NPWS

Courtmacsherry Estuary SAC
(site code: 1230)

Conservation objectives supporting document -
Marine Habitats

Version 1

July 2014

Introduction

Courtmacsherry Estuary SAC is designated for the marine Annex I qualifying interests of Mudflats and sandflats not covered by seawater 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 2011 and 2012, respectively (MERC, 2012 a & b). These data were used to determine the physical and biological nature of this SAC and overlapping Special Protection Areas of Courtmacsherry Bay SPA (site code 4219).

Aspects of the biology and ecology of the Annex I habitat 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 the Courtmacsherry Estuary SAC three community types are recorded. The Annex I habitats 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 Habitats		SPA
	Mudflats and sandflats not covered by seawater at low tide (1140)	Estuaries (1130)	
Sandy mud to mixed sediments with *Tubificoides benedii* and *Hediste diversicolor* community complex	✓	✓	✓
Sand to mixed sediment with oligochaetes community complex	✓	✓	✓
Sand with *Nephtys cirrosa* community complex	✓	✓	✓

Table 1 The community types recorded in Courtmacsherry Estuary SAC and their occurrence in the Annex I habitats and the overlapping SPA.

Estimated areas of each community types within the Annex I habitats, 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 Courtmacsherry Estuary 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.

SANDY MUD TO MIXED SEDIMENTS WITH *TUBIFICOIDES BENEDII* AND *HEDISTE DIVERSICOLOR* COMMUNITY COMPLEX

This community complex occurs on the intertidal and shallow subtidal (<2m); it is recorded on the northern shore from Burren Point westward to the northern extent of the site at Ummera, in the inlet to the south of Timoleague and along the eastern shore of the inlet at Garranefeen (Figure 3).

The substrate of this complex is variable, ranging from sandy mud to mixed sediment. The sediment is that of sandy mud between the bridges at Timoleague, with fine sand ranging from 12.2% to 26.1%, very fine sand from 23% to 60.3% and silt-clay from 19.4% to 52.4% while gravel and very coarse sand range from 0.0% to 2.5% and 0.0% to 5.9%, respectively. At the Broad Strand, the sediment is coarser with gravel ranging from 18.4% to 32.9% while fine sand ranges from 29.7% to 57.2%; the amounts of silt-clay are negligible (>0.2%). At the beach at Coolbaun, the sediment is that of fine sand (75%). Over the remainder of the complex the sediment is mixed with gravel ranging from 20.5% to 49.9% and silt-clay from 6.6% to 42.6%.

The distinguishing species of this complex are the oligochaetes *Tubificoides benedii* and *Heterochaeta costata*, the polychaetes *Hediste diversicolor*, *Pygospio elegans*, *Streblospio shrubsolii* and unidentified Nereididae, the gastropod *Peringia ulvae* and the bivalves *Scrobicularia plana*. *H. diversicolor* occurs throughout the complex in moderate to low abundances; it is locally abundant to the southwest of Timoleague. The remaining distinguishing species are not uniformly distributed within the complex; Nereididae, *T. benedii*, *S. plana*, *P. elegans* and *S. shrubsolii* generally occur in low abundances. *T. benedii* is locally very abundant west of Burren Point and on the east shore of Garraneteen Strand. *P. ulvae* is also locally abundant on Garraneteen Strand; where it occurs elsewhere, it is in moderate to low abundances. *H. costata* is recorded in moderate to low abundances within this site.

Distinguishing species of Sandy mud to mixed sediments with *Tubificoides benedii* and *Hediste diversicolor* community complex	
Tubificoides benedii	Nereididae indet.
Hediste diversicolor	*Scrobicularia plana*
Heterochaeta costata	*Pygospio elegans*
Peringia ulvae	*Streblospio shrubsolii*

Table 2 Distinguishing species of Sandy mud to mixed sediments with *Tubificoides benedii* and *Hediste diversicolor* community complex.

The bivalve *Cerastoderma edule* is recorded in low abundances (2-3m^{-2}) in the central reaches of the Argideen Estuary and at Garraneteen Strand. Around Burren Point, the polychaete *Arenicola marina* is recorded in moderate abundances (12m^{-2}).

The green alga *Ulva* sp. occurs within this complex. In the central reaches of the Argideen Estuary and the inner reaches of Garraneteen Strand coverage is 5% to 20%. On the central reaches of Garraneteen Strand coverage is 80%.

SAND TO MIXED SEDIMENT WITH OLIGOCHAETES COMMUNITY COMPLEX

This community complex occurs on the intertidal and shallow subtidal (<2m). It is recorded from the bridge at Timoleague along the southern shore to Siberia, on the northern shore at Flaxfort Strand and along the western shore of the inlet at Garranefeen and also at Coolmain (Figure 3).

The substrate is variable, ranging from fine to medium sand to mixed and coarse sediments. At the shores of Coolbaun and Coolmain, at Kilbrittain Creek and at Burren Point the sediment is largely fine to medium sand (54.5% to 75.2% and 2.5% to 27.9%, respectively) with negligible amounts of silt-clay (0.0% to 3.4%) and coarse material (0% to 2.5% and 0.1% to 0.2%, gravel and very coarse sand, respectively). At the beach at Flaxfort and at Broad Strand the sediment is coarser with gravel ranging from 17.6% to 32.9%, while along the southern shore of the harbour and the outer reaches of Garranefeen Strand there is a higher proportion of fine material (silt-clay ranges from 41.2% to 90%).

The distinguishing species of this community are the oligochaetes of the family Enchytraeidae and *Tubificoides benedii*, the polychaetes *Scolelepis* (*Scolelepis*) *squamata*, *Capitella* sp. and *Eteone longa*, the gastropod *Peringia ulvae* and the bivalve *Mytilus edulis* (Table 3). These species are not uniformly distributed throughout the community. Enchytraeidae are recorded in moderate to low abundances and are locally abundant at Coolbaun and on the upper shore at Flaxfort Strand. *S.* (*Scolelepis*) *squamata*, *T. benedii* and *E. longa* are recorded in low abundances. *Capitella* sp. and *M. edulis* are locally abundant on the upper shore at Garraneteen Strand and at Coolbaun respectively and occur in low abundances elsewhere. *P. ulvae* occurs in moderate to low abundances.

Distinguishing species of Sand to mixed sediment with oligochaetes community complex	
Enchytraeidae indet.	*Mytilus edulis*
Scolelepis (*Scolelepis*) *squamata*	*Tubificoides benedii*
Capitella sp.	*Eteone longa*
Peringia ulvae	

Table 3 Distinguishing species of Sand to mixed sediment with oligochaetes community complex.

The green alga *Ulva* sp. occurs within this complex in varying abundances. In the sheltered middle estuary the coverage is 90-95%. On the more exposed shores at Flaxfort Strand, Broad Strand and Coolmain coverage is 10-30%.

SAND WITH NEPHTYS CIRROSA COMMUNITY COMPLEX

The community complex occurs intertidally in the outer reaches of the Argideen Estuary at Flaxfort Strand and Courtmacsherry (Figure 3).

The sediment here is largely that of fine sand (ranging from 30.3% to 79.5%) with negligible amounts of silt-clay (<1%) and coarse material (gravel <0.5% and very coarse sand <1.5%).

The fauna of this complex is typical of mobile intertidal sands with low species abundances. It is distinguished by the polychaetes *Nephtys cirrosa*, *N. hombergii*, *Scoloplos* (*Scoloplos*) *armiger* and *Spio martinensis* and the bivalve *Angulus tenuis* (Table 4). *N. cirrosa* occurs throughout the complex in low abundances. The remaining species are not uniformly distributed throughout the complex and where they are recorded they are in low abundances.

Distinguishing species of Sand with Sand with *Nephtys cirrosa* community complex	
Nephtys cirrosa	*Spio martinensis*
Angulus tenuis	*Nephtys hombergii*
Scoloplos (*Scoloplos*) *armiger*	

Table 4 Distinguishing species of Sand with *Nephtys cirrosa* community complex.

Deposits of the green alga *Ulva* sp. are recorded from the east of Flaxfort Strand where coverage is approximately 30%. *Ulva* sp. is also recorded from the sand flats in the estuary but in small amounts (<10%). The polychaete *Arenicola marina* is recorded in low abundances (1-3m^{-2}) in the estuary.

A subtidal variant of this complex occurs in the outer part of the estuary from south of Burren to Coolmain (5m depth). The sediment is fine sand (13.6% to 73.6% fine sand and 16% to 85.4% very fine sand). The polychaetes *Nephtys cirrosa* and *Scoloplos* (*Scoloplos*) *armiger* are recorded from this variant but the bivalve *Angulus tenuis* and the polychaete *Nephtys hombergii* are replaced by *Angulus fabula* and *Nephtys assimilis*.

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 Mudflats and sandflats not covered by seawater at low tide in Courtmacsherry Estuary 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: Sandy mud to mixed sediments with *Tubificoides benedii* and *Hediste diversicolor* community complex; Sand to mixed sediment with oligochaetes community complex and Sand with *Nephtys cirrosa* 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 3.
- 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:
  - Sandy mud to mixed sediments with *Tubificoides benedii* and *Hediste diversicolor* community complex – 96ha

- Sand to mixed sediment with oligochaetes community complex – 422ha
- Sand with *Nephtys cirrosa* community complex – 138ha

- 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 Courtmacsherry Estuary 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	Conserve the following community types a natural condition: Sandy mud to mixed sediments with *Tubificoides benedii* and *Hediste diversicolor* community complex; Sand to mixed sediment with oligochaetes community complex and Sand with *Nephtys cirrosa* 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 3.
- The estimated area of these community types within the Estuaries habitat given below is based on spatial interpolation and therefore should be considered indicative:

- Sandy mud to mixed sediments with *Tubificoides benedii* and *Hediste diversicolor* community complex – 86ha
- Sand to mixed sediment with oligochaetes community complex – 152ha
- Sand with *Nephtys cirrosa* community complex – 238ha

- Significant continuous or ongoing disturbance of 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:

MERC (2012). Intertidal Benthic Survey of Courtmacsherry Estuary SAC and Courtmacsherry Bay SPA. Carried out by MERC on behalf of the Marine Institute in partnership with National Parks and Wildlife Service, Department of Environment, Heritage and Local Government.

MERC (2012). Subtidal Benthic Survey of Courtmacsherry Estuary SAC and Courtmacsherry Bay SPA. Carried out by MERC on behalf of the Marine Institute in partnership with National Parks and Wildlife Service, Department of Environment, Heritage and Local Government.

Figure 1. Extent of Mudflats and sandflats not covered by seawater at low tide in Courtmacsherry Estuary SAC

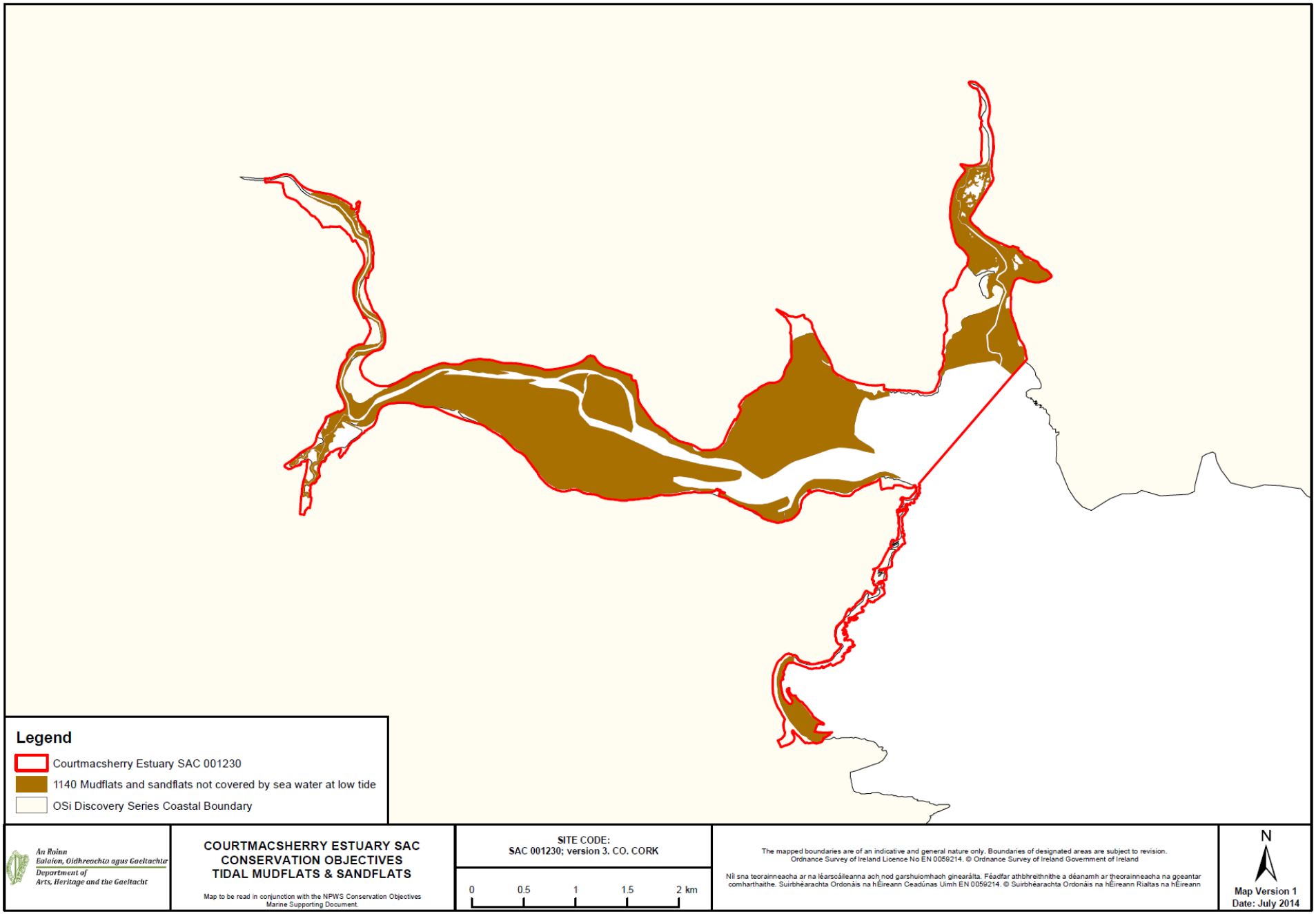

Figure 2. Extent of Estuaries in Courtmacsherry Estuary SAC

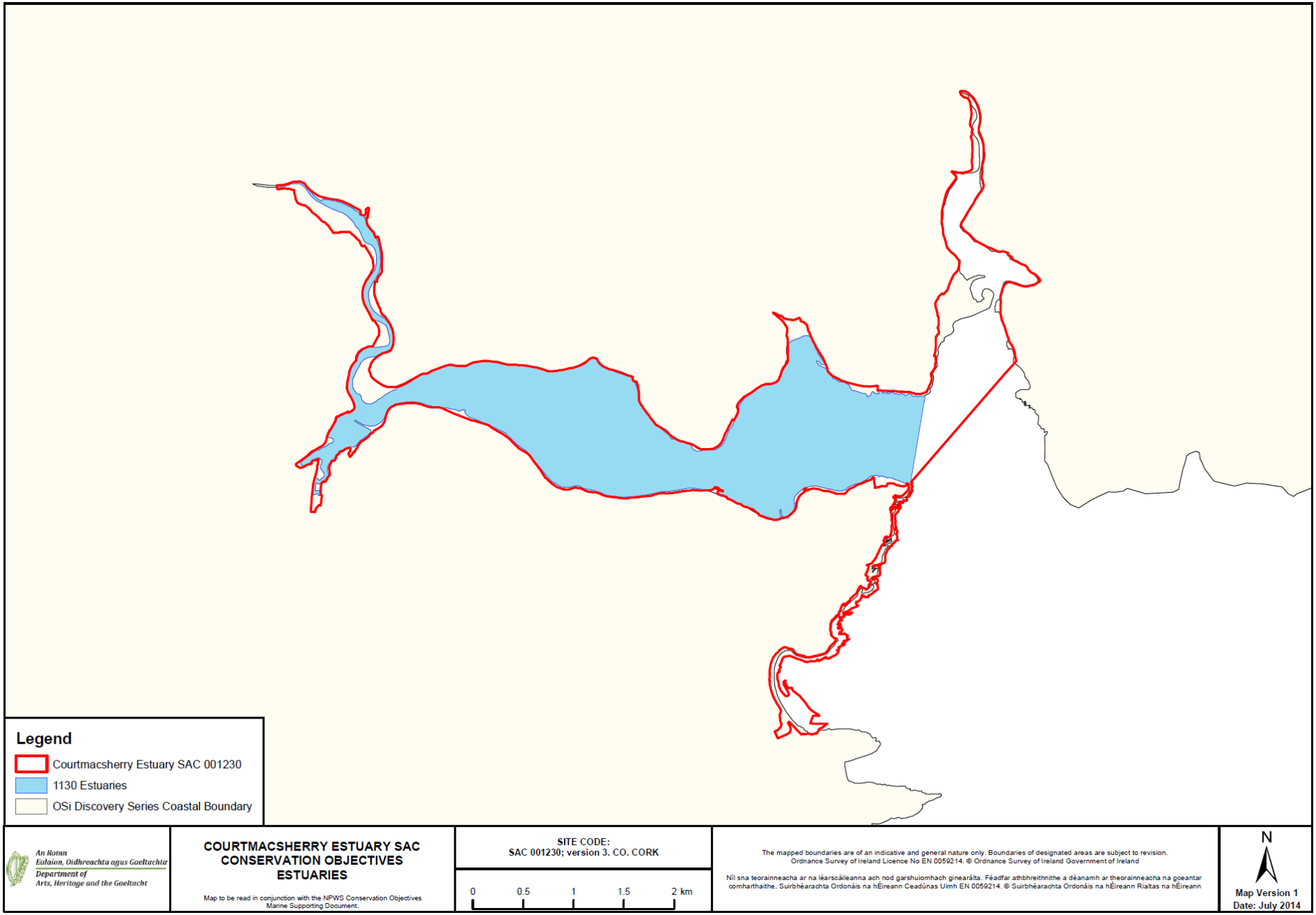

Figure 3. Distribution of community types in Courtmacsherry Estuary SAC