

# Wilhelm Kühnelt Colloquium

## Lectures in the Center of Ecology

**April 6, 2018 11:00 – 12:30**

UZA I, Lecture Room II (HSII)  
Althanstrasse 14, 1090 Vienna



**Dr. Jakob Brodersen**

Department Fish Ecology & Evolution  
Eawag  
Kastanienbaum  
Switzerland



## On the causes and consequences of intraspecific phenotypic variation in aquatic ecosystems.

An overarching goal of modern biology is to understand how individual phenotypic variation originates, how it is maintained and how it influences the surrounding ecosystem. Such work is in its essence trans-disciplinary, integrating evolutionary biology with spatial-, trophic- and behavioral ecology. Such fundamental questions in biology are applicable across ecosystems and organisms, but particularly well studied in freshwater fish, which further makes the research relevant for a multitude of applied topics.

I am in my research paying particular close attention to subjects regarding animal movement and migration. Migration can be seen as a behavioral trait, of which intra- and interpopulation variation is important for both evolution and ecosystem dynamics. It is clear that animal movement and migration plays a particular role in adaptive and non-adaptive speciation, as it both affects selection in one or multiple habitats and in itself controls gene flow and spatio-temporal isolation between populations. Interestingly, this intra- and interspecific variation in movement can be caused by both underlying genetic differences and environmental influence and behavioral canalization e.g. through social interactions. It is hence a subject that opens up for a large integration of ecology, ethology and evolution and further understanding of eco-evolutionary interactions.

I will in this talk, present my own research on the topic, which spans from migration and adaptive radiations of Arctic charr in Greenland, over eco-evolutionary interactions in piscivorous fish and their prey in North American coastal lakes to partial and differential migrations between lakes and streams in Swedish cyprinids and Swiss trout. I will end with explaining the relevance of this work in ecosystem management and conservation.