



Draft Regulatory Impact Assessment

Marine Conservation Zones in the Northern Ireland Inshore Region

November 2015

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Glossary of Terms and Acronyms

AONB - Area of Outstanding Natural Beauty, designated under the Nature Conservation and Amenity Lands Order (Northern Ireland) 1985

Biotope – the region of habitat associated with a particular ecological community

Circalittoral - describes the zone from a depth where 1% light reaches the seabed down to 200m (JNCC)

Conservation objective – A statement of the desired ecological/geological state (quality) of a feature (habitat, species or geological) for which the MCZ is designated

DETI - Department of Enterprise, Trade and Investment

DOE - Department of the Environment

DRD - Department for Regional Development

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

Infralittoral - describes the zone from mean low water down to a depth where 1% of light can reach the seabed (JNCC)

JNCC - Joint Nature Conservation Committee, the statutory nature conservation adviser to the Department and the UK Government in the marine environment

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

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 MCZ).

NIW – Northern Ireland Water

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(s) that will underpin the MCZ designation

SAC - Special Area of Conservation, designated through the Habitats Directive

SPA - Special Protection Area, designated under the Birds Directive

1. Introduction

The Department of the Environment (the Department) has put forward four proposed MCZs (pMCZs) including Rathlin, Waterfoot, outer Belfast Lough and Carlingford Lough. This regulatory impact assessment (RIA), which has been produced by DRD Economics Branch using information supplied by DOE, assesses the impact of proposed marine conservation zone (MCZ) designations in the Northern Ireland Inshore Region.

The assessment includes an outline of the conservation objectives, possible management options for each feature and an impact assessment on activities should the proposed management options be implemented. The management options considered for each activity include 'no management required', 'reduce or limit pressures', or to 'remove or avoid pressures' altogether. Where management is required (based on the level of exposure to, and sensitivity of, the feature to that activity) the options recommended will be implemented as management measures with reporting structures.

2. Background

The sea around Northern Ireland is as environmentally important and diverse as the land, and as fundamental to our economic prosperity. It is important that it is managed sustainably and promoted as a valuable social and economic asset. The Department of the Environment (the Department) is committed to the vision of a clean, healthy, safe, productive and biologically diverse marine and coastal environment that meets the long term needs of people and nature. Marine nature conservation is an integral component of how this can be achieved.

The Department's 'Strategy for Marine Protected Areas in the Northern Ireland inshore region'¹ sets out the aims and key objectives to which marine conservation policy can contribute. Site protection is an important element of marine and coastal conservation and until recently it has focused on species and habitats of European importance which are listed in the relevant annexes of the EC Wild Birds and Habitats Directives².

The Marine Act (Northern Ireland) 2013 (the Act) and the UK Marine and Coastal Access Act 2009 contain new powers to designate Marine Conservation Zones (MCZ) (in the Northern Ireland inshore and offshore regions respectively) as part of a range of measures to manage and protect our seas for current and future generations. The Act is the final piece of the Marine Programme which has already delivered the Marine and Coastal Access Act 2009 and regulations transposing the Marine Strategy Framework Directive (MSFD).

The Act includes provisions for designating and managing MCZs and a system of marine planning. MCZs may be designated for various purposes including the conservation of marine species and habitats, taking fully into account any economic, cultural or social consequences of doing so. The Act also allows the Department to make byelaws to protect MCZs from damage caused by unregulated activities such as anchoring, kite surfing, jet skiing etc. It is an offence to intentionally, or recklessly, destroy, or damage, a protected feature of an MCZ or to contravene a byelaw.

The Act sets out a framework for Northern Ireland's seas based on: a system of marine planning that will balance conservation, energy (renewables, oil and gas) and resource needs, improved management for marine nature conservation and the streamlining of marine licensing for some electricity projects. The Act also

¹ http://www.doeni.gov.uk/mpa_strategy_november_2014.pdf

² http://ec.europa.eu/environment/nature/index_en.htm

places emphasis on the modernisation of licensing and enforcement and contributes to the delivery of a UK network of Marine Protected Areas (MPAs).

The designation of MCZs will contribute to safeguarding vulnerable, or unique, species and habitats of national importance in the Northern Ireland inshore region while contributing to the wider MPA network. These MCZs will help deliver national priorities on biodiversity and geodiversity, including Northern Ireland's contribution to European and International commitments on biodiversity e.g. under MSFD and OSPAR (Oslo/Paris Convention for the Protection of the Marine Environment of the North-East Atlantic). However, the designation of an MCZ may have an impact on current and future activities which are undertaken in, or around, the MCZ, and this could result in adverse social or economic impacts on those activities. Strangford Lough was Northern Ireland's only Marine Nature Reserve (MNR) which was re-designated as Northern Ireland's first MCZ on the enactment of the Act.

3. Rationale for Government Intervention & Objective

A biologically diverse marine environment is of high value to society through the services that it provides and as a basis for human health and livelihoods. In the marine environment, the main traded ecosystem services are fish landings, renewable energy, gas & oil exploration, commercial port activity and aquaculture, while non-traded services include education, flood control, climate mitigation, water quality, recreation and research. Aside from its economic value to society, the natural environment has intrinsic or 'non-use' value.

Human activities can have a detrimental effect on the extent and condition of many diverse habitats and their ecosystems. Fishing affects large areas of the sea bed and has large impacts on marine ecosystems. Other activities including coastal defence, shipping and energy generation (renewables, oil and gas) may have similar large impacts in the areas in which they take place.

The most threatened marine and coastal habitats in the UK, as identified in the UK Biodiversity Action Plan³, are continuing to decline and maintaining or increasing the extent and condition of priority habitats is more difficult in coastal and marine areas than in the terrestrial environment.

The objective of the intervention is to help achieve the vision of the draft NI Marine Plan of:

'A healthy marine area which is managed sustainably for the economic, environmental and social prosperity of present and future generations.'

Each feature within an MCZ will be given a conservation objective. This is a statement of the desired ecological quality of a feature (habitat, species or geological) for which an MCZ is designated. The conservation objective establishes whether the feature condition meets the desired state and should be maintained, or falls below the desired state and should be recovered to favourable condition.

4. Limitations & Constraints

This RIA has been produced in an attempt to assess and quantify the impact of MCZ designation in NI and each of the pMCZs has been considered in turn below. However, it is important to note that the assessment is mostly qualitative due to data constraints and the difficulty with isolating impacts of the various management options.

A large amount of research and a number of desk studies were undertaken to assess the possibility of quantifying the impacts and of placing a monetary value on these. Furthermore, the Department held focus groups with internal and external stakeholders to gather information. The work completed by the other

³ <http://incc.defra.gov.uk/ukbap>

regions of the UK was also considered to understand the methodologies used and assess if the work could be transferable.

However, the lack of zone-specific data on the activities identified, and the lack of transferability from the other regions, has meant that it has not been possible to place a monetary value on the impacts at this time. Naturally if the consultation results in detailed information being received this will be accounted for when the final impact assessment is produced.

Therefore this assessment is mainly qualitative, except for the cost to the public sector, and a judgement has been made on the impact based on the current known level of activity and the possibility that the activity could be displaced i.e. occur/move elsewhere if restricted.

For the potential management options assessment activities were grouped, based on the standardised UK pressures-activity matrix⁴ as developed by the Joint Nature Conservation Committee (JNCC). This classes similar activities that exert similar pressures together, for example, anchoring by commercial and recreational vessels.

⁴ Progress towards the development of a standardised UK pressure-activities matrix
http://jncc.defra.gov.uk/pdf/Final_HBDSEG_P-A_Matrix_Paper_28b_Website_edit%5B1%5D.pdf

5. Rathlin Proposed Marine Conservation Zone

5.1 Description of pMCZ

Rathlin Island lies 9.6km off the north coast of County Antrim, Northern Ireland. The diverse coastal habitats that surround Rathlin have gained international recognition as they support a wide diversity of marine life ranging from seabirds to sponges.

The pMCZ boundary is located between the north coast of Rathlin Island and the North Channel encompassing an area of 92.62km² (see Figure 1 below). The pMCZ boundary encompasses the only known location of the Deep-sea bed habitat (recorded depth of 260 metres) in Northern Ireland's inshore waters.

In 2007, a highly specialised seabed survey (Joint Irish Bathymetric Survey) began yielding information which led to the discovery of geological and geomorphological features including submerged cliffs, lagoons and sea arches⁵. Seabird surveys have shown that the cliffs and sea area between Bull Island and Church Bay are important breeding and feeding areas for the Black Guillemot.

Rathlin Island pMCZ encompasses a Special Area of Conservation (SAC) and a Special Protection Area (SPA) and falls within the Antrim Coast and Glens Area of Outstanding Natural Beauty (AONB).

Further information on the pMCZ can be found online in the consultation document.

⁵ <http://www.science.ulster.ac.uk/cma/instar/landscapes.htm>

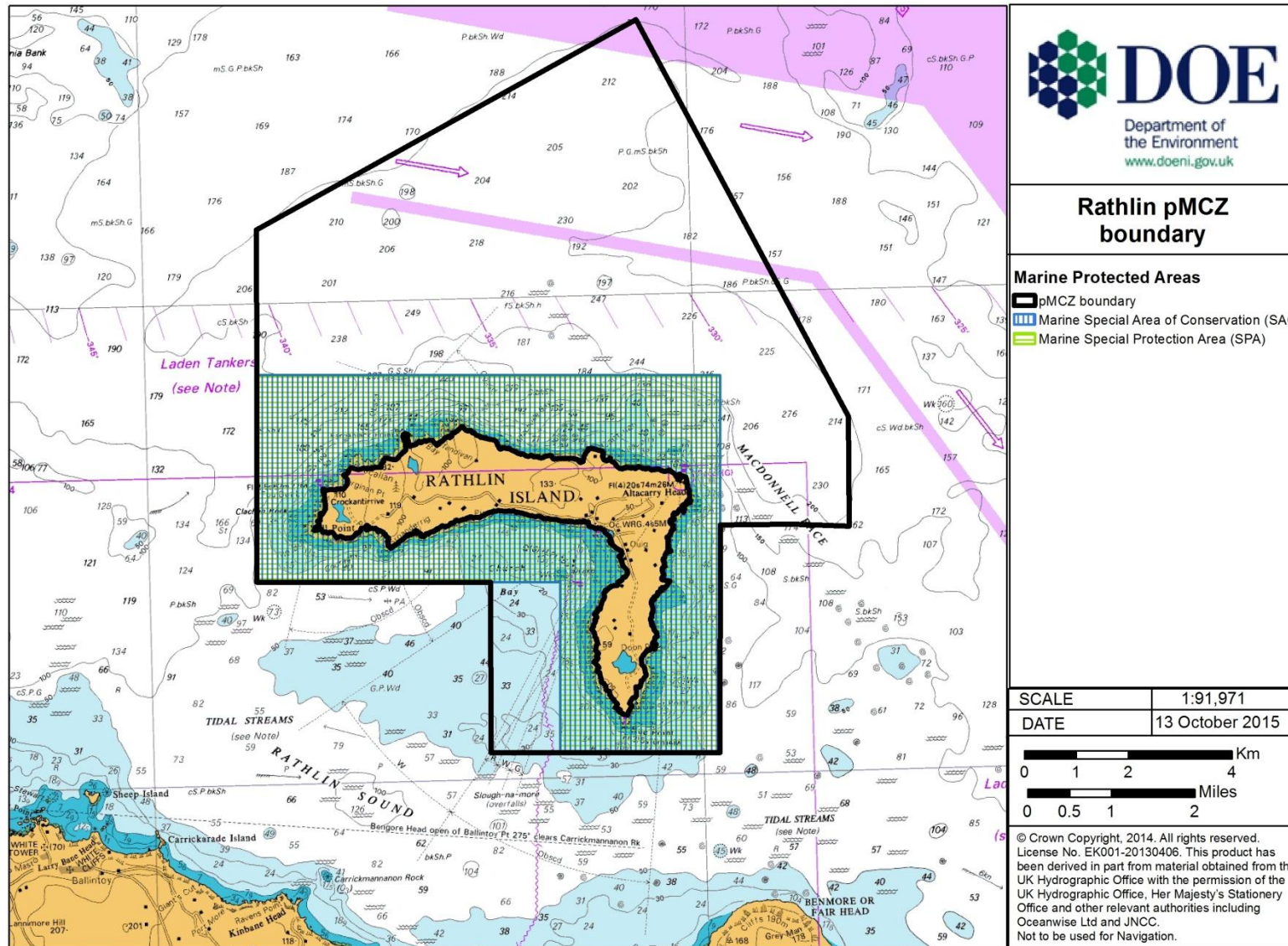


Figure 1: Location of the proposed boundary of Rathlin pMCZ

Rathlin pMCZ has been proposed to protect three key features as outlined below.

a) Habitats – Deep-sea bed

An area of the broad scale habitat, Deep-sea bed (recorded depths of 260m), extracted from predictive habitat mapping, located to the North of Rathlin, has been included within the boundary of this pMCZ. This habitat is particularly unique in NI inshore waters due to the steep drop off in depth, close proximity to land and range of deep subtidal sands, mixed sediments and rock. The depth, exposure to strong currents and substrate type are ideal habitat for unique biological components such as deep-sea cold water coral reefs. To date there have been no records of these reefs in Northern Ireland but further survey work in the Deep-sea bed off Rathlin may locate the feature.

As the proposed habitat in Rathlin pMCZ is currently in favourable condition, the Department recommends that the conservation objectives aim to maintain the Deep-sea bed habitat in favourable condition.

b) Highly Mobile Species – Black guillemots

Black guillemot have long been associated with Rathlin. However, a recent report highlighted a significant decline in numbers of adult birds, between 2000 and 2013 as indicated in the NI Seabird Report, 2013⁶. More survey work is needed to determine if this is a natural feature of the Rathlin population or something that can be mitigated against through management measures put in place as part of the MCZ process.

⁶ <http://www.bto.org/sites/default/files/u41/NI%20Seabird%20Report%20Small%20File.pdf>

Until this can be determined, the conservation objective is set to recover the feature to favourable condition.

- c) Geological/geomorphological features - Features indicating past change in relative sea level (Submerged lagoons and sea arches).

The Act allows for MCZs to be designated for features of Geological and geomorphological interest. This is a relatively new concept and as such information on the impacts of human activities on these features is still being investigated. Scottish Natural Heritage (SNH) and the Joint Nature Conservation Committee (JNCC) commissioned a report⁷ in 2013 to assess the sensitivity of geodiversity features in Scottish Seas to pressures associated with human activities. The findings suggest that in the vast majority of cases, the proposed features have low sensitivity to anthropogenic pressures.

As the Geological/geomorphological features in Rathlin pMCZ are currently in favourable condition, the Department recommends that the conservation objectives aim to maintain these features in favourable condition.

5.2 Assessment of Management Options

A number of activities take place in, or adjacent to, Rathlin pMCZ and the designation, which may entail implementing management, could have an impact on these.

The management options considered for each activity include no management required, reduce or limit pressures, or to remove or avoid pressures altogether. Where management is required the options recommended will be implemented

⁷ http://www.snh.org.uk/pdfs/publications/commissioned_reports/590.pdf

as management measures with reporting structures. Guidance⁸ has been produced by the Department which enabled conservation objectives and management options to be developed for the four pMCZs.

The Department recognises the consequences any change in activity could have and has attempted to limit these where possible. The Department's aim is to achieve the conservation objectives with the least possible impact on the activities in the area. Therefore, the selection of management options and subsequent measures can be attributed to the achievement of these aims. In addition, where there is a low level of specific activity the impact on that activity is assumed to be negligible.

Table 3.1 below outlines each activity and the possible management options. The subsequent table (3.2) shows the preferred management option for each activity and an indication of the possible impact/costs on that activity should the management options be implemented as planned.

⁸http://www.doeni.gov.uk/mcz_guidance_on_the_development_of_conservation_objectives_and_potential_management_options-version1.0.pdf

Table 3.1: Activities in and around Rathlin pMCZ and Potential Management Options

Activity	Potential impact on conservation objectives	Level of Activity Within pMCZ	Potential Management Options	
			Reduce or Limit	Remove or Avoid
Aquaculture Seaweed cultivation	The size, speed and approach distance of boats associated with aquaculture operations has an impact on the flushing probability of Black guillemots. Tolerance for this type of pressure is assessed as medium with medium recovery time for the species to adapt to potential changes in foraging habitat. Death or injury by collision with vessels is also a possible pressure.	Low	Reduce or limit pressures associated with the kelp cultivation farm activities which could impact Black guillemots. The Department may propose a speed restriction zone within the area to minimise the likelihood of disturbance and death/injury from collision particularly during the breeding season (spring).	Revoke current kelp licence(s) Remove or avoid pressures associated with the expansion or relocation of existing aquaculture areas where they would be likely to impact the Black guillemot.
Fishing Mobile gear - scallop dredging and demersal trawling	Deep-sea bed is considered to have a high sensitivity to pressures such as physical changes, species removal and surface and sub-surface abrasion from demersal fishing using mobile gear (e.g. trawling and dredging).	Low	Reduce or limit pressures associated with mobile fishing gear in areas where the pMCZ features are sensitive to pressures associated with this activity.	Remove or avoid pressures associated with mobile fishing gear in areas where they are likely to impact the pMCZ features.

Activity	Potential impact on conservation objectives	Level of Activity Within pMCZ	Potential Management Options	
			Reduce or Limit	Remove or Avoid
Fishing Static gear – pots	Low impact except for possible vessel collision with Black guillemots.	Low	Reduce or limit pressures associated with the use of static fishing gear which are likely to impact Black guillemots. The Department may suggest imposing a speed limit within the area to minimise the likelihood of disturbance and death/injury from collision with seabirds particularly in breeding season (spring).	Prohibit the use of static fishing gear within the pMCZ.

Activity	Potential impact on conservation objectives	Level of Activity Within pMCZ	Potential Management Options	
			Reduce or Limit	Remove or Avoid
<p>Potential Energy production</p> <p>Tidal resource zone</p>	<p>Black guillemots have a medium sensitivity to the following pressures associated with tidal turbine energy production: visual disturbance, death or injury by collision, underwater noise (i.e. from seismic surveys) and a low sensitivity to physical change to the seabed.</p> <p>Deep-sea bed is sensitive to the following pressures associated with tidal energy: physical change of substrate, sub-surface abrasion, water flow (tidal current) changes and synthetic compound contamination.</p> <p>Habitats Regulations Assessments (HRA) and the SEA report (Strategic Environmental Assessment, DETI) show that the removal or disturbance of the substratum could have significant adverse effects on sensitive benthic habitats and/or species. However, with mitigating actions taken at the EIA/Projects stage these impacts would be reduced.</p>	<p>Low</p> <p>There is no current energy generation in the area, just potential development projects</p>	<p>Should sites within the pMCZ be considered in the future then the Deep-sea bed area should be avoided as a location due to the potential change in habitat associated with tidal resource structures. However, due to the depth of the Deep-sea bed it is unlikely that tidal developments would be able to locate here.</p> <p>Furthermore, areas used by Black guillemot should be avoided. Rathlin Island SAC/SPA will be subject to a Habitats Regulations Assessment for any plans or projects.</p>	<p>Areas within the pMCZ should not be considered for this activity in the future.</p>

Activity	Potential impact on conservation objectives	Level of Activity Within pMCZ	Potential Management Options	
			Reduce or Limit	Remove or Avoid
<p>Potential Energy Production</p> <p>Oil and gas exploration licence</p>	<p>Black guillemots have a medium sensitivity to the following pressures associated with oil and gas exploration: visual disturbance, death or injury by collision, underwater noise (i.e. from seismic surveys) and a low sensitivity to physical change to the seabed.</p> <p>Deep-sea bed is sensitive to the following pressures associated with oil and gas extraction: physical change to substrate, sub-surface abrasion, water flow (tidal current) changes and synthetic compound contamination.</p>	<p>Low</p> <p>There is no current energy generation in the area, just potential development projects</p>	<p>Should sites within the pMCZ be considered in the future then the Deep-sea bed area should be avoided as a location due to the potential change in habitat associated with tidal resource structures.</p> <p>Furthermore, areas used by Black guillemot should be avoided. Rathlin Island SAC/SPA will be subject to a Habitats Regulations Assessment for any plans or projects.</p>	<p>Areas within the pMCZ should not be considered for this activity in the future.</p>

Activity	Potential impact on conservation objectives	Level of Activity Within pMCZ	Potential Management Options	
			Reduce or Limit	Remove or Avoid
Infrastructure Marina	Disturbance, death/injury from collision with vessels while foraging are the most likely risks to the Black guillemot population which need to be considered to ensure the conservation objective is met.	Moderate	Reduce or limit pressures associated with any proposed expansion of the existing marina where or when it may impact the breeding Black guillemots. This may include scheduling maintenance works when they are least likely to affect breeding birds or introducing a speed restriction zone.	Prohibit expansion of the existing marina where it impacts the pMCZ.
Infrastructure Submarine power cable	Construction or maintenance activities for the submarine cable have the potential to cause disturbance to breeding and foraging behaviour of Black guillemot nearby.	Low	Reduce or limit pressures associated with maintenance work on the submarine cable where it is likely to impact the breeding Black guillemots. This may include scheduling maintenance works when they are least likely to affect breeding birds or introducing a speed restriction zone.	Prohibit future maintenance works where this impacts the pMCZ.

Activity	Potential impact on conservation objectives	Level of Activity Within pMCZ	Potential Management Options	
			Reduce or Limit	Remove or Avoid
Discharges/waste disposal Waste water treatment plant & outfalls, dredge disposal	Although the area where the dredge material is disposed is outside the pMCZ area, pressures associated with dredging activities in Rathlin Harbour can impact the Black guillemot. The species is sensitive to visual disturbance, death /injury from collision with vessels and synthetic and non-synthetic compound contamination. These pressures need to be considered to ensure the conservation objective for the Black guillemot can be met.	Low/ Moderate	Reduce or limit pressures associated with new discharge/waste/dredge disposal sites as well as the expansion or relocation of the existing dredge disposal ground where it impacts the pMCZ.	Remove or avoid pressures associated with new discharge/waste/dredge disposal sites as well as the expansion or relocation of the existing dredge disposal ground where it impacts the pMCZ.

Activity	Potential impact on conservation objectives	Level of Activity Within pMCZ	Potential Management Options	
			Reduce or Limit	Remove or Avoid
<p>Marine traffic</p> <p>Moorings and boat anchorage, ferry route and shipping/navigation</p>	<p>The ferries travel through an area where Black guillemots forage. This species is sensitive to pressures such as visual disturbance, death /injury from collision with vessels associated with marine traffic.</p>	<p>Moderate/ High</p>	<p>Reduce or limit pressures associated with the ferry route inside the pMCZ boundary where they are likely to impact foraging Black guillemot. The Department may propose a speed restriction zone within the area to minimise the likelihood of disturbance and death/injury from collision with seabirds particularly during the breeding season (spring).</p> <p>Reduce pressures associated with existing/new anchoring and moorings where they are likely to impact Black guillemot.</p>	<p>Prohibit marine traffic in the pMCZ.</p> <p>Prohibit anchoring/mooring in the pMCZ.</p>

Activity	Potential impact on conservation objectives	Level of Activity Within pMCZ	Potential Management Options	
			Reduce or Limit	Remove or Avoid
Recreation and Tourism	Black guillemots are sensitive to pressures such as visual disturbance when foraging and death /injury from collision with vessels associated with recreational vessels.	Moderate	Reduce or limit pressures associated with tourism and recreational activities where they are likely to impact foraging Black guillemot. The Department may propose a speed restriction zone within the area to minimise the likelihood of disturbance and death/injury from collision with seabirds particularly during the breeding season (spring).	Prohibit marine traffic in the pMCZ.

Activity	Potential impact on conservation objectives	Level of Activity Within pMCZ	Potential Management Options	
			Reduce or Limit	Remove or Avoid
<p>Scientific research</p> <p>Monitoring, diving and stock assessment</p>	<p>Scientific research and monitoring activities may have the potential to cause the deterioration of the proposed habitat and species through direct alteration, removal or manipulation of the species associated with the biotope. In addition Black guillemot are sensitive to pressures such as visual disturbance when foraging and death /injury from collision with vessels associated with scientific research.</p>	Moderate	<p>Guidelines and practices developed by JNCC for survey work ensure that the features are not impacted and that the conservation objective can be achieved. No additional management is required.</p>	

Table 3.2: Assessment of Rathlin Management Options

Activity	Preferred Management Option	Impact on activity	Explanation
Aquaculture Seaweed cultivation	Reduce or limit pressures associated with the kelp cultivation farm activities which could impact Black guillemots. The Department may propose a speed restriction zone within the area to minimise the likelihood of disturbance and death/injury from collision particularly during the breeding season (spring).	Negligible	This should ensure objectives achieved without having to remove or avoid current activities. Negligible cost as a speed limit is unlikely to have any additional costs.
	Remove or avoid pressures associated with the expansion of existing aquaculture areas where they are likely to impact the Black guillemot.	Low/ Moderate	Allowing expansion in future where this is likely to impact Black guillemot is likely to result in the objectives not being achieved. The development of new aquaculture operations will require a licence from either DARD or DOE Marine Division and this will consider potential impacts to the pMCZ features.

Activity	Preferred Management Option	Impact on activity	Explanation
Fishing Mobile gear - scallop dredging and demersal trawling	Remove or avoid pressures associated with mobile fishing gear in areas where the pMCZ features are sensitive to pressures associated with this activity i.e. prohibit the use of mobile fishing gear within the pMCZ.	Low	Reducing or limiting the pressure will not meet the conservation objective, therefore removing or avoiding is the only option. The impact is assumed to be negligible/low given that the level of activity within the pMCZ is deemed as relatively low and DARD is in the process of introducing regulations which ban the use of mobile gear within Rathlin Island SAC/SPA to prevent damage to the European designated features, i.e. part of the pMCZ will already be protected. However, as there is a risk that activity may be displaced from the SAC/SPA boundary into the wider pMCZ boundary a total prohibition of mobile fishing gear use within the pMCZ is recommended.
Fishing Static gear – pots	Reduce or limit pressures associated with the use of static fishing gear which are likely to impact Black guillemots. The Department may suggest imposing a speed limit within the area to minimise the likelihood of disturbance and death/injury from collision with seabirds particularly in breeding season (spring).	Low	Reducing or limiting the pressure should meet the conservation objectives and therefore there is no need to remove or avoid the pressure. The impact is assumed to be negligible, given a speed limit is unlikely to increase costs (other than increased time spent).

Activity	Preferred Management Option	Impact on activity	Explanation
Energy production Tidal resource zone	Remove or avoid pressures associated with energy production activities that could impact on the pMCZ features. Areas within the pMCZ should not be considered for this activity in the future.	Low	The areas at Torr Head and Fair Head are outside the pMCZ boundary so it is unlikely that designation of the pMCZ will impact the tidal resource zone.
Frontier (oil and gas) exploration licence	Remove or avoid pressures associated with oil and gas exploration that could impact on the pMCZ features. Areas within the pMCZ should not be considered for this activity in the future.	Low	It is likely that the measure could have an impact on future oil and gas exploration; however, given the uncertainty surrounding the success (or otherwise) of this, an assessment of impact has been made based on current activities. The majority of the Providence Resources Plc licence is outside of the pMCZ.
Infrastructure Marina	Reduce or limit pressures associated with any proposed expansion of the existing marina where or when it may impact the breeding or foraging Black guillemots. This may include scheduling maintenance works when they are least likely to affect breeding birds or introducing a speed restriction zone.	Negligible	Reducing or limiting should achieve the conservation objectives. As this does not involve cessation of activities the impact is deemed negligible.

Activity	Preferred Management Option	Impact on activity	Explanation
Infrastructure Submarine power cable	Reduce or limit pressures associated with any proposed expansion of the existing marina where or when it may impact the breeding or foraging Black guillemots. This may include scheduling maintenance works when they are least likely to affect breeding birds or introducing a speed restriction zone.	Negligible	Reducing or limiting should achieve the conservation objectives. As this does not involve cessation of activities the impact is deemed negligible. This should not impact any emergency works to repair the cable.
Discharges/waste disposal Waste water treatment works & outfalls, dredge disposal	Reduce or limit pressures associated with new discharge/waste/dredge disposal sites as well as the expansion or relocation of the existing dredge disposal ground.	Low	Reducing or limiting should achieve the conservation objectives. This is likely to have a low impact as the current dredge disposal site to the south of Rathlin Island does not fall within the current pMCZ boundary. Also there is currently only one WWTW on Rathlin which was upgraded in March 2013, thus future expansion is likely to be unnecessary.

Activity	Preferred Management Option	Impact on activity	Explanation
<p>Marine traffic</p> <p>Moorings and anchoring, ferry route and shipping/navigation</p>	<p>Reduce or limit pressures associated with the ferry route inside the proposed boundary where they are likely to impact foraging Black guillemot. This is likely to involve the use of a speed restriction to avoid collisions with birds. Boats should also avoid anchoring adjacent to Black Guillemot nesting sites.</p> <p>Reduce pressures associated with existing/new anchoring and moorings where they are likely to impact Black guillemot.</p>	Low	<p>There is no need to introduce the remove or avoid option as reducing or limiting the pressure should achieve the conservation objectives. The ferries already follow a narrow navigation route in the area where these birds are found minimising the likely impact of these pressures and ensuring that the conservation objective can be achieved. A speed restriction is likely to have a low impact (other than increased time spent in transit).</p>
<p>Recreation and Tourism</p> <p>Tourism</p>	<p>Reduce or limit pressures associated with tourism and recreational activities where they are likely to impact foraging Black guillemot. The Department may propose a speed restriction zone within the area to minimise the likelihood of disturbance and death/injury from collision with seabirds particularly during the breeding season (spring).</p>	Negligible	<p>Reducing or limiting should meet the conservation objectives and therefore there is no need to remove or avoid the pressure. The impact is assumed to be negligible, given a speed limit is unlikely to increase costs (other than increased time spent in transit).</p>

Activity	Preferred Management Option	Impact on activity	Explanation
Scientific and Archaeological activities Research and monitoring	No additional management is required and therefore the pMCZ should not be adversely affected.	None	Guidelines and practices developed for survey work ensure that the features are not impacted and that the conservation objective can be achieved.

6. Waterfoot pMCZ

6.1 Description of pMCZ

Waterfoot pMCZ is located in a small embayment (within the wider Red Bay area) on the east coast of County Antrim, offshore from the village of Waterfoot and lies inshore of the North Channel. The seabed in the area is comprised mainly of sandy sediments and coarse-gravelly sand.

The proposed boundary, located at the inner part of the bay, is a small area of 0.788km² (see Figure 2). The pMCZ contains a large Subtidal seagrass bed (*Zostera marina*), that may be the largest example in Northern Ireland and is considered to be in good condition.

The waters around the Red Bay area are important for finfish aquaculture (organic Atlantic salmon, *Salmo salar*). Fisheries in the area include scallop dredging and potting for Edible crab (*Cancer pagurus*) and European lobster (*Homarus gammarus*). Although there is no industrial activity in the Red Bay area, the increasing popularity for leisure and recreational activities may be a threat for the sustainability of Subtidal seagrass beds.

An area to the north of the pMCZ has been designated as an SAC while the pMCZ lies within the wider Antrim Coast and Glens Area AONB. Further information on the pMCZ can be found in the consultation document.

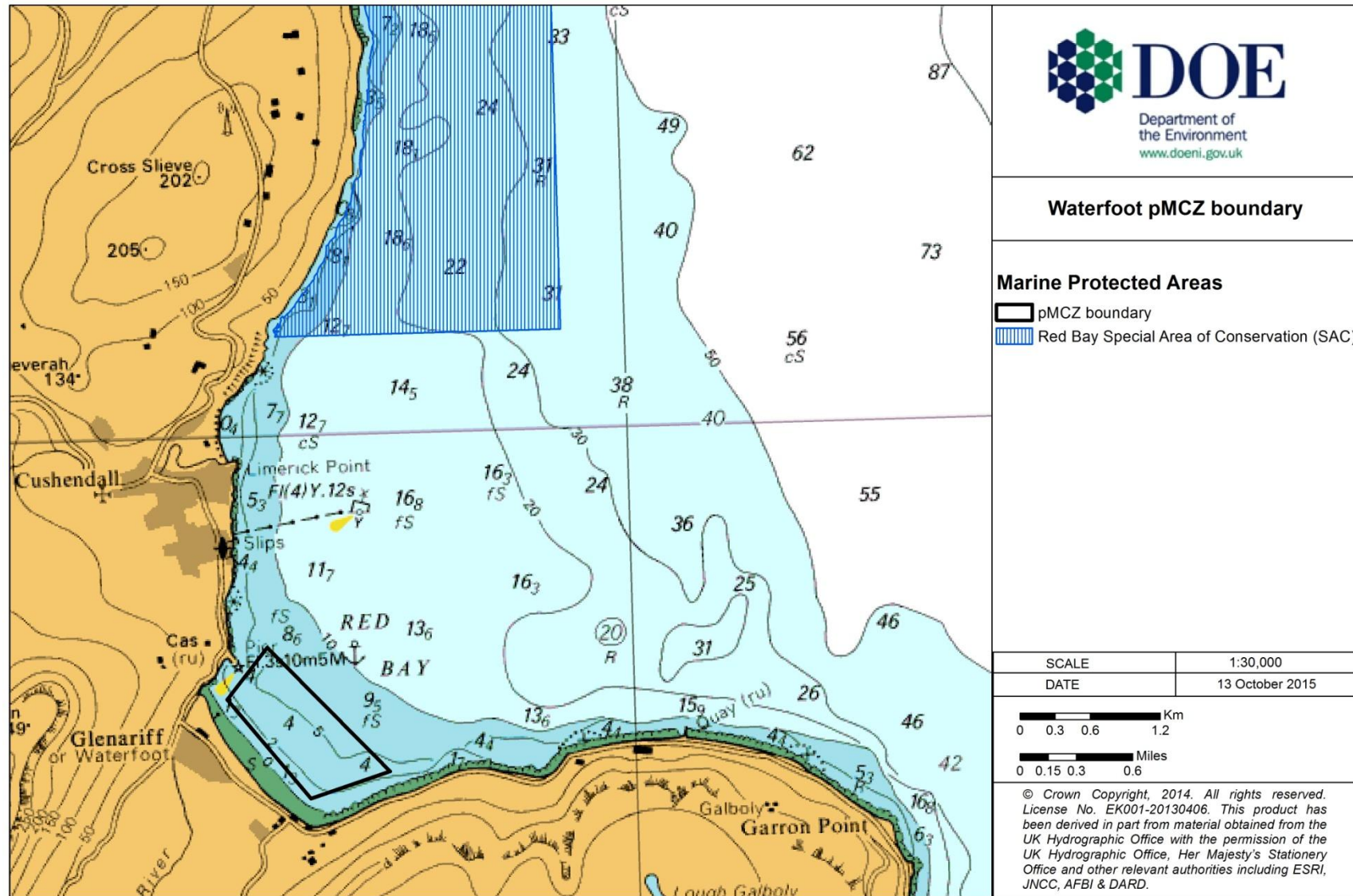


Figure 2: Location of the proposed boundary of Waterfoot pMCZ

6.2 Conservation Objectives

Waterfoot has been proposed as a pMCZ for the habitat Subtidal (sublittoral) sands with subtidal Seagrass beds (*Zostera marina*). The proposed habitat is currently listed as Priority Habitat by the UK Biodiversity Habitat Action Plan (BAP) and is listed on the OSPAR List of Threatened and/or Declining Species and Habitats (declining in Region II – North Sea and Region III – Celtic Sea, and threatened in Region V – Wider Atlantic, OSPAR agreement 2008-6).

As the proposed habitat in Waterfoot pMCZ is currently in favourable condition, the Department recommends that the conservation objectives aim to maintain this feature in favourable condition.

6.3 Assessment of Management Options

A number of activities take place in or around Waterfoot pMCZ and the designation, which may entail implementing management measures, could have an impact on these.

The management options considered for each activity include no management required, reduce or limit pressures, or to remove or avoid pressures altogether. Where management is required the options recommended will be implemented as management measures with reporting structures. Guidance⁹ has been produced by the Department which enabled conservation objectives and management options to be developed for the four pMCZs.

The Department recognises the consequences any change in activity could have and has attempted to limit these where possible. The Department's aim is to achieve the conservation objectives with the least possible impact on the activities in the area. Therefore, the selection of management options and

⁹http://www.doeni.gov.uk/mcz_guidance_on_the_development_of_conservation_objectives_and_potential_management_options-version1.0.pdf

subsequent measures can be attributed to the achievement of these aims. In addition, where there is a low level of specific activity the impact on that activity is assumed to be negligible.

Table 4.1 below outlines each activity and the possible management options. The subsequent table (4.2) shows the preferred management option for each activity and an indication of the possible impact/costs on that activity should the management options be implemented as planned.

Table 4.1: Activities in and around Waterfoot pMCZ and Potential Management Options

Activity	Potential impact on conservation objectives	Level of Activity Within pMCZ	Potential Management Options	
			Reduce or Limit	Remove or Avoid
Aquaculture Finfish	Potential impacts or pressures associated with finfish farms to which the seagrass beds are highly sensitive include organic enrichment, physical change to another seabed type and siltation changes.	None	Reduce or limit pressures associated with new finfish farms and the expansion of existing aquaculture areas where they are likely to impact the Seagrass beds.	Prohibit expansion or location of finfish farms in and around the pMCZ.
Fishing Mobile gear – dredging Static gear – pots	Dredging gears have major impacts on seagrass beds as they can remove species, cause surface abrasion or can alter the sediment regime leading to changes in the seabed type. Pots can cause damage by removal of species (both target and non-target species), introduction and/or translocation of species and surface abrasion (either through physical damage by pots or propellers of fishing boats).	Low High	Reduce or limit pressures associated with mobile gear fishing (scallop dredging) where they are likely to impact the pMCZ features. Management measures to reduce or limit pressures associated with static gear fishing (creeling and pots) where they are likely to impact the pMCZ features.	Prohibit any new mobile gear fishing (scallop dredging) in the pMCZ. Prohibit the use of static fishing gear within the pMCZ.

Activity	Potential impact on conservation objectives	Level of Activity Within pMCZ	Potential Management Options	
			Reduce or Limit	Remove or Avoid
Potential Energy production Tidal resource zone	Seagrass beds have high to medium sensitivity to the following pressures that could happen in the area if any development takes place: structural abrasion, changes in the seabed, water clarity changes, water flow (tidal current) changes, wave exposure and introduction and/or translocation of species. There is, however, little likelihood of tidal development within this pMCZ as it lies outside the Tidal Resource Zone. However, if the harbour was used to facilitate the new development, with associated service vessels utilising this area, there would be a risk of impact to the pMCZ features.	None	Reduce or limit pressures associated with potential development of tidal energy activities and associated operational activities that are likely to impact the seagrass beds.	Prohibit potential tidal energy developments within the pMCZ and ensure a suitable buffer to prevent associated operational activities resulting in increased turbidity which may lead to smothering of plants or a reduction in light penetration.

Activity	Potential impact on conservation objectives	Level of Activity Within pMCZ	Potential Management Options	
			Reduce or Limit	Remove or Avoid
<p>Potential Energy production</p> <p>Oil and gas exploration licence</p>	<p>Seagrass beds have high to medium sensitivity to the following pressures that could happen in the area if any development takes place: structural abrasion, changes in the seabed, water clarity changes, water flow (tidal current) changes, wave exposure and introduction and/or translocation of species. There is, however, little likelihood of oil and gas development within this pMCZ as works are concentrated on an onshore site (an exploratory well within Woodburn Forest).</p>	None	<p>Reduce or limit pressures associated with potential development of oil and gas activities and associated operational activities that could impact the seagrass beds.</p>	<p>Prohibit oil and gas developments within the pMCZ and ensure a suitable buffer to prevent associated operational activities resulting in increased turbidity which may lead to smothering of plants or a reduction in light penetration.</p>

Activity	Potential impact on conservation objectives	Level of Activity Within pMCZ	Potential Management Options	
			Reduce or Limit	Remove or Avoid
Infrastructure Piers	Habitat loss or alteration, and direct damage to individual species are the main risks associated with infrastructure operations. In addition, the construction of new infrastructure may affect the local hydrodynamic and sediment transport regimes and consequently affect the sandy substratum and loss of associated species.	Moderate	Reduce or limit pressures associated with new developments and the expansion of the Waterfoot Pier area where they are likely to impact the Seagrass bed.	Remove or avoid pressures associated with new developments and the expansion of the Waterfoot Pier area where they are likely to impact the Seagrass bed.
Infrastructure Coastal Defences	Construction of new infrastructure may affect the local hydrodynamic and sediment transport regimes and consequently affect the sandy substratum and loss of associated species.	Low	Reduce or limit pressures associated with new coastal defences and the expansion of existing ones where they are likely to impact the Seagrass bed.	Remove or avoid pressures associated with new coastal developments and the expansion of existing ones where they are likely to impact the Seagrass bed.

Activity	Potential impact on conservation objectives	Level of Activity Within pMCZ	Potential Management Options	
			Reduce or Limit	Remove or Avoid
Discharges/ waste disposal Waste water treatment plant & outfalls	An increase in organic particulate matter, increased smothering and related reduction of the water flow around <i>Zostera marina</i> leaves, can adversely damage the seagrass and associated community structure. Seagrass on subtidal sands have a low tolerance and slow recovery to the above mentioned pressures.	Low/ Moderate	Reduce or limit pressures associated with new discharge/waste disposal sites or the expansion of existing ones where they are likely to impact the Seagrass bed.	Remove or avoid pressures associated with new discharge/waste disposal sites or the expansion of existing ones where they are likely to impact the Seagrass bed. No expansion of existing or new discharge points into the pMCZ should take place.
Extraction – maintenance dredging	Dredging gears have major impacts on seagrass beds as they can remove species, cause surface abrasion or can alter the sediment regime leading to changes in the seabed type.	Negligible/Low	Reduce or limit pressures associated with dredging (including disposal) <u>inside</u> the proposed boundary where they are likely to impact the seagrass bed.	Remove or avoid pressures associated with dredging (including disposal) <u>inside</u> the proposed boundary where they are likely to impact the seagrass bed.

Activity	Potential impact on conservation objectives	Level of Activity Within pMCZ	Potential Management Options	
			Reduce or Limit	Remove or Avoid
Marine traffic Anchoring, mooring and shipping/navigation	The main pressure associated with marine traffic is physical abrasion (surface and sub-surface abrasion/penetration through mooring or anchoring). There is also a risk of introduction and/or translocation of species.	Moderate	Reduce or limit pressures associated with anchoring and mooring <u>inside</u> the proposed boundary where they are likely to impact the seagrass bed. Reduce or limit pressures associated with anchoring and mooring <u>around</u> the proposed boundary where they are likely to impact the seagrass bed.	Remove or avoid pressures associated with anchoring and mooring <u>inside</u> the proposed boundary where they are likely to impact the seagrass bed. Remove or avoid pressures associated with anchoring and mooring <u>around</u> the proposed boundary where they are likely to impact the seagrass bed.
Recreation and tourism SCUBA diving, sailing, kayaking/canoeing, bird watching, bathing waters and recreational fishing.	The main pressures associated with recreation and tourism, to which the proposed features are medium-highly sensitive to, are surface abrasion and sub-surface abrasion or penetration and introduction and/or translocation of species.	Moderate	Transit of vehicles through the pMCZ allowed but the use of moors, buoys, anchors etc. should be avoided within the pMCZ (and at a suitable buffer distance) to prevent direct damage to the vegetation.	All activities prohibited in the pMCZ.

Activity	Potential impact on conservation objectives	Level of Activity Within pMCZ	Potential Management Options	
			Reduce or Limit	Remove or Avoid
Scientific and Archaeological Activities Research and monitoring	Scientific and Archaeological activities may have the potential to cause the deterioration of the proposed habitat and species through direct alteration, removal or manipulation of the species associated with the biotope.	Moderate	Guidelines and practices developed for survey work ensuring that the features are not impacted and that the conservation objective can be achieved. No additional management is required.	

Table 4.2: Assessment of Waterfoot Management Options

Activity	Preferred Management Option	Impact on activity	Explanation
Aquaculture Finfish	Reduce or limit pressures associated with new finfish farms and the expansion of existing aquaculture areas where they are likely to impact the Seagrass beds.	Negligible	Reducing or limiting should achieve the conservation objective and therefore there is no need to remove the pressure. Due to distance from pMCZ, low stocking density of fish and high energy site (rapid dispersal of organic matter), active management to reduce impacts on the pMCZ features is not required. Therefore, the impact is negligible. However, it is recommended that any expansions to the farm e.g. new cages are not located within the pMCZ.

Activity	Preferred Management Option	Impact on activity	Explanation
<p>Fishing</p> <p>Mobile gear – dredges</p> <p>Static gear – pots and creels</p>	<p>Remove or avoid pressures associated with mobile gear fishing in the pMCZ where features are sensitive to pressures associated with this activity i.e. prohibit the use of mobile fishing gear within the MCZ.</p> <p>Remove or avoid pressures associated with static gear fishing in the pMCZ where features are sensitive to pressures associated with this activity i.e. prohibit the use of static fishing gear within the MCZ and reduce or limit these pressures where they occur adjacent to the pMCZ.</p>	<p>Negligible/ Low</p> <p>Medium</p>	<p>Reducing or limiting the pressure will not meet the conservation objective, therefore removing or avoiding is the only option. The impact is assumed to be negligible/low given that at present this activity does not occur within the pMCZ.</p> <p>Reducing or limiting the pressure will not meet the conservation objective, therefore removing or avoiding is the only option. The impact is assumed to be medium given that at present this activity does occur within the pMCZ. The activity may be displaced rather than lost.</p>
<p>Potential Energy production</p> <p>Tidal resource zone</p>	<p>Remove or avoid pressures associated with potential tidal developments within the pMCZ and ensure a suitable buffer to prevent associated operational activities resulting in increased turbidity leading to smothering of plants or a reduction in light penetration.</p>	<p>Negligible</p>	<p>It is necessary to select this management option to ensure conservation objectives are achieved. Given there is no overlap with the pMCZ the impact is deemed to be negligible.</p>

Activity	Preferred Management Option	Impact on activity	Explanation
Potential Energy production Oil and Gas	Remove or avoid pressures associated with potential oil and gas developments within the pMCZ and ensure a suitable buffer to prevent associated operational activities resulting in increased turbidity leading to smothering of plants or a reduction in light penetration.	Negligible	It is necessary to select this management option to ensure conservation objectives are achieved. Given there is no overlap with the pMCZ the impact is deemed to be negligible.
Infrastructure Piers	Remove or avoid pressures associated with new developments as well as the expansion of the Waterfoot Pier area where they are likely to impact the seagrass beds i.e. prohibit future expansion of the existing pier within the pMCZ.	Low	Allowing any development in the pMCZ will be detrimental to achievement of the objectives and therefore removing or avoiding is the preferred option. At present the existing piers do not require any active management as there is no overlap between these areas and the pMCZ. Therefore, the impact is deemed to be low.
Infrastructure Coastal Defences	Reduce or limit pressures associated with new coastal defences and the expansion of existing ones where they are likely to impact the Seagrass bed.	Low	New coastal defences should be designed where their impact on the hydrology will not be to the detriment of the seagrass beds, i.e. changing the regime to increase sedimentation/turbidity or freshwater influence.

Activity	Preferred Management Option	Impact on activity	Explanation
Discharges/ waste disposal Waste water treatment plant & outfalls	Remove or avoid pressures associated with new discharge/waste disposal sites and as well as the expansion or relocation of existing ones where they are likely to impact the seagrass beds. No expansion of existing or new discharge points into the pMCZ should take place.	Low	Limiting pressures in the pMCZ rather than avoiding these would not achieve the conservation objective. However, the impact is thought to be low given the relatively low level of activity, which is not causing an impact on the pMCZ features and that there is the possibility of finding alternative sites for future activity.
Extraction – maintenance dredging	Dredging will not be permitted within the pMCZ. Management measures are recommended to limit or avoid pressures associated with dredging operations where they take place adjacent to the pMCZ. In addition, disposal of dredged material will not be permitted within the pMCZ.	Low	Limiting pressures in the pMCZ rather than avoiding these would not achieve the conservation objective. However, the impact is thought to be low given at present this activity does not occur within or adjacent to the pMCZ.
Marine traffic Anchoring and mooring, shipping/navigat	Remove or avoid pressures associated with current and future anchoring and mooring <u>inside</u> the proposed boundary where they are likely to impact the Seagrass beds.	Low	Both of these management options are required to meet the conservation objective. Their impact is deemed to be low because of the likelihood of displacement (i.e. anchoring or

Activity	Preferred Management Option	Impact on activity	Explanation
ion	Reduce or limit pressures associated with current and future anchoring and mooring <u>around</u> the proposed boundary where they are likely to impact the Seagrass bed i.e. any new anchorage sites should be located at a suitable distance from the pMCZ to prevent sedimentation affecting the beds.	Low	mooring elsewhere in the Red Bay area or around the NI coast).
Recreation and tourism SCUBA diving, sailing, kayaking/canoeing, bird watching, bathing waters and recreational fishing.	Remove or avoid pressures associated with current and future anchoring and mooring <u>inside</u> the proposed boundary where they are likely to impact the Seagrass beds. Reduce or limit pressures associated with recreation and tourism within the proposed boundary where they are likely to impact the seagrass bed.	Low	The reduce or limit option should sufficiently achieve the conservation objectives given that the transit of vehicles through the pMCZ should not require any active management due to the depth at which the seagrass beds are located. However the use of moors, buoys, anchors etc. should be avoided within the pMCZ (and at a suitable buffer distance) to prevent direct damage to the vegetation. The impacts are likely to be low as activities should generally continue as they do at present.
Scientific and Archaeological activities Research and monitoring	No additional management is required and therefore the pMCZ should not be adversely affected.	None	Guidelines and practices developed for survey work ensure that the features are not impacted and that the conservation objective can be achieved.

7. Outer Belfast Lough pMCZ

7.1 Description of pMCZ

Belfast Lough is large sea inlet situated at the mouth of the Lagan, Farsett and Blackstaff Rivers on the eastern coast of Northern Ireland. Outer Belfast Lough is an exposed area as it opens into the North Channel and connects Belfast to the Irish Sea. Home to a variety of species, the Outer Lough encompasses a wide range of habitats including sub-tidal mixed sediment types, sediment dominated bays and rocky shores.

The pMCZ, located at the mouth of the Lough, is a small area (5.76 km²) positioned close to the southern shore of Belfast Lough (north of Groomsport) (see Figure 3). The pMCZ contains well established population of the long-lived Ocean quahog (*Arctica islandica*). The Subtidal (sublittoral) sand in the area provides an ideal substrate for the low mobility species that lives buried in the sediment.

Outer Belfast Lough is heavily impacted by human activity with intense commercial industry and booming leisure activities. Belfast Harbour is Northern Ireland's largest port with significant passenger and freight traffic. Fisheries in the area include bottom culture of mussels, scallop dredging, whelk creels and crab/lobster potting. Both sporting and nature enthusiasts use the area for cruising, recreational fishing, SCUBA diving, kayaking, windsurfing, wildfowling and bird watching activities.

Areas of Outer Belfast Lough are designated as an Area of Special Scientific Interest (ASSI) (intertidal area only), SPA and RAMSAR¹⁰ site. Further information on the pMCZ can be found in the consultation document.

¹⁰ <http://jncc.defra.gov.uk/page-161>

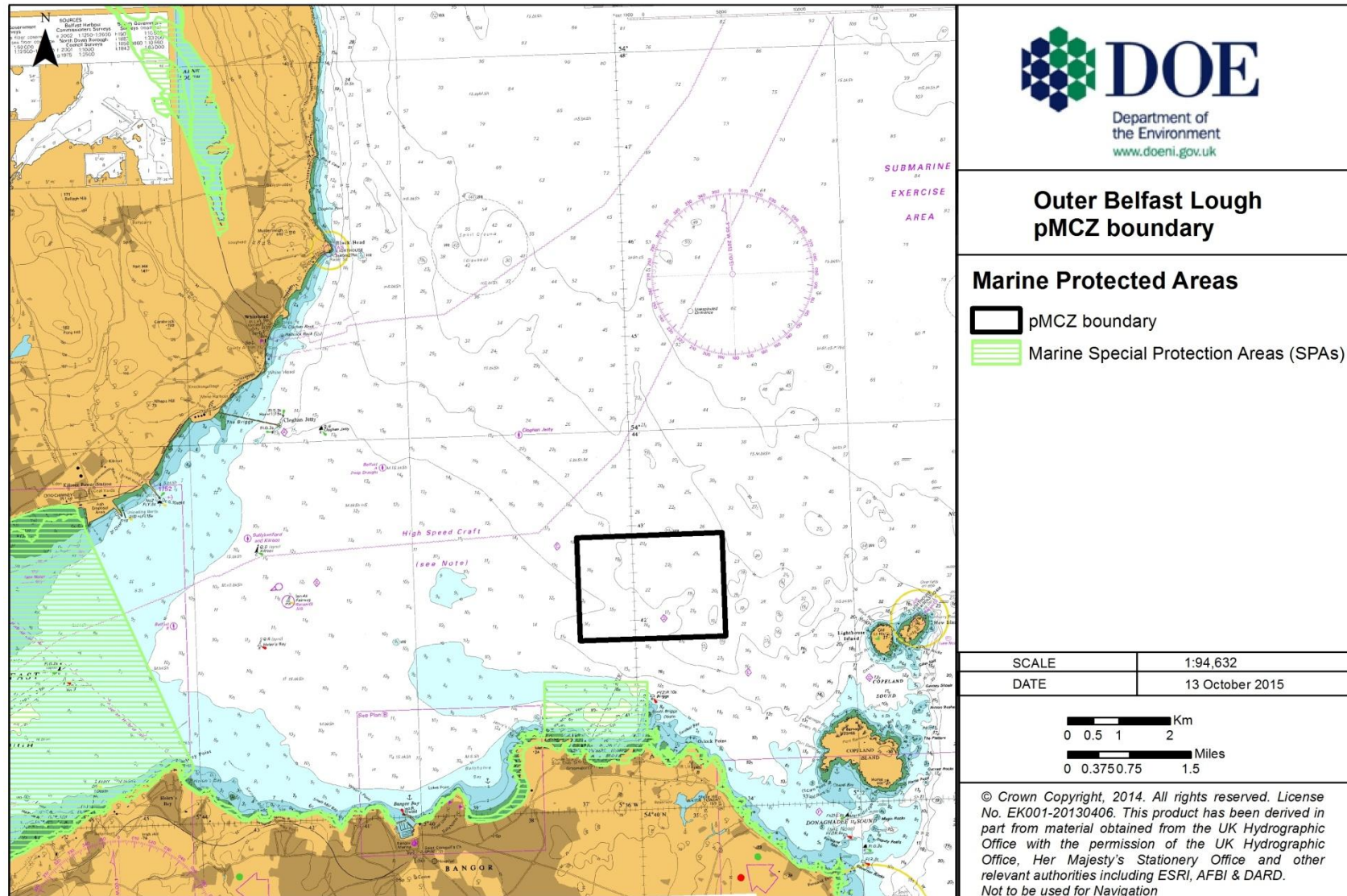


Figure 3: Location of the proposed boundary of Outer Belfast Lough pMCZ

7.2 Conservation Objectives

The Outer Belfast Lough pMCZ has been proposed to protect the habitat and the low mobility species described below.

a) Habitat - Subtidal (sublittoral) sands

The pMCZ is a broad habitat that consists of mixed sediments such as gravels, muds and fine sands on a sandy seabed. This heterogeneous habitat within the pMCZ includes examples of both circalittoral and infralittoral fine sand (EUNIS codes A5.25 and A5.23) and circalittoral and infralittoral muddy sand (A5.26 and A5.24). The varied nature of the seabed within the pMCZ supports a wide range of species.

As the proposed habitat in Outer Belfast Lough pMCZ is currently in unfavourable condition, the Department recommends that the conservation objective is set to recover this feature to favourable condition.

b) Low Mobility Species - Ocean Quahog (*A. islandica*)

Ocean quahog is a large, slow growing bivalve mollusc, that lives buried in muddy and sandy sediments usually at around 20m depth. The Outer Belfast Lough population has been found to have high numbers in a very restricted area with specimens up to 200 years old.

As the proposed species in Outer Belfast Lough pMCZ is currently in unfavourable condition, the Department recommends that the conservation objective is set to recover this feature to favourable condition.

7.3 Assessment of Management Options

A number of activities take place within or adjacent to Outer Belfast Lough pMCZ and designation, which may entail implementing management measures, could have an impact on these.

The management options considered for each activity include no management required, reduce or limit pressures, or to remove or avoid pressures altogether. Where management is required the options recommended will be implemented as management measures with reporting structures. Guidance¹¹ has been produced by the Department which enabled conservation objectives and management options to be developed for the four pMCZs.

The Department recognises the consequences any change in activity could have and has attempted to limit these where possible. The Department's aim is to achieve the conservation objectives with the least possible impact on the activities in the area. Therefore, the selection of management options and subsequent measures can be attributed to the achievement of these aims. In addition, where there is a low level of specific activity the impact on that activity is assumed to be negligible.

Table 5.1 below outlines each activity and the possible management options. The subsequent table (5.2) shows the preferred management option for each activity and an indication of the possible impact/costs on that activity should the management options be implemented as planned.

¹¹http://www.doeni.gov.uk/mcz_guidance_on_the_development_of_conservation_objectives_and_potential_management_options-version1.0.pdf

Table 5.1: Activities in and around Outer Belfast Lough pMCZ and Potential Management Options

Activity	Potential impact on conservation objectives	Level of Activity Within pMCZ	Potential Management Options	
			Reduce or Limit	Remove or Avoid
Fishing Static Gear - pots/creels for lobsters crabs and buckie or common whelk	The main threats to the ocean quahog associated with commercial fisheries are disturbances to its habitat. Moreover, the long lived species is susceptible to surface abrasion and removal of species (target species in the case of hydraulic dredging and non-target species for the other fishing activities in the area) with low to medium sensitivities to creeling and potting, medium to high to scallop dredging, and medium to high to quahog hydraulic dredging.	Moderate	Reduce or limit pressures associated with static fishing gear where they are likely to impact the pMCZ features.	Remove or avoid pressures associated with static fishing gear where they are likely to impact the pMCZ features.
Fishing Mobile Gear – scallop dredging and potential quahog hydraulic dredging		Low	Reduce or limit pressures associated with mobile fishing gear (scallop dredging and potential quahog hydraulic dredging) where they are likely to impact the pMCZ features.	Remove or avoid pressures associated with mobile fishing gear (scallop dredging and potential quahog hydraulic dredging) where they are likely to impact the pMCZ features.
Potential Energy production Tidal resource zone	Both proposed features (Subtidal (sublittoral) sands and Ocean quahog) are sensitive to the following pressures that could happen in the area: structural abrasion, water flow (tidal current) changes, synthetic compound contamination and changes in the seabed.	None	Reduce or limit pressures associated with future development of tidal energy activities where they are likely to impact the pMCZ features.	Remove or avoid pressures associated with future development of tidal energy activities where they are likely to impact the pMCZ features.

Activity	Potential impact on conservation objectives	Level of Activity Within pMCZ	Potential Management Options	
			Reduce or Limit	Remove or Avoid
<p>Infrastructure</p> <p>Commercial ports, harbours and marinas, coastal defence and land claim and submarine telecommunication cables</p>	<p>Habitat loss or alteration and direct damage to individual species are the main risks as an effect of the existing infrastructure operations. In addition, the construction of new infrastructure may affect the local hydrodynamic and sediment transport regimes and consequently affect the sandy substratum and loss of associated species.</p>	None	<p>Reduce or limit pressures associated with existing submarine cable operations and new or future submarine cables where they are likely to impact the pMCZ features.</p>	<p>Remove or avoid pressures associated with existing submarine cable operations and new or future submarine cables where they are likely to impact the pMCZ features.</p>
<p>Discharges/dredge disposal</p> <p>Waste water treatment plant & outfalls and dredge disposal</p>	<p>The Ocean quahog and Subtidal (sublittoral) sands, are sensitive to siltation changes and physical changes to another seabed type as a result of sewage and dredging disposal as well as industrial and agricultural discharges.</p>	Low	<p>Reduce or limit pressures associated with new waste water discharges/ dredge material disposal sites or the expansion/relocation of existing ones where they are likely to impact the pMCZ features.</p>	<p>Remove or avoid pressures associated with new waste water discharges/ dredge material disposal sites or the expansion/relocation of existing ones where they are likely to impact the pMCZ features.</p>
<p>Marine traffic</p> <p>Moorings and anchoring, ferry route, shipping/navigation</p>	<p>The main pressure for the proposed features associated with marine traffic is physical abrasion (surface and sub-surface abrasion/penetration).</p>	None/ Low	<p>Reduce or limit pressures associated with anchoring and mooring inside the proposed boundary where they are likely to impact the pMCZ features.</p>	<p>Remove or avoid pressures associated with anchoring and mooring inside the proposed boundary where they are likely to impact the pMCZ features.</p>

Activity	Potential impact on conservation objectives	Level of Activity Within pMCZ	Potential Management Options	
			Reduce or Limit	Remove or Avoid
Recreation and tourism Sailing, windsurfing, kayaking/canoeing, SCUBA diving, bird watching, wildfowling and recreational fishing	The main pressures associated with recreation and tourism, to which the proposed features are highly sensitive, are surface abrasion and sub-surface abrasion or penetration.	None	The conservation objectives could be met with no need for management measures.	
Scientific research Monitoring, diving and stock assessment	Scientific and Archaeological activities may have the potential to cause the deterioration of the proposed habitat and species through direct alteration, removal or manipulation of the species associated with the biotope.	Low	Guidelines and practices developed for survey work ensure that the features are not impacted and that the conservation objectives can be achieved. No additional management is required.	

Table 5.2: Assessment of Belfast Lough Management Options

Activity	Preferred Management Option	Impact on activities	Explanation
Fishing Static Gear - pots/creels for lobsters crabs and buckie or common whelk	Reduce or limit pressures associated with static gear fishing (creels or pots) where they are likely to impact the pMCZ features.	Low	The impact is estimated to be low given there is currently a low level of activity within the pMCZ and that static gears do not create the type of pressure to which this species is sensitive.
Fishing Mobile Gear – scallop dredging and potential clam hydraulic dredging	Remove or avoid pressures associated with mobile fishing gear. The use of mobile gear will directly impact the feature through significant habitat abrasion and direct removal or damage to ocean quahog so will not be permitted within the pMCZ.	Low	This option has to be implemented to achieve the conservation objectives. The impact is estimated to be low given there is currently a low level of activity within the pMCZ.
Potential Energy production Tidal resource zone	No active management required for this activity at present as there are no planned tidal developments in this zone. However, if future tidal energy activities are proposed within this zone then management measures will be recommended to remove or avoid pressures where they are likely to impact the pMCZ features.	None	No active management is required at present for this to meet the conservation objective. Therefore, no impact assumed.

Activity	Preferred Management Option	Impact on activities	Explanation
<p>Infrastructure</p> <p>Commercial ports, harbours and marinas, coastal defence and land claim and submarine telecommunication cables</p>	<p>Reduce or limit pressures associated with <u>current</u> submarine cable operations where they are likely to impact the proposed features and avoid pressures associated with <u>the future development of submarine cables</u> where they are likely to impact the proposed features.</p>	<p>Low</p>	<p>Submarine cables are the only pressure likely to affect the pMCZ as this lies adjacent to the boundary. Both management options are required to meet the conservation objective. Installation of any new cables/infrastructure should be avoided within the pMCZ as these have the potential to alter local hydrodynamic and sediment regimes and may lead to a change in seabed type with subsequent loss of the pMCZ feature. The impact is assumed to be low given it could have some effect on current activity but this is unlikely to be significant and there are no submarine cables within the pMCZ.</p>
<p>Discharges/dredge disposal</p> <p>Waste water treatment plant & outfalls and dredge disposal</p>	<p>Remove or avoid pressures associated with new waste water discharges/dredge material disposal sites or the expansion/relocation of existing ones where they are likely to impact the proposed features.</p>	<p>Low</p>	<p>The current sites do not require active management as they are not adversely impacting the features. New sites or expansion of existing sites should be avoided within the pMCZ as all can adversely affect the pMCZ features either through direct loss, increased siltation or change in sediment type. The low impact reflects current activity, which is also low, and the fact that there is no need for active management at this time.</p>

Activity	Preferred Management Option	Impact on activities	Explanation
<p>Marine traffic</p> <p>Moorings and anchoring, ferry route, shipping/navigation</p>	<p>Remove or avoid pressures associated with anchoring and mooring inside the proposed boundary where they are likely to impact the proposed features.</p>	<p>Low</p>	<p>Anchoring/mooring within the pMCZ should not be permitted as this can directly damage the feature and therefore this management option is required to meet the conservation objectives. The transit of vessels through the pMCZ is not thought to pose a risk at present due to the depth of the water. The impact is deemed to be low given the low level of this activity within the pMCZ.</p>
<p>Recreation and tourism</p> <p>Sailing, windsurfing, kayaking/canoeing, SCUBA diving, bird watching, wildfowling and recreational fishing</p>	<p>No additional management is required.</p>	<p>None</p>	<p>The conservation objectives can be achieved with no need for management measures.</p>

Activity	Preferred Management Option	Impact on activities	Explanation
<p>Scientific and Archaeological activities</p> <p>Monitoring, diving and stock assessment</p>	<p>No additional management is required and therefore the pMCZ should not be adversely impacted.</p>	<p>None</p>	<p>Guidelines and practices developed for survey work ensure that the features are not impacted and that the conservation objectives can be achieved.</p>

8. Carlingford Lough pMCZ

8.1 Description of pMCZ

Carlingford Lough is a narrow and shallow sea-Lough that lies on the east coast of Ireland located at the border of Northern Ireland and the Republic of Ireland. The pMCZ boundary is located off the northern shore and north of the navigable channel in the inner part of the Lough. It extends from Warrenpoint to Rostrevor Quay and encompasses an area of 3.23km² (see Figure 4). The pMCZ is an area of shallow Subtidal mud that contains high densities of Sea-pen and white sea slug communities.

Carlingford Lough waters are also very important for shellfish aquaculture and pot fishing. Cultivation of Blue (Edible) mussel (*Mytilus edulis*) and the Pacific oyster (*Crassostrea gigas*) is an ever expanding industry and, along with Edible crab (*Cancer pagurus*) and European lobster (*Homarus gammarus*) potting, these products are exported primarily to the European market. Although industrial activity is minimal along the Lough, Greenore and Warrenpoint are significant commercial ports with shipping traffic. The sheltered waters of the Lough are popular for recreational boating and sailing with three marinas, several anchorage areas, visitors mooring and two sailing clubs. Water sports are popular in the Lough and include windsurfing schools, kayaking, canoeing and scuba diving. Bird watching and recreational fishing also take place at various points. A navigational dredge channel forms a natural middle line through the centre of the Lough.

Carlingford Lough pMCZ lies adjacent to an AONB. Areas of the Lough adjacent to the pMCZ have been designated as a RAMSAR site, ASSI, SPA and SAC. Further information on the pMCZ can be found in the consultation document.

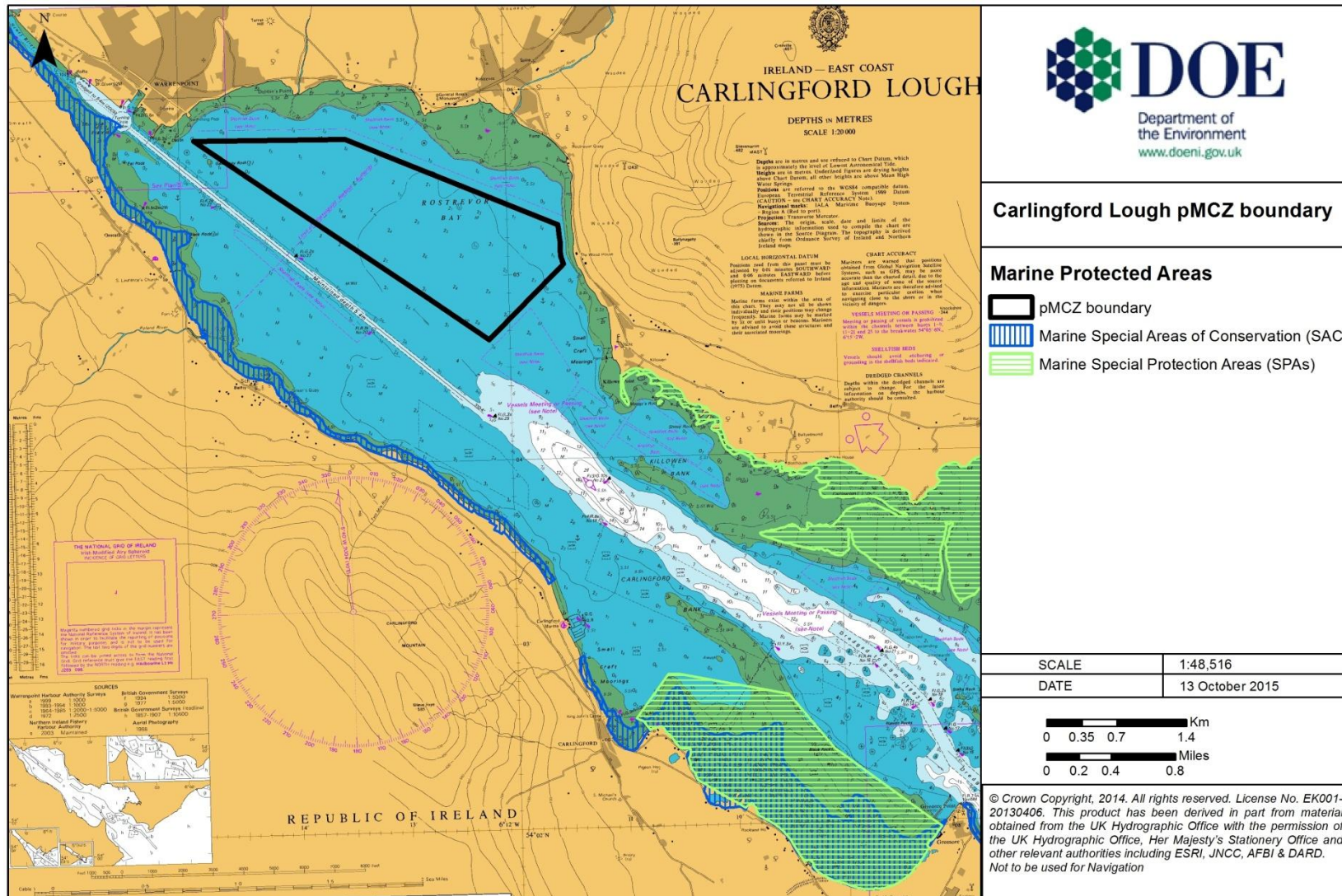


Figure 4: Location of the proposed boundary of Carlingford Lough pMCZ

8.2 Conservation Objectives

Carlingford Lough pMCZ has been proposed as it supports the habitat Sublittoral (subtidal) muds containing Sea-pen and white sea slug communities.

The pMCZ habitat consists of a shallow subtidal area of fine mud with a dense population of the sea-pen *Virgularia mirabilis*. The white sea slug, *Philine aperta*, also occurs in high densities while the sea cucumber *Ocnus planci* is occasionally present.

The proposed feature is a Northern Ireland variant of the emergent and burrowing megafauna community. Apart from occasional Norway lobster (*Nephrops norvegicus*) burrowing crustacean megafauna are mainly absent from this habitat in Carlingford Lough. Although this feature is not currently listed on any conservation lists it is a rare and unique habitat in Northern Ireland while Sea-pens are a Priority species.

As the proposed habitat in Carlingford Lough pMCZ is currently in favourable condition, the Department recommends that the conservation objectives aim to maintain this feature in favourable condition.

8.3 Assessment of Management Options

A number of activities take place in or around Carlingford Lough pMCZ and designation, which may entail implementing management measures, could have an impact on these.

The management options considered for each activity include no management required, reduce or limit pressures, or to remove or avoid pressures altogether. Where management is required the options recommended will be implemented

as management measures with reporting structures. Guidance¹² has been produced by the Department which enabled conservation objectives and management options to be developed for the four pMCZs.

The Department recognises the consequences any change in activity could have and has attempted to limit these where possible. The Department's aim is to achieve the conservation objectives with the least possible impact on the activities in the area. Therefore, the selection of management options and subsequent measures can be attributed to the achievement of these aims. In addition, where there is a low level of specific activity the impact on that activity is assumed to be negligible.

Table 6.1 below outlines each activity and the possible management options. The subsequent table (6.2) shows the preferred management option for each activity and an indication of the possible impact/costs on that activity should the management options be implemented as planned.

¹²http://www.doeni.gov.uk/mcz_guidance_on_the_development_of_conservation_objectives_and_potential_management_options-version1.0.pdf

Table 6.1: Activities in and around Carlingford Lough pMCZ and Potential Management Options

Activity	Potential impact on conservation objectives	Level of Activity Within pMCZ	Potential Management Options	
			Reduce or Limit	Remove or Avoid
Aquaculture Shellfish	Potential impacts or pressures to the habitat associated with aquaculture include: risk of introduction of aquatic invasive species, physical changes to another seabed type, siltation changes, organic enrichment, surface abrasion, non-synthetic contamination and de-oxygenation. It is considered that due to the proximity to the pMCZ, shellfish farming has the potential to cause deterioration of the qualifying features.	None – although activity surrounding pMCZ	Reduce or limit pressures associated with existing shellfish farms where they are likely to impact on sea-pens and white sea slug communities. In addition, an appropriate buffer zone between the pMCZ features and the two aquaculture sites has been set to reduce the potential effects of sedimentation and organic enrichment. This buffer zone was considered during the development of the pMCZ boundary.	Remove or avoid pressures associated with the development of new shellfish farms or the expansion of existing aquaculture areas where they are likely to impact the Sea-pens and white sea slug communities.
Fishing Static Gear	Studies on the impacts of pots on sea-pens have shown minimal effects on sea-pens from fishing using static gear.	None/ Low	Reduce or limit pressures associated with static gear fishing within the pMCZ.	Remove or avoid pressures associated with static gear fishing within the pMCZ.
Fishing Mobile Gear	Sea-pens and white sea slug communities are sensitive to surface abrasion and species removal through the use of mobile fishing gear.	Low	Reduce or limit pressures associated with mobile gear fishing within the pMCZ.	Remove or avoid pressures associated with mobile gear fishing within the pMCZ.

Activity	Potential impact on conservation objectives	Level of Activity Within pMCZ	Potential Management Options	
			Reduce or Limit	Remove or Avoid
Infrastructure Commercial Ports NI and Republic of Ireland, marinas, coastal defence and land claim	Habitat loss or alteration is the main risk as a result of the existing infrastructure operations. In addition, the construction of new infrastructure may affect the local hydrodynamic and sediment transport regimes of inshore enclosed areas and consequently affect the mud substratum and loss of biodiversity.	Moderate	Reduce or limit pressures associated with Warrenpoint Harbour Authority jurisdiction where they are likely to impact Sea-pens and white sea slug communities (no expansion within the pMCZ).	Remove or avoid pressures associated with Warrenpoint Harbour Authority jurisdiction where they are likely to impact Sea-pens and white sea slug communities.
			Reduce or limit pressures associated new developments where they are likely to impact Sea-pens and white sea slug communities.	Remove or avoid pressures associated new developments where they are likely to impact Sea-pens and white sea slug communities.
			Reduce or limit pressures associated with new coastal defences or the expansion of existing ones where they are likely to impact Sea-pens and white sea slug communities.	Remove or avoid pressures associated with new coastal defences or the expansion of existing ones where they are likely to impact Sea-pens and white sea slug communities.
Discharges/waste disposal Waste water treatment plant & outfalls, dredge disposal	Sea-pen and white sea slug communities have low to medium sensitivity to de-oxygenation, organic enrichment and siltation changes as a result of sewage disposal.	Low	Reduce or limit pressures associated with new waste water discharges as well as the expansion or relocation of existing waste water sites where they are likely to impact Sea-pens and white sea slug communities.	Remove or avoid pressures associated with new waste water discharges as well as the expansion or relocation of existing waste water sites where they are likely to impact sea-pens and white sea slug communities.

Activity	Potential impact on conservation objectives	Level of Activity Within pMCZ	Potential Management Options	
			Reduce or Limit	Remove or Avoid
Extraction Maintenance dredging	Sea-pen and white sea slug communities are moderately sensitive to pressures related with dredging (maintenance/navigational and dredge disposal).	None	Reduce or limit pressures associated with new dredge material disposal sites or the expansion/relocation of existing ones they are likely to impact Sea-pens and white sea slug communities.	Remove or avoid pressures associated with new dredge material disposal sites or the expansion/relocation of existing ones where they are likely to impact Sea-pens and white sea slug communities.
Marine traffic Moorings and boat anchorage, ferry route, shipping/navigation	Sea-pen and white sea slug communities have medium sensitivity to the following pressures associated with marine traffic: death or injury by collision, salinity changes, wave exposure changes, Introduction or spread of non-indigenous species and translocations (competition) and surface abrasion/penetration.	Low/ Moderate	Reduce or limit pressures associated with current and future anchoring and mooring inside the proposed boundary where they are likely to impact Sea-pen and white sea slug communities.	Remove or avoid pressures associated with current and future anchoring and mooring inside the proposed boundary where they are likely to impact Sea-pen and white sea slug communities.

Activity	Potential impact on conservation objectives	Level of Activity Within pMCZ	Potential Management Options	
			Reduce or Limit	Remove or Avoid
<p>Recreation and Tourism</p> <p>SCUBA diving, sailing, windsurfing, kayaking/canoeing, bird watching, recreational sea angling.</p>	<p>The main pressures associated with recreation and tourism to which the proposed habitat is moderately sensitive to are death or injury by collision, underwater noise, visual disturbance (behaviour) and surface abrasion.</p>	Low	<p>Reduce or limit pressures associated with current and future anchoring or mooring inside the proposed boundary where they are likely to impact Sea-pen and white sea slug communities.</p>	<p>Remove or avoid pressures associated with current and future anchoring or mooring inside the proposed boundary where they are likely to impact Sea-pen and white sea slug communities.</p>
<p>Scientific and Archaeological activities</p> <p>Monitoring, diving and stock assessment</p>	<p>Scientific and Archaeological activities may have the potential to cause the deterioration of the proposed habitat and species through direct alteration, removal or manipulation of the species associated with the biotope.</p>	Low	<p>Guidelines and practices agreed for survey work ensuring that the features are not impacted and that the conservation objective can be achieved. No additional management is required.</p>	

Table 6.2: Assessment of Carlingford Lough Management Options

Activity	Preferred Management Option	Impact to/Cost on activity	Explanation
Aquaculture Shellfish	Remove or avoid pressures associated with the development of new shellfish farms or the expansion of existing aquaculture areas where they are likely to impact Sea-pens and white sea slug communities.	None	This option is necessary to achieve the conservation objectives as any new farms within the pMCZ will have a negative impact on sea-pens and white sea slug communities.
	Reduce or limit pressures associated with existing shellfish farms where they are likely to impact Sea-pens and white sea slug communities. In addition, an appropriate buffer zone between the pMCZ features and the two aquaculture sites has been set to reduce the potential effects of sedimentation and organic enrichment. This buffer zone was considered during the development of the pMCZ boundary.	Low/None	The management option does not remove the activity altogether but a buffer zone is necessary to ensure the conservation objectives are achieved. This buffer will not have an impact on the farms as it lies outside the licensed area for shellfish cultivation and still enables normal operations associated with the farms to continue.
Fishing Static Gear	No additional management is required.	None	No impact as the conservation objectives should be achieved without additional management. However if, in the future, levels of fishing with pots/creels were to increase management measures would be recommended to reduce or limit pressures where they are likely to impact the pMCZ features.

Activity	Preferred Management Option	Impact to/Cost on activity	Explanation
Fishing Mobile Gear	Remove or avoid pressures associated with mobile gear fishing where this is likely to impact the pMCZ features.	Low	This option is necessary to achieve the conservation objectives as any mobile gear fishing within the pMCZ will have a negative impact on sea-pens and white sea slug communities.
Infrastructure Commercial Ports NI and Republic of Ireland, marinas, coastal defence and land claim	Reduce or limit pressures associated with Warrenpoint Harbour Authority jurisdiction where they are likely to impact Sea-pens and white sea slug communities i.e. no expansion within the pMCZ should occur as this will result in a direct loss of the habitat feature.	Unsure	Removing the activity altogether is not necessary to achieve the conservation objectives. However, limiting expansion is necessary. There are a lot of uncertainties which has meant that actually quantifying the future impact has not been possible. Further consultation with the harbour is recommended.
	Remove or avoid pressures associated new developments where they are likely to impact Sea-pens and white sea slug communities.	Low	This option is required as allowing new developments is likely to mean the conservation objectives are not achieved. The impact is deemed to be low given lack of current activity and the possibility of displacement.

Activity	Preferred Management Option	Impact to/Cost on activity	Explanation
	Reduce or limit pressures associated with new coastal defences or the expansion of existing ones where they are likely to impact Sea-pens and white sea slug communities.	Low	This option was required to ensure achievement of the conservation objectives. Development of new coastal defences should be avoided within the pMCZ as these have the potential to alter local hydrodynamic and sediment regimes and may lead to a change in seabed type with subsequent loss of the pMCZ feature. The impact is assumed to be low given there are no current overlaps and viable expansion of the existing defences is unlikely to impact sea-pens and white sea slug communities.
Discharges/waste disposal Waste water treatment plant & outfalls, dredge disposal	Remove or avoid pressures associated with new waste water discharges as well as the expansion or relocation of existing waste water sites where they are likely to impact Sea-pens and white sea slug communities.	Low	Unless the disposal activity increases or overlaps the proposed feature there is no risk to the achievement of the conservation objectives. Therefore, this management option was necessary. The impact is deemed to be low given the location and level of current activity.

Activity	Preferred Management Option	Impact to/Cost on activity	Explanation
Extraction Maintenance dredging	Remove or avoid pressures associated with new dredge material disposal sites or the expansion/relocation of existing ones where they are likely to impact Sea-pens and white sea slug communities.	Low	No new dredging activities should take place within the pMCZ as this will result in a direct loss of the feature. Current channel dredging does not appear to adversely impact the feature but that is due to the distance of the dredging and disposal sites from the pMCZ. Disposal of dredged material should not take place within the pMCZ and should be at a suitable distance to prevent sedimentation effects. The impact is assumed to be low given the location and level of current activity.
Marine traffic Moorings and boat anchoring, ferry route, shipping/navigation	Remove or avoid pressures associated with current and future anchoring and mooring inside the proposed boundary where they are likely to impact Sea-pen and white sea slug communities.	Low	Anchoring/mooring should not take place within the pMCZ as this can adversely impact the feature and the conservation objectives will not be achieved. The impact is deemed to be low given the possibility of displacement i.e. anchoring/mooring elsewhere in the Lough.

Activity	Preferred Management Option	Impact to/Cost on activity	Explanation
<p>Recreation and Tourism</p> <p>SCUBA diving, sailing, windsurfing, kayaking/canoeing, bird watching, recreational sea angling.</p>	<p>No additional management is currently required other than reducing or limiting pressures associated with current and future anchoring or mooring where they are likely to impact the pMCZ features.</p>	<p>Low</p>	<p>Anchoring/mooring should not take place within the pMCZ as this can adversely impact the feature and the conservation objectives will not be achieved. The impact is deemed to be low given the possibility of displacement i.e. anchoring/mooring elsewhere in the Lough.</p>
<p>Scientific and Archaeological activities</p> <p>Monitoring, diving and stock assessment</p>	<p>No additional management is required and therefore the proposed MCZ should have no impact.</p>	<p>None</p>	<p>Guidelines and practices agreed for survey work ensure that the features are not impacted and that the conservation objective can be achieved.</p>

9. Summary impact table

Table 7.1 summarises the impacts of the four pMCZs.

Table 7.1: Summary of Impact

Activity	Impact on Activity Due to Introduction of pMCZ			
	Rathlin	Red Bay	Belfast	Carlingford
Aquaculture	Negligible	Negligible	None	Low/None
Discharges/waste disposal	Low	Low	Low	Low
Fishing	Low	Low	Low	None
Energy production	Low	Negligible	None	None
Extraction	None	Low	None	Low
Infrastructure	Negligible	Low	Low	Unsure
Marine traffic	Low	Low	Low	Low
Recreation and Tourism	Negligible	Low	None	Low
Scientific research	None	None	None	None

As shown in Table 7.1, generally the impact on activities which take place within the pMCZ is deemed to be low. Taken at an NI level, the overall impact of these pMCZs on identified activities is estimated to be low. However, it has not been possible to quantify the impact on Warrenpoint Harbour as there is uncertainty regarding the impact that the pMCZ would have.

10. Public Sector Costs

Designation of the pMCZs is likely to result in costs to the public sector including:

- Preparation of designation and management documents;
- Development of voluntary measures;
- Site monitoring;
- Compliance and Enforcement;
- Promotion and Marketing; and
- Regulatory & advisory costs associated with licensing decisions.

To provide an indication of possible scale, figures have been taken from the impact assessment for designating MCZs in England and Wales¹³.

The English impact assessment estimated a cost to the public sector of £0.591m per annum (2010 prices) for licence application costs and managing the MCZs; this covered designation of 28 sites (although only 27 were designated in the first tranche). Using this as a simple proxy, and updating to 2016 prices, the cost to the public sector in NI is estimated to be £93,000 per annum based on number of sites¹⁴ or £8,000 based on total area¹⁵. Therefore, costs are estimated to range from £0.008m - £0.093m per annum which is considered relatively low/negligible and should allow NI to achieve the conservation objectives linked to each pMCZ.

11. Benefits

Designation of these MCZs will help to conserve the range of biodiversity and geodiversity in NI waters. It will complement other types of designation and provide an essential contribution to establishing an ecologically coherent network

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https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/82721/mcz-designate-ia-20121213.pdf

¹⁴ Uplifted costs estimated for 4 sites instead of 28

¹⁵ NI's total area of pMCZs is 116.86km²; England & Wales is 10,100km²

of marine protected areas throughout the UK. In the absence of MCZs, there would be areas of NI's marine environment, and a high number of species and habitats, that would continue to be unprotected. It is worth noting that coastal waters contain over 50% of the region's biodiversity.

On designation, appropriate management will reduce the risk that the extent, population, structure, natural environmental quality and processes of features protected will decrease or degrade over time. The risk that the features will be adversely affected by human activities is greater if not protected by an MCZ. In addition, beyond a certain point of degradation, changes to ecosystems may be large and irreversible, resulting in a significant societal cost. Avoiding such a reduction in ecosystem services is thus a key benefit of designation.

While it may not be possible with current levels of research to monetise benefits, note that none of the other regions have been able to quantify benefits either, it is clear that many of the benefits relate to aspects of our lives that we take for granted and for which it is good practice and common sense to maintain through protection measures such as MCZs.

Designating sites and implementing the management options should help to achieve the conservation objectives for each site. This should result in other benefits accruing linked to biodiversity, tourism, fishing and aquaculture which, in turn, can have a positive impact on the economy.

12. Enforcement

The regulation, policy and enforcement of marine activities remain the responsibility of the relevant public authority.

13. Monitoring

It is recommended that an evaluation of the MCZs should be completed within 6 years of designation. Therefore, a monitoring and evaluation plan should be completed.

14. Small and Micro Business Impact

As set out above, the overall impact is likely to be low and there is unlikely to be a disproportionate impact on small or micro businesses.

15. Recommendation

It is recommended that the pMCZs are designated and managed as outlined in the tables of this report.