Trinity College Dublin
Coláiste na Tríonóide, Baile Átha Cliath
The University of Dublin

MSc by Research studentship available on: "Stability of European freshwater fish communities under multiple environmental changes"

We are seeking a highly motivated candidate for a fully funded 2-year MSc by Research project. The student will be supervised by Dr. Conor Waldock and Prof. Ian Donohue at the School of Natural Sciences. This studentship is funded via the School of Natural Sciences MSc to PhD Pathway fund. It is expected that the student will be open to and seeking to find a route or pathway to complete a PhD.

We are dedicated to foster a diverse and inclusive research environment and strongly encourage applicants from all backgrounds to apply.

Project Background and Description

Global environmental change is increasingly uncertain and unpredictable, with multiple changes acting at once. The response of biodiversity to novel mixtures of anthropogenic impacts remains an urgent knowledge gap. Freshwater ecosystems harbour imperilled fish fauna facing a combination of climate change, pollution, invasive species, physical modification and habitat fragmentation. This project will use fish biodiversity as a model system to explore how natural ecosystems vary in their inherent capacity to remain stable and productive under unpredictable multi-dimensional environmental change.

Ecological communities are made up of sets of species that often have different responses to environmental change because they have evolved specialisations into ecological niches. Quantifying species' different responses gives a community's "response diversity", a property expected to predict the stability of a community under environmental change.

This project will investigate spatial patterns, drivers, and consequences of response diversity of European fish. It will combine a large-scale pattern-based macroecological investigation with empirical tests of ecological stability theory. The overarching question is: how does response diversity contribute to stability of natural freshwater ecosystems under multiple environmental changes?

The core aims of the project are:

1. Investigate spatial patterns and environmental drivers of response diversity in fish communities across Europe.
2. Examine the empirical relationships between response diversity and stability of community biomass and species' composition.

Candidate Profile

The candidate must meet the Trinity postgraduate entry requirements and be eligible for EU student fees (https://www.tcd.ie/study/apply/admission-requirements/postgraduate/) and hold at least an upper second class (2.1) Honours Bachelor degree, preferably in Biology, Ecology or Environmental Science or another related discipline.

We hope the candidate will fulfil the below requirements:

- Be actively interested in global environmental change and its impact on biological diversity.
- Have demonstrated ability to handle and analyse data in R.
- Have keen interest in developing skills in advanced data processing and statistical analysis pipelines in R.
- Be keen to develop knowledge on freshwater ecology and obtain field experience beyond the theoretical concepts of the MSc.
- Have the ability to develop hypothesis-driven questions to advance global biodiversity change modelling.
- Contribute positively to team dynamics and atmosphere and have capacity to work well independently.

Funding

This is a 2-year MSc by Research project funded by the School of Natural Sciences and covers an annual tax-free stipend of €25,000, and EU student fees.
As part of the award, it is expected that the candidate and PI will identify and apply to other funding mechanisms as to meet the terms of the MSc to PhD Pathway fund.

Application procedure

Please send a CV and a 1-page personal statement, and any enquiries, to Dr. Conor Waldock (waldockc@tcd.ie) by 24th July.

Your CV should include the name and contact details of two references.

In your personal statement, please explain:

- Why you are interested to undertake an MSc.
- Why you are interested in this MSc project specifically.
- How you fit some of the elements in the above candidate profile.

Interviews will take place (online) in early August with a Project start date September 2026 or March 2027.