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Influence of human activities on water quality in two rural catchments – understanding the drivers and relationships for effective restoration

Włodzimierz Kanownik[a], Agnieszka Policht-Latawiec[a], Jolanta Dąbrowska[b,*]

[a]*Department of Land Reclamation, Faculty of Environmental Engineering and Land Surveying, University of Agriculture in Krakow, Al. Mickiewicza 21, 31-120 Kraków, Poland, emails: wlodzimierz.kanownik@urk.edu.pl (W. Kanownik), a.policht@urk.edu.pl (A. Policht-Latawiec)*
[b]*Institute of Building Engineering, Faculty of Environmental Engineering and Geodesy, Wrocław University of Environmental and Life Sciences, ul. Norwida 25, 50-375 Wrocław, Poland, email: jolanta.dabrowska@upwr.edu.pl*

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ABSTRACT

The article presents an evaluation of 12 physicochemical parameters of water in two rural streams in the south-eastern part of Poland. Moreover, a comparative analysis of the impact of human activities on water quality in the studied catchments was carried out. Factor analysis allowed the observation of similarities and differences in physicochemical composition of water of the two catchments. Based on factor analysis of water of catchment areas of the Żyłka and Dopływ z Wiktorca streams, 77.6% and 85.2% of total variance was described by only three factors. Despite the higher proportion of arable land in the Żyłka catchment area, the water here is of very good quality, whereas in the catchment area of the Dopływ z Wiktorca, human-related activities have a significant impact on insufficient water quality. The analyses carried out are essential for effective water management and for the creation of targeted mitigation and remediation plans.

Keywords: Water quality data; River monitoring; Adaptive management; Water reclamation; Factor analysis; Climate change

* Corresponding author.