



PhD Position on environmental RNA (eRNA)

Thesis topic: The analysis of eRNA to overcome eDNA related problems for fish stock assessments in marine systems

Position Available from January 2025

**Applied Animal Ecology Research Unit, Department of Zoology
University of Innsbruck, Austria**

The analysis of environmental DNA (eDNA) became a standard method to monitor fish species and abundances in freshwater streams and lakes. In marine systems however, tracing of the local fish community is hampered by the occurring complex multidirectional flow conditions, which together with the long stability of eDNA lead to a blurred and translocated signal. In most cases, this signal is non-informative to characterize local fish communities and their abundances.

Within our project *eRNAmaris – environmental RNA in marine systems*, we investigate if the analysis of environmental RNA (which is less stable in the environment compared to eDNA) is a better suited method for non-invasive fish stock assessments in the ocean. We are looking for a highly motivated and enthusiastic scientist to join the project research team as a PhD student.

The position is fully funded by the Austrian Science Fund within an Austrian-French research co-operation. By combining cutting edge molecular analysis and hydrodynamic modelling of eDNA/eRNA transport in the Bay of Biscay, we seek to advance the applicability of non-invasive methods for marine fish stock assessments. The applicant will become a central part of this team, focusing on the molecular aspects of the project and playing a key role in establishing and applying methods for eRNA monitoring, including the development of molecular assays. The topic of the thesis is specifically aimed at investigating (i) the stability and 'behaviour' of eRNA compared to eDNA for marine fish species and (ii) the potential this alternative method provides for replacing invasive bottom trawl surveys for fish stock estimates.

The applicant should hold a Master's Degree (or equivalent) in Zoology, Molecular Biology, Ecology or a similar field. The applicant should have the ability to work both independently and in a team. Furthermore, the PhD candidate will co-supervise bachelor and master students in work related to this project. Skills in working with DNA and RNA including the development of species specific TaqMan assays, planning and executing experimental work, bioinformatics and statistical analyses as well as academic writing will be highly merited. German/French speaking skills are not mandatory, however, excellent written and spoken English is a requirement.

This four-year position comes with a yearly gross salary of € ~37,600

About the Applied Animal Ecology Research Unit:

We are a dynamic research unit, focusing on the analysis of DNA and RNA traces from environmental samples. Over the past 20 years we have been working on understanding the mechanisms governing the structure and functioning of animal communities in natural and managed ecosystems and how this knowledge can be applied to real world problems. Something we have done in both terrestrial and aquatic environments, covering anything between beetles, birds and whales, including their interactions with one another, plants and pathogens. We are also a group of people that understands the need for work and life balance, and in the Tyrolian Mountain capital Innsbruck the freedom of the mountains and nature is never far away. **For more information on our team and projects please visit our [webpage](#)**

Applications must be supported by the following documentation (all in one file):

- Cover letter stating the motivation for your application
- Curriculum vitae including copies of all university degrees received
- Letters of recommendation and previous supervisor contact details

Review of applications will continue until the position is filled. Please send your application and enquiries for further information to Dr. [Daniela Sint](#), who will co-supervise the PhD candidate together with Prof. Dr. Michael Traugott.