NPWS

Achill Head SAC (site code: 2268)

Conservation objectives supporting document - Marine Habitats

Version 1

October 2013

Introduction

Achill Head SAC is designated for the marine Annex I qualifying interests of Mudflats and sandflats not covered by seawater at low tide, Large shallow inlets and bays and Reefs (Figures 1, 2 and 3).

Intertidal and subtidal surveys were undertaken in 2011 (MERC, 2012a and MERC, 2012b) and these data, together with the BioMar survey of the area in 1995 (Picton & Costello, 1997), were used to determine the physical and biological nature of this SAC.

Aspects of the biology and ecology of the Annex I habitat 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 Achill Head SAC, six community types are recorded. The Annex I habitats in which they occur are presented in table 1; a description of each community type is given below.

	Habitats		
	Mudflats and sandflats not covered by seawater at low tide (1140)	Large shallow inlets and bays (1160)	Reefs (1170)
Intertidal fine sand community	✓	✓	
Mobile subtidal sand with *Gastrosaccus spinifer* community		✓	
Subtidal sand with *Bathyporeia elegans* and polychaetes community complex		✓	
Intertidal reef community complex		✓	✓
Laminaria-dominated community complex		✓	✓
Subtidal reef community		✓	✓

Table 1 The community types recorded in Achill Head SAC and their occurrence the Annex I habitats for which the site is designated.

Estimated area of each community type within the Annex I habitat, based on interpolation, and is 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 Achill Head SAC 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.

INTERTIDAL FINE SAND COMMUNITY

This community is recorded on the beaches of Tramore, Dooagh and Keem (Figure 4). At Dooagh and Keem drainage channels arising from runoff from the surrounding uplands were observed on the strand.

The sediment within the complex is that of fine sand, at Tramore and Keem this accounts for over 90% of the sediment fractions with negligible amounts of the remaining fractions. At Dooagh the sediment is marginally coarser with fine sand and medium sand accounting for 74.5% and 12.4% of the fractions respectively, while gravel accounts for 4%.

The community is distinguished by the small polychaete species of *Scolelepis (Scolelepis) squamata*, *Capitella* sp., and *Malacoceros fuliginosus* (Table 2). These species are not uniformly distributed within the community and where they occur they are recorded in low abundances. On Tramore the polychaete *Arenicola marina* is recorded but occurrences are rare and are not evenly distributed.

Distinguishing species of Intertidal fine sand community	
Scolelepis (Scolelepis) squamata	*Malacoceros fuliginosus*
Capitella sp.	

Table 2 Distinguishing species of the Intertidal fine sand community.

MOBILE SUBTIDAL SAND WITH *GASTROSACCUS SPINIFER* COMMUNITY

This community occurs extensively from Dooega Head to Dysaghy Rocks in the south of the site; it is also recorded in smaller areas south of Moyteoge Head and to the east of Achill Head (Figure 4). It occurs in depths of between 30m and 50m.

The sediment is that of medium to coarse sand (13.8% to 63.4% and 29.6% to 49.4%, respectively), with negligible amounts of fine material (<3.1% for fine sand, very fine sand and silt-clay combined).

The distinguishing species of this community are the crustacean *Gastrosaccus spinifer*, unidentified nematodes, the polychaetes *Protodorvillea kefersteini* and *Pisione remota* and the bivalve *Spisula elliptica* (Table 3). The mobile nature of the sediment here results in low species abundances throughout the community. The distinguishing species are variable in their distributions, unidentified nematodes and *P. remota* are not recorded from the western extreme of the site at Achill Head while *P. kefersteini* and *S. elliptica* are not recorded off Moyteoge Head; *G. spinifer* is ubiquitous.

Distinguishing species of Mobile subtidal sand with *Gastrosaccus spinifer* community	
Gastrosaccus spinifer	*Pisione remota*
Nematoda indet.	*Spisula elliptica*
Protodorvillea kefersteini	

Table 3 Distinguishing species of the Mobile subtidal sand with *Gastrosaccus spinifer* community.

SUBTIDAL SAND WITH *BATHYPOREIA ELEGANS* AND POLYCHATES COMMUNITY COMPLEX

This community occurs extensively in the north and northwest margins of the site; it is also recorded along the southern margin of the site and off the beaches of Keel, Dooagh and Keem (Figure 4). It occurs in depths of between 1m and 62m.

The sediment of the complex is that of fine material, with fine sand and very fine sand accounting for greater than 95% of the sediment fractions over most of the complex; the exception is off Dooagh where medium sand (59.6%) represents the major sediment fraction.

The distinguishing species of the complex are the amphipod *Bathyporeia elegans* and the polychaetes *Nephtys cirrosa*, *Magelona johnstoni*, *Nephtys* sp., and *Spiophanes bombyx*. These species have a variable distribution and generally occur in low abundances (Table 4).

The crustaceans *Philocheras trispinosus* and *Pontocrates altamarinus* occur in Keem Bay, while the former species is recorded along with *Schistomysis spiritus* off Keel. In Dooagh Bay, where the sediment is coarser, the bivalve *Lutraria lutraria* occurs. The echinoderm *Echinocardium cordatum* and the bivalves *Mactra stultorum* and *Ensis siliqua* are also recorded from this community.

Distinguishing species of Subtidal sand with *Bathyporeia elegans* and polychaetes community complex	
Bathyporeia elegans	*Nephtys* sp.
Nephtys cirrosa	*Spiophanes bombyx*
Magelona johnstoni	

Table 4 Distinguishing species of the Subtidal sand with *Bathyporeia elegans* and polychaetes community complex.

INTERTIDAL REEF COMMUNITY COMPLEX

This community complex is recorded on the exposed shores throughout the intertidal within the site from Saddle Head in the northwest to Dooega Head in the east (Figure 4).

This community occurs on vertical cliffs from Saddle Head to Dooagh Village and from Tramore Beach to Dooega Head. From Dooagh Village to Keel Village the substrate is that of flat or bedrock; the community is recorded on boulders on the fringes of the intertidal sand substrate at Keel, Keem and Dooagh.

The species associated with this community are the bivalve *Mytilus edulis*, the barnacles *Chthamalus* sp. and *Semibalanus balanoides*, the kelp *Laminaria digitata*, the brown alga *Pelvetia canaliculata* and yellow and grey lichens. *M. edulis*, *Chthamalus* sp. and *S. balanoides* are recorded throughout the community while *L. digitata* occurs on the lower shore and the lichens are recorded from the splash zone (Table 5).

Within the complex, the red alga *Corallina officinalis* is abundant and *Nemalion helminthoides* occurs occasionally; the brown alga *Fucus vesiculosus* and *Himanthalia elongata* are also recorded. Where this community occurs on flat or sloping bedrock a narrow band of the brown alga *Pelvetia canaliculata* occurs, the gastropods *Patella vulgata*, *Nucella lapillus* and *Littorina* sp. and the anemone *Actinia equina* are also recorded here. The red algae *Bangia fusco-purpurea* and *Osmundea* sp. and the green alga *Cladophora* sp. are also recorded here although their distribution is variable while the gastropod *Gibbula cineraria* and the red algae *Chondrus crispus* occur, but are rare.

Species associated with the Intertidal reef community complex	
Mytilus edulis	Yellow lichens
Chthamalus sp.	Grey lichens
Semibalanus balanoides	*Pelvetia canaliculata*
Laminaria digitata	

Table 5 Species associated with the Intertidal reef community complex.

LAMINARIA-DOMINATED COMMUNITY COMPLEX

This community complex is recorded throughout the site in water depths of between 0m and 25m in an exposure regime of exposed reef. The substrate is largely that of flat and sloping bedrock, however cobbles and boulders occur between Dooega Head and Rusheen Point in the south of the site and to the east of Saddle Head at its northern extreme.

Where dense stands *Laminaria hyperborea* occur the associated species are the anemones *Metridium senile*, *Alcyonium digitatum*, *Sagartia elegans* and *Corynactis viridis*, the sponge

Cliona celata, the echinoderms *Asterias rubens* and *Antedon bifida*, the bryozoan *Parasmittina trispinosa*, the gastropod *Calliostoma zizyphinum*, the brown algae *Alaria esculenta* and coralline algae. Where *L. hyperborea* is less dense the understory is dominated by the brown algae *Dictyota dichotoma* and *Dictyopteris polypodioides* (Table 6).

Species associated with the *Laminaria*-dominated community complex	
Laminaria hyperborea	*Alcyonium digitatum*
Alaria esculenta	*Calliostoma zizyphinum*
Asterias rubens	*Parasmittina trispinosa*
Metridium senile	*Antedon bifida*
Sagartia elegans	*Dictyota dichotoma*
Corynactis viridis	*Dictyopteris polypodioides*
Cliona celata	

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

SUBTIDAL REEF COMMUNITY

This community is recorded extensively in the western and southern margins of the site from Saddle Head to Moyteoge Head; it also occurs to the west of Dooega Point. It occurs in depths greater than 25m.

The substrate is that of flat and sloping bedrock, with small patches of cobbles and boulders occurring in the south-western margin of the site; between Moyteoge Head and Achill Head vertical rock walls occur.

The species associated with this community include the anemone *Corynactis viridis*, the echinoderms *Echinus esculentus*, *Antedon bifida* and *Holothuria (Panningothuria) forskali*, the sponges *Axinella infundibuliformis* and *Phakellia ventilabrum*, the Devonshire cup coral *Caryophyllia smithii* and encrusting coralline algae (Table 7).

The rare sponges *Halicnemia verticillata* and *Spongionella pulchella* and the brachiopod *Novocrania anomala* are recorded south of Dysaghy Rocks, while the rare hydroid *Aglaophenia kirchenpaueri* is recorded from the west side of Carrickakin at the south-western extreme of the site.

Species associated with the Subtidal reef community	
Corynactis viridis	*Axinella infundibuliformis*
Echinus esculentus	*Phakellia ventilabrum*
Antedon bifida	*Caryophyllia smithii*
Holothuria (Panningothuria) forskali	Encrusting coralline algae

Table 7 Species associated with the Subtidal reef community.

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 Achill Head 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.

- This habitat also encompasses the Annex I habitats Mudflats and sandflats not covered by seawater at low tide and Reefs. 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	Conserve the following community types in a natural condition: Intertidal fine sand community; Mobile subtidal sand with *Gastrosaccus spinifer* community; Subtidal sand with *Bathyporeia elegans* and polychaetes community complex; Intertidal reef community complex; *Laminaria*-dominated community complex; Subtidal reef community.

- 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:
    - Intertidal fine sand community - 16ha
    - Mobile subtidal sand with *Gastrosaccus spinifer* community – 626ha
    - Subtidal sand with *Bathyporeia elegans* and polychaetes community complex - 2685ha
    - Intertidal reef community complex - 35ha
    - *Laminaria*-dominated community complex - 1607ha
    - Subtidal reef community - 1909ha
- 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 Mudflats and sandflats not covered by seawater at low tide in Achill Head 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.

- This target refers to activities or operations that propose to permanently remove habitat from a 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	Conserve the following community types in a natural condition: Intertidal fine sand community

- A semi-quantitative description of these community types has been provided in Section 1.
- An interpolation of their likely distribution is provided in figure 2.
- The estimated areas of these community types within the Mudflats and sandflats not covered by seawater at low tide habitat given below are based on spatial interpolation and therefore should be considered indicative:
    - Intertidal fine sand community – 16ha

- 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 Achill Head 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.

- 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.

- The likely distribution of reef habitat in this SAC is indicated in figure 3.
- 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; *Laminaria*-dominated community complex; Subtidal reef community.

- 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 - 35ha
    - *Laminaria*-dominated community complex - 1607ha
    - Subtidal reef community - 1919ha
- 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.

Bibliography:

MERC (2012). Intertidal Benthic Survey of Achill Head SAC. Produced by MERC on behalf of the Marine Institute in partnership with National Parks & Wildlife Service.

MERC (2012). Subtidal Sediment and Subtidal and Intertidal Reef Survey of Achill Head SAC. Produced by MERC on behalf of the Marine Institute in partnership with National Parks & Wildlife Service.

Picton, B.E. and Costello M. J. 1997. The BioMar biotope viewer: a guide to marine habitats, fauna and flora in Britain and Ireland, Environmental Sciences Unit, Trinity College, Dublin.

Figure 1. Extent of Large shallow inlets and bays in Achill Head SAC

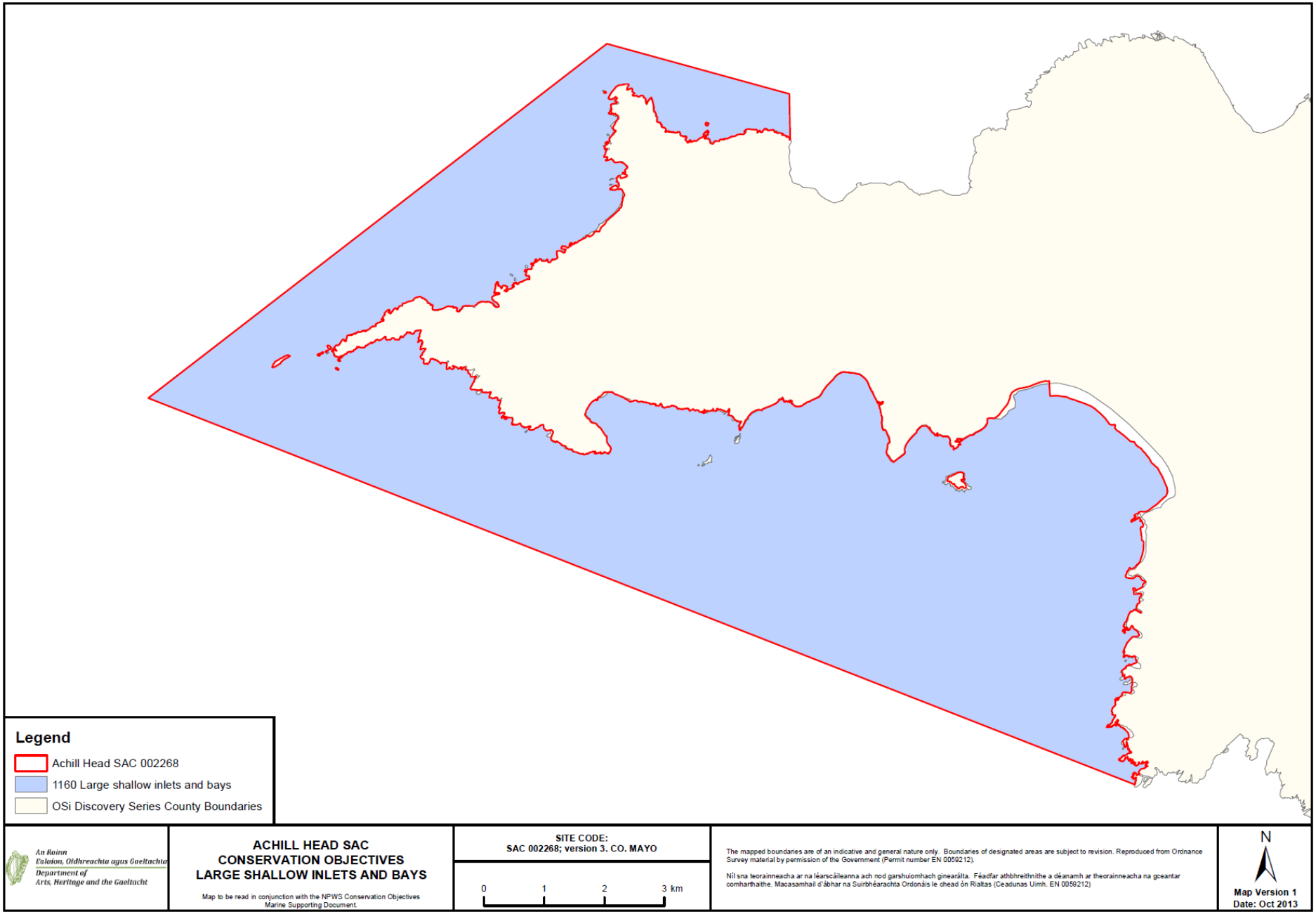

Figure 2. Extent of Mudflats and sandflats not covered by seawater at low tide in Achill Head SAC

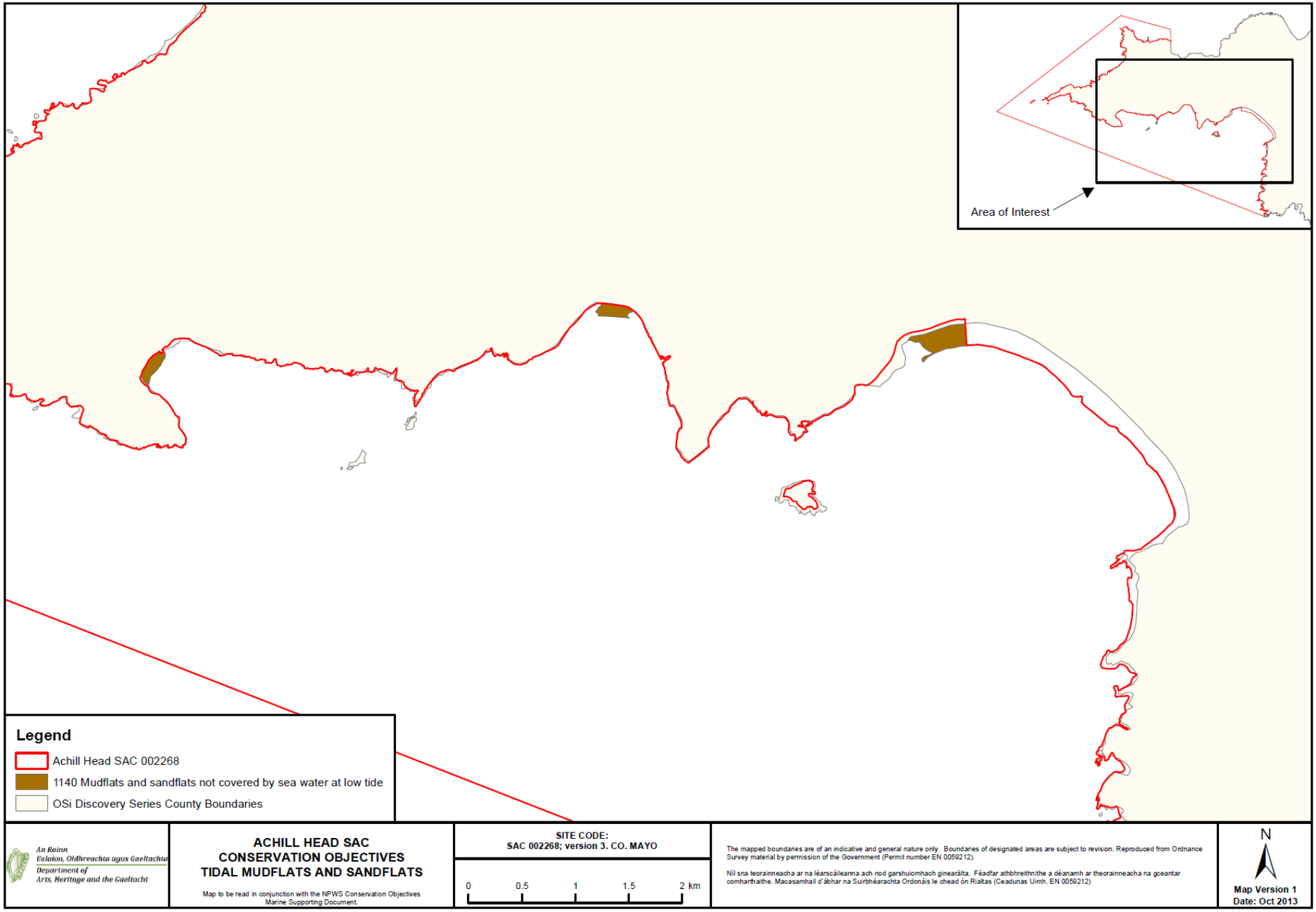

Figure 3. Extent of Reefs in Achill Head SAC

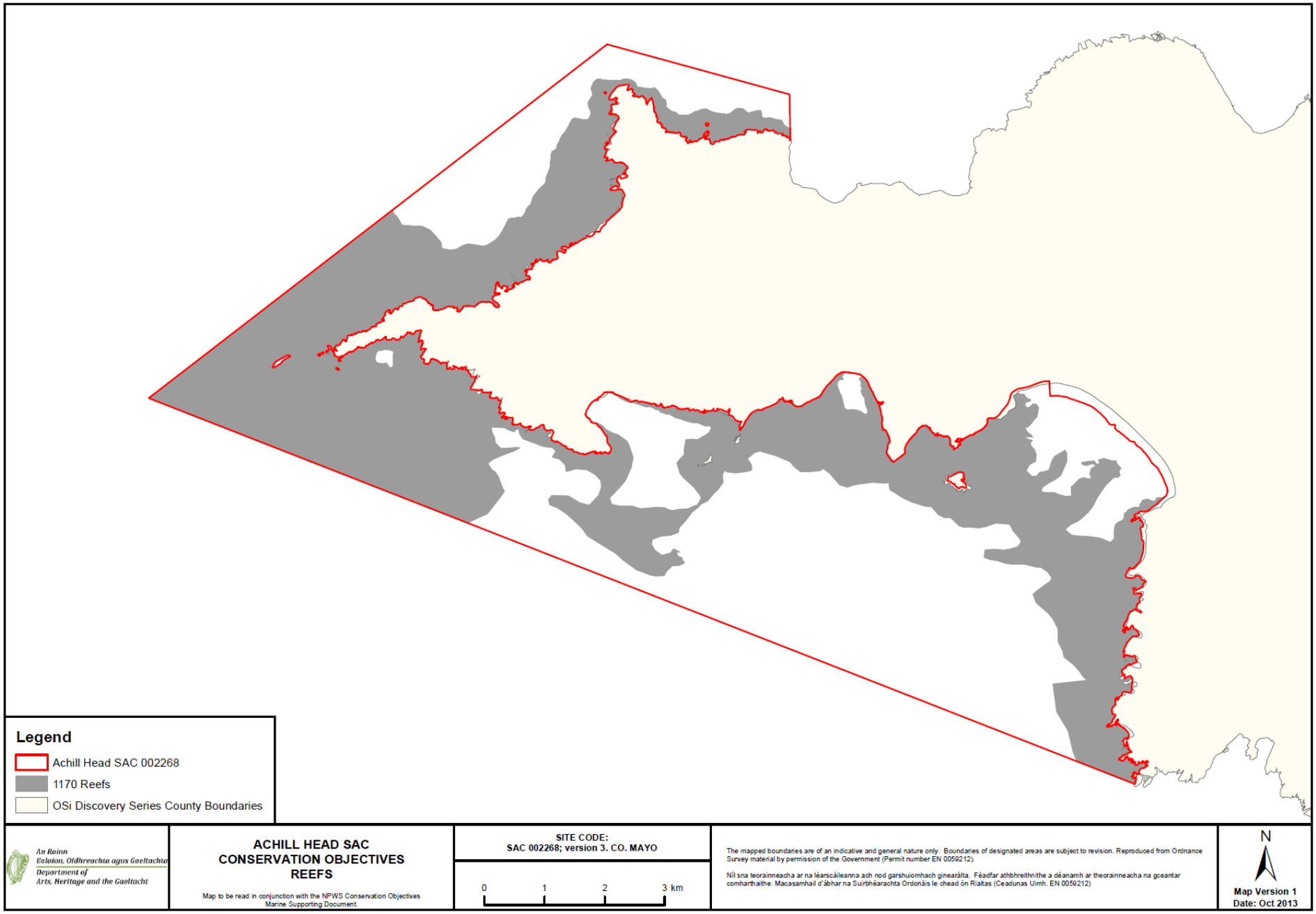

Figure 4. Distribution of community types in Achill Head SAC