

ABSTRACT

Zooplankton as indicators of the water quality status of the Morant Wetlands Area, East Coast, Jamaica

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Purpose of the study was to examine the zooplankton species composition and abundance throughout the Morant Wetlands Area. Zooplankton samples were collected over a 14 month period (April 2007-May 2008) at 11 stations in Foul and Folly Bay on the southeast coast of Jamaica. Horizontal tows were done using a 200 μ m net SCOR WP2 pattern (UNESCO 1968) with 0.5m hoop diameter. Temperature, Salinity, Dissolved oxygen and pH were collected in tandem with the zooplankton samples. The study was aimed at assessing the species composition, abundance and distribution of zooplankton within the bays over the annual cycle. The number of species, total numbers of zooplankton, major zooplankton groups and zooplankton indicators species were used. Stepwise Multiple Variable Selection Regression was used to explain the variation in the major biological parameters, by regressing with physicochemical, phytoplankton and unrelated biological parameters.

A total of 116 taxa were collected with the groups Copepoda and Larvae dominating. Mean total abundances ranged from 2192 animals/m³ just outside the reef area to 325 animals/m³ close to the shore. The stations within the bay had lower abundances than those just outside of the reef and close to oceanic influence. *Paracalanus spp.* and *Farranula gracilis* dominated areas receiving oceanic influence and *Oithona occulata* and Zoea larvae dominated areas within the bay. The zooplankton abundances showed monthly variation but no seasonal; however, some groups/species showed variation in relation to rainfall. The spatial variation in species composition and relative abundances were attributable to biological factors and circulation pattern.

On the basis of comparisons between the zooplankton of the Morant Wetlands area with the zooplankton of polluted Kingston Harbour, pristine Discovery Bay and the Port Royal Cays area, the Morant Wetlands area can be classified as a pristine bay. The pristine state is evident in parameters like species composition and abundances as well as the paucity of species considered as being pollution indicators in comparable waters.

Keywords: Zooplankton, Indicators, Water quality, Morant Wetlands, Jamaica.