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Impact Assessments of Bottom Trawl Fisheries on VME Indicator  
Species (project SER2021-03 ToR2)

*Relate to agenda item: 10*

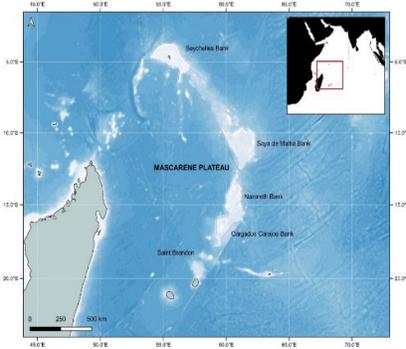
Working paper  Info paper  Restricted

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**Abstract**

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# Impact Assessments of Bottom Trawl Fisheries on VME Indicator Species

Southern Indian Ocean Fisheries  
Agreement

SER2021-03

Final Report

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## Executive Summary

The Saya de Malha Bank (hereafter “Saya de Malha”) is the world’s largest submerged ocean bank, covering an area of approximately 41,000 km<sup>2</sup>. Saya de Malha is a highly productive ecosystem and is thought to contain among the most extensive seagrass areas in the world, interspersed coral reefs. As such, Saya de Malha is likely an important biodiversity hotspot which may be highly sensitive to the impacts of fishing. Saya de Malha falls within the Southern Indian Ocean Fisheries Agreement’s (SIOFA’s) area of competence whom, amongst other responsibilities, set out the management of bottom trawling activities under CMM 2020/01. This includes the development and provision of advice for encounters and associated thresholds for VME species.

This report aims to assess whether bottom trawl fisheries on Saya De Malha have severe adverse impact (SAI) on VME indicator species, using the information collected and collated under the Scoping Study on Saya de Malha Fisheries. VMEs are groups of species, communities or habitats that may be vulnerable to impacts from fishing activities. Several VME taxon have already been defined by SIOFA in CMM-2020-01 and these were assessed. Seagrass was also assessed given its prevalence on Saya de Malha. Assessing the potential for SAI on VMEs needs to consider ‘impact’ and ‘risk’ (the intensity, duration, spatial extent and cumulative effects of fishing activities), and define the dependency of these elements on spatial and temporal scales. ‘Overall risk’ can be defined as the risk remaining after monitoring, management and mitigation measures are accounted for.

At present the identification of VME species, their distribution and the impacts of bottom trawl fisheries on Saya de Malha is poorly understood. The first assessment of flora and fauna of Saya de Malha was completed 20 years ago. Recent studies on Saya de Malha and or the SIOFA area since have focused on physical oceanography, ocean productivity and pelagic and demersal resources. This study takes the first steps towards an informed assessment of bottom trawling impacts on VME species on Saya de Malha by inferring the potential distributions of VME species based on estimated depth ranges from closely related species, or the same species but from different regions, and considering their spatial overlap with the known spatial distribution of bottom trawl fisheries (based on AIS data from Global Fishing Watch, available for 2020 only) and semi-quantitative assessments of species tolerance to and recovery from trawling activities. The findings indicate that the highest-risk VME species are Euryalida (basket star), Actiniaria (sea anemones), Crinoidea (crinoids), and Cidaroida (sea urchin), followed by Stylasteridae (lace corals), Alcyonacea (soft corals), Antipatharia (black coral), and Pennatulacea (sea pens). The lowest risk VME species are Bryozoa (bryozoans), followed by Gorgonacea (sea fans) and Anthoathecata (athecate hydroids). Sea fans.

At present the level of trawling activity appears low with Thailand the only confirmed fishing nations operation only two and three vessels in 2019 and 2020, respectively. This low-effort serves to limit the spatial overlap between many VME species and trawling activities. However, if trawling were to increase toward levels seen in earlier years (i.e., 56 and 58 vessels in 2015 and 2016, respectively) the spatial overlap with, and thus the risk to, many VME species would likely increase substantially and may be a cause for major concern.

In order to better understand the bottom trawl fisheries interactions with VME species of Saya de Malha, SIOFA should prioritise efforts to more precisely document species and fisheries effort distributions both historically and in future. This would serve to improve confidence in the assessment of impacts from ongoing fisheries and allow for evidence-based management decision-making and the formulation and implementation of appropriate management actions if required.