Universität Stuttgart, ISWA, Abteilung für Umweltmikrobiologie

PhD Student Position in Environmental Microbiology

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Stellenbeschreibung

The Department of Environmental Microbiology at the Institute for Sanitary Engineering, Water Quality and Solid Waste Management (ISWA) at the University of Stuttgart is delighted to announce an open position for a PhD student who will work on: **"Carbon-Efficient River Restoration: Clogging and Microbial Pathways".**

The transgression of planetary boundaries in freshwater systems, intensified by climate change, threatens irreversible environmental degradation. This project addresses the urgent need to restore river ecosystems as functional carbon sinks by focusing on microbial processes driving carbon cycling and methane (CH_4) emissions.

Current hydraulic engineering often treats microbial activity as a "black box," ignoring the key microbial pathways responsible for GHG dynamics. By integrating environmental microbiology with river restoration efforts such as riverbed restructuring, we aim to uncover how microbial communities respond to habitat improvement and how these responses influence CH_4 fluxes.

This interdisciplinary approach will quantify emissions and identify microbial mechanisms for CH_4 mitigation, establishing a scientific foundation for carbon- and climate-efficient river restoration.

Anforderungsprofil & Qualifikationen

- Participate in seasonal field campaigns at alpine river sites, including sampling of water and sediments for microbiological and hydrochemical analyses.
- Collect and process samples for nucleic acid extraction (DNA and RNA) from water and sediments.
- Conduct molecular analyses such as qPCR, 16S rRNA (gene) amplicon sequencing, metagenomics, and transcriptomics.
- Perform enrichment and cultivation of aerobic and anaerobic microorganisms.

- Design and implement microcosm experiments to investigate microbial processes relevant to carbon cycle in alpine rivers.
- Carry out hydrochemical analyses of microcosm experiments to support microbial and biogeochemical interpretations of results.
- Perform statistical and bioinformatic analysis of sequencing and environmental data using relevant tools and pipelines.

Ideal candidates should have a **solid background in environmental microbiology and molecular ecology**. Applicants must have the ability to work independently and in a team, have excellent management and communication skills and should be highly motivated and committed to pursuing interdisciplinary research. Very good computer and language skills (English) are necessary. The candidates will have the opportunity to present their results in international journals and on conferences.

We are offering a PhD student position (3 years) in an interdisciplinary, international, and dynamic team of environmental microbiologists and microbial ecologists. This provides the opportunity for the candidates to be creative and innovative, and to work on a challenging topic that combines various fields within environmental sciences.

The starting date is **June/July 2025 or as soon as possible thereafter.** Employment (TV-L E 13, 75%) will be arranged by the administration of the University of Stuttgart. People with disabilities will be given preferential consideration if they are equally qualified. The University of Stuttgart strives to increase the proportion of women in research and teaching and therefore strongly encourages qualified women to apply.

Applications including CV, motivation letter, an overview about the methods used in the past, and contact information of academic references should uploaded to the JoinUs portal before May 7th, 2025

Vorteile für Mitarbeitende

- Flexible Arbeitszeit
- Verkehrsmittelzuschuss
- Weiterbildungsmöglichkeiten
- Betriebliche Altersvorsorge
- Dienstlaptop

Stellenmerkmale

Beschäftigungsart	**Wissenschaftliche:r Mitarbeiter:in**
Beschäftigungsumfang	**Teilzeit (befristet)**
Home Office	**Nein**
Hochschulabschluss	**Master**
Entgeltgruppe	**E13**
Bewerbungslink	**https://careers.uni-stuttgart.de/job/Stuttgart-PhD-Student-Position-in-Environmental-Microbiology/1154909555/**

Kontaktdaten

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