



Fisheries and Aquaculture adaptation and Conservation Strategies in Uganda's Changing Climate



Charles Masembe*¹ and Vincent Muwanika²

¹Makerere University College of Natural Sciences P.O Box 7062, Kampala, Uganda

²Makerere University College of Agricultural and Environmental Sciences P.O Box 7062, Kampala, Uganda

*Corresponding author: cmasembe@cns.mak.ac.ug

Introduction

Uganda is one of Africa's leading fish producers with millions of people deriving their livelihoods from mainly capture fisheries and related activities. However Climate change is affecting the productivity of many aquatic ecosystems and in the process threatening the Livelihoods of people who depend on fisheries. This threat can only be reduced through knowledge-based adaption and mitigation pathways. In this project we assessed the adaptation and mitigation responses of communities dependent on aquatic ecosystems and evaluated the potential of aquaculture as an innovative alternative to the declining capture fisheries

Methods

Two Msc candidates were recruited. One, Ms Alweny Salome handled the sociological component investigating vulnerability, coping and adaptation responses.

The other, Mr. Ojambo Danial handled the potential of aquaculture as an innovative response to capture fisheries. He carried out a rapid survey of aquaculture installations in the Victoria and Albertine regions to establish problems hindering productivity. He followed this up with genetic studies to asses if some of the problems identified in fish farms had genetic origins.

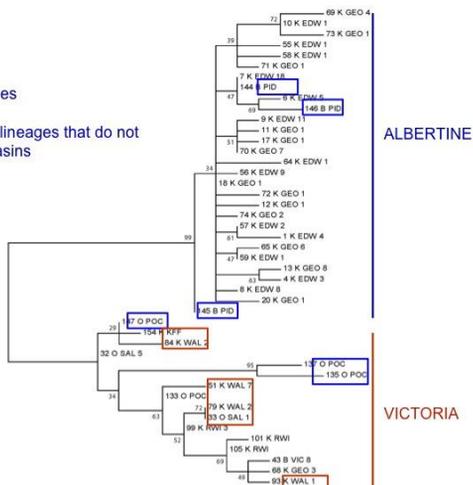
4. High genetic diversity was observed in both the wild and farmed populations of the African cat fish. Therefore problems of delayed maturity of farmed fish are not genetic as had been previously suspected.

5. Two genetically distinct lineages of the African cat fish exist in Uganda. This should be noted by fish breeders when selecting brood stock for aquaculture.



-Two catfish lineages

-fish farmers have lineages that do not Follow drainage basins



Key Outputs

- 1) Two Msc. Students have completed.
- 2) Two Msc dissertations which can act as reference materials were prepared.
 - i) Population Genetic Structure of Wild and domesticated African Cat fish (*Clarias gariepinus*) in Victoria and Albertine Drainage Basins, by Mr. Ojambo Daniel.
 - ii) Climate Change vulnerability and adaptation responses of fish dependent communities in the Albertine and Victoria Drainage Basins in Uganda by Alweny Salome
- 3) Two manuscripts are are being prepared. The working titles are:
 - i) Population genetics of the African cat fish (*Clarias gariepinus*) in Uganda: Insights from Mitochondrial DNA sequence variations.
 - ii) Adaptation to climate change by fishing communities in Uganda.

Key Results

1. High vulnerability among fish dependent communities was observed but communities in the Albertine Basin were more vulnerable than those in Victoria Basin.
2. Adaptation responses among fishing communities were unsustainable. Communities will find it difficult to adapt without intervention.
3. Potential for aquaculture is high but faced with numerous challenges that increase cost of production

Acknowledgement: This work was supported by RUFORUM grant No. RU2010GRG17

