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Orientation: Sustainable Use of Marine Resources
 Specialization Area: Management and Use of Resources
 Research Area: 2.1 Research into resources based on knowledge of ecosystems



PhD project: Influence of oceanic climate on fisheries variability: study of the Iberian Atlantic shelf

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Summary: A set of ocean-meteorological time series (1967-2015) is analyzed at different scales; global, regional and local, in order to detect environmental regime shifts that are capable of explaining part of the fluctuations of the sardine (*Sardina pilchardus*) and hake (*Merluccius merluccius*) fisheries in the Iberian-Atlantic shelf region (36 ° N - 44.5 ° N). Three environmental regime shifts are detected; in the years 1977/80, 1994, 2005/06, also detected in other regions of the North Atlantic.

The southern sardine stock shows ten-year cycles. At the end of the decade of the 90s, a positive phase was expected, however, the landings of this species have continued to decrease until today. Around 1998, when the unexpected negative regime shift was detected, the main large-scale atmospheric circulation patterns in the Northern Hemisphere, the North Atlantic Oscillation (NAO) and the East Atlantic Pattern (EA), changed and coupled in a combination that led to an increase in the sea surface temperature and a decline in the coastal upwelling intensity. The physical variable latent heat parameter in summer, related to ocean-atmosphere heat exchanges, which groups together several environmental processes relevant to sardine ecology in a single variable, such as temperature variations and turbulence, manages to explain 72% of the recruitment of this species.

In relation to hake, its fishery does not undergo such marked cycles. The positive regime shift of 2006/07 is analyzed in depth. It is observed that the environmental variables that most influence recruitment affect both species in the opposite way.

