

A passion for



environments

Dr Emily Afoa's passion for the water industry was awarded with the Young Water Professional of the Year trophy at this year's Water New Zealand conference. **BY MARY SEARLE BELL.**

Emily grew up in the Bay of Islands where she spent time in the great outdoors, and still does. When it came time to go to university, an environmental engineering degree through Auckland University seemed a good option, and after her first year, she knew she'd made the right choice.

"However, when I finished my degree, most of the jobs available were 'pipe-centric' and not particularly exciting to me," she says.

"I took my job offers to one of my lecturers, Dr Elizabeth Fassman-Beck, to get her advice, and she suggested I do a PhD. She had a project available on water sensitive design – something which was way more appealing, so I stayed on at university to complete my doctorate."

Emily's doctorate research quantified the hydrologic balance for living roofs operating under Auckland climate conditions. Dr Elizabeth Fassman-Beck, along with Dr Robyn Simcock of Landcare Research, were her PhD supervisors, and Emily says they're both very passionate about the industry and have been excellent mentors.

Her research took her to a number of conferences in the USA, where she got to see what they were doing over there, and elsewhere internationally, with regards to environmentally-focussed stormwater solutions.

"It really opened my eyes to the spectrum of where New Zealand could be. Some of them were miles ahead of where we are," she says.

"We have every opportunity to be leading the world on this, or at least be near the head of the pack.

"We face a number of challenges, however, not in the least the resistance to change and the capital costs associated with water sensitive designs.

"So many designers simply focus on flood mitigation, or a single benefit, and don't realise the other benefits that can be achieved through a multifunctional design. A water sensitive design will integrate both water sensitive and standard infrastructure solutions for a better outcome that supports urban liveability – for example, a flood basin that is designed to cope with a one-in-100-year flood (which, by description, is a rare occurrence) but functions as a pleasant open greenspace for the majority of the time."

Emily says the environment is losing out as the different engineering disciplines are quite siloed, and believes the solution lies in a more collaborative approach.

"Drinking water, irrigation, streams, beaches – water management spans so many disciplines. The challenges can't all be solved by engineers – planning, ecology, and other disciplines are an important part of the equation.

"Also, people's mental health and well-being is getting increasing focus, and is now an important part of environmental planning.



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“As engineers and designers, we need to always consider how liveability ties into our day-to-day projects.

“We can’t protect all water courses in a city, as liveability is a priority which needs to balance many competing factors, such as connectivity and urban design as well as the environment, but what does remain needs to be protected and restored.”

Emily is aware that incorporating such things into design usually adds extra costs, something that clients are often reluctant to embrace, but she says it is important to give the client a range of options to choose between, not just the status quo.

“Always include an option that has improved outcomes for the environment to normalise the approach.”

Emily is currently employed as the engineering design team leader at Morphum Environmental, a company that very much shares her philosophies.

“After I’d finished my PhD I did some travelling with my husband (who was playing rugby in France), but once I knew we were settling in New Zealand, I approached Morphum for work, as I liked their principles and goals.

“I essentially said, ‘I’d like to work here; here’s my CV, let’s have a coffee. Your company represents everything I stand for’. They didn’t have any specific role available, but employed me anyway.

“I’m thrilled to say that Morphum walks the walk on a day-to-day basis. Their philosophies are not just ‘speak’ on their website.”

Emily’s job sees her working predominately in the Auckland urban environment, focusing on water quality, quantity, and erosion control. She specialised in stormwater management, including both traditional reticulated systems and water sensitive solutions.

She has designed and assessed a range of stormwater networks, ranging in size from lot scale projects catering for flood plain and overland flow impacts, downstream network limitations or discharge to soakage, through to large public stormwater infrastructure, including outfalls to streams and roading stormwater networks.

Not content simply working in the field she loves, Emily retains a passion for academia, fulfilling this by lecturing at the University of Auckland and Unitec. She is also involved in a Water Sensitive Design in Schools programme, funded by the Auckland Council and local boards.

“I find these environments rewarding – it allows me to share my passion for water management with young students and open their eyes to opportunities in science and technology, and expose soon-to-graduate engineers to water sensitive options and a collaborative approach to stormwater management.”

Awarding professionalism

Emily Afoa is the recipient of the CH2M Beca Young Water Professional of the Year 2017 award, presented at the Downer Conference Awards Dinner for the Water New Zealand Conference and Expo.

Her entry for the award was supported by Morphum Environmental’s directors and Mark Iszard of Auckland Council’s Healthy Waters, Infrastructure and Environmental Services team.

The key aspects that influenced the judges’ decision included her success in academia, her growing position as a leader at Morphum Environmental, and her involvement in education at multiple levels.

Emily leads Morphum Environmental’s engineering design team, and frequently represents the company at industry events. She holds a PhD in Civil Engineering, specialising in urban stormwater management.

The Young Water Professional of the Year award provides recognition to a water professional in the early stages of his or her career, who has contributed to the water industry and community, and has demonstrated exceptional achievement.

It is open to individuals under 35 years of age, with between one and 15 years’ experience. Emily is the second Morphum Environmental team member to receive this honour: director Caleb Clarke was 2011’s Young Water Professional of the Year.

New Zealand’s ‘clean, green’ marketing image simply does not reflect many of our waterways, says Emily, and she wants to do what she can do to improve the situation.

“I’m delighted to see that the water knowledge of young children is much higher than it was when I went through school – many school stormwater drains have ‘I only drain rain’ and the like painted around them, and the children have a raised awareness to what happens to water once it goes down the drain.

“It’s great to see it’s changing.”

For Emily, she would like to see the water industry working toward water sensitive cities, where design recognises that holistic water management can enhance receiving environments and mitigate flood risk, while also enhancing biodiversity, open space, community connectivity, and cultural values.

“I am excited by the future of the water industry and want to work towards my water sensitive vision, be it through teaching future engineers or by providing technical design for clients as a consulting engineer.” **WNZ**