Hooghly-Matla estuarine complex with its exciting mangrove ecosystem which is the component part of the gigantic Gangetic delta has been the focal point of maritime activities between nations since the dawn of the Indian history. With the increasing population pressure and consequent industrial and agricultural development, besides urbanisation and deforestation, the ecosystem and the environment of the Hooghly estuary are subjected to severe and constant constraints.

A thorough and comprehensive study on the physical, chemical, geological and biological aspects of the estuary seems imperative. So far the documents available on the Hooghly estuary, the information is measurably scanty.

Sagar Island and its surrounding environs which has been selected as the major venue of the present treatise is a typical delta-lobe of the Hooghly-Matla estuarine system.

In the north east coastal corner of Indian geography, a mini marine laboratory, the Susama Devichoudhurani Marine Biological Research Institute, unique of its kind in this environment, has been established at Sagar Island in 1969. This Laboratory has so kindly shouldered the responsibility of providing facilities to the enthusiastic researchers and scientists fascinated in marine and estuarine science, to explore the alluring vista of the ecosystem.

The author gratefully availed the facilities in this laboratory for the preparation of the present dissertation which is a preliminary survey on the epipelagic zooplankton to ascertain their spatial and horizontal distribution and temporal variations in and around Sagar Island during the two consequitive years (January, 1988 - December, 1989). Along with this the levels of some metals in zooplankton have been measured. It is hoped that this study venture may pave the way and accelerate fresh investigations on the many other aspects of the deltaic Sundarbans of the Indian subcontinent.