

Mapping Research Trends and Thematic Evolution of Coastal Plastic Pollution Studies in Sri Lanka: A Bibliometric Analysis

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Plastic pollution has become a major environmental challenge worldwide, particularly in coastal and marine ecosystems. In Sri Lanka, coastal plastic pollution is an increasing environmental concern; however, research in this field remains relatively underexplored. Therefore, this study aimed to analyze research trends, thematic evolution, keyword occurrence patterns, and major research hotspots related to coastal plastic pollution in Sri Lanka through a bibliometric analysis. A total of 94 peer-reviewed and highly cited articles published between 2010 and 2025 were retrieved from Google Scholar using the Publish or Perish software. Articles were selected based on relevance to coastal plastic pollution in Sri Lanka, citation impact, and availability of bibliographic metadata, while duplicates and unrelated studies were excluded. Data cleaning was conducted using Zotero, and bibliometric analyses were performed using VOSviewer. Network, overlay, and density visualizations were used to identify publication trends, thematic relationships, and keyword co-occurrence patterns. The findings showed that research on coastal plastic pollution in Sri Lanka began in 2013, with the highest publication output recorded in 2024, indicating growing scientific interest. Keyword co-occurrence analysis identified 10 thematic clusters, with “microplastic pollution” and “microplastic contamination” emerging as dominant research themes. During 2020–2022, studies were mainly concentrated in the Southern Province, whereas studies published between 2023 and 2025 increasingly focused on the Western Province, particularly the Colombo District, Negombo Lagoon, and the Panadura Estuary. This shift may reflect increasing urbanization, industrial activities, fisheries, tourism pressure, and growing concern regarding lagoon and estuarine contamination. Recent studies also demonstrated a transition from beach-focused research towards lagoons, estuaries, and mangrove ecosystems, alongside emerging themes such as microplastic pollution, bioaccumulation, and ecological impacts on aquatic organisms. Overall, the study highlights significant geographical and thematic research gaps, particularly in underrepresented coastal regions of Sri Lanka.

Keywords: *Plastic contamination, Coastal ecosystems, Sri Lanka, Bibliometric analysis, Research trends, VOSviewer*