A more holistic approach to exploring and quantifying South Africa’s Inshore Reef Communities through analysis of drop camera video

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Shallow water reef habitats along the South African coastline harbour a high level of marine biodiversity, much of which remains to be explored. In the past, biodiversity surveys of reef communities and habitats were restricted to SCUBA diving depths of 30m. This, coupled with adverse sea conditions and other difficulties encountered with diving operations have led to a paucity of information on the full extent of reef species assemblage patterns. Together with technicians and researchers at both SAIAB (South African Institute for Aquatic Biodiversity) and SAEON (South African Environmental Observation Network), we, the Biodiversity team at DEA (Department of Environmental Affairs), have recognised the importance of devising a monitoring protocol for shallow water reefs that is reliable, relatively inexpensive and can be applied over a large scale. Using a drop/jump camera system, we are now able to better explore and describe these reef communities through underwater imagery at depths of up to 100m. Implementing this protocol in our local waters of Table Mountain National Park (TMNP) MPA, we have designed a 100-point systematic grid to document species assemblage and habitat associations of sessile and semi-motile reef invertebrates from 15-100m in depth. Monitoring is essential to the effective management and conservation of ecosystems and threatened species, and the overall plan is to adopt a stratification criterion by which we conduct surveys at every 100 km of the South African coastline. Reef habitats will be identified from GIS data provided in the 2011 National Biodiversity Assessment and available bathymetric maps and sampling design will take into account MPAs and the effect that MPAs have on reef habitats. Here, I present the technical aspects of the jump camera system, the software used to analyse images, and the initial findings of jump camera surveys in TMNP MPA.