

SUMMARY OF THE MARINE CONSERVATION ZONE IMPACT ASSESSMENT REVIEW

Dr. Jonathan Atkins, Daryl Burdon & Prof. Mike Elliott

1. INTRODUCTION

Policy Context

The establishment of a network of Marine Protected Areas (MPAs) is required to meet obligations under international agreements including the OSPAR Convention, the World Summit for Sustainable Development, and the Convention on Biological Diversity. This is in addition to assisting with the requirement of achieving Good Environmental Status under the EU Marine Strategy Framework Directive and Favourable Conservation Status for Annex I habitats and Annex II species under the EU Habitats Directive and for Annex I species under the EU Birds Directive. The UK marine environment is currently protected by a number of European Marine Sites which includes Special Areas of Conservation for Habitats and Species and Special Protection Areas for Wild Birds, both contributing towards the European Natura 2000 network. However, these sites alone will not ensure that the UK meets the conservation objectives set out in March 2011 by the UK Marine Policy Statement.

A new type of MPA was established in the UK under the Marine and Coastal Access Act 2009, and is referred to as a Marine Conservation Zone (MCZ). It is intended MCZs will protect nationally important marine wildlife, habitats, geology and geomorphology and can be designated anywhere in English and Welsh inshore and UK offshore waters. The process of MCZ site selection was undertaken for English territorial waters and UK offshore waters adjacent to England, Wales and Northern Ireland through four regional projects (Net Gain, Finding Sanctuary, Balanced Seas and Irish Sea MCZ project). The regional MCZ projects were stakeholder driven with sea users and interest groups identifying the recommended MCZs.

The MCZ Impact Assessment

As part of the MCZ site selection process, an economic Impact Assessment (IA) has been attempted across all four regional MCZ project areas in order to assess the potential impacts of the suite of MCZs on the UK economy. The IA provides estimates of the environmental and socio-economic costs and benefits of the proposed MCZs. It was intended that through the IA process stakeholders, individuals and organisations, could better understand how the proposed MCZs (pMCZs) impact on them. The IA is comprised of three main components: a short **Summary** of the findings which follow a Government template; the **Evidence Base** (30 pages maximum) which provides more details on what is presented in the Summary; and a series of **Annexes** (A to Q) which provide details of the methodologies and analysis.

2. KEY ECONOMIC PRINCIPLES

Gross Value Added

The focus of the IA is on Gross Value Added (GVA) as this offers a measure of the value of goods and services produced in an area, industry or sector of an economy. GVA is thereby a measure of the contribution of an economic entity or region to the economy, in this case the marine environment within the jurisdiction of the UK Government. The techniques for its measurement can be complex and technical but are well known and understood. GVA is value loaded and does not directly make allowance for the distribution of the impact.

Discounting

To compare benefits and costs occurring at different time scales *discounting* is needed to express future costs or benefits at today's equivalent (present) value. However, the choice of an appropriate discount rate to reflect inter-temporal preferences for environmental change is controversial. The higher the discount rate the greater the weight attached to costs/benefits falling in earlier periods; in an IA greater weight tends to be given to costs which are typically incurred throughout the planning horizon rather than ecosystem service benefits that may accrue only later. The IA adopts a 20-year planning horizon and a 3.5% discount rate. While the planning period may be justified given the choice of discount rate - the discounted value of costs and benefits incurred beyond the planning horizon may be relatively low at such a rate - such a planning period tends to emphasise costs over benefits; for example, from the point of view of fishing activity, the costs of relocation

are borne immediately whereas for establishing the benefits of marine environment recovery and conservation a 20-year period is relatively short.

Ecosystem Service Valuation

The UK Government embraces an ecosystem services approach to the management of the marine environment where ecosystem services are 'the wide range of valuable benefits that a healthy natural environment provides for people, either directly or indirectly' (Defra, 2007). Such an approach recognises that society attaches value to such services. Where the services are marketable, their market price may reflect their social value. However, for many services it is evident that either market prices do not reflect society's values or markets do not exist. Given such circumstances, a range of methods is available to assess the values that society places on these benefits including those based on revealed preferences (e.g. travel cost method, hedonic pricing) and those based on stated preferences (e.g. contingent valuation) (see for example Atkins *et al.*, 2011). Such methods are advocated by the Government in evaluations of this type (see HM Treasury, 2003) and there is a body of literature which does this for the marine environment. It is recognised that assessments of ecosystem services can be challenging particularly in terms of primary data requirements. Where primary data cannot be obtained, a qualitative assessment for each ecosystem service might be undertaken for individual pMCZs based on the existing literature and databases, including the use of transfer pricing, and on expert judgement, including that elicited at stakeholder meetings. Any such findings specific to an individual pMCZ can be used to inform the IA on ecosystem services associated with other pMCZs where evidence might otherwise be lacking.

3. MAIN ISSUES OF CONCERN

A number of general issues can be identified associated with the protocols and methodology adopted in undertaking the IA and in their application to the regional areas.

Sectoral Approach Adopted

A sectoral approach was adopted for the IA with protocols for each sector providing guidance for evaluation (IA Annex H1-15). The documentary evidence suggests that their application is not always consistent across the regions. For example, within the commercial fishing sector, the application of the MCZ Fisheries Model, which generates the value of landings by the UK fleet, differed between the four regional projects, thus making comparisons and collation across the sea area problematic (Annex H5). Linkages between sectors are not allowed for within these protocols however it is these complex linkages that characterise the natural environment and thus call for a holistic and more integrated ecosystem-based approach. The sectoral approach adopted is partial, seeing each activity in a discrete way and each pMCZ as independent of the others, and there are no accumulative effects identified in the IA evidence. In addition, the sectoral approach adopted to assess GVA ignores the benefits and reduced costs associated with co-location of activities. For example, the construction and operation of an offshore wind farm and the designation of a MCZ are both likely to impact on other sea users and therefore there may be reason to co-locate such activities to reduce costs to other stakeholders. There are also potential benefits of co-location which could be achieved, for example an offshore wind farm will prohibit the use of certain fishing gears around the monopiles and therefore may indirectly act as a no take zone for some marine species, thus providing potential additional marine biodiversity conservation benefits.

Management Scenarios

The IA protocol states that more than one management scenario should be used to reflect the uncertainty about the management needed for a given sector. Different approaches to the scenarios were employed for the different sectors. The protocol for recreation (Annex H11) suggests that for some activities it is not possible to identify appropriate management scenarios, whereas for renewable energy (Annex H2) a 'most likely' and a 'precautionary' management option were provided. At the pMCZ level, management options were not considered on a site-by-site basis for aquaculture (Annex H12) when they have been for other sectors such as renewable energy (Annex H2). The assumptions and management scenarios employed by the different sectors are often crude, weakening the evidence base arising from the IA, including underlying assumptions that management will be fully enforced and effective.

Relocation of Activities

The IA states that ‘In most instances the potential for substitution has not been quantified and factored in to the estimated impacts of GVA.’ The impact of the pMCZs however is likely to cause stakeholders to seek to compensate for the effects through substitution and relocation of activities. The IA is only valid if the consequential effects of relocation and the impact at the new site are considered. This represents a weakness in the approach adopted as substitution possibilities may be common-place. For example, fishing effort is often transferrable from a preferred to a less preferred fishing ground; there may or may not be some cost implications (financial and/or psychic). There may be little, if any, direct impact on the contribution the fisher makes to the economy associated with this transfer of effort as commercial fishers may be subject to a binding quota and substitution/relocation may be a viable commercial response to offset the impact of the policy.

MCZ Coherent Network

Given that the aim of the MCZ process is to provide a coherent network of sites, by examining at the level of individual pMCZs the impacts associated with the coherence of the network are ignored for purposes of the IA. The IA should recognise the synergistic or antagonistic effects between the different pMCZs.

Valuation of Costs and Benefits

Partial costs have been provided for each sector, based on a range of assumptions stated in the sectoral protocols (Annex H). Verification of the costs does not appear to have taken place. Many of the costs are deemed to be confidential and/or not specific to a given site. The IA has failed to assess the costs of not establishing the MCZ network, acknowledging that the baseline condition will not remain constant with continued degradation of the marine environment leading to a loss in the ecosystem services provided.

In the implementation of the method, an initial reading of the site-specific benefits analysis (Annex I and the Draft Evidence Base) shows that there has been no attempt to value (either quantitatively or qualitatively) the benefits that would be received from designation of the site as a MCZ. Little reference is made to valuation evidence in the published and grey literature when it ought to have been possible to attempt a valuation of some services in specific pMCZs using such evidence. For example, evidence of the ecological effects of a No Take Zone (NTZ) is available from a study by Hoskin *et al.* (2009) who investigated the effects on 20 taxa in the Lundy NTZ between 2003 and 2007. Such ecological evidence could have informed the benefits assessment, particularly for proposed reference areas.

Some ecosystem services identified by others such as carbon storage (see Luisetti *et al.*, 2011) are not encompassed by the MCZ impact assessment. Recent literature provides examples of this ecosystem service being assessed in particular contexts - Cooper *et al.* (2011) estimated the value of carbon storage at aggregate extraction Area 222 in the North Sea in examining the case for seabed restoration following the cessation of marine aggregate dredging.

Leisure and recreation appears to be one ecosystem service to receive particular attention on the benefits side in the IA – albeit in a very limited way and without any resulting benefit valuations. The justification for privileging this sector over other ecosystem services in the assessment of beneficial impacts is not given. There is evidence within the literature on the benefits associated with recreational angling in the UK however none of this evidence was cited within the IA. For example, the Defra-funded Drew Report assessed recreational angling and presents findings at a number of scales (national to local). On the basis of such national evidence, it would have been possible to estimate or infer a consistent set of valuations at the individual pMCZ scale by employing appropriate assumptions (Drew Associates, 2004). As a further example, Lawrence (2005) valued recreational angling in SW England and the reported benefit values might be assumed to hold for specific pMCZs.

The contrast between the approach adopted in establishing the evidence base used on the cost side and that adopted on the ecosystem services benefits side is marked. For example, on the cost side a range of leisure and recreational impacts are enumerated and valued at the scale of the pMCZ. To do this required advice from the stakeholders and frequently required the imposition of assumptions, some of which are stated and may be considered highly questionable, while others go unstated. This begs the question why benefits side

evidence was not elicited from stakeholders, and why equivalent assumptions were not employed to estimate the value of ecosystem service benefits.

4. CONCLUSION

One of the principle requirements of the IA guidance is that estimates of costs and benefits should wherever possible be expressed in monetary terms and the data sources, methods and calculations used to produce estimates be transparent (Moran *et al.*, 2008). The contrast between the approaches adopted to provide estimates of the costs with those adopted to measure the ecosystem service benefits is strong. While the IA has provided a range of costs associated with the designation of MCZs there appears to be no attempt to value the benefits of the MCZs and thus there is currently insufficient evidence to complete the IA.

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