

Call for PhD Candidates

Project Description

Project 1: Decarbonising Rice Agriculture: Methane Reduction through Climate-Smart Practices

Rice paddies are among the world's largest agricultural sources of methane — a greenhouse gas 30 times more potent than CO₂. This PhD project investigates practical, scalable strategies (such as alternate wetting and drying, biochar, and fertiliser optimisation) to reduce emissions while maintaining yields. Partnering with farmers in Southeast Asia, the project explores carbon credit potential and rural co-benefits, including income diversification for vulnerable farming communities. The ideal candidate will blend field experimentation with geospatial analysis and carbon accounting to unlock new climate finance pathways in rice-dominant regions.

Project 2: Halophyte Farming on Salt-Affected Lands: Restoring Function and Value

Salt-affected land is expanding globally, threatening agriculture and livelihoods. This PhD project explores halophyte (salt-tolerant plant) farming as a solution — combining carbon sequestration, soil recovery, and production of food, oil, and biochar. Working closely with Traditional Owners and landholders in Western Australia, the candidate will assess ecological restoration potential, biomass productivity, and environmental co-benefits. This is a unique opportunity to advance nature-based solutions on degraded land, contributing to both climate mitigation and sustainable agriculture.

Project 3: Ocean Alkalinity Enhancement with Industrial Waste: From Waste to Carbon Drawdown

Ocean alkalinity enhancement (OAE) is a frontier carbon removal approach that can permanently store CO₂ at gigaton scale. This PhD investigates how alkaline waste materials (e.g. steel slag, cement kiln dust, fly ash) from Australian industries could serve as feedstock for OAE — turning a disposal challenge into a climate solution. The project will assess chemical performance, environmental safety, supply chain logistics, and policy pathways for carbon crediting. It aligns with circular economy goals and offers strong collaboration potential with industry and regulators.

Project 4: Teal Carbon in Freshwater Wetlands

Natural freshwater wetlands are major but under-recognised carbon systems, with potential to support climate mitigation, biodiversity recovery and nature-positive investment. This PhD topic will explore how teal carbon in natural freshwater wetlands can be mapped, measured and managed to support credible restoration and conservation. Depending on the candidate's skills and supervisory team, the project may involve geospatial analysis, field measurements of greenhouse gas fluxes and soil carbon, assessment of restoration interventions such as rewetting, environmental watering or exclusion of non-native animals, and evaluation of future carbon, biodiversity or natural capital accounting pathways. The project will aim to improve understanding of where natural freshwater wetland carbon opportunities occur, what drives variation in carbon outcomes, and what evidence is needed to support future policy and investment.

Project 5: Rewarding Stewardship in Nature Markets

Many environmental markets reward restoration after degradation, but struggle to recognise long-term stewardship that has prevented ecosystems from being degraded in the first place. This PhD topic will explore how carbon and nature markets could better recognise stewardship without weakening integrity. Depending on the candidate's background and co-supervisory expertise, the project may involve policy analysis, market design, case studies, social science, Indigenous and community-led stewardship models, additionality and counterfactual assessment, MRV for ongoing ecosystem care, and non-offset finance models such as contribution claims, stewardship payments, natural capital accounting and nature-positive investment. The project will aim to develop practical pathways for rewarding people who actively care for land, water and biodiversity.

Project 6: Temperate Grasslands as Carbon Sinks

Native temperate grasslands are among Australia's most threatened ecosystems, with major biodiversity, cultural and landscape value. They may also store substantial carbon below-ground, yet their contribution to climate mitigation remains poorly understood compared with forests, wetlands and blue carbon ecosystems. This PhD topic will explore how temperate grasslands contribute to soil carbon storage, how management and restoration may affect carbon outcomes, and whether these systems could support future carbon, biodiversity or natural capital accounting. Depending on the candidate's skills and available co-supervision, the project may involve global evidence synthesis, regional spatial analysis, soil carbon assessment, management case studies, field sampling, and collaboration with land managers in south-west Victoria. The project will aim to build the evidence needed to understand when grassland conservation and restoration may deliver measurable climate benefits alongside biodiversity and stewardship outcomes.

RMIT's Centre for Nature Positive Solutions

RMIT's Centre for Nature Positive Solutions (CNPS) is multi-disciplinary team with a proven track record of conducting impactful research that addresses the world's most pressing environmental challenges, including climate change, pollution, and biodiversity loss. Grounded in cutting-edge science, CNPS focuses on innovative research that transforms the conservation, restoration, and management of ecosystems, ensuring a sustainable future where both people and nature can thrive. CNPS develops solutions that mitigate climate change, protect aquatic biodiversity, foster economic growth, and promote capacity building and community wellbeing.

With a dynamic team of 18 researchers at RMIT University, we collaborate globally to provide actionable guidance and solutions that empower communities, industries, and governments. Our core team has over 50 years of collective research experience, with expertise in ecology, biogeochemistry, microbiology, environmental economics, remote sensing, social science, mapping, and modelling. CNPS includes internationally recognised researchers with more than 300 peer-reviewed publications.

Supervisor

Prof Peter Macreadie is the Director of RMIT's Centre for Nature Positive Solutions and a global leader in marine science and sustainability. He is internationally recognised for leadership in blue carbon science, nature-based solutions, and coastal wetland restoration. He has played key roles in translating science into policy through government advisory roles (including the IPCC and Australian Blue Carbon Expert Working Group) and led the development of Australia's ACCU methodology for blue carbon crediting. Peter's lab has delivered pioneering work in environmental economic accounting, market readiness, and citizen science, with projects spanning from community-led restoration to national-scale carbon mapping. He has published >250 scientific papers and attracted >\$35M in research funding.

Location

RMIT University is based in Melbourne, Australia, with campuses located both in the City or Bundoora.

RMIT Scholarship information

Scholarships are required to complete a PhD in Australia. **Competitive RMIT Scholarship** rounds open annually in June and are available for domestic and international applicants. Successful candidates may receive a stipend (approx. AUD \$36,000 per year), tuition fee support for up to 3.5 years, and Overseas Student Health Cover (subject to eligibility).

Candidate Skillset

We encourage applications from individuals with strong communication skills, demonstrated capacity for independent research, and a genuine interest in making a real-world impact through applied research.

A strong CV for this competitive scholarship scheme may include:

- A Master's or Honours degree in a similar field.
- First-authored publication in a peer-reviewed scientific journal.
- Good communication skills.
- Demonstrated ability to work independently

How to apply?

Interested applicants are invited to email Prof Peter Macreadie (peter.macreadie@rmit.edu.au), if they meet the following [PhD eligibility criteria](#).

Please include:

- A short cover letter (max 1-page) outlining your research interests and experience
- A brief CV (2-pages)
- Academic transcript(s)
- Contact details for two academic referees

Please contact Prof Peter Macreadie (peter.macreadie@rmit.edu.au) for any enquiries.

Application Deadline

Applications will be reviewed on a rolling basis until **31 July 2026 for International Students** and **31 August 2026 for Domestic Students**.

International Students	Domestic Students
EOI Deadline: August 30, 2026 Full Application: September 30, 2026	EOI Deadline: September 30, 2026 Full Application: October 30, 2026