

ABSTRACT

Estuarize-WIO: A socio-ecological assessment of small-scale fisheries in estuaries of the Western Indian Ocean

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Estuaries provide unique ecosystem goods and services and have been focal points for human settlement and resource use throughout recorded history. In the Western Indian Ocean (WIO) region, the effects of human population growth, rapid economic development and climate change on estuaries threaten their ecological functioning and the sustainability of estuary-dependent livelihoods. Governance systems are ill-equipped to deal with the mounting challenges. Long-term datasets that describe estuary-scale trends are scarce, and socio-ecological interactions that support sustainable use of resources are incompletely understood. To address these gaps, the Estuarize-WIO project (2016-2019) compiled datasets on biophysical, ecological, socio-economic and fisheries aspects of selected estuaries in Mozambique (Bons Sinais), Tanzania (Ruvu) and Kenya (Tana), analysed trends per estuary, and used a socio-ecological systems (SES) framework to integrate information from multiple sources at local and regional levels. The introductory paper of this Special Issue of the Western Indian Ocean Journal of Marine Science provides regional context and reviews the relevant literature available for WIO estuaries. In succeeding papers, estuarine circulation is inferred from hydrological measurements, seasonal and decadal trends in land cover and land use are investigated using remote sensing images, household surveys are used to investigate socio-economic circumstances and resource use, and long-term catch survey data and field samples are used to describe small-scale fisheries. In the synthesis paper, a SES framework is constructed to investigate linkages and feedback loops in individual estuaries. A regionally comparative analysis across the WIO region was conducted, and recommendations were made for future research and governance. The methodological approach developed for Estuarize-WIO is well-suited to research of data poor systems with limited accessibility and research infrastructure.

Keywords: eastern Africa, estuary-dependent livelihoods, climate change, natural resources, population growth, satellite