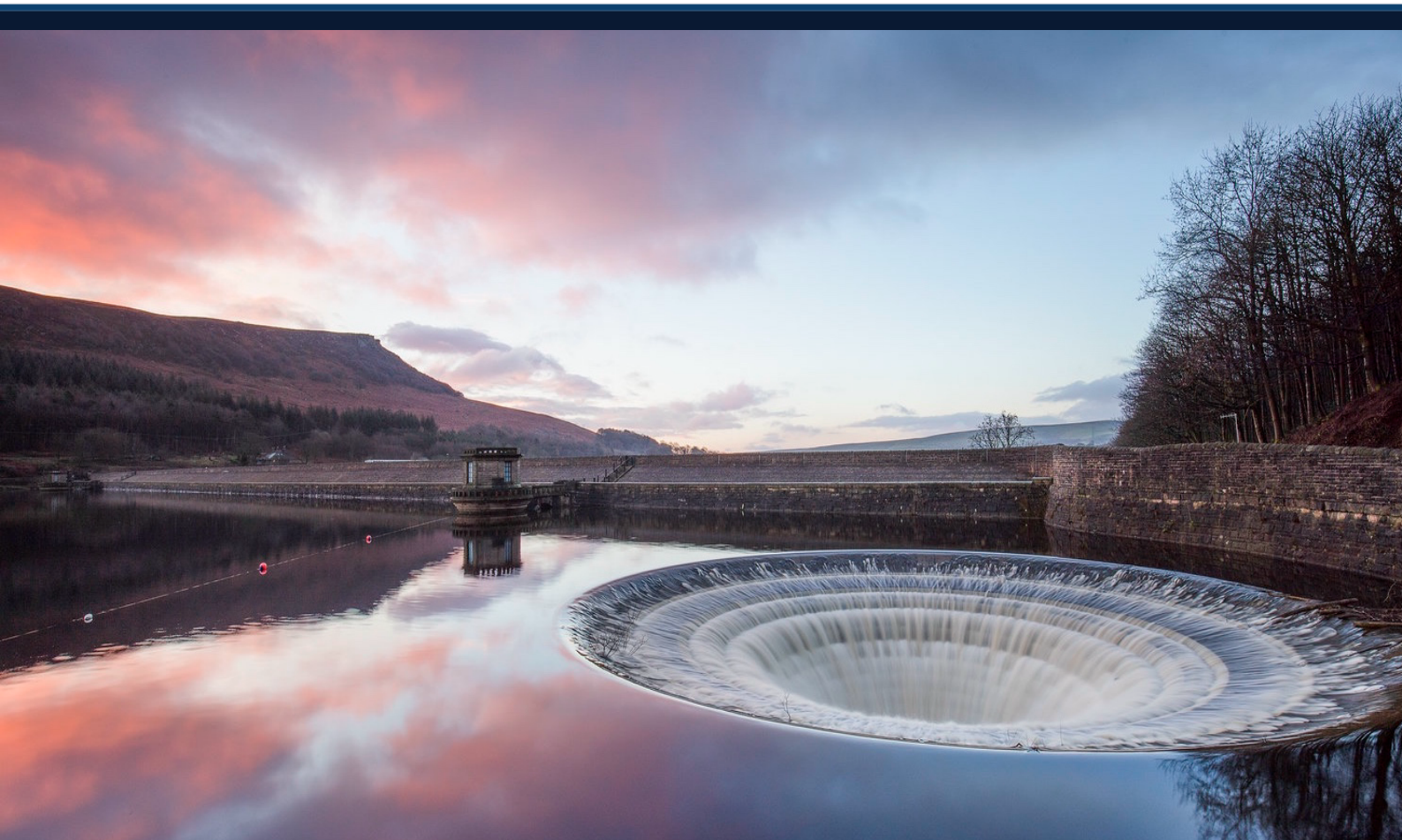
19th Conference of the UK Water Network

Programme

24 JUNE 2026



About the UK Water Network

The UK Water Network is a collaboration that brings together academic, industry and research Institutions from around the UK to facilitate co-operative working and best practice, as well as promoting the great research that is undertaken by the UK water sector.

The objectives of the network are to:

- Encourage the transfer of ideas, best practice and develop improved engineering and system management processes in drinking water treatment and supply.
- Development of a UK knowledge centre to meet training and information needs for the potable water treatment and supply sector, particularly staff new to the sector.
- To disseminate the activities of the network through trade articles, meetings and conferences.
- To develop a coherent research strategy for potable water treatment and supply.

In addition, the following are priority activities for the Network:

- Sharing strategies for success with respect to training, research and development
- Providing visions, needs and views to outside bodies including professional organisations, funding bodies and government.
- Facilitating collaborative research activity (for example multidisciplinary and cross-sectoral research).
- Co-ordinate responses to relevant national and international initiatives, activities and calls.

The Water Network team

Prof John Fawell

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Cranfield Water Science Institute

Water Network Chair

Dr Irene Carra

Senior Lecturer in Chemical Processes
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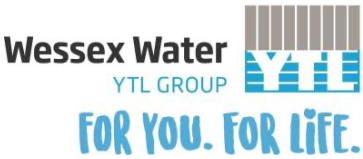
The Water Network members



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Conference Schedule

MORNING

09:30 - 10:00	**Registration and welcome coffee**
10:00 – 10:05	Welcome. **Irene Carra**, Senior Lecturer in Chemical Processes, Cranfield Water Science Institute, UK.
10:05 – 10:10	Introduction to the conference. **John Fawell**, Visiting Professor and Chair of the UK Water Network, Cranfield Water Science Institute, UK.
Session 1 – Chair: Prof John Fawell	
10:10 – 10:40	Reimagining GAC for Conventional Drinking Water Treatment (**Keynote Speaker**). **Ron Hofmann,** Professor, University of Toronto, Canada.
10:40 – 11:00	Managing nuisance and harmful algae in drinking water reservoirs: insights from Australia. **Bojan Tamburic**, School of Civil and Environmental Engineering, Deputy Director of the UNSW Water Research Centre, UNSW Sydney, Australia.
11:00– 11:20	Using zeta potential to tackle the DBP challenge in Scotland. **Jonathan Manley**, Process Scientist, Water Science Team, Scottish Water, UK.
11:20 – 12:00	**Coffee break**
Session 2 – Chair: Irene Carra	
12:00 – 12:20	Blackford Water Treatment Works - Behind the Headlines **Alice Elder**, Water Quality manager for Policy and Strategy and **Imogen Chastell**, Catchment Scientist, Affinity Water, UK.
12:20 – 12:40	PFAS at Wessex Water. **Matthew Jones**, Public Health Manager, and **Jörgen Jönsson**, Water Quality Manger and Strategic Carbon Manager, Wessex Water, UK.
12:40 – 13:30	**Lunch break**

AFTERNOON

13:30 – 13:50	Investigation into the electrochemical degradation of 6:2 FTAB: insights for water treatment processing. **Rory Downham**, Research Fellow, University of Warwick, UK.
13:50 – 14:10	PFAS destruction in drinking water waste streams **Priya Dharwadkar,** Research Fellow, Cranfield University, UK.
14:10 – 14:50	**Early Career Researchers Flash Presentations** • P1. Occurrence, risk and formation of nitrogenous disinfection by-products (NDBPs) in drinking water treatment. • **Anne Kamau,** Doctoral Researcher, Water Infrastructure and Resilience (WIRe) CDT, Cranfield Water Science Institute, Cranfield University, UK. • • P2. Impact of residual free chlorine concentration on antibiotic resistance in drinking water distribution system biofilms. • **Sam D. Waslh,** Doctoral Researcher, The University of Sheffield, UK. • • P3. Evaluating Pretreatment Strategies for Seawater Desalination – creating resilient water supply in the United Kingdom. • **Desislava Davidkova,** Research Fellow, Cranfield Water Science Institute, Cranfield University, UK. • P4. Impact of Pretreatment Strategies on Coagulation and Floc Structure in UK Lowland Surface Waters. • **Sam Yeboah Nyarko** Doctoral Researcher, Water Infrastructure and Resilience (WIRe) CDT, Cranfield Water Science Institute, Cranfield University, UK. • • P5 Preparing for HAA9 regulation: Implications and challenges for UK water companies. • **Polly Grundy, Early Career Researcher,** Cranfield Water Science Institute, Cranfield University, UK. • • P6 The role of micro-nanobubbles in dissolved air flotation for the removal of micropollutants in drinking water treatment. • **Sayyad Muhammad Ali Rizvi.** Cranfield Water Science Institute, Cranfield University, UK.
14:50 – 15:20	**Coffee break**
Session 3 – Chair: Prof Peter Jarvis	
15:20 – 15:50	Lead – what is all the fuss about? **(Keynote Speaker)** **Claire Franklin**, Water Quality Manager, Leep Utilities, UK.

15:50 – 16:10	Pipe Asset Health: The Role of Fatigue Loading and Corrosion in the Evolution of Leaks and Bursts. **Edward D. John**, Research Associate, The University of Sheffield, UK.
16:10 – 16:20	**Early Career Researcher Christine Murray Prize.** Awarded by the IWA UK Committee.
16:20 – 16:30	Concluding remarks and conference close. **Irene Carra**, Senior Lecturer in Chemical Processes, Cranfield Water Science Institute, UK.

Speakers' profiles and abstracts

Session 1

Ron Hofman

Professor, University of Toronto, Canada.

Ron Hofmann is a professor in Civil Engineering at the University of Toronto where he specializes in drinking water and water reuse treatment process engineering, with a particular focus on oxidative and adsorptive technologies. He maintains a large and long-standing research consortium with about a dozen major drinking water utilities in Canada and routinely works with consultants and regulators across North America on emerging water treatment issues.

Keynote: Reimagining GAC for Conventional Drinking Water Treatment.

Many drinking water treatment plants in the Great Lakes Region of
Canada and the U.S. use GAC filter caps in their conventional rapid media filters for periodic taste and odour control, changing the GAC every few years. Our research shows that plants might be able to use GAC for much longer if treatment goals are moderate, and the system is designed specifically to take advantage of this phenomenon. The mechanism at work is not direct biodegradation (BAC), but probably in situ bioregeneration of the activated carbon that prolongs adsorption service life. This begs the question: why wouldn't everyone use GAC instead of anthracite in a dual media filter?

Bojan Tamburic

School of Civil and Environmental Engineering, Deputy Director of the UNSW Water Research Centre, UNSW Sydney, Australia.

Dr Bojan Tamburic is a Senior Lecturer in Civil and Environmental Engineering at UNSW Sydney and Deputy Director of the UNSW Water Research Centre. His research addresses critical water quality challenges in partnership with industry, supported by his roles as an Australian Research Council Mid- Career Industry Fellow and academic lead of the Nuisance and Harmful Algae Science–Practice Partnership (NHASP). He completed his PhD in Chemical Engineering, MSc in Sustainable Energy Futures, and MSci in Physics at Imperial College London.

Managing nuisance and harmful algae in drinking water reservoirs: insights from Australia.

We are entering an era where managing algal blooms is becoming core business for many drinking water utilities. Nuisance and harmful algae, particularly cyanobacteria, present a growing global challenge, with the likelihood and severity of blooms increasing due to climate variability, eutrophication, and changing reservoir dynamics. This talk shares practical insights from collaborations with the Australian water industry on how we can move from reactive to proactive algae management. I will explore how integrating satellite-based monitoring with low-cost in-situ sensors can strengthen early warning and provide operators with a clearer, reservoir-wide view of bloom dynamics. Examples from Australian reservoirs will examine both the benefits and practical challenges of using destratification aeration to disrupt bloom development. I will also discuss approaches for managing algae-derived taste and odour events, including the use of activated carbon within a multi-layered treatment framework. A key theme is the value of close science–practice partnerships, with lessons from Australia that are relevant to the UK and beyond. The goal is to shift algal blooms from disruptive crises to manageable risks within an integrated operational framework.

Jonathan Manley

Process Scientist, Water Science Team, Scottish Water, UK.

Jonathan has worked in water quality for Scottish Water for six years, most recently as a Process Scientist specialising in coagulation processes. His current work focuses on optimising organic matter removal and managing disinfection by-products to support resilient, high-quality drinking water supplies.

Using zeta potential to tackle the DBP challenge in Scotland.

Scotland's source waters have some of the highest concentrations of organic carbon in Europe, presenting a formidable challenge when it comes to the management of disinfection by-products (DBPs).
Removal of organic matter prior to disinfection is a critical part of reducing the formation of two current regulatory classes of DBPs: trihalomethanes (THMs) and haloacetic acids (HAAs). In the last few years, Scottish Water has adopted on-site zeta potential analysis at over 50 water treatment works as a key way of maximising organic matter removal. This presentation will explore how zeta potential has played a role in improving treatment performance and mitigating DBP formation at these sites.

Session 2

Alice Elder

Water Quality manager for Policy and Strategy, Affinity Water, UK.

Alice Elder joined Affinity Water in 2016 following 10 years in consultancy. She led the creation of the water quality business cases within the PR19 and PR24 business plans and the long-term delivery strategy (25-year plan) for raw water deterioration. Alice is now the Water Quality manager at Affinity Water for Policy and Strategy, with oversight of the large AMP8 strategic water quality programs. Alice has responsibility for co-ordinating and ensuring the successful delivery of our broad range of activity on PFAS, from risk management, research and development, remediation and future planning.

Imogen Chastell

Catchment Scientist, Affinity Water, UK.

Imogen Chastell is a Catchment Scientist focusing on investigations into emerging contaminants and legacy pollution within drinking water catchments, notably PFAS. Her work combines field investigations, data analytics, and risk assessment to support evidence-based decision-making for asset resilience and environmental protection. She is passionate about addressing contamination challenges that impact water quality and ecosystem health.

Blackford Water Treatment Works - Behind the Headlines

Blackford WTW is a key water production plant in North London that has been off since 2021 when construction work on HS2 began immediately outside the site boundary. In the interim, the tightening of PFAS guidance values to include a limit of 0.1µg/l for the sum of 48 compounds has meant that new PFAS removal treatment must be installed before the site can be brought back into service. This water is critical to our supply-demand balance for AMP8. As reported in the press earlier this year, we believe we have identified the location of PFAS contamination affecting the Blackford sources. We'd like to share the extent and details of our catchment investigations, the hydrogeological evidence that we have collected and some of the challenges we have faced with selecting the optimal treatment solution.

Matthew Jones

Public Health Manager, Wessex Water, UK.

Matthew Jones has over a decade's experience in the water industry working in laboratories, water quality and public health. He is Wessex Water's Public Health Manager and chair of the Water UK PFAS working group

Jörgen Jönsson

Water Quality Manger and Strategic Carbon Manager, Wessex Water, UK.

Jörgen Jönsson is a chemist with over 30 years' experience in academia, research and drinking water. He is Water Quality Manager for Wessex Water's surface water treatment works and the Strategic Carbon Manager.

PFAS at Wessex Water.

This presentation outlines Wessex Water's approach to managing PFAS across its drinking water assets, from catchment to consumer. It includes a detailed case study on the rapid deployment of granular activated carbon (GAC) for short-term mitigation at a water treatment works. Highlighting implementation challenges, regulatory expectations, and early performance
outcomes.

Rory Downham

Research Fellow, University of Warwick, UK.

Dr Rory Downham is a Research Fellow at the University of Warwick, specialising in developing analytical methods to study the destruction of PFAS in systems relevant to the water industry. Rory has a background in analytical chemistry, and especially high-resolution mass spectrometry having obtained his PhD under the supervision of Dr Mark Barrow and Dr Christopher Vane. Since completing his PhD, Rory has been working in the Macpherson Group at the University of Warwick, helping to develop their growing PFAS research theme.

Investigation into the electrochemical degradation of PFBS and 6:2 FTAB ('forever chemicals'): insights for water treatment processing.

Per-/polyfluoroalkyl substances (PFAS) are a major environmental and human health issue, with PFAS present at detectable levels globally and being linked to a range of serious human health conditions.[1] No natural degradation pathways exist for PFAS, and destruction technologies are in their infancy. Electrochemical advanced oxidation processes utilising boron doped diamond (BDD) electrodes represent a promising technology for PFAS destruction.[2] Initial laboratory-scale studies at the University of Warwick focused on assessing the impact of cell design and current density on the removal rate of challenging short-chain PFAS, including perfluorobutane sulfonic acid (PFBS). Working in collaboration with Severn Trent Plc, the University of Warwick has further assessed the efficacy of the electrochemical destruction on 6:2 fluorotelomer sulfonamide alkylbetaine (6:2 FTAB). Presently detected at higher concentrations than other PFAS in the River Trent and River Derwent, 6:2 FTAB is a priority compound for PFAS remediation at these sites. Analysis of cell destruction efficiency of 6:2 FTAB is evaluated using liquid chromatography – mass spectrometry (LCMS), which tracks reduction in 6:2 FTAB concentration. The use of a fluoride selective electrode to verify extent of C-F bond breakages, and thus allow calculation of defluorination efficiencies, will be presented, alongside discussion of the PFAS breakdown pathway.

Priya Dharwadkar
Research Fellow, Cranfield University, UK.

Priya is a Research Fellow at the Cranfield Water Science Institute at Cranfield University. Her research focuses on water treatment technologies and emerging contaminants, with a particular interest in the management of PFAS in water. She is part of a collaborative project, funded by the Ofwat Innovation Fund and led by Severn Trent Water, that is evaluating and comparing technologies for PFAS destruction. Priya will introduce the project and share early insights from the ongoing research programme.

PFAS destruction in drinking water waste streams.

Per- and polyfluoroalkyl substances (PFAS) are a growing concern for drinking water quality due to their persistence, mobility, and potential adverse health impacts. In England and Wales, water companies are required to monitor a broad range of PFAS and ensure compliance with increasingly stringent regulatory limits. While treatment technologies such as granular activated carbon (GAC), membrane filtration, ion exchange (IEX), and foam fractionation can remove PFAS from water, they generate concentrated residual streams that require further treatment to prevent environmental release.

Although technologies for PFAS capture, concentration, and destruction have been investigated, few studies have evaluated integrated treatment trains that link these stages within drinking water systems, particularly across a diverse range of long- and short-chain PFAS. This project, funded by OFWAT and led by Severn Trent, addresses this gap through the systematic evaluation of PFAS destruction technologies for concentrated waste streams generated from anticipated PFAS treatment strategies in UK drinking water works.

Pilot-scale testing of electrochemical oxidation, non-thermal plasma, supercritical water oxidation, hydrothermal alkaline treatment, and UV/sulphite will be undertaken using representative PFAS waste streams. The project will assess treatment performance, degradation pathways, operational requirements, and economic considerations to identify scalable solutions that facilitate both PFAS removal and destruction.

Early Career Researchers

Anne Kamau

Doctoral Researcher, Water Infrastructure and Resilience (WIRe) CDT, Cranfield Water Science Institute, Cranfield University, UK .

Anne Kamau is a PhD student under the WIRe CDT programme at Cranfield University. My current research focuses on the formation of nitrogenous disinfection by-products (NDBPs) during drinking water treatment and how the differences in the organic matter composition influence NDBP formation. The project aims to provide practical drinking water treatment strategies to improve NDBP precursor removal and hence safeguard drinking water quality. I hold a Masters in Water and Wastewater Engineering (Cranfield University) and a member of CIWEM and IWA.

Occurrence, risk and formation of nitrogenous disinfection by-products (NDBPs) in drinking water treatment.

Emerging nitrogenous disinfection by-products (NDBPs), including haloacetonitriles (HANs), haloacetamides (HAcAms) and halonitromethanes (HNMs), are of growing concern due to their elevated toxicity relative to regulated DBPs. This study examines their occurrence and formation potential alongside trihalomethanes (THMs) and haloacetic acids (HAAs) across 18 full-scale drinking water treatment works treating contrasting and evolving source waters. Emphasis is placed on changing source water quality, including climate-driven impacts, algal organic matter (AOM), and effluent organic matter (EfOM), as drivers of NDBP formation.
Median concentrations showed regulated DBPs dominated (THMs: 33.14 $\mu g\,L^{-1}$; HAAs: 22.63 $\mu g\,L^{-1}$), while NDBPs occurred at lower levels (HANs: 24.31 $\mu g\,L^{-1}$; HAcAms: 17.73 $\mu g\,L^{-1}$; HNMs: <5 $\mu g\,L^{-1}$). Linear regression showed THMs and HAAs explained 52% and 48% of NDBPs variability, respectively. Toxicity-weighted analysis revealed NDBPs, particularly HANs, contributed to about 45% of total cytotoxic potency, across different surface and groundwater sites. These findings demonstrate that evolving source water quality enhances NDBP formation and that concentration-based compliance metrics may potentially underestimate DBP-associated risk.

Sam D. Walsh

Doctoral Researcher, The University of Sheffield, UK .

Sam Walsh is a PhD student at the University of Sheffield (UK). Fascinated by the resilience and adaptability of microorganisms, Sam has applied his undergraduate studies in microbiology, and work experience in infectious disease diagnostic development to address challenges facing the supply of safe drinking water. Affiliated with the 'To Chlorinate or not to Chlorinate' project, his PhD research is focused on the impact residual disinfection has on the presence, incorporation and persistence of antibiotic resistance genes in drinking water distribution system biofilms and bulk waters following system contamination.

Impact of residual free chlorine concentration on antibiotic resistance in drinking water distribution system biofilms.

The impact of residual disinfectants on antibiotic resistance gene (ARG) dynamics within drinking water distribution systems (DWDS) remains poorly understood. This study aimed to assess the impacts of residual free chlorine concentration on the natural presence, incorporation, and persistence of ARGs within DWDS biofilms on the internal pipe wall following system contamination.
Within an internationally renowned, full-scale simulated DWDS, supplied with free-chlorinated water, biofilms were grown for five months under three free chlorine conditions (dechlorinated, medium-, and boosted-chlorine). To simulate a worst-case contamination event, wastewater was spiked into each condition (~1% v/v). Biofilm samples were collected before, and over a 6-day period following the spike.
There was limited natural ARG presence in DWDS biofilms, independent of the free chlorine concentration. Following contamination, the absence of residual free chlorine led to a significant incorporation of ARGs in biofilm samples (detected 87.5% of tested ARGs up to 608 gene copies/mm^2). Despite reduced incorporation in chlorinated conditions, ARGs were

incorporated and persisted in all conditions. Biofilm colonisation by ARGs following contamination was more likely where residual disinfectants were depleted. Increasing the disinfectant concentration above normal levels offered diminishing returns when referencing protection against biofilm colonisation by ARGs.

Desislava Davidkova

Research Fellow, Cranfield Water Science Institute, Cranfield University, UK.

Desislava is currently a Research Fellow at Cranfield University working on an Anglian Water–funded project on pretreatment technologies for seawater desalination in the UK. She completed her PhD at the University of Edinburgh (2019–2024), where she investigated nanofiltration membrane operation for drinking water production in Scotland.
Alongside her research, Desislava is actively involved in the water sector community. She has served on the organising committee for the IWA UK Young Water Professionals conferences (2024 and 2025) and is currently Chair for Social Media and Communications for the IWA World Water Camp 2026 in Glasgow, supporting engagement for early-career water professionals.

Evaluating Pretreatment Strategies for Seawater Desalination – creating resilient water supply in the United Kingdom.

Projected increases in water demand alongside declining rainfall are expected to intensify water stress across the United Kingdom, resulting in a predicted national daily water shortfall of 5 billion litres by 2050. This increases the need for alternative water supply technologies such as seawater desalination, especially in drought-vulnerable areas like the East of England. However, unlike arid regions where desalination is widely established, temperate climates present distinct challenges associated with lower seawater temperatures and variable weather-driven feedwater quality.
Pretreatment design is critical for reverse osmosis (RO) desalination systems due to the influence of seawater quality on membrane fouling and operational performance. This study investigates pretreatment requirements for future desalination facilities in the East of England through assessment of two potential development locations. First, seawater analyses were carried out to assess seasonal and site variations. Second, feed water quality criteria for RO membrane operation were stablished, followed by laboratory evaluation of coagulation, microfiltration (MF), ultrafiltration (UF), and combined treatment processes. Treatment performance was assessed based on the removal of total organic carbon (TOC), turbidity, and metals associated with RO membrane fouling. The presentation will discuss seawater characteristics and compare the performance of the investigated pretreatment configurations for the two proposed locations.

Sam Yeboah Nyarko

Doctoral Researcher, Water Infrastructure and Resilience (WIRe) CDT, Cranfield Water Science Institute, Cranfield University, UK.

Samuel Yeboah Nyarko is a doctoral researcher at Cranfield University within the Water Infrastructure and Resilience (WIRe) CDT. His research focuses on existing and emerging processes for removing natural organic matter (NOM) from drinking water sources, with particular interest in the physical and chemical transformations of NOM that influence its removal.

Impact of Pretreatment Strategies on Coagulation and Floc Structure in UK Lowland Surface Water.

Natural organic matter (NOM) removal in drinking water treatment is essential to prevent the formation of regulated disinfection by-products (DBPs). Conventional coagulation is often ineffective for UK lowland surface waters, which contain high proportions of hydrophilic NOM and exhibit high alkalinity. As climate change alters NOM concentration and composition, enhanced treatment strategies are increasingly required to meet stricter regulatory standards. Pretreatment processes such as ion exchange (IEX) and ozonation have been proposed to improve NOM removal. However, their effects on floc characteristics remain poorly understood.

This study investigates the influence of IEX and ozone pretreatment on the structural properties of coagulated flocs formed from UK lowland surface waters. Jar tests, coupled with continuous particle-size monitoring by laser diffraction (Malvern Mastersizer 3000, Malvern UK), were used to evaluate floc growth and strength. Results showed that IEX pretreatment consistently produced larger and stronger flocs compared with coagulation alone, indicating improved aggregation behaviour. In contrast, the ozone conditions investigated did not enhance NOM removal or floc characteristics. These findings provide new insights into the interactions between pretreatment processes and coagulation mechanisms, supporting the optimisation of integrated treatment strategies to improve clarification and DBP precursor removal in challenging surface waters.

Polly Grundy

Early Career Researcher, Cranfield Water Science Institute, Cranfield University, UK.

Polly Grundy is an Early Career Researcher at Cranfield University in Bedfordshire where I recently completed my PhD investigating the formation of brominated disinfection by-products (DBPs), the potentially toxic compounds formed during chlorination of drinking water. Prior to academia, I spent 20 years as an analytical chemist across environmental, food and forensic sectors, with particular expertise in liquid chromatography–mass spectrometry

Preparing for HAA9 regulation: Implications and challenges for UK water companies

Proposed regulatory change to include all nine haloacetic acids (HAA9) in UK drinking water standards requires an assessment of the implications for the water industry. This study collated available data on HAA9 from across the UK and assessed the risks for non-compliance, the effectiveness of existing proxies and the potential impact on current drinking water treatment practise. High levels of compliance were observed, with 99.7% of treated water samples within the proposed limit of 80 µg/L for HAA9. However, existing proxies for identifying the risk from HAA9 did not perform well, with weak correlation between trihalomethanes (THMs), the currently regulated HAAs (HAA5) and the additional HAAs proposed for regulation. Analysis of the water sources and treatment types revealed that the highest risk for the consumer was linked to formation of the brominated HAAs, with an increased ratio between bromide and carbon at the point of chlorination driving the formation of these more toxic disinfection by-products (DBPs). These findings suggest that while widespread compliance is likely, current proxy measures are insufficient, and greater focus on bromide management and targeted monitoring may be required to support future regulation and reduce risk to consumers.

Sayyad Muhammad Ali Rizvi

Cranfield Water Science Institute, Cranfield University, UK

Sayyad Muhammad Ali Rizvi is a PhD researcher in Water and Wastewater Engineering at Cranfield University, UK. His research focuses on exploring the potential of nanobubble technology as a chemical-free method for advanced water treatment applications for pollutant degradation.

The role of micro-nanobubbles in dissolved air flotation for the removal of micropollutants in drinking water treatment.

Dissolved air flotation (DAF) is widely applied for removing suspended particles, fats, oils, grease, and algae in water treatment; however, its effectiveness for dissolved emerging micropollutants remains uncertain. The unique physicochemical properties of micro-nanobubbles, including high surface area, stability, and interfacial charge, suggest potential to enhance adsorption and flotation processes. This study investigated whether micro-nanobubbles can provide a mechanistically meaningful enhancement to conventional DAF for the removal of mixed pharmaceuticals (ibuprofen, furosemide, pristinamycin) and per-polyfluoroalkyl substances (PFAS). Bench-scale experiments were conducted to compare coagulation, conventional DAF, and micro-nanobubble-enhanced flotation under the same contaminated water conditions. At an initial concentration of 5 mg/L for pharmaceuticals and 200 ng/L for PFAS, DAF-based treatments demonstrated measurable removal, with PFOS and pristinamycin reductions of approximately 75% and 80%, depending on treatment

configuration, highlighting the complexity of flotation mechanisms for micropollutants. Ongoing work focuses on hybrid nanobubble configurations and testing at lower, more realistic concentrations to better quantify the incremental role of nanobubbles in advanced water treatment, and the results will be presented at the conference.

Session 3

Claire Franklin

Water Quality Manager, Leep Utilities, UK.

Claire serves as the Water Quality Manager at Leep Utilities, a New and Appointed Variation (NAV) water company. Her primary responsibility is to ensure compliance with drinking water quality regulations and to provide expert advice on all aspects related to drinking water quality and supply. Claire brings over four decades of experience in the water industry, having worked for multiple suppliers and the Drinking Water Inspectorate—the regulatory authority for drinking water quality. Upon achieving her BSc in Marine and Freshwater Biology, Claire began her career at Anglian Water, working in laboratory water testing. During this period, she completed a master's degree in microbiology. Her professional journey evolved through significant roles at the Drinking Water Inspectorate, where she spent more than twenty years overseeing various facets of drinking water quality regulation and public health. She progressed from Inspector to Deputy Chief Inspector, Science and Strategy. Over the past seven years, Claire has held senior positions managing water quality teams at several water companies, including Anglian, Thames, and Southern Water. Her focus has consistently been on maintaining high standards of drinking water supply and quality. In addition to her operational responsibilities, Claire is a Chartered Scientist and Vice President for Science at the Institute of Water. She participates in several Water UK network groups and currently chairs the Water UK Lead Strategy Board.

Keynote: Lead – what is all the fuss about?

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The presentation will cover:

- Background of drinking water regulatory position for lead – WHO/EU/UK standards, requirement for treatment and removal of lead pipes
- Lead risk from drinking water supplies in comparison to other sources (reference to DWI research published in Jan 2021 and UKHSA position)
- Overview and current work areas of the Water UK Governance Framework for Lead in drinking water - Lead Strategy Board, water company Lead Steering Group and associated themed workstreams.
- Challenges associated with the removal of lead risks through lead pipes replacement and other mitigation measures.
- Current lead approaches in AMP8 and forward planning for PR29

Edward D. John

Research Associate, The University of Sheffield, UK.

Edward John is a post-doctoral research associate in the School of Mechanical, Civil, and Aerospace Engineering at the University of Sheffield. His research focuses on water distribution system leak prevention and detection, with a particular emphasis on understanding the deterioration and failure mechanisms of distribution pipes to enable proactive interventions. His PhD research used novel experiments to develop an enhanced fundamental understanding of fatigue crack formation and growth in corroded cast iron pipes. His current work on the Bio-Inspired Sensors and AI:Liner projects seek to develop novel acoustic techniques for leak and defect detection in water pipes and sewer pipes.

Pipe Asset Health: The Role of Fatigue Loading and Corrosion in the Evolution of Leaks and Bursts.

The Independent Water Commission final report of 2025 recommends the government require water companies to map and assess the health of their assets to inform long-term renewal strategies and budgets. In light of recent research at the University of Sheffield, this presentation explores how repeated loads and corrosion can influence the evolution of leaks and bursts in water distribution pipes. Developing a physics-informed understanding of these processes is critical for the development of pipe asset health assessment and mapping tools.

Unique destructive laboratory experiments using artificially pitted cast iron pipes have shown the influential role corrosion pit shape can have on the residual strength of pipes and the stability of leaks under repeated loading. This laboratory work was supported by analysis of UK trunk main repair data, showing a link between repair rate and roads with detailed case study analysis suggesting repeated heavy vehicle loads may be a contributory factor. Ongoing research to develop a novel acoustic corrosion pit measurement technique seeks to leverage this understanding to identify pipes most vulnerable to sudden catastrophic bursts, enabling pipe asset health mapping and replacement prioritisation.

The UK Water Network

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For more information about the UK Water Network:
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