

NPWS

Ballysadare Bay SAC (site code: 622)

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

Version 1

July 2013

Introduction

Ballysadare Bay SAC is designated for the marine Annex I qualifying interests of Estuaries and Mudflats and sandflats not covered by seawater at low tide (Figures 1 and 2) and the Annex II species *Phoca vitulina* (harbour seal, also known as common seal). The Annex I habitat estuaries is a large physiographic feature that may wholly or partly incorporate other Annex I habitats including mudflats and sandflats within its area.

Intertidal and subtidal surveys were undertaken in 2007 and 2010 (ASU, 2007; ASU, 2011 and Aquafact, 2011).

In addition to the records compiled from historical Wildlife Service site visits and regional surveys (Summers *et al*, 1980; Harrington, 1990; Lyons, 2004), a comprehensive survey of the Irish harbour seal population was carried out in 2003 (Cronin *et al*, 2004). Annual monitoring surveys for harbour seal within Ballysadare Bay SAC have also been carried out since 2009 (NPWS, 2010; NPWS, 2011; NPWS, 2012).

These data were used to determine the physical and biological nature of this SAC and overlapping Special Protection Area Ballysadare Bay SPA (site code 4129).

Aspects of the biology and ecology of the Annex I habitats 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 Ballysadare Bay SAC, eight community types are recorded. The Annex I habitats in which they are recorded and their occurrence in the overlapping SPAs is presented in table 1, a description of each community type is given below.

Community Type	SAC Annex I Habitats		SPA
	Estuaries (1130)	Mudflats and sandflats not covered by seawater at low tide (1140)	
Intertidal sand with <i>Angulus tenuis</i> community complex	✓	✓	✓
Muddy sand to sand with <i>Hediste diversicolor</i> , <i>Corophium volutator</i> and <i>Peringia ulvae</i> community complex	✓	✓	✓
<i>Zostera</i> -dominated community	✓	✓	✓
Fine sand with polychaetes community complex	✓		✓
Sand with bivalves, nematodes and crustaceans community complex	✓		✓
Intertidal reef community	✓		✓
Subtidal reef community	✓		✓
Shingle			✓

Table 1 The community types recorded in Ballysadare Bay SAC and their occurrence in the Annex I habitats and the adjacent SPA.

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 Ballysadare Bay 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 SAND WITH *ANGULUS TENUIS* COMMUNITY COMPLEX

This intertidal community complex occurs extensively within the central area of Ballysadare Bay from south of Derinch Point to Portavaud Point on the western shore and from Kellystown to the northern extreme of the site on the eastern shore (Figure 3).

The sediment within this complex is that of sand, with the fine sand fraction ranging from 24.4% to 90.9% and medium sand from 2.2% to 70.6%; gravel is negligible. The proportion of fine material (very fine sand and silt-clay) is generally less than 7%, with the exception of Buninna where it is 21.8%.

This community complex is characterised by low numbers of species and individuals; it is distinguished by the bivalve *Angulus tenuis* and the polychaetes *Nephtys cirrosa* and *Pygospio elegans*. *A. tenuis* is recorded throughout the complex with the exception of the exposed beach at Marley's Point; it occurs in its highest densities on the eastern shore of the site from Kellystown to the Culleenamore Strand. *N. cirrosa* occurs throughout the complex in low abundance. *P. elegans* is not uniformly distributed within the complex and generally occurs in relatively low numbers, however it is abundant west of Kellystown. The polychaete *Spio martinensis* and the gastropod *Peringia ulvae* are also not uniformly distributed within the complex and generally occur in relatively low numbers; however, *P. ulvae* is abundant on Culleenamore Strand. The amphipod *Bathyporeia pelagica* is also recorded within the complex (Table 2).

The polychaete *Arenicola marina* is recorded in densities ranging from 0 to 15m⁻² and the green alga *Ulva* sp. occurs occasionally. The polychaete *Lanice conchilega* is abundant (61m⁻²) on the lower shore at Culleenamore Strand.

Distinguishing species of Intertidal sand with <i>Angulus tenuis</i> community complex	
<i>Angulus tenuis</i>	<i>Spio martinensis</i>
<i>Pygospio elegans</i>	<i>Arenicola marina</i>
<i>Nephtys cirrosa</i>	<i>Lanice conchilega</i>
<i>Peringia ulvae</i>	<i>Ulva</i> sp.
<i>Bathyporeia pelagica</i>	

Table 2 Distinguishing species of the Intertidal sand with *Angulus tenuis* community complex.

MUDDY SAND TO SAND WITH *HEDISTE DIVERSICOLOR*, *COROPHIUM VOLUTATOR* AND *PERINGIA ULVAE* COMMUNITY COMPLEX

This intertidal community complex occurs in the inner reaches of Ballysadare Bay to Kellystown on the eastern shore and Rinnatalleen on the western shore. It is also recorded at the outer extremes of the bay at Culleenamore Strand and at Buninna and Ballinlig on the western shore of the bay (Figure 3).

The substrate within the complex is that of fine sediment (fine sand ranging from 1.9% to 86.2%, very fine sand from 0.7% to 39.6% from and silt-clay from 2.1% to 81.8%). The sandy mud and muddy sand sediments are confined to the inner reaches of the bay and to the inlets on its western shore. The sandier sediments are recorded in the centre of the bay and at Culleenamore Strand. Gravel is negligible (<1%).

This complex is distinguished by the polychaetes *Hediste diversicolor* and *Pygospio elegans*, the crustacean *Corophium volutator*, the gastropod *Peringia ulvae* and the oligochaetes *Heterochaeta costata* and *Tubificoides benedii*. *H. diversicolor*, *C. volutator* and *H. costata* are recorded in high abundances in the inner reaches of the bay. *C. volutator* occurs in moderate abundances in the inlets on the western shores of the bay at Buninna and Ballinlig; *T. benedii* is recorded in high abundances here. *P. ulvae* occurs in high abundances in the outer reaches of the site at Culleenamore Strand and at Buninna and is recorded in moderate abundances in the inner reaches of the bay. *P. elegans* is recorded in high to moderate abundances in the northern extremes of this complex at Buninna, Ballinlig and Culleenamore Strand and it also occurs at Rinnatalleen and Brughmore.

Cerastoderma edule and *Macoma balthica* occur in moderate to low abundances in the western shore of the bay at Buninna, Ballinlig and Rinnatalleen.

Distinguishing species of Muddy sand to sand with <i>Hediste diversicolor</i> , <i>Corophium volutator</i> and <i>Peringia ulvae</i> community complex	
<i>Hediste diversicolor</i>	<i>Pygospio elegans</i>
<i>Corophium volutator</i>	<i>Tubificoides benedii</i>
<i>Peringia ulvae</i>	<i>Cerastoderma edule</i>
<i>Heterochaeta costata</i>	<i>Macoma balthica</i>

Table 3 Distinguishing species of the Muddy sand to sand with *Peringia ulvae*, *Tubificoides benedii* and *Cerastoderma edule* community complex.

ZOSTERA-DOMINATED COMMUNITY

There are two discrete intertidal seagrass meadows within Ballysadare bay located within the inlet at Rinnatalleen on the western shore and between Cartronabree and Brughmore on its eastern shore (Figure 3).

The sediment within the beds is that of muddy sand to fine sand (fine sand ranges from 2.5% to 81.6%, very fine sand from 6.8% to 24.7% and silt-clay fraction from 2.6% to 78.8%); coarser fractions are negligible (<1.5%).

The community is dominated by the seagrass *Zostera noltii*. It is recorded in densities of 30% cover at Rinnatalleen and from 50% to 80% cover between Cartronabree and Brughmore. The gastropod *Peringia ulvae* is the most abundant species recorded within both meadows. *Hediste diversicolor* occurs in low abundance at Rinnatalleen to high abundance at the meadow on the eastern shore. The bivalves *Cerastoderma edule* and *Macoma balthica*, the oligochaetes *Heterochaeta costata* and *Tubificoides benedii* are recorded in high abundances within the both meadows, while the crustacean *Corophium volutator* in low abundance in both (Table 4).

Species associated with the <i>Zostera</i> -dominated community	
<i>Zostera noltii</i>	<i>Cerastoderma edule</i>
<i>Peringia ulvae</i>	<i>Macoma balthica</i>
<i>Hediste diversicolor</i>	<i>Corophium volutator</i>
<i>Tubificoides benedii</i>	

Table 4 Species associated with the *Zostera*-dominated community.

FINE SAND WITH POLYCHAETES COMMUNITY COMPLEX

This subtidal community complex occurs in the channel along the eastern shore of the bay and outside the bay at the northern extreme of the site (Figure 3). It is recorded in depths of between 1m to 3m.

The substrate is that of fine to medium sand, with fine sand ranging from 49.8% to 84.8% and medium sand from 47.0% to 49.8%. Gravel and silt-clay are negligible (<0.4% and 0%, respectively).

This complex is defined by the low numbers of species and these are not uniformly distributed within the complex (Table 5). The polychaete *Ophelia rathkei* is found in high abundance in the centre of the bay while the gastropod *Peringia ulvae* is recorded in moderate abundances here. The polychaete *Nephtys cirrosa* is recorded in low abundances in the outer reaches of the bay.

Other species recorded within the complex included the amphipods *Bathyporeia pelagica*, *B. pilosa*, *Eurydice pulchra*, *Urothoe elegans*, *U. brevicornis*, and *Haustorius arenarius*, the bivalve *Angulus tenuis* and the polychaetes *Eteone longa*, *Pygospio elegans* and *Scoloplos armiger*.

Distinguishing species of Fine sand with polychaetes community complex	
<i>Ophelia rathkei</i>	<i>Peringia ulvae</i>
<i>Nephtys cirrosa</i>	

Table 5 Distinguishing species of the Fine sand with polychaetes community complex.

SAND WITH BIVALVES, NEMATODES AND CRUSTACEANS COMMUNITY COMPLEX

The community complex is recorded in the subtidal channel from Mussel Point at the outer extremes of the bay to its inner reaches in depths of between 0.5m and 7m (Figure 3).

The sediment is largely that of fine to medium sand (ranging from 9.1% to 77.7% and 1.8% to 51.8% respectively). However, in the inner reaches the proportion of fine material represents the major sediment fraction (>50% compared to <2% in general within the complex). Off the western shore of the bay, to the south of Great Seal Bank, the sediment is mixed with gravel representing 7.7% of the sediment fractions.

The complex is distinguished by unidentified mytilid bivalves, unidentified nematodes and the crustaceans *Jassa* sp., *Pseudoprotella phasma* and *Caprella penantis* and the bivalve *Kurtiella bidentata* (Table 6). These species are not uniformly distributed within the complex. To the south and north of the Great Seal Bank in the centre of the bay mytilid bivalves are recorded in moderate to high abundance but occur in low abundances elsewhere. Nematodes are recorded in moderate abundances at the mouth of the bay, in low abundances in the centre of the bay and are absent from the inner reaches of the site. *Jassa* sp. and *Pseudoprotella phasma* are recorded in moderate to low abundance in the outer reaches of the complex only; *Caprella penantis* is similarly distributed but occurs here in moderate to high abundances.

Species associated with the Sand with bivalves, nematodes and crustaceans community complex	
Mytilidae indet.	<i>Caprella penantis</i>
Nematode indet.	<i>Kurtiella bidentata</i>
<i>Jassa</i> sp.	
<i>Pseudoprotella phasma</i>	

Table 6 Species associated with the Sand with bivalves, nematodes and crustaceans community complex.

INTERTIDAL REEF COMMUNITY

This community is recorded at Galleyhouse Strand at the entrance to the bay and on the eastern shore at Woodpark (Figure 3). The substrate is that of cobbles and the occasional boulder. The most conspicuous species are fucoids, namely *Pelvetia canaliculata*, *Fucus spiralis*, *Ascophyllum nodosum* and *Fucus vesiculosus* (Table 7).

Species associated with the Intertidal reef community	
<i>Fucus spiralis</i>	<i>Ascophyllum nodosum</i>
<i>Pelvetia canaliculata</i>	<i>Fucus vesiculosus</i>

Table 7 Species associated with the Intertidal reef community.

SUBTIDAL REEF COMMUNITY

This community occurs at the entrance to the bay from the northern extreme of the site to just north of Portavaud Point in depths of between 0m to 9m (Figure 3). The substrate consists of a mixture of bedrock, cobbles and gravel with a sand veneer.

Species associated with this community include the kelp species *Laminaria saccharina*, unidentified red algae, bryozoans and encrusting polychaetes (*Spirobranchus* sp.).

Species associated with the Subtidal reef community	
<i>Laminaria saccharina</i>	Bryozoans
Red algae indet.	<i>Spirobranchus</i> sp.

Table 8 Species associated with the Subtidal reef community.

SHINGLE

Shingle (pebbles and gravel) is present at the northern end of Galleyhouse Strand at the Marley's Point (Figure 3). It occurs on the upper shore usually behind the intertidal reef.

Talitrid amphipods are recorded where dead algae accumulates here. This is outside the SAC but within the SPA

Annex II Marine mammals

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 Ballysadare Bay 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. Comparatively limited information is available at this site from the last period of 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 locations selected by harbour seals in Ballysadare Bay SAC during the breeding season is comparatively limited. Known and suitable habitats for the species in the SAC during this season are indicated in figure 4. Current breeding sites are broadly within the following areas: Great Seal Bank, sand banks north of Derinch Point and along the North Channel.

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 and September. A total of 257 harbour seals were recorded ashore within Ballysadare Bay SAC in August 2003 during a national aerial survey for the species. Suitable habitat for the species along with known moult haul-out locations in Ballysadare Bay SAC are indicated in figure 5, broadly consisting of Great Seal Bank and adjacent sand banks in the northern and central parts of the bay, and sand banks north/northwest of Derinch Point.

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 Ballysadare Bay SAC outside these seasons is limited. While there is some anecdotal information indicating harbour seal use of sites within the SAC during the autumn, winter and spring months, much of this information has not been verified. Suitable habitat for the species along with known resting haul-out locations in Ballysadare Bay SAC are indicated in figure 6, broadly consisting of Great Seal Bank and adjacent sand banks in the central part of the bay, and sand banks north/northwest of Derinch Point. It is likely that other areas within the site that are utilised at other times of the year are also used as haul-out sites by harbour seals during this phase of the annual cycle (i.e. between October and April).

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 Mudflats and sandflats not covered by seawater at low tide in Ballysadare Bay 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 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	Maintain the extent of the <i>Zostera</i> -dominated community, subject to natural processes.
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- A *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 serves as important nursery grounds 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 3. The area given below is based on spatial interpolation and therefore should be considered indicative:

- *Zostera*-dominated community - 36ha.

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

- It is important to ensure the quality as well as the extent of *Zostera*-dominated community is conserved. For example, percent coverage 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.

Target 5 Conserve the following community types in a natural condition: Intertidal sand with *Angulus tenuis* community complex; Muddy sand to sand with *Hediste diversicolor*, *Corophium volutator* and *Peringia ulvae* community complex.

- A semi-quantitative description of these community types has been provided in Section 1.
- An interpolation of their likely distribution is provided in figure 3.
- 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 sand with *Angulus tenuis* community complex - 816ha
 - Muddy sand to sand with *Hediste diversicolor*, *Corophium volutator* and *Peringia ulvae* community complex - 493ha
- 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 Estuaries in Ballysadare Bay 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 habitat of Mudflats and sandflats not covered by seawater at low tide. In such areas, the specific targets for that Annex I habitat will address requirements within the Annex I habitat Estuaries.
- 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 Maintain the extent of the *Zostera*-dominated community, subject to natural processes.

- A *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 serves as important nursery grounds 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 3. The area given below is based on spatial interpolation and therefore should be considered indicative:

- *Zostera*-dominated community - 36ha.

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

- It is important to ensure the quality as well as the extent of *Zostera*-dominated community is conserved. For example, percent coverage 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.

Target 4 Conserve the following community types a natural condition: Intertidal sand with *Angulus tenuis* community complex; Muddy sand to sand with *Hediste diversicolor*, *Corophium volutator* and *Peringia ulvae* community complex; Fine sand with polychaetes community complex; Sand with bivalves, nematodes and crustaceans community complex; Intertidal reef community complex; Subtidal reef community complex.

- A semi-quantitative description of these community types has been provided in Section 1.
- An interpolation of their likely distribution is provided in figure 3.
- The estimated area of these community types within the Estuaries habitat given below is based on spatial interpolation and therefore should be considered indicative:
 - Intertidal sand with *Angulus tenuis* community complex - 731ha
 - Muddy sand to sand with *Hediste diversicolor*, *Corophium volutator* and *Peringia ulvae* community complex - 493ha
 - Fine sand with polychaetes community complex - 133ha
 - Sand with bivalves, nematodes and crustaceans community complex - 285ha
 - Intertidal reef community complex - 4ha
 - Subtidal reef community complex - 4ha
- Significant continuous or ongoing disturbance of communities should not exceed an approximate area of 15% of the interpolated area, 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 harbour seal in Ballysadare Bay 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 Mudflats and sandflats not covered by seawater at low tide in Ballysadare Bay SAC

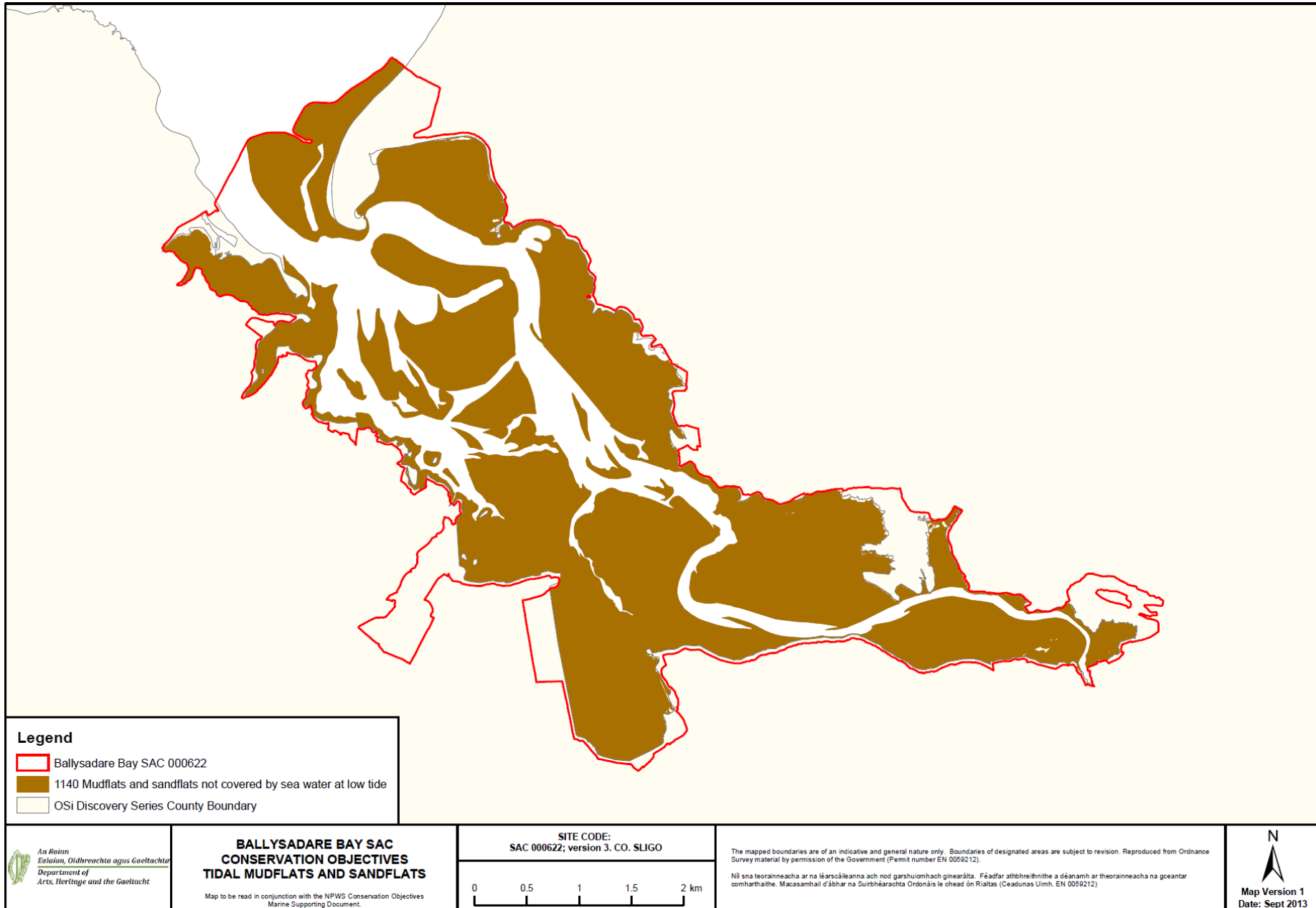


Figure 2. Extent of Estuaries in Ballysadare Bay SAC

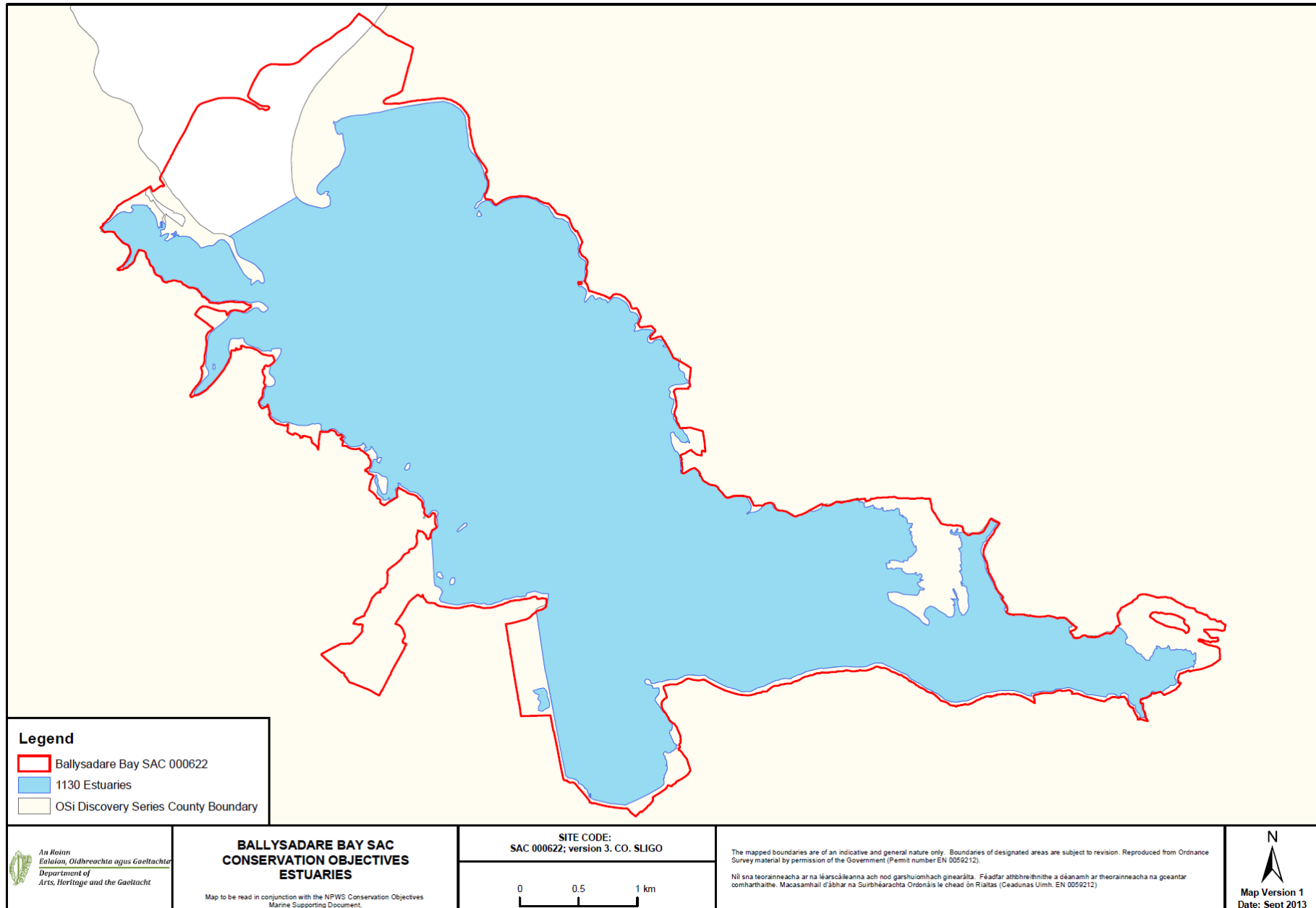


Figure 3. Distribution of community types in Ballysadare Bay SAC

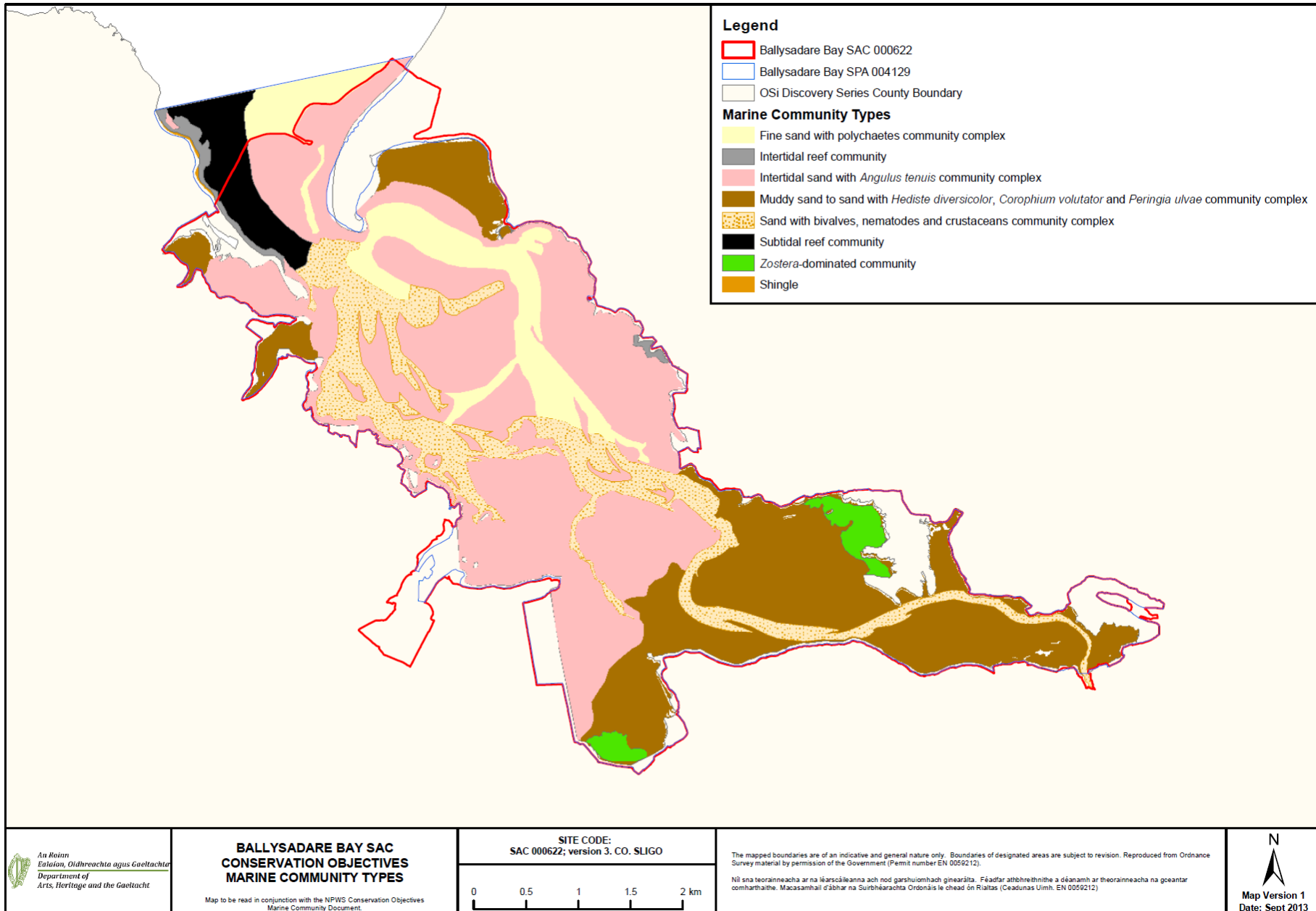


Figure 4. *Phoca vitulina* - Known breeding sites in Ballysadare Bay SAC

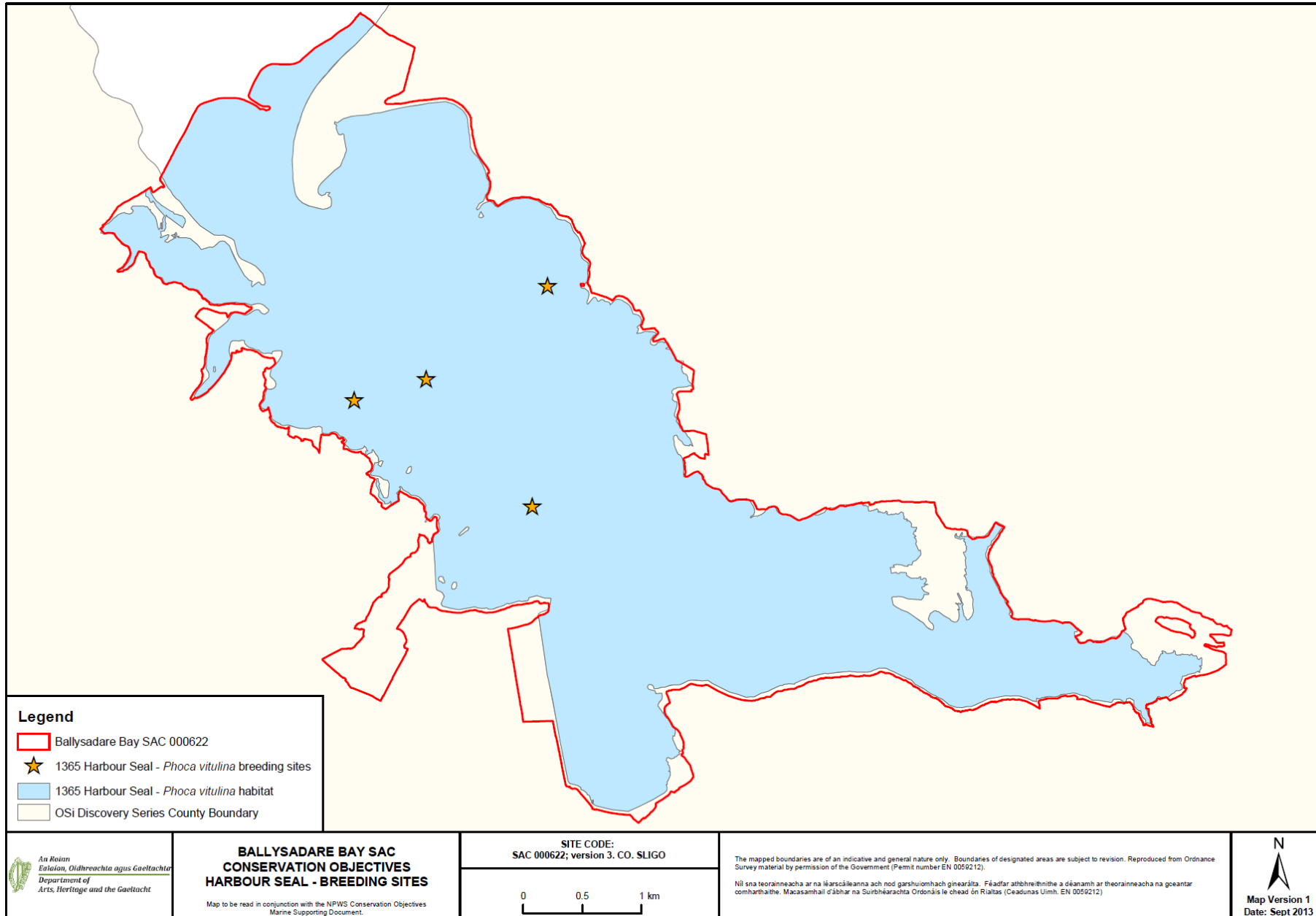


Figure 5. *Phoca vitulina* - Known moult haul out sites in Ballysadare Bay SAC

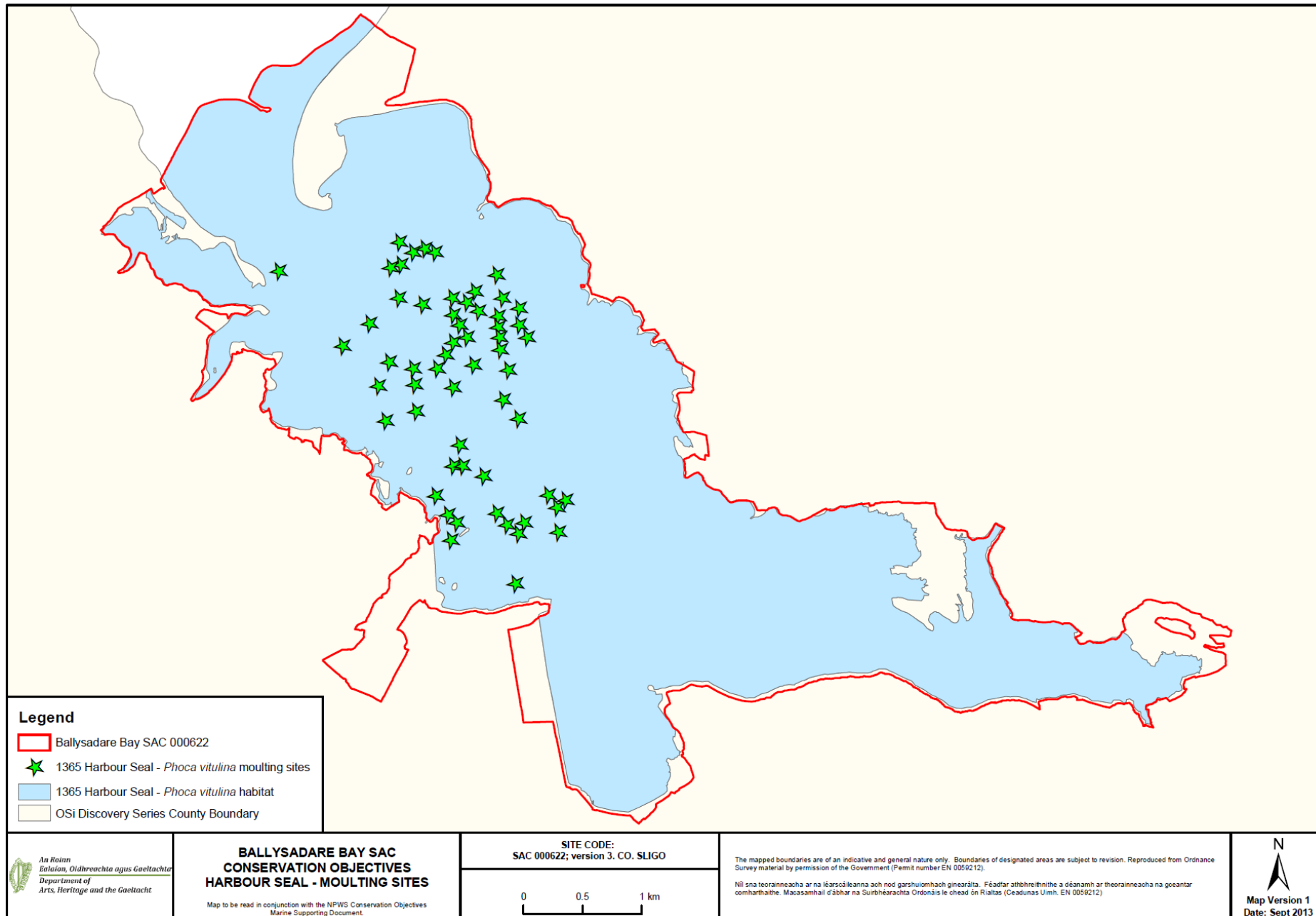


Figure 6. *Phoca vitulina* - Known resting haul-out sites (non-breeding) in Ballysadare Bay SAC

