

Eawag, the Swiss Federal Institute of Aquatic Science and Technology, is a Swiss-based and internationally networked aquatic research institute within the ETH Domain (Swiss Federal Institute of Science and Technology). It is committed to the ecologically, economically and socially responsible management of water resources and aquatic ecosystems.

The **Department of Fish Ecology and Evolution (FishEc)** located in Kastanienbaum (Lucerne) has a vacancy for a

PhD student in Fish Evolutionary Ecology

Applicants should have or anticipate finishing an MSc or similar before the summer 2019 in a relevant field of biology, ecology, or environmental science and a strong interest in evolutionary ecology, life history variation, adaptive radiation and animal/fish migration.

Movement is a fundamental and ubiquitous feature of animals, and the movement of individual organisms is integral for many vital ecological and evolutionary processes. Migration is one of nature's most spectacular forms of animal movement and has a long and illuminating scientific history, with exciting new discoveries year after year. Centuries of research on animal migration have highlighted that migratory individuals most often show distinct adaptations to the migratory travel and profit from temporally changing relative benefits of alternative habitats. However, being migratory also means experiencing natural selection in at least two different habitats. Unfortunately, our knowledge on adaptation to a migratory life style is typically limited to adaptation to the migratory travel per se. Knowledge about all aspects of migratory versus non-migratory life history is crucially needed in order to understand the ecological dynamics of natural selection over space and time.

To enable strong empirical research on the ecological- and evolutionary aspects of animal migration, replicate study systems are needed. This is for many of the classical migration study systems unfortunately not the case, e.g. for migration of large herbivores or for most bird migrations. However, migration of charr between streams and fjords in Southern Greenland offers an ideal study system with replication on individual-, on population level and on entire ecosystem level. Charr have after the last glaciation about 10'000 years ago colonized rivers and lakes and adapted to these habitats over time. The abundance of unoccupied niches appear to have caused the spectacular radiations that we have observed replicated in multiple drainage systems.

The current project focuses on fish migration and ecological diversification. Specifically, it will investigate how migratory charr (*Salvelinus alpinus*) diverge in their migratory patterns and ecology in the resident and in the migratory habitat and additionally how this in turn affects divergence in the resident habitat. The fieldwork will be carried out in streams, lakes and fjords in Southern Greenland and the PhD-student will participate in two field expeditions to Southern Greenland of 1-2 months duration.

The position is funded for four years and will be hosted by the River Fish Ecology group, led by Dr. Jakob Brodersen (<http://www.eawag.ch/en/department/fishec/main-focus/river-fish-ecology/>) within the FishEc Department (<http://www.eawag.ch/en/department/fishec/>) and the Section of Aquatic Ecology at University of Bern (<http://www.aqua.iee.unibe.ch/>). The work will be carried out in close collaboration with the research groups of Dr. Blake Matthews, studying eco-evolutionary dynamics of sticklebacks in Greenlandic lakes and Dr. Ole Seehausen, studying biodiversity dynamics. Excellent communication and writing skills in English and ability to work in a team are essential.

The work place is at Eawag's Center for Ecology, Evolution and Biogeochemistry (CEEB) in Kastanienbaum, Lucerne, which besides the Fish Ecology and Evolution Department hosts research group from the Department Surface Waters – Research & Management and offers a beautiful workplace at the shores of Lake Lucerne, a friendly international working climate and a strong cross-disciplinary research environment. Both departments within CEEB share a common interest in understanding the principles of the functioning of aquatic ecosystems and their susceptibility and adaptability to changing environments, and a common concern for sustainable management of ecosystems and biodiversity. Each department on its own aims at contributing cutting edge science to the development of theory in ecology, evolution and environmental sciences. Building on the synergies that emerge between these fields, the CEEB aspires to contribute to a future synthesis of evolutionary biology and ecosystem science.

Eawag offers a unique research and working environment and is committed to promoting equal opportunities for women and men 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 and www.eawag.ch/en/aboutus/working/employment.

Applications must be submitted by May 1st 2019 and should include an application letter describing your interests and their relevance to this position, a CV and the names and contact information for two references. The starting date for the position should optimally be around July 2019. For further information, please contact Jakob Brodersen (jakob.brodersen@eawag.ch; +41 58 765 22 04).

We look forward to receiving 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/673277/0700/pub/1/index.html>