ABSTRACT

Sea Urchin Abundance and Distribution in the Port Royal Cays Area of Jamaica

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The primary aim of this study was to reassess the composition of the sea urchin population in the Port Royal Cays area, Jamaica, highlighting the abundance and species composition of the urchins and comparing this to data published in 1992, and 1996 from the same stations in the Port Royal Cays area. Six permanent 2 m by10 m transects were established parallel to the reef surrounding the five previously studied areas: Drunkenman's Cay, East Middle Ground Shoal, Gun Cay, Lime Cay and Maiden Cay. The abundance and species composition of the urchins were recorded over a twelve month period.

The urchin types found were: *Diadema antillarum* Philippi, *Eucidaris tribuloides* Lamarck, *Tripneustes ventricosus* Lamarck, *Lytechinus variegatus* Lamarck and *Echinometra spp.* The sites were dominated by the genus *Echinometra spp.* and secondarily by *Diadema antillarum*. Previous research found all 5 urchin types distributed at 3 of the 5 sites examined, however, no abundance data were collected. The current study indicates that *D. antillarum* (0.02 – 0.91 individuals m^{-2}) and *Echinometra spp* (0.00 – 47.01 individuals m^{-2}) were the dominant types, having the largest densities and being found at all sites. Numbers recorded in

1992 from Lime Cay indicated mean *D. antillarum* densities of 0.61 individuals m^{-2}, indicating a recovery from the 1983 mass mortality event. The present study however, indicates a decline in densities at the Lime Cay area (now at 0.08 individuals m^{-2}) since 1983. The reasons for this seeming decline are unknown but may be due to population dispersal as the *D. antillarum* densities at three of the remaining sites were 0.50 individuals m^{-2} at Maiden Cay, 0.76individuals m^{-2} at Gun Cay, 0.91 individuals m^{-2} at Drunkenman's Cay.

The study also examined the difference in abundance of *D. antillarum* individuals at the five sites between day and night. During the night sampling periods, the *D. antillarum* abundance increases at all sites and in four of the five sites examined this increase was statistically significant.

Keywords: Denise Jeanette Henry; *Diadema antillarum; Eucidaris tribuloides; Tripneustes ventricosus; Lytechinus variegatus; Echinometra spp;* distribution; Port Royal Cays; Jamaica.