

<b>Natura 2000</b> <b>Fisheries management options paper</b>
<b>WYVILLE THOMSON RIDGE SPECIAL AREA OF CONSERVATION</b>
APRIL 2014

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

## 1. Management Options Summary

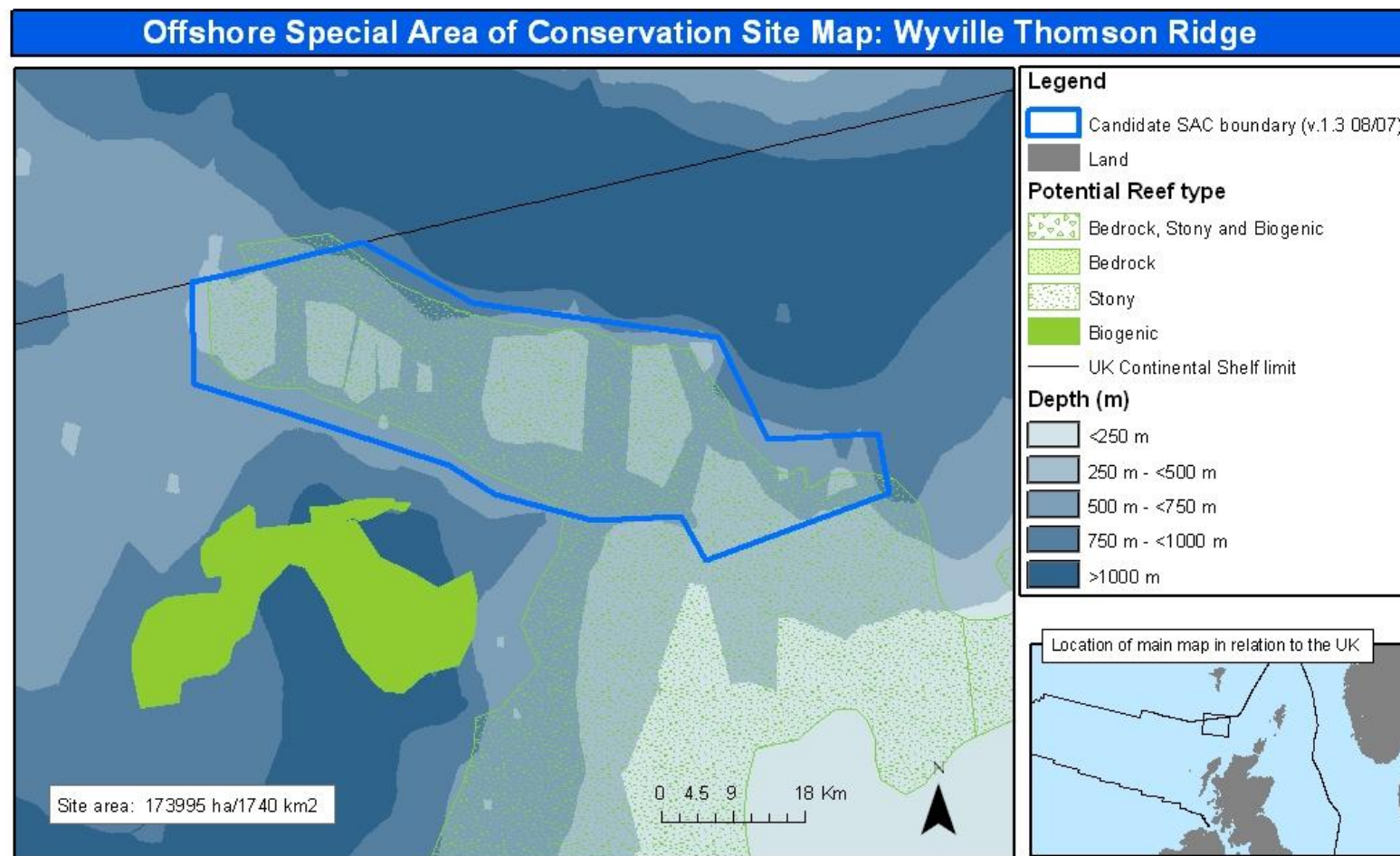
Fishing Activity	Management options
<b>Mobile bottom contact gears</b>	<p><b>No additional management:</b> There is a significant risk of not achieving the conservation objectives for the <b>reef</b> feature.</p> <p><b>Reduce/limit pressures:</b> This option would reduce the risk of not achieving the conservation objectives for the <b>reef</b> feature. Appropriate management could include exclusion of mobile bottom contact gears over the main areas of <b>bedrock and stony reef</b>, allowing fishing to continue in fishable areas around the features. It is possible that these areas may include some areas where the distribution of <b>reef</b> is unknown or uncertain, and some very small areas of known Annex I <b>reef</b> and there would therefore be a risk of localised damage to the structure and function of reef communities in these areas. The location of areas to be covered by management restrictions would include a buffer zone to reduce any risk of accidental contact with the feature. The location of areas to be covered by management restrictions would be decided in consultation with fishers.</p> <p><b>Remove/avoid pressures:</b> This option would reduce the risk of degradation to any <b>reef</b> feature within the site boundary to the lowest possible levels. Restrictions would be required for all mobile bottom contact gears within the full extent of the site boundary. The site boundary already includes a buffer zone based on a ratio of 2:1 fishing warp length to depth around the known features to reduce any risk of accidental contact with the feature.</p>
<b>Static bottom contact gears</b>	<p><b>No additional management:</b> This option is considered to be sufficient for bottom contacting static gear to achieve the conservation objectives for the <b>reef</b> feature. However, if monitoring showed evidence of detrimental effects as a result of static gear activity in the future, additional management may be required.</p> <p><b>Reduce/limit pressures:</b> This option would further reduce the risk not achieving the conservation objectives for the <b>reef</b> feature. If fishing activity were to rise to levels at which damage was occurring, appropriate management could include partial closure of the feature and/or limits on the amount of gear that can be deployed.</p>

## 2. Introduction

The Wyville Thomson Ridge is a rock ridge situated in the Atlantic Ocean at the northern end of the Rockall Trough. It is approximately 20km wide and 70km long and rises from over 1,000m depth to less than 400m at the summit. The site is located on the Scottish continental shelf edge approximately 150km north west of Cape Wrath; it extends in a north westerly direction towards the Faroe Bank. The Ridge divides the relatively warm water of the Rockall Trough from the cold water of the Faroe-Shetland Channel, and is a transitional area between the two water masses. The site is situated within two UK Regional Seas: the Scottish Continental Shelf Regional Sea and the Faroe-Shetland Channel Regional Sea (JNCC, 2004a; Defra, 2004).

The Ridge is composed of extensive areas of stony reef interspersed with gravel areas and bedrock reef along the flanks, located in deep circalittoral waters from 400m to 1,000m depth. The stony reef is thought to have been formed by the ploughing movement of icebergs through the seabed at the end of the last ice age. These iceberg 'ploughmarks' consist of ridges of boulders, cobbles and gravel where finer sediments have been winnowed away by high energy currents at the site, interspersed with finer sediment troughs up to 5m-10m deep (Masson et al. 2000). The rock and stony reef areas support diverse biological communities representative of hard substratum in deep water, including a range of sponges; stylasterid, cup and soft corals; brachiopods; cyclostome bryozoans; dense beds of featherstars and brittlestars; sea urchins, sea cucumbers and sea spiders (Masson et al. 2000; Henry and Roberts, 2004; Howell et al. 2007; and Brian Bett, pers. comm. 2004). Communities on the bedrock reef vary in species composition between the two sides of the ridge due to the influences of different water masses (Howell et al. 2007). This combination of water masses in one area is unique in UK waters.

**Figure 1.** Wyville Thomson Ridge site map. Please note that an updated map based on 2012 survey data may become available prior to the stakeholder workshop.



Boundary coordinates:

1) 60°1'60", -6°16'0" 2) 59°55'0", -6°10'0" 3) 59°55'0", -5°55'0" 4) 59°51'0", -5°54'0" 5) 59°46'60", -6°19'0" 6) 59°49'60", -6°22'0" 7) 59°49'60", -6°34'0" 8) 59°52'0", -6°46'60" 9) 59°54'0", -6°53'0" 10) 60°0'0", -7°26'60" 11) 60°6'53", -7°27'5" 12) 60°9'18", -7°3'43" 13) 60°4'60", -6°49'0"

Site boundary follows UKCS as provided by UK Hydrographic Office (2007).

Site map projected in UTM (Zone 29N, WGS84 datum). Seabed habitat derived from BGS 1:250,000 seabed sediment maps © NERC and SeaZone bathymetry.

Bathymetry © British Crown and SeaZone Solutions Limited. All rights reserved. Products Licence No. PGA042006.003. This product has been derived in part from material obtained from the UK Hydrographic Office with the permission of the Controller of Her Majesty's Stationery Office and UK Hydrographic Office ([www.ukho.gov.uk](http://www.ukho.gov.uk)). 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).

World Vector Shoreline © US Defense Mapping Agency. Map copyright JNCC 2008.

**Figure 2.** Examples of Annex I ‘Reef’ habitat within the Wyville Thomson Ridge SAC



Boulders covered with yellow feather stars, brittle stars and anemones recorded on Wyville Thomson Ridge (© DTI/Defra, 2006)



Anemones and feather stars on bedrock reef

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

The Wyville Thomson Ridge SAC contains the Annex I habitat ‘Reef’.

Conservation objectives set out the desired quality of the protected features within each Natura 2000 site. They are a set of site specific objectives to be met in order for a site to maximise its contribution to Favourable Conservation Status under the EU Habitats Directive.

The conservation objective for the Wyville Thomson Ridge SAC is to, subject to natural change, restore the reef to favourable condition such that:

- the natural environmental quality is restored;
- the natural environmental processes are maintained;
- the extent, physical structure, diversity, community structure and typical species representative of stony and bedrock reef within the Scottish continental shelf and Faroe-Shetland Channel are restored.

### **4. Roles**

The role of JNCC is to advise UK Government on management options for the Wyville Thomson Ridge SAC. 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 miles fisheries limit is an exclusive competence of the European Union and management can only be implemented through the provisions of the Common Fisheries Policy (CFP). Marine Scotland will lead discussions on management with stakeholders. They will consider JNCC’s advice and will lead on the development of specific management measures. They will be responsible for making recommendations to Scottish Ministers on these measures and the submission of potential measures to the European Commission.

Stakeholders can provide additional evidence to support the development of management options, including local knowledge of the environment and activities. Discussions with stakeholders will be one way of highlighting the implications of any management options to both JNCC and Scottish Government. This will contribute to the development of well-designed and effective management measures.

## **5. Effect of fishing on the features**

Whilst it is unlikely that mobile bottom contact gear can affect the long-term natural distribution of the **reef** features, there is evidence to indicate that the use of bottom contacting mobile gears can impact the structure and function of the habitat and the long term survival of its associated species.

The use of towed fishing gears is likely to cause damage or death of fragile, erect species, such as sponges and corals (Løkkeborg, 2005; Freese et al.1999). Other species such as hydroids, anemones, bryozoans, tunicates and echinoderms may also be vulnerable (McConnaughey et al. 2000; Sewell and Hiscock, 2005). Where fragile, slow growing species occur, even low levels of fishing have the potential to change the structure and function of the habitats and may result in the loss of some characteristic species.

Mechanical impacts of static gear (e.g. weights and anchors hitting the seabed, hauling gear over seabed, rubbing/entangling effects of ropes) can damage some species (Eno et al. 1996). Other species appear to be resilient to individual fishing operations but the effects of high fishing intensity are unknown (Eno et al. 2001). Recovery will be slow (Foden et al. 2010) resulting in significant reduction or even loss of characteristic species. The individual impact of a single fishing operation may be slight but cumulative damage may be significant (Eno et al. 2001; Foden et al. 2010).

## **6. Development of management options**

Management options are being developed where we consider that some form of management may be necessary to achieve the conservation objectives for the feature. The approach to identifying management options for each activity will be risk-based, i.e. we are focusing on providing advice where we believe there is a risk to achieving the conservation objectives. To do this, we are using existing data and information on protected features and relevant activities, and also our understanding of the relationships between the feature and relevant activities.

We have identified risks to achieving the conservation objectives where there is an overlap between protected features and activities associated with pressures the features are sensitive to. 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 5). We have recommended 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 SAC.

Specific details of the recommended management options for mobile bottom contact and static bottom contact gears are provided in Tables 2 & 3.

A gradient of management options has been considered to reduce the feature's exposure to pressures. These have been described under three potential management option categories:

- a) **No additional management** - where there are currently no site specific fisheries management measures in place and these are not deemed necessary at this time to achieve the conservation objectives for 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 – note this option may be limited due to recent evidence on distribution of the feature.
  - Gear restrictions (e.g. restricting use of the more damaging gears)

Ideally, any measures would generally apply only to the part of the site 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.

- 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 part of the site 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, focussed on interactions between features and activities.

## 7. Overview of activities

Table 1 below lists fishing activities which take place within or close to the Wyville Thomson Ridge SAC. Further discussions with those who use the area will improve our understanding of these activities (distribution and intensity etc). Those fishing activities which the protected features are sensitive to are explored in greater detail in the next section. Fishing activities which the protected features are not thought to be sensitive to (i.e. any connection between the activity and the features is considered to be minimal) will not be considered further within this document. New or other fishing activities not identified within the table would need to be considered on a case-by-case basis.



**Table 1.** Overview of existing fishing activities believed to take place within or close to the Wyville Thomson Ridge SAC (UK gear types only)

Activities considered capable of affecting the integrity of the SAC	Activities <i>not</i> considered capable of affecting the integrity of the SAC*
<ul style="list-style-type: none"> <li>• Demersal otter trawling and twin otter trawling</li> <li>• Set longlining</li> <li>• Set gillnetting</li> <li>• Potting</li> </ul>	<ul style="list-style-type: none"> <li>• Mid-water otter trawling</li> <li>• Mid-water pair trawling</li> <li>• Purse seine</li> </ul>

\*Only the specific examples of activities listed in the table have been excluded, rather than the broad activity types.

*Non-UK nationalities with interest in the relevant ICES rectangles:*

- France
- Spain
- Faroe Islands
- Ireland
- Norway

## 8. Management options

**Table 2.** Management options for mobile bottom contact gear

Management option	
<b>No additional management:</b>	There is a significant risk of not achieving the conservation objectives for the <b>reef</b> feature.
<b>Reduce/limit pressures:</b>	<p>This option would reduce the risk of not achieving the conservation objectives for the <b>reef</b> feature. Appropriate management could include exclusion of mobile bottom contact gears over the main areas of <b>bedrock and stony reef</b>, allowing fishing to continue in fishable areas around the features. It is possible that these areas may include some areas where the distribution of reef is unknown or uncertain, and some very small areas of known Annex I <b>reef</b> and there would therefore be a risk of localised damage to the structure and function of <b>reef</b> communities in these areas. The location of areas to be covered by management restrictions would include a buffer zone to reduce any risk of accidental contact with the feature. The location of areas to be covered by management restrictions would be decided in consultation with fishers.</p>



<b>Remove/avoid pressures:</b>	This option would reduce the risk of degradation to any <b>reef</b> feature within the site boundary to the lowest possible levels. Restrictions would be required for all mobile bottom contact gears within the full extent of the site boundary. The site boundary already includes a buffer zone based on a ratio of 2:1 fishing warp length to depth around the known features to reduce any risk of accidental contact with the feature.
--------------------------------	--

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

Management option	
<b>No additional management:</b>	This option is considered to be sufficient for bottom contacting static gear to achieve the conservation objectives for the <b>reef</b> feature. However, if monitoring showed evidence of detrimental effects as a result of static gear activity in the future, additional management may be required.
<b>Reduce/limit pressures:</b>	This option would further reduce the risk of not achieving the conservation objectives for the <b>reef</b> feature. If fishing activity were to rise to levels at which damage was occurring, appropriate management could include partial closure of the feature and/or limits on the amount of gear that can be deployed.

## 9. Conclusions and further recommendations

Fisheries management measures for the Wyville Thomson Ridge site will be developed through discussion with stakeholders. Discussions will focus on our understanding of the features and the likely risks to the designated features where there are interactions with fishing activities. 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 are available on the JNCC website:

[Wyville Thomson Ridge SAC selection assessment document, Version 6 \(August 2010\)](#)

[Wyville Thomson Ridge conservation objectives and advice on operations, Version 5 \(September 2012\)](#)

## 11. References

- Defra. (2004). *Review of marine nature conservation*. Working group report to government [online]. London: Defra. Available from: <http://archive.defra.gov.uk/environment/biodiversity/marine/documents/rmnc-report-0704.pdf> [Accessed November 2013]
- Eno, N.C., MacDonald, D., & Amos, S.C. (1996). A study on the effects of fish (Crustacea/Molluscs) traps on benthic habitats and species. Final report to the European Commission. Study Contract, no. 94/076.
- Eno, N.C., MacDonald, D.S., Kinnear, J.A.M., Amos, S.C., Chapman, C.J., Clark, R.A., Bunker, F.S.D. \* Munro C. (2001). Effects of crustacean traps on benthic fauna. *ICES Journal of Marine Science*, 58: 11–20.
- Foden, J., Rogers, S.I. & Jones, A.P. (2010). Recovery of UK seabed habitats from benthic fishing and aggregate extraction- towards a cumulative impact assessment. *Marine Ecology Progress Series*, 411: 259–270.
- Freese, L., Auster, P.J., Heifetz, J. & Wing, B.L. (1999). Effects of trawling on seafloor habitat and associated invertebrate taxa in the Gulf of Alaska. *Marine Ecology Progress Series*, 182: 119–126.
- Henry, L.A., & Roberts, J.M. (2004). *The biodiversity, characteristics and distinguishing features of deep-water epifaunal communities from the Wyville-Thomson Ridge, Darwin Mounds and Faeroes Plateau*. Draft final report to the Atlantic Frontier Environmental Network. UK: AFEN.
- Howell, K.L., Davies, J.S., Hughes, J.D., & Narayanaswamy, B.E. (2007). *Strategic Environmental Assessment / Special Area for Conservation: Photographic analysis report*. Report for DTI. UK: Department of Trade and Industry (DTI) and Department of Food and Rural Affairs (DEFRA).
- JNCC (2004a). *The Irish Sea Pilot final report*. Report to Defra by the Joint Natura Conservation Committee [online]. Peterborough: JNCC. Available from: <http://jncc.defra.gov.uk/page-2767> [Accessed November 2013]
- Løkkeborg, S. (2005). Impacts of trawling and scallop dredging on benthic habitats and communities. *FAO Fisheries Technical Paper*. No. 472. Rome, FAO. 58pp.
- Masson, D., Bett, B.J., & Jacobs, C.J. (2000). *White Zone DTI marine surveys 1999*. Preliminary report. Commercial in Confidence.
- McConnaughey, R.A., K. Mier, and Dew. C.B. 2000. An examination of chronic trawling effects on soft-bottom benthos of the eastern Bering Sea. *ICES Journal of Marine Science*, 57: 1377-1388.
- 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,