ANALYSIS OF MOBILE FAUNAL COMMUNITY IN NORTHERN CAPE VERDE THROUGH AUTONOMOUS REEF MONITORING STRUCTURES (ARMS)

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Abstract

The loss of biodiversity and biological invasion phenomena have been prominently shaping studies in marine ecosystems, requiring assertive measures for monitoring and control. Autonomous Reef Monitoring Structures (ARMS) have been demonstrated as effective mechanisms for monitoring faunal communities in critical zones in a less invasive way. In this study, ARMS were used for the first time in Cabo Verde to investigate the faunal community in the northewest of Cabo Verde, more specifically on the islands of São Vicente and Santo Antão and Birds Islet. The structures were deployed on the seabed for nine months at five strategic points on these two islands and this islet. After the deployment period, the structures were retrieved, mobile organisms were identified, and specific diversities at each location were compared. The results showed that the species *Trachypollia turricula*, *Brachycarpus biunguiculatus*, and *Columbella adansoni* were the most abundant and present in all locations. The family Muricidae (Mollusca) was the most representative, and the phylum Arthropoda was the group with the highest number of species, dominating all locations along with Mollusca. Cluster

analysis revealed the presence of three groupings in the dataset, and nMDS showed a partial fit. The ARMS in Marina do Mindelo demonstrated the highest homogeneity compared to other locations studied, unlike those in Porto Novo, which showed the lowest average similarity. The locations that differed the most and the least corresponded to Marina with Porto Novo and Ninho do Guincho with Birds Islet, respectively, with Brachyura contributing to dissimilarities. Porto Novo and Birds Islet proved to be the least affected by anthropogenic effects, as they presented the lowest and highest values of taxonomic diversity, respectively. ARMS proved to be highly effective tools for monitoring coastal benthic ecosystems, providing access to a wide variety of species, especially those traditionally difficult to reach (cryptic species). Additionally, they generate data that can be compared with those from other locations, allowing continuous documentation of diversity.

Keywords: cryptic species; biodiversity; Cabo Verde; Autonomous Reef Monitoring Structures (ARMS); marine ecosystems.

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