MSc-thesis project on modelling population dynamics and harvest strategies of the Amazonian Cardinal tetra (*Paracheirodon axelrodi*)

In a nutshell



Worakarn RUNGPRASERT

- **Methods**: Modelling population dynamics and harvesting
- **Skills you will achieve**: Programming, running simulations and scenarios, fisheries-related population dynamics theory, field work in rainforest
- **Field work**: 4-6 weeks in Brazilian Amazon in roughly September 2027
- **Project this thesis is part of**: AMAZONFISH: *Fish, Fishers and Finances*, funded by UK Research and Innovation
- **BIO research group**: Theoretical Ecology Group
- **Supervisor**: Katja Enberg (katja.enberg@uib.no)

The global ornamental fish trade supplies millions of tropical fish to aquarium enthusiasts every year and generates an estimated annual value of up to USD 20 billion. A large proportion of these fish originate from the Brazilian Amazon, where small-scale fishers using traditional, low-impact methods supply the international market with wild-caught species.

Beyond providing an important source of income for local communities, this fishery also creates an economic incentive to protect the rainforest and its river systems, because the trade depends on healthy aquatic ecosystems. In this way, the ornamental fish trade can support both local livelihoods and broader environmental sustainability. However, shifting market demands, low and inconsistent compensation for fishers, and increasing concerns about fish welfare have contributed to a decline in Brazilian exports.

The UKRI-funded project AMAZONFISH: *Fish, Fishers and Finances* works closely with Amazonian fishing communities to map the supply chain and identify bottlenecks where poor fish welfare and economic inefficiency intersect. The project also seeks to improve our understanding of harvest sustainability and the population dynamics of key ornamental fish species.

In this MSc project, you will develop and apply population models, including simple stock-production and age-structured approaches, to explore how different fishing rates, post-capture mortality levels, and harvest strategies influence population sustainability. The project will help identify where reductions in mortality could improve both conservation outcomes and fishers' livelihoods, while also highlighting key knowledge gaps and future data needs.

The project is particularly suitable for students interested in fisheries science, ecology, conservation, quantitative methods, and sustainability. There will be an opportunity to participate in fieldwork in the Brazilian Amazon for approximately 4-6 weeks in September 2027.