

Zooplankton in seagrass and adjacent non-seagrass habitats in Tun Mustapha Park, Sabah, Malaysia

ABSTRACT

A comparison of zooplankton abundance and community in the seagrass and non-seagrass areas of Limau-limauan and Bak-Bak waters within the newly established Tun Mustapha Marine Park was made during 15-17 May 2017. Samples were collected via horizontal tow of a 140 μ m plankton net. Environmental variables (temperature, salinity, DO, pH, turbidity) showed no significant differences among the study sites. However, zooplankton showed increasing abundance from non-seagrass, seagrass edge, to seagrass areas at Limau-limauan, while abundance values were comparable among the stations at Bak-bak. Overall zooplankton abundance was significantly higher at the seagrass areas relative to the non-seagrass station at Limau-limauan ($p < 0.005$), while no statistical difference was found at Bak-Bak ($p < 0.21$). Mean canopy height was 3-fold higher ($p < 0.001$) at Limau-limauan than Bak-Bak, suggesting the importance of seagrass bed structural complexity in habitat preference for zooplankton. Cluster analysis revealed the zooplankton community from the seagrass area at Limau-limauan was different from that at seagrass edge and non-seagrass areas, which may be attributed to the influence of seagrass meadows in forming characteristic zooplankton compositions. Marked differences in zooplankton composition and abundance even in close vicinity of sites suggest the importance of local small-scale variations in seagrass habitats in shaping the zooplankton community.