# Species Distribution Models for sea pen corals in the Flemish Cap and Flemish Pass Area (Northwest Atlantic Ocean)

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Species Distribution Models (SDMs) are widely used to identify species-environment relationships and predicting species occurrence and/or density at un-sampled locations. The SDMs implementation allows describing species geographical trends, to identify spatial ontogenetic shifts of commercially exploited species and to assess the effect of climate change on species distribution. Moreover, SDMs could be an essential tool to support the marine spatial planning framework providing essential and easy-to-use interpretation tools, such as predictive distribution maps, with the final aim of improving management and conservation especially of vulnerable species as sea pen corals.

In this study, a 10-yr period (2007-2017) of a bottom trawl survey was used to estimate and predict the suitability habitat of sea pen species as a function of several environmental variables (i.e. bathymetry, sea bottom temperature, sea bottom salinity, slope, rugosity, aspect of the seabed, etc) in Flemish Cap and Flemish Pass (ATLAS Case Study No 11) using different SDM algorithms. Results show that species exhibit specific habitat preferences and spatial patterns in response to environmental variables.

Key Words: Species Distribution Models, seapens corals, protection areas, Northwest Atlantic

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