

Spatial and temporal distribution and community structure of macro-infauna in seagrass biotope – Shimoni, Kenya

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Macrobenthic infauna organisms provide an important role in ecosystem processes such as nutrient cycling, pollutant metabolism, dispersion and acting as food source for larger organisms. Despite their importance and significance in marine ecosystems, there is inadequate scientific understanding of macro-infauna species distribution and interactions with both biotic and abiotic factors. This study determined the macro-infauna abundance and community diversity in seagrass habitats in three sampling sites in the Kenyan south coast (Wasini, Kibuyuni and Sii Island) for a period of three years (December 2012, March 2014 and December 2014). Three replicates of sediments samples were systematically collected from three transects of 50m length and 5m width after every 10m at each station using plastic corers (length= 10cm, diameter= 6.4cm). The samples were preserved using 5% buffered formalin solution, stained with Rose Bengal (to aid in sorting of macro-infauna) and observed under dissecting microscope. Abundance in the three monitoring sites was averagely relatively high (26 789 individuals/m²) dominated mostly by *Amphipoda*, *Polychaeta*, *Nematoda*, *Oligochaeta*, *Tanaidacea* and *Ostracoda* classes. Diversity indices in the three monitoring sites were relatively low ranging from 1.609 to 2.144. The results showed that the three sampling stations had similar macro-infauna distribution and community structure whereas abundance varied temporally with seagrass cover. This suggests that temporal changes in seagrass cover influences macrofaunal abundance hence the need to maintain healthy seagrass cover.

Keywords: seagrass; macro-infauna diversity; macro-infauna density