Of all the compounds found on earth, water is the most essential for the maintenance of life. Water is a fluid constituent of all living matter. Plants use water for photosynthesis, plants and animals use it in metabolic activities. As water enters into and maintains the integrity of the entire ecosystem, man's interest in the study of water around him is as old as himself. His studies extended to the treasures of food which grows in the water.

Food cycles in the oceans commence with the synthesis of organic material. Phytoplankton masses in the oceans are often referred to as the "pastures of the sea". 90% of photosynthesis in the marine environment is due to phytoplankton, the remaining 10% is from the littoral and shallow water algae, sea grasses, salt marsh plants and mangroves. The plankton biomass is considered as the index of fertility of the oceans. They are very important as they form the base of the food web upon which larger organisms including fishes depend.

Estuarine and coastal waters always maintained an intimate relation with the developmental activities of man. For many hundred years man has been provided with one of his principal sources of food by the living creatures of water. Today marine fisheries face challenging problems in trying to achieve the kind of sustainability that will assure its own long range of survival. The
modern harvesting technology along with the rising demand for Indian marine products abroad motivate the fish harvesters to reap the vast expanse of coastal waters beyond the sustainable level.

In Cochin estuarine system, the Vembanad Lake constitutes the most productive aquatic systems in the west coast of India. The Vembanad is the largest among the Kerala backwaters which extends from Cranganore in the north to the Arabian Sea in the south. The Cochin backwater supports a general sustenance fishery to a large number of fishermen. Rapid urbanization and industrialization especially in and around Cochin have changed the ecology of the backwaters. The increasing demand for seafood export has promoted the over exploitation of the natural resources during fishing operations.

Monsoon trawling has become a regular feature in coastal waters except during the trawling ban period. The seasonal and spatial variations in the phytoplankton have been subjected to the chemical and mechanical stress offered by the trawlers in the area. The shallow bottom scraping by the trawlers has damaged the population of many species along with the destruction of bottom dwelling biota. It is against this background that the present topic of investigation was selected.

Investigations were carried out on the hydrological characteristics, seasonal variations in the concentration of nutrients, algal production and the variation in the algal flora as a result of the operation of trawling.
Four different stations along the Vembanad Lake down to the Arabian sea were selected for the present study from January 1998 to December 1999. The thesis is presented in six chapters.

Chapter I presents an introduction to the topic of study. A review of relevant work done in the same field is made in order to bring an awareness of the present status of our knowledge on the subject and also stress the relevance of such studies in assessing the impact of fishing operations on phytoplankton in the coastal bodies of water.

The description of the study areas and the details of analytical techniques used for the estimation of the different parameters form Chapter II.

Chapter III deals with the observation and results of the experiments carried out. Chapter IV discusses the results obtained with the help of the available literature. The conclusion derived from the study is presented in Chapter V and Chapter VI briefly summarises the entire work.

It is hoped that the present study will help to extend the information available regarding the impact of trawlers on the microalgae which are the main producers of an aquatic environment.