Land cover change and structural dynamics in mangrove and seagrass beds due to port development in Nacala, Mozambique

C. Macamo, S. Bandeira, M. Binguanhane, M. Machava
Universidade Eduardo Mondlane, Departamento de Ciencias Biologicas, Mozambique
Universidade Eduardo Mondlane
Departamento de Ciencias Biologicas, Mozambique
Cowi, Mozambique
Universidade Eduardo Mondlane
Departamento de Ciencias Biologicas, Mozambique
celia.macamo@uem.mz

Globally, the role of aquatic macrophytes in coastal stabilization has been identified in various studies. However, many studies have focused on the health of seagrass meadows and productivity, with little focus on the rates of sediment erosion/deposition/accretion in intertidal macrophytes hence studies on role of seagrass in coastal stabilization is scanty especially in less studied coasts such as Bofa beach- Kilifi, Kenya. However, the role of macrophytes in buffering the subtidal, reef and coastal terrestrial habitats from violent wave action, erosion and sediment instability by mediating sediment settlement cannot be ignored.

The role of intertidal macrophytes in sediment; habitat stabilization was studied in the shallow waters of Bofa beach from January-April, 2017 using a non-extractive/non-destructive transect method. Small sediment traps were used to measure deposition/accretion/erosion at 10cm above macrophyte beds along a 1.5km transect parallel to the coast, with 30 samplings stations located 10m apart. Deposition/accretion/erosion was measured using two 10cm- diameter cup traps (sediment filled cup for accretion, empty cup for deposition). Measurements were bi-weekly recorded over a three months. Five species of seagrass were recorded with a dominance of Thalassia hemprichii noted.

Significant differences in daily net deposition/accretion were recorded between areas covered by different seagrasses. Leaf height/width were found to influence sediment deposition/erosion. Variation in leaf height had little influence on erosion rates (r2=0.0086). However, increase in leaf width significantly resulted in lower erosion rates (r2=-0.4643). On the other hand, a significant positive correlation between leaf height and sediment deposition (r2=0.7378) while leaf width had little influence on sediment deposition (r2=0.1687).