

One Water

Joint Newsletter - April 2023

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April 2023

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What Do the Colors Mean?

- Green
Content from MeWEA
- Blue
Content from MeWEA
- Blue/Green
MWUA & MeWEA content



Message from MWUA's President

The new year is in full swing here at Maine Water Utilities Association. We are all staying on track to continue to support our members this year. We would like to express our sincere thanks and best wishes to all who supported and participated in our trainings, meetings, and events in 2022!

We are sure to resume facing the many challenges that we faced in 2022. Not only is everyone becoming accustomed to supply and equipment shortages and delays but, systems are attempting to follow and cope with PFAS regulations and the Lead and Copper Rule too. As if that isn't enough, many systems are dealing with labor shortages as well. I'm sure that many of you have already experienced many of these obstacles. However, we will persevere!

MWUA's 97th Annual Conference & Tradeshow took place at the Augusta Civic Center on February 1st and 2nd without a hitch. The event was well attended and was a huge success! It's always great to chat and mingle with those working in Maine's water industry.

As 2023 progresses, we look forward to the continuation of our in-person Regional Tabletop Exercises which help to promote resiliency in various regions around Maine. Furthermore, our bi-monthly meetings have proven to be an excellent way to network with others and to learn about what's new on the horizon in our industry. Additionally, another one of our efforts is to provide more in-person training for those who are new as well as seasoned in the water profession. The key essentials to the continued success of our systems include involvement, volunteering, and communication within our water world. If you are interested in joining a committee or attending the bi-monthly meetings, please reach out to [Bruce Berger](#) or [Cindy Wade](#). As always, we are grateful for your support and involvement!

Brian McGuire
Houlton Water Company
Water & Wastewater Dept. Supervisor



Message from MeWEA President

Greetings! Last year we celebrated all of the accomplishments in the wastewater industry in the 50 years since the signing of the Clean Water Act. As we embark on year 51, our membership continues to be on the forefront of a battle to protect human health, while also being stewards of a healthy environment.

Media stories have frequently led with lines like “The chemicals found in wastewater sludge that were trucked to farms across Maine and spread as fertilizer for decades” (News Center Maine) or “Wastewater contaminated with PFAS is flowing into Maine’s rivers” (Bangor Daily News). Since we are passionate about our work, it is hard to take the personal sting out of those incomplete narratives. But that sting also reinvigorated an organization and attracted new talent. It left MeWEA with an opportunity to provide tangible value through our leadership and committees to our broader membership and beyond.

To battle an incomplete narrative, you must change the narrative. In an effort to do so, MeWEA executed a 12 month contract with Black Fly Media. Diana Ichtou Nelson has drafted a Key Messaging Document which will serve as our compass for interviews, messaging and testimony going forward. Diana will also review incoming media inquiries and work to get us the right public attention. She states “I know how to talk to reporters because I was a reporter”.

Working closely with Diana is the resurrected Public Relations committee (PRC), chaired by new volunteer Evan Pereira. The PRC has a heavy lift, but our goal is to begin to rebrand the Clean Water community as partners to a solution. This year our PRC was provided with a healthy budget in order to retain a PR consultant. That budget was largely covered by contributions from several utilities that see the value our PR campaign will have for the industry on the whole. On behalf of MeWEA, thank you to the utilities sponsoring this campaign: Lewiston/Auburn Water Pollution Control Authority, York Sewer District, Scarborough Sanitary District, Saco Water Resource Recovery Facility, Sanford Sewerage District, Kennebec Sanitary District, Bangor Wastewater Department, Brunswick Sewer District, and Wells Sanitary District.

To effectively rebrand as a partner to a solution, you must be a partner, and MeWEA has been busy. Several board members have been working directly with a stakeholder’s group which includes two bureau directors and the commissioner from the DEP to identify solutions to the impending biosolids crisis. The group has defined a scope for a report that will provide analysis of PFAS treatment technologies and volume reduction methods for biosolids.

Members are active also, some have taken tours of biosolids drying facilities, many have taken part in panels or classes, and a few are conducting evaluations of their own facilities. Solutions are on the horizon and, I believe, MeWEA members have been and will be a big part in seeing them to fruition.

MeWEA is constantly evolving to remain relevant. In recent years we have built a relationship with Maine Water Utilities Association that has seen co-sponsorships, collaboration at each other’s conferences, and work together in legislative lobbying and testimony. This relationship now also includes our Administrative Services (AS) contract; which we renewed for a second year. The board thanks Bruce, Joan, Cindy and Kate at MWUA for their work over the past couple of years. The board will continue to review our administrative needs and work for the best contract for MeWEA. At our Strategic Planning Session last spring, we forecasted a need to raise dues to afford a more expensive AS contract, PR consultant, and other rising costs. A letter sent in December described the increase effective January 1. Also from our Strategic Planning Session, the Executive Committee has suggested a change to the organizational structure of our board. A letter distributed in early March describes proposed changes that also require changes to our bylaws. The vote to amend MeWEA bylaws will be held at our Spring Business meeting at JETCC’s North Country Convention on April 6th, at Northern Maine Community College in Presque Isle. Your attendance for this meeting and JETCC’s program is appreciated.

All of the veteran MeWEA committee chairs and members, Thank You! Many of you have done the bulk of the heavy lifting for a long time and certainly recently in support of me. Thank you and welcome to new Chairs, Evan Pereira (PR), Jen Nicholson (Membership), Sierra Kuun (Young Professionals), and Jodie Keene joining Sarah King as co-chairs of the Stormwater Committee! We are excited for all of the new energy these folks bring to our board. All of our committees are eagerly accepting new members! If you are not already a member of MeWEA, please consider joining; you’re missing out. If you aren’t part of a committee, we’re both missing out. Many hands make light work and the connections that you gain in return pay dividends.

I look forward to continuing to lead this organization with the help of those who have come before me and those soon to come. We have done much, and there is much still to do. Succeeding me, Emily Prescott and Terry Tucker have already done a lion’s share of the work I’ve discussed. MeWEA will be in good hands for a long time to come. I look forward to seeing you in April in Presque Isle, and again on September 20th at Sunday River for golf, and of course, classes the following 2 days!

Respectfully,
Tim Wade
MeWEA President 2023

Upcoming Main Events

Upcoming events scheduled over the next few months are below.

April 5-6, 2023 - [North Country Convention](#), Northern Maine Community College, Presque Isle

April 22, 2023 - [Urban Runoff 5k](#), South Portland

April 25-26, 2023 - [National Water Policy Fly-in](#), Washington, DC

May 23, 2023 - [MEWEA Executive Board Meeting](#), York Sewer District

June 6-9, 2023 - [NEWEA Spring Meeting](#), Saratoga Springs, New York

June 15, 2023 - [MWUA Bi-monthly Meeting](#), Houlton

June 16, 2023 - [MEWEA Executive Board Meeting](#), MWUA Office, Augusta

July 21, 2023 - [MEWEA Executive Board Meeting](#), Bangor Wastewater Treatment Plant

August 18, 2023 - [MEWEA Executive Board Meeting](#), Tim Wade's House, Oakland



Job Openings

York Water District
Portland Water District
City of Portsmouth, NH
Bangor Water District
Town of Bethel
Town of Kittery

[Treatment Plant Operator](#)
[Water Treatment Plant Operator](#)
[Assistant Chief Plant Operator](#)
[Utility Worker](#)
[Superintendent](#)
[Treatment Plant Operator](#)

For the latest job postings, also check out the MEWEA [Facebook](#) page and the links below:

- <https://www.mewea.org/career-opportunities>
- <https://mwua.org/jobs/>
- <https://www.newea.org/careers/jobs/>
- <https://www.nebiosolids.org/job-opportunities>
- <https://jobbank.wef.org/jobs/>

Upcoming Trainings

- **April 11, 2023** - 8:00AM-3:30PM - [Bangor Region Drinking Water Emergency Tabletop Exercise](#)
- **April 11, 2023** - [Personnel Management for Utilities](#) - WW 2.0 TCHs
- **April 12, 2023** - [Leadership Institute: Strategy](#) - W/WW 6.0 TCHs
- **April 13, 2023** - 3:00PM-6:00PM - [Board of Trustee Development Training - Operations and Finance](#) - W/WW 3.0 TCHs
- **April 18, 2023** - 11:5PM-3:15PM - [Water & Wastewater Cybersecurity Overview](#) - WW 2.0 TCHs/W pending
- **May 10, 2023** - 9:00AM-4:00PM - [Leadership Institute: Coaching & Mentoring](#) - W/WW 6.0 TCHs
- **May 11, 2023** - 3:00PM-6:00PM - [Board of Trustee Development Training - Public Relations and Emergency Preparedness](#) - W/WW 3.0 TCHs
- **April 20, 2023** - 8:00AM-3:30PM - [Math Review and Practice](#) - W/WW 6.0 TCHs
- **April 21, 2023** - 8:00AM-3:30PM - [Water Treatment 2, 3, 4](#) - Series starts - W 36.0 TCHs w/optional math and hands-on day
- **April 27, 2023** - 8:00AM-3:30PM - [Opening for the Season](#) - W 6.0 TCHs
- **May 2, 2023** - 8:00AM-10:00AM - [What Happened to PUC Chapter 62?](#) - W 2.0 TCHs
- **May 9, 2023** - 8:00AM-3:30PM - [Math Review and Practice](#) - W/WW 6 TCHs
- **May 10, 2023** - 8:00AM-3:30PM - [Water Treatment and Distribution for Beginners](#) - Series starts - WW 36.0 TCHs w/optional math and hands-on day
- **May 12, 2023** - 8:00AM-3:30PM - [Surface Water Treatment Day](#) - at the Kennebec Water District - W 6.0 TCHs

Additional training information available in the links below:

[JETCC Remote Learning Catalog](#)

[MWUA Sponsored Training](#)

[NEIWPC- JETCC Remote Learning Catalog](#)

KEY ACRONYMS

WW - Technical Credit Hours (TCH) for wastewater
W - TCH qualify for water credit hours

PFAS Regulations

The Biden-Harris Administration announced it is proposing the first-ever national drinking water standard for six per- and polyfluoroalkyl substances (PFAS) in the latest action under President Biden's plan to combat PFAS pollution and Administrator Regan's PFAS Strategic Roadmap. Through this action, the U.S. Environmental Protection Agency (EPA) is taking a major step to protect public health from PFAS pollution, leveraging the latest science and complementing state efforts to limit PFAS by proposing to establish legally enforceable levels for six PFAS known to occur in drinking water.

This proposal builds on other key milestones to combat PFAS, including EPA's proposal to designate two PFAS as CERCLA hazardous substances; enhancing data on PFAS under EPA's National PFAS Testing Strategy and through nationwide sampling for 29 PFAS in public drinking water systems; using



EPA's Clean Water Act permitting and regulatory programs to reduce PFAS pollution in the environment from industry; and initiating the distribution of \$10 billion in funding to address emerging contaminants under the Bipartisan Infrastructure Law (BIL).

The proposal, if finalized, would regulate PFOA and PFOS as individual contaminants, and will regulate four other PFAS – PFNA, PFHxS, PFBS, and GenX Chemicals – as a mixture.

- PFOA and PFOS: EPA is proposing to regulate PFOA and PFOS at a level they can be reliably measured at 4 parts per trillion.
- PFNA, PFHxS, PFBS, and GenX Chemicals: EPA is also proposing a regulation to limit any mixture containing one or more of PFNA, PFHxS, PFBS, and/or GenX Chemicals. For these PFAS, water systems would use an established approach called a hazard index calculation, defined in the proposed rule, to determine if the combined levels of these PFAS pose a potential risk.

If finalized, the proposed regulation will require public water systems to monitor for these chemicals. It will also require systems to notify the public and reduce PFAS contamination if levels exceed the proposed regulatory standards. EPA anticipates that if fully implemented, the rule will, over time, prevent thousands of deaths and reduce tens of thousands of serious PFAS-attributable illnesses. This action establishes nationwide protection from PFAS pollution for all people, including environmental justice communities.

Today's actions represent a significant milestone for the Biden-Harris Administration's commitments to combat PFAS pollution and safeguard drinking water. President Biden has secured historic funding to address emerging

contaminants like PFAS, including \$10 billion from the Bipartisan Infrastructure Law. In February 2023, EPA announced the availability of \$2 billion from President Biden's Bipartisan Infrastructure Law to address emerging contaminants, including PFAS, in drinking water across the country. These funds will promote access to safe and clean water in small, rural, and disadvantaged communities while supporting local economies.

EPA requests input on the proposal from all stakeholders, including the public, water system managers, and public health professionals. Comments may be submitted through the public docket, identified by Docket ID No. EPA-HQ-OW-2022-0114, at www.regulations.gov.

For more information on this proposal, please visit EPA's Per- and Polyfluoroalkyl Substances (PFAS) webpage.

Background

PFAS are a category of manufactured chemicals that can cause serious health problems, including cancer, if people are exposed to them over a long period of time. Since EPA Administrator Michael S. Regan announced the Agency's PFAS Strategic Roadmap in October 2021, EPA has continued to implement a whole-of-agency approach by advancing science and following the law to safeguard public health, protect the environment, and hold polluters accountable. The actions described in the PFAS Roadmap each represent important and meaningful steps to safeguard communities from PFAS contamination. Cumulatively, these actions will build upon one another and lead to more enduring and protective solutions. In November 2022, EPA released "A Year of Progress Under EPA's PFAS Strategic Roadmap," which underscores key actions taken by the agency during the first year of implementing the PFAS Roadmap.

EPA will continue to work with federal, state, territorial, and Tribal governments and drinking water systems to address PFAS in drinking water and implement solutions to reduce human health risks. And EPA is committed to taking broader actions to help reduce Americans' exposure to PFAS, including:

- Monitoring thousands of drinking water systems across the country for dozens of PFAS, beginning this year;
- Taking final action on a proposal to designate two PFAS as "hazardous substances" to help hold polluters accountable;
- Restricting PFAS discharges to our waterways by strengthening Clean Water Act standards;
- Finalizing chemical data and safety rules that will increase our knowledge about PFAS, allow us to act faster and more strategically, and restrict legacy PFAS from reentering production; and

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PFAS Regulations (cont'd)

- Considering public comments submitted on today's proposed rule toward taking final action on nationwide PFAS drinking water standards.

Summary of Proposed Regulation:

The proposed NPDWR would establish MCLs for six PFAS:

Compound	Proposed MCLG	Proposed MCL (enforceable levels)
PFOA	Zero	4.0 parts per trillion (also expressed as ng/L)
PFOS	Zero	4.0 ppt
PFNA	1.0 (unitless) Hazard Index	1.0 (unitless) Hazard Index
PFHxS		
PFBS		
HFPO-DA (commonly referred to as GenX Chemicals)		

From epa.gov

PFOS and PFOA would be regulated individually, at 4 ppt each. Four additional PFAS (PFNA, PFHxS, PFBS and GenX) would be regulated as a mixture, at a Hazard Index of 1.0. The Hazard Index is a calculated value based on a combination of ratios developed for each of the four PFAS.

If the proposed rule is finalized, States will be required to establish standards as strict as the federal regulation. If finalized, public water systems will be required to monitor for these PFAS, and notify the public and take action to reduce PFAS levels if they exceed the proposed MCLs.

There will be a 60-day public comment period and EPA anticipates finalizing the rule by the end of 2023. Once finalized, there will be a specified implementation time period for public water systems to meet the new regulations.

Some useful initial resources:

- EPA's announcement: <https://www.epa.gov/newsreleases/biden-harris-administration-proposes-first-ever-national-standard-protect-communities>
- EPA Administrator Michael Regan's announcement, streamed this morning from Wilmington, NC: <https://www.youtube.com/watch?v=JtTu7MFmMnY>
- EPA's Proposal to Limit PFAS in Drinking Water, Fact Sheet: [FACT SHEET \(epa.gov\)](https://www.epa.gov/factsheets/propose-limit-pfas-drinking-water)

Have you Heard About Waters Up?

A new, first of its kind, podcast that will provide environmental professionals all over the state with an easy, fun, and entertaining way to hear relevant information in our industry hosted by Brunswick Sewer District's own Rob Pontau.

Tune in live (or later) for Rob's podcasts. Most episodes are eligible for continuing education credits. [Check out the Youtube Channel](#) - and [subscribe today!](#)



Limestone Water & Sewer District



The Limestone Water and Sewer District (LWSD) was established by the 98th Legislature of the State of Maine on August 28, 1957, for the purpose of supplying the town and its residents with pure water for domestic, commercial, sanitary, and municipal purposes, including fire protection.

The Water System

Limestone's water system was originally founded by the General Waterworks Corporation in the early 1900's. During this time, their water storage tank held 225,000 gallons and was constructed of welded steel. In 1930, the town's population was 1,953. Today, they supply water to around 2,133 inhabitants.

In April of 2000, the water facility converted from a surface water supply to two wells. One well is a 10" bedrock well at 435' deep and the other is an 18" gravel

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Limestone Water & Sewer (cont'd)

packed well at 44' deep. Each of these wells are capable of producing a safe yield of 300 gallons per minute. Well water coming into the treatment facility is treated for nitrates through ion exchange. Next, sodium hypochlorite is added for disinfection and poly-orthophosphates for corrosion control. Then, fluoride is injected as the water leaves the facility via high lift pumps.

Today, Limestone has approximately 7 miles of water mains. In 2018, the district replaced the welded steel storage tank with one of reinforced concrete. This tank is 30' tall and 60' in diameter and holds 390,000 gallons of water. The town's water usage is roughly 65,000 to 75,000 gallons per day. Additionally, they maintain about 45 fire hydrants throughout the community for fire protection.

2018 was a year of change for the district according to Jim Leighton, Superintendent. Not only was the existing storage tank replaced but, they also replaced the nitrate removal system.



The Wastewater System

The wastewater collection and treatment system serves a portion of the town of Limestone as well as Loring Development Authority (LDA) at the old Loring Air Force base. Collection consists of 7.5 miles of gravity sewer, 12 miles of force mains and three pump stations. The 1.25 million gallon per day (MGD) wastewater treatment facility (WWTF) uses rotating biological contactor (RBC) treatment process. Average daily flows to the WWTF are 0.310 MGD.

The WWTF consists of two primary clarifiers, a train of six RBC's, two secondary clarifiers, a chlorine contact chamber, and effluent pump station that discharges to the Aroostook River 7 miles away. Sludge is stored in two large holding tanks and dried on a greenhouse covered drying bed.

Cost Savings and Resiliency

In late 2018, the LWSD installed a 681 KW solar power system. This 3 ½ acre, 1,728 panel solar array was constructed within the district's wellhead protection area as this area cannot be used for anything else. This solar project is capable of producing 596 kilowatts of power. By March 2019, the town of Limestone was already seeing savings. Furthermore, officials estimated that the district had saved more than \$3,000 on energy costs within the first 3 months. By early 2022, they had saved \$20,000 in annual electricity costs since its inception.

What's more, Limestone has eliminated more than 735,000 pounds of carbon pollution every year. This solar array was constructed by ReVision Energy and Limestone Solar LLC of New York. To date, the district has not invested any money or time into this project. LWSD reaps the benefits of the solar produced and only pays a small quarterly fee to the company that owns the solar array. This year, they have the option to purchase the solar field and own it outright in December. Their impressive foresight is to be commended!

Management of the Joint System

Currently, LWSD has four full-time personnel and one part-time office employee which have approximately 65 years of combined service. Their trustee board consists of three elected members who possess about 33 years of accumulated service to



the district. According to Jim Leighton, LWSD's staff has an immense, diverse background. Jim states, "We all work together to make an excellent team." Each employee has a unique personality which allows the team the benefit of operating the facility with different perspectives. According to Jim, "When you can put 4 people together and get work done without any arguing about who does what or how it gets done, this alone makes a great team, and a great team makes it smooth running for the district and the town of Limestone."

The town of Limestone's website is utilized by LWSD in order to inform their customers of upcoming changes or service interruptions. They have also added a debit reader for taking customer payments via the telephone. This has allowed their consumers to save time and money. Additionally, LWSD encourages customer engagement by being involved with their school system. They offer tours of the plant to the elementary school and the students at the Maine School of Science and Mathematics. Also, they are able to capture the interest of the younger students by purchasing water conservation school supplies through the use of grants. Moreover, Jim proclaimed, "We are very proactive with our customers." For instance, if a customer experiences high water usage, LWSD visits the consumer to explain the additional cost and the benefits of water conservation. It's evident that good customer service and engagement is taken seriously by LWSD. "Customers are our top priority", declared Jim.

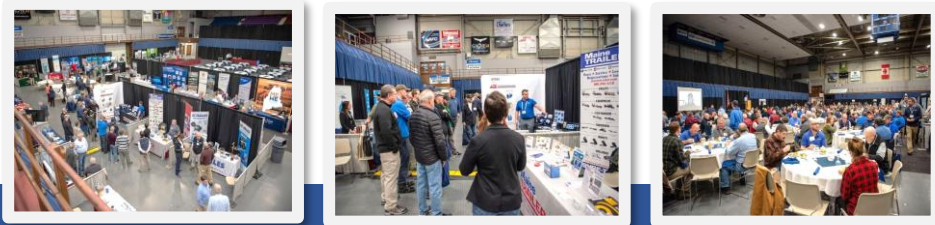
The following narrative is the mission statement of LWSD. "The Limestone Water and Sewer District is made up of three elected officials and two appointed with specially trained operators who are committed to providing reliable water and wastewater service in an efficient, cost-effective manner while complying with all present and future state and federal regulations. We believe our success depends on every employee knowing and sharing our goals. All board members and employees are committed to using the following as a guide to meeting the mission statement."

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Limestone Water & Sewer (cont'd)

1. Operators will maintain the required operator licenses.
2. All will be proactive in their approach to issues that arise.
3. Customer wants and needs will be addressed to the degree possible within our financial and regulatory constraints.
4. We will use Asset Management and the Annual Budget as tools to further economic security.
5. We will pursue technological solutions to improve operations.
6. All decisions will be made in an informed, rational, and objective manner.
7. We will continue to foster an atmosphere of openness and commitment to common goals.

It is obvious that LWSD follows their mission statement's guidelines "To a Tee". Compliments to the entire team on their fantastic efforts and a job well-done!



MWUA's 97th Annual Tradeshow & Conference Wrap Up

Maine Water Utilities Association held their 97th Annual tradeshow & Conference on February 1st and 2nd at the Augusta Civic Center. We were pleased with the number of attendees and exhibitors that joined us. This year's event was a tremendous success!

Once again, the conference provided water industry professionals with informative training sessions which provided TCHs. Many of those in attendance remarked about the generous size of the training rooms this year. In between training classes,

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everyone wandered through the tradeshow to chat with and browse the products of the 80 vendors on exhibit. Keeping with tradition, breakfast, lunch, and the happy hour get-together were held, providing valuable time for networking and some overdue catching up!

Towards the completion of the tradeshow and conference, everybody gathered in the tradeshow room for the awards ceremony. The room was abuzz with conversation and laughter. It provided a nice break from the everyday norm. The award winners are highlighted to the right.

It was evident that everyone was enjoying the event from the comradery and smiles witnessed throughout the room. MWUA would like to thank and acknowledge the Maine Water Environment Association for co-sponsoring this event, and all the vendors, exhibitors, attendees, and all those behind the scenes who made this affair possible. Bruce Berger, MWUA President stated, "This event is made possible because of your contributions. We are incredibly grateful for your support!" We look forward to seeing you next February at our 98th Tradeshow & Conference!

Congratulations to the Winners!

President's Award

Richard Anair, Greater Augusta Utility District

Past President

John Leach, South Berwick Water District

Jim Doherty Award

Chris Dwinai, Wright-Pierce

Jeff Nixon Award

Keith Pooler, Belfast Water District
Sid Hazelton, Auburn Water & Sewer District

Sid Anthony Award

Matt Zetterman, Kennebec Water District

Excellence in Operations

Kennebec Water District

Lifetime Achievement Award

Richard Knowlton (retired), Maine Water Co.

Jeff McNelly Award

Jennifer Nicholson, Brunswick Sewer District



The Missing Link in Climate Discussions

Water and climate go hand-in-hand. Alongside climate change we see its effects largely showing up through too little (droughts) or too much (floods, etc.) water. Climate events challenge infrastructure, water supply, and treatment. Our industry, water and wastewater, accounts for 4% of global greenhouse gas emissions. Of that 4%, 70% is from wastewater treatment (not including impacts from the 80% of wastewater released without treatment). While there has been an emphasis on climate sustainability with many industries, wastewater systems have not consistently joined the discussion. With the ever-growing need and focus of climate resiliency and sustainability, it is time to invite wastewater utilities to the table.



QUIZ TIME

Wastewater Professionals

- Hydrogen sulfide smells similar to what?
 - Rotten eggs
 - Chlorine
 - Carbon monoxide
 - Coffee
- Which depletes oxygen when organic wastes are discharged to receiving water?
 - Limestone
 - Algae
 - Bacteria
 - Calcium
- This gas is produced in anaerobic digesters and can be used as fuel?
 - Ethane
 - Methane
 - Propane
 - Carbon dioxide
- Which type of plant is necessary for a stabilization or oxidation pond?
 - Weeds
 - Cattails
 - Flowers
 - Algae
- Which test is usually never performed on wastewater influent streams.
 - BOD
 - Fecal coliform
 - pH
 - Suspended solids

Answers:
1. a, 2. c, 3. b, 4. d, 5. b

Water Professionals

- Of the following, what is the most common reason a pipe joint fails?
 - Missing gasket
 - Misalignment
 - Not clean
 - Wrong pipe
- Why are newly installed pipes flushed?
 - Remove air
 - Remove debris
 - Remove high concentrations of chlorine used for disinfection
 - All of the above
- What size service lines most commonly serve single family residences?
 - 3 inch
 - 2 inch
 - 1 inch
 - ¾ inch
- What is a corporation stop used for?
 - Pump discharge line
 - Service line
 - Contact time
 - Tank outlet
- Pipeline networks should be designed to strive for the elimination of what?
 - Dead ends
 - Storage tanks
 - Pressure relief valves
 - Interconnections

Answers:
1. c, 2. d, 3. d, 4. b, 5. a



COLLEAGUE CORNER

Jim Leighton, Superintendent, Limestone Water & Sewer District

Jim Leighton's career at the Limestone Water & Sewer District began in February 2008. With a background in construction and without experience in water treatment or wastewater management, Jim learned something new every day. He started in the water and sewer field without any experience. Throughout his employment he gained more experience and achieved the title of superintendent. Jim stated, "It has been a real learning experience for me." Currently, the district is working on a grant for electric vehicle charging stations as their system is powered by solar power. This endeavor has saved them thousands of dollars each year. Additionally, water conservation and leak detection as well as infrastructure improvements are on Jim's radar. Outside of work, Jim collects and restores vintage snowmobiles and minibikes. Presently, he owns over 30 vintage Skidoos and around 12 vintage minibikes. Jim feels fortunate to live on the same farm that his grandfather farmed in the early 1950's and that his daughter, son-in-law, and 3-year-old granddaughter live down the road from him. Other hobbies include vegetable gardening and camping with his wife, Rena. He loves living in a small town. When asked what he is most proud of, he replied, "My daughter and how well she has done for herself, she makes us so proud."

Demand for Mobile Water Treatment Systems

Mobile water treatment systems can be extremely useful in various situations. For example, these mobile units can be perfect to mitigate treatment facility downtimes, facility maintenance, emergencies, and/or to meet regulatory requirements for effluent discharge. These units are pre-engineered, containerized treatment systems that can be deployed for many different applications and circumstances involving both temporary and long-term solutions. Some advantages include quick setup, deployment, and tear down, as well as good adaptability, application, and more.

These mobile systems are becoming more and more common every year and alongside their increased commonality, the companies developing/engineering them have had to become more competitive. This only benefits the industry through diversity of pricing, technology, application, and more.





What's a Stormwater Utility?

By: *Owen Chaplin, Wright-Pierce*

A stormwater utility is a newer type of public utility that supplies communities with a functioning stormwater network. A stormwater utility develops a fee-based system that charges users based on how much stormwater runoff is generated by individual property owners. There are typically different fees for residential and commercial users. Some municipalities offer mitigation credits that users can qualify for by making physical changes to their property that improve the quality or reduce the quantity of stormwater runoff. Other communities have offered exemptions that waive the stormwater fee to undeveloped properties or certain land uses such as government owned properties.

A stormwater utility would create a stable funding source specifically to provide maintenance, repairs, and improvements to the stormwater system. Examples include:

- Inspecting and cleaning existing catch basins and associated pipe networks
- Cleaning existing roadside open channel ditches
- Emergency repairs to existing culverts, ditches, and catch basins
- Stabilizing and armoring coastal embankments from stormwater runoff and tidal/wave action
- Installing new storm drain systems to reduce flooding
- Installing sewer separation projects
- Replacing existing cross culverts to improve conveyance, reduce upstream flooding, and improve roadside safety
- Restoring existing stream channels and other drainage ways that have historical flooding and/or erosion issues
- Installing flood control structures that provide storage and peak flow attenuation during heavy rainfall events, lessening downstream impacts that may have capacity issues
- Implementing low-impact development "green infrastructure" stormwater treatment systems to reduce pollutants

There is precedent in Maine and across the United States for forming stormwater utilities. It is an effective way to fund and manage a municipal stormwater system.

Several government/quasi government organizations in the State of Maine have implemented their own stormwater utilities. Each entity has developed their own methods of managing their stormwater utility and fee structure for charging their

users. The stormwater utilities are as follows:

- Greater Augusta Utility District (GAUD)
- Bangor Stormwater Utility
- Lewiston Stormwater Utility
- Portland Stormwater Utility
- Long Creek Watershed Management District (LCWMD)

Greater Augusta Utility District (GAUD)¹ – The GAUD manages stormwater, water, and wastewater. The stormwater portion collects monthly fees for catch basins and Equivalent Residential Units (ERUs). An ERU is the runoff impact of a typical single-family residential home's footprint. The GAUD is one of the only utility districts in the country that charges fees for catch basins. The monthly fee per catch basin is \$50.89. The monthly fee per Equivalent Residential Unit (ERU) is \$8.30 and charges customers in the Augusta Compact Urban Area. An ERU represents 2,700 square feet of impervious area. The GUAD Board of Trustees runs the GAUD. GAUD does not provide mitigation credits.

Bangor Stormwater Utility² – The Bangor Stormwater Utility was established in 2012 after the City of Bangor was required by federal and state regulations to improve the quality of their stormwater runoff. Two alternatives were discussed to fund those improvements: (1) to raise taxes or (2) implement a stormwater utility. If the City were to raise taxes, then tax-exempt organizations would not contribute to the stormwater fund and users would be paying into the fund based on the assessed value of their property rather than the amount of runoff that they generate. They chose to create a stormwater utility to spread the cost of improvements throughout all users based on the amount of impervious area a property has so that those who contribute the most runoff also contribute the most money. Stormwater fees are \$22 per year for the first 3,000-square feet of impervious area and \$22 for each additional 1,000-square feet of impervious area. Properties with more than 4,000-square feet of impervious areas can qualify for stormwater fee. Owners that qualify for this credit must provide documentation proving that they have appropriately designed, implemented, and maintained stormwater mitigation efforts.

Lewiston Stormwater Utility³ – The Lewiston Stormwater Utility was created during 2006-2007 budget deliberations. Like Bangor, they were under federal and state pressures to execute stormwater improvements. User fees in Lewiston are a flat rate of \$60 annually for residential single-family homes and \$90 for duplex residential properties. The utility charges users the flat rate of \$60 per year plus \$0.016 for each square foot of impervious area exceeding 2,900-square feet for properties that are not residential. The City chose to implement fees based on property use rather than amount of impervious area to minimize their administrative burden. Lewiston provides two types of credits: (1) a City System Impact Credit for properties that can demonstrate that more than 50% of the

(cont'd on next page)

What's a Stormwater Utility? (cont'd)

property does not affect the City's stormwater system and (2) a Permit Improvements Credit for properties that install specific stormwater best management practices (BMPs) that improve stormwater quality.

City of Portland⁴ - The City of Portland began discussions on its stormwater utility in 2008 and adopted the program in 2016. The City is responsible for regulating new development and redevelopment while also meeting state and federal requirements that protect the water quality of streams, rivers, and tidal water bodies. The utility charges property owners the billable unit multiplied by the current rate. The definition of a billable unit is total impervious area (square feet) divided by 1,200, rounded to the nearest whole number. The current monthly rate is \$7.50 per billable unit. The rate has increased four times since 2016. The City of Portland provides mitigation credits based on two categories of improvements: (1) water quality controls and (2) flood controls.

Long Creek Watershed Management District (LCWMD)⁵ - The LCWMD is an association of roughly 100 landowners in a 3.45 square mile area. The LCWMD is in portions of Portland, South Portland, Scarborough, and Westbrook. The Cumberland County Soil and Water Conservation District manages the LCWMD. Long Creek is on the State's Impaired Waters list; the LCWMD was implemented to remove the water body from the list. There are significant developed parcels within this area including the Maine Mall, the Portland Jetport, and a portion of the Maine Turnpike and Interstate 295. Fees are based on impervious acreage rather than square footage because of the significant impervious areas. The annual rate is \$3,000 for the first acre of impervious area and \$800 for each additional acre. Credits are available based on BMP implementation.

There are more than 1,800 stormwater utilities across forty states within the United States. Communities with populations ranging from 88 residents to 3 million residents have developed stormwater utilities. Average fees are around \$5.34 and range from zero to \$69.25 per month. The most popular funding method is the Equivalent Residential Unit (ERU). The median ERU is 2900 square feet. The ERUs for the Bangor Stormwater Utility, the GAUD, and the Lewiston Stormwater Utility are close to this number. Other popular funding methods are the tier fee and the flat fee. No stormwater utilities in Maine utilize the tier fee. The Lewiston Stormwater Utility uses a combination of an ERU and a flat fee. It does not appear that methods or fees are regional phenomena. You are no more likely to have an ERU or a flat fee system in any particular location. The implementation of stormwater utilities is continuing around the country to provide financial stability to municipalities.

A stormwater utility provides a stable revenue for stormwater infrastructure improvements and maintenance. It allows the municipality to provide adequate revenue for stormwater while staying affordable for community members. Utilities are developed in a way that fits the exact needs and goals of a community while setting rates at a level that its users can afford.

The utility can provide funding in a more equitable way than the alternative of raising taxes or user fees within other established utilities serving the public. Increasing taxes to provide funding for stormwater infrastructure maintenance and improvements does not require tax exempt organizations with large stormwater usage to contribute, and contributions are based on property assessment rather than stormwater impacts. To summarize, the benefits of a stormwater utility include:

- **Stable Revenue** – provides stable revenue to support operations & maintenance costs, as well as a capital improvement plan. A stormwater utility would supplement or replace the City's municipality's current stormwater funding sources and would improve budgetary planning.
- **Address Existing Stormwater Issues** – allows the City municipalities to address the flooding issues in Lindsey Brook and elsewhere existing flooding issues, and to replace deteriorated systems that may be susceptible to washouts and other natural disasters.
- **Improve Water Quality** – allows the City municipalities to implement stormwater treatment "green infrastructure" systems that remove pollutants from stormwater runoff before discharging to natural waterbodies like Lindsey Brook and Penobscot Bay. Pollutants include heavy metals, bacteria, and trash. Additionally, stormwater utility credits encourage private property owners to implement their own green infrastructure systems.
- **Reduce Secondary Treatment at PCF** – provides opportunity to implement new stormwater systems via sewer separation projects that reduce flows to sewer systems and ultimately the City's Pollution Control Facilities (PCF). Reducing flow to the PCF improves wastewater treatment efficiency, reduces costs, and benefits water quality.

Disadvantages to developing a stormwater utility are potentially high administrative costs and potential negative perceptions. Constituents often do not look kindly on increases in government oversight and new fees. However, in this case, the new fees would be replacing an increase in taxes. It is important to communicate early and often with the community to prevent potential negative perceptions.

¹The Stormwater Story. (n.d.). Retrieved from Greater Augusta Utility District: <https://www.greteraugustautilitydistrict.org/the-stormwater-story>

²Stormwater Utility. (n.d.). Retrieved from City of Bangor: <https://bangormaine.gov/content/2037/1885/1891/default.aspx>

³Stormwater Fee Info. (n.d.). Retrieved from City of Lewiston: <https://www.lewistonmaine.gov/749/Stormwater-Fee-Info>

⁴AMEC Earth & Environmental, Inc. (2011). *Does it Make Sense Study "DIMS"*. City of Portland, Maine

⁵United States Environmental Protection Agency. (2013, June). *Evaluation of the Role of Public Outreach and Stakeholder Engagement in Stormwater Funding Decisions in New England: Lessons from Communities*. Retrieved from US EPA: <https://www.epa.gov/sites/default/files/2015-09/documents/eval-sw-funding-new-england.pdf>





TECHNOLOGY CORNER

Building Security with Remote Alarm Notification Software

As water and wastewater professionals, we are all familiar with the criticality of the infrastructure we work in. Water infrastructure is critical to national security, economic stability, and public health and safety. While important and sometimes necessary, the automation of the water sector has opened the industry and nation up to malicious cyber activities. Therefore, we must take steps to mitigate the risk of a cyber attack. Cybersecurity consultants and

experts can create a cybersecurity plan, implementing restrictions to physical and technical access to systems through firewalls, logging, encryption, and more. Additionally, remote alarm notification software allows operators to access the information they need, while maintaining the security of the information and system they don't need. This software does not allow



access to SCADA itself or the operating system's host. As the water and wastewater professionals, we must all strive to continually protect our infrastructure in this "new" cyber world we work and live in.

Removing PFAS from the Water Cycle

We are all aware of PFAS and what these forever chemicals are. The PFAS crisis has not discriminated between water and wastewater systems; we all must contend with them if they are present. Let's take it a step further. PFAS contamination is present in every single step of the water cycle as they are found in surface water, ground water, wastewater, and drinking water. Eventually, PFAS always makes its way to a landfill and therefore leachate. If this leachate can be treated prior to making its way into a surrounding waterway, PFAS movement through the water cycle can be limited. PFAS treatment and destruction technologies include the following:

- Membrane filtration
- Adsorption
- Liquid to liquid separation (e.g., foam fractionalization)
- Redox-based destruction
- Heat-based destruction

On an ending note, one thing to consider about PFAS destruction is how these processes can volatilize PFAS and contribute to the formation of new, sometimes unknown, PFAS gaseous byproducts.

Saving Space with Densified Activated Sludge Systems

Wastewater utilities are always striving for efficiency. One challenge many utilities face is finding financially responsible and effective nutrient treatment. Densified activated sludge has recently emerged as a space-saving intensification solution that can mitigate the aforementioned challenge and support efficiency. Activated sludge has been a valuable treatment solution at wastewater

utilities; utilizing various functional groups of bacteria that have the ability to remove contaminants. Now, this process has been intensified into densified activated sludge unlocking greater treatment capacity. This process intensification via densification allows utilities to optimize the use of existing facilities and reduce the need for additional infrastructure and potentially reducing energy and chemical needs. [Click here](#) to read more about densified activated sludge treatment.

Algaewheel Treatment Systems

Designing and operating a seasonal wastewater treatment facility may be one of the most difficult challenges an owner, operator, and/or engineer will face. This is due to the highly variable flows, loadings, and conditions they face and must contend with throughout the year. These inconsistent conditions make meeting permitted effluent limits very difficult. The Indiana Department of Natural Resources has dealt with these difficulties with success by the

installation of an algaewheel treatment system. The system utilizes the existing pre-treatment, screening, and effluent disinfection structures in place. On the other hand, aeration tanks and clarifiers have been taken offline and can now be used for excess storage and/or flow equalization. The algaewheel replaced the aeration tanks and clarifiers all while providing superior treatment. In addition, it only took about two months to implement and install and has been meeting permit levels ever since. [Click here](#) to learn more.



Blue-Green Algae &

Human Influence on Lakes



Man-made impacts have caused blue-green algae to proliferate in many water bodies around the world in recent decades. More specifically, increasing nutrient input and global warming have fueled this growth. Moreover, some species are toxic and therefore contact with them can be hazardous. This contact can cause allergies and in some extreme cases cancer.

Cyanobacteria, as blue-green algae are known to be among the oldest photosynthesizing organisms from which land plants inherited the same photosynthesizing ability. Unlike other algae, Cyanobacteria have the ability to absorb nitrogen from the atmosphere and use it as a nutrient. This ability allows for increased proliferation at the expense of other aquatic organisms.

Through water body studies, scientists have determined that blue-green algae have been around for a long time, but only significantly impacted by human activities since the first Bronze Age. It is theorized that this is when human impact on lakes/surface water sources became more significant due to increased agricultural activities. Additionally, scientists noticed that in the studied bodies of water, the natural state before the initial changes was never regained. Scientists predict that due to climate change and increased agricultural activities, this blue-green algae proliferation will continue to increase.



Reducing Costs & Increasing Treatment Capacity with Supersaturated Dissolved Oxygen

As many of us know, aeration is one of the most important pieces of wastewater treatment processes. Aeration is key to any biological treatment goals, controlling odors, and more. In addition to being important, it is also one of the most energy-intensive processes at a wastewater facility. Being energy-intensive, oxygenation processes can be very costly for municipalities. Currently, with sustainability front and center in the minds of many organizations, finding ways to reduce costs and become more energy efficient are paramount. Many utilities are looking to supersaturated dissolved oxygen to cut aeration-related expenses. Supersaturated dissolved oxygen can replace ambient air equipment

in activated sludge systems, oxidation ditches, odor control in collection systems, and the remediation/prevention of harmful algal blooms.

Before we can understand how supersaturated dissolved oxygen can support the expansion of treatment capacity and reduce chemical usage, first we need to understand how it works. Aeration in the industry historically has referred to providing oxygen to biological processes, however, there is a difference between aeration and oxidation. Air is only about 21% oxygen with the rest being made up of nitrogen and other gases. "Pure" industrial oxygen is nearly 100% and the difference in oxygen concentration leads to a five times greater transferring capability of oxygen to water than that of ambient air. Water from the bulk flow is delivered to a vessel pressurized with pure industrial oxygen. In this pressure vessel, flow and pressure are managed allowing the creation of a supersaturated solution of oxygenated water. This solution base is maintained within the vessel, ultimately limiting the oxygen's ability to escape. The supersaturated water is then reintroduced to the bulk flow to encourage oxidation and biological processes.

Supersaturated dissolved oxygen can expand treatment capacity without the need to build additional basins and/or buy additional real estate. One example has been noted in Colorado in which a regional wastewater facility was able to avoid an \$80 million expansion by retrofitting a supersaturated dissolved oxygen system into their treatment facility. Physical expansion can be significantly reduced or delayed with this technology.

In addition to increasing treatment capacity, supersaturated dissolved oxygen can reduce chemical usage and subsequently control odors and preserve infrastructure. Moreover, when anaerobic conditions occur in collection systems, extremely odorous hydrogen sulfides are produced, and anaerobic bacteria oxidizes them producing sulfuric acid. This causes two main issues: foul



odors that are unpleasant to residents and corrosion of the collection system's infrastructure. Having to mitigate these issues can be very costly. In addition to cost, supersaturated dissolved oxygen treatment promotes safety through the reduction of toxic hydrogen sulfide gases. Will your local utility consider implementing supersaturated dissolved oxygen in their treatment system?





*Congratulations to our local
NEWEA award recipients!*



Stockholm Junior Water Prize
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Bangor, ME



NEWEA Operator Award
Michael Courtenay
Warren, ME



Alfred E. Peloquin Award
Mark Holt
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Youth Educator Award
Theresa Tucker
York, ME



Lifetime Membership Award
John Hart - Buxton, ME



Youth Educator Award
Philip Tucker - York, ME



Lifetime Membership Award
Clayton "Mac" Richardson Windham, ME



In Summary...

Don't have a lot of time?

Below is a summary of some of the main topics in this issue:

Have you seen the new proposed [PFAS regulations](#)?

Don't forget to ask [Jim Leighton](#) about his vintage minibikes.

Make it a point to check out the [Upcoming Main Events](#) in our industry

Learn how [Limestone Sewer and Water](#) saved \$20,000 in electricity cost last year.

As always, thank you for taking the time to read our One Water newsletter. If you have any comments or suggestions, feel free to let us know. We'd love to hear from you!



BIOSOLIDS ALERT



Dear MeWEA Membership,

The current biosolids disposal crisis in Maine has most of us frazzled and frustrated. There are several communities that are at risk of violation, more that are exploring drastic options to maximize storage or minimize solids processing. We want to keep you informed to let you know that as an Association, MeWEA is communicating with state officials and key legislators who are all now aware of the problem. We will continue to do all that we can to tell our stories and advocate for short-term, mid-term, and long-term solutions. Maine DEP has been and continues to be a great ally in working with the PFAS bomb that was dropped on us all. I am steadfast in saying there are long term solutions on the horizon, we just need to get there.

MeWEA will continue to keep members updated on this matter as things move forward. We continue to recommend that each community reach out to their local representatives. In the meantime, if you have questions or concerns, or find yourself in the same emergency situation many of our utilities are in, please contact Maine Water Environment Association Government Affairs Committee at mewegovaffairs@gmail.com or reach out directly to myself (wadelotcare@gmail.com), Emily (EPrescott@sacomaine.org) or Terry (ttucker@yorksewerdistrict.org).



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