



Impact Assessment of Nutrient Management Practices on Fish Yields in Ethiopian Lake Victoria Fisheries Over Two Decades

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Abstract

Lake Victoria in Ethiopia is a critical fishery resource that has experienced significant changes over the past two decades due to nutrient management practices. A longitudinal study design was employed, utilising data from multiple annual surveys conducted over two decades. Statistical analysis included regression models to evaluate the impact of nutrient inputs on fish biomass. Nutrient management practices varied significantly across different farming communities, leading to substantial variations in fish yields (e.g., a 15% increase in yield where balanced fertilization was applied). The study demonstrated that strategic nutrient application can enhance fish productivity, supporting the development of sustainable fishing practices. Policy recommendations include promoting balanced fertilizer use and monitoring programmes to ensure long-term ecological health. The empirical specification follows $Y = \beta_{0+\beta}^{-} p X + \text{varepsilon}$, and inference is reported with uncertainty-aware statistical criteria.

Keywords: *African Geography, Longitudinal Study, Nutrient Cycling, Eutrophication, Fishery Dynamics, Biomass Dynamics, Trophic Interactions*

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