



# GO WITH THE FLOW

Atlantic Canada Water and Wastewater Association Newsletter

An affiliate of the American Water Works Association and the Water Environment Federation

WINTER 2010

A scenic photograph of a white lighthouse with a red lantern room, situated on a rocky coastline. The lighthouse is reflected in a small pool of water in the foreground. Several geese are flying in the sky above the lighthouse. In the background, a group of people can be seen standing on the rocky shore.

## Canada Geese: Measuring the Crypto Threat

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Atlantic Canada Water & Wastewater Association  
PO Box 41002  
Dartmouth, NS, B2Y 4P7  
Phone: 902.434.6002  
Fax: 902.435.7796  
www.acwwa.ca  
e-mail: acwwa@hfx.andara.com

#### SECTION OFFICE

Clara Shea, ACWWA Administrator..... 902.434.6002  
acwwa@hfx.andara.com .....F: 902.435.7796

#### BOARD

##### Chair

Robert Gillis, P. Eng .....902.469.2806 x103  
robert@aps.ns.ca .....F: 902.463.3529

##### Past Chair

Ensor Nicholson ..... 506.859.2667  
ensor.nicholson@moncton.ca .....F: 506.853.3543

##### First Vice Chair

Jamie Hannam, MBA, P.Eng ..... 902.490.4804  
jamie.hannam@halifaxwater.ca .....F: 902.490.1584

##### Second Vice Chair

Brett Pugh, P.Eng..... 902.421.7241 x 2270  
brett@cbcl.ca .....F: 902.423.3938

##### Secretary-Treasurer

Willard D'Eon, MPH, P.Eng..... 902.492.6753  
willard@cbcl.ca .....F: 902.423.3938

##### WEF Delegate (2011-2012)

Gary Chew..... 902.895.2885  
gary.chew@sansom.ca .....F: 902.893.7584

##### ACWWA Director (2008-2011)

Bruce Buchanan, P. Eng..... 506.857.8525  
bbuchanan@rvanderson.com .....F: 506.858.5972

##### ACWWA Director Elect (2011-2014)

Reid Campbell, P. Eng. .... 902.490.4877  
reid.campbell@halifaxwater.ca .....F: 902.490.4808

#### ACWWA PUBLISHING

Section Newsletters Editor ..... Dave Plank  
Production Manager, Graphic Designer ..... Daniel Feldman  
Proofreader ..... Mart Kelle  
Key Account Manager ..... Nancy Mortvedt  
Senior Section Services Representative..... Nancy Sullivan

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# Chair's Corner



## New Beginnings, and a Big Thanks to Saint John

by Robert Gillis, P. Eng.

Dear ACWWA Members:  
Welcome to the first issue of the *Go With the Flow* magazine published by the American Water Works Association on behalf of ACWWA. In an effort to be more fiscally responsible, we made an agreement with AWWA to publish our quarterly newsletter for the foreseeable future. Be assured that our commitment remains strong to ensure local content is maintained and that the information presented is relative to our Atlantic Canada water and wastewater industry. Please share our newsletter with your colleagues, as we would appreciate any feedback you may have on this first issue. Your input is valued, as is your content! Please share your expertise with your fellow ACWWA members by contributing news or articles.

As newly elected chair, I would like to thank all of you for your encouragement in electing me to this position. Our industry is a great sector to be part of, and I hope to represent you well over the coming year. We have a very strong Board this year with representatives from municipalities, government, manufacturers, academia and consultants. They are keen, energetic and motivated. Regardless of your sector, be confident that your voice will be heard.

Thank you to the Saint John Conference chairs and their committee for organizing and hosting an excellent program for our Annual Conference this past September. If you missed it, you missed a great time. Some of the highlights included the opening ceremonies with Richard Zurawski, encouraging remarks from AWWA and

WEF representatives Craig Woolard and Chris Browning, respectively; Loyalist Army Drill at the Banquet, an outstanding Atlantic Branch Equipment Association Hospitality Night at a local pub and 36 excellent technical sessions all jammed into 2½ days.

A big shout-out should go to the ABEA, City of Moncton, Genivar and all of you for raising over \$16,000 for Water For People at this year's conference. Your dedication and support for WFP is outstanding and unsurpassed.

Once again, thank you for your support and I hope you enjoy this issue and future issues published by AWWA.

If you have any questions or would like to volunteer with any one of our committees, please do not hesitate to contact a Board Member or the local ACWWA office.

## ACWWA Executive and Committee Officers



### SECTION OFFICE

Clara Shea, ACWWA Administrator..... 902.434.6002  
acwwa@hfx.andara.com.....F: 902.435.7796

### BOARD

#### Chair

Robert Gillis, P. Eng.....902.469.2806 x103  
robert@aps.ns.ca.....F: 902.463.3529

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ensor.nicholson@moncton.ca .....F: 506.853.3543

#### First Vice Chair

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jamie.hannam@halifaxwater.ca.....F: 902.490.1584

#### Second Vice Chair

Brett Pugh, P.Eng..... 902.421.7241 x 2270  
brett@cbcl.ca .....F: 902.423.3938

#### Secretary-Treasurer

Willard D'Eon, MPH, P.Eng..... 902.492.6753  
willardd@cbcl.ca.....F: 902.423.3938

#### WEF Delegate (2011-2012)

Gary Chew..... 902.895.2885  
gary.chew@sansom.ca .....F: 902.893.7584

#### AWWA Director (2008-2011)

Bruce Buchanan, P. Eng..... 506.857.8525  
bbuchanan@rvanderson.com.....F: 506.858.5972

#### AWWA Director Elect (2011-2014)

Reid Campbell, P. Eng..... 902.490.4877  
reid.campbell@halifaxwater.ca.....F: 902.490.4808

#### ABEA Representative Director (2008-2011)

Greg Eisnor..... 902.444.7350  
geisnor@canadapipe.com.....F: 902.444.7351

#### Gov't Relations Director (2009-2012)

Roland Richard, P. Eng..... 506.387.7977  
rrichard@gmsc.nb.ca .....F: 506.387.7389

#### Membership Involvement Director (2009-2012)

Scott Gasman, P.Tech..... 506.460.2038  
scott.gasman@fredericton.ca.....F: 506.460.2461

#### Education Director (2010-2013)

Shawn Rowe ..... 902.450.4000 x5030  
SRowe@dillon.ca .....F: 902.450.2008

#### Membership Director (2010-2013)

John Eisnor..... 902.490.1930  
john@halifaxwater.ca .....F: 902.490.1584

#### Communication Director (2008-2011) ..... Vacant

#### Technical Director (2008-2011)

Margaret Walsh, PhD, P.Eng..... 902.494.8430  
mw Walsh2@dal.ca .....F: 902.494.3105

#### Tech. Papers/Scholarship ..... Margaret Walsh, PhD, P.Eng.

#### Water For People Chair ..... Brett Pugh, P. Eng.

#### Volunteer Chair

Doug MacKinnon ..... 902.895.2885  
doug.mackinnon@sansom.ca.....F: 902.893.7584

#### Newsletter Chair

Amy McHarg P.Eng..... 506.633.6650  
amym@cbcl.ca.....F: 506.633.6659

#### Education Chair

Mark Butler..... 506.633.5000  
mbutler@dillon.ca.....F: 506.633.5110

#### Cross Connection Control Chair

Fred Sawyer ..... 506.658.6698  
fred.sawyer@gnb.ca .....F: 506.643.2853

#### Young Professionals Chair

Stephanie Gora..... 902.421.7241  
stephanieg@cbcl.ca.....F: 902.423.3938

#### Scholarships Chair

Jennie Rand, PhD, P. Eng ..... 902.585.1519  
jennie.rand@acadiau.ca .....F: 902.585.1067

#### 2011 Saint John Conference Co-Chair

Deborah Smith, R.T ..... 709.745.1870  
dsmith@stjohns.ca.....F: 709.745.0935

#### Website Chair

David Russell ..... 506.658.4763  
dave.russell@saintjohn.ca.....F: 506.658.4740

#### Operator Involvement Chair

Trent Brewer..... 506.460.2038  
trent.brewer@fredericton.ca.....F: 506.460.2301

#### Government Affairs Chair

Stefan Furey..... 902.424.4743  
fureysm@gov.ns.ca .....F: 902.424.0501

# WEF Delegate's Update



## Over 100 at Last, and Getting Into WEF by Gary Chew

Well I'm back for another round and things are happening at the Water Environment Federation.

First, the good news: ACWWA is now over the 100-member mark in Atlantic Canada, giving us a voice on the WEF Board of Delegates, which is what we have been looking for. I want to encourage all of our municipalities, large and small, to sign up at least one staff member to WEF. The information you receive and have access to is invaluable, including endless wastewater resources — from training tools to leaflets and flyers to help enlighten people on items that are not meant to be sent to the sewer system — so please make an effort to join. The membership application is available from the ACWWA website or

from me at [gary.chew@sansom.ca](mailto:gary.chew@sansom.ca).

WEF and the Canadian Affairs council will be looking at efficient ways to lobby the Canadian government and play a part in the wastewater regulations that are forthcoming and sure to affect all of us. We will make every effort to address questions and issues brought forward by any of our membership. Also, we are always open to suggestions for training courses you would like to see in Atlantic Canada, so send the requests to us and we will see what we can do.

I would also like any Young Professionals in our area to pick up a YP membership to WEF and get involved with our YP committee of the ACWWA board. WEF has lots of great info for the YPs



who play an important part in the wastewater industry.

Check out the WEF website at [www.WEF.org](http://www.WEF.org) to get a sample of how we might be able to help you, the wastewater manager/operator in Atlantic Canada. There you'll find information on WEF's regulatory activities, conferences and events, online educational opportunities, and WEF publications.

I look forward to helping out in any way I can throughout my term as your WEF rep, so contact me for a chat!

# AWWA Director's Report



## ACWWA Looking to Engage Youth by Bruce Buchanan

Congratulations to the Saint John Organizing Committee for the excellent job on hosting our Annual Conference. It went off without a hitch; even the strike at the hotel was settled before everyone arrived.

I would also like to thank Craig Woolard and his wife, Lisa, for taking the time to visit the Section during our Annual Conference. They travelled from Anchorage, Alaska, to be with us. Craig took the opportunity to speak to the members at the Monday banquet, which was well received and provided excellent points for us to consider moving forward.

The bylaws for the Atlantic Canada Section of AWWA were approved and will now go to the AWWA Board of Directors for approval. The Affiliation Agreement between the Atlantic Canada Section of AWWA and AWWA has also been signed.

Membership for AWWA as of October was just over 54,400. This is below last year, and the association continues to struggle with membership numbers as the difficult financial times continue. The Atlantic Canada Section has been able to maintain its numbers, however, and on behalf of AWWA, I thank you for your continued support of the association.

I recently attended the Regional Meeting of Section Officers in Saratoga Springs, N.Y., with our Section Chair, Robert Gillis, and Section Administrator, Clara Shea. This is the one time each year that we have the opportunity to discuss common issues at the Section level. The Atlantic Canada Section will host the meeting in Moncton in 2011.

I participated in a webinar titled "Model Water Tower Competition — A Youth Education Tool." In facing down

workforce issues and conducting community relations, many Sections have begun to introduce the water sector to high- and middle-school students. The Florida Section has been very successful in this outreach by using the Model Water Tower Competition as a youth education tool. MWTC is a hands-on, science-filled project that reaches out to youth (6th–12th grades) about the importance of the water profession.

The board sees this as a good opportunity to connect with youth and get them interested in the water profession. Stephanie Gora, the Young Professionals Chair, has agreed to look into the possibility of starting such a competition in our Section. Stephanie needs assistance in this endeavor and would appreciate hearing from you. She can be reached at [stephanieg@cbcl.ca](mailto:stephanieg@cbcl.ca).

## Adapting to Global Climate Change

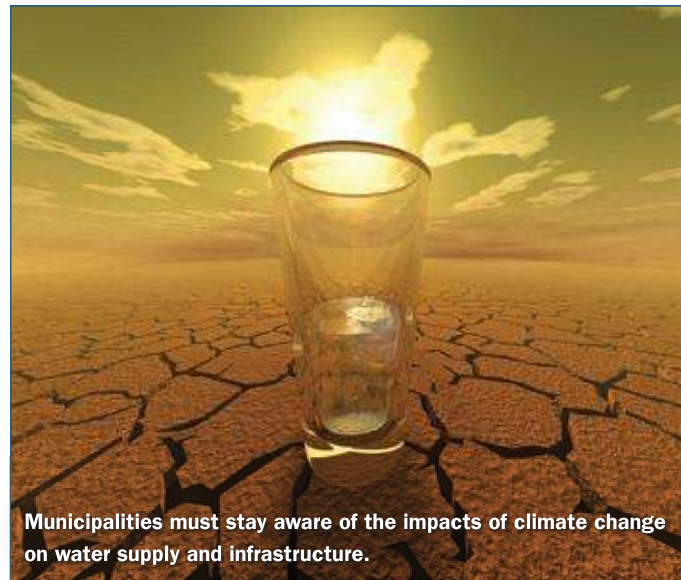
Climate change is one of the greatest challenges facing our society today. The atmospheric balance that sustains our lives is incredibly fragile and our activities have extremely dramatic consequences. Increased releases of carbon dioxide into the earth's atmosphere as the result of increased industrial activity during the last century has initiated large-scale atmospheric processes resulting in changes in global temperature and precipitation (among other variables).

Changes in the Earth's climate system can disrupt the balance of the hydrological cycle and eventually lead to increased occurrences of floods, droughts, heat waves, summer storms and ice storms, etc. The increased frequency in extreme events is of particular importance to municipalities as adequate procedures, plans and strategies must be in place to deal with them.

Generally, there are two ways to reduce our vulnerability to the adverse impacts of climate change: adaptation, anticipating possible impacts and developing an adaptation strategy; and mitigation, reducing the rate of carbon dioxide release into the atmosphere.

Reducing climate change vulnerability means that municipal decision makers and stakeholders need to understand climate change impacts and have a strategic approach to protect municipal infrastructure. Future heavy rainfall and high/low flow events could significantly increase in the 21st century. Climate change should be taken into consideration in adjusting engineering design standards and developing adaptation strategies and policies.

Municipalities should also evaluate the possible impacts resulting from climate change on municipal infrastructure. In some cases, changing climatic conditions may require upgrading, retrofitting or even constructing additional infrastructure specifically related to water resources management. The process of vulnerability assessment is a risk management process that directly involves those affected by changing conditions and



those with responsibility for dealing with risk. As a result, vulnerability assessment considerations of climate change need to be incorporated into municipal planning processes.

*Adapted from an article by Patrick McNally and Berta Krichker, City of London*

## Protozoa Guideline Released for Comment

The Federal-Provincial-Territorial Committee on Drinking Water has assessed the available information on enteric protozoa with the intent of revising the current drinking water guideline. An updated Guideline Technical Document is now available for public comment on Health Canada's website.

The purpose of this consultation is to solicit comments on the proposed guideline, on the approach used for its development and on the potential economic costs of implementing it, as well as to determine the availability of additional exposure data.

Municipalities and other interested parties are encouraged to submit comments, with accompanying rationale where required. Comments can be sent to the CDW Secretariat via e-mail at [water\\_eau@hc-sc.gc.ca](mailto:water_eau@hc-sc.gc.ca). Comments may also be sent by mail to the CDW Secretariat, Water, Air and Climate Change Bureau, Health Canada, 3rd Floor, 269 Laurier Avenue West, A.L. 4903D, Ottawa, Ontario, Canada K1A 0K9.

Municipalities and other interested parties have until Jan. 28 to submit comments.

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## World Water Monitoring Day

World Water Monitoring Day is an international education and outreach program that builds awareness and involvement in protecting water resources around the world. The program, which is growing in size each year, encourages citizens to conduct basic monitoring of their local water bodies and then upload and share the results through the WWMD website.



WWMD is officially observed each year on Sept. 18, but the monitoring period actually extends from March 22 (World Water Day) until Dec. 31. An easy-to-use test kit lets anyone, from children to adults, sample local water bodies for a core set of water quality parameters including temperature, acidity (pH), clarity (turbidity) and dissolved oxygen (DO). Each kit can be used to test up to 50 sites. Results are shared with participat-

ing communities around the globe via the WWMD website at [www.worldwatermonitoringday.org](http://www.worldwatermonitoringday.org).

Last year, 122,599 people from 81 countries visited their local streams, rivers and lakes to participate in the WWMD program. Unfortunately, only 571 of those people came from Canada. While that figure represents a 90 percent increase over 2008, it's still extremely low compared with other countries. Plan to do your part to help—get involved in WWMD next year!

### Top Five WWMD Countries in 2009

The following table shows the number of people from the top five countries submitting water tests as part of WWMD last year:

Malaysia	50,558
United States	27,387
Spain	20,946
Taiwan	4,116
Romania	2,943
All others	16,649
<b>Total</b>	<b>122,599</b>

*Adapted from an article by Warren Weeks, Town of Oakville*

## Watershed Clean-Up Day Nets 23,000 kg of Garbage

A clean-up day in the Loch Lomond Watershed removed more than 23 metric tonnes of garbage from the area around one of Saint John's drinking water supplies on November 10.

In total, 23.56 metric tonnes (23,560 kg or 52,000 lb) of garbage were removed from the areas surrounding First Lake, Second Lake, Robertson Lake and Latimer Lake. The city incurred landfill charges of \$2,670.48 for the disposal of nine loads of garbage, which included such items as:

- 35 tires
- Various car parts
- Scrap metal
- Water tanks
- Drums/barrels
- Carpeting
- Oil containers
- Roofing and other construction material
- Litter, including diapers, coffee cups, food wrap, beer bottles and cans, clothing, and mini-propane tanks
- Pool table
- Couches/chairs
- Mattresses
- Heating oil tanks
- Countertops
- Appliances

Over 45 volunteers took part in the clean-up event. Watch for the next Watershed Clean-Up Day next year.



Dozens of volunteers worked to remove more than 23 metric tonnes of trash from lakes in Saint John's drinking water supply. Photo courtesy City of Saint John.

## Water For People Update

The local committee of Water For People thanks ACWWA for its fantastic support of Water For People Canada (WFPC). In just three short days, over \$17,000 was raised towards WFPC's efforts in providing lasting solutions to all-too-common water and sanitation challenges in the developing world.

This money was generated through a combination of fundraising events, individual donations and corporate gifts. We want to acknowledge the great efforts of the ACWWA Conference Committee and its leadership on recognizing fundraising opportunities throughout the conference. New events like the live auction for the buffet dinner and matching \$1 for each lanyard returned are examples. Conference attendees were generous with their support of the 50/50 draws (winners returned their

prizes to WFPC!), the silent auction and registration for the fun run/walk.

Significant donations were presented by the city of Moncton (\$5,000), Atlantic Branch Equipment Association (\$5,500), Genivar (\$1,500) and Omnitech (\$500). David Veale of Vision Coaching donated his speaking fee to Water For People.



Funds were submitted to WFPC in October 2010 and became eligible for the annual Rosenthal Challenge, where each new donation is matched dollar for dollar. Our donation was allocated to project work under the Bolivia country program; funds will be directed to where they are needed the most under the guidance of the Bolivia country coordinator. Feedback from the resulting projects and their impact will be presented at ACWWA 2011 in St. John's.

ACWWA members should be very proud of their efforts. Through your support of WFPC events at the annual conference, you are helping communities fund, build, maintain and replace their water and sanitation systems when needed. WFPC is focused on lasting solutions by leveraging local resources, testing innovative ideas and monitoring our work over time. ACWWA and WFPC are creating a current of change.

Thanks, ACWAA!



City of Moncton Utilities presented WFP with a check for \$5000 at the conference in Saint John.

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## Greater Moncton Gets First International Biosolids Certification

The Greater Moncton Sewerage Commission (GMSC) is the first organization outside the United States to receive the National Biosolids Partnership's prestigious certification of their Environmental Management System.

GMSC officially received its certification at the Water Environment Federation conference in New Orleans, La., on Oct. 4.

"It gives me special pride on behalf of the Water Environment Federation and NBP to recognize the Greater Moncton Sewerage Commission as the 29th organization in North America to be certified by NBP, including being the first in Canada and our first international organization," Jeanette Brown, president of WEF, said in making the presentation. "Moncton is to be commended for the remarkable job of becoming certified only 14 months after it signed a letter of understanding with the NBP to participate in the EMS program. This could not have come about without the leadership of Commission Chair Ronald LeBlanc and Manager of Special Projects Roland Richard, who led the effort to pursue and ultimately achieve."

When NBP was formed 13 years ago, WEF supported its mission of helping local wastewater agencies improve their biosolids management programs and to serve as "environmental stewards" for their communities by doing more than the mandatory regulatory requirements. The EMS is an aggressive program to manage biosolids that augments regulatory requirements to help protect and enhance public health and the environment.

"Sustainable green infrastructure initiatives are being undertaken across North America and globally. Biosolids must be regarded as a recyclable resource that can be put to beneficial use," Brown said.

The Seal of Approval recognizes that the GMSC has met all the requirements of certification for admittance into the NBP EMS program. The independent audit verified that the Greater Moncton

- has an effective biosolids environmental management system that supports continually improving environmental performance;
- augments existing regulatory compliance obligations;
- utilizes good biosolids management practices; and
- creates meaningful opportunities for public participation.

In addition to promoting excellence and continuous improvement, it is our hope that this EMS program will enhance the public's understanding and acceptance of biosolids as a valuable natural resource," Brown said.



Ronald LeBlanc, chairman of GMSC, receives the international certification. Left to right: Bill Bertera, executive director, WEF; Peter Machno, program coordinator, National Biosolids Partnership; LeBlanc; Jeanette Brown, WEF president; and Roland Richard, manager of special projects, GMSC.

"The GMSC is proud to have achieved the NBP-EMS Certification designation," said GMSC Chair Ronald LeBlanc. "We are particularly pleased to be the first Canadian and International organization to be certified and admitted to the National Biosolids Partnerships EMS program."

The GMSC was created in 1983 as a result of consultations and co-operation between the city of Moncton, the city of Dieppe, town of Riverview and the province of New Brunswick. Its mandate was to undertake the design and construction of a wastewater collection and treatment system in order to eliminate the direct discharge of raw wastewater from the three municipalities to the Petitcodiac River.

"The Commission implemented the EMS system as an effective way to continually improve our operations for the beneficial use of biosolids produced at the wastewater treatment facility," LeBlanc said. "Achieving NBP certification is an important accomplishment."

The National Biosolids Partnership is a not-for-profit alliance formed in 1997 with the National Association of Clean Water Agencies, WEF, and the US Environmental Protection Agency, with the goal to advance biosolids management practices.

The framework of NBP's EMS program is structured around the operation of wastewater treatment facilities, both large and small, and promotes four Key Outcomes: quality management practices to ensure consistent product quality; relations with interested parties to establish and maintain credibility; regulatory compliance to meet or exceed compliance with regulatory requirements; and environmental performance, in order to protect the environment for future generations.



## Newfoundland and Labrador's New Monitoring and Reporting Policy

In 2009, the Newfoundland and Labrador Department of Environment and Conservation approved a new policy directive establishing drinking water quality monitoring and reporting requirements for all public water supplies. The policy was established under the legislative authority of the Water Resources Act, SNL 2002 cW-4.01, Section 39. The province's Multi-Barrier Strategic Action Plan for drinking water safety is strengthened with respect to monitoring and reporting, legislative frameworks, and public awareness as a result of this policy.

The new policy can be broken down as follows:

- **Sections 1-3:** Outline the objectives, context, and legislative authority for the policy.
- **Section 4:** Provides the background on the Multi-Barrier Strategic Action Plan and which components the policy addresses.
- **Section 5:** Provides direction on drinking water quality monitoring in Newfoundland and Labrador, including sampling seasons, monitoring parameters, sampling frequency and monitoring protocols for the regular monitoring program. It also provides direction on performance monitoring and special monitoring procedures.
- **Section 6:** Addresses the drinking water quality reporting procedures in Newfoundland and Labrador. The reporting procedures are described for exceedances, seasonal drinking water quality, annual drinking water quality, the Drinking Water Safety in Newfoundland and Labrador Annual Report, and documents on the Department's webpage.
- **Section 7:** Lists the guidelines for drinking water quality in Newfoundland and Labrador.



ENVC staff collecting water samples from a public water supply

The policy directive for Drinking Water Quality Monitoring and Reporting for Public Water Supplies is an all-encompassing policy that establishes the drinking water quality monitoring and reporting requirements for all public water supplies in Newfoundland and Labrador. The policy directive is available on the Department's webpage at Newfoundland and Labrador Policy for Drinking Water Quality Monitoring and Reporting.

*Paula Dawe, P.Eng is a municipal wastewater engineer at the NL Department of Environment and Conservation.*

## New Drinking Water Quality Guideline for MCPA

The new Guideline Technical Document on 2-Methyl-4-chlorophenoxyacetic Acid (MCPA) in Drinking Water is now available on Health Canada's website.

MCPA is a herbicide, registered in Canada for use on agricultural sites, fine turf and lawns, in forestry and at industrial sites. It is among the top 10 pesticides sold in Canada and is used across the country, most extensively in the Prairie provinces. A maximum acceptable concentration (MAC) of 0.1 mg/L (100 µg/L) for MCPA in drinking water was established based on health effects.



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# ACWWA Conference Highlights

## 2010 ACWWA Conference Spotlights Industry Changes, Draws 300+

**S**aint John - Canada's Original City hosted this year's 63rd Annual Conference of the Atlantic Canada Water and Wastewater Association, held at the Delta Brunswick Hotel, Sept. 12 - 14.

The 2010 ACWWA conference theme was "What's Coming Down the Pipe?" to highlight the fact that the world of water and wastewater is rapidly changing, with growing demands, limited water supplies and more stringent regulations.

The conference had great attendance, with over 310 attendees participating in one or more events. This consisted of 230 full registrations, 40 day passes, 32 companions and 9 students.

We were honoured to have Craig Woolard, AWWA Past President, and Chris Browning, WEF Treasurer, join us for the entire conference as representatives of their respective associations.

This year's keynote speaker, Richard Zurawski, was a hit. Zurawski is a familiar voice and face to people across the Maritimes. He spoke about "Climate Change and Water—What We Need to Consider in a Warming World and How the Media Has Fumbled the Ball." He emphasized that in the past few years the anti-climate change crowd has been able to convince the public and their public officials that climate change is not a foregone conclusion, that there is some doubt among scientists.

A total of 36 technical papers covering water and wastewater topics were presented at the conference, by a range of researchers and educators, consultants, regulators and municipalities, covering a wide range of topics. Of the 36 presentations, 21 were focused on water, nine on wastewater and six were more general in nature, covering topics such as Value Engineering.

Newly added this year to the technical session lineup was an executive coaching session, which was very well received. The ACWWA award for AWWA's Fresh Ideas program went to Krysta Montreil from Dalhousie University. Krysta's presentation, titled "Natural organic matter characterization and removal by coagulation," was chosen as the best presentation from a first-time, young professional (YP) participant at the conference. Krysta will represent ACWWA in the Fresh Ideas Poster Session at ACE2011 in Washington, D.C., next summer, with complimentary conference registration provided by the ACE2011 organizing committee and a stipend to assist with travel expenses provided by ACWWA.

This year had a large showing at the Top Ops competition, with a total of five teams participating. Thanks to Michelin Tire, Halifax Water, Moncton/Dieppe, Truro and Fredericton for participating in the exciting showdown of knowledge. Even the judges provided entertainment and cliff-hanging decisions. A



big congratulations goes out to the winning Top Ops team from the city of Fredericton.

The annual trade show was sold out with a total of 61 companies or associations participating.

While there was a good exchange of knowledge and a great number of learning opportunities, there was also lots of fun had by all at the numerous social events. Some of the events included sold-out golfing on Sunday at Rockwood Park, a river cruise along the beautiful Saint John River and the Young Professionals Supper.

This year the Annual Banquet dinner included themed buffet stations featuring Canadian, Lebanese and East Indian cuisine—a well-received change! Everybody was excited about the buffet; an auction began for the first three tables to hit the buffet. The auction raised over \$600 in less than 10 minutes for Water For People. The Down East Feast was well attended by over 275 people enjoying the Lobster dinner and live entertainment, which opened with traditional and ended with Donnie and the Monarchs.

A large part of the financial success of this year's conference can be attributed to the sponsors who partook in the very successful sponsorship program. A big thank you goes out to each of the sponsors listed below.

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Finally, a very special thank you to this year's hardworking conference committee, who were instrumental in hosting such a successful event! Way to go!

# ACWWA Conference Highlights

## Conference Operator Events a Success By Scott Grasman

The ACWWA Annual Conference held this past Sept. 12-14 in Saint John, New Brunswick, featured two events geared especially towards operators. For the first time, a pipe-tapping demonstration was held; this event would be familiar to anyone who has attended the Annual Conference and Exposition (ACE) of the American Water Works Association. The pipe-tapping competition has long been a crowd favourite at the national event. It typically features a team of four (three competitors and one coach) who compete on a timed basis in accomplishing several tasks: tapping a pressurized ductile iron water pipe, installing a corporation main stop, and flaring and installing a 3/4" (20 mm) copper service line to a curb stop and meter yoke. Thanks to the Saint John Conference Organizing Committee for introducing this pipe-tapping demonstration to the ACWWA Conference. We hope to see this event at future ACWWA Conferences.

This year's conference also marked the sixth anniversary of the ACWWA Top Ops Competition. By many accounts, this year's contest was the best ever as well as a crowd favourite, with five very competitive teams entered. Teams from a wide cross section of the Atlantic Provinces participated: Team Halifax, Team Fredericton, Team Moncton, Team Truro and Team Michelin Tire all represented their employers well, with many close matches in the preliminary rounds. When the dust settled, Team Halifax and Team Fredericton emerged as the finalists. In another closely fought match, Team Fredericton won this year's ACWWA Top Ops Championship. As a result, Team Fredericton hopes to represent the Atlantic Canada Section of AWWA at next year's ACE, scheduled for June 2011 in Washington, D.C.

Special acknowledgment is also due to Team Halifax, who represented the Atlantic Canada Section very well at ACE 10, which was held last June in Chicago.

The Top Ops Competition has been a fixture at AWWA's ACE events for the past fourteen years. In 2005, Jamie Hannam

**2010 ACWWA Top Ops Champs, Team Fredericton.**  
Pictured (from left): Team members Marc Colwell, Andrew Duguay, and Keith Holloway.



of Halifax Water and the conference organizing committee introduced the competition to the ACWWA Annual Conference in Halifax. At each subsequent conference, the competition has grown and flourished. In a fast-paced, "Reach for the Top"-style format, competitors are quizzed about many topics in the water treatment and water distribution field. Organizers are always looking to grow the competition, and encourage anyone interested to become involved. Besides being a fun event to participate in, along with the opportunity to travel to the ACWWA Annual Conference (and even the AWWA ACE event), there is a great educational benefit to those utilities and their operators who choose to compete.

Next year's competition is scheduled to be held in St. John's, Newfoundland, where the organizing committee is already hard at work planning. In order for the contest to be a success, teams are needed. For more information about the Top Ops Competition, please contact the ACWWA Operator Involvement Committee Chair, Trent Brewer, at 506.460.2179, or [trent.brewer@fredericton.ca](mailto:trent.brewer@fredericton.ca).





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## Looking Ahead to St. John's for the ACWWA Annual Conference 2011

St. John's, NL

October 2-4, 2011

Join us in St. John's as we all talk about water. Water has been a topic of conversation and concern from the public to the political sectors. We all know we "Got Water," but can we keep it in good supply and protect the health of our public? Quantity and quality are everybody's concern.

From Hurricane Igor's devastation in Newfoundland to the recent state of emergency in parts of Nova Scotia, water is a necessity and yet it can be devastating to the population if it is inaccessible and contaminated — even for short periods of time. The influx of debris, flood water or untreated wastewater in our source waters from natural events can put increased strain and challenges on our potable water treatment plants. But it doesn't end there. Higher flows and stormwater infiltration can overrun our wastewater treatment facilities, potentially creating hazards to public and aquatic health.

Reunite with friends and colleagues as we share our Newfoundland Hospitality. Discuss the many issues and challenges that water and wastewater professionals have to contend with in the production, conveyance and removal of waste from water.

Also, don't miss the opportunity to hear our guest speaker, TA Loeffler, at the opening session. TA is an adventurer, educator, and keynote speaker from St. John's, Newfoundland and

Labrador. After climbing Mount McKinley, TA set a goal of climbing Mount Everest and the rest of the "Seven Summits," the highest peaks on each of the seven continents. Throughout this journey, TA has aimed to inspire others to have big dreams and big goals by sharing her adventures online and through keynote speaking.

Nurturing big dreams and climbing big mountains requires leaps of faith, heaps of humor, discipline, luck, support, teamwork and the ability to ride large waves of emotion.

Accepting the invitation to dream is the first step followed by intensive planning, training, and outreach. TA utilizes this model repeatedly when nurturing her own dreams and the dreams of others.

*We hope to see you in St. John's!*



Kristen L. Jellison is an associate professor in the Department of Civil and Environmental Engineering, Lehigh University ([www.lehigh.edu](http://www.lehigh.edu)), Bethlehem, Pa.

## Watershed Protection

# Canada Geese

## Tranquil Symbol of the Wild or Pathogen Carrier?

Are Canada geese carriers or vectors for disease-causing pathogens? The Philadelphia Water Department conducted a study of its watershed to find the answer. **BY KRISTEN L. JELLISON**

**C**RYPTOSPORIDIOSIS, a gastrointestinal disease caused by the protozoan parasite *Cryptosporidium*, is characterized by watery diarrhea, abdominal cramps, nausea, malaise, and, in the most severe cases, malnutrition and weight loss. *Cryptosporidium* is transmitted by ingesting fecally contaminated food or water. No medical cure exists for cryptosporidiosis. Otherwise healthy people generally recover within two weeks without medical attention,

but immunocompromised individuals can suffer prolonged and life-threatening symptoms.

Even low levels of *Cryptosporidium* contamination in water supplies can pose a threat to public health, because fewer than 10 oocysts have been shown to cause infection in some healthy adults. The threat from exposure to *Cryptosporidium* is important for recreational users of a watershed, including swimmers and pets that come in contact with water in the watershed, as well as

consumers who drink the water. Unfortunately, *Cryptosporidium* oocysts are small enough (4–8 µm) to pass through sand filters under suboptimal coagulation/flocculation regimes and are resistant to chlorine disinfection. Disinfection with ozone or ultraviolet has proved effective against *Cryptosporidium* oocysts, but the cost of retrofitting existing treatment plants with these technologies can be prohibitive.

Source water protection is critical to safeguarding public health from waterborne cryptosporidiosis. A better understanding of oocysts in watersheds, including their sources, transport dynamics, and potential to cause disease in humans, is necessary to decide if watershed control strategies are necessary and, if so, where and how to best implement them to protect municipal water supplies from oocyst contamination. This study investigated the role of geese in disseminating human-pathogenic *Cryptosporidium* oocysts in the watershed for Philadelphia's drinking water supply.

### SAMPLING

Water and goose fecal sampling in the watershed occurred from May 2005 through May 2010. A total of 222 goose fecal samples from the watershed were analyzed for *Cryptosporidium* and

**Table 1. *Cryptosporidium* Species/Genotypes Detected in Goose Fecal Samples**

*Cryptosporidium* oocysts were detected in 20 (9 percent) of the 222 samples analyzed.

Number of Samples	Species/Genotypes Detected
5	<i>C. parvum</i> (or <i>C. parvum</i> -like*)
5	<i>C. hominis</i> (or <i>C. hominis</i> -like*)
3	<i>C. parvum</i> (or <i>C. parvum</i> -like) and <i>C. hominis</i> (or <i>C. hominis</i> -like)
2	<i>Cryptosporidium</i> goose I genotype
1	<i>C. parvum</i> , <i>C. hominis</i> -like, and <i>Cryptosporidium</i> pig I genotype
1	<i>C. parvum</i> and <i>Cryptosporidium</i> goose I genotype
1	<i>Cryptosporidium</i> cervine genotype
1	<i>C. meleagridis</i>
1	<i>Cryptosporidium</i> muskrat I and duck genotypes

\**C. parvum*-like and *C. hominis*-like genotypes didn't match existing *C. parvum* or *C. hominis* genetic sequences but were more closely related to *C. parvum* and *C. hominis*, respectively, than any other *Cryptosporidium* genotype.





compared with *Cryptosporidium* detected in surface water samples filtered from two locations, three wastewater treatment plant effluents, and one water treatment plant (WTP) intake.

All water samples were filtered with filter capsules, which were subsequently eluted according to standard manufacturer recommendations. Fecal samples were collected immediately following visual identification of goose excretion. When visual identification of goose excretion wasn't possible, the freshest available fecal samples were collected from the ground. Oocysts were purified from water pellets and fecal samples by immunomagnetic separation (IMS). Oocyst DNA was extracted from IMS products, and nested polymerase chain reaction (PCR) amplification of a hypervariable region of the 18S rRNA gene (approximately 434-bp in length) was performed. The nested PCR assay was designed to amplify the 18S rRNA gene of any *Cryptosporidium* species or genotype present in the environmental sample. The nested PCR products of positive samples were then cloned and sequenced. Sequence differences within the 434-bp region were used to identify the particular oocyst species/genotype present in a given water or fecal sample.

#### ANALYSIS

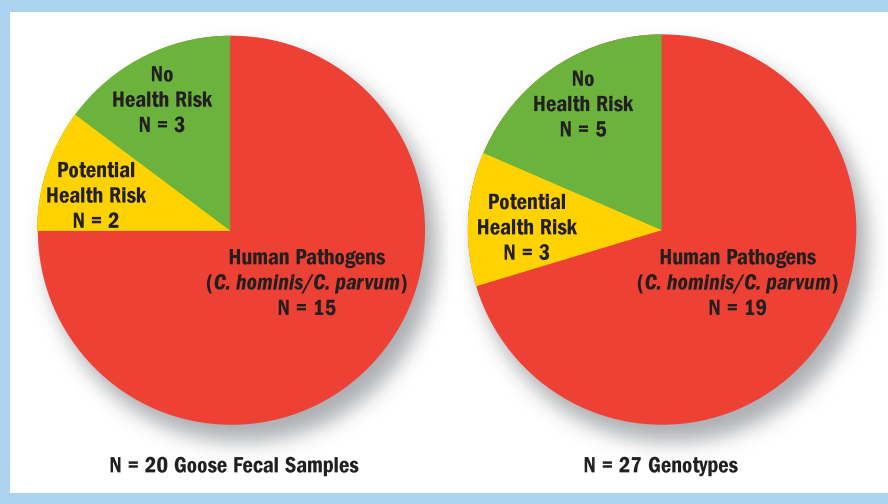
*Cryptosporidium* oocysts were detected in 20 (9 percent) of the 222 goose fecal samples analyzed. The species/genotypes detected are shown in Table 1.

*Cryptosporidium* goose I and goose II genotypes, neither of which have been associated with human infection, are typically associated with geese. The goose I genotype was detected in three of the 20 positive fecal samples, and the goose II

genotype wasn't detected. The large percentage of *C. parvum* and *C. hominis* oocysts detected in the geese from the watershed of the PWD drinking water supply is a novel finding; although *C. parvum* and *C. hominis* have been found in geese, generally the findings have been in a small percentage of geese identified as *Cryptosporidium* positive. Here, *C. parvum* and *C. hominis* were identified in 75 percent of the positive goose fecal samples, showing

#### Health Risks Associated with *Cryptosporidium* Species/Genotypes Detected in Goose Fecal Samples

The left pie chart identifies the health risk associated with each positive goose fecal sample. The right pie chart identifies the health risk associated with each genotype.



The potential for geese to serve as vectors of human-infectious oocysts means that control of geese could be as important as identifying and controlling original oocyst source(s) for watershed protection.

**Table 2. *Cryptosporidium* Species/Genotype Locations of Detection**

Every species/genotype detected in goose fecal samples, with the exception of the goose I genotype, was detected in at least one other location within the watershed.

<i>Cryptosporidium</i> Species/Genotype	Detected in			
	Goose Samples	Surface Water	Wastewater Plant Effluent	WTP Intake
<i>C. parvum</i> (or <i>C. parvum</i> -like)	Yes	Yes	Yes	Yes
<i>C. hominis</i> (or <i>C. hominis</i> -like)	Yes	Yes	Yes	No
<i>C. meleagridis</i>	Yes	Yes	No	Yes
Pig I genotype	Yes	No	No	Yes
Cervine genotype	Yes	Yes	Yes	Yes
Duck genotype	Yes	Yes	No	No
Muskrat I genotype	Yes	Yes	No	No
Goose I genotype	Yes	No	No	No
Squirrel genotype	No	Yes	Yes	No
Snake genotype	No	Yes	No	No
W19 genotype	No	Yes	No	No

that geese can play a significant role in the transport of potentially infectious *Cryptosporidium* oocysts in watersheds.

The pie chart on page 13 shows the health risk associated with *Cryptosporidium* detected in goose fecal samples. A total of 20 samples and 27 species/genotypes—more than one *Cryptosporidium* species/genotype were recovered from several samples—were analyzed. *C. parvum* and/or *C. hominis*, confirmed human pathogens, were detected in 15 (75 percent) of the 20 samples and accounted for 19 (70 percent) of the 27 genotypes detected. Other species/genotypes associated with human disease and detected in the samples include *C. meleagridis* and the *Cryptosporidium* cervine and pig I genotypes. These potentially infectious genotypes were found in three (11 percent) of the 27 detected genotypes; of the five samples that weren't *C. parvum* and/or *C. hominis* positive, two harbored these potentially infectious genotypes. Genotypes that to date haven't been associated with human disease and shouldn't be considered a public health threat include the goose I, muskrat I, and duck

genotypes. These nonpathogenic genotypes were found in five (19 percent) of the 27 detected genotypes from goose fecal samples; of the 20 positive samples, three (15 percent) were found to harbor only the noninfectious genotypes. Clearly, geese can carry and disseminate potentially harmful *Cryptosporidium* oocysts.

The *Cryptosporidium* genotypes identified in goose fecal samples reflect the *Cryptosporidium* genotypes detected in the surface water, wastewater treatment plant effluents that discharge into the surface water, and at a WTP intake (Table 2). Every species/genotype detected in the samples, with the exception of the goose I genotype, was detected in at least one other location within the watershed. Three genotypes (squirrel, snake, and W19) were detected in other watershed samples but never in goose samples. It isn't surprising that the *Cryptosporidium* species/genotypes detected in the goose fecal samples generally matched those detected in the watershed. Cross-transmission of oocysts from watershed (land or creek) to goose and back is likely because geese move around within the

watershed; eat grass, possibly ingesting oocyst-laden fecal material on the grass; drink surface water, possibly containing oocysts; and defecate near surface water, where the fecal matter and shed oocysts can be washed into the water supply by rain.

The fact that the goose I genotype, the only host-adapted goose genotype detected in these geese, was the only *Cryptosporidium* genotype not found elsewhere in the watershed (Table 2) further suggests the unusual genotypes detected in goose fecal samples were a result of watershed-to-geese cross-transmission. In other words, the geese were mechanical vectors, rather than truly infected hosts, of these other *Cryptosporidium* species/genotypes. If geese infections were the true source of oocyst contamination in the water, the goose I genotype should have been detected in the watershed at least once during the 5-yr monitoring period.

**GEESE CONTROL**

Geese can play an important role in transporting oocysts, including those that threaten public health. Geese likely ingest oocysts from various sources within a watershed and shed those oocysts back into the watershed in fecal material. Even if the original oocyst source in a watershed were a farm, the goose might ultimately transport oocysts from the farm to the water. The potential for geese to serve as vectors of human-infectious oocysts means that control of geese could be as important as identifying and controlling original oocyst source(s) for watershed protection. ❧

*Author's Note: The author thanks Philadelphia Water Department (PWD) for assistance with this project, specifically Gary A. Burlingame and Kelly Anderson. This work was partially financed by PWD and grants from the Commonwealth of Pennsylvania, Department of Community and Economic Development, through the Pennsylvania Infrastructure Technology Alliance.*



# ACWWA Awards 2010



## ACWWA Recognizes Its Best and Brightest By Robert Gillis, P.Eng.

This year's ACWWA awards were presented at the Annual Conference in Saint John. Thanks to all the awardees as well as those who nominated them!

### SILENT HERO AWARDS

This award is presented to an operator who has demonstrated a "lead-by-example" role in their utility and who has gone above and beyond to protect public health and the environment within which we all live.

Silent Heroes are not the people in the news but the people behind the scenes on the front lines who allow our families, friends and communities to drink safe tap water and flush their toilets without a care in the world. They are involved in water treatment, distribution, waste collection, wastewater treatment, laboratory analysis or biosolids management.

This year's recipients:

#### Phil Chiasson

##### Environmental Industrial Services, Prince Edward Island

Phil Chiasson, Operation Supervisor for EISI Phil, oversees the operations and maintenance of 18 WWTP facilities along with the related collection systems, ranging from simple lagoons to Class 4 plants. EISI also does six water distribution systems as well as all water systems.

As the Operations Supervisor, Phil has to be on top of all day-to-day happenings as well as plan for future events. He provides guidance to employees and ensures their well being while seeing that the needs and concerns of clients are maintained. When Phil goes on vacation it only means not going into the office or out to a plant — he is constantly on the phone answering questions and assisting in the resolution of issues.

Phil is hard working and knowledgeable and performs his duties in a professional manner. His knowledge and experience of the treatment process has assisted EISI through the design of various treatment facility projects. Phil has used his experience and expertise in process design to look at facilities from an operations perspective, to help make plants operate more efficiently through the design process and operations.

With the Manager of EISI position vacant, Phil "stepped up" in his role as operations supervisor to ensure the relationship between the operations staff, management and their clients / customers was maintained by providing consistent communication to all parties while maintaining the level of service provided to the customers.



In an industry built by people who recognize their commitment to the community they serve, Phil's professionalism and commitment to the island community deserves recognition.

#### Nigel Leggett

##### NS Department of Transportation and Infrastructure Renewal, Nova Scotia

With a background in the construction industry, Nigel joined the Province of Nova Scotia in 1999, taking on a position as Utility Technician and Maintenance Worker for the Debert Air Industrial Park.

The Debert Park has regulated water and wastewater utilities. While at Debert, Nigel completed training to achieve the following designations: Water Distribution Class 2, Wastewater Collection Class 2, and Wastewater Treatment Class 2.

In 2007 the ownership of Debert Park was transferred to the municipality and Nigel relocated to the provincially owned Industrial Parks Malls and Utilities Office in Dartmouth, looking after not only industrial water and wastewater treatment plants throughout the Central District, but also industrial wharves such as Woodside and Sheet Harbour.

Currently, Nigel is also (acting) Area Operations Supervisor for Nova Scotia's Eastern District Utility Operations, overseeing industrial water utilities, including the regulated Cheticamp Utility, the Melford Industrial Utility in Guysborough County and the Landrie Lake Utility, which supplies raw water to the Town of Port Hawkesbury and several large industries.





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Nigel was nominated for stepping in to help restructure the Cheticamp Utility following the retirement of the previous utility supervisor, by providing expertise and familiarity.

Taking over three utilities in Cape Breton and Guysborough County, particularly Cheticamp, while maintaining his other responsibilities for water and wastewater utilities in Halifax County, Nigel worked closely with the Eastern District utility operators to provide them with coaching, required training and mentoring in quality control, system maintenance and calibration, piping, meters, chlorination equipment and settings, SCADA systems, customer service, improved time management and scheduling, and many other tools to properly run a regulated utility.

His contribution has been significant in improving operational procedures at the utilities in the Eastern District of provincially owned water and wastewater utilities.

## Dave Brewer

### Town of Old Perlican, Newfoundland & Labrador

Dave Brewer has been working as an operator with the Town of Old Perlican, Newfoundland and Labrador, for approximately 15 years. In 2009, he was promoted to town foreman; a position he accepted and performs with gusto. As town foreman he carries a tremendous amount of responsibility, including the operation of two water systems: a domestic system for its approximately 700 residents, a hospital, a senior's home, and a high school; and an industrial system for the local crab and shrimp plants. Dave's dedication and commitment to providing the residents of Old Perlican with clean and safe drinking water has been recognized not only by his community but also by the Government of Newfoundland and Labrador. In March 2010, Dave was awarded the Operator of the Year Award



at the 2010 Clean and Safe Drinking Water Workshop.

Deneen Spracklin accepted the award for Dave at the conference.

Dave is an active participant in any training and education opportunities of which he can take advantage; he also urges his coworkers to participate in training opportunities and provides encouragement and guidance for them to broaden their knowledge and attain their certifications.

Dave has a great working relationship with the Town of Old Perlican and its residents. They realize they are very fortunate to have an operator who is striving to provide the best-quality drinking water possible. Dave never hesitates when an emergency arises or when he is called upon for help.

If you know an Operator that you feel should be recognized for their hard work and dedication, please complete the Silent Hero Award nomination form on the ACWWA website and send it to the office. Do not wait until next year, nominate now.

## WEF LABORATORY ANALYST AWARD

### Debbie Smith

#### St. John's Regional Water Supply

This year ACWWA awarded their first ever Water Environment Federation Laboratory Analyst Award. The award recognizes individuals for outstanding performance, professionalism and contributions to water quality analysis profession.



The award was presented to Debbie Smith, supervisor of Laboratory Services for the St. John's Regional Water Supply. Debbie has been employed in the Regional Water System Water Quality section for the past 28 years. Her responsibilities have grown to include laboratories at two water treatment plants.

During the design stage of the Riverhead Wastewater Facility, Debbie was very involved with the design, layout and equipment requirements that would be needed for day-to-day operations. During the start-up of the facility, Debbie set up the lab equipment for use and has been responsible for laboratory sampling and analysis of the wastewater process.

Debbie has continued to enhance her own abilities and knowledge in the Water Quality area, volunteering many years with the Guide Girls of Canada and visiting numerous schools throughout the Avalon area promoting water conservation.

As well as being a Registered Medical Technologist, Debbie has become a Canadian Certified Environmental Practitioner (CCEP). She has gained certification as a Water Quality Analyst from the Province of Ontario, and has obtained certification as a

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Deborah Smith is the chair for the upcoming ACWWA conference to be hosted in St. John's, NL, Oct. 2-4, 2011, and has been a presenter at prior conferences.

### **VOLUNTEER RECOGNITION AWARD**

**Ben Pitman**

**Town of Amherst**

This Association is built on volunteers. Without them we would not be able to provide the services we offer today. That is why we felt it necessary to recognize our volunteers for the considerable time and effort they put into improving our section services. This year, we recognize Ben Pitman, P.Eng., with the Volunteer Recognition Award for his tireless work on improving our educational offering.

Ben Pitman is the Town Engineer for Amherst. He holds a bachelor's degree in geologic engineering from the University of New Brunswick and a bachelor's degree in science from Mount Allison University. Ben has been with the town for 23 years, but his real commitment is to his wife and family. Ben has two teenage boys now in university and college. He is chair of the ACWWA Education Committee and a director for the AWWA section.

### **PROJECT OF THE YEAR AWARDS**

Each year, we acknowledge projects from small, medium and large municipalities that have demonstrated good design, ingenuity and improved efficiency. Municipal infrastructure and operations are the backbone of any community and without improvements, water and wastewater services would be compromised. This is why it is necessary to identify those projects within our municipalities that have been inspiring and provided a significant benefit to their communities.

#### **SMALL CATEGORY**

**Town of Lunenburg and CBCL Ltd.**

**Water System Upgrades, Lunenburg, Nova Scotia**

The Water Utility of the Town of Lunenburg recently completed upgrades to its water system. The Lunenburg Water Supply Upgrades project included upgrades to the existing intake building at Dare's Lake, improvements to the existing raw water pump house, a new water treatment plant, a new water storage reservoir, a wastewater pump station, water main and waste conveyance system.

A historic settlement dating back to 1753, much of



Lunenburg had water infrastructure that was dated and aging. In order to reduce maintenance of the existing system and to meet updated provincial regulations, the town ventured into its largest infrastructure project to date. Funding for the project was shared by the town, provincial and federal governments under the Municipal Rural Infrastructure Fund.

Improvements at the pump house included three new pumps, variable speed drives to optimize energy use and a new roof. The water treatment plant uses membrane filtration with enhanced coagulation for organics removal to provide a peak production rate of 5,400 m<sup>3</sup>/d. Water is fed by gravity from the new reservoir, reducing energy use associated with pumping. The membrane filtration recovers 95 percent of raw water flows, significantly reducing the daily volume of process waste when compared to conventional filtration. Waste flows by gravity to the town's wastewater collection system and the sewage treatment plant.

A new glass-lined bolted reservoir was constructed to replace an existing open reservoir. The new reservoir incorporates a central fixed-volume chlorine contact tank and an outer annular ring for water storage. The project includes a remote chlorine monitoring and dosing station located at the existing Garden Lots standpipe at the far end of the distribution system.

CBCL Limited provided the engineering design, construction services, SCADA programming and system integration services. The project was constructed by Mid Valley Construction Limited of Kingston, NS. Construction began in June 2009 and ended in May 2010.

#### **MEDIUM CATEGORY**

**City of Bathurst and RV Anderson**

**Bathurst Water Treatment Plant and Expansion**

**Bathurst, New Brunswick**

R. V. Anderson Associates Ltd. made an assessment of the Bathurst Water Treatment Plant in October 2006. The resulting report included comments and recommendations to improve the operation and efficiency of the WTP, including mitigating



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# ACWWA Awards 2010

measures to alleviate the problems. In addition, the report proposed timing for these mitigating measures based on the review team's level of concern. The city of Bathurst then initiated a program to address the report's recommendations.

In addition to addressing existing concerns, the city was also interested in increasing the capacity of the WTP.

Continuing further, the city of Bathurst engaged R.V. Anderson Associates to provide design and construction services for the upgrades. This would allow for the installation of a new clarification process and upgrade to the current filter system.

A comprehensive review was completed to determine which clarification process would be the most cost-effective. As this would be constructed in the existing building, parameters including size, height, treatment volumes and associated costs were reviewed; the Actiflo clarifier by John Meunier Inc. was selected.

The project also incorporated upgrades to the existing filter with the installation of an AWI underdrain system and media, the removal of the Graver clarifier and installation of a new Actiflo clarification process, installation of a new low-lift pump and variable frequency drive, electronic actuation of all valving in the WTP process, and installation of a new SCADA system.

The project removed the existing Graver Reactivator unit and modified the existing tank so a new ballasted floc type clarifier (Actiflo supplied by John Meunier) could be installed. This allowed for continued operation of the WTP by using the second clarifier during the construction process.

The WTP has expanded from an initial capacity of 13,620 m<sup>3</sup>/d to 41,000 m<sup>3</sup>/day to meet the current and future needs of the city of Bathurst, while meeting or exceeding ACWWA guidelines for water treatment.



## LARGE CATEGORY

City of Fredericton and ADI Ltd.

### E. John Bliss Water Treatment Plant, Fredericton, NB

The \$9.2 million E. John Bliss Water Treatment Plant represents the largest single water and sewer construction project undertaken by the city of Fredericton in many years, and ADI Limited is proud to have been selected to prepare "source to tap" concept presentations, process selection, architectural design, process design, contract administration, construction services and commissioning. The plant is a key component of the city's long-range strategy to keep pace with demand for high-quality drinking water as the city grows.

In order to meet the financial constraints of the project, a contract strategy for installation was developed so that the size of the packages could be controlled. Local forces were able to compete for the work, allowing for significant cost savings. To that end, this project was delivered on time and under budget during one of the most escalating construction costing periods seen in many years.

The selected site was a brownfield site from a former gas station; the city was able to turn this site into one of its key gateways. Given that this property was also within the Heritage Zone for downtown Fredericton, the city went through many heritage preservation reviews and public meetings so that the building suited this crucial requirement.

The City of Fredericton EJB WTP now provides for the capacity to meet the city's water demands for the next 25 years and beyond. This new plant reduces the risk in overworking the existing well field, and the operators of the water department now have a better facility to control the entire network. The plant also boasts amenities such as modern offices, training rooms, and laboratory and maintenance facilities.

If you know of a deserving member of our Association that has volunteered extensive time, or a project that should be recognized for outstanding achievement, please visit the ACWWA website and nominate those groups or individuals. It is up to you, because no one outside of our industry understands what we do each and every day to make Atlantic Canada a more comfortable place to live.



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## WEF BEDELL AWARD

Roland Richard

Greater Moncton Sewerage Commission

The Bedell Award is awarded by the Water Environment





Federation and may be presented every three years to a member of ACWWA to acknowledge extraordinary service to a WEF Member Association. The award is named for Arthur Sidney Bedell, WEF's second president, for his long devotion and service to the New York Sewage and Industrial Wastes Association, now the New York Water Environment Association. He was chief of the Bureau of Sewage and Waste Disposal of the New York State Department of Health. The Award was first awarded by ACWWA in 2009.



This year the Bedell Award Recipient was Roland Richard, P.Eng, with the Greater Moncton Sewerage Commission. Roland graduated from the University de Moncton and then started his engineering career with Crandall Engineering. He then moved on to the city of Dieppe as town engineer and is now with the GMSC as manager of special projects. Roland was a leader in GMSC's efforts to be the first Canadian commission to achieve the prestigious National Biosolids Partnership—Environmental Management System Award which was presented at the WEFTEC 2010 Conference and Exhibition in October.

Roland was instrumental in achieving the bylaw changes to incorporate WEF and the signing of the AWWA Affiliation Agreement. He is now the Canadian Water & Wastewater director and has taken on a leadership role with the Cross Connection Control National Committee. Roland has always stood out as a leader in the association and his full-time work. His dedication and commitment to the industry is second to none.

## IRA P. MACNAB AWARD

**Mark Butler**  
Dillon Consulting

This award was established in 1957 by the forerunner of the Atlantic Canada Section of AWWA, the Maritime Branch of the Canadian Section American Water Works Association. Establishment of the award marked the 10th anniversary of the Maritime Branch. The award is in honour of the late Dr. Ira P. MacNab, P.Eng. the first president of the Maritime Branch, for his untiring efforts and wise counsel during the formative years of the branch and to recognize his outstanding service and interest in the water utility field in the Maritime Provinces. The award may be presented annually to a member



of the Atlantic Canada Water and Wastewater Association for outstanding service.

The 2010 MacNab Award recipient is Mark Butler, P.Eng. Mark has contributed time and effort to raising the profile of the ACWWA from many aspects. As many members may know Mark was raised in Saint John, NB, where his father, Bill Butler, made a tremendous mark on the water community, both in Atlantic Canada and at the international level. By observing his father, Mark clearly recognized the value that a water professional can have to his community.

Mark first became a leader in the water community while attending the University of New Brunswick. During his civil engineering program at UNB, Mark was involved with and led a chapter of Water For People. His interest in Water For People continued during the initial part of his engineering career working with the WCWWA and later in 2001 as chair for Water For People for the ACWWA. Although his term with the ACWWA board has ended, Mark's presence is still very strong in the ACWWA; he formed a new committee for past ACWWA chairs that meets on an annual basis and was extremely active in the planning of the 2010 Annual Conference.

Outside of his ACWWA contributions, Mark is a key member of Dillon Consulting and its engineering team in the Saint John office. Mark and his wife, Kate, are proud parents of four children who are active in community sports and activities.

Overall, Mark's contributions to the ACWWA and to the water profession are outstanding and well deserving of recognition for the 2010 MacNab Award.

**AWWA GOLD WATER  
DROP AWARD**  
50-Year Membership (2010)  
J.E. (Jim) Reardon, Halifax, NS



**AWWA LIFE MEMBERS**  
2010 Paul Campbell,  
Fredericton, NB (pictured)

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**McAvity** **CONCORD**

# Certification Corner



Excerpted from the March 2010 issue of *Opflow*, published by AWWA. For more information and references, visit [www.awwa.org](http://www.awwa.org).

## WATER

**1. A watercourse that flows continuously at all times of the year is called a(n)**

- a. intermittent stream.
- b. ephemeral stream.
- c. perennial stream.
- d. natural stream.

**2. What's the most common use today for a positive-displacement pump?**

- a. Raw water intake pump
- b. System booster pump
- c. Chemical feed pump
- d. Filter feed pump

**3. In conventional flocculation, the average time to develop heavy floc particles is**

- a. 1 min.
- b. 10 min.
- c. 30 min.
- d. 60 min.

**4. Small and medium-size utilities are considered to have optimal corrosion control if they meet the lead and copper action levels for**

- a. one sampling period.
- b. two consecutive sampling periods.
- c. three consecutive sampling periods.
- d. four consecutive sampling periods.

## WASTEWATER

**1. A shock load of toxic wastes coming into a plant can be treated or controlled with**

- a. coagulants only.
- b. coagulants and lime.
- c. coagulants and coagulant aid.
- d. coagulants or chlorine.

**2. Grit washers are used to**

- a. remove some of the organic matter.
- b. remove large pieces of wood.
- c. remove rags and eggshells.
- d. remove odors.

**3. In general, what's the percentage of suspended solids in the total amount of solids?**

- a. 30 percent
- b. 35 percent
- c. 45 percent
- d. 55 percent

**4. A National Pollution Discharge Elimination System (NPDES) discharge permit does not require**

- a. monthly average of settleable solids.
- b. biochemical oxygen demand (BOD).
- c. most probable number (MPN) of coliform group bacteria.
- d. dissolved solids.


## ANSWERS

Water: 1, c, 2, c, 3, c, 4, b  
Wastewater: 1, d, 2, a, 3, a, 4, d

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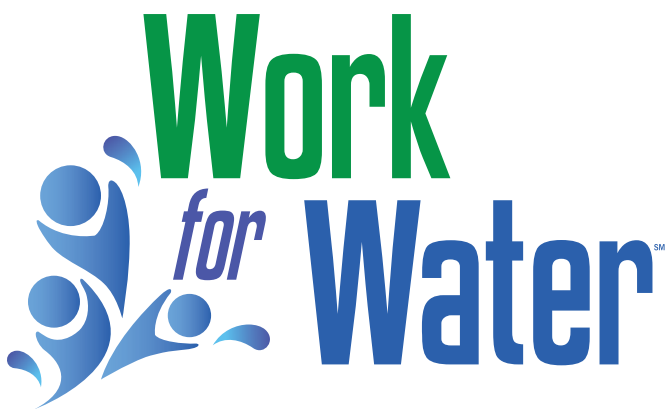
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