

**A COMPARATIVE STUDY ON THE DIVERSITY OF
SEAGRASS SPECIES IN SELECTED AREAS OF
PUTTALAM LAGOON**

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ABSTRACT

Comparison of seagrass species distribution from 1991 to 2013 in Puttalam lagoon was studied to understand the changes in distribution with time and diversity of seagrass species with view to understanding the effect of water quality parameters on diversity. Research paper prepared by Jayasuriya(1991) was used for the comparison. Point transect method was conducted for data collection and three line transects with 30 m length were laid perpendicular to shore. Water quality parameters including water temperature (°C), pH, salinity (ppt), conductivity (mS/cm) and Dissolved Oxygen (mg/L) were measured Shannon- Wiener diversity index was used to determine species diversity in the sites. Study sites were divided into two regions named as northwestern region and southeastern region. Six sites were homogeneous with respect to salinity, Dissolved Oxygen where as six sites were heterogeneous with respect to temperature, pH and conductivity. Statistically significant difference was found between seagrass distribution in 1991 and 2013 in northwestern region and southeastern region. Statistically significant relationship was found between relative abundance of *Halodule uninervis* (Narrow) and water temperature as well as *Syringodium isoetifolium* and water temperature. There is a relationship between *Cymodocea rotundata* and pH of water. There was no significant relationship between diversity and temperature, salinity pH, dissolved oxygen and conductivity within study site. Out of eight species *Enhalus acroides* was most common and widely spread in northwestern part of the Puttalam lagoon whereas *Halophila ovalis* was widely spread in southeastern part of the lagoon. Shannon- Wiener diversity index values indicated that the diversity of Kalpitiya was close to the diversity of Kuringipitiya whereas the diversity of Paliwasalthurai was close to the diversity of Kandakuda. Statistically significant relationship ($p < 0.05$) was found to exist between relative abundance of *Enhalus acroides* and water temperature, between relative abundance of *Cymodocea serrulata*, *Syringodium isoetifolium* and *Halodule uninervis* (wide variety) and pH of water and between relative abundance of *Halophila decipiens* and dissolved oxygen content of water. Zero diversity was recorded in Palavi which is composed of only *Halophila ovalis* within study site. Present study therefore concludes that the seagrass distribution has changed during 1991 to 2013 and there is an effect of water quality on distribution of some kind of seagrass species.