

Title: The Study of Marsh Foraminifera in the East Coast of India

Index No. : 143/15/Geol.Sc./24

Abstract

Mangroves or vegetated intertidal wetlands are stressed ecosystems situated within 30 degrees north and south of the Equator. These are sites of rich biodiversity, anchoring huge populations of flora and fauna. Foraminifera are marine microfauna found abundantly in these marshlands, many of which still lie undocumented. Foraminifera are a vital organism in studying climate changes in the Quaternary. The present work aims to compare foraminiferal assemblages along three marsh areas along the northern part of the east coast of India; namely, the Sunderban mangroves in the north, Bakkhali marshes in between and Chandipur marshes in the south.

Surface sediment samples were collected from various stations in Sunderbans, Bakkhali marshes and intertidal flats and Chandipur swamp and intertidal flats. Physical parameters such as pH, temperature and salinity were measured along with foraminiferal distribution. The Total foraminiferal number (TFN) varies from few thousands to tens. There is an abundance of agglutinated forms in the high marsh areas such as *Trochammina inflata*, *Haplophragmoides wilberti*, *H. canariensis*, *Miliammina fusca* and *M. petila*. Low marsh regions show abundance of calcareous hyaline forms like *Ammonia tepida*, *Ammonia parkinsoniana*, *Criboelphidium poeynum*, *Haynesina depressula*, *H. germanica*, *Elphidium advenum* and *Coccolithina madrasensis*. Calcareous porcelaneous forms are mostly absent except for the occurrence of *Quinqueloculina seminulum* and *Triloculina trigonula* at certain stations. A new agglutinated species, *Srinivasania sundarbanensis*, has been discovered from the Sunderban marshes.

Thirty-one species of benthic foraminifera have been identified from the northern Sunderbans, sixteen species from the Bakkhali marsh region and fourteen species from the Chandipur marshlands. A lot of different forms have been recorded but diversity of foraminifera is less than 5. The small size of the organisms, high abundance and lower diversity along with the unstable environmental conditions indicate an r-selective population pattern of marsh foraminifera. Agglutinated and calcareous taxa and species richness decrease in abundance from the northern part of the study area towards the southern part of the area. The total foraminiferal number is directly proportional to the moisture content and inversely proportional to the sand content of the sediment. Optimum salinity for benthic foraminifera is found to be around 22 to 23 PSU, pH conditions slightly alkaline (7.8 – 8) and temperatures around 25° C for the marsh foraminifera along the northern part of the east coast of India.

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