



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

## **Implementing and evaluating nature-based solutions for health in children and adolescents**

**Trinity Research Doctorate Award 2026-2030**

### **‘How do coastal Nature Based Solutions (NBS) impact physical and mental health in children and adolescents?’**

We are delighted to be able to invite applications to doctoral research on the health impact of nature-based solutions in children and adults.

#### **The Project**

Nature-based solutions (NBS) are interventions designed to use the properties of nature to address multiple sustainability challenges. This may include restoring ecosystems such as forests, wetlands, or grasslands to provide a series of benefits such as the capturing of carbon dioxide, providing shade during heat waves, mitigating against flooding, or providing blue-green spaces for recreation. There are many indications that human wellbeing is impacted by NBS but relatively limited research on how NBS might impact health and wellbeing in children and young adults. Most NBS research still focuses on climate change and biodiversity, leaving human health, food security, and water security comparatively under-studied, despite their centrality to vulnerability.

Children and adolescents are major beneficiaries of NBS in theory but remain under-served by the evidence in practice. Childhood and adolescence are sensitive developmental periods when many health problems first emerge and long term-mental and physical health trajectories are shaped, with around one-third of lifetime mental disorders beginning by age 14 and diet and physical activity patterns consolidating in ways that influence adult health. NBS may thus offer a preventive lever for child and adolescent health. Health benefits, however, cannot be assumed from implementation alone. Evidence on the health benefits for children is mixed, and the wider NBS literature still lacks robust evaluation of health pathways, equity, or trade-offs.

In light of these gaps, this Trinity Research Doctoral Award project will generate policy- and practice-relevant evidence by treating NBS as a measurable exposure intervention and linking environmental change to changes in child and adolescent mental health, physical health, and health-related behaviours. Our overarching research question across three climate sensitive settings (ground water, urban, coastal) is: What changes in children and adolescent mental health, physical health, and health-related behaviours follow implementation of NBS?

The successful applicant will be fully funded (see below) and will join a team of three other PhD researchers and four co-PIs across the Schools of Medicine, Natural Sciences, Psychology, and Engineering. The project will integrate all aspects of the four PhD projects to address the following key research objectives:

1. Co-produce site-specific theories of change with young people and local stakeholders, and translate them into harmonised exposure and outcome indicators that enable cross-site learning.
2. Implement and evaluate three NBS interventions with children and adolescents in three countries.
3. Build a multi-country shared environmental exposure database across sites (water, soils, sediments) to detect intervention-related changes and to trace contaminants, nutrients, and sediment loads back to their likely sources.

### **Details of the Award**

The PhD project will be co-supervised by Professor Iris Möller (primary supervisor of this PhD and Professor of Geography with special expertise in coastal wetland geomorphology and nature-based solutions), Professor Cathal Walsh (Professor of Biostatistics with particular expertise in climate-related health impacts, and disease modelling), and Professor Alina Cosma (specialising in adolescent health and well-being and the design and management of cross-sectional, cross-national school health surveys focussing on child and adolescent health and mental health).

This particular PhD project will assess how *coastal* NBS affect child and adolescent physical and mental health. As sea levels could rise 1-2 metres in some regions by 2100 under a 2°C world, and as even a smaller rise in sea level could increase the frequency of storm-driven extreme sea levels and coastal flooding in other regions, intensifying disruption and insecurity for coastal communities is the likely outcome. This project will evaluate coastal NBS to better understand the risks, benefits, and challenges of implementing coastal NBS for environmental quality, health, and wellbeing.

NBS such as dunes, saltmarshes or wetland restoration, and living shoreline type projects all have likely impacts on community health and wellbeing. This project will

focus on those impacts on children and adolescents by mapping evidence and exposure and pathway measures. Potential benefits and tradeoffs will be identified in a thematic analysis and this will then inform quantitative monitoring and analyses to implement to evaluate the health impacts of coastal NBS. We expect that the quantitative evaluation will include a combination of environmental monitoring, analysis of existing climatic (and other environmental) time-series, spatial analysis, and survey data collection.

Candidates should have a background in Psychology / Environmental Psychology / Health Sciences, a high degree of computer literacy, advanced knowledge of statistics, and survey design / data acquisition / analysis. An interest in and/or prior experience of shallow coastal environments / coastal wetlands, as well as qualitative research methodologies is desirable. An interest in working across disciplinary boundaries and willingness to engage in multi-disciplinary dialogue and discussion is essential.

The Award includes €25k per annum tax-free stipend for 4 years and a tuition fee write-down. This excludes the once-off Application fee (€55) for Admission and the annual Student Levies & Charges (SLC) approx. €200 p.a.) charged to students at registration.

The successful applicant must be registered and ready to commence for the start of the academic year of 2026/2027.

### **Details of Application**

Please send a CV, Cover Letter, and two-page Research Proposal to Prof Iris Möller ([moelleri@tcd.ie](mailto:moelleri@tcd.ie)) by **5pm on Friday 3<sup>rd</sup> July 2026**.

Viable applicants will be shortlisted for interview soon thereafter. The successful applicant will have to apply directly to the School of Natural Sciences following the Trinity College PhD application process.