

## REGIONALIZATION AND CONNECTIVITY IN THE GULF OF CÁDIZ AND ALBORÁN SEA IMPLICATION FOR MARINE SPATIAL PLANNING AND COASTAL MANAGEMENT.

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This work proposes a regionalization of marine waters south of the Iberian Peninsula based on empirical orthogonal functions and GIS analysis. The regions identified are consistent and correspond to hydrological mesoscale and macroscale structures well characterized from physical and biological viewpoints. Although it is difficult to determine the boundaries of a fluid continuously moving, the procedure used recognizes the most frequent patterns and can be used to reference geographically the most likely position of the limit among the regions. Once established the regions, the connectivity among them is addressed by means of geostrophic currents derived from altimetry data. The main geostrophic circulation pattern depicts an elevated connectivity in the area that might facilitate the conservation and recovering of species, but also imply a higher vulnerability to negative externalities and highlight the need of models, marine spatial planning, and coastal management approaches that includes the pelagic ecosystem and connectivity of the seas. Furthermore, the results confirm that the cooperation between public authorities at different levels (local, regional, state) as well as among riparian countries is essential for marine spatial planning and prevention of potential risk derived from upcoming marine activities in the framework of the 2020 agenda and Blue Growth strategy.