

Nutrient load in and around Indian Sundarbans: A trend analysis

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The Indian Sundarbans covering an area of 9630 sq.km is a World Heritage site with rich mangrove floral and faunal diversity. The deltaic complex sustains 102 islands and is the home ground of tiger. The aquatic sub-system of this deltaic complex is rich in nutrients due to two primary factors:

1. Out-welling phenomenon that fetches mangrove litter/detritus generated nutrients to the adjacent estuaries

and

2. Input of nutrients in the near shore aquatic system from highly urbanized and industrialized city of Kolkata almost adjacent to Indian Sundarbans.

We developed a seasonal data bank of three primary nutrients (nitrate, phosphate and silicate) for three decades in three sampling stations in and around Indian Sundarbans and attempted to forecast the level of nutrients in coming three decades by using exponential smoothing. The abrupt rise of nutrients levels in 2009, irrespective of the sampling stations, may be treated as proxy to super cyclone that jeopardize the ecosystem stability during 22nd to 25th May 2009. The prime objective of this work is to evaluate the effect of these nutrients on the phytoplankton community thriving in the aquatic system in and around the mangrove dominated deltaic complex at the apex of Bay of Bengal.