Introduction

Coastal zones and estuaries provide ecosystem services at local, national, and international levels. The sustainable provisioning of ecosystem services requires a balance between local and global impacts. Coastal managers face various challenges in managing these systems.

This project focuses on the Bons Sinais estuary in Mozambique, which faces similar challenges to other estuaries worldwide. The Bons Sinais estuary is characterized by river-dominated processes and a high sediment load during intense flood peaks.

Managers at Bons Sinais estuary face similar problems to others in the region, including water quality, sediment management, and ecosystem services. These problems are exacerbated by climate change and human activities.

The project aims to develop a framework for the application of rule-based hydro-morphological classification schemes and for the prioritization of data collection. This framework will help managers make informed decisions about the sustainable provision of ecosystem services.

Site and classification

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Data collected

Baseline data collection of physical data sets supporting understanding of key phenomena, and management decision making. Sea level, bathymetry and dGPS data are highlighted below.

Cascading spatial and temporal scales of coastal processes

Management priorities for African marine and coastal institutes:

- Environmental Impact Assessments
- Water quality
- Climate Change, storm surge, flooding and erosion
- Sediment transport, channel dredging
- Design of infrastructure - jetties, ports
- Marine outfall and, thermal plume
- Ballast water management, larval transport
- Max load/carrying capacity assessments

Future work

Rule based models

Comparative analysis at various temporal and seasonal scales:
- System characterisation
- Management scenarios
- Output uncertainty

Framework development

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References

1. Doneer from Capacity Development activities from 2006 to 2010 involving member states of UNESCO Intergovernmental Oceanographic Commission (IOC). These included the input on capacity development needs by the national marine and governmental agencies from all countries of the Western Indian Ocean region (East Africa) with the exception of Somalia.
