

M.S.21. BALACHANDRAN, T.—Studies on Meroplankton—1981—Dr. C.V. Kurian.

Plankton community, drawn from a very wide variety of animal phyla, formed the basic food supply of marine life and indicators of water mass. The term meroplankton generally referred to that portion of the zooplankton which is transient in nature, remaining rest of their lives in the nektonic or benthic environment. This group was selected for intensive studies, considering the role of meroplankton in the economy of the sea and the scarcity of literature on them from the Indian Ocean. The present study besides providing information regarding the fixation and preservation techniques and biochemical aspects of tropical meroplankton, also consolidates information regarding their zoogeography in the Indian Ocean region, with a view to amplifying the limited information available from this area.

The distribution studies are based on the collections made during the International Indian Ocean Expedition (1960-65), whereas the material for preservation and biochemical studies was collected from the coastal waters during 1968-1978.

Salient features:- 2% of formaldehyde buffered with 2% borax, added to the plankton in the ratio of 9:1 was found the best fixative. On fixation the plankton underwent shrinkage due to loss of 15 to 87% water. Addition of antioxidants prevented colour fading. Narcotization by different specific reagents prior to fixation reduced distortions due to violent reaction and improved morphological conditions. One percent formaldehyde solution in sea water buffered with borax or neutralised with calcium carbonate perfectly preserved majority of meroplankton. Equally good was one percent propylene phenoxetol buffered with borax.

Biochemical composition of various taxa showed variations according to their age class, size groups metamorphosing stage, feeding mechanism, type of organism fed and time of collection.

General distribution studies of 4 meroplankton taxa - Anthozoan larvae, cirripedia larvae, sipunculoid larvae and gastropod larvae showed abundance in the coastal areas especially during the SW monsoon period. Based on the larval distribution different zoo-geographical areas in the Indian Ocean are differentiated. Studies

on annual variation along the meridian 78° E longitude revealed annual distinct fluctuation in abundance of all groups. The seasonal amplitude of meroplankton taxa in a pelagic ecosystem between 9° S and 32° S along the 110° E longitude was found low, but none the less significant. Diurnal variation showed higher value at night. Distribution studies in the western Indian Ocean in relation to the thermocline indicated that it is not a barrier for the distribution of fish larvae. The results showed that the light controlled vertical migration than the temperature.