

Vertical Distribution of Benthic Foraminifera and their Environmental Conditions in Marakkanam Estuary, Tamil Nadu

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Abstract

In the present work, the environmental conditions of foraminifera from the core samples of Alamparai Fort in Yedayanthitu Kailiveli mangroves area of Marakkanam estuary, Viluppuram district was studied. The ecological parameters such as sand-silt-clay, calcium carbonate (CaCO₃%), organic matter (OM%) and trace element studies were carried out to study the distribution of foraminifera population and mangrove environment. The core was sub-divided into 18 samples. Out of which, 26 foraminifera taxa belonging to 18 genera, 12 families, 8 super families and 4 sub-orders have been identified. The genus *Ammonia* and *Elphidium* dominates the total assemblages followed by *Quinqueloculina*. The species viz., *Ammonia beccarii*, *Ammonia tepida*, and *E. advenum* are widely distributed in all the stations. The species viz., *Amphistegina radiata*, *Cibrononium simplex*, *Neogloboquadrina dutertrei*, *Triloculina tricarinata*, *Helelina anderseni* and *Cyclifomia contorta* are found only in few stations.

The core sediments in the study area are dominated with medium and fine sand. Organic matter ranges from 0.5 to 6%, while CaCO₃ ranges from 6.23 to 7.37%. Top of the core is moderately to well sorted (0.70 to 0.657phi), whereas the remaining core (middle to bottom) is moderately well sorted in nature. The silty-sand and sandy-silt are more accommodative substrate for the population of foraminifera. Fe and Cr are predominant elements with minor trace element concentration in this region. Based on foraminifera studies it is observed that the top core up to 30cm show mixing environment, middle core indicates the reducing environment and the bottom core reflects the diagenetic environment.

Keywords: Foraminifera, Estuary, Marakkanam, Yedayanthitu Kaliveli, Grain size, Trace elements.