

Evaluation of the Trophic Diatom Index for assessing water quality in the Nišava River, Southern Serbia

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The main objective of this paper is to report the results of using Trophic Diatom Index to estimate water quality in the Nišava River, southern Serbia. Assessing water quality using diatoms as bioindicators is done for the first time in the Nišava River. Monthly samples from stones were collected from May 2008 to May 2009, according to Kelly et al. 2001. Samples were collected from 11 sites along the Nišava River, and one at Jerma River and Temska River, tributaries of the Nišava River. Physical and chemical factors (water temperature, pH, conductivity, ammonium ion, nitrates, nitrites, silica and phosphates) are measured at each sampling site. Diatom samples were cleaned using chemical agents, mounted on permanent slides, identified and counted. In total 194 diatom taxa were identified. The most species-rich genera are *Navicula* (25), *Nitzschia* (17) and *Gomphonema* (13), while the other 56 genera are presented with one or more species. Detailed floristic analysis of benthic diatom flora was not conducted earlier on these rivers either. The structure of diatom assemblage was used to calculate TDI. TDI showed a statistically significant correlation with phosphates, nitrates and ammonium ion. These correlations are generally weak and positive. There is no noticeable progressive growth or decline of any properties. Growth or decline of TDI from one site to the other, follows the same trend of phosphates, nitrates and ammonium ion. Our results show that major pollution points along the Nišava River are sites that are located downstream of major cities (Dimitrovgrad, Pitor and Niš). This work presents the baseline for future research and offers preliminary results of critical pollution points in the Nišava River.