

Preliminary investigations on the presence of alien invasive species in the Passikudah coral reef

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Invasive species are considered one of the greatest threats to our marine ecosystems. Marine invasives have had significant impacts on biodiversity, ecosystems, fisheries, mariculture, human health, industrial development and infrastructure all over the world. However, very few studies have been carried out in the Indian Ocean regarding alien invasive species. This study was intended to investigate the presence of invasive species in the Passikudah coral reef and to assess their status. Line transect surveys and random shallow water dives were carried out over a period of 6 months to identify possible invasive species of algae, invertebrates, and fish species in two coral reef habitats, namely, a pristine reef (3-5 m depth) and a damaged reef (1-3 m depth). Several algal species belonging to Chlorophyta (green algae), Phaeophyta (brown algae), and Rhodophyta (red algae) were identified out of which *Caulerpa racemosa*, *Padina* spp, *Sargassum* spp, *Turbinaria* spp, *Gracilaria* spp, and *Halimeda* spp were dominant in the dead reef area. One species of marine algae listed by the IUCN invasive specialist group, *Caulerpa taxifolia*, was also found in minute amounts(2.8%) in several areas of the dead reef. Algae covered 72% of the dead reef, but only 11% of the pristine reef habitat. A *Sargassum* dominated live coral patch was also observed on the reef crest area towards the mid-north section of the bay, outcompeting the corals. Only six Crown of Thorn starfish, *Acanthaster planci*, were observed throughout the study period (5 in the pristine reef, 1 in the dead reef). However, the invertebrate fauna were fairly low (2.3% and 6.2% in dead and pristine reef, respectively). The presence of large shoals of the Indo-Pacific Sergeant, *Abudefduf vaigiensis* (38% out of total number of fish recorded) which is considered an alien invasive species in the Pacific Ocean, is also a notable feature in the Passikudah coral reef. The results suggest that the pristine reef is relatively free of alien invasive species at present. However, the degrading coral reef may be vulnerable to invasive attacks by certain algal species. Therefore, algal growth should be closely monitored to make management interventions to conserve the Passikudah coral reef.

Key Words: *Caulerpa taxifolia*, invasive, marine, Passikudah

The authors would like to acknowledge the financial assistance given by Tokyo Cement Group in conducting research in the Passikudah coral reef.