

Study Project/ Masterthesis

“Tracking urban markers in pristine landscapes”

About us

Our group Urban Microbiology focuses on the investigation of microbial processes in aquatic and technical systems ranging from biological wastewater treatment to surface water ecosystems. Microorganisms are tiny, yet crucial organism that cycle our planets resources and keep our biosphere balanced, and thus provide vital ecosystem services. We are interested in the microbiomes of engineered and natural water treatment. Therefore, our overall aim is to develop tools that specifically measure and qualitatively assess microbes and their functions in water systems. We perform hypothesis driven and descriptive research that allows to link microbes to ecosystem services. Of particular interest are the largely unexplored aquatic fungi and their diverse functions in the environment. Further research is concerned with the characterization of the taxonomic and functional diversity of microbial communities with specific functions, e.g. with regard to microbial degradation or antibiotic resistance genes in the water cycle.



Theme

In this project, we want to test how human activity can be tracked from urban areas into the wilderness. We want to investigate whether and to what extent human activities spreads genetic markers into remote areas.

Tasks

- For this project, we are specifically looking for a person who is a passionate hiker and goes to remote places on a regular basis, as we will require many different samples.
- Moreover, the candidate should be experienced in GIS, to obtain population density data for experimental design and to georeference samples locations.

- The project will take place in two parts. Part a will be the experimental design and the sampling, and part b will be the molecular biology work in the laboratory, plus the statistical analysis of the data.

Time period / Additional infos

It may be advisable to combine a study project with the master thesis for its completion. A break between these two parts is possible.

Contact

Chair of Urban Water Systems Engineering
Christian Wurzbacher
Am Coulombwall 3
85748 Garching
Tel. +49 89 289 13797
c.wurzbacher@tum.de
www.cee.ed.tum.de/sww
www.tum.de