

**DISTRIBUTION, ABUNDANCE AND COMPOSITION OF ZOOPLANKTON
ALONG THREE TRANSECTS, OFF THE KENYAN COAST**

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ABSTRACT

Zooplankton was collected along three transects perpendicular to the coast using a Multiplankton sampler fitted with 200 μm mesh size nets. These transects were located Gazi ($4^{\circ} 26''00$ S, $40^{\circ} 14''14$ E), Sabaki ($3^{\circ} 09''17$ S, $40^{\circ} 13''49$ E) and Kiwayu ($2^{\circ} 04''65$ S, $41^{\circ} 17''72$ E) near the Somali border. A total of 27 samples were collected during the SE monsoons (June - July), and 31 during the NE monsoon (November - December) 1992. Conductivity, temperature, salinity and depth were simultaneously measured along with plankton samples collected. All this data were used to assess zooplankton abundance, community structure, and distribution along the transects from shallow, to deep waters.

All shallower stations recorded higher zooplankton biomass and abundance in both seasons as compared to intermediate and deep water stations. The highest abundance was 1380 organisms. m^{-3} obtained at Sabaki shallow waters during the NE monsoon while highest biomass was 18.6 $\text{mg} \cdot \text{m}^{-3}$ at Kiwayu. These values however did not differ significantly between sites ($P = 0.95$) and between the two seasons ($P = 0.67$). Highest biomass was 18.6 $\text{mg} \cdot \text{m}^{-3}$ obtained at Kiwayu during the NE monsoon, while lowest was 6.8 $\text{mg} \cdot \text{m}^{-3}$ from Gazi during the same season. The biomass however did not differ significantly between sites ($P = 0.16$) and between the two seasons ($P = 0.42$)

A total of 23 major taxonomic groups were identified and enumerated. The taxonomic groups identified for both monsoons were the same, but higher abundance were observed during NE monsoon. Copepoda, Appendicularia, Mollusca, Chaetognatha, Crustacean decapoda and Copepod nauplii were the most commonly encountered groups in order of abundance. Copepoda dominated zooplankton composition at all times forming between 70 -90 % of total

zooplankton composition. The groups Calanoida and Poecilostomoida consistently outnumbered other copepod species. One hundred and twenty species belonging to 45 genera and 30 families were identified. While some of these are the commonly encountered groups in the inshore waters of this part of the Indian ocean, 61 species seem to be new records for this region.

Temperature was the most variable hydrographic parameter among those measured, that correlated best with zooplankton abundance and distribution. Higher zooplankton abundance was recorded in the upper surface waters of about 27 °C. as compared to below the thermocline which had a temperature range between 17.1 and 9.2 °C.

Mean species diversity index of zooplankton (H) calculated spatially for 500m, 1000m and 2000m , increased from shallow to deep waters. Peak diversity was $H = 1.44$ at the 1000m station transect lowest diversity was $H = 1.14$ at the shallow shelf station. Vertically, higher diversities were obtained in the upper surface waters.