

Title: Northumberland IFCA “Seagrass Protection” byelaw IA No: NIFCA 002 Lead department or agency: Northumberland Inshore Fisheries and Conservation Authority (NIFCA) Other departments or agencies: MMO, Natural England, Defra	Impact Assessment (IA)
	Date: August 28th, 2013
	Stage: Development/Options/Consultation
	Source of intervention: Domestic
	Type of measure: Secondary legislation (Byelaw)
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Summary: Intervention and Options

What is the problem under consideration? Why is government intervention necessary?

Special Conservation Areas (SACs) and Special Protection Areas (SPAs) are designated to protect habitats and species in line with the EU Habitats Directive and Birds Directive. SACs and SPAs that include a marine component are known as European Marine Sites (EMS). Following the Defra Revised Approach to management of Commercial Fisheries in European Marine Sites (See Appendix 1) and the EU Habitats and Birds Directive Article 6 (2), the Northumberland IFCA is the competent authority for inshore fisheries within 6 nm for the Berwickshire and North Northumberland Coast Special Area of Conservation (SAC) and will implement management measures for red risk interactions. This Revised Approach will ensure fisheries compliance with the Habitats Directive.

The area includes seagrass which are considered to be features at risk from the gathering of sea fisheries resources. The proposed byelaw will introduce a complete closure of seagrass (*Zostera spp.*) in the SAC to hand gathering and mechanical gathering activities in order to protect this red risk feature from 31st December 2013. Hand gathering should be interpreted as the collection of sea fisheries resources by hand or by hand tools.

Reefs and seagrass have been highlighted in the Matrix referred to in Annex I as the two most sensitive features to demersal towed fishing gears and to intertidal activities in the Northumberland IFCA District and have been highlighted as a priority for protection through management. The subject of this IA is the proposed Northumberland IFCA Seagrass Protection Byelaw. This byelaw aims to prohibit detrimental exploitation of sea fisheries resources, including hand-worked and mechanical activities, in designated intertidal seagrass within the SAC of the Northumberland IFCA District.

What are the policy objectives and the intended effects?

1. To protect seagrass within the Berwickshire and North Northumberland Coast SAC, ensuring that the feature maintains its favourable conservation status.
2. To introduce appropriate measures to restrict gathering activities in the District’s SAC.
3. To explain and engage upon the importance of the red risk features within the SAC and to encourage marine users to be aware of their responsibilities.
4. To enhance the environmental, socio-economic and fisheries sustainability of the wider Northumberland IFCA District.
5. To introduce a byelaw that incorporates management measures for “high risk features” (Defra Revised Approach at Annex I to this document) within the B&NNC SAC in the Northumberland IFCA District.

What policy options have been considered, including any alternatives to regulation? Please justify preferred option (further details in Evidence Base)

1. 'Do Nothing'. Allow the feature to remain unprotected.
2. Create a NIFCA "Seagrass Protection Byelaw" to prohibit fishing activities (intertidal activities gathering sea fisheries resources) within the SAC.
3. Create a zoned approach byelaw for seagrass in the SAC.
4. Voluntary measures: Allow fishermen to manage the fishery to ensure no further damage to seagrass habitats.
5. Statutory Measures: Management of activity through Statutory Instruments or Defra fishing licence..

The preferred option is 2.

The preferred policy option uses the precautionary principle towards management under the Habitats Directive.

Will the policy be reviewed? Yes

If applicable, set review date: As soon as possible and no later than three years after the byelaw is made.

What is the basis for this review? Duty to review. If applicable, set sunset clause date: N/A

Are there arrangements in place that will allow a systematic collection of monitoring information for future policy review?

Yes

I have read the Impact Assessment and I am satisfied that, given the available evidence, it represents a reasonable view of the likely costs, benefits and impact of the leading options.

Signed by the responsible Chairman:

Date:

Summary: Analysis & Evidence

Policy Option 2

Description:

FULL ECONOMIC ASSESSMENT

Price Base Year Not Known	PV Base Year Not Known	Time Period Years 10	Net Benefit (Present Value (PV)) (£m)		
			Low: Not Known	High: Not Known	Best Estimate: Not known

COSTS (£m)	Total Transition (Constant Price) Year	Average Annual (excl. Transition) (Constant)	Total Cost (Present Value)
Low	Not Known	Not Known	Not Known
High	Not Known	Not Known	Not Known
Best Estimate	Not Known	Not Known	Not Known

Description and scale of key monetised costs by 'main affected groups'

At the present time, the economic impact to the main affected group is not known with regard to this byelaw. It is likely that displacement will occur amongst those individuals who use the seagrass areas for hand and other gathering activities (including bait digging, crab tiling and intertidal hand working). This is thought to be minimal in the SAC. Anecdotal information suggests that only a small amount of artisanal gathering activities occur in the known seagrass bed communities within the BNNC SAC, in the Lindisfarne NNR, which contains a voluntary bait digging zone. Gathering outside this voluntary bait digging area, which contravenes existing NNR byelaws (annex V), occurs on a sporadic basis. However, adhering to the precautionary approach by implementing this byelaw, there is likely to be an increase in monetised costs to Northumberland IFCA due to the requirement for increased presence to enforce the SAC closure on seagrass.

Other key non-monetised costs by 'main affected groups'

Traditional fishing communities or coastal communities located next to the seagrass areas may be negatively impacted, socially and economically. These non-extractive costs are possible but will be minimal as there is minimal activity in the seagrass altogether.

BENEFITS (£m)	Total Transition (Constant Price) Year	Average Annual (excl. Transition) (Constant)	Total Benefit (Present Value)
Low	Not Known	Not Known	Not Known
High	Not Known	Not Known	Not Known
Best Estimate	Not Known	Not Known	Not Known

Description and scale of key monetised benefits by 'main affected groups'

Displacement of hand gathering activities is likely to be minimal and activity will still be able to take place as at present within the SAC, just not in areas where seagrass exists and as referred to in the LNNR byelaw at Annex IV to this Impact Assessment. Seagrass is a supporting habitat, offering protection, food and breeding habitat, for many species (such as resident wading birds). Seagrass offers beneficial services for a range of commercial species; therefore protecting seagrass habitats from the potential damage posed by intertidal fishing/gathering of resources will likely benefit all related groups in the long term.

Other key non-monetised benefits by 'main affected groups'

The recommended byelaw has significant environmental benefits through the protection of sensitive features that may otherwise be vulnerable to potentially damaging activities. Seagrass habitats offer a wide range of benefits for human livelihoods. Seagrass acts as natural sea defence providing a barrier to coastal erosion. Seagrass provide a number of ecosystem services such as regulating services (e.g. carbon sequestration and nutrient cycling, in addition to shoreline stabilisation and erosion protection) and cultural services (e.g. providing a habitat for culturally valued species. Costanza *et al.* (1997) ranked seagrass meadows, at US\$3.8 trillion yr⁻¹, amongst the three most valuable ecosystems on earth on a per hectare basis.

The byelaw is designed to completely close seagrass in the SAC to any gathering activities so that Northumberland IFCA is able to comply with Defra's revised approach and meet its deadline to introduce management measures to protect 'red risk' features by the end of December 2013. Although this closure may have implications for the recreational angling community, consultation has been taking place and will continue to ensure that anglers understand what is being done and why.

Key assumptions/sensitivities/risks

- Greater level of non-compliance than envisaged leading to increased enforcement costs.
- The Gross Value Added (GVA) is not known.
- There is current regulation in place within the Lindisfarne National Nature Reserve (see Annex IV) which lies within the SAC, and which is also a SSSI (see Annex V). Regulation is in the form of byelaws which are enforced by Natural England. (Bait digging is specifically prohibited under paragraph 2(1)p of the NNR byelaw. However, paragraph 2 (2) of the NNR byelaw specifically states that it does not apply to fishing or shell fishing by hand. That indicates crab tiling and intertidal hand working (red risk activities) are not covered in the LNNR byelaw. The SSSI also does not cover crab tiling and intertidal hand working. It is the NIFCA interpretation of this situation that a Seagrass Byelaw must be implemented to cover all red risk activity to the feature.
- Evidence from Natural England demonstrates seagrass in the NNR from 2012 (maps at Annex III) but it is understood that the rest of the SAC has not been surveyed for seagrass and therefore it is unknown if/where it exists elsewhere in the SAC. Therefore we cannot assume that seagrass is only in the NNR which is why the NIFCA are taking the precautionary approach of prohibiting removal of sea fisheries resources from seagrass anywhere in the SAC.
- The Northumberland Coast Area of Outstanding Natural Beauty and Berwickshire and North Northumberland Coast EMS Management Plan 2009-2014 states "Lindisfarne, Budle Bay and the coast north of Holy Island form the most extensive areas of intertidal sand and mudflat, other areas include Alnmouth, Embleton, Beadnell, Newton, Bamburgh and the Tweed which support the largest intertidal beds of narrow leaved eel grass and dwarf eelgrass" (seagrass is also commonly known as eelgrass). This statement suggests that due to the presence of extensive sand and mud flats within the wider area of the SAC, there is potential that these areas may support additional areas of seagrass. At present, no records suggest this to be the case.
- Bait digging is prohibited to occur in the Lindisfarne NNR, apart from designated sites that have been mapped. The bait digging zone is a voluntary agreement between the angling groups and Natural England. According to Natural England, it is understood that seagrass has started to move into that area on the southern side.
- Hand gathering activities will still be able to take place as currently within the SAC except where seagrass exists.
- Magna Carta is recognized by NIFCA as a factor although it is open to different interpretations. It is nevertheless understood that closing off seagrass could take away a person's right to fish (and gather bait) and therefore has implications with regards to human rights. However, NIFCA are not prohibiting the right for people to fish on the foreshore, NIFCA are merely regulating in the interest of seagrass, because, under European Legislation we are required to protect this feature and it should be noted that foreshores where gathering of sea fisheries resources within the SAC currently takes place will not be restricted by this byelaw unless seagrass exists there.

BUSINESS ASSESSMENT (Option 3)

Direct impact on business (Equivalent Annual) £m: Not			In scope of	Measure qualifies	
Costs: Not Known	Not	Benefits: Not Known	Net: Not Known	No	IN/OUT/Zero net cos

Evidence Base

1. Introduction

1.1 The nationally agreed vision of the IFCAs is that they will *“lead, champion and manage a sustainable marine environment and inshore fisheries within their Districts by successfully securing the right balance between social, environmental and economic benefits to ensure healthy seas, sustainable fisheries and a viable industry”*.

1.2 Section 153 of the Marine and Coastal Access Act, 2009 (MaCAA) details the management of inshore fisheries as follows (extract).

- (1) The authority for an IFC district must manage the exploitation of sea fisheries resources in that district.
- (2) In performing its duty under subsection (1), the authority for an IFC district must:
 - (a) Seek to ensure that the exploitation of sea fisheries resources is carried out in a sustainable way,
 - (b) Seek to balance the social and economic benefits of exploiting the sea fisheries resources of the district with the need to protect the marine environment from, or promote its recovery from, the effects of such exploitation,*
 - (c) Take any other steps which in the authority's opinion are necessary or expedient for the purpose of making a contribution to the achievement of sustainable development, and
 - (d) Seek to balance the different needs of persons engaged in the exploitation of sea fisheries resources in the district.

* It should be noted that the balancing of socio and economical benefits relates to Marine Conservation Zones and this is not the case in relation to Natura sites unless there is no net difference in detriment between two socio-economically differing management options.

1.3 As a direct consequence of the above, the ten Inshore Fisheries and Conservation Authorities (IFCAs) in England are obliged under a nationally agreed high level objective (HLO) to demonstrate that by April 2015, all legacy byelaws have been reviewed and evaluated against current evidence base; redundant and duplicate byelaws have been removed and gaps covered.

1.4 Northumberland Sea Fisheries Committee (NSFC) became Northumberland IFCA on April 1st 2011 and consequently inherited byelaws from the NSFC.

2. Rationale for intervention

- 2.1 European Marine Sites (EMS) is designated to protect habitats and species in line with the EU Habitats Directive and Birds Directive. To bring fisheries in line with other activities, the Department for Environment, Food and Rural Affairs (Defra) announced on the 14th August 2012 a revised approach to manage fishing activities within EMSs. This change in approach will promote sustainable fisheries while conserving the marine environment and resources, securing a sustainable future for both.
- 2.2 In order to implement this new approach a Fisheries in European Marine Sites Implementation Group was set up to include key stakeholders and delivery bodies to ensure that the revised approach is implemented effectively and practically, in line with legal commitments, considering the impacts of management measures available and suitable timetable of delivery.
- 2.3 The approach will be introduced to current fishing activities on a risk-prioritised basis. Where it is clear that a feature (or sub-feature) will be vulnerable to a type of fishing then protection through management measures is required by the end of December 2013. The Northumberland IFCA plan to make this byelaw by the end of August 2013 with an expectation that the new management measures through the byelaw will come into force on 1st January 2014.
- 2.4 EMS has been designated to protect a variety of different features. Within the NIFCA's district seagrass have been highlighted as the most sensitive features to gathering activities and have been highlighted as a priority for protection through management and regulation.
- 2.5 The benefits of a seagrass byelaw has increased in importance following Defra's revised approach to EMS. The required management of gathering activities, particularly those with seagrass contact, will require spatial regulation at a higher level of resolution in the near future. The proposed byelaw will enable Northumberland IFCA to differentiate between activity types depending on their potential impacts.
- 2.6 Under the High Level Objectives set out in its annual plan, Northumberland IFCA is required to make the best use of evidence to promote the sustainable management of the marine environment. This includes the sustainable management of habitats lying within the SAC; but there may be the future need to protect sensitive seagrass features and habitats anywhere within the District.
- 2.7 The proposed byelaw will prohibit all gathering activities, which includes all collection of Sea Fisheries Resources by hand or by hand tools, or mechanical device, from occurring in seagrass within the SAC.

3. Policy objective

- 3.1 The policy objective pertinent to this Impact Assessment is to ensure that the exploitation of sea fisheries resources is carried out in a sustainable way, whilst balancing the environmental, social and economic benefits of exploiting the sea fisheries. Northumberland IFCA is made a competent authority under Regulation 7 of The Conservation of Habitats and Species Regulations 2010 and therefore must make an Appropriate Assessment of any fishing activity occurring within EMSs, permitted or consented by Northumberland IFCA to ensure the conservation objective of the sites are met. The Northumberland IFCA must also seek to ensure that the conservation objectives as contained in the advice given in compliance with Regulation 33(2) and in support of the implementation of the Conservation (Natural Habitats etc.) Regulations 1994 in respect of the B&NNC EMS are furthered.
- 3.2 The conservation objectives for mud and sand flats in the SAC which host seagrass are "subject to natural change and maintain in favourable condition the sand flats and

mud flats not covered by sea water at low tide, in particular, the extent of seagrass bed communities and mussel *Mytilus edulis* bed communities and the diversity of infaunal communities”(conservation objectives). “Favourable condition” is defined in the Regulation 33 Advice Package as “a range of conditions for a natural habitat or species which the sum of the influences of action upon the habitat or species is not adversely affecting its distribution, abundance, structure or function within an individual Natura 2000 site in the long term. The condition in which the habitat or species is capable of sustaining itself on a long term basis.”

- 3.3 The exclusion of seagrass from gathering activities will ensure that Northumberland IFCA meets its obligations to protect ‘red risk features’ under Defra’s change of approach. The closure of these areas, in line with the conservation objectives of the EMS in the district, will restrict potentially damaging activities under Article 6(2) of the Habitats Directive and under s154 of MaCAA.
- 3.4 Seagrass inside of the SAC will also be protected from gathering activities due to the significant risk of damage posed by this activity. Although at this time seagrass is thought to only exist around the Fenham Flats, Budle Bay and Holy Island areas which are protected SSSI, SAC and SPA sites, under the Natural Environment and Rural Communities Act 2006 all public bodies must have regard to biodiversity conservation when carrying out their functions and seagrass can spread to other areas. The Seagrass are also protected under the Natural England NNR and SSSI. However it is the lack of protection in particular from crab tiling and intertidal hand working within the SSSI and NNR legislation that has also led to this draft byelaw.

4. The Options

- 4.1 As part of the NIFCA byelaw review a range of options were considered:
- 4.2 **Option 1** ‘Do Nothing’. Allow the feature to remain unprotected.

This option was deemed not to be appropriate. This option would involve allowing potentially damaging activities to take place within seagrass areas, within the SAC. This would mean that risks to the District from damaging activities would not be addressed and there is the potential that NIFCA’s obligations under Article 6(2) of the Habitats Directive and under s154 of MaCAA would not be met.

- 4.3 **Option 2** NIFCA “Seagrass Protection Byelaw” that prohibits fishing activities (intertidal gathering activities) within the SAC (Recommended option)

Under this option only the seagrass in the sensitive ‘red risk’ areas defined through Defra’s revised approach to management of EMS will be prohibited.

DEFRA’s revised approach applies to the management of commercial fisheries and not to recreational fishing activities. However, for bait digging, and other forms of gathering it is very difficult and often impossible to separate the commercial and recreational fisheries. It is recognised that any management of purely the commercial aspects of gathering would be nigh on unenforceable. Northumberland IFCA therefore feels that, under its responsibilities as part of Article 6(2) of the Habitats Regulations, it cannot separate the management of the two activities without risking deterioration of the habitat types, and the “seagrass protection byelaw” being less effective.

Natural England provided ArcGIS maps of the seagrass present within the Lindisfarne NNR site for 2012 which they deem to be best available evidence. Due to the presence of extensive sand and mud flats throughout the SAC, seagrass could be present at other areas outside of the NNR, within the SAC. Due to insufficient confidence as yet for the best

evidence available, using the precautionary approach, the NIFCA have taken the position that it is best to protect all seagrass in the SAC.

This option is recommended by the IFCA as the lead regulator for the sustainable management of inshore fisheries. As such, Northumberland IFCA is the most appropriate authority to take forward any permanent fisheries management within 6 nautical miles. A prohibiting byelaw closing areas of seagrass to the above mentioned activities would be the most appropriate and proportionate form of management due to the level of protection it offers the seagrass from the activities, without unnecessarily closing the entire SAC to hand and tool gathering of sea fisheries resources.

4.4 **Option 3** Create a zoned approach byelaw for the seagrass in the SAC.

Natural England advised identifying an area i.e. the Lindisfarne NNR where confirmed and anecdotal seagrass has been monitored and reported, and protecting the seagrass beds within due to their seasonal and dynamic nature. Natural England also recommended that "seagrass beds" (*Zostera* spp.) -- defined under the WFD guidance as continuous beds of greater than 5% shoot density, and greater than 5% shoot density OSPAR -- Case Report in OSPAR publication 2006/276, MASH 07/3/3 Add.8., BDC 05/4/2 -- with an appropriate buffer zone, should be protected. Should this option be chosen, Natural England further advised that an amended voluntary bait digging zone would have to be identified, spatially within the byelaw. The NIFCA concern with this approach is that if more seagrass is found later in addition to what is already known than that seagrass would not be protected and NIFCA feels that under the terms of MaCAA, it would not be possible for NIFCA to make an emergency byelaw and undesirable to try and do that through the good offices of the MMO, potentially repeatedly.

4.5 **Option 4** Voluntary agreements

Due to the size of the sea area, it is believed that a voluntary agreement would be impractical and would pose too great a risk to the overall sustainability of the Districts ecosystems and the site integrity of the EMS.

Northumberland IFCA believes voluntary measures cannot be used to effectively manage potentially damaging fishing activities within the SAC particularly in this instance and under the Defra revised approach to fishing in EMS a legislative approach is required for a 'red risk' site in order to ensure that damaging activities cannot impact upon the designated site feature. This option would therefore carry the risk that damaging activities to sites may continue and that obligations under Article 6(2) of the Habitats Directive would not be met.

4.6 **Option 5** Statutory measures

IFCAs have been established as the responsible lead statutory organisation for the sustainable management of inshore fisheries and conservation and with the B&NNC SAC within the district of NIFCA the Authority should take the lead role.

5. **Evidence base**

- 5.1 Evidence that hand gathering activities are damaging to seagrass features within the EMS are summarised in the red risk audit trail document SEAGRASS (2) at Annex II; Feature maps (4 in total) from Natural England are set out in Annex III – a) EA *Zostera* spp. bed, b) *Zostera* spp. extensive beds from 2009-2010 and c) 2011-2012 and d) figure 3 location of interest features showing intertidal mudflats and sand flats which could be prone to seagrass (coloured yellow in this map). The Lindisfarne

National Nature Reserve byelaw is attached at Annex IV and Lindisfarne SSSI designation with attached operations list at Annex V.

6. Sectors affected

6.1 Fishing: All hand gathering activities (including crab tiling, bait digging and intertidal hand working) will be affected as they will not be able to hand gather in seagrass within the SAC, with a complete closure of the seagrass in the SAC. The byelaw would prohibit hand gathering activities within sensitive seagrass areas, removing access to possible activity grounds.

Historically, bait digging occurs within the Lindisfarne SSSI and NNR. However, crab tiling and intertidal hand working have not been previously regulated as activity types in the area, but it is thought that if they occur, it's very minimal.

The Northumberland IFCA has taken into account issues with regards to human rights as referred to above and it is recognised that aspects of the foreshore where seagrass exists will be prohibited to hand gathering activities. This is thought to be minimal and hand gathering activities will be allowed in areas of the foreshore within the SAC as at present except where seagrass exists.

It is thought that effects on the Fishing Sector are a **Minor Adverse Impact**.

6.2 Local economies and society: It is thought there is no existing hand or mechanical gathering activity in known areas of seagrass under current byelaws. It is unlikely that businesses associated with these activities will be affected by this byelaw.

The introduction of new management measures will give confidence to the public that hand gathering activities in the District are effectively controlled and are not damaging the seagrass.

The wider environmental benefit of protecting designated features within the SAC and seagrass habitats elsewhere in the District are outlined in section 7 below. There will be benefits to the environment as the seagrass forms the largest area of this biotope on the coast of North East England and Scotland and the seagrass contains a high diversity of polychaetes and molluscs.

It is thought that the Industries will experience a **Minor Adverse Impact** but that the social and environmental impacts will be **Beneficial**.

6.3 Enforcement bodies: The lead responsibility for enforcing the proposed prohibited area would be Northumberland IFCA. There is the potential for an increase in enforcement costs as a consequence of the proposed byelaw. The costs associated with enforcement are outlined in section 7. This increase in costs and resources could result in a **Moderate Adverse Impact** on the IFCA and the funding Councils as additional areas will need to be monitored compared too previously.

7. Analysis of costs and benefits

Costs for the recommended option

7.1 The introduction of a Northumberland IFCA 'Seagrass' byelaw with the closure of the SAC to hand gathering activities will result in the following costs:

- An increase in enforcement costs associated with policing the sensitive seagrass prohibited areas will lead to less resources being available to cover other lower risk enforcement requirements;
- Potential loss of access to fishing grounds and consequential loss of catch and income for individuals operating hand gathering activities are difficult to value due to the lack of accurate data available on fishing activity; and
- Potential increase in bio-diversity reflected as an ecosystem services value.

7.2 Analysis of fisheries costs

The quantification of the potential loss of access to fishing grounds and consequential loss of catch and income for hand gathering activities as a result of the recommended option is difficult to assess.

There is no evidence to quantify the area of seagrass that has been reduced by hand-worked activity. When considering restricting bait digging and associated activities, the potential loss of a right to fish should be considered. There is a common law right to dig for bait such as worms on the foreshore, but only as ancillary to the public right to fish as upheld by the case of *Anderson vs Alnwick DC* (1992). This case further stated that this right is not unrestricted and as such may not be exercised by any member of the public at any time or place. The taking of worms therefore must be directly related to an actual or intended exercise of the public right to fish and therefore there is no absolute right to take bait for commercial purposes.

The taking of bait for commercial purposes could only become the subject of a customary right by immemorial usage. A valid custom was defined by Girvan J in the case of *Adair vs The National Trust* (1997) as being in existence from legal time immemorial (fixed at 1189), reasonable, certain in respect of its nature and in respect of the locality and it must have continued without interruption. This would be very hard to prove and as such is unlikely to be upheld as a reason to prevent management.

The Northumberland IFCA has the power to make byelaws under section 155 of MaCAA (2009) "for the purpose of performing the duty imposed by section 153" and can therefore regulate bait digging as an activity, without the consent of those who enjoy the right to dig bait for personal use in connection with fishing, and those who dig bait for commercial use. The judgement in the case of *Anderson vs Alnwick DC* (1992) concluded that the byelaws weren't invalid as they were regulatory, not prohibitive, as only a small area of the foreshore within the local authority area was covered by the byelaw, the byelaw did not prohibit persons obtaining worms reasonably close by as would be the case with the Prohibition of gathering (sea fisheries resources) in the seagrass byelaw proposed by the Northumberland IFCA.

The Northumberland IFCA also held a consultation meeting for those interested and possibly affected by the byelaw on 8 August.

7.3 Benefits for the recommended option

The introduction of a Northumberland IFCA Seagrass byelaw with the closure of sensitive seagrass areas to gathering will result in the following benefits within the district:

- Potential increase in the sustainability of the stocks of marine fisheries resources;
- Potential increase in the environmental sustainability and a reduction in the damage to habitats.

7.4 Analysis of fisheries and environmental benefits

The quantification of the potential benefits to the sustainability of marine fisheries resources within the Northumberland IFCA district as a result of the recommended option is difficult.

Benefits of healthy seagrass include a source of nutrients to support a rich range of animal communities on the seabed and sediment trapping by the root structure, consequentially reducing estuary erosion. Seagrass are highly diverse and productive ecosystems. They provide an important nursery area for young fish and shellfish, including some commercially important species.

7.5 Analysis of socio-economic benefits

It is anticipated that the maintained condition, and in some cases recovery, of seagrass features will provide greater attraction for recreational users. The duties of the Northumberland IFCA are to seek to balance the needs of all users and to establish and protect these features supporting different important sectors interests.

The introduction of new management measures will give confidence to the public that hand gathering activities in the District are effectively controlled and are not damaging to the seagrass.

8. Summary

The Northumberland IFCA has statutory responsibilities that it believes it will achieve through the introduction of the seagrass byelaw.

The byelaw is also designed to meet the Authority's conservation responsibilities but at the same time minimising as much as possible the socio-economic impact from these restrictions. In addition, the byelaw also provides the means to manage fishing activities in a timely and effective way.

A post implementation review will be undertaken no later than three years after the byelaw is confirmed but the byelaw will be kept under review on an on-going basis, including discussions with Natural England to see if any presently prohibited non-seagrass areas can be reopened for gathering of sea fisheries resources to compensate for this closure.. Social and economic data will be considered along with other evidence when considering if changes should be made. An impact assessment will be undertaken if management changes are made.

REVISED APPROACH TO THE MANAGEMENT OF COMMERCIAL FISHERIES IN EUROPEAN MARINE SITES - OVERARCHING POLICY AND DELIVERY DOCUMENTPurpose

1. This paper outlines the Department's overarching policy approach and key implementation steps to ensure that all existing and potential commercial fishing operations are managed in accordance with Article 6 of the Habitats Directive.
2. The revised approach applies to all European Marine Sites (EMS) and potential Special Protection Areas (pSPAs) and possible Special Areas of Conservation (pSACs)¹ in England. It aims to ensure that, in order to comply with Article 6 of the Habitats Directive, management measures are identified for high risk features by December 2013, and any additional fishery management measures for the conservation of the abovementioned sites are in place by 2016. The approach for the conservation of EMSs in the offshore marine area is outlined in paragraph 13.

Context

3. Government and Fishery Regulators in England (primarily the Marine Management Organisation (MMO) and Inshore Fisheries and Conservation Authorities (IFCAs))² have legal obligations to ensure that fishing activities (including existing fishing activities), which could adversely affect EMSs are managed in a manner that secures compliance with the requirements of Article 6 of the EU Habitats Directive. Conservation of these sites contributes to the delivery of Defra's aim to conserve and enhance the marine environment and promote sustainable fisheries.
4. In order to ensure that EMSs receive the requisite level of protection, and ensure compliance with the EU Birds and Habitats Directives, Government has decided to revise the approach to the management of commercial fisheries affecting EMS. Building on existing management measures, this will ensure that all existing and potential commercial fishing activities are subject to an assessment of their impact on EMSs.
5. It is the expectation of the Department that appropriate management measures will need to be regulatory in nature to ensure adequate protection is achieved. Management decisions should be based on the best available evidence, but using a precautionary approach. Reflecting European Commission guidance³ on the management of fisheries in European Marine

¹ pSPAs and pSACs are sites on which Government has initiated public consultation on the scientific case for designation as a Special Protection Area or candidate Special Area of Conservation. For ease of reference EMS, pSPAs and pSACs are referred to collectively as "EMSs".

² There could also be other relevant regulators or competent authorities with responsibility for a particular site.

³ FISHERIES MEASURES FOR MARINE NATURA 2000 SITES

http://ec.europa.eu/environment/nature/natura2000/marine/docs/fish_measures.pdf

Sites, *“the proposed measures should be consistent with the conservation objectives for the sites concerned”* and we expect Regulators to take a precautionary approach, *“according to which the absence of adequate scientific information should not be used as a reason for postponing or failing to take management measures”*.

Delivery

6. The revised approach will be applied on a risk-prioritised, phased basis which will be applied to both UK and non-UK fishing vessels in accordance with the EU requirements. Following the matrix approach described below, management action will focus first on sites that contain features where evidence suggests there is significant risk⁴ that certain types of fishing activities could prevent a qualifying feature or sub-feature from achieving its conservation objectives.
7. We intend to proceed on the basis of assessments through a matrix type approach. This shows, at a high generic level, the effect gear types have on the conservation objectives for the relevant features for which EMSs have been selected or designated. This generic matrix (“The Matrix”) should provide regulators with an indicator as to whether:-
 - a. the activity requires priority management measures to be introduced to protect that feature without further site level assessment on the impacts of that activity on that feature or;
 - b. a further assessment may be necessary.
8. Under The Matrix fishing activities will be classed as Red, Amber, Green or Blue according to the potential or actual impact of the gear type on the feature(s) for which a site has been designated. The definition for the classifications is annexed to this paper.
9. For activities identified as Red, the Department would wish management measures to be in place by end 2013, but where this is not practicable, they must have been identified by this date, and implemented by end May 2014. Regulators must inform the Department if they are unable to put measures in place by end 2013. Consideration must be given to the use of emergency byelaw powers where it is clear there is an existing or imminent threat to any Red feature, including cases where a delay in implementation of the revised approach beyond the end of 2013 is expected.
10. For activities identified as Amber a site level assessment will be required to assess whether management of an activity is required to conserve site features. For activities identified as Green, a similar assessment will be needed if there are “in combination effects” with other plans or projects. To carry out such site level assessments the Department’s strong preference is for the assessment to be carried out in a manner that is consistent with the provisions of Article 6(3) of the Habitats Directive. Appropriate management measures should be put in place to ensure that fishing activity or activities

⁴ Risk relates to the sensitivity of the feature to the type of fishing, and is not related to the level of that fishing activity that may affect that feature.

either have (a) no likely significant effect on a site, having regard to its conservation objectives or (b) that following assessment, have no adverse affect on the integrity of a site. The Department expects such measures to have been identified and put in place by 2016.

11. For sites located between 0-6nm, the Department expects the relevant IFCA to be the lead regulatory authority⁵. For sites between 6-12nm, the MMO should be the lead regulatory authority and measures introduced on a non-discriminatory basis in accordance with the relevant Common Fishery Policy (CFP). Where a site feature straddles the 0-6 and 6-12nm boundary, the expectation is that the MMO will lead. Where a site feature straddles the boundaries between two IFCAs we expect that any management measure proposed for that feature to be consistent across the IFCA boundaries.

Future Fisheries Management

12. By the end of 2016 all fishery operations potentially damaging EMSs should have been identified and be subject to appropriate management. Fishing activity which is prohibited or restricted within EMSs under the revised approach could be allowed through a permitting mechanism at the site level. Any such permitting would be subject to the Article 6(3)-(4) processes described in Part 6 of the Conservation of Habitats and Species Regulations 2010. The regulatory authorities should also ensure ongoing management of commercial fishery activities remains compatible with the conservation objectives of the site in line with their obligations to secure compliance with Article 6(2) of the Habitats Directive. The relevant Statutory Nature Conservation Body has a responsibility to advise the Regulators on this matter.

Management of Sites Requiring Measures in Accordance with the Common Fisheries Policy

13. EMS outside 12nm will require legislative measures to be proposed by the European Commission in accordance with the CFP to ensure adequate protection. For these sites, the Department, taking account of any relevant guidance, intends to submit proposals to the European Commission for any fishery measures needed to ensure site protection is consistent with Article 6 of the Habitats Directive, so that appropriate Regulations are in place in 2016.

DEFRA
24 January 2013

⁵ Except in cases where the Environment Agency is primarily responsible for regulating the fishery

SEAGRASS (2)

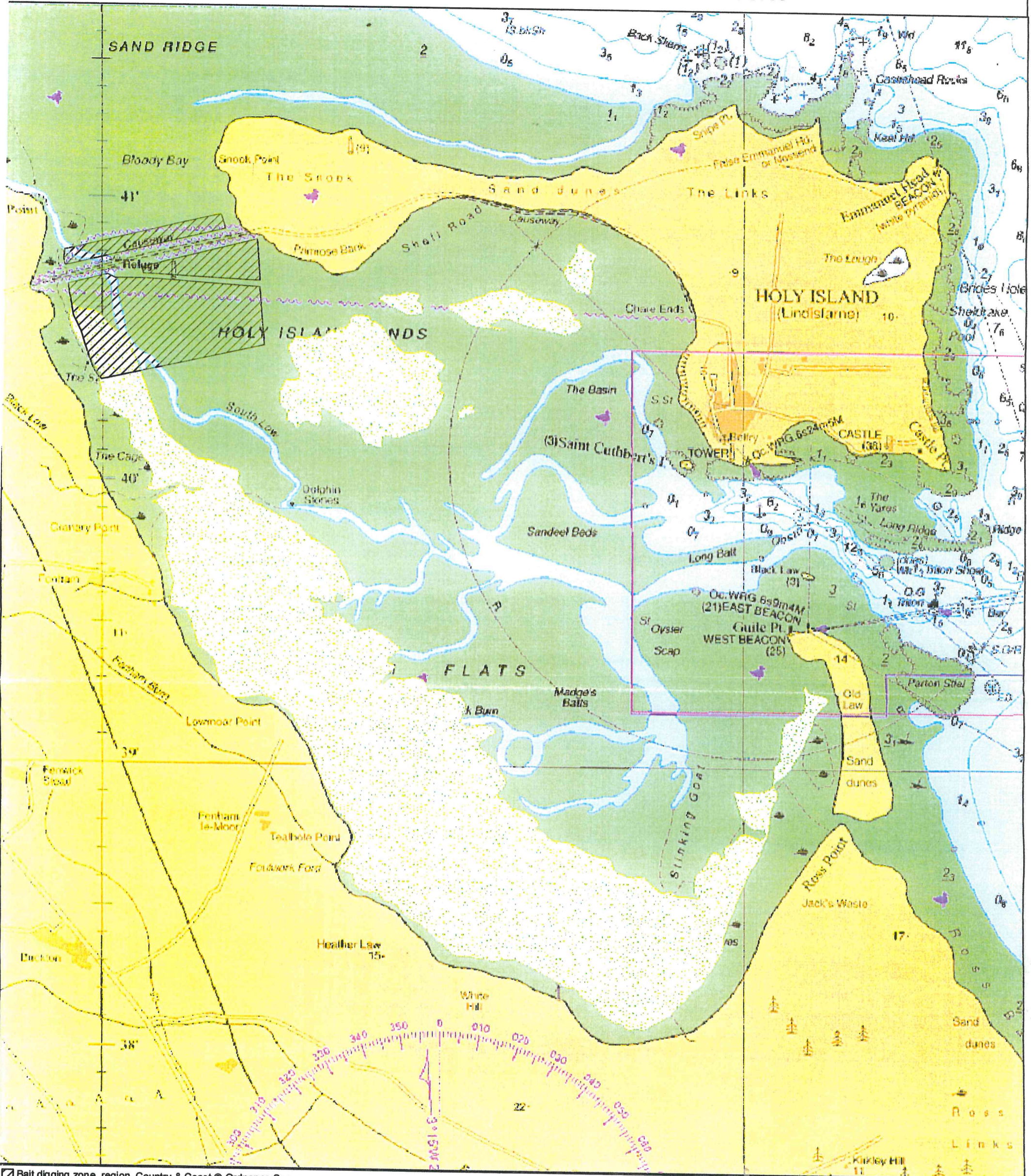
<p>Gear and feature/subfeature combination:</p>	<p>Commercial¹ Intertidal handwork, Bait digging, Crab tiling and Seagrass</p>
<p>Matrix risk category - RED</p>	<p>Explanation for categorisation – Evidence for this categorisation is available from a small number of international, primarily experimental, peer-reviewed studies. Although these studies concern impacts on non-UK species of seagrass; they are considered relevant for the assessment of risk posed to seagrass habitats in the UK.</p> <p>There is some variation in the level of impact detected within these studies and in the rates of recovery from impact; however the balance of available evidence still strongly suggests that seagrass has a high sensitivity to <i>commercial intertidal handwork, bait digging and crab tiling</i> and that recovery rates are generally slow. Expert judgement of the available evidence has concluded that the risk of significant impact is sufficient to require a precautionary categorisation of RED in the Matrix.</p>
<p>Impacts</p> <p>Seagrasses are considered highly sensitive to physical disturbance, including that caused by trampling and digging (e.g. Davison and Hughes 1998, Skilleter et al. 2006, Tyler-Walters and Arnold 2008). An experimental study of the effects of trampling on <i>Thalassia testudinum</i> in Puerto Rico recorded significant decreases in seagrass cover and increases in sand cover. Heavier trampling (50 passes per month for four months) also resulted in reduced rhizome biomass of up to 72% and loss of standing crop of up to 81% (Eckrich and Holmquist 2000).</p> <p>Clam harvesting, whereby intertidal sediments dominated by <i>Zostera noltii</i> are dug up using a hand blade, in the Ria Formosa lagoon (Southern Portugal) was found to have an adverse effect on vegetative shoot density and total plant biomass, leading to increased fragmentation of the seagrass meadows. Both relatively low and relatively high levels of clam harvesting disturbance (intensity and frequency) resulted in negative effects on seagrass density (Alexandre et al. 2005, Cabaco et al. 2005). An experimental analysis of the effects of recreational clam digging within <i>Zostera marina</i> beds in Newport USA resulted in significant reductions in above- and below-ground seagrass biomass (Boese 2002).</p> <p>The observed recovery rates of seagrasses from anthropogenic disturbance are variable, thought in part to be related to variation in intensity, frequency and extent of disturbance, although the recovery potential of seagrass is generally considered to be relatively poor (Mazick & Smyth 2013). The recovery potential of seagrass from 'foot-based' activities specifically is more uncertain due to the limited number of studies. In Eckrich and Holmquist's (2000) experimental study of the effects of trampling, recovery was incomplete</p>	

¹ Defra's revised approach on commercial fisheries in EMS sites and the associated commercial fisheries in the EMS generic matrix do not apply to recreational activities.

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EA Zostera spp. bed (>5% continuous coverage) 2012 data and Lindisfarne NNR bait-digging zone in the Berwickshire and North Northumberland Coast SAC



Bait digging zone_region Country & Coast © Ordnance Survey
 Seagrass_2012_v4 NAME
 ENGLAND
 SCOTLAND
 SEA
 WALES

Map produced on 23/08/2013 by Northern North Sea Team, Natural England





Map Reference

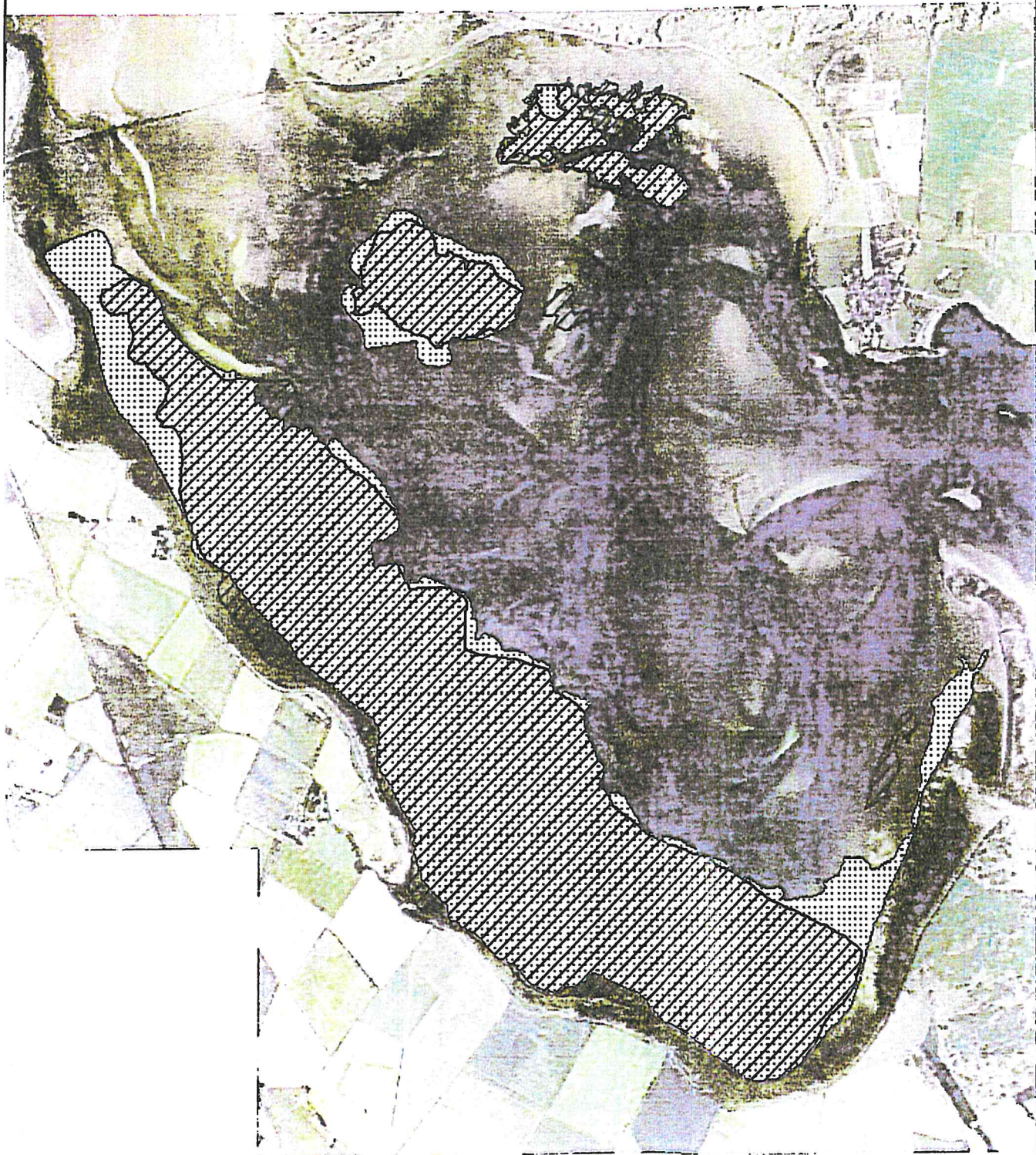
Scale (at A3): 1:23,900







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Zostera spp. extent of beds (greater than 5% shoot density) from 2009-2010

-  HOLY_ISLAND_2009_SEAGRASS
-  FENHAM_FLATS_2009_SEAGRASS
-  HOLY_ISLAND_SEAGRASS_2010
-  FENHAM_FLATS_SEAGRASS_2010



Zostera spp. extent of beds (greater than 5% shoot density) from 2011-2012

-  HOLY_ISLAND_SEAGRASS_2011
-  FENHAM_FLATS_SEAGRASS_2011
-  Holy_Island_seagrass_2012
-  Fenham_Flats_2012_Seagrass

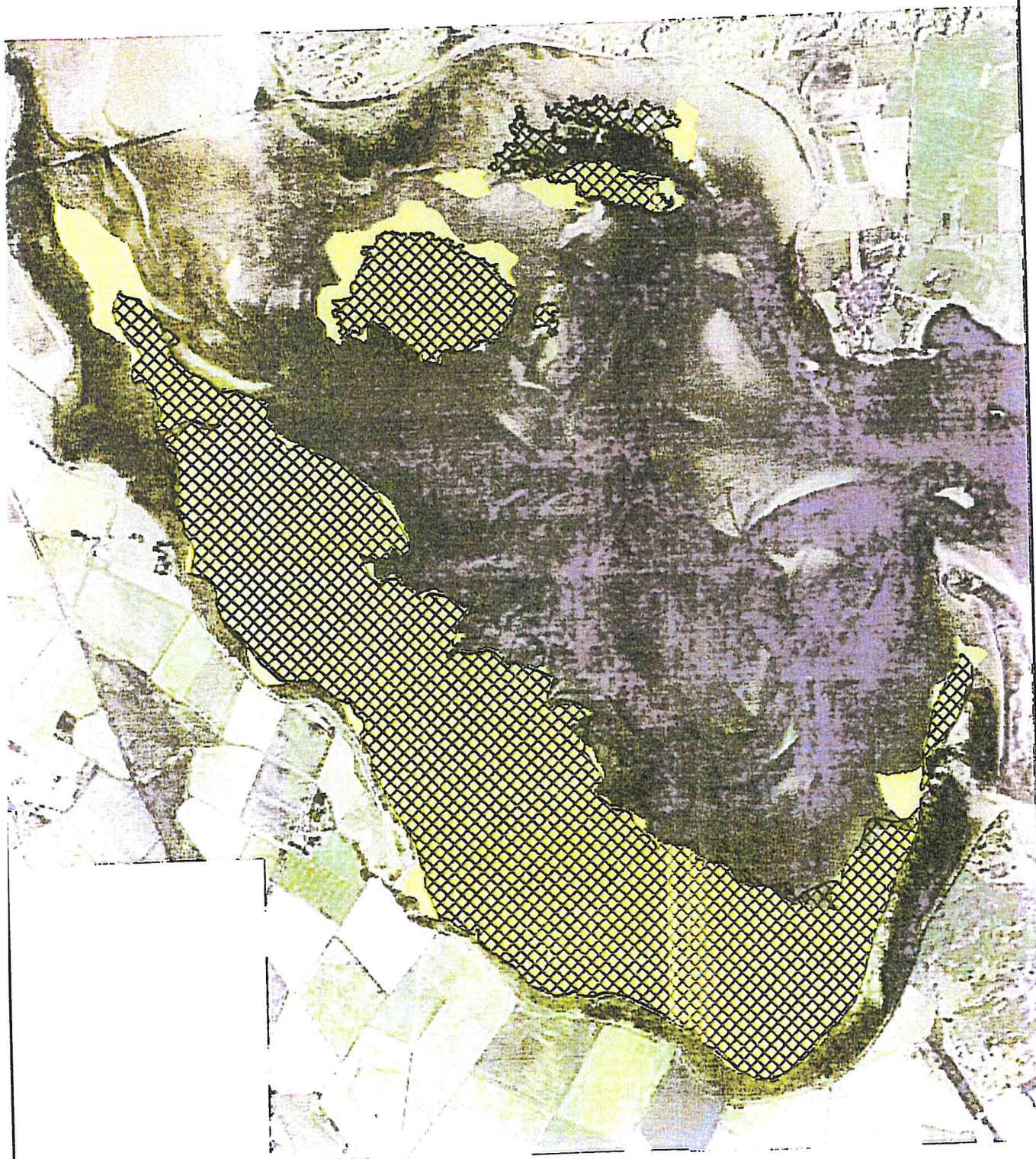
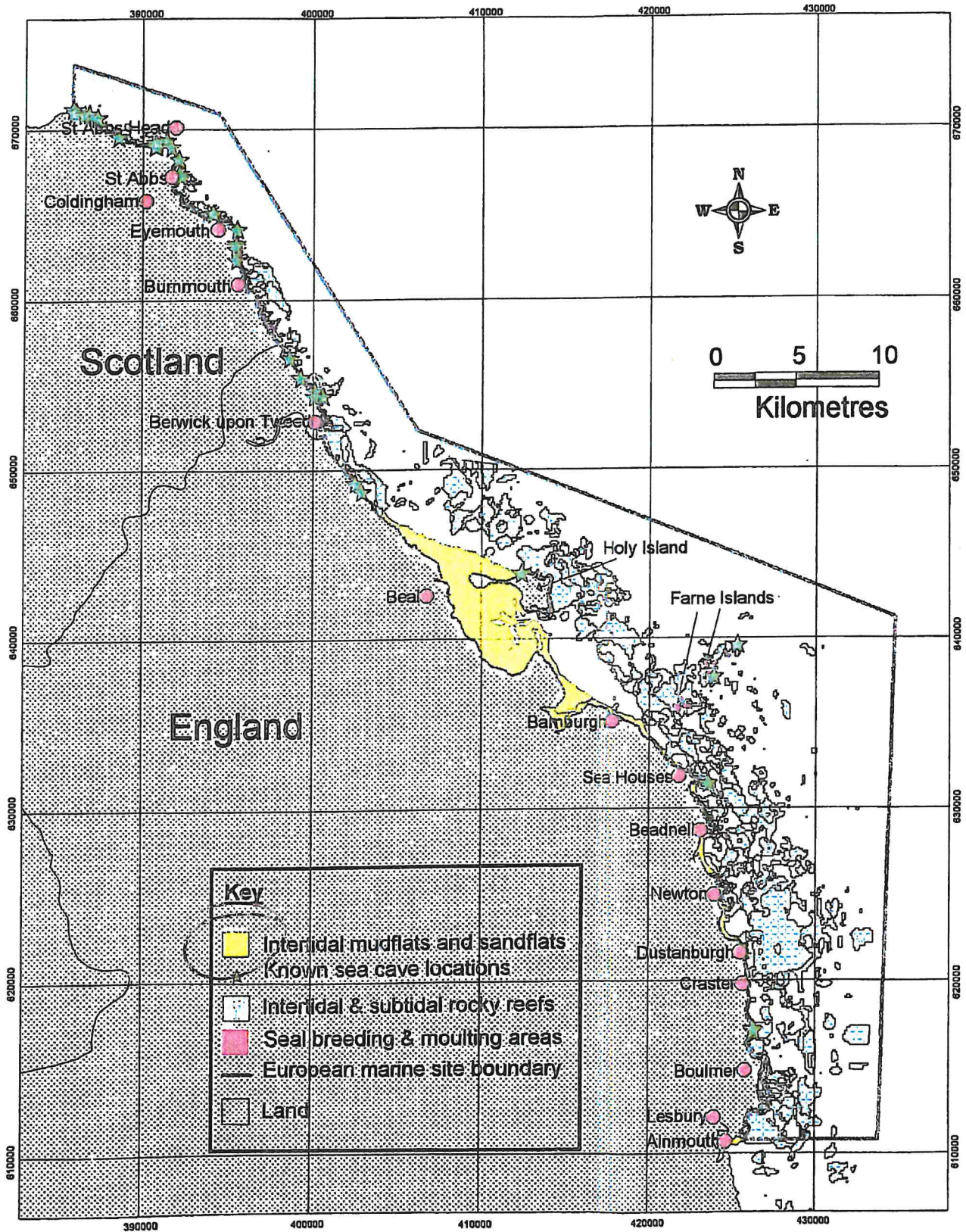


Figure 3. Location of interest features within the Berwickshire & North Northumberland Coast European marine site

This map is indicative only. The landward boundary of the European marine site is the point of Highest Astronomical Tide. This is the limit of intermittent cover by the tides at the top of the shore.



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Approx scale 1:300,000

THE NATURE CONSERVANCY COUNCIL FOR ENGLAND

LINDISFARNE NATIONAL NATURE RESERVE

BYELAWS

The Nature Conservancy Council for England in exercise of the powers conferred upon them by Sections 20 and 106 of the National Parks and Access to the Countryside Act 1949* and all other powers enabling them in that behalf, hereby make the following byelaws for the protection of the National Nature Reserve at Lindisfarne in the Parishes of Holy Island, Ancroft, Kyleo, Middleton, Easington and Bamburgh, in the County of Northumberland. These byelaws revoke those made by The Nature Conservancy and confirmed by the Secretary of State on 23 August 1968.

1. In these byelaws:-

- (1) "The Reserve" shall mean the pieces or parcels of land containing in the whole 3380.53 hectares or thereabouts and situated in the parishes of Holy Island, Ancroft, Kyleo, Middleton, Easington and Bamburgh in the County of Northumberland, declared to be managed as a National Nature Reserve by the Declarations dated 15th September 1964, 21st February 1966, 9th December 1969, 10th December 1974 and 14th July 1992 made respectively by the Nature Conservancy, Natural Environment Research Council, Nature Conservancy Council and Nature Conservancy Council for England, in pursuance of Section 19 of the National Parks and Access to the Countryside Act, 1949 and all other powers aforesaid, and the Reserve is for the purposes of identification shown as nearly as may be on the map annexed to these byelaws and thereon edged black;
- (2) "The Council" shall mean the Nature Conservancy Council for England; and
- (3) "Firearm" shall have the same meaning as in Section 57 of the Firearms Act 1968.

2. (1) Within the Reserve the following acts are hereby prohibited except insofar as they may be authorised by a permit or licence issued by the Council in accordance with byelaw 3 or are necessary for the proper execution of his duty by an officer of the Council or by any person, or servant of any person, employed or authorised by the Council:

- a. subject to the provisions of paragraph (2) of this Byelaw taking, molesting or intentionally disturbing, injuring or killing any living creature;
- b. subject to the provisions of paragraph (2) of this Byelaw taking or intentionally disturbing or destroying the eggs, larvae, pupae or other immature stages, or the place used for the shelter or protection of any living creature;

I CERTIFY THAT THIS IS A TRUE COPY OF
THE ORIGINAL


FOR THE NATURE CONSERVANCY COUNCIL
FOR ENGLAND

- c. subject to the provisions of paragraph (2) of this Byelaw spreading or using any net, or setting or using any lamp or other instrument, or any snare or lure, for the taking, injury or destruction of any living creature;
- d. intentionally removing or displacing any tree, shrub, plant, fungus or part thereof, or other vegetation, whether living or dead, or any unfashioned mineral thing including water;
- e. intentionally bringing, or permitting to be brought, into the Reserve any living creature, or the egg of any living creature, or any plant, or any seed or any other part of any plant, in such circumstances that it is likely that such creature or plant will reproduce or propagate itself, or such egg will hatch, or such seed will germinate;
- f. driving, riding, propelling or leaving any mechanically propelled vehicle (including hovercraft) elsewhere than on a highway or a road, or in a place indicated by a notice as being available for the purpose, or landing any aircraft except in case of emergency;
- g. bringing into, or permitting to remain within the Reserve: (i) any dog unless it is kept on a lead or at heel and is prevented from worrying or disturbing any animal or bird, or (ii) any other animal;
- h. erecting, occupying or otherwise using any tent, shed or other structure or any vehicle or towed vehicle for the purpose of camping or overnight occupation.
- i. lighting any fire, stove, heater or other appliance capable of causing a fire;
- j. committing any act which pollutes or is likely to cause pollution of any water;
- k. intentionally or recklessly removing or displacing, or negligently defacing, damaging or destroying any notice board, notice exhibited by order of the Council, apparatus, wall, boundary, bank, fence, barrier, railing, post or hide;
- l. being in possession of a firearm with ammunition suitable for use in that firearm or discharging a firearm or lighting a firework;
- m. projecting any missile manually or by artificial means;
- n. erecting or using a camera mounted on a stand or concealing structure for the purpose of photographing or observing any wild animal or bird, or any apparatus for the transmission, reception, reproduction, or amplification of sound, speech or images by electrical or mechanical means, except apparatus designed and used as an aid to defective hearing and apparatus used in a

vehicle so as not to produce sound audible by a person outside the vehicle.

- o. intentionally obstructing any officer of the Council or any person, or the servant of any person, employed or authorised by Council in the execution of any works including research or scientific work connected with the laying out, maintenance or management of the Reserve;
- p. digging, collection and/or removal of bait of any description by hand or mechanical means;
- q. between 1 April (or Good Friday if earlier) and 31 October inclusive

 - i launching a boat into any part of the Reserve other than the watersports area;
 - ii carrying a boat across any part of the foreshore not within the watersports area;
 - iii taking a boat launched into the watersports area from that area into another part of the Reserve;
 - iv taking from the Reserve to the shore adjacent to the Reserve a boat which has entered any part of the Reserve beyond the watersports area;
 - v other than within the watersports area, or when taking necessary emergency action, using a boat at a waterspeed exceeding 5 knots;

'watersports area' means the area shown hatched on the plan forming part of these Byelaws

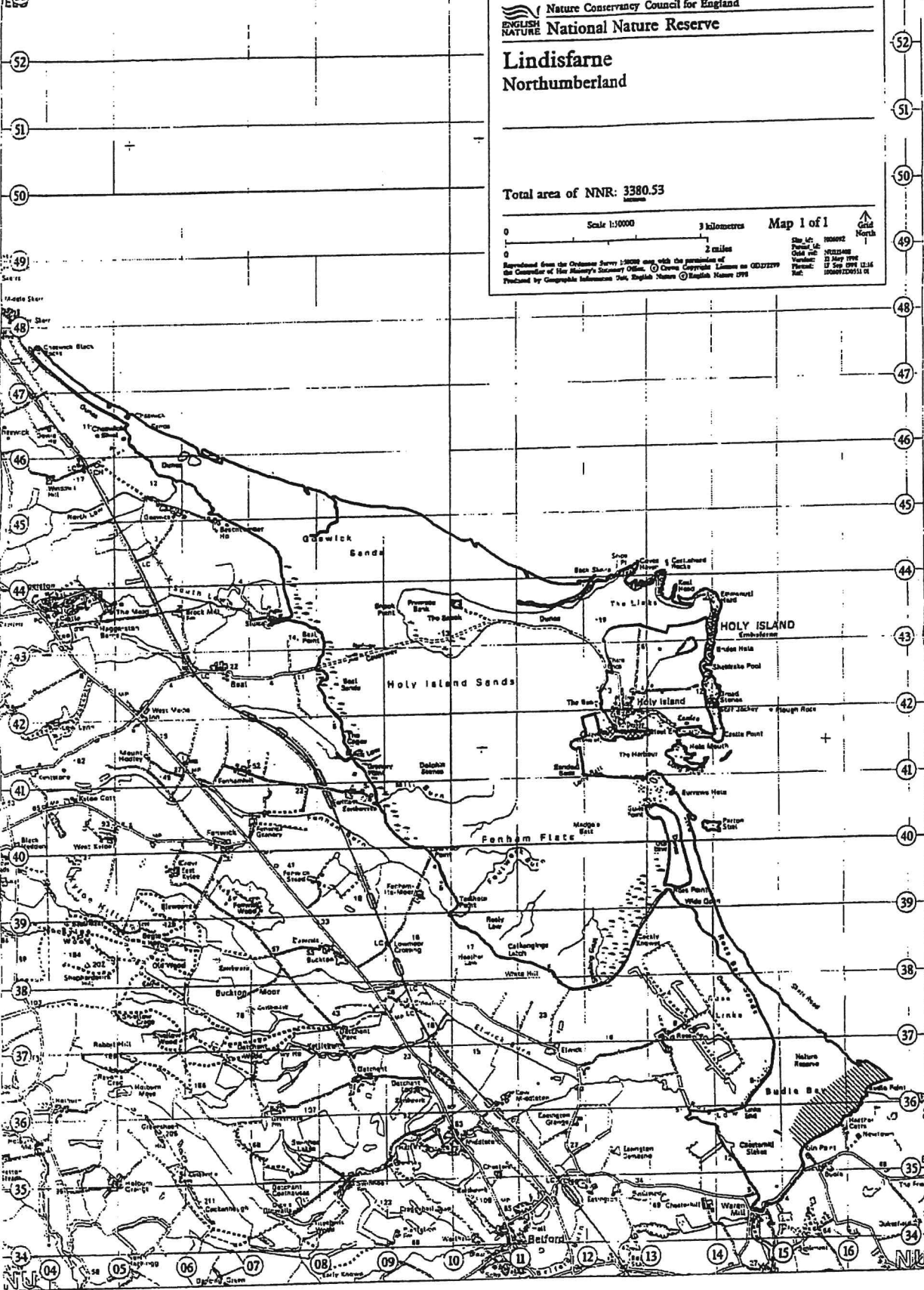
- qq. between 1 November and 31 March (or Good Friday if earlier) inclusive

 - i launching a boat into any part of the Reserve
 - ii carrying a boat across any part of the foreshore
 - iii taking a boat from the Reserve to the shore adjacent to the Reserve
 - iv other than when taking necessary emergency action, using a boat at a waterspeed exceeding 5 knots

In sub paragraphs (q) and (qq) 'boat' means any vessel including a sailboard or personal watercraft

- r. intentionally leaving items in a place other than a receptacle provided for deposit of litter or refuse.
-
- (2) Nothing in sub-paragraphs (a)(b) or (c) of the paragraph 2(1) of this Byelaw shall prohibit fishing or shell-fishing by hand. Fishing or shell fishing by mechanical means is prohibited. For the purpose of this Byelaw, fishing or shell fishing does not include the digging, collection and/or removal of bait which is expressly prohibited at byelaw 2(1)(p).
 - (3) Nothing in paragraphs 2(1)(q) and 2(1)(qq) of this Byelaw shall prohibit normal access by boat tender to or from the foreshore shown cross hatched on the plan forming part of these Byelaws.
- 3.
- (1) The Council may issue permits or licences authorising any person or persons to do any act or class of acts within the Reserve or any part thereof which would otherwise be unlawful under these byelaws; and
 - (2) Any such permit or licence shall be issued subject to the following conditions:
 - a. that it shall be valid only during such period as may be specified therein;
 - b. that it shall be valid only in such part of the Reserve as may be specified therein, or, if no part is specified, in the whole area of the Reserve;
 - c. that it shall be valid only in respect of such person or persons as may be specified therein;
 - d. that it shall be valid only for the purposes specified therein;
 - e. that it must be carried whenever a visit is made to the Reserve by the person or persons specified therein, and produced for inspection when required by a person duly authorised by the Council in that behalf; and
 - f. that it may be revoked by the Council at any time.
4. These byelaws shall not operate so as to interfere with the exercise by a person of a right vested in him as owner, lessee or occupier of land in the Reserve, or with the exercise of any public right-of-way or of any private easement or profit a prendre of which he is entitled; or of any function of a local authority, statutory undertaker, or of a water authority or other drainage authority, or of the Commissioners appointed under the Tweed Fisheries Act, 1857; or by a constable or a member of the armed forces, or a member of the coastguard or of any fire brigade or ambulance service in the performance of his duty.
5. Any person who offends against any of these byelaws shall be liable on summary conviction to a fine on level 2 as laid down in the Criminal Justice Act and in the case of a continuing offence to a further fine for each day during which the offence continues after the said conviction.

05 06 07 08 09 10 11 12 13 14 15 16



English Nature Nature Conservancy Council for England
National Nature Reserve

Lindisfarne Northumberland

Total area of NNR: 3380.53
hectares

Scale 1:10000 3 kilometres Map 1 of 1 Grid North

0 2 miles

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Site No: 1004092
 Date: 12/12/2008
 Version: 23 May 1998
 Project: 17 Sep 1998 12:16
 User: 10040920011.GI

04 05 06 07 08 09 10 11 12 13 14 15 16

BRIEF DESCRIPTION OF SITE

Lindisfarne NNR covers approximately 3380.53 ha (8353.29 acres), with much of the reserve in the inter-tidal zone. The site shows colonisation and succession from open shore to dune grassland. A variety of habitats are present including extensive inter-tidal sand and mud flats, rock pools, salt marsh, sand dunes, cliffs, the freshwater lough, areas of shingle and inter-tidal rock exposures. The site supports locally, nationally and internationally important populations of birds, plants and invertebrates.

Much of the reserve lies at sea level, but the sand dunes attain heights of 25 metres. The highest point is on Holy Island and is approximately 30 m above O.D. The underlying geology consists of limestones, shales, sandstones and coal seams of Carboniferous age, but much of the solid geology is overlain with superficial deposits including sand, boulder clay and alluvium. An igneous dyke occurs on the southern coast of Holy Island. A variety of features of geomorphological importance are present including extensive sand dune systems and barrier-type beaches.

Lindisfarne is important for its passage and wintering waterfowl. It supports internationally important numbers of pale-bellied brent geese, greylag geese, wigeon, bar-tailed godwit, redshank and grey plover.

All five species of tern have bred on the site, including two Schedule One species.

The dune flora is rich and varied and includes several rare or scarce species.

A variety of activities takes place on the reserve; wildfowling is regulated by a permit system with parts of the site set aside as a wildfowl refuge. The area is used for general recreation such as fishing, bait digging, bird-watching, horse riding and watersports, as well as education and research.

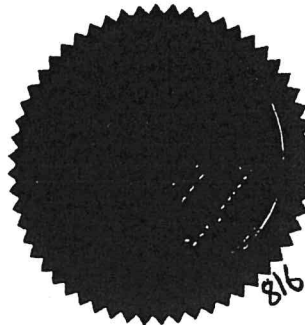
Lindisfarne NNR is part of the Grade 1 Nature Conservation Review Site. Parts of the site are identified as of national importance in the Geological Conservation Review.

In 1976 it was included in the list of Wetlands of International Importance under the Ramsar Convention and has recently been notified (12.3.92) as a Special Protection Area under the European Community Directive 79/409/EEC on the Conservation of Wild Birds. It is a proposed SAC.

Given under the Common Seal of the Nature Conservancy Council for England

Signed:

K. Druff



Dated:

1/12/1998

Authorised Member/Officer for and on behalf of The Nature Conservancy Council
for England Northminster House Peterborough PE1 1UA

The Secretary of State for the Environment, Transport and the
Regions hereby confirms the foregoing Byelaws.

Signed by Authority of the Secretary of State

L. Smith

L. Smith

Department of the Environment, Transport and the Regions
Tollgate House
Houlton Street
Bristol
BS2 9DJ

27 May 1999

Operations likely to damage the special interest

Site name: Lindisfarne, Berwick Upon Tweed, Northumberland

OLD1000140

Ref. No.	Type of Operation
1	Cultivation, including ploughing, rotovating, harrowing, and re-seeding.
2	Grazing and changes in the grazing regime (including type of stock, intensity or seasonal pattern of grazing and cessation of grazing).
3	Stock feeding and changes in stock feeding practice.
4	Mowing or other methods of cutting vegetation and changes in the mowing or cutting regime (including hay making to silage and cessation).
5	Application of manure, fertilisers and lime.
6	Application of pesticides, including herbicides (weedkillers).
7	Dumping, spreading or discharge of any materials.
8	Burning.
9	The release into the site of any wild, feral or domestic animal*, the introduction of any plant or seed.
10	The killing or removal of any wild animal*, including pest control.
11	The destruction, displacement, removal or cutting of any plant or plant remains, including tree, shrub, hedge, dead or decaying wood, moss, lichen, fungus, turf etc
12	The introduction of or changes in tree and/or woodland management+.
13a	Drainage (including gripping and the use of mole, tile, tunnel or other artificial drains).
13b	Modification of the structure of watercourses (eg rivers, streams, springs, ditches, drains), including their banks and beds, as by re-alignment, re-grading and dredging.
13c	Management of aquatic and bank vegetation for drainage purposes.
14	The changing of water levels and tables and water utilisation (including irrigation, storage and abstraction from existing water bodies and through boreholes).
15	Infilling of ditches, drains, ponds, pools, marshes or pits.
16a	The introduction of freshwater fishery production and/or management and changes in freshwater fishery production and/or management, including sporting fishing and angling.
16b	Changes in coastal fishing practice or fisheries management and seafood or marine life collection, including the use of traps or fish cages.
17	Reclamation of land from sea, estuary or marsh.
18	Bait digging in intertidal areas.
19	Erection of sea defences or coast protection works, including cliff or landslip drainage or stabilisation measures.
20	Extraction of minerals, including shingle, sand and gravel, topsoil, subsoil, lime, shells and spoil.
21	Construction, removal or destruction of roads, tracks, walls, fences, hardstands, banks, ditches or other earthworks, or the laying, maintenance or removal of pipelines and cables, above or below ground.
22	Storage of materials on or against features of interest.
23	Erection of permanent or temporary structures, or the undertaking of engineering works, including drilling.

SITE NOTIFIED TO THE SECRETARY OF STATE ON 10 MARCH 1989

COUNTY: NORTHUMBERLAND SITE NAME: LINDISFARNE

Status: Site of Special Scientific Interest (SSSI) notified under Section 28 of the Wildlife and Countryside Act 1981, as amended. Part of this site is a National Nature Reserve (NNR) declared in 1964 under Section 19 of the National Parks and Access to the Countryside Act 1949.

Local Planning Authority: BERWICK-UPON-TWEED BOROUGH COUNCIL

National Grid Reference: NU 100430

Ordnance Survey Sheets 1:50,000: 75 1:25,000: NU 03, 04, 05, 13, 14

Area: 3965.0 (ha.) 9797.4 (ac.)

First notified SSSI: 1954*

Date of Revision: 1989

Description:

Lindisfarne comprises a wide range of coastal habitats including extensive intertidal sand and mudflats which support internationally important wintering populations of waders and wildfowl, as well as coastal features and rock exposures of physiographical and geological importance. The site supports a number of rare plants and invertebrates and important breeding populations of seabirds.

This site contains one of the largest intertidal areas in North East England. These support extensive beds of narrow-leaved and dwarf eelgrass *Zostera angustifolia* and *Z. noltii* and the alga *Enteromorpha* which provide feeding grounds for internationally important numbers of the Svalbard population of light-bellied brent geese (regularly over 2,000 birds), wigeon (up to 40,000) and whooper swan. Shelduck, greylag geese and common scoter occur in nationally significant numbers. The mudflats are also of international importance for wintering bar-tailed godwit, redshank and grey plover and are nationally important for ringed plover, golden plover, curlew, dunlin and sanderling. Breeding bird populations include little terns and a small number of roseate terns as well as common, arctic and, in some years, sandwich terns.

Although common cord-grass *Spartina anglica* has colonised large areas of intertidal mud and lower saltmarsh, the upper marsh remains dominated by common saltmarsh-grass *Puccinellia maritima* and thrift *Armeria maritima*. Extensive sand dune systems include that on Ross Links where a series of dune ridges of recent origin shelter an ancient beach and glacial sands. The older, leached, sands support dune heath, with heather *Calluna vulgaris* and bell heather *Erica cinerea*, and acid dune grassland in a mosaic unique within North East England. Dune slacks, dominated by creeping willow *Salix repens* and cross-leaved heath *Erica tetralix*, are well developed both on Ross Links and also on Holy Island where they support the rare dune helleborine *Epipactis dunensis*, coralroot orchid *Corallorhiza trifida*, round-leaved wintergreen *Pyrola rotundifolia*, curved sedge *Carex maritima*, seaside centaury *Centaureum littorale* and tufted centaury *C. capitatum*. The dune ridges are dominated by marram *Ammophila arenaria* with a rare hybrid grass, purple marram *Ammocalamagrostis baltica*, on the most seaward dune crests. An unusual assemblage of lichens is found on shingle which is exposed in places amongst the dunes. The only English populations of Scots lovage *Ligusticum scoticum* occur on the shore.

The dune systems support a good lepidopteran fauna including colonies of dark green fritillary, grayling and ringlet butterflies and the rare moths *Aphelia unitana*

A dyke associate with the Whin Sill, up to 60 metres wide and consisting of five discrete segments arranged *en echelon* extends from St Cuthberts Isle across the southern coast of Holy Island to the Plough and Goldstone Rocks. In places the present surface shows chilled dyke-rock with ropey flow structures interpreted as the original surface where upward intrusion terminated.

Other Information:

1. Part of this site is listed in 'A Nature Conservation Review' edited by D A Ratcliffe (1977), Cambridge University Press.
2. Lindisfarne NNR is included in the list of Wetlands of International Importance under the Ramsar Convention and fulfills the criteria for listing as a Special Protection Area under the European Community Directive 79/409/EEC on the Conservation of Wild Birds.
3. Parts of the site are identified as of national importance in the Geological Conservation Review.
4. Parts of this site were formerly notified* as North Northumberland Coast SSSI. During the 1988 revision, the site boundary has been amended, (i) to encompass the entire area of Lindisfarne NNR, (ii) to include further areas of land not previously notified*, (iii) to exclude some areas previously notified*.
5. Part of the former North Northumberland Coast SSSI are now notified separately as Bamburgh Coast and Hills SSSI and Spindlestone Heughs SSSI.
6. The Northumberland Wildlife Trust manages part of the Cocklawburn Coast as a nature reserve.

*Under Section 23 of the National Parks and Access to the Countryside Act, 1949.

