



M.Sc. Topic

Get into the Water: Planning and Evaluation of a Measurement Campaign at the Rhine River

Background

Thousands of river restoration projects are worldwide underway to turn impaired rivers more natural. To plan and assess such river restoration actions, it is crucial to consider the three-dimensional connectivity of river ecosystems. While many research projects and restoration efforts focus on longitudinal (e.g. removal of dams) and lateral (e.g. floodplain reactivation) connectivity, the vertical connection between the river channel and its hyporheic zone is largely neglected. This study is embedded in a research project that focuses on the restoration of vertical river connectivity. With our guidance, the student will plan and conduct a field campaign at the Rhine River to acquire relevant data. A review of parameters describing vertical connectivity in rivers and how those can be measured in the field will go into planning the field data campaign. The results of the field data campaign and evaluation will be the baseline for scientific analyses in the framework of a highly novel research project (e.g. principal component analysis on vertical connectivity or the setup, calibration, and validation of numerical models).



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Thesis Overview

1. Review literature on parameters describing vertical connectivity in rivers, existing measurement and evaluation methods, and the planning of field campaigns.
2. Identify suitable locations for measurement campaigns regarding vertical connectivity at the Rhine River.
3. Plan and conduct a one-week field campaign at the Rhine River in cooperation with your supervisors and student assistants.
4. Analyze the collected data and make conclusions regarding the state of vertical connectivity in the studied section of the Rhine River.



Apply now!

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The thesis can be written in German or English.

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