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Characterization and connectivity of essential fish habitats of adult and juvenile stages for the European sea bass

Essential fish habitats are key spaces in the life cycle of fish species, as they gather environmental conditions necessary for fish to accomplish various vital functions as spawning, breeding, feeding, growth. Thus, the movement and the dispersion of individuals at the different life stages between essential fish habitats play a fundamental role in maintaining a population. This PhD aims at characterizing the main spawning grounds of the European sea bass and understanding their functioning. The PhD student will try to answer to the following questions: How are characterized the main spawning grounds? Which environmental drivers explain their intra and interannual variations? Which spawning grounds - nurseries contribute the most to the maintaining of the population? The PhD will be structured as follows: 1) the identification of the main spawning grounds will be determined by analysing data from geolocated fishing vessels; 2) their dynamic will be studied to qualify their intra and interannual variability and determine their environmental drivers; 3) The connectivity between spawning grounds and nurseries will be modeled using a lagrangian individual based approach in order to account for the environmental impact ruling the growth and the larval recruitment success; 4) the identification of important spawning grounds - nurseries will be done with the means of increasing complexity scenarios.

Key words: Essential fish habitat, spawning grounds, nurseries, connectivity, spatio-temporal dynamic, environmental drivers, European sea bass.