ABSTRACT

The availability, abundance and distribution of the fishery resources are well related to the variations in oceanographic properties. Although, a wealth of information is available on the distribution of various environmental factors of the coastal waters and on fish landings, detailed studies based on time series data pertaining to specific regions are scanty. The present study has focused on the observed variations in hydrobiological parameters and their subsequent influence on selected fishery resources from the region off Cochin during 2000 – 2002. The thesis is laid out in six chapters.

The introductory chapter provides an insight into the fishery oceanographic work carried out in the country particularly along the southwest coast of India and it also outlines the importance of studies on environmental factors and their influence on the distribution and availability of fishery resources. Details of the study area, sampling stations and the importance of the region in terms of distribution of various environmental parameters and the availability of major fishery resources are elaborately explained.

In Chapter 2, the relevant literature dealing with the physical properties of sea water and meteorological conditions prevailing in the Arabian sea and the study area are discussed briefly along with the methodology used for study. The results indicated that, in general, easterly winds prevailed during most parts of the year and the wind velocities gradually increased during latter part of the premonsoon period, reaching high values in monsoon months. Conclusions derived following analysis of the data are discussed in detail in the light of available literature.

The third chapter outlines the variations in chemical and biological properties of sea water as a result of the effect of physical factors prevailing in the region under study followed by an elaborate review. The box and whisker plots for the selected parameters were prepared station/seasonwise and
presented. Based on the results obtained, conclusions were drawn and discussed in detail with reference to relevant literature.

A concise introduction on the process of upwelling and the major factors responsible for the process have been described in the following chapter. It also comprised of an elaborate review of the pertinent literature on upwelling. Monthly data on temperature, salinity, dissolved oxygen and nutrients gathered during the period of study were used for preparing the vertical time series sections. Analysis of the distribution pattern of water properties indicated that the process of upwelling could be clearly identified in the study area and its variations were well marked. The results have been discussed with reference to the relevant literature on this aspect.

The importance of studies involving the influence of environmental parameters on fishery resources and a detailed review of the work carried out so far on this aspect are highlighted in the subsequent chapter. With regard to the fishery of the different species under consideration, it was noted that the process of upwelling which brings in characteristics changes in water properties within the shelf and nearshore regions in the study area, greatly influenced the abundance and availability of these species. The results obtained have been discussed in detail by drawing information from the available literature.

Based on the exhaustive data generated during the study, the most important findings have been highlighted in the chapter on summary.

The references used for the study are listed at the end.

Key words:

*Hydrobiology, Vertical stability, Rainfall, Sea level, Nutrients, Chlorophyll a, Zooplankton biomass, Commercial fisheries.*