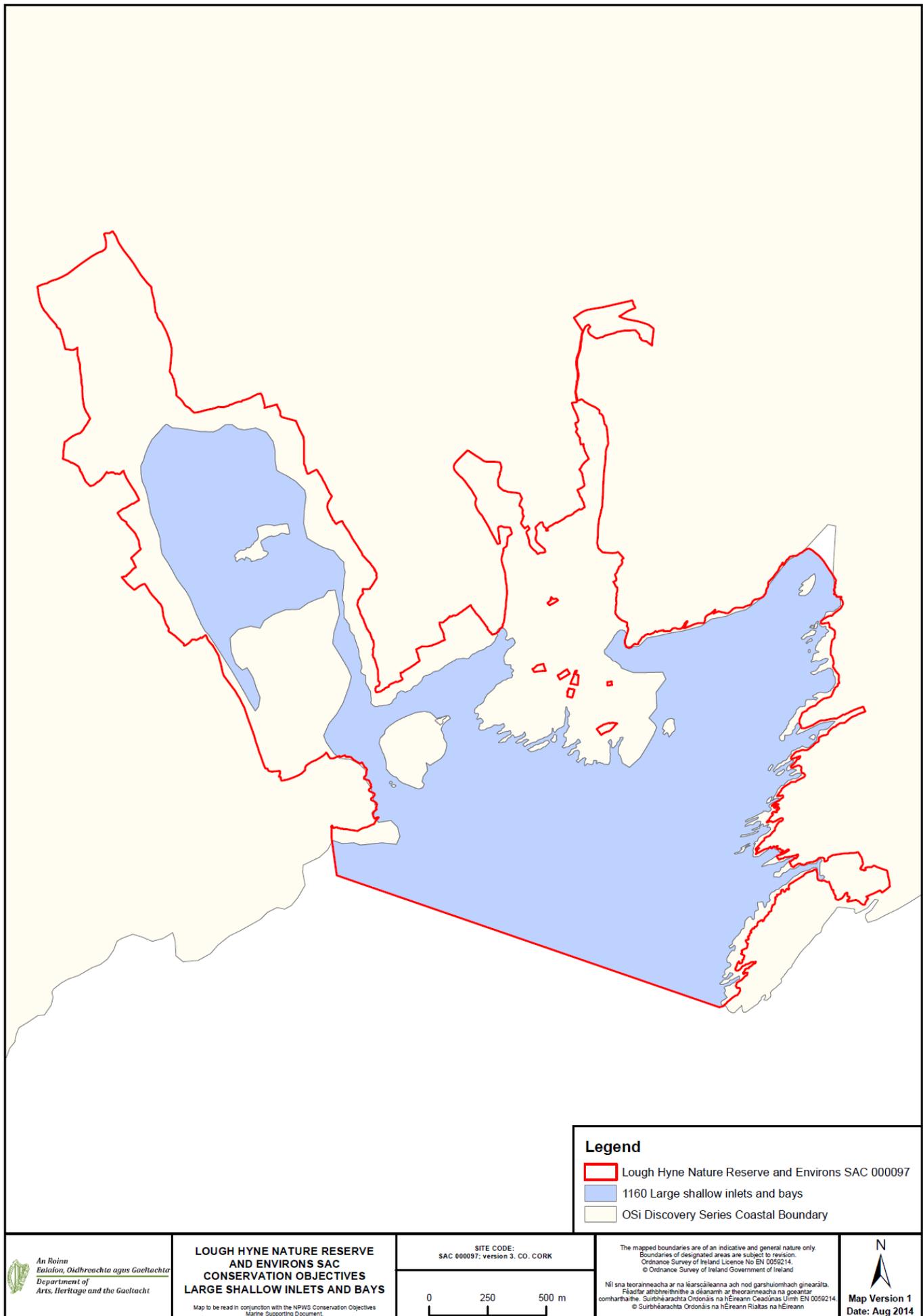


Figure 2 Extent of Reefs in Lough Hyne Nature Reserve and Environs SAC

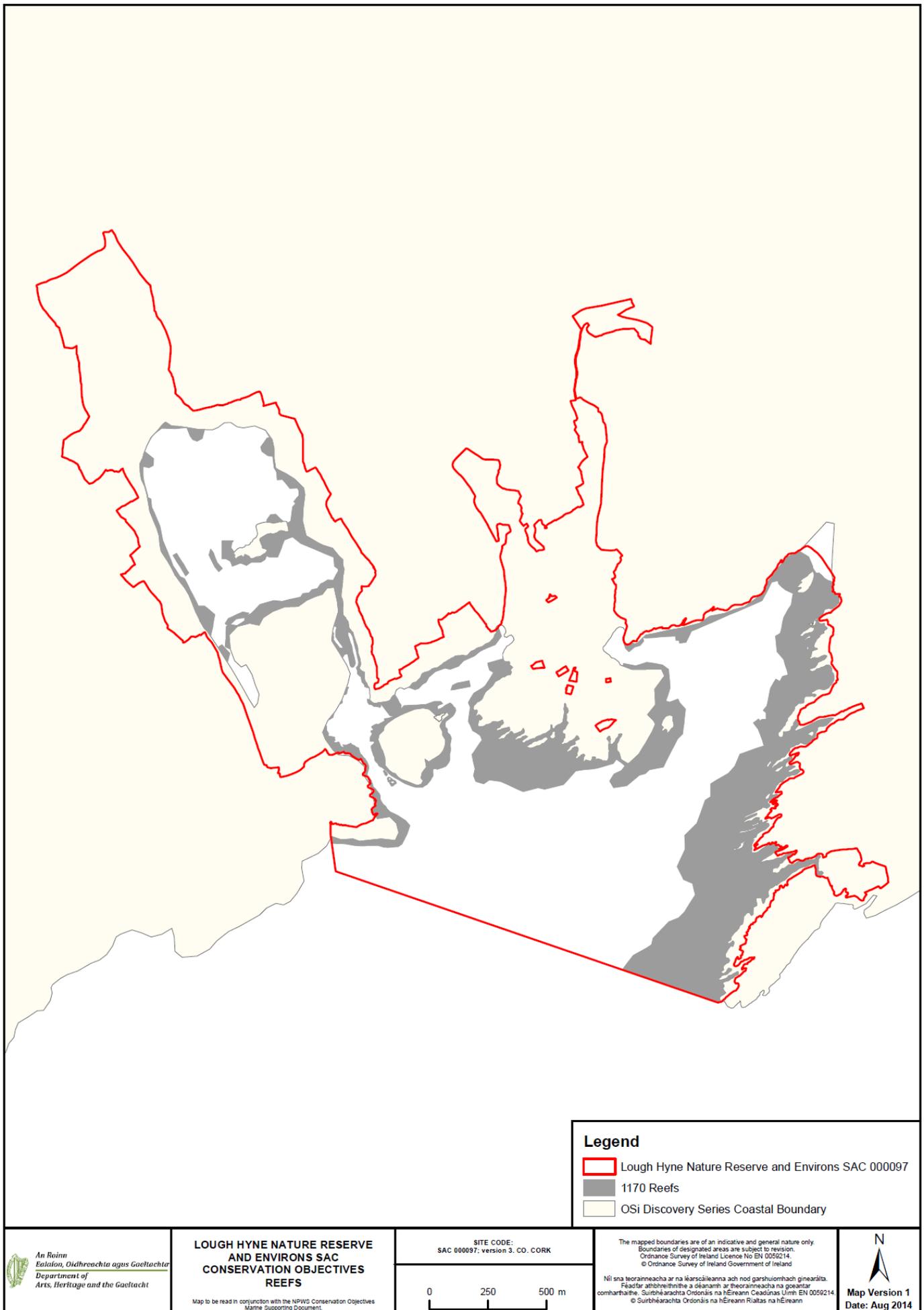


Figure 3. The expected distribution of sea caves in Lough Hyne Nature Reserve and Environs SAC

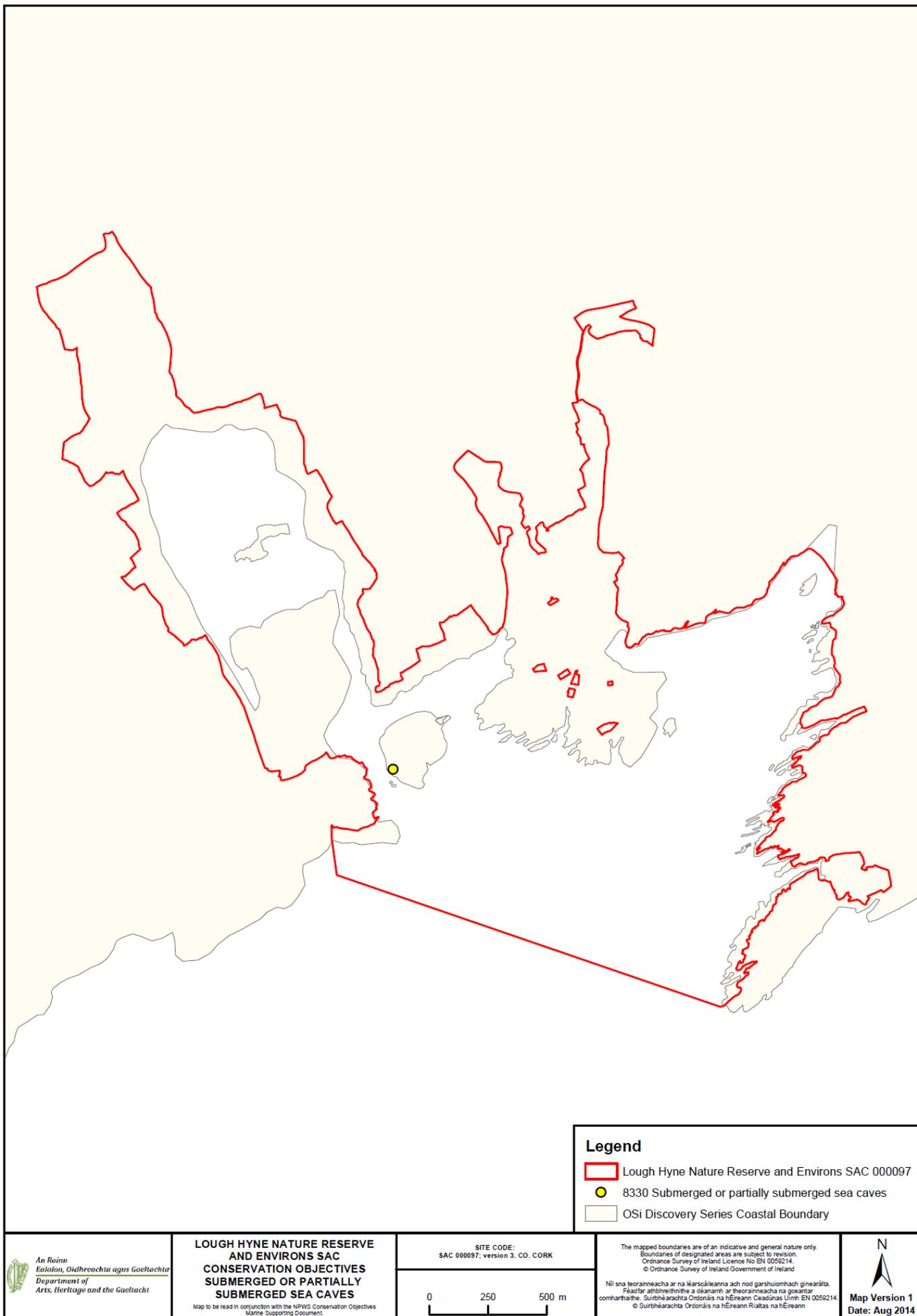


Figure 4 Distribution of community types in Lough Hyne Nature Reserve and Environs SAC

