



Abstract

Habitat Use of *Gadiculus argenteus* (Pisces: Gadiformes) in the Galicia and Cantabrian Sea Waters [†]

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Abstract: *Gadiculus argenteus*, is a quite common and relatively abundant fish present in the Galicia and Cantabrian Sea continental shelf and is one of the main trophic resources in the area. Despite its importance in the trophic ecosystem dynamics of the Spanish northern continental shelf, there is a general lack of knowledge about the ecological preferences of the species. The aims of this study are both to determine the importance of spatial, temporal, and oceanic environmental factors on the distribution of *G. argenteus* in this area and to generate, for the first time for the species, abundance maps that could help in the development of, for example, trophic models or marine management plans. In order to reach these goals, data on the abundance of this species from an annual bottom trawl survey (DEMERSALES) for the period 1998–2019, along with temporally invariant (depth, slope, sediment type, and percentage of organic matter) and annual (near-bottom temperature and salinity and chlorophyll-a concentration) environmental layers were modelled using delta generalised additive models (GAMs). The results helped us to identify the most suitable habitats for the species and which environmental factors have a significant effect on its distribution. According to our findings, the species showed higher abundances in the upper slope and a preference for muddy bottoms, with chlorophyll-a positively influencing its biomass. It aggregates mainly in the Galician waters and in the most eastern longitudes of the study area. The results of the models proved that most of the environmental variables chosen are relevant factors in the distribution of the species.

Keywords: *Gadiculus argenteus*; forage fish; distribution models; generalised additive models; delta models; essential fish habitat



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