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# Water Temperature Impact Assessment on Aquatic Ecosystem Water Quality in Response to Oxygen Availability - A River Measurement Approach

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## ABSTRACT

Water is a liquid substance compromising of hydrogen and oxygen. Dissolved oxygen in water is highly influenced by temperature, which can increase or decrease the oxygen content of water through various reaction processes that alter its quality properties (H2O), especially with regard to the oxygen in water, which is of paramount concern in this study. Using scientific water measurement and analysis, appropriative to temperature and dissolve oxygen, the water quality was classified with index values, used in studying water quality response manifested from dissolve oxygen due to temperature features, in the aquatic ecosystem. Obtained results showed that during the morning hours, water temperature was 22°C, and, dissolve oxygen was 8.64 mg/L. In the afternoon hours, they were 27°C and 7.90 mg/L, while in the evening hours were 26°C, and 8.02 mg/L respectively. In all, temperature and dissolve oxygen were 25°C and 8.19 mg/L. Quality index were 90 (excellent) in the three periods of the measurement. From all results, the maximum dissolve oxygen was 8.84 mg/L associated to the lowest temperature of 21°C. The minimum dissolve oxygen was 7.16 mg/L, attributed to the highest temperature of 32°C. It was found that temperature below 26°C excellently improve dissolve oxygen which at above 6.9 mg/L (excellently available) improved water quality. It was concluded that, water temperature upon low alters dissolve oxygen in opposite order, and conversely upon high.

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**Keywords:** Water Temperature, Water Quality Index, Aquatic Ecosystem, Dissolve Oxygen, Otu Ogwu

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