Net Gain

Final Recommendations
Submission to Natural England & JNCC

Section 7.13 (Site Assessment Document)
NG 13, Coquet to St Mary's

31 August 2011

Version 1.1

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

7.13 Marine Conservation Zone: NG 13, Coquet to St Mary's

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

Site name

NG 13, Coquet to St Mary's

Site centre location

55° 14' 18''N, 1° 29' 31''W
55.238470°, -1.492302°
Lambert Azimuthal Equal Area projection, ETRS89 datum

Site surface area

198.75km² / 19,874.56ha
Lambert Azimuthal Equal Area projection, ETRS89 datum

Biogeographic region

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

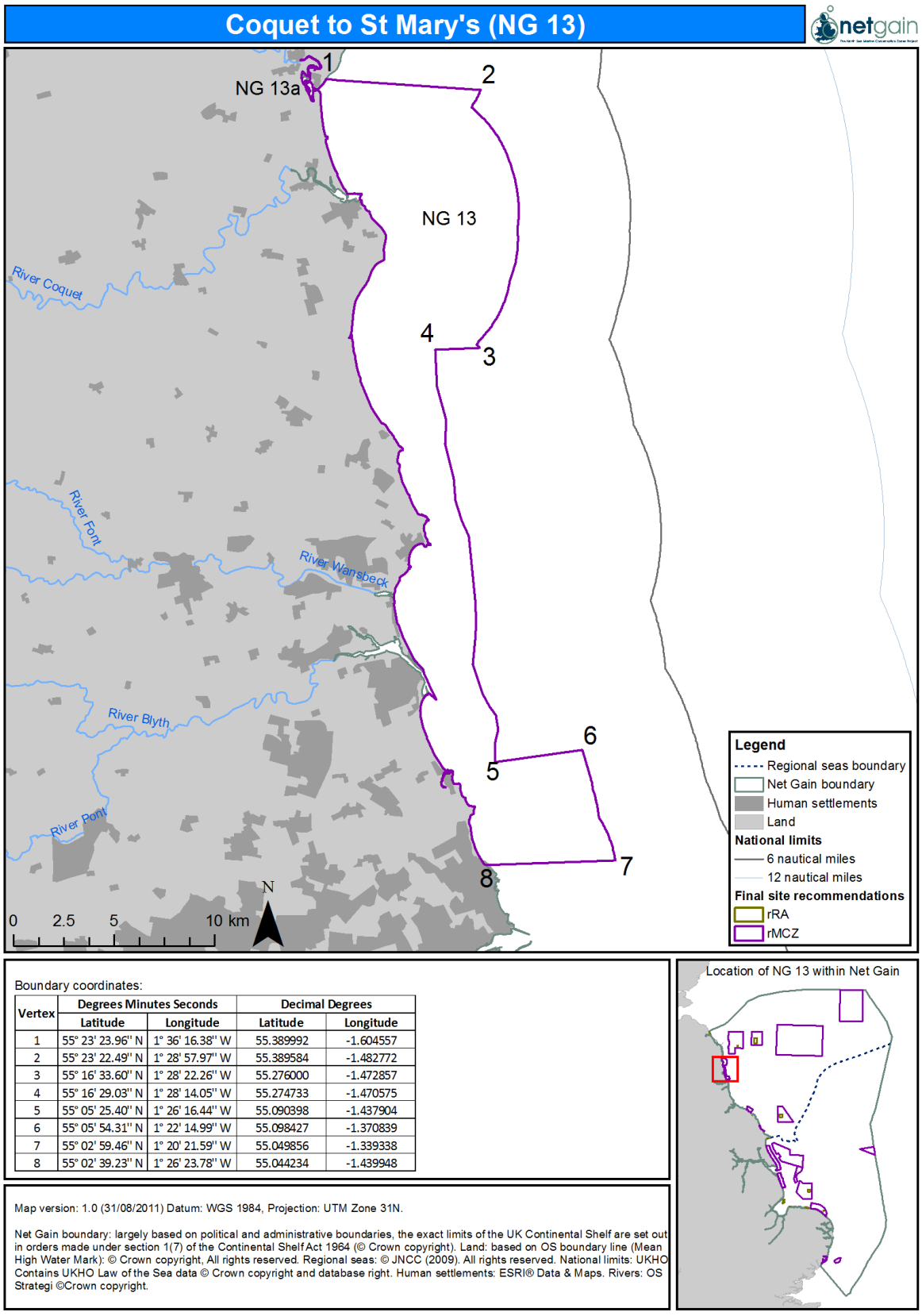
Table 7.94 Features proposed for designation within NG 13, Coquet to St Mary's

Feature type	Feature name	Area covered within site (for broad-scale habitats and habitats of conservation importance)
Broad-scale habitat	A1.2: Moderate energy intertidal rock	0.33km²
Broad-scale habitat	A1.3: Low energy intertidal rock	0.05km²
Broad-scale habitat	A2.1: Intertidal coarse sediments	0.15km²
Broad-scale habitat	A2.2: Intertidal sand and muddy sand	0.03km²
Broad-scale habitat	A2.3: Intertidal mud	0.03km²
Broad-scale habitat	A2.4: Intertidal mixed sediments	0.29km²
Broad-scale habitat	A3.1: High energy infralittoral rock	73.39km²
Broad-scale habitat	A3.2: Moderate energy infralittoral rock	48.33km²
Broad-scale habitat	A4.2: Moderate energy circalittoral rock	69.42km²
Broad-scale habitat	A5.1: Subtidal coarse sediment	1.00km²
Broad-scale habitat	A5.2: Subtidal sand	0.13km²
Broad-scale habitat	A5.3: Subtidal mud	0.16km²
Broad-scale habitat	A5.4: Subtidal mixed sediment	2.58km²
Habitat of conservation importance	Intertidal underboulder communities	6 points
Species of conservation importance	n/a	n/a
Geological feature	n/a	n/a

Table 7.95 Features within NG 13, Coquet – St Marys not proposed for designation

Feature type	Feature name	Reason that feature has not been proposed for designation
Broad-scale habitat	n/a	n/a
Habitat of conservation importance	Sheltered muddy gravels, Sheltered muddy gravels (modelled)	Uncertainty in data, as this is a feature that is more likely to be associated with estuaries and NG 13a.
Habitat of conservation importance	Subtidal sands and gravels, Subtidal sands and gravels (modelled)	Feature not proposed for inclusion due to targets having been met elsewhere in the project area.
Habitat of conservation importance	Estuarine rocky habitat	Uncertainty in data, as this is a feature that is more likely to be associated with estuaries and NG 13a.
Species of conservation importance	Ocean quahog (*Artica islandica*)	Feature has not been put forward for recommendation because of its potential association with manmade structures.

Map of site



Boundary coordinates:

Vertex	Degrees Minutes Seconds		Decimal Degrees	
	Latitude	Longitude	Latitude	Longitude
1	55° 23' 23.96'' N	1° 36' 16.38'' W	55.389992	-1.604557
2	55° 23' 22.49'' N	1° 28' 57.97'' W	55.389584	-1.482772
3	55° 16' 33.60'' N	1° 28' 22.26'' W	55.276000	-1.472857
4	55° 16' 29.03'' N	1° 28' 14.05'' W	55.274733	-1.470575
5	55° 05' 25.40'' N	1° 26' 16.44'' W	55.090398	-1.437904
6	55° 05' 54.31'' N	1° 22' 14.99'' W	55.098427	-1.370839
7	55° 02' 59.46'' N	1° 20' 21.59'' W	55.049856	-1.339338
8	55° 02' 39.23'' N	1° 26' 23.78'' W	55.044234	-1.439948

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. National limits: UKHO Contains UKHO Law of the Sea data © Crown copyright and database right. Human settlements: ESRI® Data & Maps. Rivers: OS Strategi ©Crown copyright.

Figure 7.112 Location and extent of site NG13 (Coquet To St Mary's Zone)

Site summary

NG 13 is a coastal site located off Blyth, in Northumberland in the North East of England and includes Coquet and St Mary's Islands. The depth range of the site is between 10m above mean low water mark and 30m deep (Figure 7.116). The seabed represents a mosaic of intertidal and subtidal rock and sediment features, including intertidal underboulder communities and estuarine rocky habitats of conservation importance. St Mary's Island is an existing voluntary marine reserve to protect the presence of rocky reef, large numbers of edible and shore crabs and some lobsters (The Wildlife Trusts, RSPB and Seasearch, 2010). Coquet Island has international importance for breeding seabirds during late March until mid-September, as well as being a foraging location for other birds throughout the year. Observations and sightings of marine mammals within the site include harbour porpoise, white beaked dolphin, grey seals, minke, orca and humpback whales. Coquet Island in recent years has been a haul out for seals and pups have been raised here.

Detailed site description

NG13 mostly consists of rocky habitat, of which three broad-scale habitat types are prominent, high energy infralittoral rock, moderate energy infralittoral rock and moderate energy circalittoral rock. This is interspersed with areas of intertidal mixed sediments and subtidal mixed sediments. It has also been identified for the diverse underboulder communities present along the shore (Forster-Smith, 2000), a UK Biodiversity Action Plan priority habitat (Maddock, 2008). Hard rock cliffs are a feature in this area with many of the headlands fronted by rocky shore platforms. Coquet Island and the area around St. Mary's Island is also included within NG 13. The area contains a number of estuary mouths which support sediment influenced communities (Foster-Smith, 2000).

Within this site there are a total of 9 Sites of Special Scientific Interest (SSSI) including the Northumberland shore SSSI and Cresswell and Newbiggin Shore SSSI, these have been designated for their geological importance and also support internationally important numbers of birds. There are a number of SSSIs in the area which are notified for features such as Coal measures, sedimentary features and volcanic glacial till (Natural England, 2011). A sublittoral ridge of limestone known locally as the Trink occurs offshore at Blyth. It is partly covered by gravels, cobbles and some boulders and has been found to support a number of rare species including the sea spider (*Copidognathus reticulatusI*) (English Nature, 1998).The northern boundary of NG 13 aligns with the southern boundary of the Berwickshire and North Northumberland Coast European Marine Site, this site is designated as a Special Area of Conservation (SAC). The site contains a diversity of marine and coastal habitats and species for which it is designated for its national and international importance.

The Northumberland Coast is nationally important for seabird assemblages and is designated as a European Special Protection Area (SPA) (JNCC, 2011a) the inter-tidal zone is used year round as a feeding area for roseate, artic and common tern, puffin, black-headed gull, eider, fulmar, kittiwake, herring gull, black gull. There is variation in the birds using the site depending on the season, the Northumberland Shore as a whole is used by a wide variety of other shorebirds in winter, including up to 400 curlew, 1,000 oystercatcher, 2,000 dunlin, 600 knot, 150 bar-tailed godwit and 4,000 lapwing. Arctic and little terns breed on the shore during the summer (Kober, 2010). Protecting the coastal waters around the Northumbrian Coast SPA will protect this important feeding and foraging ground and enhance the protection afforded to the birds present on the Northumbland Coast.

Coquet Island is included within NG 13 and is, a European Special Protection Area (SPA) and an RSPB managed reserve notable for its population of roseate terns (*Sterna dougalliiI)*. The site contains 90% of the UK population of roseate terns which is a protected annex 1 species under the European Bird Directive 2009, as well as a UK BAP species (Maddock, 2008). Coquet is also noted as an important site for other birds with several other species occurring at nationally important levels greater than 1% of the British breeding population including 1,100 pairs of common tern (*Sterna hirundoI)*, 700 pairs of arctic tern (*Sterna paradisaeaI)*, 1,500 pairs of sandwich tern (*Sterna sandvicensisI)* and 2,400 pairs of black-headed gulls (*Chroicocephalus ridibundusI)*(JNCC, 2011b).

This largely terrestrial SPA would benefit from the protection of the surrounding waters as they are important feeding grounds for the birds present there.

Coquet Island is a haul out area for grey seals (*Halichoerus grypusi)*, with the first pup being raised on the island during 2010 – 2011 season. The UK supports approximately 33% of the world population of grey seals and 95% of the European population. The Northumbrian coast is identified as a particularly important area for breeding populations (McConnell, 1999; Thompson, 2010). The Grey Seal on the East Coast of the UK has in the past bred almost exclusively on the Farne Islands however the Farne Islands may have reached capacity this may explain why Coquet is now being used for breeding (Thompson, 2010). The Grey seal requires particular conditions of very low disturbance and protecting the waters around Coquet would afford these conditions. The Grey Seal is afforded conservation protection under the EC Habitats Directive, Annex II and Annex V and is named in the Northumberland Biodiversity Action Plan (Cranson, 2008).

St Marys Island is currently an existing voluntary marine reserve to protect the presence of the rocky reef structures which provide habitat for large numbers of edible and shore crabs as well as some lobsters. The island itself is nationally important and is popular with walkers and wildlife watchers due to close proximity to urban areas (The Wildlife Trusts, RSPB and Seasearch, 2010).

Numerous Cetacean species including white beaked dolphin *(Lagenorhynchus albirostrisI),* harbour porpoise (*Phocoena phocoena*), orca (*Orcinus orca*), minke (*Balaenoptera acutorostrata*) and humpbacks (*Megaptera novaeanglia*) whales (Bereton, 2010; Evans, 2003, Seawatch) have been sighted in the area. These are all Marine Biodiversity Action Plan (MBAP) species in the UK with harbour porpoise listed in Annex II of the EU Habitats Directive as species whose conservation requires the designation of Special Areas of Conservation as well.

NG 13 lies within close proximity (approximately 1km south of the site) to the Dove marine laboratory of which the shoreline in proximity to the lab is regularly surveyed.

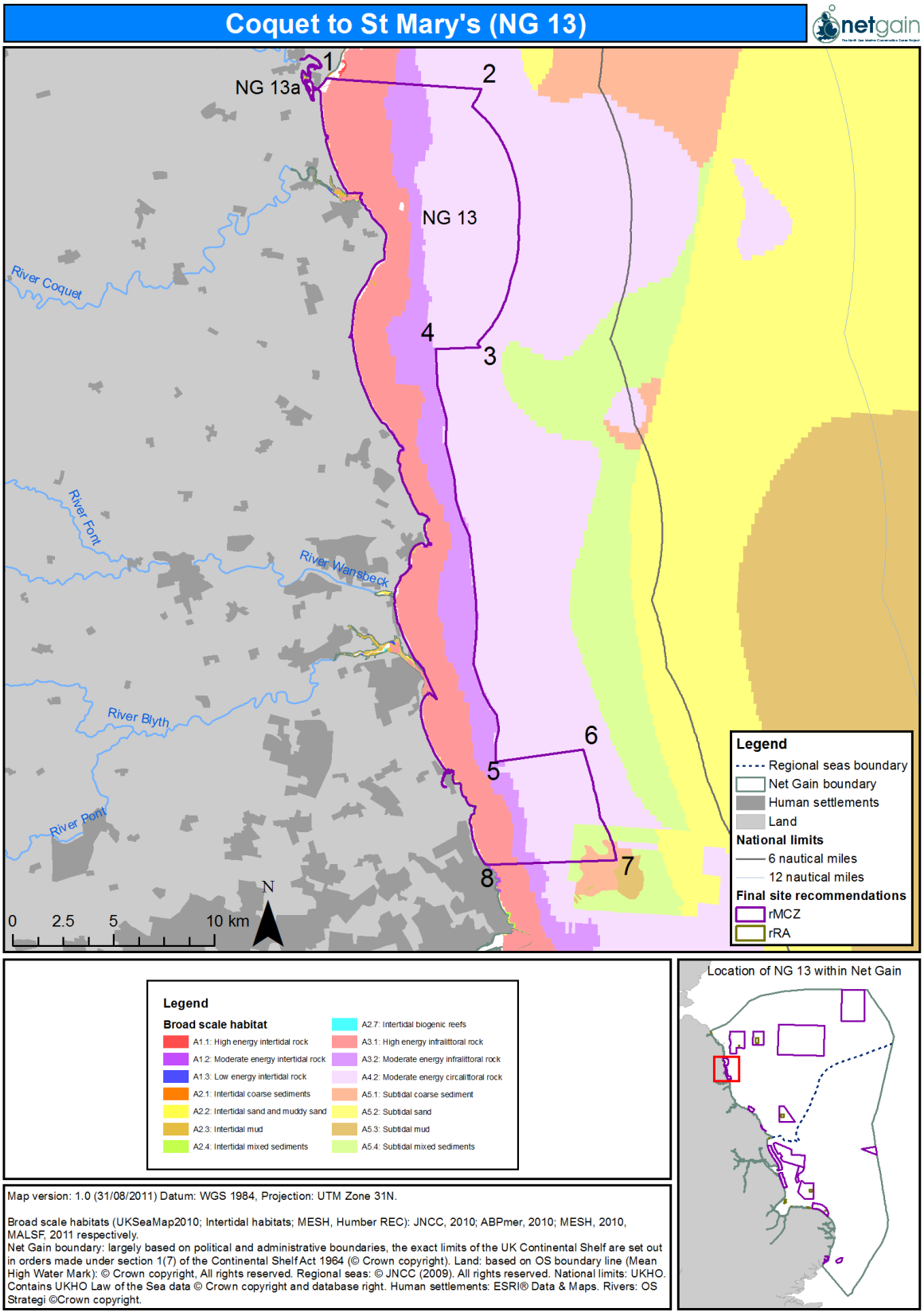


Figure 7.113 Broad-scale habitat present within NG 13

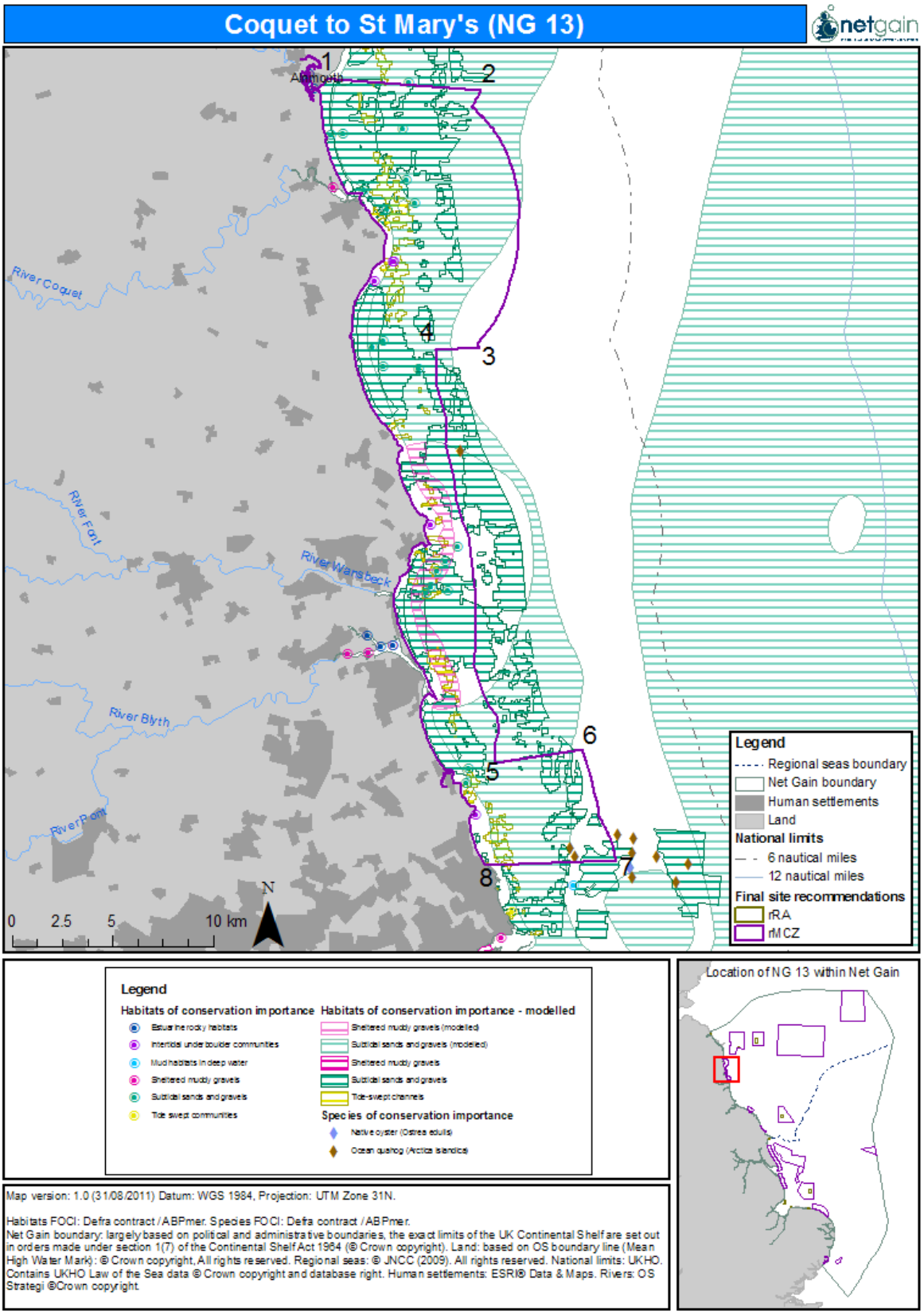


Figure 7.114 FOCI habitats and species present within NG 13

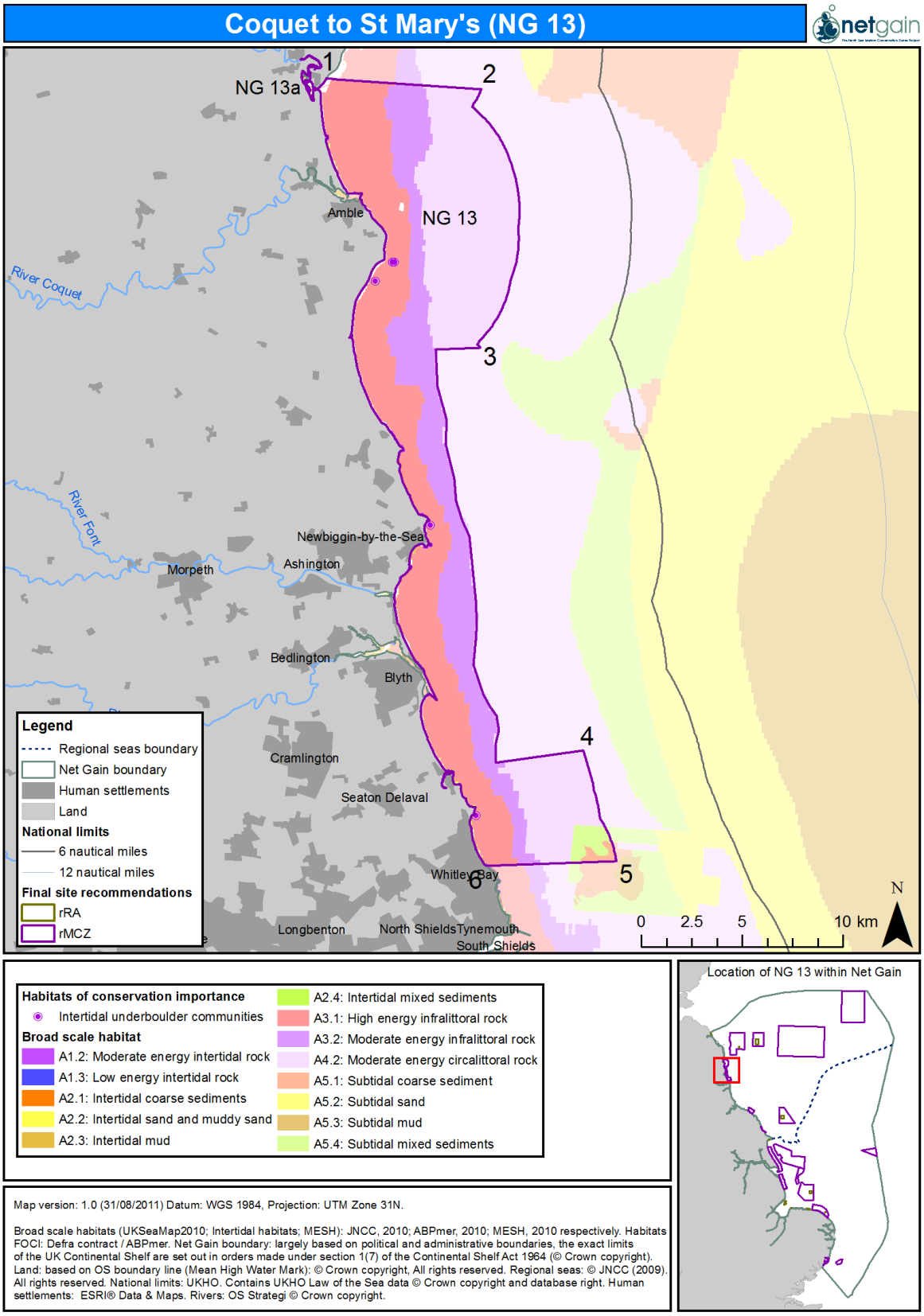


Figure 7.115 Features put forward for recommendation in NG 13

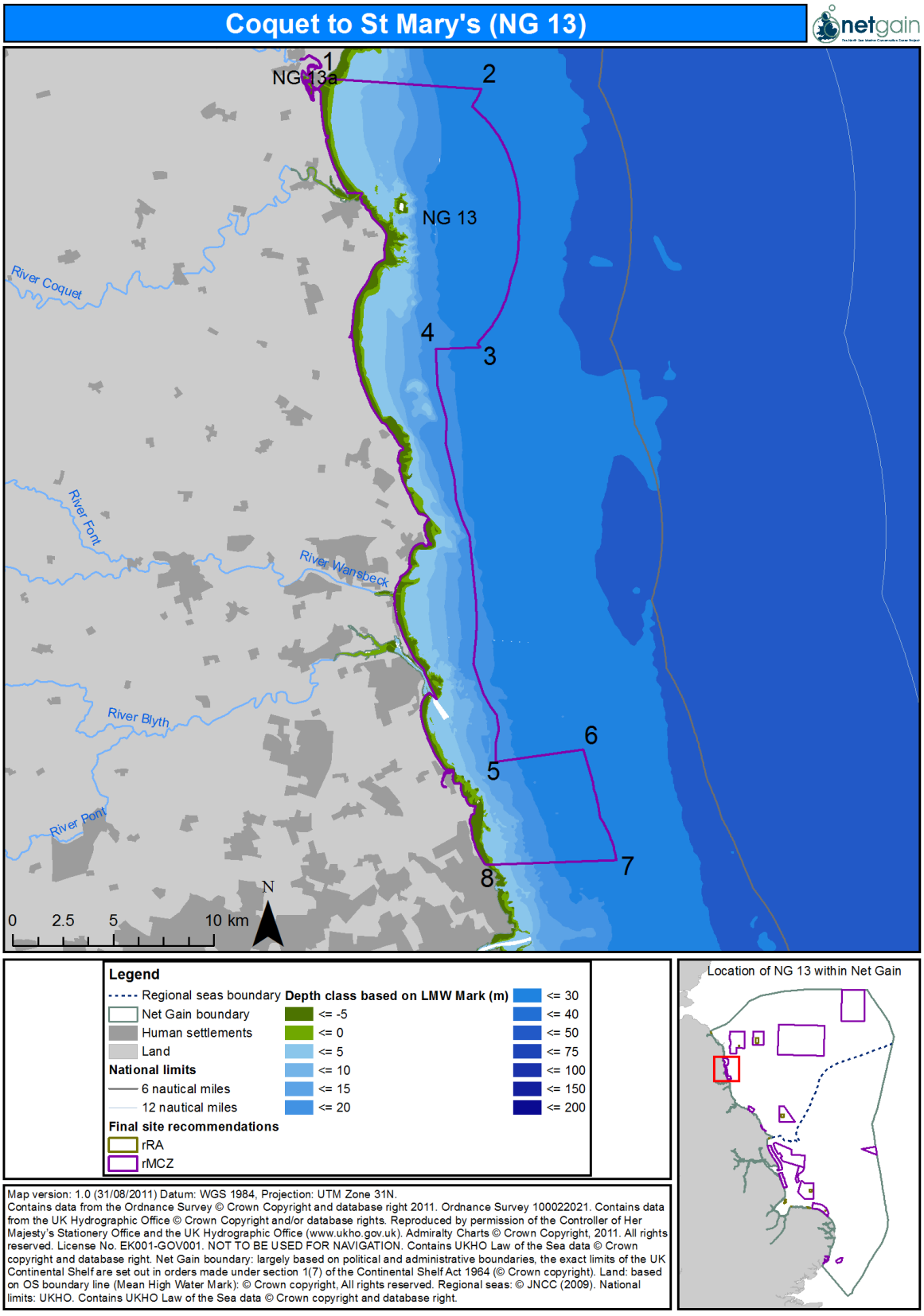


Figure 7.116 Bathymetry of NG 13

Site boundary

This coastal site was based on the original site NG2.19 from the 2nd iteration. Following a review of broad-scale habitat adequacy targets the group agreed to remove an area of moderate energy circalittoral rock from the central portion of the site. This was an area the group suggested was heavily fished by a range of gear types. The resulting boundaries included areas around islands within the northern and southern limits of the site (Coquet Island and St Mary's Island respectively), and retained areas that are important for birds (especially around the Coquet Island-which the RSPB suggested is an important tern foraging ground). Following the completion of the vulnerability assessment the decision was made by the group to move the boundary of NG 13, into the mouth of the Aln Estuary (so as to abut withNG 13a). This was done to ensure that all commercial fishing activities were included in NG 13 alone, to allow ease for management if required.

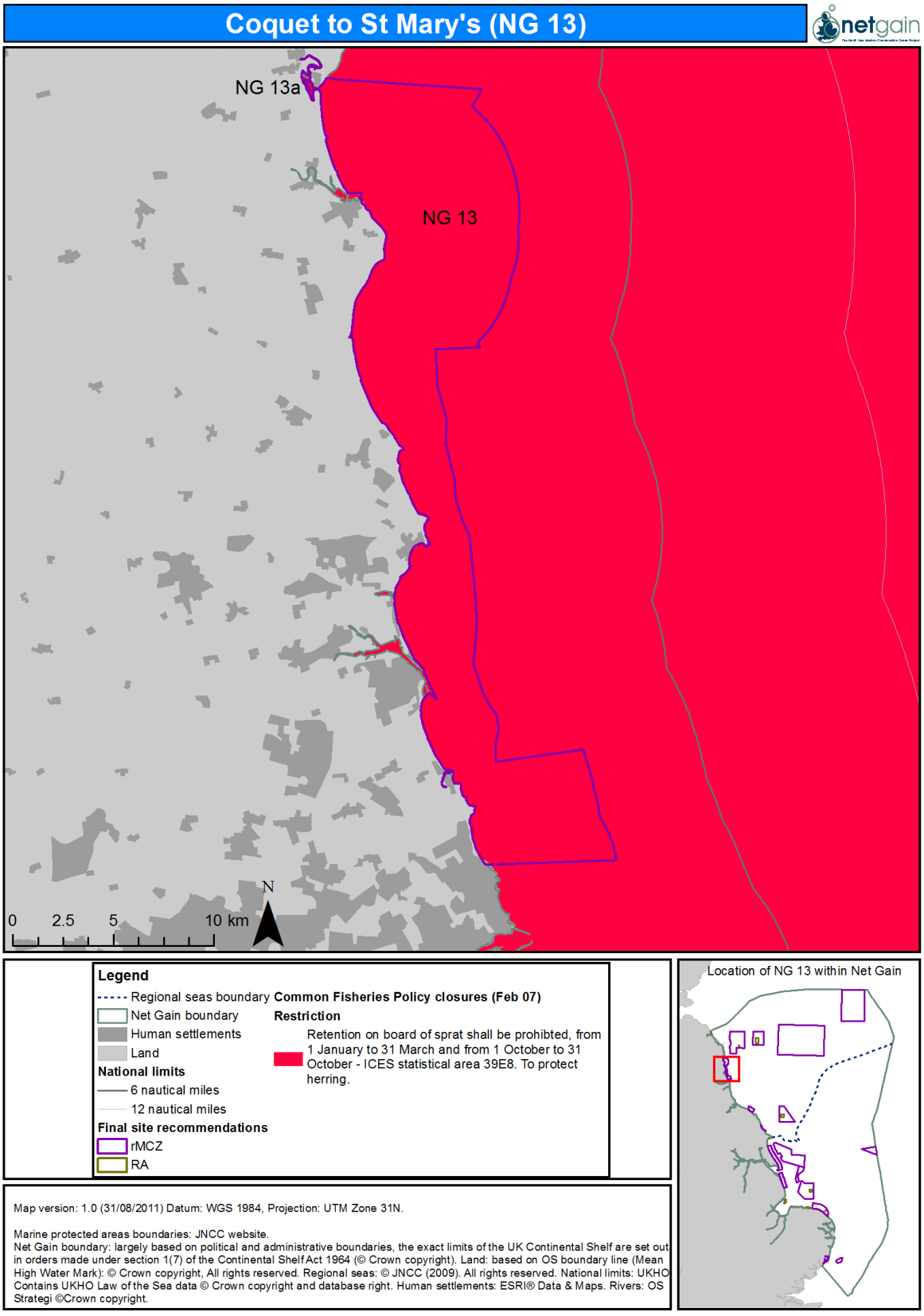


Figure 7.117 NG 13 site boundary with associated fishery management locations

Conservation objectives

Table 7.96 Conservation objectives for site NG 13, A1.2: Moderate energy intertidal rock

Conservation Objective	
1 Maintain/ recover	Moderate energy intertidal rock is moderately exposed rocky or boulder shores found on the southwest and west coasts of Britain and Ireland and on the northeast English coast. Subject to natural change, maintain the Moderate energy intertidal 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 Moderate energy intertidal rock in the biogeographic region are maintained, such that the feature makes its contribution to the network.
Advice on operations	
3 Pressures	Moderate energy intertidal rock is sensitive to the pressures: **Pressure** — **Sensitivity** — **Confidence** Physical loss (to land or freshwater habitat) — H — L Physical change (to another seabed type) — M-H — L

	Physical removal (extraction of substratum)	M-H	L
	Shallow abrasion/penetration: damage to seabed surface and penetration ≤25mm	M-H	L
	Structural abrasion/penetration: Structural damage to seabed >25mm	M-H	L
	Siltation rate changes (high)	L-H	L
	Atmospheric climate change	M	L
	Removal of target species (lethal)	M	L
	Surface abrasion: damage to seabed surface features	M	L
	Temperature changes - regional/national	M	L
	Emergence regime changes - local	L-M	L
	Introduction or spread of non-indigenous species & translocations (competition)	L-M	L
	Introduction of microbial pathogens (disease)	NS-M	L
	Water flow (tidal & ocean current) changes - regional/national	NS-M	L
	Water flow (tidal current) changes - local	NS-M	L
	Wave exposure changes - local	NS-M	L
	Wave exposure changes - regional/national	NS-M	L
	Temperature changes - local	L	L
	Salinity changes - local	NS-L	L
	Siltation rate changes (low)	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 7.97 Conservation objectives for site NG 13, A1.3: Low energy intertidal rock

Conservation Objective	
1 Maintain/ recover	Low energy intertidal rock sheltered rocky and boulder shores found around the British coast where there is shelter form the prevailing south-westerly wind. Subject to natural change, maintain the Low energy intertidal rock 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 Low energy intertidal rock in the biogeographic region are maintained, such that the feature makes its contribution to the network.
Advice on operations	
3 Pressures	Low energy intertidal rock is sensitive to the pressures:

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

	Shallow abrasion/penetration: damage to seabed surface and penetration ≤25mm	M-H	L
	Siltation rate changes (high)	M-H	L
	Structural abrasion/penetration: Structural damage to seabed >25mm	M-H	L
	Surface abrasion: damage to seabed surface features	M-H	L
	Temperature changes - local	L-H	L
	Organic enrichment	NS-H	L
	Siltation rate changes (low)	NS-H	L
	Water flow (tidal & ocean current) changes - regional/national	NS-H	L
	Water flow (tidal current) changes - local	NS-H	L
	Wave exposure changes - local	NS-H	L
	Wave exposure changes - regional/national	NS-H	L
	Atmospheric climate change	M	L
	Emergence regime changes - local	M	L
	Removal of target species (lethal)	M	L
	Temperature changes - regional/national	M	L
	Introduction or spread of non-indigenous species & translocations (competition)	L-M	L
	Introduction of microbial pathogens (disease)	NS-M	L
	Salinity changes - local	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 7.98 Conservation objectives for site NG 13, A2.1: Intertidal coarse sediment

Conservation Objective	
1 Maintain/ recover	Intertidal coarse sediment is an uncommon broadscale habitat found at a few scattered sites in the British Isles and in north-western Europe. Subject to natural change, maintain the Intertidal coarse sediment 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 Intertidal coarse sediment in the biogeographic region are maintained, such that the feature makes its contribution to the network.
Advice on operations	
3 Pressures	Intertidal coarse sediment is sensitive to the pressures: **Pressure** — **Sensitivity** — **Confidence** Physical loss (to land or freshwater habitat) — H — L Temperature changes - local — L-H — L Atmospheric climate change — M — L Physical change (to another seabed type) — M — L

	Physical removal (extraction of substratum)	M	L
	Temperature changes - regional/national	M	L
	Salinity changes - local	NS-M	L
	Siltation rate changes (high)	L	L
	Siltation rate changes (low)	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 7.99 Conservation objectives for site NG 13, A2.2: Intertidal sand and muddy sand

Conservation Objective	
1 Maintain/ recover	Intertidal sand and muddy sand are widespread along stretches of open coast around the British Isles whilst muddy sands are usually found in more sheltered areas such as estuaries. Subject to natural change, maintain the Intertidal sand and muddy sand 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 Intertidal sand and muddy sand in the biogeographic region are maintained, such that the feature makes its contribution to the network.
Advice on operations	
3 Pressures	Intertidal sand and muddy sand 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
Physical loss (to land or freshwater habitat)	H	L

	Atmospheric climate change	M	L
	Emergence regime changes - local	M	L
	Physical removal (extraction of substratum)	M	L
	Siltation rate changes (high)	M	L
	Siltation rate changes (low)	M	L
	Structural abrasion/penetration: Structural damage to seabed >25mm	M	L
	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
	Removal of non-target species (lethal)	NS-M	L
	Removal of target species (lethal)	NS-M	L
	Salinity changes - local	L	L
	Shallow abrasion/penetration: damage to seabed surface and penetration ≤25mm	L	H
	Surface abrasion: damage to seabed surface features	L	H
	Temperature 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.		

Table 7.100 Conservation objectives for site NG 13, A2.3: Intertidal mud

Conservation Objective	
1 Maintain/ recover	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:
2 Attributes and parameters (indicated by *) of feature	**Habitat** 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.
Advice on operations	
3 Pressures	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
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 7.101 Conservation objectives for site NG 13, A2.4: Intertidal mixed sediments

Conservation Objective	
1 Maintain/ recover	Intertidal mixed sediment is an uncommon broad habitat found at a few scattered sites in the British Isles in the south-west and northeast of England, East Anglia, west Wales and north-western Europe. Subject to natural change, maintain the Intertidal mixed sediments 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 Intertidal mixed sediments in the biogeographic region are maintained, such that the feature makes its contribution to the network.
Advice on operations	
3 Pressures	Intertidal mixed sediments 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 — L

	Shallow abrasion/penetration: damage to seabed surface and penetration ≤25mm	M-H	L
	Structural abrasion/penetration: Structural damage to seabed >25mm	M-H	L
	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	L
	Siltation rate changes (low)	M	L
	Surface abrasion: damage to seabed surface features	M	L
	Temperature changes - regional/national	M	L
	Water clarity changes	M	L
	Wave exposure changes - local	M	L
	Wave exposure changes - regional/national	M	L
	Removal of target species (lethal)	L-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 7.102 Conservation objectives for site NG 13, 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	**<u>Habitat</u>** 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 features makes its contribution to the network.
Advice on operations	
3 Pressures	High energy infralittoral rock is sensitive to the pressures:

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 7.103 Conservation objectives for site NG 13, A3.2: Moderate energy infralittoral rock

Conservation Objective	
1 Maintain/ recover	Moderate energy infralittoral rock is exposed rocky or boulder shores found on the southwest and west coasts of Britain and Ireland and on the northeast English coast. Subject to natural change, maintain the Moderate 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 Moderate energy infralittoral rock in the biogeographic region are maintained, such that the feature makes its contribution to the network.
Advice on operations	
3 Pressures	Moderate energy infralittoral rock is sensitive to the pressures listed below.

Pressure	**Sensitivity**	**Confidence**
Physical loss (to land or freshwater habitat)	H	L
Siltation rate changes (high)	M-H	L
Structural abrasion/penetration: Structural damage to seabed >25mm	M-H	L

	Introduction or spread of non-indigenous species & translocations (competition)	M	L
	Physical change (to another seabed type)	M	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
	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
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 7.104 Conservation objectives for site NG 13, A4.2: Moderate energy circalittoral rock

Conservation Objective	
1 Maintain/ recover	Moderate energy circalittoral rock on exposed rocky headlands and coastlines mainly on the south west and west coasts of Britain and Ireland and northeast England. Subject to natural change, maintain the Moderate energy circalittoral rock 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 Moderate energy circalittoral rock in the biogeographic region are maintained, such that the feature makes its contribution to the network.
Advice on operations	
3 Pressures	Moderate energy circalittoral rock is sensitive to the pressures: **Pressure** — **Sensitivity** — **Confidence** Physical loss (to land or freshwater habitat) — H — L Physical change (to another seabed type) — M-H — L Physical removal (extraction of substratum) — M-H — L

	Removal of non-target species (lethal)	M-H	M
	Shallow abrasion/penetration: damage to seabed surface and penetration ≤25mm	M-H	L
	Siltation rate changes (high)	M-H	L
	Structural abrasion/penetration: Structural damage to seabed >25mm	M-H	L
	Salinity changes - local	L-H	L
	Surface abrasion: damage to seabed surface features	L-H	L
	Siltation rate changes (low)	NS-H	L
	Temperature changes - local	NS-H	L
	Water clarity changes	NS-H	L
	Temperature changes - regional/national	M	L
	Introduction or spread of non-indigenous species & translocations (competition)	L-M	L
	Removal of target species (lethal)	NS-M	H
	Wave exposure changes - local	NS-M	L
	Wave exposure changes - regional/national	NS-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 7.105 Conservation objectives for site NG 13, A5.1: Subtidal coarse sediment

Conservation Objective	
1 Maintain/ recover	Subtidal coarse sediment is widespread around the British Isles and mainland Europe. Subject to natural change, maintain the Subtidal coarse sediment 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 Subtidal coarse sediment in the biogeographic region are maintained, such that the feature makes its contribution to the network.
Advice on operations	
3 Pressures	Subtidal coarse sediment is sensitive to the pressures: **Pressure** — **Sensitivity** — **Confidence** Physical loss (to land or freshwater habitat) — H — L Physical removal (extraction of substratum) — L-H — L Surface abrasion: damage to seabed surface features — NS-H — L Physical change (to another seabed type) — M — L

	Salinity changes - local	L-M	L
	Shallow abrasion/penetration: damage to seabed surface and penetration ≤25mm	L-M	L
	Structural abrasion/penetration: Structural damage to seabed >25mm	L-M	L
	Introduction or spread of non-indigenous species & translocations (competition)	NS-M	L
	Removal of non-target species (lethal)	NS-M	L
	Siltation rate changes (high)	NS-M	L
	Siltation rate changes (low)	NS-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 7.106 Conservation objectives for site NG 13, A5.2: Subtidal sand

Conservation Objective	
1 Maintain/ recover	Subtidal sand is widespread around the British Isles and mainland Europe. Subject to natural change, maintain the Subtidal sand 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 Subtidal sand in the biogeographic region are maintained, such that the feature makes its contribution to the network.
Advice on operations	
3 Pressures	Subtidal sand is sensitive to the pressures:

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

	Siltation rate changes (low)	M	L
	Temperature changes - regional/national	M	L
	Salinity changes - local	L-M	L
	Structural abrasion/penetration: Structural damage to seabed >25mm	L-M	L-M
	Introduction or spread of non-indigenous species & translocations (competition)	NS-M	L
	Removal of non-target species (lethal)	NS-M	H
	Shallow abrasion/penetration: damage to seabed surface and penetration ≤25mm	NS-M	L
	Surface abrasion: damage to seabed surface features	NS-M	L
	Water flow (tidal & ocean current) changes - regional/national	NS-L	L
	Water flow (tidal current) changes - local	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 7.107 Conservation objectives for site NG 13, A5.3: Subtidal mud

Conservation Objective	
1 Maintain/ recover	Subtidal mud is widespread around the British Isles and mainland Europe. Subject to natural change, maintain the Subtidal mud 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 Subtidal mud in the biogeographic region are maintained, such that the feature makes its contribution to the network.
Advice on operations	
3 Pressures	Subtidal mud is sensitive to the pressures:

Pressure	**Sensitivity**	**Confidence**
Physical loss (to land or freshwater habitat)	H	L
Organic enrichment	NS-H	L
Physical change (to another seabed type)	M	L
Physical removal (extraction of substratum)	M	L

	Removal of non-target species (lethal)	M	L-H
	Shallow abrasion/penetration: damage to seabed surface and penetration ≤25mm	M	L
	Siltation rate changes (high)	M	L
	Structural abrasion/penetration: Structural damage to seabed >25mm	M	L
	Temperature changes - local	M	L
	Temperature changes - regional/national	M	L
	Salinity changes - local	L-M	L
	Surface abrasion: damage to seabed surface features	L-M	L
	Introduction or spread of non-indigenous species & translocations (competition)	NS-M	L
	Removal of target species (lethal)	NS-M	L-H
	Siltation rate changes (low)	NS-L	L
	Water flow (tidal & ocean current) changes - regional/national	NS-L	L
	Water flow (tidal current) changes - local	NS-L	L
	Wave exposure changes - local	NS-L	L
	Wave exposure changes - regional/national	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 7.108 Conservation objectives for site NG 13, A5.4: Subtidal mixed sediments

Conservation Objective	
1 Maintain/ recover	Subtidal mixed sediment is widespread around the British Isles and mainland Europe. Subject to natural change, maintain the Subtidal mixed sediments 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 Subtidal mixed sediments in the biogeographic region are maintained, such that the feature makes its contribution to the network.
Advice on operations	
3 Pressures	Subtidal mixed sediments is sensitive to the pressures:

Pressure	**Sensitivity**	**Confidence**
Physical change (to another seabed type)	H	L
Physical loss (to land or freshwater habitat)	H	L
Physical removal (extraction of substratum)	H	L
Shallow abrasion/penetration: damage to seabed surface and penetration ≤25mm	H	L

	Structural abrasion/penetration: Structural damage to seabed >25mm	H	L
	Introduction of microbial pathogens (disease)	NS-H	L
	Salinity changes - local	NS-H	L
	Removal of non-target species (lethal)	M	M
	Siltation rate changes (high)	M	L
	Surface abrasion: damage to seabed surface features	M	L
	Temperature changes - local	M	L
	Temperature changes - regional/national	M	L
	Introduction or spread of non-indigenous species & translocations (competition)	L-M	M
	Water clarity changes	NS-M	L
	Removal of target species (lethal)	L	M
	Water flow (tidal & ocean current) changes - regional/national	NS-L	L
	Water flow (tidal current) changes - local	NS-L	L
	Wave exposure changes - local	NS-L	L
	Wave exposure changes - regional/national	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 7.109 Conservation objectives for site NG 13, Intertidal underboulder communities

Conservation Objective	
1 Maintain/ recover	Intertidal underboulder communities are on the UK List of Priority Species and Habitats (UK BAP). Subject to natural change, maintain the Intertidal under boulder communities 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 Intertidal under boulder communities in the biogeographic region are maintained, such that the feature makes its contribution to the network.
Advice on operations	
3 Pressures	Intertidal under boulder communities is sensitive to the pressures:

Pressure	**Sensitivity**	**Confidence**
Physical loss (to land or freshwater habitat)	H	L
Structural abrasion/penetration: Structural damage to seabed >25mm	H	L
Emergence regime changes (sea level) - regional/national	M	L
Introduction or spread of non-indigenous species & translocations (competition)	M	L

	Physical change (to another seabed type)	M	L
	Removal of target species (lethal)	M	L
	Shallow abrasion/penetration: damage to seabed surface and penetration ≤25mm	M	L
	Siltation rate changes (high)	M	L
	Surface abrasion: damage to seabed surface features	M	L
	Temperature changes - regional/national	M	L
	Emergence regime changes - local	L	L
	Salinity changes - local	L	L
	Siltation rate changes (low)	L	L
	Temperature changes - local	L	L
	Water flow (tidal current) 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.

Site NG 13, Coquet to St Mary's boarders site NG 13a, Aln Estuary at the mouth of the estuary. The northern border of the site is aligned with the Berwickshire and North Northumberland Coast SAC, and the site includes a substantial list of MPA's that include Coquet Island SPA and SSSI, Alnmouth Saltmarsh and Dunes, Cresswell and Newbiggin Shores, Cresswell Ponds, Hadston Links, Low Hauxley Shore, Northumberland Shore, Tynemouth to Seaton Sluice and Warworth Dunes and Saltmarsh.

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 7.110 MPAs within NG 13

MPA Type	Site Name	Features Protected
SAC	Berwickshire and North Northumberland Coast	A1.2: Moderate energy intertidal rock A1.3: Low energy intertidal rock A2.4: Intertidal mixed sediments A2.7: Intertidal biogenic reefs A5.3: Subtidal mud Blue mussel beds Intertidal underboulder communities Intertidal sediments dominated by aquatic angiosperms Seagrass beds
SPA	Coquet Island	Not in GAP table Breeding bird species
SSSI	Alnmouth Saltmarsh and Dunes	A2.5: Coastal saltmarshes and saline reedbeds Coastal saltmarsh
SSSI	Coquet Island	Not in GAP table Botanical Breeding bird species (including eider, arctic tern, common tern, sandwich tern, roseate tern and black headed gulls)
SSSI	Cresswell and Newbiggin Shores	Not in GAP table Geological
SSSI	Cresswell Ponds	A3.3: Low energy infralittoral rock Saline lagoons
SSSI	Hadston Links	Not in GAP table Coastal dunes and associated botanical communities
SSSI	Low Hauxley Shore	Not in GAP table Geological
SSSI	Northumberland Shore	A2.2: Intertidal sand and muddy sand
SSSI	Tynemouth to Seaton Sluice	Not in GAP table Geological Wintering purple sandpiper, turnstone and sanderling Locally important numbers of golden plover, ringed plover and knot
SSSI	Warkworth Dunes and Saltmarsh	A2.5: Coastal saltmarshes and saline reedbeds Coastal saltmarsh

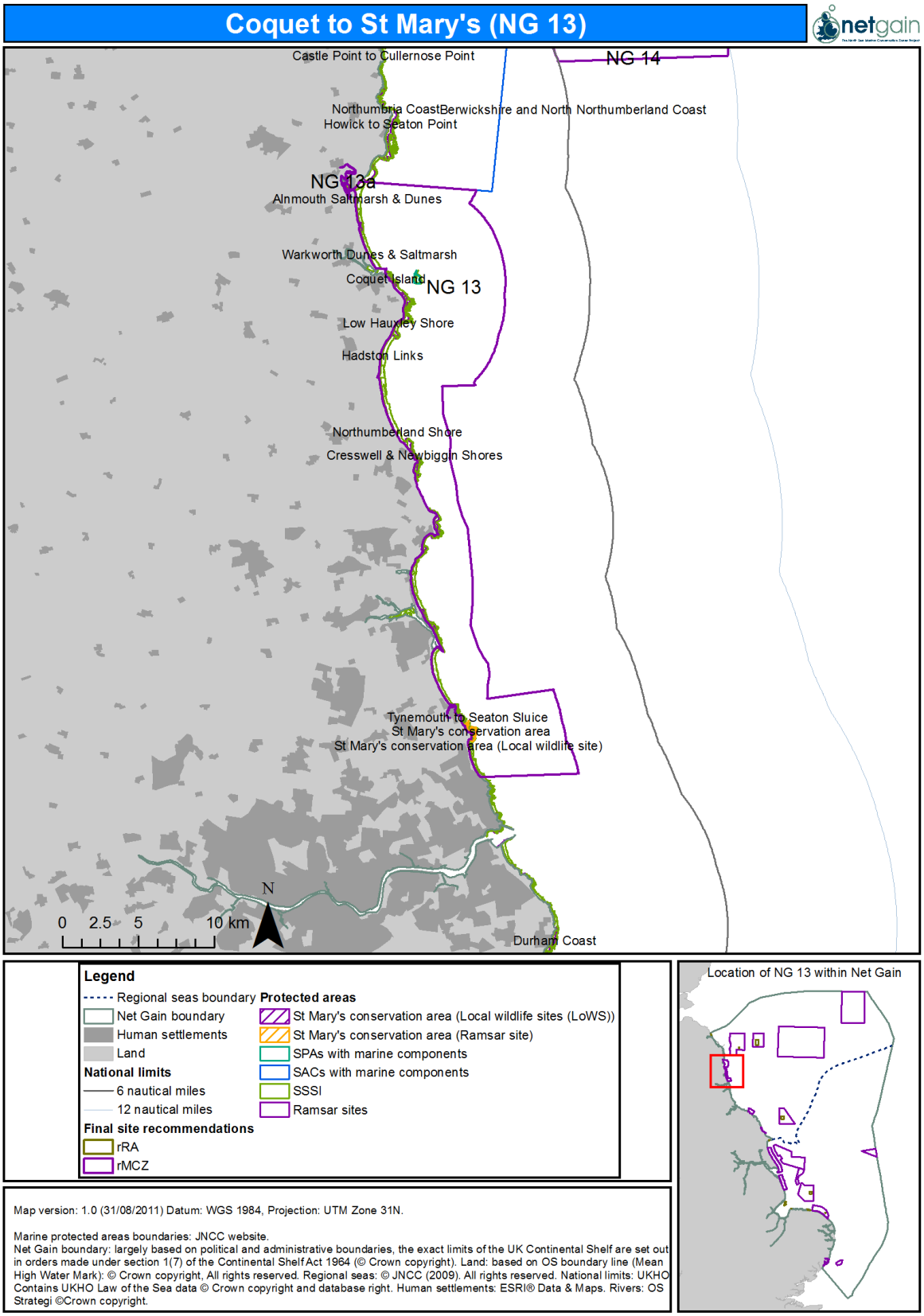


Figure 7.118 MPAs and rMCZs neighbouring NG 13

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').

Support for this site was good (both groups scoring it as '3') but this was on the assumption that management measures now and in the future would relate to the Conservation Objective remaining as maintain. The area was recognised as having a high socio-economic importance in relation to recreational users (including recreational boating, angling, tourism and diving) as well as to commercial fishing.

There was a high level of confidence in the underlying data for the site, one group suggesting that the original site identification had been based on sound current data.

Contention was scored as 'L' by one group and 'H' for the other. In terms of specific concerns, NAREC cabling may be an issue whilst, on a wider scale, fishermen feel that the area covers the whole of their coastal area and is potentially prejudicial to their activities. It was pointed out that contention is likely to increase if management measures change over time.

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
- RSPB:- Strongly support
- The Crown Estate:- Accept – assumption that there will be no additional EIA requirements on renewables projects due to rMCZ designation
- The Wildlife Trusts:- Site recommendation is supported but with points of clarification raised, and suggestions for improvement

Table 7.111 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
Common maerl (*Phymatolithon calcareum*), Ocean quahog (*Artica islandica*)	Combination of historical and recent records	Seeley, et al. 2010
European seabirds at sea (ESAS)	Modelled data	Kober, et al. 2010
Intertidal underboulder communities, Sheltered muddy gravels, Subtidal sands and gravels, Tide swept channels, Estuarine rocky habitat	Combination of historical and recent records	Tyler-Walters, et al. 2009
Pelagic ecological importance	Amalgamated pelagic data layer	The Wildlife Trusts, 2010
Ross worm (*Sabellaria spinulosa*) occurences	Survey: records	Holt, 1994
Sheltered muddy gravels, Subtidal sands and gravels	Modelled data	Tyler-Walters, et al. 2009

References

BERETON, T. MACLEOD, C. KITCHING, M. TAIT, A. STEEL, D. QUIGLEY, M. SCOTT, C. 2010. *Importance of the Farne Deeps and surrounding waters off the Northumberland coast for White-beaked Dolphin and other cetaceans and seabirds of Conservation Concern*. Natural England

COLTMAN, N., GOLDING, N., VERLING, E. 2008. *Developing a broadscale predictive EUNIS habitat map for the MESH study area.* JNCC.

CONNOR, D. ALLEN, J. GOLDING, N. HOWELL, K. LIEBERKNECHT, NORTHEN, K. REKER, J 2004. The Marine Habitat Classification for Britain and Ireland Version 04.05 JNCC, Peterborough ISBN 1 861 07561 8 (internet version)

CRANSON, A. WALTON, J. 2008. *Grey Seal (Halichoerus grypus) Species Action Plan*. Northumberland Biodiversity Action Plan.

EVANS, P. ANDERWALD, P. BAINES, M. 2003. *UK CETACEAN STATUS REVIEW. Sea Watch Foundation*.

ENGLISH NATURE, 1998. *Eastern Scottish Border to North Bank of the River Tyne Maritime Natural Area Profile*

FOSTER-SMITH, J. 2004 *The Marine Fauna and Flora of the Cullercoats District: Marine Species* Records for the Northeast Coast of England

FROST, N.J. 2010. *Accessing and developing the required biophysical datasets and data layers for Marine Protected Areas network planning and wider marine spatial planning purposes*. Report No 24: Task 2I. Intertidal habitats datalayer (Final). ABP Marine Environmental Research Ltd.

JNCC, 2011a SPA Description. http://jncc.defra.gov.uk/page-1997. Accessed 21/08/2011

JNCC, 2011b SPA Description. http://jncc.defra.gov.uk/page-1991. accessed 21/08/2011

HOLT, R.H.F. 1994. *Marine biological survey of Eyemouth (Berwickshire) to Alnmouth (Northumberland)*. Joint Nature Conservation Committee Report, No. 157. (Marine Nature Conservation Review Report, No. MNCR/SR/24.).

KOBER, K., WEBB, A., WIN, I., LEWIS, M., O'BRIEN, S., WILSON, L.J., REID, J.B. 2010. *An analysis of the numbers and distribution of seabirds within the British Fishery Limit aimed at identifying areas that qualify as possible marine SPAs.* JNCC report No. 431.

MADDOCK, A. 2008. *UK Biodiversity Action Plan; Priority Habitat Descriptions.* Accessed from http://www.ukbap.org.uk/library/UKBAPPriorityHabitatDescriptionsfinalAllhabitats20081022.pdf

McBREEN, F. 2010. *UKSeaMap 2010 EUNIS model Version 3.0. UKSeaMap 2010: Predictive seabed habitat map (v5)*. JNCC.

MC CONNELL, B. J., FEDAK, M. A., LOVELL, P. & HAMMOND. P. S. 1999*. Movements and foraging areas of grey seals in the North Sea*. Journal of Applied Ecology, 36, 573-590

NATURAL ENGLAND, 2011. *Nature on the map*. Available at: http://www.natureonthemap.naturalengland.org.uk/ accessed 21/08/2011

SEAWATCH EASTERN ENGLAND, 2011. *CETACEANS OF EASTERN ENGLAND* available at: http://www.seawatchfoundation.org.uk/docs/EasternEngland.pdf. accessed 22/08/2011

SEELEY, B., LEAR, D., HIGGS, S., NEILLY, M., BILEWITCH, J., EVANS, J., WILKES, P., ADAMS, L. 2010. *Accessing and developing the required biophysical datasets and data layers for Marine Protected Areas network planning and wider marine spatial planning purposes.* Report No 14: Task 2B - Mapping of species with limited mobility (Benthic Species). ABP Marine Environmental Research Ltd.

THE WILDLIFE TRUSTS. 2010. *Areas of additional pelagic ecological importance (APEI) data layer*.

THE WILDLIFE TRUSTS, RSPB and SEASEARCH, 2010. *Biodiverse Areas within the Net Gain region: A supportive guide to aid stakeholder identification of ecological interest areas that meet aspects of the Ecological Network Guidance.* November, 2010.

THOMPSON, D. and DUCK, C. 2010 *Berwickshire and North Northumberland Coast European Marine Site: grey seal population status.* Report to Natural England

TYLER-WALTERS, H., MILLER, P., McQUATTERS-GOLLOP, A., SAUNDERS, J., FOX, C. 2009. *Accessing and developing the required biophysical datasets and data layers for Marine Protected Areas network planning and wider marine spatial planning purposes. Task 2F - Development of a marine diversity data layer: review of approaches and proposed method*. ABP Marine Environmental Research Ltd.