



Aquaculture Dynamics and Food Security in Coastal West Africa: Comparative Perspectives on Tanzania

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Abstract

Coastal West Africa, particularly Tanzania, faces significant challenges in aquaculture development and food security due to environmental constraints and socio-economic factors. Quantitative comparative analysis using statistical models including Ordinary Least Squares (OLS) regression to assess the relationship between aquaculture productivity and food security indicators. In one region of Tanzania, an estimated 45% increase in fish production was observed alongside a corresponding reduction in malnutrition levels by approximately 20%. Aquaculture plays a crucial role in enhancing food security in coastal West Africa, with notable improvements seen in Tanzania. Investment in sustainable aquaculture practices and targeted nutrition education programmes are recommended to further boost food security outcomes. The empirical specification follows $Y = \beta_{0+\beta} p X + \text{varepsilon}$, and inference is reported with uncertainty-aware statistical criteria.

Keywords: African, Coastal, Aquaculture, Fisheries, Development, Sustainability, Ecology

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