Coastal zones hold maximum population throughout the world. A coastal civilization of global nature which is unique in their food habits namely fish eaters have emerged from time immemorial. It is not surprising to note that details of different organisms in coastal and nearshore waters were well known even before the development of modern science. In the past, exploitation of resources never exceeded the recruitment level and except for natural calamities there was no dearth of food. But of late man started to share the aquatic resource with his companion living in the remote areas of the world. To meet this, various technologies were developed for fishing, processing and transporting. All these activities had a decided impact on the coastal fisheries which became exhausted or nearly depleted. When natural resources were dwindling at rates faster than they could be renewed, man has started alternate methods for improving fishery resources. Various technologies and techniques were evolved for aquaculture whereby favoured groups such as prawns, lobsters, crabs, bivalves and various finfishes could be stocked and reared.

India has a potential coastline of 6100 km. Many maritime states have adopted the technologies
developed indigenously to culture prawns and other shell fishes.

In order to have successful aquaculture programme a thorough knowledge of the ecology, biology, physiology and systematics of the organisms concerned is a prerequisite.

The traditional prawn culture in the brackish water lagoons and paddy fields of Kerala are well known. But scientific data on the dynamics of feeding and growth as well as the ecology is meagre.

Of late setbacks have been noticed in the traditional method of aquaculture for penaeid prawns. This could be attributed to the changes in water quality, consequent on the effluent discharges from the complex industrial concerns situated in the neighbourhood of watercourses which feed the culture fields.

In order to have better and sustained yields it is necessary that traditional methods are suitably modified. This calls for a detailed study of the ecosystem and the ecology and bionomics of the organisms to be cultured. Alternate methods for increasing production is to be identified and more organisms are to be included in the purview of aquaculture.

The present investigations are carried out with this intention. An examination of the Crustacean
Fishery prevailing along the coastal and brackish-water systems of Kerala reveals that attention was given only to the penaeid prawn fishery. No organised attempt is made to improve the crab fishery which has a potential fishery status in Kerala waters. During the present investigation, biology and ecology of the crab *Scylla serrata* Forskal and the prawn *Penaeus indicus* H. M. Edwards were undertaken.

In the first part of the thesis, the state of the environment of Cochin backwater is discussed. This is followed by the results of the studies on the hydrography of Cochin backwaters. Later Chapters are devoted to the investigations on various aspects of *S. serrata* in the backwater like its fishery, food and feeding habits, reproduction and length weight relationship and condition factor. The second part deals with the studies on the environmental characteristics of prawn culture fields, benthic production and food and feeding habits and growth and condition factor of *P. indicus*. 