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TESTING THE APPLICABILITY OF DIFFERENT PHYSICO-CHEMICAL INDICES FOR ASSESSING WATER QUALITY IN THE LOWER DANUBE

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Abstract

Water quality indices are useful tools for assessing the quality of surface waters. The main aim of the present paper is to test the applicability of three different physico-chemical indices (Water Quality Index-WQI, Water Pollution Index-WPI, and Canadian Water Quality Index-CWQI) for assessing water quality in the Lower Danube near Galati City, Romania. Monthly The monthly sampling datasets collected between June 2018 and March 2019 were used in order to analyze 12 physico-chemical indicators necessary for calculating the three indices. These indicators were analyzed by using electrochemical methods (pH, DO, BOD_5) and spectrophotometric methods provided by Merck-Millipore kits (COD, N-NH_4^+, N-NO_3^-, N-total, P-total, SO_4^{2-}, Cl^-, Fe-total, Zn^{2+}). The results of the three indices allowed a classification of the Danube water in the same quality classes. However, some differences were observed, probably due to the calculation algorithm but especially due to the contribution (weight) of each parameter to the final value. The study provides baseline information on the water quality assesment based on WQI, WPI and CWQI indices, which are suitable for assessing water quality in this sector of the Lower Danube.

Keywords: test, water quality indices, Lower Danube, physico-chemical indicators