

Physico-Chemical Parameters of Estuarine Waters in South-Eastern Region of Sri Lanka

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The coastal area of South Eastern region of Sri Lanka has 35 wetlands with huge water bodies. However, there are no detailed studies carried out on these estuaries to find out the suitability for aquaculture projects. Therefore the present study was conducted to determine some selected water quality parameters of 12 estuaries found within the South Eastern region of Sri Lanka and to assess its suitability for culturing shrimp and freshwater fish. Seven physical and chemical parameters were investigated for water quality assessment of the estuaries during the period between February 2013 to July 2013. Air temperature and rainfall were also recorded during this six months period. Data on water temperature and dissolved oxygen were obtained from the field using Potable dissolved oxygen meter. Salinity, specific conductivity, pH and total dissolved solids (TDS) were determined using portable multi parameter instrument. Soil pH was measured by using soil pH meter in the field. Water temperature of coastal waters of south eastern region varied between 27.1-33.7 (32.29 ± 0.26)^oC, dissolved oxygen, 3.2-13.4 (9.53 ± 0.59) mg/L, water pH, 6.2 - 8.9 (8.2 ± 0.04), soil pH, 4.0-7.2 (6.42 ± 0.05), salinity, 1.1-40.40 (24.93 ± 2.56) ppt, specific conductivity, 55.5 to 62870 (39030 ± 3919) μ s/cm, TDS, 35.5 to 37800 (21992 ± 2222)mg/L.

Based on the data, water quality parameters may favour the production of freshwater fish in Sainthamaruthu, Oluvil, Addalaichenai- Konawatte (near a bridge), Sinnamuhathuwaram, Thambattai, and Komari-I during whole study period. Addalaichenai- Konawatte (river mouth) may be suitable for freshwater fish during whole six months period and shrimp farming in the month of May. Periyamuhathuwaram, may be suitable for freshwater fish in February, March and July, whereas it would be suitable for shrimp culture from April to June. Urani (under a bridge) could be used as a suitable water body for shrimp culture only from February to May, whereas from June to July it could be used to culture freshwater fish. Kottukkal would be suitable for freshwater fish culture during February and March, and it may be suitable for shrimp farming from April to July. However, during the entire study period (2013 February - July) Arugam lagoon was found to be suitable for freshwater fish as well as shrimp culture. In this study, it was found that Komari-II is the ideal site for establishing best shrimp farming during the months from February to April.

Keywords: Estuaries, Water quality parameters, Shrimp culture, Freshwater culture