

Scottish MPA Project
Assessment against the MPA Selection Guidelines

**EAST OF GANNET & MONTROSE FIELDS NATURE CONSERVATION
MPA**

JULY 2014

The following documents provide further information about the East of Gannet and Montrose Fields 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-6478

Document Distribution List and Version Control				
Format	Version	Issue date	Version development and review	Issued to
Electronic	2.2	16/04/2013	Internal drafting and review of pre-version 2.2 drafts by JNCC SMPA team and Grade 7 staff prior to release to MPA Sub Group	MPA Sub Group
Electronic	3.0	30/05/2013	Review of document to take into account MPA Sub-Group comments, editorial review and Grade 7 review prior to release to MPA Sub Group for sign-off.	MPA Sub Group
Electronic	4.0	11/07/2013	Review of document to take into account MPA Sub-Group comments and release of document for public consultation.	Uploaded to JNCC website
Electronic	5.0	07/07/2014	Document update to align with designation status and text revised in response to consultation and independent review report	Delivery to Marine Scotland to support MPA designation and uploaded to JNCC website

Background

This document provides details of JNCC's assessment of the East of Gannet and Montrose Fields 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 East of Gannet and Montrose Fields MPA are provided in the Data Confidence Assessment document.

EAST OF GANNET AND MONTROSE FIELDS MPA - APPLICATION OF THE MPA SELECTION GUIDELINES

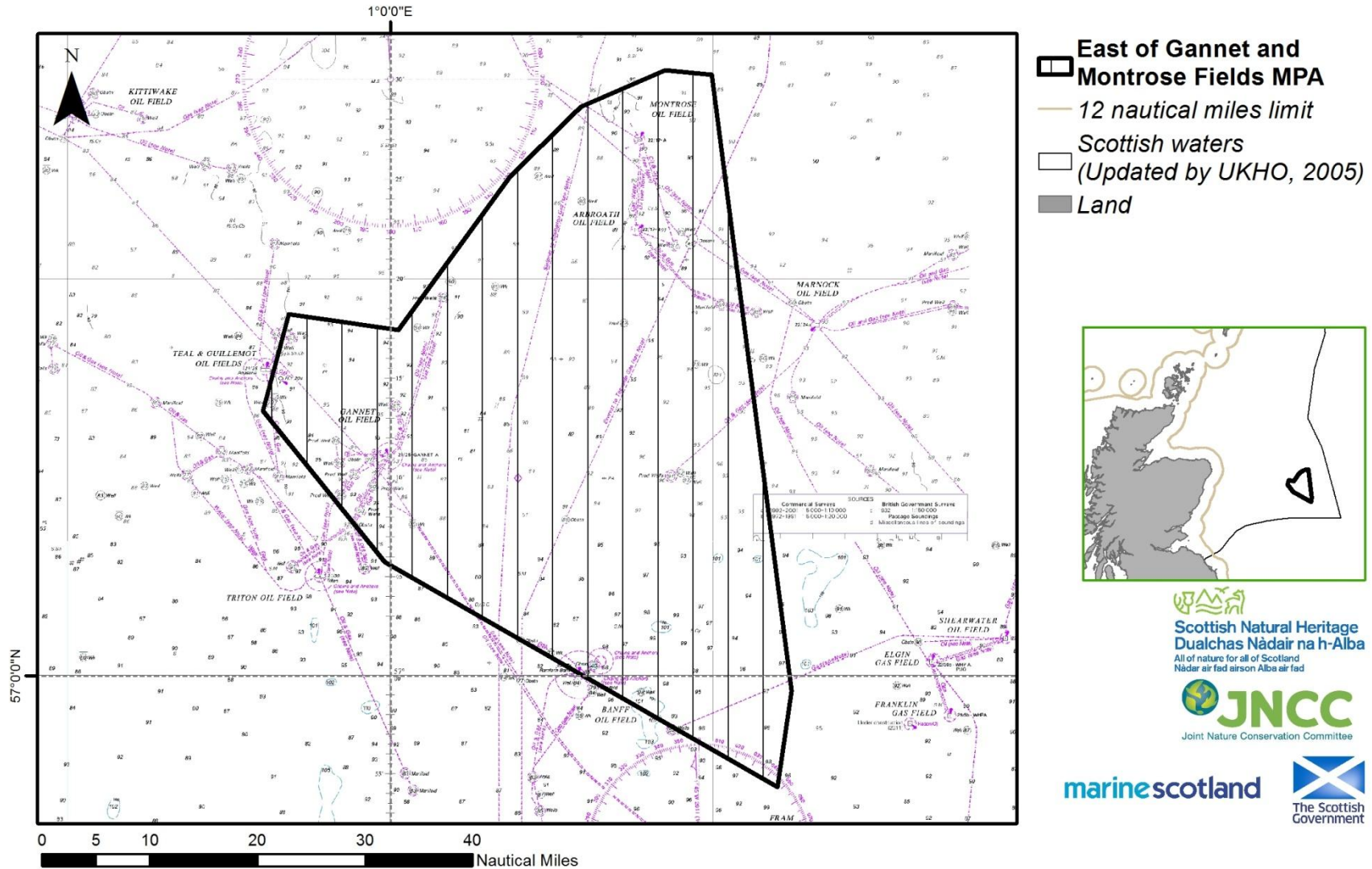
Stage 1 - Identifying search locations that would address any significant gaps in the conservation of MPA search features

Summary of assessment	The MPA includes two protected features – offshore deep-sea muds and ocean quahog aggregations. Ocean quahog (<i>Arctica islandica</i>) are considered to be Threatened and/or Declining by the OSPAR Commission.
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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>			
Ocean quahog aggregations	✓	✓ OSPAR T&D ¹	
Offshore deep-sea muds	✓		

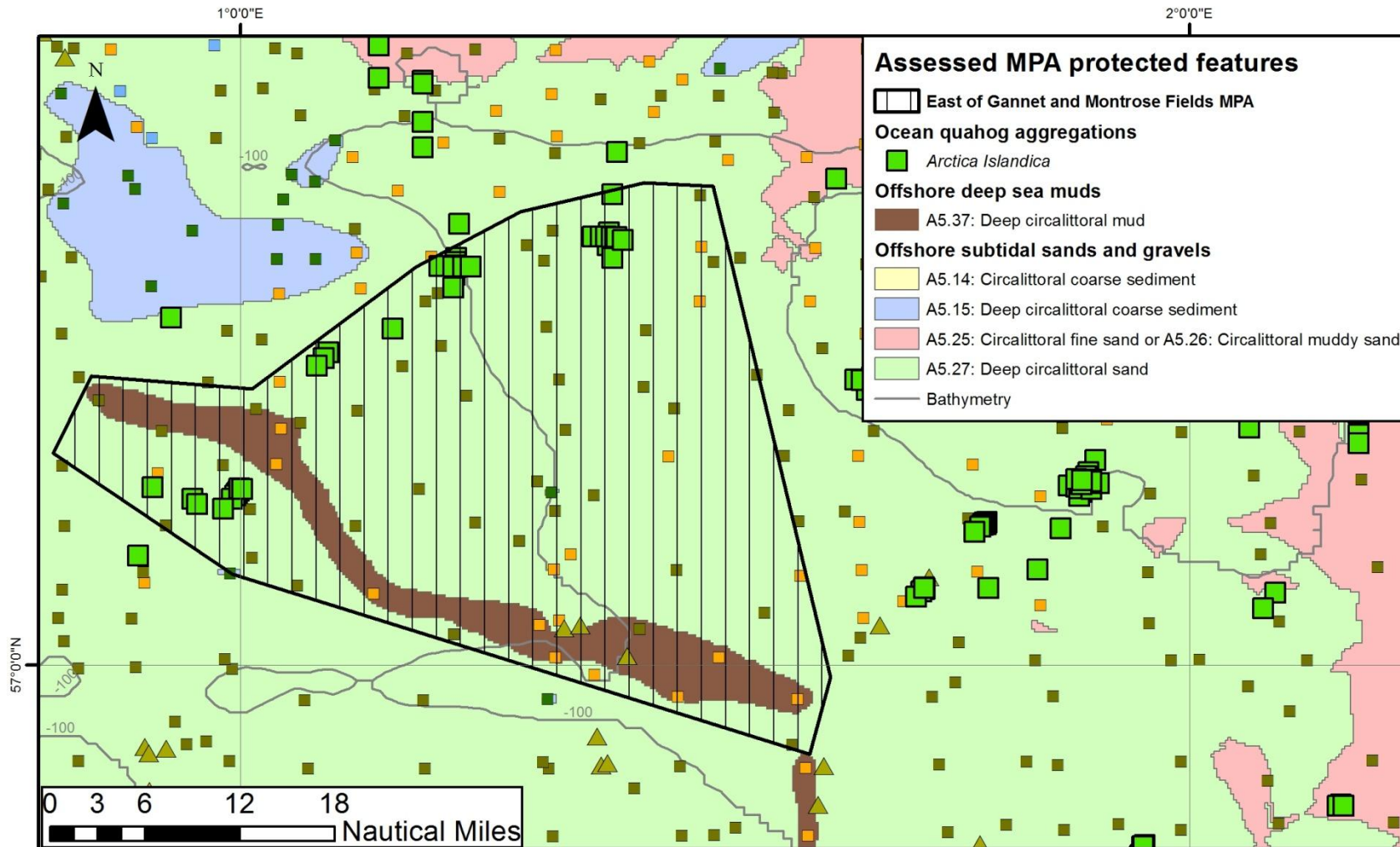
¹ OSPAR list of Threatened and/or Declining species and habitats (see OSPAR, 2008 a & b)

Map showing the location of the East of Gannet and Montrose Fields 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 East of Gannet and Montrose Fields MPA showing the known distribution of protected features



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 (GeMS v4) © Crown Copyright; MPA © JNCC and SNH 2014. All rights reserved; PSA data © BGS and MSS.

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

Summary of assessment

The MPA contains combinations of protected features. There is evidence that offshore subtidal sand and gravel habitats are likely to be functionally linked with ocean quahog aggregations in the MPA based on what is known about the habitat preferences of ocean quahog (See Sabatini & Pizzolla, 2008; Witbaard & Bergman, 2003).

There is insufficient evidence available to undertake an assessment of whether offshore deep-sea mud habitats within the MPA have high natural biological diversity or are typical of those expected from the wider region. JNCC considers the MPA contains a coherent example of the habitat as opposed to fragmented. JNCC's conclusion is based on the inclusion of the entire predicted extent of offshore deep-sea mud habitat within the MPA boundary, the presence of the feature being supported by Particle Size Analysis data.

Sampling station data from the MPA recorded ocean quahog within those depth ranges and seabed sediment types that studies across the North Sea have identified as typical for the species (See Sabatini & Pizzolla, 2008; Witbaard & Bergman, 2003). Ocean quahog is recorded at significantly different densities across its known geographic range, with densities between 16-100m² recorded in the northern North Sea (OSPAR, 2009). The evidence available is not sufficient to be able to determine the abundance of the ocean quahog within the MPA and further data are required to confirm the presence of aggregations of the species within the MPA. The size of the MPA and the inclusion of sediment types suitable for ocean quahog colonisation mean that the MPA is likely to include a coherent, as opposed to a fragmented, example of the protected feature. However, there is insufficient evidence to verify the presence of ocean quahog aggregations across the entire MPA. There is no available information on the condition of the protected features within the MPA. However, activities occurring within the area overlap with the protected features. Using information on the sensitivity of the protected features to pressures associated with marine activities, JNCC conclude that there is a risk that the features have been modified by human activity. Within the MPA Region², it is considered that there is a high risk of significant damage by human activity to ocean quahog aggregations. For offshore deep-sea mud habitats the risk of being significantly damaged by human activity in the MPA Region ranges from low to high. This variance in risk is a reflection of the range in sensitivity of different types of this habitat to those pressures associated with activities to which the features are exposed.

The stage 2a and 2e guidelines have been met. The stage 2b and 2d guidelines have not been met. The stage 2c guideline has been met for offshore deep-sea muds, and is likely to have been met for ocean quahog aggregations.

² East (Offshore) MPA Region as described in the [Scottish MPA Selection Guidelines](#)

Detailed assessment	
Guideline 2a The search location contains combinations of features, rather than single isolated features, especially if those features are functionally linked	
<p>There are combinations of protected features present within the MPA. Although ocean quahog is not characteristic of any particular habitat it is known to occur in a range of sediments from coarse clean sand to muddy sand in the infralittoral, circalittoral, circalittoral offshore and bathybenthic offshore environment, in water depths from 4 to over 400m (Witbaard & Bergman, 2003; Sabatini & Pizzolla, 2008). The seabed habitat types present within the MPA lie within these broad ranges of environmental conditions. To support the protection of ocean quahog populations, the offshore subtidal sand and gravel habitats are included as a feature in the context of providing suitable habitat for ocean quahog colonisation.</p>	
Guideline 2b The search location contains example(s) of features with a high natural biological diversity (for habitats only)	
Offshore deep sea muds	<p>Information for offshore deep-sea mud habitats within the MPA has been drawn from the seabed mapping project EU SeaMap³. EU SeaMap habitat models predict one offshore deep-sea mud EUNIS Level 4 habitat type to be present within the MPA - A5.37 Deep Circalittoral mud. On the continental shelf in OSPAR Region II, there is one type of EUNIS Level 4 offshore deep-sea mud habitats predicted to occur (A5.37 Deep circalittoral mud) and the MPA represents an example of this habitat. Particle Size Analysis data provided by the British Geological Survey (BGS) and Marine Scotland Science (MSS) verify the presence of mud and sandy mud where the EUNIS Level 4 habitat A5.37 Deep circalittoral mud is predicted to occur, although to the west of the predicted extent of deep circalittoral mud habitat there are Particle Size Analysis records of sands and muddy sands. Because of a lack of information on the biological communities inhabiting the offshore deep-sea mud habitat within the MPA, we consider there is insufficient information to be able to undertake an assessment of the stage 2b guideline.</p>
Guideline 2c The search location contains coherent examples of features, rather than smaller, potentially more fragmented ones	
Offshore deep sea muds	<p>Based on the inclusion of the full predicted extent of a patch of the EUNIS Level 4 habitat A5.37 Deep circalittoral mud, which is verified by Particle Size Analysis data, we consider that the MPA boundary is of the appropriate size to support the habitat and may be considered coherent as opposed to fragmented.</p>
Ocean quahog aggregations	<p>Ocean quahog are typically found below the surface of medium- to fine-grained sand, sandy mud and silty-sand (Sabatini & Pizzolla, 2008), in water depths from 4 to over 400 m (Witbaard & Bergman, 2003). Clusters of survey data records within the MPA confirm ocean quahog is present within these typical depth range and sediment types, although there is not sufficient evidence to determine the abundance and distribution of the ocean quahog within the MPA. We consider the size of the MPA and the inclusion of sediment types suitable for ocean quahog colonisation is likely to support a coherent, as opposed to a fragmented, example of the protected feature. However, there is insufficient evidence to verify the presence of ocean quahog aggregations across the entire MPA. It is notable that although ocean quahog are exceptionally long-lived, recruitment of new individuals to an aggregation may be sporadic and may be as infrequent as once in more than 10 years in some localities (Ridgeway & Richardson, 2011).</p>

³ 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 2d	The search location contains features considered least damaged / more natural, rather than those heavily modified by human activity ⁴
Ocean quahog aggregations	<p>There is no evidence on the condition of ocean quahog 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 it is considered to be sensitive (Marine Scotland, 2013). Rasterised Vessel Monitoring System (VMS) data from fishing vessels from 2006 to 2009 (which has a coarse resolution), VMS point data from 2009 to 2011, and oil and gas industry activity information sourced from UK DEAL, indicate that at least eighty percent of survey stations where ocean quahog have been sampled, and approximately three-quarters of the predicted extent of habitat where ocean quahog could be present within the MPA, are exposed to activities such as otter trawling and oil and gas activity associated with pressures to which the protected feature has a high to medium sensitivity. This reflects the different sensitivity of the feature to those pressures associated with activities to which they are exposed. As such, there is a risk that ocean quahog aggregations may have been modified by human activity.</p>
Offshore deep-sea muds	<p>There is no direct evidence 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 offshore deep-sea mud habitats are considered to be sensitive (Marine Scotland, 2013). Rasterised Vessel Monitoring System (VMS) data from fishing vessels from 2006-2009, which has a coarse resolution, VMS point data from 2009-2011, oil and gas industry activity information sourced from UK DEAL, and telecommunications cable information sourced from sub-sea cables, indicate that approximately three-quarters of the predicted extent of offshore deep-sea mud habitats within the MPA are exposed to activities (such as otter trawling, demersal seine netting, oil and gas exploration activity, and cable and pipeline laying and maintenance) associated with pressures to which the protected feature has a sensitivity ranging from not sensitive to highly sensitive. This potential variability for offshore deep-sea muds depends on local substrate types, energy conditions and species composition and diversity. Maps predicting the distribution of seabed habitats from the EU SeaMap habitat mapping project indicate a relatively moderate level of energy at the seabed in this MPA. This suggests a likely sensitivity at the lower range for the feature, but given the range in sensitivity the ecological significance of such modification is uncertain.</p>

⁴ 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 location of features or their sensitivity to pressures.

Guideline 2e The search location contains features considered to be at risk⁵ of significant damage by human activity	
Ocean quahog aggregations	The protected feature is considered to be at high risk in the MPA Region (Chaniotis <i>et al.</i> , 2014). This risk is primarily derived from the pressures associated with the extraction for oil and gas, installation of marine infrastructure, otter trawling and scallop dredging.
Offshore deep-sea muds	In the MPA Region, the protected feature is considered to be subject to levels of risk which range from low to high (Chaniotis <i>et al.</i> , 2014). The range in risk is due to the variation in sensitivity between different types of offshore deep-sea mud habitats to activities. Habitats in higher energy, naturally disturbed, environments are generally less sensitive than habitats in lower energy environments to pressures related to physical disturbance for example. This risk to the feature within the MPA Region is primarily associated with the use of bottom-contact mobile fishing gear use and the installation and maintenance of marine infrastructure.

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 reflects the location of Least Damaged/More Natural areas (Chaniotis <i>et al.</i>, 2011) and ocean quahog records along the northern and western boundary, and the entirety of the predicted extent of a patch of offshore deep-sea muds which has been verified by existing British Geological Survey (BGS) and Marine Scotland Science survey data along the southern and western boundary. The eastern boundary simply joins the eastern edges of the Least Damaged/More Natural areas and the predicted extent of offshore deep-sea mud. Within the MPA, only those offshore subtidal sand and gravel habitats considered suitable for ocean quahog colonisation are included.
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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	
Ocean quahog aggregations	The MPA boundary has been drawn to focus on survey records of ocean quahog and to include areas of sediments considered suitable for ocean quahog colonisation (Sabatini & Pizzolla, 2008).
Offshore deep-sea muds	The MPA boundary has been drawn to encompass the entire predicted extent of the EUNIS Level 4 habitat A5.37 Deep circalittoral mud based on EU SeaMap data and verified by BGS and Marine Scotland Science Particle Size Analysis data.

⁵ 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 European Commission under the Common Fisheries Policy to support the introduction of spatial/temporal fisheries measures to conserve the protected features within the MPA. For licensed activities, JNCC consider management could be addressed through the Environmental Impact Assessment (EIA) process. There is therefore the potential for management measures to be implemented successfully and the conservation objectives of the protected features of the MPA to be achieved in due course.
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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 for the protected features within this MPA are to ‘conserve – feature condition uncertain’. This uncertainty is a consequence of the lack of direct evidence available to confirm that the features are in good condition. We consider there to be a risk that the protected features may have been modified by human activity (see 2d), but that there is potential for all the protected features to be conserved if appropriate management actions are implemented.

Mechanisms exist through the European Commission under the Common Fisheries Policy to support the introduction of spatial/temporal fisheries measures to conserve the protected features within the MPA. For licensed activities, JNCC consider management could be addressed through the EIA process. There is therefore potential for management measures to be implemented successfully and the conservation objectives of the protected features of the MPA to be achieved.

Further discussion concerning management of the protected features of the MPA is provided in the East of Gannet and Montrose Fields Management Options Paper.

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 the OSPAR Threatened and/or Declining species ocean quahog at the southern extent of its range in OSPAR Region II in Scotland's seas, and one of very few areas of offshore deep-sea mud habitats in offshore waters in OSPAR Region II.
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
Ocean quahog aggregations	The MPA provides representation for ocean quahog aggregations in OSPAR Region II. The feature is an OSPAR Threatened and/or Declining species in OSPAR Region II. Based on considering geographical range for the feature and quality of the data available, the East of Gannet and Montrose Fields MPA is not considered to be of equal ecological value to any other MPA for the feature. For further information please see the ocean quahog aggregations adequacy assessment (SNH and JNCC, 2014).
Offshore deep-sea muds	The MPA provides representation for the largest of very few patchy examples of Atlantic-influenced offshore deep-sea mud habitats in OSPAR Region II on the continental shelf. It is the only MPA included for offshore deep-sea muds on the continental shelf in OSPAR Region II. For further information please see the offshore deep-sea muds adequacy assessment (SNH and JNCC, 2014).

Data sources and bibliography

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