



Water
Research
Australia



ANNUAL REPORT
WATER RESEARCH AUSTRALIA LIMITED

2014/15

JOB SATISFACTION & CAREER CHOICE

HAVE YOU CONSIDERED THE WATER INDUSTRY?

Apart from air, what is more vital than water for health and wellbeing, industry, the environment and the economy?

WaterRA offers:

- great opportunities for focused students
- generous top-ups for students with APA scholarships
- postgraduate projects directly relevant to the water industry



www.waterra.com.au/education-program/scholarships/

Rachael Aganetti - WaterRA PhD student at Victoria University



Did you know that 'Health Stream' is in its 20th year of publication?

The aim of 'Health Stream' is to enhance communication and interaction between the health community and the water industry. It provides valuable background information to build a better understanding of public health issues primarily relating to drinking water.

In 2014 an annual subscription was introduced for non-members of WaterRA.

Our first subscriber was Andrew DeGraca, the Water Quality Director for the San Francisco Public Utilities Commission, who wrote...

"The SFPUC is very much concerned about protecting public health, especially by preventing waterborne illness. Our major source of supply, Hetch Hetchy in Yosemite National Park, is unfiltered and we have a relatively high immunocompromised population base. We also have emergencies like the 1989 Loma Prieta Earthquake, where water system disruptions can cause quality problems requiring a Boil Water Order. In addition, we have a highly educated and engaged customer base that is concerned about drinking water quality/health issues.

I became aware of Health Stream after meeting Martha Sinclair in San Francisco (in the late 1990s?). She was engaged with Melbourne, another large unfiltered system, and decided to meet with other unfiltered utilities while on a visit to the United States. After the visit, she added me to the mailing list.

Health Stream is a highly valuable and very unique publication. I am not aware of any other international publication that surveys water health research and distills it into easily digestible information. Such distillation is especially helpful for the typical utility water quality person who has an engineering/laboratory versus public health background."

Health Stream



ANNUAL REPORT 2014–15

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RESEARCH VALUE

WaterRA's mission is to lead and facilitate high quality, valued research and ensure implementation of outcomes to address urban and regional water issues.

We unlock the value of research through our unique characteristics of:

- Trusted strategic networks and collaborations
- Efficient business systems for project and program management
- Industry commitment and recognition of the value of research.

OUR STRATEGIC PRIORITIES

Be the business of choice for managing research.

Increase business value through strong collaborations.

Provide research products and services of high value.

Strengthen our capability to deliver better outcomes.

SEWERS

1 THE PROBLEM High annual cost of sewer corrosion in Australia estimated at hundreds of millions of dollars. Need for better strategies to control corrosion.	2 INVESTMENT & PROJECT NAME SCORE project (#2004) WaterRA \$220k Other \$19.5M over five years	3 PRODUCTIVITY BENEFIT Corrosion reduction through improved coatings, modelling and chemical dosing strategies. Potential capital savings of up to \$20M per year in large city systems. SERVICE DELIVERY BENEFIT Updated sulphide manual and on-line sulphide sensor improve total lifecycle management of sewer assets.
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DISINFECTION

1 THE PROBLEM Extensive research and knowledge about chlorination/chloramination but not consolidated.	2 INVESTMENT & PROJECT NAME Chlorine guidance manual (#1064) WaterRA \$50k Other \$261k over 1 year	3 RISK MANAGEMENT BENEFIT Assurance that disinfection requirements are being met. Improved disinfection residual monitoring practice. <ul style="list-style-type: none">• 135 utility staff trained• 629 fact sheets/reports downloaded
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MEMBRANES

1 THE PROBLEM Need for viable alternative to polymeric membranes for recycled water treatment.	2 INVESTMENT & PROJECT NAME Ceramic membranes (#3017) WaterRA \$20k Other \$910k over 3 years	3 RISK MANAGEMENT & PRODUCTIVITY BENEFIT Ceramic membranes now a viable option for recycled water treatment. Demonstrated lifecycle costs equivalent to polymeric membranes. Potential CAPEX and OPEX savings up to 10%.
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CRYPTOSPORIDIUM

1 THE PROBLEM High cost of gastro intestinal illness on the community. Each cryptosporidiosis hospitalisation costs \$17k. Annual cost in the US estimated to be \$45M. Need to better understand <i>Cryptosporidium</i> .	2 INVESTMENT & PROJECT NAME Inactivation of <i>Cryptosporidium</i> (#3013) WaterRA \$20k Other \$730k over three years	3 RISK MANAGEMENT & PRODUCTIVITY BENEFIT Up to 1 log less treatment required as most oocysts now known to be not viable/human infectious. Cost savings through avoiding unnecessary treatment upgrades.
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HEALTH BASED TARGETS

1 THE PROBLEM Need for best practice guidelines for drinking water plant management.	2 INVESTMENT & PROJECT NAME Good practice guide (#1074) WaterRA \$20k Other \$45k over 1 year	3 PRODUCTIVITY BENEFIT Allows quick and efficient deployment of resources to areas that control microbial risk in drinking water treatment. Potential to avoid treatment upgrades by best practice operation. RISK MANAGEMENT BENEFIT Concise, unambiguous requirement for drinking water treatment. Practical advice to underpin key elements of the Australian Drinking Water Guidelines. Improved assurance for small municipal systems.
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PROJECTS COMPLETED IN 2014–15

RESEARCH PROGRAMS

Drinking water

Novel treatment methods for reduction of bromide and iodide in drinking water sources (Cynthia Joll, Curtin University of Technology, Water Corporation, EAWAG, Australian Research Council 1015/09)

Implementation of biological filtration for the treatment of cyanobacterial metabolites (Gayle Newcombe, Australian Water Quality Centre, Barwon Region Water Corporation, Coliban Region Water Corporation, Hunter Water Corporation, Melbourne Water, United Water International Pty Ltd, Water Corporation 1021/09)

Using fluorescence for monitoring organic matter in drinking water systems (Rita Henderson, University of New South Wales, Melbourne Water, Hunter Water Corporation, University of Birmingham, Seqwater, Australian Research Council 1028/09)

Ultrasound for control of cyanobacteria (Carl Howard, University of Adelaide, Water Corporation of WA, Melbourne Water, Veolia Water Australia, Australian Research Council 1031/09)

NDMA in Australian drinking waters (Anna Heitz, Curtin University of Technology, Water Corporation of WA, University of NSW, University of Alberta (Canada) 1038/10)

Transformation chemistry of EDCs/PPCPs resulting from the disinfection of drinking water (Fred Leusch, Griffith University, Victoria University, Australian Water Quality Centre, Curtin University of Technology, The University of Queensland, National Measurement Institute, Water Research Foundation 1051/10)

Toolbox development for microbial source tracking water sources and catchments (Helen Stratton, Griffith University, Seqwater 1056/11)

Guidance manual for chlorine and chloramine disinfection residual management (Chris Chow, Australian Water Quality Centre, University of South Australia, South Australian Water Corporation, Power & Water Corporation, Water Corporation of WA, Melbourne Water, Degremont Australia, Central Highlands Water, Seqwater 1064/12)

Good practice guide to the operation of drinking water systems for the management of microbial risk (Peter Mosse, Hydrological, and Bruce Murray, City Water Technology, Water Services Association of Australia 1074/13)

Wastewater

Optimal management of corrosion and odour problems in sewers (Zhiguo Yuan, The University of Queensland, Australian Water Quality Centre, Barwon Region Water Corporation, Curtin University of Technology, Hunter Water Corporation, Melbourne Water, South Australian Water Corporation, South East Water

Corporation, United Water International Pty Ltd, University of NSW, University of Newcastle, Water Corporation of WA, Sydney Water, The University of Sydney, Gold Coast Water, CH2M Hill, Australian Research Council 2004/08)

Investigation of endocrine disruption in Australian aquatic environments (Fred Leusch, Griffith University, Seqwater, University of Technology Sydney, RMIT University, Landcare Research New Zealand, University of Melbourne, Sydney Water, Department of Water (WA), University of New South Wales, Melbourne Water, Department of Environmental and Resource Management Qld, Australian Research Council 2010/09)

Real time monitoring of membrane integrity for virus removal (Greg Leslie, University of NSW, Victoria University, South East Water Corporation, Sydney Water 2013/10)

Treating wastewater for potable reuse: Removing chemicals of concern using advanced oxidation processes (Anna Heitz, Curtin University of Technology, Department of Water (WA), Water Corporation of WA, GHD Pty Ltd, EAWAG, Australian Research Council 2019/10)

Guidance on sensors in the global water industry (Joep van den Broeke, Benten Water Solutions, WRC plc, Tetra Tech, AECOM, Chris Swartz Water Utilization Engineers, WERF, GWRC, Water Services Association of Australia, Sydney Water, Griffith University 2029/12)

Recycled Water

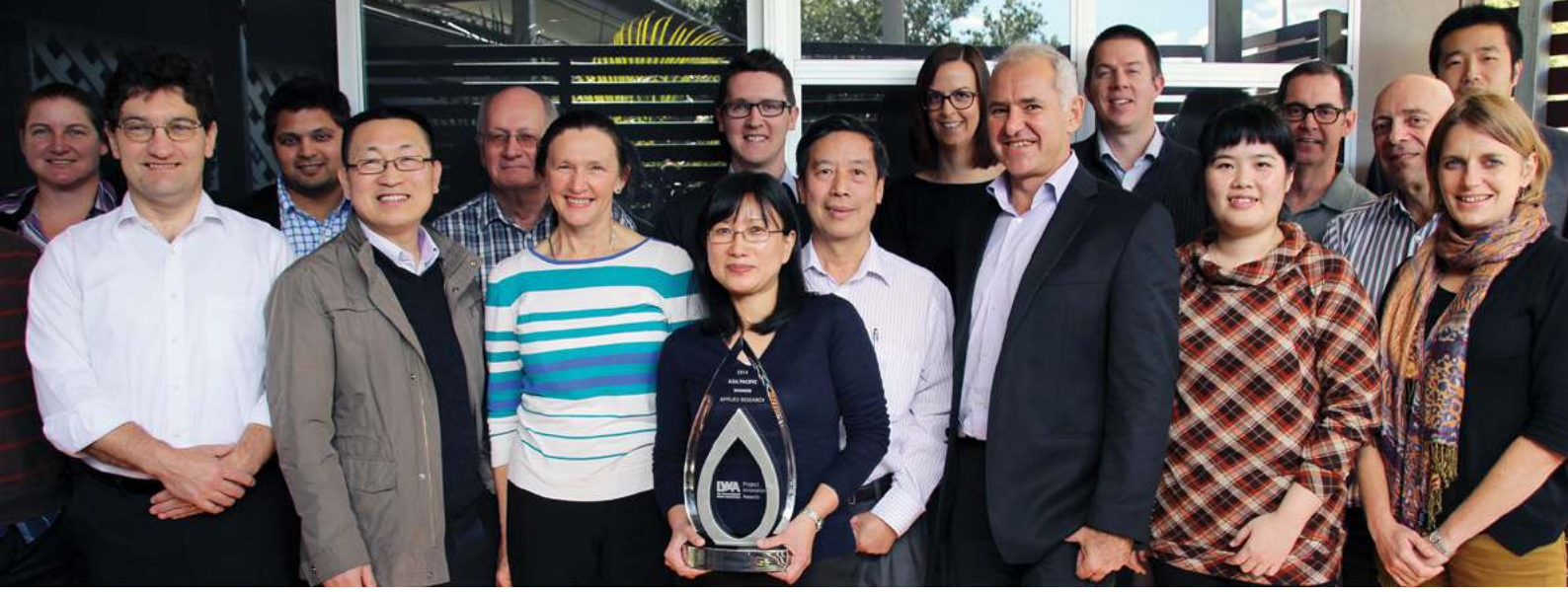
Micropollutants, mixtures and transformation products in recycled water: How much do we really know (Beate Escher, The University of Queensland, Water Corporation of WA, Veolia Water Australia, Department of Environmental and Resource Management Qld, Queensland Health, Seqwater, Curtin University of Technology, 3010/11)

Inactivation of *Cryptosporidium* across the wastewater treatment train: Recycled water fit-for-purpose Phase II (Brendon King, Australian Water Quality Centre, South Australian Water Corporation, Melbourne Water, Victorian Smart Water Fund 3013/11)

Urban stormwater harvesting: A new approach – extended monitoring (Jim Townsend, Suburban Water, Melbourne Water 3016/11)

Low maintenance chemical free recycling of effluent by ceramic membranes (Mikel Duke, Victoria University, Australian Water Recycling Centre of Excellence, Melbourne Water, South East Water Corporation, Black & Veatch, PWN Technologies 3017/11)

Institutional issues for green-gray infrastructure based on integrated 'One Water' management and resource recovery (Pierre Mukheibir, University of Technology Sydney, WERF, Water Research Foundation, Melbourne Water 3022/12)



Above: Members of the SCORE team with the IWA Regional Innovation award.

At the IWA World Congress in Lisbon in August 2014, it was announced that the SCORE project (2004/08) led by The University of Queensland was the global winner of the IWA Award for Applied Research.

Education Program

Nutrient sources of Tilligerry Creek estuary, NSW, using stable isotope analysis (Richard Connor, Honours, University of Newcastle, 2014)

Nutrient sources of Tilligerry Creek estuary, NSW, using stable isotope analysis (Daniel Kousbroek, Honours, University of Newcastle, 2014)

Exploratory investigation of taste and odour compounds in water supply by GC-MS olfactory analysis (Lily Liu, Honours, University of NSW, 2015)

Legal barriers to wastewater management and recycling (Simon Perraton, PhD, University of Tasmania, 2014)

Monitoring organic matter in drinking water systems using fluorescence spectroscopy (Yulia Shutova, PhD, University of UNSW, 2015)

Regulated and emerging disinfection by-products in drinking water; occurrence and precursor removal strategies (Kalinda Watson, PhD, Griffith University, 2015)

- **Scientific Evidence**
- **Collaboration**
- **New Projects**
- **Building Capacity**
- **Advocacy**



HIGHLIGHTS

WaterRA held its first Research Symposium in Melbourne on 15–16 August 2014. 120 people attended the two day event, which featured presentations on a wide range of topics.



SCIENTIFIC EVIDENCE

TRUSTED SCIENCE TO UNDERPIN DECISION-MAKING

Publications–General

- Around 1120 documents available for download from WaterRA website
- 41 peer reviewed journal publications in 2014-15

9 Fact Sheets

- Blue green algae (cyanobacteria): A guide
- Update on BMAA
- Biofiltration – will it work for you?
- Biological filtration potential
- Chlorine and chloramine residual basics
- Chlorine residual maintenance
- Monochloramine residual maintenance
- *Cryptosporidium* toolbox
- Ebola virus and drinking water

Science Review and Analysis

- Four Health Stream issues delivered to subscribers
- Research Impact Study – Identifying and quantifying the outcomes of membrane research, by Stephen Gray
- Building capacity and resilience, AWA Water, November 2014, by Angela Gackle and Carolyn Bellamy
- What’s green and smells worse than a frog in a blender? report on National cyanobacteria workshop, AWA Water, February 2015, by Angela Gackle, Gayle Newcombe, Lee Bowling and Philip Orr.
- Review of Harvey et al (2015) – independent review for TasWater

COLLABORATION

ADDRESS NATIONAL PRIORITIES IN WATER WITH THE BEST RESEARCH AND INDUSTRY TEAMS

Research Collaborations

- Total number of Member organisations in 2014-15 = 46
- Total number of non-Member collaborating agencies (since 2008) = 196
- Average number of collaborators per project = 5.6
- Seven new projects initiated/awarded in 2014-15.



Above: WaterRA Research Symposium, Melbourne July 2014

Consultation with Members

- Two Members meetings (October 2014, February 2015) 157 attendees
- Two-day Research Symposium in Melbourne (July 2014)
- Five node meetings (Tasmania, New South Wales, Victoria, Queensland, South Australia)
- 47 Member visits by staff covering all States and Territories
- NSW Catchment workshop (November 2014)

WEBSITE USAGE

- 589 individual subscribers to our Member log in area (496 in 2013-14)
- 97,644 page views were recorded (89,948 in 2013-14)
- Of the 1120+ documents on our website, 821 were downloaded 112,173 times in this year

What visitors downloaded most:

- Drinking water treatment fact sheet (10,647)
- A guide to blue-green algae fact sheet (3,823)
- All about Australia's drinking water fact sheet (3,538)
- Management strategies for cyanobacteria (blue-green algae) and their toxins: A guide for water utilities - RR 74 (3,029)
- Natural organic matter: understanding and controlling the impact on water quality and water treatment processes (2,146)
- Log Removals in wastewater treatment fact sheet (1,331)
- Public health aspects of rainwater tanks in urban Australia (1,011)
- Health Stream Issue 66 July 2012 (997)
- Risk assessment for drinking water sources - RR 78 (904)
- Zeta potential: a tool for the successful control of coagulation and removal of *Microcystis aeruginosa* in waste treatment plants (800)

NEW PROJECTS

Research Programs

Assessing, understanding and influencing customer perceptions of water quality (Gayle Newcombe, Australian Water Quality Centre, The University of Queensland, Griffith University, South Australian Water Corporation, Water Corporation of WA, Western Water, Seqwater 1076/13)

Decentralised treatment solutions for regional and remote water supplies (Peter Sancio, Victoria University 1077/13)

Monitoring from a distance – meeting the needs of the water industry using remote sensing and smart monitoring (Kumbesan Sandrasegaran, University of Technology Sydney, Coliban Region Water Corporation, TasWater, NSW Office of Water 1090/14)

An integrated approach to coagulant application in urban water systems (Zhiguo Yuan, The University of Queensland, Seqwater, Queensland Urban Utilities, District of Columbia Water and Sewer Authority 2036/13)

A risk based assessment framework to guide cost effective environmental protection from wastewater discharges (Tim Kildea, Australian Water Quality Centre, Griffith University, South Australian Water Corporation 2043/14)

Development of direct ultrafiltration integrity testing using novel fluorescent starch nanoparticles as virus surrogates (Marlene Cran, Victoria University, National Measurement Institute, South East Water 2044/14)

Triple bottom line analysis of alternative water supply projects (Benjamin Stanford, Hazen and Sawyer PC, WateReuse Research Foundation 3030/14)

Education Program

Exploratory investigation of taste and odour compounds in water supply by GC-MS olfactory analysis (Lily Liu, Honours 4104/14)

Characterising hydrophobic soils in water catchments and irrigated croplands (Luke Kitchens, Honours 4107/15)

Beach macrofauna as an indicator of anthropogenic derived nutrients (Angus Fanning, Honours 4108/15)

Implementation of dry stacking operating methods in waste water treatment (Sriharini Chellappan, PhD 4501/14)

Particle protection of pathogens from disinfection (Chardeep Chahal, PhD 4508/14)

Use of MT-PCR in an operational environment to assess the toxicity of algal bloom (Nijoy John, PhD 4509/14)

Formation of DBP from blue green algae following chlorination (Adam Tomlinson, PhD 4510/15)

Dissolved organic matter photosensitized degradation of antibiotics and antibiotic-resistant genes in wastewater treatment (Xi-Zhi Niu, PhD 4513/15)

Optimising anaerobic lagoons for improved energy production from waste (Peter Wardrop, PhD 4515/15)

Fluorescence characterisation of cyanobacteria (Sara Imran-Khan, PhD 4516/15)

TOTAL WATERRA CASH - \$0.53M

TOTAL IN-KIND - \$1.87M

TOTAL EXTERNAL CASH - \$1.15M

TOTAL VALUE OF NEW PROJECTS 2014-145 - \$3.55M

BUILDING CAPACITY

BUILDING RESEARCH CAPACITY AND CAPABILITY AND FACILITATING UPTAKE OF OUTCOMES



Above: WaterRA students at the February 2015 Orientation Day, Perth

Students who completed their studies in 2014-15

- Richard Connor**, Hons (University of Newcastle)
- Daniel Kousbroek**, Hons (University of Newcastle)
- Lily Liu**, Hons (GWMWater / University of NSW)
- Simon Perraton**, PhD (University of Tasmania)
- Yulia Shutova**, PhD (University of NSW)
- Kalinda Watson**, PhD (Griffith University)

Facilitating uptake of outcomes

- Managed (with WERF) the release of the Global Sensors Report
- Released "Good Practice Guide to the operation of drinking water supply systems for the management of microbial risk"
- Five training sessions held at conclusion of project 1064-12 - Guidance Manual for the maintenance of chlorine and chloramine residuals
- 16 researchers presented at Node Meetings
- Poster session held at February 2015 Members meeting in Perth

Students currently supported

- 20 PhD
- 3 Honours
- 1 industry member part-time Masters
- 5 Associate Student Members

Total supported (since 2008) = 71

Student Awards and Patents

Zuo Tong How (Curtin University) Best scientific poster presentation (2nd prize) 'Organic Chloramines stability, kinetics and their risk in drinking water' at DBP 2014: Disinfection By-Products in drinking water, Mulheim an der Ruhr, Germany 27-29 October 2014

Trang Trinh (UNSW) – Postdoctoral Writing Grant, Faculty of Engineering, UNSW, 2014

Peter Wardrop (UQ) – 2015 Nancy Millis Memorial PhD Award

Ana Martins (RMIT) – Patent extension filed: 2015901888
A chemical analysis system utilising chemiluminescent detection

Student Sponsors

WaterRA gratefully acknowledges the support of the following organisations:

- ChemCentre
- GWM Water
- Melbourne Water
- SA Water Corporation

ADVOCACY

PROMOTING THE IMPORTANCE OF SAFE WATER ON THE NATIONAL AGENDA AND INTERNATIONALLY



Above: Prof Steve Hrudehy's workshop "Ensuring Safe Drinking Water", Adelaide, 2015

National Committees

- Member of the AWA Water Quality Monitoring and Analysis Specialist Network Committee
- Representation on NHMRC Water Quality Advisory Committee
- Member of the AWA Editorial Board for the Water Journal
- Member of advisory committees for Monash University, RMIT University, Victoria University and Curtin University
- Member of the National Water Research Access Portal Committee

International Committees

- Board member of Global Water Research Coalition
- WERF Exploratory Team – Sustainable Integrated Water Management
- GWRC Emerging Contaminant Workshop, Germany – Stuart Khan attended on behalf of WaterRA

WaterRA Committees

- Maintain dialogue with state regulators through Regulatory Advisory Committee
- Gather information from science leaders through Scientific Advisory Committee
- Maintain quality assurance of project proposals through Project Review Team
- Maintain quality assurance of project proposals and student applications through Education Committee

Workshops

- Co-organised 4th National Cyanobacteria Workshop, Adelaide
- Attended 'Ensuring Safe Drinking Water Workshop' – Steve Hrudehy (co-sponsored Adelaide workshop with SA Water)
- Attended Linking Bio-analytical Tools to Human Health Issues Water Workshop
- Attended AWA Innovation Workshop
- Attended the WIOA Distribution System Workshop

Communication via website

- 107 news items published on the WaterRA website
- Monthly WaterRA Blog, 11 published
- Water Matters newsletter published monthly for Members

Communication via presentations

- Victoria University, Melbourne
- Central Queensland Regional Water Conference, Rockhampton Qld
- Queensland Water Directorate Technical Reference Group

CEO & CHAIR REPORT



CEO REPORT

This has been a transformational year for WaterRA. We listened intently to our stakeholders, who suggested several areas for improving our organisation to generate greater customer value. Feedback included the desire for lower upfront fees,

with more opportunity to purchase products and services as needed. Among the new services requested were a problem definition process, a more structured approach to knowledge transfer, and the introduction of a framework to consistently measure research value to the industry. These suggestions have resulted in a major overhaul of our business model and we are on track for implementation in the new financial year.

Central to the new business model is the use of *communities of interest* to provide rigour and topic specificity to the problem definition process. A *community of interest* is a gathering of people with relevant skills and experience around a specific industry issue. This enables our customers to drive research issues that are of direct relevance in their business by working through a structured process to articulate knowledge gaps, including defining the value proposition and mapping out a process for the transfer of that knowledge to the next users.

The accessibility of WaterRA products and services was identified as a key issue, with some stakeholder groups not well catered for by existing membership categories, and others who may have a more transient role in the water sector wanting to sporadically access products and services without membership. In response, we have introduced additional membership categories, which provide more affordable entry points for smaller utilities and other businesses (e.g. consultants). These include the Associate and Honorary membership categories, as well as introducing a Tier 4 industry membership for small utilities and councils. We are also offering selected products and services to non-members at full cost recovery rates. The total number of member organisations has grown this year and currently stands at 46.

Whilst the Board and staff have spent considerable time on the new business model, the output of scientific content this year has been significant, exceeding all previous years since incorporation. We have produced 19 final reports, 9 Fact Sheets, 1 Research Impact study, 35 peer reviewed publications, four editions of Health Stream and our website continues to grow its utility with more than 112,000 documents downloaded this year. More details of this usage are provided elsewhere in this report.

Our Education Program is always a highlight and industry sponsored projects continue to grow with 10 projects supported this year. A big thank you to our industry sponsors, who are featured on the 'Building Capability' page. We also gained Deductible Gift Recipient (DGR) tax status for our Education Program this year, which opens the door for us to seek philanthropic funding for student projects. It is our aim to grow the Education program further through these new initiatives.

Looking ahead, you will see a very different and more customer focussed WaterRA. There is now great potential to design projects that have significant benefit in your individual businesses, through improved research outcomes.

David Halliwell, WaterRA CEO



CHAIR REPORT

It has been a full year for me as the "new" WaterRA Chair, beginning with the listening tour with David. I am confident that the changes in course that the company is making will strike the right notes with an industry about which we all care deeply.

In addition to major changes to the business, in the past year WaterRA has also bade farewell to some significant people.

Professor Michael R Moore was the Chair of WaterRA from 2008 until September last year. The Michael R Moore Memorial Honours Scholarship was established this year to commemorate him.

In May this year Dr David Halliwell announced his resignation after seven years with WaterRA, beginning as Program Manager, Wastewater and culminating in his term as CEO. We wish him the very best at Deakin University, in his new role as Director of the Centre for Regional and Rural Futures.

WaterRA's new CEO, from a strong field of candidates, is Dr Paul Pretto. We have no doubt that Paul is an excellent choice to lead our organisation into the future.

Shaun Cox, WaterRA Board Chair

WATERRA SIGNIFICANT EVENTS TIMELINE

It is 20 years since the CRC for Water Quality and Treatment, the forerunner of WQRA and WaterRA, was formed. Below is a snapshot of some of the defining moments in our water journey.

MILLENNIUM DROUGHT 2001–2009

1,000km algal bloom in Darling River	1990	
National Water Quality Management Strategy launched	1992	
	1995	CRCWQT established
	1996	Workshop held on drinking water and public health priorities First issue of <i>Health Stream</i> produced
<i>Cryptosporidium</i> incident in national spotlight	1998	Workshop on directions for research on algal toxins <i>Cryptosporidium</i> in Water Consensus Conference
	2001	Workshop on disinfection by-products (DBPs) and health Joint CRCWQT/WSAA/WHO workshop on 'Framework' leads to inclusion in WHO 2004 guidelines for drinking water quality
	2002	Workshop on blue-green algae in drinking water systems
National Water Initiative signed by Council of Australian Governments. (COAG) Major water reform begins	2004	Updated version of the ADWG released, including introduction of the 'Framework' developed by the CRCWQT
Driest year on record in many parts of Australia	2006	
Water Quality Advisory Committee (to oversee ADWG) established by NHMRC. Chaired by CRCWQT CEO	2007	
	2008	CRCWQT ends >80 reports published, contributing significantly to guidelines and utility operations Water Quality Research Australia (WQRA) established to succeed CRCWQT
Water restrictions widely implemented in SE Australia	2009	GWRC/WQRA Cyanobacteria Guidance manual published, incorporating Alert Level Framework (ALF) and treatment strategy summary
Severe floods force evacuation of thousands in SE Qld	2010	National Consensus Workshop for the Australian DALY (Disability-Adjusted Life Year) project held
NHMRC release discussion paper on potential introduction of Health Based Targets in ADWG	2011	
	2012	Establishing Australian Health Based Targets for Microbial Water Quality published
	2014	Treatment Requirements for Australian Source Waters to meet Health Based Targets published

CONFERENCES

AWA Small Water and Wastewater Conference
– Newcastle, August 2014

4th National Cyanobacteria Workshop
– Adelaide, September 2014

SETAC – Adelaide, September 2014

Water Industry Operators Conference
– Bendigo, September 2014

SA Water R&I Forum
– Adelaide, September 2014

Inter-Water – Water Quality Monitoring and
Efficiency Show – Melbourne, October 2014

AWA Water in the Bush
– Darwin, October 2014

Membrane Society of Australasia,
ECR Symposium – Geelong, November 2014

Melbourne Water Research Symposium
– Melbourne, December 2014

Goyder Research Forum
– Adelaide, February 2015

OzWater'15 – Adelaide, May 2015

CAPIM Research Summit
– Melbourne, May 2015

Melbourne Water Research Symposium
– Melbourne, June 2015

INTERNATIONAL

AWWA Water Quality Technical Conference
– New Orleans, November 2014

Canadian Water Conference,
– Ottawa (Canada), May 2015

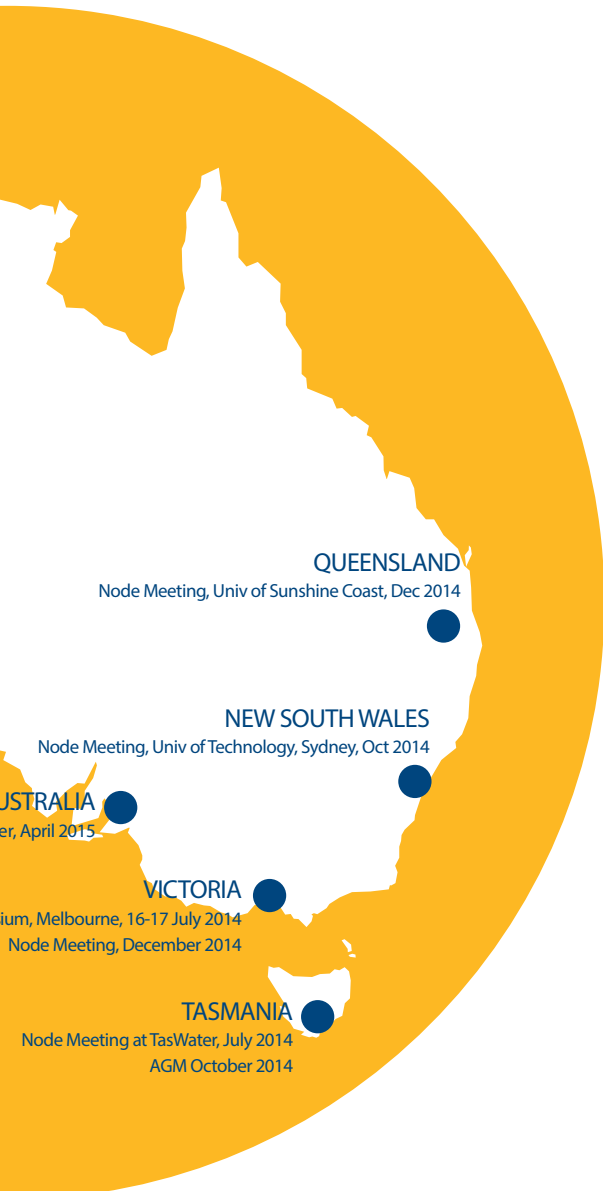
GWRC Board Meeting,
– Ottawa (Canada), May 2015

WATERRA ACTIVITY MAP 2014–15

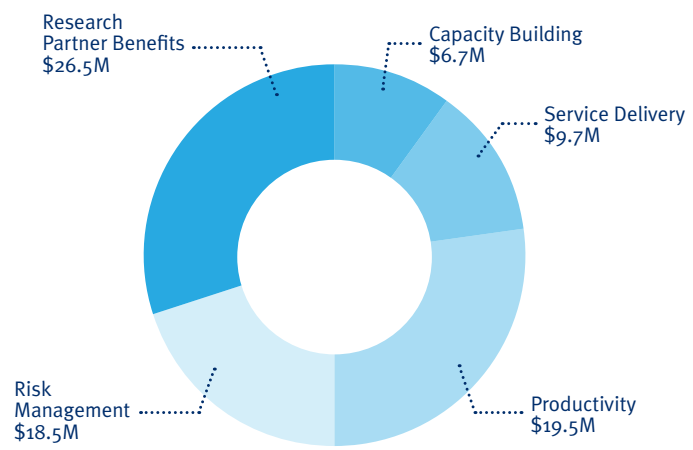


Fourth National Cyanobacteria
Workshop, Adelaide Sept 2014

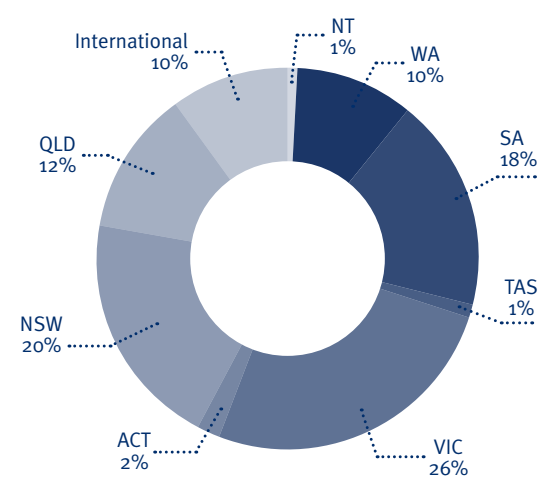




INVESTMENT IN INDUSTRY OUTCOMES



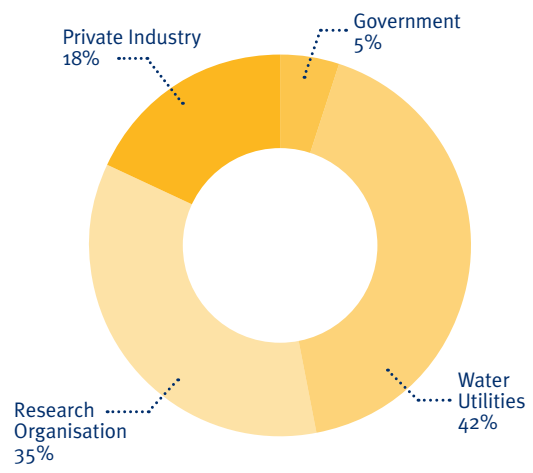
WHERE OUR COLLABORATORS ARE



Gareth Roeszler presenting the Car Wash Pilot Study poster at WQTC14 in New Orleans



WHO OUR COLLABORATORS ARE



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, four Directors nominated by industry members, an Independent Chairperson and the CEO.

During 2014-15 the following Board changes occurred:

- Professor Michael R Moore, Chair of WaterRA since 2008, passed away on 31st August 2014.
- Mr Shaun Cox took up the Chair on the 22nd of October 2014.
- Dr Hamish Reid stepped down as a Board Director at the AGM in October.
- Mr David Sheehan was appointed as an Industry representative to the Board at the AGM in October.
- CEO David Halliwell tendered his resignation on 13th May 2015.



WaterRA Board at AGM in Hobart, October 2014.



CURRENT BOARD DIRECTORS

AT 30 JUNE 2015

Mr Shaun Cox, 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.

Prof Simon Beecham, Non-Executive Director (Research)

Simon was appointed to the Board in November 2009, and was a member of the original Implementation Committee for WaterRA in the lead-up to its incorporation. Prof Beecham is currently Pro Vice Chancellor for the Division of Information Technology, Engineering and the Environment at the University of South Australia, and is a former Head of the School of Natural and Built Environments and Director of the Centre for Water Management and Reuse.

Dr Steve Capewell, Non-Executive Director (Industry)

Dr Steve 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 currently heads the Drinking Water Quality Branch at the Water Corporation in Western Australia.

Dr Dharma Dharmabalan, Non-Executive Director (Industry)

Dr Dharma Dharmabalan has worked in the water industry in Australia for more than 25 years. He is currently the General Manager for Capital Works Delivery with TasWater in Tasmania and holds degrees in the fields of Civil Engineering, Environmental, Hydrology, Computing and Water Systems Risk Management Philosophies from Universities around the world.

Prof Stephen Gray, Non-Executive Director (Research)

Prof 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.

Dr David Halliwell, Executive Director

Appointed as CEO and Executive Director for WaterRA in April 2014. Dr Halliwell worked with WaterRA in various research management roles, including Acting CEO (August 2012 - January 2014) from its commencement in 2008. Previously Dr Halliwell was a Research Director with the Victorian Department of Primary Industries.

Dr John Howard, Non-Executive Director (Research)

Dr John Howard was appointed to the Board in November 2009, and was a member of the original Implementation Committee for WaterRA. He has more than 30 years experience in water quality and water resources management and is currently the General Manager of Strategy & Planning at SA Water.

Mr David Sheehan, Non-Executive Director (Industry)

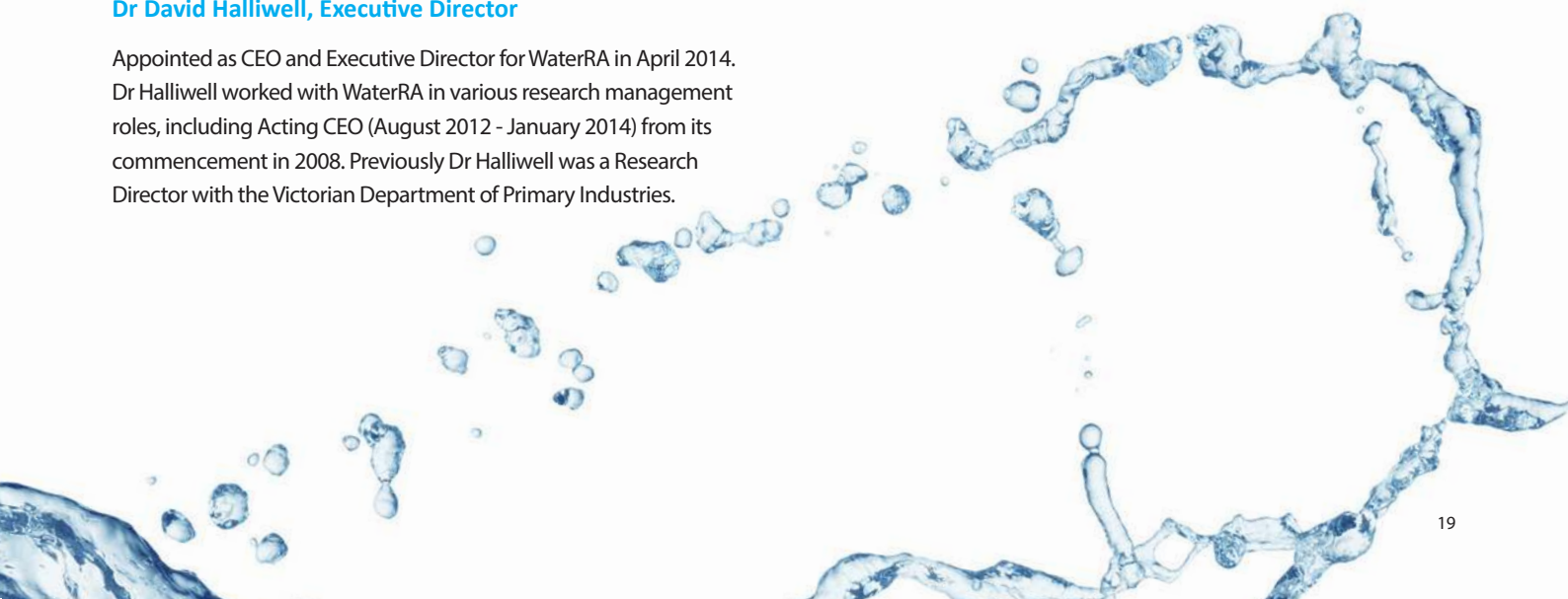
Mr David Sheehan was appointed as a Non-Executive Director for WaterRA in October 2014. David took up the role of General Manager Water Quality Performance and Regulation at Coliban Water in February 2014. Prior to that he worked in a regulatory role with the Victorian Department of Health. He is also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

Dr Melita Stevens, Non-Executive Director (Industry)

Dr 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. Dr Stevens 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.

Mr Peter Brass, Company Secretary

Mr 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 and is a Graduate of the Australian Institute of Company Directors and facilitates training courses for the Governance Institute of Australia.



WATERRA BOARD COMMITTEES

The WaterRA Board is supported by two advisory committees: The Scientific Advisory Committee and the Regulatory Advisory Committee. These committees provide the Board with strategic and impartial scientific and regulatory advice on WaterRA's research program, and on emerging issues of concern to the water sector. The advisory committees comprise national and international experts, who are highly regarded in their respective fields.

Scientific Advisory Committee Members: 2014-15

Dr John Howard (Chair)	Australian Water Quality Centre
Prof David Waite (Deputy Chair)	University of New South Wales
Dr Andrew Bath	Water Corporation WA
Prof Ian Falconer	University of Adelaide
Prof Jurg Keller	University of Queensland
Dr Stephanie Rinck-Pfeiffer	Global Water Research Coalition
Mr Mike Chapman	GHD
Dr David Halliwell	WaterRA

Regulatory Advisory Committee Members: 2014-15

Mr David Sheehan (Chair)	Coliban Water, Victoria
Dr David Halliwell	WaterRA
Dr Paul Byleveld	Department of Health (NSW)
Dr David Cunliffe	Department of Health (SA)
Mr Rodney Dedman	Department of Health (VIC)
Mr Xavier Schobben	Department of Health and Families (NT)
Dr Greg Jackson	Queensland Health
Dr Kaye Power	Independent Pricing and Regulatory Tribunal (NSW)
Mr Jim Dodds	Department of Health (WA)
Dr Phil Callan	Independent
Mr Cameron Dalgleish	Department of Health and Human Services (TAS)

Two Board Sub-committees — the Risk & Audit Committee and Human Resources Committee — provide an important assurance that key areas (Finance, Human Resources and Risk Management) of the Board's duties are rigorously discharged.

Risk and Audit Sub-committee Members: 2014-15

Prof Stephen Gray (Chair)	Victoria University
Dr Melita Stevens	Melbourne Water
Dr Dharma Dharmabalan	TasWater
Mr David Sheehan	Coliban Water
Mr Gary Penn	SA Water Corporation (independent member)

Human Resources Sub-committee Members: 2014-15

Dr Steve Capewell (Chair)	Water Corporation WA
Prof Simon Beecham	University of South Australia
Dr John Howard	Australian Water Quality Centre

MANAGEMENT COMMITTEES

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: 2014-15

Prof Felicity Roddick (Chair)	RMIT University
Ms Carolyn Bellamy	WaterRA
A/Prof Mike Burch	SA Water Corporation
Dr Rita Henderson	University of NSW
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 Gareth Roeszler	WaterRA
Mr Glen Rowlands	TasWater

Project Review Team

The Project Review Team (PRT) met three times during 2014-15. The PRT provided invaluable 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 WaterReuse Research Foundation. The PRT comprises a cross-section of industry and research representatives and core WaterRA staff.

Project Review Team Members: 2014-15

Dr Rino Trolio (Chair)	Water Corporation WA
Dr David Halliwell	WaterRA
Mr Asoka Jayaratne	Yarra Valley Water
A/Prof Stuart Khan	University of New South Wales
Dr Penny Knights (retired Feb 2015)	Water NSW (formerly Sydney Catchment Authority)
A/Prof Fred Leusch	Griffith University
Ms Claire McInnes	WaterRA
Dr Con Pelekani	SA Water Corporation
Ms Nadine Riethmuller	Power & Water Corporation NT
Mr Gareth Roeszler	WaterRA
Dr Martha Sinclair	Monash University

WATERRA TEAM

Dr David Halliwell, CEO and Executive Director

David was appointed CEO and Executive Director in April 2014. He was previously Acting CEO (August 2012 - January 2014) and General Manager - Research and has worked with WaterRA in various research management roles since 2008. Before that he was a Research Director with the Victorian Department of Primary Industries. David has a PhD in chemistry, an MBA, a BSc (Hons) in chemistry and aquatic biology.

Mr Peter Brass, General Manager, Operations 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.

Mr Gareth Roeszler, Program Manager, Research

Gareth commenced working with WaterRA in March 2010 and has had several roles in the Research Team. Gareth has a BEng (Chemical), a BLaws (Honours) and a Grad Dip in Legal Practice. Before joining WaterRA Gareth worked for BHP Billiton at Olympic Dam in SA.

Ms Angela Gackle, Manager, Marketing & Communications

Angela returned to this position in May 2013 (having been in the role from 2008 - 2010). She has a BSc in zoology/ pharmacology. Angela was Manager, MarComms in the final years of the CRC WQT, overseeing the completion of around 70 final reports. She held a range of Communication roles in CSIRO from 1990 - 2003 and has worked in local government and a number of other sectors.

Ms Carolyn Bellamy, Manager, Education Program

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

Ms Claire McInnes, Program Coordinator

Claire commenced in this role in October 2012. 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, and is a member of the Australian Institute of Project Management.

Mr Fred Fleuren, Senior Finance Officer

Fred is the Senior Finance Officer, and manages the financial and management accounts. He joined WaterRA in October 2008, having worked at CRC WQT since 2003. Fred is a member of the Association of Accounting Technicians and is continuing studies to gain further business knowledge and develop new professional skills.

Other staff changes during the year:

CEO Dr David Halliwell tendered his resignation on the 13th May 2015, but was still in the role at 30th June.

DIRECTORS REPORT AND FINANCIAL SUMMARY

FOR THE YEAR ENDED 30 JUNE 2015

- **Corporate Information**
- **Directors' Report**
- **Auditor's Independence Declaration**
- **Statement of Profit or Loss and Other Comprehensive Income**
- **Statement of Financial Position**
- **Directors' Declaration**
- **Independent Auditor's Report**

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 2015 to the members of WaterRA.

The Board

WaterRA has a representative Board comprising nine Directors:

- An Independent non-executive Chair
- Four non-executive Directors nominated by industry members and elected by members
- Three non-executive Directors nominated by research members and elected by members
- The CEO

The Chair is a paid position elected for a term of three years, 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.

WaterRA Committees

The Board established a Scientific Advisory Board Committee and a Regulatory Advisory Board Committee. The advisory committees have no formal decision-making powers but provide expert advice to assist the Board and management in developing, conducting and evaluating the research program of WaterRA.

The Board also established two sub-committees — the Risk and 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 and Audit Committee appointed an Independent Member for a two year term ending May 2016.

In addition to the two advisory Board committees and sub-committees 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 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 page **19**.

During the 2014-15 financial year the Board met on five occasions for Board meetings or Non-Executive Director meetings — either face-to-face or via teleconference. In addition Directors also met on four 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
Prof Simon Beecham	27 Nov 2009	2015 AGM	5	4	1	5	4	1	n/a	3
Dr Stephen Capewell	25 Oct 2013	2015 AGM	5	5	0	5	5	0	2	2
Mr Shaun Cox	22 Oct 2014	2017 AGM	3	3	0	3	3	0	n/a	n/a
Dr Dharma Dharmabalan	15 Nov 2013	2016 AGM	5	4	1	5	3	2	1	n/a
Prof Stephen Gray	28 Oct 2011	2015 AGM	5	5	0	5	5	0	4	n/a
Dr David Halliwell	9 Apr 2014	15 Jul 2015	5	5	0	n/a	n/a	n/a	n/a	n/a
Dr John Howard	12 Oct 2007	2015 AGM	5	5	0	5	4	1	n/a	2
Prof Michael Moore	11 Jul 2008	31 Aug 2014	1	1	0	1	1	0	n/a	n/a
Dr Hamish Reid	26 Oct 2010	2014 AGM	2	2	0	2	2	0	n/a	1
Mr David Sheehan	22 Oct 2014	2016 AGM	3	2	1	3	2	1	3	n/a
Dr Melita Stevens	26 Oct 2010	2016 AGM	5	5	0	5	5	0	2	n/a

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
Prof Simon Beecham	PhD (Civi Eng), BSc(Hons) (Civil Eng), GCHE FAICD, FIE (Aust), CPEng, SIA, AWA	Pro Vice Chancellor, Information Technology, Engineering and the Environment, University of South Australia	HR Committee (Board sub-committee)
Dr Stephen Capewell	BSc(Hons), M Eng & Tech Man, PhD (Chem Eng), GAICD, AWA, IDA, IWA	General Manager, Operations, Water Corporation of WA	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, DipH Delft, GradDip (Comp), BScEng (Hons) (Civil), MEng (Env), Adjunct Prof (VU), Adjunct A/Prof (Deakin) FIE (Aust), CPEng, FICE, FASCE, MAWA, MAICD	General Manager, Works Delivery, Tasmanian Water & Sewerage Corporation	Risk & Audit Committee (Board sub-committee)
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 David Halliwell	PhD, BSc (Hons), MBA, GAICD	CEO Water Research Australia	
Dr John Howard	BSc (Hons), PhD (Freshwater Chemistry) FAICD, AWA (Director)	General Manager, Strategy & Planning, SA Water Corporation	Chair: Scientific Advisory Committee Member of HR Committee (Board sub-committee)
Prof Michael R Moore	BSc (Hons), PhD (Medicine), DSc (Biochemistry in Medicine) MACM, FACTRA AWA, ACTRA, Biochem. Soc. BTS, IWA,	Independent	Independent Chair: WaterRA Board
Dr Hamish Reid	PhD, BSc (Hons) MAICD, AWA	General Manager Customer and Business Futures, South East Water Corporation	Member of HR Committee (Board sub-committee)
Mr David Sheehan	MSc, DipMgmt, MAICD, NHMRC, AWA	General Manager, Water Quality Performance & Regulation, Coliban Region Water Corporation	Risk & Audit Committee (Board sub-committee)
Dr Melita Stevens	PhD, BAppSc, DipMicro, Adjunct Prof (RMIT), Senior Fellow (Melbourne) AWA	Principal Scientist, Melbourne Water Corporation	Risk & Audit Committee (Board sub-committee)

Company Secretary

Mr Peter Brass has been the Company Secretary during the 2014-15 financial year.

Principal Activities

WaterRA's principal activities during 2014-15 were:

- Coordinating and managing high quality research on priority issues in the water industry 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
- Promoting the importance on the national agenda of safe water to the Australian community by engaging with key decisions makers within government and industry

Operating Results for the Period

The company's trading result for the year ended 30th June 2015 was a deficit of **(\$63,064)** [2014 deficit of **(\$452,668)**].

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

- PART A - A deficit of **(\$619,070)** for the 2014-15 year from revenue and expenditure acquitting commitments to research projects [2014 deficit of **(\$979,365)**] from cash reserves.
- PART B - A surplus of **\$556,007** for the 2014-15 year from the remainder of the Income Statement not related to acquitting commitments to research project expenditure [2014 surplus of **\$526,697**].

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.

Cash & Project Commitments

At 30th June 2015 the company had cash and cash equivalents plus financial assets of **\$3,041,120** [2014 **\$2,902,420**].

At the same date WaterRA commitments to research projects plus external project funding held or received by WaterRA was **\$1,294,971** [2014 **\$1,373,383**].

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.

DIRECTORS REPORT

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.

After Balance Date 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 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 \$9,078 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 2014, 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)

20 August 2015

AUDITOR'S INDEPENDENCE DECLARATION



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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 2015, 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.

A handwritten signature in blue ink that reads 'Paul Gosnold'. The signature is written in a cursive, flowing style.

Paul Gosnold
Director

BDO Audit (SA) Pty Ltd

Adelaide, 13 August 2015

STATEMENT OF PROFIT OR LOSS AND OTHER COMPREHENSIVE INCOME

FOR THE PERIOD ENDED 30 JUNE 2015	2015	2014
	\$	\$
REVENUE		
Revenue from continuing operations	3,604,463	3,437,360
Other income	43,394	20,542
EXPENDITURE		
Research program project expenses	(2,087,643)	(2,212,530)
Education program expenses	(170,340)	(163,791)
Marketing and communications	(119,102)	(172,114)
Operating expenses	(349,503)	(287,040)
Depreciation and amortisation expense	(13,843)	(13,843)
Employee benefits	(936,600)	(1,027,931)
Chairman remuneration	(33,890)	(33,321)
Surplus/(Deficit for the year)	(63,064)	(452,668)

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

STATEMENT OF FINANCIAL POSITION

AS AT 30 JUNE 2015	2015 \$	2014 \$
ASSETS		
Current assets		
Cash and cash equivalents	1,452,031	2,902,420
Trade and other receivables	148,672	273,217
Financial assets	1,589,289	-
Prepayments	45,009	57,600
Total current assets	<u>3,235,001</u>	<u>3,233,237</u>
Non-current assets		
Intangible asset - software	27,685	41,527
Total non-current assets	<u>27,685</u>	<u>41,527</u>
Total assets	<u>3,262,686</u>	<u>3,274,764</u>
LIABILITIES		
Current liabilities		
Trade and other payables	634,537	393,672
Revenue received in advance	928,245	1,148,636
Total current liabilities	<u>1,562,782</u>	<u>1,542,308</u>
Non-current liabilities		
LSL Provision Long Term	30,512	-
Total non-current liabilities	<u>30,512</u>	<u>-</u>
Total liabilities	<u>1,593,294</u>	<u>1,542,308</u>
Net assets	<u>1,669,392</u>	<u>1,732,456</u>
EQUITY		
Retained earnings	1,669,392	1,732,456
Total equity	<u>1,669,392</u>	<u>1,732,456</u>

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

DIRECTORS DECLARATION

WATER RESEARCH AUSTRALIA LIMITED
A.B.N. 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 2015 and the state of affairs of the company as at 30 June 2015.
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.



Shaun Cox
(Chair)



Stephen Gray
(Director)

Dated this 20th day of August 2015

INDEPENDENT AUDITOR'S REPORT



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INDEPENDENT AUDITOR'S REPORT TO THE MEMBERS OF WATER RESEARCH AUSTRALIA LIMITED

Report on the Financial Summary

The accompanying financial summary of Water Research Australia Limited comprises the statement of financial position as at 30 June 2015 and the statement of profit or loss and other comprehensive income for the year then ended, derived from the audited financial report of Water Research Australia Limited for the year ended 30 June 2015. The financial summary does not contain all the disclosures required by the Australian Accounting Standards and accordingly, reading the financial summary is not a substitute for reading the audited financial report.

Directors' Responsibility for the Financial Report

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

Auditor's Responsibility

Our responsibility is to express an opinion on the financial summary based on our audit procedures which were conducted in accordance with Auditing Standard ASA 810 Engagements to Report on Summary Financial Statements. We conducted an independent audit of the full financial report of Water Research Australia Limited for the year ended 30 June 2015. Our audit report on the full financial report was signed on 21 August 2015, and was not subject to any modification. The Auditing Standards require that we comply with relevant ethical requirements relating to audit engagements and plan and perform the audit to obtain reasonable assurance whether the financial report is free from material misstatement.

An audit involves performing procedures to obtain evidence about the amounts and disclosures in the financial summary. The procedures selected depend on the auditor's judgement, including the assessment of the risks of material misstatement of the financial summary, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the entity's preparation of the financial summary in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. Our procedures in respect of the financial summary included testing that the information in the financial summary is consistent with the full financial report, and examination on a test basis, of evidence supporting the amounts, discussion and analysis, and other disclosure which was not directly derived from the full financial report. These procedures have been undertaken to form an opinion whether, in all material respects, the financial summary is presented fairly.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Opinion

In our opinion, the financial summary derived from the audited financial report of Water Research Australia Limited as of 30 June 2015 is consistent, in all material respects with the audited financial report in accordance with Australian Accounting Standards.

BDO Audit (SA) Pty Ltd

Paul Gosnold
Director

Adelaide, 21 August 2015

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).

WATERRA PUBLICATIONS 2014–15

Journal Papers – Refereed

Bahnmueller S, Loi CH, Linge KL, Von Gunten U and Canonica S (2015) Degradation rates of benzotriazoles and benzothiazoles under UV-C irradiation and the advanced oxidation process UV/H₂O₂. *Water Research* 74, 143-154.

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Chang C-H, Cai L-Y, Lin T-F, Chung C-L, Burch M and van der Linden L (2015) Assessment of the impacts of climate change on the water quality of a small deep reservoir in a humid-subtropical climate region. *Water (MDPI)* 7(4), 1687-1711.

Fujii M, Yeung ACY and Waite TD (2015) Competitive Effects of Calcium and Magnesium Ions on the Photochemical Transformation and Associated Cellular Uptake of Iron by the Freshwater Cyanobacterial Phytoplankton *Microcystis aeruginosa*. *Environmental Science & Technology*. 2015, 49 (15), pp 9133–9142.

Furlong C, Guthrie L, De Silva S and Considine R (2014) Analysing the terminology of integration in the water management field. *Water Policy*. 17 (1), 46–60.

Gonzalez-Torres A, Putnam J, Jefferson B, Stuetz R and Henderson R (2014) Examination of the physical properties of *Microcystis aeruginosa* flocs produced on coagulation with metal salts. *Water Research* 60, 197-209.

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(2014) Analysis of free amino acids in natural waters by liquid chromatography tandem mass spectrometry. *Journal of Chromatography A* 1370, 135-146.

King B, Fanok S, Phillips R, Swaffer B and Monis P (2015) Integrated *Cryptosporidium* assay to determine oocyst density, infectivity, and genotype for risk assessment of source and reuse water. *Applied and Environmental Microbiology* 81, 3471-3481.

Kristiana I, McDonald S, Tan J, Joll C and Heitz A (2015a) Analysis of halogen-specific TOX revisited: Method improvement and application. *Talanta* 139(0), 104-110.

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Masters N, Christie M, Stratton H and Katouli M (2015) Viability and stability of *Escherichia coli* and enterococci populations in fecal samples upon freezing. *Canadian Journal of Microbiology* 61(7), 495-501.

Masters N, Christie M, Katouli M and Stratton H (2015) A combination of PhP typing and beta-D-glucuronidase gene sequence variation analysis for differentiation of *Escherichia coli* from humans and animals. *Canadian Journal of Microbiology* 61(6), 409-416.

Mukheibir P (2015) Institutional issues for One Water management. *Advances in Water Research (April-June 2015)*, 20-22.

Ometto F, Pozza C, Whitton R, Smyth B, Torres AG, Henderson RK, Jarvis P, Jefferson B and Villa R (2014) The impacts of replacing air bubbles with microspheres for the clarification of algae from low cell-density culture. *Water Research* 53, 168-179.

Paparini A, Gofton A, Yang R, White N, Bunce M and Ryan UM (2015) Comparison of Sanger and next generation sequencing performance for genotyping *Cryptosporidium* isolates at the 18S rRNA and actin loci. *Experimental Parasitology* 151, 21-27.

Payne ME, Chapman HF, Cumming J and Leusch FDL (2014) In vitro cytotoxicity assessment of a hydraulic fracturing fluid. *Environmental Chemistry*, - 12(3) 286-292.

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