

2023

Annual Report



The **Goyder Institute for Water Research** is a research alliance of the South Australian Government through the Department for Environment and Water, CSIRO, Flinders University, The University of Adelaide and the University of South Australia.

The Institute facilitates collaboration of governments, industries, and research organisations to identify, develop and adopt sustainable, innovative and integrated solutions for complex water management challenges.





A message from our Chair

This will be my final contribution to these Annual Reports as I will retire as Chair of the Goyder Institute for Water Research in December 2023 after three years in the position.

I have enjoyed the opportunity to lead this rather unique research institute, consisting as it does of a partnership between the three South Australian universities, CSIRO and the Department of Environment and Water. I don't know of any such consortium elsewhere in Australia.

Since its inception in 2010, the Institute has evolved through three governance models, with the partners deciding earlier this year to extend the current self-funded model for another three years until June 2026. It was very satisfying that the partners had sufficient confidence in the Institute's worth that they agreed to continue their funding.

The need for the Institute's research is clearly evidenced by the healthy portfolio of projects being undertaken each year – some highlighted in this Annual Report and others on the Institute website.

Over recent times, the Institute has shown its competence in designing, implementing and managing major research projects. This was illustrated by the successful running of the \$8 million *Healthy Coorong, Healthy Basin* project between 2020 and 2022. Another mega project commenced on 1 July this year – the \$8 million Coorong, Lower Lakes and Murray Mouth (CLLMM) Research Centre, which will work closely with First Nations, local communities, government agencies and scientists to address the impacts of climate change on the CLLMM region.



It has also been very rewarding to me to see the growth in the Institute's governance and management systems over the past 3 years.

The overall governance is provided by the Board of Management consisting of a representative from each of the five partners with an independent chair. The Board sets the strategic direction for the Institute and closely monitors its operations. It has been a pleasure working with the Board members to ensure the operations and growth of the Goyder Institute.

The Board has also established a robust system for ensuring the quality of all research undertaken. A Research Advisory Committee has been established and is tasked with initially vetting all research projects and providing peer-review of final reports before they are published. Their work is invaluable and I thank them for their commitment to the Institute.

The Goyder Institute has been very fortunate in the two directors who have ensured the Institute's operations run efficiently during my time. Dr Kane Aldridge was Director for the first two years of my time, but left early this year to take on another role. Kane did

an outstanding job and we were sad to see him leave. However, the Institute was able to appoint another extremely capable Director – Dr Alec Rolston – after a wide national search. I have now worked with Alec for the past year and he has proved to be an extremely innovative, hard-working and competent research Director – the Goyder Institute is in good hands.

I should also note that the Institute has now grown to seven staff members (see Director's message for details) – the largest the Institute has ever been, which is a reflection of the success in attracting research funding.

I also wish to warmly welcome the new Chair – Jody Swirepik – who will take over from me in January 2024. I have known Jody for many years and am delighted she has agreed to take on the role. I feel confident she will use her experience and talents to guide the Goyder Institute over the next few years.

I leave the Chair's position confident that the Goyder Institute for Water Research will keep growing and producing the new knowledge needed nationally, and by South Australia in particular.



Professor Barry T Hart (AM)
Independent Chairperson
Goyder Institute for
Water Research



A message from our Director

This has been a year of change and growth for the Goyder Institute for Water Research.

We began the year with the sad farewell to our previous Director, Dr Kane Aldridge. I took up the position of Interim Director for the first 6 months of the year before being appointed Director in August. This has been an exciting role to step into and has allowed me to work closely with our partners to build on the foundations laid by Kane, who left the Institute in a strong position.

In 2022, all partners agreed to extend the Institute through to June 2026, and this extension was formally executed in June of this year. We were working hard in the interim to plan for the extended term, and the Institute undertook a strategic planning refresh over the first six months of the year, which resulted in the publication of our new strategic plan in June. This process incorporated the feedback from over 30 representatives from our partner organisations which showcased the collaborative nature of the Institute's work and the interest in setting the future strategic direction and priorities for the Institute. While our value proposition has remained unchanged, we have refreshed our purpose, what we do, how we work, our priority impact areas and our goals. In doing so, we have created a new strategic purpose for the Institute that recognises the rapidly developing opportunities within water-related research and knowledge creation.

We have continued to deliver our ongoing projects and have established six new and exciting projects in 2023. To manage and deliver this work, we have seen some significant staffing changes within the Institute. In May, we welcomed Dr Hamideh Nouri and Fiona Adamson as Research Program Managers on secondment from our partners DEW and Flinders University, respectively. June saw us bid farewell to Daniel Pierce, who had been with the Institute for over five years, having made a significant contribution to the Institute's development, program delivery and research impact.

The establishment of the Coorong, Lower Lakes and Murray Mouth (CLLMM) Research Centre on 1 July represents a significant milestone for the Institute. The Research Centre will work closely with First Nations, communities, government agencies and scientists to address the impacts of climate change on the CLLMM region. To deliver the \$8 million funding received from the Australian Government, we have been able to recruit four exceptional individuals to the Goyder Institute team, all to be based at the Research Centre in Goolwa, South Australia: Dr Nick Whiterod is Science Program Manager; Nathan Hartman is First Nations Engagement Officer; Dr Tiffany Nay is Communications and Engagement Coordinator; and Jane French is Research Centre Manager. All four bring sizeable experience of living and working within the CLLMM region and have strong connections to the community and First Nations in the region.



In September, we also welcomed Dr Bryony Cotterell to the team as Research Program Manager, bringing our staff numbers up to seven – the largest the Institute has ever been, reflecting our success in attracting research funding and the collaboration required to deliver our work.

We have been working hard to increase the impact of what we do, and for the second year running, the excellence of our work has been recognised at the national level as we took home the *2023 National Australian Water Association Award for R&D Excellence* for our *Healthy Coorong, Healthy Basin* research program.

The next year will be a very exciting one for the Institute as we deliver our current projects, the CLLMM Research Centre moves out of its establishment phase and into its delivery phase, and as we develop new business opportunities for the Institute. Water is a fundamentally precious resource, and as we move into uncertain climate times, we will all face challenges in regard to water availability, quantity and quality. How we manage our water resources will be critical for a safe, secure and equitable future, and I look forward to the Institute and our partners and collaborators working together to create and share knowledge to inform sustainable decision-making over the coming months and years.

On behalf of the Goyder Institute for Water Research, I would like to thank our outgoing Chair, Professor Barry Hart, for his guidance and leadership over the past three years. Barry has strongly contributed to the success of the Institute as it transitioned into its third term under a new funding model and has been instrumental in developing the Institute and progressing our areas of business. Barry's contributions will be greatly missed, and we wish him well for the future.

I also warmly welcome our new Chair, Jody Swirepik, and all of the team at the Institute are looking forward to working with Jody and drawing on her exceptional expertise in the water industry and natural resources management as she guides the Institute over the coming years. Welcome Jody!



Dr Alec Rolston
Director
Goyder Institute
for Water Research





2023 highlights

We have continued to progress and deliver our important ongoing projects.

In January, we released the report from our Independent Panel of Experts on **Future urban water management options for a vibrant and resilient Adelaide**.

Work continues apace on our **Adaptation of the South-East drainage system under a changing climate project**, working with the Limestone Coast Landscape Board.

The **One Basin Cooperative Research Centre** moved from its establishment phase into its delivery phase, with the development of its co-design processes and establishment of the CRC's first research projects. As a Tier 1 partner in the CRC, the Goyder Institute continues to be a member of the CRC's Leadership Team and is a representative on the CRC's Partner Forum.

We also continued to communicate the results of our previous flagship program, **Healthy Coorong, Healthy Basin**, through the program's outputs and working with the SA Government to deliver a Community Science Forum in Goolwa.

In 2023, we established six new and exciting projects.

- **Assessing the initial environmental response** to the 2022-23 River Murray high flow event, focusing on:
 - ~ water quality and the influence of freshwater flows on habitats and species outside of the Murray Mouth
 - ~ how salt moves and is flushed from the floodplain into groundwater during and after extensive flooding
 - ~ the risks associated with blackwater (water with low oxygen)
 - ~ responses in carp breeding and abundance.
- **Understanding the environmental response** of the Coorong to the 2022-23 River Murray high flow event, examining how the flows have affected:
 - ~ changes in nutrients and related conditions in the sediment
 - ~ the distribution, abundance, biomass, diversity and functions of macroinvertebrates
 - ~ the status of the aquatic plants (*Ruppia* community) and filamentous algae and the environmental condition of the shores of the Coorong
 - ~ the distribution, abundance, biomass, diversity, growth rate and body condition of fish as well as the diet composition of key fish species.
- Delivering the **Working together for better drinking water in the bush forum** in Alice Springs, bringing together diverse groups and organisations from across Australia to discuss the shared challenges associated with providing clean, safe and secure drinking water to remote communities
- Delivering a **Better Understanding of Water and Ecological interactions** in the Braemar, Stuart Shelf and Northern Eyre Peninsula regions for Sustainable Development
- Impacts of reduced water extractions on aquifer pressure of the **Great Artesian Basin near mound springs: gap analyses and modelling scenarios**
- Establishing the **Coorong, Lower Lakes and Murray Mouth Research Centre**.



Our goals and impact areas

In 2023, the Institute has continued to focus on developing opportunities to address large, complex water-related issues.

Our strategic planning refresh, which was completed in the first half of this year, updated our priority impact areas to reflect the ongoing developing nature of water-related research.



Water for people

Progress integrated water management solutions to provide safe, reliable and affordable water for urban, regional and remote communities and deliver cultural and social benefits.



Water for industry

Provide sustainable water solutions to industries such as agriculture, mining, energy and green hydrogen and support sustainable economic growth for communities.



Water for the environment

Restore and protect water dependent ecosystems and ecological assets to maintain biodiversity and support health and wellbeing of communities.



Climate adaptation

Guide action on climate adaptation and resilience for water for people, environment and industry.

Our refreshed goals for 2023-26 are for the Institute to:

- establish a large, diverse and impactful research portfolio
- successfully deliver established research projects
- continue to build capacity and capability in Institute partners and end-users
- continue to build the collaborative model through the establishment of new project partners
- seek to be recognised nationally as a trusted source for undertaking independent and impactful research
- establish a viable long-term operating model that will lead to a fourth term of the Institute
- focus on research projects that make an impact on the most challenging and pressing issues, including the UN Sustainable Development Goals, National Water Initiative, the Basin Plan, Closing the Gap, Climate Change Actions and Integrated Urban Water Management.



The impact of our work

During 2023, the Institute has added a further \$11.2 million to its portfolio through six new projects, with a further \$35 million being actively pursued across all priority impact areas.

Over the past year, we have:

- initiated funding agreements with three new funding partners
- strengthened relationships with our established partners and ongoing funding bodies
- developed relationships with a broad range of parties at the national scale, including First Nations communities and representative groups through the delivery of the *Working together for better drinking water in the bush forum*
- continued to highlight the capabilities and capacity of South Australian researchers at the national and international scales
- engaged communities, First Nations, government agencies and researchers in critical water-related issues
- promoted the results of our work through technical reports, fact sheets, videos, eNews articles, papers published in international peer-reviewed journals, and printed and radio media, and social media
- embedded end-users, including government agencies (state and federal), communities, First Nations and researchers in the design and delivery of our projects, ensuring that our work informs decision-making points throughout the term of our projects
- communicated the collaborative partnership approach of the Institute and its project outputs to state, national and international audiences through online webinars, conferences and forums.



Showcase: Coorong, Lower Lakes and Murray Mouth (CLLMM) Research Centre

On 1 July 2023, our flagship program, the CLLMM Research Centre, entered its establishment phase. Funded by the Department for Climate Change, Energy and the Environment, the Centre will work with First Nations and community, government agencies and researchers, to address issues relating to climate change impacts in the CLLMM region.

Through the Centre, the Institute will continue its work to improve the evidence base, capacity and capability to inform decision-making in the CLLMM region at the end of the 1 million km² Murray–Darling Basin. Co-development and co-delivery of the Centre's body of work will be critical for ensuring greater impact of the knowledge created and for this knowledge to inform decision-making for the CLLMM region and the Basin.

Over the six months of its establishment phase, the CLLMM Research Centre has:

- employed four local staff based in Goolwa, South Australia
- established a physical presence within Goolwa
- established its governance groups
- initiated engagement with local community, First Nations, Local Authorities, government agencies and researchers to further identify priority actions and knowledge creation for the region.
- developed its overarching Project Plan, including a First Nations Engagement Plan, Research Plan and Communications and Engagement Plan
- initiated a number of short-term foundational projects to help inform the development of the Centre's broader research portfolio
- begun the development of the Centre's school education program, engaging local schools and facilitating involvement in broader citizen science initiatives in the first instance while the education program is in development
- engaged in broad print and radio media to promote the establishment and function of the Research Centre.

The Research Centre will progress its body of work as it enters its delivery phase from 1 January 2024.





The work we have undertaken

While 2023 has seen the establishment of our flagship Coorong, Lower Lakes and Murray Mouth Research Centre, we have also initiated a number of other important projects.

These include the delivery of the *Working together for better drinking water in the bush forum*. Attendees from across Australia, including representatives from remote First Nations communities, came together to identify the challenges, solutions and enabling actions for providing safe, clean and secure water to remote First Nations communities. The forum was a transformative process, hearing about on-ground, lived community experiences, and it provided a direct pathway for messages and actions to be communicated from community members through to Federal Minister for the Environment and Water, the Honourable Tanya Plibersek.

Our previous *Healthy Coorong, Healthy Basin* research has continued to inform the management of the Coorong South Lagoon.

The *Adaptation of the South-East drainage system under a changing climate* project is progressing well and is nearly at its halfway point. Our researchers have been working very closely with the Limestone Coast Landscape Board and other end users, such as the SA Government, to inform water management decision-making in the South East region of South Australia.

The Institute is a Tier 1 partner in the One Basin Cooperative Research Centre and we continue to work with the CRC and its more than 90 partners develop policy, technical and financial solutions to support and reduce exposure to climate, water and environmental threats in the Murray–Darling Basin.

Our Research Advisory Committee has continued to provide valuable guidance and quality oversight, reviewing project outputs, participating in our strategic planning process, and facilitating the development of our multidisciplinary and multi-organisational research teams.



Building capacity and capability within our partners and collaborators

Through 2023, we have continued to build capacity and capability within the organisations we work with.

The new projects we have established in 2023 have so far supported 15 full-time equivalent positions within our partners, corresponding to a total of 66 research staff, including 37 early-mid career researchers.

We form project advisory committees for each new project, creating direct touch points between researchers and end-users to ensure the very latest knowledge can be used to inform decision-making processes.

Through our CLLMM Researcher Centre Advisory Forum governance group, we are increasing the connectivity of our research co-design and co-delivery processes by facilitating discussion between community, First Nations representatives, scientists and government agencies.





Collaborating with others

We have delivered our work in collaboration with our partner organisations, collaborating with 27 new organisations over the course of 2023.

Australian Government

Department of Climate Change, Energy, the Environment and Water, National Water Grid Authority, Murray Darling Basin Authority, Commonwealth Environmental Water Holder, National Indigenous Australians Agency

State governments

New South Wales, Northern Territory, Queensland, South Australia and Western Australia. Within SA: the Department for Environment and Water, the Department for Energy and Mining, PIRSA/SARDI, SA Water, EPA, Stormwater Management Authority, Infrastructure SA, SA Health. Other States: NT Health, Queensland Health, WA Health

Regional/local governments

Limestone Coast Landscape Board, Hills and Fleurieu Landscape Board, Murraylands and Riverland Landscape Board, Eyre Peninsula Landscape Board, Northern and York Landscape Board, Arid Lands Landscape Board, Alexandrina Council, Coorong District Council, Marion City Council

Industry, utilities, statutory bodies and communities

Aither, BHP, Ngarrindjeri, First Nations of the South East, Coorong community groups, community and industry groups throughout the Murray Darling Basin through the One Basin CRC, Northern Land Council, Central Land Council, Water Services Association of Australia, WaterCorp, Power and Water, Queensland Water, SA Water, Desert Knowledge Australia



Recognition of our work

For the second year running, our work and its impact was recognised nationally through the receipt of the National Australian Water Association Award for R&D Excellence.

Our work through the delivery and facilitation of the national *Working together for better drinking water in the bush* was recognised through multiple Federal Ministerial communications from the Honourable Tanya Plibersek, Federal Minister for Climate Change, Energy, the Environment and Water.

Working to the future

Looking ahead over the next year and beyond, it promises to be an exciting time for the Institute as we continue to deliver our current projects and look to develop further business opportunities.

The passing of legislation in November 2023 by the South Australian Government paves the way for two of our partners, the University of Adelaide and the University of South Australia to merge to become Adelaide University in 2026. We will be working with all of our partners to discuss the development of a model to extend the Institute into a fourth term beyond June 2026.

We will also be continuing to work to develop new partnerships and collaborations to deliver our critical work to inform water-related decision-making. As the next phase of the Murray-Darling Basin Plan review continues, it will be critical for Basin decision-making to be informed and supported by the best available science and knowledge.

Under our refreshed strategic plan, we will be looking to develop new and strengthen current relationships with industry and business, First Nations, governments and communities.

We welcome our new Chair, Jody Swirepik, and look forward to her guidance as the Institute looks to secure its fourth term beyond June 2026.



Financial statement

Financial summary for 2022-23

Description	Opening balance (\$,000s)	Income (\$,000s)	Expenditure (\$,000s)	Result (\$,000s)	Closing balance (\$,000s)
Administration	366	540	445	95	461
Research	56	4,079	1,550	2,529	2,585
Total	422	4,619	1,995	2,624	3,046

