

Annual fluctuations in populations of sea urchin *Stomopneustes variolaris* (Lamarck, 1816) in two rocky shores of southern Sri Lanka

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Sea urchins play a key role in rocky shore habitats as grazers. They form urchin fronts and extensively graze on macro algae resulting in regions of barrens and restructuring the habitat. The population status of *Stomopneustes variolaris* (Lamarck, 1816) of Phylum: Echinodermata Class: Echinoidea, the most abundant sea urchin species in intertidal zones of Sri Lanka was investigated from June 2008 to May 2009. The study evaluated the density of *S. variolaris* and the influences of macro algae cover in two rocky shore areas from Hikkaduwa (legally protected) and Ahangama (legally unprotected) in Southern Province. Three habitats (near shore, intermediate and splash) were selected in each site. Line transect and quadrat (50X50cm) sampling methods were used to measure macroalgae cover whilst *S. variolaris* density of each habitat was measured using belt transect method (10m X 0.5m) every month. Mean percentage occurrence of algae and density of *S. variolaris* were analyzed using multivariate techniques and general linear models. Accordingly, Canonical Variate Analysis of flora confirmed the distinctiveness of the three habitats in relation to floral cover mainly due to differences in the dispersion of *Hypnea pannosa* and *Gracilaria* sp. sp. in Hikkaduwa and due to *Padina* sp., *Ulva lactuca* and *Jania unguolata* in Ahangama. Ninety nine percent of the variation was explained by axes 1 and 2 in both Hikkaduwa and Ahangama. Mean densities of *S. variolaris* recorded for Hikkaduwa and Ahangama were $1.65 \pm 0.46 \text{ m}^{-2}$ and $0.71 \pm 0.22 \text{ m}^{-2}$ respectively and Hikkaduwa had a higher density compared to Ahangama ($p < 0.05$). In Hikkaduwa the highest mean density ($3.56 \pm 1.48 \text{ m}^{-2}$) was recorded in splash zone ($p < 0.05$), whilst in Ahangama the highest mean density ($1.42 \pm 0.53 \text{ m}^{-2}$) was recorded in near shore habitat ($p < 0.05$). A non significant peak density was observed in the months of April and July in Hikkaduwa, and October in Ahangama. Results indicated *S. variolaris* inhabiting in higher numbers towards the sea in Hikkaduwa but in Ahangama near to coast, perhaps a response to greater disturbance in Hikkaduwa due to visitors.