

**NPWS (2011)**

**Clew Bay Complex SAC (site code: 1482)**

**Conservation objectives supporting document-  
marine habitats and species**

**Version 1  
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## Introduction

Clew Bay Complex SAC is designated for *inter alia* the Annex I qualifying interests of Large shallow inlets and bays and Mudflats and sandflats not covered by seawater at low tide and the Annex II species *Phoca vitulina* (harbour seal). The Annex I habitat shallow inlets and bays 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 of Clew Bay Complex SAC were undertaken in 1999, 2003, 2006 and 2009 to investigate the physical and biological structure of this bay. A comprehensive survey of the Irish harbour seal population was carried out in 2003. Population monitoring at key regional sites for the species continued in 2009 and 2010. This annual survey effort includes a portion of the Clew Bay Complex SAC (i.e., Westport Bay). Aspects of the biology and ecology of 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

## ANNEX I HABITATS

### LARGE SHALLOW INLETS AND BAYS

Clew Bay Complex SAC is a large westerly facing bay (figure 1) which is dominated by numerous drumlins. These glacial features vary considerably in size from large islands supporting dwellings and pastures to little more than raised features on the sea floor. The numerous islands give rise to shallow straits and lagoons between which flow deep channels. This, together with the erosion of existing and submerged drumlins with their coarse glacial deposits, gives rise to a heterogeneous sediment environment. The presence of coarse material may therefore be an artefact of the glacial deposits rather than simply reflecting the level of energy present.

A number of communities/community complexes have been identified in the bay. The development of a community complex 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 Clew Bay 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 the purposes of setting conservation targets.

The Large shallow inlets and bays Annex I habitat encompasses the Annex I habitat Mudflats and sandflats not covered by seawater at low tide (figure 2). As well as the communities that occur within that habitat the following benthic communities also occur within Large shallow inlets and bays:

### ZOSTERA DOMINATED COMMUNITY

Extensive subtidal occurrences of the seagrass *Zostera marina* community are recorded in the southern section of the site to the south and east of Inishlyre, north and east of Crovinish and southwest of Inishgort lighthouse (figure 3 a & b). Smaller patches are present in Westport Harbour between Green Islands and Carricknamore. The community occurs at depths of between 3 and 8m.

The density of *Zostera* within this community was recorded as variable, ranging from abundant (>12 individuals per m<sup>2</sup>) to frequent (6-11 individuals per m<sup>2</sup>) and occasional (2-5 individuals per m<sup>2</sup>). The community is present generally on sand often with shell fragments, in some areas it co-occurs with maërl sediments. The infauna is largely dominated by a variety of amphipod species (table 1).

| Species associated with the <i>Zostera</i> dominated community |                                  |
|--|----------------------------------|
| <i>Zostera marina</i>  | <i>Ensis sp</i>                  |
| <i>Asparagopsis armata</i>                                     | <i>Chamelea gallina</i>          |
| <i>Asperococcus compressus</i>                                 | <i>Carcinus maenas</i>           |
| <i>Bonnemaisonia asparagoides</i>                              | <i>Liocarcinus depurator</i>     |
| <i>Ceramium sp.</i>  | <i>Macropodia rostrata</i>       |
| <i>Cladostephus spongiosus</i>                                 | <i>Necora puber</i>              |
| <i>Cystoseira bacatta</i>                                      | <i>Pagurus bernhardus</i>        |
| <i>Desmarestia viridis</i>                                     | <i>Echinocardium cordatum</i>    |
| <i>Dictyota dichotoma</i>                                      | <i>Asterias rubens</i>           |
| <i>Enteromorpha sp.</i>  | <i>Ericthonius sp.</i>           |
| <i>Eudesme virescens</i>                                       | <i>Aora sp.</i>                  |
| <i>Laminaria saccharina</i>                                    | <i>Corophium bonnellii</i>       |
| <i>Lomentaria articulata</i>                                   | <i>Abludomelita obtusata</i>     |
| <i>Plocamium cartilagineum</i>                                 | <i>Ericthonius difformis</i>     |
| <i>Polysiphonia sp</i>   | <i>Caprella acanthifera</i>      |
| <i>Anemonia viridis</i>  | <i>Ampithoe gammaroides</i>      |
| <i>Halicystus auricula</i>                                     | <i>Ericthonius punctatus</i>     |
| <i>Anthopleura ballii</i>                                      | <i>Microdeutopus vericulatus</i> |
| <i>Sagartia elegans</i>  | <i>Kefersteinia cirrata</i>      |
| <i>Scolanthus callimorphus</i>                                 |                                  |

**Table 1** The species associated with the *Zostera* dominated community in the Clew Bay Complex SAC.

## MAËRL DOMINATED COMMUNITIES

Maërl communities are recorded in the southeast of the site and are found on coarse, mixed, sandy mud and muddy sand sediments. They are often present in areas that experience strong currents and occur at depths of between 2m and 14m (figure 3 a & b).

The nature of maërl in this site, both within and between community occurrences, varies considerably. The coverage of live maërl ranges from dense to sparse; where the coverage of live maërl is sparse maërl gravel, which is often slightly duned, is more prominent.

The most extensive areas of maërl are recorded from the main navigation channel leading into Westport Harbour. Here it occurs as deep beds of dead maërl gravel (*Lithothamnion corallioides*) underlying a thin veneer of living maërl gravel, and also as living maërl gravel mixed with prolific dense and bushy growth of the free living calcareous algae *Corallina officinalis*. In the channel where current flow is strongest, such as between islands, living maërl gravel occupies the voids which occur in gravel and small cobbles. In areas of weaker

current within the channel, the maërl species *Phymatolithon calcareum* occurs as a thin veneer of mostly living maërl gravel overlying mainly muddy sand. This maërl species is also recorded east of Inishlyre and south of Inishraher.

In the channel east of Inishleague, communities of living and dead maërl gravel occur along with gravel, stones and shell. This forms a regular pattern of alternating patches of live and dead maërl mixed with gravel and shell.

An extensive area of duned living and dead maërl gravel, together with broken shell and gravel is recorded in the channel leading to the east of Inishgort Lighthouse and running north of Inishlyre.

Within Ilaanmore Harbour maërl forms a community composed of up to 100% live maërl gravel (*Phymatolithon calcareum* and possibly *Lithophyllum fasciculatum*). In places the maërl was recorded to be 35cm in depth. Live maërl rhodoliths occurred within a dense growth and cover of foliose algae and large quantities of bushy free living *Corallina officinalis*.

A wide range of algae and a variety of sea anemones occur within the maërl communities, along with a number of species of crab; infaunally crustacean species predominate (table 2).

| <b>Species associated with the Maërl dominated communities.</b> |                              |
|---|------------------------------|
| <i>Lithothamnion corallioides</i>                               | <i>Polyides rotundus</i>     |
| <i>Corallina officinalis</i>                                    | <i>Ulva sp.</i>              |
| <i>Phymatolithon calcareum</i>                                  | <i>Anemonia viridis</i>      |
| <i>Lithophyllum fasciculatum</i>                                | <i>Anthopleura ballii</i>    |
| <i>Boergesenella fruticulosa</i>                                | <i>Cereus pedunculatus</i>   |
| <i>Cystoseira sp.</i>   | <i>Sagartia troglodytes</i>  |
| <i>Chondrus crispus</i>   | <i>Sagartia elegans</i>      |
| <i>Calliblepharis ciliata</i>                                   | <i>Sagartiogeton undatus</i> |
| <i>Ectocarpaceae indet.</i>                                     | <i>Urticina felina</i>       |
| <i>Enteromorpha sp.</i>   | <i>Necora puber</i>          |
| <i>Furcellaria lumbricalis</i>                                  | <i>Liocarcinus depurator</i> |
| <i>Gigartina acicularis</i>                                     | <i>Carcinas maenas</i>       |
| <i>Gracilaria gracilis</i>                                      | <i>Pagurus bernhardus</i>    |
| <i>Lomentaria clavellosa</i>                                    | <i>Caprella acanthifera</i>  |
| <i>Polysiphonia spp.</i>  | <i>Aora sp.</i>              |
| <i>Plocamium cartilagineum</i>                                  | <i>Phtisica marina</i>       |

**Table 2** The species associated with Maërl dominated communities in the Clew Bay Complex SAC.

### SANDY MUD WITH POLYCHAETES AND BIVALVES COMMUNITY COMPLEX

The Sandy mud with polychaetes and bivalves community complex occurs intertidally and subtidally and is widespread within the site where soft sediment is present (figure 3 a & b). The substrate type is variable but may generally be described as sand (medium sand ranges from 0.2 to 33% and fine sand from 1.7 to 86.4%) to sandy mud (very fine sand ranges from 1.8 to 44.4% and silt-clay from 1.3 to 58.2%). High proportions of coarse material may be present (gravel ranges from 0.0 to 58.1%, very coarse sand from 0.0 to 22.6%); its occurrences are generally associated with channels or islands.

The polychaetes *Prionospio* sp. and *Melinna palmata* and the bivalves *Thyasira flexuosa*, *Mysella bidentata* and *Abra alba* all occur in moderate to high densities within this community complex (table 3).

| Distinguishing species of the Sandy mud with polychaetes and bivalves community complex |                          |
|---|--------------------------|
| <i>Prionospio</i> sp.   | <i>Mysella bidentata</i> |
| <i>Melinna palmata</i>  | <i>Abra alba</i>         |
| <i>Thyasira flexuosa</i>  |                          |

**Table 3** Distinguishing species for the Sandy mud with polychaetes and bivalves community complex in the Clew Bay Complex SAC.

The polychaete *Melinna palmata* and bivalve *Thyasira flexuosa* are most abundant towards the north-western area of the site, whilst the polychaete *Prionospio* sp. and the bivalve *Mysella bidentata* are more abundant in Westport Bay and in Newport Bay.

A variation of this community occurs intertidally and is described under the Mudflats and sandflats not covered by seawater at low tide habitat.

### FINE SAND DOMINATED BY *NEPHTYS CIRROSA* COMMUNITY

This community is found on the south-western boundary of the site and in the outer reaches of Westport Bay to Inisheany (figure 3 a & b). The substrate is largely that of clean fine sand, with very small amounts of silt-clay (from 0 to 1.2%) or gravel (from 0.1 to 0.5%).

The polychaete *Nephtys cirrosa* distinguishes this community which is that of clean sand with low numbers of species and individuals. Others species present here are the bivalve *Moerella donacina* and the amphipod *Bathyporeia guilliamsoniana* (table 4).

| Distinguishing species of the Fine sand dominated by <i>Nephtys cirrosa</i> community |                                    |
|---|------------------------------------|
| <i>Nephtys cirrosa</i>  | <i>Bathyporeia guilliamsoniana</i> |
| <i>Moerella donacina</i>  |                                    |

**Table 4** Distinguishing species for the Fine sand dominated by *Nephtys cirrosa* community in the Clew Bay Complex SAC.

### SHINGLE

Shingle (pebbles and gravel) are present on all shores within the bay but are particularly common on the islands. They occur on the upper shore usually behind fucoid dominated reef. Talitrid amphipods are recorded where dead algae accumulates here.

### REEF

Intertidally reef is recorded from all coasts of the bay as well as most of the islands; subtidally it is extensive on the western margin of the site with smaller patches recorded from Newport Bay (figure 3 a & b). It generally occurs as mixed substrata of pebbles and cobbles intertidally and boulders and cobbles subtidally.

The fucoid species *Ascophyllum nodosum*, *Fucus vesiculosus* *Pelvetia canaliculata* and *Fucus spiralis* are commonly recorded on this substrate intertidally. At depths of between 2m and 14m the hard substrate is dominated by the kelp species *Laminaria hyperborea*, *Laminaria digitata*, *Laminaria saccharina* and *Saccorhiza polyschides*. A faunal dominated reef is present at depths of between 11m and 26m. The soft coral *Alcyonium digitatum*, plumose anemones *Metridium senile*, sponges *Cliona celata*, *Halichondria panicea*, *Esperiopsis fucorum*, and *Myxilla fimbriata*, sea cucumbers *Aslia lefevrei* and *Pawsonia saxicola* and hydroids recorded here (table 5).

| Species associated with Reef |                               |
|------------------------------|-------------------------------|
| <i>Ascophyllum nodosum</i>   | <i>Pelvetia canaliculata</i>  |
| <i>Fucus vesiculosus</i>     | <i>Fucus spiralis</i>         |
| <i>Laminaria hyperborea</i>  | <i>Laminaria saccharina</i>   |
| <i>Laminaria digitata</i>    | <i>Saccorhiza polyschides</i> |
| <i>Alcyonium digitatum</i>   | <i>Cliona celata</i>          |
| <i>Metridium senile</i>      | <i>Halichondria panicea</i>   |
| <i>Esperiopsis fucorum</i>   | <i>Aslia lefevrei</i>         |
| <i>Myxilla fimbriata</i>     | <i>Pawsonia saxicola</i>      |

**Table 5** The species associated with Reef in the Clew Bay Complex SAC.

## MUDFLATS AND SANDFLATS NOT COVERED BY SEAWATER AT LOW TIDE

This Annex I habitat occurs intertidally between the Mean Low Water Mark (MLWM) and the Mean High Water Mark (HMWM), its lower shore extent is defined by the Ordnance Survey Mean Low Water boundary. Large expanses of sandflat occur within the bay, on the north shore from Trawoughter Strand to Roskeen Point and around the shores of Westport Bay in the south. Smaller areas of mudflat occur around Newport Bay and in embayments on the eastern shore of the site (figure 2). Around the islands smaller patches of mudflat and sandflat are present; while in isolation these patches may not be significant, their presence in close proximity to one another is considered to perform the function of a large expanse of mudflat or sandflat.

## INTERTIDAL SANDY MUD WITH *TUBIFICOIDES BENEDII* AND *PYGOSPIO ELEGANS* COMMUNITY COMPLEX

This intertidal community complex occurs on all shores of Clew Bay, from Trawoughter Strand in the northwest, to the western end of White Strand on the southern shore (figure 3 a & b). It is recorded from the shores of Newport Bay and around to Westport Bay and also on the islands of Inishcottle, Inishbee and Clynish. The substrate is largely that of sandy mud (fine sand ranging from 0 to 79.3%, very fine sand from 0 to 45.7% and silt-clay from 0.6 to 91.4%); however stations that occur on the islands in the centre of the Clew Bay have a higher proportion of coarse material.

The oligochaete *Tubificoides benedii* and the polychaete *Pygospio elegans* are the distinguishing species for this community complex. They are generally co-dominants; however occasionally one of these species dominates and occurs in high abundances. Nematoda sp. and the polychaete *Capitella* sp. occur in moderate numbers in this community complex (table 6). This community complex is recorded in areas of low salinity and/or in areas where the high levels of fine material may give rise to hypoxic conditions.

| Distinguishing species of Intertidal sandy mud with <i>Tubificoides benedii</i> and <i>Pygospio elegans</i> community complex |                            |
|---|----------------------------|
| <i>Tubificoides benedii</i>   | <i>Nematoda</i> sp.        |
| <i>Pygospio elegans</i>   | <i>Hydrobia ulvae</i>      |
| <i>Capitella</i> sp.  | <i>Corophium volutator</i> |

**Table 6** Distinguishing species for the Intertidal sandy mud with *Tubificoides benedii* and *Pygospio elegans* community complex.

An impoverished variation of this community complex occurs within the inner reaches of Westport Harbour. The three species distinguishing this variant all occur in low abundances; they are the gastropod *Hydrobia ulvae*, the amphipod *Corophium volutator* and the oligochaete *Tubificoides benedii*. The sediment is that of fine material (fine sand ranging from 32.2 to 47.7%, very fine sand from 20.2 to 41.3% and silt-clay from 12.1 to 20.6%) with a



negligible amount of coarse material (gravel 0% and very coarse sand 0 to 0.1%). Field observations generally record variable densities of the polychaete *Arenicola* here.

Two communities which have been described for the Annex I habitat Shallow inlet and bay also occur within this habitat.

The intertidal variant of the “Sandy mud with polychaetes and bivalves community complex” occurs at the outer fringes of the mudflats and sandflats or associated with a subtidal channel running through the flats. It is recorded most extensively on the north shore from Moynish More to Roskeen Point and the southern shore within Westport Harbour on the strands of Murrish, Struffanbaun, Trawnarookan and Bawn.

The fine sand fraction is high (from 24.5 to 86.4%) with a low proportion of silt-clay (from 1.3 to 9.7%); the polychaetes *Clymenura leiopygos*, *Scoloplos armiger* and *Notomastus* sp. are present in moderate to low abundances. The polychaete *Lanice* and the bivalve *Cerastoderma* are recorded in these areas in the field observations.

The community type “Fine sand dominated by *Nephtys cirrosa* community” occurs intertidally at White Strand and the lower shore on Ummeraboy Strand.

## ANNEX II SPECIES

### ***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 occupy both aquatic and terrestrial habitats in Clew Bay Complex SAC, including 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-July approx.), moulting (August-September 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 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-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. Known and suitable habitats for the species in Clew Bay Complex SAC during the breeding season are indicated in figure 4. Current sites are broadly as follows: Moynish More and an adjacent skerry, Inishdeashmore, Inishdeashbeg, Inishcorky, Inishilra, Inishcarrick, Inishcoragh, Muckinish, Roslynagh, Inishdaweel, Freaghillanluggagh, Illanascrew and an adjacent skerry, Carrickwee (off Rossanrubble Point), Carrickwee (off Inishgowla South), Finnaun Island, Green Island and adjacent skerries.

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-September. A total of 95 harbour seals were recorded ashore within Clew Bay Complex SAC in August 2003 during a national aerial survey for the species. Continued land-based monitoring within the site recorded 121 seals of all ages ashore in August 2009 and 118 in August 2010. Suitable habitat for the species along with known moult haul-out locations in Clew Bay Complex SAC are indicated in figure 5, broadly consisting of Inishdeashmore, Inishdeashbeg and adjacent skerries, Inishnakillew, Inisheeny, Carrickwee, Inishgowla South, Forillan, Finnaun Island, Carrickawart Island, Corillan, Carricknamore, Stony Island and adjacent skerries, the Green Islands and adjacent skerries.

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 inter-tidal haul-out sites, or in the water. Outside the breeding and moulting seasons (i.e., from October-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 Clew Bay outside the breeding and moulting seasons is

comparatively limited. Known and suitable habitats for resting by the species are indicated in figure 6. Current sites described in Clew Bay Complex SAC are broadly as follows: Inishdeashbeg and adjacent skerries, Inishtubrid, Inishcuill, Carrickawart Island, Stony Island and adjacent skerries, the Green Islands and adjacent skerries.

## 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 vary 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) should be afforded the highest degree of protection and any significant anthropogenic disturbance should be avoided.
2. In relation to the remaining constituent communities that are structurally important (e.g., broad sedimentary communities) within an Annex I marine habitat, there are two considerations.
  - 2.1. Significant anthropogenic disturbance may occur with such intensity and/or frequency as to effectively represent a continuous or ongoing source of disturbance over time and space (e.g., effluent discharge within a given area). Drawing from the principle outlined in the European Commission's Article 17 reporting framework that disturbance of greater than 25% of the area of an Annex I habitat represents unfavourable conservation status, this Department takes the view that licensing of activities likely to cause continuous disturbance of each community type should not exceed an approximate area of 15%. Thereafter, an increasingly cautious approach is advocated. Prior to any further licensing of this category of activities, an inter-Departmental management review (considering *inter alia* robustness of available scientific knowledge, future site requirements, etc) of the site is recommended.

2.2. Some activities may cause significant disturbance but may not necessarily represent a continuous or ongoing source of disturbance over time and space. This may arise for intermittent or episodic activities for which the receiving environment would have some resilience and may be expected to recover within a reasonable timeframe relative to the six-year reporting cycle (as required under Article 17 of the Directive). This Department is satisfied that such activities could be assessed in a context-specific manner giving due consideration to the proposed nature and scale of activities during the reporting cycle and the particular resilience of the receiving habitat in combination with other activities within the designated site.

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

**Objective**            **To maintain the favourable conservation condition of Large shallow inlet and bay in Clew Bay Complex SAC, which is defined by the following list of attributes and targets**

|                 |   |
|-----------------|---|
| <b>Target 1</b> | The permanent habitat area is stable or increasing, subject to natural processes. |
|-----------------|---|

- This habitat also encompasses other Annex I habitats, namely, Mudflats and sandflats not covered by water at low tide and several coastal habitats. Targets for these habitats should be addressed in their own right.
- This target refers to activities or operations that propose to permanently remove habitat from the site, thereby reducing the permanent amount of habitat area. It does not refer to long or short term disturbance of the biology of a site.
- Early consultation or scoping with the Department in advance of formal application is advisable for such proposals.

|                 |  |
|-----------------|--|
| <b>Target 2</b> | Maintain the natural extent of the <i>Zostera</i> dominated and maërl dominated communities. |
|-----------------|--|

- *Zostera* and maërl dominated communities are considered to be keystone communities that are of considerable importance to the overall ecology and biodiversity of a habitat by virtue of their physical complexity, e.g., they serve as important nursery grounds for commercial and non-commercial species.
- Any significant anthropogenic disturbance to the extent of these communities should be avoided.
- An interpolation of the likely distribution of these communities is provided in figure 3 a & b. The areas given below are based on spatial interpolation and therefore should be considered indicative:

*Zostera* dominated community- 142ha  
Maërl dominated community- 288ha

**Target 3** Maintain the high quality of *Zostera* dominated community.

- It is important to ensure the quality as well as the extent of *Zostera* dominated community is conserved. Shoot density provides an indication of the habitat quality as well as giving information on the habitat complexity and refuge capability; all are important components in maintaining the structural and functional integrity of the habitat.
- Within Clew Bay, the density of the *Zostera* dominated community in 2006 was estimated to range from Abundant to Occasional on the AFOR scale (semi-quantitative abundance measure).
- Any significant anthropogenic disturbance to the quality (i.e., shoot density) of these communities should be avoided.

**Target 4** Maintain the high quality of maërl dominated communities.

- Every effort should be made to avoid death of any living maërl.
- Any significant anthropogenic disturbance to the quality of maërl dominated communities (i.e., volume of live maërl) should be avoided.

**Target 5** The following communities should be maintained in a natural condition: Sandy mud with polychaetes and bivalves community complex; Fine sand dominated by *Nephtys cirrosa* community; Intertidal sandy mud with *Tubificoides benedii* and *Pygospio elegans* community complex; Shingle; and Reef.

- A semi-quantitative description of the communities has been provided in Section 1.
- An interpolation of their likely distribution is provided in figure 3 a & b.
- The estimated areas of the communities given below are based on spatial interpolation and therefore should be considered indicative:
  - Sandy mud with polychaetes and bivalves community complex 5,791ha
  - Fine sand dominated by *Nephtys cirrosa* community - 296ha
  - Intertidal sandy mud with *Tubificoides benedii* and *Pygospio elegans* community complex - 788ha
  - Shingle - 146ha
  - Reef - 2,687ha
- Significant continuous or ongoing disturbance of communities should not exceed an approximate area of 15% of the interpolated area of each community type, at which point an inter-Departmental management review is recommended prior to further licensing of such activities.
- Proposed activities or operations that cause significant disturbance to communities but may not necessarily represent a continuous or ongoing source of disturbance over time and space may be assessed in a context-specific manner giving due consideration to the proposed nature and scale of activities during the reporting cycle

and the particular resilience of the receiving habitat in combination with other activities within the designated site.

**Objective** To maintain the favourable conservation condition of Mudflats and sandflats not covered by seawater at low tide in Clew Bay Complex SAC, which is defined by the following list of attributes and targets.

|                 |   |
|-----------------|---|
| <b>Target 1</b> | The permanent habitat area is stable or increasing, subject to natural processes. |
|-----------------|---|

- This target refers to activities or operations that propose to permanently remove habitat from a site, thereby reducing the permanent amount of habitat area. It does not refer to long or short term disturbance of the biology of a site.
- Early consultation or scoping with the Department in advance of formal application is advisable for such proposals.

|                 |  |
|-----------------|--|
| <b>Target 2</b> | The following sediment communities should be maintained in a natural condition: Intertidal sandy mud with <i>Tubificoides benedii</i> and <i>Pygospio elegans</i> community complex; Sandy mud with polychaetes and bivalves community complex; and Fine sand dominated by <i>Nephtys cirrosa</i> community. |
|-----------------|--|

- A semi-quantitative description of the communities has been provided in Section 1.
- An interpolation of their likely distribution is provided in figure 3 a & b.
  - The estimated areas of the communities 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 sandy mud with *Tubificoides benedii* and *Pygospio elegans* community complex - 788ha
    - Sandy mud with polychaetes and bivalves community complex - 445ha
    - Fine sand dominated by *Nephtys cirrosa* community - 44ha
- 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.

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 seal in Clew Bay Complex 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** The breeding sites should be maintained in a natural condition.

- Target 2 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** The moult haul-out sites should be maintained in a natural condition.

- Target 3 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** The resting haul-out sites should be maintained in a natural condition.



- Target 4 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.

|                 |   |
|-----------------|---|
| <b>Target 5</b> | 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.
- Target 5 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.

Figure 1. Extent of Shallow Inlets and Bays in Clew Bay Complex SAC

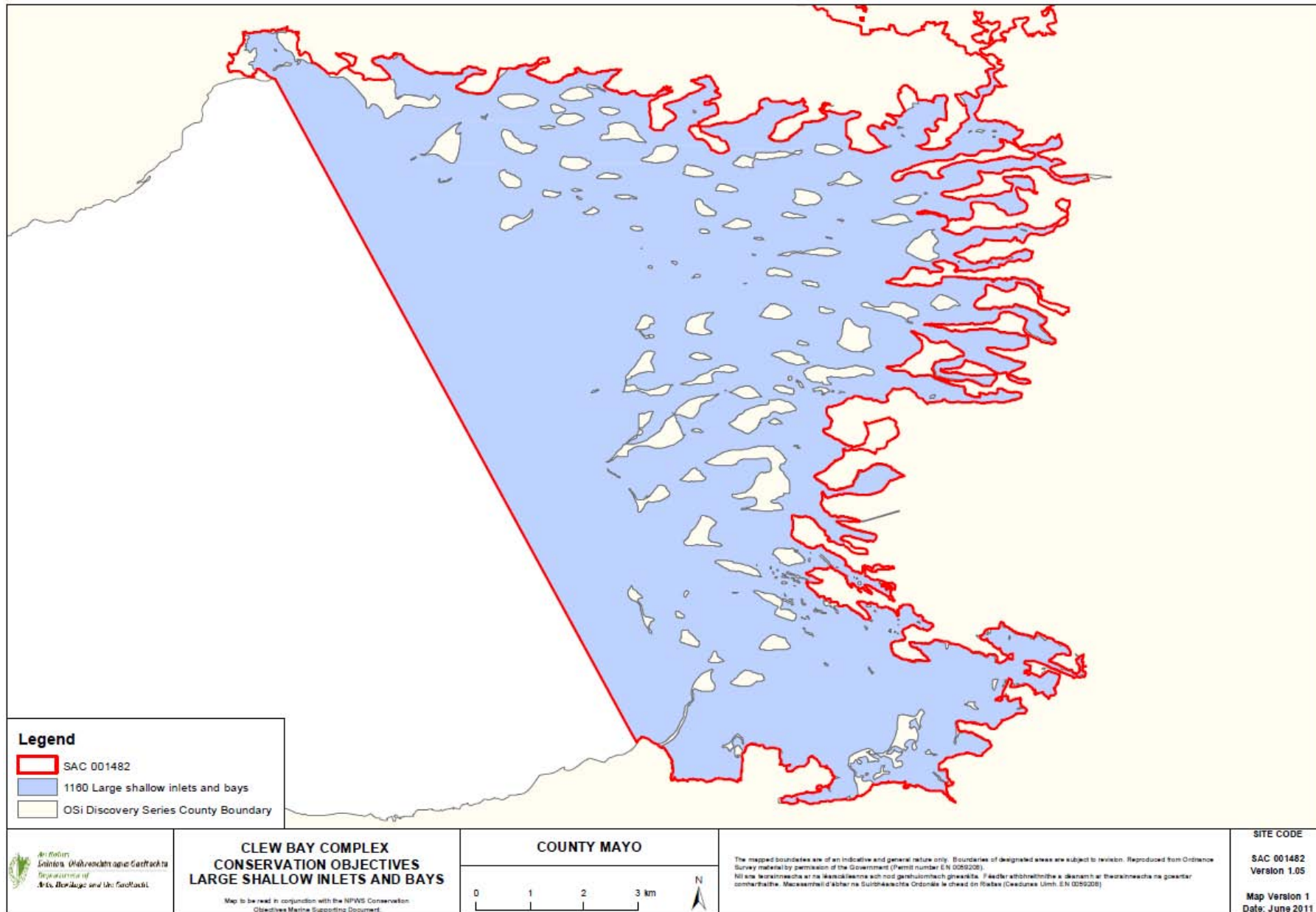


Figure 2. Extent of Mudflat/sandflat not covered by seawater at low tide in Clew Bay Complex SAC

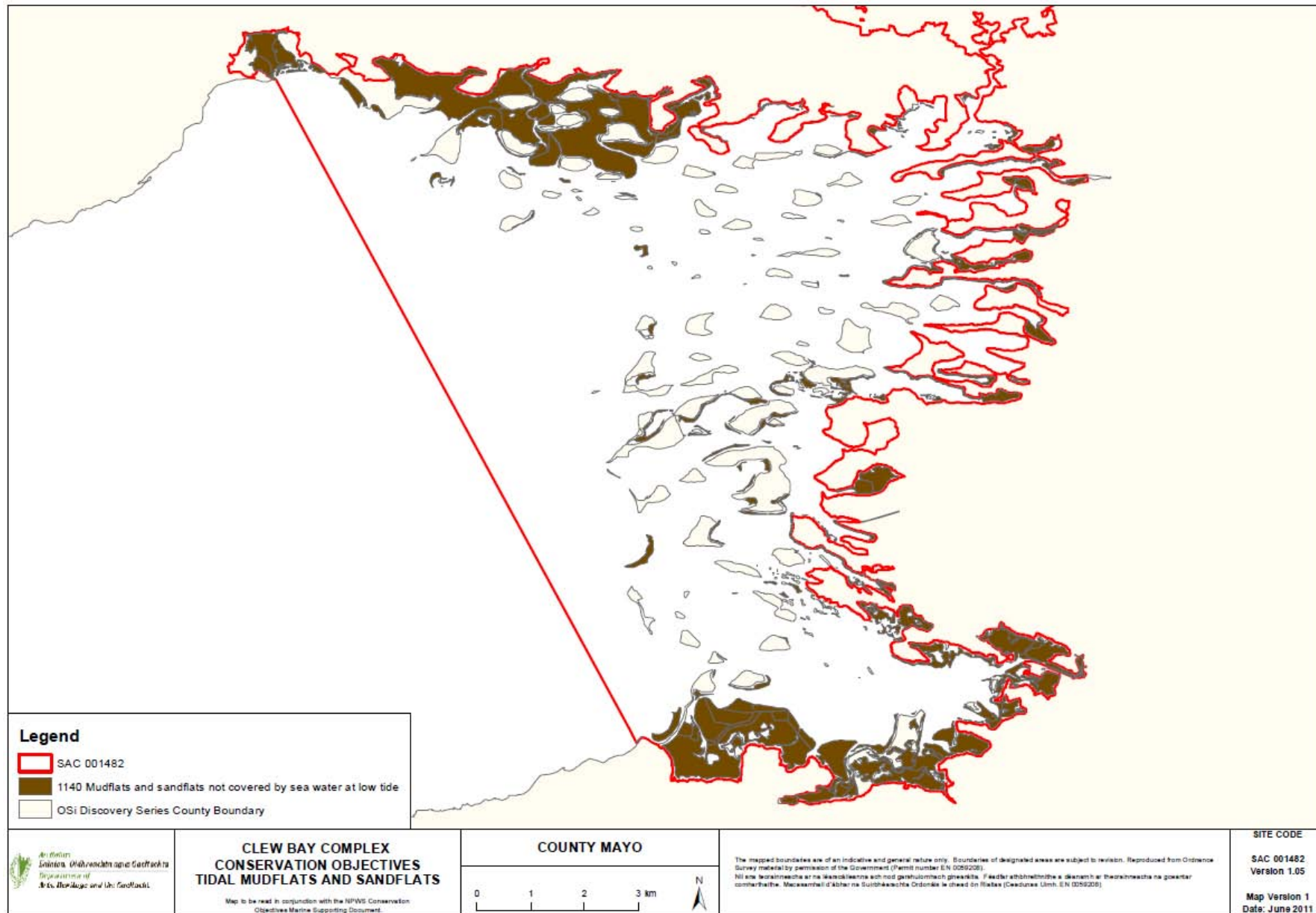




Figure 3a. Distribution of marine communities in Clew Bay Complex SAC

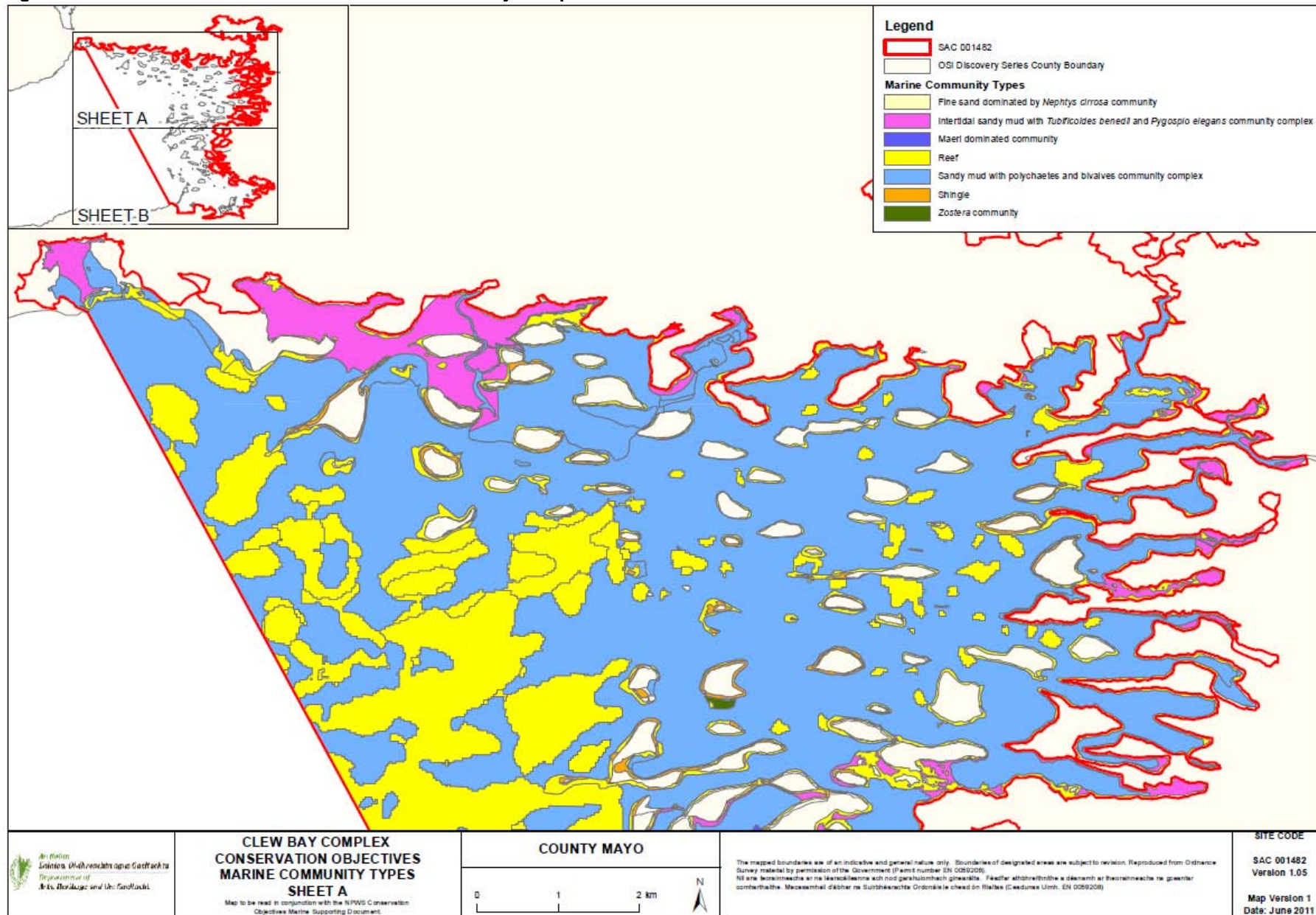


Figure 3b. Distribution of marine communities in Clew Bay Complex SAC

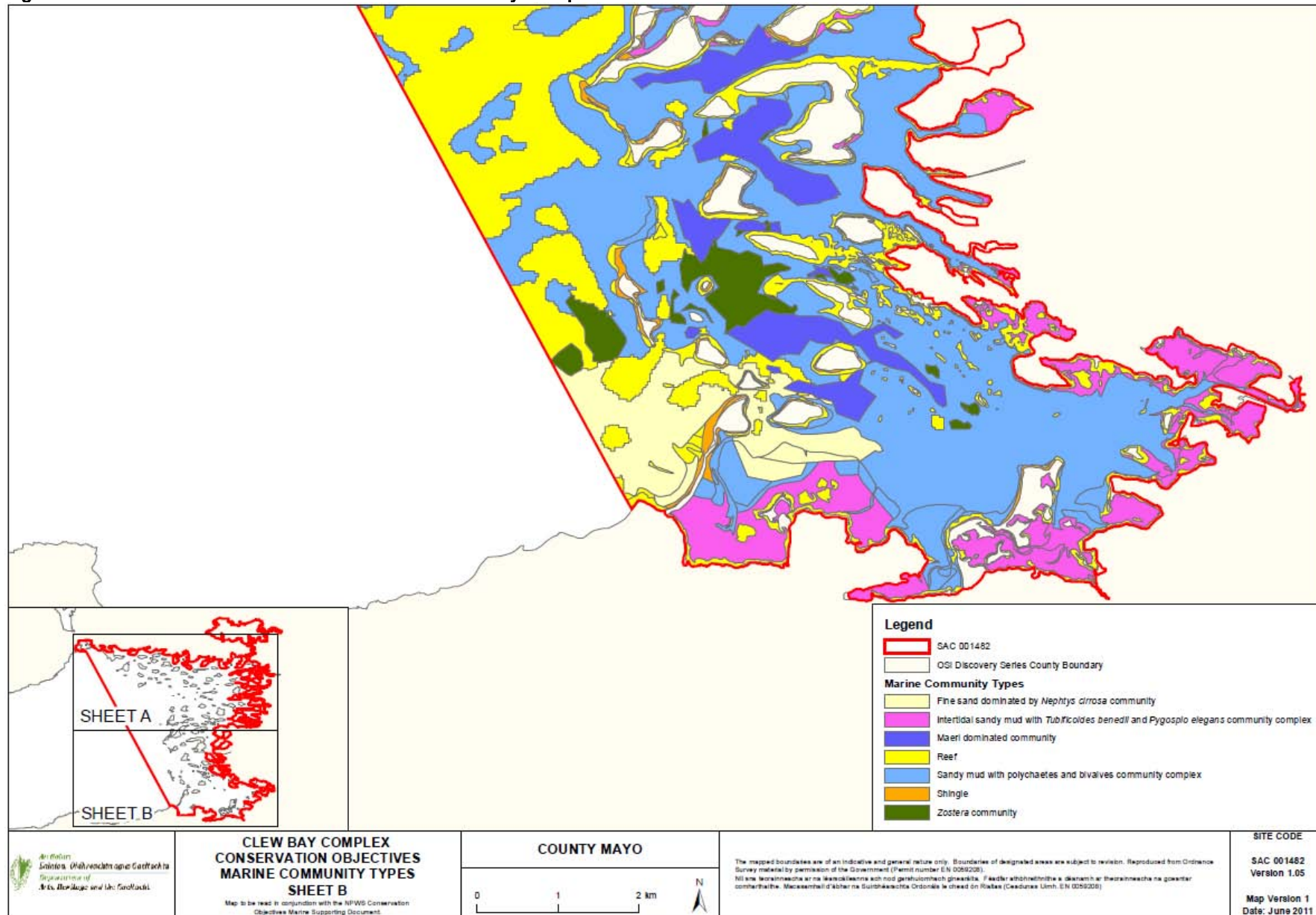




Figure 4. *Phoca vitulina* - Known breeding sites

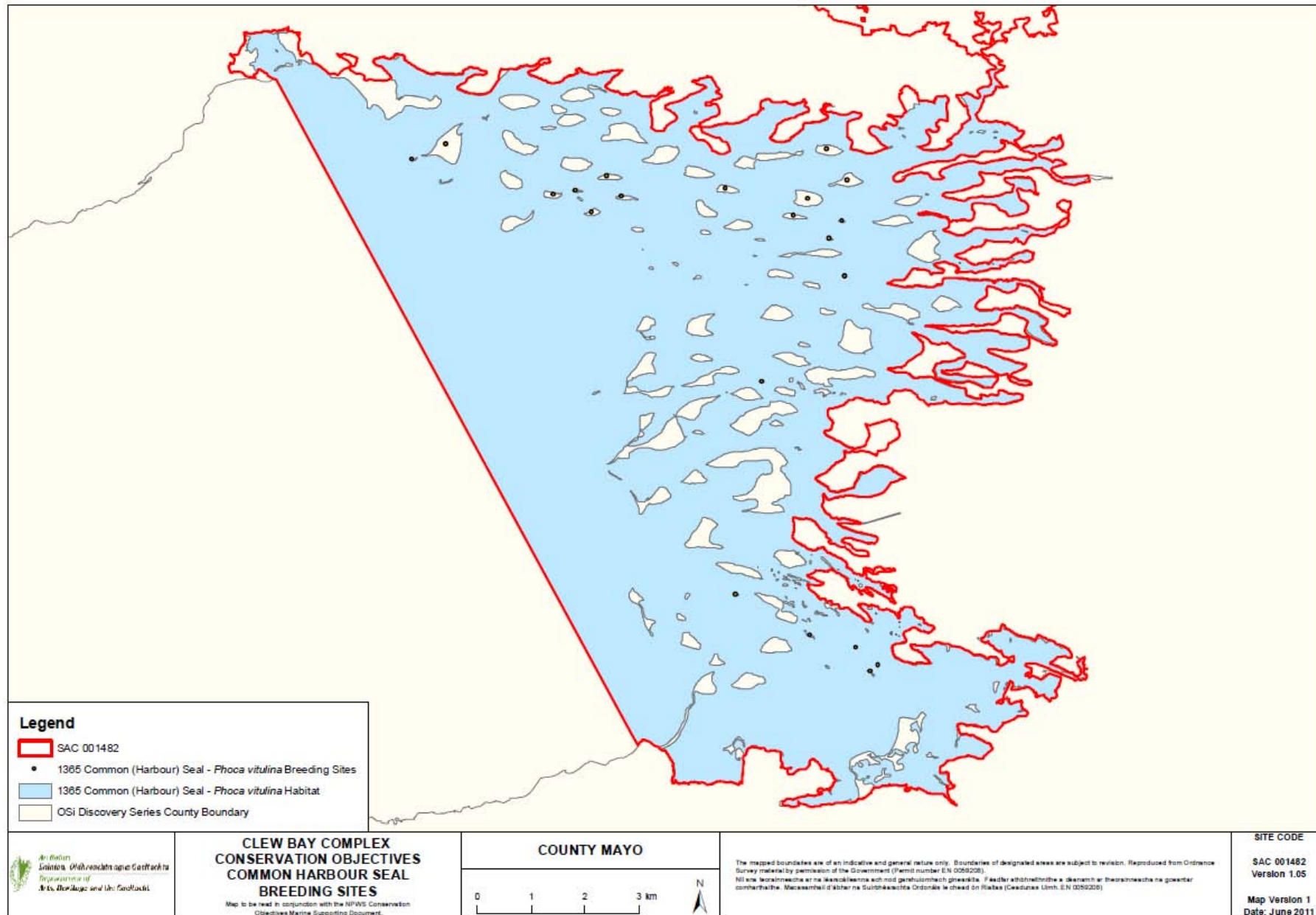


Figure 5. *Phoca vitulina* - Known moult haul out sites

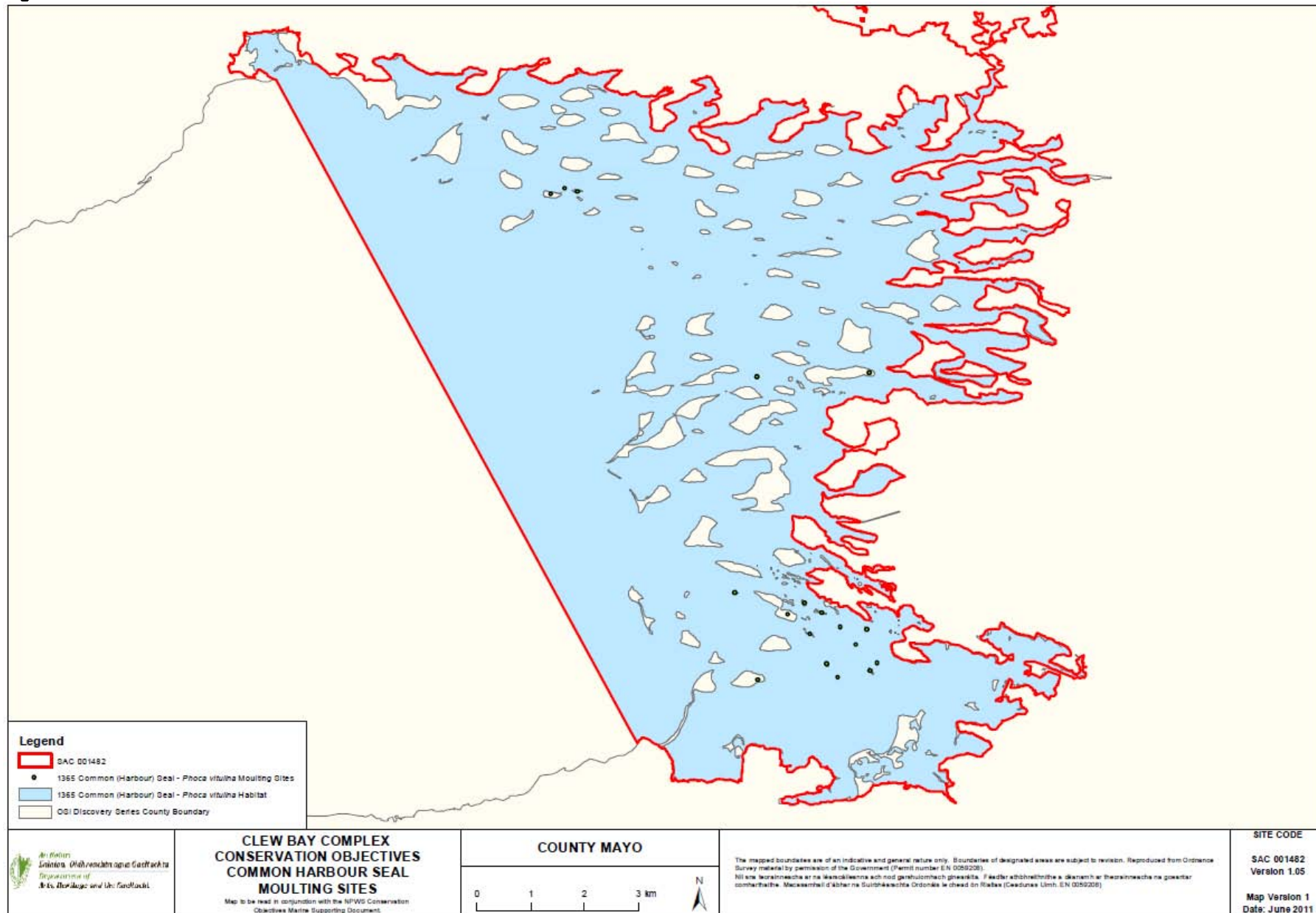


Figure 6. *Phoca vitulina* - Known resting haul-out sites (non-breeding)

