

## **Influence of Abiotic Factors on Biotic Components of the Batticaloa Lagoon (2008 – 2009)**

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**ABSTRACT.** Identification of abiotic variables that influence on biotic components in the lagoon is one of the main challenges in ecology because biotic components show variations in abundance as an adaptive response to changes in chemical, physical and biological characteristics of the habitats. An important characteristic of the lagoon is its biological diversity because physical, chemical (abiotic) measurements reflects water quality at a given time while biological assessment reflects conditions that have existed in a given environment over a long period of time. The present study investigated the prevailing condition of water quality to identify possible abiotic factors that effect on the biotic variables of the Batticaloa lagoon. In situ measurements of chemical, physical parameters of the lagoons measured were measured routinely from 9th July 2008 to 22nd June 2009. Averages of the results indicated chemical parameters of dissolved oxygen ( $3.65 \pm 0.40$  to  $13.99 \pm 0.64$  mg/L), phosphorus ( $0.31 \pm 0.06$  to  $0.52 \pm 0.18$ mg/L), nitrate ( $1.07 \pm 0.32$  to  $3.98 \pm 0.22$  mg/L), nitrite ( $58.33 \pm 9.27$  to  $72.08 \pm 6.90$ mg/L), and pH ( $8.01 \pm 0.02$  to  $8.16 \pm 0.05$ ) and physical characteristics like salinity ( $15.50 \pm 1.65$  to  $29.16 \pm 0.89$  ppt), density ( $1.01 \pm 0.00$  to  $1.02 \pm 0.01$  gcm<sup>-3</sup>), surface water velocity ( $0.10 \pm 0.01$  cms-1 to  $0.13 \pm 0.01$  cms-1), turbidity ( $5.68 \pm 1.25$  to  $37.69 \pm 1.83$ FTU), temperature ( $31.58 \pm 0.60$ °C to  $33.45 \pm 0.19$ °C) varied widely. Simultaneously were collected existing biotic components (finfish, shellfish and jelly fish) on the sampling points. Analysis elucidated the existing conditions were found to have strong impact on biological parameters. Furthermore, seasonal changes and anthropogenic influences also significantly affect the biotic components. This information and observation of this study will be very crucial to the biological life of the lagoon for formulating management policies (Master plan for Batticaloa lagoon) in future with other sectors.

**Key words:** Abiotic, Biological, Dissolved Oxygen, Lagoon, Salinity.

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