Seasonal Variations of Phytoplanktonic Community Structure and Production in Relation to Environmental Factors of the Southwest Coastal Waters of Bangladesh


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Abstract:

The present study was carried out to monitor the plankton community structure and productivity, its diurnal and seasonal variations and the influence of physico-chemical factors in the Shibsha River of the southwest coast of Bangladesh from July 2004 to June 2005. A total of 31 phytoplankton species were identified; 17 belong to Bacillariophyceae, seven to Cyanophyceae, five to Chlorophyceae and two to Dinophyceae. Bacillariophyceae appeared to be the dominant group in terms of total species and cell numbers during the period studied. The over all phytoplankton production was significantly (p< 0.05) higher in June (175.8x10³ cells L⁻¹) and lower in September (12.0x10³ cells L⁻¹) attributed to low temperature. Phytoplankton diversity declined to the lowest level in winter and there was a positive correlation with water temperature. The number of phytoplankton species was high (26) in June and quite low (11) in December. Nutrient concentrations including nitrate and phosphate were significantly (p< 0.05) higher in summer, while lower values recorded in winter. The lowest and highest concentration of Nitrate-Nitrogen (NO₃-N) and Phosphate-Phosphorus (PO₄-P) were 0.7, 0.3, 1.9 and 0.9 mg⁻¹, respectively.