Evaluation and Zoning of the Haraz Protected Riverine Ecosystem based on Physicochemical Factors of Water and Biological Indicators of Macrobenthos Invertebrates.

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Abstract

The aim of this study is to assess River ecosystem and its zoning using water physicochemical factors and the distribution of benthic macroinvertebrate communities in the Haraz River in Iran. In this study, benthic macroinvertebrate communities along the stream were sampled in 2015 at each of the nine stations with three replicates using Surber net samplers (30.5×30.5 cm_2). BMWP (Biologic Monitoring Working Party) biotic Index, ASPT (Average Score Per Taxon) biotic Index, Hilsenhoff biotic Index were used to assess water quality. Physicochemical factors of water and zoning maps in GIS softwarewas also prepared. In the present study, 5 families of Diptera order named Chironomidae, Simuliidae, Tipulidae, Limnoidae and Culicidae were identified, which had the highest number of families compared to other orders. The family Chironomidae was the only family observed in all stations and had the highest frequency in stations 2 and 3 and the lowest frequency in stations 5 and 6. Calculated results of the stations 1 to 6 (Especially stations 5 and 6) indicated water quality conditions were suitable and substantial level of organic pollutions were observed in stations 7 and 8 and also, station 9 indicates water quality was fairly poor, that indicates the unsuitable conditions of the river at this station.

Keywords: Water quality, Benthic macroinvertebrates, self-purification, Zoning, Haraz River.