



Scottish MPA Project Assessment against the MPA Selection Guidelines
HATTON-ROCKALL BASIN NATURE CONSERVATION MPA
<i>JULY 2014</i>

The following documents provide further information about the Hatton-Rockall Basin Marine Protected Area (MPA):

- Site Summary Document
- Data Confidence Assessment
- Management Options Paper

The documents are all available at www.jncc.defra.gov.uk/page-6482

Document Distribution List and Version Control				
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Background

This document provides details of JNCC's assessment of the Hatton-Rockall Basin Nature Conservation MPA (herein referred to as 'MPA') against the [Scottish MPA Selection Guidelines](#). It presents an assessment for each of the protected features. We have used the terminology set out in the Selection Guidelines to describe the five main stages in the assessment process from the identification of MPA search locations through to an MPA.

The main terms used are described below.

MPA search feature - specified marine habitats, species and large-scale features which underpin the selection of Nature Conservation MPAs.

Geodiversity features - specified geodiversity interests of the Scottish seabed categorised under themed 'blocks' that are analogous to the MPA search features for biodiversity.

Protected feature - any feature (habitats, species, large-scale features and/or geodiversity features) which are specified in the MPA Designation Order.

MPA search location - this describes a location identified at stage 1 [of the Selection Guidelines] until it passes the assessment against stage 4.

Potential area for an MPA - if an MPA search location passes assessment against stage 4 it goes on to be considered at stage 5 as a potential area for an MPA.

Nature Conservation MPA – a location that has been approved by Ministers for designation.

Details of evidence supporting the designation of the Hatton-Rockall Basin MPA are provided in the Data Confidence Assessment document.

HATTON-ROCKALL BASIN MPA - APPLICATION OF THE MPA SELECTION GUIDELINES

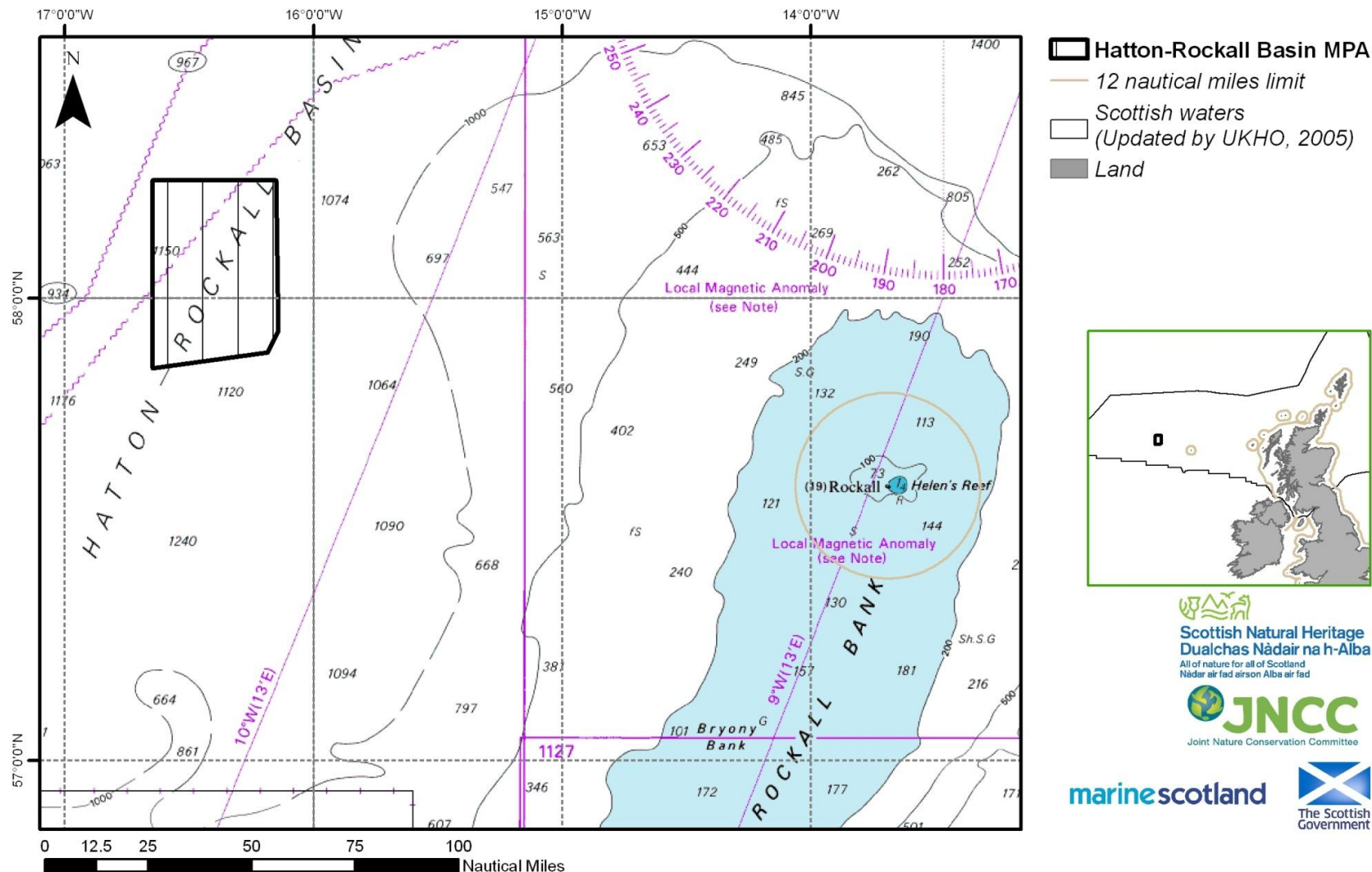
Stage 1 - Identifying search locations that would address any significant gaps in the conservation of MPA search features

Summary of assessment	The MPA includes four protected features – deep-sea sponge aggregations, Atlantic influenced off-shelf offshore deep-sea muds, and sediment drift and polygonal fault geodiversity features which are representative of the Central Hatton Bank (and adjacent sea floor) Key Geodiversity Area (Brooks <i>et al.</i>, 2013). Deep-sea sponge aggregations are listed as a Threatened and/or Declining Habitat by the OSPAR Commission. With regards to the geodiversity protected features, polygonal faulting is a widespread phenomenon, but is normally only observed below the surface of the seafloor. The fact that the polygonal faults occur at the seabed makes the Hatton-Rockall Basin example unique and they are regarded as scientifically important for the study of fluid flow and the history of the Rockall Bank Mass flow (Brooks <i>et al.</i>, 2013; Mortimer, 2008). The settlement of deep-sea sponge aggregations in the MPA may be associated with the polygonal faults geodiversity feature (Howell <i>et al.</i>, 2014).
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Detailed assessment			
Protected features	Guideline 1a <i>Presence of key features [MPA search features and geodiversity equivalents]</i>	Guideline 1b <i>Presence of features under threat and/or subject to rapid decline</i>	Guideline 1c <i>Functional significance for the overall health and diversity of Scottish seas</i>
<i>Biodiversity</i>			
Deep-sea sponge aggregations	✓	✓ OSPAR T&D ¹	
Offshore deep-sea muds	✓		
<i>Geodiversity</i>			
Polygonal faults (Marine Geomorphology of the Scottish Deep Ocean Seabed)	✓		✓ Possible association with settlement of deep-sea sponge aggregations
Sediment drifts (Marine Geomorphology of the Scottish Deep Ocean Seabed)	✓		

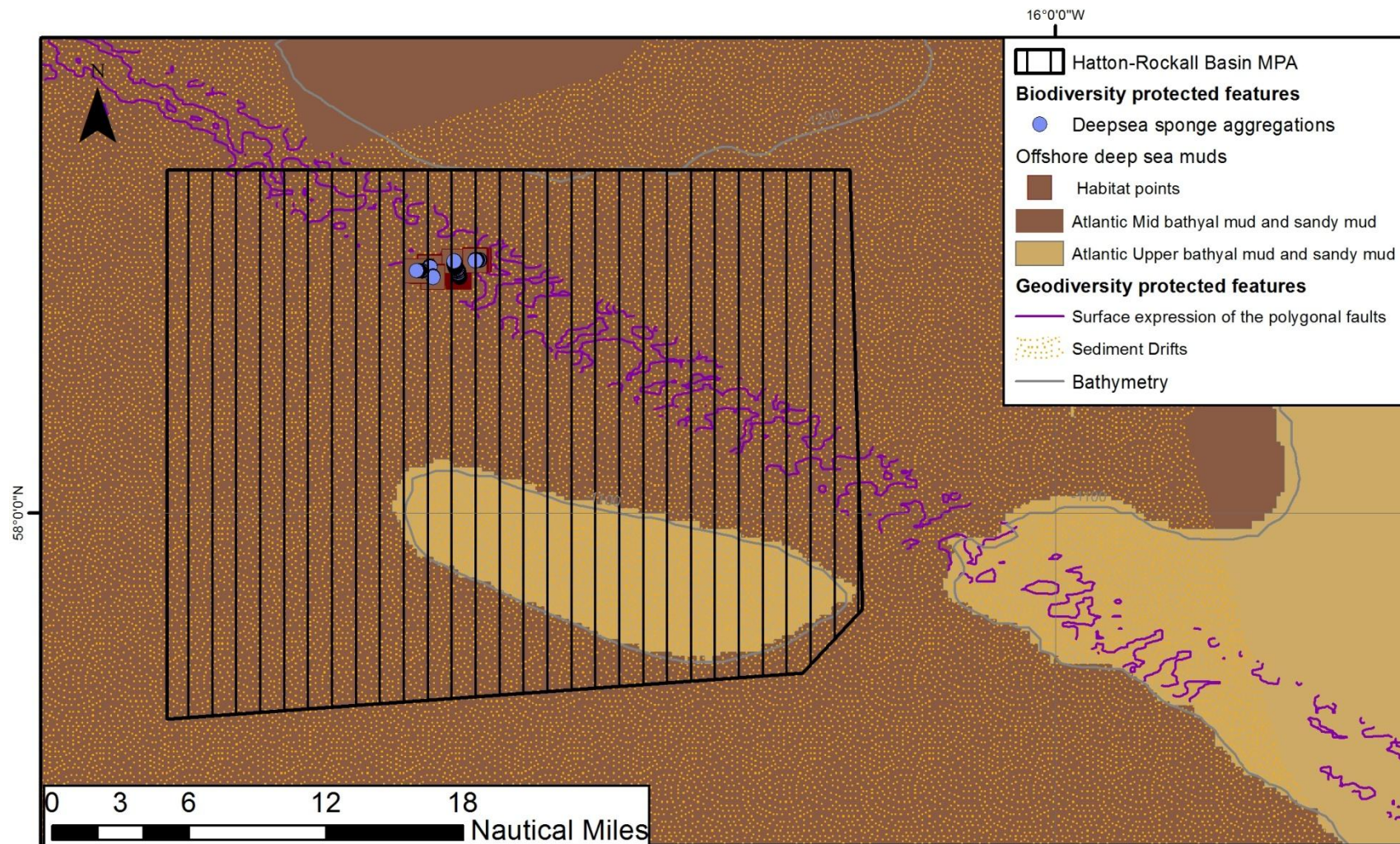
¹ OSPAR list of Threatened and/or Declining species and habitats (see OSPAR, 2008 a & b)

Map showing the location of the Hatton-Rockall Basin MPA



Map projected in Mercator (World) projection, geographic coordinate system WGS1984. The exact limits of the UK Continental Shelf are set out in the Continental Shelf (Designation of Areas) Order 2013, Statutory Instrument 2013/3162 (© 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. MPA © JNCC and SNH, 2014. All rights reserved. Admiralty Chart © Crown Copyright, 2013. All rights reserved. License No. EK001-20130405. NOT TO BE USED FOR NAVIGATION

Map of the Hatton-Rockall Basin MPA showing the known distribution of protected features



Scottish Natural Heritage
Dualchas Nàdair na h-Alba
All of nature for all of Scotland
Nàdair air fad airson Alba air fad

marinescotland



Map displayed in geographic coordinates WGS84. The exact limits of the UK Continental Shelf are set out in the Continental Shelf (Designation of Areas) Order 2013, Statutory Instrument 2013/3162 (© 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 (GeMSv4) © Crown Copyright; MPA and geodiversity data © JNCC and SNH 2014. All rights reserved.

Stage 2 - Prioritisation of search locations according to the qualities of the MPA search features they contain

Summary of assessment	There are combinations of protected features within the MPA, but no direct evidence to support there being functional linkages between them. Deep-sea sponge aggregations however may be associated with the polygonal faults geodiversity feature by means of providing a point of settlement (Howell <i>et al.</i>, 2014). Although there are only limited survey data available, it records two different ecological types of the deep-sea sponge aggregations habitat - the bird's nest sponge (<i>Pheronema carpentari</i>) fields, and encrusting sponge dominated aggregations. Both are reported to be associated with a rich biological community (Henry & Roberts, 2014). The MPA includes the only example of bird's nest sponge fields in Scotland's seas, and there is no available information with which to compare natural levels of biological diversity with other examples of encrusting sponge dominated aggregations. As such, JNCC are uncertain as to whether the 2b guideline is met. All known records of deep-sea sponge aggregations in the Hatton-Rockall Basin are encompassed within the MPA boundary and the habitat itself is thought to be persistent, but may experience seasonality and sporadic reproductive periods. The records of the protected feature meet the density criteria set for the habitat as defined by the OSPAR Commission, examined by Henry & Roberts (2014) and so we consider them to be a coherent as opposed to fragmented example of the habitat. There is insufficient information available to infer whether offshore deep-sea mud habitats within the MPA have a high natural biological diversity. The MPA boundary is considered the appropriate size required to support offshore deep-sea mud habitats, but there is limited information on the associated biological communities present in this habitat to undertake an assessment of coherence as the majority of data across the extent of the MPA are derived from the predictive habitat mapping project EU SeaMap². There is no direct evidence on the condition of the protected features within the MPA, but information on their sensitivity to pressures associated with prevailing activities suggests that deep-sea sponge aggregations and offshore deep-sea mud habitats may have been modified by human activity. However, the limited information on the type of activity taking place in the MPA makes this assessment uncertain. Within the MPA Region³ deep-sea sponge aggregations are considered to be at high risk of significant damage by human activity. For offshore deep-sea mud habitats the risk of damage by human activity varies due to the range in sensitivity of different sub-types of this habitat to the pressures associated with prevailing activities. The polygonal fault and sediment drift geodiversity protected features are considered to be at low risk of significant damage from human activity across Scotland's seas. The stage 2a, 2c and 2e guidelines are considered to have been met. We are uncertain as to whether the stage 2b or 2d guidelines have been met.
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Detailed assessment

Guideline 2a	The search location contains combinations of features, rather than single isolated features, especially if those features are functionally linked
	There are combinations of protected features within the MPA, but no direct evidence to support there being functional linkages between them. However, the settlement of deep-sea sponge aggregations in the MPA may be associated with the polygonal faults geodiversity feature (Howell <i>et al.</i> , 2014).

² This project modelled a combination of physical data describing the marine environment with information from biological sampling to refine ecologically-relevant thresholds to produce a broad-scale predictive map of seabed habitats across Europe. Further information is available online at <http://jncc.defra.gov.uk/EUSeaMap>

³ Far West MPA Region as described in the [Scottish MPA Selection Guidelines](#).

Guideline 2b	The search location contains example(s) of features with a high natural biological diversity (for habitats only)
Deep-sea sponge aggregations	The 2006 MV Franklin Cruise and the 2011 National Oceanographic Centre Survey aboard the James Cook carried out transects in the area of the polygonal faults geodiversity feature and recorded the presence of deep-sea sponges. The presence of the bird's nest sponge <i>Pheronema carpentari</i> has been verified with high confidence from within the MPA, with densities recorded on survey that exceed those set by the OSPAR Commission for the habitat (OSPAR, 2010) and verified by Henry & Roberts (2014). Records of deep-sea sponge aggregations in the MPA boundary are associated with a rich biological community including formaniferans, ascidians, burrowing cerianthid anemones and polychaetes (Henry & Roberts, 2014). A second type of deep-sea sponge aggregation was also verified by Henry & Roberts (2014), characterised by an encrusting grey sponge on boulder and mud substrata in the MPA. A rich associated fauna was found to occur including anemones, ophiuroids, crinoids, and ascidians. The MPA includes the only example of bird's nest sponge fields in Scotland's seas and there is no available information with which to compare natural levels of biological diversity with other examples of encrusting sponge dominated aggregations. As such, JNCC are uncertain as to whether the 2b guideline is met.
Offshore deep-sea muds	Information for offshore deep-sea mud habitats within the MPA has been drawn from the predictive habitat mapping project EU SeaMap⁴ and survey data from the 2006 MV Franklin cruise and the 2011 National Oceanographic Centre cruise aboard the James Cook (Jacobs & Howell, 2007; Howell <i>et al.</i>, 2014). The EU SeaMap habitat modelling project predicts Atlantic upper bathyal mud and sandy mud and Atlantic mid bathyal mud and sandy mud to be present. This prediction is confirmed by photographic samples from the MPA (Howell <i>et al.</i>, 2014). Off the shelf in OSPAR Region V, seven different modelled types of offshore deep-sea mud habitats are predicted to occur. The MPA represents two of these examples. Howell <i>et al.</i> (2014) reported two biotopes of offshore deep-sea muds to be present within the MPA, Unidentified (possibly Halcampoid) anemones in soft sediment, and Cerianthid anemones and burrowing megafauna in bioturbated soft sediment. The former was associated with the base of the polygonal faults and was dominated by a different burrowing anemone (c.f. <i>halcampoidiae</i>/haloclavidae/edwardsiidae) to the latter. The latter was only found on the upper slopes of the polygonal faults, and dominated by a Cerianthidae species. This proposed biotope could possibly be considered as an ecological variant of the burrowed mud feature on account of the levels of bioturbation observed. However both these proposed biotopes shall be considered in the planned development of the Deep Sea section of the Marine Habitat Classification of Britain & Ireland. Overall JNCC consider there is limited survey data available with which to infer whether offshore deep-sea mud habitats within the MPA are of high natural biological diversity.

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⁴ This project modelled a combination of physical data describing the marine environment with information from biological sampling to refine ecologically-relevant thresholds to produce a broad-scale predictive map of seabed habitats across Europe. Further information is available online at <http://jncc.defra.gov.uk/EUSeaMap>

Guideline 2c	The search location contains coherent examples of features, rather than smaller, potentially more fragmented ones
Deep-sea sponge aggregations	The presence of fields of the bird's nest sponge has been verified with high confidence from the Hatton-Rockall Basin MPA based on the density of sponges recorded exceeding those set under the OSPAR Commission's definition for the habitat and the presence of an associated rich biological community (Henry & Roberts, 2014). A second type of deep-sea sponge aggregation was also verified by Henry & Roberts (2014), characterised by an encrusting grey sponge on boulder and mud substrata. A rich associated fauna was also found, including anemones, ophiuroids, crinoids, and ascidians. There is little information pertaining to the typical levels of fragmentation of the protected feature; however, sponges from the class Hexactinellida have been reported at densities of 4-5m⁻², whilst 'massive' growth forms of sponges from class Demospongia have been reported at densities of 0.5-1m⁻² (OSPAR, 2008a). Records present within the MPA are considered to conform to these densities (Henry & Roberts, 2014) and all records within the area have been included within the MPA boundary. The MPA is assessed as being of the appropriate size to support the protected feature as the larval phase of many sponge species is thought to be short lived (Konnecker, 2002), with high settlement observed close to adult sponges (Maldonado & Riesgo, 2008; Nichols & Barnes, 2005). Evidence suggests that the dominant species associated with this habitat type are slow growing and may take several decades to reach the sizes which are commonly encountered (Kitgaard & Tendal, 2004), and that deep-sea sponge aggregations can persist for a long time in the absence of disturbance (Hill <i>et al.</i>, 2010). Hexactinellid sponge growth rates and potentially also their reproductive period, vary due to seasonal differences in prevailing conditions (Leys & Lauzon, 1998). Overall, we consider that deep-sea sponge aggregations within the MPA are likely to be coherent as opposed to a fragmented example of the habitat.
Offshore deep-sea muds	There is insufficient information with which to undertake an assessment of coherence for the protected feature within the MPA, but based on the inclusion of the full predicted extent of a patch of the modelled habitat Atlantic upper bathyal mud and sandy mud and a significant area of Atlantic mid bathyal mud and sandy mud we consider that the MPA boundary is likely to be of the appropriate size to support the habitat and therefore unlikely to be a fragmented example.

Guideline 2d	The search location contains features considered least damaged / more natural, rather than those heavily modified by human activity ⁵
Deep-sea sponge aggregations	There is no evidence for the condition of deep-sea sponge aggregations within the MPA. Consequently, the possible condition of the protected feature has been inferred from information on exposure to activities associated with pressures to which the feature is considered sensitive (Marine Scotland, 2013). Information on fishing activity from the North-East Atlantic Fisheries Commission from 2000-2006 indicates that all deep-sea sponge aggregations records within the MPA are potentially exposed to fishing activities that create pressures to which the protected feature has a high sensitivity. Although it is not known what type of fishing is taking place within the MPA because of a lack of data on the fishery, in the worst-case scenario that it was bottom-contact fishing gear deep-sea sponge aggregations are thought to be highly sensitive to some of the pressures associated with this activity. The depth range of the MPA is -1083m to -1200m, which is within typical trawling depths, and so there is a potential risk that the deep-sea sponge aggregations within the MPA may have modified by human activity. Overall however JNCC is uncertain as to whether the protected feature has been modified by human activity.
Offshore deep-sea muds	There is no information on the condition of offshore deep-sea mud habitats within the MPA. Consequently, the possible condition of the protected feature has been inferred from information on exposure to activities associated with pressures to which it is considered to be sensitive (Marine Scotland, 2013). Offshore deep-sea mud habitats within the MPA are exposed to activities (cable infrastructure and fishing activity) that create pressures to which the protected feature is sensitive, ranging from not sensitive to highly sensitive. This variability for offshore deep-sea mud habitats depends on local substrate types, energy conditions and species composition and diversity. The EU SeaMap predictive habitat mapping project indicates a low level of energy at the seabed in this MPA, suggesting a likely sensitivity at the upper range for the feature. As with deep-sea sponge aggregations, it is not clear from the fisheries data what type of fishing activity is taking place. The depth range of the area is -1083m to -1200m, which is within typical trawling depths, and so there is a potential risk that offshore deep-sea mud sea mud habitats within the MPA may have modified by human activity. Overall however JNCC is uncertain as to whether the protected feature has been modified by human activity.
Polygonal faults and sediment drifts	There is no specific information on the condition of the geodiversity protected features representative of the Hatton Bank (and adjacent seafloor) Key Geodiversity Area within the MPA. Consequently, the possible condition of the protected features has been inferred from information on exposure to activities associated with pressures to which the geodiversity features are considered to be sensitive (Brooks, 2013). Information on fishing activity from the North-East Atlantic Fisheries Commission from 2000-2006 indicates that approximately three-quarters of the confirmed extent and nearly the entirety of the predicted extent of polygonal faults, and the entirety of the sediment drift feature, within the MPA are exposed to fishing activity. Although it is not known what type of fishing is taking place over the geodiversity protected features within the MPA because of a lack of data on the fishery, in the worst-case scenario that it was bottom-contact fishing gear both polygonal faults and sediment drifts are thought to have a low sensitivity to the pressures associated with all forms of bottom-contact gear use and so are unlikely to have been significantly modified by human activity.

⁵ The least damaged/more natural stage 2d assessment considers protected feature exposure to activities associated with pressures to which the features are sensitive. This is distinct from the work outlined in Chaniotis *et al.* (2011), which mapped available activities data at the scale of Scotland's seas to identify broad areas of low/no activity from which to identify MPA search locations in the initial phase of the MPA selection process. Unlike the stage 2d assessment, Chaniotis *et al.* (2011) did not consider the sensitivity of features to pressures.

Guideline 2e The search location contains features considered to be at risk⁶ of significant damage by human activity	
Deep-sea sponge aggregations	The protected feature is considered to be at high risk in the Far West MPA Region (Chaniotis <i>et al.</i> , 2014). This risk is primarily derived from pressures associated with otter trawling and set (fixed) netting.
Offshore deep-sea muds	The protected feature is considered to be subject to risk levels ranging from low to high in the Far West MPA Region (Chaniotis <i>et al.</i> , 2014). This range of risk is due to the sensitivity of different sub-types of offshore deep-sea mud habitats to activities. The risk in Hatton-Rockall Basin MPA is primarily derived from the pressures associated with otter trawling.
Polygonal faults and sediment drifts	Polygonal faults and sediment drifts are considered to be at low risk of damage across Scotland's seas (Brooks, 2013). This risk is primarily derived from the pressures associated with otter trawling.

Stage 3 - Assessment of the appropriate scale of the search location in relation to the search features it contains

Summary of assessment	The MPA boundary is based on the extent of part of the North-east Hatton-Rockall Basin Least Damaged/More Natural location (Chaniotis <i>et al.</i>, 2011) because of relatively limited data on the extent of the individual protected features within the MPA. However, this boundary includes all known records of deep-sea sponge aggregations in the Hatton-Rockall Basin, examples of offshore deep-sea mud habitats, and examples of polygonal faults and sediment drifts which are representative features of the Hatton Bank (and adjacent seafloor) Key Geodiversity Area (Brooks <i>et al.</i>, 2013).
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Detailed assessment	
The size of the search location should be adapted where necessary to ensure it is suitable for maintaining the integrity of the features for which the MPA is being considered. Account should also be taken where relevant of the need for effective management of relevant activities	
Deep-sea sponge aggregations	The MPA boundary has been drawn to encompass all verified records of deep-sea sponge aggregations recorded from the Hatton-Rockall basin.
Offshore deep-sea muds	The MPA boundary has been drawn to include significant areas of both predicted types of offshore deep-sea mud habitat present according to the predictive seabed habitat mapping project EU SeaMap (Atlantic mid and Atlantic upper bathyal mud and sandy mud). However, because of limited ground-truthed data to determine the extent of the protected feature, the MPA boundary is largely derived from a part of the North-east Hatton-Rockall Basin Least Damaged/More Natural location (Chaniotis <i>et al.</i> , 2011).
Geodiversity features	The MPA boundary encompasses examples of polygonal fault systems and sediment drifts – representative features from the Hatton Bank (and adjacent sea floor) Key Geodiversity Area (Brooks <i>et al.</i> , 2013).

⁶ Information on the sensitivity of the biodiversity protected features to pressures and their associated activities was taken from Marine Scotland (2013). The degree to which a feature is exposed to those activities associated with pressures to which it is sensitive in each MPA Region (as described in the [Scottish MPA Selection Guidelines](#)) was assessed to provide a qualitative measure of risk. Risk assessments for the various activities were examined to produce an overall qualitative risk assessment by MPA Region. The conclusions do not reflect the level of risk at the scale of the MPA. The sensitivity of the geodiversity protected features to pressures and their associated activities was taken from Brooks (2013) and an assessment of risk was undertaken at the national level.

Stage 4 - Assessing the potential effectiveness of managing features within a search location as part of a Nature Conservation MPA

Summary of assessment	Mechanisms exist through the North-East Atlantic Fisheries Commission to support the introduction of spatial/temporal measures within the North-East Atlantic Fisheries Commission Regulatory Area (beyond 200 nautical miles to the west of Scotland) to conserve the protected features within the MPA. There is therefore potential for management measures to be implemented successfully and the conservation objectives of the protected features to be achieved in due course. Licensed activities do not currently take place within the MPA at the present time due to the difficulty operating in these depths. However it may become more feasible to undertake deep sea operations as technology advances. The MPA falls within the UK continental shelf designated area⁷ and no mechanism currently exists for management of activities other than fishing. Should interest be expressed by developers in the future, a process may need to be implemented to deliver the development while also supporting achievement of the conservation objectives of the protected features of the MPA.
Detailed assessment	
There is a high probability that management measures, and the ability to implement them, will deliver the objectives of the MPA	
The conservation objectives of the protected features within this MPA are set to 'conserve – feature condition uncertain'. This uncertainty is a consequence of the lack of evidence available to confirm that the feature's condition. We consider that the protected features may have been modified by human activity (see 2d), but that there remains potential for these features to be effectively conserved. Mechanisms exist through the North-East Atlantic Fisheries Commission to support the introduction of spatial/temporal measures within the North-East Atlantic Fisheries Commission Regulatory Area (beyond 200 nautical miles to the west of Scotland) to conserve the protected features within the MPA. It is not considered feasible for activities such as oil and gas or offshore wind developments to take place within the MPA at the present time. Should interest be expressed by developers in the future, a process may need to be put in place for assessing and managing the effects of the activity as the MPA falls within a claimed area of the UK continental shelf. At the present time fishing is the only activity taking place. Should measures be considered necessary for achievement of the conservation objectives of the protected features of the MPA there is the potential for the measures to be implemented successfully. <i>Note:</i> the ICES/NAFO Joint Working Group on Deep-water Ecology (WGDEC) which met in March 2013 recommended a closure to all bottom-contact fishing practices which encompasses the known extent of deep-sea sponge aggregations in the Hatton-Rockall Basin MPA (ICES, 2013). This would be for the purpose of protecting vulnerable marine ecosystems, which in this case encompasses the deep-sea sponge aggregations protected feature. Further discussion concerning management of the protected features of the MPA is provided in the Hatton-Rockall Basin Management Options Paper.	

⁷ The exact limits of the UK continental shelf are set out in orders made under section 1(7) of the Continental Shelf Act 1964 <http://www.ukho.gov.uk/PRODUCTSANDSERVICES/SERVICES/PAGES/LAWOFTHESEA.ASPX> .

Stage 5 - Assessment of the contribution of the potential area to the MPA network	
Summary of assessment	The MPA makes a contribution to the MPA network for two types of deep-sea sponge aggregations in OSPAR Region V and is the only area where bird's nest sponge fields have been recorded in OSPAR Region V. In addition, deep-sea sponge aggregations are considered to be Threatened and/or Declining by the OSPAR Commission. The MPA also provides representation for off-shelf Atlantic influenced offshore deep-sea muds at the most western extent of the geographical range of the feature in OSPAR Region V. With regards to the geodiversity protected features, polygonal faulting is a widespread phenomenon, but is normally only observed below the surface of the seafloor. The fact that the polygonal faults occur at the seabed makes the Hatton-Rockall Basin example particularly unique and they are regarded as scientifically important for the study of fluid flow and the history of the Rockall Bank Mass flow (Brooks et al., 2013; Mortimer, 2008). The settlement of deep-sea sponge aggregations in the MPA may also be associated with the polygonal faults geodiversity feature (Howell et al., 2014).
Detailed assessment	
The potential area contributes significantly to the coherence of the MPA network in the seas around Scotland	
Assessment of biodiversity features	
Feature	Summary
Deep-sea sponge aggregations	The MPA provides representation in the network for two types of deep-sea sponge aggregations in OSPAR Region V, and is the only area where fields of the bird's nest sponge have been recorded in OSPAR Region V. The feature is an OSPAR Threatened and/or Declining habitat. The MPA also provides representation of different ecological types of the habitat in comparison to the deep-sea sponge aggregations in the Faroe-Shetland Channel in OSPAR Region II and on Rosemary Bank Seamount also in OSPAR Region V. For further information please see the deep-sea sponge aggregations adequacy assessment (SNH and JNCC, 2014).
Offshore deep-sea muds	The MPA provides representation in the network for Atlantic influenced off-shelf offshore deep-sea mud habitats in OSPAR Region V. Although considered adequate from a replication perspective through the protection afforded to offshore deep sea-muds beyond the continental shelf and slope by existing protected areas (see Carruthers et al., 2011), the MPA extends representation of the feature to the west of its geographical range in OSPAR Region V. For further information please see the offshore deep-sea muds adequacy assessment (SNH and JNCC, 2014).
Assessment of geodiversity features	
Geodiversity features ⁸	Polygonal faulting is a widespread phenomenon, but is normally only observed below the surface of the seafloor. The fact that the polygonal faults occur at the seabed makes the Hatton-Rockall Basin example particularly unique and they are regarded as scientifically important for the study of fluid flow and the history of the Rockall Bank Mass flow (Brooks et al., 2013; Mortimer, 2008).

⁸ For geodiversity the stage 5 assessment primarily considers the contribution of MPAs to the principal 'networks' of marine geodiversity interests present in Scottish waters (representation). The MPA Selection Guidelines propose that there should be minimal duplication of geodiversity features at a national level.

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