

M.S.43. HARIDAS, P.—Zooplankton studies in the Cochin Environs—1984—Dr. T.S.S. Rao and Dr. M. Krishnan Kutty.

Detailed studies on the hydrographical features, distribution patterns of estuarine zooplankton, variations in their abundance, species succession, dominance, community structure, and diversity in the Cochin back water system have been compared with other seven estuaries along the Kerala coast namely Veli, Thottappilly, Neendakara, Kallai, Baypore, Korapuzha and Mahe based on year round investigations during 1978.

The hydrographical conditions of all the estuaries except Veli and Thottappilly in general are similar with salinity showing wide variations over the year depending on the onset and intensity of monsoon. The conditions at the estuarine mouth ranged from almost marine to fresh water during different seasons except at Neendakara where the water column remained slightly saline even during the peak monsoon. Steep vertical gradients in salinity, temperature, and oxygen noticed in the Cochin backwaters during monsoon were less pronounced in other estuaries especially Neendakara and Mahe.

Veli and Thottappilly lakes differed from other estuaries in their hydrobiological aspects because of their limited connection to the sea. While Thottappilly remained practically fresh water during most of the year, the water at the bottom was saline at Veli during premonsoon and post monsoon. This in the absence of a free connection with the sea could be explained partly by the dynamics of coastal aquifer and also partly by spill over during intensive wave action.

Zooplankton biomass and total zooplankton counts varied significantly between seasons and estuaries, Cochin recording the highest value followed by Korapuzha and Kallai. Seventy three species were identified from these estuaries. Maximum number was recorded from Cochin. Neendakara ranked next in species richness. Copepoda was the most abundant group followed by zoea larvae and sergestidae.

Carnivorous forms like Hydromedusae, Ctenophora and Chaetognatha through only a small fraction of the total numbers exerted profound influence on other groups especially copepoda.

Among Copepoda families Acartiidae, Paracalanidae and Pseudodiaptomidae formed the bulk of the population constituting 85 to 90% of the total copepods. *Acartia centrura* emerged as the most common and abundant species in these estuaries.

Among the truly estuarine species three clines - high saline, medium saline and low saline - were recognised. Veli and Thottappilly lakes had a mixed assemblage of high and low saline copepod fauna.

Phytoplankton, detritus and associated bacterial load form the main food source for the zooplankton. The energy transfer from primary to secondary trophic level is low in Cochin backwaters.

The successional sequence after the monsoonal wash out could be seen from their numerical abundance during high saline period. Although the broad scheme of succession was similar, individual variation did exist in different estuaries.

Diversity was high in the estuaries during high saline period when conditions were more stable. Productivity and spatial heterogeneity being of little consequence it is speculated that lack of stability leads to lower diversity in estuaries.