

Detailed **hydraulic and morphological analyses** shall be performed in numerous European watercourses in order to increase the established understanding and knowledge of the chemical and physical requirements of the freshwater pearl mussel by these crucial parameters.

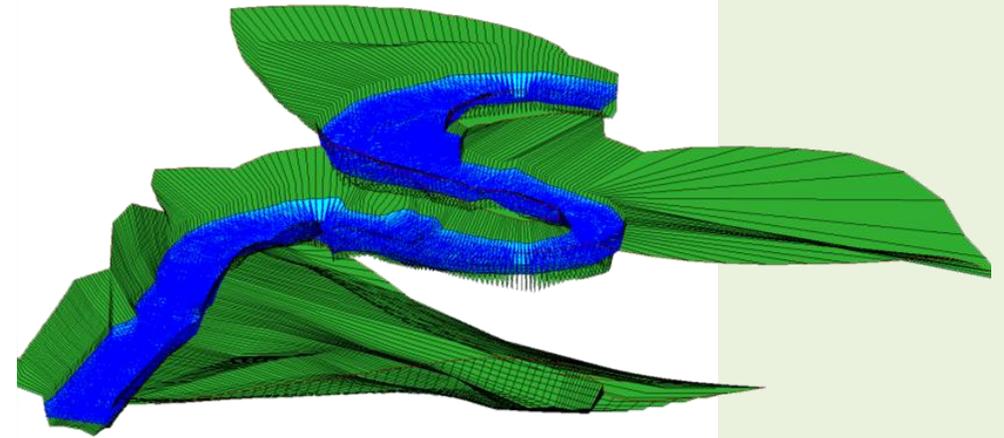
A **pan-European hydromorphology data base for freshwater pearl mussel rivers** is considered another possible output of the international cooperation.

Please contact us if you are interested in taking part:

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Habitat modelling for the freshwater pearl mussel (*Margaritifera margaritifera*) –

A preliminary study in Austrian watercourses
as an initial point for an international
project



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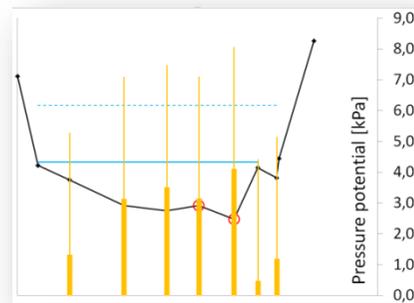
The private company “blattfisch” (consultants in aquatic ecology and engineering, Wels, Austria) together with the Institute for Water Management, Hydrology and Hydraulic Engineering (University of Natural Resources and Life Sciences, Vienna, Austria) have realized a project in which appropriate habitats for the re-establishment of captive bred juvenile freshwater pearl mussels were modelled.



In six Austrian watercourses holding freshwater pearl mussel populations (natural watercourses and artificial millraces) the following data were collected: A bathymetry sampling of each brook and its adjacent floodplains was carried out, based on a cross sectional survey.

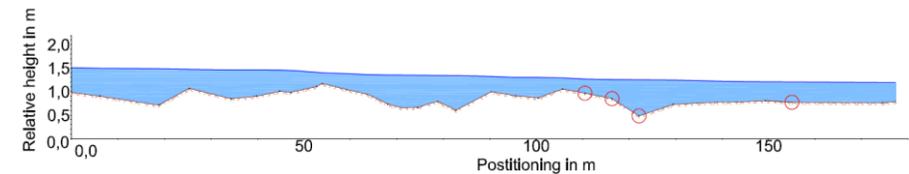
Decisive hydraulic variables were tested – primarily the hydrostatic pressure and its variability (described by the hydraulic gradient), furthermore shear stress, sediment transport capacity and bed stability. Sediment samples were taken from each watercourse in the vicinity of mussels, dried and sieved to create cumulative grain-size distribution curves and to calculate the proportions of fine sediments, sandy grain fractions and stabilizing coarse bed load. Characteristic grain sizes like the d_{50} and the evaluation of the sediment transport capacity were implemented into the study design. All variables were calculated for both low flow and bankfull flow.

Both micro- and meso-habitats were considered in the study:



Hydromorphological conditions of meso-habitats were assessed along the longitudinal profiles. In discrete cross sections the hydrological conditions were analyzed directly at the mussel habitats (micro-habitat scale).

Redox potentials were measured and water temperatures were logged every hour. Limnochemical analyses were performed, including amongst others conductivity, pH, Ca^{2+} , Cl^- , NO_3^- and NH_4^+ .



The study has revealed aspects that are very helpful for the predefinition of (future) freshwater pearl mussel habitats. **In Austria, however, no populations are known to reproduce successfully, so the results focus exclusively on the requirements of adult mussels.**

Data on fully functional habitats are highly essential for the refinement and completion of the models, though, that is why we are planning to design an **international project** dealing with this topic and would like to invite you to the developmental process right from the start.

We aim at bringing together experts and data from as many countries with (reproductive) freshwater pearl mussel populations as possible in order to develop a **general European model**, based on the ones worked out in the Austrian preliminary study which will be provided for further research in the course of the international project.