NPWS

North Inishowen Coast SAC (site code: 2012)

Conservation objectives supporting document - Marine Habitats

Version 1

November 2014

Introduction

North Inishowen Coast SAC is designated for the marine Annex I qualifying interest of Mudflats and sandflats not covered by seawater at low tide (Figure 1).

Intertidal surveys were undertaken in 2007 (ASU, 2007) and in 2009 and 2010 (RPS, 2013) and these data were used to determine the physical and biological nature of this SAC and the overlapping Special Protection Area: Trawbreaga Bay SPA (site code 4034).

Aspects of the biology and ecology of the Annex I habitat is 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 objective and targets in the completion of such assessments is provided in Section 2.

Section 1

Principal Benthic Communities

Within North Inishowen Coast SAC, five community types are recorded. The Annex I habitat in which they are recorded and their occurrence in the overlapping SPA is presented in table 1, a description of each community type is given below.

Community Type	SAC Annex I Habitat	SPA
	Mudflats and sandflats not covered by seawater at low tide (1140)	
Zostera-dominated community	✓	✓
Fine to medium sand with *Eurydice pulchra* community complex	✓	✓
Muddy sand to coarse sediment with *Pygospio elegans* community complex	✓	✓
Sand with *Angulus tenuis* and *Scoloplos* (*Scoloplos*) *armiger* community complex	✓	✓
Reef community complex		✓

Table 1 The community types recorded in North Inishowen Coast SAC and their occurrence in the Annex I habitat 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 North Inishowen Coast 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.

ZOSTERA-DOMINATED COMMUNITY

An intertidal *Zostera*-dominated community occurs in Trawbreaga Bay to the southwest of Glassagh Point (Figure 2).

The seagrass species *Zostera noltii* is recorded here as abundant (1 to 9 individuals per 0.1 m^2). The sediment of this community is that of muddy sand.

Within this community the green alga *Ulva* sp. and the yellow-green alga *Vaucheria* sp. were observed on the sediment surface. The characteristic star shaped feeding tracks of the bivalve *Scrobicularia plana* were evident on the sediment surface. The bivalve *Cerastoderma edule* also occurs in this community (Table 2).

A community dominated by *Zostera noltii* has previously been observed as a narrow band on the shore to the north of Doaghmore. A targeted attempt to re-locate and map this community failed to find it here in 2013.

Species associated with the *Zostera*-dominated community	
Zostera noltii	*Scrobicularia plana*
Ulva sp.	*Cerastoderma edule*
Vaucheria sp.	

Table 2 Species associated with the *Zostera*-dominated community.

FINE TO MEDIUM SAND WITH *EURYDICE PULCHRA* COMMUNITY COMPLEX

This community occurs on the more exposed beaches within the SAC. It occurs from Lehan Bay in the southwest to Inishowen Head in the northeast. The complex is most extensive at Pollan Bay and the mouth of Trawbreaga Bay; elsewhere within the site the community is fragmented with coverage being limited to embayments and coves bordered by bedrock. It is recorded largely from the intertidal but extends into the shallow subtidal (20m) around the Inishowen Peninsula (Figure 2).

The sediment of this community is unconsolidated mobile fine sand (20.2% to 92.5% very fine and fine sand) to medium sand (3.6% to 66.6%).

The distinguishing species of this community are the crustaceans *Eurydice pulchra* and *Haustorius arenarius* and the polychaete *Scolelepis* (*Scolelepis*) *squamata* (Table 3). *E. pulchra* occurs in variable abundances throughout the community while *H. arenarius* occurs in low abundances but is not recorded on the north shore of Doagh Island or on the Back Strand. *S.* (*Scolelepis*) *squamata* occurs in high abundances in Lehan Bay and it is recorded in low abundance or absent elsewhere. The amphipod *Bathyporeia pelagica* occurs in low abundances at Doaghmore.

Where this community occurs in the outer part of Trawbreaga Bay, the polychaete *Arenicola marina* and the bivalve *Cerastoderma edule* are recorded in low abundances.

Distinguishing species of the Fine to medium sand with *Eurydice pulchra* community complex	
Eurydice pulchra	*Scolelepis* (*Scolelepis*) *squamata*
Haustorius arenarius	*Bathyporeia pelagica*

Table 3 Distinguishing species of the Fine to medium sand with *Eurydice pulchra* community complex.

MUDDY SAND TO COARSE SEDIMENT WITH *PYGOSPIO ELEGANS* COMMUNITY COMPLEX

This community complex is confined to Trawbreaga Bay where it occurs extensively in the intertidal in its inner reaches from Trawbreaga Lough in the west to Malin in the east. It is also recorded on the northern shore of the bay from Malin to Goorey and on its southern shore from Lagacurry to Fegart Point (Figure 2). This complex extends into the shallow subtidal (5m) of the central channel.

The sediments of the complex are very variable ranging from fine sand to mixed and coarse sediment, which is reflected in the range of the sediment fractions (0% to 20.1% silt/clay, 0.4% to 48.9% very fine sand, 14.4% to 88.4% fine sand, 0% to 45.9% medium sand, 0% to 14.3% coarse sand, 0% to 27.6% very coarse sand and 0% to 41.2% gravel).

Coarse and mixed sediments are recorded on the shore at Malin, at Glassagh Point and in the extensive mudflat at Trawbreaga Lough.

The distinguishing species of this community complex are the polychaetes *Pygospio elegans*, *Capitella* sp. and *Hediste diversicolor*, the oligochaetes *Heterochaeta costata* and *Tubificoides benedii*, the amphipod *Corophium volutator* and unidentified nematodes (Table 4). *P. elegans* occurs in moderate abundances over most of this area. *H. costata* is not uniformly distributed within the complex and its abundance is variable. Its highest abundances are recorded in close proximity to where the Ballyboe River enters the bay at Malin. *Capitella* sp. occurs in high abundances to the west of Glassagh Point, while over the remainder of the complex it generally occurs in moderate to low abundances. *T. benedii* and *C. volutator* in general occur in low abundances within the complex. *C. volutator* is locally abundant at Malin and southeast of Fegart Point. *H. diversicolor* and unidentified nematodes are not uniformly distributed within the complex; where they do occur, *H. diversicolor* occurs in low abundances while unidentified nematodes occur in moderate to low abundances.

The polychaete *Arenicola marina* occurs in varying densities within this complex. The highest densities ($40m^{-2}$) are to be found to the west of Glassagh Point. The bivalve *Cerastoderma edule* occurs in Trawbreaga Lough in low abundances; the bivalve *Scrobicularia plana* also occurs here. The polychaete *Lanice conchilega* is recorded in the east of Trawbreaga Bay.

The green algae *Ulva* sp. occurs on the sediment surface on the sheltered shores to the west of Glassagh Point and in the east of the site near Doon Bridge.

Distinguishing species of the Muddy sand to coarse sediment with *Pygospio elegans* community complex	
Pygospio elegans	*Corophium volutator*
Heterochaeta costata	*Hediste diversicolor*
Capitella sp.	Nematoda indet.
Tubificoides benedii	*Arenicola marina*

Table 4 Distinguishing species of the Muddy sand to coarse sediment with *Pygospio elegans* community complex.

SAND WITH *ANGULUS TENUIS* AND *SCOLOPLOS* (*SCOLOPLOS*) *ARMIGER* COMMUNITY COMPLEX

This community complex occurs in the intertidal areas of the central channel in Trawbreaga Bay and on the beach in Crummie's Bay; it extends into the subtidal within Trawbreaga Bay to a depth of approximately 2m (Figure 2).

In general the sediment of the complex is that of fine material (23.2% to 98.3% very fine to fine sand). However, there are some localised areas of coarser sediment; medium sand (35.4% to 63.6%) is recorded to the west of Malin and at Doaghmore while to the northwest of Glassagh Point the sediment is mixed (coarse to very coarse sand is 21.7% to 25.9% and gravel is 0.5% to 34.3%). The sand is somewhat mobile with extensive rippling being observed.

The distinguishing species of this community complex are the bivalve *Angulus tenuis*, the polychaetes *Scoloplos* (*Scoloplos*) *armiger*, *Spio martinensis* and *Pygospio elegans* (Table 5). These species occur in low abundances and are not uniformly distributed.

Within Trawbreaga Bay, the bivalve *Cerastoderma edule* and the polychaete *Arenicola marina* are recorded in low abundances ($1\text{-}5m^{-2}$ and $1\text{-}2m^{-2}$, respectively). On the north shore of the bay from Ballycramsy to Balleelaghan the polychaete *Lanice conchilega* is recorded in low abundances (Table 4).

Distinguishing species of the Sand with *Angulus tenuis* and *Scoloplos* (*Scoloplos*) *armiger* community complex	
Angulus tenuis	*Pygospio elegans*
Scoloplos (*Scoloplos*) *armiger*	*Cerastoderma edule*
Spio martinensis	*Arenicola marina*

Table 5 Distinguishing species of the Sand with *Angulus tenuis* and *Scoloplos* (*Scoloplos*) *armiger* community complex.

The beach in Crummie's Bay, in the south-western extreme of the site, is isolated from the main body of this complex and is more exposed than Trawbreaga Bay. As a result of this, the fauna is an impoverished variant of this community type and consists of *Tubificoides pseudogaster*, *T. benedii* and unidentified nematodes in low abundances.

REEF COMMUNITY COMPLEX

This community complex occurs intertidally on exposed conditions throughout Inishowen Peninsula and on more sheltered coasts at the entrance to Trawbreaga Bay, around Fegart Point and in the lee of headlands (Figure 2).

On the exposed shores from Inishowen Head to Dunree Head an exposed reef community occurs on bedrock. The profile of this reef is generally steeply sloping or near vertical cliffs and extends into the subtidal to depths of 20m. Intertidally the community is dominated by the bivalve *Mytilus edulis* and barnacles; subtidally the reef is dominated by the kelp *Laminaria hyperborea* (Table 6).

In the less exposed areas reef occurs on bedrock, boulders and cobbles. Here it is dominated by the brown algae *Pelvetia canaliculata*, *Fucus vesiculosus*, *F. spiralis* and *Ascophyllum nodosum*.

Species associated with the Reef community complex	
Pelvetia canaliculata	*Mytilus edulis*
Fucus vesiculosus	barnacles
Fucus spiralis	*Laminaria hyperborea*
Ascophyllum nodosum	

Table 6 Species associated with the Reef community complex.

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 the Annex I habitat 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 North Inishowen Coast 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 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. intertidal beds provide an important food source for a number of bird species. Any significant anthropogenic disturbance to the extent of these communities should be avoided.
- An interpolation of the likely distribution of this community is provided in figure 2. The area given below is based on spatial interpolation and therefore should be considered indicative:
    - *Zostera*-dominated community – 2ha

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 the *Zostera*-dominated community is conserved. For example, shoot density 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 in a natural condition: Fine to medium sand with *Eurydice pulchra* community complex; Muddy sand to coarse sediment with *Pygospio elegans* community complex; Sand with *Angulus tenuis* and *Scoloplos* (*Scoloplos*) *armiger* 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 2.
- 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:
    - Fine to medium sand with *Eurydice pulchra* community complex – 235ha
    - Muddy sand to coarse sediment with *Pygospio elegans* community complex – 543ha
    - Sand with *Angulus tenuis* and *Scoloplos* (*Scoloplos*) *armiger* community complex – 209ha
- Significant continuous or ongoing disturbance of communities should not exceed an approximate area of 15% of the interpolated area of each community type, at which point an inter-Departmental management review is recommended prior to further licensing of such activities.
- Proposed activities or operations that cause significant disturbance to communities but may not necessarily represent a continuous or ongoing source of disturbance over time and space may be assessed in a context-specific manner giving due consideration to the proposed nature and scale of activities during the reporting cycle and the particular resilience of the receiving habitat in combination with other activities within the designated site.

Bibliography:

ASU (2007). A survey of mudflats and sandflats. Carried out by Aquatic Services Unit on behalf of National Parks and Wildlife Service, Department of Environment, Heritage and Local Government.

RPS (2013). Benthic Survey Services Framework – Trawbreaga Bay Intertidal Surveys 2009 & 2010. Carried out by RPS on behalf of the Marine Institute in partnership with National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

Figure 1. Extent of Mudflats and sandflats not covered by seawater at low tide in North Inishowen Coast SAC

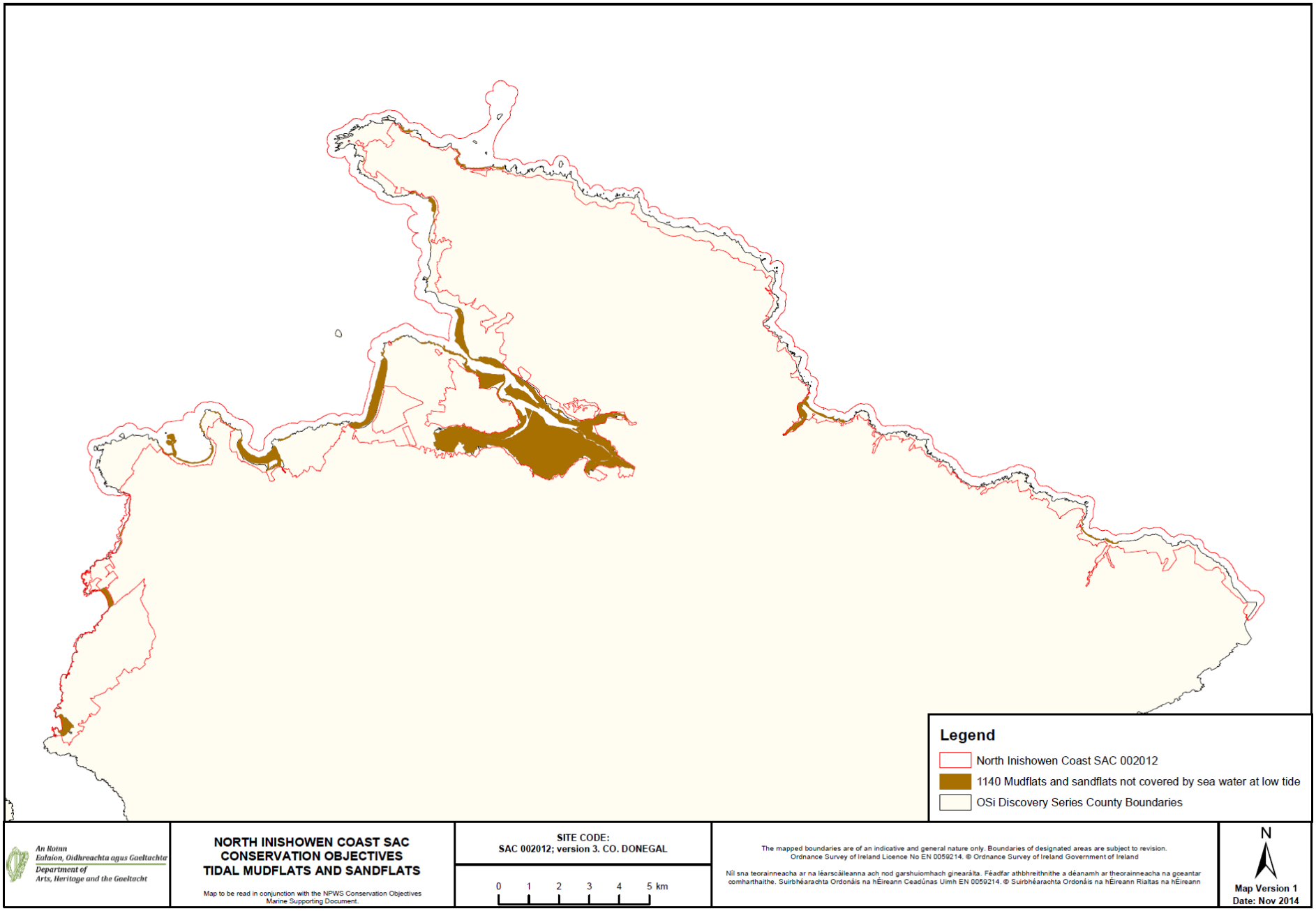

Figure 2. Distribution of community types in North Inishowen Coast SAC