Greater Cochin of area 731 km\(^2\) is one of the most densely populated (\(\approx 1.5\) million) urban conglomerates of South India, blessed with a network of waterways. In these days of increasing urbanization, industrialization and overall development, there is no doubt, that the problem of water pollution will be of great concern.

Like many other major estuarine systems, the Cochin estuary is also subjected to increasing human interferences; the waterway receives considerable amount of pollutants from (i) industrial units like Fertilizers and Chemicals Travancore Ltd., Travancore Cochin Chemicals, Indian Rare Earths, Hindustan Insecticides Ltd., Cochin Refineries etc. (ii) domestic sewage works and storm water channels (iii) port area handling large quantities of crude and refined petroleum products and industrial chemicals (iv) coconut husk retting yards and (v) fishery industries. The net effect of these discharges have caused irreparable damage to the flora and fauna of the water body; the productivity of this region has been considerably affected. It is, therefore, desirable to maintain and manage the estuarine ecosystem by way of upkeeping the water quality standards.

The knowledge on the various aspects of the physico-chemical parameters of this estuary turns out to be essential for assessing the water quality and various biogeochemical processes and also in providing future guidelines on the estuarine management/modifications. In this connection, the University Grants Commission (India) was pleased to approve a research project entitled "A comprehensive study of the Vembanad lake and adjacent coastal waters" operational
at the School of Marine Sciences, Cochin University of Science and Technology, Cochin-16. The studies on the very many chemical aspects of Cochin estuary (part of Vembanad Kayal) were carried out in the Chemical Oceanography Division of the School and the work reported in this thesis forms part of the above project. The thesis is an attempt to study the nutrient chemistry of this tropical estuary.