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Ecohydrological system solutions to enhance ecosystem services: the Pilica River Demonstration Project

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Abstract

The application of ecohydrology principles as part of Integrated Water Resources Management (IWRM) has the potential to enhance the resilience of a catchment to anthropogenic impacts. Linking this approach with an understanding of water users and social and economic conditions in a given region, provides a foundation for the development of system solutions. Improving the quality of the environment, and the ecosystem services provided, can be a driver of new employment opportunities that contribute to both the overall economy of a region and sustainability. With these goals in mind, the paper presents a four-step approach for implementation of ecohydrology principles in IWRM, including a) monitoring of threats, b) analysis of the cause-effect relationships, c) development of methods, and d) system solutions. This approach was formulated and tested within a UNESCO-IHP and UNEP-IETC Demonstration Project on the Pilica River in Poland. This project aims to support fulfilment of Poland's obligations resulting from the EU Water Framework Directive and other European directives, and constitutional obligations for sustainable development. Attempts to transfer lessons learned to other catchments and socio-ecological systems (such as urban catchments) are highlighted.

Key words

Ecohydrology; Integrated Water Resources Management; system solution; reservoir; catchment; eutrophication