عنوان مقاله:

Seasonal variation of reservoir water quality: A case study of Kubanni reservoir, Zaria, Nigeria

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خلاصه مقاله:

Background: Reservoirs serve as fishing and domestic water resources for the people living around the catchment area. However, natural activities threaten the water quality, therefore, constant and proper monitoring of the reservoir is necessary. This study aimed to examine seasonal variation in water quality parameters of Kubanni reservoir, Zaria, Nigeria. Methods: Water quality data of Kubanni reservoir, Zaria, Nigeria, for ۷ years (January ۲۰۱۴ to December ۲۰۲۰) were collected and analyzed to understand the seasonal variation. Ten water quality parameters including pH, turbidity, electrical conductivity (EC), temperature, total dissolved solids (TDS), dissolved oxygen (DO), chloride (Cl-), total Iron, nitrate (NO۳-), and manganese (Mn) were analyzed. The data were analyzed using Kolmogorov-Smirnov test to select the probability distribution which provides the best fit by EasyFit software. The functions included Weibull, Exponential, Fréchet, Gamma, Lognormal, and Normal. Seasonal variation was determined using Spearman's rank-order correlation. Results: The results showed that pH, EC, temperature, TDS and NO۳- approach the Weibull distribution. Turbidity and total Iron approach the Fréchet distribution. Mn approaches the normal distribution, while DO and Cl- approach the Gamma distribution. The output of non-parametric Spearman's correlation coefficient and Spearman's statistical criterion indicates a significant difference at ۵% significance level between the pH and total Iron values recorded in both seasons. This suggests that season has an effect on the concentration of pH .and total Iron. Conclusion: Out of the ۱۰ parameters examined, pH and total Iron are climatologically influenced

کلمات کلیدی:

Seasons, Water quality, Iron, Normal distribution, Nigeria