

Bioeconomic Modeling for the Sustainable Exploitation of Three Key Marine Species in Morocco

Authors : I. Ait El Harch, K. Outaaoui, Y. El Foutayeni

Abstract : This study aims to deepen the understanding and optimize fishing activity in Morocco by holistically integrating biological and economic aspects. We develop a biological equilibrium model in which these competing species present their natural growth by logistic equations, taking into account density and competition between them. The integration of human intervention adds a realistic dimension to our model. A company specifically targets the three species, thus influencing population dynamics according to their fishing activities. The aim of this work is to determine the fishing effort that maximizes the company's profit, taking into account the constraints associated with conserving ecosystem equilibrium.

Keywords : bioeconomical modeling, optimization techniques, linear complementarity problem LCP, biological equilibrium, maximizing profits

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