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Community led Reef Closures for Octopus Fisheries: Supporting Ecological Health and Sustainable Livelihoods: Case Kilwa, Tanzania

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INTRODUCTION

Octopus is a high value fishery that supports livelihoods and food security for coastal communities in Tanzania. However, overfishing threatens its sustainability. Community-led reef closures have emerged as an effective fisheries management approach. By temporarily closing selected fishing grounds for three months, octopus populations are allowed to grow and reproduce, resulting in larger catches, improved incomes, and healthier marine ecosystems upon reopening.

The success of this approach is evident in northern Kilwa, where recent harvests yielded 45,510 kg and 27,864 kg in Songosongo Island, 11,000 kg in Magengeni (Kilwa Kivinje), and 18,000 kg in Mnazi Mmoja (Kilwa Masoko), clearly demonstrating the benefits of sustainable fisheries management. These positive results led to the replication of the initiative in Namakongoro village, southern Kilwa

OBJECTIVE

To enhance octopus fishery sustainability, marine ecosystem resilience, and livelihoods in Namakongoro.

METHODOLOGY

A community-led reef closure was established in Namakongoro through stakeholder consultations and participatory mapping of a 0.47 km² octopus fishing ground. Baseline data on catch, octopus size, and fishing effort were collected before implementing a three-month closure. from August to October. Community members were trained in monitoring and enforcement, while ecological assessments and fisheries monitoring were conducted throughout the closure period and during controlled reopening.

RESULTS

-  Catch per unit effort (CPUE) increased from 4.5 to 37 kilograms
-  Maximum octopus weight increased from 1.4 kg before closure to 4.0 kg after reef reopening.
-  A total octopus catch of 1,632 kg was recorded during the reopening event.
-  A total of 893 kg of finfish was harvested during the reopening of the closure area.
-  Improved compliance with fisheries management measures was achieved through community-based patrols, catch monitoring, and adherence to licensing requirements.

Indicator	Before closure	After closure/reopening
Maximum weight of octopus recorded	1.4kg	4kg
CPUE Mean Kg/trip	4.5kg	37kg
Mean income per trip (TZS)	29,5	277,5
Ecological recovery	Moderate	Increased
Compliance level	Low	High



CONCLUSION

Community-led reef closure improved octopus productivity, fisher incomes, and compliance with fisheries management measures. Increased finfish harvests and juvenile fish occurrence indicate positive ecosystem recovery. The approach demonstrates the potential of temporary reef closures to support sustainable fisheries and marine ecosystem resilience.

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Reference

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