

Water Quality and Phytoplankton Population in Sewage Fed River of Mahanadi, Orissa, India

M. Das¹ and T. Panda²

**1. Department of Zoology, 2. Department of Botany, S.N. College, Rajkanika,
Kendrapara 754 220, Orissa, India**

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ABSTRACT Seasonal dynamics of phytoplankton populations and nutrient status of water were studied in sewage fed river Mahanadi of Orissa for a period of one year covering three seasons. Phytoplankton population and water analysis was performed using standard procedure. Maximum population density was observed in the winter season followed by summer and monsoon. Higher phytoplankton populations were encountered in Sikharpur (site IV) which corresponded to the fluctuation of prevailing conductivity, turbidity, dissolved oxygen, better organic load and chemical oxygen demand content of the said habitat. A total of 25 species belonging to three different groups were recorded during the study period. *Spirogyra ornata*, *Navicula cuspidate*, *Oscillatoria limnosa* were the most abundant followed by *Zygnema*, *Ulothrix*, *Nitzschia* and *Phormidium*. Higher concentration of diatom at Sikharpur site indicates polluted zone of the river. *Oscillatoria* and *Nitzschia* species at sewage affected sites can be used as an indicator of organic pollution in the river. Our findings highlighted the deterioration of water quality in the river due to industrialization and human activities. Proper biological and chemical treatment of domestic sewage and industrial effluents before discharge to river system is suggested.