WATER QUALITY AND THE ASSESSMENT OF ANTHROPOGENIC POLLUTION OF THE ELBE RIVER OXBOW LAKE SEDIMENTS

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In this article, water quality and the assessment of anthropogenic pollution in sediments of the middle course of the Elbe River oxbow lakes Kozelská and Vrť were studied. It is widely accepted that the oxbow lakes are extremely significant ecosystems. However, a large amount of contaminated material may deposit in these lakes. The research of lake Kozelská was chosen especially to its proximity to the chemical factory Spolana in Neratovice, which used to be the biggest source of pollution of the Elbe River. The research included regular observations of hydrological regime and monthly analyses of chemical and physical parameters of water in the period from December 2016 to November 2017. The next part of this research included grain analysis and determination of metal and arsenic concentrations in sediment fraction of 20 μm using Aqua Regia leaching. Concerning water quality assessment, lake Kozelská and Vrť contained the highest concentration of $N\text{-}NH_4$ among the compared oxbow lakes in the middle course of the Elbe River. From the point of view of sediment contamination, the highest concentrations of measured elements were determined mainly in lake Kozelská, which confirmed the hypothesis of the spread of industrial contamination from nearby sources of pollution (Spolana, a.s., in Neratovice) probably also upstream during floods, as indicated by the hydrological analysis of the flood in 2002. On the contrary, the sediments of lake Vrť lake were less contaminated probably due to absence of major source of pollution.