SNCB MCZ Advice Project – Assessing risk to recommended Marine Conservation Zones (Technical Protocol G)

Version control

Build status:

Version	Date	Author	Reason/Comments
3.0	13/07/2012	Liam Fisher and Laura Cornick	Final version
2.8	15/05/2012	Laura Cornick	Incorporate revisions
2.7	05/04/2012	Laura Cornick	Incorporate revisions and produce final version
2.6	05/04/2012	Liam Fisher	Incorporate revisions and produce final version
2.5	23/02/2012	Sarah Wiggins	Revisions following JNCC and Defra comments
2.4	18/01/2012	Sarah Wiggins	Revisions following expert panel and SNCB Directors comments
2.3	10/01/2012	Sarah Wiggins	Revisions following review ready for release to SNCB directors for sign off
2.2	16/12/2011	Chris Davis and Sarah Wiggins	Review following stakeholder sharing & public consultation
2.1	23/11/2011	Sarah Wiggins	Addressing comments from stakeholder workshop
2.0	15/11/2011	Sarah Wiggins	Formatted for review
1.3	15/11/2011	Sarah Wiggins	Revisions following review from JNCC
1.1	09/11/2011	Sarah Wiggins	Revisions following Director review
1.0	02/11/2011	Sarah Wiggins	Released to SNCB directors for sign off before review by Defra

Distribution list:

Copy	Version	Date	Issued to
Electronic	3.0	13/07/2012	Final version for web site
Electronic	2.8	15/05/2012	Chris Davis, Liam Fisher, Cristina Vina-Herbon, Jon Davies
Electronic	2.7	05/04/2012	Chris Davis, Liam Fisher, Cristina Vina-Herbon, Jon Davies
Electronic	2.6	05/04/2012	Chris Davis, Laura Cornick, Cristina Vina-Herbon, Jen Ashworth, Jon Davies
Electronic	2.5	23/02/2012	Chris Davis, Laura Cornick, Cristina Vina-

			Herbon, Jen Ashworth, Jon Davies
Electronic	2.4	18/01/2012	Chris Davis, SNCB directors, Jen Ashworth
Electronic	2.3	10/01/2012	Chris Davis, SNCB directors, expert panel, Jen Ashworth
Electronic	2.2	04/01/2012	Chris Davis, Cristina Vina-Herbon , Laura Cornick, Eddy Mayhew, Chris Davis, Jen Ashworth, Jon Davies
Electronic	2.1	23/11/2011	Jon Davies, Cristina Vina-Herbon, Laura Cornick, Eddy Mayhew, Chris Davis, Jen Ashworth
Electronic	2.0	15/11/2011	Defra, Defra Arms Length Bodies, Independent Expert Review panel, stakeholders.
Electronic	1.3	15/11/2011	Jon Davies, Cristina Vina-Herbon, Laura Cornick, Eddy Mayhew, Ana Jesus
Electronic	1.2	11/11/2011	Jon Davies, Cristina Vina-Herbon, Laura Cornick, Eddy Mayhew, Ana Jesus
Electronic	1.1	09/11/2011	Jon Davies, Cristina Vina-Herbon, Laura Cornick, Eddy Mayhew, Ana Jesus
Electronic	1.0	02/11/2011	SNCB directors
Electronic	0.7	28/10/2011	Eddy Mayhew, Ana Jesus, Jen Ashworth
Electronic	0.6	13/10/2011	MPA Technical Group
Electronic	0.5	12/10/2011	Eddy Mayhew, Ana Jesus, Jen Ashworth
Electronic	0.4	11/10/2011	Cristina Vina-Herbon, Laura Cornick, Jen Ashworth, Helen Stevens, Chris Davis, Eddy Mayhew, Ana Jesus.
Electronic	0.3	07/10/2011	Cristina Vina-Herbon, Laura Cornick, Jen Ashworth, Helen Stevens, Chris Davis, Eddy Mayhew, Ana Jesus.
Electronic	0.2	23/09/2011	Cristina Vina-Herbon, Laura Cornick, Amy Ridgeway, Jen Ashworth, Helen Stevens, Rob Enever, Chris Davis, Eddy Mayhew, Ana Jesus, Mark Tasker, Tom Blasdale, John Bleach, James Bussell, Lisa Jenner, Emma Brown, Mark Johnston, Chris Lumb, Rhiannon Pipkin
Electronic	0.1	18/08/2011	Cristina Vina-Herbon, Laura Cornick, Amy Ridgeway, Jen Ashworth, Helen Stevens, Chris Davis, Eddy Mayhew

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Part One: About this protocol

Introduction

The regional MCZ projects submitted their final recommendations in September 2011 to the Joint Nature Conservation Committee (JNCC) and Natural England[1]. These recommendations included details of features proposed for protection within each recommended Marine Conservation Zones (rMCZ) and their draft conservation objectives (COs).

Defra has outlined the information it expects to receive from JNCC and Natural England, the regional MCZ projects and the Science Advisory Panel, to support the Government's decision-making on which MCZs to designate in 2013 after public consultation in 2012. This note requests that JNCC and Natural England's statutory advice to Government should include '*an assessment of the most at risk sites/priority sites for protection*'.

Who is this protocol for?

This protocol applies to staff in Natural England and JNCC who are directly engaged in the production of the MCZ advice. Our advice will be publicly available to aid transparency and accountability in our decision-making.

What does this protocol cover?

This protocol describes the steps required to estimate the risk of damage or deterioration from pressures arising from human activities to rMCZs put forward in the final recommendations. The protocol then describes how to use the risk scores to identify which sites are at higher risk of their features being damaged. The results will be incorporated into the Statutory Nature Conservation Bodies' (SNCBs) advice to Government. This risk protocol will also provide a brief description of limitations and caveats associated with the methodology.

Objectives of the protocol

The conclusions from this assessment will be used:

- to advise Defra of our view of those rMCZs considered to be at higher risk of damage or deterioration from pressures arising from human activities. This risk assessment may be used in combination with other advice i.e. confidence in feature presence and extent (see protocol E), confidence in feature condition (see protocol F) and assessment of features against ENG principles, to inform decisions regarding where designation and subsequent management of activities may need to be prioritised;

They may also be used:

- to prioritise sites for further evidence collection as part of the programme to enhance the evidence base (data mining or primary survey) and/or the monitoring and surveillance programme over the coming years.

1 Referred to jointly here as Statutory Nature Conservation Bodies (SNCBs).

Outputs of the protocol

The outputs from this protocol will be:

i. site risk scores presented in a spreadsheet showing the risk scores for each rMCZ. Should JNCC and Natural England advise on review of the final recommendations, an alternative CO is more appropriate, the site risk score will be recalculated following the process outlined in this protocol and presented alongside the final recommendation site risk score to present to Government. This will provide Government with an indication of the implications of our advice with regard to site risk, should it differ from the final recommendation;
ii. summary tables showing rMCZs considered to be at higher risk of damage or deterioration (pre and post review of final recommended COs). Within these summary tables listed features will be highlighted which, in our view, are considered to be highly sensitive to the human activities which contribute to the pressures to which the feature has been assessed to be moderately to highly vulnerable i.e. for which a recover objective has been put forward in the final recommendation or advised by us post review of final recommendations;
iii. summary table showing sites with highly sensitive features which have been assessed to be moderately to highly vulnerable to pressures associated with human activities but which are not located in sites of higher risk;
iv. a high level narrative describing our view of risk to features within rMCZs; and,
v. tables listing MCZ features for which there is good evidence (indicated by moderate to high confidence in MB0102 sensitivity assessment) that they are highly sensitive to pressures associated with human activities;

It is not the objective of the protocol to provide an output to inform discussions regarding appropriate management measures, merely to aid the Minister in decision-making regarding prioritising urgent action and designation.

It should be borne in mind that because the site risk score is calculated using the information provided in the vulnerability assessments undertaken to inform feature condition, that the inherent uncertainty in condition is carried through to the calculation of site risk. Protocol F describes how to assess confidence in feature condition assessed using both the vulnerability assessment process and direct evidence. Annex 2 in protocol F provides a summary of uncertainties associated with the types of information used and how it is interpreted in the vulnerability assessment process. For features assessed this way, there are inherent uncertainties which will likely mean that low confidence accompanies the majority of feature condition assessments. These uncertainties will carry through to the risk assessment. Therefore a site which is assessed as being at higher risk may contain one or more features for which we will not have moderate or high confidence in condition.

Part Two: The protocol

Definition of risk

A feature[2] within a rMCZ is considered to be at risk of damage or deterioration if it is vulnerable to a pressure arising from human activities. A feature is considered vulnerable[3] to a pressure when it is both sensitive to, and exposed to, that pressure. Therefore, the higher a feature's vulnerability is to a pressure, the higher the risk of damage or deterioration. rMCZs at higher risk of damage or deterioration may therefore require more urgent management action to remove or reduce pressures in order to begin the recovery process and achieve favourable condition.

The assessment described in this protocol will use the data available from the national data sets MB0102 (ABPMER 2010) and MB0106 (CEFAS and ABPMER 2010), data collected by the regional MCZ projects and the vulnerability assessments provided in the final recommendations. The data sets (national and regional) are often aggregated to a high level and less suitable for detailed site-specific assessments, although they are nevertheless suitable to offer an initial view to Government on which sites and features are at higher risk at the present time.

Assessment of rMCZs at higher risk of damage or deterioration from pressures arising from human activities

The assessment of rMCZs at higher risk will be informed by the results from the vulnerability assessments undertaken by the regional MCZ projects which were provided alongside the final recommendations. This assessment will also use the advice the SNCBs provided to the regional MCZ projects on draft vulnerability assessments and feature condition following the methodology described in Protocol F, the MCZ Conservation Objective Guidance v2.0 (Natural England & JNCC, 2011), and any additional information made available since JNCC and Natural England quality assured the draft final recommendations in June 2011.

The approach in this risk protocol is recommended because it uses the same information on which the vulnerability[4] assessments were based as well as, where feasible, additional information made available since they were undertaken. It also provides a pragmatic approach to assessing risk to rMCZs, providing results in a useful format within the time available.

A site risk score for each rMCZ is calculated (as shown below in figure 1) i.e. the proportion of features within a site which are considered moderately or highly vulnerable to one or more pressures (and therefore has a 'recover' conservation objective to achieve the objective of 'favourable condition').

Figure 1 Equation to calculate site risk score

$$rMCZ\ site\ risk\ score\ (\%) = \frac{\#\ features\ \ with\ moderate\ \ to\ high\ vulnerability\ \ \ to\ any\ \ pressures\ \ to\ which\ they\ are\ exposed}{\#\ features\ \ in\ rMCZ\ \ being\ \ put\ \ forward\ \ \ for\ \ designation} \text{ x100}$$

[2] A feature is a species, habitat, geological or geomorphological entity for which a Marine Protected Area is identified and managed.

[3] Cases where the draft vulnerability assessments put forward by the regional MCZ projects differ to that recommended by the SNCBs will be highlighted.

[4] Vulnerability - The likelihood that a habitat, community or individual (or individual colony) of a species will be exposed to an external factor to which it is sensitive. The vulnerability is assessed by combining the sensitivity of the feature to a pressure with the exposure of the feature to the pressure. The term vulnerability is sometimes used instead of impact where evidence of both feature sensitivity and exposure to a pressure strongly suggests an impact will occur (or has occurred), but no direct verification has been possible. See http://www.marlin.ac.uk/glossary.php?letter=V for further information.

For the purposes of this risk assessment, it is necessary to make the assumption that all pressures are equal in terms of contribution to a feature's risk of damage or deterioration. It is also necessary to make the assumption that all moderate/high vulnerabilities are treated as contributing equally to the risk score. The results are to be presented in a table similar to Table 1 below.

Table 1 Example of risk score

rMCZ Site	Feature (s)	Objective	Number of features within a site assessed to have mod-high vulnerability to any pressures i.e. features with recover objectives	Number of features in rMCZ	rMCZ site risk score
B	Subtidal mud	Recover	4	5	4/5 x100 = 80%
	Subtidal coarse sediment	Maintain			
	Deep sea mud habitat	Recover			
	Seapen & burrowing megafauna	Recover			
	Subtidal sand	Recover			

Cell highlighted in red shows that a feature present in the site is highly sensitive (with moderate to high confidence) to at least one of the pressures to which it is considered moderately or highly vulnerable.

Recommended References Areas

Site risk score cannot be calculated for recommended Reference Areas (rRAs) in the same way because rRA feature condition was not assessed in order to set the COs. Following the process outlined in the MCZ Conservation Objective Guidance (COG) (Natural England and JNCC, 2011), all features in rRAs were assigned a recover objective by default, unless there was evidence to indicate that no extractive, depositional and human-derived disturbing or damaging activities were occurring which may impact the feature. Consequently, rRAs were not assessed for risk due to the lack of vulnerability assessment for their features.

Identifying rMCZs at higher risk of damage or deterioration from pressures arising from human activities

In the final recommendations, there are generally far fewer numbers of features being put forward in sites in the offshore area compared to the inshore. This is a reflection of the greater heterogeneity in coastal waters and the relative ease of access to the inshore compared to offshore which has generally resulted in a greater number and better quality of information being available for inshore features. A pragmatic approach is therefore needed to resolve the issue as to how to use the site risk score to identify which rMCZs are at higher risk of damage or deterioration in the inshore and offshore areas.

As can be seen from the risk equation in figure 1 above, site risk is a function of the number of features in a site. Therefore, given the disparity between the inshore and offshore, it is more likely that offshore sites will achieve higher risk scores than inshore sites, merely as a function of having fewer features and being less accessible and not necessarily because they are at higher risk of damage.

To attempt to take account of this anomaly, for the purposes of the advice, rMCZs in the offshore with 100% risk scores are considered at higher risk while inshore, sites with risk scores exceeding 50% are considered at higher risk. The sites in the offshore and inshore meeting these criteria will be listed in summary tables in the advice package and accompanied by narratives explaining from where, in our view, the risks to each site's features are arising. The narrative will make use of the detail provided in the vulnerability assessments, and any additional information made available post JNCC and Natural England's June 2011 QA of the draft final recommendations.

Highly sensitive features in higher risk rMCZs

In addition to identifying which rMCZs are at higher risk of damage through the site risk scores, it is necessary to highlight in our advice those sites where highly sensitive features (with moderate to high confidence in the MB0102 sensitivity matrix score) are present and considered moderately to highly vulnerable to pressures arising from human activities i.e. have recover objectives recommended for them, see table 1 above for recommended format. These features are known to be more easily damaged or deteriorated and it is important to highlight in our advice, where they occur, so that urgent action is prioritised in order to begin the recovery process to achieve favourable condition.

Highly sensitive features in lower risk rMCZs

Moderately to highly vulnerable to one or more pressures (i.e. have a recover objective)

The risk of damage or deterioration to highly sensitive features which are located outside of rMCZs considered to be at higher risk cannot be captured in the site risk calculation. They will therefore need to be highlighted separately. A summary table will be produced listing rMCZs containing features we consider to be highly sensitive (with moderate to high confidence) to the pressures to which they have been assessed to be moderately to highly vulnerable. This will provide Government with our view as to where features that may already be severely damaged or deteriorated, possibly beyond recovery, are located and therefore advise that action to remove/reduce pressures prioritised to allow recovery.

Not moderately to highly vulnerable to one or more pressures (i.e. have a maintain objective)

Features considered highly sensitive to pressures associated with human activity may occur on sites where there are currently few activities occurring and therefore the features are not currently at risk. However, their highly sensitive nature creates a significant risk of damage should any adverse pressure be applied in the future. The site risk scores and the narrative describing our view of the risks to sites (both rMCZs and rRAs) at higher risk and presence of highly sensitive features will highlighted and reviewed as part of the Quality Assurance.

QA of site risk scores

SNCB marine regional advisers and marine sector specialists will undertake a sense check[5] of the results and review of the site risk scores. The sense check will include a review of the narrative to ensure those sites at higher risk of damage and deterioration and highly sensitive features included in the narrative, with the risks to them adequately described. The sense check will use SNCB sector and site-specific knowledge.

[5] A sense check is form of validation by regional advisers and specialists using their local, national, ecological and sector knowledge to check that the assessment results are appropriate ('sensible') to the site under consideration.

The results i.e. site risk scores and lists of higher risk sites and highly sensitive features with recover objectives will be compared to the regional project recommendation reports as part of the sense check to ensure that all the information available has been used. It will also check if any new evidence that has become available since the completion of the final recommendations is incorporated, where feasible.

Protocol limitations and caveats

1. The method to assess site risk score is quite high level and it is not intended to inform discussions around appropriate management measures. It is intended only to inform our view on rMCZs with higher risk of damage or deterioration form anthropogenic activities to help inform Ministerial decision-making regarding which sites to designate in 2013, and prioritise urgent management action.
2. The rMCZs site risk will be assessed using best available evidence; incorporating data provided by the regional MCZ projects, national data sets and, where feasible, any information which may become available in time to inform our advice to Government.
3. There is an inherent bias in the site risk score towards areas that are data rich, such as areas of developments and licensed activities. There is therefore a potential for informal activities or activities that are not recorded placing the features at risk of damage or disturbance and such risk will not be captured in the vulnerability assessments and therefore the approach outlined here.
4. The results are calculated by reference to the number of features within rMCZs which have been assessed to be moderately to highly vulnerable to pressures associated with human activities. It is possible that only portions of features may be subject to damage or deterioration and this finer spatial detail will not be captured in the approach outlined here. Consequently, this current approach may highlight sites considered to be at higher risk that in fact may only have a portion of their features at risk of damage or deterioration.
5. The approach taken to assign different site risk score criteria to identify higher risk sites for inshore (>50%) and offshore (100%) areas, whilst pragmatic, is arbitrary. It may mean that some rMCZs in the offshore, for example, with less than 100% risk, will not be identified as at higher risk, but they may be more at risk of damage or deterioration than sites in the higher risk category inshore. While the QA process can sense check this anomaly to some degree, the issue may still remain. The SNCBs may need to provide further site-specific advice in instances where they feel a site is unnecessarily being put forward for urgent action or vice versa.
6. To only focus urgent action on features where current activity is regarded as presenting a higher risk to sites, may mean that highly sensitive features with maintain objectives could be damaged or even lost, should an activity occur in the immediate future. Some highly sensitive features e.g. cold water coral reefs, can be destroyed or irreparably damaged in a single event like the pass of a bottom trawl. The current protocol gives no consideration to future risk or the likelihood of activities occurring in the immediate future and as such does not identify the risk of loss or irreparable damage to highly sensitive features that are not currently regarded as being moderately or highly vulnerable to any pressures.
7. For the purposes of this present assessment, it has been necessary to make the assumption that all pressures and all moderate to high vulnerabilities to pressures, contribute equally to the site risk score. A feature may have a recover objective recommended for it because it has a moderate to high vulnerability to one pressure, while another feature 6 pressures. The protocol does not take account of this in calculation of site risk which can mean that in the examples mentioned, both features would considered as equally at risk of damage or deterioration. The SNCBs may therefore need to provide further site-specific advice in instances where they feel a site is unnecessarily being put forward for urgent action or vice versa.

8. The protocol does not take into consideration, the relative importance of a feature's contribution toward the network. These aspects will be covered in section 4.2 of the SNCBs' final advice document.

References

ABPMER, 2010. Accessing and developing the required biophysical datasets and data layers for Marine Protected Areas network planning and wider marine spatial planning purposes. Report No 22 Task 3 Development of a Sensitivity Matrix (pressures-MCZ/MPA features). Final August 2010.

CEFAS & ABPMER, 2010. Further development of marine pressure data layers and ensuring the socio-economic data and data layers are developed for use in the planning of marine protected area networks. Report No 1: Objective 1 Provision of geo-database containing standardised layers showing the distribution of specified activities, sites and resources with associated metadata and comments. Final May 2010.

NATURAL ENGLAND & JNCC, 2011. Marine Conservation Zone Project: Conservation Objective Guidance. Version 2. URL: http://www.naturalengland.org.uk/Images/conservation-objective-guidance_tcm6-24853.pdf

Annex 1: Implementing and communicating the protocol

The lead authors from JNCC and Natural England will be responsible for ensuring the protocol is implemented. They will ensure that all internal contributors to the MCZ advice will have a copy of the protocol and understand the requirements.

Defra's Marine Biodiversity team, Chief Scientific Advisor, Defra Arms Length Bodies, the Independent External Review Group, and wider stakeholders were invited to review the draft protocol and provide comments to Natural England and JNCC. Natural England and JNCC have considered all the comments received and updated the protocol accordingly. Comments received, and the draft and final protocols will be accessible on JNCC and Natural England's website.

Annex 2: Monitoring and review

Lead authors will monitor assessments and draft advice from section leads to ensure the protocol is followed. Internal quality assurance will assess whether the draft advice package is consistent with the protocol.

This protocol is currently time limited for the duration of the SNCBs' advice on MCZ recommendations. The MCZ Project Board may commission a review of the protocol in the light of any changes to timetables or policies.

Annex 3: Related documents

List of all of the MCZ advice protocols:

A. Strategic protocol – The Principles Underpinning Our Statutory Nature Conservation Body Advice On Marine Conservation Zone Designation;
B. Quality control, assurance and peer review;
C. Document style and language;
D. Audit trail – version control and record keeping;
E. *A*ssessing the scientific confidence of the presence and extent of features in recommended Marine Conservation Zones;
F. Assessing the scientific confidence of feature condition;
G. Assessing Marine Conservation Zones most at risk (this protocol);
H. Assessing the contribution of existing sites to the network.