

JOURNAL

OF THE
NEW ENGLAND
WATER
ENVIRONMENT
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OPERATIONS/REGULATORY

Improved water quality and operational resiliency on the Pawtuxet River

Attracting and retaining the next generation of skilled operators

Regulating biosolids, organics, and nutrients—real & potential conflicts abound



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On the cover: West Warwick, Rhode Island wastewater treatment facility submerged during 2010 flooding (photo by Peter Eldridge)





Join Us

OUR ASSOCIATION WAS ORGANIZED EIGHTY-SIX YEARS AGO in Hartford, Connecticut, on April 23, 1929, with the objectives of advancing the knowledge of design, construction, operation and management of waste treatment works and other water pollution control activities, and encouraging a friendly exchange of information and experience. From 40 charter members, the membership has steadily grown to more than 2,000 today. Membership is divided into the following classes:

Professional Member—shall be any individual involved or interested in water quality including any manager or other officer of a private waste treatment works; any person engaged in the design, construction, financing, operation or supervision of pollution control facilities, or in the sale or manufacture of waste treatment equipment.

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Academic Member—shall be an instructor or professor interested in subjects related to water quality.

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Professional Wastewater Operations Member (PWO)—shall be any individual who is actively involved on a day-to-day basis with the operation of a wastewater collection, treatment or laboratory facility, or for facilities with a daily flow of <1 million gallons per day. Membership is limited to those actually employed in treatment and collection facilities.

Student Member—shall be a student enrolled for a minimum of six credit hours in an accredited college or university.

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President's message

Over this quickly passing year I have had the privilege to interface with many of the impressive association members and volunteers. These included operators, regulators, municipal/utility managers, students, engineers, scientists and equipment suppliers. In addition, my travels this year have allowed me to converse with many water quality stakeholders outside the industry to learn about their level of understanding and perceived value of the water quality industry. In interacting with our members and industry outsiders, two things stood out.

The first was our members' universal passion for the industry and desire to improve the water environment to better our communities, our economies, and our current and future citizens. The second was the need to communicate not just within our own membership and industry but to other stakeholders and the public on the outside to advance their understanding of the importance of what do.

We often forget how important the water quality profession is because we work with like-minded people who humbly and often subconsciously understand the significance of what we do; in addition, our attention is often diverted by daily tasks, budgets, plant/system operations and work/life balance issues. What we do is important, and we need to let others know by better trumpeting our successes and framing the value of our industry and the importance of water quality professionals.

The most monumental public health achievement of the 20th century was the creation of sanitation systems. As a result, diseases such as cholera, typhoid, dysentery and hepatitis have all but been eliminated. Unfortunately, it has been so long since these diseases have been a significant issue in our lives that people forget how important sanitation is to the public's well-being.

As environmental stewards we all know the importance of properly managing water resources, whether dealing with too much or too little water, or societal pressures to reduce environmental regulation for the perceived sake of economics. It is an important balance to maintain, but as water quality professionals it is our responsibility to help all stakeholders understand the issues and understand that environmental regulation and economic prosperity are not mutually exclusive but can complement each other provided they are looked at holistically.



As water quality professionals we are keenly aware that every community is literally built on top of its water and wastewater infrastructure. Without it, businesses could not operate, communities could not thrive and our quality of life would suffer. One-fifth of the U.S. economy—from energy production to resource extraction to agriculture and manufacturing—would grind to a halt without a reliable and clean supply of water and a means to return it to the environment for beneficial use. If water infrastructure fails, it creates a domino effect threatening the environment, public health and the economy. We need to make sure this complementary relationship between the water quality industry and the local, regional and national economy is understood and being heard by those outside our industry.

As noted, I have been encouraged and inspired by the passion of those in our membership in trying to improve the water environment as well as working to improve NEWEA's outreach programs, which include NEWEA's messaging and methods of external communication. These programs include our Government Affairs Committee's education and support of local, regional and federal regulators; our Public Education Committee's onsite water quality education to schools; and our Public Awareness Committee's public outreach through our Water Champions Program, which you will hear more about in 2016.

Honest, passionate and clear communication with those outside our profession, whether it be the public, legislators at all levels of politics, the media or environmental groups, is critical to the success of the water quality industry. I ask that you take some of the passion and energy that you bring as a water quality professional to your work every day and redirect some of it to communicating with those outside our industry. We need to let them know what we do and its significance to public health, environmental stewardship and economic prosperity. Every little effort will bump the needle of understanding, support and respect for our industry by those outside it. With enough of these little efforts, we will ideally foster a regular discussion to support and invest in the water quality industry. In addition these efforts will help to raise the level of respect of all water quality professionals to where it should be considering the significance of what we do for public health, the environment, the economy and the quality of life for all.

In closing out my year, I sincerely thank the membership for all that you do for the water environment every day. I am proud to be a colleague of my fellow water quality professionals. I also express my gratitude to all the NEWEA officers, committee chairs, volunteers and NEWEA staff who have made my year extremely satisfying professionally as well as personally. I could not have asked for a more dedicated, professional and fun-loving group to work with. It has truly been an honor to serve the association.



From the Editor

It does not seem possible that this will be my last editorial for the *Journal*. It has been an amazing three years. The opportunity to be the editor of the *Journal* has been one of the most rewarding challenges of my career. After practicing in this field for 35 years I am still amazed at the advances in approaches and technology our profession brings to water resources. I appreciate every one of the authors who took the time over the last three years to share their stories. Our profession is integral to the health of people, communities and the environment, and the *Journal* affords us the opportunity to share our knowledge and lessons learned to further the technical abilities of all.

I want to thank the staff without whom the *Journal* would not exist—Mary Barry, executive director, Janice Moran, program coordinator and Linda Austin, office administrator—as well as Tom Heinlein, assistant editor, and Robert Randazzo, graphic designer. What a great team to work with and so often not recognized for the hard work and the positive things they accomplish year after year. In addition, many thanks to all the Journal Committee members, in particular Charlie Tyler and Meredith Zona who always contribute above and beyond.

I would like to introduce the readers to the incoming *Journal* chair and editor, Joe Boccadoro. Mr. Boccadoro is a senior project director at AECOM and has been an active member of NEWEA for years, most recently as past chair of the Operations Committee. I know he will carry on the tradition of covering varied topics and bringing new technology and approaches to the forefront of the *Journal* membership. I look forward to continuing on the Journal Committee and supporting him as he begins his three-year tenure.



Helen T. Gordon
P.E., CTAM, BCEE
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Now for the feature articles. The Winter issue compiles many of the new challenges in front of our industry, from resiliency associated with climate change to succession planning for operators to new regulations and their impact on beneficial use of biosolids.

Our first article focuses on the impact of climate change, specifically as it relates to extreme weather events. Read how the team at the Warwick wastewater treatment facility dealt with the record-breaking 500-year flood of 2010. Learn what they have accomplished to date in creating more resilient infrastructure.

Our second article focuses on the need in the industry to rebrand ourselves. One of the biggest challenges for our industry is the lack of available operators. Billerica's plant supervisor Jeff Kalmes, recently assessed the challenges and made recommendations for addressing these challenges. One of the biggest challenges is attracting the next generation of qualified operators to the industry. Areas recommended for improvement include re-evaluation of pay rates and renaming plants to water resource recovery facilities. The latter recommendation would help to truly reflect what our industry does and help with our public outreach strategies, as we spread the word on the green and environmental work we do and the benefits that come from it.

Our third article is a primer on regulations for biosolids, organics and nutrients. The landscape around biosolids regulations continues to morph and our industry must stay on top of the topic to ensure we can influence policies and regulations.

In closing, many thanks to those of you who spent time sharing your stories and knowledge of the fantastic work our profession accomplishes year after year in our pursuit of bettering the health, safety and cleanliness of our communities and the environment. We still have much to do.

Helen Gordon, Journal Committee Chair and Editor

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Industry news

Sunset on Cape Cod Bay, Brewster, Massachusetts

EPA APPROVES MASSACHUSETTS PLAN TO PROTECT CAPE COD WATERS

David Deegan, EPA Region 1 News Release

The Environmental Protection Agency (EPA) has formally approved an updated plan from the commonwealth of Massachusetts that creates a robust framework for Cape Cod communities to reduce nitrogen levels that are currently harming ecological health of ponds, bays and other surface waters on the Cape. The “Cape Cod Water Quality Management Plan Update” submitted by Massachusetts is consistent with provisions in the federal Clean Water Act. EPA has also approved the designation by the commonwealth for the Cape’s towns to act as Waste Management agencies, giving them the authority to take necessary actions under the plan. This designation includes the towns of Barnstable, Brewster, Bourne, Chatham, Dennis, Eastham, Falmouth, Harwich, Mashpee, Orleans, Provincetown, Sandwich, Truro, Wellfleet and Yarmouth.

“While being green is good, that’s not true when it comes to our watersheds,” said Curt Spalding, regional administrator of EPA’s New England office. “EPA is pleased that the commonwealth, the Cape Cod Commission, Cape communities and residents have really stepped up with a strong plan to take action to protect the Cape’s environment and economy for generations to come. This plan gives Cape communities the tools they need to design and implement local solutions across watershed boundaries. The next year is pivotal for Cape communities to make decisions on their path forward.”

“Nitrogen pollution in Cape waters affects not only the natural resources but the economy and quality-of-life there too,” said Governor Charlie Baker. “With this plan, we hope to help Cape Cod’s communities develop local solutions to address their water quality issues. The administration continues to be committed to working with municipal and federal partners to improve water quality and protect the commonwealth’s citizens and environment.”

Cape Cod is experiencing widespread pollution problems due to too much nitrogen in its ponds, lakes and bays. Excess nitrogen results in algal blooms, degraded ecological vitality, loss of habitat for organisms, and reduced recreational opportunities for residents and visitors alike. Available studies indicate that Cape waters need nitrogen reductions of up to 87 percent.

The economy of Cape Cod relies heavily on a clean and healthy environment to support tourism, fishing, shellfisheries and numerous recreational pursuits. This economic foundation is threatened by degraded water quality due to excessive nutrients, especially nitrogen.

Massachusetts has played a pivotal role working with the Cape Cod Commission and Cape communities, and has invested significant funding and technical and policy resources.

“In many Cape Cod communities, nitrogen discharges contaminate local water bodies and bays, threatening the environment, the economy and the tourism industry in one of the most beautiful places on earth,” said Matthew Beaton, Energy and Environmental Affairs secretary. “This plan will help communities develop the most effective and affordable solutions to this problem, tailored to local needs. As part of the plan, the administration is committed to funding a monitoring initiative that will ensure that this vital work makes a difference on Cape Cod for generations to come.”

The Cape Cod Water Quality Management Plan Update is a forward-thinking, innovative plan that accounts for cost and allows local decision-making to achieve nitrogen pollution reductions among multiple towns, while ensuring an effective regional result. The update provides the Cape Cod towns, as designated Waste Management agencies, with a shared, systematic framework to address nutrient challenges, while also providing towns with opportunities to innovate and finely tune pollution abatement measures to fit local environmental, political and economic circumstances.

“This plan is the product of unprecedented cooperation among federal, state, regional and local agencies, and most importantly a lot of hard work by the people who live here. It is a plan for Cape Cod by Cape Cod that establishes the framework for watershed-based action to restore water quality and protect our economy,” said Paul Niedzwiecki, executive director of the Cape Cod Commission.

The Cape Cod Commission has worked closely with communities and other stakeholders to develop the update. It has offered to help all the communities craft watershed-based solutions, especially where they cross town boundaries. EPA and the Massachusetts Department of Environmental Protection (MassDEP) will continue to work closely with all entities to ensure that effective and practical solutions are developed and implemented to protect Cape Cod waters from excessive nitrogen pollution.

More information on the Cape Cod Water Quality Management Plan Update can be found at: capecodcommission.org/index.php?id=491&maincatid=76:

SETTLEMENT WOULD REQUIRE EPA TO REVISE PHASE II MS4 PERMIT

This Week in Washington, a weekly publication of WEF's Government Affairs Department

A settlement filed with the U.S. Court of Appeals for the Ninth Circuit would require EPA to revise its 1999 Phase II Municipal Separate Storm Sewer System (MS4) permits for small communities with populations of fewer than 100,000 people.

EPA reached a settlement with the Natural Resources Defense Council (NRDC) and the Environmental Defense Center, Inc. Under the settlement, the agency would be required to propose a revised rule by December 17, 2015, and issue a final rule by November 17, 2016. Additionally, EPA would be required to determine, by May 26, 2016, if it will regulate stormwater runoff from forest roads. The groups signed the proposed settlement on August 26. The Ninth Circuit approved the settlement on September 12, 2015 and the petition is being held in abeyance pending the filing of status reports and further order of the court. EPA has indicated that they will publish an additional notice on or before May 26, 2016, after considering comments and information received, with its determination as to whether stormwater discharges from forest roads are required to be regulated under Clean Water Act section 402(p)(6).

Because of the settlement, the petitioners have agreed to withdraw a December 2014 lawsuit against EPA. This lawsuit claimed that the agency did not follow through on requirements of a 2003 Ninth Circuit Court ruling on Phase II MS4 permits and forest road stormwater runoff. The 2003 ruling required EPA to address procedural issues within the Phase II rule related to issuing Notices of Intent under the small MS4 General Permit option. According to the 2003 case, without public review and approval of permits, the rule lacked assurance that regulated communities would reduce stormwater pollution to the maximum extent practicable as required by the Clean Water Act. WEF worked with EPA in seeking input from MS4s around the country and facilitated two sessions on topics to be included in the expected proposed rule.

CONGRESSMAN INTRODUCES WIFIA FIX BILL

This Week in Washington, a weekly publication of WEF's Government Affairs Department

Rep. Carlos Curbelo (R-FL) has introduced H.R. 3756, the WIFIA Improvement Act, which would make a simple fix to the Water Infrastructure Finance and Innovation Act (WIFIA) program by removing a restriction on using tax-exempt financing on projects that receive WIFIA financing. When Congress created the WIFIA program in 2014 it included a provision that restricted the use of tax-exempt financing sources, such as tax-exempt municipal bonds that account for nearly 80 percent of all water infrastructure financing in the nation. The WIFIA program will fund only up to 49 percent of a total project cost, requiring applicants to use

taxable financing for the remaining 51 percent. Rep. Curbelo’s bill removes that restriction, which is a request WEF and other water associations have been making to Congress.

The WIFIA program could be a significant new source for low-cost financing of large wastewater, drinking water and stormwater infrastructure projects. A similar provision to remove the restriction on tax-exempt financing was included in the Senate-passed S.1647, the DRIVE Act (Developing a Reliable and Innovative Vision for the Economy Act), and legislation that WEF supported. Rep. Curbelo’s bill has 10 bipartisan co-sponsors, including Rep. Grace Napolitano (D-CA), the Ranking Member of the House Water Resources Subcommittee and was referred to Committee on October 16, 2015. As of this writing there is no additional news to provide.

EPA AND MASSACHUSETTS PARTNERS ANNOUNCE FUNDING FOR SOUTHEAST NEW ENGLAND PROGRAM FOR COASTAL WATERSHED RESTORATION

David Deegan, EPA Region 1 News Release

On Oct. 30, 2015, EPA joined state and local dignitaries to announce \$5 million in federal funding to continue efforts of the Southeast New England Program for Coastal Watershed Restoration. The program brings together innovation and partnerships to apply an ecosystem approach to protecting and restoring the coastal watersheds of southeast New England from Westerly, R.I., to Chatham, Mass., including Narragansett Bay and all other Rhode Island coastal waters, Buzzards Bay, and southern Cape Cod, and the islands of Block Island, Martha’s Vineyard, and Nantucket.

EPA has committed nearly \$5 million for coastal watershed restoration in southeast New England through several partnerships.

Funding highlights include: \$1 million to the Buzzards Bay Estuary Program and \$1 million to the Narragansett Bay National Estuary Program for priority projects in these watersheds; approximately \$1.5 million through EPA’s Healthy Communities Grant Program funding nine projects; and approximately \$1.5 million in contracts and partnerships for work that contributes directly to protection of coastal water quality and provides better understanding of future efforts and practical solutions.

Project highlights from the past year include efforts to address high nutrient levels in stormwater affecting New England waterways. There were two pilot projects on Cape Cod, in Chatham and Hyannis, where innovative stormwater retrofit “best management practice” systems were installed, and which are targeted for nutrient reduction. EPA expects that these pilots will provide valuable data and information about the percent reduction of nutrients that can be achieved with this technology, which in turn potentially can be applied to other municipalities and watersheds across New England.

During the next year EPA will develop a stronger partnership with the U.S. Geological Survey (USGS), helping to leverage monitoring efforts as well as providing technical support on stormwater and other technologies. EPA, USGS, the Cape Cod Commission and state agencies will work in the

Cape Cod towns of Barnstable, Dennis, Falmouth, Mashpee and Orleans to conduct site investigations for the potential design of permeable reactive barrier technology application.

Under EPA's Healthy Communities grant program in New England, approximately \$1.5 million has been allocated for nine proposals selected for funding. Four of those projects will improve Narragansett Bay, while five projects will improve Buzzards Bay and watersheds on Cape Cod.

Using funding of \$199,664, The Nature Conservancy will apply to the Taunton River watershed a proven, successful approach used by the Cape Cod Commission for engaging the public in determining locally appropriate nutrient management strategies, with a focus on building collaboration and partnerships throughout the region.

The Southeastern Regional Planning and Economic Development District is receiving \$170,000 to develop a green infrastructure map of the Taunton River watershed, giving municipal officials case studies and training in using customized overviews of natural features in their communities to protect water quality, groundwater recharge, flood control and biodiversity.

The Buzzards Bay Action Committee is receiving \$200,000 to update the GIS database of the Buzzards Bay stormwater atlas to help monitor outfalls and further track and monitor potential illicit discharges, including using a smart phone application to help document monitoring and identification.

The Buzzards Bay Coalition is receiving \$100,000 to support the 2016 and 2017 Baywatchers Monitoring Program. The project will expand sampling into the winter, when samples will be collected at each winter monitoring event.

The County of Barnstable, Cape Cod Cooperative Extension, will receive \$66,468 to compare the effectiveness of nitrogen removal in rain gardens and conventional stormwater systems at three Cape Cod land parcels, each of which contains both systems, allowing for a direct comparison. Efficiency of the two systems will then be compared in terms of cost vs. performance for nitrogen removal. This project will include the support of the Woods Hole Sea Grant, the Woods Hole Oceanographic Institution, and the towns of Bourne, Dennis and Mashpee.

The Mashpee Wampanoag Tribe will receive \$198,174 to construct shell reef structures within Popponasset Bay and seed them with oyster stock to introduce a large number of filter feeders to improve water quality. The proposed reef would cover approximately 4 acres (1.6 hectares) of shoreline, and would also assist in protecting the shoreline from weather events causing further loss of beach.

The Martha's Vineyard Shellfish Group is receiving \$135,693 to research and calculate nitrogen uptake by the common invasive reed Phragmites, and to investigate annual cutting and harvesting of the invasive plant as a potential mitigation strategy. This project will also look into using Phragmites as a product in agriculture and as a biofuel source.

For more information, check the following website: Southeastern New England Coastal Watershed Restoration Program: www2.epa.gov/snecwrp

For a list of projects funded by EPA within the Buzzards Bay Program, visit: restore.buzzardsbay.org/restoration-funding.

html, and for projects funded by EPA within the Narragansett Bay Estuary Program, visit: nbep.org/index.html

EPA AND PARTNERS RELEASE NEW BLUEPRINT TO PROTECT AND RESTORE LONG ISLAND SOUND

Emily Bender, EPA Region 1 News Release

The Long Island Sound Study has released a new Comprehensive Conservation and Management Plan (CCMP) for restoring and protecting the Long Island Sound, setting 20 ambitious targets to be achieved by 2035. Among these goals are: a reduced number of beach closures due to sewage pollution; a reduced area of the Sound with unhealthy oxygen levels; improved water clarity; restored coastal wetlands; increased open space; and a reduction in the amount of plastic marine debris in the Sound. This plan builds on the successes of the original 1994 CCMP by incorporating scientific and technological advances, incorporating the current needs of Sound communities, and addressing new environmental challenges, while emphasizing sustainability, climate change resilience and environmental justice.

In addition to being a critical environmental and ecological resource for the region, Long Island Sound and its watershed are critical economic drivers, providing tens of billions of dollars in estimated annual economic goods and services annually.

"This CCMP update builds on the progress to date and provides an action plan for 21st century challenges," said EPA's Mr. Spalding. "This plan outlines action on climate change impacts and pollution management. It is important that the plan makes sustainability and resiliency an integral part of achieving a cleaner, healthier Long Island Sound for people to enjoy."

"Hurricane Sandy changed forever how we think about our coasts and coastal communities," said Judith A. Enck, EPA Region 2 administrator. "The plan highlights that actions can be taken to adapt to climate change, making Long Island Sound healthier and our communities and economy more resilient."

"People from all over this region enjoy the use and beauty of Long Island Sound and benefit from its resources thanks in part to the dedication of those who took action in 1994 to create and adopt a plan to restore and protect it from the impacts of 300 years of human development," said Robert Klee, commissioner of Connecticut's Department of Energy and Environmental Protection (DEEP). "It is now our obligation to make certain we leave a Sound that future generations are able to enjoy and benefit from as well. The new Long Island Sound CCMP builds on the successes we have achieved, details new present day initiatives and sets goals for the future. Key areas of focus in the plan will empower us to meet the challenges like climate change, and continued land use and development pressures, in order to ensure the future of this precious resource."

"Long Island Sound is an important ecological and economic treasure, and the new CCMP provides a strong blueprint for all partners to follow in keeping it on the road to recovery," said Marc Gerstman, acting commissioner of the New York State Department of Environmental Conservation. "New York State remains committed to advancing this ambitious agenda, and we look forward to working with our federal, state and



Satellite image of the Connecticut River spewing sediment into Long Island Sound

local partners to build on the successes we've achieved over the last 20 years and utilize our best available science to tackle the emerging threats of climate change, nitrogen pollution and habitat loss that face this incredible ecosystem."

The new CCMP includes 20 targets for Long Island Sound to be achieved by 2035. These include:

- Reducing beach closures due to sewage by 50 percent
- Reducing areas of water with unhealthy oxygen levels by about 28 percent
- Improving water clarity to support eelgrass
- Increasing the area of natural vegetation within 300 feet (91.5 meters) of all streams and lakes in New York and Connecticut by 75 percent
- Restoring 3,000 acres (1,214 hectares) of coastal habitat by 2035
- Conserving an additional 4,000 acres (1,619 hectares) of open space in Connecticut and 3,000 acres (1,214 hectares) in New York
- Reducing the 5-year average of marine debris collected from the Sound by more than 300 pounds per mile (84 kilograms per kilometer) surveyed

Sponsored by EPA, Connecticut DEEP, and New York State Department of Environmental Conservation as well as nonprofit and community groups and businesses, the Long Island Sound Study partnership first released a CCMP in 1994. Implementation of that plan over the past 20 years has yielded the following tangible results:

- Under an innovative, bi-state program to reduce nitrogen pollution, 40 million fewer pounds (18 million fewer

kilograms) annually of nitrogen are discharged from wastewater treatment facilities to Long Island Sound. In the summer of 2015, the area of the Sound affected by unhealthy levels of dissolved oxygen was the second smallest recorded in 28 years.

- More than 1 million gallons (3.8 million liters) of recreational boat sewage are kept out of the water each year by the "No Discharge Zone for vessel waste in Long Island Sound, which was established by Connecticut and New York."
- The area of eelgrass beds, an important habitat for fish and shellfish, has increased by 29 percent between 2002 and 2012.
- 1,650 acres (668 hectares) of habitat have been restored, and 317 miles (510 kilometers) of river and stream corridors for fish passage have been reopened since 1998. Since 2006, Long Island Sound Study partners have protected 2,675 acres (1,083 hectares) of open space and coastal habitat through easements and land acquisitions.

The CCMP was developed through a collaborative process involving federal, state and local governments, university scientists, and interested representatives of business, environmental and community groups. The plan was finalized after careful consideration of 250 comments from the public on a draft version released in late 2014. Information on the CCMP is available at longislandsoundstudy.net/CCMPinfo. Visit longislandsoundstudy.net for general information on the Long Island Sound Study.

NATIONAL INGENUITY CONTEST CHAMPS STUN JUDGES WITH AMAZING IDEAS

Steve Spicer, Managing Editor of Water Environment & Technology Magazine

Four inventors received awards from the 2015 Ingenuity Contest at WEFTEC® 2015 in Chicago. This marks the fourth year that the competition has recognized fixes that tackle a persistent problem with nothing more than the materials at hand and a hearty dose of ingenuity.



1. Captains of the Inspection Squadron
When the city of Casper, Wyoming, worried about the condition of the pipes within its water resource recovery facility, a wastewater team found a floating solution. The team—Lane Christensen, David Ferguson, Matt Wilhelms, Jared Winzenried, Brody Allen and James Soller—pieced together some foam-board, a piece of wood, rope and fasteners to create a raft for its collection system camera. The team nicknamed the contraption "The U.S.S. WWTP."

A way was needed to guide the camera through the pipe safely and ensure it could be recovered at the downstream manhole. To accomplish this, the team first dropped



The U.S.S. WWTP sits ready to sail through the facility's pipes

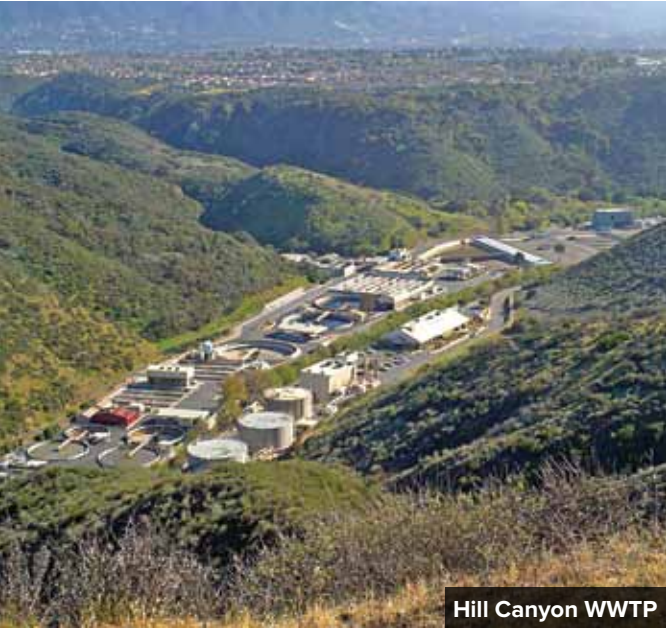
an inflatable ball attached to several hundred feet of twine into the pipe and tied the twine to the upstream manhole. When the ball made its way to the downstream manhole, the team retrieved it with a hook. This left a long stretch of twine running the length of the pipe between the manholes.

Next, the U.S.S WWTP was tied to the twine at the upstream manhole, gently lowered into the pipe and pulled steadily from the downstream manhole. Upon arrival at the downstream manhole, the U.S.S. WWTP was removed using the long-handled hook.

The video collected from the camera was invaluable. It showed areas of severe corrosion and pipe collapse that had to be repaired.

2. Valedictorians of the School of Hard Knocks

During a March 2011 thunderstorm, operators at the Hill Canyon WWTP (Thousand Oaks, California) noticed the pipe from secondary clarifiers to emergency retention basins was not flowing fully. After the storm, the crew—Mark Capron, Mike Mantor, and Robert Richardson—determined that nothing but air was blocking the pipe but it remained less than half full.



They realized that the high point of the base of the 875-mm-diameter (36-in.-diameter) pipeline was too high. This configuration led to empty space within the headspace of the pipe.

Restoring the pipe's full 189-m³/d (50-mgd) flow required getting the air out at the high point. Instead of a major construction project to lower the high point of pipe to prevent the air blockage, the crew installed a \$500 vacuum pump to the existing air release valve.

When the pipe is full of air, one vacuum pump requires a full day to remove all the air. After the air is removed, the pumps run less than 100 hours per year in sub-second bursts. The crew also decided to leave the air release valve in place to prevent the vacuum pump from pulling in water. With the air removed, the line regained its full capacity.

3. Master of the Machines

Vikas Bhaskaran, senior skilled trade technician at the Village Creek water reclamation facility (Fort Worth, Texas), builds tools to aid other mechanics. He created a plasma and oxy-acetylene cutting machine using parts salvaged from old traveling bridge filters. The machine cuts metal precisely to enable operators to fabricate metal pieces for custom repairs. Mr. Bhaskaran also created a ratchet to help remove and attach the stator from a screw pump more safely. The ratchet enables one person to do a task that, before, required five people.



Building a precision cutting tool from salvaged parts enables the Village Creek Water Reclamation Facility (Fort Worth, Texas) to make the custom pieces it needs for repairs.

4. Dean of Public Education

The Jacksonville, Arkansas, Wastewater Utility wanted to educate customers about line inspections. To achieve this, operators, led by Walton J. Summers II, built a display that includes a replica manhole, lateral and cleanout cap. Part of the display gives an underground view of the lateral, which is cracked and wrapped with tree roots. Operators can show residents how smoke added to the manhole seeps up out of the grass—green outdoor carpet—and signals the need to televise the line to produce a defect drawing.



Jacksonville's (Arkansas) smoke testing display helps customers understand the inspection process.

Share your ingenious fixes

The WEFTEC Ingenuity Contest will return in 2016 to honor more smart fixes and quick repairs. To participate, write a one-page description of the problem you faced and the fix you found. If your invention or idea can be photographed, snap a picture.

The submission window is open now until May 26, 2016. See the full entry details at weftec.org/ingenuity. Author Steve Spicer can be reached at SSpicer@wef.org.

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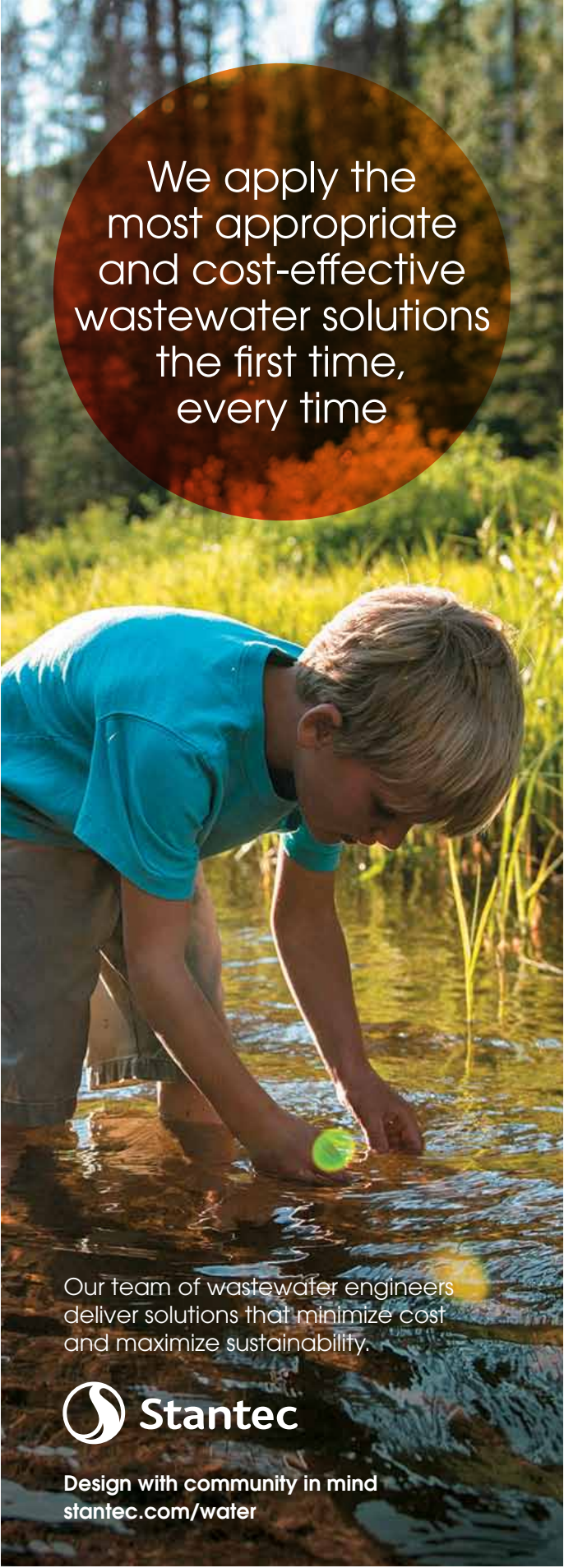
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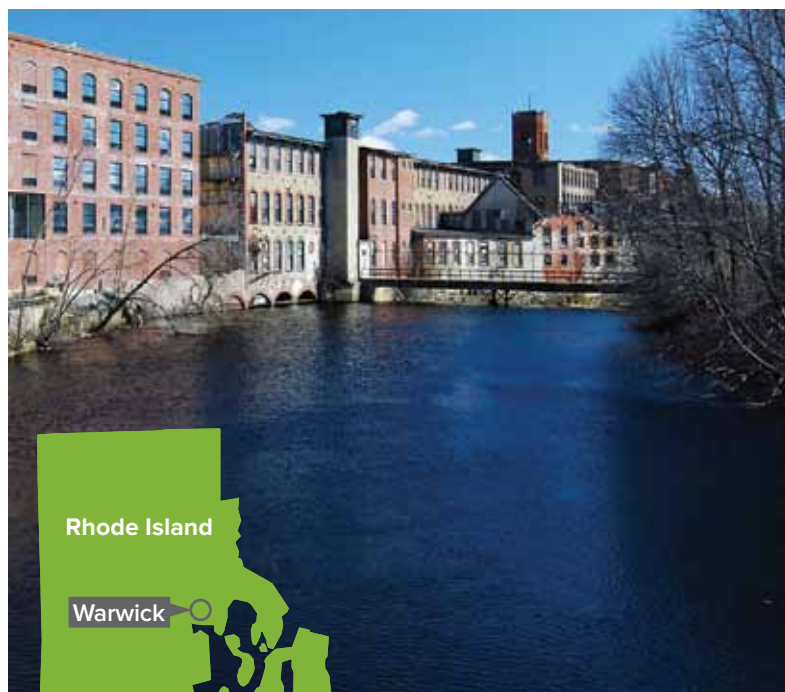


Improved water quality and operational resiliency on the Pawtuxet River

JANINE BURKE-WELLS, Executive Director, Warwick, Rhode Island Sewer Authority

ABSTRACT | Rhode Island's Pawtuxet River flows over 12 miles (19 kilometers) through 12 communities, discharging to Narragansett Bay at historic Pawtuxet Village on the Warwick/Cranston line. The Pawtuxet River watershed is the largest watershed in the state, comprising over 230 square miles (600 square kilometers). In the spring of 2010, the Pawtuxet slowly but surely overtook the West Warwick treatment process tanks and buildings as the flooding expanded well beyond the river's banks in what was later determined to have approached the 500-year flood. The flood was the product of four consecutive storms that started in February 2010. First responders (facility managers, operators and mechanics) heroically initiated disinfection and restored basic primary treatment in less than a week and biological treatment systems in less than three months.

KEYWORDS | Wastewater treatment facilities, 500-year flood, flood damage mitigation, FEMA, grants



The Pawtuxet River at Pontiac Mills, a historic textile mill complex in Warwick, Rhode Island

LIKE ITS COUNTERPARTS TO THE NORTH (the Blackstone and the Woonasquatucket rivers), the Pawtuxet was a working river, powering numerous factories and textile mills built during the Industrial Revolution. The need for controlling pollution discharged to the waters of the Pawtuxet became apparent at the beginning of the 20th century. In the early 1940s, West Warwick and Cranston constructed wastewater treatment facilities along the banks of the Pawtuxet's main stem. Several decades later, the city of Warwick brought its wastewater treatment facility on line. The three Pawtuxet River treatment facilities have undergone numerous upgrades over the years to meet more and more stringent effluent standards imposed by the Rhode Island Department of Environmental Management (RIDEM) to improve water quality in the river and Narragansett Bay. Discharges of solids, organics and toxic pollutants have decreased and RIDEM de-listed the Pawtuxet River for dissolved oxygen impairments in 2008. Following new discharge permits issued by RIDEM in 2008, all three facilities are constructing upgrades to meet lower limits for both nitrogen (8 milligrams per liter [mg/l]) and phosphorus (0.1 mg/l).



A WASTEWATER TREATMENT FACILITY THAT TAKES CHANGE IN STRIDE

The youngest of the three facilities, the city of Warwick's treatment plant celebrated its 50th anniversary in 2015. When the Warwick Sewer Authority (WSA) was officially created in 1962, Warwick was the fourth largest city in Rhode Island with a population of 68,504. Today it is the second largest city in the state after Providence, with its population at 82,672 according to the last census in 2010. In the early 1960s, when planning began for Warwick's wastewater collection and treatment system, it was impossible to have foreseen all the changes that would come over the next 50 years. These changes include the construction of Interstate Route 95 alongside the treatment facility, a burgeoning residential population and commercial development, which devoured former farmlands, increasingly stringent water quality regulations and the latest challenges brought on by climate change, including sea level rise.

WSA spent the intervening years planning and adapting to best management practices to protect the city's natural resources and provide wastewater collection and treatment services to as much of the growing community as possible. However, the city's wastewater facilities plan and early hazard mitigation plans did not anticipate what was to happen in

March 2010. The most daunting challenge to date has been a flood of historic proportions that devastated the city's sewer infrastructure, left it inoperable for days, and took years and a lot of money and hard work to repair. Five years after the flood, the facility has recovered, and operations and effluent quality are better than ever.

A HALF CENTURY OF CHANGE

The Warwick treatment facility and the main components of a sewerage system were completed and brought on-line in 1965. The then 4.5-million-gallon-per-day (mgd) (17-million-liters-per-day [mld]) secondary treatment facility was built in an oxbow on the banks of the Pawtuxet River, which was heavily polluted at that time. By 1965 standards, the treatment facility was state-of-the-art—an activated sludge secondary treatment facility that reduced the suspended solids and organic loading to the river. Over the next 14 years, WSA completed a comprehensive sewer facilities plan that would establish the basic guidelines for its sewerage program for the decades to come.

In the 1980s, the city embarked on upgrades of the facility to increase the treatment capacity to 7.7 mgd (29 mld) and improve solids handling. In addition, after repeated flooding of the treatment



Cranston flooding 2010



West Warwick flooding 2010



Aeration piping from boat



River coming over top of dike

facility by the Pawtuxet River (including two of the top five historic river crests as registered by the U.S. Geological Survey's [USGS's] gauge 01116500 at Cranston), WSA constructed a berm to protect the facility from future flooding, up to the 100-year flood elevation.

In 1989, with the Pawtuxet River still plagued by poor water quality, RIDEM determined that the three communities of Warwick, West Warwick and Cranston needed to reduce levels of pollutants discharged from these three point sources to the Pawtuxet River. New discharge permits included limits on ammonia and metals deemed toxic to aquatic life and on nutrients such as nitrogen and phosphorus that were also leading to problems such as low dissolved oxygen levels in the river.

In 1990, Cranston, West Warwick and Warwick entered into agreements with RIDEM to upgrade the treatment facilities to achieve the new, more stringent discharge limits. Planning and design of facility improvements needed to meet these new limits would take Warwick nearly a decade. WSA completed construction of \$30 million in facility improvements in 2004, including advanced biological nutrient removal and expanded aeration and secondary treatment processes.

In 2008, the three treatment facilities on the Pawtuxet River received new discharge permits

with much more stringent limits on phosphorus. WSA began to update its Facilities Plan once again and plan for the design of a new treatment process to remove phosphorus down to 0.1 mg/l. WSA had barely started the latest planning when the March 2010 floods struck. RIDEM allowed WSA additional time to design the phosphorus removal improvements and extended deadlines to allow further flood mitigation measures. The Facilities Plan completed and approved in 2012 included preliminary design of the recommended ballasted flocculation process as well as increasing the height of the levee by about 5½ feet (1.7 meters) to protect the treatment facility from a 500-year flood.

WASHED AWAY: THE GREAT FLOOD OF 2010

Efforts over the first 50 years of the Warwick wastewater treatment facility's operation mostly aimed at minimizing its impact on the Pawtuxet River and Narragansett Bay. Operators and other staff who had endured the facility flooding in the late 1970s and early 1980s had retired, and no one focused on the impact of the river on the facility infrastructure. Besides, the levee surrounding the plant was supposed to protect it.

Between February 23 and April 1, 2010, rain inundated Rhode Island as the state received more than 20 inches (50 centimeters) in less than 40 days.



West Warwick flooding

The Pawtuxet River watershed experienced major flooding, especially in the urbanized and highly developed communities of West Warwick, Warwick and Cranston. On March 15, the Pawtuxet river rose to 14.98 feet (4.57 meters) at the Cranston gauge (NGVD29), surpassing its previous historical peak of 14.5 feet (4.42 meters) on June 7, 1982. On March 31, the Pawtuxet blew that new record away when it peaked at 20.79 feet (6.3 meters), nearly 8 feet (2.44 meters) higher than the major flood stage of 13 feet (4 meters).

President Obama declared a federal disaster (FEMA-1894-DR-RI), and the state of Rhode Island and many local communities were operating under a state of emergency. All three wastewater treatment facilities on the Pawtuxet River experienced major operational interruptions during the Great Flood of 2010.

Cranston lost its biggest pumping station (which handles more flows than some treatment facilities) to flooding. The river also encroached on the treatment facility but did not do too much damage.

In West Warwick, the Pawtuxet slowly but surely overtook treatment process tanks and buildings as the flooding expanded well beyond the river's banks in what was later determined to have approached the 500-year flood, the product of four consecutive storms that started in February 2010.

It is important to recall that the wastewater treatment facility in Warwick was built in an oxbow. The

river's tendency is to short-circuit the oxbow, which is what the levee prevents. In retrospect, the location was not the best site for a wastewater treatment plant.

In Warwick, March 15 was a close call, but the levee did its job.

When the rain came back with a vengeance at the end of the month, the Pawtuxet River overtopped the Warwick treatment facility's levee by about 3 feet (0.9 meters), quickly filling the compound (which includes the city's animal shelter) with a mixture of river water and incoming wastewater—up to 10 feet (3 meters) deep on the river side of the property. Adding to Warwick's woes were six flooded pumping stations along the river and the complete loss of SCADA communications with all 48 pumping stations.

During the Great Flood of 2010, untreated sewage undoubtedly made its way into Narragansett Bay despite heroic efforts by treatment facility managers, operators and mechanics who minimized service interruptions. Warwick and West Warwick initiated disinfection and restored basic primary treatment in less than a week. Restoring the biological treatment systems took a little less than three months. Repairing all the facility damages took years. Expenses were covered mostly by insurance and Federal Emergency Management Agency (FEMA) public assistance.

See the FEMA video for a closer look at Warwick's experience—[fema.gov/media-library/assets/videos/102046](https://www.fema.gov/media-library/assets/videos/102046)

Cranston sustained \$1.5 million in damages while West Warwick and Warwick spent \$11.5 million and \$14 million, respectively, on recovery efforts.

MAKING A COMEBACK

The critical path to recovery of full treatment plant operations in Warwick involved:

- Securing temporary electrical power
- Dewatering the treatment facility
- Removing solids and restoring forward flow through the process tanks
- Reestablishing SCADA system communications with remote pumping stations
- Rebuilding the aeration system
- Re-seeding the biological process

WSA staff were able to re-occupy their office buildings by mid-summer of 2010, but plant reconstruction continued for another year. Restoring permanent electrical power and repairing electrical equipment took the longest and cost the most. WSA is now back on track to meet its new 0.1 mg/l phosphorus discharge limit in 2016. Construction of levee improvements are ongoing and will be completed in 2016.

After the flood, WSA sought out all grants available to harden its infrastructure and improve service reliability and operational resilience. Grants obtained include:

- \$980,000 from the Rhode Island Office of Energy Resources to purchase and install new high-efficiency blowers and associated computer controls to minimize energy used for aeration. WSA also purchased new luminescent dissolved oxygen probes to monitor oxygen levels in the aeration basins as well as new plant water pumps and premium efficiency motors and controls for several pumping stations.
- More than \$100,000 in National Grid rebates on the purchase of energy-efficient equipment.
- \$721,000 from the Department of Commerce/Economic Development Administration (EDA) to construct a new, elevated pumping station in the Pawtuxet Industrial Park to protect it from a 500-year flood.
- Nearly \$300,000 from the Department of Housing and Urban Development (HUD)'s Community Development Block Grant Disaster Relief funds, which were used for the study and preliminary design of flood mitigation for the treatment

through major upgrades and changes. He has also dealt with more than his share of natural disasters recently, not only the Great Flood of 2010, but four major hurricanes (including Earl, Irene and Sandy), winter storms Nemo (2013) and Juno (2015), and the recent “macro-burst” storm that blew through Warwick, causing infrastructure damage and major power outages that lasted for a week in some areas. Mr. Doyle was crucial to WSA’s response to and recovery from the collapse in February 2011 of a 48-inch (1.22-meter) reinforced concrete interceptor pipe feeding WSA’s largest pumping station (average daily flows of 2 mgd [7.6 mld]); the interceptor was more than 20 feet (6.1 meters) deep and adjacent to Buckeye Brook, a sensitive environmental resource and critical habitat and anadromous fish run. Patrick’s leadership was crucial to the organization in getting through these crises as well as overcoming the regular challenges of operating and maintaining a large and complex wastewater utility.

A former member of the Pawtuxet River Authority’s board of directors,

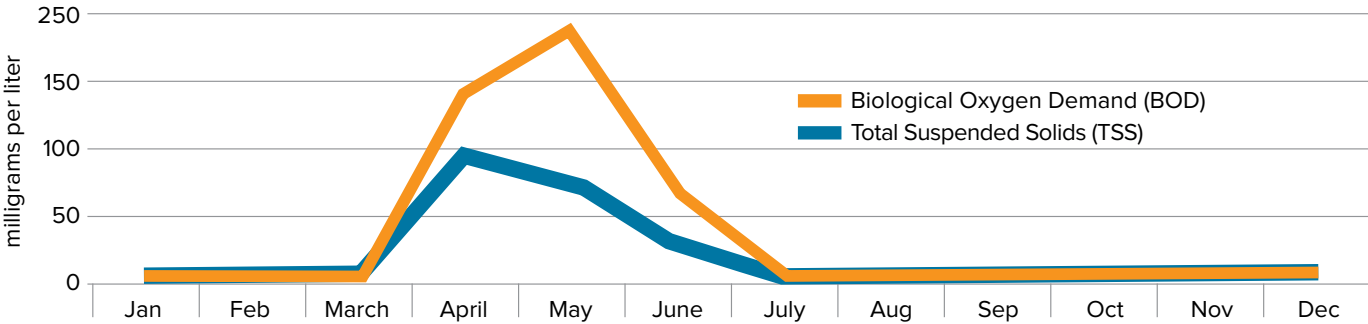
Mr. Doyle says some of his proudest moments have been overseeing improvements to the treatment facility to meet more stringent permit requirements. As WSA executive director, I had the pleasure of working with him for nearly eight years and recognized his integral role in keeping the treatment facility in compliance with its discharge permit. He also greatly assisted WSA in tackling collection system issues, such as creating a CMOM program and reducing infiltration/inflow. He helped develop a system-wide capital improvement plan that is now paying dividends. His passion for safety, process control and energy efficiency have contributed greatly to the facility operations. Mr. Doyle’s contributions to WSA will never be forgotten, especially his efforts in the last several years to ensure the good work will continue without him.

Patrick Doyle’s contributions to the industry were recognized in 2009 with NEWEA’s Operator Safety Award. At this year’s annual conference he will receive the 2015 Operator of the Year for Rhode Island for all of his contributions to excellence in plant operations.



Wishing Patrick Doyle well in retirement

WSA recently said goodbye to its superintendent, Patrick Doyle, as he transitions into semi-retirement. Mr. Doyle was with WSA for nearly 27 years, starting as an operator and working his way up to superintendent. Shortly after he retired, he agreed to an interview with the *NEWEA Journal* to talk about his long, successful career in wastewater. He said he had always wanted to manage, choosing operations because he knew there would be opportunities for advancement as he progressed in his career. Mr. Doyle has been with WSA through some of its most challenging years. He has seen the facility go



Warwick Sewer Authority 2010 discharges

- facility and as a match for the EDA grant.
- \$3.6 million in additional public assistance from the Federal Emergency Management Agency to mitigate flood hazards by raising the levee around the treatment facility to protect it from a 500-year flood.

PAWTUXET RIVER TODAY

There were water quality impacts from the Great Flood. Sampling and analysis by the Narragansett Bay Commission (NBC) showed that bacteria levels on the Pawtuxet River were close to 100 times the historic wet weather bacteria levels and remained elevated for 13 days following the flood. According to NBC, nitrogen loading did not return to normal until the beginning of May. However, because of operational improvements and the resiliency of its three wastewater treatment facilities, the Pawtuxet River seemingly has no long-term impacts from the short-term interruptions in service which occurred in 2010. Warwick, West Warwick and Cranston have all have made changes to adapt or to mitigate future damages, including preventing down-time for the treatment facilities in the case of more frequently occurring natural disasters. All three facilities will soon meet more stringent nutrient standards. The quality of water in the Pawtuxet River will surely benefit from these efforts.

ABOUT THE AUTHOR

Janine Burke-Wells is the executive director of the Warwick Sewer Authority and currently serves as the Rhode Island Commissioner for New England Interstate Water Pollution Control Commission. She is completing her three-year commitment as a state director for NEWEA and has been nominated to be NEWEA’s next vice president. Ms. Burke-Wells holds a bachelor of science degree in chemical engineering from the University of Rhode Island and a master of public administration from Northeastern University. She also holds a Grade 2 wastewater operator’s license and a Level 400 Certification National Incident Command System.

¹narrabay.com/~/media/Files/EMDA%20Documents/2010_EMDA_Data_Report.ashx



FUN WITH SCAVENGER HUNTERS

Despite the serious nature of the work—and perhaps because of the stresses of the job—the staff at WSA like to have fun whenever possible. This past August, WSA staff gave tours of their treatment facility to participants in the Greatest International Scavenger Hunt the World Has Ever Seen (GISHWHES), a fundraising initiative for a charity called Random Acts. Giving tours is a normal part of the WSA’s public outreach and efforts to educate the general public about wastewater treatment, but not too many visitors arrive wearing a gown with a violin player in tow! GISHWHES attracts thousands of participants from hundreds of countries annually to photograph and videotape themselves performing various random acts included on the scavenger hunt list to earn points, have fun and raise money for charity. The GISHWHES list for 2015 included No. 23 which required a photograph as proof that the participant completed the assignment to “tour a wastewater/

sewage treatment factory dressed in formal attire with an accompanying violinist or flutist” to earn 82 points. Thanks to GISHWHES, many people who would have never dreamed of visiting a wastewater treatment facility did just that—in style! Photos of GISHWHES participants (with clearly identifiable wastewater treatment process tanks and equipment in the background) are now abundant on the internet. WSA Executive Director Janine Burke-Wells was more than happy to accommodate the GISHWHES participants. “I loved it!” she said. “Whoever came up with this scavenger hunt item must know and appreciate a wastewater operator and recognize that we don’t take ourselves too seriously either.” However it ended up on the list, GISHWHES 2015 Item No. 23 was fun, free publicity for wastewater treatment and introduced people around the world to our impressive facilities and the people who operate them.

Attracting and retaining the next generation of skilled operators

JEFF KALMES and DAVID GARABEDIAN, Town Of Billerica, Billerica, Massachusetts

ABSTRACT | In the water and wastewater industry there is a shortage of qualified, licensed people interested in pursuing a career in operations. This is a critical concern not only for the industry but also for communities. We provide an essential service that must continue without a loss in quality and performance. What can our industry and communities do now to help provide the next generation of wastewater and water treatment facility operators? Are there barriers to entering the industry as an entry-level operator that we can reduce or eliminate? We can do many things—as operators, supervisors, superintendents and directors—to raise awareness of this issue while also providing a good working environment that encourages qualified applicants, staff retention and career advancement.

KEYWORDS | Workforce shortage, operations and management, retirement, training, certification, retention, job classification, wages

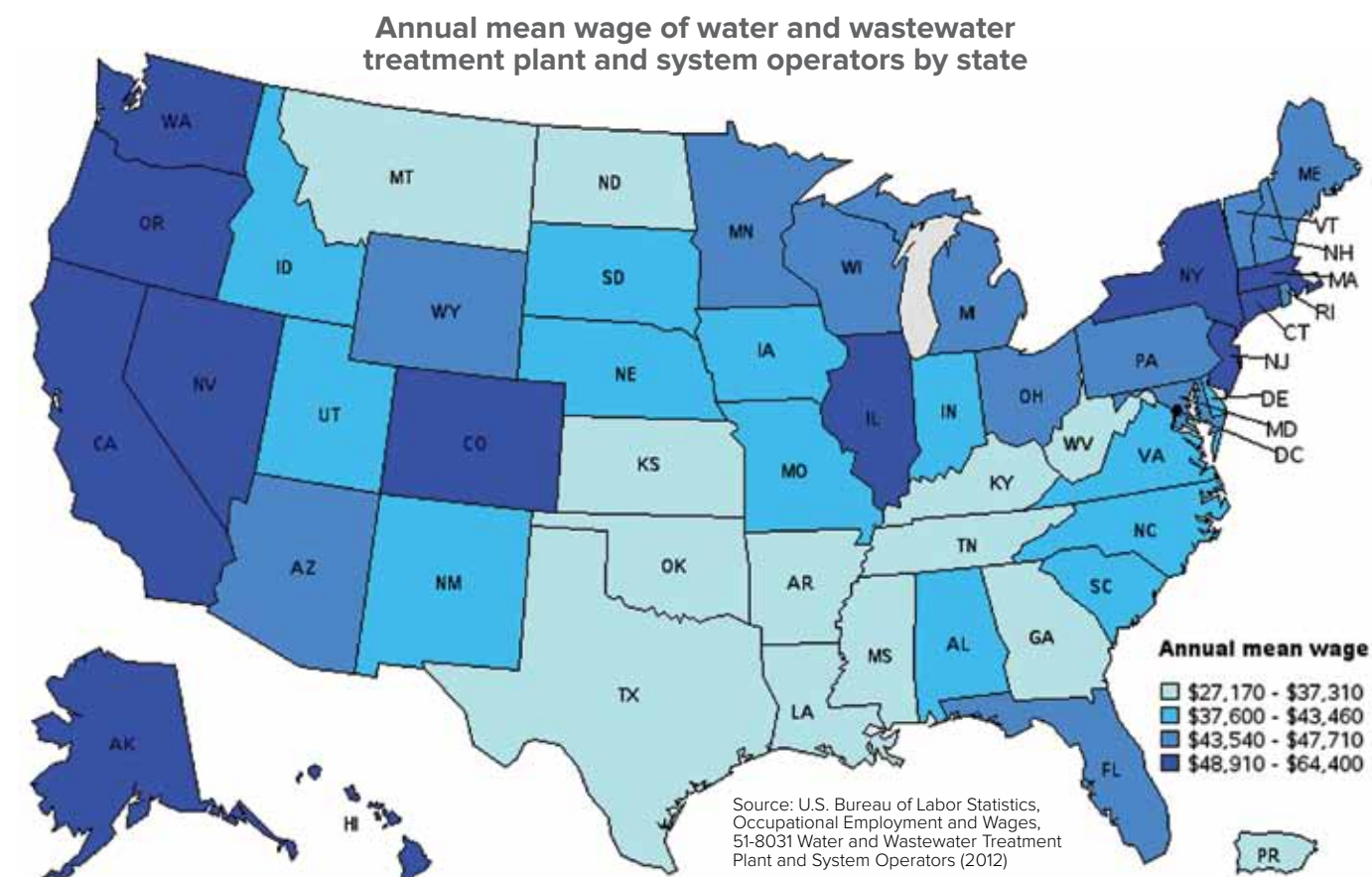
OVER THE LAST COUPLE OF YEARS, WE HAVE WORKED with three people, on our own time, who wanted to change professions. After some encouragement, they were confident a career in water and wastewater operations was a worthwhile pursuit. We hired one of them here in Billerica, Mass., another has gone into water treatment operations, and the third is looking for a job, which should happen soon.

Because of this recent experience, and through our many years of listening to similar problems from water treatment professionals as well, we recognize that this industry has many hurdles that make it more difficult to attract the next generation of qualified operators. Examples of hurdles we are experiencing are rate of pay, hiring process (unions, civil service) and experience level of operators—to name a few. This is challenging because many of our wastewater treatment facility staff in Billerica are nearing retirement age. From conversations with water and wastewater treatment staff at conferences and through trade associations, we understand there are similar issues at other plants across the country. There are impediments ahead, but there are also opportunities with significant benefits that we can make available.

INTRODUCING OUR TRADE TO SECONDARY AND POST-SECONDARY STUDENTS

A significant obstacle to bringing in our next generation of skilled, qualified and licensed entry-level staff is the inability to select wastewater and water treatment operations as a trade at a secondary vocational school. There are options for students who want to pursue a career as a mechanic, electrician or plumber, but it is rare for the skills and certification required for an operator to be offered at a vocational school. In addition, there is little conversation about pursuing water or wastewater operations as a career at trade schools. This is unfortunate, not only because there is a growing need for qualified applicants but also because the water and wastewater fields offer an opportunity to acquire high-quality, stable jobs.

Perhaps the absence of the wastewater and water treatment operations field as an option at vocational schools stems from a lack of demand from students to pursue a career in our trade. It is more common for a child to grow up wanting to be a police officer, firefighter or a member of the armed forces. Friends and family do not give children vac trucks as gifts on birthdays—they tend to give fire trucks, police cars and tanks. If our industry reached out



more to high school students, gave presentations on the benefits of our industry, visited trade fairs at vocational schools or worked with local trade schools to develop curriculum to train the next generation of students, we could see a surge in demand for careers in our field. We need this pipeline of capable and interested employees to replace our aging population of soon-to-retire operators, supervisors and superintendents.

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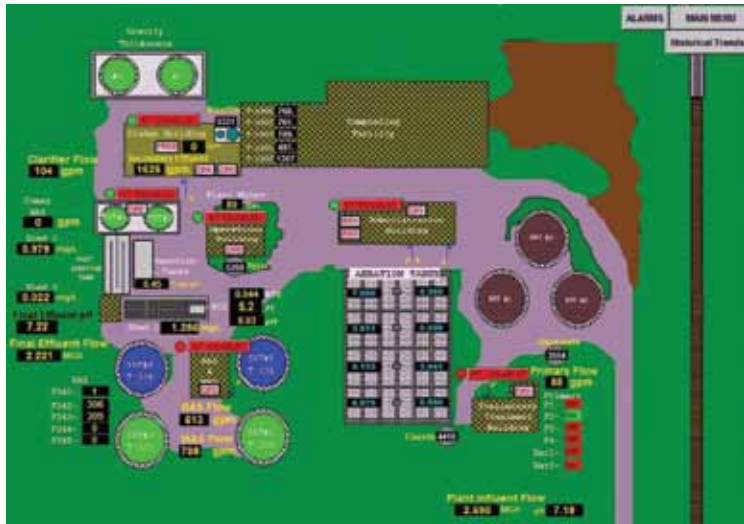
Our industry should also reach out to colleges and universities to draw in skilled graduates with an interest in finding a career in municipal administration, environmental compliance or technical fields. Today's graduates face a tough job market. In general, public sector hiring is relatively flat or in contraction, and private organizations are just beginning to rebound from the recent economic downturn. Young workers could be drawn in by the job growth, stability and potential for advancement that a career in water and wastewater operations offers. They do not know how to enter our field, so our industry needs to reach out more to students and career planning officers at post-secondary institutions.

CORRECTING MISCONCEPTIONS CAN LEAD TO INTEREST

More can also be done to correct misconceptions about our industry—especially wastewater treatment. It is an unavoidable fact that the public perceives wastewater treatment with a bit of a “yuck” factor. Yet, as we know, when students or community members come to tour our plants, they are often surprised to learn that the facility is not as they expected. At our wastewater treatment plant in Billerica we often host elementary, middle and high schools as well as local college students and potential employees on tours of the facility. People can see that their tax dollars are being

well spent, and the tour dispels preconceived notions of what it is like to work at a wastewater treatment plant. In addition, our industry is rebranding terms or associations. For example, it is well known that the Water Environment Federation (WEF) encourages members to use the term “water resource recovery facility (WRRF)” rather than wastewater treatment facility. Students may be drawn to careers in wastewater or water treatment if they are thought of as “green” or “environmental sustainability” jobs.

Certainly our industry takes pride in knowing that what we do promotes health and a better environment, and we should openly convey that to potential employees and the public. Wastewater and water



The job of today's operator revolves around technical responsibilities including SCADA, computers and advanced communications

infrastructure is mostly underground or out of sight on the edge of town, but we need to publicize the benefits of our services. In Billerica, we have been doing classroom presentations for more than two decades. We have given hundreds of presentations at elementary schools throughout the years to educate students about what we do and the benefits our industry provides. The students truly enjoy the learning experience, and it helps bring attention to something that the community tends to forget is indispensable.

Furthermore, the nature of a job in our industry has drastically changed over the years. When many of us started in water and wastewater, the job primarily encompassed manual duties. Today, with the prevalence of SCADA, computers and advanced communications, much of our day revolves around technical responsibilities. This new reality is both a benefit and a challenge.

The benefits are clear. The rise of advanced technology in our field has made our jobs safer, the control of the output is more precise, and the day-to-day tasks are more appealing to a generation of employees who are well accustomed to working with computers to get things done. For those of us who work at plants that transitioned to state-of-the-art equipment, we saw that there was some initial resistance to implementing SCADA and electronic devices to control our operations. New skills had to be learned, and some employees who worked night shifts were reluctant to make a change to the first shift. (It should be noted here that when we transitioned to automation no jobs were lost.) However, after a period of adaptation and training, our staff is quite pleased with the changes. The next generation of operators will already be familiar with using technology to complete their work. The fact that the Billerica facility has incorporated advanced

devices into our operations will certainly appeal to potential applicants.

There are also challenges from the rise in technology in water and wastewater operations. An operator's job now requires diverse skills and an understanding of a new vocabulary that some applicants may find challenging. However, while many of our tasks are technical, the job still requires manual labor and occasionally getting one's gloves dirty. In Billerica, a crucial component of increasing job satisfaction has been to train our staff in a wide variety of skills and functions. This wider vision of how our plant functions also makes operations run more smoothly, and we tend to discover potential problems more frequently when staff understands how things work.

ENCOURAGING POTENTIAL APPLICANTS TO PURSUE CERTIFICATION AND CURRENT STAFF TO ADVANCE

Having noted the potential value in reaching out to secondary- and post-secondary students and advocating for pursuing a career in our field, we are still aware of other obstacles to getting graduates in the door. Primarily, these graduates need training and certification to qualify as an applicant for most water and wastewater entry-level positions. Applicants for supervisory positions also need experience in the field. Some high school and college graduates simply will not want to start at the bottom and work their way up. In addition, after completing vocational training in their field of choice or after completing a two- or four-year degree, many students will not want to go back to school to acquire entry-level certification to begin a new job.

We could do more to spread the word that there are jobs available in our field so that investing in training would be worth the graduate's time and

We could advocate for our communities to provide financial support, through scholarships or loans, to qualified students who are pursuing certification.

expense. Our industry should also share with those who express an interest in our field that with the coming retirement of so many supervisors and superintendents, advancement would likely come in seven to 10 years rather than the 15 to 20 years many had to wait for positions to become available.

Perhaps our industry should do more to improve accessibility to training. We could advocate for our communities to provide financial support, through scholarships or loans, to qualified students who are pursuing certification. In Billerica, we provide financial resources to employees to make continuing education and testing accessible. At our wastewater treatment plant, staff have access to up to \$1,000

annually to pay for education, certification testing, and participation at conferences and more.

The challenge in our industry will not just be to generate interest in the fields of water and wastewater operations to replace our coming generation of retirees, but also to find employees who are motivated to advance in their position and to pursue training and education. The difference, from our perspective, is to find employees who look at their position as an operator not just as a job where they clock in and clock out but also think of it as a long-term career. Again, having an always-varying work environment will encourage employees to stay engaged and will create an interest in learning every day. In fact, even with our many years of experience, we are still picking up new facts and discovering better ways to do our jobs. It helps to have a curious outlook and engaged attitude toward work. The best approach to ensuring that your facility has motivated staff is to interview thoroughly and gauge an applicant's interest in growth. The secondary approach is for management to create the proper environment for growth.

As noted, students will be more interested in our field if we make it known that there are better opportunities for advancing to a supervisory or superintendent position in the near future than were available during many of our careers. Water and wastewater management should also create a job classification structure for advancement within the operator ranks.

There is a three-fold benefit to creating a clear career path for employees. First, if internal job promotion is tied to earning higher operator grade certification, then as time moves forward (and your employees move up in the ranks) your facility will be staffed by a greater number of employees with the knowledge to tackle the complex challenges they encounter. Second, having clear opportunities for advancement will encourage employee retention and increase job satisfaction. It is not always possible to promote from within, but the advantages of doing so are significant. Employees become discouraged and stop aiming for improvement if they do not see a well-defined path for advancement and recognize that they are valued and an important part of the plant's success. Lorraine Sander, the superintendent of wastewater at the Town of Billerica Department of Public Works, has done a great job of creating a career ladder for our staff. Not only do we learn something new from her all the time, but she has developed a career path that allows staff to stay motivated and encourages personal development. Finally, promotion is linked to an increase in pay. Operator salary is discussed in detail below, but as far as career advancement is concerned, an increase in pay certainly helps to encourage job satisfaction and increase motivation.



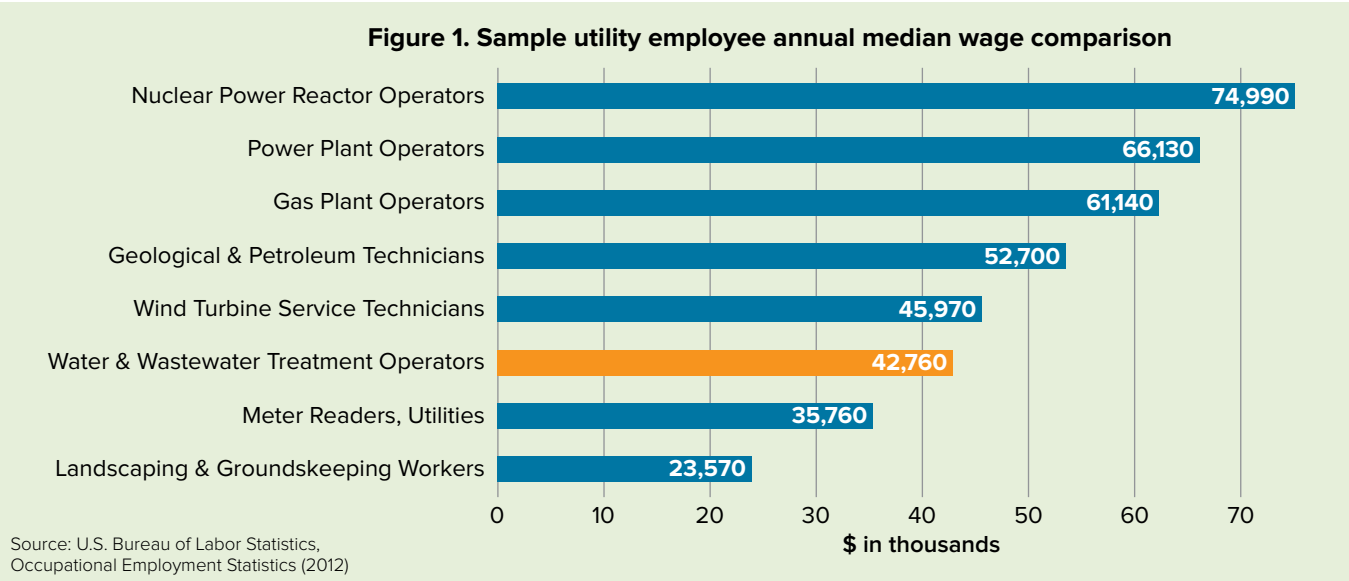
David Garabedian is wastewater operations and maintenance specialist at the Billerica, Massachusetts, wastewater treatment facility. He oversees seven employees—five operators, one repairperson and one lab tech. He started his career in Billerica as an operator 28 years ago, and over the years, he has advanced his career by taking courses in wastewater treatment management. He completed a Civil Engineering Wastewater Certification program at the University of Massachusetts Lowell and achieved his Grade 7 operator certification. He continues to provide support and training to facility employees in process control, operations, repairs and safety. Currently, he is implementing a confined space safety program and training.

He has helped new employees adjust to the challenges of wastewater treatment operations for many years, and he offers the following advice to beginners in the trade: safety first; ask questions; never stop studying; be patient, you cannot learn how the whole facility operates in a day; and put yourself in position for advancement.

During his nearly three decades of service in wastewater treatment operations, he has seen a number of the facets of the job change for the better. This is especially true for improved management style and safety.

“When we first began our careers in water and wastewater, it was generally felt that individual safety was not a priority,” Mr. Garabedian says. “You were told to look out for yourself. Today, it is clear that this attitude is no longer present and the nature of the operator's job has improved. At the end of the day, we all understand that everyone needs to get home safe.”

Mr. Garabedian enjoys a number of things about working in wastewater treatment operations at Billerica. He likes the people he works with, which is particularly important because he has worked with many of them for a long time. He also appreciates the learning opportunities his job affords as well as occasions when he needs to solve problems, which keeps him busy. He believes in providing the right tools for the job and training staff to have a diverse skill set. “Cross training provides our staff with the opportunity to participate in an always-varying work environment, which our crew enjoys,” he adds. David is an active member of several industry organizations, including the Massachusetts Water Pollution Control Association (MWPCA), the New England Water Works Association (NEWWA) and the New England Water Environment Association (NEWEA).



**CREATING AN ENVIRONMENT FOR
EMPLOYEE RETENTION**

Billerica’s wastewater treatment plant has had high employee retention over the years. Across the industry, our peers have largely shared the same experience. A facility and its management can do a number of things to encourage retention that will also assist in generating interest from potential employees. It begins with keeping the plant current rather than playing catch-up. The Billerica wastewater treatment plant is an advanced treatment facility with preliminary screening and grit removal, primary clarification, conventional activated sludge secondary treatment using diffused aeration and clarification, tertiary phosphorus removal using ballasted flocculation, disinfection, post-aeration and a surface water outfall to the Concord River. Built in 1966, the facility underwent major upgrades in 1975, 1982, 1984, 1988 and, most recently, 2009, when we added a tertiary CoMag ballasted flocculation process for phosphorus removal. These improvements, along with SCADA and system enhancements, have enabled us to maintain a facility that meets our needs.

It is also essential to tackle operations problems as they arise. We all aim for excellence. It boosts morale to know that issues will be addressed in a timely manner. Focusing on quality consists of producing a clean product and protecting the environment. This includes maintaining a clean facility. None of us wants to go to work at a plant that is not well kept. We work *with* waste, but we do not need to work *in* it.

It also helps to provide the tools that allow your operators to do their jobs well. When we first arrived at our jobs, we did not even have a wrench provided. Now we strive to make certain that equipment is up-to-date and maintained. We continually emphasize safety. Having the right equipment is part of

that, and so is training. For example, we are currently undergoing training for confined space entry. Attitudes, preparation and a focus on safety have changed the nature of operations jobs for the better and this obviously helps improve job retention.

To maintain a clear focus on excellence, it also helps to be active in industry associations and read trade publications. Conferences provide opportunities for learning. Staying informed of the advancements and standards your associates are implementing will help you direct your current and future resources. It will also indicate where you are falling behind. Knowing your contemporaries personally will also encourage advancement. A little competition helps.

Regarding competition, however, we know that our industry is less competitive when it comes to wages. Within the utility industry and skilled trades, capable workers will tend to move toward operations that offer the highest wages. Water and wastewater is lagging far behind gas, electric and nuclear power operator salaries. According to data published in 2012 by the Bureau of Labor Statistics (BLS), few utility occupations averaged lower annual median earnings than water and wastewater treatment plant and system operators did. (See figure 1.)

Wages vary by state, and regions with lower wages may find skilled workers moving to states with better wages. (See wage map on page 27)

BLS also reported in 2012 higher median annual earnings for jobs such as mail carrier, aircraft mechanic, electrician and plumber. In addition, as jobs in our industry move toward advanced technical requirements, potential employees will understand that their skills could earn higher wages in other industries. For example, electrical and electronic engineering technicians earned \$57,850, and aerospace operations technicians earned \$61,530



Students tour the Deer Island MWRA facility

annually (2012). Competent graduates who have studied mechanics, electricity and chemistry are strong candidates and can command top entry-level salaries.

Wages for water and wastewater utility staff are often limited by union obligations. Private contract operators have some advantages in this regard, as private companies often have access to capital in ways that municipal utilities do not. Many interests in municipalities compete for financial resources, and local governments sometimes lose sight of the value of water and wastewater utilities and their employees. Our industry is trying to speak about the real cost of water and wastewater, but our voice is sometimes drowned out by louder calls for action.

CONCLUSION

Drinking water and wastewater utilities face the same issues: concerns about qualified applicants, misconceptions about working conditions, the need to create the right conditions for advancement and the reality of lower wages. To confront these challenges, we can offer high-quality long-term jobs, an industry with a great retention rate, a safer working environment and a stimulating career that technology has changed for the better. Moreover, we are rewarded in that our work promotes health, a better environment and a sustainable community.

More can be done to spread the word about the benefits of our industry. Further efforts are needed to meet the financial obstacles ahead. Because of the looming labor shortage in water and wastewater operations, and since these positions require significantly more training and higher-level computer skills than ever before, the industry needs to adjust its pay scale. The good news is that all of the New England states have done some management

training to help staff move forward and fill future gaps. However, as the economy continues to recover and more baby-boomers retire, the competition for skilled workers will only increase. 🌐

ABOUT THE AUTHORS

- Jeff Kalmes is a Grade 7 operator and plant supervisor at the Billerica wastewater treatment plant. He has been in the wastewater industry for 29 years, he is the 2015 NEWEA Operator of the Year, and he has won the 2008 NEWEA Public Educator Award and the 2011 WEF National Public Educator Award.
- David Garabedian is a Grade 7 operator and the wastewater operations and maintenance specialist at the Billerica wastewater treatment facility. He has worked as an operator at the Billerica plant for 28 years.

REFERENCES

- United States Department of Labor. Bureau of Labor Statistics. (2012) Occupational Employment Statistics, May 2012. OES Data—May 2012—National, Web.
- United States Department of Labor. Bureau of Labor Statistics. (2012) Occupational Employment and Wages, May 2012. 51-8031 Water and Wastewater Treatment Plant and System Operators, Web.

Regulating biosolids, organics, and nutrients—real & potential conflicts abound

NED BEECHER, Executive Director, North East Biosolids and Residuals Association (NEBRA)

ABSTRACT | Three of the six New England states—Massachusetts, New Hampshire, and Vermont—are revising their biosolids regulations. Public concerns in two states have led to scrutiny of biosolids recycling: New York has just witnessed interpretations of biosolids regulations and right to farm laws, and Maine legislature is considering even stricter new odor regulations that focus on biosolids and septage processing. Meanwhile, the U.S. Food & Drug Administration has finalized its Produce Safety Regulations that support the use of biosolids. And the U. S. Environmental Protection Agency (EPA) has finalized the electronic reporting rule, which requires electronic filing of NPDES permit reports, including annual February 19 biosolids reports, likely effective in 2017. At the same time, other organic “wastes” (residuals)—food scraps in particular—are the focus of state regulatory programs, including nation-leading bans on landfill disposal of food scraps in Massachusetts and Vermont. Add to all this another factor: controlling phosphorus (P) and, to a lesser extent, nitrogen (N) from non-point sources. EPA just finalized the TMDL for the Vermont portion of Lake Champlain, and the state adopted a major “Water Quality Act.” Meanwhile, new Massachusetts agriculture regulations potentially prohibit many applications to soils of biosolids and other organic residuals. These regulatory pressures are all happening just as the Water Environment Federation (WEF), NEWEA, NEBRA and other organizations are promoting resource recovery from biosolids and wastewater. How will recent and developing regulations affect the efforts of water resource recovery facilities (WRRFs) to achieve greater sustainability? It is a great time for wastewater operations and biosolids managers to pay attention and be involved in policy and regulation.

KEYWORDS | Agriculture, biosolids, organics, regulations



DIVERTING ORGANICS: WILL REGULATIONS SUPPORT CO-MANAGEMENT?

Massachusetts and Vermont recently led the adoption of state-driven diversion of organics from landfills and incinerators, disrupting the organics management market and resulting in:

- Bringing hundreds of thousands of tons of food scraps into the market for processing
- Driving construction—in some cases (e.g., Massachusetts) with grants and other incentives—of anaerobic digestion and other co-processing facilities
- Creating competition among waste haulers and facility developers for organic residual waste stream contracts that can help secure funding for processing facilities, thus driving up the market value of some residuals



Morrill Farm and Penacook WWTF

- Increasing pressure for successful siting of facilities in a public landscape where potentially odorous operations are shunned by communities asked to house them
 - Creating community conflicts around increased end uses of organic residuals products
 - Creating renewed interest, expertise and jobs in a reinvigorated organics management profession
- The interest in organic residuals can tap into the expertise of the wastewater management profession, with its long history of managing wastewater solids and biosolids—if proponents of organics diversion are aware of this expertise. Food scraps, food processing wastes, manures, agricultural residues, glycols, fats, oils, and grease—all of these can be co-managed with wastewater solids. But a big challenge is whether regulations allow for the flexibility and innovation needed for holistic co-management.

That challenge is rooted in the conflicting regulatory structures affecting different organic residuals. Food scraps are generally part of the solid waste management system, unless they go down the drain and become part of the wastewater stream. In some states (e.g., Vermont), biosolids are part of solid waste regulations, but in other states, their regulation is part of the water program. Now, with the call for more anaerobic digestion for managing organics and creating energy, a whole new bevy of regulations and agencies are involved—air quality regulations for engines driven by biogas and public utility requirements for electrical interconnections or biomethane inputs to gas markets. And, when organic residuals products are used on soils, in horticulture and/or in agriculture, agriculture departments, with their regulations and guidelines, have some interest, especially around nutrient management; farms and

other larger areas on which fertilizers are used must manage how much nitrogen and phosphorus are applied to soils, to avoid negative impacts to surface water, ground water and estuaries.

One example of a sensible, local solution for co-processing organics is in Enosburg, Vermont. Enosburg's wastewater treatment facility can envision sending its 500,000 gallons (1.9 million liters) per year of 2- to 3-percent solids to one of the local farm-based anaerobic digesters for co-processing with

Food scraps, food processing wastes, manures, agricultural residues, glycols, fats, oils, grease—all of these can be co-managed with wastewater solids

manure, rather than trucking it out of state at \$0.17 per gallon (\$.045 per liter). But, according to Enosburg operators, the state does not allow the farm digesters to accept wastewater solids.

New Bedford, Massachusetts, is working with EPA, consulting engineers and local stakeholders on integrated resource management (IRM) that will help that community “manage complex issues surrounding biosolids, solid waste, clean energy and water quality,” according to Jason Turgeon of EPA Region 1. Community concerns being addressed cover the spectrum from extending landfill life to nutrient issues in Buzzards Bay to green vehicle fuels and creation of local jobs and local products. Anaerobic co-digestion of wastewater solids and other organics will likely be part of the solution. But will existing regulations regarding biosolids, nutrients, and organic residuals processing and end use allow for this integrated approach?



**REGULATING NON-POINT NUTRIENTS—
FURTHER PRESSURE ON BIOSOLIDS
RECYCLING**

Recent battles over wastewater discharge limits on nutrients have led to recognition that WRRFs are no longer a major source of P inputs to impaired surface waters, such as Lake Champlain. Now, in part because of pressure from wastewater professionals, EPA and states are increasingly going after non-point sources of P (and N).

Nutrient management has been a growing, voluntary trend in agriculture, increasingly required for farm assistance grants and required by regulation in some states (e.g., Maine). But now massive new regulation—for example, the 2015 Water Quality Act in Vermont—targets reductions in P from agriculture and other distributed sources.

When it comes to nutrients, the wastewater management profession—including NEWEA and NEBRA members—are central players with vast experience. For the past couple of decades, controlling nutrients in effluent discharges has been an increasingly urgent requirement. Of course, these efforts result in higher levels of P in the solids, making them less appropriate fertilizers (having too much P) in areas where agriculture is being asked to control P inputs to soils. WRRF solids management programs are caught between a rock and a hard place.

Utilities have begun to implement a solution to this—but not yet in this region. For example, the Stickney Point facility in Chicago is installing the world's largest phosphorus mineral (struvite)

removal system in the world, which concentrates P in the treatment process into a form that can be efficiently shipped to where it is needed (e.g., the grain belt), getting it out of P-impaired watersheds and lessening the amount in the final biosolids, so that they are a more balanced fertilizer.

Inevitably, managing biosolids and other organic residuals—and the nutrients (especially P) that they contain—reasonably and cost-efficiently, is a challenge greatly affected by the complex and conflicting regulatory landscape. Currently, many states in the region are struggling to find the right regulatory balance. Some are considering the conflicting pressures and the big picture, while others are not so much doing so.

STATE OF THE STATES

**Massachusetts—a triumvirate of regulation
changes challenges biosolids recycling**

The Massachusetts biosolids (“sludge”) regulations (310 CMR 32.00) are some of the oldest in the nation, dating back to the 1980s. Several minor changes were made in the past two years, including lengthening effective permit terms. But one numerical standard has long been a sore spot for biosolids managers: the molybdenum limit of 25 mg/kg overall and 10 mg/kg for biosolids that might be used on crops for animal feed. The latter limit is challenging for some biosolids to meet consistently and has no basis in risk assessment. But, because of it, the Massachusetts Water Resources Authority (MWRA) biosolids pellet fertilizer program has received enforcement actions by the Massachusetts Department of Environmental Protection (MassDEP) and the product is, therefore, generally not used in the state, despite considerable and growing demand from local farmers.

In June 2015, NEBRA presented a workshop on the science and risk assessment of molybdenum in the environment generally and in biosolids in particular. Expert research scientists from around the country and Europe provided ample arguments for a risk-based standard of ~40 mg/kg, which is likely what EPA would adopt if it were to update the federal Part 503 biosolids regulations and which New York State, for example, has adopted.

NEBRA followed up the workshop with recommendations that MassDEP change the standard. MWRA and other stakeholders also weighed in on this issue, as they have over the years. Serendipitously, MassDEP was performing a comprehensive regulation review required by Governor Charlie Baker.

As this *Journal* goes to press, MassDEP regulatory review reports, as well as staff and Commissioner Martin Suuberg, have stated that the Mo numerical standard change will be one of the streamlined regulatory changes to be completed by March 2016. If this happens, Massachusetts markets for MWRA fertilizer and other biosolids products will become more open.

Meanwhile, October 1, 2014 was the effective date of Massachusetts’ ban on sending food scraps—from businesses producing a ton per week or more—to a landfill or an incinerator. This is the most recent of the state’s waste bans (310 CMR 19.00), and it was in development, with stakeholder involvement, for several years. The main goals are to increase green energy production from anaerobic digestion and reduce greenhouse gas emissions from landfills.

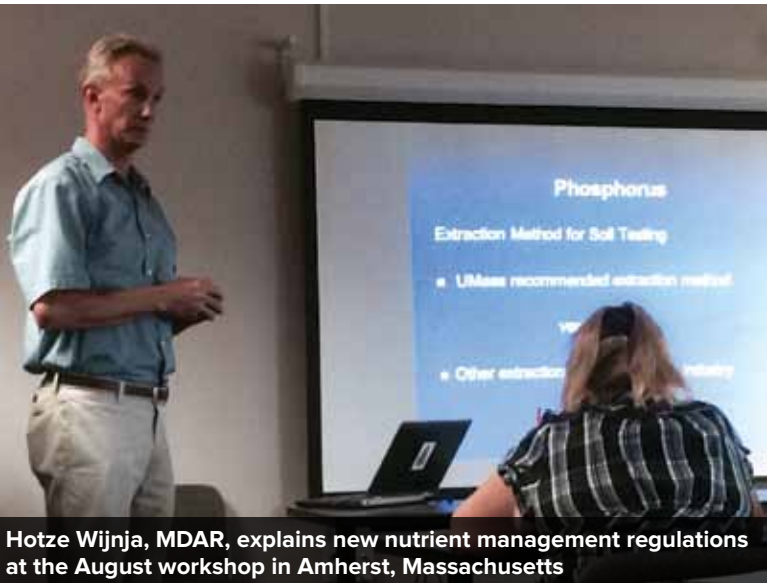
Besides extensive, effective stakeholder involvement, MassDEP and sister agencies (e.g., the Massachusetts Clean Energy Center) have invested heavily in supporting businesses and funding projects to increase the state’s capacity to process up to 300,000 tons (272,000 tonnes) annually of additional diverted organics. Now, a year later, some are frustrated that little new capacity has been built. But there are several viable proposals in the pipeline. And two of the state’s largest WRRFs are exploring bringing outside wastes (e.g., food scraps) into their anaerobic digesters: MWRA Deer Island Treatment Plant and the Greater Lawrence Sanitary District (GLSD).

MWRA contracted for an initial pilot of trucked in waste, but concerns about added truck traffic on the access roads through Winthrop ended that. MWRA is now developing a pilot project involving processed food scraps transported to their digestion facilities via barge. GLSD, on the other hand, is designing a fourth digester and installation of combined heat and power to allow processing of hauled-in organics (e.g., food scraps) and increased energy production. Between them, these facilities could meet most of the capacity for the expected, required diversions of food scraps for the next several years.

So success for organics diversion in Massachusetts seems imminent. Two challenges remain, however, and have not received enough attention from MassDEP and other promoters of organics diversion: markets for end uses of residuals products (composts, digestates) and nutrient management.

Massachusetts is only halfway to the finish line though. During the push to create the organics landfill ban and stimulate creation of new organics processing capacity, MassDEP set aside consideration of residuals product regulations and markets. But existing regulations—the Beneficial Use Determination (BUD) under the solid waste program and the “sludge” regulations—are confusing and contradictory, and do not make end uses of processed organic residuals easy. In addition, Massachusetts Department of Agricultural Resources (MDAR) regulation of on-farm compost sites, which have handled a fair amount of food scraps over the past 10 years, provide other obstacles to easy recycling.

To complicate things further, MDAR proposed a new fertilizer nutrient management regulation in 2014 focused on reducing P runoff and leaching,



Hotze Wijnja, MDAR, explains new nutrient management regulations at the August workshop in Amherst, Massachusetts

which both contribute to eutrophication of surface waters. This new regulation would likely negatively affect organics recycling efforts, just when MassDEP and others are working to increase them.

The MDAR nutrient management regulation was driven by a law passed by the Legislature in 2012. That law required MDAR to adopt regulations by 2014 that would reduce non-point P sources, to “maximize the credits relative to stormwater discharge or similar permits issued by EPA,” an important benefit for municipalities. The pressure to get the regulation in place led to MDAR promulgating a final regulation (330 CMR 31.00) in late spring 2015, with the first effective date—for fertilization of turf—on June 5, 2015. The agricultural parts of the regulation went into effect on December 5, 2015. Rushing the regulation into effect—to meet the Legislative deadline requirements—resulted in a process in stark contrast to the MassDEP stakeholder process on the organics landfill ban. The final version of the nutrient regulation is similar to that proposed in 2014; it remains confusing and difficult to interpret, according not only to NEBRA members but also according to other stakeholders, such as Mass Farm Bureau Federation and Natural Resources Conservation Service (NRCS).

Discussions with MDAR, as well as an MDAR Fact Sheet addressing the turf management portion of the regulation, make it clear that biosolids and other organic residuals are covered by the new restrictions:

- “These regulations impact anyone who applies plant nutrient materials (including commercial fertilizer and various other plant nutrient materials) to both agricultural and non-agricultural land, including lawn and turf.”
- “Phosphorus-containing fertilizer may only be applied when a soil test indicates that it is needed or when a lawn is being established, patched or renovated.”



Drying facility at GLSD

The nutrient regulation relies heavily on “UMass Extension Guidelines” for nutrient management, which makes sense. These guidelines are limited, however, in how they address organic residuals products such as biosolids. Extension staff are doing what they can to help interpret the regulation, but they have no funding to help MDAR with this task and the education and outreach MDAR is providing to stakeholders. Existing extension guidance (best management practices) addresses fertilization of turf, cranberries, vegetables, dairy farms and horticulture. Areas of the guidance that still need work are consolidation to reduce the complexity of the regulations, better-defined qualifier statements and a stronger connection to the regulations to help identify who determines whether an application of P complies with the guidance and, therefore, the regulation.

Although some states (e.g., New York) have partially exempted organic residuals from such strict P regulation, Massachusetts has not done so, according to the MDAR turf fact sheet:

- “In determining the amounts of phosphorus and nitrogen that may be applied, the amount known to have been applied with organic plant nutrient sources (such as natural organic fertilizer, compost and biosolids) should be accounted for.”
- “The amount of phosphorus applied with organic sources shall not exceed the maintenance phosphorus rates for turf as specified in the UMass guidelines. Soil testing provides the most accurate method for determining the phosphorus requirements.”

According to the UMass soil testing laboratory and University of Connecticut professor Tom Morris, a leading soil fertility scientist, “above optimum” or “excessive” P is commonly found in the following soils in Massachusetts (and Connecticut) in order of prevalence based on soil tests: flower gardens > vegetable gardens > small vegetable farms > dairy

farms > other agricultural soils > golf courses. These are places where, most likely, biosolids and other organic residuals products will not be able to be used in Massachusetts, because they will test too high in P. How large a portion of the market these areas represent is not known; there is no data to address this.

Thus, the new MDAR nutrient management regulations are likely to affect the disposition of the growing volumes of organic residuals being produced because of the MassDEP organics disposal ban. As of November 2015, the impact of this ban is unknown.

The conflict between these state regulations can be resolved. The dynamics of P in soils is complex. One key fact is that iron (Fe), aluminum (Al) and calcium (Ca) bind a great deal of P, and if there is enough of those cations available, P will be held strongly in mineral form and not be environmentally relevant for surface water eutrophication—even though measured as part of total phosphorus by agronomic soil tests. It does not matter how much total P is in a soil; if it is all bound with Fe, Al and Ca, the risk is small that it will move to surface waters, except by soil erosion that carries the mineral particles into surface waters (even then, chemical changes need to release the P from the mineral complexes). Therefore, some scientists argue that soil P saturation—the relative abundance of P in relation to Fe, Al and Ca—is the most important measure for understanding the environmental risk. Professor Morris notes that research is identifying numerical thresholds for environmentally relevant P and that those thresholds are higher than the simple soil test thresholds for “excessive” P.

If MDAR and UMass extension guidance, including Massachusetts’ P site index, would consider these nuances of P soil chemistry, more of the state’s soils would be found appropriate for biosolids and other organic residuals. Many biosolids products, in particular, have been shown to have proportionally lower levels of environmentally relevant (water soluble) P than other soil amendments and fertilizers.

These more nuanced approaches to P dynamics in soils would reduce the negative impacts of the MDAR nutrient regulations on the markets for biosolids and other organic residuals. Doing so makes sense, because greater use of organic residuals has many demonstrated benefits—reducing irrigation needs, growing healthier plants, reducing needs for fungicides, etc., making turf more resilient, providing micronutrients, sequestering carbon, recycling local nutrients and organic matter, and creating local jobs. Balanced environmental policy and regulation should recognize and promote the benefits of biosolids and other organic residuals, and work more thoughtfully on the P issue, rather than creating a blanket ban on P application.

The P issue is something with which WRRFs will struggle for years. The Northeast, including Massachusetts, is a large net importer of P—it comes in foods and feeds from the Midwest, California and other locations. It goes down the drain to WWTps, which remove most of it from water and divert it into solids. Other P ends up in manures and food waste, and other residuals. At the same time, P comes into Massachusetts and this region in commercial fertilizers (and residuals products from out of state) that, until now, have been generally unregulated. There is a net excess of P ending up here. To attain a balance and avoid long-term degradation of surface waters, some P has to be exported or kept out.

One solution comes from the wastewater profession. WRRFs concentrate P in solids, from which it can be extracted efficiently, creating a concentrated P fertilizer that can be cost-effectively shipped to where soils need P. The same process can be used to reduce the concentration of P in animal manures and other organic residuals. Like any added process, it will cost money, but it may be needed to balance conflicting environmental needs.

Another part of the rational approach to reducing the net P increase in this region would be to target commercial fertilizers that are shipped in. Incentives would make sense, to urge farmers and landowners preferably to use local sources of P (local biosolids, composts, digestates) rather than triple super phosphate manufactured in Florida or overseas.

Discussions on the nutrient management regulations are likely to continue well into 2016. Although the regulation is in effect, MDAR focuses on education and outreach, not enforcement. In mid-November, Jessica Burgess, MDAR legal counsel, noted that “MDAR is committed to working with and listening to stakeholders, taking each and every question, comment, and concern seriously as we move forward with the implementation of the regulations. We are also committed to working with UMass, DEP and EPA to ensure that the legislative requirements are appropriately balanced. Our intent is to continue our outreach and education so that we can gather as much information as possible prior to taking next steps, which may include the need for amending the regulations.”

New Hampshire—proposed biosolids regulations fail to advance recycling

In the Granite State, a required update to the biosolids regulations (Env-Wq 800) began in 2014 with stakeholder meetings aimed, in part, at streamlining the requirements. The New Hampshire Department of Environmental Services (NHDES) suggested some key revisions:

- Longer (10-year vs. the current five-year) permit terms



Bob Fischer, former superintendent, explains to the Lake Champlain Advisory Committee how the Montpelier water resource recovery facility reduces phosphorus discharges

- Elimination of required testing for certain analytes that are rare and of no risk in biosolids
- Incorporation of phosphorus in agronomic rate considerations
- Removal of mandatory public hearings for biosolids site permits

In April 2015, draft regulations were proposed and public comments received, including an early July public hearing at which only supporters of biosolids recycling appeared. It was hoped that this show of support for biosolids recycling and comments in favor of more streamlined regulations would lead to improvements on the draft.

However, the final proposed rule made public in the fall included additional restrictions. NEBRA and other stakeholders submitted comments encouraging reconsideration, in particular finding a balance that encourages increased rates of recycling of these useful resources while protecting public health and the environment.

Vermont—biosolids regulations under review as organics and nutrients are scrutinized

The Green Mountain State created the most aggressive landfill diversion program in the nation when it created Act 148, the Universal Recycling Law in 2012. Beginning July 1, 2014, generators of 2 or more tons (1.8 or more tonnes) per week of food scraps must divert them to a recycling facility if one exists within 20 miles (32 kilometers). As of July 1, 2015, the threshold went down to 1 ton (0.9 tonne) per week. Beginning July 1, 2016, no leaf and yard debris and clean wood can be landfilled, and the food scraps diversion threshold becomes a half ton (0.45 tonne)

per week. By 2020, all food scraps will be banned from disposal.

As in Massachusetts, biosolids and other solids from wastewater treatment are not covered by the landfill disposal ban, even though, in this case, biosolids fall under the purview of the solid waste management regulatory program. In the state's Revised Solid Waste Management Plan (re-adopted in 2006), the Vermont Department of Environmental Conservation (DEC) states: "With the increase in regulatory oversight of land application and composting since 1987, and the improvements in biosolids quality, beneficial reuse options are more environmentally sound than ever before.... The agency will promote beneficial use of biosolids and encourage generators to consider beneficial use options for managing biosolids...." Other goals in 2006 included a revision of the biosolids rules and a rate of 75-percent biosolids recycling.

It was not until 2013, however, that action began on biosolids rulemaking. In November 2013, Vermont DEC held a public forum on biosolids that was attended by about 80 water quality professionals expressing support for biosolids, with a handful of individuals critical of biosolids also in attendance. Vermont DEC promised biosolids rulemaking soon.

With attention focused on the TMDL for Lake Champlain, however, there was little time for further action. DEC Residuals Management Section began writing a literature review and history—a "White Paper," to serve as a background piece for possible rulemaking.

Focus on the TMDL for Lake Champlain, which was finalized in 2015, helped lead the Legislature to pass a massive Water Quality Act (Act 64, H. 35) for reducing non-point sources of P. The Green Mountain Water Environment Association, its members and other water quality professionals had been successful in getting EPA to recognize that WRRFs are a minor source of P compared to agriculture, roads and forestry. Act 64 is intended to clean up those sources.

But the Water Quality Act included a required review of biosolids management. This gave purpose to the Vermont DEC White Paper, and a draft was released in October 2015, with a meeting about it scheduled for December 9, 2015. According to Vermont DEC, the release of the White Paper is a "first step toward developing a new set of regulations governing the management of residual wastes."

As biosolids regulation in Vermont progresses, several questions remain:

- How will the biosolids regulations interact, if at all, with Act 148 and its diversion of organics from landfills?
- Will there be opportunities for co-processing of all residuals, biosolids with other organics?
- How will new biosolids regulations interact with

the Water Quality Act? Recycled biosolids are used in agriculture and on lawns and gardens—and they contain phosphorus. Their use will require stricter nutrient management.

- Will new regulations reflect Vermont DEC's stated goals of increasing biosolids recycling?

New York—state agencies and courts defend sound biosolids regulations and safety

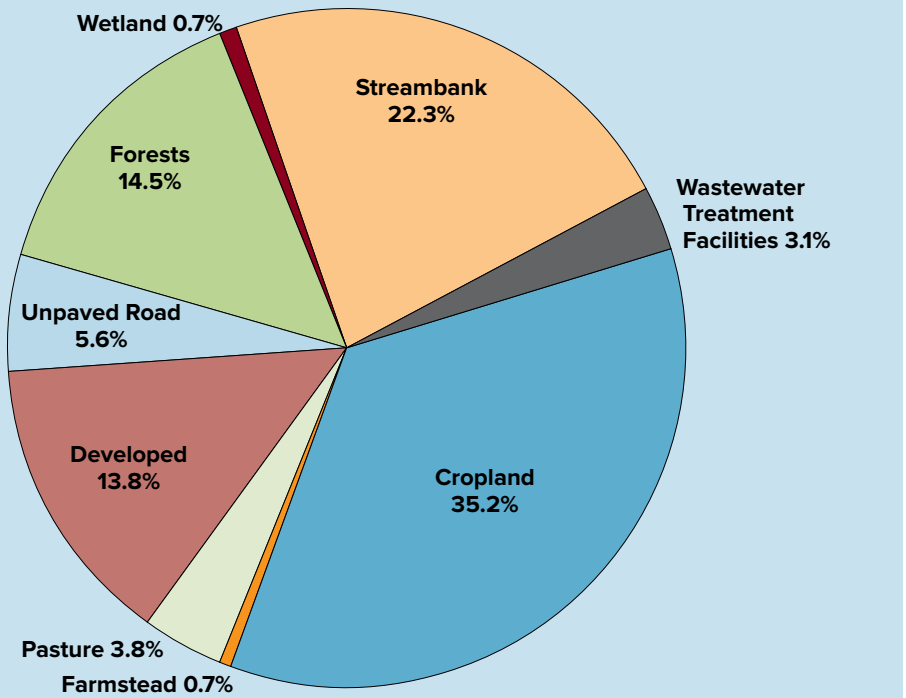
In the spring of 2015, controversy continued in New York about the use of biosolids from anaerobic digesters in the western towns of West Seneca and Wheatfield. According to media reports, several area towns continue to discuss possible local regulation of biosolids land application. However, the intensity of the debate has diminished. And, recently, several important stakeholders have supported biosolids use on soils, including New York Farm Bureau and New York DEC.

In 2012 and 2013, quasar energy group's Sustainable Biopower subsidiary applied for a permit from New York DEC for digestate (biosolids) storage on a farm in the town of Marilla, southeast of Buffalo. New York DEC received more than 100 public comments on the application, and the town, spurred by local opposition, took a stand against the project. On March 7, 2014, New York DEC approved the permit. In June 2014, the town filed a "law & rules" review petition, claiming that New York DEC's decision on the permit was "capricious" and unlawful.

On August 24, 2015, the State Supreme Court, Erie County, dismissed Marilla's claims, finding in favor of New York DEC, Sustainable Biopower and the farmer on most of the legal, technical questions (e.g., statute of limitations) and on substantive issues. Most notably, the court said the proposed storage of biosolids is an "agricultural activity," which is protected in agricultural zones (the specific farm is so zoned). The New York DEC permit remains in place.

A similar, parallel action occurred on August 26, 2015. The New York department of agriculture and markets (DAM) enforced the state's "right-to-farm" provisions by telling the town of Bennington not to enforce its ban on land application of biosolids. The request for DAM review was instigated in December 2014 by Travco Farms when the farm was denied by the town its right to use biosolids from nearby quasar energy group's anaerobic digestion facilities. Bennington's Local Law No. 1, created in 2014, "prohibits the disposal of any sludge, sewage sludge or septage from sources outside the town of Bennington." Bennington responded to the DAM review initially but failed to provide "any further documentation or other evidence... that the public health or safety is threatened by the farm operation's proposed application of biosolids," according to the August DAM decision. The local law is now illegal and cannot be enforced.

Sources of phosphorous in the Vermont portion of the Lake Champlain Basin



From EPA–Tetra Tech, 2013

The two recent decisions in western New York, one by a court and one by the agriculture department, uphold use of biosolids as a protected agricultural practice that cannot be arbitrarily denied a farmer. These findings will likely make it difficult for other New York towns to enforce severe restrictions on biosolids use.

Nonetheless, in early September, the town of Lockport, in the same region of the state, imposed a six-month moratorium on local biosolids use.

PAY ATTENTION TO THE BIG PICTURE—WHAT IS THE GOAL?

Biosolids have been recycled successfully throughout North America for decades. Nationally, communities return approximately 60 percent of wastewater solids to soils, while only about 1/3 of all wastewater solids in the Northeast are recycled. A goal of water quality professional organizations is to increase beneficial uses of biosolids.

To create more sustainable communities, EPA and states are increasingly focusing on all organic residuals, especially food scraps, because this is the largest single portion of the solid waste stream that ends up in landfills—where it generates greenhouse gas emissions (methane). The recycling rates for organic residuals are low (approximately 2 percent). Many solid waste, recycling and wastewater solids regulators and managers share the goal of greater utilization of biosolids and other organics.

At the same time, however, water quality concerns have led environmental agencies to focus on keeping P out of lakes and streams and N out of

constricted saltwater bodies. In some jurisdictions (e.g., Massachusetts), the focus on non-point source reduction is clearly conflicting with the goal of recycling organics—including biosolids.

As new regulations are developed, will they address these countervailing pressures? Will they support increased recycling of this region's wastewater solids?

Just the differences in biosolids regulations among the New England states is challenging for those managing biosolids and other organic residuals, whose natural markets stretch across state lines. But add to these layers of other regulations—organics diversion, nutrient management, and more—and the challenges multiply. Is there a chance to work toward streamlined, consistent regulations that reduce these disincentives for recycling?

It is a great time for wastewater operations and biosolids managers to pay attention and be involved in policy and regulation. 🌍

ABOUT THE AUTHOR

Ned Beecher is executive director of NEBRA, tracking research, legislation, and regulations and providing information to members and the public. He edits and contributes to NEBRA's email newsletter, NEBRAMail, and NEBRA Highlights in the *NEWEA Journal*, and has been the lead author on various biosolids documents.

NEBRA Highlights

Annual conference participants (l to r): Natalie Lounsbury, soil scientist from Maine, gave the keynote talk. Former NEBRA presidents James Myers and Andrew Carpenter network at symposium. 3. Richard Weare explains GLSD's upgrade plans.

NEBRA's 2015 Annual Conference

This year, the annual regional biosolids and residuals conference was held in collaboration with the NEWEA Residuals Management Committee (as usual) and with BioCycle's REFOR15 (Renewal Energy From Organics

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Recycling) conference (unusual). Our Northeast Residuals & Biosolids Symposium came first, on October 19, followed by two full days of REFOR15 sessions, two of which were organized by NEBRA and NEWEA. We also helped organize the tours. Our participation in REFOR15 provided far-reaching exposure for both our organizations. Biosolids were part of the discussions

of all organics, with much focus on co-composting and, especially, co-digestion.

The symposium proceedings appear on page 51. The agenda and presentations are available from the NEBRA and NEWEA websites.

EPA Finalizes NPDES Electronic Reporting Rule—Biosolids Included

On Sept. 24, 2015, the U.S. Environmental Protection Agency (EPA) announced the final "Electronic Reporting Rule," which applies to all NPDES permit holders. "This rule will replace most paper-based Clean Water Act (CWA) NPDES permitting and compliance monitoring reporting requirements with electronic reporting...." The rule was published in the Federal Register on October 22, 2015, and went into effect 60 days later on December 21, 2015.

The new rule requires those submitting annual biosolids reports to EPA do so electronically, beginning one year after the effective date of the final rule. This requirement will begin in late December 2016; in other words, biosolids reports due on February 19, 2017, will need to be submitted electronically. This FAQ discusses current biosolids reporting requirements—water.epa.gov/scitech/wastetech/biosolids/upload/biosolids-faqs-2014.pdf.

NEBRA held its annual meeting at the Northeast Symposium on October 19, electing new board members and officers.

NEBRA Board 2016 (*newly elected)

Charlie Alix*
Stantec, Westford, MA

Jessica Bunker
Resource Management Inc., Holderness, NH

Andrew Carpenter
Northern Tilth, Belfast, ME

Cheri Cousens*
Greater Lawrence Sanitary Dist., No. Andover, MA

Mike Hodge
Casella Organics, Portland, ME

Michael Lannan*
Tech Environmental, Waltham, MA

Isaiah Lary
Lewiston-Auburn WPCA, Lewiston, ME

Lise LeBlanc
LP Consulting, Mount Uniacke, NS

Deborah Mahoney
Hazen and Sawyer, Boston, MA

Tom Schwartz
Woodard and Curran, Portland, ME

Josh Tyler*
Chittenden Solid Waste Dist., Williston, VT

Donald Song
Wright-Pierce, Topsham, ME

Mark Young
Lowell Regional Wastewater Utility, Lowell, MA

Ned Beecher, Executive Director
Tamworth, N.H.
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WEF delegate report

Soldier Field was the site of NEWEA's Annual WEFTEC Reception

WEFTEC 2015 was held in Chicago on September 26–30 with 24,000 water quality professionals in attendance. While the Opening General Session was one of the highlights, many critical water activities occurred during this busy event.

OPENING GENERAL SESSION

The Opening General Session of the Water Environment Federation's (WEF's) 88th annual technical exhibition and conference promised to unite, uplift and inspire attendees with motivational programming around the theme of "Leading the Water Resource Recovery Revolution." In dialog with New England attendees, it certainly did just that! WEF President Ed McCormick set the stage for the keynote presentation by sharing insights into the importance of adopting resource recovery and WEF's leadership in this sector-wide effort. Keynote presenter Rob Stewart, an award-winning photographer, conservationist, author, biologist and director of the documentary "Revolution," followed with a discussion of



his inspiring efforts to raise awareness about the looming oceanic environmental collapse and the life-saving revolution that's now underway. The resulting movie was released on Earth Day, April 22, 2015; check it out at therevolutionmovie.com.

WEF HOUSE OF DELEGATES

On September 26, the WEF House of Delegates (HOD) met for table talk discussions. The budget, outreach, WEFMAX, nominations and steering committees also met. Workgroup discussions took place on innovative utility management, membership, stormwater and Water Advocacy and Value of Water (VOW) programs.

All of our NEWEA delegates participated in the table talk discussions, which focused on four areas—membership, VOW campaign, stormwater and innovative utility management. Questions such as "What challenges are facing our utilities today

and what strategies have been successful in implementing resource recovery?" were bantered around to develop ideas for fostering future WEF growth and opportunities. These focus areas will continue this year with HOD work groups.

As a second-year delegate, Dan Bisson was elected to the HOD Steering Committee and will serve as the liaison with the HOD stormwater work group. The committee primarily guides the direction of each of the four focus work groups to remain in line with WEF's mission. A major WEF advancement in stormwater is the creation of the Stormwater Institute. The institute will be housed within WEF to leverage the organization's leadership, breadth of membership and varied partnerships with federal, state, and local entities responsible for managing stormwater issues. The WEF Stormwater Institute will serve as a center for excellence and a resource for stormwater practitioners and regulators. Stormwater is the only growing source of water pollution in many watersheds throughout North America. As urban areas grow and more severe weather occurs, the issue of stormwater management will only increase in importance.

As a newly elected delegate representing NEWEA, Susan Sullivan attended the Water Advocates and VOW discussions. VOW is an important strategic initiative for WEF and NEWEA, as it is an unprecedented collaboration of more than 30 U.S. water companies and associations that have come together to create a stronger, more united voice across the sector and to improve public awareness about the value of water. The VOW coalition draws attention to our nation's aging and underfunded water infrastructure, and educates on the fundamental importance of water to the economic, environmental and community well-being of the United States. Visit the VOW website for useful campaign messaging (thevalueofwater.org.)

Are you a member of the WEF Water Advocates? Do you feel that politicians and the media do not

understand and fully appreciate how wastewater or stormwater works? Do you feel that elected officials could do more to support increased investment in water infrastructure? Are you disappointed that politicians and the media are not discussing important water-related issues more? As a water professional, do you think you could help to correct these problems? It is easier than you may think to help.

WEF's Water Advocates program is an effective way for you to become more involved with engaging elected officials and the public on important water issues. The Water Advocates program promotes grassroots advocacy through training and engagement of elected officials and the public with the goal of creating a network of trained water advocates in every state. To learn more about the Water Advocates program, visit wef.org/WaterAdvocatesIntroduction.

HOD NOMINATING COMMITTEE

Mr. Bisson served as chair and Mike Wilson as vice chair (a role he completed this year) of the HOD Nominating Committee, responsible for recruiting and placing delegates in various committees and for selecting the speaker-elect of the HOD. Nominations are made to fill the HOD budget, nominating, steering, WEFMAX, and outreach committees as well as for members to assist with the board of trustees (BOT) nominating, constitution-and-bylaws, and WEFTEC advisory committees.

Mike Wilson attended the HOD meetings held at WEFTEC on September 26–27 and participated in WEF Leadership event on September 29. For the coming year, he is serving on the HOD Budget Committee and is involved in the Resource Recovery Task Force. He also recently joined the WEF Plant Operations Committee.

Ms. Sullivan was elected to the HOD Nominating Committee for 2016 and will help to select the next leaders of the WEF HOD.

WEF'S GOVERNMENT AFFAIRS COMMITTEE

Since 2014, Ms. Sullivan has served WEF's Government Affairs Committee as vice-chair for the Legislative Affairs subcommittee. As such, she has represented NEWEA at the Government Affairs Committee (including regulatory and legislative affairs). Topics discussed during the WEFTEC committee meeting included: WEF's new strategic plan, the clean water rule implementation and the Great Lakes Bypass-Blending legislation. Susan Kirsch from the Association of Clean Water Administrators (ACWA) led the Clean Water Rule Implementation discussion. To date, 31 states have filed eight petitions regarding EPA's rule; North Dakota's court took up the petition and has stayed the rule's implementation for the 13 states represented in the petition. Thus, those 13 states do not have to implement EPA's Clean Water Rule at this time. The remaining 37 states and territories do.

The most pressing topic for most of the WEFTEC GAC policy discussion centered around a national letter to the U.S. Senate Appropriations Committee requesting that the Senate version of the fiscal year (FY) 2016 Interior and Environment

Appropriations bill not restrict water resource recovery facilities from releasing water into the Great Lakes, even during a wet weather event.

The language banning bypasses and overflows appears in section 428 of the bill, which was introduced by U.S. Sen. Mark Kirk (R-Ill.) in response to the harmful algal blooms that appeared in the Great Lakes in 2014. This ban is estimated to cost billions of dollars in infrastructure investments, in addition to the tens of billions of dollars agencies are investing to implement combined sewer overflow long-term control plans and other efforts to reduce bypassing at treatment facilities.

WEF asserts that in addition to being technically and financially unattainable, this ban is an unfunded federal mandate included in a bill that proposes to cut the Clean Water State Revolving Fund program by nearly 30 percent. NEWEA urges its members, professional colleagues and other stakeholders to contact their members of congress in opposition to Section 428 of the fiscal year (FY) 2016 Interior and Environment Appropriations bill. A draft letter to congress can be found at: wef.org/SEC428UtilityLetter/.

EPA headquarters staff also joined the Government Affairs Committee (GAC) members at WEFTEC. They highlighted their upcoming priorities to include: nutrients and their relationship to state and EPA permit programs, Permit Writers' concepts related to Reasonable Potential and WQS narratives, NPDES Rulemaking, and MS4 revision rules. Other items are fostering technology innovation and water system health, effluent guidelines, Final Rule for Water Quality Standards and some criteria revisions (aluminum, copper, selenium, etc.).

At the WEF Member Associations' GAC Liaison subcommittee, Susan Sullivan and NEWEA Executive Director Mary Barry represented NEWEA. Most associations' hot topics revolved around nutrients as did NEWEA's. However, NEWEA also highlighted state and federal funding, ocean acidification, stormwater management, non-dispersibles and microbeads. NEWEA indicated it intends to maintain and grow its commitment to the six NEWEA-affiliated state associations by sponsoring the state legislative breakfasts and the NEWEA Congressional Breakfast in D.C., on April 13, 2016. NEWEA is also seeking to establish ongoing, proactive meetings with state and federal water regulators in the six New England states regarding water quality activities.

WEF's Water Advocates program is an effective way for you to become more involved with engaging elected officials and the public on important water issues.

MEET THE DELEGATES



Howard Carter, (HOD) speaker-elect and past WEF Delegate
Howard Carter is the director of the Water Resource

Recovery Department for the city of Saco, Maine. He was president of NEWEA in 2010 and is also a past president of the Maine Water Environment Association. He received the WEF William D. Hatfield award, and is a WEF Fellow and member of the Select Society of Sanitary Sludge Shovelers.



Mike Wilson, WEF delegate for NEWEA
Mike Wilson is a client service manager with CH2M in its Boston office. Mr.

Wilson is serving on the HOD Budget Committee as secretary and on the HOD Resource Recovery Task Force. He is also a member of the WEF Plant Operations Committee and the WEF Biofilm Interest Group.



Dan Bisson, WEF delegate for NEWEA
Dan Bisson is an associate and client service manager

with CDM Smith. Mr. Bisson is a NEWEA past president and currently a mid-term WEF delegate, for which he is on the HOD Steering Committee and is a liaison with the HOD stormwater work group.



Susan Sullivan, WEF delegate for NEWEA
Susan Sullivan has been deputy director of the New England

Interstate Water Pollution Control Commission (NEIWPCC) since 1997. A first-term WEF delegate, she is on the HOD Nominating Committee and is a liaison with the HOD Water Advocates—Value of Water work group. She also is vice-chair of the Legislative subcommittee of WEF’s Government Affairs Committee.



Jenn Lachmayr, WEF delegate at large
Jenn Lachmayr is a principal and client development manager for Arcadis

in its Wakefield, Massachusetts, office. Ms. Lachmayr will serve on the HOD Steering and Membership committees this year. She was also appointed to a two-year term on the WEF Nominating Committee and serves on WEF’s Collection Systems and Awards committees. She received the WEF Collection System Golden Manhole award for committee service.

NEWEA RECOGNITION/LEADERSHIP IN WEF

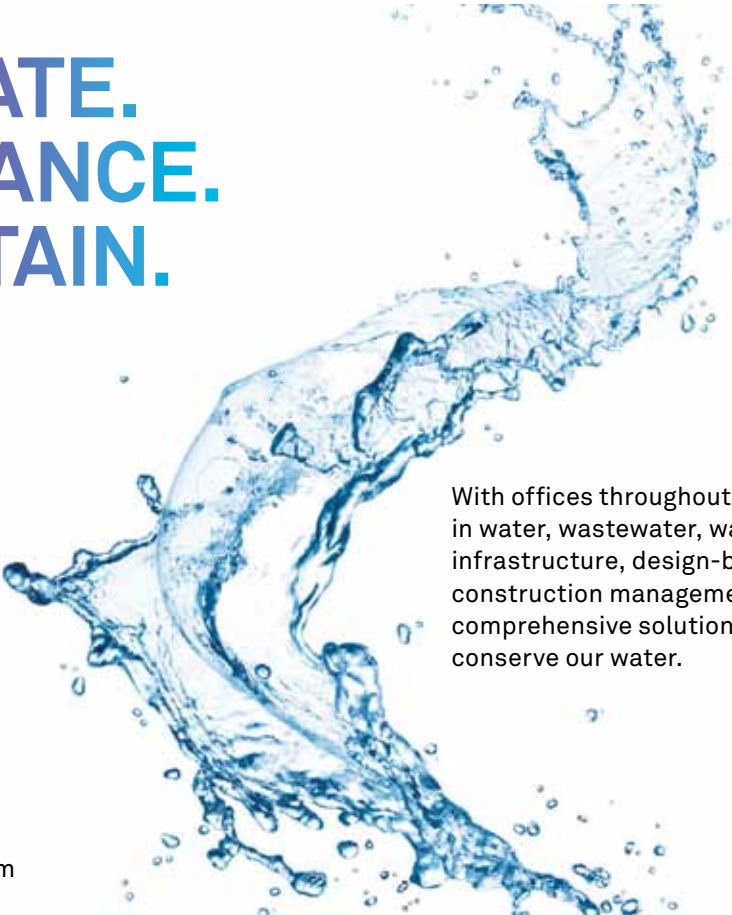
At the HOD Recognition Luncheon, NEWEA colleagues were recognized for their outstanding service, including Howard Carter, who was completing his third year as a NEWEA delegate. Mr. Carter’s synopsis of his service to date follows:

“I want to thank NEWEA for allowing me to serve as a WEF delegate for these last three years. It has been a very rewarding experience both professionally and personally. I hope that future NEWEA delegates enjoy the experience as much as I have. There have been a few changes at WEF during my time as a delegate, probably the biggest one being an outreach effort by the BOT to both the HOD and the Committee Leadership Council (CLC). Both the HOD and the CLC now have representation from the BOT and WEF staff at all Steering Committee meetings as well as select committee meetings. This has enhanced communication among all three groups while helping to advance implementation of the WEF strategic plan. NEWEA and WEF also continue to collaborate on government affairs issues and participate jointly on the D.C. “Fly in.” NEWEA folks have also assumed increased leadership roles within the house by participating on the steering committee and chairing numerous standing committees and work groups.”

At WEFTEC 2015, Mr. Carter was honored by his election as speaker-elect for the HOD for 2015-16, an important position preparing him to move on to the speaker position in 2016. In that role, he plans to continue looking out for the best interests of NEWEA and all other WEF member associations. In addition to his speaker-elect duties (including attending at least two WEFMAX meetings, planning work groups for next year and coordinating next year’s WEFTEC HOD meeting), he will also serve on the CLC Steering Committee, the HOD Steering Committee, the HOD Nominating Committee (with Susan Sullivan), the HOD Budget Committee and the BOT Governance Committee.

At-large delegate Jennifer Lachmayr completed her role as chair of the Membership Association Leadership Development Workgroup and will serve on the HOD Steering Committee and the WEF Nominating Committee for the next year. She will also be the liaison for the HOD Steering Committee to the HOD Membership Committee. This means she will be an active participant in the Membership Committee.

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Annual Conference & Exhibit Preview

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We have some exciting additions to the Annual Conference—the biggest and best wastewater forum in New England. NEWEA President Matt Formica will preside over this year's conference featuring technical sessions, two days of poster sessions, exhibitors, and the Awards Ceremony.

The technical program will include 30 sessions that span all areas of expertise in the water quality and resources profession. Topics are wide-ranging and will include emerging issues, practical applications, specific project experience, and lessons learned.

New this year—Public Agency Day features \$25.00 entry fee for Opening Session and exhibit hall entrance only on Monday, January 25 for all Federal, State and Municipal employees.

Featuring—A technical session completely dedicated to graduate students, and for younger students, our annual undergraduate student poster competition.

Conference Events

SUNDAY, JANUARY 24

Registration – 4th Floor..... Noon–4:00 PM

MONDAY, JANUARY 25

Registration – 4th Floor..... 7:00 AM–6:00 PM

Technical Sessions 1–5 8:30–10:30 AM

Technical Sessions 6–11..... 2:00–4:30 AM

Exhibits 10:30 AM–6:30 PM

Opening Session..... 11:00 AM

Exhibit Hall Reception 4:30–6:30 PM

TUESDAY, JANUARY 26

Registration – 4th Floor..... 7:00 AM–6:00 PM

Exhibits 8:00 AM–6:00 PM

Technical Sessions 12–16 9:00 –11:30 AM

Technical Sessions 17–22..... 1:30–4:00 PM

Exhibit Hall Reception 4:00–6:00 PM

WEDNESDAY, JANUARY 27

Registration – 4th Floor..... 7:30 AM–2:00 PM

Exhibits 8:00 AM–1:00 PM

Awards Presentation & Gavel Passing ...11:00 AM

Technical Sessions 23–27 8:30–11:00 AM

Technical Sessions 28–30 1:00–3:00 PM

Hot Topics

- Innovative Treatment Technologies
- On-Site Power Generation
- Innovative Solutions to Equipment and Operational Challenges
- Infrastructure Resiliency
- Regulatory Challenges
- Watershed Nitrogen Tracking and Accounting

Event Hotel

**Boston Marriott
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DOUBLE—\$219.00

Conference Registration

Register online/download a complete conference program at newea.org
Phone: 781-939-0908
Early registration before January 8

Conference Exhibitors

Abba Pump Parts & Service

ACF Environmental

ADS Environmental Services

Advanced Drainage Systems

AESC Utility Cloud

Allmax Software Inc.

AP/M CentriPipe

Apollo Safety Inc.

Aqua Solutions, Inc.

Aries Industries, Inc.

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Zoeller Engineered Products

as of 12/14/15

2015 Award Recipients

NEWEA Awards

Alfred E. Peloquin, CT.....	Vincent Susco, Jr.
Alfred E. Peloquin, ME.....	Timothy Haskell
Alfred E. Peloquin, MA.....	Raymond Willis
Alfred E. Peloquin, NH.....	Dana Clement
Alfred E. Peloquin, RI.....	Nora Lough
Alfred E. Peloquin, VT.....	Thomas DiPietro
Asset Management	University of Connecticut
Biosolids Management.....	Ned Beecher
Claire N. Sawyer	Helen Gordon
Committee Service	Patricia Chesebrough
E. Sherman Chase	Virginia Roach
Elizabeth Cutone Executive Leadership.....	Peter Sellers
Energy Management Achievement	Saco Water Resource Recovery Department
Founders	CT Water Pollution Abatement Association
James Courchaine Collection Systems	Thomas Arnone
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Operator, ME.....	Nicholas Konstantoulakis
Operator, MA	Jeffrey Kalmes
Operator, NH.....	Robert Lauricella
Operator, RI	Patrick Doyle,
Operator, VT	Christopher Cox
Operator Safety	Jody St. George
Past President Plaque & Pin	Bradley Moore
Public Educator.....	MaryLee Santoro
Wastewater Utility.....	Raymond Vermette
Young Professionals.....	Elizabeth Taglieri

NEWEA Recognition (Stockholm Junior Water Prize)

CT.....	Julia Ennis
ME	Paige Brown
MA.....	Harshal Sheth
MA.....	Nihar Sheth
NH	Erica Doucet
RI.....	Morgan Kane
VT	Nick Knudsen
Safety Logo Contest.....	Ross Elliott

WEF (presented at WEFTEC)

Operations Challenge	NH Seacoast Sewer Snakes
Operations Challenge	Force Maine
WEF Service.....	Erin Mosley
Outstanding Member Association Award	NEWEA

WEF—MA Awards

Arthur Sidney Bedell	Michael Wilson
George W. Burke, Jr.	Narragansett Bay Commission
Lab Analyst Excellence	Betty Anne Rogers
William D. Hatfield	John Adie
Quarter Century Operator.....	Edward Alibozek
Quarter Century Operator.....	Scott Goodinson
Quarter Century Operator.....	Robert Scott
WEF Life Membership.....	David Gates
WEF Life Membership.....	Douglas Lee Miller
WEF Life Membership.....	Glenn Haas
WEF Life Membership.....	Gerald Potamis
WEF Life Membership.....	John De Gioia
WEF Service.....	Howard Carter



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Specialty conferences and training proceedings

The Leavitt-Riedler steam pumping engine in the Metropolitan Waterworks Museum

PUBLIC EDUCATION TEACHER TRAINING

NEWEA's Public Education Committee held a Teacher Training Workshop on Tuesday, August 11, 2015, at the Metropolitan Waterworks Museum in Boston.

The program commenced with NEWEA Public Education Committee Chair Elena Proakis, NEWEA Executive Director Mary Barry and Eva Goodman, Waterworks museum manager of education service providing the Welcoming and Opening Remarks to attendees.

Attendees were broken into three group (high school, middle school and elementary) based on their areas of expertise and participated in a museum tour, learned about NEWEA classroom presentations, and engaged in a hands-on World Water Monitoring Challenge workshop.

PLANT OPERATIONS FACILITY TOUR

NEWEA's Plant Operations Committee held a Facility Tour and Technical Presentation on June 24, 2015, at the Mattabassett District water pollution control facility in Cromwell, Conn. The technical presentations commenced with NEWEA Plant Operations Committee Member Mickey Nowak providing the Welcome and Opening Remarks to attendees.

A tour of the Mattabassett District water pollution control facility was offered to attendees in the afternoon. The facility is a great example of how communities have dealt with the complex issue of upgrading the wastewater facilities to increase performance and meet tighter regulatory limits, which has ultimately led to the cleanup of the Connecticut River.

TECHNICAL PRESENTATIONS

Upgrade Overview

- Brian Armet, Mattabassett District

Incinerator Upgrade

- Melissa Hamkins, Wright-Pierce
- Ky Dangtran, Inflico Degremont

Sludge Handling: Centrifuge Selection vs. Belt Press vs. Rotary Press

- Doug Hamkins, Wright-Pierce

Operators' Perspective of Working Through the Upgrade—Question & Answer Speaker Forum w/ Mattabassett District

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Mattabassett District water pollution control facility



ANNUAL NORTH EAST RESIDUALS & BIOSOLIDS SYMPOSIUM

NEWEA's Residuals Management Committee held a one-day specialty conference and exhibit on October 19, 2015, at the DoubleTree Hotel in Danvers, Mass. Meeting registrants included: 98 attendees and 11 exhibitors for a total of 109 registrants. The conference was held jointly with the North East Biosolids & Residuals Association (NEBRA) and together with BioCycle's REFOR15 conference.

The technical presentations commenced with NEWEA President Matt Formica and NEWEA Residuals Management Committee Chair Elaine Sistare providing the Welcome and Opening Remarks to meeting attendees.

In addition to the conference, a networking reception was held in the exhibit area on October 19.



TECHNICAL PRESENTATIONS

SESSION 1: BIOSOLIDS PROGRAM PLANNING

Moderator: Charlie Alix, Stantec

Biosolids Planning From an End Use Perspective

- Natalie Sierra, Brown and Caldwell

N-Viro Halifax: The Dunbrack Comeback

- Lise LeBlanc, Walker Environmental & LP Consulting

SESSION 2: TECHNOLOGY CHOICES

Moderator: Eric Spargimino, CDM Smith

Challenges in Selecting New Biosolids Treatment & Disposal Equipment for the Mattabassett WPCF, Cromwell, CT

- Doug Hankins, Wright-Pierce

Towards Net-Zero Energy in Wastewater: Demonstration of Clear Cove's Harvester Technology

- Alex Wright, Clear Cove
- Mark Greene, O'Brien & Gere



SPECIALTY CONFERENCES

Biofilter Odor Control, Water Reclamation, and Compost Heat Recovery

- Bruce Fulford, City Soil Greenhouse
- Brian Jerosé, Agrilab Technologies

SESSION 3: BUILDING UP SOLIDS

Moderator: Andrew Carpenter, Northern Tilth

Keynote: Residuals and the Soil Health Awakening

- Natalie Lounsbury, Univ. of NH

After 40+ Years Successfully Composting Biosolids, Merrimack NH Plans for the Future

- Geoff Kuter, Agresource
- Jim Taylor, Merrimack, NH
- Leo Gaudette, Merrimack, NH
- Richard Nicoletti, BDP Industries

SESSION 4: REGIONAL RESEARCH—AVAILABLE PHOSPHORUS

Moderator: Ned Beecher, NEBRA

Biosolids Phosphorus Plant Availability Modeling

- Lotfi Khiari, Université Laval
- Marc Hébert, Quebec Ministry of Sustainable Development, Environment and the Fight Against Climate Change

Sludge Ash as Chemical Phosphorus Fertilizer

- Marc Hébert, Quebec MDDELCC

SESSION 5: REGIONAL RESEARCH - TREATMENTS

Moderator: Elaine Sistare, CDM Smith

Algal Sludge Granules as a Novel Technique for Wastewater Treatment

- Ahmed S. Abouhend, UMASS

Use of Biosolids Product as a Carbon Source for Biological Nutrient Removal

- Jeanette Brown, Manhattan College

Use of Stabilized Biosolids and Composts to Promote Establishment & Persistence of Perennial Vegetation Along Rhode Island Roads

- Edwin Fava, URI
- Rebecca Brown, URI
- Jose Amador, URI

EXHIBITORS:

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CSO/WET WEATHER ISSUES—IMPLEMENTING INTEGRATED WET WEATHER SOLUTIONS IN A DIGITAL WORLD

NEWEA’s CSO/Wet Weather Issues Committee held a Specialty Conference, Exhibit and Tour on October 26–27, 2015 at the UMASS Inn & Conference Center, Lowell, Mass. Meeting registrants included: 161 attendees and 15 exhibit displays for a total of 176 registrants.

The technical presentations commenced on October 26, 2015, with NEWEA CSO/Wet Weather Issues Committee Chair James Drake; NEWEA Past President Brad Moore, and Mark Young, executive director, Lowell Regional Wastewater Utility providing the Welcome and Opening Remarks to meeting attendees.

In addition to the conference, an optional facility tour was offered to Decatur Way Green Alley and Lowell Regional Wastewater Utility on October 27. A meet and greet reception was held in the exhibit area on October 26.



TECHNICAL PRESENTATIONS
GENERAL SESSION

Moderator: James Drake, CDM Smith

Keynote: Wet Weather Update

- Kevin Weiss, U.S. EPA Office of Water, Water Permits Division

Two Concurrent Sessions were held.

CONCURRENT SESSION: INTEGRATED WASTEWATER/CSOS/STORMWATER

Moderators: Matt Davis and Colin O’Brien, Brown and Caldwell

Balancing Needs, Requirements and Affordability through Integrated Planning

- Nancy Beaton, CDM Smith
- Terrance Sullivan, City of Fall River



Why Bangor Said No to Integrated Wastewater and Stormwater Planning

- Gregory Heath, AECOM
- Brad Moore, Bangor, ME

City of New Bedford—In the Midst of Drafting an Integrated Plan

- Shawn Syde, CDM Smith

CONCURRENT SESSION: CSO CONTROL PLAN 1

Moderators: Shawn Dent, Carollo Engineers & James Drake, CDM Smith

System Optimization—The First Step in CSO Control Alternatives Development

- Don Walker, AECOM

A Revised Approach in CSO Abatement Control—How CMOM Has Changed the Hartford LTCP

- James Drake, CDM Smith

How the West Was Dug: Integrating CSO Abatement and Stormwater Management through Renewed Urban Infrastructure in the City of Cambridge, MA

- Kate Goyette, Kleinfelder
- Ed Mitiguy, Kleinfelder

CONCURRENT SESSION: RIGHT TO KNOW/E-REPORTING

Moderators: Ivonne Hall, CT DEEP & Melissa Recos, Beta Group

Forum: Right to Know—Regulator Panel

- Edward Hampston, NYSDEC
- Ernie Kelley, VTDEC
- Alex Rosenberg, EPA Region 1

Boston Relies on New Technology and Scattergraphs to Detect Overflows

- Paul Keohan, BWSC
- Pat Stevens, ADS

Timeliness or Accuracy—Balancing Competing Needs for CSO Notifications

- Patricia Chesebrough, Weston & Sampson
- Paul Casey, Flow Assessment Services

Lessons Learned from Long-Term CSO Monitoring, Metering and Modeling—A Springfield Case Study

- Matthew Travers, MWH

There Is an App for That! SSO Mobile Application Achieves Better Reporting

- Justin deMello, Woodard & Curran

CONCURRENT SESSION: HIGH FLOW MANAGEMENT AT WRRF

Moderators:

- Steven Freedman, AECOM
- Steven Perdios, Dewberry

Wet Weather Operating Challenges and Opportunities for CSO Control at a Midwestern WWTP

- Edward Burgess, CDM Smith

Wet Weather BNR Operations in New York City

- Sarah Galst, Hazen and Sawyer

High Flow Operation of the Deer Island Treatment Plant

- Ethan Wenger, MWRA

Preliminary Design of the DC Water Enhanced Clarification Facility

- Gregory Heath, AECOM

A Pilot Study of CSO Treatment Using Cloth Media Filtration Technology

- Mark Hughes, Aqua-Aerobic Systems

Maximizing Wet Weather Treatment at Lowell’s Duck Island WWTF

- Michael Stuer, LRWWU
- Evan Walsh, LRWWU

TECHNICAL PRESENTATIONS

Tuesday, October 27, 2015

Two Concurrent Sessions were held.

CONCURRENT SESSION: WET WEATHER SUCCESS STORIES

Moderators:

- Gregory Heath, AECOM &
- Nicholas Anderson, MWH

Sucess Stories and Lessons Learned in Exeter and Portsmouth, NH Including Private I/I Mitigation for CSO Control

- Cole Melendy, Underwood Engineers

CSO Success—Overcoming Funding & Design Challenges in Madawaska, ME

- Robert Polys, Woodard & Curran
- Maggie Connolly, Woodard & Curran

How the Internet of Things Can Help Communities Better Manage Urban Stormwater

- Marcus Quigley, OptiRTC
- Jamie Lefkowitz, OptiRTC



Benefits of Sound Planning: How Augusta, ME’s 25-year Adapted CSO Abatement Program Netted Positive Results

- Steven Freedman, AECOM
- Eric Lemont, AECOM
- Brian Tarbuck, GAUD

Knowledge Is Power—GNHWPCA Reduces Annual CSO Volume by 28% In Two Years for \$350K

- Thomas Sgroi, GNHWPCA
- Bruce Kirkland, GNHWPCA

I/I Removal, Combined Sewer Separation, or Treatment Expansion—the Trifecta of Integrated Planning in Rockland, ME

- Laurie Perkins, Wright-Pierce

CONCURRENT SESSION: GREEN INFRASTRUCTURE

Moderators:

- Melissa Recos, BETA Group
- Nancy Gallinaro, Portland ME

The Big Green Apple Update on New York City Department of Environmental Protection Green Infrastructure

- Virginia Roach, CDM Smith

Green Infrastructure in New York City—Three Years of Pilot Implementation and Post-Construction Monitoring

- Matthew Jones, Hazen and Sawyer

Survivability of Green Infrastructure Practices for Stormwater Control in Urban Environments

- Nancy Ellwood, CDM Smith

Soaking up the Rain in Westwood, MA

- Sarah Bounty, Neponset River Watershed Association

Decatur WAY Green Alley

- Michael Dodson, CDM Smith

Enhancing CSO Storage by Integrating Green Infrastructure with the Back Cove South Storage Conduit in Portland, ME

- Ryan Wingard, Wright-Pierce

CONCURRENT SESSION: WET WEATHER POTPOURRI

Moderators:

- Charles Wilson, Hazen and Sawyer
- Rita Nothaft-Fordiani, Kleinfelder

Model Forensics—Validating the Performance of a Hydraulic Model Against a Design Storm that Actually Occurred

- David Bedoya, MWH Global

Integrated Planning: Using Innovative Technologies to Identify and Mitigate Priority Sources of Pollution

- Leah Gaffney, Black & Veatch

An Integrated Approach to Climate Change and Design—City of Cambridge, MA

- Indrani Ghosh, Kleinfelder

Agile Stormwater Programs and Incentives Drive Cost Effective Long-Term Control Plan Compliance

- Philip Pickering, Philadelphia Water Department.
- Prabha Kumar, Black & Veatch

Water Quality Modeling Study to Evaluate Multiple CSO Management Options for the NBC

- Deborah Crowley, RPS-ASA
- Craig Swanson, Swanson Environmental Associates ADS Environmental Services

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- Hazen and Sawyer
- Kleinfelder
- MWH
- Tighe & Bond
- United Water
- Weston & Sampson

SMALL COMMUNITY CONFERENCE

The Small Community Committee of NEWEA held a specialty conference at the Publick House in Sturbridge, Massachusetts, on November 18, 2015. The event had 71 attendees participate.

The technical presentations commenced on November 18, 2015, with NEWEA President Matt Formica, NEWEA Small Community Chair Dan Ottenheimer and Keynote Speaker Professor Paul Mathisen, WPI providing the Welcome and Opening Remarks to attendees. An afternoon facility tour to the Sturbridge water pollution control facility was offered.

TECHNICAL PRESENTATION

Unfunded Mandates—What’s This Going to Cost?

- Wayne Elliott, Aldrich + Elliot

What Happens When TMDL Requirements Change in the Middle of a Plant Upgrade?

- Jack Myers, Stantec



A Watershed Nitrogen Mitigation Plan—Implementation to Meet a TMDL

- David Thompson, Edgartown, MA WWTF

Chatham WPCF—Challenges Faced by a Small Community Removing Nitrogen to the Limit of Technology

- Marc Drainville, GHD
- Val Peter, Weston & Sampson

Improving Nutrient Removal of Existing Wastewater Facilities Using Cyclic Aeration and Chemical Addition

- Jeff McDonald, Fuss & O’Neill

No Cost Nitrogen Removal—Five MA Case Studies

- Grant Weaver, The Water Planet Company

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- David F. Sullivan & Assoc.
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Upcoming meetings & events

NEWEA CONGRESSIONAL BRIEFING

April 12–13, 2016 • Rayburn House Office Building, Washington, DC

The NEWEA Congressional Briefing is the annual hallmark for the Association and its government affairs program. Mark your calendar to join us on April 12–13, 2016.

This is a great opportunity for our membership and elected officials to join together to discuss water, wastewater and stormwater infrastructure issues facing communities of the Northeast. We look forward to meeting with you and providing you with the latest information affecting our industry. Your involvement is critical—come to D.C. and be heard.

Attending the Briefing will allow:

- Opportunities to meet with senators, representatives and legislative staff
- Substantive discussion of federal clean water legislative initiatives and opportunity to provide feedback related to the impact that these initiatives have on our communities and the water quality industry
- A forum for presentation and discussion of the NEWEA Position statements



- Opportunities to learn about key federal regulatory initiatives
- A forum to provide comments directly to regulatory leaders from EPA's Washington, D.C. Headquarters

In addition to the Briefing Breakfast, an important part of this day is holding individual meetings with senators and representatives on the Hill. If you plan to attend the briefing, the government affairs committee will work with you to schedule these individual appointments.

ANNUAL CONFERENCE & EXHIBIT EXECUTIVE COMMITTEE MEETING WITH ALL CHAIRS

January 24, 2016

Boston Marriott Copley Place Hotel

NEWEA PLANNING SESSION

March 6-7, 2016

Radisson Hotel Manchester, NH

EXECUTIVE COMMITTEE MEETING WITH ALL CHAIRS

March 30, 2016

Hilton Garden Inn, Worcester, MA

UTILITY MANAGER—RESILIENCY/ EMERGENCY PREPAREDNESS

April 2016 • TBD

NEWEA CONGRESSIONAL BRIEFING AND NATIONAL WATER WEEK

April 12-13 2016

Rayburn House Office Building, Washington, DC

LAB PRACTICES INFORMATION MANAGEMENT SYSTEM CONFERENCE

May 3, 2016

Narragansett Bay Commission, Providence, RI

NEWEA & NYWEA JOINT SPRING MEETING & EXHIBIT

June 5-8, 2016

Mystic Marriott, Groton, CT

EXECUTIVE COMMITTEE MEETING WITH ALL CHAIRS

June 5, 2015

Mystic Marriott, Groton, CT

CAWPCA SPRING WORKSHOP

May, 2016 • TBD, CT

GMWEA SPRING MEETING

May 26, 2016

Killington Grand Hotel, Killington, VT

MWPCA QUARTERLY MEETING

June, 2016 • Holyoke, MA

MWPCA ANNUAL GOLF TOURNAMENT

June, 2016 • Harvard, MA

CWPAA GOLF TOURNAMENT

June 17, 2016

Skungamaug River Golf Club, Coventry CT

RI NWPCA GOLF TOURNAMENT

June 27, 2016

Potowomut Country Club, Warwick, RI

This is a partial list. Please visit the state association websites and NEWEA.org for complete and current listings.



We'll handle the rest from here.



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*Proposed 2016 NEWEA Executive Committee—pending the election vote at the annual business meeting of the membership on January 25, 2016, at the annual technical conference and exhibition

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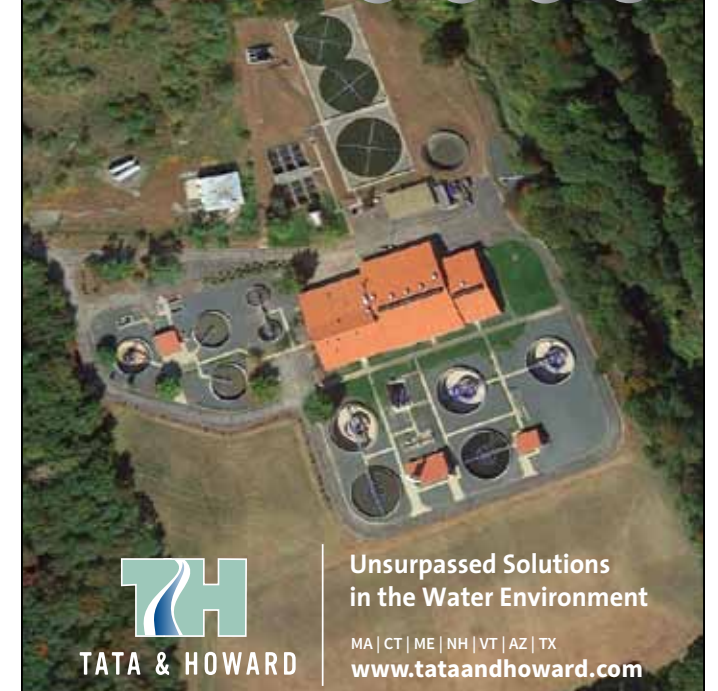
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August 2015 – October 2015

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Sid Hazelton
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Somerville, MA (PRO)

Ho-Zhen Chen
Amherst, MA (STU)

John R. Woodsmall
Town of Holden
Holden, MA (PRO)

Michael Benjamin
Sturbridge, MA (EXEC)

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NEWEA/WEF* Membership Application 2016



Personal Information

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Street or P.O. Box (<input type="checkbox"/> Business Address <input type="checkbox"/> Home Address)			
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Home Phone Number	Business Phone Number	Fax number	
Email Address			
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<input type="checkbox"/> Check here if renewing, please provide current member I.D.			

*NEWEA is a member association of WEF (Water Environment Federation). By joining NEWEA, you also become a member of WEF.

Employment Information (see back page for codes)

1. ORG Code:	Other (please specify):	2. JOB Code:	Other (please specify):
3. Focus Area Codes:		Other (please specify):	
Signature (required for all new memberships)		Date	

Sponsorship Information

WEF Sponsor name (optional)	Sponsor I.D. Number	ACQ. Code for WEF use only WEF 15
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Membership Categories (select one only)

		Member Benefit Subscription	Dues
<input type="checkbox"/> Professional Package	Individuals involved in or interested in water quality	■ WE&T (including Operations Forum) ■ WEF Highlights Online	\$174
<input type="checkbox"/> Young Professional Package	New members or formerly student members with 5 or less years of experience in the industry and less than 35 years of age. This package is available for 3 years.	■ WE&T (including Operations Forum) ■ WEF Highlights Online	\$67
<input type="checkbox"/> Professional Wastewater Operations (PWO) Package	Individuals in the day-to-day operation of wastewater collection, treatment or laboratory facility, or for facilities with a daily flow of < 1 mgd or 40 L/sec.	■ WE&T (including Operations Forum) ■ WEF Highlights Online	\$105
<input type="checkbox"/> Academic Package	Instructors/Professors interested in subjects related to water quality.	■ WE&T (including Operations Forum) ■ WEF Highlights Online ■ Water Environment Research (Online)	\$174
<input type="checkbox"/> Student Package	Students enrolled for a minimum of six credit hours in an accredited college or university. Must provide written documentation on school letterhead verifying status, signed by an advisor or faculty member.	■ WE&T (including Operations Forum) ■ WEF Highlights Online	\$10
<input type="checkbox"/> Executive Package	Upper level managers interested in an expanded suite of WEF products/services.	■ WE&T (including Operations Forum) ■ World Water ■ Water Environment Research (Online) ■ Water Environment Regulation Watch	\$338
<input type="checkbox"/> Dual	If you are already a member of WEF and wish to join NEWEA		\$40
<input type="checkbox"/> Corporate Membership (member benefits for one person)	Companies engaged in the design, construction, operation or management of water quality systems. Designate one membership contact.	■ WE&T (including Operations Forum) ■ Water Environment Research (Print) ■ Water Environment Regulation Watch ■ WEF Highlights Online	\$393

WEF Utility Partnership Program (UPP): NEWEA participates in the WEF Utility Partnership Program (UPP) that supports utilities to join WEF and NEWEA while creating a comprehensive membership package for designated employees. As a UPP Utilities can consolidate all members within their organization onto one account and have the flexibility to tailor the appropriate value packages based on the designated employees' needs. Contact WEF for questions & enrollment (703-684-2400 x7213).

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		Signature	Exp. Date	
		Daytime Phone		
Billing Address (<input type="checkbox"/> check here if same as above)	Street/PO Box	City, State, Zip		

NEWEA/WEF* Membership Codes 2016

To help us serve you better, please complete the following:

(choose the one that most closely describes your organization and job function)

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What is the nature of your ORGANIZATION?

(circle one only) (ORG)

- 1**
Municipal/district Water and Wastewater Plants and/or Systems
- 2**
Municipal/district Wastewater Only Systems and/or Plants
- 3**
Municipal/district Water Only Systems and/or Plants
- 4**
Industrial Systems/Plants (Manufacturing, Processing, Extraction)
- 5**
Consulting or Contracting Firm (e.g., Engineering, Contracting Environmental, Landscape Architecture)
- 6**
Government Agency (e.g., U.S. EPA, State Agency, etc.)
- 7**
Research or Analytical Laboratories
- 8**
Educational Institution (Colleges and Universities, libraries, and other related organizations)
- 9**
Manufacturer of Water/Wastewater Equipment or Products
- 10**
Water/Wastewater Product Distributor or Manufacturer's Rep.
- 11**
Stormwater (MS4) Program Only
- 12**
Other _____ (please specify)

What is your Primary JOB FUNCTION?

(circle one only) (JOB)

- 1**
1. Upper or Senior Management (e.g., President, Vice President, Owner, Director, Executive Director, General Manager, etc.)
- 2**
Engineering, Laboratory and Operations Management (e.g., Superintendent, Manager, Section Head, Department Head, Chief Engineer, Division Head, Landscape Architect etc.)
- 3**
Engineering and Design Staff (e.g., Consulting Engineer, Civil Engineer, Mechanical Engineer, Chemical Engineer, Planning Engineer, Landscape Architect, Environmental/Wetland Scientist etc.)
- 4**
Scientific and Research Staff (e.g., Chemist, Biologist, Analyst, Lab Technician, Environmental/Wetland Scientist etc.)
- 5**
Operations/Inspection & Maintenance (e.g., Shift Supervisor, Foreman, Plant Operator, Service Representative, Collection Systems Operator, BMP Inspector, Maintenance, etc.)
- 6**
Purchasing/Marketing/Sales (e.g., Purchasing, Sales Person, Market Representative, Market Analyst, etc.)
- 7**
Educator (e.g., Professor, Teacher, etc.)
- 8**
Student
- 9**
Elected or Appointed Public Official (Mayor, Commissioner, Board or Council Member)
- 10**
Other _____

What are your KEY FOCUS AREAS?

(circle all that apply) (FOC)

- 1**
Collection Systems
- 2**
Drinking Water
- 3**
Industrial Water/Wastewater/ Process Water
- 4**
Groundwater
- 5**
Odor/Air Emissions
- 6**
Land and Soil Systems
- 7**
Legislation (Policy, Legislation, Regulation)
- 8**
Public Education/Information
- 9**
Residuals/Sludge/Biosolids/Solid Waste
- 10**
Stormwater Management/ Floodplain Management/Wet Weather
- 11**
Toxic and Hazardous Material
- 12**
Utility Management and Environmental
- 13**
Wastewater
- 14**
Water Reuse and/or Recycle
- 15**
Watershed/Surface Water Systems
- 16**
Water/Wastewater Analysis and Health/ Safety Water Systems
- 17**
Other _____

Optional Items (OPT)

Years of industry employment? _____

- 1** (1 to 5) **2** (6 to 10) **3** (11 to 20)
4 (21 to 30) **5** (>30 years)

Year of birth? _____

Gender? _____

- 1** Female **2** Male

Education level? (ED) _____

- 1** High School **2** Technical School
3 Some College **4** Associates Degree
5 Bachelors Degree
6 Masters Degree **7** JD **8** PhD

Education/Concentration Area(s) (CON) _____

- 1** Physical Sciences (Chemistry, Physics, etc.)
2 Biological Sciences **3** Engineering Sciences
4 Liberal Arts **5** Law **6** Business



Water quality professionals, with fewer than 5 years working experience and under the age of 35, are eligible to join WEF as an Active Member, while participating in the NEWEA/WEF Young Professionals Program. This program allows up to 50% off of the Active Member dues, valid for the first three years of membership. This program is available for new member applicants and Student Members.

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