

The [ECOSPHERE research group](#) aims to study aquatic and valley ecosystems that are continuously challenged by natural and anthropogenic stressors. The research focuses on acquiring fundamental and applied knowledge at different levels of structural and functional organisation in order to underpin environmental management decisions.

MASTER THESIS SUBJECT 2024-2025

Impact of hippo dung on water quality of Lake Mburo, Uganda

Research group: ECOSPHERE

Hosting laboratory: CDE

Promotor(s): Prof. dr. Jonas Schoelynck (jonas.schoelynck@uantwerpen.be)

Daily supervision: Giulia Lodi and Patience Ayesiga



The boat is loaded with gear, ready to go sampling in Lake Mburo. Watch out for the hippos!

- This topic mostly contains literature study, lab work, field work, experimental work, GIS, numerical modelling, other:
- Possession of driver's license B is needed, recommended, not needed
- Possession of certificates needed: FELASA C, other:



Summary: Lake Mburo is a lake located in a national park in southern Uganda, near the town of Mbarara. The lake is vital for the plants and animals that live in the park. It also supplies local communities with fish. However, the lake is relatively turbid, and signs of eutrophication are evident. The causes of this pollution include untreated household wastewater flowing from nearby villages and the town of Mbarara into the lake. The fringing wetlands, which would normally filter the water, have been significantly reduced over the past decades.

Another source of nutrients could be the hippos. They are relatively abundant in the lake and have a peculiar habit. They graze on land at night and defecate in the water during the day. As a result, they introduce a significant amount of nutrients as well as silica into the lake. The latter is an element that can benefit the ecosystem. (See YouTube for a documentary on this phenomenon in Kenya: <https://www.youtube.com/watch?v=dTyUNPCUgvs>)

In this thesis, we aim to create a mass balance to determine how many nutrients and how much silica the hippos contribute on a daily basis, and to integrate this over a one-year period (taking different seasons into account). We will then compare this flux to the stock in the lake (both in the water and sediment). The thesis involves field sampling and experimental work.

NOTE: This thesis will not be given to just any student. You will need to travel to Uganda and collect the samples yourself. Collaboration with a local university is planned as part of an existing project we have there, so you will not be working entirely alone. However, the environment can be challenging, and you will need to demonstrate a high degree of independence. If you believe this topic is for you, you must first convince me by demonstrating your ability to work independently in the field, as well as a strong work ethic and scientific skills.

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