ONE BASIN CRC PhD program

Are you looking at developing world-leading skills in helping communities tackle climate change, capitalise on the digital transformation and accelerate rural innovation? Are you interested in receiving training from internationally renowned experts, whilst working with industry partners in the iconic Murray-Darling Basin on real-world problems?

The One Basin Cooperative Research Centre (One Basin CRC) offers attractive PhD packages in a broad range of disciplinary fields and across multiple universities in Australia (Australian National University, Charles Sturt University, Flinders University, The University of Adelaide, The University of Melbourne, The University of Sydney). Our PhD graduates will be the future leaders in basin research and application. Our One Basin PhD program provides unprecedented leadership development opportunities, extensive industry networking, and the chance to establish a deep understanding of your chosen field. Key features of the One Basin CRC PhD Program are:

- A 3.5 year scholarship with the option of a 6 month-funded internship with an industry partner or equivalent part-time employment.
- A flexible funding package including a stipend as much as $51,300 pa* and generous travel and operational costs, with potential additional income from working part-time with industry partners and further scholarship funding.
- The PhD program seeks to achieve gender balance and attract candidates from all walks of life, with Australians of Indigenous and Torres Strait Islander heritage particularly encouraged to apply.
- Opportunities for travel (including the possibility of international conferences), development and engagement with a strong research network that is being developed through the 10-year CRC.
- Each candidate will spend the majority of their time in one of the following research hubs: Loxton (South Australia), Mildura (Victoria), Griffith (NSW) and Goondiwindi (Queensland) with associated node in Narrabri (NSW).

Our PhD program will give you the professional skills and networks to accelerate your career in research or practice across the water, agriculture or environmental sectors.

** This is dependent on the host university policies, other available co-funding, and candidature experience and background. Candidates will receive a minimum stipend of $35,000 pa and a further minimum $20,500 (total) in operational funding. The exact allocation of the funding package between the stipend and support activities (such as conferences, travel to and from regional hubs) will be agreed to by the host university, PhD student and the 1BCRC. Applicants must be intending to apply for, and be highly competitive for, a Research Training Program (RTP) Stipend (or an equivalent scholarship). The student will enter the PhD program in 2024 and enrol on a full-time basis.*

Apply via: onebasin.com.au/phd-programs

PhD project ID: 1BPhD23-05 **Date advertised:** 8 September 2023

PhD project title:

Economic analysis of water banking and managed aquifer recharge as innovations for enhancing and regulating water supply

Description of the topic of PhD project:

Water banking and managed aquifer recharge (MAR) are promising innovations to improve water supply availability and timing, increase farm productivity and sustainability and improve community resilience to floods and droughts. Water banking and MAR involve storing "surplus" surface water and alternative sources in aquifers when they are available, and taking water from aquifers when water is scarce and additional supplies are needed. Although there is increasing application of water banking and MAR in some urban areas in Australia, there has been limited application in rural areas in the Murray Darling Basin. While financial analysis of MAR and alternative water sources has been developed there are few examples of economic analysis. Investment in water banking and MAR is constrained by lack of information and confidence about the economic viability of this technology. This PhD project would develop methodology and compile data for assessing the economic benefits and costs of water banking and MAR and alternative sources of water, taking account of the distribution of benefits and costs, and risks and uncertainty. This methodology would be tested by analysis of the economic viability of water banking and alternative water sources in selected case studies such as those in the proposed 1Basin CRC project on water banking, and the 1BCRC Quickstart project on brackish groundwater.

Primary university supervisor(s):
Associate Prof Barry Croke, Dr Andrew Ross (Fenner School of Environment and Society, Australian National University)

Co-supervisors:
Dr Ejaz Qureshi (Australian National University); Prof Howard Fallowfield (Flinders University); Dr Richard Culas (Charles Sturt University)

Requisite qualifications and experience:
Candidates must have a qualification equivalent to an Australian H1 Honours degree (a prior research thesis that was at least six months of full time credit and received an excellent mark, or a first author publication in a peer-reviewed international journal). Candidates with Masters or honours degrees in the following disciplines, or with equivalent research or work experience will be favourably considered: *economics (familiarity with the basic concepts essential) microeconomics (preferable), hydrology and hydrogeology, financial management, water resource management, water engineering, politics.* Specialised knowledge (useful but not essential)*: cost benefit analysis, integrated water resource management and modelling, stakeholder analysis, political economy analysis, experience with analysing data.*

To determine your eligibility for studying at The Australian National University see:
https://www.anu.edu.au/study/related-information/postgraduate-research-students

1BCRC industry partner(s) potentially involved:
NSW Department of Planning and the Environment, SA Department of Environment and Water, Coleambally Irrigation, CSIRO