SNCBs' MCZ Advice Project Technical protocol I – Assessing certainty in the appropriateness of conservation objectives

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About this protocol

Background

1.0 This protocol is one of a series of protocols developed to ensure transparency and consistency in the decision-making which frames Natural England and the Joint Nature Conservation Committee's (JNCC) advice to Government on Marine Conservation Zones (MCZ). To date, we (Natural England and JNCC) have provided advice to Government, at their request, on the features and sites put forward by the regional MCZ projects, on (amongst others) the following:

- Confidence in prevailing feature condition (Protocol F (SNCB MCZ Advice Project, 2012a));
- The appropriateness of the recommended Conservation Objectives (following the MCZ Conservation Objectives Guidance (COG) (Natural England and JNCC 2011a)).

Our advice on confidence in feature condition assessments was included in our July 2012 advice package to the Government (Natural England and JNCC, 2012b) and subsequent amendments report (Natural England and JNCC, 2012c). Both protocol F and the COG should be read in conjunction with this protocol.

1.1 Following the submission of our advice package, Defra requested an initial assessment of our degree of certainty that the feature conservation objectives (COs) were set appropriately. This assessment was completed in July 2012 for the recommended features in the priority list of recommended MCZs identified by Defra, as stated in the public consultation document (Defra, 2012) published in December 2012. This initial assessment used the information available at the time. The original approach used was discussed

and agreed with Defra's Marine Protected Areas Network Project Board on 19th June 2012. The outputs of that assessment were supported by the advice provided through the application of protocol F and a review of the recommended COs against wider scientific knowledge of the impact of pressures on features. The outputs were then presented in a report to Defra which subsequently assisted Defra's selection of sites proposed for designation in 2013.

1.2 Defra has more recently requested that we provide an updated assessment of certainty to offer additional assurance that the COs are appropriate for designation, in light of any additional evidence that has become available since the initial advice was provided in July 2012.

1.3 Defra have requested that in addition to providing our view on the relative certainty of conservation objective proposed, we also advise how this assessment might best be used in the decision-making process for sites and features going forward to designation in 2013. Part 3.0 of this protocol, addresses this in more detail.

1.4Defra's public consultation on MCZ designation ends on 31 March 2013. It is anticipated that through the consultation responses, new information may be made available which could inform feature condition and therefore potentially affect the draft feature COs. Furthermore, information from Natural England and JNCC-led MCZ site verification surveys will be available for consideration, as will any information which was made available too late to inform our advice package to Defra. All this information will be used in the assessment of feature condition and therefore may influence the setting of feature COs for those features on sites proposed for designation later in 2013.

1.5 It should be acknowledged at this point that the Natural England-JNCC led site verification surveys were designed to meet the primary objectives of increasing confidence in the presence of habitat features and their spatial extent. Whilst these data will be valuable in further characterising given habitat features they will not necessarily afford sufficient information to assess feature condition.

1.6 However, records of trawl scars, discarded gear and observations of impacts will have been made during these surveys, which could provide circumstantial evidence to infer condition. An element of caution will need to be employed when interpreting such evidence; whilst we can be confident that trawl scars constitute a physical state change in the seabed habitat, this should only be described as an impact where it is evident that this has caused an impact on the feature. It is therefore difficult to say in advance of receiving these data, what will be available and what can be inferred.

1.7 Prevailing feature condition will be reviewed by technical staff by following the process outlined in the MCZ COG. The confidence in feature condition for each feature will be reviewed and amended appropriately following protocol F where any new information is available. Once this is complete, up-to-date vulnerability assessments, COs and confidence scores for feature condition will be available to inform the assessment of certainty in the COs.

1.8 In the future, COs which are currently proposed on the basis of vulnerability assessments may change if new research/evidence shows that the original assessment was incorrect. In particular, we expect to develop a better understanding of feature sensitivity and the pressure/state relationship as new scientific research progresses. New results may indicate that previous assumptions were no longer valid and where it would subsequently be necessary to review the CO to account for new information. Direct surveys of feature condition may also result in change to feature CO.

Why is a protocol needed?

1.9 The MCZ Conservation Objective Guidance (COG) sets out the process for establishing the conservation objective for the features of a MCZ. It makes a distinction between the process of setting an

objective where there is clear, direct evidence of the current ecological state of the feature, and the situation where such evidence is not available and an indirect approach using circumstantial information is followed.

1.10 Setting an objective without direct evidence relies on our scientific understanding of the relationship between the intensity of prevailing pressures and the ecological state of the feature. These pressure/state relationships are expressed through the feature's sensitivity and the assessment of vulnerability of the feature (see COG for further information). Our understanding of the pressure/state relationship varies across the features and the different pressures depending upon the scientific research available.

1.11 Where there is a good understanding of the pressure/state relationship derived from targeted studies of a feature, it is more straightforward to use a vulnerability assessment to set an objective for that feature. However, for a feature where such studies are not available or studies have considered a related feature, it is necessary to use interpretation, application and judgement to set an objective. Where judgement is applied, it is appropriate to offer some assurance to end users that such judgements are robust.

1.12 At the request of Defra, NE and JNCC have developed the present protocol to offer such assurance that appropriate conservation objectives had been set for the features in MCZs using the available evidence, particularly where a vulnerability assessment approach had been used in the development of conservation objectives.

What does the protocol cover?

1.13 This protocol sets out the approach we will follow to provide our advice to Defra on our certainty in the appropriateness of feature COs. It describes guiding principles rather than a strict process since the assessment is a matter of best scientific judgement.

1.14 This protocol builds on the initial approach agreed with Defra's MPA Network Project Board. It has been subject to wider review by staff in Natural England and JNCC and independent external review. Comments from these reviews were incorporated into this final version.

1.15 The purpose of the assessment is to determine if we are **'more certain'** or **'less certain'** in the appropriateness of the 'maintain' or 'recover' part of the CO for each feature. The method described in part 2.0 of this protocol should be applied to all features of a MCZ, but it could apply to other Marine Protected Areas too. This protocol provides a guide for determining whether or not we are more or less certain that reasonable judgement has been appropriately applied to set the conservation objective in light of the evidence available.

1.16 Given that the process of setting COs relies on the interpretation and application of information using best professional judgment, an element of bias or inconsistency could be introduced by the staff undertaking the assessments. Part 2b of the protocol provides guidance on how to reduce any inconsistencies. In essence, the protocol is an audit of the CO setting process to give assurance that best practice was followed.

What the protocol does not cover

1.17 The decision to set a 'recover' or a 'maintain' objective for a feature relies on best professional judgment taking into consideration all the information available for each feature at each site. Consequently, a step-by-step method is not deemed appropriate and instead, guiding principles are provided.

1.18 This protocol does not provide a means for determining whether or not the CO is actually correct as that would require direct knowledge of a feature's condition and the pressure/state relationship for prevailing human activities.

Who is this protocol for?

1.19 This protocol is intended to guide the technical staff in Natural England and JNCC undertaking the assessment of certainty in the appropriateness of feature Cos. It will also be used as a guide and referred to by those who will undertake any QA or audit of the outputs of the assessments (see section 2b). Equally, it is possible that this protocol could be applied to other Marine Protected Areas.

1.20 The protocol is being provided to publically demonstrate how we have undertaken our assessment and to provide assurance that adequate steps have been taken to address issues of quality, bias and transparency in our assessments and subsequent advice. The protocol is being made public. .

Part 2a: Sources of information and guiding principles

Sources of information

2.1 The following sources of information are important in the assessment of certainty in the appropriateness of the 'maintain' or 'recover' part of a feature's CO:

- Evidence provided in the MB0102 sensitivity matrix, relating to the recoverability of features to pressures (Tillin *et al.*, 2010).
- The MB0102 sensitivity matrix was combined with a pressures/activities matrix (unpublished) which was provided to the regional MCZ projects and technical staff in Natural England and JNCC to aid the vulnerability assessments for recommended MCZs features.
- Fisheries standardisation maps[1]
- MB0106 activities layers[2]
- Available scientific literature - e.g. the literature summarised in the *Advice on Fisheries Impacts on MCZ Features* (Natural England & JNCC, 2011b). In this document, the advice per feature is based on evidence which is presented and itself categorised into:
    - expert judgment;
    - inference from studies on comparable habitats; gears or geographical areas;
    - directly relevant grey literature; &
    - directly relevant peer reviewed literature.

  This categorisation is useful for explaining having "more" or "less" certainty in a CO that was set based on a feature's sensitivity and exposure to pressures associated with fishing activities.

a) General advice on assessing potential impacts of and mitigation for human activities on MCZ features, using existing regulation and legislation (Natural England and JNCC, 2011)[3]

[1] See Annex 6 of Natural England and JNCC's 2012 Advice on recommended MCZs (Natural England and JNCC, 2012)

[2] Available here: http://sciencesearch.defra.gov.uk/Default.aspx?Menu=Menu&Module=More&Location=None&Completed=0&ProjectID=16415

[3] Available here: http://jncc.defra.gov.uk/pdf/MCZ_ActivitiesAdvice_Final.pdf

Guiding principles

2.1. The protocol focuses on providing guiding principles rather than a step-by-step approach, in recognition of the reliance placed on best professional judgment when setting COs.

2.2 The assessments of feature condition (e.g. vulnerability assessments or any quality assessments reviewed in light of information made available since June 2012) together with any revised confidence scores must be made available prior to undertaking an assessment of the certainty in the COs.

2.3 The following general principles should be applied, although an element of pragmatism and reasonable opinion should also be used. All decision-making rationale should be captured as part of the audit trail.

2.4 For features which have **moderate or high confidence** associated with the assessment of condition[4] (irrespective of CO) the CO certainty assessment would be **more certain**.

2.5 For features which have **low confidence** associated with the assessment of condition through the application of Protocol F, there is still the potential to be more certain in the CO in some instances. This will depend on the application of **a reasoned judgment**. Below are some examples of where reasonable judgment may be applied, leading to being **more certain** in a feature's CO despite having low confidence in the feature's condition:

a) Feature "G" is a habitat FOCI which is highly sensitive (with moderate or high confidence) to pressures associated with bottom trawling e.g. surface and structural abrasion (MB0102 sensitivity matrix). Through the vulnerability assessment approach the feature was assessed to be moderately to highly vulnerable to several pressures associated with relatively very high levels of >15m bottom trawling (~1800 hrs over 2006-9) which Vessel Monitoring System (VMS supplied through MB0106) gridded data indicates is occurring over the feature. Following the process outlined in the COG, a recover objective was set.

   Following protocol F, however, the confidence in feature condition is low because the VMS gridded cells which lie over the feature do not lie completely within the feature and therefore it is not possible to confirm the activity is happening over the feature.

   However, it is reasonably justifiable to be more certain in the recover objective despite being unable to confirm the activity is occurring over the feature because 80-90% of the gridded VMS cell (within which the activity is occurring) lies within the feature boundary and at such high levels of effort it is highly unlikely all of this fishing effort is occurring off the feature. Additionally, there is no reason to expect that the fishing would selectively occur outside of the site as the habitat map indicates the habitat inside and adjacent to the site is the same. So it is justified to assume that most of the fishing is occurring on the feature within the site. For the above reasons we are **more certain** the recover CO is appropriate.

b) Subtidal coarse sediment in MCZ "W" is a broadscale habitat which has a range of sensitivities to physical pressures associated with bottom trawling (e.g. surface and structural abrasion as indicated by MB0102). This reflects the variable nature of the sensitivity of the feature which can include a range of sub-habitats. Through the vulnerability assessment approach the feature was assessed to be moderately to highly vulnerable to several pressures associated with relatively very high levels of >15m bottom trawling (~1800 hrs over 2006-9) which Vessel Monitoring System (VMS supplied through MB0106) gridded data indicates is occurring over the feature.

[4] See Protocol F (NATURAL ENGLAND & JNCC, 2012a)

Following the process outlined in the COG, a recover objective was set through the vulnerability assessment process. Following protocol F, the confidence in feature condition is low because the confidence in the feature's sensitivity assessment is low.

Information on subtidal coarse sediment provided in the *Advice on Fisheries Impacts on MCZ Features* (Natural England & JNCC, 2011b) is as follows: Communities on unstable coarse sediments are considered to contain relatively robust fauna which are not believed to be greatly impacted by surface abrasion (Hall *et al*., 2008). More stable gravels may support a "turf" of fragile species which are easily damaged by trawling and recover slowly (Collie *et al*., 2005; Foden *et al*., 2010). There is abundant peer-reviewed evidence for the effects of trawling and dredging on subtidal coarse sediment. Some of the evidence used is derived from similar habitats in North America (Gulf of Maine and Alaska) but is considered sufficiently similar to be applicable to habitats in the MCZ area. Other evidence is derived from the UK and is directly applicable.

Because of the wide variation in impacts of fishing, certainty in CO setting depends on our ability to classify the feature as being stable or unstable. Although we don't have direct evidence for the energetic status of the feature, the fact that this feature is in deep-water (> 200m) suggests a more physically stable environment, thus we can be **more certain** that the CO of recover is appropriate.

c) According to the MB0106 data available very low levels of bottom trawling (approximately 50 hrs 2006-2009) is occurring over broadscale feature "X". According to MB0102 this feature is moderately to highly sensitive to pressures associated with this activity. Following the process outlined in the COG, there is scope to use judgment to set a maintain CO where it is felt that an activity is occurring at such a low level as to not reach or exceed the sensitivity benchmark provided in MB0102. A maintain CO was set on the basis that the activity was occurring at relatively very low levels and over a very small portion of a relatively large feature such that it was highly unlikely to be impairing the feature's overall structure and function.

Following protocol F, confidence in feature condition was assessed as low for the reasons given in Annex 2 of Protocol F. Mainly this is because by far the greatest uncertainty in the vulnerability assessment process lies in the fact that past impacts from historical activity that has since ceased are not incorporated, as generally information is not available for this assessment.

However, based on the information available to us it is entirely justifiable to set a maintain objective if we examine the sensitivity assessment, in particular the recoverability of the feature. The feature lies in a relatively energetic area as indicated by the evidence presented in the site's selection assessment document and supported by the modelled energy layers provided in MB0106 and according to the feature's sensitivity assessment in MB0102 it would be expected to recover from physical disturbance relatively quickly e.g. on a timescale of days to a few weeks. Given the relatively very low levels of bottom trawling and the relatively quick recovery expected of this feature from physical disturbance, we are **more certain** the maintain objective is appropriate in this instance.

d. In MCZ "Y" the seagrass beds feature has a recover objective set following the process outlined in the COG. Confidence in the feature condition, following Protocol F is assessed as low. This is due to a lower level of knowledge around the spatial extent of the potential abrasion impacts from anchoring across the extent of the feature. However, stakeholders have commented that there is extensive mooring and anchoring over feature to the west and east of Yarmouth Harbour and in light of this it is reasonably justified to be **more certain** in the recover objective.

e. In MCZ "Z", the subtidal mixed sediments feature has a recover objective which was set following the vulnerability assessment process outlined in the COG. Confidence in the feature condition,

following Protocol F is assessed as low. This is because the sensitivity assessment provided in MB0102 for this feature has low confidence.

However, we can be **more certain** that the recover objective is appropriate despite low confidence in feature condition because there is further supporting evidence that the activity to which the feature is sensitive is taking place over the feature and has been doing so for a long time (Vessel Monitoring System gridded data supplied through MB0106 and information on current activity level compared to 50 years ago).

The feature is assessed as being moderately to highly sensitive to pressures associated with bottom trawling e.g. surface and structural abrasion. Benthic trawling has been carried out here for at least 50 years (acknowledging there has been a reduction by 80% over that time), so it is reasonably justifiable to have more certainty in the recover objective in this instance.

2.6 The above are just examples provided to illustrate the typical application of reasonable judgment when setting COs. The reasoned judgment illustrated in example b may also be applied in cases where there is evidence that, for example, long-lived, cessile organisms are present within the feature, as this could suggest a physically stable environment where features may be more sensitive to physical pressures than those occurring in highly energetic environments.

2.7 The onus is on the assessor to provide a clear reason for assigning more certainty to a recover CO where confidence in feature condition is low.

2.8 For all geological and geomorphological features the default conservation objective is set to ‘maintain’. Confidence in the presence of the features is high, owing to the abiotic nature of determining their existence. The features are predominantly identified on a morphological basis (derived from bathymetry), and confidence in morphology of the seabed is high.

2.9 Relict marine geological and geomoprhological features are typically large-scale, and the processes that created them are no longer operating, and so they are subject to natural decline in conservation value owing to erosion and burial, outside of any anthropogenic activity. Such features include granite outcrop ("rock reef" like Haig Fras), and glacial erosion and deposition features like the Channel Outbursts, Irish Sea drumlin fields and North Sea Glacial tunnel valley. These structures are in a steady natural decline because they are undergoing natural erosion and covering by sediment and cannot reform if damaged, but owing to their large size, they are unlikely to be affected by anthropogenic activities. For this reason confidence in condition is moderate or high and therefore there is **more certainty** associated with “maintain” objectives for these features.

2.10 *Active* marine geomorphological features such as sandwaves, however, are presently dynamic systems that can decline and later recover. However, these features are also large-scale sea-bed sediment forms robust enough not to be significantly affected by small-scale anthropogenic interventions and the measures in place to protect biological features in the same areas will more than adequately protect them, and so a **more certainty** in the 'maintain' objective is sound.

2.11 A different approach was adopted to propose COs for highly mobile species due to the lack of evidence on their presence and extent and sensitivity to pressures. Highly mobile species were therefore not well suited to the vulnerability assessment approach. Generally, **less certainty** would be anticipated for most highly mobile species COs. However in some instances, qualitative information about condition of

highly mobile species was made available to SNCBs, and in these cases it may be appropriate to have more certainty in the CO.

Part 2b: Quality assurance – reducing bias and inconsistency

2.12 It is important to note that the process for developing COs (i.e. the vulnerability assessment outlined in the MCZ COG) was independently reviewed prior to its publication. Furthermore, the proposed COs were peer-reviewed internally and externally by specialists and stakeholders within the regional MCZ projects, the Regulators, the Science Advisory Panel and then further subjected to public consultation. These reviews will all have considered the appropriateness or otherwise of the COs prior to this assessment of certainty.

2.13 The aim of the proposed quality assurance (QA) process is to ensure that a recognisable, transparent, consistent and evidence-based approach is used to reach the judgement on the certainty of the COs. See Annex one for a flow diagram of the process outlined in this section.

2.14 Technical staff who undertake the assessments of certainty in feature COs will be familiar with vulnerability assessments, condition assessments and have an established marine ecological background. Ideally, they will be familiar with the information underpinning the assessments of feature condition. This would also apply to anyone reviewing these assessments as part of the QA process.

2.15 For each assessment of certainty, an accurate record of decisions taken will be recorded with reasons made clear as to why **more certain** or **less certain** has been assigned to the 'maintain' or 'recover' part of the CO. This record should include reference to any datasets and/or sources of information used to support the decision-making.

2.16 The QA of the assessment of certainty will be undertaken on 10% of the overall assessments to ensure that they have been carried out appropriately. Specialist staff from JNCC and Natural England will perform a QA of the outputs of this assessment. Such technical staff will be familiar with vulnerability assessments, condition assessments and possess an established marine ecological background.

2.17 Technical staff in Natural England and JNCC will amend the assessments in light of the QA prior to sending them to technical staff in the UK Country Agencies: Department of the Environment of Northern Ireland, Countryside Council for Wales and Scottish Natural Heritage. The country agency staff will perform an audit of these outputs and decide whether or not the protocol has been followed. Comments will be fed back to the JNCC and Natural England technical staff so they can amend their assessments to ensure the protocol is followed.

2.18A record of which individuals undertake the QA and audit of any assessment will be provided as part of the assessment output.

2.19 When undertaking the QA of the assessments, the focus will be on consistency in approach, scientific robustness of decision-making and clarity of rationales provided. Where any of this information is uncertain, the reviewer must provide a clear indication of what they feel needs to be addressed and, if possible, a view on how issues could be resolved.

2.20 An audit log must be kept recording, for each feature:

- the assessment (including version);
- who undertook the assessment;
- sources of information sources which have been used;
- who reviewed the assessment (both QA and audit) and their comments;

- what action (if any) was taken to address comments;
- briefly, why an action was taken or not and who actioned it.

Part 3.0 Limitations and Caveats

3.1 For each feature JNCC and Natural England will provide their judgement as to whether they are **more certain** or **less certain** that a 'maintain' or a 'recover' CO is appropriate. Such certainty (or uncertainty) will be assessed on the basis of reviewing the site-based evidence in the context of the information available supporting the feature pressure impact relationship (e.g. available literature, sensitivity and pressures/activities matrices) combined with the judgement of the relevant adviser(s) and technical staff for the area.

3.2 The main limitations of the assessment of feature condition were identified in the MCZ Advice's protocol F (Natural England and JNCC, 2012). These include limitations in the best available data or assumptions underpinning the vulnerability assessments, which are carried through to this assessment. Such issues are acknowledged here and need to be taken into consideration when making decisions based on the use of the outputs of this assessment.

3.3 The use of best professional judgement as part of the assessment means there is potential for bias and inconsistency. The selection of appropriate technical staff to undertake the assessment and the QA process as required by the protocol seeks to reduce this but it cannot be completely removed and must be acknowledged and accepted as inherent within a process which relies heavily on judgment.

3.4 COs are set based on the best available evidence at a point in time. COs (to 'maintain' or to 'recover') will change depending on a feature's condition and prevailing pressures. Should new evidence come to light which indicates the feature's condition has changed; the CO would need to be reviewed and changed, if appropriate.

3.5 COs proposed on the basis of vulnerability assessments may also change where new research/evidence shows the original assessment no longer applies. In particular, we expect to develop a better understanding of feature sensitivity and the pressure/state relationship as new scientific research progresses. New results may indicate that previous assumptions were no longer valid and where it would subsequently be necessary to review the CO to account for new information.

3.6 Section 124 of the Marine and Coastal Access Act (2009) requires that the extent to which, the conservation objectives stated for each MCZ which it has designated have been achieved, to be reported on. To this end in addition to the above, the condition of these sites will be assessed and reported on and the conservation objectives reviewed in light of these assessments.

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Annexes

Annex 1: Flow diagram of QA process