

# GO with THE FLOW

THE OFFICIAL PUBLICATION OF THE ATLANTIC CANADA WATER AND WASTEWATER ASSOCIATION

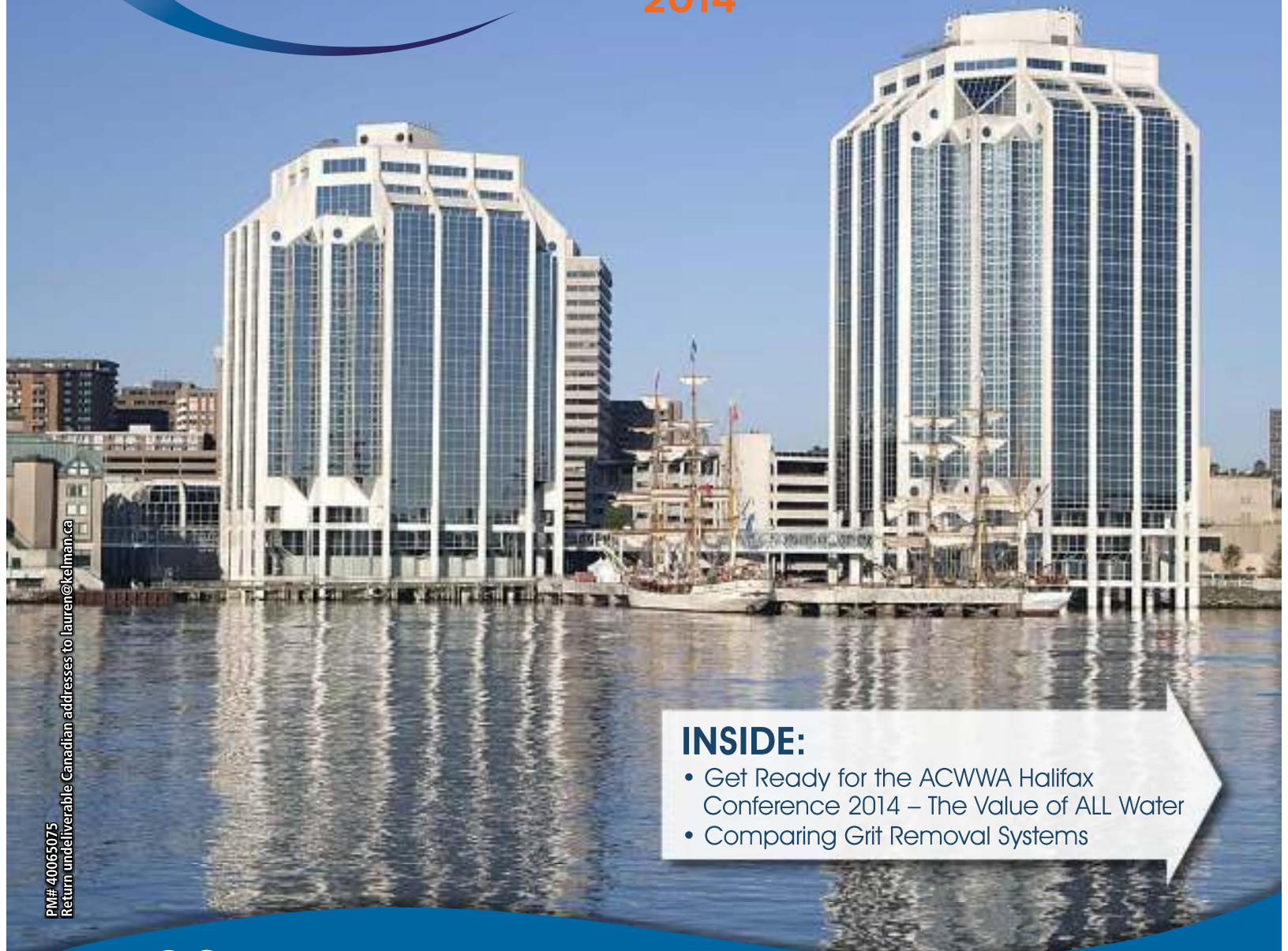


ACWWA

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- Comparing Grit Removal Systems

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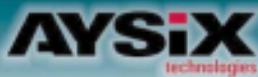
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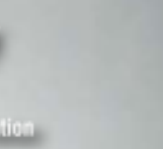
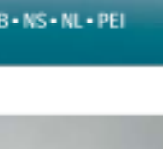
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## Go with the volunteers

Welcome to the Summer 2014 edition of *Go With the Flow*. The formal definition of the word *flow* is a steady, continuous stream or supply of something. As water and wastewater professionals, in our day-to-day work that 'something' would be water. We roll with the punches our watersheds and sewer collection systems may send our way, and work collaboratively to develop and accept changes that need to be made to maintain our treatment and distribution systems performing at optimal conditions. In our association, flow is the steady, continuous stream and supply of our volunteers. ACWWA is built on our volunteers who don't just do the work, they make it work!

Without the *flow* of volunteers into ACWWA, our regional community, our annual conference, our education programs, our resources and network would not exist. Our volunteers are versatile and bring new insights and energy into our programs. They serve in many different capacities within our organization, contributing their

time, energy, and talents to ensure that our association continues to grow and evolve to serve our members best. They generate enthusiasm and interest to help us promote our industry and explain the value that we all bring to the people living in our communities. My own involvement as a volunteer in ACWWA has provided me an opportunity to grow and evolve skills I can use in my workplace: teamwork, communication, problem solving, project planning, task management, and organization. Besides all this, I have met a lot of great people by volunteering with ACWWA! I encourage anyone who is interested in getting more involved with our association to contact our *Volunteers Committee Chair* Doug MacKinnon, or our *Membership Director*, Amy McHarg.

I hope everyone is enjoying the summer. The fall will be here before we know it, and there are a couple of large events you will not want to miss. WEFTEC 2014 is scheduled for September 27 to October 1 in New Orleans, Louisiana, and is a conference that continues to offers

access to a wide variety of key topics in the water environment field. If you do not want to travel that far, the ACWWA Annual Conference is in Halifax, Nova Scotia, this year from October 19 to 22. Rob Gillis and John Eisnor and their conference committee have been working hard to develop a top-notch program, and I hope to see you there! Our Fall Education Program is also in the works, and ACWWA continues to strive to meet the educational needs of our membership. Please contact our *Education Committee Chair* Greg Campbell, or our *Education Director* Shawn Rowe, if you have training needs or ideas that you would like to see us develop and offer through our education programs. We do have capabilities to offer in-house training if the numbers are good.

Visit our website at [www.acwwa.ca](http://www.acwwa.ca) to find out more about our association and how you can contribute. The backbone of ACWWA is our volunteers, but the heart of our association is our *Executive Director*, Clara Shea. Drop her a line or give her a call anytime if you have some ideas for new programs, or would like to become more involved with ACWWA. ☺

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## Thank you for this opportunity

This will be my last time writing this column, as my term as both the Director for Atlantic Canada and as an AWWA Vice President ends at the conclusion of ACE 14 in Boston. It has been a tremendous honour and a privilege to represent our section in this way and I appreciate the support and encouragement provided by many of you. I have had the opportunity to represent AWWA at eight sections meetings and I have learned a lot that could be of benefit to ACWWA. I can also say that both our section and our Executive Director, Clara Shea, are universally well regarded across the AWWA family for their enthusiasm and professionalism. All of this made me very proud to tell people I am from the Atlantic Canada section.

Jamie Hannam will succeed me as director. I wish Jamie all the best and am sure he will represent us well at the association.

Many of you have had the opportunity to meet our Section Services representative at AWWA, Gary Sullivan. Gary will be retiring from AWWA in late June after ACE. Gary has been our Section Services representative for more than 20 years, as well as for all the other Canadian sections and sections in the US northeast and northwest. Gary is universally respected and loved in the AWWA world as a consummate gentleman and strong advocate for the

"I can also say that both our section and our Executive Director, Clara Shea, are universally well regarded across the AWWA family for their enthusiasm and professionalism."


sections he represents. He has also done a great job managing Canadian issues as the staff secretary for the Canadian Affairs Committee. Gary will be greatly missed by everyone he has worked with in Atlantic Canada.

AWWA Executive Director David LaFrance has recently let it be made known that a recent routine medical examination revealed an abnormality that turned out to be colon cancer. Fortunately, it was discovered early and an excellent prognosis has been given. He had successful surgery in late April and is expected to return to work after a convalescence period of a few weeks. Please keep David, his wife Justine, and their two children in your thoughts over the upcoming weeks and months.

I reported to you last summer that the AWWA board had unanimously adopted had a new strategic plan at ACE 13 in Denver last June. With the new strategic plan came the new vision statement "*a better world through better water.*" This statement recognizes the continued improvement in the quality of life in our society, due to improved water

supply and sanitation practices, since AWWA's founding in 1881 – all due to the dedication of people like ACWWA members. It also recognizes that we need to keep working both at home and abroad to improve lives through improved drinking water and sanitation. Another aspect of this plan is that it recognizes AWWA sections as an important business partner. AWWA is intent on working with its sections and AWWA members and, through them, to make sure that utility customers are served at the highest possible level.

AWWA staff wasted no time in putting the strategic plan into action. There are many initiatives underway; too many to list them all here. One common theme among many of them is that AWWA will be working with its 43 sections to scope out projects and ultimately to deliver them. As the membership of the Atlantic Canada section, we will have an opportunity to provide input on many of these things. This is an unprecedented opportunity to shape our association and our section here in Atlantic Canada. I would encourage each of our members to take advantage of the opportunity when it arises, be alert to the opportunities, and provide your support and input to Jamie Hannam and Clara Shea as they work with the Association in Denver.

Thank you once again for the opportunity to serve you. 

"It has been a tremendous honour and a privilege to represent our section in this way and I appreciate the support and encouragement provided by many of you."



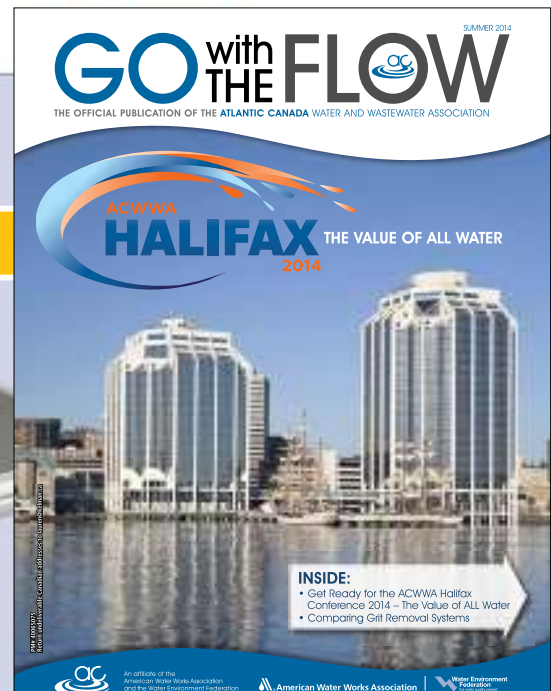
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## Another look at 'The Value of Water'

Hi all WEF members. I just returned from my meeting at WEFMAX in Charleston, SC, and one of the big discussions was 'The Value of Water.' I know it is a very hot topic so I figured it might be good to do a reprint of the Value of Water progress report for 2014. Be sure to check out the website and let me know if you want any information from me.

Another thing I want to bring up is utility memberships. WEF now offers a Utility Membership, which gives your employees access to all the great info offered with a WEF membership but allows the utility the option of carrying one membership to cover groups of employees. Please contact me to get your Utility Membership today.

Here is the progress report.

### PROGRESS REPORT

May 5, 2014

For more than a year, the Value of Water (VoW) Coalition, a group of water-industry businesses and organizations, has been collaborating on a campaign to increase public awareness on the importance of the reliable delivery of clean and safe water and treatment of wastewater, and the need for sufficient investment in infrastructure to ensure these services in the future.

In early 2013, the Value of Water Coalition began its work by creating infographics, slide decks, and videos and then sharing them through social media channels. It also established a website at [www.thevalueofwater.org](http://www.thevalueofwater.org), and initiated a blog and established a regular Twitter presence. The program was officially launched October 1, 2013, and we are pleased to announce

additional progress being made by the Coalition.

Since January 2014, the U.S. Water Alliance has been facilitating the activities of the Coalition with the guidance of Ben Grumbles. At a January 27 meeting, the Coalition agreed to focus its message and campaign on water infrastructure and jobs and build a strategic partnership with an informal

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network of general managers of water and wastewater utilities launching a similar effort. The objective, having shifted when the Coalition sought to align with the Ad Council, was clarified:


*The VoW Coalition seeks to inform and inspire the public about the value of water and its connection to water infrastructure so that they may act in their own best interests to support local leaders for investing in water infrastructure.*

The Coalition members have been working collaboratively to refine and focus the campaign’s messaging and improve its website and other communication channels. This has included the development of a toolkit specifically targeting water/wastewater utility ratepayers and local decision-makers to prepare the campaign for a ‘boots on the ground’ approach.

The campaign’s message going forward will be built around the tagline – **Water Works!** – with messaging focused on the ways in which:

- Water Connects Us
- Water Grows Jobs & Opportunity
- Water Keeps Us Safe & Healthy
- Water Sustains Our Environment

**Additional activity**

- Critical coordination with the network of GMs focused on economy/jobs. This is leading to joint messaging and collaboration on events and media outreach strategies. Some of the leaders of this group are speaking at Coalition events.
- Social media following has grown since the October launch. The Twitter account has 5,519 followers; its reach is 8.6 million impressions from 4,238 mentions. Blogs (30 posts) have received 385 Twitter shares, 55 Facebook likes, 70 LinkedIn shares, and 21 Google+ shares.
- VoW book underway. The concept is to capture essays from leaders in the water industry – water and wastewater utilities and engineering firms, corporations, banking, oil and gas, manufacturing, energy, NGOs, food and beverage, universities, technology companies, and others that have a stake and interest in water and its importance for business.
- TheValueofWater.Org website is under redesign to simplify the site, and focus on key revised messages, blog postings, etc. The current site has had 19,852 page views with 5,852 unique visitors since its launch. 

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## New Building Canada Fund and the challenge for water and wastewater priority funding

The *New Building Canada Fund* (NBCF) was officially launched March 28, 2014, by Denis Lebel, Minister of Infrastructure, Communities and Intergovernmental Affairs.

This new \$53 billion fund is promoted as the key element of the government's Long-Term Infrastructure Plan to support infrastructure projects of national, provincial, and local significance. The plan was launched as the "largest and longest federal infrastructure plan in our nation's history."

The total amount allocated of \$53 billion, over 10 years, includes almost \$22 billion through the Gas Tax Fund and \$14 billion through the renewed *Building Canada Fund*, which will be of particular interest to municipalities.

The *New Building Canada Fund* has three components that total the \$14 billion over 10 years.

- National Infrastructure Component – \$4 billion/10 years
- Provincial/territorial Infrastructure Component – \$9 billion/10 years
- Small Communities Component – \$1 billion/10 years

The water and wastewater projects will most likely fall under the above \$14 billion component for eligibility for funding. The other components of the total fund could include the Community Improvement Fund and the funding allocated for the P3 (Public-Private Partnerships) Canada Fund.

CWWA is pleased with the investment announced by the federal government for

infrastructure funding, however, we had hoped that water and wastewater infrastructure would have been identified as priority projects. On the contrary, the gas tax was opened to wider competition including recreation, culture, and economic development. The non-recognition of water infrastructure as a priority has been echoed in the government's press release statements that stress international trade, bridges, and transit. Water infrastructure is not mentioned.

As water and wastewater professionals, our challenge nationally and locally continues to be before us. Our challenge to access the new funding is that,

*"We must ensure that our municipal leaders identify water and wastewater projects as priorities that are critical to the health and economy of our communities and apply to use the new funds for the critical water and wastewater infrastructure renewal."*

On a broader scale, we need to take this discussion to the general public to create awareness of the value of water and an understanding of water issues. The ultimate challenge is to build support for the critical decisions that need to be made to include water projects as priority.

It is important to note that no specific support has been identified to assist our municipalities with the new and extra costs, which are substantial, to implement the new Wastewater Systems Effluent Regulations (WSER).

CWWA and the regional water and wastewater associations,

"We need to take this discussion to the general public to create awareness of the value of water and an understanding of water issues."

including ACWWA, in collaboration with AWWA and WEF are working to provide support to the water leaders in the municipal sector that can assist in this mission.

CWWA supports asset management programs for all communities and we welcome the opportunity to have critical water and wastewater projects recognized at the local and national levels as top priorities.

For CWWA the following challenges continue:

- Get water and wastewater projects that are critical to the health and economy recognized as local priorities.
- Collaborate with the federal government, PPP Canada, FCM, and other partners in developing and promoting funding models and asset management programs for smaller communities.

Details on how to submit a project for consideration under the New Building Canada Fund are available on Infrastructure Canada's website at [www.infrastructure.gc.ca](http://www.infrastructure.gc.ca).

## Upcoming CWWA events 2014 – Mark your calendars


CWWA is busy preparing for a full year of information and networking opportunities throughout this year.

### 16th Canadian National Conference on Drinking Water

CWWA is currently planning the 16th Canadian Conference on Drinking Water, to be held in the National Capital Region from October 26–29, 2014. Taking place at the Hilton Lac Leamy in Gatineau, Quebec, this is a fantastic venue for meeting, networking, and to enjoy everything the National Capital has to offer.

### Window on Ottawa – 2014

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Should any other information be required on CWWA activities or initiatives, please do not hesitate to contact me directly at [roland.richard@nb.sympatico.ca](mailto:roland.richard@nb.sympatico.ca) or visit the CWWA website at [www.cwwa.ca](http://www.cwwa.ca). 



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# Winner of the **Silent Hero Award**, Floyd Anderson

**Floyd Anderson** is a water treatment plant operator for the Town of Channel – Port aux Basques.



**1. Where do you currently live?** Channel – Port aux Basques, Newfoundland.

**2. Where did you grow up?** In Channel – Port aux Basques.

**3. When I'm not working...** I'm enjoying the outdoors, walking, and cycling.

**4. The accomplishment I'm most proud of is...** Never having to get my pike to get over a hill, no matter how big it is.

**5. If you could go on a road trip with any one person (living or dead), who would it be and where would you go?** I'd go on a fishing trip with my dad.

**6. What is your philosophy on life?** If it costs too much, it probably isn't worth it.

**7. What is the toughest thing about your job?** Getting to work

in the winter, and road drifts. The use of a skidoo gets tiring after a few years.

**8. When you were a kid, what did you want to be when you grew up?** Like any kid who played sports all the time, probably a hockey or baseball player.

**9. Last book you read?** 'Floyd Patterson: The Fighting Life of Boxing's Invisible Champion.' (I'm named after him.)

**10. Last movie you saw?** 'The Perfect Storm.'

**11. What music did you listen to this morning?** Johnny Reid.

**12. What is your favourite TV show?** 'Gold Rush.'

**13. What was the best gift you ever received?** A second-hand car while at college.

**14. What is the most useless thing you ever purchased?** An electric chain saw; I should have gotten gas.

**15. Not many people know that I...** Like the Toronto Maple Leafs.

**16. What is your greatest luxury?** My health, to this point.

**17. What is your favorite famous quote?** "It is what it is."


**18. Describe your perfect day.** Riding my bike with no wind.

**19. What three objects would you rescue from your burning house?** My bike, Family Tree, and car.

**20. What Section would you most like to visit, and why?** The Hoover Dam.

**21. Who is the most influential person in your life?** Probably was my dad.

**22. What is your ideal vehicle?** A 4-wheel drive to get to work.

**23. How long have you been a member of ACWWA?** Probably since 1988. 



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# Relative Performance of GRIT REMOVAL SYSTEMS



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## ABSTRACT

Biological processes continue to evolve toward better effluent quality in a smaller footprint. The fact that these processes are housed in a small footprint means that they have an inherent inability to store grit and debris. This, in conjunction with the trend towards reductions in plant personnel, drives the need for advanced headworks processes that are more effective at removing grit and debris. Screening, for example, has trended toward progressively smaller openings with 6 mm (1/4") screens commonly used. Smaller openings are required for certain biological processes, specifically Membrane Bio-Reactors for which some manufacturers require openings as small as 1 mm (0.040")<sup>1</sup>. This trend towards finer

screening is also reflected in the increasing demand for improved grit removal processes as a part of plant design and upgrades.

Grit is a nuisance material that causes abrasive wear to mechanical equipment increasing maintenance and operational costs while reducing equipment performance and useful life. Grit that is not captured in the headworks accumulates in processes throughout the plant, reducing capacity and detention time, and adversely influencing flow and circulation patterns<sup>2</sup>. Deposited grit must be manually removed, handled, hauled, and disposed. Abrasive wear, process inefficiencies, and basin cleaning operations increase treatment plant operating expenses.

Choosing a grit removal technology has often been based on equipment price with little regard for device efficacy and consequent grit removal efficiency. Owners and engineers are forced to navigate a field of, what can be conflicting, performance claims made by various equipment manufacturers. This situation is perpetuated by the fact that there is no accepted, peer-reviewed test standard for grit sampling and analysis.

The purpose of this paper is to encapsulate various grit removal system performance data generated by a repeatable sampling and analysis methodology for the purpose of comparing virtually all grit removal technologies in terms of their effectiveness.

## INTRODUCTION

Biological processes continue to evolve toward better effluent quality in a smaller footprint. The current trend of housing these processes and systems in smaller and smaller footprints imply an inherent inability to store grit and debris. Treatment plants now operate with reduced numbers of maintenance and operations staff, which in turn is resulting in significant reductions in the available resources and time to tackle and address the negative impacts of grit and debris.

Headworks screening and grit removal are the primary protection for all treatment processes and equipment in a wastewater treatment plant, yet it has been the most neglected part of the plant. To improve solids removal, screen openings on influent screens have trended progressively smaller over the past 10–15 years. Years ago, screen openings were frequently 25 mm (1") and larger. Today, screens are commonly supplied with 6 mm (¼") openings. It is logical that advancing grit removal processes, to effectively

remove incoming grit, are becoming a higher priority in plant designs.

Selecting grit removal technologies can be a challenge due to the lack of comparative performance data available within the wastewater industry. Owners and engineers are forced to navigate a field of, what can be conflicting, performance claims made by various equipment manufacturers. This situation is perpetuated by the fact that there is no accepted, peer-reviewed test standard for grit sampling and analysis.

As there are no standard methods for the comprehensive measurement and analysis of sampled grit, most parties utilize conventional ASTM D-422 to obtain the physical particle size distribution of grit collected by various means. Standard Method 2540 for solids testing is used for determining Total, Fixed, and Volatile Solids. A method that engineers and owners have found effective, it splits the sample with half being tested via ASTM D-422 and the other half being wet sieved and characterized based on settling velocity<sup>3</sup>. In addition to physical size distribution, settling velocity

is often the most important and useful criterion in grit system design.

Settling velocity is central to grit system design as technologies used to collect influent grit are predominantly sedimentation processes<sup>2</sup>. Sedimentation basins and aerated grit basins (AGB) are recognized as gravity processes. Vortex processes using a forced vortex type flow regime also rely predominantly on gravity for separation. When the force balance on a particle is evaluated within a forced vortex type flow regime in a basin, gravity is shown to be the predominant force, well in excess of the centrifugal forces generated by slow rotational velocity.

While settling velocity is an important criterion in grit system design, the removal efficiency data presented in this paper is based on particle size distribution alone and does not consider settling velocity. Settling velocity is discussed elsewhere<sup>4</sup>. As most performance guarantees are based on 2.65 specific gravity (SG) it is worth noting that observed performance can vary widely from performance claims. While some of the variance is certainly attributed to the SG of grit being less than 2.65 and other factors<sup>4</sup>, wide variations from performance claims are likely influenced by other factors such as short circuiting and/or inaccurate sizing.

## METHODOLOGY

Effective test methodology must provide accurate, consistent, repeatable and reproducible results. One of several grit sampling methods used by owners and engineers is the vertical slot sampler (VSS). The VSS is designed to draw off a known vertical slice of the influent water column to provide an accurate sample of incoming solids. Although not detailed in ASTM manuals or standard methods, sampling using the VSS has been found to produce results that are repeatable, effective, and allow efficiency comparisons at different treatment plants<sup>5</sup>. Further, results determined with the VSS

**Table #1 Removal Efficiency of MIV**

	% Removal Efficiency				
	#50 Mesh (>297 microns)	#70 Mesh (<297 microns >211 microns)	#100 Mesh (<211 microns >150 microns)	Total % Removal 150 µm and up	Total % Removal 106 µm and up
Thu. May 17, 2007	72.6	19.1	7.0	48.1	45.8
Fri. May 18, 2007	77.8	28.9	14.7	52.1	50.9

**Table #2 Removal Efficiency of MIV**

	% Removal Efficiency				
	#50 Mesh (>297 microns)	#70 Mesh (<297 microns >211 microns)	#100 Mesh (<211 microns >150 microns)	Total % Removal 150 µm and up	Total % Removal 106 µm and up
Sun. May 20, 2007	57.7	29.8	22.7	45.3	44.3
Mon. May 21, 2007	60.5	26.8	23.2	45.1	43.7
Tue. May 22, 2007	59.3	33.2	27.9	43.3	43.3



corroborate with the operating history and performance at those plants with respect to grit removal, suggesting the accuracy of the test method<sup>6</sup>. This same test methodology can be used for comparison of grit removal efficiency of various technologies.

The VSS methodology used in the referenced studies provides a repeatable sampling and analysis methodology that allows for the relative comparison of removal efficiency for different devices. The test methodology typically includes a margin of error of +/- 5% and is described elsewhere<sup>3,5</sup>. Data collected and presented herein has been made available in various industry publications and reports as cited.

Hampton Roads Sanitation District (HRSD) performed comprehensive testing at five of their wastewater treatment plants in 2007 and 2008 using the VSS sampling method. The equipment tested included three different mechanically induced vortex systems (MIV), a detritor system, and an aerated grit system (AGB)<sup>5</sup>. During the same period, HRSD conducted a side-by-side pilot test comparing the stacked tray Eutek HeadCell® unit and the structured flow Grit King® unit. Both systems were tested for removal efficiency using the VSS sampling method<sup>7</sup>.

Data collected on the HRSD AGB has been excluded from this paper. During the above referenced testing, which was performed on dry weather flows, it was determined that the grit was settling in the force main as there was not sufficient energy in the collection system to transport grit to the plant. At peak diurnal flows the velocity in the force main was 0.5 m/s (1.7 fps), when 0.9 – 1.5 m/s (3.5-5.0 fps) is needed to re-suspend settled solids and grit<sup>6</sup>. Therefore, data from testing on the AGB was inconclusive. However, the same collection and analysis methodology was used in Columbus, GA on an AGB; that data is included in this paper.

This paper provides removal efficiency, using identical and consistent sampling and analysis methodology, of virtually every type

of grit removal technology, thus allowing comparison of removal efficiency of these technologies. The processes represented include AGB, vortex grit removal systems, and detritus tanks. The vortex units include mechanically induced vortex (MIV) units, stacked tray units, and structured flow vortex units.

## RESULTS

### *Mechanically Induced Vortex (MIV) Units*

#### **HRSD Chesapeake-Elizabeth Treatment Plant:**

The Chesapeake Elizabeth Treatment Plant (CETP) is a 91 ML/d (24 MGD) capacity plant operating with an average flow of approximately 72 ML/d (19 MGD). Grit removal equipment consists of two 7.3 m (24') diameter MIV units; one unit was in operation during the study. Design removal parameter for each unit is 95% removal of 150 µm particles, 2.65 SG, at 114 ML/d (30 MGD), and 95% removal of 270 µm particles, 2.65 SG, at 265 ML/d (70 MGD). Average flow during testing was 71.1 ML/d (18.79 MGD), which is well below the rated capacity of the grit unit. The observed removal efficiency was 48–52% of all grit 150 µm and larger and 45-50% of all grit 106 micron and larger. Removal efficiency of particles > 297 microns, a slightly larger particle than the performance claim, was 72–78% or roughly 20% less than the claimed removal.

#### **HRSD Virginia Initiative Plant:**

The Virginia Initiative Plant (VIP) is a 151 ML/d (40 MGD) capacity plant with an average flow of approximately 110 ML/d (29 MGD). The plant employs three 6.1 m (20 ft.) diameter MIV units; one unit was in operation during the study. The vortex manufacturer states that each unit will remove 65% of 150 µm grit, 2.0 SG, at 101 ML/d (26.7 MGD). Average flow during three days of testing was 99.2 ML/d (26.23 MGD), very near the rated capacity of the grit units. The observed removal efficiency was 43–45% of all grit 150 µm and larger, 20% below the claimed efficiency, and 43–44% of all grit 106 micron and larger.

### **Detritus Tank**

#### **HRSD James River**

##### **Treatment Plant History:**

The testing at HRSD included testing at the James River Treatment Plant (JRTP), which operates detritus tanks for grit removal. The JRTP is a 76 ML/d (20 MGD) capacity plant with an average flow of approximately 49 ML/d (13 MGD). The JRTP employs four detritors. Each detritor is 8.5m (28') diameter with a design capacity of 24.6 ML/d (6.5 MGD). Each unit is designed to remove grit particles 150 µm and larger, with 2.65 SG. Average flow to the plant during three days of testing was 48.75 ML/d (12.88 MGD) with one of the detritor units out of service; therefore each unit was processing approximately 16.27 ML/d (4.3 MGD) or roughly 33% below their rated capacity. The observed removal efficiency was 66–73% of all grit 150 µm and larger and 57–68% of all grit 106 micron and larger.

### **Aerated Grit Basin**

#### **Columbus GA South Water Reclamation Facility:**

The City of Columbus, GA South Water Reclamation Facility (SWRC) operates four AGB units that receive a combined average daily flow of approximately 106 ML/d (28.0 MGD). A rain event occurred on January 28, 2008, resulting in an increase in the flow to 143.84 ML/d (38 MGD) with a maximum hourly flow of 185.5 ML/d (49 MGD). As can be seen from the results, when the flow to the grit chamber increased the removal efficiency decreased, as would be expected.

The plant has two AGB that are 5.18m x 11.89m (17' x 39') and two basins 3.96m x 10.97m (13' x 36'). While no design removal efficiency data exists, total surface area available for grit settling is 210 m<sup>2</sup> (2,262 ft<sup>2</sup>). Based on the average flow of 106 ML/d (28.0 MGD), the AGB system has a surface loading rate (SLR) of 0.35 m<sup>3</sup>/min./m<sup>2</sup> (8.6 gpm/ft<sup>2</sup>) and would be expected to remove a significant percentage of fine particles, 106 micron and below. The plant notices a decrease in

**Table #3 Removal Efficiency of Detritus Tank**

J RTP	% Removal Efficiency				
	#50 Mesh (>297 microns)	#70 Mesh (<297 microns >211 microns)	#100 Mesh (<211 microns >150 microns)	Total % Removal 150 µm and up	Total % Removal 106 µm and up
Sun. Jun 17, 2007	81.8	72.6	41.7	66.2	57.3
Mon. Jun 18, 2007	76.9	77.2	66.6	73.2	67.7
Tue. Jun 19, 2007	82.6	74.7	55.3	71.2	64.2

**Table #4 Removal Efficiency of Aerated Grit Basin**

Columbus	% Removal Efficiency				
	#50 Mesh (>297 microns)	#70 Mesh (<297 microns >211 microns)	#100 Mesh (<211 microns >150 microns)	Total % Removal 150 µm and up	Total % Removal 106 µm and up
Jan 27, 2008	81.8	49.8	42.2	70.5	67.2
Jan 28, 2008	53.0	13.5	21.7	35.6	32.5
Jan 29, 2009	66.3	60.0	44.4	58.7	53.1

removal efficiency at flows in excess of 132.5 ML/d (35 MGD). Once the flow reaches 132.5 ML/d (35 MGD) the SLR increases to 0.435 m<sup>3</sup>/min./m<sup>2</sup> (10.7 gpm/ft<sup>2</sup>). Based on SLR alone the basin would still be expected to retain a percentage of fine particles at 132.5 ML/d (35 MGD) with particle size retained increasing, and overall capture efficiency decreasing, as flow continues to rise.

The observed removal efficiency was 35–70% of all grit 150 µm and larger and 32–67% of all grit 106 micron and larger when the wet weather data is included. Removal efficiency improves to 58–70% of all grit 150 µm and larger and 53–67% of all grit 106 micron and larger during average flow of 106 ML/d (28.0 MGD). While excluding the performance during the wet weather event indicates improved performance, removal efficiency is well below what would be expected based solely on SLR.

#### Stacked Tray System

While considering a new grit system for their Army Base Treatment Plant (ABTP), HRSD tested two grit removal technologies side-by-side in December of 2007. The stacked tray Eutek HeadCell® unit was tested side-by-side a Grit King® structured flow unit using the same sampling and testing methodology. During the pilot test the stacked tray HeadCell unit was fed at 38.6–38.8 m<sup>3</sup>/hr (170–171 gpm). At that flow rate the stacked tray unit was designed to remove 95% of all grit 75 micron and larger, with 2.65 SG; however, performance was not tested for 75 micron particles. The observed removal efficiency was 92–93% of all grit 150 µm and larger and 89–90% of all grit 106 micron and larger.

#### Structured Flow System

During the side-by-side testing, the 1.2 m (4') diameter structured flow Grit King pilot unit was fed at a rate of 38.8 m<sup>3</sup>/hr (170 gpm) on December

17 and 25.4 m<sup>3</sup>/hr (112 gpm) on December 19. Design removal parameter at the higher flow is 95% of all grit 106 micron and larger, 2.65 SG. At the lower flow of 25.4 m<sup>3</sup>/hr (112 gpm), the removal would be expected to be 95% of all grit 75 micron and larger, 2.65 SG; however, removal efficiency for 75 micron particles was not reported. As would be expected, the removal efficiency improves at the lower flow rate as loading rate to the unit is reduced. The observed removal efficiency was 90–95% of all grit 150 µm and larger and 87–93% of all grit 106 micron and larger.

## DISCUSSION

As can be seen from the above data, testing results for the mechanically induced vortex technology were considerably below the manufacturers' claimed removal efficiency even when running the unit well below design flows. The testing results indicate this technology had its highest observed removal efficiencies for large grit particles, approximately 60%+ removal of particles larger than 297 micron, and very low performance removing smaller particles, with less than 30% removal of particles 210 micron and smaller.

At CETP the MIV was designed to remove 95% of grit 150 micron and larger, with 2.65 SG at a flow of 114 ML/d (30 MGD). When operating at 63% of the design flow (71.1 ML/d (18.79 MGD), the observed removal efficiency of grit particles 150 microns and larger was 48–52%, which is more than 40% less than the stated claim. The 7.3 m (24') diameter MIV unit has a surface area of 41.83 m<sup>2</sup> (452 ft<sup>2</sup>), which results in an estimated SLR of 1.18 m<sup>3</sup>/min./m<sup>2</sup> (28.97 gpm/ft<sup>2</sup>) at 71.1 ML/d (18.79 MGD). Based on the SLR the MIV technology would, in theory, be expected to retain a large percentage of particles approximately 165 micron and larger. The observed removal efficiency for much larger particles, 297 microns and larger, was only 72–78%. The low removal efficiency suggests the importance of considering the likely effects of grit settling velocity and other criteria.

Based on operational data from

VIP, it was found that placing more vortex units into service improved grit removal. During 2007, the plant averaged 99 ML/d (26.2 MGD) and used one vortex unit 83% of the year. For 2008, two vortex units were in service for 75% of the year and grit production increased 50% over 2007 performance. HRSD determined that operating a vortex close to the maximum-rated hydraulic efficiency may not be advisable for some treatment plants. Further, they concluded that with this technology, placing additional grit removal units in service during high hydraulic events can minimize the impacts of grit slug loads on downstream unit processes.

While test data indicates the detritus tank achieves higher removal efficiency than the MIV technology, the detritus tank also fell short of design removal efficiency while operating at 66% of design flow. Test data shows relatively high removal efficiencies of large grit particles, 77%+ removal of particles larger than 297 micron and, as would be expected, reduced capability of removing smaller particles, 64%+

removal of particles 210 micron and smaller. Although an older style technology, sampling, and analysis for the detritus tank displayed some of the higher removal efficiencies of the technologies tested. Removal efficiency would be expected to decline at peak design flow.

The AGB results were comparable to those for the detritus tank during the plant average flow; 58–67% of all grit 106 microns and larger was removed. During wet weather when the system received the design flow rate, removal efficiency was reduced to 32.5%. Even considering the small increase in flow during the rain event, which was in the region of 135–175% of average, the quantity of grit increased substantially from 3.36 g/m<sup>3</sup> (28.1 lbs./MG) to 8.89 g/m<sup>3</sup> (74.2 lbs./MG). The fraction of grit smaller than 297 microns also increased significantly. The increased grit quantity and elevated fraction of small grit resulted in the observed poor removal efficiencies. A reduction in removal efficiency at higher flows is expected; however, during the elevated flow, influent grit

concentration also increased by a factor of more than 2.5 times the prior day dry weather influent levels. A removal efficiency of 32–35% of the heavier grit load will obviously not be adequate to protect the plant from deposition and abrasive wear.

The stacked tray system and structured flow unit test results exhibited very high removal rates. While the performance results for these two technologies were performed as a pilot study they are consistent with full scale performance tests, using the identical test method, at other facilities<sup>8,9</sup>. Measured removal efficiency for both technologies was slightly below manufacturers' claimed removal efficiencies, within +/- 8%. This small deviation is very near the margin of error in testing. Comparatively, these two technologies provide very high removal efficiencies of large grit particles, 93%+ removal of particles larger than 300 micron. The observed removal efficiency of particles 150–210 micron was only slightly less and ranged from 78–90%+. Both of these technologies displayed the highest removal efficiency of the technologies tested; in all cases >87.5% of all influent grit 106 micron and larger was captured.

## CONCLUSIONS

Grit sampling using the VSS method produces results that are repeatable, accurate, and effective. The results corroborate with grit system performance and plant operating history therefore this data provides insight into what most operators experience. Using this common testing method allows comparison of performance of various grit removal technologies and can assist in improving grit system design and justifying advanced processes.

Based on the reported and referenced testing, the technologies that displayed the lowest removal efficiencies were the AGB and the MIV technology. The observed removal efficiency for both technologies was well below claimed removal at peak flows. The AGB displayed a relative removal of only 32% of all grit 106

**Table #5 Removal Efficiency of Stacked Tray System**

Stacked Tray	% Removal Efficiency				
	#50 Mesh (>297 microns)	#70 Mesh (<297 microns >211 microns)	#100 Mesh (<211 microns >150 microns)	Total % Removal 150 µm and up	Total % Removal 106 µm and up
Dec 17, 2007	95.8	90.4	81.5	91.9	88.8
Dec 19, 2007	95.7	93.0	85.6	92.5	89.3

**Table #6 Removal Efficiency of Structured Flow Vortex Unit**

Structured Flow	% Removal Efficiency				
	#50 Mesh (>297 microns)	#70 Mesh (<297 microns >211 microns)	#100 Mesh (<211 microns >150 microns)	Total % Removal 150 µm and up	Total % Removal 106 µm and up
Dec 17, 2007	93.6	89.4	78.7	90.3	87.5
Dec 19, 2007 – 112 gpm	97.4	94.3	89.0	95.0	92.7

micron and larger when operated at peak design flow. Results for the AGB improve to 53–67% when influent flow to the unit is reduced to 66% of design.

The MIV technology removed 43–51% of incoming grit 106 micron and larger when operated at 27–90% of design flows. As is true of all SLR-based technologies, the MIV technology shows higher removal efficiencies at lower flows. When operating near design flow rate, removal efficiency was in the 43–45% range for all grit 106 micron and

larger. As flows decrease, to 63% of average flow and 12% of peak flow, the efficiency increases, but only marginally, to 45–50% removal of grit 106 micron and larger.

The detritus tank displayed a higher removal rate, removing 57–69% of all grit 106 micron and larger when operating at average flows, in the region of 66% of peak design flow. The AGB displayed similar results when operated at 66% of peak flow. When flows increased to peak, the AGB removal efficiency

dropped to 32% and the detritus tanks would be expected to have similar results as flows increase.

The structured flow vortex and stacked tray vortex units had very high removal rates, none lower than 87.5% of incoming grit 106 micron and larger. These results are significantly (20% to 55%) higher than any of the other technologies tested. Over the life of the facility, the difference in captured grit is substantial. Also of note is the fact that high removal results were achieved with the equipment running at peak design flow. None of the technologies tested met their performance claim exactly, although the technologies that targeted the finest particles displayed the best results and came closest to achieving their performance claim. Systems designed for high removal efficiency of small particles, 106 micron and finer, should remove 85% or more of grit entering the plant.

The observed decrease in performance with increased flows provides strong evidence that the tested technologies are strongly influenced by loading rate and gravity to capture and retain grit. A better understanding of in situ grit settling velocity will allow for more efficient design which would afford the plant increased protection from abrasive wear and deposition.

Wet weather is an important consideration in grit system design. The impact of wet weather flows was documented during testing of the ABG in Columbus, GA. Considering the small increase in flow during the rain event, 135–160% of average, the quantity of grit increased much more dramatically, to more than 2.5 times the volume entering the plant during the prior day average flow. One would expect the greatest increase would be of coarse grit particles but the overall gradation was finer. Grit quantities increased across all size ranges but the grit fraction larger than 297 micron decreased, from 61.7% to 39.0%, while particles in the 105–210 micron range increased from 20.6% to 39.7% of the total. Overall, a 60% increase in flow resulted in a 48% decrease in performance.

**Table #7 Relative Performance of Grit Removal Devices**

Technology	% of Design Flow	Design Removal Efficiency at 100% Flow	Observed Total % Removal 150 µm and up	Observed Total % Removal 106 µm and up
MIV	27-90	95% removal of 270 µm, 2.65 SG 65% removal of 150 µm, 2.0 SG	43-52	43-50
Detritus Tank	66	150 µm and larger, 2.65 SG	66-71	57-68
AGB	66-100	Unknown	35-70	32-67
Stacked Tray	100	95% removal of 75 µm, 2.65 SG	91-92.5	89-90
Structured Flow Vortex	66-100	95% removal of 106 µm, 2.65 SG	90-95	87-93



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Significant increase in grit volumes during wet weather events is a common phenomenon<sup>10</sup> and indicates the need to design the grit system for effective removal at peak hydraulic loadings. The AGB and MIV performed poorly at peak design flow and based on the data the detritus tank would be expected to perform similarly to the AGB. Observed removal efficiencies were less than what would be expected based on SLR alone, indicating process inefficiencies or grit settling velocity implications.

Designing the grit removal system for high removal efficiency at peak hydraulic loading will protect the plant from the negative impacts of grit. Advanced, compact, high-efficiency grit removal processes are therefore the more appropriate proven choice to protect plants from deposition, abrasive wear, and associated costs from this nuisance material. 🌊

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# Welcome to the 2014 ACWWA Annual Conference

On behalf of the Conference Organizing Committee, we are excited to extend an invitation to you to attend the 67th Annual Conference of the Atlantic Canada Water and Wastewater Association in Halifax, Nova Scotia from October 19 to 22, 2014. As in previous years, the Conference will be held at the Marriott Harbourfront Hotel, which has recently been renovated.

The theme of this year's conference is The Value of ALL Water. The conference committee has put together a great conference program that ties into this theme. We have also invited Dr. Robert (Bob) Fournier, a well-known interpreter of science to the public, for our keynote address.

One of the big changes attendees will notice this year is the addition of Wednesday morning technical sessions, which means a bigger and better technical program consisting of 46 top-notch papers along with several practical demonstrations and the Awards Breakfast.

Following on the success of Fredericton 2013, Monday night will be Dine on Your Own. This will be a great opportunity to connect with fellow delegates in a non-formal setting as well as to experience the fine dining that Halifax has to offer. Then finish off the evening at the ABEA Hospitality event hosted at Murphy's On The Water. Enjoy a Harbour cruise followed by entertainment back at the facility on shore.

Once again, the ABEA Trade Show will be a great event to see the latest products and speak with suppliers. Make sure you get there early to see the 'Best of the Best' Tap Water Taste Test competition. Finish off the day with the Down East Feast and entertainment from The Mellotones, who are sure to get you out on the dance floor.

Come early or stay late so that you take the time to get out and enjoy downtown Halifax. There is always something fun and exciting happening in the harbor city. We can't wait to see you in Halifax this fall.

John Eisnor and Rob Gillis, 2014 Conference Co-Chairs.

## Conference schedule highlights

### Sunday, October 19

- 10:00 AM – ACWWA Golf Tournament at Lost Creek Golf Club
- 1:00 PM – Technical Tours Eastern Passage Wastewater Treatment Facility N-Viro Biosolids Facility
- 5:30 PM – Young Professionals Mixer
- 7:30 PM – Meet and Greet Reception

### Monday, October 20

- 7:00 AM – Water for People Fun Run/Walk
- 8:30 AM – Conference Opening
- Fuller/Bedell/MacNab Awards Ceremony
- Keynote Speaker – Dr. Robert (Bob) Fournier, PhD
- 12:00 PM – Annual General Meeting Luncheon
- 3:30 PM – Top Ops Competitions (Water & Wastewater)
- 5:00 PM – Dine on Your Own – Enjoy the restaurants of Halifax
- 8:00 PM – ABEA Hospitality Night (Murphy's on the Water – Harbour Cruise)

### Tuesday, October 21

- 8:00 AM – 'Best of the Best' Tap Water Taste Test Event
- 9:00 AM – ABEA Tradeshow
- 6:30 PM – Down East Feast and Entertainment

### Wednesday, October 22

- 7:30 AM – ACWWA Awards Breakfast

## Conference hotel information

The conference will be held at the **Halifax Marriott Harbourfront Hotel** located at 1919 Upper Water Street in Halifax, NS.

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A special conference room rate of \$199 + taxes per night is in place beginning October 15, 2014 and ending October 25, 2014.

Please reserve your room by September 17, 2014 to receive this rate.

Reserve your room today by calling 1-800-943-6760, or follow the web link on the ACWWA webpage ([www.acwwa.ca](http://www.acwwa.ca)).



Register online at [www.acwwa.ca](http://www.acwwa.ca)





## Spring/summer membership updates

Here is snapshot of what our membership looks like.

Membership totals as of May 7, 2014	
AWWA (Active Members)	487
WEF (Active Members)	123

Welcome to our new ACWWA and WEF members, as of May 7, 2014:

Name	Company	Membership
Larry Feener	Public Service Commission of Bridgewater	ACWWA
Francis Frenette	Roy Consultants	ACWWA
Scott Robinson	CBCL Limited	ACWWA
Todd Labrech	Exp Services INC	ACWWA
Lynette Manuel	Student	ACWWA and WEF
Kimberly Robertson	Marine Institute of Memorial University	ACWWA
Marc-Etienne Rodrigue		ACWWA
Jeremy Stewart		ACWWA
David Macmillan	Hatch Mott MacDonald	ACWWA
Gerald Mattsson	City of Saint John	ACWWA
Steven Murphy	AECOM	ACWWA
Sanjeev Tagra	Student	ACWWA
Lindsay Wilcott	CBCL Ltd	ACWWA

Name	Company	Membership
Ryan Smith	Village of Dorchester	ACWWA
Holly Sampson		ACWWA
Richard Annable	Town of Mahone Bay Water Utilities	ACWWA
Kevin Fearn	Gagetown Municipal Water District	ACWWA
Barry Baker	Trihedral Engineering Limited	ACWWA
Sean MacIsaac	Dalhousie University	ACWWA
Andrew Albert	Village of Plaster Rock	ACWWA
Jennifer Dingman Leger		ACWWA
Chauncey Hayes		ACWWA
Daniel Martin		ACWWA
Paul Richard	Town of Riverview	ACWWA
Janeen McGuigan	Government of PEI	WEF
Tim Nickerson	PotashCorp – NB Division	WEF
Marg Walsh	Dalhousie University	WEF
Ben Pitman	Town of Amherst	WEF
Amy McHarg	CBCL Limited	WEF
Kenneth Macdonald	Halifax Water	WEF
Eric Bell	EXP	WEF
Jeremy Stewart	Halifax Water	WEF

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# Introducing Lindsay Wilcott, ACWWA Magazine Chair



Convocation, May 2014

Lindsay Wilcott is an Environmental EIT with CBCL Limited in Saint John, NB. She is the new ACWWA Magazine Chair for *Go With the Flow*. Lindsay started working at CBCL in January of this year and joined ACWWA as a member at the same time, following her graduation from Dalhousie University. She looks forward to gaining more specialized experience in her role and is on her way to becoming a Professional Engineer.

This will be Lindsay's first year attending the association's annual conference in the fall, in Halifax. She looks forward to meeting everyone with whom she has communicated as a new ACWWA member and the new Magazine Chair. We asked Lindsay a few questions to get to know her better.

#### **Why did you volunteer as the new magazine chair?**

When a committee position became available, my mentor Amy McHarg suggested I volunteer. As the former Magazine Chair, she offered to help me out along the way, which made the transition much easier.

I was also keen on getting involved with ACWWA after learning about the Lloyd Douglas Scholarship during my

undergraduate studies. I thought it was great to see an association give so much support to young professionals and students in Atlantic Canada.

#### **Why did you choose engineering as your career?**

I applied out of high school because it seemed like a challenging and rewarding field; luckily I was right! I didn't know at the time I would end up with an Environmental major, but I am so happy to be where I am. I love what I do and all the like-minded people I've been introduced to along the way.

#### **Where did you grow up?**

I grew up in Cole Harbour, just outside of Halifax, aside from the few years I spent in Corpus Christi, TX as a child. Those were two very different experiences. I feel very lucky to have had the opportunity to travel, but I think I will always end up in the Maritimes. Although, I hope to visit Texas again soon!

#### **What do you like most about living in Saint John?**

I am new to Saint John this year, so I have limited experience, but the thing that stands out most about the city is the access to the outdoors. I like working

“I thought it was great to see an association give so much support to young professionals and students in Atlantic Canada.”

uptown during the day and going hiking at night; it's the best of both worlds here! The food uptown is also delicious; I'm definitely a foodie at heart.

**What do you like about your role with CBCL?**

The diversity of the projects I'm involved with and the people I work with. The morale in our office is exceptional. I understand how rare it is to end up in a job where the whole office is so energetic and involved in the community.

**What is challenging about your role?**

Becoming familiar with the water system in a place I had never lived before and rarely visited has sometimes been difficult. I'm just starting to recognize landmarks now. Before relocating, I took for granted the advantage of growing up in a city and knowing the area so intimately.

**What is one noteworthy thing that many people don't know about you?**

I have been known to extreme coupon from time to time. I learned how to find discounts and use coupons when I was a broke university student. I guess some of those behaviors have stuck. It's something my close friends and family like to laugh at. ☺

If you would like to submit an article or have a suggestion for an upcoming issue of this magazine, please contact Lindsay by email at [lwilcott@cbcl.ca](mailto:lwilcott@cbcl.ca).

“I understand how rare it is to end up in a job where the whole office is so energetic and involved in the community.”

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## 2013 recipient of the Young Professional of the Year Award: Barb Crawford, P.Eng.

1. **What is your job title?** I'm a Municipal Engineer.
2. **Who do you work for?** Dillon Consulting Limited in Saint John, NB.
3. **Where do you currently live?** I live on Barbara Crescent on the east side of Saint John. Yes, it's also my name. Yes, it was coincidental.

4. **Where did you grow up?** I grew up on the east side of Saint John, but closer to French Village.
5. **What is the toughest thing about your job?** Remembering where I left my scale.

**Finish these sentences:**

6. **"When I'm not working, I'm..."** At CrossFit, tutoring math or physics, sitting at a board meeting (I sit on the City of Saint John Community Arts Board and the board of Third Space Gallery), blogging (I have a blog at [www.barbbarbbarb.com](http://www.barbbarbbarb.com)), or watching Netflix.
7. **"A recent accomplishment I'm most proud of is..."** Being able to do six strict push-ups in a row... that was pretty huge.
8. **"When I was a kid, I wanted to be \_\_\_\_\_ when I grew up."** An engineer.

**What is...**

9. **the last book you read?** Mindy Kaling's 'Is Everyone Hanging Out Without Me?'
10. **your favourite movie?** 'Sister Act 2' or 'Zoolander.' I'm a sucker for the 'classics.'
11. **your favourite TV show?** Tough question! Probably 'Parks and Recreation' or 'Suits.'
12. **the best gift you have ever received?** I received a Jack Bishop painting from my friend Judith.
13. **your guilty pleasure?** Frozen yogurt.
14. **the song or story you remember from the radio this morning?** CBC Radio was on. It was a mix of Rob Ford news and potential whale explosions.
15. **If you could go on a road trip with any one person, living or dead, who would it be and where would you go (and what would be in the CD player)?** I'd go on tour with the Tragically Hip. I would image they listen to really cool music so I'd let them pick the album.

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## CWWA Utility Excellence Awards Now accepting applications for the 2014 Awards

CWWA is happy to announce the 2014 Utility Excellence Awards. These awards highlight the remarkable work our members are accomplishing in their communities. Water and wastewater utilities perform a vital service, protecting both human health and the environment, and these awards offer peer recognition of these efforts.

We are offering awards in two areas: Community Outreach, and Risk Taking – Implementation of Innovative Technologies.

This year we are expanding the awards to include our private sector members who have worked specifically on community outreach or innovation projects with utility partners. The awards are open to all CWWA utility and private sector members who completed an eligible project.

For more information about how to apply, go to [www.cwwa.ca/recognition\\_e.asp](http://www.cwwa.ca/recognition_e.asp).



## 2014 INTERNATIONAL CONFERENCE ON MARINE AND FRESH WATER ENVIRONMENTS

### ‘Our Water, Our Future’

The 2014 International Conference on Marine and Fresh Water Environments will be held in St. John’s, NL, August 6–8, 2014. For more information, go to [www.acwwa.ca/relatedconferences.html](http://www.acwwa.ca/relatedconferences.html).



Downtown St. John's, Newfoundland



## water for people

As we saw at the 2013 annual conference, donations from corporate sponsors, individual donors, associations, and generous utilities have gone a long way to making Atlantic Canada stand out as a tremendous donor among AWWA sections. Water For People and the ACWWA hope that the water community in Atlantic Canada can continue to provide support at the 2014 conference. Don't forget to sign up for the 2014 Fun Run when registering for the conference.

Since the 2013 conference, the Atlantic Canada Committee of Water For People has hosted the annual Well Tapped event on Friday, March 21, 2014. More than 75 water professionals and staff gathered to celebrate World Water Day. Halifax Water (donated \$500) and CBCL (donated \$500) sponsored the event.

We are hosting a charity softball tournament this June. Consultants, water professionals, students, and their families form teams and play ball on Saturday, June 21. Whether you register as a team or an individual, the day calls for a great deal of fun. It is a good opportunity to come out and play and mingle with members of our water community.

For more information about Water For People's efforts, please visit our website. The website features stories from the field (<http://www.waterforpeople.org/stories/>) and up-to-date news on Water For People's programming (<http://www.waterforpeople.org/news/>). In addition, the new Re-Imagine Reporting Platform is a great place to see the growth in all programs. To see where donated funds are contributed and the progress of each program, visit <http://reporting.waterforpeople.org/>.

Any questions about Atlantic Canada's involvement with Water For People can be directed to Matt Follett at [Matthew.Follett@snclavalin.com](mailto:Matthew.Follett@snclavalin.com). 

### Operator's Corner By Trent Brewer

1. What type of consumption meter measures for relatively low-flow rates?
2. What is the least expensive and best method of protecting against backflow?
3. What type of disinfection works by disrupting the metabolic activities of the organisms?
4. What term describes the capability of water or chemical solution to resist a change in pH?
5. In the *Guidelines for Canadian Drinking Water Quality*, what do the letters M.A.C. stand for?

- Answers**
1. Positive-displacement meter
  2. An air gap
  3. Ultraviolet light
  4. Buffering capacity
  5. Maximum Acceptable Concentration



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## Health Canada document out for public comment on the Guidance for Issuing and Rescinding Boil Water Advisories



By Roland P. Richard, P.Eng., FEC, ACWWA/Government Relations Director

The Canadian Water and Wastewater Association (CWWA) continues to represent the common interest of Canada's municipal water and wastewater systems to federal and interprovincial bodies with respect to policies, programs, national codes, standards, and legislation.


Health Canada has posted a new proposed document "Guidelines for Issuing and Rescinding Boil Water Advisories" for public comment. In view of the national scope and advantage that this Health Canada proposed new document may have on all potable water providers in Canada, including Atlantic Canada municipalities, I thought it appropriate to provide a reminder of the Health Canada request to our ACWWA members of this request for comments.

Perhaps viewing the information in this current issue of *Go With the Flow* is the first time you are informed of the request.

The document summarizes the factors that should be considered before boil water advisories are issued

or rescinded and provides an overview of currently available trends related to the reasons for issuing boil water advisories and the characteristics of the drinking water systems affected. It provides specific guidance for those affected by a boil water advisory, including how to properly boil or disinfect water. It also provides guidance for responsible authorities, through the inclusion of decision trees, for routine microbiological testing of municipal and residential scale systems in support of potential decisions concerning the issuance of boil water advisories.

CWWA's Drinking Water Quality Committee is reviewing the document and will submit comments if concerns arise.

I encourage all municipalities that provide potable water to their citizens to review the new document and submit comments/concerns if warranted. Please advise CWWA as well of your comments, as this will help provide a stronger voice if needed. Contact [www.cwwa.ca](http://www.cwwa.ca). 



## Lloyd Douglas Scholarship

The Atlantic Canada Water and Wastewater Association (ACWWA) renamed its annual scholarship in 2010 in recognition of the dedicated service rendered by long-time member and tireless ACWWA supporter, Lloyd Douglas.

Look for the Call for Applications for the 2014 Lloyd Douglas Scholarship details coming this fall, in our next issue of *Go With the Flow*.

### PAST SCHOLARSHIP RECIPIENTS

#### 2013/14 Academic Year

Conor Flanagan – NL  
Ellen O’Hara – NS  
Ingrid Lozada – PE  
Katuscya Gauvin – NB

#### 2012/13 Academic Year

Colin MacEwan – PE  
JoAnne Dodd – NL  
Laura Hayes – NS  
Paul Young – NB

#### 2011/12 Academic Year

Nathan MacNeill – Holland College, Charlottetown, PE  
Erin Mentink – Dalhousie University, Halifax, NS  
Sarah Mapplebeck – Memorial University of Newfoundland, St. John’s, NL  
Nicholas LeBlanc – University of New Brunswick, Moncton, NB

#### 2010/11 Academic Year

David Ball – Memorial University, St. John’s, NL  
Tara Chisholm – Dalhousie University, Halifax, NS

#### 2009/10 Academic Year

Alf Johanson – Memorial University, St. John’s, NL

#### 2008/09 Academic Year

Jody Wentzell – Memorial University, St. John’s, NL

#### 2007/08 Academic Year

Jennifer Delaney – Memorial University, St. John’s, NL



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To reach Atlantic Canada's water industry professionals through *Go With The Flow* magazine and its targeted readership, contact **Darrell** at your earliest convenience to discuss your company's promotional plans for 2014.

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