

Marine recreational angling in South Africa: an evaluation of the fishery benefits and effectiveness of Marine Protected Areas.

Paul Cowley¹, Colin Attwood², Albrecht Götz³, Bruce Mann⁴ and Sven Kerwath²

¹ South African Institute for Aquatic Biodiversity, Private Bag 1015, Grahamstown, 6140.

² Marine and Coastal Management, Private Bag X2, Roggebaai, 8012.

³ South African Environmental Observation Network, Private Bag 1015, Grahamstown, 6140.

⁴ Oceanographic Research Institute, P.O. Box 736, Durban, 4000.

Recreational angling in South Africa is practised by more than 500 000 people, comprising a coastal shore-based component (~80%), an estuarine shore- and boat-based component (~13%), an offshore boat-based component (~5%) and a spearfishing component (~2%). Although the primary motivation for recreational angling is pleasure, this activity has had an impact on fished populations and the stocks of many species are over-exploited. The vulnerability of several South African hook and line caught species (= linefish) is further hampered by life-history characteristics such as slow-growth, longevity, sex change and nursery habitat dependency (e.g. estuarine dependent). Many of the targeted species are also captured by commercial and subsistence sectors, which contribute to their demise.

The suppressed stock status of most species can be attributed to inappropriate management regulations, poor compliance with regulations and ineffective law enforcement. Estuarine and coastal (beach) anglers are primarily responsible for the decline of estuarine dependent and coastal species, while recreational and commercial boat anglers have over-fished the reef associated offshore species. The Linefish Management Protocol (LMP) was recently revised and introduced new initiatives in an attempt to rebuild depleted stocks. These management procedures included restrictions on commercial fishing effort and programmes to improve monitoring and compliance. The revised LMP also recommended the establishment of a network of marine protected areas (MPA's) to ensure the protection to adequate proportions of the breeding stocks, particularly for slow-growing species with limited distribution.

The role of MPA's as a fisheries management option has been the subject of extensive research globally and evidence of the positive effects are emerging from a range of habitats and fisheries. This presentation will synthesize research findings to evaluate the fishery benefits and effectiveness of South African MPA's. Data collected from exploited and unexploited areas along the South African coastline will be used to demonstrate (i) how fishing has impacted on the abundance and life history parameters of selected species; (ii) how catch rates in previously exploited areas have changed in the absence of fishing effort; (iii) the scale of movements inside and across reserve boundaries; and (iv) the levels of natural variability within resident populations that have been exposed to protection for extended periods.