

## Temporal variations of selected surface water quality parameters and pollution status of Batticaloa lagoon – A review

M.N.F. Nashath<sup>1</sup>, A.M.M. Asmath<sup>1\*</sup>, M.R.F. Rishadha<sup>1</sup>

<sup>1</sup>*Department of Biosystems Technology, Faculty of Technology, South Eastern University of Sri Lanka*

\**mohamedasmath@seu.ac.lk*

Batticaloa lagoon is an economically important ecosystem on the East Coast of Sri Lanka. It is surrounded by densely populated areas, rice and coconut plantations, as well as fish and shrimp farms. Large-scale rapid development, extensive agricultural practices and anthropogenic activities have degraded the quality of the lagoon water threatening the sustainability of the ecosystem. Hence, this review was conducted to study the variations of selected water quality parameters including electrical conductivity (EC), salinity, dissolved oxygen (DO) and nitrate and phosphate content of Batticaloa lagoon to determine the variation in pollution status of the lagoon. Data were obtained from previous studies conducted from 2004 to 2019. The results showed that the maximum EC value of the Batticaloa lagoon has been increasing from 2013 (170 mS m<sup>-1</sup>) to 2019 (590 mS m<sup>-1</sup>) exceeding the allowable range for aquatic water. Salinity, DO and nitrate content fluctuated during the study period, making the lagoon water not suitable for human consumption but favourable for the growth of aquatic species. The highest values for salinity (35 ng l<sup>-1</sup>), DO (19.93 mg l<sup>-1</sup>) and nitrate content (8.3 mg l<sup>-1</sup>) had been recorded in 2004, 2019 and 2013 respectively. The phosphate content range surpassed the maximum permissible level, causing threats to aquatic life and enhanced eutrophication. Based on the results, Batticaloa lagoon is severely polluted making it not suitable for drinking purposes. However, it can be still used for the production of brackish water fish and prawns and irrigation. Increased agrochemical usage, shrimp farming and the release of waste effluents without proper pre-treatment are considered to be the primary pollution sources of Batticaloa lagoon. Continuous surveillance through regular monitoring programs is needed to conserve this valuable resource from complete loss. It is also important to educate people living there about the current status of the lagoon and the consequences of its pollution.

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