



Assessing Fisheries Production Trends and Stock Status Indicators in Sri Lanka (2009-2024): A Statistical Approach to Evidence-Based Fisheries Management

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Sri Lanka's marine fisheries, despite their economic and social significance, face growing sustainability pressures that lack systematic quantitative documentation. This study aimed to (i) analyses long-term production trends, (ii) assess stock status using catch-per-unit-effort (CPUE) indices, and (iii) derive evidence-based policy recommendations for fisheries management over 2009–2024. Secondary data from the Department of Fisheries and Aquatic Resources, Central Bank Annual Reports, and peer-reviewed literature were analyzed using time-series regression and CPUE trend analysis. Results indicated a 12% decline in annual marine production, relative to the 2014 peak, alongside CPUE reductions of 38% in beach seine fisheries and 27% in multi-day gill net operations. Stock status assessments reveal that approximately 40% of commercially important species, including anchovies and mullets, are harvested at unsustainable levels. By integrating multi-gear CPUE analyses across a 15-year period, this study provides a broader perspective than sector-specific assessments. Proposed interventions include seasonal spawning closures, minimum size regulations, strengthened elasmobranch protection, and expanded marine conservation zones. This study demonstrates systematic monitoring of fisheries monitoring data as an early-warning tool for adaptive and proactive fisheries management.

Keywords: *Catch per unit effort, CPUE decline, Fisheries sustainability, Policy analysis, Sri Lanka, Stock assessment*