
Large fish predators diversity highlighted by tuna fisheries data in the Indian Ocean

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Abstract

Data collected on board tuna fishing vessels can be used as a tool for documenting species diversity of the pelagic ecosystem in open oceans. In this work, we used scientific-observer records from both pelagic longline and purse seine fisheries in the tropical Indian Ocean to investigate diversity patterns of pelagic oceanic species assemblages. Each fishing gear or fishing strategies act as a filter and are complementary in investigating species diversity because of their respective selectivity (e.g., purse seine sets made around floating objects or on free swimming school, day or night fishing for pelagic longline), and their fishing areas or depth. We documented the entire catches of both targeted and bycatch species for each fisheries. Fishing operations were assigned to strata taking into account the main habitat features such as distance from shelf breaks, islands, or seamounts, and open ocean regions. Our findings highlight regional differences and rich structures in species diversity that might be used for future conservation issues.

Keywords: biodiversity, bycatch, purse seine fishery, longline fishery, species richness

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