

# Copepod community in Versova mangrove, Mumbai, West coast of India, a baseline study

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## Abstract

This paper evaluates the copepod community and ecological parameters from four stations in Versova mangrove which forms a benchmark study for future ecological assessment. Besides being one of the most productive natural ecosystems of the world the mangroves protect the coast from erosion. Habitat degradation due to anthropogenic interference and industrial effluents is evident in the Mumbai coastal ecosystems. Enrichment of coastal waters takes place when mangroves are present by adding dissolved organic matter as nutrient by decomposition of detritus. Salinity varied from 18.1 to 37.1 psu. Average dissolved oxygen value was 5.7 mg/l but low values ranging from 1.6 to 3.7 mg/l was recorded during July August. Phosphate varied from 1.1 to 44.2 µg at/l and nitrate varied from 0.1 to 43 µg at/l. Ammonia was high ranging from 0.3 to 77.0 µg at/l. The values were very high in monsoon may be due to land drainage. High suspended load was observed which ranged from 8 to 782 mg/l during pre-monsoon months. Density of zooplankton (399/m<sup>3</sup>) and copepods (98/m<sup>3</sup>) were low during the period of high ammonia and low oxygen concentration. The system is thoroughly flushed out in monsoon. Versova mangrove supported a rich copepod population during pre and post monsoon contributing 20.8 to 29.9% of total zooplankton. Copepod density is nearly 130 times higher than that of the nearby coastal waters and average density fluctuated between 108 to 467964/m<sup>3</sup>. This is mainly due to the swarming of *Oithona* spp. and epibenthic copepod *Mesochra* sp. The species diversity is less only 17 species whereas 47 species were recorded from the nearby creek and 60 species from the coastal waters. *Bestiolina similis* was the dominant species followed by *Acartia* and *Oithona* spp. Species diversity index varied between 0.22 and 1.62. Highest niche breadth was observed for *B. similis*.

## Keywords

ecology, nutrients, copepod