

**NPWS**

**Rathlin O’Birne Island SAC  
(site code: 181)**

**Conservation objectives supporting document -  
Marine Habitats**

**Version 1  
May 2014**

## **Introduction**

Rathlin O’Birne Island SAC is designated for the marine Annex I qualifying interest of Reefs (Figure 1).

A BioMar survey of this site was carried out in 1996 (Picton and Costello, 1997) and reef survey was undertaken in 2012 (MERC, 2012); these data 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 objective 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 objective and targets in the completion of such assessments is provided in Section 2.

# Section 1

## Principal Benthic Communities

Within Rathlin O’Birne Island SAC, two community types are recorded. Their occurrence within the Annex I habitat is presented in table 1; a description of community type is given below.

Community Type	SAC Annex I Habitat
	Reefs (1170)
Exposed intertidal reef community	✓
Exposed subtidal reef community complex	✓

**Table 1** The community types recorded in Rathlin O’Birne Island SAC.

Estimated areas of each community type within the Annex I habitat, based on interpolation, 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 Rathlin O’Birne Island 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.

### EXPOSED INTERTIDAL REEF COMMUNITY

This reef community occurs throughout the intertidal area of this site. On the north shore of Rathlin O’Birne Island and on the small islands to the west, reef occurs as sloping bedrock; elsewhere, it is as near vertical rock walls (Figure 2).

The species associated with the community are the bivalve *Mytilus edulis*, the red algae *Porphyra umbilicalis* and *Polysiphonia lanosa*, the anemone *Actinia equina*, the barnacles *Semibalanus balanoides* and *Chthamalus* spp., the green alga *Ulva intestinalis* and the lichen *Lichina pygmaea* (Table 2).

The calcareous red alga *Jania rubens* and encrusting red alga of the family Corallinaceae are recorded as abundant and frequent respectively on the mid-shore. On the lower shore the brown algae *Alaria esculenta* and *Himanthalia elongata* and the gastropod *Patella vulgata* occur occasionally, while the red alga *Osmundea pinnatifida* is frequently recorded here. The

kelp *Laminaria digitata*, the red algae *Corallina officinalis* and *Membranoptera alata* and the echinoderm *Asterias rubens* are also recorded here.

Species associated with the Exposed intertidal reef community	
<i>Mytilus edulis</i>	<i>Semibalanus balanoides</i>
<i>Porphyra umbilicalis</i>	<i>Ulva intestinalis</i>
<i>Polysiphonia lanosa</i>	<i>Chthamalus</i> spp.
<i>Actinia equina</i>	<i>Lichina pygmaea</i>

**Table 2** Species associated with the Exposed intertidal reef community complex.

#### EXPOSED SUBTIDAL REEF COMMUNITY COMPLEX

This reef community complex occurs throughout the site in water depths of up to 40m (Figure 2). The reef primarily occurs on a substrate of sloping bedrock, however along the western edge of the site it is composed of cobbles and boulders. Smaller patches of cobbles and boulders are recorded northwest of Carricknaman and in the south-western edge of The Sound. To the south of the Rathlin O’Birne Island the bedrock forms near vertical rock faces which can be 10m to 20m high. To the west of the island in the shallows (<15m), vertical surfaces form in the bedrock along surge gullies.

The species associated with this community are the kelp *Laminaria hyperborea*, the echinoderms *Echinus esculentus*, *Asterias rubens*, *Holothuria (Panningothuria) forskali*, *Marthasterias glacialis* and *Henricia oculata*, the gastropods *Calliostoma zizyphinum* and *Gibbula cineraria*, the red algae *Hypoglossum hypoglossoides*, *Acrosorium ciliolatum*, *Callophyllis laciniata* and *Delesseria sanguinea*, the bryozoan *Crisia denticulata*, the sponges *Cliona celata*, *Leucosolenia botryoides*, *Haliclona (Rhizoniera) viscosa*, *Sycon ciliatum*, *Hemimycale columella* and *Dysidea fragilis*, the soft corals *Alcyonium digitatum* and *A. glomeratum*, the anemone *Corynactis viridis* and the polychaete *Salmacina dysteri* (Table 3).

In shallow waters (<20m), stands of *L. hyperborea* are dense but these become very sparse as depth increases and are not recorded from waters greater than 29m. Where the density of *L. hyperborea* is high, the red algae *H. hypoglossoides*, *A. ciliolatum*, *C. laciniata* and *D. sanguinea* are common. These species are gradually replaced with increasing depth by *E. esculentus*, *A. rubens*, *H. (Panningothuria) forskali*, *M. glacialis*, *H. oculata*, *C. celata*, *L. botryoides*, *H. (Rhizoniera) viscosa*, *S. ciliatum*, *H. columella*, *D. fragilis*, *C. viridis*, *A. digitatum*, *A. glomeratum* and *S. dysteri*.

*C. zizyphinum*, *C. viridis* and *C. denticulata* occur throughout the complex. The feather star *Antedon bifida*, the cup coral *Caryophyllia (Caryophyllia) smithii* and encrusting red algae of the family Corallinaceae are widely recorded within the complex. The brown algae *Dictyota*

*dichotoma* and *Dictyopterus membranacea* are recorded as frequent to depths of approximately 30m.

Species associated with the Exposed subtidal reef community complex	
<i>Laminaria hyperborea</i>	<i>Alcyonium digitatum</i>
<i>Echinus esculentus</i>	<i>Cliona celata</i>
<i>Asterias rubens</i>	<i>Leucosolenia botryoides</i>
<i>Calliostoma zizyphinum</i>	<i>Corynactis viridis</i>
<i>Gibbula cineraria</i>	<i>Sycon ciliatum</i>
<i>Hypoglossum hypoglossoides</i>	<i>Haliclona (Rhizoniera) viscosa</i>
<i>Acrosorium ciliolatum</i>	<i>Henricia oculata</i>
<i>Callophyllis laciniata</i>	<i>Alcyonium glomeratum</i>
<i>Crisia denticulata</i>	<i>Dysidea fragilis</i>
<i>Delesseria sanguinea</i>	<i>Hemimycale columella</i>
<i>Holothuria (Panningothuria) forskali</i>	<i>Salmacina dysteri</i>
<i>Marthasterias glacialis</i>	<i>Metridium senile</i>
<i>Caryophyllia smithii</i>	<i>Sagartia elegans</i>
<i>Antedon bifida</i>	<i>Plocamium cartilagineum</i>
<i>Corallinaceae</i>	<i>Stelligera stuposa</i>
<i>Dictyota dichotoma</i>	<i>Crisia eburnea</i>

**Table 3** Species associated with the Exposed subtidal reef community complex.

The red alga *Drachiella spectabilis* is recorded to the north-east and south of the island. In deeper waters (20-29m), the hydroid *Obelia geniculata* and the bryozoan *Pentapora foliacea* occur. To the south of the island, the anemone *Phellia gausapata* which is typical of extremely exposed headlands is recorded. The solitary ascidian *Molgula oculata* occurs from the east of the island. The anemone *Metridium senile* occurs on the vertical rock walls of surge gullies to the north and west of the island.

In shallow waters (<20m), the bryozoan *Crisia eburnea*, the hydroid *Tubularia indivisa* and the echinoderm *Henricia oculata* are recorded while in deeper waters (>20m), the bryozoans *Parasmittina trispinosa* and *Pentapora foliacea* and the sponge *Tethya aurantium* occur. The colonial ascidian *Diazona violacea* is recorded to the south of the island.

In waters greater than 30m several notable species are recorded. The sponge *Axinella dissimilis* and the sea fan *Eunicella verrucosa* occur to the south of the island. Rathlin O'Birne

is the northern limit of *E. verrucosa* and the associated nudibranch *Tritonia nilsodhneri*. The sponges *Raspailia* (*Raspailia*) *ramosa*, *Stelligera rigida* and *S. stuposa* are recorded in the north and south of the island, while *S. stuposa* also occurs in the waters to the east. The sponge *Axinella infundibuliformis* and the fragile bryozoan *Porella compressa* occur in the south and west of the island. *P. compressa* is also recorded to the east.

A number of rare species are recorded from this community. The brown alga *Carpomitra costata* occurs to the north and south of the island. The red alga *Schmitzia hiscockiana* is recorded from a shallow gully which bisects the island. The nudibranch *Cuthona pustulata* is recorded from the vertical rock walls of surge gullies to the west of the island and the nudibranch *Aldisa zetlandica* is recorded to the south of the island.

## 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](http://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 Reefs in Rathlin O’Birne Island SAC, which is defined by the following list of attributes and targets**

<b>Target 1</b>	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.

<b>Target 2</b>	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 1.
- 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.

<b>Target 3</b>	Conserve the following community types in a natural condition: Exposed intertidal reef community and Exposed subtidal reef 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 2.
- 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:
  - Exposed intertidal reef community complex - 3ha
  - Exposed subtidal reef community complex - 581ha
- 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 and Subtidal Reef Survey of Rathlin O'Birne Island SAC. Carried out by MERC on behalf of the Marine Institute in partnership with National Parks and Wildlife Service, Department of Environment, Heritage and Local Government.

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 Reefs in Rathlin O’Birne Island SAC

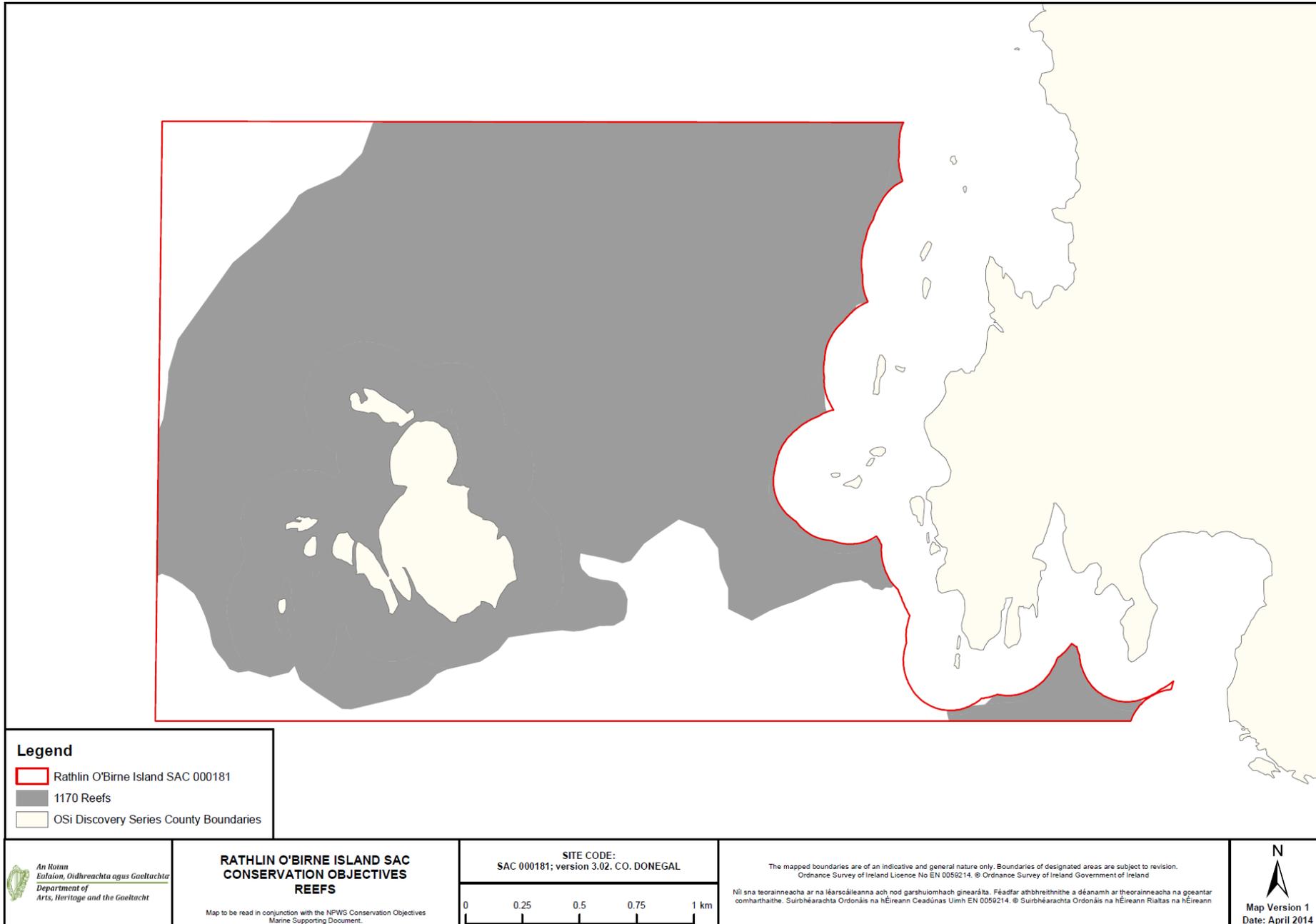


Figure 2. Distribution of community types in Rathlin O'Birne Island SAC

