

(234)

Identifying Visitor Trends of Marine Protected Areas in Sri Lanka and Forecasting Visitations to Hikkaduwa National Park

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Abstract

Marine Protected Areas (MPA) are considered popular tourist destinations in Sri Lanka, with a great potential for generating income. Hikkaduwa National Park (HNP), Pigeon Island NP (PINP), Bar Reef Marine sanctuary (BRMS), Kalawewa proposed NP and Mirissa proposed sanctuary have attracted over 1.3 million visitors over the past decade. This study aims to identify visitor trends and seasonal patterns related to local and foreign visitations to MPAs and forecast future visitor levels to HNP. Monthly data related to local and foreign visitations to each MPA and the monthly income generated were obtained from the Department of Wildlife Conservation for the period from June 2011 to August 2024. The data analysis was carried out using the EViews software package. A Seasonal Autoregressive Integrated Moving Average (SARIMA) model was used for forecasting. According to the results, PINP attracted the highest number of foreign and local visitors in most of the years and experienced its peak in 2018. BRMS experienced visitor counts below 20,000 throughout the entire period considered. The local visitations were higher than the foreign visits in the PINP, HNP, BRMS and Kalawewa. Exceptionally, Mirissa attracts more foreigners. HNP reported its highest visitor count in 2012, with varying monthly visitations. The lowest visitor count was recorded in 2020. A seasonal pattern was obvious with peak visitations in August and December. However, this seasonality was disrupted by the COVID-19 pandemic in 2020. According to the forecast made for the period from September 2024 to December 2026 using the SARIMA (1,0,2) (0,0,1)₁₂ model, future visitations will increase by 5.42%, 5.07% and 5.23% in 2024, 2025 and 2026 respectively. The number of visitors will be stable beyond September 2025, although it will vary throughout the initial period. Similarly, annual income will reach USD 1,031,867, USD 1,028,442 and USD 1,030,008 in years 2024, 2025 and 2026 respectively. As the study reveals both increase in future visitations and considerable stability in the visits, it is important that park management allocates resources adequately and implements appropriate visitor management strategies. The study highlights the importance of identifying the visitor trends and forecasting towards proper management of MPAs.

Keywords: *Marine parks, Visitor trends, Seasonality, Forecasting, SARIMA model*