Scientific Paper:

Workshop: Pear Mussel Conservation and Stream Restoration, 2005

Sediment Investigations in Potential Pearl Mussel Rivers of the Eifel

Dr. Norbert Kaschek, Markus Britz, Heidi Selheim*
* WWU Münster, Institut für Evolution und Biodiversität, Abteilung für Limnologie, Hüfferstraße 1, 48149 Münster, Germany

Abstract:

As part of the monitoring programme in the LIFE-Natur Project „Living brooks in the Eifel" oxygen concentrations and particle size distributions in the sediments of the project rivers were measured. Oxygen concentrations were measured at 3 sediment depths using an „optode", a patented optical sensor (PreSens Precision Sensing GmbH) connected to tubes permanently installed in the sediment. In the period from August to November 2004 oxygen concentrations showed high variability between depths and measuring points. Already in 10cm depth concentrations were lower than in the free water bodies. Altogether the oxygen supply of the sediments was insufficient. Freeze-core sampling was used to determine the particle size distribution of sediments and the organic matter contents of the fractions. The main focus was on the fine material < 2 mm, which clogs the interstitial zone and causes colmation. In the river Rur this fraction was found to be 9,5%, in the Perlenbach-system 13,5 % of the sediment. By exposing boxes filled with coarse sediments at the river bottom, the input of fine materials (mainly < 2mm) was calculated to be 3.2g h^{-1} m^{-2} for the period from July to Dezember 2003 in the Perlenbach. Earlier trials with mechanical cleaning of consolidated sediments in other rivers showed no sustainable effect: Cleaning loosened the sediment and removed a fraction of 10 % of fine material. After 6 months, however, the original particle size distribution had been restored. Thus, the abatement of the input of fine sediment is a precondition for the regeneration of the interstitial zone and also for the conservation of pearl mussel habitats.
.