

NPWS

North Dublin Bay SAC (site code: 0206)

**Conservation objectives supporting document-
marine habitats**

**Version 1
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Introduction

The North Dublin Bay SAC is designated for the marine Annex I qualifying interest Mudflats and sandflats not covered by sea water at low tide (Figure 1).

An intertidal survey was undertaken in 2010 (ASU, 2011) to investigate the physical and biological structure of this SAC and the overlapping area that is contained within the Special Protection Area, North Bull Island SPA (site code: 4006). Aspects of the biology and ecology of the Annex I habitat are provided in Section 1. The corresponding site-specific conservation objective 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 North Dublin Bay SAC three community types are recorded. The Annex I habitat in which they occur and their presence in the overlapping SPA is presented in Table 1 and a description of each community type is given below.

Community Type	Mudflats and sandflats not covered by seawater at low tide (1140)	SPA
Fine sand to sandy mud with <i>Pygospio elegans</i> and <i>Crangon crangon</i> community complex	✓	✓
Fine sand with <i>Spio martinensis</i> community complex	✓	✓
<i>Mytilus edulis</i> -dominated community	✓	✓

Table 1 The community types recorded in North Dublin Bay SAC and the overlapping SPA.

Estimated areas of each community type within 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 Dublin 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.

FINE SAND TO SANDY MUD WITH *PYGOSPIO ELEGANS* AND *CRANGON CRANGON* COMMUNITY COMPLEX

This intertidal community complex is recorded extensively throughout the site from Drumleck Point to Dollymount (Figure 2).

The sediment of this community complex is largely that of fine sand; localised areas of muddier sediment occur to the north of the causeway linking North Bull Island to the mainland and at Kilbarrack. The proportion of the fines material varies, with fine sand ranging from 35.8% to 89%, very fine sand from 6.6% to 43.5% and silt-clay from 1.7% to 50.6%. Coarse material is recorded here at less than 7%.

The fauna of this community complex (Table 2) is distinguished by the polychaete *Pygospio elegans* and the crustacean *Crangon crangon*. The polychaetes *Scoloplos armiger*, *Tharyx* sp. A and *Capitella* sp. agg., the bivalve *Cerastoderma edule* and the amphipod *Corophium volutator* occur in moderate abundances here. The polychaete *Malacoceros fuliginosus* and the crustacean *Idotea baltica* are recorded in high abundances between Dollymount and North Bull Island where the mudflats border the salt marsh. The oligochaete *Tubificoides benedii* and the gastropod *Peringia ulvae* are also common within this community complex. The green algae *Ulva* sp. and the polychaete *Arenicola marina* are the most conspicuous species to occur here, with the latter estimated at densities of 20m⁻² at Raheny.

Distinguishing species of the Fine sand to sandy mud with <i>Pygospio elegans</i> and <i>Crangon crangon</i> community complex	
<i>Pygospio elegans</i>	<i>Crangon crangon</i>
<i>Ulva</i> sp.	<i>Arenicola marina</i>
<i>Cerastoderma edule</i>	<i>Scoloplos armiger</i>
<i>Corophium volutator</i>	<i>Tharyx</i> sp. A
<i>Capitella</i> sp. agg.	<i>Malacoceros fuliginosus</i>
<i>Idotea baltica</i>	<i>Tubificoides benedii</i>
<i>Peringia ulvae</i>	

Table 2 Distinguishing species of the Fine sand to sandy mud with *Pygospio elegans* and *Crangon crangon* community complex.

FINE SAND WITH *SPIO MARTINENSIS* COMMUNITY COMPLEX

This community complex is recorded on the seaward side of North Bull Island, including Dollymount Strand, and on the leeward side of the island from Kilbarrack to Sutton (Figure 2); it extends from the intertidal into the shallow subtidal (<7m).

The sediment of this community complex is largely that of fine sand with some localised areas of mud in the lee of the island. The fine sand fraction ranges from 14% to 94.5%, very fine sand ranges from 1.9% to 80.7% and silt-clay from 1.6% to 35.9%. Negligible amounts of coarse material are recorded here (<0.7%)

In general, the fauna of this community complex (Table 3) occur in low abundances, with the polychaete *Spio martinensis* being the dominant species. The polychaete *Nephtys cirrosa*, the crustaceans *Bathyporeia guilliamsoniana*, *Corophium volutator* and *Praunus flexuosus* and the bivalves *Cerastoderma edule* and *Angulus tenuis* are all recorded here. The oligochaete *Tubificoides benedii* and the gastropod *Peringia ulvae* also occur here.

Distinguishing species of the Fine sand with <i>Spio martinensis</i> community complex	
<i>Spio martinensis</i>	<i>Bathyporeia guilliamsoniana</i>
<i>Cerastoderma edule</i>	<i>Corophium volutator</i>
<i>Nephtys cirrosa</i>	<i>Angulus tenuis</i>
<i>Praunus flexuosus</i>	<i>Tubificoides benedii</i>
<i>Peringia ulvae</i>	

Table 3 Distinguishing species of the Fine sand with *Spio martinensis* community complex.

It is also of interest to note that large numbers of the sand eel *Ammodytes tobianus* were observed at the north-eastern part of the site near its eastern margin during the sampling survey.

***MYTILUS EDULIS*-DOMINATED COMMUNITY**

Intertidally, a mussel (*Mytilus edulis*) dominated community occurs at this site between Sutton and Kilbarrack (Figure 2). They occur on a sediment of fine sand; the fauna reflects that presented in table 3.

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 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) 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 North Dublin 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>Mytilus edulis</i> -dominated community, subject to natural processes.
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- A *Mytilus edulis*-dominated community is considered to be structurally important within a habitat. It provides a substratum for epiflora and epifauna and also a variety of niches within its interstices. This results in higher biodiversity than the surrounding sediment. Intertidal mussel beds also provide an important food source for a number of bird 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 2. The area given below is based on spatial interpolation and therefore should be considered indicative:

- *Mytilus edulis*-dominated community- 22ha

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

- Every effort should be made to avoid any death to living *Mytilus edulis*.
- Any significant anthropogenic disturbance to the quality (e.g. living individual/m²) of the community should be avoided.

Target 4 Conserve the following communities in a natural condition: Fine sand to sandy mud with *Pygospio elegans* and *Crangon crangon* community complex and Fine sand with *Spio martinensis* community complex.

- A semi-quantitative description of the communities has been provided in Section 1.
- An interpolation of their likely distribution is provided in figure 2.
- The estimated areas of the communities within the 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 sand to sandy mud with *Pygospio elegans* and *Crangon crangon* community complex - 215ha
 - Fine sand with *Spio martinensis* community complex - 341ha
- 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 (2011). A survey of mudflats and sandflats in Ireland. An intertidal soft sediment survey of North Dublin Bay. Carried out by ASU for the Marine Institute on behalf of National Parks & Wildlife Service

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

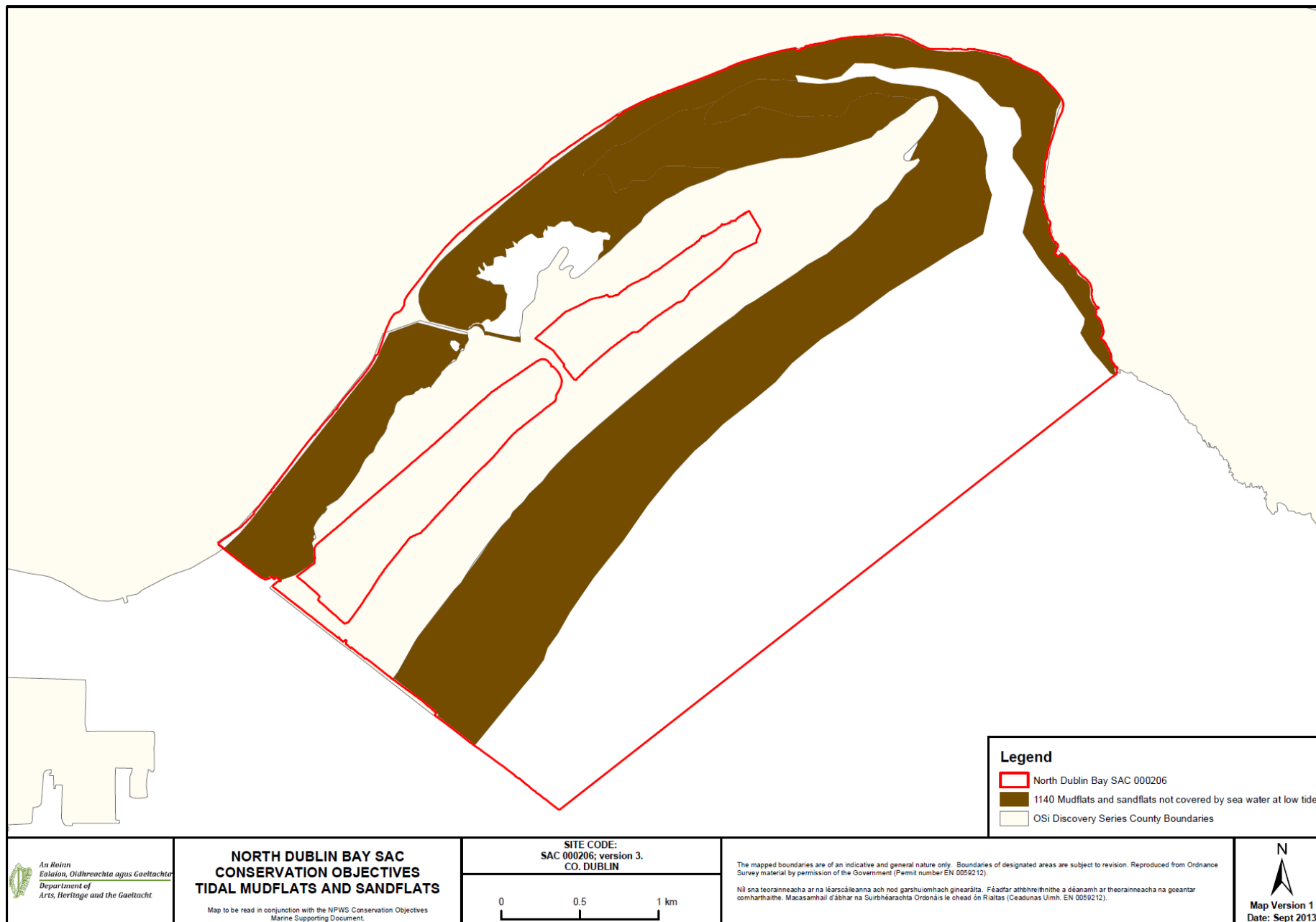


Figure 2. Distribution of communities in North Dublin Bay SAC.

