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Present Status of Coral Reefs in Southern Coastal Waters of Sri Lanka: A Base Study from Hikkaduwa to Tangalle

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Abstract

Selected coral reefs were monitored to assess the current status of the reefs in Southern coast of Sri Lanka. The underwater visual census (UVC) survey was conducted in September to November 2014 at seven selected sites. i.e., Hikkaduwa, Rumassala, Weligama, Mirissa, Polhena, Dondra and Tangalle in the Southern coast, namely. Line intercept transect method (LIT) was used to estimate the coral and sessile benthic cover categories. Total of 84 surveys transects, four transects for each site at three replicates were deployed at shallow depth between 1 to 3 m. Environmental parameters were obtained to support the diversity observations. Percentages of sessile benthic categories (live coral, dead coral, coral rubble, rock, sand/silt) showed a significant differences among surveyed sites. The highest mean coral cover was observed at Weligama (64.75%±17.71) followed by Mirissa (49.97%±11.26), Polhena (21.57%±7.83), Hikkaduwa (19.68%±3.83), Dondra (17.31%±7.84), Rumassala (12.5%±5.59) and Tangalle (5.08%±7.66). The highest mean dead coral cover was at Hikkaduwa (36.05%±5.34) while the highest mean coral rubble cover was observed at Polhena (31.95%±9.37). Altogether 14 coral groups were recorded including *Acropora* sp., *Pocillopora* sp., *Favia* sp., *Montipora* sp., *Millepora* sp., *Goniastrea* sp., *Favites* sp., *Podabacia* sp., *Pachyseris* sp., *Pavona* sp., *Leptoria* sp., *Porites* sp., *Galaxea* sp. and *Echinophora* sp. From which the abundant species were *Acropora* sp., *Montipora* sp., *and Pocillopora* sp. The highest mean Shannon diversity indices (H') for coral groups showed at Mirissa (1.297±0.149) while the highest mean Evenness was at Rumassala (0.895±0.054).Temperature, DO, salinity, conductivity measurements were in acceptable levels which are favorable for reef growth. The TDS/TSS, concentrations of nitrate and phosphate in all sites were greater than the critical levels for a sound reef health. Most of the Southern coastal waters were observed degrading due to sedimentation, excess growth of calcareous alga *Halimeda* sp., destructive fishing practices, coral trampling and poor coastal management practices causing negative impacts in these reefs. These findings emphasise that the need for adopting effective management and conservation measures to protect the high coral diversity in Southern coastal waters of Sri Lanka.

Keywords: Coral reefs, Southern Sri Lanka, Environmental parameters, Coral reef monitoring, Human disturbances