



University of Zurich (UZH) and Eawag, the Swiss Federal Institute of Aquatic Science and Technology (Duebendorf, Switzerland), are internationally recognized institutes that are committed to the ecological, economical and social management of water. They offer excellent laboratory and field facilities for interdisciplinary research, large-scale experimental facilities, and long-term research programs and data sets. These institutions share common goals towards education, research, and technology transfer at the highest international level.

The Altermatt lab at the Department of Evolutionary Biology and Environmental studies (UZH) and the Department of Aquatic Ecology (Eawag) **has a vacancy for a**

Postdoc position (2 years)

“Assessing effects of agricultural land use intensity and land-use drivers on diversity of aquatic invertebrates using eDNA metabarcoding”

Biodiversity in freshwater systems is declining at local to global scale with land-use change, invasive species, climate change and pollution being the major drivers. Several of these factors can also act synergistically and can create feedbacks. In a large collaborative project (Ecoimpact, see <https://www.eawag.ch/en/research/water-for-ecosystem/pollutants/ecoimpact/ecoimpact-1/>), effects of water quality and land-use on macroinvertebrate communities has been measured in 24 Swiss streams. Extensive data on macroinvertebrate communities (kicknet data), eDNA samples and water quality were taken and are available (see Burdon et al. 2019; Mansfeldt et al. 2020). In this project, you will compare eDNA-based diversity with classically sampled macroinvertebrate communities and analyse if and how eDNA metabarcoding based data can capture effects of different land-use drivers, especially different agricultural practices. Goals of the Postdoc project are:

- 1) Link diversity estimates and community composition of eukaryotes based on eDNA metabarcoding to different land-use drivers.
- 2) Study how differences in catchment-wide land-use practices, especially in agriculture, imprint diversity and composition of local macroinvertebrate communities (eDNA metabarcoding).
- 3) Compare theoretically predicted diversity values to the observed data, and analyse if differences between potential and realized diversity can be linked to eDNA transportation and land-use drivers.

The postdoctoral fellow will use already existing, replicated eDNA samples taken at 24 streams in Switzerland. Samples have already been extracted and sequenced, but could be re-sequenced (different markers/more sequencing depth). Data on bacteria and invertebrates are processed and available. Thus, the project has a focus on laboratory and bioinformatic analysis as well as subsequent publication of results. Due to the good existing data, rapid progress is expected and possible.

Competitive applicants have strong experience in eDNA analyses, metabarcoding and bioinformatics. Expertise in spatial ecology, statistics and GIS is desired. Applicants will be highly motivated, enthusiastic and independent scientists. They must have a good conceptual understanding of ecological theory and strong laboratory skills. Excellent communicational and writing skills in English, experiences with publishing scientific articles, good work ethics, and creative thinking are a must. A PhD in Ecology or related subject is necessary for admission. The project is funded by the Swiss Federal Office for the Environment (BAFU/FOEN) and some interest in stakeholder interactions would be wanted.

To apply, you must have a PhD degree in Ecology, Molecular Ecology or a closely related science field. The successful applicant will be based in the group of Prof. Dr. Florian Altermatt (www.altermattlab.ch) at Eawag and UZH in Duebendorf/Zurich. Dr. Christian Stamm (Eawag) and Prof. Dr. Kristy Deiner (ETHZ) are further project partners. The position is for a period of two years, starting in summer 2020.

We are looking for a highly motivated, enthusiastic and independent person with a passion for science to join our highly international team. Zurich hosts many other research groups in ecology and biodiversity research, and is among the world's leading cities in terms of science, culture and quality of life. Applications from women are especially welcome.

For further information about the position please consult www.altermattlab.ch or contact Prof. Dr. Florian Altermatt: florian.altermatt@eawag.ch.

Applications must be submitted by April 15 2020. Your application should include a letter of motivation, a complete CV, relevant diplomas, and names and contact information for three references.

We look forward to receive your application through this webpage. *Any other way of applying will not be considered.* Please click on the link below, this will take you directly to the application form.

<https://apply.refline.ch/673277/0781/pub/1/index.html>