Net Gain

Final Recommendations
Submission to Natural England & JNCC

Section 7.20 (Site Assessment Document)
rRA 2a & rRA 2b, Seahorse Lagoon & Arnold's Marsh

31 August 2011

Version 1.1

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

7.20 Marine Conservation Zone: rRA 2a and rRA 2b Seahorse Lagoon and Arnold's Marsh

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

Site name

rRA 2a and rRA 2b, Seahorse Lagoon and Arnold's Marsh

Site centre location

rRA 2a

52° 57' 42''N, 1° 03' 43''E °
52.961692°, 1.062201°
Lambert Azimuthal Equal Area projection

rRA 2b

52° 57' 36''N, 1° 04' 05''E °
52.96032°,1.068311°
Lambert Azimuthal Equal Area projection

Site surface area

rRA 2a

0.05km² / 5.46ha
Lambert Azimuthal Equal Area projection

rRA 2b

0.09km² / 9.26ha
Lambert Azimuthal Equal Area projection

Biogeographic region

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

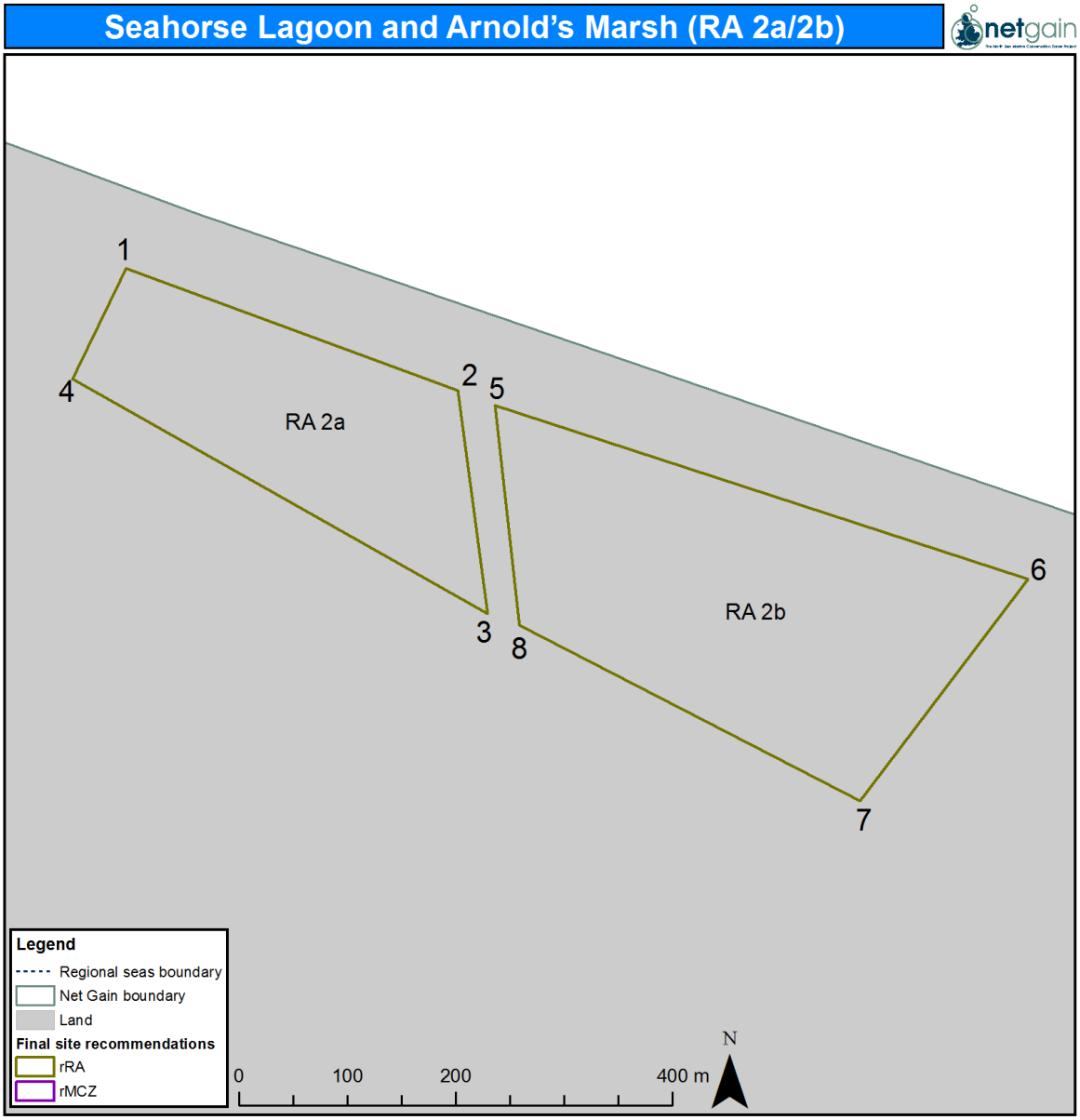
Table 7.159 Features proposed for designation within rRA 2a and 2b, Seahorse Lagoon and Arnold's Marsh

Feature type	Feature name	Area covered within site (for broad-scale habitats and habitats of conservation importance)
Broad-scale habitat	n/a	n/a
Habitat of conservation importance	n/a	n/a
Species of conservation importance	Starlet sea anemone (*Nematostella vectensis*)	No data, records available from Natural England, 2010
Geological feature	n/a	n/a
Other feature	n/a	n/a

Features within rRA 2a and 2b, Seahorse Lagoon and Arnold's Marsh not proposed for designation

All features that are present in rRA 2a and 2b are being recommended for designation.

Map of site



Boundary coordinates:

Vertex	Degrees Minutes Seconds		Decimal Degrees	
	Latitude	Longitude	Latitude	Longitude
1	52° 57' 46.51" N	1° 3' 35.17" E	52.962927	1.059770
2	52° 57' 43.13" N	1° 3' 51.73" E	52.961989	1.064370
3	52° 57' 36.54" N	1° 3' 53.50" E	52.960155	1.064865
4	52° 57' 43.20" N	1° 3' 32.65" E	52.962002	1.059079
5	52° 57' 42.73" N	1° 3' 53.57" E	52.961876	1.064889
6	52° 57' 37.98" N	1° 4' 20.14" E	52.960559	1.072264
7	52° 57' 31.25" N	1° 4' 12.14" E	52.958689	1.070043
8	52° 57' 36.22" N	1° 3' 55.04" E	52.960061	1.065298

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).

Figure 7.159 Location and extent of rRA 2a and 2b (Seahorse Lagoon and Arnold's Marsh)

Site summary

NG 2a and 2b are two saline lagoons (Seahorse Lagoon and Arnold's Marsh) located within the Norfolk Wildlife Trust Cley Marshes Reserve on the North Norfolk Coast. The sites are recommended for designation for starlet sea anemone (*Nematostella vectensis*), based on survey data provided by Natural England. Natural England continues to conduct scientific monitoring surveys within these sites. An information board highlighting the biological details of the starlet sea anemone is already in situ on the footpath between the two lagoons. Due to the inland location of these sites, the Net Gain team holds no data to suggest habitat types that are present within the lagoon. The lagoons have formed from sea water filtering under the shingle ridge, and the substrate present is likely to be muddy shingle.

Detailed site description

RA2a and RA2b are being recommended for designation for the presence of starlet sea anemones (*Nematostella vectensis*) in the saline lagoons on the landward side of the coast close to the village of Cley-next-the-Sea.

There are a number (over 20) of saline lagoons on the Cley Marshes Reserve owned and managed by the Norfolk Wildlife Trust of which RA 2a and 2b are two. Saline (or coastal) Lagoons are a feature of the North Norfolk Coast Special Area of Conservation as they are an Annex 1 habitat under the Habitats Directive.

These lagoons are percolation lagoons. These are normally separated from the sea by shingle banks. Seawater enters by percolating through the shingle or occasionally by over-topping the bank (e.g. in storms). The water level shows some variation with tidal changes, and salinity may vary. Since percolation lagoons are normally formed by natural processes of sediment transport, they are relatively transient features, which may be eroded and swept away over a period of years or decades or may become infilled by movement of the shingle bank. The bottom of each pool is shingle overlain by soft mud. A typical view of the site is show in the figure below.

Figure 7.160 Arnold's Marsh Lagoon

The starlet sea anemone (*Nematostella vectensis*) lives in isolated or semi-isolated brackish lagoons at or above high water with a salinity range of 18-40 practical salinity units (psu). They are found

typically in mud, muddy sand and muddy shingle (Sheader, 2011 pers. comm.) where algae is often present.

Abundance varies with geographic area and time of year. In September 1974 more than 12,500 /m^2 were found in a Norfolk pool (William, unpublished, cited in Williams 1983) showing that this area had a successful native population due to naturally occurring biotopes.

Nematostella vectensis is known to reproduce both sexually and asexually. In most populations in England only females are found (Sheader et al. 1997) and there seems to be only asexual reproduction in England (Sheader pers. comm). Asexual reproduction is achieved through transverse fission, known to occur in only four other sea anemones (Shick 1991, cited in Hand and Uhlinger 1994).

On a national scale, starlet sea anemones are scarce and are listed as Vulnerable on the IUCN Red list. *Nematostella vectensis* is under threat because it is recorded from only a few restricted coastal areas and these are especially vulnerable to coastal change (Williams 1991). If the lagoons were to dry out or become polluted whole populations would be extinguished. The isolation of lagoons leads to fragmentation of populations and reduced genetic mixing.

The following species were identified as present in Seahorse Lagoon and Arnold's Marsh in 2010; the lagoon cockle (*Cerastoderma glaucum*), small amphipod crustaceans (*Gammarus* spp.), small brackish water snails (*Hydrobia* spp.), an opossum shrimp (*Neomysis integer*) and the Atlantic ditch shrimp (*Paleomonetes varians*) (Natural England, 2010). The Lagoon cockle fails to colonise the higher shoreline due to an inability to tolerate aerial exposure. Its distribution is believed to be restricted by the damaging effect of wave action on newly settled spat. Lagoon sand shrimp has been protected under Schedules 5 and 8 of the Wildlife and Countryside Act 1981. Since 1988 it has been illegal to catch or handle the species without a specific licence from the national Nature Conservation agency, now Natural England.

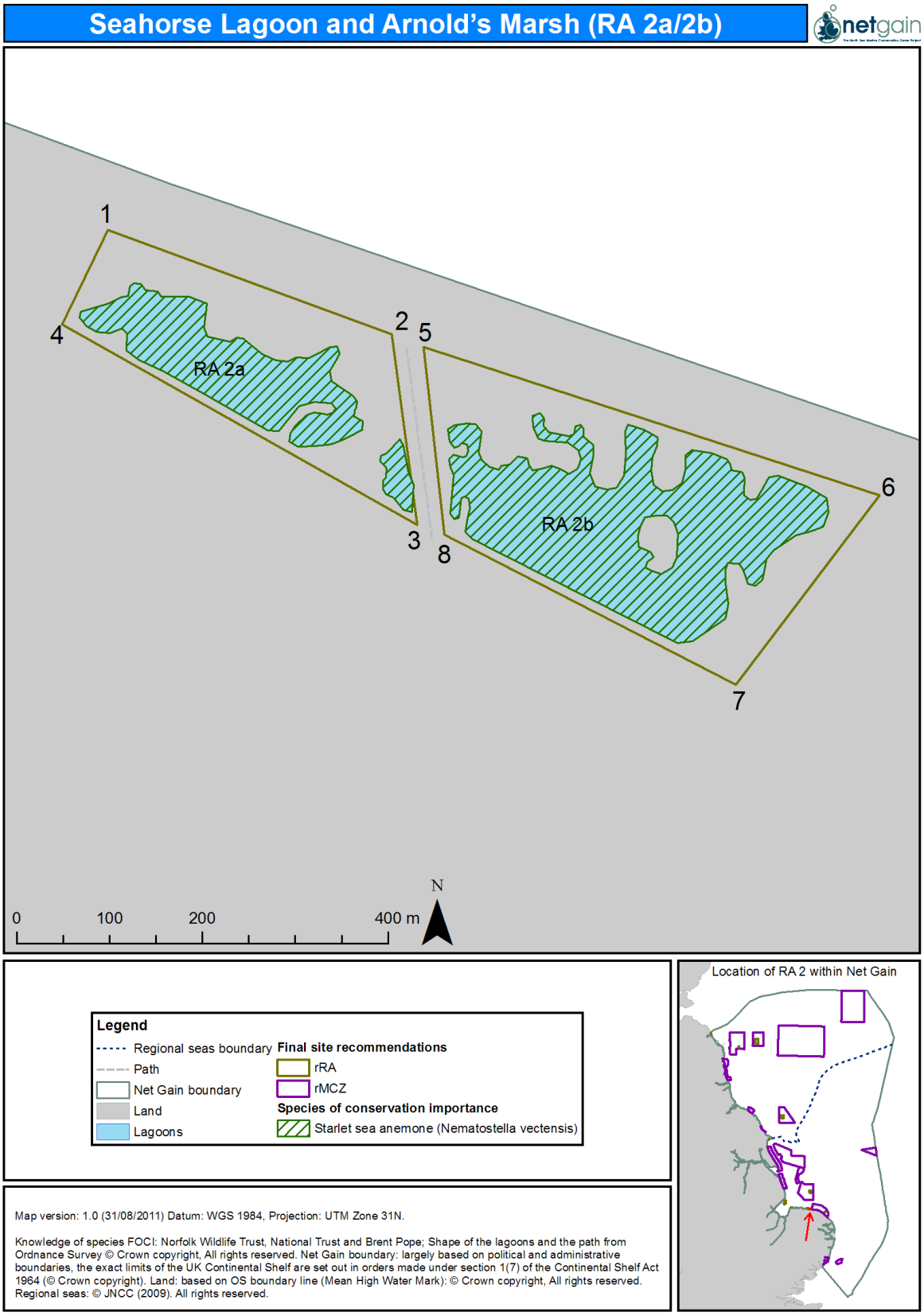


Figure 7.161 Features recommended for designation in rRA 2a and 2b

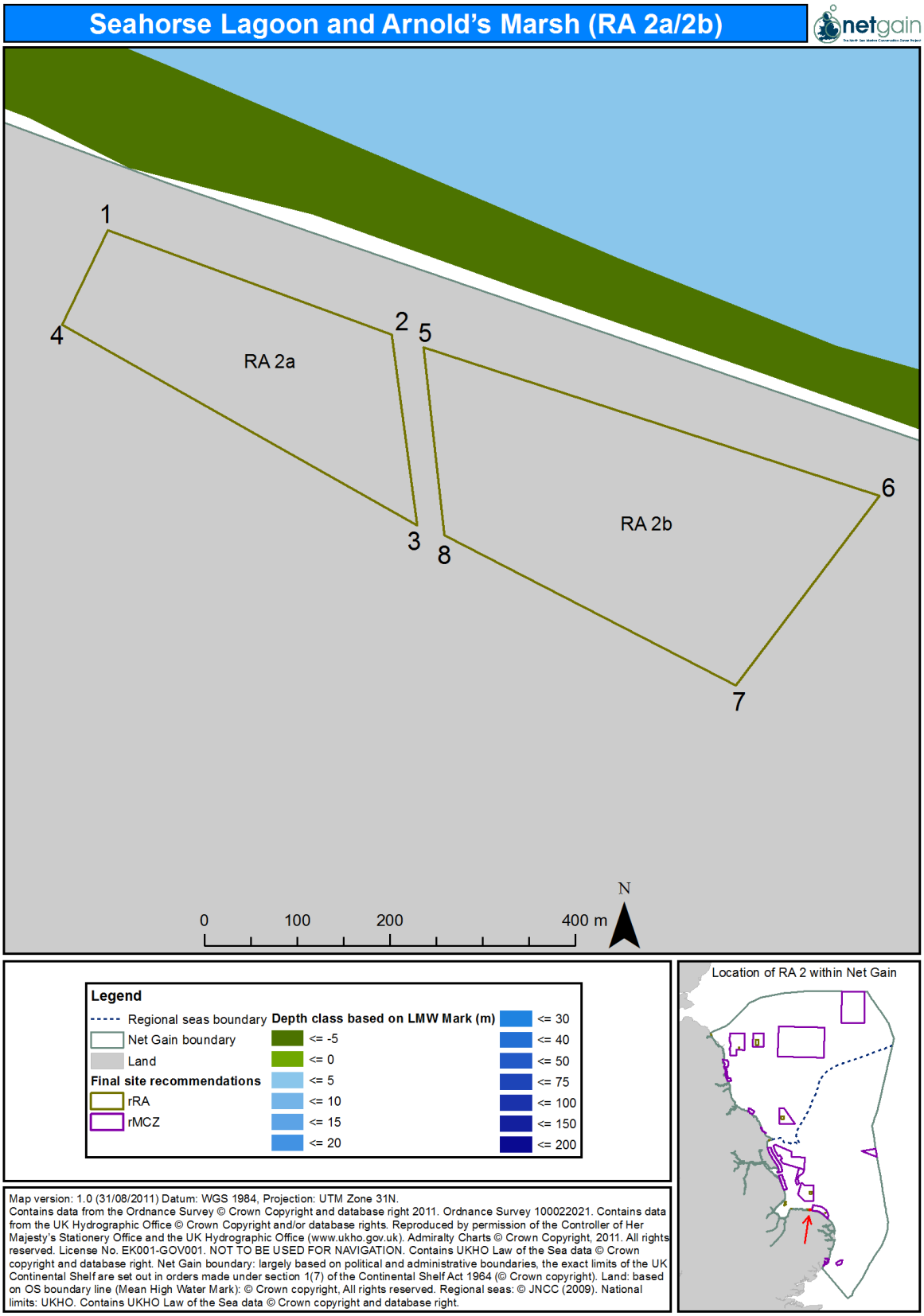


Figure 7.162 Bathymetry of rRA 2a and 2b

Site boundary

The site boundaries for rRA 2a and 2b were originally put forward as two 500m x 500m sites surrounding point data available for starlet sea anemone (*Nematostella* vectensis) also within the North Norfolk Wildlife Trust Cley Marshes Reserve. Surveys completed by Natural England in summer 2010, and meetings with Natural England, the Norfolk Wildlife Trust and Net Gain Liaison Officers in May 2011 determined which lagoons were the best for protection of the anemone. Two lagoons Seahorse Lagoon and Arnold's Marsh, along with a third much smaller lagoon adjacent to the Seahorse Lagoon, Reed Lagoon were decided on for the boundaries of the site. Between the two lagoons there is a public footpath, locally known as the East Bank allowing access to the beach.

Conservation objectives

Table 7.160 Conservation objectives for site rRA 2a and 2b, Starlet sea anemone (*Nematostella vectensis*)

Section	
1 Conservation Objective	Starlet sea anemone (*Nematostella vectensis*) is on the UK List of Priority Species and Habitats (UK BAP) and the Wildlife and Countryside Act 1981 (Schedule 5). Subject to natural change, recover the Starlet sea anemone (*Nematostella vectensis*) to favourable condition by 2020, and recover the Starlet sea anemone (*Nematostella vectensis*) in the area marked on map Figure 7.161 to reference condition, such that:
2 Attributes and parameters (indicated by *)	**Species** the • natural range, • habitat extent, • population structure, • density, • size structure, • natural environmental quality*, and natural environmental processes* representative of the Starlet sea anemone (*Nematostella vectensis*) in the biogeographic region is recovered.and the Starlet sea anemone (*Nematostella vectensis*) area marked on map Figure 7.161 is recovered to reference condition, such that the feature makes its contribution to the network.
Advice on operations	
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 2a and 2b lie within the North Norfolk Coast SAC, SPA and Ramsar site, and in very close proximity to The Wash and North Norfolk Coast SAC (70m), and 5km from Weybourne Cliffs SSSI. The site also lies in close proximity to NG 2, approximately 3km.

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 7.161 MPAs present within rRA 2a and 2b

MPA Type	Site Name	Features Protected
SAC	North Norfolk Coast	Not in GAP table Coastal lagoon Vegetation Sand dunes
SPA	North Norfolk Coast	A2.2: Intertidal sand and muddy sand A2.3: Intertidal mud Coastal saltmarshes and saline reedbeds
Ramsar site	North Norfolk Coast	Not in GAP table Wetland site for migrating bird species

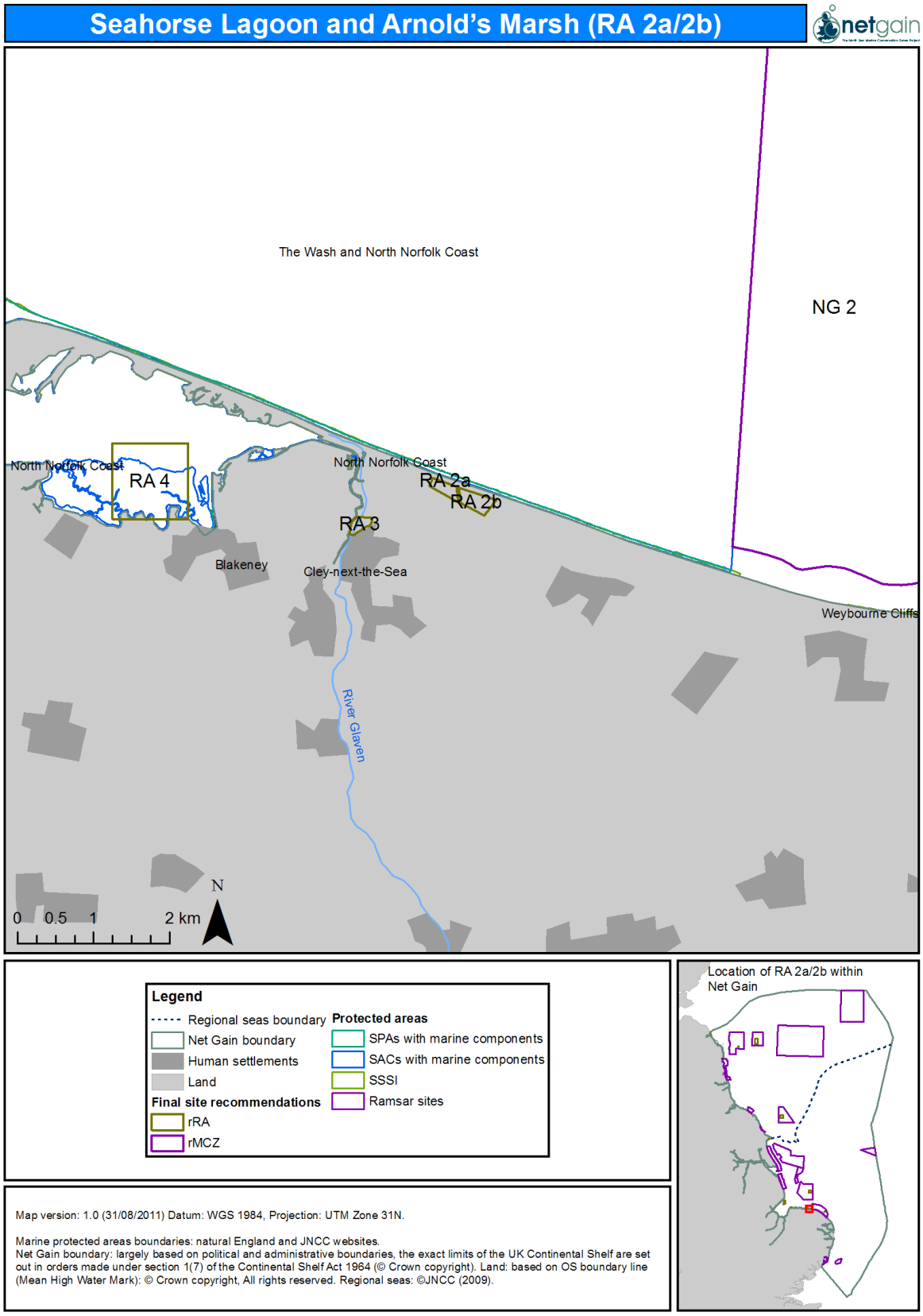


Figure 7.163 MPA and rMCZ sites neighbouring rRA 2a and 2b

Levels of stakeholder support

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

The two locations for the site were considered together and were given strong support (a score of '4') from the group that reviewed the option at the LGM.

The quality of the underlying data was felt to be high – the sites are accessible and discrete and, as data acquisition should not be an issue, the information that has underpinned the site identification and selection should be of good quality.

The level of contention associated with the site should it be carried forward to designation was thought to be likely to be (very, very) low.

On 3 August 2011 Net Gain and Natural England met with the Historic and Common Rights Holders, Parish Councils and local NGOs to share information about the proposed Reference Areas rRA 2a, rRA 2b, rRA 3, rRA 4, rRA 5 to gather further information on activities in these sites.

Table 7.162 Supporting documentation

Information	Type of information	Source
Starlet sea anemone (*Nematostella vectensis*)	Survey	Natural England unpublished report, 2010

References

HAND, C. and UHLINGER, K.R., 1994. *The unique, widely distributed, estuarine sea anemone, Nematostella vectensis, Stephenson: A review, new facts and questions*. *Estuaries*, **17**, 501-508.

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SHEADER, M., SUWAILEM, A.M. & ROWE, G.A., 1997. The anemone, *Nematostella vectensis*, in Britain: considerations for conservation management. *Aquatic Conservation: Marine and Freshwater Ecosystems*, **7**, 13-25.

WILLIAMS, R.B., 1983. *Nematostella vectensis. In The IUCN invertebrate red data book (ed. S.M. Wells, R.M. Pyle and N.M. Collins)*, pp. 43-46. Gland: IUCN.

WILLIAMS, R.B., 1991. *Nematostella vectensis. In British Red Data Books. III. Invertebrates other than insects (ed. J.H. Bratton), pp. 32-33.* Peterborough: Joint Nature Conservation Committee.