



In illustrious company

At the 2016 Water New Zealand Conference, Graham McBride was awarded the Association Medal for his outstanding contribution to the water industry and the association. It is an honour rarely bestowed, reserved only for a select few who truly are the elite of the industry. **BY MARY SEARLE BELL.**

Graham McBride has held senior scientist positions with NIWA since 1993. There, he is responsible for gaining and leading research and consultancy on processes involved in water pollution issues, with an emphasis on statistical and mathematical lines of enquiry.

This work includes innovative water-related human health risk assessment methodologies, particularly for microbes. Graham has also championed the application of Bayesian statistics to environmental problems, and he has had a substantial role in the development of regulatory tools for the management of drinking water quality.

Forty-five years ago, after completing a Bachelor of Science Degree, Graham began his career as a technical support person for the Water Resources Council via the Water and Soil Division of the Ministry of Works and Development (MWD) in Wellington, mostly undertaking technical investigations on the impact of point sources on water quality in rivers.

Three years later, in 1974, he went to the UK, to the University of Newcastle-upon-Tyne (supported by MWD) to complete a Master's degree in Water Resources – his thesis was on ground water pollution modelling. By this time, he says, he had come to regard working with water quality issues as contributing to a better world.

Returning to New Zealand 18 months later he resumed working with the MWD. That organisation was setting up a number of research centres, one of which focussed on water quality. Graham says this centre was deliberately located on Waikato University's campus in Hamilton in order to foster close interaction with the university and in a region where water pollution issues were common.

At about the time of Graham's move to Waikato, he became involved with what is now Water New Zealand.

"In 1978 the president of the Water Supply and Disposal Association, Brian Carlisle, accosted me in downtown Hamilton," he says.

"He thrust a piece of paper in front of me and said, 'here, sign this'. It was a membership form.

"I said, what's the annual fee?"

"It's \$3', he says. So I said, good, where do I sign?"

"Almost immediately he said, 'We'd like you to become secretary'."

Graham accepted the role and began serving the association, culminating in his holding the office of president from 1986-88.

"The mid-80s was about the time the RMA was being considered and a lot of the resources of the association's board were taken up with this, namely, what did we want to be in the Act from a water industry point of view?"

"For example, we argued for some provision to be made for permitting some minor uses rather than requiring individual resource consents. This, and other considerations, would require comprehensive catchment or regional plans that adequately dealt with water issues – they'd require more technical input and should result in less litigation. The Act has been quite successful in this," he says.

Workwise, Graham started to move away from modelling water pollution processes into environmental statistical issues – determining trends, addressing what we mean by 'significant'. One output of this was his co-authorship of the 1990 text *Design of Water Quality Monitoring Systems* with colleagues from Colorado State University. He had another more detailed book published in 2005: *Using Statistical Methods for Water Quality Management*.

By then his focus had moved to microbial levels in rivers, lakes and on the coast – monitoring, surveying and human health risk assessment.

At that time, freshwater microbial studies were not well developed. So in the late 1990s, together with Desmond Till (retired chief bacteriologist with the National Health Institute), Eric Pyle (MfE) and Dr Michael Taylor (Ministry of Health), he obtained funds from Central Government for a national survey and associated risk analysis for pathogens and indicators in 25 recreational water sites (rivers and lakes) around the country. It was a \$2 million survey, funded at a time when Winston Peters was Treasurer.

"We have him to thank for the funding," says Graham.

"The results of that 15 month-long survey formed the basis of

the guidelines and objectives we have today. It's time we did another!"

This was the start of his involvement with QMRA (Quantitative Microbial Risk Assessment). This focuses on actual pathogens rather than bacterial indicators. This meant Graham became more involved with water related health issues. He worked abroad with the World Health Organization, which led to his authorship of a number of chapters in a WHO/IWA book on waterborne zoonoses in 2004 and another in 2012 on animal waste impacts on water and health – both very relevant to current water supply issues.

In addition to the two books mentioned, Graham has contributed eight chapters to various other books. He has also written over 80 journal papers and presented at numerous conferences around the world, including, naturally, Water New Zealand conferences, where he has received the Best Paper Award four times and the Ronald Hicks Memorial Award twice.

Graham has been with NIWA since its inception – he came across from the DSIR (the Department of Scientific and Industrial Research) when it was broken up in 1992, which, in turn, had taken over Graham's research centre from the MWD when it was disestablished in 1988. He says

"I've been lucky to work with really competent people, particularly at NIWA. I would like to acknowledge the impact Michael Taylor, Desmond Till and David Ogilvie have had on my career."

NIWA is, and has been, a very good employer, fostering good science.

"They support QMRA, catchment microbial modelling, and the development and advocacy of new statistical methods," he says.

"All with the objective of feeding information into groups, such as Water New Zealand, as how best to proceed."

In 1997 Graham received the Arthur Sidney Bedell Award from the USA Water Environment Federation for extraordinary person service to a WEF member association.

And in 2008 he was awarded the New Zealand Freshwater Sciences Society Medal for sustained and distinguished contributions to freshwater science.

Most recently he won the 2016 NIWA Excellence Award for Applied Science.

This latest accolade, the Association Medal, recognises his dedicated professional involvement with and commitment to Water New Zealand throughout his career. He is just the fifth person to be awarded the Association

Medal. One of the previous recipients is Dr Michael Taylor, who was Graham's first Scientist in Charge early in his career.

"I think I'm in illustrious company," he says of being awarded the medal.

"I've been lucky to work with really competent people at NIWA, especially Kit Rutherford and Bob Wilcock.

"Outside of NIWA I would like to acknowledge the impact Michael Taylor, Russell Howie, Desmond Till, Andrew Ball and David Ogilvie have had on my career. Also Robert Ward at Colorado State University, where I spent an eight-month sabbatical in 1990, for getting me enthusiastic about improving statistical methodology. And I loved my interactions with Julian Ellis, statistician at the Water Research Centre in the UK."

At 68 years old, Graham has cut his working time down to four days a week, but has no intention of retiring.

"The prospect of suddenly stopping is not at all attractive," he says.

"My work is also my hobby, which is why I don't fancy giving it up in a hurry." **WNZ**



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Graham McBride with his wife Robyn after receiving the Association Medal at the recent Water New Zealand conference.