MSc Project

Understanding temporal riverine biodiversity using environmental DNA (eDNA)

We are looking for an enthusiastic MSc student who will work on eDNA as an approach for understanding temporal biodiversity. The project involves opportunities for field work (sample collection), lab work (DNA extraction and PCR for sequencing libraries), and data analysis of complex datasets. This project offers a high potential for innovation and co-development as part of an ongoing project in the Altermatt lab at UZH/ Eawag.

Background

Riverine biodiversity has largely been studied at single or temporally disconnected timepoints, despite our knowledge that rivers are dynamic (eco)systems. To better understand temporal aspects of biodiversity, we must use new methods. Environmental DNA (eDNA) has emerged in the past decades as a promising method for biomonitoring which can offer multi-trophic assessments with a single sampling approach. With new advances in sampling technology, we aim to sample at frequent intervals, opening the opportunities for dynamic and taxonomically inclusive approaches for studying riverine biodiversity. Currently we are working towards implementation of eDNA for high frequency biodiversity assessments. With your project, you would have the opportunity to join this work and co-develop a project within the scope of temporal riverine biodiversity assessments.

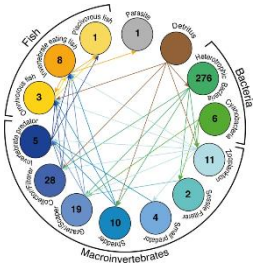
Aim

In this MSc project, you would work on riverine eDNA samples from pre-designated sites in the greater Zurich area. You would be involved in sample collection, all steps of metabarcoding preparation, and complex data analysis. You would be able to study specific taxonomic groups or explore multi-trophic interactions with a temporal or environmental status lens. Additional ideas are welcome as the project remains open for discussion and co-development based on your personal interests.

Requirements

Interest in environmental DNA, ecology, and temporal biodiversity. Interest and/ or skills in molecular ecology with a keen interest in furthering your skills in the molecular lab and with analysis of complex datasets. Some experience with molecular laboratory methods (DNA extraction, PCR, Sequencing, etc.) is preferred, although not necessary. This master's project has the opportunity for a high level of innovation and co-development; thus, the student should bring their own ideas to the project.

MSc project would start no later than Spring 2027



Contact/ Supervision

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More info: https://www.altermattlab.ch/research/

We are looking forward to meeting you!