



## KEY CAPABILITIES 2017

# Water Systems

## FACULTY OF SCIENCE AND TECHNOLOGY

### KEY AREAS OF RESEARCH EXPERTISE:

Research will be focused towards four key areas of:

- Integrated water cycle management
- Water security
- Healthy waterways and wetlands
- Water monitoring, modelling and informatics

Federation University Australia researchers thrive to create resilient water systems through innovative research, engagement with industry, and a focus on the production of high impact research outcomes.

Water research at FedUni is focused towards four key areas of: integrated water cycle management; water security; healthy waterways and wetlands; and water monitoring, modelling and informatics. This will lead to more efficient and effective water monitoring and modelling, and help build influential water management, policy and governance outcomes.

Our staff possess track records that demonstrate an ability to address complex and contemporary water systems issues. Researchers have been successful in attracting research grants, contract research and commercial consultancies. Past flagship studies that feed into the planned focus areas include: integrating dynamic and optimisation models for efficient pipeline system operations in an evolving water and energy market; multi-objective planning and operation of water supply systems subject to climate change; understanding community attitudes to small water supply systems, configuring consumptive flows for the benefit of in-stream ecosystems, building new paradigms for integrated sustainable urban water management monitoring and modelling, evaluating the impacts of historical contaminants on wetland management; investigating heavy metal contaminants in the Gippsland Lakes; quantifying urban groundwater contamination beneath cities; developing improved predictive models of groundwater recharge in the Latrobe Valley and investigating storm water treatment processes and methods.

Researchers collectively bring a range of expertise and connections through scientific, management and policy circles both locally and internationally. We have established projects and MoUs with local stakeholders including Grampians Wimmera Mallee Water, Central Highlands Water, Corangamite CMA, Latrobe City Council. Our international links include Hebei University of Science and Technology, IRSTEA (France), Ramsar (Switzerland), TERI (India), CCOP (Thailand), UN Habitat, Indian Institute of Technology, Nanjing Institute of Geography and Limnology (CAS) and the US East West Centre.

Water systems researchers are liaising with the Gippsland Lakes Coordination Committee to oversee the establishment of the Gippsland Research, Education and Discovery (RED) Centre that will place FedUni at the forefront of research and education activities within the Gippsland Lakes and its catchment. The RED Centre will be developed in partnership with local councils, catchment management authorities, DELWP, the EPA, Parks Victoria and Regional Development Victoria.



## FEDUNI CONTACT:

### MT HELEN

Assoc. Prof. Andrew Barton  
Email: [a.barton@federation.edu.au](mailto:a.barton@federation.edu.au)  
Call: 03 5327 9329

### GIPPSLAND

Dr. Harpreet Kandra  
Email: [h.kandra@federation.edu.au](mailto:h.kandra@federation.edu.au)  
Call: 03 5122 8216

## A SAMPLE OF PAST AND CURRENT PROJECTS:

- Development of smart algorithms for leak detection in pipeline systems.
- Reconstructing environmental history of reservoirs for improved water supply management
- Optimisation of complex water resource systems under climate change (ARC linkage project)
- Measuring groundwater infiltration into sewerage systems
- Investigating the mixing characteristics of a deep water supply reservoir - Lake Bellfield
- Configuring the consumptive component of river flows for the benefit of in-stream ecosystems
- Optimisation of pipeline operations under evolving water and energy markets (ARC linkage project)
- Investigation into biofouling in the Northern Mallee Pipeline system
- Testing the viability of integrated water management concepts for regional cities
- Performance Assessment of Firmans Lane Floating Wetlands
- Investigation of biological clogging in stormwater filters
- Distribution and mobilisation of contaminants in the Gippsland Lakes
- Assessment of potential acid sulfate soils in the Anglesea Estuary

## RESEARCH CENTRES AND TESTING LABS

- Impact Ecology Research Group
- Resources Engineering and Technology Research Group
- RUN Water Landscapes Futures
- Geotechnical and Hydrogeological Engineering Research Group (GHERG)

## TEACHING EXPERTISE

### Course

Management of Water Resources

Surface Water Hydrology

Geohydrology

Water and Wastewater treatment

Hydraulics and Hydrology

Applied Geochemistry

Chemistry of the Environment

Wetlands and Water Resources

Land and Water Contamination

Environmental Change

Call: **1800 333 864**

Visit: [federation.edu.au/fost/research](http://federation.edu.au/fost/research)

International phone: +61 3 5327 9018

Connect with FedUni on social media:



Disclaimer: Information contained in this brochure was correct at the time of printing (March 2017). Federation University Australia reserves the right to alter any program, procedure or fee, as deemed necessary. Prospective students should confirm program information by visiting [federation.edu.au](http://federation.edu.au) and [vtac.edu.au](http://vtac.edu.au) or by contacting the University directly. The information contained in this brochure may not apply to international students. To find out more regarding International Education, please call +61 3 5327 9018. Produced by Federation University Australia, Marketing & Communications. Federation University Australia programs are delivered with Victorian and Commonwealth Government funding. CRICOS Provider No. 00103D. National RTO Code: 4909. CC\_220317.