Seascape Features Govern Catches Of Big Blue Octopus, An Essential Parameter For Sustainable Fisheries Management

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Background
Seascapes features affect the distribution and diversity of animals worldwide. Effects of seascape features on fish assemblages have been described mostly for temperate ecosystems. It is unclear whether tropical fishes, such as octopus cyanea, the most dominating cephalopod in the Western Indian Ocean, respond equally.

Method
We used octopus catch data from August 2018 to February 2020, covering the whole country coast, including all coastal regions. We also mapped reefs along the coast to determine basic landscape features that affect octopus landings.

Results
This study identified two important reef types used by octopus fishers; submerged reefs, entirely underwater even during high spring tide and outer reefs, exposed all times or during the high spring tide. The outer reefs are accessed mainly by foot fishers and submerged reefs by divers. Additionally, we found higher octopuses' abundance in near reefs than distant reefs. For normalised weight, distant reefs had a higher weight than closer reefs. Observation suggests that distant reefs contain few giant octopuses, contributing higher weight, and closer reefs dominated by many smaller individuals contributing less weight. The dominance of smaller individual octopuses near shore is caused perhaps by higher fishing pressure. And inaccessibility of distant reefs to most fishers is thought to give octopuses enough time to grow, contributing to observed higher weight, similar to a closed reef. Reef size, an essential parameter in biogeography, was assumed to regulate the number of individual octopuses in a reef. However, there was no direct relationship between reef size and octopus abundance. Perhaps because the carrying of studied reefs was not reached, though this study found no relation between habitat size and normalised weight, larger habitats are known to support more diverse communities than smaller ones.

Conclusion
In summary, if the octopus management strategy would encourage the exploitation of distant reefs, it would perhaps reduce fishing pressure inshore, enabling smaller individuals inshore to grow, which is an essential step toward effective fisheries
management.