



*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 2023

## Ecosystem service delivery in a newly restored brackish tidal marsh: water quality evaluation in HPP

Research group: ECOSPHERE

Hosting laboratory: CDE – building C, CGB

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*The project area HPP, as seen here during a beautiful sunset, will be visited for fieldwork including water quality sampling.*

- 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** – Within the Scheldt River basin, many tidal wetlands have been restored for their ecosystem service provisioning. One of these wetlands is the Hedwige-Prosper polder (HPP): 465 ha of previous agricultural land, now brought back into nature for the realisation of Grenspark Groot Saeftinghe. Because of the sheer size of this restoration project, HPP forms an ideal opportunity to evaluate how nature restoration in brackish tidal marshes works on a landscape scale. Not only is this expected to become very relevant for its nature, but on a regional scale this can also become an important site with regards to flood protection, green job creation and tourism.

To now properly evaluate whether the restored wetland is transforming into functional nature, water quality is one of the key aspects that needs to be monitored. Brackish tidal marshes are known for their capacity for nutrient exchange and water quality regulation. Whether this is currently the case in HPP remains to be studied. Within the larger research framework in HPP this information is valuable and can be linked to various other biotic and abiotic factors including sedimentation and erosion, soil properties, soil pollution presence, benthos and vegetation presence,...

For this thesis, you will help field-technicians with water quality samplings focussing on e.g. nutrients, heavy metals, PFASs,... and the study of various other linked biotic and abiotic factors. Afterwards, you will assist in the processing of the taken samples and analyses of the resulting data. The findings of this study can be compared to environmental quality standards, and previous measurements in HPP and similar nature areas. This will result in an impression of the current ecosystem service delivery status of the study area with regards to water quality. Due to the novel nature of this project, this pioneering step in the further monitoring of HPP is bound to provide interesting insights in the functioning and evolution of brackish tidal marshes. A sense for adventure, perseverance, and detail is recommended.

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