



Impact of riparian vegetation on water temperature of the river Pinka

Gerda Holzapfel (1), Valeria Ledochowski (1), Hans Peter Rauch (1), Viktoria Jachs (1), Heidelinde Trimmel (2), and Philipp Weihs (2)

(1) University of Natural Resources and Life Sciences, Vienna, Soil Bioengineering and Landscape Construction, Civil Engineering and Natural Hazards, Vienna, Austria (gerda.holzapfel@boku.ac.at), (2) University of Natural Resources and Life Sciences, Vienna, Meteorology, Civil Engineering and Natural Hazards, Water, Atmosphere and Environment. Vienna, Austria

River systems in Central Europe have to deal with loss of habitat and structures, which has an impact on the energy balance of rivers and consequently causes stress on the aquatic fauna. Therefore riparian vegetation is essential to build structures and to regulate the microclimate and water temperature of rivers. Especially lowland rivers with slow flow velocities, high ratios of water width to water depth and few shading can suffer from changing water temperature at low flow conditions. This is even more relevant taking into account climate change scenarios.

This study analyses the influence of riparian vegetation on a lowland rivers water temperature. The study was conducted at the river Pinka, located in south-east Austria, in Styria and Burgenland. This river discharges in Hungary into the river Raab. Riparian vegetation data sets were collected in a 50 m buffer on both sides of the river. This buffer was divided into polygons of same plant composition, density and height. Water temperature was measured continuously at 18 stations, minimum and maximum values over a period from May until September 2013 and additionally morphological parameters such as water depth, river width and river continuum were used for further analyses. All parameters were investigated from source to mouth of the river Pinka.

After post processing the collected data, the program Shade-a-Lator 6.2 was used to analyse river energy input according to predominant riparian vegetation. In the following step the numerical results were opposed with the measured water temperature. The results show the quantified impact of riparian vegetation on water temperature.