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DATA CONFIDENCE ASSESSMENT

Rathlin

Proposed Marine Conservation Zone (pMCZ)

Black guillemot (*Cepphus grylle*) @jdoherty




Document version control			
Version	**Date**	**Author**	**Comments**
Version 0.1	26/08/2015	Nuala McQuaid	Template – Rathlin Island initial draft
Version 0.2	6/10/2015	Liz Pothanikat, Clara Alvarez Alonso, Stephanie Bennett, Nuala McQuaid and Joe Breen	Amendments
Version 1.1	16/11/2015	Liz Pothanikat and Stephanie Bennett	Amendments

Distribution List		
Version	**Issue date**	**Issued to**
Version 1.0	28/10/2015	Internal Consultation
Version 2.0	14/12/2015	Public Consultation

Contents

Executive 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 proposed 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 pMCZ.

Additional information on Rathlin pMCZ and proposed features 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
- Conservation Objectives and potential Management Options for Rathlin proposed Marine Conservation Zone (pMCZ)
- Assessment against Selection Guidelines for Rathlin proposed Marine Conservation Zone (pMCZ)
- Site Summary Document for Rathlin proposed Marine Conservation Zone (pMCZ)

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

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)

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 used to refer to MCZs 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

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 features that will underpin the MCZ designation

PSA - Particle Size Analysis

SMP – Seabird Monitoring Programme

SMS – Subtidal mixed sediment

SS - Subtidal sands

Proposed MCZ name	Rathlin	Assessors	CA; CAA; JB; LP; NMcQ; SB

The pMCZ (Figure 1) 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 including SPA, SAC and ASSI. The pMCZ 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 proposed 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 can be associated with the OSPAR T&D habitat cold water coral (*Lophelia)* reefs (Hall-Spencer & Stehfest, 2010). To the southeast and south the pMCZ 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 2 km from the shore. This 2 km extension incorporates the foraging depth range for Black guillemot (BG) (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.

Protected features (see figure 2)			
Biodiversity	• Deep-sea bed (DSB) - Subtidal sands (SS) - Subtidal mixed sediment (SMS) - Subtidal rock • 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)**	- [1]JNCC UK SeaMap 2010: Predictive mapping of seabed habitats in UK waters - [2]JNCC EU SeaMap: A broad-scale physical habitat map for European Seas (2014 v8.3) - [3]AFBI-DOE surveys June 2014, February 2015 - [4]Northern Ireland Sublittoral Survey (NISS) 1984-1985 (Marine Recorder database) - [5]Sublittoral Survey of Northern Ireland (SSNI) 2006, 2009 & 2011 (Marine Recorder database) - [6]Seasearch NI Rathlin Island 2005, 2012 & 2013 (Marine Recorder database) - [7]Archaeological applications of the Joint Irish Bathymetric Survey (JIBS) data 2008 - [8]Joint Irish Bathymetric Survey 2007 - [9]Northern Ireland Seabird Report 2014 - [10]JNCC 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

The Department has moderate to high confidence in the presence of the proposed features and the supporting evidence in the pMCZ.

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 Ireland[8] included over 50% of the DSB habitat area in Rathlin pMCZ. This survey provided robust evidence of the depth of seabed within this area with a maximum depth of 280m recorded. AFBI were commissioned by DOE to carry out video and grab surveys of the physical environment, seabed habitat and benthic communities in this area[3]. These two surveys (June 2014 and February 2015) confirmed the findings of predictive habitat mapping 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 pMCZ 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).

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[7]. 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 pMCZ boundary.

BGs have been recorded on Rathlin Island since 1999[10] as part of the Seabird Monitoring Programme (SMP) using standardised techniques (Walsh *et al.*, 1995). At present, BG counts are limited to within 300m of the landward boundary[9&10], however, as the pMCZ boundary extends beyond this we have high confidence that the population of BG utilising the Rathlin area will be protected.

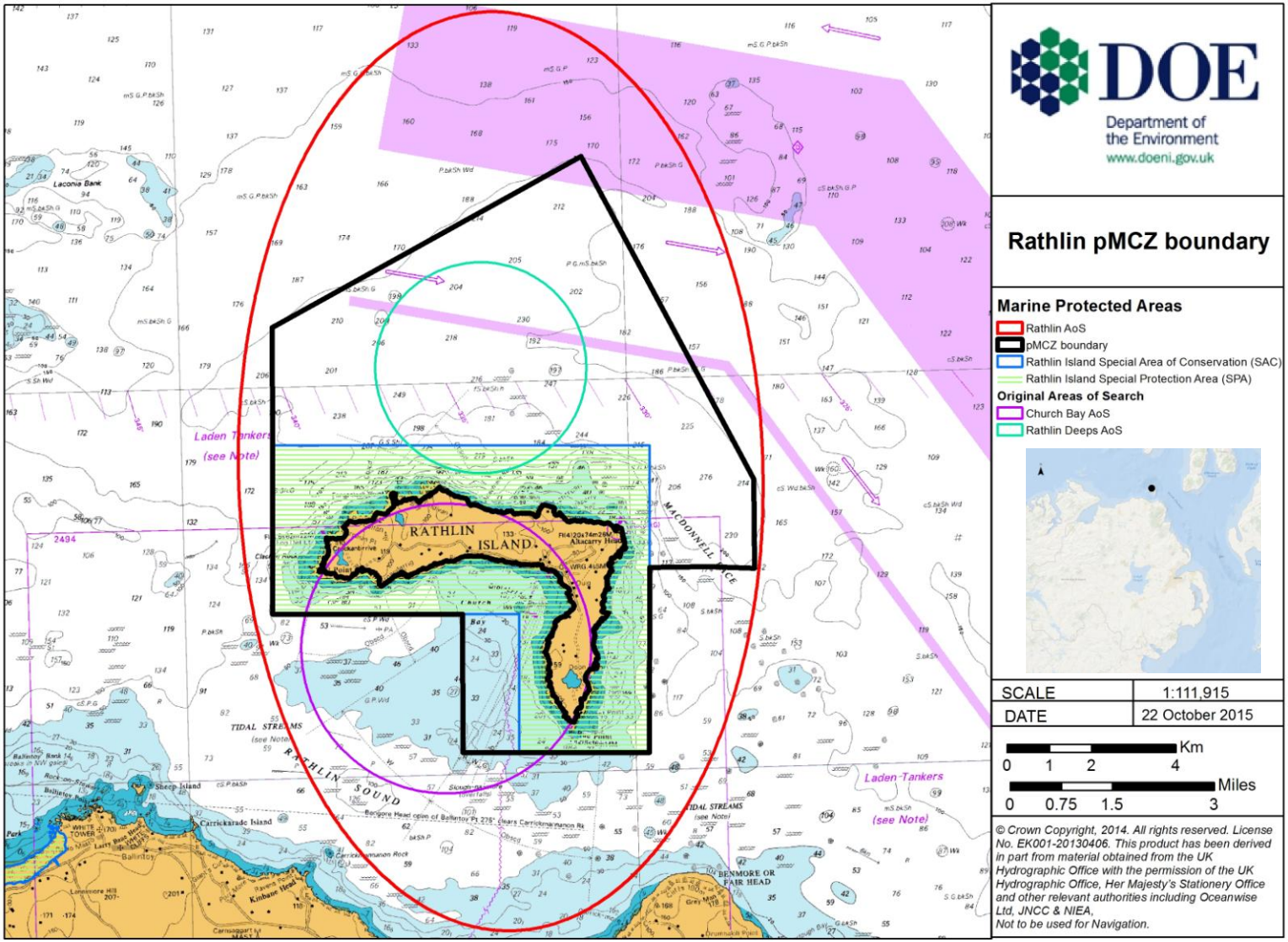

Figure 1 Location of Area of Search and the proposed boundary of Rathlin pMCZ

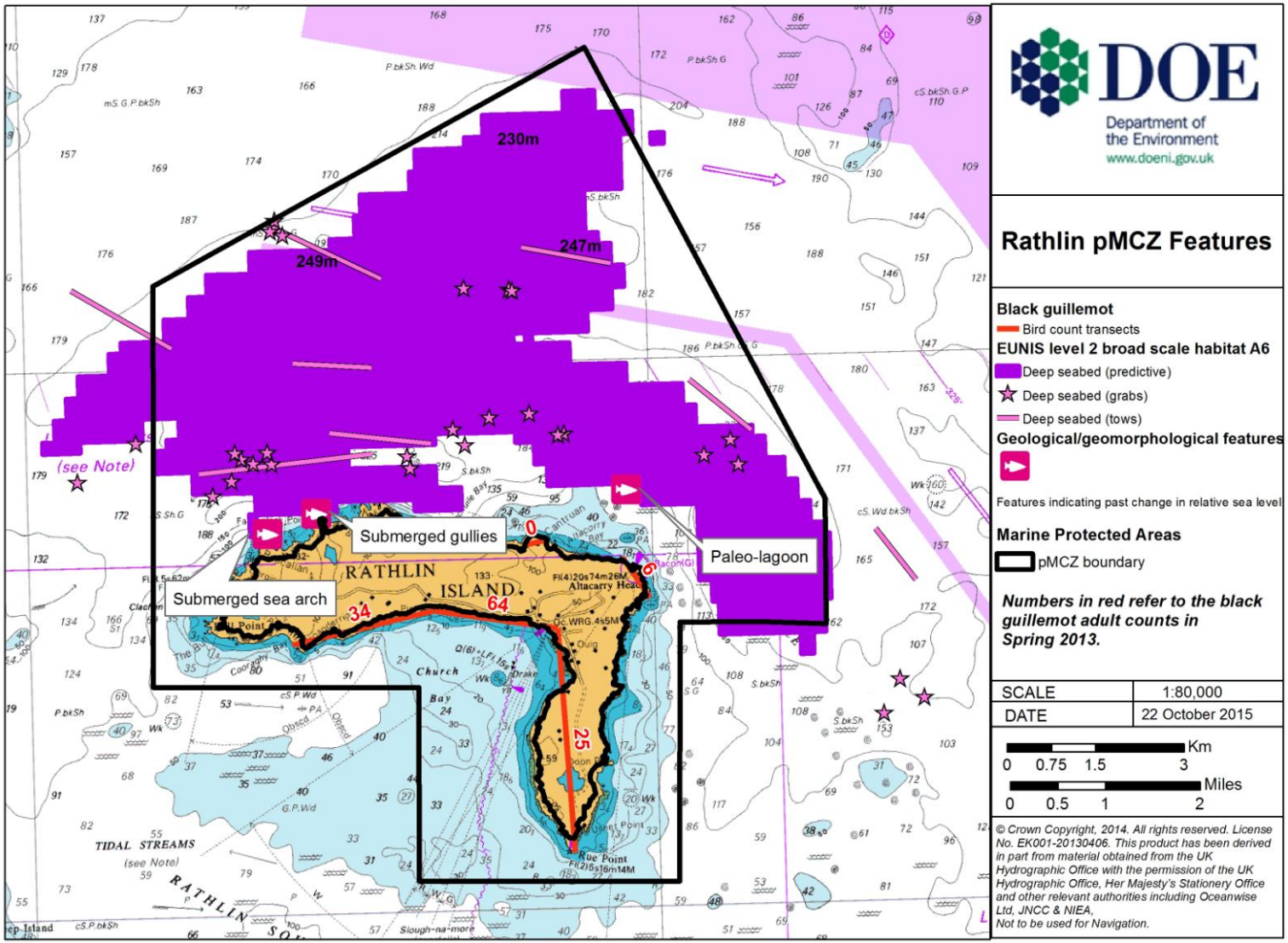

Figure 2 Distribution of the pMCZ features in Rathlin

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 pMCZ.

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	Information on DSB was derived from predictive habitat maps (2010, 2014[1,2]). Camera and grab survey work was carried out by AFBI-DOE (2014 & 2015)[3]. Additionally, bathymetry indicating depths of 200m+ was acquired from the JIBS project (2007)[8]. The GD features were mapped as part of the outputs from JIBS (2007)[7]. Submerged deep vertical cliffs, gullies and arches have been recorded in dive surveys during 1984, 1985, 2005, 2011, 2012 and 2013[4,5,6]. The paleo-lagoon was undiscovered until JIBS (2007)[8]. Within the pMCZ, the majority of data for BG has been collected annually since 1999[9&10] as part of the seabird monitoring programme.				

Source of data (Figure 4)					
Targeted data collection for nature conservation purposes	✓	**Statutory monitoring (marine licensing etc.)**	X	**Fisheries survey work**	X
Data collection associated with development proposals (EIA etc.)	X	**Recreational / volunteer data collection**	✓	**Other** (specify) – UK SeaMap 2010, EU SeaMap (2014), JIBS	✓
Comments	The DSB data was originally identified from UK SeaMap[1] and EU SeaMap[2]. JIBS[8] data was also used to underpin the bathymetry in this area. Further work was commissioned to confirm and describe the species and habitats present in the DSB, using video tows with grab samples to verify the footage[3]. 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 Ireland[6] 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. 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].				

Sampling methods / resolution							
Feature	**Modelled**	**Acoustic / remote sensing**	**Remote video / camera**	**Infaunal - grab / core**	**Sediment sampling**	**Diving**	**Visual Census**
DSB	✓	✓	✓	✓	✓	✓	
GD	✓	✓	✓				
BG							✓
Comments	A number of sampling methods have been used to collect information on the features of interest in the pMCZ. The predictive seabed habitat mapping projects UK SeaMap 2010[1] and EU SeaMap2014[2] were developed by JNCC (McBreen *et al.*, 2011 & EMODnet, 2014) and provide modelled broad scale habitats in the pMCZ. High performance multibeam was used to provide high resolution bathymetry and seabed landscape as part of the JIBS[8] project along the North Coast. Remote video and photographic imagery sampling (using an Osprey and Go-Pro to record video and stills) was undertaken by AFBI-DOE across the pMCZ (RV Corystes), providing evidence of the composition and distribution of seabed habitats in the area[3]. Grab sampling was used to provide a more detailed understanding of the quality, diversity and structure of the specific habitats[3]. Particle Size Analysis (PSA) was performed on the samples to verify the sediment/sea bed type. Although the GD features were mapped as part of the outputs from JIBS (2007-2008)[7&8], many GD features have been recorded by divers carrying out scientific surveys of the biodiversity populating these habitats since 1984[4,5&6]. Acoustic survey work[7&8] was carried out as part of the Joint Irish Bathymetric Survey (JIBS, 2007). 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 et al., 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.						

Data coverage (Figures 3 to 6)							
Across the pMCZ							
Large numbers of proposed feature records distributed across pMCZ		**Numerous proposed feature records scattered across the pMCZ with some clumping**	✓	**Numerous proposed 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?	Partial – Almost 70% of the pMCZ was previously surveyed using multibeam acoustic for the JIBS programme (2007)[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 pMCZ area.				

Comments

Deep-sea bed (DSB) (Figures 2 and 6)

- 2010 UK SeaMap JNCC[1] & 2014 EU SeaMap[2] – Information on the broad scale habitat DSB was derived from these predictive habitat maps. The habitat maps predict DSB (EUNIS A6) occur to the northern area of the pMCZ.
- 2014-2015 AFBI-DOE surveys[3] – The two AFBI surveys (June 2014 and February 2015) confirmed the predicted maps 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.

Black guillemot (BG) (Figures 2 and 5)

- 2013 NI Seabird report[9] & 1999-2015 SMP[10] – 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.

Geodiversity Features (GD) (Figure 2)

- 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).
- 2007 & 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 (2007)[8] included over 50% of the DSB included in the pMCZ. A large paleo-lagoon basin hollowed out from bedrock off the north east coast of Rathlin was identified at a depth of 60m[7&8] from the JIBS (2007) [8] but due to its exposed location and depth has not been the subject of any dive surveys.

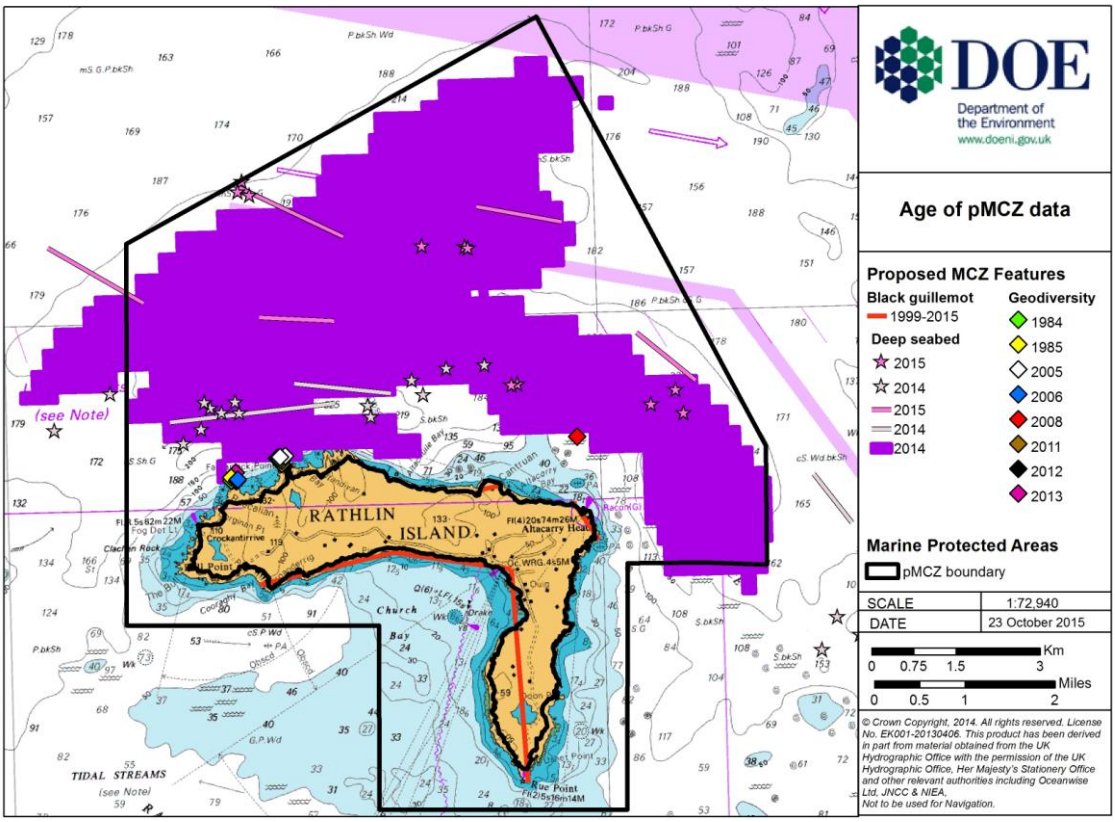

Figure 3 Age of the feature data collected in Rathlin pMCZ

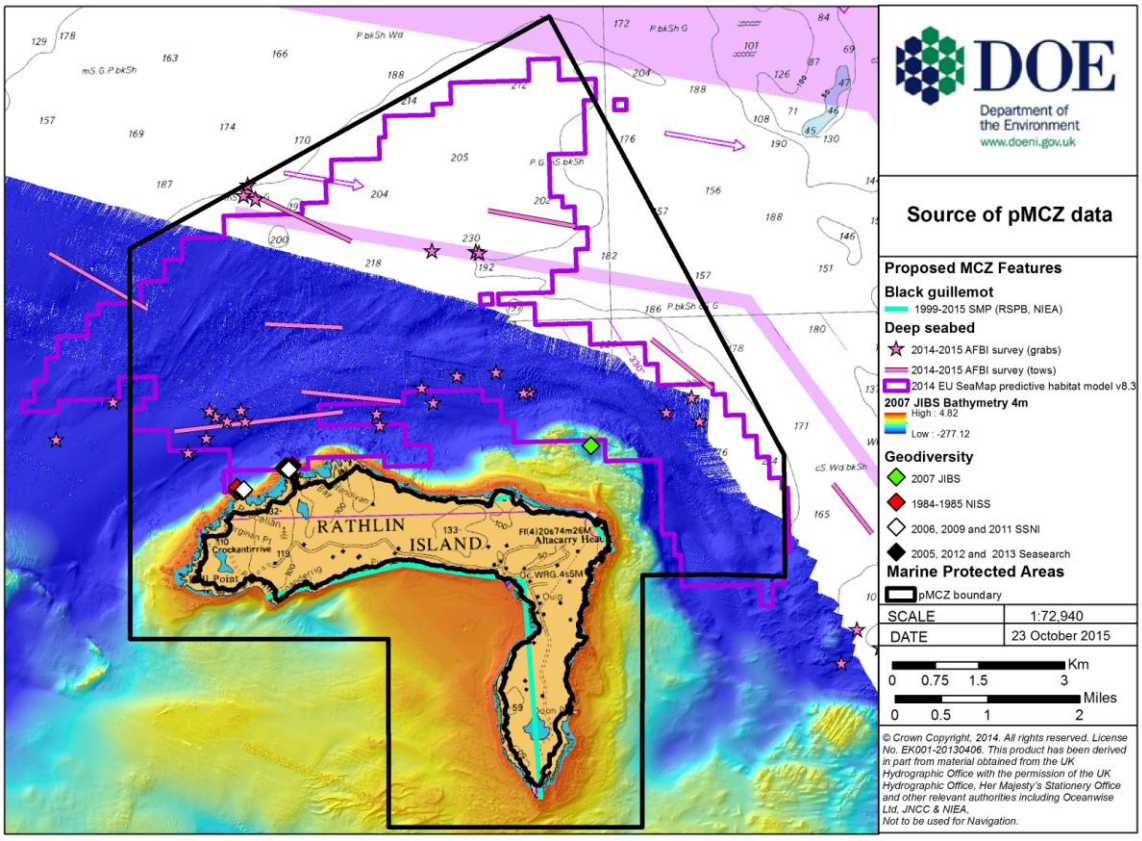

Figure 4 Source of the feature data collected in Rathlin pMCZ

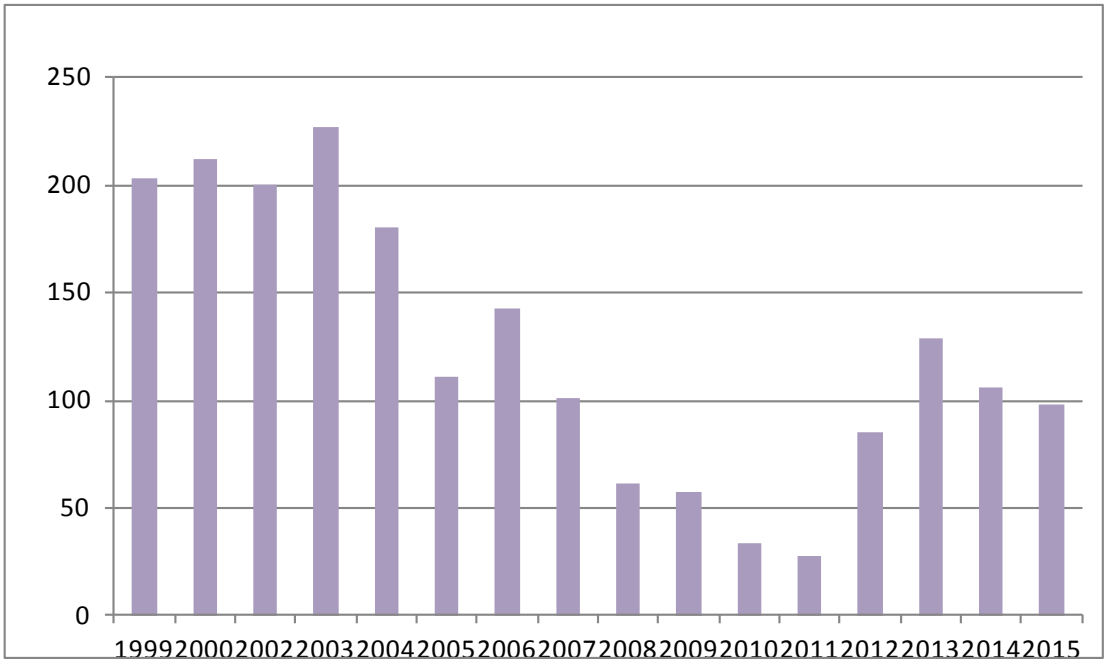

Figure 5 Black guillemot counts (individuals on land) over time recorded on Rathlin (RSPB)

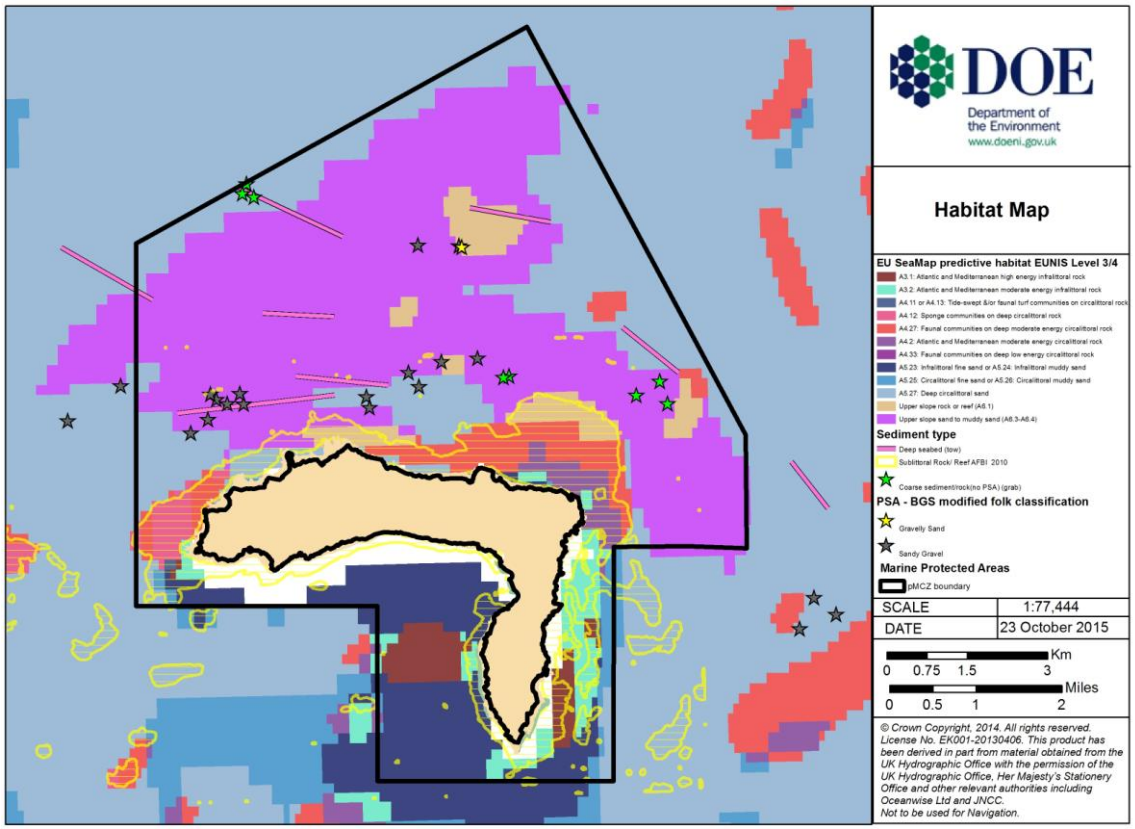

Figure 6 Habitat Map of Rathlin pMCZ and surrounding seabed

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. 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 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.	GD
[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

Data sources and Bibliography		
Data source (used in assessment)	**Reference**	**Features covered**
[8]Joint Irish Bathymetric Survey 2007	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 *Lophelia pertusa* 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 (Cepphus grylle). Position paper for 4th MPA 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

DOE
Department of the Environment
www.doeni.gov.uk

Department of the Environment
Marine Division
2nd Floor
Klondyke Building
Gasworks Business Park
Belfast BT7 2AJ

Telephone: 028 90569262

Email:
MarineDivision.InfoRequests@doeni.gov.uk

Photos represent Priority Marine Features found throughout the Northern Ireland Inshore Region