

Marine Ecosystem Objectives

Summary

- Marine Ecosystem Objectives focus on the study and management of the ecosystem rather than single species.
- The Scottish Marine Bill should establish a duty for Scottish Ministers to implement and monitor Marine Ecosystem Objectives.
- High level Marine Ecosystem Objectives should underpin the Scottish Government's policy on the marine environment.
- Further, SMART Marine Ecosystem Objectives should be used to monitor the health of Scotland's seas and ensure that high level objectives are delivered.
- Work to draw up a Scottish set of scientifically derived Marine Ecosystem Objectives should commence immediately.

Introduction: After decades of focussing on the study and management of single species, marine management is evolving towards ecosystem-based approaches. These regard the ecosystem as the most relevant unit, emphasising that resilient ecosystems are crucial in maintaining the sustainability of marine goods and services. Effective Marine Ecosystem Objectives (MEOs) are designed to ensure that management decisions do not adversely affect the ecosystem function and productivity, ensuring that marine activities (and the resulting economic benefits) are sustainable in the long term. Traditional systems of management have tended to focus on individual stocks or species and have not achieved these objectives. Consequently economic activities that ecosystems support have become compromised.

A Scottish Marine Bill should establish a duty for Scottish Ministers to set, implement and monitor Marine Ecosystem Objectives in line with recommendation 6.4.2. of the Advisory Group on Marine and Coastal Strategy (AGMACS): *that a Scottish set of Marine Ecosystem Objectives (MEOs) should be drawn together, with full stakeholder engagement, during 2007. These should have the ecosystem approach at their heart, and should be fully integrated with the broad policy approach of 'living within environmental limits'. They should be nested within a wider set of MEOs for UK waters and for the Regional Seas around Scotland.* Such MEOs would encompass a set of high level objectives, which would underpin marine policy, as well as a further, more detailed set of MEOs which would allow measurement of the health of Scotland's seas. The Bill should also establish a mechanism for reporting to Parliament on progress towards achieving these Marine Ecosystem Objectives. We therefore welcome Action 3.1 in the Marine Biodiversity Implementation Plan 2008-2010 'A set of Marine Ecosystem Objectives (MEOs) is proposed for Scotland, within wider objective setting for the sustainable use of Scottish seas' and look forward to contributing toward fulfilling this action.

The Review of Marine Nature Conservation (RMNC) formulated a suite of strategic goals for sustainable development in the marine environment, five of which were adopted by the UK government in its response to the Seas of Change consultation in March 2004. For each of these strategic goals the RMNC working group developed further strategic goals specific to marine nature conservation, under which conservation objectives were also developed. These are designed to allow the identification of what requires to be done to ensure ecosystem coherence and what actions are required to achieve this. A number of examples of operational conservation objectives are listed in Appendix 14b of the Review of Marine Nature Conservation (2004).

High Level Marine Ecosystem Objectives: There are several possible starting points for building a Scottish set of overarching MEOs:

- *Marine Strategy Directive:* The text of the EU Marine Strategy Directive has recently been adopted by the European Parliament and Annex 1 lists 11 qualitative descriptors for determining good environmental status. Member states are required to identify which of these are to be used to determine good environmental status for a marine region or sub-region and must provide the

commission with a justification for any which they deem to be not appropriate. LINK believes that the EU qualitative descriptors form a good starting point for building an overarching Scottish set of MEO's. However we believe that there should be an aspiration to promote recovery and enhance biological diversity rather than just maintain it. This is of particular importance in the light of a recent paper in *Science*, which highlighted the fact that Scottish waters are among the most impacted in the world (Halpern et al., 2008).

- *Review of Marine Nature Conservation*: As stated above, this review includes high level objectives as well as operational conservation objectives for each objective for a number of ecosystem components.
- *UK Government*: The UK Government will announce a number of *Marine Objectives* alongside the Draft UK Marine Bill on 3rd April, 2008.

Specific, Measurable Marine Ecosystem Objectives: Scottish Environment LINK believes that in order to measure the health of Scotland's seas an additional set of MEOs are also required. These objectives should be SMART (Specific, Measurable, Achievable, Realistic, Timely). Whilst the example operational conservation objectives from the RMNC process would be a good starting point here, they are unlikely to be specific enough to meet SMART objectives. A possible model for specific MEOs could therefore be based around OSPAR Ecological Quality Objectives (EcoQOs). An example of an agreed EcoQO for Imposex (the stimulation of male sexual characteristics on normal female gastropods) in dogwhelks (*Nucella lapillus*) is: A low (<2) level of imposex in female dogwhelks, as measured by the *Vas Deferens* Sequence Index. Clearly, OSPAR EcoQOs have been developed in order to meet OSPAR's general strategy and therefore adoption of OSPAR EcoQOs alone would not be sufficient as MEO's for the Scottish Marine Bill. However, they do meet the SMART objectives detailed above and therefore could be considered as a useful starting point.

Conclusion: Scottish Environment LINK believes that the ecosystem approach is central to any strategy for the marine environment. MEOs should form the foundation of the Scottish Marine Bill, and both the health of Scotland's seas and effectiveness of new management measures (including marine planning) should be assessed according to these. The bill should also establish a mechanism for reporting to Parliament on progress towards achieving these Marine Ecosystem Objectives. It is therefore vital that work to draw up a Scottish set of scientifically derived Marine Ecosystem Objectives should commence immediately.

References

Halpern, B.S., Walbridge, S., Selkoe, K.A., Kappel, C.V., Micheli, F., D'Agrosa, C., Bruno, J.F., Casey, K.S., Ebert, C., Fox, H.E., Fujita, R., Heinemann, D., Lenihan, H.S., Madin, E.M.P., Perry, M.T., Selig, E.R., Spalding, M., Steneck, R., Watson, R. (2008) A Global Map of Human Impact on Marine Ecosystems. *Science* **319**: 948-952.

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Scottish Environment LINK is the umbrella body for Scotland's voluntary environmental organisations, representing around 500,000 members. Scottish Environment LINK's Marine Task Force and its campaign for a Scottish Marine Bill is supported by:

Hebridean Whale and Dolphin Trust	Scottish Wildlife Trust
Marine Conservation Society	WWF Scotland
National Trust for Scotland	Whale and Dolphin Conservation Society
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