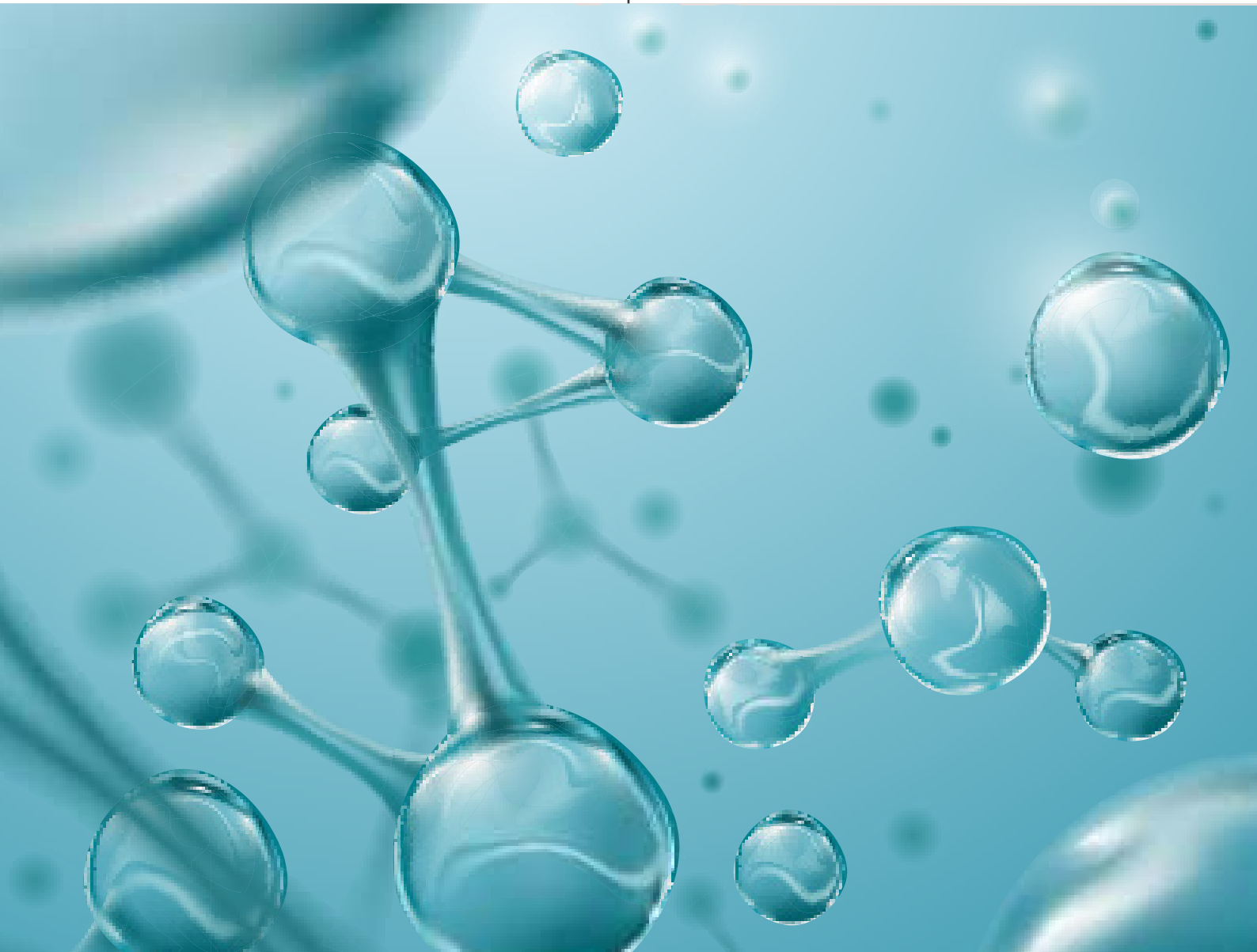




# ANNUAL REPORT

*Water Research Australia Limited*

2016 | 2017





# Research Solutions Through Collaboration

## CONTENTS

DELIVERING OUR STRATEGY.....	2
RESEARCH SCOPE AND SERVICES .....	3
Breadth of Research Portfolio.....	3
Research Delivery .....	4
International Collaborations.....	5
CREATING BUSINESS IMPACT .....	6
Refining the Problem Definition Process.....	6
Research Projects.....	8
Knowledge Transfer.....	8
Synthesis and Analysis of Emerging Issues.....	9
National & International Engagement.....	10
BUILDING WATER SECTOR CAPABILITY.....	11
SHOWCASING SUCCESS.....	14
CEO and Chair Reports.....	16
WaterRA Board .....	18
WaterRA Committees .....	20
WaterRA Team.....	22
DIRECTORS' REPORT AND FINANCIAL SUMMARY .....	23
PUBLICATIONS.....	34
MEMBERS.....	37
Acknowledgements.....	38

# DELIVERING OUR STRATEGY

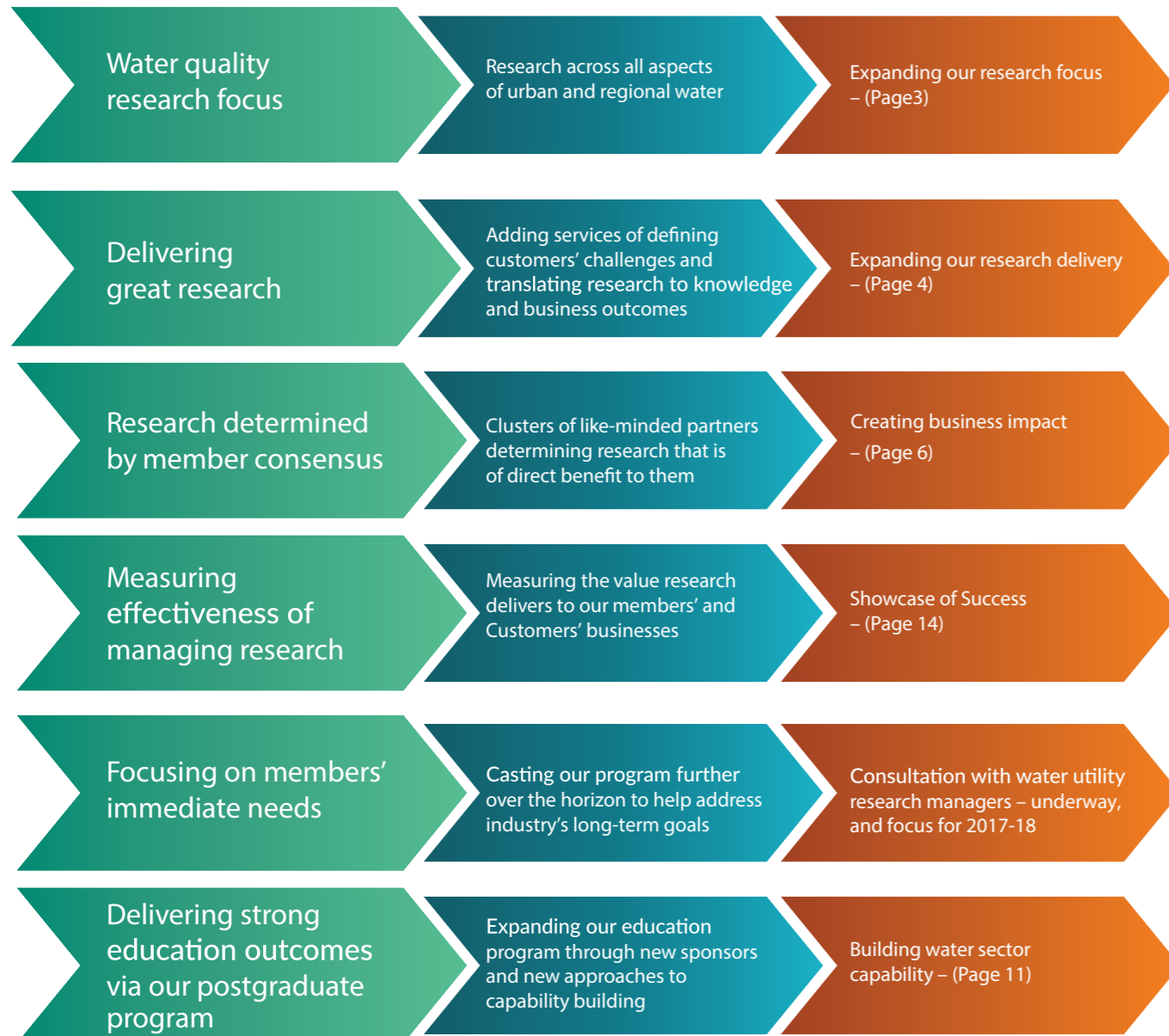
Two years ago WaterRA Members and Stakeholders provided us with food for thought regarding what they – YOU – saw as being essential for the water industry, and how WaterRA can strengthen its relevance to the sector.

In response we took a long hard look at our business and resolved to implement some changes that would enable us to keep pace with change and contribute to our industry's vibrance and diversity. Some of the changes are underway, and some will require more

time, planning and skills development. We recognise that WaterRA is just a part of our Members' landscape and that we all need to work together to ensure that our customers' confidence continues to be justified, and to optimise the benefits that we all derive from a sophisticated and forward-looking industry.

In this report we are pleased to present news from the past year of our progress, successes and continuing efforts.

## WE SET OUT TO CHANGE



# RESEARCH SCOPE AND SERVICES

## BREADTH OF OUR RESEARCH PORTFOLIO

WaterRA's research engagement is national and international, addressing urban, regional and remote water issues. The scope of our research is shaped by our Members' needs and embraces all aspects of drinking water, recycled water and wastewater. To ensure alignment and efficiency in the delivery of urban water research, our focus areas are guided by the national urban water research strategy published by the Water Services Association of Australia (WSAA).

To meet research needs for regional, rural and remote Australia, we first look to see if existing urban water research can be applied directly or by extension, and if not (most often) we work with our members to develop a bespoke approach.

From our starting point of projects solely relating to water quality, our research portfolio now contains projects across all of our ten Focus Areas.



Outer circle shows WaterRA projects underway (dark blue) or in planning for commencement (white)

## RESEARCH DELIVERY

This is the second year during which our Community of Interest (CoI) process has driven the creation of new projects. Building on promising results in year one, over the last twelve months we have further refined the process and our skills in its delivery – so that Members who participate receive greater value. Now the Community of Interest based problem definition workshops reliably provide a stimulating environment for our water sector members to discuss their goals, business needs and challenges for the future with peers and researchers who are leading in their field. The resulting collaborative effects have been abundant – sparking ideas, understanding, innovation and engagement. This is the ‘community’ we were looking to establish, and we have you, our members and project partners to thank for its success!

Communities of Interest convened in:

1. Operational problems associated with fluorosilicic acid dosing – July 2016
2. Health benefits of water industry investments – September 2016 (Co-developed with the Water Services Association of Australia)
3. Management of benthic cyanobacteria – a toxic risk to be evaluated - November 2016

4. Getting ready for the implementation of potable reuse – December 2016
5. The value of operator competence in addressing public health and environmental risk in the Australian water industry – March 2017
6. Systems and procedures to manage the opportunistic pathogen *Burkholderia pseudomallei* – March 2017
7. Good practice guide to sanitary surveys and operational monitoring of drinking water catchments – Nov 2016
8. Big data utility (collaboration with Water Services Association of Australia) – November 2016

There were:

Six workshops/events, and one virtual workshop – involving 9 universities, 18 water utilities, 5 other water industry organisations – which identified research areas for discussion in future, including influences on customer preference, evolution of the digital utility, and future planning for climatic and demographic challenges.

### Projects Commenced or committed to in 2016-17

#### RESEARCH PROGRAM

Ethical and cost effective alternatives for direct toxicity assessments (Fred Leusch, Griffith University 1107/16)

Prioritisation of emerging contaminants (Stuart Khan, University of New South Wales 1108/16)

Guide to sanitary surveys and operational monitoring in catchments (Daniel Deere, Water Futures 1109/16)

Challenges and practical approaches to water reuse pricing (Pierre Mukheibir, UTS 3037/16)

Management of benthic cyanobacteria (Justin Brookes, University of Adelaide 1110/17)

Smart sludge pump management (Nicky Eshtiaghi, RMIT University 2047/17)

#### EDUCATION PROGRAM

Assessing the impact of wastewater derived PFCs on aquatic ecosystems (Tim Coggan - RMIT University/Melbourne Water [PhD] 4525/16)

*Microcystis* blooms – insights from genomics and metagenomics (Caitlin Romanis University of Newcastle/Melbourne Water [PhD] 4526/16)

Fate, behaviour & ecological impact of biosolids derived PFAS substances (Damien Moodie – RMIT University/Melbourne Water [PhD] 4527/17)

Delineating effects of wastewater effluent & recycled wastewater on an estuarine system (David Workman WaterRA/University of Newcastle [Hons] 4110/17)

What is the stability of host faecal DNA markers in environmental water samples? (Sarah Aucote Flinders University/CoI Project [Hons] 4111/17)

Community drug use and its implications for wastewater treatment and water reuse (Luis Restrepo Curtin University/Water Corporation [PhD] 4529/17)

Source tracking faecal pollution in source waters using next-generation sequencing (Christian O’Dea University of Southern Cross/Seqwater [PhD] 4530/17)

Harnessing algae for high rate municipal wastewater treatment: immobilised system (Matthew Kube RMIT University/South East Water & Goulburn Valley Water [PhD] 4531/17)

## INTERNATIONAL COLLABORATIONS

WaterRA can facilitate research that is relevant for both utilities and researchers within Australia, and globally. For example, during this financial year an international collaboration with the USA and Singapore has commenced: WaterRA Project 1110-17 “Benthic Cyanobacteria: A toxic risk to be evaluated”. A summary of the project can be found in the following case study.

### BENTHIC CYANOBACTERIA CASE STUDY

A recently completed ARC-linkage study (Project 1059-11) supported by WaterRA, Water NSW and SA Water showed that benthic cyanobacteria are potentially a significant source of taste and odour compounds (such as geosmin and MIB), and toxins (cylindrospermopsin and microcystin) in Australian drinking water reservoirs.

A number of our international collaborators were interested in pursuing this research, leading to a new project. This project is a global collaboration between Water Research Australia, SA Water, Melbourne Water, Water NSW, Barwon Region Water Corporation, Hunter Water Corporation, and Adelaide University within Australia and Water Research Foundation (USA), and the Public Utilities Board (PUB) in Singapore.

The project, entitled “Benthic cyanobacteria: a toxic risk to be evaluated” (WaterRA Project #1110-17), aims to assess the actual risk that toxigenic benthic algae represent in water sources, by establishing knowledge on the rate of toxin production, dispersion and fate through the water source and treatment facilities. Complementary to this, taste and odour compounds and candidate genes will also be monitored. It is anticipated that the processes by which the taste and odour compounds are transported to the surface waters are similar to how toxins are transported.

This project is a global collaboration between Water Research Australia, SA Water, Melbourne Water, Water NSW, Barwon Region Water Corporation, Hunter Water Corporation, and Adelaide University within Australia and Water Research Foundation (USA), and the Public Utilities Board (PUB) in Singapore.

In 2016-17 our inter-agency relations were strengthened through US visits to the Water Research Foundation (WaterRF) and US EPA, in addition to meeting with the UK Water Industry Research Ltd. (UKWIR).

### GLOBAL WATER RESEARCH COALITION

The Global Water Research Coalition (GWRC) is a non-profit organisation, founded in 2002, that serves as a collaborative mechanism for water research. The aim of the GWRC is to leverage funding and expertise amongst the participating research organisations, coordinate research strategies, secure additional funding not available to single country research foundations, and actively manage a centralised approach to global water issues. GWRC Member organisations are based in Europe, the USA, South Africa, Singapore and Australia. The current Managing Director of the GWRC is based in Adelaide.

WaterRA has had a seat on the Board of GWRC since 2008, taking over this role from the CRC for Water Quality and Treatment.

During 2016-17 the GWRC Board met in Brisbane (to coincide with the World Water Congress in October 2016) and in Alexandria, Virginia in the US in April 2017.

Workshops and topic discussions in Brisbane included “Research Focus Areas” for Australia and a technical session on “Liveable Cities”. In Virginia the GWRC Board heard from George Hawkins, CEO of DC Water, about their research program and novel approach to embedding PhD students in their business.

In February 2017 a workshop was held in Paris to present the outcomes of the GWRC project “Bioanalytical Tools to Analyse Hormonal Activity in Environmental Waters”, for which WaterRA was the lead agency. The final report on this project is available to Members on the WaterRA website.



Photo: Researcher Dr Virginie Gaget (University of Adelaide) collecting detached, floating benthic cyanobacterial mats in Happy Valley reservoir, South Australia

# CREATING BUSINESS IMPACT

WaterRA actively seeks to build partnerships, products and services that create impact and add value for our Members. Key current products and services include:

- Establishing Communities of Interest
- Problem definition workshops for Communities of Interest
- Collaborative project management – national and international
- Knowledge transfer (Research symposia, members meetings, webinars, reports)
- Science review (Health Stream, fact sheets)
- Capacity building (student scholarships, mentoring, secondments)

We present some highlights of the past year.

## REFINING THE PROBLEM DEFINITION PROCESS



A Community of Interest (Col) is a gathering of interested stakeholders usually in a face to face meeting to identify shared problems or engage in discussion around how they might tackle a particular issue.

Cols serve our members by facilitating problem definition. Cols have on occasion enabled us to deliver immediate benefits to our industry members without the need for research project development. For more intractable issues confronting our industry members, a Col can provide the necessary discussion and problem analysis to develop a research project that addresses the issue. As a result the outcome from a Col may be in the form of a Request for Funding (RFF). An RFF gives our industry members the opportunity to confirm/steer the scope of the project and offer funding if they are interested in collaborating. Once an RFF has enough interest it is then offered through a Request for Proposals (RFP) or other selection process that suits the project investors.

We started using the Col process in July 2015, and a continuous improvement session was held in January 2017 to review the results from the previous calendar year, and identify improvements.

The review showed that our business model change to include Cols has given our members extra benefits in problem analysis and definition, knowledge transfer opportunities and engagement. From eight (8) communities of interest convened in 2016 we had a wide range of outcomes, as shown in the graphic on the next page.

If you want to know more about Communities of Interest visit the Research Section of our website .



The community of interest process has co-development at its heart, so participation of members is fundamental. If you have an industry need you wish to discuss with WaterRA visit the Submit Industry Need page at [www.waterra.com.au](http://www.waterra.com.au).



Photo: Community of Interest workshop on Health Benefits of Water Industry Investments, Melbourne, September 2016

## RESEARCH PROJECTS

During 2016-17 seven research projects were completed representing the culmination of effort of 24 Industry partners and 23 research agencies. For a cash investment of over \$750K WaterRA leveraged more than \$6M in in-kind contributions and around \$4.2M in cash from collaborating agencies.

### PROJECTS COMPLETED IN 2016-17

Optimal water quality to minimise distribution system problems (M Drikas, SA Water 1008/09)

Optimisation of existing instrumentation to achieve better process performance (C Chow, SA Water 1075/13)

Investigate remote sensing and smart monitoring approaches to water quality management (K Sandrasegaran, University Technology Sydney 1090/14)

Optimisation of submerged membrane bioreactors (D Waite, University of New South Wales 2011/09)

EDC Toolbox II - Analysing more than estrogenic activity in environmental waters (F Leusch, Griffith University, 2034/13)

NatVal - National Validation Stage 2.2 (C Robillot, Australian Water Recycling Centre of Excellence 3018/12) – online at <http://waterval.com.au/>

Quantifying indirect ingestion of recycled water (M Sinclair, Monash University, 3021/12)

A full list of publications and other outputs based on, or derived from WaterRA projects, including journal papers, book chapters, reports, conference presentations, fact sheets and student theses, can be found on pages 34-36. In the past year our researchers have published 37 papers in 24 international journals, and presented at 11 different conferences around the world. Papers have appeared in journals as diverse as the **International Journal of Heat and Fluid Flow**, to the **British Medical Journal**, **Chemosphere**, **Bioprocess and Biosystems Engineering** and the **International Journal for Parasitology**.

## KNOWLEDGE TRANSFER

In addition to organising events and activities designed to share new knowledge from WaterRA-led research, we assist Members in promotion of external activities that may be of interest to our membership. This year we advertised events such as national and international webinars and visitor lectures, public consultations, scholarship schemes, media training, noteworthy international research papers and funding opportunities.

### MEMBER AND NODE MEETINGS

WaterRA organises or participates in events that will offer a range of benefits or experiences to different stakeholder segments.

The value of face-to-face meetings can be as broad as industry intelligence gathering, building personal and professional networks, or as specific as learning about a project or new technology.

The purpose of Node Meetings is to provide a regional forum to network, discuss local issues and hear about current or recent WaterRA project outcomes. Node meetings are primarily for our member organisations, however external people are often invited. During the planning of a Node Meeting we will consult with local Member organisations to determine a program that is of maximum interest. This may involve bringing an expert, researcher or practitioner to the meeting.

In 2016-17 we held four Node meetings:

New South Wales – [10-11 August 2016]

South Australia – [25 November 2016]

Victoria and Tasmania – [14 December 2016]

Northern Territory – [21-24 March 2017]

([Power & Water, Department of Health])

### REGULAR COMMUNICATIONS

Communication via website

- 107 news items published on the WaterRA website
- Water Matters newsletter published monthly for Members and other stakeholders

### WEBSITE USAGE

In the past year our documents have been downloaded 145,649 times. Over the past few years a few documents are consistently downloaded by the thousands. Current and past “Health Stream” issues are also popular downloads. The Drinking Water Treatment fact sheet, also the most popular last year, was downloaded 17,011 times (– last year it was 13,201).

### MOST POPULAR DOWNLOADS IN 2016-17

Drinking Water Treatment

A Guide to Blue Green Algae

Fact Sheet on Log Removal Values in wastewater treatment

*Naegleria fowleri*

Natural Organic Matter: understanding and controlling the impact on water quality and water treatment processes

Management Strategies for Cyanobacteria (Blue-Green Algae) and Their Toxins: A Guide for Water Utilities

Good Practice Guide to the Operation of Drinking Water Systems for the Management of Microbial Risk  
Manganese in Drinking Water

## SYNTHESIS AND ANALYSIS OF EMERGING ISSUES

In response to Member needs, or as opportunities present, WaterRA undertakes synthesis and analysis of emerging issues.

- With approval from Water Corporation WA, WaterRA made available to its Members a position paper on the value of protecting water supply catchments. The paper resulted from the Water Corporation's work in support of the WA Parliamentary Inquiry examining recreational activities within public drinking water source areas. The report is 'Financial Cost of Making a Public Drinking Water Catchment Available For Recreation'.
- WaterRA has consolidated research outputs on cyanobacteria on the website for easier access to landmark publications. <http://www.waterra.com.au/research/knowledge-transfer/cyanobacteria-info-page/>
- A PFAS page on the WaterRA website provides links to resources and agencies involved in providing public information about the current situation in Australia relating to poly fluorinated alkyl substances. <http://www.waterra.com.au/research/knowledge-transfer/pfas-resources-and-information/>

### HEALTH STREAM

Our quarterly publication “Health Stream” provides a unique service to the water industry, with analysis of water-related health research, incidents and emerging issues. Our readership is international, and excerpts are now translated into Japanese through subscription of the Japan Water Research Centre.

There have been four issues of “Health Stream” (Issues 82-85) released in this financial year, with key topics covered including:

- Perfluorinated Chemicals in Water
- NZ Campylobacter Outbreak
- *Naegleria* Death at US Water Park
- Antibiotic Resistance in Drinking Water
- Global Water Pathogen Update
- New Guidance Levels for PFAS

### NEW ADDITIONS TO OUR FACT SHEET LIBRARY

*Naegleria fowleri*

Mechanisms of spontaneous combustion in biosolids stockpiles

Perfluorinated chemicals in water

Remote Sensing and Smart Monitoring Options for Water Quality Management

Access them at [www.waterra.com.au](http://www.waterra.com.au)



Photo: Original wood stave pipes used for gravity delivery of water from Blue Anchor Hill to Broken Hill. On display at Umberumberka Waterworks

## NATIONAL & INTERNATIONAL ENGAGEMENT

### COMMITTEES

#### MEMBERSHIP OF NATIONAL COMMITTEES

- Member of Advisory committees for Victoria University and Curtin University, WA
- Nominee to the Australia Standards Committee FT20 Water Microbiology Committee (Dr Julie Gladys-Croué, Curtin University)

#### INTERNATIONAL COMMITTEES AND REPRESENTATION

The WaterRA CEO is a Board Member of the Global Water Research Coalition. (See page 7 for more information about the GWRC)

**Bring us your research ideas  
- we're out and about**

### INDUSTRY ENGAGEMENT

#### INVITED PRESENTATIONS

- Keynote to RMIT Sept 2016
- Update to GWRC, Brisbane Oct 2016
- Overview of WaterRA to delegation from Kenya, Oct 2016
- Overview of WaterRA to Brazilian DFAT Fellow - senior water resources specialist, Dec 2016

#### PARTICIPATION AT INDUSTRY EVENTS

- WaterRA participated in Local Government NSW Water Forum, Aug 2016, in Broken Hill - as an exhibitor with two delegates attending.
- Member of organising committee for the Fifth National Cyanobacteria Workshop, Brisbane 29-30th Sept 2016 with two delegates attending.
- Participated in Australian Research Cluster at the IWA World Water Congress in Brisbane in early Oct 2016
- Ozwater has been a major commitment for WaterRA as a Trade exhibitor, participation in a panel discussion and support of WaterRA students to present at and attend the conference. In 2017 Ozwater was held in Sydney.

### FIFTH NATIONAL CYANOBACTERIA WORKSHOP, BRISBANE 2016

WaterRA is a supporter of the National Cyanobacteria Workshops (NCW), initiated in 2009 and now held every two years.

The Fifth National Cyanobacteria Workshop was held in Brisbane at the end of September 2016, hosted by Griffith University's Australian Rivers Institute, with financial and in kind support from Griffith University, the Queensland state government and a range of Australian water authorities.

These two-day workshops provide an intensive forum for water resource managers, treatment facility operators, researchers, government agencies - and anyone with an interest in staying up-to-date with current knowledge on cyanobacteria in our region, and beyond.

Around 85 people attended, mostly from around Australia but with a sizeable and always welcome contingent from New Zealand. The workshop reminds us that algal blooms are complex,

and while our understanding of why they happen, and where, is much better informed - we still have a way to go.

Overall, this year's presentations fell loosely into themes of Understanding, Monitoring, Treatment and Control.

Highlights of the workshop included an update on the unusually extensive bloom of *Chrysochloris ovalisporum* on the Murray River in 2016, and information on the *Microcystis* contamination event on Lake Erie, US.

The conference dinner featured a tribute to Emeritus Professor Ian Falconer - toxicologist and leading researcher in cyanobacteria. Colleagues from around the world had prepared video tributes, Ian continues to be a staunch supporter of these workshops.

The abstracts and most presentations are now accessible from the WaterRA website using the link below.

<http://www.waterra.com.au/events/cyanobacteria-workshops/>

## BUILDING WATER SECTOR CAPABILITY

For many years the WaterRA Education Program has oriented excellent young (and not so young) students toward the water industry. Many of them have provided outstanding research for the sector that is cost effective, tailored to industry needs and provides further collaboration opportunities.

WaterRA has a strong governance process ensuring that researchers of the highest calibre are working for your organisation.

We currently have 26 students supported by WaterRA and since 2008 the total number is 44.

In 2016-17 we have started to consider other ways that WaterRA can help build capability within the water sector. For example we have partnered with WIOA for operator training and provided secondment and volunteering opportunities.

### WILL BUCHANAN – ON MY SECONDMENT AS INTERIM CEO

I would like to acknowledge the WaterRA Board for their vision in appointing an interim CEO, and for the trust and confidence shown in me and the team, to actively pursue new business objectives without losing stride, but also to gain momentum during this interim period.

I would also like to thank our Members for their valuable support, words of encouragement and contributions.

It has been pleasing to see that the new business model has been so well received, and is recognised as presenting Members with greater opportunities.

I have a long history and connection with WaterRA from being a PhD student with the

CRC WQT to the interim CEO. It has been a truly rewarding experience to metaphorically "close the loop", and give back to the organisation that has given me so much in the early days of my career.

I will continue to be a WaterRA advocate and actively contribute as the Barwon Water Member Representative into the future.

I am confident that WaterRA has the right people, strategies and plans to continue to build on the value it provides to Members and the Water Industry.

Will Buchanan, Manager Infrastructure Operations (Acting) Barwon Water



### WE CONGRATULATE 2016-17 AWARD WINNERS

Damien Moodie (left) - Victorian AWA Student Water Prize

Rachael Aganetti - 2016 Outstanding Research Student for the College of Engineering and Science, Victoria university

Zuo Tong How (2016) Chancellor's Commendation for Exceptional Higher Degree by Research Thesis, Curtin University

Eddy Ostarcevic was also a PhD student on the WaterRA funded Membrane Integrity project. He received the following awards:

Vice Chancellor's Award for Excellence in Research and Research Training 2016 for the development of the MemCheck Membrane Integrity technique

Vice Chancellor's Citation for Excellence in Research and Research Training 2016 for applied research leading to the award of PhD

Victoria University's College of Engineering and Science Outstanding Research Student, PhD 2016

## STUDENT SPONSORS AND MENTORS

WaterRA gratefully acknowledges the support of the following organisations for student research projects.



Our students have mentors from within Australia and worldwide, and are encouraged to engage with industry members at conferences to enhance knowledge transfer from their research.

### Current Mentors

Sri Harini Chellapan – Stephanie Rinck-Pfeiffer (GWRC)

Yufei Wang – Alice Antony (UNSW)

Christine Close – Brad Edwards (Water Corporation)

Andrea Gonzalez – Paul Byleveld (NSW Health)

Charndee Chahal – Suzanne Frosco (SA Health)

Nijoy John – Dan Hoefel (SA Water)

Adam Tomlinson – David Halliwell (Deakin Uni)

Maolida Nihemaiti – Annette Davidson (Risk Edge)

Xi Zhi Niu – Andrew Bath (Water Corporation)

Peter Wardrop – Jo O'Toole (Monash Uni)

Sara Imran Khan – Cheryl Lim (National Measurement Institute)

Sonya Kozak – Cameron Veal (Seqwater)

Rhys Carter – Colin Long (Mak Water)

Jennifer Lun – Dan Deere (Water Futures)

Eddie Tsyrlin – Shaun Cox (Inxure)

Ben Thwaites – Royce Aldred and Jason Barnett (TasWater)

Florence Choo – Neil Crossing (Allwater)

Cameron McPhail – Michael Storey (Sydney Water)

Tim Coggan – Tony Priestley

“Through my Water Research Australia scholarship and the mentor program I was able to travel to Launceston to meet my mentors Jason Barnett and Royce Aldred from TasWater. While I was there Jason showed me 7 different wastewater treatment plants in the north east of the state and was incredibly generous with his time and knowledge. I was also fortunate enough to present some of the background work for my PhD to the Tasmanian branch of the Australian Water Association during one of their technical presentation sessions. The ability to travel and meet with mentors has both broadened my knowledge of the Wastewater industry and strengthened the mentor/mentee link.”

*PhD candidate Ben Thwaites, November 2016*



Photo: Ben's mentor Jason Barnett showing Ben one of TasWater's WWTPs

## BROADER HORIZONS FOR YOUNG PROFESSIONALS



Photo: Xi-Zhi Nui (centre) at the ICCE in Oslo, Norway

**Xi Zhi Niu** (PhD) – attended the 16th International Conference on Chemistry and the Environment in Oslo, Norway in June 2017. “I gave an oral presentation on the topic of natural organic matter (NOM). I also had a poster presentation on photochemical fate of antibiotic sulfathiazole in sunlit waters. It was great to have discussions with scientists from many European countries and also people who work for government sectors.”

**Maolida Nihemaiti** (PhD) – visited the Technical University of Munich from September to November 2016. She conducted lab and pilotscale experiments on the removal of trace organic compounds from wastewater effluents during UV-based advanced oxidation processes.

“It was an exciting experience to work in a different environment and learn new techniques. The pilot-scale experiment conducted on Munich Wastewater Plant was an excellent opportunity to link the theoretical and practical knowledge in a real case.”



Photo: Maolida taking in the sights near Munich

**David Workman** (Honours) – attended OzWater17, Sydney. “To be surrounded by so many experienced and knowledgeable professionals, generous and happy to share their insights was just amazing. As a newcomer, seeing the many career paths that the water industry encompasses and supports left me inspired to connect and contribute.”

**Ben Thwaites** (PhD) – attended the 10th Biofilm Reactors conference in Dublin. “After the conference I visited the UNESCO-IHE and Technical University of Delft in The Netherlands, and the Technical University of Wien in Vienna, Austria, meeting many of the current researchers leading the development of aerobic granular sludge

(AGS). The ability to spend time with so many of the researchers in my field has enabled me to establish or reinstate relationships, as well as explore the potential avenues of both my research and theirs with many complimentary processes being undertaken.”

**Christine Close** (PhD) – attended the 8th International Passive Sampling Workshop and Symposium (Prague, Czech Republic) in September 2016. “Whilst it was a relatively small conference of approximately 50 international delegates, attending the conference was an invaluable experience. Not only did it enable me to present my work but it also provided the opportunity to meet with experts in the field of passive sampling. I was given valuable feedback about the work that I have completed thus far, which I hope to incorporate into my studies.”

**Jennifer Lun** (PhD) – presented a poster at the 6th Calicivirus Conference, October 2016, Savannah, Georgia, USA. “There were some amazing speakers - people whose journal papers I've read, and it was great to meet them in person. At the conference, we were introduced to a new cell culture system of human norovirus, which is a giant step in this research. I presented a poster on my work on the discovery of emergence of recombinant norovirus. The novel recombinant strains were observed in other countries all over the world, indicating the decline of pandemic strain GII.4 Sydney 2012 and the potential emergence of other pandemic strains.”

**Yufei Wang** (PhD) – attended the IWA World Water Congress & Exhibition held on 10 – 14th October, 2016, in Brisbane and presented her work during the poster session. “I met and had discussions with internationally recognised researchers regarding my work and generally broadened my horizons. I had discussions with young water professionals from other countries on various topics such as challenges facing the water industry, collaboration across different types of organisations and changes that should be made for future development.”



Photo: Yufei Wang, her supervisor Prof Felicity Roddick and Prof Dennis Mulcahy at the World Water Congress in Brisbane



# SHOWCASING SUCCESS

Our utility members' radar is well tuned to the research that is likely to be of benefit to them. We asked some members to provide examples of how recent projects have contributed to the effectiveness and efficiency of their business.

## APPLYING WATERRA COMMUNITY OF INTEREST PROCESS TO MANAGEMENT OF FLUOROSILICIC ACID DOSAGE

Utilities from around Australia had experienced issues with Fluorosilicic Acid dosing. Problems ranged from corrosion of pipes, to acid build up, pipe leakages and glue reaction.

In July 2016 a Fluorosilicic Acid workshop was attended by staff from 12 member organisations who could share experiences and gain practical and useful information. Chemical engineers from CH2M and EML Chem were invited to attend, to provide practical information advice and problem solving.

Feedback indicates that attendees have been able to return to their businesses and recommend improved mechanisms and processes, having a positive impact on operators at dosing plants, managers, consultants and even regulators. It has created a channel of communication such that members from these utilities and other organisations have been able to continue sharing their experiences and learning from each other.

WaterRA is delighted to support workshops and communities of interest which can provide such meaningful knowledge transfer activities for our members.



Photo: Fluorosilicic Acid (FSA) Workshop, 19th July 2016



Photo: Kelly Newton (SA Water) guiding a visitor through the "Take the Tap Test"

## APPLYING WATERRA RESEARCH FINDINGS AT SA WATER TO IMPROVE ASSESSMENT OF CONSUMER PERCEPTIONS OF AESTHETIC DRINKING WATER QUALITY (T&O)

(SA Water 'Take the Tap Test' in Rundle Mall, Adelaide)

The water industry has experienced significant recent change, with the widespread implementation of economic regulation, and scrutiny over all areas of the business. Assessing consumers' perceptions of water quality, using customer complaints has proven inadequate - and often misleading - in the past. Customer surveys have also been used as a gauge of what customers really think, and how their opinion might change with variances in water, such as the taste of chlorine.

This project, which is nearing completion, has developed a suite of simple tools to:

- help utilities engage with customers,
- assess their general understanding of aesthetic water quality issues and how they relate to water safety, and
- inform and influence the customers' perceptions of water quality.

In SA Water this toolkit has been put into action using an engagement campaign called 'take the tap test'. At the Royal Adelaide Show in Sept 2016 approximately 1500 people took part in the test. Analysis from these results showed that 66% of participants couldn't pick the commercial spring water from the tap water.

After meeting with employees from SA Water we have been able to gauge how beneficial this project has been across many aspects of the business:

### Regional Technical Services Officer (TSO):

"Knowledge from this project will allow TSOs to put forward an informed argument to Project Managers in the planning of new water supply projects. Consumer preference data can inform business case options, and understanding better the factors that will weigh most with customers - including cost and likely relative benefits."

### Media and Communications Advisor:

"Having the project leader conduct the 'Take the Tap Test' live on air over Regional ABC radio stations has enabled a wider reach of the educational side, when she discusses the various ways in which the water is treated and the many different sources of water that supply our state."

### Senior Process Engineer:

"I got involved with the project as I was interested to see how customers perceived Mt Gambier water. As a Senior Process Engineer, the data would be useful to inform future process strategies for the Mt Gambier water supply. As the project is still in progress I haven't received enough Mt Gambier-specific data yet, but I'm excited by this research and would love to keep up with research findings (particularly in the Mt Gambier area) as they come in."

### Manager of Community Relations:

"The 'Take the Tap Test' has most definitely helped add another dimension to SA Water's community engagement activities. As an engagement tool, TTT has a strong impact and complements other communication and engagement tools and channels (eg feedback tools, printed material, social media etc.). There is a solid return on investment for community relations, and a key strength is that it adds an interactive element to engagement forums and encourages customers to talk to SA Water staff about a range of issues of importance..."TTT has been an important component of SA Water's engagement activities with the community, I would definitely recommend this kind of engagement tool to other utilities nationwide".



# CEO AND CHAIR REPORTS

## CEO REPORT

I am pleased to share with you this annual report that outlines our solid performance over the year despite the challenge of several changes at the top. Since joining WaterRA as CEO in November 2016, I have learned that this ability to deliver 'no matter what', has at its heart the dedication of the staff and our Members' commitment to WaterRA's success. So a big thank you from me to all of our staff, Members and supporters that have contributed to the achievements described in this report.

In 2016/17 our main focus was to consolidate the new business model initiated two years ago thereby enabling our Research and Capability Building Programs to deliver more value for more members. This year the model started to yield to its full potential with WaterRA research initiatives now spanning the breadth of water sector needs, and diverse industry problems being solved in fit-for-purpose, cost effective ways. Take for example the Community of Interest that we established around the operational challenges associated with dosing fluorosilicic acid as part of drinking water treatment (showcased in this report), where we were able to solve the key problem quickly through knowledge transfer and building capability in collaboration with the Water Industry Operators Association (WIOA).

This formalised partnership with WIOA is just one of the new or expanded collaborative relationships we have developed throughout the year. In particular we welcomed new members Deakin University, Edith Cowan University, WIOA, Veolia Australia and NZ, IBL solutions, Seqwater, and Charles Darwin University. We welcomed a first-time sponsor for one of our student projects – South East Water, and strengthened our links to international water research organisations through active membership of the Global Water Research Coalition and bilateral discussions with the US Water Research Foundation and UK Water Industry Research.

Since taking over as CEO in November 2016 I have met with as many Member organisations as possible, and it has been a privilege to get to know so many engaged individuals and see or hear about the diversity and breadth of activities, responsibilities and experience within the membership. While I have not yet visited all of our Members, my intention is to maintain a regular schedule of 'pastoral care' to stay in touch with the issues facing Members across the country.

I am most grateful to the Board and Membership for welcoming me to this role, and look forward to meeting many more of you in 2017/18.

**Karen Rouse, CEO**



Photo: CEO Karen Rouse, Board Chair Shaun Cox and Sarah Aucote, recipient of the Michael R Moore Memorial Honours Scholarship in February 2017

## CHAIR REPORT

On behalf of the WaterRA Board of Directors, it gives me great pleasure to join Karen in presenting the company's Annual Report to Members and stakeholders.

Our model for initiating research now basically means that project ideas can come from anywhere. It is a less structured approach initially, inviting any of our members, or the wider industry, to bring us problems. Once a problem is assessed to be of sufficient interest a rigorous process for investigating it kicks in. This makes the model infinitely flexible and able to net ideas that might not otherwise get an airing. The approach has been well supported again this year, at eight Community of Interest workshops.

We are pleased to report a range of new Members in 2016-17 – from sole traders to a large urban utility, and two new universities. This is all extremely positive and welcome.

I'd like to highlight the continuing success of our Education Program, which currently supports 26 active students, most of whose projects are directly funded by industry. As a mentor of one of the PhD candidates, I would encourage anyone with an interest in the excellence of our industry to consider the many benefits of contributing to this effort – and there are several options, from sponsorship of a project to individual mentoring.

WaterRA, under the leadership of CEO Karen Rouse is actively investigating ways to deliver greater benefit to our members. Karen was appointed CEO following an exhaustive recruitment, and commenced in November. The Board is pleased with Karen's enthusiasm, energy and the strategic lens that she has focused on the company.

The departure of Paul Preto early in this financial year, and the wish to allow ample time to replace him, provided an opportunity to appoint an Interim CEO from within the membership. It was most gratifying that a number of our Utility Members were willing to make staff available, regarding it as an executive development opportunity.

As many of you will know, Dr Will Buchanan from Barwon Water took on the role of Interim CEO for around four months. Will, who was a PhD candidate (many years ago) in the CRC for Water Quality and Treatment, did a great job as Interim CEO. With a fresh, industry perspective Will helped to progress a number of procedural changes in WaterRA and was able to hand over Karen Rouse when she commenced. We are most grateful to Will and Barwon Water for their invaluable contribution during the year.

Over the past year there have been a few changes on the Board of Directors. At the AGM in October 2016, Dr Dharma Dharmabalan (Taswater) stepped down after a long association and involvement with WaterRA and its predecessors. Following the members' unanimous agreement to change the constitution to allow a second independent director, Mr Ken Murphy joined the Board. Dr John Howard (AWQC, SA Water), another long-term supported of WaterRA was replaced on the Board by Mr Mike Burch. I would like to personally thank both Dharma and John for their dedication and wise counsel over the time I have worked with them.

Finally the Board and I thank our Members for their continued support and commitment to WaterRA and our industry.

**Shaun Cox, Board Chair**

# WATERRA BOARD

The WaterRA Board is responsible for the strategic direction and oversight of WaterRA on behalf of its members. It comprises three Directors nominated by research members, three Directors nominated by industry members, an Independent Chairperson elected by the members, an Independent Director appointed by the Board, and the CEO.

## DURING 2016-17 THE FOLLOWING BOARD CHANGES OCCURRED:

Dr Paul Pretto resigned as CEO on 22 August 2016

Dr Dharma Dharmabalan's term as a Non-Executive Director (Industry) ended on 10th October 2016

Mr Ken Murphy was appointed as a Non-Executive Director (Independent) on 10th October 2016

Ms Karen Rouse commenced as CEO of WaterRA on 21 November 2016

Dr John Howard resigned as Non-Executive Director (Research) on 24th November 2016

Mr Michael Burch elected to fill casual vacancy on 16 January 2017 until the 2017 AGM

## CURRENT BOARD (AT 30 JUNE 2017)

### MR SHAUN COX, NON-EXECUTIVE INDEPENDENT CHAIR

Shaun Cox was appointed as a Non-Executive Director in October 2014. He has led Australian water utilities for more than 18 years, most recently Melbourne Water and previously South East Water and Gold Coast Water. Shaun is a Director with Inxure Strategy Group.

### MR MICHAEL BURCH, NON-EXECUTIVE DIRECTOR (RESEARCH)

Michael Burch is the Senior Manager, Research within the Business Services group of SA Water. He is responsible for management of the research team; for strategic planning and delivery of research solutions, IP management and relationships with external research partners including universities and utilities. Michael's particular interest and expertise is in syndicating practical industry-driven research projects with Australian and international partners to deliver effective and efficient research programs around challenges for the water business. This includes nurturing relationships and partnerships with local universities and research institutions.

### DR STEPHEN CAPEWELL, NON-EXECUTIVE DIRECTOR (INDUSTRY)

Stephen Capewell joined the WaterRA Board in October 2013 and is a water quality and treatment specialist with extensive knowledge of the planning, design, operation and optimisation of water treatment plants and process technologies. He is currently General Manager Operations Services at the Water Corporation in Western Australia.

### PROF STEPHEN GRAY, NON-EXECUTIVE DIRECTOR (RESEARCH)

Stephen Gray was appointed as a Non-Executive Director in October 2011. Prof Gray is the Director of the Institute for Sustainability and Innovation at Victoria University, where he is responsible for Victoria University's water research program.



Photo: WaterRA Board, Adelaide February 2017

### MR KEN MURPHY, NON-EXECUTIVE INDEPENDENT DIRECTOR

Appointed as a Non-Executive Director on 10th October 2016, Ken Murphy has 20+ years of experience as a Company Director/Chairman across multiple industries including Environmental Protection, Training, and Agriculture. Complemented by 25+ years of Chief Executive and Managing Director level experience in the commercial, not-for-profit, and government-funded sectors across multiple industries, Ken is also a past member of various Government, Business, and Community Committees and Taskforces. He brings capability with Corporate Governance, Finance, Risk Management, Strategic and Operational Development, Human Resource Management, Company Restructures, Mergers & Acquisitions, Project Management, Community and Stakeholder Engagement, Problem Solving, Innovation and Change Management. Ken is the principal consultant with Ken Murphy Consulting.

### MS KAREN ROUSE, EXECUTIVE DIRECTOR

Appointed as WaterRA CEO on the 21st November 2016, Karen has over 20 years' water sector experience. She has a BSc Hons in Geology from the UK and a Master of Environmental Studies from Adelaide University. Since 1996 Karen has worked exclusively in the water sector holding senior management positions at SA Water and the CSIRO's water flagship. While in charge of the urban water R&D portfolio at CSIRO, Karen was responsible for strategic direction, research delivery and leading collaborative efforts to develop innovative water technologies and bring them to market. At SA Water her roles spanned environmental and water resource management, climate change and sustainability, strategic planning, economic regulation, and most recently, research management.

### MR DAVID SHEEHAN, NON-EXECUTIVE DIRECTOR (INDUSTRY)

David Sheehan was appointed as a Non-Executive Director for WaterRA in October 2014. David took up the role of General Manager Water Quality Performance and Regulation at Coliban Water in February 2014. Prior to that he worked in a regulatory role with the Victorian Department of Health. He is also currently a member of the National Health and Medical Research Council's Water Quality Advisory Committee.

### DR MELITA STEVENS, NON-EXECUTIVE DIRECTOR (INDUSTRY)

Melita Stevens was appointed as a Non-Executive Director in October 2010. She was also a member of the implementation committee that supervised the start-up of WaterRA. Melita has a background in public health microbiology and has been involved in water quality and research for 20 years. Melita is Principal Scientist at Melbourne Water.

### PROF RICHARD STUETZ, NON-EXECUTIVE DIRECTOR (RESEARCH)

Richard Stuetz has 20 years' research experience in Australia and the UK and is currently Director of the UNSW Australia Water Research Centre. He is a member of IWA and was instrumental in the establishment of the IWA YWP programme and its international conference series. Richard's research interests are the fate of contaminants in water, and wastewater and waste management processes.

### MR PETER BRASS, COMPANY SECRETARY

Peter Brass was appointed as the Company Secretary on the WaterRA Board in August 2012. Peter has over 20 years' experience in governance, risk management and internal audit in both private and public organisations, is a Graduate of the Australian Institute of Company Directors and facilitates training courses for the Governance Institute of Australia.

# WATERRA BOARD COMMITTEES 2016-17



## STRATEGIC ADVISORY COMMITTEE

The SAC members have outstanding experience and skills from across the water industry, and the purpose of this committee is direction setting and review, problem definition, research outcome delivery, synthesis, knowledge transfer and benefit realisation and measurement.

Mr David Sheehan (Chair)	Coliban Water, Victoria
Mr Tad Bagdon	Department of Water WA
Dr David Cunliffe	Department of Health (SA)
Dr Darryl Day	ICEWaRM
Dr Annette Davison	Risk Edge
Mr Graham Hawke	Bureau of Meteorology
Prof Cynthia Mitchell	University of Technology, Sydney
Dr Kaye Power	Independent Pricing and Regulatory Tribunal (NSW)
Dr Stephanie Rinck-Pfeiffer	Global Water Research Coalition
Dr Greg Ryan	Water Services Association of Australia
Mr David Snadden	Yarra Valley Water
Ms Cathy Wilkinson	EPA Victoria
Mr Peter Brass	WaterRA – Company Secretary

## RISK AND AUDIT SUB-COMMITTEE

Prof Stephen Gray (Chair)	Victoria University
Dr Melita Stevens	Melbourne Water
Dr Dharma Dharmabalan	TasWater (Until 10 October 2016)
Mr Michael Burch	Australian Water Quality Centre (From 21 February 2017)
Mr Gary Penn	SA Water Corporation (independent member)

## HUMAN RESOURCES SUB-COMMITTEE

Dr Stephen Capewell (Chair)	Water Corporation WA
Prof Richard Stuetz	UNSW Australia
Dr John Howard	Australian Water Quality Centre (Until 24 November 2016)
Mr Ken Murphy	Ken Murphy Consulting (from 10 October 2016)

# MANAGEMENT COMMITTEES 2016-17

The WaterRA CEO is supported by two operational committees: The Project Review Team and the Education Committee. These committees provide the CEO and staff with advice to ensure the provision of high quality and relevant research. The members of the operational committees are representatives from member organisations who bring a high level of knowledge and skills to WaterRA and its members.

## EDUCATION PROGRAM COMMITTEE MEMBERS

Prof Felicity Roddick (RMIT University) stepped down as Chair of the Education Committee in June 2016, after nearly 20 years. With dedication and calm efficiency Felicity supported the transition of the Education Program from CRCWQT to WQRA and then to WaterRA. Over the past 19 years Felicity has supervised 13 Summer, 2 Honours, 3 Masters and 14 PhD students.

Dr Rita Henderson (Chair)	UNSW Australia
Dr Paul Monis	SA Water Corporation
Mr Asoka Jayaratne	Yarra Valley Water
Dr Kathryn Linge	Curtin University
Dr Louise McKenzie	Hunter Water Corporation
Prof Dennis Mulcahy	University of South Australia
Mr Glen Rowlands	TasWater
Dr Peter McCafferty	ChemCentre
Mr Gareth Roeszler	WaterRA
Ms Carolyn Bellamy	WaterRA

## PROJECT REVIEW TEAM

The PRT's role is to provide support in the review of all WaterRA project proposals, including those for submission to external agencies such as the ARC, Water Environment Research Foundation and the Waste Reuse Research Foundation. The PRT comprises a cross-section of industry and research representatives and core WaterRA staff. This committee did not meet in 2016-17.

Dr Rino Trolio (Chair)	Water Corporation WA
Mr Asoka Jayaratne	Yarra Valley Water
A/Prof Stuart Khan	UNSW Australia
A/Prof Fred Leusch	Griffith University
Dr Con Pelekani	SA Water Corporation
Ms Nadine Riethmuller	Power & Water Corporation NT
Dr Martha Sinclair	Monash University
Dr Paul Pretto	WaterRA
Mr Gareth Roeszler	WaterRA
Ms Claire McInnes	WaterRA

# WATERRA TEAM

## STAFF CHANGES DURING THE YEAR;

Dr Paul Pretto, CEO and Executive Director (Jul 16- Aug 16)

Dr Will Buchanan, Interim CEO (Aug 16-Dec16)

Karen Rouse, CEO and Executive Director (Nov16 – current)

Gareth Roeszler – Program Manager (Jul 16 – Sep 16), Program Director – Research and Education (Sept 16-May 17)

## CURRENT STAFF

### MS KAREN ROUSE, CEO AND EXECUTIVE DIRECTOR

Karen was appointed as WaterRA CEO on the 21st November 2016, and has over 20 year's water sector experience. She has a BSc Hons in Geology from the UK and a Master of Environmental Studies from Adelaide University. Since 1996 Karen has worked exclusively in the water sector holding senior management positions at SA Water and the CSIRO.

### MR PETER BRASS, CHIEF OPERATING OFFICER AND COMPANY SECRETARY

Peter commenced with WaterRA in July 2012. He has previously held senior management positions and has over 20 years' experience in governance, risk management and internal audit in both private and public organisations. Peter has a Bachelor of Economics, is a Certified Practising Risk Manager, a Fellow of CPA Australia and a Graduate of the AICD.

### MS SUSAN SPRAGG, CORPORATE COORDINATOR

Susan is the Corporate Coordinator and is responsible for a diverse range of administrative and key functions within WaterRA. She is a Certified Member of the Governance Institute of Australia. Susan previously worked at the CRCWQT and has an employment history in public relations and marketing in not-for-profit, local government and other various sectors.

### MS ANGELA GACKLE, MANAGER, MARKETING & COMMUNICATIONS

Angela was Manager, MarComms in the final years of the CRC WQT, overseeing the completion of around 70 final reports. Before that she held a range of Communication roles in CSIRO from 1990 - 2003 and has worked in state and local government and other sectors. Angela has a BSc in zoology/pharmacology.

### MR FRED FLEUREN, FINANCE MANAGER

Fred is the Finance Manager, and manages the financial and management accounts. He joined WaterRA in October 2008, having worked at CRC WQT since 2003. Fred is a Fellow of the Association of Accounting Technicians.

### MS CLAIRE MCINNES, PROGRAM MANAGER, RESEARCH

Claire commenced in this role in September 2016. She has extensive experience in Project and Engineering Management, gained working in the defence, and oil and gas industries prior to joining WaterRA. Claire has a BEng(Aero), MA(Int Rel) and Grad Cert in Project Management.

### MS CAROLYN BELLAMY, PROGRAM MANAGER, EDUCATION

Carolyn has been in this role since March 2009. She manages the Education Program, which supports the development of young water professionals. Before joining WaterRA, Carolyn coordinated the CRC WQT Education and Training Program. Carolyn has a Diploma in Counselling.

### DR KELLY TADIAR, PROGRAM COORDINATOR, RESEARCH

Kelly has been in this role since March 2017, and has experience in research project management from her PhD in Water Engineering. Kelly also holds an MSc in Sustainable Catchment Management and BSc (Hons) in Environmental Management, both from the UK. Kelly assists the Research Team in the delivery of research, managing several research projects in the Drinking Water and Wastewater areas.

# Directors Report & Financial Summary

FOR THE YEAR ENDED 30 JUNE 2017

# CORPORATE INFORMATION

The Board of Directors of Water Research Australia Limited (WaterRA) has pleasure in presenting this report for the financial year ended 30 June 2017 to the members of WaterRA.

## THE BOARD

WaterRA has a representative Board comprising nine Directors:

- An Independent non-executive Chair elected by members
- Three non-executive Directors nominated by industry members and elected by members
- Three non-executive Directors nominated by research members and elected by members
- An Independent non-executive Director appointed by the Board
- The CEO is an executive Director

The Chair and Independent Director are paid positions elected for a term of three years and appointed for two years respectively, while other non-executive Directors serve terms of two years in a voluntary capacity.

The Chair, Mr Shaun Cox, was appointed 22nd October 2014 following a resolution of the members at the 2014 Annual General Meeting. The Independent Director, Mr Ken Murphy was appointed following a resolution by the Board in August 2016 and commenced at the 2016 Annual General Meeting.

## WATERRA COMMITTEES

The Strategic Advisory Committee has no formal decision-making powers but provides expert, balanced and timely advice to the Board and management on a wide range of urban, regional and remote water issues that have strategic implications for Water Research Australia research programs and activities.

The Board also has two Sub-committees – the Risk & Audit Committee and Human Resources Committee – which provide an important assurance that key areas (Finance, Human Resources and Risk Management) of the Board's duties will be rigorously discharged. The Risk & Audit Committee incumbent Independent Member was reappointed by the Board for a two year term ending May 2018.

In addition to the one advisory Board committee and subcommittees of the Board, two management committees – the Project Review Team and the Education Committee – provide advice and support to the CEO and staff and make recommendations to the Board on specific research program issues.

## DIRECTORS

The names and details of the company's Directors in office during the financial year are as outlined on the following page. All Directors were in office for the entire year unless otherwise stated.

Short biographies for Directors can be found on pages 20-21.

During the 2016-17 financial year the Board met on four occasions for Board meetings or Non-Executive Director meetings – either face-to-face or via teleconference. In addition Directors also met on five occasions for the Board sub-committees, either face-to-face or via teleconference.

Name	Date of Appointment	Term End or Retirement Date	Board Meetings			Non-Executive			Board Sub-committee	
			A	B	C	D	E	F	RAAC	HR
Mr Michael Burch	16 Jan 2017	2017 AGM	2	2	0	2	2	0	2	n/a
Dr Stephen Capewell	25 Oct 2013	2017 AGM	4	4	0	4	4	0	n/a	5
Mr Shaun Cox	22 Oct 2014	2017 AGM	4	4	0	4	4	0	n/a	n/a
Dr Dharma Dharmabalan	15 Nov 2013	2016 AGM	2	2	0	2	2	0	1	n/a
Prof Stephen Gray	28 Oct 2011	2017 AGM	4	4	0	4	4	0	5	n/a
Dr John Howard	12 Oct 2007	24 Nov 2016	2	2	0	2	2	0	n/a	2
Mr Ken Murphy	10 Oct 2016	2018 AGM	2	2	0	2	2	0	n/a	3
Dr Paul Pretto	15 Jul 2015	22 Aug 2016	1	1	0	n/a	n/a	n/a	n/a	n/a
Ms Karen Rouse	21 Nov 2016	21 Nov 2019	2	2	0	n/a	n/a	n/a	n/a	n/a
Mr David Sheehan	22 Oct 2014	2018 AGM	4	4	0	4	4	0	n/a	n/a
Dr Melita Stevens	26 Oct 2010	2018 AGM	4	4	0	4	4	0	4	n/a
Prof Richard Stuetz	23 Oct 2015	2017 AGM	4	4	0	4	4	0	n/a	4
Interim CEO William Buchanan seconded 15 Aug 2016 to 21 Nov 2016 (not appointed as a Director)										

**A** Number of meetings held during the time the Director held office during the year

**B** Number of meetings attended

**C** Number of apologies registered

**D** Non-executive meetings held

**E** Non-executive meetings attended

**F** Number of apologies registered

# DIRECTORS REPORT

Details of Directors' qualifications, experience and special responsibilities

Name	Qualifications, Professional Memberships	Position & Organisation	Special Responsibilities
Mr Michael Burch	BSc (Hons)	Manager Research, SA Water Corporation	Risk & Audit Committee (Board sub-committee from 21 February 2017)
Dr Stephen Capewell	BSc(Hons), M Eng & Tech Man, PhD (Chem Eng), GAICD, AWA, IDA, IWA	General Manager, Operations Services, Water Corporation	Chair: HR Committee (Board sub-committee)
Mr Shaun Cox	BEng (Civil), Adj Prof (Uof Q), FAICD, FIE (Aust), CPEng, FAIM	Director, Inxure Strategy Group	Independent Chair: WaterRA Board
Dr Dharma Dharmabalan	D Tech, DipHDelft, Grad Dip (Comp), BSc Eng (Civil Hons), MEng (Env), Adjunct Prof (VU), Adjunct A/Prof (Deakin), WE, FEI (Aust), CPEng, FICE, FASCE, MAWA, MAICD	General Manager, Works Delivery, Tasmanian Water & Sewerage Corporation	Risk & Audit Committee (Board sub-committee until 10 October 2016)
Prof Stephen Gray	BE (Chem Eng) PhD (Chem Eng) AWA, IWA, ACS	Director, Institute of Sustainability, and Innovation, Victoria University	Chair: Risk & Audit Committee (Board sub-committee)
Dr John Howard	BSc (Hons), PhD (Freshwater Chemistry) FAICD	General Manager, Strategy & Planning, SA Water Corporation	Deputy Chair: WaterRA Board, until 24 Nov 2016, Member of HR Committee (Board sub-committee until 24 Nov 2016)
Mr Ken Murphy	FAIM, CAHRI, FAICD, Dip Company Directors, Dip Bus. Mgmt, Dip HR Mgmt	Principal, Ken Murphy Consulting	Independent Director HR Committee (Board sub-committee from 10 Oct 2016)
Dr Paul Pretto	BDSc, BEng (Civil -Hons), PhD (Env Eng), FIEAust, MAICD	CEO Water Research Australia (until 22 Aug 2016)	
Ms Karen Rouse	BSc (geology-Hons), M Env Studies, MAICD	CEO Water Research Australia (from 21Nov 2016)	
Mr David Sheehan	MSc, DipMgmt, GAICD, NHM-RC, AWA	General Manager, Water Quality Performance & Regulation, Coliban Region Water Corporation	Risk & Audit Committee (Board sub-committee) until Feb 2016 Chair: Strategic Advisory Committee from Feb 2016
Dr Melita Stevens	PhD, BAppSc, DipMicro, Adjunct Prof (RMIT), Senior Fellow (Melbourne) AWA, GAICD	Principal Scientist, Melbourne Water Corporation,	Risk & Audit Committee (Board sub-committee)
Prof Richard Stuetz	BSc, MAppSc, PhD (Environmental Biotechnology)	Professor, School of Civil and Environmental Engineering, UNSW Australia	HR Committee (Board sub-committee)

## COMPANY SECRETARY

Mr Peter Brass has been the Company Secretary during the 2016-17 financial year.

## PRINCIPAL ACTIVITIES

WaterRA's principal activities during 2016-17 were:

- Coordinating and managing high quality research on priority issues in water quality on behalf of the members of WaterRA and the Australian water community
- Facilitating knowledge transfer and uptake of outcomes of R&D into industry through workshops and members' meetings
- Providing scientific evidence to underpin regulation and guidelines relating to safe drinking water and recycled water
- Building national water industry capability through the Education Program
- Promoting the importance on the national agenda of safe water to the Australian community by engaging with key decision makers within government and industry

## OPERATING RESULTS FOR THE PERIOD

The company's trading result for the year ended 30th June 2017 was a deficit of (\$166,367) [2016 deficit of (\$322,029)].

The surplus/(deficit) for WaterRA as a whole can be considered as having two components:

- PART A - A deficit of (\$299,400) for the 2016-17 year from revenue and expenditure acquitting commitments to research projects [2016 deficit of (\$486,865)] from cash reserves.
- PART B - A surplus of \$133,033 for the 2016-17 year from the remainder of the Income Statement not related to acquitting commitments to research project expenditure [2016 surplus of \$164,836].

The overall deficit is a reflection of research projects utilising the cash committed to them.

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

A detailed review of operations can be found in the company's 2017 Annual Report.

## CASH & PROJECT COMMITMENTS

At 30th June 2017 the company had cash and cash equivalents plus financial assets of \$3,154,962 [2016 \$2,645,137].

At the same date WaterRA commitments to research projects plus external project funding held or received by WaterRA was \$449,522 [2016 \$684,527].

The cash commitments will be acquitted over the term of the research projects, with each project averaging a span of two to three years.

The WaterRA Board closely monitors its commitments to research projects relative to cash and working capital to assure that cash commitments to projects can be covered in full from the point of Board approval.

## MEMBERS LIABILITY ON WINDING UP

Each Member of the company undertakes to contribute to the company's property an amount as may be required not exceeding one hundred dollars if the company is wound up while it is a Member or within one (1) year after ceasing to be a Member, for payment of the company's debts and liabilities contracted before it ceased to be a Member and of the costs, charges and expenses of winding up and for an adjustment of the rights of contributories amongst themselves.

## DIVIDENDS

No dividends were paid during the reporting period. The company is limited by guarantee and its constitution precludes the payment of dividends.

## SHARE OPTIONS

The company has not granted options to any persons to have shares issued to them. The company is limited by guarantee and its constitution precludes the payment of dividends.

## SIGNIFICANT CHANGES IN STATE OF AFFAIRS

In the opinion of the Directors, there were no significant changes in the state of affairs of the company that occurred during the financial year under review not otherwise disclosed in this report.

## POST REPORTING PERIOD EVENTS

There has not arisen, in the interval between the end of the financial year and the date of this financial report, any item, transaction or event of a material and unusual nature that, in the opinion of the Directors, is likely to substantially affect the operations of the company, the results of those operations, or the company's state of affairs in future financial years.

## ENVIRONMENTAL REGULATIONS

The company is not particularly exposed of any environmental regulation. The Directors have not received notification of, nor are they aware of, any breaches of environmental laws by the company.

## FUTURE DEVELOPMENTS AND RESULTS

There are no significant changes in the state of affairs that are expected in the future which will affect the results and therefore require disclosure.

## INDEMNIFICATION AND INSURANCE OF DIRECTORS AND OFFICERS

Since the end of the previous financial year, the company has paid an insurance premium of \$7,772 in respect of a directors and officers liability insurance contract for current and former directors and officers, against all liabilities and expenses arising as a result of work performed in their respective capacities, to the extent permitted by law.

## AUDITORS INDEPENDENCE

The auditors' independence declaration, which forms part of the Directors reports for the financial year ended 30th June 2017, has been received and can be found following this report.

Signed in accordance with a resolution of the Directors

  
Shaun Cox  
(Chair)

  
Stephen Gray  
(Director)

28th August 2017

# AUDITOR'S INDEPENDENCE DECLARATION



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420 King William St  
Adelaide SA 5000  
GPO Box 2018, Adelaide SA 5001  
AUSTRALIA

## DECLARATION OF INDEPENDENCE UNDER SECTION 60-40 OF THE AUSTRALIAN CHARITIES AND NOT-FOR-PROFITS COMMISSION ACT 2012

BY PAUL GOSNOLD

TO THE DIRECTORS OF WATER RESEARCH AUSTRALIA LIMITED

As lead auditor for the audit of Water Research Australia Limited for the year ended 30 June 2017, I declare that, to the best of my knowledge and belief, there have been:

1. No contraventions of the auditor independence requirements of the *Australian Charities and Not-for-profits Commission Act 2012* in relation to the audit; and
2. No contraventions of any applicable code of professional conduct in relation to the audit.



Paul Gosnold  
Director

**BDO Audit (SA) Pty Ltd**

Adelaide, 28 August 2017



# STATEMENT OF PROFIT OR LOSS AND OTHER COMPREHENSIVE INCOME

FOR THE PERIOD ENDED 30 JUNE 2017	2017 \$	2016 \$
<b>REVENUE</b>		
Revenue from continuing operations	2,222,969	3,374,383
Other income	16,969	8,092
<b>EXPENDITURE</b>		
Research program project expenses	(430,931)	(1,928,279)
Education program expenses	(356,337)	(298,925)
Marketing and communications	(167,303)	(108,679)
Operating expenses	(394,288)	(318,700)
Depreciation and amortisation expense	(14,522)	(13,842)
Employee benefits	(999,924)	(1,002,079)
Chairman and Independent Director remuneration	(43,000)	(34,000)
Surplus/(Deficit for the year)	<u>(166,367)</u>	<u>(322,029)</u>

Copies of the full set of financial statements are available on request.

# STATEMENT OF FINANCIAL POSITION

AS AT 30 JUNE 2017	2017 \$	2016 \$
<b>ASSETS</b>		
Current assets		
Cash and cash equivalents	1,977,977	1,498,355
Trade and other receivables	232,748	784,865
Financial assets	1,176,985	1,146,782
Prepayments	80,638	78,234
Total current assets	<u>3,468,349</u>	<u>3,508,237</u>
Non-current assets		
Intangible asset - software	2,720	17,242
Total non-current assets	<u>2,720</u>	<u>17,242</u>
Total assets	<u>3,471,069</u>	<u>3,525,479</u>
<b>LIABILITIES</b>		
Current liabilities		
Trade and other payables	337,321	413,777
Revenue received in advance	1,943,518	1,753,779
Total current liabilities	<u>2,280,839</u>	<u>2,167,556</u>
Non-current liabilities		
LSL Provision Long Term	9,234	10,561
Total non-current liabilities	<u>9,234</u>	<u>10,561</u>
Total liabilities	<u>2,290,072</u>	<u>2,178,116</u>
Net assets	<u>1,180,996</u>	<u>1,347,363</u>
<b>EQUITY</b>		
Retained earnings	930,996	1,347,363
Operating Reserves (1)	250,000	-
Total equity	<u>1,180,996</u>	<u>1,347,363</u>

(1) An Operating Reserve is maintained in order to support operations in the event of unforeseen circumstances or to fund non-recurring strategic expenditure.

Copies of the full set of financial statements are available on request.

# DIRECTORS' DECLARATION

Water Research Australia Limited

ABN 32 127 974 261

Directors' Declaration (Short Disclosure)

The directors of the company declare that:

In the opinion of the directors of Water Research Australia Limited:

1. the Statement of Profit or Loss and Other Comprehensive Income and Statement of Financial Position as extracted from the full Financial Report of the Company are drawn up so as to present fairly the results of the operations of the Company for the financial year ended 30 June 2017 and the state of affairs of the Company as at 30th June 2017.
2. there are reasonable grounds to believe that the company will be able to pay its debts as and when they become due and payable.

This declaration is made in accordance with a resolution of the Board of Directors.

On behalf of the Board of Water Research Australia Limited

Signed in accordance with a resolution of the Directors



Shaun Cox  
(Chair)



Stephen Gray  
(Director)

28th August 2017

# INDEPENDENT AUDITOR'S REPORT



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AUSTRALIA

## REPORT OF THE INDEPENDENT AUDITOR ON THE SUMMARY FINANCIAL STATEMENTS TO THE MEMBERS OF WATER RESEARCH AUSTRALIA LIMITED

### Opinion

The summary financial statements, which comprise the statement of financial position as at 30 June 2017 and the statement of profit or loss and other comprehensive income for the year then ended are derived from the audited financial report of Water Research Australia Limited (the Company) for the year ended 30 June 2017.

In our opinion, the accompanying summary financial statements are consistent, in all material respects, with (or a fair summary of) the audited financial report, in accordance with Australian Accounting Standards - Reduced Disclosure Requirements.

### Summary Financial Statements

The summary financial statements do not contain all the disclosures required by the Australian Accounting Standards - Reduced Disclosure Requirements and Division 60 of the Australian Charities and Not-for-profits Commission Regulation 2013, applied in the preparation of the audited financial report of Water Research Australia Limited. Reading the summary financial statements and the auditor's report thereon, therefore, is not a substitute for reading the audited financial report and the auditor's report thereon.

### The Audited Financial Report and Our Report Thereon

We expressed an unmodified audit opinion on the audited financial report in our report dated 4 September 2017.

### Directors' Responsibility for the Financial Report

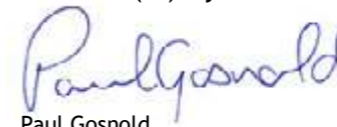
The directors of the company are responsible for the preparation and fair presentation of the summary financial statements in accordance with Australian Accounting Standards, and for such internal control as the directors determines is necessary to enable the preparation and fair presentation of the summary financial statements that is free from material misstatement, whether due to fraud or error.

### Auditor's Responsibility

Our responsibility is to express an opinion on whether the summary financial statements are consistent, in all material respects, with (or are a fair summary of) the audited financial report based on our procedures, which were conducted in accordance with Auditing Standard ASA 810 *Engagements to Report on Summary Financial Statements*.



BDO Audit (SA) Pty Ltd



Paul Gosnold  
Director

Adelaide, 4 September 2017

BDO Audit (SA) Pty Ltd ABN 33 161 379 086 is a member of a national association of independent entities which are all members of BDO (Australia) Ltd ABN 77 050 110 275, an Australian company limited by guarantee. BDO Audit (SA) Pty Ltd and BDO (Australia) Ltd are members of BDO International Ltd, a UK company limited by guarantee, and form part of the international BDO network of independent member firms. Liability limited by a scheme approved under Professional Standards Legislation (other than for the acts or omissions of financial services licensees).

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# WATERRA MEMBERS

## INDUSTRY MEMBERS

Barwon Region Water Corporation  
 Central Gippsland Region Water Corporation  
 Central Highlands Water  
 City West Water  
 Coliban Region Water Corporation  
 Goulburn Valley Regional Water Corporation  
 Grampians Wimmera Mallee Water Corporation  
 Hunter Water Corporation  
 Melbourne Water  
 Power and Water Corporation  
 Seqwater  
 South Australian Water Corporation  
 South East Water Corporation  
 Suez (trading as Degremont Australia)  
 TasWater  
 Wannon Region Water Corporation  
 Water Corporation of Western Australia  
 Water NSW  
 Western Region Water Corporation  
 Yarra Valley Water Ltd

## ASSOCIATE MEMBERS

Atom Consulting  
 Australian Water Association  
 Department of Health and Human Services Tasmania  
 Department of Health - Environmental Health NT  
 IBL Solutions  
 Risk Edge (TM) Pty Ltd  
 Veolia Water Australia Pty Ltd  
 Water Futures  
 Water Industry Operator's Association of Australia

## RESEARCH MEMBERS

Australian Water Quality Centre  
 Centre for Appropriate Technology  
 Charles Darwin University  
 ChemCentre  
 Curtin University of Technology  
 Deakin University  
 Edith Cowan University  
 Flinders University  
 Griffith University  
 Monash University  
 Murdoch University  
 National Measurement Institute  
 RMIT University  
 Swinburne University  
 University of Adelaide  
 University of Melbourne  
 University of Newcastle  
 University of New South Wales Sydney  
 University of Queensland  
 University of South Australia  
 University of Technology, Sydney  
 University of the Sunshine Coast  
 University of Western Australia  
 University of Wollongong  
 Victoria University

## GENERAL MEMBERS

Department of Health and Human Services (Victoria)  
 Department of Health NSW  
 GHD Pty Ltd  
 Lower Murray Water Corporation

# ACKNOWLEDGEMENTS

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WaterRA recognises the continued support of SA Water as our host organisation for the company's head office. SA Water's significant in-kind contribution includes reduced rent for office space in SA

Water House — a six star, green facility in the Adelaide CBD — as well as meeting room facilities, IT support and access to office equipment.

WaterRA also recognises the support of the Water Services Association of Australia, which provides reduced rent for office space and support for our Melbourne staff .

WaterRA is indebted to the many members around the country who make facilities, assistance and the expertise of their staff available for meetings and participation in various WaterRA committees during the year.

Thank you to all!



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