Fisheries in EMS Habitats Regulations Assessment for Amber risk categories

Site and gear/features interaction(s) assessed:

European Marine Site:	**Berwickshire and North Northumberland Coast SAC**
Qualifying feature(s):	**Grey seals**
Gear type(s):	**Static fixed nets:** **Gill nets** **Trammel nets** **Entangling nets**
Gear/feature interaction reference(s):	**BNNCSAC-453** **BNNCSAC-454** **BNNCSAC-455**

Revision history

The NIFCA HRA Audit document contains a full timeline of the approach to assess the feature/fishery interaction. Work commenced in March 2013 with the matrix assessment of all feature/fishery interactions to determine no effect, tLSE, evidence gaps requiring a full HRA. This HRA is for a feature/fishery interaction which an evidence gap was identified. The dates below are a summary of the final stages of the process, when evidence was collated and determinations carried out.

Date	***Revision***	***Editor***
17/02/2016	Document created	SSM
March-Sept	Collation of evidence which informs the HRA	SSM, NW, VR (CS)
26/09/2016	NW started writing document. tLSE table amended (Add conservation objectives).	NW
24/11/2016	Meeting with Natural England. Read through document and made suggested changes. Further edits and clarifications to be added by NIFCA	NW, CS, VR
28/03/2017	final document sent to NE	VR
08/01/2018	Monitoring Control Plan Assessment for January 2018 has triggered a re-	NW

	assessment of this HRA. See Annex 7.	

Has Natural England been formally consulted on this tLSE (and do they agree)?	**yes**

Date of document completion:	**30th March 2017**	**Dr. C.L. Scott.**

IFCA reference
BNNCSAC- AA 001

1. Introduction

1.1 1.1 Need for an HRA assessment

In 2012, the Department for Environment, Food and Rural Affairs (Defra) announced a revised approach to the management of commercial fisheries in European Marine Sites (EMS). The objective of this revised approach is to ensure that all existing and potential commercial fishing activities are managed in accordance with Article 6 of the Habitats Directive.

This approach is being implemented using an evidence based, risk-prioritised, and phased basis. Risk prioritisation is informed by using a matrix of the generic sensitivity of the sub-features of EMS to a suite of fishing activities as a decision making tool. These sub-feature-activity combinations have been categorised according to specific definitions, as red, amber, green or blue.

Activity/feature interactions identified within the matrix as red risk have the highest priority for implementation of management measures by the end of 2013 in order to avoid the deterioration of Annex I features in line with obligations under Article 6(2) of the Habitats Directive. Activity/feature interactions identified within the matrix as amber risk require a site-level assessment to determine whether management of an activity is required to conserve site features. Activity/feature interactions identified within the matrix as green also require a site level assessment if there are “in combination effects” with other plans or projects.

Site level assessments are being carried out in a manner that is consistent with the provisions of Article 6(3) of the Habitats Directive. The aim of this assessment is to determine whether management measures are required in order to ensure that fishing activity or activities will have no adverse effect on the integrity of the site. If measures are required, the revised approach requires these to be implemented by 2016.

Northumberland Inshore Fisheries and Conservation Authority (NIFCA) is implementing the site-level assessment process in four phases:

1. simple screening assessment (activity is not occurring/already managed or interaction categorised as blue in the matrix (no interaction with the feature))
2. likely significant effect (LSE) type test (scale or magnitude of effect not likely/likely to be significant)
3. detailed LSE type test
4. appropriate assessment (AA) type test (ascertaining whether the activity will cause an adverse effect on site integrity)

The purpose of this site specific assessment document is to assess whether or not in the view of **Northumberland Inshore Fisheries and Conservation Authority** the fishing activities considered here (**Static fixed nets: Gill, Trammel and Entangling**) have a likely significant effect on the **Grey seals** of the **Berwickshire and North Northumberland Coast SAC**, and on the basis of this assessment whether or not it can be concluded that **Static fixed nets**

(Gill/Trammel/Entangling) will not have an adverse effect on the integrity of this EMS. The other features for this site have been classified as blue in the matrix and are therefore not included in this assessment.

An in-combination assessment will be carried out and will include gears screened out from the phase 2/3 assessment[1] for this site (section 8) and other non-fishery related activities.

1.2 Documents reviewed to inform this assessment

- Defra's risk assessment Matrix of fishing activities and European habitat features and protected species[2]
- NIFCA monthly shellfish permit returns data provided by shellfish permit holders as a condition of their permit. Data recorded pertaining to static netting activity identifies which vessels are actively engaged in activity and their temporal and spatial extent.
- Natural England Fisheries Impact Evidence Database
- Reference list (Annex 1)
- Site boundary map (Annex 2)
- Sub-feature/feature location and extent (Annex 3)
- Maps of grey seal haul-out sites (Annex 4)
- Map of netting litter (Annex 5)
- Map of habitats within the BNNC SAC (Annex 6)
- Monitoring and Control Plan Record and Re-Assessment (Annex 7)

[1] Note: gears screened out of HRA type assessment in phase 2/3 are documented in site audit spreadsheet and are considered in-combination in section 8.
[1]See Fisheries in EMS matrix:
http://www.marinemanagement.org.uk/protecting/conservation/documents/ems_fisheries/populated_matrix3.xls

2. Information about the BNNC SAC

The Berwickshire and North Northumberland Coast SAC stretches from Alnmouth in Northumberland, along 115km of coastline to Fast Castle Head in Berwickshire and out to almost 4 nautical miles at its widest point, encompassing 645km^2 of shore and sea (Annex 2). The BNNC SAC contains a complex of marine habitat types and associated communities which is unusually diverse for the North Sea. Intertidal mudflats and sand flats, seagrass beds, intertidal reefs and intertidal and submerged sea caves, all contribute to the site's overall habitat diversity and international importance. The BNNC SAC also provides important habitat for the grey seal *Halichoerus grypus,* as well as internationally important populations of overwintering and summer breeding bird species (English Nature/Scottish Natural Heritage, 2000).

2.1 Overview and qualifying features

- Annex II species **S1364 Grey seal:**

Within the BNNC SAC there is a long established breeding population of grey seals on the Farne Islands and a more recently established breeding population at Fast Castle[16]. There is also a major breeding colony on the Isle of May to the North of the SAC[16] and a small population on Coquet Island to the south of the SAC, where pups were recorded for the first time in 2010[20]. Seals also haul out at Lindisfarne, however breeding numbers are very low (Andrew Craggs, Natural England, 2016, pers. comm.). Of those mentioned above only the Farne Islands population is within the English section of the BNNC SAC and therefore will be the focus of this document.

The Farne Islands, part of the BNNC SAC, support one of the largest breeding colonies of grey seals in England[14], producing over 1000 pups annually (since 1993)[15], accounting for 2.5% of the British annual pup production[18]. Grey seal breeding on the Farne Islands has been noted since historical records began in the 7th century[16]. Today most estimates of the size of grey seal populations are made from counts of number of pups born in a given year[17] multiplied by 3.5 to get an estimate of colony size[18]. A consistent time series of seal pups counts at the Farne Islands is available dating back to the 1950s[15, 16]. Between 1956 and 1971 pup production increased at a rate of 7.3% p.a.[15, 16] to 2041 pups. Pup production then declined at a rate of 6.3% p.a. to 778 pups by 1984, followed by a 2% increase p.a. to 1603 in 2012[15,16] (Figure 1). The rapid decrease in pup production between 1971 and 1984 can be attributed to population control measures instigated in the 1960s to 1980s during which 3122 pups and 1999 adult females were culled[16]. Pup production has increased for both the Farne Islands and the wider North Sea colonies in recent years (Figures 2 and 3)[15].

Haulout periods are a physiological requirement for grey seals[21], spending approximately 20% of their time ashore. Grey seals populate the Farne Islands throughout the year, as the islands provide a suitable sheltered and ? relatively, undisturbed haulout sites for pupping, which occurs during the Autumn, and for moulting which occurs during the spring[19]. Grey seals travel long distances, seals tagged at the Farne Islands travelled to Orkney, Shetland, the Faroes, as well as offshore areas of the Eastern Atlantic and North Sea[16, 20]. Grey seals returned to the same haulout site from which they departed 88% of the time[16, 20]. Grey seals are believed to feed over a large area of the North Sea. Around the Farne Islands foraging activity is concentrated to the north of the Farnes and research suggests they are targeting sedimentary habitats in search of sandeels, a preferred food source for seals in the area [12, 16, S20].

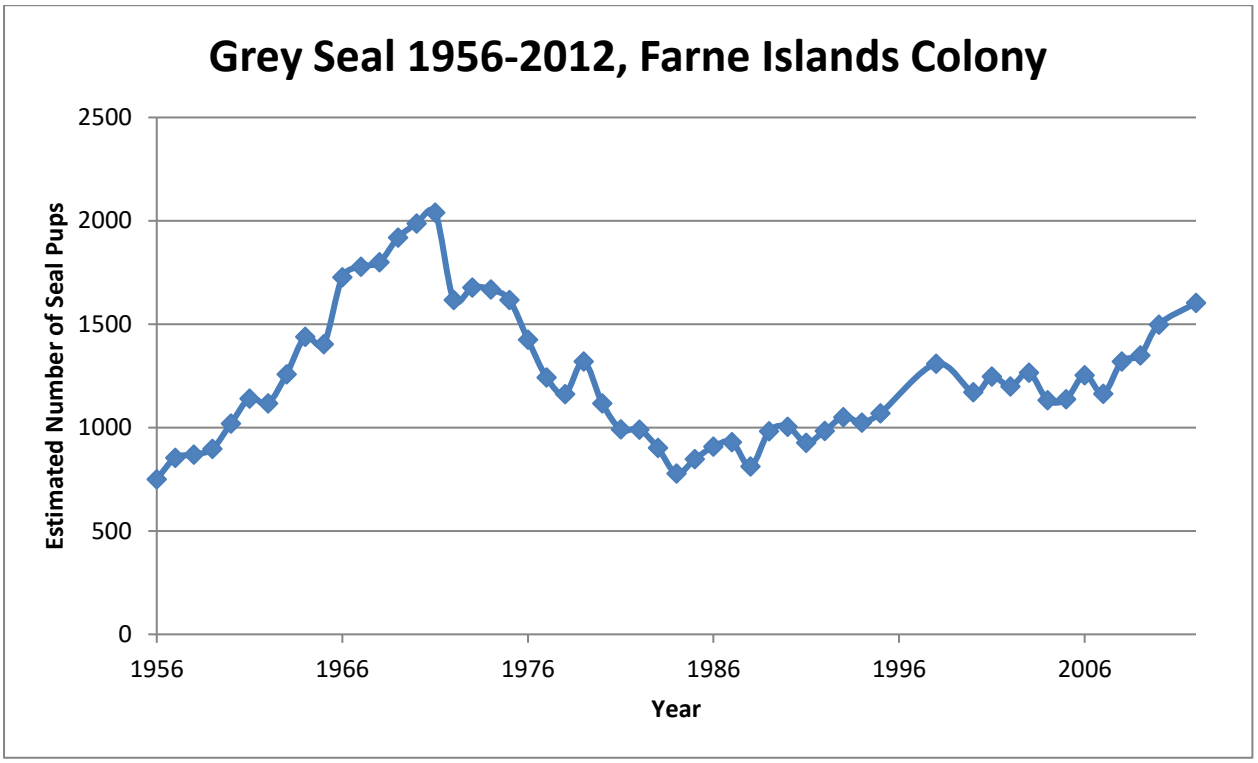


Figure 1. Estimated number of seal pups born at the Farne Islands colony between 1956 and 2012 from SMRU (SCOS) data[15].

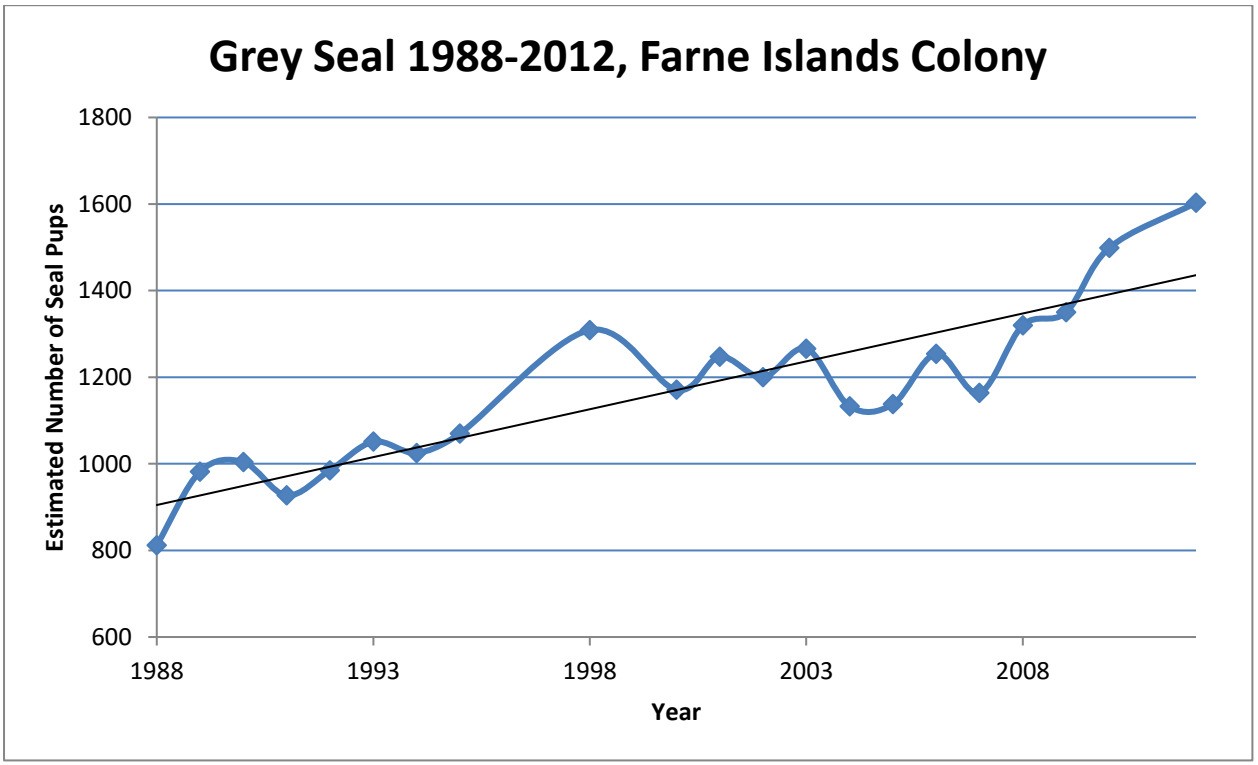


Figure 2. Estimated number of seal pups born at the Farne Islands colony between 1988 and 2012 from SMRU (SCOS) data[15].

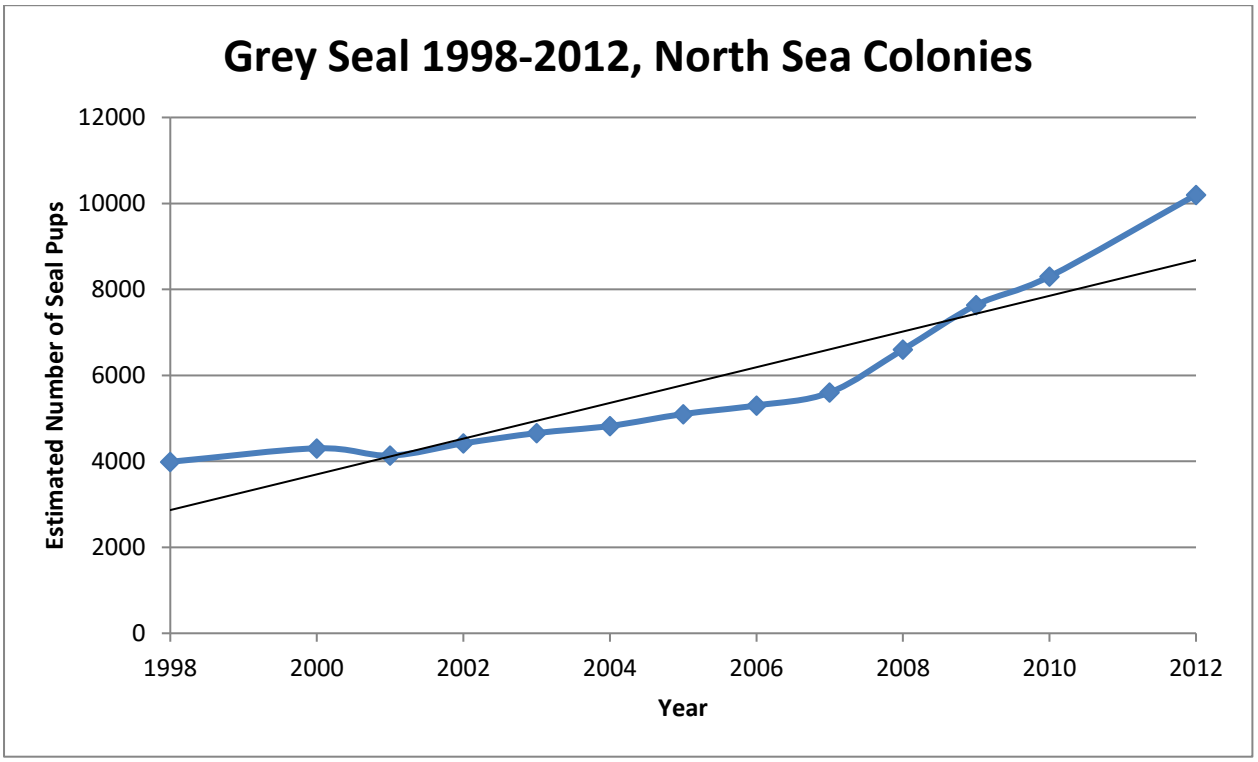


Figure 3. Estimated number of seal pups born at all North Sea colonies between 1998 and 2012 from SMRU (SCOS) data[15].

2.2 Conservation Objectives

The Conservation Objectives listed in this document are based on Regulation 33 advice (June 2000), interim Regulation 35 advice, current knowledge of the status, and the pressures affecting designated features. The Conservation Objectives provided in the Regulation 33 advice package (June 2000) are targeted at the site's supporting habitats for the EC Habitats Directive qualifying features and are set, subject to natural change to 'Maintain' in favourable condition. The Conservation Objectives were assigned a confidence level based on the quality of evidence used to infer condition of the feature. The dated 'Maintain' Conservation Objective assigned to the feature Grey Seals within the BNNC SAC has been retained and was assigned a 'High' confidence level.

The Conservation Objectives for the Berwickshire and North Northumberland Coast SAC feature:
S1364 Grey seal are 'Subject to natural change, to **maintain*** in favourable condition:

- the habitats for the grey seal *Halichoerus grypus,* in particular: the extent and suitability of grey seal *Halichoerus grypus* breeding habitat on the Farne Islands (Regulation 33 advice, June 2000);

- presence and spatial distribution of the species and their ability to undertake key life cycle stages and behaviours;

- the population size within the site to a level which is at or above the population size included in the designation documents or the highest mean peak count over a 5 year period;

- the extent and spatial distribution of foraging and haulout sites as defined in Annex 3;

- the cover/abundance of preferred food items required by the species;

- the connectivity of the habitat within sites and the wider environment to ensure recruitment, and/or to allow movement of migratory species;

- the reproductive and recruitment capability of the species;
- all hydrodynamic and physical conditions such that natural water flow and sediment movement is not significantly altered or constrained;
- aqueous contaminants to levels equating to (High / Good) Status (according to Annex VIII and X of the Water Framework Directive), avoiding deterioration from existing levels;
- the natural water quality and specifically winter dissolved inorganic nitrogen (DIN) [at/to] a concentration equating to (Good/High) Ecological Status (specifically mean winter DIN is < XX µM for coastal waters), avoiding deterioration from existing levels;
- the introduction and spread of non-native species and pathogens, and their impacts;
- the natural physico-chemical properties of the water;
- and natural levels of turbidity (eg concentrations of suspended sediment, plankton and other material) in areas where this species is, or could be present.

3. Interest feature/fisheries interaction of the BNNC SAC categorised as 'Red' risk and overview of management measure(s)

- **H1170 Reefs**

A red risk interaction of mobile fishing gears and reef features was addressed in 2014 with the creation and implementation of Northumberland Inshore Fisheries and Conservation Authority Byelaw 7: Prohibition of the use of Mobile Fishing Gear within the English section of the Berwickshire and Northumberland Coast SAC.

- **A2.61 Intertidal seagrass beds**

Further measures were also brought in to address the red risk interaction of fishing activity on/amongst seagrass beds (particularly at Lindisfarne where extensive seagrass beds are found)(figure 4)
: NIFCA Byelaw 8: Seagrass Protection Byelaw within the English section of the Berwickshire and North Northumberland Coast SAC.

Figure 4. Map produced by the Environment Agency 2016 seagrass survey.

4. Information about fishing activities within the site

In assessing the level of static net fishing within the NIFCA district, two sources of data have been analysed; monthly shellfish permit returns (low to moderate data confidence) and Officer's patrol sightings data (high data confidence). The monthly return forms are submitted by shellfish permit holders only and provide information on netting activity/landings but this not mandatory; therefore these permit returns may not be capturing total netting activity. Data from 2006 to 2010 has been excluded from the analysis as this information was captured by the Marine and Fisheries Agency, MFA (MMO predecessor) for under 10m vessels only. During this period information for over 10m vessels was captured through European log sheets, for which NIFCA do not possess the data. Data collected during this period is less defined spatially and incomplete and therefore does not provide a descriptive representation of our fleet and is excluded.

The assessment of T, J and drift nets for the migratory salmonid fishery has been omitted from this Appropriate Assessment, as this activity is regulated by the Environment Agency who are required to carry out its assessment. This activity is however considered in Section 8 of this document within the in-combination assessments.

4.1 Static fixed nets

Levels of static netting activity (gill, trammel and entangle) within the NIFCA district have declined considerably in recent years and are currently very low, with just 5 boats (NIFCA permit returns 2015) known to set nets on an infrequent basis (Jon Green, NIFCA, 2016, pers. comm.). This is reflected in the number of vessels setting static nets and the total number of days nets sets at sea from 2003- 2015.
The number of vessels setting static nets in the NIFCA district as a whole has dropped from 29 in 2003 to 5 in 2015, with just 1 vessel reported as setting static nets within the BNNC SAC in 2015 (fig. 5). The annual sum of days in which vessels recorded setting static nets has decreased significantly since 2003 from 827 days to 37 days in 2015 (fig 5). This decreasing trend is mirrored in the use of gill net activity within the BNNC SAC, with highest levels of activity recorded by six vessels in 2004 of 98 days at sea to one vessel for 11 days in 2015. The lowest level of activity recorded was during 2012 by one vessel for eight days.

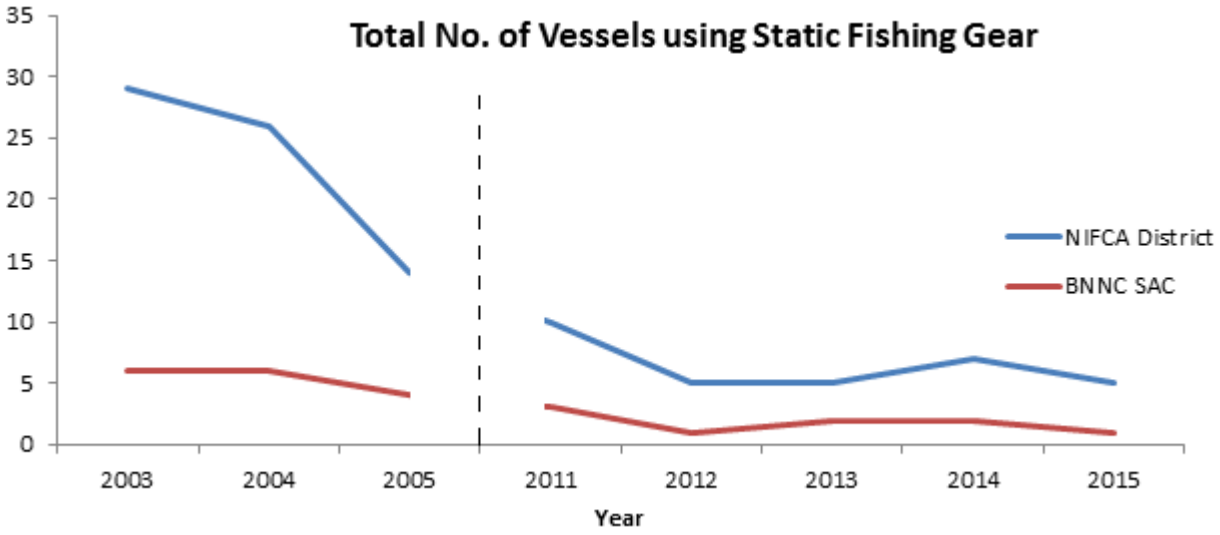


Figure 5 | *Total number of fishing vessels (with a commercial shellfish permit) reporting use of bottom-set static nets within the NIFCA district (blue) and the Berwickshire and North Northumberland Coast SAC (red) from 2003 – 2015. 2006-2010 data excluded as information during this period was collected by MMO, and NIFCA dataset is incomplete.*

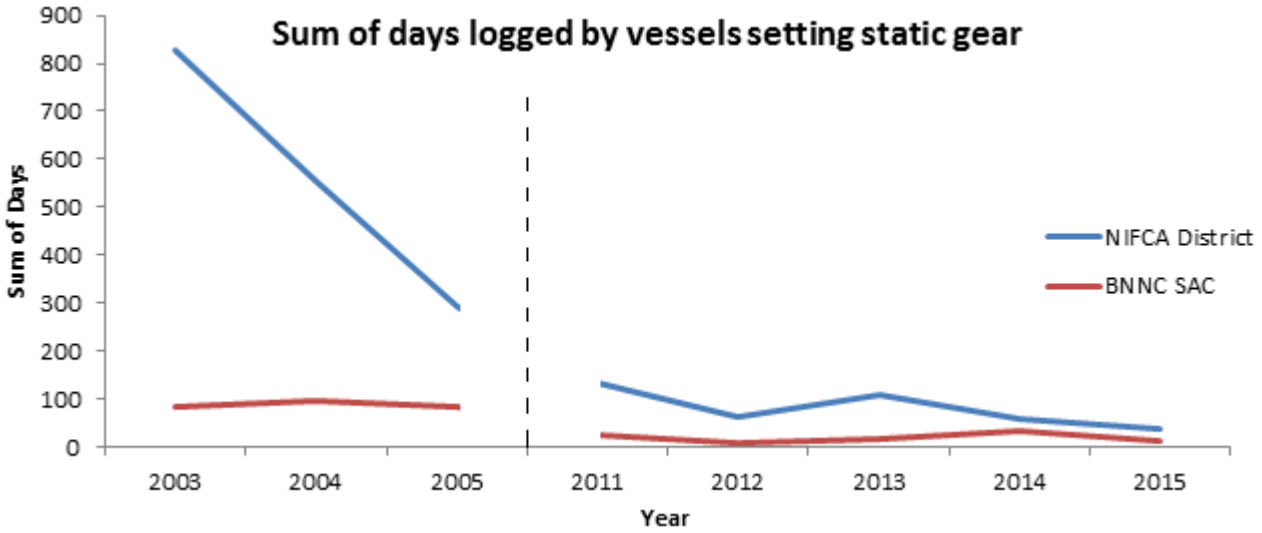


Figure 6 | *Total number of days bottom set static nets were fished at sea in the NIFCA district as a whole (blue) and the Berwickshire and North Northumberland Coast SAC (red) in each year from 2003 – 2015. 2006-2010 data excluded as information during this period was collected by MMO, and NIFCA dataset is incomplete.*

No vessels without a shellfish entitlement are known to NIFCA officers to be setting static fixed nets within the district and the declining trend in netting is apparent from the monthly returns forms. This also correlates with sightings of netting activity from regular NIFCA patrols (Figs. 7), with only 2 sightings recorded in 2013 and 1 sighting in 2014 and 2015. The decline in sightings is also reflected in Fig. 8 which shows that no sightings of static netting activity have been made within or around the BNNC SAC since 2003 and static netting activity is concentrated in the southern part of the NIFCA district. Historically little netting has occurred north of Amble due to sea and tidal conditions (Al Browne, NIFCA, December 2016, pers. comm.). The lack of sightings may be attributed to a lack of patrol effort in the northern part of the district. However, NIFCA are aware of the fishers/vessels which use static nets and figure 7 reflects our broad understanding of static netting activity within the district. Local expert knowledge combined with permit returns with patrol sightings provides a high confidence level to the data. Patrol effort (figure 8) increased significantly during 2010 and 2011 with the employment of two more enforcement officers. This sharply changed from 2011 to 2012 due to diversification of the regulatory authority's role from purely

enforcement as the Sea Fisheries Committee to responsibilities towards conservation as IFCAs under the Marine Coastal Access Act 2010. This effort remained at a lower level during 2014 and 2015 with decommission of the St Oswald and the commission of a new patrol vessel, St Aidan.

15-20 years ago, static fixed netting was an important fishery off Northumberland, targeting predominantly cod in the winter and turbot in the summer. Mesh sizes of these nets are dependent on their target species, as specified under Council Regulation (EC) No 850/98 of 30 March 1998 for the conservation of fishery resources through technical measures for the **protection of juveniles of marine organism**s. Annex VI states the minimum mesh sizes for fixed gears, applicable to our district, with 140mm being used for Cod and 90- 99mm for Bass. Generally, effort was highest during the winter (fig 6), while fishermen turned to their pots in the summer.

Anecdotal evidence indicates that the decline in the use of any type of static fixed nets (gill, trammel and entanglement) within the NIFCA district is due to various factors, but predominantly the introduction of Total Allowable Catches and quotas in 1983, which drove many towards potting for shellfish. Locally, the cessation of dumping sewage sludge at sea around 15 years ago, particularly off the River Tyne and Blyth, is indirectly attributed to a decline in local cod stocks, which used the dumping grounds for feeding. Furthermore increases in the population of grey seals off the Northumberland coast, particularly the Farne Islands which is home to one of England's largest colonies with over 1000 pups born annually, has also led to a decline in fixed netting within the district as fishermen hold the seals responsible for eating/damaging fish caught within the nets. These interactions have also been witnessed by NIFCA enforcement officers during routine inspections, as fishermen hauled their nets, evidence of predation of the caught fish was clearly visible in addition to seals observed feeding directly from the nets as they were being hauled (NIFCO Stewart- Moore 2016 pers. comm). These interactions have also been witnessed by NIFCA enforcement officers during routine inspections.

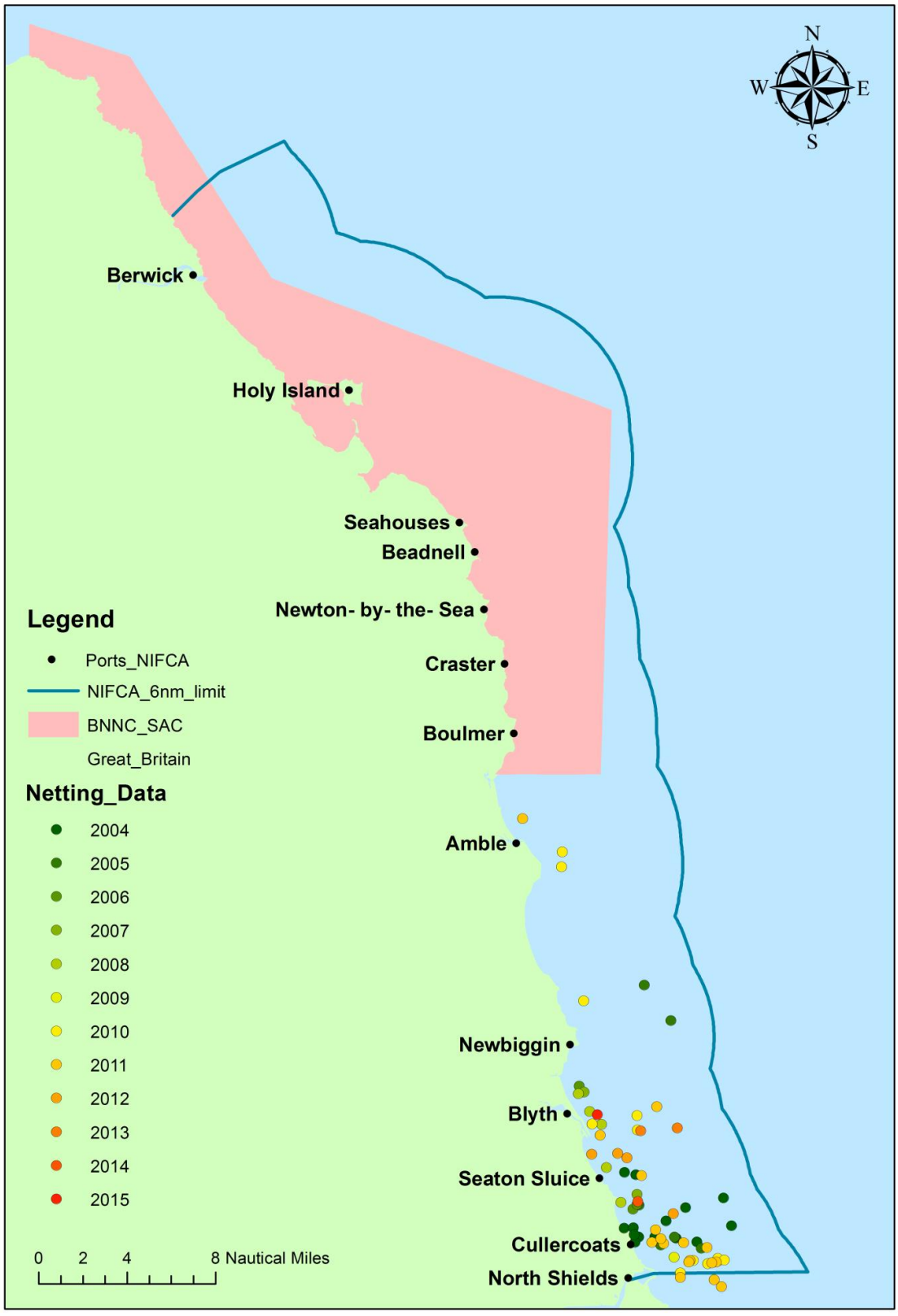


Figure 7 | *Map of sightings of fishing vessels deploying/hauling bottom-set static nets from the NIFCA Patrol Vessel St. Oswald during routine patrols from 2004 – 2015 (each point on the map represents an individual sighting).*

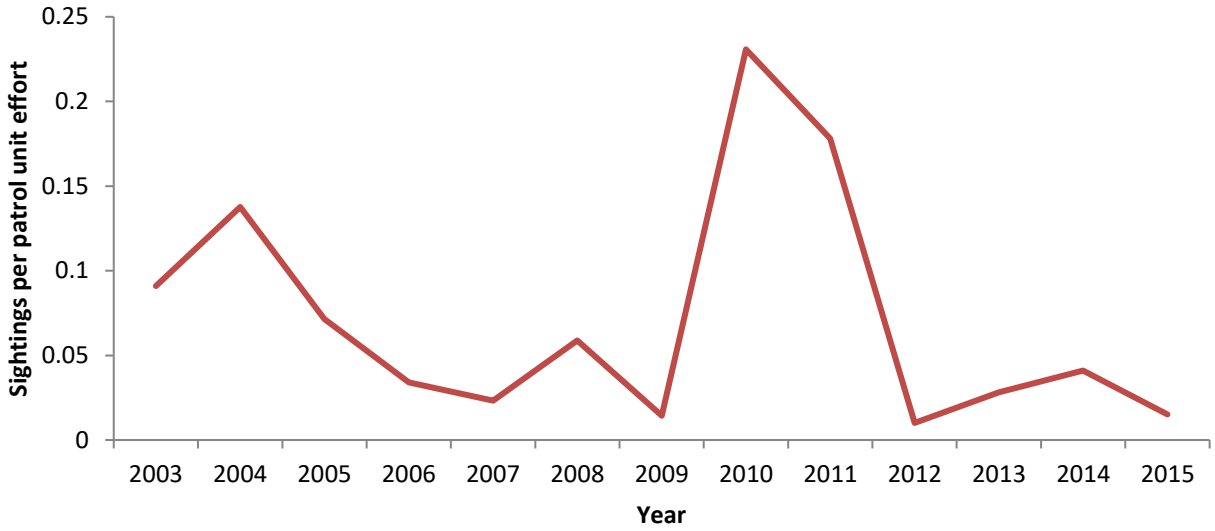


Figure 8 | *Number of sightings per unit effort (per sea patrol) of static netting activity within the Northumberland Inshore Fisheries and Conservation Authority district 2003 – 2015.*

4.2 Management (Static fixed nets)

There are various existing management measures in place within the NIFCA district that affect static fixed netting:

NIFCA Byelaw 6 Fixed Engines:

Prohibition 4. A person must not use a fixed engine to fish for or take sea fish at any time during the period 26th March to 31st October inclusive;

(a) in waters that are less than 7 metres in depth, unless those waters are separated from the shore by waters deeper than 7 metres at any state of the tide;
(b) where the headline of the fixed engine is less than 4 metres below the surface of the water at any state of the tide.

NIFCA Byelaw 5 Marking of Fishing Gear and Keep Boxes:

Prohibition 2. A person must not fish for or store sea fish using a pot, keep box or passive gear unless:

(a) the marker buoy or dahn is clearly visible on the surface of the water; and
(b) where a string of no more than 5 pots is used, a marker buoy or dahn is attached to one end of the string; or
(c) where subparagraph 2(b) does not apply, a marker buoy or dahn is fixed to both ends of the pot, keep box or passive gear.

Prohibition 3. A marker buoy or dahn used in accordance with paragraph 2 must display the following information:

(a) where the marker buoy or dahn is placed from a relevant fishing vessel, the name, port letters and numbers of that relevant fishing vessel;
(b) where the marker buoy or dahn is not placed from a relevant fishing vessel, the owner's name and telephone number.

NIFCA Byelaw 8 Seagrass Protection Byelaw within the English section of the BNNC SAC:

Prohibition 3. No person shall dig for, fish for or take any sea fisheries resources in or from the Specified Area where Seagrass is situated.

4.3 Other fishing activity within the BNNC SAC

Potting for European lobster *Homarus gammarus* and brown crab *Cancer pagurus* is the principle fishery within the Northumberland IFCA district, with 97 commercial shellfish permit holders in 2016 and approximately 38,000 [commercial] pots fished within the district (2015). Fishers record whether or not they have set pots within the BNNC SAC on their monthly returns forms which enable NIFCA to monitor fishing activity within the site. Commercial shellfish permit holders are limited to 800 pots and permitted vessels must not exceed 12 metres in length (Byelaw 4 Crustacea and Molluscs permitting and Pot Limitation). Recreational shellfish permit holders are limited to 5 pots and must not take more than one lobster, five edible or velvet crabs, 20 whelks or five prawns in any one day.

Mobile fishing gear is prohibited within the English section of the BNNC SAC (Byelaw 7 Prohibition of the use of Mobile gear within the English section of the Berwickshire and North Northumberland Coast Special Area of Conservation).

5. Test for Likely Significant Effect (tLSE)

The Habitats Regulations assessment (HRA) is a step-wise process and is first subject to a coarse test of whether a plan or project will cause a likely significant effect on an EMS[3].

Table 1: Assessment of LSE

1. Is the activity/activities directly connected with or necessary to the management of the site for nature conservation?	No
2. What pressures (such as abrasion, disturbance) are potentially exerted by the gear type(s)? *Sensitivities as listed are based on DRAFT Interim conservation advice. Reference to Regulation 33 advice for the BNNC SAC and best judgement has been used to determine which of these pressures are truly exerted by the gear type(s).	Above water noise (Sensitive)[1] Collision below water (Sensitive)[2] Litter i.e. Ghost fishing (Sensitive)[3] Removal of non-target species i.e. bycatch (Sensitive)[4] Underwater noise changes (Sensitive)[5] Visual disturbance (Sensitive)[6] Removal of non-target species (prey species)[7,8,9]
3. Is the feature potentially exposed to the pressure(s)?	Yes
4. What are the conservation objectives for the feature?	Conservation objective for grey seals: **Maintain***

[3] Managing Natura 2000 sites: http://ec.europa.eu/environment/nature/natura2000/management/guidance_en.htm

*DRAFT interim conservation advice does not give definitive conservation objectives. However, completing an HRA without COs is difficult. The CO as listed in this document is based on Regulation 33 advice (June 2000), interim Regulation 35 advice, current knowledge of the status, and the pressures affecting designated features (see sections 4 &5). Expert judgement has been used to determine which features may be exposed to the pressure(s) resulting in inferred COs. These COs are assigned a degree of uncertainty i.e. a subjective confidence level based on evidence 'High', 'Medium,' 'Low', and 'Unknown'.	- the population size within the site to a level which is at or above a specified level (not given); - <u>the extent and spatial distribution of the following supporting habitats; foraging and haulout sites</u>; - <u>the cover/ abundance of preferred food items required by the species;</u> - the reproductive and recruitment capability of the species; - all hydrodynamic and physical conditions such that natural water flow and sediment movement is not significantly altered or constrained; - the natural water quality and specifically winter dissolved inorganic nitrogen (DIN) [at / to] a concentration equating to (Good / High) Ecological Status, avoiding deterioration from existing levels; - <u>the presence and spatial distribution of the species and their ability to undertake key life cycle stages and behaviours;</u> - <u>the introduction and spread of non-native species and pathogens, and their impacts;</u> - the natural physico-chemical properties of the water; - <u>connectivity of the habitat within sites and the wider environment to ensure recruitment, and / or to allow movement of migratory species;</u> - natural levels of turbidity (e.g. concentrations of suspended sediment, plankton and other material) in areas where this species is, or could be present; - **Restrict OR Reduce** aqueous contaminants to levels equating to (High / Good) Status (according to Annex VIII and X of the Water Framework Directive), avoiding deterioration from existing levels; - **<u>Restrict OR Reduce t</u>**<u>he introduction and spread of non-native species and pathogens, and their impacts.</u> Those conservation objectives that might be affected by gill netting are underlined. *Confidence level for interim, inferred Conservation Objective: **HIGH** (see section 6 for detail).
5. What are the potential effects/impacts of the pressure(s) on the feature, taking into	Levels of netting activity within the BNNC SAC have declined considerably in recent years and are currently

account the exposure level?	very low, with just one or two boats known to set gill nets on an infrequent basis (Jon Green, NIFCA, 2016, pers. comm.). Levels of seal depredation of fish from gill nets, has increased correspondingly with the increase in the population size of grey seals off the Northumberland coast and there is a potential impact from accidental by-catch of seals in gill nets. Apart from occasional (3/4 times a year) reports of grey seals being entangled in parts of torn nets (ghost fishing in various types of nets), usually around Longstone (John Walton, Coastal & Marine Officer, National Trust, April 2014, pers. comm.) and on the Farne Islands (Ed Tooth, Farne Islands Ranger, National Trust, February 2016, pers. comm.), these incidents are generally not fatal and there is no indication that there is a problem off the Northumberland coast in relation to bycatch of seals in gill nets (particularly as the mesh size of the majority of bottom-set gill nets is too small to entangle a large grey seal). No seal injuries/fatalities resulting from entanglement in netting or propeller strikes have been reported by British Diver Marine Life Rescue volunteers within the district (Jane Lancaster, BDMLR, March 2016, pers. comm.). Furthermore, no obvious impacts have been observed at a population level (see section 6).
6. Condition and Conservation Objective Inferences	Within the BNNC SAC there are two major grey seal breeding populations: the Farne Islands and Fast Castle. The Farne Islands encompasses approximately 3% of the British annual pup production of grey seals, producing 1876 pups in 2015[10]. Since the 1980s, pup production at the Farne Islands has gradually increased at just under 2% per year[11]. From 2005 – 2015, the number of pups born annually on the Farne Islands has increased by over 700[10] and pup production at Fast Castle is growing at an average rate of approximately 16.6% per year[11]. Therefore NIFCA infers the feature condition at this site as 'Good'. The conservation objective for grey seals within the BNNC SAC is to 'maintain' the population size and 'presence and spatial distribution of the species and their ability to undertake key life cycle stages and behaviours'. Currently the grey seal population is expanding (above baseline levels) off the Northumberland coast[10], and levels of accidental bycatch from bottom set static nets are not deemed to have any significant adverse impact on this feature. More information, however, is needed to confirm this.

7. Is the potential scale or magnitude of any effect likely to be significant?	**Alone:** **YES** NIFCA officer observations and anecdotal evidence from fishermen indicates that grey seals do forage on fish in static nets and therefore there is an interaction, however more information is needed to assess the results of these interactions and the potential impacts on the local seal population, given the low levels of netting activity. An AA is therefore required to fully assess levels of gill netting within the BNNC SAC and the impacts on seals.	**OR In-combination** **No**

6. Appropriate Assessment

If a 'Test of Likely Significant Effect (Section 5) identified the potential for a significant effect on the EMS feature/sub-feature as a result of the gear-type under consideration, or if there is a lack of information regarding the impact of the gear type on the feature, it has been carried forward for a full Appropriate Assessment to assess whether or not the potential LSE is likely to have an adverse effect on the conservation objectives given for the designated features of the site in question. The full appropriate assessment for the gear/feature interaction of static netting/ S1364 Grey seal within the BNNC SAC is given below.

6.1 Potential risks to features

The potential pressures, ecological impacts, levels of exposure and mitigation measures for static netting activity in regards to the designated feature S1364 Grey seal within the BNNC SAC are summarised in Table 2.

The following conservation objectives for **S1364 Grey seal** are not deemed to be at risk from pressures associated with static netting activity within the BNNC SAC (or they are outside the remit of NIFCA):

- Maintain the extent and spatial distribution of the following supporting habitats: foraging and haulout sites (Annex 3);

- Restrict or reduce aqueous contaminants to levels equating to (High / Good) Status (according to Annex VIII and X of the Water Framework Directive), avoiding deterioration from existing levels;

- Restrict or reduce the natural water quality and specifically winter dissolved inorganic nitrogen (DIN) [at / to] a concentration equating to (Good / High) Ecological Status [(specifically mean winter DIN is < XX µM for coastal waters)], avoiding deterioration from existing levels;

- Maintain the introduction and spread of non-native species and pathogens, and their impacts;

- Maintain the natural physico-chemical properties of the water;

- Maintain natural levels of turbidity (e.g. concentrations of suspended sediment, plankton and other material) in areas where this species is, or could be present

Table 2: Summary of Impacts

Feature/Sub feature(s)	Conservation Objective[3]	Potential pressure[4] (such as abrasion, disturbance) exerted by gear type(s)	Potential ecological impacts of pressure exerted by the activity/activities on the feature[4]	Level of exposure of feature to pressure	Mitigation measures
S1364 Grey seal	**Maintain the presence and spatial distribution of the species and their ability to undertake key life cycle stages and behaviours**	Above water noise[1]	"Whilst activity would cause pressure, impact considered better captured by 'visual disturbance"[1]	N/A	N/A
		Collision below water [2]	"Collision can occur as a result of this activity in instances where a vessel is used"[2]	Currently only one fishing vessel is known to set nets on an infrequent basis within the BNNC SAC, with only 4 vessels fishing nets outside of the SAC (NIFCA permit returns). Influencing factors such as, low TAC, increasing seal population continue to maintain low levels of this activity. NIFCA have identified no records of seals being caught in static nets in the SAC or elsewhere in the district. No reported incidences of seal injuries/fatalities caused by propeller strikes within the district in recent years (Jane Lancaster, BDMLR, March 2016, pers. comm.) and current levels of activity unlikely to cause significant adverse impact on the presence and spatial distribution of grey seals.	None required, except implementation of Monitoring and Control Plan for Static Netting, which outlines the parameters to be assessed for the fishery and the conservation status of sites' features. Annual assessments of fishing effort and communications with NT, NWT and BDMLR will ensure any management requirements are met and remain 'fit for purpose'

[3] Based on conservation objectives provided in Natural England draft interim Regulation 35 Conservation Advice (received July 2015). This conservation advice however does not provide definitive objectives (i.e. Maintain/Recover/Restore), which makes completing an HRA difficult. The CO as listed in this document is based on Regulation 33 advice (June 2000), current knowledge of the status, and the pressures affecting designated features.

[4] Based on 'Advice on Operations' provided in Natural England draft interim Regulation 33 Conservation Advice (received July 2015).

	Maintain the presence and spatial distribution of the species and their ability to undertake key life cycle stages and behaviours [cont.]	Litter i.e. Ghost fishing[3]	"Discarded nets could be problematic for mobile species"[3] such as the grey seal by causing entanglement, leading to injury/death.	National Trust Farne Islands rangers have reported 3/4 incidences of seals being entangled in discarded netting material in 2015, however these incidences are generally not fatal (Ed Tooth, National Trust Farne Islands Ranger, February 2016, pers. comm.). At current levels of netting activity and considering the current status of the seal population within the BNNC SAC, this is unlikely to cause a significant adverse impact on the presence and spatial distribution of grey seals.	None required, except implementation of Monitoring and Control Plan for Static Netting, which outlines the parameters to be assessed for the fishery and the conservation status of sites' features. Annual assessments of fishing effort and communications/participation in litter programmes with NWT, MCS (Annex 5) and BDMLR will ensure any management requirements are met and remain 'fit for purpose'
		Removal of non-target species i.e. bycatch[4]	"Pressure may be exerted by by-catch associated with fixed nets and lines"[4]	In 2015 static nets were set for a total of 37 days (NIFCA permit forms) with only one vessel reporting netting activity within the BNNC SAC for a total of 11 days. No incidences of accidental bycatch of seals in static nets causing injury/death reported in the NIFCA district in recent years (Ed Tooth, National Trust Farne Islands Ranger, February 2016, pers. comm.) and current levels of activity unlikely to cause significant adverse impact on the presence and spatial distribution of grey seals. Entanglement in nets is not a big issue for seals in the area. However, the shooting of seals is legal for licensed fishers (BDMLR, 2016, pers. comm.). Reports indicate that the shooting of seals declined in frequency	None required, except implementation of Monitoring and Control Plan for Static Netting, which outlines the parameters to be assessed for the fishery and the conservation status of sites' features. Annual assessments of fishing effort and communications/participation in litter programmes with NWT, MCS (Annex 5) and BDMLR will ensure any management requirements are met and remain 'fit for purpose'

				as the net fishery declined[22].	
		Underwater noise changes[5]	"Pressure (e.g. increase in noise above ambient level) would be exerted via vessel movement and gear deployment/towing/hauling"[5]	Only one vessel recorded in the SAC and 5 in total in the district (NIFCA permit returns) setting nets for 11 days during 2015 within the BNNC SAC. At this level activity is unlikely to cause a significant adverse impact.	None required, except implementation of Monitoring and Control Plan for Static Netting, which outlines the parameters to be assessed for the fishery and the conservation status of sites' features. Annual assessments of fishing effort.
	Maintain the presence and spatial distribution of the species and their ability to undertake key life cycle stages and behaviours [cont.]	Visual disturbance[6]	"May result from the presence/movement of the vessel and potentially also the presence/movement of the gear. Magnitude of pressure would depend on nature and scale/intensity of activity."	Only one vessel recorded in the SAC and 5 in total in the district (NIFCA permit returns) setting nets for 11 days during 2015 within the BNNC SAC. At this level activity is unlikely to cause a significant adverse impact.	None required, except implementation of Monitoring and Control Plan for Static Netting, which outlines the parameters to be assessed for the fishery and the conservation status of sites' features. Annual assessments of fishing effort.
		Removal of non-target species (prey species)[7,8,9]	The availability of an abundant food supply is critically important for successful breeding, adult fitness and survival and the overall sustainability of the population. Removal of target and non-target prey species has the potential to impact seal populations.	Static netting in the NIFCA district targets predominantly whitefish e.g. Cod and Saithe or flatfish e.g. Turbot and Plaice. Sandeels and gadoids (e.g. Cod, Haddock, Whiting) dominate the Grey seal diet in the North Sea, but while there is potential for a competitive interaction between static netting and grey seals, current activity levels (five vessels for 37 days) are insufficient to cause a significant adverse impact on the population of grey seals within the BNNC SAC.	None required, except implementation of Monitoring and Control Plan for Static Netting, which outlines the parameters to be assessed for the fishery and the conservation status of sites' features. Annual assessments of fishing effort.

Maintain the population size within the site to a level which is at or above the population size included in the designation documents or the highest mean peak count over a 5 year period, whichever is higher. **In lieu of population size data, peak annual pup production (1876) over the past 5 years will be used as a proxy for population size.**	Above water noise[1]	"Whilst activity would cause pressure, impact considered better captured by 'visual disturbance"[1]	N/A	N/A
	Collision below water [2]	"Collision can occur as a result of this activity in instances where a vessel in used"[2]	Currently only one fishing vessel is known to set nets on an infrequent basis within the BNNC SAC (NIFCA permit returns.). Influencing factors such as, low TAC, increasing seal population continue to maintain low levels of this activity. No reported incidences of seal injuries/fatalities caused by propeller strikes within the district in recent years (Jane Lancaster, BDMLR, March 2016, pers. comm.) and current levels of activity unlikely to cause significant adverse impact on the population size of grey seals within the BNNC SAC.	None required, except implementation of Monitoring and Control Plan for Static Netting, which outlines the parameters to be assessed for the fishery and the conservation status of sites' features. Annual assessments of fishing effort and communications with NT, NWT and BDMLR will ensure any management requirements are met and remain 'fit for purpose'
	Litter i.e. Ghost fishing[3]	"Discarded nets could be problematic for mobile species"[3] such as the grey seal by causing entanglement, leading to injury/death.	National Trust Farne Islands rangers have reported 3/4 incidences of seals being entangled in discarded netting material in 2015, however these incidences are generally not fatal (Ed Tooth, National Trust Farne Islands Ranger, February 2016, pers. comm.). At current levels of netting activity and considering the current status of the seal population within the BNNC SAC, this is unlikely to cause significant adverse impact on the population size of grey seals within the BNNC SAC.	None required, except implementation of Monitoring and Control Plan for Static Netting, which outlines the parameters to be assessed for the fishery and the conservation status of sites' features. Annual assessments of fishing effort and communications/participation in litter programmes with NWT, MCS (Annex 5) and BDMLR will ensure any management requirements

					are met and remain 'fit for purpose'
	Maintain the population size within the site to a level which is at or above the population size included in the designation documents or the highest mean peak count over a 5 year period, whichever is higher. **In lieu of population size data, peak annual pup production (1876) over the past 5 years will be used as a proxy for population size. [cont.]**	Removal of non-target species i.e. bycatch[4]	"Pressure may be exerted by by-catch associated with fixed nets and lines"[4]	In 2015 static nets were set for a total of 37 days (NIFCA permit forms) with only one vessel reporting netting activity within the BNNC SAC for a total of 11 days. No incidences of accidental bycatch of seals in static nets causing injury/death reported in the NIFCA district in recent years (Ed Tooth, National Trust Farne Islands Ranger, February 2016, pers. comm.) and current levels of activity unlikely to cause significant adverse impact on the population size of grey seals.	None required, except implementation of Monitoring and Control Plan for Static Netting, which outlines the parameters to be assessed for the fishery and the conservation status of sites' features. Annual assessments of fishing effort and communications/participation in litter programmes with NWT, MCS (Annex 5) and BDMLR will ensure any management requirements are met and remain 'fit for purpose'
		Underwater noise changes[5]	"Pressure (e.g. increase in noise above ambient level) would be exerted via vessel movement and gear deployment/towing/hauling"[5]	Only one vessel recorded (NIFCA permit returns) setting nets for 11 days during 2015 within the BNNC SAC. At this level activity is unlikely to cause a significant adverse impact.	None required, except implementation of Monitoring and Control Plan for Static Netting, which outlines the parameters to be assessed for the fishery and the conservation status of sites' features. Annual assessments of fishing effort

		Visual disturbance[6]	"May result from the presence/movement of the vessel and potentially also the presence/movement of the gear. Magnitude of pressure would depend on nature and scale/intensity of activity."	Only one vessel recorded (NIFCA permit returns) setting nets for 11 days during 2015 within the BNNC SAC. At this level activity is unlikely to cause a significant adverse impact.	None required, except implementation of Monitoring and Control Plan for Static Netting, which outlines the parameters to be assessed for the fishery and the conservation status of sites' features. Annual assessments of fishing effort.
		Removal of non-target species (prey species)[7,8,9]	The availability of an abundant food supply is critically important for successful breeding, adult fitness and survival and the overall sustainability of the population. Removal of target and non-target prey species has the potential to impact seal populations.	Static netting in the NIFCA district targets predominantly whitefish e.g. Cod and Saithe or flatfish e.g. Turbot and Plaice. Sandeels and gadoids (e.g. Cod, Haddock, Whiting) dominate the Grey seal's diet in the North Sea, but while there is potential for a competitive interaction between static netting and grey seals, current activity levels (five vessels for 37 days) are insufficient to cause a significant adverse impact on the population of grey seals within the BNNC SAC.	None required, except implementation of Monitoring and Control Plan for Static Netting, which outlines the parameters to be assessed for the fishery and the conservation status of sites' features. Annual assessments of fishing effort.
	Maintain the cover / abundance of preferred food items required by the species.	Removal of non-target species (prey species)[7,8,9]	The availability of an abundant food supply is critically important for successful breeding, adult fitness and survival and the overall sustainability of the population. Removal of target and non-target prey species has the potential to impact seal populations.	Static netting in the NIFCA district targets predominantly whitefish e.g. Cod and Saithe or flatfish e.g. Turbot and Plaice. Sandeels and gadoids (e.g. Cod, Haddock, Whiting) dominate the Grey seal's diet in the North Sea, but while there is potential for a competitive interaction between static netting and grey seals, current activity levels (five vessels for 37 days) are insufficient to cause a significant adverse impact on the population of grey seals within the BNNC SAC.	None required, except implementation of Monitoring and Control Plan for Static Netting, which outlines the parameters to be assessed for the fishery and the conservation status of sites' features. Annual assessments of fishing effort

	Maintain connectivity of the habitat within sites and the wider environment to ensure recruitment, and / or to allow movement of migratory species	Removal of non-target species i.e. bycatch[4]	"Pressure may be exerted by by-catch associated with fixed nets and lines"[4] Connectivity is the extent to which populations in different parts of a species' range are linked by the movement of juveniles or adults. The availability of suitable habitats for seals throughout the year to allow natural behaviours is important.	In 2015 static nets were set for a total of 37 days (NIFCA permit forms) with only one vessel reporting netting activity within the BNNC SAC for a total of 11 days. No incidences of accidental bycatch of seals in static nets causing injury/death reported in the NIFCA district in recent years (Ed Tooth, National Trust Farne Islands Ranger, February 2016, pers. comm.) and current levels of activity unlikely to cause significant adverse impact on the connectivity of the habitat and the ability of seals to move within the BNNC SAC.	None required, except implementation of Monitoring and Control Plan for Static Netting, which outlines the parameters to be assessed for the fishery and the conservation status of sites' features. Annual assessments of fishing effort and communications/participation in litter programmes with NWT, MCS (Annex 5) and BDMLR will ensure any management requirements are met and remain 'fit for purpose'.
			Areas used for breeding / by pups may differ to those used for general rest during foraging. Habitats rendered inaccessible would reduce the ability of the site to support seals. Seals utilise a variety of habitats including sediments and rock to forage for a variety of prey. They may use different areas at different times of the year to target seasonally variable prey.		

			Maintaining connectivity within and outside of the site, allows access to different areas for feeding and potentially help reduce competition. Seals haulout during periods of breeding and moulting and also during non-breeding season for rest. Seals may have a number of preferred haulout areas on rock or intertidal sediments. Maintaining connectivity may help avoid competition for space between nursing mothers.		

7. Conclusion

Levels of static netting activity within the NIFCA district have declined considerably in recent years and are currently very low, with just 5 boats known to set nets on an infrequent basis (Jon Green, NIFCA, 2016, pers. comm.). Anecdotal evidence indicates that the decline in the use of static fixed nets within the NIFCA district in general is attributable to quota restrictions and increasing interactions with grey seals, which opportunistically feed on the fish caught in the nets.

The Berwickshire and North Northumberland Coast SAC contains one of the largest breeding colonies of grey seals on the North Sea Coast at the Farne Islands, encompassing approximately 2.5% of the British annual pup production of grey seals and producing 1876 pups in 2015[10]. Since the 1980's, pup production at the Farne Islands has gradually increased at just under 2% per year[11]. From 2005 – 2015, the number of pups born annually on the Farne Islands has increased by over 700[10]. Pup production at Fast Castle is growing at an average rate of approximately 16.6% per year[11]. In lieu of a definitive conservation objective for this feature in the draft interim Regulation 35 conservation advice, a CO of 'Maintain' has been inferred based on up to date evidence from the National Trust, which indicates that the seal population within the BNNC SAC is in a good state.

The main potential pressures relating to static netting activity for grey seals are deemed to be accidental bycatch of seals in nets and selective removal of target species. There have been no reports of grey seal injuries or fatalities as a result of entanglement in bottom-set static nets within the district in recent years and although there is potential for such an incident to occur, at current low levels of static netting activity within the BNNC SAC and the NIFCA district as a whole, it is unlikely to have a significant adverse impact on the conservation objectives for the designated grey seal population. Anecdotal evidence states grey seals prey on the salmon caught in static nets, however it is thought that within our district the seals feed primarily on sandeels, which are not a targeted species by static nets and therefore the activity is unlikely to be impacting their main prey source. Consideration has also been given to maintaining the condition of the habitats used by grey seals e.g. haulout sites, however as these are above mean low water, where static nets are not set, any interaction or adverse impact is highly unlikely.

The conclusion of this appropriate assessment is that static netting within the NIFCA district **at current levels[4], alone** is **NOT having an** adverse effect on designated grey seals within the BNNC SAC. NIFCA will continue to monitor levels of static netting within the district and will re-assess this gear/feature interaction should effort levels increase.

Thus NIFCA will use a Monitoring and Control Plan for static netting. The plan outlines the methodology and parameters to collect data for the continual monitoring of static netting activity and its interaction with this feature (and others). All data (except NE site condition monitoring) will be collated and analysed on an annual basis to assess if further management is required, unless a trigger is initiated to prompt an automatic assessment. This will ensure any risks to the site features will be addressed and management measures will remain appropriate and adaptive. The Monitoring and Control Plan for Static Netting can be found on NIFCA's website (www.nifca.gov.uk).

8. In-combination assessment

Although static netting is deemed to have no likely significant effect on grey seals within the BNNC SAC, potential risks of in-combination effects have been considered in Table 3 for current and possible plans and projects and other activities within the vicinity of the site.

[4] Potential activities will be monitored within the relevant NIFCA static netting monitoring and control plan. Link/ref to be included

Table 3 indicates that static netting within the BNNC is not deemed to have a likely significant effect on grey seals alone OR in-combination with other plans/projects.

Table 3. In-combination assessments of Static netting with other plans and projects within and around the BNNC SAC.

Plans and Projects		
Activity	**Description**	**Potential Pressure**
Fishing x Fishing	Trawling Dredging Shellfish potting	No adverse effect at current levels, but potential for increase vessel activity and disturbance levels within vicinity of SPA. Fishing effort to be continually monitored and assessment with implementation of Monitoring and Control Plans for Static Netting and Potting. Fisheries permitted by NIFCA. Potting is the main fishery throughout the district with 115 commercial permit holders 2015, of which 26 reported operating within the BNNC SAC. All vessels known to use static nets are shellfish permit holders and are therefore part of the same potting fleet. NIFCA and MMO Monitor activities within the BNNC SAC and NWT and BDMLR monitor Seal standings and fatalities. At current activity levels no physical loss, damage or biological disturbance has been attributed to this activity.
Fishing x Fishing	T & J Nets	This fishery operates from March through to the end of August and targets migratory species, primarily Salmon. All fishermen must gain a license to fish from the Environment Agency, who is responsible for regulating this fishery. Currently there are 21 T and J nets licensees (2 combined) and 8 drift net licensees across our district and the EA are in the process of rolling out a phasing out scheme. Fishing effort will be continually monitored and assessed with the implementation of Monitoring and Control Plans for Static Netting and Potting. Low risk to pressure at current levels.

		HRA process will be carried out by the EA for this fishery providing further evidence.
Coastal Infrastructure	Outflow pipes Maintenance	Small scale and the majority are inshore discharging within the intertidal or just below mean low water. Appropriate licence conditions/monitoring has been incorporated to mitigate any impacts.
Anchorage and Mooring	Anchorage and Mooring	Several moorings and anchorage sites occur within the BNNC SAC and in the surrounding waters (Amble, Alnmouth, Boulmer Haven, Newton Haven, Inner Farne, Holy Island, Beadnell, North Sunderland and Berwick). Most of these sites are historical anchorages/moorings and are not or infrequently used at present. The main authorised industrial anchorage sites occur south of the BNNC SAC and are managed by the Port of Blyth and the Port of Tyne. Low risk to pressure at current levels.
Coastal management scheme	Flood and erosion risk management	Northumberland and North Tyneside Shoreline Management Plan 2 (05/2009) covers the coastline from the Scottish border to the river Tyne. As stated in Section (2) of the document projects and plans within the SMP are subjected to its own Appropriate Assessment for proposed work, which assesses any impacts to the BNNC SAC.
Other activities being highlighted (which are not plans or projects by definition and are not part of the HRA)		
Activity	**Description**	**Potential Pressure**
Recreational angling	Activity levels unknown. NIFCA participating in MMO MCSS MPA activity monitoring trial begin 09/16.	Potential low risk of bycatch of seal by rod and line and increase of vessel activity and disturbance levels within the BNNC SAC.
Yachting, sailing, motor cruises and wildlife tours.	Currently activity levels unknown. NIFCA participating in MMO MCSS MPA activity monitoring trial begin 09/16.	Increase of vessel activity and disturbance levels within BNNC SAC. NIFCA and MMO Monitor activities within the BNNC SAC and NWT and BDMLR monitor Seal standings and fatalities. A Northumberland Marine

		Wildlife Watching Boating code of conduct has been implemented to help reduce disturbance. At current activity levels physical loss, damage or biological disturbance attributed to this activity is believed to be extremely low. Potential low risk to pressure at current levels.
Other activities with potential to occur but don't occur [list cannot be exhaustive/obvious suspects]		
Harbour dredging [vicinity of SAC]	Harbour dredging	Occurs rarely at Seahouses and Berwick and annually at Beadnell. This would be small scale and a license would be required from the MMO outlining conditions, monitoring and mitigation.
Aggregate Dredging	Aggregates dredge	No dredging in vicinity
Windfarm	Platform build/infrastructure, Cables laying /infrastructure Cable repair	Appropriate licence conditions/monitoring has been incorporated to mitigate any impacts. Low risk of physical loss, damage or biological disturbance.
Cable infrastructure	Power other Platform build/infrastructure, Cables laying /infrastructure Cable repair	Appropriate licence conditions/monitoring has been incorporated to mitigate any impacts.

9. Summary of consultation with Natural England

Monthly meetings have been held with Natural England's Lead Advisor for the Northumberland East region from the outset of this process. The creation of this document was supported by ongoing consultation with Natural England and they agree with the conclusions of this assessment. Formal advice was received on 30th March 2017.

10. Integrity test

NIFCA conclude that static netting activities, either alone or in combination, within the Berwickshire and North Northumberland Coast SAC, at current levels, do not adversely affect the designated grey seal population within the site.

11. Adaptive risk management

Assessments will be periodically reviewed should activity levels change above existing levels or if new evidence relating to this gear/feature interaction emerges. To monitor activity levels and gear /feature interactions a

BNNCSAC-AA 001

Monitoring and Control Plan document has been produced for static netting within the NIFCA district. These documents describe the parameters that are to be monitored and the mechanisms in which the data is to be collected. A risk score assessment of the parameters will help define triggers/thresholds within section 3 of the document, which inform the need for further action to either mitigate or modify the trigger. Section 4 outlines all possible management tools, which are to be assessed on their ecological and socio-economic outcomes for both the fishery and the feature. These options will be subject to scrutiny through NIFCA's Technical and Scientific sub-committee. Any management options decided through this process would be subject to public consultation.

Annex 1: Reference list

1. ICES (International Council for Exploration of the Sea), 2013; Stillman et al., 2007; Wildfowl and Wetlands Trust (WWT) Consulting, 2012. "Whilst activity would cause pressure, impact considered better captured by 'visual disturbance". **706 (UK0017072_Berwickshire_and_North_Northumberland_Coast_SAC_Advice_on_Operations)**

2. Davenport and Davenport, 2006. "Collision can occur as a result of this activity in instances where a vessel in used".**150 (UK0017072_Berwickshire_and_North_Northumberland_Coast_SAC_Advice_on_Operations)**

3. Wildfowl and Wetlands Trust (WWT) Consulting, 2012. "Discarded/lost lines, hooks and nets which could be problematic for mobile species. Other types of litter generated by activity generally not considered to occur at level that would cause concern.".**190 (UK0017072_Berwickshire_and_North_Northumberland_Coast_SAC_Advice_on_Operations)**

4. Gubbay and Knapman, 1999; ICES (International Council for Exploration of the Sea), 2013; Kaiser et al., 2001; Sewell and Hiscock, 2005; Wildfowl and Wetlands Trust (WWT) Consulting, 2012. "Pressure may be exerted by by-catch associated with fixed nets and lines. However, vulnerability of feature to pressure will need to be considered on a case-by-case basis." **543 (UK0017072_Berwickshire_and_North_Northumberland_Coast_SAC_Advice_on_Operations)**

5. Thomsen and Intersessional correspondence group on underwater noise (2007 - 2009), 2009. "Pressure (e.g. increase in noise above ambient level) would be exerted via vessel movement, gear deployment/towing/hauling and the use of fish finding sonars.".**536 (UK0017072_Berwickshire_and_North_Northumberland_Coast_SAC_Advice_on_Operations)**

6. Stillman et al., 2007; Wildfowl and Wetlands Trust (WWT) Consulting, 2012. "May result from the presence/movement of the vessel and potentially also the presence/movement of the gear. Magnitude of pressure would depend on nature and scale/intensity of activity." **362 (UK0017072_Berwickshire_and_North_Northumberland_Coast_SAC_Advice_on_Operations)**

7. Evans, P.G.H. and Baines, M.E. 2013. A methodology to assess the sensitivity of marine mammals to different fishing activities and intensities. CCW Policy Research Report No 12/6. 83pp.

8. Sewell, J., & Hiscock, K. 2005. Effects of fishing within UK European Marine Sites: guidance for nature conservation agencies. Report to the Countryside Council for Wales, English Nature and Scottish Natural Heritage from the Marine Biological Association.

9. Gubbay, S. &Knapman, P.A. 1999. A review of the effects of fishing within UK European marine sites. English Nature (UK Marine SACs Project) 134.

10. Blakely L. & Tooth E. 2015. Grey Seals on the Farne Islands in 2015. National Trust Report [draft].

11. Thompson D. & Duck C. 2010. Berwickshire and North Northumberland Coast European Marine Site: grey seal population status.Report to Natural England : 20100902-RFQ.

12. Sea Mammal Research Unit, 2002. Seal diet. Available online: http://www.smru.st-andrews.ac.uk/documents/SealDiet.pdf

13. English Nature & Scottish Natural Heritage, 2000. Berwickshire and North Northumberland Coast European Marine Site: English Nature's and Scottish Natural Heritage's advice given in compliance with Regulation 33(2) and in support of the implementation of The Conservation (Natural Habitats &c.) Regulations 1994.

14. Natural history Society of Northumbria. (2016). Available at: http://www.nhsn.ncl.ac.uk/interests/mammals/mammals-north-east/grey-seal/ [Accessed: 03/10/2016].

15. SCOS (2016) SCOS Main Advice Reports. Scientific Advice on Matters Related to the Management of Seal Populations: 1990 - 2015. Available at: http://www.smru.st-andrews.ac.uk/pageset.aspx?psr=411 [Accessed: 30/09/2016].

16. Thompson, D and Duck, C (2010). Berwickshire and North Northumberland Coast European Marine Site Grey Seal Population Ststus. Report to Natural England. Scottish Marine Mammal Research Unit. Available at: http://www.xbordercurrents.co.uk/core_files/greyseal.pdf [Accessed: 03/10/2016].

17. Harwood, J., & Prime, J. H. (1978). Some factors affecting the size of British grey seal populations. *Journal of Applied Ecology*, 401-411.

18. National Trust (2016) Ten facts about Farne Island Seals. Available at: https://www.nationaltrust.org.uk/farne-islands/features/top-10-facts---seals-on-the-farne-islands [Accessed: 03/10/2016].

19. Tooth, E. (2015) Grey Seals on the Farne Islands 2015. National Trust. Available at: https://www.nationaltrust.org.uk/farne-islands/features/grey-seals-on-the-farne-islands-2015 [Accessed: 03/10/2016].

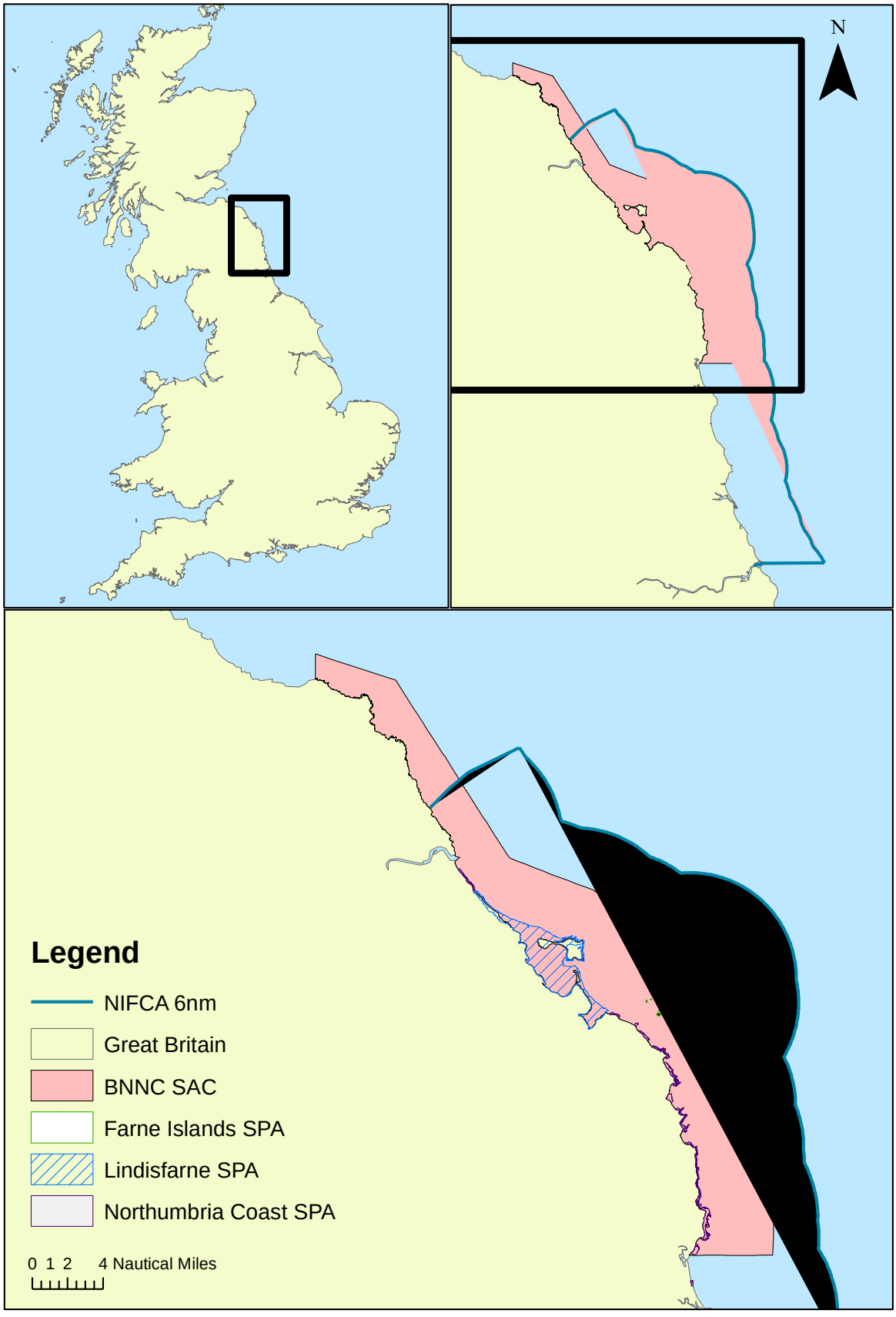
20. McConnell, B. J., Fedak, M. A., Lovell, P., & Hammond, P. S. (1999). Movements and foraging areas of grey seals in the North Sea. *Journal of Applied Ecology*, *36*(4), 573-590.

21. Brasseur, S., Creuwels, J., Werf, B., & Reijnders, P. (1996). Deprivation indicates necessity for haul-out in harbor seals. *Marine Mammal Science*, *12*(4), 619-624.

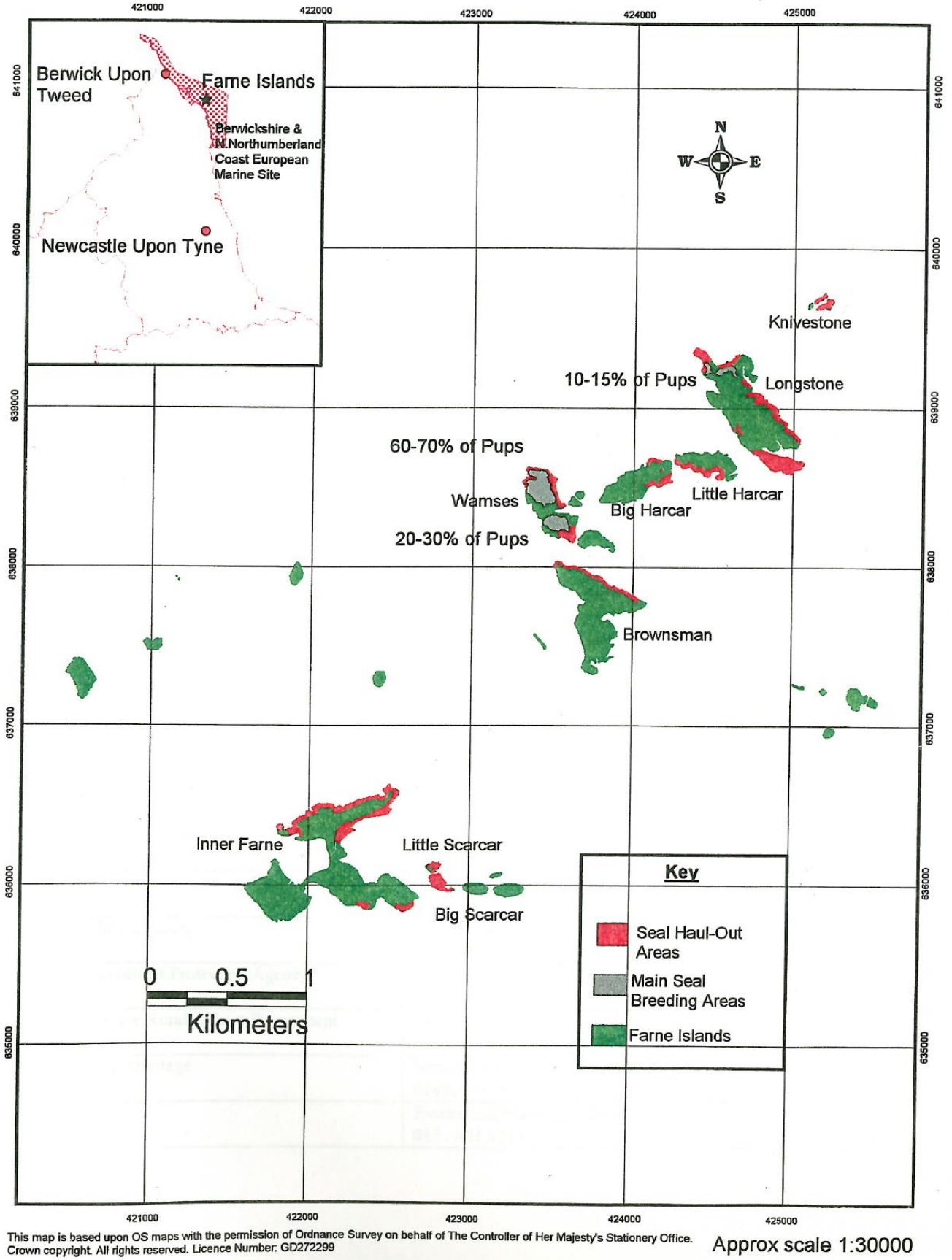
22. Cranson, A. and Walton, J. (2008). Northumberland Biodiversity Action Plan. Grey Seal (*Halichoerus grypus*) Species Action Plan. Available at: https://www.nwt.org.uk/sites/default/files/files/Grey_Seal.pdf [Accessed: 18/10/2016].

Annex 2: NIFCA District's Sectors

Annex 3: Site Map

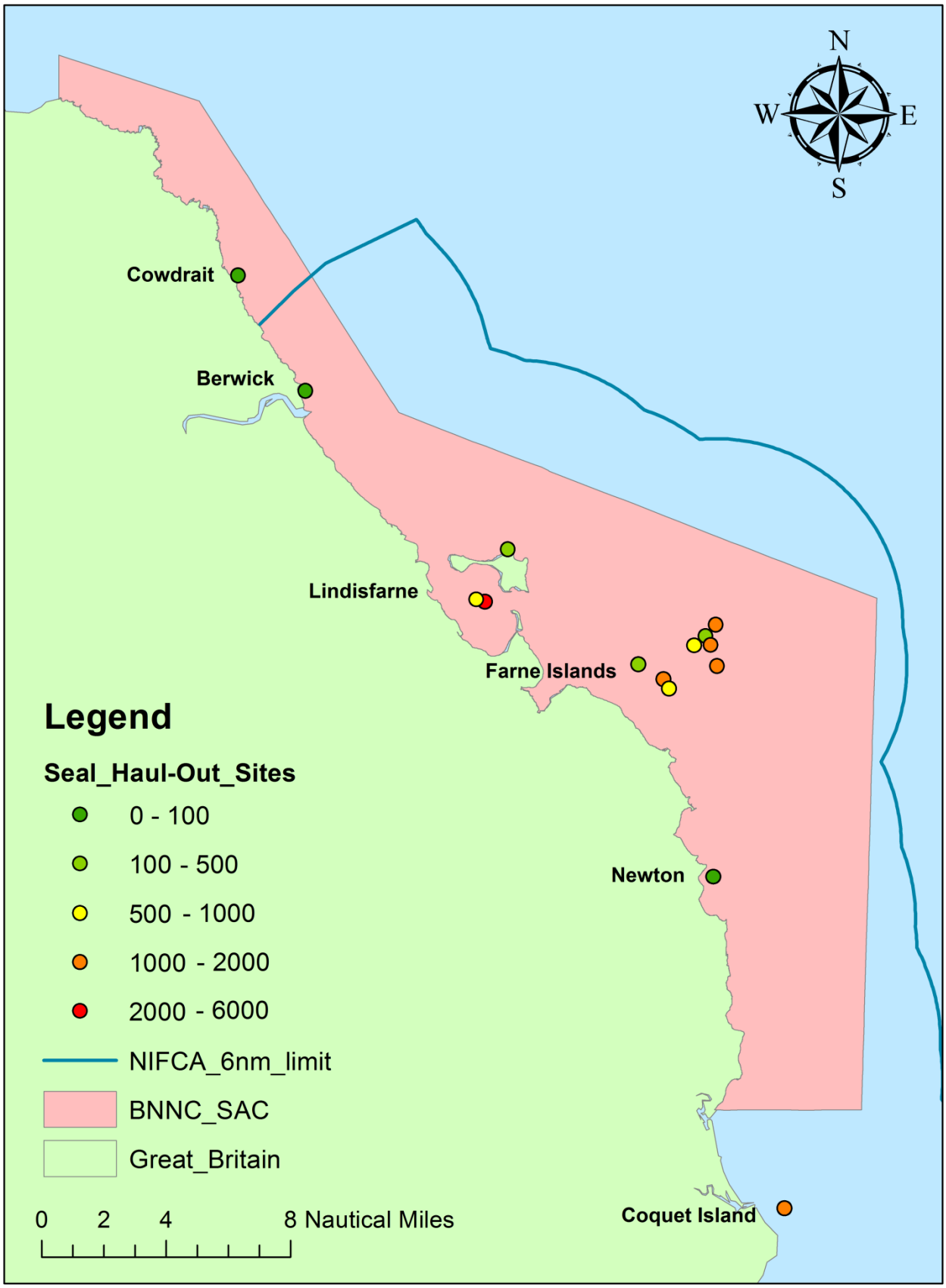


Annex 4: Maps of grey seal haul-out sites



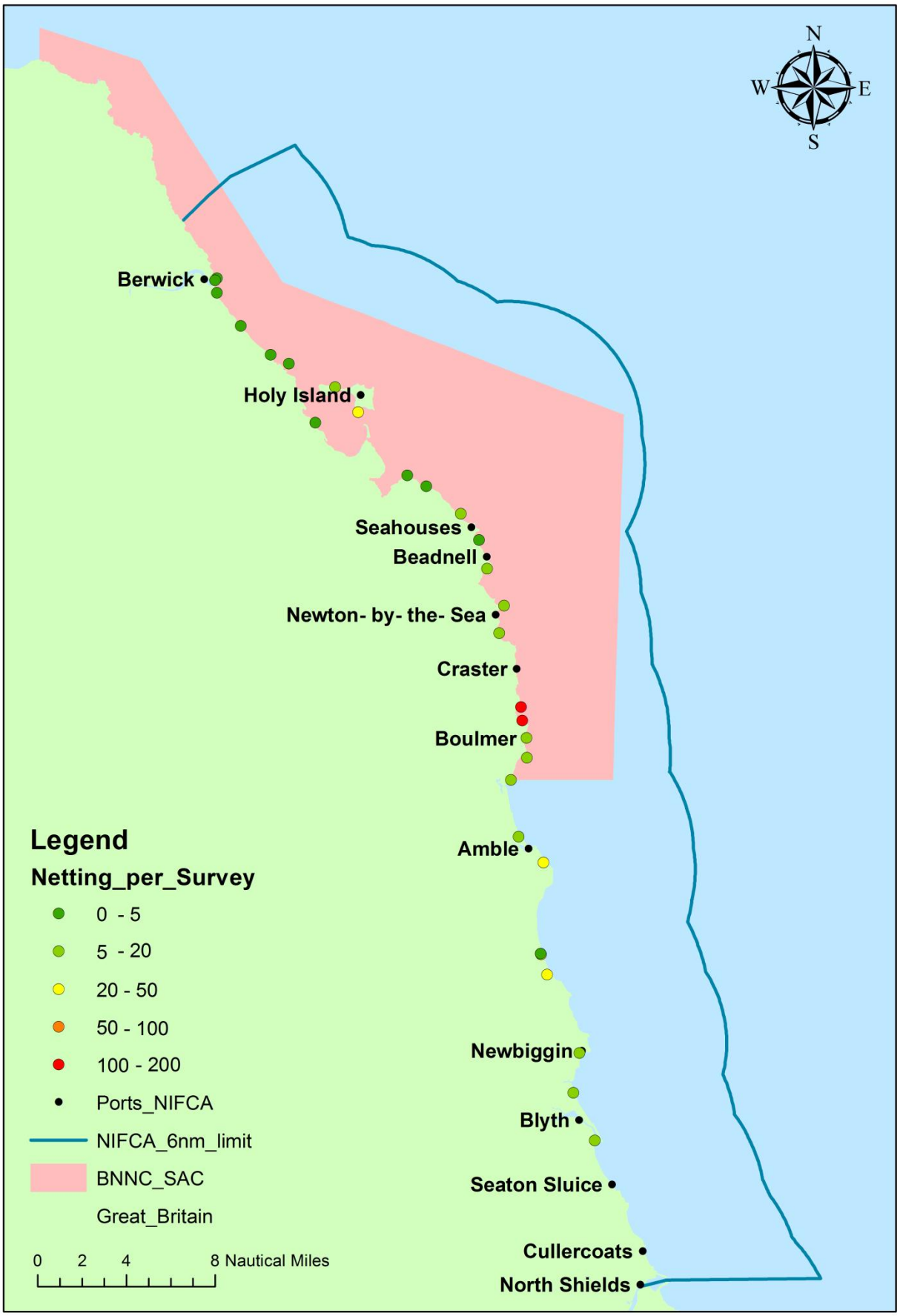
This map is based upon OS maps with the permission of Ordnance Survey on behalf of The Controller of Her Majesty's Stationery Office. Crown copyright. All rights reserved. Licence Number: GD272299

Approx scale 1:30000

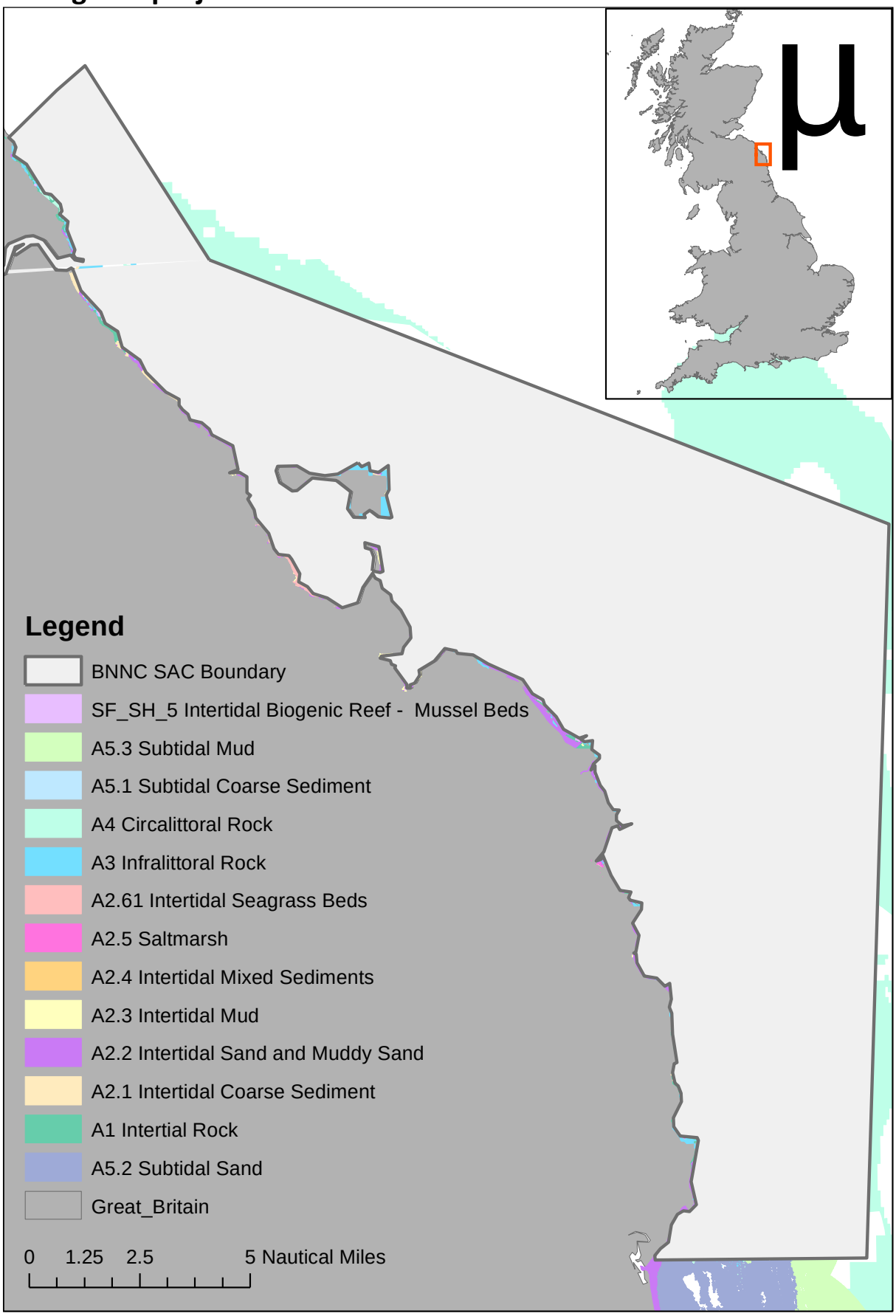


Data from: Thompson and Duck (2010)

Annex 5: Map of Netting Litter


N
W
E
S
Berwick
Holy Island
Seahouses
Beadnell
Newton- by- the- Sea
Craster
Boulmer
Amble
Newbiggin
Blyth
Seaton Sluice
Cullercoats
North Shields
Legend
Netting_per_Survey
0 - 5
5 - 20
20 - 50
50 - 100
100 - 200
Ports_NIFCA
NIFCA_6nm_limit
BNNC_SAC
Great_Britain
0 2 4 8 Nautical Miles

Annex 6: Eunis Habitat within the BNNC SAC. ArcGIS data files provided by Natural England projected Dec 2016



Annex 7: Monitoring and Control Plan Record and Re-assessment.

Table 4 | *Static Nets Monitoring and Control Plan Record showing "Year Assessed", "Date Complete", Total Risk Score", "Risk Level", if the result "Triggers Re-assessment" and whether "Further Management is Required".*

Year Assessed	Date Complete	Total Risk Score	Risk Level	Triggers Re-assessment?	Further Management Required?
2017					
2018	**08/01/2018**	**75**	**High**	**Yes**	**No**
2019					

2018:
The number of vessels fishing within the NIFCA district, number of days nets fished and length of net fished in 2018 have all decreased from the 2015 baseline values. The re-assessment has been triggered due to high scores caused by ghost fishing nets and the associated bycatch which were removed by NIFCA and St Mary's Seal Watch from Sector 1 in April 2018. The ghost nets were not within the BNNC SAC and have been removed from the marine environment. The fisher responsible has also retired from fishing so there should not be a repeat occurrence by this fisher.

As there has been a decrease in static netting activity within the NIFCA district compared to the 2015 baseline and as the ghost fishing incident which triggered this re-assessment did not occur within the BNNC SAC it is felt that no further Management is required at this time. NIFCA will continue to monitor static netting activity and its interaction with features of the BNNC SAC.