

**EVALUATION OF SEA SURFACE PROPERTIES
FOR SKIPJACK TUNA ABUNDANCE IN THE
NORTHEAST INDIAN OCEAN**

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by

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Abstract

Skipjack (*Katsuwonus pelamis*) tuna is the most common species consumed by the Sri Lankan community as the form of fresh and dry. This species is rich in protein and also available in affordable prices since it is not exporting. However, there are some problems, such as low quality, poor catch rates. Hence, enhance the harvesting methods for skipjack tuna resource become essential factor. The understanding of their spatial distribution, seasonality with relationship to the ocean environmental parameters such as Sea Surface Temperature (SST), Sea Surface Chlorophyll (CHL), and Sea Surface Height (SSH) may helpful for fishing success.

A fishery dataset was obtained from Sri Lankan gillnet fishery in the northeast Indian Ocean (latitude 00-20⁰N and longitude 070-090⁰E) and the Ocean environmental parameters obtained from remote sensing satellites. SST, CHL and SSH data were matched with Skipjack tuna catch rates (catch per unit effort - CPUE) in this study. The package R (version 2.14.1) was used to carry out this study.

All the data (fishery and satellite data) were gridded into the lowest resolution (1/3⁰square grids). Matched data were used to investigate relationships between skipjack tuna and the sea surface properties in this region.

Results indicate that the CPUE varies between 0.09-11 and the mean CPUE was around 0.822 during the study period (2008). Slight variations of CPUE were observed in each area. Mean CPUE values were corresponded with the areas of Arabian Sea (AB), 0.98, South west (SW) 0.68. North east (NE) 0.88.

Based on the results, the skipjack tuna fishable oceanographic parameters in the Northeast Indian Ocean were characterized by SST of 28-30°C, CHL of 0.07-0.3 mgm⁻³ and SSH 190-210 cm. Slight variation of these parameters were observed with different fishing areas considered. The results of this study were confirmed by statistical analyses. However significant effect was identified for the skipjack tuna migration in to Northeast Indian Ocean with respect to the two monsoon reversals. As conclude of the research migratory pathway of skipjack tuna can be changed due to other environment factors rather than SST, SSH, CHL in the Northeast Indian Ocean.