NPWS

Mullet/Blacksod Bay Complex SAC
(site code: 470)

Conservation objectives supporting document -
Marine Habitats

Version 1

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Introduction

Mullet/Blacksod Bay Complex SAC is designated for the marine Annex I qualifying interests of Large shallow inlets and bays, Mudflats and sandflats not covered by seawater at low tide and Reefs (Figures 1, 2 and 3).

Intertidal and subtidal surveys were undertaken in 2009 and 2010 (RPS, 2013, Aquafact 2010a and b). A dive survey was undertaken in 2008 to map the sensitive communities within the bay (MERC, 2008). These data along with the BioMar survey of 1994 (Picton & Costello, 1997) were used to determine the physical and biological nature of this SAC and the overlapping Special Protection Areas (SPA) of Blacksod Bay/Broadhaven SPA (site code 4037).

Aspects of the biology and ecology of the Annex I habitats 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 Mullet/Blacksod Bay Complex SAC, 11 community types are recorded. Their occurrence within the Annex I habitats and the SPA is presented in table 1; a description of each community type is given below.

Community Type	SAC Annex I Habitats			SPA
	Large shallow inlets and bays (1160)	Mudflats and sandflats not covered by seawater at low tide (1140)	Reefs (1170)	
Mobile sand with *Bathyporeia guilliamsoniana* community		✓		
Sand with *Angulus tenuis* and *Pygospio elegans* community complex	✓	✓		✓
Sand with *Gastrosaccus spinifer* community complex	✓			
Fine sand with *Angulus fabula* community complex	✓			✓
Zostera-dominated community	✓			✓
Maërl-dominated community	✓			✓
Serpula vermicularis-dominated community complex	✓		✓	✓
Intertidal reef community complex	✓		✓	
Sheltered subtidal reef community complex	✓		✓	
Laminaria-dominated community complex	✓		✓	
Shingle	✓			✓

Table 1 The community types recorded in Mullet/Blacksod Bay Complex SAC and their occurrence in the Annex I habitats and the adjacent SPA.

Estimated areas of each community type within the Annex I habitats, based on interpolation, is 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 Mullet/Blacksod Bay Complex 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.

MOBILE SAND WITH *BATHYPOREIA GUILLIAMSONIANA* COMMUNITY

This community is recorded from the exposed intertidal and shallow subtidal shores on the west coast of the Mullet Peninsula from Belderra Strand at its northern extreme to Portmore at its southern end; it also occurs at the beach at Kinrovar and in the sand bar at the mouth of Tullaghan Bay (Figure 4).

The sediment of this community is medium to fine sand, ranging from 21.4% to 64.4% and 19.5% to 75.6%, respectively; gravel and mud are negligible (<1% and <2%, respectively).

The distinguishing species of this community are the crustaceans *Bathyporeia guilliamsoniana* and *Eurydice pulchra*. The exposed aspect of the beach and shallow subtidal results in a highly mobile sediment and consequently, the distinguishing species exhibit a variable distribution and generally occur in low abundances (Table 2).

The polychaete *Arenicola marina* is recorded in low abundances ($1m^{-2}$) at Kinrovar.

Distinguishing species of the Mobile sand with *Bathyporeia guilliamsoniana* community	
Bathyporeia guilliamsoniana	*Eurydice pulchra*

Table 2 Species associated with the Mobile sand with *Bathyporeia guilliamsoniana* community.

SAND WITH *ANGULUS TENUIS* AND *PYGOSPIO ELEGANS* COMMUNITY COMPLEX

This community complex is recorded extensively in the intertidal of Blacksod Bay from Doobeg Point in the west to the inlet at Gweesalia in the east; it also occurs throughout Tullaghan Bay (Figure 4). It is largely intertidal but can extend into the shallow subtidal in the narrow channels of the inlets.

The sediment composition is that of sand with the fine sand generally representing the major fraction (ranging from 7.4% to 87.8%) within the community; medium sand and very fine sand range from 0.5% to 82.3% and 0.2% to 52.7% respectively. Gravel and coarse fractions are negligible or low (<1% and <10% respectively), however at Feorinyeeo Bay and in the inner

reaches of Tullaghan Bay coarse to mixed sediments are recorded (gravel ranges from 6.7% to 19.8%, very coarse sand from 63.3% to 23.8% and coarse sand from 7.2% to 16.7%).

The distinguishing species of this complex are the bivalve *Angulus tenuis*, the polychaetes *Pygospio elegans* and *Capitella* sp. and the oligochaete *Tubificoides benedii;* however these species are not uniformly distributed. *A. tenuis* is recorded in moderate abundance in the intertidal areas in the centre on Blacksod Bay; it occurs in low abundances or is absent elsewhere within the complex. Where it occurs the abundance of *P. elegans* varies from moderate to low, while in Tullaghan Bay it is recorded in high abundances. *Capitella* sp. occurs in low abundances at Gweesalia within the bay and on the shore at Emlybeg on the west coast of the Mullet; it is recorded in its highest abundances with Tullaghan Bay. *T. benedii* is recorded in low abundances where it occurs (Table 3).

Within this complex abundances of the polychaete *Arenicola marina* range from low to high (10 to 100 m^{-2}) with greater than 40 m^{-2} to the west of Belmullet Village and north of Cartron. The polychaete *Lanice conchilega* occurs in low to moderate abundances (5 to 10m^{-2}) at Portnafrankagh on the Mullet, west of Corraun Point in Blacksod Bay and in Tullaghan Bay to the north of Carrigeenmore. The bivalve *Cerastoderma edule* occurs in low abundances (<5m^{-2}) to the north of Doolough; within Tullaghan Bay it is recorded in similar abundances west of Carrigeenmore, however it occurs in high abundances (29m^{-2}) at Birranbaun.

The bivalve *Macoma balthica* is recorded in low abundance (<6m^{-2}) north of Doolough and in parts of Tullaghan Bay. High abundances of the gastropod *Peringia* sp. (>1,000m^{-2}) are recorded on the east shores of Tullaghan Bay. Small patches of *Ostrea edulis* and *Mytilus edulis* are recorded from Cartron.

Distinguishing species of the Sand with *Angulus tenuis* and *Pygospio elegans* community complex	
Angulus tenuis	*Tubificoides benedii*
Pygospio elegans	*Arenicola marina*
Capitella sp.	

Table 3 Species associated with the Sand with *Angulus tenuis* and *Pygospio elegans* community complex.

SAND WITH *GASTROSACCUS SPINIFER* COMMUNITY COMPLEX

This community complex occurs at the outer reaches of Blacksod Bay from just north of Kanfinalta Point to the southern margin of the site; it is largely recorded in the subtidal from 0m to 21m (Figure 4).

The sediment is largely that of sand, with medium sand ranging from 32.1% to 55.7%, fine sand from 0.6% to 33.9% and coarse sand from 9.6% to 59.5%. The remaining sediment fractions are negligible.

The distinguishing species of this community complex are the crustaceans *Gastrosaccus spinifer* and *Megaluropus agilis*, the polychaetes *Nephtys cirrosa*, *Glycera oxycephala* and *Magelona johnstoni* and the bivalve *Goodallia triangularis*. *G. spinifer* occurs in moderate to low abundances throughout the complex. *G. triangularis* occurs in moderate to low abundances while *N. cirrosa*, *G. oxycephala*, *M. agilis* and *M. johnstoni* generally occur in low abundances (Table 4).

Distinguishing species of the Subtidal sand with *Gastrosaccus spinifer* community complex	
Gastrosaccus spinifer	*Glycera oxycephala*
Nephtys cirrosa	*Megaluropus agilis*
Goodallia triangularis	*Magelona johnstoni*

Table 4 Distinguishing species of the Sand with *Gastrosaccus spinifer* community complex

FINE SAND WITH *ANGULUS FABULA* COMMUNITY COMPLEX

This subtidal community complex occurs extensively in Blacksod Bay from Claggan Point to Blacksod Point in the west and off Dooyork in the east; it is recorded in the outer reaches of the bay from Kinrovar Point to Kanfinalta Point (Figure 4). It is also occurs in Tullaghan Bay. It occurs at depths of between 0m and 13m.

The sediment is that of fine material with very fine sand and fine sand combined ranging from 79.1% to 98.1%; coarse fractions (gravel, very coarse sand and coarse sand) and silt-clay are negligible, generally accounting for <5% and <3% respectively.

The distinguishing species of this complex are the bivalves *Angulus fabula*, *Thracia phaseolina* and *Spisula subtruncata*, the polychaete *Chaetozone christiei*, the crustacean *Iphinoe trispinosa* and unidentified nemerteans (Table 5). These species are not uniformly distributed within the complex. *A. fabula*, *T. phaseolina* and *C. christiei* occur in variable abundances throughout most of the complex, with *A. fabula* not being recorded south of Kanfinalta Point. Where they occur, unidentified nemerteans, *I. trispinosa* and *S. subtruncata* generally are recorded in moderate to low abundances while *I. trispinosa* occurs in high abundances to the south of Kanfinalta Point.

The polychaetes *Magelona alleni*, *Scoloplos* (*Scoloplos*) *armiger* and members of the family Sigalionidae and the amphipod *Siphonoecetes* (*Centraloecetes*) *kroyeranus* are not uniformly distributed throughout the community. Where they occur, *M. alleni* and *S.* (*Centraloecetes*)

kroyeranus are recorded in variable abundances, *S*. (*Scoloplos*) *armiger* occurs in moderate to low abundances and sigalionids occur in moderate to high abundances.

In the centre of the bay between Ardelly Point and Doolough the crustaceans *Pisidia longicornis*, *Microdeutopus* sp. and harpacticoid copepods, the polychaetes *Capitomastus minimus*, *Pholoe inornata* and *Spirobranchus triqueter* and the echinoderm *Amphiura* sp. occur in moderate to high abundances. The polychaete *Lanice conchilega* is recorded in the east shore of the bay from Claggan to Doolough. The bivalve *Abra alba*, the crustaceans *Ampelisca* sp., *Ericthonius* sp., *Iphinoe* sp., and the echinoderm *Amphiura chiajei* are also recorded within this complex.

A variant of this complex occurs within the inner reaches of the bay from Trawmore Bay to Belmullet and along the west of the bay to Feorinyeeo Bay and off Doobeg Point. It is recorded in water depths of between 0m and 7m. The sediment is variable ranging from sand to mixed sediments (fine sand and very fine sand ranging from 7.8% to 86.2% and 6.2% to 66.25% respectively, gravel and coarse sand range from 0.3% to 24.5% and 0.5% to 13.3% respectively). The amphipods *Microdeutopus* sp. and *Urothoe elegans*, the polychaete *Platynereis dumerilii* and the bivalves *Thracia phaseolina* are recorded in variable abundances here.

Distinguishing species of the Fine sand with *Angulus fabula* community complex	
Angulus fabula	*Spisula subtruncata*
Nemerteans indet.	*Microdeutopus* sp.
Chaetozone christiei	*Urothoe elegans*
Thracia phaseolina	*Platynereis dumerilii*
Iphinoe trispinosa	*Thracia phaseolina*

Table 5 Distinguishing species of the Fine sand with *Angulus fabula* community complex.

ZOSTERA-DOMINATED COMMUNITY

This community is recorded in the inner reaches of Blacksod Bay at Trawmore Bay and Ardmore, on its western margins from Nomeenboy Point to Barranagh Island, to the west of Barranagh Island and to the north of both Ardelly Point and Moyrahan Point (Figure 4).

The sediment is largely that of fine sands and it occurs in water depths of between 0m to 5m.

The density of the sea grass *Zostera marina* is variable and is generally described as being abundant (>12 individuals m^{-2}) to frequent (6-11 individuals m^{-2}).

The species associated with this community included the anemones *Anemonia viridis*, *Anthopleura ballii* and *Cereus pedunculatus*, the polychaete *Arenicola marina*, the crustaceans *Necora puber* and *Pagurus bernhardus* and the sand goby *Pomatoschistus minutus* (Table 6). The polychaete *Lanice conchilega* and the gastropod *Turritella communis* are also recorded within this community.

Species associated with the *Zostera*-dominated community	
Zostera marina	*Arenicola marina*
Anemonia viridis	*Necora puber*
Anthopleura ballii	*Pagurus bernhardus*
Cereus pedunculatus	*Pomatoschistus minutus*

Table 6 Species associated with the *Zostera*-dominated community complex.

MAËRL-DOMINATED COMMUNITY

This subtidal community is recorded in the outer reaches of Saleen Harbour between Ardmore Point and Bunnaclassy Point in water depths of between 0m and 3m (Figure 4).

Unidentified maërl species form a continuous cover within this community and is thought to be several inches thick in some places.

The species associated with this community include the polychaete *Chaetopterus variopedatus*, the anemone *Metridium senile*, the gastropod *Turritella communis*, the bivalve *Aequipecten opercularis* and the crustaceans *Necora puber* and *Pagurus bernhardus* (Table 7).

Species associated with the Maërl-dominated community	
Chaetopterus variopedatus	*Aequipecten opercularis*
Metridium senile	*Necora puber*
Turritella communis	*Pagurus bernhardus*

Table 7 Species associated with the Maërl-dominated community.

SERPULA VERMICULARIS-DOMINATED COMMUNITY COMPLEX

This subtidal community complex is recorded off the western shore of Blacksod Bay from Barranagh Island to Moyrahan Point in water depths of 3-11m (Figure 4).

The sediment ranges from largely fine sands (59.8% to 86.3% very fine to fine sand) to coarse material (18.5% to 28.9% very coarse and coarse sand) reflecting its co-occurrence with maërl in the southern extreme of the community.

This community is dominated by the reef-building polychaete *Serpula vermicularis* which forms distinct clusters of biogenic reef in otherwise soft sediment. The tubes are frequently encrusted with coralline algae and sponges and a number of species of red algae also occur on the reef. A variety of anemones are found attached to the reef including *Metridium senile*, *Sagartia elegans* and *Anemonia viridis*. It also provides a refuge for a number of crab species including *Munida* sp., *Liocarcinus depurator* and *Cancer pagurus* (Table 8).

Where fine sand is the prevailing sediment type within the complex the bivalve *Thyasira flexuosa* and the amphipod *Ampelisca brevicornis* occur in moderate to low abundances and the bivalve *Abra alba* and *Angulus fabula*, the polychaetes *Euclymene* sp., *Magelona alleni*, *M. minuta* and *Spiophanes bombyx* are recorded in low abundances. In coarser sediment the polychaete *Chaetozone christiei* occurs in moderate abundances with the crustacean *Microdeutopus* sp., recorded as locally abundant (Table 9).

Species associated with the *Serpula vermicularis*-dominated community complex	
Serpula vermicularis	*Spiophanes bombyx*
Metridium senile	*Angulus fabula*
Sagartia elegans	*Chaetozone christiei*
Thyasira flexuosa	*Anemonia viridis*
Euclymene sp.	*Liocarcinus depurator*
Magelona alleni	*Microdeutopus sp.*
Abra alba	*Cancer pagurus*
Ampelisca brevicornis	*Munida sp.*
Magelona minuta	

Table 8 Species associated with the *Serpula vermicularis*-dominated community complex.

SHINGLE

Shingle (pebbles and gravel) is recorded on the shores of Blacksod Bay from Doobeg Point on its western shore to Doolough Point on the eastern shore and also east of Kanfinalta Point;

it also occurs in Tullaghan Bay. It occurs on the upper shore with talitrid amphipods being recorded where dead algae accumulate.

INTERTIDAL REEF COMMUNITY COMPLEX

This community complex is recorded throughout the site from the western extremes of the site along the Mullet Peninsula to all shores of Blacksod Bay; it is also recorded in Tullaghan Bay. It occurs in a variety of exposure regimes from exposed to sheltered reef (Figure 4).

On sheltered to moderately exposed shores within the bay the complex occurs on a substrate of cobbles and boulders. On the exposed shores at the western extreme of the site the substrate is that of bedrock with some vertical rock walls occurring on the south and northwest of the Mullet Peninsula.

The species associated with this community consist of unidentified lichens, the brown algae *Fucus vesiculosus*, *F. spiralis*, *Pelvetia canaliculata* and *Ascophyllum nodosum* and the gastropods *Patella vulgata* and *Littorina littorea*, the bivalve *Mytilus edulis* and the barnacles including *Semibalanus balanoides* (Table 9). The brown algae and gastropods dominate the sheltered to moderately sheltered shores while the *M. edulis* and barnacles predominate on the exposed reefs.

Species associated with the Intertidal reef community complex	
Unidentified lichens	*Patella vulgata*
Fucus vesiculosus	*Littorina littorea*
Fucus spiralis	*Mytilus edulis*
Pelvetia canaliculata	Barnacles
Ascophyllum nodosum	

Table 9 Species associated with the Intertidal reef community complex.

SHELTERED SUBTIDAL REEF COMMUNITY COMPLEX

A sheltered subtidal reef community is recorded along the west flank of Blacksod Bay from south of Blacksod Point to Ardmore Point and in the inner reaches of the bay between Ardmore Village and Claggan Point (Figure 4).

The reef does not form a continuous substrate but is fragmented; it occurs in shallow waters (<10m). The substrate ranges from cobbles and boulders to bedrock or a mosaic of these.

The species associated with this community are the anemones *Metridium senile* and *Anthopleura ballii*, the ascidian *Ascidiella aspersa*, the hydroid *Sertularella polyzonias*, the foliose red algae *Heterosiphonia plumosa, Brongniartella byssoides* and *Chondria capillaris*

and the brown algae *Dictyota dichotoma* (Table 10). *M. senile* and *A. ballii* are found on all substrate types while *S. polyzonias* and the red algal species are recorded primarily from a boulder and cobble substrate.

A variety of cnidarians including *Alcyonium digitatum*, *Anemonia viridis*, *Sagartia elegans*, *Sagartiogeton laceratus*, *S. undatus* and *Urticina felina* are recorded within this complex. The sponges *Dysidea fragilis* and *Cliona celata*, the ascidians *Clavelina lepadiformis*, *Ciona intestinalis* and *Pyura* sp. and the hydroid *Nemertesia antennina* also occur here.

The echinoderms *Antedon bifida* and *Echinus esculentus* are locally abundant on bedrock south of Ardelly Point; the urchin *Paracentrotus lividus* has also been recorded within this complex.

Species associated with the Sheltered subtidal reef community complex	
Metridium senile	*Dictyota dichotoma*
Ascidiella aspersa	*Nemertesia antennina*
Sertularella polyzonias	*Clavelina lepadiformis*
Anthopleura ballii	*Cliona celata*
Anemonia viridis	*Antedon bifida*
Heterosiphonia plumosa	*Sagartia elegans*
Brongniartella byssoides	*Sagartiogeton laceratus*
Alcyonium digitatum	*S. undatus*
Chondria capillaris	*Urticina felina*
Dysidea fragilis	*Ciona intestinalis*
Echinus esculentus	*Pyura* sp.

Table 10 Species associated with the Sheltered subtidal reef community complex.

LAMINARIA-DOMINATED COMMUNITY COMPLEX

This community complex is recorded at Doolough Point and from east of Kanfinalta Point to Kinrovar Point in water depths of between 0m and 18m (Figure 4).

Within Blacksod Bay the community occurs in moderately exposed conditions while on the west coast of the Mullet, exposed conditions prevail. Within Blacksod Bay the substrate is predominantly cobbles and boulders with some outcrops of bedrock, while on the exposed coast of the Mullet the substrate is that of bedrock.

The species associated with this community are the kelp *Laminaria hyperborea*, the red algae *Lithophyllum incrustans* and *Delesseria sanguinea*, the polychaete *Spirobranchus* sp. and the echinoderms *Echinus esculentus*, *Asterias rubens* and *Marthasterias glacialis* (Table 11).

The cup coral *Caryophyllia* (*Caryophyllia*) *smithii* is recorded from the outer part of Blacksod Bay.

Species associated with the *Laminaria*-dominated community complex	
Laminaria hyperborea	*Echinus esculentus*
Lithophyllum incrustans	*Asterias rubens*
Delesseria sanguinea	*Marthasterias glacialis*
Spirobranchus sp.	

Table 11 Species associated with the *Laminaria*-dominated 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 Annex I habitats to facilitate the appropriate assessment process:

Objective **To maintain the favourable conservation condition of Large shallow inlets and bays in Mullet/Blacksod Bay Complex 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 habitats Mudflats and sandflats not covered by sea water at low tide and Reefs. 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.

Target 2	Maintain the extent of the *Zostera*- and maërl- dominated communities and *Serpula vermicularis*-dominated community complex, subject to natural processes.

- Zostera-, maërl-, and *Serpula vermicularis*-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 1. The areas given below are based on spatial interpolation and therefore should be considered indicative:
    - *Zostera*-dominated community - 170ha
    - Maërl-dominated community – 14ha
    - *Serpula vermicularis*-dominated community complex- 855ha

Target 3	Conserve the high quality of *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.
- Within this SAC, the density of *Zostera* in 2008 was estimated to range from frequent to abundant on the AFOR scale (semi-quantitative abundance measure).
- Any significant anthropogenic disturbance to the quality (i.e. shoot density) of this community should be avoided.

Target 4	Conserve the high quality of the maërl-dominated community, subject to natural processes.

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

Target 5	Conserve the high quality of the *Serpula vermicularis* -dominated community complex, subject to natural processes.

- Every effort should be made to avoid any death to living *Serpula* reef.
- Any significant anthropogenic disturbance to the quality of the *Serpula vermicularis* -dominated community (i.e. destruction of reef structures) should be avoided.

Target 6	Conserve the following community types in a natural condition: Sand with *Angulus tenuis* and *Pygospio elegans* community complex; Sand with *Gastrosaccus spinifer* community complex; Fine sand with *Angulus fabula* community complex; Intertidal reef community complex; Sheltered subtidal reef community complex; *Laminaria*-dominated community complex; Shingle.

- A semi-quantitative description of the communities has been provided in Section 1.
- An interpolation of their likely distribution is provided in figure 4.
- The estimated areas of these communities given below are based on spatial interpolation and therefore should be considered indicative:
    - Sand with *Angulus tenuis* and *Pygospio elegans* community complex – 1182
    - Sand with *Gastrosaccus spinifer* community complex – 1994ha
    - Fine sand with *Angulus fabula* community complex - 6289ha
    - Intertidal reef community complex - 254ha
    - Sheltered subtidal reef community complex – 81ha
    - *Laminaria*-dominated community complex – 251ha
    - Shingle - 38ha
- 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 Mullet/Blacksod Bay Complex 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	Conserve the following community types in a natural condition: Mobile sand with *Bathyporeia guilliamsoniana* community and Sand with *Angulus tenuis* and *Pygospio elegans* 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:
  - Mobile sand with *Bathyporeia guilliamsoniana* community – 197ha
  - Sand with *Angulus tenuis* and *Pygospio elegans* community complex – 1231ha
- 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 Reefs in Mullet/Blacksod Bay Complex SAC, which is defined by the following list of attributes and targets**

Target 1	The permanent area is stable or increasing, subject to natural processes.

- The area of this habitat represents the minimum estimated area of reef at this site and underestimates the actual area due to the many areas of sheer and steeply sloping rock within the reef habitat.
- This target refers to activities or operations that propose to permanently remove habitat from the site, thereby reducing the permanent amount of habitat area. It does not refer to long or short term disturbance of the biology of a site.
- Early consultation or scoping with the Department in advance of formal application is advisable for such proposals.

Target 2	The distribution of reefs is stable or increasing, subject to natural processes.

- The likely distribution of reef habitat in this SAC is indicated in figure 3.
- This target refers to activities or operations that propose to permanently remove reef habitat, thus reducing the range over which this habitat occurs within the site. It does not refer to long or short term disturbance of the biology of reef habitats.
- Early consultation or scoping with the Department in advance of formal application is advisable for such proposals.

Target 3	Maintain the extent of the *Serpula vermicularis*-dominated community complex, subject to natural processes.

- *Serpula vermicularis*-dominated community complex is 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.
- Any significant anthropogenic disturbance to the extent of this community complex should be avoided.
- An interpolation of the likely distribution of this community complex is provided in figure 1. The area given below is based on spatial interpolation and therefore should be considered indicative:
    - *Serpula vermicularis*-dominated community complex- 855ha

Target 4	Conserve the high quality of the *Serpula vermicularis* -dominated community complex, subject to natural processes.

- Every effort should be made to avoid any death to living *Serpula* reef.
- Any significant anthropogenic disturbance to the quality of the *Serpula vermicularis* -dominated community (i.e. destruction of reef structures) should be avoided.

Target 5	Conserve the following community types in a natural condition: Intertidal reef community complex; Sheltered subtidal reef community complex; *Laminaria*-dominated community complex.

- A semi-quantitative description of the communities has been provided in Section 1.
- An interpolation of their likely distribution is provided in figure 4.
- The estimated areas of the communities within the Reefs habitat given below are based on spatial interpolation and therefore should be considered indicative. In addition, as this habitat contains significant areas of sheer and steeply sloping rock, the mapped community extents will be underestimated:
  - Intertidal reef community complex - 338ha
  - Sheltered subtidal reef community complex - 81ha
  - *Laminaria*-dominated community complex – 256ha
- This target relates to the structure and function of the reef and therefore it is of relevance to those activities that may cause disturbance to the ecology of the habitat.
- Significant continuous or ongoing disturbance of communities should not exceed an approximate area of 15% of the interpolated area of each community type, at which point an inter-Departmental management review is recommended prior to further licensing of such activities.
- Proposed activities or operations that cause significant disturbance to communities but may not necessarily represent a continuous or ongoing source of disturbance over time and space may be assessed in a context-specific manner giving due consideration to the proposed nature and scale of activities during the reporting cycle and the particular resilience of the receiving habitat in combination with other activities within the designated site.

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Figure 1. Extent of Large shallow inlets and bays in Mullet/Blacksod Bay Complex SAC

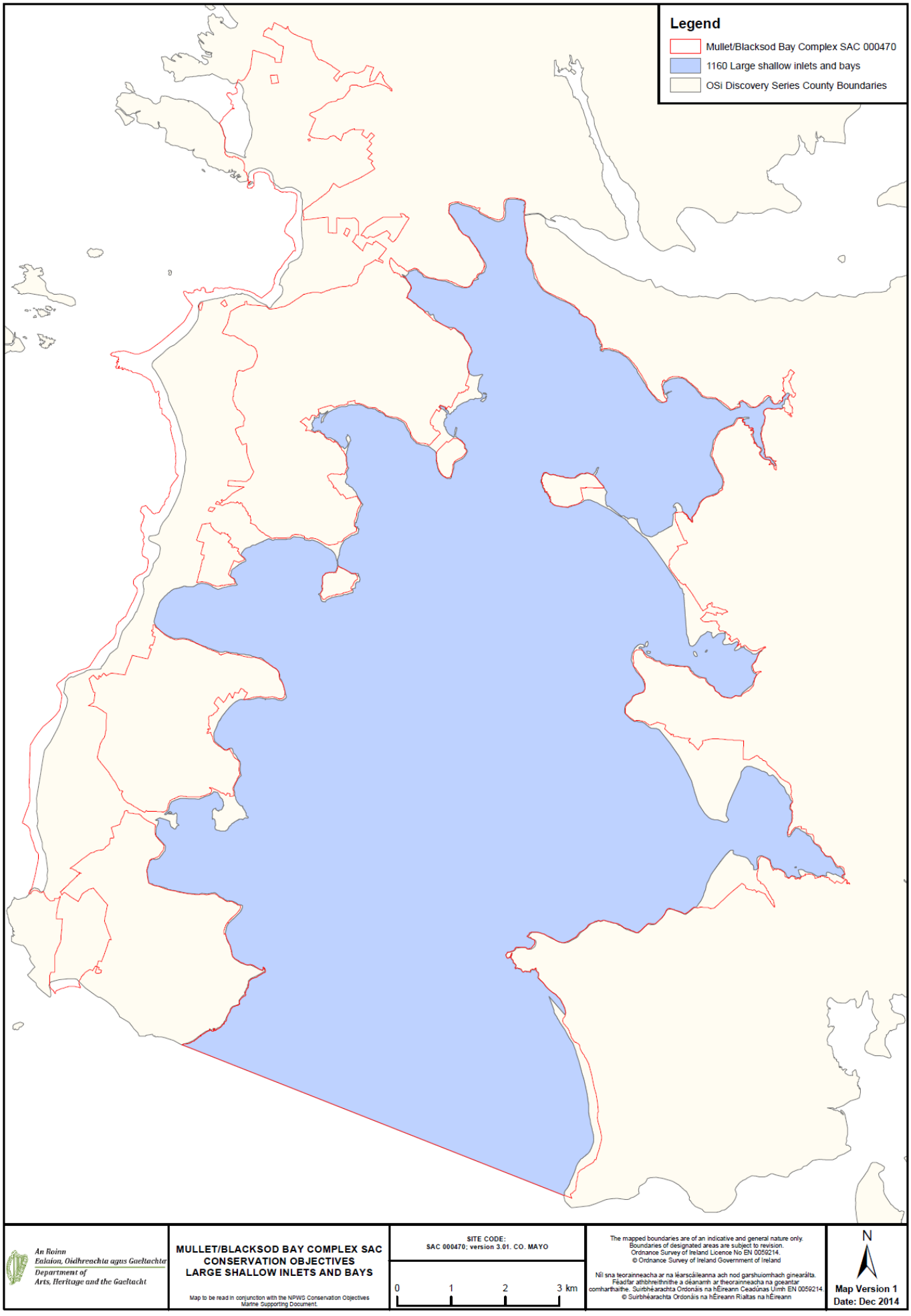

Figure 2. Extent of Mudflats and sandflats not covered by seawater at low tide in Mullet/Blacksod Bay Complex SAC

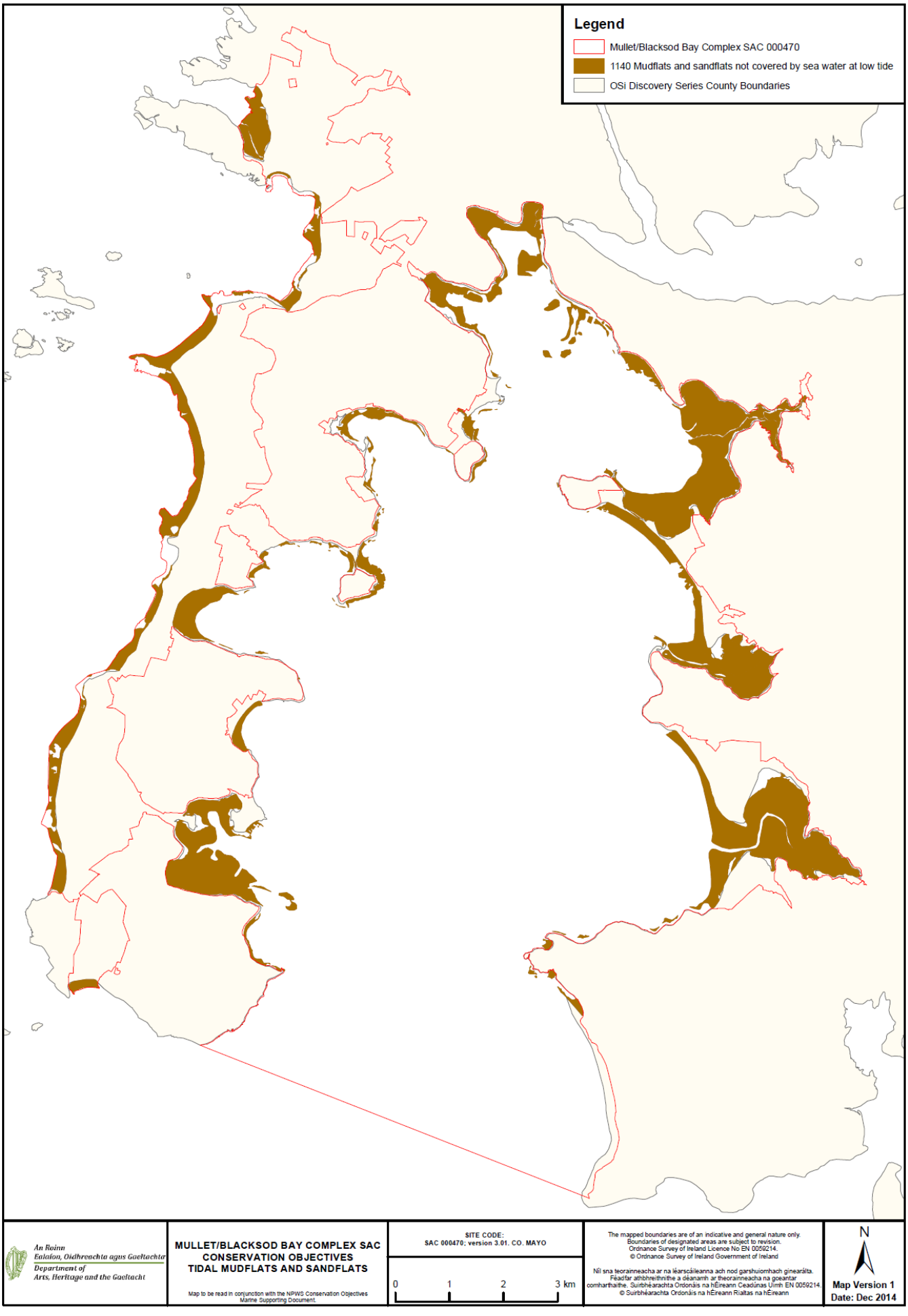

Figure 3. Extent of Reefs in Mullet/Blacksod Bay Complex SAC

Figure 4. Distribution of community types in Mullet/Blacksod Bay Complex SAC