

RESEARCH PAPER:

Seasonal variation of plankton diversity in Tungabhadra river of India

B.K. HARISH KUMARA AND S. SRIKANTASWAMY

Asian Journal of Environmental Science, (June, 2011) Vol. 6 No. 1 : 80-88

See end of the article for authors' affiliations

Correspondence to :

B.K. HARISH KUMARA

Department of Studies
in Environmental
Science, University of
Mysore,
Manasagangotri,
MYSORE
(KARNATAKA)
INDIA

SUMMARY

The basic foods are the plankton-microscopic forms suspended in the water and drifting about at the mercy of the tides and winds. The most fundamental of these food organisms are the microscopic plant forms, phytoplankton, which convert inorganic substances into complex organic compounds through photosynthesis and subsequent processes of food elaboration. Hence, it becomes evident that the phytoplankton, its presence, and seasonal variations are of great importance. Studies on plankton of river Tungabhadra water, Karnataka was made to assess the pollution of water for three seasons from post monsoon 2009 to monsoon 2010. The qualitative and quantitative evaluation of the variation in river water showed high quantity of phytoplankton and zooplankton population throughout the study period and rotifers formed dominated group over other groups of organisms. The present study revealed that the water of river Tungabhadra was highly polluted by direct contamination of sewage and other industrial effluents.

Harish Kumara, B.K. and Srikantaswamy, S. (2011). Seasonal variation of plankton diversity in Tungabhadra river of India. *Asian J. Environ. Sci.*, 6(1): 80-88.

Key words :

Plankton diversity,
Shanon-weiner
index,
Tungabhadra
river, River
pollution,
Downstream
ecosystem

Planktons are very sensitive to the environment they live in any alteration in the environment which leads to the change in the plankton communities in terms of tolerance, abundance, diversity and dominance in the habitat. Therefore, plankton population observation may be used as a reliable tool for bio monitoring studies to assess the pollution status of aquatic bodies (Mathivanan *et al.*, 2007).

Phytoplankton community comprises of a heterogeneous group of tiny members of plant kingdom adapted to various aquatic environments. Their nature and distribution vary considerably with respect to seasons and water quality. Their dominance also leads to qualitative changes of aquatic system. Information pertaining to the nature, type and distribution of these organisms provide clue regarding the environmental conditions prevailing in their habitat.

Quantity and quality of phytoplankton is a good indicator of water quality. High relative abundance of chlorophyta is indicative of productive water (Muhammad Ali, 2003). Plankton constitutes the basic food source of any aquatic ecosystem, supporting fish and other

aquatic animals. Zooplanktons are microscopic animals that eat other planktons. Zooplanktons support the economically important fish population. They are major mode of energy transfer between phytoplankton and fish. The study of zooplanktonic composition, abundance and seasonal variations are helpful in planning and successful fishery management (Kiran *et al.*, 2007).

The abundance and distribution of microorganisms in aquatic ecosystems result from a complex of environmental factors and trophic interactions among a multitude of biotic components. In lakes, as in the marine habitat, important fluxes of carbon nutrients and energy are mediated by the microbial food web (Pomeroy, 1974, Azam *et al.*, 1983), consisting of bacteria, picophytoplankton and protozoa (Nagata 1988; Weisse and Muller, 1990; Berninger *et al.*, 1991).

Study of plankton as an index of water quality with respect to industrial, municipal and domestic pollution has been reported earlier (Acharjee *et al.*, 1995; Jha *et al.*, 1997). Relative importance of different protozoan groups in the plankton varies with the available food resources, and thus with lake and season

Received:
March, 2011
Accepted :
May, 2011