Linking the densities of fish functional groups and developmental stages to benthic structure

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Identification of habitats of similar characteristic is a steppingstone towards determining management measures needed to sustain and protect fish stocks. The process plays a crucial part in designation of zones meriting marine protection and restoration. In this regard studies using habitat structure to describe regional distribution of fish community have revealed substantial spatial complexity in fish densities (Pitman *et al*., 2007). This study builds on this exploratory habitat approach, in which broad scale coral reef multi-habitat types will be identified and a link to associated fish communities undertaken. The study purposes to use benthic and fish survey datasets collected through underwater visual census (UVC) across four geographical countries within the western Indian Ocean biogeographic province. The benthic dataset consisted of percentage cover of hard corals, soft corals, fleshy algae, turf algae and rubble while fish dataset consisted of fish densities and size classes of species representing 12 trophic functional groups. Classification of surveyed sites based on their minimum and maximum depths, will provide a platform to assess the spatial distribution of fish functional groups in shallow, deep and whole range depth zones. Homogenous reef habitat types will be ascertained in *a priori* using the similarity profile routine (SIMPROF) in hierarchical cluster analyses (Clarke *et al*., 2008) and a linkage to the densities of fish functional groups evaluated thereafter. Comparison of species size classes to size of maturity metrics available in FishBase will enable resolving of developmental stages (adult and juvenile) of the censured fish, and their distribution within the identified reef habitat types assessed while making inferences to potential causal factors. Preliminary results of the benthic cover shows five statistically similar clusters; three dominated by fleshy algae, turf algae and hard corals and two having mixed habitat types. Linking of fish densities to habitat types is on going.

References

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