**Funded PhD Studentship**

Applications are invited from suitably qualified candidates for a full-time PhD (Structured PhD programme) in Biology and Environmental Science to complete a PhD on examining the ***hydrology, hydrogeology and hydro-chemical dynamics of degraded and intact saltmarsh ecosystems*.** This project forms part of a larger project, Solutions for Optimum restoration of Saltmarshes (SOS project), funded by the Environmental Protection Agency. This project will also study remote-sensing based mapping of key saltmarsh habitats and their carbon flux exchange and ecological dynamics.

We seek to recruit a motivated early stage researcher with a keen interest in hydrology, geoscience and/or environmental engineering. This PhD position will be based in the School of Biology and Environmental Sciences, University College Dublin and contribute to the multi-institutional SOS project in collaboration with South Eastern Technological University (SETU), the Scientific Advice and Research Directorate in National Parks and Wildlife Service and the Department of the Environment, Climate and Communications (DECC) for 48 months. Anticipated start date: 1 September 2025.

**SOS Project background**

Saltmarshes provide highly valued ecosystem services, such as coastal protection from storm surge, carbon storage, nutrient cycling, and habitat provision. However, a combination of anthropogenic pressures and climate change has led to a steep decline in saltmarsh habitat. Improved management and restoration of saltmarsh habitats is therefore poised to contribute to enhanced climate mitigation and adaptation and increased biodiversity. Through fine-scale monitoring this project aims to understand how degradation impacts saltmarsh functions and services and to use this knowledge to develop and implement restoration solutions for these habitats in Ireland. Cross-cutting work packages will be carried out by the multidisciplinary team focusing on hydrological and water quality parameters, greenhouse gas fluxes and vegetation dynamics and remote sensing of physical extent and condition at degraded and reference sites. Engagement with stakeholders will be a key goal throughout this project. The project will deliver solutions for restoration and a toolbox for managers and restoration practitioners.

The aim of this PhD project is to better understand the hydrological, hydrogeological and hydro-chemical dynamics of degraded and intact saltmarsh systems. This is recognised as a crucial knowledge gap that needs to be addressed in order to aid the conservation and restoration of coastal ecosystems, both nationally and internationally. Accordingly, a field hydrological monitoring programme will be carried out at observation reference sites, and be coupled with the complimentary PhD studies on remote sensing and GHG fluxes. It is anticipated the PhD candidate will carry out the following broad tasks to fulfil the projects research aims:

* Monitor groundwater levels, surface water flows and tidal levels and develop site specific water balances.
* Develop conceptual hydrological and hydrogeological models for saltmarshes over a range of management conditions.
* Monitor hydrochemistry at flux chamber monitoring locations using in-situ field sensors and regular sampling for laboratory analysis.
* Carry out detailed hydrograph analysis to establish relative groundwater – surface water interactions.
* Integrate results with other PhD projects to inform best conservation and restoration management.

**Requirements**

Applicants should have a good primary degree (First or Second Class Honours) in an appropriate discipline (Geoscience, Environmental Science, Environmental/Civil Engineering).

The successful candidate should be highly self-motivated and have some background and particular interest in hydrology, hydrochemistry and ecosystems. In addition to a relevant degree(s), the successful candidate will ideally have some additional research experience (e.g. MSc) in conducting fieldwork, hydrometric and environmental monitoring, and data analysis. The successful candidates will be very strong communicators. In addition, a driving licence valid in Ireland is essential to access remote field sites.

**Award**

The successful candidates will be enrolled for a 48-month Structured PhD programme (<https://www.ucd.ie/graduatestudies/>).

**Stipend**: The student will receive a tax-free stipend of €25,000 per year, full coverage of tuition fees (EU or Non-EU) and funds for conference travel. In addition, the School of Biology and Environmental Science (SBES) requests that all postgraduate research students act as demonstrators in undergraduate practical classes, for at least one module per Autumn and Spring trimester. Remuneration is provided and the UCD HR pay rates can be found [here](https://www.ucd.ie/hr/pay/tutorsdemonstrators/).

**Equality and diversity:** UCD is committed to creating an environment where diversity is celebrated and everyone is treated fairly regardless of gender, age, race, disability, ethnic origin, religion, sexual orientation, civil status, family status, or membership of the travelling community (<https://www.ucd.ie/equality/>). Applications from all suitably qualified candidates will be considered.

**Informal enquiries are welcome and should be made to Dr Grace Cott (grace.cott@ucd.ie).**

**To apply please e-mail grace.cott@ucd.ie by June 19th, 2025 a single pdf document with a detailed curriculum vitae describing any previous research experience, a cover letter detailing your research interests and goals, and the contact details (e-mail and phone number) of at least two academic referees.**