Monitoring the Macrozoobenthos of the Sasar River Basin, Based on Some Ecologic Indices

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Abstract. The hydrographic basin of the Sasar River is located in the North-Western part of Romania, and it totalizes 311 km². A large part of the catchment basin is within the mining perimeter of Baia Mare; the Sasar River is its main drainage axis. Subsequent to the systematic studies of 2003-2006, 74 taxons were identified.

Keywords: benthos, ecologic indices, anthropic impact.

SUMMARY

The Baia Mare mining basin is one of Romania’s main exploiting centers of nonferrous metals (gold, silver, copper, lead) (Petrea, 2005). The stress which is associated to the valorization of nonferrous ore affects the quality of aquatic life, altering the macrozoobenthos composition and abundance. Sasar Basin is dominated by hilly terrain. Most of the water catchment area (73.18%) is occupied by forests, the cultivated land area is reduced (18.75%), and the populated areas are also small (8.07%).

In order to establish the taxonomic composition of the zoobenthic fauna, seven sampling campaigns were carried out in the active seasons of 2003-2006. There were set ten stations, from which: five stations include the Săsar River, two stations include the Firiza River, and three stations were located on the major tributaries of the Sasar River. In order to determine the numerical ratio, contribution and role of the macrozoobenthos of the analyzed basin, the analytic ecologic indices and the ecologic significance index were determined.

Overall, from the analysis of the biological components results that the environmental status of the Săsar River basin ranges from moderate to poor. Good and very good ecological status was only found in the area of the spring and tributaries (Mare Roşca, 2008). There were identified 74 taxa, belonging to 4 phyla, 6 classes, 8 orders and 38 families. High numerical abundance was recorded for the following taxa: Chironomidae (439), Oligochaeta (218), Gammarus balcanicus (167), Baetis rhodani (167). Euconstant species were Chironomidae (100%), Baetis rhodani (90%), and constant species were: Perla marginata (50%) şi Hydropsyche pellucidula (50%). Eudominante species were Oligochaeta (13.42%), Chironomidae (27.03), Gammarus balcanicus (10.28%), Baetis rhodani (10.28%), prevailing Hydropsyche pellucidula (5.67%). Regarding the index of ecologic significance, the eucönstant species were Chironomidae (27.03%), and the constant species: Baetis rhodani (9.25%) and Gammarus balcanicus (4.11%).

From the sampled zoobenthic communities, the dominant ones were Chironomidae and Oligochaeta. The anthropogenic alterations caused the reduction of the species which were sensitive to perturbations, the dominant species being the tolerant ones or those with medium tolerance to pollution. The characteristic species showed significant biological imbalances within the Sasar basin.

REFERENCES