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THE USE OF THE A.G.P. TEST FOR DETERMINING THE PHYTOPLANKTON PRODUCTION AND DISTRIBUTION IN THE THERMALLY STRATIFIED RESERVOIRS: THE CASE OF YONGDAM RESERVOIR IN KOREA

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Abstract

The paper focuses on eutrophication due to nutrients load into a reservoir. A thermally stratified reservoir water body is divided in vertical layers and horizontal zones according to water temperature and depth. The layers show different compositions of limiting nutrient because of the density of flow and due to inhabitants on the bottom of the reservoir exposed to sunlight. The bioassay for algal growth potential test (AGPT) is the most direct and effective way to determine a limiting nutrient and its level of eutrophication potential. The AGPT was applied to the Yongdam reservoir in Republic of Korea, a reservoir which is going through a strong thermal stratification in summer while discharging surface water. The experiments show that according to the results of the AGPT, Yongdam reservoir is an effluent limited water body for phosphate. The conducted research also identified reservoir zones, benthic organism in the upstream reservoir and density flow in the middle layer with much amount of nutrients, whose upward vertical transportation induces continuous algal blooms in the surface layer during summer season. AGPT conducted in this study proved that the benthic organism on the bottom of the reservoir is exposed to the sunlight impact on the nutrient load to the deep zone of the reservoir.

Key words: algal growth potential test (AGPT), lacustrine, riverine transition, Soluble Reactive phosphorus (SRP), thermally stratified reservoir

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