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## Cover Note

Net Gain welcomes the following positive feedback from the Science Advisory Panel, and will be publishing our formal response in due course.

This document provides the response by the MPAs Science Advisory Panel to our Regional Stakeholder Groups 2nd iteration of Marine Conservation Zones. The content of this document represents the views of the Science Advisory Panel, and is not intended to represent the views and opinions of the Net Gain team. The Science Advisory Panel provide advice on how to meet the requirements of the Ecological Network Guidance, however it remains the responsibility of the Regional Stakeholder Group to determine how to interpret the advice.

Joanna Redhead December 2010.

## Response by the MPA Science Advisory Panel to the 2nd iteration proposals made by Net Gain

### Assessment of performance against principles

#### Summary

**Representativity:** The dMCZ appear to cover the main habitats and species listed for the North Sea areas.

**Replication:** This is high for some features but does not occur for others, primarily due to a lack of suitable areas in a sea area which has large homogeneous areas.

**Adequacy:** The analysis indicates that for many of the habitats the adequacy targets indicated in the ENG are met although there are concerns regarding assessments being based on single records of habitats and species.

**Viability:** The analysis indicates that many dMCZ are viable for the habitats for which they would be designated.

**Connectivity:** This cannot yet be assessed as the team have given connectivity between any habitats rather than between habitats of the same type.

**Levels of protection:** Many of the areas designated as dMCZ have overlapping human activities and the stakeholders are willing to discuss the compatibility of these. Further progress awaits the preparation of conservation objectives.

**Best Available Evidence:** The team have used extensive datasets although there are still questions regarding the data adequacy/provenance; the team are still chasing other data (e.g. REC datasets).

**Areas of Additional Ecological Importance:** These have been identified for each dMCZ and so give a good basis for the 3<sup>rd</sup> iteration proposals.

#### 1. Detailed comments specific to Net Gain

- 1.1. The SAP was critical of the 1<sup>st</sup> iteration as it appeared that Net Gain had not progressed as far as the other projects, in part because the Regional Stakeholder Group (RSG) was more concerned with socio-economic aspects than the ENG criteria. The Regional Project and their stakeholders denied this and explained that the apparent lack of progress was because they were not able, in the time available, to reach a consensus on Broad Areas of Interest to allow their formal submission. The credibility of data and procedural difficulties contributed to the delay. It is clear that these difficulties have been largely overcome and significant progress has now been made. Detailed responses to the concerns and advice of the SAP are contained in Annex 1 of the Net Gain report.
- 1.2. The 2<sup>nd</sup> iteration proposals are well-presented as a single document which details 22 draft MCZ (dMCZ) that have support from the RSG. The dMCZ have been proposed together with several BAIs. The analysis that underpins these proposals is well founded and Net Gain seems to be in a good position to refine the selection in accordance with comments from the SAP, RSG and named stakeholders.

- 1.3. SAP concerns regarding key data and tool availability were addressed in the 2<sup>nd</sup> iteration discussions. The new analysis is based on a MARXAN run, which excluded socio-economic information, but used available ecological data to identify those areas that are most likely to enable ENG criteria to be met. The expected contribution of existing MPAs to meet adequacy targets for habitat and FOCI contained in them was determined from the Gap Analysis provided by the SNCBs. It is unfortunate that two versions of part of this Gap Analysis and a version of another part were released over a period of 13 days whilst the Regional Hub meetings were attempting to use them. As noted in paragraph 2.1, this is regrettable and apparently continues to be a source of stakeholder confusion.
- 1.4. The stakeholder (Regional Hub) workshops seem to have been well planned and executed with the members being given good materials for support – and the time to use them. Net Gain is to be congratulated (and thanked) for their development of the database tools, PRISM and PISA, that enable effective interrogation of the Features/Pressures and Pressures/Activity matrices to help stakeholders understand the impact to be expected of various activities on conservation features. These have been made available to the other Regional Projects and are well liked and used by some of them. The so-called Consensus Forms are well designed too and the speed with which data entered on to these during days of the workshops allowed real-time discussions and agreement. The development of COG (Conservation Objective Generation) is also likely to be of significant benefit to all the Regional Projects.
- 1.5. The Consensus Forms, when completed, appear to be a very valuable asset. They enabled sites to be ranked according to their contribution(s) and provide valuable ancillary information about the important concerns of stakeholders in a transparent manner. The ranking informed the selection of sites to be included in the Regional Hub's consensus network of dMCZs, together with some BAIs to be carried forward for the time being. A number of dMCZs were proposed by more than one Hub, which is an encouraging outcome, suggesting that the procedure is robust. However, the proposed sites reinforce the need for a joint analysis with adjoining areas and Regions (Balanced Seas and the Scottish authorities).
- 1.6. The results of the work carried out by these workshops are well presented in the form of maps and tabulations of the contributions made by the selected dMCZs at the level of the Region; essentially by adding the Hub dMCZs together.
- 1.7. The contributions of this dMCZ network to the individual criteria and targets of the ENG are discussed below but the SAP has a qualitative concern arising from the apparent willingness of stakeholders to delimit smaller areas inshore than offshore. Is this a manifestation of the greater number of conflicting activities inshore than offshore? Are there better (more reliable, higher density) survey data inshore? Does it matter, provided all the criteria of the ENG are met? This concern is discussed further in paragraph 1.16.
- 1.8. The Net Gain team will have to ensure that the plans do not conflict, even at this early stage, with the newly defined MMO spatial planning area from Flamborough to Suffolk.

1.9. Overall it is concluded that the procedures undertaken by the team, the means of presenting information to the stakeholders and of collating and prioritising information and sites, has produced a robust and defensible method so long as the team are confident all the relevant stakeholders have been included in the process. The team appears to have a viable and realistic timescale for reaching and discussing the 3<sup>rd</sup> iteration.

### **Representativity**

1.10. With the exception of A.6 Deep-sea bed and A3.3 low energy infralittoral rock, all the BSH that occur in the Region are represented. It is suggested that these two habitats be ignored for the purposes of the ENG because of their very small footprints in the region (<5 km<sup>2</sup> and 0.02 Km<sup>2</sup> respectively). It is noted that the BSH in the SW corner of NG 2.20 has been designated as A5.3 subtidal mud on the evidence of local knowledge and the geological map. This is acceptable to the SAP.

1.11. It is not entirely clear whether all the habit and species FOCI that exist in the Region have been represented in the dMCZ network and/or are protected in the existing MPAs, because the Tables provided only record the occurrence of those FOCI in the dMCZ network. There may be other types of FOCI that are outside that network of course. This needs to be resolved in the 3<sup>rd</sup> iteration.

### **Adequacy**

1.12. With the exclusion of A.6 and A3.3, 21 BSH occur in the Region. 16 have minimum and maximum targets for proportions of the BSH that should lie within the MCZs and existing MPAs in the Region. As noted in paragraph 1.3 a stable Gap Analysis was not available to Net Gain at the time of preparation of the 2<sup>nd</sup> iteration. In their presentation to the SAP on 5<sup>th</sup> November it was indicated that the MPA in the Net Gain Region adequately protected all of A2.1-4 and A4.1, well beyond the maximum proportion required. MPA have a material effect in enabling adequate protection of A1.1 to the minimum proportion required. The MPA make useful contributions to the achievement of the adequacy target of other BSH but the dMCZ network achieves them without the help of the MPA. In total, 14 of the adequacy targets are met at the minimum level at least.

1.13. The combination of the dMCZ and MPA networks does not provide adequate protection for A1.2 and A1.3. Removal of this shortfall will need to be achieved in the 3<sup>rd</sup> iteration.

1.14. The definition of adequacy for 5 of the BSH present is not based on a defined maximum and minimum proportion to be protected. For these the ENG requires the replication, viability and connectivity guidelines to be applied. For the 3<sup>rd</sup> iteration, Net Gain needs to demonstrate that this has been accomplished.

1.15. The adequacy of the dMCZ and MPAs in protecting FOCI has not been assessed in the Net Gain proposal. Again this should be carried out by application of the replication, viability and connectivity guidelines. The outcome should be included in the 3<sup>rd</sup> assessment.

1.16. The SAP has noted that, according to table 1, the combination of the dMCZ and MPA networks protects approximately twice the maximum target for A5.1 subtidal coarse sediment and A5.2 subtidal sand. Of course this may be a consequence of the need to afford protection to distributed FOCl in those widespread BSH and important geophysical features, but it does call into question the need for/desirability of the very large MCZ N2.22, which encloses a large amount of subtidal sand. Given the apparent exceedance of the maximum targets, the SAP recommends that Net Gain should not consider reducing the size of any dMCZs that deliver significant ecological benefits while retaining a large dMCZ, such as N2.22, which may not bring such benefits. Further relevant remarks are provided in paragraph 2.7.

## Replication

1.17. Tables 2 and 3 show how the species and habitat FOCl occurring within the dMCZ (not MPAs) meet the targets although there is caution that some of these FOCl are based on single records. The SAP comments on this issue in paragraph 2.2.

1.18. Table 1 suggests that the replication target for BSH (2 separate examples) is likely to be met for all of the habitats for which this is possible, although it will be helpful if Net Gain will verify that this is actually so. There is a need to determine which of the proposed sites should be regarded as so close (contiguous) as to be, in fact, single sites. Net Gain is reminded that biogeographic variation should be taken into account when meeting replication targets, which should be met for all features whose distribution allows this. Paragraph 2.7 is relevant.

1.19. Table 2 suggests replication within the dMCZ for habitat FOCl is mostly between 2-4 replicates although horse mussel (*Modiolus*) and deep mud habitats are not replicated and *Sabellaria* reefs and subtidal sands and muds have high replications. Some caution is necessary here in defining what constitutes a *Sabellaria spinulosa* reef in the North Sea. There is relevant advice in the notes of the Data Workshop held on 4 November and the definition of a *S. spinulosa* reef is available from Natural England.

1.20. The point records for species FOCl within dMCZ network (Table 3) indicates mostly either no records or only one occurrence (technically no replication) although *Artica* (should be *Cyprina*?) is, as expected, shown to be widespread (thus casting doubt on the validity of the designation). Similarly, the record/discussion regarding *Hippocampus* should be regarded with caution as this species is unlikely to have a self-sustaining population in the North Sea - paragraph 2.2 refers.

## Viability

1.21. Site viability, according to the criteria in the ENG, is recorded in the individual dMCZ site descriptions and for each habitat FOCl within the sites. This is a helpful way of presenting the information; although it would be even more helpful to the SAP if something more than a yes/no was recorded. No attempt has been made to assess the viability of species FOCl or explanation offered of this deficiency.

## **Connectivity**

- 1.22. Table 4 (as a distance matrix) gives the inter-site distances (with 80km highlighted) but these are linking different types of site. This is not how connectivity is defined. It would be helpful to have such a table of distances between boundaries of MPAs of similar habitats, as defined in section 4.6 of the ENG. This criterion is judged as of secondary importance in the ENG, but nevertheless is a component of attributes such as adequacy which are of first importance so need to be determined with some care. Net Gain are reminded that the rule of thumb spans 40-80km so it might be more helpful to highlight the lower limit rather than (or as well as) the upper.
- 1.23. The connectivity between populations will be a more important feature than between habitats, where this can be inferred, in the large expanses of North Sea sediments.

## **Best available evidence**

- 1.24. The report suggests that the team have now gathered sufficient evidence against which to judge the draft network. The quality of evidence was a major issue during the 1<sup>st</sup> iteration; apparently less so now. It is not clear how much of this is down to improved data (quality and quantity) and how much is an acceptance of the concept of using 'best available evidence'. Hopefully it is a combination of both. It is clear that stakeholders are trying to bring local knowledge and data into the analysis and base their discussions and decisions on data that are robust and reliable. Net Gain is urged to accept SAP advice on the use of single records (paragraph 2.2) and the value of expert workshops (paragraph 2.5) as a means of furthering that aim.

## **Areas of ecological importance**

- 1.25. Net Gain appears to have used available data subjectively in the Regional Hub workshops and they were inputs to the Marxan analysis, which was itself an input to the ranking exercise; a good practice. The dMCZ site summaries contain check lists and contain free form text to indicate whether or not additional features are known to occur there. It is difficult to detect whether these data are having a discernable effect on the size and location of the individual dMCZs and the makeup of the overall network. Some explanation of this will be helpful to the RSG and SAP, not least to confirm that the guidance in the ENG is being followed. This requires MCZs selected for conservation of BSH and FOCl to be prioritised to include AAEl. It is insufficient to record when they do so serendipitously; the existence of significant AAEl not contained in any MCZ is relevant too.
- 1.26. The importance of the Flamborough-Helgoland front has yet to be emphasised in the proposed designations

## **Geological and geomorphological features of interest**

1.27. The Regional Hubs used data on the occurrence of these features to identify and rank the BAIs that became dMCZs in the selection process. Features are noted in the site summaries but in due course Net Gain needs to demonstrate that all the features in their Region, which are not protected by SSSIs, are contained within and reflected in the conservation objectives of the relevant MCZ.

## **Protection**

1.28. It is not possible to assess the adequacy of protection levels for the dMCZs until conservation objectives are specified. These cannot be prepared until there is a shared understanding of the features contained within each site and their current condition. The style of the narratives and content of the dMCZ site descriptions prepared by Net Gain are commended as precursors to site dossiers that will enable that understanding to be developed and recorded. The SAP provides some further advice on the preparation of such dossiers in paragraph 2.3.

1.29. The Net Gain site descriptions provide valuable insights into the rationale for each dMCZ and record the assumptions being made by stakeholders about co-location and management measures likely to be required to protect the features on the site. The tools PRISM and PISA referred to in paragraph 1.4 have clearly assisted the associated discussions. The SAP urges the stakeholders to sharpen those discussions by constructing conservation objectives, which logically must precede assessment of likely impacts on activities and hence the attitude of stakeholders to them. The COGs tool now under development by Net Gain should facilitate the preparation of conservation objectives and allow the assumptions being made by stakeholders to be confirmed or modified.

1.30. There is a need to identify reference sites. Some advice on this is contained in paragraph 2.14. Net Gain does not engage in this process in their 2<sup>nd</sup> iteration but the site descriptions for some dMCZs contain suggestions for possible reference areas.

1.31. Table 5 indicates actual and some potential activities that stakeholders know to occur in each dMCZ. This provides a starting point for a number of discussions, including that on socio-economics and the extent to which activities are likely to be compatible with the features for which conservation objectives are proposed. It seems certain that such discussions will demand much more information about the temporal and spatial intensity of activities and the fraction of the dMCZ occupied by the features in question.

## **General Summary**

The SAP acknowledges and greatly welcomes the progress made in the 2<sup>nd</sup> iteration, in particular in the form of the more detailed assessment of the characteristics of the BAIs and the features within them. Discussions with stakeholders have progressed sufficiently to allow the identification of dMCZs, which is a remarkable achievement given the absence of any consensus over possible sites in the 1<sup>st</sup> iteration. FOCl and areas of additional ecological interest have been used to rank possible sites although this has not been helped by the

uncertainty over the protection afforded by existing MPAs. It is hoped that the recently-released biodiversity data layers will help further progress to be made. A number of key ENG criteria have been met or nearly so - although some further work is needed here. The project team and stakeholders have done a good job in drafting site descriptions for their dMCZs, which will be an important resource for the final stages of their work. There is an urgent need to select Reference Areas to meet the criteria in the ENG. Conservation objectives should be directing these choices but they remain to be proposed/devised and agreed.

This represents a significant workload to be completed before the submission of the 3<sup>rd</sup> iteration in early 2011, but the SAP has some confidence, based on the recent progress made, that this will be completed satisfactorily. Net Gain is to be commended for their development and use of simple but effective computer data-base tools. It seems likely that these have played a significant role in securing the advances that they have made.

## 2. General comments relevant to all the Regional Projects

- 2.1. The SAP is very disappointed that data sets which define the protection provided by the existing and proposed MPA network of SACs, SPAs, SSSIs, and Ramsar sites – the so called Gap Analysis - are still under development. The ENG makes it quite clear (p24) that the first step in the process to be pursued by the Regional Projects should be to assess the protection provided by existing MPAs and the absence of a stable statement on this matter, being provided by the SNCBs, is a serious, constraining deficiency that is regretted by the SAP. Concern does not arise simply because absence prevents assessment against criteria, but the SAP believes that delay and fluctuation in the provision of advice casts doubt on the reliability of assumed protection being provided by the existing MPAs. If there are shortcomings in that protection, they need to be exposed so that corrective action can be taken in designing the MCZ contribution to the overall MPA network.
- 2.2. The SAP notes that single occurrences of many of the FOCI species are found in a serendipitous way (for instance seahorses, sea fan anemone, stalked jellyfish, gooseneck barnacle, crawfish, fan -mussel). They are probably more widely distributed than indicated and also may be 'gone' next time a particular location is sampled. Similarly, if another location is surveyed, they may well turn-up there. In the process of assessing options for MCZs, it is likely to be helpful if Marxan runs are performed to identify areas of general ecological importance with a down-weighting of single records. Such outputs should be compared with the full Marxan outputs to allow comparison by stakeholders. However, it is emphasised that single records of species should only be used **to justify creation of a MCZ** if they are a persistent feature at that location. Records should only be accepted for consideration as part of the case for a MCZ if the populations are established, can be reliably found at the location on separate visits and numbers are significant (the species would be described as occasional or higher abundance) at a location. Historical records that suggest the location was previously occupied by a resident or regularly occurring population of that FOCI species can also be used, bearing in mind that MCZs are expected to aid recovery.

- 2.3. The report from Balanced Seas and Net Gain included information on d/pMCZs which was laid-out almost in a dossier style. Other Regional Projects have also included descriptive information on d/pMCZs. A house-style for these documents needs to be agreed to ensure a consistent approach and that all of the relevant information/evidence is included **for each MCZ and the MPAs that are being relied upon to deliver against the ENG targets**. Dossiers are not full management plans but include a clear boundary map on a chart backdrop and a catalogue that explains what are the features that make the area important including the broad scale habitats, the FOCI, 'Additional ecological importance' and 'Other' features, the geophysical and geomorphological interest, and the conservation objectives. The SAP is willing to suggest what categories of information are desirable in a dossier, if that would be helpful.
- 2.4. Science/conservation stakeholders in Balanced Seas had identified additional (to FOCI) species as of particular interest in the certain areas. This 'interest' may be because the species is in fact scarce or threatened (but did not have the necessary quantitative data to pass BAP tests) or may be because, although it is widespread, it is rarely seen in the relevant biogeographic area. Whilst such information may be considered 'supplementary' (it would be a major effort to map, identify hotspots etc.), those 'designated taxa' that didn't make it to BAP or OSPAR may 'make the case' for the importance of a site. Identification of such species was encouraged by the SAP in its comments on the 1<sup>st</sup> iteration, specifically mentioning "Important Plant Areas for marine algae, species that are rare or threatened and locations of scientific interest and to list the evidence relating to that site."). The SAP continues to encourage this approach and suggests that these species be included in the dossier of information on a MCZ. The check list is the spreadsheet of 'Designated taxa'.
- 2.5. Bearing in mind the points made about assembling all of the biological information that is relevant to a proposed MCZ, the SAP encourages specific workshops of experienced and knowledgeable marine biologists to populate the suggested dossiers.
- 2.6. The SAP is seeing maps of whole RP areas with the BBs or BAIs shown. Zooming-in leads to a very coarse base layer making discrimination of boundaries and enclosed feature very difficult. The next iteration should show each MCZ as a detailed map with layers that inform bathymetry, location and occurrence/extent of FOCI features as part of the dossiers.
- 2.7. There may be some misunderstanding of reference to "biogeographic areas" or to an imperative to recognize biogeographic variation. The SAP has a responsibility to advise on how MCZ proposals can best incorporate biogeographic variation and may have to propose adjustments to MCZ locations to achieve that goal. There are significant local differences in the biotopes that constitute each EUNIS Level 3 biotope and, indeed, the component species of a fine-scale biotope even at, say, level 5. Thus, for instance, circalittoral rock in North Devon will have a different species composition to the same biotope off south Devon. Therefore large single pMCZ which can account for a very high proportion of any one BSH should be discouraged as in all likelihood they will contain very similar biotopes when what is needed is greater representation of the range of biotopes within any one L3 habitat. It is acknowledged that L3 does not give sufficient species detail to infer biogeographic variation;

this requires further marine biological information. The need to capture and use such information provides part of the rationale for the advice in paragraph 2.5. Where available such information should be retained in the dossiers. So, when biogeographic variation is mentioned, there should be a description of what is being represented in as much detail as possible.

- 2.8. Consideration of inshore and offshore or sub-regions apparently continues to result in boundaries of d/pMCZs or BBs that follow those artificial boundaries. The boundaries between Regional Projects are another source of artificiality. Within the limitations imposed by national boundaries, the RPs should (continue to) ensure that the area occupied by an interest feature is represented regardless of project or sub-group boundaries.
- 2.9. Wrecks are being cited as features deserving of protection by Balanced Seas both because of the increased biodiversity they create (in otherwise sedimentary areas) and because of their archaeological/historical importance. Naturalness is greatly valued in nature conservation and it is not clear that protection should be afforded to wrecks, or any other sea bed installation on these grounds. The SAP discussed this point and concluded that wrecks are not themselves a natural feature and the relevant authorities (English Heritage) have their own process for designating important wreck sites. Also, (although not necessarily what was intended) designating wrecks is not a part of the agreed MCZ process. The SAP believes that occurrence may be considered as part of the case for a MCZ, if FOCI species or important 'other features' occur on artificial substrata, but not otherwise. This advice is pertinent when assessing the merits or otherwise of offshore wind-farms and other artificial structures.
- 2.10. The data workshop held in Peterborough on 4 November further emphasised the problems that exist in having confidence in mapped seabed types. It now seems that UKSeaMap has very poor confidence in many areas. This revelation makes our advice to use UKSeaMap where no other data exists difficult to apply. Whilst the MESH map also has significant and conspicuous problems with accuracy, RPs should refer to MESH maps and consider using that information unless confidence is known to be very low or if better data/information on seabed types at a location is available to the RPs. Whilst the RPs should be clearer about the utility of seabed maps following the data meeting on 4 November, they may need to seek advice from JNCC on interpretation where stakeholders do not have relevant knowledge.
- 2.11. The SAP appreciates that the definition of some FOCI Habitats is unclear and RPs have had some difficulty identifying the parameters to map. The SAP is willing to help further if asked by the SNCB's BAP Steering Group and has forwarded suggestions to them with a request that the definitions be clarified as soon as possible.
- 2.12. Unless more precise data on the location of spawning areas on the open coast can be obtained soon, the RPs will be unable to incorporate that feature into their plans.
- 2.13. The SAP discussed issues that had been raised by the RPs regarding component habitats within **estuaries** and specifically:
  - (a) Whether MCZs should be added to existing designations;

- (b) whether whole or only (high biodiversity interest) parts of estuaries should be identified as MCZs, and
- (c) whether dredged and developed areas of estuaries should be included in pMCZs.

Our advice is that:

- (a) Each estuary needs to be considered on a case-by-case specific basis, beginning with the conservation objectives, then identifying activities that need to be controlled to achieve them, and then whether existing measures are adequate. The conservation objectives may be to achieve reference conditions, maintain existing high biodiversity habitats or to ensure recovery of previously damaged habitats. The activities to be controlled may be outside the estuary, in the freshwater or fully marine areas.
- (b) An MCZ is needed when protection is required beyond that afforded by existing measures. Because of the nature of an estuary and the way the habitats are interlinked then, unless there are good reasons otherwise, the whole estuary should be the appropriate size for an MCZ. (A non MCZ designated estuary can still be part of the ecological network if that is appropriate.)
- (c) The boundaries of the MCZ should include the area that encompasses the FOCI and other identified features (such as spawning and nursery areas) deserving of protection, including intertidal areas. The FOCI will contain diadromous species and juvenile fish migrating into nursery areas hence the boundaries are upstream or at sea: because of this, connectivity becomes a dominant feature (perhaps more than in the open sea).
- (d) Although it would be preferable to designate the whole ecological unit (usually the whole estuary unless there are physical barriers that limit exchanges) and control potentially damaging and disruptive activities, if necessary and if possible, an estuarine MCZ can be divided (areas excluded), BUT it is important to recognise the nature of estuaries as a functioning unit and therefore the possible consequences of activities in a non-designated portion on the rest of the estuarine MCZ.
- (e) In considering the activities that need to be controlled, bear in mind the prevailing natural conditions and the intensity and scope of potentially damaging activities. For example, a turbid estuary carrying a large amount of sediment may require frequent dredging to maintain the navigation channel for a port, but the natural ecology will have developed to thrive in that turbidity and additional sediment re-suspended by the dredging may have little damaging (or even detectable) effect. Alternatively capital dredging, that disturbs pristine [previously undisturbed] areas of the estuary which contain the FOCI or nursery/spawning locations would have to be controlled. Fishing may need to have periodic controls, and methods that damage the FOCI would be precluded. All such considerations follow from the conservation objectives, which is why their articulation provides the starting point.

2.14. The ENG makes it clear that each broad-scale habitat type and habitat and species FOCI, where they occur, should have at least one viable **reference area** within each of the four regional project areas. Viability is determined by the size and shape of the reference area and guidelines are provided for these characteristics (ENG sections 4.5.3 and 7.10). Reference areas may be part of or an entire MCZ. The guidance on Reference Areas released recently by JNCC and NE provides further definitions of the terms used, and guidance on what activities

will be restricted, or require mitigation, within reference areas. This is very similar to the advice on the subject provided by the SAP in response to the 1<sup>st</sup> iteration but expands upon it. The SAP will respond to specific requests for further guidance on the scientific rationale and its implications for the design of reference areas, where it is able to do so.

2.15. Guidance on planning for MCZs where socio-economic activities occur or are planned has been provided by the SNCBs<sup>1</sup>. From a scientific viewpoint, co-location with energy developments (renewables / oil and gas) can only be considered on a site by site basis and the conservation objectives and the particular activities are the material issue. Different structures (wave, tidal, offshore wind and oil & gas platforms) will have very different effects on the water column structure and benthos (i.e. the level of mixing, types of turbulence, scouring), introduction of hard substratum including anti-scour measures, the location of amphidromic points, the amount of noise, the type of potential pollutants accidentally and intentionally released (i.e. anti-fouling) and the need for fishing / shipping activity restrictions. Thus, as an example, if the conservation objective is to simply provide adequate representation of a specific L3 habitat (e.g. A5.1-4) in a favourable condition and the construction of a windfarm does not significantly affect the integrity of those habitat features, co-location may be possible. However if the conservation of the site was based on A5.6 and FOCI, it would be not be sensible to assume co-location could occur.

2.16. Having taken account of the ecological, geological and geomorphological considerations listed in the ENG and as they begin to firm up their MCZ network proposals, Regional Projects are reminded that they should bear in mind the practical considerations defined in sections 6.2 and 6.3 of the ENG. These latter require assessment of the scientific value of prospective MCZs and should take account of the Guidelines 25-28 on boundary definition. Attention is drawn in particular to the possible use of habitats to delineate sites where there is a clear functional link between habitat and species' distribution. Section 5.3 of the ENG provides useful guidance on prioritisation between degraded and less impacted sites.

30<sup>th</sup> November 2010

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<sup>1</sup> [http://www.naturalengland.org.uk/Images/MCZdata\\_tcm6-22504.pdf](http://www.naturalengland.org.uk/Images/MCZdata_tcm6-22504.pdf)