




All kinds of clever

Centre for FRESHWATER ECOSYSTEMS

Strategic Plan 2019–2023





The Centre's work directly supports decision making regarding maintenance and restoration of the long-term health of rivers, catchments, floodplains and wetlands.

The Centre for Freshwater Ecosystems (CFE) has been established by La Trobe University to conduct high quality research to support the sustainable management of freshwater ecosystems.

The centre brings together a wealth of expertise from a range of disciplines to better understand and to solve significant challenges in river and catchment management. It builds on a long history of research under the auspices of the Murray Darling Freshwater Research Centre.

The Centre operates from La Trobe's Albury-Wodonga campus, and also has strong links across the university's other campuses in Melbourne, Bendigo, Shepparton and Mildura.

Our regional locations provide ready access to field sites across the southern Murray Darling Basin and are a vital connection with local communities.

A centre focussed on freshwater ecosystems

Healthy freshwater ecosystems support immense biodiversity as well as providing highly valued goods and services that support human wellbeing and economic prosperity.

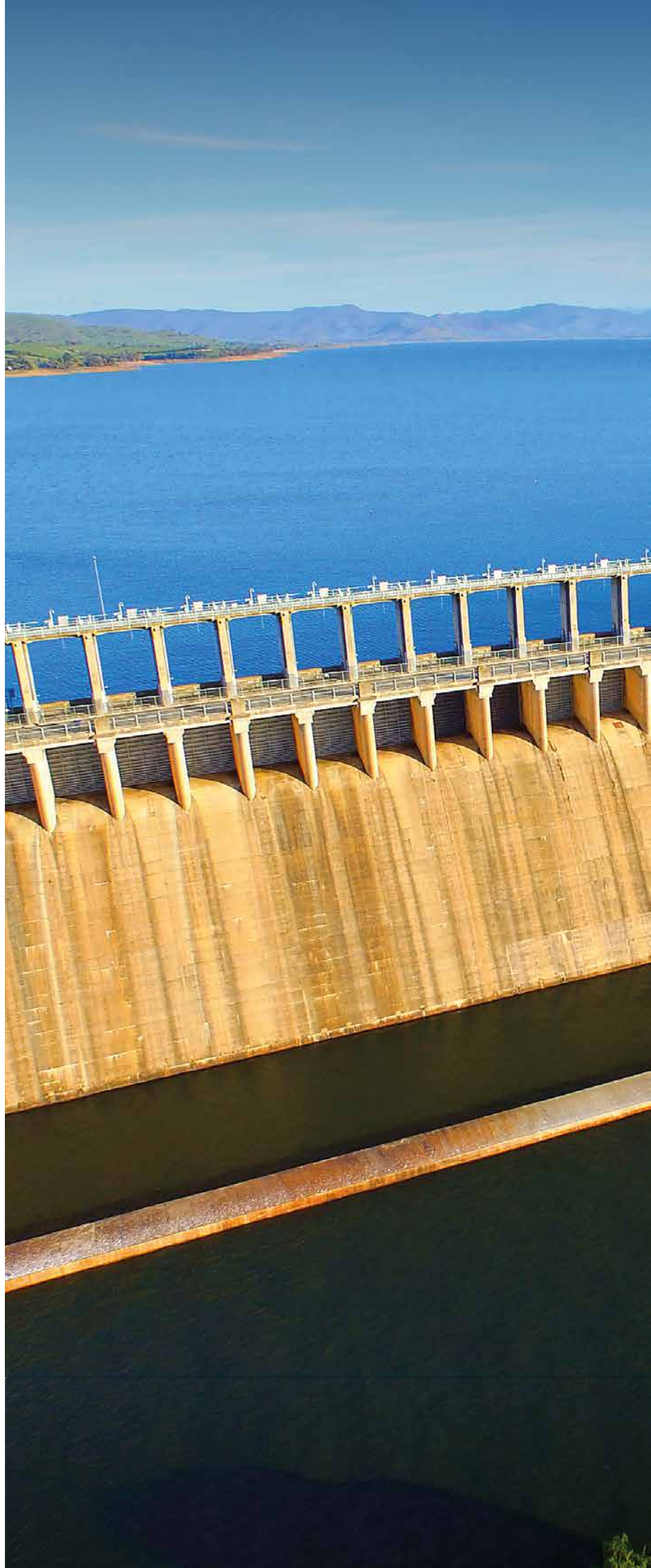
We seek to provide the critical knowledge to support the sustainable management of these important ecosystems across several key themes:

- measuring and conserving freshwater biodiversity
- balancing water allocations between communities, production systems and nature
- addressing the effects of catchment management and chemical pollutants on water quality
- understanding the influences of hydro-climatic variability and climate change on refuges and ecosystem resilience.

In striving to deliver world-leading research, the centre performs a role well beyond the Murray-Darling Basin, with research links nationally in Southern and Northern Australia, and internationally in southeast Asia, Europe and the Americas.

The centre also plays a key role in training the next generation of water managers and scientists through its contribution to both undergraduate and postgraduate teaching within the university.

The Centre is a strategic initiative of La Trobe University, which operates commercially and strives to conduct high impact scientific research.







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Our vision

Our vision is for a world where freshwater ecosystems, rivers, catchments, floodplains and wetlands are healthy, native species thrive and resources are used sustainably.

Our mission

To lead the way to healthy and sustainable freshwater ecosystems through innovation and excellence in research and education.

Our key goals

1. To generate and synthesise knowledge
2. To support policy and management
3. To train and educate the next generation of water scientists
4. To achieve research excellence
5. To achieve operational excellence

Our cultural qualities



Connected

Connecting the communities we serve



Innovative

Tackling the major environmental issues of our time to transform aquatic ecosystems



Accountable

Striving for excellence in everything we do, holding each other to account, and working to the highest standards



Care

We care about each other, what we do and why we do it, because we believe in the power of education and research to transform society

Our research teams have expertise in:

- Ecosystem monitoring and assessment
- Environmental chemistry and contaminants
- Fish ecology and management
- Genetics and DNA analysis
- Invertebrate community ecology
- Quantitative modelling and forecasting
- Conservation biology
- Social and environmental policy
- Spatial modelling and GIS analysis
- Water management
- Wetlands and floodplains

We work with other organisations to address questions of sustainability with particular emphasis on:

- Climate adaptation
- Social research
- Sustainable communities
- Sustainable agricultural production systems
- Terrestrial ecology



Research Facilities

The Centre's research staff are supported in their work by access to equipment and laboratory capabilities, many of which are unique within the region, including:

- Capacity to undertake field surveys encompassing a range of biota and ecosystems
- Analytical chemistry laboratory for water quality and nutrient testing
- A macro-invertebrate laboratory providing sampling and taxonomic skills
- Capacity to undertake biogeochemical analysis in aquatic ecosystems and waste treatment plants
- Aquarium facilities and eco-physiology laboratory for studying fish and invertebrate behaviour and ecophysiology
- Laboratory facilities and resources to support taxonomy, population genetics, metabarcoding and eDNA studies

More information available on
www.latrobe.edu.au/freshwater-ecosystems



Our plan for the future

GOAL	OBJECTIVE	STRATEGY
To generate and synthesise knowledge	Understand and quantify biodiversity patterns and the health of freshwater ecosystems	<p>Contribute to baseline and whole of ecosystem monitoring to understand the influences of land and water use on freshwater ecosystems, including changes in species composition, structure and ecosystem function.</p> <p>Conduct research to understand the impacts of climate change and local human impact on vulnerable freshwater ecosystems (e.g. alpine bogs and streams)</p> <p>Expand capacity and application of novel monitoring techniques (e.g. remote sensing, eDNA, metabarcoding)</p>
	Understand how ecosystem processes vary across river networks, and through time, in relation to flow variability	<p>Design and conduct innovative research to address critical knowledge gaps in our understanding of aquatic ecosystems and the good and services they provide</p> <p>Improve the use of existing long-term datasets to explore environmental trends and dynamics (e.g. water quality data)</p>
	Develop tools and approaches to predict responses to environmental change and scale-up local empirical research to landscapes and whole river basins	<p>Adopt quantitative modelling to predict ecosystem condition and response to environmental management interventions in space and time (e.g. riparian restoration, environmental flows)</p> <p>Seek opportunities to research sustainable water usage and food production</p> <p>Monitor changing land use along the rivers, catchments and floodplains</p>
To positively support policy and management	Understand the knowledge gaps limiting informed decision making by stakeholders	<p>Work with stakeholders to identify, and understand high priority questions for waterway and catchment managers</p>
	Communicate and work with stakeholders and influencers to effect change	<p>Identify new stakeholders and communities who have an interest in the work of the Centre</p> <p>Engage with key clients annually to build long lasting relationships and inform of latest results</p> <p>Develop succinct narratives for scientific findings, including two-page executive summaries for all major projects</p> <p>Develop and maintain a world-class website</p> <p>Develop information products suitable for direct application by water managers and landholders</p>
	Support conservation and management of freshwater biodiversity	<p>Link biodiversity research to relevant conservation programs, including spatial prioritisation of conservation and restoration actions, and threatened species management</p>
	Employ innovative communication tools and methods to meet stakeholders needs	<p>Actively seek out regional opportunities to promote research</p> <p>Communicate with land management influencers to achieve better economic and environmental outcomes</p> <p>Work with funders to promote and disseminate research findings</p> <p>Initiate regular workshops and contribute to larger scientific forums</p> <p>Create an active presence in Victoria and Canberra to promote the Centre's findings</p>

GOAL	OBJECTIVE	STRATEGY
To train and educate scientists	Training the next generation of water scientists and managers	<p>Attract students to freshwater ecosystem science through scholarships, fellowships and internships</p> <p>Develop a program to enable fellowships to be located in the region</p> <p>Expand the Centre's role in contributing to undergraduate teaching within the University</p> <p>Promote and engage in the new subjects of Water Management and Freshwater Ecosystems at the university</p>
	Work with water managers in Australia and internationally to share learnings and enhance technical capacity	<p>Investigate the possibility of shorter cycle qualifications and credentials</p> <p>Expand links to programs addressing global water issues</p> <p>Working with existing water managers to share perspectives</p> <p>Consider the potential for outplacements, secondments and staff exchanges</p>
	Strengthening our ties with local agencies within our regional locations	<p>Work with water managers and researchers in our regional locations to build local communities of practice</p> <p>Initiate a seminar program and periodic knowledge and information sharing opportunities</p> <p>Create a local community of practice</p>
	Informing the broader community about conservation and management of freshwater ecosystems	<p>Engage with the wider community via public forums (e.g. seminars, local media)</p> <p>Increase the social media presence for the Centre</p> <p>Contribute articles to <i>The Conversation</i></p>
	Engage with Aboriginal communities to incorporate traditional knowledge	<p>Collaborate on projects to ensure traditional knowledge is recognised and valued</p>
To achieve research excellence	Be a collaborator and research provider of choice to expand the influence of the research	<p>Actively seek to lead collaborations of scientists to develop communities of practise nationally and internationally</p> <p>Initiate multi-partner, multidisciplinary teams to expand the reach and impact of the research</p> <p>Maintain an excellent laboratory to support our work and our regional clients</p>
	Exercise scientific leadership and collaborate across the university to increase the expertise and capability available to clients	<p>Work collaboratively within the Centre to strategically align individual research projects and consultancies to increase research impact</p> <p>Actively engage with other areas across the university to expand the Centre's capability</p> <p>Promote our regional presence to enhance collaboration with other schools and colleges to increase the value proposition for clients</p>
	Be aspirational and ambitious in our quest for research excellence	<p>Invest in human resources to promote team behaviour that enhance the value of our collaborations</p> <p>Recognise, reward and celebrate excellence through improved reward systems</p>
	Publish high quality research in high impact journals	<p>Strengthen internal peer review processes</p> <p>Engage in internal publication booster schemes</p> <p>Conduct periodic writing workshops including with other research centres</p>
To achieve operational excellence	Align with the University Research Centre Strategic Framework	<p>Understand and utilise the resources of the university to increase the profile of the work we do</p> <p>Actively engage with university gatherings to promote collaboration and understand the capabilities of other divisions, schools, and colleges</p> <p>Create a costing framework that brings stability and increases the viability of the centre</p> <p>Engage in programs implemented as part of the University Research Centre Strategic framework</p>
	Improve science quality and project delivery	<p>Initiate peer review of projects</p> <p>Utilise project management processes that allow for quarterly monitoring</p> <p>Seek quantitative and qualitative feedback from clients and stakeholders on the quality and impact of our project delivery</p> <p>Utilise the university's annual goal setting and performance management process to support staff to achieve research productivity commensurate with University-set benchmarks</p>
	Achieve a high standard of governance for the centre	<p>Develop fit-for-purpose governance frameworks</p> <p>Ensure governance frameworks remain relevant</p> <p>Maintain a fit-for-purpose risk management framework</p>
	Be responsive to stakeholder needs	<p>Understand, and be alert to, policy changes and emerging issues that influence research needs and investment strategies</p>



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