

Evaluating and Assessing the Performance of Bulago Lacustrine Protected Area (LPA) on Lake Victoria, Uganda

GRO • FTP

Fisheries Training Programme

Kalyango Mustapher

Production Department, Mukono District Local Government, kalyango343@gmail.com

Supervisors: Julian Mariano Burgos, Erla Sturludóttir, Marine and Freshwater Research Institute, Iceland

Introduction

- Lake Victoria is a vital source of food and livelihood for local communities in Uganda
- It faces significant challenges due to overfishing and habitat loss
- The Bulago LPA was established in 2010 with the goals of replenishing depleted fish stocks, providing a spawning and nursery ground, conserving biodiversity, and promoting sport fishing
- No assessments have been conducted on the area since its establishment
- The main commercial species in the lake are Nile perch (*Lates niloticus*), Nile tilapia (*Oreochromis niloticus*) and silver cyprinid (*Rastrineobola argentea*), commonly known as Daaga

Key species



Nile tilapia



Nile perch



Silver cyprinid



Haplochromines

Objectives

- Assess the impact of the LPA on fish stocks
- Propose improvements to the collection of fisheries data on lake Victoria
- Develop strategies for mitigating threats and improving conservation outcomes

Study area

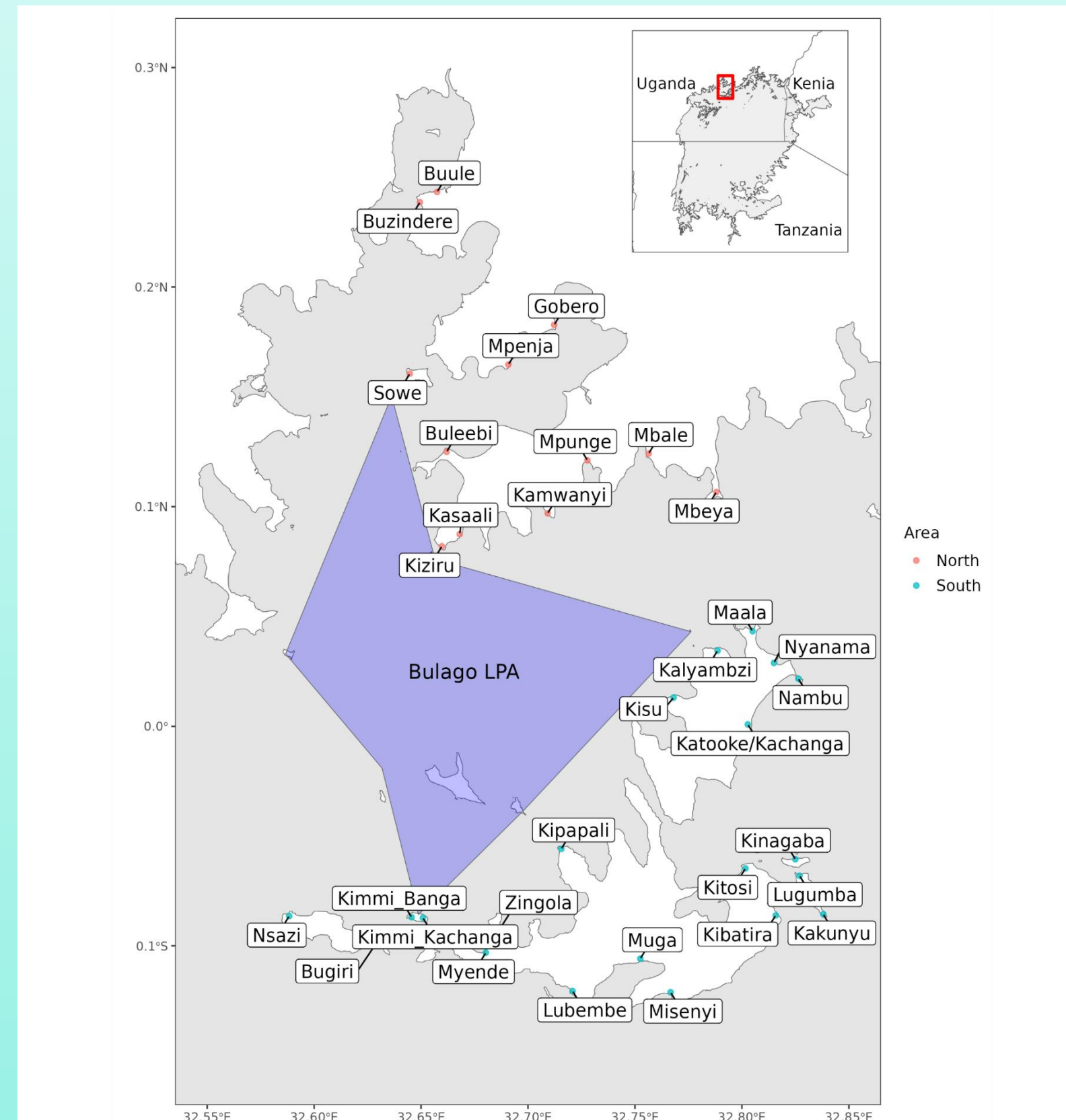


Fig.1. A map of L. Victoria showing Bulago LPA and the data collection sites in North and South

Methodology

- Data of catch (kg) and effort (number of boats) from 2020-2024 were compiled from within the Bulago LPA and from landing sites in the nearby subcounties of Mpunge, Mpatta (North of the LPA) and Koome islands (South of the LPA) in Mukono district
- Temporal trends in catch, effort and CPUE were visualized using R software
- The relationship of CPUE among areas were visualized using scatterplots
- Regression models were used to evaluate linear trends and strength of association

Results

Nile perch trends

- The LPA exhibited consistently limited low effort, low catches and high CPUE. In contrast, areas outside the LPA experienced increasing effort, sharply declining then stabilizing low catches, and decreasing CPUE (Fig.2)

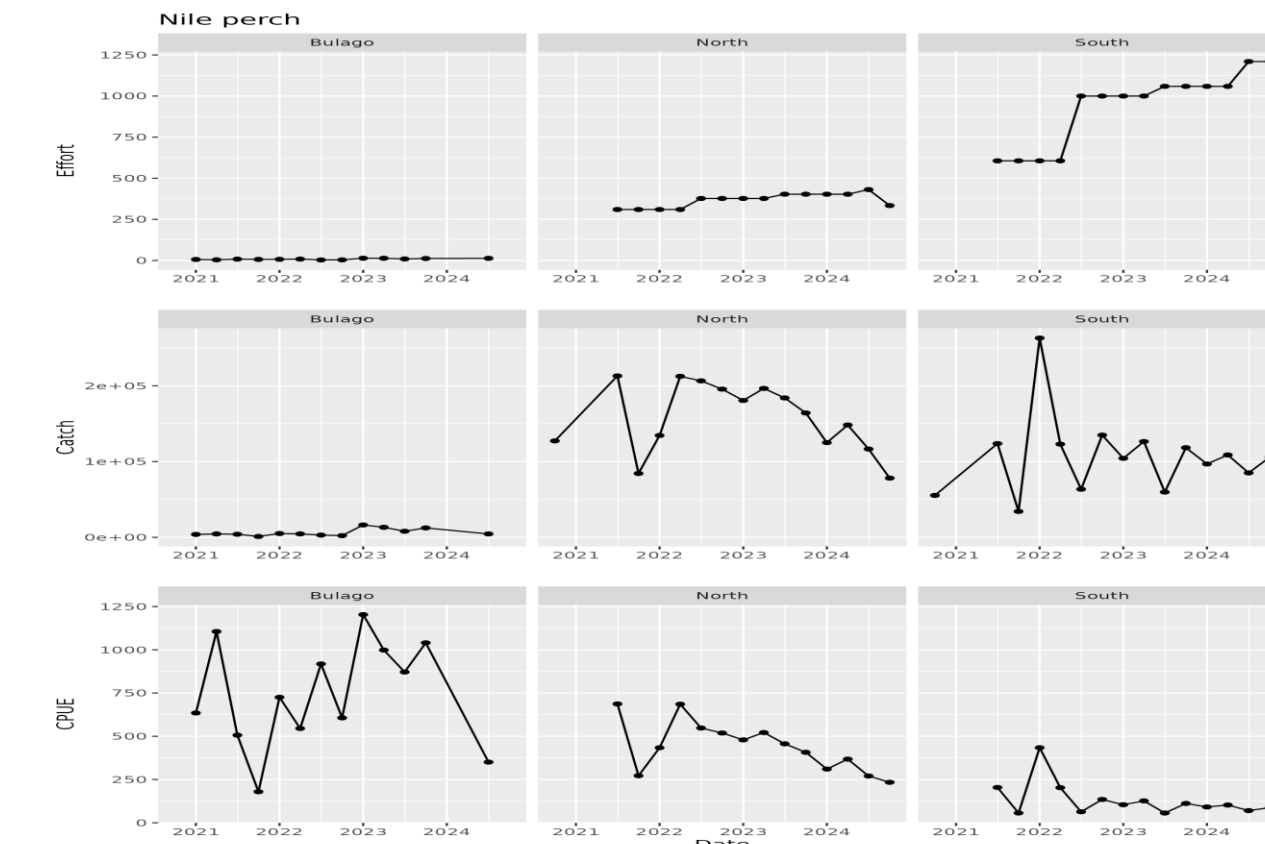


Fig. 2. Temporal catch, effort and CPUE trends for Nile perch in the North, South and LPA

Nile tilapia trends

- The LPA showed consistently low effort and relatively low catches, with high CPUE. In contrast, external areas displayed gradually increasing effort, sharp catch decline stabilizing at low levels, and declining CPUE (Fig.3)

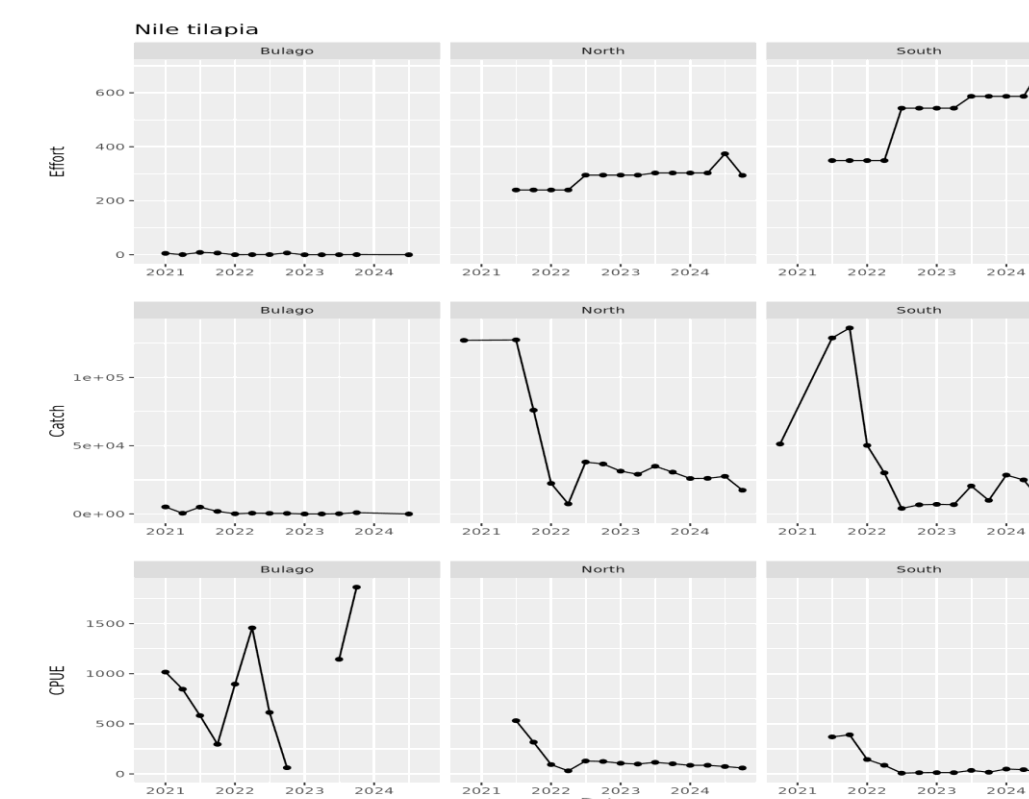


Fig. 3. Temporal Effort, catch and CPUE trends for Nile tilapia in the North, South and LPA

CPUE relationship

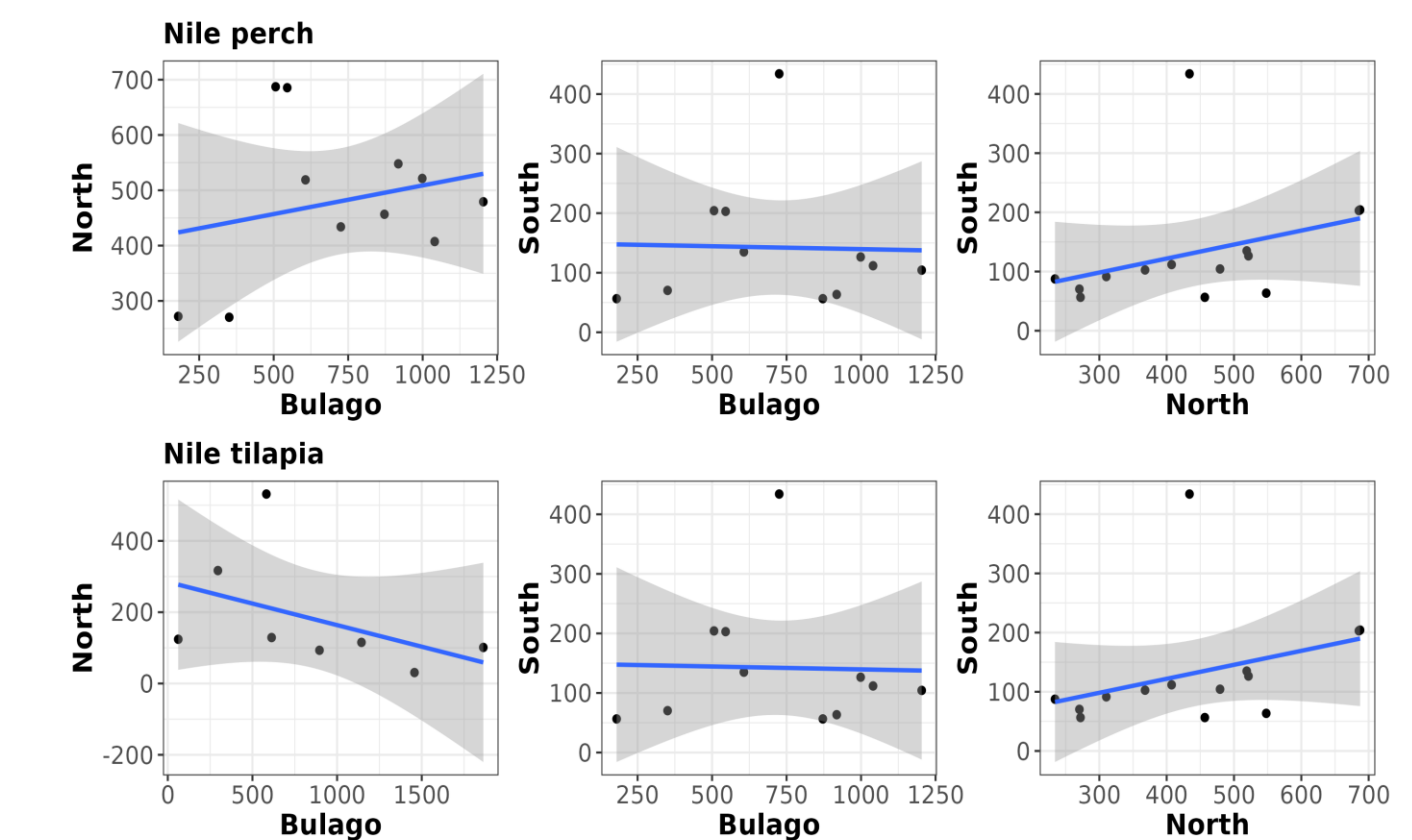


Fig. 4. Scatterplots showing the relationship in CPUE among Bulago, North and South for Nile perch and Nile tilapia

Conclusions and Recommendations

- Due to limited data, a comprehensive assessment was not feasible in this study
- The high CPUE for the two targeted species within the LPA suggests an important role in sustaining local populations
- Further research is needed on species life history, movement patterns and habitat range sizes
- Develop strategies for co-management with local fishing communities
- Promote low-cost data collection methods in collaboration with local communities

Acknowledgements

