

**Scottish MPA Project  
Management options**

**THE BARRA FAN AND HEBRIDES TERRACE SEAMOUNT POSSIBLE  
MPA**

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

Following a decision by Scottish Ministers this site may be subject to formal consultation, at which point it will become a possible MPA. This document is largely aimed at supporting discussions during the formal consultation process and therefore we have used the term 'possible MPA' throughout.

**Document version control**

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Version 0.1	15/04/2013	Beth Henshall	Creation of template
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# DEVELOPMENT OF MANAGEMENT OPTIONS FOR THE BARRA FAN AND HEBRIDES TERRACE SEAMOUNT POSSIBLE MPA

## Management Options Summary

The following table summarises the management options considered for the Barra Fan and Hebrides Terrace Seamount possible MPA to eliminate or manage the risk of not achieving the conservation objectives for the features designated. For more detail on these options, please read the full Management Options Paper. It is recommended that discussions take place between sea users, scientists and managers to determine which of these management options is the most appropriate.

Activity	Management options
<b>Fishing activity: Bottom contacting mobile gear</b> (e.g. otter trawling)	<p><b>No additional management:</b> There is a risk of not achieving the conservation objectives for <b>burrowed mud, offshore deep sea muds and offshore subtidal sands and gravels</b>. The conservation objective would not be achieved for <b>seamount communities</b> and JNCC strongly recommend that this option should not be applied in areas where this feature is present.</p> <p><b>Reduce/limit pressures:</b> This option would reduce, but not entirely eliminate, the risk of not achieving the conservation objectives for <b>burrowed mud, offshore deep sea muds and offshore subtidal sands and gravels</b>. Likely management measures could include restrictions on fishing with damaging gears over a proportion of each feature's area. The location of areas to be covered by management restrictions would be decided in consultation with fishers. The conservation objectives would not be achieved for <b>seamount communities</b>, and JNCC strongly recommend that this option should not be applied in areas where this feature is present.</p> <p><b>Remove/avoid pressures:</b> This option would reduce the risk of not achieving the conservation objectives for <b>burrowed mud, offshore deep sea muds, and offshore subtidal sands and gravels</b> to the lowest possible levels. This is the only option that would allow the conservation objective to be achieved for <b>seamount communities</b> and JNCC strongly recommend that this option should be applied in areas where this feature occurs.</p>
<b>Bottom contact static gear</b> (e.g. set netting and line fishing)	<p><b>No additional management:</b> This option is considered to be sufficient to achieve the conservation objectives for <b>burrowed mud, offshore deep sea muds, and offshore subtidal sands and gravels</b>. However, the conservation objectives would not be achieved for <b>seamount communities</b>.</p> <p><b>Reduce/limit pressure:</b> The conservation objectives would not be achieved for <b>seamount communities</b>.</p>

**Licensed activity**  
(e.g. oil and gas area of development)

**Remove/avoid pressure:** This is the only option that would achieve the conservation objectives for **seamount communities** and JNCC strongly recommend that this option should be applied where this feature is present.

**No additional management and reduce/limit pressure:** These two options are likely to be similar as they largely constitute best practice for developments in the offshore environment. They will reduce, but not entirely remove the risk of the **burrowed mud, offshore deep sea muds, and offshore subtidal sands and gravels** features achieving their conservation objectives. Future developments that overlap these features may impact the feature achieving its conservation objective and management may be required.

**Remove/avoid pressure:** This option would reduce the risk of not achieving the conservation objectives for the **burrowed mud, offshore deep sea muds, and offshore subtidal sands and gravels** features to the lowest possible levels.

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## **Introduction**

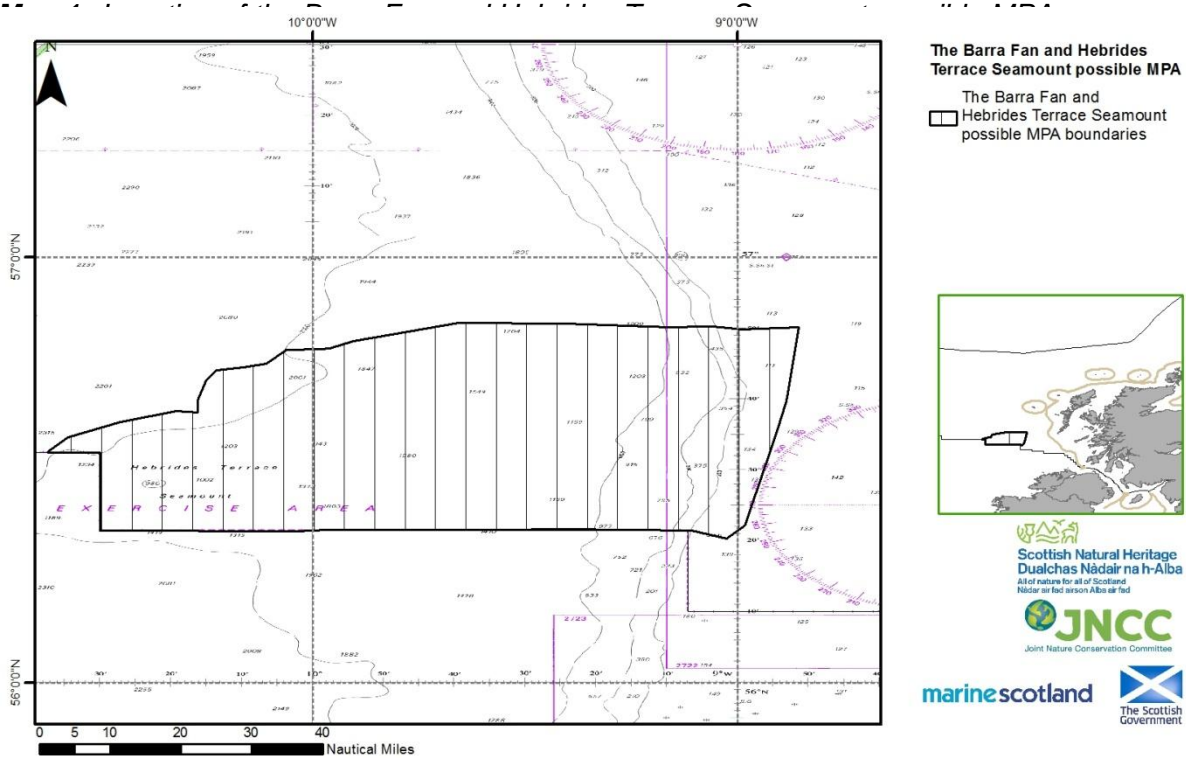
The Barra Fan and Hebrides Terrace Seamount possible Marine Protected Area (MPA) is located to the west of Scotland, adjacent to the boundary with Irish waters. The possible MPA follows the continental shelf as it descends into the deep Rockall Trough, and also includes the Hebrides Terrace Seamount. Seamounts are extinct volcanoes and are hotspots for marine life, providing a hard surface suitable for the establishment of cold water corals, deep sea sponges and wider seamount communities. The Hebrides Terrace seamount is thought to be significant to the health of Scotland's seas due to the way it influences the movement of underwater currents which bring a plentiful supply of food to the area.

Further details of the possible MPA can be found in the Barra Fan and Hebrides Terrace Seamount site summary document.

No licensed activities currently take place within the possible MPA, however, the eastern area of the possible overlaps with a Department of Energy and Climate Change (DECC) area of possible development for oil and gas activity. The fishing activity overlapping the Barra Fan and Hebrides Terrace Seamount possible MPA mainly target deep sea fish species, and are predominantly concentrated on the upper part of the seamount in the south west of the site and along the shallower waters of the continental slope in the eastern section of the possible MPA. Trawling and longlining for hake also occurs in the shallower portion of the site.

This document has been produced to provide background information on the development of management for the Barra Fan and Hebrides Terrace Seamount possible MPA. It will be used during discussions as part of the formal consultation. The aim of these discussions is to explore current activities and the potential interactions these may have with the proposed protected features.

The document describes the known location and extent of protected features and the current knowledge of where various activities take place. It also presents the management options for each of those activities that are considered capable of having an effect on the proposed protected features. The document provides those with an interest in the area a chance to input into the early stages of working out appropriate management of activities to ensure that the Barra Fan and Hebrides Terrace Seamount possible MPA makes a genuine and long-lasting contribution to the protection of Scotland's marine environment.



Map displayed in geographic coordinates WGS84. 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). Landmass Ordnance Survey © Crown Copyright and database right 2011. All rights reserved. Scotland (Adjacent waters) Updated by the Law of the Sea Division, United Kingdom Hydrographic Office October 2005. Bathymetry © GEBCO, 2011. Possible MPA © JNCC and SNH. All rights reserved. Admiralty chart © Crown Copyright 2013. All rights reserved. License No. EK001-20120405. Map not to be used for navigation.

## Roles

The role of JNCC is to advise Scottish Government on management options for the Barra Fan and Hebrides Terrace Seamount possible MPA. In doing this, our aim is to ensure the conservation objectives for the proposed protected features are met.

Marine Scotland will lead the 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. Scottish Ministers will decide whether to implement these measures.

Stakeholders can provide additional evidence to support the development of management options including local knowledge of the environment and of 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.

## Protected features and conservation objectives

The Barra Fan and Hebrides Terrace Seamount possible MPA is being considered as part of a network of new Nature Conservation MPAs. These are being established to help conserve a range of Scotland's important marine habitats, wildlife, geology and landforms. The Barra Fan and Hebrides Terrace Seamount possible MPA is being considered for the following proposed protected features (as shown in map 2):

- Burrowed mud
- Offshore subtidal sands and gravels
- Offshore deep sea mud
- Orange roughy
- Seamount communities
- Continental slope\*

- Seamounts\*
- Geodiversity features\* – prograding wedges, continental slope turbidite canyons, slide deposits scour moat, continental slope, Hebrides Terrace Seamount, iceberg ploughmark fields

\* These features are considered to have a low sensitivity to the pressures associated with marine activities taking place within the possible MPA<sup>1</sup>. As such, there is not considered to be a significant risk to the features achieving their conservation objectives and so the feature has not been considered further in the context of the management options presented below.

The iceberg ploughmark fields are the only geodiversity features being considered for management. However, the feature overlaps with the distribution of offshore subtidal sands and gravels within the possible MPA and it is considered that the management options presented for offshore subtidal sands and gravels will also apply to the iceberg ploughmark fields, and will carry a similar perceived risk in terms of achieving the features conservation objectives.

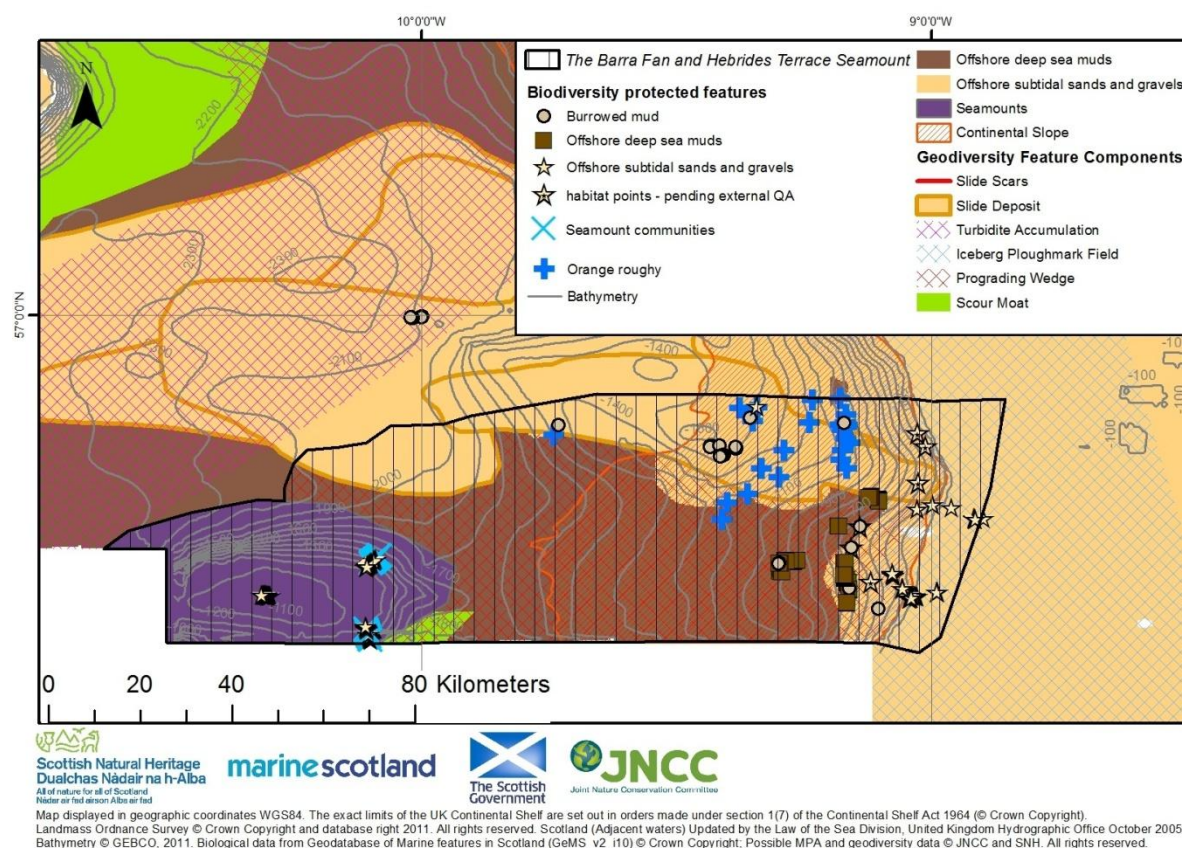
In the 1990's a targeted demersal otter trawl fishery for orange roughy was opened up in deep water west of Scotland. However, in recent years, zero Total Allowable Catch (TAC) was recommended for orange roughy in ICES Division area VI, which has effectively ended this fishery. As a result, orange roughy has not been considered further in the context of the management options below. However, if the zero TAC measure is lifted in the future, it may be necessary to identify management.

Conservation objectives set out the desired quality of the proposed protected features within each possible MPA. They will form part of the designation order for Nature Conservation MPAs and will therefore be in place at the time that a site is formally designated. We have recommended that the conservation objectives for the proposed protected features within the Barra Fan and Hebrides Terrace Seamount possible MPA are 'conserve' for all features. The condition of the features has not been verified so the conservation objectives are uncertain.

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<sup>1</sup> Brooks, A.J., (2013). Assessing the sensitivity of geodiversity features in Scotland's seas to pressures associated with human activities. *Scottish Natural Heritage Commissioned Report No. 590*.

**Map 2** The distribution of protected features within the Barra Fan and Hebrides Terrace Seamount possible MPA



**Overview of activities**

Table 1 below lists the activities<sup>2</sup> which take place within or close to the Barra Fan and Hebrides Terrace Seamount possible MPA. Further discussions with those who use the area are required to improve our understanding of these activities (e.g. distribution and intensity etc.).

Those activities which the proposed protected features are sensitive to are explored in detail in the next section. Activities which the proposed protected features are not thought to be sensitive to (i.e. any interaction between the activity and the features is considered to be minimal) will not be considered further within this document. Future or other activities not identified within the table would need to be considered on a case-by-case basis.

**Table 1:** Overview of existing activities believed to take place within or close to the Barra Fan and Hebrides Terrace Seamount possible MPA

Activities considered capable of affecting the protected features	Activities <i>not</i> considered capable of affecting the protected features*
Fishing activities: <sup>3</sup> <ul style="list-style-type: none"> <li>- Line fishing</li> <li>- Set netting</li> <li>- Otter trawling</li> </ul>	Commercial shipping  Fishing activity: <ul style="list-style-type: none"> <li>- Pelagic trawling and purse seining</li> </ul>

<sup>2</sup> Initial lists do not include <15 m vessel activity. Information on fishing activity from the <15 m fleet is not routinely recorded and we are keen to improve our understanding of relevant activity with this possible MPA through discussions with stakeholders

<sup>3</sup> Vessels >15m, based on Vessel Monitoring System (VMS) data from 2006 – 2009.<sup>3</sup>

Licensed activities	
---------------------	--

- |                        |  |
|------------------------|--|
| - Oil and gas activity |  |
|------------------------|--|

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

### 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 each proposed protected feature. The approach to identifying management options for each activity will be risk-based i.e. we are focussing 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 proposed protected features and relevant activities, and also our understanding of the relationships between the proposed protected features and activities. The management options may be informed by discussion with stakeholders. If new information becomes available during the consultation, the management options may be revised.

Management options are focussed on the activities that cause a pressure that a proposed protected feature is sensitive to. Pressures can be physical (e.g. abrasion of the seabed), chemical or biological. Different activities may cause the same pressure, e.g. fishing using bottom gears and aggregate dredging both cause abrasion which can damage the surface of the seabed. The proposed protected features of a possible MPA are considered sensitive to activities that could adversely affect them (because of the associated pressures) especially if they are unable to or are very slow to recover.

The online sensitivity tool ([insert weblink](#)) reflects our current understanding of the interactions between activities, pressures and features and supports the first steps of the assessment of risk to the features in the possible MPAs. The tool highlights that activities can give rise to a range of pressures, which the proposed protected features of the possible MPA may be sensitive to. Please use the online tool on the Marine Scotland web site for more detailed information including the evidence we have used in developing our recommendations.

We have identified risks to achieving the conservation objectives where there is an overlap between proposed protected features and activities associated with pressures the features are sensitive to. We have recommended management options to manage this risk. Specific details of the recommended management options for each activity are provided in the following sections. Overlap between different activities/planned developments and the proposed protected features is described and where appropriate mapped. The text focuses on interactions in terms of physical overlap but the assessment of risk in the future should also take account of the intensity and frequency of activities within the possible MPA.

JNCC has identified a range of management options that may be applied, including:

- no additional management required
- management to reduce/limit pressures
- management to remove/avoid pressures

All of the management options provided are based on knowledge of the existing activities taking place within the possible MPA. The options do not preclude introducing management for any activities, or an increased intensity of activities beyond levels currently taking place, in the future.

We recognise that stakeholders can provide local environmental knowledge and more detailed information on activities, including in relation to intensity, frequency, and methods.

This additional information will help us to develop more specific management options, focussed on interactions between features and activities.

## Management options

Management options have been considered by activity, please click on the activities below to be directed to the relevant section:

### 1. Fishing Activity

[Mobile bottom contact gear:](#)

- [Otter trawling](#)

[Static bottom contact gear:](#)

- [Set netting](#)
- [Line fishing](#)

### 2. Licensed Activities

- [Oil and gas](#)

JNCC has evaluated management options to support achievement of the conservation objectives for the proposed protected feature of the possible MPA. A gradient of management options have been considered to reduce exposure to pressures, these have been described under three potential management option categories. Proposed protected features may require a combination of these options to ensure they achieve their conservation objectives.

#### a) No additional management

**b) Additional management to reduce/limit pressures** – where fisheries managers may wish to consider a range measures that could be used to reduce the risk to features by reducing fishing pressure or preventing its increase to unacceptably high levels. These could include:

- Area restrictions (permanently closing some or the entire extent of the feature)
- Temporal restrictions (closing parts of the extent of the feature on a rotational basis)
- Seasonal restrictions
- Gear restrictions (eg. restriction on the use of 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/avoid pressures** – where fishing activities known to adversely affect the feature would be excluded and prevented from occurring in the future. Such exclusion would generally apply only to the part of the site where the feature is present, unless it was necessary to apply to the whole MPA.

The likely effects on the feature condition and the risk to the conservation objectives were assessed using the evidence described in the JNCC/SNH MPA fisheries management guidance.

JNCC have used all available data to evaluate the extent of fishing activities within all offshore possible MPAs. Where possible this data has been presented in accompanying maps. However, to ensure anonymity of the data source, discrete VMS ping data is only

presented in instances where it is not considered disclosive to do so (i.e. there are multiple vessels operating in the same area).

## **Fishing activity: Mobile bottom contact gear**

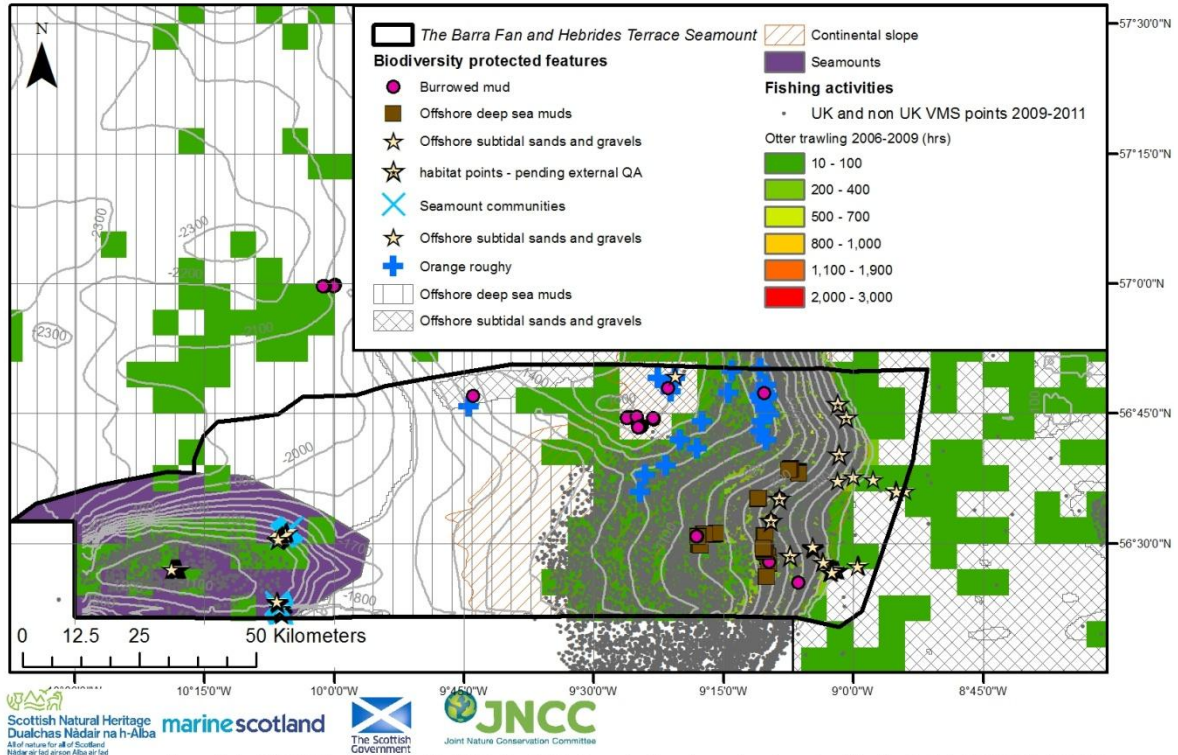
### **Otter trawling**

Otter trawling occurs in two distinct areas within the Barra Fan and Hebrides Terrace Seamount possible MPA. It occurs across the slope from the shallow shelf edge down to deep water at 1400m feature and in deep water over the summit of the seamount from 1100-1400m (see map 3). The trawl fishery across the slope is conducted by a number of EU member states including the UK, France and Spain. The majority of UK (maximum effort in any fishing grid <102 hours between 2006 and 2009) and Spanish (maximum effort in any fishing grid <15 hours between 2006 and 2009) otter trawling activity is concentrated on the upper slope (200-800m) portion of the possible MPA. By contrast, the evidence suggests that French demersal otter trawl activity occurs across the slope, with the majority of effort (maximum effort in any fishing grid <374 hours between 2006 and 2009) occurring between 200m and 1000m but with evidence of activity (maximum effort in any fishing grid <123 hours between 2006 and 2009) at greater depths from 1000 to 1400m. According to the data, the French otter trawl fleet were the only fleet operating on the seamount between 2006 and 2011. Although low intensity, the fishery (maximum effort in any fishing grid <25 hours between 2006 and 2009) occurred across much of the summit down to 1400m. There does not appear to be much overlap between the activity and the seamount community feature locations identified within the site (see map 3a).

There is also some evidence of Norwegian effort (maximum effort in any fishing grid <42 hours between 2006 and 2009) across much of the possible MPA, although, based on the VMS data available, it has not been possible to distinguish between Norwegian demersal otter trawl and longline vessels. Further validation of this data is required.

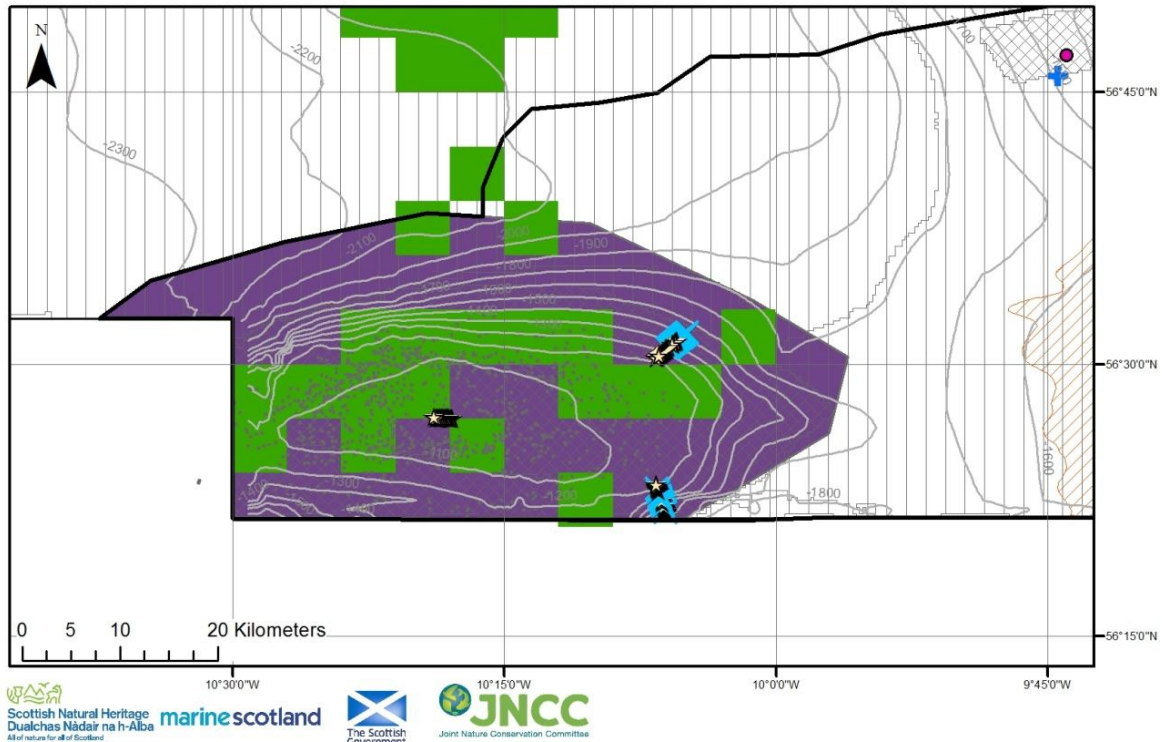
In the 1990's a targeted demersal otter trawl fishery for orange roughy was opened up in deep water west of Scotland. However, in recent years, the zero TAC recommended for orange roughy in ICES Division area VI has effectively ended this fishery. Thus, evidence of recent effort in deep water sites, such as the Barra Fan and Hebrides Terrace Seamount possible MPA, is unlikely to reflect historic fishing. As a result, the management options proposed in the current document reflect the potential for a targeted orange roughy fishery to occur in the future rather than evidence of recent activity. It is unlikely to be relevant to those fisheries not targeting orange roughy in the possible MPA (see map 3b).

Map 3: Location of otter trawling activity in relation to proposed protected features



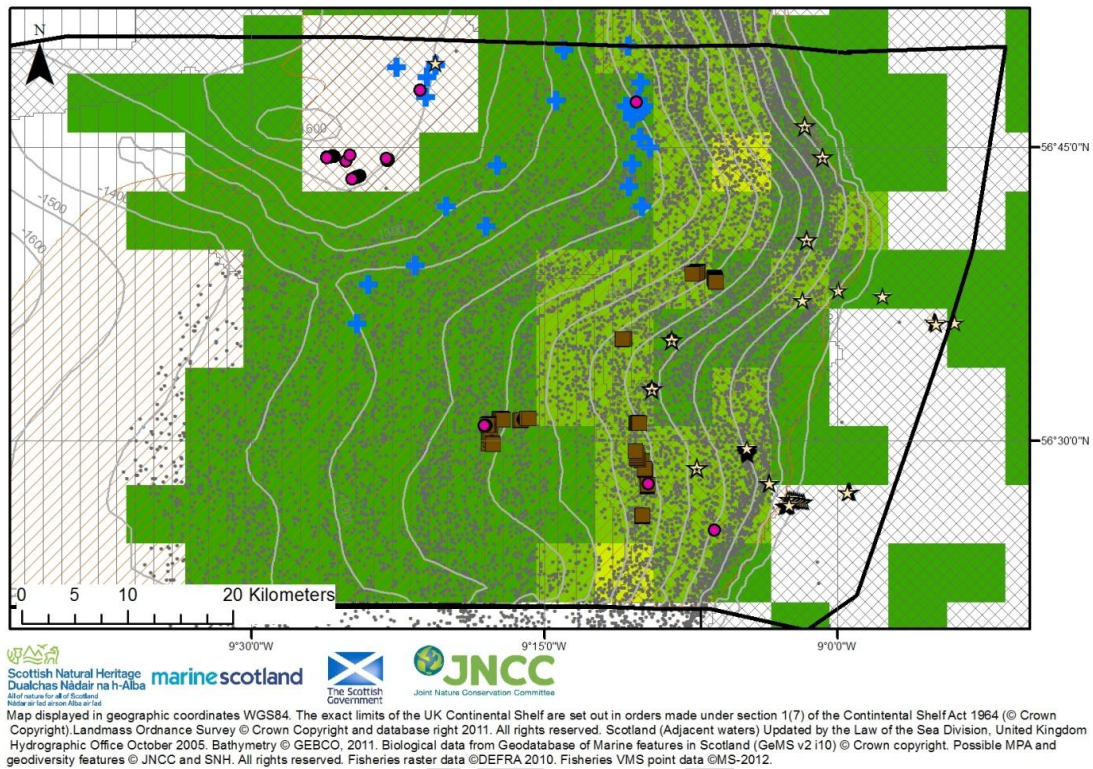
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Map 3a: Zoomed map showing otter trawling activity in relation to proposed protected features on the seamount



Map displayed in geographic coordinates WGS84. 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). Landmass Ordnance Survey © Crown Copyright and database right 2011. All rights reserved. Scotland (Adjacent waters) Updated by the Law of the Sea Division, United Kingdom Hydrographic Office October 2005. Bathymetry © GEBCO, 2011. Biological data from Geodatabase of Marine features in Scotland (GeMS v2 i10) © Crown copyright. Possible MPA and biodiversity features © JNCC and SNH. All rights reserved. Fisheries raster data © DEFRA 2010. Fisheries VMS point data © MS-2012.

Map 3b: Zoomed map showing otter trawling activity in relation to proposed protected features on the continental slope



**Management options**  
**Bottom contact mobile gear** (e.g. otter trawling)

**No additional management:** There is a risk of not achieving the conservation objectives for **burrowed mud, offshore deep sea muds and offshore subtidal sands and gravels**. The conservation objective would not be achieved for **seamount communities** and JNCC strongly recommend that this option should not be applied in areas where this feature is present.

**Reduce/limit pressures:** This option would reduce, but not entirely eliminate, the risk of not achieving the conservation objectives for **burrowed mud, offshore deep sea muds and offshore subtidal sands and gravels**. Likely management measures could include restrictions on fishing with damaging gears over a proportion of each feature's area. The location of areas to be covered by management restrictions would be decided in consultation with fishers. The conservation objectives would not be achieved **seamount communities**, and JNCC strongly recommend that this option should not be applied in areas where this feature is present.

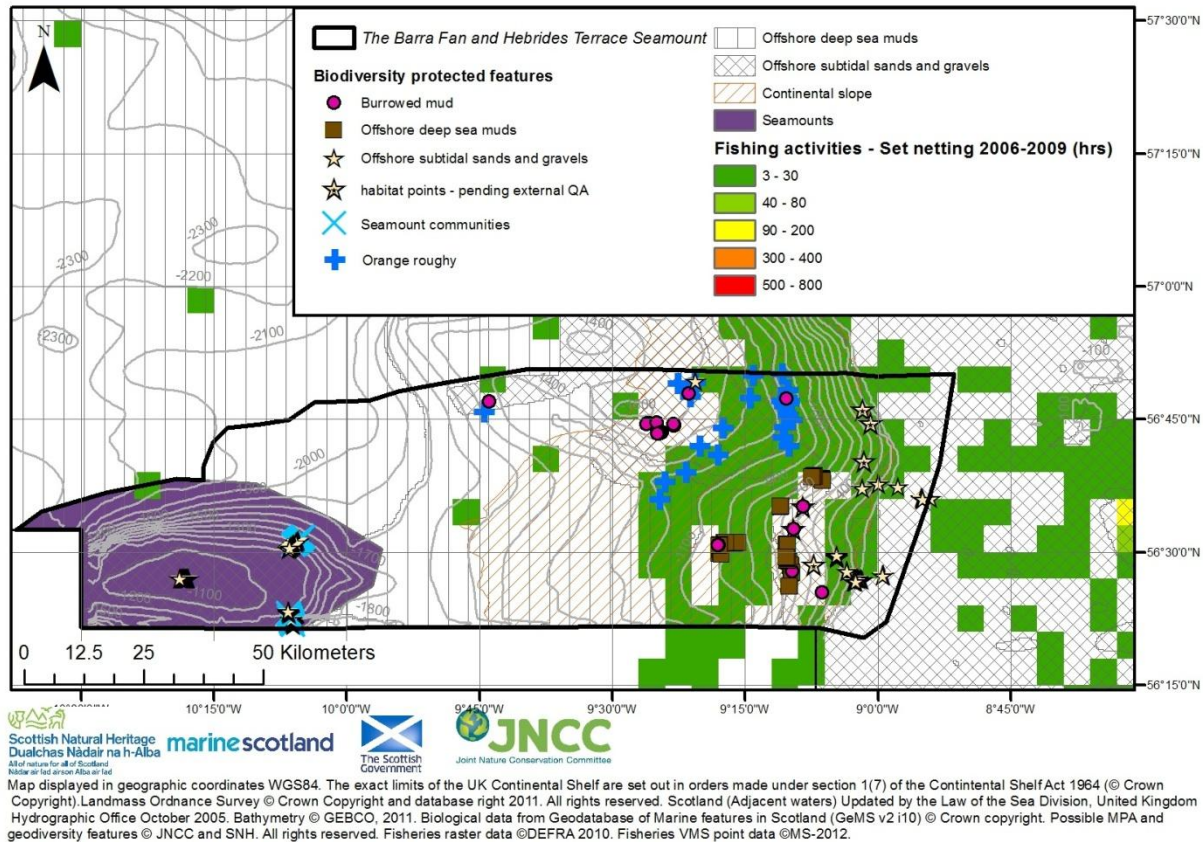
**Remove/avoid pressures:** This option would reduce the risk of not achieving the conservation objectives for **burrowed mud, offshore deep sea muds and offshore subtidal sands and gravels** to the lowest possible levels. This is the only option that would allow the conservation objective to be achieved for **seamount communities** and JNCC strongly recommend that this option should be applied in areas where this feature occurs.

## Fishing activity: Static bottom contact gear

### Set netting

There is some evidence of French gill netting vessels operating at low intensity (maximum effort in any overlapping fishing grid <9 hours 2006-2009) in the deeper water (600-1200m) slope section of the possible MPA. See map 4.

Map 4: Location of set netting activity in relation to proposed protected features

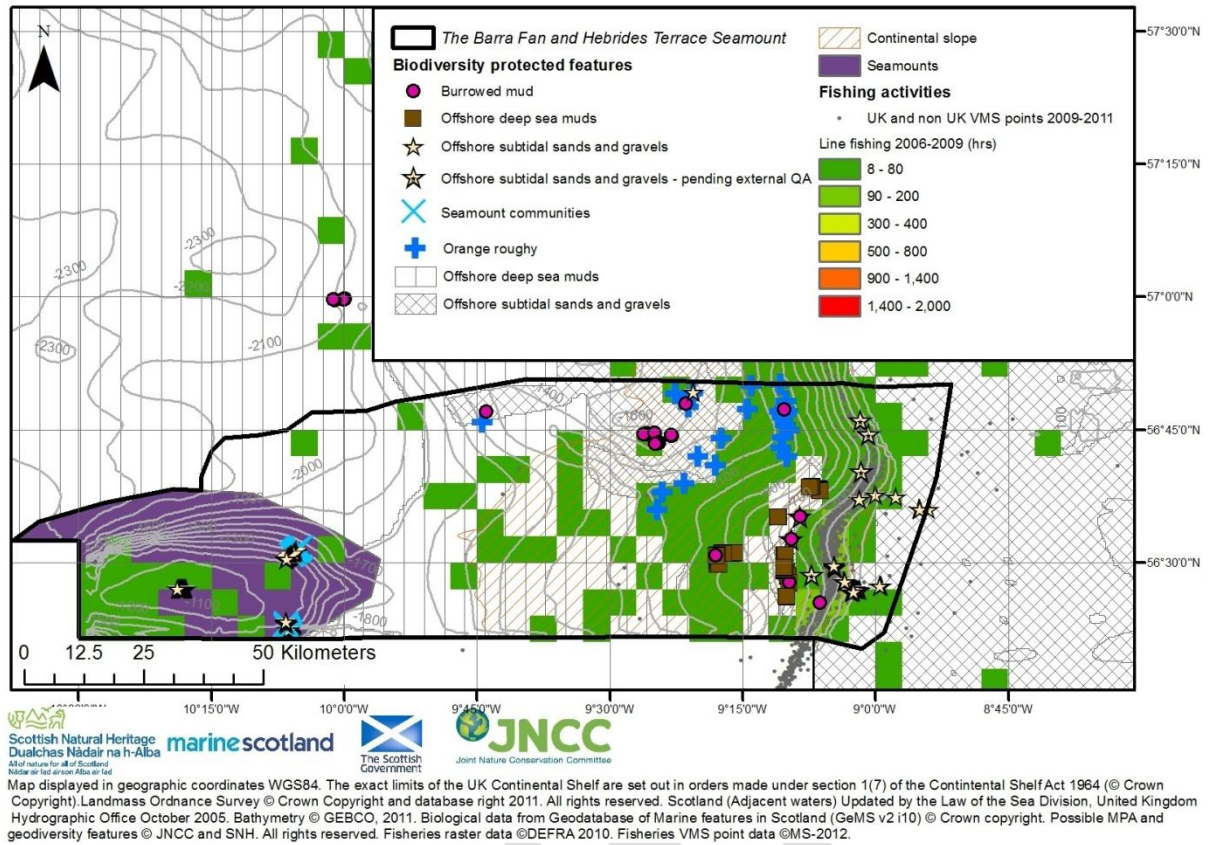


### Line fishing

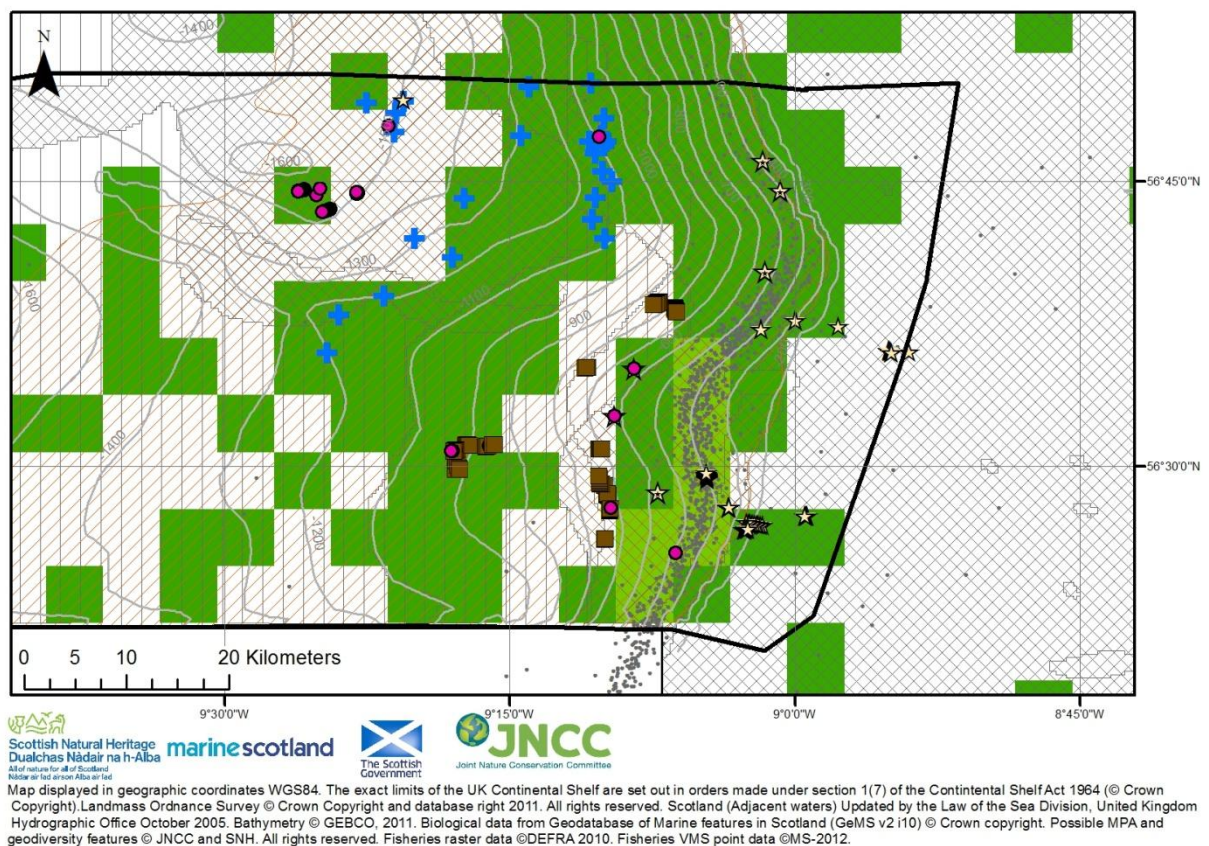
Longlining in the possible MPA is concentrated on the upper slope predominantly between 300 and 800m depth contours and is conducted by UK (maximum effort in any overlapping fishing grid <107 hours 2006-2009), Spanish (maximum effort in any overlapping fishing grid <411 hours 2006-2009), and French (maximum effort in any overlapping fishing grid <17 hours 2006-2009) registered vessels. There is also evidence of a lower intensity deep water (900-1100m) UK registered longline fishery (maximum effort in any overlapping fishing grid <12 hours 2006-2009), as shown in maps 5 and 5a. According to the data, the UK longline fleet were the only fleet operating on the seamount between 2006 and 2011. Although low intensity maximum effort in any fishing grid (<12 hours between 2006 and 2009) effort principally occurred on the western slope of the seamount down to 1500m. There does not appear to be much overlap between the longline activity and the seamount community feature locations identified within the site, as shown in map 5.

There is also some evidence of Norwegian effort (maximum effort in any fishing grid <39 hours between 2006 and 2009) in the possible MPA, concentrated along the 200-800m depth contour. However, based on the VMS data available it has not been possible to distinguish between Norwegian demersal longline and otter trawl vessels. Further validation of this data is required.

Map 5: Location of line fishing activity in relation to proposed protected features



Map 5a: Zoomed map showing location of line fishing activity in relation to proposed protected features on the continental slope



**Management options**  
**Bottom contact static gear** (e.g. set netting and line fishing)

**No additional management:** This option is considered to be sufficient to achieve the conservation objectives for **burrowed mud, offshore deep sea muds, and offshore subtidal sands and gravels**. However, the conservation objectives would not be achieved for **seamount communities**.

**Reduce/limit pressure:** The conservation objectives would not be achieved for **seamount communities**.

**Remove/avoid pressure:** This is the only option that would achieve the conservation objectives for **seamount communities** and JNCC strongly recommend that this option should be applied where this feature is present.

## **Licensed activities**

### **Oil and gas activity**

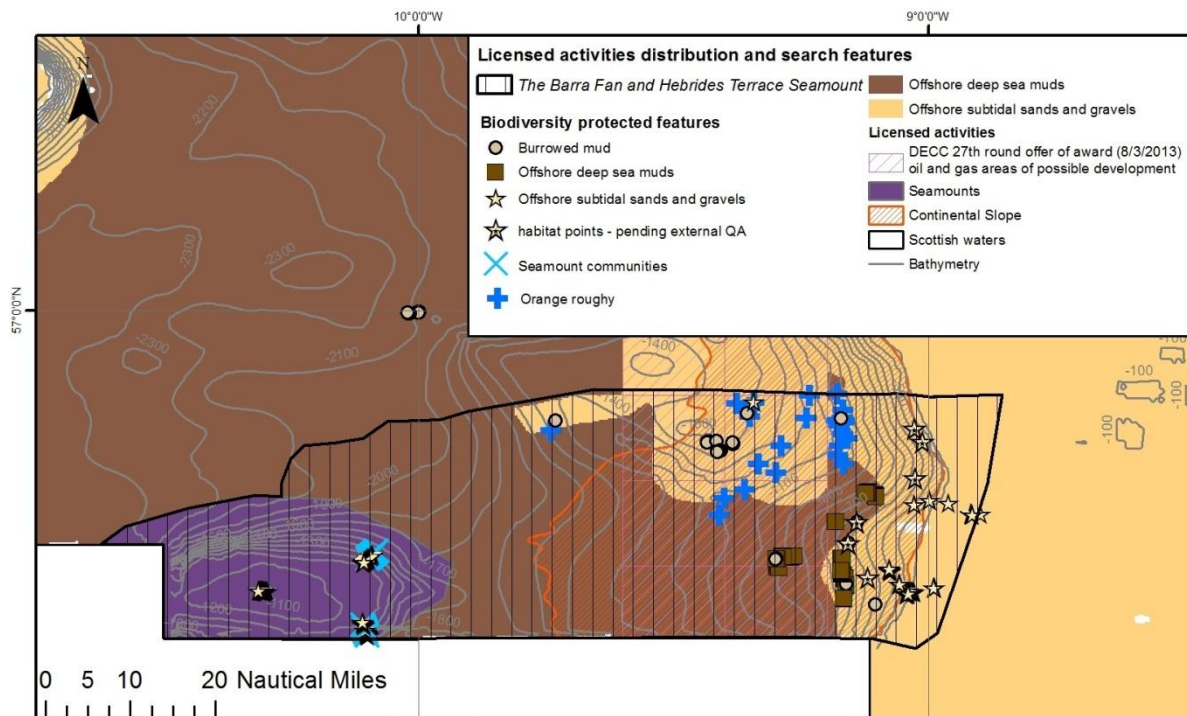
Oil and gas activity will continue to be managed through the licensing process, but regulators will be required to demonstrate that in the course of performing its duties (i.e. issuing a licence for oil and gas activities) it furthers the conservation objectives stated for the possible MPA, or where this is not possible, exercises its duties in a manner which least hinders the achievement of those objectives.

Although no licensed activities currently overlap with the possible MPA, a DECC area of possible development for oil and gas does cover an area of the continental slope to the east of the possible MPA (see map 6), and so the area may be subject to development in the future.

Advice on any future license applications for developments within the possible MPA will be considered on a case by case basis. For oil and gas activity, consideration of the following when planning a development project could be recommended:

- Careful consideration of the location of the activity in order to avoid impacts to the most sensitive features.
- Minimising or, in particularly sensitive areas, avoiding the introduction of materials that alter the seabed habitat type;
- Appropriate treatment and disposal of waste products associated with activity;
- Adoption of industry best practice guidelines;
- Early discussions regarding decommissioning/removal of infrastructure.

Map 6: Location of DECC oil and gas area of possible development in relation to proposed protected features.



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 Biodair na h-Àrainnean Àbha air feòr

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**Management options**  
**Licensed activity** (e.g. oil and gas area of development)

**No additional management and reduce/limit pressure:**

These two options are likely to be similar as they largely constitute best practice for developments in the offshore environment. They will reduce, but not entirely remove the risk of the **burrowed mud, offshore deep sea muds and offshore subtidal sands and gravels** features achieving their conservation objectives. Future developments that overlap these features may impact the feature achieving its conservation objective and management may be required.

**Remove/avoid pressure:** This option would reduce the risk of not achieving the conservation objectives for the **burrowed mud, offshore deep sea muds, and offshore subtidal sands and gravels** features to the lowest possible levels.

### **Conclusions and further recommendations:**

Before any firm recommendations are made, discussions should be held with stakeholders to ensure that there is a good understanding of the features and the likely interactions with activities. Marine Scotland will lead the discussions on management with stakeholders. These discussions will start during the formal consultation and, if necessary, may continue after the consultation. The discussions should lead to an improved understanding of the risk to the proposed protected features. The options presented here will then be reviewed by JNCC and a preferred way forward may be recommended. This will form the basis of advice from JNCC to Marine Scotland on management requirements for this possible MPA should it be designated as a Nature Conservation MPA.

Marine Scotland will be responsible for making recommendations to Scottish Ministers on any management measures that may be required. The development of these measures will be done through discussion with stakeholders after the formal consultation on the possible MPA. Should any management measures require statutory underpinning, Marine Scotland will undertake further consultation.

### **Further information**

The following documents are available for background information:

- [SNH and JNCC MPA network advice \(December 2012\)](#)
- [Marine Scotland Report to Parliament on progress in establishing an MPA network](#)
- [The draft MPA Management Handbook](#)
- The online sensitivity matrix tool
- Draft fisheries guidance

The following documents about the Barra Fan and Hebrides Terrace Seamount possible MPA are also available:

- Site summary
- Data confidence assessment
- Detailed assessment against the MPA Selection Guidelines