



<p>Scottish MPA Project Assessment against the MPA Selection Guidelines</p>
<p>WEST SHETLAND SHELF NATURE CONSERVATION MPA</p>
<p><i>JULY 2014</i></p>

The following documents provide further information about the West Shetland Shelf 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-6491

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Electronic	5.0	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	6.0	21/07/2014	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 upload to JNCC website

Background

This document provides details of JNCC's assessment of the West Shetland Shelf 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 West Shetland Shelf MPA are provided in the Data Confidence Assessment document.

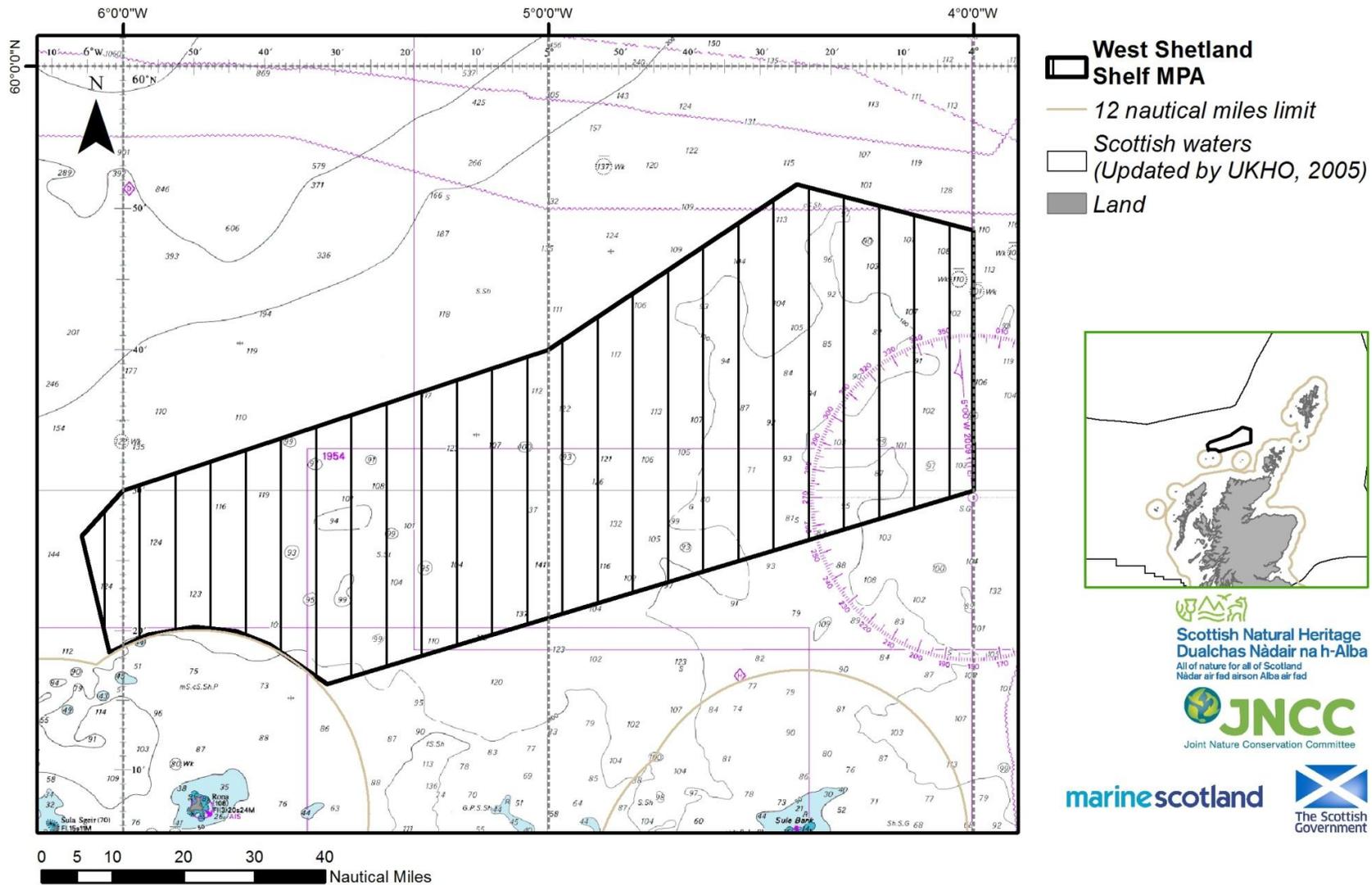
WEST SHETLAND SHELF MPA - APPLICATION OF THE MPA SELECTION GUIDELINES

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

Summary of assessment	The MPA includes one protected feature – offshore subtidal sand and gravel habitats. Although recommended for one feature, West Shetland Shelf is significant in representing offshore subtidal sand and gravel habitats in OSPAR Regions II & III on the continental shelf at the northern extent of its range in both OSPAR Regions.
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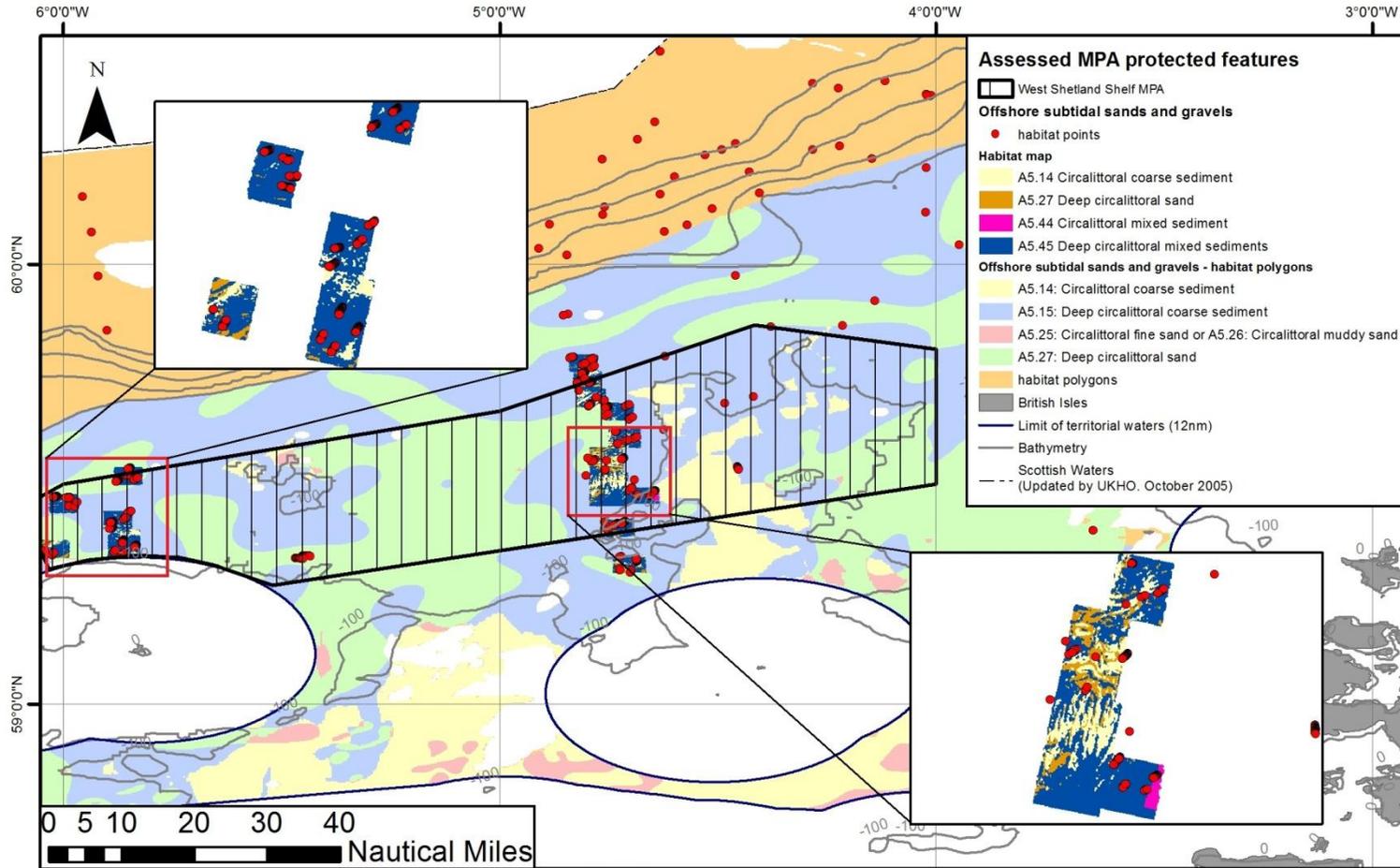
Detailed assessment			
Protected features	Guideline 1a <i>Presence of key features [MPA search features and geodiversity equivalents]</i>	Guideline 1b <i>Presence of features under threat and/or subject to rapid decline</i>	Guideline 1c <i>Functional significance for the overall health and diversity of Scottish seas</i>
<i>Biodiversity</i>			
Offshore subtidal sands and gravels	✓		

Map showing the location of the West Shetland Shelf 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 West Shetland Shelf 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 (GeMSv4) © Crown Copyright; MPA © JNCC and SNH 2014. All rights reserved. PSA data © BGS. Habitat map © JNCC, 2014. EUSaMap © EUSaMap 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	<p>The MPA includes one protected feature – offshore subtidal sand and gravel habitats. Although survey and predictive habitat mapping data (EUSeaMap¹) support the presence of a number of different types of coarse and mixed sediment sand and gravel habitats in the MPA relative to the range of sand and gravel habitat types predicted to occur across the wider OSPAR Regions, there is limited information on the relative levels of biological diversity with which to undertake an assessment against the 2b guideline. As such, JNCC are uncertain whether the stage 2b guideline is fully met. The MPA is considered to represent a coherent example of offshore subtidal sand and gravel habitats based on an analysis of the available survey data and the predicted presence of a range of different types of offshore subtidal sand and gravel habitats from the EUSeaMap project.</p> <p>There is no available information on the condition of offshore subtidal sand and gravel habitats within the MPA. However, information on the sensitivity of the protected feature to pressures to which the feature is exposed suggests the feature may have been modified by human activity. The risk of damage by human activity varies for offshore subtidal sand and gravel habitats in the East (Offshore) and West (Offshore) MPA Regions². This difference in relative risk is a reflection of the range in sensitivity of different types of this habitat to pressures associated with activities to which they are exposed.</p> <p>It should be noted that the West Shetland Shelf MPA is one of the few areas where the habitat is not currently exposed to the main cause of pressures to which this habitat is sensitive – bottom contact mobile fishing gear.</p> <p>Two of the five parts of the stage 2 guideline are considered to be met (2c and 2e). JNCC are uncertain as to whether the stage 2b guideline has been met.</p>
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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
<p>The MPA is designated for one protected feature – offshore subtidal sand and gravel habitats, of which there are a range of different sub-components present within the MPA boundary. Whilst this range of sub-types is present, this guideline is not readily applicable to such situations since the offshore subtidal sand and gravel habitat per se is a single feature covering the entirety of the MPA.</p>	

Guideline 2b	The search location contains example(s) of features with a high natural biological diversity (for habitats only)
Offshore subtidal sands and gravels	<p>Within a given depth range, the underlying substrate characteristics are likely to be a strong determinant of the types of species present in sand and gravel habitats (Eleftheriou & Basford, 1989). Therefore, biodiversity might be expected to be highest within a given area that contains a range of different physical types of sand and gravel habitats. With this in mind the MPA boundary has been developed to include a range of offshore subtidal sand and gravel habitats to give high habitat diversity.</p> <p>Information for offshore subtidal sand and gravel habitats within the MPA has been drawn from the seabed habitat modelling by the EU SeaMap Project², seabed imagery and grab samples from the FRV Scotia Rona-Windsock and International Bottom Trawl Surveys which</p>

¹ 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>

² 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)
	<p>both took place in 2011 (Axelsson <i>et al.</i>, 2014; Goudge & Morris, 2014), associated habitat mapping work (Sotheran & Crawford-Avis, 2014) and the work carried out to characterise the SEA4 region of Scotland’s seas based on Department of Trade and Industry (DTI) benthic survey data from 1996-2002 (Bett, 2012).</p> <p>The EUSeaMap habitat modelling project predicts the following types of offshore subtidal sand and gravel EUNIS Level 4 habitats to be present:</p> <ul style="list-style-type: none"> • A5.14 Circalittoral coarse sediment • A5.15 Deep circalittoral coarse sediment • A5.25 Circalittoral sand fine or A5.26 Circalittoral muddy sand; and • A5.27 Deep circalittoral sand <p>The MPA spans the boundary between OSPAR Regions II & III. All the habitats listed above are present in both parts of the MPA. On the shelf in OSPAR Region II, EUSeaMap predicts eight different types of offshore subtidal sand and gravel EUNIS Level 4 habitats to occur. The MPA represents four of these EUNIS Level 4 habitats covering sand, muddy sand and coarser sediments. On the shelf in OSPAR Region III, EUSeaMap predicts nine different types of offshore subtidal sand and gravel EUNIS Level 4 habitats to occur. The MPA represents four of these EUNIS Level 4 habitats covering sand, muddy sand and coarser sediments.</p> <p>Video and still image data from the FRV Scotia Rona-Windsock survey (1111S) and International Bottom Trawl Survey (1511S IBTS Q4) verify the presence of offshore subtidal sand and gravel habitats within the MPA as largely comprising biotopes of the EUNIS Level 4 habitats offshore circalittoral coarse and mixed sediments and offshore circalittoral sands. Results of Particle Size Analysis (PSA) of samples from these two surveys confirm that the majority of the sampled substrata was coarse sediment (gravel, gravelly sand, sandy gravel) and sands (sand and slightly gravelly sand) with a minority classed as mixed (muddy sandy gravel).</p> <p>Analysis of still images from the FRV Scotia Rona-Windsock survey (1111S) indicated the presence of the SS.SMx.CMx.FluHyd biotope (<i>Flustra foliacea</i> and <i>Hydrallmania falcata</i> on tide-swept circalittoral mixed sediment) based on identification of species living on the seabed (Axelsson <i>et al.</i>, 2014). Mixed faunal turf communities were also recorded amongst boulders and bedrock (CR.MCR.XFa) within some of the mixed sediment areas (Axelsson <i>et al.</i>, 2014; Goudge & Morris, 2014). ‘<i>Spionidae-Syllidae-Syllidae in Atlantic sand and muddy sand</i>’ is a biotope proposed by Bett (2012) occurring in the MPA along the continental shelf break West of the Shetland isles.</p> <p>Processed grab sample data from the FRV Scotia Rona-Windsock survey (1111S) further verified the presence of the EUNIS Level 4 habitats circalittoral coarse sediments, circalittoral mixed sediments, and circalittoral sands. In addition, four new biotopes were proposed as part of the processing of this data (Pearce <i>et al.</i>, 2014).</p> <ul style="list-style-type: none"> • <i>Placostegus tridentatus</i> and <i>Galathea intermedia</i> on faunal encrusted gravelly sand and sandy gravel (SS.SCS.OCS.[PtriGintFaCr]) • <i>Aponuphis bilineata</i> and <i>Echinocyamus pusillus</i> in faunal encrusted polychaete-rich offshore circalittoral gravelly sands and sandy gravels (SS.SCS.OCS.[AbilEpusFaCrPo]) • <i>Aponuphis bilineata</i> and <i>Echinocyamus pusillus</i> in polychaete-rich offshore circalittoral sands (SS.SSa.OSa.[AbilEpusPo]) • <i>Moerella pygmaea</i> and sparse polychaetes in offshore circalittoral sands (SS.SSa.OSa.[MoePo])

Guideline 2b	The search location contains example(s) of features with a high natural biological diversity (for habitats only)
	<p>Biotope information and predicted habitat information from EUSeaMap were used for our assessment against the stage 2b guideline. JNCC note the presence of a number of different types of coarse and mixed sediment sand and gravel habitats in the MPA relative to the range of sand and gravel habitat types predicted to occur across the wider OSPAR Regions, indicating high habitat diversity in the MPA. However, there is limited information on the typical levels of biological diversity in these habitats over the wider region against which JNCC could assess the degree of biological diversity present within these habitats of the MPA. Consequently, JNCC are not able to conclude on whether the stage 2b guideline is met and hence our judgement is recorded as 'uncertain'.</p>

Guideline 2c	The search location contains coherent examples of features, rather than smaller, potentially more fragmented ones
Offshore subtidal sands and gravels	<p>The EUSeaMap habitat modelling project predicts offshore subtidal sand and gravel habitats in the MPA to comprise a range of large patches of different types of coarse and mixed sand and gravel sediments. Still images, video sequences and grab sample data support this prediction (Bett, 2012; Axelsson <i>et al.</i>, 2014; Goudge & Morris, 2014; Pearce <i>et al.</i>, 2014). JNCC conclude this habitat is likely to be a coherent example.</p>

Guideline 2d	The search location contains features considered least damaged / more natural, rather than those heavily modified by human activity ³
Offshore subtidal sands and gravels	<p>There is no information on the ecological condition of offshore subtidal sand and gravel habitats within the MPA. Consequently, the likely condition of the protected feature has been inferred from information on exposure to activities associated with those pressures to which offshore subtidal sand and gravel habitats may be sensitive (Marine Scotland, 2013). Rasterised Vessel Monitoring System (VMS) data from fishing vessels in 2006-2011, which have a coarse resolution, and VMS point data from 2009-2011, indicate that the majority of the predicted extent including the surveyed records offshore subtidal sand and gravel habitats are exposed to activities (potting and creeling) to which the feature may have a sensitivity ranging from not sensitive to highly sensitive. This potential variability for offshore subtidal sand and gravel habitats depends on local substrate types, energy conditions and species composition and diversity. The EUSeaMap data indicates a moderate level of energy at the seabed in this MPA that would suggest 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>

³ 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 risk⁴ of significant damage by human activity
Offshore subtidal sands and gravels	The protected feature is considered to be subject to levels of risk that range from low to high in the MPA Regions (Chaniotis <i>et al.</i> , 2014). The range in risk is due to the variation in sensitivity of different types of offshore subtidal sand and gravel habitats to the activities to which they are exposed. 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 Regions is primarily associated with the use of bottom-contact mobile fishing gear, such as otter trawling, and the installation and maintenance of marine infrastructure.

⁴ 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 may not reflect the level of risk at the level of the MPA

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

Summary of assessment	The MPA reflects the extent of the Windsock Fisheries Area in Scottish offshore waters, and encompasses the distribution of a range of different types of offshore subtidal sand and gravel habitats present in OSPAR Regions II and III.
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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

Offshore subtidal sands and gravels	The MPA boundary reflects the extent of the Windsock Fisheries Areas in Scottish offshore waters and encompasses the distribution of a range of offshore subtidal sand and gravel habitats present indicated by the predictive seabed habitat modelling of the EUSeaMap Project and verified by PSA data from sediment samples, seabed photographic imagery and grab sample data.
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Stage 4 - Assessing the potential effectiveness of managing features within a search location as part of a Nature Conservation MPA

Summary of assessment	The current temporary fisheries closure in this area effectively prohibits the use of bottom-contact mobile fishing gear, but static fishing gear (e.g. creels and pots) remain in use. Should the current temporary fisheries closure be lifted and it was deemed that bottom-contact mobile fishing gear, or in the current situation, static fishing gear, needed to be managed, mechanisms exist under the EU Common Fisheries Policy to support the introduction of spatial and/or temporal fisheries management measures to conserve offshore subtidal sand and gravel habitats within the MPA. For licensed activities, JNCC consider any potential impacts could be addressed through the Environmental Impact Assessment (EIA) process. There is therefore potential for management measures to be implemented successfully to achieve the conservation objective of the protected feature of the MPA.
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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 offshore subtidal sand and gravel habitats within the MPA is 'conserve – feature condition uncertain'. This uncertainty is a consequence of the lack of direct evidence available to confirm the feature's condition. JNCC consider that offshore subtidal sand and gravel habitats may have been modified by human activity (see 2d), but that there is potential for the protected feature to be conserved with appropriate management actions.

The current temporary fisheries closure over this area effectively prohibits the use of bottom-contact mobile fishing gear, but static fishing gear (e.g. creels and pots) are still in use. Should the current temporary fisheries closure be lifted, and it was deemed that bottom-contact mobile fishing gear, or in the current situation, static fishing gear, needed to be managed, mechanisms exist through under the Common Fisheries Policy to seek the introduction of spatial and/or temporal fisheries management measures to conserve offshore subtidal sand and gravel habitats within the MPA. For licensed activities, JNCC consider any potential impacts could be addressed through the EIA process. There is therefore potential for management measures to be implemented successfully to achieve in due course the conservation objective of the protected feature of the MPA.

Further discussion concerning management of the protected features of the MPA is provided in the West Shetland Shelf 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 representation of a number of different types of offshore subtidal sand and gravel habitats, representing the feature across both OSPAR Regions II and III.
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
Offshore subtidal sands and gravels	The MPA represents a range of different types of Atlantic-influenced offshore subtidal sand and gravel habitats on the continental shelf, and one of two recommended examples to be protected in OSPAR Regions II and III. The MPA represents the most north-eastern extent of the known geographic range of offshore subtidal sand and gravel habitats on the continental shelf in OSPAR Region III and north-eastern extent in OSPAR Region II. Further information is provided in the offshore subtidal sands and gravels adequacy assessment (SNH and JNCC, 2014).

Data sources and bibliography

- Axelsson, M., Dewey, S. and Allen, C. (2014). *Analysis of seabed imagery from the 2011 survey of the Firth of Forth Banks Complex, the 2011 IBTS Q4 survey and additional deep-water sites from Marine Scotland Science surveys (2012)*. JNCC Report No 471.
- Bett, B.J., (2012) *Seafloor biotope analysis of the deep waters of the SEA4 region of Scotland's seas*, JNCC Report No. 472,
- Chaniotis., P.D., Crawford-Avis, O.T., Cunningham, S., Gillham, K., Tobin, D., Linwood, M. (2011). *Identifying locations considered to be least damaged/more natural in Scotland's seas*. Report produced by the Joint Nature Conservation Committee, Scottish Natural Heritage and Marine Scotland for the Scottish Marine Protected Areas Project.
- Chaniotis, P.D., Cunningham, S., Gillham, K., Epstein, G. (2014). *Assessing risk to Scottish MPA search features at the MPA regional scale*. Final report produced by the Joint Nature Conservation Committee, Scottish Natural Heritage and Marine Scotland for the Scottish Marine Protected Areas Project.
- Eleftheriou, A. and Basford, D.J. (1989). *The macrobenthic infauna of the offshore northern North Sea*. Journal of the Marine Biological Association of the U.K. **69**(1): 123-143.
- Goudge, H. and Morris, L. (2014). *Seabed imagery analysis from three Scottish offshore towed video surveys: 2011 MSS BTSQ3 survey, 2011 1111s FRV Scotia Rona-Windsock survey & 2011 MSS Rockall survey (2012)*. JNCC Report No. 470.
- Marine Scotland (2013). Features, Activities, Sensitivities Tool (FEAST) online resource. Available online from: www.marine.scotland.gov.uk/FEAST/. Version 1.0 (August 2013).
- Pearce, B., Grubb, L., Earnshaw, S., Pitts, J., and Goodchild, R. (2014). *Biotope Assignment of Grab Samples from Four Surveys Undertaken in 2011 Across Scotland's Seas (2012)*. JNCC Report No. 509.
- SNH & JNCC (2014). *Assessment of the adequacy of the Scottish MPA network for MPA search features: summary of the application of the stage 5 selection guidelines*. Final report produced by Scottish Natural Heritage, the Joint Nature Conservation Committee and Marine Scotland for the Scottish Marine Protected Areas Project.
- Sotheran, I. & Crawford-Avis, O. (2014). *Mapping habitats and biotopes to strengthen the information base of Marine Protected Areas in Scottish waters*. JNCC Report No. 503.