

Trophic status of Periya Kalappu lagoon - a shallow bar built lagoon

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Periya Kalappu Lagoon, a dry zone bar built shallow lagoon, remains as a freshwater lake during most part of the year, except for a short period during the northeast monsoon, during which breaching of the sand dunes at the mouth facilitates water exchange between the ocean and the lagoon. The lagoon supports a high fish yield throughout the year. However, it is exposed to extensive land based pollution. The study compares the physiochemical status of the lagoon, during the implementation of management plans and prior to it.

Trophic status of Periya kalappu lagoon was evaluated based on the Hakanson and Carlson classification related to the Secchi depth measurements and Carlson's index calculated on Secchi disk distance (TSI - Tropic State Index). Chlorophyll concentration (mg/m^3) and Secchi depth (m) were recorded from six points in the lagoon. Average TSI had increased as 76.73, 84.62 and 91.86. During the same period, average Chlorophyll-a had increased respectively as 121.86, 170.58 and 180.87. The average secchi depth decreased respectively as 0.325, 0.188 and 0.113. This shows that there is a decrease of the euphotic area of the lagoon.

According to the Hakanson and Carlson classification, the lagoon can be classified as a Hypereutrophic lagoon. Thus, it indicates that the lagoon has transited from eutropic to hyper-eutropic status during the last decade.

Keywords - TSI, secchi depth, eutrophication, hypereutrophication, lagoon.

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