Modelling of essential fish habitat based on remote sensing, spatial analysis and GIS

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Abstract

We review the variety of existing modelling approaches applied to species habitat mapping and we discuss issues arising from the availability and nature of sampled biological data and corresponding ecological and environmental habitat descriptors, as well as the different spatial analysis approaches that are selected according to specific hypotheses. We focus on marine species habitat mapping, presenting an overview of work on modelling fish habitat carried out through a European Communities Policy-Support Action, EnviEFH 'Environmental Approach to Essential Fish Habitat (EFH) Designation' (2005-2008). The selection of the appropriate habitat model is dataset-specific and the resulting EFH maps are often similar in spite of using different models. Derived EFH maps are based on either environmental ranges (used as minimum and maximum environmental habitat descriptors) or probability of occurrence values. We apply model outputs to regions larger than sampled areas making use of the capacity of satellite data to cover wide areas. © 2008 Springer Science+Business Media B.V.

Keywords

Ecology, Environment, Fisheries, Marine species, Statistical modelling