



<p><b>Scottish MPA Project</b> <b>Assessment against the MPA Selection Guidelines</b></p>
<p><b>NORWEGIAN BOUNDARY SEDIMENT PLAIN NATURE CONSERVATION MPA</b></p>
<p><i>JULY 2014</i></p>

The following documents provide further information about the Norwegian Boundary Sediment Plain 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-6485](http://www.jncc.defra.gov.uk/page-6485)

<b>Document Distribution List and Version Control</b>				
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## Background

This document provides details of JNCC's assessment of the Norwegian Boundary Sediment Plain 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 Norwegian Boundary Sediment Plain MPA are provided in the Data Confidence Assessment document.

**NORWEGIAN BOUNDARY SEDIMENT PLAIN 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**

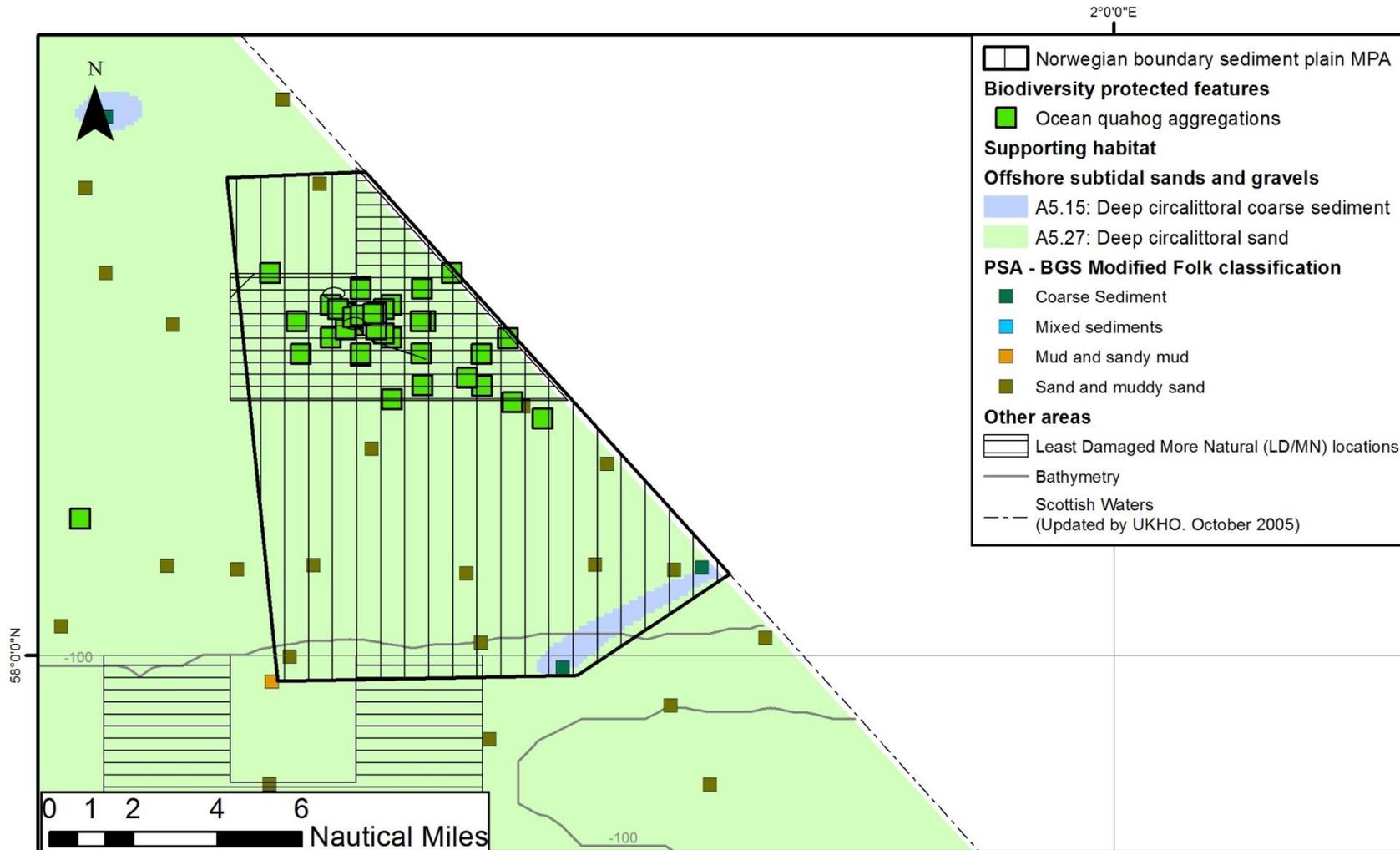
<b>Summary of assessment</b>	The MPA was considered for one protected feature – ocean quahog ( <i>Arctica islandica</i> ) aggregations. Ocean quahog are considered to be Threatened and/or Declining by the OSPAR Commission.
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<b>Detailed assessment</b>			
<b>Proposed features</b>	<b>Guideline 1a</b> <i>Presence of key features [MPA search features and geodiversity equivalents]</i>	<b>Guideline 1b</b> <i>Presence of features under threat and/or subject to rapid decline</i>	<b>Guideline 1c</b> <i>Functional significance for the overall health and diversity of Scottish seas</i>
<i>Biodiversity</i>			
Ocean quahog aggregations	✓	✓ <b>OSPAR T&amp;D</b> <sup>1</sup>	

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



Map of Norwegian Boundary Sediment Plain 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). 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 © JNCC and SNH 2014. All rights reserved. PSA © BGS. All rights reserved. EUSeaMap © EUSeaMap consortium 2012 (www.emodnet-seabedhabitats.eu)

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

### Summary of assessment

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

Sampling data from the MPA indicate that ocean quahog are present within an equivalent depth range and sediment types to records from other studies across the North Sea (See Sabatini & Pizzolla, 2008; Witbaard & Bergman, 2003). Ocean quahog populations are recorded at significantly different densities across their range, with densities between 16-100m<sup>2</sup> recorded in the northern North Sea (OSPAR, 2009). The evidence available is not sufficient to be able to determine the abundance of ocean quahog within the MPA and further data are required to confirm the presence of aggregations. The size of the MPA and the inclusion of sediment types suitable for ocean quahog colonisation mean that the MPA may include a coherent example of the protected feature. However, JNCC conclude there is currently insufficient evidence to verify the presence of ocean quahog aggregations across the entire MPA.

There is no available information on the condition of ocean quahog aggregations within the MPA. However, information on the sensitivity of the protected feature to pressures associated with activities believed to be taking place within the MPA indicates there is a risk that the feature may have been modified by human activity. Ocean quahog aggregations are considered to be at high risk of damage from human activity in the MPA Region<sup>2</sup>.

**Two of the five stage 2 guidelines have been met (2c and 2e); guideline 2b is not relevant to a species feature.**

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

<b>Detailed assessment</b>	
<b>Guideline 2a</b>	<b>The search location contains combinations of features, rather than single isolated features, especially if those features are functionally linked</b>
<p>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 and in water depths from 4 to over 400m (Witbaard &amp; Bergman, 2003; Sabatini &amp; Pizzolla, 2008). The seabed habitat types present within the MPA according to EU SeaMap<sup>3</sup> fall within these characteristic habitat types. To support the protection of ocean quahog the offshore subtidal sand and gravel habitats are included in the context of providing suitable habitat for ocean quahog colonisation. There is a functional link between the habitat feature and the ocean quahog aggregations.</p>	
<b>Guideline 2b</b>	<b>The search location contains example(s) of features with a high natural biological diversity (for habitats only)</b>
<p>N.A – The guideline is applicable to habitats only.</p>	
<b>Guideline 2c</b>	<b>The search location contains coherent examples of features, rather than smaller, potentially more fragmented ones</b>
Ocean quahog aggregations	<p>Ocean quahog are typically found below the surface of medium- to fine-grained sand, sandy mud and silty-sand (Sabatini &amp; Pizzolla, 2008) and in water depths of 4 to over 400 m (Witbaard &amp; Bergman, 2003). Clusters of survey data records from the MPA confirm that ocean quahog are present within this depth range and sediment types based on EU SeaMap data and British Geological Survey Particle Size data. There is not however, sufficient evidence to determine the abundance and full distribution of the ocean quahog within the MPA. We consider the size of the MPA and the inclusion of those sediment types suitable for ocean quahog populations will likely support a coherent example of the protected feature. Further survey data would confirm this assessment. 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 &amp; Richardson, 2011).</p>

<sup>3</sup> 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>

<b>Guideline 2d The search location contains features considered least damaged / more natural, rather than those heavily modified by human activity<sup>4</sup></b>	
Ocean quahog aggregations	There is no evidence available 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 ocean quahog may be sensitive (Marine Scotland, 2013). Rasterised Vessel Monitoring System (VMS) data from fishing vessels from 2006-2009, which are coarse in resolution, VMS point data from 2009-2011, and data on oil and gas infrastructure sourced from UK DEAL indicate that approximately half the records of ocean quahog and approximately half of the area of sediments suitable for ocean quahog colonisation are exposed to activities such as otter trawling and oil and gas operations linked to pressures to which the feature may have a high to medium sensitivity. Consequently, JNCC conclude there is a risk that ocean quahog aggregations may have been modified by human activity.
<b>Guideline 2e The search location contains features considered to be at risk<sup>5</sup> of significant damage by human activity</b>	
Ocean quahog aggregations	The protected feature is considered to be at high risk in the MPA Region <sup>6</sup> (Chaniotis <i>et al.</i> , 2014). This risk is primarily derived from those pressures associated with extraction for oil and gas, installation of marine infrastructure, otter trawling and scallop dredging.

<sup>4</sup> 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.

<sup>5</sup> 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 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.

<sup>6</sup> The East (Offshore) MPA Region as described in the [Scottish MPA Selection Guidelines](#).

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

<b>Summary of assessment</b>	The MPA reflects the distribution of survey records of ocean quahog, the distribution of sediments suitable for colonisation by ocean quahog and the location of Least Damaged/More Natural areas across the ocean quahog records (Chaniotis <i>et al.</i> , 2011)
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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 includes both the survey records of ocean quahog and to areas of sediments considered suitable for ocean quahog colonisation (Sabatini & Pizzolla, 2008).
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**Stage 4 - Assessing the potential effectiveness of managing features within a search location as part of a Nature Conservation MPA**

<b>Summary of assessment</b>	Mechanisms exist through the European Commission under the Common Fisheries Policy to support the introduction of spatial/temporal fisheries measures to conserve ocean quahog aggregations within the MPA. For licensed activities, JNCC consider this could be addressed through the Environmental Impact Assessment (EIA) process. There is therefore potential for management measures to be implemented successfully and the conservation objective of the protected feature of the MPA to be achieved.
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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 objective for ocean quahog aggregations is to 'conserve – feature condition uncertain'. This uncertainty is due to the lack of available direct evidence to confirm that ocean quahog aggregations are in good condition. We consider that the ocean quahog aggregations may have been modified by human activity (see 2d), but that there is potential for the protected feature to be conserved.

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

Further discussion concerning management of the protected features of the MPA is provided in the Norwegian Boundary Sediment Plain Management Options Paper.

<b>Stage 5 - Assessment of the contribution of the potential area to the MPA network</b>	
<b>Summary of assessment</b>	The MPA makes a contribution to the MPA network for ocean quahog, a Threatened and/or Declining species in OSPAR Region II.
<b>Detailed assessment</b>	
The potential area contributes significantly to the coherence of the MPA network in the seas around Scotland	
<b>Assessment of biodiversity features</b>	
<b>Feature</b>	<b>Summary</b>
Ocean quahog aggregations	The MPA provides for the representation for ocean quahog aggregations in OSPAR Region II. As an OSPAR Threatened and/or Declining species in OSPAR Region II, it is considered important to have greater replication for the feature on the grounds of increasing resilience. For further information please see the ocean quahog aggregations adequacy assessment (SNH & JNCC, 2014).

### Data sources and bibliography

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