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Assessing management effectiveness of Marine Protected Areas in the Western Indian Ocean region

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Over the past two decades, Marine Protected Areas (MPAs) have been increasingly documented to inform global targets, including the GBF3 that aims to protect at least 30% of coastal and marine areas by 2030. However, the effectiveness of MPA management remains a critical concern, with challenges in selecting appropriate evaluation tools from a broad range of methodologies that lack comprehensive comparison. This study provides a detailed comparative analysis of the advantages and limitations of key assessment tools, aiming specifically at evaluating MPA management effectiveness within the Southwest Indian Ocean context (SWIO). Our systematic literature review identified 34 assessment tools, varying in application scope (global, regional, national/local), targeted protection status (global, world heritage sites, certification, classification), and thematic focus (global, governance, bioecology). Among these, the Integrated Management Effectiveness Tool (IMET) emerged as a current and more complete method, facilitating comprehensive assessment while encompassing the holistic dimensions of management. IMET allows collecting 42 indicators that underscore general characteristics of management effectiveness across 6 core elements (context, planning, inputs, process, outputs, and effects/impacts) and 3 dimensions (bioecology, socio-economic and cultural, governance and management capacity). This study reports on a regional analysis of MPAs located in 7 SWIO countries, highlighting management strengths and gaps across the MPAs, according to 3 dimensions: governance and management paradigms, protection status and conservation objectives, and the management cycle phases of the protected areas. These findings contribute to refining MPA management tools, particularly the IMET tool applied within the SWIO, enhancing the MPAs' ability to achieve relevant conservation objectives and providing actionable insights for strengthening conservation efforts regionally and globally.

Keywords: MPA, Management effectiveness, Assessment, IMET, Southwest Indian Ocean