ABSTRACT

Lagoons, which are among the most productive ecosystems in the world, are also socio-economically-important. The coastline of Sri Lanka is dotted with a large number of lagoons of varying significance. As a result of the intensification of developmental activities in the coastal areas of Sri Lanka during the last few decades, number of environmental and social problems that threaten the lagoon environs have been envisaged. Some of these activities such as coral mining, mangrove felling, sand mining, over fishing etc. are quite prevalent at these areas, which finally result in the loss of biological diversity in these environs. Irrigation related activities have also directly resulted in the deterioration of the lagoon environments by the increased rates of sedimentation through the seepage of effluents from agricultural areas also resulting the loss of the biological diversity of these lagoons. This study is an attempt to make an assessment of causes and effects of some of anthoropogenic activities at three selected lagoon environs *viz*. Rekawa, Galle and Dondra, which are three lagoons of significance located along the Southern coast of Sri Lanka.

The collection of data was initiated during the latter part of 1993 and was continued until the end of 1995 during which period, physical, chemical and biological data on a series of parameters were collected at monthly intervals. A few diurnal surveys were also carried out with reference to some parameters. Data were collected for the assessment of the water quality of the lagoons through the investigation of the generally accepted physico-chemical parameters (a total of twenty parameters) at monthly intervals at pre-selected sampling stations within the lagoons. Along with these, the phytoplanktonic flora were also assessed to ascertain its composition, abundance and the fluctuations that occur seasonally. An attempt is made to explain their usage as biological monitors. Through transect studies the floristic composition of the mangroves at the three sites was studied comparatively giving special reference to the species richness and abundance. Through aerial photographs, the structure of the lagoon system and their environs and the land use patterns were also established.

The results clearly indicated that the three lagoon systems investigated in this survey have site specific natural and man-influenced differences, which are responsible, for the many variations observed during the survey. Further the human activities responsible are both qualitatively and quantitatively different at the three sites thus being responsible for many of the observed variations in the investigated parameters. For example, the catchment of Rekawa showed intensive agricultural activities whereby both the inflows and outflows have been subjected to many changes especially through the construction of culverts and other structures. Galle lagoon area, on the other hand, is highly urbanized. Dondra lagoon showed agricultural and urban impacts at a lower level.

The study confirms the fact that lagoons are diversified ecosystems where diurnal and seasonal fluctuations are prominent and also they are ecosystems that are rapidly changing due to many human activities. By the very fact that these environs are of high bio-diversity and of economic and social values, the necessity for their conservation is evident.