**Abstract**

The present study deals with the assessment of various ecological parameters such as temperature, pH, salinity, dissolved oxygen, light penetration depth (LPD), calcium carbonate, organic matter and sand-silt-clay composition of the Tuticorin and Vembar group of Islands. The water and sediment samples were collected from the seven islands namely: Vaan, Kasuvar, Kariyachalli, Vilanguchalli, Upputhanni, Puluvinichalli and Nallathanni islands, during July 2009 and February 2010. The samples were then subjected to several physical and chemical investigations to know the ecological status of the study areas. Statistical analysis like Pearson Correlation matrix was performed using the collected data to identify the relationship between the studied parameters.