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Orientation: Sustainable Use of Marine Resources

Specialization Area: Management and Use of Resources

Research Area: 2.3 Assessment of fish and shellfish resources

PhD project: Ecology of recruitment of European hake: interaction between fisheries, environment and maternal effects

Supervisors: Dr. Francisco Saborido-Rey (Marine Research Institute-CSIC)

Dr. Rosario Dominguez (Marine Research Institute-CSIC)

Summary: European hake (*Merluccius merluccius*) one of the main commercial species in Southern Europe. The understanding of its reproductive ecology is essential for its fisheries management and it will be studied in this thesis. The overall objective is to analyze the causes that determine the recruitment in the hake with attention to the demographic and environmental causes; and study the possibility that fishing pressure and climate change are determining recruitment pulses, associated with maternal effects on progeny.

The main hypothesis is the existence of an interaction between the population demography of European hake and the environment that determines the dynamics of recruitment in waters of the Galician shelf (southern stock). This interaction occurs through the maternal effect (size, age, condition) on the biological features of the eggs and larvae produced (condition, growth rate, nutritional capacity). These properties are determined according to the environmental conditions (temperature, currents, presence of predators and prey) the larval survival rate and hence, the recruitment. Moreover, these maternal effects are pronounced by the presence of two spawning peaks which can be due to the existence of two separate maternal populations with different characteristics, a hypothesis that will also be addressed in the thesis.