

**Dundalk Institute of Technology invite applications for the following position:  
PhD postgraduate Scholarship (Full-time: 36 months)**

**Project overview**

**Title:** *Carbon fluxes in the littoral zone of lakes with contrasting alkalinity concentrations.*

**Supervisor:** Dr Valerie McCarthy (DKIT)

**Position Reference:** 02STEM2020

**Keywords:** *carbon, littoral zone, high alkalinity, humic lakes, biogeochemistry*

*This project aims to address the gap in the global literature on carbon fluxes in the littoral zones of both high and low alkalinity lakes.*

Although lakes occupy a comparatively small area in the global landscape, they nevertheless have a disproportionately important role in global carbon cycling owing to their importance in carbon transport, processing and storage and are considered to be a significant source of carbon dioxide (CO<sub>2</sub>) to the atmosphere. These emissions are widely understood to be linked to microbial breakdown of terrestrially derived carbon (heterotrophic oxidation). However, the majority of studies that directly link CO<sub>2</sub> supersaturation to heterotrophy are based on relatively low alkalinity lakes with high dissolved organic carbon inputs from the catchment, and amongst these studies the emphasis has been placed on the open water zone of a lake. However, the shallower waters of the littoral zone surrounding the edge of lakes have received less attention. Recent studies have also pointed to the possible role of calcite precipitation and dissolved inorganic carbon (derived from the weathering of rock in the surrounding catchment) in high alkalinity lakes as major drivers of CO<sub>2</sub> emissions and offers a potentially alternative, although poorly studied, mechanism for CO<sub>2</sub> fluxes in freshwater lakes. This project aims to address the gap in the global literature on carbon fluxes in the littoral zones of both high and low alkalinity lakes. This will be done through a targeted research programme to examine processes in carbon cycling in the littoral zone of both a high and low alkalinity lake in Ireland and examine mechanisms responsible for these fluxes and their interaction with nutrient dynamics and littoral zone biological communities.

### Dundalk Institute of Technology

Dundalk Institute of Technology is a dynamic, world class Institute that has developed an international reputation in both basic and applied research through its Research Centres. This PhD Scholarship is offered through the Centre for Freshwater and Environmental Studies, within the School of Health and Science at DkIT. The successful applicant will be registered as a full time postgraduate research student in the DCU-DkIT Graduate School. The PhD position will be located on the DkIT campus and the Degree will be awarded by Dublin City University.

### Funding

This project is co-funded by the HEA Technological Universities Transformation Fund and DkIT.

The successful candidate shall receive a postgraduate stipend of €16,000 per annum, plus fees and a contribution to their direct research project costs up to a maximum of €5,000 per annum. The duration of this PhD studentship is 36 months. Terms and conditions will apply.

### Eligibility

Eligibility Criteria:	Essential	Desirable
Qualifications	2:1 Honours Degree (or equivalent) in Freshwater/Environmental Science, Biology or related fields	
Experience/knowledge		Experience of conducting field research Full, clean drivers licence

It is also a requirement that any applicant whose first language is other than English must have a certified English language proficiency of at least IELTS 6.5 or equivalent.

### Application process

Please send a copy of your CV and a 1-page cover letter to [orla.lynch@dkit.ie](mailto:orla.lynch@dkit.ie) no later than **4.00 pm on Wednesday 20<sup>th</sup> Oct 2021**. Applications received after this time will not be considered.

Please use the position reference **"02STEM2020"** in the subject title.

Short listed candidates will be invited to interview.

Informal inquiries should be sent to; [Valerie.McCarthy@dkit.ie](mailto:Valerie.McCarthy@dkit.ie)

Please note, canvassing will render an applicant ineligible.