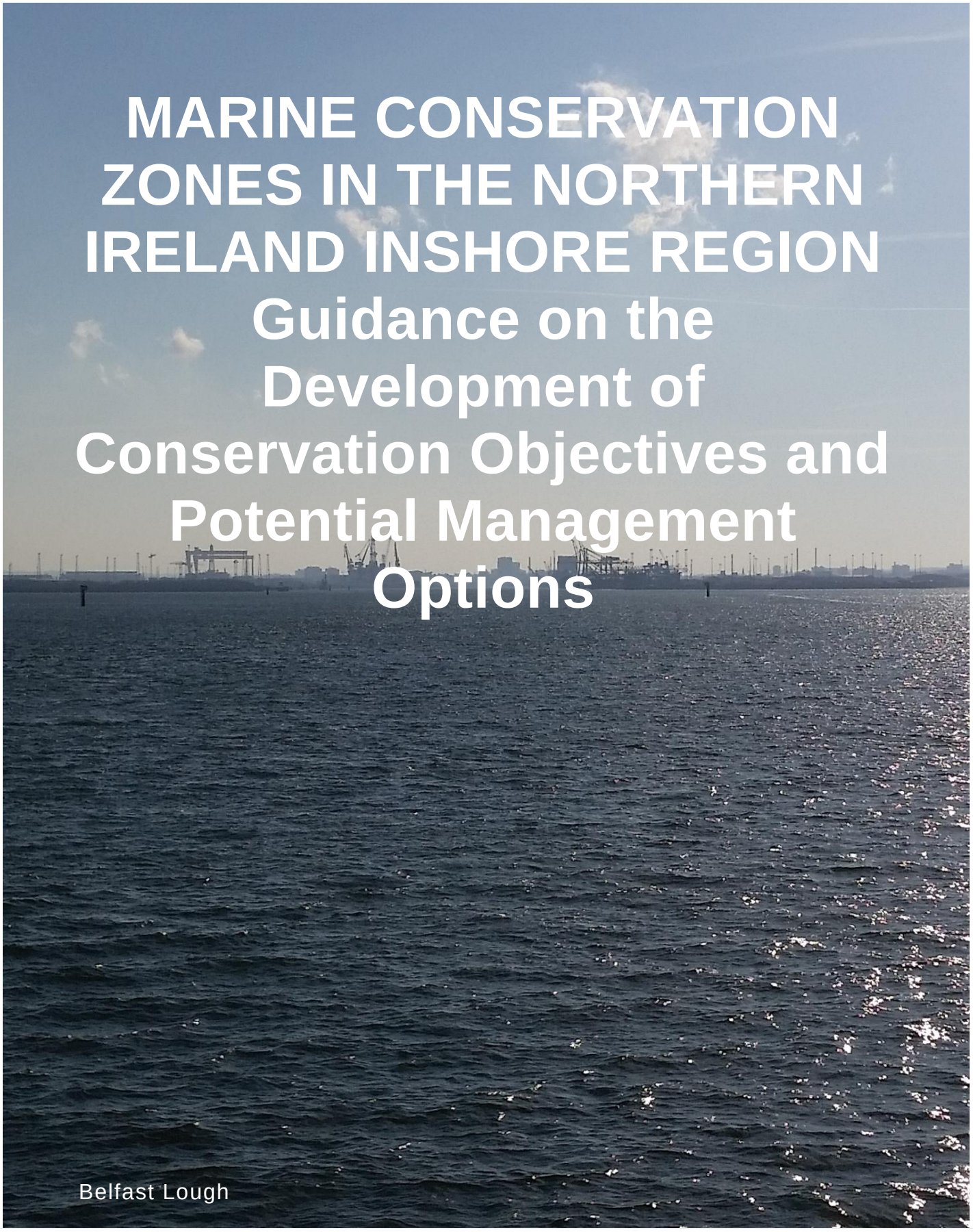
MARINE CONSERVATION ZONES IN THE NORTHERN IRELAND INSHORE REGION

Guidance on the Development of Conservation Objectives and Potential Management Options



Belfast Lough

Department of Agriculture, Environment and Rural Affairs
www.daera-ni.gov.uk

INVESTORS IN PEOPLE

Document version control			
Version	**Date**	**Author**	**Comments**
Version 0.1	08/07/2014	Clara Alvarez Alonso	Initial draft
Version 0.2	3/10/2014	Clara Alvarez Alonso	Amendments
Version 0.3	20/10/2014	Nuala McQuaid	Amendments
Version 0.4	17/02/2015	Clara Alvarez Alonso	Format change
Version 0.5	02/03/2015	Colin Armstrong	Amendments
Version 1.0	04/03/2015	Clara Alvarez Alonso and Stephanie Bennett	Publication
Version 1.1	04/08/2015	Liz Pothanikat	Amendments
Version 2.0	28/10/2015	DOE Marine Division	Internal Consultation
Version 2.1	15/11/2015	Clara Alvarez Alonso	Amendments
Version 3.0	14/12/2015	DOE Marine Division	Public Consultation
Version 3.1	12/08/2016	Liz Pothanikat and Clara Alvarez Alonso	Rebranding, updates & amendments
Version 3.2	01/12/2016	Liz Pothanikat, Clara Alvarez Alonso and Nuala McQuaid	Amendments
Version 4.0	05/04/2017	DAERA Marine and Fisheries Division	Designation document

Distribution List		
Version	**Issue date**	**Issued to**
Version 1.0	09/03/2015	DOE Website
Version 2.0	28/10/2015	Internal distribution
Version 3.0	14/12/2015	DOE/DAERA Website
Version 4.0	05/04/2017	DAERA Website

Contents

Tables

Figures

Glossary of Terms and Acronyms

Circalittoral – Described 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.

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

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 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

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

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

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

Vulnerability Assessment – A feature is vulnerable when it is exposed to a pressure to which it is sensitive. The Vulnerability Assessment is used to assess current pressures, desired conditions and levels of management required

Development of Conservation Objectives

What are Conservation Objectives?

A conservation objective is a statement describing the desired ecological/ geological state (quality) of a feature (habitat, species or geological) for which a Marine Conservation Zone (MCZ) has been designated. The conservation objective establishes whether the feature meets the desired state and should be *maintained*, or falls below it and should be *recovered to favourable condition*. Favourable condition is the overall aim of the conservation objective. The current condition of an MCZ feature is described according to the condition scale provided in the Ecological Network Guidance[1] (ENG, extracted from Annex 6) and assessed based on best available evidence. This is illustrated in Table 1.

Table 1 Condition scale and conservation objectives for MCZ designation

Condition Scale and objectives for features within the MCZ (low to high)					
Condition	Destroyed or partially destroyed	Unfavourable declining	Unfavourable maintained	Unfavourable recovering	Favourable
Objectives	RECOVER				MAINTAIN

Conservation objectives should be realistic and achievable. The conservation objectives will reflect the purpose of the MCZ, namely to protect, prevent deterioration or contribute to the recovery of the feature(s) and will be specific to each feature within each MCZ. They will set out any maintenance or recovery measures that will be required to achieve favourable condition and will provide a description of what should be achieved, for example, stating that a habitat or species population should be restored. Conservation objectives will act as a starting point for developing management options and monitoring programmes.

Explanation of terms

Favourable condition, in relation to marine habitats, means that the habitat's extent is stable or increasing and its structures, functions, quality and the composition of its characteristic biological communities (including diversity and abundance) are such that it remains in a healthy condition, which is not deteriorating. In relation to marine species, favourable condition means the quality and quantity of the species habitat and the composition of its population in terms of number, age and sex ratio ensures that the population is maintained in numbers that enable it to thrive.

[1] Ecological Network Guidance, Natural England & JNCC

Maintain implies that, based on our existing understanding, the feature is regarded as being in favourable condition and will, subject to natural change, remain in this condition at designation.

Recover implies that the feature is likely to have been degraded to some degree. When the feature is sensitive to pressures associated with particular activities, management measures may be introduced to reduce or eliminate these pressures.

When a feature is assessed as having a conservation objective of *recover* the first step is to determine what pressures (if any) are responsible for this. If the feature is badly damaged restoration may be required. In the marine environment, where restoration of the feature is required this generally refers to natural recovery to favourable condition through the reduction or removal of pressures that adversely affect the feature. However, in some cases, active management may be required to stop further degradation of the feature.

Development of Potential Management Options

The development of management options is an ongoing process that aims to reflect and include any relevant information available; therefore, it may be refined or updated when more site information becomes available. The potential management options are the first stage and will be developed further as more detailed assessments of the interaction between activities and MCZ features are carried out.

Process for identifying potential management options

Human activities have the potential to cause '**pressures**' on the marine environment which may adversely impact the MCZ features. Management options will be recommended for activities that risk damaging an MCZ feature, based on the feature's vulnerability assessment. The process used to identify potential management options is illustrated in Figure 1.

Explanation of terms

Sensitivity can be defined as the intolerance of a feature to damage from an external factor and the time taken for its subsequent recovery[2] (Laffoley *et al*., 2000; Tyler-Walters & Hiscock, 2005). Each feature will have a range of sensitivities to various activities. The sensitivity at the site level may depend on the specific community characterising the feature or local natural environmental conditions combined with the impacts of different types of activity (e.g. shipping or coastal infrastructure). The same activity in different locations may have different effects.

Exposure measures the level of impact of a pressure on the feature in terms of the location, spatial extent, frequency, duration and intensity of the activity in the designated area (Robinson *et al*., 2008).

Level of vulnerability is based on a feature's sensitivity and current exposure to pressures associated with human activities. It aids in the development of potential management options.

Risk of Damage is the vulnerability of a feature to an activity, assessed against the level of management of that activity. This final assessment will help to provide advice on the potential management required for each activity.

[2] Taken from the Marine Life Information Network

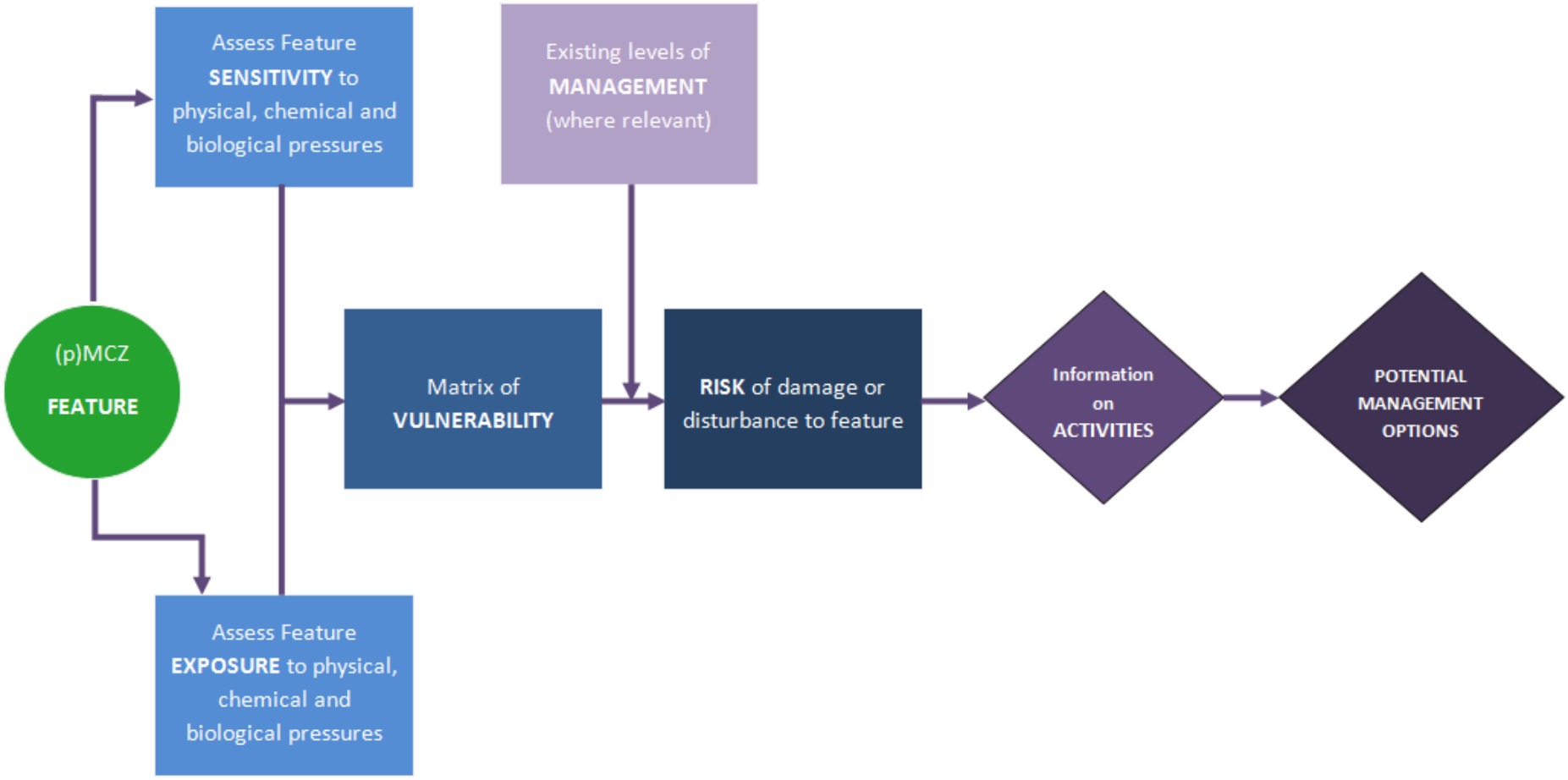


Figure 1 Flow diagram – Assessing feature vulnerability and risk of damage

Assessment of feature vulnerability to human activity pressures and risk of damage

Six broad categories of **pressures**, resulting from human activity that may be detrimental to the MCZ features, have been considered in the documents, based on the MarESA approach (JNCC, 2015; Tillin & Tyler-Walters, 2015) as they may cause:

a) Deterioration of natural habitat features or the habitats for feature species, or

b) Disturbance of species (alone or in combination).

The categories are:

- **Hydrological pressures**
- **Pollution and other Chemical pressures**
- **Physical loss** (permanent change)
- **Physical damage** (reversible change)
- **Other Physical pressures**
- **Biological pressures**

A three-step process is used to assess the **vulnerability** of the **(p)MCZ features** to the above pressures:

- An assessment of the **sensitivity** of the feature to the listed pressures;
- An assessment of the current **exposure** of the feature to the pressures, and
- An assessment of the **vulnerability** of the feature to the pressures. The feature is considered 'vulnerable' if it is both 'sensitive' and 'exposed' to pressures.

Table 2 summarises the method used to determine vulnerability of the features to pressures, once sensitivity and exposure have been determined using the diagram in Figure 1.

Table 2 Vulnerability Table

Feature's exposure to pressure	**Feature's sensitivity to pressure**				
	High	**Moderate**	**Low**	**Not sensitive**	**Unknown**
High	High Vulnerability	High Vulnerability	Moderate Vulnerability	No Vulnerability	Unknown Vulnerability
Moderate	High Vulnerability	Moderate Vulnerability	Low Vulnerability	No Vulnerability	Unknown Vulnerability
Low	Moderate Vulnerability	Low Vulnerability	Low Vulnerability	No Vulnerability	Unknown Vulnerability
Not exposed	No Vulnerability	No Vulnerability	No Vulnerability	No Vulnerability	Unknown Vulnerability
Unknown	Unknown Vulnerability	Unknown Vulnerability	Unknown Vulnerability	Unknown Vulnerability	Unknown Vulnerability

The process in Figure 1 can be used to assess the effect of new activities or changes in exposure of existing activities as new information becomes available.

The sensitivity, exposure and vulnerability are derived using the best available scientific data and tools, experience from other Competent Authorities with comparable habitats, similar activities and geographic areas, together with expert judgment.

Initial efforts to assess sensitivity were carried by MarLIN[3] (Hiscock *et al*., 1999; Tyler-Walters 1999, 2001 & 2005) and to date this remains the largest review undertaken on the effects of human activity on marine species and habitats.

Following on from the MarLIN sensitivity assessment, JNCC and Natural England jointly developed a report as part of the English MCZ work (Tillin *et al*., 2010, MB0102[4]) that provides a matrix enabling the features-sensitivity to be cross-referenced with pressures-activities. This matrix allows users to extract the list of activities with pressures to which the feature is sensitive. The revised methodology (Marine Evidence-based Sensitivity Assessment - MarESA[5]) uses new scales and benchmarks introduced by the MB0102 project to refine the MarLIN approach (see Tyler-Walters & Hiscock, 2005; Tillin *et al*., 2010; Tillin & Tyler-Walters, 2014). This represents an ongoing evolution of the sensitivity assessment process. The MarESA methodology has been used (where applicable) along with the new Pressures-Activities Database (PAD) developed by Cefas and APBmer (JNCC, 2015). This database and the list of activities are currently under review by JNCC in conjunction with each country agency.

Another tool used by the Department to assess sensitivity was FEAST[6] (Features, Activities, Sensitivities and Pressures tool, available on the Marine Scotland website). This covers the assessment of risk to the features and the interaction between activities, pressures and features.

When developing potential management options for Northern Ireland's (p)MCZs, the most up to date tools were used to assess sensitivity for the proposed features. Some tools were more appropriate that others; the MarESA methodology did not include Ocean quahog or Black guillemot as features therefore MB0102 was used for Ocean quahog while FEAST was used for Black guillemot.

Management Measures

The approach to identifying management measures for each MCZ will be based on the risk of not achieving the conservation objectives. The risks are identified where there is an overlap between the vulnerable features and the risk of damage from activities in the area.

[3] Marine Life Information Network Sensitivity Assessment

[4] Also refer to MB0102 Technical Report – Report No 22: Task 3. Development of a Sensitivity Matrix (pressures-MCZ/MPA features)

[5] Marine Evidence based Sensitivity Assessment (MarESA)

[6] FEAST website (Feature Activity Sensitivity Tool)

'Risk' of damage or disturbance to a feature is assessed against the current management of activity as follows: High risk activities will be those for which the feature has a high vulnerability, and there is inadequate or no management for that location. Moderate risk activities will be those for which the feature has a low-moderate vulnerability, and there is inadequate or no management for that location. Low risk activities will be those where there is low feature vulnerability (i.e. the activity does not adversely impact the feature) or where the moderate-high vulnerability is mitigated by existing management. This assessment will help to provide advice on the management of each activity. Table 3 describes the risk of damage and resulting action advised.

Table 3 Risk of Damage Matrix

Activities	Associated Pressures	Vulnerability	Is the current Management adequate? *	Level of Risk	Action Advised
		High Vulnerability	No	High	Need for management
		Moderate Vulnerability	No	Moderate	Consider changes in management
		Low Vulnerability	No	Moderate	Consider changes in management
		High Vulnerability	Yes	Low	No need for management
		Moderate Vulnerability	Yes	Low	No need for management
		Low Vulnerability	Yes	Low	No need for management

* This does not refer to any future activities or situations where active management is not required.

There are three levels of management options for consideration:

- **Management is introduced to remove or avoid pressures**: activities are prohibited within the (p)MCZ. This may be introduced through voluntary or regulatory mechanisms. Existing regulations or agreements that exclude certain activities are included under this option. This management measure is considered when the vulnerability is moderate or high.
- **Management is introduced to reduce or limit pressures**: activities are allowed within the (p)MCZ but this is subject to certain additional management measures (e.g. modification of methodologies used, effort limitation, seasonal activity, etc). These may include measures that are already in place, for example, those that manage effort, gear restrictions, etc. as well as additional measures that could be introduced through voluntary or regulatory mechanisms. This management measure is considered when the vulnerability is low.
- **No additional management is required**: no restrictions in place other than general regulations (quotas, technical measures, etc.) that are not site-specific.

Cumulative effects

A feature may be prevented from achieving its target condition by multiple pressures resulting from more than one human activity (cumulative effects). Where this occurs more than one management measure may be required to ensure the feature is able to meet its target condition (Figure 2).

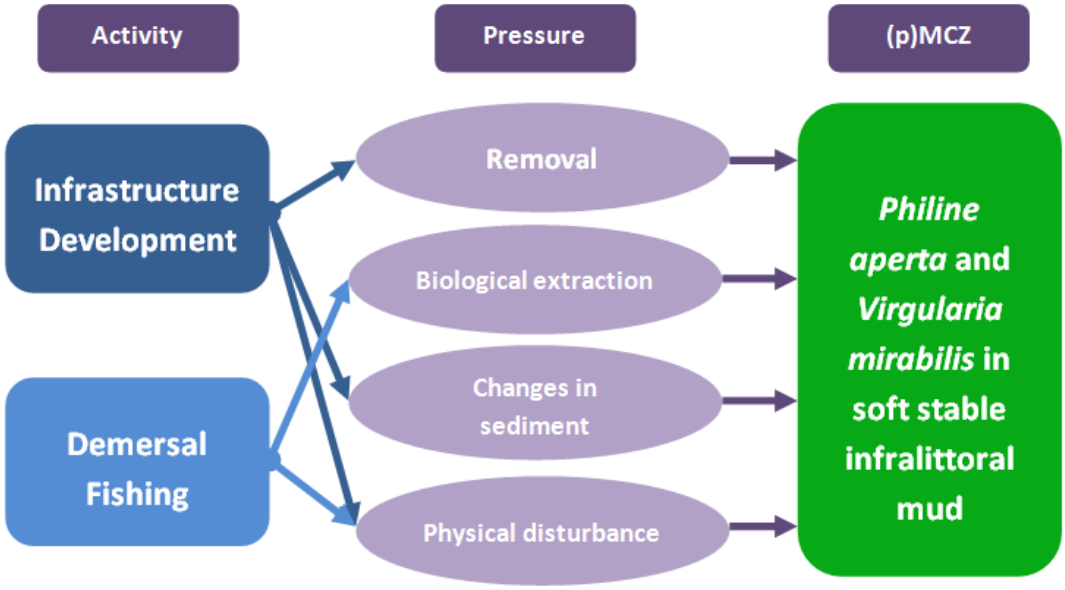


Figure 2 Example of relationship between two activities, the pressures they exert and the (p)MCZ features, where pressures are the mechanisms through which activities can have an impact on habitats or species.

Summary of the Process

Figure 3 illustrates the key steps that have been used in the development of Conservation Objectives and Management Options.

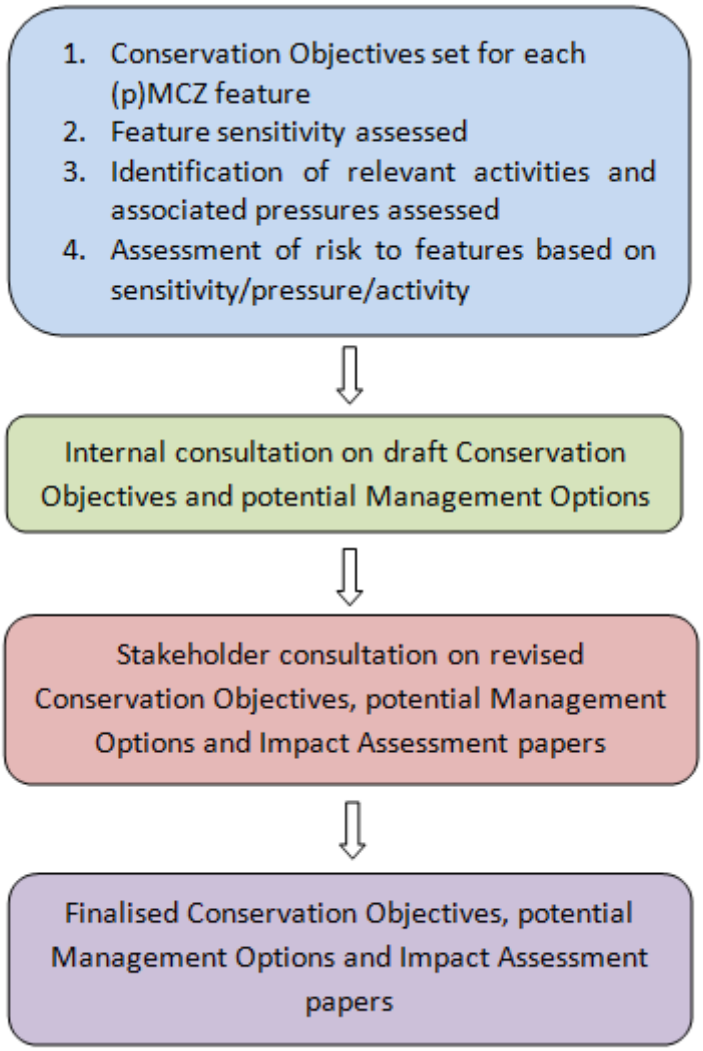


Figure 3 Process chart summarising the key steps in the development of Conservation Objectives and Management Options

Through stakeholder engagement the Department will collect additional evidence including local knowledge of the environment and activities to support the development of management options. The specific management measures for each (p)MCZ will be developed post designation following discussion with relevant stakeholders.

Data Sources and Bibliography

Hiscock, K, Jackson, A. and Lear, D. 1999. Assessing seabed species and ecosystem sensitivities: existing approaches and development, October 1999 edition. Report to the Department of Environment, Transport and the Regions from the Marine Life Information Network (MarLIN). Marine Biological Association of the United Kingdom, Plymouth. [MarLIN Report No. 1.]

Joint Nature Conservation Committee (JNCC). 2015. Pressures-Activities Database (PAD) developed by Cefas and APBmer.
http://jncc.defra.gov.uk/default.aspx?page=7136

Joint Nature Conservation Committee (JNCC). 2015. A Standard UK list of marine activities and their definitions. (Collated by JNCC and formally agreed by the Marine Assessment and Reporting Group (MARG), the Healthy and Biologically Diverse Seas Evidence Group (HBDSEG) and the UK Marine Monitoring and Assessment Strategy (UKMMAS) sub-group on spatial data collation on human activities and pressures).
http://jncc.defra.gov.uk/PDF/Standard_Activity_Definitions.pdf

Joint Nature Conservation Committee (JNCC). 2015. A list of marine pressures and their definitions formally agreed by the OSPAR Intercessional Correspondence Group on Cumulative Effects (ICG-C).
http://jncc.defra.gov.uk/PDF/20110328_ICG-C_Pressures_list_v4.pdf

Laffoley, D.A., Connor, D.W., Tasker, M.L. and Bines, T. 2000. Nationally important seascapes, habitats and species. A recommended approach to their identification, conservation and protection, pp. 17. Peterborough: English Nature.

Oakwood Environmental Ltd. 2002. Development of a methodology for the assessment of cumulative effects of marine activities using Liverpool Bay as a case study. CCW Contract Science Report No 522.

Robinson, L.A., Rogers, S. and Frid, C.L.J. 2008. A marine assessment and monitoring framework for application by UKMMAS and OSPAR - Assessment of Pressures and Impacts. Phase II: Application for regional assessments. JNCC Contract No: C-08-0007-0027. UKMMAS, 2010. Charting Progress 2.

Tillin, H.M., Hull, S.C. and Tyler-Walters, H. 2010. Development of a Sensitivity Matrix (pressures-MCZ/MPA features). Report to the Department of Environment, Food and Rural Affairs from ABPMer, Southampton and the Marine Life Information Network (MarLIN) Plymouth: Marine Biological Association of the UK. Defra Contract No. MB0102 Task 3A, Report No. 22.

Tillin, H. and Tyler-Walters, H. 2014. Assessing the sensitivity of subtidal sedimentary habitats to pressures associated with marine activities. Phase 2 Report – Literature review and sensitivity assessments for ecological groups for circalittoral and offshore Level 5 biotopes. JNCC Report No. 512B, 260 pp.

Tillin, H.M. and Tyler-Walters, H., 2015. Finalised list of definitions of pressures and benchmarks for sensitivity assessment. May 2015. Report.

Tyler-Walters, H. and Jackson, A. 1999. Assessing seabed species and ecosystems sensitivities. Rationale and user guide, January 2000 edition. Report to English Nature, Scottish Natural Heritage and the Department of the Environment Transport and the Regions from the Marine Life Information Network (MarLIN). Plymouth, Marine Biological Association of the UK. (MarLIN Report No. 4.).

Tyler-Walters, H., Hiscock, K., Lear, D.B. and Jackson, A., 2001. Identifying species and ecosystem sensitivities. Report to the Department for Environment, Food and Rural Affairs from the Marine Life Information Network (MarLIN), Marine Biological Association of the United Kingdom, Plymouth. Contract CW0826.

Tyler-Walters, H. and Hiscock, K.,2005. Impact of human activities on benthic biotopes and species. Report to Department for Environment, Food and Rural Affairs from the Marine Life Information Network (MarLIN), contract no. CDEP 84/5/244. Marine Biological Association of the UK, Plymouth. Report.

DAERA Marine and Fisheries Division

1st Floor,

Klondyke Building

Cromac Avenue

Malone Lower

Belfast

BT7 2AJ

Telephone: 028 90569262

Email: Marine.InfoRequests@daera-ni.gov.uk

Web: www.daera-ni.gov.uk/topics/marine

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

ISBN 978-1-84807-694-5

Department of Agriculture, Environment and Rural Affairs

www.daera-ni.gov.uk

INVESTORS IN PEOPLE