

Master Thesis in the Department Lake Research at UFZ:

Location: Brückstrasse 3a, 39114 Magdeburg
Contact: Dr. Laura Soares
laura.soares@ufz.de



Master Thesis Topic: Oxygen dynamics and hypoxia in the Möhne Reservoir

Project Summary: Low oxygen concentrations are a major threat to aquatic ecosystem health and critical implications on the water quality for human supply. Given the amplified lake deoxygenation on a global scale enhanced by stronger thermal stratification in a warmer climate, there is a pressing demand for science-based management practices to make lake ecosystems more resilient against climate change. The primary goal of this project is to develop a prognosis tool of the oxygen conditions in the Möhne Reservoir for anticipating the onset and intensity of hypoxia and to test different management strategies to avoid its negative implications. Ultimately, this project aims to support reliable decision making for safeguarding water resources from deleterious hypoxia.

Main Tasks: The project is based on long-term monitoring data and process-based model simulations following three objectives:

1. Assess the seasonal pattern of hypoxia based on vertical profiles of dissolved oxygen in monitoring data (1973-2021) and calculate temporal trends;
2. Predict the onset and intensity of hypoxia in the end of the stratification period based on historical rates of oxygen depletion;
3. Run lake model simulations to test the effects of different management interventions on the oxygen dynamics in the Möhne Reservoir.

Your Profile:

- You are a registered student in the field of engineering or natural sciences with a Bachelor's degree.
- You have experience or knowledge of limnology, lake modeling, data analyses, visualization and presentation.
- You are familiar with MS Office and Rstudio.
- You can express yourself confidently in both written and spoken English.
- You work independently and actively drive your tasks forward.