



Follow on to the Development of Spatial Models of Essential Fish Habitat for the South Inshore and Offshore Marine Plan Areas

Aim

This project aimed to build upon the results of a previous project, 'Spatial models of essential fish habitat (South Coast Inshore and Offshore Marine Plan Areas) (MMO1044). In particular, this project used stakeholder input to help validate the models generated in the previous project and improve confidence in them.

Introduction and methodology

The ability to spatially locate resources in the marine environment with confidence and at high resolution is important to marine planning. Essential fish habitats support critical fish life stages. As such, essential fish habitat maps may represent important supporting tools for the development of marine plan policies in England.

The lack of high resolution data constitutes a major limitation for the reliable identification of high value habitats and their practical consideration in the marine planning process. To address this problem, a project ('Spatial models of essential fish habitat (South Coast Inshore and Offshore Marine Plan Areas) (MMO1044)) was undertaken to improve the spatial resolution of data on essential fish habitat for fish species of commercial and / or ecological relevance in the South Inshore and South Offshore Marine Plan Areas (hereafter referred to as the South marine plan areas).

The purpose of this project was to validate the models created in the previous project by using stakeholder input to ascertain where the models from the previous project over-or underestimated the presence of fish at different stages of their life cycles. Expert judgement was applied to the maps generated in the previous project, resulting in a reassessment of confidence in the maps based on how closely they corresponded to what was expected from experts.

Results

The validation activity confirmed that confidence issues were mostly associated with input data layers used rather than model predictive ability. There was a good agreement between the accuracy of the maps, the expert knowledge and additional empirical evidence. Due to this, the statistical validation often led to an increase in the overall confidence in the spatial outputs.

The confidence improvement was evident in particular for maps of nursery habitats (based on the prediction of occurrence of fish juvenile stages). In most cases, these maps reached a moderate confidence after validation. Such an improvement suggests that these maps may have increased utility for marine planning to use in policy formulation.

Conclusions and recommendations

The report has shown the value of including stakeholder validation in deriving essential fish habitat maps

Recommendations include:

- The inclusion of expert knowledge as a procedure within the approach of the previous project
- Obtaining further improvements by replacing or integrating the environmental variables used in the models with additional environmental data layers of higher confidence, as suggested during consultation
- Amendments to the models (e.g. inclusion of abundance data of pelagic eggs and larvae in combination with the presence/absence data used in the current models) were identified as ways of making the models more robust and improving the confidence in their predictions.



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MMO comments

The MMO would like to thank those stakeholders who gave their time and expertise to this project. Their input was vital to achieving the objectives of the project and in giving an improved final output. The revised maps produced by this project have been used in the formulation of marine plan policies for the South marine plans, demonstrating its value.

Further information

Please direct any correspondence to the Evidence Team by emailing evidence@marinemanagement.org.uk