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Management of a threatened reef to establish its ecosystem sustainability through inter-agency coordination mechanism: A case from Kayankerni, Eastern Coast of Sri Lanka

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Sri Lanka is considered as one of the biodiversity hotspots in the world due to its richness and tremendous value of biodiversity. Among these hotspots Kayankerni Coral Reef Ecosystem, located in Eastern coast of Sri Lanka off Kalkudha in Batticoloa district (approx. 7º59.500N, 81º32.000E) is another healthier coral reef ecosystem with vibrant coral, vertebrate and invertebrate diversity. This research focused on determining the species diversity and abundance of corals and ornamental fish species and current threats towards the ecosystem. Further, to explore possible management measures in order to overcome identified risks through Inter-Agency Coordination Mechanism (IACM) aiming to establish a sustainable management mechanism. Species diversity and abundance were determined by using Point Intercept Transect (PIT) method by using five 50m length transects covering the study site. Shannon-Weiner Index (H), Evenness and Dominance were calculated. Current threats on the coral reef and their mitigation measures were identified using questionnaires, informal discussions, and workshops. Highest H is 0.7802 encountered in transect three, while lowest H is 0.4502 in transect four. There are 35% of *Acropora* branching species, 25% of *Montipora* foliose species and 24% of *Acropora* digitate species while 44% of Surgeon fish, 21% of Parrot fish and 21% of Butterfly fish. 42% of total coral cover, 48% of dead coral cover and 10% of bleached coral cover indicated that the need of immediate management mechanism to avert major threats such as bottom set nettings and dynamite fishing. Kayankerni coral reef ecosystem was declared as a Marine Protected Area (MPA) by the gazette on 11th of April 2019 (gazette number 2118/59) under the Fauna and Flora Protection Ordinance (chapter 469) as an outcome of this study.

Keywords: Kayankerni Coral reef ecosystem, Species diversity, Current threats, Mitigation measures, marine protected area

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