Opportunity:

## Ph.D. position funded for 3 years

(with possible extension)

UNIVERSITÄT BAYREUTH

Bay CenSI

Bayreuth Center for Stable Isotope Research in Ecology and Biogeochemistry

# Lakes are sentinels of climate change.

This project investigates changes of lake metabolism of several lakes in Europe (Sweden, Germany, and Italy) using advanced stable isotope (and other) methods.

**The scientific question:**

Variability of ecosystem metabolism under changing light conditions in oligotrophic and clear lakes.

Climate change is predicted to alter precipitation patterns, which, in turn will influence the transparency of oligotrophic lakes in Europe and beyond. It is expected that this will induce changes in ecosystem metabolism of oligotrophic and clear lakes, which are especially vulnerable to climate change. However, lake ecosystem metabolism is influenced by a multifaceted set of drivers including temperature, nutrient availability, dissolved organic matter loads, its composition as well as feedbacks of the associated microbial and phytoplankton community.

To predict global impact of browning, a mechanistic understanding of the direct effects on pelagic primary production must be disentangled from secondary effects.

To tackle this research question, the German Research Foundation (DFG) has approved a 3-year PhD position using stable isotopes of dissolved oxygen ($^{17}O/^{18}O$), and carbon ($^{13}C$), together with diel $O_2$ measurements and incubation experiments at the University of Bayreuth, Germany.

The potential candidate will travel to 3 lake research stations in Sweden, Germany, and Italy, where he/she will be supported and collaborating with renowned experts in the field of ecosystem ecology. The work includes working off boats, using specialized instruments and equipment, planning sampling campaigns, working with isotope ratio mass spectrometers, flow cytometers, presenting results at international scientific conferences and publishing in scientific journals.

**Your profile:**

A basic understanding of aquatic primary production and limnology is mandatory (M.Sc. in Biology, (microbial) Ecology, Limnology, Oceanography, or similar). Experience in analytical chemistry, stable isotopes, and microbial and/or phytoplankton ecology and physiology are beneficial. Strong English writing skills are a must, German is not necessary.

You will be responsible for sampling with team members of 3 different research stations, sample preparation, analysis, and data evaluation, as well as synthesis and publication as a first author. You will be supported by Dr. Alexander Frank, head of the stable isotope core facility at the University of Bayreuth (BayCenSI), Prof. Johannes Barth at the University of Erlangen (FAU), Prof. Mark Gessner at the Leibniz Institute for Freshwater Ecology and Inland Fisheries (IGB), and the graduate school at the University of Bayreuth.

**The location:**

Based at the University of Bayreuth (UBT), in northern Bavaria, Germany, you will have lots of opportunities to travel and build a network with limnologists working at several long-term research stations throughout Europe, especially the Leibniz Institute for Freshwater Ecology and Inland Fisheries (IGB) in Berlin. The UBT is a young campus university and has recently achieved 19th place in the research-related "Nature Index" of the "Leading 150 Young Universities" in 2021.

**Interested?**

The start of the project is rather flexible, but preferably no later than February 2023. If you are interested, please send your CV, a short motivational letter including your ambitions and plans for your future, and 2 references to: **Alexander.Frank@uni-bayreuth.de**