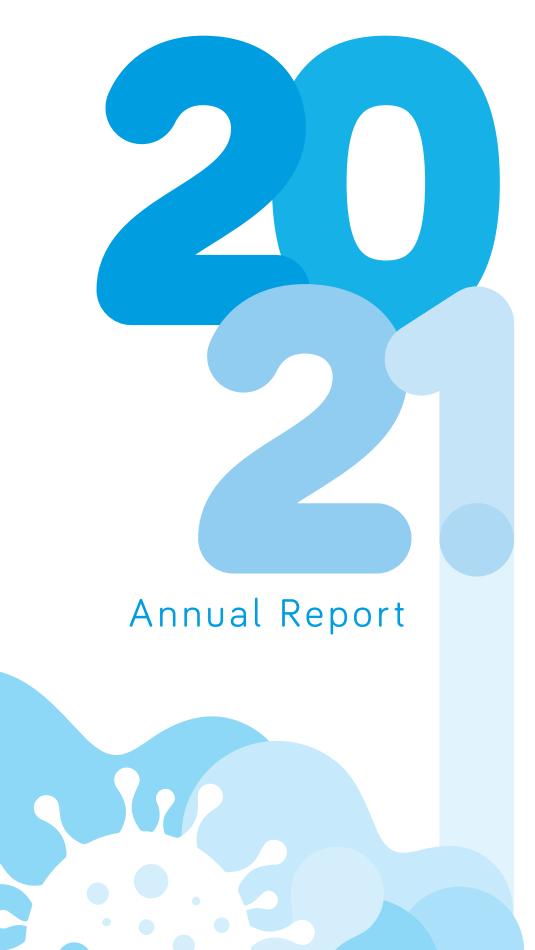
healthy people | healthy communities | healthy planet





Firm foundations yield colossal impact

This year marks the end of Water Research Australia's current three year strategy period. During this time the nation, and the world, has experienced much change and uncertainty, most notably due to the COVID-19 pandemic. Rewardingly, our strategy has been up to the challenge!

Commencing in 2018, our key initiatives, covering four strategic pillars: Harnessing the Value of Research, Strengthening our Community, Nurturing our Awesome People and Creating an Enduring Business - have enabled us to face this year's uncertainty and embrace the opportunities that have arisen. Our mission of healthy people, healthy communities and a healthy planet through the advancement of water science, has provided guidance for what we should do, and focussing on our core principles of collaborate, innovate, impact has enabled us to deliver what is needed - increasing the knowledge, skills and connectivity within our BIG Team of members, alumni, staff, and Board.

These principles have been instrumental in allowing WaterRA to be adaptable and flexible to seize opportunities, placing us and our members at the forefront of the pandemic response.

Our ColoSSoS project – Collaboration on Sewage Surveillance of SARS-CoV-2 – is an Australia-wide investigation which has tracked and monitored the presence of SARS- CoV-2 (the virus that causes COVID-19) and its persistence in the Australian sewerage network. Since its inception in March 2020 and rapid implementation, ColoSSoS has provided vital information on where COVID is present in the population. This globally unique collaboration between national experts in health, microbiology, wastewater networks, laboratory testing, epidemiology, and policy communication, has enabled vital integration of results of sewage testing with health data for COVID-19 on both a national and local basis to support governments' timely and effective response.

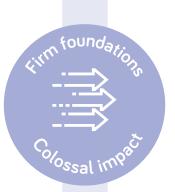
A combined effort of over 50 of WaterRA's member organisations, ColoSSoS continues to have impact in Australia and beyond through supporting the establishment of similar programs for our neighbours in the Asia-Pacific region. It demonstrates that truly remarkable things can be achieved through WaterRA's 'better together' approach and national membership which encompasses utilities, research organisations, government agencies and private companies across the water sector. we continued to lead the way on scientific water issues, growing our core business of impactful research and generating value through member collaboration...

delivered **16** events online

The strength and success of our three year strategy is not defined by ColoSSoS alone, the foundations built in 2018 and 2019 have enabled WaterRA to thrive and adapt through 2020 and 2021 as we have:

- Continued to lead the way on scientific water issues, growing our core business of impactful research and generating value through member collaboration, completing five projects, representing more than \$900,000 worth of investment.
- Re-aligned our research focus areas with current challenges and strategic initiatives of water utilities across the country. Through our collaborative work with trusted partner the Water Services Association of Australia (WSAA) we have established national water research priorities to drive a more efficient and nimble approach to water challenges and solution implementation across Australia.
- Continued to deliver engaging virtual events, ensuring that no matter the restrictions on individuals, these are not a barrier to enhancing knowledge or being collaborative. Most notably, we have delivered 16 member events digitally, including Horizon our annual planning workshop for utilities. Upcoming, we will be moving to a hybrid approach for events to ensure the advancements and coverage we have gained through online delivery will not be lost, while still catering for each member's preference for learning and interacting into the future.
- Continued to provide members learning opportunities and exposure to top quality training through the Australian Water School (AWS). After a successful transition to our custodianship, we delivered our first ever training series – Australian Rainfall and Runoff – which has seen more than 100 attendees learn how to apply all the concepts of ARR over the course of nine months. The success of this has set the foundations for our course selection and delivery going forward as we push to deliver bespoke training across water-quantity and water-quality for the benefit of our membership.
- Completed the updating of our Constitution, to provide security for the organisation into the future, ensure clarity and greater opportunity for our members and solidify flexible, future-ready pathways for collaboration across our membership and invaluable national and global partners.
- Appointed a new Chair and member-elected Directors to our WaterRA Board who have been and will continue to lead the strategic direction of WaterRA, ensuring that meeting of our changing members' needs remained our focus in these complex times.

we know our new normal can and will be delivered through the keen support of all our members...



As Australia and the world looks to determine its new normal, we turn to our new five year strategy, where building on the foundations and successes from the past three years, we will be forging ahead to:

- Assist members to realise the value of their research investment more fully, including tools to help them achieve this. We will also be applying the Good Practice Guide to Achieving Value from Research to our own research management activities, ensuring that anything done through WaterRA creates impact which can be measured.
- Deliver a new member-experience through our digital platforms, so organisations can more easily access information, connect with one another and with new research outcomes and data.
- Deliver even more knowledge transfer activities through our membership, so you can readily apply what you are researching.
- Redefine how individuals can champion research, providing technical and soft skill training to enable evidence-based decision making to flourish within organisations, based on the capability and skills of its staff.

As always, we know our new normal can and will be delivered through the keen support of all of our members, who strive with us to ensure healthy people, healthy communities and a healthy planet.



Mark Gobbie Board Chair



KI Rowse

Karen Rouse CEO

' collaboration remains at the heart of our success

Collaboration strengthening research

In spite of the ever-present and ever-changing challenge of COVID, 2020-21 has seen WaterRA's research program continue to expand allowing us to respond to our members' needs to address urban, regional and remote water issues across all aspects of drinking water, recycled water and wastewater.

As ever, collaboration remains at the heart of our success, and bringing industry, researchers, regulators and consultants together from across our membership, has remained the backbone of our approach.

In a year dominated by COVID-19, ColoSSoS – Collaboration on Sewage Surveillance of SARS-CoV-2 – and the broader topic of wastewater-based epidemiology (WBE) has continued to be a primary research focus. Delivering on its objective to track and monitor the presence and persistence of fragments of SARS-Cov-2, the virus that causes COVID-19, in the Australian sewerage network, our ColoSSoS program has provided information on where the disease is currently or was recently present in the population.

Our members from water utilities, universities and health departments have worked closely together to develop local wastewater monitoring capability in every state to complement health data for COVID-19 on both a national and local basis, thereby supporting governments' timely and effective response.

C**&loSSoS**

Collaboration on Sewage Surveillance of SARS-CoV-2 ColoSSoS has delivered 'real-time' research that supported COVID-19 rapid response and control efforts nationally. This has been reflected not only in the wastewater detections of viral fragments that have led to early public health response and increased messaging ahead of recent outbreaks, but also in the interest from international agencies wanting to learn from Australian experiences and develop their own methods adapted from those of ColoSSoS. The components of our success have included:

Collaboration

- State Nodes comprising health departments, expert laboratories and universities set up across Australia
- Regular meetings and periodic workshops facilitated between the health departments, utilities, and laboratories in different state jurisdictions
- Co-design of future research

Innovation

- Development of Sampling Protocols, with each state tailoring these to create state-specific sampling plans
- Creation of GIS catchment maps overlaid with clinical case data
- Optimisation of sample concentration methodologies
- Epidemiological case control study has been created and peer reviewed by expert task group

Impact

- Development of reference materials
- Creation of reference standards
- Engaged our member the National Measurement Institute (NMI) to conduct comparative interlab study
- Communications Guidelines and Key Messages have been created
- Health departments have their own online reports to keep the general public informed of sewer detections
- Increased literacy among the general public around wastewater monitoring

co-created

WaterRA has advanced into Phase 4 of the ColoSSoS project, which will deliver a longer-term program of WBE projects, bringing value to our membership through additional research including:

- Whole genome sequencing of SARS-CoV-2 to detect novel variants
- Passive sampling of SARS-CoV-2 in wastewater

As well as delivering these two projects, WaterRA is launching a wastewater-based epidemiology (WBE) Community of Interest to continue bringing together the experts from around Australia to solve the greatest challenges of our time in this field.

We have continued to evolve our subject-specific Communities of Interest (COIs) creating additions to our offering around WBE, 'Whole Water' (circular economy), and algal innovation. Our Problem and Opportunity Definition (POD) workshops have been run exclusively online and seen over 38 organisations working together across the sector to define the need, nature and scope of our projects.

Through Horizon, our COIs and POD workshops, our research managers, together with our members, have co-created 11 new projects designed to efficiently address shared industry challenges, and identified numerous research projects which are currently being scoped.

We have worked tirelessly to participate on behalf of our members in CRCs/ARCs/NESP and Training Hub bids which has been welcomed by water industry members, both big and small, who now have a voice in these types of initiatives under the umbrella of a WaterRA-led industry consortium.

Our efforts have been enhanced through key collaboration with strategically-aligned organisations, such as delivery of the National Urban Water Industry Research Priorities Agenda with WSAA and key projects with GWRC, drawing in (inter-)national expertise together and facilitating easy access for our Australian research members.

Our collaborations have extended beyond our sector as WaterRA has sought to engage with new industries through the circular economy pathway (mining, defence, agriculture etc.) to deliver robust and holistic research outcomes.

This year we celebrated the 100th edition of Health Stream, which was also the final edition with Dr Martha Sinclair as Editor. Initiated 25 years ago by WaterRA's predecessor, the CRC for Water Quality and Treatment, as a quarterly public health bulletin, Health Stream has consistently provided important information and analysis on water-related health incidents, and recent research in water quality and public health.

Health Stream is accessed by water and health professionals from around the world as a valuable tool that summarises the latest coverage of public health priorities in managing drinking water. Over the past 25 years it has also considered how the Australian Drinking Water Guidelines and World Health Organization guidelines have developed and evolved to address new challenges and take advantage of emerging evidence and new thinking.

To celebrate the 100th edition of Health Stream we invited guest contributors to offer insights on how our understanding and management of the major water quality issues has evolved over the past 25 years. Health Stream would not be the success that it is today without the incredible knowledge, talent and dedication of Dr Martha Sinclair and we thank her for all her work over the past 25 years.







Our Research Leadership Program (RLP) offered significant opportunities for early-career researchers and students to create impactful, innovative solutions to specific industry challenges.

WaterRA's students are transforming businesses through research across operational areas such as customers, water quality, source water, wastewater, integrated catchment management and climate change. The partnerships and collaboration created by WaterRA between universities and industry provide an invaluable connection to the next generation of high-calibre research leaders who work within businesses to solve focused and organisation-specific challenges and integrate the newest techniques and technologies into business services. Through the support of 12 sponsor organisations, 2020-21 saw 6 new PhD students and one new associate student commence their studies, totalling 29 active students in the program.

Additionally, the RLP launched our mentoring program this year, pairing nine mentors with nine mentees from all levels of our member organisations. The success of our new mentoring program is indicative of the strong commitment to 'giving back' in the water sector and ensures that experience and knowledge of high-achieving professionals will help to increase the capability and skills of generations to come.

Our collaborative, better-together approach, additionally saw WaterRA welcome five new member organisations into our BIG Team — Arris, EPA SA, Eurofins, HydroNumerics and Orange City Council. The diversity, specialisations and perspectives of our new members, who cover all aspects of the water sector, adds to the breadth and depth of our membership. As we grow as a BIG Team, it ensures our members can leverage the expertise of fellow members for mutual benefit individually and for the greater good of the sector.

Student Award Nancy Millis Memorial PhD Award for 2021 Kaili Li

Being a WaterRA student is fantastic. I'm passionate about my project and the opportunities are great." - Kaili Li



Student Graduation

Ben Thwaites UNSW & SA Water (PhD)

Optimisation of granular sludge for energy efficient wastewater treatment and reuse





5 new PhD students

new associate student

12 sponsor organisations



Our Research Student Mentors

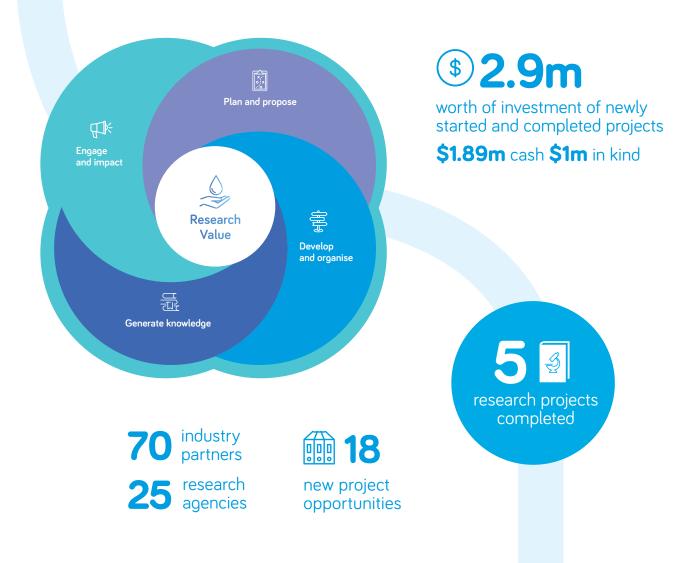
Jo O'Toole | Monash University Cameron Veale | Seqwater Shaun Cox | Inxure Strategy Group Jason Barnett | TasWater Stephanie Rinck-Pfeiffer | GWRC Peter McCafferty | ChemCentre Tanja Stefanovic | Beyond Paradigms Kathy Cinque | Melbourne Water Amy Dysart | Power & Water Stacey Hamilton | Water Corporation Tara Callingham | Goulburn Valley Water Kris Coventry | Melbourne Water Kathy Northcott | Veolia David Sheehan | Coliban Water Melita Stevens | Melbourne Water Arash Zamyadi | WaterRA Yulia Shutova | Sydney Water Lisa Hamilton | WaterNSW Peter Spencer | Water Corporation Chris Saint | UniSA Rita Henderson | UNSW

Innovation driving Impact

WaterRA's Value of Research (VoR) Project completed Phase 2 in 2020-21, and as we move forward continues to be one of our flagship projects.

The VoR research consortium provided connectivity between the Research Management Framework Elements determined in Phase 1 and completed the creation of a comprehensive, best practice approach to maximising the value of research — 'Good Practice Guide to Achieving Value of Research' (VoR GPG). Underpinned by two key elements — the "Good Practice Research Lifecycle", which outlines the steps and considerations to create value at each stage of a research project and the "Benefits Assessment Framework", which outlines the ways to identify and use tangible and non-tangible financial or economic assessment tools to better assist with value articulation — Phase 3 of the project has commenced. One of its first outputs is the soon to launch "Good Practice Essentials" and associated digital tools which gives our members the ability to practically assess the value of their research across their organisation.

The development of the VoR tool, is just one of many project outcomes that commenced roll-out in 2020-21. Five research projects were completed, representing the culmination of effort of 32 industry partners, 13 research providers. WaterRA leveraged more than \$200,000 in inkind contributions, and approximately \$720,000 in funding from collaborating agencies, to create these projects for and with our members, with a total value of about \$1 million .



Our research portfolio has seen success with the release of five final project reports and the delivery of three knowledge transfer activities including online workshops and webinars on topics ranging from specific water quality issues to the thought-provoking world of digital, data and sensor technology.

60 active project

webinars

projects starte in 2020/21

Our completed projects include

Project 1118 The Value of Research Phase 2





Project 3043

PFAS exposure modelling and trigger points for investigation in recycled water irrigation applications

Project 1109

GPG to Sanitary Surveys and Operational Monitoring to Support the Assessment and Management of Drinking Water Catchments



Project 2064

ColoSSoS Method evaluation and optimisation: Investigation of PCR-based methods and feasibility study for wholegenome sequencing

Project 3044 Review of *Legionella* in water systems



Testing Sodium Percarbonate (producing H²O²) as an algaecide for control of cyanobacteria



Utilities and Reservoir Reserves: Preparedness for public access



Digital twin technology and how it works



PFActS 1-3

Australian Water School

Online learning designed for industry, by industry

24 webinars

12 online courses

The Australian Water School (AWS) provides industry-designed webinars, and practical online live and on-demand training courses to the global water sector.

Officially launched in July 2020, the AWS has delivered 24 webinars, 12 online courses and 8 on-demand courses this last year and, under the custodianship of WaterRA, has attracted over 500 real-time attendees in the Online Courses (both live and On-demand), over 18,000 registrations to our webinars with a reach of 22,900 subscribers across 131 countries.

With a primary focus on water resources and hydrology training courses, 50 international experts have led the way to increasing the knowledge and practical understanding of software for water modelling in the water sector.

In 2021, AWS trialled the delivery of two online course series — Australian Rainfall and Runoff (ARR), and HEC-RAS. These series have been delivered as multiple courses focusing on different aspects of the overall topic and been highly successful. The ARR course series has tapped into such a pressing need within the Australian water sector that, with the help of its expert presenters (authors of the ARR guidelines) it is being turned into a tailored training opportunity for WaterRA member organisations going forward.

Our on-demand portfolio continues to grow upon the completion of each online course, allowing participants unlimited access to self-guided learning in their own time.

As training and building capability becomes ever-more important, AWS will be expanding its portfolio to address both national and global training needs beyond open-source technology modelling software and include tailored training on compliance and guidelines specifically for Australian utility member professionals. 6 on-demand courses

450+ real-time attendees in the Online Courses

18,000+ webinar registrations

23,000+ subscribers across 131 countries

111,000+ YouTube views

Our Financial Position

WaterRA has been returning an operating surplus over many years and FY2020-21 was no exception. Generating a surplus is vital for long-term sustainability including for investment back into the business to fulfil strategic goals. The WaterRA Board and management are committed to invest in, and improve member experience, the BIG Team and the organisation in line with our strategy to benefit all.

The summarised financial reports (below) have been derived from WaterRA's full report for the financial year.

For the detailed Financial Report please visit waterra.com.au

Income Statement For The Period Ended 30 June 2021			
	2021 \$	2020 \$	
REVENUE			
Revenue from continuing operations	5,620,942	3,313,631	
Other income	200,076	107,001	
EXPENDITURE			
Research program	(2,925,950)	(787,646)	
Education program	(89,047)	(186,372)	
Operating expenses	(2,368,843)	(1,948,883)	
Depreciation and amortisation expense	(19,314)	(17,685)	
Chairman & Ind Director remuneration	(51,740)	(47,650)	
Surplus/(Deficit)	366,124	432,396	

The company is a not-for-profit entity, registered as a charity and is exempt from income tax.

Financial Position As At 30 June 2021			
ASSETS	\$	\$	
Current assets			
Cash and cash equivalents	6,819,632	4,888,289	
Trade and other receivables	58,432	12,920	
Contract assets	310,888	1,248,950	
Prepayments	21,541	46,633	
Total current assets	7,210,493	6,196,792	
Non-current assets			
Plant and equipment	988	2,306	
Intangible assets	8,000	10,000	
Right-of-use assets	47,987	63,983	
Total non-current assets	56,975	76,289	
Total assets	7,267,468	6,273,081	
LIABILITIES			
Current liabilities			
Trade and other payables	324,006	477,784	
Contract liabilities	3,771,977	3,252,540	
Lease liabilities	15,994	15,840	
Employee entitlements	135,161	105,434	
Revenue received in advance	801,015	558,759	
Total current liabilities	5,048,153	4,410,357	
Non-current liabilities			
Lease liabilities	32,459	48,453	
Employee entitlements	6,462	-	
Total non-current liabilities	38,921	48,453	
Total liabilities	5,087,074	4,458,810	
Net assets	2,180,394	1,814,271	
EQUITY			
Retained earnings	1,930,395	1,564,271	

250,000

2,180,395

250,000

1,814,271

Operating Reserves

Total equity

Board and Big 10°F Staff Movements

This year saw Shaun Cox depart the role of Chair after a six-year tenure, replaced by Mark Gobbie. It also saw Dr Steve Capewell step down as a Board Director following his departure from Water Corporation, as well as the election of two new non-executive directors, Anna Jackson from the Australian Water Quality Centre and Dr David Bergmann from South East Water.

Our BIG Team also expanded with the addition of two new staff members, and the appointment of Steven Porter from the Northern Territory's Power and Water who filled a temporary casual vacancy as a nonexecutive director.

Shaun was a transformational leader of the Board and guided WaterRA to unequivocally deliver on our vision. His legacy includes delivery of our Value of Research project and helping build WaterRA to be an organisation that has the capacity to adapt to change and, with our members, shape the water industry of the future through science.

Steve provided thoughtful input on many issues, skilfully applying his experience and knowledge from within a large state-based utility to the not-for-profit and SME environment in which WaterRA operates.

WaterRA thanks Shaun and Steve for their hard work and dedication and extends a warm welcome to new Chair Mark Gobbie, our new directors and staff.



Shaun Cox (Chair) Dr Steve Capewell (Board) Rebecca Connell (interim Governance & Admin Officer) Dr Marie-Lise Schlaeppy (Research Manager) Tianna Winterburn (Research Admin Officer)

Welcome













Our Board and Committees



Risk and Audit

David Sheehan (Chair) | Coliban Water Ken Murphy | Independent Director Gary Penn | Independent Committee Member

Anna Jackson | SA Water

Deb Evans | Independent Committee Member

Strategic Advisory

Amy Dysart (Chair) Independent Director of WaterRA Assoc Prof Rita Henderson (Deputy Chair) UNSW Helen Forte | Water Corporation Prof Alex Brown | University of Adelaide Dr Annette Davison | Risk Edge Graham Hawke | Phoenix Australia Dr Gary Lum | Commonwealth Dept of Health Dr Nicola Nelson | Sydney Water Prof Xiwang Zhang | Monash University Karen Rouse (Secretary) | WaterRA

Board

Mark Gobbie | Chair

Ken Murphy | Non-Executive Director (Independent) Amy Dysart | Non-Executive Director (Independent)

> Assoc Prof Rita Henderson Non-Executive Director (Research)

David Sheehan | Non-Executive Director (Industry)

Emeritus Prof Christopher Saint Non-Executive Director (Research)

Dr David Bergmann | Non-Executive Director (Industry) Anna Jackson | Non-Executive Director (Research) Steven Porter | Non-Executive Director (Industry)

Research Leadership Program Advisory

Dr Louise McKenzie (Chair) | Hunter Water Dr Michael Bartkow (Deputy Chair) | Seqwater Dr Bradley Clarke | University of Melbourne Peter Spencer | Water Corporation Dr Melita Stevens | Melbourne Water Dr Kathryn Linge | ChemCentre Dr Meena Yadav | Suez

Human Resources

Prof Christopher Saint (Chair) | UniSA David Sheehan | Coliban Water Dr David Bergmann | South East Water Rolfe Brimfield | Independent Committee Member

Our Members

WaterRA is grateful for the support of our BIG Team, as they are the lifeblood of WaterRA. Their tireless efforts allow us to continue to develop research and tools that have a lasting impact and enable us to reach out to other professionals, organisations, and communities in the wider water sector.

In 2020-21 we were delighted to welcome new members:





EPA

🔅 eurofins





Our Members

- Arris
- Atom Consulting
- Australian Water Quality Centre
- Barwon Water
- Cairns Regional Council
- Central Highlands Water
- Centre for Appropriate
 Technology
- Charles Darwin University
- ChemCentre
- City West Water
- Coliban Water
- CSIRO
- Curtin University
 of Technology
- Deakin University
- Digital Content Analysis Technology (D-CAT)
- Department of Health - Environmental Health Northern Territory
- Department of Health & Human Services Tasmania
- Department of Health Victoria

- Department of Health Queensland
- Edith Cowan University
- EPA SA
- Eurofins
- Federation University
- Flinders University
- GHD
- Gippsland Water
- Goulburn Valley Water
- GWM Water
- Griffith University
- Hydrology and Risk Consulting
- (HARC) • HydroNumerics
- Hunter Water Corporation
- Icon Water
- Lower Murray Water
- Melbourne Water
- Monash University
- Murdoch University
- National Measurement
 Institute
- Natural Logic
- NSW Health
- Orange City Council
- Power & Water Corporation
- Research Laboratory Services
- Risk Edge
- RMIT University

- SA HealthSeqwater
- SA Water
- South East Water
- Suez Water
- Swinburne University of Technology
- Sydney Water
- TasWater
- University of Adelaide
- University of Melbourne
- University of Newcastle
- University of New South Wales
- University of Queensland
- University of South Australia
- University of Tasmania
- University of Technology, Sydney
- University of the Sunshine Coast
- University of Western Australia
- University of Woollongong
- Veolia Water Australia
- Victoria University
- Wannon Water
- Water Corporation
- Water Futures
- WaterNSW
- WaterQ Plus
- Western Water
- Western Sydney University
- Yarra Valley Water

Our Trusted Partners*

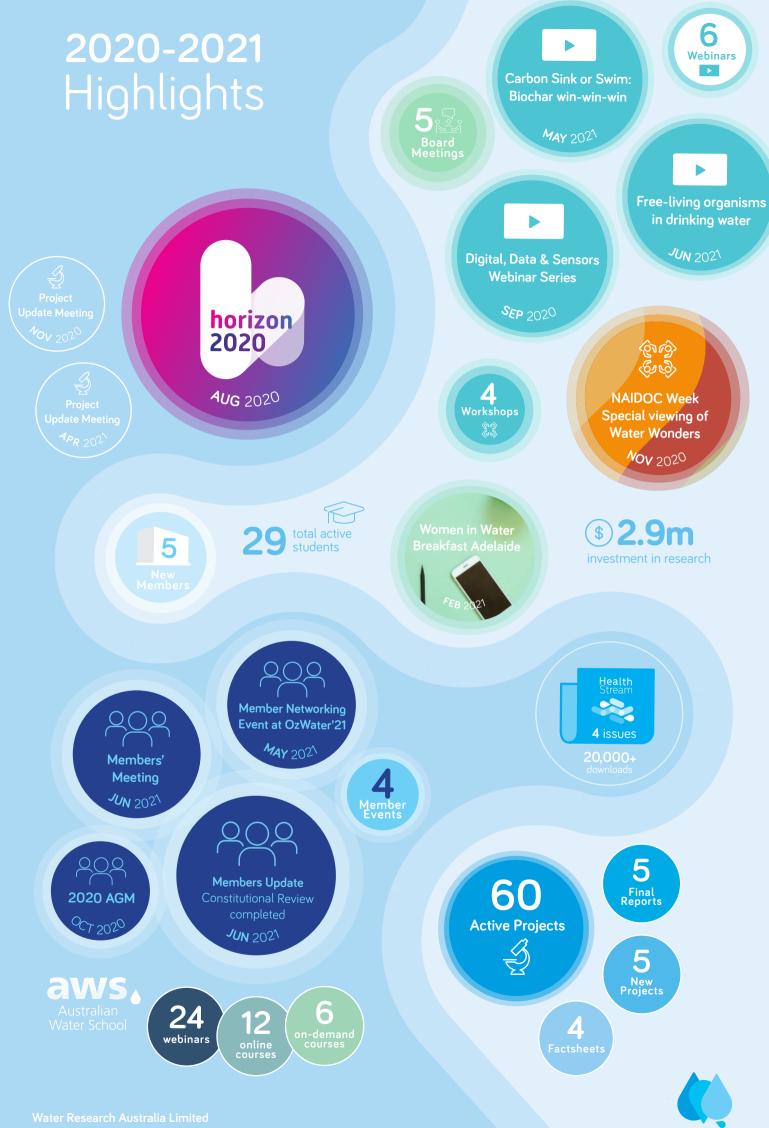
- Australian Water Association
- Canadian Water Network
- Chinese Academy of Science
- Intelligent Water Networks (IWN)
- International Research Center On Water and Environment (C.I.R.S.E.E.)
- KWR Watercycle Research Institute
- Public Utilities Board Singapore
- STOWA Foundation for Applied Water Management Research
- TZW Water Technology Centre
- UK Water Industry Research
- Veolia Environnement Research and Innovation (VERI)
- WaterAid

of Australia

- Water Environment & Reuse
 Foundation
- Water Industry Operators
 Association of Australia (WIOA)
- Water Research Commission South Africa
- Water Research FoundationWater Services Association

* through membership of the

16



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waterra.com.au