

Dissolved organic carbon dynamics in surface water and groundwater ecosystems under the impact of climate change

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Information about the [Institute of Ecology at Tallinn University](#).

The proposed PhD project focuses on the dynamics of dissolved organic carbon (DOC) in surface water and shallow groundwater under the impact of climate change.

The successful PhD candidate will be recruited to an early stage researcher position related to and partly financed by a five-year EU-funded LIFE program starting in January 2023.

Climate change is affecting the environment and water resources, causing shifts in aquatic ecosystem biodiversity at an alarming level. Rising temperatures and changes in precipitation patterns are not only causing water scarcity and intense flooding, but are also expected to destabilize organic carbon storage in soil and organic sediments. While it has been well established that DOC concentrations have increased in high latitude surface water bodies, the consequent trends in shallow groundwater have been far less documented. In order to study this phenomenon, several pilot sites will be selected across Estonia, where complex monitoring will be carried out over several years.

The main tasks of the project are:

- To conduct thorough quantitative and qualitative research on selected pilot sites. Including monitoring of surface water-groundwater hydrodynamics and water chemistry;
- to evaluate DOC transport and mixing in surface water and shallow groundwater;
- to provide input data and take part in modelling the interaction between groundwater and surface water in coupled models;
- to assess the impacts of climate change on surface water and groundwater ecosystems;
- to compare the potential impact of different climate scenarios on the DOC balance in surface water and groundwater.

More information about the Complex Systems in Natural Sciences PhD program at Tallinn University: <https://www.tlu.ee/en/lti/complex-systems-natural-sciences-phd>