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## The regulatory horizon – an Atlantic Canada perspective

As we go about our daily work here in Atlantic Canada we can sometimes forget about the ways in which our industry is changing. Products, practices, and regulatory pressures are in a constant state of evolution. As industry professionals and stewards of water and wastewater it is essential that we strive to maintain an active understanding of these changes in order to maintain confidence of the public and those who rely on water and wastewater services.


With respect to regulation, the Federal-Provincial-Territorial Committee on Drinking Water has recently published a document for public consultation on lead in drinking water. This follows similar recent documents on PFOS, PFOA,

enteric protozoa, and manganese. Each of these documents represent the probable evolution of drinking water guidance/regulation with respect to these parameters at a federal level. For lead, the changes in the regulatory approach to drinking water will move utilities away from flushed samples, to defined periods of stagnation prior to sampling. This is partially an outcome of recent events in Flint, Michigan, but also a reflection of modern science with respect to the appropriate regulatory approach to this health-based water quality parameter.

Regulations can sometimes seem like an ever-increasing burden on water and wastewater utilities. But behind new regulation is often a substantial burden of scientific

evidence, modern knowledge of public health, and environmental protection. In conjunction with some of these regulatory changes, ACWWA has started a process to renew the *Atlantic Canada Guidelines for the Supply, Treatment, Storage, Distribution and Operation of Drinking Water Supply Systems*. These guidelines, instituted first in 2004, require changes to reflect elements of industry practice and parameter regulation that have changed approaches to drinking water system design over the interceding period. We hope the documents can be updated over the next year and in consultation with each of the Atlantic provinces.

Under current circumstances some regulatory updates have a small impact on Atlantic Canada. This is often due to a diminished presence of certain regulated parameters in most water supplies and/or wastewater treatment systems. In the wastewater sector, our region continues to see utilities and systems move towards compliance with the *Wastewater Systems Effluent Regulations* according to criteria instituted in each province. This is a direct result of regulatory impacts and will continue to evolve over the next 5–10 years or longer, depending on the system. Eventually, it is anticipated that Atlantic Canada guidelines for the wastewater industry will also be updated, keeping these documents in accordance with modern industry practice.

If you, as a member of ACWWA, would like to have input on the direction of water or wastewater system design guidance in Atlantic Canada, please contact the ACWWA; we would be happy to include your input as future guidelines are developed. 

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## Winter board meeting recap

Welcome to the Spring 2017 edition of the ACWWA *Go With the Flow* magazine. This excellent publication continues to help connect you with the Atlantic Canada water and wastewater industry and your peers. Enjoy the read.

In mid-winter I was privileged to attend the AWWA Winter Board meetings in Scottsdale, Arizona on January 13 and 14.

### Statistical highlights from the Scottsdale meetings:

- More than 50,000 AWWA members as of December 2016
- 77% of Sections participating in new One AWWA Operator Scholarship, including Atlantic Canada

In keeping with AWWA's leadership role in drinking water quality, the AWWA Board endorsed a new AWWA Lead Service Line Management Policy statement. The policy statement will lend support to AWWA member utilities when addressing the need for full lead service line replacement with public officials and customers.

"My three-year term as the AWWA Director representing the Atlantic Canada Section comes to an end at ACE in June 2017."



### Lead Service Line Management

The American Water Works Association (AWWA) is committed to protecting public health through the reduction of exposure to lead in drinking water. AWWA encourages communities to develop a lead reduction strategy that includes identifying and removing all lead service lines over time. As part of this effort, water utilities and stakeholders should work collaboratively to expand outreach efforts to alert property owners and consumers in properties with lead service lines about the risks posed by lead and the appropriate steps to reduce those risks. AWWA encourages water providers to maintain optimal corrosion control. These measures are critical steps to ensure all people have access to safe and reliable water, recognizing that as long as there is lead in contact with drinking water, some risks remain.

AWWA supports the U.S. National Drinking Water Advisory Council's (NDWAC) recommendations to reduce lead in drinking water through the complete removal of lead service lines while ensuring optimal corrosion control measures. Support of the NDWAC recommendations underscores the importance of protecting the public from lead exposure through the development of collaborative community-based approaches to remove all lead service lines in their entirety. Effective lead service line replacement requires solutions that successfully address the often shared ownership of these lines, the associated financial burden, and other barriers and risks posed for individuals and communities as a whole.

My three-year term as the AWWA Director representing the Atlantic Canada Section comes to an end at the Philadelphia AWWA ACE in June 2017. At that time I will be formally passing the Director torch to Dr. Graham Gagnon. Thank you to all for the opportunity to serve the association! 🌊



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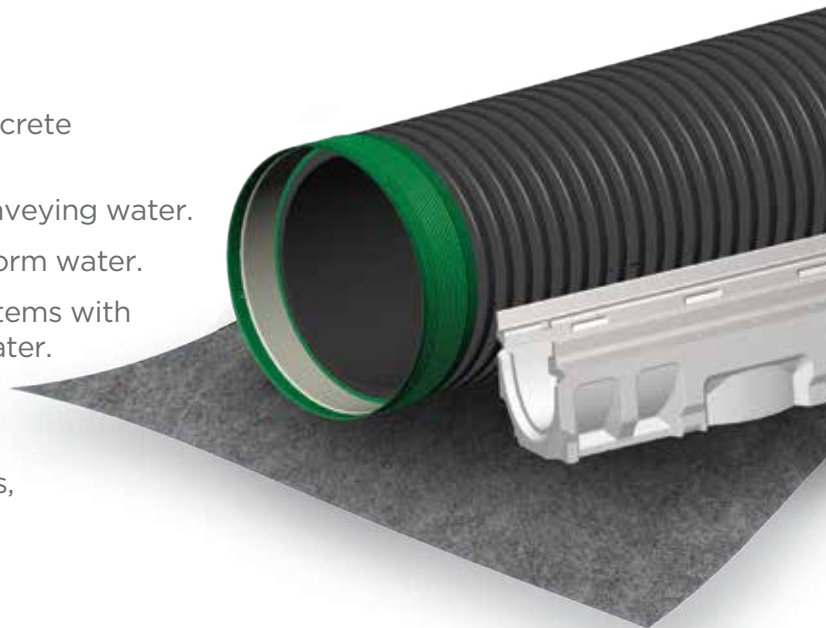
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# Algae: From Resource Depletion to Resource Recovery

By Barry Liner, Ph.D., P.E. and Noah Mundt

Generally, when we think of algae in water quality context, we think of how nutrients in agricultural runoff, municipal wastewater effluent, and urban stormwater provide the conditions for algae blooms in water bodies. These algal blooms lead to eutrophication and dead zones, causing water quality and negative economic effects.

The same biological processes that lead to water quality problems from nutrient pollution can be harnessed to treat, and recover, nitrogen and phosphorus through production of algae biomass for wastewater bioremediation. Algae can be cultivated and harvested to create biomass that can be transformed into biofuels and bioproducts.

As the wastewater sector seeks to manage high energy costs while recovering resources to meet tighter nutrient limits, the algae bioproducts and biofuels industry is searching for productive feedstock. The potential is being recognized, as demonstrated by awarding of the 2016 Paul L. Busch Award to Jeremy S. Guest, assistant professor in the Department of Civil & Environmental Engineering at the University of Illinois at Urbana-Champaign. This \$100,000 award recognizes Guest's work with algae treatment and resource recovery.

In October 2016, the Water Environment Federation (WEF; Alexandria, Va.) and the Algae Biomass Organization (ABO; Preston, Minn.) hosted the forum Algae in Wastewater Treatment at the Algae Biomass Summit. The forum brought together algae technology developers,

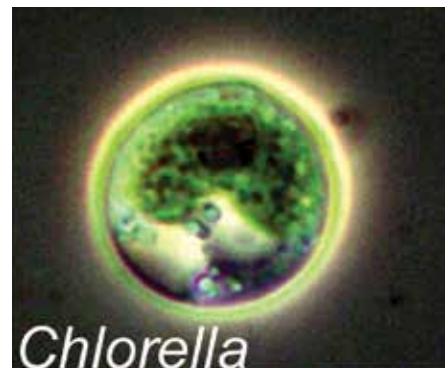
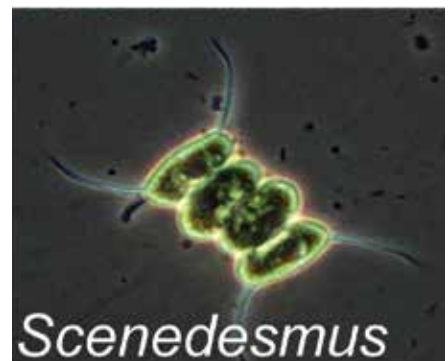
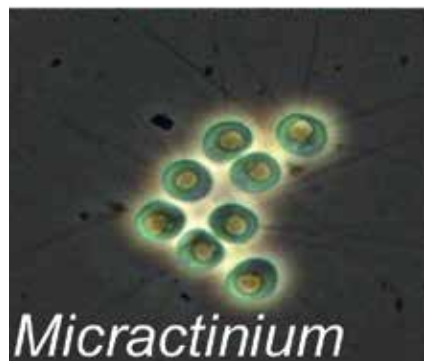


Figure 1. Green algae typically found in wastewater pond polycultures  
Credit: Lundquist, T., Spierling, R., Parker, L., Pittner, C., Medina, L., Steffen, T., Alvarez, J., Adler, N., and Benemann, J. (2016). "The RNEW® Process: Recycled Water, Fertilizer, and Power from Wastewater," presented at Algae Biomass Summit, Oct. 23, 2016, Phoenix, Ariz.

leading design and engineering firms, municipalities, regulators, and other stakeholders to review the state of algae-based tertiary wastewater treatment systems. Forum participants also discussed opportunities and challenges in deploying such systems in the context of an evolving economic, environmental and regulatory landscape.

## Types of Algae

Algae tolerate a wide range in environments with respect to

temperature, salinity, and water quality. The communities of algae found in treatment and harvesting operations typically are mixed culture, combining both photosynthetic and heterotrophic types, as occurs in nature. Photosynthetic algae use nutrients from nitrogen and phosphorus in wastewater, capture carbon as carbon dioxide, use energy from sunlight, and produce oxygen as a waste product. Heterotrophic algae use organic chemicals for carbon and energy.



Blue-green algae are photosynthetic, but actually are bacteria (cyanobacteria) that contain phyocyanin, which give the blue-green color. Blue-green algae also produce microcystins, which are toxins that cause many of the negative effects of algae blooms in lakes. Other algae are eukaryotes, as opposed to bacteria, and are generally green, brown, and red. Common green algae strains are shown in Figure 1, on page 10.

### Algae Treatment

The use of algae as wastewater treatment is common, as the biological processes take place in ponds and lagoons naturally. About half of the 16,000 regulated water resource recovery facilities (WRRFs) have ponds/lagoons. These features are prevalent especially at smaller WRRFs (Bastian 2016). The efforts now are focusing on how to use microalgae for wastewater treatment within conventional WRRFs.

Similar to other biological wastewater treatment techniques, algae treatment can utilize suspended- or attached-grown methods. Suspended-growth ponds use paddles keep microalgae suspended for sunlight, coupled with a shallow depth for light penetration. The layout of these ponds gives rise to the name raceways, as shown in Figure 2.

Attached growth techniques utilize a substratum that rotates alternatively through wastewater (to provide nutrients) and atmosphere (to provide sunlight and carbon dioxide). Two common types of attached growth algae treatment technologies are biofilm rotating algae biofilm reactor (RABR) and revolving algal biofilm (RAB).

In pilot tests in Chicago, an RAB system has demonstrated the potential for recovering nutrients from wastewater. The RAB system is capable of producing concentrated algae biomass (10% to 25% solids), which has value and can be used to produce a variety of products (Kumar 2016).

Several types of wastewater are applicable for algae treatment including municipal wastewater, produced water from oil and gas extraction, dairy farms and swine wastewater. During treatment, nitrates and phosphates are combined with water and carbon dioxide to grow the algae. Microalgae often is represented by the chemical formula  $C_{106}H_{263}O_{110}N_{16}P_1$ . It is important



Figure 2. Raceway algae high rate pond  
Credit: Lundquist, T., Spierling, R., Parker, L., Pittner, C., Medina, L., Steffen, T., Alvarez, J., Adler, N., and Benemann, J. (2016). "The RNEW® Process: Recycled Water, Fertilizer, and Power from Wastewater," presented at Algae Biomass Summit, Oct. 23, 2016, Phoenix, Ariz.

to note the phosphorus to nitrogen ratio of 1 to 16 when evaluating the design, as well as looking to add carbon dioxide to balance the carbon:nitrogen:phosphorus ratio and achieve completed nutrient assimilation, according to Ron Sims, who gave the presentation Microalgae-based approaches to algae-based tertiary wastewater treatment at the forum.

Most of our existing laws and regulations that deal with wastewater were designed with conventional treatment systems in mind. How does algae fit in the regulatory environment? 40 CFR Part 503 includes definitions for Class A and Class B biosolids. Algae from municipal wastewater (as part of the treatment system) are subject to Part 503. Algae solids from municipal treatment could meet class A or Class A/EQ in a number of ways. Metals are unlikely to be problematic and consistent low metals and pathogens may provide basis for reduced monitoring, said Robert Bastian in his presentation, *Algae Biotechnology for Wastewater Treatment: Regulatory Issues*, at the forum.

### Bioproducts and Bioenergy

A number of bioproducts can be produced from algae biomass. Fertilizers from algae solids generally have about 8% to 10% nitrogen content

and 1% to 2% phosphorus content, Bastian said. The biomass also can be used as feed for aquaculture and agriculture. Products from phyocyanin include pigments and antioxidants, Sims also reported.

The first techno-economic analysis (TEA) for algae biofuels integrated with wastewater treatment was performed in 1960, according to *Algae Biotechnology for Wastewater Treatment: An Introduction* presented by John Benneman. Using anaerobic digestion, the biomass can produce biogas, especially when mixed with food wastes and municipal wastewater biosolids to generate more methane for combined heat and power (CHP). Additional processing, such as hydrothermal liquefaction ("pressure cooking") can convert algae to biocrude oil. Other processes can produce biodiesel, bioplastics, acetone, butanol, and ethanol, Sims said.

When evaluating any energy resource recovery opportunity, it is important to calculate the energy return on investment (EROI): Does the system provide more usable energy than it consumes?

According to recent work in Europe, algae biofuels have an EROI of 1.9, substantially higher than corn ethanol's and biodiesel's value of 1.3. In addition, biomethane from algae enables greenhouse gas

savings of more than 50% compared to diesel. Furthermore, algae biofuel production per hectare is 10,000 kg CH<sub>4</sub>/ha/yr., enough to fuel 10 vehicles, double sugar bioethanol and palm oil diesel, reported Frank Rogalla in his presentation, Wastewater Treatment and Energy Recovery with Cultivation of Microalgae.

## Conclusions

State regulators, municipalities, and other industrialized jurisdictions increasingly are moving toward tertiary wastewater treatment as a means to mitigate the environmental effects of nitrogen, phosphorus, heavy metals, and other components of traditional wastewater treatment systems. But traditional systems can be an expensive and energy intensive proposition.

Algae-based systems, which make up just a small fraction of tertiary systems in use today, offer a potential solution, providing a low input-energy platform for nutrient recovery with a variety of opportunities for production of value-added coproducts.

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**Barry Liner** is director of the Water Science & Engineering Center at WEF.



**Noah Mundt**, senior program manager at Siemens, was a moderator of the forum and is a member of both WEF and ABO ([algaebiomass.org](http://algaebiomass.org)).

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# ACWWA invites submissions for award nominations for 2017

If you know someone who has made a contribution to the water and/or wastewater industry, don't let their efforts go unnoticed. The following awards are eligible for presentation at the ACWWA Conference in Charlottetown, PE on October 15–18, 2017.

**Please note that the deadline for 2017 Award Nomination submissions is June 30, 2017.**

## NOMINATIONS PROCEDURE

Where applicable, an awards committee has been established for the specific awards. The awards committee shall select the recommended candidate for the award from the nominations received, and shall present the award to the recipients during the ACWWA annual conference.

All awards are presented at the ACWWA conference.

The deadline for submissions will be **June 30, 2017** for awards to be presented at the **ACWWA Conference in Charlottetown, PE on October 15–18, 2017.**

Individuals wishing to nominate an individual or group for an award should complete below or contact the ACWWA office and request the applicable nomination form.

## LIST OF AWARDS (descriptions follow)

### Individual Awards

- Silent Hero Award
- Contribution Award
- Young Professional Award

### Organizational Award

- Project of the Year

## SILENT HERO AWARD

*(nominee must be an AWWA or a WEF member)*

The Silent Hero Award(s) is awarded by ACWWA and is presented annually to **recognize outstanding contributions of water and wastewater operators.**

## CONTRIBUTION AWARD

*(nominee must be an AWWA or a WEF member)*

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### YOUNG PROFESSIONAL AWARD

(nominee must be an AWWA or a WEF member)

The Young Professional Award recognizes a **Young Professional** within the Atlantic Canada Water & Wastewater Association for **outstanding contributions to the water & wastewater industry**, and to the ACWWA Young Professionals' Committee.

### PROJECT OF THE YEAR – ENGINEERING AWARD/ ENVIRONMENTAL AWARD

The Project of the Year - Engineering Award/Environmental Award is awarded by ACWWA to a **Municipality or Utility and their Consultant**, one of which is a member of ACWWA, to recognize **outstanding projects in Atlantic Canada that demonstrate**

**innovation and state-of-the-art technology** in water or wastewater projects.

Awards may be presented in each of the following three categories:

- *Small Utility – less than 5,000 customers*
- *Medium Utility – between 5,000 and 25,000 customers*
- *Large Utility – more than 25,000 customers*



## ACWWA AWARD NOMINATION FORM 2017

Nominee's full name: \_\_\_\_\_

Nominee's title: \_\_\_\_\_

Nominee's phone & email: \_\_\_\_\_

Award: \_\_\_\_\_

Submitted by: \_\_\_\_\_

Phone: \_\_\_\_\_

Email: \_\_\_\_\_

*For Project of the Year*

Size of Utility: \_\_\_\_\_

Individuals/Companies Involved: \_\_\_\_\_

- For individual awards, please provide a short write-up that outlines the contribution of the nominee.
- For project awards, please provide a short write-up that outlines the specifics of the project being nominated and identifies the primary people involved with the project.
- Please fax your nominations to ACWWA at **902-435-7796** or send by email to **contact@acwwa.ca**.

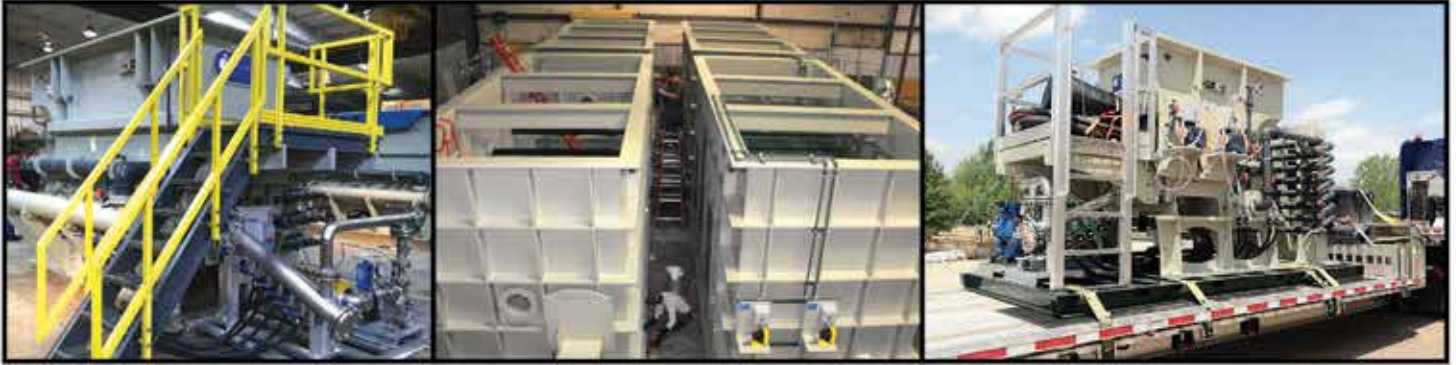
### For any questions, please contact:

Clara Shea, Executive Director

Telephone: 902-434-6002 • Email: [contact@acwwa.ca](mailto:contact@acwwa.ca) • Homepage: [www.acwwa.ca](http://www.acwwa.ca) 

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# Winner of the **Silent Hero Award**, Gabriel Belliveau



1. **Job title:** Senior Water and Sewer Operator.
2. **Who do you work for?** The City of Dieppe.
3. **Where do you currently live?** Dieppe, NB.
4. **Where did you grow up?** Village of Memramcook.
5. **When I'm not working, I'm...** In arenas coaching ringette or hunting in the woods.
6. **The accomplishment I'm most proud of is...** A Bachelor's degree from UNB.
7. **If you could go on a road trip with any one person (living or dead), who would it be and where would you go?** My wife Christine, in the Canadian Rockies.
8. **What is your philosophy on life?** Enjoy life, and nothing is impossible to a willing heart.
9. **Toughest thing about your job?** Adjusting to new workflow.
10. **When you were a kid, what did you want to be when you grew up?** A gym teacher.
11. **Last book you read?** *Lean Six Sigma*.
12. **Last movie you saw?** *A Dog's Purpose*.



13. **What music did you listen to this morning?** Country music on the radio.
14. **Favorite TV show?** Friends.
15. **What was the best gift you ever received?** The birth of my two wonderful daughters.
16. **What's the most useless thing you ever purchased?** Gift cards that nobody uses.
17. **Not many people know that...** I can climb the water tower.
18. **What is your greatest luxury?** My camp on a 20-acre woodlot.
19. **What's your favourite famous quote?** "Always give your 100%."
20. **Describe your perfect day.** At the beach in Cuba with my family.
21. **What three objects would you rescue from your burning house?** Family, dog, and photos.
22. **What Section would you most like to visit, and why?** Jasper and Banff National Park because of the beautiful mountains and wildlife.
23. **Who is the most influential person in your life?** My wife Christine.
24. **What is your ideal vehicle?** A Ford F-150.
25. **How long have you been a member of ACWWA?** More than 14 years. 



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 ~ F.D. (Del) Sweet, February 1982

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## Good news for our Section

I certainly hope that 2017 has been good to you so far and that by the time you read this article our mountains of snow will have melted.

In January, Clara Shea and I attended the membership summit at the AWWA headquarters in Denver, CO. We accepted a cheque on behalf of the Association in the amount of \$1,266.60(USD) for having achieved our 2016 membership goals. This is all thanks to a great membership team that is comprised of David Galbraith, Sean Chillibeck, Barb Crawford, Melissa Fraser, and Amy Winchester (2014–2016 Membership Director).

### Did you know?

AWWA upgraded Utility and Service Provider Member benefits in 2017.

Starting in 2017, utility and service provider memberships will see enhanced membership benefits. These changes provide more tangible value to members in a simplified package.

Specifically, AWWA will replace its current benefit system, **Plus Points**, with a package of benefits that maximizes the value of the former offering. This change affects Service Providers and Utility members with over 5,000 service connections.

In the past, these organizations had to choose between receiving two key benefits: AWWA Standards or Individual Membership for employees. Now they will get both! The benefits



### Welcome new members

Name	Company	
Dennis Newhook	Exp Services Inc.	AWWA
April Boudreau	RPC	AWWA
Aaron Baillie	CBCL Limited	AWWA
Jordan Moran	City of Saint John	AWWA
Jaimie Gazley	Western Regional Waste Management	AWWA
Steven Frizzell	CAP Management Services	AWWA
City of Bathurst		AWWA
Becca Connolly		WEF
Julie Stokes	City of Moncton	WEF
Caroline Stratford		WEF

As of February 23, 2017,

Total AWWA members: **440** | Total WEF members: **113**

“We accepted a cheque on behalf of the Association in the amount of \$1,266.60(USD) for having achieved our 2016 membership goals.”

package is scaled to the size of an organization, allowing for an AWWA Standards license and a guaranteed number of Individual Memberships.

Utilities with less than 5,000 service connections will experience the upgrade differently. A low dues rate along with an enhanced version of **Let's Talk Safety 2017** will be provided. In addition, free training opportunities may exist for those servicing populations of 10,000 or less.

These changes are a direct result of feedback from member surveys and interviews, collaboration with Sections, and recommendations from volunteer groups.

All organizational members benefit from a robust suite of special communications, tools and discounts for all employees.

To maximize your benefits or learn more about Utility and Service Provider membership opportunities, please contact AWWA at [membership@awwa.org](mailto:membership@awwa.org) or 303-794-7711.

Do you want to maximize your membership benefits? Are you a member and would like to share education course, conference, and association communication from ACWWA with staff or co-workers?

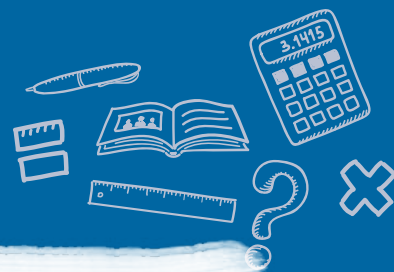
If so, please enter your contact information on our webpage at <http://acwwa.ca>.

### \$50 gift card winner

Congratulations to Neil Thomas from City of Fredericton who was the lucky winner of a \$50 gift card of his choice for recruiting a new member. 🎉



# Educational opportunities



By **Kyle MacIntyre**, P.Eng.  
Director, Education

The ACWWA Education Committee has more than 15 courses planned in the coming months, covering a variety of topics that relate to the water and wastewater industry. As we strive to offer interesting and applicable courses throughout Atlantic Canada, we are regularly requesting information from utility owners as to what kind of topics they would like covered.

The committee is conducting a Training Needs Assessment to determine the training needs of both its members and other stakeholders in the industry. We would appreciate if you could take the time to submit any course requests to Clara Shea, [contact@acwwa.ca](mailto:contact@acwwa.ca), or Kyle MacIntyre, [kmacintyre@dillon.ca](mailto:kmacintyre@dillon.ca).

*"The committee is conducting a Training Needs Assessment to determine the training needs of both its members and other stakeholders in the industry."*

We look forward to your response and hope we can continue to meet your educational needs in 2017! This is also a good opportunity for operators whose certification is up for renewal to tell us what they would like further training in rather than duplicate training they have already attended. ☺

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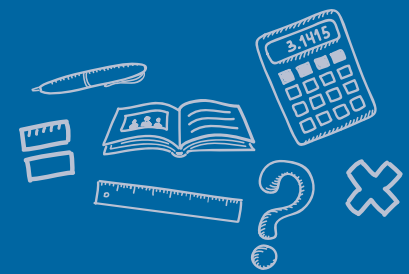
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The following is a list of the ACWWA courses coming up in 2017.

Please check our website for online registration, course details, and additional courses, at [www.acwwa.ca](http://www.acwwa.ca).

Date	Course	Location
March 28–31	<b>Wastewater Treatment</b>	Halifax, NS
April 3–7	<b>Water Treatment</b>	Moncton, NB
April 11	<b>Lift Stations &amp; Forcemains</b>	St. John's, NL
April 12	<b>Wastewater Aeration</b>	St. John's, NL
May 1–4	<b>Wastewater Collection</b>	Moncton, NB
May 10	<b>Trenchless Technology</b>	Halifax, NS
May 11–12	<b>Water &amp; Wastewater Fundamentals</b>	Charlottetown, PE
May 15–16	<b>Chlorine Disinfection</b>	Charlottetown, PE
May 26	<b>Sedimentation</b>	Charlottetown, PE
May 29 – June 1	<b>Water Distribution</b>	Halifax, NS
September 12	<b>Corrosion Control</b>	Charlottetown, PE
September 12–15	<b>Wastewater Collection</b>	Halifax, NS
September 26–29	<b>Water Treatment</b>	Halifax, NS
October 19	<b>SCADA</b>	Halifax, NS
October 24–25	<b>Water &amp; Wastewater Fundamentals</b>	Halifax, NS
November 6–9	<b>Wastewater Treatment</b>	Moncton, NB
November 20–23	<b>Water Distribution</b>	Moncton, NB

Please let Clara Shea know if you have any training needs in your area.

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## Spring activities

Spring can be a busy time of year for many of us. As you prepare for upcoming activities and mark dates on the calendar – one of those should be the upcoming ACWWA Conference in Charlottetown, PE.

If your utility is short of funds, you may wish to investigate the **ABEA “Annual ACWWA Conference” Attendance Grant** ([www.ABEA.biz](http://www.ABEA.biz)).

If another activity is a high school graduation – remind your graduate that the ABEA offers four x \$1,000 **ACADEMIC SCHOLARSHIPS** to deserving individuals who meet the application criteria ([www.ABEA.biz](http://www.ABEA.biz)).

We are well into the planning stages for the upcoming ACWWA

Annual Conference being held in Charlottetown, PE, October 15–18, 2017. One of the highlights brought to you by the ABEA is the annual Golf Tournament. This year we will be playing a 10:00 am shotgun format at Glasgow Hills. Raglan Road will be entertaining us at the Monday evening Common Hospitality Event, and the Trade Show will boast 88 booths. Save the dates today so you don't miss out.

We would like to take this opportunity to thank our membership for their continued support and involvement.

If you have any questions/comments or membership inquiries, feel free to reach out to any of our executive members or visit the website.

### 2016/17 ABEA Executive

- President – Steve Philpott  
[steve.philpott@canadapipe.com](mailto:steve.philpott@canadapipe.com)
- Past-President – Rowena Patenaude  
[rowena.patenaude@royalbuildingproducts.com](mailto:rowena.patenaude@royalbuildingproducts.com)
- Vice-President – Patrick Pelletier  
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- Jr. Director – Matthew Davis  
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- Sec./Treas. – Kyle Gracie  
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For other updates on the ABEA, its members, and its affiliates, please check out our Facebook, Twitter, and LinkedIn pages, where you can find the most up-to-date information.

[www.abea.biz](http://www.abea.biz)





# Atlantic Branch Equipment Association Annual Scholarship (est. 2011)

## To a first-year entrant into a college/university program

In keeping with the spirit of the ABEA; “the object of the association is to encourage and stimulate the exchange of ideas concerning water supply systems between members of the association and between members of the ACWWA and other bodies/persons having similar interest” (Article II (2) Objects/ABEA Constitution).

The ABEA is a body made up of 40+ members who have, as their joint goals, the desire to:

- Promote understanding and goodwill
- Encourage and stimulate the exchange of ideas
- Acquire and disseminate information
- Provide funding to Education Initiatives and Water for People Canada Charity
- Foster relationships amongst members and between associations
- Encourage fair and ethical ventures
- Promote member products/services

### Number and Value:

Up to four/\$1,000 annual awards

**Tenure:** One year

**Basis of the Award:** Selection of the award is based on an equal opportunity basis with the assessment of the following weighted criteria:

- Academic Record (30%) – Official High School Transcript Required
- Statement/Essay (50%)
- Work Experience/Community Involvement/Service Projects (20%)

**Eligibility:** Applicants shall:

- Be a son/daughter of an ACWWA/ ABEA member
- Be a Canadian Citizen or permanent resident of Canada
- Be a resident of Atlantic Canada
- Preference will be given to those intending to pursue a career related to the water/wastewater industry, and those choosing to study in Atlantic Canada

Please submit the following information:

- Resume: include name, phone number, mailing and email address, as well as a listing/description of all places of employment including volunteer work.
- Name and relationship to Association Member (along with membership number, if applicable). Member must be in good standing.
- Proof of Canadian Citizenship or Permanent Residence Status.
- Intended institution and program of study.
- A 500-word statement describing goals, interests, and relevance to a career in the industry (if applicable).
- An official high school or equivalency transcript.

**Selection:** To be carried out by an ABEA appointed committee.

**Application Deadline:**  
**April 30**

**Apply to:**

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ATLANTIC CANADA  
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Two puffins are perched on a rocky cliffside. One is on the left, facing right, and the other is on the right, facing left. The rocks are dark and jagged, with some green moss or lichen. The background is a cloudy sky.

# SPONSORSHIP OPPORTUNITIES

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**ATLANTIC CANADA WATER & WASTEWATER ASSOCIATION**  
**2017 ACWWA ANNUAL CONFERENCE**  
PEI Convention Centre, Charlottetown, PEI  
October 15–18, 2017





**ANNUAL CONFERENCE**

Come help celebrate Canada’s 150th anniversary in the Cradle of Confederation at the 2017 Atlantic Canada Water and Wastewater Association conference in Charlottetown, PE.

The 2017 ACWWA Annual Conference will feature the ABEA trade show, technical sessions, networking opportunities, the ever-popular “Top Ops” competition, a technical poster competition and water tower competition, as well as a stay-to-the-end Kitchen Party prize.

“Serving Our Nation” is a conference that will provide us the perfect opportunity to showcase projects and discuss water and wastewater problems and solutions that the industry is facing regarding the source of our potable water

to the effluent discharged and everything in between!

Sponsorship provides your company the unique opportunity to spotlight your distinct abilities to a focused group of Municipalities, Regulators, Engineers, Contractors, Suppliers, and Operators.

This event is being held at the PEI Convention Centre located on the beautiful Charlottetown waterfront in a setting that is second to none, and surrounded by some of the city’s best shops, restaurants, and pubs.

It is also fitting that in the city where our nation was built, the theme of the 2017 ACWWA conference highlights how the water and wastewater industry is “Serving Our Nation” with the supply of safe drinking water and development of innovative and sustainable wastewater solutions.

Please consider one of the many sponsorship opportunities as your way to share your experiences, expertise, and talents and show industry professionals how you are “Serving Our Nation.”

We look forward to seeing you in Charlottetown!

**THE OPPORTUNITY**

The success of this conference is made in part, by the generous support of national, regional, and local businesses and companies. By becoming a sponsor, you’ll be helping us share your particular message of how you are participating in “Serving Our Nation.”

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Thank you for your consideration.

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- Logo printed on room keys and room key envelopes (Host Hotel);
- Listing on sponsor boards;
- Acknowledgement from podium (12 times);
- Four (4) presentation slides at Meet & Greet and Kitchen Party;
- Logo included in all advertising; and
- Insertion of promotional material into delegate bags.

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#### ACKNOWLEDGEMENT

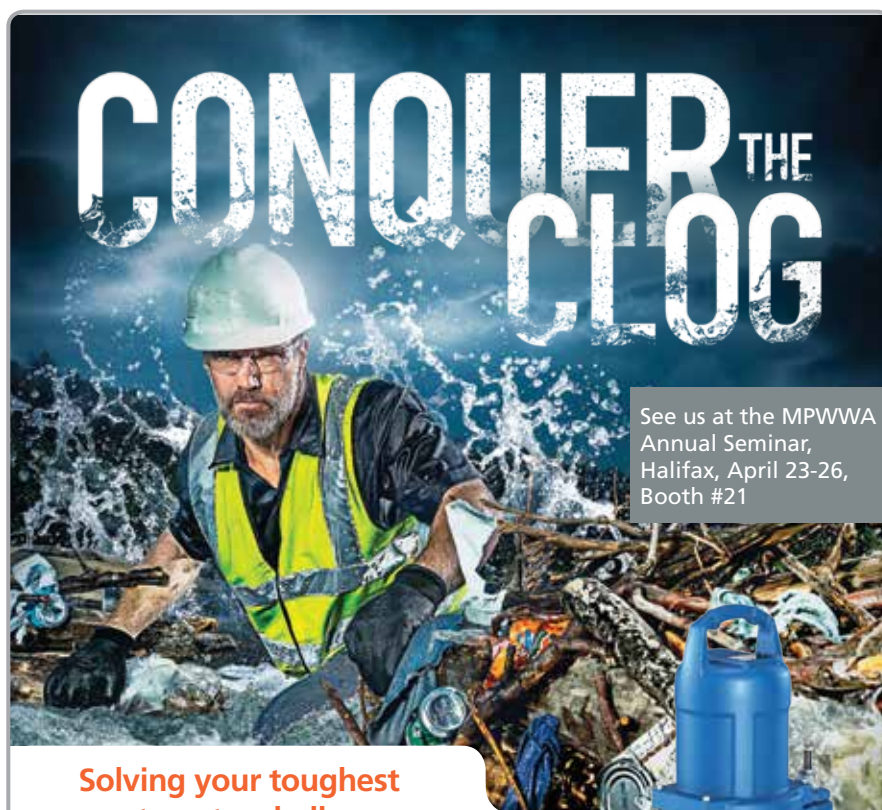
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# TOP OPS COMPETITION

2017 ACWWA Annual Conference October 15–18, Charlottetown, PE

The purpose of the ACWWA Top Ops Competition is to recognize and promote excellence and professionalism in all aspects of water and wastewater operations by establishing a competition that gives operators the opportunity to


showcase their talents. The Top Ops competition is a competitive, question-and-answer tournament where a moderator will pose a broad range of technical questions. Points are awarded to each team that displays a correct answer – no more buzzers!



Previous Top Ops competition winners – City of Fredericton

The team correctly answering the most questions in the final round is awarded a trophy. A trophy will be presented to each of the winning water and wastewater teams. Also, water winners have a chance to represent the ACWWA Section at the national ACE conference. The ACWWA Section assists with travel costs for the winning team to compete in ACE. Teams can consist of one, two, or three operators and do not have to be from the same utility, so start asking your co-workers and neighbouring utilities to partner up to claim this year's title and bragging rights.

Each team members must work full time as a water or wastewater treatment plant employee, a distribution system employee, or in a first-line supervisor capacity.

For additional information, please refer the conference website at <http://www.acwwa.ca/conferences/2017conf.html> or contact the association at [contact@acwwa.ca](mailto:contact@acwwa.ca). We look forward to seeing you at the PEI Convention Centre in October. 



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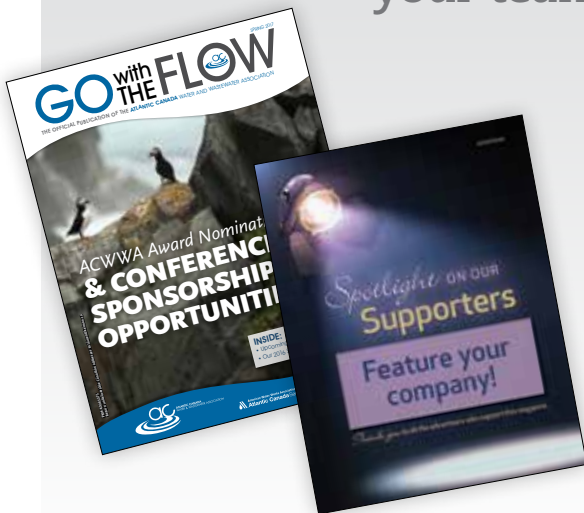


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# Announcing our 2016 scholarship recipients

## 2016 ACWWA Lloyd Douglas scholarship recipients

- Noah Brace (NL)
- Carrissa Grove (PEI)
- Jason KarisAllen (NS)

### Noah Brace (NL)



Noah Brace grew up in a small town in Newfoundland. When he was 18 he moved to St. John's to study civil engineering at Memorial

University. Noah has been awarded scholarships based on academic excellence, community involvement, and demonstrated leadership in school and extracurricular activities. His achievements have been accomplished because he is motivated to succeed and energized by working effectively with others to achieve superior results. Recently, Noah has taken an interest in water resource management and after graduating in April, he intends to pursue higher education in order to gain knowledge on this important world issue.

### Carrissa Grove (PEI)

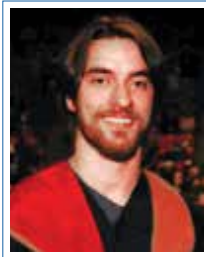


Carissa Grove is currently a fourth year biology student at the University of Prince Edward Island (UPEI). She is originally from Cambridge,

Ontario, where she first developed her interest in the outdoors and then quickly turned into a love for fish and the waterways in which they reside. These past few years in university have only fueled that fire, allowing her to gain more experience in this field. The work term as a student research assistant at UPEI has

allowed her to gain hands-on field experience, and has really opened her eyes to many conservation issues in these areas. Her interest in the environment and the current issues with waterways has made her want to pursue a career in this field, in order to help create more sustainable and healthier habitats and ecosystems.

### Jason KarisAllen (NS)



Jason KarisAllen is a native Nova Scotian and in his fourth year of Environmental Engineering (Co-op) at Dalhousie University. He previously earned a B.Sc in Biology and a Dip.Eng from Saint Mary's University with greatest distinction.

## 2016 ACWWA/Craig Kelman & Associates co-sponsored scholarship recipients

- Kate Barnes (PEI/NS)
- Caroline Stratford (NS)

He has been dedicated in his studies because he wants to equip himself with the expertise necessary to help people and the natural environment. After graduation, he plans to get his Master's degree in a field that would allow for career flexibility, facilitating his involvement in the drinking water industry, the renewable energy industry, wildlife conservation, and/or resource management.

### Kate Barnes (ACWWA/CK scholarship)



Kate Barnes is currently enrolled in the second year of study at Holland College in the Environmental Applied Science Technology

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(EAST) Program. During school, she had the opportunity to go out into the field, where she monitored, assessed, and studied the biodiversity of various water bodies in the Halifax region. She also had the chance to tour the different local water processing plants, after which she decided to pursue her interest in water quality and enhance her lab and field skills by attending the EAST program. She is a motivated, intuitive, enthusiastic young person, eager to make a difference. At the college she served as the Student Union's Communications and Marketing Coordinator and now the Vice President of the Prince of Wales Campus. She also volunteers for the Holland College Green Machine, which is a group of staff and students raising awareness about environmental sustainability on and around campus.

# Congratulations!


## Caroline Stratford (ACWWA/CK scholarship)



Caroline Stratford is currently enrolled in the Environmental Engineering Technology program at the Nova Scotia Community

College. She was born and raised in Québec, and joined the Canadian Armed Forces when she was 17 years old through the Regular Officer Training Program. She obtained her Bachelor in mechanical engineering with first class honours in 1998 from the Royal Military College in Kingston, ON. She served 11 years in the Canadian Navy, stationed



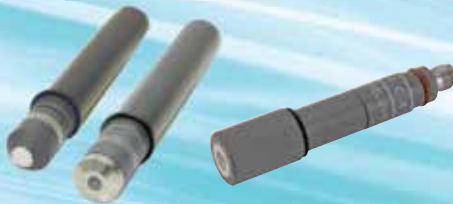
on the east coast, where she served on HMCS Montréal and also taught at the Naval Engineering School. When her daughters started school, she returned to work at Sainte-Anne University at their Halifax campus as the Adult Learning Program tutor. At this point in her life, she realized she wanted to have her occupation align with her values, namely sustainability and stewardship. She hopes that through her current program, she will become proactive in a field that is dedicated to the management, protection, development, and use of fresh water resources. 

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## AWWA Board of Directors selects David Rager of Cincinnati as next President-Elect

Source: [awwa.org](http://awwa.org)

(SCOTTSDALE, ARIZ.) – The American Water Works Association Board of Directors selected David Rager of Cincinnati as the association's next president-elect during its annual winter meeting. Four vice presidents, one director-at-large and one service provider director-at-large were also elected.

An AWWA member for nearly 15 years, Rager is the principal of Rager Management Consulting, LLC. He was CEO for SD1 in Kentucky for four years and for the Greater Cincinnati Water Works for 17 years. For AWWA, he has served as Association treasurer, chair of the Water Utility Council and a member of the International Council. A former chair of the Board of Trustees for the Water Research Foundation, Rager is a member of the Ohio Section and the Kentucky/Tennessee Section.

Rager begins his role as president-elect in June at the conclusion of AWWA's Annual

Conference and Exposition in Philadelphia. He will serve his one-year presidential term beginning in June 2018.

The four vice presidents elected by the board are:

- Raymond Baral Jr. has been an active member of the Connecticut Section for 22 years. He is the assistant manager of water treatment at the Metropolitan District Commission in Hartford, Conn.
- Stephen Blankenship, a member of the New Jersey Section for 16 years, represents the Section at many AWWA workshops, events and conferences. He is the executive director/chief engineer at Hamilton Township MUA in Mays Landing, N.J.
- Mark Coleman has been an AWWA member for 35 years and is a George Warren Fuller Award winner. He is currently the Michigan Section director and is a senior vice-president at Wade Trim in Detroit.

- Alan Forrest has been an active member of the Arizona Section for 22 years, where he currently is the director. He is a senior manager in the water business group at CH2M.

Also elected was Marshall Thompson as a director-at-large. Thompson is the director of operations at SUEZ Water Idaho in Boise. An AWWA member for 10 years, he serves as chair of the Water Information Technology Committee for the Pacific Northwest Section. He is a veteran of the U.S. Coast Guard Reserve.

Also elected was Randy Moore as a service provider director-at-large. Moore has been an active member of AWWA for 34 years at the Missouri Section and is a regular contributor to *Opflow*, AWWA's magazine for operators. He is vice president of market development at Pure Technologies, Ltd. in Columbia, Md. [🔗](#)

## Lindsay Wilcott and 'Go With the Flow' magazine featured in 'AWWA Connections'



On March 2, to celebrate Women's History Month and the role of women in the water sector, Lindsay Wilcott was featured in a Member Spotlight in AWWA Connections™. The spotlight also highlights Lindsay's work as Magazine Chair for *Go With the Flow* and some of the great people involved at the ACWWA.

To read the full Member Spotlight, go to <https://www.awwa.org/>

[publications/connections/connections-story/articleid/4535/she-was-young-professional-of-the-year-lindsay-wilcott.aspx](https://www.awwa.org/publications/connections/connections-story/articleid/4535/she-was-young-professional-of-the-year-lindsay-wilcott.aspx). [🔗](#)



**American Water Works Association**

## New website for Atlantic Canada makes extreme precipitation data more accessible to assist in climate-related planning

Communities in Atlantic Canada now have a valuable planning tool that offers enhanced access to specialized information from Environment and Climate Change Canada (ECCC) on extreme rainfall events.

Engineers, managers, and planners rely on Intensity/Duration/Frequency (IDF) statistics to design roadways, culverts, and other drainage structures that can accommodate heavy rainfall and mitigate its impact on habitats, properties, and infrastructure. "Providing enhanced access to the most current IDF data through this new **Extreme Precipitation website**,"

notes Rick Fleetwood, Manager of ECCC's Atlantic Climate Services, "makes it easier and more efficient to use this information for engineering designs."

The Extreme Precipitation in Atlantic Canada website, <http://atlantic-canada-precip.eas.cornell.edu/>, offers a variety of products, including IDF curves and data files, some of which can be downloaded directly into site user's programs and contoured maps. A Google Map interface shows the location of stations used to calculate the IDF statistics and provides direct access to the information.


A 14-minute video on the website introduces the site's resources, making it

easy for visitors to locate the data and format they most need. The video can also be used as a training tool for agencies and businesses that want to demonstrate this new resource to staff members or colleagues.

A grant from ECCC's Atlantic Ecosystems Initiative funded creation of the site, which was developed by the **Northeast Regional Climate Center**. The **Climate Network** of the **Gulf of Maine Council on the Marine Environment** helped coordinate the project.

In preparing the site, collaborators sought input from more than 50 planners, engineers, and scientists throughout Atlantic Canada. "This website gives us direct access to historical IDF data that can help improve our operational models for dams," notes Renée Morais, Environmental Coordinator at J.D. Irving, Limited, "and can be valuable for land use and infrastructure planning."

The site will be updated with new IDF data as it is generated (every few years). Technical questions on the site or data can be directed to Rick Fleetwood at [rick.fleetwood@canada.ca](mailto:rick.fleetwood@canada.ca).

ECCC, in coordination with US partners, also issues a quarterly bulletin, the *Gulf of Maine Region Climate Impacts and Outlook*. The Gulf of Maine Outlook highlights the past season's events and anomalies, along with weather impacts and seasonal forecasts for temperature and precipitation. To see the last issue or sign up to receive the Gulf of Maine Outlook, visit <http://www.gulfofmaine.org/2/climate-network-climate-outlook/>. 

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## Un nouveau site Web pour le Canada atlantique facilite l'accès aux données sur les précipitations extrêmes pour appuyer la planification liée au climat

Les collectivités du Canada atlantique disposent désormais d'un précieux outil de planification qui améliore leur accès aux renseignements spécialisés d'Environnement et Changement climatique Canada (ECCC) sur les épisodes de précipitations extrêmes.

Les ingénieurs, les gestionnaires et les planificateurs se fient aux statistiques sur l'intensité, la durée et la fréquence (IDF) pour concevoir des routes, des ponts et d'autres structures de drainage capables de résister aux pluies fortes et de limiter leurs effets sur les habitats, les propriétés et les infrastructures. « Le nouveau site Web sur les épisodes de précipitations extrêmes facilite l'accès aux données d'IDF les plus récentes. Il est donc plus facile et efficace de les utiliser dans la conception technique », explique Rick Fleetwood, gestionnaire du Centre de climatologie de l'Atlantique d'ECCC.

Le site Web (<http://atlantic-canada-precip.eas.cornell.edu/>) propose de nombreux produits, comme des courbes et des fichiers de données d'IDF, dont certains peuvent être téléchargés directement dans les programmes et les cartes en courbes des utilisateurs du site. Une interface avec Google Maps montre l'emplacement des stations utilisées pour calculer les statistiques d'IDF et permet un accès direct à ces données.

Une vidéo de 14 minutes sur le site Web permet de se familiariser avec les ressources de celui-ci. Ainsi, les utilisateurs peuvent facilement trouver les données qu'ils cherchent dans


les formats dont ils ont besoin. La vidéo peut aussi servir d'outil de formation pour les organismes et les entreprises qui veulent présenter cette nouvelle ressource à leurs employés ou à leurs collègues.

Une subvention de l'Initiative des écosystèmes de l'Atlantique d'ECCC a permis de financer la création du site, qui a été développé par le Northeast Regional Climate Center. Le Climate Network du Gulf of Maine Council on the Marine Environment a aidé à coordonner le projet.

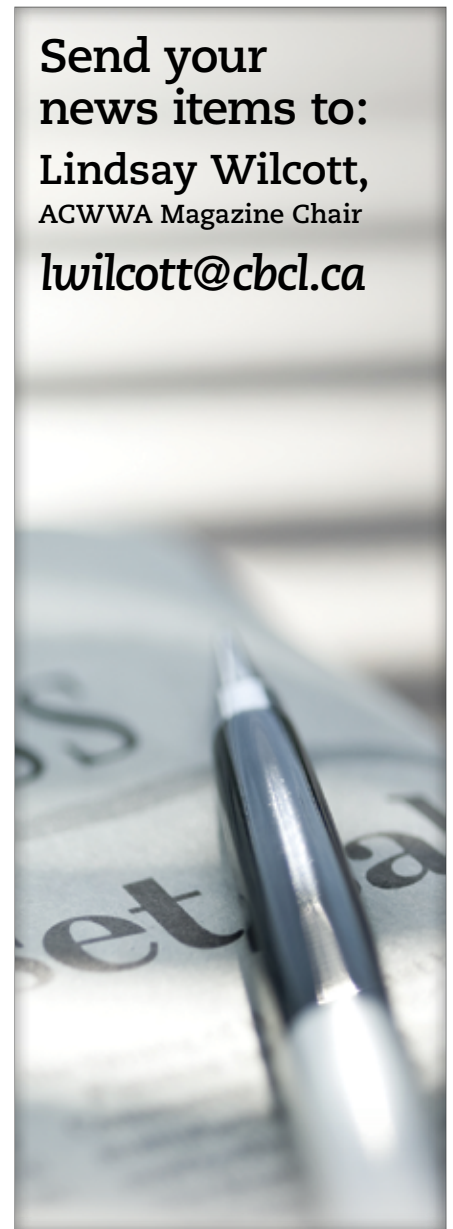
Pendant la préparation du site, les collaborateurs ont demandé l'avis de plus de 50 planificateurs, ingénieurs et scientifiques du Canada atlantique. « Grâce au site Web, nous avons un accès direct à des données historiques d'IDF susceptibles de nous aider à améliorer nos modèles opérationnels de barrages. Le site peut aussi être utile pour prévoir les infrastructures ainsi que l'aménagement du territoire », dit Renée Morais, coordonnatrice des questions environnementales chez J.D. Irving, Limited.

Les nouvelles données d'IDF seront intégrées au site à mesure qu'elles seront créées (à quelques années d'intervalles). Pour toute question technique sur le site ou les données, écrivez à Rick Fleetwood à l'adresse suivante : [rick.fleetwood@canada.ca](mailto:rick.fleetwood@canada.ca).

ECCC, en collaboration avec ses partenaires aux États-Unis, émet sur une base trimestrielle le *Bulletin trimestriel des impacts liés au climat et aperçu saisonnier : Région du golfe du Maine*. Ce bulletin souligne les événements et les anomalies de la dernière saison ainsi que les répercussions météorologiques et les prévisions saisonnières en matière

de températures et de précipitations. Pour consulter le bulletin le plus récent ou vous abonner, visitez le [www.gulfofmaine.org/2/climate-network-climate-outlook/](http://www.gulfofmaine.org/2/climate-network-climate-outlook/). 

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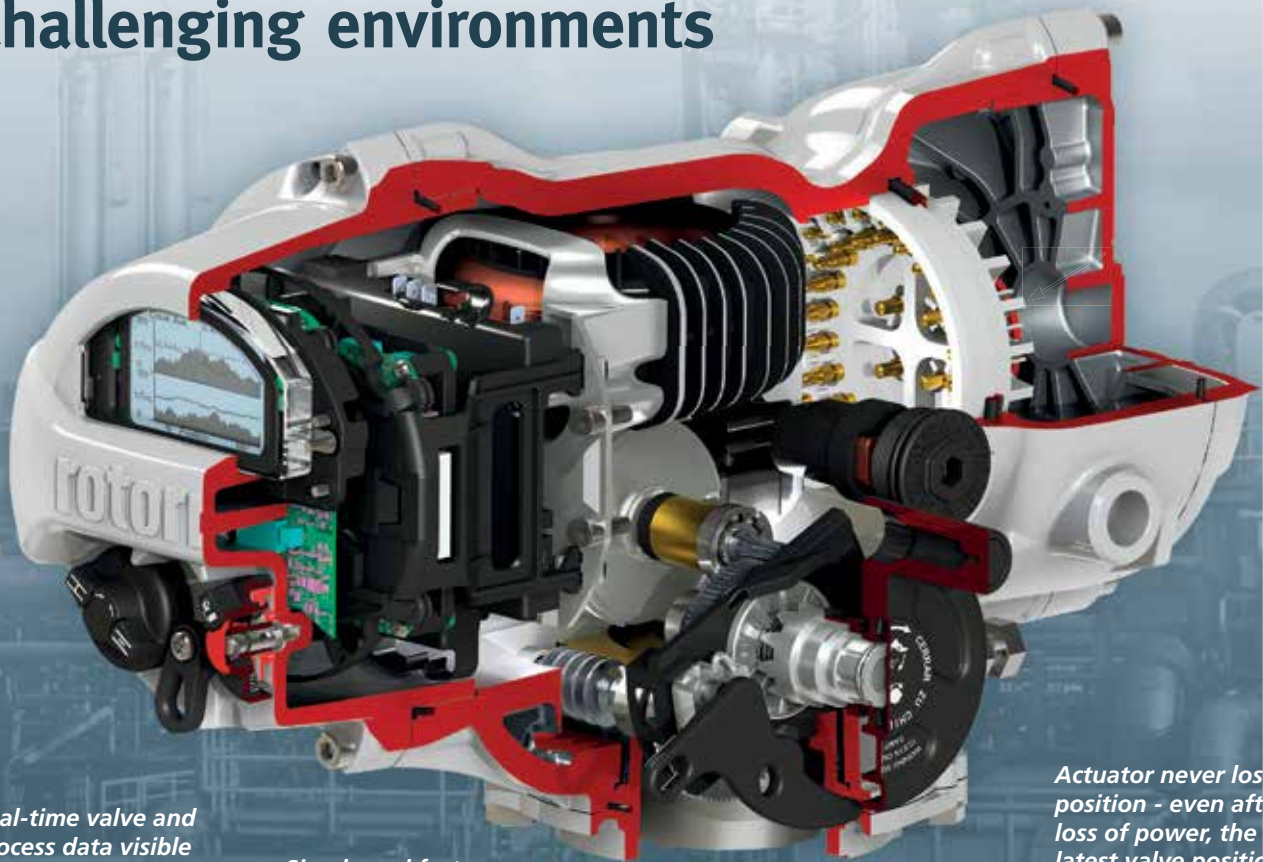


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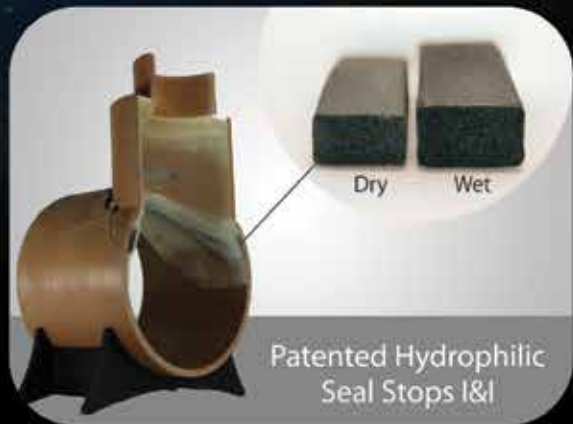
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