

# Genetic improvement and captive breeding of Tilapia

**Status:** Ongoing

**Collaborators:**

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Many fish species provide essential proteins as well as Omega-3 which enhances the human immune system. However, fish resources in Kenya are getting depleted with many species now considered endangered. With climate change, prioritized land use and evolving lifestyles, fish farming is increasingly becoming attractive to individuals and communities, and is one of the programs initiated by the Government to supply essential nutrition. Efficient and profitable fish farming depends on strategies that reduce cost of production while increasing sales. Optimal production is expected when fingerlings are similar genetically. This study aimed at providing a farm-based diagnosis of genetic groups to enable selection of pure fingerlings for pond farming of Tilapia. Molecularly homogeneous subsets are being delineated using an individual-based approach and Bayesian modeling that apportions individuals into putative ancestral populations on the basis of their multilocus genotypes. This project aims to increase the production of farm Tilapia from Lake Baringo by providing a simple and cheap diagnosis of genetic groups to enable selection of pure fingerlings for pond farming. Further, the result of this study is expected to inform rational conservation and management of fish resources in the lake. Preliminary hierarchical examination of homogeneous subsets at five SSR loci revealed no evidence for population differences, suggesting that they form a single gene pool at neutral genetic loci, but differentiation could still exist at specific loci controlling certain quantitative traits.

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**Start Year:** 2012

**End Year:** 2014

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