

# A passion for clean water

We have Dr Michael Taylor to thank for the procedures and guidelines that can provide clean and safe drinking water. He has dedicated his career to water quality – developing national drinking water standards as well as procedures for monitoring and surveillance of the quality of water supplies, and methodologies for water supply. **BY MARY SEARLE BELL.**

**M**ichael says it all began with Jacques Cousteau. The exploits of the famous undersea adventurer got the English schoolboy very interested in diving. So much so, that after completing his chemistry degree he applied for a job in fisheries research with the thinking, “they would probably provide a boat, and I could probably con them into providing an aqualung...”

After completing his PhD in organic chemistry, Michael worked as a senior scientific officer in charge of chemical oceanography in the Arctic team of the UK Ministry of Agriculture, Fisheries and Food. Then he continued to indulge his underwater passion with a role with the Norwegian Fishery Directorate’s Institute of Marine Sciences.

At age 34, he decided to move to New Zealand, securing a position as a research fellow at the Cawthron Institute in Nelson. He initially was looking at the biochemistry of plant disease due to fungal pathogens, but soon reverted to aquatic problems.

He was responsible for setting up the water analysis laboratory at the Cawthron Institute, and was a member of the Ministry of Works and Development (MWD) water and soil division committee on hydrology and water quality. He advocated for inter-laboratory inter-calibration programmes, which led to DSIR setting up the ChemAqua programme for collaborative tests of water analysis.

In 1971, Michael saw a job advertised for chief chemist with the Auckland Regional Authority, and was surprised to land the role.

“I thought there’d be a lot of competition for the position – turns out there wasn’t!”

This job got him involved in wastes, which he says was very useful background for his later work.

Five years on he took the role of manager – water quality



Dr Michael Taylor, QSM

with the Water and Soil Directorate research and survey group, which was set up by the MWD.

“There was a lot of uncertainty in those days about what were the important water quality parameters defining the public health safety of drinking water, and the efficacy of different aspects of treatment processes,” Michael says.

He established the organisational structure and policy of the Hamilton Science Centre (now called the Water Quality Centre) and instituted a strongly quantitative and process-oriented approach to all aspects of water quality studies.

It was at this time that Michael began perfecting the art of dealing with politicians and bureaucrats.

“The books on *Yes, Minister* and *Yes, Prime Minister* had just come out, and they were wonderful for seeing how government worked – I used them all the time from then on!”

It was during this period that Michael also began working with the World Health Organisation, undertaking short-term consultancies, running training courses throughout Asia on water quality monitoring and, occasionally, on hazardous waste management.

“My work with WHO took me to lots of interesting places like the Pacific Islands and China – not that I had much time to look at them because we were always busy working.”

In 1980, Michael was made research and survey director of the Water and Soil Division of MWD, overseeing around 200 scientists and technicians throughout the country, providing scientific services to the National Water and Soil Conservation Authority.

“Our hydrological computing section submitted three papers to a UNESCO/WHO joint conference on the use of microprocessors in assessing drinking water – it turned out we were ahead of the rest of the world,” says Michael.



“We were asked to become technical editors of the resulting publication – my horizons were being expanded very quickly.”

His next role was with the Department of Scientific and Industrial Research (DSIR). As chief director of the resources group he controlled a budget of \$60 million and a staff of 700, overseeing the science output for the botany, ecology, geophysics, geological survey, soil and land science, and, of course, water sciences divisions.

In 1990 he turned 60 and was required to retire. But it wasn't long before he was working again, this time for the Ministry of Health.

“It was a concern to me that unsafe drinking water was a major risk to the health of the community,” says Michael.

“The problem was, the Ministry of Health did not consider that drinking water was their core business. I couldn't get it put on the legislative programme while the Ministry gave priority to a Public Health Bill (which 12 years later has still not been passed). For two years running, drinking water legislation just lay on the table. Luckily, we eventually got a minister who wanted something done.

“That was the beginning of the Health (Drinking Water) Amendment Act 2007.

“In it, I set up the system so the bulk of the operation was done by District Health Boards, to minimise the chance that central government could disestablish it by carrying out yet another departmental restructure.”

Another of Michael's achievements was to ensure that the drinking water assessors who evaluated the performance of the drinking-water suppliers had qualifications as good or better than those of the water suppliers – that way, the suppliers couldn't pull the wool over the inspectors' eyes, he says.

“Local Authorities started using the same qualifications and it improved the standards of drinking water almost overnight.”

As well as establishing the drinking-water amendments to the Health Act, Michael's team published *Drinking-Water*

*Standards for New Zealand 1995* and its revision in 2005, along with the *Guidelines for Drinking-Water Quality Management for New Zealand 1995*. The grading of community drinking-water supplies was also re-established, something that is currently being redone, along with a programme of reporting on the performance of drinking-water suppliers.

“I was working on it with David Ogilvie and Paul Prendergast since the mid-80s,” he says.

“Graeme McBride of NIWA provided a sound foundation of Bayesian statistics. It's all done if they'll only look for it – it's hidden in plain sight.

“We predicted that an event such as the Havelock North poisoning would happen – we used the Walkerton experience in Canada (E.Coli 105 outbreak) as a model for testing the effectiveness of the proposed procedures.

“We had many arguments with LGNZ about costs, but were able to show from the well documented Walkerton event that the costs of a major outbreak are greater than those of prevention. It is all avoidable if you follow what's in the Act.

“It's been interesting, yet sad, to watch the progress of the Havelock North outbreak investigation. It is hard to see how the outbreak could have been so extensive if the procedures set out in the Health (Drinking Water) Amendment Act 2007 had been implemented. People's health is at risk if the regulators and supplier cut corners.”

Michael retired for the final time in 2008, a year after seeing his Health (Drinking Water) Amendment Act 2007 achieve Royal Assent.

For his work with water and contribution to the industry, Michael has received many accolades. In 2000 he received the New Zealand Water & Wastes Association (NZWWA) medal, its premier award, which was renamed the Michael Taylor Award, and in 2007 he was invested as a Companion of the Queen's Service Order. [WNZ](#)