INSTITUT FRANÇAIS DE RECHERCHE POUR L'EXPLOITATION DE LA MER

Proposal for a IFREMER PhD studenship

Development of an operational ecosystem-coupled stock assessment model of the Atlantic Sardine

Summary

Although the Atlantic Sardine is an important commercial species of the French Atlantic coasts, there is currently no management measure regarding its exploitation. Biomass estimates suggest about 10% of the available biomass is harvested each year. However, this resource is under an increasing fishing pressure leading to consider the implementation of a management plan in a near future. In order to manage sustainably this fishery, a proper stock assessment model is required. This proposal aims at developing this mathematical tool from fishery and environmental datasets. During this PhD studentship, the successful applicant will have 1) to develop or adapt a stock assessment model taking into account the spatial dimension and the latest knowledge of the biology of this stock, 2) to integrate environmental variations through their influence on the main biological traits, 3) to validate this model using the available datasets such those from scientific surveys, 4) to integrate a tool aimed at short term (1-2 years) forecasts about the biological consequence of various catch levels and variable environmental scenarios. The successful applicant will also take part to the discussions with the fishing industry regarding the implementation of management options for this stock.

Keywords: stock assessment, ecosystemic approach to fisheries, modeling

- **Desirable skills:**

  - M.Sc in marine ecology, population dynamics, fishery science or closely related fields
  - Strong skills in population modelling
  - Skills in analysis in multivariate time series
  - Demonstrated skills in scientific programming (R, Matlab)
  - Interest in interdisciplinary approach

- Mentors: Lionel Pawlowski and Michel Bertignac

- The PhD will be based at the IFREMER station in Lorient (Fishery Biology and Fishing Technology laboratory). Some work will be carried out in our join lab in Brest and other labs (Ecology and models for fisheries, Ifremer Nantes). Additional work may be carried out in foreign partner labs.

- Any inquiries should be sent to
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