Assessing seasonal variations of octopus maturity and octopus fishers’ livelihood activities in order to determine timings for community-led temporary closures of the octopus (Octopus cyanea) fishery in Cabo Delgado, Northern Mozambique

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The artisanal octopus fishery is an important source of income and subsistence for coastal communities throughout the East African coast. In northern Mozambique coastal communities depend heavily on marine resources. As market demand for octopus increases, so does fishing effort, and decreases in octopus catches are widely reported. The use of temporary closures for octopus management is increasing within the West Indian Ocean region, with evidence for socio-economic benefits to fishers. While timing these closures around octopus’s life cycle (recruitment and spawning peaks) is essential for this approach to be effective, it is also important to ensure that the closure timing fits with the seasonality of fishers' livelihoods. This study applied a mixed methods approach (monitoring of octopus landings and focus group discussions) to determine the biologically and socially most appropriate timing for octopus temporary closures in three villages in Cabo Delgado. The octopus landing results indicate a strong and significant recruitment peak in July, significantly higher average octopus weight in February, and a higher proportion of mature females during November and December. Focus group discussions explored seasonal variations in catch and fishing effort for octopus fishermen (divers on subtidal areas) and octopus fisherwomen (gleaners on intertidal flats), and illustrate catches are low during the rainy season (December-April), with a corresponding reduction in effort linked to low prices and market demand. Women and men's highest catches were during the dry season, but with differences due to different fishing gears and tactics. The results of this study also consider octopus fishers' broader livelihood systems, and fishers' perceptions of the most appropriate timing for temporary closures. The research illustrates the potential tensions when designing an ecologically and socially appropriate fisheries management measure, the importance of examining both the social and ecological aspects of the fishery, and makes recommendations for fisheries managers.