

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.*

A horizontal banner with a green-to-blue gradient background. On the left, there is a small inset image of a river landscape. The text "Apply via: onebasin.com.au/phd-programs" is centered in white text.

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

PhD project ID: 1BPhD23-04

Date advertised: 8 September 2023

PhD project title:

Understanding the potential for achieving multiple benefits through water system operations

Description of the topic of PhD project:

The Murray-Darling Basin is a large and complex river system that has experienced decades of environmental decline. The Basin Plan sets to establish sustainable water use, however water remains a highly contested resource. Amongst the world's major arid and semi-arid river basins, the Murray Darling Basin is considered one of the driest and under climate change, water scarcity and year-to-year flow variability is expected to increase into the future. As a finite resource, it is becoming more pertinent that water flow is managed to concurrently achieve multiple benefits, including social, economic, ecological and cultural uses, protecting current users while achieving more. This project will develop case studies to explore how multiple benefits can be identified, valued and achieved through rethinking the outcomes of water management and its processes, considering aspects of space, time and delivery to diverse values.

The research will engage with local organisations and stakeholders to identify and characterise the different potential outcomes of water at the case study site(s). The research will then explore different water system operations including water transfers and deliveries that can generate benefits (and avoid disbenefits) to a range of social, economic, ecological and cultural uses. This research will include a review of water delivery strategies such as piggy-backing, augmentation and shepherding, and other mechanisms such as weir pool manipulations, and examine how they could potentially be applied in the case study site(s). The effectiveness of these strategies may be assessed under current and future climate change scenarios.

Primary university supervisor(s):

Dr Serena Hamilton (Australian National University)

Co-supervisors:

To be confirmed depending on student's background and interests: Dr Danial Stratford (CSIRO); Dr Danlu Guo, Dr Jason Alexandra, Dr Saman Razavi (ANU); Prof. QJ Wang or Prof. Erik Weyer (University of Melbourne)

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: *environmental science, ecology, interdisciplinary science, hydrology, environmental engineering, water resources management, environmental management and planning.*

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:

Western Murray Land Improvement Group (WMLIG) and Murrumbidgee Irrigation (MI)