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Changing of water status along a small stream due to urbanization

Z. Gribovszki, P. Kalicz, P. Csáfordi, R. Szita, and K. Sermaul
University of West Hungary, Institute of Geomatics and Civil Engineering, Sopron, Hungary (zgribo@emk.nyme.hu)

Considerable qualitative and quantitative changes can be generally detected in case of urban sections of the streams as the results of strong human interventions along the stream channel or in the drainage basin in urban areas. The water status becomes worse and the water regime becomes more extreme. The negative changes have an effect on the broader environment and they bring usually diminution of the biodiversity. The assessments of the above mentioned combined effects are very important from the viewpoint of the good state of the water systems, which is the main purpose in the European Water Framework Directive.

Water status changing are monitored and analysed along different (natural, rural and urbanized) sections of a small stream (Rák Brook in Sopron) taking into account the connection of the hydrological and the water quality monitoring expediently. Seven monitoring points are set up along the stream system of the Rák Brook from the headwaters to the stream mouth, in designation of the points mainly focusing the change of the surface cover and human impacts. Samples were taken on the measurement points fortnightly or for flood-linked between the dates 01.09.2010-01.03.2012. The following features were examined: hydro-morphological (velocity, discharge, stream bed sediment type), physico-chemical (pH, conductivity, suspended sediment), chemical (sulphate, chloride, COD, ammonium, nitrate, total phosphorous), and biological (makrozoobenthos) parameters. Simple and multivariate statistical methods were used for data processing to present the magnitude of the differences between the stream sections. Based on the results the effect of the different degree of urbanization on the drainage basin and the hydro-morphological interventions in the stream bed was well demonstrable.