Appendix J: Confidence Assessment Detailed Methodology Guidance

(Cross reference Section 4.2.1 and 4.2.3 in Report)

Introduction

This document provides the methodology for undertaking the confidence assessments for MB0116. These follow the guidance as given in JNCC and NE, 2012. To ensure consistency between partners and ease the description of the methodology a summary of all of the relevant documents is provided below (Table 1).

Table 1. Key document inventory

File Name	Description
BS_Evidence_Review.xls FS_Evidence_Review.xls IS_Evidence_Review.xls NG_Evidence_Review.xls	Summary of available evidence for each feature including the confidence assessment evidence and scores. Currently named according to region only – will be renamed at the end
BS_Spatial_Data_Summary.xls FS_Spatial_Data_Summary.xls IS_Spatial_Data_Summary.xls NG_Spatial_Data_Summary.xls	Summary of all the available spatial data for each feature within each rMCZ.
Standardised_Feature_List.xls	A standardised list of all of the features.
CA_Flow_Diagrams.pdf	Annotated flow diagrams to be followed to obtain confidence scores.
SNCB_Protocol_E.pdf	JNCC/ NE confidence assessment methodology for presence and extent of a feature.
SNCB_Protocol_F.pdf	JNCC/ NE confidence assessment methodology for condition of a feature.
MESH Confidence Assessment Guidelines.doc	MESH protocol for assigning a confidence score to a habitat map.
MESH Confidence Scoresheet.xls	MESH scoring spreadsheet for assigning a confidence score to a habitat map.
Specialist_determiners.xls	A spreadsheet to ensure consistent approach to assigning whether determiners were specialist or not.
Site summary documents – 1 per rMCZ	Word documents that summarise the evidence and confidence assessment for each site.

Data Collation for Tranche 1 sites

The inventory of all data used for each MCZ (both all the available evidence and that used for the confidence assessment process) is reported in the respective XX_Evidence_Review.xls spreadsheets, and are given in Appendix K. In addition the Regional MCZ Project objectives for each feature for each Tranche 1 rMCZ were entered into the spreadsheet.

MB0116 data evidence entry

The evidence collated on presence and extent for each feature within each Tranche 1 rMCZ was described within the all available evidence column using the following colour code for clarity of source:

- Data available at the outset of this project– Blue text;
- New spatially referenced data – Red text;
- Anecdotal/ non spatial information – Green text; and
- Aerial photography – Purple text.

The data available at the outset of MB0116 comprised of all data collated within the Regional MCZ Projects and included the following overarching data sources:

- Regional projects*
- MESH polygon*
- MESH underlying points*
- REC polygons
- REC underlying points
- MB0102*
- UKSEAMAP

* Note: a number of underlying data sources were individually recorded. This information was derived from XX_Spatial_Data_Summary.xls spreadsheets that were produced for each Regional MCZ Project and contain information on all the recommended rMCZs and rRAs (see the Spatial Data Summary Table below). Where there was no specific survey ID the most relevant information to describe the source of the data was recorded. A distinction was made between point and polygon data.

As additional spatial data was collected for each rMCZ it was captured in the respective geodatabase and in the relevant xx_Spatial_Data_Summary.xls spreadsheet. Anecdotal evidence or data that were not specifically geo-referenced were captured in the all evidence column within the XX_Evidence_Review.xls.

In most cases it was not possible to distinguish the available evidence for the presence and extent of a feature.

Confidence Assessment Process

Spatial Data Summary

To facilitate the confidence assessment process all of the spatially referenced evidence for each rMCZ the data available were summarised in spreadsheets for each region XX_Spatial_Data_Summary.xls, a key to which is provided in Table 2. Each spreadsheet has three tabs 1 for BSH, 1 for HOCI and 1 for SOCI.

The spatial data summary spreadsheets are supported by a geodatabase for each region where datalayers can be easily cross referenced. The datasets in the geodatabase were separated into rRAs and rMCZs.

Table 2. Key to XX_Spatial_Data_Summary.xls

Column Heading	Description
Unique ID	Dataset, Layer, MCZ, polygon no. This is designed to help link the summary spatial data to the geodatabase.
MCZ Name	Name of MCZ
MCZ code	Code
Data Source	Eg MB0102, MESH, REC etc.
Geometry	Point or polygon
Feature Name	Standardised to feature names
Alternative Feature Name	Any additional detail from the original file.
Origin Layer name	Datalayer it came from (links to geodatabase)
Feature intersect area	Area of polygon in MCZ (only applicable to polygons)
Survey ID	Where it is available the survey ID is captured.
Survey Name	Recorded where available.
Survey Site	Recorded where available.
Sample ID	Recorded where available.
Sample Date	Recorded where available.
Determiner	Recorded where available. A separate key has been provided that identifies whether these are specialist or not.
Confidence	MESH confidence score for polygons where available

Presence and Extent

Confidence assessments were carried out for the Tranche 1 sites only however consideration was made to all the features recommended by the Regional MCZ Projects, the assessments were done for presence, extent, condition and boundary. The assessment for presence and extent followed the methodology as provided in the JNCC/ NE protocols and in the annotated flow diagrams provided in Figure J1 and was based primarily on the spatial data that were available.

Aerial photography was provided by CCO and used as an extra habitat map for Intertidal BSHs where the resolution of the photography was high enough to confidently determine the habitat. The photography could not be added to the geodatabase therefore was considered additionally to the geodatabase information. The photography was considered as an additional polygon of the feature and the steps of the flow diagram were followed with the inclusion of this additional polygon.

Anecdotal evidence was provided for some features, where this anecdotal data could not be added to the geodatabase but was still described spatially, i.e. provision of a map displaying sample points, a habitat map derived from survey data or detail description of a feature location; it was considered within the confidence assessment post the GIS assessment. The anecdotal evidence was still considered spatially following the process outlined within the flow diagrams however it could not be physically overlaid within GIS and location descriptions were less accurate. The anecdotal evidence was weighted as less accurate than the geodatabase

information therefore the scores were not adjusted to the same extent using these data. The adjustments from the flow diagrams using only anecdotal evidence are as follows:

- If only anecdotal evidence existed then only a low score could be achieved for the feature,
- If a map of habitats or sample locations was not provided then the extent score could not be adjusted,
- If only descriptive text existed then it had to be a description of an area wholly within the MCZ to be used to adjust the score,
- The anecdotal evidence had to clearly describe the feature i.e. species latin name, level 3 EUNIS code for BSHs or habitat name.

Condition

The scientific assessments of feature condition were undertaken using a vulnerability assessment approach as no direct evidence on condition has been found within MB0116. The following steps were followed to undertake this assessment based on the principles of Protocol F:

Step 1: What is the confidence assessment score for feature extent (based on the outputs of the application of Protocol E)?

- If low – confidence score is low
- If moderate or high confidence go to step 2.

Step 2: Is the feature highly sensitive to a pressure with moderate or high confidence?

The sensitivity matrices produced as part of MB0102 project were consulted to determine which of the ENG features were highly sensitive to a pressure with moderate or high confidence. The only features that were not considered in MB0102 were the mobile species of fish - smelt *Osmerus eperlanus*, eel *Anguilla Anguilla* and the undulate ray *Raja undulata*. It was therefore determined, through expert judgement that these features are sensitive to fishing and water abstraction.

According to the SNCB Protocol F, a feature must be moderately or highly vulnerable to at least one pressure to be assessed in a vulnerability assessment as likely to be in unfavourable condition.

- If classified as highly sensitive (with moderate or high confidence) go to step 3.
- If not classified as highly sensitive (with moderate or high confidence) - confidence score is low.

Step 3: Is there compatibility of scale between the feature extent and the activity footprint?

The next step involved determining which activities result in pressures to which the features that require further assessment are sensitive. This resulted in the production of an activity vs pressure matrix for each of the applicable ENG features based on the overarching pressures vs activity matrix developed by JNCC (JNCC, 2010). For this project the activities were further refined to be relevant to the scale of the feature and features that were not sensitive were excluded (as these would automatically be assessed as low confidence, according to the

protocol). See Annex J1 for the modified, activity x feature matrices. The activity list which result in pressures to which at least one of the ENG features is sensitive, is presented below. Those activities for which spatial datalayers exist are denoted with a "*":

- Extraction (non-living resources)
    - quarrying*
    - navigational dredging*
    - sand and gravel*
    - water*
- Extraction(living resources)
    - harvesting seaweed
    - bioprospecting
    - extraction-maerl (no spatial data, but not considered where no maerl species were present in ENG list)
    - fishing -benthic trawling*
    - fishing-hydraulic dredging*
    - fishing-pelagic trawling*
    - fishing-potting/creeling*
    - fishing-recreational (no spatial data, not considered relevant for offshore sites)
    - fishing-set netting*
    - fishing-shellfish harvesting*
    - Aquaculture shellfish*
- Habitat modification
    - Beach replenishment (not considered relevant for hard substrate and offshore sites)
- Recreation
    - tourism and recreation-no spatial data
- Waste-disposal-liquid
    - Industrial and agricultural liquid discharges* (only mud habitats impacted and not considered relevant to offshore sites)
    - sewerage disposal
- Waste disposal (solid)
    - navigational dredging*
    - waste disposal-quarrying.

The spatial activity datalayers were intersected with the rMCZ boundaries to determine which activities occurred within each rMCZ site along with the spatial coverage of the activity relative to the Tranche 1 rMCZ as a whole. This was used to determine overlap of activity with the rMCZs which contained the sensitive features. The overlapping activities and potentially sensitive ENG features were reviewed to determine whether the benchmark for sensitivity had been reached. Where this occurred the confidence score was increased to medium.

Boundary

The confidence assessment for site boundaries sought to explore the relationship between the proposed rMCZ site boundary and the distribution of features for which the site was being proposed for designation. It drew on information on the confidence in feature extent and the relationship between these features and the proposed site boundaries. The rationale for this was that where there was low confidence in feature extent, there was likely to be low

confidence in the position of the feature boundary relative to the site boundary. In normal circumstances, there might also be a general expectation that site boundaries would be broadly aligned to feature boundaries (see Box 1 below), although it was recognised that there may sometimes be reasons why site boundaries are configured differently, for example, for ease of management, or where a feature has a particularly extensive distribution and it is not necessary to incorporate all of the feature within the site.

Where features were closely aligned to site boundaries, it was likely to be easier to justify the site boundaries to stakeholders. Where site boundaries were not closely aligned to feature boundaries there may be greater scope for choice in the positioning of the boundaries and therefore a lower confidence that the boundaries were set in an optimal way.

Box 1. Extract from Ecological Network Guidance section 6.3 (NE and JNCC, 2010)

MCZ boundaries should follow feature extent (where appropriate)* whilst:

- Using a minimum number of straight lines
- Ensuring as compact a shape as possible;
- Incorporating a margin (where appropriate) to ensure protection of features.

Where a feature is present in a number of separate but nearby locations, effort should be made to include all discrete occurrences within site boundaries.

For spatially dynamic habitats, boundaries should, where possible, encompass predicted changes in feature distribution to ensure their ongoing protection within MCZ.

MCZ for species should be drawn around areas of regular/predictable species concentration, using the best available data. Where there is a clear functional link between the specific habitats and species' distribution, habitats can be used as a basis for site delineation.

* For broad-scale habitat types, this approach may not be appropriate, particularly where only a discrete section of an extensive broad-scale habitat is being incorporated within an MCZ.

The following information was used to inform the confidence assessment for site boundaries:

a) Information on the confidence for feature extent for all features proposed for designation within each site;
b) Proposed site boundaries for each Tranche 1 rMCZ; and
c) Polygon and point data that was used to inform the assessment of confidence in feature extent for each feature proposed for designation within each Tranche 1 rMCZ.

Digital maps were created based on the information from b) and c) to provide a visual illustration of the distribution of features relative to the site boundary.

The confidence in relation to site boundaries was assessed using the following criteria:

- High Confidence:
    - High confidence in feature extent for ≥80% of habitat features proposed for designation in rMCZ/rRA MCZ; AND

    - Site boundaries closely follow feature boundaries.
- Moderate Confidence:
    - High confidence in feature extent <80% of habitat features proposed for designation in rMCZ/rRA MCZ; AND
    - Moderate or high confidence in feature extent for ≥50% of habitat features in rMCZ and rRA MCZ; AND
    - Site boundaries closely follow feature boundaries (i.e the feature boundary is well within or extends outside the proposed boundary)..
- Low Confidence:
    - Low confidence in feature extent for >50% of habitat features proposed for designation in rMCZ and rRA MCZ; AND/OR
    - Site boundaries do not obviously follow feature boundaries.
- No Confidence:
    - No confidence in feature presence.

Limitations of the Methodology

The methodology draws extensively on the assessment of confidence in feature extent. Therefore, the limitations of the confidence assessment for extent apply. In particular, the methodology may be conservative in its assessment of confidence in feature extent where the feature can be defined solely by physical parameters. For example, intertidal habitats are uniquely defined by tidal elevation and thus the upshore and downshore boundaries can be described relatively precisely in the absence of any biological validation data.

While the choice of site boundaries primarily reflects the distribution of features, it is recognised that boundaries may be drawn to take account of a range of other factors. Where sites are assigned low confidence because there is no obvious relationship between feature boundaries and the site boundary, this does not necessarily mean that boundaries are not appropriate; rather that there may be greater scope for choice in positioning the boundaries, on which stakeholders may have a view (i.e. the choice of boundaries becomes less of a scientific process and more a socio-political process).

Site Documentation

The information from the XX_Evidence_Review.xls spreadsheets was transferred to the SER document for each Tranche 1 site.