NPWS (2012)

Blackwater River (Cork/Waterford) SAC
(site code: 2170)

Conservation objectives supporting document
- marine habitats

Version 1

January 2012

Introduction

The Blackwater River (Cork/Waterford) SAC is designated, *inter alia*, for the Annex I qualifying interests of Mudflats and sandflats not covered by sea water at low tide and Estuaries (Figures 1 and 2). The Annex I habitat Estuaries is a large physiographic feature that may wholly or partly incorporate other Annex I habitats including mudflats and sandflats within its area.

Intertidal and subtidal surveys were undertaken in 2009 (Aquafact, 2010; ASU, 2010) and these data are used to determine the physical and biological nature of this SAC and adjacent areas that are contained within the Special Protection Area. These surveys facilitated the development of site-specific conservation objectives that will allow Ireland deliver 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 Section 2.

Section 1

Principal Benthic Communities

Within the Blackwater River (Cork/Waterford) SAC six community types are recorded. The Annex I habitats 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	Habitats		SPA
	Estuaries (1130)	Mudflats and sandflats not covered by seawater at low tide (1140)	
Intertidal estuarine sandy mud community complex	✓	✓	✓
Subtidal estuarine fine sand with *Bathyporeia* spp. community complex	✓		✓
Sand and mixed sediment with polychaetes and crustaceans community complex	✓	✓	✓
Coarse sediment community complex	✓	✓	
Zostera-dominated community	✓	✓	✓
Mytilus edulis-dominated community	✓	✓	✓

Table 1 The community types recorded in Blackwater River (Cork/Waterford) SAC and the Annex I habitats in which they occur.

Estimated areas of each community type per 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 the Blackwater River (Cork/Waterford) SAC, identified a series of biological communities whose species composition overlapped significantly. Such biological communities are grouped together into what experts consider are sufficiently stable units (i.e. a complex) for conservation targets.

INTERTIDAL ESTUARINE SANDY MUD COMMUNITY COMPLEX

This community complex occurs from the quay at Ballynaclash to Ferry Point on the eastern shore and from Newport East to Youghal on the western shore. It is also recorded from the estuarine areas of the Tourig River and at Kinsalebeg (Figure 3).

The sediment within this community complex is largely that of sandy mud with silt-clay ranging from 83% to 10.2%, very fine sand from 43.3% to 14.7% and fine sand from 64.2% to 0.6%. Negligible amounts of coarse material are recorded here (<2%).

The gastropod *Hydrobia ulvae* occurs in high to moderate abundances within this complex; the bivalve *Scrobicularia plana*, the oligochaete *Tubificoides benedii* and the polychaete *Hediste diversicolor* have a patchy distribution and are most abundant in the more estuarine areas of the Tourig River and Kinsalebeg. The polychaetes *Pygospio elegans* and *Arenicola marina* are recorded in moderate to low abundances within this complex (Table 2).

A variant of this community occurs on both sides of the Blackwater River at Youghal Mudlands. Fine sand constitutes the major portion of the sediment fractions here (fine sand ranges from 72.3% to 62.3%, very fine sand from 34.5% to 14.8% and silt-clay from 11.9% to 3.1%). The fauna is dominated by polychaetes with *Capitella capitata* (complex), *Nephtys hombergii*, *Spio martinensis*, *Pygospio elegans* and *Arenicola marina* all occurring in moderate abundances.

Intertidal estuarine sandy mud community complex	
Tubificoides benedii	*Hydrobia ulvae*
Scrobicularia plana	*Macoma balthica*
Pygospio elegans	*Nephtys hombergii*
Eteone longa	*Hediste diversicolor*
Capitella capitata (complex)	*Spio martinensis*
Scoloplos armiger	*Arenicola marina*

Table 2 Distinguishing species of the Intertidal estuarine sandy mud community complex.

SUBTIDAL ESTUARINE FINE SAND WITH *BATHYPOREIA* SPP. COMMUNITY COMPLEX

This community complex is recorded in the central channel of the Blackwater River from Newport East to the Youghal Bridge, in the subtidal areas of the Tourig River and around Kinsalebeg and in the central harbour from Youghal Mudlands to Ferry Point (Figure 3). It occurs in depths of between 0m and 6m.

The sediment is largely that of fine sand (ranging from 92.4% to 37.8%) with negligible amount of coarse and very fine material (<2% and <7% respectively).

The fauna reflects the estuarine conditions with the amphipod *Bathyporeia* spp. dominating this community complex (Table 3).

Subtidal estuarine fine sand with *Bathyporeia* spp. community complex	
Bathyporeia sp.	*Bathyporeia sarsi*

Table 3 Distinguishing species of the Subtidal estuarine fine sand with *Bathyporeia* spp. community complex

SAND AND MIXED SEDIMENT WITH POLYCHAETES AND CRUSTACEANS COMMUNITY COMPLEX

This community complex occurs immediately south of the Youghal Bridge, from Youghal Mudlands on the western shore to Ferry Point on the eastern shore, at Market Dock in Youghal Town and from just south of the town to the southern reaches of the site (Figure 3). It occurs from the intertidal to a depth of approximately 8m.

The sediment here ranges from sand to mixed sediment with fine sand ranging from 86.9% to 9.4%, medium sand from 58.4% to 4.3%, very fine sand from 20.1% to 0.3%, silt-clay from 6.8% to 0%, gravel from 16.2% to 0.2%, very coarse sand from 5.5% to 0.2% and coarse sand from 10.2% to 0.9%.

The polychaetes *Spio filicornis*, *Eteone flava* and *Phyllodoce (Anaitides) mucosa* occur in moderate abundances, while the crustacean *Carcinus maenas*, the polychaete *Nephtys cirrosa* and the amphipod *Gammarus salinus* are also recorded here (Table 4). Intertidally the crustacean *Bathyporeia guilliamsoniana* is recorded in moderate abundances. On the western shore north of Youghal Town dense beds of the polychaete *Lanice conchilega* occur at a depth of approximately 2m.

Sand and mixed sediment with polychaetes and crustaceans community complex	
Spio filicornis	*Eteone flava*
Phyllodoce (Anaitides) mucosa	*Carcinus maenas*
Bathyporeia guilliamsoniana	*Nephtys cirrosa*
Lanice conchilega	*Gammarus salinus*

Table 4 Distinguishing species of the Sand and mixed sediment with polychaetes and crustaceans community complex.

COARSE SEDIMENT COMMUNITY COMPLEX

This community occurs in the outer reaches of Youghal Harbour from Ferry Point to the southern boundary of the site from the intertidal to a depth of approximately 7m (Figure 3). It is recorded in areas which are subject to strong tidal currents and the substrate is that of mixed gravelly sand to stony ground.

The fauna here is largely epifaunal or mobile species with the polychaete *Pomatoceros* spp., the bivalves *Hiatella arctica* and *Venerupis senegalensis* and the crustacean *Gammarus salinus* occurring in high abundances. The bivalves Mytilidae sp. and *Modiolus barbatus*, the crustaceans *Pagurus bernhardus* and *Carcinus maenas*, the polychaetes *Myrianida* sp. and *Eumida bahusiensis*, red algae and barnacles are also recorded here (Table 5).

Coarse sediment community complex	
Pomatoceros spp.	*Hiatella arctica*
Venerupis senegalensis	*Gammarus salinus*
Mytilidae sp.	*Modiolus barbatus*
Pagurus bernhardus	*Myrianida* sp.
Eumida bahusiensis	*Carcinus maenas*
Red algae	Barnacles

Table 5 Species associated with the Coarse sediment community complex.

ZOSTERA-DOMINATED COMMUNITY

A relatively extensive bed of the seagrass *Zostera noltii* occurs intertidally at the mouth of the Tourig River (Figure 3).

Here the sediment is that of sandy mud (silt-clay 45.1%, very fine sand 42.5%, fine sand 11.3%) with negligible amounts of coarse material (<0.5%).

The *Zostera* coverage ranges from between 50% and 100% of the area. The fauna is dominated by the gastropod *Hydrobia ulvae*, the oligochaete *Tubificoides benedii* and the polychaete *Hediste diversicolor* which are all recorded in high abundances. The bivalves *Scrobicularia plana* and *Macoma balthica*, the polychaete *Pygospio elegans*, the crustaceans *Neomysis integer* and *Idotea balthica* and the oligochaete *Tubificoides pseudogaster* (complex) are recorded in moderate abundances (Table 6). The polychaete *Arenicola marina* was observed to occur in high abundances ($20m^{-2}$) here.

Zostera-dominated community	
Zostera noltii	*Hydrobia ulvae*
Tubificoides benedii	*Hediste diversicolor*
Scrobicularia plana	*Pygospio elegans*
Tubificoides pseudogaster (complex)	*Neomysis integer*
Arenicola marina	*Macoma balthica*
Idotea balthica	

Table 6 Distinguishing species of the *Zostera*-dominated community.

MYTILUS EDULIS-DOMINATED COMMUNITY

Mussel beds (*Mytilus edulis*) occur intertidally and subtidally within Youghal Harbour (Figure 3). Extensive intertidal beds are recorded on the eastern shore of the harbour between Pillpark and Newtown, with a small bed occurring at Ferry Point. Subtidally they occur in the central channel of the harbour and at its outer reaches south of Ferry Point. They are recorded in depths of approximately 6 metres and overlay a substrate of muddy sand.

The fauna is dominated by the bivalve *Mytilus edulis*; the crustaceans *Gammarus salinus* and *Carcinus maenas* and the bivalve *Modiolus barbatus* are recorded from the subtidal beds (Table 7).

Mytilus edulis-dominated community	
Mytilus edulis	*Gammarus salinus*
Carcinus maenas	*Modiolus barbatus*
Mytilidae sp.	

Table 7 Distinguishing species of the *Mytilus edulis*-dominated community.

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. The Department of the Environment, Heritage and Local Government has prepared general guidance on the completion of such assessments (www.npws.ie).

Annex I Habitats

It is worth considering at the outset that in relation to Annex I habitat structure and function, the extent and quality of all habitats varies considerably in space and time and marine habitats are particularly prone to such variation. Habitats which are varying naturally, i.e. biotic and/or abiotic variables are changing within an envelope of natural variation, must be considered to have favourable conservation condition. Anthropogenic disturbance may be considered significant when it causes a change in biotic and/or abiotic variables in excess of what could reasonably be envisaged under natural processes. The capacity of the habitat to recover from this change is obviously an important consideration (i.e. habitat resilience) thereafter.

This Department has adopted a prioritized approach to conservation of structure and function in marine Annex I habitats.

1. Those communities that are key contributors to overall biodiversity at a site by virtue of their structure and/or function (keystone communities) and their low resilience should be afforded the highest degree of protection and any significant anthropogenic disturbance should be avoided.
2. In relation to the remaining constituent communities that are structurally important (e.g. broad sedimentary communities) within an Annex I marine habitat, there are two considerations.
    2.1. Significant anthropogenic disturbance may occur with such intensity and/or frequency as to effectively represent a continuous or ongoing source of disturbance over time and space (e.g. effluent discharge within a given area). Drawing from the principle outlined in the European Commission's Article 17 reporting framework that disturbance of greater than 25% of the area of an Annex I habitat represents unfavourable conservation status, this Department takes the view that licensing of activities likely to cause continuous disturbance of each community type should not exceed an approximate area of 15%. Thereafter, an increasingly cautious approach is advocated. Prior to any further licensing of this category of activities, an inter-

Departmental management review (considering *inter alia* robustness of available scientific knowledge, future site requirements, etc) of the site is recommended.

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

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

Objective To maintain the favourable conservation condition of Mudflats and sandflats not covered by seawater at low tide in the Blackwater River (Cork/Waterford) 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*- and *Mytilus edulis*- dominated communities, subject to natural processes.

- A *Zostera*-dominated community is considered to be a keystone community that is of considerable importance to the overall ecology and biodiversity of a habitat by virtue of its physical complexity, e.g. it serves as important nursery grounds for commercial and non-commercial species. 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 these communities should be avoided.

- An interpolation of the likely distribution of these communities is provided in figure 3. The area given below is based on spatial interpolation and therefore should be considered indicative:
    - *Zostera*-dominated community complex- 3ha
    - *Mytilus edulis*-dominated community- 10ha

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.
- Whilst no site-specific data has been collected to date, any significant anthropogenic disturbance to the quality of this community should be avoided.

Target 4	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 of the community (e.g. significant decline in living individuals/m^2) should be avoided.

Target 5	Conserve the following community types in a natural condition: Intertidal estuarine sandy mud community complex and Sand and mixed sediment with polychaetes and crustaceans 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 3.
- 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 estuarine sandy mud community complex – 265ha
    - Sand and mixed sediment with polychaetes and crustaceans community complex – 7ha
- Significant continuous or ongoing disturbance of communities should not exceed an approximate area of 15% of the interpolated area of each community type, at which point an inter-Departmental management review is recommended prior to further licensing of such activities.
- Proposed activities or operations that cause significant disturbance to communities but may not necessarily represent a continuous or ongoing source of disturbance over time and space may be assessed in a context-specific manner giving due

consideration to the proposed nature and scale of activities during the reporting cycle and the particular resilience of the receiving habitat in combination with other activities within the designated site.

Objective To maintain the favourable conservation condition of Estuaries in the Blackwater River (Cork/Waterford) SAC, which is defined by the following list of attributes and targets.

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

- This habitat also encompasses the Annex I habitat of Mudflats and sandflats not covered by seawater at low tide. In such areas, the specific targets for that Annex I habitat will address requirements within the Annex I habitat Estuaries.
- This target refers to activities or operations that propose to permanently remove habitat from a site, thereby reducing the permanent amount of habitat area. It does not refer to long or short term disturbance of the biology of a site.
- Early consultation or scoping with the Department in advance of formal application is advisable for such proposals.

Target 2	Maintain the extent of the *Mytilus edulis*-dominated community, subject to natural processes.

- 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 3. The area given below is based on spatial interpolation and therefore should be considered indicative:

  - *Mytilus edulis*-dominated community– 7ha

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 of the community (e.g. significant decline in living individuals/m^2) should be avoided.

Target 4	Conserve the following community types in a natural condition: Intertidal estuarine sandy mud community complex; Subtidal estuarine fine sand with *Bathyporeia* spp. community complex; Sand and mixed sediment with polychaetes and crustaceans community complex; Coarse sediment community complex.

- A semi-quantitative description of these communities has been provided in Section 1.
- An interpolation of their likely distribution is provided in figure 3.
- The estimated area of these communities within the Estuaries habitat given below is based on spatial interpolation and therefore should be considered indicative:
    - Intertidal estuarine sandy mud community complex – 265ha
    - Subtidal estuarine fine sand with *Bathyporeia* spp. community complex – 329ha
    - Sand and mixed sediment with polychaetes and crustaceans community complex – 86ha
    - Coarse sediment community complex – 80ha.

- Significant continuous or ongoing disturbance of these communities should not exceed an approximate area of 15% of the interpolated area, at which point an inter-Departmental management review is recommended prior to further licensing of such activities.
- Proposed activities or operations that cause significant disturbance to communities but may not necessarily represent a continuous or ongoing source of disturbance over time and space may be assessed in a context-specific manner giving due consideration to the proposed nature and scale of activities during the reporting cycle and the particular resilience of the receiving habitat in combination with other activities within the designated site.

Bibliography

Aquafact (2010). Subtidal benthic investigations in Blackwater River cSAC (Site Code:IE002170) and Blackwater Estuary SPA (IE004028), Co. Cork/Waterford. Carried out by Aquafact on behalf of the Marine Institute in partnership with National Parks & Wildlife Service.

ASU (2010). A survey of mudflats and sandflats in Ireland. An intertidal soft sediment survey of the lower Blackwater Estuary. Carried out by ASU on behalf of the Marine Institute in partnership with National Parks & Wildlife Service.

Figure 1 Extent of the Annex I habitat Mudflats and sandflats not covered by seawater at low tide in the Blackwater River (Cork/Waterford) SAC.

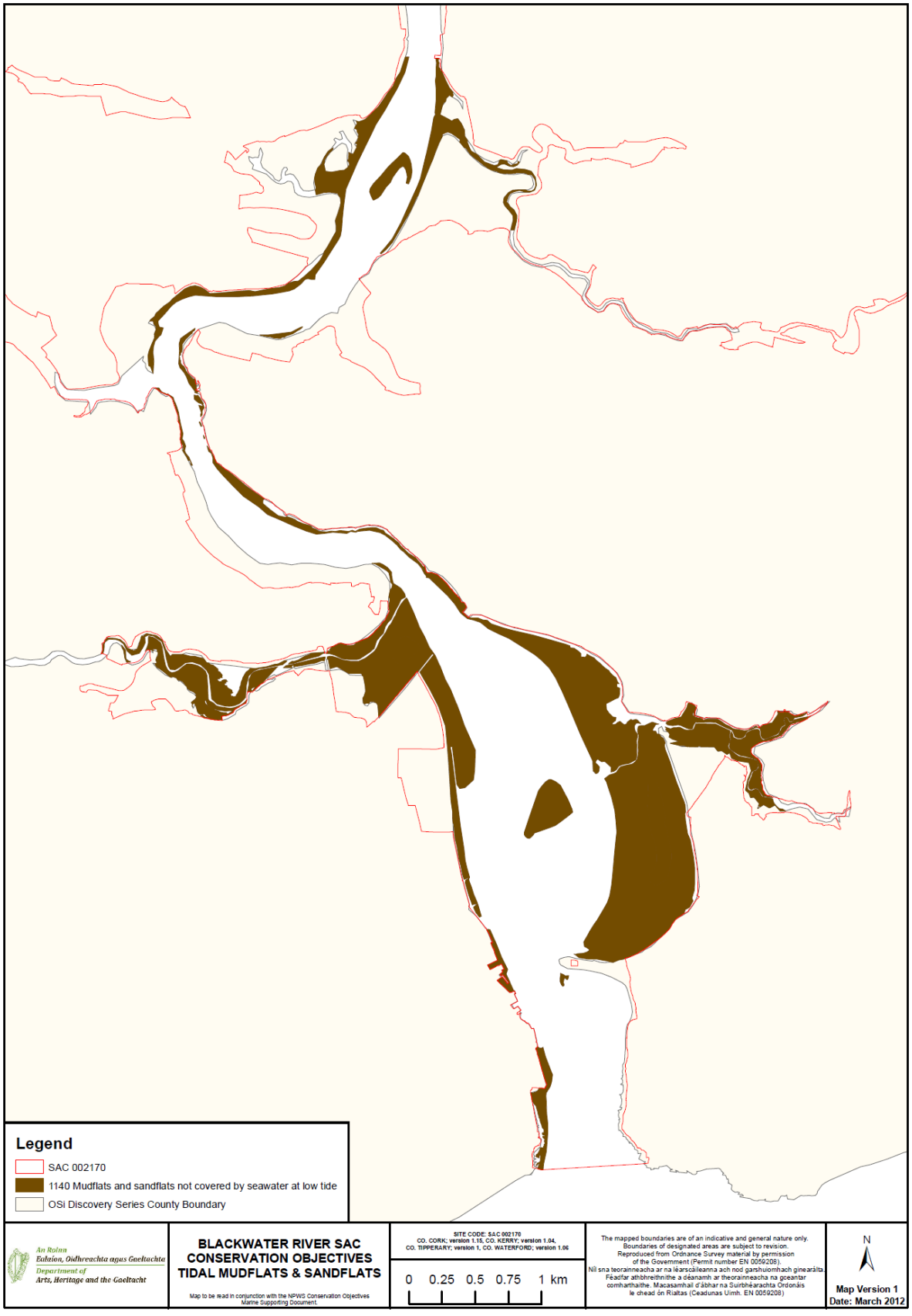

Figure 2 Extent of the Annex I habitat Estuaries in the Blackwater River (Cork/Waterford) SAC.

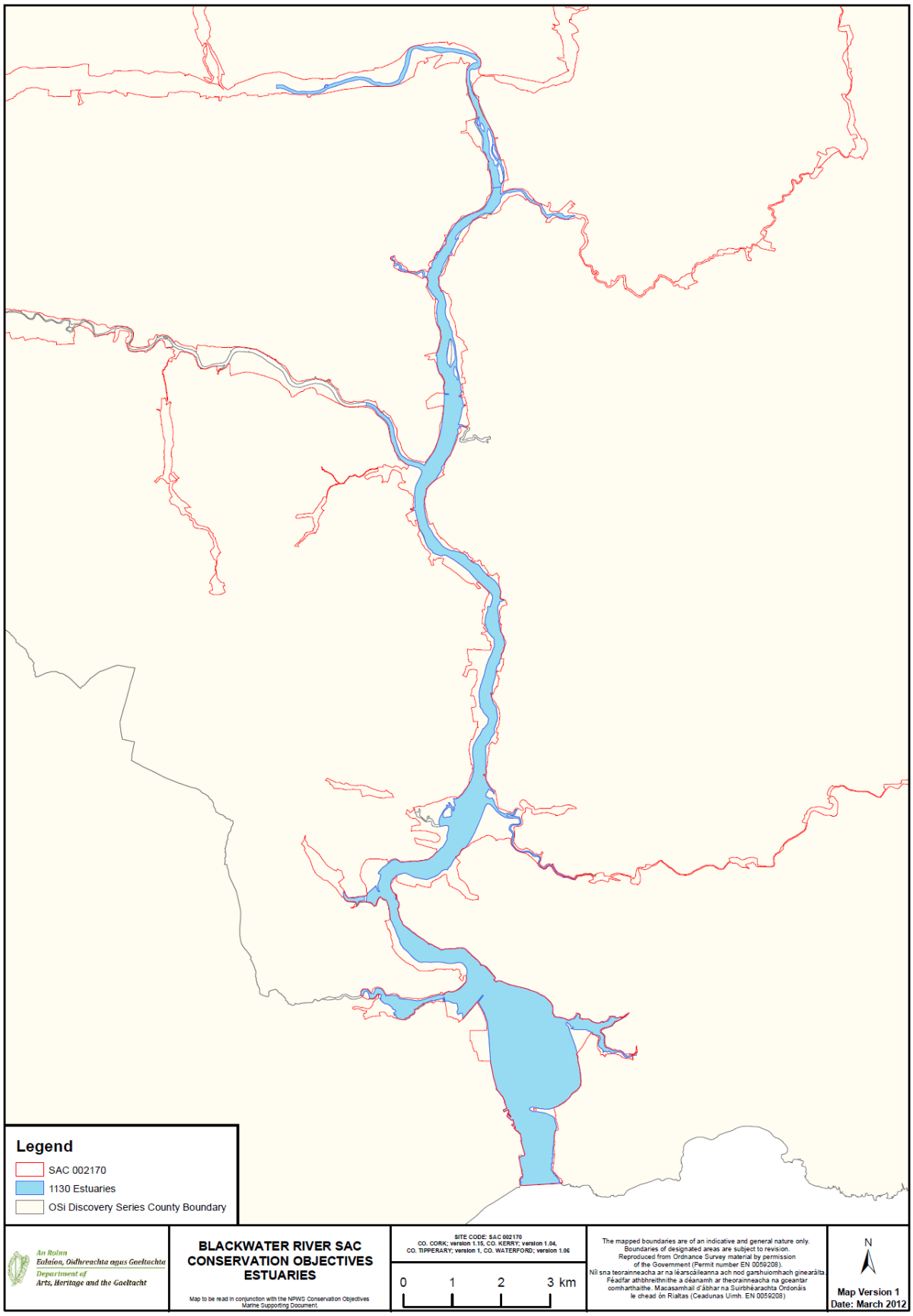

Figure 3 Broadscale community distribution in Blackwater River (Cork/Waterford) SAC and adjacent areas.