



Analysis of Fishing Patterns in Sri Lanka: A Case Study of the Matara District for 2021-2024

P.H.H. Priyangika^{1,2}, J.C. Hapugoda³, M.G.Y.L. Mahagamage^{2*}

¹*Department of Fisheries and Aquatic Resources, New Secretariat, Maligawatta, Colombo, Sri Lanka.*

²*Centre for Environmental Studies & Sustainable Development, The Open University of Sri Lanka, Nawala, Sri Lanka.*

³*Department of Organizational Studies, Faculty of Management Studies, The Open University of Sri Lanka, Nawala, Sri Lanka*

**mgyma@ou.ac.lk*

The marine fisheries sector plays a vital role in Sri Lanka's food security, employment, and export economy, while multiday fishing vessels (IMULA) represent a major component of offshore pelagic fisheries. However, limited studies have examined recent fishing patterns associated with gear type, fishing zones, and seasonal variability in the Matara District, particularly during the economically challenging period of 2021–2024. This study analyzed fishing patterns of multiday fishing vessels operating from major fisheries harbors in Matara District using secondary catch data obtained from fisheries logbooks and official records of the Department of Fisheries and Aquatic Resources (DFAR). The dataset included fish species, catch quantity, fishing gear, fishing zone, departure harbor, and fishing time. Five dominant species, skipjack tuna, yellowfin tuna, Indian scads, swordfish, and bigeye tuna, were selected for detailed analysis due to their major contribution to total landings. Data were analyzed using descriptive statistics, graphical analysis, and inferential statistical methods, including one-way and two-way ANOVA. Results revealed that skipjack tuna was the dominant species with an average annual catch of 4.69 million kg, followed by yellowfin tuna (2.86 million kg) and Indian scads (1.27 million kg). Total annual fish production was highest in 2024 (12.34 million kg), whereas the lowest production was recorded in 2022 (5.39 million kg), mainly due to reduced fishing operations during the national economic crisis. Gill nets contributed the highest proportion of total catch compared to longlines and ring nets, demonstrating the strong influence of gear selectivity on species composition. Seasonal analysis indicated relatively lower catches during mid-year months and higher catches during the latter part of the year, while Mirissa and Devinuwara emerged as the major landing harbors. The findings demonstrate that fishing patterns in Matara District are strongly influenced by gear type, spatial distribution, and seasonal variability. These results provide valuable information for sustainable fisheries management, fisheries planning, and the future development of predictive fish stock management models in Sri Lanka.

Keywords: *Multiday Fisheries, Catch Rate, Species Composition, Seasonal Variation, Fishing Zones*