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CHANGES OF WATER QUALITY OF THE TRANSBOUNDARY WISZNIA RIVER IN THE YEARS 1990–2012

Key words: transboundary river, water quality, Wisznia River

Summary

This paper presents the water quality changes of the transboundary Wisznia River (Poland). The environmental state of this transboundary river is described in terms of monthly data for the main physicochemical and biological parameters. The eight indicators of water quality taken into account were: ammonium nitrogen (NH$_4^+$), nitrate nitrogen (NO$_3^-$), total nitrogen (N), total phosphorus (P), sulphates (SO$_4^{2-}$), chloride (Cl$^-$), calcium (Ca) and biological oxygen demand (BOD). And biological Oxygen Demand (BOD) is one of the most common measures of pollutant of organic material in water, and is used in environmental monitoring. The distribution frequency of the above water quality indicators in Wisznia River were established for the study period of 1990–2012. The nutrient concentrations (NH$_4^+$, N, P) were clearly low and never exceeded the boundary level of the first (1) and second (2) class purity. This pertained to all the analysed components, however, the negative changes were found for the 5 day biological oxygen demand. This can be the result of decreasing anthropopressure in the area because the main feature of the studied area is agricultural and forest land cover with a low population density. The analysis proved that the indicators which lowered the water quality the most were: BOD$_5$, chlorides and calcium had a smaller impact on the classification of water cleanliness. This shows that surface water has been affected in quality by anthropogenic influence. An analysis of salinity indicators indicates a clear improvement of water cleanliness which happened in the recent years.