

**NPWS**

**Lambay Island SAC (site code: 0204)**

**Conservation objectives supporting document -  
Marine Habitats and Species**

**Version 1**

**May 2013**

## Introduction

Lambay Island SAC is designated for the marine Annex I qualifying interest of Reefs (Figure 1) and the Annex II species *Halichoerus grypus* (grey seal) and *Phoca vitulina* (harbour seal, also known as common seal).

Intertidal and subtidal surveys were undertaken in 2010 and 2011 (MERC, 2012a and MERC, 2012b) and these data were used to determine the physical and biological nature of this SAC.

In addition to the records compiled from historical Wildlife Service site visits (Summers, 1983; Lyons, 2004) more detailed investigations of grey seal population status and seasonal habitat use within the site were conducted between 1996 and 1998 (Kiely *et al*, 2000; Lidgard *et al*, 2001), while a 2003 summer survey (Cronin *et al*, 2004) provided additional data on site use by the species during the principal foraging and resting phase of its annual cycle. A comprehensive survey of the grey seal breeding population was subsequently carried out in 2005 (Ó Cadhla *et al*, 2008) and a follow-up moult season survey was conducted in 2007 (Ó Cadhla & Strong, 2007) in order to investigate pup production, habitat use and population composition within the site.

In spite of earlier survey effort along the south, west and north coasts of Ireland, the first comprehensive surveys of the harbour seal population occurring along the east coast were carried out in 2003 (Cronin *et al*, 2004) and again in 2012 by the National Parks and Wildlife Service (NPWS). The associated distribution data have been included in this document, along with ancillary records of the species that were acquired during surveys for grey seal at the site (e.g. in studies by Kiely *et al*, 2000; Lidgard *et al*, 2001; Ó Cadhla & Strong, 2007; Ó Cadhla *et al*, 2008).

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 Lambay Island SAC, two community types are recorded in the Annex I habitat; they are presented in table 1 and a description of each community type is given below.

Community Type	Habitat
	Reefs (1170)
Intertidal reef community complex	✓
<i>Laminaria</i> -dominated community complex	✓

**Table 1** The Reefs community types recorded in Lambay 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 Lambay 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 community complex is recorded extensively on all shores of the island with the exception of the sandy beach around the quay on the western shore (Figure 2).

The substrate here is that of boulders and cobbles with some bedrock outcrops in the northwest and southwest.

The species associated with this community are the gastropods *Littorina littorea* and *Patella vulgata*, the brown alga *Ascophyllum nodosum*, the red algae *Lomentaria articulata*, *Vertebrata lanosa*, *Mastocarpus stellatus* and species of the family Corallinaceae.

The brown alga *Fucus serratus* and *Laminaria digitata*, the red alga *Chondrus crispus*, the hydroid *Dynamena pumila* and the barnacle *Semibalanus balanoides* are also recorded from this community complex.

Species associated with the Intertidal reef community complex	
<i>Littorina littorea</i>	<i>Vertebrata lanosa</i>
<i>Patella vulgata</i>	<i>Mastocarpus stellatus</i>
<i>Lomentaria articulata</i>	<i>Ascophyllum nodosum</i>
Corallinaceae	

**Table 1** Species associated with the Intertidal reef community complex.

#### **LAMINARIA-DOMINATED COMMUNITY COMPLEX**

This community complex occurs on the broad expanse of hard substrate in the north, east and southern shores of the island and in a narrow band on its western shore. It is recorded in water depths of between 0m and 20m. The exposure regime is that of exposed to moderately exposed reef.

The substrate of this community is primarily that of bedrock. In the northeast of the site large boulders, cobble and pebbles overly the bedrock. Vertical or near vertical faces are recorded throughout the community but are more prominent in shallower water (0m to 10m). In deeper water (ca. 20m) boulders and bedrock have a veneer of silt.

The species associated with this community are the kelp *Laminaria hyperborea*, the red algae *Phycodrys rubens* and *Delesseria sanguinea*, the barnacle *Balanus crenatus*, the echinoderm *Asterias rubens*, the crustacean *Necora puber* and the cnidarian *Alcyonium digitatum*. The density of *Laminaria hyperborea* exhibits a gradation with depth becoming less dense with increasing depth.

The red algae *Hypoglossum hypoglossoides* and *Membranoptera alata*, *Palmaria palmata* and Corallinaceae, the bryozoan *Membranipora membranacea* and bryozoan crusts are also recorded from this community complex.

Species associated with the <i>Laminaria</i> -dominated community complex	
<i>Laminaria hyperborea</i>	<i>Delesseria sanguinea</i>
<i>Phycodrys rubens</i>	<i>Alcyonium digitatum</i>
<i>Balanus crenatus</i>	<i>Asterias rubens</i>
<i>Necora puber</i>	

**Table 1** Species associated with the *Laminaria*-dominated community complex.

## Annex II Marine mammals

### *HALICHOERUS GRYPUS* (GREY SEAL)

This marine mammal species occurs in estuarine, coastal and offshore waters but also utilises a range of intertidal and terrestrial habitats for important life history functions such as breeding, moulting, resting and social activity. Its aquatic range for foraging and inter-site movement extends predominantly into continental shelf and slope waters. Grey seal occupies both aquatic and terrestrial habitats in Lambay Island SAC, including intertidal shorelines and skerries that become exposed during the tidal cycle. It is present at the site throughout the year during all aspects of its annual life cycle which includes breeding (August to December approx.), moulting (December to April approx.) and non-breeding, foraging and resting phases. In acknowledging the limited understanding of aquatic habitat use by the species within the site, it should be noted that all suitable aquatic habitat is considered relevant to the species range and ecological requirements at the site and is therefore of potential use by grey seals.

Grey seals are vulnerable to disturbance during periods when time is spent ashore by individuals or groups of animals. This occurs immediately prior to and during the annual breeding season, which takes place predominantly during the months of August to December. Pups are born on land, usually on remote beaches and uninhabited islands or in sheltered caves. While there may be outliers in any year, specific established sites are used annually for breeding-associated behaviour by adult females, adult males, newborn and weaned pups. Such habitats are critical to the maintenance of the species within any site since pups are nursed there for a period of several weeks by the mother prior to weaning and abandonment. During this period, adult females also mate with adult males at, or adjacent to, breeding sites. In addition to delivering information on breeding dynamics, pup production (i.e. the number of pups born each year) can be measured or estimated in order to deliver an assessment of population size. However, the relationship between pup production and total population size is not well known. An estimated 56 pups were born in Lambay Island SAC in 2005. The corresponding minimum population estimate for the site numbered between 196 and 252 grey seals of all ages. Known and suitable habitats for the species in Lambay Island SAC during the breeding season are indicated in figure 3. Current breeding sites in Lambay Island SAC are broadly distributed around the island among its numerous gullies, caves, beaches, rock ledges and coves where access for seals to intertidal shorelines and the area above high water mark is possible.

Grey seal also occurs at the site during the annual moult (i.e. hair shedding and replacement), a protracted period during which individual animals spend significant periods of days or weeks on the shore. Moulting is considered an intensive, energetically-demanding process that all seals must undergo, incurring further vulnerability for individuals during this period. Terrestrial or intertidal sites where seals can be found ashore are known as haul-out sites. Moulting locations may be preferentially selected by the species. Those currently described in Ireland

are remote from human habitation and interference, being on uninhabited islands or remote beaches, with specific established sites used annually by moulting adult females, adult males and juveniles. In Ireland the moulting phase in the annual life cycle occurs predominantly during the months of December to April. A minimum estimate of 110 grey seals was recorded at this site during the moult season in 2007. Known moult haul-out locations at this site are indicated in figure 4, broadly consisting of numerous gullies, caves, rock ledges, beaches and coves where access for seals to intertidal shorelines and the area above high water mark is possible.

Grey seal is a successful aquatic predator that feeds on a wide variety of fish and cephalopod species. For individual grey seals of all ages, intervals between foraging trips in coastal or offshore waters are spent resting ashore at terrestrial or intertidal haul-out sites, or in the water. Resting locations selected by grey seals may be more variable and dispersed than those used during the breeding or moulting seasons. While outliers may occur, there is nevertheless a tendency for recurrent selection by grey seal of particular habitats and sites for terrestrial/intertidal resting behaviour (e.g. low-lying rocks and skerries). Known and suitable habitats for resting by the species are indicated in figure 5. Current sites described in Lambay Island SAC broadly consist of its numerous gullies, caves, rock ledges, beaches and coves where access for seals to intertidal shorelines and the area above high water mark is possible.

#### ***PHOCA VITULINA* (HARBOUR SEAL)**

This marine mammal species occurs in estuarine, coastal and offshore waters but also utilises a range of intertidal and terrestrial habitats for important life history functions such as breeding, moulting, resting and social activity. Its aquatic range for foraging and inter-site movement extends into continental shelf waters. When hauling out ashore, harbour seals tend to prefer comparatively sheltered locations where exposure to wind, wave action and precipitation, for example, are minimised. Thus in Ireland the species is more commonly found ashore in sheltered bays, inlets and enclosed estuaries.

Harbour seals in Lambay Island SAC occupy both aquatic habitats and intertidal shorelines that become exposed during the tidal cycle. The species is present at the site throughout the year during all aspects of its annual life cycle which includes breeding (May to July approx.), moulting (August to September approx.) and non-breeding foraging and resting phases. In particular, comparatively limited information is available from the last period in the annual cycle spanning the months of October to May. In acknowledging the limited understanding of aquatic habitat use by the species within the site it should be noted that all suitable aquatic habitat is considered relevant to the species range and ecological requirements at the site and is therefore of potential use by harbour seals.

Harbour seals are vulnerable to disturbance during periods in which time is spent ashore, or in shallow waters, by individuals or groups of animals. This occurs immediately prior to and

during the annual breeding season, which takes place predominantly during the months of May to July. Pups are born on land, usually on sheltered shorelines, islets or skerries and uninhabited islands removed from the risk of predation and human interference. While there may be outliers in any year, specific established locations tend to be used annually for breeding-associated behaviour by adult males, adult females and their newborn pups. Such habitats are critical to the maintenance of the species within any site. Pups are able to swim soon after birth and may be observed accompanying their mother close to shore in the early days or weeks of life. They are nursed for a period of several weeks by the mother prior to weaning and abandonment. During this period adult females mate with adult males, an activity that takes place in the water. Current information on breeding locations selected by harbour seals in Lambay Island SAC is comparatively limited. Known and suitable habitats for the species in Lambay Island SAC during the breeding season are indicated in figure 6.

The necessity for individual seals to undergo an annual moult (i.e. hair shedding and replacement), which generally results in seals spending more time ashore during a relatively discrete season, provides an opportunity to record the minimum number of harbour seals occurring in a given area (i.e. minimum population estimate). Moulting is considered an intensive, energetically-demanding process which incurs further vulnerability for individuals during this period. Terrestrial or intertidal locations where seals can be found ashore are known as haul-out sites. The harbour seal moult season takes place predominantly during the months of August to September. A total of 31 harbour seals were recorded ashore within Lambay Island SAC in August 2003 during a national aerial survey for the species, while maximum counts of 38-47 harbour seals were recorded more recently during the moult season. Suitable habitat for the species along with known moult haul-out locations in Lambay Island SAC are indicated in figure 7.

Harbour seal is a successful aquatic predator that feeds on a wide variety of fish, cephalopod and crustacean species. For individual harbour seals of all ages, intervals between foraging trips in coastal or offshore waters are spent resting ashore at terrestrial or intertidal haul-out sites, or in the water. Outside the breeding and moulting seasons (i.e. from October to April) the location and composition of haul-out groups and individual seals may be different to those normally observed during breeding or moulting. Current information on resting locations selected by harbour seals in Lambay Island SAC outside the moulting season is comparatively limited. Known and suitable habitats for resting by the species are indicated in figure 8.

**Objective** To maintain the favourable conservation condition of Reefs in Lambay 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 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 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 *Laminaria*-dominated 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 significant areas of sheer and steeply sloping rock, the mapped community extents will be underestimated:
  - Intertidal reef community complex - 11ha
  - *Laminaria*-dominated community complex - 47ha
- 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 grey seal in Lambay Island SAC which is defined by the following list of attributes and targets**

**Target 1**        Species range within the site is not 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 grey seal 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**        Conserve the breeding sites in a natural condition.

- This target is relevant to proposed activities or operations that will result in significant interference with or disturbance of (a) breeding behaviour by grey seal within the site and/or (b) aquatic/terrestrial/intertidal habitat used during the annual breeding season.
- Operations or activities that cause displacement of individuals from a breeding site or alteration of natural breeding behaviour, and that may result in higher mortality or reduced reproductive success, would be regarded as significant and should therefore be avoided.

**Target 3**        Conserve the moult haul-out sites in a natural condition.

- This target is relevant to proposed activities or operations that will result in significant interference with or disturbance of (a) moulting behaviour by grey seal within the site and/or (b) aquatic/terrestrial/intertidal habitat used during the annual moult.
- Operations or activities that cause displacement of individuals from a moult haul-out site or alteration of natural moulting behaviour to an extent that may ultimately interfere with key ecological functions would be regarded as significant and should therefore be avoided.

**Target 4**        Conserve the resting haul-out sites in a natural condition.

- This target is relevant to proposed activities or operations that will result in significant interference with or disturbance of (a) resting behaviour by grey seal within the site and/or (b) aquatic/terrestrial/intertidal habitat used for resting.
- Operations or activities that cause displacement of individuals from a resting haul-out site to an extent that may ultimately interfere with key ecological functions would be regarded as significant and should therefore be avoided.

**Target 5** Human activities should occur at levels that do not adversely affect the grey seal population 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 population of grey seal within the site. This refers to both the aquatic and terrestrial/intertidal 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 grey seals 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 grey seal population at the site.

**Objective** To maintain the favourable conservation condition of harbour seal in Lambay 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 seal 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** Conserve the breeding sites in a natural condition.

- This target is relevant to proposed activities or operations that will result in significant interference with or disturbance of (a) breeding behaviour by harbour seal within the site and/or (b) aquatic/terrestrial/intertidal habitat used during the annual breeding season.
- Operations or activities that cause displacement of individuals from a breeding site or alteration of natural breeding behaviour, and that may result in higher mortality or reduced reproductive success, would be regarded as significant and should therefore be avoided.

**Target 3** Conserve the moult haul-out sites in a natural condition.

- This target is relevant to proposed activities or operations that will result in significant interference with or disturbance of (a) moulting behaviour by harbour seal within the site and/or (b) aquatic/terrestrial/intertidal habitat used during the annual moult.
- Operations or activities that cause displacement of individuals from a moult haul-out site or alteration of natural moulting behaviour to an extent that may ultimately interfere with key ecological functions would be regarded as significant and should therefore be avoided.

**Target 4** Conserve the resting haul-out sites in a natural condition.

- This target is relevant to proposed activities or operations that will result in significant interference with or disturbance of (a) resting behaviour by harbour seal within the site and/or (b) aquatic/terrestrial/intertidal habitat used for resting.
- Operations or activities that cause displacement of individuals from a resting haul-out site to an extent that may ultimately interfere with key ecological functions would be regarded as significant and should therefore be avoided.

**Target 5** Human activities should occur at levels that do not adversely affect the harbour seal population 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 population of harbour seal within the site. This refers to both the aquatic and terrestrial/intertidal 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 seals 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 seal population at the site.

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Figure 1. Extent of Reefs in Lambay Island SAC

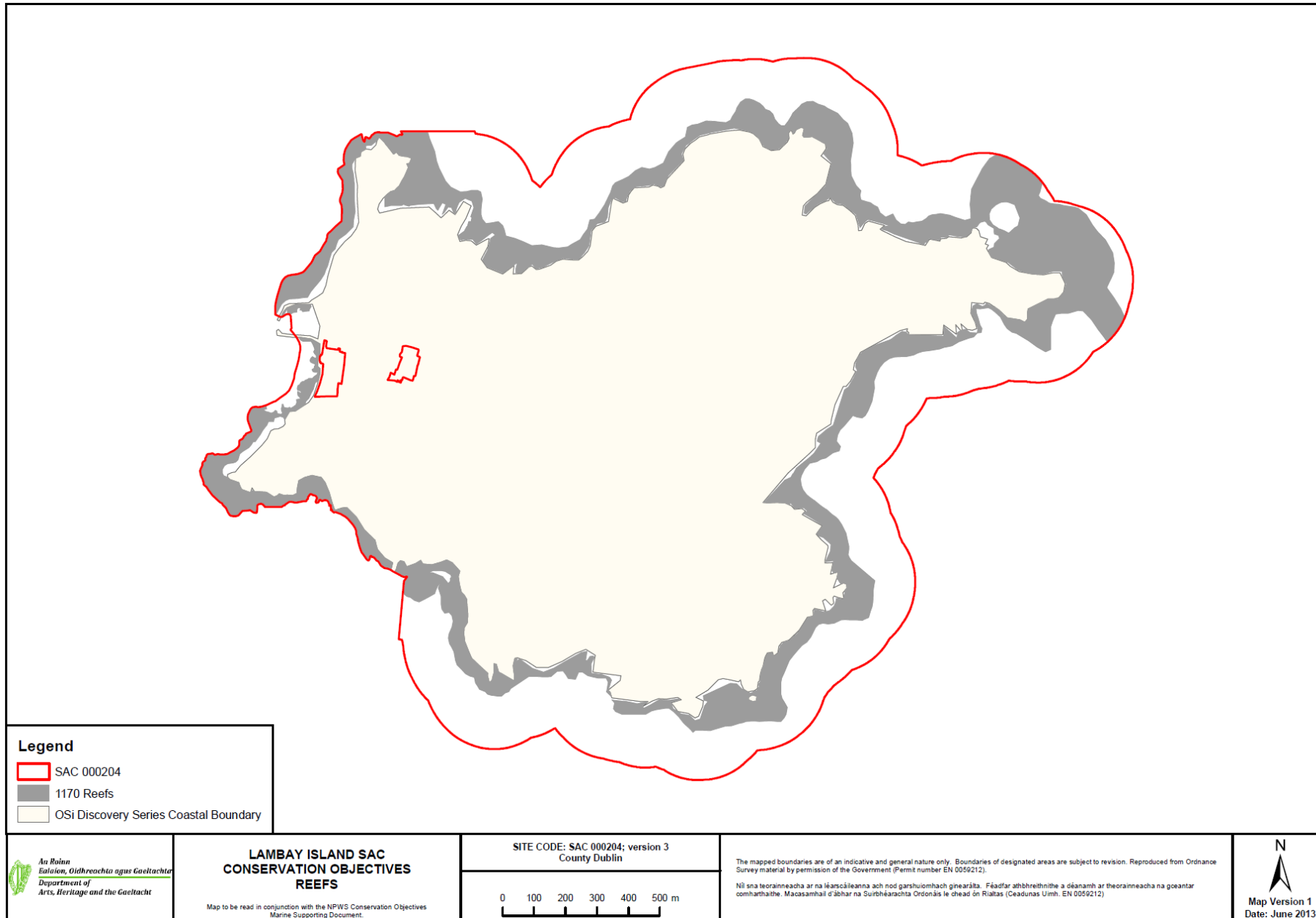


Figure 2. Distribution of community types in Lambay Island SAC

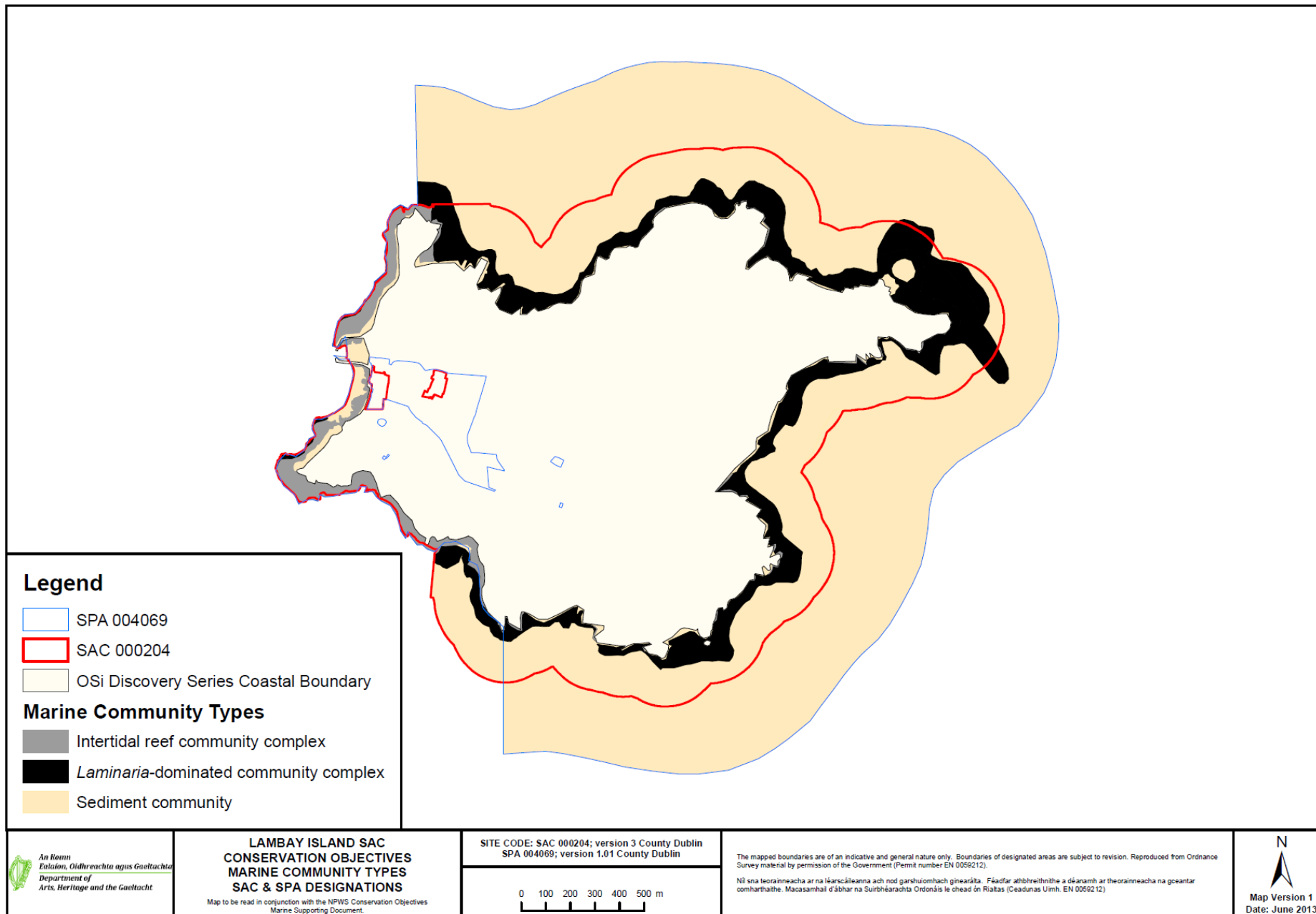


Figure 3. *Halichoerus grypus* - Known breeding sites in Lambay Island SAC

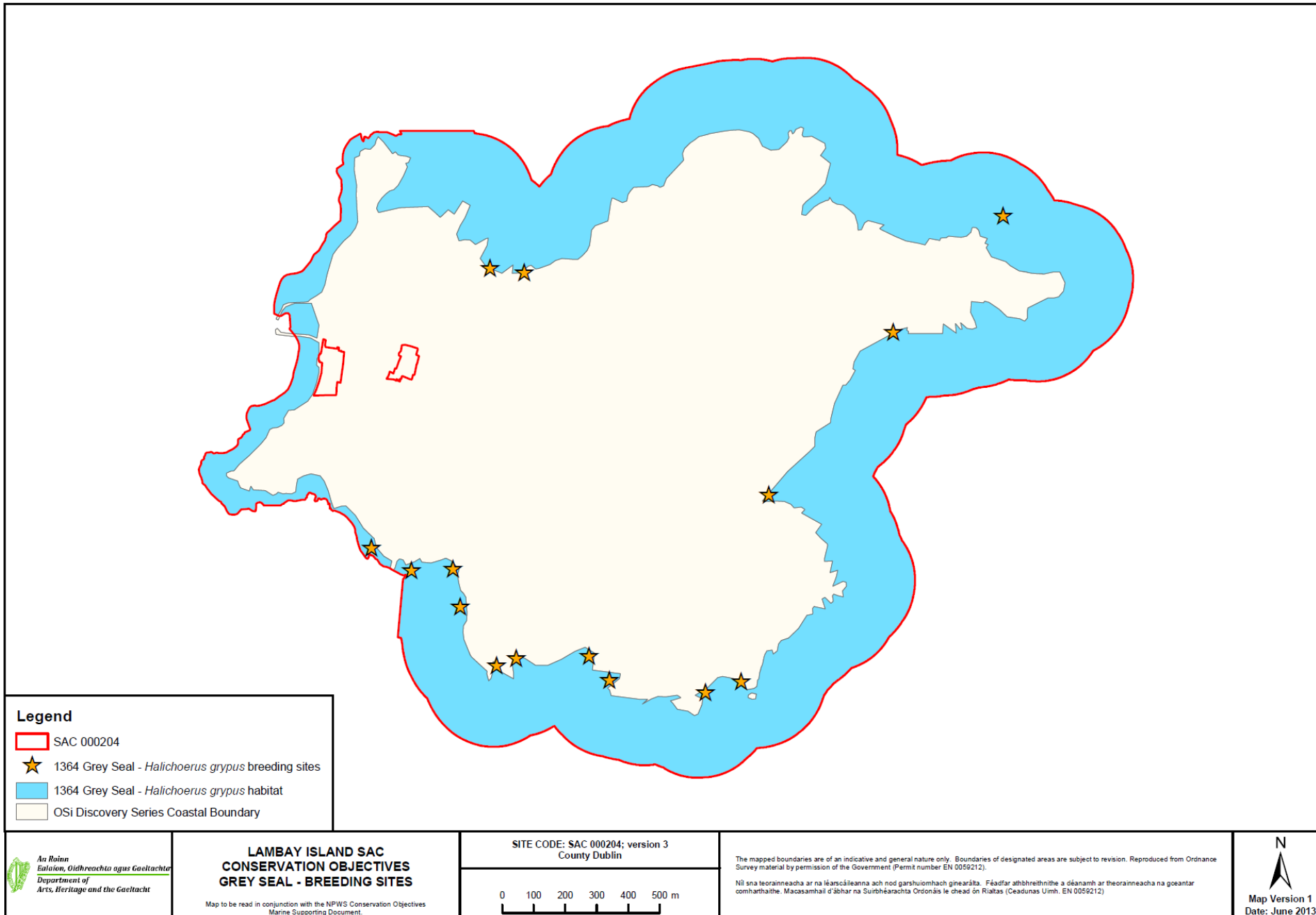




Figure 4. *Halichoerus grypus* - Known moult haul-out sites in Lambay Island SAC

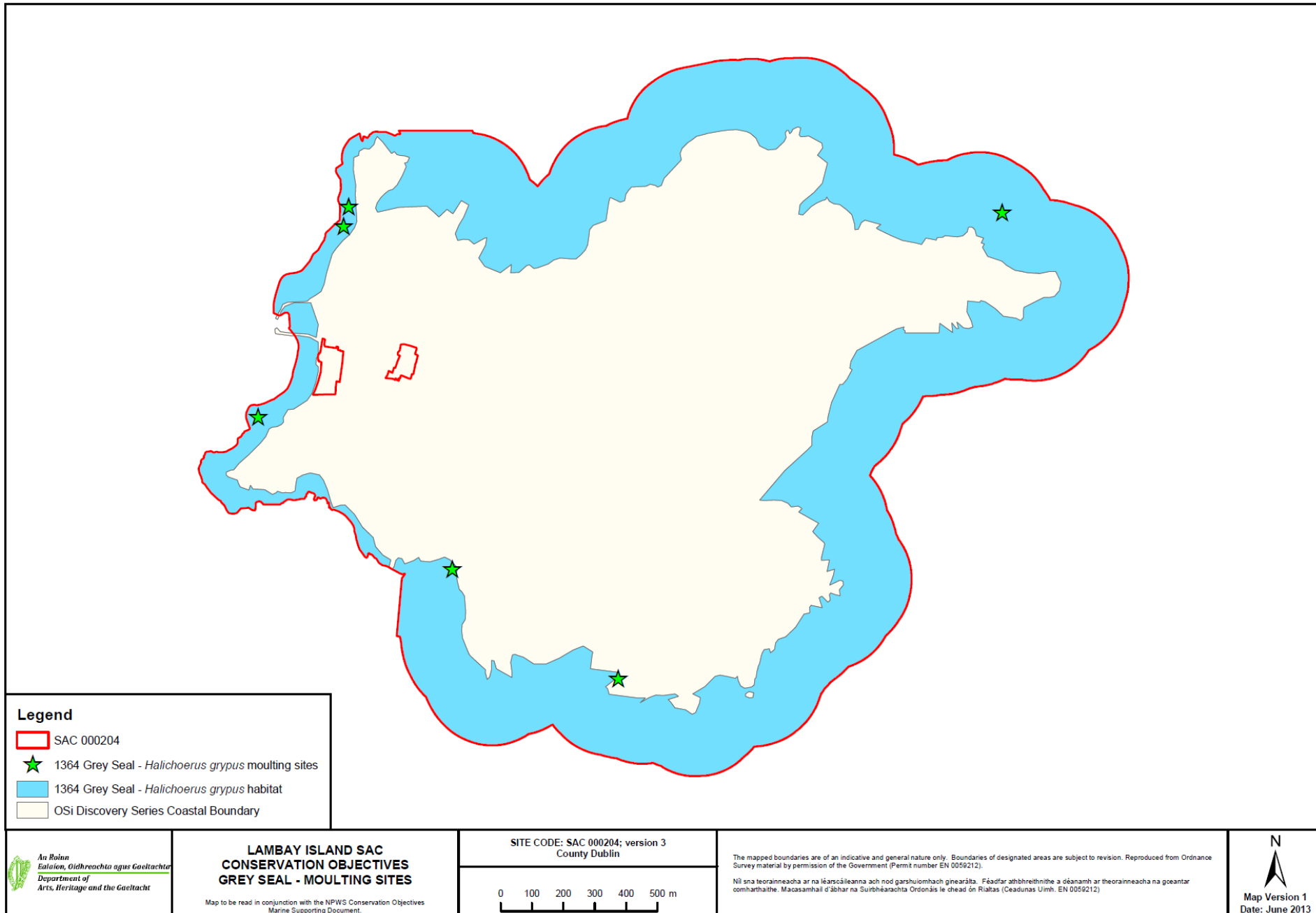


Figure 5. *Halichoerus grypus* - Known resting haul-out sites (non-breeding) in Lambay Island SAC

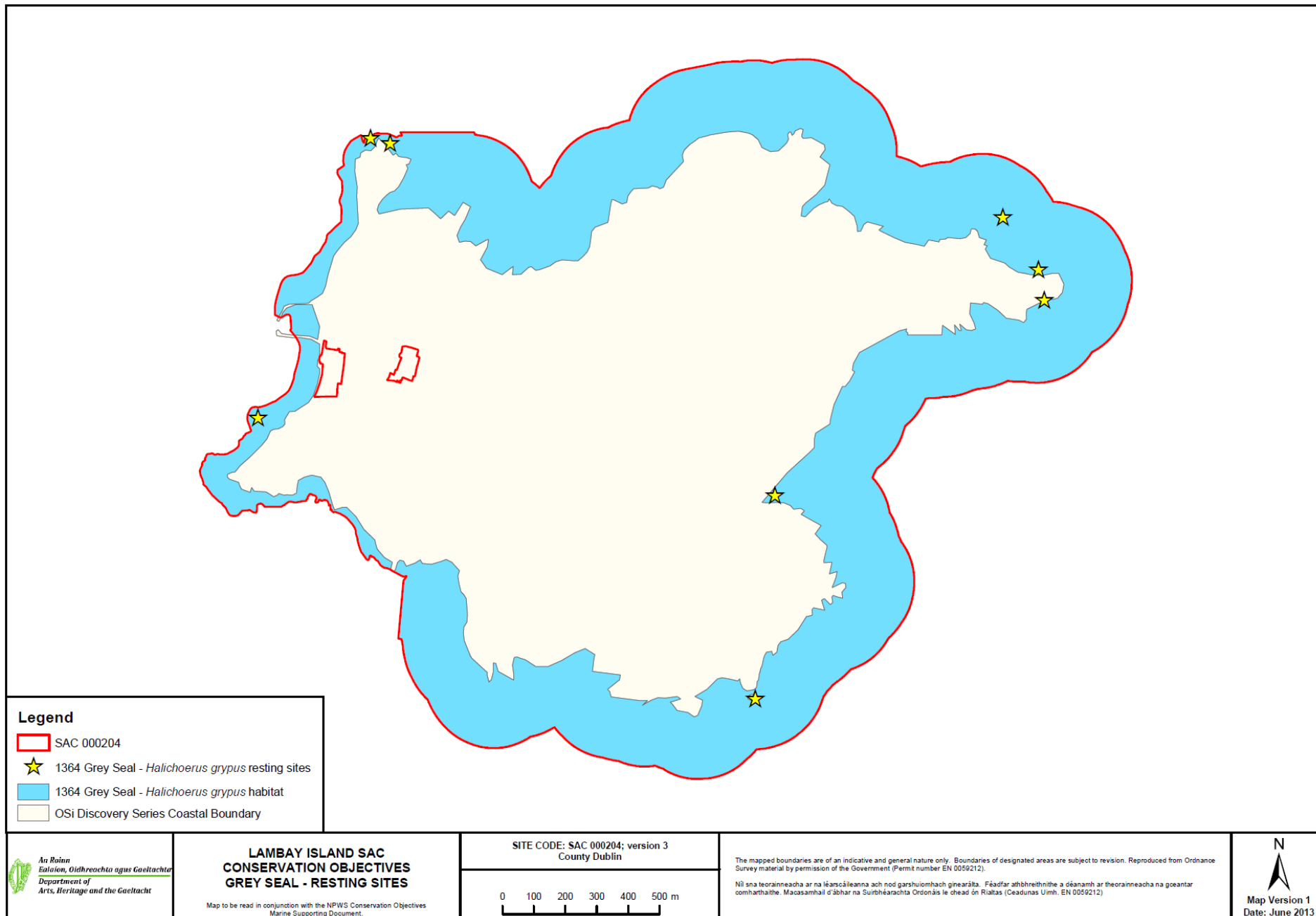


Figure 6. *Phoca vitulina* - Known breeding sites in Lambay Island SAC

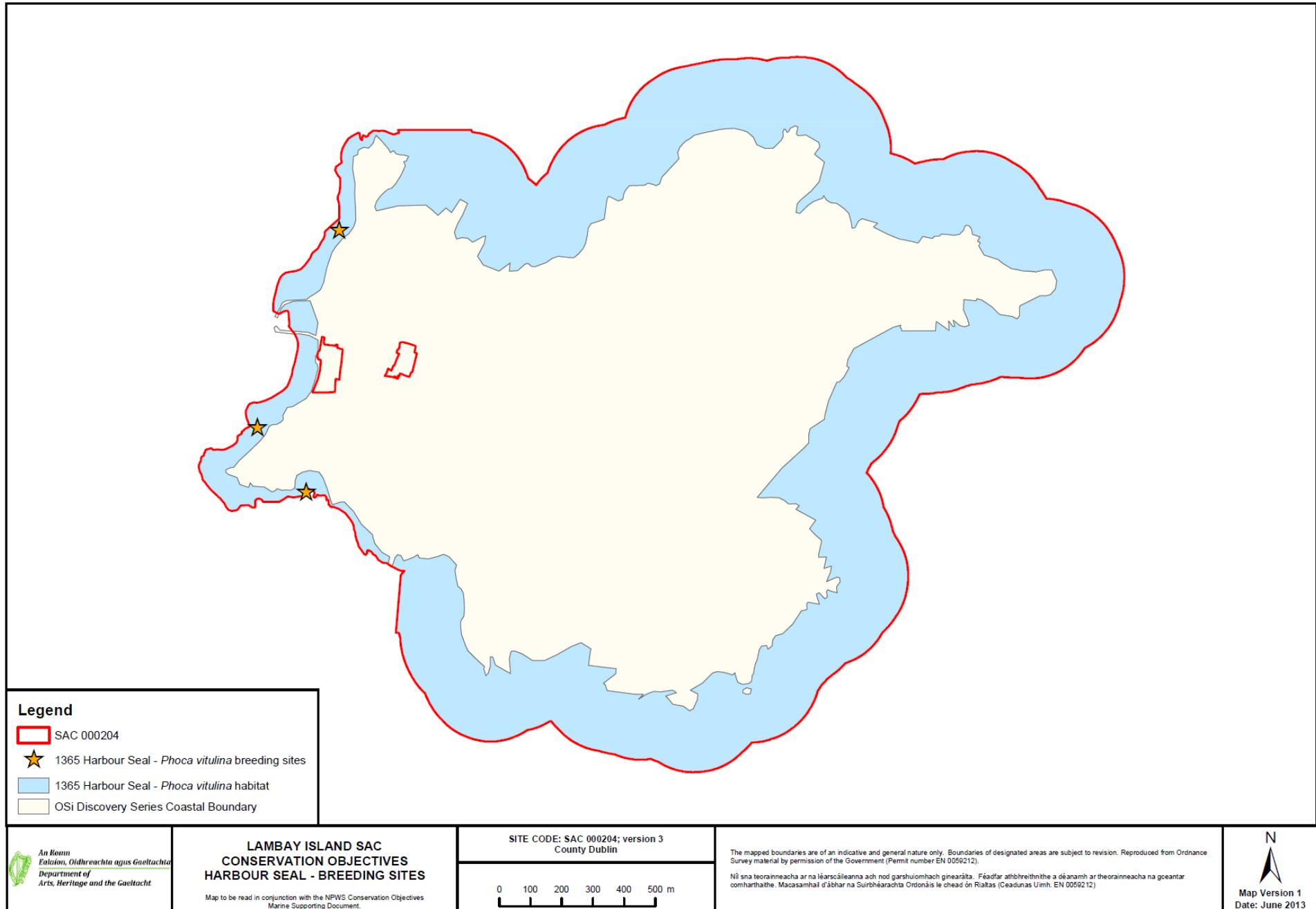


Figure 7. *Phoca vitulina* - Known moult haul-out sites in Lambay Island SAC

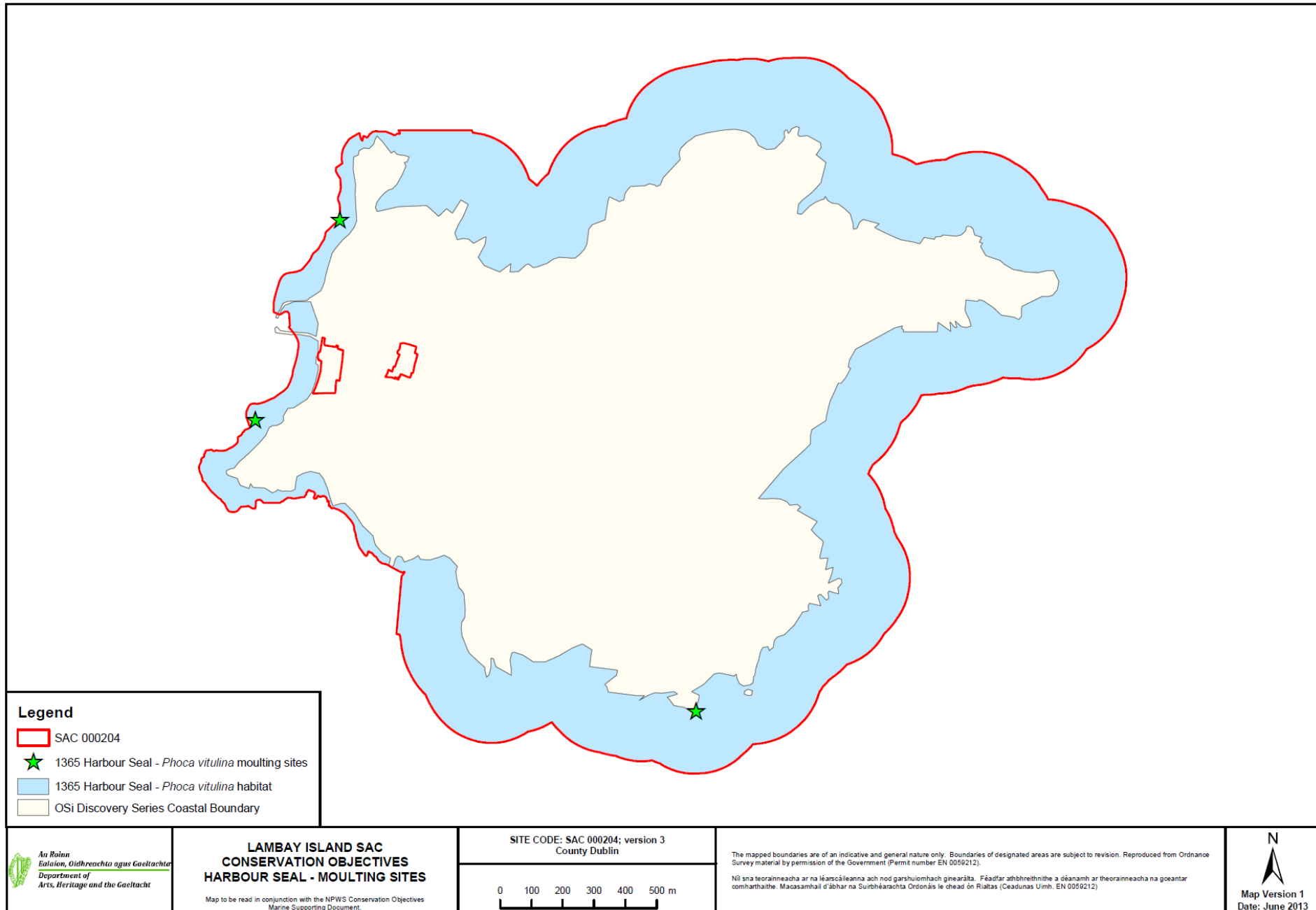


Figure 8. *Phoca vitulina* - Known resting haul-out sites (non-breeding) in Lambay Island SAC

