



Modelling Group  
WATER NEW ZEALAND

# Modelling Group Newsletter

The Water New Zealand Modelling Group e-Newsletter

Hello members,

**Welcome to our summer newsletter - our first of 2024.**

This edition of the newsletter includes a Q&A with Wioletta Gilfoyle who is the Modelling SIG chairperson and Principal Three Waters Consultant for Tonkin & Taylor.

Wioletta is a Chartered Water and Environmental Manager, experienced as a three waters infrastructure planning and modelling engineer with a demonstrated history of working in the civil engineering industry in Poland, UK and New Zealand.

Progress has been made on the Stormwater modelling guidelines, which will be available this month.

This guide provides an overview of the stages involved and principles of 'Good Modelling Practice' for people involved in undertaking and managing Stormwater modelling projects. These Stormwater modelling guidelines will complement our Water Supply and Wastewater modelling guidelines which have already been released. Check them out [here](#).

**This year we celebrate the 25<sup>th</sup> year of the Modelling Group coming into existence!**

We are proud of the work we do and we are keen to progress and encourage input from our members to help us to improve. We are seeking committee nominations from across the country, and from each area of modelling. If you would like to contribute further and become a member of our committee, please submit your [nomination form](#) by **Wednesday 10<sup>TH</sup> May 2024**. If you have comments or questions please contact the chair of the committee Wioletta Gilfoyle ([WGilfoyle@tonkintaylor.co.nz](mailto:WGilfoyle@tonkintaylor.co.nz)).

April 2024



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## Recent Events:

### **Joint Water NZ Modelling and Stormwater Group Waikato Regional event**

In February, a joint event included presentations from Michael Arthur on the Stormwater Modelling Guide, Bertrand Salmi on Hamilton City Council Flood Modelling – Public Response Data Sharing, Wioletta Gilfoyle, our Modelling Group Chairperson, on CIWEM Paths to Chartership in New Zealand and James Armitage on Water New Zealand Updates.

### **CIWEM Lunch and learn**

Also in February, members of CIWEM presented on the route to chartership. To view this webinar click [here](#).

### **Our main event of the year – The Modelling Symposium 2024**

More details on our sell-out event are below.

## Upcoming Events:

### **Annual Meeting of the Modelling Special Interest Group**

This is to be held online on 23<sup>rd</sup> May and we encourage all our members to join. To register for this online meeting click [here](#).

<https://www.waternz.org.nz/events>

## Committee Member Profile

### Wioletta Gilfoyle, Principal Three Waters Consultant and Modelling Group Chair



**1. What organization you work for and what's your role?**

I work for Tonkin + Taylor Ltd, based in Hamilton, as a Principal Three Waters Consultant. In my role I am involved in variety of planning and modelling projects across water supply, wastewater and stormwater. I am also the Discipline Lead – Water Supply and Wastewater at the LEAD Alliance, based in Auckland.

**2. Tell us about your background and how you got to this position / role?**

I've obtained my Master's in Civil Engineering, specialising in Water Supply, Wastewater Treatment and Waste Disposal in Poland. After graduating, I worked briefly for a design and construction company as a three waters network designer. It was OK... I moved to the UK in 2004 and secured a job with a company specialising in wastewater surveys (assets and flow monitoring) and consultancy engineering. This is when I was introduced to hydraulic modelling. I found it interesting, challenging, annoying at times, but truly fascinating. I wanted to learn more, expand beyond wastewater and beyond the UK. I 'discovered' New Zealand and started looking at opportunities in the Land of a Long White Cloud. Since arriving in New Zealand in 2011, I've had plenty of opportunities to learn and expand my horizons. I love the variety, connecting with people, learning, as well as helping others on their professional development journey.

**3. What has been your favourite modelling project and why?**

While in the UK, I've undertaken tens of development impact assessments. Some more challenging than others, the assessment of the Pinewood Studios was the most memorable. It was the scale and the type of the development. Some parts of the Harry Potter and 007 movies were filmed in Pinewood Studios. The assessment I was undertaking envisaged huge expansion of the Studios, which included development of replicas of the famous streetscapes around the world (Paris, Venice, American college campus, downtown New York etc). These were going to double as residential properties. This definitely was one of the 'coolest' projects I worked on. I enjoy a challenge and my current work at LEAD Alliance provides plenty of challenges: brownfield redevelopment and intensification, working with various stakeholders and disciplines. These projects are very interesting, require good communication and collaboration. I can see these projects featuring on my list of Wioletta's favourite projects'.

**4. What is the hardest job you've ever done and why?**

As we learn and progress through our career, things that used to be 'hard' fade in the light of new challenges. I think that the roles of peer reviewer or contractor manager were probably the most challenging

roles I've undertaken. These roles require ensuring that the deliverables meet the objectives and are undertaken in accordance with appropriate guidelines and practices. Suggestions on how to improve the quality of the deliverables or mitigate deficiencies and inadequacies can be challenged, which may lead to difficult situations. That's the hard bit. These roles, however, also provide good opportunities for learning and collaboration.

#### **5. Why modelling?**

Modelling is complex, challenging and can be really fascinating. It requires not only knowledge of hydraulics and hydrology, but also data collection and management (including surveys), understanding how limitations of input data can affect the outputs. It enables us to see the unseen. Modelling is at the forefront of problem identification and solving. It enables to plan and develop measures and strategies to permit developments and keep communities safe.

The Modelling Group newsletters are for all members to contribute towards. So, if you would like to share updates with the community or have an article you would like to include in the newsletter, please get in touch.

[Please go to the Modelling Groups web page for all information on this group](#)



The Modelling SIG celebrated its 25th birthday in style at its annual modelling symposium held this year on March 12th and 13th in Christchurch. It was a special milestone for the SIG, as it reflected on its history, starting off as six people meeting down the pub, to hosting a symposium with over 90 delegates and speakers.

The modelling symposium provides an opportunity for professionals in the field of water resources management to showcase the latest advancements, challenges, and innovative solutions in our industry, as well as providing a forum for discussion amongst peers.

The focus of the symposium this year was “Seeing the unseen, the value of modelling water”.

#### Welcome Function

Those lucky enough to attend Monday evening’s Welcome Function had an early opportunity to network and catch up with familiar faces. Filled with laughs, philosophical questions, and last-minute planning. It was a great evening that should not be missed at future events.

#### Day One

The symposium kicked off with delegates from across New Zealand gathering to celebrate a quarter-century of efforts and advancements in modelling. The first keynote speaker, Rob Bell, delivered an engaging presentation on climate change impacts and implications for 3-waters.

With the issues New Zealand has experienced in recent years it’s not surprising that much of the first day focused on stormwater and flooding. Numerous presentations examined how to better understand and mitigate flooding. There was particular interest in a presentation by Andra Estivariz (a PhD student at the University of Canterbury), on using machine learning to quickly and accurately predict the extent of flooding using rainfall forecasts.

Michael Arthur spoke on the process of compiling and launching the Water NZ Stormwater Modelling guidelines, which will be launched later in the year. The Stormwater guidelines will join the Water and Wastewater modelling guidelines previously published by the SIG.

The second keynote speaker was a familiar face, Ian Garside, who was one of the original members of the SIG 25 years ago. His presentation covered the evolution of the SIG, and modelling, from a small group of enthusiastic and committed people to its widespread use in networks planning today. He was

optimistic about what the future holds, the role modelling can play, and possibilities for smart networks and system optimisation going forwards.

The afternoon provided three different options for the attendees who got to choose from attending a site visit to the Bromley Wastewater Treatment Plant, or one of two workshops hosted by Tuflow and Autodesk.

In addition to the formal presentations, the symposium provided ample opportunities for networking and collaboration. The symposium dinner is a great chance to network, discuss the highlights of the day, meet new people or catch up with old colleagues in a relaxed and informal setting.

## Day Two

The chair of the modelling SIG, Wioletta Gilfoyle, kicked off day two, followed by Lara Taylor presenting on Mana Enhancing Modelling. Lara's keynote presentation was an interesting introspective focusing on how modelling can be used to provide better outcomes for our environment and our communities, protecting our ecosystem and cleaning up our seas and waterways so they're safe to swim in. There were some fascinating presentations throughout the day reflecting on engaging topics such as seawater ingress, pump station flows, and 30 years of experience in the industry. There was a continued theme of using artificial intelligence and machine learning to help speed up analysis and better understand results, and a few presentations that followed the theme of the keynote in using modelling to identify the most effective ways that we can reduce our impact on the natural environment.

One of the standout features of this symposium was the depth and breadth of the topics presented. Researchers and practitioners alike shared their insights, drawing on their experiences and studies. We believe that this is one of the strengths of the symposium. Each presentation is unique and provides new perspectives and valuable insights for everyone.

The presentations can be accessed [here](#).

## Awards

Graham Moralee won the award for best presentation. Fresh from the UK, his talk offered a perspective on how modelling is being used over there to combat wastewater overflows and how the facts can often be different from the perspective put across in the media.

The award for best abstract went to Jeanette Tucker and Dan Johnson who presented on combining modelling results and other information in a GIS package to allow councils and water companies to easily identify and prioritise asset renewals.

## Quarter of a century

While writing this summary, an article from a Water NZ journal published in 2009 was reviewed celebrating the modelling SIG's 10th birthday. 15 years later, and the SIG is still going from strength to strength. From its inception in 1999 to today, strong leadership and involvement from committee members have

ensured the SIG's continued successful development. We look to the next 25 years of the group with optimism. The increasing popularity of conferences and regional events and the development and refinement of technical guidance highlight the importance of events like the modelling SIG in our profession as it continues to grow.

A special thank you to all the previous chairs of the modelling SIG who were crucial in the development of the SIG's success.

- Steve Joynes (1999 to 2001)
- Tony Miller (2001 to 2003)
- Ian Garside (2003 to 2005)
- Keith Woolley (2005 to 2007)
- David Ward (2007 to 2009)
- Marcel Bear (2009 to 2011)
- Brian Robinson (2011 to 2013)
- Louisa Sinclair (2013 to 2015)
- Jeff McLean (2015 to 2017)
- Vicki Koopal (2017 to 2019)
- Nadia Nitsche (2019 to 2021)
- Fiona Macdonald (2021 to 2023)

Thanks

A big thank you to the modelling SIG for organising the event. A special mention to Wioletta Gilfoyle, Alistar Osbourne, Kirsten Henden, Elliot Egan, and Mike Dunstone for helping organise this year's event. Also, an extra special thanks to Katrina and Nicci for all of your hard work.

We would also like to thank our sponsors who help to make this event possible:



## The Future

Where to go next year? With growing attendance, bigger venues may be on the horizon. We invite feedback from past and present attendees.

Please complete the survey

The Modelling SIG newsletters are for all members to contribute towards. So, if you would like to share updates with the community or have an article you would like to include in the newsletter, please get in touch.

Water New Zealand