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Impact of sedimentation and its organic matter content on two reef sites in the southern coastal belt of Sri Lanka

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Polhena (Matara) lagoon reef and the patchy granite reef site at Tangalle close by the fishery harbor are shallow reef sites that have been affected by severe anthropogenic activities and fresh water discharges in the past and recent times. These sites were selected to study the impact of sedimentation on coral distribution and diversity and on distribution of sea grasses. Sites were monitored from September 2000 to December 2002.

The rate of sedimentation (g m^{-2} day^{-1}) and percentages of organic matter content in sediments, percentage cover of coral and macro algae and other non-living materials (mainly sand) and the physicochemical parameters within the sites were determined using standard methods.

Highest and the mean sedimentation rates observed in Polhena and Tangalle were respectively 3808 g m^{-2} day^{-1} in July 2001 and 1618±709 g m^{-2} day^{-1} and 2026 g m^{-2} day^{-1} in September 2000 and 749±456 g m^{-2} day^{-1}. Highest and the mean percentages of organic matter content recorded in above two reefs were 13.56% and 11.4±1.4% in May 2001 and 34.4% and 19.7±7.3% in October 2000 respectively. Polhena had a higher number of live coral genera (10) and density (18.35%) with dominance of *Podobacia sp* (27.21%) when compared to Tangalle (04) with a coral density of 8.99% dominated by *Montipora sp* (16.4%). A larger area of the Tangalle reef site was covered with macro algae (15.41%) and sand (33.95%) when compared to Polhena (10.69% & 22.68%) respectively. Existence of high turbidity during times of high sedimentation was indicated, but daily sampling is necessary to establish this relationship.

High macro algae and low coral cover in Tangalle could be attributed to high organic matter content in the sediments that get accumulated on the reef. Large cover of *Montipora* sp. also could be due to the high content of organic matter. Latter will be confirmed through further investigations. High sedimentation rate in Polhena may be due to high freshwater discharge from the Nilwala River. Sediments collected from both sites will be subjected to chemical analysis in order to identify further impacts of heavy metal and organic components within the sediments of above two reef sites.

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