Sea stars or starfish, belonging to the phylum Echino-dermata and class Asteroidea, are ecologically important and diverse members of marine ecosystems. They are found at various depths ranging from the intertidal to abyssal zones (Gale, 1985). The estimated number of species in this class is 1900, belonging to seven extant orders (Mah and Blake, 2012). The rich fossil history of sea stars dates back to the early Paleozoic (Gale, 1985). Sea stars predate mostly on benthic invertebrates (Wells et al., 1961; Mauzey et al., 1968; Sloan and Robinson, 1983; Magnesen and Redmond, 2012), and are known to regenerate damaged parts or lost arms (Mladenov et al., 1989).

The ecologically important corallivorous crown-of-thorns starfishes (COTS) Acanthaster spp. have gained particular attention among the sea stars due to their significant contribution to the loss of hard coral cover globally (Conand, 2001; Emeras et al., 2004; Conand et al., 2016; Pratchett et al., 2017; Conand et al., 2018; Caragnano et al., 2021). The displacement of COTS principally occurs at night, ranging between less than 1 m to 19 m day⁻¹. This wide difference in the daily movement is dependent on the availability of the preferred coral prey, Acropora spp. (Ling et al., 2020). Despite the uncertainty about the main causes leading to COTS outbreaks, Babcock et al. (2016) proposed that elevated nutrients leading to phytoplankton blooms, acting as abundant food sources for Acanthaster larvae, and removal of key predators can cause or exacerbate an outbreak, eventually resulting in a decrease in coral cover. They also suggested that multiple factors act together to initiate an outbreak.

Numerous reports on the devastating effect of COTS have emanated from various regions globally, particularly from the Indo-Pacific region. The Great Barrier Reef (GBR) has witnessed four outbreaks since the 1960s (in 1962, 1979, 1993 and 2009) (Babcock et al., 2016; Pratchett et al., 2017), resulting in the average hard coral cover across the GBR halving during the period from 1985–2012, largely attributed to Acanthaster cf. solaris (Babcock et al., 2020; Westcott et al., 2020). Saponari et al. (2015) reported an average density of 120±51 COTS per 900 m² at Mama Ghiri, Ari Atoll in the Republic of Maldives. This led to approximately 70 % coral mortality comprised almost entirely of tabular Acropora mainly belonging to the species A. cytherea, A. clathrata, and A. hyacinthus. Moreover, Plass-Johnson et al. (2015) noted high densities of COTS reaching up to 37 individuals per 250 m² in a region close to two river mouths, which resulted in the loss of half the live coral at 2 out of the 12 islands studied in Indonesia.

In the Western Indian Ocean (WIO) region, there have been some reports of high densities of COTS; for instance in Seychelles in 1997 and 2014 (Obura et al., 2017). In 1994, a COTS outbreak was reported on the reefs of northern KwaZulu-Natal, South Africa, with the hard coral genera Acropora, Montipora and Fungia being initially favoured, followed by the frequently avoided colonies of Pocillopora (Schleyer, 1998). This was in contradiction with other observations where Pocillopora was found to be one of the preferred coral genera of COTS (Pratchett, 2001, 2007; De’ath and Moran, 1988). There appears to be a gap in...
Figure 1. A, B. Crown-of-thorns starfish *Acanthaster* sp. spotted on a rhodolith bed at 38.11 m at Saya de Malha Bank; C–N. Sea stars spotted at Saya de Malha Bank. C. *Culcita* sp. 1 - Location 36 at a depth of 38.71 m and 25.07 m, respectively; D, E. *Culcita* sp. 2 - Location 39 at a depth of 37.84 m; F. *Protoreaster lincki* - Location 13 at a depth of 31.5 m; G. *Linckia* sp. - Location 39 at a depth of 35.09 m; H. *Linckia* sp. - Location 36 at a depth of 26.11 m; I. *Protoreaster lincki* - Location 39 at a depth of 41.81 m; J. *Culcita schmideliana* - Location 39 at a depth of 32.74 m; K. *Culcita* sp. 3 - Location 40 at a depth of 43.42 m; L. *Linckia* sp. - Location 36 at a depth of 26.16 m; M. *Rathbunaster* sp. - Location 38 at a depth of 175.23 m.
the scientific information available in the WIO region on COTS species. Although research has shown the occurrence of *Acanthaster mauritiensis* in this region (Haszprunar *et al.*, 2017), additional information is required to provide a broader understanding on the phylogeography and evolution of these species.

In May 2018, the Indian Ocean Research Expedition conducted under the EAF-Nansen Programme at the Saya de Malha Bank of the Mascarene Plateau enabled the sighting of one *Acanthaster* sp. individual (Fig. 1A, B) using the Argus Remotely Operated Vehicle (ROV). A total of 12 transects at 7 locations for an average of 30 min to 1 hour were covered. The *Acanthaster* sp. was observed at locations 38 (SS38) on a rhodolith bed at a depth of 38.11 m. The presence of the coralline green macroalga *Halimeda* on the bed was also noted while the corals in the vicinity were widely spaced and included *Porites* sp., branching *Acropora* sp., *Pocillopora* sp., *Heliopora coerulea* and other massive hard corals. Further visual inspection revealed the presence of at least 17 other individuals of non-corallivorous sea stars (with *Protoreaster* sp., *Linckia* sp. and *Culcita* spp. being more dominant) during the cruise at depths ranging between 23 m to 50 m (Fig. 1 C-M) at locations at locations SS34, SS36, SS37, SS38, SS39, SS40 and SS42 (Fig. 2). The substrata on which the sea stars were spotted were sand, rhodolith beds, corals, macroalgae and seagrass beds.

Koonjul *et al.* (2003) reported 28 COTS around Mauritius Island, spread over a reef area of 0.6 km² (about 4.67 x 10⁻³ per m², or 0.01 per 250 m², or 0.04 per 900 m²) with a substrate mix comprising corals, algae, sand, and coral rubble. The first observation of only one individual of *Acanthaster* sp. at one location (out of 7) after 30 min of video time at Saya de Malha Bank does not signify any warning of significant damage to corals in that region. However, this information is noteworthy as it brings forth new knowledge on Asteroïds from the Saya de Malha Bank, an unexplored region of the WIO which appears to harbour a high diversity of sea stars.

There are considerable challenges to addressing the knowledge gaps relating to the biology, ecology and genetics of *Acanthaster* spp. Differences in morphology, in particular colour patterns, among COTS species reported from the Pacific and the Indian Oceans suggest divergent biology and ecology (Haszprunar, 2017). Further research on and exploration of the seabed is required to build a more robust and in-depth understanding of the sea star distribution at the Bank, especially the corallivorous COTS. Thorough morphological, morphometric, and genetic analyses are necessary to characterize the COTS from this region to assist any future development of key actions required for management.

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