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Preliminary Study of Sea Urchins Associated to Two Locations in Southern Coast of Sri Lanka

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Abstract

Sea urchins (Echinodermata) are an essential class of herbivores in both temperate and tropical food webs. They maintain the amount of macroalgal cover, affecting primary productivity and phase changes on reefs. The sea urchin has been recognized as a cultivable marine invertebrate species because of its commercial potential. This study aims to determine sea urchin diversity and abundance at two locations covering the Pareiwella and Polhena coral reefs in southern Sri Lanka. The study was carried out using permanent transect sampling method and transects were parallel to shoreline with the length varying from 10m-20m at the selected sites during low tide at 0.5m-1m depth range in Pareiwella and 0-0.5m depth range in Polhena to estimate the sea urchin abundance during December 2023 to January 2024. In the field, a 0.5 m × 0.5 m quadrate was placed along transects at permanent points, and each species of sea urchin was counted within the quadrate. The abundance and diversity of Sea urchins at two sites were estimated, and their mean values were compared. According to the results, a total of 4-6 sea urchin species (*Diadema setosum, Stomopneustes variolaris, Toxopneustes pileolus, Tripneustes gratilla, Echinothrix calamaris* and *Echinometra mathaei* from Polhena and *Diadema setosum, Stomopneustes variolaris, Tripneustes gratilla,* and *Echinometra mathaei* from Pareiwella) were identified between the two sampling sites. On the Pareiwella and Polhena site, sea urchin distribution is recorded as 33 individuals m^{-2} and 12 individuals m^{-2} respectively. Shannon Weiner index of diversity was highest in Polhena (H'=1.1). Results showed the dominance of *Stomopneustes variolaris* in Polhena reef and *Echinometra mathaei* in Pareiwella reef. *Stomopneustes variolaris* and *Echinometra mathaei* resulted in higher abundances for distribution in the Pareiwella and Polhena site respectively. Further studies are necessary to investigate the feeding preference of sea urchins in a wider context.

Keywords: *Sea Urchins, Diversity, Abundance, Distribution*