HYDROCHEMICAL CONDITIONS FOR LOCALIZATION OF SMALL WATER RESERVOIRS ON THE EXAMPLE OF KLUCZBORK RESERVOIR

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Abstract: The paper presents an analysis of hydrochemical conditions of the Stobrawa River – the right tributary of the Odra River. The aim of the analysis was to assess the possibility of storing the Stobrawa water in Kluczbork storage reservoir. A preliminary assessment of the reservoir water quality and its usability was made. The quality of water in the reservoir is particularly important as the main functions of the reservoir are flood protection, agricultural irrigation and recreation. The following physicochemical parameters of the Stobrawa River were analyzed: NO_3^-, NO_2^-, NH_4^+, PO_4^{3-}, BOD_5, COD, dissolved oxygen, water temperature, pH, electrolytic conductivity and total suspension. Main descriptive statistical data were presented for the analyzed water quality indicators and loads. A statistical analysis of the correlations among all investigated water quality indicators and water flow was performed. The analysis showed that some of the indicators were mutually correlated with water flow at a significance level of $p < 0.05$. The carried out research showed significant contamination of the Stobrawa River in the cross-section of the planned reservoir, which indicates that the Stobrawa water could deteriorate the quality of water in the reservoir. Some reparatory actions to improve water quality in the reservoir were presented. One of them is rearrangement of water and wastewater management in the reservoir catchment. This must precede the construction of the reservoir. Another solution is construction of a pre-dam which will contribute to the improvement of water quality in the reservoir and extend its lifetime.