Two postdoctoral fellowships (2 years) in studies of formation and spread of methylmercury

The Department of Chemistry at Umeå University is hiring two postdoc for a research projects, one with the focus on the formation of methylmercury in contaminated sediments and one with the focus on the spread of methylmercury from contaminated sediments. The employment is full-time for two years with starting date 1 June 2021, or by agreement. Last day to apply is ***8 March, 2021****.*

Project description and working tasks

Mercury poses serious threats to ecosystems and human health, primarily through the formation and spread of methylmercury in aquatic ecosystems. To improve this situation, the contributions from contaminated sediments to the total mercury load on ecosystems must be carefully evaluated and effective measures taken. Today, there are uncertainties about the risks of mercury-contaminated sediments due to insufficient understanding of the factors that control the formation and spread of methylmercury. There is a great need for improved risk assessments that include these processes.

Project 1: Postdoctoral fellowship (2 years) within processes for methylmercury formation in contaminated sediments (reference number AN 2.2.1-178-21).

You will study processes for the formation of methylmercury in contaminated sediments with focus on how chemical speciation of Hg and molecular composition on organic matter control this process.

The project will include field sampling of sediment and water, and potentially biota. You will characterize the chemical speciation of Hg with synchrotron-based X-ray spectroscopy and the molecular composition on organic matter with mass spectrometry and study in laboratory experiments how the formation of methylmercury is controlled by these factors. The project aims to generate practically applicable tools for improved risk assessments of contaminated sediments through focused fundamental research of biogeochemical processes.

For information about qualifications, how to apply and what a complete application should include, please see the advertisement at our website: https://www.umu.se/en/work-with-us/open-positions/postdoctoral-fellow2yrformation-of-methylmercury-in-contaminated-sediment_381409/

Project 2: Postdoctoral fellowship (2 years) within tracing the spread of methylmercury from contaminated sediments (reference number AN 2.2.1-179-21)

You will develop and implement methodologies based on stable isotope measurements to trace the spread of methylmercury from contaminated sediments to surrounding sediment, water and biota. The project will include field sampling of sediment, water and biota. You will carry out stable isotope measurements with multi-collector ICPMS to trace the spread of Hg from contaminated sediments to the surrounding environment (sediment, water, biota). The project aims to generate practically applicable tools for improved risk assessments of contaminated sediments through focused fundamental research of biogeochemical processes.

For information about qualifications, how to apply and what a complete application should include, please see the advertisement at our website: https://www.umu.se/en/work-with-us/open-positions/postdoctoral-fellow2yrmethylmercury-spreading-from-contaminated-sediments_381415/

Within these two projects, you will carry out the experimental research work, which you plan and evaluate in collaboration with the project's other researchers. You will also be responsible for writing scientific publications and presentations of results at seminars / conferences. Together with the

project's other researchers, you will be responsible for contacts and discussions with government officials about the project's design and results.

The postdoctoral projects are funded by grants from the Swedish Environmental Protection Agency in a call for research projects on risks with and, or spread of hazardous substances from contaminated sediments. The two postdocs will work in close collaboration within their projects which will be carried out within an international team with researchers in analytical chemistry and biogeochemistry at Umeå University (Prof. Erik Björn; https://www.umu.se/en/staff/erik-bjorn/), SLU, Umeå (Prof. Ulf Skyllberg; https://www.slu.se/en/ew-cv/ulf-skyllberg/), and CNRS/Pau Univeristy, France (Prof. David Amouroux; https://iprem.univ-pau.fr/fr/iprem/membres/cv_-damourou-fr.html). A reference group will be linked to the project and consist of representatives from government agencies (e.g. County Administrative Boards) and environmental consulting and industrial companies, which further broadens your network within the project.

Further information

Further information is provided by Prof. Erik Björn, erik.bjorn@umu.se.

If you are applying for both fellowships, note that you must submit a complete application for each fellowship marked with the specific reference number. Application deadline is 8 March 2021.

Information about the employer

The Department of Chemistry is the largest department within the Faculty of Science and Technology, Umeå University, and has about 200 employees, of which about 40 are postdocs and with a strong and expanding research. Three major research areas, Biological Chemistry, Environmental and Biogeochemistry and Technical Chemistry bring together the department's research and education in chemistry. We are also a strong partner within KBC, Chemical-Biological Centre (https://www.umu.se/en/chemical-biological-centre/). You will work in a research environment that offers a strong focus and depth in biogeochemistry, but also a wide range of expertise and research infrastructure within the KBC environment.