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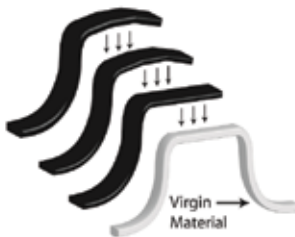
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On the cover: Great Blue Heron in the Atlantic Ocean, PEI. | dreamstime.com





## Your importance & our new normal

Well, fellow members, a lot has changed for each and every one of us, as well as for the world, since our last magazine was published just a few months ago. One of the largest outbreaks in history, COVID-19 has impacted us all in both our professional and personal lives. Without question, it is the single largest issue facing the world this summer.

For members like you who each contribute in different ways to the delivery of safe, clean drinking water and the collection and treatment of wastewater, our time to support and be there for our communities is now, as you have been over the past few months. Thank you to each of you for your important service!

The important thing is that each of you who contribute to the delivery and reliability of these essential services remain healthy through this pandemic so as to ensure our communities can continue to function in their modified capacities with access to essential services. Please ensure to follow all of the recommended safety precautions so that we can assist our communities in protecting public health – our foremost priority.

As it relates to keeping each of you safe, the ACWWA Board of Directors made the difficult but necessary decision to cancel the ACWWA Annual Conference in Fredericton, NB that was scheduled for October 18–20, 2020. On a brighter side, we are exploring the possibility of a fall webinar – more to come on that.

A big thank you to our Executive Director Clara, MTS, ICONIX, and Lorne Johanson for working collaboratively with BCWWA on getting several training courses online –

“The important thing is that each of you who contribute to the delivery and reliability of these essential services remain healthy through this pandemic.”

a timely benefit when considering our new normal. If you are not signed up I would encourage you to have a look at the online course offerings, as there is a long list that is really meant to ensure there is something for every one of our valued members!

If you are not yet following us on Twitter please do so @acwwa. Our Director of Magazine and Social Media – Lindsay Wilcott, and the Content Chair Stephanie Gora and Magazine Chair Julie DiCicco, always ensure we have excellent content to enjoy. A big thank you to them for their volunteer work!

Our Membership Director Julie Stokes and the Membership Committee have launched the 2020 ACWWA photo contest.

For awards, we have many members who go above and beyond on a regular basis and who are community heroes for delivering essential community services. I encourage you pause and consider who you know who may be worthy of nominating for one of the awards listed below.

### Individual Awards

- Silent Hero Award
- Young Professional Award
- Contribution Award

### Organizational Award

- Project of the Year

Please take some time to enjoy the Summer 2020 edition of our magazine – *Go With the Flow*, and enjoy the summer wherever it brings you in beautiful Atlantic Canada, and remember to get some photographs for submission to the ACWWA photo contest!

If you have any ACWWA ideas or suggestions please feel free to contact me at [brent.mcgovern@saintjohn.ca](mailto:brent.mcgovern@saintjohn.ca). A sincere thank you to our many awesome volunteers – they truly make a difference. If you are interested in becoming a volunteer, reach out.

Lastly, I must say I am very proud of our members' commitment to public health during the pandemic. Keep up the great work and keep well. ☺



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## Safe water for every glass

The spring of 2020 will long be remembered for COVID-19 and the incredible way in which it changed our society in Atlantic Canada. However, our water professionals have provided safe drinking water and clean wastewater during this period. This is truly amazing that now nearly three months into a pandemic our water professionals have continued to execute their responsibilities. A heartfelt thank you to water operators and frontline staff who work diligently over this period to deliver safe water.

Unfortunately, the pandemic has resulted in the cancellation of many events and activities that water professionals look forward to. In 2020, this included the AWWA Annual Conference & Exposition – or AWWA ACE, as it is affectionately referred to. AWWA ACE is truly a remarkable event that allows many individuals from across the association an opportunity to network, exchange innovative strategies, and open new business channels. While ACE was cancelled for 2020, the Board of Directors held its summer meeting virtually. The Summer Board meeting

was a sad meeting for me as it is my last meeting as a Director – however, we introduced Scott Grasman as our incoming Director for the Atlantic Section of AWWA. Scott is already well placed to have an impact on the Board and represent our Section extremely effectively.

As a Board Member for AWWA, I have been very pleased to be a part of an organization that recognizes the importance of equity, diversity, and inclusion (EDI) in the water community. The AWWA Board and the Atlantic Canada Section have placed a significant priority in addressing EDI in their practices. I am particularly grateful for the leadership from our Past Section Chair, Dr. Jennie Rand, for leading this work in Atlantic Canada. I expect that some of the practices that she has developed will influence our Section and the Association for many years.

As I sign off for the last time, I want to thank our amazing ACWWA Board for their dedication to water and our dedicated staff – Clara Shea – who keeps everyone grounded and motivated in water. Looking ahead, the pandemic and even post-pandemic will be challenging but Atlantic Canadian water professionals have the knowledge and ability to ensure safe water reaches every glass. 🌊



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## Moving forward

Well, it is finally starting to feel like summer... however, who knew we would for the most part be self-isolating at home for many, many weeks on end. Who knows if we will be back closer to normal by the time you read this article?

With all the travel restrictions in place plus people going into panic mode looking for toilet paper (of all things) it brings to mind, where is all this toilet paper going? If you are a front-line municipal worker, you know exactly where this is going. One major problem is that people are also spending a lot more time cleaning and sanitizing surfaces with "Lysol-type" wipes and the sort. Instead of putting these wipes in the garbage where they belong, people are flushing them down the toilet. The reason I know this is because of so many service calls being made to my office. I have spoken to many municipal workers that are inundated with service calls to unclog pumps that are jammed solid with "non-flushable" wipes and other items that are not one of the "Three-P's."

Everyone has likely heard the term the "Three-P's" – pee, poop, and (toilet) paper... However, common sense is taking a back burner during this pandemic and many people think that when wipes get flushed, they will someday magically go away... just like someone said on TV about the Coronavirus... not mentioning any names. There is a lot of re-energized discussion throughout the countryside now about manufactures mis-labelling products as "flushable wipes" when they actually are not. It will be interesting to see what governments and regulators will do going forward on this topic.

As far as my regular WEF Delegate role goes, WEF has been very busy trying to sort out the best way forward

"WEF has been very busy trying to sort out the best way forward to offering programs and specialty conferences in 2020."

to offering programs and specialty conferences in 2020. Essentially every conference and seminar for 2020 beginning in March has been cancelled or postponed. As of May 22, WEFTEC is still scheduled for the first week of October in New Orleans, LA. However, there will likely be a virtual aspect being offered for those unable to travel. This is a moving target, so if any updates are made available, we will certainly share this with everyone through our ACWWA social media sources and other methods as necessary.

**The following statement is from WEFTEC.org (as of May 22, 2020):**

WEFTEC 2020 will proceed as planned.

We understand that our audience is concerned about the Novel Coronavirus (COVID-19) and its potential effects on WEF events, including WEFTEC 2020. Our staff are constantly monitoring the situation and closely following recommendations from the Centers for Disease Control and Prevention (CDC), World Health Organization (WHO), and state and local health authorities.

We have no plans to postpone or cancel WEFTEC.

As always, WEF is committed to the health, safety, and well-being of all involved with WEFTEC. Every year, we plan extensively to ensure safety, security, and swift response to incidents. Preparations are underway now to provide a safe and healthy environment for all participants. We also want to be transparent in our decision-making and keep you updated. Visit the WEF Events Coronavirus page for the latest information on all WEF events.

We look forward to seeing you in New Orleans.

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During this unique, challenging, and stressful time, we want you to know that WEF is here to provide resources for our members and make decisions that are in our collective best interest. The importance of minimizing the spread of the coronavirus; its expanding reach making it impossible for us to deliver high-quality programs and networking opportunities as promised; concerns expressed by conference participants; and travel restrictions by organizations and government agencies contributed to our decision to cancel several events.

Based on the unprecedented nature of this situation, within 45 days, WEF will issue full refunds to attendees, exhibitors, and sponsors of all fees paid to WEF for these events.


Our staff are meeting daily and closely monitoring news from the Centers for Disease Control and Prevention (CDC); World Health Organization (WHO); and state and local health authorities in the destinations that are scheduled to host us. **See the following for how we are preparing to produce safe & healthy future events and responding to common questions.** If you have further questions or other concerns, please contact [registration@wef.org](mailto:registration@wef.org).

### Which of WEF's 2020 conferences and events are postponed or cancelled?

#### The following events have been CANCELLED:

- National Stormwater Symposium | March 15–17 in Cincinnati, OH
- Odors and Air Pollutants Conference | March 15–18 in Cincinnati, OH
- Residuals and Biosolids Conference | March 31–April 3 in Minneapolis, MN
- National Water Policy Fly-In | April 27–28 in Washington, DC
- Collection Systems Conference | June 2–5 in El Paso, TX

The following events are proceeding as planned:

- WEFTEC 2020 | October 3–7 in New Orleans, LA 



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## Dedicated professionals

So much of our daily lives has changed across the entire world as we continue to experience the effects of COVID-19. Not since the later part of the 19th/early part of the 20th Century has there been a widespread pandemic like we are being faced with now. As we have all been affected to varying degrees, credit must be given to the work provided by our operators in the water and wastewater fields. These dedicated professionals have continued to work through these troubling times. Making sure facilities provide essential services along with maintaining critical infrastructure, operations, and construction projects. Please keep up the great work.

### Activity from the CWWA

#### A national effort

While both water and health are primarily provincial matters, this COVID-19 challenge is a national issue (international, really) calling for cooperation and information sharing. Your CWWA has been very active in collecting resources and developing

guidance to support Canadian municipalities. First and foremost, our website, [www.cwwa.ca](http://www.cwwa.ca), has been redesigned and there you will immediately find a link to COVID-19 resources. Here, we try to consolidate links to resources from the federal government, and from all other associations including WEF, AWWA, NACWA, IWA, and the WHO.

From the first days of the Coronavirus lockdown, we realized there would be serious issues with sewage line clogs from inappropriate flushing. As soon as we saw the run on toilet paper, we saw discussions of alternative products like paper towels and flushable wipes. We soon saw a dramatic increase in clogs in municipal collection lines. But beyond the so-called flushable wipes, we found a huge spike in all disinfectant wipes, cleaning cloths, and even rubber gloves. CWWA was out early with a press release on the dangers of misusing your toilets. But this time the focus was on the risk to the homeowner and how they were putting themselves in danger during this time of isolation. We were

pleased to see incredible interest in this story as it ran in hundreds of newspapers, online news feeds, radio and television stations across the country – likely the best publicity we have seen on this topic ever. CWWA followed this with a release on the safety of tap water – One Less Reason to Go to the Store – with praise for our frontline workers maintaining water and wastewater systems. Unfortunately, the media did not find this good news story as interesting.

CWWA's technical committees have been very busy. The Security and Emergency Management Committee released a Pandemic Action Plan to advise utilities on immediate steps to take to maintain operations safely. They are preparing a second guidance report on getting back to work and developing a 'new normal.' The Wastewater Committee is involved with a national coalition considering research opportunities to monitoring COVID-19 in our wastewater in hopes this can guide public health efforts.

CWWA's Drinking Water Committee released two documents

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addressing the re-opening of buildings after prolonged shutdown. The first is guidance to utilities on how they might prepare for extensive flushing efforts and how best to communicate with building owners. The second is a fact sheet intended to give simple guidance to building owners and operators with references to the detailed regulations and guidance they will need.

Meanwhile, the joint Window on Ottawa and Canadian Water Summit set for June in Ottawa was cancelled. However, there was a three-hour webinar on June 11, discussing resilience and then awarding the Waters Next awards from *Water Canada* magazine. CWWA and Water Canada will be presenting a series of webinars in the coming months

to get you the federal updates you would normally get at the Window event. For now, the National Water & Wastewater Conference is still on for November 8–11 in Niagara Falls. Of course, we continue to monitor the situation and consider the viability of such an event. An extensive program is coming together that may very well need a mixed platform of both live and online presentations. Stay tuned. Stay healthy. And thank you for serving your communities!

**ACE20 – June 14–17 Orlando, Florida**  
Cancelled

**CWWA – National and International**  
International Water Association (IWA) – 2022 is getting closer and our chance to host the World Congress and

Exhibition in Toronto. CWWA is planning how to make a big splash in Copenhagen in 2020 to promote our event. Support has been tremendous from both WEF and AWWA for this 2022 North American event.


**Window on Ottawa & Canadian Water Summit**

Postponed until June 9–11, 2021.

**National Water and Wastewater Conference**

At the time of writing this report the NWWC2020 in Niagara Falls, November 8–11 is still on. TBD.

**Website**

CWWA's website has been redesigned; please visit [www.cwwa.ca](http://www.cwwa.ca) and take some time to check out the new features and content. 



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## Membership news

Here is an update on our membership.

Name	Organization	Membership
James Sheppard	Dillon Consulting Limited	WEF
Steven Cross	Town of Quispamsis	WEF
Lindsay Wilcott	CBCL	WEF
Josh DeYoung	Halifax Water	WEF
Erik Neilson	City of Corner Brook	AWWA
Luc Gould	Town of Riverview	AWWA
Corey Fougere	Iconix	AWWA
Fraser Burns	Town of New Glasgow	AWWA
Jason Walsh	Town of New Glasgow	AWWA
Jeff Rogers	Town of Quispamsis	AWWA
Steven Cross	Town of Quispamsis	AWWA
Doug Longmoore	Town of Cornwall	AWWA
Sandra Phillips	Rockwell Automation	AWWA
Jennifer Bishop	Government of New Brunswick	AWWA
Jill Walsh	Town of Three Rivers	AWWA

### As of May 11, 2020

Total AWWA active members: **414**

Total AWWA late members: **26**

Total active WEF members: **111**

Total WEF late members: **18**

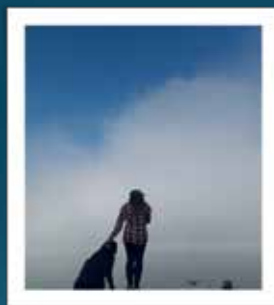
Don't forget the "refer a member" contest for a chance to win a \$50 gift card of your choice!

## 2020 ACWWA Photo Contest

Our family\* and water  
(\*includes pets)



2019 1<sup>st</sup> Runner Up  
Gabriel Belliveau  
(City of Dieppe)



2019 Top Prize  
Julie DiCicco  
(Dillon Consulting)



2019 2<sup>nd</sup> Runner Up  
Sylvie Morton  
(Province of New Brunswick)

#### Rules and criteria:

1. Photo must be submitted by an ACWWA Member.
2. Photo must include water AND a family member(s) and/or pet(s).
3. Please provide first name of those in photo.
4. Unlimited submissions. Only one winning picture per member.
5. Judged by ACWWA Board.
6. Deadline for submission is September 8, 2020.
7. Submit pictures or questions to julie.stokes@moncton.ca.



Top prize – \$250 gift card of your choice  
Second place prize – \$150 gift card of your choice  
Third place prize – \$100 gift card of your choice





# Winner of the **Silent Hero Award**, Jason Phillips, P. Eng.



- 1. Job title:** Manager of Infrastructure.
- 2. Who do you work for?** City of St. John's, Public Works.
- 3. Where do you currently live?** St. John's, NL.
- 4. Where did you grow up?** St. John's.
- 5. When I'm not working, I'm...** spending time with my family.
- 6. What is your philosophy on life?** Don't sweat over the small stuff – make the best decision that you can with the information you have at that time.
- 7. Toughest thing about your job?** The toughest (and best part) about my job is planning for my work day. On a typically day I usually cannot complete what I had planned for on the previous day as maintenance and repairs to the infrastructure in one of the oldest cities in North America always presents challenges and problems that need to be solved.
- 8. When you were a kid, what did you want to be when you grew up?** Heavy equipment operator – drive tractors.
- 9. Last movie you saw?** The Joker.
- 10. What music did you listen to this morning?** The Tragically Hip.
- 11. Favourite TV show?** Gold Rush.
- 12. Not many people know that I...** play goalie in a ball hockey league.
- 13. What is your greatest luxury?** Taking vacations with my family.
- 14. Describe your perfect day.** A summer day enjoying the sun and outdoor activities.
- 15. What three objects would you rescue from your burning house?** Family, dog, and photos.
- 16. How long have you been a member of ACWWA?** 15 years.

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**During these challenging and changing times we would like to remind everyone that your host suppliers are here to help in any way we can.**

**Stay strong, stay safe, and remember we are all in this together!**

Contact information for our members, and applications for our Scholarship and Grant Program can be found at [www.ABEA.biz](http://www.ABEA.biz).



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# 2020 ANNUAL CONFERENCE CANCELLED DUE TO COVID-19 PANDEMIC

**I** regret to inform you that due to the COVID-19 pandemic, ACWWA has made the difficult decision to cancel the ACWWA Annual Conference in Fredericton, NB that was scheduled for October 18–20, 2020. As you can imagine, this wasn't an easy decision to make. As you know, ACWWA's top priority is to protect public health. We understand this is a great disappointment to attendees and exhibitors.

ACWWA believes water workers are essential to preventing the spread of COVID-19 (hand-washing hygiene, staying at home, toilet flushing). We are proud of our members' commitment to public health during the pandemic.

Be assured that ACWWA is ready and excited to help water professionals share knowledge in new ways. We are exploring new pathways for you to share your contributions. If you have training opportunities that you would like to share, please contact me at the number below.

**I want to commend you for all the work you are doing to support ACWWA and our members.**

**Please remember to cancel your hotel and restaurant reservations.**

Thank you, stay safe, and see you next year in St. John's, NL.

Clara Shea  
ACWWA Executive Director  
P: 902-434-6002

## Nova Scotia Environment (NSE) Mailing List Announcement:

Nova Scotia Environment's Drinking Water Team has recently created a mailing list that will notify subscribers of:

- changes to the Guidelines for Canadian Drinking Water Quality as amended by Health Canada
- regulatory changes that affect public drinking water supply owners in Nova Scotia
- updates to Nova Scotia's Drinking Water Program

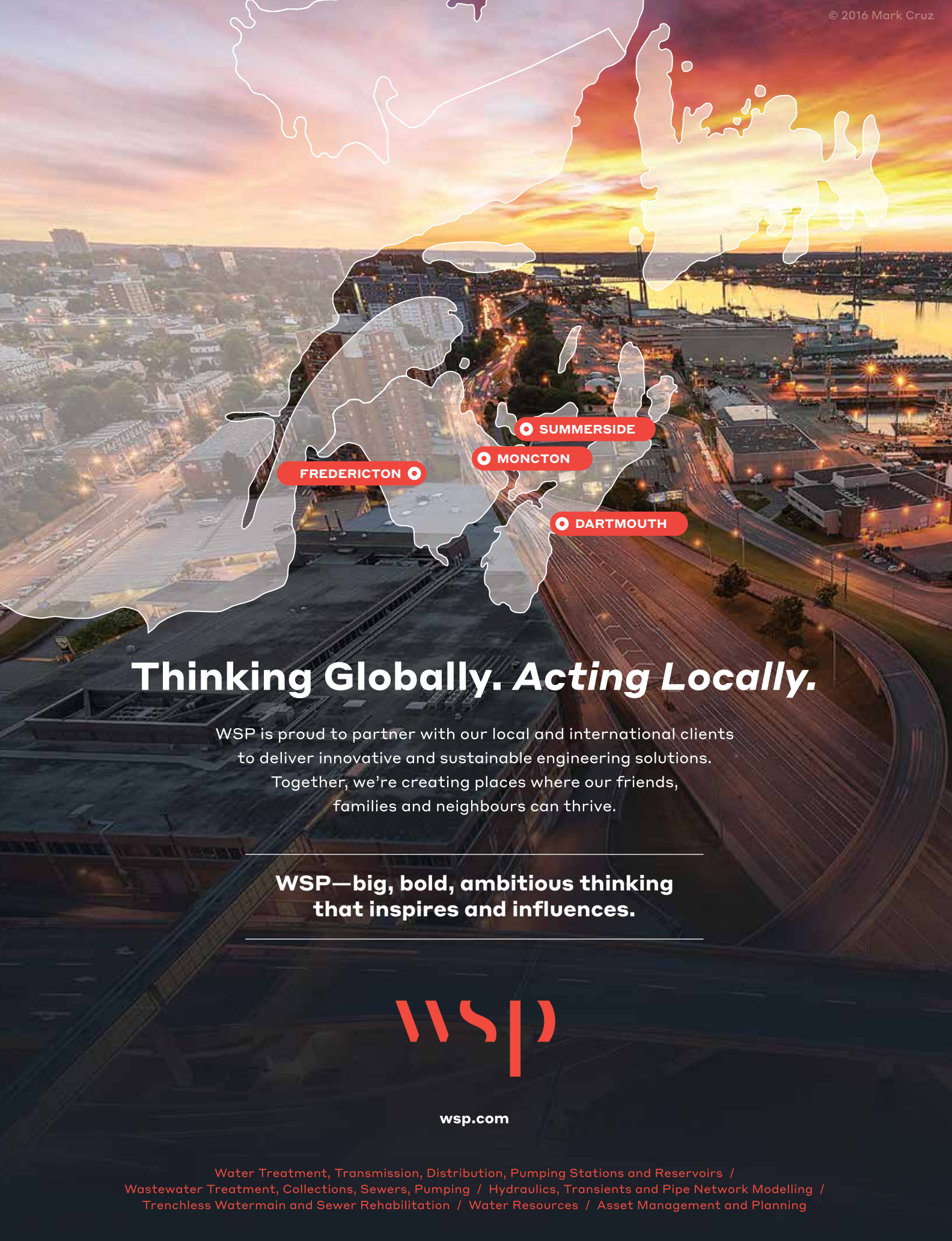
### Who should sign up?

- municipal public drinking water supply owners
- registered public drinking water supply owners
- industry professionals (consultants, water quality specialists, plumbers, well drillers etc.)
- anyone interested in learning more about drinking water quality

### How do I sign up?

To subscribe to the Drinking Water mailing list, send an email message with your name in the body of the email to [subscribe-drinkingwater@lists.gov.ns.ca](mailto:subscribe-drinkingwater@lists.gov.ns.ca). You'll get a confirmation message. You must reply to the message to be subscribed.





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## ONLINE COURSES FOR MEMBERS

ACWWA has collaborated with the BCWWA to extend their training offerings to our members in Atlantic Canada. The online content covers the same material as the in-class course, and earns the same number of continuing education units (CEUs).

Please visit the ACWWA website ([www.acwwa.ca/education/acwwa-courses](http://www.acwwa.ca/education/acwwa-courses)) for information and registration on the following online courses:

- Hypochlorination
- Chlorine Handling Refresher
- Small Systems – Water Distribution and Water Treatment
- Small Systems – Wastewater Collection and Wastewater Treatment
- Preventing Waterborne Illness

We are currently preparing several webinars that will be available soon.

## FREQUENTLY ASKED QUESTIONS

### Can I complete the course at my own pace?

Yes, for the majority of the time you set the pace. You decide when you want to view the presentations and complete the course work. However, every course has an end date and you are expected to have completed all reading and assignments by the time the course closes. If you do not complete the course work on time, you will not be eligible to receive CEU credits.

### What if I prefer to read the manual and study offline, on my own?

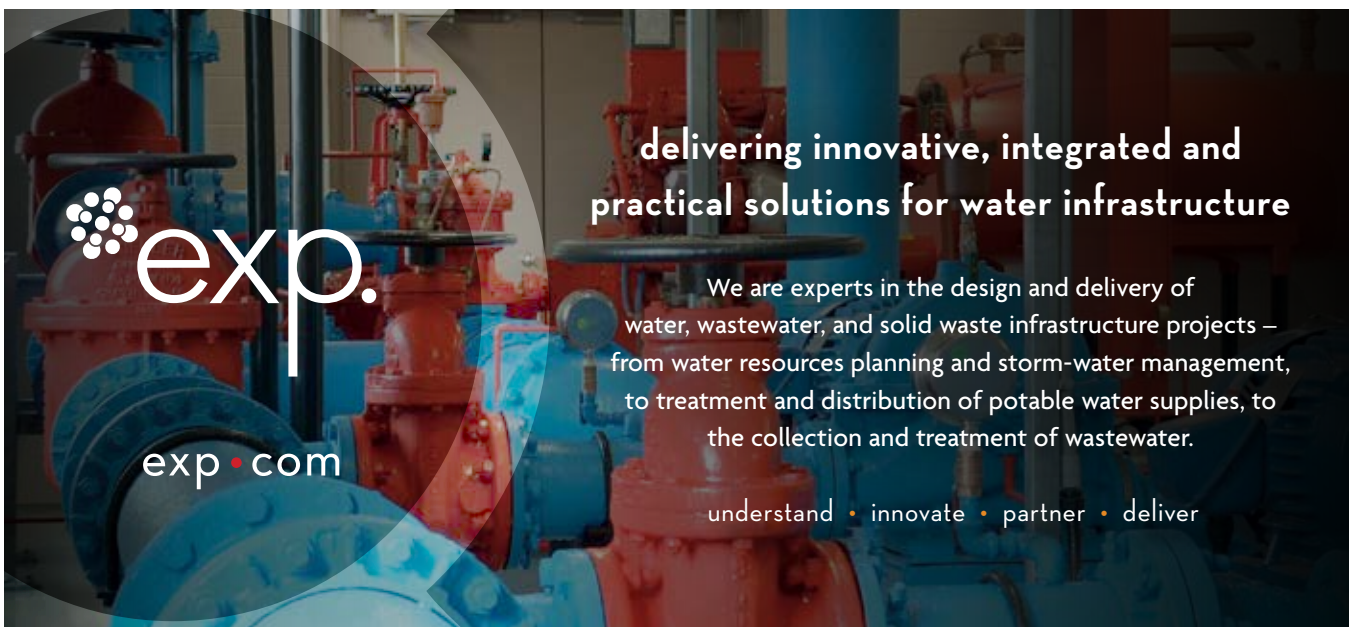
The online courses are structured to provide you with learning modules that build your knowledge and competencies. The presentations, student forums, exercises, case studies, and quizzes are important components of the learning experience, and you are encouraged to take advantage of these tools.

### Do I need to complete all the course work to pass?

Yes. Successful completion is defined as completing all of the course work by the time the course closes. If you do not complete all of the work, you will not pass.

### How does the BCWWA/ACWWA monitor and report to the Department of Environment on CEUs?

Our online courses are hosted on a learning management system that keeps track of when you log in, which pages you look at, and how much time you spend on every activity. It also keeps a log of which quizzes you work through and the portion of the quiz that you complete. Following the course end date, the BCWWA notifies the ACWWA regarding the students who have completed the course in its entirety. ACWWA will issue the CEU certificates. 📄



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## Harnessing the Water Industry's Knowledge of UV Disinfection to Support the Fight Against COVID-19

Ultraviolet (UV) disinfection is a well understood technology in the water and wastewater community. UV light is now considered as a promising alternative to disinfect personal protective equipment (PPE) for reuse in the global fight against the novel severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) pandemic.

COVID-19, the illness caused by SARS-CoV-2, is transmitted through respiratory droplets from coughs and sneezes of infected individuals. The N95 filtering facepiece respirator, a single-use disposable respirator approved by the National Institute for Occupational Safety and Health (NIOSH), is a critical piece of personal protective equipment for health care personnel treating patients with

potential COVID-19 infections. This type of mask is used by professionals across the water industry as well.

In light of a disrupted supply chain and urgent need for protection from respiratory droplets – reusing masks like the N95 filtering facepiece respirator may be required. For water professionals in Atlantic Canada, the need for a safe and effective method for decontaminating N95 filtering facepiece respirators may become an important reality.

To understand the potential to disinfect masks, our research team at Dalhousie has leveraged an existing partnership with LED manufacturer AquiSense and developed new partnerships with health professionals at the Nova Scotia Health Authority to determine

if UV technology can be used to effectively disinfect N95 filtering face respirators. Based on our initial findings, we have determined that in fact UV technology is highly effective for disinfecting this type of personal protective equipment. However, the energy inputs required are significantly greater than those used in the water industry.

It has been exciting to pursue new partnerships and opportunities by using our water industry knowledge and skills to play a role in the response to COVID-19. We expect that our findings will be publicly available later this summer. [🔗](#)

*Amina Stoddart, PhD, P.Eng.  
Graham Gagnon, PhD, P.Eng.*



**Water Professionals:**

**We Appreciate Your Service**

AWWA wants to thank water professionals around the world for their hard work, sacrifice, and dedication in providing safe and clean water during the Coronavirus pandemic.

**Thank you for all that you do, now and always.**



# Do the SDGs Apply to Me? A Resounding Yes!

By Barry Liner

A relatively new and colorful lapel pin is becoming more common throughout Water Environment Federation (WEF; Alexandria, Virginia) events and throughout the water sector. This 25-mm (1-in.) circle is decked out with 17 multi-colored pie slices. It evokes the vision of an old Trivial Pursuit game piece on steroids and packs a lot of meaning and promise for making the world a better place by 2030.

The circle and colors depicted on these pins represent the United Nations Sustainable Development Goals (SDGs). Water professionals contribute toward meeting nearly all SDGs, but focus their passion and dedication to preserving the environment and protecting public health most directly on SDG 6 – Clean Water and Sanitation.

## SDGs at a Glance

In 2015, the United Nations member states adopted the 2030 Development Agenda titled, *Transforming Our World: the 2030 Agenda for Sustainable Development*. This call-to-action for all countries was designed to work toward peace and prosperity for people and the planet. The agenda outlined 17 SDGs related to thematic areas such as water, energy, and climate; with associated targets and indicators.

SDG 6, appropriately associated with bright blue, features targets for water reuse, access, efficiency, affordability, resiliency, integrated water resources management, reduction in untreated wastewater, and enhanced research and development for water technologies. By definition, water professionals worldwide contribute to achieving SDG 6 every day, as they have been for as long as water and wastewater professionals have existed.

## WEF Actions

In 2019, WEF released a position statement in support of the objectives of the SDGs and recognizing the work that our members, Member Associations, and the water sector as a whole contribute to furthering progress. The SDGs align directly with four WEF Strategic Goals:

- Catalyze Innovation,
- Enhance the Value of Water,
- Provide a Broad Range of Content, and
- Leverage Global Network of Water Professionals.



WEF will continue to foster progress toward achievement of the SDGs by increasing water sector and public awareness of the SDGs and their importance. WEF also will promote the work that water professionals are doing to further progress toward achievement of these goals. In addition, WEF is always seeking opportunities to build upon the work currently being done and to collaborate with our Member Associations and partners worldwide; this effort also supports SDG 17 – Partnership.

The SDGs represent the evolution of the Millennium Development Goals (MDGs). At the Millennium Summit in 2000, UN Leaders adopted the United Nations Millennium Declaration, committing their nations to a new global



partnership to reduce extreme poverty. This declaration set out a series of time-bound targets – with a deadline of 2015 to meet the eight MDGs focused on Developing Countries. One of the critical goals was MDG Target 7.C: Halve, by 2015, the proportion of the population without sustainable access to safe drinking water and basic sanitation. The world met the target of halving the proportion of people without access to improved sources of water, five years ahead of schedule. Between 1990 and 2015, 2.6 billion people gained access to improved drinking water sources. Worldwide, 2.1 billion people have gained access to improved sanitation. Despite the impressive progress, 2.4 billion are still using unimproved sanitation facilities, including 946 million people who are still practicing open defecation.

### Framing the Plan

The SDGs build on the lessons learned from the MDGs. At the heart of the 17 SDGs is an urgent call for action by all countries in a global partnership. These goals recognize that ending poverty and other deprivations must go hand-in-hand with strategies that improve health and education,

reduce inequality, and spur economic growth – all while tackling climate change and working to preserve our oceans and forests.

The 17 goals also encompass 169 targets that are measured by 232 indicators. For example, SDG 6 challenges the world to “ensure availability and sustainable management of water and sanitation for all.” The eight targets identified for the water sector (see sidebar on p. 23) demonstrate the full breadth and scope of the work of water professionals.

### Beyond SDG 6

Water professionals are the front line in public health, the circular economy and sustainable communities. It would only make sense that water also directly affects most of the other SDGs, including

- SDG 2 – Zero Hunger;
- SDG 3 – Good Health and Well-Being;
- SDG 5 – Gender Equality;
- SDG 7 – Affordable and Clean Energy;
- SDG 9 – Industry, Innovation, and Infrastructure;
- SDG 11 – Sustainable Cities and Communities;

## SDG 6 – Clean Water and Sanitation Targets

- **6.1** – By 2030, achieve universal and equitable access to safe and affordable drinking water for all.
- **6.2** – By 2030, achieve access to adequate and equitable sanitation and hygiene for all and end open defecation, paying special attention to the needs of women and girls and those in vulnerable situations.
- **6.3** – By 2030, improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally.
- **6.4** – By 2030, substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity and substantially reduce the number of people suffering from water scarcity.
- **6.5** – By 2030, implement integrated water resources management at all levels, including through transboundary cooperation as appropriate.
- **6.6** – By 2020, protect and restore water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers and lakes.
- **6.a** – By 2030, expand international cooperation and capacity-building support to developing countries in water- and sanitation-related activities and programmes, including water harvesting, desalination, water efficiency, wastewater treatment, recycling and reuse technologies.
- **6.b** – Support and strengthen the participation of local communities in improving water and sanitation management.




- SDG 12 – Responsible Consumption and Production;
- SDG 13 – Climate Action;
- SDG 14 – Life below Water; and
- SDG 15 – Life on the Land.

Understanding the SDGs recognizes the value, both locally and globally, that the work that water, wastewater, and stormwater professionals already do, and will continue to do. The framework enables water, wastewater, and stormwater utilities and organizations to increase legitimacy in their relations with customers and stakeholders, provides a sense of pride to operators, engineers, regulators, managers, academics, businesspeople, and all other professionals who work in the water sector and encourages using the global perspective on water resources to facilitate watershed-based solutions on a local level.

More information on all of the SDGs, including their targets and measures, can be found at <https://sustainabledevelopment.un.org>.

**Dr. Barry Liner** is Chief Technical Officer at the Water Environment Federation and leads WEF's Water Science and Engineering Center.

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# WATER DISPATCHES

NO. 3: **DEWEY DUNNINGTON,**  
Dalhousie University

Water Dispatches Host:  
Stephanie Gora, PhD



Water Dispatches is an interview series with ACWWA members on interesting topics that impact the

water industry in Atlantic Canada. Stephanie is a Postdoctoral Fellow at the Centre for Water Resources Studies at Dalhousie University and is the host of Water Dispatches. Her favorite water-related song is “The Water” by Feist.

Interviewee:

Dewey Dunnington, PhD candidate at the Centre for Water Resources Studies at Dalhousie University



**Steph:**

**Dewey, can you tell us a little bit about your research?**

**Dewey:**

Sure, so what I do is I do history. Most people think of history as being written down by people recording events that happened in the past, but what I do is look at history from a lake’s perspective, and how a lake would view history. From a European perspective people have only been recording history in North America for about 400 years, but lakes have been recording history for the last 10,000 years or more. If we can access that history we can get a much longer perspective on the landscape. Of course, the further back you go the harder is it to decipher the history, but when I’m looking at history I’m looking at chemicals and algae and the small bits and pieces that are floating around in the lake that sink to the bottom and become part of the sediment.

**Steph:**

**Have you found any evidence of lake recovery in Nova Scotia using your methods?**

**Dewey:**

I have, but I didn’t start out looking for evidence of atmospheric deposition. I started working with Halifax Water on their reservoirs with my old supervisor, Dr. Ian Spooner. We teamed up with Halifax Water to look at their reservoirs from a long-term perspective to see if these systems changing and if is there anything we need to be aware of in

the future. That was a successful project, and one thing that came out of it was evidence of atmospheric deposition of small amounts of lead that was recorded in the sediment. We were able to engage the PEARL lab at Queen’s University, who have been studying acidification and deacidification of lakes for a long time. One of their postdoctoral fellows has been studying DOC concentrations and ways to calculate what the DOC concentrations would have been in a lake 150, 200, or 300 years ago. As you can imagine, it’s complicated to calculate, but Carsten Meyer-Jacob is a world expert in this, and he’s calibrated this calculation using sediment from lakes all over the world. Given that DOC is important for water treatment because it’s difficult to remove, it was exciting that we could predict future DOC concentrations as a part of my work.

**Steph:**

**I think a lot of people have heard of ice core sampling; you see it on TV and in documentaries. How does what you do differ from that?**

**Dewey:**

Ice cores are similar to sediment cores in that when you sample an ice core you’re also looking at history, but you’re looking at the history from the perspective of a glacier instead of a lake. A glacier also accumulates material year after year that over hundreds of thousands of years becomes very thick – an example would be the Greenland ice sheet. What I’m doing is similar, but from a practical perspective, collecting

an ice core is far more difficult than collecting a core from a lake. Collecting a core from a lake is done by lowering a tube into the mud and then, similar to putting your finger over a straw in a milkshake, we put a specially-designed thumb over a specially-designed tube and pull out sediment from the bottom of the lake. That's one of the benefits of what we do – it's relatively easy to collect these samples. For my research that means that I can study atmospheric deposition from the perspective of many lakes rather than just one.

**Steph:**

**Are there any other phenomena that might be of interest to our listeners that you can detect using sediment core sampling?**

**Dewey:**

One of the problems associated with building treatment infrastructure is understanding the source water quality so that appropriate treatment processes are used. If the design engineers are lucky they might have five to 10 years data about what the water quality is like. Treatment infrastructure needs to last for 30 to 50 years – it's unrealistic to think that five to 10 years of data can adequately characterize a water source that far into the future. One of the things that we were trying to do with our Halifax Water partnership was to use lake sediment cores to look farther back into the past to see if we could look farther into the future. Part of that is quantitative, like calculating what the pH or DOC concentration will be in 10 or 20 years, but mostly it's qualitative. Lake sediment is really good at recording changes in the lake over time, but the further you go back in time the harder it is to quantitatively assess what conditions were like.

**Steph:**

**I know we're talking a lot about lakes going back to how they were but there's climate change to consider as well. Are there concerns that what you find will not actually be representative of the future and do you take that into account in your studies?**



“Many of the things that we're concerned about, like DOC occurrence and cyanobacterial occurrence, are expensive treatment problems that are pushed in the same direction by both climate change and the lack of acidic deposition due to cleaner power plants in the US.”

**Dewey:**

That's a good question. One of the things that I've alluded to is the idea that what things were like 300 years ago is a good representation of what things might be like in 40 years. The reason we use that description is that, especially for water supply reservoirs, the watersheds are protected: if you look at the map of what the watersheds were like 300 years ago, many look a lot like they do today. On top of that we have to layer other long-term changes like climate change. In many cases, climate change is causing similar changes as reduced atmospheric deposition and reduced catchment disturbance: if there is increasing temperature that promotes cyanobacterial occurrence

and decreasing acidification that also promotes cyanobacterial occurrence, it is reasonable to predict that there will be more cyanobacterial occurrence in the future. Many of the things that we're concerned about, like DOC occurrence and cyanobacterial occurrence, are expensive treatment problems that are pushed in the same direction by both climate change and the lack of acidic deposition due to cleaner power plants in the US. These are long-term problems that need long-term data to solve, and in many cases the lake sediment archive is the only way to know anything about what a lake was like that far in the past. 🌊

# Biosolid/residual management programs – They should be the first to plan, not the last!

By Lise LeBlanc, LP Consulting Ltd., Lower Sackville, NS

For the past 20+ years, we continue to see residual management as a low priority in the planning process. At wastewater conferences, speakers talk about building plants and programs but do not usually discuss what happens with the end-product. Occasionally they indicate that it will be stored in lagoons or sent to farmers. Working on residual management after it becomes a problem leads to very expensive short-term solutions.

There are risks that need to be managed with both beneficial reuse technologies (land application, energy recovery, etc.) and non-reuse options (landfill capping). Regulations on managing biosolids/residuals continue to evolve and change as laboratory techniques advance. What are the options if biosolids/residuals cannot be used as cover if organics are banned from landfills? What if the lagoon is overflowing but can't be land applied as it does not meet provincial Class A standards? What if the company that removes solids from the lagoon finds out they don't have a place to put it because regulations are getting stricter due to emerging substances of concern such as per- and polyfluoroalkyl substances (PFAS)?

Municipalities are recognizing the importance of evaluating beneficial reuse opportunities. Many are told “build it and they will come” but that strategy has never been successful. Evaluating why the program isn't working after the fact often leads to high costs.

Based on successful beneficial reuse programs in agriculture, the opportunities and challenges that

should be considered when planning for success are summarized below.

When evaluating opportunities such as land application for municipal biosolids/residuals, consider the following:

- Build a program that includes unforeseen costs. Biosolids/residuals continue to be made every day, regardless of demand/weather/timing of application. That is inherently risky.
- Returns are typically low on beneficial reuse biosolids/residuals unless the value has been increased through blending with other materials. Even then, the cost vs. return must be calculated.
- Recognize that partners/distributors are not going to take on the risk of a program until a large enough profit return can be realized. Beneficial reuse programs take time to establish and require continuous effort to be and remain successful.
- Ensure there is a market for what the residual will provide and it's within 100 km of the plant.
- Work with an agricultural specialist/team that knows the market and has built a reputation on trust and partnership. Relationships count in agriculture.

## Challenges of beneficial reuse programs

1. **Lack of storage.** Storage can be expensive therefore Industry tends to build one- to four-month storages. Agriculture applies residuals in spring and fall so storage is required for the off months. Climate change has had a significant impact on agricultural

production, shortening windows of spreading/planting/harvesting opportunities. Provincial guidelines suggest farms build seven-month manure storages, but often even nine-month storages are not large enough if spring and fall are too wet. Weather always impacts sales potential of residuals.

2. **Lack of understanding of the market.** Not all farms have the same demand. Local agricultural statistics do not provide adequate information to determine if there is a market. Biosolids/residual demand is limited to certain crops, either because of economics of utilizing the residual or negative perceptions. Biosolids or any product made with biosolids cannot be used on land that grows fruits and vegetables, further restricting opportunities.
3. **Trucking and costs.** For the agricultural community to purchase and use biosolids/residuals, they must provide a significant return on their dollar. Trucking costs have an impact on program success. Beneficial reuse programs can cost more than traditional fertilizers, typically in time and trucking fees.
  - Need to apply much higher application rates than fertilizers (faster to apply 100 lbs/acre vs. 3–10 tonnes/acre).
  - Residuals can require more expensive specialized equipment to spread – i.e., more than \$50,000 investment by the farmer.
  - If the Municipality cannot prove that the product saves money on fertilizers and/or lime while providing an increase in yield, farmers will not participate in the program.



4. **Odour.** Agriculture does not want to use residuals that have a lot of odour as it creates difficulties with neighbours and the communities they work and live in.

**Opportunities of beneficial reuse programs**

- A successful biosolid/residual program can provide municipalities savings and revenue
- Improved public image by working with agriculture to increase soil health and combat climate change
- Future opportunity for carbon credits
- Participate in the green economy by providing local sustainable nutrients and organic matter that offsets fossil fuel products



Lise LeBlanc giving a tour of N-rich biosolids program in HRM

Industry has been frustrated when they produce a beneficial residual but find that selling to farmers is not about waiting for the orders to come in. Industry needs to liaise with the agricultural community which includes agricultural service providers and government. They need to provide research information to prove their residual works, set out demonstration fields, give presentations at farm meetings, etc. Farmers want technical advice on how to use the residual based on their soil analysis. They need the residual at specific times and typically in large tonnages in a short period of time. Working with an agricultural specialist is key to providing this information as they have the knowledge and the relationships with the farm clients.

If municipal biosolids/residuals programs are developed with these

challenges in mind, the benefits to their bottom line, their constituents (which includes agriculture), and ultimately to the environment is a win-win for everyone. ☺

The “Back to Fundamentals” department is published in each edition of *Go With the Flow* magazine. It is intended to cover a broad range of fundamental water and wastewater topics that will be driven by you, the readers of this magazine. If you find a topic particularly interesting or confusing, most likely others do as well. Please forward your ideas for future columns to Kyle MacIntyre, Dillon Consulting ([kmacintyre@dillon.ca](mailto:kmacintyre@dillon.ca)) or John Lam ([john.lam@novascotia.ca](mailto:john.lam@novascotia.ca)) and we will respond in future publications to your queries.

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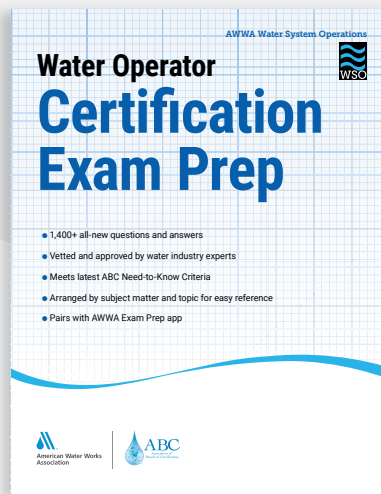


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Arranged by subject matter and topic  
for easy reference

[AWWAexamprep.com](http://AWWAexamprep.com)



American Water Works  
Association





Company	Page	Phone	Website/Email
Anthrafilter	12	519-751-1080	www.anthrafilter.net
APS	3	902-469-2806	www.aps.ns.ca
Aqua Data Atlantic	28	902-468-9447	www.aquadata.com
Atlantic Backflow Specialists Ltd.	10	902-499-7745	www.atlanticbackflow.com
AWI (Antratech Western Inc.)	32	403-255-7377	www.awifilter.com
Blue-White Industries, Ltd.	4	714-893-8529	www.blue-white.com
CBCL Limited	8	902-421-7241	www.CBCL.ca
Chemline Plastics Ltd.	3	800-930-2436	www.chemline.com
Concord Supply	11	877-436-3800	www.concordsupply.ca
Denso North America Inc.	7	416-291-3435	www.densona.com
EXP	19	506-452-9000	www.exp.com
Flowstar Industrial	11	902-896-0041	www.flowstarind.ca
Halifax Water	28	902-490-4840	www.halifaxwater.ca
InfoSense, Inc.	3	877-747-3245	www.infosense.com
Liberty Pumps	31	800-543-2550	www.libertypumps.com
McLennan Sales, Division of EMCO Corporation	28	506-634-3112	www.mclennansales.com
Mueller Co.	9	800-423-1323	www.muellercompany.com
Roth Global Plastics	2	866-943-7256	www.rothmultitank.com
RV Anderson Associates Limited	15	416-497-8600	www.rvanderson.com/sustainability
Scotia Tech Fluid Services Ltd.	6	902-468-2777	
The Ford Meter Box Company, Inc.	27	260-563-3171	www.fordmeterbox.com
The Panel Shop - A Division of Pennecon	13	506-455-1925	www.thepanelshop.com
WSP	18	905-882-4211	www.wsp.com

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