

**EVALUATING THE CATCH EFFICIENCY OF YELLOWFIN TUNA
(*Thunnus albacares*) IN SRI LANKA'S LONGLINE FISHERIES ACROSS
WESTERN AND EASTERN WATERS OF THE INDIAN OCEAN**

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The study was conducted to evaluate the efficiency of capturing yellowfin tuna (*Thunnus albacares*) using live, dead, and artificial lures in longline fishery in Sri Lanka. Data were collected from fishing operations conducted in the coastal waters of the Western and Eastern regions of Sri Lanka within the Indian Ocean. Primary data were obtained through structured interviews with longline fishermen from 150 commercial vessels operating at five major landing sites (Dikkowita, Negombo, Tangalle, Nilwella, and Kottegoda) during the period from September to December 2024. Catch per unit effort (CPUE) was calculated and analysed using the Kruskal-Wallis test. Significant differences in CPUE were observed among bait types for both the number of fish caught and total weight ($p = 0.001$). Dead bait demonstrated the highest catch efficiency (0.513±0.376 individuals per 100 hooks; 0.221±0.160 kg per hook), followed closely by artificial lures (0.506±0.394 individuals per 100 hooks; 0.210±0.184 kg per hook), while live bait recorded the lowest efficiency (0.429±0.429 individuals per 100 hooks; 0.176±0.205 kg per hook). No statistically significant difference in CPUE ($p > 0.05$) was observed between the Western and Eastern regions of the Indian Ocean; however, dead bait showed slightly higher efficiency in the Western region. Although live bait showed the highest median CPUE values, its use was constrained by high costs, storage challenges, and limited availability. Artificial lures were identified as a competitive and cost-effective alternative, offering a sustainable option to reduce dependence on natural baitfish. Variations in regional factors such as prey availability, water clarity, and predator behavior were also considered to have influenced bait performance and catch efficiency.

Keywords: Artificial lures, Catch efficiency, Catch per unit effort, Longline fishery, Yellowfin tuna