

SEA CUCUMBER FISHERY IN MAINLAND TANZANIA AND ZANZIBAR SHOULD BE MANAGED AS A SINGLE UNIT | *By Valeli Bugota*

A study titled “Low genetic diversity and lack of genetic structure among populations of the sandfish *Holothuria (Metriatyla) scabra* on the Tanzanian coast” has found that the tropical sea cucumber fishery off mainland Tanzania and Zanzibar may be under threat. **Fishers in Zanzibar are targeting the same stock that is protected in mainland Tanzania, compromising management efforts made by mainland Tanzania, and threatening the fishery’s sustainability despite Tanzania’s efforts.**



The sandfish *Holothuria scabra* is a tropical sea cucumber with a wide Indo-Pacific distribution stretching from east Africa to the eastern Pacific. **It is the most valuable and commercially important sea cucumber on the world market.** However, overfishing and unsustainable harvesting practices have led to declines in sea cucumber populations all over the world.

The decline has had a negative impact on the income and livelihoods of communities that rely on the sandfish fishery, particularly in developing countries. In response, management strategies have been developed over the last three decades to sustainably promote development, maintenance, or regeneration of wild sandfish.

In Tanzania, the fishery is currently managed under two distinct management regimes:

1. Mainland Tanzania, where it is prohibited with a total closure of the fishery and trade of sea cucumber and its products since 2006; and
2. Zanzibar, where it is permitted.

The study examined the genetic diversity and structure of sandfish populations in Tanzania to assess whether the current management approach is consistent with the fishery’s population.

The current management approach is not consistent with the population structure of sea cucumbers in Tanzania

The study found that there is a single genetic population of sandfish throughout the Tanzanian coastline. **This implies that sea cucumbers in Tanzanian waters share similar characteristics, suggesting that they belong to the same population.**

This implies that there is interbreeding and exchange of genes across the region and that there are no significant barriers to gene flow. The findings indicate that the current management approach is not consistent with the population structure of sea cucumbers in Tanzania.

Sandfish fishery has not recovered despite ban imposed on mainland Tanzania 16 years ago

Sandfish also showed low genetic diversity and small effective population size. Fish populations with low genetic diversity and small effective populations may have a reduced ability to adapt to changing environmental factors, reduced fitness and productivity. **The low genetic diversity and small effective population suggest that the sandfish fishery has not recovered despite a ban imposed on mainland Tanzania 16 years ago.**

This does not necessarily imply that the current measures are ineffective, but because sandfish are broadcast spawners, the lack of recovery suggests that prior to the ban, spawner densities were probably fished to levels below a threshold that maintains reproductive success, making it extremely difficult for populations to recover. Furthermore, a failed recovery could be the result of illegal collection and trade by fishers, as well as exploitation in Zanzibar, which is legal.

Recommendations and management implications

- Since the fishery is a single population throughout the coastline of Tanzania, the fishery should be managed as a single unit.
- Sea cucumber management measures between mainland Tanzania and Zanzibar should be harmonized.
- Enforcement measures should be strengthened to control illegal trade networks to enable the recovery of sea cucumber populations.
- Sea cucumber hatcheries should be set up in both Zanzibar and mainland Tanzania to reduce reliance on wild seed sources and promote conservation of sea cucumber populations.
- Tanzania, as the united republic, should develop a National Strategy and Action Plan to conserve sea cucumbers to promote the sustainable use, conservation and management of sea cucumbers.



READ THE FULL PAPER:

Low genetic diversity and lack of genetic structure among populations of the sandfish *Holothuria (Metriatyla) scabra* on the Tanzanian coast: Marine Biology Research: Vol 18, No 9-10 (tandfonline.com)

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