

COMMUNITY STRUCTURE AND TROPHIC RELATIONS IN AN EAST AFRICAN COUPLED MANGROVE-SEAGRASS ECOSYSTEM

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In Gazi Bay (Kenya), the abundance, diversity and stable isotope signatures of the benthic fauna was compared between the adjacent mangrove, seagrass and non-vegetated sand flats. Replicate cores were taken from each habitat in three sampling stations, during the period February-March 2005. Mangrove and seagrass meadows showed on average higher densities (11500 ind.m⁻²) than sand flats (3800 ind.m⁻²), while only seagrass showed a high species diversity (up to 23 spp.m⁻²). All stable isotope signatures ranged between -28.6 and -10.1‰ for $\delta^{13}\text{C}$ and -1.3 and 7.5‰ for $\delta^{15}\text{N}$, the mean $\delta^{13}\text{C}$ value was -19.1‰. In this study, there was no direct evidence for mangrove or seagrass tissue consumption by the macrobenthic species sampled in Gazi Bay. Most species seem to feed non-selectively on microalgae and seagrass detritus or selectively on microalgae. The higher $\delta^{15}\text{N}$ values were found in omnivorous polychaetes and filter-feeders. Spatial shifts were investigated between the stations and habitats. Only polychaete density and diversity varied significantly between the stations, possibly mediated by diversity in seagrass features in the local seagrass beds. $\delta^{13}\text{C}$ enrichment of the species tissue was observed between the river mouth and the seaward side of the bay. Despite the large differences in isotope signatures of the dominant local primary producers, we found no consistent gradient in consumer $\delta^{13}\text{C}$ signatures between the different habitats.