# WaterMicro23 | Conference Program

## Sunday 4 June

**8.00 - 9.00 - Registration Open**

**9.00 - 12.00 - Morning Workshops**
**Workshop 1**:
Climate Change Impacts on water Quality and Health - *Rosina Girones, Ricardo Santos, Ana Maria de Roda Husman and Anne Roiko*

**Workshop 2**:
Genetic Faecal Pollution Diagnostics: from science to practice - *Andreas H Farnleitner, Katalin Demeter, Claudia Kolm and Joan Rose*

**Workshop 3**:
Antimicrobial Resistance.
Sponsored by CRC SAAFE
*- Prof. Erica Donner and Prof. Nicholas Ashbolt*

**12.00 - 1.00 - Lunch Break**

**1:00 - 4.00 - Afternoon Workshops**
**Workshop 4**:
Evidence based approaches for boiled water advisories - using good science for the best community outcome - *Dr Melita Stevens and Dr Daniel Deere*

**Workshop 5**:
Wastewater Surveillance Workshop
Sponsored by Water Research Australia
*- Joan Rose and Gertjan Medema*

**Workshop 6**:
Introduction into Microbial Risk Analysis for Groundwater - *Jack Schijven and Harold Van Den Berg*

**4.00 - 4.30 - Afternoon Tea**

**4.30 - 5.30 - Conference Opening**:
Welcome to Country and Smoking Ceremony

**6.00 - 8.00**
**Mindil Markets Social Event**
Sponsored by Resistomap
Mindil Beach Markets
Dress Code: Casual

## Monday 5 June

**8.00 - 8.30 - Registration Open**

**8.30 - 8.40 - Opening & Acknowledgement of Country**
*- Tom Mollenkopf, Susan Petterson & Prof. Nicholas Ashbolt*

**8.40 - 9.00 - Keynote:** Water safety plans - 20 years on; how did we get here and what did we learn along the way? - *Melita Stevens, Melbourne Water*

**9.00 - 9.20 - Keynote:** Water safety plans - what's new from WHO, next steps and future challenges
*- Robert Bos, WHO*

**9.20 - 10.30 - Session 1: Safe water for all: equity and isolated communities**
Sponsored by Atom Consulting

**Session Chair:** Prof. Nicholas Ashbolt & Iftita Rahmatika

A rural Maori community and their struggle to obtain safe, sustainable drinking water - *Carl Crofts & Megan Devane, Institute of Environmental Science and Research*

A semi-quantitative assessment tool to determine groundwater pathogen risks for drinking water - *Jamie Burgess, Water Corporation*

Fecal contamination source tracking and forecasting for cultural development in the Great Cohaire River watershed - *Benjamin Clark, North Carolina State University*

**10.30 - 11.00 - Morning Tea**
Poster Session A

**11.00 - 12.30 - Session 2: Climate change and water quality**
Sponsored by Melbourne Water

**Session Chair:** Rosina Girones

Climate change and water-associated infectious disease: results from a global scoping review - *Jesse Limaheluw, National Institute for Public Health and The Environment*

The impacts of Climate Change and Extreme Events on Waterborne Microorganism Concentrations in Rivers - *Nynke Hofstra, Water Systems and Global Change Group, Wageningen University*

**Session Chair:** Heather Murphy

Modelling water quality in urban floods in Mexico city - *Nancy Itzel Mondragon Velazquez, Wageningen University and Research*

Surveillance of Salmonella Typhi in Natural Water Systems on the Northern Island of Fiji - *Aseri Sesebualala, TY-FIVE Project (IVI)*

Enteric pathogen profiles of children under two years and environmental exposure pathways in rural Kenya - *Abigail Harvey Paulos, UC Berkley*

**Poster Pitch**

The Wells and Enteric disease Transmission (WET) Trial: Results from the Pilot Trial - *Heather Murphy, University uf Guelph*

Estimating the burden of recreational waterborne disease in Ontario, Canada - *Henry Ngo, Univeristy of Guelph*

**12.30 - 1.30 - Lunch**
Poster Session A

**1.30 - 3.00 - Session 3: Implementing water safety plans: Research to practice**
Sponsored by Melbourne Water

**Session Chair:** Annalisa Contos & Emile Sylvestre

**Platform Presentations**

Reservoir modelling to inform HBT compliance during an event
*- Kath Cinque, Melbourne Water*

Collaborative management of pathogen risks for Sydney's water supply - *Peter Cox, Sydney Water*

Using QMRA and epidemiology to set critical limit exceedance timeframes - *Dan Deere, Water Futures Pty Ltd*

Quantitative approach to determining the need for drinking water advisories from short term disinfection failures - *Kim Mosse, Melbourne Water*

**Poster Panel**

Experiences from integrating water and sanitation safety planning in small systems in rural Serbia - *Harold van de Berg, National Institute for Public Health and the Environment: rijksinstituut voor Volksgezondheid en Milieu*

Lessons learnt for drinking water quality management from a flood event in Nauiyu - *Elizabeth Gadd, Power and Water Corporation*

Bacterial cell counts in driving water distribution system during faecal contamination event - *Hege Hovland, Bergen Water (Bergen Vann)*

Queensland Regulators Approach for Health Based Targets (HBTs) and Microbial Risk Management
*- Renee Henry, Water Supply Regulation - Department of Regional Development, Manufacturing and Water*

Implementing health-based targets in a blended drinking water supply system/extensive pathogen monitoring program informs improved risk management of Sydney's water supply - *Emily White, WaterNSW*

Assessing risks and water quality status using the water safety plan approach in Bushenyi-Ishaka Municipality - Uganda - *Christopher Kanyesigye, National Water and Sewerage Corporation*

**3.00 - 3.30 - Afternoon Tea**
Poster Session A

**3:30 - 5.00 - Session 4: Emergencies, disaster situations and other extreme events: Research to practice**

**Session Chair:** Marion Savill & Hiroyuki Katayama

**Opening Address: "Extreme Events Occuring Globally" -** Marion Savilll

**Platform Presentations**

Droughts may cause greater harm to human health than floods - *Paul Hunter, University of East Anglia*

Humanitarian emergencies and water-related disease - *Paul Byleveld, Humanitarian Aid*

Cyclones, floods, fires and crocodiles - *Eric Boyle, Power and Water Corporation*

Acute impacts of fire on water quality
*- Christobel Ferguson, UNSW*

Disaster risk management: collaborative thinking to mobilise pro-active support
*- Maronel Steyn, CSIR*

**Panel discussion and Q&A**

**5.00 - 6.00**
**IWA Publishing Happy Hour**
The Precinct

**6.00 - 8.00**
**Brush and Bottle - YWP**
Browns Mart

## Tuesday 6 June

**8.00 - 8.30 - Registration Open**

**8.30 - 10.30 - Session 5: Safe water for all: '*Burkholderia pseudomallei* and melioidosis - the evolving story'**

**Session Chair:** Karen Gibb

Part 1: Overview of melioidosis and the Australian and global scenarios - *Bart Currie, Menzies School of Health Research*

Part 2: Menzies Ramaciotti Centre Training and Pathways program being conducted at Menzies with a focus on the Melioidosis program - *Mark Mayo, Menzies School of Health Research*

Part 3: Burkholderia pseudomallei in drinking water - we have only scratched the surface - *Mirjam Kaestli, Menzies School of Health Research*

**Safe water for all: opportunistic pathogens**

**Session Chair:** Karen Gibb

**Platform Presentations**

Ecosurveillance, a Meiothermus and Naegleria fowleri love story - *Natalia Malinowski, Water Corporation*

Water stagnation in buildings during COVID-19 lockdowns increases the risks posed by opportunistic pathogens - *Casey Huang, The University of Queensland*

Characterization of Nontuberculous Mycobacteria in Tap Water in Premise Plumbing - *Iftita Rahmatika, Universitas Indonesia*

**10.30 - 11.00 - Morning Tea**
Poster Session A

*Please refer to the Conference App for the most updated information

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## Wednesday 7 June

**11.00 - 12.30 - Session 6: Water quality intervention: water and wastewater treatment**

**Session Chair:** Patrick Smeets & Sijia Kong

**Platform Presentations**

Effects of Coagulants on Viral Capsid Integrity in the Coagulation Process - *Surapong Rattanakul, King Mongkut's University of Technology, Thonburi*

Log Reduction Values of Viruses by Treatment Processes: Laboratory/Pilot Plant vs. Full Scale Operation - *Charles Gerba, University of Arizona*

Upscaling of microbial transport in heterogeneous porous media from the column to the field scale - *Thomas James Oudega, TU Wien*

Elimination of fecal indicators, antibiotic resistances, and human viruses in advanced wastewater treatment - *Johannes Ho, TZW: DVGW-Technologiezentrum Wasser*

Septic tanks discharging to drains - a hidden health risk and not a safe sanitation solution - *Tim Foster, UTS*

**Poster Pitch**

Observed Kinetics of Enterovirus Inactivation by Disinfectants Differ among the Host Cells Used for Enumeration - *Shotaro Torii, The University of Tokyo*

A Systematic Review on Household Water Treatment Technology and Microbial Log-Reduction Values - *Gouthami Rao, Univeristy of North Carolina - Chapel Hill*

**12.21 - 1.21 - Lunch**
Poster Session A

**1.21 - 2.45 - Session 7: Pathogenomics and bioinformatics**

**Platform Presentations**

**Session Chair:** Helen Stratton & Surapong Rattanakul

Have genetic targets for faecal pollution diagnostics and source tracking revolutionised water quality analysis yet? - *Andreas Farnleitner, Karl Landsteiner University*

Validation of a new bioinformatic method for identifying method for identifying aquatic faecal contamination sources using shotgun metagenomics - *Katherine Graham, Georgia Institute of Technology*

User-friendly methods for waterborne virus surveillance and characterization of the water virome - *Marta Rusiñol, University of Barcelona*

Using advanced metagenomics to gain deeper insights into the gut microbiome of vertebrate animal - *Georg Reischer, TU Wien*

Assessment of Viruses in Surface Water and Ground Water in Fuhe River Basin by Metagenomics - *Sijia Kong, Delft University of Technology*

**Poster Pitch**

Detection of Pathogenic Bacteria in Small Water Supply Systems by Nanopore Sequencing of Full-length 16S rRNA Gene - *Jie Zeng, Kyoto University*

Metagenomic investigations of drinking water quality - *Brent Gilpin, Institute of Environmental Science and Resesarch Ltd*

**2.45 - 3.15 - Afternoon Tea**
Poster Session A

**3.15 - 4.30 - Session 8: Pathogenomics and bioinformatics: Research to practice**

**Platform Presentations**

**Session Chair:** Anne Roiko & Jatuwat Sangsanont

Fecal Source Identification in Surface Water Catchment to Support Water Safety Plan in Thailand - *Kwanrawee Sirikanchana, Chulabhorn Research Institute*

Genetic microbial source tracking support hydrological and QMRA modeling for drinking water safety management - *Julia Derx, TU Wien, Austria*

Application of Microbial Source Tracking marker genes to manage risk from wet-weather sanitary sewer overflows - *Colin Besley, Sydney Water*

Identification and risk assessment of human-specific microbial source tracking markers using an integrated modelin framework - *Xuneng Tong, National University of SIngapore*

Adding Knowledge to the Indicator-Pathogen Paradigm for Surface Water Monitoring and QMRA Applications - *Kara Dean, Michigan State University*

**5.30 - 8.00**
**Harbour Cruise**
Shuttle bus available
Cruise depart from Cullen Bay

**8.00 - 8.30 - Registration Open**

**Session Host:** Tom Mollenkopf

**8.30 - 8.40 - Welcome**
from The Hon Lauren Moss MLA

**8.40 - 10.30 - Session 9: Wastewater-based epidemiological surveillence.** Sponsored by Water Research Australia

**Session Chair: Introduction: the story of wastewater based surveillance -** Joan Rose

**Keynote:** What else should we be looking for? Wastewater surveillance of influenza, metapneumovirus, parainfluenza, RSV, rhinovirus, and seasonal coronaviruses during the COVID-19 pandemic - *Alexandria Boehm, Stanford University*

**Keynote:** Where else should we be going? North Australia Biosecurity Program - *Mark Sistrom, Northern Australia Biosequirty Sequencing Network*

**Platform Presentations**

Wastewater monitoring for tracking dynamics of SARS-CoV-2 variants in a low- and middle-income country - *Jatuwat Sangsanont, Chulalangkorn University*

**10.30 - 11.00 - Morning Tea**
Poster Session B

**Platform Presentations**

**11.00 - 12.30 - Session 10: Wastewater-based epidemiological surveillance: Methods.** Sponsored by Water Research Australia

**Session Chair:** Scott Meschke & Geyse Aparecida Cardoso dos Santos

Novel tiling amplicon sequencing enables sensitivity quantification, delineation, and early warning SARS-CoV-2 virus in wastewater - *Yu Wang, The University of Queensland*

A Target Enrichment Panel for detection and genetic characterization of potential pandemic and/or zoonotic viruses - *Silvia Bofill-Mas, University of Barcelona*

Persistance of SARS-CoV-2 variants in wastewater - *Samendra Sherchan, Tulane University*

The impact of PCR inhibition on long- and short-amplicon sequencing for metabarcoding norovirus in wastewater - *George Scott, Center for Environment, Fisheries and Aquaculture Science*

BB-COPMAN: A highly-sensitive method to detect RNA and DNA derived from various pathogens in wastewater - *Ryo Iwamoto, Advansentinel, Inc.*

**Poster Pitch**

3D Passive Sampling for SARS-CoV-2 Detection in Wastewater - *Corrine Caponigro, Michigan State University*

The Simultaneous Detection of Multiple Enteric Pathogens in Wastewater Influent from Atlanta, GA - *Gouthami Rao, University of North Carolina - Chapel Hill*

Advances in Passive Sampling Technology: Lessons Learned from the COVID-19 Pandemic - *Emalie Hayes, Dalhousie University*

**12.30 - 1.30 - Lunch**
Poster Session B

**1.30 - 3.00 - Session 11: Wastewater-based epidemiological surveillance: research to practice.** Sponsored by Water Research Australia

**Session Chair:** Christobel Ferguson & Sheena Conforti

**Platform Presentations**

Wastewater based epidemiology during the COVID-19 pandemic: monitoring of ENlgish schools over an academic year - *Francis Hassard, Cranfield University*

Assessing challenges associated with use of machine-learning for forecasting COVID-19 community spread via wastewater-based-epidemiological data - *Arash Zamyadi, The University of Melbourne*

Estimating COVID-19 cases on University campus, based on Wastewater Surveillance using Machine Learning Regression Models - *Kavindra Senaratna, National University of Singapore*

Developing wastewater-based pandemic preparedness for multiple pathogens - WASTPAN - *Tarja Pitkänen, The Finnish Institute for Health and Welfare / University of Helsinski*

Adaptive wastewater surveillance to support timely public health responses in a rapidly evolving COVID-19 Pandemic - *Monica Nolan, Department of Health, Victoria*

**Poster Pitch**

Lessons from a State-wide WBE program (MiNET) for SARS Cov-2 Publich health use and beyond - *Nishita D'Souza, Michigan State University*

Detection of SARS-Cov-2 in wastewater and comparison to COVID-19 cases in two sewersheds, NC, USA - *Connor LaMontagne, University of North Carolina - Chapel Hill*

Estimating Actual Infection Number of SARS-CoV-2 Based on Virus Amount in Wastewater and State-space Model - *Hiroyuki Katayama, The University of Tokyo*

Detection of SARS-CoV-2 variants and their proportions in wastewater by next generation sequencing in Finland - *Anssi Lipponen, Finnish Institute for Health and Welfare*

**3.00 - 3.30 - Afternoon Tea**
Poster Session B

**3.30 - 5.00 - Session 12: Wastewater-based epidemiological surveillance: where to from here?**

*Please refer to the Conference App for the most updated information

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## Thursday 8 June

**Session Chair:** Gertjan Medema

**Poster Panel**

Wastewater Based Epidemiology of SARS-CoV-2 in North-West Tuscany-Italy: one-year monitoring results - *Annalaura Carducci, University of Pisa*

Operationalising Wastewater Surveillance - Sydney Water's experience
*- Kaye Power, Sydney Water*

Tracking SARS-CoV-2 in New Zealand's wastewater - the past, present and future - *Andri Rachmadi, ESR - Science and Research*

Community and Universtiy wastewater surveillance revewal co-incidence of BA.1 and BA.2 during Singapore's Omicron wave - *Feng Jun Desmond Chua, Singapore Centre for Environmental Life Sciences Engineering (SCELSE)*

Implementation of COVID-19 Wastewater Surveillance in the Tokyo 2020 Olympic and Paralympic Village
*- Masaaki Kitajima, Hokkaido University*

The catalan Surveillance network of SARS-CoV-2 in Sewage - *Marta Rusiñol, University of Barcelona*

Developing fit-for-purpose quality assurance measures for sewage surveillance during a pandemic - *Brendon King, SA Water Corporation*

Municipal wastewater reveals up-to-date information on viruses affecting public health
*- Sami Oikarinen, Tampere University*

**6.00 - 8.00**
**Science in the Pub**
Sponsored by The Department of Environment, Parks and Water Security
Shuttle bus available
Darwin Trailer Boat Club

**Speaker:** Tegan Taylor, Joan Rose, Erica Doner, Gertjen Medema

**8.00 - 8.30 - Registration Open**

**8.30 - 10.40 - Session 13: Antimicrobial Resistance**
Sponsored by Melbourne Water

**Platform Presentations**

**Session Chair:** Erica Donner

Linking community water and sanitation access to the global burden of antibiotic resistance
*- Amy Pickering, UC Berkley*

CoNS in drinking water fountains in São Paulo, Brazil: Pathogenicity, antimicrobial resistance and health risks - *Geyse Aparecida Cardoso dos Santos, University of São Paulo*

dMLA: a cost-effective molecular method to screen bacterial isolates for antimicrobial resistance and pathogenicity - *Sheena Conforti, Eawag, Department of Environmental Microbiology, CH-Dübendorf & ETH Zurich, D-BSSE, CH-Basel*

Monitoring antibiotic resistance gene profiles in hospital and municipal wastewater – a proof-of-concept study using ResistApp
*- Jesse Majlander, Resistomap*

Bacteriophages as vehicles for the transmission of antibiotic resistance genes - *Silvia Monteiro, Universidade Lisboa, Tecnico Lisboa, Laboratorio Analises*

Understanding roles of non-antibiotic pharmaceuticals on the emergence and spread of antibiotic resistance - *Jianhua Guo, The University of Queensland*

Antimicrobial Resistance: Where to from here? *- Erica Donner and Prof. Nicholas Ashbolt*

**10.40 - 11.10 - Morning Tea**
Poster Session B

**11.10 - 12.30 - Session 14: Water quality monitoring technologies**

**Session Chair:** João Brandão

**Platform Presentations**

Is it safe to swim now? Unlocking the potential of in-situ sensors for showcasing 'swimmability'
*- Rebecca Stott, National Institute of Water and Atmospheric Research*

A DNA-aptamer discovery platform for the generation of cell-recognition molecules for rapid water quality monitoring
*- Claudia Kolm, Karl Landsteiner University of Helath Sciences*

Multi-parameter monitoring of harmful cyanobacteria blooms: what are the most suitable and cost-effective tools?
*- Jean Babtiste Burnet, Luxembourg Institute of Science and Technology*

Rapid on-site detection of E. coli in bathing water - *Nikki van Bel, KWR Water Research Institute*

Enzymatic approach to automatic measurement of microbial water quality lessons learned from first 10 years - *Wolfgang Vogl, VWMS GmbH*

**Poster Pitch**

Assessment of membrane passive sampling for the monitoring of bacteria and protozoa in environmental waters - *Ilya Law, University of Guelph*

**12.30 - 1.30 - Lunch**
Poster Session B

**1.30 - 3.00 - Session 15: Water quality and risk assessment**

**Session Chair:** Charles Gerba

**Platform Presentations**

Comparing quantification of Legionella pneumophila by qPCR and culture for risk assessment: A Meta-Analysis - Emile Sylvestre, Eawag

Pathogen analysis recovery challenges for QMRA
*- Patrick Smeets, KWR*

An extensive pathogen monitoring program informs improved risk management of Sydney's water supply - *Emily White, WaterNSW*

Risk estimation of diarrheal diseases for floating villagers on Cambodian lake and its future prediction
*- Ichiro Yoneda, Iwate University*

Microbial and chemical screening risk assessment of potable water recycling schemes - *David Roser, Water Research Centre UNSW*

**Poster Pitch**

Quantitative microbial risk assessment related to recreational swimming at Thailand beaches - *Thammanitchpol Denpetkul, Mahidol University*

Quantitative microbial risk assessment in beach environment for regulatory purposes
*- Ileana Federigi, University of Pisa*

Human Health Risks from Source-Specific Exposure to Pathogens in Irrigation Water: Quantitative Microbial Risk Assessment - *Angela Harris, North Carolina State University*

Harvesting urban stormwater: human health risks and how they are managed using green infrastructure (WSUD) - *Baiqian Shi, Monash University*

**3.00 - 3.30 - Afternoon Tea**
Poster Session B

**3.30 - 4.45 - Session 16: Closing Session: Communication and Impact**

HRWM panel with Special Guest: Tegan Taylor

**4.45 - 5.45 - Health-related water microbiology - OPEN MEETING**

**7.00pm - 10.30pm**
**Conference Dinner**
Darwin Convention Centre

**MC:** Karen Rouse

## Friday 9 June

**9.30 - 10.00 - Registration Open**

**10.00 - 12.30 - WHO Workshop**
Revitalizing WASH responses for vector-borne diseases (VBDs) in light of new global challenges
Sponsored by WSAA

**12.30 - 1.30 - Lunch**

**1.30 - 3.00 - WHO Workshop**
Water Safety Plan Workshop - Part 1
Sponsored by WSAA

**3.00 - 3.30 - Afternoon Tea**

**3.30 - 5.00 - WHO Workshop**
Water Safety Plan Workshop - Part 2
Sponsored by WSAA

**Vote** for your favourite poster from Group A and B on the Conference App!

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