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MARINE CONSERVATION ZONES IN THE NORTHERN IRELAND INSHORE REGION

Guidance on the Development of Conservation Objectives and Potential Management Options

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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 an MCZ is 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 highlighted 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/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

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 causing 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.

[1] Ecological Network Guidance, Natural England & JNCC
http://jncc.defra.gov.uk/pdf/100705_ENG_v10.pdf

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/updated when more site information is gathered. The potential management options outlined in this paper are the first stage and will be developed further as more detailed assessments on 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 using 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]. 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 (i.e. fishing gears). 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 proposed area.

Vulnerability is the likely impact of a pressure on an MCZ feature. A feature is vulnerable when it is exposed to a pressure to which is it is sensitive. The vulnerability assessment is used to assess the vulnerability of a feature based on sensitivity to, and current exposure of, pressures (e.g. activities). It aids in the development of conservation objectives where there is limited monitoring data to give an indication of feature condition (both current and desired) and potential management options.

Risk of Damage is the likelihood of deterioration of the feature due to an activity, assessed against the level of management of that activity. This final assessment will help to provide advice on the management of each activity as it combines current management measures and vulnerability assessment.

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

Six broad categories of human activity '**pressures'** that may be detrimental for the MCZ features, have been considered in the documents, based on JNCC advice as they may cause:

[2] Taken from the Marine Life Information Network
http://www.marlin.ac.uk/sensitivityrationale.php

a) Deterioration of natural habitats or the habitats for species
b) Disturbance of species (alone or in combination)

The categories are:

- **Physical loss** (i.e. change to another seabed type)
- **Physical damage** (i.e. extraction of substratum, abrasion)
- **Non-physical disturbance & Climate change** (i.e. Litter, atmospheric climate change and water flow changes)
- **Toxic contaminatio**n (i.e. Synthetic compound contamination)
- **Non-toxic contamination** (i.e. organic enrichment, de-oxygenation and salinity changes)
- **Biological disturbance** (i.e. removal of target species)

A three-step process is used to assess the **'vulnerability'** of the proposed 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.

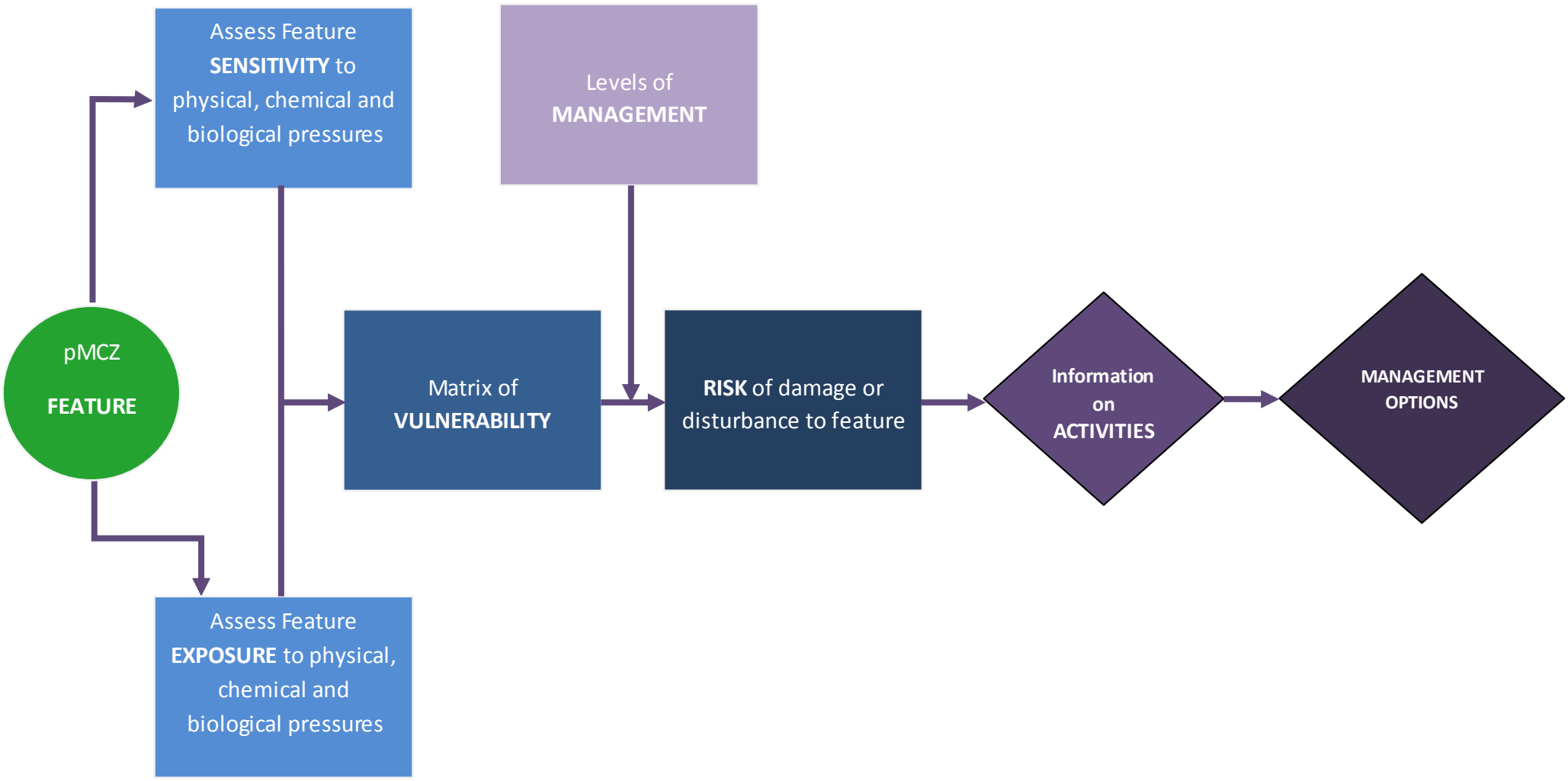

Figure 1 Flow diagram – Assessing Feature Vulnerability and Risk of Damage

Table 2 summarises the method used to determine vulnerability of the features to pressures and likely condition on which to base the conservation objectives, once sensitivity and exposure have been assessed using the matrix 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, experience of other Competent Authorities with comparable habitats, gear type, geographical areas and expert judgment.

JNCC and Natural England jointly developed a report as part of the MCZ project work for England (MBO102[3]) that provides a matrix making it possible to cross-reference the features-sensitivity with pressures-activities. This matrix allows users to extract the list of activities which can create pressures to which the feature is sensitive. JNCC has produced more detailed Sensitivity Matrices. There are other tools to assess sensitivity such as FEAST[4] (Features, Activities, Sensitivities and pressures tool) on the Marine Scotland website, supporting the first steps on the assessment of risk to the features and showing the interaction between activities, pressures and proposed features. All of these sources have been used to develop possible management options for Northern Ireland's pMCZs.

[3] Also refer to MBO102 Technical Report – Report No 22: Task 3. Development of a Sensitivity Matrix (pressures-MCZ/MPA features) http://randd.defra.gov.uk/Default.aspx?Menu=Menu&Module=More&Location=None&Completed=0&ProjectID=16368

[4] FEAST website (Feature Activity Sensitivity Tool) http://www.marine.scotland.gov.uk/FEAST/Index.aspx

Management Measures

The approach to identifying management measures for each MCZ will be based on the risk of not achieving the Conservation Objectives. We identify these risks where there is an overlap between the vulnerable proposed features and the risk of damage from activities in the area.

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

Table 3 Example Risk of Damage Assessment

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

* 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 pMCZ. This may be introduced through voluntary or regulatory mechanisms. Existing regulations or agreements that exclude certain activities are included under this option.
- **Management is introduced to reduce or limit pressures**: activities are allowed within the pMCZ but this is subject to certain additional management measures (e.g. technical gear modification, 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.
- **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).

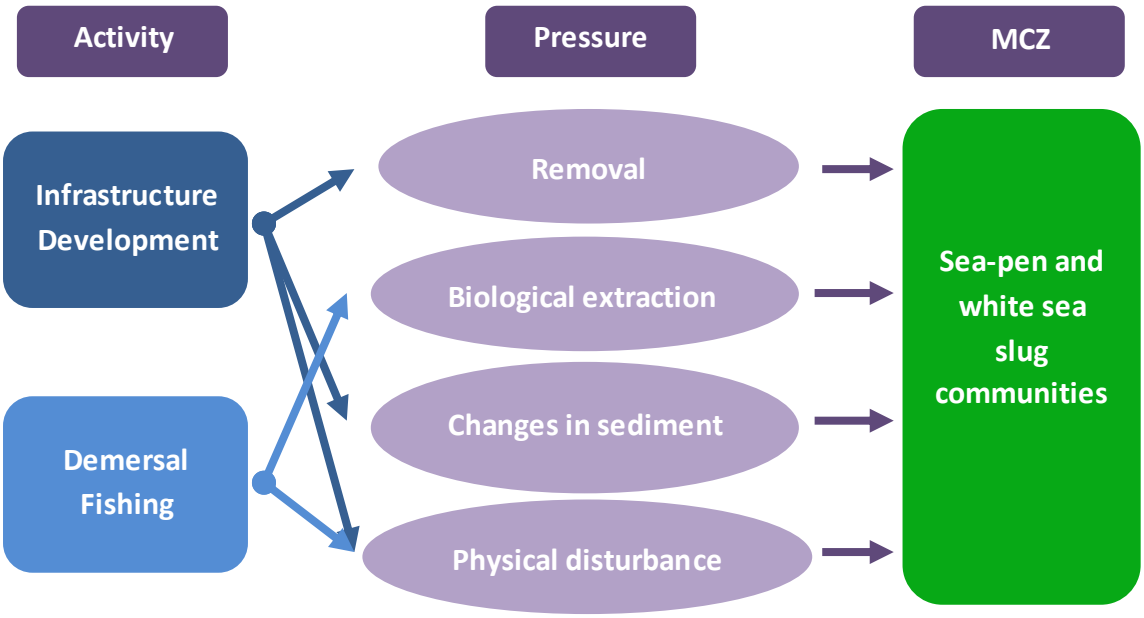

Figure 2 Example of relationship between two activities, pressures they exert and MCZ features, where pressures are the mechanisms through which activities can have an impact on habitats or species

Summary of the Process

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

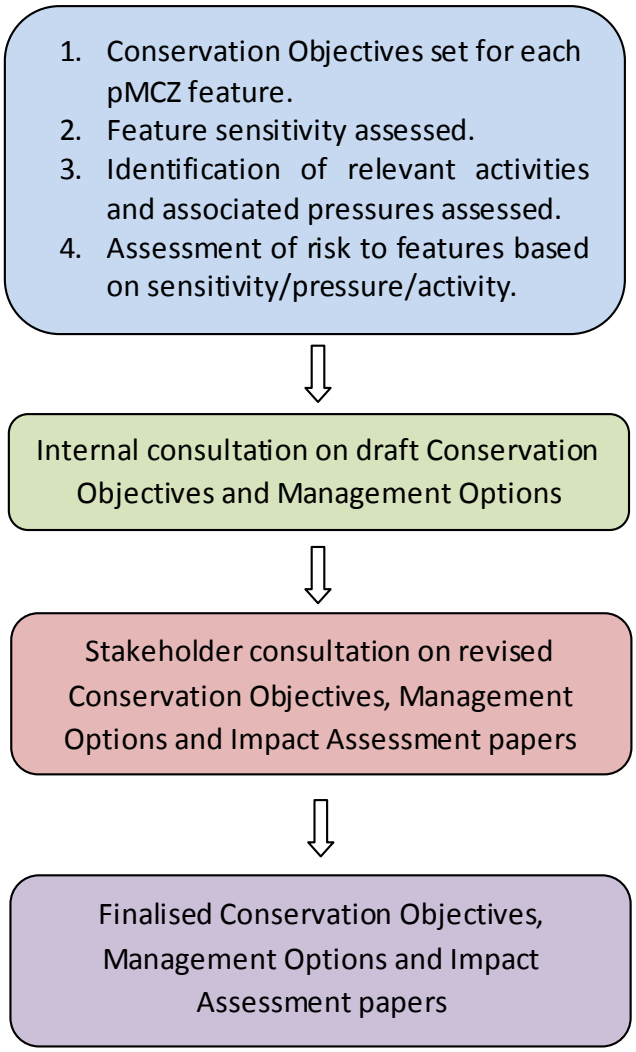

Figure 3 Process chart summarising the key steps in the development of Conservation Objectives and Management Options

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 pMCZ will be developed post designation following discussion with relevant stakeholders.

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Photos represent PMF features found throughout Northern Ireland Inshore Region