

DATA CONFIDENCE ASSESSMENT

Rathlin Marine Conservation Zone (MCZ)

Black guillemot (*Cepphus grylle*) ©jdoherty



Department of
**Agriculture, Environment
and Rural Affairs**

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Summary

The Data Confidence Assessment is a document produced as part of the consultation evidence base and, similar to other documents, uses the OSPAR design principles as a foundation. The assessment details our confidence in the data used to identify Areas of Search (AoS) and determine features for protection within Marine Conservation Zones (MCZs). This includes data type, age, source and coverage.

This document provides details of the Data Confidence Assessment for Rathlin MCZ. Additional information on Rathlin MCZ and the MCZ process includes:

- Guidance on selection and designation of Marine Conservation Zones (MCZs) in the Northern Ireland Inshore Region
- Justification report for selection of proposed Marine Conservation Zone (pMCZ) features
- Guidance on the development of Conservation Objectives and Potential Management Options
- Site Summary Document for Rathlin Marine Conservation Zone (MCZ)
- Conservation Objectives and potential Management Options for Rathlin Marine Conservation Zone (MCZ)
- Assessment against Selection Guidelines for Rathlin Marine Conservation Zone (MCZ)

Glossary of Terms and Acronyms

AoS – Area of Search used to underpin the proposed Marine Conservation Zone

AFBI – Agri-food and Biosciences Institute

BG – Black guillemot

DAERA – [Department of Agriculture, Environment and Rural Affairs](#) (also referred to as the Department in the text)

DOE – Department of the Environment (now lies within DAERA)

DSB – Deep-sea bed is a term used to describe sublittoral habitats found at depths >200m with the EUNIS Broad scale habitat Deep-sea bed (EUNIS code: A6)

EMODnet – The European Marine Observation and Data Network

EUNIS – European Nature Information System, is a habitat classification system used throughout Europe and covers all types of natural and artificial habitats, both aquatic and terrestrial

GD – Geodiversity - a term to describe Geological and geomorphological features.

JIBS – Joint Irish Bathymetric Survey

JNCC – Joint Nature Conservation Committee

MCZ – Marine Conservation Zone(s) designated under section 13 of the Marine Act (Northern Ireland) 2013 in the Northern Ireland inshore region and in section 116 of the Marine and Coastal Access Act 2009 in the Northern Ireland offshore region adjacent to Northern Ireland

MCZ Feature(s) – Marine Conservation Zone feature that will underpin the MCZ designation

MPA – As a generic term Marine Protected Areas are a clearly defined geographical space, recognised, dedicated and managed through legal or other means, to achieve the long-term conservation of nature with associated ecosystem services and cultural values. As a specific term it refers to a national designation in Scotland (equivalent to an MCZ).

OSPAR – OSPAR is the mechanism by which fifteen Governments of the western coasts and catchments of Europe, together with the European Union, cooperate to protect the marine environment of the North-East Atlantic

OSPAR T&D – OSPAR List of Threatened and/or Declining Species and Habitats

pMCZ – Proposed Marine Conservation Zone

pMCZ Feature – Proposed Marine Conservation Zone feature

PSA – Particle size analysis

SMP – Seabird Monitoring Programme

SMS – Subtidal mixed sediment

Spyball – Underwater drop camera operated by crew aboard a vessel to study submerged habitats and species.

SS – Subtidal sands

VMS – Vessel Monitoring System

Introduction

MCZ name (Figure 1)

Rathlin

Assessors

CA; CAA; JB;
LP; NMcQ; SB

The MCZ surrounds Rathlin Island with a large extension between the north of the Island and the North Channel. It encompasses other Marine Protected Area (MPA) designations (SPA, SAC and ASSI). The MCZ boundary is shaped to the north and east around the only known location within NI's coastal waters of the broad scale habitat deep-sea bed (DSB) with waters exceeding 200m depth. The MCZ boundary contains 94% of this habitat which is composed of mixed sediment with areas of subtidal sand and upper slope rock reef. Live *Modiolus modiolus* was also located within DSB habitat to the north west. This type of broadscale habitat has previously been reported as being associated with the OSPAR T&D habitat cold water coral (*Lophelia*) reefs (Hall-Spencer & Stehfest, 2010).

Although this is a potential location, at present the Department does not have any evidence of cold water coral in Rathlin DSB area and further survey work is required to determine whether this is present.

To the southeast and south the MCZ boundary continues, concurrent with the SAC/SPA boundary, then extends beyond this to the west to include shallower waters (<50m) out to a distance of 2km from the shore. This 2km extension incorporates the foraging depth range for Black guillemot (BG) (*Cepphus grylle*) (Marine Scotland & SNH, 2012). BG is on the IUCN Red List and is Amber-listed under Birds of Conservation Concern in Ireland. The cliffs along the southern shores of Rathlin Island are important nesting areas for BG and are currently afforded indirect protection through the SAC (Annex I Habitat – Vegetated sea cliffs) and SPA (Annex II – Seabird assemblage breeding population which also nest on the cliffs) designations.

There are also a number of important Geological/geomorphological features (GD) which have been identified along the north coast of Rathlin Island including a paleo-lagoon, underwater cliffs, arches and gullies.

Following the pMCZ public consultation, the fishing industry was concerned that the proposed boundary overlapped key areas and provided indicative fishing grounds for Queen scallop. These fishing grounds were found to lie outside the proposed boundary. A quantitative analysis of data from Vessel Monitoring Systems (VMS) from 2006-2014 showed that average fishing effort within the pMCZ was only 1.36% of the total effort within ICES rectangle 39E3. The average fishing effort was 50.85 hours per annum which equates to 0.55hrs/km². The Department acknowledges that this is only an indicative value because VMS is limited to larger vessels. However, it is widely accepted that smaller vessels do not fish with mobile gear in the area to the north of Rathlin Island due to excessive depths and strong tidal currents. Consequently, the proposed boundary for Rathlin MCZ is considered appropriate for designation.

Protected features (Figure 2)			
Biodiversity	<ul style="list-style-type: none"> • Deep-sea bed (DSB) <ul style="list-style-type: none"> - Subtidal sands (SS) - Subtidal mixed sediment (SMS) - Subtidal rock (SR) • Black guillemot (BG) 	Geodiversity	Features indicating past changes in relative sea level (GD)
Data used in assessment			
Version of Marine recorder database	Update Nov2014	Other datasets used (specify)	<ul style="list-style-type: none"> - ¹JNCC UK SeaMap 2010: Predictive mapping of seabed habitats in UK waters - ²JNCC EU SeaMap: A broad-scale physical habitat map for European Seas (2014 v8.3) - ³AFBI-DOE surveys June 2014, February 2015 - ⁴Northern Ireland Sublittoral Survey (NISS) 1984-1985 (Marine Recorder database) - ⁵Sublittoral Survey of Northern Ireland (SSNI) 2006, 2009 & 2011 (Marine Recorder database) - ⁶Seasearch NI Rathlin Island 2005, 2012 & 2013 (Marine Recorder database) - ⁷Archaeological applications of the Joint Irish Bathymetric Survey (JIBS) data 2008 - ⁸Joint Irish Bathymetric Survey 2007 - ⁹Northern Ireland Seabird Report 2014 - ¹⁰JNCC Seabird Monitoring Programme (SMP) 1999-2015

Summary of Data Confidence Assessment						
Confident in underpinning data		Yes	✓	Partial		No
Confident in presence of identified features?	✓	Data suitable to define extent of individual protected features		✓	Partial	✘
					DSB GD BG	
Summary		<p>The Department has moderate to high confidence in the presence of the designated features and the supporting evidence in the MCZ.</p> <p>Initially the DSB feature was identified using predictive seabed habitat mapping^{1&2}. A high specification bathymetric survey carried out on the north coast of Ireland⁸ included over 50% of the DSB habitat area in Rathlin MCZ. This survey provided robust evidence of the depth of seabed within this area with a maximum depth of 280m recorded. AFBI were commissioned by the Department to carry out video and grab surveys of the physical environment, seabed habitat and benthic communities in this area³. These two surveys (June 2014 and February 2015) confirmed the predictive habitat mapping by identifying areas of deep mobile sediment including shell debris and coarse sands with stony reef interspersed. The current datasets give us moderate confidence in defining the extent of the MCZ boundary around the DSB feature. A better understanding of the seabed communities associated with DSB will be achieved through further survey work (high resolution bathymetry, video and grab samples).</p> <p>A number of GD features were identified along the North Coast using archaeological applications to extract pre-historic landscape features from high resolution JIBS data⁷. The presence of a number of these features, such as submerged arches, gullies and cliffs, have been indirectly verified (where depth allows) by divers^{4,5&6}, particularly along the North Wall of Rathlin. The current dataset gives us high confidence that the GD features described above fall within the MCZ boundary.</p> <p>BG have been recorded on Rathlin Island since 1999 as part of the Seabird Monitoring Programme (SMP)¹⁰ using standardised techniques (Walsh <i>et al.</i>, 1995). At present, BG counts are limited to within 300m of the landward boundary^{9&10}, however, as the MCZ boundary extends beyond this we have high confidence that the population of BG utilising the Rathlin area will be protected.</p>				

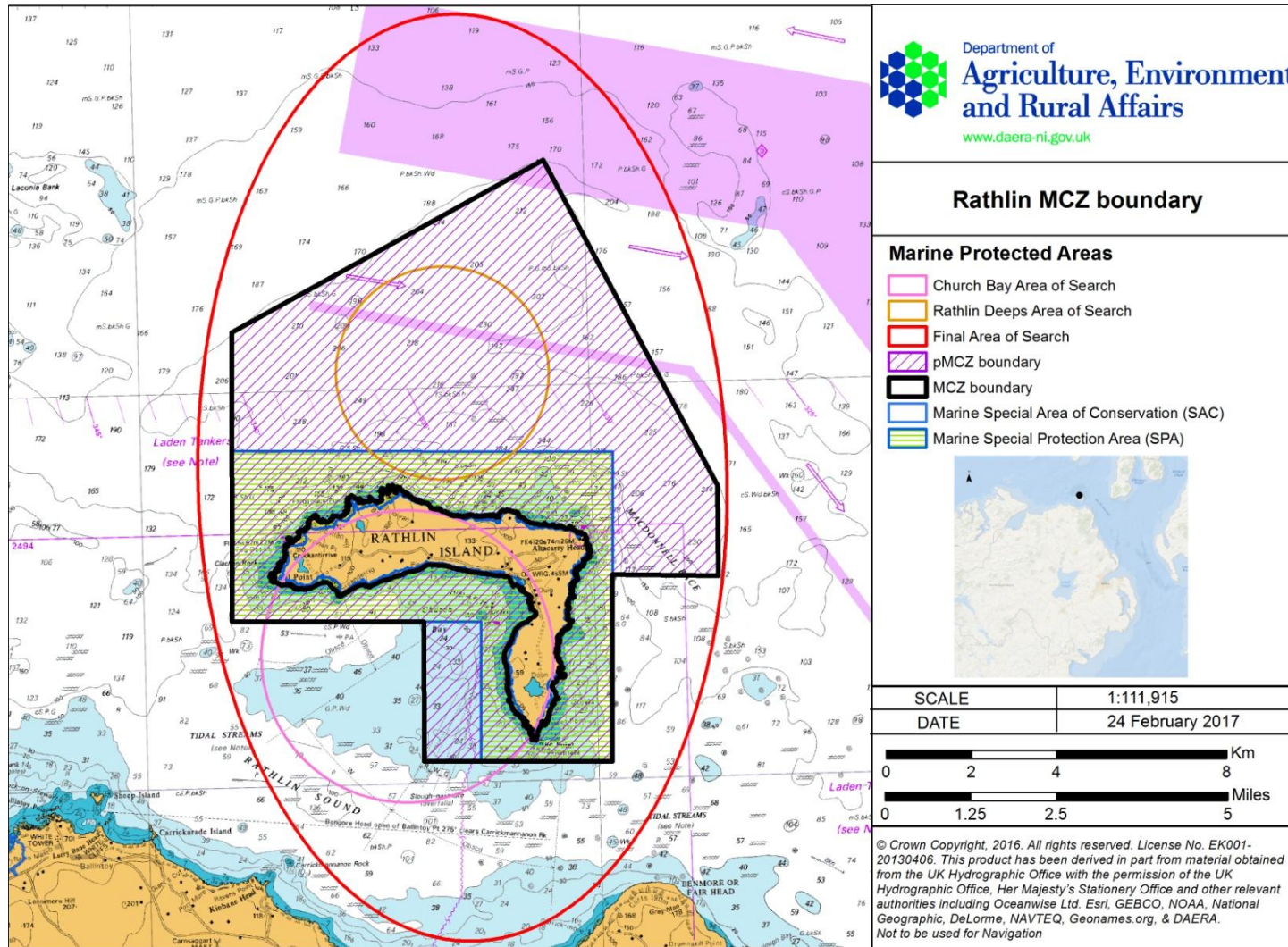


Figure 1 Location of Areas of Search (AoS), initial proposed (p) boundary and designated boundary of Rathlin MCZ

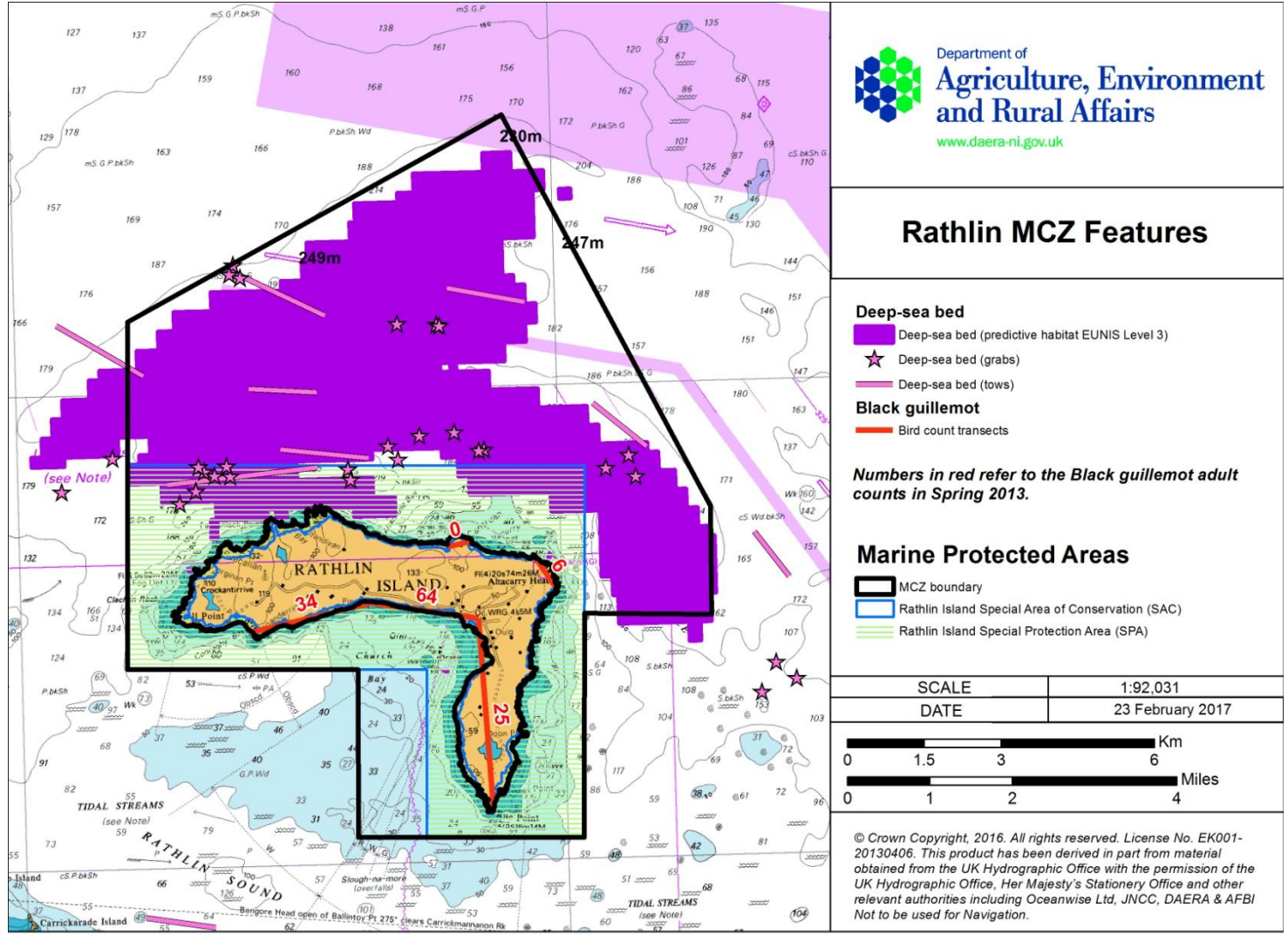


Figure 2 Distribution of the features in Rathlin MCZ

Data Confidence Assessment

Our assessment of data confidence is based on a consideration of the age and source of the data, the type of sampling methodologies used and the coverage across the overall MCZ.

Age of data (Figure 3)

Multiple records collected within last 10 years	DSB GD BG	Multiple records collected 10-25 years ago	GD BG	Multiple records >25 years old	GD
Comments	<p>Information on DSB was derived from predictive habitat maps published in 2010, 2014^{1&2}.</p> <p>Camera and grab survey work was carried out by AFBI-DOE in 2014 and 2015³. Additionally, bathymetry indicating depths of 200m+ was acquired from the JIBS project, 2008⁸.</p> <p>The GD features were mapped as part of the outputs from JIBS, 2008⁷. Submerged deep vertical cliffs, gullies and arches have been recorded in dive surveys during 1984, 1985, 2005, 2006, 2009, 2011, 2012 and 2013^{4,5&6}. The paleo-lagoon and submerged cliffs were undiscovered until JIBS in 2008⁸.</p> <p>Within the MCZ, the majority of data for BG has been collected annually since 1999^{9&10} as part of the seabird monitoring programme.</p>				

Source of data (Figure 4)

Targeted data collection for nature conservation purposes	✓	Statutory monitoring (marine licensing etc.)		Fisheries survey work	
Data collection associated with development proposals (EIA etc.)		Recreational / volunteer data collection	✓	Other (specify) – EUNIS predictive maps, PSA data	✓

<p>Comments</p>	<p>BG records were mainly collected for nature conservation purposes. Since 1999, RSPB and NIEA have been recording BG counts as part of the Seabird Monitoring Programme using visual census methods, with data submitted to JNCC^{9&10}.</p> <p>The GD features located close to the coast within diving depth were described in early scientific dive surveys originally planned for species and habitat identification purposes^{4&5}. Dive surveys carried out by Seasearch Northern Ireland⁶ have also contributed valuable records of the GD features (popular dive sites for recreational divers). The JIBS^{7&8} data identified the submerged paleo-lagoon in deeper water off the north east coast of Rathlin Island and submerged cliffs in the north west.</p> <p>The DSB data were originally identified from UK SeaMap¹ and EU SeaMap². JIBS⁸ data was also used to underpin the bathymetry in this area. Further work was commissioned by AFBI DOE³ to confirm and describe the species and habitats present in the DSB.</p>						
<p>Sampling methods / resolution</p>							
<p>Feature</p>	<p>Modelled</p>	<p>Acoustic / remote sensing</p>	<p>Remote video / camera</p>	<p>Infaunal - grab / core</p>	<p>Sediment sampling</p>	<p>Diving</p>	<p>Visual census</p>
<p>DSB</p>	<p>✓</p>	<p>✓</p>	<p>✓</p>	<p>✓</p>	<p>✓</p>	<p>✓</p>	
<p>GD</p>	<p>✓</p>	<p>✓</p>	<p>✓</p>				
<p>BG</p>							<p>✓</p>
<p>Comments</p>	<p>A number of sampling methods have been used to collect information on the features of interest in the MCZ.</p> <p>The predictive seabed habitat mapping projects UK SeaMap2010¹ and EU SeaMap2014² were developed by JNCC (McBreen <i>et al.</i>, 2011; EMODnet, 2014) and provide modelled broad scale habitats in the MCZ. High performance multibeam was used to provide high resolution bathymetry and seabed landscape as part of the JIBS⁸ project along the North Coast (2008).</p> <p>Remote video and photographic imagery sampling (using Osprey and Go-Pro cameras to record video and stills) was undertaken by AFBI-DOE across the MCZ (RV Corystes), providing evidence of the composition and distribution of seabed habitats in the area³.</p> <p>Grab sampling was used to provide a more detailed understanding of the quality, diversity and structure of the specific habitats³. Particle size analysis (PSA) was performed on the samples to verify the sediment/sea bed type.</p> <p>Although the GD features were mapped as part of the outputs from</p>						

	<p>JIBS (2008)^{7&8}, many of these features have been recorded by divers carrying out scientific surveys of the biodiversity populating these habitats since 1984^{4,5&6}.</p> <p>BG records were obtained using visual census methods from 1999 to 2015^{9&10} (with the exception of 2001). In almost all cases, records were based on a single count (RSPB, Pers. Comm.). Following a standard methodology (Walsh <i>et al.</i>, 1995) counts are conducted within 2 hours of first light in the pre-breeding period when birds can be counted on the sea just offshore from their breeding areas.</p>				
Data coverage (Figures 3 to 6)					
Across the MCZ					
Large numbers of feature records distributed across the MCZ		Numerous feature records scattered across the MCZ with some clumping	✓	Numerous feature records possibly with some clumping. Boundary not defined solely by recorded feature distribution	Few or isolated feature records - possibly clumped
For Individual features					
Multiple records of individual features providing indication of extent and distribution throughout pMCZ?	✓ DSB GD BG	Few or scattered records of specific features making extent and broad distribution assessment difficult?		Few or isolated records of specific feature records	
Are acoustic remote sensing data available to facilitate the development of a full coverage predictive seabed habitat map?	<p>Partial – Almost 70% of the MCZ was previously surveyed using multibeam acoustic for the JIBS programme (2008)⁸ to provide high resolution bathymetry out to three nautical miles from the coast. As part of the SAC designation process detailed habitat mapping was carried out to identify Reef and other Annex I Habitats; this accounts for 36% of the MCZ area.</p>				

<p>Comments</p>	<p>Deep-sea bed (DSB) (Figure 6)</p> <ul style="list-style-type: none"> • 2010 UK SeaMap JNCC¹ & 2014 EU SeaMap² – Information on the broad scale habitat DSB was derived from these predictive habitat maps. The habitat maps predict DSB (EUNIS A6) occur within the northern area of the MCZ. • 2014-2015 AFBI-DOE surveys³ – The two AFBI surveys (June 2014 and February 2015) confirmed the predicted maps by identifying areas of deep mobile sediment including shell debris and coarse sands with stony reef interspersed (video and PSA). Sampling methods include both grab samples and video tows. A number of grabs came up as misfires over hard ground or were prevented from closing due to coarse sediment becoming stuck in the grab. If any sample remained (e.g. cobble or stones with epifauna) this was recorded and photographed as evidence of the type of seabed present. <p>Black guillemot (BG) (Figures 2 and 5)</p> <ul style="list-style-type: none"> • 2013 NI Seabird report⁹ & 1999-2015 SMP¹⁰ – BG records obtained using visual census methods from 1999 to 2015 (with the exception of 2001) (see Figure 5). In almost all cases, records are based on a single count at each monitoring section. Since 2013, RSPB record and submit the data for Rathlin as a whole rather than by section. Figure 2 shows the 2013 BG count data by section. The population of BG has fluctuated over the years from a high of 227 in 2003 to a low of just 28 in 2011. The population increased to 129 in 2013 but appears to have declined again with numbers dropping to 98 in 2015 (Figure 5). <p>Geodiversity Features (GD) (Figure 3 and 4)</p> <ul style="list-style-type: none"> • 2014 Marine Recorder^{4,5&6} – Many GD features have been recorded by divers carrying out scientific surveys of the biodiversity populating these habitats since 1984. Submerged cliffs and caves were recorded in dive surveys during 1984 and 1985 as part of the NI Sublittoral Survey (NISS)⁴. Seasearch Northern Ireland surveys (2005, 2012 and 2013)⁶ also recorded the presence of a submerged archway and cliffs. Archways, gullies, cave features and steep vertical drop-off/cliff at the North Wall were recorded during the 2006, 2009 and 2011 Sublittoral Survey NI (SSNI)⁵ programme by the DOE dive team in conjunction with the National Museums Northern Ireland (NMNI). • 2008 JIBS data^{7&8} – A number of GD features were identified along the North Coast using archaeological applications to extract pre-historic landscape features from high resolution JIBS data. Data was analysed at the highest resolution to examine seabed geomorphology and to identify features providing information on the prehistoric landscape of this area formed during lower sea levels. JIBS survey (2008)⁸ included over 50% of the DSB which is included in the MCZ. JIBS^{7&8} identified a large paleo-lagoon
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	<p>basin (hollowed out from bedrock at a depth of 60m) off the north east coast of Rathlin along with submerged cliffs to the north west of the Island. Dive surveys have not been carried out on the basin due to the exposed location and depth.</p>
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The Evidence Base (Figures)

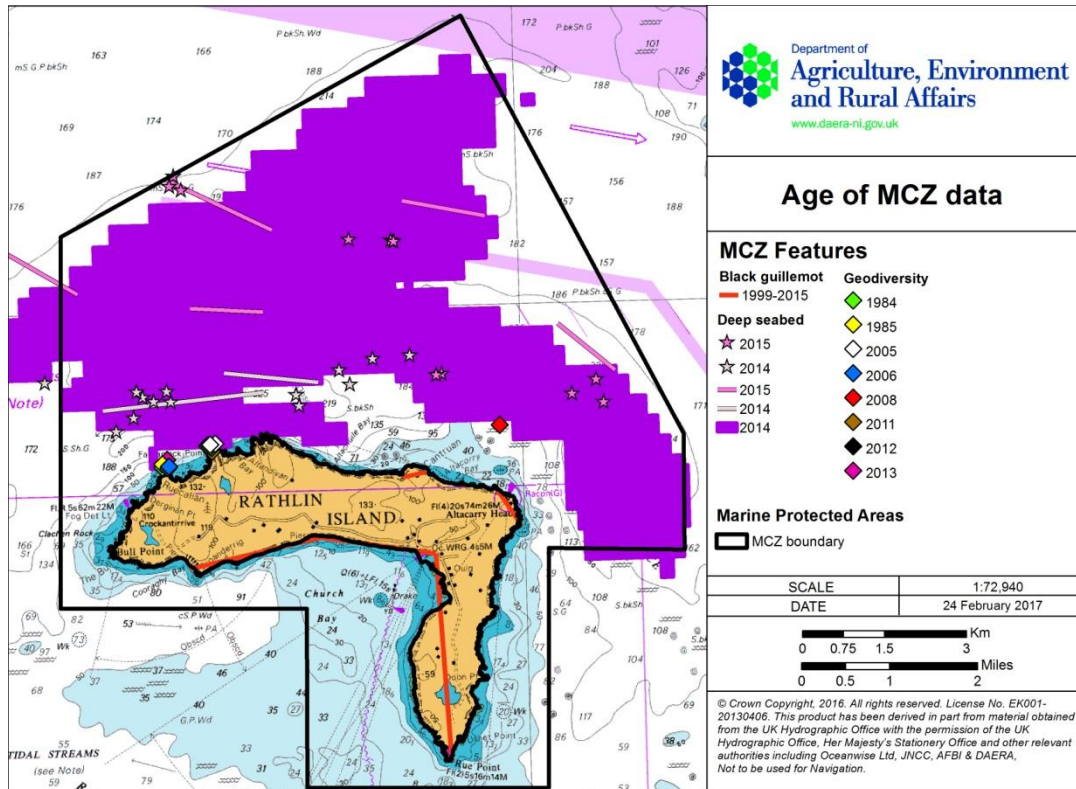


Figure 3 Age of the feature data collected in Rathlin MCZ

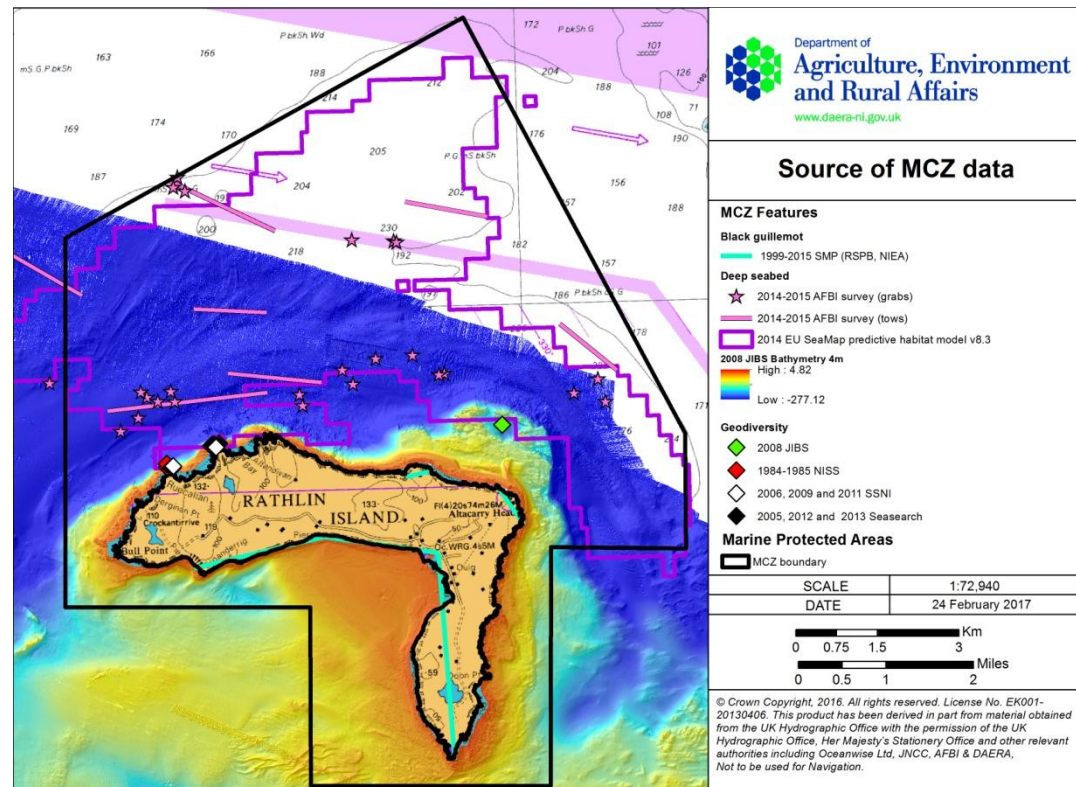


Figure 4 Source of the feature data collected in Rathlin MCZ

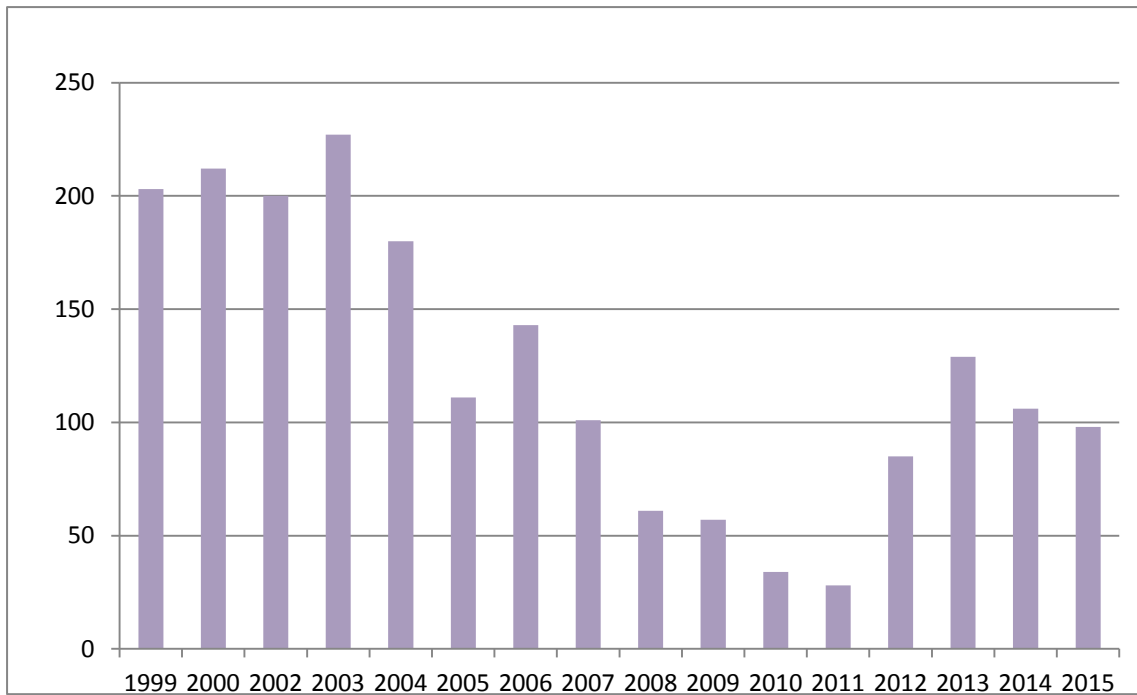


Figure 5 Black guillemot counts (individuals on land) over time recorded on Rathlin Island (RSPB)

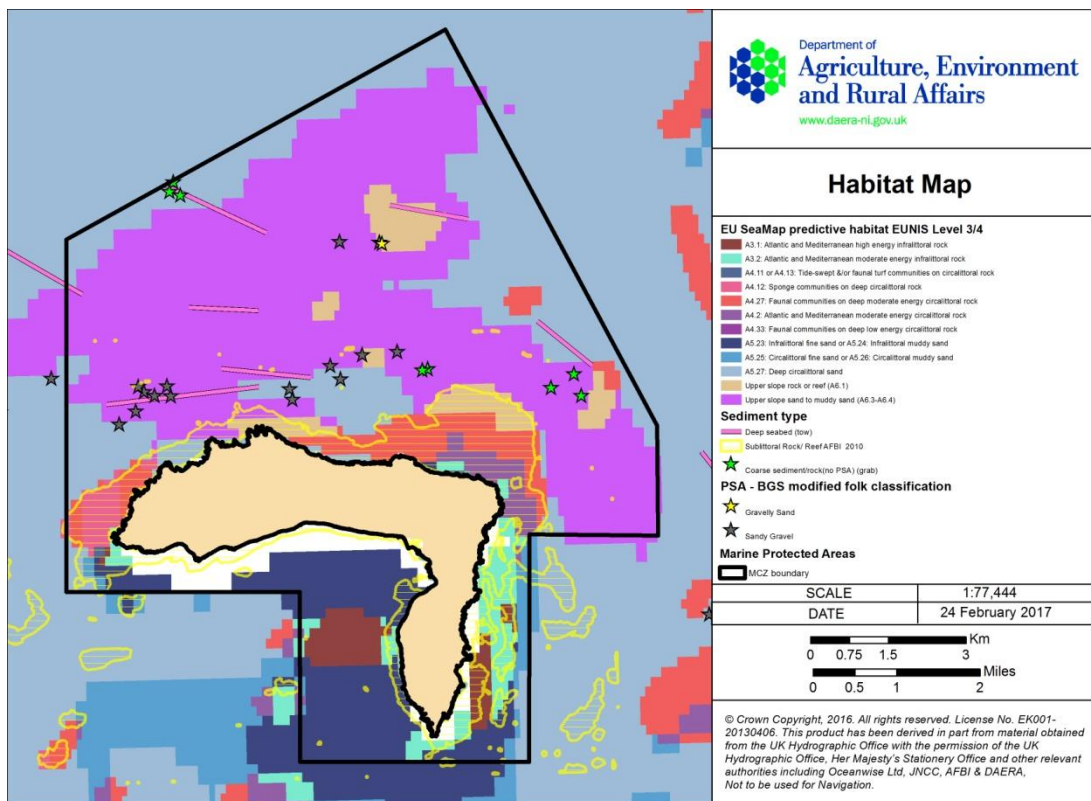


Figure 6 Habitat Map of Rathlin MCZ and surrounding seabed

Data sources and Bibliography		
Data source (used in assessment)	Reference	Features covered
¹ JNCC UK SeaMap 2010: Predictive mapping of seabed habitats in UK waters	McBreen, F., Askew, N., Cameron, A., Connor, D., Ellwood, H. and Carter, A. 2011. UK SeaMap 2010 Predictive mapping of seabed habitats in UK waters. JNCC Report 446, ISBN 0963 8091	DSB
² JNCC EU SeaMap: A broad-scale physical habitat map for European Seas (2014 v8.3)	EMODnet. EUSeaMap: A broad-scale physical habitat map for European Seas. 2014.	DSB
³ AFBI-DOE surveys June 2014, February 2015	AFBI. Annika Clements. 2015. Species and habitat data for Marine Conservation Zone Areas of Interest; Rathlin Island, Ballycastle Bay, Outer Belfast Lough. Report to the Department of the Environment.	DSB
⁴ Northern Ireland Sublittoral Survey (NISS) 1984-1985 (Marine Recorder database)	Erwin, D.G., Picton, B.E., Connor, D.W., Howson, C.M., Gilleece, P. and Bogues, M.J. 1986. The Northern Ireland Sublittoral Survey. Ulster Museum.	GD
⁵ Sublittoral Survey of Northern Ireland (SSNI) 2006, 2009 & 2011 (Marine Recorder database)	Goodwin, C., Picton, B., Breen, J., Edwards, H. and Nunn, J. 2011a. Sublittoral Survey Northern Ireland (2006–2008). Northern Ireland Environment Agency Research and Development Series No 11/01 https://www.daera-ni.gov.uk/sites/default/files/publications/daera/sublittoral_survey_northern_ireland_may06_to_may08.pdf	GD
	Goodwin, C., Edwards, H., Breen, J. and Picton, B. 2011b. Rathlin Island - A survey report from the Nationally Important Marine Features Project 2009-2011. Northern Ireland Environment Agency Research and Development Series No 11/03. https://www.daera-ni.gov.uk/sites/default/files/publications/daera/athlin_report_2009_to_2011.pdf	

⁶ Seasearch NI Rathlin Island 2005, 2012 & 2013 (Marine Recorder database)	Seasearch Dives - Rathlin Island http://www.seasearch.org.uk/ .	GD
⁷ Archaeological applications of the Joint Irish Bathymetric Survey (JIBS) data 2008	Quinn, R. and Forsythe, W. 2008. Archaeological applications of the Joint Irish Bathymetric Survey (JIBS) data. Instar Project 16671 http://www.heritagecouncil.ie/fileadmin/user_upload/INSTAR_Database/Archaeological_Applications_of_JIBS_Data_Progress_Report_08.pdf	GD
⁸ Joint Irish Bathymetric Survey 2008	http://spatial.dcenr.gov.ie/imf/imf.jsp?site=JIBS	GD DSB
⁹ Northern Ireland Seabird Report 2014	Leonard, K. and Wolsey, S. 2014. Northern Ireland Seabird Report 2014. British Trust for Ornithology and Northern Ireland Environment Agency. ISBN 978-1-908581-50-1 http://www.bto.org/sites/default/files/u41/NI-Seabird-Report-2014-web-version.pdf	BG
¹⁰ JNCC Seabird Monitoring Programme (SMP) 1999-2015	RSPB methodology used to count and report Black guillemot on Rathlin Island for SMP (email correspondence from RSPB).	BG
N/A	Hall-Spencer, J.M. and Stehfest, K.M. 2010. Background Document for <i>Lophelia pertusa</i> reefs. Marine Institute, University of Plymouth on behalf of the UK Joint Nature Conservation Committee (JNCC). http://qsr2010.ospar.org/media/assessments/Species/P00423_lophelia_pertusa.pdf	DSB
N/A	Marine Scotland and SNH. 2012. Marine Protected Areas and black guillemot (<i>Cephus grylle</i>). Position paper for 4thMPA Workshop, Heriot-Watt University, 14-15 March, 2012. http://www.scotland.gov.uk/Resource/0038/00389462.doc	BG

N/A	Walsh, P.M., Halley, D.J., Harris, M.P., del Nevo, A., Sim, I.M.W. and Tasker, M.L. 1995. Seabird monitoring handbook for Britain and Ireland. Published by JNCC / RSPB / ITE / Seabird Group, Peterborough.	BG
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Photos represent Priority Marine Features found throughout the Northern Ireland Inshore Region

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