M.S.23. HRIDAYANATHAN, C.–Studies on the Macrobenthos of the Mudbanks of Southwest Coast of India–1982–Dr. C.V. Kurian

The study was undertaken with the objectives to assess the distribution and density of population of benthic animals with special reference to macrofauna from the south west coast of India from Lalippuram in the north to Alleppey in the south, be evaluate significant difference, if any, in the number and distribution of animals in the mud bank regions and other intermittant stations, to examine the influence of bottom stability on the distribution of fauna, to observe the effect of the environmental parameters on the distribution pattern of macrofauna, and to evaluate the nature and depth-wise distribution of the benthic fishery. The region selected for the investigation is one of the most important fishing grounds in India for bottom fishing especially for prawns, covering a distance of about 60 kms in length.

A total number of thirty stations in five transects at right angles to the coast, each consisting of six stations were surveyed. The six stations in a transect were at depths of 5m, 10m, 20m, 30m, 35m and 45m respectively. Bottom deposits and water samples from surface and bottom have also been collected from each station to study the environmental parameters. The investigation was carried out during the years 1972 and 1973 and the collection of the samples corresponded to pre-monsoon, monsoon and post-monsoon periods. The profiles of the present study consisted of three mud banks and an intermediate region so as to make comparisons in the abundance of macrofauna in the two types of grounds. The analyses of the bottom fauna indicated that most of the organisms belonged to three groups: Annelida, Crustacea and Mollusca. A few species of Coclenterata, Nemertini, Echinodermata and Echiuroidea were also present.

The quantitative distribution of the macrofauna showed that the maximum number of organisms was near the 35m contour line in the first three profiles whereas in the fourth and fifth profiles it was at 20m and 30m depth respectively. The density of the fauna was comparatively poor in shallow water stations at depths 5-10m. There is no significant variation in the faunal assemblage and intensity in the different profiles. The maximum number of animals however was recorded from a station in the third profile which is located outside the influence of the mudbank. As a whole the values of biomass were higher in deeper stations except in the third profile, where the shallowest station 13 showed high value. The percentage composition study of the different group indicated that the polychaetes formed an average value of 75.5%; the crustaceans varied from a minimum of 0.8% to maximum of 46.15%, while the value of molluscan fauna varied from a minimum of 1.3% to a maximum of 31.4%. There was a general decline in the numerical abundance and biomass of the bottom fauna in all the stations during the monsoon period. There has been very little yearly change in the composition of the fauna during the two years' study. The absence of any significant difference in the number and weight of animals in the stations of profiles A,B,D,E (mud banks included) and profile C (Outside mud banks) showed that higher content of organic materials available in the sediment was not the only decisive factor which detemined the standing crop. A stable substratum in the mud bank regions is not possible due to the fluid nature of the mud, moblity of the mudbanks and possibly due to heavy fishing activity particularly bottom

trawling. The absence of any predominant species and the occurrence of other animals in smaller numbers rule out the possibility of any clear indication of any particular community existence in the area.

In the present study, the Alleppey mud bank was selected for field observations of the fish landings. The species-wise composition and the quantity landed by the country crafts were observed for three consecutive days in the second weeks of June, July and August in the years 1972 and 1973 which are the active periods of mud bank formation. Based on the abundance and catch per hour return of the different species, the fishing ground trawled was divided into three zones viz. (1) 5-20 m zone (ii) 30-35 m zone (iii) 45 m zone. The second depth zone was found to be more productive contributing 43% of the total catch which was lying beyond the influence of the mudbank formation. The catch composition of the fishery from near shore depths in other fishing grounds have also been examined from other fishing vessels of the institute which does not show any significant difference from the profiles selected for the present study. The analysis of the trawl fishery data emphasises the observation that the formation of the mud bank and the fishery in these regions are not interdependent.