NPWS

Rockabill to Dalkey Island SAC (site code: 3000)

Conservation objectives supporting document - Marine Habitats and Species

Version 1

April 2013

Introduction

Rockabill to Dalkey Island SAC is designated for the marine Annex I qualifying interest Reefs (Figure 1) and the Annex II species *Phocoena phocoena* (harbour porpoise).

Intertidal and subtidal surveys were undertaken in 2010 and 2011 (MERC, 2010, MERC 2012a and MERC, 2012b). These data were used to determine the physical and biological nature of the Annex I habitat.

A considerable number of records of harbour porpoise have been gathered within the site and adjacent waters of the western Irish Sea, particularly over the last two decades (e.g. Pollock et al., 1997; Reid et al., 2003; Ó Cadhla et al., 2004; SCANS-II, 2008; Berrow et al., 2010; Berrow et al., 2011; Baines & Evans, 2012; Wall et al., 2012). In addition, targeted surveys of the harbour porpoise community were conducted in 2008 (Berrow et al., 2008) in order to investigate species occurrence, abundance, distribution and community composition in Irish coastal waters including those situated off the east coast.

Aspects of the biology and ecology of the Annex I habitat and Annex II species 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 Rockabill to Dalkey Island SAC two community types are recorded within the Annex I habitat, namely Intertidal reef community complex and Subtidal reef community complex, as summarised in table 1. A description of each community type is given below.

	Reefs (1170)
Intertidal reef community complex	✓
Subtidal reef community complex	✓

Table 1 The community types recorded in Rockabill to Dalkey Island SAC

Estimated areas of each community type within the Annex I habitat, 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 Rockabill to Dalkey Island 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 REEF COMMUNITY COMPLEX

This reef community complex is recorded on the islands within this site and on the south coast of Howth. The exposure regime of the complex ranges from exposed to moderately exposed reef (Figure 2). Exposed reef is recorded on the east side of Dalkey Island, on the east and southern shores of Ireland's Eye and on all shores of Rockabill and the Muglins. Moderately exposed reef occurs on the western shores of Dalkey and at Howth and Ireland's Eye.

The substrate here is that of flat and sloping bedrock; around Rockabill cobbles and boulders occur on bedrock. Vertical cliff faces are found on the north and northeast shores of Ireland's Eye; steep shorelines are a feature of Rockabill, Muglins and the eastern shore of Dalkey Island.

The species associated with this community complex include the fucoids *Fucus serratus*, *F. vesiculosus*, *F. spiralis*, *Ascophyllum nodosum* and *Pelvetia canaliculata*, the barnacle *Semibalanus balanoides* and the bivalve *Mytilus edulis* (Table 2). In the more exposed areas *Semibalanus balanoides* and *Mytilus edulis* dominate while in the more moderately exposed

areas it is the fucoid species that are more abundant. The gastropods *Patella vulgata* and *Littorina* sp. are also recorded here. In all area the kelp species *Laminaria digitata* is recorded at the low water mark.

Species associated with the Intertidal reef community complex	
Fucus serratus	*Fucus spiralis*
Fucus vesiculosus	*Semibalanus balanoides*
Ascophyllum nodosum	*Mytilus edulis*
Pelvetia canaliculata	*Patella vulgata*
Laminaria digitata	*Littorina* sp.

Table 2 Species associated with the Intertidal reef community complex.

SUBTIDAL REEF COMMUNITY COMPLEX

This community complex is recorded off the islands within the site and also off the coast between Lambay Island and Rush Village (Figure 2). The exposure regime here ranges from moderately exposed reef at the Muglins to exposed reef over the remainder of the site.

The substrate ranges from that of flat and sloping bedrock, to bedrock with boulders and also a mosaic of cobbles and boulders. Vertical rock walls occur on the north and east of Ireland's Eye and to the east of Lambay Island where they give way to sloping bedrock at c.20m. In the northern reaches of the site, at Rockabill and Ireland's Eye, areas of both sediment scouring and a thin veneer of silt were observed on the reefs; the veneer of silt was also recorded at Lambay Island. In the south of the site, strong currents were experienced in the channel between Dalkey Island and the Muglins.

In the shallow reaches of this community complex (<10m) a sparse covering of the kelp species *Laminaria hyperborea* occurs with an undercover of red algal species including *Hypoglossum hypoglossoides*, *Brongniartella byssoides, Membranoptera alata, Phycodrys rubens* and *Delesseria sanguinea*. In deeper water (>10m) the anemone *Alcyonium digitatum* occurs in moderate abundances and *Metridium senile* also being recorded here (Table 3). Faunal crusts of bryozoans such as *Flustra foliacea* and *Chartella papyracea* and hydroids including *Nemertesia antennina* are recorded in deeper water (>20m) along with the ascidian *Aplidium punctum*. The asteroid *Asterias rubens* is recorded throughout the site while the barnacle *Balanus crenatus*, the echinoderms *Echinus esculentus* and *Antedon bifida* also occur here.

In general, it was noted that where the reef was subjected to the effects of sediment, either through scouring or settlement of silt, low numbers of species and individuals occurred.

Species associated with the Subtidal reef community complex	
Alcyonium digitatum	*Echinus esculentus*
Asterias rubens	*Brongniartella byssoides*
Metridium senile	*Pomatoceros triqueter*
Necora puber	*Chartella papyracea*
Laminaria hyperborea	*Antedon bifida*
Nemertesia antennina	*Flustra foliacea*
Balanus crenatus	*Membranoptera alata*
Aplidium punctum	*Phycodrys rubens*
Hypoglossum hypoglossoides	*Delesseria sanguinea*
Sagartia elegans	

Table 3 Species associated with the Subtidal reef community complex.

Annex II Marine mammals

PHOCOENA PHOCOENA (HARBOUR PORPOISE)

This small toothed cetacean species (from the mammal Order Cetacea - whales, dolphins and porpoises) occurs in estuarine, coastal and offshore waters in which it carries out breeding, foraging, resting, social activity and other life history functions. Its distribution extends predominantly throughout continental shelf waters and the species may range over many hundreds or thousands of kilometres. As air-breathing mammals, harbour porpoises must return to the water surface to breathe but they are otherwise wholly aquatic. Individual porpoises of all ages use sound as their primary sensory tool in order to navigate, communicate, avoid predators, or locate and facilitate the capture of prey under water. Group sizes tend to be small (i.e. in single figures, more commonly 2 to 3 individuals) although larger aggregations may occasionally be recorded, particularly in the summer months.

Harbour porpoise breed annually in Ireland, predominantly during the months of May to September. The principal calving period in Irish waters is thought to occur in the months of May and June, although it may extend throughout the summer months and into early autumn. Newborn calves are weaned before they are one year old. Mating commonly occurs several weeks after the calving season.

The occurrence of harbour porpoises within a prescribed marine area can be estimated using visual observation and passive acoustic methods in order to deliver an assessment of community or population size (i.e. relative abundance or absolute abundance), density and distribution. The size, community structure and distribution or habitat use of harbour porpoise inhabiting Rockabill to Dalkey Island SAC are not fully understood. In acknowledging limitations in the understanding of aquatic habitat use by the species within the site, it should be noted that all suitable aquatic habitat (Figure 3) is considered relevant to the species range and ecological requirements at the site and is therefore of potential use by harbour porpoises.

Survey effort targeting the 2008 summer-autumn season delivered initial estimates of 0.54-6.93 animals per km^2 within the northern half of the site (overall estimate across four surveys: 2.03 individuals per km^2, N=211±47 individuals, 95% Confidence Intervals: 137-327, Coefficient of Variation=0.23) and 0.48-2.05 animals per km^2 within the southern half of the site, including outer Dublin Bay (overall estimate across four surveys: 1.19 individuals per km^2, N=138±33 individuals, 95% Confidence Intervals: 86-221, Coefficient of Variation=0.24). While the numbers of harbour porpoise encountered during any survey within the site are variable, additional acoustic data plus casual and effort-related sighting rates from coastal observation stations are significant for the east coast of Ireland and, comparatively high group sizes (>5 individuals) have been recorded from this area. The species is present at the site in all seasons, while important cohorts within the harbour porpoise community such as adults,

juveniles and newborn calves have also been recorded within the site, including during the calving/breeding season.

Harbour porpoise is a successful aquatic predator that feeds on a wide variety of fish, cephalopod and crustacean species occurring in the water column or close to the seabed. Dive depths in excess of 200m have been recorded for the species. Foraging areas for harbour porpoise are often associated with areas of strong tidal current and associated eddies; therefore the occurrence of porpoises close to shore or adjacent to islands and prominent headlands is commonly reported. However gaps remain in the knowledge of the species foraging ecology within Rockabill to Dalkey Island SAC and the available data may be biased toward particular locations due to the nature of survey effort and opportunistic reports from a range of sources. No detailed information is currently available on individual or group movements by harbour porpoise within or into and out of the site, nor is it known whether individuals or groups of the species demonstrate any faithfulness to the site (i.e. site fidelity or residency). Nevertheless, the consistent annual and seasonal occurrence of the species at the site, its occurrence during the calving/breeding period and density/population estimates available to date all indicate the importance of this coastal site for the species.

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 Reefs in Rockabill to Dalkey Island 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 presence of vertical rock wall 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 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.

Target 3	Conserve the following community types in a natural condition: Intertidal reef community complex and Subtidal reef 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 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 areas of vertical rock wall and steeply sloping rock, the mapped community extents will be underestimated:
  - Intertidal reef community complex – 10ha
  - Subtidal reef community complex - 172ha

- 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.

Annex II species

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

Objective **To maintain the favourable conservation condition of harbour porpoise in Rockabill to Dalkey Island SAC, which is defined by the following list of attributes and targets**

Target 1	Species range within the site should not be restricted by artificial barriers to site use.

- This target may be considered relevant to proposed activities or operations that will result in the permanent exclusion of harbour porpoise from part of its range within the site, or will permanently prevent access for the species to suitable habitat therein.
- It does not refer to short-term or temporary restriction of access or range.
- Early consultation or scoping with the Department in advance of formal application is advisable for proposals that are likely to result in permanent exclusion.

Target 2	Human activities should occur at levels that do not adversely affect the harbour porpoise community at the site.

- Proposed activities or operations should not introduce man-made energy (e.g. aerial or underwater noise, light or thermal energy) at levels that could result in a significant negative impact on individuals and/or the community of harbour porpoise within the site. This refers to the aquatic habitats used by the species in addition to important natural behaviours during the species annual cycle.
- This target also relates to proposed activities or operations that may result in the deterioration of key resources (e.g. water quality, feeding, etc) upon which harbour porpoises depend. In the absence of complete knowledge on the species ecological requirements in this site, such considerations should be assessed where appropriate on a case-by-case basis.
- Proposed activities or operations should not cause death or injury to individuals to an extent that may ultimately affect the harbour porpoise community at the site.

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Figure 1. Extent of Reefs in Rockabill to Dalkey Island SAC

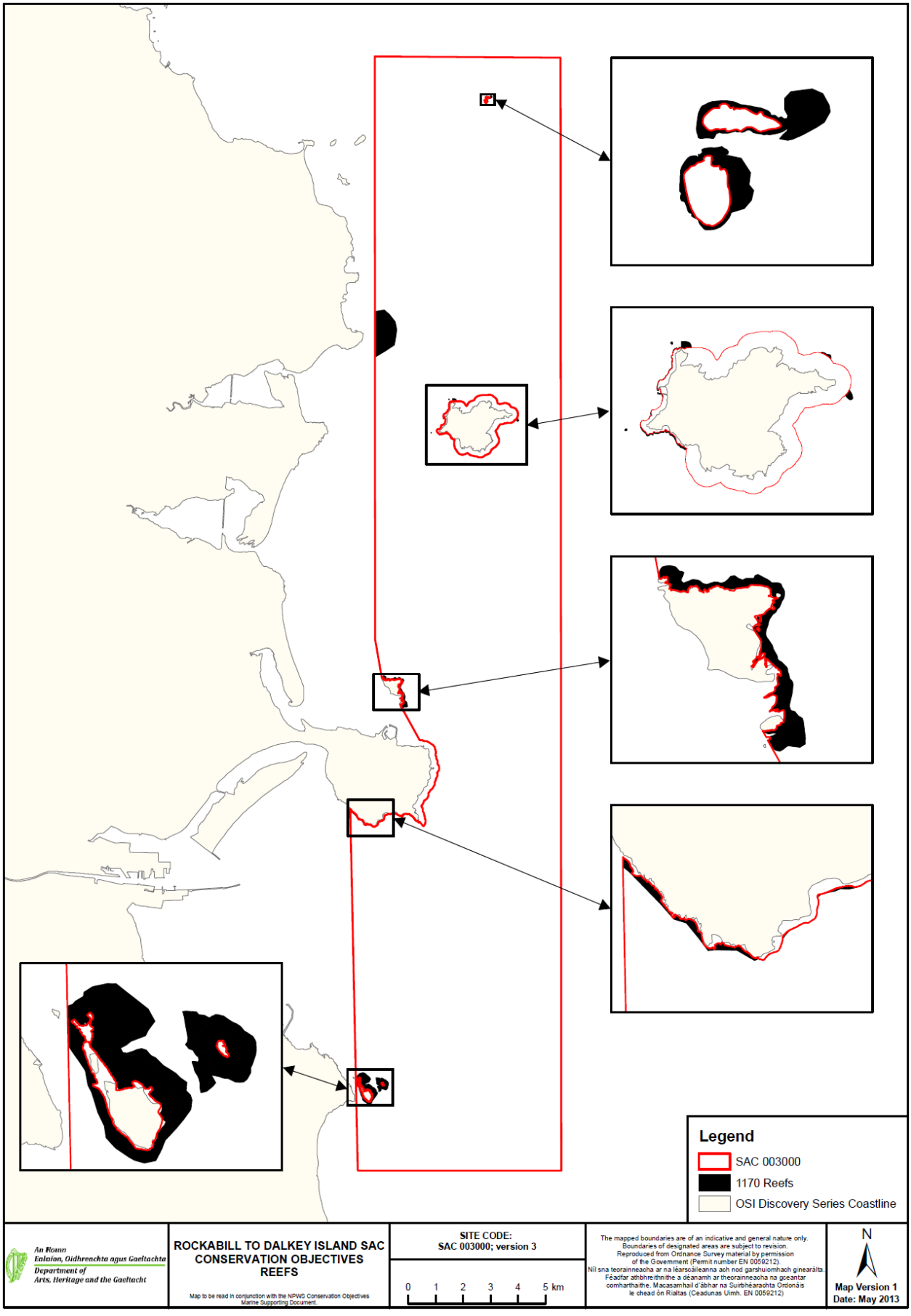

Figure 2. Distribution of community types in Rockabill to Dalkey Island SAC

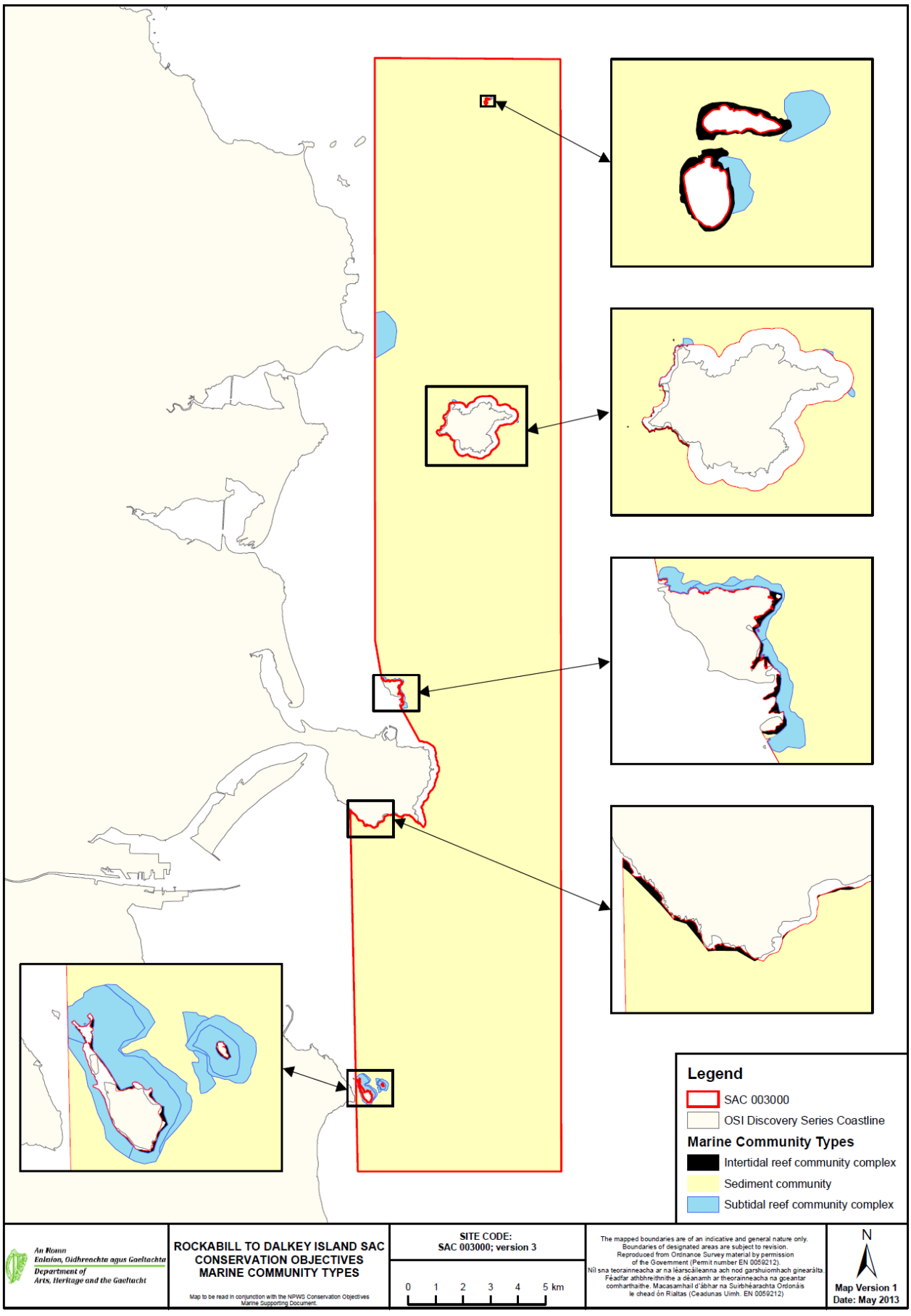

Figure 3. Suitable habitat of *Phocoena phocoena* within Rockabill to Dalkey Island SAC