

New York Water Environment Association, Inc.

# ClearWaters

**The 50th Anniversary of  
the Clean Water Act**

**Also Inside:**

**Highlights of Spring Technical Meeting  
and Operations Challenge**

**Crawl to NOLA**





K O E S T E R<sup>®</sup>

SUPPLYING EQUIPMENT SOLUTIONS &  
SERVICE FOR WATER & WASTEWATER



# 50

CELEBRATING  
THE 50<sup>TH</sup>  
ANNIVERSARY  
OF THE CLEAN  
WATER ACT

#### Upstate New York

3101 Seneca Turnpike  
Canastota, NY 13032  
Phone: (315) 697-3800  
Fax: (315) 697-3888

#### NYC, Long Island, New Jersey

170 Kinnelon Road  
Kinnelon, NJ 07405  
Phone: (973) 492-0400  
Fax: (973) 492-9581

sales@koesterassociates.com  
service@koesterassociates.com  
parts@koesterassociates.com

[www.koesterassociates.com](http://www.koesterassociates.com)

#### Headworks

- Grit Removal
- Screening

#### Clarification

#### Biological

- Activated Sludge
- RBCs
- Trickling Filter
- MBBR
- MBR
- IFAS

#### Tertiary Treatment

- BNR
- Disc Filters
- Microfiltration
- Rapid Sand Filtration

#### Disinfection

- UV
- Chlorination
- Chemical Feed
- Ozone

#### Pumps and Pumping Systems

#### Odor Control

#### Controls and Integration

**Service** – We are your partners for the long term

**“OUR HANDSHAKE IS OUR COMMITMENT TO YOU.”**

**ATTITUDE MAKES THE DIFFERENCE**





# Clear Waters

New York Water Environment Association, Inc.

## NYWEA Board of Directors

**Officers**

**President** ..... Khristopher Dodson, Syracuse

**President-Elect** ..... Donna Grudier, Northport

**Vice President** ..... Lisa Derrigan, Buffalo

**Vice President-Elect** ..... Dan Rourke, Saratoga

**Treasurer** ..... Tim Taber, Liverpool

**Assistant Treasurer** ..... Robert DeGiorgio, New York, NY

**Immediate Past President** ..... Lauren Livermore, Liverpool

**Senior WEF House of Delegates** ..... Geoff Baldwin

**Chapter Representatives**

**Capital** ..... Neil O'Connor, Albany

**Central** ..... Mike Burkett, Syracuse

**Genesee** ..... Michelle McEntire, Rochester

**Long Island** ..... Steve Hadjiyane, Woodbury

**Lower Hudson** ..... Charles Beckett, Harrison

**Metropolitan** ..... Gregory J. Shaw Jr., Newburgh

**Western** ..... Angela Hintz, Buffalo

**Young Professionals Representative** ... Sara Igielski, New York City

**Operator Representative** ..... Dale Grudier, Babylon

**WEF House of Delegates** ..... Geoff Baldwin; Rosaleen Nogle, Buffalo; Robert Wither, Glenville

## Committee Representatives

**Association Activities Group:**

**Awards** ..... Brian Skidmore, Syracuse

**Diversity, Equity & Inclusion** ..... Walter Walker, New York City

**Membership** ..... Michelle McEntire, Rochester

**Program** ..... Vijesh Karatt Vellatt, New York City

**Certification Committee** ..... Vincent Rubino, New York City; Hannah Rockwell, Rochester; Alex Emmerson, Buffalo; Tyler Masick, Albany

**Conference Management** ..... William J. Nylc III

**Strategic Planning** ..... Lisa Derrigan, Buffalo

**Young Professionals** ..... Taylor Brown, Buffalo

## Technical Group: Dan O'Sullivan, Buffalo

**Asset Management** ..... Evan Pilachowski, New York City

**Energy/Research** ..... Vacant

**Environmental Science** ..... Edmund Lee, New York City

**Industrial Wastewater/Pretreat** ..... Tara Blum, Avon

**Residuals & Biosolids** ..... Jeffrey LeBlanc, Jordan

**Stormwater** ..... Ethan Sullivan, Albany

**Utility Executives** ..... Pamela Elardo, New York City

**Utility Operations and Maintenance**

**Wastewater Collection Systems** ..... Daniel O'Sullivan, Buffalo

**Watershed** ..... Rosaleen Nogle, Buffalo; Lisa Melville, Poughkeepsie

## Public Outreach Group: Sana Barakat, New York City

**Government Affairs** ..... Robert Ostapczuk, Albany

**Humanitarian Assistance** ..... Shayla Allen, Long Island City

**Member Education** ..... William Davis, Rochester

**Public Outreach** ..... Julie Barown, Cherry Valley

**Publications** ..... Doug Daley, Syracuse; Danielle Hurley, Syracuse

**Scholarship** ..... Alfonso Lopez, New York City; Diane Hammerman, New York City

**Student/University** ..... Krish Ramalingam, New York City

**Sustainability** ..... Erika Jozwiak, New York City

## Executive Director and Staff

**Executive Director** ..... Patricia Cerro-Reehil

**Executive Assistant** ..... Margaret Hoose

**IT Specialist (p/t)** ..... Maureen Kozol

**Operator Certification Administrator** ..... Carolyn Steinhauer

**Communications Manager and Scholarship Administrator;**

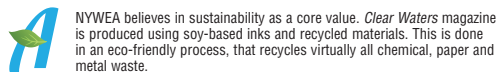
**Advertising** ..... Madison Quinn

## Clear Waters Magazine

**Editor** ..... Kerry A. Thurston

**Design** ..... Sabach Design

nywea.org



**President's Message: Celebrating the Clean Water Act** ..... 4  
Khristopher Dodson

**Executive Director's Message: What's Past is Prologue** ..... 5  
Patricia Cerro-Reehil

**Highlights of the Spring Meeting and Technical Conference and Operations Challenge** ..... 6-9

**Water Views: Happy 50th Anniversary CWA!** ..... 11  
James Tierney

**Focus on Safety: Musculoskeletal Injuries and Risk Factors** ..... 11  
Nellie J. Brown, MS, CIH

**Remembering and Reviewing Hennigan's Water for New York I** ..... 12  
Khristopher Dodson

**What is the CWA?** ..... 14  
Kerry A. Thurston

**CWA at 50: Reflections of an Environmental Consultant** ..... 16  
Elizabeth C. Moran

**Interview: John D. Cameron Jr.** ..... 21

**Interview: Steven A. Fangmann** ..... 22

**Seven Things to Know About the Clean Water Act After 50 Years** ..... 24  
Kelsey Simpkins

**Interview: Edmund K. Lee** ..... 26

**Interview: Geoff Baldwin** ..... 29

**A Professional Life Improving Water Quality** ..... 30  
Cornelius B. Murphy Jr.

**Interview: Steven Eidt** ..... 32

**Interview: Robert Wither** ..... 34

**The Lake Champlain Basin Program Commemorates the Clean Water Act 50th Anniversary** ..... 36  
Jim Brangan, Laura Hollowell and Colleen Hickey

**Interview: Susan J. Sullivan** ..... 40

**Albany County Water Purification District: A Historical Perspective** ..... 42  
Richard J. Lyons

**Interview: Michael J. Garland** ..... 44

**Interview: Lauren Livermore** ..... 46

**Interview: Glenn H. Absolom Jr.** ..... 47

**Leveraging the Next Moment for Water: Building on 50 Years of the CWA** ..... 49  
Lisa F. Garcia

**Interview: Virginia Wong** ..... 50

**Coastal Storm Splits Island and Brings Communities Together** ..... 52  
JoAnne Castagna

**Crawl to NOLA: The Story of My Alligator Collection** ..... 58  
Robert E. Adamski

**Operator Quiz: Wastewater Characteristics** ..... 61

**Reader Reaction to Waste by Catherine Coleman Flowers** ..... 62  
Robert E. Adamski

**Cover: The objective of the Clean Water Act – to restore and maintain the chemical, physical and biological integrity of the nation's waters – has achieved significant improvements to water quality over the past 50 years, broadening recreational opportunities for fishing, boating and swimming.**  
*istockphoto.com, fotoVoyager*

The concepts, ideas, procedures and opinions contained in the articles in this publication are those as expressed by the various authors who submit the material for publication. The New York Water Environment Association, its board of directors, the editor, the executive director, and administrative staff hereby assume no responsibility for any errors or omissions in the articles as presented in this publication; nor are the concepts, ideas, procedures and opinions contained in these articles necessarily recommended or endorsed as valid by NYWEA, its board of directors, the editor, the executive director, or staff.

Clear Waters (USPS 004-595) (ISSN 01642030) is published quarterly with a directory every four years in the fall by the New York Water Environment Association, Inc., 525 Plum Street, Suite 102, Syracuse, NY 13204. Subscription is through membership; public subscription is \$25.00/year. PERIODICALS postage paid at Syracuse, NY. POSTMASTER: Send address changes to the New York Water Environment Association, Inc., 525 Plum Street, Suite 102, Syracuse, NY 13204. Ph: 315-422-7811, Fax: 315-422-3851.



Summer is here and the Spring Meeting in Syracuse, New York, was in-person, well-attended and filled with great sessions, programs, exhibits and activities. It feels so good to be relatively back to normal. See pages 6 to 9 for photographs from the meeting and Operations Challenge.

## CWA Celebrating 50 Years

This *Clear Waters* summer issue celebrates the 50th anniversary of the Clean Water Act (CWA). Fifty years seems like such a long time (until you realize it's only four years more than you've been alive, then it seems like a relatively short amount of time!) That said, as an industry, we have come a long way, though I think we all recognize that there is more work to be done.

I feel like this issue is particularly special because we have content from a diverse group of water professionals, some of whom were in the industry at the time the legislation was developed and enacted. Their perspectives provide greater insight into where we were when the CWA was enacted, where we are today, and most importantly, where we need to go as we advance clean water treatment and technology into the future.

From past presidents such as Richard Lyons, Robert Wither, Mike Garland, Lauren Livermore, Geoff Baldwin, Steve Fangmann and John Cameron Jr., to the perspective of regulators such as Virginia Wong from USEPA Region 2, and consultants and operators such as Edmund Lee and Glenn Absolom, we are reminded that continued investment in both our physical and human assets is critical. Further, their perspectives show a keen focus on the need to be resilient and adaptable in the face of changes to our climate and the appearance of emerging contaminants that were not present, or measured for, when the CWA was enacted. Bob Wither put it best in his interview when he said, "One of our challenges will be emerging contaminants that our treatment systems are not designed to remove and whose impact on our health and environment are not fully understood."

And in the face of climate change, considering the resilience and adaptability of our physical assets was best put by Virginia Wong when she said, "I believe the effect of climate change will have a significant impact in the clean water sector. These climate stresses, coupling with aging infrastructure, will be the greatest challenge."

Chief Treatment Plant Supervisor Glenn Absolom said, "Our greatest challenge over the next 50 years will be keeping up with all the new changes necessary to keep the planet healthy and finding the new people to cultivate the interest in working in this profession."

I couldn't have said it better myself.

Addressing these new, unplanned for and hard-to-measure challenges is an important reminder that continued investment in our infrastructure is not just "a nice thing to have," but that it is vital to the economic, social and environmental success of those who will own the future. As Susan Sullivan, executive director of the New England Interstate Water Pollution Control Commission (NEIWPCC) said in her interview, "Our biggest challenge and opportunity is political will."

One exercise of political will is highlighted in USEPA Region 2 Administrator Lisa Garcia's article, *Leveraging the Next Moment for Water: Building on 50 Years of the CWA*. In this article she discusses the Bipartisan Infrastructure Law (BIL) and how it would not have been possible without the CWA and all the subsequent investments in water and wastewater infrastructure.

Replacing aging infrastructure, supporting workforce development programs to attract new talent, planning for an uncertain future in the face of climate change, and remaining resilient all together, while providing cost-effective clean water for the health of the public and the environment is a tall order, but the CWA set us on this path 50 years ago and the BIL promises to infuse the work of today with additional resources to support our infrastructure as we meet these challenges head-on.

## Throwing Down the Gauntlet

In my article, *Remembering and Reviewing Hennigan's Water for New York I*, I look back at Robert D. Hennigan's book on the history of the development and management of the waters of New York from 1789 to 1970. Bob did an amazing job of researching a water history that, frankly, may not be preserved in this compiled form in many other places. His publication is a unique treasure, and Bob's Afterword suggestion that there be a *Water for New York II* should not be ignored.

With 50 years of progress in improving water quality since the CWA – not to mention myriad other new developments since Bob published Part I in 2006 – there is substantial fresh ground to be broken in researching and compiling the next volume of *Water for New York*.

Here's to the last 50 years of the CWA, and onward into the next 50 years with continued attention and support.



Christopher Dodson  
NYWEA President



Jake Miller of the Long Island Brown Tide repairs a check valve in the Operations Challenge Safety event. See more photos on pages 6-9.





## What's Past is Prologue

I had the privilege of working with Robert D. Hennigan for over 20 years, and he impressed on me numerous times the significance of the Clean Water Act. Of course, he was part of the process in his leadership roles, serving as the director of the Sewage Works Needs Study, and while assistant commissioner for the New York State Department of Health in the Pure Waters Program. He explained that New York state undertook a major comprehensive water pollution control program in 1965. Realizing New York's pollution abatement program was well crafted, the federal government and a number of other states followed suit. Our state program was strengthened with support from the 1966 Federal Water Pollution Control Act. This was followed by the 1972 Clean Water Act, which included many of the provisions pioneered by the New York State Pure Waters Program. So, it was New York's initial program (in some measure) promulgated by Bob Hennigan's strong leadership that sparked the success of the national comprehensive Clean Water Act as we know it today.

The infrastructure funding provided by the Clean Water Act across the nation was incredible for its time. With the continuing need for upgrades at utilities, the state's proposed Clean Water, Clean Air and Green Jobs Environmental Bond Act of 2022 allocates substantial portions of the bond's funds to water and sewer systems, which can only help improve water quality here in New York. Residents of New York state will be asked to vote on this bond act in November.

NYWEA continues to collaborate with the New York Section American Water Works Association and the New York Rural Water Association by sharing a legislative liaison. Emily Palumbos was hired to help in the coordination of routine meetings to review, research and write positions and letters regarding pending legislation that affects our members. This collaboration is a great benefit to all of our members who share a common mission of water quality protection.

## Setting the Stage for the Future 2023-2027

Talking about collaboration, NYWEA leaders recently participated in a strategic planning process facilitated by Jean Malafronte of Andris Consulting. Thirty NYWEA volunteers and staff took a half day to set the stage for the future covering the years 2023 through 2027, to identify strategies that will best enable NYWEA to advance its mission. It is anticipated that the final product will be committed to measurable goals and priorities and will be completed before NYWEA celebrates its 95th Annual Meeting in February.

As we set the stage for the future, look for a unique specialty conference that will be offered in person in November on climate change. In addition, NYWEA's Diversity, Equity and Inclusion (DE&I) Committee is planning a half-day workshop on DE&I initiatives to help build an inclusive culture and improve team engagement in the workplace and beyond.

Patricia Cerro-Reehil, [pcr@nywea.org](mailto:pcr@nywea.org)



NYWEA volunteers and staff participated in a strategic planning session on July 13, 2022, at the Landing Hotel and Casino Conference Center in Schenectady.

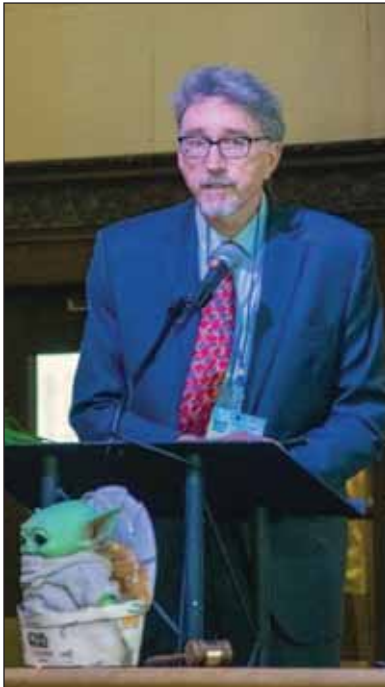


**2022 NYWEA Spring Technical Conference & Exhibition**  
**“The Year of the JEDI: Justice, Equity, Diversity and Inclusion”**  
**Celebrating Our Water Heroes**

Over 300 people attended NYWEA’s Spring Technical Conference & Exhibition held at the Marriott Syracuse Downtown, June 6-8. Meeting attendees selected from 10 sessions covering various topics. Thirty-six exhibitors filled Finger Lakes Ballroom where the 2022 Operations Challenge also took place. Many thanks to William J. Nylic III and the members of the Conference Management Committee, Program Committee, speakers, moderators, advertisers, sponsors, exhibitors, Operations Challenge teams, judges and coordinators and, most importantly, the attendees for making the meeting a success!



NYWEA President Khris Dodson speaks during the Opening Session



William Brizzell, Director, Division of Engineering of NYS Environmental Facilities Corporation, shares information on monies available to municipalities.



Jane Gajwani from NYC Department of Environmental Protection talks about the Climate Leadership & Community Protection Act (CLCPA).



Lisa Stone, Chief People and Inclusion Officer of DC Water gives the keynote address.



Walter Walker, Chair of the DE&I Committee, introduces the InFLOW scholars.



Moderator Amie Lenkowiec from HDR introduces the next speaker.



Opening Session’s JEDI (Justice, Equity, Diversity and Inclusion) Training panel discussion with (l-r) Steve Sanders, SUNY Morrisville; Lisa Stone, DC Water; and Dr. Sim Covington, Finger Lakes Community College, Canandaigua.

Right:  
 Shannon Harty,  
 Commissioner of  
 Onondaga County  
 Water Environment  
 Protection speaks  
 about the county’s  
 reorganization  
 and workforce  
 redevelopment  
 vision.







**Pam Elardo, Deputy Commissioner, NYC Department of Environmental Protection, speaks on the topic of Water Resource Recovery Facilities and Environmental Justice.**



**Eric Cushing from the Village of Minoa speaks during the wastewater operator certification governance council meeting.**



**Michelle Hess, Chief Operator City of Canandaigua, enjoys the Opening Session.**



**InFLOW Scholars (l-r) Jason Melchior, James Walker and DJ Jackson enjoy the tour of Onondaga County Department of Water Environment Protection.**



**Richard Straut (left) is inducted into the Select Society of Sanitary Sludge Shovelers by President Dodson and the Operator-in-Chief William Grandner.**



**Right: Tony Filer of the Onondaga County Mixed Liquors in action during the Operations Challenge Lab event.**



**Some of the attendees of the YP networking event held during the Spring Meeting.**



**The tour of Onondaga County Department of Water Environment Protection was well attended.**

*Photos: Lucas Kasperowicz, Ashley Rubacha, Madison Quinn and Patricia Cerro-Reehil*



**O**perations Challenge, the annual water sector's premier skills competition, is unmatched in delivering cross-training, team building and professional development. Teams compete in five events: Collections Systems, Laboratory, Process Control, Pump Maintenance and Safety – all of which demonstrate the skills necessary to deliver clean water and sanitation services to their communities.

Six NYWEA teams went head-to-head and showcased their skills on June 6 and 7, 2022, at the Spring Technical Conference & Exhibition in Syracuse. After all scores were compiled, Long Island Brown Tide secured first place, NYCDEP Coney Island Sludge Hustlers earned second, and the Watertown Water Bears placed third. Rounding out the remainder of the teams, NYCDEP Bowery Bay Coyotes finished fourth, Onondaga County Mixed Liquors, fifth, and Genesee Valley Water Recyclers, sixth. NYWEA's top five teams will compete at WEFTEC this October in New Orleans.

**Results by Event:**

**PROCESS CONTROL**

- 1st: Watertown Water Bears
- 2nd: Genesee Valley Water Recyclers
- 3rd: Onondaga County Mixed Liquors

**SAFETY**

- 1st: NYCDEP Bowery Bay Coyotes
- 2nd: Long Island Brown Tide
- 3rd: Watertown Water Bears

**PUMP MAINTENANCE**

- 1st: Long Island Brown Tide
- 2nd: NYCDEP Bowery Bay Coyotes
- 3rd: NYCDEP Coney Island Sludge Hustlers

**LABORATORY**

- 1st: Long Island Brown Tide
- 2nd: Watertown Water Bears
- 3rd: Onondaga County Mixed Liquors

**COLLECTIONS SYSTEMS**

- 1st: NYCDEP Coney Island Sludge Hustlers
- 2nd: Long Island Brown Tide
- 3rd: Watertown Water Bears



Coney Island Sludge Hustlers divide to conquer the Process Control event's written test and the treatment plant simulation software.



Watertown Water Bears employ strong math skills on their way to first place in the Process Control event.



(L-r) Angelo DiNottia, Raphael Santiago and Will Monier of the Genesee Valley Water Recyclers race against the clock during the Collections event.



Coney Island Sludge Hustlers' Michael Orloff (left) and Bobby Ferland finish the Collections event in a 1st place time of 121.77 seconds.



Brown Tide's (l-r) Robert Jentz, Jake Miller and Nick Barresi quickly install the couplings during the Collections event.



(L-r:) Richard Lacey Jr., Jay Slate and Seth Foster of the Watertown Water Bears waste no time during the Collections event.



Operations Challenge trophies.



(L-r:) Michael Orloff, Bobby Ferland and Ray Antenucci of the Coney Island Sludge Hustlers in action during the Lab event.

Left: During the Lab event, Raphael Santiago of the Genesee Valley Water Recyclers double-checks his work.





The Watertown Water Bears organize prior to the Maintenance event.



First place Brown Tide show their trophy. (L-r): Khris Dodson, William Grandner, Dale Grudier, Rob Jentz, Jake Miller, James Behr, Nick Barresi and Hector Soto (Coach/Alternate).



Bowery Bay Coyotes: (l-r) Pete Mander, Chris Reyes and Mike Prats set up the Maintenance event's gantry and chain host.



Khris Dodson (right) with the Genesee Valley Water Recyclers: (l-r) William Grandner, Dale Grudier, Jeff Wallace, Will Monier, Raphael Santiago and Angelo DiNottia.



Brown Tide finish first in the Maintenance event with a time of 442.81 seconds.



(L-r:) William Grandner, Michelle Hess and Dale Grudier pose with the Water Bears – Angel French, JR Lacey, Seth Foster, Jay Slate – and Khris Dodson.



Left: Onondaga County Mixed Liquors repair the check valve.

Below: Watertown Water Bears prepare for confined space entry.



Khris Dodson (right) with the second place Coney Island Sludge Hustlers: (l-r) William Grandner, Dale Grudier, Deputy Commissioner Pam Elardo, Ray Antenucci, Nick Sullivan, Michael Orloff and Robert Ferland.



# Muffin Monster® THERE IS NO EQUAL



## Always Leading

JWC's Monster family of wastewater solutions are specified nearly three to one over the next two competitors combined.

- Five decades of innovation resulting in 13 patents with more on the way
- End-to-end offering of solids reduction and removal equipment
- Customized solutions to fit your waste stream

**There's Only One Monster Family of  
Wastewater Solutions**



Authorized Distributor

**GP Jager Inc.**

(800) 986-1994  
www.jagerinc.com  
info@jagerinc.com



**JWC**  
Environmental®  
A Sulzer Brand





### Happy 50th Anniversary CWA!

The Clean Water Act has been remarkably effective. Water reclamation treatment systems have been built across the nation. Water quality and ecology have been dramatically improved. Rivers are not convenient dumps for industrial and human wastes. New technologies, fields of scientific expertise and legal constructs now help meet the CWA's mandates.

The fundamental structure of the CWA has driven immense progress. All waters were required to be classified for their best "use" (e.g., drinking or swimming). States were directed to establish water quality standards to protect those best uses. "Technology-based" pollution limitations were adopted nationally – such as secondary treatment of municipal sewage. Pollution limits were made legally binding via enforceable permits.

The CWA further required that all waters be assessed to see if they comply with standards, and if not, pollution budgets must be developed and additional "water quality-based" pollution limitations devised and applied. Water quality standards and the discharge permits were required to be reviewed periodically and updated as needed. The CWA enforcement mechanisms, and those of New York's legal analogue, are powerful.

Other polluting activities have been abated by comprehensive rulebooks covering similar types of activities, called "general permits." These GPs manage such actions as city stormwater systems, construction disturbances, concentrated animal feeding operations, runoff from various industrial landscapes or mines, and pesticides.

After 50 years, however, the CWA's promise to restore the chemical, physical and biological integrity of the nation's waters has been greatly advanced, but not fulfilled.

One ingredient missing for many years was money. The 1972 CWA was almost as much about funding the newly needed water infrastructure as it was about regulating pollution. In New York in recent years, and with \$55 billion under the federal Bipartisan Infrastructure Law, we are again providing badly needed grants to help improve water infrastructure.

We have also discovered the limits of the CWA programs – they just do not get the whole job done. Too many water bodies remain impaired.

In response, New York has created watershed-based partnerships, such as the Hudson River Estuary Program or the Great Lakes Basin Program, to bring the whole community to the task of restoring water ecology and to drive implementation of scientifically sound action plans.

Climate change – the drought and deluge effect – is working against our water restoration efforts ever more intensely. In response, many plans and actions are underway to implement projects that together abate flooding, improve water quality and enhance aquatic habitat – especially in response to storms such as Sandy, Lee, Irene and Ida.

In New York, at least, clean water is bipartisan. While being vigorous in maintaining existing programs, my sense is that we need to expand and energize ambitious partnerships – citizens, businesses, municipalities, engineers, operators and scientists – if we are to achieve the Clean Water Act's full promise in the years ahead.

– James Tierney, Deputy Commissioner for Water Resources  
New York State Department of Environmental Conservation

## Focus on Safety | Summer 2022



### Musculoskeletal Injuries and Risk Factors

Musculoskeletal injuries arise from overexertions of muscles and joints – often affecting associated tendons, ligaments, nerves, bones and blood vessels. Below are some simple risk factors to reduce or eliminate.

*Are any of the joints in a nonneutral position?* If you stand relaxed, with your arms at your sides, this is considered a neutral position for the body. The further our joints are from this neutral position, the more that

our muscles are stretched, becoming weaker and easier to injure. Examples are: extending the arms above the shoulders, holding the head tilted quite a bit backward or forward, or a rounded back when standing or sitting.

*Is the work or load too far out from the body?* The farther away it is, the more our back muscles tighten, squeezing down on the disks in the spine.

*Is the body bent forward?* In this position, a lot of body weight is suspended from the lower back.

*Is the trunk of the body twisting?* If you really want to screw up your back, twist (or, even worse, lift while twisting).

*Is the body making sudden movements?* Swinging the limbs or a lifted object forces our muscles to stretch and can cause overstretching, or even tearing, of muscles or tendons. Swinging or bouncing some-

thing is often the way someone will lift a heavier-than-usual object – sometimes to hoist the item onto the hip or shoulder.

*For how long a time is the body holding a posture or repeating a movement?* For how long are we doing the same movement over and over again; this produces cumulative trauma. So does keeping the body in one position for a long period of time because muscles are kept taut, clamping down on the blood vessels supplying muscle cells with oxygen and food and carrying away waste products. Over time, this is also damaging to tissues. Another example is contact stress – pressing or leaning the body, hands, or wrists against the hard or sharp edge of a table or the handle of a tool.

*Does the task overwork a few muscles producing localized muscle fatigue?*

*Is the body being worked to the point of exhaustion?* Fatigue, like hunger and thirst, is a warning – the body says we need to rest. Tired muscles suffer from insufficient oxygen supply and buildup of waste products. Exhausted muscles are more prone to injury.

*Is the body exposed to vibration?* Prolonged vibration from vibrating tools, handling vibrating machine controls, or sitting on vibrating equipment (such as a truck or forklift) can produce damage to tiny nerves and blood vessels in the hands or back. Some new equipment designs have been able to damp out most or all vibration.

The interaction of these risk factors can be synergistic, increasing risk dramatically. We need to report injuries at their earliest stages for ergonomic hazards to be addressed.

– Nellie J. Brown, MS, CIH, ILR School, Cornell University

# Remembering and Reviewing Hennigan's *Water for New York I*

by *Khristopher Dodson*

Bob Hennigan's seminal (if I might call it that) book *Water for New York I: The History of the Development and Management of the Waters of New York – 1789 to 1970* is an important resource for those of us in the water industry in New York. It details the important history and evolution of water resource management in New York. It shows us, in painstaking detail, how we got to where we are today.

Since the focus of this issue of *Clear Waters* is on the 50th Anniversary of the Clean Water Act it is important for us to remember the decades leading up to that historic legislation. *Water for New York I* is the first and best stop to do that.

Bob covers a lot of ground in this 250-page book with ample maps, figures and tables. He includes information on surface water, drainage basins, groundwater, floods and droughts, the development of infrastructure, programs and policies, and he breaks it down into specific eras, and sometimes, specific areas of the state.

In "Part 1: Water Resources and the Development of New York State 1783-1899," Bob covers everything from New York's frontier to the canal and railroad era, urbanization and industrialization, epidemic diseases and the Great Fire of 1835 – all from the perspective of early water management.

In "Part 2: Water Pollution Control and Resource Development 1900-1949," he covers the wide variety of complex and sometimes fast-paced economic and regulatory changes, especially impacted

by the Great Depression and both world wars. This part of the book ends with a description of New York's first comprehensive water pollution control law. Signed into law April 20, 1949, this law created a Water Pollution Control Board and put into place limitations on water pollution that would not be enforced for another 10 years!

The last part of the book, "Part 3: Water Pollution Control and Water Resources Development During an Expanding Economy and a Growing Urban Population 1950-1970," covers just two decades but much happened in those two decades! Increased urbanization and suburban growth led to increased water quality management and control; the rise (or growth) of the environmental movement led to greater concern and more desire for action regarding water pollution control, leading to the Federal Water Pollution Control Act of 1966 and the establishment of New York's Pure Waters Program in the latter half of the 1960s.

The book concludes at the end of the 1960s, just as the first Earth Day was celebrated in April 1970, the New York State Department of Environmental Conservation was created in July 1970, and of course, the Clean Water Act was passed in 1972.

Celebrating the 50th anniversary of the CWA while also reviewing this book and its Afterword, where Bob Hennigan suggests a *Water for New York II* could be forthcoming, it seems as if we may be due. So much has changed in the last 50 years with how we regulate, manage and maintain our water infrastructure in New York and across the country that it bears mapping out how we got here from there, just as Bob did in the *Water for New York I*.

Today, we have water resource recovery facilities, not just sewage treatment plants. We have emerging contaminants that were likely not even a consideration 50 years ago. We have technologies that did not exist even when this book was published in 2006, let alone 50 years ago.

So, this year, the 50th anniversary of the CWA and more than 15 years since Bob published this book, it seems that so much has changed and there is so much to write about that maybe Bob's idea of publishing *Water for New York II* would help those who succeed us understand how they got to be where they will be in the next 50 years.

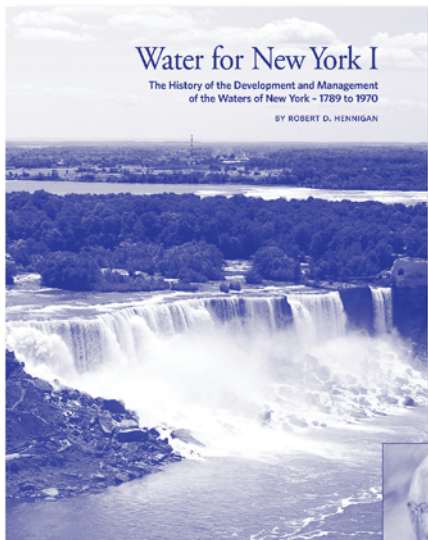
---

*Khristopher Dodson is the associate director at the Syracuse University Environmental Finance Center (SU-EFC) and may be reached at [kadodson@syr.edu](mailto:kadodson@syr.edu).*

*Note: Bob wrote this book when he rented an office from NYWEA. He was president of NYWEA in 1985 and became Executive Secretary from 1970-78 and again from 1986-1999. His book is currently available on Amazon.*

## Curious About Water Policy?

Find Out How Water Quantity and Water Quality Management Evolved in New York State.



How did New York State cope with water resources needs?  
How did the water pollution control program develop?  
What were the roles of the federal, state and local governments?

### Read "Water for New York I"

(259 pages, 101 figures, 28 tables, 8 chapters)

Author Robert (Bob) D. Hennigan, P.E., B.C.E., M.A., D.E.E., F. ASCE, was the former Director of Sewage Works Needs Study, New York State Office for Local Government; Assistant Commissioner New York State Department of Health, Pure

Waters Program; Executive Director Southeast Water Supply Commission; Chair Environmental Studies Faculty, SUNY ESF; and Executive Director New York Water Environment Association.



Robert D. Hennigan purchased this ad in *Clear Waters* (Spring 2006) to promote *Water for New York I*.



## Reduce Sludge Cake 60% in Just 3 Minutes



Your Cake at 20% DS



After ELODE<sup>®</sup> at 47% DS



- > Works on 95% + of municipal WWTP sludge cake
- > Non Thermal sludge cake dryer
- > No Chemical, No Heat, No Mechanical force used!
- > Super efficient using only electricity
- > The smallest foot print dryer
- > Huge savings by reducing sludge cake weight

Elode USA, Inc.

✉ ElodeUSA.com ☎ 201-568-7778

Norwood, NJ

## We've made your Water our Business



We know water, and we know the water business

- Let Aquastore be the only tank you'll ever need
- Decades of experience
- Over 1200 tanks

Statewide Aquastore, Inc.  
6010 Drott Drive  
East Syracuse, NY 13057  
Phone: 315.433.2782  
Fax: 315.433.5083  
www.besttank.com

# What is the CWA?

by Kerry A. Thurston

To mark the 50-year anniversary of the Clean Water Act (CWA), this issue of *Clear Waters* magazine has gathered the reflections of individuals who have worked in the water industry, from engineers and scientists to operators and regulators. From the perspectives of public works, private industry, government, education and nonprofits, each author has expressed their own opinions on the importance of the CWA for public and environmental health.

But what is the CWA?

The Federal Water Pollution Control Act Amendments of 1972 – commonly referred to as the Clean Water Act – became law in October 1972. Over the 50 years since its enactment, the CWA and its amendments have been a guiding force at the federal level for water quality improvement and protection.

## History

The earliest federal water pollution control legislation was the Refuse Act, a section of the River and Harbors Act of 1899, which prohibited dumping in and obstruction of navigable waterways (Black 1991). The Federal Water Pollution Control Act of 1948 was the first national pollution abatement statute, with program administration at the state level (Hennigan 1997). This statute specifically provided state and local governments with technical assistance funds to address water pollution problems, including research; there were no federally required goals, objectives, limits or even guidelines (CRS 2016).

During the latter half of the 1950s and well into the 1960s, amended acts to this federal statute increased construction grants, program scope and enforcement authority, while the program remained under state control (Hennigan 1997). Federal jurisdiction was gradually extended to include navigable intrastate, as well as interstate, waters, and states had to set standards for interstate waters that would be used to determine actual pollution levels and control requirements (CRS 2016).

According to the Congressional Search Service (CRS 2016), the 1972 statute set optimistic and ambitious goals, declaring as its objective the restoration and maintenance of the chemical, physical, and biological integrity of the nation's waters. While the target dates to achieve its goals have passed – zero discharge of pollutants by 1985 and both “fishable” and “swimmable” water quality by mid-1983 – the goals remain, and efforts to attain them continue.

The 1972 statute required all municipal and industrial wastewater to be treated before being discharged into waterways;

increased federal aid for municipal treatment plant construction; strengthened and streamlined enforcement; and expanded the federal role while maintaining state responsibility for day-to-day implementation of the law (CRS 2016). In effect, the state acted as the surrogate for the federal program until subsequent amendments between 1977 and 1987 delegated the operating programs back to the states (Hennigan 1997).

A summary of the major amendments to the Federal Water Pollution Control Act of 1948 is provided in **Table 1**.

## The CWA Today

According to the Congressional Research Service (CRS 2016), the CWA consists of two parts, broadly speaking:

- Title II and Title VI provisions, which authorize federal financial assistance for municipal sewage treatment plant construction.
- Regulatory requirements, found throughout the act, which apply to industrial and municipal dischargers.

The CWA is considered a technology-forcing statute that placed rigorous demands on the regulated community to achieve higher and higher levels of pollution abatement (CRS 2016). Terms such as “best practicable control technology,” “secondary treatment” and “best available technology” entered into the water quality lexicon. Other requirements added since 1972 include pretreatment programs for control of industrial discharges to municipal plants, combined sewer overflow control, stormwater control, toxic site remediation, plant odor control, industrial pollution prevention, air pollution control, enhanced treatment processes and new emphasis on watershed management and nonpoint source pollution control (Hennigan 1997).

---

*Kerry A. Thurston is the editor for NYWEA's Clear Water magazine and may be reached at [clearwaters@nywea.org](mailto:clearwaters@nywea.org).*

## References

- Black, Peter E. 1991. *Watershed Hydrology*. Englewood Cliffs, New Jersey: Prentice-Hall, Inc., a division of Simon and Schuster.
- CRS. 2016. *Clean Water Act: A Summary of the Law*. Washington, D.C.: Congressional Research Service, 10 pp. Accessed Jul 2022. <https://crsreports.congress.gov/product/pdf/RL/RL30030>.
- Hennigan, Robert D. 1997. “A Look Back, A Look Ahead.” *Clear Waters* magazine (New York Water Environment Association) pp. 54-57.

**Table 1. Clean Water Act and Major Amendments (codified generally as 33 U.S.C. §§1251-1387)**

Year	Act	Public Law
1948	Federal Water Pollution Control Act	P.L. 80-845(Act of Jun 30, 1948)
1956	Water Pollution Control Act of 1956	P.L. 84-660(Act of Jul 9, 1956)
1961	Federal Water Pollution Control Act Amendments	P.L. 87-88
1965	Water Quality Act of 1965	P.L. 89-234
1966	Clean Water Restoration Act	P.L. 89-753
1970	Water Quality Improvement Act of 1970	P.L. 91-224, Part I
1972	Federal Water Pollution Control Act Amendments	P.L. 92-500
1977	Clean Water Act of 1977	P.L. 95-217
1981	Municipal Wastewater Treatment Construction Grants Amendments	P.L. 97-117
1987	Water Quality Act of 1987	P.L. 100-4
2014	Water Resources Reform and Development Act of 2014 (Title V)	P.L. 113-121

Source (CRS 2016)



## Waters of the United States

“Navigable waters,” defined in the Clean Water Act as the “waters of the United States, including territorial seas” (Section 502[7]), establishes the scope of federal jurisdiction under the CWA (*USEPA 2021*). However, the definition of “waters of the United States,” or WOTUS, has become an object of controversy in its application, particularly relating to federal jurisdiction over wetlands.

In the CWA, the regulatory definition of WOTUS is left to the discretion of the U.S. Environmental Protection Agency (USEPA) and the U.S. Department of the Army Corps of Engineers (Corps) (*USEPA 2021*). Some of the CWA programs that use the WOTUS definition include:

- Section 303(c): Water Quality Standards
- Section 303(d): Impaired Waters and Total Maximum Daily Loads (TMDLs)
- Section 311: Oil Spill Prevention and Preparedness Programs
- Section 401: Certification
- Section 402: National Pollutant Discharge Elimination System
- Section 404: Permitting Discharges of Dredged or Fill Material

Since the 1970s, USEPA and the Corps have defined WOTUS by regulation, and in the mid-1980s, both agencies promulgated a definition of WOTUS (*USEPA 2021*). And for decades, Congress, the courts, stakeholders, and the agencies have debated how to define the term, and how to interpret the scope of waters that are federally regulated (*CRS 2022*).

## WOTUS and Wetlands

Section 404 of the CWA and the definition of WOTUS has had a direct bearing on conservation of wetland habitats. The core of the debate is: to what degree is a wetland considered a “water of the United States”? And subsequently, what jurisdiction does the federal government have over properties that contain wetlands? The question of jurisdiction determines whether permits are required for a project before impacting wetland habitat, or whether avoidance or mitigation of impacts will be necessary.

Three Supreme Court decisions have addressed the scope of WOTUS, as described in a Congressional Research Service Report (*CRS 2022*):

- 1985 – *United States v. Riverside Bayview Homes, Inc.*
- 2001 – *Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers (SWANCC)*
- 2006 – *Rapanos v. United States*

In the 1985 Riverside case, the Court upheld the Corps’ interpretation that CWA jurisdiction extended to certain wetlands that were adjacent to other jurisdictional waters (*CRS 2022*). These would include wetlands adjacent to rivers, streams, lakes and other navigable waterbodies that fall under the WOTUS definition.

What about wetlands that provide valuable habitat yet are not adjacent to navigable waters? For example, isolated wetlands that receive inflow primarily from precipitation or groundwater, which are not adjacent to other navigable bodies of water, provide valuable habitat along migratory bird routes.

In the 2001 SWANCC case, the Court rejected the Corps’ interpretation and held that the use of isolated ponds by migratory birds could not form the basis of CWA jurisdiction over those ponds (*CRS 2022*).

The decision in the 2006 Rapanos case addressed the question of what “adjacent” means in the context of – and the extent of jurisdiction over – wetlands near ditches or human-made drains that

emptied into traditional navigable waters. The Supreme Court rejected the Corps’ assertion of jurisdiction under the then-current regulatory definition of WOTUS, which included wetlands that were “adjacent” to a body of water that fed into a traditional navigable water; but the Court issued a fractured 4-1-4 decision with two different standards and no majority opinion providing a rationale indicating how to determine whether a particular waterbody is a water of the United States (*CRS 2022*). As described in the Congressional Research Service Report (*CRS 2022*):

1. Writing for a four-Justice plurality, Justice Scalia held that WOTUS includes only “relatively permanent, standing or continuously flowing bodies of water,” such as streams, rivers or lakes; and wetlands that have a “continuous surface connection” to other waters subject to the CWA.
2. In a concurring opinion joined by no other Justice, Justice Kennedy wrote that the Corps should determine, on a case-by-case basis, whether wetlands have a “significant nexus” to traditionally navigable waters. Justice Kennedy further wrote that a significant nexus exists when the wetland, either alone or in connection with similarly situated properties, significantly impacts the chemical, physical, and biological integrity of a traditionally navigable water.
3. Justice Stevens, joined by three Justices, dissented and would have upheld the Corps and USEPA’s assertion of jurisdiction over wetlands near ditches or human-made drains.

These court decisions have led to a muddying of the waters, so to speak, over what constitutes jurisdictional WOTUS under the CWA. According to the USEPA (*USEPA 2021*), in 2015, the agencies amended their regulations defining WOTUS in the *Clean Water Rule: Definition of “Waters of the United States.”* The 2015 Clean Water Rule was repealed by the 2019 Rule, which reinstated the 1980s regulations as implemented consistent with the U.S. Supreme Court cases and applicable guidance. The agencies then replaced the 2019 Rule with the *Navigable Waters Protection Rule* in 2020.

In 2021, the Corps and USEPA issued a proposed rule that would codify the pre-2015 regulatory framework, consisting of regulations from the 1980s with amendments to reflect the agencies’ interpretation of intervening case law (*CRS 2022*).

The U.S. Supreme Court will hear the case *Sackett v. Environmental Protection Agency* in October 2022, which will address the issue of whether the U.S. Court of Appeals for the Ninth Circuit set forth the proper test for determining whether wetlands are “waters of the United States” under the CWA (*SCOTUSblog 2022*). The implications of this Supreme Court decision will depend on the scope of the Court’s ruling (*CRS 2022*).

## References

- CRS. 2022. *Legal Sidebar: Supreme Court Revisits Scope of “Water of the United States” (WOTUS) Under the Clean Water Act.* Congressional Research Service, 5 pp. Accessed Jul 2022. <https://crsreports.congress.gov/product/pdf/LSB/LSB10707>.
- SCOTUSblog. 2022. *Sackett v. Environmental Protection Agency.* SCOTUSblog. June. Accessed Jul 2022. <https://www.scotusblog.com/case-files/cases/sackett-v-environmental-protection-agency/>.
- USEPA. 2021. *Waters of the United States: Clean Water Act Programs Utilizing the Definition of WOTUS.* Sept. 2. Accessed Jul 2022. <https://www.epa.gov/wotus/clean-water-act-programs-utilizing-definition-wotus>.

# CWA at 50: Reflections of an Environmental Consultant

by Elizabeth C. Moran

I welcome this opportunity to look back over my career as an environmental consultant and reflect on the paradigm shifts that have emerged in response to the Clean Water Act (CWA). First, some background. I was always a science geek, playing in streams and forests growing up and boring my tribe of sisters with questions and observations of the world around us. Predictably, I majored in biology in college and signed up for every field trip and hands-on class available. My first postgraduate job was with the Cobbossee Watershed District in Maine; this organization was the first regional lake management district established in the state. I was tasked with assessing the status and threats to the 28 lakes and ponds within the 217-square-mile Cobbossee Watershed. This work was a component of a 208 Plan for the southern Kennebec Valley. I came to understand that 208 referred to the section of the CWA that calls for development and implementation of areawide wastewater management plans to address both point and nonpoint sources of pollution. This assignment introduced me to the role of quantitative tools for managing water resources. The concept that it was possible to calculate the impacts of various alternatives on the natural world was a revelation.

This revelation motivated a return to school for an integrated graduate program in aquatic sciences and engineering at Cornell University. I wanted a foot in each world. The CWA specifically references technology-based and water-quality based effluent limits; my goal was to understand the implications of those choices on ecosystem services. My first graduate assistantship was to monitor

the eleven Finger Lakes to track their response to the detergent phosphorus ban. Although the Finger Lakes and the southern Kennebec Valley have commonalities in land cover (forests, farms, small settlements, shoreline residences), the scale of farmlands across the Finger Lakes was striking. Our field program and research efforts indicated that nonpoint sources of phosphorus pose the most significant challenge to long-term management and protection of these unique waterbodies.

While Section 208 of the 1972 CWA specifically recognized the need for addressing nonpoint source pollutants, most of the progress with areawide waste treatment management continued to be associated with point sources. Congress added Section 319 to the CWA in the 1987 amendments to encourage states to implement integrated point and nonpoint source management programs. This step away from federal regulatory oversight recognized the reality that managing nonpoint sources requires land-use planning tools that largely rest with local government.

With my graduate degrees in hand, I began work at Stearns & Wheler Environmental Engineers and Scientists (now GHD). I was fortunate to be part of several significant projects that shaped my career and reinforced the need for collaborative approaches for solving complex water resource management issues. One major project was supporting the Onondaga County Department of Water Environment Protection as they designed, implemented,

*continued on page 18*



Large trees provide shade for park visitors along the shores of Onondaga Lake in Syracuse, New York.

*Kerry A. Thurston*



# Managing today's environment for a better tomorrow



A proud supporter of NYWEA since 1965

We view every project with an eye to the future. Sustainable, cost-effective engineering and environmental solutions have been the focal point of our legacy since our inception. Wastewater or water supply, environmental remediation or civil engineering, D&B lives by an unwavering commitment to total customer satisfaction.



516-364-9890 | DB-ENG.COM  
Facing Challenges. Providing Solutions.

WOODBURY, NY • WHITE PLAINS, NY • ISLANDIA, NY • EAST SYRACUSE, NY • ALBANY, NY • SOMERSET, NJ • TREVOSE, PA

continued from page 16

and evaluated upgrades to the level of treatment at the Metropolitan Syracuse Wastewater Treatment Plant (Metro). The story of the improvements at Metro and the dramatic response of Onondaga Lake have been well documented in *Clear Waters* and other publications.

My role was to assist the County team in design and implementation of their Ambient Monitoring Program (AMP). The AMP was designed to track key indicators of the lake ecosystem's response to reduced loading. The indicators encompass physical, chemical and biological parameters. Compliance with ambient water quality standards was a central, but not sole, focus. The AMP included extensive annual monitoring to assess the phytoplankton community (abundance and structure), the zooplankton community (abundance and structure, including size distribution), and the fish community (populations, reproductive success and migration). Compliance with regulatory effluent limits and ambient water quality standards is one yardstick for measuring compliance with the CWA objective to "restore and maintain the chemical, physical and biological integrity of the Nation's waters." Evaluating ecosystem response is another. The AMP was unique in its commitment to gathering the data and information needed to make that assessment and for empowering the project engineers and scientists in joint decision-making.

The successful restoration of Onondaga Lake was not all about point source management. Metro effluent was the dominant source of phosphorus contributing to impaired water quality, but not the only source. Prior to completion of the Metro improvements, nonpoint sources from the large watershed contributed around 40% of the annual phosphorus load (more during wet years, less during dry years). Understanding and managing landscape sources and transport of nutrients and sediment was critical to long-term water resources management. Nonpoint source management requires an additional set of tools, and I found myself squarely back in the watershed planning and management world where I had embarked on my career with the assignment in Maine. By the end of 1997, I had formed EcoLogic to focus on the science of lake and watershed management.

The quantitative tools acquired through my graduate studies and early career assignments have continued to be essential.



Elizabeth Moran, right, engages with participants in a stakeholder outreach initiative to bring local knowledge into the resource management decision process.  
Kerry A. Thurston

However, understanding the regulatory landscape and the roles of local, state and federal government is another essential component in water resources management, particularly for large watersheds. The CWA provides structure and guidance for point sources but delegates substantial autonomy to the states for non-point sources. In New York, we refer to "home rule" to convey that decisions regarding planning and zoning are largely vested in local government. I decided to explore the potential and limits of local government from the inside and was elected to serve as Town Supervisor of Cazenovia and on the Madison County Board of Supervisors. To be fair, I cannot attribute the decision to take on this additional role solely to the CWA. But the experience of serving in local government did expand my view of how future generations of environmental engineers and scientists can advance water resources management.

I share three "lessons learned" with those who will remain active into the second 50-year term of the CWA.

First is to acknowledge connections between the human community and the rest of the ecosystem. People are connected to place and are often willing to share stories about what they value in their natural surroundings. These stories can guide discussion of goals for resource protection and restoration and build support for shared decision-making. New York state refers to ecosystem-based management (EBM) as a framework for this place-based approach to natural resource management using a scientific foundation and local knowledge. It is essential to engage the stakeholder community in resource management decisions. My years as an elected official brought this lesson home. Our community was able to complete a comprehensive plan, and totally revamp zoning and subdivision ordinances, including a lake watershed zone, riparian buffers and an aquifer protection overlay district. Sustained outreach and engagement were the key.

The second lesson is to embrace adaptive management. Some skills, like the ability to communicate complex information in a clear manner, will always be needed. But the rate of change in mathematical modeling, data visualization, geographical information systems, remote sensing, artificial intelligence and other tools is astounding. Professional organizations and continuing education are key, along with engagement of younger colleagues. I enjoy working with recent graduates and appreciate their complete confidence that they can figure things out. Keep learning and sharing your knowledge.

Finally, remember why we collectively engage in these challenging assignments. Tap into your passion for the natural world, your delight in problem-solving, and your connections to community. Our profession needs a diverse array of trusted voices to continue to guide us forward.

---

*Elizabeth C. Moran, Ph.D., is president and principal scientist of EcoLogic, LLC, and may be reached at [lmoran@ecologicllc.com](mailto:lmoran@ecologicllc.com).*







JRSB Process Evaluation & Aeration Controls Improvements



Westchester County Tide Gate placements & Regulator Improvements



Town of Orangetown Wastewater System Improvements

# EDR

a better environment

EDR provides **water/wastewater engineering solutions** to municipalities, agencies, districts, authorities, and corporations to address their water needs.

Since our founding in 1979, EDR has provided high-quality, cost-effective planning, design, and construction solutions that have enhanced projects and benefited our clients and their communities.

[edrdpc.com](http://edrdpc.com)

Syracuse, NY • Rochester, NY • Albany, NY



City of Ogdensburg Water System Assessment



OCDWEP Davis Road Pump Station Rehabilitation



Village of Potsdam Water System Assessment & Modeling

Only **PISTA**® Delivers  
GRIT REMOVAL SYSTEM

# 95% Grit Removal. At All Flows.

*All the Way from Chamber to Dewatering*

There is only one grit removal system designed to remove 95% of grit down to 100 micron FOR ALL FLOWS experienced at WRRFs and treatment plants. While competing technologies derate efficiencies at peak flows, PISTA® hydraulic vortex grit removal systems consistently deliver in all conditions—all the way thru grit washing and dewatering—backed by third-party testing, not theory. Systems derating for storm events are not “advanced” — **only the baffled PISTA® holds stake to that claim.**

Represented North & West of Albany-Binghamton by:  
Koester Associates Inc.

Phone: (315) 697-3800

Email: [info@koesterassociates.com](mailto:info@koesterassociates.com)



**Smith & Loveless Inc.**



Exclusive Flat-Floor Baffled Vortex Design



95% Removal Through All Grit Washing



Represented South & East of Albany-Binghamton by:  
Hydra-Numatic Sales

Phone: (973) 492-0181

Email: [sales@hnscompany.com](mailto:sales@hnscompany.com)





MTA-LIRR Third Track



Ronkonkoma Hub Pump Station



Clean & Green Biosolids Processing Facility




Bergen Point WWTP



Glen Cove WPCP

**CAMERON ENGINEERING**



**Water and Wastewater**  
**Emergency Preparedness & Resiliency**  
**Stormwater Management • Solid Waste**  
**Planning & Environmental Analysis**  
**Sustainable Design & Resource Management**  
**Green Building & LEED Design**  
**GIS • Traffic & Transportation**  
**Structural • Mechanical & Electrical**  
**Security & CCTV • Civil • Energy Services**  
**Site Development & Landscape Architecture**  
**Construction Management**

**CELEBRATING OVER 35 YEARS OF**  
**EXCELLENCE IN**  
**PLANNING & ENGINEERING**

**LEED Accredited Professionals**

Woodbury, NY New York, NY White Plains, NY

**www.cameronengineering.com**



FDNY



Village of Greenport BNR



Lawrence-Cedarhurst Consolidation



Sacred Heart Academy



Baxter Pond



Massapequa Creek Preserve



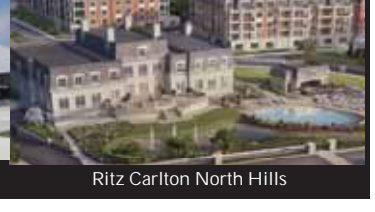
Garvies Point



Morrelly Homeland Security



Nassau Coliseum



Ritz Carlton North Hills



## Interview: John D. Cameron Jr.



---

*“The future challenges in the clean water sector will be the assessment of the public health impact of emerging contaminants, the development of cost-effective methods of treating those contaminants and accessing sufficient funding necessary to implement this major program.”*

---

John D. Cameron Jr., P.E., is the founder and managing partner of Cameron Engineering & Associates, LLP, a consulting, planning and engineering firm celebrating its 38th year of business. While the firm offers a wide array of professional services, water, wastewater and environmental projects have always been a key focus of the firm.

John has many personal interests – sports, music, art, travel, education, governance and the environment. For all his involvements and professional accomplishments, John has been recognized with numerous awards, including Kings Pointer of the Year (his alma mater’s highest award), an honorary Doctor of Laws from Molloy College, being inducted into a number of Halls of Fame, including the New York Water Environment Association (his favorite organization) as well as many others. John’s firm with over 100 employees has received numerous awards for its planning and engineering projects.

### **My Background in the Water Industry**

*Do you have any special education or licensing that has been important in your career? If so, what are they, and how have they affected your career?*

I possess a Bachelor of Science degree in marine engineering and a Master of Science degree in environmental science as well as an honorary doctorate. I am a licensed professional engineer, marine engineer and New York state-certified public health and environmental engineer. These degrees and the knowledge and experience required to obtain them have enabled me to lead my firm in the development of many award-winning environmental projects.

*What sparked your interest in the water sector?*

Growing up in Long Beach, New York, my summer jobs were as a beach boy and cabana boy at Long Island’s South Shore ocean beach clubs. I had my first surfboard at age 14, the beginning of a lifelong passion. That personal connection with the ocean enabled me to observe the natural and “unnatural” changes to the ocean’s water quality. The improvement and preservation of our ocean’s waters has always been a major priority of mine.

*How has your career evolved over time?*

While my passion for the environment has always abided with me, my desire to innovate and make a lasting imprint in this wonderful world caused me to want to start my own business. So, in 1985, with a wife, two toddlers, a mortgage and not enough money in the bank, I embarked upon building my business. With all that was depending upon me, to quote Gene Kranz, former NASA flight

director, “Failure was not an option.” That was the beginning of the most challenging time of my life. I am so blessed that my wife Loretta has stayed with me for the past 50 years!

*How has your career in the clean water sector affected your family?*

My professional work in the clean water industry and related sectors has required a more than 60-hour workweek throughout my career. For me, I have always believed that it is a privilege and a responsibility to share one’s blessings with worthwhile causes and with those less fortunate. That personal philosophy has caused me to be involved in many educational, professional, environmental (including NYWEA) and religious organizations to where I presently serve as a board member on 10 not-for-profit boards. My family knows my commitment to try and change this world for the better, so they have come to accept my time commitments.

### **My Reflections on the Clean Water Act**

*When did you first become aware of the Clean Water Act?*

I first learned of the Clean Water Act in 1973, a year after it was promulgated, when I started working as a public health and environmental engineer in the Bureau of Water Pollution Control for the Nassau County Department of Health.

*How has the Clean Water Act affected your personal life?*

The Clean Water Act of 1972 provided the legislative framework for the establishment of water quality standards that mandated secondary levels of wastewater treatment that would upgrade the quality of our natural water resources. That “watershed” event provided for me an exciting focus of my professional career, motivating me to pursue my graduate degree in environmental science. It also spurred an insatiable thirst for knowledge in an environment that had always been my passion since I was a young, enthusiastic ocean lover. My experiences of sailing around the world on merchant ships during my “Sea Year” while a cadet at the U.S. Merchant Marine Academy at Kings Point, only furthered my love of the marine environment.

*What do you see as the greatest impact of the Clean Water Act on our world today?*

The Clean Water Act and its subsequent amendments enabled New York state to serve as a national leader in addressing our deteriorating water resources and established a precedent framework that would foster future statewide environmental programs, bond acts and various initiatives. The CWA also stimulated the education of not only the public but also our elected leaders in addressing the potential environmental impact of future legislation.

*What do you think will be the greatest challenge for the clean water sector over the next 50 years?*

I believe the future challenges in the clean water sector will be the assessment of the public health impact of emerging contaminants in our drinking water supply and food chain, the development of cost-effective methods of treating those contaminants to safe levels and accessing sufficient funding necessary to implement this major program. The mitigation of the environmental impact of our growing population and changing population centers will also place great financial and technical challenges upon our state and its people.

## Interview: Steven A. Fangmann



---

*“The greatest challenge is to recognize the need for adequate funding of the infrastructure needed to meet the goals of safe and clean water for all.”*

---

Steven A. Fangmann, P.E., is currently president and CEO of D&B Engineers and Architects. D&B provides services to many municipal clients in the water and waste-

water areas. He also serves as the vice chair of the Legislative Affairs Subcommittee of the Water Environment Federation (WEF) Government Affairs Committee.

As a New York Mets fan, Steven’s baseball hobby is fairly substantial. Also, as a history nut, he has studied presidents, the American Revolution and the Civil War. Steven’s wife Lucia is the real artist – from music to artwork – and she made sure that Steven took advantage of travel by going to numerous museums throughout the country.

Their family is their greatest accomplishment as they have two highly educated and unique daughters, Ann and Meghan, who have made the travels with them. Ann, her husband Andrew and their two children, Wyatt and Liana, are a joy to Steven and Lucia. Meghan and her fiancée Michael are soon to be married and bring joy to their family every day.

### My Background in the Water Industry

*Do you have any special education or licensing that has been important in your career? If so, what are they, and how have they affected your career?*

I have a Bachelor of Civil Engineering and Master of Environmental Engineering from Manhattan College. Having the education from Manhattan College allowed me to get into environmental engineering from the start of my career. Courses that I had at Manhattan were directly related to my work for the Nassau County Department of Public Works, who operated two large wastewater treatment plants – or water resource recovery facilities (WRRFs) – and over 3,000 miles of sanitary sewers at the time that I was there. My education allowed for me to obtain the experience to go from the entry position to the deputy commissioner of Public Works in charge of all of Nassau’s wastewater facilities as well as regional water planning and hazardous waste investigations.

I also received a professional engineering (P.E.) license early on in my career after taking the engineer-in-training (EIT) exam in my senior year at Manhattan. The P.E. allowed for me to accept responsible positions in municipal government and to direct and manage large municipal projects after I left public service and started in private practice for engineering firms.

I also became a board-certified environmental engineer (BCEE) with the American Academy of Environmental Engineers and Scientists. This credential recognizes the depth of experience, education and licensure to be recognized in the field.

*What sparked your interest in the water sector?*

My interest in the water field paralleled the awareness of the environment going on in this country in the early to mid-70s. Although I was trained as a civil engineer, my electives in the environmental engineering program at Manhattan piqued my interest in the water

and wastewater fields. I saw that I could be directly involved on project teams in reviewing alternatives and providing recommendations and designs on projects that mattered.

*How has your career evolved over time?*

I worked for a public entity for 16 years, followed by work in private practice for close to 30 years. I was able to start at an entry level as a “sanitary” Engineer 1 and rise to deputy commissioner in charge of the entire operation and after that experience started as an associate in a large engineering firm and eventually became the president and CEO of D&B Engineers and Architects.

In a similar way, and on a parallel course, I started as a student member of NYWEA at Manhattan College and over time became Long Island chapter chair and eventually president of NYWEA. This involved getting on committees at the chapter level and on the state level. The number of people that I have met over the years gave me a true understanding of the dedication that everyone in our industry has toward our common goal of clean water for today and for future generations.

*How has your career in the clean water sector affected your family?*

Everything that I have accomplished would not have happened without my family. They supported me by attending all the chapter functions and later, all state and some national functions. Sometimes it was a little much, when I took side trips to wastewater plants to see some of my friends, but the support from my wife Lucia never ended.

### My Reflections on the Clean Water Act

*When did you first become aware of the Clean Water Act?*

I became aware of the Clean Water Act (CWA) when I applied for funding to the U.S. Environmental Protection Agency to pay for graduate school. Basically, I reviewed the federal regulations and applied for my first grant or fellowship to obtain my master’s degree.

*How has the Clean Water Act affected your personal life?*

The CWA affected me in attending graduate school, in all of my municipal projects and in all of the grants that I applied for and obtained over the years. On a personal level the CWA in effect paralleled my career from start to finish. One of the requirements of the fellowship I obtained was to work for a municipal government for two years. The intent was to bring trained students into water and wastewater agencies to bring the CWA forward. The logic seemed to work in my case as I worked for 16 years at Nassau County. If I did not have that requirement, it would have been easy to take a job in private practice for 50% more income. The work with Nassau County was like being on the ground floor and I was able to work with the best municipal operations and maintenance staffs at the time as well as seasoned leaders in engineering and with private firms that were on the project teams. Of course, I also worked with regulatory agencies at the local, state and federal levels as well as the public from early on in my career. It was less pay, but you could not pay enough for the experience.

*What do you see as the greatest impact of the Clean Water Act on our world today?*

The CWA began a legacy of turning around pollution of our waters to a day when you can turn on a tap anywhere in the United



States and be sure that you are drinking water that will not bring on disease and you will be able in most cases to dispose of wastewater without impacting ground and surface waters. As our population increases and the systems that were built 50 and 100 years ago decay, we cannot let down our guard. There is much more to do, and the job never ends.

Industry and neighborhoods can only thrive with potable water and adequate treatment systems and the development of staff necessary to run the 24/7 facilities day in and day out.

Although we are fortunate in this country, there are numerous places in the world where drinking water and disposal facilities are inadequate at best. The pain and suffering and disease that can be prevented will take a world program, like the CWA has been in this country. Potable water and waste disposal facilities are finally being seen as a basic human right. A lot of work is necessary to bring these rights to others.

**What do you think will be the greatest challenge for the clean water sector over the next 50 years?**

The greatest challenge is to recognize the need for adequate funding of the infrastructure needed to meet the goals of safe and clean water for all. The design life of equipment for 25 years and structural facilities for 50 years is only one lifetime. If we want to have the facilities that we have now for our children and grandchildren, we must understand that our industry has worked out of sight and out of mind. While we need good roads and transportation facilities, we see their deterioration in front of us every day by just looking so to speak. The infrastructure needed to meet water and wastewater demands has recently come to light with climate change and disasters. It is well understood that without water the economy stops. You cannot live without water. Congress has recently recognized this along with state and local governments and more funding is coming to our industry. However, for too long funding has almost totally been borne by local governments and when disaster comes, facilities are inadequate to meet the strain. New and enhanced facilities must be sustainable and must weather the storm of climate change and use over time. This is a tremendous challenge and will remain one far beyond the next 50 years.



Steven Fangmann in Washington, D.C., during the WEF National Water Policy Fly-In, April 2019.  
Patricia Cerro-Reehil

# The future of infrastructure

- > Water supply and treatment
- > Wastewater engineering
- > Environmental engineering
- > Compliance and permitting
- > Operational assistance
- > Security and life safety
- > Construction management
- > Sustainability/green design
- > Information and data management systems

**C&S is hiring!**  
[cscos.com/careers](http://cscos.com/careers)



**HOLLAND COMPANY INC.**  
[www.HollandCompany.com](http://www.HollandCompany.com) • Adams, MA 01220

- > Coagulants
- > Service
- > Technology
- > Delivery

**SOLUTIONS FOR:**

- ✓ Water Purification
- ✓ Nutrient Reduction
- ✓ Dechlorination

**Call 800-639-9602**

# Seven Things to Know About the Clean Water Act After 50 Years

by *Kelsey Simpkins*

In 1972, the United States updated the first major law to address water pollution – the Federal Water Pollution Control Act of 1948 – with several major amendments, which would become known as the Clean Water Act.



**Mark Squillace**  
*University of Colorado Boulder*

Implemented in response to growing public awareness and concern for controlling water pollution in the U.S., the Clean Water Act followed the establishment of the Environmental Protection Agency (EPA) and the passage of the Clean Air Act in 1970, and preceded the Endangered Species Act of 1973, making it part of a period of landmark environmental protections in the early 1970s.

*CU Boulder Today* spoke with Mark Squillace, Raphael J. Moses Professor of Law and professor of natural resources law at the University of Colorado Law School, about the 50th anniversary of the Clean Water Act and what the present and future may hold for water quality in the United States.

## What is the Clean Water Act of 1972 and What Does It Regulate?

The Clean Water Act is primarily concerned with regulating pollution discharges into our waterways. The federal government sets national standards, and the states have an opportunity to implement and enforce those standards within their states, through a program that's delegated to them by the federal EPA. Essentially, anybody who is proposing to discharge pollutants or fill materials into waterways probably has to get a permit.

It also regulates what I would call ambient water quality – the quality of lakes and streams throughout the state. Imagine if you could take a grab sample of any water body, you'd want to be sure that that water body met minimum standards. There's a program under the Clean Water Act that deals with water quality standards, and each state has to set certain water quality standards for particular bodies of water.

## Why Was It Needed?

There were massive problems with water quality before the 1972 statute was passed. The thing that really triggered the federal government to act was a fire on the Cuyahoga River, outside of Cleveland, Ohio, a very heavy industrial area. The river was simply so polluted that it caught on fire, and it woke people up to this water pollution problem that we had in the United States.

## What Water Pollution Issues Remain in the U.S.?

One of the big problems that we've not managed to address very effectively is nonpoint source pollution. There's a lot of runoff – much of it from farms and other rural areas where they use a lot of fertilizers, pesticides and insecticides, or other chemicals that can run off into our waterways. There's also a lot of runoff from cities in developed areas from highways and roads that ends up running into our storm sewer drainage, much of which often runs into our waterways and contaminates those water supplies. So that's a big problem nationally. And it's probably the biggest failure so far, with respect to the Clean Water Act.

## What Challenges Does the Clean Water Act Face Today to Be Successful?

The big question that we've been confronting for the past decade or more now is the question of what constitutes "waters of the United States" (WOTUS). The conference report on the Clean Water Act of 1972 said that Congress intended the broadest possible constitutional interpretation of that phrase. And yet the Supreme Court has largely ignored that legislative history and has narrowly construed the term, waters of the United States, in a way that I think is highly problematic.

Often, if you're building a grocery store or a shopping mall, you're going to be filling in some wetlands. So, you need to get a permit from the Army Corps of Engineers. But because of these restrictive definitions, it makes the bureaucracy much worse, because you have to jump through all these hoops in order to know whether you even need a permit. Frankly, it's a bureaucratic mess, largely of the Supreme Court's making.

## How Does the American Public Feel about the Clean Water Act?

If you talk to almost anybody in the United States about people discharging pollutants into waterways, they will tell you it's a bad idea. They don't really care whether it's a navigable water or not a navigable water, whether it's a "water of the United States" or not; it's not a good idea to be dumping pollution or filling in a wetland or streambed with materials that are going to interfere with the ecological functions of that riverbed. I think the public understands that the government should be regulating and controlling these things. It is a genuinely held, almost universally held sense that cleaning up our waterways is an important thing for us to do.

## What Might the Next 50 Years of Water Quality in the U.S. Look Like?

Our waterways are in much better condition than they were 50 years ago. We've made vast improvements in many of our waterways, and most of them now are fishable and swimmable. So, I think it's appropriate to believe that we can be in a much better place 50 years from now as well. What we really need to do is deal with that nonpoint source pollution problem. We've got to figure out ways to limit the amount of pollution that's going into our streams. And I think we can tackle that over the next 50 years.

---

*Kelsey Simpkins is a science writer and beat contact with Strategic Relations and Communications at the University of Colorado Boulder. She has written about everything from the chemistry of sour beer to arctic sea ice modeling and the environmental impacts of cannabis. She completed her master's in environmental journalism at CU Boulder in 2018, during which she reported on the intersection of the Arctic, art and climate change. She can be reached at [kelsey.simpkins@colorado.edu](mailto:kelsey.simpkins@colorado.edu).*

*This is an excerpt of an article originally published on CU Boulder Today (<https://www.colorado.edu/today/2022/04/20/7-things-know-about-clean-water-act-after-50-years>).*





# INNOVATIVE PUMPING AND CONTROL SOLUTIONS FOR WATER MOVEMENT & MANAGEMENT



Starting out in 1993, as Emmons Pump & Control, we have over 25 years of experience in the pump industry. Since joining the Metropolitan Industries, Inc. family and becoming Emmons Metro, LLC in 2019, we're backed by Metropolitan's 65 years of knowledge. From municipal water and wastewater infrastructure to plumbing and mechanical processes in commercial and industrial buildings, Emmons Metro has the capabilities and expertise to provide sustained solutions that meet the unique specifications for each job.

- Prefabricated Water Booster Stations
- Packaged Sewage Pump Stations
- Packaged Break Tank Systems for Non-Potable Water
- Complete Standby Generator Packages



518-694-0404  
emmonspump.com

## Interview: Edmund K. Lee



---

*“We need a talented and energetic new generation of professionals to carry our torch to the next 50 years.”*

---

Edmund K. Lee, P.E., is currently working at an engineering firm, Mott MacDonald, in New York City. Edmund has been actively involved with volunteering opportunities with the Water Environment Federation and NYWEA. He has spent most

of his career in designing and constructing water/wastewater infrastructure projects in the New Jersey/New York City metropolitan area.

Edmund realized a long time ago that he had no skills on handling balls, so he stopped playing basketball, golf, etc. He tried some balancing sports to see if that fit him better – wind surfing, water skiing and snow skiing/boarding, which turned out be better and he likes them a lot. Edmund also spent a few years playing with Olympic-style archery bow/arrow and became a certified instructor. He traveled to a few national archery tournaments with his two children, and they made many friends. Some of them made Team USA and Edmund saw them on the TV during the summer Olympic Games, which he says was fun.

### **My Background in the Water Industry**

*Do you have any special education or licensing that has been important in your career? If so, what are they, and how have they affected your career?*

There was one college course in my junior year that brought me into this industry, which was “Introduction to Environmental Engineering 101” taught by Dr. Charles O’Melia; I didn’t realize Dr. O’Melia’s contribution to our industry at the time. I was majoring in biomedical engineering with an electrical engineering concentration and studying very large-scale integration (VLSI) integrated circuit (IC) chip design. But Dr. O’Melia’s course was an enlightening moment that impacted my career. It changed my career path from one EE (electrical engineering) to another EE (environmental engineering).

*What sparked your interest in the water sector?*

Being a biomedical engineering student, I was initially interested in helping people’s health by improving medical technologies in the areas where engineers can make differences including the advanced imaging/scanning and development of artificial organs. My interest in water sector and sanitary engineering started to grow after my introduction to the environmental engineering mentioned above. I liked the fact that the water is associated with everything we do, goes beyond improving people’s health that I was excited about, and the fact that it is about our existence. So, I kept my initial interest of helping people and added another goal: helping our environment.

*How has your career evolved over time?*

I’ve briefly pursued a doctorate program after my master’s and worked in academia. The timing didn’t work out for me, and so I started a job in an R&D lab associated with water treatments, which lasted about two years. Then, I started working for an engineering firm involved in both design and construction projects. Most of my

work has been in facilities in the New York City area including the famous egg-shaped digesters in Brooklyn, the eye-catching salt shed in Canal Street, Manhattan (I had no input to the architectural designs), and the first New York City solid waste facility in Queens after the closure of Fresh Kills. I had different roles and responsibilities depending on the nature of the work and their need.

One thing that hasn’t changed too much is this: I feel I am very fortunate to work with great people in the industry who really care about what we do and can be proud of how our work impacts our communities.

*How has your career in the clean water sector affected your family?*

Well, I think this is the most complex question here. To begin, my father was an engineer in a related water sector so that was the first impact to my engineering career. Then, because of the exciting work opportunities around the New York City metro region throughout my career, I stayed in the area, so my family was stuck here with me. But more significantly, my career has had an influence on my children. They were aware of the importance of clean water early in their life since we often talked about the topic together. For instance, for many years, I bragged about how my work can help us (my family) to enjoy the sun when we’re at the beach or hike along the Hudson River.

### **My Reflections on the Clean Water Act**

*When did you first become aware of the Clean Water Act?*

I am not sure exact timeline, but it was during my college years.

*How has the Clean Water Act affected your personal life?*

Without CWA, I don’t think I would be able to enjoy a canoe/kayak trip in Jamaica Bay, East River, Bronx River and Fishkill around the New York City area, or even hiking in the trails along the Hudson River in Palisades Interstate Park.

*What do you see as the greatest impact of the Clean Water Act on our world today?*

In my opinion, the greatest impact is on improving quality of life and it actually helps us to be in a better place and be prepared for the net zero resource recovery.

*What do you think will be the greatest challenge for the clean water sector over the next 50 years?*

We need a talented and energetic new generation of professionals to carry our torch to the next 50 years. In order to do that, we need to do better in promoting our industry to the public and improving the perception or image of water professionals in our society. Our industry is vital to society and our people are its most important asset. I think with 50 years in CWA and current events related to the water and global push to the decarbonization, the stage is set for the clean water sector to do more fundamental outreaches to emphasize the importance of what we do and to grow the new generation of professionals.



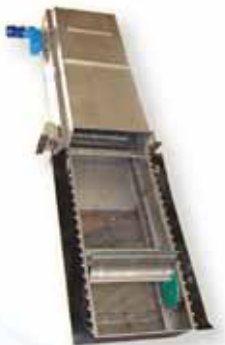




# SOLID SOLUTIONS!

## *Reducing Plant Maintenance with Grinding & Screening Technology*

Franklin Miller's broad line of grinders and screens makes your system free-flow and cuts maintenance costs. These units are built tough for the tough jobs! Our grinders reduce plugging and maintenance problems due to sanitary wipes, providing major savings in time, money and aggravation. Our commitment to customer satisfaction is forged with over three generations of family ownership.



SCREENMASTER®  
Bar Screens



SPIRALIFT® SL  
Screen System



TASKMASTER®  
TM851208  
Inline Grinder



TASKMASTER® TITAN  
Innovative High Flow Grinders



DIMMINUTOR®  
Low Maintenance  
Comminutor



SPIRALIFT® SC  
Screenings Wash System



SPIRALIFT® SR SEPTAGE  
RECEIVING STATION  
with a TASKMASTER® TT

### *Represented by:*

#### **SIEWERT EQUIPMENT**

175 Akron Street | Rochester, NY 14609 | 800-333-0598 • 585-482-4149 | [www.SiewertEquipment.com](http://www.SiewertEquipment.com)

#### **PSI PROCESS**

201 Lincoln Blvd. | Middlesex, NJ 08846 | (732) 469-4540 | [www.psiprocess.com](http://www.psiprocess.com)

**Franklin  
Miller**®  
SEE THE  
DIFFERENCE

Visit our website to view our full line of grinders,  
screens, septage receiving and washing systems.

[www.franklinmiller.com](http://www.franklinmiller.com)

Call Toll Free! 1-800-932-0599 • 973-535-9200



All trademarks owned by Lakeside Equipment Corporation.  
© 2022 Lakeside Equipment Corporation.

## FLEXIBILITY IS ONLY ONE ADVANTAGE OF OUR CLOSED LOOP REACTOR PROCESS.


**We have more than 60 years of experience in oxidation ditch technology and more than 2000 installations.** Lakeside's CLR process offers a variety of wastewater treatment options, including several operational modes, nitrogen and phosphorus removal, and an adaptable configuration, providing maximum flexibility with consistently high quality effluent. The CLR process is simple to operate and can be configured in several shapes, including the conventional racetrack, folded U-shape or concentric multichannel designs. Lakeside's staff delivers full service from initial concept through construction to plant operation. The result: reliable results with minimal operator attention and maintenance. When performance counts, count on the industry leader for more than 90 years!



### Cleaner Water for a Brighter Future®

Speak to one of our experts at 630.837.5640, email us at [sales@lakeside-equipment.com](mailto:sales@lakeside-equipment.com), or visit [www.lakeside-equipment.com](http://www.lakeside-equipment.com) for more product information.

#### LAKESIDE REPRESENTATIVES:

 <a href="http://www.gafleet.com">www.gafleet.com</a>	
<b>G.A. FLEET</b> New Construction T (914) 835.4000 F (914) 939.4850	<b>FLEET PUMP</b> Aftermarket T (914) 835.3801 F (914) 835.2946
Serving the tri-state region	

	<b>J. ANDREW LANGE, INC.</b> Water & Wastewater Treatment Products & Services T (315) 437.2300 • F (315) 437.5935 <a href="mailto:mmele@jalangeinc.com">mmele@jalangeinc.com</a>
---	---



#### CLR Process Components

- Magna Rotors
- Velocity Control Baffles
- Rotor Covers
- Level Control Weirs
- E.A. Aerotor
- Process Monitoring and Control Systems



## Interview: Geoff Baldwin



*“The most crucial issue is that the CWA is now 50 years old. It seems to me that it is time to reassess the CWA and work on new legislation that keeps the successes of the old CWA, eliminates the areas that seem to be ineffective and focus on new issues that are evolving.”*

Geoff Baldwin, P.E., works as a consulting engineer to many water and wastewater utilities.

While Geoff continues enjoying some of his older hobbies like fly fishing, hiking and camping, recently he has had two Belgian Tervurens move in. Geoff is working with them on dog agility, which he says is really a lot of fun!

### My Background in the Water Industry

*Do you have any special education or licensing that has been important in your career? If so, what are they, and how have they affected your career?*

I have a Bachelor of Science in civil engineering and a Master of Science in environmental engineering. I am also a licensed professional engineer (P.E.) and have board certification from the American Academy of Environmental Engineers and Scientists (AAEES). In my opinion, these are the foundational requirements for work as a water process engineer. Another thing that I have found helpful in my career, I am a New York state court-certified mediator. Although it isn't immediately apparent, the skills required for mediation are very helpful to discussion with both clients and members of the public on subjects concerning water, infrastructure and the environment.

### What sparked your interest in the water sector?

I've always been involved with outdoors and water-related activities. A lot of my childhood experiences involved boating, canoeing, sailing and fishing. In college, I became interested in wastewater treatment processes, and everything else grew from there.

### How has your career evolved over time?

I started as a design engineer almost exclusively with water and wastewater process facilities. Over time, I became involved with green infrastructure, public policy, data analytics, project management, sales management and business operations. Regardless of which role I am filling, I still find I have a deep interest in the technology of our industry.

### How has your career in the clean water sector affected your family?

My family is proud of the work that I do, and I believe that my children have gravitated toward work in service of the public as a result of my career choices. I think one of the often-overlooked truths about civil engineering in general, and the water sector specifically, is that whatever role you play, we are in “people-serving” professions.

### My Reflections on the Clean Water Act

#### When did you first become aware of the Clean Water Act?

I probably first really started to understand the CWA in graduate school.

#### How has the Clean Water Act affected your personal life?

The CWA has driven much of the work that I do. On a personal level, I have spent a lot of time on or near the Long Island Sound. The changes in water quality from 1980 and today are profound, and we owe that to the CWA.

#### What do you see as the greatest impact of the Clean Water Act on our world today?

CWA has made quite an impact on water quality around the U.S.

#### What do you think will be the greatest challenge for the clean water sector over the next 50 years?

This is an interesting question because I can think of dozens of potential challenges. Instead of making a list, I will simply say that the most crucial issue is that the CWA is now 50 years old. The world has changed over those years, and the CWA is a bit of a patchwork quilt of regulations. It seems to me that it is time to reassess the CWA and work on new legislation that keeps the successes of the old CWA, eliminates the areas that seem to be ineffective, and focus on new issues that are evolving.



The improvement in water quality, from fresh water to estuaries and marine environments, has been profound largely as a result of the Clean Water Act.

*istockphoto.com, robertcicchetti*

# A Professional Life Improving Water Quality

by *Cornelius B. Murphy Jr.*

The Clean Water Act (CWA, also known as the Federal Water Pollution Control Act Amendments of 1972) changed my life and the lives of many of my colleagues. In 1970, I had completed my graduate work with a Ph.D. in physical inorganic chemistry, and I was looking for a job to support my family and to apply my education.

I found a notice on the chemistry department bulletin board from O'Brien & Gere Engineers looking for support for its current staff and to build its environmental analytical laboratory. I interviewed and accepted the position to fill a period of – at best – one to two years. The analytical work was not very sophisticated with the focus being on biochemical oxygen demand, chemical oxygen demand, total inorganic phosphorus and ammonia nitrogen.

With passage of the CWA, the environmental requirements greatly expanded. The analytical work and treatment applications associated with industrial requirements included thioglycolic acid, methyl ethyl ketone, benzoyl peroxide, PCBs, and dozens of equally toxic constituents. The analytical instrumentation included atomic absorption, gas chromatography and mass spectrometry. The applied treatment technology also increased in complexity including UV catalyzed oxidation, ozonation, wet air oxidation and granular activated carbon absorption.

The problems had become more complex, and the treatment options closely followed. Along the way, my perspective and competence increased. I began to realize that the CWA was going to help protect the 20% of the world's potable water that forms our Great Lakes, a challenge that I couldn't turn down.

I matured as both a chemist and an environmental engineer as the problems and solutions grew in complexity. I became better prepared to handle the difficult environmental issues over the last 20 years. The CWA represented a great start in making our world a better and safer place, as well as training me how to address the more difficult problems. I grew technically and invested in the management skills needed to take on the increased workload.

I was also faced with a broader distribution of geographic locations in which water resources needed attention. I was soon taking

on water quality problems that ranged far beyond the Onondaga Lake and the eastern Lake Ontario watersheds. I found myself dealing with wastewater discharges to the Potomac and Anacostia rivers, the Housatonic River and New York Harbor.

I grew as an environmental professional with each project and each environmental problem. I found myself making presentations in Melbourne, Australia; Lisbon, Portugal; Warsaw, Poland; Atlanta, Georgia; Chicago, Illinois; Washington, D.C.; and New York City. The presentations focused on advances in wastewater treatment technology for refractory and complex contaminants.

During my 30 years with O'Brien & Gere Engineers, we grew substantially in organizational capacity in much the same way that the scope of the CWA expanded. Through this growth, I assumed greater organizational responsibility, serving as president of the organization for the last eight years of my tenure with the company. I learned what it meant to function as a servant leader for the organization and our chosen area of social and environmental responsibility.

This experience served as a platform for my new responsibility, president of the SUNY College of Environmental Science and Forestry. Only with this new calling, my responsibility shifted to the education of a new generation of environmental engineers and scientists. The CWA continued to serve as my guide. I began teaching two courses, "Water – An Incredible Journey" and "Fate and Transport of Contaminants in Environmental Systems". The CWA played a central role in both courses, providing me with the case studies that allowed the first principles to be applied and brought to life for my students.

I have been blessed with a 50-year career that began and is closing out with the CWA as both the guide and the apex of my career in environmental management.

---

*Cornelius B. Murphy Jr., Ph.D., is President Emeritus of the SUNY College of Environmental Science and Forestry and may be reached at [cbmurphy@esf.edu](mailto:cbmurphy@esf.edu).*



The Clean Water Act enforces effluent limitations that regulate the amount of pollutants being discharged from point sources. *istockphoto.com, ZzzVuk*

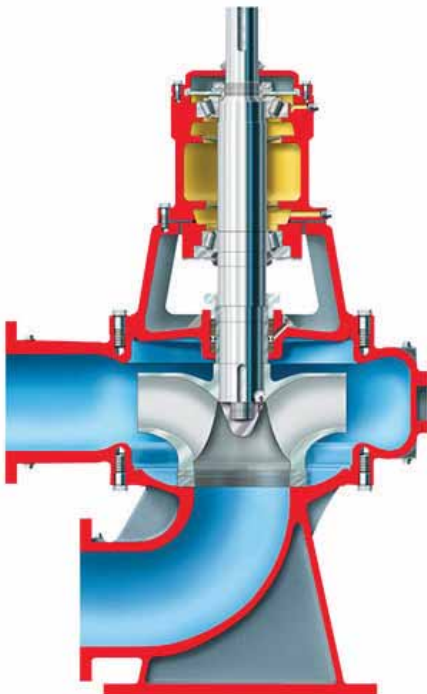




## Siewert Equipment is now your Flowserve Municipal Distributor

Now Representing These Products:

- Vertical Turbine Pumps
- Dry-pit Sewage Pumps



## Pumps, Parts, and Certified Service

Contact your local Siewert Equipment Outside Sales Representative discuss Flowserve products for your municipal application.

Call 800-333-0598 or visit [SiewertEquipment.com](http://SiewertEquipment.com)

**BUFFALO**  
2829 Wehrle Drive, Suite 12B  
Williamsville, NY 14221  
P: (716) 565-9403

**ROCHESTER**  
175 Akron Street  
Rochester, NY 14609  
P: (585) 482-9640

**ALBANY**  
10 Corporate Circle  
Albany, NY 12203  
P: (518) 272-3431

## Interview: Steven Eidt



---

*“Our greatest challenge is to find a way to preserve the gains we have made.”*

---

Steven Eidt, P.E., is an engineer from Central New York who has worked with the New York State Department of Environmental Conservation (NYSDEC) and the New York State Canal Corporation.

Since 2011, Steven has been working for Homeland Security Emergency Services assisting communities with Federal Emergency Management Agency disaster relief. This work has included repairing and restoring streams, wastewater treatment plants and storm conveyance systems. Having assisted with as many as eight disasters, he is currently working with small communities to replace/repair roads, bridges and other infrastructure.

In his spare time, Steven enjoys hunting deer and turkey, which he has been doing since he was old enough to go into the woods with his father and friends. Steven bought a 188-acre farm in Fabius in 2003. Soon after moving there, he started raising Icelandic sheep and Galway/Angus beef cows. He now rents the farmland to another farmer but enjoys hunting it and just spending time in the woods. Steven is very involved in the Pebble Hill Presbyterian Church, Dewitt, New York.

### **My Background in the Water Industry**

*Do you have any special education or licensing that has been important in your career? If so, what are they, and how have they affected your career?*

I have a professional engineer (P.E.) license, and Master of Public Administration degree (2000-2002) with a Certificate in Environmental Conflict Resolution. The conflict resolution background has allowed me to work in roles where there are many stakeholders and to help obtain consensus-driven decisions.

*What sparked your interest in the water sector?*

I was big into Boy Scouts, and always loved nature. Where I grew up, our home overlooked the Seneca River, and we would fish and swim in it. The first Earth Day was April 22, 1970, and I organized 90 students at Baldwinsville High School to get together and clean alongside roadways and the Seneca River for four hours.

Fundamentally, this love of nature is why I switched from chemical engineering to civil and environmental engineering at Clarkson University.

*How has your career evolved over time?*

I started at Clarkson University in the chemical engineering program in 1970. In 1972, I decided I wanted to go into civil and environmental engineering, hoping to avoid taking structures classes. So, I changed majors. But of course, I ended up taking lots of structures classes!

After graduating with a Bachelor of Science in engineering in 1974, the economy was in bad shape. There weren't many jobs, so I took a shipping and receiving job at Dey Brothers. It was one of the best work experiences I could have had. I worked with over 40 different departments in the store all with competing priorities, so

I learned a lot about management. Following my Dey Brothers job, I was hired by the City of Utica as an environmental engineer. Then I took a job in NYSDEC's Kirkwood Office (Region 7) and worked on a number of small projects, as well as industrial, spill response, wastewater, and IBM Endicott and Owego groundwater issues.

From there I moved to the NYSDEC Syracuse office where I worked doing industrial SPDES work. After about three years I took a position as the regional Resource Conservation and Recovery Act (RCRA) program head. After spending four years in the RCRA program, I was asked to move into the Water Division as the regional water engineer. This last role allowed me to be involved with some tremendously important projects, including: the Great Lakes Management Plan for Lake Ontario; Cayuga Lake Watershed Management Plan; Chesapeake Bay Commission; Susquehanna River Basin Commission; and nine and a half years negotiating and overseeing the Onondaga Lake Cleanup. I left NYSDEC in late 2006, to become the division canal engineer for the New York State Canal Corporation. That was an exciting change managing 300 miles of the canals and a \$33 million budget. Eventually, I retired in 2011.

*How has your career in the clean water sector affected your family?*

When the kids were young, we got them involved in Onondaga Lake-related events and helped support water-based interests at school.

One anecdote comes to mind. In eighth grade my son Matthew did a major science report for school. He had read portions of the plan developed by Onondaga County as a precursor to the Federal Amended Consent Judgement that was the basis of the Onondaga Lake Cleanup and discussed it in detail with me. Matt got a B on the report. His teacher's comments were that he didn't get his facts correct. Matt met with his teacher and explained his sources. His teacher apologized to him and gave him an A-plus!

### **My Reflections on the Clean Water Act**

*When did you first become aware of the Clean Water Act?*

While I was at Clarkson University, professors covered the CWA in many of the engineering courses as well as hydrology and environmental biology. With the new focus surrounding the first Earth Day there were also indications that something like the Clean Water Act was needed.

*How has the Clean Water Act affected your personal life?*

The environment and water have been integral to my life and my family's life. It's enriched me to serve in so many capacities to protect the environment. I've been able to do about as important work as I could do – to make things better for the community. Look at the improvements we've made since the 1970s – Onondaga Lake and the Seneca and Susquehanna rivers are cleaner; watersheds and bays are getting cleaner. It's been extremely rewarding to be a part of that.

*What do you see as the greatest impact of the Clean Water Act on our world today?*

How people value water. Using Onondaga Lake as an example, in the late 1990s people didn't believe the lake was of any value. There were articles in the local newspaper and letters to the editors



questioning whether Onondaga Lake could ever be cleaned up and made usable again. People questioned the value of pumping millions of dollars into trying to clean it up. Well, it's significantly cleaned up now and supports many recreational uses of the lake. The community wants that now, and cares more for the environment. There's an expectation that all our waters will be clean and that carries over to all our air and lands as well. I believe people



In the 19th and early 20th centuries, the Erie Canal was an important transportation link. The resulting growth of industry and agriculture along the canal led to poor water quality. Today, thanks to water quality improvements, communities along the canal are rediscovering the recreational opportunities on their doorsteps. *istockphoto.com, William Reagan*

have more confidence that NYSDEC and others are there to protect our waterways and quality of life as it relates to our environment.

We have moved from just thinking about wastewater treatment to looking at all facets of point source and nonpoint source pollution. As my time with NYSDEC progressed, I noticed that the majority of the fish kills we investigated were no longer related to point sources of pollution but to what we now consider nonpoint source activities. There is a much more holistic approach to water quality.

***What do you think will be the greatest challenge for the clean water sector over the next 50 years?***

To find a way to preserve the gains we have made.

The public seems to recognize that clean drinking water is interesting and important, but there is a stigma toward wastewater. We need to work on that and recognize as a culture that funding wastewater treatment is as important as funding clean drinking water. Water is a cycle. People think once they 'flush' it's gone. The truth is it comes back out into the rivers and lakes in their communities.

### **A Final Thought**

I spent my career working to clean up our lakes and streams through various programs as a government employee. I want to recognize the contribution of all the members of NYWEA past and present. Without the dedication and commitment of treatment plant operators, consulting engineers, academia, and others we would not have the innovations that have allowed us to advance our knowledge to improve and protect the waters of our state and our nation. Thank you!!

Ramboll creates value for our clients and society by converting water and climate challenges into opportunities.

# SUSTAINABLE WATER SOLUTIONS (DRIVEN BY INNOVATION)

See how we do it at [americas.ramboll.com](https://americas.ramboll.com)

**RAMBOLL**

Bright ideas. Sustainable change.

## Interview: Robert Wither



---

*“One of our challenges will be emerging contaminants that our treatment systems are not designed to remove and whose impact on our health and environment are not fully understood.”*

---

Robert Wither, P.E., is a past president and Water Ambassador of NYWEA, an instructor for SUNY Morrisville Environmental Training Center precertification classes, and a member of NYWEA and the Water Environment Federation (WEF) and is NYWEA's representative to the WEF House of Delegates. He is retired from the New York State Department of Environmental Conservation (NYSDEC) Division of Water.

Bob is an avid fisherman and enjoys being on or in the water. Every job he has held that helps enhance these activities was always enjoyable.

### My Background in the Water Industry

*Do you have any special education or licensing that has been important in your career? If so, what are they, and how have they affected your career?*

I have a Bachelor of Science in chemical engineering and am a licensed professional engineer. The chemical engineering degree provided the background to allow me to better understand industrial wastewaters and the chemical processes involved with treatment of all wastewater and reactions that occur. Obtaining my engineering license created opportunities to advance my position within NYSDEC. The license also provided opportunities to develop expertise within NYSDEC related to wastewater treatment.

*What sparked your interest in the water sector?*

I am an avid fisherman and have always enjoyed the activity beginning at a very early age. When I was young, I did not understand why we only fished on vacation and not the local river. The local river always had trash in the water, oil sheens and often very unpleasant odors. It was as I became older that I learned the problem was pollution and it didn't appear that anyone was doing anything about it.

*How has your career evolved over time?*

In the State Pollutant Discharge Elimination System (SPDES) program, what has changed in my career is how permits are written. When I started writing permits, the focus was on secondary treatment standards and reducing industrial discharges of metals, pesticides, PCBs and dioxins. At the end of my NYSDEC career, efforts were underway to limit combined sewer overflow discharges, lower nitrogen and phosphorus limits, changing pathogen indicators and more disinfection requirements.

*How has your career in the clean water sector affected your family?*

My wife has always had an interest in the environment and worked in the environmental field. Because of our interest and work, both of our children do have a concern regarding their impact on the environment. Neither works in the environmental field; however, both make efforts to ensure that they do not adversely impact the environment.

### My Reflections on the Clean Water Act

*When did you first become aware of the Clean Water Act?*

I did not become aware of the specifics of the CWA until I began SPDES permit writing for NYSDEC in the early 1980s. I started seeing the impacts of the CWA in the late 1970s and 1980s by changes in the rivers. Many rivers that were not swimmable, fishable or boatable were starting to become so. We started to return to the rivers for recreation – less trash, fewer odors and more wildlife.

*How has the Clean Water Act affected your personal life?*

It has protected and opened waterbodies for recreation and bringing in wildlife. I have competed in triathlons in the Hudson River and recreated in many rivers and lakes where exposure was unhealthy through the 1990s.

I would rarely see osprey in the wild throughout my youth. I believe I saw my first bald eagle in the 1990s. A testament to the improvement in water quality is that both birds now seem to be everywhere. I see them in the winter and have observed eagle nests and juveniles on the Mohawk River within the boundaries of the City of Schenectady.

*What do you see as the greatest impact of the Clean Water Act on our world today?*

People want to access water.

*What do you think will be the greatest challenge for the clean water sector over the next 50 years?*

One of our challenges will be emerging contaminants that our treatment systems are not designed to remove and whose impact on our health and environment are not fully understood.

Another challenge will be the costs to operate, maintain and upgrade our water systems to maintain and improve on the gains that we have achieved with the CWA. We can't be apathetic about our water future because of the gains we have achieved over the last 50 years.

### Upon Further Reflection

The CWA was passed when I was 11, but my interest in water quality began before that. I spent my first 11-plus years living in Williamsport, Pennsylvania, along the west branch of the Susquehanna River. The river was within walking distance of our home, and we often would walk the dog and play on the flood dike. We never played near the river because the river smelled, and the area was full of trash. I did not understand why the river was so unpleasant. I do consider myself fortunate because my grandfather owned property on a nearby stream and in Canada. Being able to compare water quality in these areas versus that of the Susquehanna made me realize that something was wrong.

In 1972, we moved to New Hampshire, just west of Concord. Here our local streams were clean; however, our village (Contoocook) did not have a sewage system, nor did the City of Concord, which was on the Merrimack River. The Merrimack exhibited the same problems that I observed in the Susquehanna. The river flowing through our village was cleaner but was not a place where people went for recreation. Fortunately for us, the rivers were not used as the local drinking water source.



The elementary school I attended in New Hampshire, always had a stream of water in the playground area. This playground was several areas of mowed grass, and this “stream” was a huge attraction to the children. We were never discouraged from playing in this stream as I suspect the teachers never understood its source. Years later I suspected that this “stream” was a discharge from the school’s septic tank leach field.

I remember the battle in the mid-1970s over the construction of a wastewater treatment plant for the village. Many residents objected to the cost of the treatment plant and the size of the service area. The concern was cost, not benefits to the river or elimination of the health hazards of failing septic systems. Once the collection system and treatment system were built, the “stream” at the elementary school disappeared.

These were some of the items that piqued my interest in the environment. Having the ability to see what “clean” water systems provided on my vacations, I had a strong interest for that same environment where I lived. I graduated high school in 1978 and attended New Mexico Institute of Mining and Technology to study environmental engineering. I later transferred to Rensselaer Polytechnic Institute (RPI) in Troy, New York, and changed my major to chemical engineering. I continued to observe some of the same problems in the Hudson River, but also observed that the cities no longer had access to the Hudson River. Access was blocked by factories, roads and flood protection structures; the river passes through Troy, but at that time the waterfront was primarily empty industrial buildings. Any trips to parks on the Mohawk or Hudson rivers always had the familiar smells I associated with the larger rivers in Pennsylvania and New Hampshire.

After graduating from RPI, I went to work with the NYSDEC, first in water supply on Long Island, then in hazardous waste remediation in Albany, and a year later moved to SPDES permit writing in Albany. Beginning in 1989, I became fully aware of the CWA and found I could use my chemical engineering degree to protect water quality. I was primarily responsible for writing industrial SPDES permits where the focus was the removal of organic compounds. Writing these permits involved an understanding of the goals of the CWA and how federal and state regulations were employed to meet those goals. The next 30-plus years I spent in the SPDES program from permit writing to permit compliance and operator training and technical assistance. The best position I held was with the Operation and Assistance Section, where we helped troubleshoot problems at smaller water resource recovery facilities (WRRF) and used our experience to train operators. The SPDES permits implemented the requirements to meet the CWA goals, but our jobs were to help operators with the challenge to meet the permit requirements. With this work, we could see the impact of the WRRF on protection of water quality. By the early 2000s, we were beginning to see large increases in use of streams and rivers. The improvements created by our WRRFs made people want to visit our rivers. Fishing improved and wildlife returned.

As a child, I never saw a bald eagle. Between the impacts of DDT and the limited number of fish in our rivers, these birds were not present. As an avid fisherman, I spend a lot of time on the water and now I frequently see eagles, as well as osprey, otters, and a wide variety of ducks that are now populating our waterbodies. Because of the efforts undertaken under the CWA, water quality is better, and the food sources required by wildlife are growing in our waters.

Our gains have allowed us to return to the water, but unfortunately these gains also expose a need for diligence for the future. Cities are looking for ways to return to the waterfront and people are raising questions of why there is still pollution. Our water infrastructure is old, and many communities are strapped financially to maintain the existing water systems. Cities that had isolated themselves from the river because the water quality was once bad, now are facing challenges to educate their residents on the value of this improved resource. And it all relates to the cost of maintaining water infrastructure and educating society on the values of clean water. We still have not met the fishable and swimmable goal the CWA has for all waterways. We have made major steps toward this goal; however, we have a long way to go. Infrastructure issues raise one of my biggest fears, which is losing the gains we have achieved over the last 50 years and never achieving this goal.

The future does present many challenges to our industry. Water quality has improved to the point where we are able to detect dangerous chemicals that can impact human and aquatic health. The old chemicals are known, and in many areas remediated to eliminate their source. The concern is the emerging contaminants and how can we remove them. They seem to be everywhere and our WRRFs are not designed to remove them.

Another problem that will burden us in the future are nutrients. Water quality has improved, light penetration into the water is greater and algae are taking advantage of the extra nutrients. Most of our WRRFs were designed to meet secondary treatment standards and face significant challenges to remove nitrogen and phosphorus. Resources are needed to upgrade our aging infrastructure and to upgrade our WRRFs to meet these new nutrient removal requirements.

The future is not all challenges. I think the success of the CWA has made more people aware of the benefits of improved water quality. I believe the general population does want access to the water, they want to recreate in and on the water, they want clean and safe drinking water. Because of these attitudes, I believe there is a future in the field of improving water quality and people will make water quality a priority.



**Bob is an avid fisherman and enjoys being out on the water.**

*Donald Wither*



# The Lake Champlain Basin Program Commemorates the Clean Water Act 50th Anniversary

by Jim Brangan, Laura Hollowell and Colleen Hickey

October 2022 marks the 50th anniversary of the Clean Water Act (CWA), the nation's first comprehensive legislation to protect water quality. Life in the Champlain Valley has always been – and continues to be – deeply connected to the water of Lake Champlain. This monumental legislation in 1972 expanded federal protection of the waters of the United States, paving the way for policies, protections, and

funding dedicated to clean water. Subsequent amendments to the CWA strengthened protections for Lake Champlain, creating the Lake Champlain Basin Program (LCBP) and helping to improve the water quality of the lake for generations to come.

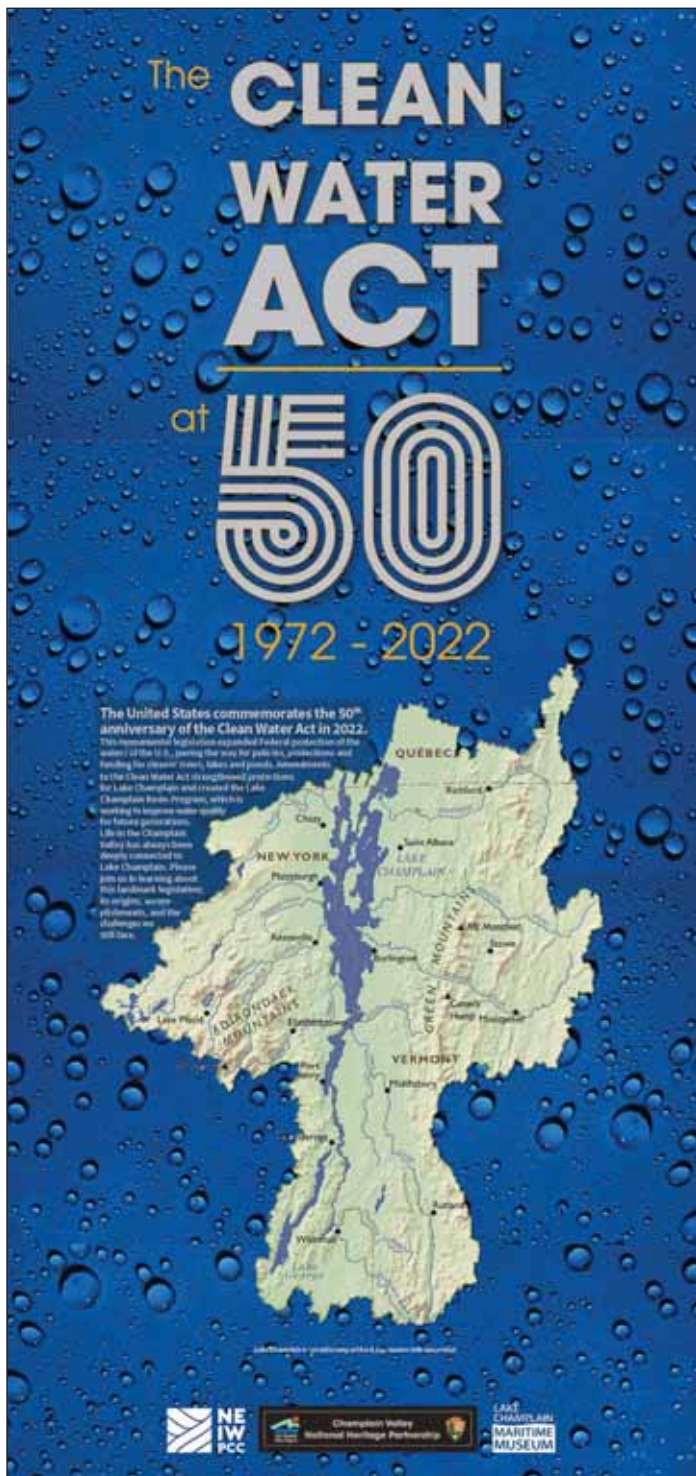
During 2022, the LCBP and the Champlain Valley National Heritage Partnership (CVNHP) are working with partners to commemorate the 50th anniversary of the CWA with a variety of events, activities and publications. The anniversary served as the theme of the basin's World Water Day celebration for teachers and students in March and the Lake Champlain Research Conference in May. Signature events will be held in Lake Placid, New York, in August and in Burlington, Vermont, in October. Event details will be posted on the LCBP website.

A traveling exhibit, *The Clean Water Act at 50, 1972-2022*, with six interpretive banners and an accompanying CWA 50 Quest and Quiz, will travel through the Champlain Valley in 2022. The banners, developed by the LCBP and the Lake Champlain Maritime Museum, will be featured at venues including the Lake Champlain Maritime Museum located in Basin Harbor, Vermont, and Mount Independence State Historic Site in Orwell, Vermont.

Other events include the release of a retrospective *1972 State of the Lake Report* created with assistance from University of Vermont students; naturalist-led walks in Shelburne and Burlington, Vermont; a tour of the South Lake region of New York; community fishing activities; and wastewater treatment facility tours. A series of regional projects funded by CVNHP program grants will be focused on the CWA 50th anniversary and our region's waterways.

*Called by the Water*, an exhibit at the Lake George Historical Association Museum, will be upgraded and expanded, prioritizing water quality preservation and restoration issues in alignment with the message of the CWA and the urgency of Lake George advocacy.

In partnership with local schools and the Abenaki community, a Missisquoi River Basin Association project will increase under-



Six banners, including the introductory text above, will help interpret the 50th Anniversary of the CWA. Exhibit Design, Elizabeth Lee, LCBP



Boat launch stewards harvest water chestnut in Colchester, Vermont, demonstrating that personal actions can improve the lake's ecosystem. LCBP



standing of the cultural and natural heritage of the Missisquoi watershed. *Connecting Cultures in the Missisquoi River Basin* will provide experiential educational opportunities that engage students in research and artistic expression about Abenaki culture, ecological restoration and responsible recreation.

Paul Smith's College Adirondack Watershed Institute will commemorate the 50th anniversary of the CWA across international borders. *Celebrating the Legacy of the CWA in the Multinational Geography of the Lake Champlain Basin* will showcase the legacy of protecting clean water in the Lake Champlain Basin, engaging the public in actions that commemorate the CWA and honor the natural and cultural heritage of the region.

SUNY Plattsburgh will be leading an effort to publish a series of papers in a book focused on the CWA and the Lake Champlain Basin. They will be holding an author's workshop in November to create a collaborative space for authors to work on papers focusing on the origins, implementation, and impacts of the CWA, federal, state, and provincial regulatory and institutional policy developments, and case studies of conservation and community engagement.

Many other projects and events will celebrate clean water and mark the anniversary of this groundbreaking legislation. Look for more details about CWA commemoration activities on the LCBP website at: [www.lcbp.org/get-involved/lcbp-events/clean-water-act-50th-anniversary/](http://www.lcbp.org/get-involved/lcbp-events/clean-water-act-50th-anniversary/) and on our social media channels.

Funding for these LCBP projects was provided by the U.S. Environmental Protection Agency, Great Lakes Fishery Commission, and the National Park Service.

---

*Jim Brangan is the cultural heritage and recreation coordinator for LCBP and assistant director of the CVNHP and may be reached at [JBrangan@lcbp.org](mailto:JBrangan@lcbp.org). Laura Hollowell is a resource room specialist for the LCBP Resource Room at ECHO at the Leahy Center for Lake Champlain. Colleen Hickey is the education and outreach coordinator for LCBP and may be reached at [CHickey@lcbp.org.heritage](mailto:CHickey@lcbp.org.heritage).*



The LCBP partnered with local artist Nikki Laxar and the Community Sailing Center in Burlington, Vermont, to emphasize the need to reduce the spread of aquatic invasive species. **CLEAN, DRAIN, and DRY** all boats and gear!  
LCBP



These summer campers are excited to learn how they can care for the watershed.  
LCBP



Visitors enjoy a quiet spring day along the St. Albans Bay, Vermont, shoreline, a region impacted by cyanobacteria during the summer months.  
LCBP

*continued on page 39*



## Offering Our Customers

Pumps and Process Equipment,  
Control Systems

Integration Technology,  
Engineering Support

Rentals, Repairs and On-site Services



100% Employee Owned

### **Pumping Services, Inc.**

201 Lincoln Blvd.  
Middlesex, NJ 08846  
(732) 469-4540 Main  
info@psiprocess.com  
[www.psiprocess.com](http://www.psiprocess.com)



PUMPS



TREATMENT



CONTROLS



FLOOD  
CONTROL



SHOP  
REPAIR



EMERGENCY  
BYPASS PUMPS



RENTALS



SERVICES





Looking west towards Plattsburgh, New York, the Lake Champlain Transportation Company ferry is bathed in the glow of a Lake Champlain sunset.

LCBP

### A Few Snapshots in Time: The Clean Water Act and the Lake Champlain Basin

*Adapted from the Clean Water Act traveling interpretive exhibit, developed in partnership by the Lake Champlain Basin Program and the Lake Champlain Maritime Museum. The full story and exhibit banners are available on the LCBP website.*

**1800s:** The 1800s brought industrialization and pollution to the Lake Champlain Basin altering the landscape and polluting the water. These changes created concerns about the protection of Lake Champlain, launching an early conservation movement in the late 19th century.

**1905:** In 1905, following a series of complaints from residents about the discharge of waste into Lake Champlain, the U.S. Department of the Interior commissioned a pollution study. The report addressed industrial waste in the Ausable and Boquet rivers and issued a dire warning to Burlington residents. They were “drinking from their own cesspool” due to the discharge of the community’s sewage into the lake one mile from the drinking water intake pipe.

**1970:** On the national scale, a series of severe environmental disasters in the mid-20th century and growing public anxiety about air and water pollution led to the creation of the U.S. Environmental Protection Agency (USEPA) in 1970. In the Lake Champlain Basin, the public was also voicing concern about water quality. In operation since the late 1800s, International Paper Company’s Ticonderoga Creek paper mill had discharged runoff and sludge into the lake for decades. In 1970, Vermont Attorney General and future U.S. Senator Jim Jeffords spearheaded legal efforts against the mill. The company argued it was not the only business in New York polluting the South Lake so it should not face financial repercussions. The case went to the U.S. Supreme Court and ended in a \$750,000 settlement. The money funded a Vermont monitoring program for environmental practices by International Paper Company.

**1972:** A bipartisan congressional effort introduced amendments to the 1948 Federal Water Pollution Control Act, which only protected interstate waterways. The new proposed amendments gave the USEPA expanded control over water quality, allowing it to regulate and implement pollution control programs for waterways, set water quality standards, fund sewage treatment plants, and make it

illegal to discharge any pollutants into waterways without permission. After a series of revisions, the bill passed in the U.S. House of Representatives and the Senate in 1972. President Richard Nixon vetoed the bill after deeming it too costly at \$24 billion, but Democrats and Republicans united to override his veto. The Clean Water Act became law Oct. 19, 1972, setting a course to protect the nation’s waterways

**1990:** In 1990, Vermont Senators Patrick Leahy and Jim Jeffords and New York Senators Daniel Patrick Moynihan and Alfonse D’Amato introduced the Lake Champlain Special Designation Act as another amendment to the Clean Water Act. The legislation recognized Lake Champlain as a resource of national significance. Signed into law Nov. 5, 1990, the Act established the Lake Champlain Basin Program, with the goal of bringing together people with diverse interests in the lake to create a comprehensive pollution prevention, control, and restoration plan for protecting the future of the Lake Champlain Basin.

**2022:** On June 3, 2022, the Lake Champlain Basin Program released the fifth iteration of *Opportunities for Action*, the management plan for Lake Champlain. The plan charts the next five years of priority programming for Lake Champlain’s future. For the past three decades, the LCBP has received significant funding from the USEPA and the Great Lakes Fishery Commission to address priority water quality issues including phosphorus reduction, aquatic invasive species cyanobacteria and beach closures, and aquatic organism passage. More than 100 local organizations have implemented boots-on-the-ground projects with this funding awarded through the LCBP and the New England Interstate Water Pollution Control Commission. The LCBP works closely with New York State Department of Environmental Conservation and its Vermont and Québec counterparts to implement the plan as well as other state, federal, local and provincial partners.

## Interview: Susan J. Sullivan



---

*"I strongly believe we have the ability to regulate, control and prevent all pollution to our nation's waters and to safeguard public health and the environment. Our biggest challenge and opportunity is political will."*

---

Susan J. Sullivan is the executive director of a regional, not-for-profit interstate agency, the New England Interstate Water Pollution Control Commission (NEIWPC), which assists the states of the Northeast to preserve and advance water quality.

NEIWPC serves and supports Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut and New York by:

- Coordinating activities and forums that encourage cooperation
- Developing resources that foster progress on water and wastewater issues
- Representing the region in matters of federal policy
- Training environmental professionals
- Initiating scientific research projects
- Educating the public
- Providing overall leadership in water management and protection

For the most part, Susan's hobbies, talents and accomplishments revolve around clean water. She likes her snow to be white so she can ski, snowboard or snowshoe. She likes the rivers and streams, lakes and oceans to sparkle and shine, debris-free, when she swims, hikes or plays golf around them.

### My Background in the Water Industry

*Do you have any special education or licensing that has been important in your career? If so, what are they, and how have they affected your career?*

I started my career as a marine biology major at Southampton College in Southampton, New York. It did not take me long to change my major to environmental biology and I received a Bachelor of Science with a minor in secondary education from the college, which has long since changed names from Southampton College to Long Island University Southampton Campus, to now Stony Brook Southampton.

Post-graduation, I initiated an effort to obtain a Master of Science in environmental science that I received from the New Jersey Institute of Technology in Newark, New Jersey. Over the years, I have completed many educational training and certification programs aligned with Workplace Diversity, Inclusion and Sensitivity; Bystander Intervention; Creating a Positive Work Environment; and Management and Leadership.

This path of constant learning has allowed me to broaden my abilities to work cooperatively, lead and manage staff and to focus on excellence in the workplace.

*What sparked your interest in the water sector?*

I have always loved water. That is probably why I started off as a marine biology major. Tough job market, though, and my transition to environmental biology allowed me significant flexibility in deter-

mining areas of expertise.

When I arrived at NEIWPC 33 years ago, it felt like I had come home. Where else can you work with the seven Northeast states, New England and New York, on fresh and tidal water issues? Where else can I tackle water quality issues that couldn't be solved by any one state on its own – whether it was developing water quality standards, creating the first wastewater operator training program in the region, or facilitating interstate collaboration around key topics.

I have been instrumental in engaging and convening water quality professionals from New England and New York to collaborate on water, wastewater, and environmental science challenges since I arrived at NEIWPC. I love it here!

*How has your career evolved over time?*

It remains amazing to me how lucky I was the day NEIWPC hired me as an environmental scientist in their Boston office. Young and mostly green to the field, I got to jump right in.

I worked with leaders in the states and the U.S. Environmental Protection Agency on everything from regulatory and policy work, wastewater treatment, wetlands, water quality standards and combined sewer overflow (to name a few areas). I entered the field on the ground level (or so it seemed) related to nonpoint source pollution and underground storage tank controls. I met so many knowledgeable, kind and helpful mentors who guided me to where I am today.

*How has your career in the clean water sector affected your family?*

What a fun question. I was going to say that I wish any of my family had joined me in the field as neither of my sons were so inclined.

But I have a nephew who is a wastewater treatment plant operator in Massachusetts. He even completed NEIWPC's Management Candidate School. I have two nieces who work in the environmental field, working on national and regional policy and sustainable environmental solutions.

My goddaughter works for the Boston Water and Sewer Commission. Not a bad legacy.

Perhaps my grandchildren – if I ever have any – will enter into this astonishingly fulfilling water sector world too. I know I will enjoy teaching them why protecting our water and keeping it clean is so important. Even if I have to sit on the beach, collect shells or surf every day so they learn. It's a tough job but someone has to do it.

### My Reflections on the Clean Water Act

*When did you first become aware of the Clean Water Act?*

While studying for my Bachelor of Science degree, I was required to take environmental law classes. We covered the Clean Water Act, the Endangered Species Act, and the National Environmental Policy Act – to name a few. I had a significant interest in environmental law, so I enjoyed learning about these important social, economic and health laws that drove significant change in the United States and the world around us.

*How has the Clean Water Act affected your personal life?*

How has it not affected everyone's life?

Many of us likely don't think much anymore about the reasons we entered the environmental field and probably aren't clear about the incredible value our everyday work brings to the health and well-



being of Americans. Look back, though, to pictures of our waterways from more than 50 years ago. It is difficult to imagine the pollution, the trash and the disregard that was commonplace for our environment then.

During that time, the Northeast region was experiencing the industrial boom, and our waterways were grossly polluted. Remember hearing how our rivers caught fire? Turned pink, red and purple? That was real. Our waters were clogged with grease balls the size of oranges. We had chicken heads floating in them.

The year 2022 marks the 50th anniversary of the passage of the federal Clean Water Act (CWA) of 1972. An act that President Nixon vetoed saying our country could not afford how expensive it was. Since the CWA is known to be one of the most expensive, comprehensive environmental legislation in this nation's history, I understand his reluctance but imagine where we would be today without the CWA?

While the CWA aims to prevent, reduce and eliminate pollution in order to restore and maintain the chemical, physical and biological integrity of our nation's waterways, 50 years later we still have a way to go.

*What do you see as the greatest impact of the Clean Water Act on our world today?*

Well, I could say not having chicken heads floating in our waterbodies is a big one. Or grease balls the size of oranges. Or shopping carts, poop, cars, etc. Truth be told, though, we still have a lot of plastics (miniature alcohol bottles included), significant stormwater problems and various contaminants swimming around out there, with more being discharged every day.

So, I am going to go with the idea that the polluter pays. While the Clean Water Act was designed to establish the basic structure for regulating discharges of pollutants into U.S. waters and regulating quality standards for surface waters, it essentially endeavored to stop folks from dumping whatever they wanted into our waters from their industries, factories and what have you. We have water resource recovery facilities working every day to ensure our waters are clean, pretreatment programs to slow the spread of pollutants to our recovery facilities and hardworking people giving it their all every day. A pretty impressive impact.

*What do you think will be the greatest challenge for the clean water sector over the next 50 years?*

I have been thinking about this question a lot recently. I strongly believe we have the ability to regulate, control and prevent all pollution to our nation's waters and to safeguard public health and the environment. We have the technology, the ability to do research and development to meet our challenges and dedicated, smart, caring people who want to make a difference.

I think our biggest challenge and opportunity is political will. Do we have the stomach to regulate the agricultural sector and their unceasing pollution of our waters? Do we have the stomach to have chemical companies and other industries assure their products will not be detrimental to our health and the environment, prior to them using these products for more than 50 years before we learn of their harm? (Can anyone say PFAS? MTBE? DDT?) I wish I thought so, but I don't.



**Rapid Pump & Meter Service Co., Inc.**

**Machinery Services Corp.**

**wilo**

**Myers Pentair Water**

**AURORA Pentair Water**

**The answer is YES What's the question?**

**RAPIDSERVICE.COM**  
**24 Hour Emergency Service**  
**973-345-5600**

# Albany County Water Purification District: A Historical Perspective

by Richard J. Lyons

## About the District

The Albany County Water Purification District, (formerly Sewer District), was formed by the Albany County Legislature by Resolution No. 45 of 1968. This resolution defined the District's participating communities, boundaries and governance structure.

The District serves the cities of Albany, Cohoes and Watervliet, the villages of Green Island, Menands and Colonie and parts of the towns of Guilderland and Colonie. The population served is approximately 200,000 with 11 significant industrial users.

A county sewerage study preceded the formation of the District, which was completed in 1966. This document provided the blueprint for the creation of a regional District and was funded by the New York State Pure Waters Bond Act of 1965.

The infrastructure constructed were two treatment plants designated North (35 million gallons per day [MGD]) and South (29 MGD permitted) and over 20 miles of intercepting trunk sewers. The District purchased the South Plant site and existing intercepting sewers for \$1 from the City of Albany. The South Plant site was the location of Albany's original primary treatment plant that was constructed in 1913. Both treatment plants are conventional activated sludge with solids thickening, dewatering and ultimate disposal method being multiple hearth incineration. The plants encompass approximately 35 acres each. Original construction costs were \$76 million and were 87.5% grant funded (65% federal and 22.5% state). The federal money was from the 1972 Clean Water Act, which allocated \$12 billion for treatment construction, and the 1965 Pure Waters Bond Act that provided \$1 billion investment.

The Federal Water Pollution Amendments of 1972, known as the Clean Water Act, was passed with strong bipartisan support. However, President Nixon vetoed the bill, deeming the \$24 billion was "just too expensive." On Oct. 18, 1972, the veto was overridden by the House and Senate by an overwhelming 10-1 margin and became law.

## Building a Regional District

I have a unique perspective of the District as my father, Dr. John J.A. Lyons, was deputy Albany County health commissioner from 1960 to 1967 and health commissioner from 1967 to 1982. He also served as chair of the District Board of Commissioners from 1968 to 1985. He was heavily involved in advocating the value of a regional district to vastly improve water quality in the Hudson River and pro-

tect public health. I remember the plans for the District being on the kitchen table and him spending much time going community to community to garner support for a regional entity. This wasn't an easy task as he was dealing with not just physical boundaries but also political boundaries.

Ultimately, the communities came on board – all except one – and municipal contracts were executed from 1968 through 1971. These contracts provided full-cost pricing and defined apportionment of costs to each community for operation/maintenance and debt service. The apportionment for debt wasn't just for original construction but also for future improvements. The District is a special district as defined by New York state county law and as an enterprise fund is wholly funded by user fees and assessments.

All components of District were designed, let for bid and constructed by early 1974. The total time from formation to completion was approximately 5.5 years – an amazing feat that could never be accomplished today. Both plants commenced start up in April 1974.

## Overcoming Early Staffing Challenges

A challenge that needed to be overcome was staffing the operation and maintenance departments. The City of Albany historically had numerous breweries, which included the Beverwyck Brewery (1878-1950) that became Schaefer Brewery – "the one beer to have when you're having more than one" – in 1950. Unfortunately, the Schaefer Brewery closed in 1972, which left numerous people unemployed. The District hired over 40 of the Schaefer laid-off employees who became solids handling operators, shift supervisors, mechanics, chief operator, chief of maintenance and instrumentation.

These men had unbelievable work character and ethics with many being part of the "greatest generation." Also, several were World War II veterans who served in the European theater and were involved in the invasion of Operation Overlord/D-Day and the Battle of the Bulge. They provided instantaneous experience in operating pumps, conveyances and other equipment. With brewery knowledge they quickly adapted that factory setting to wastewater treatment. Also, two community colleges, Hudson Valley and Morrisville, offered associate degree programs in environmental science with a focus on wastewater operations and treatment. Several graduates of these programs were hired. With the mix of young operators, experienced blue-collar staff, management and engineers administratively, the District was staffed to be successful.



Construction of the North Plant Final Clarifiers and Return Activated Sludge Pump Building, during the summer of 1972.

*Courtesy of Albany County Water Purification District*



Construction of the North Plant Headworks, Primary Clarifiers and Administration Building, during the summer of 1972.

*Courtesy of Albany County Water Purification District*





A helicopter lowers the Aeration Mechanical Mixer into place during South Plant construction, during the summer of 1972.

*Courtesy of Albany County Water Purification District*

## The District Since the CWA

The District was well conceived, designed and operated and has been virtually 100% compliant with all permits since 1974. Also, the clean water infrastructure constructed was affordable due to the 1972 Clean Water Act and the 1965 Pure Waters Bond Act.

The Clean Water Act provided national standards for treatment and receiving stream classification that required secondary treatment. Operating a secondary treatment process with the resulting production of biological sludge was an early challenge. The original solids dewatering equipment were rotary drum vacuum filters, which produced a very wet cake, causing inefficient solids handling costs. The vacuum filters were replaced in 1980 with belt filter presses, which were a game changer for dewatering combined, primary and secondary sludge.

The District has completed approximately \$50 million in capital improvements in the past 30 years to ensure continued compliance. Innovation has also been a key to success with the South Plant providing final effluent, for cooling water, to a gas-fired turbine power plant on the east side of the river. This is one of the largest beneficial uses of secondary effluent in New York state and provides annual revenue that can be invested in plant improvements.

The 1972 Clean Water Act, along with the 1965 Pure Waters Bond Act, has made a profound water quality improvement in the Albany Pool area of the Hudson River (from the Troy Dam to south of the City of Albany). In the 1960s and early 1970s the river in the Albany Pool area was like an open sewer that was virtually devoid of dissolved oxygen to support aquatic life. In 1965 then-Governor Nelson Rockefeller said, "The river from Troy to the south of Albany is one great septic tank that has been rendered nearly useless for water supply, for swimming, or to support the rich life that abounded there." (*The Knickerbocker News and Union Star* 1971)

After the Albany Pool area treatment plants went online, the New York State Department of Environmental Conservation (NYSDEC), reported collecting 3,314 fish representing 27 species in the sum-

## 50 YEARS AGO

### Sewer plant contracts awarded

The Albany County Sewer District Commission awarded contracts for the construction of the South End treatment plant for almost \$20 million (about \$135 million today).

John J.A. Lyons, Albany County health commissioner, announced contracts for the 19 million-gallons-a-day plant, the largest contract of the four awarded to the joint venture of McManus, Longe & Brockwehl Inc. and C. & C. Bohrrre Inc. for \$18,433,030. J.N. Futia received the remaining three contracts for plumbing, heating, ventilating and electrical. Construction was scheduled to begin sometime in October, with a completion date 25 months from that date.

Bidding for the North End Treatment Plant's outfall, or the line leading from the plant to the Hudson River, would be in the fall.

The entire system, which would serve 80 percent of the county's population in eight communities, was expected to be ready by the end of 1973.

*—Times Union, Sept. 11, 1971*

A "50 Years Ago" highlight published in the Albany Times Union on Sept. 11, 2021.

*With permission, Albany Times Union*

mer of 1975 (*Salinger* 2020). The Albany Pool communities are now in the middle of the 15-year Combined Sewer Overflow Long Term Control Plan. This program takes the next step in improving water quality by reducing overflows resulting in a major reduction of bacteria and floatables during large wet weather events.

## NYWEA's Influence

The New York Water Environment Association has had an important impact on my personal and professional life. I had the pleasure to serve as president in 2012. My experiences with NYWEA, I believe, played an important role in my advancement at the Albany County Water Purification District. There are tremendous opportunities available to NYWEA members that will enhance personal skills such as public speaking, presentations, leadership roles and formal board meetings. Another important aspect are the opportunities to network with your peers, regulators, equipment manufacturers, consultants and environmentalists. I am most proud of the relationships developed by NYWEA, with numerous environmental groups, which provided one voice with one mission to increase funding for clean water infrastructure projects. Lastly, the friendships you will make with other water professionals will enhance your life.

*Richard J. Lyons had an over 40-year career with Albany County Water Purification District and served as executive director 2005 to 2015. He may be reached at [rlyonssewer@gmail.com](mailto:rlyonssewer@gmail.com).*

## References

- The Knickerbocker News and Union Star. Nov. 6, 1971. 'Septic Tanks': Cleanup Job Slowed as Cost Rise.
- Salinger, Maude. 2020. *The Hudson River Then and Now: A Brief History of Water Quality*. Hudson River Maritime Museum History Blog. July 1, 2020. <https://www.hrmm.org/history-blog/the-hudson-river-then-and-now-a-brief-history-of-water-quality> (an earlier version of this article appeared in the fall 2016 issue of NYWEA's *Clear Waters* magazine).

## Interview: Michael J. Garland



---

*“Resiliency and reliability of clean water infrastructure will continue to be critical needs over the next 50 years.”*

---

Michael J. Garland, P.E., currently serves as director of Monroe County’s Department of Environmental Services (DES) and is responsible for four divisions – namely, Pure

Waters Water Resource Recovery Utility, Engineering & Facilities, Solid Waste & Recycling and Fleet. DES’ annual operating budget is \$95 million with over 300 employees.

Michael’s hobbies and interests include playing electric guitar in a garage rock band, riding and maintaining his off-road motorcycle, skiing and traveling with his twins.

### My Background in the Water Industry

*Do you have any special education or licensing that has been important in your career? If so, what are they, and how have they affected your career?*

I have a Bachelor of Civil Engineering from Villanova University (1985), a Master of Civil Engineering from the University at Buffalo (1994), and a professional engineer license (P.E.) in the state of New York.

My engineering degrees honed my interests and provided the educational foundation that was a prerequisite for all public and private sector positions I have held. Having a master’s degree with a concentration in environmental engineering further developed my understanding, interest and knowledge of the technical principles of the water and wastewater industry.

*What sparked your interest in the water sector?*

My interest in civil engineering and the water sector began as a kid after witnessing the aftermath and destruction of the Erie Canal break in Bushnell’s Basin, New York, in 1974. The canal break caused tremendous flooding and property damage to downstream neighborhoods but, fortunately, no loss of life. The cause of the break was a breach in the bottom of the canal due to a contractor installing a large-diameter interceptor for Monroe County Pure Waters – the organization that I lead today! The interceptor was installed to allow small town wastewater plants to come off-line and neighborhoods to disconnect from septic systems and to connect to newly constructed local sewer collection systems. The inceptor was designed to convey flow to the county’s water resource recovery facility (WRRF) that was being upgraded to provide secondary treatment in compliance with the Clean Water Act.

My interest in the water sector was also inspired by the summers I spent vacationing as a kid with my family on Canandaigua Lake – one of the most beautiful of the 11 Finger Lakes. I’ve always marveled at its geologic formation and the length and depth of such a pristine water body that afforded tremendous recreation activities and a reliable source of drinking water.

*How has your career evolved over time?*

I began my career as a public servant in 1986 at the Point Mugu Naval Air Station’s Department of Public Works. While I enjoyed

facilities and public works operations, I was most interested in environmental engineering and, therefore, pursued an employment opportunity at Camp, Dresser & McKee (CDM). I worked for CDM for four years on water and wastewater projects for municipalities in New England as well as six-month assignments in Bangladesh and Egypt.

After CDM, I was accepted into University at Buffalo’s Master of Engineering program and began working for Malcolm Pirnie (as the firm was known that time) where I continued to develop my interest and experience in the water sector. After working on projects for Monroe County as a contractor, I decided to apply my education, training and experience in county government. I joined Monroe County in 1996 working for the county administration on a variety of public works, environmental and energy projects.

In 2005, I took a position managing Monroe County’s Department of Environmental Services Engineering & Facilities Division. In that position, I was responsible for multimillion dollar capital projects including those projects for Pure Waters. In 2008, I was appointed Director of Environmental Services – responsible for the Pure Waters operations as well as Engineering & Facilities, Solid Waste & Recycling and Fleet. I am also very honored to be a NYWEA Water Ambassador and past president.

*How has your career in the clean water sector affected your family?*

My career has afforded me the opportunity to raise my 16-year-old twins and instill in them an appreciation for the abundance, beauty and majesty of our local water resources such as Irondequoit Bay, Genesee River, Lake Ontario and the Finger Lakes.

### My Reflections on the Clean Water Act

*When did you first become aware of the Clean Water Act?*

The Clean Water Act was presented in my college environmental coursework; however, I became most knowledgeable of the Clean Water Act in 1987 when I began working on water supply projects in New England for the Water Division of CDM in Boston.

*How has the Clean Water Act affected your personal life?*

The Clean Water Act created an industry that provided me with employment opportunities that have allowed me to raise a family, achieve professional satisfaction and pursue hobbies and interests.

*What do you see as the greatest impact of the Clean Water Act on our world today?*

No doubt, the greatest impact of the Clean Water Act has been the protection of public health. To that end, the Clean Water Act has also protected the environment and sources of drinking water. The Clean Water Act has also created meaningful jobs and careers in the water industry for operators, mechanics, scientists, electricians, contractors, engineers, manufacturers and vendors.

*What do you think will be the greatest challenge for the clean water sector over the next 50 years?*

I believe the challenges the water sector faces today will still be with us in 50 years; namely, attracting and retaining talented and motivated people into the water industry at competitive-paying jobs. In addition, regulations will continue to evolve with ongoing, emerging contaminants of concerns, e.g., pollutants like PFAS and



other “forever chemicals.” There will be an ongoing demand for consistent and significant state and federal funding for new and existing water infrastructure, just as there will be for roads and bridges!

Resiliency and reliability of clean water infrastructure will continue to be critical needs over the next 50 years as our state will

continue to be impacted by climate change even with the dramatic reductions in greenhouse gas emissions through the state’s Climate Leadership Community Protection Act.



Recreational opportunities on New York’s waterways have expanded with improved water quality drawing people to the water.

*Town of Perinton*



**GARTNER**

EQUIPMENT COMPANY, Inc.  
302 Sand St., Syracuse, NY 13204  
Phone: (315) 476-8321  
Fax: (315) 476-8349

**SERVING THE MUNICIPAL AND INDUSTRIAL  
WATER AND WASTEWATER MARKETS FOR 60 YEARS**

DESIGN - SALES - SERVICE/REPAIR - PARTS

**Air Compressors/Vacuum Pumps/Blowers**

FS Elliott, Quincy, Sutorbilt, FS Curtis

**Delta** - Packaged WW Treatment Plants

**Dynatomic** - Eddy Current Drives

**Franklin Electric** - End Suction Pumps,

Vertical Multi-Stage Pumps

**Liquid Chemical Feed Pumps**

Blue-White Peristaltic & Diaphragm;

LMI, Grundfos, Walchem Diaphragm;

Packaged Chemical Feed Systems

**Tigerflow** Housed Packaged Pump Systems

**Municipal After Market Pump Retrofits**

Barnes, Burks, Deming, Weinman

**Myers** - Sump, Effluent Pumps; Packaged

Grinder Pump Stations

**Pioneer Pump** - Self Priming Centrifugals,

Trailer Mounted Engine Packages

**xylem/Goulds Pumps** - Lineshaft and

Submersible Turbine; e-XC Single

Stage Double Suction Centrifugal;

Multi-Stage and Submersible Sewage

**HYDROMATIC®**



SUBMERSIBLE SEWAGE PUMPS  
NON-CLOG, VORTEX, CHOPPER

**QuantumFlo®**  
Packaged Pump Systems



INNOVATIVE, INTELLIGENT, ENERGY EFFICIENT,  
VARIABLE SPEED PUMP SYSTEM TECHNOLOGY  
BOOSTER, RAINWATER REUSE, IRRIGATION

[sales@gartnerequipment.com](mailto:sales@gartnerequipment.com)

[service@gartnerequipment.com](mailto:service@gartnerequipment.com)

[parts@gartnerequipment.com](mailto:parts@gartnerequipment.com)

## Interview: Lauren Livermore



---

*“The greatest challenge for the clean water sector over the next 50 years will be funding and replacing the aging infrastructure.”*

---

Lauren Livermore, P.E., BCEE, is currently a deputy commissioner at Onondaga County Department of Water Environment Protection. She is also a past president of NYWEA and a current Water Ambassador.

### My Background in the Water Industry

*Do you have any special education or licensing that has been important in your career? If so, what are they, and how have they affected your career?*

I have a Bachelor of Science in civil engineering with a concentration in environmental engineering from Clarkson University (an Accreditation Board for Engineering and Technology [ABET]-accredited degree program). I also am a licensed professional engineer (P.E.) in New York state and a board-certified environmental engineer (BCEE).

My degree (as well as passing the fundamentals of engineering exam in college) kept me on the fast track to being able to sit for the P.E. exam once I had enough design experience. Having a P.E. has been extremely important to my career. The P.E. license has allowed me to be promoted and hold various positions in the industry – being a BCEE is icing on the cake, so to speak.

### What sparked your interest in the water sector?

My interest was sparked at a young age through my connection to Onondaga Lake. My family had a boat that we kept at the marina on the lake until I was about 10. I can distinctly remember how turbid the lake was. It has been my mission to help in the cleanup of the lake ever since.

### How has your career evolved over time?

My career started off in consulting where I was able to work on a variety of projects. I was fortunate to be able to see many projects through the phases of planning, design and construction. Next on my consulting journey was asset management, primarily focused on assets at wastewater treatment plants. My position as deputy commissioner brings all those experiences together!

### My Reflections on the Clean Water Act

#### When did you first become aware of the Clean Water Act?

I am sure I learned about it in college in my Environmental Law or Intro to Environmental Engineering classes, but it took on new meaning during my first big engineering design job in the early 2000s that was originally funded by the construction grants program in the 1970s and was in need of some major process and infrastructure upgrades.

#### How has the Clean Water Act affected your personal life?

It seems obvious, but cleaner drinking and recreational waters! In addition, the Clean Water Act was a catalyst for the work that fuels my passion for protecting human health and the environment.

#### What do you see as the greatest impact of the Clean Water Act on our world today?

The infrastructure built as part of the Construction Grants Program and its successor – the Clean Water State Revolving Fund (CWSRF).

#### What do you think will be the greatest challenge for the clean water sector over the next 50 years?

The greatest challenge will be funding and replacing the aging infrastructure whose original construction was funded as part of the construction grants program at the onset of the CWA in the 1970s.



Once a popular tourist destination, Onondaga Lake's water quality had been degraded by sewage and industrial discharges. Today, the lake's improved water quality has brought back recreational boaters. *istockphoto.com, pictus photography*



## Interview: Glenn H. Absolom Jr.



*“Our greatest challenge over the next 50 years will be keeping up with all the new changes necessary to keep the planet healthy and finding the new people to cultivate the interest in working in this profession.”*

As the chief treatment plant supervisor for Erie County’s Division of Sewerage Management, Glenn H. Absolom Jr. is responsible for all aspects of the operation and maintenance of the division’s field operations, which includes six advanced water resource recovery facilities within seven sewer districts, over 100 pumping stations, over 1,100 miles of sewer lines, 500 grinder pumping units, five overflow facilities and managing approximately 180 staff. His main function is to ensure all the facilities are meeting permit requirements, the Clean Water Act, and any other regulation/law that applies to the county’s facilities.

Glenn is a 50-year member of NYWEA, member of Select Society of Sewage Sludge Shovelers, and a Uhl T. Mann Award recipient.

In his spare time, Glenn enjoys race car driving, scuba diving, motorcycle riding and outdoor activities. He also delights in his role as grandfather to 11 grandchildren.

### My Background in the Water Industry

*Do you have any special education or licensing that has been important in your career? If so, what are they, and how have they affected your career?*

I have a college degree in chemical engineering from Clarkson College, which has been invaluable. The disciplines that one learns from this degree cover all aspects needed in this profession. I am a certified 4A wastewater treatment plant operator, a certified collections systems operator, and a certified landfill operator. I hold the title of Laboratory Technical Director for a New York State Department of Health Environmental Laboratory Approval Program (ELAP) certified laboratory that performs the testing for all our treatment facilities as well as our pretreatment program. I have been involved in all aspects of this profession. My education has made it possible for me to do successfully what I do.

*What sparked your interest in the water sector?*

While at college during my first year I found out that chemical engineers typically work in factories, not something I really wanted to do. So, I took all the environmental courses I could. I enjoy the outdoors, and this was the time that engineering schools were just starting to have environmental engineering classes and degrees. When I first enrolled in college, those programs didn’t exist as a separate degree. I particularly liked the thought of cleaning up the water.

*How has your career evolved over time?*

It has gotten more complicated and more complex. Every year more and more restrictions and prohibited substances must be removed to maintain cleaner water. The challenge is figuring out the most cost-effective means of doing so. A slow process, but we’re getting the job done. Not as quickly as some people might like, but

it is getting done. And being an engineer and operator, I have a better understanding of what can actually be done and what cannot. As our science gets better, we’re also learning more as to what is actually harmful to us and at what levels.

*How has your career in the clean water sector affected your family?*

By working in the clean water industry, created in part by the Clean Water Act, I have been able to work and watch my family grow. And by doing what I do, they can enjoy a much cleaner environment than what there was when I was growing up. Back then, there were water bodies you could not swim in, rivers that were catching on fire, lakes considered as dead. It is much, much better today than back then.

### My Reflections on the Clean Water Act

*When did you first become aware of the Clean Water Act?*

At the time I graduated and got my first job in the field, I was tasked with running an old primary treatment plant while a new secondary plant was being built to service the City of Plattsburgh. The funds for the facility came from the Clean Water Act. I believe it was also discussed with other regulations in a number of my college classes before it became law. In fact, I remember very distinctly sitting in my environmental engineering class while a rally was going on outside our building for the first Earth Day. A long discussion ensued about the merits of the CWA.

*How has the Clean Water Act affected your personal life?*

The CWA has provided the impetus and justification for my career. And it has allowed my children to grow up in an area that has cleaner water and beaches so they can enjoy the outdoors better.

*What do you see as the greatest impact of the Clean Water Act on our world today?*

Just what the CWA’s title says, cleaner water. Cleaner water makes for a better world. A much better and lasting legacy for our children.

*What do you think will be the greatest challenge for the clean water sector over the next 50 years?*

Keeping up with all the new changes necessary to keep the planet healthy. And finding the new people to cultivate the interest in working in this profession.



Lake Erie is the ultimate receiving water for the Erie County treatment facilities.

istockphoto.com, nikonphotog



# TOTAL WATER MANAGEMENT SOLUTIONS

## ADVANCED TREATMENT FOR CHANGING DEMANDS

Aqua-Aerobic Systems, Inc. provides municipal and industrial customers with advanced water and wastewater treatment technologies that easily adapt to changing demands. From primary filtration to enhanced nutrient removal, stormwater treatment, water reuse and disinfection, Aqua-Aerobic has proven solutions that offer the lowest cost of ownership with life-time customer service.

**New Plant Construction | Existing Plant Upgrades and Retrofits | Plant Expansions**



**AQUA-AEROBIC SYSTEMS, INC.**  
A Metawater Company

[www.aqua-aerobic.com](http://www.aqua-aerobic.com) | 815-654-2501

Proudly Represented By:

## GP Jager Inc.

Buffalo, NY Office | **Dave Boshart**  
105 Bristol Road | Fayetteville, NY 13066  
p 315.256.3071 | e [dboshart@jagerinc.com](mailto:dboshart@jagerinc.com)  
[www.jagerinc.com](http://www.jagerinc.com)

Corporate Office  
PO Box 50 | Boonton, NJ 07005  
p 973.750.1180 | e [gjager@jagerinc.com](mailto:gjager@jagerinc.com)  
[www.jagerinc.com](http://www.jagerinc.com)

Syracuse, NY Office | **Dave Boshart**  
105 Bristol Road | Fayetteville, NY 13066  
p 315.256.3071 | e [dboshart@jagerinc.com](mailto:dboshart@jagerinc.com)  
[www.jagerinc.com](http://www.jagerinc.com)



# Leveraging the Next Moment for Water: Building on 50 Years of the CWA

by Lisa F. Garcia

This year we mark the 50th anniversary of the Clean Water Act, and while the environmental benefits that have resulted from this historical legislation cannot be overstated, we are embarking on a new chapter in the story of water that will ensure environmental justice and equity can finally be realized for all, regardless of race, income and geography. I truly believe this is water's moment, and that is in large part due to the Biden-Harris administration's commitments and the Bipartisan Infrastructure Law or BIL.

BIL is a historic investment in the health and safety of communities, many of which have borne a disproportionate environmental burden for over a century. BIL will provide the U.S. Environmental Protection Agency (EPA) with a groundbreaking, once-in-a-generation infusion of \$60 billion in overall funding! And \$50 billion will go directly to the EPA's Office of Water. These funds will go directly toward programs that have a track record of success, including \$11.7 billion to allocate through the Clean Water State Revolving Funds (CWSRF) over the next five years for a range of uses, and another \$1 billion of CWSRF funds to address emerging contaminants, such as PFOS and PFOA. For fiscal year 2022 alone, New York state will receive \$428 million in BIL funding.

Our CWSRF have been an incredible asset to communities for decades. From 1988 to 2020, they have allocated \$145.4 billion for projects, totaling 42,842 assistance agreements for investments in clean water across the country from wastewater treatment plant construction and upgrades to green infrastructure and water conservation projects. Now, with the additional BIL funding, more CWSRF-eligible projects can be funded. From traditional infrastructure to green infrastructure, from silviculture to land conservation, the possibilities are wide-ranging.

Before becoming regional administrator for EPA Region 2 in 2021, I was a community lawyer representing grassroots groups, and as a public servant at all levels of government. Under the Obama administration, I was proud to lead the EPA's environmental justice work, serving as associate administrator and senior adviser to EPA Administrators Lisa P. Jackson and Gina McCarthy, in which I helped create and implement Plan EJ 2014, the first strategic plan for weaving Environmental Justice into all of EPA's work. However, in my 20-year career as an environmental lawyer, I have never witnessed a moment like this.

On Jan. 27, 2021, President Biden signed an executive order, Tackling the Climate Crisis at Home and Abroad, which lays the foundation for the most ambitious environmental justice agenda ever undertaken by an administration. The executive order placed environmental justice and climate action at the center of the federal government's work. The Biden-Harris commitment to water equity is an unprecedented investment that recognizes that for far too long, underserved and overburdened communities have suffered from outdated – and sometimes nonexistent – water infrastructure.

This is a key priority in the BIL funding that will guide its implementation. For example, nearly half of the BIL funding going through the Clean Water and Safe Drinking Water State Revolving Funds must be given as grants and forgivable loans. With these

grants and forgivable loans, we have a mandate to do better than what's been done before. EPA also plans to ensure that 49% of the funding goes to disadvantaged communities. EPA will work with states to review their definitions of disadvantaged communities, review Intended Use Plans (IUPs), and conduct annual reviews that evaluate progress toward this goal. Additionally, EPA will collaborate with state SRF programs to share models, examples, and build state capacity and target the resources to disadvantaged communities.

The BIL total investments will create an estimated 750,000 jobs in construction, operations and maintenance, and other family-supporting careers, at a pivotal moment when more than one-third of the water workforce will retire in the next five years. As it implements BIL, EPA is committed to working with states, Indian Nations and territories – as well as labor organizations, employers and educators – to renew America's water workforce and create good-paying jobs in communities across America.

Right now, we have an opportunity to leverage a moment for water that we have not seen since the Clean Water Act was first enacted 50 years ago. The Biden-Harris commitment to environmental justice and equity through BIL and other initiatives will finally deploy the necessary resources to ensure our children and grandchildren can wake up each day and enjoy clean water. This is an investment not only in physical infrastructure, but in the health, safety and economic future for all, and I am excited about the journey to get there.

---

*Lisa F. Garcia is regional administrator for the U.S. Environmental Protection Agency Region 2, which covers New York, New Jersey, Puerto Rico and the U.S. Virgin Islands as well as eight federally recognized Indian Nations. She may be reached at [garcia.lisa@epa.gov](mailto:garcia.lisa@epa.gov).*



Near the Brooklyn Bridge Park in New York, residents are discovering a revitalized waterfront. *istockphoto.com, Orbon Alija*

## Interview: Virginia Wong



---

*"I believe the effect of climate change will have a significant impact in the clean water sector. These climate stresses, coupling with aging infrastructure, will be the greatest challenge."*

---

Virginia Wong is currently serving as the chief of the Clean Water Regulatory Branch in the Water Division of U.S. Environmental Protection Agency, Region 2. Her branch develops and implements the point source control program, total maximum daily loads (TMDLs) and water quality standards program under the Clean Water Act, and ocean disposal under the Marine Protection, Research and Sanctuaries Act.

In her career over the years, one thing Virginia is most proud of is opening the communication channel to connect with the public communities and municipalities. Earning their trust, being 'the someone' they can approach and ask for assistance, has been one of the highlights of her career.

### My Background in the Water Industry

*Do you have any special education or licensing that has been important in your career? If so, what are they, and how have they affected your career?*

I have a Bachelor of Engineering degree in chemical engineering. My education background played an important role in my career. While my career relied heavily on job training, knowledge gain and experience, my education provided me with the fundamental knowledge, analytical and problem-solving skill sets that are essential working in the water sector.

*What sparked your interest in the water sector?*

I started my professional career in the water sector soon after graduation from college. More than 30 years later, this is still my place to be. What sparked my interest initially was the diversity, the different kind of work within the water sector, and then it's the people who were in it. As a young engineer, I admired their passions and commitments, and quickly realized what I do could contribute to a better environment. In the water sector, there is always something new to learn, experience and explore. Over the years, I have had many opportunities working with other professionals in different fields and medias; my interest remains in the water sector.

*How has your career evolved over time?*

I started in a small role in the water sector, learned the job, found my interests, expanded on what I did well, made connections, built relationships, led by examples, created a positive work culture for others to follow – that's where I'm now at the management level.

*How has your career in the clean water sector affected your family?*

My career in the clean water sector certainly has a positive influence on my family from my talking about work and perspectives in protecting the environment. They learn about the "dos" and "don't dos," disasters, successes, etc. They are my captive audience!

### My Reflections on the Clean Water Act

*When did you first become aware of the Clean Water Act?*

I first became aware of the Clean Water Act when I was a young teenager studying about the environment in school, in particular, about pollution control. I felt the connection but did not have the slightest idea then that I would have a role carrying out its goals.

*How has the Clean Water Act affected your personal life?*

The goal of the Clean Water Act is about pollution reduction, to achieve water quality in our waterways so we have fishable, swimmable water for everyone to enjoy. I'm thankful simply because we have clean water. It's been 50 years since the CWA was established to protect public health and the environment. I think we have accomplished a lot; obviously we need to do more to preserve and continue the mission for the next generations to come. I cannot imagine what our lives would be without the CWA.

*What do you see as the greatest impact of the Clean Water Act on our world today?*

I believe the establishment of the CWA is one giant success story. It connects everyone to protect the nation's waters. It is a model for others to follow.

*What do you think will be the greatest challenge for the clean water sector over the next 50 years?*

I believe the effect of climate change will have a significant impact in the clean water sector – bigger storms, floods, drought and sea level rise. These climate stresses, coupling with aging infrastructure, will be the greatest challenge. We are beginning to see the effect in some areas. The environment is changing because of it and will keep on evolving. We need to be proactive to preserve what we have and plan for the future. It will take many years to rebuild and secure our water infrastructure to make it more sustainable. Now is the opportune moment to act with the recently enacted Bipartisan Infrastructure Law, a historic investment to our nation's infrastructure.



Colorful stone streets and drainage system in Old San Juan, Puerto Rico, part of USEPA Region 2.

*istockphoto.com, Joel Carillet*





---

## Get a New Unit for the Cost of a Repair

Facing an expensive repair or replacement bill on your current grinder? We'll match that quote and give you a brand new XRipper grinder that plugs into your existing panel.  
> *Contact Koester for details.*

# NOT THE SAME OLD TWIN-SHAFT GRINDER

---

Robust Solids Reduction.  
Easy, Low-Cost Maintenance.

## Vogelsang XRipper Twin-Shaft Grinder

- Monolithic Ripper Rotors
- Wider High-Torque Cutting System
- Easy Onsite Maintenance
- Drop-In Replacement Design
- Optimized for Wipes & Rags
- 2-Year Warranty, Parts & Labor, Including Wear Parts

*Vogelsang Distribution, Sales & Support*



Upstate New York  
(315) 697-3800

NYC, Long Island, New Jersey  
(973) 492-0400

sales@koesterassociates.com  
service@koesterassociates.com  
parts@koesterassociates.com



sales@vogelsangusa.com  
(330) 296-3820  
vogelsang.info

# Coastal Storm Splits Island and Brings Communities Together

by JoAnne Castagna

In 1992, Joseph Vietri, then a coastal engineer with the U.S. Army Corps of Engineers, New York District, was walking with a colleague and a coastal researcher around Westhampton Beach, a barrier island located on the south shore of Long Island, New York.

A barrier island is a long narrow island that lies parallel and close to the mainland, protecting the mainland from erosion and storms.

Vietri said, “The island was recently beaten up by a nor’easter. We were walking in ankle-deep water and started to wade into peat that must have broken off of a wetland.”

Peat is decomposed organic matter that acts like a binding agent. It keeps wetland soil together. Once broken free, erosion can accelerate dramatically.

He continued, “We looked at each other and said, ‘If something is not done immediately, this whole island is going to unravel within a week.’”

In a matter of days this is exactly what happened. Water from the ocean side of the barrier island washed over and into the bay side, splitting the barrier island, creating a breach or gap that quickly turned into a full-blown major inlet that swallowed up dozens and dozens of houses.



Aerial view of the 1992 Westhampton Beach breach.

USACE

“We thought we could never allow this to happen again. We can’t allow time to go by and not take collective action to fix this because at the end of the day it’s just going to cost us a lot of money, anguish, personal loss and tragedy to the people in the area,” said Vietri, who today is the director of the Coastal Storm Risk Management National Center of Expertise, North Atlantic Division, U.S. Army Corps of Engineers.

To prevent this from happening again, the Army Corps in collaboration with numerous agencies and communities revitalized a stalled project – The Fire Island Inlet to Montauk Point, New York, Coastal Storm Risk Management Project.

The comprehensive project will manage the risks of coastal storm damage and sea level rise for barrier

islands and back bay communities on Long Island’s south shore while at the same time preserve natural resources. After years of researching for the best measures for doing this, the project has begun.

## Project Location

Long Island extends out east into the Atlantic Ocean from New York City. Along the south shore of the island there are barrier island chains from Long Beach to Shinnecock Inlet.

In between Long Island’s mainland and the barrier islands is bay water that includes the Great South Bay, Moriches Bay and Shinnecock Bay.

The project encompasses 83 miles of the south shore of the island, from Fire Island Inlet to Montauk Point, and extends inland 2 miles.

The area covers the Suffolk County portion of the island that includes the towns of Babylon, Islip, Brookhaven, Southampton and East Hampton, 12 incorporated villages, the Fire Island National Seashore, and the Poospatuck and Shinnecock Indian reservations.

Over the years, the south shore of Long Island has become very populated. Today, there are approximately 150,000 residents in the project area. The region also receives a large influx of seasonal beachgoers and visitors annually.

The south shore is also very developed. Within the project area, there are 46,000 buildings that include 42,600 homes and 3,000 businesses, and critical infrastructures including 60 schools, two hospitals, and 21 firehouses and police stations.

In the past century, especially in the last 20 years, Long Island’s developed coast has experienced storm damages. Elevated tides and waves from these storms caused extensive flooding and sand erosion, leaving communities and shore life vulnerable.

Most recently was Hurricane Sandy in 2012. Storm surge from Sandy eroded 40% of the beach sediment from some areas and created three breaches in the barrier islands, leaving the area vulnerable to significant damages.

Anthony Ciorra, project manager, New York District, U.S. Army Corps of Engineers remembers Sandy, “What stands out in my mind was the devastation I witnessed in the south shore



Project Area Map of The Fire Island Inlet to Montauk Point, New York, Coastal Storm Risk Management Project.

USACE



communities in the aftermath of Sandy. Just three days after the storm passed, I boarded a New York State Police helicopter with colleagues and the New York State Department of Environmental Conservation to inspect the damage caused by the storm surge. It was a glaring and harsh reminder that these heavily developed and densely populated communities are at high risk to continued damages due to coastal storm events.”

Over the years, the Army Corps would perform small projects to stabilize vulnerable areas, but it was realized – especially with Sandy – that a more comprehensive long-term project was needed for the entire region.

The project would become The Fire Island Inlet to Montauk Point, New York, Coastal Storm Risk Management Project.

### Project Description

The project was created by the Army Corps in collaboration with numerous agencies and communities that include the New York State Department of Environmental Conservation, New York State Department of State, Department of the Interior, National Park Service, U.S. Fish & Wildlife Service, U.S. Geological Service, Suffolk County Government, the townships of Islip, Babylon, Brookhaven, Southampton and East Hampton, 12 incorporated villages and the general public.

The project includes several measures to manage the risks of coastal storm damage and sea level rise. They include a breach response plan, home elevations, floodproofing and acquisitions, coastal restoration, preserving natural resources, and adapting to sea level rise.

### Breach Response Plan

After a storm or tidal surge, if a breach is created on a barrier island, it will be closed immediately.

A breach is an opening or gap that develops in a barrier island, allowing the ocean water and bay water to meet, which can make an area vulnerable to storm damages.

Closing the breach will be accomplished by dredging sand from federal navigation channels and placing the sand on the barrier island to build the island back up.

### Home Elevations, Floodproofing and Acquisitions

Homeowners will be able to decide if they want their homes elevated or floodproofed by the Army Corps.

The homes will be elevated so that the lowest floor is above the flood level. Approximately 4,000 homes will be elevated.

“This is the largest number of structures that have ever been considered for a raising on an Army Corps project,” said Mark



Photos show sand being pumped through pipelines onto Gilgo Beach, one of several beaches receiving sand replenishment with The Fire Island Inlet to Montauk Point, New York, Coastal Storm Risk Management Project.

*James D'Ambrosio, Public Affairs*

*continued on page 54*

*continued from page 53*

Lulka, project manager, New York District, U.S. Army Corps of Engineers, who oversees the home elevations, floodproofing and home acquisition aspect of this project and was the project manager for the entire project a few years ago.

Floodproofing is a technique used to reduce damages to homes that may be affected by floodwaters. Approximately 650 homes will be floodproofed. One method the Army Corps is using to floodproof homes is constructing ringwalls. Ringwalls are walled structures that encircle homes to hold back floodwaters. Ninety-three homes will be provided with ringwalls.

### **Coastal Restoration**

Over the years, much of the project's coastal area has eroded, removing the natural beachfront and dunes that provide coastal protection to the communities from storm surge.

To restore these beaches, sand will be placed back on them.

Approximately 4.2 million cubic yards of sand will be dredged from several federal channels including Fire Island Inlet and shoals, and Moriches and Shinnecock inlets and shoals. This is enough sand to fill 420,000 dump trucks.

Ocean dredges will gather sand from offshore sand borrow areas and pump it through pipelines onto the beach. The sand will be placed onto several beaches including Gilgo Beach, Robert Moses State Park, and Tiana and Montauk beaches.

The sand can be placed in different areas of a beach depending on the project design. Sand can be placed to increase the height and width of a berm of the beach. The berm is a flat area of the beach between the landward shore and the ocean where beachgoers typically sunbathe.

The sand can also be used to create sand dunes. Dunes provide a natural barrier to the destructive forces of wind and waves. Dunes are areas of the beach where sand is elevated several feet to act as a buffer between the waves and stormwater levels and the structures landward on the beach. Dunes will be built and planted with dune grass.

A sand-replenished beach with dunes can prevent elevated ocean waters, caused by storms, from inundating coastal communities. According to Ciorra, "Post-Hurricane Sandy analysis showed that beaches that had previously received sand placement and dune construction sustained less damages and saved an estimated \$1.3 billion in avoided damages on New York and New Jersey shorelines."

Lynn Bocamazo agrees with Ciorra. Bocamazo is a retired former senior coastal engineer and chief of the New York District's Engineering Division's Hurricane Sandy Branch. She added, "Immediately after Sandy, I visited the Fire Island to Montauk Point – Westhampton Interim Beach Nourishment Project on Long Island, New York. This is part of today's Fire Island Inlet to Montauk Point, New York, Coastal Storm Risk Management Project."

She continued, "I witnessed how the high dunes created by the Army Corps resulted in an estimated \$107 million in avoided damages." Bocamazo was involved with the project for 27 years.

To help these beaches retain sand in one location, a feeder beach will be constructed. A feeder beach is a beach that has been stockpiled with extra sand. This extra sand can naturally drift to other nearby beaches that may be losing sand. A feeder beach will be created along 6,000 feet of shoreline at Montauk Beach.

To help facilitate the movement of this sand and restore the natural cross barrier island transport of sand in the region, two

unnecessary groins will be removed at Fire Island's Ocean Beach Village. Groins, also known as jetties, are structures that extend out from the shore into the water, interrupting water flow and limiting the movement of sand, to slow down beach erosion. Groins can be made of large boulders, concrete, steel or wood.

### **Preserving Natural Resources**

Not only will the project reduce risks to the public, it will also restore coastal wetland habitats for endangered wildlife.

According to Peter Wepler, chief of the Environmental Analysis Branch, New York District, U.S. Army Corps of Engineers, "The project includes features that will be beneficial to endangered species in the area, such as the Piping Plover, Least Tern, and various protected beach plant life."

As part of the coastal restoration aspect of the project, sand will be placed on 12 barrier islands. The sand will be placed with native vegetation to create nesting and foraging habitats for these species. In addition, this sand placement will also help to restore the natural cross barrier island transport of sand.

"Placing the sand in these areas augments resiliency and enhances the overall barrier islands' natural system coastal processes," said Wepler who started working on this project in the early 1990s as a new biologist.

### **Adapting to Sea Level Rise**

Climate change is causing sea levels to rise and because of this the project may have to adapt to these changing conditions overtime. The Army Corps will be monitoring sea level rise on a regular basis and make adjustments to the project.

Wepler said, "Based on our monitoring of sea level rise, this could mean over time increasing the volume of sand we place on beaches, increasing the height of berms and dunes to account for observed increased in sea level rise."

Vietri added, "It's predicted that future sea level rise could increase anywhere between one to 6 feet over the next 100 years, resulting in more frequent and severe storm damages."

*continued on page 57*



**New York District Commander Col. Matthew Luzzatto meets with the project team managing the sand placement on Gilgo Beach, one of several beaches receiving sand replenishment with the Fire Island Inlet to Montauk Point, New York, Coastal Storm Risk Management Project.**

*James D'Ambrosio, Public Affairs.*





## A OneWater future, today.

At Jacobs, we think differently about water. We view all water as a valuable resource and work with clients to tackle the issues that impact communities: climate, safety, reliability, flooding and scarcity.

By looking at water through a OneWater lens we move beyond traditional silos, bringing an inclusive approach to developing a sustainable and equitable water future for all.

We integrate planning, implementation, and operations to develop local solutions that optimize the global water cycle and maximize synergies across markets.

Let us show you how our OneWater approach provides our clients and communities the foundations they need to flourish and grow.

Brian Gackstatter, PE, Vice President  
860.416.3445 | [brian.gackstatter@jacobs.com](mailto:brian.gackstatter@jacobs.com)

New York City | One Penn Plaza, 54th Floor, Suite 5420, New York, NY 10119  
Syracuse | 499 South Warren Street, Suite 509, Syracuse, NY 13202  
Tarrytown | 303 South Broadway, Suite G20, Tarrytown, NY 10591  
Garden City | 1305 Franklin Avenue, Garden City, NY 11530

Jacobs proudly supports the New York Water Environment Association

Follow us @JacobsConnects | [jacobs.com](http://jacobs.com)



# Jacobs

Challenging today.  
Reinventing tomorrow.



# From New York Harbor to Niagara Falls

Clients of Mott MacDonald are strengthening water and wastewater infrastructure, meeting increased demand, protecting waterways, cutting energy use, reducing carbon emissions, and achieving cost-effective solutions.

**Find out how you can join them.**

**New York City**

1400 Broadway  
New York, NY 10018  
212.532.4111

**Buffalo**

438 Main Street, Suite 300  
Buffalo, NY 14202  
716.854.1181

**Tarrytown**

120 White Plains Road, Suite 140  
Tarrytown, NY 10591  
914.292.1810

[mottmac.com](http://mottmac.com)





### Getting Underway

Recently, the work began on The Fire Island Inlet to Montauk Point, New York, Coastal Storm Risk Management Project. The first phase of work includes dredging sand from Fire Island Inlet and shoals and placing this sand onto Gilgo Beach and Robert Moses State Park.

All work on the project will be performed during times of the year that would not harm wildlife. The entire project is expected to be completed in a decade and all sand placement work will be replenished every few years, beyond the completion of the project.

The Army Corps and its partners are pleased with the measures outlined in the project and are glad it's getting started.

James Tierney, deputy commissioner for water resources, New York State Department of Environmental Conservation said, "New York State is proud to partner with the experts at the U.S. Army Corps of Engineers on this critical initiative. The project takes a holistic approach to increasing coastal resiliency while enhancing aquatic habitat, recreational resources and community aesthetics. In addition, the project sets the key elements of a resiliency framework that will be completed by technical experts in close collaboration with the involved communities."

Bocamazo said, "To me the most interesting aspect of this project is the multiple agencies, jurisdictions and groups involved. Much coordination was needed to get to the final plan. All of the parties had to agree on how to communicate, cooperate, agree to disagree and move on, determine the level of decision authority, and all the while make progress in the project. With so many involved partners, coming together over so many years, the project getting started is a testament to persistence and patience, and always keeping the goal of risk management for the population of Long Island in mind."

Suzana Rice, whose took over for Bocamazo as senior coastal engineer, New York District, U.S. Army Corps of Engineers said, "My mentor, Lynn Bocamazo, was very involved with the project

since the beginning and she has transferred her knowledge to me. This project has been years in the making! So many engineers, scientists, and modelers have worked on it and it's great being a part of the team making it come to life."

Weppler, like Vietri, sees the 1992 Westhampton Beach breach as a pivotal time for the project. He remembers what the Army Corps did following the breach and says it was sort of a template for what would become The Fire Island Inlet to Montauk Point, New York, Coastal Storm Risk Management Project.

"This breach created a new inlet that quickly grew progressively wider to about a quarter mile. Eighty houses were under water and many others heavily damaged. Some homes became isolated because the new inlet had cut through the only access road," said Weppler.

"The Army Corps in cooperation with the community, repaired the breach, restored the beach and dune system, and created a habitat for endangered wildlife."

Vietri who lives on one of the barrier islands added, "This project will provide layers of protection against storm surge and sea level rise while maintaining and enhancing natural resources. It takes into account the ocean front, back-bay communities, barrier islands, inlets and estuaries in a way that is a collaborative effort. It is unique."

*JoAnne Castagna, Ed.D. is a public affairs specialist and writer for the U.S. Army Corps of Engineers, New York District. She can be reached at joanne.castagna@usace.army.mil.*



# THE EXPERIENCE YOU NEED, THE INTEGRITY YOU DESERVE

Choose J. Andrew Lange, Inc to solve your water and wastewater issues. Since 1968, we've provided customers with outstanding customer service and technical expertise

## LET'S WORK TOGETHER!

315.437.2300 | [info@jalangeinc.com](mailto:info@jalangeinc.com)  
Visit us at [jalangeinc.com](http://jalangeinc.com)  
6010 Drott Drive, E. Syracuse, NY



# Crawl to NOLA: The Story of My Alligator Collection

by Robert E. Adamski

The “Crawl to NOLA” is the story of my alligator collection and its journey to the Great American Alligator Museum in New Orleans.

The journey began when I became Chief of the Division of Sewer Maintenance at the New York City Department of Environmental Protection (then the Department of Water Resources). In familiarizing myself with the office, I found a letter from Commissioner Martin Lang to an inquirer answering the question, “Are there alligators in the sewer?” This letter read like the well-known, “Yes, Virginia, there is a Santa Claus” editorial. I decided to try to become the expert on alligators in the sewer and started collecting articles and alligator replicas.

As I went to various places, “hunting” alligators became a favorite activity. As the collection grew it prepared me for a department contest. As part of “the legend lives” promotion a tee shirt and sweatshirt were developed. A contest was held for where the shirt was worn in the most interesting place. I posed in the tee shirt in front of my budding collection and won (a sweatshirt).



The author posing with his alligator collection and wearing “The Legend Lives” tee shirt as part of a department contest.

Janed Adamski

The collection continued and changed one year in Arizona. On entering a gift shop in Scottsdale, I did my usual inquiry, “do you have any alligators?” The owner said you missed the one in the window. What I missed was a toilet with an alligator’s head sticking out of it by a Mexican artist. While it was very interesting, I decided it would be too awkward to pack and bring home.

It reappeared a little later when we were celebrating Water Week in the Bureau of Wastewater Treatment. We had a competition to see which treatment plant could get the most visitors. When

discussing what we should get the winner, my assistant suggested something with an alligator. I remembered the “gator in the toilet”. After a few phone calls we tracked it down. The owner was willing (and probably glad) to ship it to New York where it became the Director’s Bowl. Other pieces by the artist were added as awards that included a gator in a bathtub and one in SCUBA gear. Each was won by a different treatment plant. When I retired, I collected them and brought them home to prevent them being thrown in the trash.



The sculpture by Mexican artist RAMX60 that became the Director’s Bowl.

Robert Adamski



Sculpture by Tom Otterness on MetroTech Plaza in New York City, which is one Sculptures at the MetroTech Center, Brooklyn, New York.





The albino sewer gator, being held by the author dressed as “Norton,” a character from *The Honeymooners* TV program. Janet Adamski

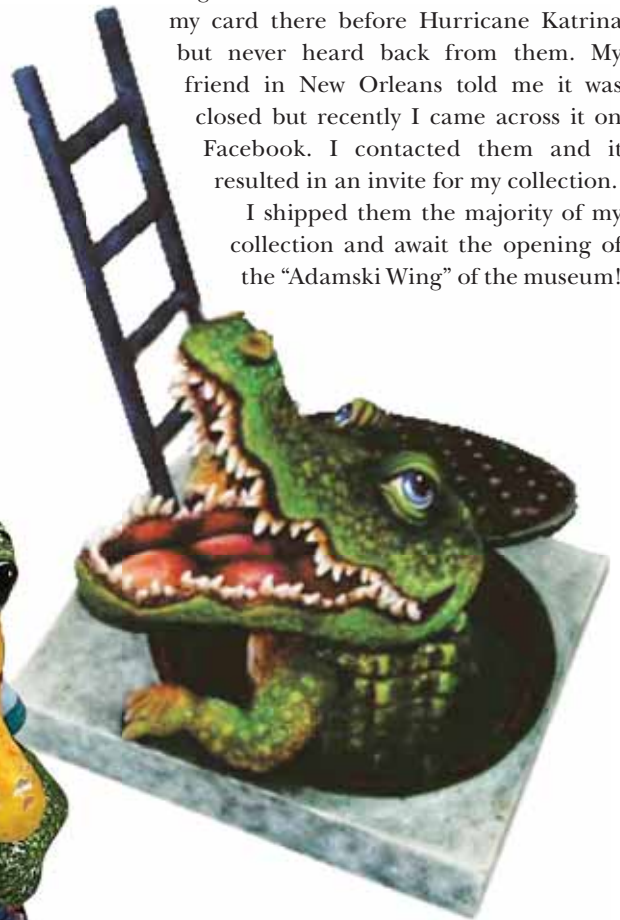
After I retired, NYCDEP finally let me be a spokesperson and asked me to meet a film crew from *Animal Planet*. I arranged to meet them at the Brooklyn Marriott so they could see the “alligator coming out of the manhole” sculpture by Tom Otterness on MetroTech Plaza. In order to be identified by the TV crew, I carried the “albino sewer gator” that we found in a gift shop in Florida (see photo at left).

We proceeded to the Plaza where we were chased by security for not having a permit. We then went to the Red Hook Treatment Plant, where they photographed until their batteries went dead. The result was part of an *Animal Planet* “Animal X” show.

Continuing my quest resulted in finding an art piece of an alligator coming out of a manhole in Palm Springs. Again, it seemed too difficult to bring home but when I decided to use it as my “company logo” I thought I should buy one. I found it on eBay by Carlos and Albert and ordered it.

I kept collecting gators as I found them, and friends started sending them to me. When the collection reached over 400, I had to decide what to do with it (my son said he had a 30-yard dumpster on order). I remembered passing The Great American Alligator Museum on Magazine Street in New Orleans. I had left my card there before Hurricane Katrina but never heard back from them. My friend in New Orleans told me it was closed but recently I came across it on Facebook. I contacted them and it resulted in an invite for my collection.

I shipped them the majority of my collection and await the opening of the “Adamski Wing” of the museum!



Above: An alligator emerges from a maintenance hole in this art piece by Carlos and Albert. Robert Adamski



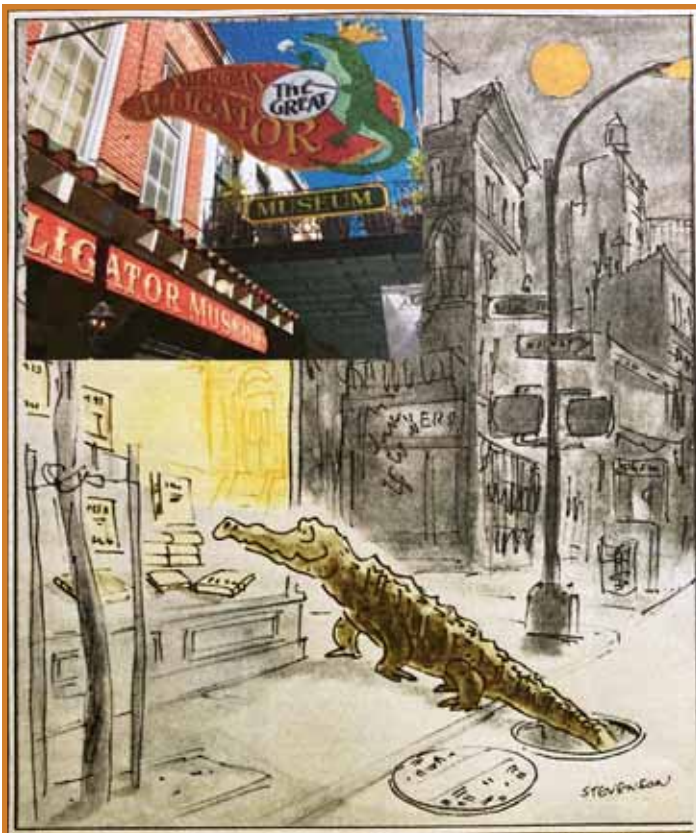
element of the 1995 installation *On the Commons: Recent* Robert Adamski



Left: Pieces broken in shipping (see photo next page) were repaired. Robert Adamski

continued on page 60





“Can’t wait to see the Adamski collection!”

Illustration by James Stevenson, caption by Robert Adamski



Unfortunate shipping mishap left several pieces of the collection in pieces.

Robert Adamski

A few pieces I shipped to Florida to my new winter home. Unfortunately, they didn’t make it in one piece. Unlike all the king’s horses and king’s men who couldn’t put Humpty Dumpty together again, GatorBob was able to.

*Robert E. Adamski, P.E., BCEE, F.SAME, F.ASCE, retired from his work as deputy commissioner for wastewater treatment with the New York City Department of Environmental Protection Division of Sewer Maintenance and may be reached at gatorbob85@gmail.com. Robert can be seen in the Animal Planet-Animal X program on YouTube at <https://youtu.be/5UAZnrZH4C8?t=1164>.*

**Dear Beatrice ...**

Bob Adamski found a letter, dated Dec. 26, 1972, from Commissioner Martin Lang of the NYCDEP to Beatrice Toller to answer her question about alligators in the New York City sewer. The following is an excerpt of that letter:

Beatrice, what an opportunity you have presented me to create an entire underground mythos, translating Lovecraft’s stories about the Monsters of the Cthulhu horrors from bleak New England to the pulsing underground veins of New York City, with slimy Shoggoth slithering through the sewers, in the flickering phosphorescent effulgence of its fungoid dripping fangs.

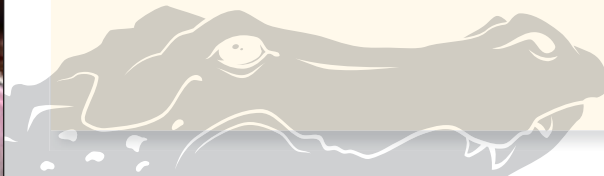
Of course, Coleridge put it better when he described where “Alph, the sacred river, ran through caverns measureless to man, down to a sunless sea.”

Really, Beatrice, the sewers aren’t quite like that. Coleridge may have gone a bit too far when in his “Rime of the Ancient Sewer Maintenance Laborer” he said that “yea, and slimy things did crawl with legs upon the slimy sea.”

Now Charles Dana of the N.Y. Sun sought to assure Virginia – “Yes, there is a Santa Claus.” On a more sunless topic, I would have liked to say, “Yes, Beatrice, there are giant alligators in the sewers, feeding on who knows what nefarious fare, bleached white in their sunless lairs. Yes, Beatrice, I do surreptitiously organize stealthy hunts with my Sewer Maintenance men, up the headwaters of the Cloaca Maxima, with hip boots and rifle. Yes, Beatrice, all those rumbles underground aren’t just the subways. That’s why I gave some lame excuses to the N.Y. Post about sewer maintenance delays. Those occur during the mating season, when the bull gators are roused from their torpor. Only my bravest men, redoubtable John DiMartino and Johnny Flaherty, can face an albino gator in heat. I’m trying to stamp out these subterranean saurians, but I’m losing the battle.”

Commissioner Lang retired as a New York City commissioner in 1977 and died in the year 2000 at the age of 85. His obituary is available at:

<https://www.nytimes.com/2000/09/08/nyregion/martin-lang-85-engineer-and-water-pollution-expert.html>





# Operator Quiz Summer 2022 – Wastewater Characteristics

The following questions are designed for individuals/trainees pursuing certification as they prepare to take the ABC wastewater operator test. It is also designed for existing operators to test their knowledge. Each issue of *Clear Waters* will have more questions from a different process of wastewater treatment. Good luck!

1. Waste discharge requirements issued on a mass basis depend on pollutant \_\_\_\_\_.

- a. Concentration and flow rate.
- b. Concentration.
- c. Mass per liter of water.
- d. Mass per unit volume.

2. What is a sewer use ordinance?

- a. Laws that control discharges of wastewater to the sewer system.
- b. Laws that give authority to POTWs to require industrial pretreatment and to issue permits.
- c. Laws that allow POTWs to conduct inspections of industrial users.
- d. All of the above.

3. The acronym NPDES stands for National \_\_\_\_\_.

- a. Pollutant Discharge Elimination Service.
- b. Pollutant Discharge Elimination System.
- c. Permitted Discharge Elimination System.
- d. Permitting for Discharging Effluent System.

4. Solids loss over the weirs of a secondary clarifier will most likely lead to an increase in \_\_\_\_\_.

- a. Effluent pH.
- b. Skimmer speed.
- c. Chlorine demand.
- d. MLSS concentration.

5. The disinfection efficacy of chlorine \_\_\_\_\_.

- a. Decreases with time.
- b. Increases pH.
- c. Increases with TSS.
- d. Decreases with temperature.

6. What of the following is most used in toxicity tests?

- a. Trout.
- b. Large-mouth bass.
- c. Salmon.
- d. Minnows.

7. In the United States, as part of the national pretreatment program, plants with a design flow of more than \_\_\_\_\_ must have an industrial pretreatment program.

- a. 5 MGD
- b. 15 MGD
- c. 3 MGD
- d. 10 MGD

8. A sample with high \_\_\_\_\_ would have the most accurate result.

- a. Error and bias.
- b. Precision and accuracy.
- c. Dilution.
- d. Historical data.

9. What agency enforces requirements to ensure that industries pre-treat pollutants in their wastes in order to protect local sanitary sewers and wastewater treatment plants?

- a. OSHA
- b. EPA
- c. DOH
- d. DEC

10. In what year was the Federal Water Pollution Control Act amended?

- a. 1948
- b. 1776
- c. 1972
- d. 2022

Answers below.

For those who have questions concerning operator certification requirements and scheduling, please contact Carolyn Steinhauer at 315-422-7811 ext. 4, [carolyn@nywea.org](mailto:carolyn@nywea.org), or visit [www.nywea.org](http://www.nywea.org).



Answers: 1. (a) Concentration and flow rate. 2. (d) All of the above. 3. (b) Pollutant Discharge Elimination System. 4. (c) Chlorine demand. 5. (d) Decreases with temperature. 6. (d) Minnows. 7. (a) 5 MGD. 8. (b) Precision and accuracy. 9. (b) EPA. 10. (c) 1972

# Clear Waters

New York Water Environment Association, Inc.

## Reader Reaction to *Waste* by Catherine Coleman Flowers

by Robert E. Adamski

At the suggestion of Patricia Cerro-Reehil, I read *Waste* by Catherine Coleman Flowers and shared Patricia's shock reading about conditions in Lowndes County, Alabama.

While I understand the need to address conditions like the ones described of failing septic tanks or discharges of sewage to the ground, I would hope it does not divert attention from the greater problems in the low-income countries.

While the U.S. spends billions on safe water by prioritizing the removal of "forever chemicals" and lead from drinking water, there is almost nothing spent to solve the problems described in *Waste*. In the recent "Washington Report" in *Water Finance & Management* magazine (April 2022), it is mentioned that the recent White House fiscal year 2023 budget request would boost U.S. Environmental Protection Agency (USEPA) spending to \$11.9 billion, but not one dollar is for septic tank or wastewater fixes. While \$18 million is for rural, tribal wastewater improvements, unfortunately it is all for Technical Assistance with nothing for construction.

The Montgomery Advertiser (June 2022) reported that the \$2.1 million U.S. Department of Agriculture grant, which was withdrawn from Lowndes County last year, is being returned to install dozens of new, working sewage disposal systems. This sounds like the grant the book described that took eight years for USEPA to fund for planning. It's a start but is a drop in the bucket for the need.

Efforts in this country should go to allocating funds to basic sanitation services before the exotic ones are funded. And efforts for humanitarian assistance should continue to help those with similar problems but no resources to address them.

*Robert E. Adamski, P.E., BCEE, F.SAME, F.ASCE, retired from his work as deputy commissioner for wastewater treatment with the New York City Department of Environmental Protection Division of Sewer Maintenance and may be reached at gatorbob85@gmail.com.*

### References

- WFM Staff. 2022. "FY23 budget proposal would expand drinking water funds, affordability assistance." Published April 4, 2022, on *Water Finance and Management*. <https://waterfm.com/fy23-budget-proposal-would-expand-drinking-water-funds-affordability-assistance/>
- Hitson, Hadley. 2022. "\$2.1 million USDA grant returns to Lowndes County to solve the sewage crisis." Published June 25, 2022, by *Montgomery Advertiser*. <https://www.montgomeryadvertiser.com/story/news/2022/06/25/usda-funds-project-solving-lowndes-countys-sewage-crisis/7704757001/>

ADVERTISER	PAGE
Aqua-Aerobic Systems, Inc. ....	48
C&S Companies ....	23
Cameron Engineering ....	20
Carollo Engineers ....	Back Cover
D&B Engineers and Architects ....	17
EDR ....	19
Elode USA, Inc. ....	13
Emmons Metro LLC ....	25
Franklin Miller ....	27
Gartner Equipment Company, Inc. ....	45
GP Jager Inc. ....	10
HDR ....	Inside Back Cover
Holland Company Inc. ....	23
J. Andrew Lange, Inc. ....	57
Jacobs ....	55
Koester Associates, Inc. ....	Inside Front Cover
Lakeside Equipment Corporation ....	28
Mott MacDonald ....	56
Pumping Services, Inc. (PSI) ....	38
Ramboll ....	33
Rapid Pump & Meter Service Co., Inc. ....	41
Siewert Equipment ....	31
Smith & Loveless Inc. ....	19
Statewide Aquastore, Inc. ....	13
Vogelsang ....	51



## NYWEA's 95th Annual Meeting & Exhibition

Mark Your Calendars for February 6-8, 2023, in person at the NYC Marriott Marquis.

Professional development is the purpose of this conference with the presentation of high quality, scientifically-based technical papers. The conference provides learning, discussion and interaction with other water quality professionals.

Continuing education credits for operators and engineers are offered.



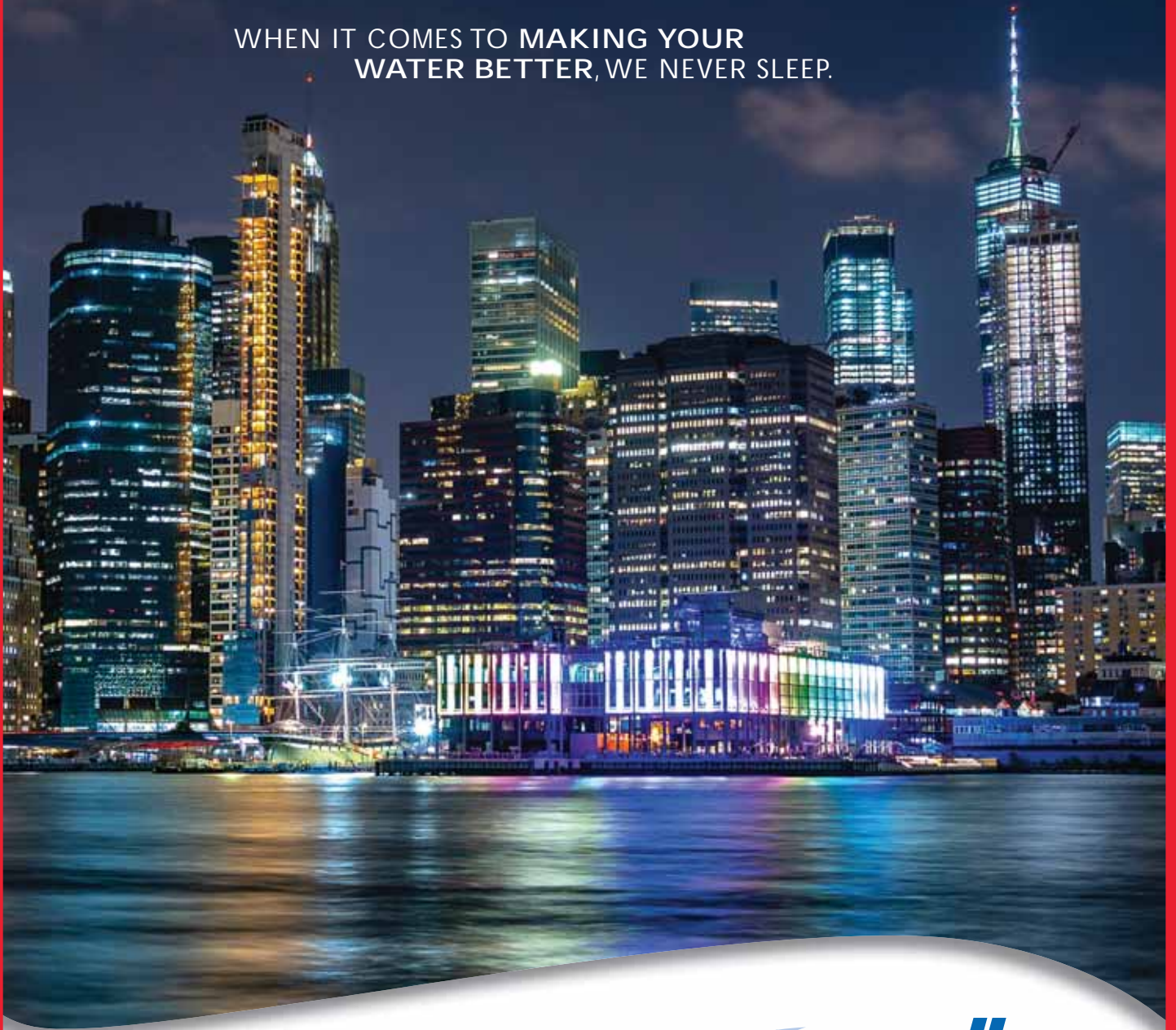
# We provide solutions to your most challenging problems.

At HDR we set our clients up for successful long term program implementation and project success with our integrated Program and Construction Management approach.

New York | New Jersey



WHEN IT COMES TO MAKING YOUR  
WATER BETTER, WE NEVER SLEEP.



**carollo**

*Engineers...Working Wonders With Water®*

**WATER**  
OUR FOCUS  
OUR BUSINESS  
OUR PASSION

Carollo is the country's largest engineering firm dedicated solely to water. We offer a wealth of expertise, experience and resources that only a company with a singular focus on water can deliver. But more than that, we're ready to serve you with a passion and a never-quit work ethic New Yorkers expect and appreciate. How can we help you solve your water problems? Let's find out. Visit [carollo.com](http://carollo.com) or call us at (800) 523-5826.

1.800.523.5826 | [carollo.com](http://carollo.com)