Master Thesis in the Dept. Lake Research at UFZ

Location: Brückstrasse 3a, 39114 Magdeburg
Contact: Dr. Tallent Dadi
Email: tallent.dadi@ufz.de

Thesis Topic: Comparing Sequential Phosphorus Fractionation Approaches Across Sediment Types

Project Summary: Phosphorus (P) stored in lake sediments plays a key role in eutrophication and water quality management, as it can be released back into the water column and sustain algal blooms. To better understand these processes, well-established sequential P-fractionation methods (e.g. Psenner, Hupfer, Lukkari) are widely used to characterize how P is bound in sediments.While these methods are robust and widely applied, subtle methodological differences may influence results, particularly when comparing across studies or sediment types.

This Master's thesis will systematically investigate how selected methodological parameters affect P-fractionation results across different freshwater sediments (e.g. iron-rich, calcium-rich, eutrophic, oligotrophic). The aim is to improve understanding of method sensitivity and support more consistent interpretation of results, with potential for scientific publication.

Tasks

- Perform laboratory-based P-fractionation experiments
- Investigate key methodological parameters, including: centrifugation force (RCF), filtration vs. non-filtration of extracts, extraction conditions (time and redox environment), and sediment-to-extractant ratio
- Apply methods to different sediment types
- Analyze and interpret data (e.g. Excel/R)
- Contribute to a scientific publication

Your Profile

- Background in environmental science, limnology, geochemistry, or similar
- Interest in hands-on laboratory work
- Motivation to contribute to a publishable study
- Basic data analysis skills (Excel, R, Python etc.) are a plus