

Present status of the shallow reef patches at the Bar Reef Marine Sanctuary, Sri Lanka: 2021

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The Bar Reef Marine Sanctuary (BRMS) has been subjected to various natural and anthropogenic stressors for decades and notable fluctuations in live hard coral (LHC) cover has been observed over the past years. A steady increase in the HC cover was observed up until 2011 and thereafter it was evident that the degradation of the existing coral cover had accelerated remarkably. To assess the current status, a preliminary survey was conducted at the shallow reef patches of BRMS in February 2021 to investigate the diversity and the abundance of existing coral species. Line intercept transects (LITs), 50 m in length were deployed randomly between the depths of 1.5 m to 3.0 m and subsequent coral rubble (CR = 48.8%), non-partial dead coral (DC = 8.6%), macroalgae (MA = 13.4%) covers and other substrate types (O = 29.2%) were recorded. Total mortality in LHC species (0% cover) was observed during the preliminary survey, and was also evident that the structural integrity of the DCs was severely depleted, creating extensive unconsolidated rubble fields in the vicinity. A negligible proportion of new coral recruits (less than 1%) of *Acropora* sp. was observed at the study site. Moreover, an abundant overgrowth of seaweed *Stoechospermum polypodioides* was visible in all sampling sites whereas the occasional occurrence of *Halimeda opuntia* and *H. macroloba* were also evident in small numbers. Contrary to the 1998 mass bleaching event which recorded a 40% increment of LHC cover in shallow reef depths within a five-year period, our results suggest that no such recovery was observant even after five years from the 2016 bleaching event. Hence the reef should receive immediate attention and restoration measures should be implemented to enhance the reef resilience to speed up recovery.

Keywords: bar reef marine sanctuary, live hard coral cover, line intercept transect, mass bleaching events, reef recovery

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