

Fish:

Derivation of economic values for commercial traits in different production systems in Nile tilapia

Over the past three decades, Nile tilapia industry has grown into a significant aquaculture industry in the world due to the genetic improvement programmes all over the world. The objective of genetic improvement program is to select tilapia for the production of fingerlings that will produce desired products more efficiently under future economic circumstances. The selection index used for selecting genetically superior animals thus consists the estimated breeding values of many desired traits weighed by the economic values with the goal to maximize economic return. In the master thesis, the student will thus calculate the economic values for few commercial traits (body weight, fillet weight, fillet yield and disease resistance) of Nile tilapia. Commercial cage and pond production system in Asia will be considered for the analysis. During the project, the student will become familiar with tilapia production and economic value calculation. The project is in close collaboration with GenoMar Genetics AS, a leading tilapia breeding company. Co-supervisor from GenoMar will be Rajesh Joshi.

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Optimisation of a new breeding program for Arctic charr

Arctic charr is a highly valued fresh water fish with a potential for increased production in Norway.

The objective of this project is to optimize a newly established breeding scheme (Arctic Red) to maximise genetic progress, while keeping rates of inbreeding at acceptable levels and physical resources are limiting for number of fish within and across age classes.

This project will be based on stochastic simulation of alternative breeding schemes with a focus on optimizing the number of families, number of potential parents kept and use of genomic information for establishing relationships between fish and use in genomic prediction of breeding values.

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