

# “MSc project on plankton underwater imaging”



**SUPERVISOR:** Francesco Pomati (Eawag, Dübendorf)  
**IN COLLABORATION WITH:** Jaffe Lab for Underwater Imaging & Andrew Barton  
(Scripps Institution of Oceanography, La Jolla, California)

Individual level diversity in morphological features and small-scale spatial heterogeneity are common features of all ecosystems, but they are the hardest to measure and study. This is particularly challenging in aquatic environments, and it affects our ability to understand drivers of plankton species interactions and biodiversity change.

Using a recently developed underwater microscope, which is able to image automatically phytoplankton and zooplankton species in situ, we want to explore the hidden features of lake planktonic microenvironments, to discover how microscopic species interact and coexist.

We will install and use the new underwater microscope for automated operation in Greifensee, interfaced with our local in-lake monitoring station. We plan high frequency monitoring of Greifensee phytoplankton and zooplankton communities during spring and summer 2018.

For more information, see our websites:

<http://www.eawag.ch/en/departement/eco/main-focus/phytoplankton-ecology/>

<http://jaffeweb.ucsd.edu/>

<https://biology.ucsd.edu/research/faculty/adbarton>

**MSc student role:** will participate to the monitoring campaign and be responsible for the analysis and interpretation of imaging data, supported by Eawag researchers and collaborators. The focus will be on the diversity of size and morphological features, and on patterns of spatial and temporal co-occurrence of species. We will also closely follow the dynamics of toxic cyanobacteria that have become dominant in many Swiss lakes over the past decades (e.g. Microcystis, Anabaena).