

What can exploratory modelling tell us about the ecobiology of European sea bass

European sea bass, *Dicentrarchus labrax*, is a highly valuable species in Europe, both for aquaculture in the Mediterranean Sea and for commercial and recreational fisheries in the North East Atlantic Ocean. Subjected to increasing fishing pressure, the wild population has recently experienced significant recruitment fluctuation as well as a northward extension of its distribution area in the North Sea. While the nature of the ecological and/or physiological processes involved remains unresolved, ontogenetic habitat shifts and adult site fidelity could increase the species' vulnerability to climate change and overfishing. As managers look for expert information to propose management scenarios leading to sustainable exploitation, exploratory modelling appears to be a cost-efficient approach to enhance the understanding of recruitment dynamics and the spatio-temporal scales over which fish populations function. A conceptual modelling framework and its specific data requirements are discussed to tackle some sound ecological questions regarding this species. We consequently provide an updated review of current knowledge on bass population structure, biology and ecology. This paper will hence be particularly valuable to develop spatially-explicit models of European sea bass dynamics under environmental and anthropogenic forcing. Knowledge gaps requiring further research efforts are also reported.

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