Integral assessment of the state of Dnipro water reservoir in Kyiv according to the types of water use

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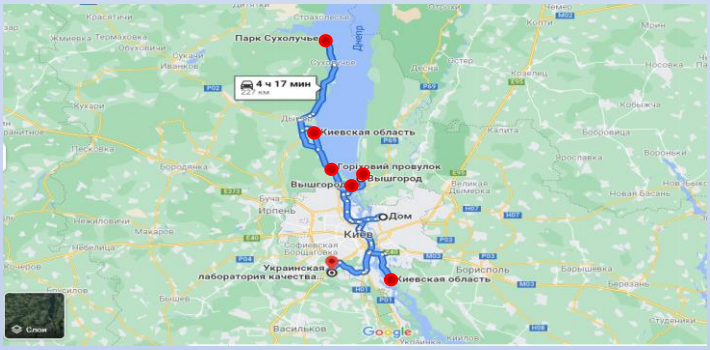
Introduction

The aim of the research was to develop a system of integrated assessment of the state of the Dnipro basin using water quality indicators and to assess the ecological status of the Kyiv reservoir, taking into account different types of water use and anthropogenic impact

Area of research

Methodology

1.Determination of water quality by WQI and I3B index
2.Water quality assessment using the Harrington function
3.Substantiation of the complex ecological index (IE) for different water use needs
4. Determination of the ecological condition of the arrays (for 5 ecological classes and 2 - chemical classes)



Results

Water samples were taken at 6 points of the Kyiv Reservoir. The samples were focused on chemical-physical and microbiological analyzes. A total of 24 samples were taken, including 18 samples for physico-chemical analysis and 6 samples for microbiological.

The analyzes were performed on the basis of ULYABP (Ukrainian Laboratory of Quality and Safety of Agricultural Products) and NULES laboratories.

Such indicators, such as nitrogen and phosphorus, have not been reported. For completeness of data and purity of the analysis, this research should be carried out within 3 years in the summer period.

Conclusions

The assessment of water quality in the reservoirs of the Dnipro basin was carried out according to the integrated approach (water quality index (WQI), IPR, integrated assessment using the Harrington function, complex ecological index IE, determination of ecological status of massifs (by 5 ecological classes and 2 - chemical classes)).

References

1. Michelle T.H. van Vliet, Martina Flörke & Yoshihide Wada. Quality matters for water scarcity (2017). Nature Geoscience: file:///C:/Users/user/Downloads/ngeo3047%20(1).pdf
2. Екологічна оцінка якості поверхневих вод суші та естуаріїв України: Методика. КНД.. Київ : 1994. 37 с.
3. Water Research Center. Calculating NSF Water Quality Index (WQI) (on-line calculator) URL:https://www.water-research.net/index.php/water-treatment/water-monitoring/monitoring-thequality-of-surfacewaters.
4. Войтенко Л.В., Копілевич В.А., Строкаль М.П. Концепція інтегральної оцінки якості води для різних видів водоспоживання з використанням функції бажаності Харрінгтона. Біоресурси і природокористування. 2015. Т. 7, № 1-2. С. 25-36.
5. Методика екологічної оцінки якості поверхневих вод за відповідними категоріями (проект) / А.В. Гриценко, О.Г. Васенко, Г.А. Верніченко та ін. Харків : УкрНДІЕП. 2012. 37 с. URL: http://www.niiep.kharkov.ua/sites/default/files/metodika_2012_14.doc.