



“Gheorghe Asachi” Technical University of Iasi, Romania



USE OF MACROINVERTEBRATES FOR ASSESSMENT OF RESTORATION WORKS INFLUENCE ON THE HABITAT IN FLOODPLAIN LAKES

Anca Balan¹, Krystian Obolewski^{2*}, Mihail Luca¹, Igor Cretescu^{3*}

¹“Gheorghe Asachi” Technical University of Iasi, Romania, Faculty of Hydrotechnics, Geodesy and Environmental Engineering, Department of Hydrotechnics and Environmental Protection, 65 Prof.Dr. Docent D. Mangeron Street, 700050, Iasi, Romania

²Kazimierz Wielki University of Bydgoszcz, Department of Hydrobiology, Poland

³“Gheorghe Asachi” Technical University of Iasi, Romania, Faculty of Chemical Engineering and Environmental Protection, Department of Environmental Engineering and Management, 65 Prof.Dr. Docent D. Mangeron Street, 700050, Iasi, Romania

Abstract

The paper presents a study concerning the influence of the hydraulic and hydrological connectivity among the oxbow lakes and the restoration of riparian-zones have on aging. Interconnectivity oxbow lakes emerge after complex regulating works for the protection of the shores and bottom of the lakes. Research has analyzed the influence of the hydraulic connectivity of three lakes located in northern Poland on the structure of associated bottom invertebrates – elements that monitor the conditions in habitats. The structure and functioning of ecosystems in wetlands, including in oxbow lakes, are direct or indirect in connection to fluctuations in water levels during floods or flow pulsations. Hydrological processes cause changes in the chemical composition of the water in oxbow lakes and sediment dispersion due to the exchange between water and sediments. In the lentic habitats (disconnected from the main river), the retention time is longer than in the semi- and lotic oxbow lakes whereas the productivity of the ecosystem is only internal and limited. The use of macrozoobenthos as bioindicators in re-connected oxbow lakes in small river valleys indicates that, on the long-term period (5 years), it does not have as a result the improvement of the environmental conditions of those habitats. This is shown by the monitoring indicators. The main reason seems to be the loss of the full connectivity between the oxbow lakes and the main river channel within 3 to 4 years, having as a result only systems of semi-lotic oxbow lakes and rivers. This hampers the free exchange of waters between ecosystems, the washing out of nutrients accumulated in sediments, the removal of bottom sediments, as well as the migration of hydrobionts. Therefore, the improvement of the ecological condition of the oxbow lake habitats and the permanence of those changes depend on the possibility of keeping the full hydrological connectivity to the river.

Key words: bioindicator, hydraulic connection, macrozoobenthos, monitoring, oxbow lake

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*Author to whom all correspondence should be addressed: e-mail: obolewski@ukw.edu.pl; icre@ch.tuiasi.ro