

# **Net Gain**

## **Final Recommendations Submission to Natural England & JNCC**

**Section 7.27 (Site Assessment Document)  
rRA 9, Flamborough Head No Take Zone**

**31 August 2011**

**Version 1.1**

## 7.27 Marine Conservation Zone: rRA 9, Flamborough Head No Take Zone

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

### Site name

rRA 9, Flamborough Head No Take Zone

### Site centre location

54° 05' 53''N, 0° 09' 13''W °

54.098292°, -0.153684°

Lambert Azimuthal Equal Area projection

### Site surface area

0.94km<sup>2</sup> / 93.53ha

Lambert Azimuthal Equal Area projection

### Biogeographic region

JNCC Regional Sea: Southern North Sea

OSPAR Region II: Greater North Sea

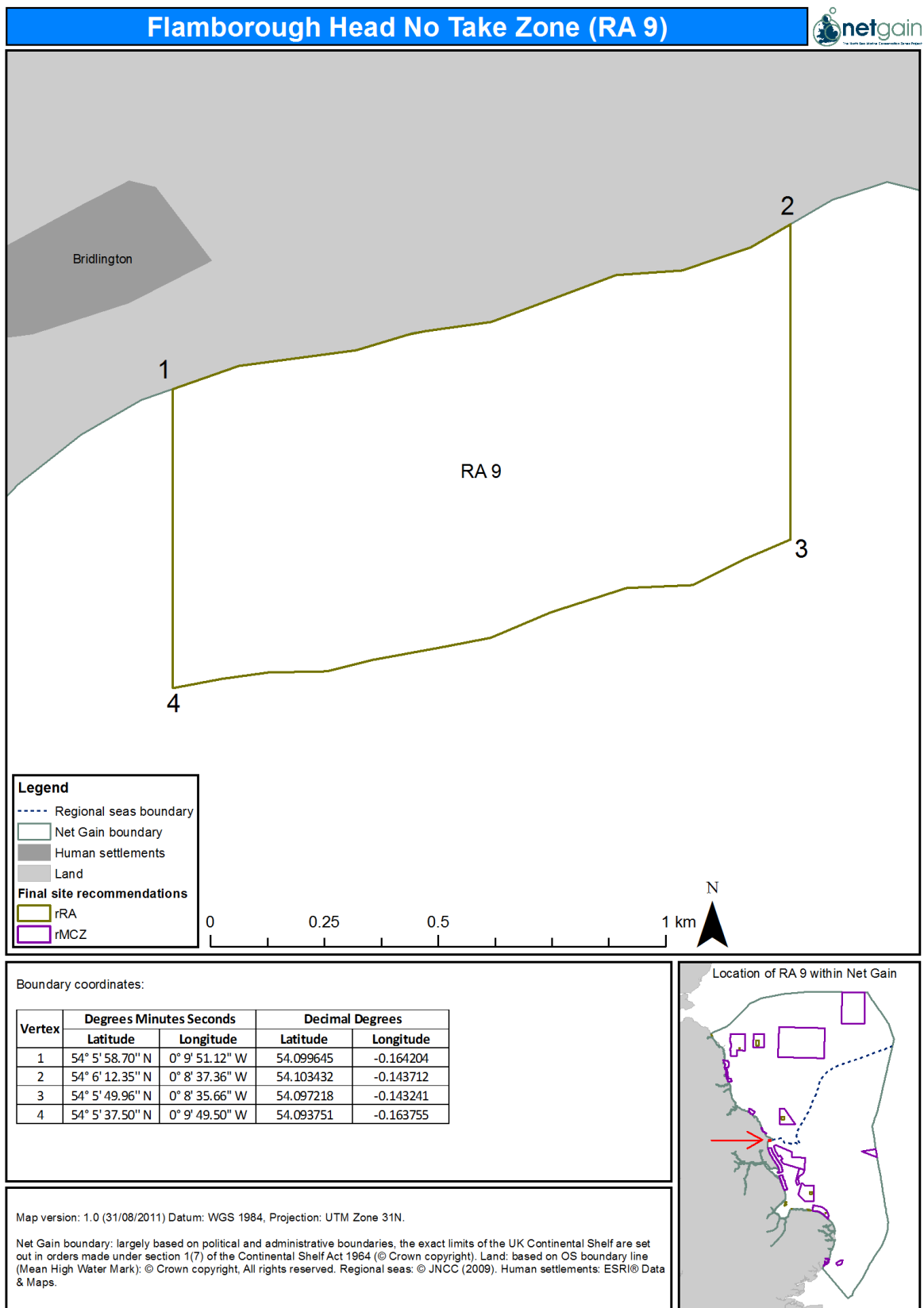
**Table 7.207 Features proposed for designation within rRA 9, Flamborough Head No Take Zone**

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	0.00005km <sup>2</sup>
Broad-scale habitat	A2.1: Intertidal coarse sediments	0.0004km <sup>2</sup>
Broad-scale habitat	A2.2: Intertidal sand and muddy sand	0.00001km <sup>2</sup>
Broad-scale habitat	A3.1: High energy infralittoral rock	0.15km <sup>2</sup>
Broad-scale habitat	A3.2: Moderate energy infralittoral rock	0.79km <sup>2</sup>
Habitat of conservation importance	Littoral chalk communities (modelled)	0.53km length
Habitat of conservation importance	Subtidal sands and gravels	0.40km <sup>2</sup>
Species of conservation importance	n/a	n/a
Geological feature	n/a	n/a
Other feature	n/a	n/a

### Features within rRA 9, Flamborough Head No Take Zone not proposed for designation

All features present in rRA 9, Flamborough Head No Take Zone have been recommended for designation.

## Map of site



**Figure 7.196** Location and extent of site rRA 9 (Flamborough Head No Take Zone)

## Site summary

rRA 9 is a coastal site located south west of Flamborough Head. The depth within the site is between 6m above mean low water mark and 2m deep (Figure 7.198). The site is put forward for the protection of littoral chalk communities, however there are also a number of sediment and rock features present within the site that are afforded protection. Because of the North Eastern IFCA no take zone (NTZ) within the site the area it is currently monitored and good baseline data is available. The NTZ prevents the removal of fish and shellfish, with the aims to examine changes to populations of marine species. There are strong tides within the site and the area is generally very turbid. The site has a high diversity of species that include blue mussels, barnacles, limpets, whelks, winkles, algae, fish, bryozoans, crustaceans, and sea squirts to name a few. Due to the close proximity to Bempton Cliffs and Flamborough Head the area supports abundant numbers of seabirds and populations of migrating European importance species, including kittiwake, razorbill, guillemot, puffins, gannets and gulls.

## Detailed site description

Recommended RA9 is being proposed to protect the presence of littoral chalk communities that provide substrate for unique communities of seaweeds and invertebrate species. rRA9 has a depth range of 0-2m according to UKHO data received by the Net Gain team (Figure 7.198), it has strong tides and the exposed nature of the site the water is generally very turbid. The erosion of chalk exposures on the coast has resulted in the formation of vertical cliffs and gently sloping intertidal platforms with a range of microhabitats of biological importance. Such coastal exposures of chalk are rare in Europe: over half of these seascapes (57%) (ICES 2003) are recorded from the southern and eastern coasts of England.

rRA9 lies within the Flamborough Head Special Area of Conservation (SAC) and the Flamborough Head site of Special Scientific Interest (SSSI). The SAC is designated for high energy intertidal rock, high energy infralittoral rock, high energy circalittoral rock, subtidal biogenic reefs, blue mussel beds, intertidal underboulder communities, littoral chalk communities, subtidal chalk and sea caves. Within rRA9 recommended features include the moderate energy intertidal rock, intertidal coarse sediment, intertidal sand and muddy sand, high and moderate energy infralittoral rock, along with the subtidal sands and gravels and littoral chalk communities habitat FOCI.

Chalk communities are protected under the UKBAP Priority Habitat and the OSPAR List of Threatened and/or Declining Species and Habitats (Region II – Greater North Sea). The south side of the headland encompassing rRA9 has softer chalk reducing the likelihood of exposed and submerged sea caves.

North Eastern Sea Fisheries Committee (NESFC) now North Eastern Inshore Fisheries and Conservation Authority (NEIFCA) developed Byelaw XXVII - Flamborough Head No Take Zone (NTZ). The area runs from Sewerby Steps to Dane's Dyke, extending 700m seaward from the cliff base and is largely coincident with rRA9. This byelaw prohibits the removal of seafish, including shellfish, by any method from within the defined area. This area was the third NTZ to be formally designated in UK waters and the first to contain intertidal habitat. This aims to examine any changes to populations of marine species if they are no longer removed from this area, and to help the area return to a more "natural" state (Flamborough Head Management Plan - Annual Report 2010/11). This will also help to increase the local blue mussel (*Mytilus edulis*) spawning stock biomass through the protection and development of a permanent brood stock within the Flamborough Head NTZ. Blue mussel on sediment is identified as a UK BAP priority habitat.

Blue mussels (*Mytilus edulis*) are found on moderate energy and high energy intertidal rock commonly found associated with barnacles (*Semibalanus balanoides*), limpets (*Patella vulgate*), whelks (*Nucella lapillus*) and winkles (*Littorina littorea*) within the mussel bed. Lower on the shore there is low abundance of the wrack *Fucus serratus* and red seaweeds. The red seaweeds may

include *Palmaria palmata*, *Mastocarpus stellatus*, and *Chondrus crispus*. In the sublittoral fringe is a biotope dominated by the kelp *Laminaria digitata*. These species occur down to about 15m and provide important nursery areas for fish such as wrasse and shelter for bryozoans, anemones and sea squirts. A seasearch survey conducted in 2009 in the Flamborough Head NTZ (coincident with rRA 9) found that crustaceans dominated the site, with thirteen species recorded, including the spiny squat lobster (*Galathea strigosa*), velvet swimming crab (*Necora puber*), common shore crab (*Carcinus maenas*), harbour crab (*Liocarcinus depurator*), and edible crab (*Cancer pagurus*).

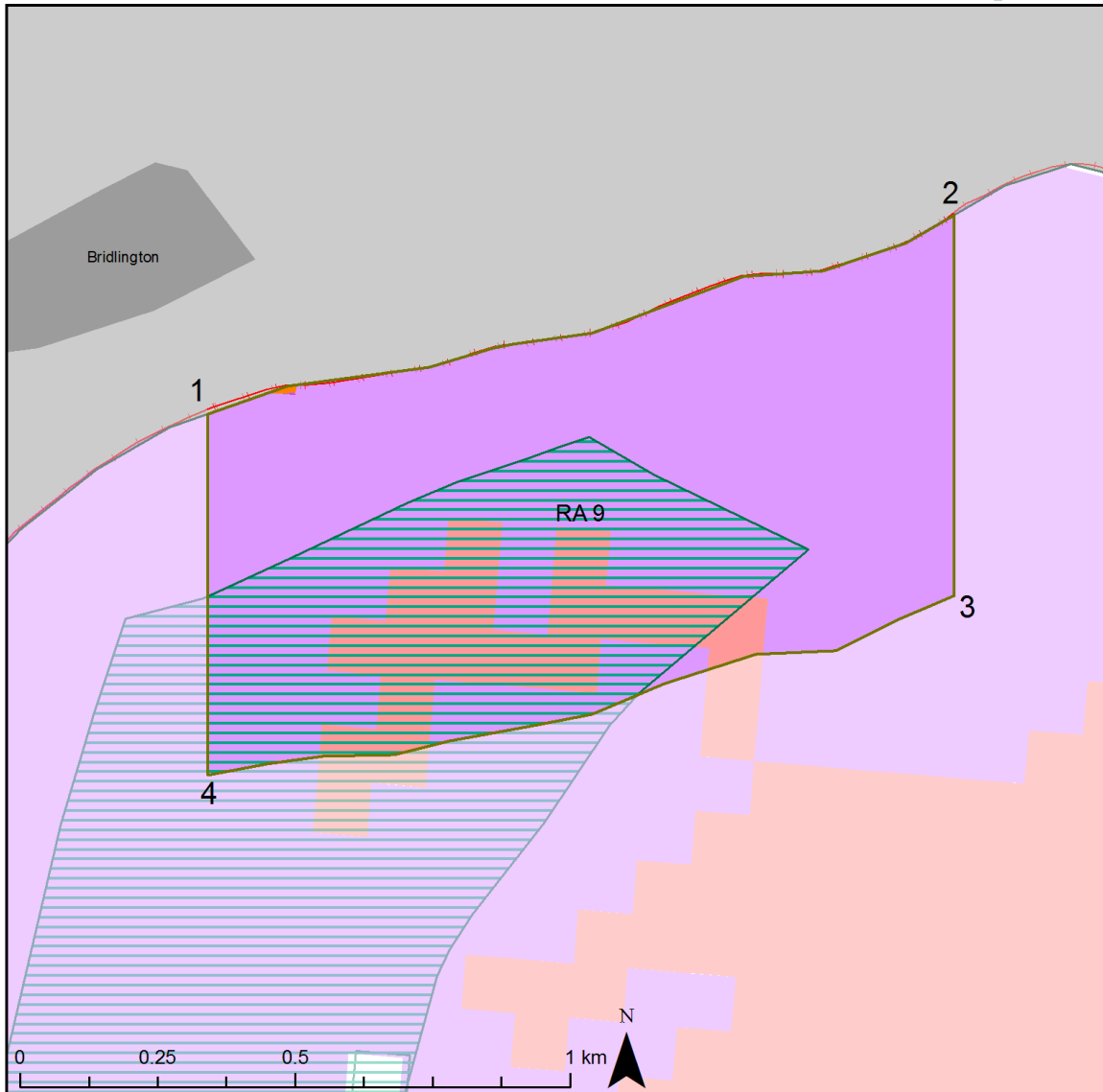
rRA9 lies within the Flamborough Head and Bempton Cliffs Special Protected Area (SPA) which supports at least 20,000 seabirds with populations of European importance migratory species. The chalk cliffs have been weathered by wind and sea, creating nesting ledges for seabirds during the summer months. These include the internationally important kittiwake (*Rissa tridactyla*), nationally important razorbill (*Alca torda*) with 7,700 individuals, guillemot (*Uria aalge*) with 45,000 individuals and puffin (*Fratercula arctica*) with 7,000 individuals. During winter the cliffs are utilised by shag (*Phalacrocorax aristotelis*), and year round herring gull (*Larus argentatus*). The cliffs also support England's only, and the UK's largest, mainland gannet (*Morus bassanus*) colony during the summer. kittiwake are by far the most abundant of the nesting seabirds on the cliffs of Flamborough Head with an average of 44,000 pairs 2000-2004; 12% of the UK population. The seabirds feed and raft in the waters around the cliffs, outside the SPA, as well as feeding more distantly in the North Sea.

Algae such as Chrysophyceae, small yellowish brown flagellates, and Haptophyceae are found on vertical upper littoral fringe soft rock showing distinct zonation patterns (Anand 1937a, b, c; Magne, 1974; Tittley and Shaw 1980). The height of the supralittoral zone and the height of each individual algal zone is dependent on moisture and humidity. The surface of soft rock provides an extra complexity of pits and crevices that retain moisture and provide shelter from drying winds and sunlight. These organisms are single celled microalgae and form a thallus of algal cells bound by mucilage or filaments of mucilage (van den Hoek, et al. 1995). Zones have distinct colours of orange (*Chrysolita lamellosa*), brown, black and green (*Epocladia perforans*). Terrestrial species associated with this zone are red mites, insects and centipedes, moving in as the tides fall to graze upon the algae. The most commonly found marine grazer is the small wrinkle (*Melarhapha neritoides*) (Tittley & Spurrier 2001).

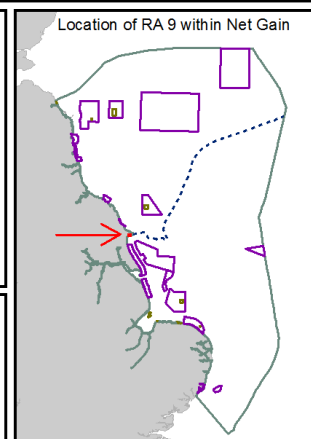
Intertidal aspects of rRA9 have dense mats of green seaweeds, such as gut weed (*Ulva intestinalis*) and sea lettuce (*Ulva lactuca*). Closer to the low water mark, specialised rock-boring animals such as the common piddock (*Pholas dactylus*) a bivalve, and the chalk boring yellow sponge (*Cliona celata*) are found. They are only able to survive in these soft rock biotopes, with old burrows providing refuge for other species (Eunice Pinn, 2011. pers. comm.) found a statistically significant increase in species diversity where old burrows were present compared to where they were absent, influencing overall biodiversity. This species is highly vulnerable to the loss of chalky substratum. These are overlain by mostly algal-dominated communities (fucoids and red algal turfs) (Gubbay, 2002).

Flamborough Head is known for harbour porpoise sightings and due to the highly migratory nature of this species it can be assumed that they may utilise the waters in rRA9. The mixing of water causes an upwelling of nutrients around the headland resulting in a food chain of plankton, fish, seabirds and cetaceans. Other sightings from Flamborough Head have included minke whales and common dolphins.

# Flamborough Head No Take Zone (RA 9)



<ul style="list-style-type: none"> <li>--- Regional seas boundary</li> <li>Net Gain boundary</li> <li>Human settlements</li> <li>Land</li> <li><b>Final site recommendations</b></li> <li>rRA</li> <li>rMCZ</li> </ul>	<p><b>Habitats of conservation importance</b></p> <ul style="list-style-type: none"> <li>Littoral chalk communities (modelled)</li> <li>Subtidal sands and gravels</li> </ul> <p><b>Broad scale habitat</b></p> <ul style="list-style-type: none"> <li>A1.2: Moderate energy intertidal rock</li> <li>A2.1: Intertidal coarse sediments</li> <li>A2.2: Intertidal sand and muddy sand</li> <li>A3.1: High energy infralittoral rock</li> <li>A3.2: Moderate energy infralittoral rock</li> </ul>
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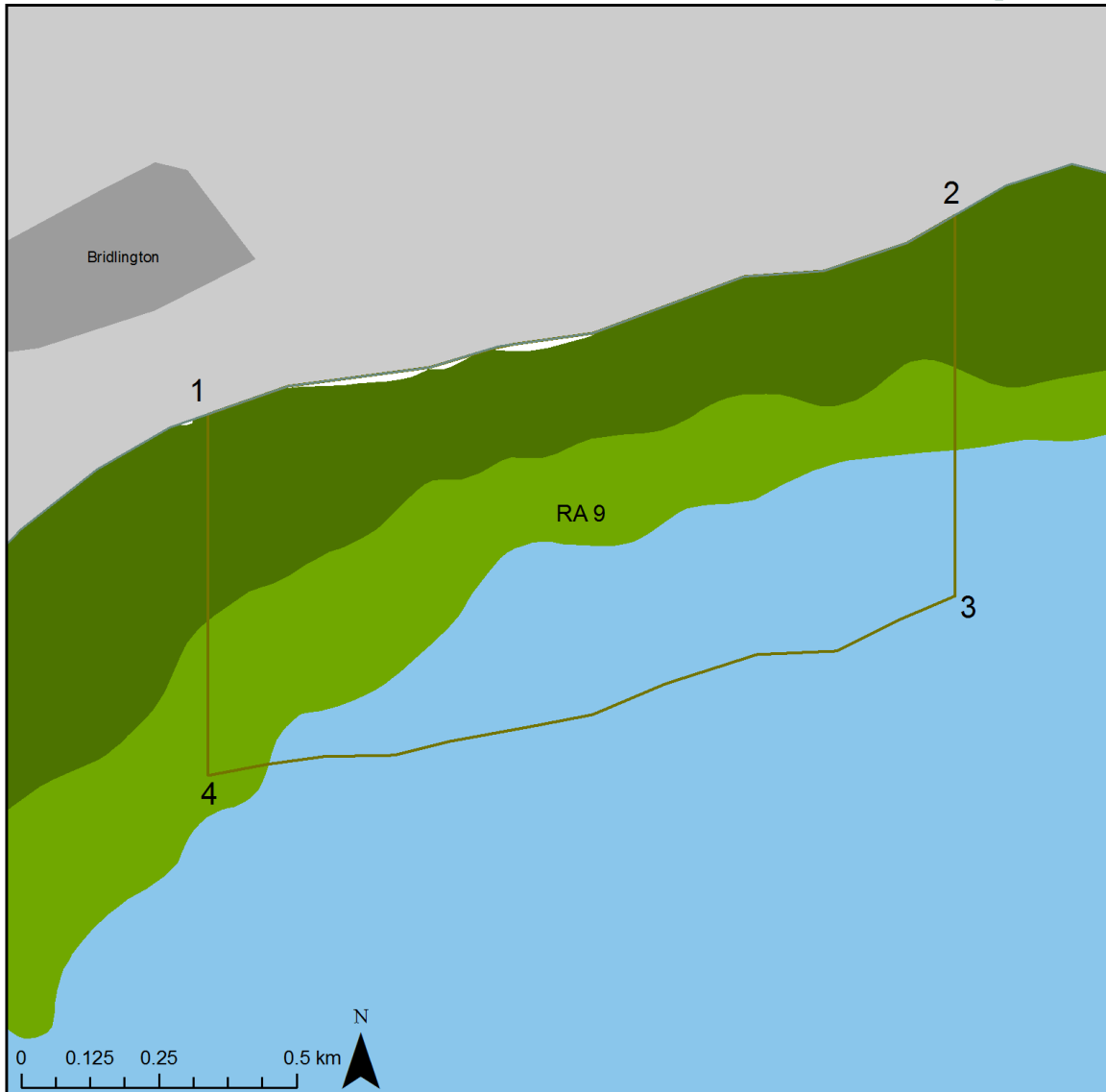


Map version: 1.0 (31/08/2011) Datum: WGS 1984, Projection: UTM Zone 31N.

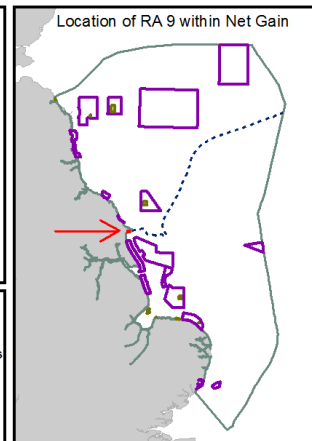
Broad scale habitats (UKSeaMap2010; MESH): JNCC, 2010; MESH, 2010 respectively. Habitats FOCI: Defra contract / ABPmer. Net Gain boundary: largely based on political and administrative boundaries, the exact limits of the UK Continental Shelf are set out in orders made under section 1(7) of the Continental 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.

Figure 7.197 Features recommended for designation in rRA 9

# Flamborough Head No Take Zone (RA 9)



Legend	
-----	Regional seas boundary
□	Net Gain boundary
■	Human settlements
■	Land
□	Final site recommendations
□	rRA
□	rMCZ
■	Depth class based on LMW Mark (m)
■	<= -5
■	<= 0
■	<= 5
■	<= 10
■	<= 15
■	<= 20
■	<= 30
■	<= 40
■	<= 50
■	<= 75
■	<= 100
■	<= 150
■	<= 200



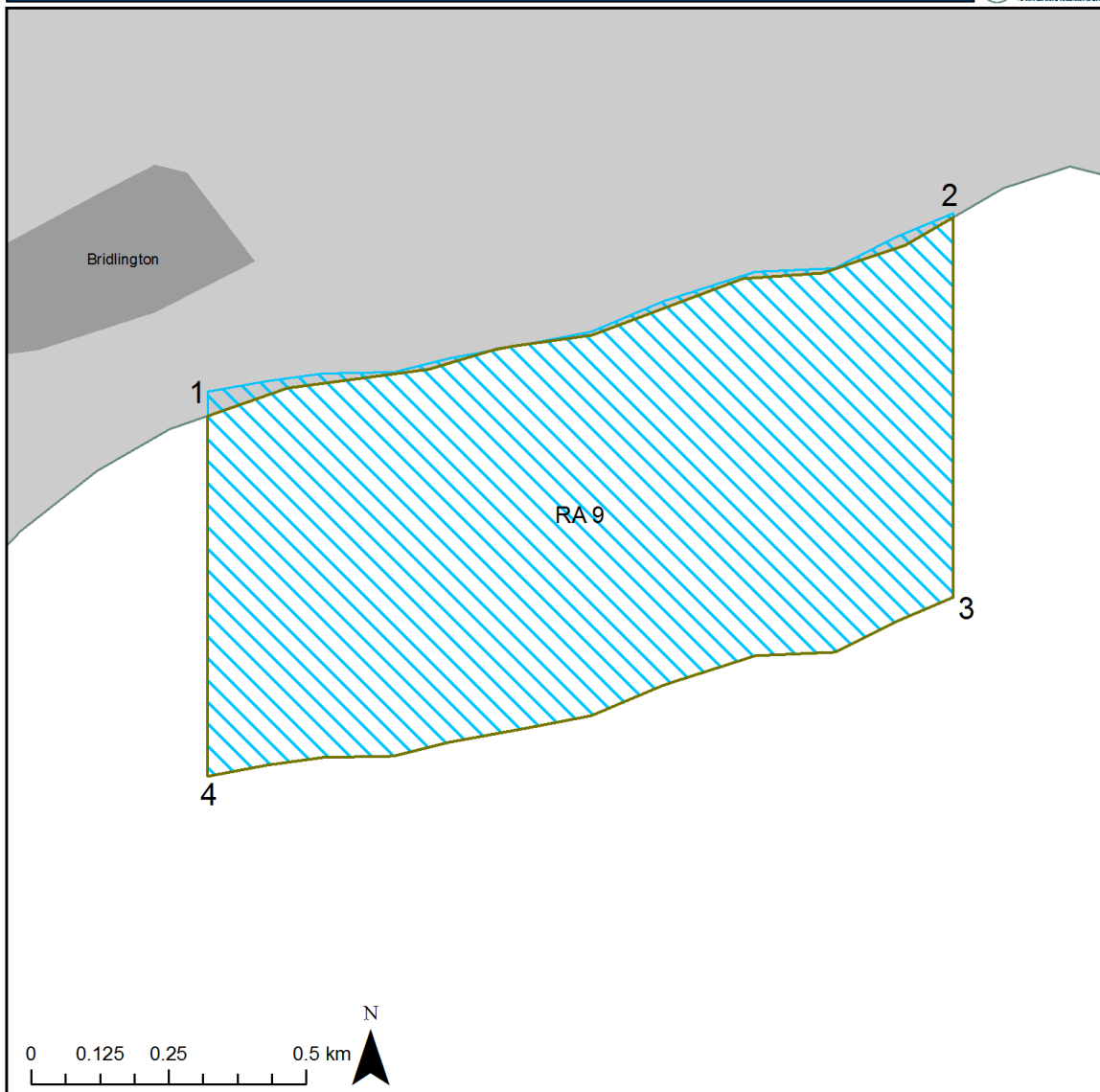
Map version: 1.0 (31/08/2011) Datum: WGS 1984, Projection: UTM Zone 31N.  
 Contains data from the Ordnance Survey © Crown Copyright and database right 2011. Ordnance Survey 100022021. Contains data from the UK Hydrographic Office © Crown Copyright and/or database rights. Reproduced by permission of the Controller of Her Majesty's Stationery Office and the UK Hydrographic Office (www.ukho.gov.uk). Admiralty Charts © Crown Copyright, 2011. All rights reserved. License No. EK001-GOV001. NOT TO BE USED FOR NAVIGATION. Contains UKHO Law of the Sea data © Crown copyright and database right. 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). National limits: UKHO. Contains UKHO Law of the Sea data © Crown copyright and database right.

Figure 7.198 Bathymetry of rRA 9

**Site boundary**

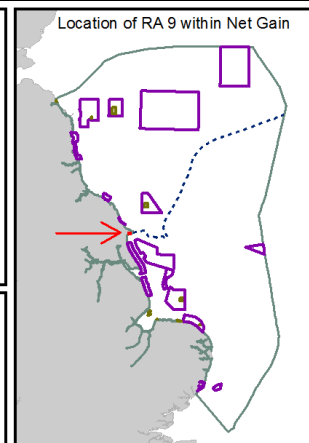
The boundary of rRA 9 was extended from the shoreline where it is protecting littoral chalk communities to cover the intertidal and immediate subtidal areas, and was extended c.300m south from the existing no-take zone that is present at Flamborough Head, running from Danes Dyke to Sewerby Steps and 700m seaward. The area was designated on the assumption that there would not be any implications for ongoing fishing activity in the area as it currently follows a no-trawl zone. It is thought that the addition of the reference area will assist in protecting the littoral chalk communities and other features present.

# Flamborough Head No Take Zone (RA 9)



**Legend**

- Regional seas boundary **Byelaw**
- Net Gain boundary
- Human settlements
- Land
- Final site recommendations**
- rRA
- rMCZ
- Trawling prohibition (All year)



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

Byelaws and 1983 limits provided by the NESFC and ESJFC.  
 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). Human settlements: ESRI® Data & Maps.

**Figure 7.199 rRA 9 site boundary with associated fishery management locations**

**Conservation objectives**

**Table 7.208 Conservation objectives for site rRA 9, A1.2: Moderate energy intertidal rock**

Section	
1 Conservation Objective	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, recover the moderate energy intertidal rock to favourable condition by 2020 and maintain thereafter, and recover the moderate energy intertidal rock in the area marked on map Figure 7.197 to reference condition, such that:
2 Attributes and parameters(indicated by *)	<p style="text-align: center;"><b><u>Habitat</u></b></p> <p>the</p> <ul style="list-style-type: none"> <li>• extent,</li> <li>• diversity,</li> <li>• community structure,</li> <li>• natural environmental quality*, and</li> <li>• natural environmental processes*</li> </ul> <p>representative of the moderate energy intertidal rock in the biogeographic region is recovered and the moderate energy intertidal rock area marked on map Figure 7.197 is recovered to reference condition, such that the feature makes its contribution to the network.</p>
<b>Advice on operations</b>	
3 Human activities	Reference areas should be managed to remove or prevent all extraction, deposition or human-derived disturbance and damage.

**Table 7.209 Conservation objectives for site rRA 9, A2.1: Intertidal coarse sediment**

Section	
1 Conservation Objective	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, recover the intertidal coarse sediment to favourable condition by 2020 and maintain thereafter, and recover the intertidal coarse sediment in the area marked on map Figure 7.197 to reference condition, such that:
2 Attributes and parameters(indicated by *)	<p style="text-align: center;"><b><u>Habitat</u></b></p> <p>the</p> <ul style="list-style-type: none"> <li>• extent,</li> <li>• diversity,</li> <li>• community structure,</li> <li>• natural environmental quality*, and</li> <li>• natural environmental processes*</li> </ul> <p>representative of the intertidal coarse sediment in the biogeographic region is recovered and the intertidal coarse sediment area marked on map Figure 7.197 is recovered to reference condition, such that the feature makes its contribution to the network.</p>
<b>Advice on operations</b>	
3 Human activities	Reference areas should be managed to remove or prevent all extraction, deposition or human-derived disturbance and damage.

**Table 7.210 Conservation objectives for site rRA 9, A2.2: Intertidal sand and muddy sand**

Section	
1 Conservation Objective	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, recover the intertidal sand and muddy sand to favourable condition by 2020 and maintain thereafter, and recover the intertidal sand and muddy sand in the area marked on map Figure 7.197 to reference condition, such that:
2 Attributes and parameters(indicated by *)	<p style="text-align: center;"><b><u>Habitat</u></b></p> <p>the</p> <ul style="list-style-type: none"> <li>• extent,</li> <li>• diversity,</li> <li>• community structure,</li> <li>• natural environmental quality*, and</li> <li>• natural environmental processes*</li> </ul> <p>representative of the intertidal sand and muddy sand in the biogeographic region is recovered and the intertidal sand and muddy sand area marked on map Figure 7.197 is recovered to reference condition, such that the feature makes its contribution to the network.</p>
<b>Advice on operations</b>	
3 Human activities	Reference areas should be managed to remove or prevent all extraction, deposition or human-derived disturbance and damage.

**Table 7.211 Conservation objectives for site rRA 9, A3.1: High energy infralittoral rock**

Section	
1 Conservation Objective	High energy infralittoral rock is representative of shallow water rock, below the tides exposed to very strong waves and currents Subject to natural change, recover the high energy infralittoral rock to favourable condition by 2020 and maintain thereafter, and recover the high energy infralittoral rock in the area marked on map Figure 7.197 to reference condition, such that:
2 Attributes and parameters(indicated by *)	<p style="text-align: center;"><b><u>Habitat</u></b></p> <p>the</p> <ul style="list-style-type: none"> <li>• extent,</li> <li>• diversity,</li> <li>• community structure,</li> <li>• natural environmental quality*, and</li> <li>• natural environmental processes*</li> </ul> <p>representative of the high energy infralittoral rock in the biogeographic region is recovered and the high energy infralittoral rock] area marked on map Figure 7.197 is recovered to reference condition, such that the feature makes its contribution to the network.</p>
<b>Advice on operations</b>	
3 Human activities	Reference areas should be managed to remove or prevent all extraction, deposition or human-derived disturbance and damage.

**Table 7.212 Conservation objectives for site rRA 9, A3.2: Moderate energy infralittoral rock**

Section	
1 Conservation Objective	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, recover the moderate energy infralittoral rock to favourable condition by 2020 and maintain thereafter, and recover the moderate energy infralittoral rock in the area marked on map Figure 7.197 to reference condition, such that:
2 Attributes and parameters(indicated by *)	<p style="text-align: center;"><b><u>Habitat</u></b></p> <p>the</p> <ul style="list-style-type: none"> <li>• extent,</li> <li>• diversity,</li> <li>• community structure,</li> <li>• natural environmental quality*, and</li> <li>• natural environmental processes*</li> </ul> <p>representative of the moderate energy infralittoral rock in the biogeographic region is recovered and the moderate energy infralittoral rock area marked on map Figure 7.197 is recovered to reference condition, such that the feature makes its contribution to the network.</p>
<b>Advice on operations</b>	
3 Human activities	Reference areas should be managed to remove or prevent all extraction, deposition or human-derived disturbance and damage.

**Table 7.213 Conservation objectives for site rRA 9, Littoral chalk communities (modelled)**

Section	
1 Conservation Objective	Littoral chalk communities are on the UK List of Priority Species and Habitats (UK BAP) and OSPAR List of Threatened and/or Declining Species and Habitats. Subject to natural change, recover the littoral chalk communities to favourable condition by 2020 and maintain thereafter, and recover the littoral chalk communities in the area marked on map X to reference condition, such that:
2 Attributes and parameters(indicated by *)	<p style="text-align: center;"><b><u>Habitat</u></b></p> <p>the</p> <ul style="list-style-type: none"> <li>• extent,</li> <li>• diversity,</li> <li>• community structure,</li> <li>• natural environmental quality*, and</li> <li>• natural environmental processes*</li> </ul> <p>representative of the littoral chalk communities in the biogeographic region is recovered and the littoral chalk communities area marked on map Figure 7.197 is recovered to reference condition, such that the feature makes its contribution to the network.</p>
<b>Advice on operations</b>	
3 Human activities	Reference areas should be managed to remove or prevent all extraction, deposition or human-derived disturbance and damage.

**Table 7.214 Conservation objectives for site rRA 9, Subtidal sands and gravels**

Section	
1 Conservation Objective	Subtidal sands and gravels are on the UK List of Priority Species and Habitats (UK BAP). Subject to natural change, recover the subtidal sands and gravels to favourable condition by 2020 and maintain thereafter, and recover the subtidal sands and gravels in the area marked on map Figure 7.197 to reference condition, such that:
2 Attributes and parameters(indicated by *)	<p style="text-align: center;"><b><u>Habitat</u></b></p> <p>the</p> <ul style="list-style-type: none"> <li>• extent,</li> <li>• diversity,</li> <li>• community structure,</li> <li>• natural environmental quality*, and</li> <li>• natural environmental processes*</li> </ul> <p>representative of the subtidal sands and gravels in the biogeographic region is recovered and the subtidal sands and gravels area marked on map Figure 7.197 is recovered to reference condition, such that the feature makes its contribution to the network.</p>
<b>Advice on operations</b>	
3 Human activities	Reference areas should be managed to remove or prevent all extraction, deposition or human-derived disturbance and damage.

### 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.

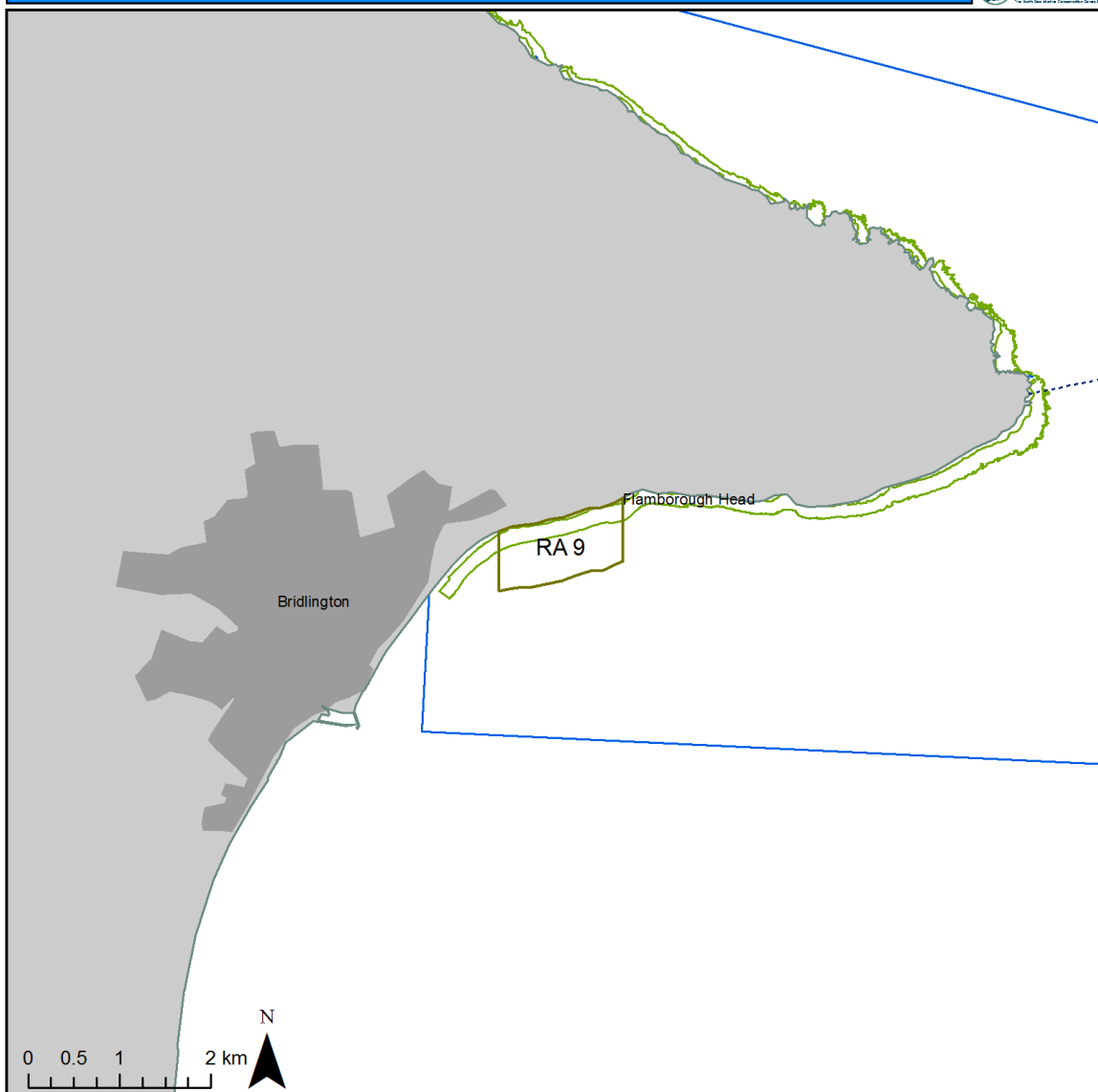
rRA 9, lies within the existing Flamborough Head SAC and SSSI.

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.

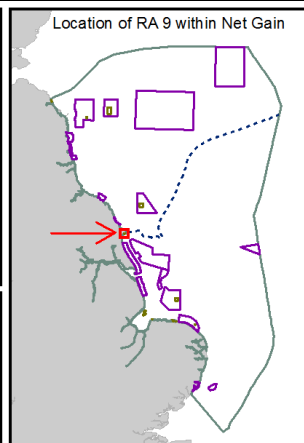
**Table 7.215 MPAs within rRA 9**

MPA Type	Site Name	Features Protected
SAC	Flamborough Head	A1.1: High energy intertidal rock A3.1: High energy infralittoral rock A4.1: High energy circalittoral rock A5.6: Subtidal biogenic reefs Blue mussel beds Intertidal underboulder communities Littoral chalk communities Subtidal chalk
SSSI	Flamborough Head	Not in GAP table Geological Botanical

# Flamborough Head No Take Zone (RA 9)



Legend	
--- Regional seas boundary	<b>Final site recommendations</b>
□ Net Gain boundary	□ rRA
■ Human settlements	□ rMCZ
■ Land	<b>Protected areas</b>
	□ SACs with marine components
	□ SSSI



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

Marine protected areas boundaries: natural England and JNCC websites.  
 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). Human settlements: ESRI® Data & Maps.

**Figure 7.200 MPAs neighbouring rRA 9**

### **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').

In terms of the consensus view expressed at the LGM, the site was strongly supported, reflecting consensus achieved at the Regional Hubs.

Confidence in the underlying data was high, and it was noted that the data collection process was ongoing (with East Riding of Yorkshire Council surveys being undertaken). It was suggested that there may be more data available that has not yet been collated but which may be used to provide additional support for site designation.

The potential level of contention associated with the site was felt to be low.

**Table 7.216 Supporting documentation**

Information	Type of information	Source
Broad-scale habitat	Modelled data	Mc Breen, 2010
Broad-scale habitat	Collated habitats maps	Coltman, et al. 2008
Littoral chalk communities	Modelled data	Tyler-Walters, et al. 2009
Subtidal sands and gravels	Combination of historical and recent records	Tyler-Walters, et al. 2009

**References**

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

EUNICE PINN, 2011. pers. comm..

HILL, J., 2006. *Pholas dactylus*. *Common piddock*. *Marine Life Information Network: Biology and Sensitivity Key Information Sub-programme [on-line]*. Plymouth: Marine Biological Association of the United Kingdom. [cited 14/08/2011] McBREEN, F. 2010. *UKSeaMap 2010 EUNIS model Version 3.0*. *UKSeaMap 2010: Predictive seabed habitat map (v5)*. JNCC.

PIZZOLLA, P., 2008. *Ulva lactuca*. *Sea lettuce*. *Marine Life Information Network: Biology and Sensitivity Key Information Sub-programme [on-line]*. Plymouth: Marine Biological Association of the United Kingdom. [cited 14/08/2011].

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