PREFACE

The banana shrimp, *Penaeus merguiensis* locally known as 'Bili Shettly' (White Prawn) is a nutritious and luxury item on the dining table and is one of the major items of Crustacean landings at Karwar.

Like some aquatic organisms and, like most of the Penaeids, this species has a diphasic life cycle, wherein the growth of the earlier stages takes place in the low saline shallow waters of the estuaries and backwaters adjoining the coastal waters and, the adults move into deeper and more saline waters for procreation.

The period of life in the turbulent estuary though a prerequisite, will likely be critical and an effort is made in the present work to bring out some information regarding the spectrum of interrelationship which are limiting or influencing the population density of *P. merguiensis*.

All organisms interact with their ambient abiotic factors. Accordingly, the behaviour of the species towards the varying environmental factors during its estuarine phase has been studied, both by ecological/field observations and physiological/laboratory studies.

Emphasis is placed towards understanding the ecological factors that paves the way for greater densities and optimal conditions for the species.
The present study on *P. merguiensis* was contrived with the following objectives:

a. To take stock of the population structure of the species and to identify the causative factors for the spatio-temporal variations.

b. To study the mechanism of habitat selection by the species in the estuary.

c. To understand the feeding ecology of the species in its nursery grounds.

d. To observe the salinity acclimation effects on salinity and temperature tolerance of the species.

The thesis outlines the response of the species to the abiotic factors of the environment limiting its distribution. The study takes note of the role played by the estuarine habitat in completing the life cycle of the banana prawn *P. merguiensis*. It also provides information regarding variation in the resident population, behaviour of this species in its nursery ground and juvenile migration patterns of a tropical estuary, the Kali estuary.