

**MCZ**

**Fisheries management options paper**

**NORTH EAST OF FARNES DEEP MCZ**

AUGUST 2014

This is a working draft which has been produced to support early discussions with stakeholders about management.

**Table 1. Management Options Summary**

Fishing Activity	Management options
<p><b>All mobile bottom contact gears</b></p>	<p><b>Option 1. No additional management:</b> This option would pose a risk of not achieving the conservation objectives for <b>subtidal sand</b> and <b>subtidal coarse sediment</b>.</p> <p><b>Option 2. Reduce/limit pressures:</b> This option would reduce the risk of not achieving the conservation objectives for <b>subtidal sand</b> and <b>subtidal coarse sediment</b>. Appropriate management could include closure of a proportion of the feature’s area to damaging gears, and there may be a greater requirement for restrictions on gears that penetrate more deeply into the sediment. The location of areas to be covered by management restrictions within each site would need to be decided in consultation with stakeholders, taking into account ecological factors and the sensitivity of the feature. Restrictions could be permanent in some cases or temporary/adaptive in others. The risk of the Conservation Objectives not being met will increase as the size of areas restricting pressure decrease.</p> <p><b>Option 3. Remove/avoid pressures:</b> This option would reduce the risk of risk of not achieving the conservation objectives for <b>subtidal sand</b> and <b>subtidal coarse sediment</b> to the lowest possible levels. This option could result in restrictions on all mobile bottom contact gears within the full extent of the site boundaries.</p>
<p><b>All static bottom contact gears</b></p>	<p><b>Option 1. No additional management:</b> This option is considered unlikely to pose a risk of not achieving the conservation objectives of <b>subtidal sand</b> and <b>subtidal coarse sediment</b>. However, if monitoring showed evidence of detrimental effects as a result of static gear activity in the future, additional management may be required.</p>

## 1. Introduction

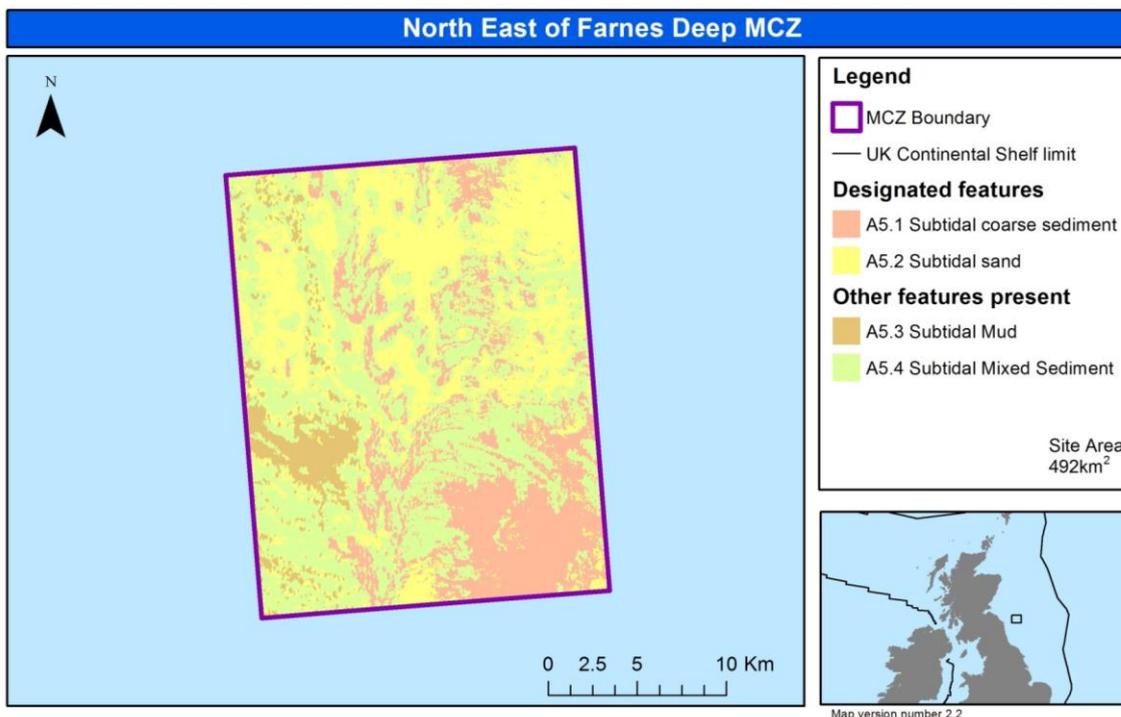
The UK Government and the Devolved Administrations are committed to establishing an ecologically coherent network of Marine Protected Areas (**MPAs**) in the UK seas to meet international commitments and European obligations. The Marine and Coastal Access Act 2009 makes provision for the designation of Marine Conservation Zones (**MCZs**) in the UK Marine Area apart from Scottish and Northern Irish inshore waters. The network will protect the range and diversity of marine features found in UK waters.

*North East of Farnes Deep MCZ* (formerly named ‘Rock Unique’) was recommended by the Net Gain regional MCZ project, and was one of the 31 sites proposed for designation as a Marine Conservation Zone (MCZ) in 2013. Following the public

consultation, Defra confirmed its intention to progress the site and *North East of Farnes Deep MCZ* was designated in November 2013.

North East of Farnes Deep MCZ comprises a simple rectangle with the longest boundaries aligned broadly north-south. The site depth ranges between approximately 50m and 100m below chart datum, with the deepest section of the site running parallel to the western boundary and the shallowest section in the south-east quarter.

North East of Farnes Deep MCZ is a mixture of sediments, predominantly subtidal sand with areas of subtidal coarse sediment and gravels. Subtidal mud is also present, creating a dynamic seabed environment hosting a diverse ecosystem (Murray *et al.*, 2013).



Site map projected in UTM (Zone 30N, WGS84 datum).  
 NOT TO BE USED FOR NAVIGATION.  
 The exact limits of the UK Continental Shelf are set out in orders made under section 1(7) of the Continental Shelf Act 1964 (© Crown Copyright).  
 Map copyright JNCC 2013.

**Figure 1.** site map .



**Seapens and hermit crabs on sand**



**Squat lobster on coarse sediments**

**Figure 2.** *Examples of broad scale habitats ‘subtidal sand’ and ‘subtidal coarse sediment’ within the North East of Farnes Deep © JNCC & Cefas*

## **2. Supporting survey data**

Much of the original information used to identify the site came from maps based on habitat models, primarily UK SeaMap 2010<sup>1</sup> (McBreen, 2010). Subsequently, the 2012 MB0120 survey led by Cefas and JNCC, designed to verify the presence of the predicted habitats, recorded a somewhat different distribution of habitats present in the site from those modelled maps, resulting in some changes to the features found within the site (Murray et al., 2013).

## **3. Protected features and conservation objectives**

The North East of Farnes Deep MCZ has been designated for the following broad scale habitats:

- subtidal sand
- Subtidal coarse sediment

The site also contains Ocean quahog (*Arctica Islandica*), subtidal mud and subtidal mixed sediments. These are not designated features of the site but it is possible that they may be considered for designation as additional features in future rounds of MCZ designation, and consequently may require further management measures.

The conservation objective for the MCZ is, subject to natural change, to maintain the subtidal sand and subtidal coarse sediment in favourable condition.

## **4. Roles**

The role of JNCC is to advise UK Government on management options for the North East of Farnes Deep MCZ. In doing this, our aim is to ensure the conservation objectives for the protected features are met. Fisheries management in areas outside the UK's 12 nautical mile fisheries limit is an exclusive competence of the EU and management measures can only be implemented through the provisions of the Common Fisheries Policy (CFP). This requires all Member States with a direct management interest to agree proposed management measures. The Department for Environment, Food and Rural Affairs (Defra), with assistance from the Marine Management Organisation (MMO) will lead discussions on management with stakeholders. They will consider JNCC's advice and will lead on the development of specific management measures. Defra will be responsible for making recommendations to Ministers on these measures and drafting the fisheries management request to the European Commission with the assistance from the MMO.

Stakeholders can provide additional evidence to support the development of management options, including local knowledge of the environment and activities. Discussions with stakeholders will aid understanding of both the potential biological and economic implications of any proposed management option. This will contribute to the development of well-designed and effective management measures.

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<sup>1</sup> UKSeaMap: <http://jncc.defra.gov.uk/page-2117>

## 5. Effects of fishing on the feature

Whilst it is unlikely that **mobile bottom contact gear** can affect the long-term natural distribution of subtidal sand and subtidal coarse sediment, there is evidence to indicate that the use of bottom contacting mobile gears can impact the structure and function of the habitats and the long term survival of their associated species.

The extent to which mobile gear impacts on **subtidal sand** communities can vary considerably, according to the type of gear, the intensity of fishing and the sediment composition. Trawling and dredging tend to cause increased mortality of fragile and long lived species and favour opportunistic, disturbance-tolerant species (Bergman & Van Santbrink, 2000; Eleftheriou & Robertson, 1992). Some particularly sensitive species may disappear entirely (Bergman & Van Santbrink, 2000). The net result is benthic communities modified to varying degrees relative to the un-impacted state (Bergman & Van Santbrink, 2000; Kaiser et al. 2006).

In higher energy locations, for example the sandy bank tops or wave and/or tide exposed areas the associated fauna tend to be well adapted to disturbance and as a result are more tolerant of fishing-related disturbance (Dernie et al. 2003; Hiddink et al. 2006). The habitat may be maintained in a modified state; however modification is likely to be low relative to natural variation. In lower energy locations, such as muddy sands and sand in deep water, or on the flanks and towards troughs between banks, sediments tend to be more stable and their associated fauna less tolerant of disturbance (Kaiser et al. 2006; Hiddink et al. 2006). The habitat may be maintained in a modified state with reduced abundance of fragile, long lived species.

This broad scale habitat **subtidal coarse sediment** includes sub-habitats with a wide range of sensitivities to trawling. Communities on unstable coarse sediments are considered to contain relatively robust fauna which are not believed to be greatly impacted by surface abrasion (Hall et al 2008). More stable gravels may support a 'turf' of fragile species which are easily damaged by trawling and recover slowly (Collie et al 2005, Foden et al 2010). Trawling may result in a modified benthic community with reduced abundance of fragile long lived species. Recovery time from dredging is longer than from trawling (Foden et al 2010) .

It is unlikely that **demersal static gears** will have a significant effect on the long-term natural distribution of sandbanks, or on the structure and function of their associated biological communities.

## 6. Development of management options

A range of option are available to managers, differing in the degree of restriction they would place on fishing operations and the risk they would pose to the achievement of the conservation objectives. Three broad categories of possible management are considered below and further elaborated in Tables 3 and 4.

For each of these broad management categories, we have evaluated the level of risk posed to the achievement conservation objectives. It is not generally possible to

quantify the degree of risk posed by each management option, however we have indicated in Tables 3 and 4 where we consider that a risk exists, where it would be 'significant', and where it would be reduced by application of management. In most cases we have not recommended a single preferred option but would advise that fisheries managers and stakeholders consider the identified levels of risk when further developing management options.

Risks were evaluated using existing data and information on protected features and relevant activities, and also our understanding of the relationships between the feature and relevant activities. Our identification of the risk has been refined using available information on the interaction between the features and activities where this is available (see section 6). We have identified broad management options to manage this risk. The text focuses on interactions in terms of physical overlap but the assessment of risk in future should also take account of the intensity and frequency of activities within the MCZ.

A gradient of management options has been considered. These have been described under three potential management option categories:

- a) **No additional management** - where fisheries managers chose to apply no additional site specific fisheries management within the site
- b) **Additional management to reduce pressures** – where fisheries managers may wish to consider a range of measures that could be used to reduce the risk to features by managing fishing activity. These could include:
  - Area restrictions (permanently closing some or all of the feature's area)
  - Gear restrictions (e.g. restricting use of the more damaging gears)

Ideally, any measures would generally apply only to the parts of the sites where the feature is present. However, there may be some circumstances in which it could be desirable to extend management measures beyond the known area of feature distribution, for example, where conditions are suitable for a feature to exist but there are insufficient data to confirm its presence.

In situations where there is high uncertainty regarding the impacts of fishing on the features, these management measures could be "adaptive" ie changes in the features' condition following introduction of managing measures will be monitored and future management may be modified accordingly.

- c) **Additional management to remove pressures** – where fishing activities known to adversely affect the feature would be excluded. Such exclusion would generally apply only to the parts of the sites where the feature is present, although it may occasionally be necessary to apply them to a wider area.

We recognise that stakeholders can provide local environmental knowledge and more detailed information on activities, including distribution and intensity of effort, frequency of activity, and fishing methods employed. This additional information will help us to

develop more specific management options, focused on interactions between features and activities

## 7. Overview of activities

**Table 2.** Overview of existing fishing activities believed to take place within or close to North East of Farnes Deep MCZ

Activities considered capable of affecting the integrity of the MCZ	Activities <i>not</i> considered capable of affecting the integrity of the MCZ
<ul style="list-style-type: none"> <li>• Otter trawls</li> <li>• Beam trawls</li> <li>• Seines nets</li> <li>• Set gillnets</li> <li>• Longlines</li> </ul>	<ul style="list-style-type: none"> <li>• Pelagic trawls</li> <li>• Purse seine</li> </ul>

*Nationalities fishing in the relevant ICES rectangles:*

- UK
- Denmark

VMS data shows evidence of use of mobile gears by non-UK vessels over the features of the site (see Annex One for figures showing UK and non-UK mobile demersal fishing activity over the North East of Farnes Deep for 2009-2012).

## 8. Management options

**Table 3.** Management options for mobile bottom contact gear

Management option	Risk to achieving the conservation objectives
<b>Option 1. No additional management:</b>	This option would pose a risk of not achieving the conservation objectives for <b>subtidal sand</b> and <b>subtidal coarse sediment</b> .
<b>Option 2. Reduce/limit pressures:</b>	<p>This option would reduce the risk of not achieving the conservation objectives for <b>subtidal sand</b> and <b>subtidal coarse sediment</b>.</p> <p>Appropriate management could include closure of a proportion of the feature's area to damaging gears, and there may be a greater requirement for restrictions on gears that penetrate more deeply into the sediment. The location of areas to be covered by management restrictions within each site would need to be decided in consultation with stakeholders, taking into account ecological factors and the sensitivity of the feature. Restrictions could be permanent in some cases or temporary/adaptive in others. The risk of the Conservation Objectives not being met</p>

	will increase as the size of areas restricting pressure decrease, or if the pressure reduction across the site relative to natural change is low.
<b>Option 3. Remove/avoid pressures:</b>	This option would reduce the risk of risk of not achieving the conservation objectives for <b>subtidal sand</b> and <b>subtidal coarse sediment</b> to the lowest possible levels. Restrictions would be required for all mobile bottom contact gears within the full extent of the site boundaries.

*Table 4. Management options for static bottom contact gear*

<b>Management option</b>	<b>Risk to achieving the conservation objectives</b>
<b>No additional management:</b>	This option is considered unlikely to pose a risk of not achieving the conservation objectives of <b>subtidal sand</b> and <b>subtidal coarse sediment</b> . However, if monitoring showed evidence of detrimental effects as a result of static gear activity in the future, additional management may be required.

## 9. Conclusions and further recommendations

Fisheries management measures for the North East of Farnes Deep MCZ will be developed through discussion with stakeholders. Discussions will focus on refining our understanding of the features through input from stakeholders, and the likely risks to the designated features where interactions with fishing activities occur. Based on the options presented here, it is hoped that a preferred set of management options will be recommended. This will form the basis of management measure proposals to be submitted to the European Commission under the Common Fisheries Policy.

## 10. Further information

The following documents about the North-east of Farnes Deep MCZ are available from the JNCC website:

[North East of Farnes Deep MCZ summary document](#). This document contains detailed information about the site's features, how the boundary was developed, and information on what survey data was used to designate the site.

## 11. References

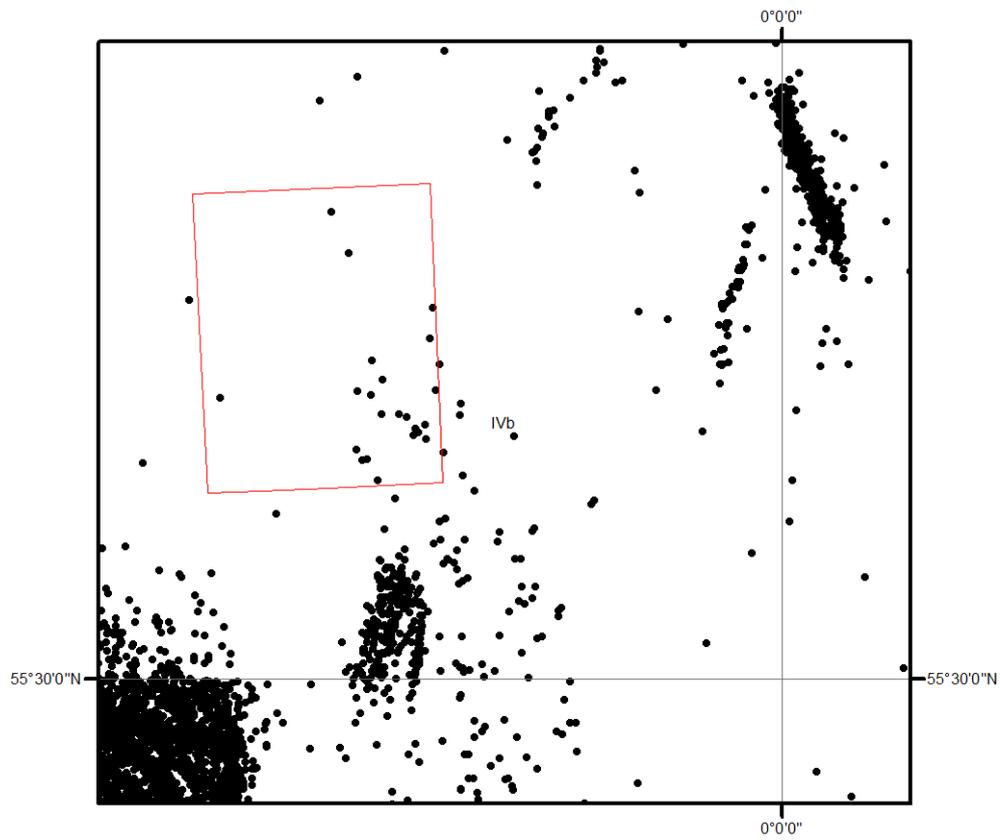
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**Annex One**

**Figure 3.** North East of Farnes Deep MCZ. VMS data for >15m UK-registered mobile demersal fishing vessel for the years 2009-2013



**Figure 3. North East of Farnes Deep MCZ. VMS data for >15m non-UK-registered mobile demersal fishing vessel for the years 2009-2013**

