

Eawag, the Swiss Federal Institute of Aquatic Science and Technology, is an internationally networked aquatic research institute within the ETH Domain (Swiss Federal Institutes of Technology). Eawag conducts research, education and expert consulting to achieve the dual goals of meeting direct human needs for water and maintaining the function and integrity of aquatic ecosystems.

The Department of Aquatic Ecology is offering a

PhD Student Position in Plankton Community Ecology

The goal of the PhD project is to study the relative effects of interacting biotic and abiotic drivers on phytoplankton community change, within taxonomic and size-based categories, using automated high frequency data from Swiss lakes. We aim at studying and modelling plankton food-web changes — including the emergence of cyanobacterial blooms — by applying new methods for in situ monitoring (e.g. underwater imaging, see the [Aquascope](#) website), and by analysing the data using a machine learning approach.

The selected PhD candidate will participate in collection of data from three Swiss lakes, and collaborate on consolidating underwater imaging as a robust monitoring tool for plankton. The PhD student will apply data mining tools to explore patterns in the large and rich dataset, focusing particularly on trait dynamics and taxa associations over seasonal, depth, and lake gradients. Using a machine learning approach to cope with the complexity of the data, the PhD student will test hypotheses about how bottom-up and top-down controls interact and influence taxa dominance and plankton size distributions.

The duration of the PhD position will be 4 years. The PhD degree will be awarded by the [University of Zürich](#). The candidate will be based in the group of Phytoplankton Ecology at Eawag in Dübendorf, supervised by Dr [Francesco Pomati](#). The project was funded in collaboration with the group of [Prof Agostino Merico](#) in Germany. The PhD candidate will benefit from close collaboration with our German partners (a PhD student on theoretical trait-based modelling) and external collaborators at the Scripps Institution of Oceanography in California. The international and cross-disciplinary nature of this collaborative project will be ideal for promoting skill acquisition, independent thinking and future scientific career development of the student.

We are looking for a highly motivated person with interests in quantitative ecology to integrate limnology and community or/food-web science with field data. The project is cross disciplinary and would benefit from a creative and open mind. At least 80% of the work will be computational, while the remaining 20% will be dedicated to field and lab work. The PhD student will take a leading role in the project, helping in project coordination and bridging across groups.

The successful candidate is expected to hold an MSc degree, have experience in ecological data analyses and/or modelling (preferably aquatic / microbial ecology), demonstrated skills in scientific communication (including paper writing), and a willingness to learn and expand skills into machine learning and image analysis. Other desired skills include computer programming (e.g. R and/or Python), experience with machine learning or large datasets, familiarity with community ecology principles, phytoplankton and lake ecosystems. Fluency in English is required.

Eawag offers a unique [research and working environment](#) and is committed to promoting diversity and equal opportunities for underrepresented minorities, and to support the compatibility of family and work. Applications from women are especially welcome. For more information about Eawag and our work conditions please consult www.eawag.ch/en/aboutus/working/employment. Eawag is located within the Zürich metropolitan area, and the city of Zürich is continuously ranked among the top cities in the world for quality of life and is within close proximity to the Swiss Alps.

Applications must be submitted by the 3rd of March, 2019, and should include: 1) a cover letter with a concise statement about your previous research, your vision for the future and your motivation to work on this project (2-3 pages maximum); 2) a curriculum vitae including (if applicable) the list of publications; 3) copies of your academic qualifications; and 4) names and contact information of 2-3 academic references (please do not include letters with the application). **The preferred start date will be late spring / early summer 2019.**

For any information, please contact Dr Francesco Pomati, Email francesco.pomati@eawag.ch.

We look forward to receive your application. Please send it through this webpage. A click on the link below will take you directly to the application form.

<https://apply.refline.ch/673277/0677/pub/1/index.html>