Trinity College Dublin
Coláiste na Tríonóide, Baile Átha Cliath
The University of Dublin

Nature-Based Solutions for Catchment Management in Ireland
Trinity Research Doctorate Award 2026-2030

We invite applications for a fully funded PhD studentship on environmental memory, historical landscape change and community knowledge for nature-based catchment management in Ireland. This PhD is part of a larger interdisciplinary project, *Landscape Living Lab: Catchment Monitoring, Modelling, and Management*, with four PhDs funded through the AIB Trinity Climate Hub Trinity Research Doctorate Award (TRDA) scheme.

Project Background and Description

Developed under the theme of Nature-Based Solutions, the group of PhD students will work together to understand biophysical and socio-economic processes in a case-study river catchment in Co. Wicklow. Each PhD student will focus on one of four intertwined pillars (the "4Ms"), designed as an integrated system: **Monitoring** (current dynamics and climate- and nature-related risks); **Modelling** (pathways to future climate and nature resilience); **Memory** (how vulnerability arose and what historical records and lived knowledge can reveal); and **Management** (a decision framework for evidenced trade-offs). The primary supervisors are Professor Mary Bourke (Geomorphology, Geography), Associate Professors John Gallagher (Civil, Structural and Environmental Engineering) and Francis Ludlow (Environmental Humanities), and project Principal Investigator, Assistant Professor Catherine Farrell (Business School), respectively.

This PhD

This PhD will focus on Memory, under the title *Reconstructing Catchment Memory: Environmental History, Landscape Change and Community Knowledge for Nature-Based Catchment Management in an Irish Living Lab*. The PhD student will be supervised by Associate Professor Francis Ludlow (Environmental Humanities, School of Histories and Humanities).

Drawing on environmental history, historical GIS, digital humanities, art history and oral history, the research will reconstruct the changing social and environmental history of the case-study catchment. The student will investigate estate records, historical maps, aerial photographs, photographs, paintings and other visual sources, drainage and forestry documentation, local administrative archives (including rural district council materials), and newspaper reports of flooding and landscape change. These materials will be georeferenced and integrated within a GIS framework to create a spatially explicit

reconstruction of past land use, land cover, drainage patterns, channel modification, infrastructure, governance decisions and changing exposure to flood risk.

A central element of the PhD will be participatory mapping with local communities, landholders and other catchment stakeholders. Through ethically grounded interviews, mapping workshops and other appropriate methods, participants will be invited to sketch and discuss landscape features that they recall changing, for example woodland extent, wetland loss, field boundaries, drainage channels, river meanders, flood-prone places, or sites altered by land improvement works. These "mental maps" will be compared systematically with historical maps, photographs, surveys and administrative evidence. Agreement, difference and uncertainty between sources will all be treated as informative evidence about how the catchment has changed and how its history is remembered.

The PhD will identify pivotal moments of management and landscape change, including forestry expansion, drainage works, channel and infrastructure upgrades, and changing governance arrangements, that may help explain shifts in runoff generation, sediment delivery, channel constraints and the exposure of people and assets. It is interdependent with the other projects in the Living Lab cohort, supplying the long-run evidential backbone needed for robust modelling, credible nature-based solutions appraisal and inclusive catchment management planning. It will complement the forward-looking monitoring and modelling strand, the sediment and geomorphology strand, and the natural capital and governance strand. The PhD will address the following research questions:

- How have land use, land cover, woodland, wetlands, drainage networks, river channels, infrastructure and settlement patterns changed across the case-study catchment, and when did key changes occur?
- Which historical interventions and governance decisions are most likely to have shaped runoff generation, sediment delivery, channel constraints and the exposure of people and assets to flooding?
- How can historical maps, visual sources, estate and administrative records, technical documentation and newspaper reports be georeferenced, interpreted and integrated within a historical GIS for catchment analysis?
- How can participatory mapping and oral-history approaches recover locally held knowledge of environmental change, and how can this knowledge be compared responsibly with documentary and visual evidence?
- How can a spatially explicit reconstruction of catchment memory support model development, the appraisal of nature-based interventions and more inclusive, evidence-based catchment management?

Candidate Profile

The ideal candidate will:

- Hold at least an upper second-class Honours Bachelor degree. A Masters degree or comparable experience in environmental history, historical GIS, digital humanities, art history, landscape studies, anthropology, archaeology or a related field is particularly welcome.
- Have demonstrable experience of archival, documentary or visual-source research, ideally including historical maps, photographs, paintings, estate records, local government records, newspapers or related sources.
- Have experience with, or a strong interest in developing, historical GIS and digital humanities skills, including georeferencing, digitisation, spatial data management, databases and mapping using QGIS, ArcGIS or related tools.
- Be interested in environmental and landscape history, flood risk, climate adaptation, nature-based solutions and social vulnerability.
- Have experience with, or a willingness to develop, oral-history, participatory mapping, qualitative interviewing or other community-engaged methods, with sensitivity to research ethics and locally held knowledge.
- Be able to combine qualitative, spatial and interdisciplinary approaches, communicate findings clearly to academic and community audiences, and work respectfully with local landholders and partners.

Funding

This is a 4-year PhD project funded by the AIB Climate Hub in collaboration with the Trinity Research Doctorate Award Scheme. It provides an annual tax-free stipend of €25,000 and covers student fees.

Application Procedure

Submit your application by email to Associate Professor Francis Ludlow (fludlow@tcd.ie) with the subject line *"Trinity College PhD Application: Catchment Memory"*. Please include a CV and a 1-2-page personal statement detailing your interest in the project by Monday 20 July 2026.

Your CV should include the names and contact details of two references. In your personal statement, please explain both why you are specifically interested in this PhD project and why you are a strong candidate to undertake it.

Applicants will be shortlisted for interview soon thereafter, with interviews expected in late July. The successful applicant will then have to apply directly to the School of Histories and Humanities following the Trinity College PhD application process.

The project start date will be 1 September 2026.

Please send all inquiries to Associate Professor Francis Ludlow (fludlow@tcd.ie).