Net Gain

Final Recommendations
Submission to Natural England & JNCC

Section 7.14 (Site Assessment Document)
NG 13a, Aln Estuary

31 August 2011

Version 1.1

Net Gain
The North Sea Marine Conservation Zones Project
The Deep Business Centre
Tower Street
Hull, HU1 4BG

7.14 Marine Conservation Zone: NG 13a, Aln Estuary

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

Site name

NG13a, Aln Estuary

Site centre location

55° 23’ 19’’N, 1° 37’ 03’’W
55.388717°, -1.617815°
Lambert Azimuthal Equal Area projection, ETRS89 datum

Site surface area

0.44km² / 44ha
Lambert Azimuthal Equal Area projection, ETRS89 datum

Biogeographic region

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

Table 7.112 Features proposed for designation within NG13a, Aln Estuary

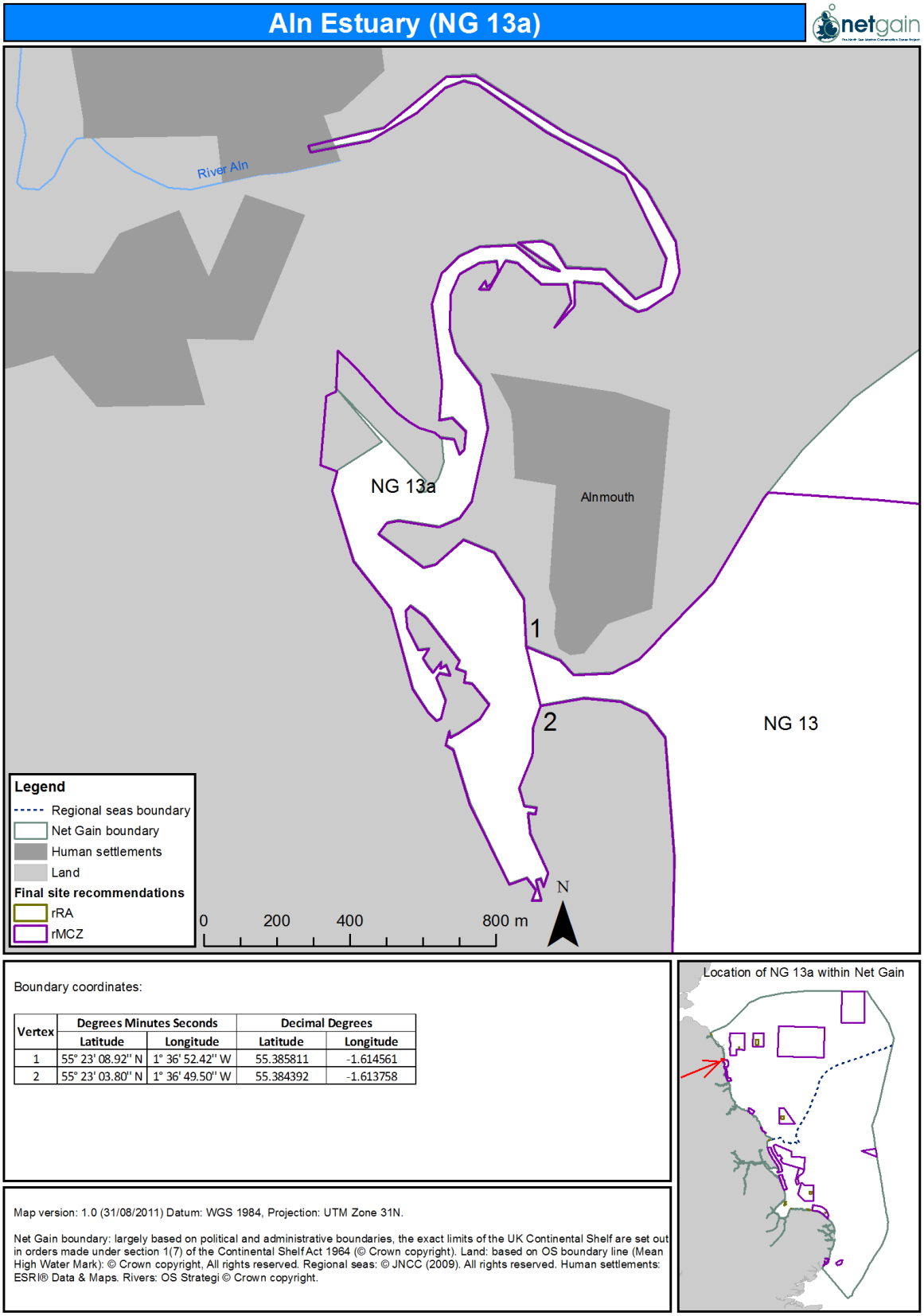
Feature type	Feature name	Area covered within site (for broad-scale habitats and habitats of conservation importance)
Broad-scale habitat	A2.3: Intertidal mud	0.10km²
Broad-scale habitat	A2.5: Coastal saltmarshes and saline reed beds	0.10km²
Broad-scale habitat	A3.1 High energy infralittoral rock	0.03km²
Habitat of conservation importance	Estuarine rocky habitat	2 points
Habitat of conservation importance	Sheltered muddy gravels	1 point
Habitat of conservation importance	Subtidal sands and gravels	0.12km²
Species of conservation importance	n/a	n/a
Geological feature	n/a	n/a
Other feature	n/a	n/a

Table 7.113 Features within NG 13a, Aln Estuary not proposed for designation

Feature type	Feature name	Reason that feature has not been proposed for designation
Broad-scale habitat	A5.2: Subtidal sand	The site was put forward for estuarine features[27]
Habitat of conservation importance	n/a	n/a
Species of conservation importance	n/a	n/a

[27] 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



Boundary coordinates:

Vertex	Degrees Minutes Seconds		Decimal Degrees	
	Latitude	Longitude	Latitude	Longitude
1	55° 23' 08.92'' N	1° 36' 52.42'' W	55.385811	-1.614561
2	55° 23' 03.80'' N	1° 36' 49.50'' W	55.384392	-1.613758

Map version: 1.0 (31/08/2011) Datum: WGS 1984, Projection: UTM Zone 31N.

Net Gain boundary: largely based on political and administrative boundaries, the exact limits of the UK Continental Shelf are set out in orders made under section 1(7) of the Continental Shelf Act 1964 (© Crown copyright). Land: based on OS boundary line (Mean High Water Mark): © Crown copyright, All rights reserved. Regional seas: © JNCC (2009). All rights reserved. Human settlements: ESRI® Data & Maps. Rivers: OS Strategi © Crown copyright.

Figure 7.119 Location and extent of site NG 13a, Aln Estuary

Site summary

NG 13a encompasses the Aln Estuary which is located in Northumberland on the North East coast of England. The depth range from the data provide by UKOA suggests that the site is entirely intertidal with a maximum depth of 0m at the lowest of low tides (Figure 7.123). The site has been developed to protect estuarine and saltmarsh habitats which provide areas for spawning, nurseries for juveniles and habitat for benthic species. The site supports other marine/estuarine vegetation including seagrass, and the intertidal flats which provide foraging areas for seabirds feeding on small invertebrates and worms. Of particular interest to the site is the current managed realignment strategy that is being carried out by the Environment Agency creating new saltmarsh habitat. The boundaries of NG 13a account for this, and include a field that has been flooded and saltmarsh habitat established.

Detailed site description

The part of the Aln Estuary that has been recommended for designation is predominantly coastal saltmarsh and saline reedbed, sheltered muddy gravels and estuarine rocky habitats all of which are designated BAP priority habitats (Maddock, 2008). In addition to this the site is also put forward for intertidal mud, high enegy infralittoral rock and subtidal sands and gravels.

The site aligns with the existing European Marine Site at the river mouth where a SSSI (Alnmouth Saltmarsh and Dunes) is already designated for the saltmarsh present. This site will further protect saltmarsh that is not already protected. Birds that have been identified in the area include roosting gulls, dunlin and other waders including redshank, curlew and snipe. The estuary is also identified by stakeholders as a roost site for Wigeon (*Anas Penelope*).

Saltmarshes occur on the muddy shores of sheltered estuaries and inlets and provide a link between land and sea. They support a specialist community of halophytic plants that are adapted to the salty conditions. Saltmarshes are able to trap and stabilise sediments and as such they form a natural coastal defence. It is for this reason that the Environment agency has created a further area of saltmarsh within NG 13a as part of the Foreshore or intertidal recharge project undertaken nationally by the Environment Agency. A field within the site was deliberately flooded in order to promote the creation of saltmarsh along with all the associated benefits of coastal defence and wildlife habitat. Saltmarsh is an important haven for wading birds and wildfowl when the tide covers the mudflats upon which they feed. Saltmarshes also provide an important habitat for many invertebrates themselves a food source to many species of birds as well as grazing opportunities to species such as Wigeon (*Anas Penelope*). Reedbeds are also important for birds providing food and shelter (Maddock, 2008) and may also be present within the site.

It is estimated that, at the mean high water line, 24% of the English coastline is saltmarsh habitat (Maddock, 2008). Saltmarshes and reedbeds are susceptible to land reclamation and drainage for activities such as agriculture. They may be 'squeezed out' when their retreat inland by rising sea levels is stopped by the presence of infrastructure such as roads or buildings. Other risks include damage from grazing, encroachment of other terrestrial plants such as grasses and changes to water quality. This emphasizes the need to protect these habitats where it is possible (Maddock, 2008; Connor, 2004).

Estuarine rocky habitats make up a very small percentage of most estuary habitats however they contribute greatly to the biodiversity within it. It is a comparatively uncommon feature of estuaries and there are only a small number of examples of this habitat on the Eastern coast of the UK with most to be found in Western and Northern parts of the UK. Due to differing conditions to rocky shore habitats found on the open coast, such as low wave energy, strong tidal effects, freshwater inflow and mobile sediments, biological communities found in estuarine habitats can be unique (Maddock, 2008).

Estuaries are important fish nursery grounds (Elliot, 2002). It has been demonstrated that marine fish use these habitats as nursery grounds. It therefore follows that to protect marine fish species in open water only misses out a major part of their lifecycle, and to do so may only meet with limited success. Although this site is designated for its saltmarsh, reedbed and estuarine rocky habitat these habitats create a protected area within the estuary which may enhance marine fish populations by providing protection for spawning and nursery areas (Elliot, 2002; Colclough, 2010).

The inner part of the Aln estuary at Coquet supports both Sprat (*Sprattus sprattus*) and Flounder (*Platichthys flesus*) nurseries, Migratory species including juvenile Plaice (*Pleuronectes platessa*), juvenile Flounder (*Platichthys flesus*), juvenile brown trout (*Salmo trutta*) and juvenile Atlantic salmon (*Salmo salar*) have been found close to the estuary mouth as are European eel and Sand eel (*Ammodytes tobianus),* it is therefore possible that the Aln Estuary is a nursery area that provides food for the wider ecosystem including fish, birds and ceataceans

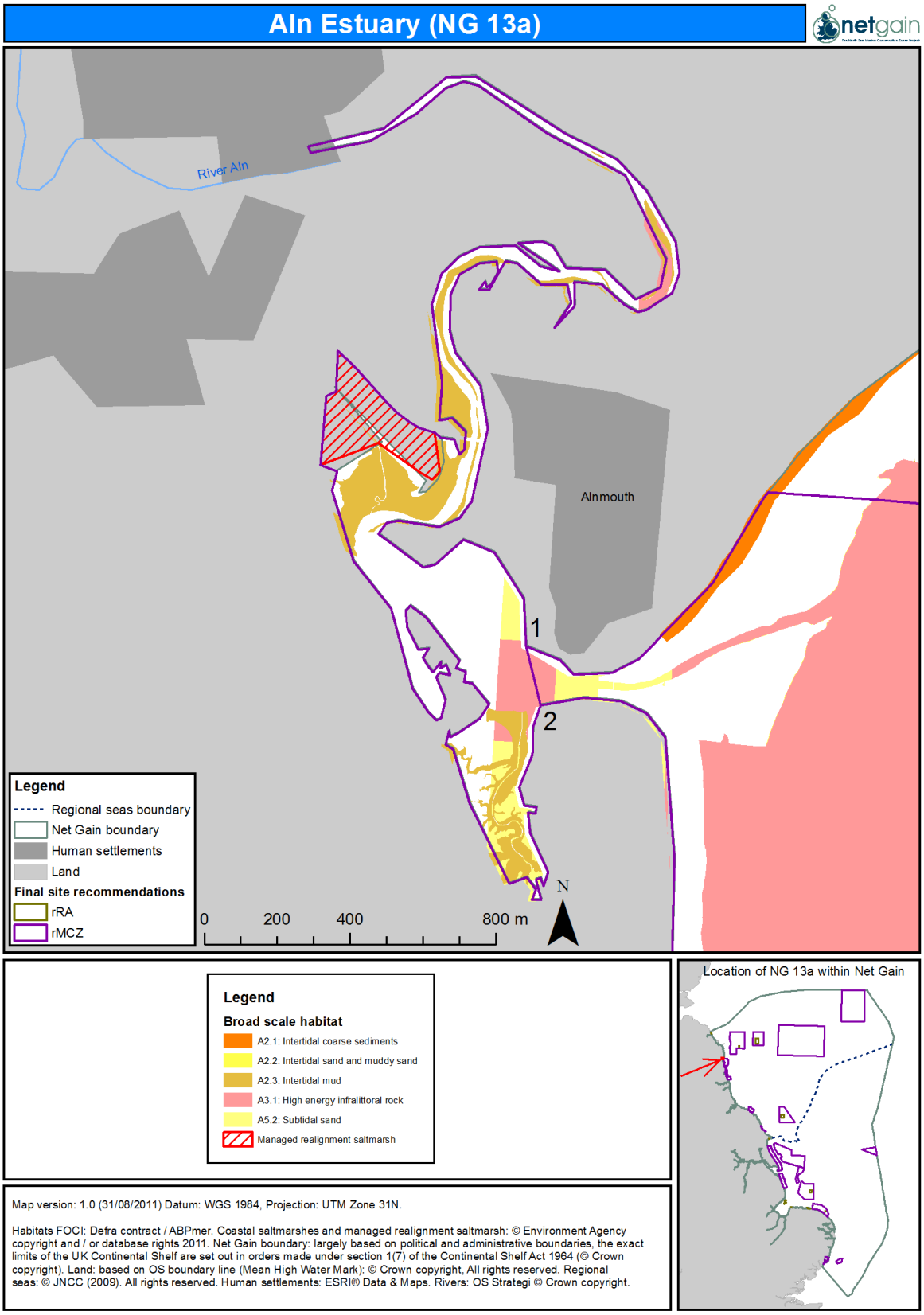


Figure 7.120 Broad-scale habitat present within NG 13a

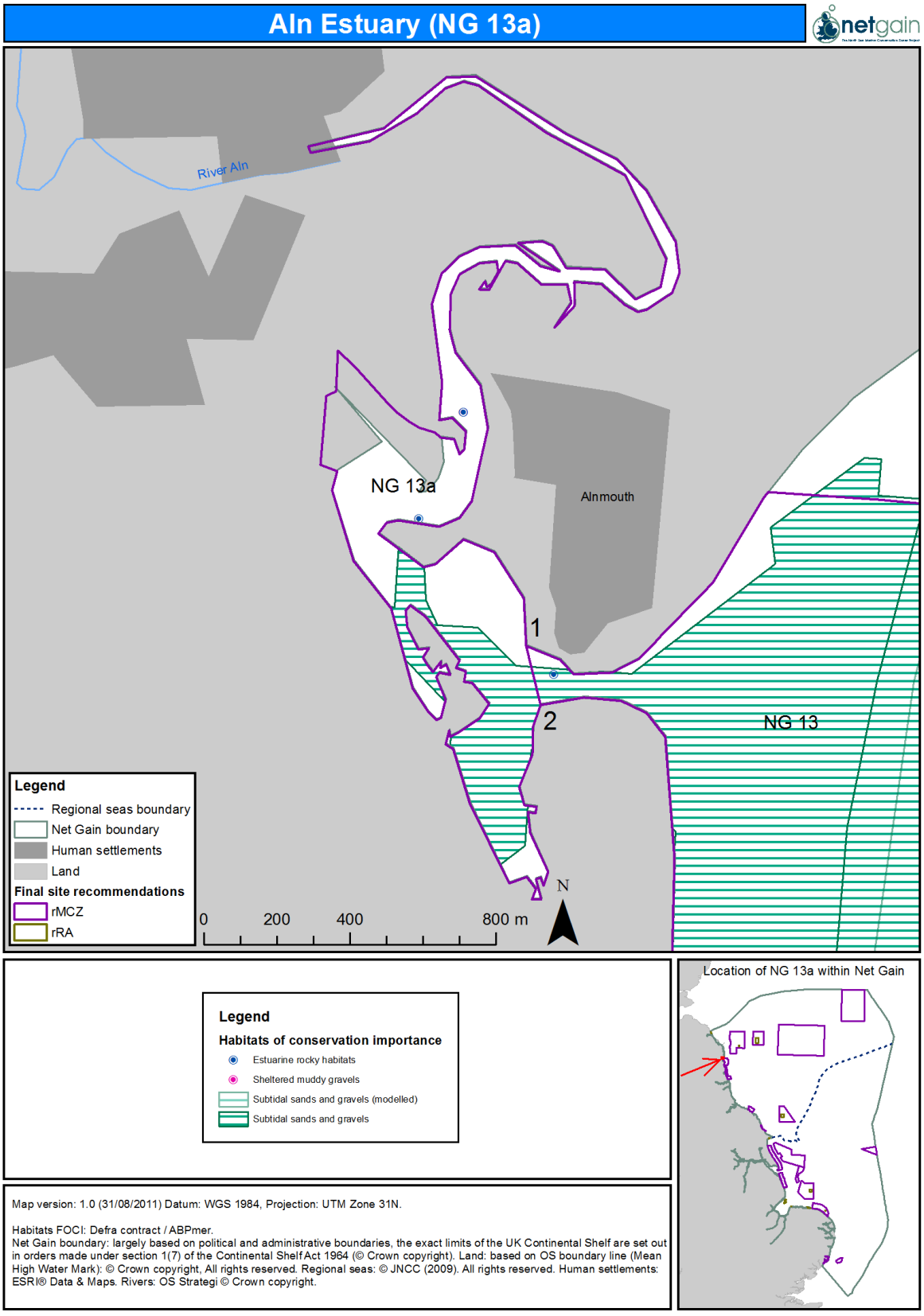


Figure 7.121 FOCI habitats and species present within NG 13a

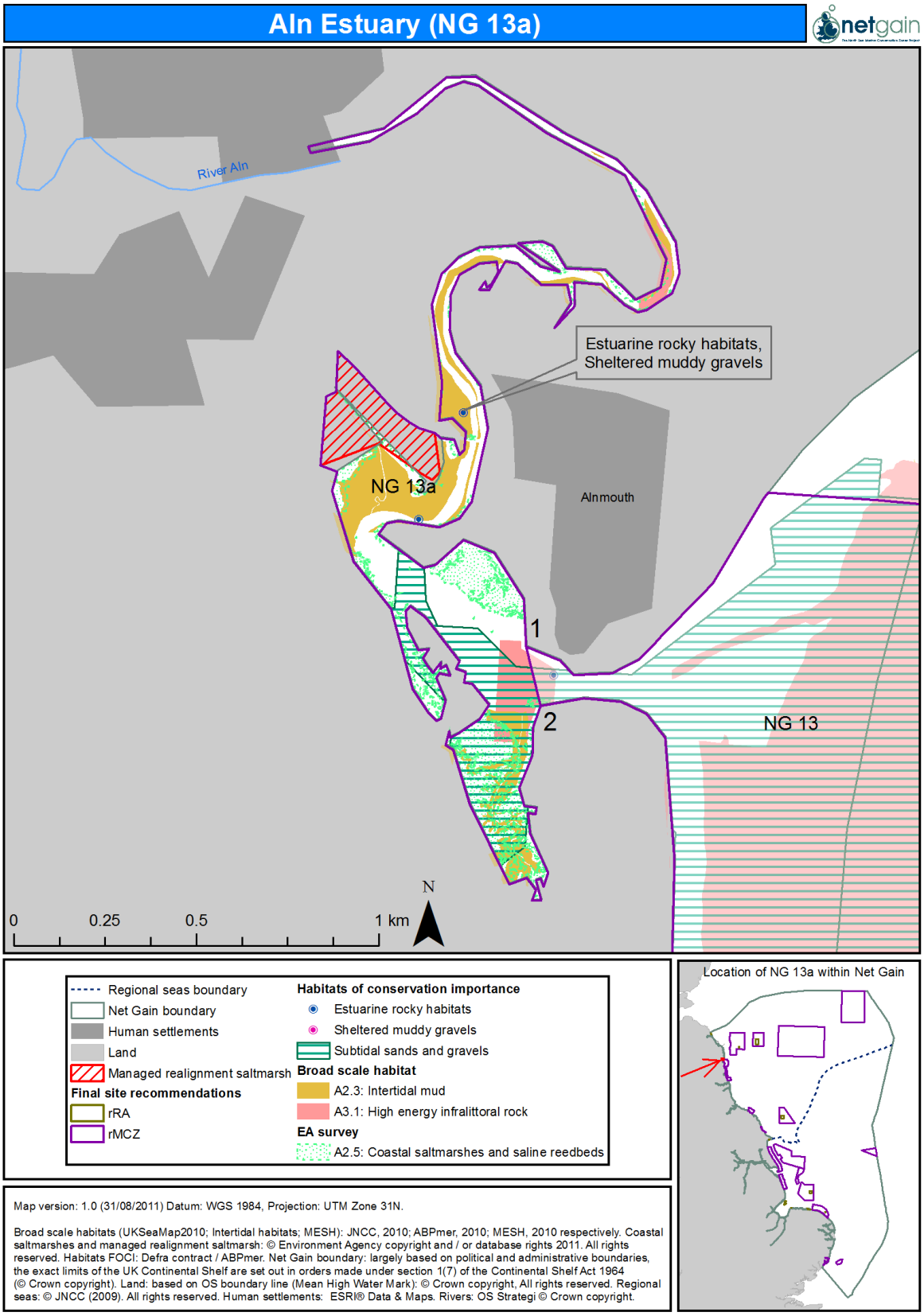


Figure 7.122 Features put forward for recommendation in NG 13a

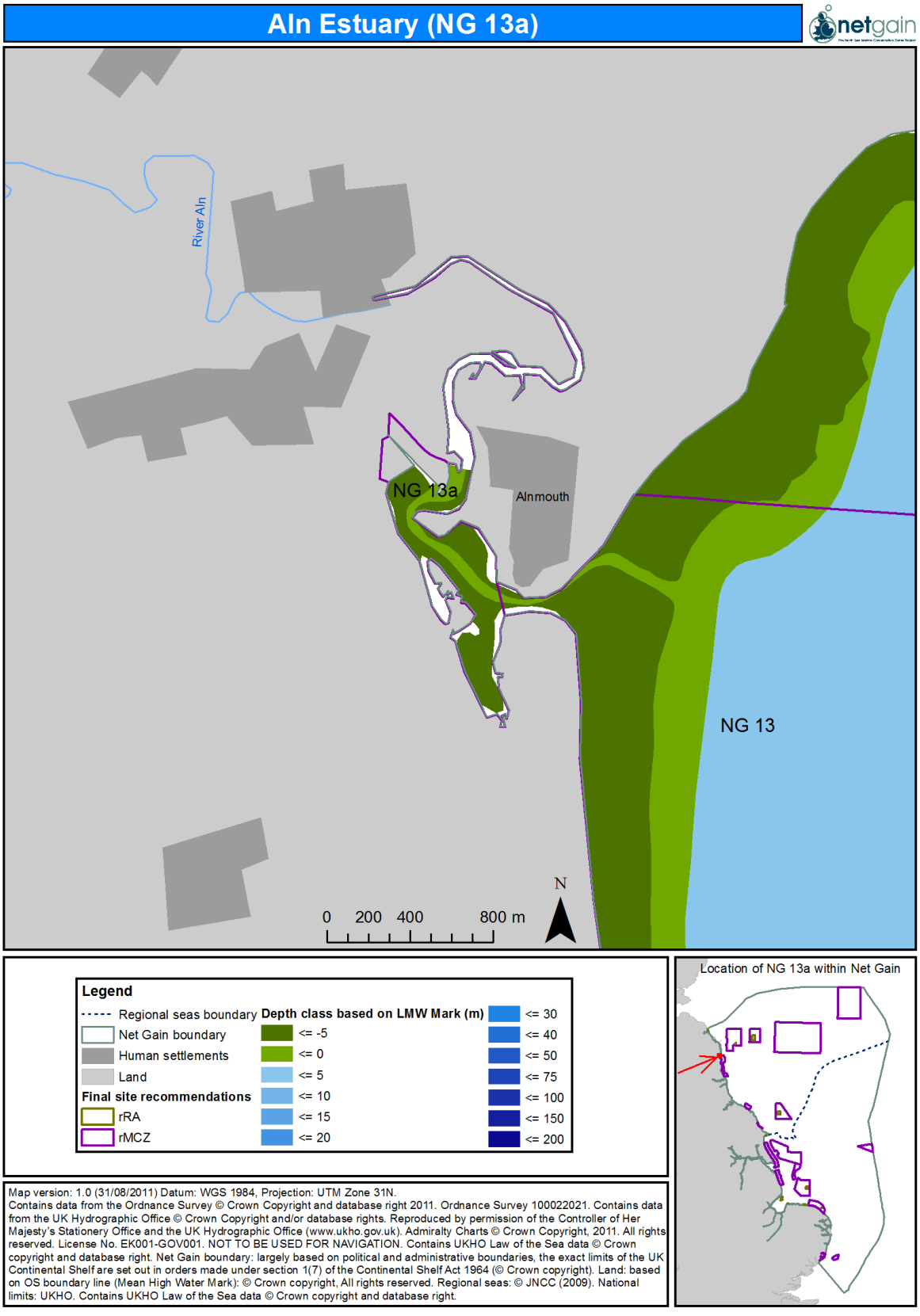


Figure 7.123 Bathymetry of NG 13a

Site boundary

The boundary of this site was developed to include the Net Gain boundary of the Aln Estuary, and also the field that was flooded for managed re-alignment to create saltmarsh habitat. The adjoining boundary of the site with NG 13 was altered during the May Regional Hub meeting this year to remove all commercial fishing activity from site NG 13a, in effect restricting the need for potential fisheries management to NG 13 only.

The site entirety of NG 13a has a seasonal CEFAS fisheries management that prevents the retention of sprat to help protect the herring.

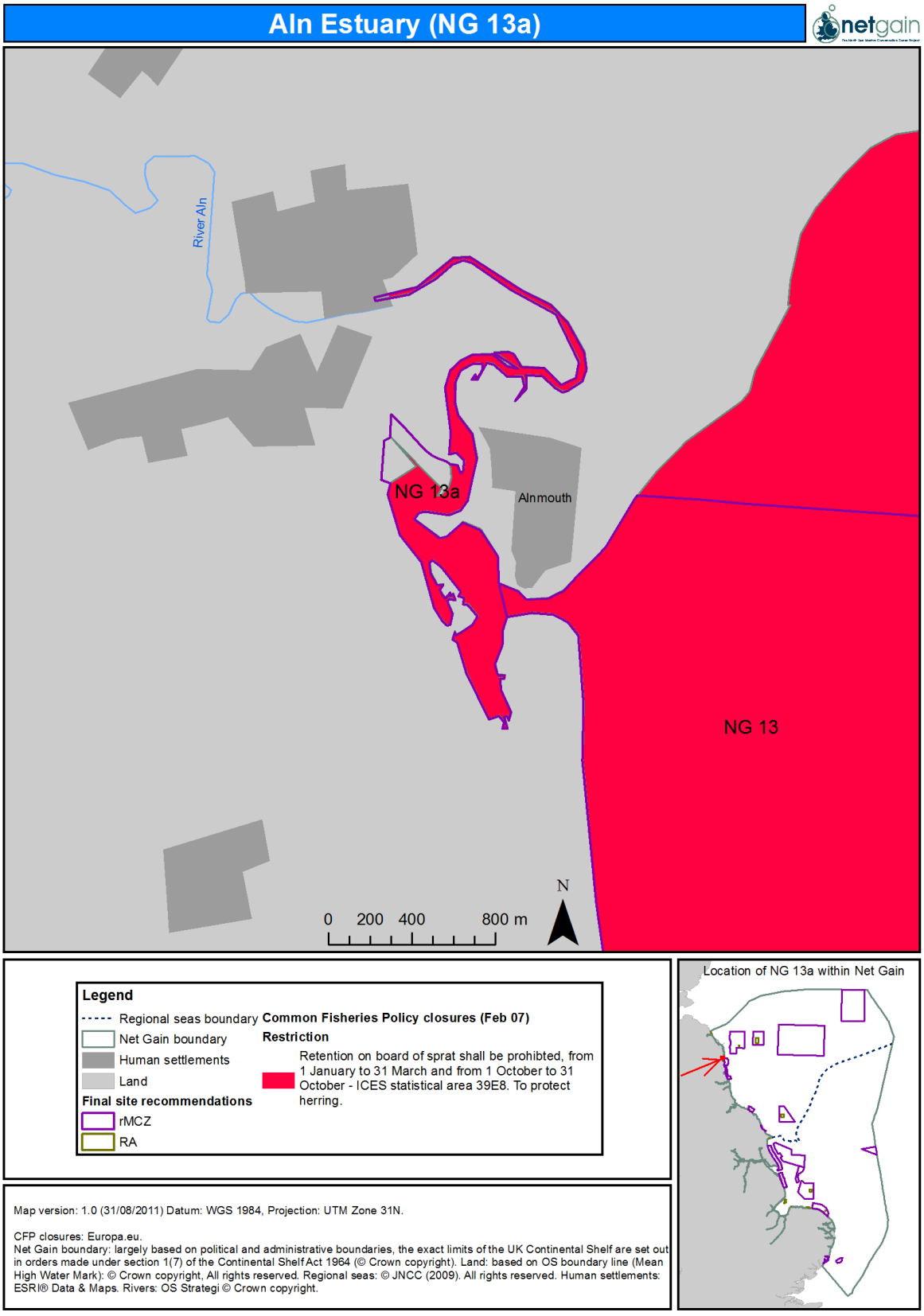


Figure 7.124 NG 13a site boundary with associated fishery management locations

Conservation objectives

Table 7.114 Conservation objectives for site NG 13a, A2.3: Intertidal mud

<table>
<tr><td>Conservation Objective</td><td></td></tr>
<tr><td>1
Maintain/ recover</td><td>Intertidal mud is protected under the Birds Directive, Annex 1 of the Habitats Directive, Ramsar Convention and are an important feature in estuary SSSIs under the Wildlife and Countryside Act 1981. It is also a UKBAP Priority Habitat and on the OSPAR List of Threatened and/or Declining Species and Habitats. Subject to natural change, maintain the Intertidal mud in favourable condition, such that the:</td></tr>
<tr><td>2
Attributes and parameters (indicated by *) of feature</td><td><u>Habitat</u>

the
• extent,
• diversity,
• community structure,
• natural environmental quality*, and
• natural environmental processes*

representative of Intertidal mud in the biogeographic region are maintained, such that the feature makes its contribution to the network.</td></tr>
<tr><td>Advice on operations</td><td></td></tr>
<tr><td>3
Pressures</td><td>Intertidal mud is sensitive to the pressures:
Pressure — Sensitivity — Confidence
Emergence regime changes (sea level) - regional/national — H — L
Physical change (to another seabed type) — H — L</td></tr>
</table>

	Physical loss (to land or freshwater habitat)	H	L
	Physical removal (extraction of substratum)	M-H	H
	Atmospheric climate change	M	L
	Emergence regime changes - local	M	L
	Removal of non-target species (lethal)	M	M
	Temperature changes - regional/national	M	L
	Wave exposure changes - local	M	L
	Wave exposure changes - regional/national	M	L
	Introduction or spread of non-indigenous species & translocations (competition)	NS-M	L-H
	Removal of target species (lethal)	NS-M	L-H
	Salinity changes - local	L	H
	Shallow abrasion/penetration: damage to seabed surface and penetration ≤25mm	L	H
	Siltation rate changes (high)	L	H
	Structural abrasion/penetration: Structural damage to seabed >25mm	L	H
	Temperature changes - local	L	H
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 7.115 Conservation objectives for site NG 13a, A2.5: Coastal saltmarshes and saline reedbeds

Conservation Objective	
1 Maintain/ recover	Coastal saltmarsh and saline reedbeds are protected under the Birds Directive, Annex 1 of the Habitats Directive, Ramsar Convention and are an important feature in estuary SSSIs under the Wildlife and Countryside Act 1981, and a UKBAP Priority Habitat. Subject to natural change, maintain the Coastal saltmarshes and saline reedbeds 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 Coastal saltmarshes and saline reedbeds in the biogeographic region are maintained, such that the feature makes its contribution to the network.
Advice on operations	
3 Pressures	Coastal saltmarshes and saline reedbeds is sensitive to the pressures: **Pressure** — **Sensitivity** — **Confidence** Physical change (to another seabed type) — H — L Physical loss (to land or freshwater habitat) — H — H Physical removal (extraction of substratum) — H — H

	Atmospheric climate change	M	L
	Emergence regime changes - local	M	L
	Emergence regime changes (sea level) - regional/national	M	L
	Introduction or spread of non-indigenous species & translocations (competition)	M	M
	Shallow abrasion/penetration: damage to seabed surface and penetration ≤25mm	M	M
	Siltation rate changes (high)	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 flow (tidal current) changes - local	M	L
	Wave exposure changes - local	M	L
	Wave exposure changes - regional/national	M	L
	Removal of target species (lethal)	L	M
	Siltation rate changes (low)	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 7.116 Conservation objectives for site NG 13a, A3.1: High energy infralittoral rock

Conservation Objective	
1 Maintain/ recover	High energy infralittoral rock is representative of shallow water rock, below the tides exposed to very strong waves and currents. Subject to natural change, maintain the High energy infralittoral rock 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 High energy infralittoral rock in the biogeographic region are maintained, such that the feature makes its contribution to the network.
Advice on operations	
3 Pressures	High energy infralittoral rock is sensitive to the pressures listed below:

Pressure	**Sensitivity**	**Confidence**
Physical change (to another seabed type)	H	L
Physical loss (to land or freshwater habitat)	H	L
Siltation rate changes (high)	M-H	L
Physical removal (extraction of substratum)	M	L

	Removal of non-target species (lethal)	M	L
	Removal of target species (lethal)	M	M
	Shallow abrasion/penetration: damage to seabed surface and penetration ≤25mm	M	L
	Structural abrasion/penetration: Structural damage to seabed >25mm	M	L
	Surface abrasion: damage to seabed surface features	M	L
	Temperature changes - regional/national	M	L
	Salinity changes - local	L-M	L
	Water clarity changes	L-M	L
	Introduction or spread of non-indigenous species & translocations (competition)	NS-L	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 7.117 Conservation objectives for site NG 13a, Estuarine rocky habitats

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: **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 7.118 Conservation objectives for site NG 13a, 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 in favourable condition, such that the:
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 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 listed below: **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 7.119 Conservation objectives for site NG 13a, Subtidal sands and gravels

Conservation Objective	
1 Maintain/ recover	Subtidal sands and gravels are on the UK List of Priority Species and Habitats (UK BAP). Subject to natural change, maintain the subtidal sands and 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 subtidal sands and gravels in the biogeographic region is maintained, such that the feature makes its contribution to the network.
Advice on operations	
3 Pressures	Subtidal sands and gravels is sensitive to the pressures: **Pressure** — **Sensitivity** — **Confidence** Physical loss (to land or freshwater habitat) — H — L Surface abrasion: damage to seabed surface features — NS-H — M-H Physical change (to another seabed type) — M — H Physical removal (extraction of substratum) — M — H

	Shallow abrasion/penetration: damage to seabed surface and penetration ≤25mm	L-M	H
	Structural abrasion/penetration: Structural damage to seabed >25mm	L-M	M-H
	Introduction or spread of non-indigenous species & translocations (competition)	NS-M	L
	Removal of non-target species (lethal)	NS-M	L-M
	Removal of target species (lethal)	NS-M	L
	Siltation rate changes (high)	NS-M	M-H
	Siltation rate changes (low)	NS-M	M-H
	Salinity changes - local	L	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.		

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 overlaps with Alnmouth Saltmarsh Dunes SSSI, and boarders with the boundaries of NG 13.

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 7.120 MPAs within NG 13a

MPA Type	Site Name	Features Protected
SSSI	Alnmouth Saltmarsh and Dunes	A2.5: Coastal saltmarshes and saline reedbeds Coastal saltmarsh
SSSI	Northumberland Shore	A2.2: Intertidal sand and muddy sand

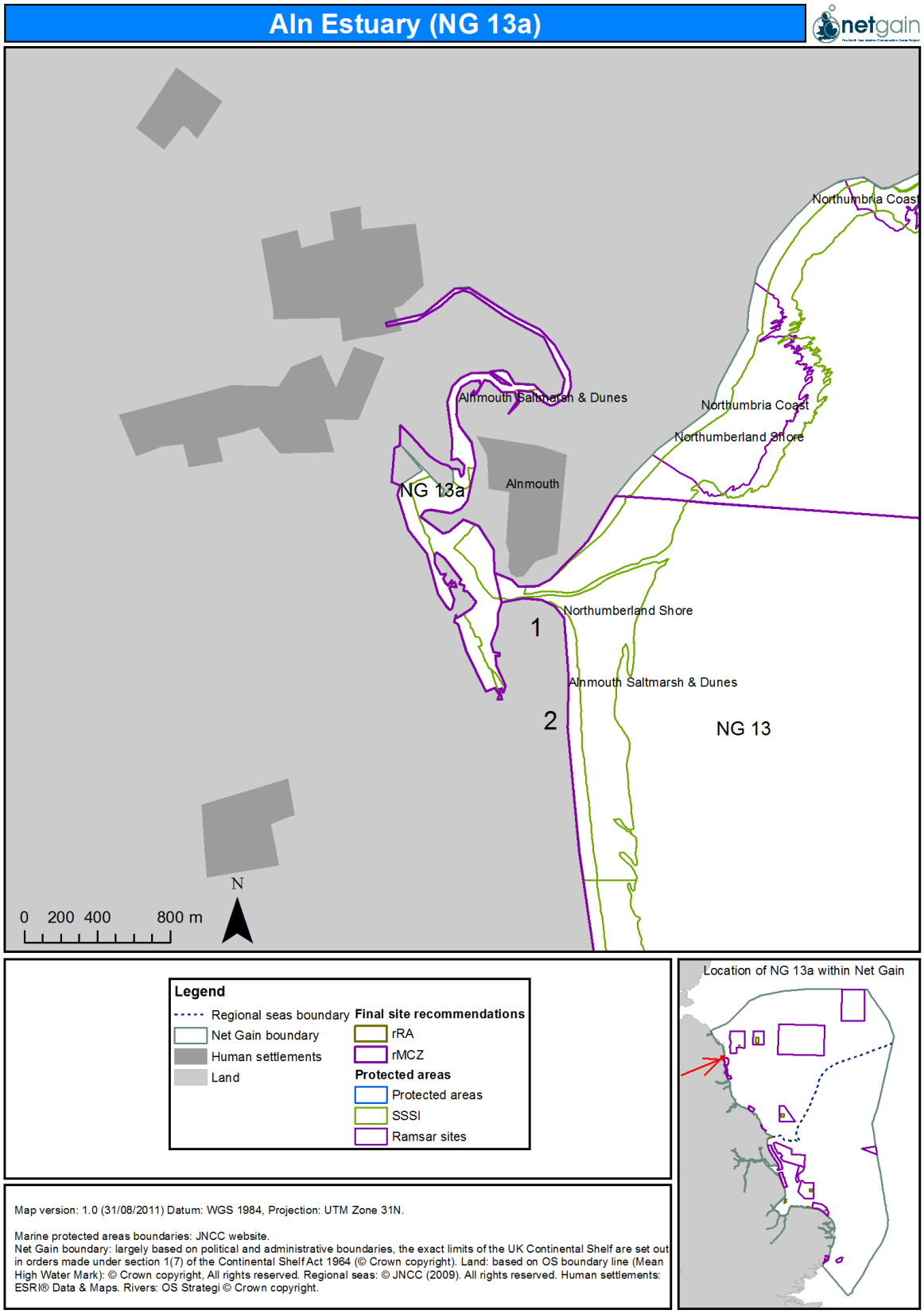


Figure 7.125 MPAs and rMCZs neighbouring NG 13a

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').

Consensus support for the site was high, with both groups strongly in support of the site, reflecting the consensus achieved in earlier Regional Hubs. It was suggested that the views of recreational sea anglers should be gathered to fully inform opinion on the site.

Whilst the confidence in the underlying data was high, it was suggested that some of the data could be more recent, and recommended a resurvey of the area. The sand in the site, which is known to be present, is not mapped.

Overall, the site contention was felt to be low. As proposed, the site 'ticks all the boxes'.

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.

- Northumberland IFCA:- Neutral – currently managed satisfactorily but fishing community not happy with potential implications
- The Wildlife Trusts:- Site recommendation is supported but with points of clarification raised, and suggestions for improvement

Table 7.121 Supporting documentation

Information	Type of information	Source
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
Broad-scale habitat: A2.5: Coastal saltmarshes and saline reedbeds	Survey	© Environment Agency, 2011
Estuarine rocky habitat, Sheltered muddy gravels, Subtidal sands and gravels	Combination of historical and recent records	Tyler-Walters, et al. 2009

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