

Abstract

Comparing zooplankton abundance and community structure across a polluted harbour, coral cays area, shelf edge and offshore bank, south-east coast, Jamaica

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Zooplankton samples were collected at 4 locations in oceanic, shelf and harbour mouth waters off Kingston, Jamaica in an effort to compare the zooplankton communities in these contrasting areas. The stations: Harbour Shoal Beacon (HSB), South East Cay (SEC), Windward Edge (WE) and California Bank (CB) were considered to be representative of the water masses in each area. Samples were collected fortnightly with a vertical haul, from April, 2004 to October 2004 using plankton nets of 3 different mesh sizes: 64 μm , 200 μm , and 600 μm . Mean abundances across the area ranged from a high at Harbour Shoal Beacon (5858.5 ind/ m^3) to a minimum at California Bank (2124.19 ind/ m^3).

171 species of zooplankton were identified from the stations, of which copepods were the most dominant with 76 species. Seventy-five species of zooplankton were identified from harbour mouth (HSB), 107 from SEC, 110 from exposed shelf (WE), and 95 from oceanic (CB). Larval forms were also important across the stations with copepod nauplii, fish eggs and echinoderms being major constituents.

The zooplankton community structure (Percent similarity coefficient and Jaccard community coefficient) indicated the presence of three groups which reflected the

different water masses: station HSB (Harbour), station SEC (shelf) and stations WE with CB (shelf edge and offshore). Groupings based on mean Euclidean distances were similar.

The dominance of individual species was useful in identifying different water masses. *Lucifer sp.* and *Penilia sp.* were indicative of the eutrophic Kingston Harbour waters and *Macrosetella sp.* and *Farranula carinata* were identified as indicators of offshore waters.

Keywords: Zooplankton communities, Harbour; Shelf; Oceanic, Southeast coast of Jamaica