

**WATER QUALITY AND TROPHIC STATE OF TEKNOLOGI  
LAKE (FKAAB) UTHM BY USING WATER QUALITY INDEX  
AND CARLSON'S TROPHIC STATE INDEX**

**FINAL PROJECT**

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## ABSTRACT

Lakes are vital ecosystems that provide ecological and social benefits, but are increasingly threatened by eutrophication due to excessive nutrient inputs. Lake Teknologi (FKAAB), a part of the Universiti Tun Hussein Onn Malaysia (UTHM), functions not only as a stormwater retention basin but also as a place for recreation. Nevertheless, it bears the brunt of human impacts such as runoff, wastewater discharge, and the connection to Kemajuan Lake. The primary objective of this study was to evaluate the water quality and trophic status of Teknologi Lake using the WQI and CTSI methods. The water samples were collected weekly from November 2024 to February 2025 at four selected points, and then they were analyzed for six parameters (DO, BOD, COD, TSS, AN, and pH), chlorophyll-a, total phosphorus, and Secchi depth. The various data went through different methods such as descriptive analysis, WQI classification, CTSI calculation, and correlation tests. As per the findings, Teknologi Lake (FKAAB) was situated on the borderline of “slightly polluted” as per the Malaysian WQI throughout the study period. The CTSI scores characterized the lake as eutrophic, which was connected to high nutrient content and poor water clarity. The greatest correlations were evident between the nitrogen and phosphorus parameters and chlorophyll-a, thereby asserting their role in, and being the main factors of, the eutrophication process. Therefore, it can be said that Teknologi Lake (FKAAB) has been affected by nutrient enrichment and moderate water quality decline, emphasizing the need for improved management strategies to mitigate pollutant inputs and sustain its ecological functions.

**Keywords:** CTSI, eutrophication, Teknologi Lake (FKAAB), water quality, WQI.

