



State of Benthic Macroinvertebrate Community in Bhagirathi River Ecosystem Impacted by Hydroelectric Projects

Sandeep Kumar and Prakash Nautiyal

*Aquatic Biodiversity Unit, Department of Zoology and Biotechnology
H.N.B. Garhwal University, Srinagar-246 174, India
E-mail: sandeepkgu@gmail.com*

Abstract: The present work is a part of a larger study to figure out the ecological state of the riverine stretches between Maneri and Devprayag impacted by four Hydro Electric Projects (HEPs) using benthic communities. Stations were sampled at monthly interval for benthic fauna and physicochemical parameters following standard methodology. This study records ecological state of stretches fragmented by Maneri Bhali Stage II and Koteshwer HEP, two in the former and one in later. Benthic macroinvertebrate median density differed significantly between these three stations. Diverse benthic assemblages were recorded depicting unstable riverine ecosystem. FFG ratio (ecosystem attribute) revealed heterotrophic state of the fragmented river stretches. BMWP indicated impacted, moderate to heavily impacted water quality exhibiting severe impact as the river moves from one to another HEP. CCA revealed water temperature (WT), water current velocity (CV) and Phosphate (P) as most important environmental variables explaining maximum variability (26%) in the distribution of benthic macroinvertebrate community. SIMPER showed maximum similarity within the station while ANOSIM showed significant dissimilarity between the stations. Compared to the past study on natural state of the river during 1985-1988, macroinvertebrate density, CV and dissolved oxygen has declined while WT has risen at all the stations.

Keywords: Bhagirathi river, BMWP, FFG, HEPs Benthic macroinvertebrates
