

ABSTRACT

The Abundance and Distribution of Epibenthic Bryozoans on the roots of
Rhizophora mangle in and around Kingston Harbour, Jamaica

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The abundance and distribution of the bryozoan species on the prop roots of the red mangrove, *Rhizophore mangle*, at diverse locations around Kingston Harbour was described. Specific environmental parameters were examined to investigate their relative effects on the pattern of abundance and distribution observed. The study was carried out in four mangrove areas (Port Royal, Great Salt Pond, Dawkins Pond and Hunts Bay) over a 15-month period between September 1994 and December 1995 and included a total of 12 stations.

Salinity, suspended solids, temperature and dissolved oxygen were measured at all stations. Reduced salinity corresponded to periods of elevated rainfall and the salinity for Hunts Bay was consistently lower than that obtained at the other locations. Elevated levels of suspended solids appear to be associated with periods of lowered salinities. Water temperature tended to be uniform throughout the water column with the highest temperatures observed in Hunts

Bay and the lowest in Great Salt Pond. Dissolved oxygen was variable and tended to decrease with depth at all stations.

Twelve categories (Algae, Porifera, Hydrozoa, Anthozoa, Polychaeta, Cirripedia, Amphipoda, Bivalvia, Bryozoa, and Ascidiacea, Bare Root and "Other") were selected for classification of the organisms found in the sessile community of the mangrove roots. The most abundant group overall were the bryozoans which covered 22.9% of the root surface. This group was found at all the sites in relative abundances ranging from 2-70%. The next most abundant group was the Hydrozoa with an overall percentage cover of 13.7% followed by "Bare Root" with 11.8% and Algae with 10.3%. The least abundant group was the Anthozoa which made up 0.6% of the community.

This study identified 18 species of Bryozoa inhabiting the rhizophore community. Species diversity was found to be highest in Port Royal with 16 species while Hunts Bay and Dawkins Pond had the lowest diversity having only 3 species each. Great Salt Pond had 8 species. Six growth forms were observed, all of which were represented in Port Royal. Dawkins Pond and Hunts Bay contained only those forms which covered the roots in a mat of creeping colonies. The highest bryozoan abundance, measured as percentage cover, was observed in Hunts Bay (71%) and least in the Great Salt Pond (4%).

Four diversity indices were used to determine the diversity of the total epiphytic community and the bryozoan community. All of the indices determined that the diversity of the epiphytic community was greater than that of the bryozoan community. Also, the diversities for the Port Royal and the Great Salt Pond stations were higher than those for Dawkins Pond and Hunts Bay. The results of Bray-Curtis Cluster Analysis and 2-dimensional MDS configuration of the bryozoan and total community showed that Dawkins Pond and Hunts Bay were similar and generally dissimilar from the other stations. The similarity between the station pairs in Port Royal showed varying degrees of correspondence while those in the Great Salt Pond were not particularly similar.

Of the parameters measured salinity appeared to be the most important factor influencing the abundance and distribution of the bryozoan communities.