

# Analysis of the Effectiveness of the System Improving Water Quality in the WOPR Facility

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## Extended Abstract

The installation improving water quality (IIWQ) was installed on the Turawa dam reservoir (50°43'25 "N 18°07'13" E) on the Mała Panew river in the Opolskie Voivodeship (south-western Poland). The Turawa water reservoir is a multifunctional reservoir with an 80-year service life, built for the purpose of water retention for the maintenance of the Odra River flows for navigation, recreation and rest, and for energy purposes. The area where the Turawa reservoir is located is rich in nature. There are valuable natural areas, legally protected - Natura 2000 area Turawa Reservoir, created in 2008 to protect birds and their habitats, as well as the protected landscape area "Łasy Stobrawsko-Turawskie". The studies of the water quality of the Mała Panew River and the Turawa reservoir conducted in 1998–2009 and 2011–2016 indicate that the Turawa reservoir had an impact on the improvement of the water quality of the Mała Panew river.

The purpose of the IIWQ is to improve the water quality in the reservoir in the designated area of the Turawa reservoir at the WOPR marina. The research period covered measurements from June 2019 to May 2020, while from May 2020 to December 2021, the effectiveness of the operating installation was tested in the context of reducing the concentration of nitrates and phosphates. The paper presents the results of water quality tests in the Turawa reservoir in the first period of operation of the installation, in terms of selected parameters at selected measuring points within IIWQ. Based on the information on the volume of nutrient loads flowing in and out of the installation, the impact of the installation on the improvement of water quality in the reservoir was determined. In addition, control tests were carried out at checkpoints in the reservoir. It has been shown that the causes of water blooms in this area are municipal springs as well as agriculture (surface runoff of fertilizers and pesticides from the fields). Eutrophication also has a serious impact on the functioning of organisms living in the water, as well as on the health of people using the reservoir (the algae causing eutrophication are toxic).

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