Net Gain

Final Recommendations
Submission to Natural England & JNCC

Section 7.2 (Site Assessment Document)
NG 1c, Alde Ore Estuary

31 August 2011

Version 1.1

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Error correction relating to rMCZ NG1c

Since submitting the Final Recommendations Report, Net Gain has become aware of some minor errors in, and omissions from, the text of the report.

There is an error in Table 7.5 (p.97 of the original report) where the value provided for the area covered within site NG1c by the highly mobile SOCI (smelt) feature is incorrect.

The correct area value for smelt within site NG1c should have been recorded as 12.24km^2. The corrected table is presented below.

Table 7.5 Features proposed for designation within NG1c, Alde Ore Estuary

Feature type	Feature name	Area covered within site (for broad-scale habitats and habitats of conservation importance)
Broad-scale habitat	n/a	n/a
Habitat of conservation importance	Estuarine rocky habitats	4 points
Habitat of conservation importance	Sheltered muddy gravels	1 point
Species of conservation importance	Smelt (*Osmerus eperlanus*)	12.24km²
Geological feature	Orfordness (subtidal)	12.23km²
Other feature	n/a	n/a

7.2 Marine Conservation Zone: NG 1c, Alde Ore Estuary

Version and issue date	Amendments made
V1.0 August, 2011	

Site name

NG1c, Alde Ore Estuary

Site centre location

52° 06’ 59’’N, 1° 32’ 09’’ E
52.11663°, 1.536085°
Lambert Azimuthal Equal Area projection, ETRS89 datum

Site surface area

12.24km² / 1,224.13ha
Lambert Azimuthal Equal Area projection, ETRS89 datum

Biogeographic region

JNCC Regional Sea: Southern North Sea
OSPAR Region II: Greater North Sea

Table 7.5 Features proposed for designation within NG1c, Alde Ore Estuary

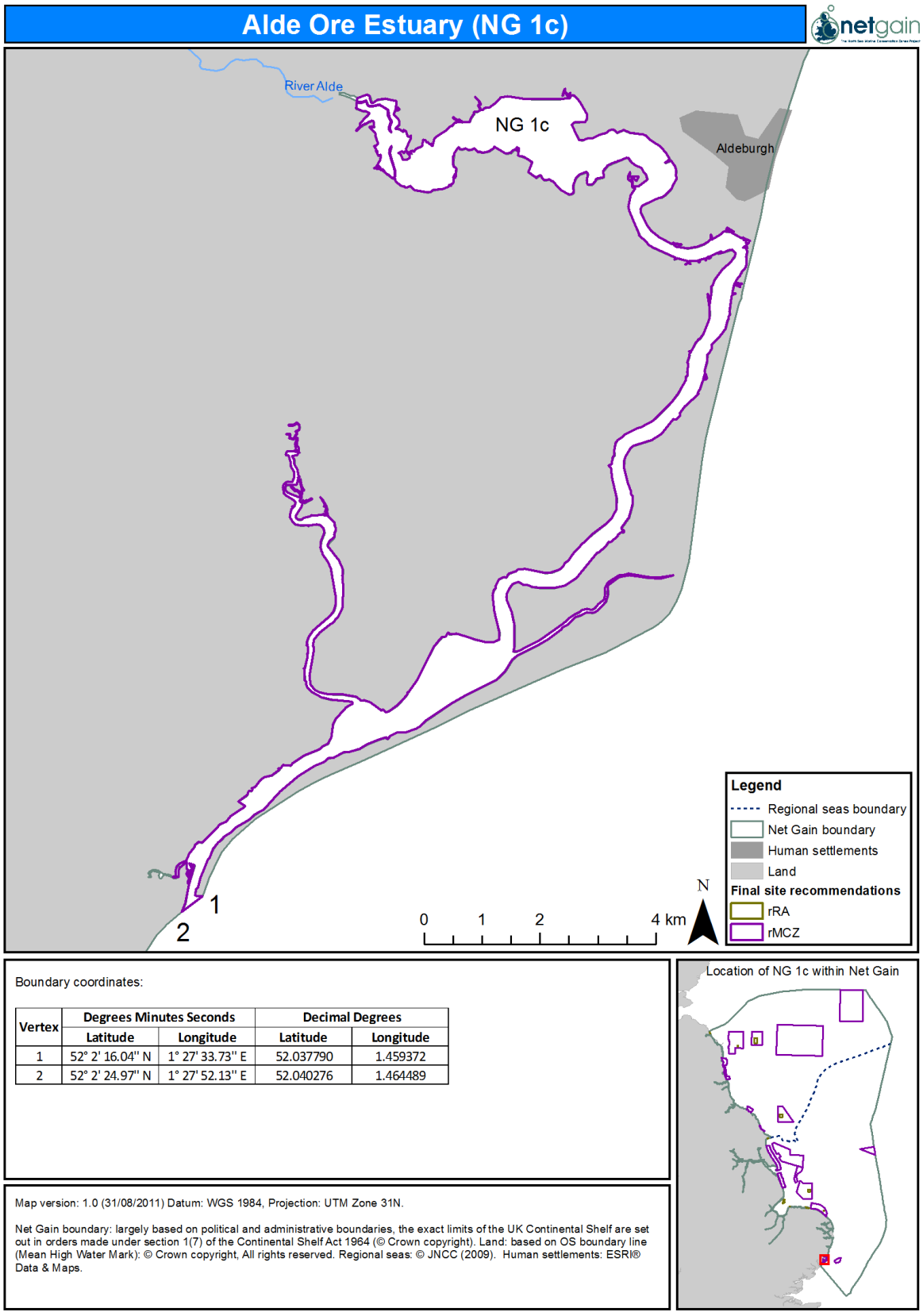
Feature type	Feature name	Area covered within site (for broad-scale habitats and habitats of conservation importance)
Broad-scale habitat	n/a	n/a
Habitat of conservation importance	Estuarine rocky habitats	4 points
Habitat of conservation importance	Sheltered muddy gravels	1 point
Species of conservation importance	Smelt (*Osmerus eperlanus*)	36.70km²
Geological feature	Orfordness (subtidal)	12.23km²
Other feature	n/a	n/a

Table 7.6 Features within NG1c, Alde Ore Estuary not proposed for designation

Feature type	Feature name	Reason that feature has not been proposed for designation
Broad-scale habitat	A1.3: Low energy intertidal rock	Very small portion of habitat present (0.02km²)[17]
Broad-scale habitat	A2.1: Intertidal coarse sediment	Very small portion of habitat present (0.02km²)[17]
Broad-scale habitat	A2.3: Intertidal mud	Very small portion of habitat present (0.01km²)[17]
Broad-scale habitat	A2.4: Intertidal mixed sediments	Very small portion of habitat present (0.0001km²)[17]
Broad-scale habitat	A2.7: Intertidal biogenic reefs	Very small portion of habitat present (0.001km²)[17]
Broad-scale habitat	A5.2: Subtidal sand	Small portion of habitat present (1.87km²)[17]
Broad-scale habitat	A5.4: Subtidal mixed sediments	Very small portion of habitat present (0.38km²)[17]
Habitat of conservation importance	Blue mussel beds	Only single point and 0.02km² present, not perceived to be a good example of this feature[17]
Species of conservation importance	European eel (*Anguilla anguilla*)	Not a significant ecological component of the site
Species of conservation importance	Tentacled lagoon-worm (*Alkmaria romijni*)	Only a single record present from 1992[17]

[17] Discussions held during the July, 2011 LGM suggested that these features could be considered for designation in subsequent stages of the MCZ consultation process on the basis that their inclusion would not materially alter the management requirements for the site. For the purposes of Net Gain's final recommendations these features have not been put forward for designation and have not been the subject of a vulnerability assessment.

Map of site



Vertex	Degrees Minutes Seconds		Decimal Degrees	
	Latitude	Longitude	Latitude	Longitude
1	52° 2' 16.04" N	1° 27' 33.73" E	52.037790	1.459372
2	52° 2' 24.97" N	1° 27' 52.13" E	52.040276	1.464489

Figure 7.9 Location and extent of site NG1c (Alde Ore Estuary)

Site summary

NG 1c is the Alde Ore Estuary located in close proximity to Aldeburgh on the Suffolk coast in the East of England, and includes the Orfordness (subtidal) geological feature (Brooks, et al. 2009; May, 2007). The depth range for the site is from 5m exposed at mean low water mark to 5m deep (Figure 7.13) with the eastwards running Alde River relatively wide and shallow whilst the southwest flowing Ore River is narrower and deeper with strong currents (JNCC, 2011b). The seabed of the site is composed of estuarine rocky habitats and sheltered muddy gravels put forward for recommendation, as well small areas of other intertidal rock, mud and sediment habitats, biogenic reefs and subtidal sediments. Smelt (*Omerus eperlanus*) is present and recommended for designation within the site, and is known to utilise the estuary for spawning and as a nursery for juveniles (Ellis, et al. 2010) along with other marine fish species (Colclough and Scarr, 2010). The diversity of habitats within the site provide opportunities for seabirds to forage, roost and nest (JNCC, 2011a).

Detailed site description

NG1c is being recommended for the presence of estuarine rocky habitats and sheltered muddy gravels and for its ecological importance for Smelt (*Omerus eperlanus*) as a breeding and nursery estuary. There is a variety of habitats including intertidal rock, mud, coarse sediment, mixed sediments, biogenic reefs, subtidal sand, Blue Mussel beds also present within this site (Tyler-Walters et al. 2009). The diversity of the habitat type is of particular significance to the birds occurring at the site as these provide a range of opportunities for feeding, roosting and nesting (JNCC, 2011a). The Orfordness is a geological feature of this site put forward for recommendation.

The site is located inshore from the coast in the east of England and the North Sea. The eastwards-running Alde River is relatively wide and shallow whilst the south- west flowing River Ore is narrower and deeper with strong currents (JNCC, 2011b). The Alde and Ore system is an example of a bar built estuary. Estuaries are ecologically important and protecting these productive, yet fragile eco-systems is vital. Diverse and species- rich intertidal sand and mudflat biotopes grade naturally along the length of the shore into vegetated or dynamic shingle habitat, saltmarsh, grassland and reedbed.

The site falls within the boundaries and would be in support of two currently designated Special Areas of Conservation (SACs); Alde, Ore and Butley Estuaries and Orfordness- Shingle street. It also falls within the Alde- Ore Estuary Special Protection Areas (SPAs) and Alde- Ore Estuary Special Sites of Scientific Interest (SSSIs) and Ramsar site. The Alde Ore SPA is a wetland of international importance and qualifies under Article 4.2 of the Directive by regularly supporting at least 20, 000 waterfowl and it is a seabird assemblage of international importance which also qualifies by regularly supporting at least 20,000 seabirds. The habitats of the SAC are the primary reason for selection of the site. These areas have a range of littoral sediment and rock biotopes that are of high diversity and species richness for estuaries in east of England and the area is relatively natural, being largely undeveloped with limited industrial activity (JNCC, 2011b). The site also overlaps with part of the Orfordness Geological Conservation Review (GCR) site, although this is not a feature of the site. The shingle ridges that form Orfordness extend 15 km south from Aldeburgh on the Suffolk coast and divert the River Ore for a similar distance (May, 2007). The site has been well documented and generally thought of as one of the largest and most important shingle structures on the British Coast (May, 2007).

The site is of importance for Smelt (*Omerus eperlanus*) which spawns in the area. Estuaries are important for juvenile fish and provide important feeding and refuge habitat. Research suggests that the current strategy of protecting marine fish at sea but leaving them vulnerable in their nursery grounds only meets with limited success, a case for establishing MCZs in estuaries (Colclough and Scarr, 2010). Over the last two centuries Smelt has gone into decline and disappeared from many rivers (English Nature, 2003). There is a lack of understanding of the human impact on high mobility species such as Smelt but they are thought to be under threat from

overfishing, pollution and habitat loss, important spawning grounds need to be protected (Net Gain, 2011).

The estuary also supports sprat and herring nurseries throughout and nurseries for other marine species such as sole and dab are afforded in the lower reaches (Colclough and Scarr, 2010). Migratory species such as Salmon, Sea Trout and Eel are common in these estuaries. Commercially important species that may be present include lobsters and oysters (Hill et al., 1996).

Blue Mussel beds are also present in the area, although the area is not perceived to be a particularly good example of this feature. The Tentacled Lagoon Worm (*Alkmoria romiji*) and the European Eel (*Anguila anguilla*) may also be present in the area but not a significant ecological component of the site. There is only one historical record to support the presence of the tentacle lagoon worm. Otolith microchemistry analyses of European and other eel species suggest that eels may settle in estuaries and in freshwater, and may move back and forth between these habitats to a variable extent (Arai et al., 2006). Estuaries are an important source of eel production.

A study by JNCC in 1996 showed the following; areas of mixed substrata on the mid shore, such as east of Snape Maltings were covered by a blanket of the ephemeral algae *Ulva lactucaI* and *Entermorpha* spp and where mixed substrata extended on the lower shore such as off Flybury Point, communities of anemones (*Sagartia* sp), peacock worms (*Sabella pavonina*), and the non- native slipper limpet (*Crepidula fornicate*) were found amongst red algae. Muddy substrata at the head of the Alde are supported by typical upper estuarine communities and are dominated by polychaetes and amphipods. The brackish water polychaetes *Alkmaria romijni* was recorded at two sites within the system and this polychaetes is listed as a schedule 5 species under the Wildlife and Countryside Act, 1981 (Hill et al., 1996). Bivalve (*Macoma balthica*) communites were found widespread and sandmason worms (*Lanice conchilega*) have been found near the mouth of the Ore Estuary (Hill et al., 1996).

The site supports assemblages of wetland birds at different times of the year and it is important for water birds, especially for breeding amongst species such as gulls and terns (JNCC, 2011a). The site is important for internationally important populations of regularly occurring migratory birds including redshank (*Tringa tetanus*) and lesser black- backed gulls (*Larus fuscus graellsii*) (JNCC, 2011b). The Alde- Ore Estuary SSSI and SPA support these seabird assemblages and other foraging species such as little, common and sandwich tern, herring, black- backed, lesser black- backed and black- headed gulls (RSPB, 2010). This MCZ would complement existing EU management

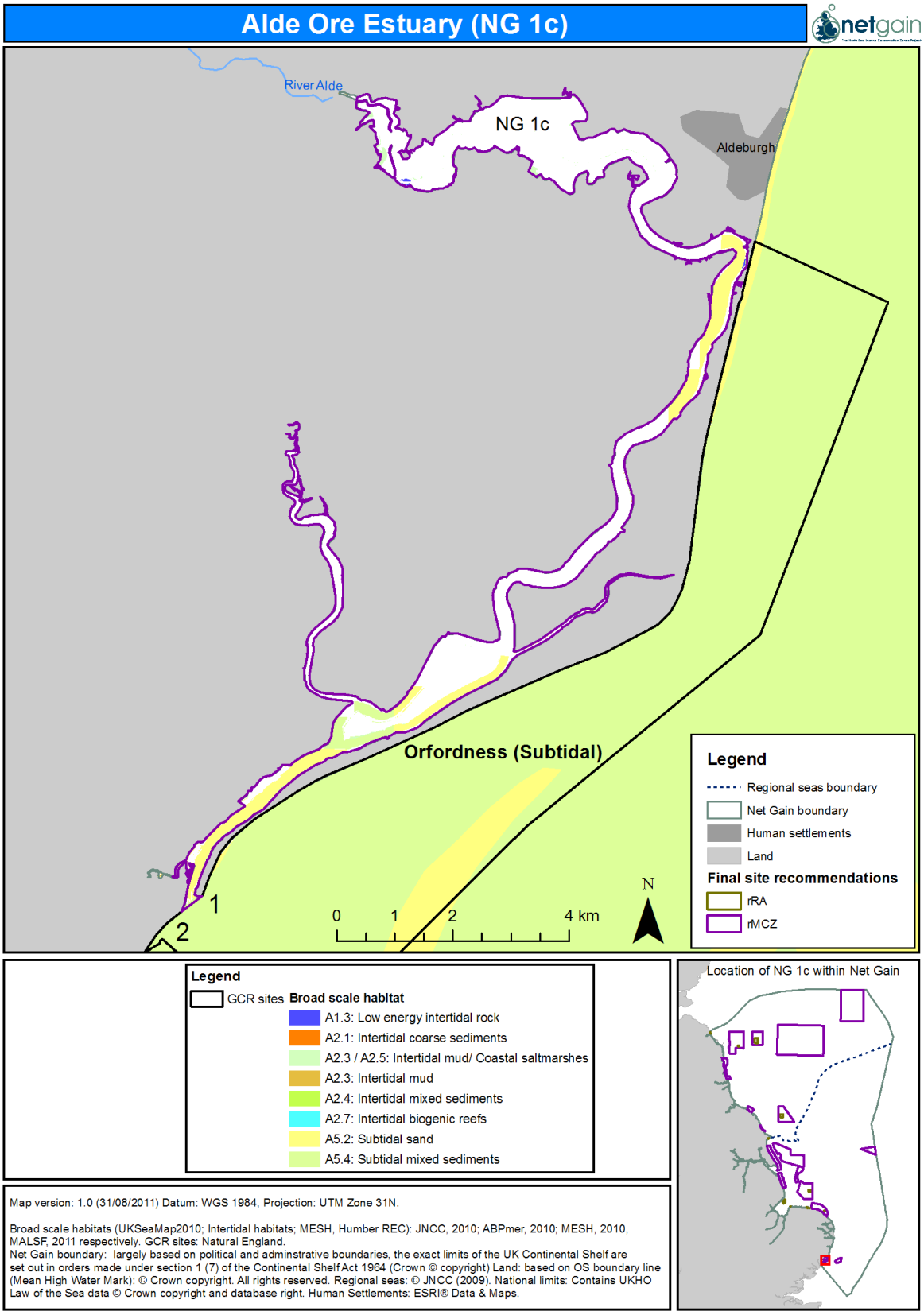


Figure 7.10 Broad-scale habitat present within NG 1c

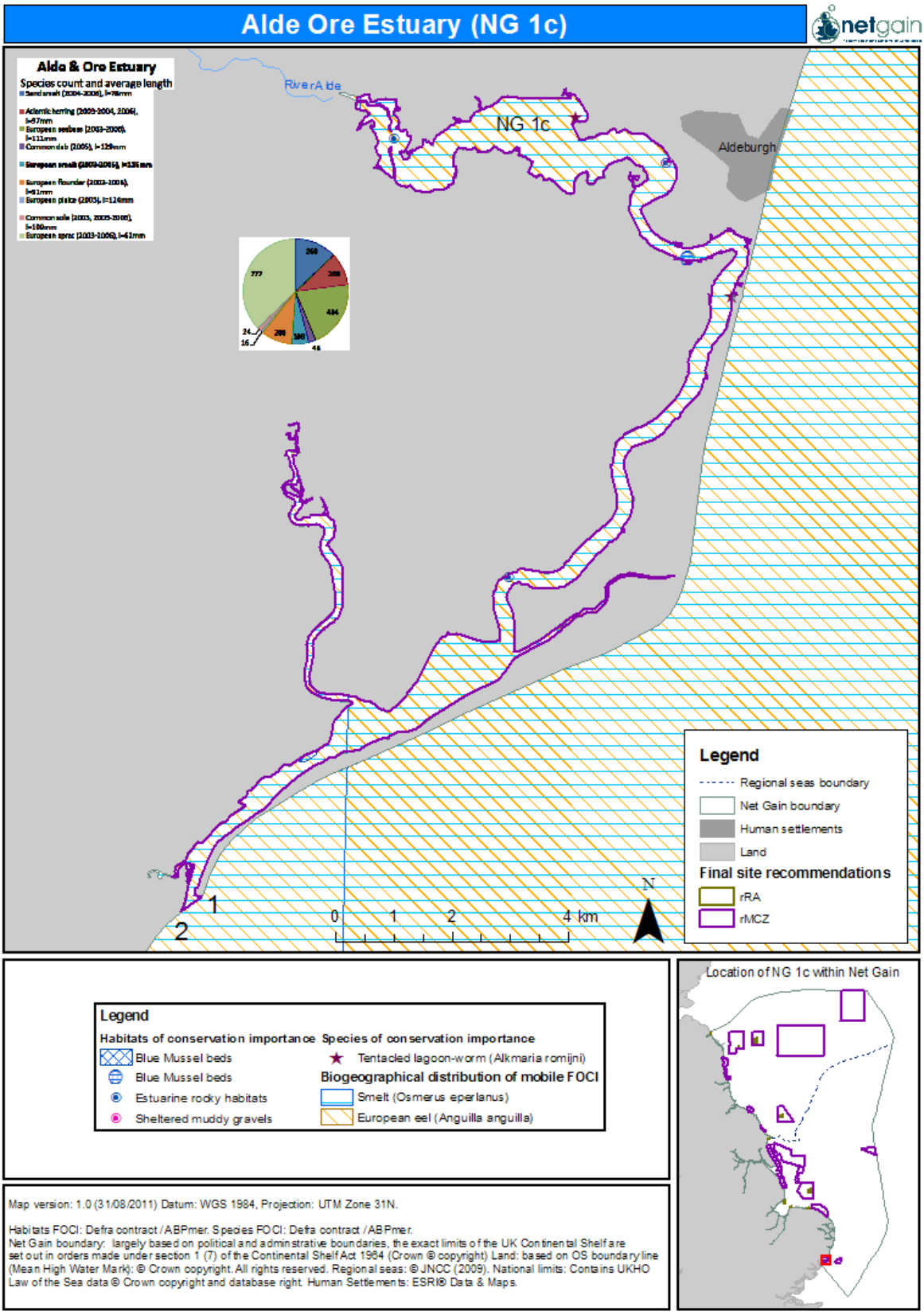


Figure 7.11 FOCI habitat and species present within NG 1c

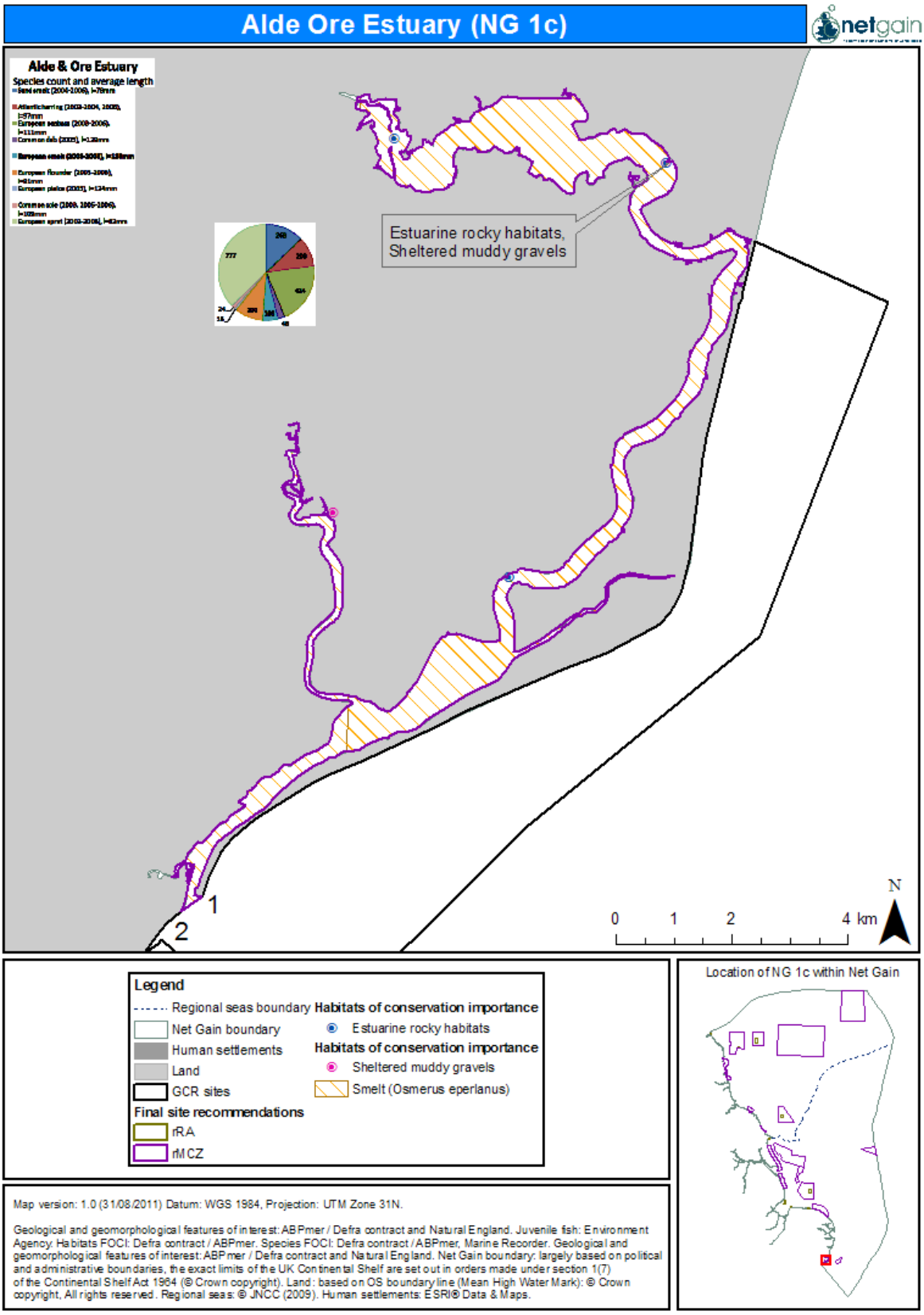


Figure 7.12 Features put forward for recommendation in NG 1c

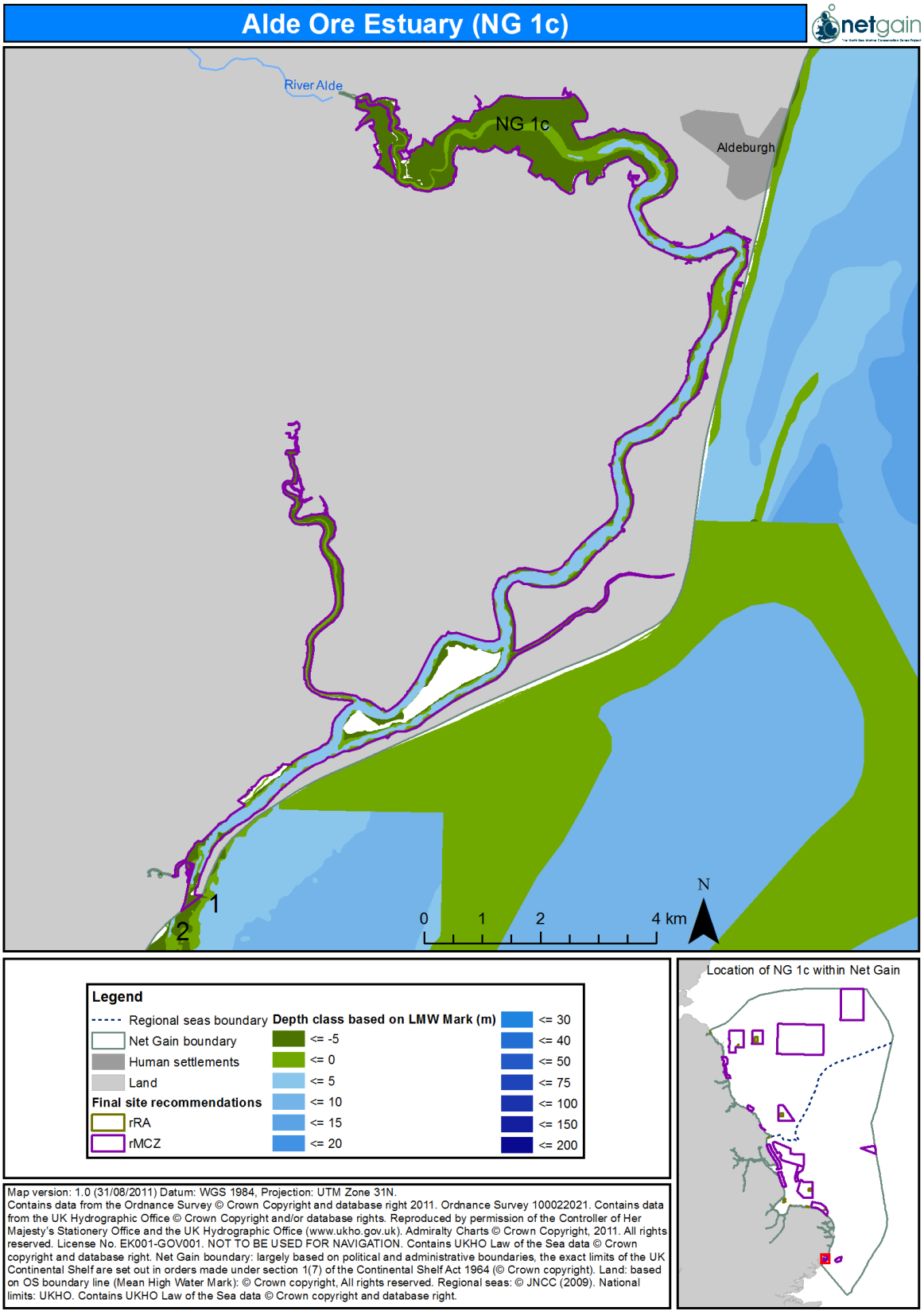


Figure 7.13 Bathymetry of NG 1c

Site boundary

The boundary of NG1c, Alde Ore Estuary site was derived from a much larger site NG2.01 that was subsequently split to be recommended for designation of specific features. It was suggested that it might be logical to consider estuarine MCZs separately to coastal MCZs due to the diversity of activities, authorities and environmental concerns. The site boundaries have been defined to include the entire estuary including the three rivers up to mean high water mark and to the seaward side of the spit.

Conservation objectives

Table 7.7 Conservation objectives for site NG 1c, Estuarine rocky habitat

Conservation Objective	
1 Maintain/ recover	Estuarine rocky habitats are on the UK List of Priority Species and Habitats (UK BAP). Subject to natural change, maintain the Estuarine rocky habitats in favourable condition, such that the:
2 Attributes and parameters (indicated by *) of feature	**Habitat** the • extent, • diversity, • community structure, • natural environmental quality*, and • natural environmental processes* representative of Estuarine rocky habitats in the biogeographic region are maintained, such that the feature makes its contribution to the network.
Advice on operations	
3 Pressures	Estuarine rocky habitats is sensitive to the pressures listed below: **Pressure** — **Sensitivity** — **Confidence** Emergence regime changes (sea level) - regional/national — H — L Introduction or spread of non-indigenous species & translocations (competition) — H — L Physical loss (to land or freshwater habitat) — H — L

	Atmospheric climate change	M	L
	Emergence regime changes - local	M	L
	Introduction of microbial pathogens (disease)	M	L
	Physical change (to another seabed type)	M	L
	Shallow abrasion/penetration: damage to seabed surface and penetration ≤25mm	M	L
	Structural abrasion/penetration: Structural damage to seabed >25mm	M	L
	Temperature changes - regional/national	M	L
	Removal of target species (lethal)	L	L
	Salinity changes - local	L	L
	Siltation rate changes (high)	L	L
	Temperature changes - local	L	M
Human activities	Human activities which cause these pressures will need to be managed if they prevent the conservation objectives from being achieved to ensure the rMCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.		

Table 7.8 Conservation objectives for site NG 1c, Sheltered muddy gravels

Conservation Objective	
1 Maintain/ recover	Sheltered muddy gravels are on the UK List of Priority Species and Habitats (UK BAP). Subject to natural change, maintain the sheltered muddy gravels to favourable condition, such that:
2 Attributes and parameters (indicated by *) of feature	**<u>Habitat</u>** the • extent, • diversity, • community structure, • natural environmental quality*, and • natural environmental processes* representative of the sheltered muddy gravels in the biogeographic region are maintained, such that the feature makes its contribution to the network.
Advice on operations	
3 Pressures	Sheltered muddy gravels is sensitive to the pressures: **Pressure** — **Sensitivity** — **Confidence** Physical loss (to land or freshwater habitat) — H — L Physical removal (extraction of substratum) — H — L Siltation rate changes (high) — H — M

	Atmospheric climate change	M	L
	Introduction or spread of non-indigenous species & translocations (competition)	M	L
	Physical change (to another seabed type)	M	L
	Removal of non-target species (lethal)	M	M
	Removal of target species (lethal)	M	M
	Shallow abrasion/penetration: damage to seabed surface and penetration ≤25mm	M	M
	Siltation rate changes (low)	M	M
	Structural abrasion/penetration: Structural damage to seabed >25mm	M	M
	Surface abrasion: damage to seabed surface features	M	M
	Temperature changes - regional/national	M	L
	Water clarity changes	M	L
	Wave exposure changes - local	M	L
	Wave exposure changes - regional/national	M	L
Human activities	Human activities which cause these pressures will need to be managed if they prevent the conservation objectives from being achieved to ensure the rMCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.		

Table 7.9 Conservation objectives for site NG 1c, Smelt (*Osmerus eperlanus*)

Conservation Objective	
1 Maintain/ recover	Smelt (*Osmerus eperlanus*) is on the UK List of Priority Species and Habitats (UK BAP). Subject to natural change, maintain the smelt (*Osmerus eperlanus*) to favourable condition, such that:
2 Attributes and parameters (indicated by *) of feature	**Species** the • natural range, • habitat extent, • population structure, • population density, • size structure, • natural environmental quality*, and natural environmental processes* representative of the Smelt (*Osmerus eperlanus*) in the biogeographic region is maintained, such that the feature makes its contribution to the network.
Advice on operations	
3 Pressures	Smelt (*Osmerus eperlanus*) is sensitive to the pressures: Guidance for the pressures that the feature is sensitive to have not been provided to the Net Gain regional project.
Human activities	Human activities which cause these pressures will need to be managed if they prevent the conservation objectives from being achieved to ensure the rMCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.

Table 7.10 Conservation objectives for site NG 1c, Orfordness (subtidal) geological feature

Conservation Objective	
1 Maintain/ recover	The Orfordness (subtidal) geological feature is a shingle ridge that provides evidence for oscillations in sea level, and provides a fantastic example for research to help clarify many of the processes that are relevant in spit development worldwide. Subject to natural change, maintin the Orfordness (subtidal) to favourable condition, such that:
2 Attributes and parameters (indicated by *) of feature	**<u>Geological/ Geomorphological</u>** the • extent, • component features, • spatial distribution, • integrity • natural environmental quality*, and • natural environmental processes* representative of the Orfordness (subtidal) in the biogeographic region is maintained, such that the feature makes its contribution to the network.
Advice on operations	
3 Pressures	Orfordness (subtidal) is sensitive to the pressures: Water flow (tidal and ocean current) changes-regional/national Emergence regime changes (sea level)-regional/national

	Wave exposure changes-regional/national Water flow (tidal current) changes-local Emergence regime changes-local Wave exposure changes-local Physical loss Siltation rate changes (flow) Siltation rate changes (high) Structural abrasion/penetration: structural damage to seabed >25mm Shallow abrasion/penetration: damage to seabed surface and penetration Surface abrasion: damage to seabed surface features Physical removal (extraction of substratum)
Human activities	Human activities which cause these pressures will need to be managed if they prevent the conservation objectives from being achieved to ensure the rMCZ contributes to an ecologically coherent and well-managed network of Marine Protected Areas.

Sites to which this site is related

This section considers neighbouring rMCZs and other MPAs that overlap with, or are adjacent to (i.e. within c.5km) of the rMCZ under discussion. Other sites that are linked with this rMCZ but which are outside of the scope of this section as defined are considered under 'Connectivity' within ENG requirement section.

The site NG 1c, Alde Ore Estuary falls within the boundaries of two currently designated SACs, Alde, Ore and Butley Estuaries and a small portion of the Orfordness-Shingle Street. The site also falls within Alde-Ore Estuary SPA, SSSI and Ramsar site.

The table below shows MCZ ENG features which are protected by existing designations, and where no ENG features are protected as indicated by the GAP analysis table (features protected by MPAs within the Net Gain region) further explanation is provided.

Table 7.11 MPAs present within NG 1c

MPA Type	Site Name	Feature protected
SAC	Alde, Ore and Butley Estuaries	A2.1: Intertidal coarse sediment A2.2: Intertidal sand and muddy sand A2.3: Intertidal mud A2.4: Intertidal mixed sediments A2.5: Coastal saltmarshes and saline reedbeds
SAC	Orfordness-Shingle Street	Lagoon sand shrimp (*Gammarus insensibilis*) Starlet sea anemone (*Nematostella vectensis*)
SPA	Alde-Ore Estuary	Not in GAP table Migratory bird species
SSSI	Alde-Ore Estuary	A2.1: Intertidal coarse sediment Saline lagoons Estuarine rocky habitats
Ramsar Site	Alde-Ore Estuary	Not in GAP table Wetland site for migrating bird species

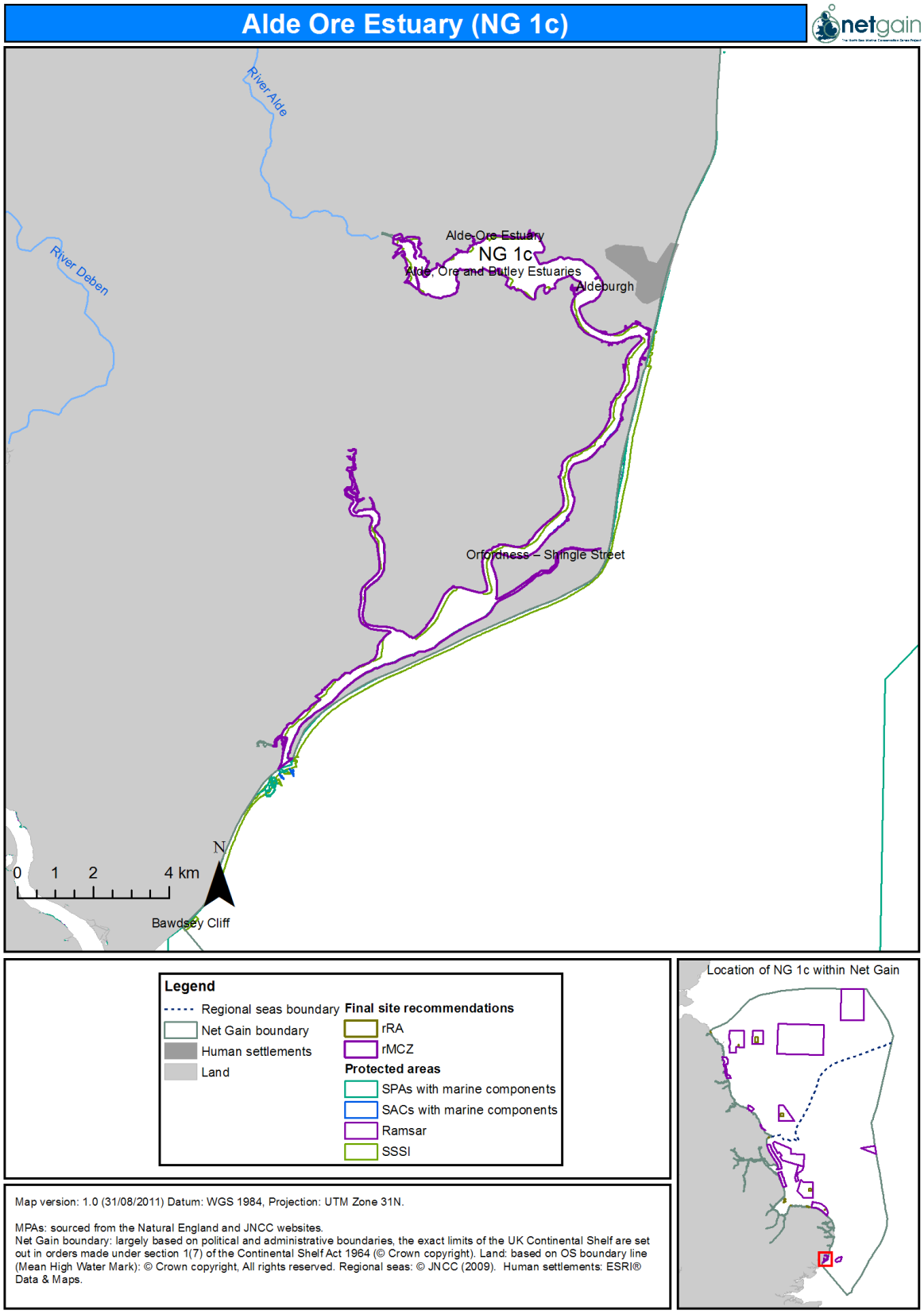


Figure 7.14 MPA and rMCZ/rRA sites neighbouring NG 1c

Levels of stakeholder support

At the second Large Group Meeting (July 2011) stakeholders (who were assigned to groups to discuss the sites from their own Regional Hubs) were asked to provide **feedback on the consensus support** for the site (scoring 1 for 'strongly against' through to 4 for 'strongly support'), an indication of the likely level of contention that designation of the site might have (scored as 'L', 'M' or 'H'), and a view on the group's confidence in the underlying data used to develop site proposals (again scored as 'L', 'M' or 'H').

The level of support was generally high, with scores of 4 and 3 being given (by groups containing representatives of the Wildlife Trust and inshore fishery concerns, respectively).

Confidence in the underlying data was moderate (scores from two groups were 'M') but one group commented that they would like more clarity of where the GCR site is as it cannot be clearly seen on the map.

Potential level of contention was recorded as low to moderate (one 'L', one 'M'), and it was noted that there may possibly be local opposition from those who have chosen not to participate or who have not yet been contacted during the process.

Formal sector-specific feedback on the network of MCZs presented in the Draft Final Recommendations report was provided by a number of stakeholders. A précis of their comments is provided below. Full copies of all formal feedback received for the Draft Final Recommendations, as well as for each of the three preceding iterations, are presented as an Annex to this report.

- RSPB:- Not against the site, but would prefer to see the 'original' site NG1 reinstated in its place
- The Crown Estate:- Accept
- The Wildlife Trusts:- Site not particularly supported – would prefer instead to see 'original' site NG1 reinstated

Table 7.12 Supporting documentation

Information	Type of information	Source
Blue mussel beds, Estuarine rocky habitat, Sheltered muddy gravels	Combination of historical and recent records	Tyler-Walters, et al. 2009
Broad-scale habitat	Modelled data	Mc Breen, 2010
Broad-scale habitat	Collated habitats maps	Frost, 2010
Broad-scale habitat	Collated habitats maps	Coltman, et al. 2008
Geological and geomorphological features of interest	Survey	Brooks, et al. 2009
Smelt, European eel	Combination of historical and recent records	Ellis, et al. 2010
Tentacled lagoon worm (Alkmaria romijni)	Combination of historical and recent records	Seeley, et al. 2010

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