

Simulation of Climatic Change Effects on the Potential Fishing Zones of Dorado Fish (*Coryphaena hippurus* L.) in the Colombian Pacific under Scenarios RCP Using CMIP5 Model

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Abstract : In the Colombian Pacific, Dorado fish (*Coryphaena hippurus* L.) fisheries is of great commercial interest. However, its habitat and fisheries may be affected by climatic change especially by the actual increase in sea surface temperature. Hence, it is of interest to study the dynamics of these species fishing zones. In this study, we developed Artificial Neural Networks (ANN) models to predict Catch per Unit Effort (CPUE) as an indicator of species abundance. The model was based on four oceanographic variables (Chlorophyll a, Sea Surface Temperature, Sea Level Anomaly and Bathymetry) derived from satellite data. CPUE datasets for model training and cross-validation were obtained from logbooks of commercial fishing vessel. Sea surface Temperature for Colombian Pacific were projected under Representative Concentration Pathway (RCP) scenarios 4.5 and 8.5 using Coupled Model Intercomparison Project Phase 5 (CMIP5) and CPUE maps were created. Our results indicated that an increase in sea surface temperature reduces the potential fishing zones of this species in the Colombian Pacific. We conclude that ANN is a reliable tool for simulation of climate change effects on the potential fishing zones. This research opens a future agenda for other species that have been affected by climate change.

Keywords : climatic change, artificial neural networks, dorado fish, CPUE

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