Principles of hydromorphological surveys of Polish rivers

Piotr ILNICKI1), Krzysztof GÓRECKI1), Mirosław GRZYBOWSKI2), Alicja KRZEMIŃSKA3), Piotr LEWANDOWSKI1), Mariusz SOJKA4)

1) Poznań University of Life Sciences, Department of Environmental Protection, 60-594 Poznań, ul. Dąbrowskiego 159, Poland; ilnickip@up.poznan.pl
2) University of Warmia and Mazury in Olsztyn, Department of Applied Ecology, 10-857 Olsztyn, ul. Oczapowskiego 5, Poland; grzybomi@uwm.edu.pl
3) Wrocław University of Environmental and Life Sciences, Department of Landscape Architecture, 50-363 Wrocław, pl. Grunwaldzki 24a, Poland; a-krzem@tlen.pl
4) Poznań University of Life Sciences, Department of Land Reclamation, Environmental Management and Geodesy, 60-649 Poznań, ul. Piątkowska 94E, Poland; masojka@up.poznan.pl

Abstract: This paper presents the key principles of the new Polish methodology for hydromorphological river surveys which is consistent with the provisions of the Water Framework Directive. This method proposes to investigate only the main watercourse of the water body. The assessment is based on cartographic maps, satellite images and the existing databases. Field surveys are limited to selected stretches of the water body. The classification of the river's ecological status and ecological potential is based on a hierarchical system comprising four elements: hydrological regime, river continuity, channel morphology and floodplain. They are evaluated in view of features characterized by selected attributes. The method is the same for natural and heavily modified water bodies, while a simplified methodology is used to investigate artificial water bodies. It does not account for differences in abiotic type, landscape or size of the catchment area. The results are presented in abridged and field protocols. The attributes are evaluated on a five-point grading scale or through a descriptive approach which supports the calculation of ecological quality ratios for quality elements, hierarchical system elements and the water body. The usefulness of the proposed method has been tested on 11 pilot water bodies. The presented approach enables to perform hydromorphological surveys of Polish rivers by 2015, as required under the Water Framework Directive.

Key words: hydromorphological method, monitoring, river survey, Water Framework Directive