

## ABSTRACT

Zooplankton samples were collected over a twelve (12) month period (October 1995 to September 1996) along with physical data (Temperature, Salinity and Dissolved Oxygen) in Discovery Bay on the narrow north coast shelf of Jamaica. Vertical hauls using 200 $\mu$ m and 64 $\mu$ m nets (SCOR WP2 pattern) with mouth diameters of 0.5 m (UNESCO, 1968) were used to collect samples. The study was aimed at assessing how the species composition of the bay, the community structure of these species and zooplankton abundance varied at selected stations and over the months of sampling. The number of species, total abundances, total abundance of selected taxonomic groups and of selected species (indicators) were used as indices of the water quality throughout the bay. The Percent Similarity (PSc) and Jaccard's (CC) community coefficients assessed similarities in communities and hence possible station associations.

Approximately 107 zooplankton species were collected, 52 of which were copepods. The species were representative of both neritic and oceanic zooplankton. Mean abundances for the area ranged from 1,077 m<sup>-3</sup> for an area just outside of the bay (station 1) to 3,794 m<sup>-3</sup> at a station very close to shore (station 6). Stations closest to shore had greater abundances than centrally located bay stations and stations close to oceanic influence. Monthly variations in total abundances about the mean for each station were between 40 and 70% C.V. Zooplankton abundances were highest at the start (October to December) and end (May to September) of the sampling period, with maximum values recorded in August, and lowest between January to April; with

April having minimum abundances. Calanoids and cyclopoids were the dominant taxa at most stations while Larvae and Larvaceans were also prevalent.

Acartia tonsa was dominant in shoreline areas of the bay, Calanopia americana at deeper stations with significant oceanic influence, and Oithona plumifera, Temora stylifera and Undinula vulgaris were dominant at stations closest to influence from oceanic waters. These species were thus considered as indicators of these different areas within the bay.

The community indices showed similarities between stations closest to oceanic influence, similarities between central bay stations and similarities between shore based stations. Higher abundances at inshore stations may signify areas experiencing possible pollution stress. When abundances and species compositions are compared to values for Kingston Harbour (a highly eutrophic bay on the South Coast of Jamaica) and offshore Discovery Bay the entire bay may not be classified as eutrophic, but as generally still in a pristine state.