

Monday, November 7

7:30 am	Registration and Breakfast Nova Scotia Ballroom Foyer and Marketplace (Halifax Ballroom) with Seating in Nova Scotia (CD)			
8:30 am	Opening Plenary Nova Scotia Ballroom <p>We're excited to be hosting our event in person for the first time since 2019! Halifax is a beautiful place to come back together and officials from the city will open the Conference. After that we'll begin by recognizing the leadership that has guided CWWA before and during the pandemic by recognising our Board of Directors and having a proper Change of Office ceremony for our last three presidents. Next, we'll be launching a new recognition pin for our Committee members and long time contributors and supporters.</p> <p>After we recognize those who help CWWA do the work we do, we're going to take a step back and hear from two fantastic organizations who are demonstrating what the Canadian water industry can do to make positive impacts and help support clean water in Canada and on a global scale.</p> <p>First, we'll hear from Carl Yates, the Chief Executive Officer of the Atlantic First Nations Water Authority (AFNWA). The AFNWA is leading progress, innovation, and a long-term solution for water and wastewater management for all Atlantic First Nations communities. The Atlantic First Nations Water Authority (AFNWA) represents change to a system that has been in place for over 150 years. It reflects the desire of First Nations for self-determination and control of a resource that is critical for public health, and protection of the environment.</p> <p>Next, Valerie Jenkinson, as the Chair of Operators without Borders (OWB) will speak about the great work OWB has done to assist water and wastewater utilities in developing countries recover from disaster situations, and build capacity through training and mentoring water and wastewater operators.</p>			
10:00 am	Refreshment Break Marketplace (Halifax Ballroom)			
	Annapolis	Sable (BCD)	Acadia (ABC)	Nova Scotia (AB)
10:30 am	A1: Biosolids Moderator: Jeff Knapp, Halifax Water	A2: Utility Security – Secure your cyber assets Moderator: Ian Mcilwham, Region of Durham	A3: Water Efficiency Moderator: Neal Klassen, City of Vancouver	A4: CWWA Workforce Development Guidance Document Review Moderator: Greg Archibald, Pembina Valley Water Cooperative
	The Biosolids Must Go Here: Overcoming Site Constraints through Teamwork and Innovation at the Iona Island Wastewater	H2OhNo - Another Cyber Assessment Tool? + Other new Programs at Public Safety! Rob Pitcher, Public Safety Canada	Using Data to Inform Decision Making Heather Zarski, Epcor	Introduction and overview of Workforce Development initiative Greg Archibald, Pembina Valley Water Cooperative

	Treatment Plant Jason Olinski, J.L. Richards & Associates Ltd.			Gap Analysis and Engineering Checklists Trevor Brown, Regional Municipality of Waterloo
	Reducing Odor, FOG, H2S, Sludge and Flushable Wipes Nature's Way Suzan Chin-Taylor, Creative Raven & The TUIT Group and Anson Liski, Enbiorganic Technologies LLC	Integrated and Holistic Approach to Cybersecurity to Achieve Resilient Water Industry Farah Kaboodanian, Hatch	Rebooting Your Demand Forecast for Better Decision-Making Colwyn Sunderland, Kerr Wood Liedel	Succession Planning – Employee Development and Management Checklists Valerie Jenkinson, Operators without Borders Development of Training Plans and Training on New Technology and Operator Checklists Beth Weir, Regional Municipality of York
	Reduced Solids and Increased Biogas Generation: A Full-Scale Case Study at the Goleta Sanitary District, California Alex West, Lystek International	Cloud based security - protection of utility dispensing services Joanne Moore, Spartan Controls	Investing in Water Efficiency Liesel Hans, Alliance for Water Efficiency	Q&A Panel Discussion
12:00 pm	Lunch Marketplace (Halifax Ballroom) with Seating in Nova Scotia (CD)			
	Annapolis	Sable (BCD)	Acadia (ABC)	Nova Scotia (AB)
1:30 pm	B1: Wastewater Treatment and Management Moderator: Mike Abbott, CBCL Limited	B2: Utility Security Moderator: Ian Mcilwham, Region of Durham	B3: Managing Leaks, Inflow and Infiltration Moderator: David Main, AECOM	B4: Workforce Development - Recruitment and Retention Moderator: Clayton Tiedemann, EPCOR Water Services
	Description of New CSA S900. Structural Design of Waste Water Treatment Plants John Elliot, CSA	Cybersecurity Threats to the Water Sector in Canada - What You Need to Know to Build Resilience Lindsay McDonald, Communications Security Establishment	Achieving Low-Carbon Resilience through I/I Reduction Shannon Fernandes and Gillian Harris, Town of Lincoln	Introduction and best practice review Clayton Tiedemann, EPCOR Water Services

	Evaluating the impacts of leachate co-treatment on a full-scale municipal wastewater treatment plant in Canada Rui Li, Epcor	City of Saint John: Enhancing Cyber Security Stephanie Rackley-Roach, City of Saint John	Bad news as good news: Water savings from leak notification programs Liesel Hans, Alliance for Water Efficiency	Workforce Strategies Interesting approaches to recruiting with Operators Certification Program of BC Kalpna Solanki, Environmental Operators Certification Program
				City of Toronto recruiting video and its impact William Fernandes, City of Toronto
	Forecasting Total Phosphorus in Wastewater Treatment Plant Effluent with Machine Learning – A Case Study in Ontario Stephanie Gora, Department of Civil Engineering, Lassonde School of Engineering, York University	Challenges, Solutions, and Lessons Learned from the U.S. Water Sector Charles Egli, Water Isac	AWWA waterman rehab committee standards and manual developments Mark Knight, University of Waterloo	Halifax Water’s Recruiting Experiences Cathie O’Toole, Halifax Water
				Panel Discussion and Q&A
3:00	Refreshment Break Marketplace (Halifax Ballroom)			
	Annapolis	Sable (BCD)	Acadia (ABC)	Nova Scotia (AB)
3:30	C1: Emerging Contaminants in Wastewater Moderator: Tony Van Rossum, City of London	C2: First Nations / Small Systems Challenges Moderator: Rodney Bouchard, Union Water Supply System	C3: Water Efficiency Programs and Tools Moderator: Heather Zarski, EPCOR	C4 – Utility Leadership
	Chemical Substances in Canadian Municipal Wastewater: Get Your Data Here! Shirley Anne Smyth, Environment and Climate Change Canada	Two-Eyed Seeing development of a compliance framework: A path forward for the Atlantic First Nations Water Authority Megan Fuller and Graham Gagnon, Dalhousie University, Carl Yates, Atlantic First Nations Water Authority	HIT AND MISS: Lessons Learned from 25 Years in Water Conservation Neal Klassen, City of Vancouver	Towards a Sustainable Utility Hiran Sandanyake, City of Ottawa, Carl Bodimeade, Hatch and Robert Haller, CWWA

	Mitigating microplastics in water and wastewater through innovative research approaches Nancy Goucher, University of Waterloo	Development of Asset Management Plans for Water and Wastewater Systems for 17 First Nation Communities John Lam, Atlantic First Nations Water Authority and Julie DiCicco, Dillon Consulting	Cool it: Targeting cooling towers for water savings Liesel Hans, Alliance for Water Efficiency	Natural Infrastructure Survey Carl Bodimeade, Hatch and Madeleine Butschler
	Development of BioLargo Water's innovative AOS technology for disinfection and removal of pharmaceutical products from municipal wastewater Rimeh Daghrir, Centre des Technologies de l'eau, Laura Patterson-Fortin, Biolargo	Solutions for small facilities with low sludge production Francis Okoye, Ryerson University	Intelligent Water Management through Holistic Water Distribution Network Monitoring Stan Fong and Tim Sutherns, Digital Water Solutions Inc.	Utility Leadership Group Discussion
5:30	Power Hour Marketplace (Halifax Ballroom)			
5:15	CWWA Annual General Meeting Nova Scotia (AB)			
	Night on the Town			

Tuesday, November 8

7:30	Registration and Breakfast Nova Scotia Ballroom Foyer and Marketplace (Halifax Ballroom) with Seating in Nova Scotia (CD)			
	Annapolis	Sable (BCD)	Acadia (ABC)	Nova Scotia (AB)
8:30	D1: Wastewater Treatment Technologies – Research and Case Studies Moderator: Steve Craik, Alberta Environment and Parks	D2: Drinking Water Treatment Methods Moderator: Adam McKnight, Halifax Water	D3: Energy Efficiency in Water/Wastewater Treatment Operations Moderator: Qing Zhang, Epcor Water Services	D4: Building Collaborative Networks Moderator: Richard MacEwen, City Charlottetown
	Process Fundamentals of Aerobic Granular Sludge Paula Dorn, Aqua-Aerobic Systems, Inc.	Better With Age: Ozone’s History and Path Forward at the Mannheim Water Treatment Plant Dennis Mutti, C3 Water	Feasibility of effluent heat recovery for a carbon neutral waste water treatment plant. Jarrett Carriere, J.L Richards	Development of an Adaptive Monitoring and Management Framework for Environmental Substances of Concern (ESOCs) in Wastewater; a Collaborative Research and Innovation demonstration. Christine O'Grady, Advancing Canadian Water Assets(ACWA) / University of Calgary and Patricija Marjan, University of Calgary
	A Spin on Municipal Wastewater Treatment with Swirltex's Patented Process Peter Christou, Swirltex Inc.	Integration of UV LED disinfection with chlorine for a small water supply Xuedongzi Jiang, Dalhousie University	Bridging the gap at the Water-Energy nexus: treating wastewater by products from biogas production processes via hybrid filtration technology Abhishek Premachandra, McMaster University	Toronto Water and University of Waterloo William Fernandes, City of Toronto and Peter Huck, University of Waterloo
	Enhanced Domestic Primary Wastewater Treatment Utilizing Pile Cloth Media Filtration for Operational Savings and Sustainability John Dyson, Aqua-Aerobic Systems, Inc.	Lessons Learned from Implementing Dissolved Air Flotation at Three Water Treatment Plants Appana Lok, R.V. Anderson Associates Limited	Capacity, Compliance, and Energy Management at WWTPs via Optimization Harpreet Rai, R V Anderson Associates Limited	Halifax Water and Dalhousie University Wendy Krkosek, Halifax Water and Graham Gagnon, Dalhousie University
10:00	Refreshment Break Marketplace (Halifax Ballroom)			

	Annapolis	Sable (BCD)	Acadia (ABC)	Nova Scotia (AB)
10:30	E1: Stormwater Management Moderator: Khizar Mahmood, City of Calgary	E2: Drinking Water Treatment Methods Moderator: Wendy Krkosek, Halifax Water	E3: Climate Risk and Resilience 1 Moderator: Pam Law, Region of Waterloo	E4: Building Collaborative Networks Moderator: Jesse Hulsman, Municipality of East Hants
	How Can You Manage Your Peak Wet Weather Flows with Treatment? John Dyson, Aqua-Aerobic Systems, Inc.	Ruthven WTP Combined Sedimentation / DAF Retrofit Sommer Lee and Vincent Laplante, Associated Engineering and Rodney Bouchard, Union Water Supply System	Envisioning a Sustainable Future for Water / Wastewater Infrastructure Rina Kurian and Alex Mason R.V. Anderson Associates Limited	Toronto Metropolitan University Claire Oswald, Toronto Metropolitan University
	Storm & Urban Run-Off Water Purification with Ceramic Membrane Technology Challenges and Solutions for Robust & Continuous Operation Tony Powell and Brian Butters, Purifics Water Inc.	Case Study: Robust Consultative Process to Update the Region of Waterloo's Raw Water Intake Operating Protocol Dennis Mutti, C3 Water	Nova Scotia's Water Sector: Adapting to Climate Change Mark Greenwood, Government of Nova Scotia and John Lam, AFNWA	UBC and Metro Vancouver collaborate to develop a sustainable coating material for underground infrastructure Robert Shilton, University of British Columbia
	Gray, Meet Green: Integrating Soil / Trees / Stormwater Michael James, DeepRoot Canada		Intensity-Duration-Frequency (IDF) Curves and Climate Change Jeremy Fryke, Environment and Climate Change Canada	Halifax Climate Action Plan Shannon Miedema, Halifax Regional Municipality
12:00	Lunch Marketplace (Halifax Ballroom) with Seating in Nova Scotia (CD)			
	Annapolis	Sable (BCD)	Acadia (ABC)	Nova Scotia (AB)
1:30	F1: Wastewater – Innovative Solutions Moderator: Hiran Sandanayake, City of Ottawa	F2: Drinking Water – Microbial Risk Assessment and Management Moderator: Wendy Krkosek, Halifax Water	F3: Planning and Benchmarking Moderator: Rodney Bouchard, Union Water Supply System	F4: Building Collaborative Networks Moderator: Terry Bender, Ontario Clean Water Agency
	Closing the Loop - Industrial Water Reuse Case Study Jason Yeo, Char Technologies	Waterborne Pathogens: Recognizing When Sole Reliance on Turbidity is Insufficient and Identifying Best Available Approaches for Risk Management Monica Emelko, University of Waterloo	The Value of Value Engineering Kimberley Sayers, R.V. Anderson Associates Limited	PFAS Research with Utilities Beatrice Cantoni, University of Western Ontario

	Cogswell Ambient Temperature District Energy System Using Waste Heat Jeff Knapp, Halifax Water	Reservoir Management and the use Adenosine Triphosphate (ATP) Concentrations for Condition Assessments Michael McCracken, Epcor	The National Water and Wastewater Benchmarking Initiative: Adapting a Successful Utility Management Tool to the Digital World David Main, AECOM	University of Waterloo and Trenchless Technologies and CUIIC Mark Knight, University of Waterloo
	Leveraging Technology to Sell Bulk Water and Charge for Accepting Effluent Joshua Rottenberg, Computrol Systems	A new approach to estimating microbial concentrations from qPCR data based on not-so-new quantitative microbiology theory Phillip Schmidt, University of Waterloo	A Case Study: Science vs Politics John Presta and Michael Rabeau, Regional Municipality of Durham	Environment and Climate Change Canada and the Canadian Council of Ministers of the Environment (CCME) Sarah Radovan, Environment and Climate Change Canada
3:00	Refreshment Break Marketplace (Halifax Ballroom)			
	Annapolis	Sable (BCD)	Acadia (ABC)	Nova Scotia (AB)
3:30	G1: Wastewater Treatment and Management Moderator: Tom Mihajlovic, Town of Labrador City	G2: Distribution System Management and Tools Moderator: Laurent Laroche, City of Montréal	G3: Planning and Data Moderator: Khizar Mahmood, City of Calgary	
	Initial Dilution of a Deep Sea Outfall Claudia Wu, Metro Vancouver Regional District	Halifax Water Pipe Segmentation Tool David Blades, Luke Butler and Michelle Scott, C3 Water Inc.	Data-Driven Water and Wastewater Compliance Alain Laplume, The Regional Municipality of York	
	Assessment and prioritizing of combined sewer systems using Bayesian networks Raja Kammoun, Polytechnique Montréal	The Paris of the Prairies Leads the Way for Pipeline Management Justin Hebner, Pure Technologies, a Xylem brand	Data processing in the service of water - or how to transform data into knowledge? Anna Schelli, WaterShed Monitoring	
	A Comparison of RDII Calculation Using Different Methods Farshid Sabouri, SCG Flowmetrix	Extending the Life of Transmission Mains using Trenchless Technology Stewart Dickson, RV Anderson	Master Plans for Water, Wastewater and Stormwater Servicing – maneuvering between competing needs, constraints, and policies Ben Collingwood, R.V. Anderson Associates Limited	
7:00	Kitchen Party Cable Wharf Kitchen & Patio			

Wednesday November 9

7:30	Registration and Breakfast Nova Scotia Ballroom Foyer and Marketplace (Halifax Ballroom) with Seating in Nova Scotia (CD)			
	Annapolis	Sable (BCD)	Acadia (ABC)	Nova Scotia (AB)
8:30	H1: Climate Risk and Resilience 2 Moderator: Diana Tao, Tetra Tech	H2: Distribution Systems Moderator: Adam Mcknight, Halifax Water	H3: Utility Management Moderator: Laurent Laroche, City of Montréal	H4: Building Collaborative Networks - our Association Partners
	Climate Change Adaptation Lessons from Severe Wildfire in Fort McMurray: Extensions to Other Fire-prone Regions and Beyond Monica Emelko, University of Waterloo	The City of Yorkton's AMI Journey Marlene Hauser, City of Yorkton	Improving Data Quality: Advanced Fault Detection John Copp, Primodal Inc.	Jamie Eichenberger – Water Environment Association Peter Grevatt – Water Research Foundation Nicola Crawhall, Canadian Water Network
	Flood Risk Mitigation Strategy for the Lower Cove Loop Sewer System Lindsay Bolton and Abram Lee, CBCL Limited	Legacy Aluminum in the Distribution System— Impacts on Corrosion Control with Orthophosphate Monique Waller, Jacobs	Water Treatment Process Optimization Benefits Supramaniam Suthaker, Associated Engineering	
	The Role of Solar Photovoltaic Generation, Battery Energy Storage and Other Technologies for Resiliency and Reductions in Costs, Energy and GHGs Jarrett Carriere, J.L. Richards & Associates Ltd.	Evaluating the Impacts of Changing Water Quality on Corrosion Potential Appana Lok, R.V. Anderson	Pilot Testing - A Fundamental Element of Design Kimberly Sayers R.V. Anderson Associates Limited	
10:00	Refreshment Break Marketplace (Halifax Ballroom)			
	Annapolis	Sable (BCD)	Acadia (ABC)	Nova Scotia (AB)
10:30	I1: Water Utility Net-Zero Emission Projects and Their Federal Grant Application Processes Moderator: Samir Yammine, City of Saint John	I2: Drinking Water – Special Topics Moderator: Wendy Krkosek, Halifax Water	I3: Urban Water Management Moderator: Diana Tao, Tetra Tech	I 4: Building Collaborative Networks - Panel and Interactive Discussion Ryan Johnson, Buffalo Pound and CWWA Board – Moderator

	EWSI's GHG Emission reduction projects and federal grant application process Qing Zhang, EPCOR Water Services	Legionellosis - why it's a problem, and what can be done about it. Kalpna Solanki, Environmental Operators Certification Program	Maximising Revenue Generation: Towards a Digital Twin for Improved Operation Through Load Management Planning John Copp, Primodal Inc.	Cathie O'Toole, Halifax Water Peter Grevatt, Water RF Nicola Crawhall, CWN
	Heat pump application in water utilities	Paints and Coatings, NSF/ANSI/CAN 600, and the Updated Health Effects Criteria for Toluene, Ethylbenzene, and Xylene Kathryn Foster, NSF International	Flow Meter Assessment & Integration of Flow Metering Chambers Sammy Hiseler, C3 Water Inc.	Graham Gagnon, Dalhousie University
	Energy audit of GHG emission and climate change action plan for EWSI Joelle Dougrough, Kallum Galle and Matt Doiron, Morrison Herschfeld	One Water, One Data: How centralizing water quality data utility-wide drives operational excellence at Halifax Water Elaine Kelly, Klir and Adam McNight, Halifax Water	Best Management Practices for Stormwater management: A study of two urban drainage basins Negin Binesh, Institut national de la recherche scientifique (INRS), Centre Eau Terre Environnement	
12:00 pm	Lunch Marketplace (Halifax Ballroom) with Seating in Nova Scotia (CD)			
1:15pm	Water Canada Downstream Sable (BCD)			