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## **Do mining activities influence macroinvertebrate communities? – the Pek River preliminary research**

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One of the biggest mining sites in Serbia is located in close proximity of the upper stretch of the Pek River, near the Majdanpek city. In the process of copper extraction from the ore, waste water is produced and discharged into the River. In order to estimate the influence of mining activities we conducted the research of aquatic macroinvertebrate communities along this river. Macroinvertebrate samples were gathered with benthological hand net using multihabitat sampling procedure, in the Summer of 2015. To estimate the influence of the waste waters we had chosen the reference site on the Veliki Pek River, the constituent of the Pek, and five downstream sites along the Pek River course. The second site receives the majority of the pollutants from the mining site. For the assessment of the ecological status, the Asterics software package and the following biological indices were used: Total number of taxa (N), Shannon-Wiener diversity index (H), Zelinka-Marvan saprobic index, BMWP, and ASPT.

A total of 76 macroinvertebrate taxa were recorded, with insects being the dominant component both in terms of abundance (89.73%), and taxa richness (72 taxa). The reference site had the highest number of recorded taxa (48) and high values of diversity (H) and evenness (2,38; 0,61, respectively) and was assessed as the site with very good ecological status (I class). In contrast, at the second site which is influenced by the mining discharge, the lowest number of taxa (8) with low diversity values (H=1.15) and very poor overall ecological status (IV class) were observed. The EPT group (Ephemeroptera, Plecoptera and Trichoptera), which constituted 46,30% of the community at the first site, was completely absent at the second site where dominant groups were Diptera (70%) and Oligochaeta (20%). Downstream localities (sites 3 to 6) showed a gradual trend of water quality improvement. At the fifth locality the community showed complete recovery, with far less Diptera participation. Moreover, Ephemeroptera, Trichoptera, and Crustacea comprised over 70% of the community. Diversity and evenness (2,75; 0,8) at this site increased significantly, reaching very good ecological status.

The results of our investigation point to strong negative mining impact on the upper river stretch, which reflects on the studied biological elements. However, this medium sized river showed capacity to overcome intensive upstream pollution, and revitalize itself along its course. To determine which negative effects mining activities have on the river biota, and to recommend river protection measures, a more comprehensive investigation should be conducted.