

Postdoctoral position on trace metal impacts on nitrogen fixation and carbon export

The Held Lab (<https://proteoceanlab.github.io/>) and the John Lab (<http://www.mtel.rocks/>) at the University of Southern California are seeking a postdoctoral researcher in the Departments of Earth Sciences and Biological Sciences. The successful candidate will lead research projects to quantify trace metal impacts on marine nitrogen fixation and phytoplankton-mediated carbon export, using multi-omics technology, especially metaproteomics, quantitative proteomics, and metabolomics methods, with applications for marine Carbon Dioxide Removal (mCDR). The project involves performing metaproteomics and metabolomics assays of marine field samples and cultured isolate, developing and validating a quantitative assay for nitrogenase protein abundance, assisting in management of multiple field expeditions in the South Pacific, and statistical analyses to understand the link between trace metal concentrations, nitrogen fixation, and phytoplankton-mediated carbon export. The successful candidate will have experience in fieldwork, marine microbiology and biogeochemistry, LC-MS analyses, high-throughput lab infrastructure, bioinformatics, and statistics. This position will also involve mentoring and supervision of graduate students, contributing to grant proposals and grant reports, and publication of scientific findings.

Minimum education and experience

Ph.D. in marine biogeochemistry, oceanography, microbiology, proteomics, or a related field; demonstrated expertise in an omics discipline, preferably proteomics/metaproteomics, evidenced by relevant publications and presentations, strong research and organizational skills, and ability to travel.

Preferred qualifications

Prior experience in design of quantitative proteomics assays, metaproteomics, and/or strong statistical skills including use of bioinformatics tools, machine learning and/or agentic coding.

Applicants should send a cover letter describing areas of research interest and a CV to Professors Noelle Held (nheld@usc.edu) and Seth John (sethjohn@usc.edu) with the subject line "Nitrogen Fixation Postdoc."